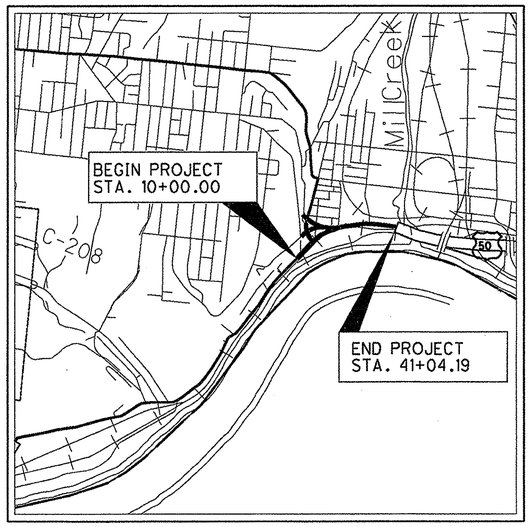

LOCATION MAP

LATITUDE: 39° 6' 9" LONGITUDE: -84° 33' 15"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED

INTERSTATE & DIVIDED HIGHWAY

UNDIVIDED STATE & FEDERAL ROUTES

OTHER ROADS

DESIGN DESIGNATION -- SEE SHEET 2

DESIGN EXCEPTIONS	APPROVAL DATE
SUPERELEVATION	MAY/06/2010

CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION AND ENGINEERING

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

HAM-50-18.79 PART I

CITY OF CINCINNATI
HAMILTON COUNTY

FOR PART 2, SEE HAM-50-19.03

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PROJECT DESCRIPTION

REMOVAL OF THE EXISTING WALDVOGEL MEMORIAL VIADUCT, INCLUDING FOUR RAMPS TO ELBERON AND WARSAW AVENUES. REPLACEMENT OF STRUCTURES FOR THE FOUR RAMPS TO ELBERON AND WARSAW AND REPLACEMENT OF STRUCTURES FOR THE CONNECTION TO THE SIXTH STREET EXPRESSWAY. REMOVAL AND REPLACEMENT OF ROADWAYS FOR THE REQUIRED PORTIONS OF RIVER ROAD, ELBERON AVENUE, WARSAW AVENUE, STATE AVENUE, EVANS STREET, AND MARYLAND AVE.

PROJECT EARTH DISTURBED AREA:	17.00 ACRES
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA:	3.33 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	20.33 ACRES

2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

PRIMA FACIE SPEED LIMIT

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (H) OF THE OHIO REVISED CODE, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

MAINTENANCE OF TRAFFIC

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEETS 72 AND 73.

APPROVED _____
DATE 11/17/10 DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE 1-21-11 DIRECTOR, DEPARTMENT OF TRANSPORTATION

ENGINEERS SEAL:	ENGINEERS SEAL:
FOR STRUCTURES 20' & OVER STATE OF OHIO · PAUL J. LANDRY #E-62193 · REGISTERED PROFESSIONAL ENGINEER SIGNED: _____ DATE: 11-16-10	FOR STRUCTURES 20' & OVER STATE OF OHIO · XUECIAN ALICE CHEN #E-66165 · REGISTERED PROFESSIONAL ENGINEER SIGNED: _____ DATE: 11-16-2010
ENGINEERS SEAL:	ENGINEERS SEAL:
FOR STRUCTURES 20' & OVER STATE OF OHIO · DAVID A. TOMLEY E-65260 · REGISTERED PROFESSIONAL ENGINEER SIGNED: _____ DATE: 11-16-2010	FOR PLANS EXCEPT STRUCTURES 20' & OVER STATE OF OHIO · MARY A. HOSSAIN PE71783 · REGISTERED PROFESSIONAL ENGINEER SIGNED: _____ DATE: 11-16-10

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-929-0988

PLAN PREPARED BY:

PB 100 YEARS

PARSONS BRINCKERHOFF, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202-2720

STANDARD CONSTRUCTION DRAWINGS

BP-1.1	7/28/00	RM-1.1	10/15/10	HL-10.11	4/17/09	HL-60.11	1/19/07	CITY OF CINCINNATI			
BP-2.1	7/18/08	RM-2.1	10/20/06	HL-10.12	10/15/10	HL-60.12	10/19/07	ES-1-1	7/19/04		
BP-2.2	7/18/08	RM-4.2	10/15/10	HL-10.13	10/16/09	HL-60.31	1/19/07	ES-2-1	8/3/04		
BP-6.1	7/28/00	RM-4.3	10/16/09	HL-20.11	1/19/07	CB-1.1	7/15/05	ES-2-2	8/3/04		
BP-8.1	7/18/08	RM-4.4	10/16/09	HL-20.13	10/15/10	CB-1.2	7/15/05	ES-3-1	8/14/04		
BP-4.1	7/16/04	RM-4.6	4/16/10	HL-20.14	10/16/09	CB-2.1	7/15/05	ES-3-2	8/13/04		
BP-5.1	7/28/00	RM-5.1	4/18/03	HL-30.11	10/16/09	CB-2.2	7/15/05	ES-3-3	8/13/04		
BP-7.1	10/15/10	MT-95.31	7/17/09	HL-30.21	1/19/07	CB-2.3	7/15/05	ES-3-4	8/18/04		
F-1.1	4/16/10	MT-95.32	7/17/09	HL-30.22	4/17/09	HW-2.1	7/30/07	ES-3-5	8/20/04		
F-3.3	7/28/00	MT-97.10	10/15/10	HL-30.31	4/17/09	HW-2.2	7/30/07	ES-3-6	8/24/04		
F-3.4	7/28/00	MT-101.60	4/17/09	HL-30.32	4/17/09	I-1.1	7/15/05	ES-3-9	8/30/04		
GR-1.1	7/16/04	MT-101.70	1/16/09	HL-30.33	4/17/09	MH-1.2	1/20/06	ES-3-10A	9/15/04		
GR-2.1	1/16/04	MT-101.90	1/16/09	HL-40.10	1/19/07	MH-1.3	1/20/01	ES-7-3	4/27/05		
GR-3.4	10/16/09	MT-105.10	1/16/09	HL-40.20	1/19/07	DM-1.1	4/21/06	ES-10-1	9/28/04		
GR-4.2	1/19/07	MT-110.10	1/16/09	HL-50.21	1/19/07	DM-1.2	10/21/05	ES-10-3	3/1/05		
GR-5.1	4/16/10	TC-82.10	7/16/10	HL-60.11	1/19/07	DM-1.4	4/21/06				
GR-6.1	4/16/10					I-2.3	7/15/05				

SUPPLEMENTAL SPECIFICATIONS	
800	1/21/11
832	5/05/09
840	10/15/10
842	1/19/07
878	4/18/08
898	10/15/10

SPECIAL PROVISIONS

Floodwall Modification Documentation 11/29/10 (Part 2)

WICK DRAINS 10/19/10

NATIONWIDE PERMIT #14 09/09/10 (PART 2)

FEDERAL PROJECT NO. E060(812)

PID NO. 20082

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

HAM-50-18.79

1/657

HAM - 50 -18.79
110255 PID 20082
Dist 8 5/19/2011

DESIGN DESIGNATION

ROADWAY	US 50 SW OF SR264/STATE AVE.	US 50/SR 264 FROM STATE TO HAM-50-1903	US 50/SR 264 HAM-50-1903 AND EAST	SR 264/STATE AVE. NW OF US 50	SR 264/STATE AVE. S OF 8TH	ELBERON AVE.	WARSAW AVE.	EVANS ST.
CURRENT ADT (2006)	27600		52500	5500	9100	10650	8610	1640
DESIGN YEAR ADT (2026)	28300		53400	5600	9300	10650	8780	1640
DESIGN HOURLY VOLUME (2026)								
DIRECTIONAL DISTRIBUTION	72%		80%	64%	72%	90%	68%	83%
TRUCKS (24 HOURS B&C)	9%		5%	4%	4%	1%	1%	1%
DESIGN SPEED (MPH)	40	40	50	30	30	35	35	35
LEGAL SPEED (MPH)	35	40	50	25	25	30	30	30
FUNCTIONAL CLASSIFICATION	URBAN ARTERIAL	URBAN ARTERIAL	URBAN ARTERIAL	URBAN ARTERIAL	URBAN ARTERIAL	URBAN COLLECTOR	URBAN COLLECTOR	URBAN COLLECTOR

EASTBOUND WARSAW RAMP CURVE WE-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
e MAX = 0.054

EASTBOUND WARSAW RAMP CURVE WE-2
P.I. STA. 82+84.78
Δ = 9° 20′ 56″ (LT)
Dc = 2° 08′ 02″
R = 2,684.87′
T = 219.53′
L = 438.08′
E = 8.96′
e MAX = 0.022

EASTBOUND WARSAW RAMP CURVE WE-3
P.I. STA. 91+93.15
Δ = 9° 05′ 10″ (RT)
Dc = 3° 30′ 00″
R = 1,637.02′
T = 130.08′
L = 259.61′
E = 5.16′
e MAX = N/C

WESTBOUND WARSAW RAMP CURVE WW-1
P.I. STA. 105+88.96
Δ = 92° 25′ 16″ (LT)
Dc = 13° 38′ 31″
R = 420.00′
T = 438.13′
L = 677.48′
E = 186.93′
e MAX = 0.058

SR 264/ STATE AVE. CURVE SA-1
P.I. STA. 46+56.25
Δ = 47° 18′ 34″ (LT)
Dc = 9° 32′ 57″
R = 600.00′
T = 262.82′
L = 495.42′
E = 55.04′
e MAX = N/C

MARYLAND AVE. CURVE MA-1
P.I. STA. 46+36.95
Δ = 25° 57′ 27″ (LT)
Dc = 190° 59′ 09″
R = 30.00′
T = 6.91′
L = 13.59′
E = 0.79′
e MAX = 0.040

(A) - PT Sta. 46+43.62
(B) - PC Sta. 46+30.03
(C) - POT Sta. 45+36.00
(E) - POT Sta. 109+34.06 WB WARSAW = Sta. 99+36.14 WB ELBERON

(1) - S 88° 18′ 16″ E
(2) - S 04° 07′ 00″ W
(3) - N 86° 59′ 53″ E
(4) - N 47° 55′ 08″ E
(5) - N 84° 38′ 20″ E
(6) - N 76° 31′ 42″ E
(7) - S 04° 01′ 52″ W
(8) - N 77° 54′ 59″ E
(9) - N 47° 33′ 36″ E
(10) - N 20° 23′ 11″ E
(11) - S 01° 17′ 43″ E
(12) - S 27° 15′ 10″ E
(13) - S 13° 18′ 34″ W
(14) - S 34° 00′ 00″ E
(15) - N 02° 53′ 25″ E
(16) - N 80° 35′ 53″ E
(17) - N 72° 43′ 45″ E

* STA. 46+77.44 (SR 264/STATE AVE.) = STA. 49+50.99 (ELBERON AVE.)

** STA. 46+73.09 (ELBERON AVE.) = STA. 46+95.76, 14′ LT. (MARYLAND AVE.)

US 50 CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47′ 30″ (RT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 444.98′
L = 857.46′
E = 83.80′
e MAX = N/C

US 50 CURVE US50-2
P.I. STA. 26+09.02
Δ = 3° 48′ 02″ (RT)
Dc = 2° 59′ 31″
R = 1,914.97′
T = 63.53′
L = 127.02′
E = 1.05′
e MAX = N/C

US 50 CURVE US50-3
P.I. STA. 29+30.44
Δ = 2° 10′ 50″ (LT)
Dc = 2° 14′ 52″
R = 2,549.00′
T = 48.51′
L = 97.01′
E = 0.46′
e MAX = N/C

US 50 (EASTBOUND) CURVE 50E-1
P.I. STA. 36+80.74
Δ = 22° 09′ 24″ (RT)
Dc = 2° 35′ 14″
R = 2,214.60′
T = 433.62′
L = 856.40′
E = 42.05′
e MAX = N/C

US 50 (WESTBOUND) CURVE 50W-1
P.I. STA. 36+22.91
Δ = 17° 22′ 31″ (RT)
Dc = 2° 52′ 52″
R = 1,988.60′
T = 303.86′
L = 603.06′
E = 23.08′
e MAX = N/C

US 50 (WESTBOUND) CURVE 50W-2
P.I. STA. 39+88.03
Δ = 03° 26′ 09″ (RT)
Dc = 2° 36′ 23″
R = 2,198.33′
T = 65.93′
L = 131.82′
E = 0.99′
e MAX = N/C

EASTBOUND ELBERON RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24′ 59″ (RT)
Dc = 7° 18′ 11″
R = 784.56′
T = 265.68′
L = 512.35′
E = 43.77′
e MAX = 0.046

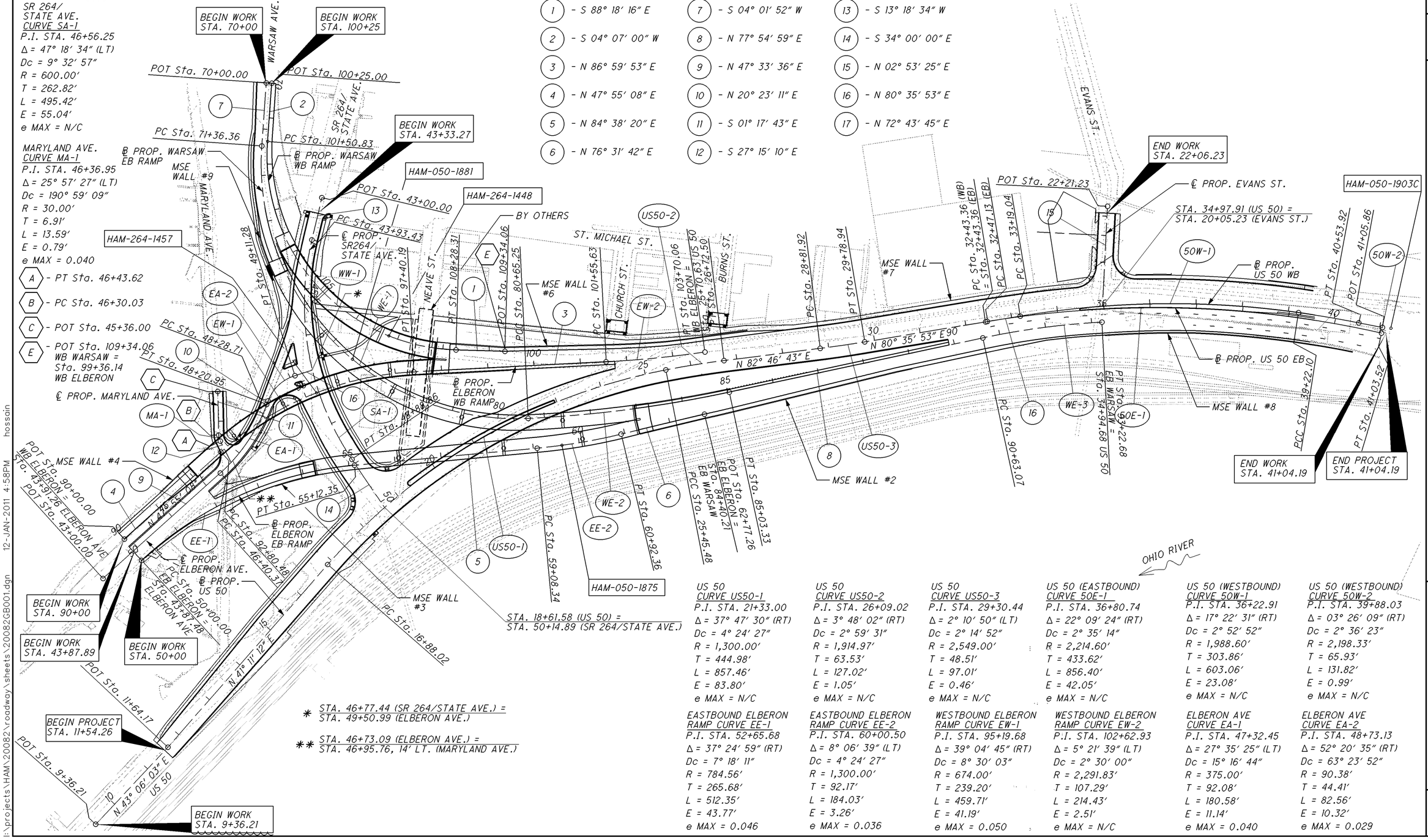
EASTBOUND ELBERON RAMP CURVE EE-2
P.I. STA. 60+00.50
Δ = 8° 06′ 39″ (LT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 92.17′
L = 184.03′
E = 3.26′
e MAX = 0.036

WESTBOUND ELBERON RAMP CURVE EW-1
P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′
e MAX = 0.050

WESTBOUND ELBERON RAMP CURVE EW-2
P.I. STA. 102+62.93
Δ = 5° 21′ 39″ (LT)
Dc = 2° 30′ 00″
R = 2,291.83′
T = 107.29′
L = 214.43′
E = 2.51′
e MAX = N/C

ELBERON AVE CURVE EA-1
P.I. STA. 47+32.45
Δ = 27° 35′ 25″ (LT)
Dc = 15° 16′ 44″
R = 375.00′
T = 92.08′
L = 180.58′
E = 11.14′
e MAX = 0.040

ELBERON AVE CURVE EA-2
P.I. STA. 48+73.13
Δ = 52° 20′ 35″ (RT)
Dc = 63° 23′ 52″
R = 90.38′
T = 44.41′
L = 82.56′
E = 10.32′
e MAX = 0.029



CALCULATED JMR
CHECKED NAH

0 50 100 200 HORIZONTAL SCALE IN FEET

SCHEMATIC PLAN

HAM-50-18.79

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657

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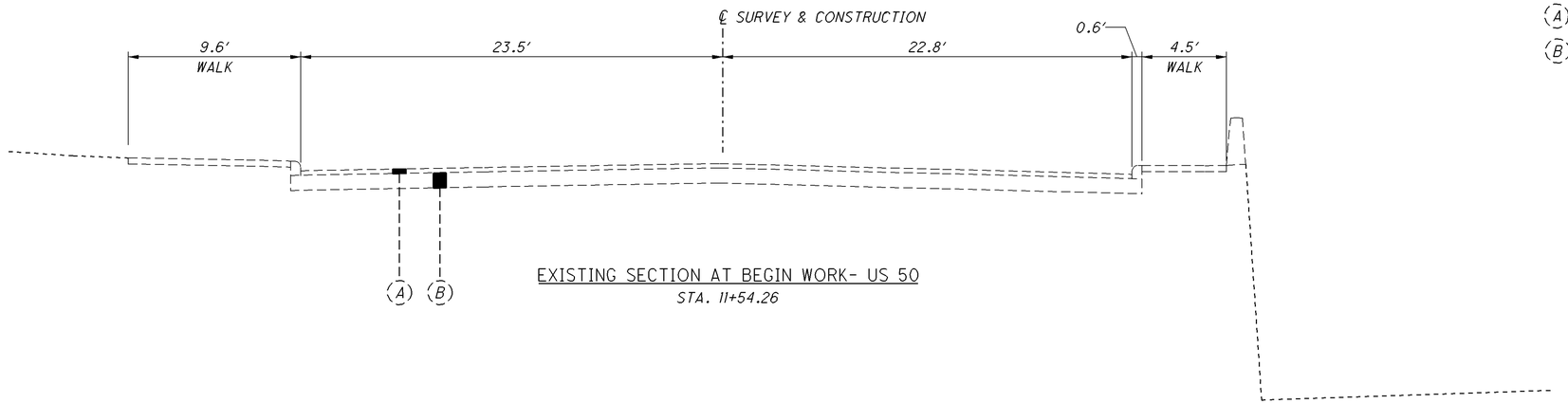
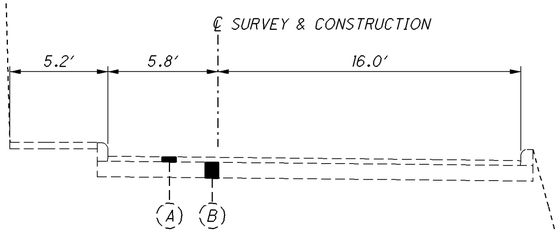
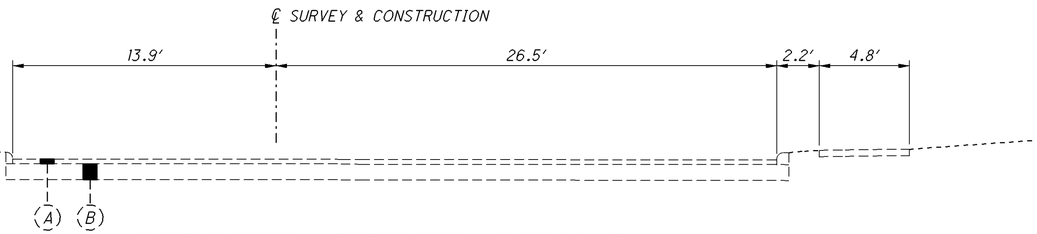


EXISTING SECTION AT BEGIN WORK- US 50
STA. 11+54.26

(A) 3″ ASPHALT SURFACE COURSE
(B) 10″ CONCRETE BASE



EXISTING SECTION AT BEGIN WORK - EB ELBERON RAMP
STA. 90+00.00



EXISTING SECTION AT BEGIN WORK - ELBERON AVE.
STA. 50+00.00

EXISTING TYPICAL SECTIONS

HAM-50-18.79

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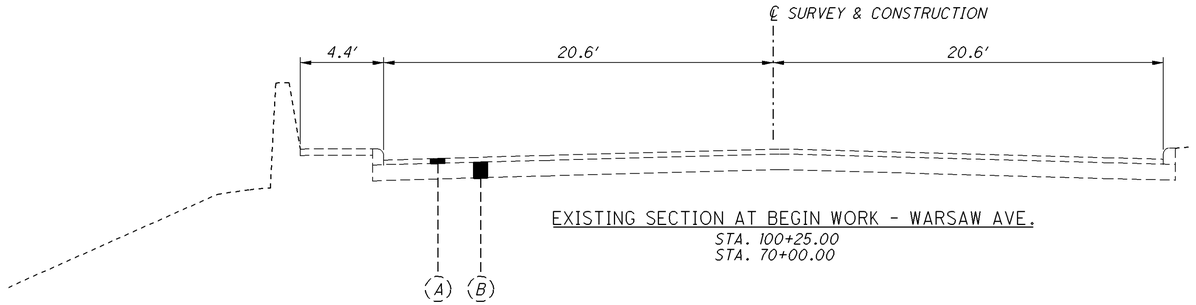
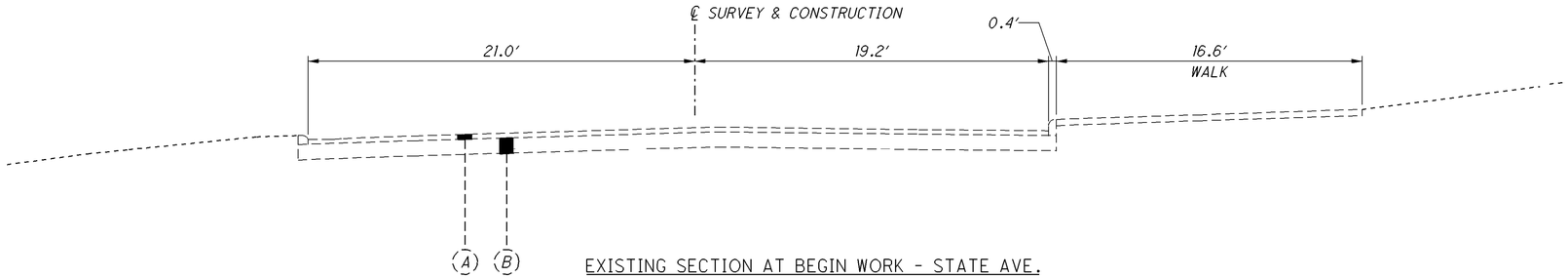


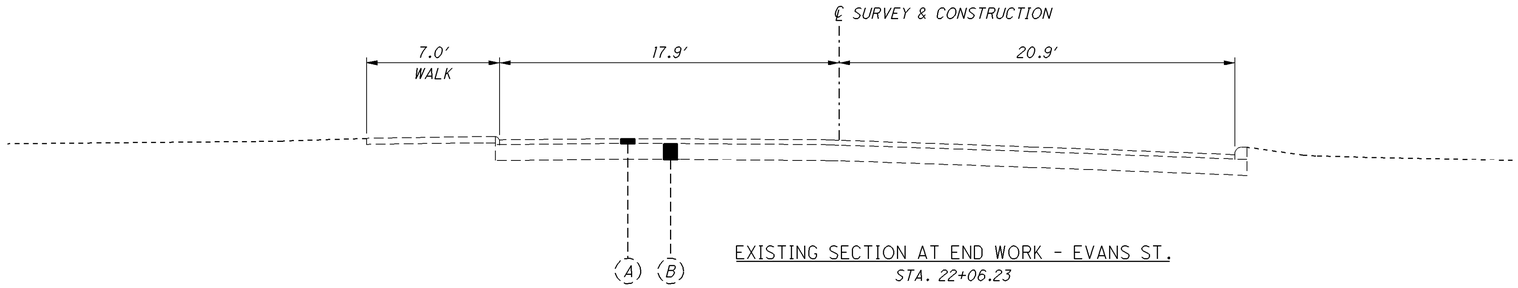
EXISTING SECTION AT BEGIN WORK - WARSAW AVE.
STA. 100+25.00
STA. 70+00.00

(A) 3″ ASPHALT SURFACE COURSE

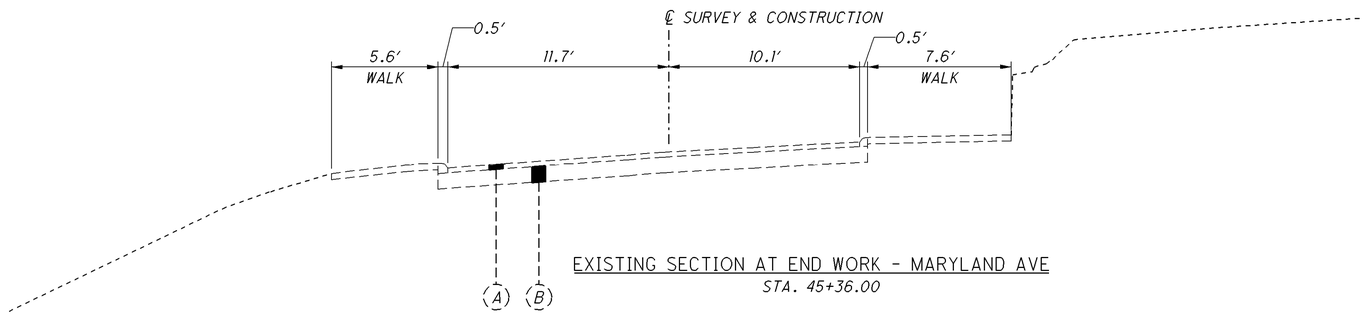
(B) 10″ CONCRETE BASE



EXISTING SECTION AT BEGIN WORK - STATE AVE.
STA. 43+33.27



EXISTING SECTION AT END WORK - EVANS ST.
STA. 22+06.23



EXISTING SECTION AT END WORK - MARYLAND AVE
STA. 45+36.00

EXISTING TYPICAL SECTIONS

HAM-50-18.79

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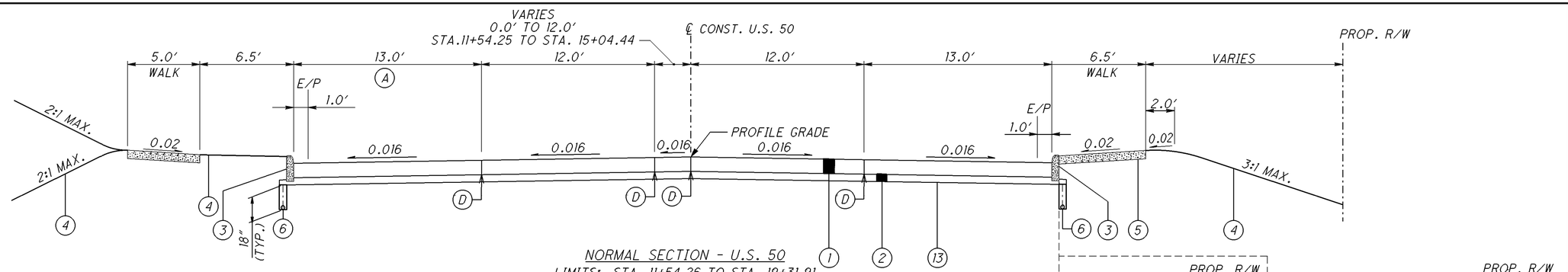
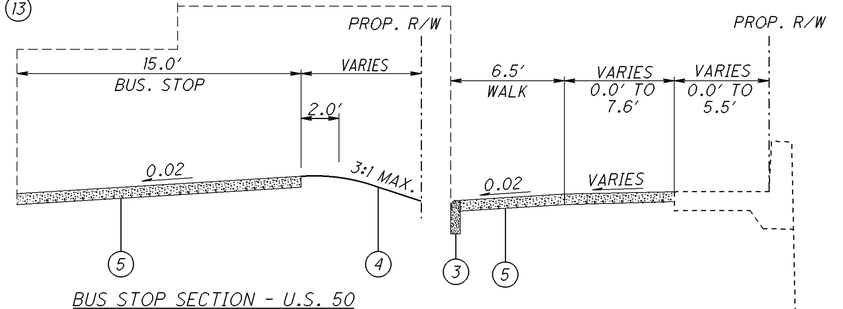
TYPICAL SECTIONS (U.S. 50)



NORMAL SECTION - U.S. 50
LIMITS: STA. 11+54.26 TO STA. 19+31.91



BUS STOP SECTION - U.S. 50
LIMITS: STA. 16+93.19 TO STA. 17+95.68
(VARIES 6.0′ TO 15.0′ STA. 16+93.19 TO STA. 17+19.00)

EX BARRIER SECTION
LIMITS: STA. 11+54.26 TO STA. 15+20.00

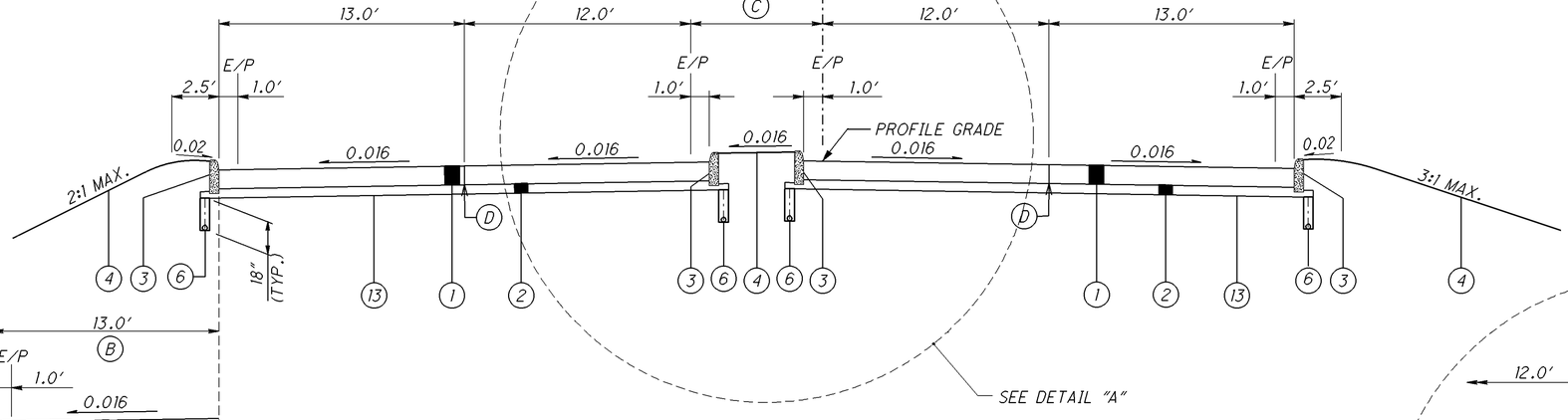
NOTES:

(A) VARIES 11.27′ TO 13.0′ STA. 11+54.26 TO STA. 11+76.57

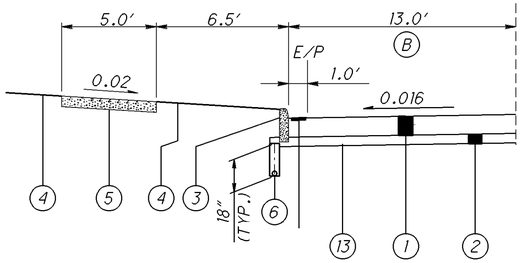
(B) VARIES 13.0′ TO 1.0′ STA. 21+08.52 TO STA. 21+73.30

(C) VARIES 12.0′ TO 3.53′ STA. 18+65.00 TO STA. 24+40.90, END RAISED MEDIAN AT STA. 23+44.92

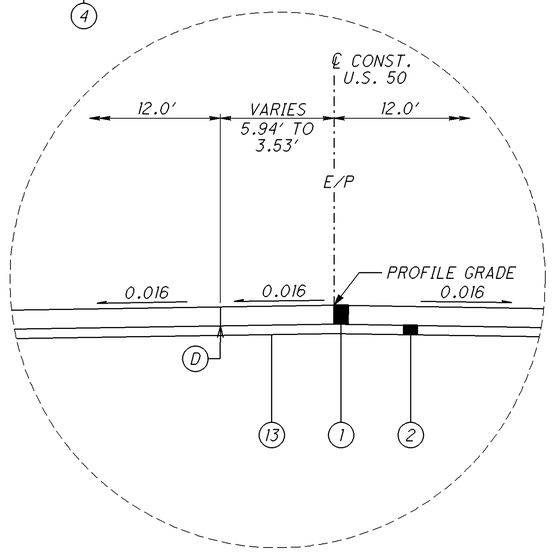
(D) LONGITUDINAL JOINT AS PER BP-2.1



NORMAL SECTION - U.S. 50
LIMITS: STA. 19+31.91 TO STA. 24+40.90



RIGHT TURN LANE - U.S. 50
LIMITS: STA. 19+41.82 TO STA. 21+73.26



DETAIL "A"
LIMITS: STA. 23+44.92 TO STA. 24+40.90

1. ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)
2. ITEM 304 - 6″ AGGREGATE BASE
3. ITEM 609 - CURB, TYPE 6
4. ITEM 659 - SEEDING AND MULCHING
5. ITEM 608 - 5″ CONCRETE WALK
6. ITEM 605 - 6″ BASE PIPE UNDERDRAINS
7. ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
8. ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)
9. ITEM 622 - CONCRETE BARRIER, TYPE C1
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)
11. ITEM 606 - GUARDRAIL, TYPE 5
12. ITEM 622 - CONCRETE BARRIER, TYPE D
13. ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

HAM-50-18.79

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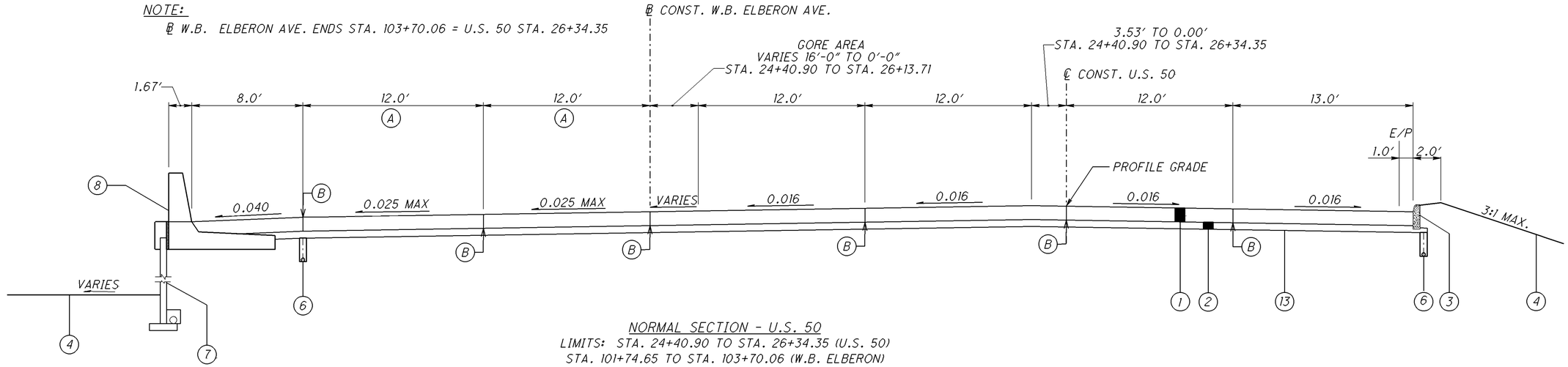
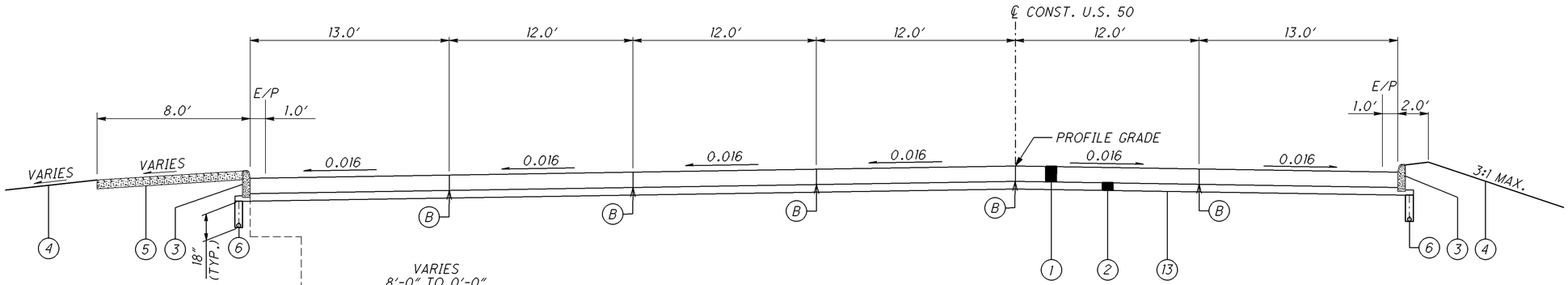
NOTE:
℄ W.B. ELBERON AVE. ENDS STA. 103+70.06 = U.S. 50 STA. 26+34.35



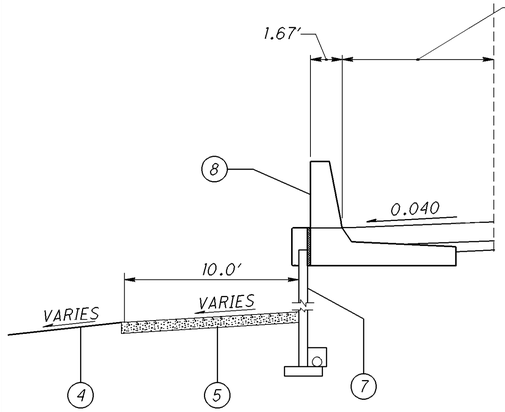
NORMAL SECTION - U.S. 50
LIMITS: STA. 24+40.90 TO STA. 26+34.35 (U.S. 50)
STA. 101+74.65 TO STA. 103+70.06 (W.B. ELBERON)

(A) VARIES 13.6' TO 12.0' STA 24+40.90 TO STA. 25+52.28
(B) LONGITUDINAL JOINT AS PER BP-2.1



VARIES
8'-0" TO 0'-0"
STA. 27+48.44 TO STA. 27+98.70

NORMAL SECTION - U.S. 50
LIMITS: STA. 26+34.35 TO STA. 31+57.54



LIMITS: STA. 25+44.65 TO STA. 27+31.07

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12" THICK (NON-REINFORCED PER 452)
(2) ITEM 304 - 6" AGGREGATE BASE
(3) ITEM 609 - CURB, TYPE 6
(4) ITEM 659 - SEEDING AND MULCHING
(5) ITEM 608 - 5" CONCRETE WALK
(6) ITEM 605 - 6" BASE PIPE UNDERDRAINS
(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)
(9) ITEM 622 - CONCRETE BARRIER, TYPE C1
(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17")
(11) ITEM 606 - GUARDRAIL, TYPE 5
(12) ITEM 622 - CONCRETE BARRIER, TYPE D
(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (U.S. 50)

HAM-50-18.79

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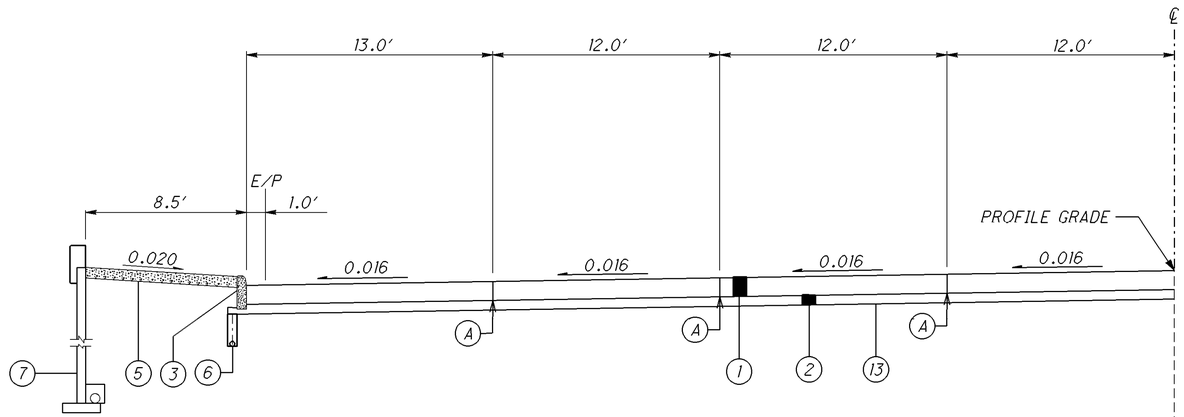
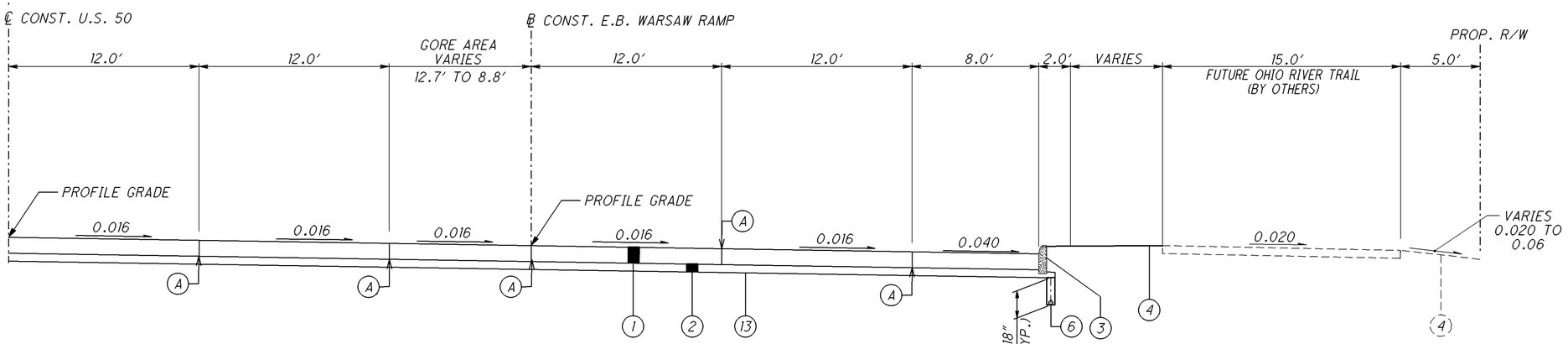


NOTES:

(A) LONGITUDINAL JOINT AS PER BP-2.1

NORMAL SECTION - U.S. 50 WESTBOUND
LIMITS: STA. 31+57.54 TO STA. 32+43.36



NORMAL SECTION - U.S. 50 EASTBOUND
NORMAL SECTION
LIMITS: STA. 31+57.54 TO STA. 32+43.36

1. ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)
2. ITEM 304 - 6″ AGGREGATE BASE
3. ITEM 609 - CURB, TYPE 6
4. ITEM 659 - SEEDING AND MULCHING
5. ITEM 608 - 5″ CONCRETE WALK
6. ITEM 605 - 6″ BASE PIPE UNDERDRAINS
7. ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
8. ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)
9. ITEM 622 - CONCRETE BARRIER, TYPE C1
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)
11. ITEM 606 - GUARDRAIL, TYPE 5
12. ITEM 622 - CONCRETE BARRIER, TYPE D
13. ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (U.S. 50)

HAM-50-18.79

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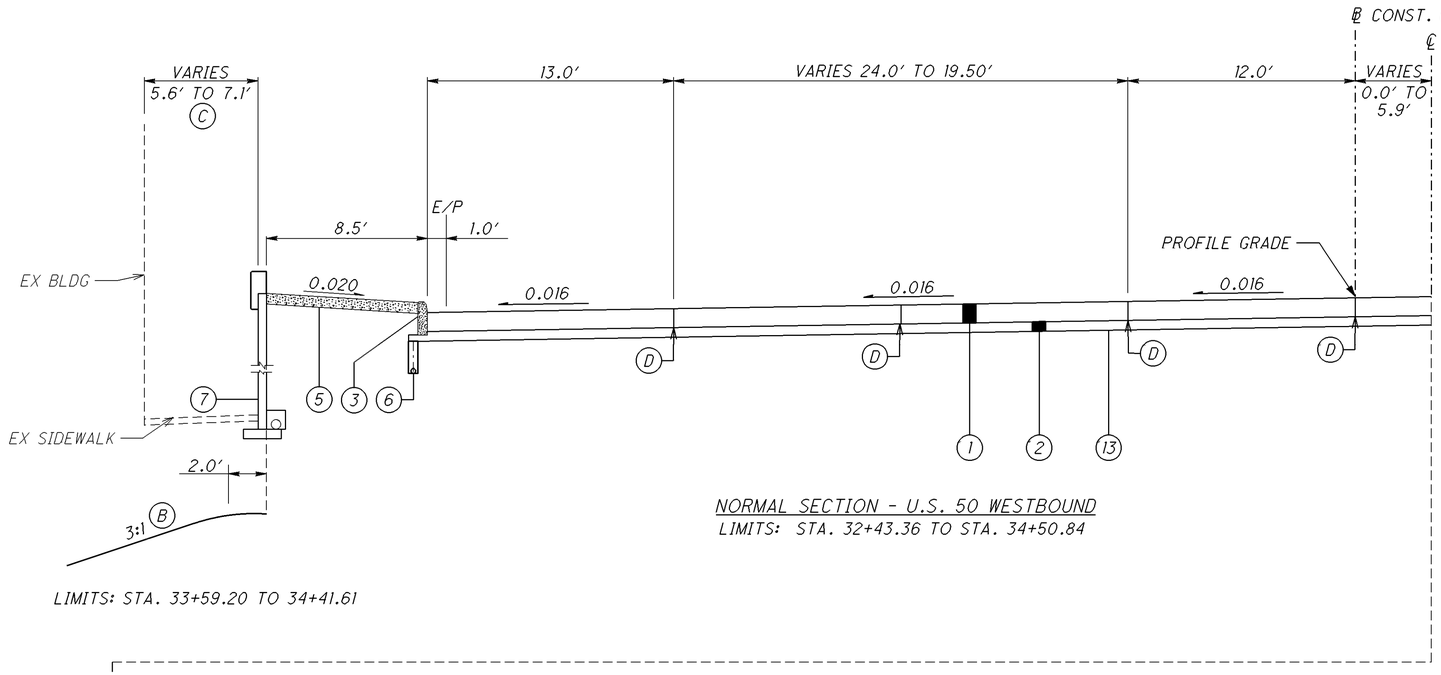

NOTES:

(A) VARIES 8.0′ TO 4.0′ STA. 32+67.98 TO STA. 33+69.86
END ℄ FOR E.B. WARSAW RAMP @ STA. 33+51.44 U.S. 50

(B) PROPOSED GRADING LIMITS: STA. 33+59.20 TO STA. 34+41.61

(C) LIMITS OF WALL ADJACENT TO EXISTING BUILDING AND SIDEWALK: STA. 30+97.13 TO STA. 33+59.20

(D) LONGITUDINAL JOINT AS PER BP-2.1

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6″ AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5″ CONCRETE WALK

(6) ITEM 605 - 6″ BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)

(11) ITEM 606 - GUARDRAIL, TYPE 5

(12) ITEM 622 - CONCRETE BARRIER, TYPE D

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (U.S. 50)

HAM-50-18.79

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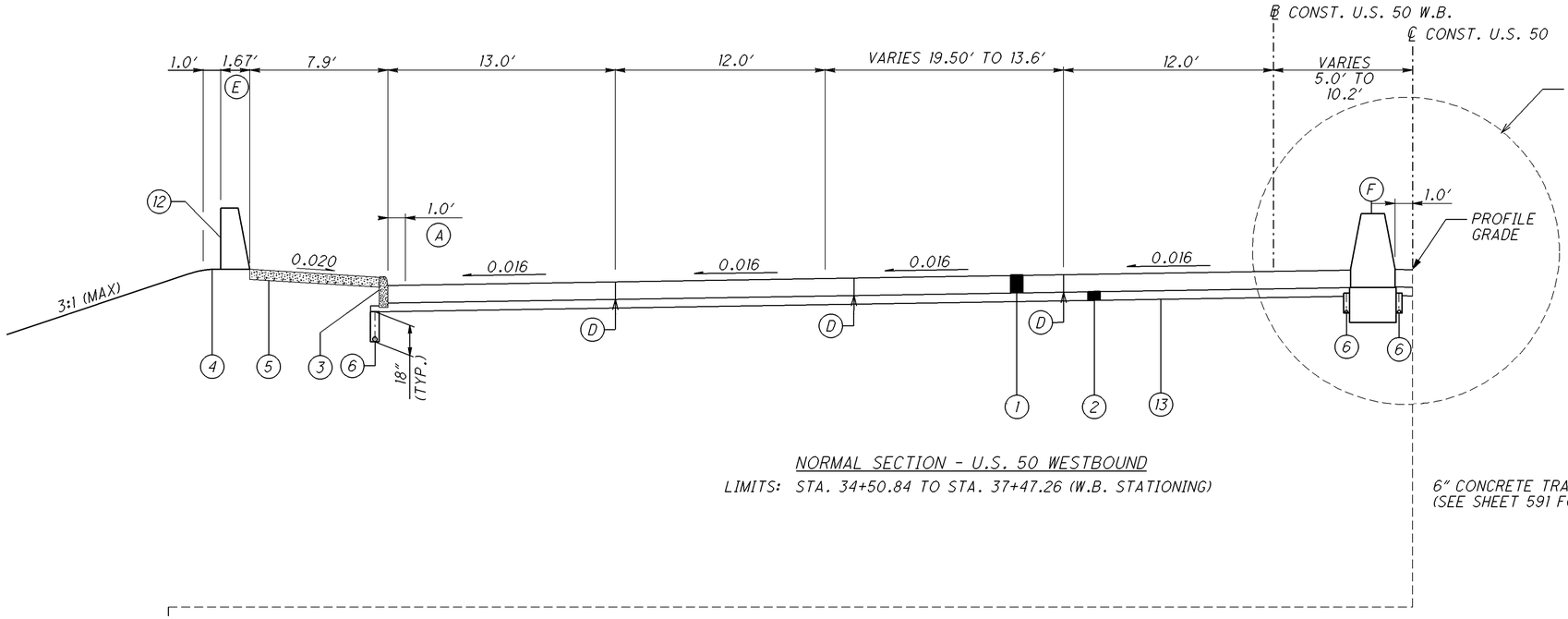
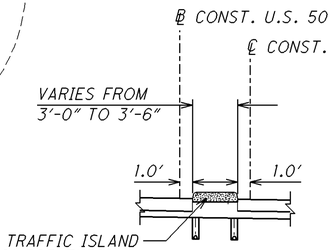
TYPICAL SECTIONS (U.S. 50)



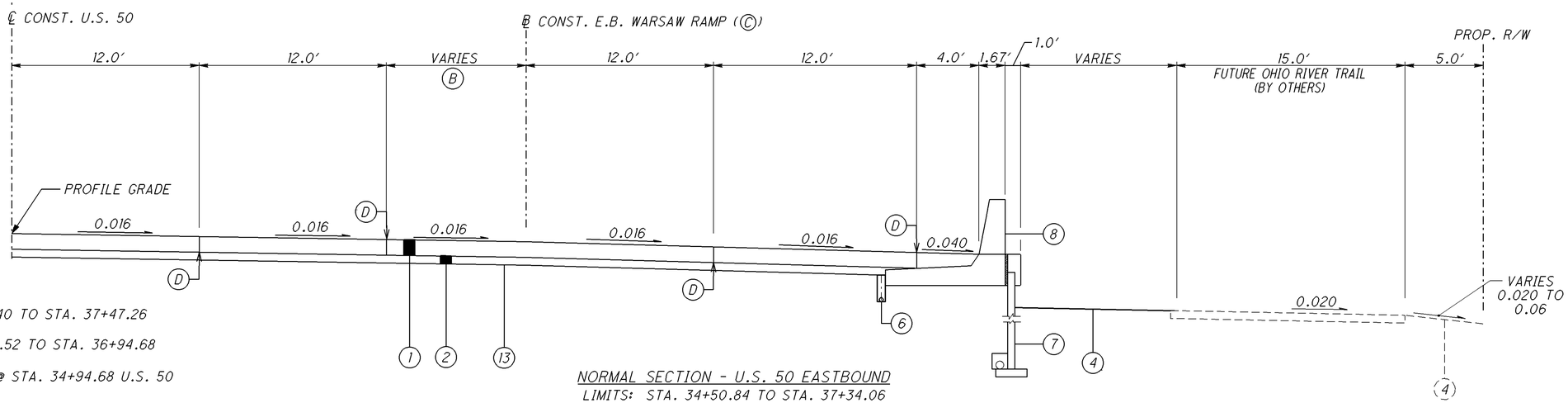
NORMAL SECTION - U.S. 50 WESTBOUND

LIMITS: STA. 34+50.84 TO STA. 37+47.26 (W.B. STATIONING)



DETAIL A

LIMITS: STA. 34+50.84 TO STA. 37+63.19



NORMAL SECTION - U.S. 50 EASTBOUND

LIMITS: STA. 34+50.84 TO STA. 37+34.06

NOTES:

(A) VARIES 1.0′ TO 1.9′ STA. 35+98.40 TO STA. 37+47.26

(B) VARIES 4.0′ TO 0.0′ STA. 34+88.52 TO STA. 36+94.68

(C) END ℄ FOR E.B. WARSAW RAMP @ STA. 34+94.68 U.S. 50

(D) LONGITUDINAL JOINT PER BP-2.1

(E) BEGIN BARRIER AT STA. 35+73.38.

(F) MEDIAN BARRIER AND FOUNDATION STA. 37+63.19 TO STA. 38+77.00 (SEE SHEET 591 FOR TYPICAL SECTIONS)

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6″ AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5″ CONCRETE WALK

(6) ITEM 605 - 6″ BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)

(11) ITEM 606 - GUARDRAIL, TYPE 5

(12) ITEM 622 - CONCRETE BARRIER, TYPE D

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

HAM-50-18.79

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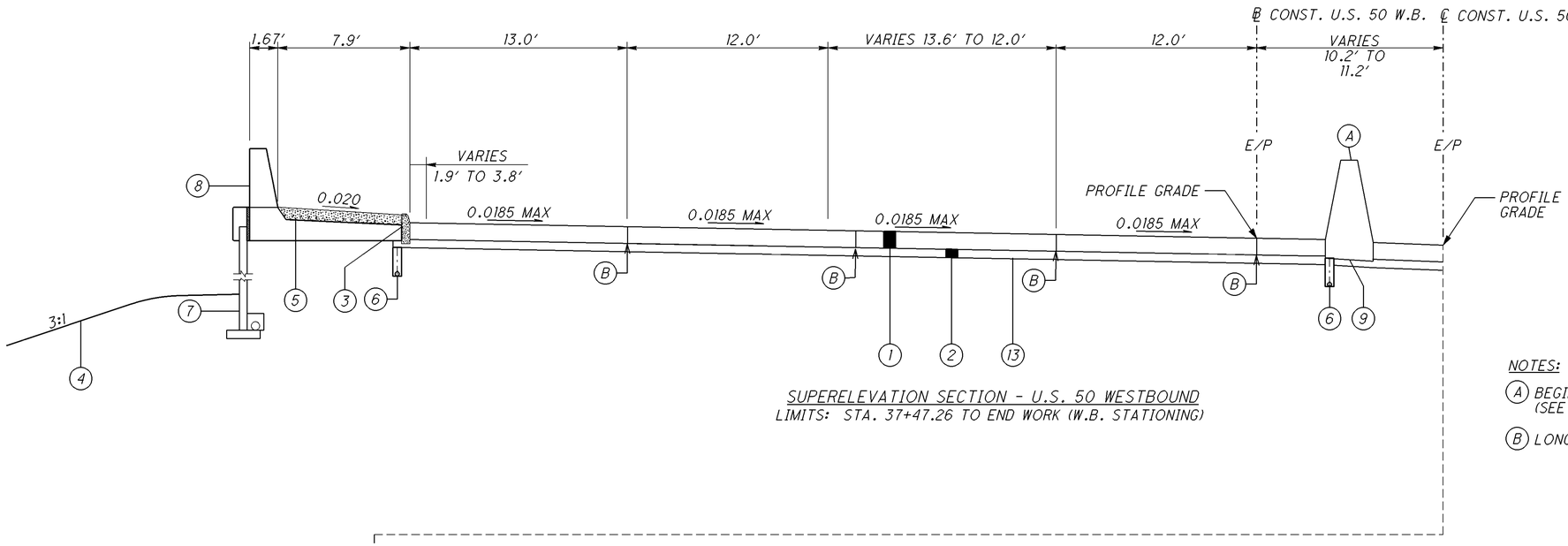
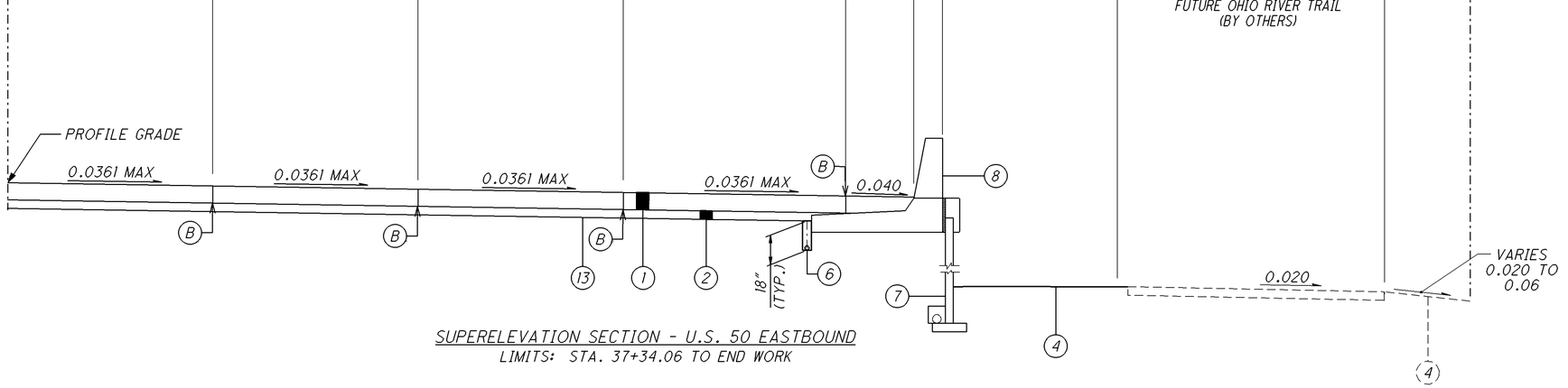


SUPERELEVATION SECTION - U.S. 50 WESTBOUND
LIMITS: STA. 37+47.26 TO END WORK (W.B. STATIONING)

NOTES:

(A) BEGIN TYPE C1 MEDIAN BARRIER STA 38+77.00 (SEE SHEETS 9 AND 591 FOR TYPICAL SECTIONS)

(B) LONGITUDINAL JOINT PER BP-2.1



SUPERELEVATION SECTION - U.S. 50 EASTBOUND
LIMITS: STA. 37+34.06 TO END WORK

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6″ AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5″ CONCRETE WALK

(6) ITEM 605 - 6″ BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)

(11) ITEM 606 - GUARDRAIL, TYPE 5

(12) ITEM 622 - CONCRETE BARRIER, TYPE D

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (U.S. 50)

HAM-50-18.79

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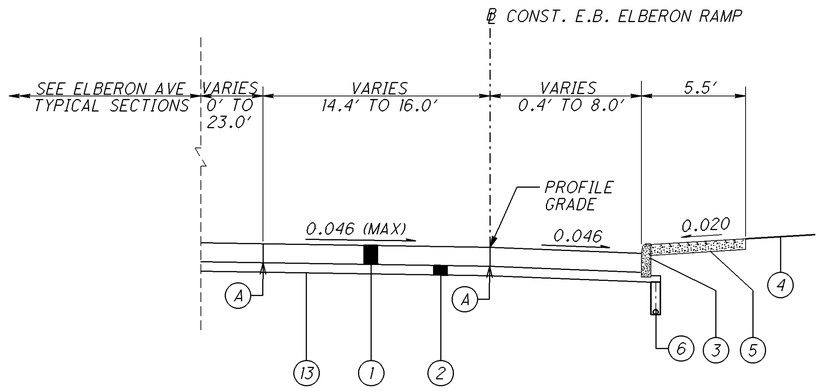
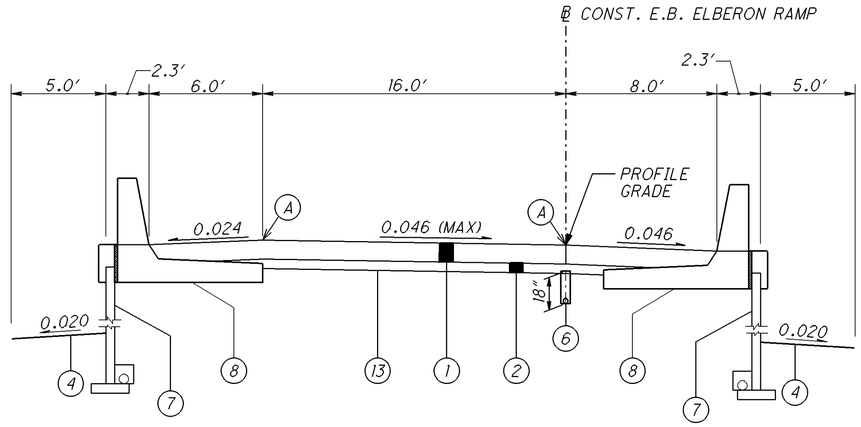


SUPERELEVATION SECTION (RT) - ELBERON EASTBOUND RAMP

LIMITS: STA. 50+00.00 TO STA. 52+05.51

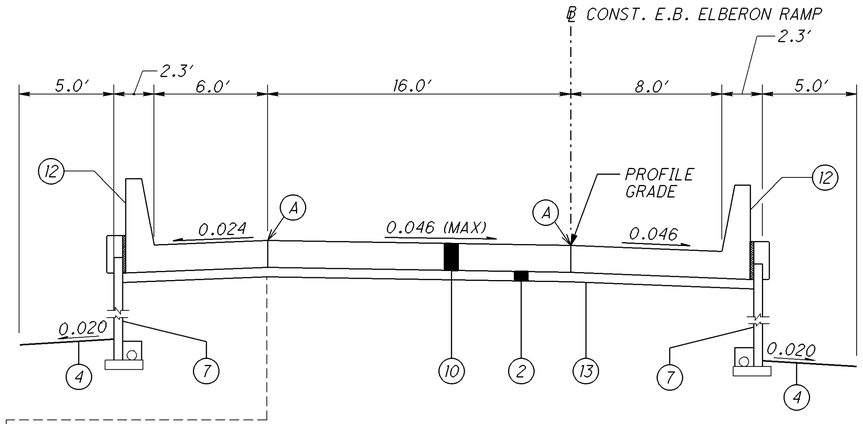


SUPERELEVATION SECTION (RT) - ELBERON EASTBOUND RAMP

LIMITS: STA. 52+05.51 TO STA. 53+96.20

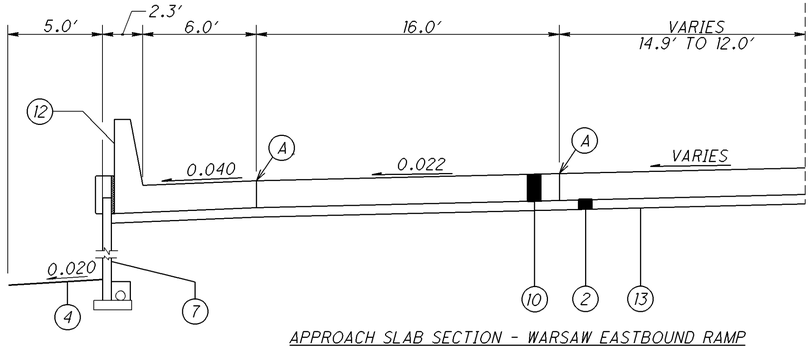
NOTES:

(A) LONGITUDINAL JOINT PER BP-2.1



APPROACH SLAB SECTION - ELBERON EASTBOUND RAMP

LIMITS: STA. 53+96.20 TO STA. 54+26.20
STA. 61+31.48 TO STA. 61+61.48



APPROACH SLAB SECTION - WARSAW EASTBOUND RAMP

LIMITS: STA. 82+96.48 TO STA. 83+26.48

1. ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12" THICK (NON-REINFORCED PER 452)
2. ITEM 304 - 6" AGGREGATE BASE
3. ITEM 609 - CURB, TYPE 6
4. ITEM 659 - SEEDING AND MULCHING
5. ITEM 608 - 5" CONCRETE WALK
6. ITEM 605 - 6" BASE PIPE UNDERDRAINS
7. ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
8. ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)
9. ITEM 622 - CONCRETE BARRIER, TYPE C1
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17")
11. ITEM 606 - GUARDRAIL, TYPE 5
12. ITEM 622 - CONCRETE BARRIER, TYPE D
13. ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (EB ELBERON RAMP)

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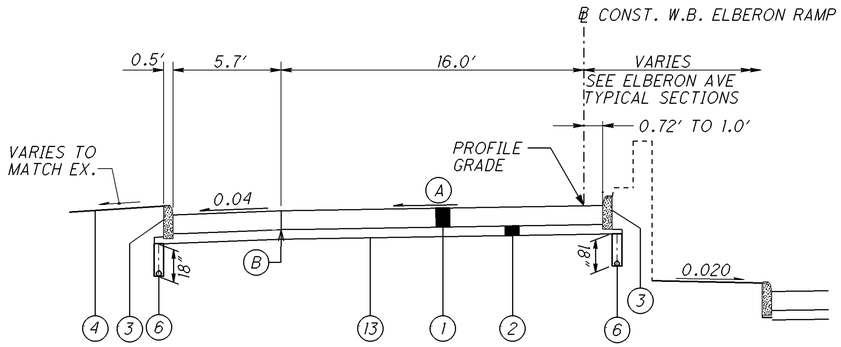
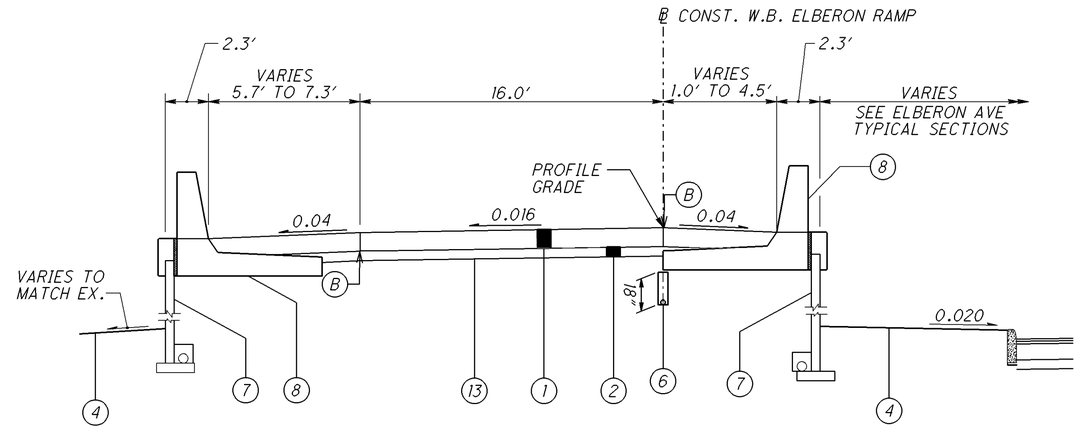


NORMAL SECTION - ELBERON W.B. RAMP
LIMITS: STA. 90+00.00 TO STA. 91+24.67

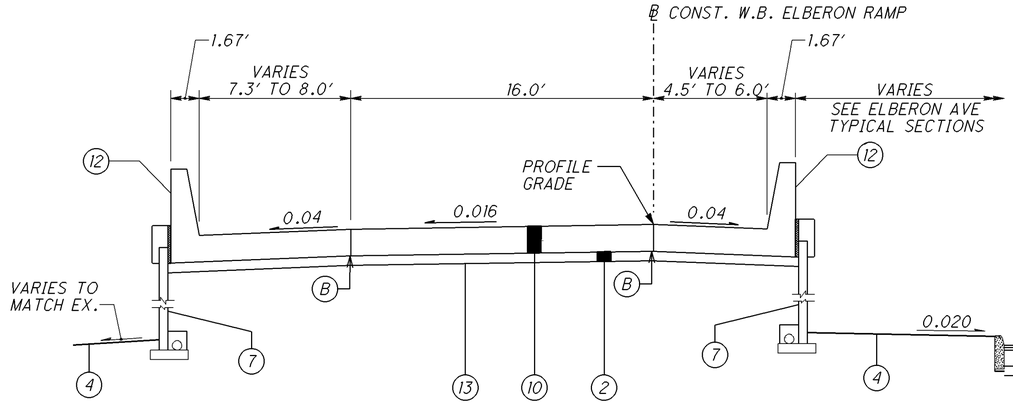


NORMAL SECTION - ELBERON W.B. RAMP
LIMITS: STA. 91+24.67 TO STA. 91+77.24

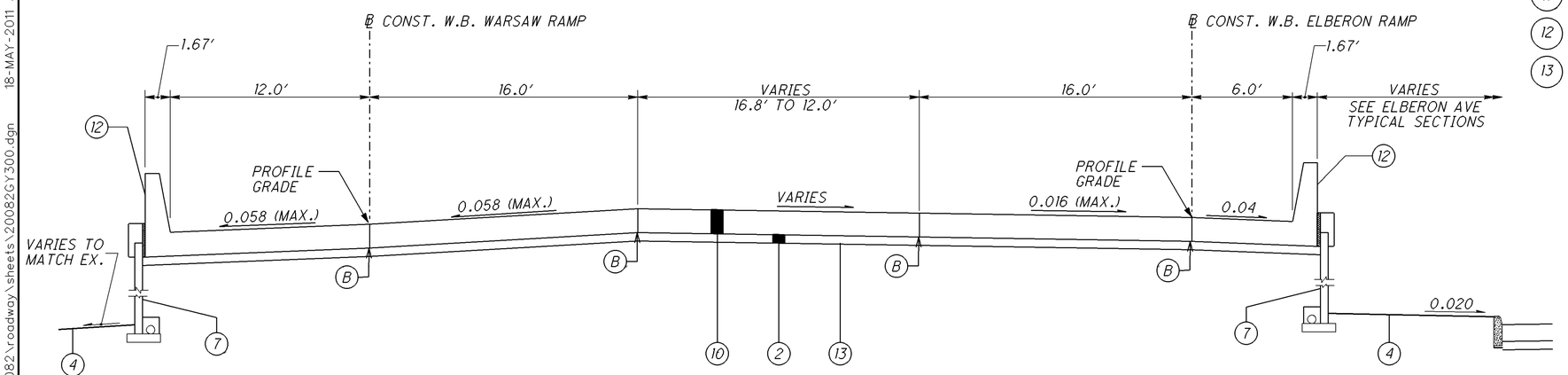
NOTES:

(A) VARIES +0.0154 TO -0.016
STA. 90+00 TO STA. 91+25

(B) LONGITUDINAL JOINT PER BP-2.1



APPROACH SLAB SECTION - ELBERON W.B. RAMP
LIMITS: STA. 91+77.24 TO STA. 92+07.24



APPROACH SLAB SECTION - ELBERON W.B. RAMP/WARSAW W.B. RAMP
LIMITS: STA. 97+90.77 TO STA. 98+15.68 (ELBERON)
STA. 107+93.35 TO STA. 108+15.36 (WARSAW)

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12" THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6" AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5" CONCRETE WALK

(6) ITEM 605 - 6" BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17")

(11) ITEM 606 - GUARDRAIL, TYPE 5

(12) ITEM 622 - CONCRETE BARRIER, TYPE D

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (WB ELBERON RAMP)

HAM-50-18.79

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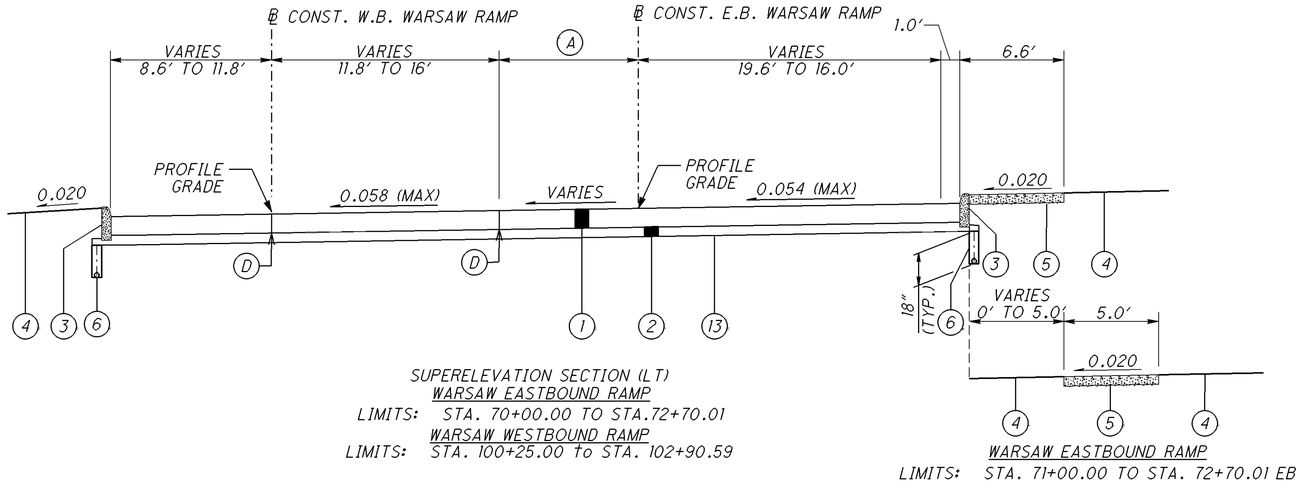
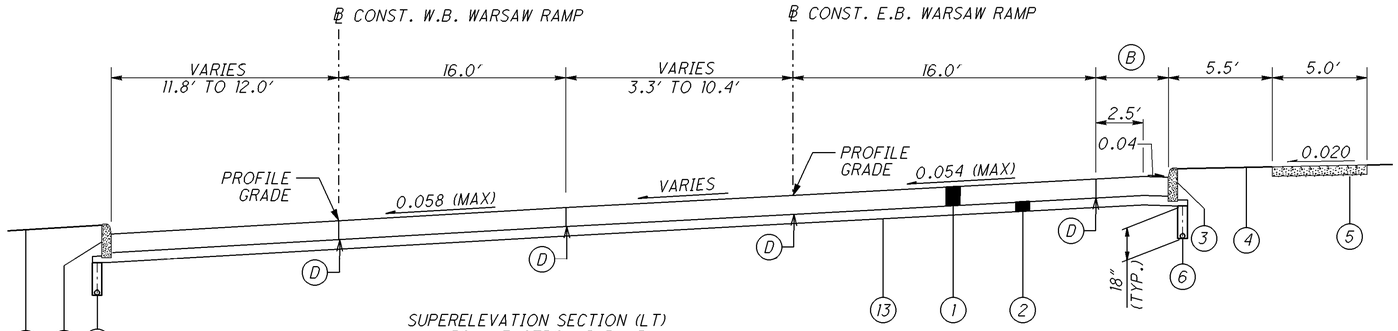
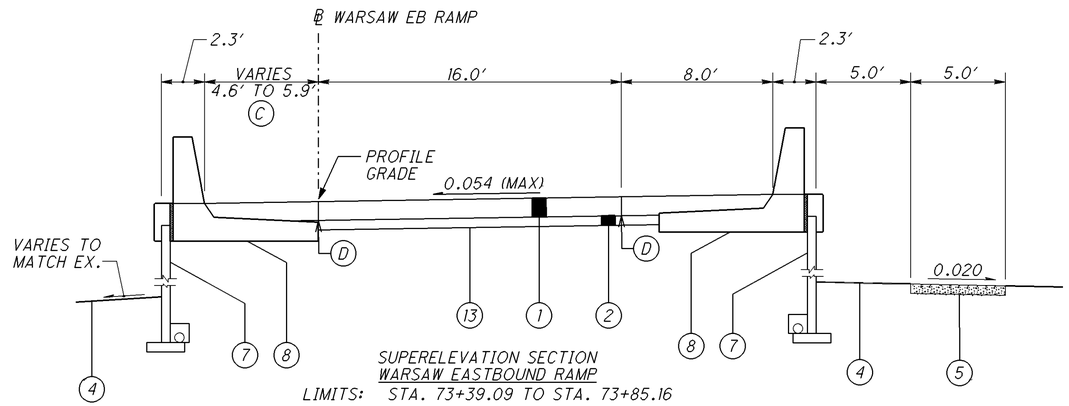


SUPERELEVATION SECTION (LT)
WARSAW EASTBOUND RAMP
LIMITS: STA. 70+00.00 TO STA.72+70.01
WARSAW WESTBOUND RAMP
LIMITS: STA. 100+25.00 To STA. 102+90.59

WARSAW EASTBOUND RAMP
LIMITS: STA. 71+00.00 TO STA. 72+70.01 EB



SUPERELEVATION SECTION (LT)
WARSAW EASTBOUND RAMP
LIMITS: STA. 72+70.01 TO STA. 73+39.09
WARSAW WESTBOUND RAMP
LIMITS: STA. 102+90.59 TO STA. 103+56.09



SUPERELEVATION SECTION
WARSAW EASTBOUND RAMP
LIMITS: STA. 73+39.09 TO STA. 73+85.16

1. ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)
2. ITEM 304 - 6″ AGGREGATE BASE
3. ITEM 609 - CURB, TYPE 6
4. ITEM 659 - SEEDING AND MULCHING
5. ITEM 608 - 5″ CONCRETE WALK
6. ITEM 605 - 6″ BASE PIPE UNDERDRAINS
7. ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
8. ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)
9. ITEM 622 - CONCRETE BARRIER, TYPE C1
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)
11. ITEM 606 - GUARDRAIL, TYPE 5
12. ITEM 622 - CONCRETE BARRIER, TYPE D
13. ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

NOTES:

(A) VARIES 0.0′ TO 3.3′ STA. 71+36.36 TO STA. 72+70.01

(B) VARIES 0.0′ TO 8.0′ STA. 72+70.01 TO STA. 73+30.00

(C) STA. 73+28.90 TO STA. 73+73.00

(D) LONGITUDINAL JOINT PER BP-2.1

TYPICAL SECTIONS (WB AND EB WARSAW RAMP)

HAM-50-18.79

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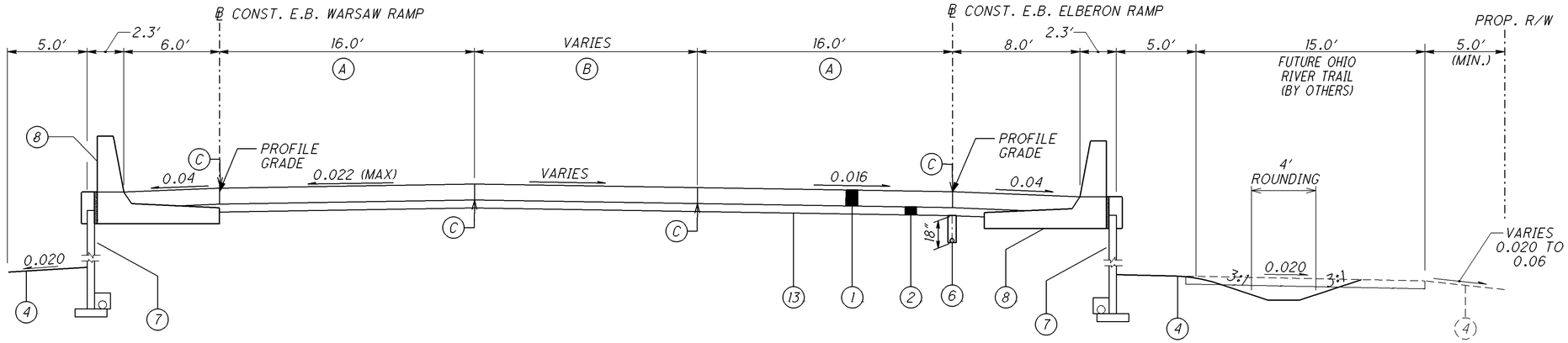


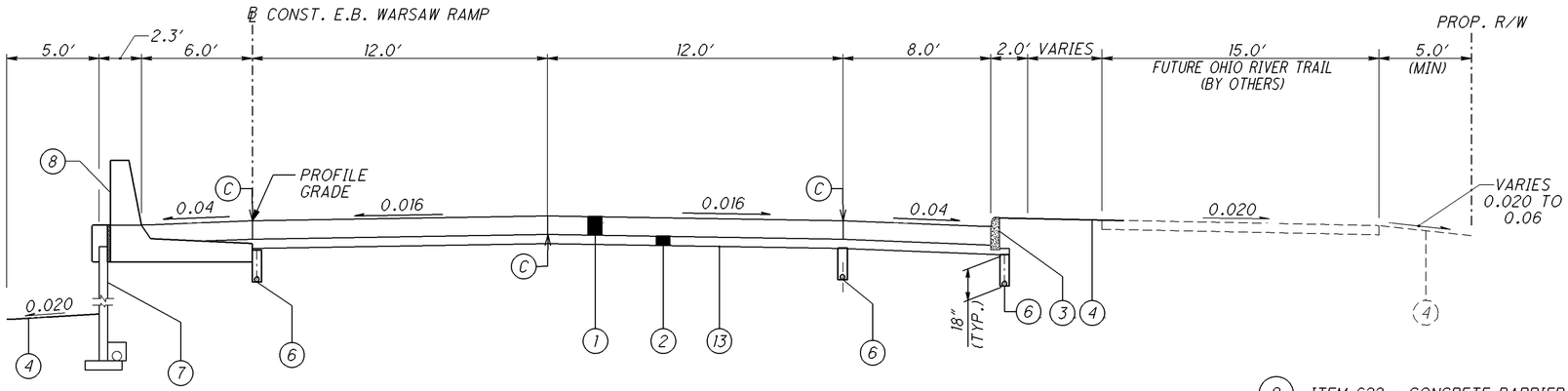
NOTES:

(A) VARIES 16.0′ TO 12.0′, STA. 85+76.54 TO STA. 88+65.42

(B) VARIES 12.0′ TO 0.0′ STA.83+26.47 TO STA. 85+76.54

(C) LONGITUDINAL JOINT PER BP-2.1

NORMAL SECTION
WARSAW AND ELBERON EASTBOUND RAMP
LIMITS: STA. 83+26.47 TO STA. 88+61.90 (WARSAW)
STA. 61+61.48 TO STA. 62+77.26 (ELBERON)



1. ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)
2. ITEM 304 - 6″ AGGREGATE BASE
3. ITEM 609 - CURB, TYPE 6
4. ITEM 659 - SEEDING AND MULCHING
5. ITEM 608 - 5″ CONCRETE WALK
6. ITEM 605 - 6″ BASE PIPE UNDERDRAINS
7. ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
8. ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

NORMAL SECTION
WARSAW AND ELBERON EASTBOUND RAMP
NORMAL SECTION
LIMITS: STA. 88+61.90 TO STA. 89+88.91 (WARSAW)

9. ITEM 622 - CONCRETE BARRIER, TYPE C1
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)
11. ITEM 606 - GUARDRAIL, TYPE 5
12. ITEM 622 - CONCRETE BARRIER, TYPE D
13. ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (EB WARSAW RAMP)

HAM-50-18.79

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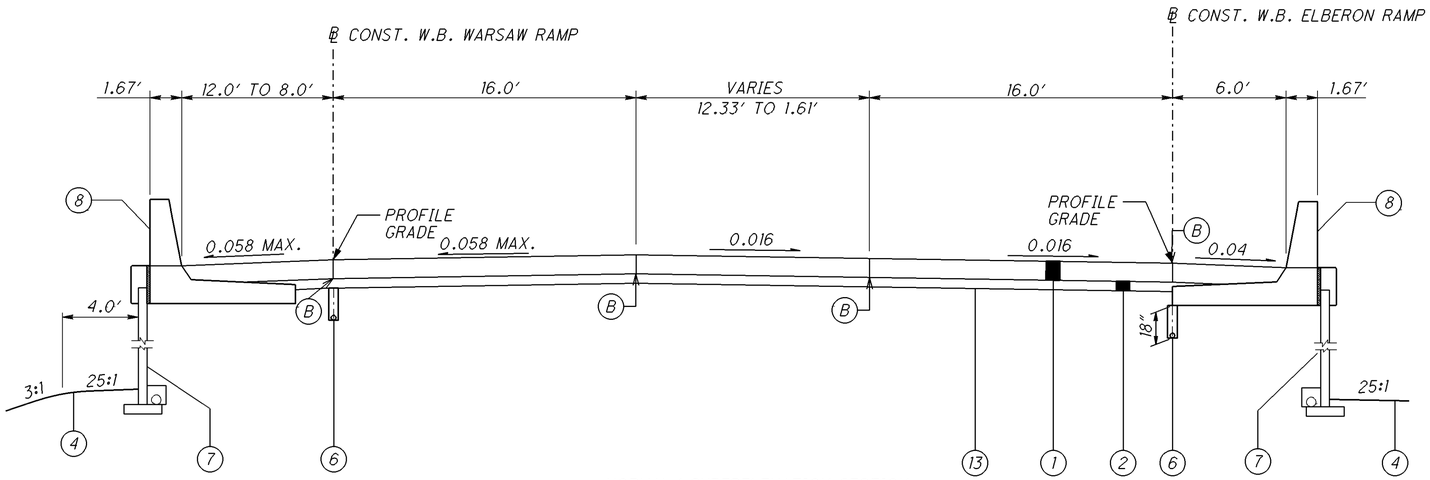
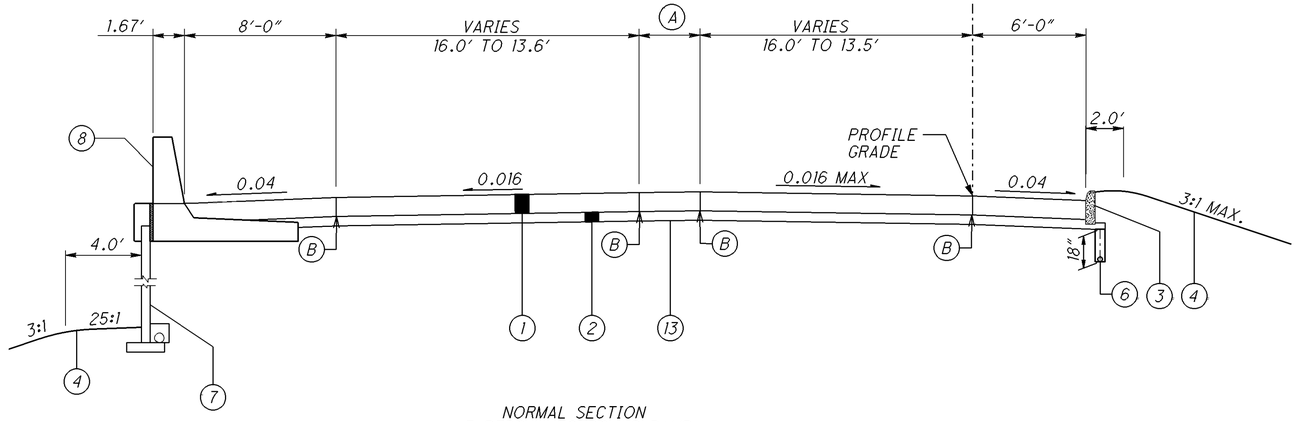


NORMAL/ SUPERELEVATION SECTION
ELBERON/WARSAW WESTBOUND RAMP

LIMITS: STA. 98+15.68 TO STA. 99+50.00 (ELBERON)
STA. 108+15.36 TO STA. 109+34.06 (WARSAW)



NORMAL SECTION
ELBERON WESTBOUND RAMP

LIMITS: STA. 99+50.00 TO STA. 101+74.65

NOTES:

(A) VARIES 1.61′ TO 0.0′ STA. 99+50.00 TO STA. 100+06.60

(B) LONGITUDINAL JOINT PER BP-2.1

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6″ AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5″ CONCRETE WALK

(6) ITEM 605 - 6″ BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)

(11) ITEM 606 - GUARDRAIL, TYPE 5

(12) ITEM 622 - CONCRETE BARRIER, TYPE D

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (WB ELBERON RAMP)

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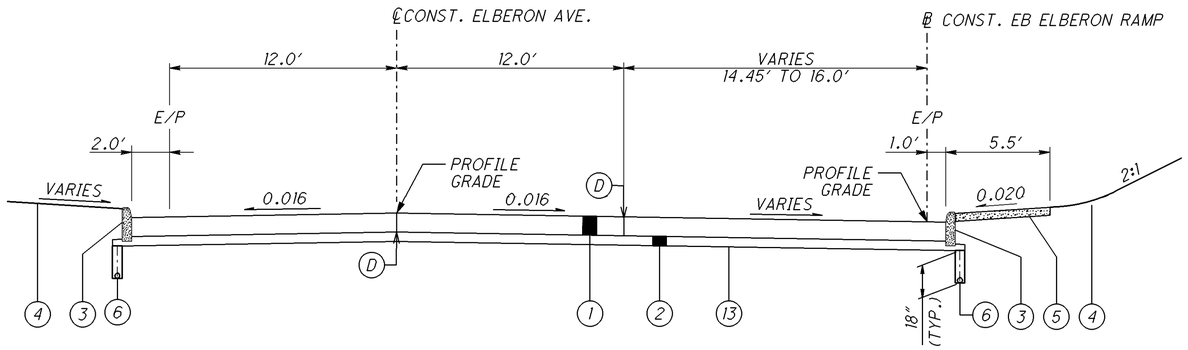
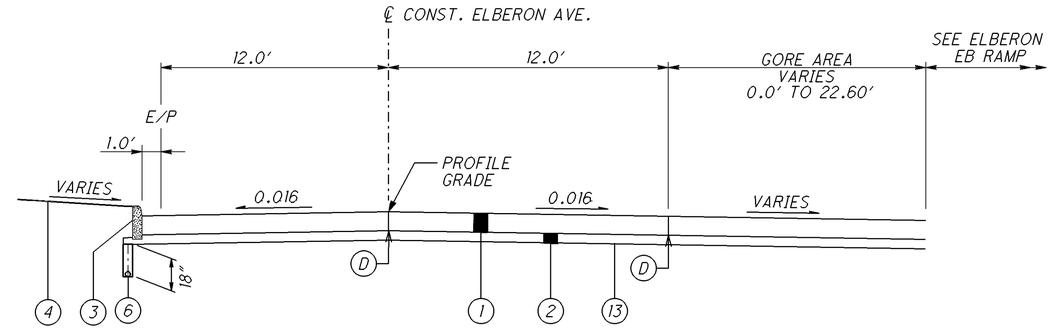
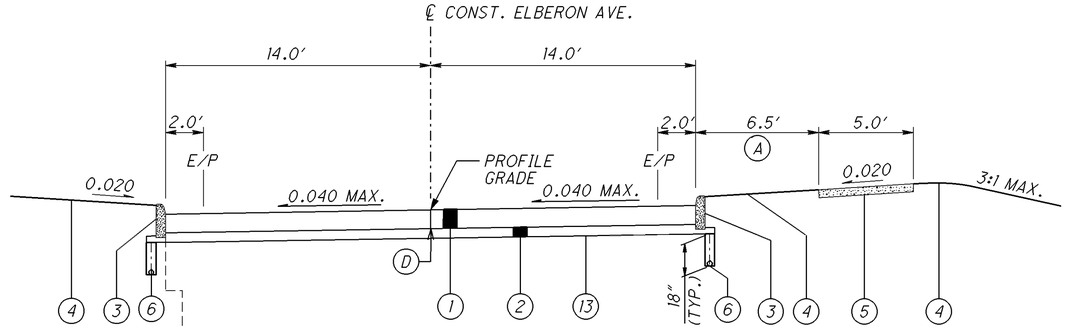


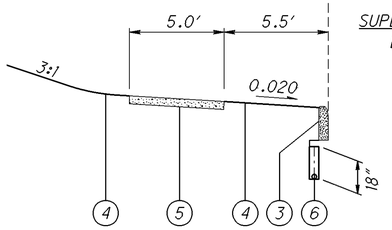
NORMAL SECTION - ELBERON AVENUE
LIMITS: STA. 43+87.84 TO STA. 44+49.35



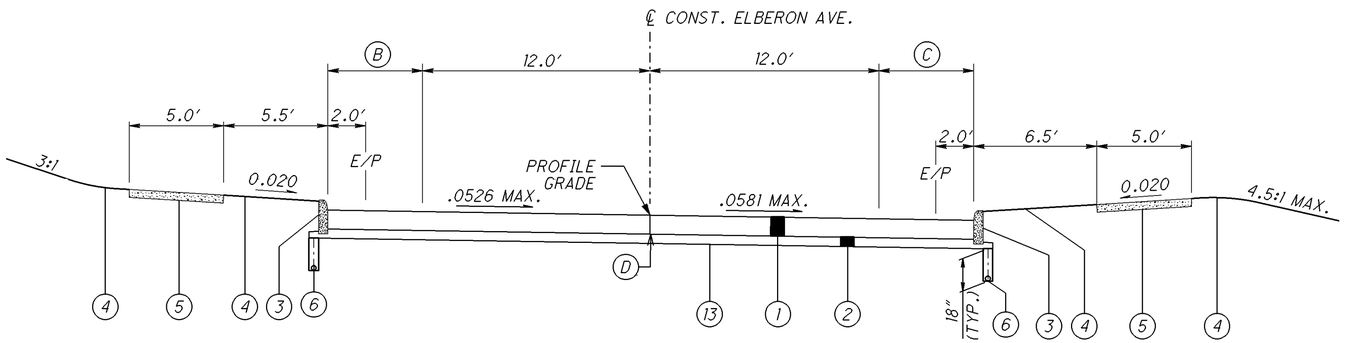
NORMAL SECTION - ELBERON AVENUE
LIMITS: STA. 44+49.35 TO STA. 45+93.57



SUPERELEVATION SECTION (LT) - ELBERON AVENUE
LIMITS: STA. 45+93.57 TO STA. 47+81.38



LIMITS: STA. 47+29.18 TO STA. 47+81.38



SUPERELEVATION SECTION (RT) - ELBERON AVENUE
LIMITS: STA. 47+81.38 TO STA. 49+50.99

NOTES:

(A) BEGIN SIDEWALK ELBERON AVE STA. 50+16.36
WIDTH VARIES 6.5′ TO 0.5′ STA. 50+16.36 TO STA 50+97.73

(B) VARIES STA. 48+28.71 TO STA. 49+50.99, SEE PAVEMANT DETAILS

(C) VARIES STA. 48+25.05 TO STA. 49+50.99, SEE PAVEMANT DETAILS

(D) LONGITUDINAL JOINT PER BP-2.1

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6″ AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5″ CONCRETE WALK

(6) ITEM 605 - 6″ BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - CONCRETE BARRIER, TYPE D (MOUNTED ON MOMENT SLAB)

(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17″)

(11) ITEM 606 - GUARDRAIL, TYPE 5

(12) ITEM 622 - CONCRETE BARRIER, TYPE D

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

TYPICAL SECTIONS (ELBERON AVE.)

HAM-50-18.79

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(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12" THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6" AGGREGATE BASE

(3) ITEM 609 - CURB , TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5" CONCRETE WALK

(6) ITEM 605 - 6" BASE PIPE UNDERDRAINS

(7) ITEM 840 - MECHANICALLY STABILIZED EARTH WALL

(8) ITEM 622 - MSE WALL MOUNTED DEFLECTOR PARAPET, AS PER PLAN

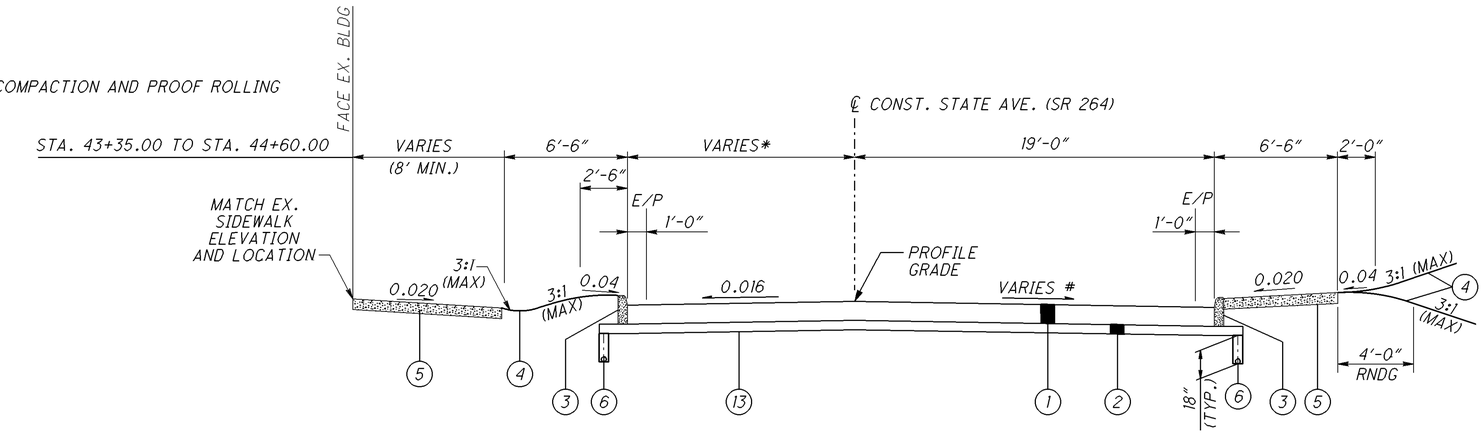
(9) ITEM 622 - CONCRETE BARRIER, TYPE C1

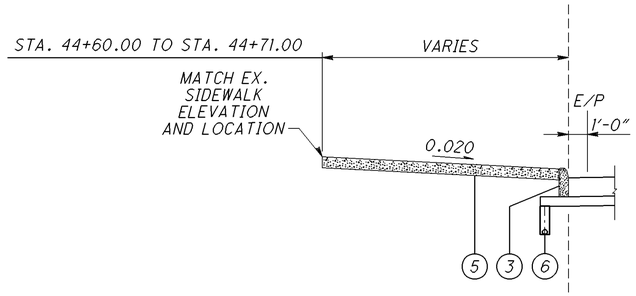
(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17")

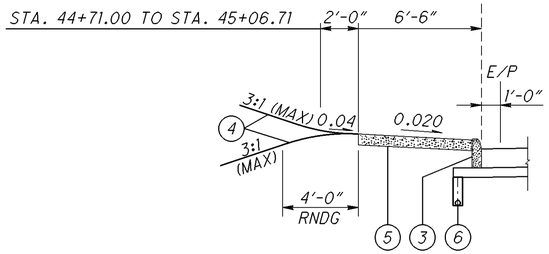
(11) NOT USED

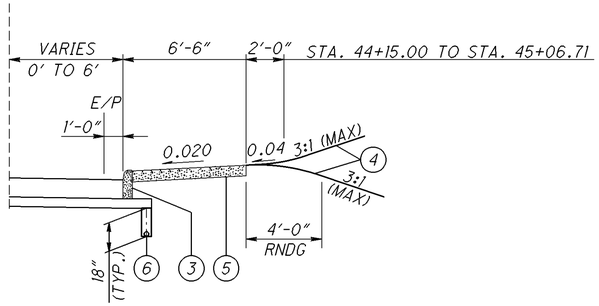
(12) NOT USED

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING









STATE AVENUE (SR264)
NORMAL SECTION

LIMITS: STA. 43+35.00 TO STA. 45+06.71

#

0.016	STA. 43+35.00 TO STA. 44+63.00
0.016 TO 0.00	STA. 44+63.00 TO STA. 45+06.71

*

13'-0"	STA. 43+35.00 TO STA. 44+45.00
13'-0" TO 14.81'	STA. 44+45.00 TO STA. 45+06.71

CALCULATED MJB
CHECKED NJG

TYPICAL SECTIONS - STATE AVE. (SR 264)

HAM-50-18.79

GY700

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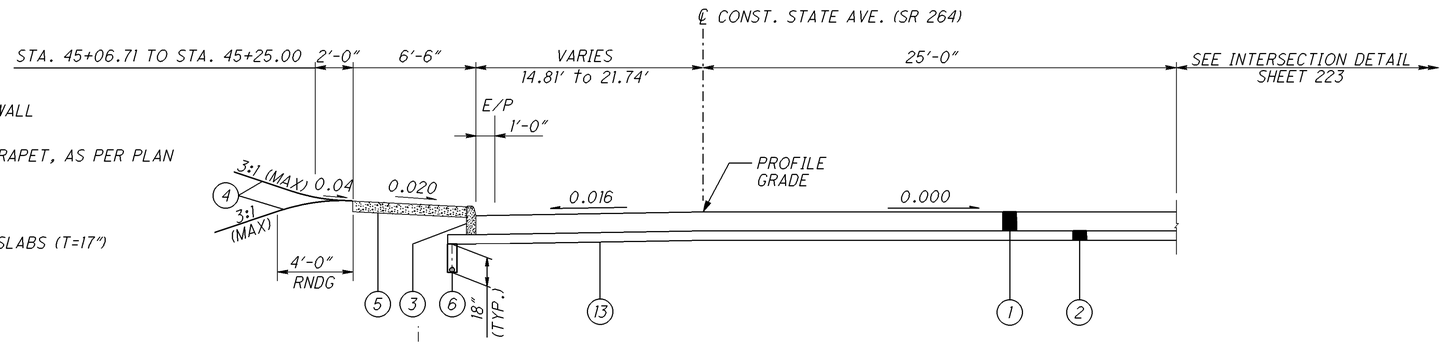
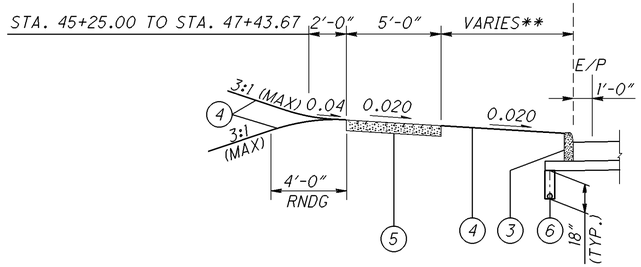
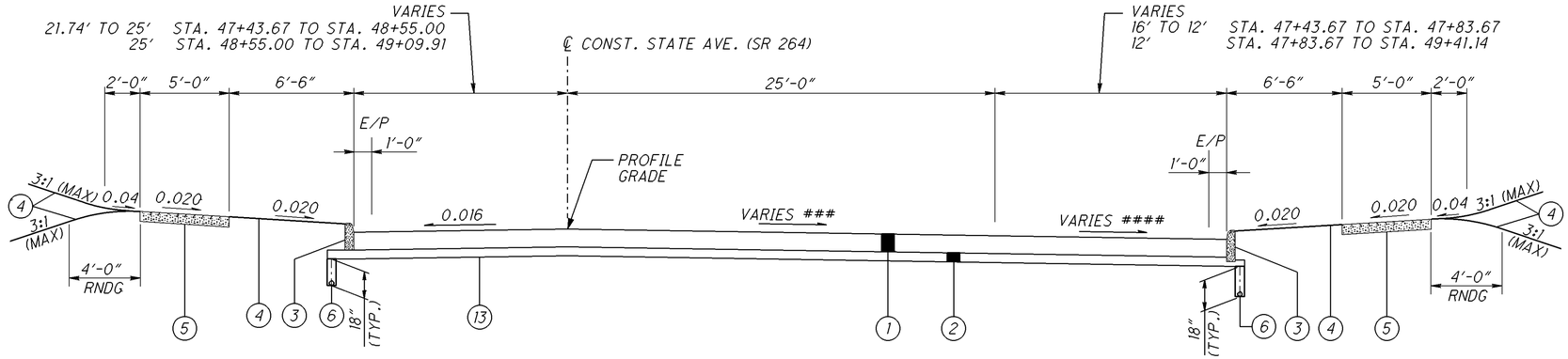
1. ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12" THICK (NON-REINFORCED PER 452)
2. ITEM 304 - 6" AGGREGATE BASE
3. ITEM 609 - CURB , TYPE 6
4. ITEM 659 - SEEDING AND MULCHING
5. ITEM 608 - 5" CONCRETE WALK
6. ITEM 605 - 6" BASE PIPE UNDERDRAINS
7. ITEM 840 - MECHANICALLY STABILIZED EARTH WALL
8. ITEM 622 - MSE WALL MOUNTED DEFLECTOR PARAPET, AS PER PLAN
9. ITEM 622 - CONCRETE BARRIER, TYPE C1
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=17")
11. NOT USED
12. NOT USED
13. ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING



STATE AVENUE (SR264)
NORMAL SECTION
LIMITS: STA. 45+06.71 TO STA. 47+43.67



**
1'-6" TO 6'-6" STA. 45+25.00 TO STA. 45+75.00
6'-6" STA. 45+75.00 TO STA. 47+43.67



STATE AVENUE
NORMAL SECTION
LIMITS: STA. 47+43.67 TO STA. 49+09.91 LT & STA. 49+41.14 RT

###
0.000 TO 0.016 STA. 47+43.67 TO STA. 48+03.67
0.016 STA. 48+03.67 TO STA. 49+41.14

####
0.013 TO 0.016 STA. 47+43.67 TO STA. 48+03.67
0.016 STA. 48+03.67 TO STA. 49+41.14

CALCULATED MJB
CHECKED NJG

TYPICAL SECTIONS - STATE AVE. (SR 264)

HAM-50-18.79

GY701

18
657

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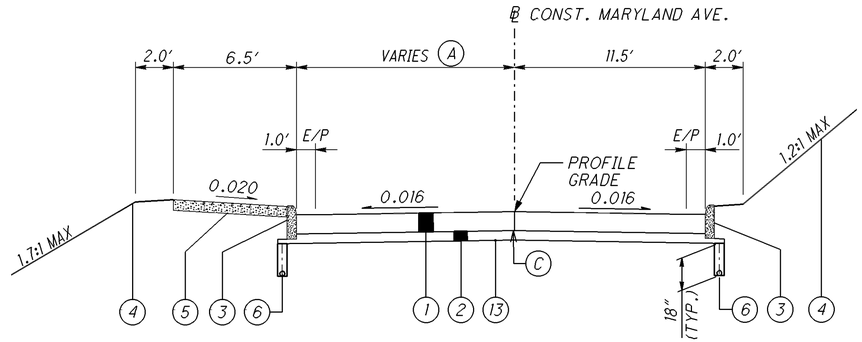


NORMAL SECTION - MARYLAND AVENUE

(A) LIMITS: STA. 45+36.00 TO STA. 46+43.62

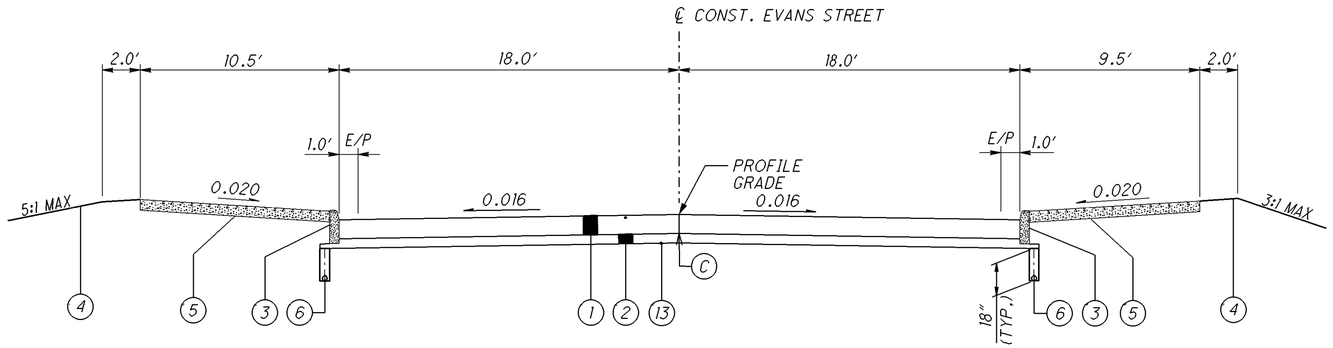
(1) 11.0′ AT STA. 45+36.00 TO 10.0′ AT STA. 45+50.96

NOTES:

(A) SEE PAVEMENT DETAILS FOR STA. 46+43.62 TO STA. 46+94.93

(B) SEE PAVEMENT DETAILS FOR STA. 20+05.23 TO STA. 21+16.84

(C) LONGITUDINAL JOINT PER BP-2.1



NORMAL SECTION - EVANS STREET

(B) LIMITS: STA. 21+16.84 TO STA. 22+06.23

(1) ITEM 888 - PORTLAND CEMENT CONCRETE PAVEMENT, 12″ THICK (NON-REINFORCED PER 452)

(2) ITEM 304 - 6″ AGGREGATE BASE

(3) ITEM 609 - CURB, TYPE 6

(4) ITEM 659 - SEEDING AND MULCHING

(5) ITEM 608 - 5″ CONCRETE WALK

(6) ITEM 605 - 6″ BASE PIPE UNDERDRAINS

(13) ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

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TYPICAL SECTIONS (MARYLAND AVE. & EVANS ST.)

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UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

GAS:
GAS DISTRIBUTING ENGINEERING, ROOM 460-A
DUKE ENERGY
139 EAST FOURTH STREET
CINCINNATI, OHIO 45202
513-287-2730

POWER:
DUKE ENERGY
P.O. BOX 960, ROOM M 50 M
CINCINNATI, OHIO 45202
513-287-2742

WATER:
CINCINNATI WATER WORKS
4747 SPRING GROVE AVENUE
CINCINNATI, OHIO 45232
513-591-6856

STORM:
CINCINNATI STORMWATER MANAGEMENT UTILITY
705 CENTRAL AVENUE, ROOM 400
CINCINNATI, OHIO 45202
513-352-5344

SANITARY:
METROPOLITAN SEWER DISTRICT
1600 GEST STREET
CINCINNATI, OHIO 45204
513-557-7188

TELEPHONE:
CINCINNATI BELL TELEPHONE COMPANY
201 EAST FOURTH STREET
CINCINNATI, OHIO 45202
513-566-5050

MCI/WORLDCOM
730 WEST HENRY STREET
INDIANAPOLIS, INDIANA 46225
317-685-8050

QWEST COMMUNICATIONS CORPORATION
125 EAST ELLIS DRIVE
WAYNESVILLE, OHIO 45068
513-659-4871

SPRINT
EASTERN REGION, GREAT LAKES DISTRICT
FIBER OPERATIONS
5600 NORTH RIVER ROAD, SUITE 500
ROSEMONT, ILLINOIS 60018
847-318-3193

CABLE:
TIME WARNER CABLE
11252 CORNELL PARK DRIVE
CINCINNATI, OHIO 45242
513-489-5067

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

CONSTRUCTION NOTIFICATION

THE CONTRACTOR WILL ADVISE THE PROJECT ENGINEER A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE FOLLOWING: THE START OF CONSTRUCTION ACTIVITIES, LANE CLOSURES, AND ROAD CLOSURES. THE PROJECT ENGINEER WILL FORWARD THE INFORMATION TO THE CITY OF CINCINNATI DIVISION OF TRAFFIC ENGINEERING AT 513-352-5289 AND TO THE DISTRICT PUBLIC INFORMATION OFFICER (PIO) BY FAX AT 513-933-7651 OR VIA EMAIL AT D08.PIO.FORM@DOT.STATE.OH.US. THE PIO WILL, IN TURN, NOTIFY THE PUBLIC, THE LOCAL EMERGENCY SERVICES, AFFECTED SCHOOLS AND BUSINESSES, AND ANY OTHER IMPACTED LOCAL PUBLIC AGENCY OF ANY OF THE ABOVE MENTIONED ITEMS, VIA MEDIA SOURCES.

ALLOWABLE WORKING HOURS

THE CONTRACTOR IS PERMITTED TO WORK TWENTY-FOUR (24) HOURS PER DAY, SEVEN (7) DAYS PER WEEK SUBJECT TO CITY OF CINCINNATI NOISE ORDINANCE. IN ORDER TO REDUCE THE NOISE IMPACT ON THE SURROUNDING COMMUNITY, ANY CONSTRUCTION OR DEMOLITION ACTIVITY, OR THE OPERATION OF ANY MECHANICAL, ELECTRICAL, OR BATTERY-OPERATED APPARATUS PRODUCING LOUD SOUND WHICH DISTURBS THE PEACE AND QUIET OF RESIDENTS WITHIN 500 FEET SHALL BE PROHIBITED BETWEEN HOURS FROM 11:00 P.M. AND 7:00 A.M. THE FOLLOWING DAY IN ACCORDANCE WITH THE CITY OF CINCINNATI ORDINANCE NO. 272-1987. HOWEVER, THE CONTRACTOR MAY APPLY FOR NIGHTTIME CONSTRUCTION PERMITS, IF NECESSARY, IN ACCORDANCE WITH CITY OF CINCINNATI ORDINANCE NO. 273-1987 FOR OPERATION FROM 11:00 P.M. AND 7:00 A.M. THE FOLLOWING DAY.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

HAUL ROADS

THE CONTRACTOR SHALL NOTIFY THE DISTRICT DEPUTY DIRECTOR AND THE CITY, IN WRITING, AT LEAST TEN WORKING DAYS BEFORE USING ANY STREET FOR THE PURPOSE OF HAULING MATERIAL OR EQUIPMENT TO OR FROM THE PROJECT, OF HIS INTENT TO USE THE STREETS. THE CONTRACTOR SHALL INCLUDE IN HIS REPORT THE LIMITS OF THE STREET WITHIN WHICH HE INTENDS TO OPERATE. THE CONTRACTOR MAY NOT USE A STREET FOR HAULING PURPOSES WITHOUT APPROVAL OF THE DEPARTMENT OF TRANSPORTATION AND THE CITY MANAGER, CITY OF CINCINNATI. ALL NOTIFICATIONS AND REPORTS SHALL BE IN WRITING.

TEMPORARY RIGHT OF WAY PARCELS

UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL AND/OR EQUIPMENT. UPON THE COMPLETION OF WORK IN THESE AREAS, THE TEMPORARY EASEMENT SHALL BE IMMEDIATELY VACATED.

SPECIAL PROVISIONS

THE FOLLOWING SPECIAL PROVISIONS APPLY TO THIS PROJECT

FLOODWALL MODIFICATION DOCUMENTATION - 11-29-10 (PART 2)

WICK DRAINS - 10-19-10 (PART 1)

NATIONWIDE PERMIT #14 - 09-09-10 (PART 2)

CONTROLLER ITEM MISC: CONTROLLER UNIT, TYPE 170E, WITH CABINET, TYPE 330 - 04-15-11

MAINTAINING SECURITY TO 624 BURNS STREET (MS MANUFACTURING)

THE SECURITY FENCING/BARRICADES AROUND 624 BURNS STREET (MS MANUFACTURING) SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS FOLLOWS:

1. THE EXISTING SECURITY FENCE/BARRICADES AND GATES SURROUNDING 624 BURNS STREET (MS MANUFACTURING) SHALL NOT BE REMOVED UNTIL NECESSARY FOR REGRADING WORK ON THEIR PROPERTY. ALL WORK THAT WOULD HINDER THE OWNER OF 624 BURNS STREET FROM PERMANENTLY REINSTALLING NEW SECURITY FENCING AND GATES SHALL BE COMPLETED WITHIN 7 CALENDAR DAYS OF WHEN THE EXISTING FENCE/BARRICADES AND GATES ARE REMOVED. THE OWNER OF 624 BURNS STREET SHALL BE GIVEN AT LEAST 30 CALENDAR DAYS ADVANCED NOTICE PRIOR TO ANY REMOVAL OF THE EXISTING FENCE/BARRICADES OR GATES SO THAT THE PROPERTY OWNERS CAN MAKE NECESSARY ARRANGEMENTS FOR TEMPORARY SECURITY AND FOR THE INSTALLATION OF PERMANENT FENCING AND GATES.

ALL COSTS ASSOCIATED WITH MAINTAINING SECURITY TO 624 BURNS STREET (MS MANUFACTURING) SHALL BE CONSIDERED INCIDENTAL TO ITEM 614 MAINTAINING TRAFFIC.

MAINTAINING ACCESS AND SECURITY TO 1900 WEST SIXTH STREET (RIS PAPER)

ACCESS TO AND THE SECURITY FENCING AROUND 1900 W. SIXTH STREET (RIS PAPER) SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS FOLLOWS:

1. ACCESS TO 1900 W. SIXTH STREET (RIS PAPER) MAY BE RESTRICTED ON TWO CONSECUTIVE WEEKENDS FROM A PERIOD BEGINNING AT 9:00 P.M. FRIDAY NIGHT UNTIL 9:00 P.M. SUNDAY NIGHT FOR WORK IN AND ADJACENT TO THE PARKING LOT OF 1900 W. SIXTH STREET (RIS PAPER). EXCEPT THAT DURING THESE TWO PERIODS, ACCESS SHALL ALSO BE PROVIDED FOR THE SINGLE "OVERNIGHT" TRUCK THAT NEEDS ACCESS TO THE LOADING DOCKS AT APPROXIMATELY 1 A.M. TO 2 A.M. SATURDAY MORNING. A DISINCENTIVE IN THE AMOUNT OF $2188.39 PER HOUR WILL BE ASSESSED IF ACCESS TO 1900 W. SIXTH STREET (RIS PAPER) IS RESTRICTED AT ANY OTHER TIME OUTSIDE OF THESE TWO PROVIDED WINDOWS. FAILURE TO PROVIDE ACCESS FROM 1 A.M. TO 2 A.M. SATURDAY MORNING WILL ALSO RESULT IN THIS DISINCENTIVE.
2. THE SECURITY FENCE AND GATES SURROUNDING 1900 W. SIXTH STREET (RIS PAPER) SHALL NOT BE REMOVED UNTIL NECESSARY FOR THE ABOVE DESCRIBED WORK TO BE PERFORMED. ALL WORK THAT WOULD HINDER THE OWNER OF 1900 W. SIXTH STREET FROM PERMANENTLY REINSTALLING NEW SECURITY FENCING AND GATES SHALL BE COMPLETED WITHIN 30 CALENDAR DAYS OF WHEN THE FENCE AND GATES ARE REMOVED. THE OWNER OF 1900 W. SIXTH STREET SHALL BE GIVEN AT LEAST 30 CALENDAR DAYS ADVANCED NOTICE PRIOR TO ANY REMOVAL OF THE EXISTING FENCE OR GATES SO THAT THE PROPERTY OWNERS CAN MAKE NECESSARY ARRANGEMENTS FOR TEMPORARY SECURITY AND FOR THE INSTALLATION OF PERMANENT FENCING AND GATES.
ALL COSTS ASSOCIATED WITH MAINTAINING ACCESS AND SECURITY TO 1900 W. SIXTH STREET (RIS PAPER) SHALL BE CONSIDERED INCIDENTAL TO ITEM 614 MAINTAINING TRAFFIC.

BASIS OF BEARING

BEARINGS ARE BASED UPON OHIO SOUTH ZONE GRID COORDINATES. A PROJECT ADJUSTMENT FACTOR (P.A.F.) OF 0.99994784 CAN BE USED TO CONVERT TO GROUND COORDINATES FOR THIS PROJECT.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND THE GEOID03 GEOID. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE SOUTH ZONE, A LAMBERT CONFORMAL CONIC MAP PROJECTION, THE NORTH AMERICAN DATUM OF 1983 ADJUSTED TO THE NATIONAL SPATIAL REFERENCE SYSTEM OF 2007 (NAD 83(NSRS 2007)), AND THE GRS80 ELLIPSOID.

PROTECTION OF RIGHT-OF-WAY LANDSCAPING

PRIOR TO BEGINNING WORK, THE CONTRACTOR, THE PROJECT ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY WILL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT OF WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS) A RECORD OF THIS REVIEW WILL BE KEPT IN THE PROJECT ENGINEER'S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE. CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. UNLESS OTHERWISE IDENTIFIED IN THE PLANS OR PROPOSAL, THE CONSTRUCTION LIMITS ARE IDENTIFIED AS 30 FEET FROM THE EDGE OF PAVEMENT.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE ANY AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS AS DEFINED ABOVE WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER.

REVIEW OF BUILDINGS AND FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR ALONG WITH CITY OF CINCINNATI REPRESENTATIVES SHALL MAKE AN INSPECTION OF THE EXISTING BUILDINGS AND FACILITIES WITHIN THE WORK LIMITS WHICH ARE TO REMAIN AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING BUILDINGS AND FACILITIES SHALL BE DETERMINED FROM THE FIELD OBSERVATION, RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL EXISTING BUILDINGS AND FACILITIES INSPECTED INITIALLY BY THE ABOVE- MENTIONED SHALL BE MAINTAINED AND LEFT IN A CONDITION COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION, ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTORS OPERATION SHALL BE CORRECTED BY THE CONTRACTOR TO BE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCIDENTAL TO THE TOTAL COST OF PROJECT.

CALCULATED MH
CHECKED JK

GENERAL NOTES

HAM-50-18.79

CALCULATED MH CHECKED JK

GENERAL NOTES

REMOVAL OF THE EXISTING VIADUCT OVER 637 NEAVE STREET

THE STANDARD HOURS OF OPERATIONS FOR THE TENANTS AT 637 NEAVE STREET IS MONDAY THRU FRIDAY, 7:00AM TO 5:00PM. THE EXISTING VIADUCT OVER 637 NEAVE STREET SHALL BE REMOVED DURING THE WEEKENDS WHEN THE BUILDING IS NOT OCCUPIED. COORDINATE WEEKENDS FOR WORKING OVER 637 NEAVE STREET WITH OWNER AT LEAST 30 CALENDAR DAYS IN ADVANCE OF WORK. THE EXISTING STRUCTURE SHALL BE REMOVED TO THE TOP OF THE EXISTING CONCRETE PIER WITHOUT DAMAGING THE EXISTING BUILDING OR THE EXISTING CONCRETE PIER WHICH IS TO REMAIN. THE ANCHOR BOLTS SHALL BE REMOVED TO TWO INCHES BELOW THE TOP OF THE CONCRETE PIER AND CONCRETE PATCHED. ALL WORK SHALL ALSO BE PERFORMED IN SUCH A MANNER THAT IT DOES NOT DAMAGE OR HINDER THE SAFE USE OR THE ADJACENT MULTISTORY BUILDING. ALL COSTS ASSOCIATED WITH REMOVING THE EXISTING STRUCTURE OVER 637 NEAVE STREET SHALL BE CONSIDERED INCIDENTAL TO ITEM 202 PORTIONS OF STRUCTURE REMOVED.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED

THE EXISTING VIADUCT SHALL BE REMOVED IN ITS ENTIRETY. WORK IN THIS PAY ITEM INCLUDES REMOVAL OF PORTIONS OF THE EXISTING STRUCTURE NOT COVERED UNDER INDIVIDUALLY IN OTHER STRUCTURE REMOVED PAY ITEMS. REMOVAL OF THE STRUCTURE SHALL BE DONE ONCE THE EXISTING STRUCTURE IS NO LONGER NEEDED AND AS DETAILED IN THE PROJECT PHASING. REMOVAL SHALL BE PERFORMED AS OUTLINED IN ITEM 202.

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 OF A FOOT OF THE PLAN SUBGRADE ELEVATION. IF THERE IS UNSUITABLE MATERIAL IN A SHALLOW FILL LOCATION, THEN REMOVE AND REPLACE THE UNSUITABLE MATERIAL ACCORDING TO STEP 2 PRIOR TO CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.

2. REMOVE AND REPLACE THE UNSUITABLE MATERIALS (E.G., A-4B, A-2-5, A-5, A-7-5, COAL, SHALE, ROCK). THESE MATERIALS ARE TO BE REMOVED PRIOR TO PROOF ROLLING. THE LIMITS ARE SHOWN ON THE CROSS SECTIONS AS UNSUITABLE SOILS. THE QUANTITIES FOR THE UNSUITABLE SOILS ARE PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

3. CONSTRUCT AND COMPACT THE SUBGRADE ACCORDING TO 204.03.

4. PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06 TO DETERMINE THE ACTUAL LIMITS OF THE SOFT SOILS AND TO VERIFY THE UNIFORMITY OF THE SUBGRADE COMPACTION. THE APPROXIMATE LIMITS OF THE SOFT SOILS ARE SHOWN ON THE CROSS SECTIONS AS SOFT SOILS.

5. THE ENGINEER WILL IDENTIFY THE ACTUAL LOCATIONS OF THESE SOFT SOILS BASED ON THE PROOF ROLLING RESULTS. AFTER THE SOFT SOIL AREAS HAVE BEEN DETERMINED, THE ENGINEER WILL ADJUST THE PLAN WIDTH AND DEPTH OF UNDERCUT BY UTILIZING TEST PITS ACCORDING TO THE CONSTRUCTION INSPECTION MANUAL. THE QUANTITIES FOR THE SOFT SOILS ARE PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

6. UNDERCUT THE AREAS DETERMINED BY THE ENGINEER AND REPLACE WITH GRANULAR MATERIAL, TYPE C ACCORDING TO 204.07. PLACE THE GEOTEXTILE FABRIC IN THE BOTTOM OF THE UNDERCUT ACCORDING TO 204.07 PRIOR TO TYPE C MATERIAL PLACEMENT. THE UNDERCUTS WILL EXTEND TO
18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.

7. PROOF ROLL THE UNDERCUT AREAS ACCORDING TO 204.06 TO VERIFY THE UNDERCUT STABILITY.

8. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

PAYMENT FOR PROOFROLLING WILL BE MADE UNDER:
ITEM 204 - PROOFROLLING 40 HRS

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH LEAN GROUT, ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED IN ACCORDANCE WITH THE PROVISIONS OF 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM 604 - INLET, NO. 3D, AS PER PLAN

THIS ITEM SHALL CONSIST OF CONSTRUCTING A BARRIER INLET PER THE SPECIFICATIONS OF ITEM 604 AND STANDARD CONSTRUCTION DRAWING I-2.3 FOR THE MEDIAN BARRIER AS DETAIL ON SHEET 591. BARRIER REINFORCING DETAIL TO BE VERIFIED AND APPROVED BY THE ENGINEER. ALL MATERIAL AND WORK FOR THIS ITEM WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 604 - INLET, NO. 3D, AS PER PLAN.

MANHOLE MISC: EXTEND SLUICE GATE CONTROL STEM

THIS ITEM SHALL INCLUDE EXTENDING THE SLUICE GATE CONTROL STEM PER MSD REQUIREMENTS. ALL MATERIAL, LABOR, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR MANHOLE MISC: EXTEND SLUICE GATE CONTROL STEM.

MANHOLE MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE

THIS ITEM SHALL INCLUDE RECONSTRUCTING THE REGULATION CHAMBER AT STA. 17+76, 7.6' RT ℄ US 50. THE CHAMBER SHALL BE RECONSTRUCTED TO THE PROPOSED ROADWAY GRADE WITH A MANHOLE ACCESS. THIS ITEM SHALL ALSO INCLUDE REMOVAL AND STORAGE OF ALL APPURTENANCES TO BE RECEIVED BY MSD. A NEW SLAB TOP SHALL BE CONSTRUCTED PER DETAIL SHOWN ON SHEET 214 WITH A MANHOLE CONE SECTION, RISER RINGS, FRAME AND LID TO MEET THE PROPOSED PAVEMENT ELEVATION. ANY DAMAGE TO THE CHAMBER SHALL BE REPAIRED UNDER THIS ITEM. ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLETE THIS WORK SHALL BE PAID FOR UNDER MANHOLE MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE.

6" CONDUIT, TYPE B, AS PER PLAN

THIS ITEM SHALL INCLUDE CONSTRUCTING SANITARY SERVICE LATERALS WITH T-BRANCH AND TAP. ALL MATERIALS AND CONSTRUCTION SHALL BE PER MSD RULES AND REGULATIONS FOR CONSTRUCTING SANITARY SEWERS. ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLETE THIS WORK SHALL BE PAID FOR UNDER ITEM 603 - 6" CONDUIT, TYPE B, AS PER PLAN.

ITEM SPECIAL, MISC.: CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION

ALL CONCRETE SHALL BE TESTED. ALL TESTING, INSPECTION AND QUALITY CONTROL FOR CONCRETE, NOT INCLUDED UNDER SUPPLEMENTAL SPECIFICATIONS 888 AND 898, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A CONCRETE TESTING CONSULTANT WITH PREVIOUS EXPERIENCE AND FAMILIARITY IN ODOT PROCEDURES, CONCRETE TESTING REQUIREMENTS AND CONCRETE TESTING DOCUMENTATION. AT LEAST 30 DAYS PRIOR TO CONCRETE PLACEMENT, SUBMIT TO THE ENGINEER FOR APPROVAL, THE PROPOSED CONCRETE TESTING CONSULTANT ALONG WITH THE RESUMES OF THE PROPOSED TESTING PERSONNEL.

TESTING CONCRETE FOR STRUCTURES AND PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE PERFORMED AS OUTLINED IN SUPPLEMENTAL SPECIFICATIONS 898 AND 888 RESPECTIVELY.

THROUGH THE CONTRACTOR, THE CONSULTANT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONCRETE PLACED IS IN ACCORDANCE WITH THE SPECIFICATIONS. SUCH WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE ODOT CONSTRUCTION INSPECTION MANUAL OF PROCEDURES FOR CONCRETE. THE CONCRETE CONSULTANT SHALL PROVIDE THE NECESSARY TRAINED TECHNICIAN(S), ALL EQUIPMENT, AND SHALL FURNISH THE PROJECT ENGINEER WITH TWO (2) COPIES OF ALL TEST RESULTS WITHIN 24 HOURS AFTER COMPLETION OF CONCRETE PLACEMENT.

THE TECHNICIAN SHALL BE ACI LEVEL I CERTIFIED AND WILL BE REQUIRED TO DEMONSTRATE HIS/HER COMPETENCE AND EXPERIENCE LEVELS TO THE ENGINEER PRIOR TO BEGINNING WORK. THE ENGINEER WILL ORDER THE CONTRACTOR TO REPLACE ANY TECHNICIAN THAT IS NOT VERSED IN THE REQUIRED TESTING PROCEDURE.

ITEM SPECIAL, MISC.: CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION (CONT.)

UPON COMPLETION OF DAILY CONCRETE PLACEMENT(S), THE CONCRETE CONSULTANT SHALL PROVIDE THE PROJECT ENGINEER WITH DAILY TEST REPORTS, TE-45'S, INSPECTORS DAILY REPORT AND SUPPORTING DOCUMENTATION FOR EACH ITEM OF CONCRETE WORK PERFORMED SEPARATED BY MIX DESIGN. SUBSEQUENTLY, UPON COMPLETION OF AN ENTIRE CONCRETE SPECIFICATION ITEM, THE CONCRETE CONSULTANT SHALL ALSO PROVIDE THE PROJECT ENGINEER WITH TWO (2) COPIES OF AN ADDITIONAL INSPECTION REPORT BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, WHICH CONTAINS THE TESTING-RESULTS SUMMARY FOR EACH ITEM BY CONTRACT REFERENCE NUMBER AND THE CONSULTANT'S CONCLUSIONS RELATIVE TO SPECIFICATION COMPLIANCE FOR ALL CONCRETE-TESTING WORK.

THE ODOT PROJECT ENGINEER RESERVES THE RIGHT TO MAKE UNANNOUNCED QUALITY-CONTROL TESTS TO VERIFY PROCEDURES USED AND RESULTS BEING OBTAINED BY THE CONTRACTOR.

THE TECHNICIAN SHALL VERBALLY NOTIFY THE ODOT PROJECT ENGINEER OF ANY FAILING TEST AND SHALL SUBMIT FOLLOW-UP WRITTEN NOTIFICATION TO THE PROJECT ENGINEER OF REMEDIAL ACTION(S) TAKEN. TESTS SHALL BE TAKEN AS SPECIFIED WITHIN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, CONCRETE MANUAL OR APPROPRIATE SUPPLEMENTAL SPECIFICATION AS LISTED IN THE PROPOSAL GOVERNING THE PROJECT. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAKE IMMEDIATE CORRECTIONS OR ADJUSTMENTS TO THE CONCRETE MIX VIA DIRECT COMMUNICATION WITH THE CONCRETE SUPPLIER'S PLANT PERSONNEL TO MAINTAIN UNINTERRUPTED COMPLIANCE WITH THE SPECIFICATIONS UPON NOTIFICATION OF CONCRETE MIX NON-COMPLIANCE BY THE CONSULTANT TECHNICIAN. THE PROJECT ENGINEER MAY REQUIRE MORE FREQUENT TESTING AS CONDITIONS WARRANT.

THE CONCRETE TECHNICIAN SHALL WORK UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, WHO WILL MONITOR THE CONCRETE TEST RESULTS. THE FINAL INSPECTION REPORTS FOR EACH COMPLETED ITEM SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO, CERTIFYING THAT ALL CONCRETE TESTS PROVIDED BY THE CONTRACTOR MET APPLICABLE CONTRACT REQUIREMENTS. A FINAL REPORT ISSUED BY THE CONSULTING FIRM SHALL CONTAIN A CERTIFIED STATEMENT OF COMPLIANCE WITH ODOT SPECIFICATIONS AND ANY OTHER CONCLUSIONS REGARDING THE CONCRETE MATERIALS INCORPORATED INTO THE PROJECT. SUCH STATEMENT SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER, STATE OF OHIO. AND, THE CONCRETE CONSULTANT SHALL BE REQUIRED TO ATTEND MONTHLY PROGRESS MEETINGS AS REQUIRED BY THE PROJECT ENGINEER.

ADDITIONALLY, THE CONTRACTOR SHALL BE REQUIRED TO KEEP A POSTED LIST OF BEAM AND CYLINDER IDENTIFICATION NUMBERS FOR THE PURPOSE OF IDENTIFYING THE CORRESPONDING PLACEMENT LOCATION AND CONCRETE SPECIFICATION ITEM.

PAYMENT SHALL BE BID AS LUMP SUM FOR ITEM SPECIAL MISC.: CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION. THE ITEM WILL BE PAID FOR AS FOLLOWS:
UPON APPROVAL OF CONSULTANT 20%
PROGRESSIVE EQUIVALENT PAYMENTS 50%
UPON SUBMISSION OF FINAL REPORT . . . . . 30%.

PAYMENT FOR TESTING, INSPECTION AND QUALITY CONTROL WILL BE INCLUDED WITH THE APPROPRIATE LUMP-SUM CONCRETE ITEM.

CALCULATED MH CHECKED JK

GENERAL NOTES

ADDITIONAL SOIL INFORMATION

THE SOIL PROFILE AND/OR STRUCTURE FOUNDATION INVESTIGATIONS SHEETS CONTAIN ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN. ADDITIONAL SUBSURFACE INVESTIGATION INFORMATION IS AVAILABLE FROM OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8, AND THE THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING, THE ODOT CITY OF CINCINNATI.

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN 203.05. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF 203.05.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, SOIL ANALYSIS TEST	2	EACH
653, TOPSOIL FURNISHED AND PLACED	315	CU. YD.
659, SEEDING AND MULCHING	27,979	SQ. YD.
659, REPAIR SEEDING AND MULCHING	1400	SQ. YD
659, INTER-SEEDING	1000	SQ. YD.
659, COMMERCIAL FERTILIZER	4	TON
659, LIME	6	ACRES
659, WATER	0.2	M. GAL.
659, MOWING	0.3	M. SQ. FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

BACKFILL OF EXCAVATED AREAS

ALL EXCAVATED AREAS SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN ACCORDANCE WITH THE PROJECT PLANS, APPLICABLE ODOT SPECIFICATIONS, AND/OR AS DIRECTED BY THE ENGINEER. ALL SURPLUS OR UNSUITABLE EXCAVATED MATERIAL THAT CANNOT BE USED IN EMBANKMENT SHALL BE DISPOSED OF IN ACCORDANCE WITH ITEM 203.05 OF ODOT'S CMS.

GENERAL NOTES

ALL TRANSPORT VEHICLES USED FOR THE MOVEMENT OF REGULATED SOILS AND/OR WATER SHALL MEET APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. THE CONTRACTOR SHALL MAINTAIN RECORDS (SUCH AS DAILY LOGS, LANDFILL TICKETS, MANIFESTS, ETC.) THAT DOCUMENT THE SOURCE, MOVEMENT AND DESTINATION OF EACH TRUCKLOAD OF CONTAMINATED MATERIAL. ONE COPY OF EACH OF THESE RECORDS SHALL BE SUBMITTED TO THE ENGINEER.

ITEM 202 - REMOVAL MISC: BILLBOARD REMOVAL

THIS ITEM INCLUDES REMOVAL AND DISPOSAL OF THE BILLBOARD AT THE LOCATION SHOWN IN THE PLANS. REMOVE THE BILLBOARD STRUCTURE TO AT LEAST ONE FOOT BELOW THE EXISTING GROUND SURFACE, THE PROPOSED ROADWAY SUBGRADE LEVEL, OR TO A DEPTH OF 1 FT. BELOW ANY PROPOSED WORK AT THE BILLBOARD LOCATION. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING BILLBOARD STRUCTURE AND FOUNDATION TYPE PRIOR TO BIDDING AS THE DEPARTMENT DOES NOT HAVE CONSTRUCTION RECORDS OR DRAWINGS OF THESE STRUCTURES. BACKFILL THE CAVITY CREATED BY BILLBOARD REMOVAL IN ACCORDANCE WITH ITEM 202.02, EXCEPT WHEN THE CAVITY LIES WITHIN THE LIMITS OF SUBSEQUENT EXCAVATION OR OTHER WORK. PAYMENT INCLUDES REMOVAL, BACKFILL, AND DISPOSAL OF EACH BILLBOARD STRUCTURE AND INCLUDES ALL LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK AS DESCRIBED.

ITEM 202 - REMOVAL MISC: BILLBOARD REMOVAL FROM PARCEL 14 -- 2 EACH
ITEM 202 - REMOVAL MISC: BILLBOARD REMOVAL FROM PARCEL 27 -- 1 EACH
ITEM 202 - REMOVAL MISC: BILLBOARD REMOVAL FROM PARCEL 60 -- 2 EACH

CONTRACT WORK INVOLVING HAZARDOUS MATERIALS

A 1994 PHASE II ENVIRONMENTAL SITE ASSESSMENT (ESA) INVESTIGATION IN THE PROPOSED WALDVOGEL VIADUCT REPLACEMENT PROJECT STUDY AREA HAS INDICATED THE PRESENCE OF CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS (VOC), SEMIVOLATILE ORGANIC COMPOUNDS (SVOC), METALS AND PETROLEUM HYDROCARBONS IN SOIL SAMPLES TAKEN FROM THE PROPERTIES FORMERLY OWNED BY AMTRAK AND I. LEVINE AND COMPANY NEAR THE EAST END OF THE PROJECT. THESE CHEMICALS WERE IDENTIFIED DURING THE PHASE II ESA IN SOIL SAMPLES TAKEN AT BORING LOCATIONS B-2, B-3, B-4, B-7 (SEE BHE ENVIRONMENTAL, INC. "SITE MAP" LABELED FIGURE 2 AND DATED 12-23-93). BASED ON THESE FINDINGS, IT IS PROBABLE THAT THE POTENTIAL FOR ENCOUNTERING PETROLEUM CONTAMINATED SOILS (PCS) OR OTHER HAZARDOUS MATERIALS DURING CONSTRUCTION EXCAVATION IN THE VICINITY OF THESE BORINGS EXISTS.

A 2002 PHASE II ESA INVESTIGATION WITH A SOIL SAMPLE TAKEN AT BORING LOCATION GB-7 (SEE BHE ENVIRONMENTAL, INC. "PHASE II SAMPLING LOCATIONS WALDVOGEL MEMORIAL VIADUCT" LABELED FIGURE 3 AND DATED 11-26-01) HAS ALSO IDENTIFIED THE PRESENCE OF ELEVATED CONCENTRATIONS OF LEAD (1,100 PARTS PER MILLION) IN SOILS AT THE NORTHEAST CORNER OF RIVER ROAD AND BURNS STREET. BEFORE CONSTRUCTION IN THIS AREA BEGINS, ANALYSIS OF SAMPLES IN THIS AREA FOR LEAD BY THE TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (TCLP) IN ORDER TO IDENTIFY DISPOSAL REQUIREMENTS FOR THESE SOILS WILL BE REQUIRED. THIS SAME PHASE II ESA IDENTIFIED AN ELEVATED CONCENTRATION OF BENZO(A)PYRENE, A POLYNUCLEAR AROMATIC HYDROCARBON, AT BORING LOCATION GB-26 AND THE PRESENCE OF PETROLEUM CONTAMINATED SOIL AT BORING LOCATION BG-5.

SITE SPECIFIC HEALTH AND SAFETY PLAN (SSHSP)

THE CONTRACTOR SHALL CERTIFY IN WRITING TO THE ENGINEER WITHIN TWO WEEKS AFTER CONTRACT EXECUTION THAT THE CONTRACTOR HAS PREPARED A SSHSP IN ACCORDANCE WITH OSHA 29 CFR PARK 1910.120 FOR OPERATIONS INVOLVING HAZARDOUS SUBSTANCES WITHIN THE AFOREMENTIONED LIMITS. THE CONTRACTOR SHALL MAKE THE SSHSP AVAILABLE AT THE PROJECT SITE. COPIES OF THE ENVIRONMENTAL STUDIES ARE AVAILABLE FOR EXAMINATION IN THE OFFICE OF CONTRACTS AND THE ODOT DISTRICT 8 PLANNING DEPARTMENT. THIS INFORMATION MAY BE USED BY THE CONTRACTOR TO DEVELOP THE SSHSP.

WORK INVOLVING POLYCHLORINATED BIPHENYLS (PCBs)

POLE-MOUNTED ELECTRICAL TRANSFORMERS WITHIN THE PROJECT AREA THAT ARE NOT LABELED AS "NON-PCB" TRANSFORMERS AND HAVE NOT BEEN TESTED MUST ASSUME TO BE CONTAMINATED WITH POLYCHLORINATED BIPHENYLS (PCBs). IN ADDITION, THE ENVIRONMENTAL SITE ASSESSMENT (ESA) ENVIRONMENTAL CONSULTANT FOR THE PROJECT DID NOT EVALUATE THE EXISTING BUILDINGS WITHIN THE PROJECT AREA TO DETERMINE THE TYPES OF LIGHTING USED. RAPID-START BALLASTS INSIDE OLDER FLUORESCENT LIGHTS (MANUFACTURED BEFORE 1979) HAVE BEEN FOUND TO CONTAIN HIGH CONCENTRATIONS OF PCBs. BECAUSE THE EXISTING BUILDINGS WERE CONSTRUCTED BEFORE 1979 AND ARE LIKELY TO CONTAIN FLUORESCENT LIGHTING, IT IS POSSIBLE THAT PCB-CONTAINING BALLASTS WERE USED AND MAY STILL BE PRESENT ON SITE. IF THE FLUORESCENT LIGHT BALLASTS DO CONTAIN PCBs, THEY WOULD NOT PRESENT AN IMMEDIATE HAZARD UNLESS THEY LEAK. THE CONTRACTOR SHALL USE CAUTION WHEN WORKING WITH ANY OF THESE POTENTIAL PCB-CONTAINING ITEMS.

ALL WORK BY THE CONTRACTOR INVOLVING THESE HAZARDOUS MATERIALS SHALL BE IN ACCORDANCE WITH 2010 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS), INCLUDING SECTION 203.04, THE 2010 ODOT CONSTRUCTION INSPECTION MANUAL OF PROCEDURES (CIMP) AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. PAYMENT FOR THIS WORK SHALL BE MADE ACCORDING TO ODOT 2010 CMS 109.05.

THE ABOVE STATED CONTRACT REQUIREMENTS FOR HANDLING OF HAZARDOUS MATERIALS ARE NOT INTENDED TO REPLACE BID PROPOSAL NOTES, ATTACHMENTS OR OTHER CONTRACT LANGUAGE RELATED TO "SAFETY" AND PROPER HANDLING OF HAZARDOUS MATERIALS. ANY AND ALL OF THOSE "SAFETY" REGULATIONS ARE STILL FULLY APPLICABLE AND ENFORCEABLE AS PER THE CONSTRUCTION CONTRACT.

WORK INVOLVING ASBESTOS CONTAINING MATERIAL (ACM)

THE PROJECT WILL REQUIRE THE DEMOLITION/RENOVATION OF SEVERAL EXISTING BUILDINGS. PRIOR TO THE DEMOLITION/ RENOVATION OF THESE STRUCTURES, THE CONTRACTOR SHALL COMPLETE AN OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM AND SUBMIT THIS TO THE OEPA AT LEAST 10 WORKING DAYS BEFORE DEMOLITION/RENOVATION OPERATIONS BEGIN. IN ADDITION, ANY APPLICABLE LOCAL AIR QUALITY NOTIFICATIONS REQUIRED MUST BE SUBMITTED TO THE APPLICABLE LOCAL AUTHORITY. PRIOR TO ANY DEMOLITION/RENOVATION OPERATIONS, THE CONTRACTOR SHALL DETERMINE IF ANY ASBESTOS CONTAINING MATERIAL (ACM) IS PRESENT IN THE STRUCTURES BY HIRING A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST (CAHES) TO SURVEY THE STRUCTURES FOR THE PRESENCE OF ACM.

PAYMENT FOR THE INSPECTION BY A CAHES WILL BE MADE UNDER : ITEM SPECIAL - MISC: CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST (CAHES) INSPECTION SERVICES -- LUMP SUM

SHOULD ACM BE ENCOUNTERED IN ANY OF THE STRUCTURES, ALL SUSPECT MATERIALS SHALL BE REMOVED AND PROPERLY DISPOSED OF BY A CERTIFIED ASBESTOS REMOVAL CONTRACTOR IN ACCORDANCE WITH OHIO ADMINISTRATIVE CODE (OAC) SECTION 3745-20. AN INDIVIDUAL TRAINED IN THE PROVISIONS OF NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION/RENOVATION OF ANY STRUCTURE CONTAINING ACM, AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON SHALL BE AVAILABLE DURING NORMAL BUSINESS HOURS. AS PART OF COMPLIANCE WITH THE ABOVE STATE REGULATIONS FOR PROPER ACM REMOVAL, THE CONTRACTOR SHALL TAKE WHATEVER PRECAUTIONS ARE POSSIBLE TO ENSURE THAT THE ACM DOES NOT BECOME FRIABLE. ALL ACM'S SHALL BE PROPERLY HANDLED, CONTAINERIZED, TRANSPORTED AND DISPOSED OF IN ACCORDANCE WITH ANY AND ALL FEDERAL, STATE AND LOCAL REGULATIONS.

THE CONTRACTOR SHALL HIRE A CERTIFIED CONSULTANT FOR ALL LABOR (INCLUDING A CAHES), EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE, SUBMIT AND COMPLY WITH THE OEPA NOTIFICATION FOR, AND TO HANDLE, REMOVE, TRANSPORT AND DISPOSE OF ACM IN A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OEPA) SOLID WASTE FACILITY. PAYMENT FOR THIS WORK SHALL BE MADE ACCORDING TO ODOT 2010 CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) 109.05.

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WORK INVOLVING UNDERGROUND STORAGE TANKS

THERE MAY ALSO BE THE POTENTIAL OF ENCOUNTERING UNDERGROUND STORAGE TANKS (UST) DURING EXCAVATION ACTIVITIES. ALL UST'S WITHIN THE PROPOSED RIGHT-OF-WAY LIMITS OF THE PROJECT SHALL BE REMOVED BY THE CONTRACTOR. ALL REMOVAL WORK WILL BE PERFORMED UNDER THE SUPERVISION OF A BUSTR CERTIFIED TANK INSTALLER AS PER THE 2010 ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS (CMS) SECTION 202.08 AND THE 2010 ODOT CONSTRUCTION INSPECTION MANUAL OF PROCEDURES (CIMP). AS THE POTENTIAL FOR LEAKAGE OF THE UST'S OVER TIME EXISTS, THERE IS A HIGH PROBABILITY OF ENCOUNTERING PETROLEUM-CONTAMINATED SOIL (PCS) AND PETROLEUM CONTAMINATED GROUNDWATER DURING CONSTRUCTION OPERATIONS. ALL WORK BY THE CONTRACTOR INVOLVING HAZARDOUS MATERIALS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE 2010 ODOT CMS, INCLUDING SECTION 203.04, THE 2010 ODOT CIMP AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

WORK INVOLVING HAZARDOUS MATERIALS

1.0 TESTING, MATERIAL SAMPLING

BASED ON PHASE 2 ENVIRONMENTAL SITE ASSESSMENT TEST RESULTS, THERE IS POTENTIAL TO ENCOUNTER PETROLEUM CONTAMINATED SOILS AT THE FOLLOWING LOCATIONS:

AREA 1
STA. 26+55, 40' LT.
STA. 26+70, 125' LT.
STA. 27+50, 25' LT.
STA. 27+60, 95' LT.
AREA 2
STA. 28+20, 75' RT.
STA. 29+00, 120' RT.
STA. 30+15, 125 ' LT.
STA. 31+00, 75' LT.
AREA 3
STA. 32+45, 60 ' LT.
STA. 32+45, 120' RT.
STA. 35+50, 180' LT.
STA. 40+50, 180 ' LT.
STA. 40+85, 180' RT.
(LIMITS ARE POINTS MEASURED FROM THE CENTERLINE OF PROPOSED US 50 AND ARE APPROXIMATE)

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH TEN (10) DAYS NOTICE PRIOR TO BEGINNING ANY EXCAVATION WITHIN THE AFOREMENTIONED LIMITS. ALL MATERIAL EXCAVATED BY THE CONTRACTOR BETWEEN THESE LIMITS DURING CONSTRUCTION SHALL BE SUBJECT TO ENVIRONMENTAL FIELD TESTING AND INSPECTION BY AN INSPECTOR PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE INSPECTOR SELECTED BY THE CONTRACTOR FOR THE NECESSARY TESTING SERVICES MUST BE PROPERLY CERTIFIED TO PERFORM THE REQUIRED FIELD ENVIRONMENTAL TESTING AND EMPLOYED BY A CONSULTANT THAT IS ODOT PREQUALIFIED IN ENVIRONMENTAL SITE ASSESSMENT (ESA) REMEDIATION DESIGN. A LIST OF THESE ODOT PREQUALIFIED CONSULTANTS AVAILABLE FOR USE BY THE CONTRACTOR CAN BE FOUND AT THE FOLLOWING WEB ADDRESS:
HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/PRODMGT/CONSULTANT/CONSULTANT/PREQUAL-ENVIRON.PDF

WORK INVOLVING HAZARDOUS MATERIALS (CONT.)

THE INSPECTOR SHALL BE ON-SITE DURING ALL EXCAVATION ACTIVITIES IN THE AREAS OF ANTICIPATED PETROLEUM CONTAMINATION SOILS AND FIELD-SCREEN EACH 2 CUBIC YARDS OF THE EXCAVATED MATERIAL FOR PETROLEUM CONTAMINATION. THE INSPECTOR SHALL USE AN ORGANIC VAPOR ANALYZER (OVA) TO PERFORM THE FIELD SCREENING. AT THE DISCRETION OF THE INSPECTOR, THE EXCAVATED MATERIAL, WHICH EXHIBITS PETROLEUM CONTAMINATION, SHALL BE STOCKPILED AND SEGREGATED WHILE SAMPLES OF THE MATERIAL ARE ANALYZED BY AN INDEPENDENT ANALYTICAL LABORATORY. FIELD-SCREENING RESULTS AND VISUAL OBSERVATION WILL BE THE BASIS FOR SEGREGATING EXCAVATED MATERIAL. STOCKPILES WILL BE A MAXIMUM OF 100 CUBIC YARDS. 3 SOIL SAMPLES PER 100 CUBIC YARD STOCKPILE OF SUSPECT SHALL BE TESTED FOR BTEX (BENZENE, TOLUENE, ETHYL BENZENE AND XYLENE) BY METHOD 8020 AND TPH BY METHOD 8015. IF THE BTEX AND/OR TPH LEVELS EXCEED LEVELS SET FORTH BY THE OHIO EPA PETROLEUM CONTAMINATED SOIL POLICY, THE MATERIAL SHALL BE TREATED AS PETROLEUM-CONTAMINATED SOIL. ALL FIELD-SCREENING INSTRUMENTS AND INITIAL SAMPLING AND ANALYSIS OF SOILS WILL BE PROVIDED BY THE CONTRACTOR. PAYMENT FOR THE FIELD SCREENING AND INSPECTION ACTIVITIES IN THE ANTICIPATED AREAS OF PETROLEUM CONTAMINATED SOILS SHALL BE INCLUDED IN ITEM SPECIAL MATERIAL SAMPLING.

2.0 TEMPORARY STORAGE OF CONTAMINATED MATERIAL

ALL EXCAVATED MATERIAL, WHICH IS DETERMINED TO BE POTENTIALLY CONTAMINATED WITH PETROLEUM SUBSTANCES, SHALL BE STOCKPILED IN AN AREA PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL STOCKPILE THE MATERIAL IN A LEAK PROOF, COVERED CONTAINER PROVIDED BY THE CONTRACTOR. THE MATERIAL SHALL REMAIN ON-SITE UNTIL ANALYTICAL RESULTS ARE RECEIVED BY THE ENGINEER. AN ESTIMATED 2,000 TONS OF SOIL IS ANTICIPATED TO REQUIRE TEMPORARY STORAGE.

AS AN ALTERNATE, THE ENGINEER MAY PERMIT TEMPORARY STORAGE OF SUSPECTED CONTAMINATED SOILS ON AN IMPERMEABLE MEMBRANE, IN 100 CUBIC YARD MAXIMUM STOCKPILES. THE LOCATION OF THE STOCKPILE SHALL BE APPROVED BY THE ENGINEER. THE MEMBRANE SHALL BE SURROUNDED BY BALES OF STRAW TO PREVENT THE SUSPECT SOILS FROM COMING IN CONTACT WITH THE ORIGINAL SOILS. AN IMPERMEABLE MEMBRANE SHALL BE PLACED OVER THE STOCKPILE TO PREVENT CONTACT WITH PRECIPITATION AND/OR SURFACE RUN-OFF.

3.0 ITEM SPECIAL WORK INVOLVING PETROLEUM-CONTAMINATED SOIL

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS PETROLEUM-CONTAMINATED SOIL (PCS) BASED ON THE ANALYTICAL TEST RESULTS. THE CONTRACTOR WILL PROVIDE THE ENGINEER WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITY OR A PETROLEUM CONTAMINATED SOIL REMEDIATION FACILITY (PCSRF) FOR PROPER DISPOSAL OR REMEDIATION. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE THE ADDITIONAL TESTING REQUIRED FOR DISPOSAL OR REMEDIATION AT THAT FACILITY.

WORK INVOLVING HAZARDOUS MATERIALS (CONT.)

THE CONTRACTOR MUST UTILIZE THE SERVICES OF AN INSPECTOR WHO IS PROPERLY CERTIFIED TO PERFORM THE REQUIRED TESTING, EMPLOYED BY A CONSULTANT ODOT PREQUALIFIED IN ESA REMEDIATION DESIGN AND APPROVED BY THE ENGINEER. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES DEVELOPING AND COMPLYING WITH A SSHSP; HANDLING, STORAGE, TESTING (FOR DISPOSAL OR REMEDIATION); AND DISPOSAL OR REMEDIATION OF PCS. WHEN DIRECTED BY THE PROPOSED FACILITY, THE CONTRACTOR SHALL HAVE AN INDEPENDENT LABORATORY COLLECT SAMPLES AND TEST THE EXCAVATED OR STORED MATERIALS FOR PCS DISPOSAL OR REMEDIATION APPROVAL.

4.0 ITEM SPECIAL - WORK INVOLVING HAZARDOUS WASTE

THE INSPECTOR WILL DETERMINE THE IDENTITY OF THE EXCAVATED MATERIAL BASED ON THE ANALYTICAL TEST RESULTS. THE CONTRACTOR WILL PROVIDE THE ENGINEER WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITY FOR PROPER DISPOSAL OR REMEDIATION. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE THE ADDITIONAL TESTING REQUIRED FOR DISPOSAL OR REMEDIATION AT THAT FACILITY. THE CONTRACTOR MUST UTILIZE THE SERVICES OF AN INSPECTOR WHO IS PROPERLY CERTIFIED TO PERFORM THE REQUIRED TESTING, EMPLOYED BY A CONSULTANT ODOT PREQUALIFIED IN ESA REMEDIATION DESIGN AND APPROVED BY THE ENGINEER. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES DEVELOPING AND COMPLYING WITH A SSHSP; HANDLING, STORAGE, TESTING (FOR DISPOSAL OR REMEDIATION); AND DISPOSAL OR REMEDIATION OF THE HAZARDOUS WASTE. WHEN DIRECTED BY THE PROPOSED FACILITY, THE CONTRACTOR SHALL HAVE AN INDEPENDENT LABORATORY COLLECT SAMPLES AND TEST THE EXCAVATED OR STORED MATERIALS FOR HAZARDOUS WASTE DISPOSAL OR REMEDIATION APPROVAL. ALL WORK BY THE CONTRACTOR INVOLVING HAZARDOUS WASTE SHALL BE IN ACCORDANCE WITH ALL APPLICABLE 2010 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS), INCLUDING SECTION 203.04, THE 2010 ODOT CONSTRUCTION INSPECTION MANUAL OF PROCEDURES (CIMP) AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

5.0 ITEM SPECIAL - WORK INVOLVING SOLID WASTE

THE CONTRACTOR SHALL PROPERLY TRANSPORT AND DISPOSE OF THE EXCAVATED MATERIAL THAT IS CONSIDERED SURPLUS OR UNSUITABLE IN A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITY. IF REQUIRED BY THE SOLID WASTE FACILITY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING ANY ADDITIONAL SAMPLING AND ANALYSIS OF THE EXCAVATED MATERIAL. THE CONTRACTOR MUST UTILIZE THE SERVICES OF AN INSPECTOR WHO IS PROPERLY CERTIFIED TO PERFORM THE REQUIRED SAMPLING AND ANALYSIS, EMPLOYED BY A CONSULTANT ODOT PREQUALIFIED IN ESA REMEDIATION DESIGN AND APPROVED BY THE ENGINEER. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM.

WORK INVOLVING HAZARDOUS MATERIALS (CONT.)

6.0 POTENTIAL DEWATERING OF EXCAVATED AREAS

IN THE EVENT THAT PETROLEUM CONTAMINATED, OR OTHER SOURCE CONTAMINATED, GROUNDWATER IS ENCOUNTERED, ANY EXCAVATIONS WITHIN THE PROPOSED CONSTRUCTION LIMITS OF THE PROJECT, WHICH REQUIRE DEWATERING FOR CONSTRUCTION PURPOSES, THE CONTRACTOR SHALL DEWATER AND SUBSEQUENTLY DISPOSE OF WATERS BY METHODS APPROVED BY THE ENGINEER. ALL WATER CONTAINERIZED BY THE CONTRACTOR BETWEEN THESE LIMITS SHALL BE SUBJECT TO TESTING BY AN INSPECTOR PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE INSPECTOR SELECTED BY THE CONTRACTOR FOR THE NECESSARY TESTING SERVICES MUST BE PROPERLY CERTIFIED TO PERFORM THE REQUIRED TESTING AND EMPLOYED BY A CONSULTANT ODOT PREQUALIFIED IN ENVIRONMENTAL SITE ASSESSMENT (ESA) REMEDIATION DESIGN. A LIST OF THESE ODOT PREQUALIFIED CONSULTANTS AVAILABLE FOR USE BY THE CONTRACTOR CAN BE FOUND AT THE FOLLOWING WEB ADDRESS:
HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/PRODMGT/CONSULTANT/CONSULTANT/PREQUAL-ENVIRON.PDF

THE INSPECTOR WILL CLASSIFY THE WATER AS EITHER NON-REGULATED OR REGULATED. THE METHOD FOR DISPOSING OF THE NON-REGULATED WATER SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE REGULATED WATER IN ACCORDANCE WITH RECOMMENDATIONS MADE BY THE ODOT PREQUALIFIED INSPECTOR AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND/OR AUTHORIZATIONS NEEDED TO PROPERLY HANDLE, STORE, TEST, TRANSPORT AND DISPOSE OF THE WATER IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

7.0 BASIS OF PAYMENT

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PROPERLY DEVELOP AND COMPLY WITH A SSHP, EXCAVATE, STORE, TEST (FOR DISPOSAL), TRANSPORT AND DISPOSE OF CONTAMINATED MATERIALS, REMOVAL OF UNDERGROUND STORAGE TANKS, INCLUDING ANY REQUIRED APPROVALS OR FEES WITHIN THE LIMITS DEFINED ABOVE. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICES BID PER TON, PER CUBIC YARD AND PER UNDERGROUND TANK. APPLICABLE PERMITS FOR DISPOSAL OF CONTAMINATED SOIL AND WATER SHALL BE SUBMITTED TO THE DISTRICT REGULATED WASTE PROJECT ENGINEER (RWPE) FOR SIGNATURE.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM SPECIAL-TESTING, MATERIAL SAMPLING	LUMP
ITEM SPECIAL-TEMPORARY STORAGE OF CONTAMINATED MATERIAL	2000 TONS
ITEM SPECIAL-WORK INVOLVING NON-REGULATED MATERIALS	250 TONS
ITEM SPECIAL-WORK INVOLVING PETROLEUM-CONTAMINATED SOIL	2,000 TONS
ITEM SPECIAL-WORK INVOLVING SOLID WASTE	7,500 TONS
ITEM SPECIAL-WORK INVOLVING HAZARDOUS WASTE	125 TONS
ITEM SPECIAL-WORK INVOLVING WATER	100,000 GALLONS
ITEM SPECIAL-WORK INVOLVING REGULATED WATER	50,000 GALLONS
ITEM 202-UNDERGROUND STORAGE TANK REMOVED	5 EACH
ITEM SPECIAL-GROUND WATER MONITORING WELL ABANDONMENT	5 EACH
ITEM SPECIAL-ACTIVE GROUND WATER MONITORING WELL RECONTRUCTION	5 EACH
ITEM SPECIAL-ACTIVE GROUND WATER MONITORING WELL GRADE ADJUSTMENT	5 EACH

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GENERAL NOTES

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614 MAINTAINING TRAFFIC

THE PURPOSE OF THIS PROJECT IS TO REMOVE THE EXISTING MEMORIAL VIADUCT, INCLUDING THE REMOVAL OF THE FOUR RAMPS TO ELBERON AND WARSAW AVENUES. REPLACEMENT OF THE STRUCTURES FOR THE FOUR RAMPS, REMOVAL AND REPLACEMENT OF THE ROADWAY FOR THE PROPOSED IMPROVEMENTS TO RIVER ROAD, ELBERON AVENUE, WARSAW AVENUE, STATE STREET, EVANS STREET AND MARYLAND AVENUE:

ALL WORK VEHICLES LICENSED TO OPERATE ON THE HIGHWAY, INCLUDING MATERIAL TRUCKS, SHALL BE EQUIPPED WITH A FLASHING, ROTATING OR OSCILLATING AMBER LIGHT VISIBLE TO ALL DIRECTIONS OF TRAFFIC A MINIMUM OF ONE-QUARTER MILE IN BRIGHT SUNLIGHT AND SHALL BE OPERATED WITH LIGHTED HEAD AND TAIL LAMPS. THE AMBER LIGHT SHALL BE IN OPERATION AT ALL TIMES WITHIN THE WORK ZONE AND WHILE TRAVELING TO AND FROM THE WORK ZONE WHENEVER THE VEHICLE SPEED IS BELOW 40 MPH. VEHICLE HAZARD LAMPS DO NOT SATISFY THIS REQUIREMENT. ALL OTHER EQUIPMENT SHALL BE EQUIPPED WITH A FLASHING, ROTATING OR OSCILLATING AMBER LIGHT VISIBLE TO ALL DIRECTIONS OF TRAFFIC A MINIMUM OF ONE- QUARTER MILE IN BRIGHT SUNLIGHT. THE AMBER LIGHT SHALL BE IN OPERATION WHILE THE EQUIPMENT IS WITHIN THE WORK ZONE.

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHT TIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS. ALL SIGNS, BARRICADES, SIGN SUPPORTS, CONES, DRUMS, FLAGGERS AND INCIDENTALS SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE MOST RECENT REVISION, CURRENT EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), EXCEPT AS NOTED WITHIN. INTERFERENCE WITH VEHICULAR TRAFFIC SHALL BE KEPT TO A MINIMUM AT ALL TIMES.

THE MAINTENANCE OF TRAFFIC DETAILS SHALL BE COORDINATED WITH THE MAINTENANCE OF TRAFFIC DETAILS OF ANY ADJACENT CONSTRUCTION PROJECTS. THE CONTRACTORS ARE REQUIRED TO COOPERATE WITH EACH OTHERS WORK ACTIVITIES DURING THE ENTIRE CONSTRUCTION PROCESS.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

GENERAL

TRAFFIC ON U.S. 50 SHALL BE MAINTAINED AT ALL TIMES.

THIS PROJECT IS DIVIDED INTO PHASES. THE PHASES MUST BE COMPLETED IN SEQUENCE.

MAINTENANCE OF TRAFFIC FOR CONSTRUCTION WILL TYPICALLY PROVIDE PHASES (AND SUB- PHASES) TO PROTECT THE WORK AREA. IN ANY GIVEN AREA, EACH PHASE TRAFFIC SHIFTS SHALL IMMEDIATELY FOLLOW THE PREVIOUS PHASE OF CONSTRUCTION.

ADVANCED WARNING SIGNS

ALTHOUGH NOT SPECIFICALLY SHOWN IN THE PLAN SET FOR EACH PHASE ADVANCED WARNING SIGNS SHALL BE PLACED ON ALL ROADWAYS ENTERING AND EXITING THE CONSTRUCTION ZONE.

ALL SIGNING SHALL MEET THE CURRENT STANDARDS SET FORTH IN THE OMUTCD AND CMS ITEM 614. ADVANCED WARNING SIGN LAYOUT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. PAYMENT FOR ALL LABOR, MATERIALS, AND INCIDENTALS TO THE SIGNING SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 MAINTAINING TRAFFIC.

WORK REQUIRED DURING EACH PHASE

WHEN THE TERM PHASE I IS USED, WITH REGARD TO COMPLETION OF A PORTION OF WORK, IT SHALL INCLUDE ALL PHASE I WORK, PHASE IA AND PHASE IB WORK IF SUCH SUB-PHASES EXISTS.

THIS APPLIES FOR ALL DEFINED PHASES FOR THE PROJECT.

PEDESTRIAN ACCESS

PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. IF PEDESTRIAN DETOURS ARE REQUIRED A PLAN MUST BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL. TRAFFIC CONTROL METHODS AND ITEMS SHALL BE IN ACCORDANCE WITH SCD MT-110.10. PAYMENT FOR ALL WORK ASSOCIATED WITH PEDESTRIAN ACCESS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC.

EXISTING SIGNS

ALL EXISTING SIGNS SHALL BE COVERED, OVERLAYED OR RELOCATED TO MATCH THE CURRENT PHASE OF CONSTRUCTION. ALL COSTS INCLUDED UNDER ITEM 614 - MAINTAINING TRAFFIC.

PROTECTION OF TRENCHES EXPOSED TO TRAFFIC

ANY GAPS BETWEEN OLD AND NEW PAVEMENT WHICH IS EXPOSED TO TRAFFIC, AND NOT USED FOR MAINTAINING TRAFFIC, SHALL BE FILLED WITH GRANULAR MATERIAL. ALL COSTS INCLUDED UNDER ITEM 614 - MAINTAINING TRAFFIC.

CONSTRUCTION NOTIFICATION:

THE CONTRACTOR WILL ADVISE THE PROJECT ENGINEER A MINIMUM OF FOURTENN (14) DAYS PRIOR TO THE FOLLOWING: THE START OF CONSTRUCTION ACTIVITIES, LANE CLOSURES, AND ROAD CLOSURES. THE PROJECT ENGINEER WILL FORWARD THE INFORMATION TO THE CITY OF CINCINNATI DIVISION OF TRAFFIC ENGINEERING AT 513-352-5289 AND TO THE DITRICT PUBLIC INFORMATION OFFICER (PIO) BY FAX AT 513-932-7651 OR AT THE DISTRICT 8 PIO NOTIFICATION WEBSITE, http://www.dot.state.oh.us/d08/pages/planningPIOwebform.aspx . THE PIO WILL, IN TURN, NOTIFY THE PUBLIC, THE LOCAL EMERGENCY SERVICES, AFFECTED SCHOOLS AND BUSINESSES, AND ANY OTHER IMPACTED LOCAL PUBLIC AGENCY OF ANY OF THE ABOVE MENTIONED ITEMS, VIA MEDIA SOURCES.

COORDINATION WITH O.D.O.T.'S CENTRAL OHIO TRAFFIC MANAGEMENT PROGRAM (COTMP):

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES ON A WEEKLY BASIS. WHEN DETOURS ARE PLANNED, THIS NOTIFICATION SHALL BE AT THE PRE-CONSTRUCTION MEETING OR 30 DAYS IN ADVANCE ONCE CONSTRUCTION HAS BEGUN. LANE AND RAMP CLOSURES FOR 2 OR MORE WEEKS SHALL BE REPORTED 2 WEEKS IN ADVANCE OF CLOSURE. LANE AND RAMP CLOSURES OF LESS THAN 2 WEEKS DURATION AND MORE THAN 2 DAYS SHALL BE REPORTED AT LEAST 3 WORKING DAYS IN ADVANCE. FOR SHORT TERM LANE OR RAMP CLOSURES (2 DAYS OR LESS) NOTIFICATION SHALL BE MADE AT LEAST 1 WORKING DAY IN ADVANCE. INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO ALL CONSTRUCTION ACTIVITIES THAT IMPACT TRAFFIC AT PRESENT AND IN THE NEXT 30 DAYS. THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL WHO WILL BE RESPONSIBLE FOR PREPARING THIS REPORT AT THE PRE-CONSTRUCTION MEETING. ANY UNFORESEEN IMPACTS TO TRAFFIC SHALL BE REPORTED TO THE PROJECT ENGINEER AS SOON AS POSSIBLE. THE PROJECT ENGINEER SHALL PROVIDE THIS INFORMATION TO COTMP. ALL CONSTRUCTION ACTIVITIES THAT INTERFERE WITH TRAFFIC SHALL BE REPORTED TO COTMP. THIS INFORMATION SHALL BE PROVIDED TO COTMP AT 740-833-8323, OR BY FAX AT 740-833-8090.

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PRIOR TO PLACING THE SURFACE COURSE AT BRIDGES (IF IT IS NOT PLACED PRIOR TO OPENING TO TRAFFIC) AND AT THE RESURFACING LIMITS, THE DROPOFF OR MILLED AREA SHALL NOT BE LEFT OPEN TO TRAFFIC. BEFORE OPENING TO TRAFFIC A TEMPORARY ASPHALT CONCRETE WEDGE OF SUFFICIENT LENGTH SHALL BE CONSTRUCTED AT THE DROPOFF AT A RATE OF 1" PER 4' (RAMPS) OR 1" PER 10' (MAINLINE). ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC IS TO BE USED FOR THE WEDGE CONSTRUCTION. IT SHALL BE PLACED WHILE TRAFFIC IS PROHIBITED. BEFORE THE NEW PAVEMENT IS PLACED, THE WEDGE SHALL BE REMOVED AND THE COSTS SHALL BE CONSIDERED INCIDENTAL TO ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC.

AT LOCATIONS WHERE THE FINAL PAVING WILL NOT OCCUR FOR MORE THAN ONE WEEK, THE TRANSITION RATE SHALL BE 1" PER 35'.

THE FOLLOWING ITEM IS CARRIED TO THE GENERAL SUMMARY AND SHALL BE USED FOR THIS PURPOSE:

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 24 CU YD

ITEM 614 - MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD OR RAMP CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

RAMP WILL BE
CLOSED DATE/20##
FOR ## DAYS
OHIO DEPT. OF TRANSPORTATION

W20-H14-60

ROAD CLOSURES

ANY TIME TRAFFIC MUST BE COMPLETELY STOPPED FOR BRIDGE DECK REMOVAL, BEAM ERECTION, ETC., IT SHALL BE DONE SUCH THAT THE CLOSURE SHALL BE NO MORE THAN 10 MINUTES IN ANY ONE CONSECUTIVE 30 MINUTE PERIOD. THIS SHALL ONLY BE DONE 9 PM TO 5 AM.

A PORTABLE CHANGEABLE MESSAGE SIGN, FROM ODOTS PRE-APPROVED LIST, SHALL BE PLACED IN ADVANCE OF THE CLOSURE AS DIRECTED BY THE ENGINEER.

PUBLIC SAFETY

THE TREATMENTS OF DROP OFFS SHALL BE IN ACCORDANCE WITH THE STANDARD CONSTRUCTION DRAWING MT-101.90.

PAVEMENT WORK AREA DEFINITION:

THROUGHOUT THESE NOTES THE PAVEMENT WORK AREAS WHICH ARE TO BE COMPLETED AND LIMITS OF THAT WORK IS DESCRIBED. ALTHOUGH NOT SPECIFICALLY STATED, ALL ASSOCIATED DRAINAGE WORK, BRIDGE WORK, GRADING, INSTALLATION OF EROSION CONTROL ITEMS, TRAFFIC CONTROL WORK, TRAFFIC SIGNAL WORK, LIGHTING WORK, GUARDRAIL OR BARRIER WORK, ETC. IS ALSO TO BE PERFORMED.

TRAFFIC WIDTH REQUIREMENTS:

THE MINIMUM LANE WIDTHS ARE SHOWN IN THE MAINTENANCE OF TRAFFIC DETAILS. IF NOT SPECIFICALLY SHOWN, THEY SHALL CONSIST OF A MINIMUM 11'-0" WIDE LANE(S) PLUS 12" MINIMUM BUFFER ON EACH SIDE TO GUARDRAIL, PARAPETS, DRUMS, BARRIER OR EDGES OF PAVED SURFACES.

IMPLEMENTATION OF MAINTENANCE OF TRAFFIC ZONES:

NO SET UPS OR TAKE DOWNS OF MAINTENANCE OF TRAFFIC ITEMS SUCH AS PAVEMENT MARKINGS, DRUMS, PCB'S, ETC., SHALL BE DONE DURING RUSH HOURS, 6 AM TO 10 AM OR 3 PM TO 7 PM. WHEN LANE CLOSURES ARE NEEDED TO PERFORM THIS WORK, THEY SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE LANE CLOSURE NOTES ON THIS SHEET.

PERMITTED LANE CLOSURES/ UNAUTHORIZED LANE USAGE:

PERMITTED LANE CLOSURES ON THIS PROJECT BEYOND WHAT IS SHOWN IN THE PLANS MAY ONLY BE IMPLEMENTED WITH WRITTEN PERMISSION OF THE PROJECT ENGINEER AND WITHIN THE TIMES SPECIFIED BELOW. REQUEST FOR LANE CLOSURES SHOULD INCLUDE EXACT DATES AND TIMES OF THE PROPOSED LANE CLOSURE FOR REVIEW 48 HOURS PRIOR TO ANY CLOSING. DISINCENTIVES SHALL BE ASSESSED IN THE AMOUNT OF $4500/HOUR FOR ANY LANE CLOSURE BEYOND THE TIMES PERMITTED BY THE PROJECT ENGINEER AND THE CONTRACT FOR THIS PROJECT.

MONDAY - FRIDAY 8 P.M.-6 A.M.
SATURDAY - SUNDAY NOT PERMITTED

NO ADDITIONAL LANES MAY BE CLOSED ON ALL RECOGNIZED GOVERNMENT HOLIDAYS OR WHILE EVENTS ARE TAKING PLACE AT PAUL BROWN STADIUM, GREAT AMERICAN BALLPARK, OR US BANK ARENA.

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC GENERAL NOTES

HAM-50-18.79

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MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. THE CONTRACTOR SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE. NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY OF CINCINNATI FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 4 HOURS AND SHALL NOT INCLUDE THE HOURS OF 6 A.M.TO 10 A.M. OR 3 P.M. TO 7 P.M. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS, EXCEPT FOR THE FOLLOWING INTERSECTIONS WHICH SHALL BE PROTECTED BY OFF-DUTY POLICE, HIRED BY THE CONTRACTOR:

1. US 50 (RIVER ROAD) AND STATE STREET

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BECOVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

MAINTAINING TRAFFIC GENERAL

FINAL PAVEMENT MARKINGS / RUMBLE STRIPS / RAISED PAVEMENT MARKERS

PLACEMENT OF RUMBLE GROOVES AND RAISED PAVEMENT MARKERS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE "PERMITTED LANE CLOSURE" NOTE ON SHEET 23.

FINAL PAVEMENT MARKINGS MAY BE INSTALLED AS A MOVING OPERATION. THE CONTRACTOR SHALL PROVIDE TWO (2) TRAILING VEHICLES AS PER MT-99.20M FOLLOWING THE PAVEMENT MARKING EQUIPMENT. THE TWO (2) TRAILING VEHICLES SHALL TRAVEL 500 FEET APART WITH THE REMOTE VEHICLE TRAVELING ON THE SHOULDER (LEFT OR RIGHT AS APPLICABLE) WHERE USABLE SHOULDER IS AVAILABLE. THE FIRST TRAIL VEHICLE IN A TRAFFIC LANE SHALL BE EQUIPPED WITH A TRUCK MOUNTED ATTENUATOR MEETING NCHRP 350 REQUIREMENTS. THE INTERMEDIATE TRAILING VEHICLE SHALL TRAVEL IN THE CLOSED LANE 500 FEET BEHIND THE PAVEMENT MARKING EQUIPMENT.

THE ABOVE WORK ITEMS MAY BE PLACED, WHEREVER PRACTICAL, DURING THE END OF THE PHASE 3 OR 4 WORK (AFTER THE FINAL SURFACE COURSE HAD BEEN PLACED).

COORDINATION WITH ADJACENT PROJECTS

THE CONSTRUCTION AT EITHER TERMINI OF THIS PROJECT MAY REQUIRE THE CONTRACTOR TO COORDINATE CONSTRUCTION WITH AN ADJACENT CONSTRUCTION PROJECT IF A CONFLICT IN MAINTENANCE OF TRAFFIC SCHEMES WOULD OCCUR. IF COORDINATION IS NECESSARY, THE CONTRACTORS MUST COORDINATE THEIR WORK SCHEDULES AND SUBMIT TO THE DISTRICT CONSTRUCTION ENGINEER WHO WILL ESTABLISH THE FINAL APPROVED COORDINATED WORK SCHEDULE.

ITEM 614 - WORK ZONE PAVEMENT MARKINGS - (COORDINATION WITH ADJACENT PROJECTS)

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PLACEMENT OF PAVEMENT MARKINGS NECESSARY TO PROVIDE LANE CLOSURES OR TO PROVIDE LANE SHIFTS TO COORDINATE WITH ADJACENT PROJECTS. IT SHALL ALSO BE USED TO PROVIDE ANY LANE CLOSURE MARKINGS BEYOND THE LIMITS DETAILED IN THE PLANS.

THE FOLLOWING ITEMS ARE CARRIED TO THE GENERAL SUMMARY AND SHALL BE USED FOR THIS PURPOSE:

ITEM 614 - WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1	2	MILE
ITEM 614 - WORK ZONE CHANNELIZNG LINE, CLASS 1, 740.06, TYPE 1	1000	FT

TEMPORARY PAVEMENT / PAVEMENT FOR MAINTAINING TRAFFIC

THE TERMS "TEMPORARY PAVEMENT" AND "PAVEMENT FOR MAINTAINING TRAFFIC" ARE USED INTERCHANGEABLY THROUGHOUT THESE PLANS. WHENEVER "TEMPORARY PAVEMENT" IS USED, IT SHALL BE CONSIDERED TO READ "PAVEMENT FOR MAINTAINING TRAFFIC".

TRENCH FOR PAVEMENT CONSTRUCTION AT SIDE STREETS AND RAMPS

TRENCH EXCAVATION FOR PAVEMENT CONSTRUCTION NOT PROTECTED BY PORTABLE CONCRETE BARRIER SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. THE ADJACENT TRAFFIC LANE SHALL BE CLOSED IF POSSIBLE, OTHERWISE IT SHALL BE NARROWED. PLACEMENT OF PROPOSED BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

PAVEMENT CONSTRUCTION SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 1½" BELOW THE EXISTING PAVEMENT PRIOR TO THE ADJACENT TRAFFIC LANE BEING RE-OPENED TO TRAFFIC. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

ITEM 614, WORK ZONE SIGNING

ALL WORK ZONE SIGNING SHALL UTILIZE A FLUORESCENT ORANGE BACKGROUND COLOR EXCEPT FOR REGULATORY SIGNS.

ASPHALT CONCRETE FOR MAINTAINING TRAFFIC

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED FOR THE MAINTENANCE OF THE EXISTING PAVEMENT, SHOULDERS OR BRIDGES AS DIRECTED BY THE ENGINEER:

614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	20	CU YD

ITEM 614 - REPLACEMENT SIGN

FLAT SHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE IN USED BUT GOOD CONDITION SUBJECT TO APPROVAL BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE USING A PRICE PER EACH FOR ITEM 614 - REPLACEMENT SIGN, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF DAMAGED SIGNS, HARDWARE AND SUPPORTS, AND PROVIDING THE NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 614 - REPLACEMENT SIGN	50	EACH

ITEM 614 - WORK ZONE PAVEMENT MARKINGS - (RESURFACING OR LANE SHIFT REMOVALS)

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PLACEMENT OF PAVEMENT MARKINGS AFTER REMOVING THE LANE SHIFTS AND AFTER PLACING THE SURFACE COURSE.

ITEM 614 - WORK ZONE EDGE LINE, CLASS III	3	MILE
ITEM 614 - WORK ZONE LANE LINE, CLASS III	2	MILE
ITEM 614 - WORK ZONE DOTTED LINE, CLASS III	150	FT.
ITEM 614 - WORK ZONE CENTER LINE, CLASS III	1	MILE

LONGITUDINAL BUTT JOINTS

LONGITUDINAL BUTT JOINTS ARE REQUIRED ALONG AREAS WHERE TRAFFIC WILL CROSS FROM OLD TO NEW PAVEMENT. WHERE THE OLD PAVEMENT IS LOW, ITEM 614 SHALL BE PLACED. IF THE OLD PAVEMENT IS HIGHER, PLANING SHALL BE PERFORMED. THE TAPER RATE SHALL BE 1" IN 2' OR FLATTER. THE FOLLOWING ITEMS HAVE BEEN INCLUDED IN THE GENERAL SUMMARY AND SHALL BE USED FOR THIS PURPOSE:

ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE	500	SO. YD.
ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	30	CU YD

GENERAL REQUIREMENTS: ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC

WHEREVER THIS ITEM IS CONSTRUCTED, THE CONTRACTOR SHALL PROVIDE SUFFICIENT REGRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE ROADWAY SURFACE.

ITEM 616 - WATER

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 616 - WATER	2	M GAL

ITEM 614 - REPLACEMENT DRUM

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE MADE USING A PRICE PER EACH FOR ITEM 614, REPLACEMENT DRUM, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM, AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

THE FOLLOWING ESTIMATED QUANTITIY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 614 - REPLACEMENT DRUM	200	EACH

CALCULATED MTR
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MAINTENANCE OF TRAFFIC GENERAL NOTES

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WORK ZONES INCREASED PENALTIES SIGN

R11-H5a-48 SIGNS SHALL BE FURNISHED, ERECTED, AND MAINTAINED IN GOOD CONDITION AND/OR REPLACED AS NECESSARY AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. SIGNS SHALL BE MOUNTED AT THE APPROPRIATE OFFSETS AND ELEVATIONS AS PRESCRIBED BY THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THEY SHALL BE MAINTAINED ON SUPPORTS MEETING CURRENT SAFETY CRITERIA.

THE SIGNS MAY BE ERECTED OR UNCOVERED NO MORE THAN FOUR HOURS BEFORE THE ACTUAL START OF WORK. THE SIGNS SHALL BE REMOVED OR COVERED NO LATER THAN FOUR HOURS FOLLOWING RESTORATION OF ALL LANES TO TRAFFIC WITH NO RESTRICTIONS, OR SOONER AS DIRECTED BY THE ENGINEER. TEMPORARY SIGN COVERING AND UNCOVERING DUE TO TEMPORARY LANE RESTORATIONS SHALL BE GUIDED BY THE FOUR-HOUR LIMITATIONS STATED ABOVE. SUCH LANE RESTORATIONS SHOULD BE EXPECTED TO REMAIN IN EFFECT FOR 30 OR MORE CONSECUTIVE CALENDAR DAYS, SUCH AS DURING WINTER SHUT-DOWNS.

THE SIGNS ON THE MAINLINE SHALL BE DUAL MOUNTED UNLESS NOT PHYSICALLY POSSIBLE. THE FIRST SIGN SHALL BE PLACED BETWEEN THE ROAD WORK AHEAD (W20-1) SIGN AND THE NEXT SIGN IN THE SEQUENCE. SIGNS ON THE MAINLINE SHALL BE R11-H5A-48. SIGNS USED ON THE RAMPS SHALL BE R11-H5A-24. R11-H5A-24 SIGNS MAY BE USED IN THE MEDIAN IN LIEU OF R11-H5A-48 SIGNS IF IT IS NOT PHYSICALLY POSSIBLE TO PROVIDE R11-H5A-48 SIGNS IN THE MEDIAN.

THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED, BUT GOOD, CONDITION PROVIDED THE SIGNS MEET CURRENT ODOT SPECIFICATIONS. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF CMS 730.19.

WORK ZONES INCREASED PENALTIES SIGNS AND SUPPORTS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGN AND NECESSARY SUPPORTS. IF A SIGN AND SUPPORT COMBINATION IS REMOVED AND REERECTED AT ANOTHER LOCATION AS DIRECTED BY THE ENGINEER, IT SHALL BE CONSIDERED ANOTHER UNIT.

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE, IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR FURNISHING, ERECTING, MAINTAINING, COVERING DURING SUSPENSION OF WORK AND REMOVAL OF THE SIGN AND SUPPORT. THE FOLLOWING ITEM IS CARRIED TO THE GENERAL SUMMARY AND SHALL BE USED FOR THIS PURPOSE:

ITEM 614, WORK ZONES INCREASED PENALTIES SIGN 20 EACH

ITEM 614, WORK ZONE SPEED LIMIT SIGN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, COVER DURING SUSPENSION OF WORK, AND SUBSEQUENTLY REMOVE WORK ZONE SPEED LIMIT (R2-1) (25 SPEED LIMIT) SIGNS AND SUPPORTS WITHIN THE WORK LIMITS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

THE CONTRACTOR SHALL COVER OR REMOVE ANY EXISTING SPEED LIMIT SIGNS WITHIN THE REDUCED SPEED ZONE. THESE SIGNS SHALL BE RESTORED DURING SUSPENSION OR TERMINATION OF THE REDUCED SPEED LIMIT. THE EXPENSE OF COVERING OR REMOVAL AND RESTORATION OF EXISTING SPEED LIMIT OR MINIMUM SPEED LIMIT SIGNS SHALL BE INCLUDED IN THE PAY ITEM FOR THE WORK ZONE SPEED LIMIT SIGNS.

THE WORK ZONE SPEED LIMIT SIGNS MAY BE ERECTED OR UNCOVERED NO MORE THAN FOUR HOURS BEFORE THE ACTUAL START OF WORK. THE SIGNS SHALL BE REMOVED OR COVERED NO LATER THAN FOUR HOURS FOLLOWING RESTORATION OF ALL LANES TO TRAFFIC WITH NO RESTRICTIONS, OR SOONER AS DIRECTED BY THE ENGINEER. TEMPORARY SIGN COVERING AND UNCOVERING DUE TO TEMPORARY LANE RESTORATIONS SHALL BE GUIDED BY THE FOUR-HOUR LIMITATIONS STATED ABOVE. SUCH LANE RESTORATIONS SHOULD BE EXPECTED TO REMAIN IN EFFECT FOR 30 OR MORE DAYS, SUCH AS DURING WINTER SHUT-DOWNS. CLEANUP WORK AND OTHER WORK BEYOND THE SHOULDER SUCH AS SEEDING, TO BE PERFORMED AFTER RESTORATION OF ALL FULL-WIDTH LANES AND SHOULDERS TO TRAFFIC, DOES NOT CONSTITUTE A CONDITION WARRANTING A SPEED REDUCTION. THEREFORE, WHEN ACTIVITY IS LIMITED TO SUCH WORK, THE SPEED LIMIT IN EFFECT SHALL BE THE NORMAL SPEED LIMIT FOR THE SITE.

ITEM 614, WORK ZONE SPEED LIMIT SIGN (CONT.)

CONSTRUCTION AND MATERIAL SPECIFICATIONS, ITEM 614, PARAGRAPH 614.02(B) INDICATES THAT THE TWO DIRECTIONS OF A DIVIDED HIGHWAY ARE CONSIDERED SEPARATE HIGHWAY SECTIONS. THEREFORE, IF THE WORK ON A MULTI-LANE DIVIDED HIGHWAY IS LIMITED TO ONLY ONE DIRECTION, SPEED REDUCTION IN THE DIRECTION OF THE WORK DOES NOT AUTOMATICALLY CONSTITUTE SPEED REDUCTION IN THE OPPOSITE DIRECTION. SPEED LIMIT REDUCTION IN THE OPPOSITE DIRECTION, IN SUCH CASE, IS APPROPRIATE ONLY IF CONDITIONS ARE EXPECTED TO HAVE AN IMPACT ON THE DIRECTIONAL TRAFFIC FLOW, AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL ERECT A WORK ZONE SPEED LIMIT SIGN IN ADVANCE OF ANY LANE RESTRICTION EXPECTED TO LAST AT LEAST 30 CONSECUTIVE CALENDAR DAYS, OR AS DIRECTED BY THE ENGINEER. THE SIGN SHALL BE MOUNTED ON BOTH SIDES OF A DIRECTIONAL ROADWAY OF DIVIDED HIGHWAYS. THE FIRST WORK ZONE SPEED LIMIT SIGN SHALL BE PLACED APPROXIMATELY 500 FEET (150 METERS) IN ADVANCE OF THE LANE REDUCTION OR SHIFT TAPER OR OTHER ROADWAY OR SHOULDER RESTRICTION. ON UNDIVIDED HIGHWAYS THE SIGN SHALL BE MOUNTED ON THE RIGHT SIDE, APPROXIMATELY 250 FEET (75 METERS) IN ADVANCE OF SUCH RESTRICTIONS. THE SIGN SHALL BE REPEATED EVERY 1 MILE (1.6 KILOMETERS) FOR 55 MPH ZONES AND EVERY ONE-HALF MILE (0.8 KILOMETERS) FOR 50 MPH AND 45 MPH ZONES. THESE SIGNS SHALL ALSO BE ERECTED IMMEDIATELY AFTER EACH OPEN ENTRANCE RAMP WITHIN THE ZONE.

ON PROJECTS FOR WHICH THE ACTIVITY OR ROADWAY RESTRICTION IS LIMITED TO ONE SECTION OF THE PROJECT FOR AT LEAST THIRTY DAYS AND THEN IS MOVED TO ANOTHER SECTION OF THE PROJECT UPON COMPLETION OF WORK IN THE FIRST SECTION, THE SPEED LIMIT REDUCTION SHALL BE LIMITED TO ONLY THE ACTIVE PORTION OF THE PROJECT AT THE GIVEN TIME. SIGNING FOR A SPEED LIMIT REDUCTION, AS WELL AS ALL OTHER ADVANCE CONSTRUCTION SIGNING, SHALL BE RELOCATED WHEN THE CONCENTRATION OF ACTIVITY IS RELOCATED.

ON PROJECTS FOR WHICH SPEED REDUCTION IS CALLED FOR ON MORE THAN ONE ROADWAY, THE DISPLAY OF REDUCED SPEED LIMIT SIGNING ON A GIVEN ROADWAY SHALL BE DEPENDENT ON THE SCHEDULING OF WORK ACTIVITY ON THE GIVEN ROADWAY. SPEED REDUCTION SIGNS (W3-5) SHALL BE ERECTED IN ADVANCE OF THE SPEED REDUCTION, APPROXIMATELY 1250 FEET (375 METERS) ON MULTI-LANE HIGHWAYS AND 500 FEET (150 METERS) ON TWO-LANE HIGHWAYS.

A SIGN(S) TO INDICATE THE RESUMPTION OF THE STATUTORY SPEED LIMIT SHALL BE ERECTED AT THE END OF ANY REDUCED SPEED ZONE, TYPICALLY AT THE POINT WHERE ROADWAY AND SHOULDER WIDTHS RETURN TO NORMAL. ON UNDIVIDED ROADWAYS, THE R2-1 (SPEED LIMIT) SIGN SHALL BE USED. ON DIVIDED HIGHWAYS WHERE THE SPEED LIMIT VARIES BY VEHICLE TYPE, THE R2-1 (SPEED LIMIT) SIGN AND THE R2-H2A (TRUCK SPEED LIMIT) SIGNS SHALL BE MOUNTED SIDE-BY-SIDE ON SEPARATE SUPPORTS. THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED, BUT GOOD CONDITION, PROVIDED THE SIGNS MEET CURRENT ODOT SPECIFICATIONS. SIGN FACES SHALL BE RETROREFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF CMS 730.19.

WORK ZONE SPEED LIMIT SIGNS SHALL BE MOUNTED ON TWO ITEM 630, GROUND MOUNTED SUPPORTS, NO. 3 POSTS.

WORK ZONE SPEED LIMIT SIGNS AND SUPPORTS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGNS AND NECESSARY SUPPORTS. IF A SIGN AND SUPPORT COMBINATION IS REMOVED AND REERECTED AT ANOTHER LOCATION WITHIN THE PROJECT DUE TO CHANGES IN THE SPEED ZONE DIRECTED BY THE ENGINEER, IT SHALL BE CONSIDERED ANOTHER UNIT.

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE, WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR FURNISHING, ERECTING, MAINTAINING, COVERING DURING SUSPENSION OF WORK, AND REMOVING THE SIGNS AND SUPPORTS. SPEED LIMIT SIGNING FOR THE POINT OF RESUMPTION OF THE STATUTORY SPEED LIMIT SHALL BE PAID FOR AS WORK ZONE SPEED LIMIT SIGNS. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614 - WORK ZONE SPEED LIMIT SIGN 20 EACH
ITEM 614 - SPEED ZONE AHEAD SYMBOL SIGN 20 EACH

ITEM 614-LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

A.) DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

B.) DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

A.) FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

B.) WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC. IF A LANE HAS BEEN CLOSED TO PROVIDE AN ACCELERATION/DECELERATION LANE FOR THE VEHICLE, THE LEO WILL NOT BE REQUIRED.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 300 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

CALCULATED MTR CHECKED NJG

MAINTENANCE OF TRAFFIC
GENERAL NOTES

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ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN, ON SITE, FOR THE DURATION OF THE PROJECT. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS

ITEM 614, LINEAR DELINEATION, AS PER PLAN

INCREASED DELINEATION, AS SPECIFIED HEREIN, SHALL BE INSTALLED ON ALL CONCRETE BARRIER PERMANENT OR TEMPORARY, LOCATED WITHIN 5 FEET (1.5 METERS) OF THE EDGE OF THE TRAVELED LANE UNDER EITHER OF THE FOLLOWING CONDITIONS:

ALONG TAPERS AND TRANSITION AREAS

ALONG CURVES (OUTSIDE ONLY) WITH DEGREE OF CURVATURE GREATER THAN OR EQUAL TO 3 DEGREES

THE INCREASED DELINEATION SHALL CONSIST OF EITHER LINEAR DELINEATION PANELS OR THE TRIPLE STACKING OF WORK ZONE BARRIER REFLECTORS.
THE LINEAR DELINEATION PANELS SHALL CONSIST OF PANELS OF DELINEATION, APPROXIMATELY 34 INCHES LONG AND 6 INCHES WIDE AND SHALL BE "CRIMPED." PANELS SHALL BE PROVIDED AT THE RATE OF ONE PER SECTION OF PORTABLE CONCRETE BARRIER, OR ONE PANEL EVERY 10 FEET (3 METERS) ON PERMANENT BARRIER, SPACED EVENLY ALONG THE LENGTH OF THE RUN. THE PANELS SHALL BE MOUNTED SUCH THAT THE TOPS OF THE PANELS ARE 26 INCHES (660 MILLIMETERS) FROM THE BASE OF THE CONCRETE BARRIER.TRIPLE STACKED BARRIER REFLECTORS SHALL CONSIST OF THREE BARRIER REFLECTORS STACKED VERTICALLY IN THEIR ATTACHMENT TO CONCRETE BARRIER. THERE SHALL BE NO OPEN SPACE BETWEEN THE ADJACENT BARRIER REFLECTORS. THE TOP OF THE MIDDLE BARRIER REFLECTOR SHALL BE LOCATED 26 IN (660 MM) ABOVE THE PAVEMENT.

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING LINEAR DELINEATION.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE PLANS:

ITEM 614 LINEAR DELINEATION, AS PER PLAN 13650 FT

ALONG RUNS OF CONCRETE BARRIER WHERE THIS ITEM IS PROVIDED, THE QUANTITY SHALL BE MEASURED AS THE ENTIRE LENGTH OF THE RUN BEING DELINEATED, INCLUDING THE SPACES BETWEEN THE INDIVIDUAL PANELS OR STACKS OF BARRIER REFLECTORS.

CONCRETE BARRIER DELINEATION

OBJECT MARKERS SHALL BE INSTALLED ON ALL PERMANENT CONCRETE BARRIER LOCATED WITHIN 5 FEET (1.5 METERS) OF THE EDGE OF THE ADJACENT TRAVEL LANE. OBJECT MARKER SPACING SHALL BE 50 FEET (15 METERS).

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING OBJECT MARKERS.

AN ESTIMATED QUANTITY OF EACH OF ITEM 614 OBJECT MARKER, 1-WAY HAS BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

ITEM 614 - OBJECT MARKER, ONE-WAY (CONC. BARRIER) 173 EACH

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

MAINTAINED BY THE DIRECTOR (OFFICE OF MATERIALS MANAGEMENT). THE APPROVED LIST OF PORTABLE CHANGEABLE MESSAGE SIGNS CAN BE FOUND ON THE ODOT WEBSITE BY CLICKING ON THE SERVICES MENU, THEN CLICKING ON MATERIALS MANAGEMENT. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 650 FT. AND 475 FT., RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHOULD BE DELINEATED ON A PERMANENT BASIS BY AFFIXING RETROREFLECTIVE MATERIAL, IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER AS SEEN BY ONCOMING ROAD USERS.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET(S) OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC, AND SHALL DISPLAY ONE OR MORE TYPE G YELLOW RETROREFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN 2 HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK. THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF CMS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR=S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 24 SIGN-MONTH

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC
GENERAL NOTES

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SEQUENCE OF CONSTRUCTION:

THE PHASES AND THE MAJOR WORK DURING EACH PHASE IS LISTED BELOW. (SEE THE MAINTENANCE OF TRAFFIC DETAILS FOR ADDITIONAL INFORMATION)

PHASE 1

BUILD TEMPORARY US 50 AND TEMPORARY STATE AVENUE:

CLOSE NEAVE STREET - ENGLISH STREET TO US 50 AND CONSTRUCT TEMPORARY US 50 - 10+50 TO 17+50 AND 19+25 TO 24+50, CONSTRUCT FIRST (LIMITS BETWEEN EXISTING US 50 AND STATE AVENUE), REMOVE NEAVE STREET - ENGLISH STREET TO US 50.

CLOSE STATE AVENUE AND CONSTRUCT TEMPORARY US 50 17+50 TO 19+25 AND TEMPORARY STATE AVENUE, CONSTRUCT LAST (STATE AVENUE AND INTERSECTION WITH US50). LIMIT STATE AVENUE CLOSURE TO A MAXIMUM OF 5 DAYS. FOR OFFICIAL DETOUR SEE SHEET 74. INSTALL TEMPORARY TRAFFIC SIGNAL AT INTERSECTION OF TEMPORARY US 50 AND TEMPORARY STATE AVENUE.

BUILD TEMPORARY PAVEMENT (ABUT EXISTING PAVEMENT) ALONG:

N. SIDE OF NEW ELBERON AVENUE (42+90 TO MARYLAND AVENUE)

PROPOSED RAILROAD:

RAILROAD WILL BE COMPLETED PRIOIR TO CONTRACT LETTING.

PHASE 1B

NEW ELBERON AVENUE:

SHIFT TRAFFIC ONTO NORTH SIDE OF EXISTING AND TEMPORARY PAVEMENT. BUILD SOUTH HALF OF ELBERON AVENUE 42+90 TO 46+10, BUILD NEW ELBERON RAMP EB 50+00 TO 56+10 (FULL WIDTH).

PHASE 2A

NEW US 50:

SHIFT US 50 TRAFFIC ONTO TEMPORARY US 50. CLOSE ENGLISH STREET FROM STATE AVENUE TO US 50, NEAVE STREET AT ENGLISH AND CHURCH STREET AT ENGLISH. BUILD SOUTH HALF AND SECTIONS OF NORTH HALF OF NEW US 50 - 10+00 TO 32+25. BUILD TEMPORARY PAVEMENT AT WARSAW RAMP EB/ELBERON RAMP EB GORE 30+25 US50 TO 31+60 US50). BUILD TEMPORARY US 50 FROM 32+25 TO 35+20. CONNECT NEW PAVEMENT TO EXISTING PAVEMENT. USE SHEET PILING BETWEEN EXISTING AND NEW PAVEMENT (24+00 TO 25+50). INSTALL PERMANENT TRAFFIC SIGNAL AT NEW US 50 AND STATE AVENUE INTERSECTION. INSTALL TEMPORARY TRAFFIC SIGNAL AT 32+90 US 50.

NEW ELBERON AVENUE:

BUILD NEW ELBERON RAMP EB 56+10 TO 67+00 (FULL WIDTH).

NEW WARSAW RAMP EB:

BUILD FULL WIDTH 79+20 TO 90+60

NEAVE STREET:

BUILD PERMANENT CUL-DE-SAC AT ENGLISH STREET.

CHURCH STREET:

BUILD PERMANENT CUL-DE-SAC AT ENGLISH STREET AND REMOVE ENGLISH STREET FROM STATE AVENUE TO US 50.

INTERSECTION (WILDER & GLENWAY):

COMPLETE RETAINING WALL WORK.

SEQUENCE OF CONSTRUCTION (CONTINUED):

PHASE 2B:

US 50 - ACTIVATE NEW TEMPORARY SIGNALIZED INTERSECTION AT 32+90. CLOSE ENGLISH STREET (AT NE QUADRANT OF US 50 AND EVANS STREET). SHIFT TRAFFIC FROM TEMPORARY US 50 TO NEW US 50 10+00 TO 32+25.

NEW STATE AVENUE - TEMPORARILY CLOSE STATE AVENUE, DETOUR TRAFFIC STATE AVENUE TO WEST 8TH STREET TO FREEMAN AVENUE TO US 50. REMOVE TEMPORARY US 50 AND TEMPORARY STATE AVENUE.

NEW ELBERON AVENUE - CONNECTION TO STATE AVENUE TEMPORARILY CLOSED, ACCESS TO US 50 MAINTAINED (USE NEW ELBERON RAMP EB).

NEW MARYLAND AVENUE - BUILD TEMPORARY PAVEMENT FROM 45+00 TO ELBERON AVENUE, INSTALL SHEET PILING ALONG OUTSIDE OF TEMP. PAVEMENT.

PHASE 3A:

US 50 - BUILD REMAINDER OF NEW PAVEMENT FROM 10+00 TO 16+00. BUILD REMAINDER OF NEW PAVEMENT FROM 22+50 TO 24+41.

NEW STATE AVENUE - TEMPORARILY CLOSE STATE AVENUE, DETOUR TRAFFIC STATE AVENUE TO WEST 8TH STREET TO FREEMAN AVENUE TO US 50. REMOVE TEMPORARY US 50 AND TEMPORARY STATE AVENUE. BUILD FULL WIDTH.

NEW ELBERON AVENUE - CONNECTION TO STATE AVENUE TEMPORARILY CLOSED, ACCESS TO US 50 MAINTAINED (USE NEW ELBERON RAMP EB). BUILD NEW PAVEMENT FULL WIDTH FROM 46+10 TO STATE AVE AND PART WIDTH FROM 45+95 TO 46+10.

NEW ELBERON WB RAMP - BUILD FULL WIDTH FROM 93+25 TO 98+14.

NEW MARYLAND AVENUE - SHIFT TRAFFIC TO TEMP. CONNECTOR ROAD TO ELBERON AVE. BUILD EAST PORTION FROM 45+36 TO ELBERON AVENUE,

NEW WARSAW RAMP EB- BUILD FULL WIDTH FROM BEGIN WORK TO PREVIOUSLY CONSTURCTED SECTION.

NEW WARSAW RAMP WB- BUILD FULL WIDTH FROM BEGIN WORK TO STA. 108+15.

BURNS STREET:
CLOSE BURNS STREET ACCESS TO US 50. INSTALL BARRIER/GUARDRAIL AT INTERSECTION WITH US 50.

VIADUCT:
CLOSE VIADUCT RAMPS (ELBERON EB/WB RAMPS AND WARSAW EB/WB RAMPS). BEGIN REMOVAL OF VIADUCT. DETOUR TRAFFIC WITH OFFICIAL DETOUR (SEE DETOURS SHEETS).

PHASE 3B:

NEW ELBERON AVENUE - CONNECTION TO STATE AVENUE TEMPORARILY CLOSED, ACCESS TO US 50 MAINTAINED (USE NEW ELBERON RAMP EB). BUILD NORTH HALF FROM 42+90 TO 46+10.

NEW MARYLAND AVENUE - SHIFT NB TRAFFIC TO EAST PORTION OF NEW ROAD TO ELBERON AVE. BUILD TEMP CONNECTION TO NEW ELBERON FOR SB TRAFFIC, BUILD CENTER PORTION FROM 45+36 TO ELBERON AVENUE.

NEW STATE AVE.- OPEN TO TRAFFIC.

PHASE 3C:

NEW ELBERON AVENUE - CONNECTION TO STATE AVENUE TEMPORARILY CLOSED, ACCESS TO US 50 MAINTAINED (USE NEW ELBERON RAMP EB). BUILD NORTH HALF FROM 42+90 TO 46+10.

NEW MARYLAND AVENUE - SHIFT SB TRAFFIC TO CENTER PORTION OF NEW ROAD TO ELBERON AVE. BUILD WEST PORTION FROM 45+36 TO ELBERON AVENUE.

PHASE 3D:

NEW MARYLAND AVENUE - USE FLAGGERS AND CONSTRUCT REMAINING CURB AND WALK ON EAST SIDE OF ROAD.

SEQUENCE OF CONSTRUCTION (CONTINUED):

PHASE 4A:

US 50 - BUILD NORTH HALF 24+41 TO 32+25, BUILD SECTIONS OF NORTH HALF 32+25 TO END, USE SHEET PILING BETWEEN EXISTING AND NEW PAVEMENT (32+25 TO END). BUILD SECTIONS OF SOUTH HALF 32+25 TO END, USE SHEET PILING BETWEEN EXISTING AND NEW PAVEMENT (36+00 TO END). BUILD TEMPORARY PAVEMENT (ABUT PROPOSED PAVEMENT) ALONG NORTH SIDE US 50 (31+50 TO 34+80) USE SHEET PILING BETWEEN TEMP. PAVEMENT AND EXISTING BUILDING.

WARSAW WB RAMP CONNECTION- COMPLETE CONNECTION FROM US 50 TO WARSAW AVE.

ELBERON WB RAMP - COMPLETE CONNECTION FROM US 50 TO ELBERON AVE.

PHASE 4B:

US 50 - SHIFT TRAFFIC TO OUTSIDE PAVEMENT. BUILD REMAINDER OF NEW PAVEMENT FROM 32+25 TO END OF PROJECT.

PHASE 5:

US 50 - SHIFT TRAFFIC TO NEW PAVEMENT. BUILD MSE WALL #7, CURB, AND WALK.

CALCULATED MTR
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MAINTENANCE OF TRAFFIC GENERAL NOTES

HAM-50-18.79

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ITEM 614 - WORK ZONE IMPACT ATTENUATOR, FOR 24" WIDE HAZARDS, (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING IMPACT ATTENUATORS:

1.) THE QUADGUARD CZ, (24 INCHES (610 MILLIMETERS) WIDE SIX-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9" (6.33 METERS). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG.#	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
QSCZCVR-T4	QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES	5/13/99 Rev. J	8/27/99
35-40-10	QUADGUARD SYSTEM CONCRETE PAD, CZ, QG	11/19/97 Rev. D	8/27/99
35-40-16	QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG	7/30/99 Rev. F	8/27/99
354051Z	QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24,30,36	5/17/99	8/27/99
35-40-18	TRANSITION ASSEMBLY, 4 OFFSET, QG	6/25/99 Rev. F	8/27/99
35400260	QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY	11/19/97 Rev. C	8/27/99

2) THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE TRACC IS 21'-0" (6.4 METERS) LONG AND 2'-7" (0.8 METERS) WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG.#	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
SS450	CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS	3/12/99 REV. 1	8/27/99
SS455	TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS	2/18/99	8/27/99
SS461	TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION & SECTIONS	6/30/99 REV. 1	8/27/99
SS462	TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS	6/30/99	8/27/99

3) THE BARRIER SYSTEMS INC., TAU-II IMPACT ATTENUATOR, DISTRIBUTED BY ROAD SYSTEMS, INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OH 44515 (TELEPHONE 330-799-9291).

THE TAU-II FOR THIS NOTE IS A PARALLEL 8-BAY UNIT 24' LONG AND 35" WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG.#	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
SYSTEM CAPACITY	UNIVERSAL TAU-II CRASH CUSHION SYSTEM CONFIGURATION CHART	1/06/04 V5	10/16/04
A040416	UNIVERAL TAU-II PARTS LIST	4/22/04	10/16/04
A040420	UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP	4/28/04	10/16/04
A040105	UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A04020)	1/7/04	10/16/04
B040239	APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL 60 MPH UNIT)	4/21/04	10/16/04

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT. WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC
GENERAL NOTES

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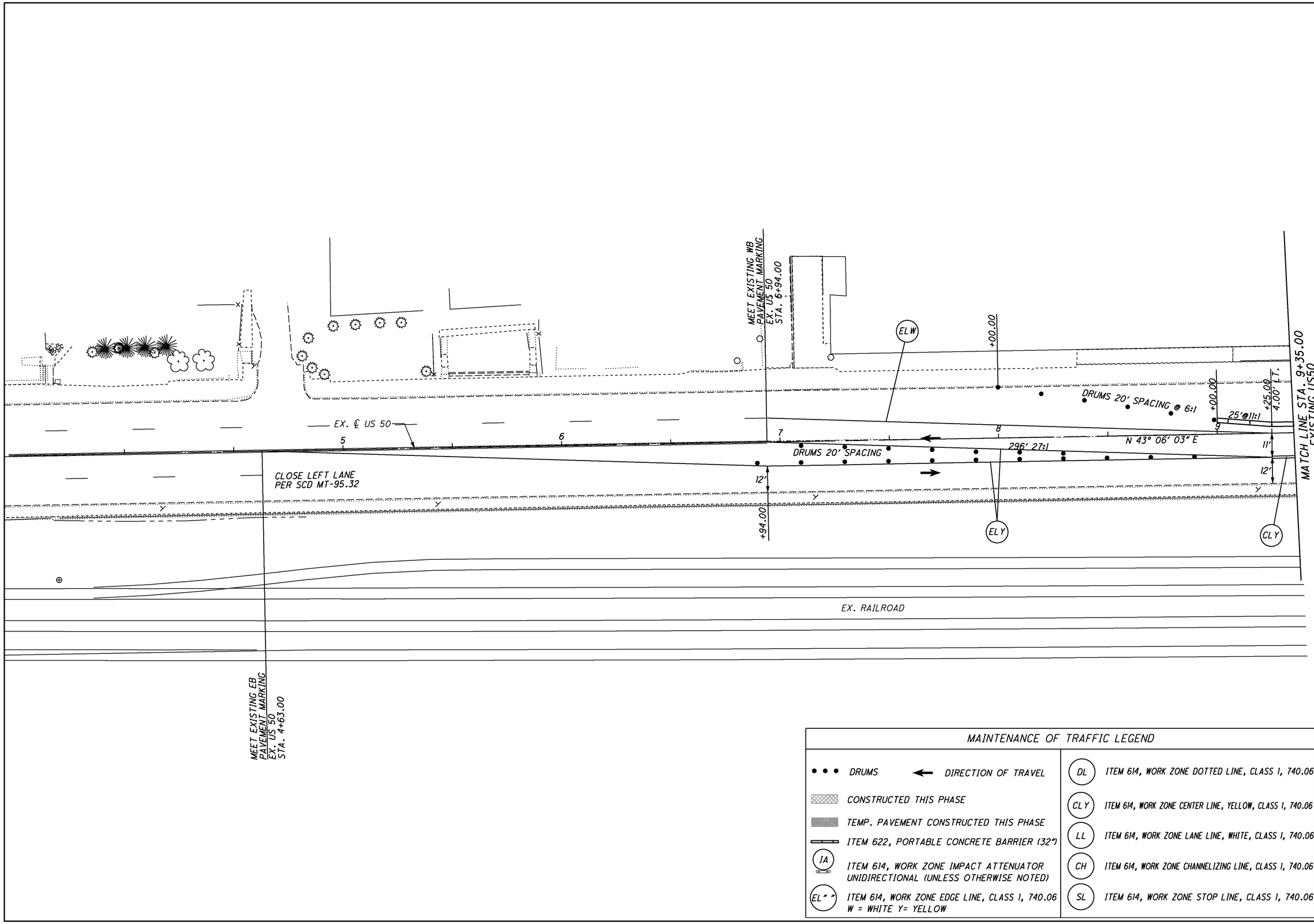

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	DL — ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CL Y — ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL — ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH — ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA — ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL — ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL " " — ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
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MAINTENANCE OF TRAFFIC - PHASE 1A

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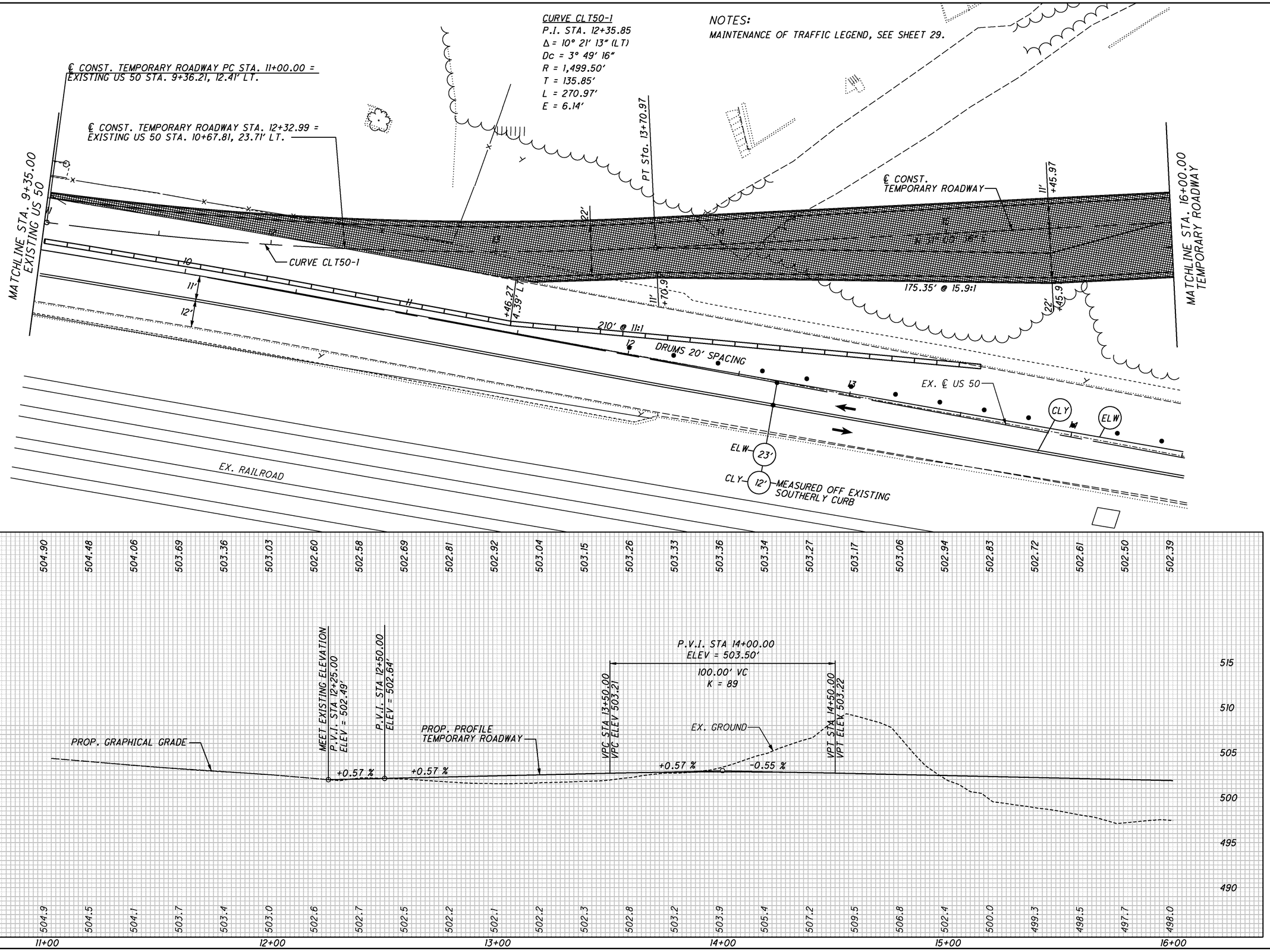

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJB
CHECKED MJG

MAINTENANCE OF TRAFFIC - PHASE 1A

HAM-50-18.79

31
657

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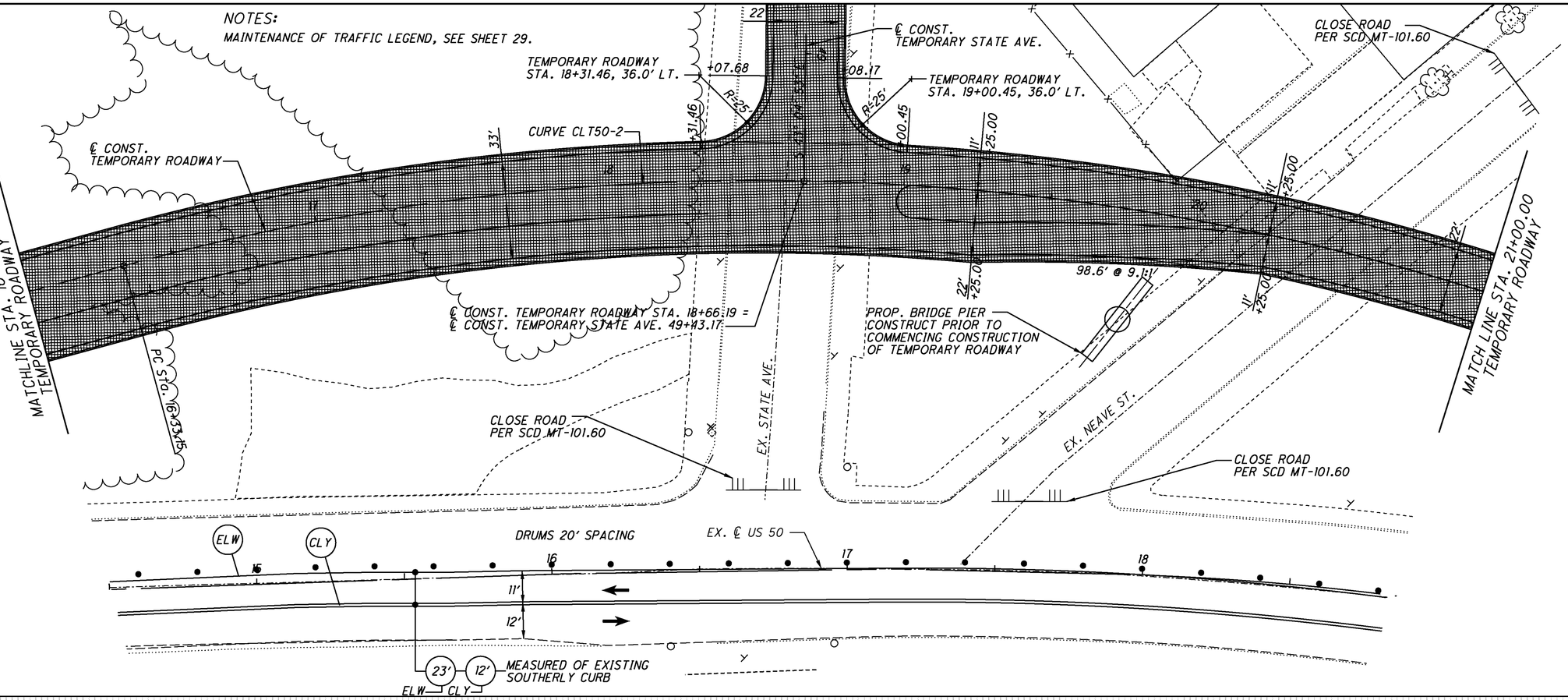
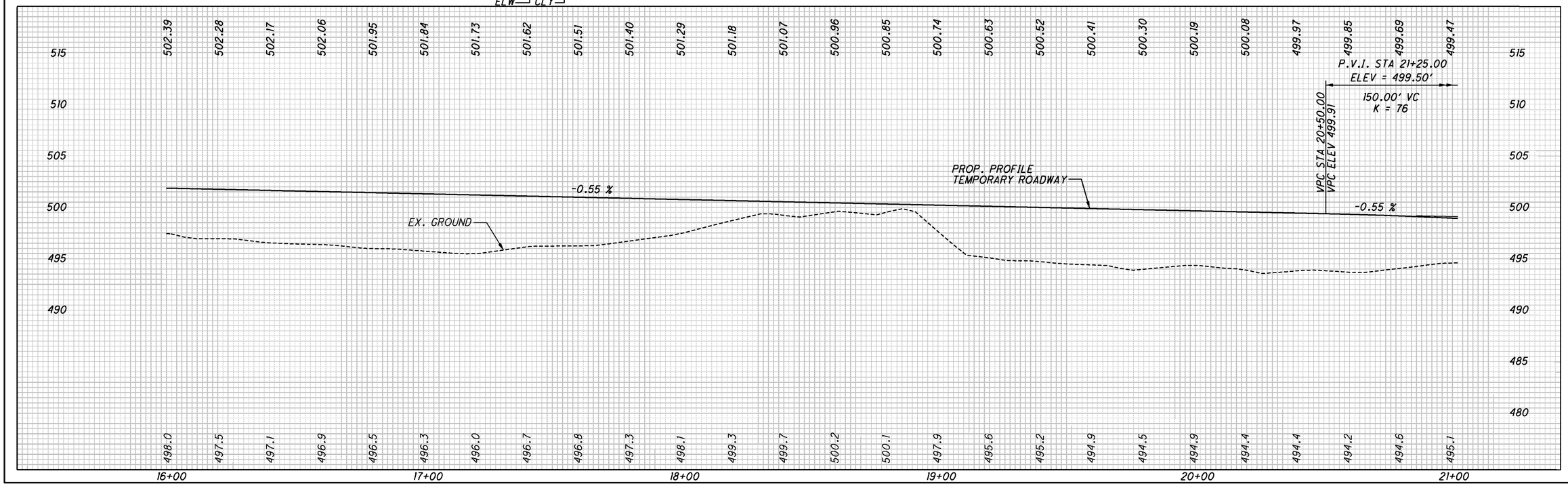
CURVE CLT50-2
P.I. STA. 20+19.61
Δ = 50° 32′ 55″ (RT)
Dc = 7° 00′ 00″
R = 818.51′
T = 386.46′
L = 722.12′
E = 86.65′

NOTES:
MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 29.





HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED MJB
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 1A

HAM-50-18.79

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NOTES:
MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 29.

℄ CONST. TEMPORARY ROADWAY

CURVE CLT50-2

MATCHLINE STA. 21+00.00 TEMPORARY ROADWAY

MATCHLINE STA. 26+00.00 TEMPORARY ROADWAY

Ⓐ CENTER OF CURVE = STA. 24+98.91, 13.30' LT. TEMPORARY ROADWAY

Ⓑ CENTER OF CURVE = STA. 24+45.35, 373.50' LT. TEMPORARY ROADWAY PC STA. 24+45.35, 11.00' LT. PT STA. 25+03.40, 15.68' LT.

PT STA. 23+55.27

+05.04 29.81' LT.

+51.98 29.68' LT.

R=362.5'

+99.36 27.29' LT.

R=14'

BIDIRECTIONAL

ELW

1A

CH

ELY

+44.36 4.8' LT.

10'

R=20'

22+74.06 12.11' LT.

+75.56 14.16' LT.

+75.77 20.75' LT.

22'

24'

11'

12'

DRUMS 20' SPACING

23+27.19 10.66' RT.

23+62.62 11.04' RT.

℄ CONST. TEMPORARY ROADWAY STA. 24+69.78 = EX. US 50 STA. 22+44.48, 21.20' LT.

EX. ℄ US 50

+94.34

+94.13

+55.00

CLY

MEASURED OFF EXISTING SOUTHERLY CURB

23' ELW

12' CLY

EX. RAILROAD

CURVE CLT50-2
P.I. STA. 20+19.61
Δ = 50° 32' 55" (RT)
Dc = 7° 00' 00"
R = 818.51'
T = 386.46'
L = 722.12'
E = 86.65'

P.V.I. STA 21+25.00
ELEV = 499.50'
150.00' VC
K = 76

VPC STA 22+00.00
VPC ELEV 497.60

PROP. PROFILE TEMPORARY ROADWAY

EX. GROUND

-0.55 %

-2.54 %

P.V.I. STA 24+50.00 ELEV = 491.26'

P.V.I. STA 24+75.00 ELEV = 490.63'

P.V.I. STA 25+00.00 ELEV = 490.91'

P.V.I. STA 25+50.00 ELEV = 491.20'

+1.13 %

+0.58 %

-0.25 %

491.13

499.47 499.20 498.88 498.51 498.08 497.60 497.09 496.58 496.08 495.57 495.06 494.56 494.05 493.54 493.03 492.53 492.02 491.51 491.01 490.68 490.91 491.02 491.14 491.17

495.1 495.4 495.9 495.9 495.9 495.8 495.5 495.1 495.0 494.8 494.5 494.2 493.7 493.4 493.0 492.5 491.9 491.4 491.2 490.7 490.9 491.0 491.7 491.2 491.1 491.1

515 510 505 500 495 490 485 480

21+00 22+00 23+00 24+00 25+00 26+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJB
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 1A

HAM-50-18.79

33
657

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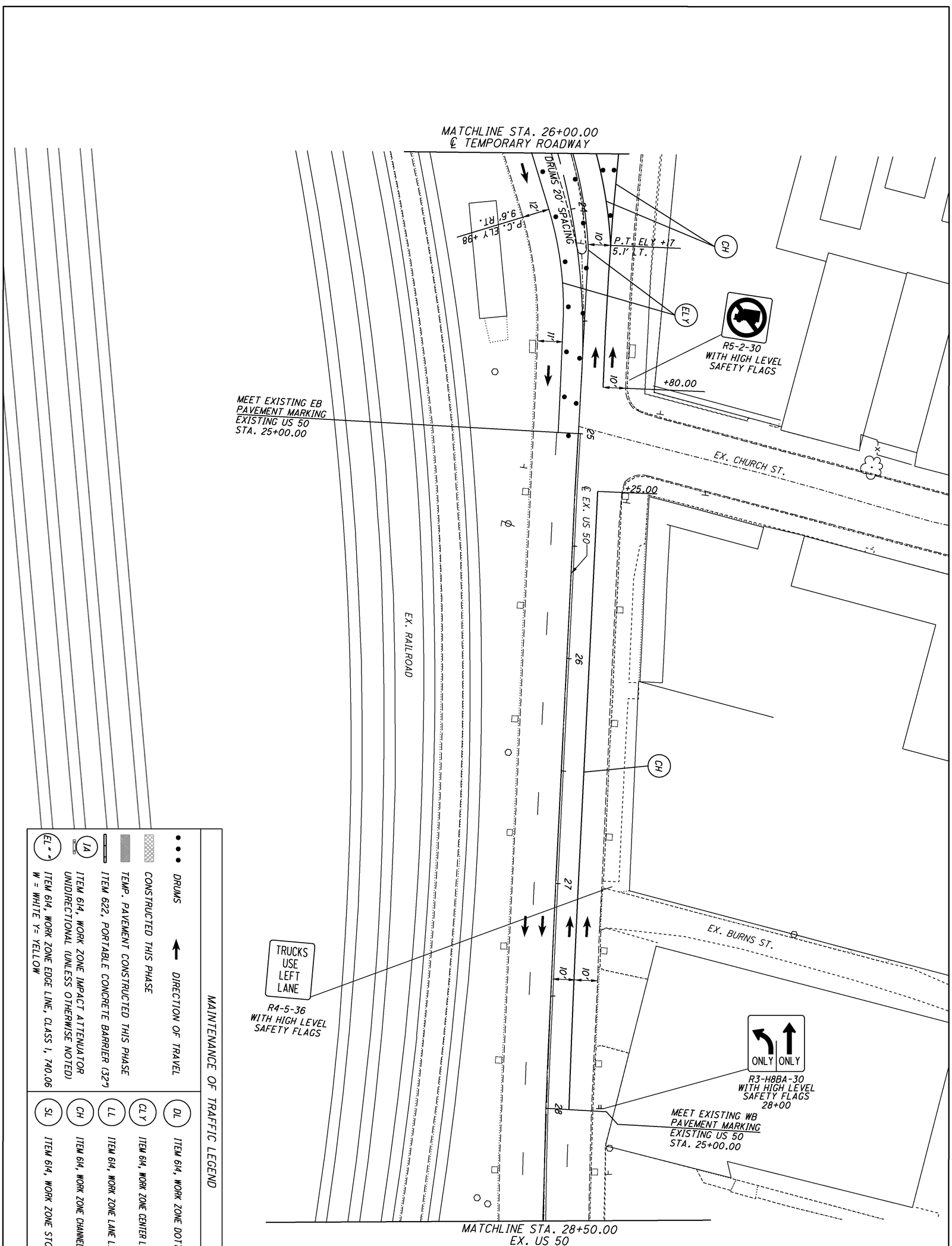

MAINTENANCE OF TRAFFIC LEGEND

- DRUMS
- DIRECTION OF TRAVEL
- CONSTRUCTED THIS PHASE
- TEMP. PAVEMENT CONSTRUCTED THIS PHASE
- ITEM 622, PORTABLE CONCRETE BARRIER (32")
- (IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)
- (EL*) ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06
  W = WHITE Y= YELLOW
- (DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
- (CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
- (LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
- (CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
- (SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06

34/657	HAM-50-18.79	MAINTENANCE OF TRAFFIC - PHASE 1A	CALCULATED MJB / CHECKED NJG	0 10 20 40 HORIZONTAL SCALE IN FEET	N

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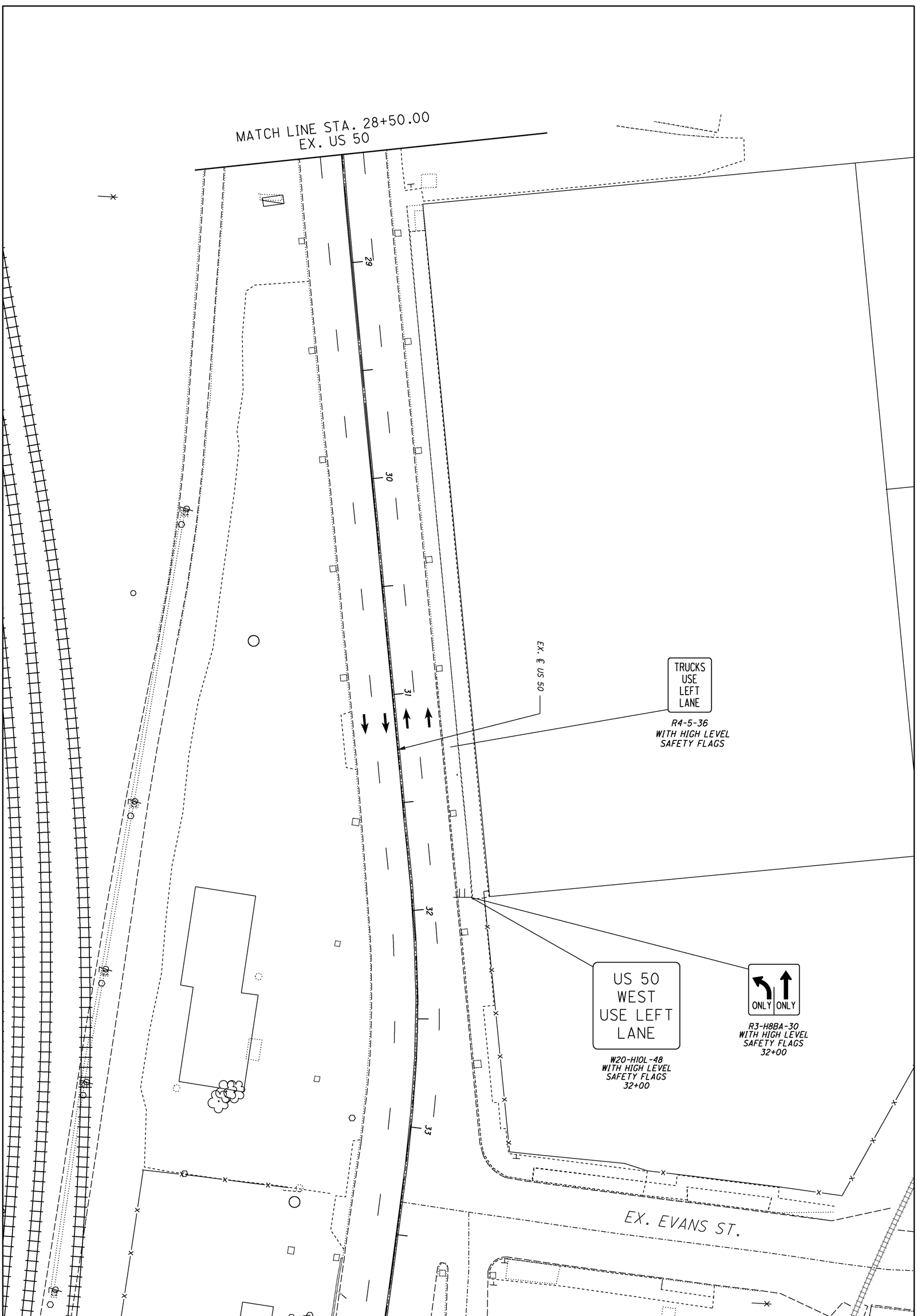


35 / 657	HAM-50-18.79	MAINTENANCE OF TRAFFIC - PHASE 1A	CALCULATED MJB / CHECKED NJG	0 10 20 40 HORIZONTAL SCALE IN FEET

P.I. STA. 47+87.91
Δ = 46° 23' 34" (LT)
Dc = 49° 23' 34"
R = 116.00'
T = 49.71'
L = 93.93'
E = 10.20'

℄ CONST. TEMPORARY STATE AVE.

℄ CONST. TEMPORARY STATE AVE. STA 47+25.00 =
℄ CONST. PROP. STATE AVE. STA. 47+15.03, 41.50' RT.

℄ CONST. TEMPORARY STATE AVE. STA 49+43.17 =
℄ CONST. TEMPORARY ROADWAY STA. 18+66.19

TEMPORARY TRAFFIC SIGNAL

EX. STATE AVE.

46

S 3° 18' 42" W 47

CLOSE ROAD PER SCD MT-101.60 +10.00

PC Sta. 47+38.20

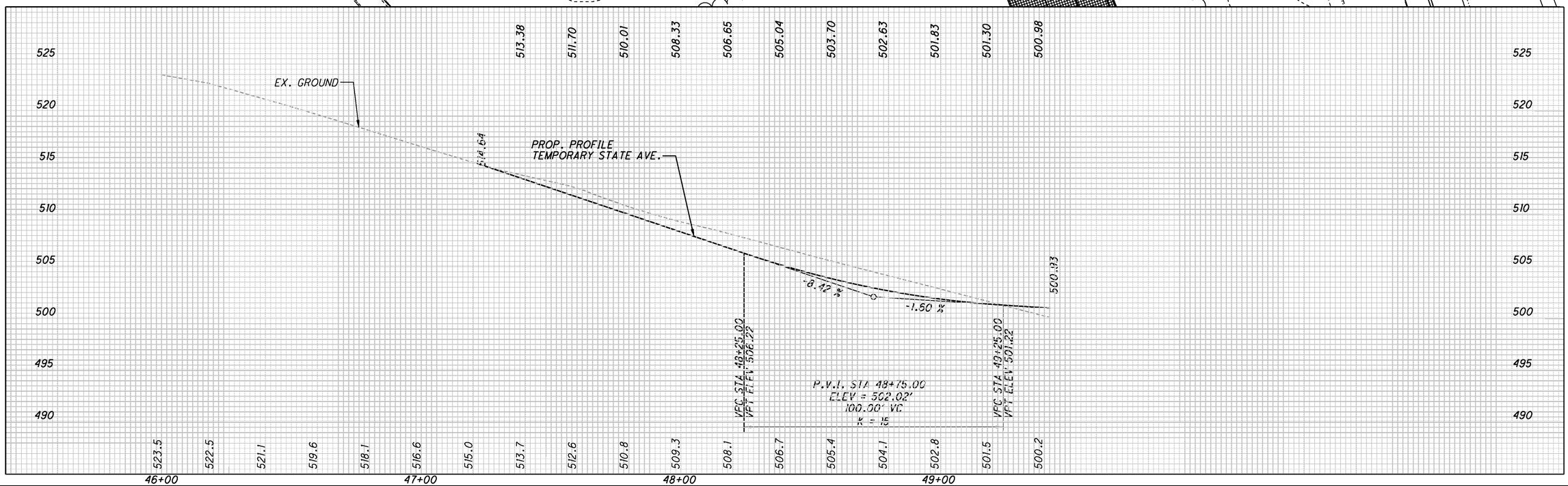
PT Sta. 48+32.12

28' FACE TO FACE OF CURB

℄ CONST. TEMPORARY ROADWAY

NOTES:

MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 23.



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJB
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 1

HAM-50-18.79

36
657

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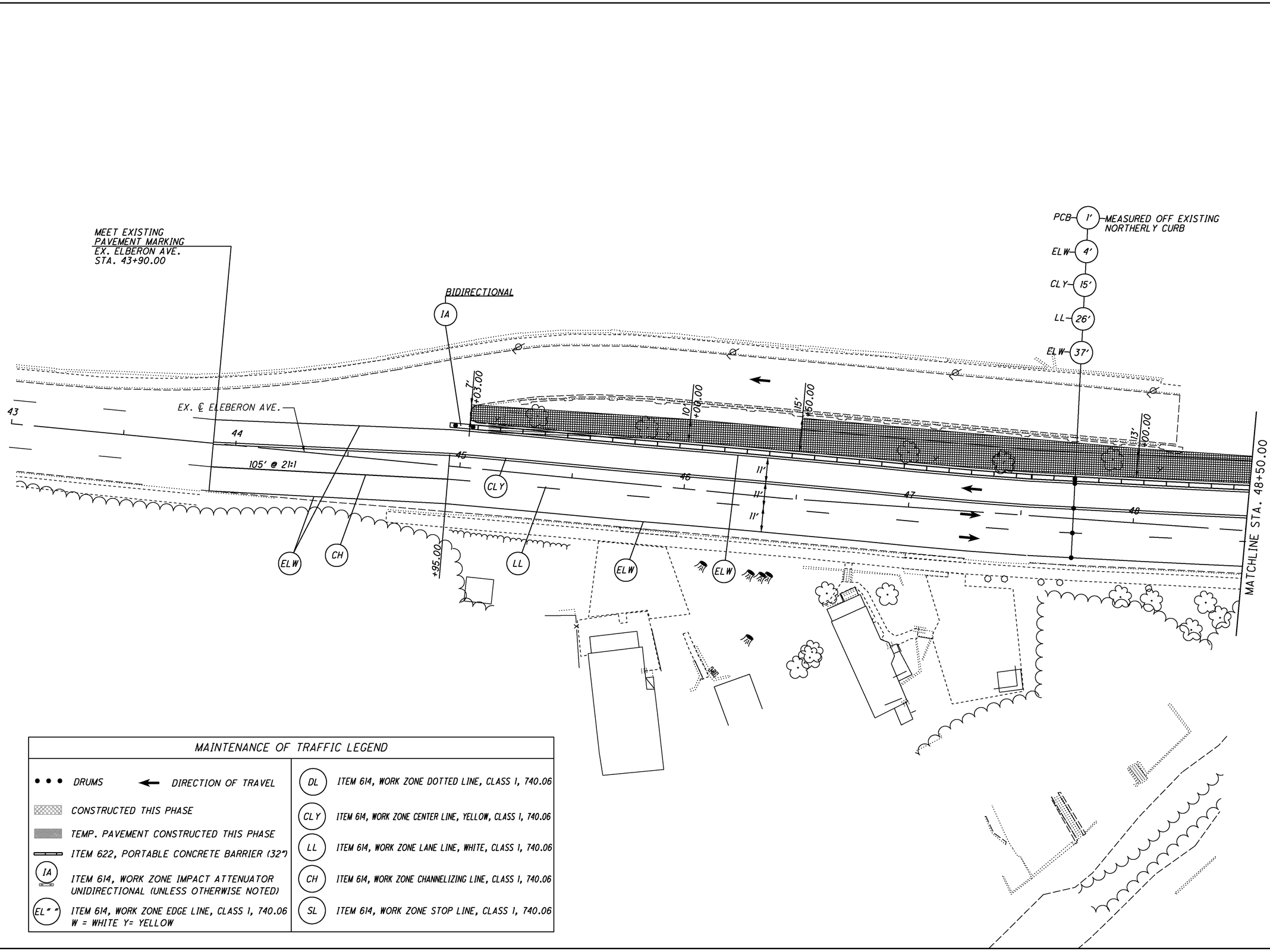

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	DL — ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	CLY — ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL — ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH — ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
IA — ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL — ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
EL" " — ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 1

HAM-50-18.79

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MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

EX. ℄ MARYLAND AVE.

SHIFT TRAFFIC PER SCD MT-95.31

5' DRUM SPACING

℄ CONST. PROP. MARYLAND AVE.

℄ EX. ELBERON AVE. STA. 49+77.17 = ℄ CONST. PROP. MARYLAND AVE. 46+84.73

MEASURED OFF EXISTING NORTHERLY CURB

1' PCB

4' ELW

15' CLY

FACE OF PCB LOCATED 1.0' OFF FACE OF EXISTING CURB

BIDIRECTIONAL

IA

10' +60.00

10' +50.00

+74.00

MATCHLINE STA. 48+50.00

11'

11'

11'

R=389'

+58.00

+00.00

EX. ℄ ELEBERON AVE.

CH

CLY

ELW

PC STA. 49+24 5.5' LT.

20' DRUM SPACING

168' @ 6:1

ELW

+51.00

+46.00

+00.00

R=389'

PT STA. 50+81 6.6' RT.

MEET EXISTING PAVEMENT MARKINGS F 19-00

CLOSE ROAD PER SCD MT-101.60

℄ CONST. TEMPORARY STATE AVE.

45 46 47 48 49 50 51 52

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED MTR

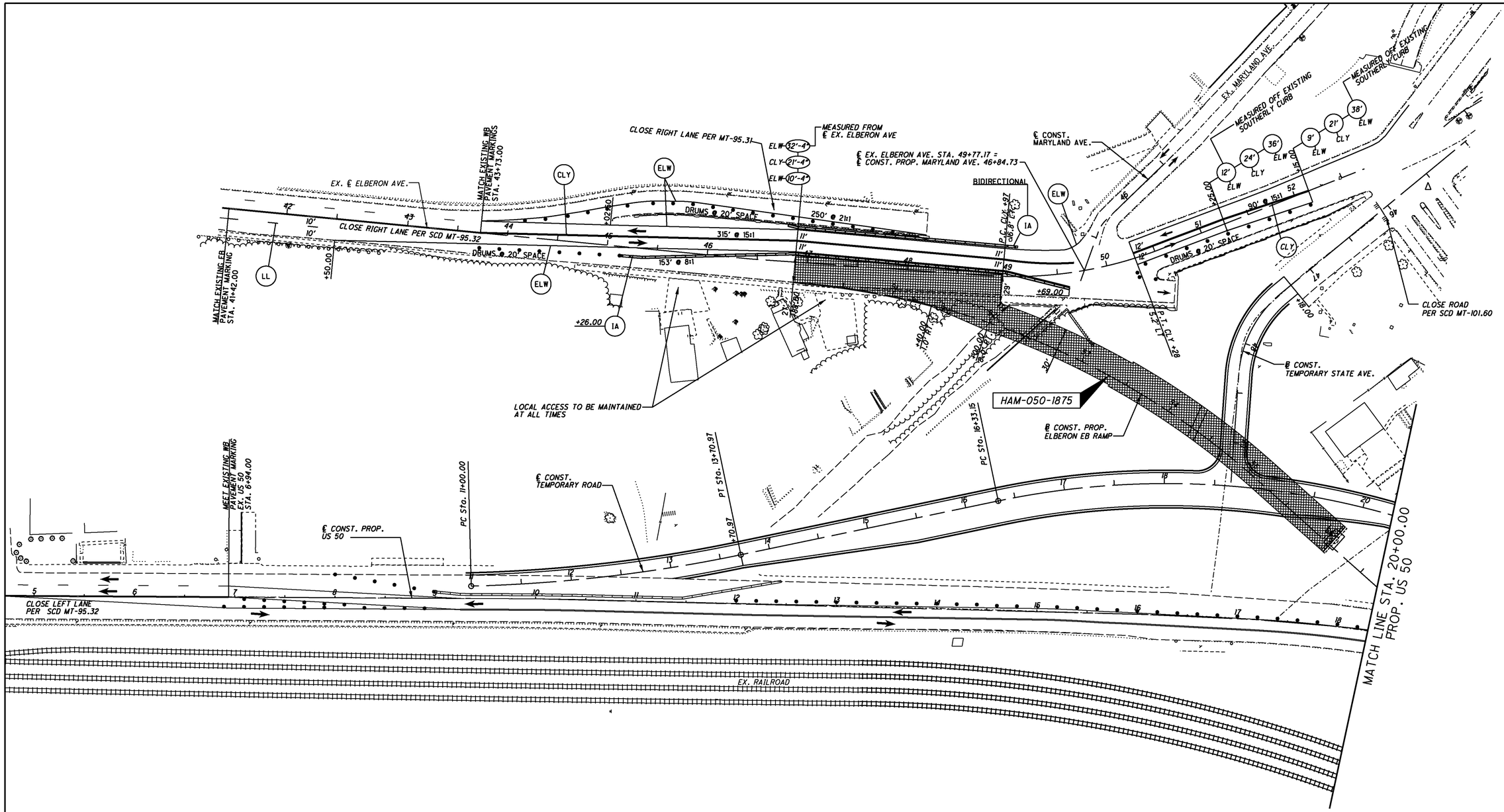
CHECKED NJG

MAINTENACE OF TRAFFIC - PHASE 1

MAINTENANCE

HAM-50-18.79

38
657



NOTE: ALL MARKINGS, TRAFFIC CONTROL AND ROADSIDE PROTECTION FOR US 50 SHALL BE THE SAME AS PHASE IA.

MAINTENANCE OF TRAFFIC LEGEND

DRUMS — DIRECTION OF TRAVEL	DL — ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY — ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL — ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH — ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA — ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL — ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL"-" — ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 1B

HAM-50-18.79

39
657

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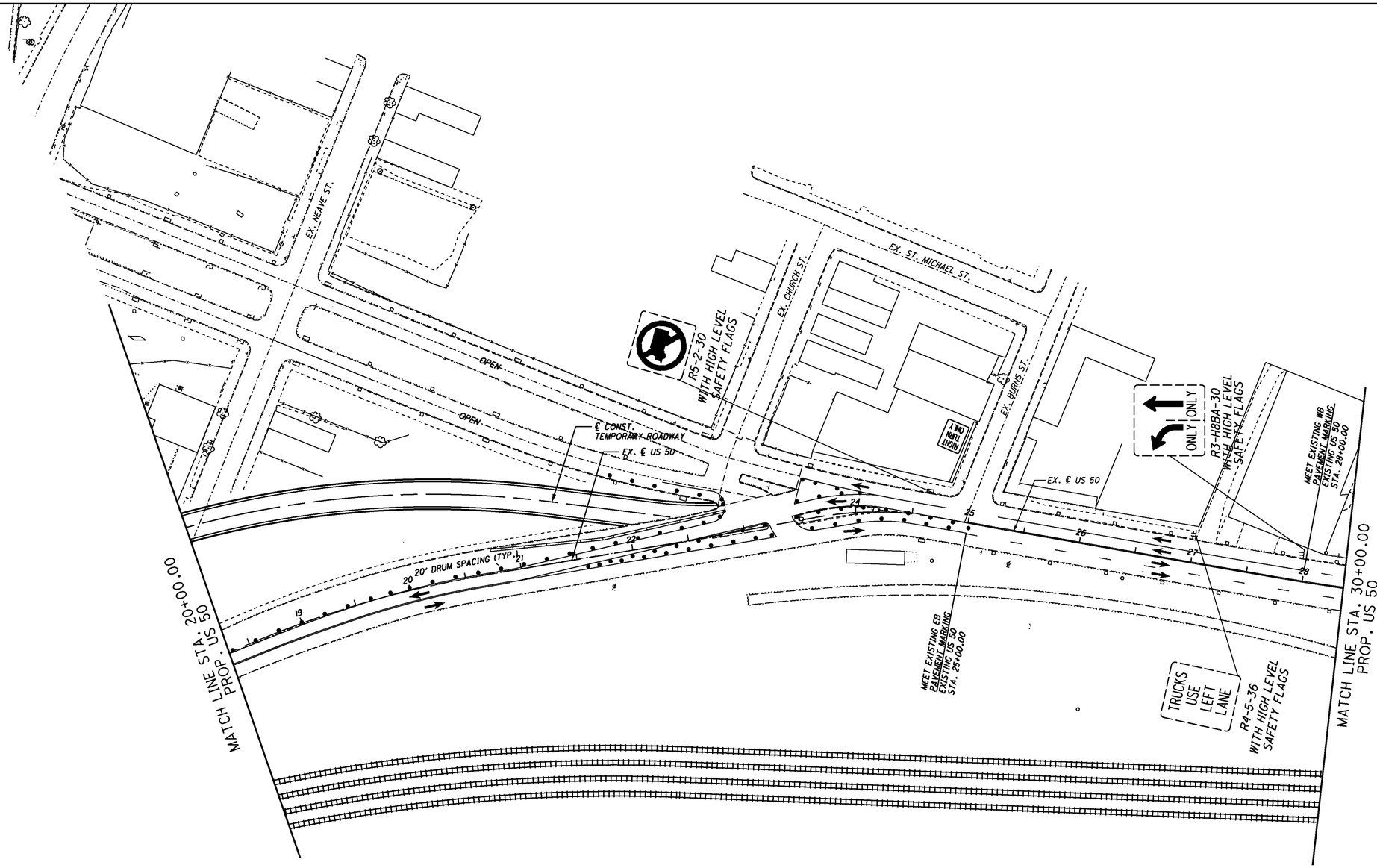

NOTE: ALL MARKINGS, TRAFFIC CONTROL AND ROADSIDE PROTECTION FOR US 50 SHALL BE THE SAME AS PHASE IA.

MAINTENANCE OF TRAFFIC LEGEND	
• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(1A) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 1B

HAM-50-18.79

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ALL STATION CALLOUTS REFERENCE PROP. US 50

MAINTENANCE OF TRAFFIC LEGEND	
DRUMS — DIRECTION OF TRAVEL	DL — ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY — ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL — ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH — ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA — ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL — ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL* — ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

TRAFFIC - PHASE 1B

MAINTENANCE OF TRAFFIC

HAM-50-18.79

41
657

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NOTE: ELBERON AVE. WORK ZONE TO MATCH PHASE IB.

CLOSE RIGHT LANE PER SCD MT-95.30

EX. ℄ ELBERON AVE.

℄ EX. ELBERON AVE. STA. 49+77.17 =
℄ CONST. PROP. MARYLAND AVE. 46+84.73

℄ CONST.
MARYLAND AVE.

EX. MARYLAND AVE.

MATCH EXISTING EB
PAVEMENT MARKING
STA. 41+42.00

DRUMS @ 20' SPACING

LOCAL ACCESS TO BE MAINTAINED AT ALL TIMES

250' @ 2%1

+69.00

+60.00

+80.00

+25.00

+00.00

+41.82

℄ CONST.
TEMPORARY STATE AVE.

℄ CONST. PROP.
ELBERON EB RAMP

HAM-050-1875

℄ CONST.
TEMPORARY ROAD

PT STA. 13+70.97

PC STA. 11+00.00

PC STA. 16+33.15

+95.97

+33.00

+45.97

℄ CONST. PROP.
US 50

+51.72

316' @ 2%1

172' @ 1%1

+10.00

+85.00

+54.27

CLOSE RIGHT LANE
PER SCD MT-95.31

EX. RAILROAD

TEMPORARY TRAFFIC SIGNAL

MATCH LINE STA. 20+00.00
PROP. US 50

MEET EXISTING
PAVEMENT MARKING
STA. 7+40.00

IA

S1

S2

STOP
HERE ON
RED

R10-6-24

ONLY | ONLY

R3-H8BA-30

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	DL ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 2A

HAM-50-18.79

42
657

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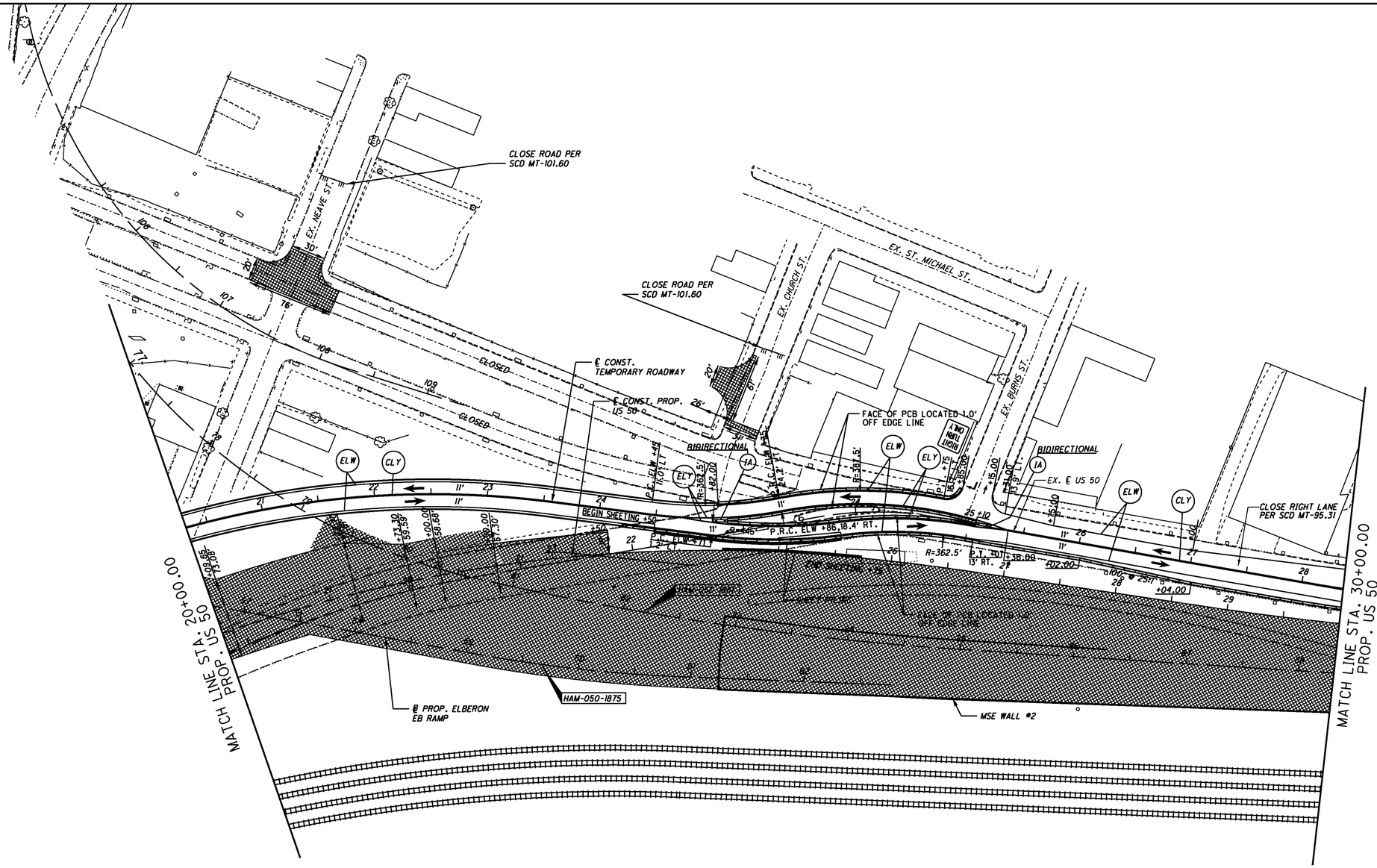

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 2A

HAM-50-18.79

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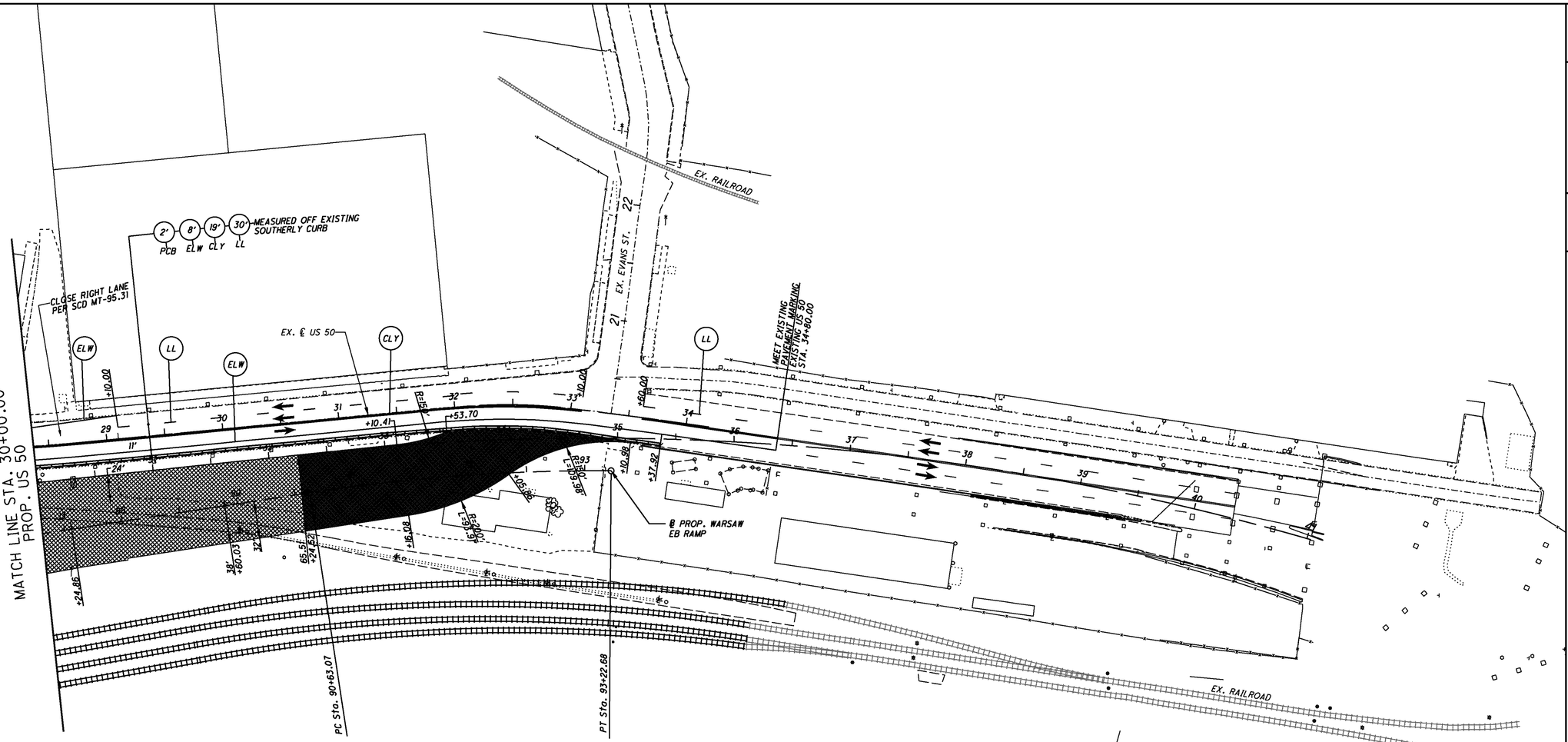

ALL STATION CALLOUTS REFERENCE PROP. US 50

MAINTENANCE OF TRAFFIC LEGEND

DRUMS — DIRECTION OF TRAVEL	DL — ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY — ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL — ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH — ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA — ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL — ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL* — ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 2A

HAM-50-18.79

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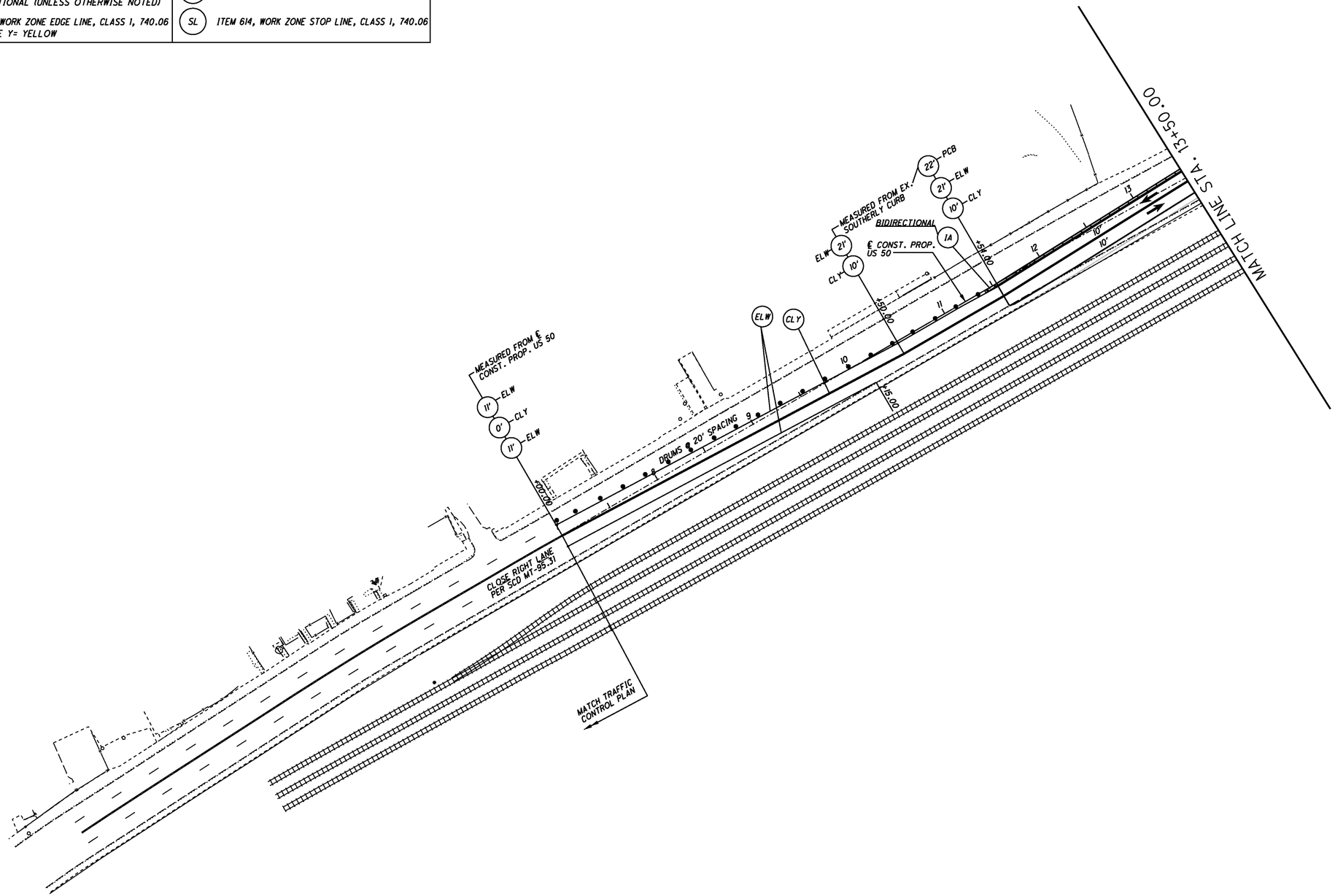
MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	



HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 2B

HAM-50-18.79

45
657

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MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

NOTE: ALL MARYLAND AVE STATIONING IS FROM THE PROP. ℄ OF CONSTRUCTION

℄ CONST. PROP. ELBERON AVE. STA. 43+00.00 = EX. ELBERON AVE. STA. 46+00.00, 6.93' LT.

EX. MARYLAND AVE.

EX. STATE AVE.

EX. NEAVE ST.

MEASURED FROM EX. EASTERLY CURB

MEASURED FROM ℄ PROP. ELBERON AVE. EB RAMP

MEASURED FROM EXISTING SOUTHERLY CURB

MEASURED FROM ℄ CONST. PROP. US 50

CLOSE ROAD PER SCD MT-101.60

CLOSE PER MT-101.60

EX. WALL TO REMAIN

CLOSE ROAD PER SCD MT-101.60

MSE WALL #3

℄ PROP. ELBERON AVE. EB RAMP

HAM-050-1875

CLOSE LEFT LANE PER SCD MT-95.32

℄ EX. ELBERON AVE

MEET EXISTING EB MARKINGS EXISTING ELBERON AVE. EXISTING STA. 42+50.00

MEET EXISTING WB MARKINGS EXISTING ELBERON AVE. EXISTING STA. 43+75.00

℄ CONST. PROP. US 50

MATCH LINE STA. 13+50.00

MATCH LINE STA. 59+50.00

DRUMS @ 20' SPACING

BIDIRECTIONAL

R=795'

R=818'

R=1249'

R=1288'

R=390.00'

P.C. 59+98

P.C.C. CLY 190.12' RT.

P.C.C. CLY 105.12' RT.

P.C.C. CLY 105.12' RT.

P.T. 51+80

P.C. 46+00

P.T. 46+90

P.C. 46+90

P.T. 47+90

P.C. 47+90

P.T. 48+90

P.C. 48+90

P.T. 49+90

P.C. 49+90

P.T. 50+90

P.C. 50+90

P.T. 51+90

P.C. 51+90

P.T. 52+90

P.C. 52+90

P.T. 53+90

P.C. 53+90

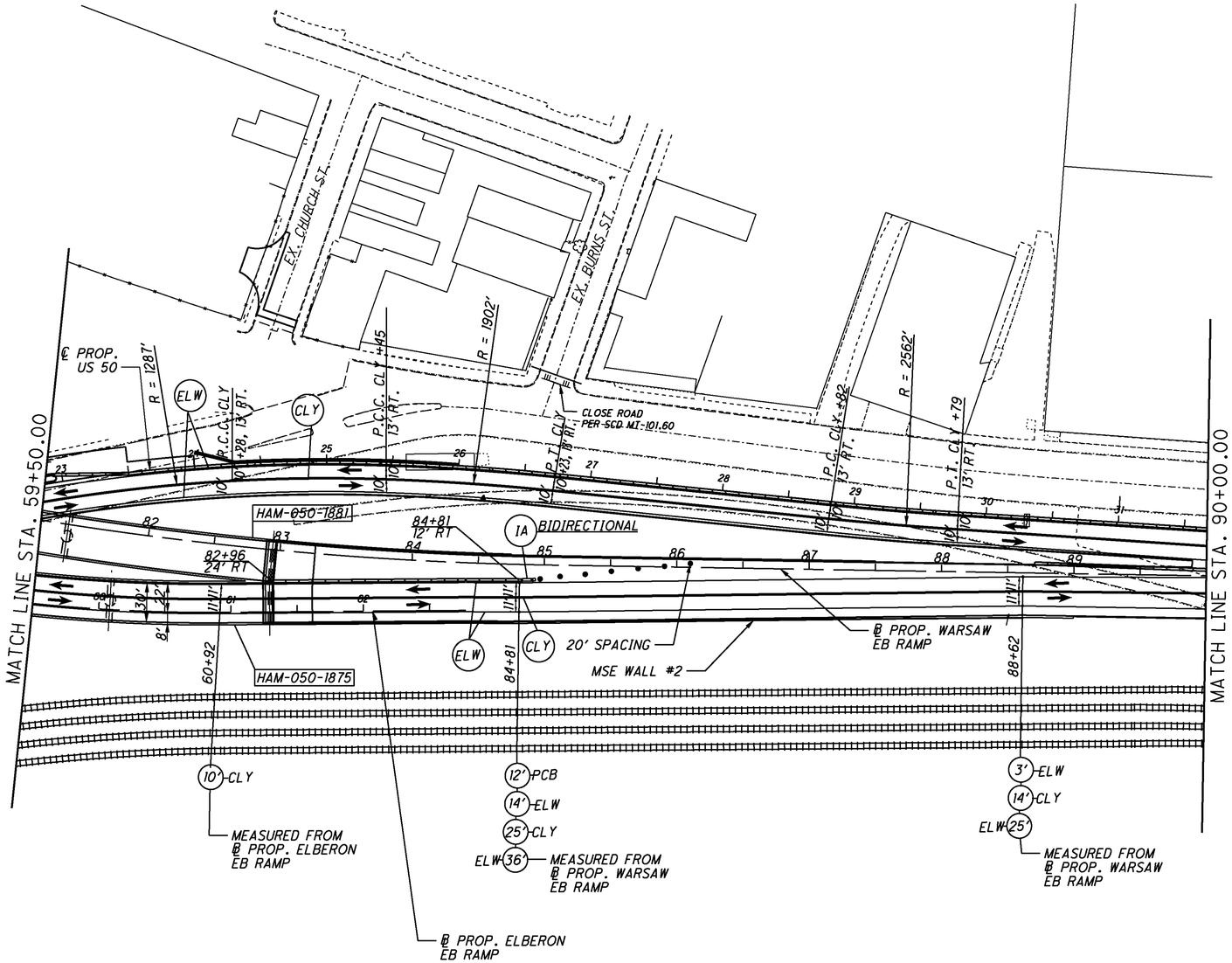
P.T. 54+90

P.C. 54+90

P.T. 55+90

P.C. 55+90

P.T.



MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL"-") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 2B

HAM-50-18.79

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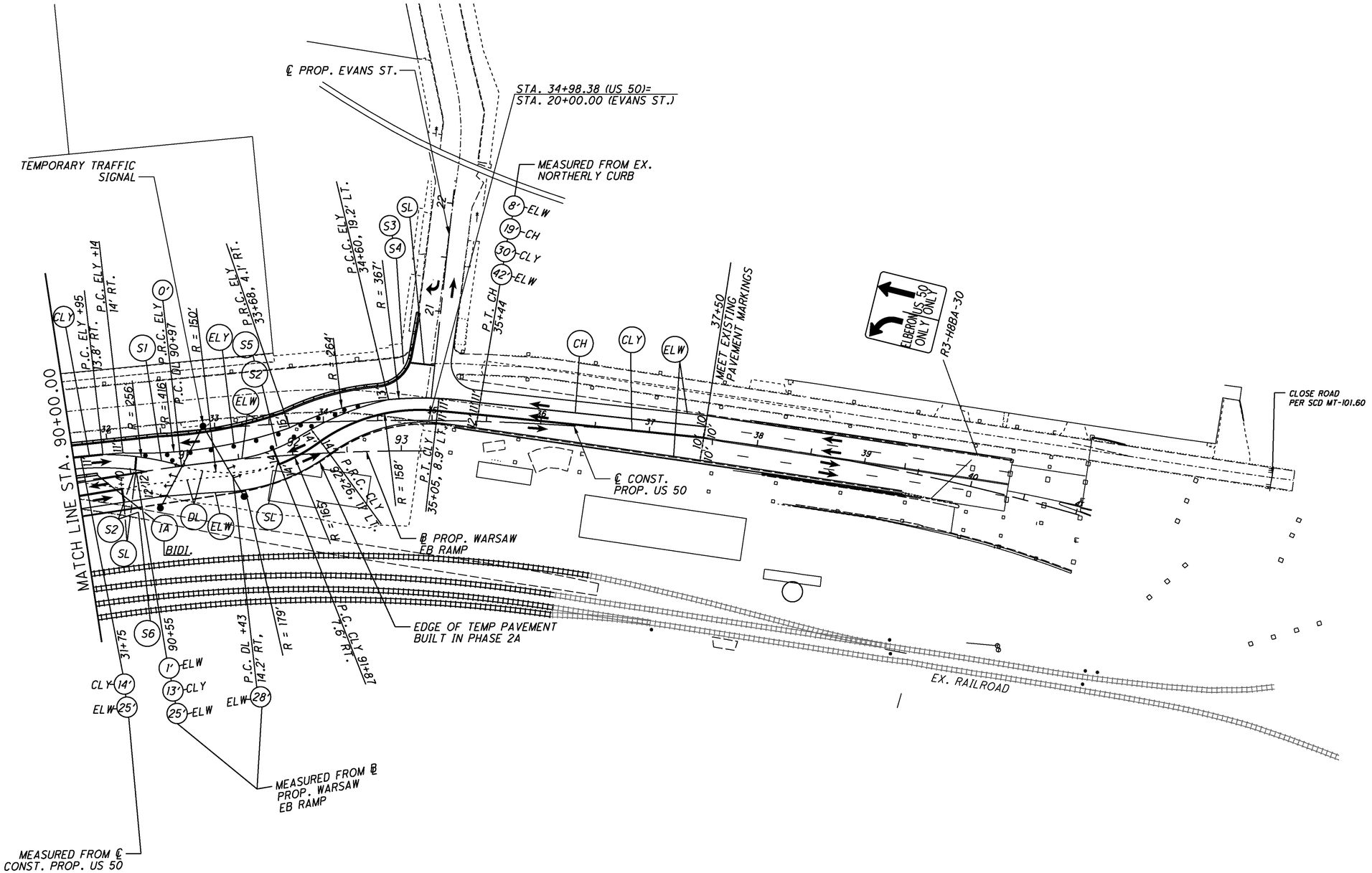

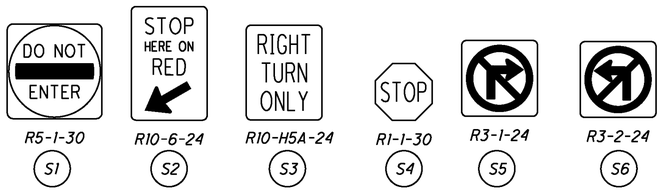

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	DL ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL"-" ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

N

0 25 50 100 HORIZONTAL SCALE IN FEET

CALCULATED MTR CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 2B

HAM-50-18.79

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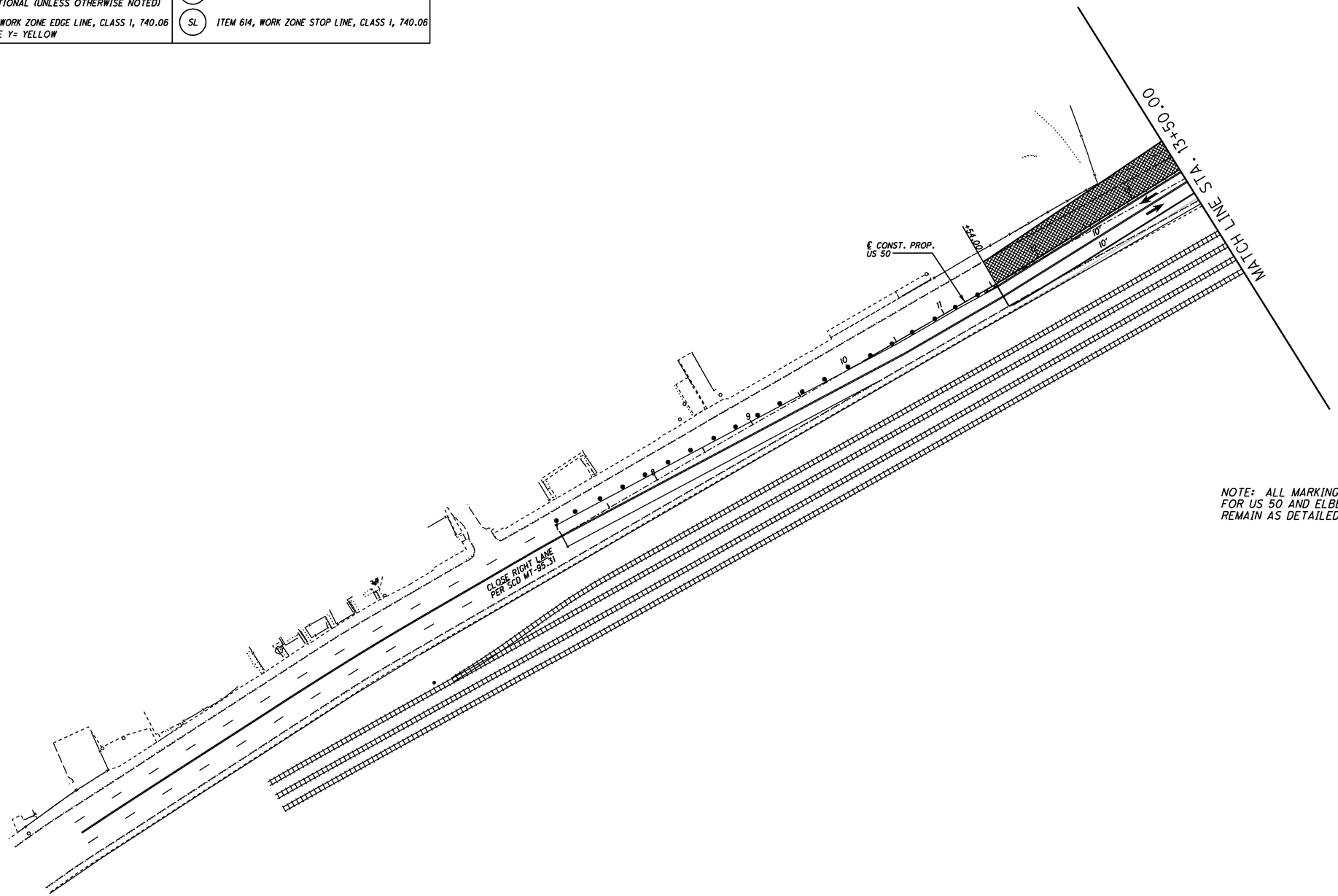
MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	



NOTE: ALL MARKINGS AND TRAFFIC CONTROL FOR US 50 AND ELBERON RAMP ARE TO REMAIN AS DETAILED IN PHASE 2B

N

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3A

HAM-50-18.79

49
657

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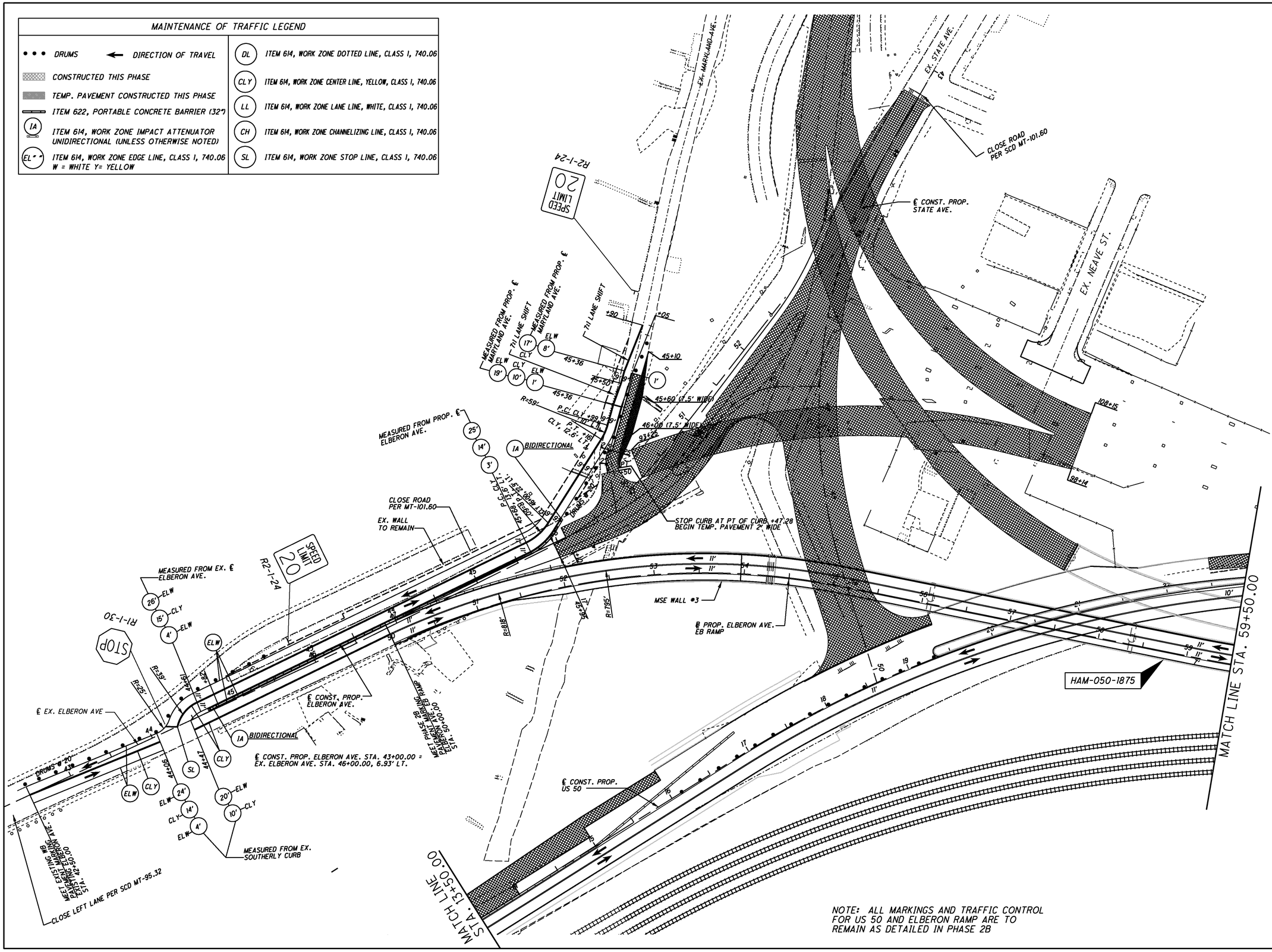
MAINTENANCE OF TRAFFIC LEGEND

DRUMS — DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(1A) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	



HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3A

HAM-50-18.79

50
657

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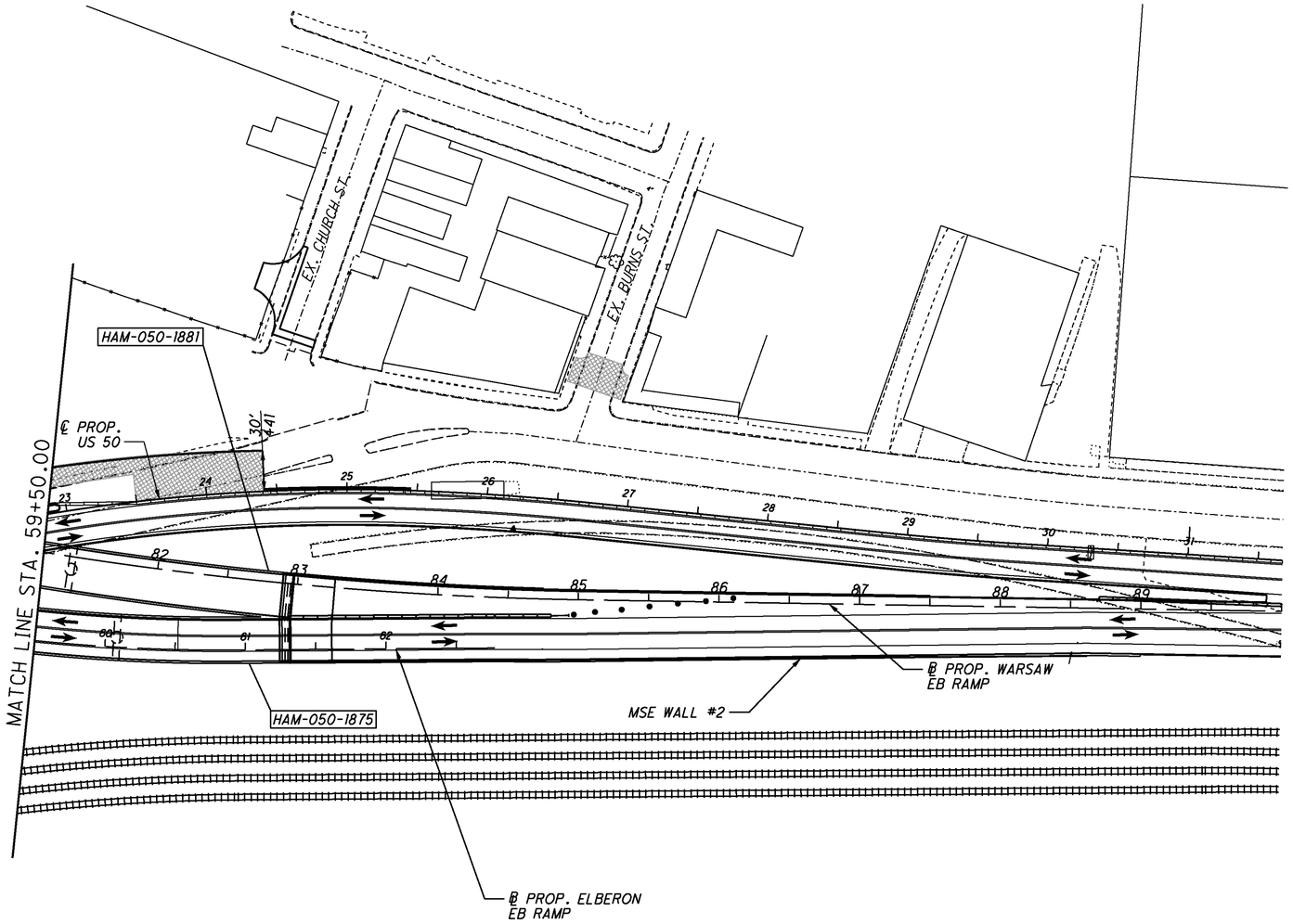

NOTE: ALL MARKINGS AND TRAFFIC CONTROL FOR US 50 AND ELBERON RAMP ARE TO REMAIN AS DETAILED IN PHASE 2B

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL"-") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3A

HAM-50-18.79

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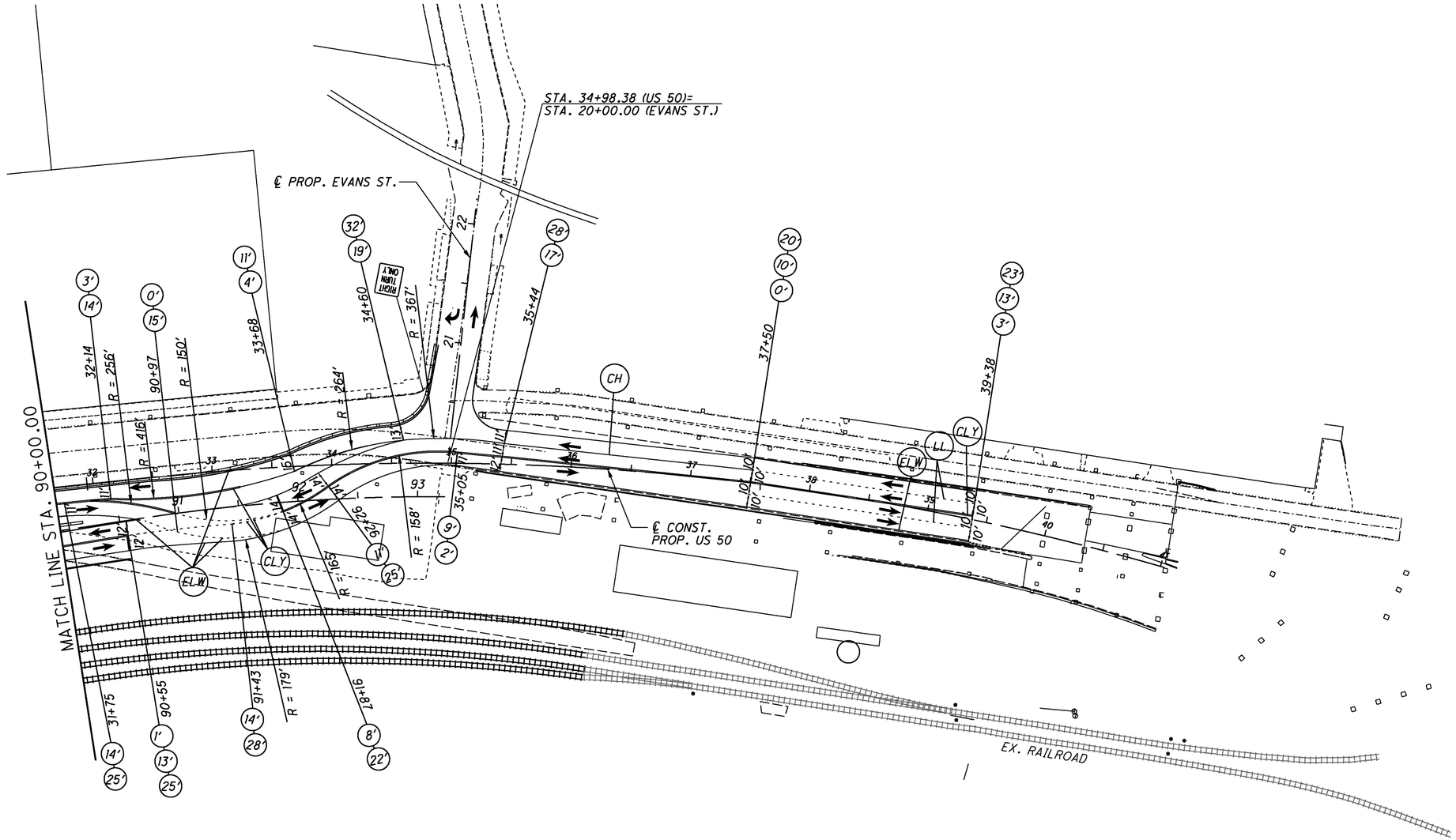

NOTE: ALL MARKINGS AND TRAFFIC CONTROL FOR US 50 AND ELBERON RAMP ARE TO REMAIN AS DETAILED IN PHASE 2B

MAINTENANCE OF TRAFFIC LEGEND

- DRUMS
- DIRECTION OF TRAVEL
- CONSTRUCTED THIS PHASE
- TEMP. PAVEMENT CONSTRUCTED THIS PHASE
- ITEM 622, PORTABLE CONCRETE BARRIER (32")
- (IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)
- (EL"-") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW
- (DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
- (CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
- (LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
- (CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
- (SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED RWD
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3A

HAM-50-18.79

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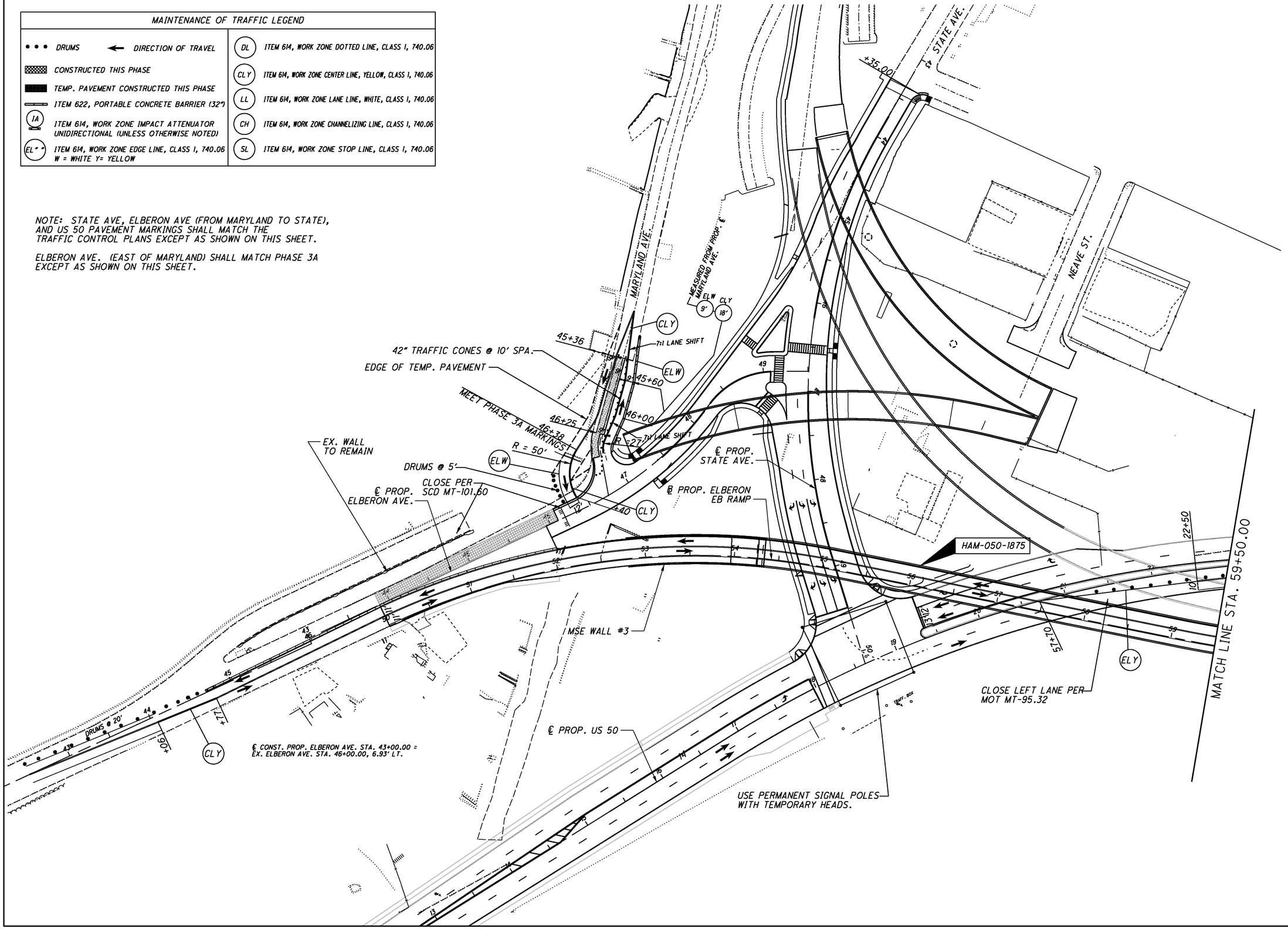
MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL W/Y) ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

NOTE: STATE AVE, ELBERON AVE (FROM MARYLAND TO STATE), AND US 50 PAVEMENT MARKINGS SHALL MATCH THE TRAFFIC CONTROL PLANS EXCEPT AS SHOWN ON THIS SHEET.

ELBERON AVE. (EAST OF MARYLAND) SHALL MATCH PHASE 3A EXCEPT AS SHOWN ON THIS SHEET.



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HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3B

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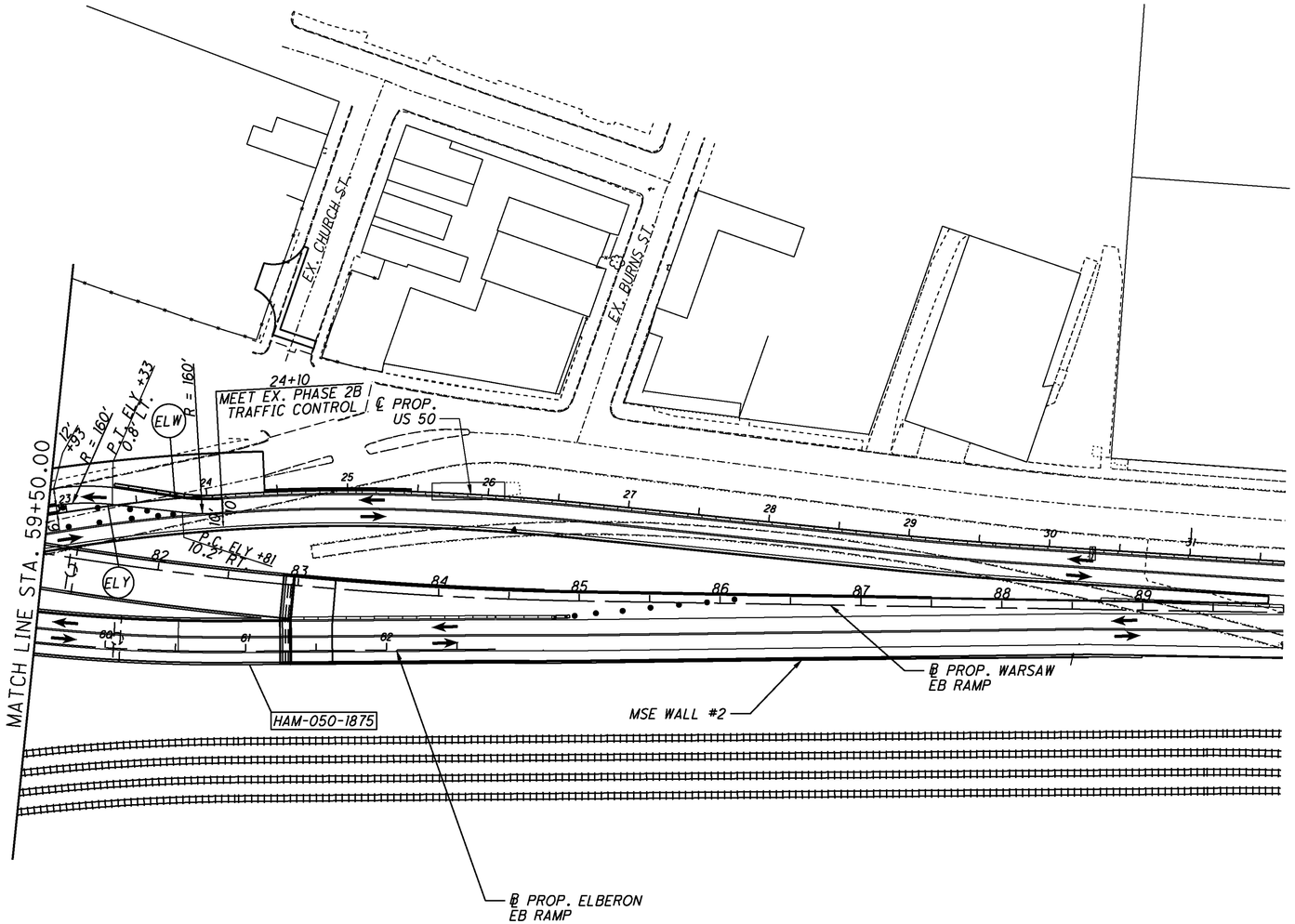

NOTE: ALL MARKINGS AND TRAFFIC CONTROL FOR US 50 AND ELBERON RAMP ARE TO REMAIN AS DETAILED IN PHASE 2B EXCEPT AS SHOWN ON THIS SHEET.

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL"-") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3B

HAM-50-18.79

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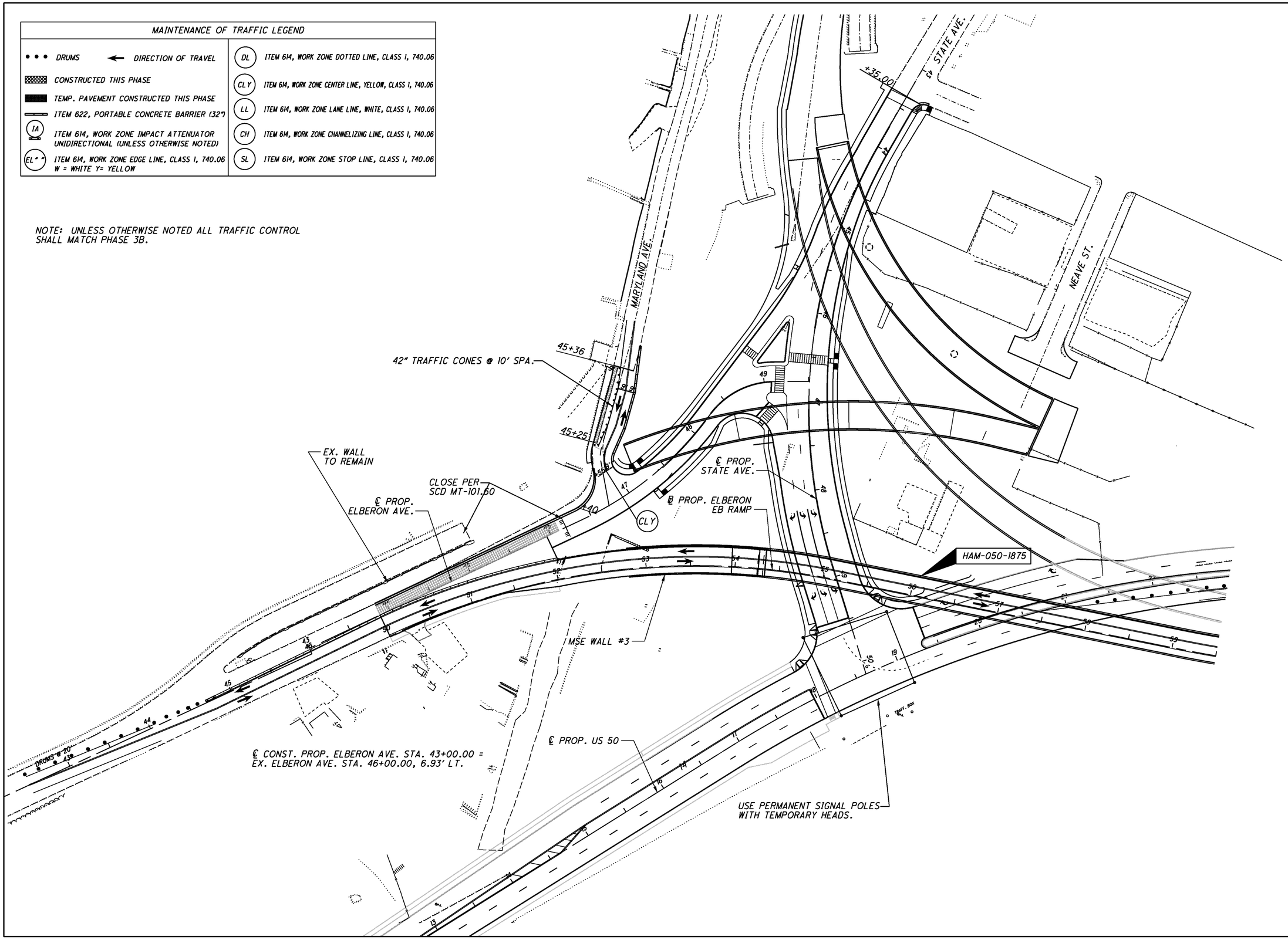
MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL W/Y) ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

NOTE: UNLESS OTHERWISE NOTED ALL TRAFFIC CONTROL SHALL MATCH PHASE 3B.



HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 3C

HAM-50-18.79

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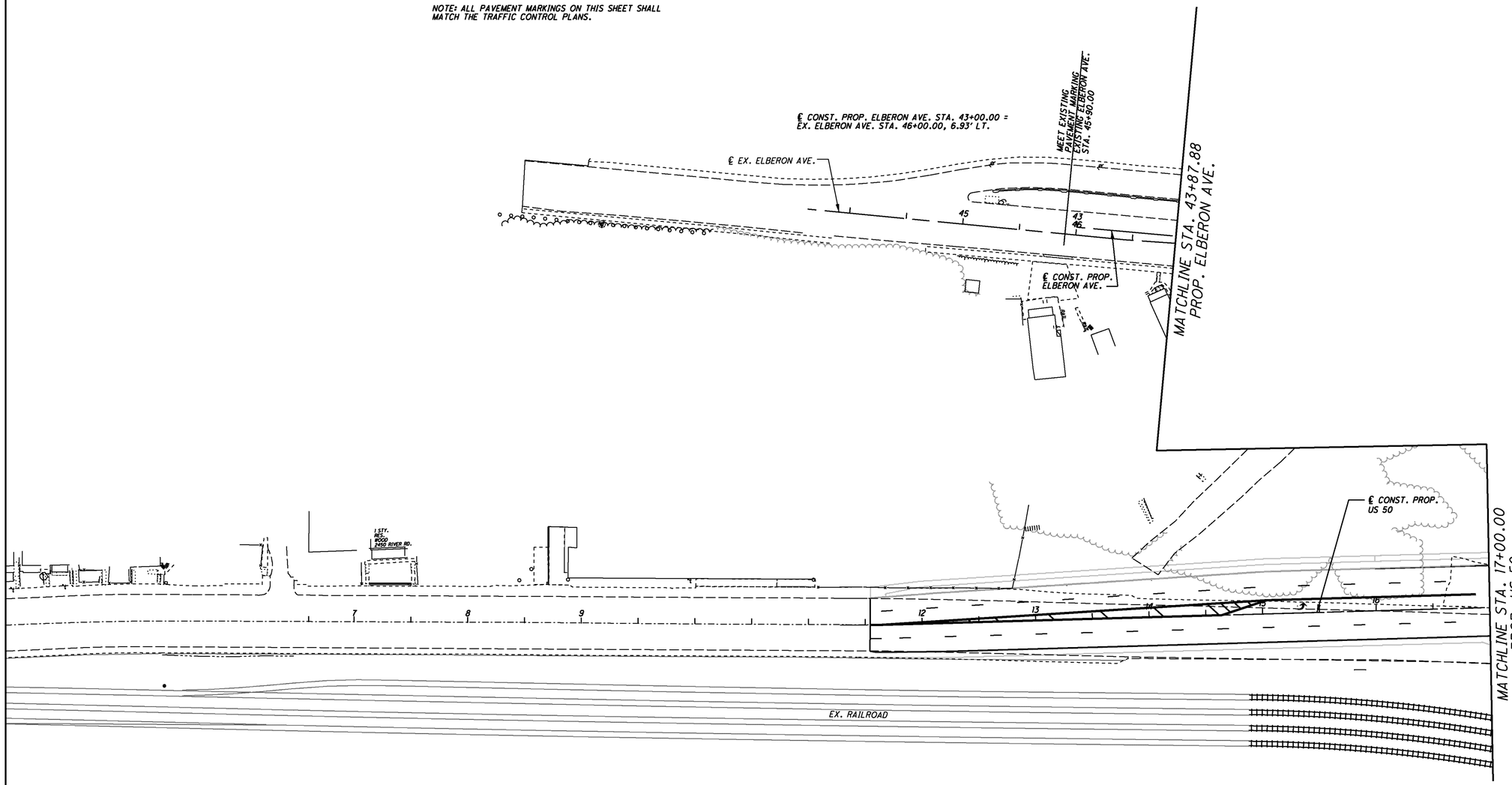
NOTE: ALL PAVEMENT MARKINGS ON THIS SHEET SHALL MATCH THE TRAFFIC CONTROL PLANS.



MAINTENANCE OF TRAFFIC LEGEND	
• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4A

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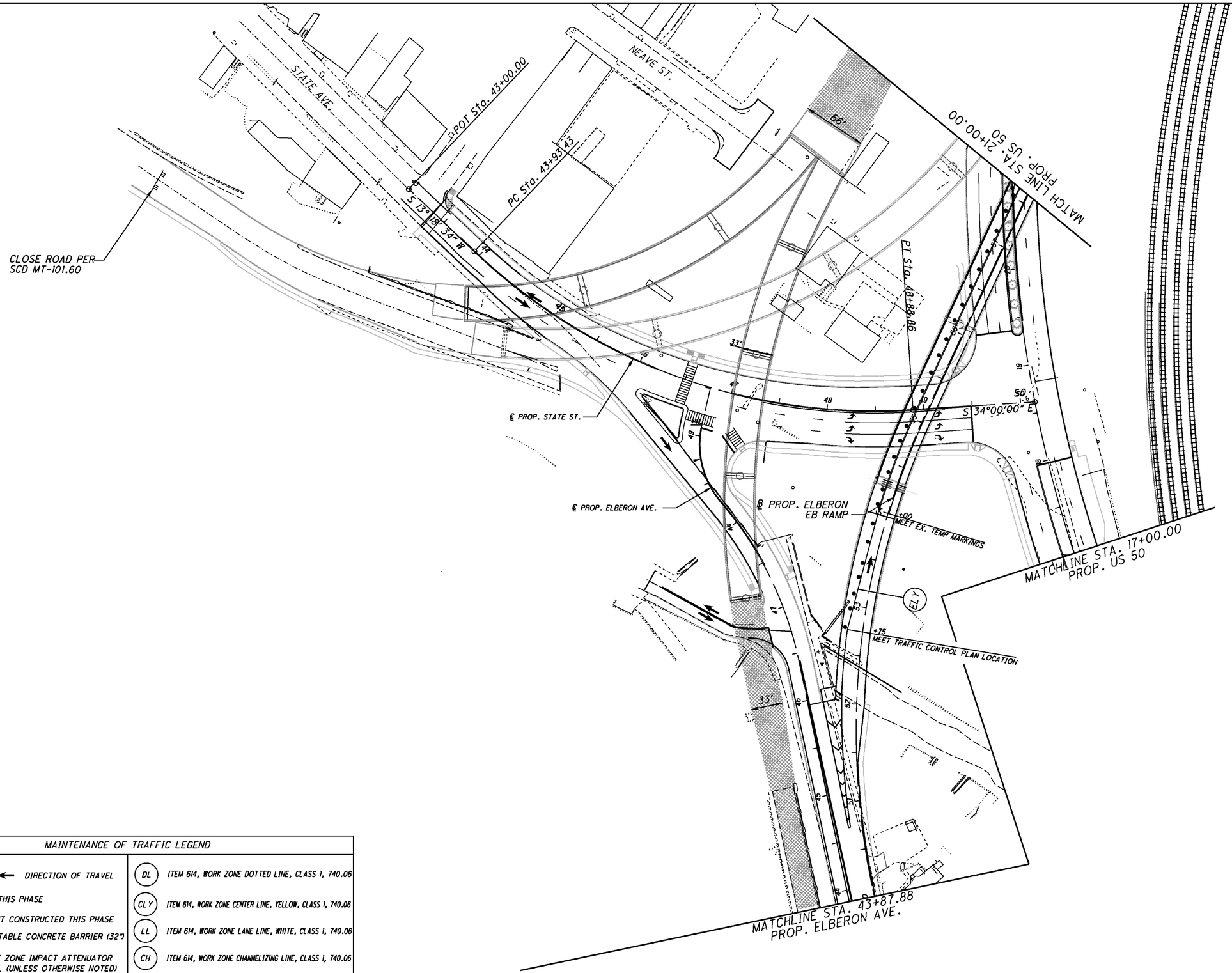

MAINTENANCE OF TRAFFIC LEGEND

DRUMS — DIRECTION OF TRAVEL	DL — ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY — ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL — ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH — ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA — ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL — ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL" " — ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4A

HAM-50-18.79

57
657

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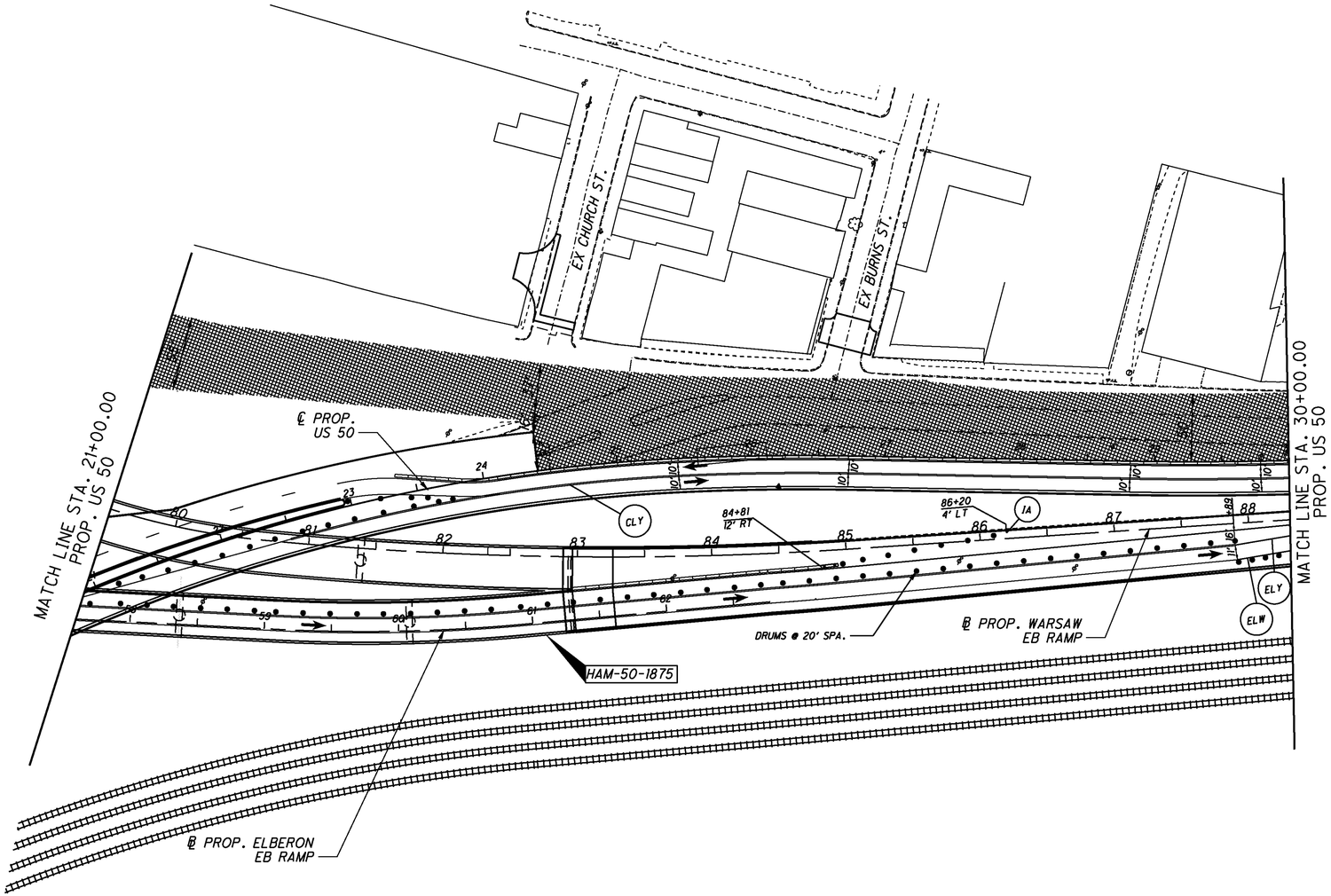

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

N

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4A

HAM-50-18.79

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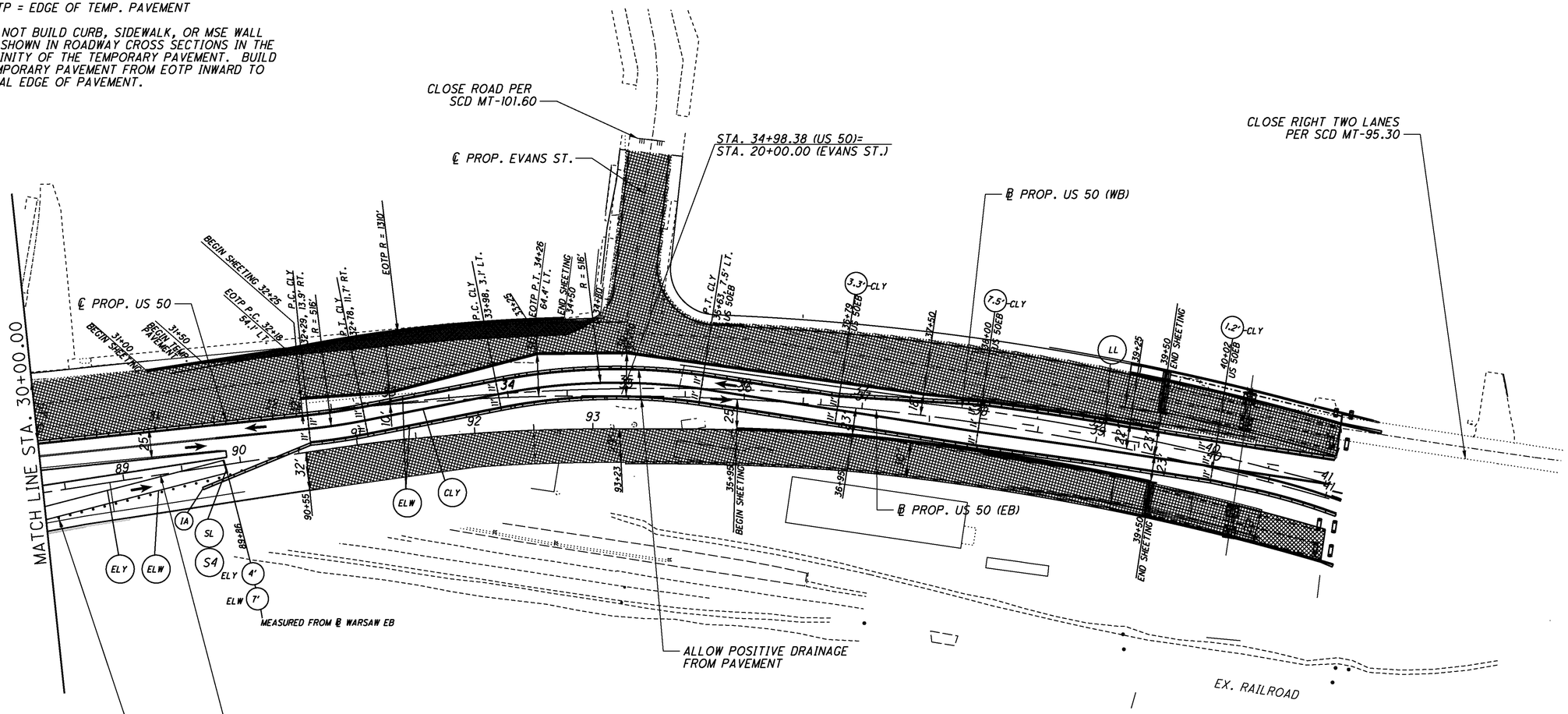
NOTE:
EOTP = EDGE OF TEMP. PAVEMENT

DO NOT BUILD CURB, SIDEWALK, OR MSE WALL AS SHOWN IN ROADWAY CROSS SECTIONS IN THE VICINITY OF THE TEMPORARY PAVEMENT. BUILD TEMPORARY PAVEMENT FROM EOTP INWARD TO FINAL EDGE OF PAVEMENT.



STOP
R1-1-30
S4

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	DL ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
1A ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL" " ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4A

HAM-50-18.79

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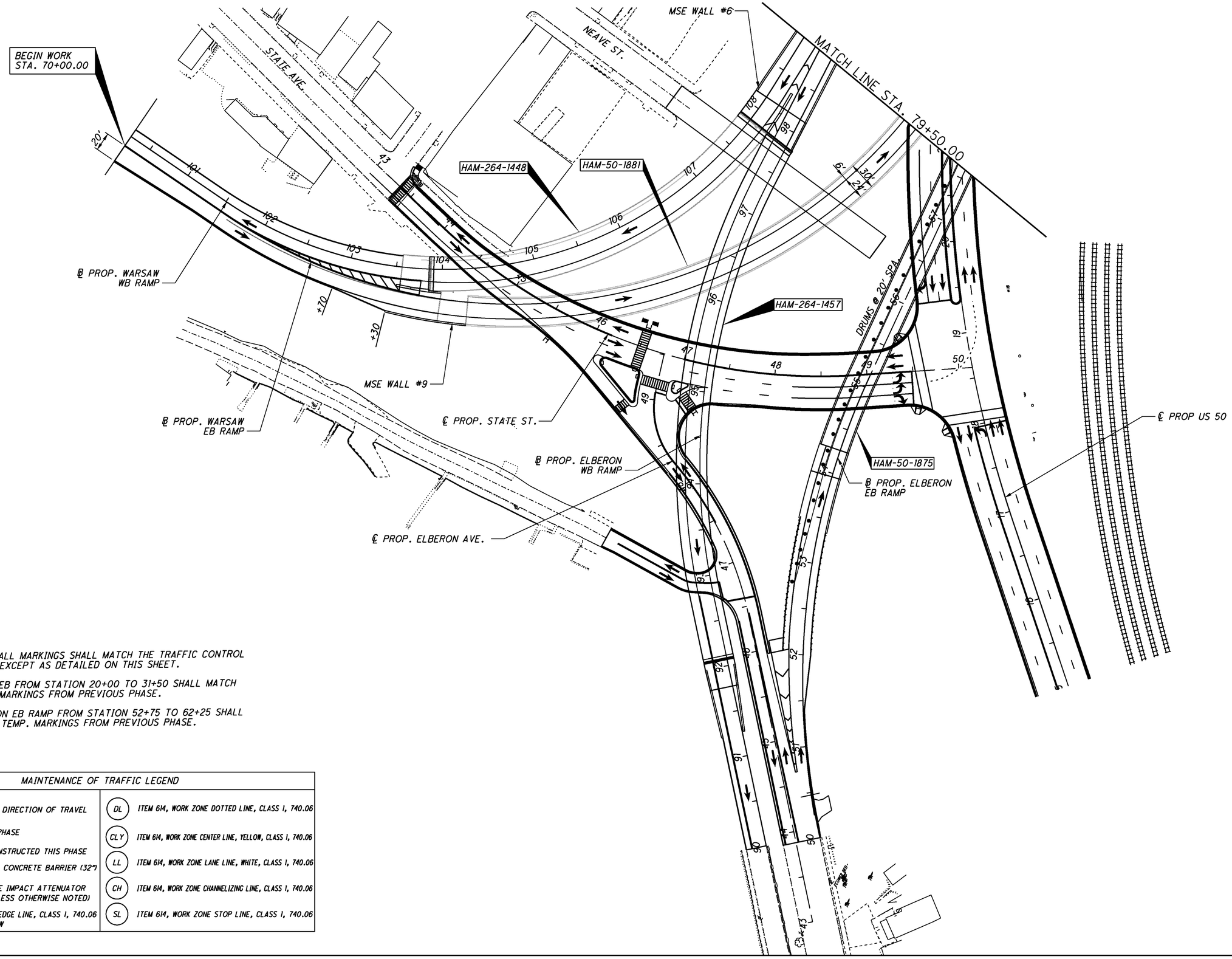

NOTE: ALL MARKINGS SHALL MATCH THE TRAFFIC CONTROL PLANS EXCEPT AS DETAILED ON THIS SHEET.

US 50 EB FROM STATION 20+00 TO 31+50 SHALL MATCH TEMP. MARKINGS FROM PREVIOUS PHASE.

ELBERON EB RAMP FROM STATION 52+75 TO 62+25 SHALL MATCH TEMP. MARKINGS FROM PREVIOUS PHASE.

MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL* *) ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4B

HAM-50-18.79

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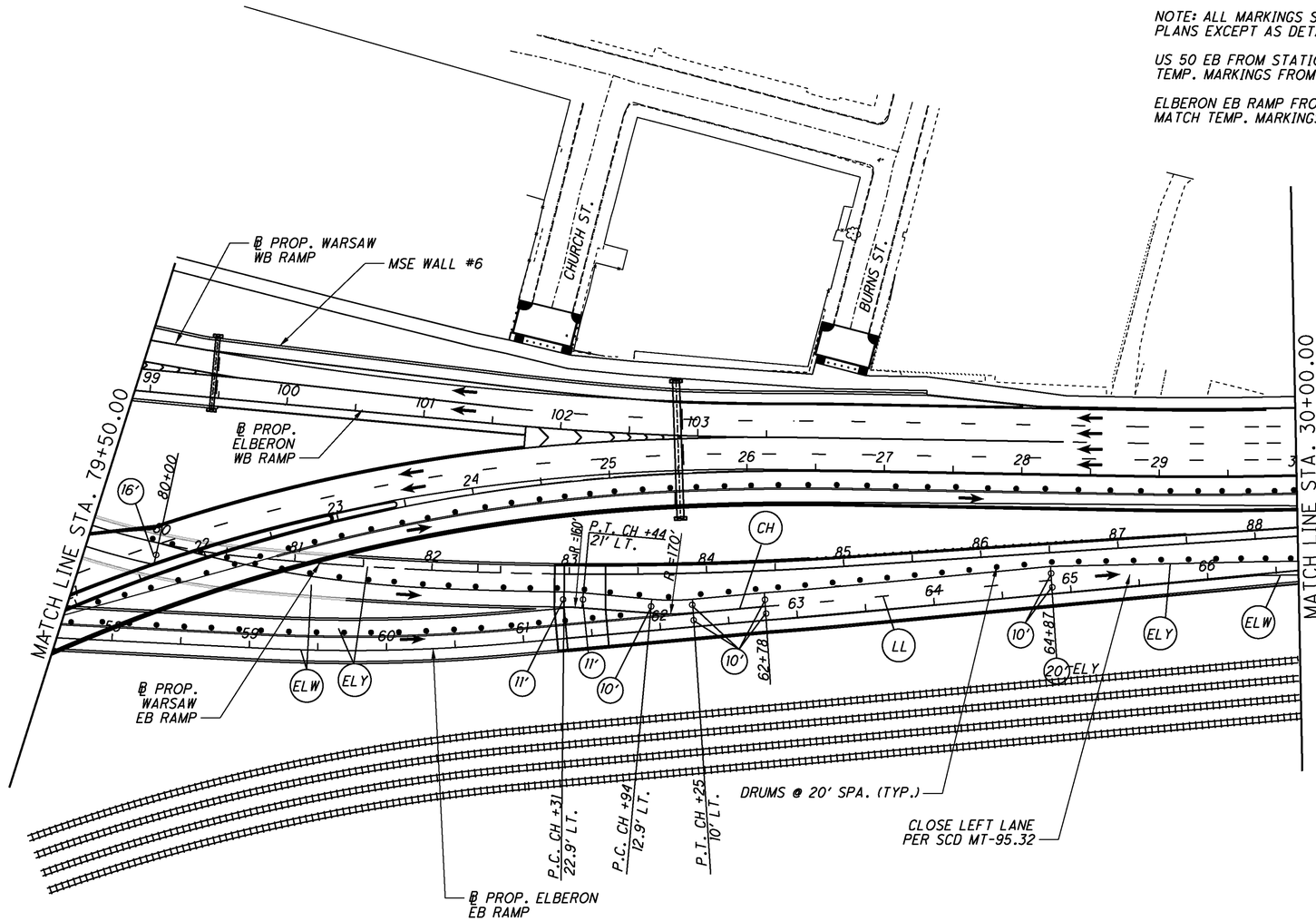
NOTE: ALL MARKINGS SHALL MATCH THE TRAFFIC CONTROL PLANS EXCEPT AS DETAILED ON THIS SHEET.

US 50 EB FROM STATION 20+00 TO 31+50 SHALL MATCH TEMP. MARKINGS FROM PREVIOUS PHASE.

ELBERON EB RAMP FROM STATION 52+75 TO 62+25 SHALL MATCH TEMP. MARKINGS FROM PREVIOUS PHASE.



MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
(EL" ") ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4B

HAM-50-18.79

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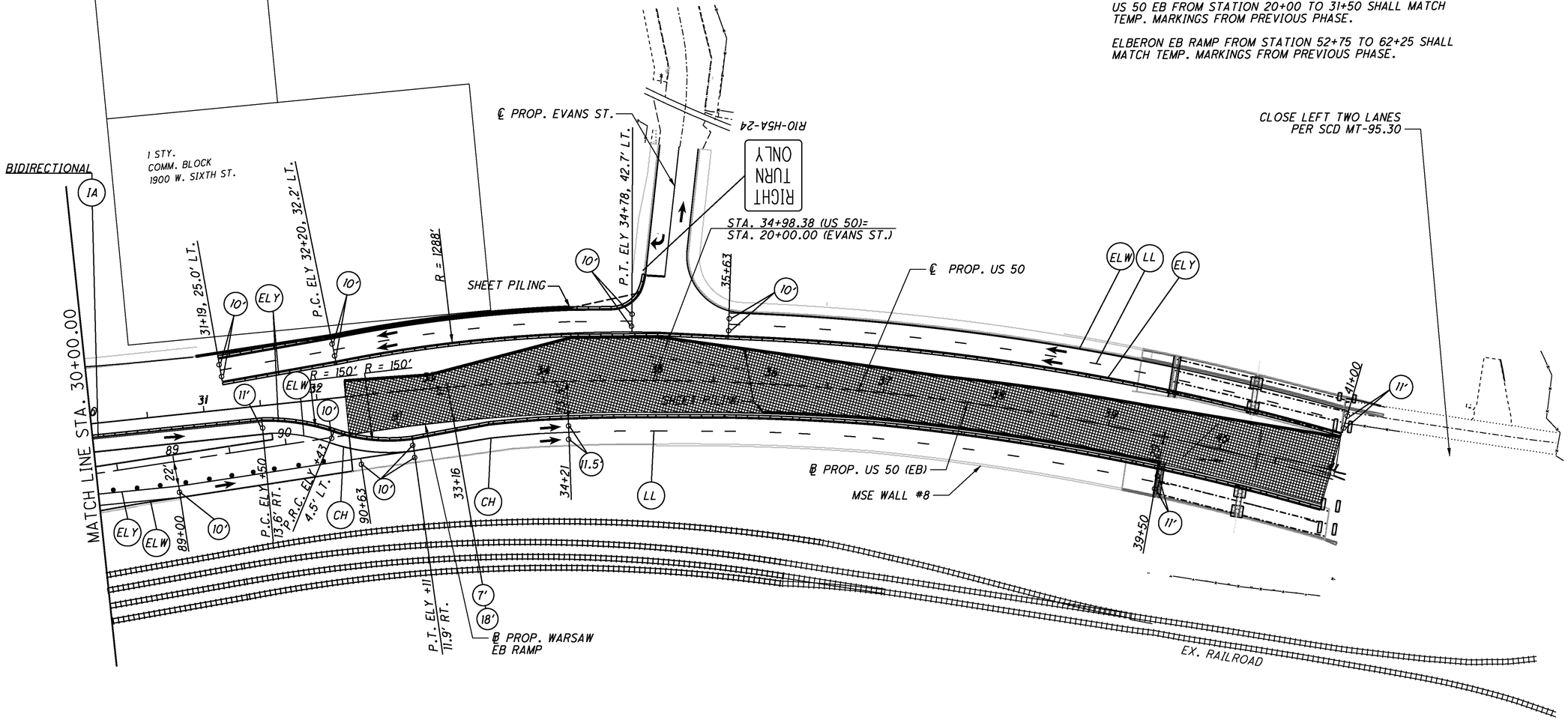
NOTE: ALL MARKINGS SHALL MATCH THE TRAFFIC CONTROL PLANS EXCEPT AS DETAILED ON THIS SHEET.

US 50 EB FROM STATION 20+00 TO 31+50 SHALL MATCH TEMP. MARKINGS FROM PREVIOUS PHASE.

ELBERON EB RAMP FROM STATION 52+75 TO 62+25 SHALL MATCH TEMP. MARKINGS FROM PREVIOUS PHASE.



MAINTENANCE OF TRAFFIC LEGEND

• • • DRUMS ← DIRECTION OF TRAVEL	(DL) ITEM 614, WORK ZONE DOTTED LINE, CLASS 1, 740.06
CONSTRUCTED THIS PHASE	(CLY) ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS 1, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	(LL) ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS 1, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	(CH) ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06
(IA) ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	(SL) ITEM 614, WORK ZONE STOP LINE, CLASS 1, 740.06
(EL"") ITEM 614, WORK ZONE EDGE LINE, CLASS 1, 740.06 W = WHITE Y= YELLOW	

N

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MTR
CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 4B

HAM-50-18.79

62
657

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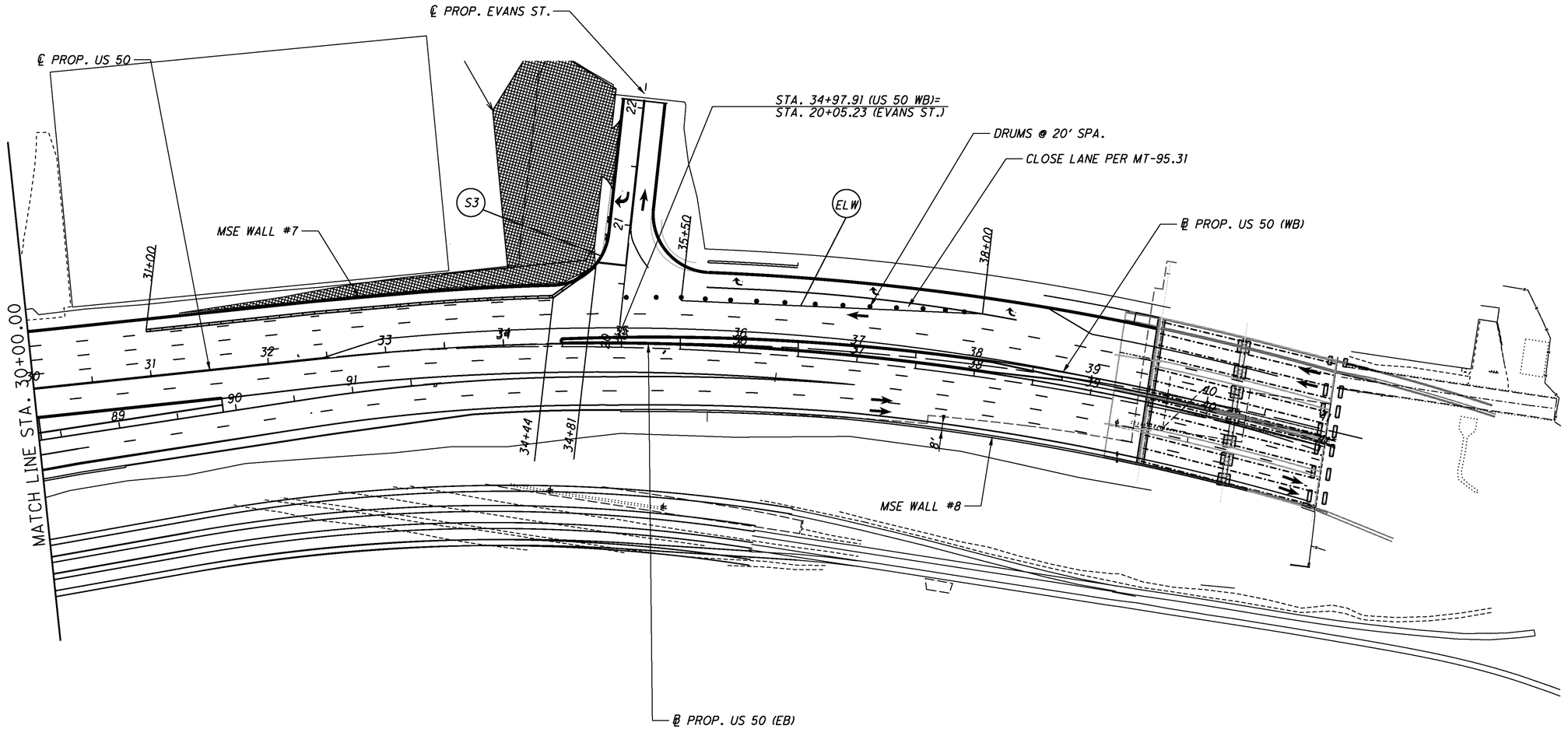

RIGHT TURN ONLY

R10-H5A-24

S3

MAINTENANCE OF TRAFFIC LEGEND	
• • • DRUMS ← DIRECTION OF TRAVEL	DL ITEM 614, WORK ZONE DOTTED LINE, CLASS I, 740.06
CONSTRUCTED THIS PHASE	CLY ITEM 614, WORK ZONE CENTER LINE, YELLOW, CLASS I, 740.06
TEMP. PAVEMENT CONSTRUCTED THIS PHASE	LL ITEM 614, WORK ZONE LANE LINE, WHITE, CLASS I, 740.06
ITEM 622, PORTABLE CONCRETE BARRIER (32")	CH ITEM 614, WORK ZONE CHANNELIZING LINE, CLASS I, 740.06
IA ITEM 614, WORK ZONE IMPACT ATTENUATOR UNIDIRECTIONAL (UNLESS OTHERWISE NOTED)	SL ITEM 614, WORK ZONE STOP LINE, CLASS I, 740.06
EL"-" ITEM 614, WORK ZONE EDGE LINE, CLASS I, 740.06 W = WHITE Y= YELLOW	

N

0 25 50 100 HORIZONTAL SCALE IN FEET

CALCULATED MTR CHECKED NJG

MAINTENANCE OF TRAFFIC - PHASE 5

HAM-50-18.79

63
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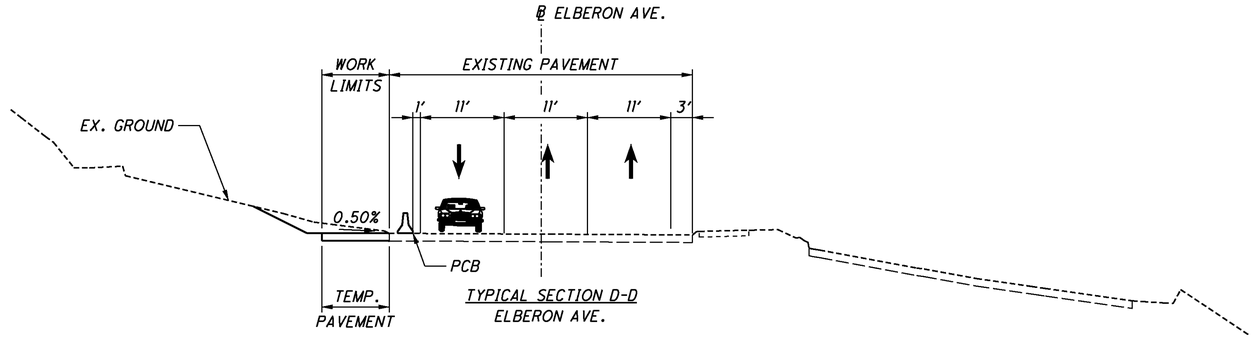
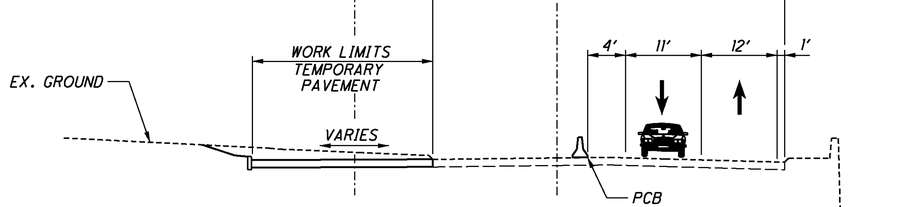
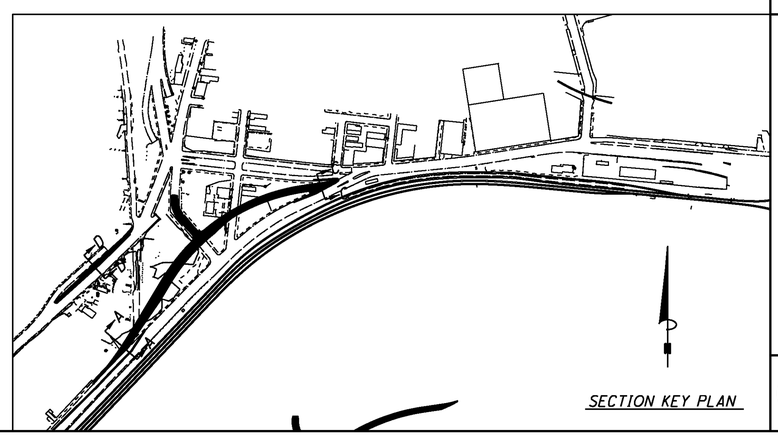


TYPICAL SECTION D-D
ELBERON AVE.



TYPICAL SECTION A-A
US 50 STA. 13+00±



SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 1A

HAM-50-18.79

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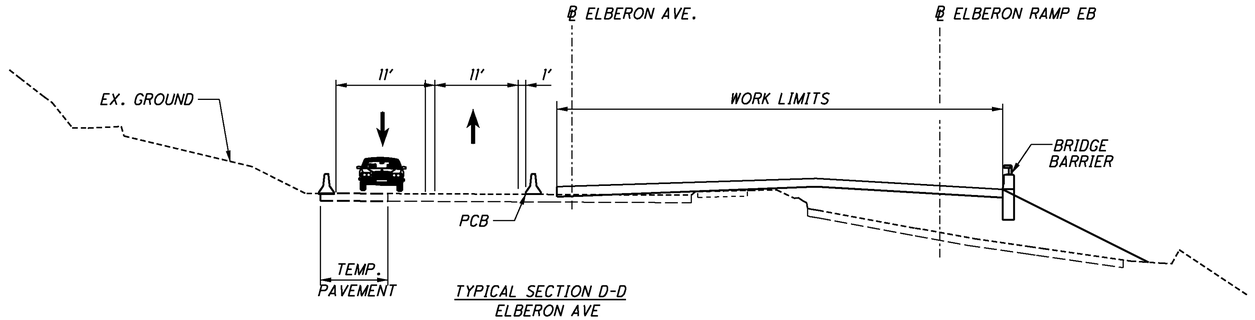
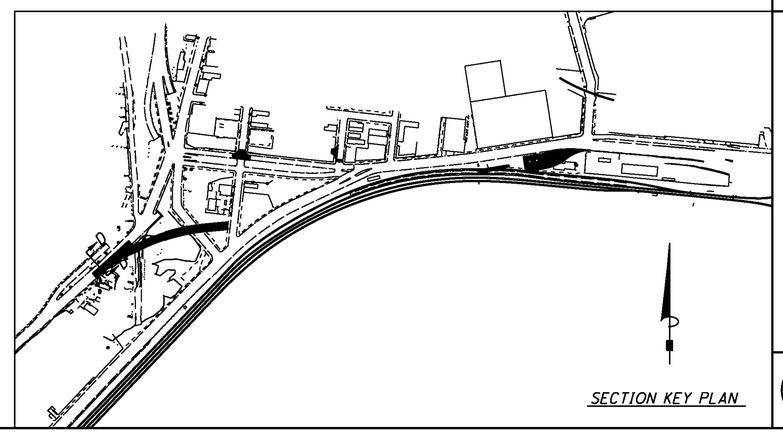


TYPICAL SECTION D-D
ELBERON AVE



SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 1B

HAM-50-18.79

65
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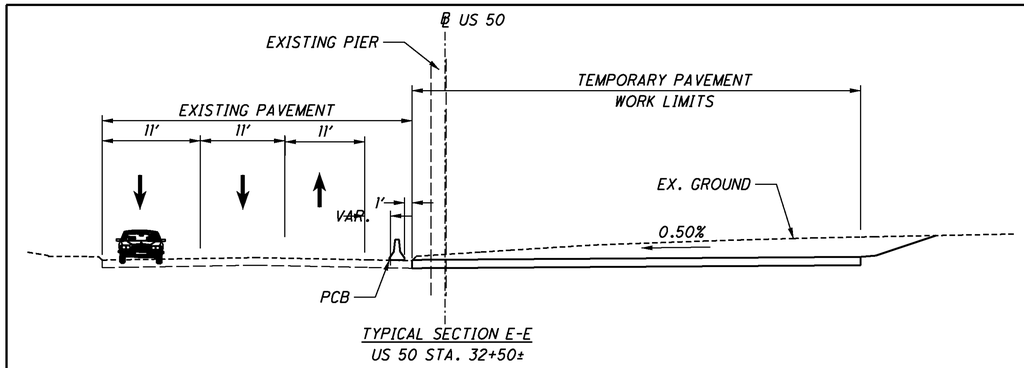
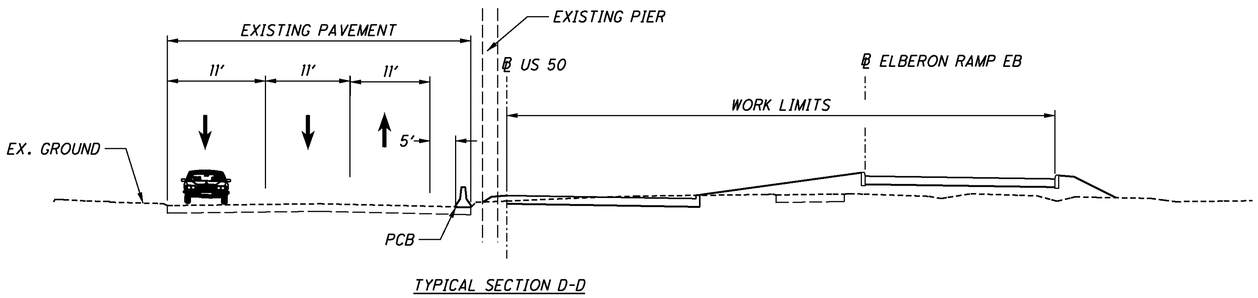
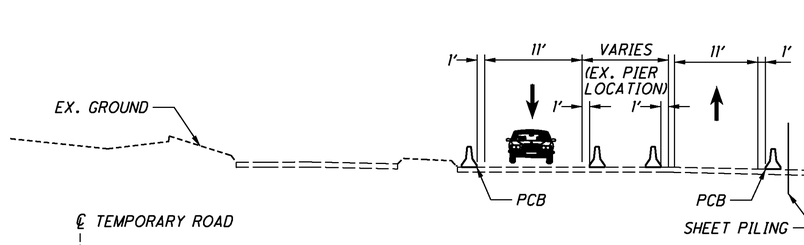


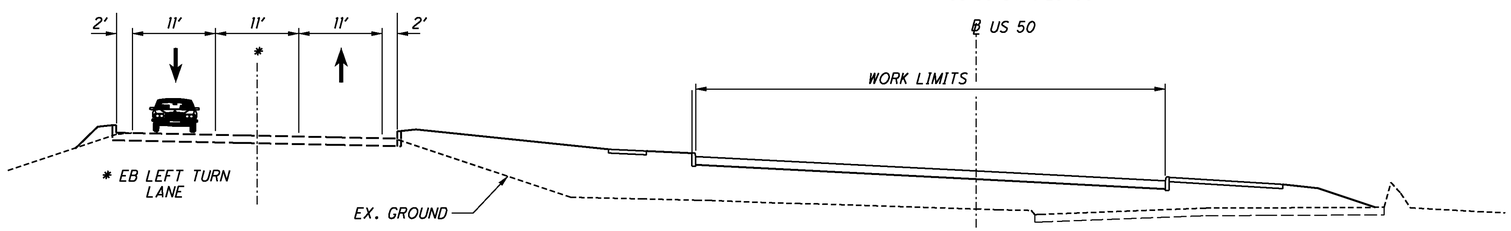
TYPICAL SECTION E-E
US 50 STA. 32+50±



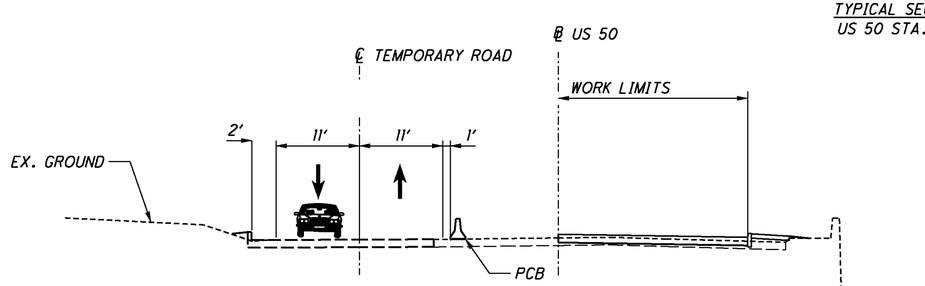
TYPICAL SECTION D-D
US 50 STA. 30+50±



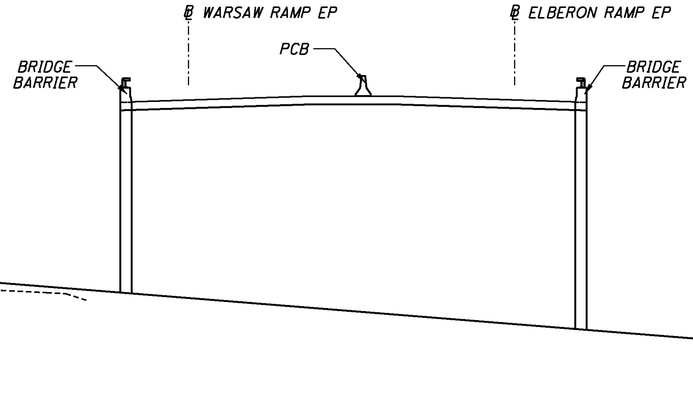
TYPICAL SECTION C-C
US 50 STA. 25+00±

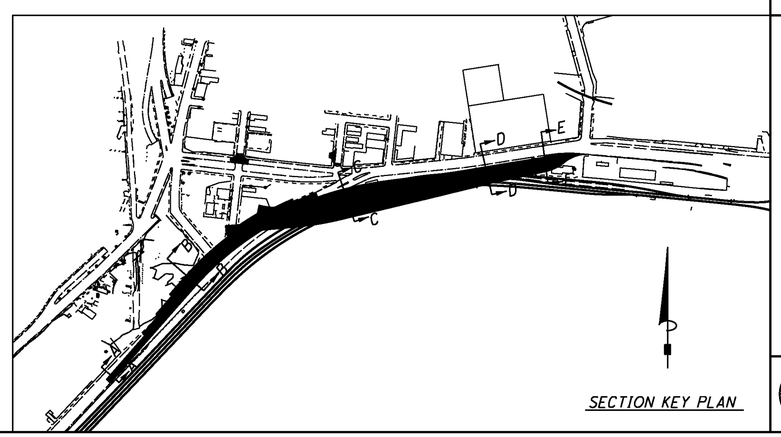


TYPICAL SECTION B-B
US 50 STA. 17+50±



TYPICAL SECTION A-A
US 50 STA. 13+00±





SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 2A

HAM-50-18.79

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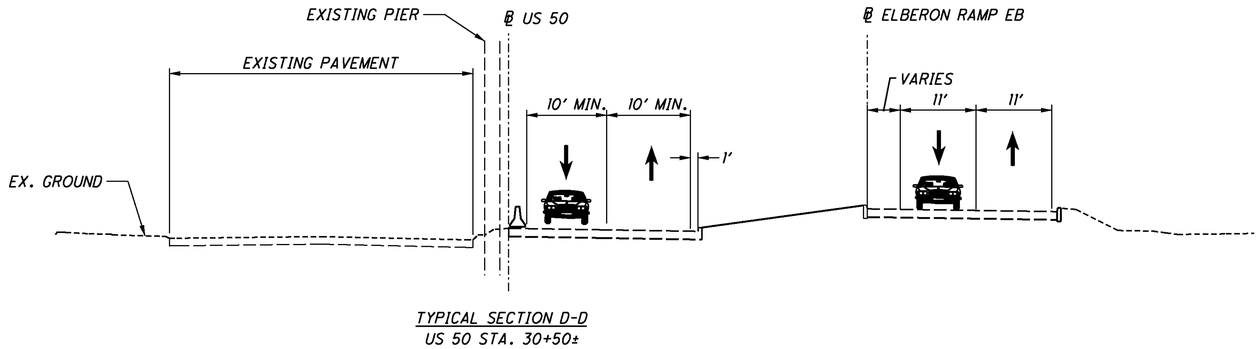
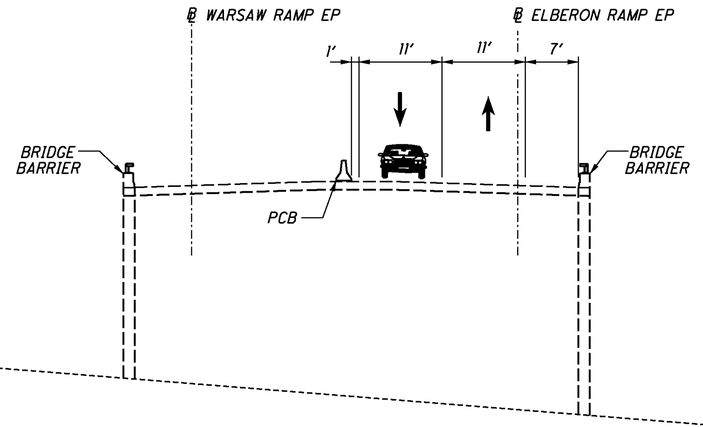
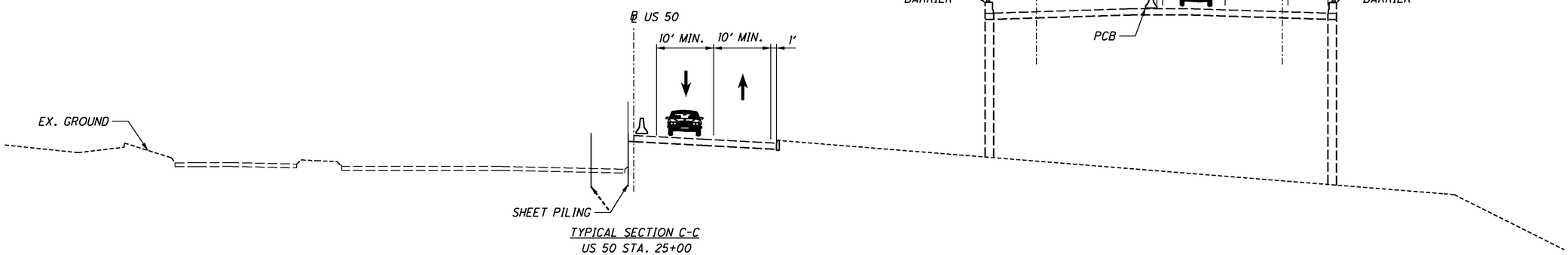
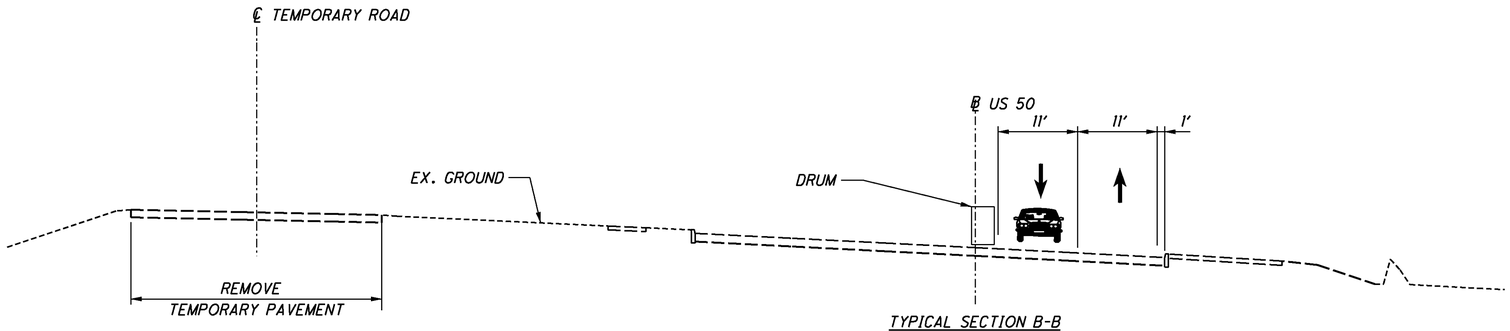


TYPICAL SECTION D-D
US 50 STA. 30+50±

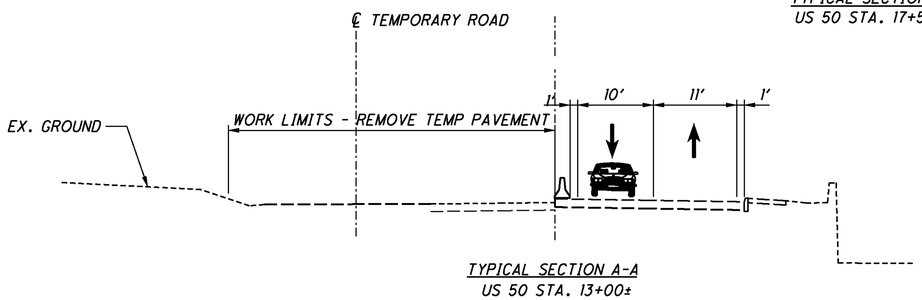




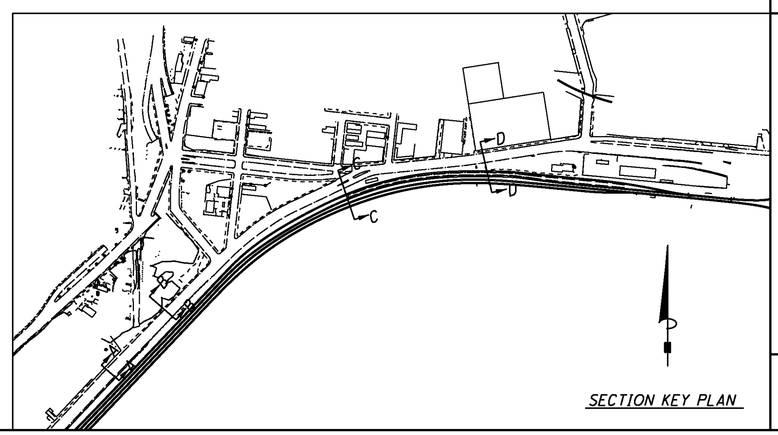
TYPICAL SECTION C-C
US 50 STA. 25+00



TYPICAL SECTION B-B
US 50 STA. 17+50±



TYPICAL SECTION A-A
US 50 STA. 13+00±



SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 2B

HAM-50-18.79

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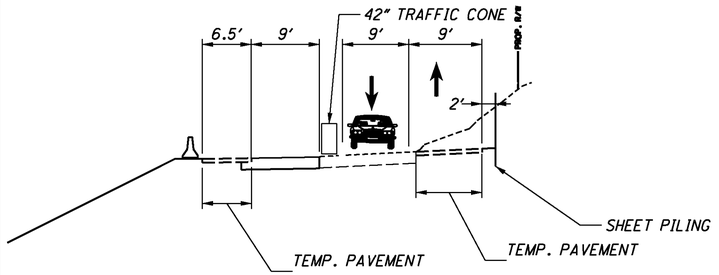
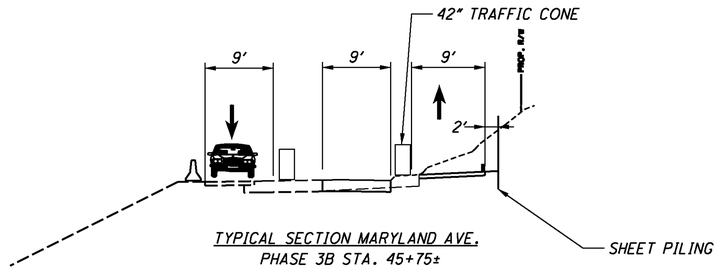
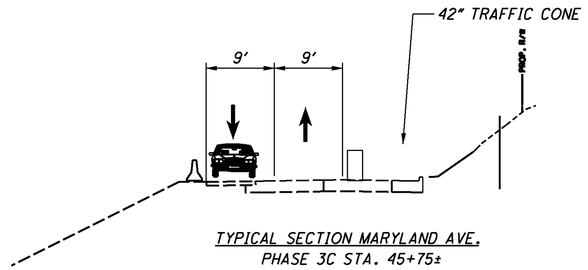


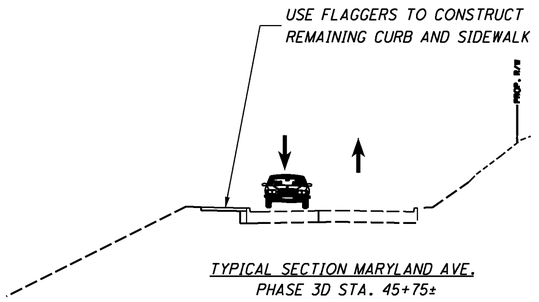
TYPICAL SECTION MARYLAND AVE.
PHASE 3A STA. 45+75±



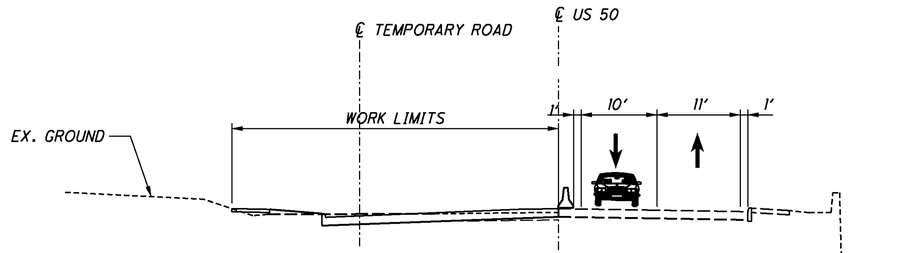
TYPICAL SECTION MARYLAND AVE.
PHASE 3B STA. 45+75±



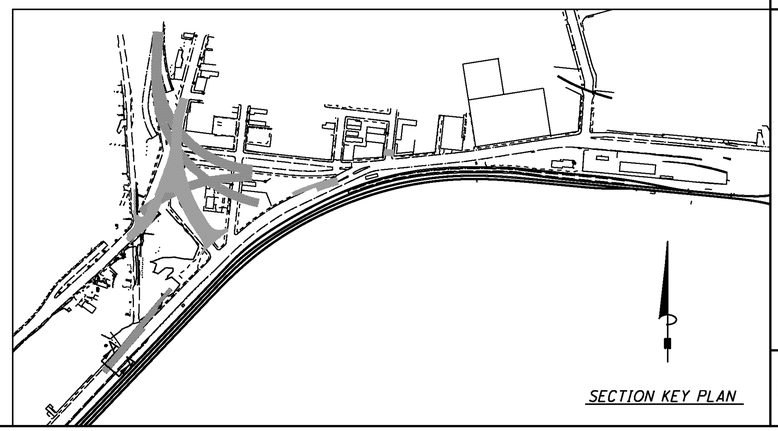
TYPICAL SECTION MARYLAND AVE.
PHASE 3C STA. 45+75±



TYPICAL SECTION MARYLAND AVE.
PHASE 3D STA. 45+75±



TYPICAL SECTION A-A
PHASE 3A US 50



CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 3

HAM-50-18.79

68
657

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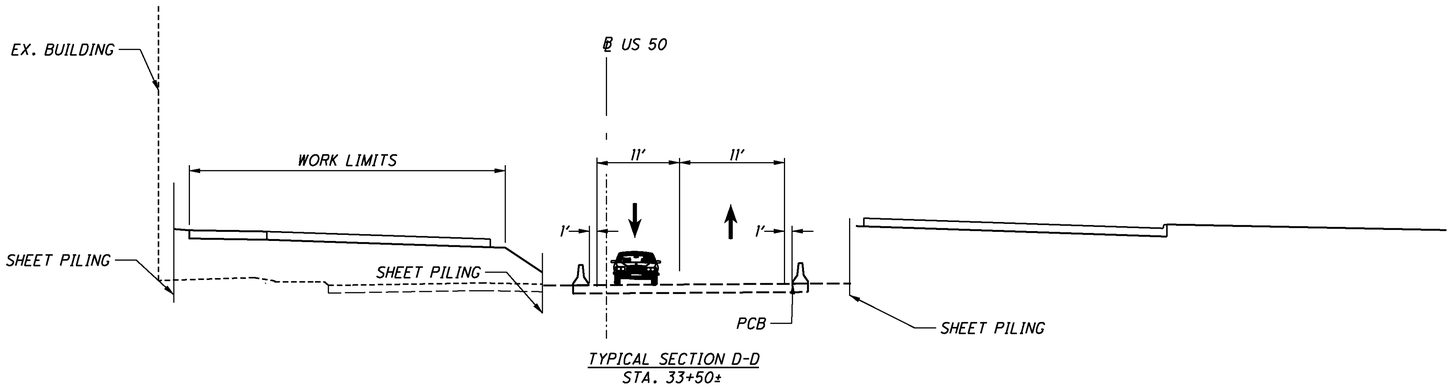
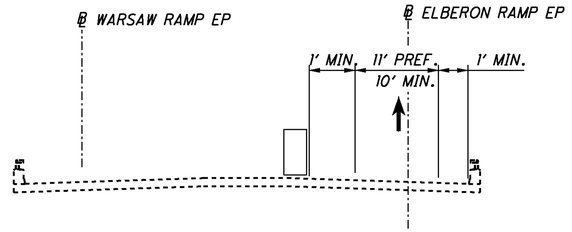
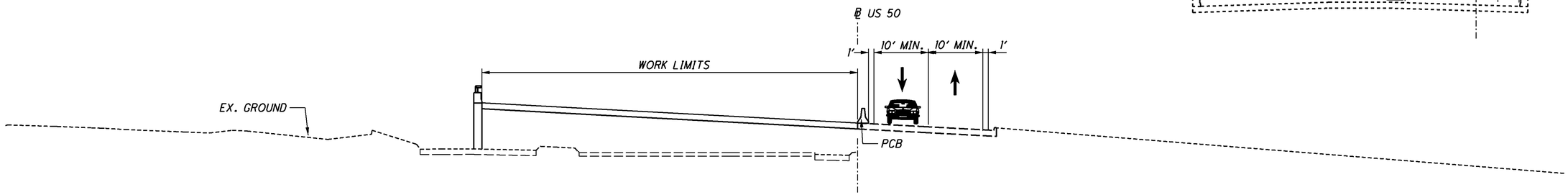
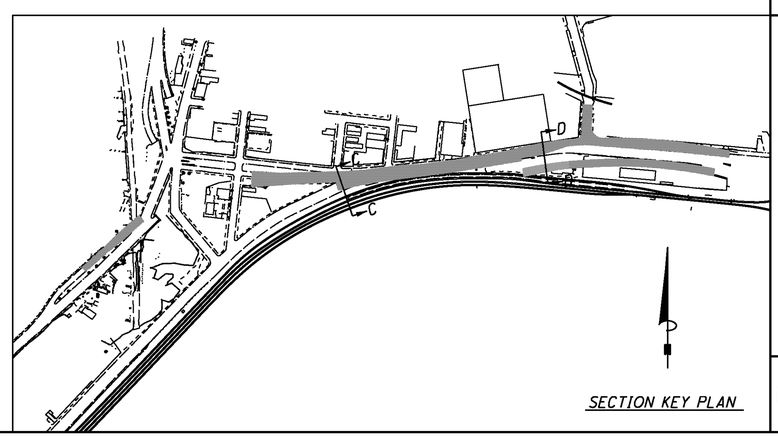


TYPICAL SECTION D-D
STA. 33+50±





TYPICAL SECTION C-C
US 50 STA. 25+00±



SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 4A

HAM-50-18.79

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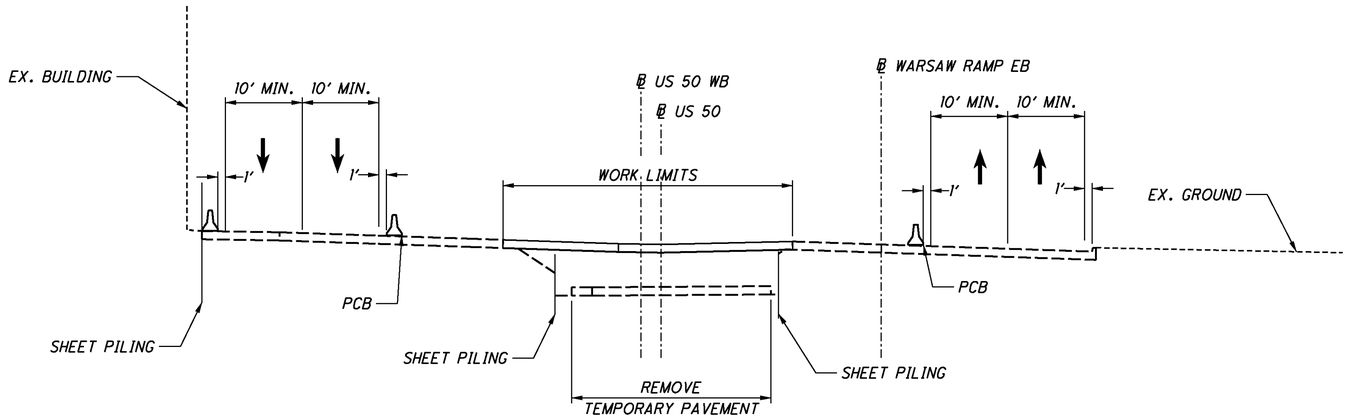
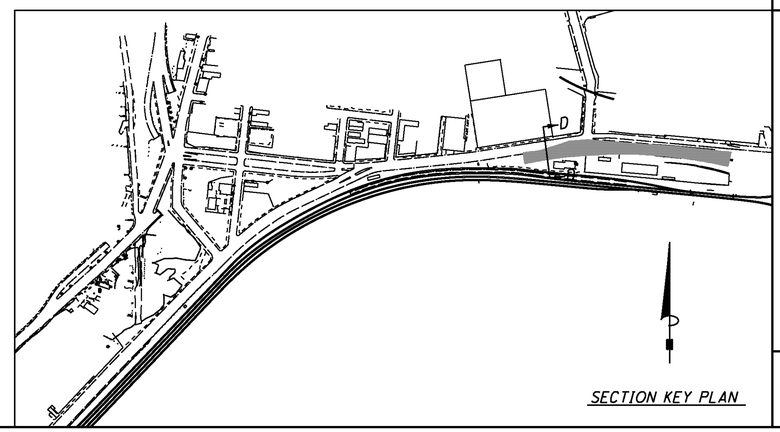


TYPICAL SECTION D-D
STA. 33+50±



SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 4B

HAM-50-18.79

70
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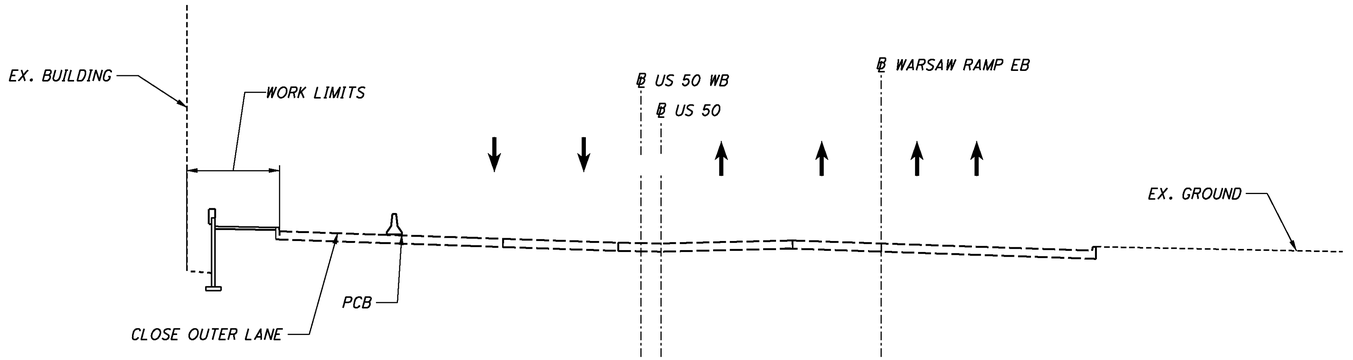
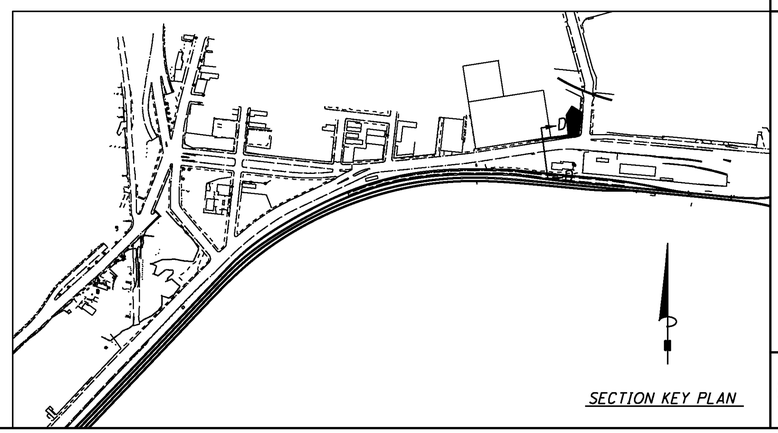


TYPICAL SECTION D-D
STA. 33+50±



SECTION KEY PLAN

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC TYPICALS - PHASE 5

HAM-50-18.79

71
657

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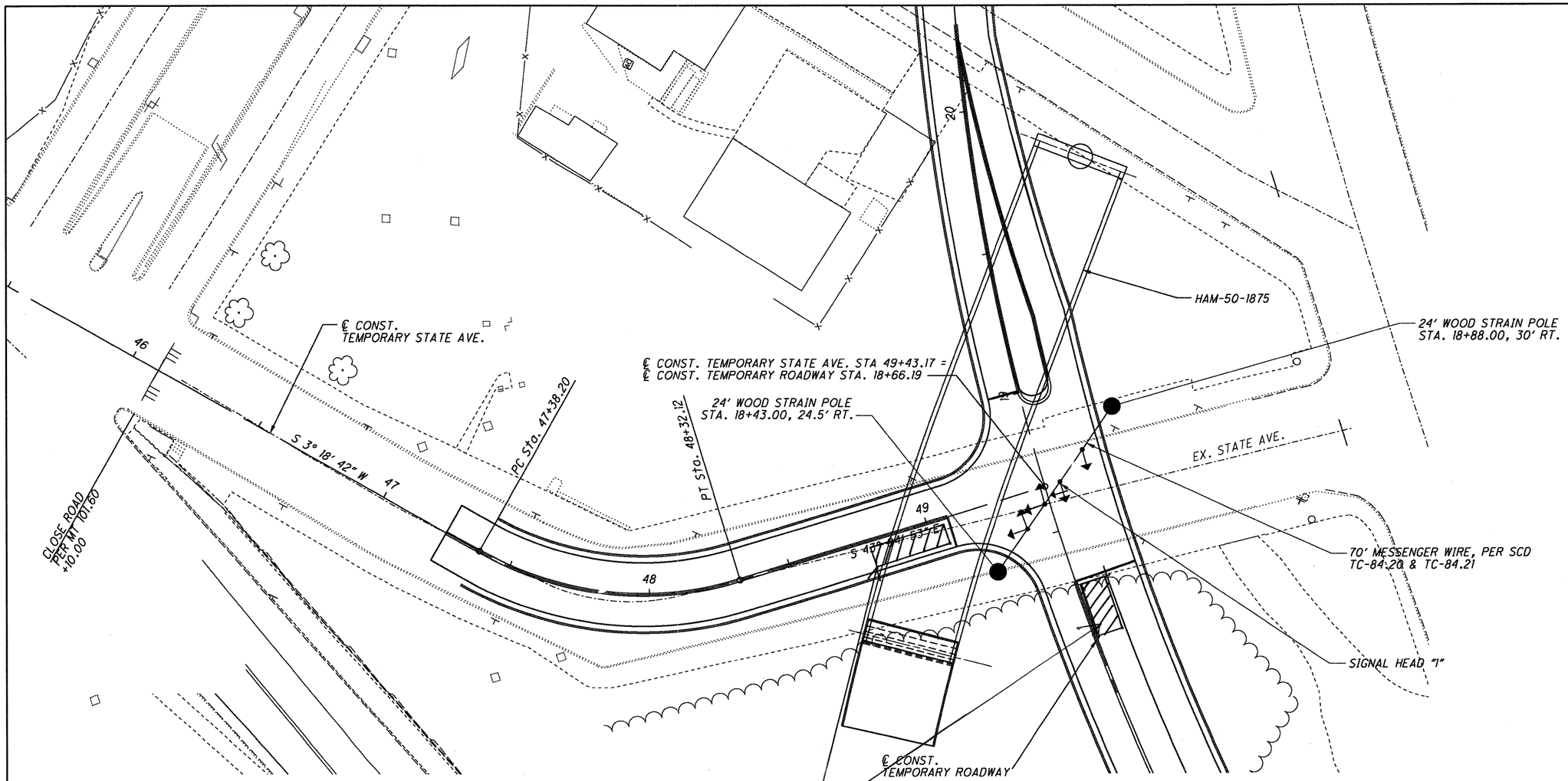
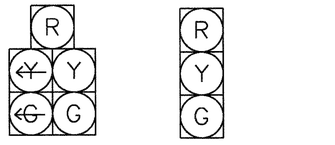


ITEM SPECIAL – WORK ZONE TRAFFIC SIGNAL

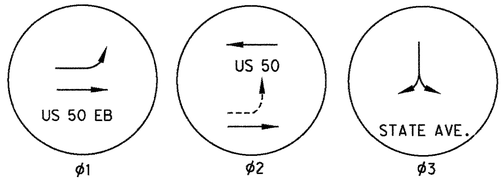
THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND REMOVE THE TEMPORARY TRAFFIC SIGNAL AS SHOWN IN THE PLANS. THIS WORK SHALL INCLUDE, BUT NOT LIMITED TO THE INSTALLATION OF POLES, CONTROLLER, VEHICLE DETECTION, SIGNAL HEADS, AND CABLE. THE CONTRACTOR CAN CHOSE WHICH TYPE OF VEHICLE DETECTION TO INSTALL, SUCH AS LOOP DETECTORS (6'X30'), VIDEO CAMERA, OR RADAR DETECTION, AND WILL INCLUDE ALL NECESSARY EQUIPMENT TO GET COMMUNICATION FROM THE DETECTOR TO THE CONTROLLER. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO SET-UP THE CONTROLLER CABINET FOR THE PHASING SHOWN AND THE SIGNAL TIMING PROVIDED BY THE CITY OF CINCINNATI AT THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADJUSTMENTS TO THE TEMPORARY SIGNAL INCLUDING, BUT NOT LIMITED TO, SIGNAL TIMING, HEAD LOCATION OR VEHICLE DETECTION AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL THE ITEMS LISTED ABOVE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM SPECIAL WORK ZONE TRAFFIC SIGNAL AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT NECESSARY TO INSTALL AND MAINTAIN THE SIGNAL DURING THE PROJECT.

SIGNAL INDICATIONS



SIGNAL PHASING



NOTES:

1. POLE LOCATIONS WERE DETERMINED BY THE AVAILABLE UNDERGROUND UTILITY INFORMATION. REPOSITIONING OF THE POLES MAY BE REQUIRED BY FIELD CONDITIONS AND REQUIRES APPROVAL BY THE ENGINEER.
2. SPAN LENGTHS FOR THE MESSENGER WIRE ARE GIVEN FOR ESTIMATING PURPOSES ONLY. THE LENGTHS MAY CHANGE DUE TO TENSIONING OF THE MESSENGER WIRE.
3. STRAIN POLE LENGTHS ARE MEASURED FROM THE EXISTING GROUND LINE TO TOP OF POLE. SIGNALS SHALL HAVE A MINIMUM CLEARANCE OF 16' AND A MAXIMUM CLEARANCE OF 18' FROM THE ROADWAY.

NOTES:

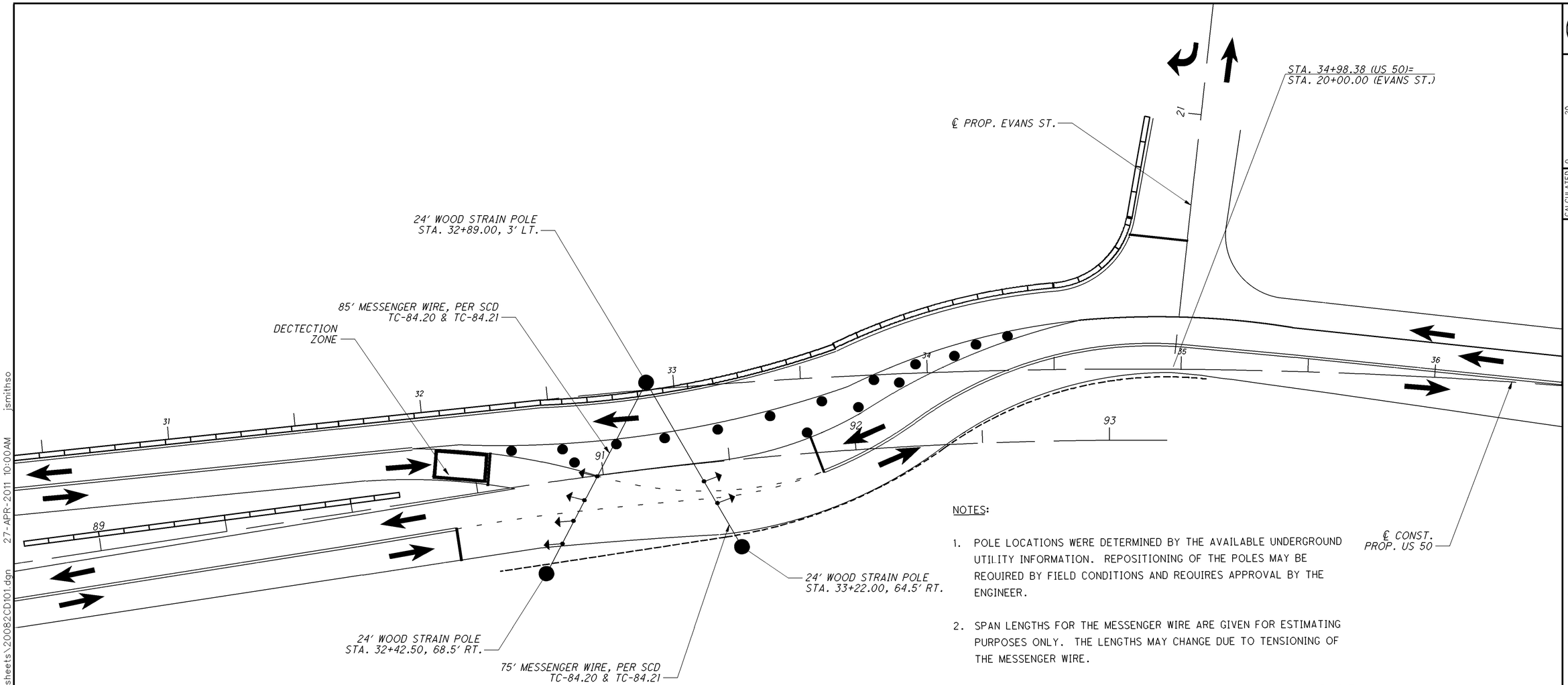
4. ALL SIGNAL HEADS SHALL BE POLYCARBONATE WITH 12" LENSES. SIGNAL HEADS SHALL BE CENTERED ON THE LANE AND HAVE A MINIMUM OF 8' SPACING BETWEEN HEADS.
5. ALL TRAFFIC SIGNAL EQUIPMENT AND RELATED EQUIPMENT, METHODS OF INSTALLATION, AND OPERATION SHALL BE IN ACCORDANCE WITH STANDARDS SET FORTH IN THE OMUTCD, ITEM 614, ODOT TRAFFIC ENGINEERING MANUAL, AND APPROPRIATE STANDARD CONSTRUCTION DRAWINGS.
6. ADVANCED WARNING SIGNS SHALL BE PLACED UPON ACTIVATION OF THE SIGNAL ACCORDING TO STANDARD CONSTRUCTION DRAWING MT-120.00 AND THE OMUTCD. THE LAYOUT OF ALL SIGNS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. PAYMENT FOR FURNISHING, ERECTING AND SUBSEQUENTLY REMOVING THE SIGNS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 614 WORK ZONE TRAFFIC SIGNAL.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MTR
CHECKED

TEMPORARY TRAFFIC SIGNAL PLAN
TEMP. US 50 & TEMP. STATE AVE. INTERSECTION

HAM-50-18.79



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1. POLE LOCATIONS WERE DETERMINED BY THE AVAILABLE UNDERGROUND UTILITY INFORMATION. REPOSITIONING OF THE POLES MAY BE REQUIRED BY FIELD CONDITIONS AND REQUIRES APPROVAL BY THE ENGINEER.

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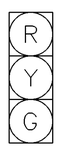
Item Special Work Zone Traffic Signal
The Contractor shall be responsible to install and remove the temporary traffic signal as shown in the plans. This work shall include, but not limited to the installation of poles, controller, vehicle detection, signal heads, and cable. The Contractor can chose which type of vehicle detection to install, such as loop detectors (6'x30'), video camera, or radar detection, and will include all necessary equipment to get communication from the detector to the controller. In addition, the Contractor shall be responsible to set-up the controller cabinet for the phasing shown and the signal timing provided by the City of Cincinnati at the pre-construction meeting. The Contractor shall be responsible for any adjustments to the temporary signal including, but not limited to, signal timing, head location or vehicle detection as directed by the Engineer.

Payment for all the items listed above shall be included in the unit bid price for Item Special Work Zone Traffic Signal and shall include all labor, materials, equipment necessary to install and maintain the signal during the project.

SIGNAL INDICATIONS



ALL SIGNAL HEADS

SIGNAL PHASING

ϕ1

ϕ2

CALCULATED MTR | CHECKED

TEMPORARY TRAFFIC SIGNAL PLAN
US 50 & TEMP. ELBERON RAMP INTERSECTION

HAM-50-18.79

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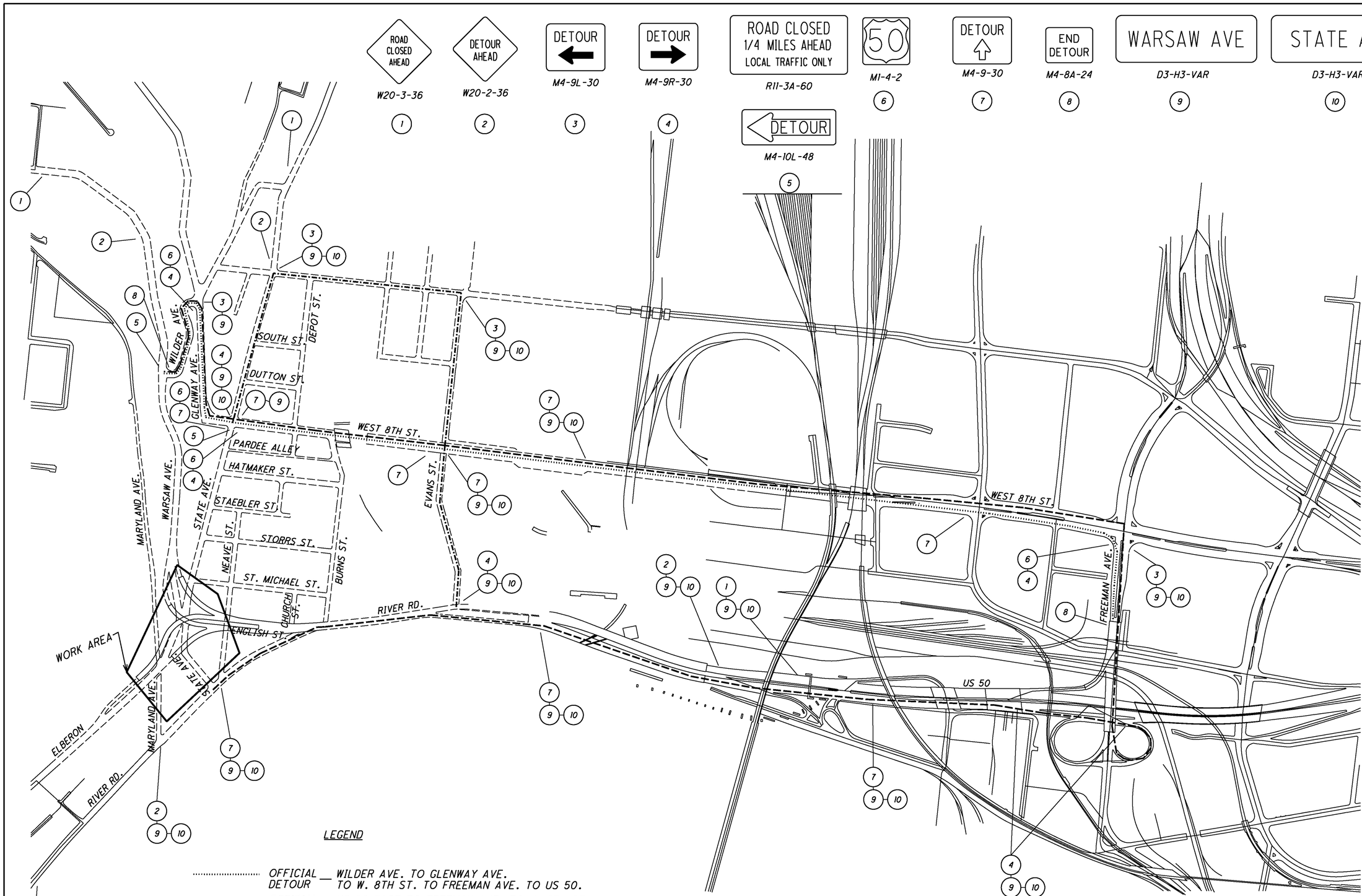

DETOUR PLAN

N

0 150 300 600 HORIZONTAL SCALE IN FEET

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC - PHASE 1A, 1B, 2B & 3A
DETOUR STATE & WARSAW AVE TO US 50

HAM-50-18.79

74
657

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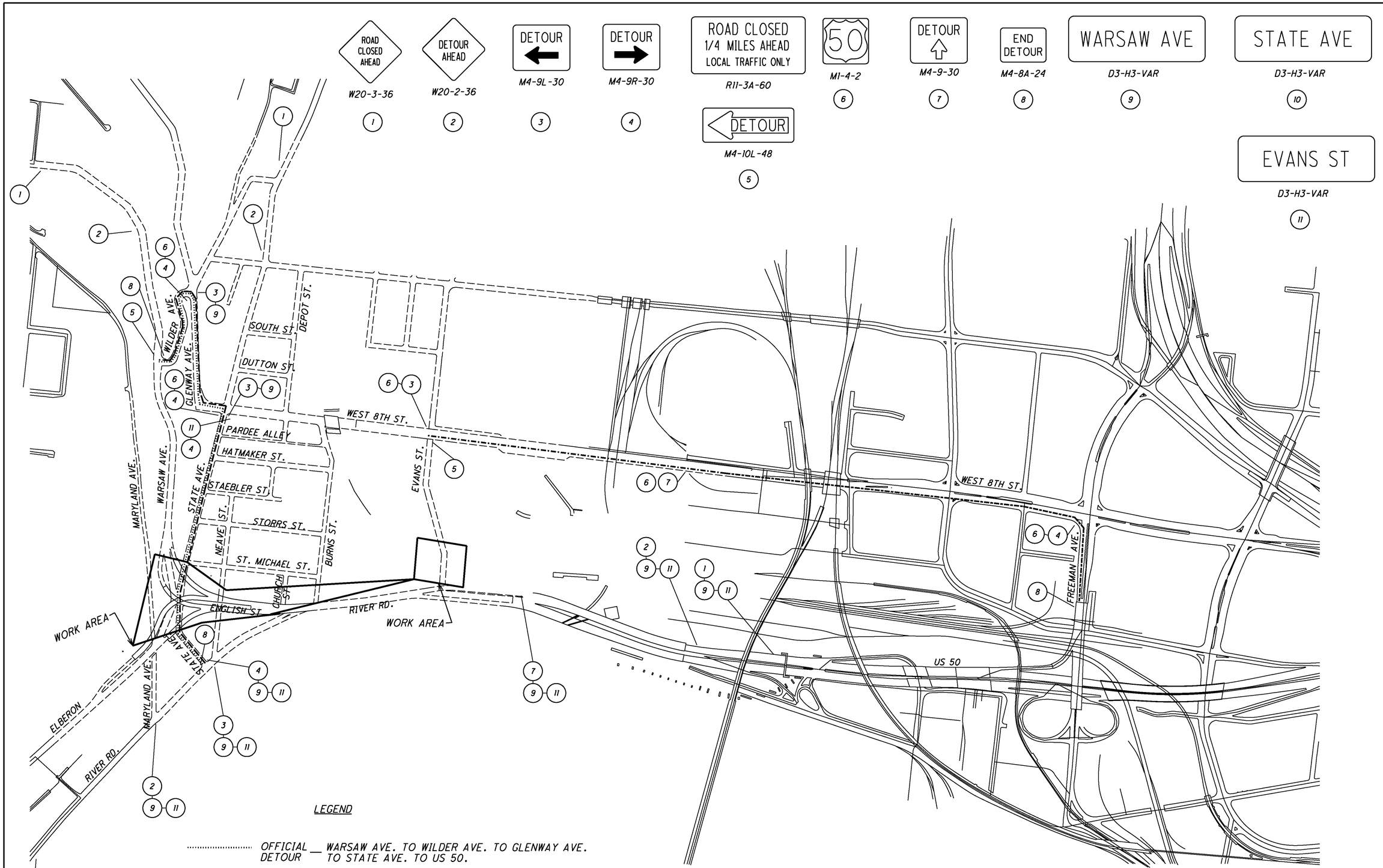

DETOUR PLAN

HORIZONTAL SCALE IN FEET
0 150 300 600

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC - PHASE 4A
DETOUR EVANS ST & WARSAW AVE TO US 50

HAM-50-18.79

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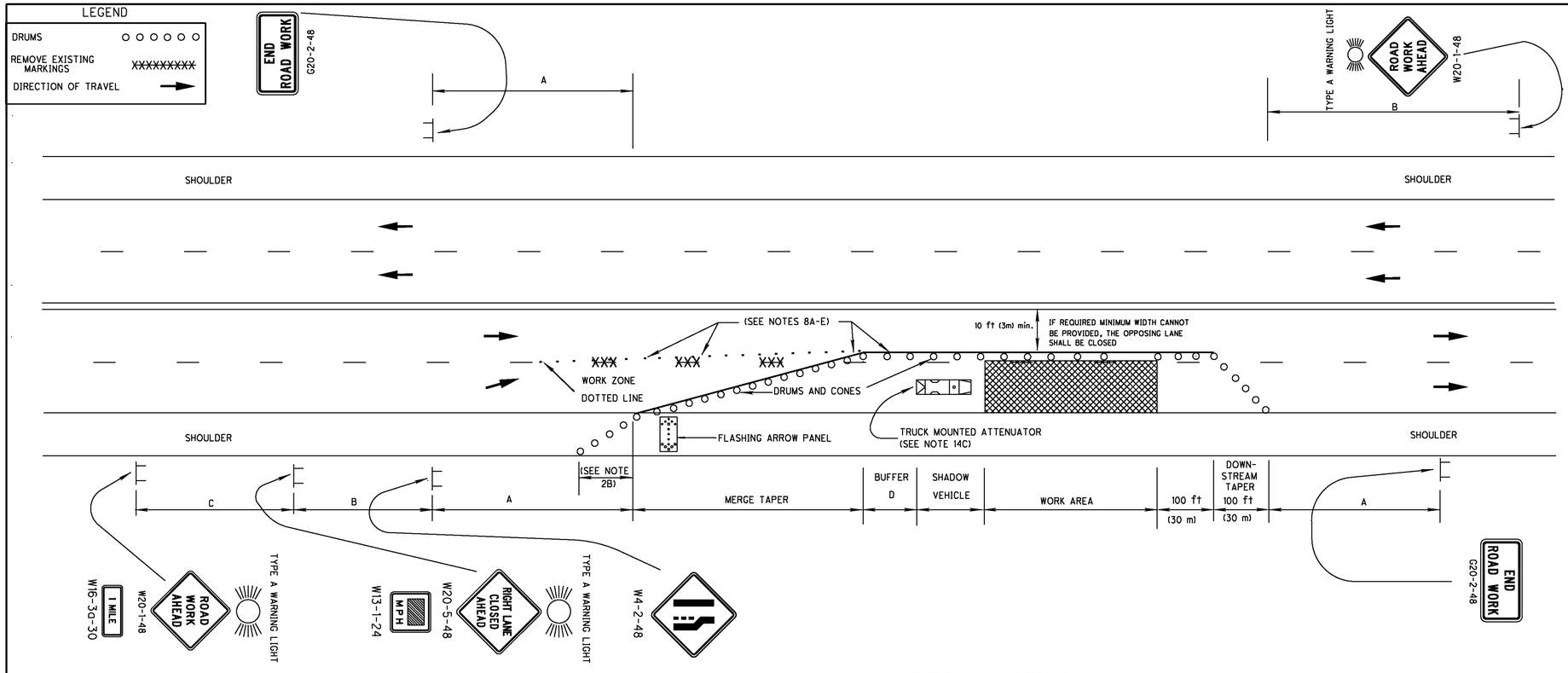

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS FT(m)		
	A	B	C
MAJOR CONVENTIONAL	500 (150)	500 (150)	500 (150)
FREEWAY & EXPRESSWAY	1000 (300)	1500 (450)	2640 (800)

TABLE II

SPEED LIMIT (MPH)	MERGE TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	MAXIMUM DRUM SPACING FT (m)		BUFFER (D) FT (m) MINIMUM
			Taper sec.	Tangent sec.	
25	11:1	4:1	25 (7.5)	40 (12)	155 (45)
30	15:1	5:1	30 (9)	40 (12)	200 (60)
35	21:1	7:1	35 (10.5)	40 (12)	250 (75)
40	27:1	9:1	40 (12)	80 (24)	305 (95)
45	45:1	15:1	45 (13.5)	80 (24)	360 (110)
50	50:1	17:1	50 (15)	80 (24)	425 (130)
55	55:1	18:1	55 (16.5)	80 (24)	495 (150)

GENERAL NOTES:

DESIGN SPEED

1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

TAPERS

2A. The minimum acceptable length for the merge taper shall be determined by multiplying the width of offset by the merge taper rate. The merge taper rate is provided in Table II.

2B. The minimum acceptable length for the shoulder taper shall be determined by multiplying the width of the shoulder by the shoulder taper rate. The shoulder taper rate is provided in Table II.

SIGN SPACING

3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200 feet (60m) for speeds of 45 mph or less and a minimum of 400 feet (120m) for speeds 50 mph or greater.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the merging taper and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than one day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 sign which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

6A. The Advisory Speed plaque W13-1 shall be used when specified in the plan.

6B. 36 inch (900 mm) warning signs may be used when the approach speed limit is 40 mph or less.

6C. The Distance plaque W16-3a (or W16-2a is the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than one mile may be expressed in feet. The plaque may be omitted if Extra Advance Sign Groups are not used.

6D. Provide signing on the inactive side of the highway, as shown, when called for in the plans.

EXTRA ADVANCE WARNING SIGNING

7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5) and WATCH FOR STOPPED TRAFFIC (W3-H7) signs plus distance plaques may be specified in the plans or may be required to be erected, as determined by the Enineer (see Standard Construction Drawing MT-95.50).

PAVEMENT MARKING/RPMs

8A. If the construction operation requires a lane closure for more than one day, then the existing conflicting reflectors from the raised pavement markers (RPMs) shall be removed.

8B. Additionally, if a lane closure of greater than 3 days is required, then the following shall be performed:
- a) The appropriate color work zone edge lines shall be applied along the taper.
- b) The existing conflicting pavement markings shall be removed or covered as Per CMS 614.11F.
- c) Work Zone Dotted Lines, 3 feet (0.9 m) in length separated by 9' foot(2.7 m) gaps, shall be provided to identify the merge.

8C. Work zone edge lines shall be provided along the tangent section when called for in the plans.

8D. Work zone pavement markings which would conflict with the final traffic lanes shall be removable (CMS 740.06 Type I) tape unless the area will be resurfaced prior to project completion.

8E. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed in accordance with CMS 641.10. The original markings and raised pavement marker reflectors shall be restored at no additional cost unless separately itemized in the plans.

EQUIPMENT/MATERIALS STORAGE

9A. No equipment or material shall be located within the taper or buffer zone.

9B. When no work is being performed, all material and equipment shall be stored as per CMS 614.03.

FLASHING ARROW PANEL

10. The flashing arrow panel shall be chosen from the ODOT approved list available on the ODOT web site at http://www.dot.state.oh.us/ . Click on the Alphabetical List of choices and select TestLab/Materials Management. Then click on Approved List. Then click on Flashing Arrow Panel located near the bottom of the screen.

FLASHING WARNING LIGHTS

11. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

INTERSECTION/DRIVEWAY ACCESS

12. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The contractor shall:
- a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
- b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25 feet (7.5m) beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawing MT-97.11. For barricades, see MT-101.60. Standard Construction Drawing MT-101.60.

Existing stop signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

DRUMS/CONES

13A. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 5 drums shall be used to close the upstream shoulder.

13B. Cones may be substituted for drums as follows:
- a) Use of cones is permissible for either daytime operation or for nighttime operation, but shall not be used continuously, day and night. Upon completion of work within the work period, the cones shall be removed. They may again be placed on the highway in order to resume work in the following such work period.
- b) Cones used for daytime traffic control shall have a minimum height of 28 inches (0.7 m).
- c) Cones used for nighttime traffic control shall have a minimum height of 42 inches (1.1 m).
- d) Use of cones at night shall be prohibited along tapers.
- e) Cone spacing at night shall be at a maximum of 40 feet (12 m).

13C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

SHADOW VEHICLE

14A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.

14B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).

14C. The vehicle shall be equipped with a truck-mounted attenuator (TMA) when called for in the plans.

CALCULATED

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STANDARD CONSTRUCTION DRAWING MT-95.31

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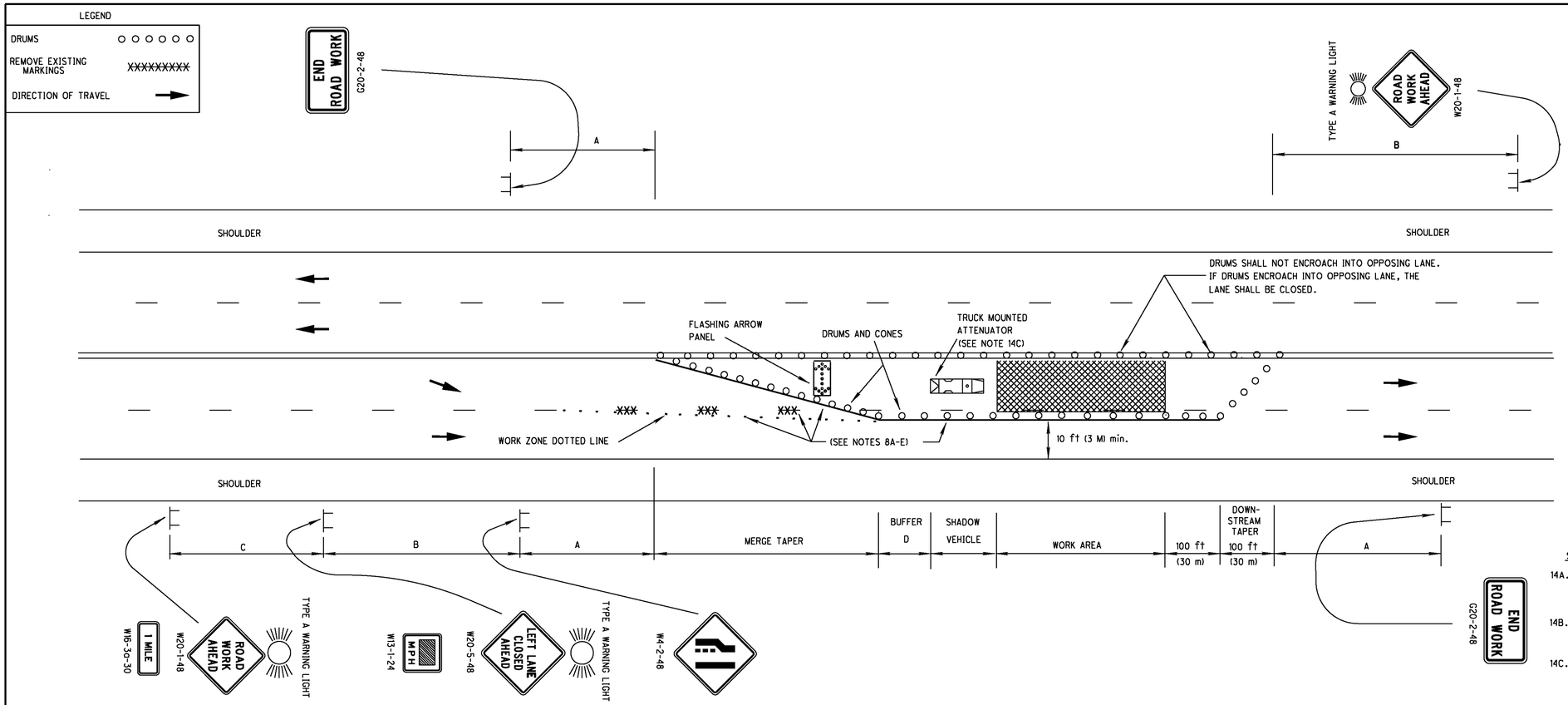

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40	27:1	9:1	40 (12)	80 (24)	305 (95)
45	45:1	15:1	45 (13.5)	80 (24)	360 (110)
50	50:1	17:1	50 (15)	80 (24)	425 (130)
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GENERAL NOTES:

DESIGN SPEED

1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

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SIGNING DETAILS

6A. The Advisory Speed plaque W13-1 shall be used when specified in the plan.

6B. 36 inch (900 mm) warning signs may be used when the approach speed limit is 40 mph or less.

6C. The Distance plaque W16-3a ((or W16-2a if the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than one mile may be expressed in feet. The plaque may be ommitted if Extra Advance Sign Groups are not used.

6D. Provide signing on the inactive side of the highway, as shown, when called for in the plans.

EXTRA ADVANCE WARNING SIGNING

7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5) and WATCH FOR STOPPED TRAFFIC (W3-H7) signs plus distance plaques may be specified in the plans or may be required to be erected, as determined by the the Engineer (see Standard Construction Drawing MT-95.50).

PAVEMENT MARKING/RPMs

8A. If the construction operation requires a lane closure for more than one day, then the existing conflicting reflectors from the raised pavement markers (RPMs) shall be removed.

8B. Additionally, if a lane closure of greater than 3 days is required, then the following shall be performed:
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8C. Work zone edge lines shall be provided along the tangent section when called for in the plans.

8D. Work zone pavement markings which would conflict with the final traffic lanes shall be removable (CMS 740.06 Type I) tape unless the area will be resurfaced prior to project completion.

8E. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed in accordance with CMS 641.10. The original markings and raised pavement marker reflectors shall be restored at no additional cost unless separately itemized in the plans.

EQUIPMENT/MATERIALS STORAGE

9A. No equipment or material shall be located within the taper or buffer zone.

9B. When no work is being performed, all material and equipment shall be stored as per CMS 614.03.

FLASHING ARROW PANEL

10. The flashing arrow panel shall be chosen from the ODOT approved list available on the ODOT web site at http://www.dot.state.oh.us/ . Click on the Alphabetical List of choices and select TestLab/Materials Management. Then click on Approved List. Then click on Flashing Arrow Panel located near the bottom of the screen.

FLASHING WARNING LIGHTS

11. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

INTERSECTION/DRIVEWAY ACCESS

12. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The contractor shall:
- a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
- b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25 feet (7.5m) beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawing MT-97.11. For barricades, see Standard Construction Drawing MT-101.60.

Existing stop signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

DRUMS/CONES

13A. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 5 drums shall be used to close the upstream shoulder.

13B. Cones may be substituted for drums as follows:
- a) Use of cones is permissible for either daytime operation or for nighttime operation, but shall not be used continuously, day and night. Upon completion of work within the work period, the cones shall be removed. They may again be placed on the highway in order to resume work in the following such work period.
- b) Cones used for daytime traffic control shall have a minimum height of 28 inches (0.7 m).
- c) Cones used for nighttime traffic control shall have a minimum height of 42 inches (1.1 m).
- d) Use of cones at night shall be prohibited along tapers.
- e) Cone spacing at night shall be at a maximum of 40 feet (12 m).

13C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

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STANDARD CONSTRUCTION DRAWING MT-95.32

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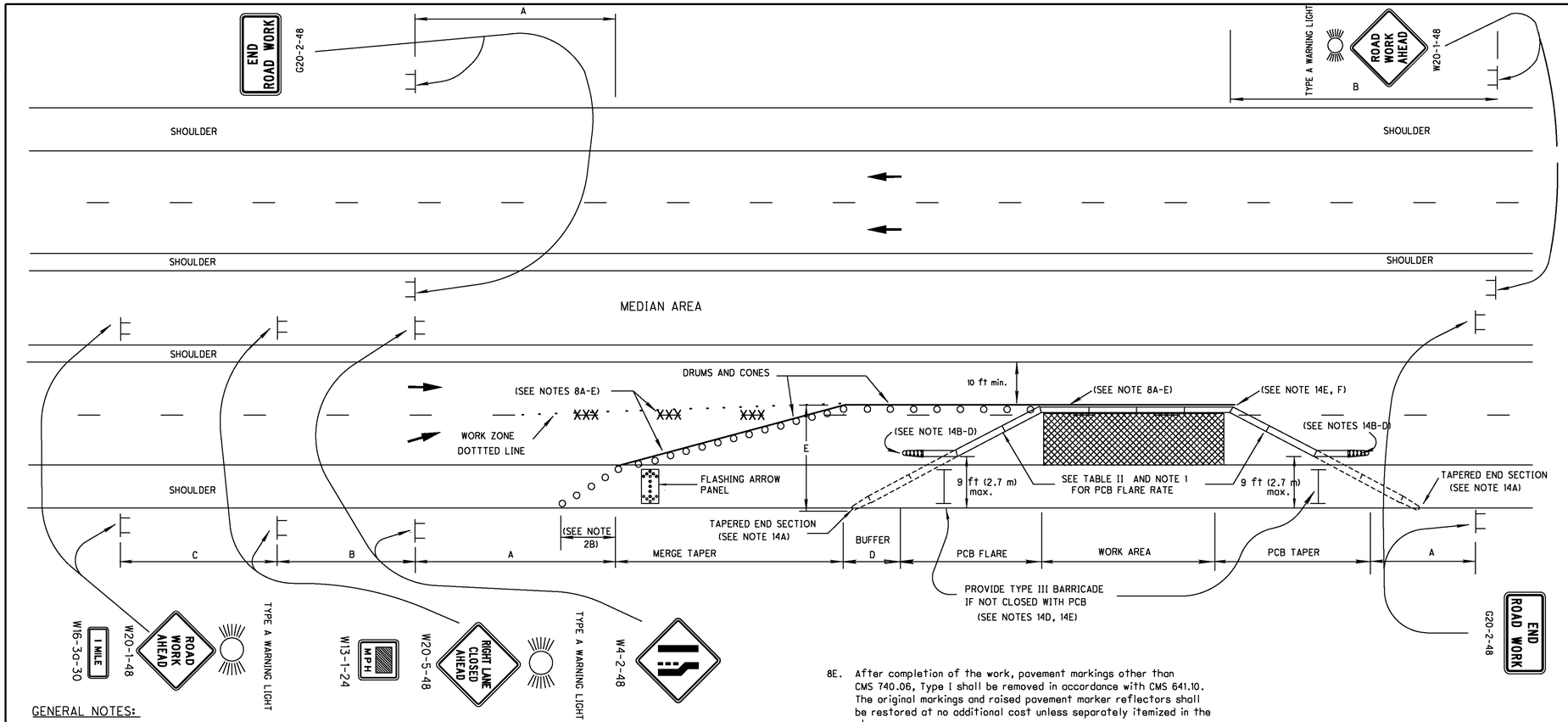

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6B. 36 inch (900 mm) warning signs may be used when the approach speed limit is 40 mph or less.

6C. The Distance plaque W16-3a (or W16-2a if the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than one mile may be expressed in feet. The plaque may be omitted if Extra Advance Sign Groups are not used.

6D. Provide signing on the inactive side of the highway, as shown, when called for in the plans.

6E. Provide the appropriate word or symbol legend necessary on lane reduction signs (W4-2, W20-5) to correctly identify which lane is to be closed.

EXTRA ADVANCE WARNING SIGNING

7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5) and WATCH FOR STOPPED TRAFFIC (W3-H7) signs plus distance plaques may be specified in the plans or may be required to be erected, as determined by the Engineer (see Standard Construction Drawing MT-95.50).

PAVEMENT MARKING/RPMs

8A. If the construction operation requires a lane closure for more than one day, then the existing conflicting reflectors from the raised pavement markers (RPMs) shall be removed.

8B. Additionally, if a lane closure of greater than 3 days is required, then the following shall be performed:
- a) The appropriate color work zone edge lines shall be applied along the taper.
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8C. Work zone edge lines shall be provided along the tangent section when called for in the plans.

8D. Work zone pavement markings which would conflict with the final traffic lanes shall be removable (CMS 740.06 Type I) tape unless the area will be resurfaced prior to project completion.

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EQUIPMENT/MATERIALS STORAGE

9A. No equipment or material shall be located within the taper or buffer zone.

9B. When no work is being performed, all material and equipment shall be stored as per CMS 614.03.

FLASHING ARROW PANEL

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FLASHING WARNING LIGHTS

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INTERSECTION/DRIVEWAY ACCESS

12. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The contractor shall:
- a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
- b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25 feet (7.5m) beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawing MT-97.11. For barricades, see Standard Construction Drawing MT- MT-101.60.

Existing stop signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

DRUMS

13. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 5 drums shall be used to close the upstream shoulder.

PORTABLE CONCRETE BARRIERS

14A. A tapered end section may be used in place of the impact attenuator at locations where the last full section of PCB can be extended outside of the clear zone for approaching traffic. See TABLE II for clear zone widths.

14B. If it is necessary to provide the contractor with access to the work area behind the PCB flare, the PCB end treatment shall include an impact attenuator. The maximum width of opening shall be 9 feet between the impact attenuator and the outside edge of the paved shoulder.

14C. If contractor access is provided as per note 14B, the length of PCB shall be adequate to shield the work area from the motorist. This length of need of PCB shall be determined from the calculations provided in the L&D Manual, Volume 1, Figure 602-1E, and shall require the approval of the Engineer.

14D. When used, impact attenuators shall be installed parallel to traffic. Also, the last full section of PCB, adjacent to the impact attenuator, shall be located parallel to traffic.

14E. Where narrow medians are provided, see Table II to determine whether or not the downstream end of the PCB is located within the clear zone of opposing traffic. If the PCB is located within the clear zone of opposing traffic, the downstream end shall be flared away from opposing traffic to shield the work area from potential errant vehicles crossing the median.

14F. If the PCB is located beyond the clear zone of opposing traffic, the downstream end of the PCB may be provided with a tapered end, located 10 feet beyond the work area.

14G. The work area shall be adequately protected from traffic approaching from intersections and driveway approaches using PCB and impact attenuators as called for by the Engineer.

14H. For installation procedures, refer to manufacturer's installation instructions.

14I. For details on delineation of Portable Concrete Barrier, see Standard Standard Construction Drawing MT-101.70.

GENERAL NOTES:

DESIGN SPEED

1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

TAPERS

2A. The minimum acceptable length for the merge taper shall be determined by multiplying the width of offset by the merge taper rate. The merge taper rate is provided in Table II.

2B. The minimum acceptable length for the shoulder taper shall be determined by multiplying the width of the shoulder by the shoulder taper rate. The shoulder taper rate is provided in Table II.

SIGN SPACING

3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200 feet (60m) for speeds of 45 mph or less and a minimum of 400 feet (120m) for speeds 50 mph or greater.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the merging taper and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than one day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 sign which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS FT(m)		
	A	B	C
MAJOR CONVENTIONAL	500 (150)	500 (150)	500 (150)
FREEWAY & EXPRESSWAY	1000 (300)	1500 (450)	2640 (800)

TABLE II

SPEED LIMIT (MPH)	MERGE TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	PCB FLARE RATE MINIMUM	MAXIMUM DRUM SPACING FT (m)		BUFFER (D) FT (m) MINIMUM	CLEAR ZONE WIDTH (E) FT (m)
				Taper sec.	Tangent sec.		
25	11:1	4:1	8:1	25 (7.5)	40 (12)	155 (45)	15 (5)
30	15:1	5:1	8:1	30 (9)	40 (12)	200 (60)	15 (5)
35	21:1	7:1	10:1	35 (10.5)	40 (12)	250 (75)	15 (5)
40	27:1	9:1	11:1	40 (12)	80 (24)	305 (95)	15 (5)
45	45:1	15:1	13:1	45 (13.5)	80 (24)	360 (110)	19 (6)
50	50:1	17:1	14:1	50 (15)	80 (24)	425 (130)	19 (6)
55	55:1	18:1	16:1	55 (16.5)	80 (24)	495 (150)	23 (7)
60	60:1	20:1	17:1	60 (18)	120 (36)	570 (175)	30 (9)
65	65:1	22:1	19:1	65 (19.5)	120 (36)	645 (200)	30 (9)

CALCULATED

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STANDARD CONSTRUCTION DRAWING MT-95.41

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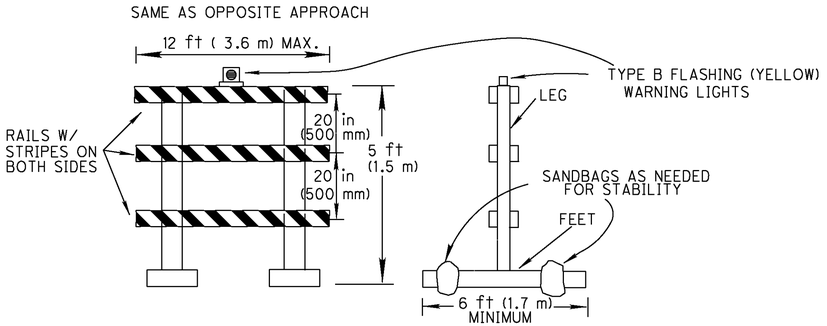
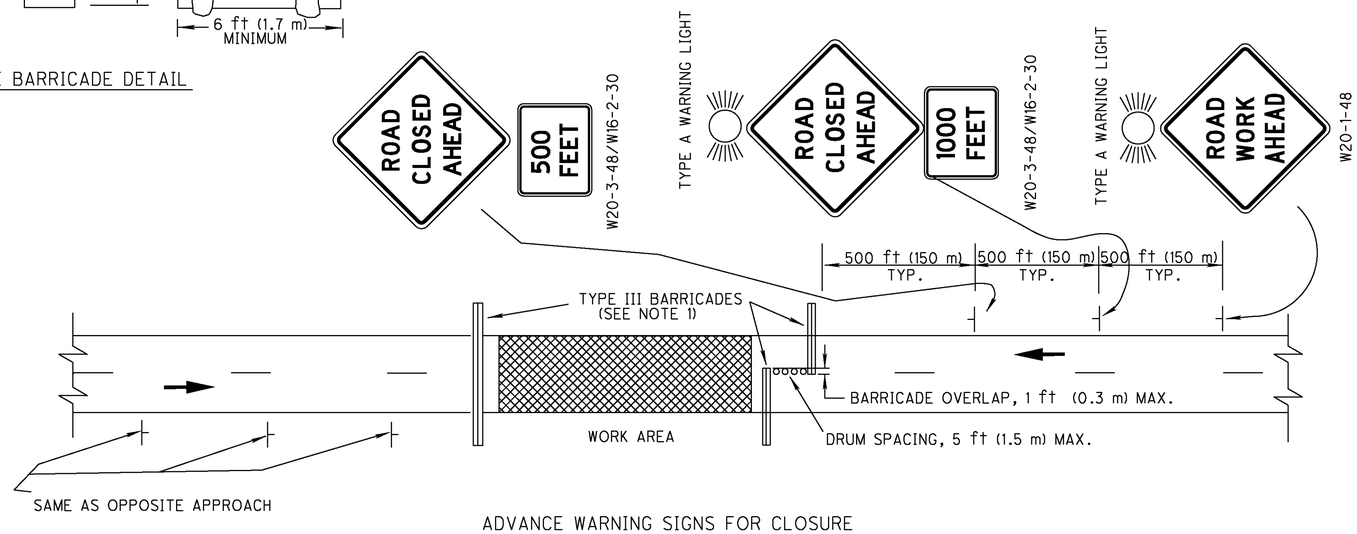
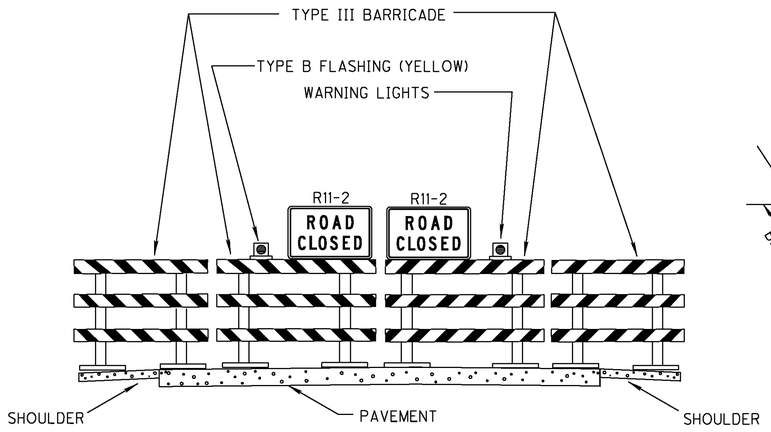


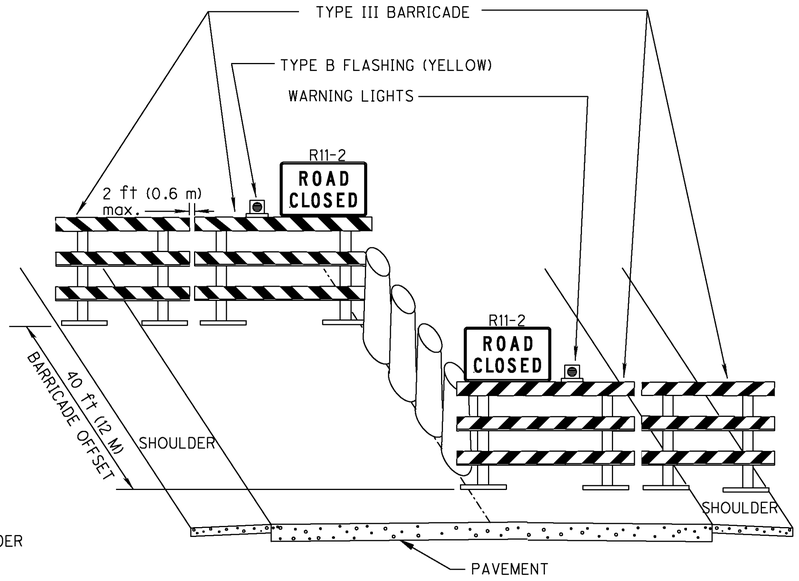
TYPE III BARRICADE DETAIL



ADVANCE WARNING SIGNS FOR CLOSURE



BARRICADE CLOSURE PROFILE



BARRICADE CLOSURE OFFSET OPTION

GENERAL NOTES

BARRICADE USE

1A. Barricades shall be NCHRP 350 compliant and shall be erected according to details shown. When the road is closed to traffic, barricades shall be used to effectively close the entire roadway, including the paved or aggregate shoulder.

1B. Barricades along adjacent lanes may be offset from each other as shown, with drums used to close the resulting gap. Maximum drum spacing shall be 5 feet (1.5 m).

BARRICADE REFLECTORIZATION AND COLOR

2A. In construction or maintenance areas, all rails of the barricades shall be reflectorized with orange and white reflectorized Type G sheeting in 6 inch (150 mm) wide alternate stripes which slope downward toward the center line of the road at an angle of 45°. All three rails of the barricade shall be striped on both sides. Legs and feet shall be either all-white or may display the natural color of the material used.

2B. Barricades used in permanent or semi-permanent application shall differ only in that they shall use red and white stripes.

SIGNS

3A. Where the road is closed to traffic by the erection of barricades, ROAD CLOSED (R11-2) signs shall be mounted laterally as shown.

3B. The Advance Warning Signs shown on this drawing are intended for use when the travelled way is brought to an end with no direction given to traffic. Where traffic has been directed from the permanent roadway at or just in advance of the barricades, advance signing should be provided as shown in Standard Cconstruction Drawing MT-95.70 or OMUTCD Figure 6H-7 as appropriate.

3C. Advance Warning Signs approaching a lane closure, as shown on these plans, shall consist of two ROAD CLOSED AHEAD (W20-3) signs with distance plaques placed about 500 feet (150 m) and 1000 feet (300 m) from the closure, and a ROAD WORK AHEAD (W20-1) sign placed about 1500 feet (450 m) from the closure. The signs shall be placed on both sides of the roadway for 4-lane divided highways or when required by the plans.

FLASHING WARNING LIGHTS

4A. Type A Flashing Warning Lights are required on the ROAD WORK AHEAD (W20-1) sign and on the first ROAD CLOSED AHEAD (W20-3) sign.

4B. Type B Flashing Warning Lights shall be provided on Type III Barricades, one light per each closed lane. Each light shall be conspicuously visible at all distances up to 1000 feet (300 m) under normal atmospheric conditions. The light shall be in operation at all times during the period the highway is closed.

OPERATION ON 2-LANE 2-WAY ROADWAYS

5A. Where the barricade runs across the entire roadway without longitudinally offsetting sections, the Contractor will normally open only the left side of the barricade as necessary to allow the construction vehicle to enter, and then shall immediately close it. The entire barricade will not normally be opened at the same time. The Contractor shall assign an employee to assure that the barricade is closed at the end of each workday.

5B. Where the sections of the barricade are offset from each other with drums provided to close the gap (see note 1B), the Contractor may move the drums as necessary to allow the construction vehicle to enter, and then shall immediately replace the drums. The Contractor shall assign an employee to assure that the drums are in place at the end of each workday.

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STANDARD CONSTRUCTION DRAWING MT-101.60

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| PHASE | SHEET | | 614 | | | | | | | | 615 | 622 | | | | | | | |

PHASE	SHEET		614											SPECIAL	615	622	622								
			WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1 (WHITE)	WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1 (YELLOW)	WORK ZONE CENTER LINE, CLASS 1, 740.06, TYPE 1 (DOUBLE SOLID)	WORK ZONE LANE LINE, CLASS 1, 740.06, TYPE 1 (DASHED)	WORK ZONE DOTTED LINE, CLASS 1, 740.06, TYPE 1	WORK ZONE CHANNELIZING LINE, CLASS 1, 740.06, TYPE 1	WORK ZONE STOP LINE, CLASS 1, 740.06, TYPE 1	WORK ZONE CROSSWALK LINE CLASS 1, 740.06, TYPE 1	WORK ZONE TRANSVERSE/ DIAGONAL CLASS 1, 740.06, TYPE 1	WORK ZONE ARROW CLASS 1, 740.06, TYPE 1	WORK ZONE IMPACT ATTENUATOR, UNIDIRECTIONAL	WORK ZONE IMPACT ATTENUATOR, BIDIRECTIONAL	WORK ZONE TRAFFIC SIGNAL	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	PORTABLE CONCRETE BARRIER, 32"	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED							
			FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	EACH	FEET	EACH	EACH	EACH	SQ YD	FEET	FEET							
4B	59		30	832				146																	
4B	62		1098	2132		1576		314	16					1			2460	400							
SUB-TOTAL PHASE 4B			1,128	2,964		1576		460	16					1			2460								
5	63		250														380								
SUB-TOTAL PHASE 5			250														380								
MATCH TRAFFIC CONTOL PLAN			9038	5459	4618	9585	150	1941	189	1170	755	14													
SUB-TOTAL			9,038	5,459	4,618	9,585	150	1,941	189	1,170	755	14													
2A	72														1										
2B	73														1										
TOTALS THIS SHEET			10,416	8,423	4,618	11,161	150	2,401	205	1,170	755	14		1	2		2,840	400							
TOTALS FROM SHEET 80			24,985	3,196	13,501	981	223	1,040	140				3	12		7,620	8,885	400							
GRAND TOTAL CARRIED TO GENERAL SUMMARY			35,401	11,619	18,119	12,142	373	3,441	345	1,170	755	14	3	13	2	7,620	11,725	800							
			=8.91 mi.		=3.45 mi.	=2.30 mi.																			

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MAINTENANCE OF TRAFFIC SUBSUMMARY

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SHEET NUMBER														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
21	22	23	87	88	89	90	91	92	93	94	191	192	194						
																		ROADWAY	
								LUMP						201	11000	LUMP		CLEARING AND GRUBBING	
			15182		6476		6685		10617					202	23000	38960	SQ YD	PAVEMENT REMOVED	
			23003		8385		11023		12747					202	30000	55158	SQ FT	WALK REMOVED	
			22				47							202	30200	69	FT	STEPS REMOVED	
									LUMP					202	30204	LUMP		STEPS REMOVED	
			74		654		1029		15					202	30800	1772	SQ YD	TRAFFIC ISLAND REMOVED	
			6986		2791		3625		2443					202	32000	15845	FT	CURB REMOVED	
													3553	202	35100	3553	FT	PIPE REMOVED, 24" AND UNDER	
													373	202	35200	373	FT	PIPE REMOVED, OVER 24"	
													28	202	58000	28	EACH	MANHOLE REMOVED	
													100	202	58100	100	EACH	CATCH BASIN REMOVED	
													23	202	58700	23	EACH	MANHOLE ABANDONED	
		5												202	66500	5	EACH	UNDERGROUND STORAGE TANK REMOVED	
			443		132				143					202	75000	718	FT	FENCE REMOVED	
														202	98000	LUMP		REMOVAL MISC.: STORMWATER DIVERSION CHAMBER	195
									210					202	98200	210	FT	REMOVAL MISC.: WALL REMOVED	
								10972						203	10000	10972	CU YD	EXCAVATION	
								65442						203	20000	65442	CU YD	EMBANKMENT	
			25371		5025		8989		4170					204	10000	43555	SQ YD	SUBGRADE COMPACTION	
								4246		1108				204	13000	5354	CU YD	EXCAVATION OF SUBGRADE	
								4246		1108				204	30020	5354	CU YD	GRANULAR MATERIAL, TYPE C	
40														204	45000	40	HOUR	PROOF ROLLING	
										3325				204	50000	3325	SQ YD	GEOTEXTILE FABRIC	
				126		158		98						451	30000	382	FT	SPECIAL - PRESSURE RELIEF JOINT	
			146					229						606	13000	375	FT	GUARDRAIL, TYPE 5	
			2											606	22000	2	EACH	ANCHOR ASSEMBLY, TYPE B-98	
								1						606	22010	1	EACH	ANCHOR ASSEMBLY, TYPE E-98	
				4		4								606	26500	8	EACH	ANCHOR ASSEMBLY, TYPE T	
								1						606	35100	1	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2	
			2					2						606	35140	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4	
				20540		7156		9680	9545					608	12000	46921	SQ FT	5" CONCRETE WALK	
						45			40					608	40000	85	FT	CONCRETE STEPS, TYPE A	
				804		300		215	687					608	52000	2006	SF	CURB RAMP	
								25						622	10060	25	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE B	
				34				29						622	10140	63	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE C1	
				149										622	10160	149	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	
						2		1						622	25000	3	EACH	CONCRETE BARRIER, END SECTION, TYPE D	
						2		1						622	25052	3	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D	
	315													653	10000	315	CU YD	TOPSOIL FURNISHED AND PLACED	
LUMP														690	98400	LUMP		SPECIAL - MISC.: CONSULTANT FOR CONCRETE QUALITY CONTROL INCLUDING TESTING AND INSPECTION	21
	LUMP													690	98400	LUMP		SPECIAL - MISC.: CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST (CAHES) INSPECTION SERVICES	22
														878	25000	LUMP		INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIALS	1
																		EROSION CONTROL	
											93			601	32204	93	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	
	2													659	00100	2	EACH	SOIL ANALYSIS TEST	
								26396						659	10000	26396	SQ YD	SEEDING AND MULCHING	
	1400													659	14000	1400	SQ YD	REPAIR SEEDING AND MULCHING	
	1000													659	15000	1000	SQ YD	INTER-SEEDING	
	4													659	20000	4	TON	COMMERCIAL FERTILIZER	
	6													659	31000	6	ACRE	LIME	
	0.2													659	35000	0.2	M GAL	WATER	
	0.3													659	40000	0.3	M SQ FT	MOWING	
											453			670	00700	453	SQ YD	DITCH EROSION PROTECTION	
																		DRAINAGE	
											0.21			602	20000	0.21	CU YD	CONCRETE MASONRY	
												62		603	00900	62	FT	6" CONDUIT, TYPE B	
											300			603	00901	300	FT	6" CONDUIT, TYPE B, AS PER PLAN	21
											33			603	01801	33	FT	8" CONDUIT, TYPE B, AS PER PLAN	195
											2656			603	04400	2656	FT	12" CONDUIT, TYPE B	
											786			603	04401	786	FT	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	195
											20			603	04401	20	FT	12" CONDUIT, TYPE B, 707.01, AS PER PLAN	195
											392			603	04408	392	FT	12" CONDUIT, TYPE B, 748.01, AS PER PLAN	195

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GENERAL SUMMARY

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SHEET NUMBER											ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	191	192			599											
															DRAINAGE (CONT.)	
	828										603	04600	828	FT	12" CONDUIT, TYPE C	
	389										603	05900	389	FT	15" CONDUIT, TYPE B	
	102										603	05901	102	FT	15" CONDUIT, TYPE B, AS PER PLAN	195
	15										603	06100	15	FT	15" CONDUIT, TYPE C	
	346										603	07400	346	FT	18" CONDUIT, TYPE B	
	789										603	07401	789	FT	18" CONDUIT, TYPE B, 706.02, AS PER PLAN	195
	133										603	07600	133	FT	18" CONDUIT, TYPE C	
	1074										603	10400	1074	FT	24" CONDUIT, TYPE B	
	384										603	10401	384	FT	24" CONDUIT, TYPE B, 706.02, AS PER PLAN	195
	355										603	10600	355	FT	24" CONDUIT, TYPE C	
	243										603	13400	243	FT	30" CONDUIT, TYPE B	
	404										603	13401	404	FT	30" CONDUIT, TYPE B, 706.02, AS PER PLAN	195
	110										603	97011	110	FT	12" SLOTTED DRAIN, TYPE 2, AS PER PLAN	369
	47										604	00400	47	EACH	CATCH BASIN NO. 3	
	20										604	00800	20	EACH	CATCH BASIN NO. 3A	
	4										604	02000	4	EACH	CATCH BASIN NO. 6	
	7										604	04100	7	EACH	CATCH BASIN NO. 2-2A	
	6										604	04500	6	EACH	CATCH BASIN NO. 2-2B	
	2										604	04900	2	EACH	CATCH BASIN NO. 2-3	
	2										604	09500	2	EACH	CATCH BASIN RECONSTRUCTED TO GRADE	
	1										604	15151	1	EACH	INLET, NO. 3D, AS PER PLAN	21
	1										604	11700	1	EACH	INLET, NO. 2-10	
	48										604	31500	48	EACH	MANHOLE NO. 3	
	1										604	32100	1	EACH	MANHOLE NO. 5	
	1										604	32500	1	EACH	MANHOLE, MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE	21
	2										604	32500	2	EACH	MANHOLE, MISC: EXTEND SLUICE GATE CONTROL STEM	21
	13										604	34500	13	EACH	MANHOLE ADJUSTED TO GRADE	
	40										604	35500	40	EACH	MANHOLE RECONSTRUCTED TO GRADE	
		8887									605	14000	8887	FT	6" BASE PIPE UNDERDRAINS	
		38									605	13300	38	FT	6" UNCLASSIFIED PIPE UNDERDRAINS	192
															WATER WORK	
					600						202	98200	600	FT	REMOVAL MISC.: STREET CAR RAILS REMOVED	
					7874						509	25000	7874	POUND	REINFORCING STEEL	
					1						602	98200	1	CU YD	MASONRY, MISC.: BRICK MASONRY	
					9						604	34501	9	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	
					1						638	11500	1	MBF	SHEETING AND BRACING ORDERED LEFT IN PLACE	
					20						638	80500	20	FT	SPECIAL - FURNISHING AND LAYING 4" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					232						638	80600	232	FT	SPECIAL - FURNISHING AND LAYING 6" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					459						638	80700	459	FT	SPECIAL - FURNISHING AND LAYING 8" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					31						638	80800	31	FT	SPECIAL - FURNISHING AND LAYING 10" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					158						638	80900	158	FT	SPECIAL - FURNISHING AND LAYING 12" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					2079						638	81000	2079	FT	SPECIAL - FURNISHING AND LAYING 16" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					16						638	81200	16	FT	SPECIAL - FURNISHING AND LAYING 24" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	599
					750						638	81600	750	FT	SPECIAL - FURNISHING AND LAYING 24" PRESTRESSED CONCRETE WATER PIPE AND FITTINGS (CIN 1101)	599
					232						638	81800	232	FT	SPECIAL - FURNISHING AND LAYING 36" PRESTRESSED CONCRETE WATER PIPE AND FITTINGS (CIN 1101)	599
					6						638	82000	6	TON	SPECIAL - HAULING WATER WORK MATERIAL (CIN. 1102)	599
					66						638	84500	66	CU YD	SPECIAL - CONCRETE, CLASS C (CIN. 1110)	599
					11						638	85800	11	EACH	SPECIAL - FURNISHING AND INSTALLING FIRE HYDRANT (CIN. 1112)	599
					5						638	86000	5	EACH	SPECIAL - REMOVING FIRE HYDRANT (CIN. 1114)	599
					11						638	86100	11	EACH	SPECIAL - FURNISHING AND INSTALLING FIRE HYDRANT EXTENSION (CIN. 1115)	599
					31						638	86300	31	EACH	SPECIAL - FURNISHING AND INSTALLING VALVE BOX, COMPLETE (CIN. 1116)	599
					6						638	86302	6	EACH	SPECIAL - FIELD WELDING TIE JOINT (CIN. 1117)	599
					100						638	86400	100	CU YD	SPECIAL - ADDITIONAL EXCAVATION (CIN. 1119)	599
					100						638	86404	100	CU YD	SPECIAL - EXPLORATORY EXCAVATION (CIN. 1120)	599
					6						638	86600	6	EACH	SPECIAL - REMOVING EXISTING MANHOLE CURB AND COVER (CIN. 1122)	599
					13						638	86700	13	EACH	SPECIAL - REMOVING EXISTING VALVE BOX (CIN. 1122)	599
					100						638	86800	100	FT	SPECIAL - CHANGING 8" AND UNDER PIPE SEWER (CIN. 1123)	599
					100						638	86900	100	FT	SPECIAL - CHANGING 10" THRU 24" PIPE SEWER (CIN. 1123)	599

CALCULATED AWS
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GENERAL SUMMARY

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SHEET NUMBER													ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
242	260	261	262	263	264	265	266	267		286A		599						
																	WATER WORK (CONT.)	
												22	638	87100	22	EACH	SPECIAL - RESETTING EXISTING VALVE BOX, COMPLETE (CIN. 1125)	599
												72	638	87300	72	FT	SPECIAL - HAULING, INSTALLING AND CONNECTING 1" COPPER SERVICE PIPE (CIN. 1126)	599
												80	638	87500	80	FT	SPECIAL - HAULING, INSTALLING AND CONNECTING 2" COPPER SERVICE PIPE (CIN. 1126)	599
												1	638	88500	1	EACH	SPECIAL - DISCONNECTING EXISTING (3/4)" SERVICE BRANCH (CIN. 1130)	599
												2	638	88700	2	EACH	SPECIAL - FURNISHING AND INSTALLING CURB AND ROADWAY BOX (CIN. 1131)	599
												1	638	90300	1	EACH	SPECIAL - REMOVING CURB AND ROADWAY BOX (CIN. 1138)	599
																	LIGHTING	289
																	TRAFFIC CONTROL	
			248.3	97.3	209.8								630	02100	555	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
24			88	163	85.8								630	03100	361	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
			33.5	45	57.5								630	08520	136	FT	STREET NAME SIGN SUPPORT, NO. 3 POST	
				1									630	30100	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-9.30, DESIGN 1	
				2									630	35500	2	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6	
				1									630	45500	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8	
				4									630	79500	4	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
2													630	79600	2	EACH	SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED, TYPE 1	
57			133.3	150.3	120.9								630	80100	462	SQ FT	SIGN, FLAT SHEET	
				448.5									630	80224	449	SQ FT	SIGN, OVERHEAD EXTRUSHEET	
			2.3	20.3	18								630	81100	41	SQ FT	SIGN ERECTED, FLAT SHEET	
				1									630	84000	1	EACH	CONC. BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.40	
				5									630	84510	5	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION	
	92	51											630	84900	143	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
	2	1											630	85100	3	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
	49	27											630	86002	76	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
	3	33											630	86310	36	EACH	REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL	
8		9											630	87400	17	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	
	42	11											630	87500	53	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
2		3											630	89702	5	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	
8													631	94201	8	EACH	REMOVAL OF LUMINAIRE AND DISPOSAL, AS PER PLAN	242
						114	18	57					646	10400	189	FT	STOP LINE	
						330	85	840					646	10500	1255	FT	CROSSWALK LINE	
						325		255					646	10600	580	FT	TRANSVERSE/DIAGONAL LINE	
						11	3						646	20300	14	EACH	LANE ARROW	
						150							646	20500	150	FT	DOTTED LINE	
0.11						0.45	1.35	1.01					646	10000	3	MILE	EDGE LINE	
0.4						0.53	1.2	0.07					646	10100	2	MILE	LANE LINE	
0.19						0.36	0.14	0.31					646	10200	1	MILE	CENTER LINE	
						1006	671	264					646	10300	1941	FT	CHANNELIZING LINE	
																	TRAFFIC SIGNALS	
										LUMP			614	18002	LUMP		MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF EXISTING TRAFFIC SIGNAL	268
										904			625	23401	904	FT	NO. 10 AWG POLE AND BRACKET CABLE, AS PER PLAN	269
										10			625	25011	10	FT	CONDUIT, 3/4", 725.05, AS PER PLAN	269
										40			625	25403	40	FT	CONDUIT, 2", 725.05, AS PER PLAN	269
										456			625	25501	456	FT	CONDUIT, 3", 725.04, AS PER PLAN	269
										136			625	25503	136	FT	CONDUIT, 3", 725.05, AS PER PLAN	269
										392			625	25601	392	FT	CONDUIT, 4" 725.04, AS PER PLAN	269
										2			625	26251	2	EACH	LUMINAIRE, CONVENTIONAL, AS PER PLAN	269
										135			625	29003	135	FT	TRENCH, 24" DEEP, AS PER PLAN	269
										287			625	29011	287	FT	TRENCH, 30" DEEP, AS PER PLAN	269
										3			625	30701	3	EACH	PULL BOX, 725.08, 18", AS PER PLAN	271
										4			625	30707	4	EACH	PULL BOX, 725.08, 24", AS PER PLAN	271
										7			625	32001	7	EACH	GROUND ROD, AS PER PLAN	269
										LUMP			625	40000	LUMP		SPECIAL - MAINTAIN EXISTING LIGHTING	288
										1			625	98000	1	EACH	LIGHTING, MISC.: SAFETY SWITCH, 60 AMP W/60 AMP UL CLASS RK-1, 240 VOLT FUSE	269

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GENERAL SUMMARY

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SHEET NUMBER												PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
21		87	88	89	91		286A		592	594	597	100% LOCAL						
																	TRAFFIC SIGNALS (CONT.)	
							5						630	79001	5	EACH	SIGN HANGER ASSEMBLY, SPAN WIRE, AS PER PLAN	269
							25						630	80101	25	SQ FT	SIGN, FLAT SHEET, AS PER PLAN	269
							1						631	88001	1	EACH	PHOTOELECTRIC CONTROL, AS PER PLAN	269
							2						632	05005	2	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	269
							2						632	05065	2	EACH	VEHICULAR SIGNAL HEAD, (LED), 4-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	269
							3						632	05085	3	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	269
							4						632	20721	4	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, AS PER PLAN	269
							2						632	26001	2	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	269
							4						632	26501	4	EACH	DETECTOR LOOP, AS PER PLAN	269
							400						632	30201	400	FT	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES, AS PER PLAN	269
							850						632	29901	850	FT	MESSENGER WIRE, 7 STRAND, 1/4" DIAMETER WITH ACCESSORIES, AS PER PLAN	269
							895						632	53201	895	FT	INTERCONNECT CABLE, 12 CONDUCTOR, NO. 12 AWG, AS PER PLAN	269
							1665						632	40701	1665	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG, AS PER PLAN	269
							3						632	64001	3	EACH	STRAIN POLE FOUNDATION, AS PER PLAN	269
							3						632	64021	3	EACH	PEDESTAL FOUNDATION, AS PER PLAN	269
							297						632	65301	297	FT	LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR, NO. 14 AWG, AS PER PLAN	269
							432						632	68101	432	FT	POWER CABLE, 1 CONDUCTOR, NO. 6 AWG, AS PER PLAN	269
							40						632	69601	40	FT	SERVICE CABLE, 2 CONDUCTOR, NO. 4 AWG, AS PER PLAN	269
							1						632	70001	1	EACH	POWER SERVICE, AS PER PLAN	268
							3						632	83600	3	EACH	STRAIN POLE, MISC.: FURNISH AND INSTALL CINCINNATI STRAIN POLE	
							3						632	90010	3	EACH	PEDESTAL, MISC.: FURNISH AND INSTALL CINCINNATI PEDESTAL	
							1						632	90101	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	269
							1						632	90400	1	EACH	SIGNALIZATION, MISC.: SECTIONALIZER, STANDARD	269
							1						633	67201	1	EACH	CONTROLLER WORK PAD, AS PER PLAN	269
							1						633	99000	1	EACH	CONTROLLER ITEM, MISC.: CONTROLLER UNIT, TYPE 170E WITH CABINET, TYPE 330	269
																	BUILDING DEMOLITION	
		LUMP											202	56000	LUMP		BUILDING DEMOLISHED, PARCEL NO. CITY OF CINCINNATI & 22-WD, 1 STORY BLOCK BUILDING	
		LUMP											202	56000	LUMP		BUILDING DEMOLISHED, PARCEL NO. 27-WD & 29-WD, 1 STORY BLOCK BUILDING	
				LUMP									202	56000	LUMP		BUILDING DEMOLISHED, PARCEL NO. 62-WD, 2.5 STORY BRICK BUILDING	
					LUMP								202	56000	LUMP		BUILDING DEMOLISHED, PARCEL NO. 59-WD, 2.5 STORY BRICK BUILDING	
																	BILLBOARD REMOVAL	
			2										202	98100	2	EACH	REMOVAL MISC: BILLBOARD REMOVAL FROM PARCEL 14	22
			1										202	98100	1	EACH	REMOVAL MISC: BILLBOARD REMOVAL FROM PARCEL 27	22
			2										202	98100	2	EACH	REMOVAL MISC: BILLBOARD REMOVAL FROM PARCEL 60	22
																	STRUCTURES	
LUMP													202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	21
																	BRIDGE NO. 1448	375
																	BRIDGE NO. 1457	409
																	BRIDGE NO. 1875	443
																	BRIDGE NO. 1881	483
																	BRIDGE NO. 1903 L (100% DISTRICT ALLOCATION FUNDS)	531
																	BRIDGE NO. 1903 R (100% DISTRICT ALLOCATION FUNDS)	532
																	WALL NO. 2	312
																	WALL NO. 3	320
																	WALL NO. 4	327
																	WALL NO. 6	330
																	WALL NO. 7	338
																	WALL NO. 8	341
																	WALL NO. 9	348
																	GLENWAY/WILDER WALL	362
																	MEDIAN BARRIER AND FOUNDATION/TOWER FOOTINGS	
									LUMP	LUMP	LUMP		503	21300	LUMP		UNCLASSIFIED EXCAVATION	
									332	1		1	511	46000	333	CU YD	CLASS C CONCRETE	
									214	6	6	12	511	46500	226	CU YD	CLASS C CONCRETE, FOOTING	
									36				516	13600	36	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
									43				609	54000	43	SQ YD	6" CONCRETE TRAFFIC ISLAND	

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GENERAL SUMMARY

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SHEET NUMBER														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	23	24	25	26	27	81	87	88	89	90	91	92	93						
																		MAINTENANCE OF TRAFFIC	
			500											254	01000	500	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE	
				300										614	11110	300	HOURS	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
						2								614	11300	2	EACH	SPECIAL - WORK ZONE TRAFFIC SIGNAL	25
					24									614	11500	24	MONTH	WORKSITE TRAFFIC SUPERVISOR	
						3								614	12336	3	EACH	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	
						13								614	12338	13	EACH	WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	
				20										614	12410	20	EACH	SPEED ZONE AHEAD SYMBOL SIGN	
		LUMP												614	12420	LUMP		DETOUR SIGNING	
				20										614	12470	20	EACH	WORK ZONE SPEED LIMIT SIGN	
				20										614	12484	20	EACH	WORK ZONE INCREASED PENALTIES SIGN	
			50											614	12500	50	EACH	REPLACEMENT SIGN	
			200											614	12600	200	EACH	REPLACEMENT DRUM	
		24	50											614	13000	74	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
					13650									614	11621	13650	FT	LINEAR DELINEATION, AS PER PLAN	27
					173									614	13350	173	EACH	OBJECT MARKER, ONE-WAY (CONCRETE BARRIER)	
					24									614	18511	24	MONTH	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	27
						2.3								614	20200	2.3	MILE	WORK ZONE LANE LINE, CLASS I, 740.06, TYPE I	
			2											614	20550	2	MILE	WORK ZONE LANE LINE, CLASS III, 642 PAINT	
						3.45								614	21200	3.45	MILE	WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE I	
			1											614	21550	1	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
			2			8.91								614	22200	10.9	MILE	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I	
			3											614	22350	3	MILE	WORK ZONE EDGE LINE, CLASS III, 642 PAINT	
			1000			3441								614	23400	4441	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 740.06, TYPE I	
						373								614	24400	373	FT	WORK ZONE DOTTED LINE, CLASS I, 740.06, TYPE I	
			150											614	24610	150	FT	WORK ZONE DOTTED LINE, CLASS III, 642 PAINT	
						755								614	25400	755	FT	WORK ZONE TRANSVERSE/DIAGONAL CLASS I, 740.06, TYPE I	
						345								614	26400	345	FT	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	
						1170								614	27400	1170	FT	WORK ZONE CROSSWALK LINE, CLASS I, 740.06, TYPE I	
						14								614	30400	14	EACH	WORK ZONE ARROW CLASS I, 740.06, TYPE I	
		LUMP												615	10000	LUMP		ROADS FOR MAINTAINING TRAFFIC	
						7620								615	25000	7620	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	
			2											616	10000	2	M GAL	WATER	
						11725								622	40020	11725	FT	PORTABLE CONCRETE BARRIER, 32"	
						400								622	40030	400	400	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED	
																		PAVEMENT	
							5165		838		1498		1390	304	20000	8891	CU YD	6" AGGREGATE BASE	
							24097		4234		8023		3850	888	15000	40204	SQ YD	PORTLAND CEMENT CONCRETE PAVEMENT, 12" THICK (NON-REINFORCED PER 452)	
							18				724			452	12000	742	SQ YD	8" NON-REINFORCED CONCRETE PAVEMENT (DRIVEWAY)	
								6190		865		2501	1461	609	26000	11017	FT	CURB, TYPE 6	
	LUMP													690	12160	LUMP		SPECIAL - TESTING (MATERIAL SAMPLING)	23
	250													690	65000	250	TON	SPECIAL - WORK INVOLVING NON-REGULATED MATERIALS	23
	7500													690	65010	7500	TON	SPECIAL - WORK INVOLVING SOLID WASTE	23
	125													690	65014	125	TON	SPECIAL - WORK INVOLVING HAZARDOUS WASTE	23
	2000													690	65016	2000	TON	SPECIAL - WORK INVOLVING PETROLEUM-CONTAMINATED SOIL	23
	100000													690	65020	100000	GAL	SPECIAL - WORK INVOLVING WATER	23
	50000													690	65024	50000	GAL	SPECIAL - WORK INVOLVING REGULATED WATER	23
	5													690	65300	5	EACH	SPECIAL - GROUND WATER MONITORING WELL ABANDONMENT	23
	5													690	65310	5	EACH	SPECIAL - ACTIVE GROUND WATER MONITORING WELL RECONSTRUCTION	23
	5													690	65310	5	EACH	SPECIAL - ACTIVE GROUND WATER MONITORING WELL GRADE ADJUSTMENT	23
	2000													690	98800	2000	TON	SPECIAL - TEMPORARY STORAGE OF CONTAMINATED MATERIAL	23
														108	10000	LUMP		SPECIAL - CPM PROGRESS SCHEDULE	
														619	16020	24	MONTH	FIELD OFFICE, TYPE C	
		LUMP												614	11000	LUMP		MAINTAINING TRAFFIC	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														623	11000	1	EACH	PROVIDING ELECTRONIC INSTRUMENTATION	
														623	11100	16	HOURS	TECHNICAL ASSISTANCE	
														624	10000	LUMP		MOBILIZATION	

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GENERAL SUMMARY

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 Pavement Removed	202 Curb Removed	202 Walk Removed	202 Traffic Island Removed	202 Fence Removed	202 Building Demolished	202 Steps Removed	204 Subgrade Compaction	304 6" Aggregate Base	888 Portland Cement Concrete Pavement, 12" Thick (Non-Reinforced per 452)	452 8" Non-Reinforced Concrete Pavement	606 Guardrail, Type 5	606 Bridge Terminal Assembly, Type 4	606 Anchor Assembly, Type B-98				
						LF	LF	SF	SY	LF	LUMP	SF	SY	CY	SY	SY	LF	EA	EA				
95		River Road	11+54.26	13+00.00	LT & RT	971							858	143	826								
95	R1	River Road	11+54.26	13+00.00	LT		145																
95	R2	River Road	11+54.26	13+00.00	RT		146																
95	R3	River Road	11+54.26	13+00.00	LT			1260															
95	R4	River Road	11+54.26	13+00.00	RT			986															
95	R5	River Road	11+54.26	13+00.00	LT					147													
96		River Road	13+00.00	17+00.00	LT & RT	1999							2773	462	2635								
96	R1	River Road	13+00.00	17+00.00	LT		400																
96	R2	River Road	13+00.00	17+00.00	RT		401																
96	R3	River Road	13+00.00	17+00.00	LT			2529															
96	R4	River Road	13+00.00	17+00.00	RT			233															
97		River Road	17+00.00	22+00.00	LT & RT	3312							4059	677	3731								
97	R1	River Road	17+00.00	18+50.00	LT		260	1627															
97	R2	River Road	18+50.00	20+00.00	LT		322	2110															
97	R3	River Road	19+50.00	22+00.00	LT		379	2682															
97	R4	River Road	18+33.00	22+00.00	RT		367																
98		River Road	22+00.00	27+00.00	LT & RT	1899							3254	542	3143								
98	R1	River Road	22+00.00	24+50.00	LT		250	1396															
98	R2	River Road	22+00.00	27+00.00	LT & RT		500																
98	R3	River Road	24+40.00	24+90.00	LT		105		16														
98	R4	River Road	25+50.00	25+65.00	LT		157		58														
98	R5	River Road	26+50.00	27+00.00	LT		30	1888															
98	R6	River Road	26+16.00		LT						1												
99		River Road	27+00.00	32+00.00	LT & RT	2280							4166	694	4054								
99	R1	River Road	27+00.00	32+00.00	LT		500																
99	R2	River Road	27+00.00	32+00.00	RT		498																
99	R3	River Road	27+00.00	32+00.00	LT			3701															
100		River Road	32+00.00	37+00.00	LT & RT	3329							6554	1092	6226								
100	R1	River Road	32+00.00	34+90.00	LT		328	2430															
100	R2	River Road	32+00.00	37+00.00	LT & RT		500																
100	R3	River Road	35+15.00	37+00.00	LT		587	905															
102		River Road	37+00.00	41+03.52	LT & RT	964							2804	1402	2755								
102	R1	River Road	37+00.00	41+03.52	LT		885																
102	R2	River Road	37+00.00	41+03.52	LT							22											
102	R3	River Road	37+00.00	41+03.52	LT					296													
102	R4	River Road	39+00		LT						1												
126		EB Elberon Ramp	50+00.00	53+00.00	LT & RT	428							871	147	727								
126	R1	EB Elberon Ramp	50+00.00	52+00.00	LT		226																
126	R2	EB Elberon Ramp	50+00.00	52+00.00	LT			1256															
126	D1	EB Elberon Ramp	50+40.00		RT								32	5		18							
126	GR-3	EB Elberon Ramp	52+37.61	53+00.00	LT												73	1	1				
126	GR-3	EB Elberon Ramp	52+04.23	53+00.00	RT												73	1	1				
		TOTALS CARRIED TO GENERAL SUMMARY				15182	6986	23003	74	443	2	22	25371	5165	24097	18	146	2	2				

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ROADWAY SUB-SUMMARY

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	606 Anchor Assembly, Type T EA	608 Curb Ramp SF	608 5" Concrete Walk SF	609 Curb Type 6 LF	622 Concrete Barrier, Single Slope, Type C1 LF	622 Concrete Barrier, Single Slope, Type D LF	202 Removal, Misc.; Billboard Removal from Parcel 14 EA	202 Removal, Misc.; Billboard Removal from Parcel 27 EA	202 Removal, Misc.; Billboard Removal from Parcel 60 EA	451 Special - Pressure Relief Joint, Type A FT
95	C-1	River Road	11+54.26	13+00.00	LT				146						
95	C-2	River Road	11+54.26	13+00.00	RT				146						
95	SW1	River Road	11+54.26	13+00.00	LT			768							
95	SW2	River Road	11+54.26	13+00.00	RT			746							
96	C-1	River Road	13+00.00	17+00.00	LT				401						
96	C-2	River Road	13+00.00	17+00.00	RT				400						
96	SW1	River Road	13+00.00	17+00.00	LT			2002							
96	SW2	River Road	13+00.00	17+00.00	RT			2639							
97	C-1	River Road	17+00.00	18+40.00	LT				162						
97	C-2	River Road	17+00.00	22+00.00	RT				491						
97	C-3	River Road	18+95.00	22+00.00	LT				350						
97	C-4	River Road	19+31.91	22+00.00	LT		80		568						
97	SW1	River Road	17+00.00	18+40.00	LT		100	877							
97	SW2	River Road	17+00.00	18+14.00	RT		100	1386							
97	SW3	River Road	18+96.00	22+00.00	LT		100	314							
97	R5	River Road	18+40.00		RT							2			
97	R6	River Road	20+90.00		LT									2	
98	SW-1	River Road	26+33.00	27+00.00	LT			951							
98	C-1	River Road	22+00.00	24+40.90	LT				246						
98	C-2	River Road	22+00.00	22+97.00	LT				192						
98	C-3	River Road	22+00.00	27+00.00	RT				500						
98	C-4	River Road	25+71.00	27+00.00	LT		300		129						
98	GR-5	River Road	26+50	26+90	LT	4									
99	C-1	River Road	27+00.00	32+00.00	LT				500						
99	C-2	River Road	27+00.00	32+00.00	RT				460						
99	SW1	River Road	27+00.00	32+00.00	LT			4240							
99	B1	River Road	27+00.00	27+31.00	LT										
100	C-1	River Road	32+00.00	39+45.00	LT				216						
100	C-2	River Road	32+00.00	34+95.00	RT				295						
100	C-3	River Road	34+45.35	34+63.19	LT				30						
100	C-4	River Road	35+24.00	37+00.00	LT				290						
100	SW1	River Road	32+10.00	34+90.00	LT		62	2488							
100	SW2	River Road	35+25.00	37+00.00	LT		62	1561							
100	B1	River Road	34+96.89	36+46.00	LT						149				
100	R4	River Road	35+90.00		LT								1		
102	SW1	River Road	37+00.00	39+27.42	LT			1643							
102	C-1	River Road	37+00.00	39+23.00	LT				223						
102	B1	River Road	38+77.02	39+53.57						34					
102	PRJ-1	River Road	39+20.21		LT & RT										126
126		EB Elberon Ramp	50+00.00	53+00.00	LT & RT										
126	SW1	EB Elberon Ramp	50+00.00	50+20.00	RT			100							
126	SW2	EB Elberon Ramp	50+40.00	52+00.00	RT			825							
126	C-1	EB Elberon Ramp	52+03.55	53+00.00	LT				146						
126	C-2	EB Elberon Ramp	50+00.00	53+00.00	RT				299						
TOTALS CARRIED TO GENERAL SUMMARY						4	804	20540	6190	34	149	2	1	2	126

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ROADWAY SUB-SUMMARY

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 Pavement Removed	202 Curb Removed	202 Walk Removed	202 Traffic Island Removed	202 Fence Removed	202 Building Demolished	204 Subgrade Compaction	304 6" Aggregate Base	888 Portland Cement Concrete Pavement, 12" Thick (Non-Reinforced per 452)
						FT	FT	SF	SY	FT	LUMP	SY	CY	SY
128		EB Elberon Ramp	53+00.00	53+96.20	LT & RT							465	78	325
130		EB Elberon Ramp	58+00.00	62+77.25	LT & RT							518	86	380
134		WB Elberon Ramp	90+00.00	94+00.00	LT & RT	306						583	97	448
134	R1	WB Elberon Ramp	90+00	91+24.28	LT		124	641						
134	R2	WB Elberon Ramp	90+00	91+24.67	RT		125							
136		WB Elberon Ramp	94+00.00	99+00.00	LT & RT							364	61	239
136	R1	WB Elberon Ramp	97+79.20	99+00	LT & RT			632						
136	R2	WB Elberon Ramp	97+79.20	99+00	RT					132				
136	R3	WB Elberon Ramp	98+00		RT						1			
138		WB Elberon Ramp	99+00.00	103+70.06	LT & RT	2706						2080	347	2001
138	R1	WB Elberon Ramp	99+00	101+55	LT		303		654					
138	R2	WB Elberon Ramp	99+00	101+55	LT & RT		303							
138	R3	WB Elberon Ramp	99+00	101+55	LT		304							
138	R4	WB Elberon Ramp	99+00	101+55	LT		244							
138	R5	WB Elberon Ramp	101+90	102+45	LT		107	314						
138	R6	WB Elberon Ramp	99+00	101+55	LT			1805						
138	R7	WB Elberon Ramp	101+90	103+70.06	LT		170	1323						
138	R8	WB Elberon Ramp	99+00	101+55	LT & RT			2245						
142		EB Warsaw Ramp	70+00.00	73+00.00	LT & RT	1170						621	104	582
142	R1	EB Warsaw Ramp	72+00	73+00	RT			272						
142	R2	EB Warsaw Ramp	72+00	73+00	RT		256							
142	R3	EB Warsaw Ramp	70+00	73+00	RT		268							
143		EB Warsaw Ramp	73+00.00	74+14.74	LT & RT							375	63	259
143		EB Warsaw Ramp	73+00.00	75+14.08	LT & RT	1132								
143	R1	EB Warsaw Ramp	73+00	74+20.81	RT	530	271							
143	R2	EB Warsaw Ramp	73+00	74+84.74	RT	632	221	1153						
143	R3	EB Warsaw Ramp	74+54.31	74+69.65	RT		41							
143	R4	EB Warsaw Ramp	74+01.44	74+52.54	LT & RT		54							
143	R5	EB Warsaw Ramp	77+00		LT & RT						1			
145		EB Warsaw Ramp	78+00.00	83+00.00	LT & RT							19	3	
TOTALS CARRIED TO GENERAL SUMMARY						6476	2791	8385	654	132	2	5025	838	4234

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	606 Anchor Assembly, Type T EA	608 Curb Ramp SF	608 5" Concrete Walk SF	608 Concrete Steps, Type A FT	609 Curb Type 6 FT	622 Concrete Barrier, End Section, Type D EA	622 Concrete Barrier, End Anchor, Reinf, Type D EA	451 Special - Pressure Relief Joint, Type A FT
128	B1	EB Elberon Ramp	53+45	53+96.20	LT						1	1	
128	B2	EB Elberon Ramp	53+35	53+70	RT						1	1	
128	C1	EB Elberon Ramp	53+00	53.68	LT					20			
128	C2	EB Elberon Ramp	53+00	53+35	RT					35			
128	PEJ-1	EB Elberon Ramp	53+96.20		LT & RT								34
130	PEJ-1	EB Elberon Ramp	61+61.64		LT & RT								61
134	C1	WB Elberon Ramp	90+00	91+24.28	LT					124			
134	C2	WB Elberon Ramp	90+00	91+24.67	RT					124			
134	PEJ-1	WB Elberon Ramp	91+76.91		LT & RT								30
138	C1	WB Elberon Ramp	99+50	101+25	RT					225			
138	GR-4	WB Elberon Ramp	101+50	102+00	LT	4	300						
138	SW1	WB Elberon Ramp	99+00	103+70	LT			4302					
142	C1	EB Warsaw Ramp	70+00	73+00	RT					305			
142	SW1	EB Warsaw Ramp	70+00	73+00	RT			1693					
143	SW1	EB Warsaw Ramp	73+00.00	78+00.00	LT & RT			1161					
143	B1	EB Warsaw Ramp	73+71	73+84	LT								
143	B2	EB Warsaw Ramp	73+30	73+71	RT								
143	C1	EB Warsaw Ramp	73+00	73+30	RT					32			
143	S1	EB Warsaw Ramp	73+88	74+20	RT				45				
143	PEJ-1	EB Warsaw Ramp	73+84.74		LT & RT								33
TOTALS CARRIED TO GENERAL SUMMARY						4	300	7156	45	865	2	2	158

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 Pavement Removed	202 Curb Removed	202 Walk Removed	202 Traffic Island Removed	202 Steps Removed	204 Subgrade Compaction	304 6" Aggregate Base	888 Portland Cement Concrete Pavement: 12" Thick (Non-Reinforced per 452)	452 8" Non-Reinforced Concrete Pavement
						LF	LF	SF	SY	FT	SY	CY	SY	SY
147		EB Warsaw Ramp	83+00.00	88+00.00	LT & RT						2336	389	2141	
149		EB Warsaw Ramp	88+00.00	93+22068	LT & RT	1068					2005	334	1927	
160		WB Warsaw Ramp	100+25.00	104+00.00	LT & RT	1273					1075	179	925	
160	R1	WB Warsaw Ramp	100+25.00	102+83.00	LT		246	1440						
160	R2	WB Warsaw Ramp	102+04.00	103+88	LT & RT		257	1005						
162		WB Warsaw Ramp	104+00.00	109+34.06	LT & RT	716					697	116	382	
162	R1	WB Warsaw Ramp	104+70	107+60	LT & RT		285	800						
162	R2	WB Warsaw Ramp	105+30	107+60	LT & RT		222							
162	R3	WB Warsaw Ramp	107+66	109+34.06	LT		160	1250						
162	R4	WB Warsaw Ramp	107+66	109+34.06	LT		200							
162	R5	WB Warsaw Ramp	107+66	109+34.06	LT		150		441					
162	R6	WB Warsaw Ramp	107+66	109+06	RT		130	718						
162	R7	WB Warsaw Ramp	105+00	107+40	LT		579		588					
164		Elberon Ave	43+87.89	46+00.00	LT & RT	868					833	139	808	
164	R1	Elberon Ave	43+87.89	46+00.00	LT		211							
165	R3	Elberon Ave	46+00.00	49+50.99	LT & RT	2084					1288	215	1210	
165	R1	Elberon Ave	47+18.68	48+75.62	LT		276	934						
165	R2	Elberon Ave	47+48	49+29	LT & RT		250	1707						
165	R3	Elberon Ave	46+27	46+77	LT		84	398						
165	R4	Elberon Ave	46+00	47+59	RT		168	1082						
165	R5	Elberon Ave	46+60		LT					22				
172		SEE SHEET 93												
173		SEE SHEET 93												
179		Maryland Ave	45+36.00	46+95.76	LT & RT	280					297	50	272	
179	R1	Maryland Ave	45+36	46+95.76	LT		110							
179	R2	Maryland Ave	45+36	46+95.76	RT		118							
179	R3	Maryland Ave	45+60		LT					25				
179	R4	Maryland Ave	45+36.00	46+95.76	LT			420						
179	R5	Maryland Ave	45+36.00	46+95.76	RT			517						
183		Evans St	20+05.23	22+06.23	LT & RT	396					458	76	358	
183	R1	Evans St	21+17	22+06.23	LT & RT		89	380						
183	R2	Evans St	21+17	22+06.23	RT		90							
183	R3	Evans St	21+17	21+67.76	RT			372						
183	DR1	Evans St	21+58.31		LT									724
TOTALS CARRIED TO GENERAL SUMMARY						6685	3625	11023	1029	47	8989	1498	8023	724

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	606 Guardrail Type 5	606 Bridge Terminal Assembly, Type 2	606 Anchor Assembly, Type E-98	606 Bridge Terminal Assembly, Type 4	608 Curb Ramp	608 5" Concrete Walk	609 Curb Type 6	622 Concrete Barrier, Single Slope, Type B	622 Concrete Barrier, Single Slope, Type C	622 Concrete Barrier, End Section, Type D	Concrete Barrier, End Anchor, Reinf., Type D	659 Seeding and Mulching	201 Clearing and Grubbing (for information only)	203 Excavation	203 Embankment	204 Excavation of Subgrade	204 Granular Material, Type C	451 Special - Pressure Relief Joint
						FT	EA	EA	EA	SF	SF	FT	FT	FT	EA		SY	LUMP	CY	CY	CY	CY	FT
136	PEJ-1	WB Warsaw Ramp	98+15.68		LT & RT																		66
147	B1	EB Warsaw Ramp	83+00	84+75	LT										1	1							
147	C1	EB Warsaw Ramp	84+75	88+00	LT							292											
147	GR-1	EB Warsaw Ramp	84+75	85+02	LT	125	1	1															
149		EB Warsaw Ramp	88+00.00	93+22.68	LT & RT																		
149	B1	EB Warsaw Ramp	88+00.00	89+00.00	RT																		
149	C1	EB Warsaw Ramp	88+00.00	89+88.91	LT							189											
149	C2	EB Warsaw Ramp	89+00.00	93+22.68	RT							423											
160	B1	WB Warsaw Ramp	103+56.00	104+00.00	LT									29									
160	C1	WB Warsaw Ramp	100+25.00	103+56.00	LT							325											
160	GR-2	WB Warsaw Ramp	102+82.87	103+83.34	LT	104			2														
160	PEJ-1	WB Warsaw Ramp	103+56.00		LT & RT																		32
162	B2	WB Warsaw Ramp	107+85.23	108+08.85	RT								25										
162	SW1	WB Warsaw Ramp	105+13.34	107+19.12	LT & RT						3156												
162	SW2	WB Warsaw Ramp	107+66.30	109+34.26	LT						1616												
164	C1	Elberon Ave	43+87.89	46+00.00	LT							212											
164	C2	Elberon Ave	45+95.16	46+00.00	RT							5											
165	C1	Elberon Ave	46+00.00	46+79.71	LT							90											
165	C2	Elberon Ave	47+02.60	49+39.42	LT							325											
165	C3	Elberon Ave	46+00.00	48+26.32	RT							235											
165	SW1	Elberon Ave	46+79.71	49+39.42	LT						1907												
165	SW2	Elberon Ave	47+23.06	48+27.28	RT						582												
165	CR1	Elberon Ave	47+26.01		LT					115													
165	CR2	Elberon Ave	47+25.93		RT					100													
172		SEE SHEET 93																					
173		SEE SHEET 93																					
179	C1	Maryland Ave	45+36.00	46+95.76	LT							108											
179	C2	Maryland Ave	45+36.00	46+95.76	RT							119											
179	SW1	Maryland Ave	45+38.87	46+43.62	RT						672												
179	SW2	Maryland Ave	45+36.00	45+62.58	LT						584												
183	C1	Evans St	21+17.71	22+06.23	LT							89											
183	C2	Evans St	21+17.71	22+06.23	RT							89											
183	SW1	Evans St	21+17.71	21+33.32	LT						128												
183	SW2	Evans St		22+06.23	LT						140												
183	SW3	Evans St	21+17.71	22+06.23	RT						895												
104-125		US 50	11+54.26	39+50.00	LR & RT												10081	11967	4419	33827	1750	1750	
150-159		EB Warsaw	70+00.00	89+50.00	LR & RT												6768	1702	43	12140	1378	1378	
139-141		WB Elberon	98+50.00	101+50.00	LR & RT												2605	2372	85	1100			
132-133		EB Elberon	52+69.00	53+95.00	LR & RT												1005	2885	48	7979			
167-171		Elberon Ave.	44+00.00	48+22.53	LR & RT												1830	587	2943	4185	800	800	
175-178		State Ave	43+50.00	49+00.00	LR & RT												3785	2780	3027	5255			
180-182		Maryland Ave	45+36.00	46+50.00	LR & RT												171	158	381	140	157	157	
184-185		Evans St	20+75.00	22+21.23	LR & RT												151	216	26	816	161	161	
TOTALS CARRIED TO GENERAL SUMMARY						229	1	1	2	215	9680	2501	25	29	1	1	26396	22667*	10972	65442	4246	4246	98

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ROADWAY SUB-SUMMARY

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 Pavement Removed	202 Curb Removed	202 Traffic Island Removed	202 Walk Removed	202 Fence Removed	202 Wall Removed	202 Steps Removed	204 Subgrade Compaction	304 6" Aggregate Base	888 Portland Cement Concrete Pavement 12" Thick (Non-Reinforced per 452)	608 5" Concrete Walk	608 Curb Ramp	608 Concrete Steps, Type A	609 Curb, Type 6				
			FROM	TO		SY	FT	SY	SF	LF	LF	LUMP	SY	CY	SY	SF	SF	LF	LF				
135		STATE AVE.	43+35.00	47+50.00	LT & RT	4576							3107	1036	2820								
135	R-1	STATE AVE.	43+30.00	45+52.55	LT		310	11															
135	R-2	STATE AVE.	45+73.02	45+81.96	LT		70																
135	R-3	STATE AVE.	45+59.65	46+14.83	LT		318																
135	R-4	STATE AVE.	45+60.95	45+78.55	LT						93												
135	R-5	STATE AVE.	46+12.41	47+50.00	LT		243																
135	R-6	STATE AVE.	43+35.00	45+01.18	RT		417																
135	R-7	STATE AVE.	45+13.32	45+29.97	RT		43	4															
135	R-8	STATE AVE.	43+84.16	46+93.54	RT		390																
135	R-9	STATE AVE.	45+99.93	47+45.22	RT		322																
135	R-10	STATE AVE.	46+05.71	47+13.60	RT				1017														
135	R-11	STATE AVE.	46+07.00	46+19.81	RT				75														
135	R-12	STATE AVE.	46+23.34		RT							1											
135	R-13	STATE AVE.	46+25.63	47+45.78	RT				875														
135	R-14	STATE AVE.	43+86.69	46+93.33	RT				2140														
135	R-15	STATE AVE.	43+35.00	45+00.76	RT				1275														
135	R-16	STATE AVE.	44+68.04									1											
135	R-17	STATE AVE.	43+00.00	44+67.10	RT				1006														
135	R-18	STATE AVE.	43+30.93	45+38.51	LT				1495														
135	R-19	STATE AVE.	45+38.51	45+51.68	LT				360														
135	R-20	STATE AVE.	46+13.32	47+50	LT				1795														
135	R-21	STATE AVE.	47+13.99	47+30.46	LT				73														
135	R-22	STATE AVE.	45+92.08	46+14.10	LT						89												
135	R-22	STATE AVE.	44+71.41	45+39.85	LT					143													
135	SW-1	STATE AVE.	43+37.38	47+50.00	LT											2681							
135	SW-2	STATE AVE.	45+32.67	45+57.99	LT											960							
135	SW-3	STATE AVE.	46+42.96	46+54.61	LT											355							
135	SW-4	STATE AVE.	43+35.00	47+07.27	RT											2565	87						
135	SW-5	STATE AVE.	44+88.61	45+82.28	RT											512							
135	SW-6	STATE AVE.	44+36.39	44+73.04	RT											242							
135	SW-7	STATE AVE.	46+48.56	46+61.15	RT											200							
135	SW-8	STATE AVE.	47+24.52	47+50.00	RT											420							
135	SW-9	STATE AVE.	46+94.93	47+05.80	RT											98							
135	C-1	STATE AVE.	43+30.00	47+50.00	LT															415			
135	C-2	STATE AVE.	43+35.00	47+09.79	RT															425			
135	C-3	STATE AVE.	46+15.15	46+61.59	RT															135			
135	C-4	STATE AVE.	46+94.45	47+06.24	RT															46			
135	C-5	STATE AVE.	47+24.25	47+50.00	RT															135			
135	CR-1	STATE AVE.	43+33.12		LT												145						
135	CR-2	STATE AVE.	46+52.44		LT												155						
135	CR-3	STATE AVE.	46+47.82		RT												40						
135	CR-4	STATE AVE.	46+57.30		RT												35						
135	CR-5	STATE AVE.	46+52.37		RT												40						
135	CR-6	STATE AVE.	46+58.40		RT												35						
135	CR-7	STATE AVE.	46+94.51		RT												35						
135	CR-8	STATE AVE.	47+03.66		RT												35						
135	CR-9	STATE AVE.	47+20.93		RT												80						
135	S-1	STATE AVE.	44+21.37	44+36.39	RT													20					
135	S-2	STATE AVE.	44+73.04	44+88.61	RT													20					
136		STATE AVE.	47+50.00	49+00.00	LT & RT	6041							1063	354	1030								
136	R-1	STATE AVE.	47+50.00	49+00.00	RT		160																
136	R-2	STATE AVE.	47+50.00	49+00.00	RT		170																
136	R-3	STATE AVE.	47+50.00	49+00.00	RT				1236														
136	R-4	STATE AVE.	47+50.00	49+00.00	RT				1400														
136	R-5	STATE AVE.	47+50.00	47+74.69	RT						28												
136	SW-1	STATE AVE.	47+50.00	49+00.00	LT											712							
136	SW-2	STATE AVE.	47+50.00	49+0.00	RT											800							
136	C-1	STATE AVE.	47+50.00	49+00.00	LT															145			
136	C-2	STATE AVE.	47+50.00	49+00.00	RT															160			
TOTALS CARRIED TO GENERAL SUMMARY						10617	2443	15	12747	143	210	2	4170	1390	3850	9545	687	40	1461				

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ROADWAY SUB-SUMMARY

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DEPTH OF UNDERCUT	STATION TO STATION	WIDTH	204 GEOTEXTILE FABRIC	EXCAVATION OF SUBGRADE	204 EXCAVATION OF SUBGRADE	204 GRANULAR MATERIAL TYPE C
FT		FT	SQ YD	SQ FT	CU YD	CU YD
	STATE AVE.					
1	43+35	41		40		
			63		21	21
1	43+50	35		35		
			194		65	65
1	44+00	35		35		
			203		68	68
1	44+50	38		38		
			222		74	74
1	45+00	42		42		
			253		84	84
1	45+50	49		49		
			322		107	107
1	46+00	67		67		
			403		134	134
1	46+50	78		78		
			589		196	196
1	47+00	134		134		
			447		149	149
1	47+50	27		27		
			150		50	50
1	48+00	27		27		
			206		69	69
1	48+50	47		47		
			273		91	91
1	49+00	51		51		
TOTAL CARRIED TO GENERAL SUMMARY			3,325		1,108	1,108

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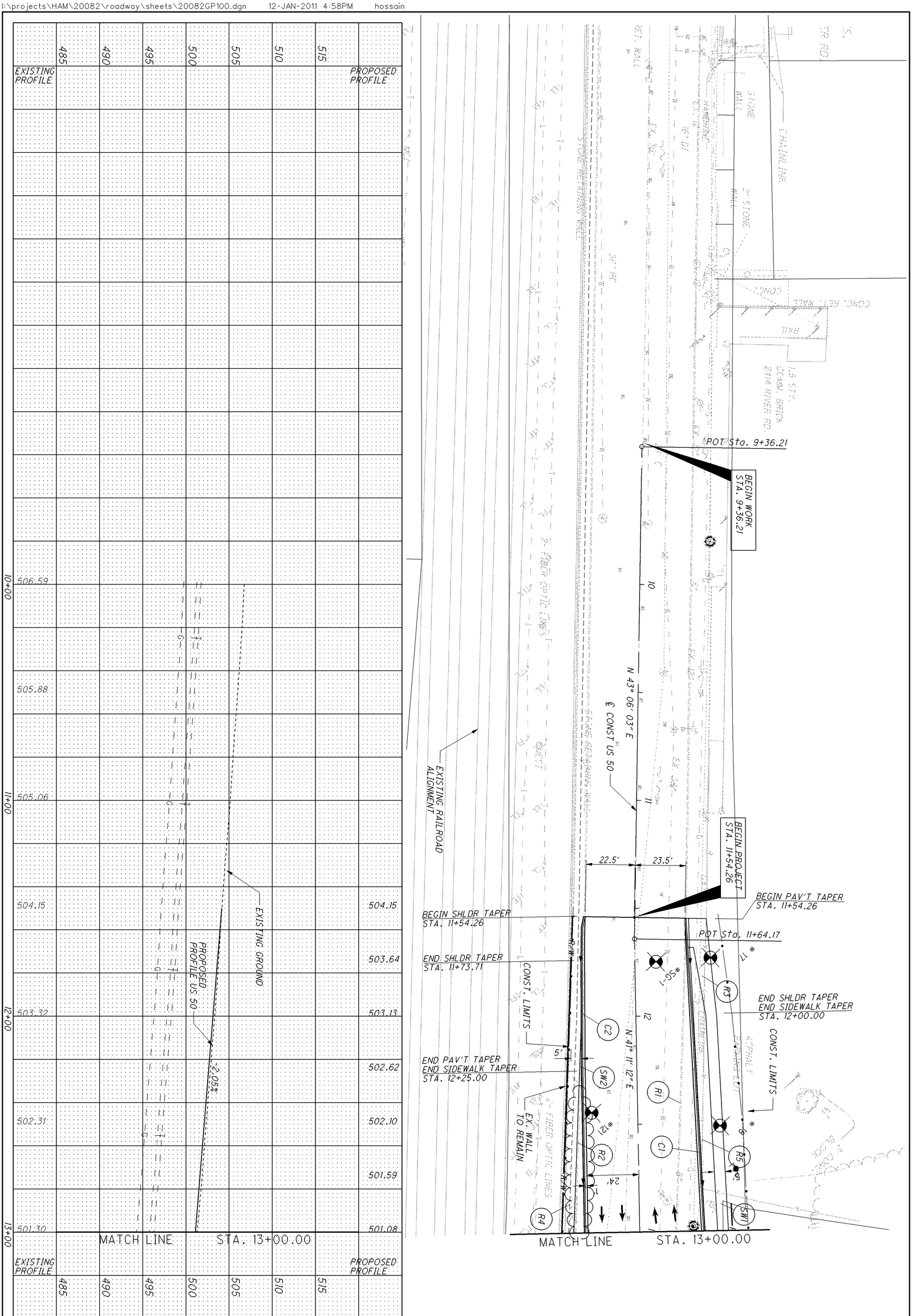

95 657	HAM-50-18.79	PLAN AND PROFILE (US 50) BEGIN WORK TO STA. 13+00.00	CALCULATED MH / CHECKED JMR	0 20 / 10 40 HORIZONTAL SCALE IN FEET

NOTE:
FOR DRIANAGE SEE SHEET 196

US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
emax = N/C

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED JMR

PLAN AND PROFILE (US 50)
STA. 13+00.00 TO STA. 17+00.00

HAM-50-18.79

96
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NOTE: FOR DRAINAGE SEE SHEET 197

CONST. LIMITS

CURB RAMP TYPE A2

℄ CONST. PROP. STATE AVE.

CURB RAMP TYPE A2

℄ CONST. PROP. US 50

STA. 18+11.58 US 50 = STA. 50+14.89 STATE AVE.

CURB RAMP TYPE B1

BEGIN PAVT TAPER STA. 18+65.00

CONST. LIMIT

EXISTING RAILROAD ALIGNMENT

℄ CONST. PROP. ELBERON EB RAMP

℄ CONST. PROP. WARSAW EB RAMP

HAM-050-1881

HAM-050-1875

MATCH LINE STA. 17+00.00

MATCH LINE STA. 22+00.00

US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
emax = N/C

P.V.I. STA 17+40.00
ELEV = 500.13'
SSD = 600'
K = 60 VC = 120.00'

+1.70 %

-0.30 %

STA 18+00.00
ELEV 499.95

PROPOSED PROFILE US 50

EB ELBERON RAMP

EB WARSAW RAMP

22'-1½" MIN. UC

EXISTING GROUND

PROPOSED PROFILE

EXISTING PROFILE

499.71 499.89 499.98 499.95 499.80 499.65 499.50 499.35 499.20 499.05 498.90 498.75

494.45 493.81 493.65 493.37 493.56 493.20 492.97 492.70 492.38 492.05

510 505 500 495 490 485 480

17+00 18+00 19+00 20+00 21+00 22+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED JMR

PLAN AND PROFILE (US 50)
STA. 17+00.00 TO STA. 22+00.00

HAM-50-18.79

97
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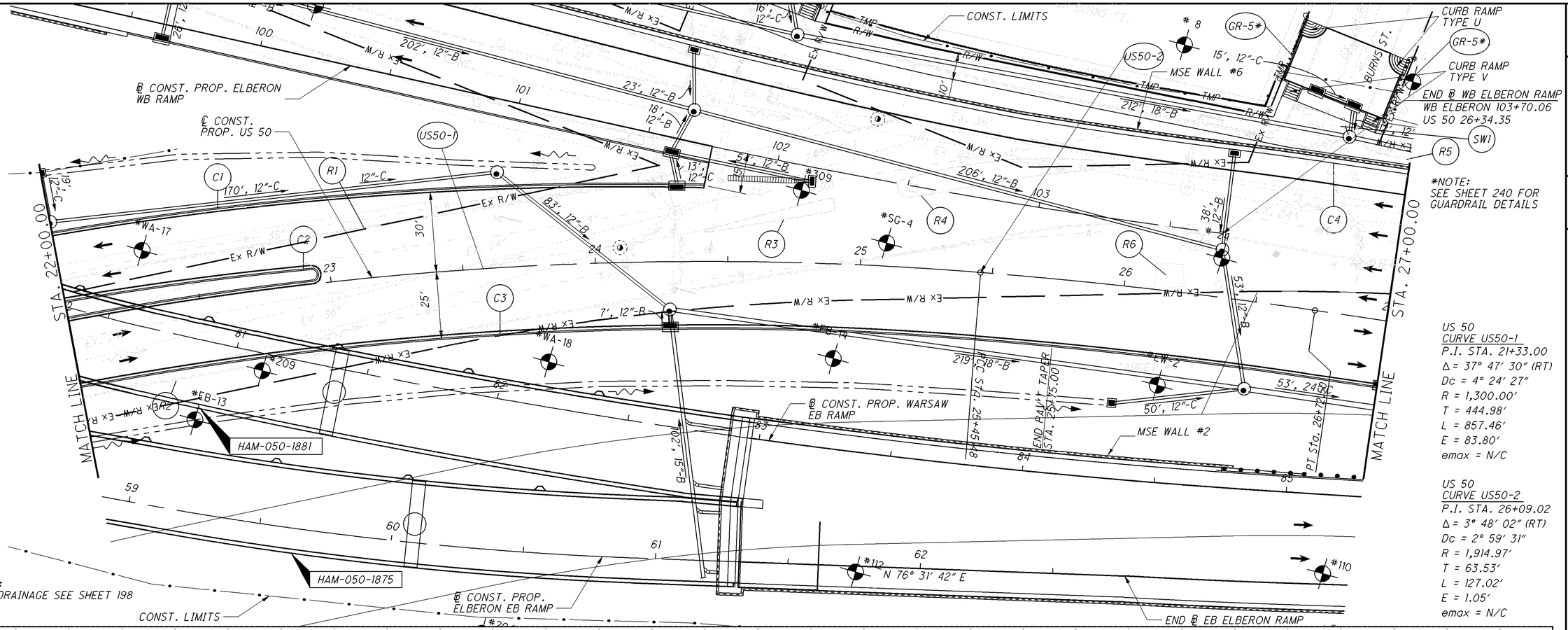

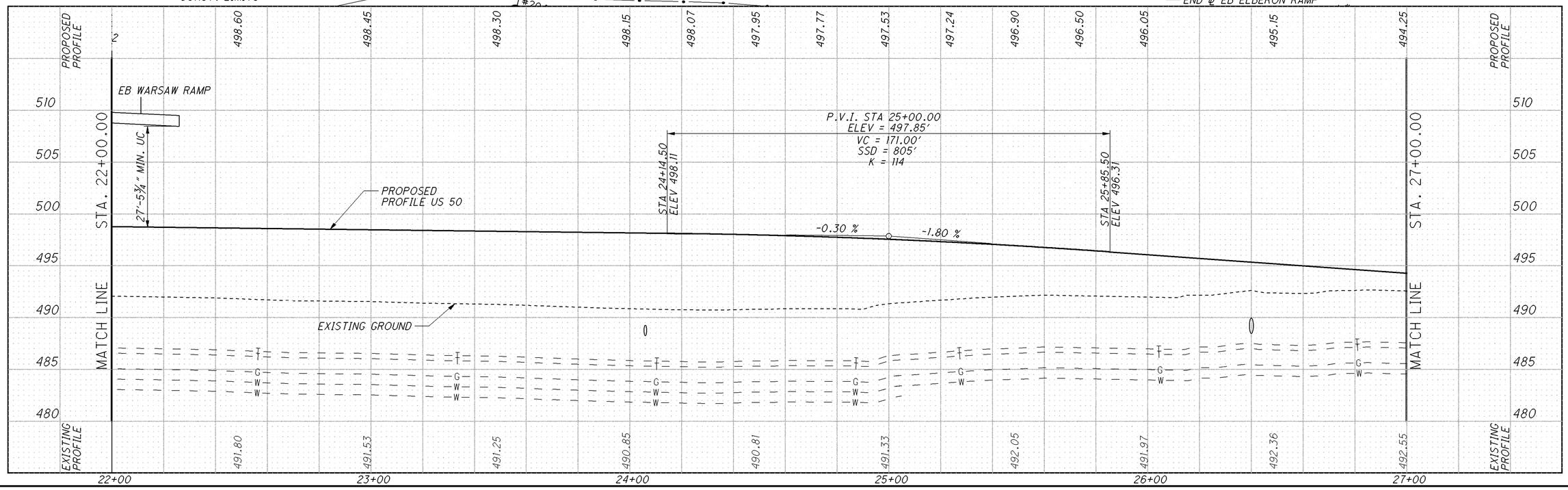

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED MH
CHECKED JMR

PLAN AND PROFILE (US 50)
STA. 22+00.00 TO STA. 27+00.00

HAM-50-18.79

98
657

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NOTE:
FOR DRAINAGE SEE SHEETS 198 AND 199

US 50
CURVE US50-3
P.I. STA. 29+30.44
Δ = 2° 10′ 50″ (LT)
Dc = 2° 14′ 52″
R = 2,549.00′
T = 48.51′
L = 97.01′
E = 0.46′
emax = N/C

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED JMR

PLAN AND PROFILE (US 50)
STA. 27+00.00 TO STA. 32+00.00

HAM-50-18.79

99
657

16-FEB-2011 11:18AM jsmithso
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NOTE:
FOR DRAINAGE PLANS SEE SHEET 199

WALL #7

℄ CONST. PROP. US 50

BEGIN PAV'T TAPER 33+00.00 WB US 50

CONST. LIMITS

C1 SW1 R1

℄ CONST. PROP. EVANS ST. CURB RAMP, TYPE A1

CURB RAMP, TYPE A1

STA. 34+96.89 (WB US 50)= STA. 20+00.00 (EVANS ST.)

BEGIN CONC BARRIER STA. 34+96.89 (WB US 50) 145', 24"-B

+97.5

B1 SW2 R3 R4 50W-1

CONST. LIMITS

STA. 32+00.00

STA. 37+00.00

MATCH LINE

MATCH LINE

#307 #306 #304 #SG-6

N 80° 35' 53" E

C2 C3 C4

R2

123', 21"-B

121', 21"-B

124', 12"-B

77', 30"-B

37', 12"-B

65', 12"-B

28', 12"-C

52', 12"-B

54', 24"-B

22', 12"-B

15', 15"-C

19', 21"-B

45', 12"-B

55', 12"-B

66', 12"-B

51', 12"-B

244', 12"-B

℄ CONST. PROP. US 50 (WB)

℄ CONST. PROP. US 50 (EB)

WALL 8

MEDAIN BARRIER SEE SHEET 590

℄ CONST. PROP. WARSAW EB RAMP

EXISTING RAILROAD ALIGNMENT

CONST. LIMITS

50E-1

PC Sta. 90+63.07

PC Sta. 32+47.13 U.S. 50 = PT STA. 32+47.13 US 50 WB

PC Sta. 33+19.04

PT Sta. 93+22.68 = STA 34+94.68 US 50

+70.18

+70.95

+48.35

+47

69.22

46'

8"

US 50 (WESTBOUND)
CURVE 50W-1
P.I. STA. 36+22.91
Δ = 17° 22' 31" (RT)
Dc = 2° 52' 52"
R = 1,988.60'
T = 303.86'
L = 603.06'
E = 23.08'
eMAX = N/C

US 50 (EASTBOUND)
CURVE 50E-1
P.I. STA. 36+80.74
Δ = 22° 09' 24" (RT)
Dc = 2° 35' 14"
R = 2,214.60'
T = 433.62'
L = 856.40'
E = 42.05'
eMAX = N/C

PROPOSED PROFILE

EXISTING PROFILE

PROPOSED PROFILE US 50 (EB)

+0.40 %

EXISTING GROUND

STA 34+43.74
ELEV 492.95 (EB)

P.V.I. STA 37+38.24
ELEV = 494.01'
K = 115
VC = 529.00'

MATCH LINE

MATCH LINE

STA. 32+00.00

STA. 37+00.00

492.05 492.25 492.45 492.65 492.85 492.95 493.08 493.27 493.51 493.80 494.15 494.55 495.00 495.51 496.08

488.43 488.08 487.82 487.14 486.42 485.82 486.37 488.44 490.69 493.15

492.65

500 495 490 485 480 475 470

32+00 33+00 34+00 35+00 36+00 37+00

NOTE:
FOR US 50 (WB) PROFILE SEE SHEET 101

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED JMR

PLAN AND PROFILE (US 50)
STA. 32+00.00 TO STA. 37+00.00

HAM-50-18.79

100
657

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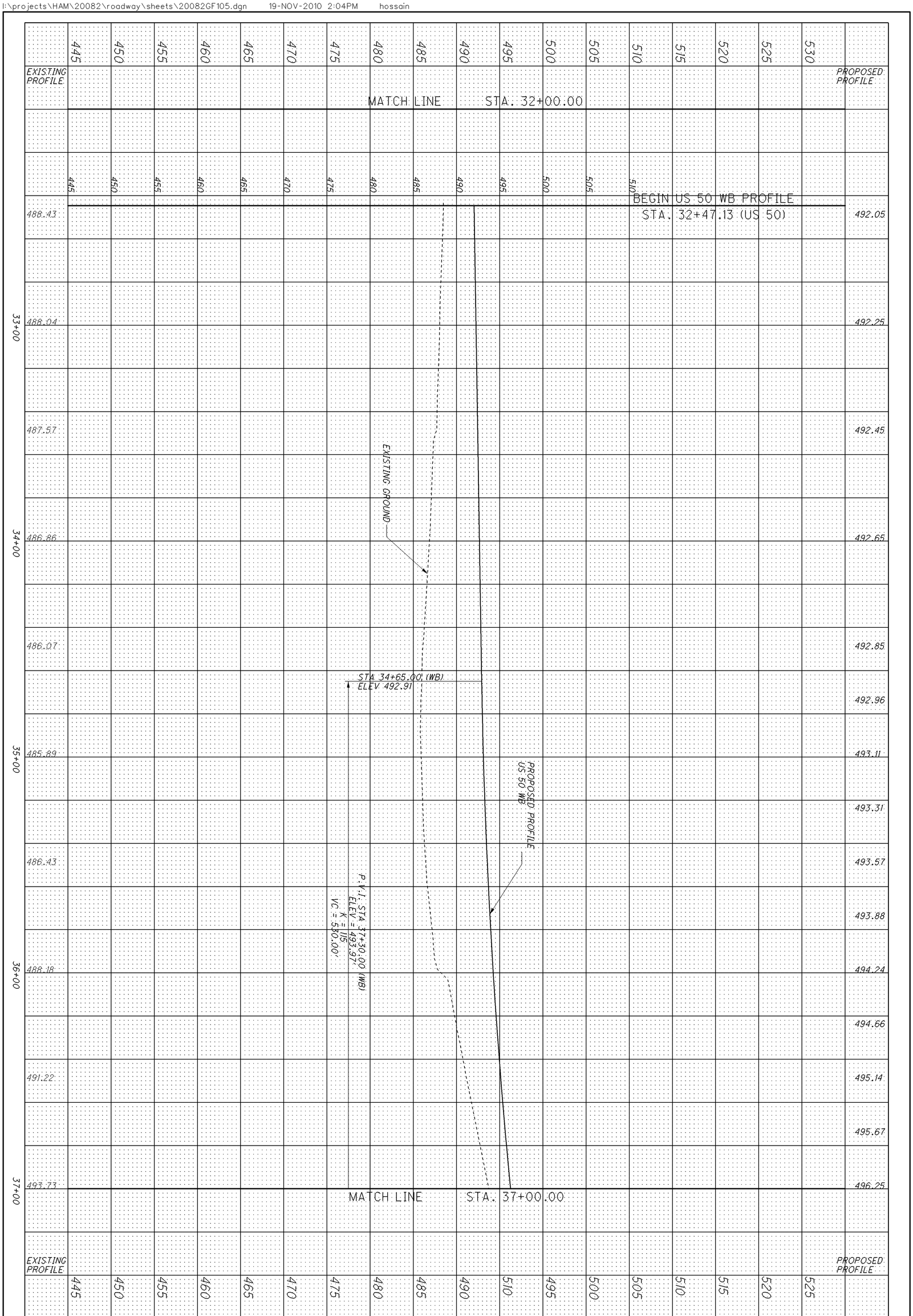

101 / 657	**HAM-50-18.79**	**PROFILE (US 50 WB)** **STA 32+00.00 TO STA. 37+00.00**

CALCULATED MH
CHECKED AS

US 50 (WESTBOUND)
CURVE 50W-1
P.I. STA. 36+22.91
Δ = 17° 22′ 31″ (RT)
Dc = 2° 52′ 52″
R = 1,988.60′
T = 303.86′
L = 603.06′
E = 23.08′
eMAX = N/C

US 50 (EASTBOUND)
CURVE 50E-1
P.I. STA. 36+80.74
Δ = 22° 09′ 24″ (RT)
Dc = 2° 35′ 14″
R = 2,214.60′
T = 433.62′
L = 856.40′
E = 42.05′
eMAX = N/C

NOTE:
FOR PROPOSED DRAINAGE SEE SHEET 200

US 50 (WESTBOUND)
CURVE 50W-2
P.I. STA. 39+88.03
Δ = 03° 26′ 09″ (RT)
Dc = 2° 36′ 23″
R = 2,198.33′
T = 65.93′
L = 131.82′
E = 0.99′
eMAX = N/C

1 STY. COMM. BLOCK
620 W. SIXTH ST.

HAM-050-1903 L/R
END PROJECT
STA. 41+04.19
END WORK
STA. 41+04.19
PT Sta. 41+03.52
PT Sta. 41+05.86
PT Sta. 40+53.92
S 79° 10′ 00″ W

PROPOSED
PROFILE US 50 (EB)
EXISTING GROUND
+0.40 %
+5.00 %
P.V.I. STA 37+38.24
ELEV = 494.01′
K = 115
VC = 529.00′
STA 40+02.74
ELEV 507.23 (EB)
MATCH LINE STA. 37+00.00

NOTE:
FOR US 50 (WB) PROFILE SEE SHEET 103

PLAN AND PROFILE
STA. 37+00.00 TO END WORK

HAM-50-18.79

102
657

CALCULATED MH
CHECKED JMR

HORIZONTAL SCALE IN FEET
0 10 20 40

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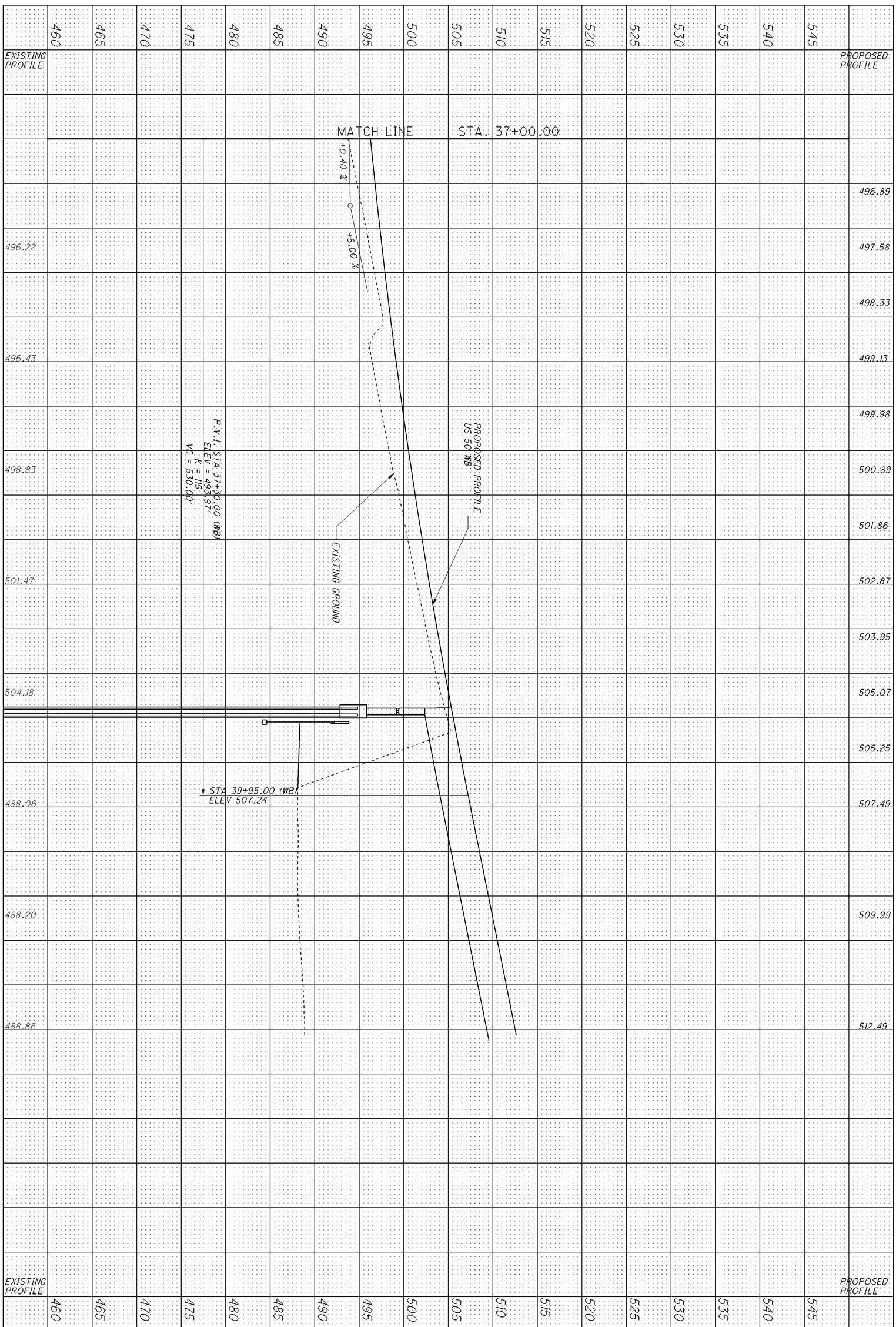

103 / 657	HAM-50-18.79	PROFILE (US 50 WB) STA 37+00.00 TO END WORK	CALCULATED MH CHECKED AS

SEEDING END WIDTH	SEEDING SQ. YDS.
14	75
	69
11	28
0	
	172

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		-107	-107
		185	107
93	58		
		-104	-104
		150	104
70	56		
		-96	-96
		111	96
50	46		
		139	0

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 11+54.26 TO STA. 12+50.00

HAM-50-18.79

104
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VOLUME OF SOFT SOILS: 107 CYD

VOLUME OF SOFT SOILS: 104 CYD

VOLUME OF SOFT SOILS: 96 CYD

SOFT SOILS

℄ US 50

EX. 12" COMB.

502.10
12+50.00
502.31

503.13
12+00.00
503.32

504.09
11+54.26
504.09

TMP

Ex R/W Fee

3:1

5:1

520 510 500 490 480

120 100 80 60 40 20 0 20 40 60 80 100 120

SEEDING	
END WIDTH	SQ. YDS.
26	133
	108
13	
	241

END AREA	
CUT	FILL
162	63
107	60

VOLUME	
CUT	FILL
-115	-115
379	116
-111	-111
249	111
402	1

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 13+00.00 TO STA. 13+50.00

HAM-50-18.79

105
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SEEDING END WIDTH	SEEDING SQ. YDS.
	169
38	
	167
22	
	577

VOLUME OF SOFT SOILS 122 CYD

VOLUME OF SOFT SOILS 119 CYD

SOFT SOILS

EX. 42" COMB.

EX. 42" COMB.

EX. 42" COMB.

15" STORM

498.20
14+50.00
498.81

499.04
14+00.00
499.78

℄ US 50

℄ US 50

EX R/W Fee

EX R/W Fee

EX R/W Fee

R/W Fee

EX R/W Fee

3:1

2:1

530 520 510 500 490 480 560 550 540 530 520 510 500 490 480

120 100 80 60 40 20 0 20 40 60 80 100 120

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		-122	-122
		560	122
410	66		
		-119	-119
		608	119
247	64		
		927	0

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 14+00.00 TO STA. 14+50.00

HAM-50.18.79

106
657

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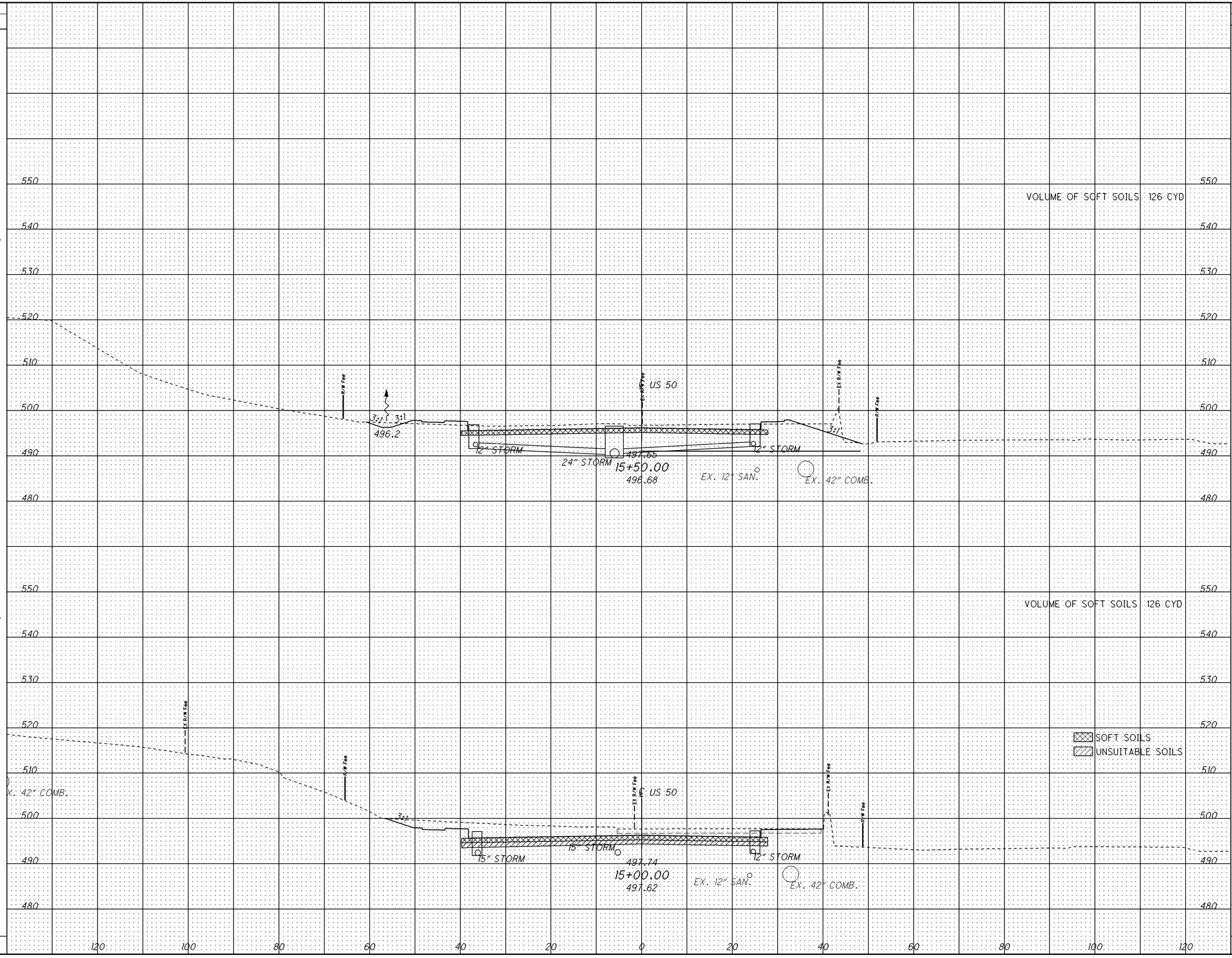
SEEDING	
END WIDTH	SQ. YDS.
29	172
23	144
	316



END AREA	
CUT	FILL
75	83
195	134

VOLUME	
CUT	FILL
-126	-126
160	141
-126	-126
250	201
158	90

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 15+00.00 TO STA. 15+50.00

HAM-50.18.79

107
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SEEDING	
END WIDTH	SQ. YDS.
	267
40	203
33	
	470

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		-122	-122
		142	544
72	225		
		-122	-122
		133	306
72	106		
		33	606

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 16+00.00 TO STA. 16+50.00

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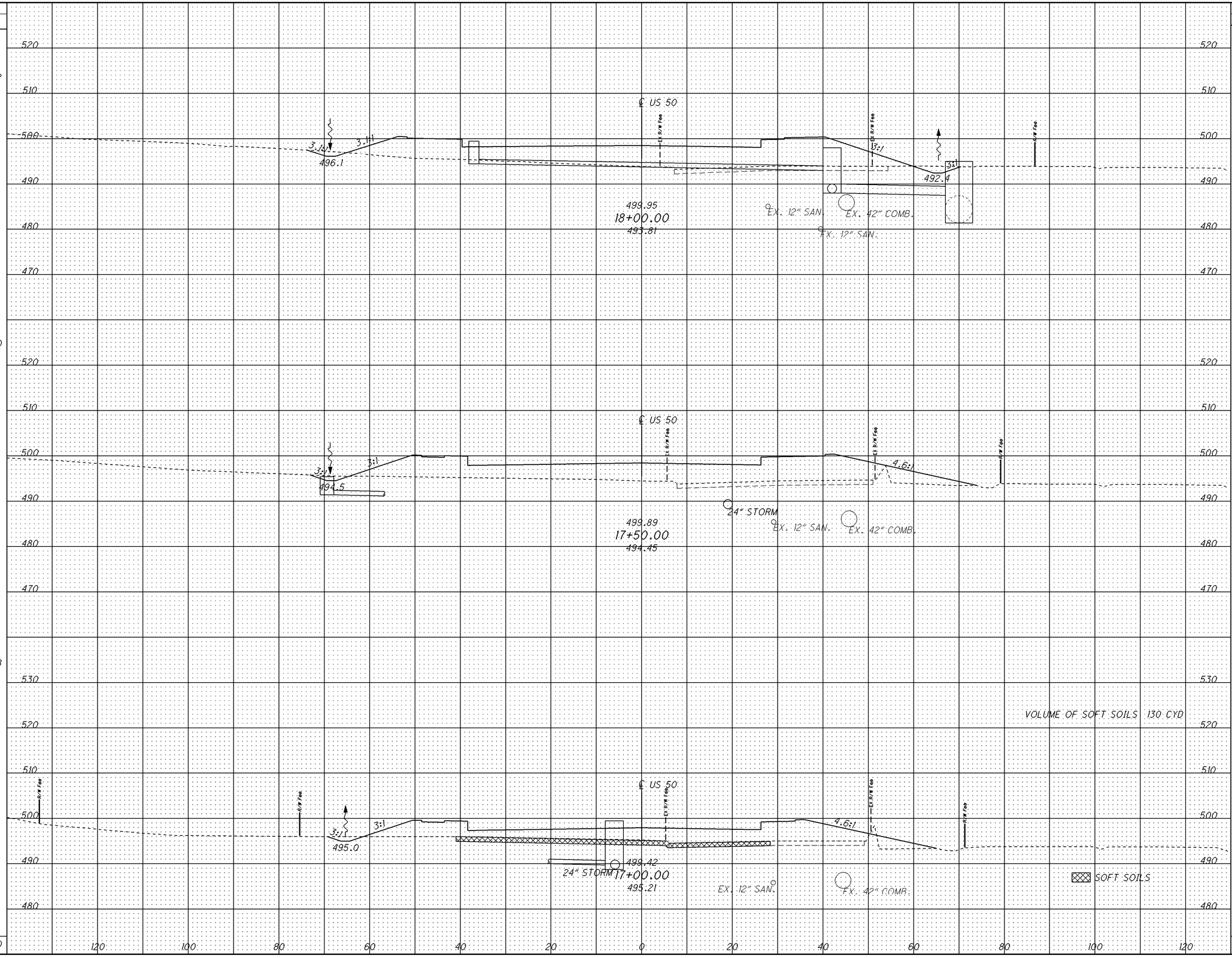
SEEDING	
END WIDTH	SQ. YDS.
	272
64	
	350
62	
	328
56	
	950



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		23	817
15	509		
		24	893
11	456		
		-130	-130
		151	750
152	363		
		68	2330

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 17+00.00 TO STA. 18+00.00

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SEEDING	
END WIDTH	SQ. YDS.
68	381
	364
63	269
34	
	1,014

END AREA	
CUT	FILL
18	490
11	636
10	373

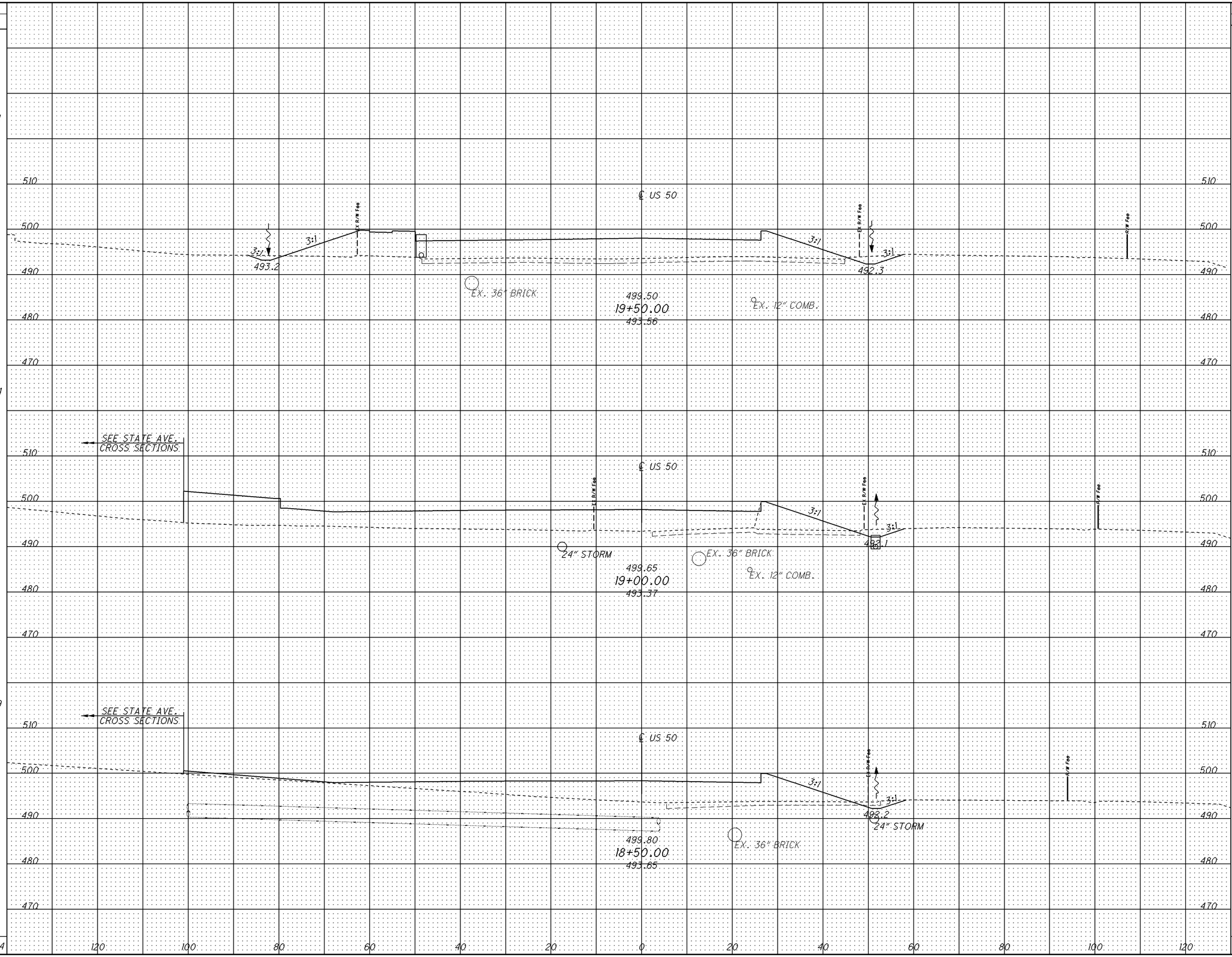
VOLUME	
CUT	FILL
25	870
27	1042
19	934
71	2846

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 18+50.00 TO STA. 19+50.00

HAM-50-18.79

110
657



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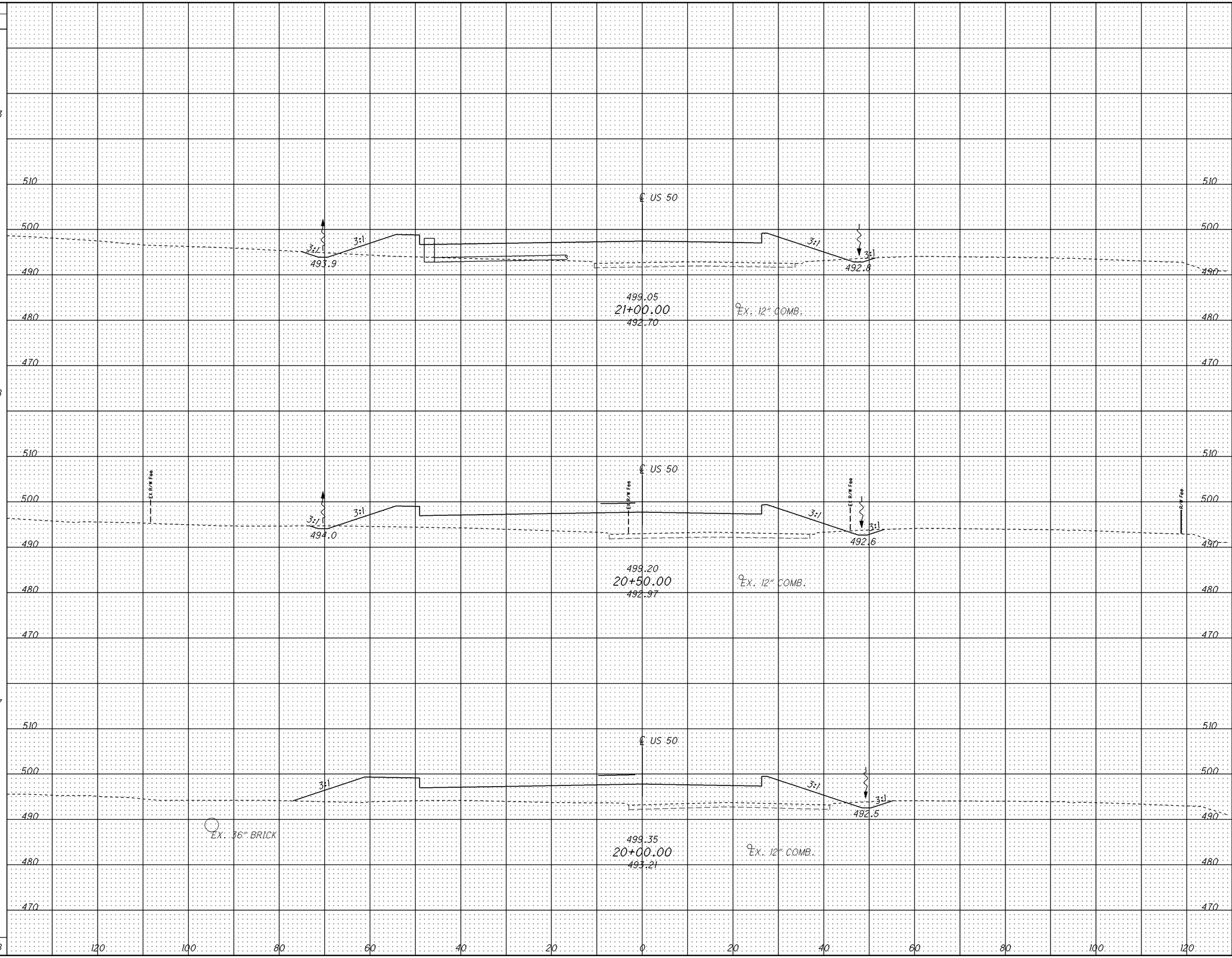
SEEDING	
END WIDTH	SQ. YDS.
55	303
63	367
69	328
	998



END AREA		VOLUME	
CUT	FILL	CUT	FILL
9	426	16	794
9	410	16	774
		16	796
9	450		
		48	2364

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 20+00.00 TO STA. 21+00.00

HAM-50-18.79

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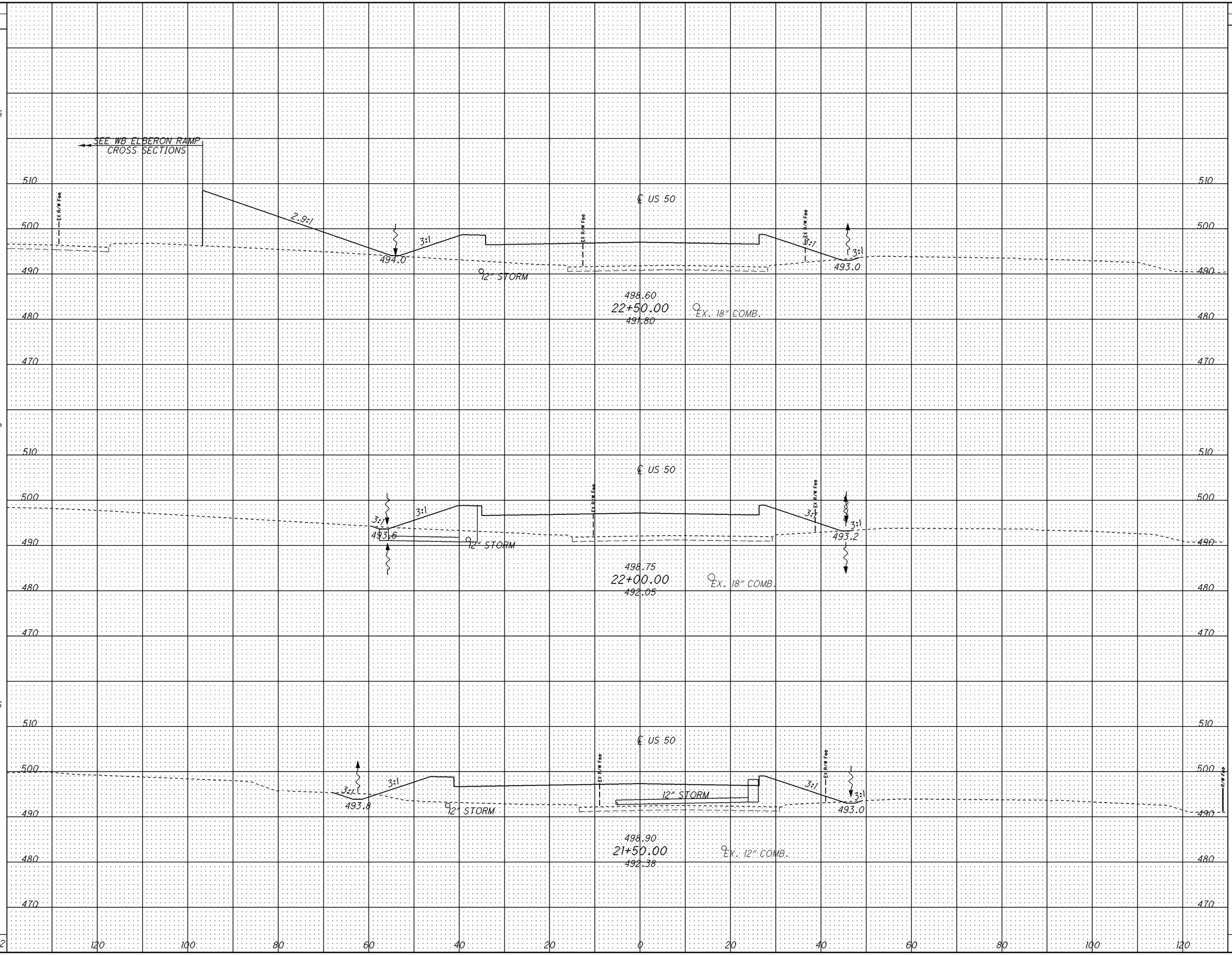
SEEDING	
END WIDTH	SQ. YDS.
103	506
49	286
54	422
	2,212



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		4	1042
1	683		
		3	1024
2	423		
		9	791
9	432		
		16	2857

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 21+50.00 TO STA. 22+50.00

HAM-50-18.79

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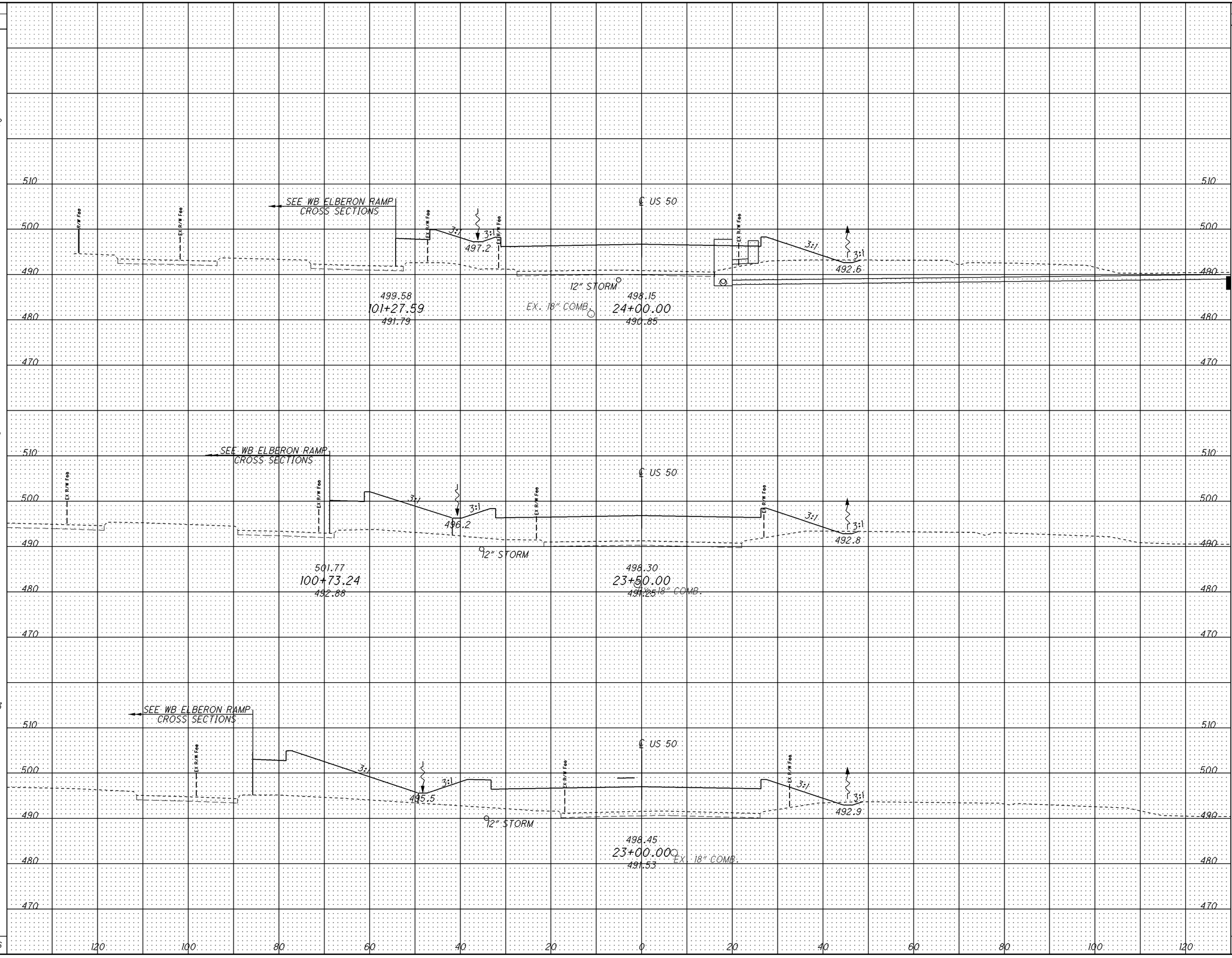
SEEDING	
END WIDTH	SQ. YDS.
42	222
	281
59	383
79	
	886

END AREA	
CUT	FILL
2	501
2	419
3	443

VOLUME	
CUT	FILL
6	991
4	852
5	798
15	2641

CALCULATED ABS
CHECKED NAH



U.S. 50 CROSS SECTIONS
STA. 23+00.00 TO STA. 24+00.00

HAM-50-18.79

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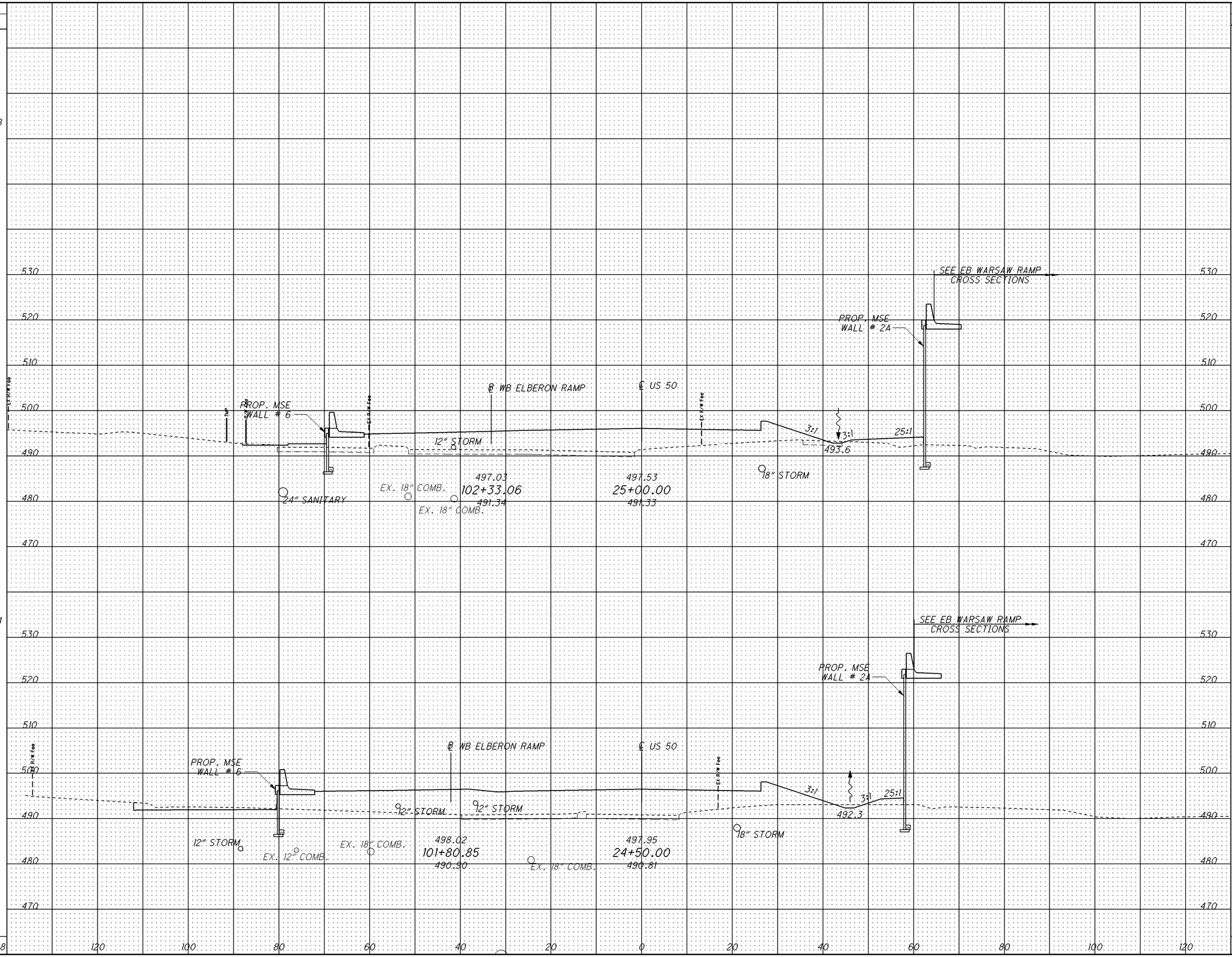
SEEDING	
END WIDTH	SQ. YDS.
	408
68	
	294
38	
	1,588

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		7	638
1	426		
		5	921
4	569		
		12	1559

CALCULATED ABS
CHECKED NAH



U.S. 50 CROSS SECTIONS
STA. 24+50.00 TO STA. 25+00.00

HAM-50-18.79

114
657

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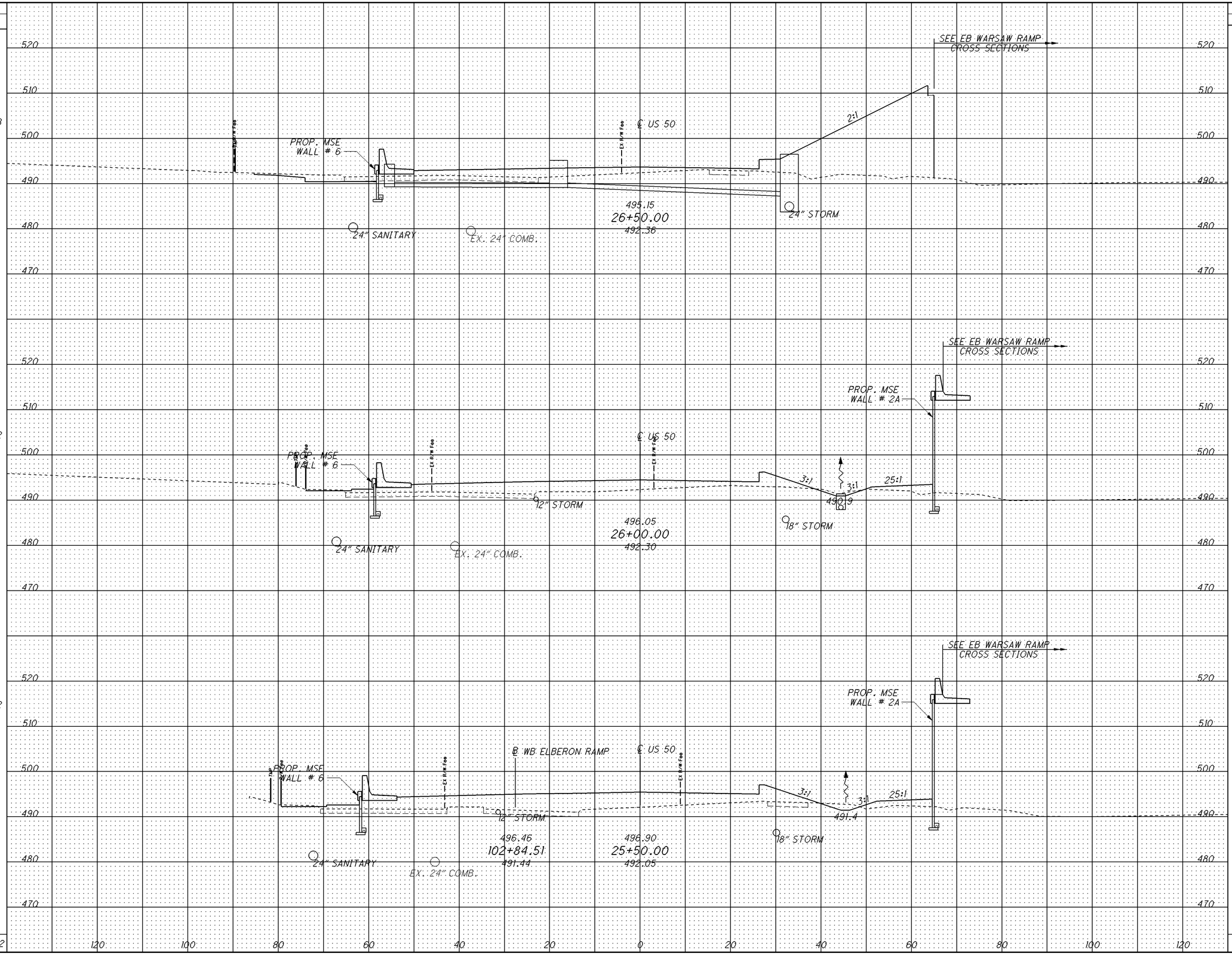
SEEDING	
END WIDTH	SQ. YDS.
43	228
80	342
79	442
	1,012



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		5	787
5	525		
		9	673
5	202		
		11	467
7	312		
		25	1927

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS STA. 25+50.00 TO STA. 26+50.00

HAM-50-18.79

115
657

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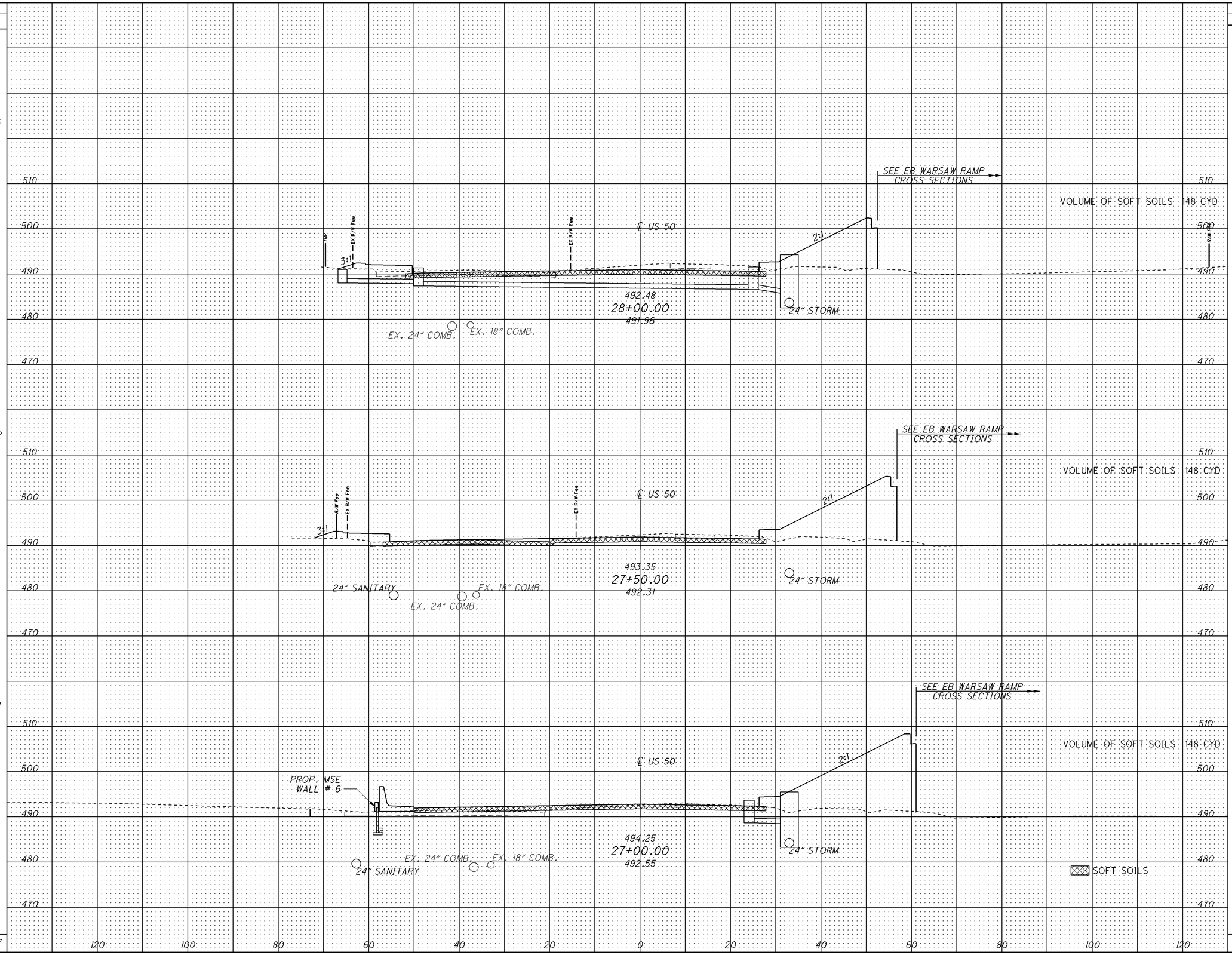
SEEDING	
END WIDTH	SQ. YDS.
40	186
	222
	219
39	
	627



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		156	444
		-148	-148
80	253		
		150	551
		-150	-154
83	342		
		149	690
		-145	-145
78	403		
		12	1238

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 27+00.00 TO STA. 28+00.00

HAM-50-18.79

116
657

I:\projects\HAM 20082\roadway\sheets\20082xs100.dgn 11-MAY-2011 1:01PM hossain

SEEDING	
END WIDTH	SQ. YDS.
17	86
20	103
27	131
	320

END AREA	
CUT	FILL
95	124
91	170
88	227

VOLUME	
CUT	FILL
238	266
-148	-148
172	272
-148	-148
165	367
-148	-148
131	461

CALCULATED ABS
CHECKED NAH

VOLUME OF SOFT SOILS 148 CYD

SEE EB WARSAW RAMP CROSS SECTIONS

℄ US 50

TMP

EX. R/W Fee

2:1

3:1

12" STORM

EX. 24" COMB.

EX. 18" COMB.

24" STORM

491.11
29+50.00
491.17

495.44
87+80.39
491.37

491.35
29+00.00
491.34

491.81
28+50.00
491.77

SOFT SOILS

510
500
490
480
470

120 100 80 60 40 20 0 20 40 60 80 100 120

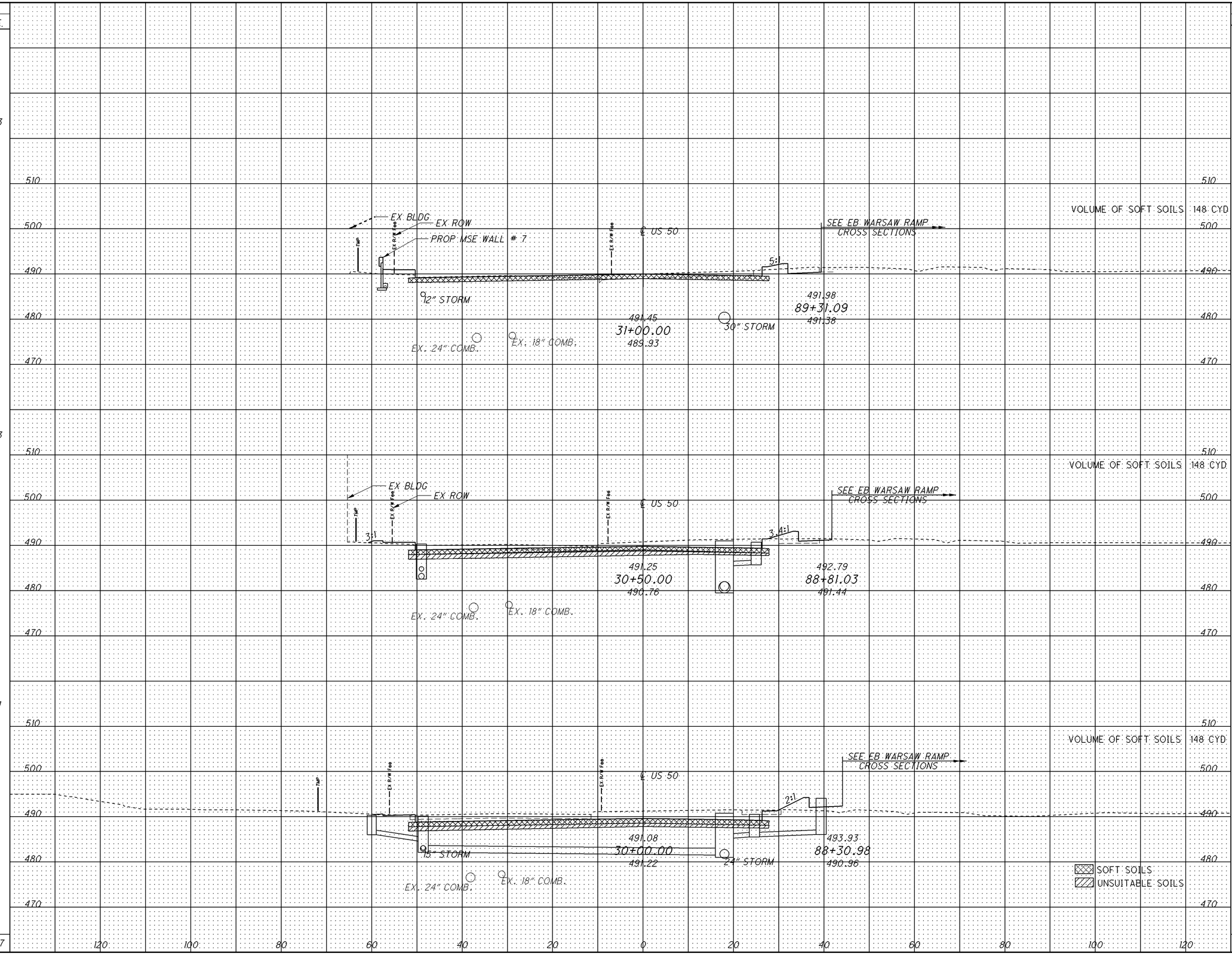
U.S. 50 CROSS SECTIONS
STA. 28+50.00 TO STA. 29+50.00

HAM-50-18.79

117
657

I:\projects\HAM-20082\roadway\sheets\20082xs100.dgn 11-MAY-2011 1:01PM hossain

SEEDING	
END WIDTH	SQ. YDS.
15	83
	83
	81
15	
14	
	247



END AREA	
CUT	FILL
80	101
165	172
162	163

VOLUME	
CUT	FILL
194	210
-148	-148
227	253
-148	-148
302	310
-148	-148
279	329

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 30+00.00 TO STA. 31+00.00

HAM-50-18.79

118
657

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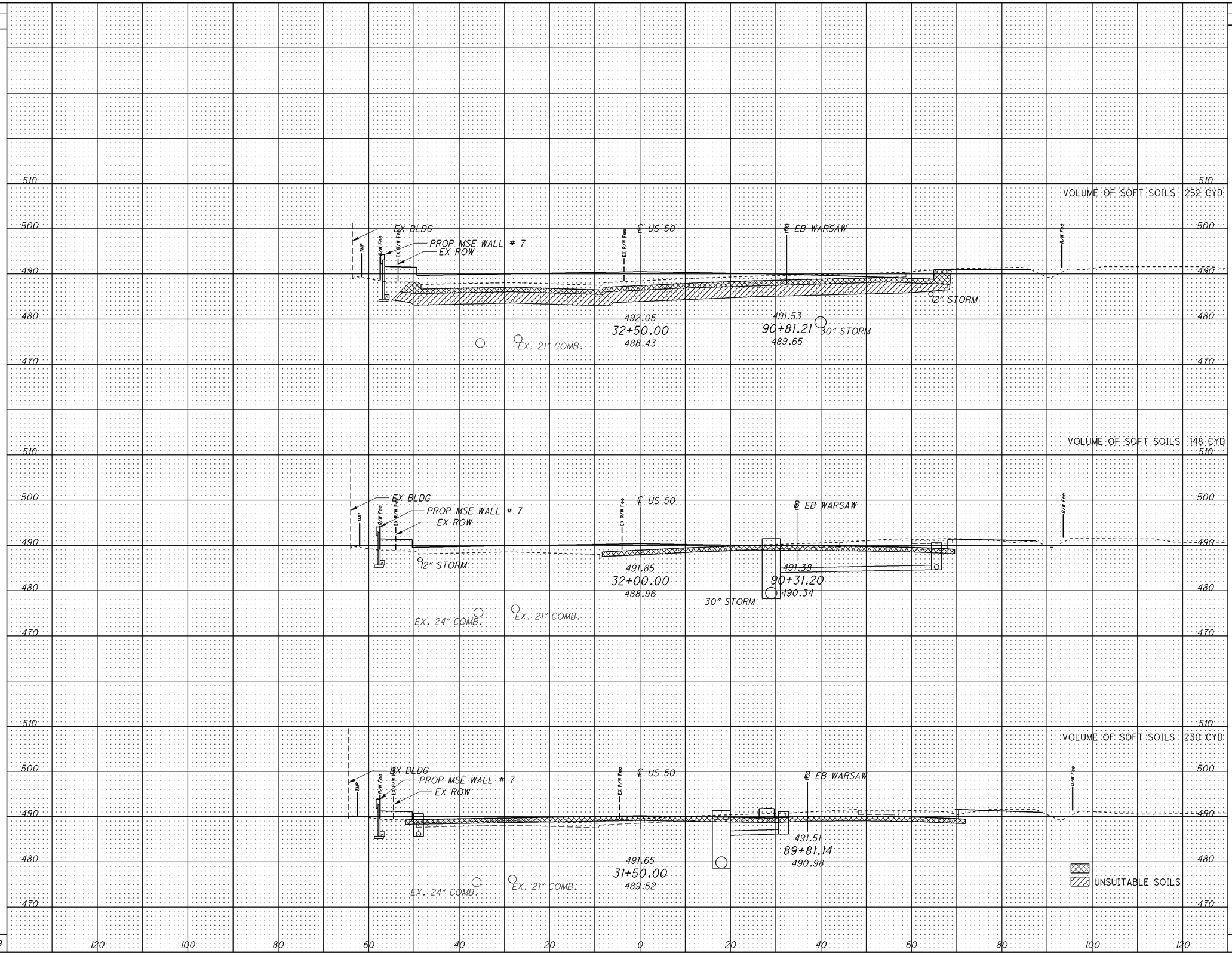
SEEDING	
END WIDTH	SQ. YDS.
15	83
15	83
15	83
	249



END AREA	
CUT	FILL
448	433
93	80
129	126

VOLUME	
CUT	FILL
951	926
-252	-252
500	484
-148	-148
230	230
-230	-230
1051	1010

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 31+50.00 TO STA. 32+50.00

HAM-50-18.79

119
657

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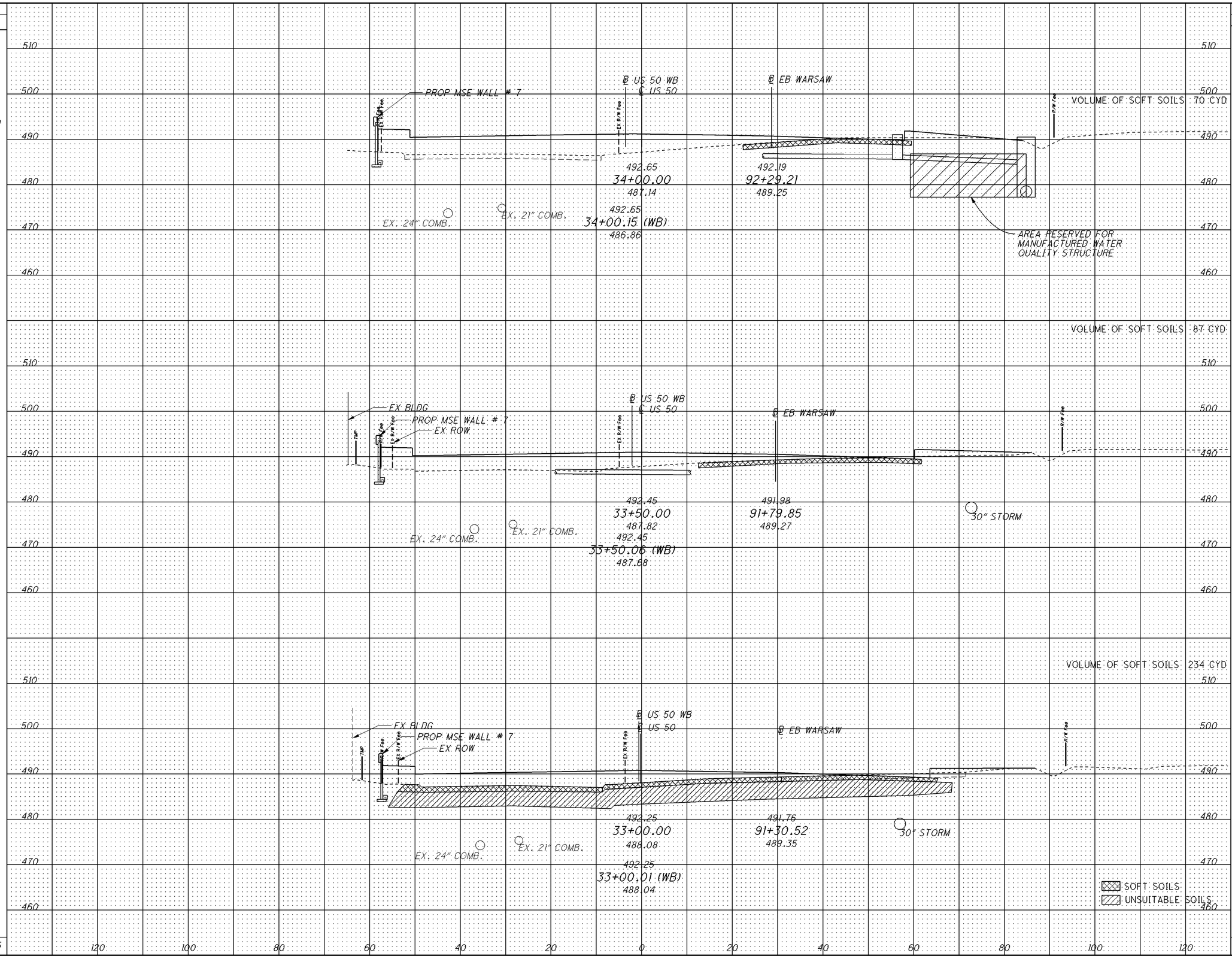
SEEDING	
END WIDTH	SQ. YDS.
15	169
15	83
15	83
15	
	335



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		72	513
		-70	-70
63	44		
		116	91
		-87	-87
63	54		
		594	575
		-234	-243
579	567		
		391	779

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS STA. 33+00.00 TO STA. 34+00.00

HAM-50-18.79

120
657

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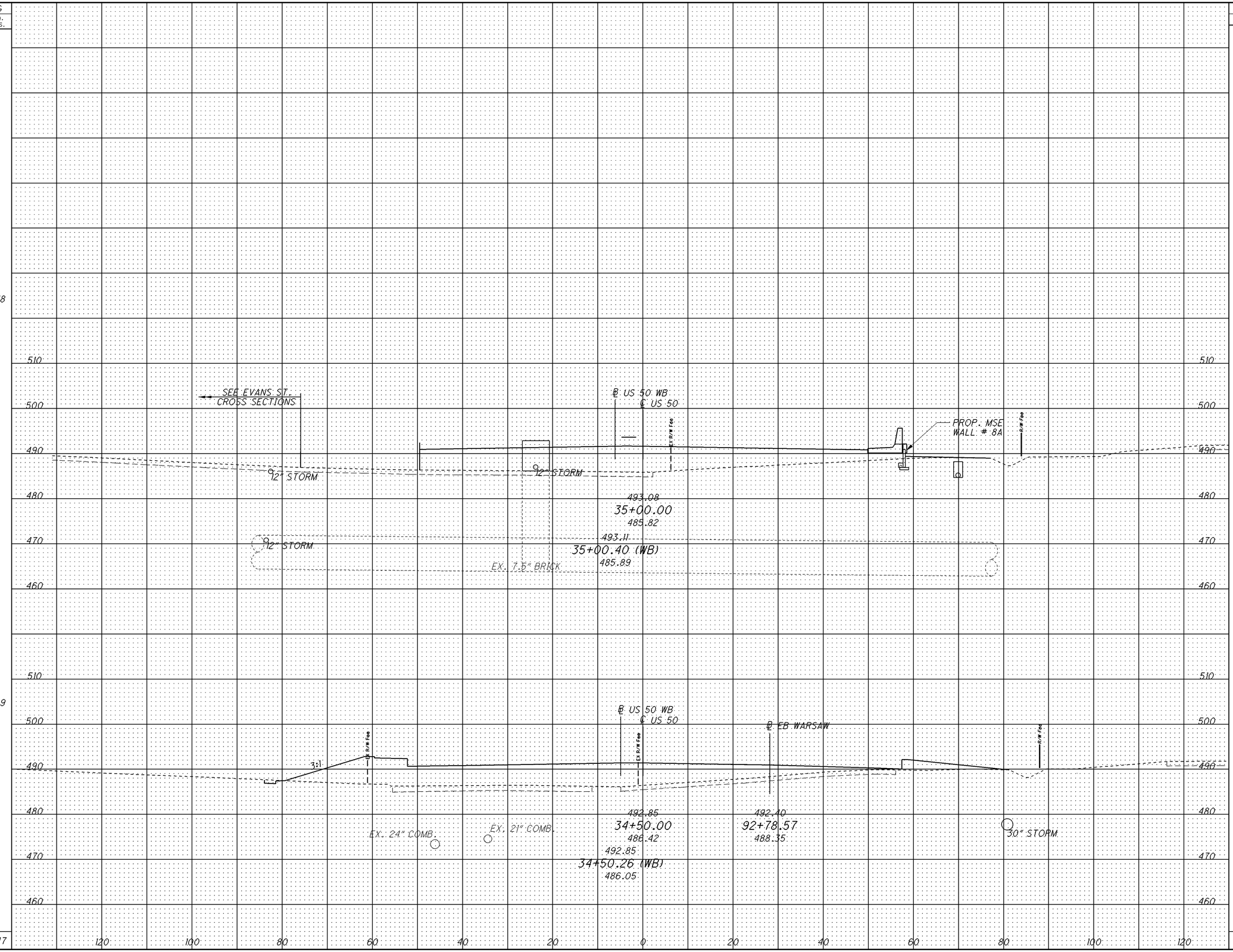
SEEDING	
END WIDTH	SQ. YDS.
	178
15	
	169
46	
	347



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		26	1056
8	474		
		21	911
15	510		
		47	1967

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 34+50.00 TO STA. 35+00.00

HAM-50-18.79

121
657

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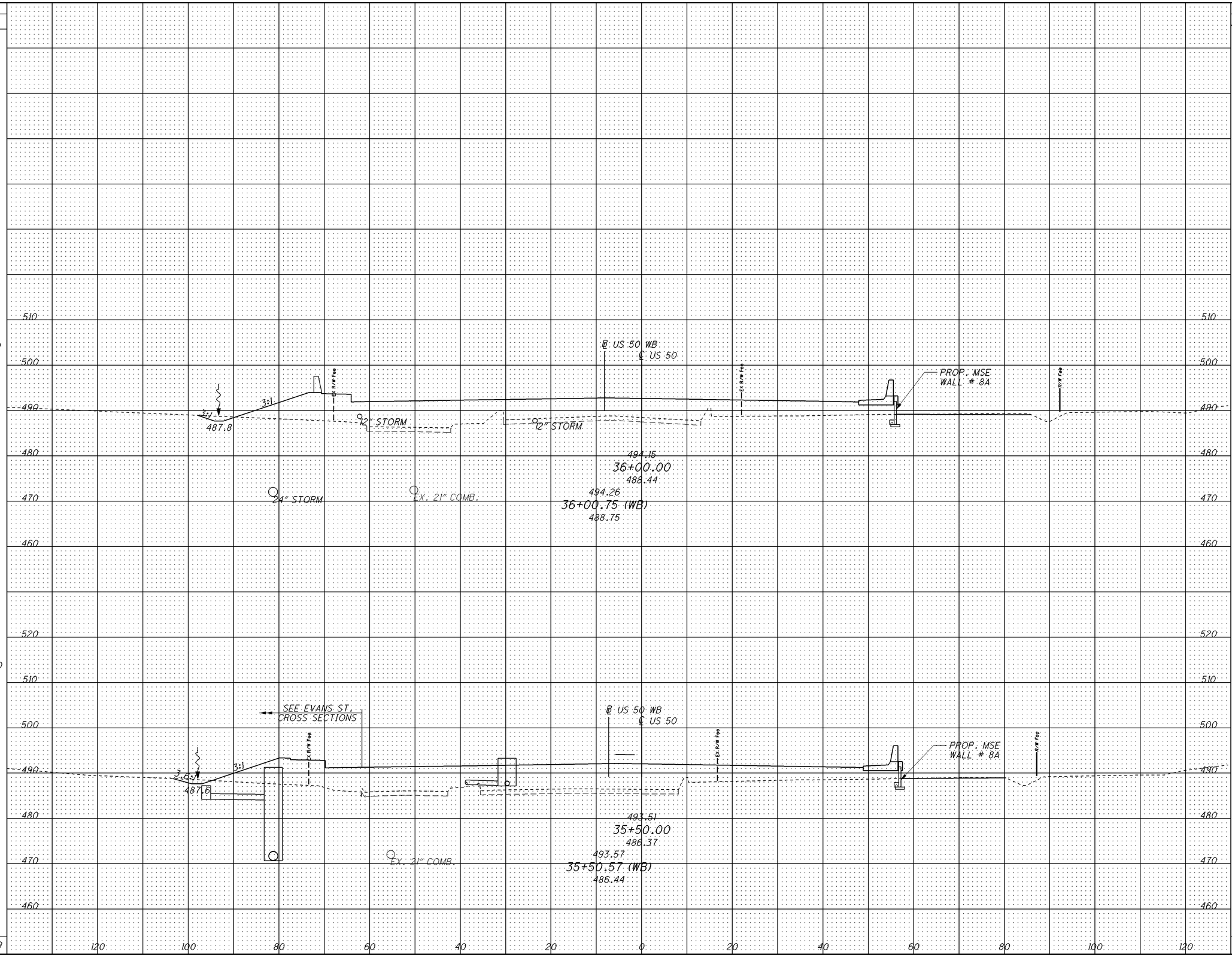
SEEDING	
END WIDTH	SQ. YDS.
41	189
49	250
	439

END AREA	
CUT	FILL
10	601
20	666

VOLUME	
CUT	FILL
14	1006
28	1173
42	2181

CALCULATED ABS
CHECKED NAH



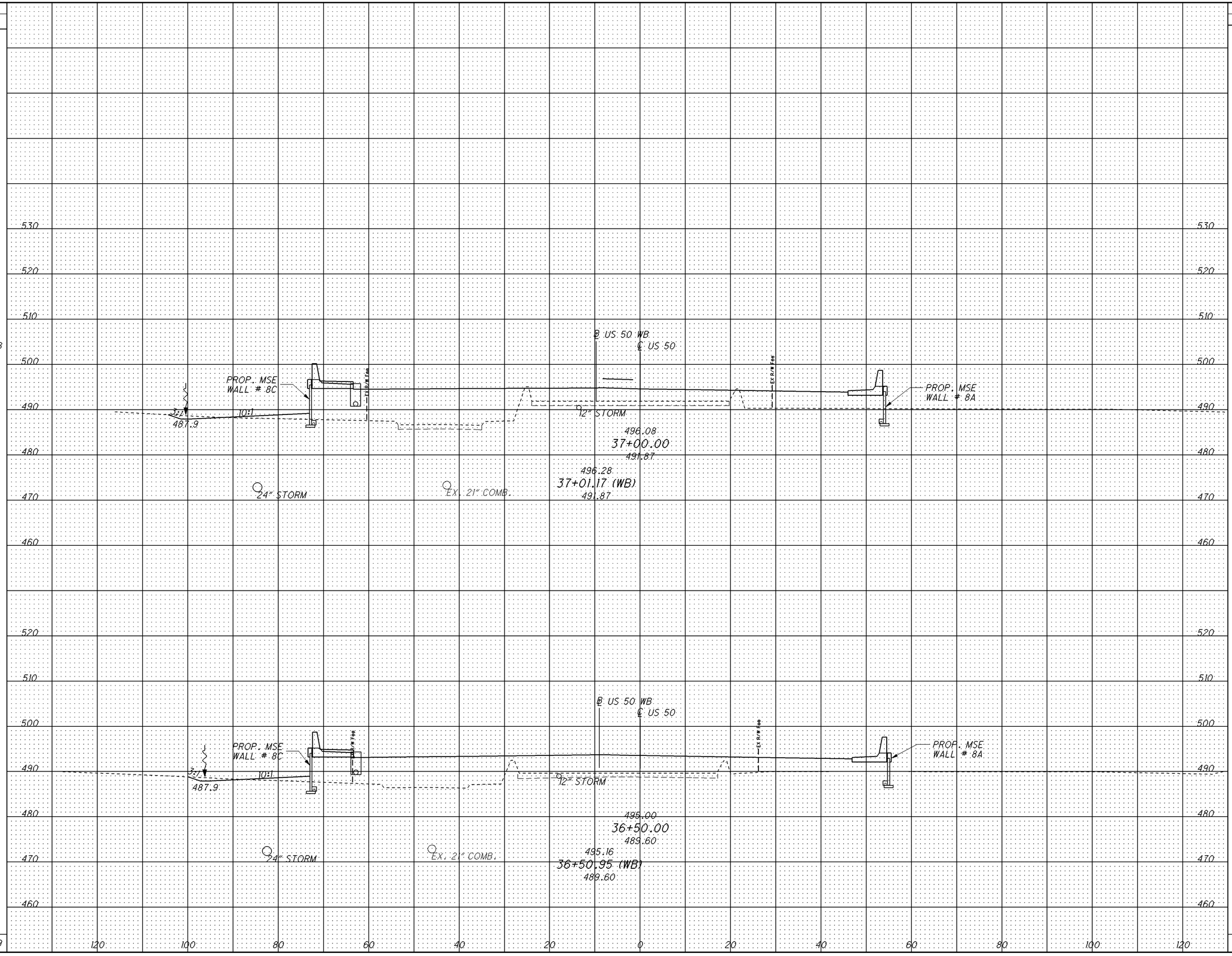
U.S. 50 CROSS SECTIONS STA. 35+50.00 TO STA. 36+00.00

HAM-50-18.79

122
657

I:\projects\HAM\20082\roadway\sheets\20082xs100.dgn 11-MAY-2011 1:01PM hossain

SEEDING	
END WIDTH	SQ. YDS.
	208
	38
	181
	27
	389



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		10	875
5	493		
		9	920
5	486		
		19	1795

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 36+50.00 TO STA. 37+00.00

HAM-50-18.79

123
657

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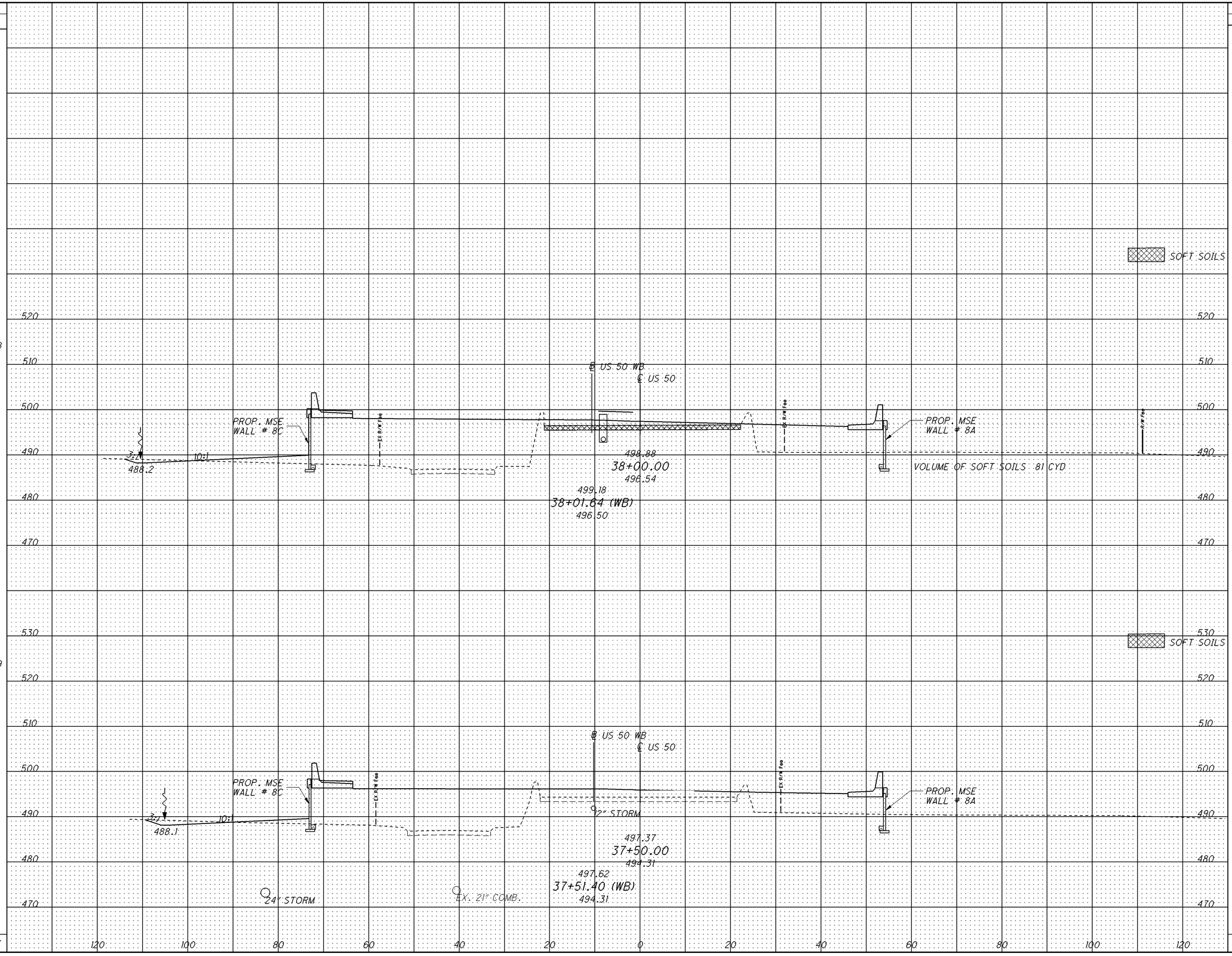
SEEDING	
END WIDTH	SQ. YDS.
49	278
	239
37	
	517



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		256	1206
		-81	-81
51	580		
		97	995
		-40	-40
11	452		
		232	2080

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS
STA. 37+50.00 TO STA. 38+00.00

HAM-50-18.79

124
657

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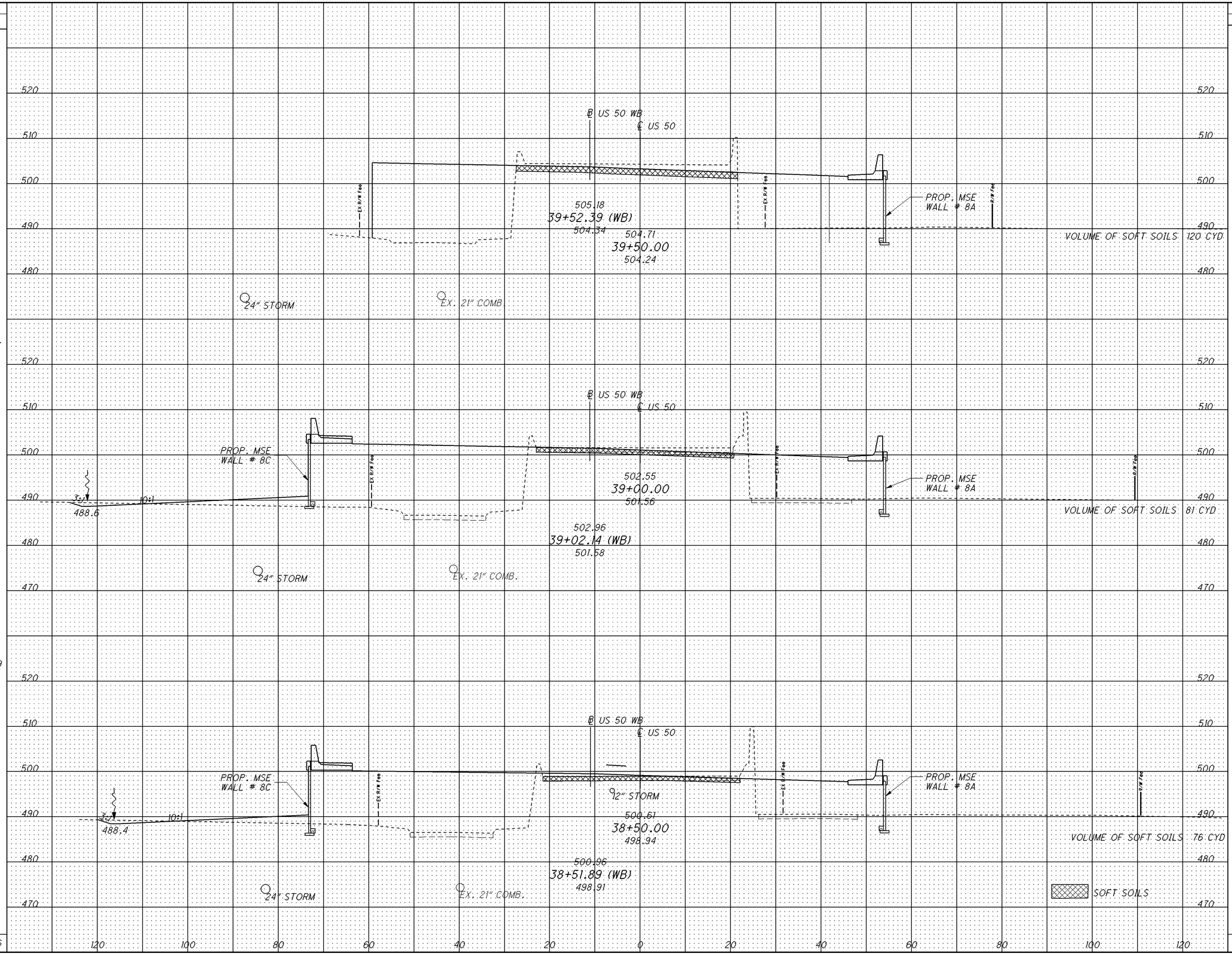
SEEDING	
END WIDTH	SQ. YDS.
0	147
53	289
51	436



END AREA		VOLUME	
CUT	FILL	CUT	FILL
138	635		
		-120	-120
		258	1341
108	792		
		187	1352
		-81	-81
144	706		
		133	2350
		-76	-76
		301	4766

CALCULATED ABS
CHECKED NAH

U.S. 50 CROSS SECTIONS STA. 38+50.00 TO STA. 39+50.00

HAM-50-18.79

125
657

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EASTBOUND ELBERON
CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24' 59" (RT)
Dc = 7° 18' 11"
R = 784.56'
T = 265.68'
L = 512.35'
E = 43.77'
emax = 0.046

EX CONC
452 - 6" NON-REINFORCED CONCRETE PAVEMENT
5" CONCRETE WALK
CURB, TYPE 6
DROPPED CURB AS PER BP-4.1

RESIDENTIAL DRIVE
STATION 44+27.16, RT (ELBERON AVE)=
STATION 50+40.00, RT (EB ELBERON RAMP)

POT Sta. 90+00.00
POT Sta. 43+00.00
℄ CONST. PROP. ELBERON AVE.
℄ CONST. PROP. ELBERON WB RAMP
℄ CONST. PROP. ELBERON EB RAMP
℄ CONST. PROP. MARYLAND AVE.
CONST. LIMITS
EX. WALL TO REMAIN
MSE WALL #4
RC Sta. 50+00.00
RC Sta. 46+30.37
RC Sta. 92+80.84
STA. 53+00.00
MATCH LINE
BEGIN WORK STA. 50+00.00
151-0001-0059-90
40.00 RES. DR. SEE DETAIL THIS SHEET
N 47° 55' 08" E
135', 18"-B
92', 12"-B
49', 12"-B
57', 12"-B
21', 12"-B
HAM-264-1457

*NOTE:
SEE SHEET 240 FOR GUARDRAIL DETAILS

NOTE:
FOR PROPOSED DRAINAGE
SEE SHEET 201

FOR PROFILE SEE SHEET 127

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (EB ELBERON RAMP)
BEGIN WORK TO STA. 53+00.00

HAM-50-18.79

126
657

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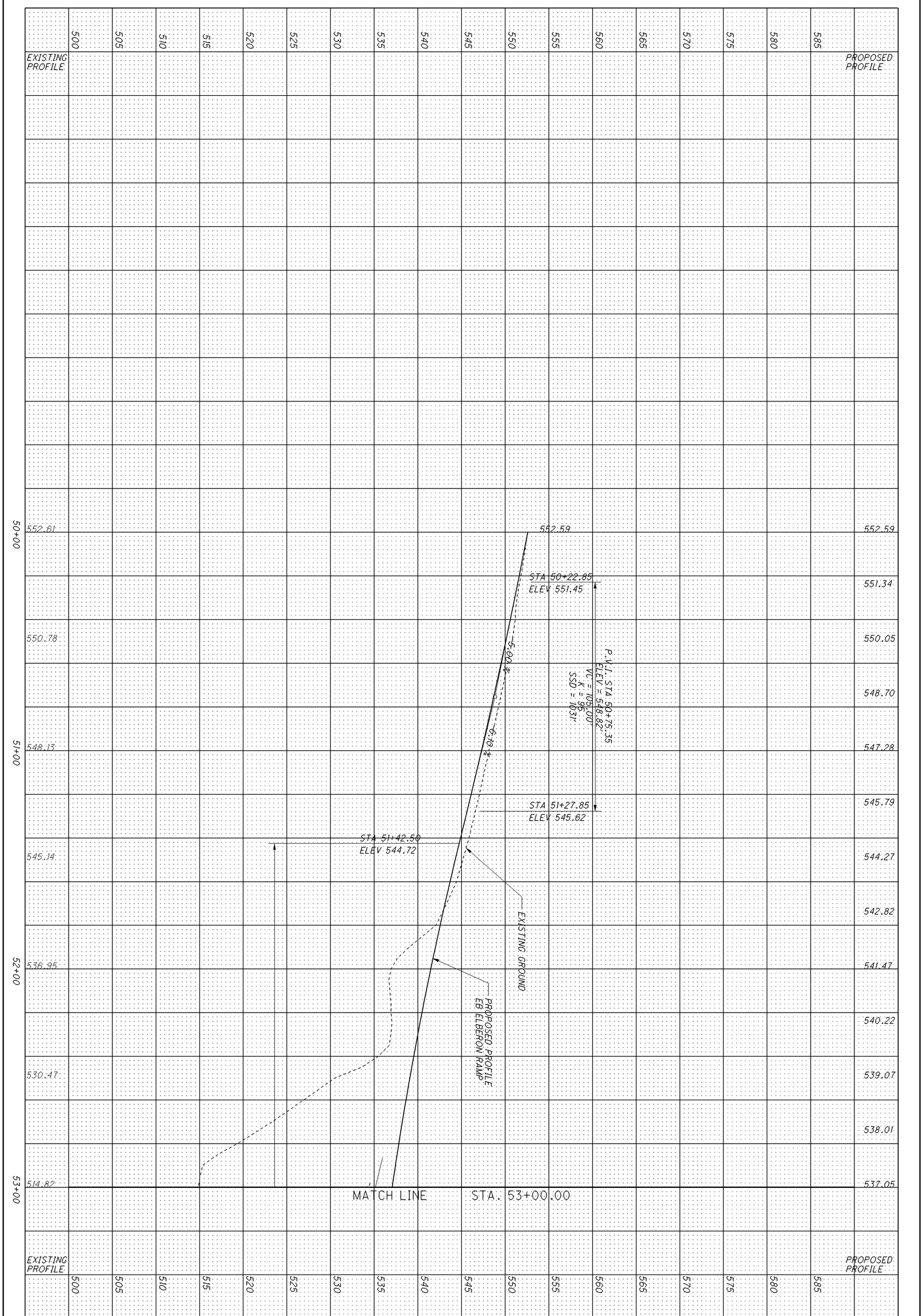
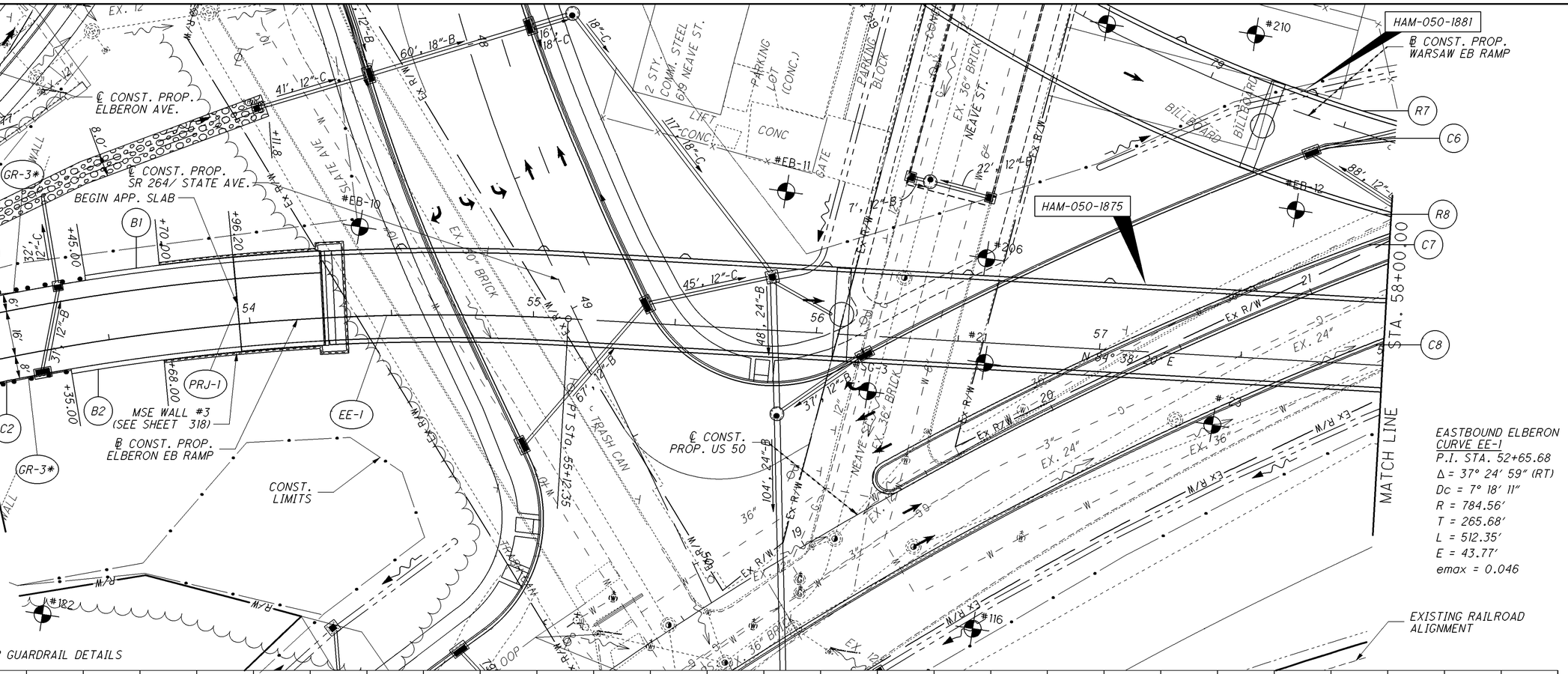


127 / 657	**HAM-50-18.79**	**PROFILE (EB ELBERON RAMP)** **BEGIN WORK TO STA. 53+00.00**	CALCULATED MH CHECKED AS



FOR PROFILE SEE SHEET 129

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (EB ELBERON RAMP)
STA. 53+00.00 TO STA. 58+00.00

HAM-50-18.79

128
657

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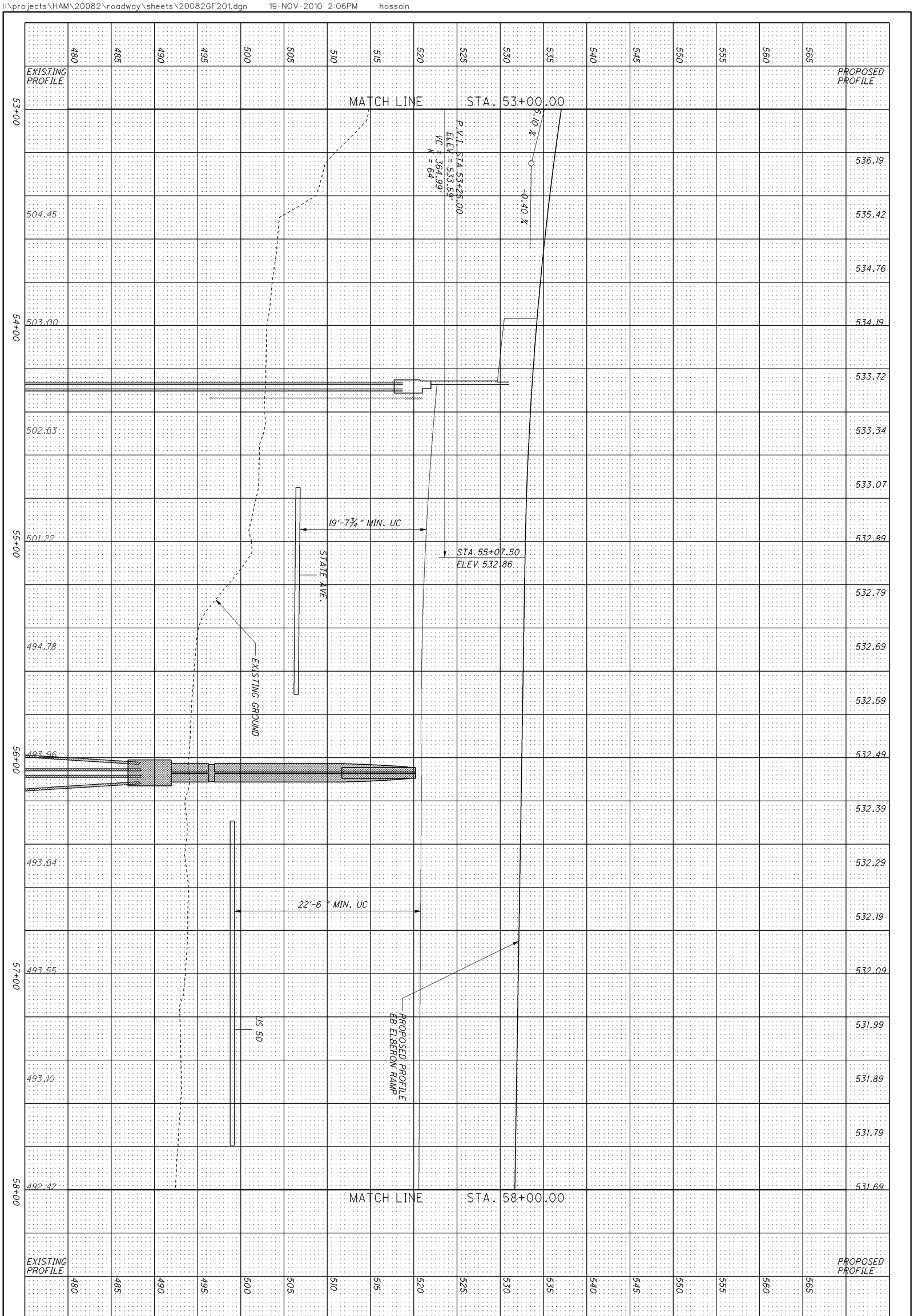

129 / 657	**HAM-50-18.79**	**PROFILE (EB ELBERON RAMP)** **STA. 53+00.00 TO STA. 58+00.00**	CALCULATED MH CHECKED AS

EASTBOUND ELBERON
RAMP CURVE EE-2
P.I. STA. 60+00.50
Δ = 8° 06' 39" (LT)
Dc = 4° 24' 27"
R = 1300.00'
T = 92.1677'
L = 184.0274'
E = 3.7632'
e MAX = 0.036

HAM-050-1881

STA. 58+00.00

MATCH LINE

CONST. LIMITS

EXISTING RAILROAD ALIGNMENT

HAM-050-1875

EE-2

PT Sta. 60+92.36

PRJ-1

B1

℄ CONST. PROP. ELBERON EB RAMP

POT Sta. 62+77.26

℄ CONST. PROP. WARSAW EB RAMP

℄ CONST. PROP. US 50

MSE WALL #2 (SEE SHEET 310)

TARGET #4

PILE

APP. SLAB +191.64

N 76° 31' 42" E

*NOTE:
SEE SHEET 239 FOR GUARDRAIL DETAILS

NOTE:
FOR PROPOSED DRAINAGE SEE SHEET 198

FOR PROFILE SEE SHEET 131

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (EB ELBERON RAMP)
STA. 58+00.00 TO STA. 62+77.26

HAM-50-18.79

130
657

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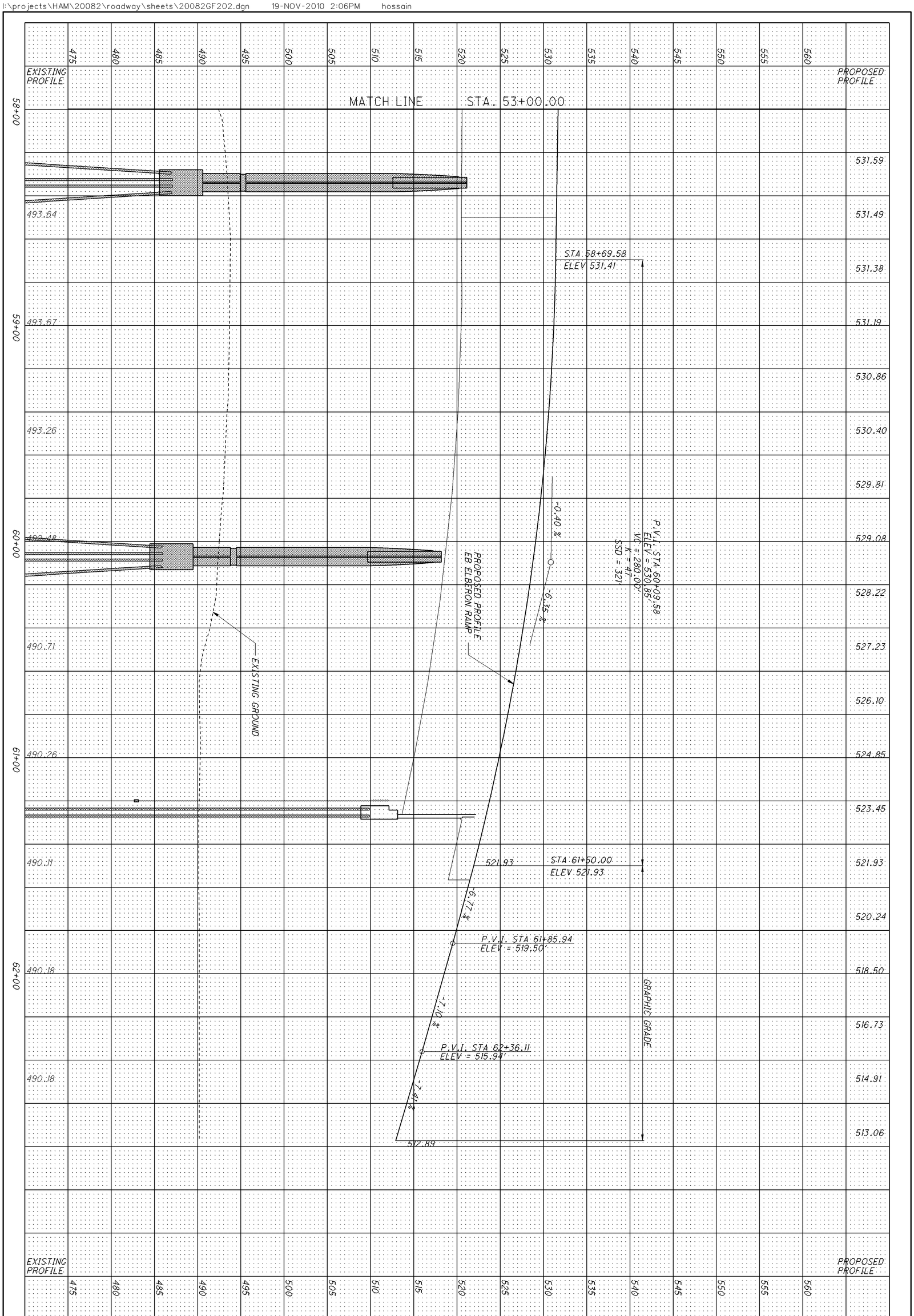


131 / 657	**HAM-50-18.79**	**PROFILE (EB ELBERON RAMP)** **STA. 58+00.00 TO STA. 62+77.26**	CALCULATED MH CHECKED AS

SEEDING	
END WIDTH	SQ. YDS.
102	619
	329
89	
	948

END AREA	
CUT	FILL
82	1406
0	1004

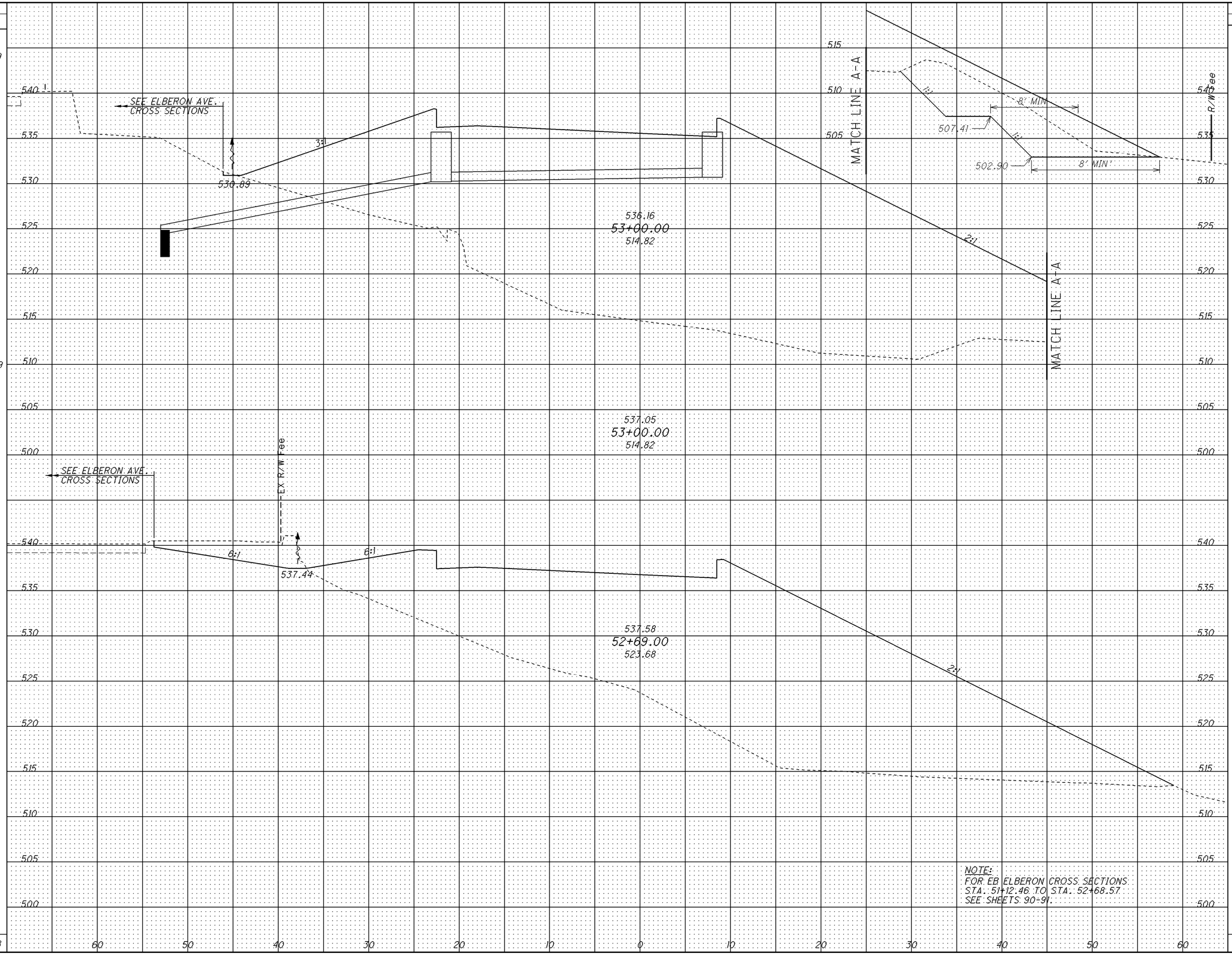
VOLUME	
CUT	FILL
47	1384
47	1384

CALCULATED JMR
CHECKED ABS

EB ELBERON RAMP CROSS SECTIONS
STA. 52+69.00 TO STA. 53+00.00

HAM-50-18.79

132
657



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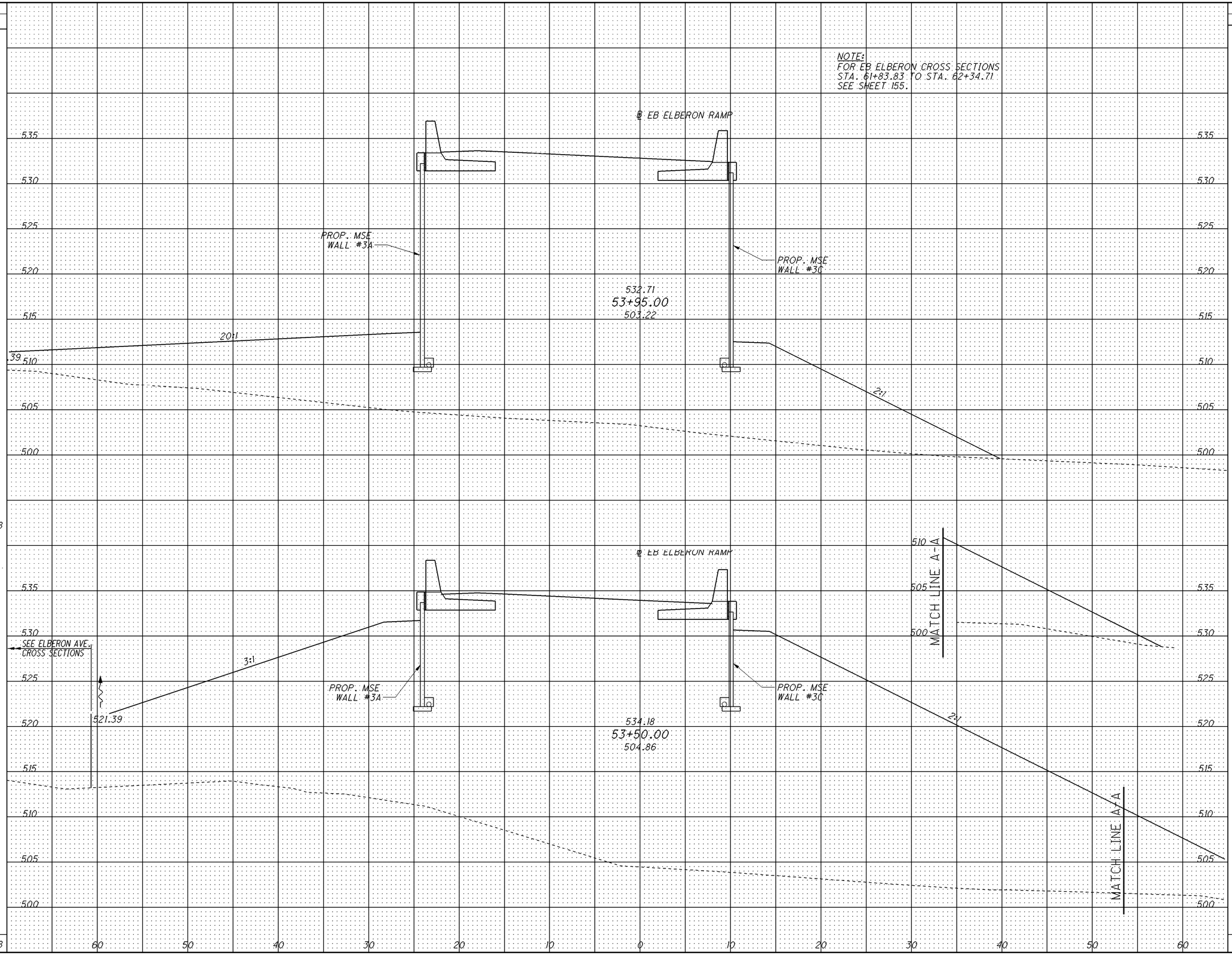
SEEDING	
END WIDTH	SQ. YDS.
82	
121	
508	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	1390		
		0	3117
0	2350		
		76	3478
		1	6595

CALCULATED JMR
CHECKED ABS

EB ELBERON RAMP CROSS SECTIONS
STA. 53+50.00 TO STA. 53+95.00

HAM-50-18.79

133
657

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NOTE:
FOR PROPOSED DRAINAGE SEE SHEET 201

BEGIN WORK STA. 90+00.00

POT Sta. 90+00.00

EX. WALL TO REMAIN

MSE WALL #4 SEE SHEÉT 327

APP. SLAB

CONST. LIMITS

℄ CONST. PROP. ELBERON WB RAMP

HAM-264-1457

℄ CONST. PROP. MARYLAND AVE.

℄ CONST. PROP. ELBERON AVE.

ELBERON AVE. EX. 18" 135', 18"-B

EX. 18"

EX. 12"

N 4°-55' 08" E 21', 12"-B

92', 12"-B

49', 12"-B

57', 12"-B

82', 12"-B

32', 12"-C

MARYLAND AVE. EX. 5 BRICK

PIER

STEPS

HANDRAIL

RAIL

WALL

BILLBOARD

GRAVEL

STUMP

STUMPS

FLOWER BED

CONC.

MSE WALL #3

WB ELBERON STA. 93+83.94 = ELBERON AVE STA. 47+77.83

MATCH LINE STA. 94+00.00

WESTBOUND ELBERON RAMP CURVE EW-1
P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'
e MAX = 0.050

FOR PROFILE SEE SHEET 135

HORIZONTAL SCALE IN FEET
0

CALCULATED MH
CHECKED AS

PLAN (WB ELBERON RAMP)
BEGIN WORK TO STA. 94+00.00

HAM-50-18.79

134
657

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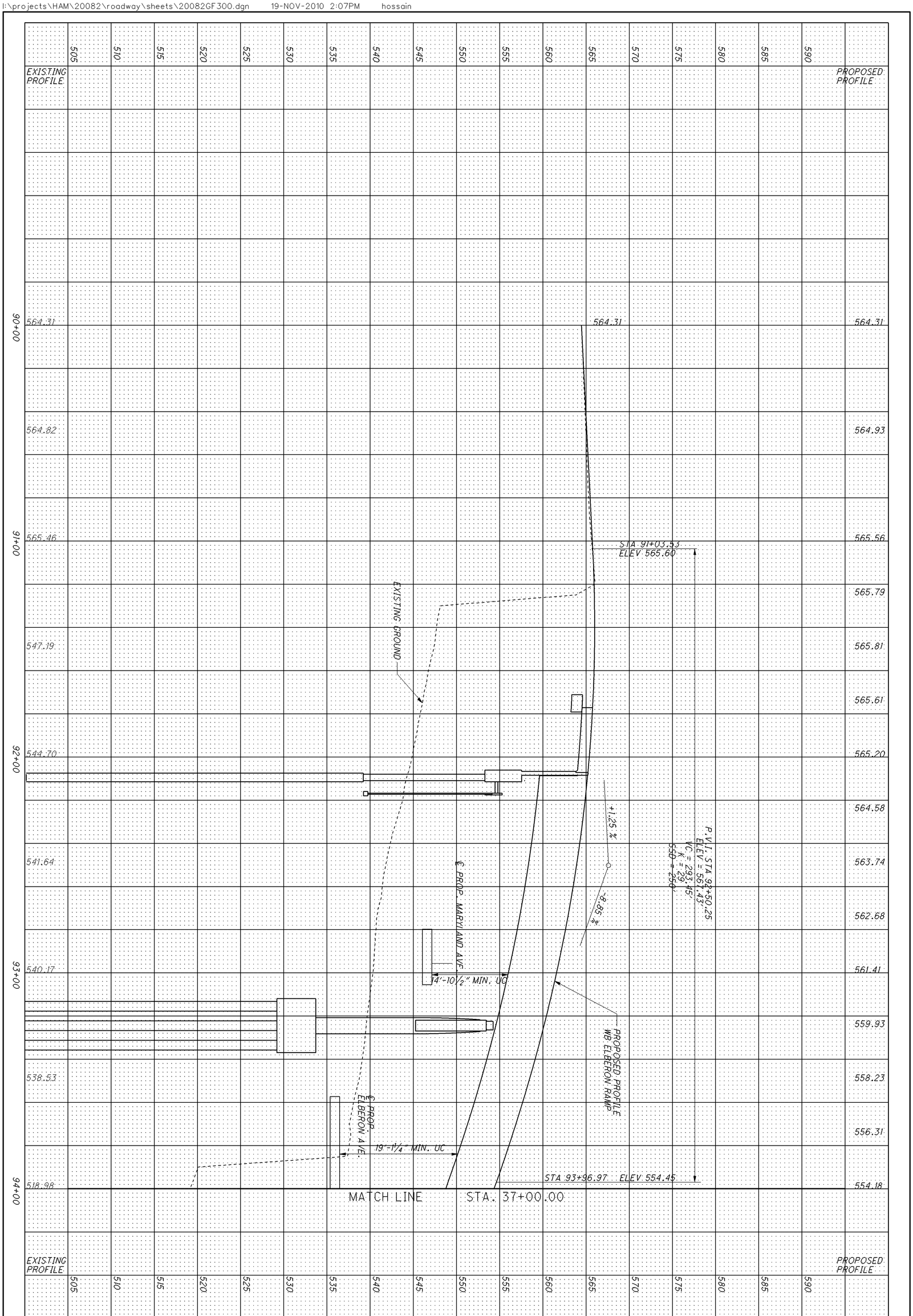
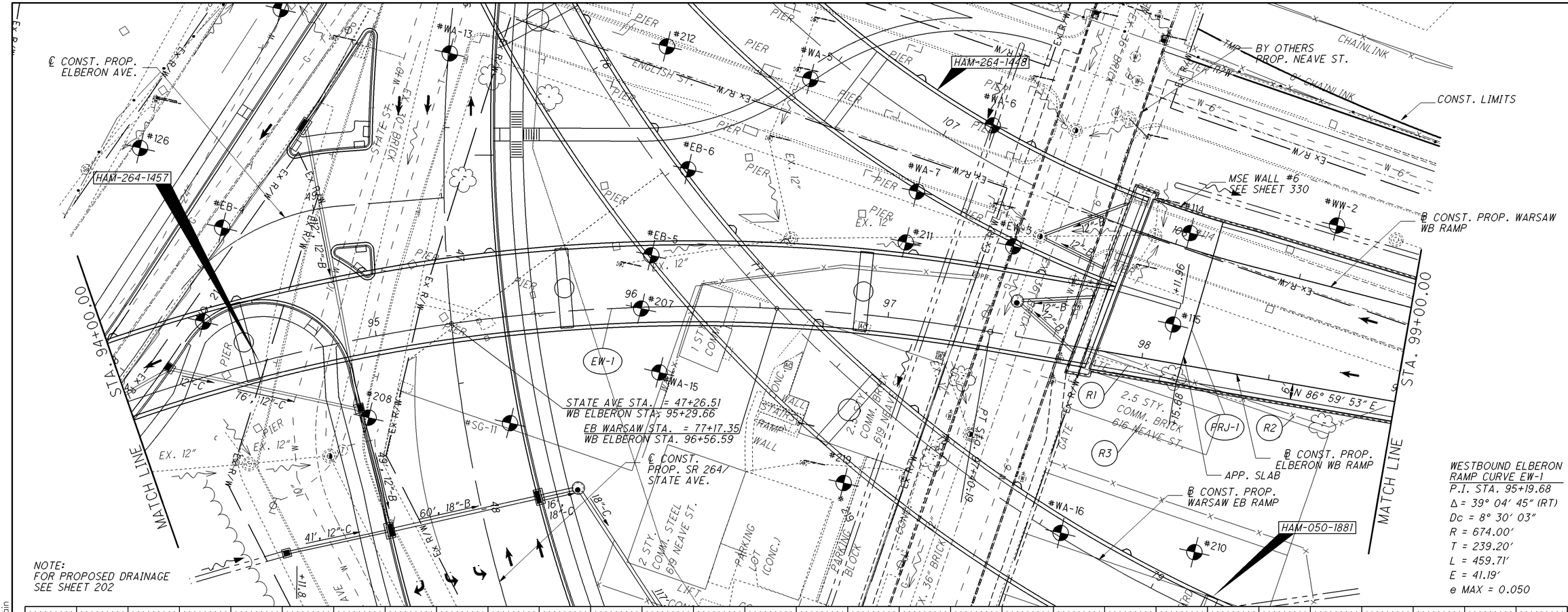


135 / 657	HAM-50-18.79	PROFILE (WB ELBERON RAMP) BEGIN WORK TO STA. 94+00.00	CALCULATED MH CHECKED AS



WESTBOUND ELBERON RAMP CURVE EW-1
P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'
e MAX = 0.050

FOR PROFILE SEE SHEET 137

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (WB ELBERON RAMP) STA. 94+00.00 TO STA. 99+00.00

HAM-50-18.79

136
657

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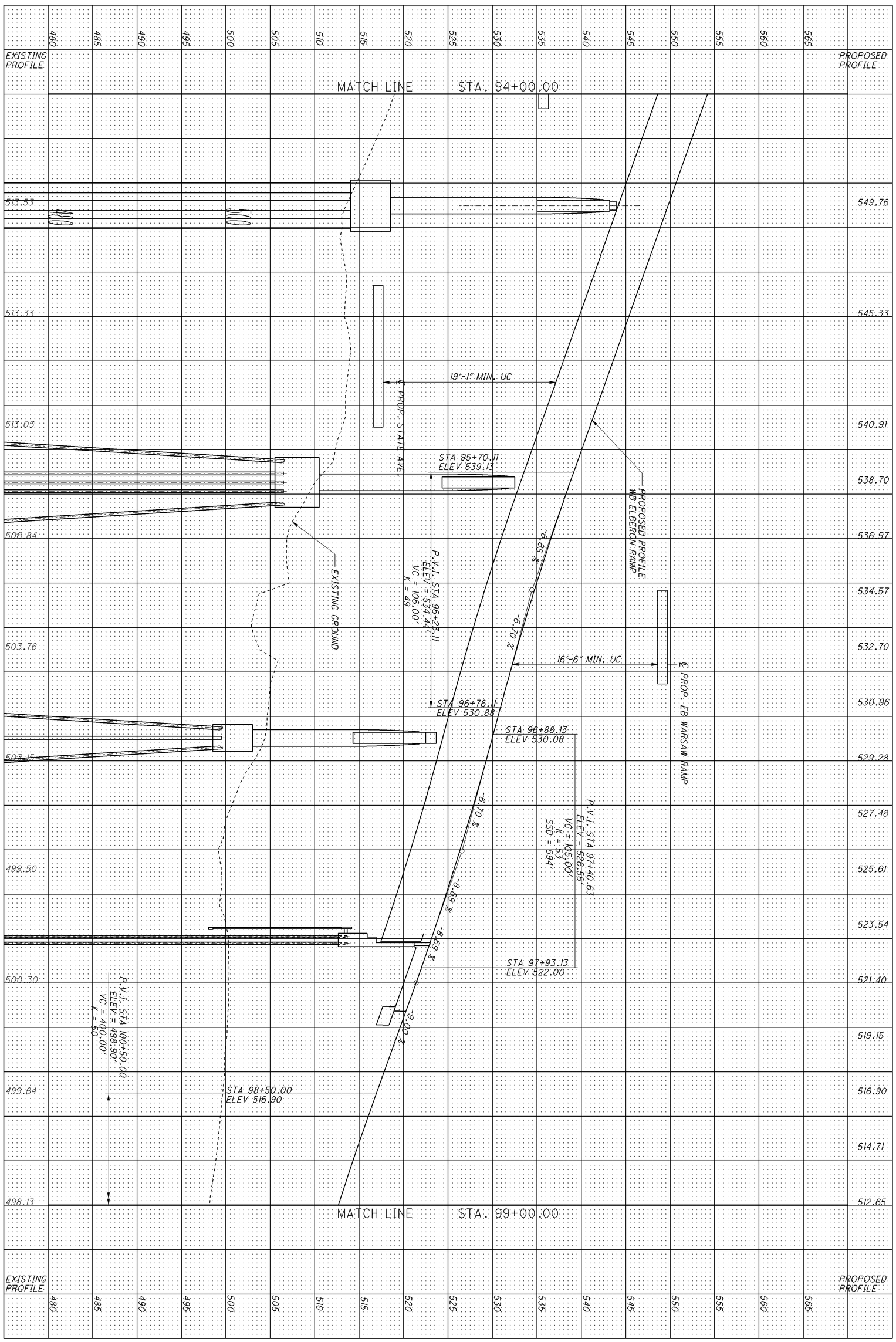

137 / 657	**HAM-50-18.79**	**PROFILE (WB ELBERON RAMP)** **STA. 94+00.00 TO STA. 99+00.00**	CALCULATED MH CHECKED AS

WESTBOUND ELBERON RAMP CURVE EW-2
P.I. STA. 102+62.93
Δ = 5° 21′ 39″ (LT)
Dc = 2° 30′ 00″
R = 2,291.83′
T = 107.29′
L = 214.43′
E = 2.51′
e MAX = N/C

*NOTE:
SEE SHEET 240 FOR GUARDRAIL DETAILS
NOTE:
FOR PROPOSED DRAINAGE SEE SHEET 198

AT STA. 109+34.03 WB WARSAW = STA. 88+38.92 WB ELBERON

MATCH LINE STA. 99+00.00

℄ CONST. PROP. WARSAW WB RAMP

℄ CONST. PROP. ELBERON RAMP

℄ CONST. PROP. US 50

CONST. LIMITS

MSE WALL #6 SEE SHEET 330

CURB RAMP TYPE B3

CURB RAMP TYPE A2

CURB RAMP TYPE A2

CHURCH ST.

1 STY. RES. BRICK 610 CHURCH

1 STY. COMM. CONC./BRICK 611 BURNS ST.

1 STY. POWER BRICK 611 BURNS ST.

ASPHALT

CONC

PRIVATE SIGN

EX. 12"

EX. 36"

EX. 24"

EX. 18"

EX. 15"

EX. 8"

TMP R/W

EX R/W

EX R/W

M/R EX

97', 12"-C

212', 18"-B

202', 12"-B

23', 12"-B

206', 12"-B

53', 24"-

219', 18"-B

50', 12"-C

170', 12"-C

83', 12"-B

7', 12"-B

26', 12"-B

100

101

102

103

99

25

26

23

24

#SG-9

#SG-4

#309

#84

#EW-2

#EB-14

#WA-17

#113

#11

#10

#9

#8

R1 R2 R3 R4 R5 R6 R7 R8 C1 SW1 EW-2 GR-4* GR-4*

PROPOSED PROFILE
EXISTING PROFILE

510.71 508.90 507.20 505.64 504.20 502.88 501.69 500.62 499.68 498.86 498.16 497.59 497.14 496.82 496.22 495.40 495.05

496.91 495.59 493.92 492.30 491.36 491.02 491.97 491.36 491.35

510 505 500 495 490 485 480

99+00 100+00 101+00 102+00 103+00

GRAPHIC GRADE

PROPOSED PROFILE WB ELBERON RAMP

EXISTING GROUND

-9.00 % -1.04 % -1.04 % -1.58 % -1.75 %

P.V.I. STA 100+50.00
ELEV = 498.90′
VC = 400.00′
K = 50

STA 102+50.00
ELEV 496.82

P.V.I. STA 102+84.71
ELEV = 496.46′

P.V.I. STA 103+35.27
ELEV = 495.66′

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED MH CHECKED JMR

PLAN AND PROFILE (WB ELBERON RAMP) STA. 99+00.00 TO STA. 103+70.06

HAM-50-18.79

138 657

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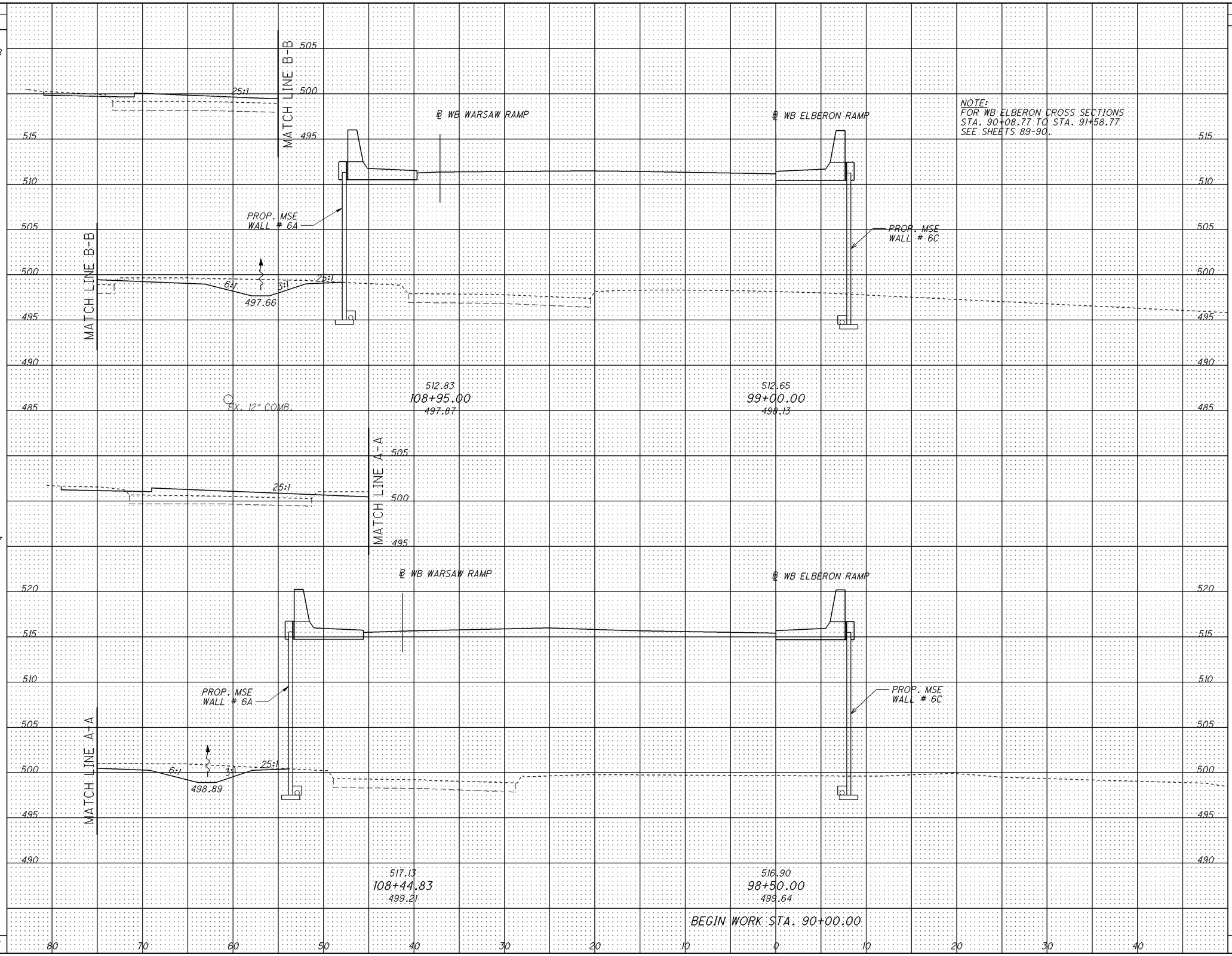
SEEDING	
END WIDTH	SQ. YDS.
43	228
	247
46	
	475



END AREA		VOLUME	
CUT	FILL	CUT	FILL
180	12		
		20	13
27	110		
		23	11
		43	24

CALCULATED JMR
CHECKED ABS

WB ELBERON RAMP CROSS SECTIONS STA. 98+50.00 TO STA. 99+00.00

HAM-50-18.79

139
657

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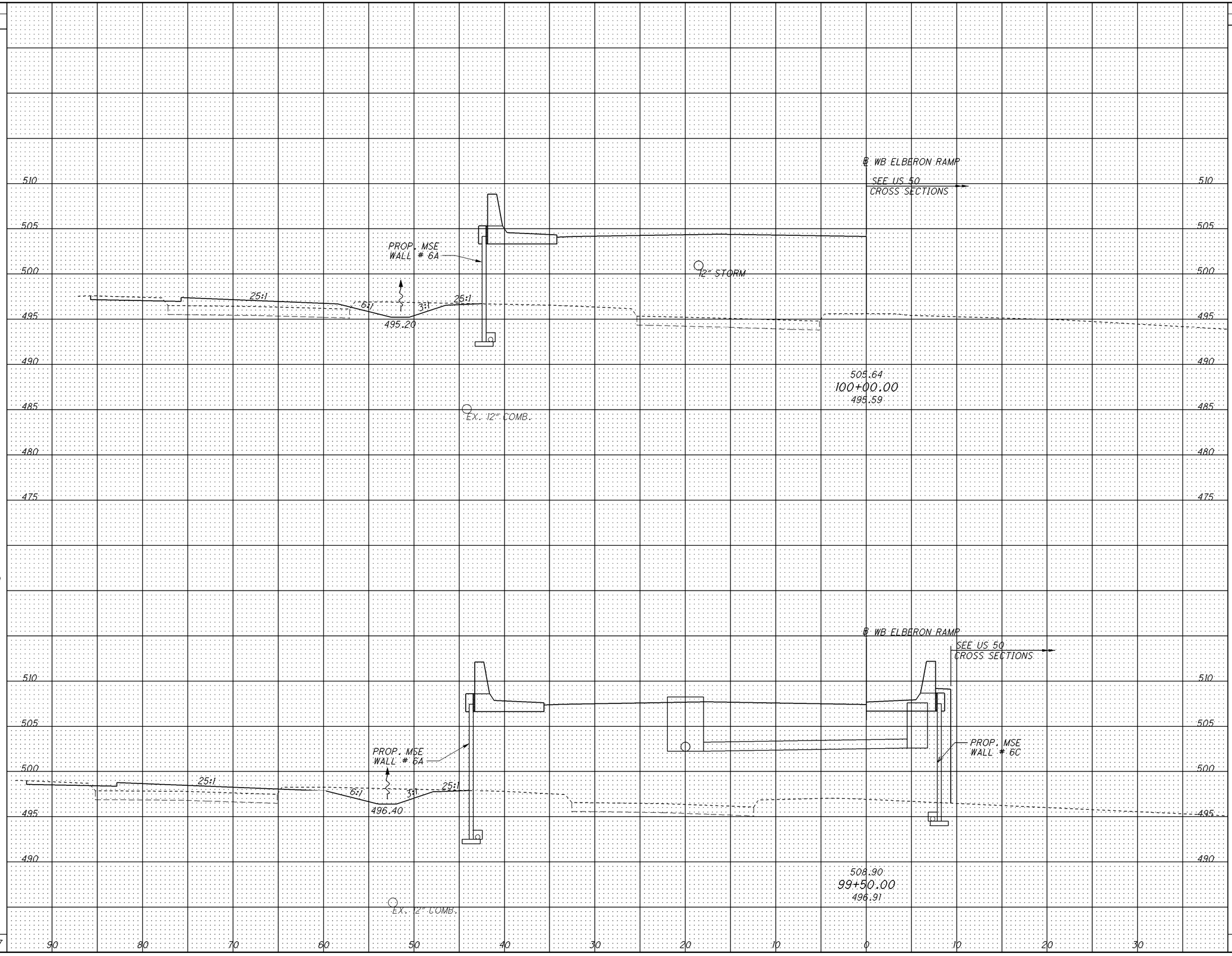
SEEDING	
END WIDTH	SQ. YDS.
	167
34	
	200
65	
	367



END AREA		VOLUME	
CUT	FILL	CUT	FILL
10	279		
		13	370
18	328		
		15	14
		28	384

CALCULATED JMR
CHECKED ABS

WB ELBERON RAMP CROSS SECTIONS
STA. 99+50.00 TO STA. 100+00.00

HAM-50-18.79

140
657

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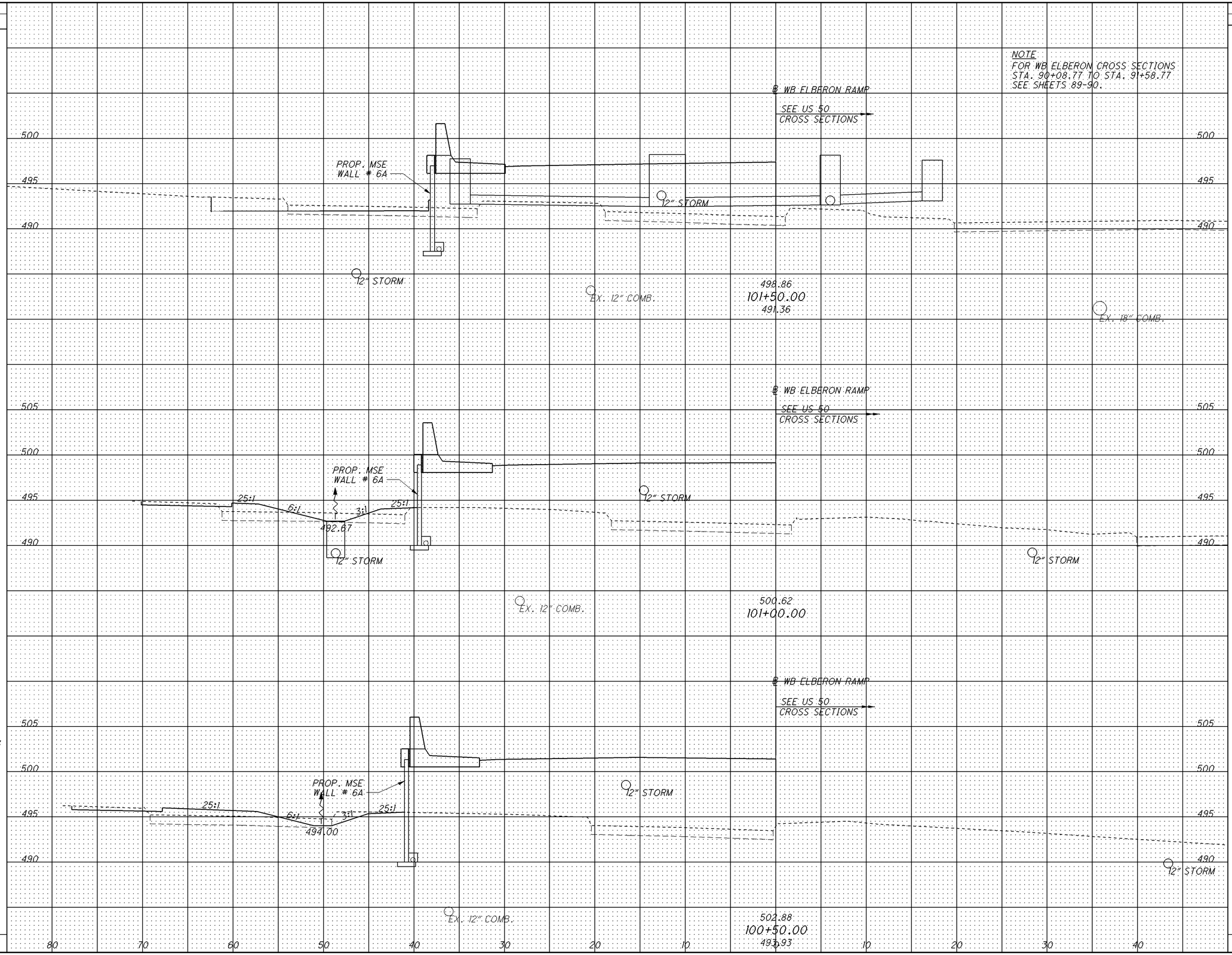
SEEDING	
END WIDTH	SQ. YDS.
0	58
	21
	133
	27
	191



END AREA		VOLUME	
CUT	FILL	CUT	FILL
20	140		
10	172		
10	218	2	181
		5	226
		7	285
		14	692

CALCULATED JMR
CHECKED ABS

WB ELBERON RAMP CROSS SECTIONS STA. 100+50.00 TO STA. 101+50.00

HAM-50-18.79

141
657

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EASTBOUND WARSAW
CURVE WE-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
eMAX = .054

NOTE:
FOR PROPOSED DRAINAGE SEE SHEET 203

MSE WALL #9
SEE SHEET 348

BEGIN WORK
STA. 70+00.00

CONST. LIMITS

Ex R/W

Ex 12" RCP

Ex 32" BRICK

Ex 54" BRICK

Ex 24", 30"-B

20' R/W

16' R/W

101

102

103

70

71

72

+70

+46.5

12.5'

20'-8"

12'-8"

6.5'

5.5'

#310

#26

#97-4P

#97-41

#25

#89-6

#89-7

#24

#130

#131

#89-8

#89-4

#89-3

#4A

#29

#89-2

#2A

#30

#11B

#16B

#31

#5G-12

#7-5P

#90-4

#89-B

C1

SW1

WE-1

R1

R2

R3

PC STA. 71+36.36

POT STA. 70+00.00
BEGIN PAV'T TAPER

STA. 71+00
END PAV'T TAPER

STA. 73+00.00

MATCH LINE

℄ CONST. PROP.
WARSAW WB RAMP

℄ CONST. PROP.
WARSAW EB RAMP

EXISTING #90-4

SEE WB WARSAW PROFILE
SHEET 161

PROPOSED PROFILE
EB WARSAW RAMP

-1.90%

EXISTING GROUND

STA 72+14.26
ELEV 554.17

P.V.I. STA 73+34.46
ELEV = 551.89'
VC = 240.39'
K = 49

PROPOSED PROFILE

EXISTING PROFILE

554.44 553.98 553.62 553.39 553.29

554.92

562.16 559.13 556.07 553.36 550.38 545.59 540.31

565 560 555 550 545 540 535

70+00 71+00 72+00 73+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN AND PROFILE (EB WARSAW RAMP)
BEGIN WORK TO STA. 73+00.00

HAM-50-18.79

142
657

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EASTBOUND WARSAW
CURVE WE-1
P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
eMAX = .054

MSE WALL #9
SEE SHEET 348

STA. 73+00.00

MATCH LINE

STA. 78+00.00

MATCH LINE

1 STY. BLOCK COMM. BLDG. 637 NEAVE ST.

HAM-264-1448

℄ CONST. PROP. WARSAW WB RAMP

CONST. LIMITS

HAM-50-1881

HAM-264-1457

℄ PROP. ELBERON WB RAMP

℄ PROP. CONST. ELBERON AVE.

HAM-50-1875

STATE AVE.

NEAVE ST.

ENGLISH ST.

EX BRICK BRICK

ABUTMENT WALL

APP. SLAB

PRJ-1

WE-1

MSE WALL #9
SEE SHEET 348

℄ CONST. PROP. WARSAW EB RAMP

℄ CONST. PROP. STATE ST.

R1 R2 R3 R4 R5

B1 B2

C1

S1

SW1

PARKING LOT (CONC.)

2 STY COMM. 619 NEAVE ST.

1 STY. BRICK GARAGE

CONC. WALL

STAIRS & RAMP

FOR PROFILE SEE SHEET 144

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (EB WARSAW RAMP)
STA. 73+00.00 TO STA. 78+00.00

HAM-50-18.79

143
657

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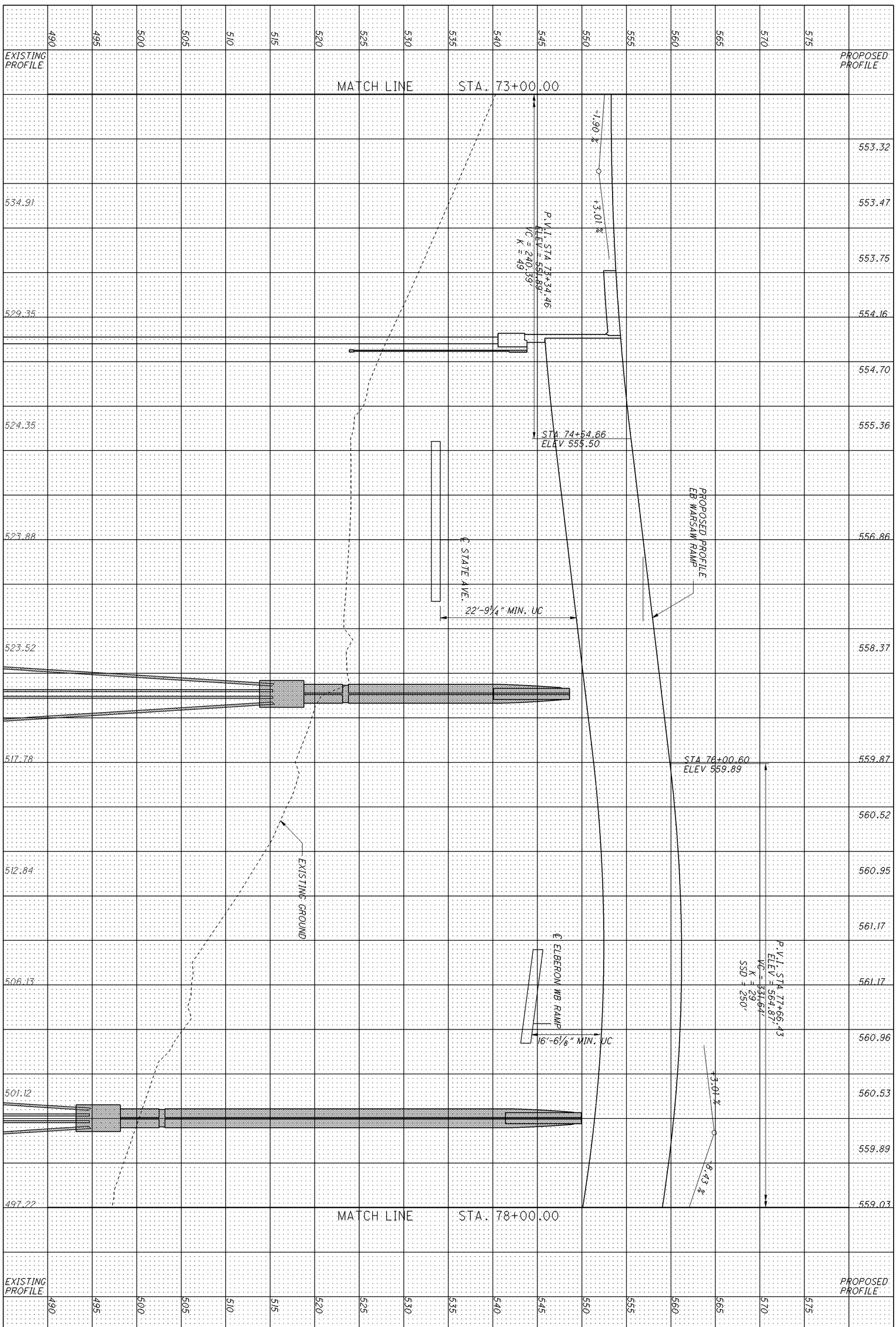

144 / 657	**HAM-50-18.79**	**PROFILE (EB WARSAW RAMP)** **STA. 73+00.00 TO STA. 78+00.00**	CALCULATED MH CHECKED AS

EASTBOUND WARSAW
RAMP CURVE WE-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
eMAX = .054

EASTBOUND WARSAW
RAMP CURVE WE-2
P.I. STA. 82+84.78
Δ = 9° 20′ 56″ (LT)
Dc = 2° 08′ 02″
R = 2,684.87′
T = 219.53′
L = 438.08′
E = 8.96′
eMAX = .022

NOTE:
FOR PROPOSED DRAINAGE
SEE SHEET 198

STA. 78+00.00

STA. 83+00.00

MATCH LINE

MATCH LINE

℄ CONST. PROP. US 50

℄ CONST. PROP.
ELBERON WB RAMP

℄ CONST. PROP.
WARSAW EB RAMP

℄ CONST. PROP.
ELBERON EB RAMP

MSE
WALL #6

MSE WALL #2
SEE SHEET 312

EXISTING RAILROAD
ALIGNMENT

CONST. LIMITS

HAM-50-1881

HAM-50-1875

WE-1

WE-2

#115 #210 #WA-16 #WA-17 #WA-18 #209 #EB-12 #EB-13 #22 #206 #205 #204

Ex R/W

R/W

FOR PROFILE SEE SHEET 146

N

HORIZONTAL
SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (EB WARSAW RAMP)
STA. 78+00.00 TO STA. 83+00.00

HAM-50-18.79

145
657

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PROFILE (EB WARSAW RAMP)
STA. 78+00.00 TO STA. 83+00.00

CALCULATED MH
CHECKED AS

HAM-50-18.79

PROPOSED PROFILE
557.95
556.66
555.15
553.43
551.49
549.40
545.18
540.97
536.75
534.67
532.66
530.72
528.85
527.06
525.35
523.71
522.14
PROPOSED PROFILE

P.V.I. STA 77+66.43
ELEV = 564.87'
VC = 331.64'
K = 29
SSD = 250'

STA 79+32.25
ELEV 550.89

PROPOSED PROFILE
EB WARSAW RAMP

STA. 78+00.00

MATCH LINE

27'-5¾" MIN. UC

℄ US 50

STA 81+05.00
ELEV 536.33

-8.43 %

-6.18 %

STA. 83+00.00

MATCH LINE

STA 82+95.00
ELEV 522.45

P.V.I. STA 82+00.00
ELEV = 528.32'
VC = 190.00'
K = 85

EXISTING GROUND

EXISTING PROFILE
496.25
495.56
493.75
492.54
492.03
491.59
492.89
493.26
493.14
492.53
EXISTING PROFILE

570
565
560
555
550
545
540
535
530
525
520
515
510
505
500
495
490
485

76+00
79+00
80+00
81+00
82+00
83+00

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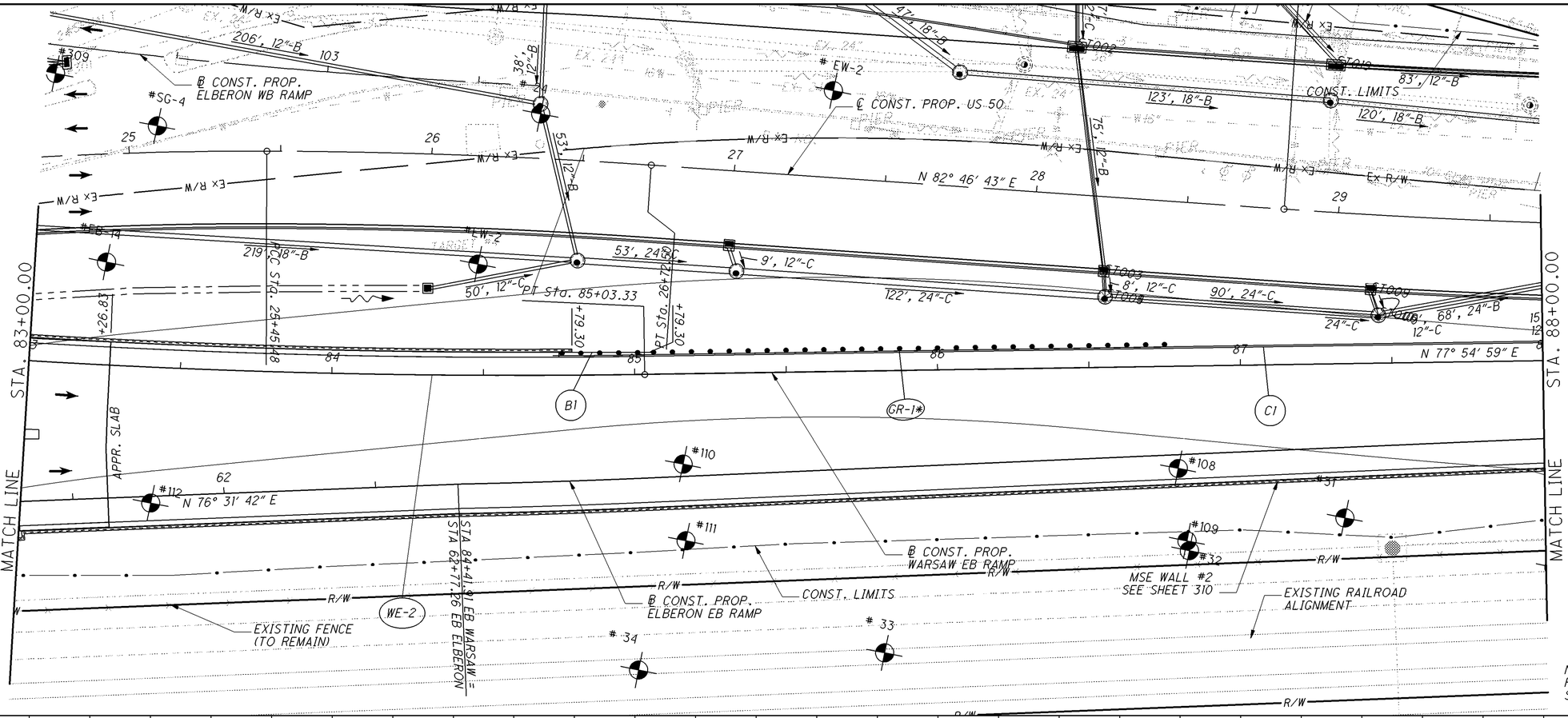

EASTBOUND WARSAW RAMP CURVE WE-2
P.I. STA. 82+84.78
Δ = 9° 20' 56" (LT)
Dc = 2° 08' 02"
R = 2,684.87'
T = 219.53'
L = 438.08'
E = 8.96'
eMAX = .022

*NOTE:
SEE SHEET 239 FOR GUARDRAIL DETAILS.

NOTE:
FOR PROPOSED DRAINAGE SEE SHEET 198

FOR PROFILE SEE SHEET 148

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (EB WARSAW RAMP)
STA. 83+00.00 TO STA. 88+00.00

HAM-50-18.79

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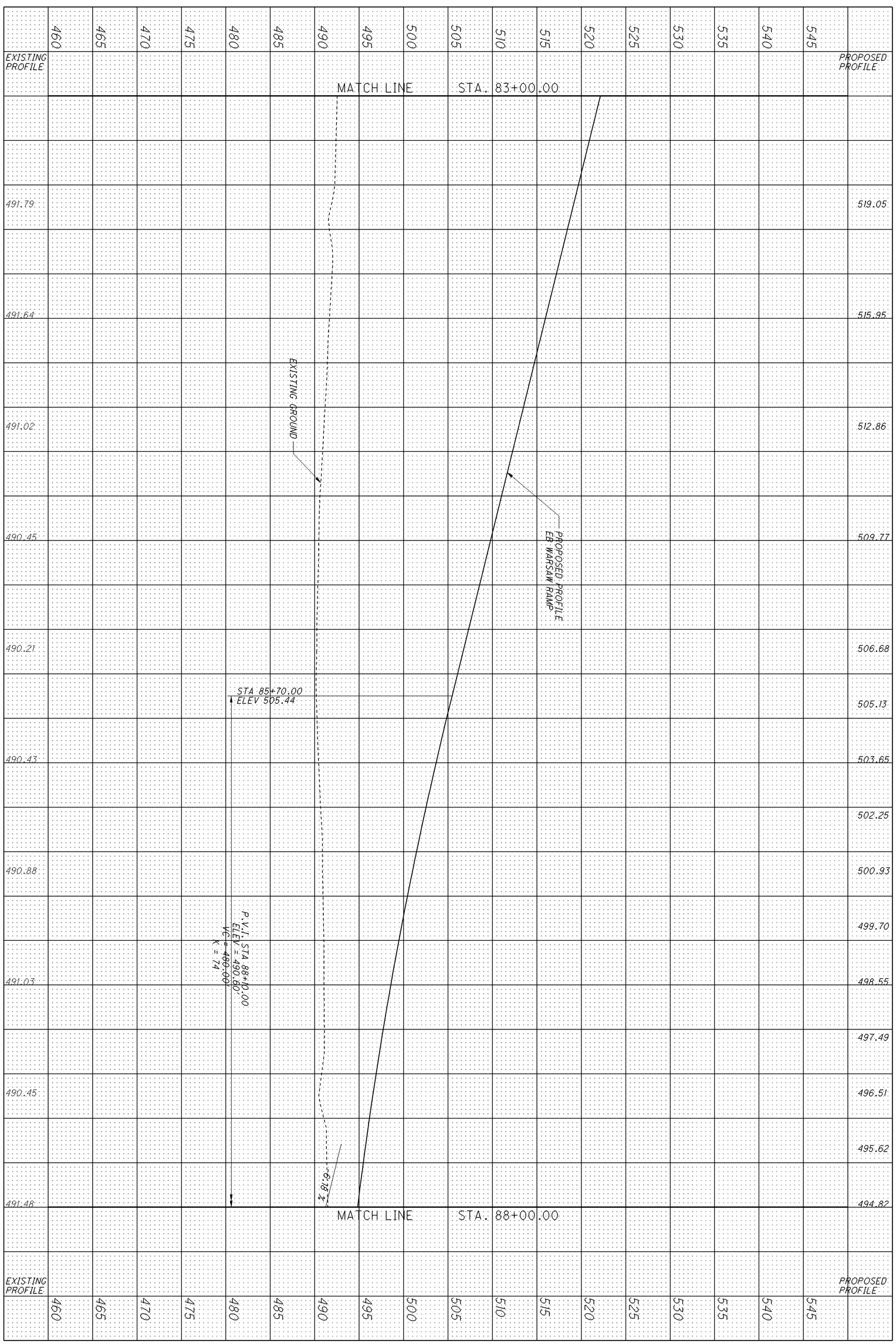

148 / 657	**HAM-50-18.79**	**PROFILE (EB WARSAW RAMP)** **STA. 83+00.00 TO STA. 88+00.00**	CALCULATED MH CHECKED AS

EASTBOUND WARSAW RAMP CURVE WE-3
P.I. STA. 91+93+15
Δ = 9° 05' 10" (RT)
Dc = 3° 30' 00"
R = 1,637.02'
T = 130.08'
L = 259.61'
E = 5.16'
eMAX = N/C

℄ CONST. PROP. US 50
CONST. LIMITS
℄ CONST. PROP. EVANS ST.
STA. 88+00.00
MATCH LINE
℄ CONST. PROP. WARSAW EB RAMP
MSE WALL #2 SEE SHEET 310
CONST. LIMITS
EXISTING FENCE (TO REMAIN)
EXISTING RAILROAD ALIGNMENT
PC Sta. 90+63.02
BEGIN SHLDR TAPER +14.00
END SHLDR TAPER +00.00
PT Sta. 93+22.68
STA 34+94.98 US 50
+26.43
Ex R/W
TMP
R/W
C1
C2
WE-3
#SG-6
#104
#105
#106
#107
#306
#307

PROPOSED PROFILE EB WARSAW RAMP
EXISTING GROUND
GRAPHIC GRADE
P.V.I. STA 88+10.00
ELEV = 490.60'
VC = 480.00'
K = 74
P.V.I. STA 90+81.52
ELEV = 491.53'
P.V.I. STA 91+30.71
ELEV = 491.76'
P.V.I. STA 91+79.98
ELEV = 491.98'
P.V.I. STA 92+29.27
ELEV = 492.19'
P.V.I. STA 92+78.60
ELEV = 492.40'
STA 90+50.00
ELEV = 491.42'
+0.34 %
+0.47 %
+0.45 %
+0.43 %
+0.43 %
+0.45 %
492.60

PROPOSED PROFILE
EXISTING PROFILE
494.09 493.46 492.91 492.44 492.06 491.76 491.55 491.42 491.38 491.42 491.62 491.85 492.07 492.28 492.50
491.28 491.40 491.26 490.73 490.03 489.49 489.31 489.29 489.06 487.50
505 500 495 490 485 480 475
88+00 89+00 90+00 91+00 92+00 93+00

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED MH
CHECKED AS

PLAN AND PROFILE (EB WARSAW RAMP)
STA. 88+00.00 TO STA. 93+22.68

HAM-50-18.79

149
657

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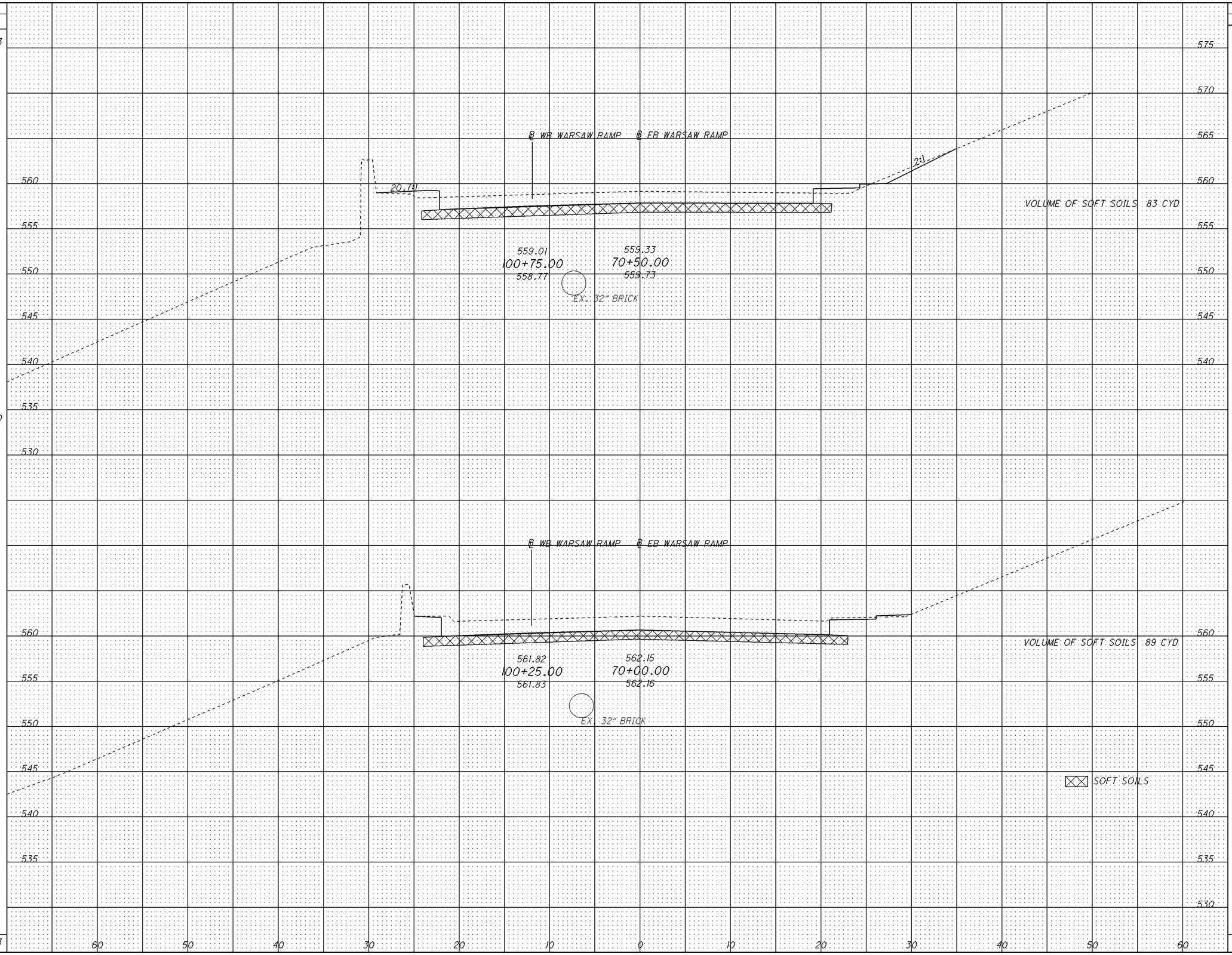
SEEDING	
END WIDTH	SQ. YDS.
72	393
	370
62	
	763



END AREA	
CUT	FILL
48	48
47	47

VOLUME	
CUT	FILL
83	119
-83	-83
89	89
-89	-89
0	36

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS STA. 70+00.00 TO STA. 70+50.00

HAM-50-18.79

150
657

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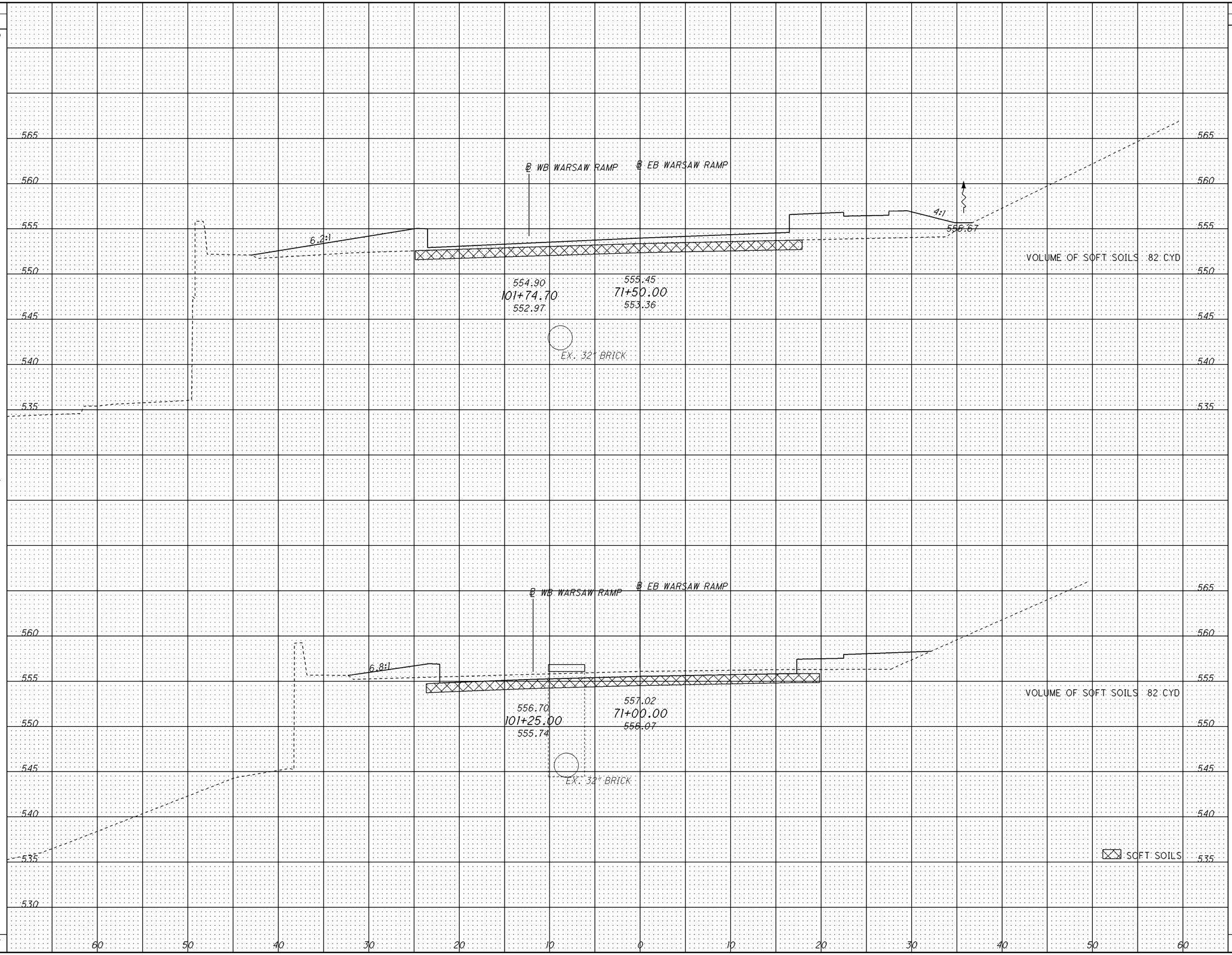
SEEDING	
END WIDTH	SQ. YDS.
83	520
	425
70	
	945



END AREA	
CUT	FILL
45	150
45	80

VOLUME	
CUT	FILL
-42	-82
42	370
-82	-82
83	213
1	419

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS STA. 71+00.00 TO STA. 71+50.00

HAM-50-18.79

151
657

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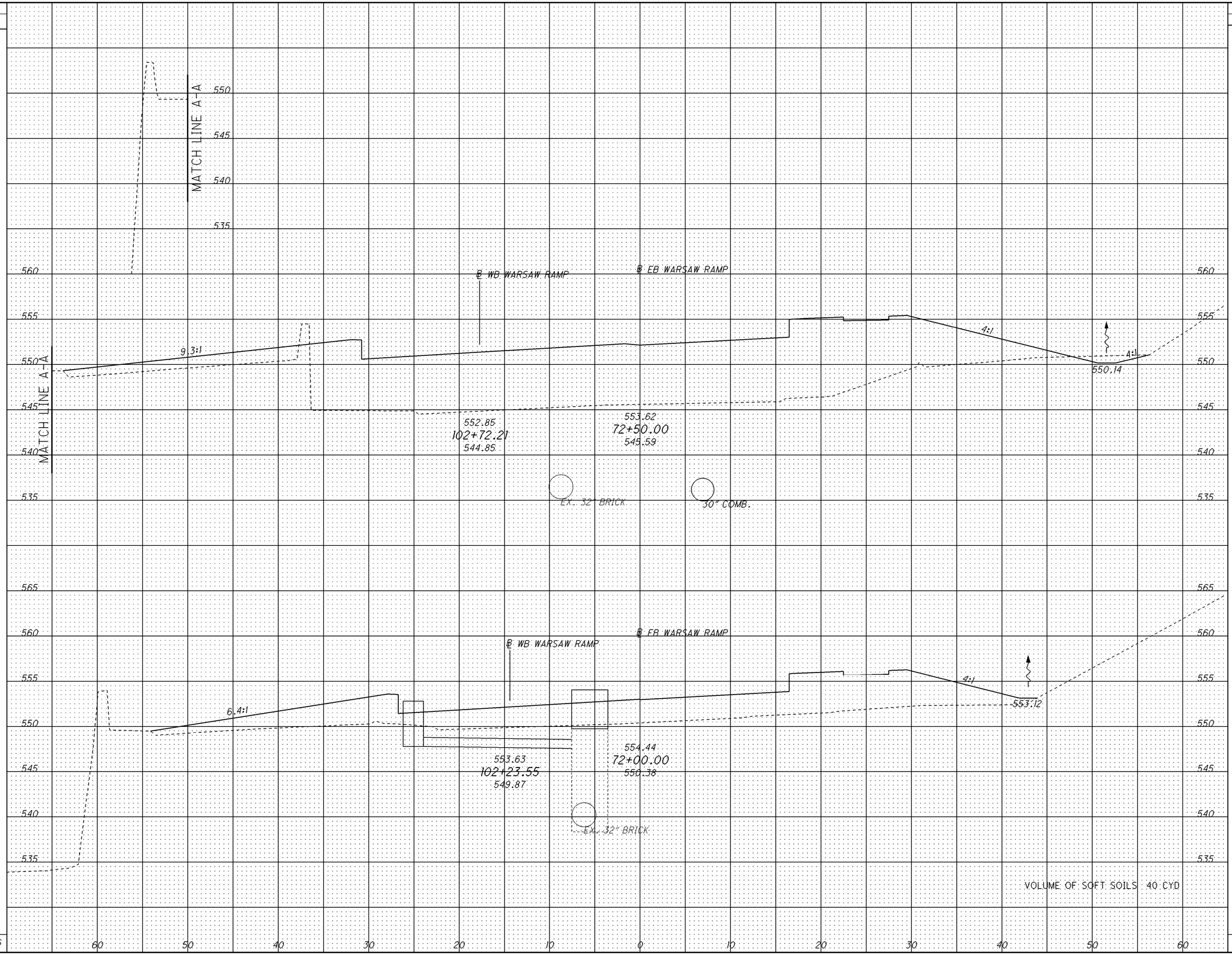
SEEDING	
END WIDTH	SQ. YDS.
	757
126	
	640
104	
	1396



END AREA		VOLUME	
CUT	FILL	CUT	FILL
4	480		
		4	1398
0	250		
		4	676
		8	2074

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS
STA. 72+00.00 TO STA. 72+50.00

HAM-50-18.79

152
657

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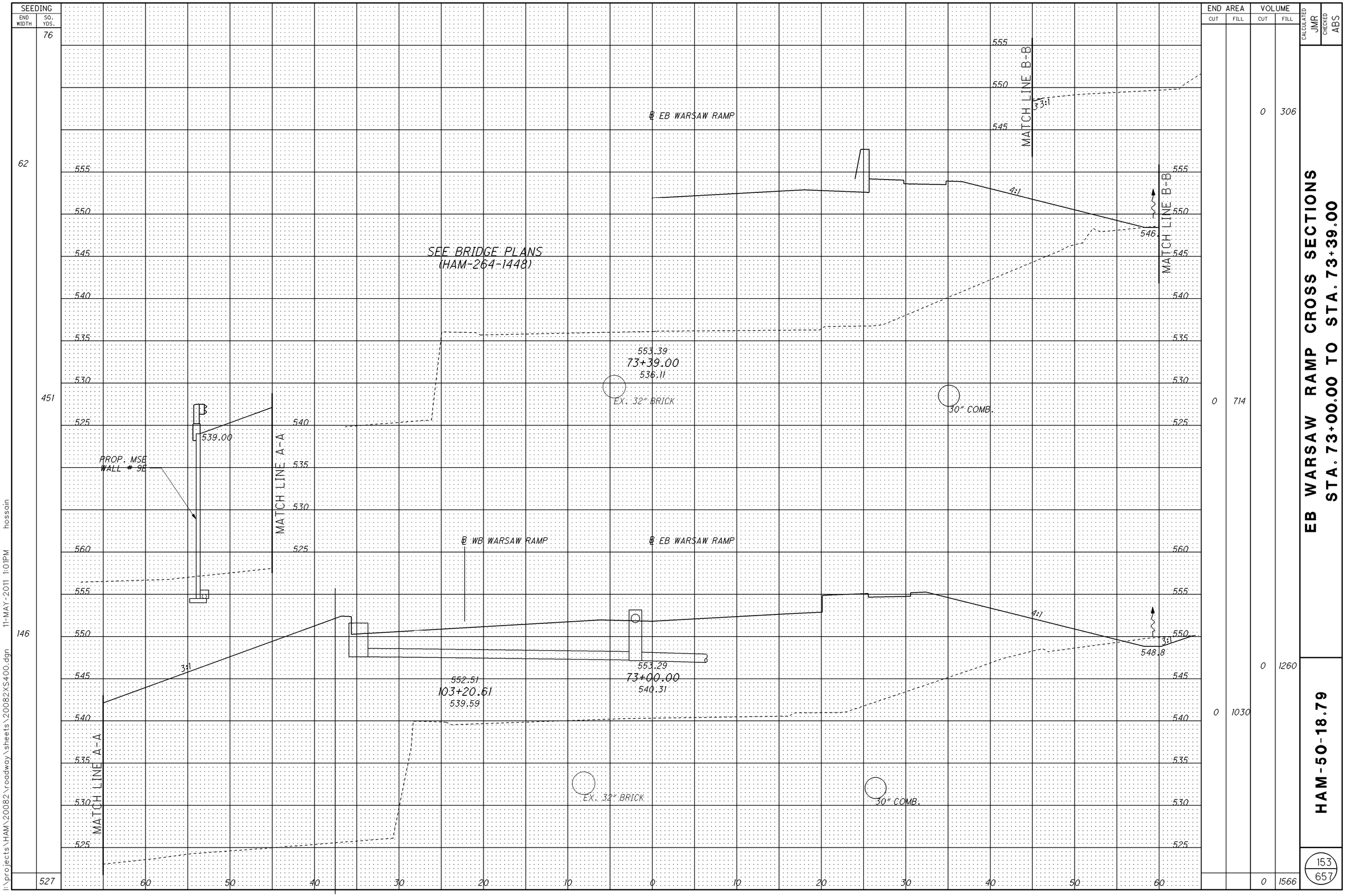
SEEDING	
END WIDTH	SQ. YDS.
	76
62	
	451
146	
	527

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		0	306
0	714		
		0	1260
0	1030		
		0	1566

CALCULATED JMR
CHECKED ABS



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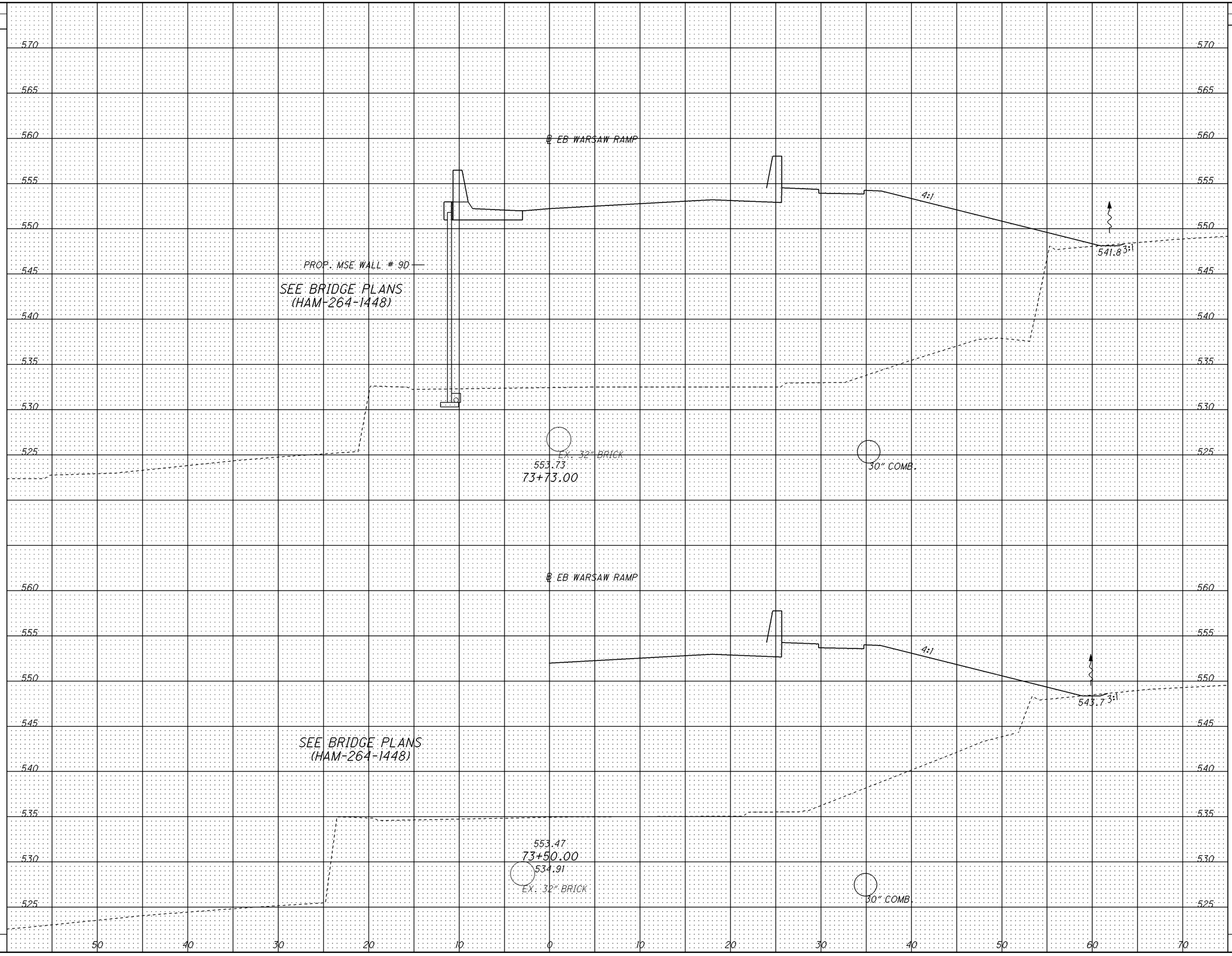
EB WARSAW RAMP CROSS SECTIONS STA. 73+00.00 TO STA. 73+39.00

HAM-50-18.79

153
657

SEEDING	
END WIDTH	SQ. YDS.
68	166
63	166



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	1600		
		0	1018
0	790		
		1	1018

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS
STA. 73+50.00 TO STA. 73+73.00

HAM-50-18.79

154
657

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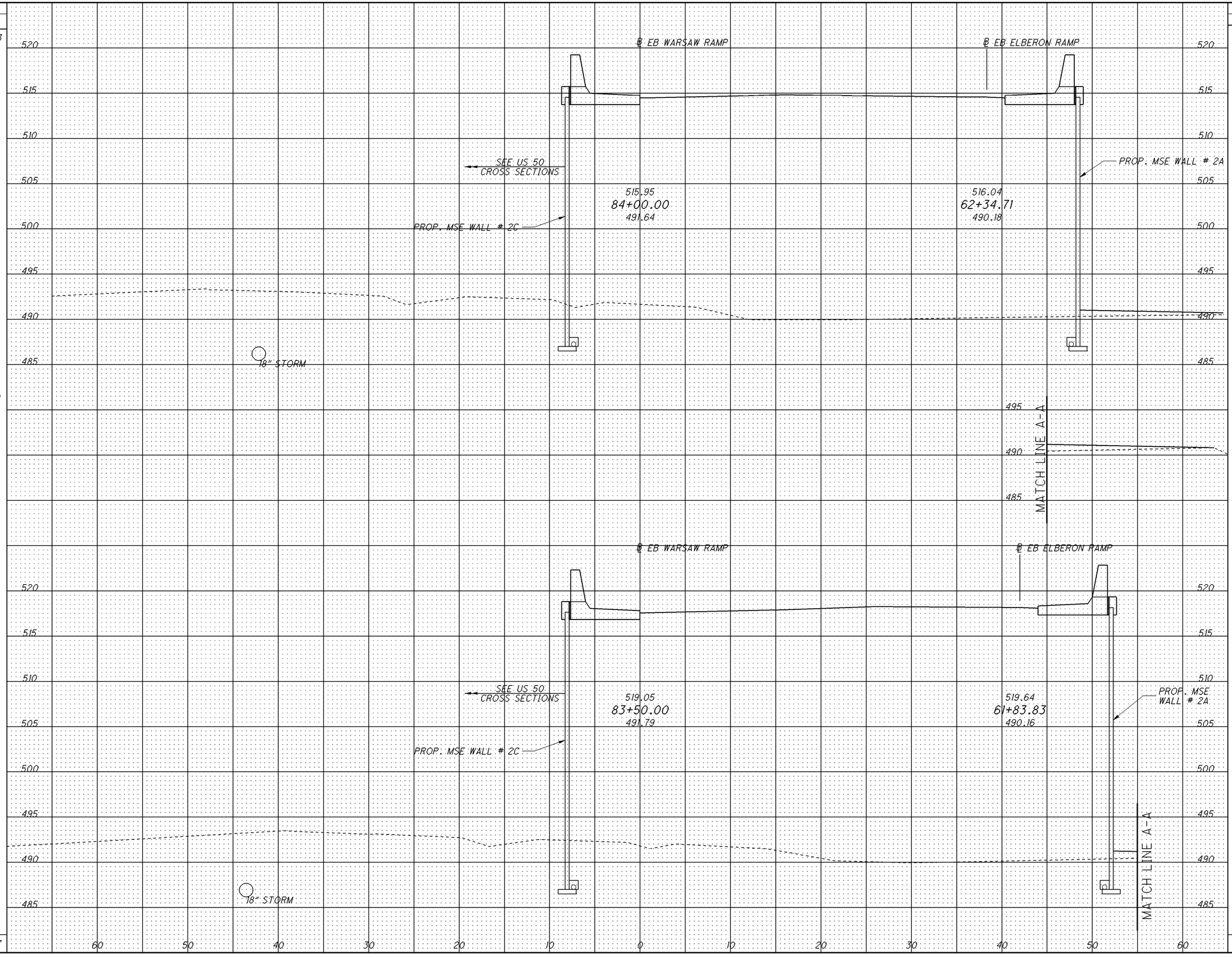
SEEDING	
END WIDTH	SQ. YDS.
	293
54	
	314
59	
	607



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	7	0	8
0	9	0	16
		0	24

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS STA. 83+50.00 TO STA. 84+00.00

HAM-50-18.79

155
657

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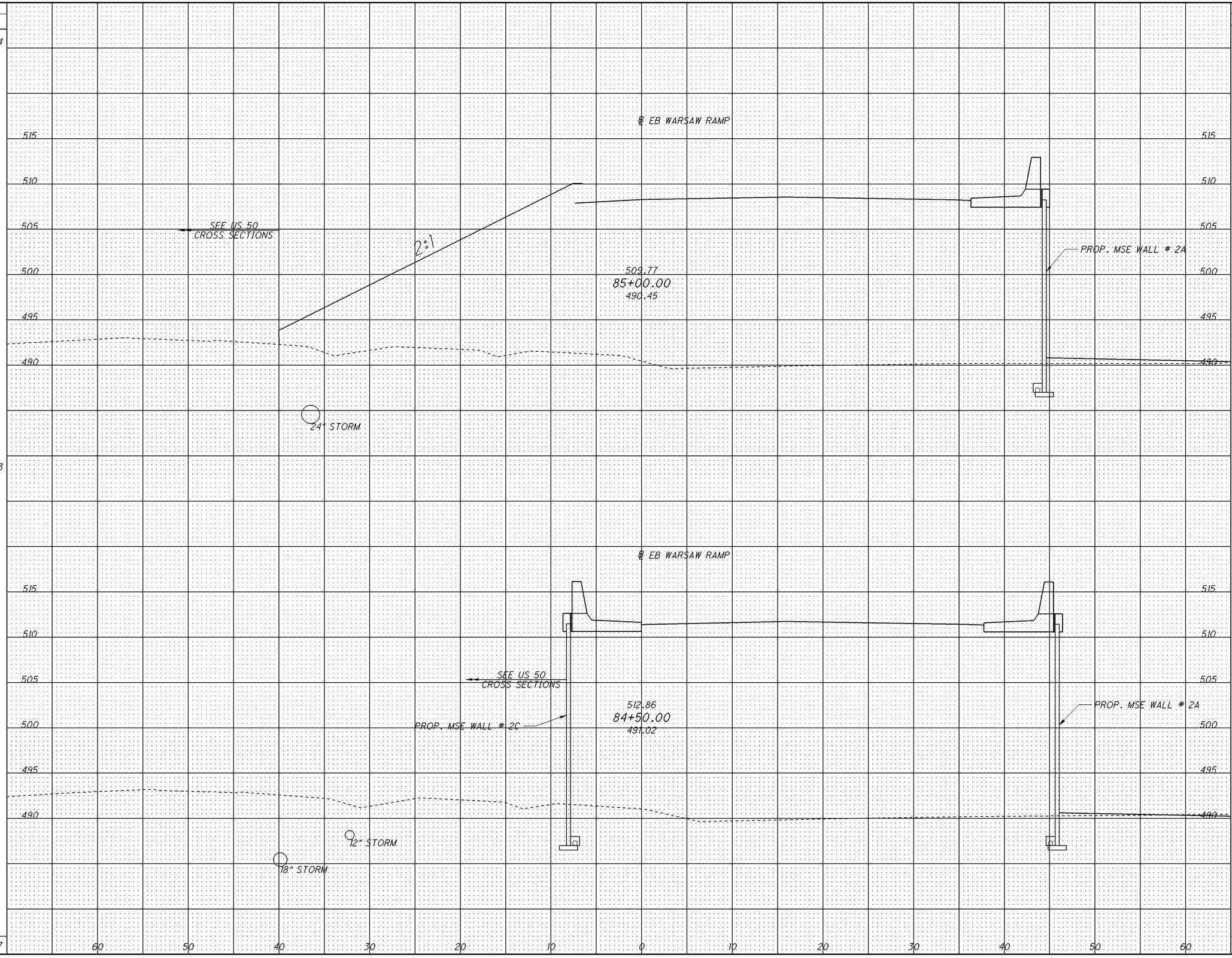
SEEDING	
END WIDTH	SQ. YDS.
126	684
	493
51	
	1177



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	704	0	1549
		0	654
0	2		
		0	2203

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS
STA. 84+50.00 TO STA. 85+00.00

HAM-50-18.79

156
657

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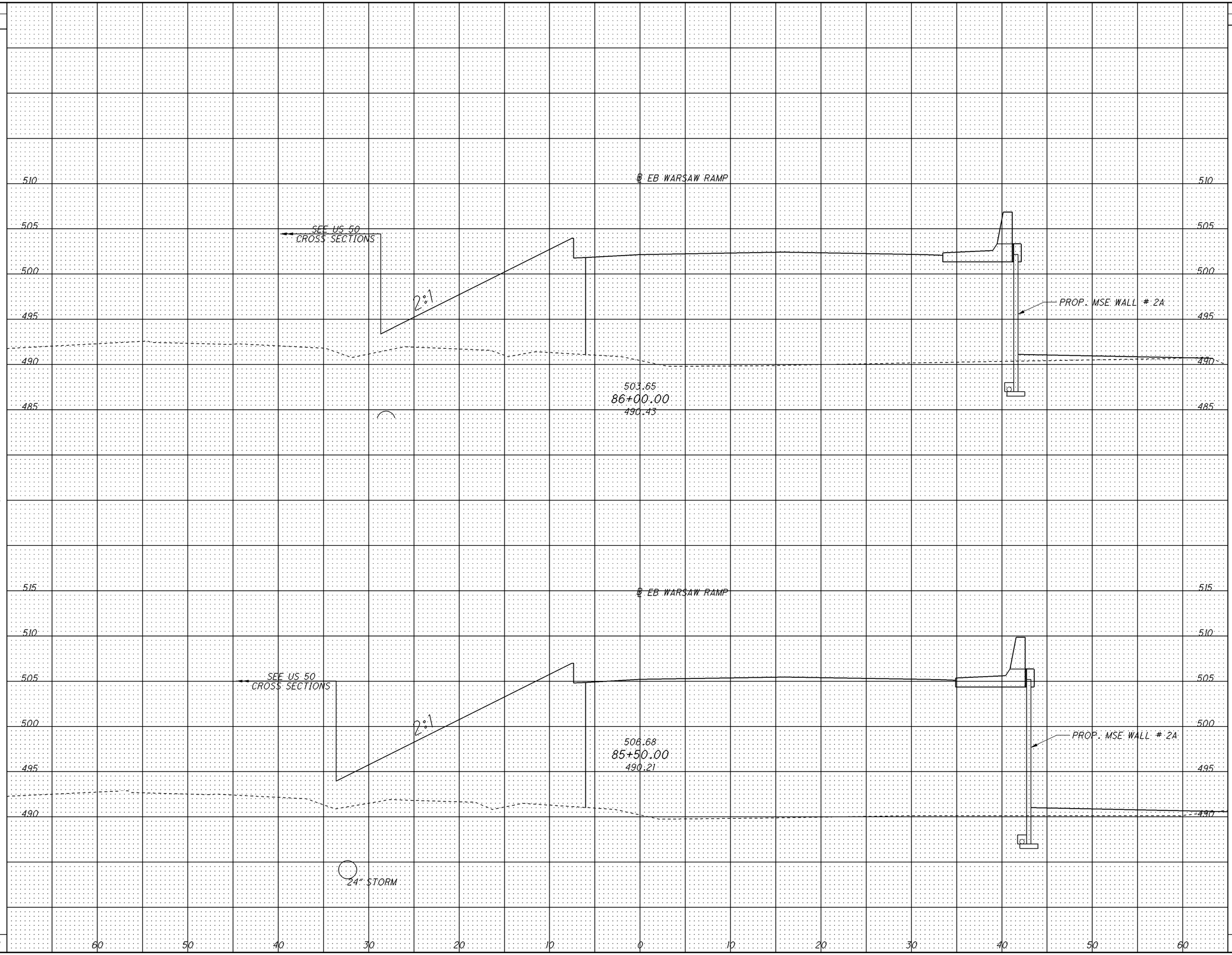
SEEDING	
END WIDTH	SQ. YDS.
116	448
	656
120	
	1104



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		0	1842
0	716		
		0	1560
0	969		
		6	3402

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS
STA. 85+50.00 TO STA. 86+00.00

HAM-50-18.79

157
657

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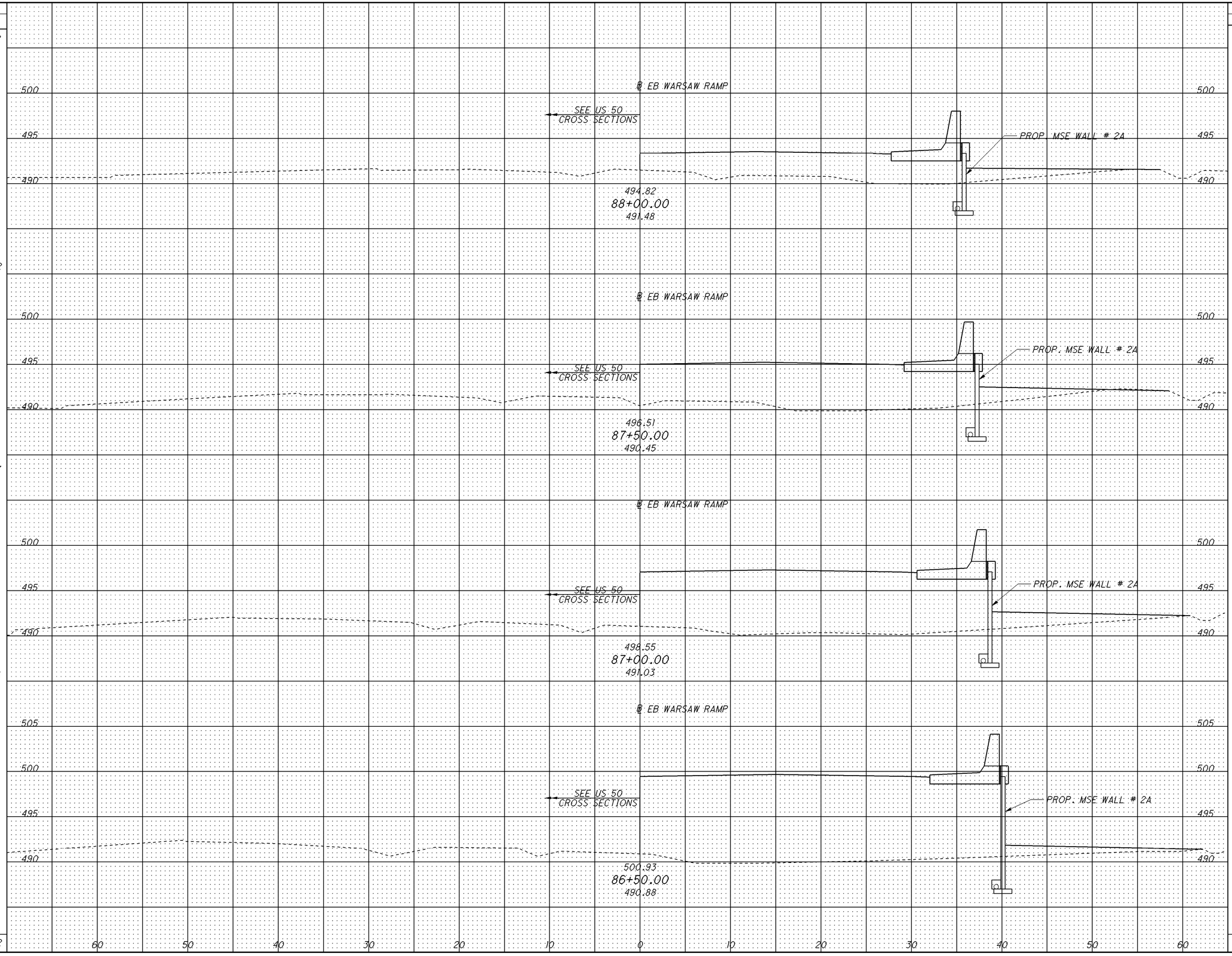
SEEDING END WIDTH	SEEDING SQ. YDS.
43	192
	252
48	
	257
45	
	251
45	
	952



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	87	25	81
0	169	0	379
0	240	0	379
0	358	0	554
		25	1393

CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS STA. 86+50.00 TO STA. 88+00.00

HAM-50-18.79

158
657

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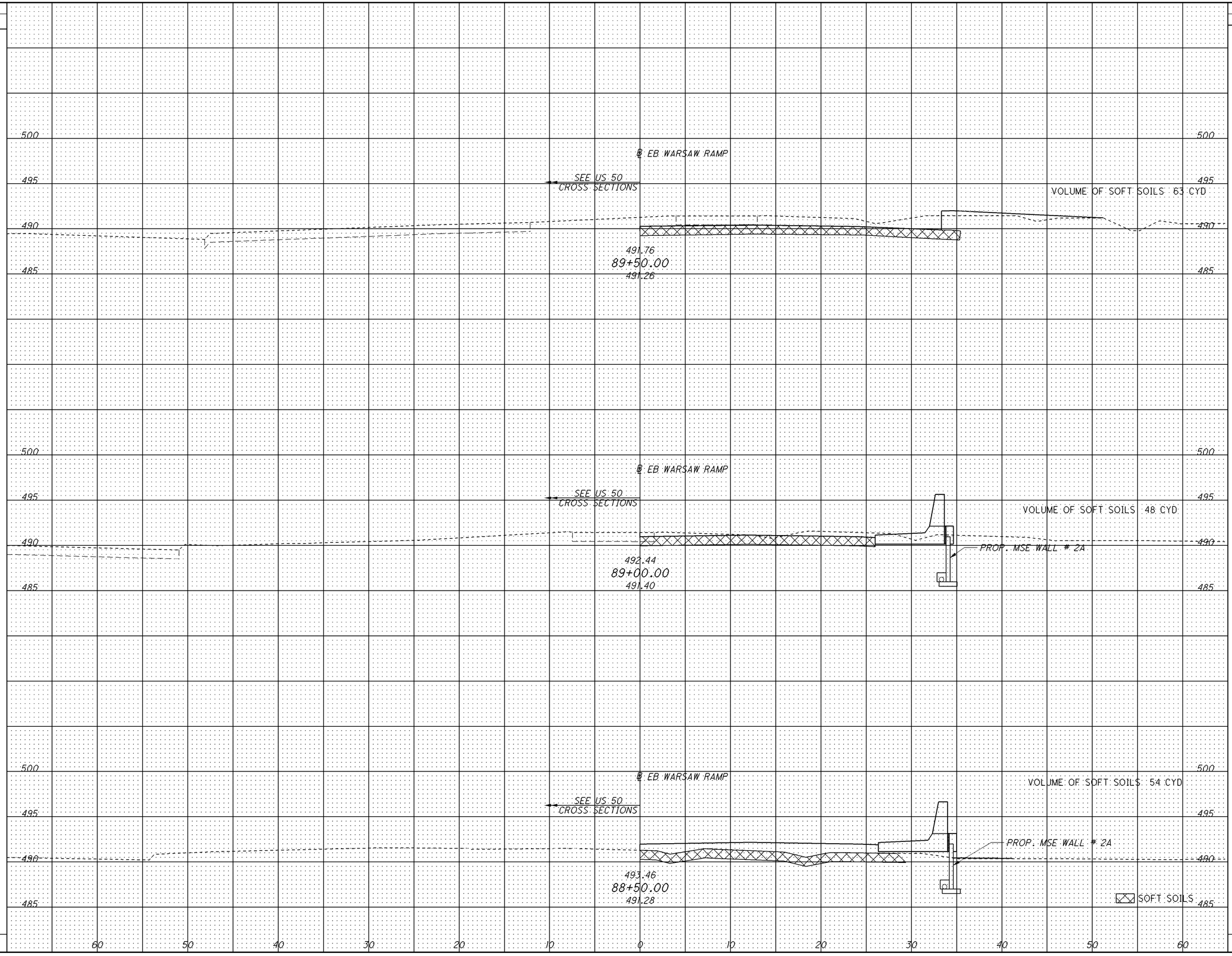
SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
49	272	38	45	-30	-30	
	211			72	65	
26	147	40	26	-48	-48	
				62	72	
26		27	30	-54	-54	
	630			2	5	



CALCULATED JMR
CHECKED ABS

EB WARSAW RAMP CROSS SECTIONS STA. 88+50.00 TO STA. 89+50.00

HAM-50-18.79

159
657

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BEGIN WORK
STA. 100+25.00

POT Sta. 100+25.00
BEGIN PAVT TAPER

Sta. 101+50.83
END PAVT TAPER

STATE AVE.

℄ CONST. PROP. STATE AVE.

℄ CONST. PROP. WARSAW WB RAMP

℄ CONST. PROP. WARSAW EB RAMP

CONST. LIMITS

MATCH LINE
Sta. 104+00.00

HAM-264-1448

*NOTE:
SEE SHEET 239 FOR GUARDRAIL DETAILS.

WESTBOUND WARSAW
RAMP CURVE WW-1
P.I. STA. 105+88.96
Δ = 92°25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'
e max = 0.058

MSE WALL #9
SEE SHEET 350

NOTE:
1.)FOR WB WARSAW CROSS SECTIONS, STA. 100+25 TO STA. 103+20.61. SEE SHEETS 150-153. FOR STA. 108+44.83 TO STA. 108+95.00. SEE SHEET 139.

2.)FOR PROPOSED DRAINAGE SEE SHEET 203

FOR PROFILE SEE SHEET 161

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN (WB WARSAW RAMP)
BEGIN WORK TO STA. 104+00.00

HAM-50-18.79

160
657

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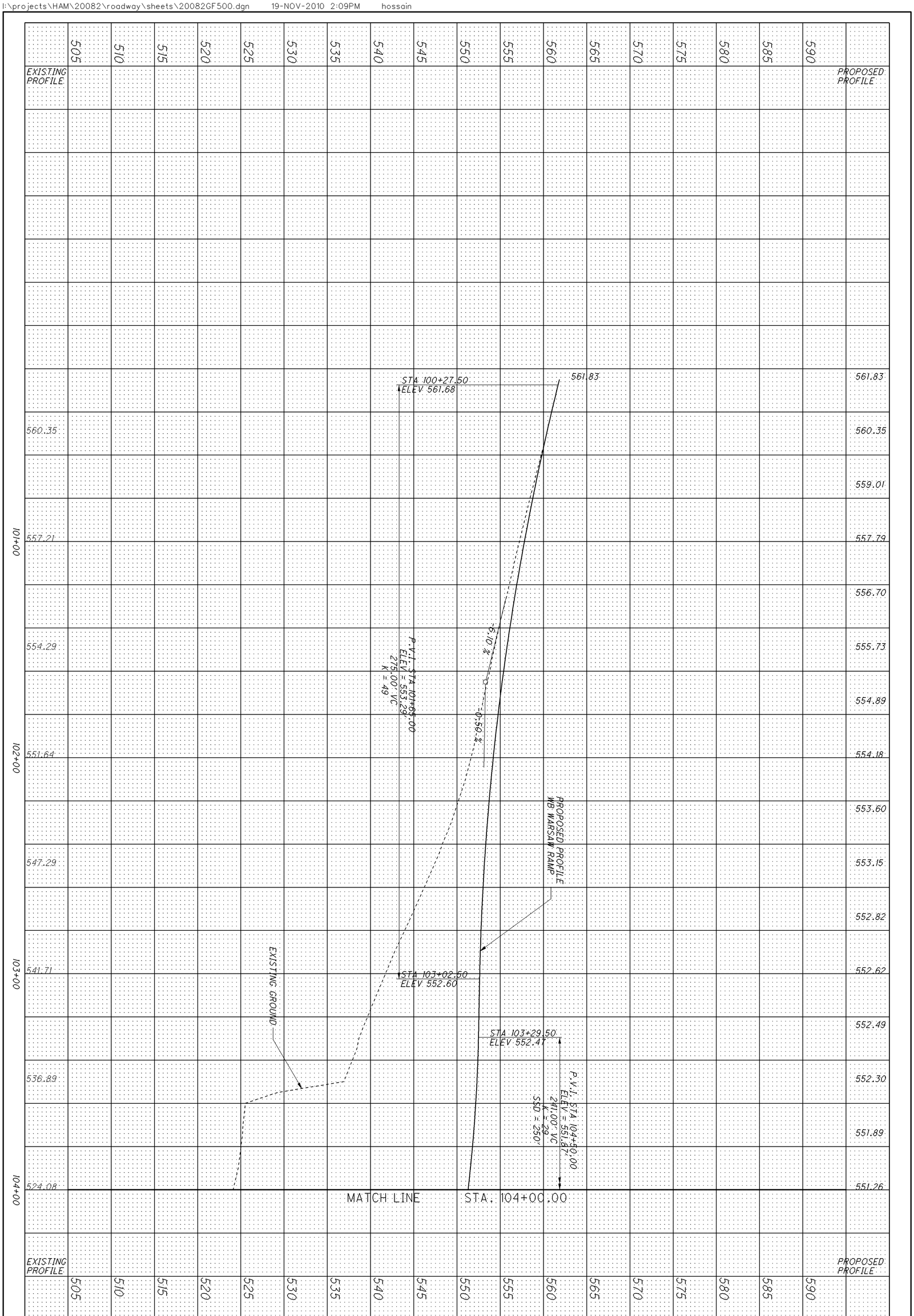

161 / 657	HAM-50-18.79	PROFILE (WB WARSAW RAMP) BEGIN WORK TO STA. 104+00.00	CALCULATED MH CHECKED AS

NOTE:
FOR WB WARSAW CROSS SECTIONS, STA. 100+25 TO STA. 103+20.61. SEE SHEETS 150-153. FOR STA. 108+44.83 TO STA. 108+95.00. SEE SHEET 139.

WESTBOUND WARSAW RAMP CURVE WW-1
P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'
e max = 0.058

MATCH LINE STA. 104+00.00

CONST. LIMITS

℄ CONST. PROP. STATE AVE.

℄ CONST. PROP. WARSAW WB RAMP

℄ CONST. PROP. WARSAW EB RAMP

℄ CONST. PROP. ELBERON WB RAMP

℄ CONST. PROP. ELBERON EB RAMP

BY OTHERS NEAVE ST. EX. 12"

1 STY. COMM. BLOCK 637 NEAVE ST.

2.5 STY. COMM. BRICK 616 NEAVE ST.

HAM-264-1448

HAM-050-1881

MSE WALL #9

MSE WALL #6 SEE SHEET 330

ABUTMENT WALL

BEGIN SHOULDER TAPER STA. 101+91.38

END SHOULDER TAPER STA. 99+66.38

APP. SLAB #15

APP. SLAB #16

PILE #EL-6

PILE #WA-5

PILE #WA-7

PILE #EB-6

WOOD PORCH

CONC. RAMP

GRAVEL

CHAINLINK

BRICK

PIER

ENGLISH ST. 100' R

FOR PROFILE SEE SHEET 163

PROPOSED PROFILE

EXISTING PROFILE

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HORIZONTAL SCALE IN FEET

CALCULATED MH CHECKED AS

PLAN AND PROFILE (WB WARSAW RAMP)
STA. 104+00.00 TO STA. 109+34.06

HAM-50-18.79

162
657

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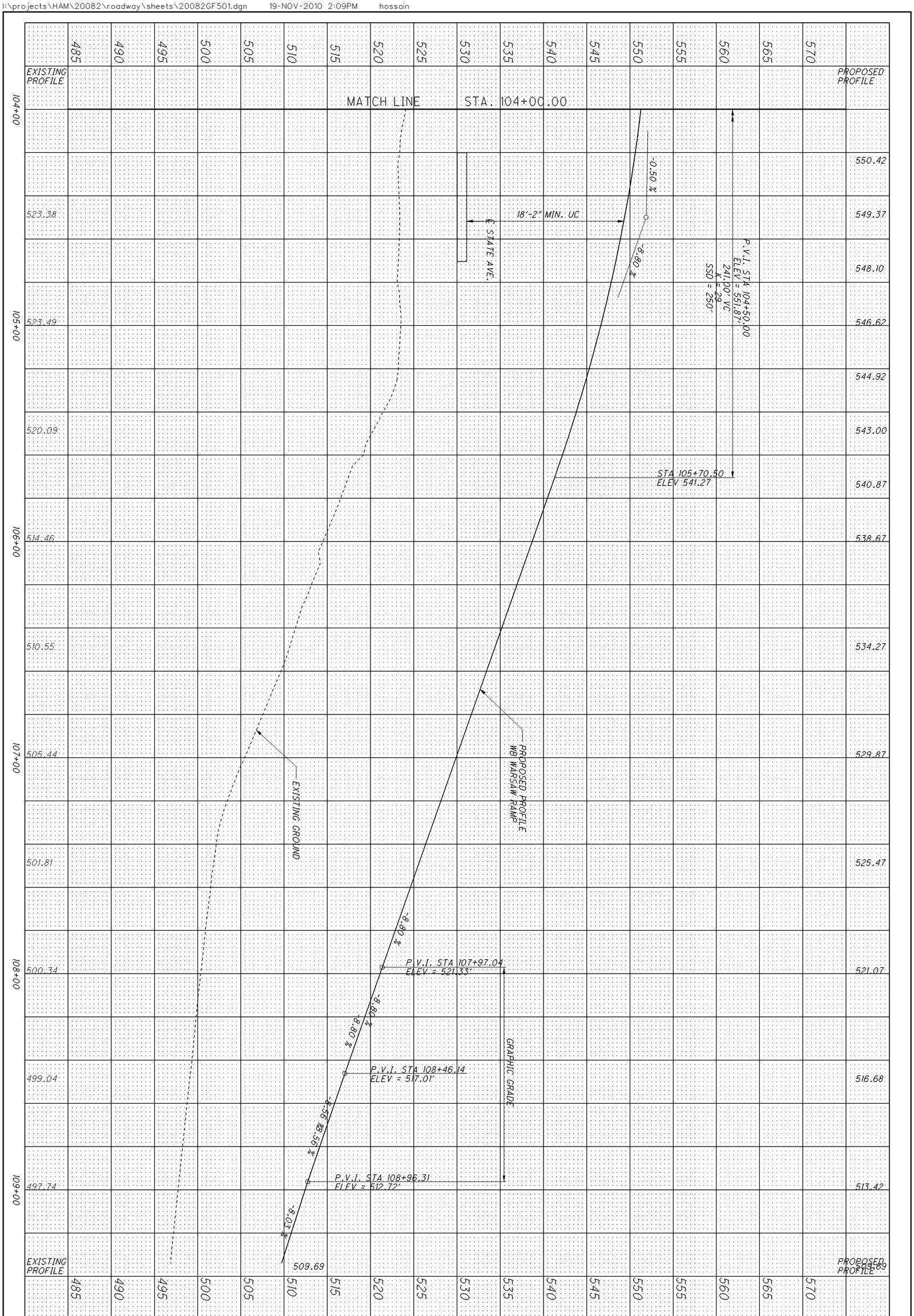

163 / 657	**HAM-50-18.79**	**PROFILE (WB WARSAW RAMP)** **STA. 104+00.00 TO STA. 109+34.06**	CALCULATED MH CHECKED AS

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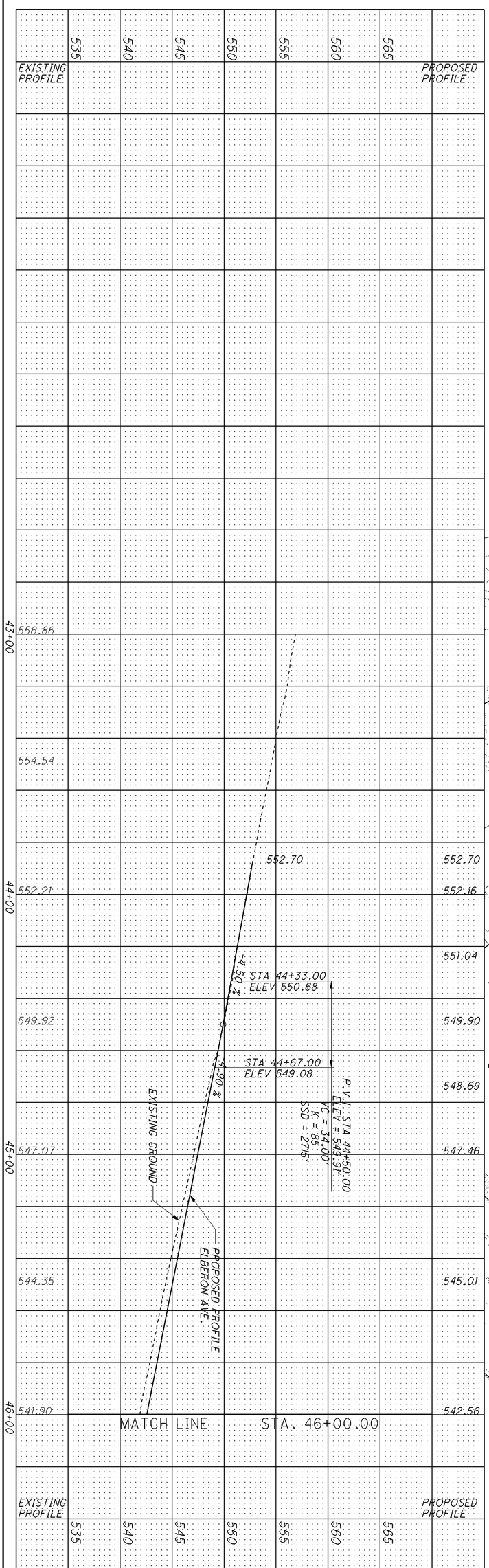

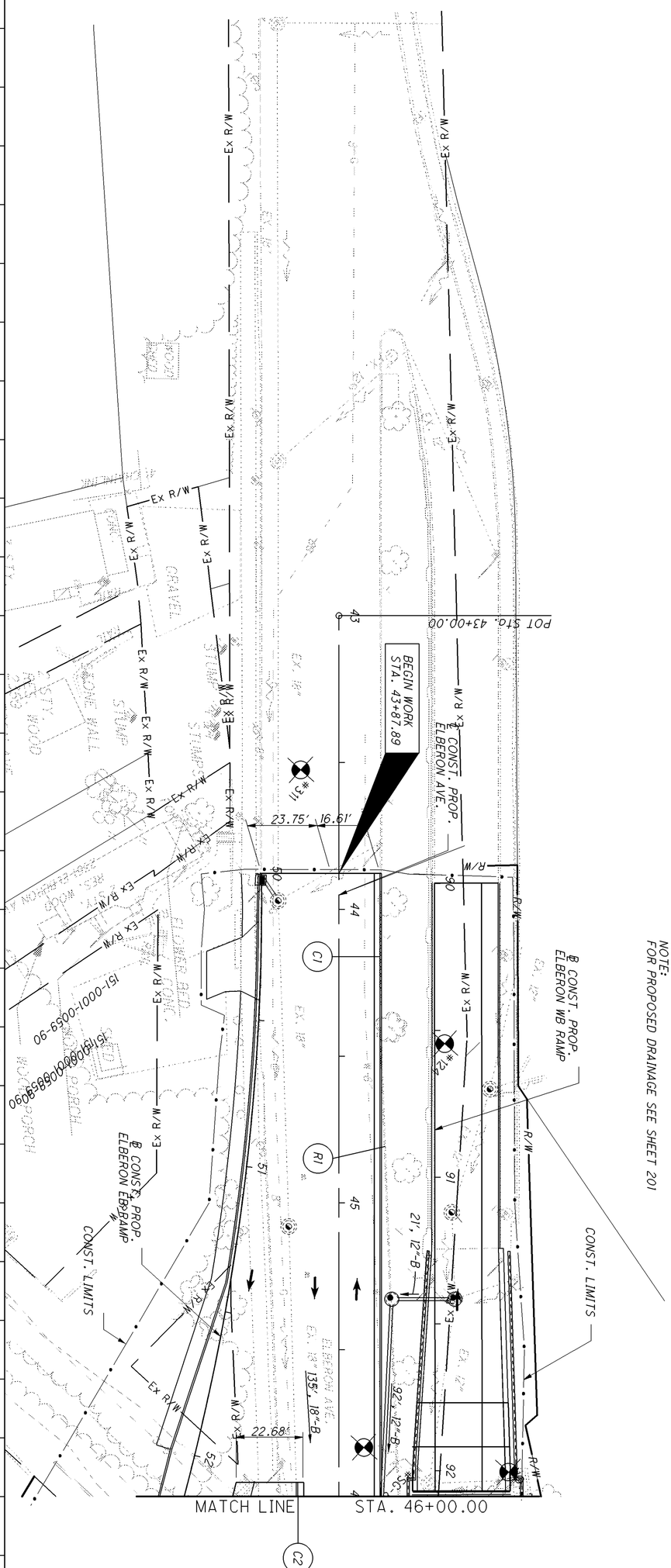

164 657	HAM-50-18.79	PLAN AND PROFILE (ELBERON AVE.) BEGIN WORK TO STA. 46+00.00	CALCULATED MH CHECKED AS	0 10 20 40 HORIZONTAL SCALE IN FEET	

STA. 45+93.92 (MARYLAND AVE.)=
STA. 46+73.09 (ELBERON AVE.)

℄ CONST. PROP. MARYLAND AVE.

CONST. LIMITS

℄ CONST. PROP. ELBERON WB RAMP

STA. 46+00.00

MATCH LINE

℄ CONST. PROP. ELBERON EB RAMP

℄ CONST. PROP. ELBERON AVE.

℄ PROP. STATE AVE.

CURB RAMP TYPE C2

HAM-264-1452

HAM-50-1881

℄ CONST. PROP. WARSAW EB RAMP

STA. 46+77.44 (STATE AVE.)=
STA. 49+50.99 (ELBERON AVE.)

NOTE:
FOR PROPOSED DRAINAGE
SEE SHEET 202

ELBERON AVE CURVE EA-1	ELBERON AVE CURVE EA-2
P.I. STA. 47+32.45	P.I. STA. 48+73.13
Δ = 27° 35′ 25″ (LT)	Δ = 52° 20′ 35″ (RT)
Dc = 15° 16′ 44″	Dc = 63° 23′ 52″
R = 375.00′	R = 90.38′
T = 92.08′	T = 44.41′
L = 180.58′	L = 82.56′
E = 11.14′	E = 10.32′
eMAX = .04	eMAX = .029

(1) - N 20° 23′ 11″ E

(2) - N 72° 43′ 45″ E

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

FOR PROFILE SEE SHEET 166

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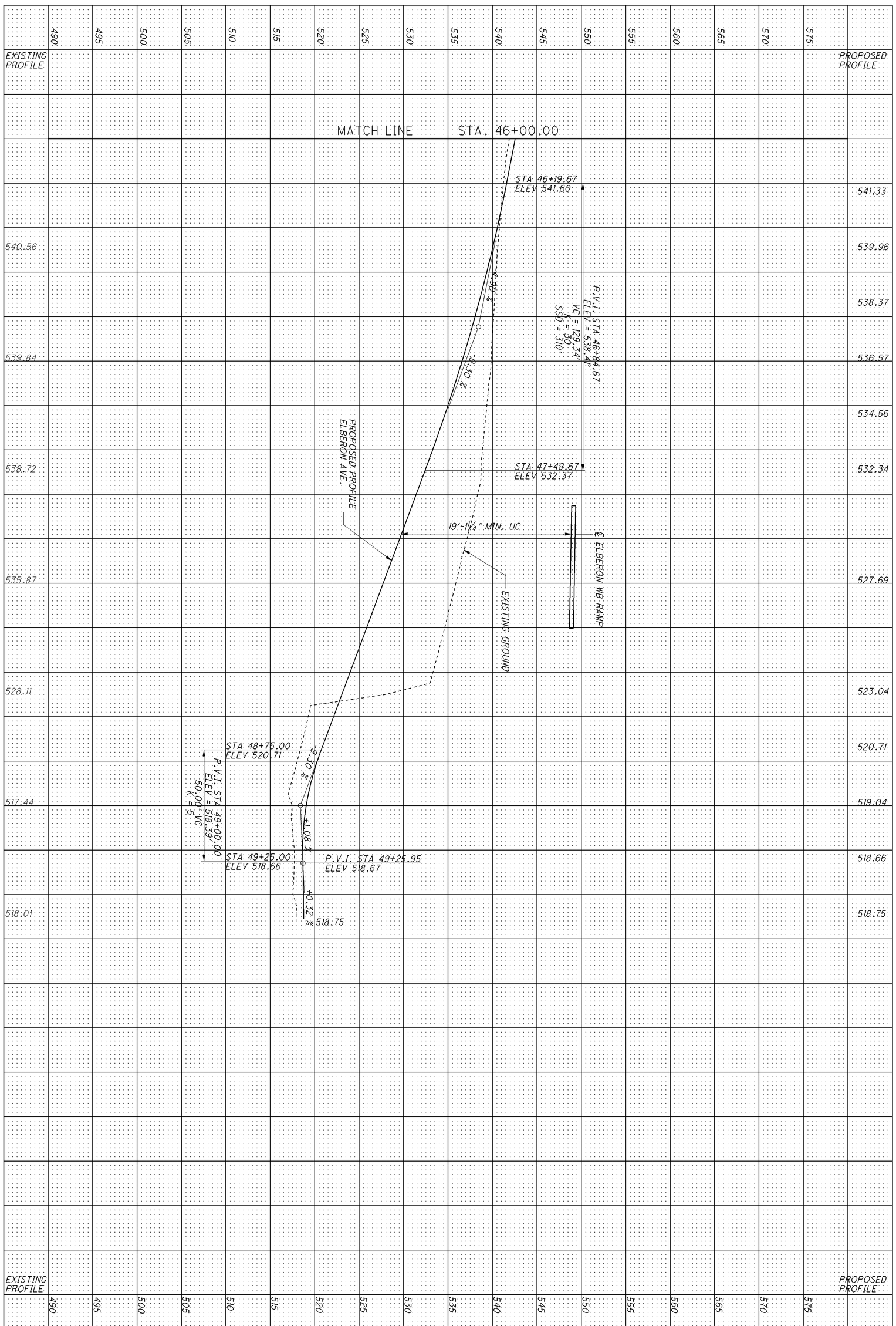
PLAN (ELBERON AVE.)
STA. 46+00.00 TO STA. 49+50.99

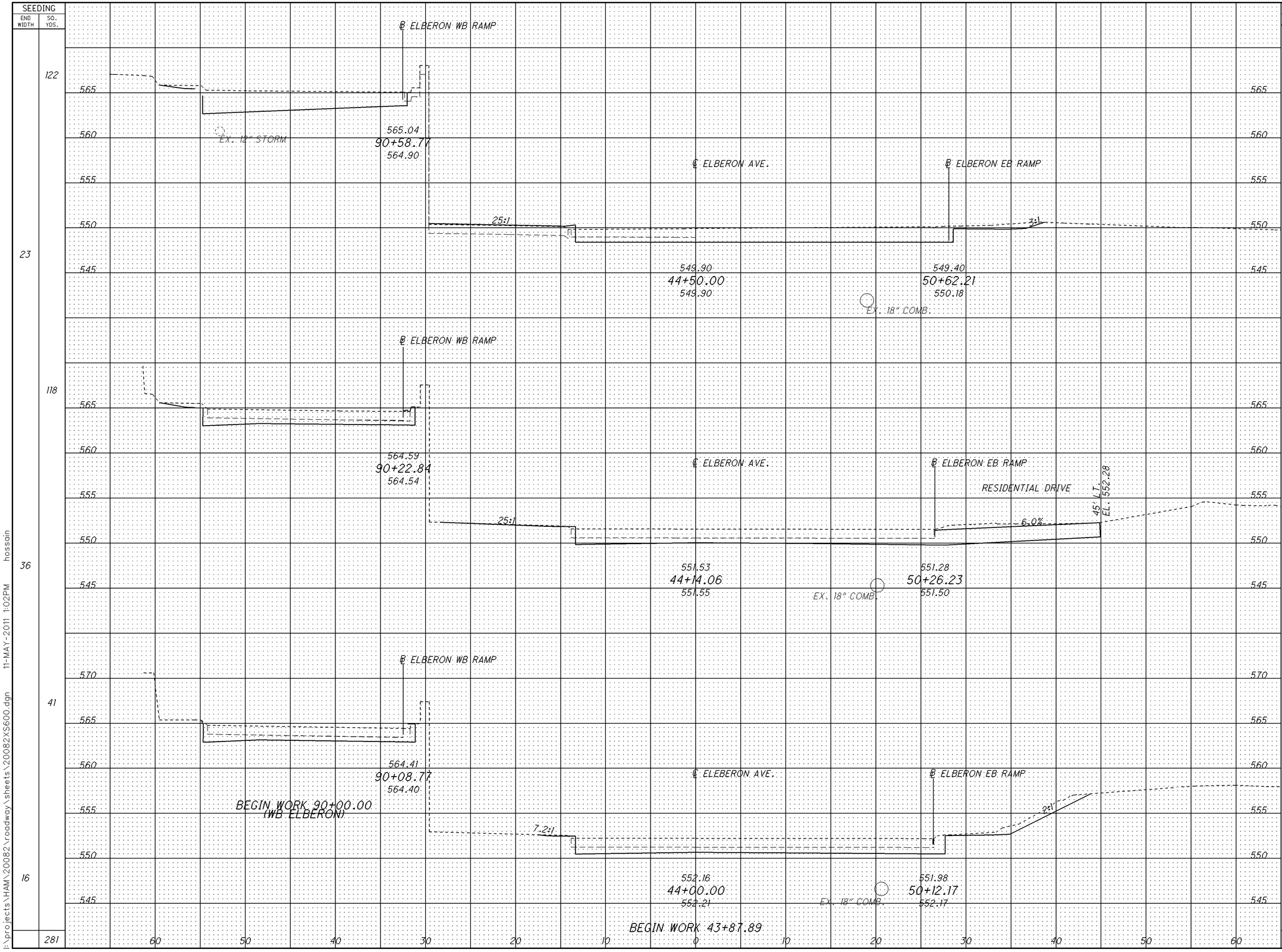
HAM-50-18.79

165
657



166 / 657	**HAM-50-18.79**	**PROFILE (ELBERON AVE.)** **STA. 46+00.00 TO STA. 49+50.99**	CALCULATED MH CHECKED AS

SEEDING	
END WIDTH	SQ. YDS.
23	122
	118
16	36
	41
	281



END AREA		VOLUME	
CUT	FILL	CUT	FILL
4	0	28	0
		12	0
5	0	15	0
9	0	55	83

CALCULATED JMR
CHECKED ABS

ELBERON AVE. CROSS SECTIONS STA. 44+00.00 TO STA. 44+50.00

HAM-50.18.79

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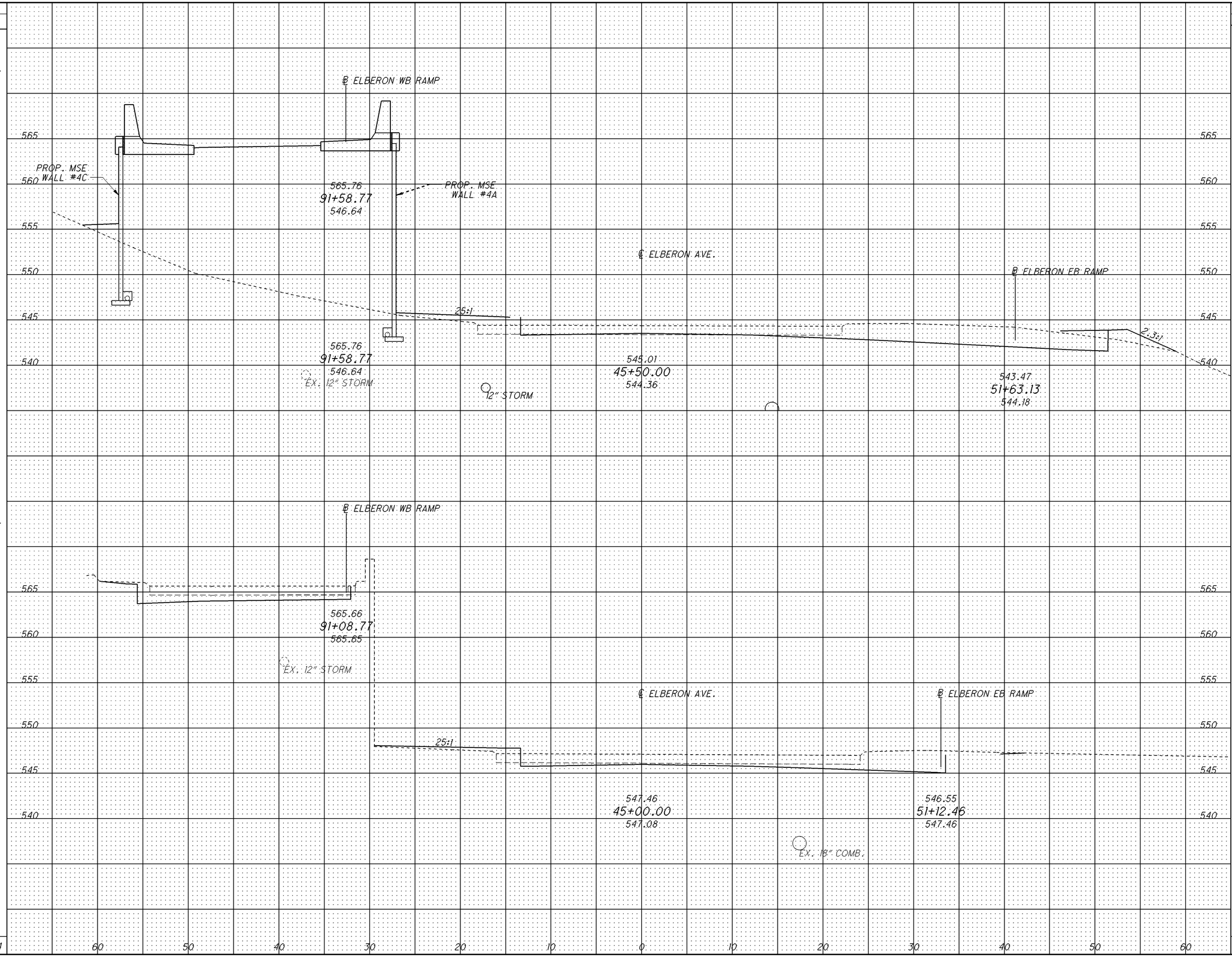
SEEDING	
END WIDTH	SQ. YDS.
32	217
21	147
	364



END AREA	
CUT	FILL
45	14
30	5

VOLUME	
CUT	FILL
56	212
69	18
125	230

CALCULATED JMR
CHECKED ABS

ELBERON AVE. CROSS SECTIONS
STA. 45+00.00 TO STA. 45+50.00

HAM-50-18.79

168
657

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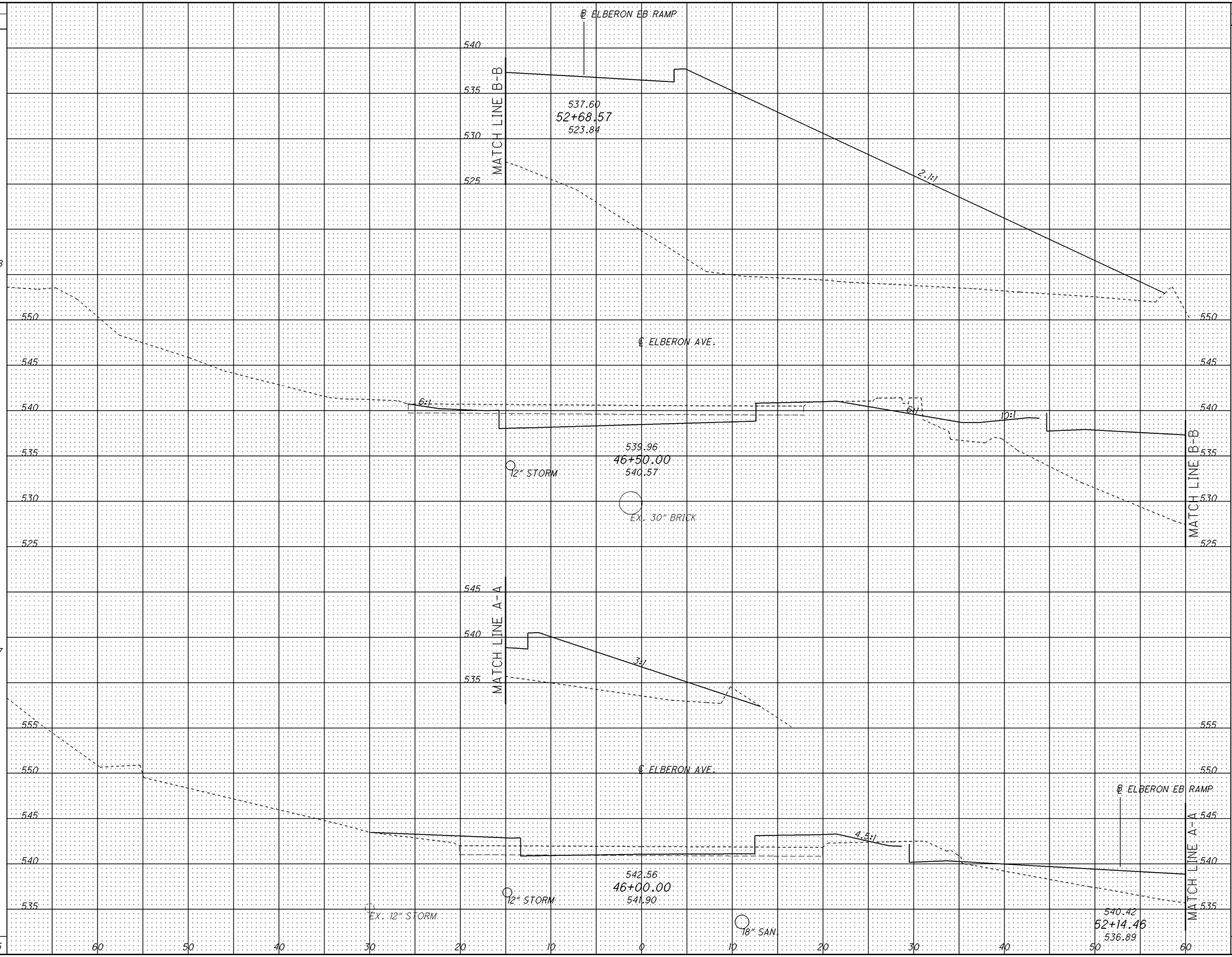
SEEDING	
END WIDTH	SQ. YDS.
	308
97	
	397
46	
	705



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		311	978
		86	1038
		93	1160
		15	215
		404	2138

CALCULATED JMR
CHECKED ABS

ELBERON AVE. CROSS SECTIONS STA. 46+00.00 TO STA. 46+50.00

HAM-50-18.79

169
657

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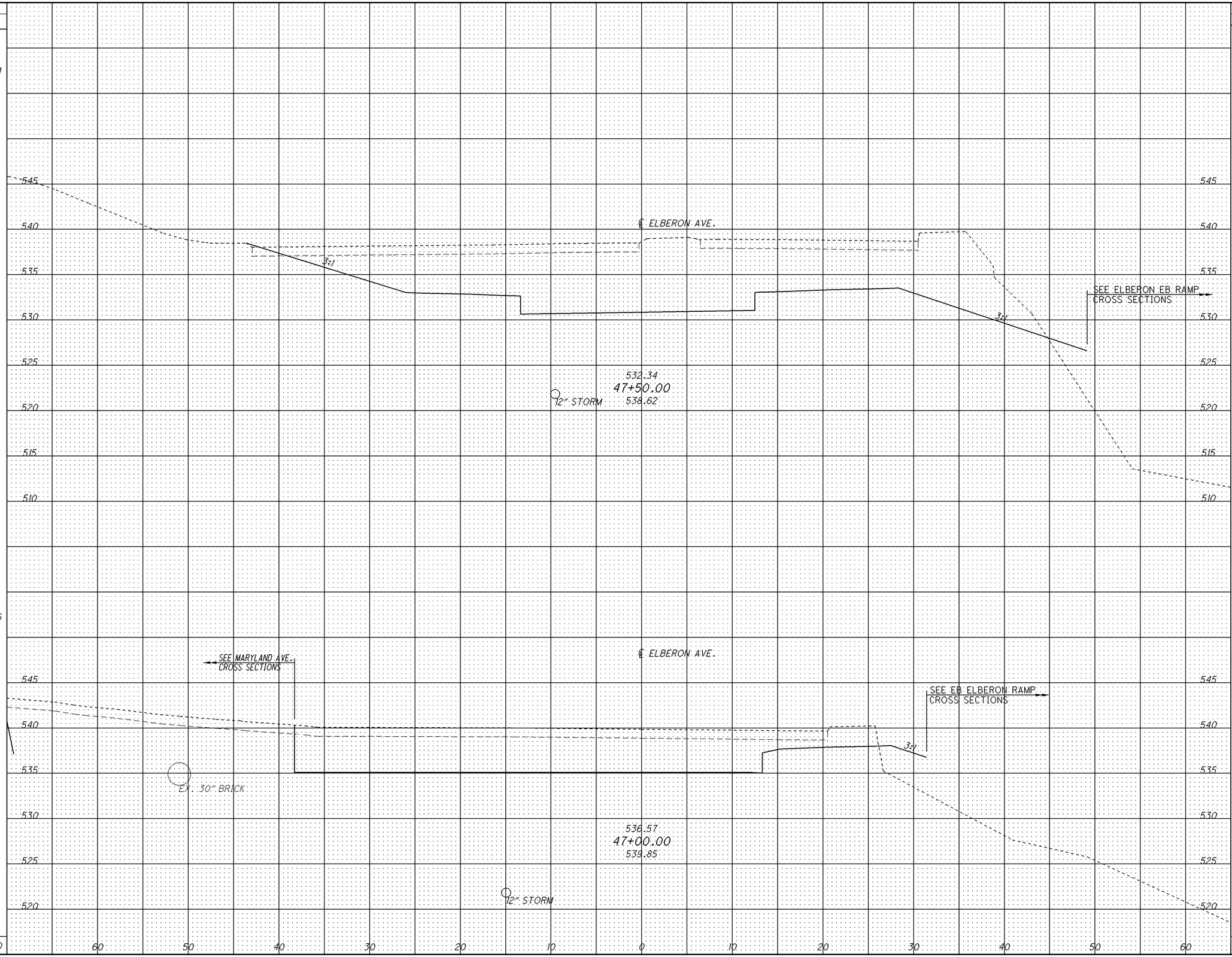
SEEDING END WIDTH	SEEDING SQ. YDS.
60	464
14	206
	670

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		742	603
500	12		
		694	28
250	18		
		1436	631



CALCULATED JMR
CHECKED ABS

ELBERON AVE. CROSS SECTIONS
STA. 47+00.00 TO STA. 47+50.00

HAM-50.18.79

170
657

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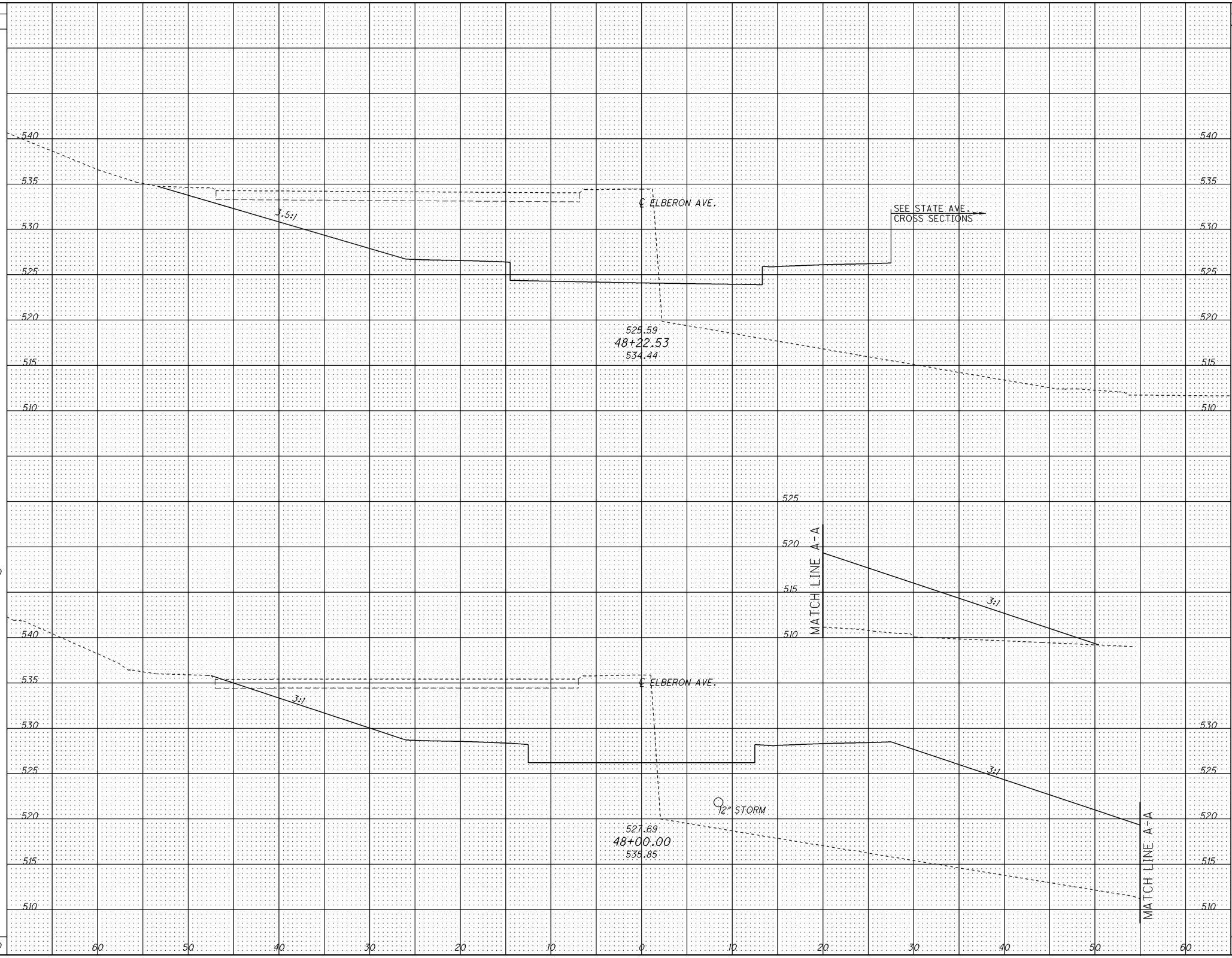
SEEDING	
END WIDTH	SQ. YDS.
45	190
107	190



END AREA		VOLUME	
CUT	FILL	CUT	FILL
350	348	321	189
301	640	602	914
		923	1103

CALCULATED JMR
CHECKED ABS

ELBERON AVE. CROSS SECTIONS
STA. 48+00.00 STA. 48+22.53

HAM-50.18.79

171
657

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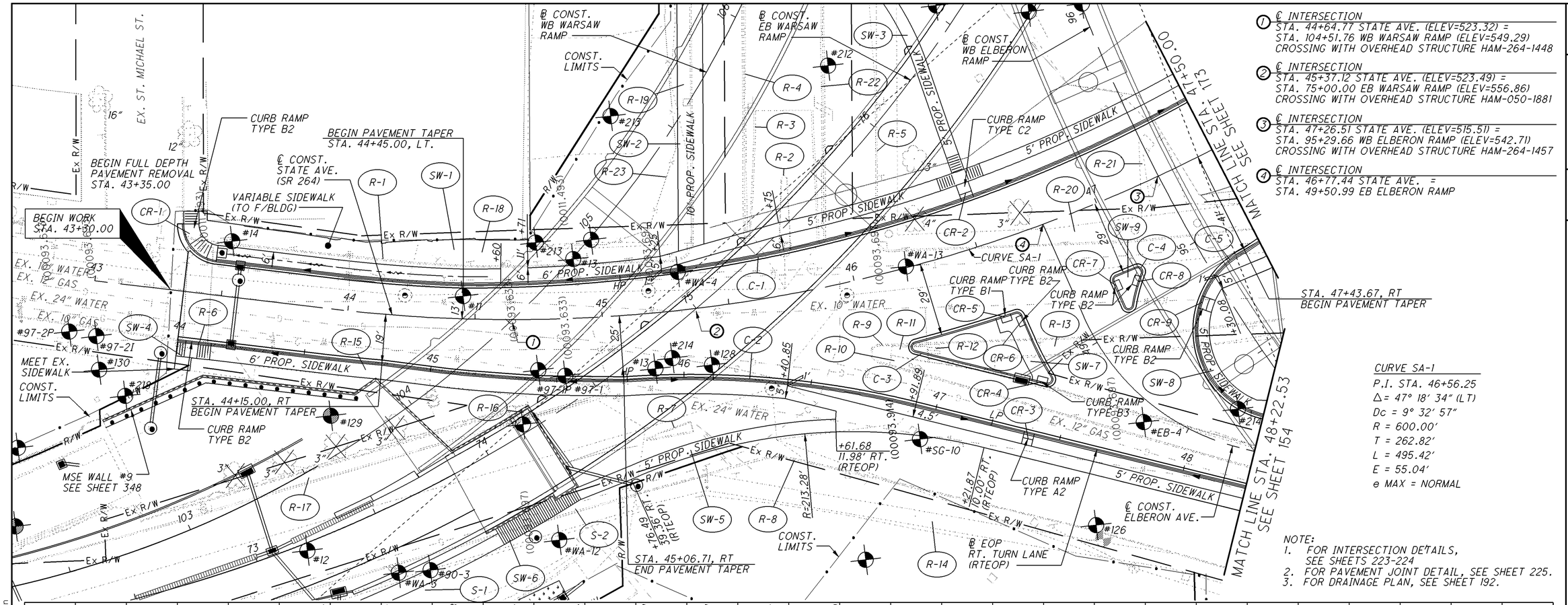

PLAN AND PROFILE (STATE AVENUE) (SR 246)
BEGIN WORK TO STA. 47+50.00

HAM-50-18.79

GP700

172
657

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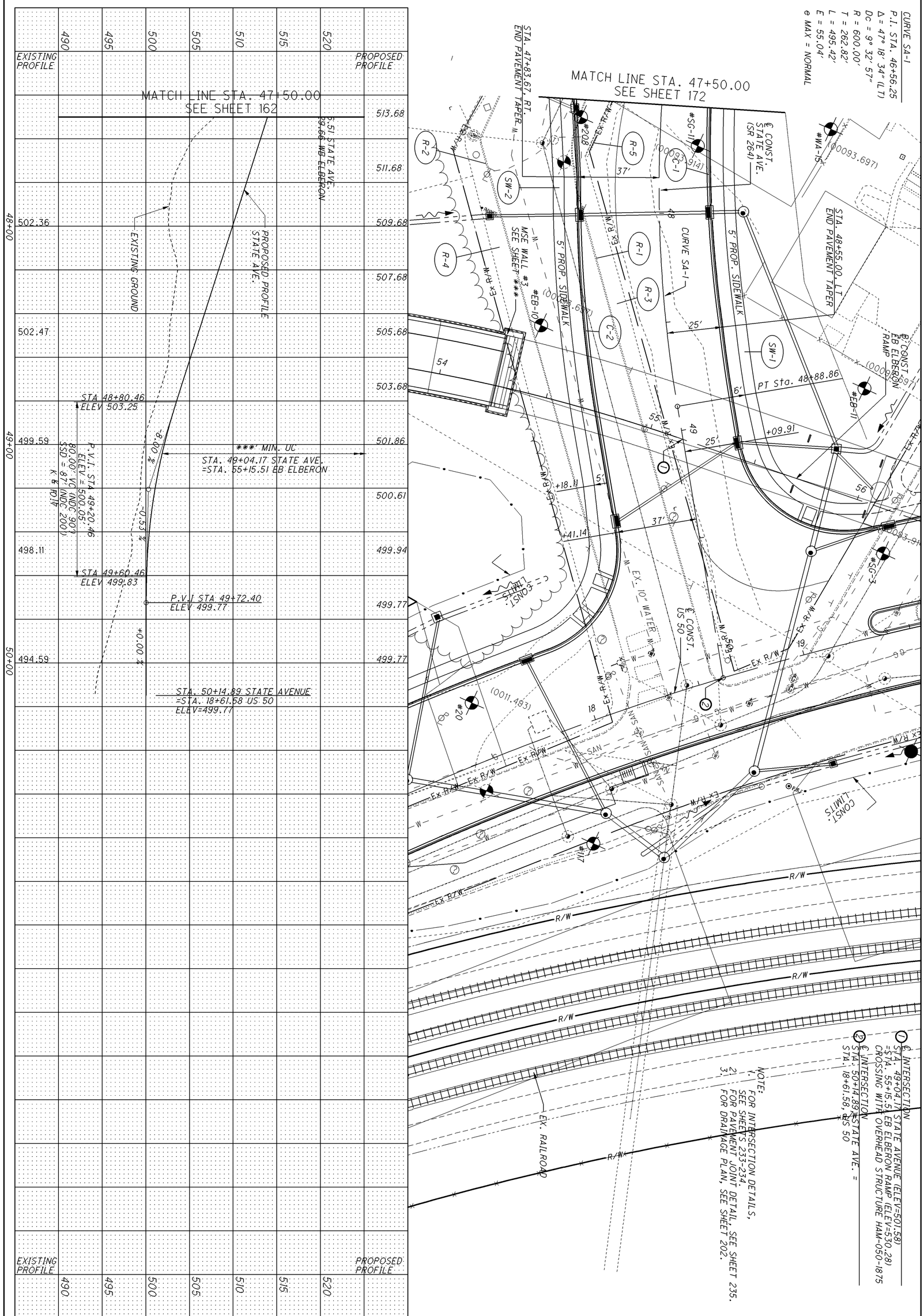


657 / 173	GP701	**HAM-50-18.79**	**PLAN AND PROFILE (STATE AVENUE) (SR 246) STA. 47+50.00 TO STA. 50+14.89**	CALCULATED MJB / CHECKED NJG	0 20 10 40 HORIZONTAL SCALE IN FEET

SEEDING	
END WIDTH	SQ. YDS.
	16
8	
8	16

SOFT SOILS

EX R/W

MEET EX. WALK

EX TEL

EX GAS (TO BE RELOCATED BY OTHERS)

EX TEL (TO BE RELOCATED BY OTHERS)

EX 10" WATER (TO BE RELOCATED BY OTHERS)

BEGIN WORK MEET EXISTING
521.12
43+35.00
521.1

EX 12" GAS (TO BE RELOCATED BY OTHERS)

EX 24" WATER (TO BE RELOCATED BY OTHERS)

EX 10" GAS (TO BE RELOCATED BY OTHERS)

MEET EX. WALK

MSE WALL #9

EX R/W

EX R/W

EX R/W

R/W

°EX TEL

EX GAS

EX 12" GAS

EX 10" WATER

EX 10" GAS

EX 24" WATER

°EX TEL

43+00.00
520.5

550 540 530 520 510 500 490 560 550 540 530 520 510 500

120 100 80 60 40 20 0 20 40 60 80 100 120

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		35	1
69	1		
69	1	35	1

CALCULATED MJB
CHECKED NJG

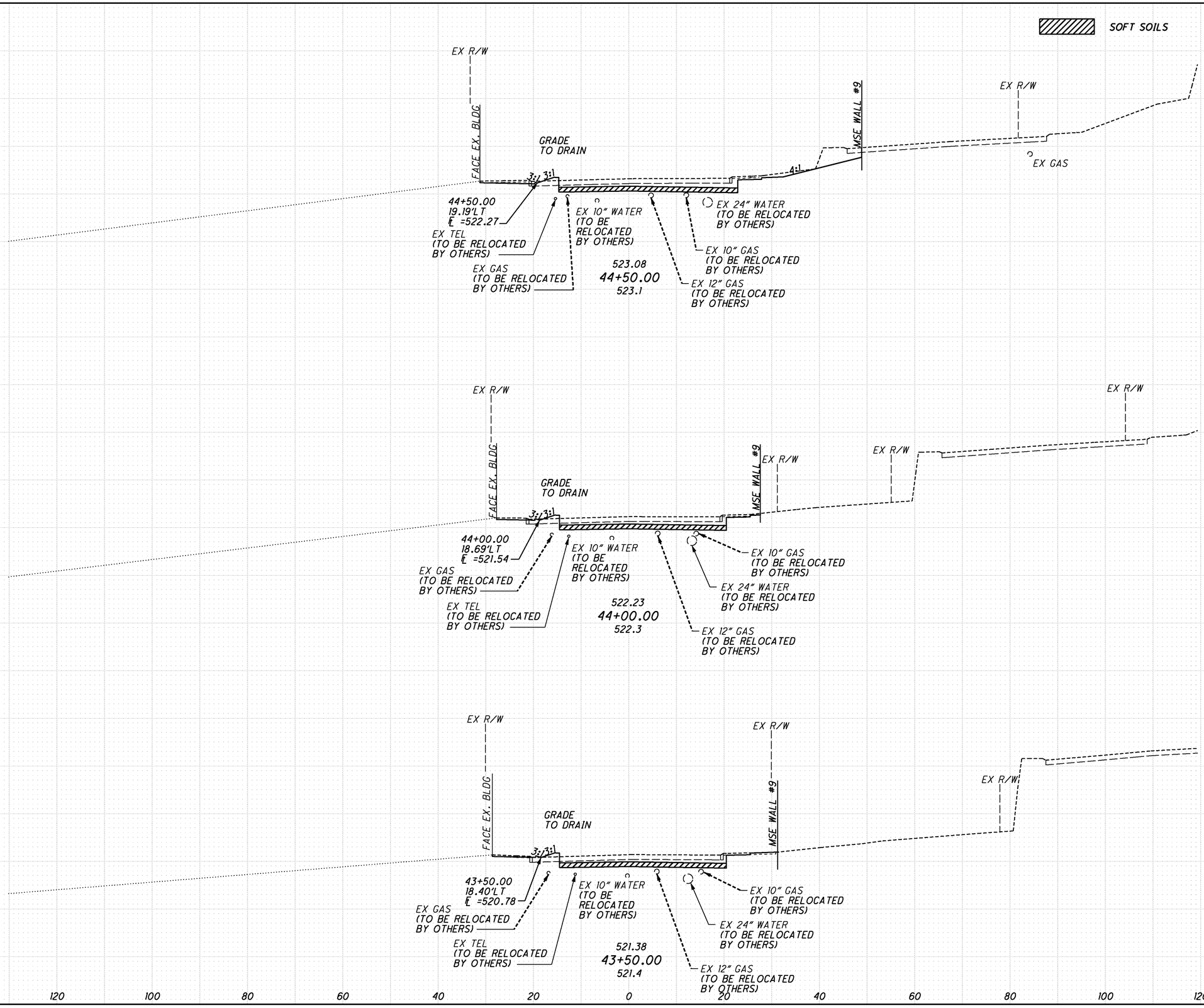
CROSS SECTIONS
STA. 43+00.00 TO STA. 43+35.00 STATE AVENUE

HAM-50-18.79

XS700

174
657

SEEDING	
END WIDTH	SQ. YDS.
	258
27	
	97
8	
	53
11	
46	408



END AREA	
CUT	FILL
106	2
62	2
58	2
226	6

VOLUME	
CUT	FILL
167	201
156	4
111	4
434	209

CALCULATED MJB
CHECKED NJG

CROSS SECTIONS
STA. 43+50.00 TO STA. 44+50.00 STATE AVENUE

HAM-50-18.79

XS701

175
657

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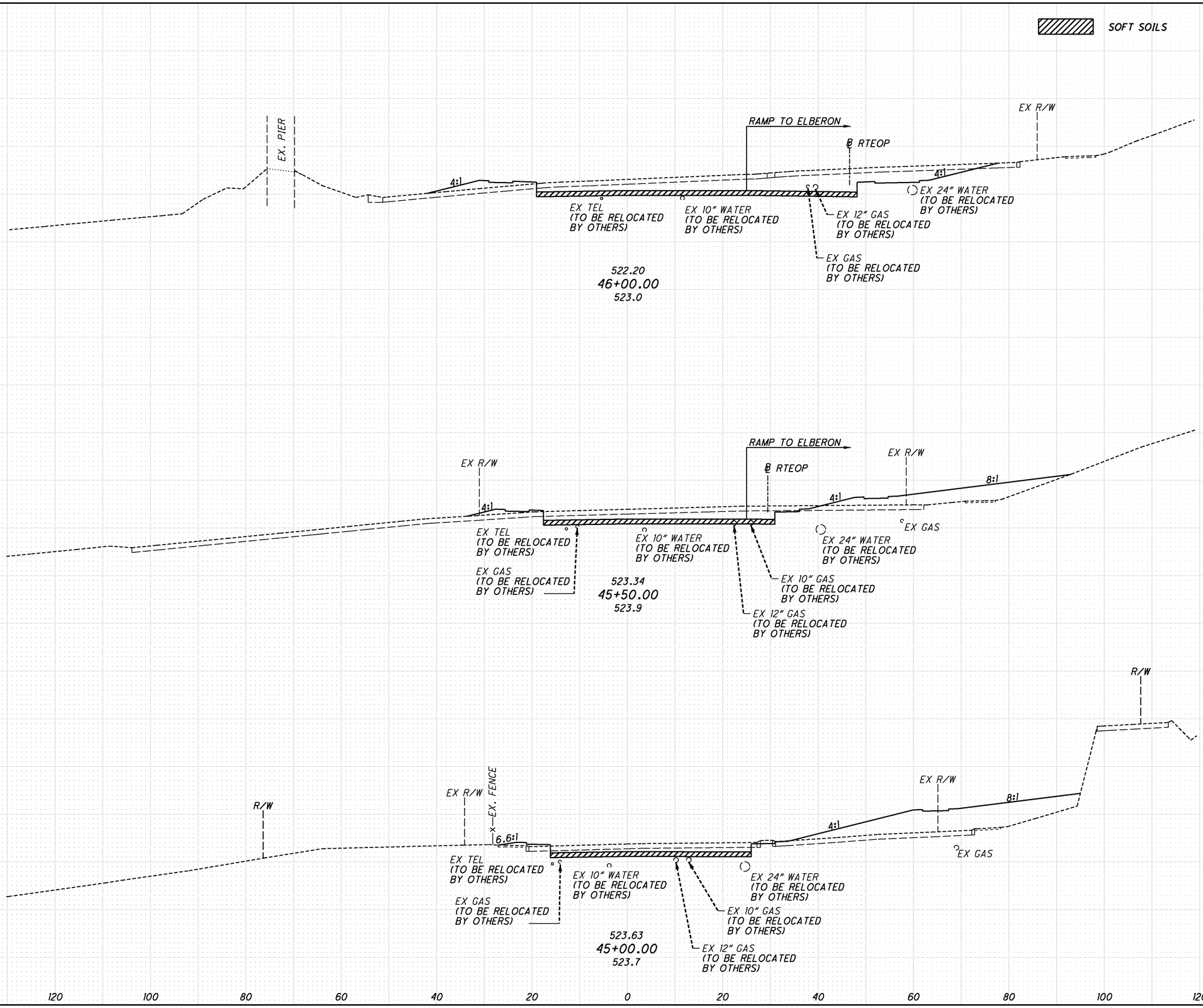
SEEDING	
END WIDTH	SQ. YDS.
	322
39	
	286
64	
	361
66	
169	969



END AREA	
CUT	FILL
280	20
119	112
74	215
473	347

VOLUME	
CUT	FILL
723	57
369	123
179	303
1271	483

CALCULATED MJB
CHECKED NJG

CROSS SECTIONS
STA. 45+00.00 TO STA. 46+00.00 AVENUE

HAM-50-18.79

XS702

176
657

SEEDING END WIDTH	SEEDING SQ. YDS.
	456
66	
	350
60	
	381
77	
203	1187

SOFT SOILS

EX R/W

MATCHLINE STA 48+22.53, 59.84' RT. ELBERON AVE.

VARIES (3:1 MAX)

FACE EX. BLDG

FACE EX. BLDG

EX. FENCE

4:1

EX TEL (TO BE RELOCATED BY OTHERS)

EX 10" WATER

513.68
47+50.00
507.6

MATCHLINE STA 48+22.53, 59.84' RT. ELBERON AVE.

MATCH LINE A-A

℄ RTEOP

3:1

EX 24" WATER (TO BE RELOCATED BY OTHERS)

EX GAS (TO BE RELOCATED BY OTHERS)

EX R/W

EX R/W

EX R/W

MATCH LINE A-A

4:1

517.37
47+00.00
515.7

EX TEL (TO BE RELOCATED BY OTHERS)

EX 10" WATER (TO BE RELOCATED BY OTHERS)

EX R/W

℄ RTEOP

3.8:1

4:1

EX TEL (TO BE RELOCATED BY OTHERS)

EX 10" WATER (TO BE RELOCATED BY OTHERS)

520.21
46+50.00
519.9

EX GAS (TO BE RELOCATED BY OTHERS)

EX 24" WATER (TO BE RELOCATED BY OTHERS)

530 520 510 500 490 540

120 100 80 60 40 20 0 20 40 60 80 100 120

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		3	1169
2	493		
		384	693
413	255		
		846	275
501	42		
916	790	1233	2137

CALCULATED MJB

CHECKED NJG

CROSS SECTIONS
STA. 46+50.00 TO STA. 47+50.00 STATE AVENUE

HAM-50-18.79

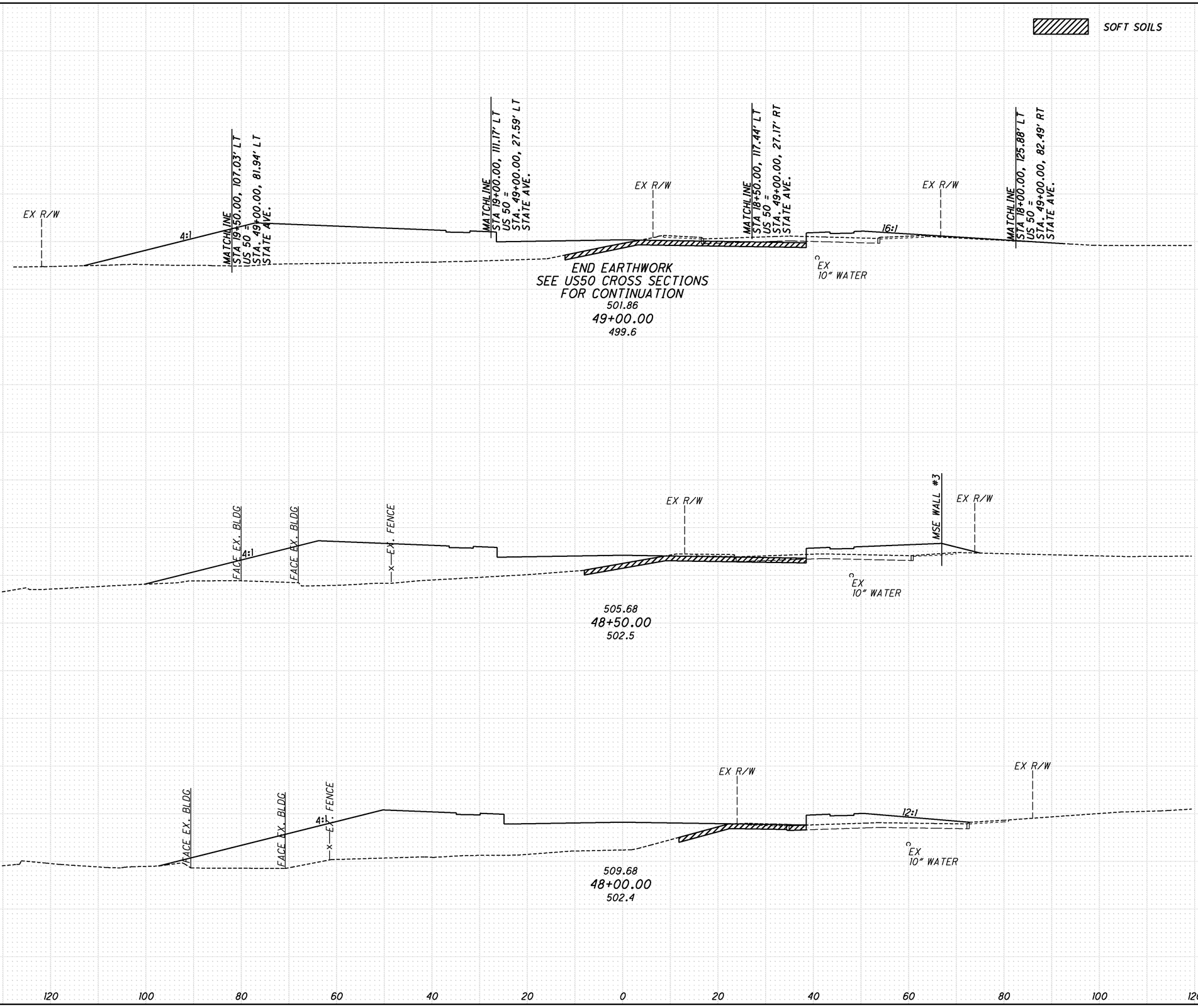
XS703

177
657

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
132		31	633		
	650			41	1163
102		13	593		
	556			13	1262
98		1	770		
332	1206	45	1996	54	2425

CALCULATED MJB

CHECKED NJG



CROSS SECTIONS
STA. 48+00.00 TO STA. 49+00.00 STATE AVENUE

HAM-50-18.79

XS704

178
657

HAM-246-1457

BEGIN WORK
STA. 45+36.00

℄ CONST. PROP.
MARYLAND AVE.

POT 39 @ 46+36.00

PC Sta. 46+30.03

MATCH EXISTING WIDTH
(VARIES 7.7' TO 5.0')

CONST.
LIMITS

S 1° 17' 43" E

46'

MARYLAND AVE
CURVE MA-1
P.I. STA. 46+36.95
Δ = 25° 57' 27" (LT)
Dc = 190° 59' 09"
R = 30.00'
T = 6.91'
L = 13.59'
E = 0.79'
eMAX = 0.040

NOTE:
FOR PROPOSED DRAINAGE
SEE SHEET 201

℄ CONST.
PROP.
ELBERON
EB RAMP

STA. 46+73.09 (ELBERON AVE.)=
STA. 46+95.76, 53' LT. (MARYLAND AVE.)

CONST.
LIMITS

℄ CONST. PROP.
ELBERON AVE.

℄ CONST. PROP.
ELBERON WB RAMP

CONST.
LIMITS

EXISTING 90-2A
97-TP

PROPOSED PROFILE

EXISTING GROUND

℄ ELBERON
WB RAMP

-10.00 %

11.90 %

P.V.I. STA 45+60.00
ELEV = 549.66'
40.00' VC
SSD = 588' K = 21

STA 45+40.00
ELEV 551.66

STA 45+80.00
ELEV 547.28

PROPOSED PROFILE
MARYLAND AVE.

14'-9⅝" MIN. UC

P.V.I. STA 46+80.00
ELEV = 537.70'

+5.08 %

+3.09 %

STA 46+52.00
ELEV 538.71

STA 46+77.00
ELEV 537.61

P.V.I. STA 46+64.51
ELEV = 537.22'
25.00' VC K = 1.7
SSD=29.27' (NDC=155')

552.06 550.63 544.90 538.95 538.50

555 550 545 540 535 530 525

EXISTING PROFILE

550.64 545.73 540.70

46+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MH
CHECKED AS

PLAN AND PROFILE (MARYLAND AVE.)
BEGIN WORK TO STA. 46+95.76

HAM-50-18.79

179
657

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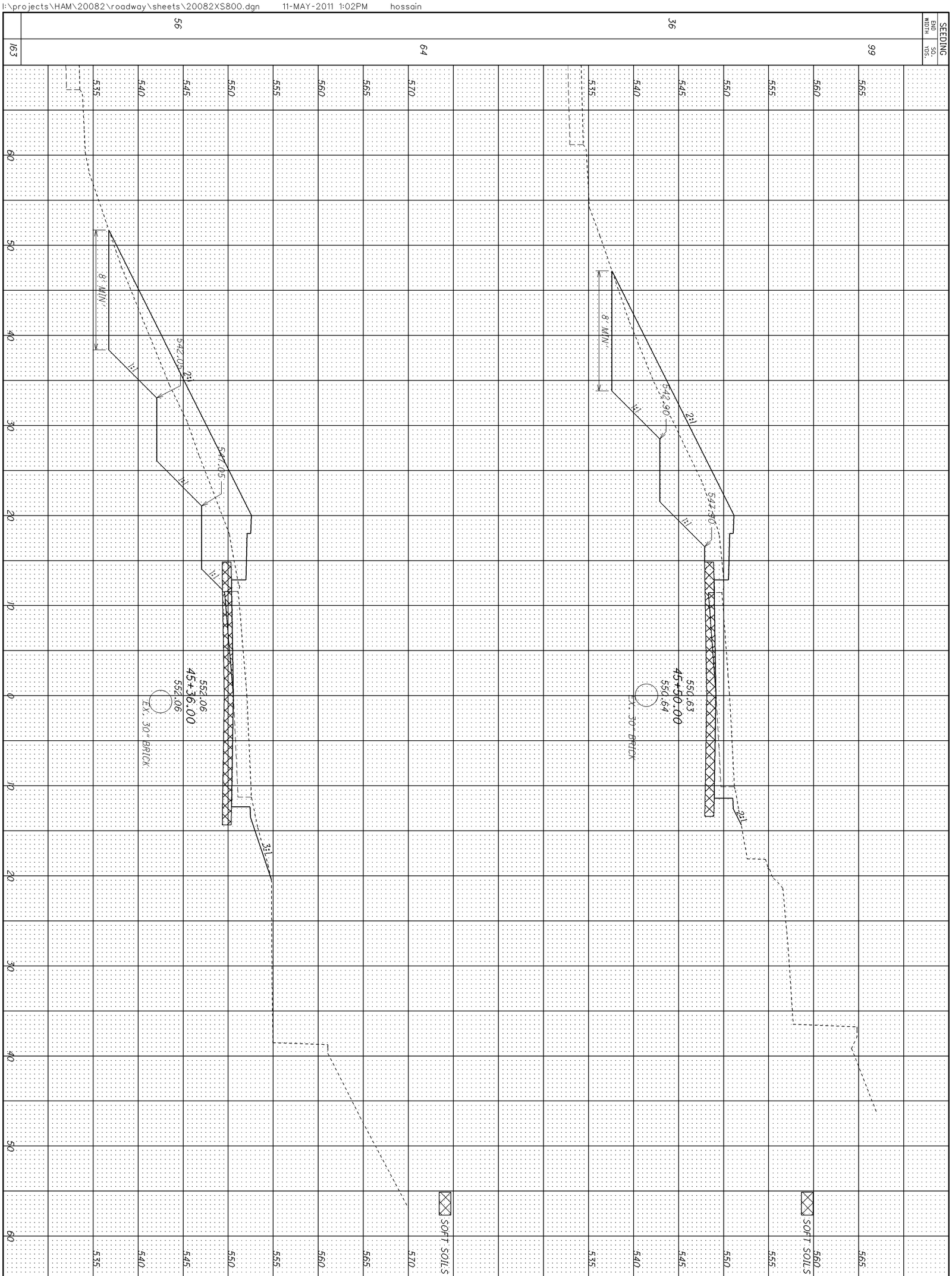


180
657

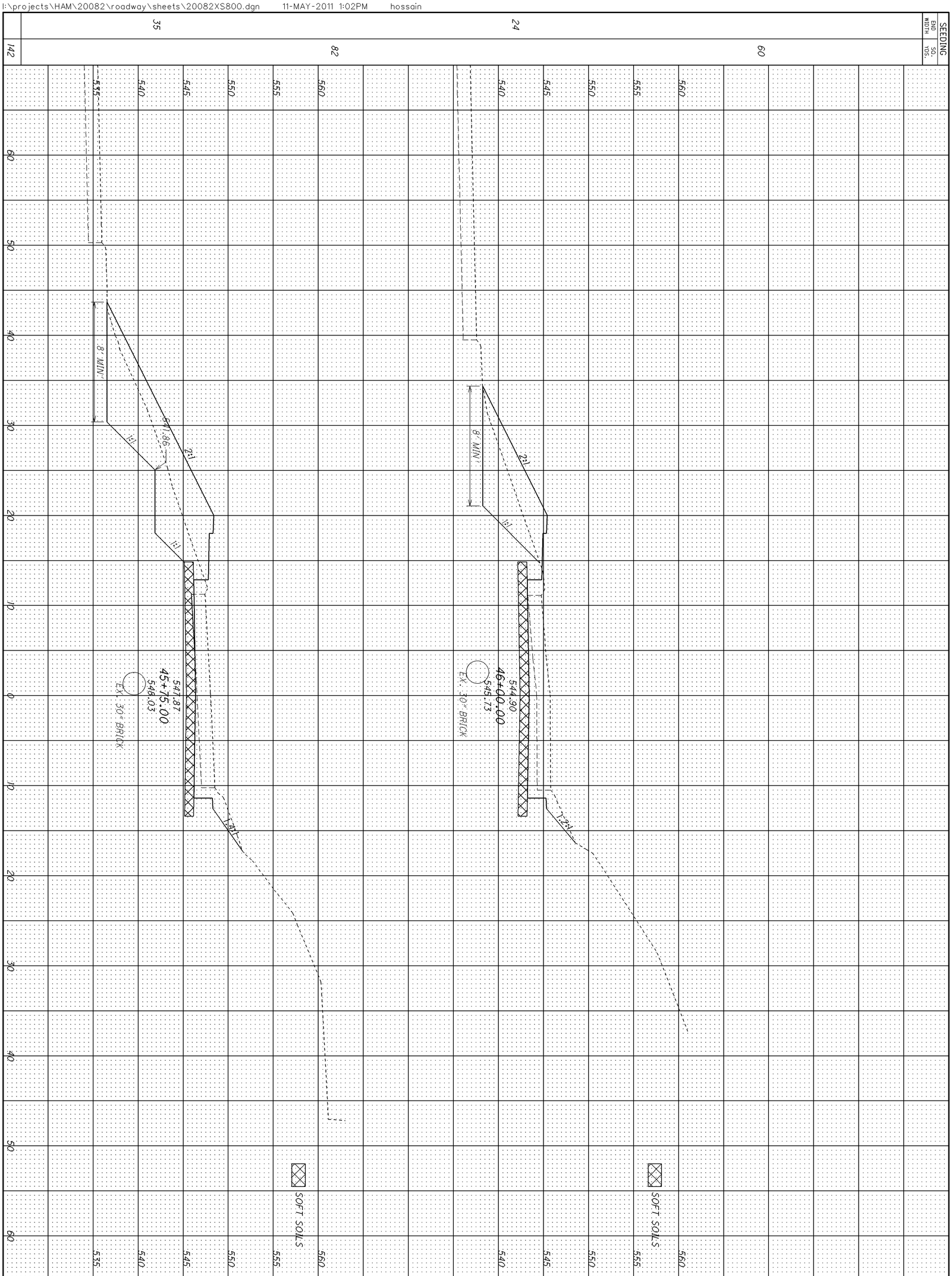
HAM-50.18.79

MARYLAND AVE. CROSS SECTIONS
STA. 45+38.00 TO STA. 45+50.00

CALCULATED JMR

CHECKED ABS

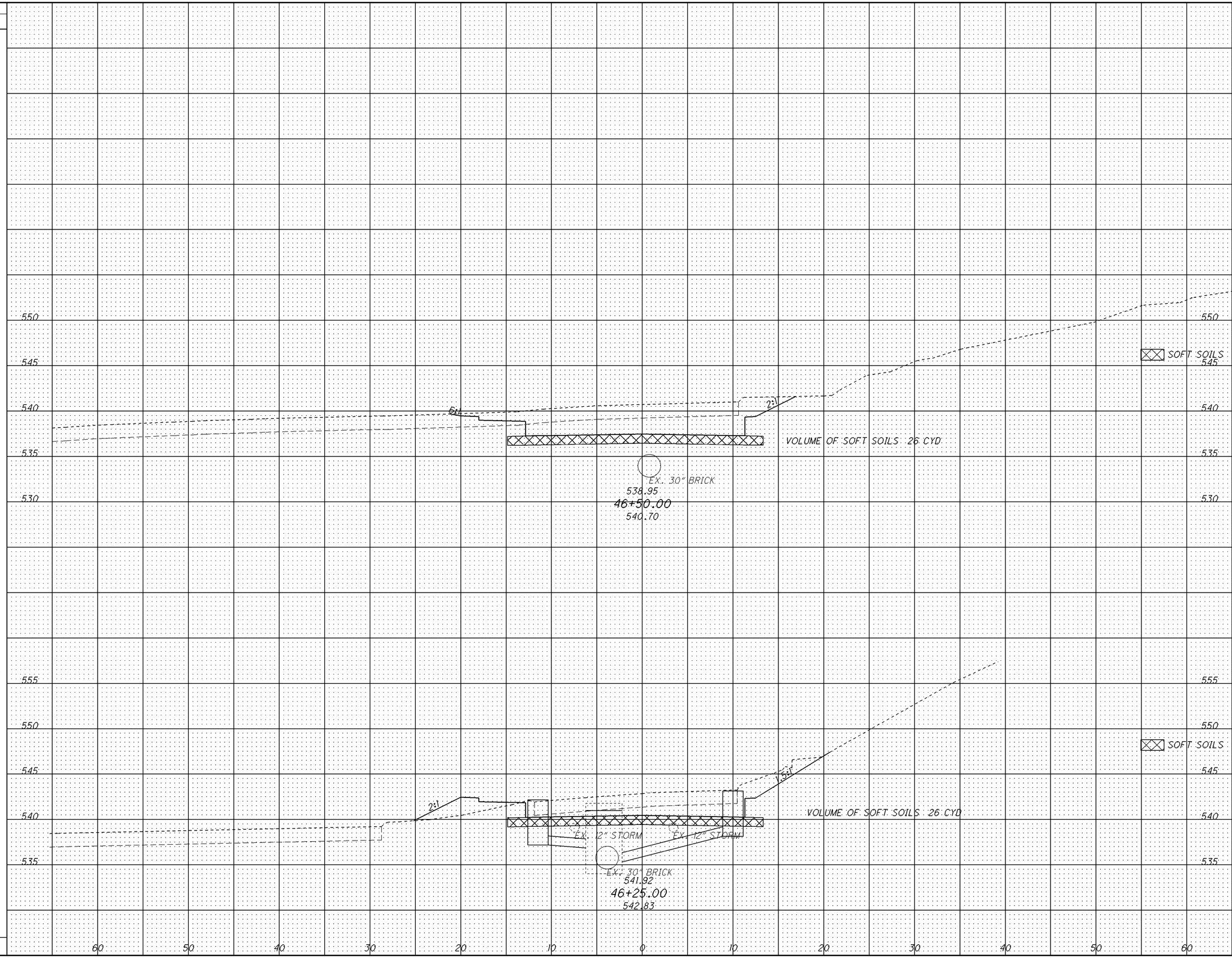
I:\projects\HAM\20082\roadway\sheets\20082XS800.dgn 11-MAY-2011 1:02PM hossain



181 / 657	**HAM-50.18.79**	**MARYLAND AVE. CROSS SECTIONS** **STA. 45+75.00 TO STA. 46+00.00**

CALCULATED JMR
CHECKED ABS

SEEDING	
END WIDTH	SQ. YDS.
9	
	39
19	
	39



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		48	13
		-13	-13
		105	28
		84	31
		-26	-26
		76	39
		93	5

CALCULATED JMR
CHECKED ABS

MARYLAND AVE. CROSS SECTIONS
STA. 46+25.00 TO STA. 46+50.00

HAM-50.18.79

182
657

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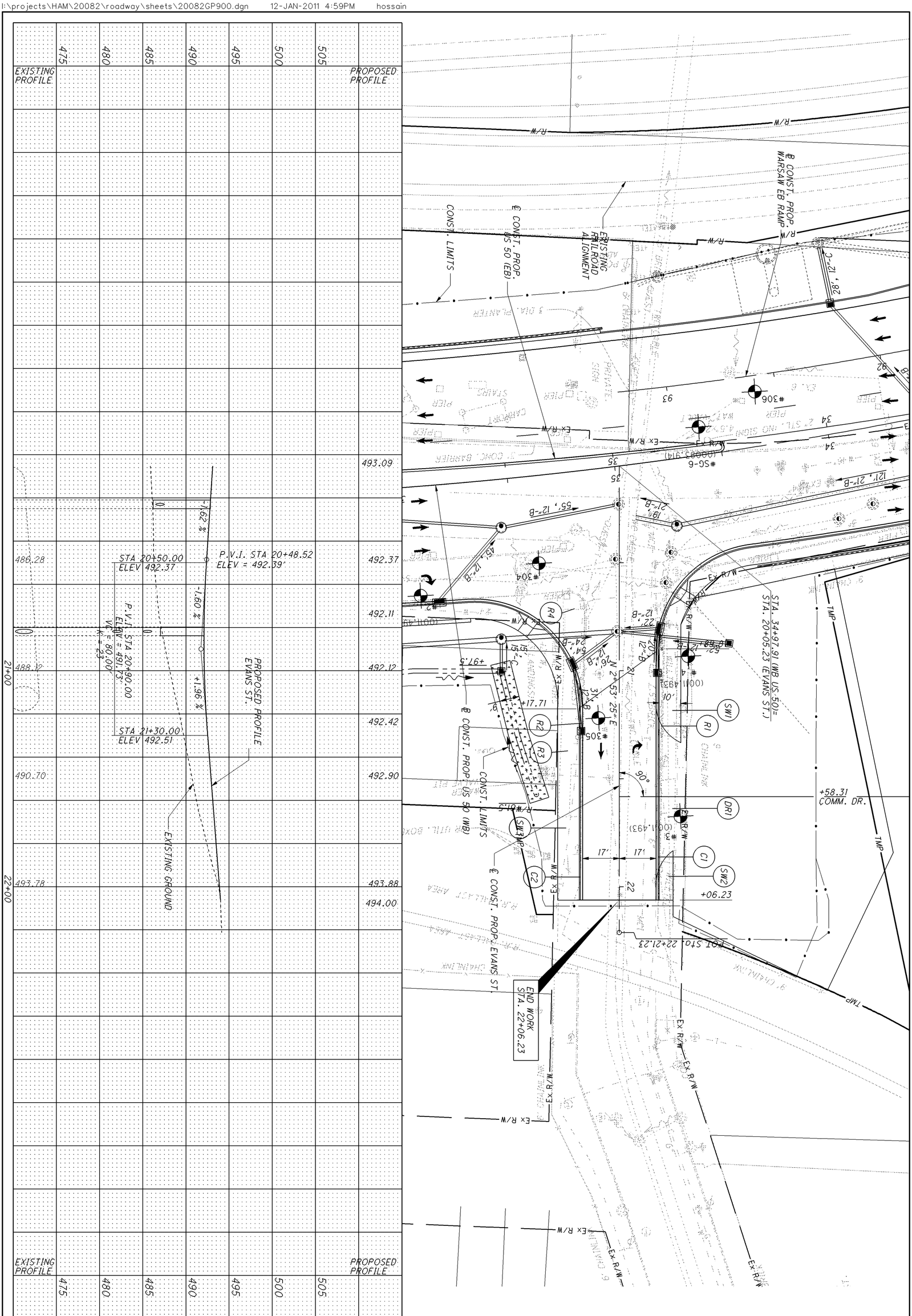
I:\projects\HAM\20082\roadway\sheets\20082GP900.dgn 12-JAN-2011 4:59PM hossain



183
657

HAM-50-18.79

PLAN AND PROFILE (EVANS ST.)
STA. 20+05.23 TO END WORK

CALCULATED MH
CHECKED AS

0 20
10 40
HORIZONTAL SCALE IN FEET

N

SEEDING	
END WIDTH	SQ. YDS.
24	57
	90
30	
0	42
	189

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		42	160
		-40	-40
44	220		
		27	286
		-20	-20
6	295		
		1	333
0	425		
		10	719

CALCULATED JMR
CHECKED ABS

EVANS ST. CROSS SECTIONS
STA. 20+75.00 TO STA. 21+30.00

HAM-50-18.79

184
657

MATCH LINE C-C
MATCH LINE B-B
MATCH LINE A-A
20' ROUNDING
89' LT. EL. 489.97
69' LT. EL. 490.77
8.0%
53' LT. EL. 492.07
COMMERCIAL DRIVE
3.0%
2.0%
SOFT SOILS
4:1
3:1
492.51
21+30.00
489.71
488.8
VOLUME OF SOFT SOILS 42 CYD
89' LT. EL. 489.65
89' LT. EL. 488.4
8.0%
12" STORM
492.12
21+00.00
488.12
4.4:1
3.3:1
487.5
SEE US 50 CROSS SECTIONS
492.11
20+75.00
486.87
495
490
485
60 50 40 30 20 10 0 10 20 30 40 50 60

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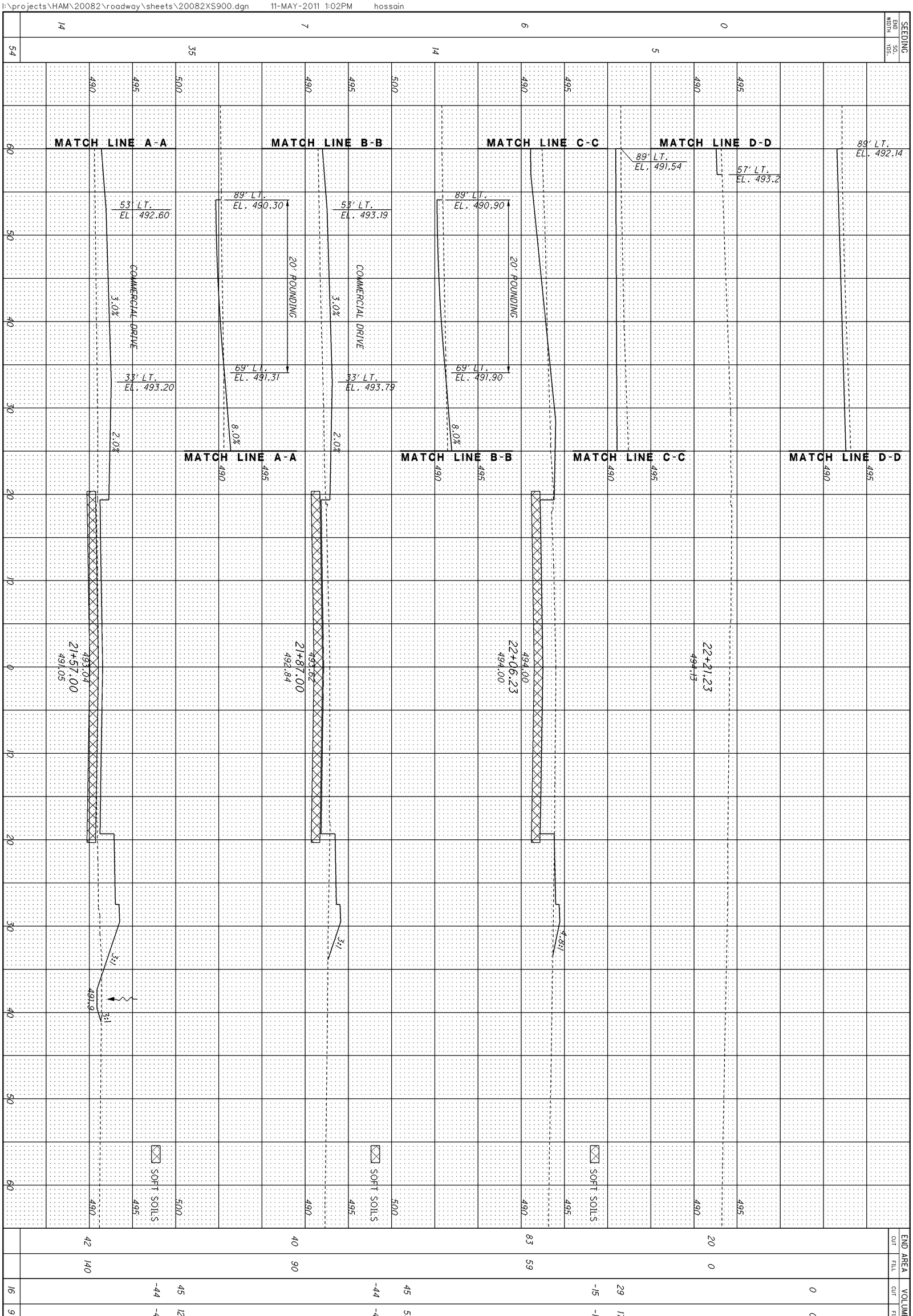
I:\projects\HAM\20082\roadway\sheets\20082XS900.dgn 11-MAY-2011 1:02PM hossain

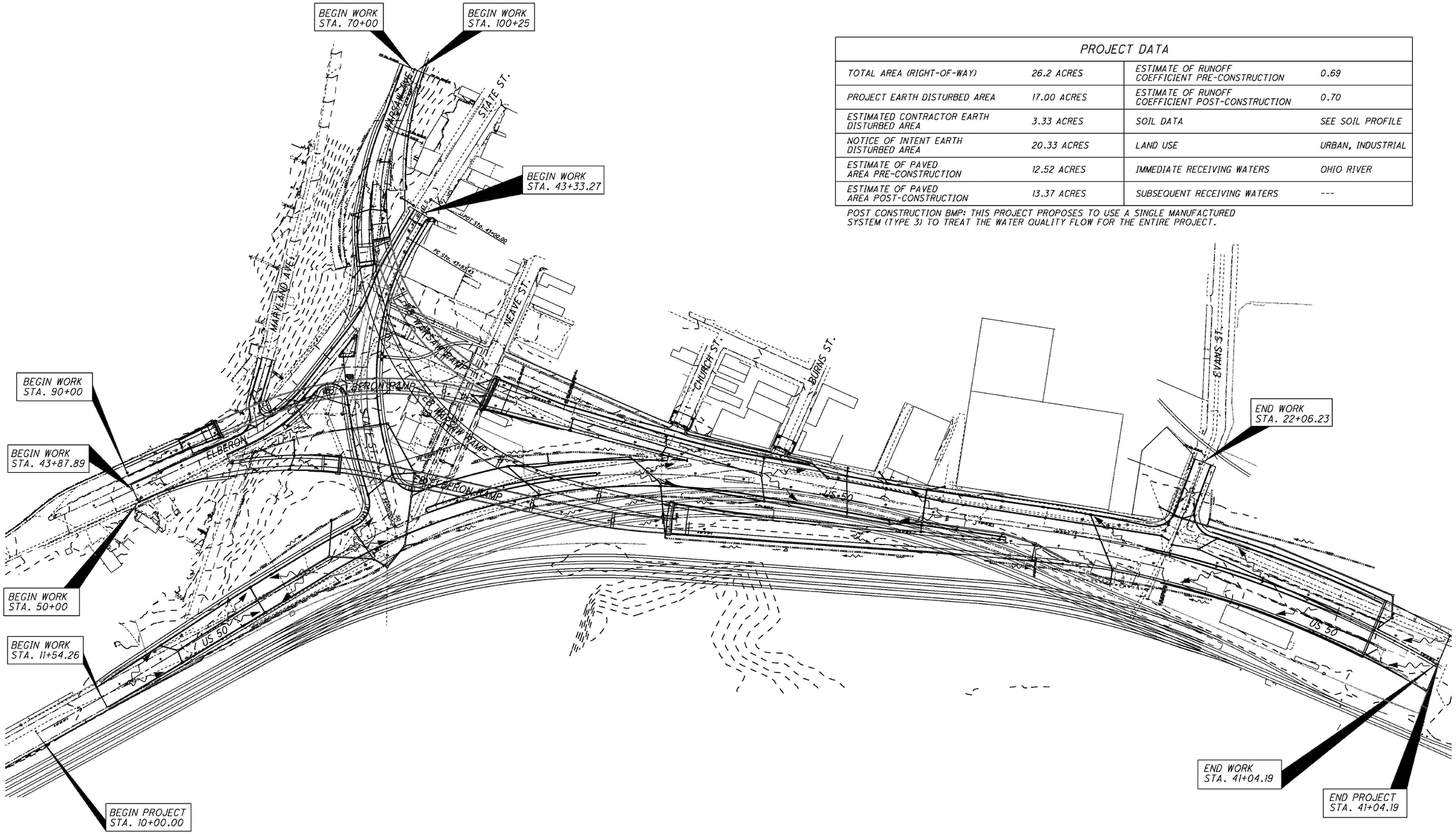


185
657

HAM-50-18.79

EVANS ST. CROSS SECTIONS
STA. 21+57.00 TO STA. 22+21.23

CALCULATED JMR
CHECKED ABS



PROJECT DATA			
TOTAL AREA (RIGHT-OF-WAY)	26.2 ACRES	ESTIMATE OF RUNOFF COEFFICIENT PRE-CONSTRUCTION	0.69
PROJECT EARTH DISTURBED AREA	17.00 ACRES	ESTIMATE OF RUNOFF COEFFICIENT POST-CONSTRUCTION	0.70
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	3.33 ACRES	SOIL DATA	SEE SOIL PROFILE
NOTICE OF INTENT EARTH DISTURBED AREA	20.33 ACRES	LAND USE	URBAN, INDUSTRIAL
ESTIMATE OF PAVED AREA PRE-CONSTRUCTION	12.52 ACRES	IMMEDIATE RECEIVING WATERS	OHIO RIVER
ESTIMATE OF PAVED AREA POST-CONSTRUCTION	13.37 ACRES	SUBSEQUENT RECEIVING WATERS	---

POST CONSTRUCTION BMP: THIS PROJECT PROPOSES TO USE A SINGLE MANUFACTURED SYSTEM (TYPE 3) TO TREAT THE WATER QUALITY FLOW FOR THE ENTIRE PROJECT.

USGS QUADRANT NO. 39084-A5-TF-024
COVINGTON, KY. - OHIO
LONGITUDE: 84°-33'-15"*
LATITUDE: 39°-06'-09"*

* LONGITUDE AND LATITUDE TO APPROX. CENTER OF PROJECT

PROJECT DESCRIPTION

REMOVAL OF THE EXISTING WALDVOGEL MEMORIAL VIADUCT, INCLUDING FOUR RAMPS TO ELBERON AND WARSAW AVENUES. REPLACEMENT OF STRUCTURES FOR THE FOUR RAMPS TO ELBERON AND WARSAW AND REPLACEMENT OF STRUCTURES FOR THE CONNECTION TO THE SIXTH STREET EXPRESSWAY. REMOVAL AND REPLACEMENT OF ROADWAYS FOR THE REQUIRED PORTIONS OF RIVER ROAD, ELBERON AVENUE, WARSAW AVENUE, STATE AVENUE, EVANS STREET, AND MARYLAND AVE.

N

0 50 100 200
HORIZONTAL SCALE IN FEET

CALCULATED BMB
CHECKED

PROJECT SITE PLAN

HAM-50-18.79

186
657

REF NO.	SHEET NO.	STATION TO STATION		601	602	603																			604																670
				ROCK CHANNEL PROTECTION TYPE C WITH FABRIC FILTER	CONCRETE MASONRY	8" CONDUIT, TYPE B, AS PER PLAN	12" CONDUIT, TYPE B	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	12" CONDUIT, TYPE B, 707.01, AS PER PLAN	12" CONDUIT, TYPE B, 748.01, AS PER PLAN	12" CONDUIT, TYPE C	15" CONDUIT, TYPE B	15" CONDUIT, TYPE B, AS PER PLAN	15" CONDUIT, TYPE C	18" CONDUIT, TYPE B	18" CONDUIT, TYPE B, 706.02, AS PER PLAN	18" CONDUIT, TYPE C	24" CONDUIT, TYPE B	21" CONDUIT, TYPE B	24" CONDUIT, TYPE C	30" CONDUIT, TYPE B	30" CONDUIT, TYPE B, 706.02, AS PER PLAN	6" CONDUIT, TYPE B, AS PER PLAN	12" SLOTTED DRAIN, TYPE 2	CATCH BASIN NO. 2-2A	CATCH BASIN NO. 2-2B	CATCH BASIN NO. 2-3	CATCH BASIN NO. 3	CATCH BASIN NO. 3A	CATCH BASIN NO. 6	INLET NO. 2-10	MANHOLE NO. 3	MANHOLE MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE	MANHOLE NO. 5	MANHOLE ADJUSTED TO GRADE	MANHOLE, RECONSTRUCTED TO GRADE	CATCH BASIN RECONSTRUCTED TO GRADE	MANHOLE MISC: EXTEND SLUICE GATE CONTROL STEM	DITCH EROSION PROTECTION
				CY	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	SY
		US 50																																						
D1	196	13+15.0 TO 13+40.0	LT									37																1												
D2	196	13+35.0 TO 13+40.0	RT				27																					1												
D3	196	13+40.0 TO 15+36.0	CL									196																						1						
D4	196	14+85.0 TO 15+36.6	LT									52																1												
D5	196	15+88.0 TO 15+36.6	LT				51																					1												
D6	196	15+36.6 TO 15+36.0	LT									31																1												
D7	196	14+85.0 TO 15+36.0	RT				51																					1												
D8	196	15+88.0 TO 15+36.0	RT				52																					1												
D9	196	15+36.0	RT				31																					1												
D10	196-197	15+36.0 TO 17+10.0	CL															174														1								
D11	197	17+50.0 TO 17+10.0	LT				76																						1												
D12	197	17+10.0 TO 17+90.0	CL															92														1								
D13	197	17+80.0 TO 17+90.0	LT				79																					1												
D14	197	17+90.0 TO 18+09.2	RT																	33												1								
D15	197	18+09.2	RT																															1						
D16	197	21+70.0 TO 21+18.0	RT				88																					1												
D17	197	21+18.0 TO 22+00.0	LT				85																					1												
D18	197	22+00.0	LT								19															1														
D19	197-198	22+00.0 TO 23+65.0	LT								170																					1								
D20	198	23+65.0 TO 24+28.0	LT				83																									1								
D21	198	24+42.2 TO 24+28.0	RT			12				70			102																											
D22	198	24+28.0	RT				7																					1												
D23	198	24+28.0 TO 26+50.0	RT												219																	1								
D24	198	26+00.0 TO 26+50.0	RT								50															1														
D25	202	99+63.0 (WB ELBERON)	RT					26																				1												
D26	202, 198	99+63.0 TO 101+65.0 (WB ELBERON)	LT					202																								1								
D27	198	101+60.0 TO 101+65.0 (WB ELBERON)	LT					23																									1						
D28	198	24+31.0 TO 101+65.0 (WB ELBERON)	LT								13																	1												
D29	198	24+80.9 TO 101+60.0 (WB ELBERON)	LT				54		6																25								1							
D30	198	101+60.0 TO 101+65.0 (WB ELBERON)	RT				18																					1												
D31	198	101+65.0 (WB ELBERON) TO 26+35.0	LT				206																									1								
D32	198	26+35.0	LT					38																								1								
D33	198	26+35.0 TO 26+50.0	LT				53																									1								
D34	198	26+50.0 TO 27+03.0	RT																	53												1								
D35	198	27+00.0 TO 27+03.0	RT								9																				1										
D36	198	27+03.0 TO 28+25.0	RT																	122												1								
D37	198	28+08.9 TO 28+10.0	LT								17																				1										
D38	198	28+10.0 TO 28+24.0	LT				75																					1												
D39	198	28+24.0 TO 28+25.0	RT								8																				1										
D40	198-199	28+25.0 TO 29+15.0	RT																	90												1								
D41	199	29+12.0 TO 29+15.0	RT								9																				1										
D42	199	29+15.0 TO 29+80.5	RT															68														1								
D43	199	88+12.0 (EB WARSAW) TO 29+80.5	RT								15																				1										
D44	199	29+80.5	RT				7																					1												
D45	199	30+16.3 TO 29+80.5	LT								38																				1										
TOTALS CARRIED TO SHEET 191				0	0	12	1043	289	6	70	348	316	102	0	219	0	0	334	0	298	0	0	0	25	2	2	1	17	4	3	0	14	0	1	0	0	0	0	0

CALCULATED BMB
CHECKED BAA

DRAINAGE SUBSUMMARY

HAM-50-18.79

20082DS001.dgn 1/14/2011 11:46:22 AM

DRAINAGE SUBSUMMARY

CALCULATED BMB
CHECKED BAA

REF NO.	SHEET NO.	STATION TO STATION		601	602	603																					604																	670
				ROCK CHANNEL PROTECTION TYPE C WITH FABRIC FILTER	CONCRETE MASONRY	8" CONDUIT, TYPE B, AS PER PLAN	12" CONDUIT, TYPE B	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	12" CONDUIT, TYPE B, 707.01, AS PER PLAN	12" CONDUIT, TYPE B, 748.01, AS PER PLAN	12" CONDUIT, TYPE C	15" CONDUIT, TYPE B	15" CONDUIT, TYPE B, AS PER PLAN	15" CONDUIT, TYPE C	18" CONDUIT, TYPE B	18" CONDUIT, TYPE B, 706.02, AS PER PLAN	18" CONDUIT, TYPE C	24" CONDUIT, TYPE B	21" CONDUIT, TYPE B	24" CONDUIT, TYPE C	30" CONDUIT, TYPE B	30" CONDUIT, TYPE B, 706.02, AS PER PLAN	6" CONDUIT, TYPE B, AS PER PLAN	12" SLOTTED DRAIN, TYPE 2	CATCH BASIN NO. 2-2A	CATCH BASIN NO. 2-2B	CATCH BASIN NO. 2-3	CATCH BASIN NO. 3	CATCH BASIN NO. 3A	CATCH BASIN NO. 6	INLET, NO. 3D, AS PER PLAN INLET NO. 2-10	MANHOLE NO. 3	MANHOLE MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE	MANHOLE NO. 5	MANHOLE ADJUSTED TO GRADE	MANHOLE, RECONSTRUCTED TO GRADE	CATCH BASIN RECONSTRUCTED TO GRADE	MANHOLE MISC: EXTEND SLUICE GATE CONTROL STEM	DITCH EROSION PROTECTION
				CY	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	SY
D46	198-199	27+75.1 TO 28+96.0	LT								29															1															
D47	199	28+96.0 TO 29+80.5	LT				83																					1													
D48	199	32+25.0 TO 31+40.0	LT					85																				1													
D49	199	31+40.0 TO 30+53.0	LT					87																				1													
D50	199	30+53.0 TO 29+80.5	LT									73																1													
D51	199	29+80.5	LT												67													1													
D52	199	29+80.5 TO 30+55.0	RT															75																1							
D53	199	30+53.0 TO 30+55.0	RT				7																						1											
D54	199	30+55.0 TO 31+50.0	RT																		95													1							
D55	199	89+75.0 (EB WARSAW) TO 31+50.0	LT				15																					1													
D56	199	31+50.0 TO 32+20.0	RT																		71													1							
D57	199	89+92.0 TO 90+47.2 (EB WARSAW)	RT				55																						1											
D58	199	91+13.1 TO 90+47.2 (EB WARSAW)	RT				65																						1											
D59	199	90+47.2 (EB WARSAW) TO 32+20.0	RT				37																					1												
D60	199	32+20.0 TO 91+23.0 (EB WARSAW)	RT																		77													1							
D61	199	33+25.0 TO 92+18.8 (EB WARSAW)	LT					124																				1													
D62	199	92+18.8 (EB WARSAW) TO 33+90.0	RT								28																		1												
D63		NOT USED																																									
D64		NOT USED																																									
D65		NOT USED																																									
D66	200	35+61.1 TO 35+59.7	LT											15													1														
D67	200	37+00.0 TO 36+50.0	LT					51																				1													
D68	200	36+50.0 TO 35+86.0	LT					66																				1													
D69	200	35+86.0 TO 35+55.0	LT				45																					1													
D70	200	38+82.7 TO 38+00.0	RT				83																												1						
D71	200	38+00.0 TO 35+55.0	RT				244																												1						
D72	200	35+55.0 TO 35+00.4	LT				55																													1					
D73	200	35+00.4	LT																																		1				
D74	200	39+75.6 TO 39+76.5	LT				9																					1													
D75	200	39+76.5 TO 39+58.3	LT			3				45								46																1							
D76	200	39+76.9	RT			3				33																															
D77	200	39+58.3 TO 37+00.0	LT															268																1							
D78	200	37+00.0 TO 35+59.7	LT															145																1							
D79	200	35+59.7 TO 20+81.8 (EVANS)	LT															54																1							
D80	197	19+91.9 TO 19+97.1	LT				7																						1											
D81	197	20+13.0 TO 19+97.1	LT				22																						1											
D82	197	19+97.1	LT																																		1				
D83	202	20+83.0	LT			6				73																											1				
D84	202	20+97.0	LT			6				76																													1		
D85	203	103+01.2 (WARSAW) TO 43+28.9 (STATE)	LT					30																													1				
D86	203	43+28.9 (STATE)	RT																																		1				
D87	198	23+86.5 TO 24+74.2	LT								97																	1													
D88	198	24+55.5 TO 24+71.3	LT								18																		1													
D89	198	24+71.3 TO 24+74.2	LT								16																		1													
D90	198	24+59.1	LT																																			1				
TOTALS CARRIED TO SHEET 191				0	0	18	727	443	0	227	188	73	0	15	67	0	0	588	0	0	243	0	0	0	1	3	0	13	6	0	1	1	13	0	0	1	2	0	0	0

HAM-50-18.79

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| REF NO. | SHEET NO. | STATION TO STATION | | 601 | 602 | 603 | | | | | | | | | | | | | | | | | | | | 604 | | | | | | | | | | | | | | | | | | |

REF NO.	SHEET NO.	STATION TO STATION		601	602	603																		604																670
				ROCK CHANNEL PROTECTION TYPE C WITH FABRIC FILTER	CONCRETE MASONRY	8" CONDUIT, TYPE B, AS PER PLAN	12" CONDUIT, TYPE B	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	12" CONDUIT, TYPE B, 707.01, AS PER PLAN	12" CONDUIT, TYPE B, 748.01, AS PER PLAN	12" CONDUIT, TYPE C	15" CONDUIT, TYPE B	15" CONDUIT, TYPE B, AS PER PLAN	15" CONDUIT, TYPE C	18" CONDUIT, TYPE B	18" CONDUIT, TYPE B, 706.02, AS PER PLAN	18" CONDUIT, TYPE C	24" CONDUIT, TYPE B	21" CONDUIT, TYPE B	24" CONDUIT, TYPE C	30" CONDUIT, TYPE B	30" CONDUIT, TYPE B, 706.02, AS PER PLAN	6" CONDUIT, TYPE B, AS PER PLAN	12" SLOTTED DRAIN, TYPE 2	CATCH BASIN NO. 2-2A	CATCH BASIN NO. 2-2B	CATCH BASIN NO. 2-3	CATCH BASIN NO. 3	CATCH BASIN NO. 3A	CATCH BASIN NO. 6	INLET NO. 2-10	MANHOLE NO. 3	MANHOLE MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE	MANHOLE NO. 5	MANHOLE ADJUSTED TO GRADE	MANHOLE, RECONSTRUCTED TO GRADE	CATCH BASIN RECONSTRUCTED TO GRADE	MANHOLE MISC: EXTEND SLUICE GATE CONTROL STEM	DITCH EROSION PROTECTION
				CY	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	SY
		EB WARSAW																																						
D133	203	102+25.0 (WB WARSAW) TO 72+06.0	LT				20																				1													
D134	203	72+06.0 TO 73+20.0	LT																			124																1		
D135	203	103+30.0 (WB WARSAW) TO 73+07.0	LT					33																			1													
D136	203	73+07.0 TO 73+20.0	LT				40		14														85						1										
D137	203	73+25.0 TO 73+20.0	RT								14																1													
D138	203-202	73+20.0 TO 74+00.0	RT																			85								1									
D139	202	74+00.0 TO 45+08.6 (STATE)	RT																			45								1									
D140	202	73+97.6 TO 74+08.5	RT								12													1															
D141	202	74+08.5	RT																																					
D142	202	45+08.6 TO 45+61.2 (STATE)	RT				6			64												65								1									
D143	202	45+61.2 (STATE)	RT																																			1		
D144	203	102+59.3 TO 102+68.4 (WB WARSAW)	LT								9													1															
D145	203	102+68.4 (WB WARSAW)	LT																																					
D146	201	53+24.9 TO 53+35.3 (EB ELBERON)	RT				31																				1													
D147	201	53+35.3 (EB ELBERON)	LT		0.21						32																	1												
		US50																																						
D148		NOT USED																																						
D149		NOT USED																																						
D150	196	12+97.7	LT																																			1		
D151	196	13+47.9	RT																																	1				
D152	196	13+62.5	LT																																			1		
D153		NOT USED																																						
D154		NOT USED																																						
D155	197	17+69.1	RT																																			1		
D156	197	17+96.3	RT																																			1		
D157	197	18+17.0	RT																																			1		
D158	197	18+18.2	RT																																			1		
D159	197	18+20.5	RT																																			1		
D160	197	18+44.6	LT																																			1		
D161	197	18+54.1	RT																																			1		
D162	197	19+10.5	RT																																			1		
D163	197	19+33.4	RT																																			1		
D164	197	19+75.0	LT																																			1		
D165	197	21+43.7	RT																																			1		
D166	198	24+09.5	LT																																			1		
D167	198	26+67.2	LT																																			1		
D168	198	27+32.0 TO 27+72.1	LT														47																			1				
D170	198	27+72.1 TO 28+95.0	LT														123																			1				
D171	198	27+93.1	LT																																			1		
D172	199	28+95.0 TO 30+15.9	LT														120																			1				
D173	199	29+61.8	LT																																		1				
D174	199	30+08.9	LT																																		1				
D175	199	30+15.9 TO 31+11.8	LT														96																			1				
TOTALS CARRIED TO SHEET 191				0	0.21	0	97	33	14	64	67	0	0	0	0	386	0	0	0	0	0	319	0	85	2	0	0	4	1	1	0	7	0	0	3	18	0	0	0

CALCULATED BMB
CHECKED BAA

DRAINAGE SUBSUMMARY

HAM-50-18.79

20082DS004.dgn 1/14/2011 11:51:11 AM

REF NO.	SHEET NO.	STATION TO STATION		601	602	603																			604																670
				ROCK CHANNEL PROTECTION TYPE C WITH FABRIC FILTER	CONCRETE MASONRY	8" CONDUIT, TYPE B, 748.01, AS PER PLAN	12" CONDUIT, TYPE B	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	12" CONDUIT, TYPE B, 707.01, AS PER PLAN	12" CONDUIT, TYPE B, 748.01, AS PER PLAN	12" CONDUIT, TYPE C	15" CONDUIT, TYPE B	15" CONDUIT, TYPE B, AS PER PLAN	15" CONDUIT, TYPE C	18" CONDUIT, TYPE B	18" CONDUIT, TYPE B, 706.02, AS PER PLAN	18" CONDUIT, TYPE C	24" CONDUIT, TYPE B	21" CONDUIT, TYPE B	24" CONDUIT, TYPE C	30" CONDUIT, TYPE B	30" CONDUIT, TYPE B, 706.02, AS PER PLAN	6" CONDUIT, TYPE B, AS PER PLAN	12" SLOTTED DRAIN, TYPE 2	CATCH BASIN NO. 2-2A	CATCH BASIN NO. 2-2B	CATCH BASIN NO. 2-3	CATCH BASIN NO. 3	CATCH BASIN NO. 3A	CATCH BASIN NO. 6	INLET NO. 3, AS PER PLAN INLET NO. 2-10	MANHOLE NO. 3	MANHOLE MISC: RECONSTRUCT REGULATION CHAMBER TO GRADE	MANHOLE NO. 5	MANHOLE ADJUSTED TO GRADE	MANHOLE, RECONSTRUCTED TO GRADE	CATCH BASIN RECONSTRUCTED TO GRADE	MANHOLE MISC: EXTEND SLUICE GATE CONTROL STEM	DITCH EROSION PROTECTION
				CY	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	SY
D176	199	31+11.8 32+33.0	LT															121														1								
D177	199	31+38.9	LT																																	1				
D178	199	32+33.0 TO 33+55.9	LT															123														1								
D179	199	33+09.6	LT																																	1				
D180	199	33+55.9 TO 34+75.2	LT															121														1								
D181	199	33+63.1	LT																																	1				
D182	199	33+85.5	LT																																	1				
D183	199	34+01.9	LT																																	1				
D184	200	34+75.2 TO 34+92.3	LT															19														1								
D185	200	34+79.5	LT																																	1			1	
D186	200	35+04.9	LT																																	1				
D187	201	46+30.1 (ELBERON)	RT																																1					
D188	203	70+99.1 (EB WARSAW)	LT																																	1				
D189	202	44+21.9 (STATE)	LT																																1					
D190	202	45+18.9 (STATE)	LT																																1					
D191	202	45+96.0 (STATE)	LT																																	1				
D192	202	47+69.4 (STATE)	RT																																	1				
D193	202	20+52.8 (NEAVE)	LT																																1					
D194	202	21+18.5 (NEAVE)	LT																																1					
D195	202	21+35.4 (NEAVE)	LT																																		1			
D196	202	21+54.3 (NEAVE)	LT																																		1			
D197	198	102+34.2 (WB WARSAW)	LT																																	1				
E1	201, 197	52+70.0 TO 54+11.8 (EB ELBERON)	LT	93																																				
E2	202-203	71+46.5 TO 74+00.0 (EB WARSAW)	RT																																					386
E3	200	20+97.5 TO 21+61.5 (EVANS)	RT																																					67
D5A	197	17+69.0	RT																																	1		1		
D6A	197	17+69.4	LT																																	1				
D7A	197	17+76.0	LT																																		1				
D167A	198	24+44.3	LT																																	1				
D167B	198	25+19.9	LT																																	1				
D167C	198	26+19.4	LT																																	1				
D167D	198	26+81.3	LT																																	1				
S01	198	27+03.3	LT																					50																
S02	198	27+51.7	LT																					50																
S03	198	28+07.0	LT																					50																
S04	198	28+30.1	LT																					50																
S05	199	29+74.2	LT																					50																
S06	199	33+73.2	LT																					50																
TOTALS, THIS SHEET				93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	384	0	0	0	300	0	0	0	0	0	0	0	0	4	1	0	5	17	2	2	453
TOTALS FROM SHEET 187				0	0	12	1043	289	6	70	348	316	102	0	219	0	0	334	0	298	0	0	0	25	2	2	1	17	4	3	0	0	14	0	1	0	0	0	0	0
TOTALS FROM SHEET 188				0	0	18	727	443	0	227	188	73	0	15	67	0	0	588	0	0	243	0	0	0	1	3	0	13	6	0	1	1	13	0	0	1	2	0	0	0
TOTALS FROM SHEET 189				0	0	3	789	21	0	31	225	0	0	0	60	403	133	152	0	57	0	85	0	0	2	1	1	13	9	0	0	0	10	0	0	4	3	0	0	0
TOTALS FROM SHEET 190				0	0.21	0	97	33	14	64	67	0	0	0	0	386	0	0	0	0	0	319	0	85	2	0	0	4	1	1	0	0	7	0	0	3	18	0	0	0
TOTALS CARRIED TO GENERAL SUMMARY				93	0.21	33	2656	786	20	392	828	389	102	15	346	789	133	1074	384	355	243	404	300	110	7	6	2	47	20	4	1	1	48	1	1	13	40	2	2	453

CALCULATED BMB CHECKED BAA

DRAINAGE SUBSUMMARY

HAM-50-18.79

REF NO.	SHEET NO.	STATION TO STATION	SIDE		603			605	605	BENDS AND BRANCHES		
					6" CONDUIT, TYPE B			6" BASE PIPE UNDERDRAINS	6" UNCLASSIFIED PIPE UNDERDRAINS	6"x6"x6" TEE	6" 90° BEND	6" CAP
					FT			FT	FT	EACH		
		US 50										
U1	196	11+54 TO 13+15	LT					160				1
U2	196	11+54 TO 13+35	RT					182				1
U3	196	13+19 TO 14+85	LT					166				1
U4	196	13+39 TO 14+85	RT					146				1
U5	196	14+89 TO 15+37	LT					48				1
U6	196	14+89 TO 15+36	RT					47				1
U7	196	15+37 TO 15+84	LT					47				1
U8	196	15+36 TO 15+84	RT					48				1
U9	196-197	15+88 TO 17+76	LT					191				1
U10	196-197	15+88 TO 21+70	RT					572				
U11	197	17+80 TO 49+40 STATE AVE.	LT					79				1
U12	197	49+14 STATE AVE. TO 19+51	LT					84				1
U13	197	19+55 TO 21+18	LT					170				1
U14	197-198	21+18 TO 24+31	LT					323				
U15	197-198	21+74 TO 24+28	RT					249				1
U16	198	24+31 TO 24+41	LT						10			1
U17	198	101+60 TO 101+75 WB ELBERON	RT						14			1
U18	198	24+32 TO 27+00	RT					265				1
U19	198	27+03 TO 28+24	RT					123				1
U20	198-199	28+26 TO 29+12	RT					87				1
U21		NOT USED										
U22	198	27+30 TO 28+10	LT					80				1
U23	198-199	28+14 TO 28+96	LT					82				1
U24		NOT USED										
U25		NOT USED										
U26		NOT USED										
U27		NOT USED										
U28		NOT USED										
U29		NOT USED										
U30		NOT USED										
U31	199	29+14 TO 29+81	RT					67				1
U32	199	29+81 TO 30+50	RT					70				1
U33	199	30+53 TO 31+58	RT					106				1
U34	199	29+00 TO 29+81	LT					79				1
U35	199	29+81 TO 30+50	LT					70				1
U36	199	30+53 TO 30+97	LT					45				1
U37		NOT USED										
U38		NOT USED										
U39	199-200	34+53 TO 20+80 EVANS STREET	LT					50				1
U40	199-200	33+90 TO 34+95	RT					105				1
U41	200	35+00 TO 37+92	LT		17			293			1	1
U42	200	37+94 TO 38+77	LT					80				1
U43	200	38+76 TO 39+17	LT					40				1
TOTALS CARRIED TO NEXT COLUMN					17			4154	24	0	1	31

REF NO.	SHEET NO.	STATION TO STATION	SIDE		603			605	605	BENDS AND BRANCHES		
					6" CONDUIT, TYPE B			6" BASE PIPE UNDERDRAINS	6" UNCLASSIFIED PIPE UNDERDRAINS	6"x6"x6" TEE	6" 90° BEND	6" CAP
					FT			FT	FT	EACH		
		EVANS STREET										
U44	200	35+82 US 50 TO 20+97	LT & RT					68				1
U45	200	20+97 TO 21+25	RT					29				1
U46	200	21+28 TO 22+06	RT					79				1
U47	200	20+81 TO 20+98	LT					18				1
U48	200	21+01 TO 22+06	LT					106				1
		ELBERON AVE. EASTBOUND RAMP										
U49	201	50+04 TO 53+25	RT					319				1
U50	201	52+04 TO 53+35	LT					136				1
		ELBERON AVE. WESTBOUND RAMP										
U51	201	90+00 TO 91+12	RT					112			1	1
U52	201	90+00 TO 91+12	LT					112			1	1
U53	202	99+40 TO 99+63	RT					25				1
U54	197-198	99+67 TO 101+60	RT					193				1
		ELBERON AVE.										
U55	201	43+88 TO 46+25	LT					237				1
U56	201	46+29 TO 46+63	LT					37				1
U57	201	45+95 TO 48+11	RT					224				1
U58	201-202	47+37 TO 46+36 STATE AVE.	LT					185				1
		MARYLAND AVE.										
U59	201	45+37 TO 46+12	RT					77				1
U60	201	46+16 TO 46+76	RT					66				1
U61	201	45+37 TO 46+20	LT					83				1
U62	201	46+24 TO 47+34 ELBERON AVE.	LT					66				1
		STATE STREET										
U63	202-203	43+56 TO 46+50	RT		22			304			1	
U64	202-203	43+56 TO 48+00	LT					433				
U65	201-202	48+13 ELBERON AVE. TO 47+54	RT					105				1
U66	202	47+56 TO 48+00	RT					46				1
U67	197,202	48+03 TO 49+36	RT					138				1
U68	197,202	48+04 TO 49+10	LT					102				1
		WARSAW AVE. EASTBOUND RAMP										
U69	203	70+00 TO 73+25	RT					333				1
U70	198-199	84+77 TO 88+12	LT					334				1
U71	199	89+01 TO 89+92	RT					90				1
U72	199	88+14 TO 89+75	LT					162				1
U73	199	89+75 TO 89+89	LT						14			1
U74	199	89+94 TO 90+47	RT					53				1
U75	199	90+47 TO 91+11	RT					62				1
U76	199	91+13 TO 92+16	RT					103				1
		WARSAW AVE. WESTBOUND RAMP										
U77	203	100+25 TO 102+25	LT					198				1
U78	203	102+29 TO 103+30	LT					98				1
TOTALS CARRIED FROM PREVIOUS COLUMN					17			4154	24		1	31
TOTALS CARRIED TO GENERAL SUMMARY					62			8887	38	1	3	64

CALCULATED BMB
CHECKED BAA

UNDERDRAIN SUBSUMMARY

HAM-50-18.79

REF NO.	SHEET NO.	STATION TO STATION	SIDE	202 PIPE REMOVED, 24" AND UNDER	202 PIPE REMOVED, OVER 24"	202 MANHOLE REMOVED	202 CATCH BASIN REMOVED	202 MANHOLE ABANDONED			
				FOOT	FOOT	EACH	EACH	EACH			
RD1	196	14+80.8	RT					1			
RD2	196	15+98.4	RT					1			
RD3	196	16+08.1	RT	28			1				
RD4	197	17+27.6	RT					1			
RD8	197	17+82.0 TO 18+18.2	RT	40			1				
RD9	197	18+22.0 TO 18+54.1	LT & RT	46			1				
RD10	197	18+58.5 TO 18+54.1	RT	19			1				
RD11	197	18+81.7	RT					1			
RD12	197	18+88.1 TO 18+81.7	RT	15			1				
RD13	197	19+02.4 TO 19+10.5	RT	8			1				
RD14	197	19+57.4 TO 19+10.5	LT & RT	50			1				
RD15	197	20+37.6	RT					1			
RD16	197	21+62.1 TO 21+71.7	LT & RT	32			1				
RD17	197	21+68.1 TO 21+71.7	RT	13			1				
RD18	197	21+71.7	RT					1			
RD19	197	23+02.4	RT					1			
RD20	198	24+29.2 TO 24+30.3	LT & RT	29			1				
RD21	198	24+10.1 TO 24+21.1	LT	20			1				
RD22	198	24+21.1 TO 24+30.3	LT	15			1				
RD23	198	24+23.8 TO 24+30.3	LT	30			1				
RD24	198	24+30.3	LT			1					
RD25	202	98+89.7 TO 99+60.8 (WB ELBERON)	LT	72		1					
RD26	202	99+58.3 TO 99+60.8 (WB ELBERON)	LT	42			1				
RD27	202	99+70.8 TO 99+66.6 (WB ELBERON)	LT	26			1				
RD28	202	99+66.6 TO 99+60.8 (WB ELBERON)	LT	10			1				
RD29	202	99+60.8 TO 100+24.8 (WB ELBERON)	LT	65		1					
RD30	198	100+24.8 TO 101+71.1 (WB ELBERON)	LT	148		1					
RD31	198	101+49.1 TO 101+57.3 (WB ELBERON)	LT	26			1				
RD32	198	101+57.3 TO 101+71.1 (WB ELBERON)	LT	21			1				
RD35	198	26+20.7 TO 26+19.4	LT	27			1				
RD37	198	26+39.0 TO 26+67.2	LT	29			1				
RD38	198	26+55.1 TO 26+67.2	LT	17			1				
RD39	198	26+79.9 TO 26+67.2	LT	17			1				
RD41	198	26+84.9 TO 26+84.5	LT	13			1				
RD42	198	26+84.5 TO 27+72.1	LT	88				1			
RD43	198	27+43.3 TO 27+87.3	LT	44			1				
RD44	198	27+87.3 TO 27+93.1	LT	20			1				
RD45	198	27+43.3 TO 27+85.4	LT	42			1				
RD42A	198	27+72.1 TO 28+95.0	LT	123		1					
RD42B	199	28+95.0 TO 30+15.9	LT	120		1					
RD42C	199	30+15.9 TO 31+11.8	LT	96		1					
RD42D	199	31+11.8 TO 32+33.0	LT	121		1					
RD42E	199	32+33.0 TO 33+55.9	LT	123		1					
RD42F	199	33+55.9 TO 34+75.2	LT	121		1					
RD42G	200	34+75.2 TO 34+92.3	LT	19		1					
TOTALS CARRIED TO NEXT COLUMN				1775	0	11	26	8			

REF NO.	SHEET NO.	STATION TO STATION	SIDE	202 PIPE REMOVED, 24" AND UNDER	202 PIPE REMOVED, OVER 24"	202 MANHOLE REMOVED	202 CATCH BASIN REMOVED	202 MANHOLE ABANDONED			
				FOOT	FOOT	EACH	EACH	EACH			
RD46	198	27+85.4 TO 27+93.1	LT	27			1				
RD47	199	29+39.9 TO 28+64.8	LT	44			1				
RD48	199	28+64.8 TO 28+97.0	LT	4			1				
RD49	199	28+97.0 TO 28+95.0	LT	19		1					
RD50	199	29+36.8 TO 28+94.4	LT	42			1				
RD51	199	28+94.4 TO 28+95.6	LT	5			1				
RD52	199	28+95.6 TO 28+95.0	LT	20			1				
RD53	199	30+16.3 TO 30+15.9	LT	31							
RD54	199	30+55.5 TO 30+99.0	LT	44			1				
RD55	199	30+99.0 TO 33+11.8	LT	27			1				
RD56	199	30+56.2 TO 30+97.2	LT	41			1				
RD57	199	30+97.2 TO 31+11.8	LT	26			1				
RD58	199	32+56.6 TO 33+15.2	LT	60			1				
RD59	199	33+15.2 TO 33+09.6	LT	17			1				
RD60	199	33+56.6 TO 33+15.7	LT	59			1				
RD61	199	33+15.7 TO 33+09.6	LT	30			1				
RD62		NOT USED									
RD63	199	34+54.0	RT			1					
RD64	200	35+07.9	RT	25			1				
RD65	200	35+16.7	RT					1			
RD66	200	35+07.3	RT					1			
RD67	199	34+40.2 TO 34+78.1	LT & RT	42			1				
RD68	200	34+78.1 TO 34+84.9	LT	6			1				
RD69	200	34+84.9	LT	37			1				
RD70	199-200	34+61.2	LT				1				
RD71	200	34+56.9 TO 34+72.9	LT	41			1				
RD72	200	20+70.3 (EVANS)	LT	20			1				
RD73	200	20+78.4 (EVANS)	RT	30			1				
RD74	200	35+31.4 TO 35+21.2	LT	11			1				
RD75	200	35+21.2	LT					1			
RD76	200	35+48.5	LT				1				
RD77	200	35+48.2	LT					1			
RD78	200	35+45.0	LT					1			
RD79	200	35+46.6	LT				1				
RD80	200	36+22.4	LT					1			
RD81	200	37+33.5	LT					1			
RD82	200	38+63.0	LT				1				
RD83	200	38+62.4	LT					1			
RD84	200	38+64.8	LT				1				
RD85	200	39+51.0 TO 39+76.5	LT	28			1				
RD86	200	39+92.2 TO 39+76.5	LT	19			1				
RD87	200	39+94.5 TO 39+76.5	LT	23			1				
RD88	200	39+50.0 TO 39+76.5	LT	26		1					
RD89	200	39+73.2	RT				1				
RD90	200	39+95.0	RT				1				
TOTALS CARRIED FROM PREVIOUS COLUMN				1775	0	11	26	8			
TOTALS CARRIED TO NEXT SHEET				2579	0	14	58	16			

CALCULATED BMB
CHECKED BAA

DRAINAGE REMOVAL SUBSUMMARY

HAM-50-18.79

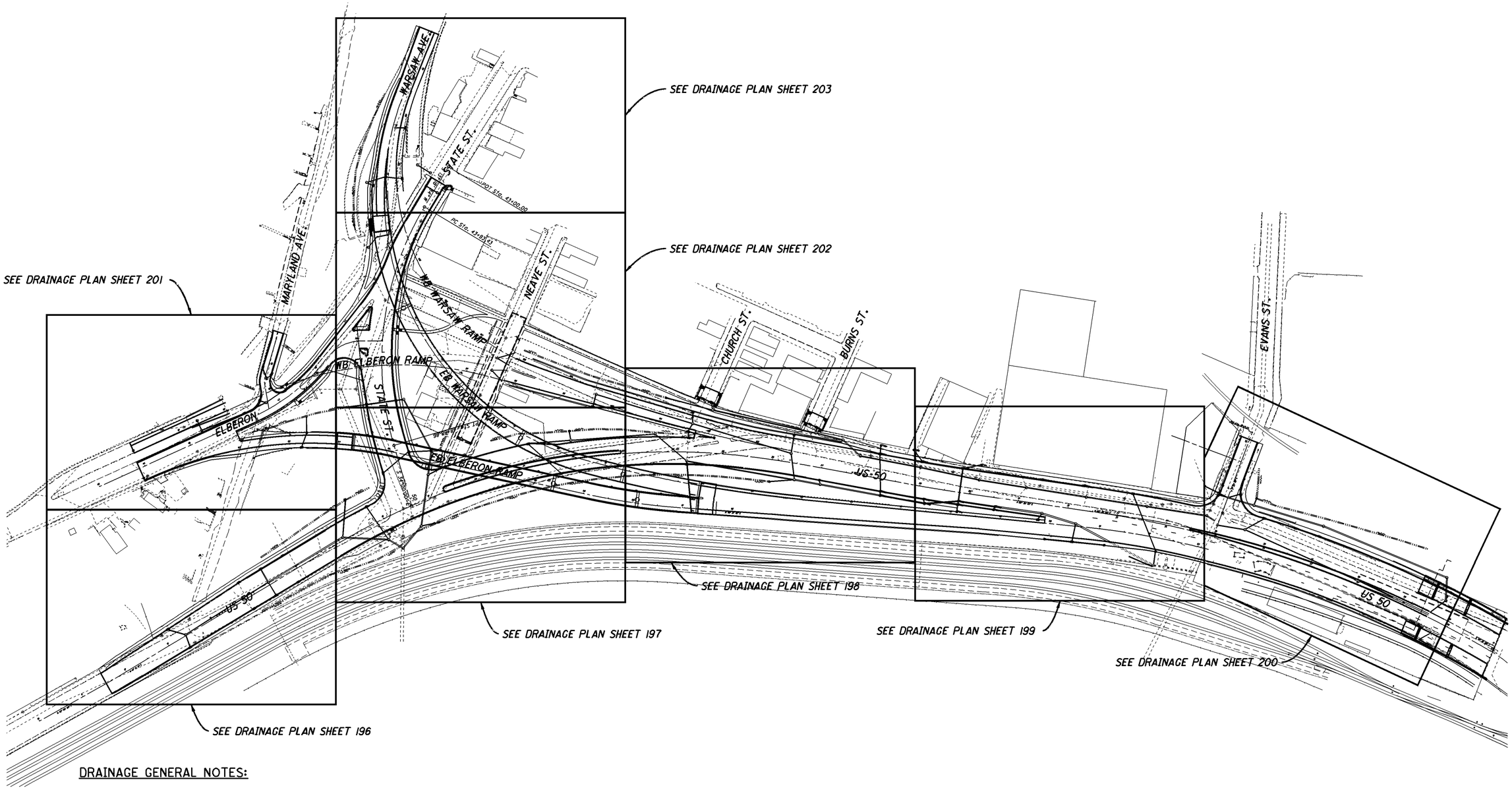
REF NO.	SHEET NO.	STATION TO STATION	SIDE	202 PIPE REMOVED, 24" AND UNDER (FOOT)	202 PIPE REMOVED, OVER 24" (FOOT)	202 MANHOLE REMOVED (EACH)	202 CATCH BASIN REMOVED (EACH)	202 MANHOLE ABANDONED (EACH)			
RD91	201	43+90.4 TO 43+97.1 (EB ELBERON)	RT	8			1				
RD92	201	45+08.1 TO 46+30.1 (EB ELBERON)	RT	126		1					
RD93	201	45+88.5 TO 46+18.1 (EB ELBERON)	RT	30			1				
RD94	201	47+53.3 TO 47+51.1 (EB ELBERON)	RT	16			1				
RD95	201	47+48.5 TO 47+51.1 (EB ELBERON)	RT	5			1				
RD96	201	47+51.1 (EB ELBERON)	RT					1			
RD97	201	47+76.4 (EB ELBERON)	RT				1				
RD98	201	47+74.4 (EB ELBERON)	RT					1			
RD99	201	47+72.1 (EB ELBERON)	RT				1				
RD100	202	47+99.7 (EB ELBERON)	RT					1			
RD101	201	91+34.6 TO 91+41.6 (WB ELBERON)	LT	21			1				
RD102	201	91+34.6 TO 91+41.6 (WB ELBERON)	RT & LT	11			1				
RD103	201	91+41.6 (WB ELBERON)	LT			1					
RD104	201	92+02.4 TO 92+03.5 (WB ELBERON)	LT	6			1				
RD105	201	92+03.5 TO 92+04.4 (WB ELBERON)	LT & RT	24			1				
RD106	201	91+97.4 TO 92+04.4 (WB ELBERON)	RT	14			1				
RD107	201	92+04.4 TO 92+43.4 (WB ELBERON)	RT	40		1					
RD108	201	92+43.4 TO 92+51.3 (WB ELBERON)	RT	34		1					
RD109	201	46+18.5 TO 46+32.4 (MARYLAND)	LT	26			1				
RD110	202	44+96.9 TO 45+13.3 (STATE)	RT	21			1				
RD111	202	45+13.3 TO 45+61.2 (STATE)	RT	23	34	1					
RD112	202	45+18.9 TO 45+72.7 (STATE)	LT	54		1					
RD113	202	45+63.2 TO 45+72.7 (STATE)	LT	26			1				
RD114	202	45+88.6 TO 45+72.7 (STATE)	LT	21			1				
RD115	202	45+60.0 (STATE)	RT					1			
RD116	202	46+04.2 TO 45+60.0 (STATE)	RT	49		1					
RD117	202	46+18.8 TO 46+04.2 (STATE)	RT	21			1				
RD118	202	45+68.1 (STATE)	RT				1				
RD119	201	46+44.0 (STATE)	RT				1				
RD120	201	46+66.5 (STATE)	RT			1					
RD121	201	47+14.7 (STATE)	RT				1				
RD122	203	70+68.1 (EB WARSAW)	RT				1				
RD123	203	70+83.2 (EB WARSAW)	RT				1				
RD124	203-202	72+06.0 TO 74+56.2 (EB WARSAW)	RT	1	254						
RD125	202	19+95.8	LT				1				
RD126	202	19+65.8	LT				1				
RD127	202	20+19.9	LT					1			
RD128	202	20+24.9	LT				1				
RD129	202	20+40.9	LT				1				
RD130	202	20+51.3	LT				1				
RD131	202	20+63.5	LT				1				
RD132	202	20+85.4	LT				1				
RD133	202	21+24.4 TO 21+33.6	LT	14			1				
RD134	202	21+37.9 TO 21+33.6	LT	13			1				
RD135	202	21+33.6 TO 20+97.0	LT	45		1					
TOTALS CARRIED TO NEXT COLUMN				648	288	10	30	5			

REF NO.	SHEET NO.	STATION TO STATION	SIDE	202 PIPE REMOVED, 24" AND UNDER (FOOT)	202 PIPE REMOVED, OVER 24" (FOOT)	202 MANHOLE REMOVED (EACH)	202 CATCH BASIN REMOVED (EACH)	202 MANHOLE ABANDONED (EACH)			
RD136	202	21+10.4 TO 21+18.5	LT	26			1				
RD137	202	21+40.2 TO 21+36.2	LT	10			1				
RD138	202	21+36.2 TO 21+18.5	LT	21		1					
RD139	196	13+43.4 TO 13+64.8	RT	23			1				
RD140	196	13+64.8 TO 13+72.7	RT	16		1					
RD141	196	13+72.7	RT					1			
RD142	196	13+14.0 TO 12+97.7	LT	19			1				
RD143	198	23+64.5	LT	65			1				
RD144	198	24+52.2	LT	13			1				
RD145	198	24+76.8	LT	19			1				
RD146	199	32+35.3 TO 32+33.0	LT	20			1				
RD147	199	32+32.4 TO 32+33.0	LT	18			1				
RD148	199	34+41.6	RT					1			
RD149	202	74+08.0 (EB WARSAW)	RT	8			1				
RD150	203	102+59.3 TO 102+68.4 (WB WARSAW)	LT	9			1				
RD151	203	102+96.5 TO 103+01.2 (WB WARSAW)	LT	7			1				
RD152	203	103+01.2 TO 103+19.2	LT	32		1					
RD153	201	46+32.4 (MARY.) TO 46+42.5 (ELB.)	LT		85	1					
TOTALS				306	85	4	12	2			
TOTALS CARRIED FROM PREVIOUS COLUMN				648	288	10	30	5			
TOTALS CARRIED FROM PREVIOUS SHEET				2579	0	14	58	16			
TOTALS CARRIED TO GENERAL SUMMARY				3533	373	28	100	23			

CALCULATED BMB
CHECKED BAA

DRAINAGE REMOVAL SUBSUMMARY

HAM-50-18.79



DRAINAGE GENERAL NOTES:

ITEM 202 - REMOVAL MISC.: STORMWATER DIVERSION CHAMBER

THIS ITEM SHALL INCLUDE THE REMOVAL AND ABANDONMENT OF AN EXISTING STORMWATER DIVERSION CHAMBER LOCATED AT STA. 17+76, 7' LEFT OF US 50. REMOVE AND TAKE OWNERSHIP OF ALL INTERIOR COMPONENTS AND MECHANICAL SYSTEMS WITHIN THE CHAMBER AND PROPERLY ABANDON ALL CONDUITS LEADING INTO AND OUT OF THE STRUCTURE IN ACCORDANCE WITH ITEM 202. REMOVE THE EXISTING CHAMBER TO A MINIMUM DEPTH OF THREE (3) FEET BELOW THE PROPOSED SUBGRADE AND BACKFILL THE REMAINING CAVITY IN ACCORDANCE WITH ITEM 202.02.

ITEM 603 - 12" CONDUIT, TYPE B, 707.01, AS PER PLAN

THIS ITEM SHALL CONSIST OF INSTALLING CONDUIT TYPE B , 707.01, WITH JOINTS FOR TRENCH DRAIN CONNECTIONS TO CORRESPONDING CATCH BASINS. PAYMENT FOR SAID WORK AND MATERIALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR ITEM 603 - 12" CONDUIT, TYPE B, 707.01, AS PER PLAN.

ITEM 603 - 8" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH ON JOINTS AND FITTINGS, AS PER PLAN
ITEM 603 - 12" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS

THIS ITEM SHALL CONSIST OF INSTALLING CONDUIT 748.01 WITH PUSH ON JOINTS FOR BRIDGE SCUPPER DOWNSPOUT DRAINAGE. THIS ITEM INCLUDES ALL BENDS, WYES, TEES, CAPS AND FITTINGS NECESSARY TO CONSTRUCT THE CONDUIT AS PER THE PLANS AND DETAILS AND IN ACCORDANCE WITH ITEM 603. PAYMENT FOR SAID WORK AND MATERIALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR
ITEM 603 - 8" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH ON JOINTS AND FITTINGS, AS PER PLAN
ITEM 603 - 12" CONDUIT, TYPE B, DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS

ITEM 603 - 15" CONDUIT, TYPE B, AS PER PLAN

THIS ITEM SHALL CONSIST OF INSTALLING CONDUIT TYPE B WITH PREMANUFACTURED WYES FOR CONNECTION OF BRIDGE SCUPPER DOWNSPOUT OUTLET PIPE OF TYPE 748.01. ALL WORK SHALL BE IN ACCORDANCE WITH ITEM 603. PAYMENT FOR SAID WORK AND MATERIAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRIECE FOR
ITEM 603 - 15" CONDUIT, TYPE B, AS PER PLAN.
ITEM 603 - 12" CONDUIT, TYPE B, 706.02, AS PER PLAN
ITEM 603 - 18" CONDUIT, TYPE B, 706.02, AS PER PLAN
ITEM 603 - 30" CONDUIT, TYPE B, 706.02, AS PER PLAN

THIS ITEM SHALL CONSIST OF INSTALLING CONDUIT 706.02 WITH JOINTS PER 706.11. PAYMENT FOR SAID WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR
ITEM 603 - 12" CONDUIT, TYPE B, 706.02, AS PER PLAN
ITEM 603 - 18" CONDUIT, TYPE B, 706.02, AS PER PLAN
ITEM 603 - 30" CONDUIT, TYPE B, 706.02, AS PER PLAN.

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED BMB
CHECKED BAA

DRAINAGE SCHEMATIC PLAN AND NOTES

HAM-50-18.79

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MATCH LINE - SEE SHEET 201

MATCH LINE - SEE SHEET 197

D1 CB-3
STA. 13+15.0, 30.1' LT.

D2 CB-3
STA. 13+35.0, 25.0' RT.

D3 MH-3 (48" BASE)
STA. 13+40.0, 2.0' LT.

D4 CB-3
STA. 14+85.0, 36.3' LT.

D5 CB-3
STA. 15+88.0, 37.0' LT.

D6 CB-3
STA. 15+36.6, 37.0' LT.

D7 CB-3
STA. 14+85.0, 25.0' RT.

D8 CB-3
STA. 15+88.0, 25.0' RT.

D9 CB-3
STA. 15+36.0, 25.0' RT.

D10 MH-3 (48" BASE)
STA. 15+36.0, 6.0' LT.

D150 RECONSTRUCT MH
STA. 12+97.7, 24.9' LT.
EX. RIM EL. 501.79
PROP. RIM EL. 500.73

D151 MH ADJUSTED TO GRADE
STA. 13+47.9, 21.1' RT.
EX. RIM EL. 500.21
PROP. RIM EL. 499.77

D152 RECONSTRUCT MH
STA. 13+62.5, 24.9' LT.
EX. RIM EL. 499.99
PROP. RIM EL. 500.90

LEGEND

EX. STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

SAN EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAINAGE PLAN

HAM-50-18.79

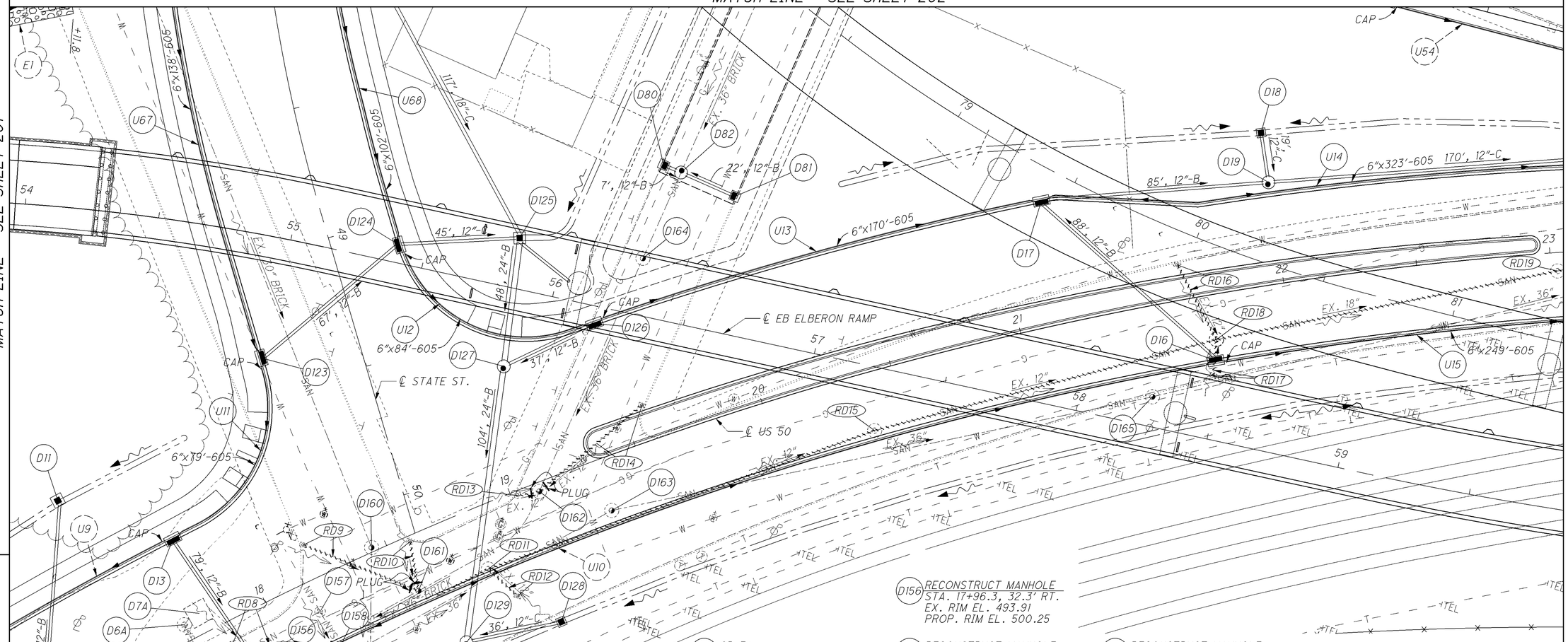
196
657

MATCH LINE - SEE SHEET 202

MATCH LINE - SEE SHEET 201

MATCH LINE - SEE SHEET 196

MATCH LINE - SEE SHEET 198



D11 CB-2-3
STA. 17+50.0, 69.4' LT.

D12 MH-3 (48" BASE)
STA. 17+10.0, 6.0' LT.

D13 CB-3
STA. 17+80.0, 37.0' LT.

D14 MH-3 (48" BASE)
STA. 17+90.0, 42.0' RT.

D15 MH NO. 5
STA. 18+09.2, 70.0' RT.

D16 CB-3
STA. 21+70.0, 25.0' RT.

D17 CB-3
STA. 21+18.0, 46.9' LT.

D18 CB-2-2A
STA. 22+00.0, 56.7' LT.

D19 MH-3 (48" BASE)
STA. 22+00.0, 38.0' LT.

D80 CB-3A
STA. 19+91.9, 96.3' LT.

D81 CB-3A
STA. 20+13.0, 76.6' LT.

D82 MH-3 (48" BASE)
STA. 19+97.1, 91.4' LT.

D123 CB-3
STA. 49+36.0, 37.0' RT.

D124 CB-3
STA. 49+10.0, 25.0' LT.

D125 CB-2-3
STA. 49+20.2, 68.5' LT.

D126 CB-3
STA. 19+51.0, 48.6' LT.

D127 MH-3 (48" BASE)
STA. 19+15.0, 45.0' LT.

D128 CB-2-2A
STA. 19+00.0, 51.6' RT.

D129 MH-3 (48" BASE)
STA. 18+63.0, 45.0' RT.

D155 RECONSTRUCT MANHOLE
STA. 17+69.1, 45.8' RT.
EX. RIM EL. 494.34
PROP. RIM EL. 498.50

D156 RECONSTRUCT MANHOLE
STA. 17+96.3, 32.3' RT.
EX. RIM EL. 493.91
PROP. RIM EL. 500.25

D157 RECONSTRUCT MANHOLE
STA. 18+17.0, 12.0' RT.
EX. RIM EL. 493.52
PROP. RIM EL. 499.71

D158 RECONSTRUCT MANHOLE
STA. 18+18.2, 27.0' RT.
EX. RIM EL. 493.67
PROP. RIM EL. 500.12

D159 RECONSTRUCT MANHOLE
STA. 18+20.5, 48.0' RT.
EX. RIM EL. 493.82
PROP. RIM EL. 495.50

D160 RECONSTRUCT MANHOLE
STA. 18+44.6, 1.7' LT.
EX. RIM EL. 493.85
PROP. RIM EL. 499.82

D161 RECONSTRUCT MANHOLE
STA. 18+54.1, 20.3' RT.
EX. RIM EL. 493.74
PROP. RIM EL. 499.47

D162 RECONSTRUCT MANHOLE
STA. 19+10.5, 3.4' RT.
EX. RIM EL.
PROP. RIM EL. 499.57

D163 RECONSTRUCT MANHOLE
STA. 19+33.4, 19.6' RT.
EX. RIM EL. 493.98
PROP. RIM EL. 499.24

D164 RECONSTRUCT MANHOLE
STA. 19+75.0, 65.3' LT.
EX. RIM EL. 493.95
PROP. RIM EL. 499.00

D165 RECONSTRUCT MANHOLE
STA. 21+43.7, 33.5' RT.
EX. RIM EL. 492.69
PROP. RIM EL. 497.50

D5A RECONSTRUCT MANHOLE & EXTEND STEM ON SLUICE GATE CONTROL PER MSD STANDARDS
STA. 17+69.0, 25.7' RT.
EX. RIM EL. 494.07
PROP. RIM EL. 499.55

D6A RECONSTRUCT MANHOLE
STA. 17+69.4, 6.3' LT.
EX. RIM EL. 493.93
PROP. RIM EL. 499.86

D7A RECONSTRUCT TOP OF CHAMBER TO GRADE & REMOVE CHAMBER APPURTENANCES AND STORE ON SITE FOR PICKUP
(SEE DETAIL ON SHEET 202A)
STA. 17+76.0, 7.6' RT.
EX. RIM EL. 499.51
PROP. RIM EL. 499.86

LEGEND

EX. STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

SAN EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAINAGE PLAN

HAM-50-18.79

197
657

MATCH LINE - SEE SHEET 202

MATCH LINE - SEE SHEET 197

MATCH LINE - SEE SHEET 199

LEGEND

EX. STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

SAN EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

HORIZONTAL SCALE IN FEET

0 10 20 40

DRAINAGE PLAN

HAM-50-18.79

D20 MH-3 (48" BASE)
STA. 23+65.0, 36.0' LT.

D22 CB-3
STA. 24+28.0, 25.0' RT.

D23 MH-3 (48" BASE)
STA. 24+28.0, 18.0' RT.

D24 CB-2-2A
STA. 26+00.0, 44.4' RT.

D27 CB-6
STA. 101+60.0, 34.9' LT.

D28 CB-3
STA. 24+31.0, 29.0' LT.

D29 CB-6
STA. 24+80.9, 30.8' LT.

D30 CB-3
STA. 101+60.0, 6.0' RT.

D31 MH-3 (48" BASE)
STA. 101+65.0, 12.0' LT.

D32 CB-6
STA. 26+35.0, 55.4' LT.

D33 MH-3 (48" BASE)
STA. 26+35.0, 18.0' LT.

D34 MH-3 (48" BASE)
STA. 26+50.0, 33.0' RT.

D35 CB-3A
STA. 27+00.0, 25.0' RT.

D36 MH-3 (48" BASE)
STA. 27+03.0, 33.0' RT.

D37 CB-2-2B
STA. 28+08.9, 65.8' LT.

D38 CB-3
STA. 28+10.0, 49.0' LT.

D39 CB-3A
STA. 28+24.0, 25.0' RT.

D40 MH-3 (48" BASE)
STA. 28+25.0, 33.0' RT.

D46 CB-2-2B
STA. 27+75.1, 69.0' LT.

D87 CB-2-2B
STA 23+86.5, 108.3' LT.

D88 CB-3
STA. 24+55.5, 107.4' LT.

D89 CB-3
STA. 24+71.3, 101.1' LT.

D90 MH ADJUSTED TO GRADE
STA. 24+59.1, 101.2' LT.
EX. RIM EL. 492.81
PROP. RIM EL. 493.31

D91 MH-3 (48" BASE)
STA. 24+74.2, 86.0' LT.

D92 CB-3
STA. 26+61.6, 81.5' LT.

D93 CB-3
STA. 26+75.6, 78.0' LT.

D93A MH-3 (48" BASE)
STA. 26+75.9, 66.7' LT.

D166 MH RECONSTRUCTED
STA. 24+09.5, 5.6' LT.
EX. RIM EL. 490.97
PROP. RIM EL. 498.04

D167 MH RECONSTRUCTED
STA. 26+67.2, 62.5' LT.
EX. RIM EL. 491.55
PROP. RIM EL. 492.59

D167A MH RECONSTRUCTED
STA. 24+44.3, 60.8' LT.
EX. RIM EL. 491.63
PROP. RIM EL. 497.93

D167B MH RECONSTRUCTED
STA. 25+19.9, 48.8' LT.
EX. RIM EL. 491.63
PROP. RIM EL. 496.35

D167C MH RECONSTRUCTED
STA. 26+19.4, 39.5' LT.
EX. RIM EL. 491.84
PROP. RIM EL. 495.03

D167D MH RECONSTRUCTED
STA. 26+81.3, 35.7' LT.
EX. RIM EL. 491.54
PROP. RIM EL. 494.02

D168 MH-3 (48" BASE)
STA. 27+32.0, 63.0' LT.

D170 MH-3 (48" BASE)
STA. 27+72.1, 37.7' LT.

D171 MH RECONSTRUCTED
STA. 27+93.1, 41.6' LT.
EX. RIM EL. 490.93
PROP. RIM EL. 491.93

D197 MH RECONSTRUCTED
STA. 102+34.2, 22.4' LT.
EX. RIM EL. 492.37
PROP. RIM EL. 496.45

S01 RECONNECT SERVICE
STA. 27+03.3, 36.9' RT.

S02 RECONNECT SERVICE
STA. 27+51.7, 39.4' RT.

S03 RECONNECT SERVICE
STA. 28+07.0, 41.5' RT.

S04 RECONNECT SERVICE
STA. 28+30.1, 41.2' RT.

S05 RECONNECT SERVICE
STA. 29+74.2, 38.5' RT.

S06 RECONNECT SERVICE
STA. 33+73.2, 34.9' RT.

D41 CB-3A
STA. 29+12.0, 25.0' RT.

D42 MH-3 (48" BASE)
STA. 29+15.0, 33.0' RT.

D43 CB-3A
STA. 88+12.0, 6.0' LT.

D44 CB-3
STA. 29+80.5, 25.0' RT.

D45 CB-2-2B
STA. 30+16.3, 60.0' LT.

D47 CB-3
STA. 28+96.0, 49.0' LT.

D48 CB-3
STA. 32+25.0, 49.0' LT.

D49 CB-3
STA. 31+40.0, 49.0' LT.

D50 CB-3
STA. 30+53.0, 49.0' LT.

D51 CB-3
STA. 29+80.5, 49.0' LT.

D52 MH-3 (48" BASE)
STA. 29+80.5, 18.0' RT.

D53 CB-3A
STA. 30+53.0, 25.0' RT.

D54 MH-3 (48" BASE)
STA. 30+55.0, 18.0' RT.

D55 CB-3
STA. 89+75.0, 6.0' LT.

D56 MH-3 (48" BASE)
STA. 31+50.0, 18.0' RT.

D57 CB-3A
STA. 89+92.0, 32.0' RT.

D58 CB-3A
STA. 91+13.1, 31.8' RT.

D59 CB-3
STA. 90+47.2, 32.0' RT.

D60 MH-3 (48" BASE)
STA. 32+20.0, 29.0' RT.

D61 CB-3
STA. 33+25.0, 47.5' LT.

D62 CB-3A
STA. 92+18.8, 28.0' RT.

D63 * EX. MANHOLE
STA. 92+20.0, 56.0' RT.

D65 * EX. MANHOLE
STA. 34+70.1, 79.1' RT.

D172 MH-3 (48" BASE)
STA. 28+95.0, 36.9' LT.

D173 MH ADJUSTED TO GRADE
STA. 29+61.8, 38.6' LT.
EX. RIM EL. 490.62
PROP. RIM EL. 490.47

D174 MH ADJUSTED TO GRADE
STA. 30+08.9, 34.0' LT.
EX. RIM EL. 490.62
PROP. RIM EL. 490.56

D175 MH-3 (48" BASE)
STA. 30+15.9, 30.2' LT.

D176 MH-3 (48" BASE)
STA. 31+11.8, 28.7' LT.

D177 MH RECONSTRUCTED
STA. 31+38.9, 36.2' LT.
EX. RIM EL. 489.13
PROP. RIM EL. 491.03

D178 MH-3 (48" BASE)
STA. 32+33.0, 27.1' LT.

D179 MH RECONSTRUCTED
STA. 33+09.6, 34.9' LT.
EX. RIM EL. 487.22
PROP. RIM EL. 491.74

D180 MH-3 (48" BASE)
STA. 33+55.9, 26.2' LT.

D181 MH RECONSTRUCTED
STA. 33+63.1, 30.6' LT.
EX. RIM EL. 487.03
PROP. RIM EL. 492.02

D182 MH RECONSTRUCTED
STA. 33+85.5, 35.2' LT.
EX. RIM EL. 486.83
PROP. RIM EL. 492.03

D183 MH RECONSTRUCTED
STA. 34+01.9, 39.2' LT.
EX. RIM EL. 486.70
PROP. RIM EL. 492.03

WQ-1 * EX. MANHOLE AND WATER QUALITY STRUCTURE
STA. 92+45.2, 54.8' RT.

* WORK COMPLETED UNDER SEPERATE CONTRACT

MATCH LINE - SEE SHEET 198

MATCH LINE - SEE SHEET 200

℄ US 50

℄ US 50 WB

℄ US 50 EB

℄ EB ELBERON RAMP

N 80° 35' 53" E

EX. WATER QUALITY STRUCTURE

LEGEND

EX. STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

RESERVED AREA FOR MANUFACTURED WATER QUALITY STRUCTURE, TYPE 3

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAINAGE PLAN

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199
657

D66 CB-2-2A
STA. 35+61.1, 88.5' LT.

D67 CB-3
STA. 37+00.0, 53.2' LT.

D68 CB-3
STA. 36+50.0, 53.8' LT.

D69 CB-3
STA. 35+86.0, 54.7' LT.

D70 I-2-10
STA. 38+82.7, 4.1' RT.

D71 I-3D, AS PER PLAN
STA. 38+00.0, 1.0' RT.

D72 MH-3 (48" BASE)
STA. 35+55.0, 22.3' LT.

D73 MH RECONSTRUCTED
STA. 35+00.4, 17.6' LT.
EX. RIM EL. 486.20
PROP. RIM EL. 492.83

D74 CB-2-2B
STA. 39+75.6, 43.2' LT.

D75 MH-3 (48" BASE)
STA. 39+76.5, 34.4' LT.

D76 EX. MH
STA. 39+76.9, 26.0' RT.

D77 MH-3 (48" BASE)
STA. 39+58.3, 76.7' LT.

D78 MH-3 (48" BASE)
STA. 37+00.0, 75.0' LT.

D79 MH-3 (48" BASE)
STA. 35+59.7, 79.8' LT.

D94 CB-2-2B
STA. 20+87.3, 50.9' LT.

D95 MH RECONSTRUCTED
STA. 20+59.2, 21.7' LT.
EX. RIM EL. 486.29
PROP. RIM EL. 491.99

D96 CB-3A
STA. 21+01.0, 18.0' LT.

D97 CB-3
STA. 20+87.0, 19.1' LT.

D98 CB-3A
STA. 21+28.0, 18.0' RT.

D99 CB-3
STA. 20+97.2, 22.1' RT.

D100 MH RECONSTRUCTED
STA. 20+81.8, 0.9' RT.
EX. RIM EL. 487.07
PROP. RIM EL. 492.07

D184 MH-3 (48" BASE)
STA. 34+75.2, 30.9' LT.

D185 RECONSTRUCT MANHOLE & EXTEND STEM ON SLUICE GATE CONTROL PER MSD STANDARDS
STA. 34+79.5, 42.7' LT.
EX. RIM EL. 486.23
PROP. RIM EL. 492.30

D186 MH RECONSTRUCTED
STA. 35+04.9, 42.6' LT.
EX. RIM EL. 486.36
PROP. RIM EL. 492.46

* WORK COMPLETED UNDER SEPERATE CONTRACT

LEGEND

EX. STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

SAN EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

HORIZONTAL SCALE IN FEET
0 10 20 40

POT Sta. 22+21.23
℄ EVANS ST.
CAP
22' LW
6"x79'-605
6"x106'-605
SAN
EX. 7.5' BRICK
EX. 36"
N 2° 53' 25" W
31', 12"-B
26', 12"-B
54', 24"-B
20', 12"-B
52', 12"-B
6"x18'-605
U46
+61.5
E3
6"x29'-605
U48
D98
U45
D99
9'
D66
15', 12"-B
+97.5
U44
D96
D100
U47
D94
D97
D69
145', 24"-B
D68
D67
D78
D79
66', 12"-B
51', 12"-B
268', 24"-B
EX. 10' BRICK
D77
46', 24"-B
D74
RD82
RD83
RD84
RD81
RD80
RD76
RD77
RD73
6"x68'-605
RD71
RD72
RD78
RD79
U39
D95
D186
6"x50'-605
PLUG
RD70
D185
D184
RD42C
RD68
RD74
RD75
55', 12"-B
244', 12"-B
D72
U41
6"x293'-605
6"x17'-603
90° BEND
RD69
RD66
RD65
D73
U40
CAP
RD64
MATCH LINE - SEE SHEET 199
U42
6"x80'-605
83', 12"-B
D71
D70
U43
℄ US 50 WB
℄ US 50 EB
RD87
9', 12"-B
RD88
RD86
RD85
D75
RD89
D76
RD90
EX. 10' BRICK
TEL
℄

DRAINAGE PLAN

HAM-50-18.79

200
657

D101 CB-3A
STA. 43+90.0, 27.0' RT.

D102 MH ADJUSTED TO GRADE
STA. 43+97.1, 20.7' RT.
EX. RIM EL. 552.51
PROP. RIM EL. 552.16

D103 MH ADJUSTED TO GRADE
STA. 45+08.1, 17.2' RT.
EX. RIM EL. 546.82
PROP. RIM EL. 546.71

D104 MH RECONSTRUCTED
STA. 46+42.5, 8.3' RT.
EX. RIM EL. 540.93
PROP. RIM EL. 540.60

D105 CB-3
STA. 46+12.0, 10.0' RT.

D106 CB-3
STA. 46+20.0, 11.5' LT.

D107 MH-3 (48" BASE)
STA. 46+32.4, 4.2' LT.

D108 MH ADJUSTED TO GRADE
STA. 90+70.1, 18.9' LT.
EX. RIM EL. 565.33
PROP. RIM EL. 565.03

D109 MH ADJUSTED TO GRADE
STA. 91+12.0, 5.8' LT.
EX. RIM EL. 565.71
PROP. RIM EL. 565.62

D110 MH-3 (48" BASE)
STA. 91+41.6, 6.9' LT.

D111 MH-3 (48" BASE)
STA. 45+32.8, 18.0' LT.

D112 CB-3
STA. 46+25.0, 14.0' LT.

D113 CB-3A
STA. 46+64.2, 24.0' LT.

D114 MH-3 (48" BASE)
STA. 46+40.4, 14.0' LT.

D115 CB-3A
STA. 47+34.0, 14.0' LT.

D116 CB-3A
STA. 48+11.0, 14.0' RT.

D146 CB-3
STA. 53+24.9, 8.0' RT.

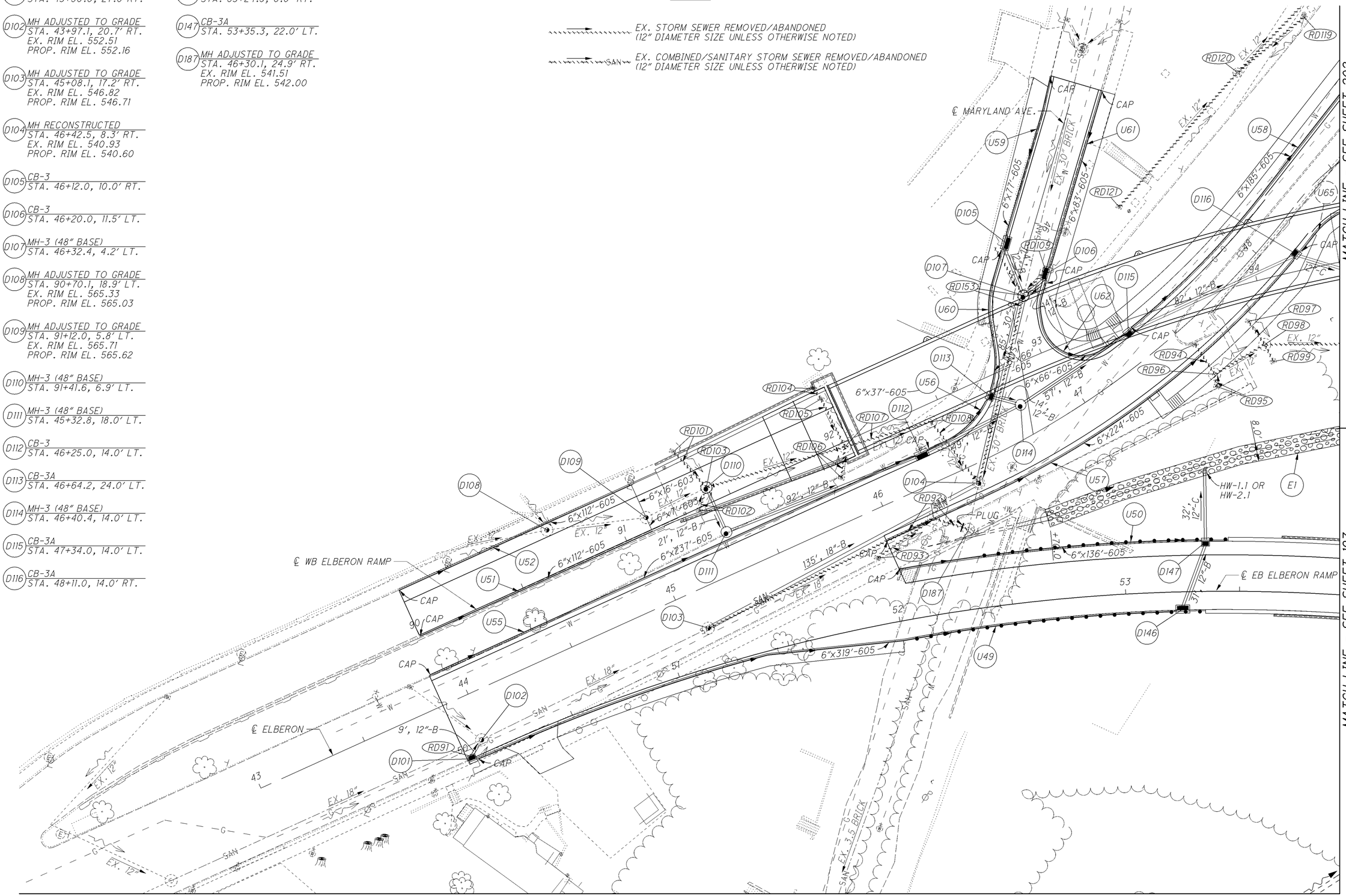
D147 CB-3A
STA. 53+35.3, 22.0' LT.

D187 MH ADJUSTED TO GRADE
STA. 46+30.1, 24.9' RT.
EX. RIM EL. 541.51
PROP. RIM EL. 542.00

LEGEND

EX. STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED
(12" DIAMETER SIZE UNLESS OTHERWISE NOTED)



HORIZONTAL SCALE IN FEET
0 10 20 30

DRAINAGE PLAN

HAM-50-18.79

201
657

MATCH LINE - SEE SHEET 203

MATCH LINE - SEE SHEET 201

MATCH LINE - SEE SHEET 198

MATCH LINE - SEE SHEET 197

LEGEND

EX. STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

SAN EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

D25 CB-3
STA. 99+63.0, 6.0' RT.

D26 MH-3 (48" BASE)
STA. 99+63.0, 20.0' LT.

D83 MH-3 (60" BASE)
STA. 20+83.0, 206.5' LT.

D84 MH RECONSTRUCTED
STA. 20+97.0, 227.5' LT.
EX. RIM EL. 501.37
PROP. RIM EL.

D117 CB-3
STA 46+51.1, 54.4' RT.

D118 CB-3A
STA 47+54.0, 40.0' RT.

D119 CB-2-2A
STA. 47+99.8, 77.7' RT.

D120 CB-3
STA 48+00.0, 37.0' RT.

D121 CB-3
STA 48+00.0, 23.4' LT.

D122 MH-3 (48" BASE)
STA 48+00.0, 38.6' LT.

D139 MH-3 (60" BASE)
STA. 74+00.0, 37.0' RT.

D140 CB-2-2A
STA. 73+97.6, 63.2' RT.

D141 EX. MANHOLE (NO WORK)
STA. 74+08.5, 60.6' RT.

D142 MH-3 (60" BASE)
STA. 45+08.6, 66.8' RT.

D143 MH RECONSTRUCTED
STA. 45+61.2, 35.3' RT.
EX. RIM EL. 524.70
PROP. RIM EL. 523.61

D189 MH ADJUSTED TO GRADE
STA. 44+21.9, 8.0' LT.
EX. RIM EL. 522.52
PROP. RIM EL. 522.47

D190 MH ADJUSTED TO GRADE
STA. 45+18.9, 8.8' LT.
EX. RIM EL. 523.68
PROP. RIM EL. 523.48

D191 MH RECONSTRUCTED
STA. 45+96.0, 5.0' LT.
EX. RIM EL. 523.55
PROP. RIM EL. 522.32

D192 MH RECONSTRUCTED
STA. 47+69.4, 53.9' RT.
EX. RIM EL. 510.31
PROP. RIM EL. 513.00

D193 MH ADJUSTED
STA. 20+52.8, 163.5' LT.
EX. RIM EL. 497.34
PROP. RIM EL.

D194 MH ADJUSTED
STA. 21+18.5, 262.8' LT.
EX. RIM EL. 502.49
PROP. RIM EL.

D195 CB RECONSTRUCTED
STA. 21+35.4, 303.9' LT.
EX. GRATE EL. 502.85
PROP. RIM EL.

D196 CB RECONSTRUCTED
STA. 21+54.3, 287.6' LT.
EX. GRATE EL. 502.45
PROP. RIM EL.

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAINAGE PLAN

HAM-50-18.79

202
657

LEGEND

EX. STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

SAN EX. COMBINED/SANITARY STORM SEWER REMOVED/ABANDONED (12" DIAMETER SIZE UNLESS OTHERWISE NOTED)

- D85 MH-3 STA. 103+01.2, 42.8' LT.
- D86 MH-3 STA. 43+28.9, 25.0' RT.
- D130 CB-3A STA. 43+56.0, 19.0' RT.
- D131 CB-3A STA. 43+56.0, 13.0' LT.
- D132 MANHOLE NO. 3 (48" BASE) STA. 43+56.0, 6.9' LT.
- D133 CB-3 STA. 102+25.0, 11.0' LT.
- D134 MH RECONSTRUCTED STA. 72+06.0, 5.6' LT. EX. RIM EL. 549.73 PROP. RIM EL. 554.05
- D135 CB-3 STA. 103+30.0, 14.9' LT.
- D136 CB-6 STA. 73+07.0, 2.0' LT.
- D137 CB-3 STA. 73+25.0, 23.2' RT.
- D138 MANHOLE NO. 3 (60" BASE) STA. 73+20.0, 36.0' RT.
- D144 CB-2-2A STA. 102+59.3, 42.9' LT.
- D145 EX. MANHOLE (NO WORK) STA. 102+68.4, 38.2' LT.
- D188 MH RECONSTRUCTED STA. 70+99.1, 8.1' LT. EX. RIM EL. 556.06 PROP. RIM EL. 556.84

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAINAGE PLAN

HAM-50-18.79

MATCH LINE - SEE SHEET 202

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50

HAM-50-18.79

D4

CATCH BASIN NO. 3 (CB-2.1)
STA. 14+85.0, 36.3' LT.
GRATE EL. 497.09
INV. 6" 493.84
INV. 15" NE 491.84

0.25%

0.24%

52' OF 15" TYPE B

D6

D5

CATCH BASIN NO. 3 (CB-2.1)
STA. 15+88.0, 37.0' LT.
GRATE EL. 497.08
INV. 6" 493.83
INV. 12" SW 492.08

51' OF 12" TYPE B

D6

D10

D9

EX. 8" GAS

EX. 8" WATER

EX. 24" WATER

1.10%

1.71%

31' OF 15" TYPE B

31' OF 12" TYPE B

CATCH BASIN NO. 3 (CB-2.1)
STA. 15+36.6, 37.0' LT.
GRATE EL. 496.88
INV. 6" 493.63
INV. 12" NE 491.96
INV. 15" SW 491.71
INV. 15" SE 491.63

D7

D9

D8

CATCH BASIN NO. 3 (CB-2.1)
STA. 14+85.0, 25.0' RT.
GRATE EL. 497.27
INV. 6" 494.02
INV. 12" NE 492.27

0.24%

0.23%

51' OF 12" TYPE B

52' OF 12" TYPE B

CATCH BASIN NO. 3 (CB-2.1)
STA. 15+88.0, 25.0' RT.
GRATE EL. 497.27
INV. 6" 494.02
INV. 12" SW 492.27

CATCH BASIN NO. 3 (CB-2.1)
STA. 15+36.0, 25.0' RT.
GRATE EL. 497.07
INV. 6" 493.82
INV. 12" SW 492.15
INV. 12" NE 492.15
INV. 12" NW 492.07

D1

CATCH BASIN NO. 3 (CB-2.1)
STA. 13+15.00, 30.1' LT.
GRATE EL. 500.12
INV. 6" 496.87
INV. 15" E 495.12

D3

EX. 8" GAS

EX. 8" WATER

1.95%

EX. 12" STORM/SAN.

1.59%

37' OF 15" TYPE B

196' OF 15" TYPE B

D10

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 15+36.0, 6.0' LT.
RIM EL. 497.54
INV. 12" SE 491.54
INV. 15" NW 491.29
INV. 15" SW 491.29
INV. 24" NE 490.54

EX. 8" GAS

1.06%

174' OF 24" TYPE B

D12

D15

MANHOLE NO. 5
STA. 18+09.2, 70.0' RT.
EX RIM EL. 494.48
PROP. RIM EL. 495.00
INV. 24" NE 487.50
INV. 24" W 487.50
INV. EX. 72" BRICK 481.40±

D14

EX. 8" GAS

0.76%

EX. 8" WATER

EX. 24" WATER

1.52%

EX. 24" STORM/SAN

EX. 6.0' BRICK

EX. 3.5' BRICK

EX. 12" STORM/SAN.

92' OF 24" TYPE B

33' OF 24" TYPE C

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 13+40.0, 2.0' LT.
RIM EL. 500.23
INV. 12" SE 494.65
INV. 15" W 494.40
INV. 15" NE 494.40

D2

D3

CATCH BASIN NO. 3 (CB-2.1)
STA. 13+35.00, 25.0' RT.
GRATE EL. 499.80
INV. 6" 496.55
INV. 12" N 494.80

0.56%

27' OF 12" TYPE B

D11

D12

CATCH BASIN NO. 2-3 (CB-1.2)
STA. 17+50.0, 69.4' LT.
GRATE EL. 495.42
WINDOW EL. 494.50
INV. 12" S 491.50

2.37%

76' OF 12" TYPE B

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 17+10.0, 6.0' LT.
RIM EL. 499.45
INV. 12" N 489.70
INV. 24" SW 488.70
INV. 24" E 488.70

CATCH BASIN NO. 3 (CB-2.1)
STA. 17+80.0, 37.0' LT.
GRATE EL. 499.44
INV. 6" 496.19
INV. 12" SE 494.44

D13

D14

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 17+90.0, 42.0' RT.
RIM EL. 500.50
INV. 12" NW 493.00
INV. 24" W 488.00
INV. 24" E 488.00

SEE SHEET 211 FOR CONTINUATION

1.82%

EX. 8" GAS

EX. 8" WATER

EX. 24" WATER

EX. 24" STORM (ABANDON)

79' OF 12" TYPE B

EX. 18" STORM/SAN (ABANDON)

EX. 12" STORM/SAN

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50

D18

CATCH BASIN NO. 2-2A (CB-1.1)
STA. 22+00.0, 56.7' LT.
GRATE EL. 494.10
WINDOW EL. 493.60
INV. 12" S 491.10

D19

1.58%

19' OF 12" TYPE C

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 22+00.0, 38.0' LT.
RIM EL. 498.80
INV. 12" W 490.80
INV. 12" N 490.80
INV. 12" E 490.80

D22

CATCH BASIN NO. 3 (CB-2.1)
STA. 24+28.0, 25.0' RT.
GRATE EL. 497.49
INV. 6" 494.24
INV. 12" N 492.49

D23

D21

PLUG END OF 15" CONDUIT
STA. 24+40.7, 119.0' RT.
INV. 15" N 488.90

15"x15"x12" WYE (TYP.)

5.14%

1.13%

EX. TELEPHONE

7' OF 12" TYPE B

102' OF 15" TYPE B, AS PER PLAN

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 24+28.0, 18.0' RT.
RIM EL. 497.77
INV. 12" S 492.27
INV. 12" NW 488.02
INV. 15" S 487.77
INV. 18" E 487.52

D16

CATCH BASIN NO. 3 (CB-2.1)
STA. 21+70.0, 25.0' RT.
GRATE EL. 498.27
INV. 6" 495.02
INV. 12" NW 493.27

D17

CATCH BASIN NO. 3 (CB-2.1)
STA. 21+18.0, 46.9' LT.
GRATE EL. 498.08
INV. 6" 494.83
INV. 12" SE 492.91
INV. 12" E 492.83

D19

D20

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 23+65.0, 36.0' LT.
RIM EL. 498.00
INV. 18" W 488.75
INV. 18" SE 488.75

D23

0.41%

2.39%

1.21%

0.88%

1.49%

EX. 3" GAS

EX. GAS

EX. 3" GAS

EX. TELEPHONE

EX. 36" WATER

EX. 12" SAN. (ABANDON)

EX. 6" WATER

EX. 36" WATER

EX. 18" SAN. (ABANDON)

88' OF 12" TYPE B

85' OF 12" TYPE B

170' OF 12" TYPE C

83' OF 12" TYPE B

219' OF 18" TYPE B

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 27+03.0, 33.0' RT.
RIM EL. 495.50
INV. 12" N 488.50
INV. 24" W 483.25
INV. 24" E 483.25

D34

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 26+50.0, 33.0' RT.
RIM EL. 496.50
INV. 12" W 487.25
INV. 12" N 487.25
INV. 18" W 484.25
INV. 24" E 483.75

D36

D40

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 28+25.0, 33.0' RT.
RIM EL. 494.00
INV. 12" N 486.50
INV. 24" W 482.50
INV. 24" E 482.50

D35

D36

CATCH BASIN NO. 3A (CB-2.2)
STA. 27+00.0, 25.0' RT.
GRATE EL. 493.68
INV. 6" 490.43
INV. 12" S 488.68

1.49%

0.94%

0.61%

2.00%

18" TYPE B

53' OF 24" TYPE C

122' OF 24" TYPE C

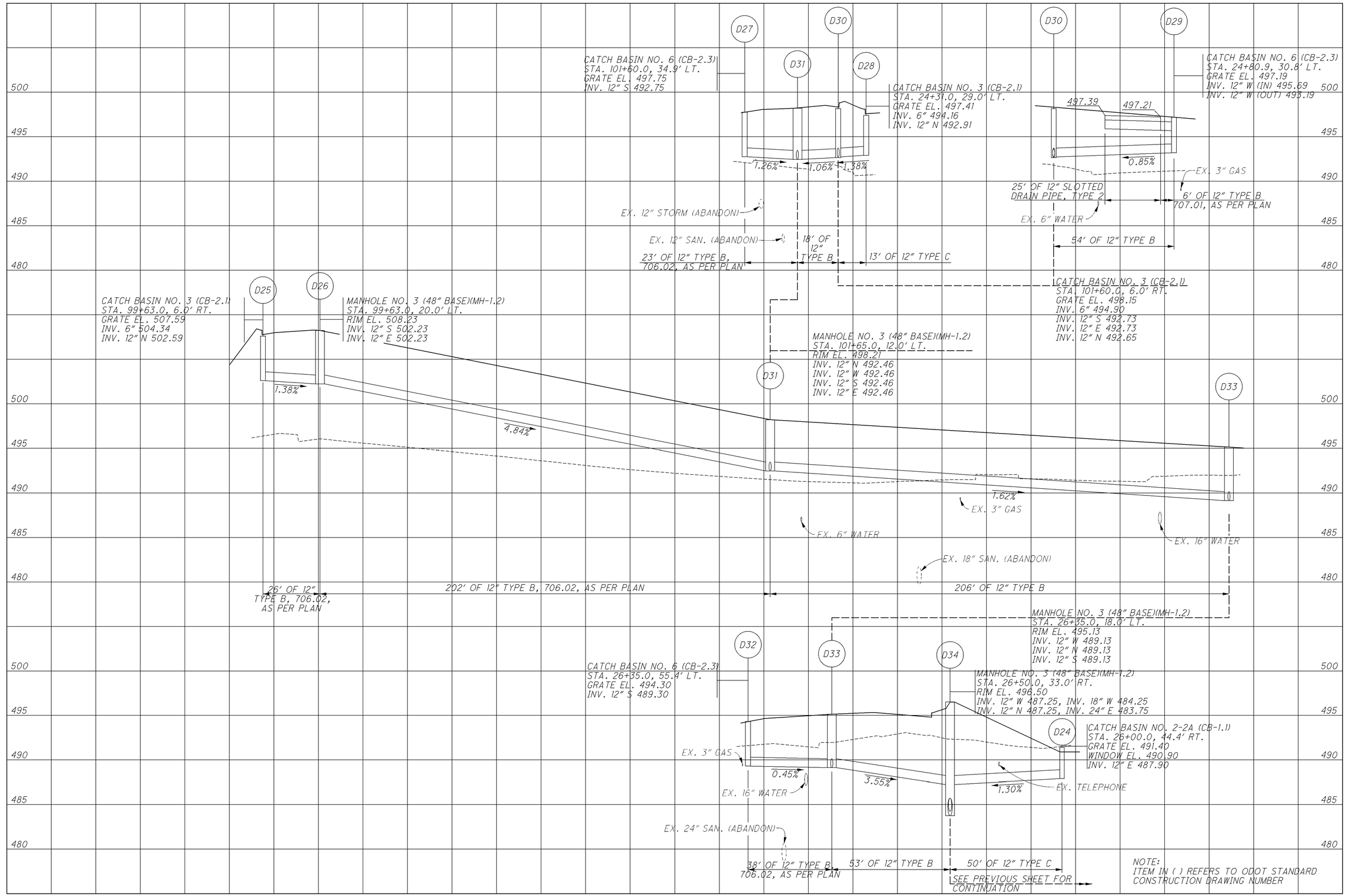
9' OF 12" TYPE C

SEE NEXT SHEET FOR CONTINUATION

SEE SHEET 207 CONTINUATION

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

HAM-50-18.79



CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50, CHURCH ST. AND BURNS ST.

HAM-50-18.79

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50

CATCH BASIN NO. 3 (CB-2.1)
STA. 28+10.0, 49.0' LT.
GRATE EL. 491.38
INV. 6" 488.13
INV. 12" N 487.88
INV. 12" S 487.38

CATCH BASIN NO. 2-2B (CB-1.1)
STA. 28+08.9, 65.8' LT.
GRATE EL. 491.00
INV. 12" S 488.00

CATCH BASIN NO. 3A (CB-2.2)
STA. 28+24.0, 25.0' RT.
GRATE EL. 491.56
INV. 6" 488.31
INV. 12" N 486.64
INV. 12" S 486.56

EX. TELE.
EX. 3" GAS
EX. 16" WATER
EX. 24" SAN.
EX. 18" SAN.
EX. TELEPHONE

0.71%
0.99%
0.75%
0.83%
1.06%
1.39%

17' OF 12" TYPE C | 75' OF 12" TYPE B | 8' OF 12" TYPE C | 90' OF 24" TYPE C | 68' OF 24" TYPE B | 75' OF 24" TYPE B

SEE SHEET 205 CONTINUATION

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 28+25.0, 33.0' RT.
RIM EL. 494.00
INV. 12" N 486.50
INV. 24" W 482.50
INV. 24" E 482.50

SEE NEXT SHEET FOR CONTINUATION

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 29+15.0, 33.0' RT.
RIM EL. 493.00
INV. 12" N 485.50
INV. 6" S 481.75 (FROM WICK DRAIN)
INV. 24" W 481.75
INV. 24" E 481.75

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 29+80.5, 18.0' RT.
RIM EL. 490.78
INV. 12" S 485.28
INV. 18" N 481.53
INV. 24" W 481.03
INV. 24" E 481.03

CATCH BASIN NO. 3A (CB-2.2)
STA. 88+12.0, 6.0' LT.
GRATE EL. 494.05
INV. 6" 490.80
INV. 12" N 486.05

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 30+55.0, 18.0' RT.
RIM EL. 490.99
INV. 12" S 485.49
INV. 24" W 479.99
INV. 30" E 479.49

CATCH BASIN NO. 3A (CB-2.2)
STA. 29+12.0, 25.0' RT.
GRATE EL. 490.70
INV. 6" 487.45
INV. 12" S 485.70

CATCH BASIN NO. 2-2B (CB-1.1)
STA. 30+16.3, 60.0' LT.
GRATE EL. 490.30
INV. EX. 12" 486.00±
INV. 12" SW 486.00

CATCH BASIN NO. 3 (CB-2.1)
STA. 29+80.5, 25.0' RT.
GRATE EL. 490.50
INV. 6" 487.25
INV. 12" S 485.58
INV. 12" N 485.50

CATCH BASIN NO. 3A (CB-2.2)
STA. 30+53.0, 25.0' RT.
GRATE EL. 490.70
INV. 6" 487.45
INV. 12" N 485.70

2.22%
3.66%
3.13%
3.14%
0.87%
3.00%

9' OF 12" TYPE C | 38' OF 12" TYPE C | 67' OF 18" TYPE B | 7' OF 12" TYPE B | 15' OF 12" TYPE C | 7' OF 12" TYPE B

CATCH BASIN NO. 3 (CB-2.1)
STA. 29+80.5, 49.0' LT.
GRATE EL. 490.11
INV. 6" 486.86
INV. 12" NE 484.61
INV. 12" W 482.61
INV. 15" E 482.36
INV. 18" S 482.11

CATCH BASIN NO. 3 (CB-2.1)
STA. 28+96.0, 49.0' LT.
GRATE EL. 490.42
INV. 6" 487.17
INV. 12" NW 484.50
INV. 12" E 484.42

CATCH BASIN NO. 2-2B (CB-1.1)
STA. 27+75.1, 69.0' LT.
GRATE EL. 490.25
INV. 12" SE 485.25

CATCH BASIN NO. 3 (CB-2.1)
STA. 30+53.0, 49.0' LT.
GRATE EL. 490.31
INV. 6" 487.06
INV. 12" E 484.31
INV. 15" W 482.56

CATCH BASIN NO. 3 (CB-2.1)
STA. 31+40.0, 49.0' LT.
GRATE EL. 490.66
INV. 12" E 485.74
INV. 12" W 485.66

CATCH BASIN NO. 3 (CB-2.1)
STA. 32+25.0, 49.0' LT.
GRATE EL. 491.00
INV. 12" W 486.50

EX. GAS
EX. 3" GAS
EX. WATER
EX. 12" STM. (REMOVE)

2.59%
2.18%
0.27%
1.55%
0.89%

29' OF 12" TYPE C | 83' OF 12" TYPE B | 73' OF 15" TYPE B | 87' OF 12" TYPE B, 706.02, AS PER PLAN | 86' OF 12" TYPE B, 706.02, AS PER PLAN

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

HAM-50-18.79

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50

D57 — CATCH BASIN NO. 3A (CB-2.2)
STA. 89+92.0, 32.0' RT.
GRATE EL. 490.80
INV. 6" 487.55
INV. 12" E 485.80

D59 — CATCH BASIN NO. 3A (CB-2.2)
STA. 91+13.1, 31.8' RT.
GRATE EL. 490.49
INV. 6" 487.24
INV. 12" W 485.49

D58

EX. ELECTRIC
EX. TELEPHONE
2.05%
1.26%
55' OF 12" TYPE B
65' OF 12" TYPE B

D61 — CATCH BASIN NO. 3 (CB-2.1)
STA. 33+25.0, 47.5' LT.
GRATE EL. 491.42
INV. 12" S 486.42

D62 — CATCH BASIN NO. 3A (CB-2.2)
STA. 92+18.8, 28.0' RT.
GRATE EL. 491.05
INV. 6" 487.80
INV. 12" N 485.63
INV. 12" S 485.55

0.64%
3.75%
EX. 3" GAS
EX. 18" WATER
REMOVE EX. PLUG
EX. 24" SAN.
EX. 18" SAN.
124' OF 12" TYPE B, 706.02, AS PER PLAN
28' OF 12" TYPE C

CATCH BASIN NO. 3 (CB-2.1)
STA. 90+47.2, 32.0' RT.
GRATE EL. 490.59
INV. 6" 487.34
INV. 12" W 484.67
INV. 12" E 484.67
INV. 12" 484.59

D55 — CATCH BASIN NO. 3 (CB-2.1)
STA. 89+75.0, 6.0' LT.
GRATE EL. 491.14
INV. 6" 487.89
INV. 12" N 486.14

D56

EX. TELEPHONE
1.80%
15' OF 12" TYPE B

D60

D59

EX. TELEPHONE
1.65%
37' OF 12" TYPE B

EX. MANHOLE NO. 3
STA. 92+20.0, 56.0' RT.
RIM EL. 490.50
INV. 12" N 484.50
INV. 30" W 477.25
INV. 30" E 477.25

D63

EX. MANHOLE
STA. 34+70.1, 79.1' RT.
(℄ EB ELBERON RAMP)
RIM EL. 491.00
INV. 12" E 484.00
INV. 30" NW 476.25
INV. 7.5" BRICK 460.0±

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 31+50.0, 18.0' RT.
RIM EL. 491.37
INV. 12" S 485.87
INV. 30" W 478.62
INV. 30" E 478.62

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 32+20.0, 29.0' RT.
RIM EL. 491.48
INV. 12" S 483.98
INV. 30" W 478.23
INV. 30" E 478.23

EXISTING MANUFACTURED WATER QUALITY STRUCTURE TYPE 3
MANHOLE NO. 3 (MH-1.2)
(96" BASE AND 9" WEIR)
STA. 92+45.2, 54.8' RT.
RIM EL. 490.50
INV. 18" S (2) 477.00
INV. 30" W 477.00
INV. 30" E 477.00

WQ1

D54

D56

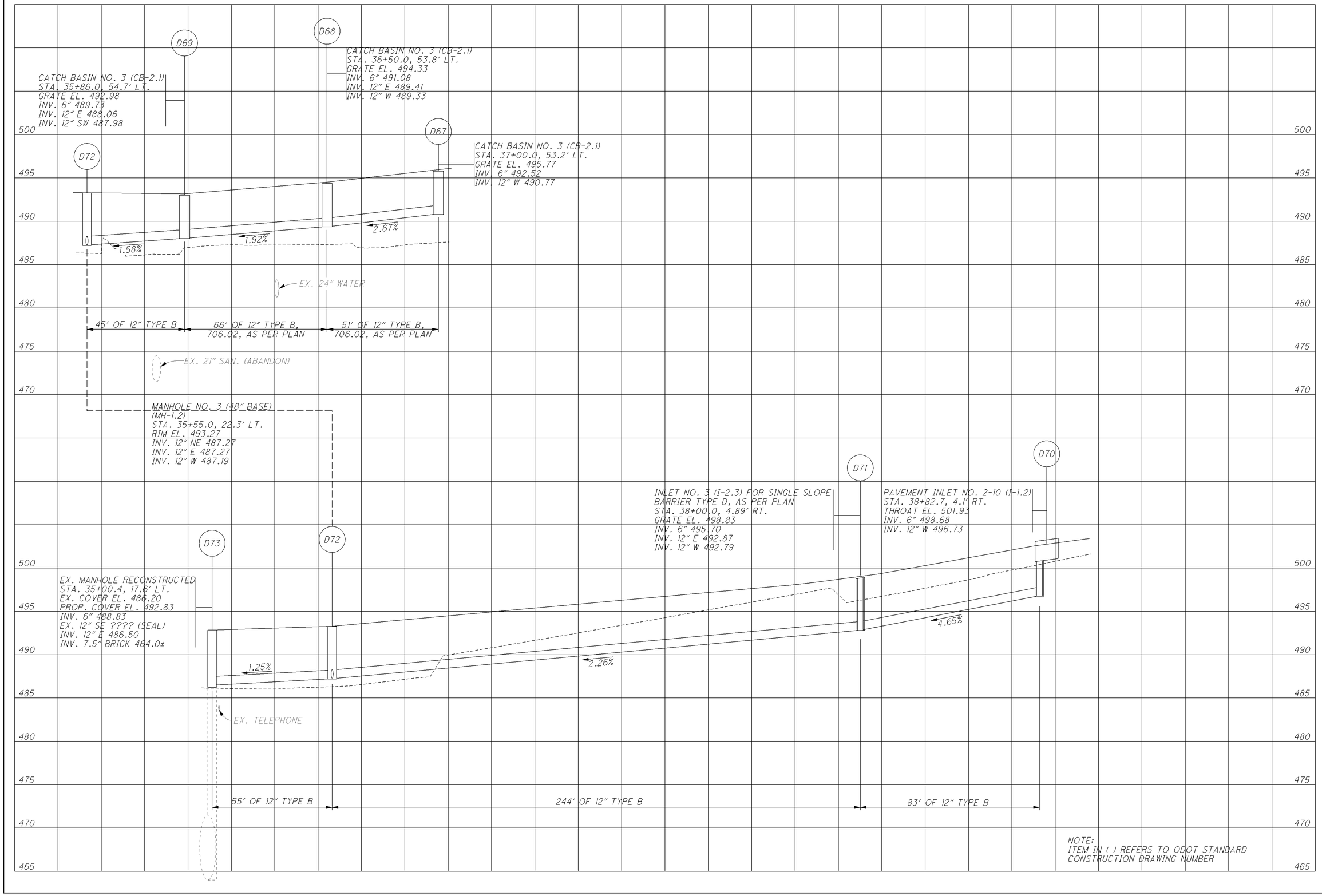
D60

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 30+55.0, 18.0' RT.
RIM EL. 490.99
INV. 12" S 485.49
INV. 24" W 479.99
INV. 30" E 479.49

EX. TELEPHONE
REMOVE EX. PLUG
EX. PLUG
0.92%
0.55%
0.55%
1.04%
1.44%

SEE PREVIOUS SHEET FOR CONTINUATION
95' OF 30" TYPE B
71' OF 30" TYPE B
77' OF 30" TYPE B
EX. 30" STORM
EX. 30" STORM
EX. 30" STORM
EX. 12" STORM

HAM-50-18.79



CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50

HAM-50-18.79

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
ELBERON AND MARYLAND

D108
EX. MANHOLE ADJUSTED
STA. 90+70.1, 18.9' LT.
EX. COVER EL. 565.33
PROP. RIM EL. 565.03
INV. EX. 12" N 559.0±
INV. EX. 12" W 559.0±
INV. EX. 12" W 559.0±

D109
EX. MANHOLE ADJUSTED
STA. 91+12.0, 518' LT.
EX. COVER EL. 565.71
PROP. RIM EL. 565.62
INV. 6" 561.62
INV. EX. 12" W 556.56
INV. EX. 12" E 541.57

D110
MANHOLE NO. 3 (48" BASE)(MH-1.2)
REMOVE EX. MANHOLE
STA. 91+41.6, 6.9' LT.
RIM EL. 565.72
INV. EX. 12" W 539.71±
INV. 12" SE 537.72

5.55%

D111
MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 45+32.8, 18.0' LT.
RIM EL. 546.27
INV. 12" NW 537.35
INV. 12" NE 537.27

D112
CATCH BASIN NO. 3 (CB-2.1)
STA. 46+25.0, 14.0' LT.
GRATE EL. 540.94
INV. 6" 537.69
INV. 12" SW 536.02
INV. 12" N 535.94

D113
CATCH BASIN NO. 3A (CB-2.2)
STA.46+64.2, 24.0' LT.
GRATE EL. 536.98
INV. 6" 533.73
INV. 12" E 532.98

D114

D115
CATCH BASIN NO. 3A (CB-2.2)
STA. 47+34.0, 14.0' LT.
GRATE EL. 533.28
INV. 6" 530.03
INV. 12" S 528.36
INV. 12" E 528.28

D118
CATCH BASIN NO. 3A (CB-2.2)
STA. 47+54.0, 40.0' RT.
GRATE EL. 513.08
INV. 6" 509.83
INV. 12" N 508.16
INV. 12" W 508.16
INV. 12" S 508.08

D116
CATCH BASIN NO. 3A (CB-2.2)
STA. 48+11.0, 14.0' RT.
GRATE EL. 526.34
INV. 6" 523.09
INV. 12" SW 521.42
INV. 12" E 521.34

6.20%
1.76%
1.36%
EX. 8" WATER
EX. 6" GAS
EX. STORM (REMOVE)
8.76%
30" SAN.
5.63%
EX. 24" WATER
8.37%
EX. 12" GAS
17.34%
EX. 10" WATER
EX. 30" BRICK
76' OF 12" TYPE C
SEE NEXT SHEET FOR CONTINUATION
2.36%

14' OF 12" TYPE B
EX. 12" STORM
EX. 12" STORM
21' OF 12" TYPE B, 706.02, AS PER PLAN
92' OF 12" TYPE B
49' OF 12" TYPE B
57' OF 12" TYPE B
82' OF 12" TYPE B

D101
CATCH BASIN NO. 3A (CB-2.2)
STA. 43+90.0, 27.0' RT.
GRATE EL. 552.17
INV. 12" NE 548.17

D102
EX. MANHOLE ADJUSTED
STA. 43+97.1, 20.7' RT.
EX. COVER EL. 552.51
PROP. RIM EL. 552.16
INV. EX. 12" NE 547.85
INV. EX. & PROP. 12" SW 547.75
EX. 18" E&W 546.11

EX. 8" GAS
4.67%
9' OF 12" TYPE B

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 46+40.4, 14.0' LT.
RIM EL. 537.82
INV. 12" W 532.65
INV. 12" SW 531.65
INV. 12" NE 531.57

D107

D105
CATCH BASIN NO. 3 (CB-2.1)
STA. 46+12.0, 10.0' RT.
GRATE EL. 543.14
INV. 6" 539.89
INV. 12" SE 538.14

D106
CATCH BASIN NO. 3 (CB-2.1)
STA. 46+20.0, 11.5' LT.
GRATE EL. 542.17
INV. 6" 538.92
INV. 12" SW 537.17

EX. 6" GAS
EX. 8" WATER
0.58%
1.21%
24' OF 12" TYPE B
14' OF 12" TYPE B

D103
EX. MANHOLE ADJUSTED
STA. 45+08.1, 17.2' RT.
EX. COVER EL. 546.82
PROP. RIM EL. 546.71
INV. EX. 18" SW 535.77
INV. EX. & PROP. 18" NE 535.77

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 46+32.4, 4.2' LT.
PROP. RIM EL. 540.98
INV. 12" NE 536.00
INV. 12" NW 536.00
INV. EX. 30" N 534.00
INV. 30" S 531.00

D104
EX. MANHOLE RECONSTRUCTED
STA. 46+42.5, 8.3' RT.
EX. COVER EL. 540.93
PROP. RIM EL. 540.60
INV. 18" SW 531.50
INV. EX. 12" NW 529.62 (SEAL)
INV. 30" N 527.65
INV. EX. 42" S 527.65

EX. 6" GAS
3.16%
135' OF 18" TYPE B, 706.02, AS PER PLAN

D107
EX. 8" WATER
12" STORM
EX. 30" BRICK
7.15%
3.94%
85' OF 30" TYPE B, 706.02, AS PER PLAN

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

HAM-50-18.79

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
ELBERON AND STATE STREET

HAM-50-18.79

D147

CATCH BASIN NO. 3A (CB-2.2)
STA. 53+35.3, 22.0' LT.
GRATE EL. 535.69
INV. 6" 532.44
INV. 12" S 530.27
INV. 12" N 530.19

D146

CATCH BASIN NO. 3 (CB-2.1)
STA. 53+24.9, 8.0' RT.
GRATE EL. 535.70
INV. 6" 532.45
INV. 12" N 530.70

HALF-HEIGHT HEADWALL
(HW-1.1 OR HW-2.1)
STA. 53+35.3, 53.0' LT.
INV. 12" S 524.37

1.39%
18.19%
32' OF 12" TYPE C
31' OF 12" TYPE B

D119

CATCH BASIN NO. 2-2A (CB-1.1)
STA. 47+99.8, 77.7' RT.
GRATE EL. 507.50
WINDOW EL. 507.00
INV. 12" E 504.00

D120

1.32%
EX. 10" WATER
41' OF 12" TYPE C
EX. 30" BRICK

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 43+56.0, 6.9' LT.
RIM EL. 521.37
INV. 12" E 515.87
INV. 12" W 512.37
INV. EX. 12" S 509.43±
INV. EX. 12" N 509.36±

D132

D131

D130

CATCH BASIN NO. 3A (CB-2.2)
STA. 43+56.0, 13.0' LT.
GRATE EL. 521.10
INV. 6" 517.85
INV. 12" W 516.10

CATCH BASIN NO. 3A (CB-2.2)
STA. 43+56.0, 19.0' RT.
GRATE EL. 521.01
INV. 6" 517.76
INV. 12" E 513.01

3.83%
2.46%
EX. 10" WATER
EX. 10" GAS
EX. 24" WATER
EX. 12" GAS
6' OF 12" TYPE B
26' OF 12" TYPE B

D126

CATCH BASIN NO. 3 (CB-2.1)
STA. 19+51.0, 48.6' LT.
GRATE EL. 498.83
INV. 6" 495.58
INV. 12" SW 493.83

D123

CATCH BASIN NO. 3 (CB-2.1)
STA. 49+36.0, 37.0' RT.
GRATE EL. 499.48
INV. 6" 496.23
INV. 12" NE 494.48

D124

CATCH BASIN NO. 3 (CB-2.1)
STA. 49+10.0, 25.0' LT.
GRATE EL. 500.72
INV. 6" 497.47
INV. 12" SW 493.80
INV. 12" E 493.72

D125

1.01%
7.16%
EX. 30" BRICK
67' OF 12" TYPE B
45' OF 12" TYPE C

D127

1.30%
EX. 12" GAS
37' OF 12" TYPE B

D128

CATCH BASIN NO. 2-2A (CB-1.1)
STA. 19+00.0, 51.6' RT.
GRATE EL. 492.50
WINDOW EL. 492.00
INV. 12" W 489.50

D129

1.39%
36' OF 12" TYPE C

D118

CATCH BASIN NO. 3A (CB-2.2)
STA. 47+54.0, 40.0' RT.
GRATE EL. 513.08
INV. 6" 509.83
INV. 12" N 508.16
INV. 12" W 508.16
INV. 12" S 508.08

CATCH BASIN NO. 3 (CB-2.1)
STA. 48+00.0, 37.0' RT.
GRATE EL. 508.96
INV. 6" 505.71
INV. 12" N 503.46
INV. 12" W 503.46
INV. 18" E 502.96

D117

CATCH BASIN NO. 3 (CB-2.1)
STA. 46+51.1, 54.4' RT.
GRATE EL. 520.22
INV. 6" 516.97
INV. 12" S 516.22

7.20%
EX. 10" WATER
EX. TELEPHONE
EX. 30" BRICK
9.43%
1.23%

D120

D121

CATCH BASIN NO. 3 (CB-2.1)
STA. 48+00.0, 23.4' LT.
GRATE EL. 509.14
INV. 6" 505.89
INV. 18" W 502.22
INV. 18" E 502.14

D122

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 48+00.0, 38.6' LT.
RIM EL. 510.00
INV. 18" W 501.75
INV. 18" S 501.75

2.44%

CATCH BASIN NO. 2-3 (CB-1.2)
STA. 49+20.2, 68.5' LT.
GRATE EL. 494.42
WINDOW EL. 493.50
INV. 12" SE 492.50
INV. 12" W 490.50
INV. 18" N 490.00
INV. 24" S 489.50

10.04%

D125

D127

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 19+15.0, 45.0' LT.
RIM EL. 499.35
INV. 12" NE 493.35
INV. 24" N 489.35
INV. 24" S 489.35

D129

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 18+63.0, 45.0' RT.
RIM EL. 495.00
INV. 12" E 489.00
INV. 24" N 489.00
INV. 24" SW 489.00

D15

MANHOLE NO. 5
STA. 18+09.2, 70.0' RT.
EX RIM EL. 494.48
PROP. RIM EL. 495.00
INV. 24" NE 487.50
INV. 24" W 487.50
INV. EX. 72" BRICK 481.40±

EX. 3" GAS
EX. 8" WATER
0.31%
0.34%
2.63%
EX. 36" WATER
EX. 36" BRICK
EX. 12" SAN. (ABANDON)

112' OF 12" TYPE B
49' OF 12" TYPE B
60' OF 18" TYPE B
16' OF 18" TYPE C
117' OF 18" TYPE C
48' OF 24" TYPE B
104' OF 24" TYPE B
57' OF 24" TYPE C

SEE PREVIOUS SHEET FOR CONTINUATION

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
WARSAW

D133 D134 D136 D135 D136 D138 D137 D140 D141

CATCH BASIN NO. 3 (CB-2.1)
STA. 102+25.0, 11.0' LT.
GRATE EL. 552.79
INV. 6" 549.54
INV. 12" W 547.79

STA. 73+00.5, 2.0' LT.
GRATE EL. 553.18
STA. 72+50.4,℄
GRATE EL. 553.54

STA. 73+15.5, 2.6' LT.
GRATE EL. 553.16

CATCH BASIN NO. 3 (CB-2.1)
STA. 103+30.0, 14.9' LT.
GRATE EL. 551.60
INV. 6" 548.35
INV. 12" W 547.60

CATCH BASIN NO. 3 (CB-2.1)
STA. 73+25.0, 23.2' RT.
GRATE EL. 554.05
INV. 6" 550.80
INV. 12" SE 549.05

EX. MANHOLE
STA. 74+08.5, 60.6' RT.
EX. COVER EL. 548.24
INV. 12" N 542.24
INV. EX. 12" E 540.16 (SEAL)
INV. EX. 12" N & S 522.46

CATCH BASIN NO. 2-2A (CB-1.1)
STA. 73+97.6, 63.2' RT.
GRATE EL. 547.50
WINDOW EL. 547.00
INV. 12" S 543.00

STA. 73+50.7, 4.0' LT.
GRATE EL. 553.27

0.72% 0.31% 1.20% 1.15% 2.85% 0.36% 6.33%

50' OF 12" SLOTTED DRAIN PIPE, TYPE 1
35' OF 12" SLOTTED DRAIN PIPE, TYPE 1
6' OF 12" TYPE B 707.01
8' OF 12" TYPE B 707.01
20' OF 12" TYPE B

EX. 10" GAS
EX. 30" BRICK

CATCH BASIN NO. 6 (CB-2.3)
STA. 73+07.0, 2.0' LT.
GRATE EL. 553.14
INV. 12" N 551.64
INV. 12" S 551.64
INV. 12" E 547.22
INV. 12" S 547.14

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

EX. MANHOLE RECONSTRUCTED
STA. 72+06.0, 5.6' LT.
EX. COVER EL. 549.73
PROP. RIM EL. 554.05
INV. 12" E 547.55
EX. 32" (BRICK) N 538.56
INV. 30" S 538.34

33' OF 12" TYPE B, 706.02, AS PER PLAN
40' OF 12" TYPE B
14' OF 12" TYPE C
12' OF 12" TYPE C

D134 D138 D139 D142 D143 D191 D144 D145 D85 D86

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 73+20.0, 36.0' RT.
RIM EL. 555.00
INV. 12" SE 549.00
INV. 12" NE 546.00
INV. 30" N 529.08
INV. 30" S 529.00

CATCH BASIN NO. 2-2A (CB-1.1)
STA. 102+59.3, 41.5' LT.
GRATE EL. 549.00
WINDOW EL. 548.50
INV. 12" S 544.50

EX. MANHOLE
STA. 102+68.4, 38.2' LT.
EX. COVER EL. 548.85
INV. EX. & PROP. 12" N 544.09
EX. 12" S 518.42±

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 45+08.6, 66.8' RT. (STATE ST.)
RIM EL. 530.00
INV. 12" NE 521.00
INV. EX. 12" NW 521.00±
INV. 30" N 517.59
INV. 30" S 517.51

MH-3 (48" BASE)(MH-1.2)
REMOVE EX. MANHOLE
STA. 103+01.2, 42.8' LT.
RIM EL. 543.15
INV. EX. 12" N 518.26±
INV. 12" E 514.17

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 74+00.0, 37.0' RT.
RIM EL. 533.00
INV. 30" N 521.61
INV. 30" S 521.53

EX. MANHOLE RECONSTRUCTED
STA. 45+61.2, 35.3' RT.
EX. COVER EL. 524.70
PROP. COVER EL. 523.61
INV. EX. 15" W 514.04 (SEAL)
INV. 30" NW 512.76
INV. EX. 32" (BRICK) SE 512.68

MH-3 (48" BASE)(MH-1.2)
STA. 43+28.9, 25.0' RT.
RIM EL. 521.33
INV. 12" W 514.04
INV. EX. 12" E 513.96±

EX. MANHOLE RECONSTRUCTED
STA. 45+96.0, 5.0' LT. (STATE ST.)
EX. COVER EL. 523.55
PROP. COVER EL. 522.32

EX. MANHOLE (NO WORK)
STA. 43+29.2, 6.25' LT.

EX. 10" GAS
EX. 24" WATER
EX. 12" GAS
EX. 10" WATER

7.47% 8.69% 8.76% 7.31% 4.83% 4.56% 0.53% 0.43% 12.65%

124', 30" TYPE B, 706.02, AS PER PLAN
85', 30" TYPE B, 706.02, AS PER PLAN
45', 30" TYPE B, 706.02, AS PER PLAN
65', 30" TYPE B, 706.02, AS PER PLAN
EX. 32" BRICK
COMBINED STORM AND SANITARY SEWER
9' OF 12" TYPE C
30', EX. 12"
30', 12" TYPE B, 706.02, AS PER PLAN
31', EX. 12"

555 550 545 540 535 530 525 520 515 510

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MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 19+97.1, 91.4' LT.
RIM EL. 494.16
INV. 12" W 488.81
INV. 12" E 488.81
INV. EX. 36" N 487.31±
INV. EX. 36" S 487.31±

D82

D81

CATCH BASIN NO. 3A (CB-2.2)
STA. 20+13.0, 76.6' LT.
GRATE EL. 493.67
INV. 12" W 489.67

D80

CATCH BASIN NO. 3A (CB-2.2)
STA. 19+91.9, 96.3' LT.
GRATE EL. 493.88
INV. 12" E 488.88

EX. 12" GAS

EX. 6" WATER

1.00%

3.91%

7' OF 12" TYPE B

22' OF 12" TYPE B

D89

CATCH BASIN NO. 3 (CB-2.1)
STA. 24+71.3, 101.1' LT.
GRATE EL. 492.45
INV. 12" E 486.23

D88

CATCH BASIN NO. 3 (CB-2.1)
STA. 24+55.5, 107.4' LT.
GRATE EL. 492.52
INV. 12" SE 486.65

D91

EX. 6" WATER

2.30%

EX. 12" SANITARY

18' OF 12" TYPE C

16' OF 12" TYPE C

D93

CATCH BASIN NO. 3 (CB-2.1)
STA. 26+75.6, 78.0' LT.
GRATE EL. 491.42
INV. 12" SW 484.20

D92

D93A

CATCH BASIN NO. 3 (CB-2.1)
STA. 26+61.6, 81.5' LT.
GRATE EL. 491.58
INV. 12" SE 484.70

EX. 12" WATER

3.33%

EX. 15" SANITARY

15' OF 12" TYPE C

12' OF 12" TYPE C

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 24+74.3, 86.2' LT.
RIM EL. 493.00
INV. 12" N 485.88
INV. 18" W 485.43
INV. 18" E 484.88

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 26+75.9, 66.7' LT.
RIM EL. 491.50
INV. 12" N 483.91
INV. 18" W 481.76
INV 18" E 481.70

D91

D93A

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 27+32.0, 63.0' LT.
RIM EL. 493.23
INV. 18" W 480.85
INV. 18" SE 480.85

D168

D170

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 27+72.1, 37.7' LT.
PROP. COVER 492.35
INV. 18" NW 480.18
INV. 18" E 480.18

D87

CATCH BASIN NO. 2-2B (CB-1.1)
STA. 23+86.5, 108.3' LT.
GRATE EL. 492.65
INV. 12" E 486.40

EX. 6" WATER

EX. 6" WATER

1.00%

1.47%

EX. 12" WATER

1.52%

EX. 3" GAS

1.43%

EX. 24" SANITARY

97' OF 12" TYPE C

212' OF 18" TYPE B, 706.02, AS PER PLAN

56' OF 18" TYPE B, 706.02, AS PER PLAN

47' OF 18" TYPE B, 706.02, AS PER PLAN

SEE NEXT SHEET FOR CONTINUATION

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
NEAVE, CHURCH AND BURNS STREETS

HAM-50-18.79

D170

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 27+72.1, 37.7' LT.
PROP. COVER 492.35
INV. 18" NW 480.18
INV. 18" E 480.18

D172

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 28+95.00, 36.9' LT.
PROP. COVER 490.80
INV. 18" W 477.45
INV. 18" E 477.37

D175

MANHOLE NO. 3
(48" BASE)(MH-1.2)
30+15.87, 30.18 LT.
PROP. COVER 490.64
INV. 18" W 476.51
INV. 18" E 476.38

D176

495
490
485
480
475
470

12" STORM
18" STORM
2.22%
0.72%
0.86%

SEE PREVIOUS SHEET FOR CONTINUATION

123' OF 18" TYPE B, 706.02, AS PER PLAN

120' OF 18" TYPE B, 706.02, AS PER PLAN

96' OF 18" TYPE B, 706.02, AS PER PLAN

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA 31+11.8, 28.7' LT.
PROP. COVER 491.04
INV. 18" W 475.55
INV. 21" E 475.52

D176

D178

D180

D184

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 32+33.0, 27.1' LT.
PROP. COVER 491.55
INV. 21" W 474.91
INV. 21" E 474.84

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 33+55.9, 26.2 LT.
PROP. COVER 492.06
INV. 21" W 474.33
INV. 21" E 474.19

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 34+75.2, 30.9' LT.
PROP. COVER 492.46
INV. 21" W 473.53
INV. 21" E 467.83±

495
490
485
480
475
470
465
460

12" STORM

0.50%
0.41%
0.55%

EX. 7.5' BRICK STORM SEWER

121' OF 21" TYPE B, 706.02, AS PER PLAN

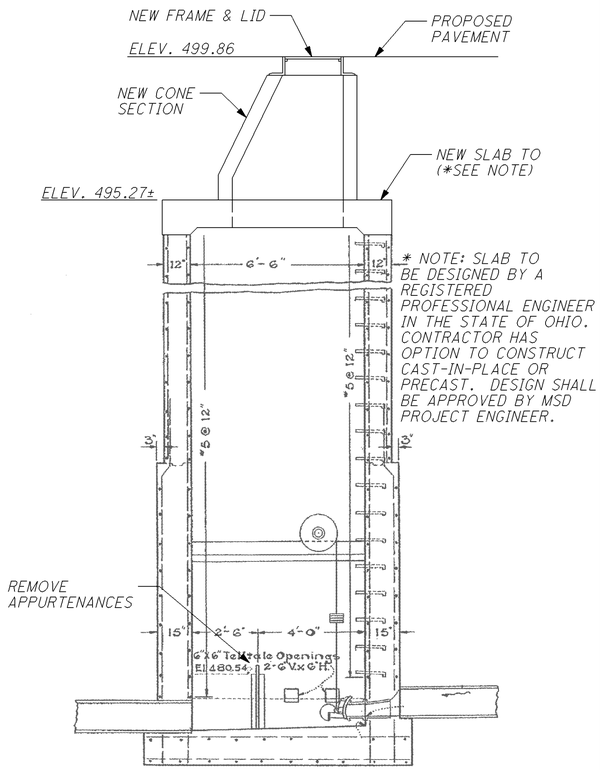
123' OF 21" TYPE B, 706.02, AS PER PLAN

121' OF 21" TYPE B, 706.02, AS PER PLAN

0.55%

19' OF 21" TYPE B
706.02, AS PER PLAN

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER



D7A REGULATION CHAMBER

CALCULATED BMB
CHECKED BAA

DRAINAGE DETAILS
US 50, BURNS TO EVANS STREETS

HAM-50-18.79

CALCULATED BMB
CHECKED BAA

NOTE:
ITEM IN ( ) REFERS TO ODOT STANDARD CONSTRUCTION DRAWING NUMBER

CATCH BASIN NO. 3 (CB-2.1)
STA. 20+87.0, 19.1' LT.
GRATE EL. 491.61
INV. 6" 488.36
INV. 12" N 486.69
INV. 12" W 486.61

CATCH BASIN NO. 3 (CB-2.1)
STA. 20+97.2, 22.1' RT.
GRATE EL. 491.59
INV. 6" 488.34
INV. 12" N 486.67
INV. 12" SW 486.59

CATCH BASIN NO. 3A (CB-2.2)
STA. 21+01.0, 18.0' LT.
GRATE EL. 491.67
INV. 6" 488.42
INV. 12" S 486.92

CATCH BASIN NO. 3A (CB-2.2)
STA. 21+28.0, 18.0' RT.
GRATE EL. 492.01
INV. 6" 488.76
INV. 12" S 487.01

CATCH BASIN NO. 2-2B (CB-1.1)
STA. 20+87.3, 50.9' LT.
GRATE EL. 487.50
INV. 6" S 484.00 (FROM WICK DRAIN)
INV. 12" SE 482.50

CATCH BASIN NO. 2-2A (CB-1.1)
STA. 35+61.1, 88.5' LT.
GRATE EL. 487.70
WINDOW EL. 487.20
INV. 15" S 484.20

PROP. 12" (SEE RIGHT)
EX. TELEPHONE
EX. 6" GAS
1.92%
24" (SEE BELOW)
52' OF 12" TYPE B

EX. 6" GAS
EX. TELEPHONE
1.15%
7.00%
5.85%
1.10%
EX. TELEPHONE
EX. 6" WATER
24" (SEE BELOW)
20' OF 12" TYPE B
22' OF 12" TYPE B
26' OF 12" TYPE B
31' OF 12" TYPE B

0.87%
15' OF 15" TYPE C

EX. MANHOLE RECONSTRUCTED
STA. 20+81.8, 0.9' RT.
EX. COVER EL. 487.07
PROP. RIM EL. 492.07
PROP. 12" W & NE 485.07
PROP. 12" NW 481.50
PROP. 24" E 470.28
EX. 7.5' BRICK 465.0±

MANHOLE NO. 3 (48" BASE)(MH-1.2)
STA. 35+59.7, 79.8' LT.
PROP. RIM EL. 491.25
INV. 15" N 484.07
INV. 24" E 470.75
INV. 24" W 470.67

CATCH BASIN NO. 2-2B (CB-1.1)
STA. 39+75.6, 43.2' LT.
GRATE EL. 486.50
INV. 12" S 482.50

MANHOLE NO. 3
(48" BASE)(MH-1.2)
REMOVE EX. MANHOLE
STA. 39+76.5, 34.4' LT.
RIM EL. 487.03
INV. 12" N 482.00
INV. 12" S 482.00
INV. EX. 21" E 474.51
INV. 24" NW 474.20

12" (SEE ABOVE)

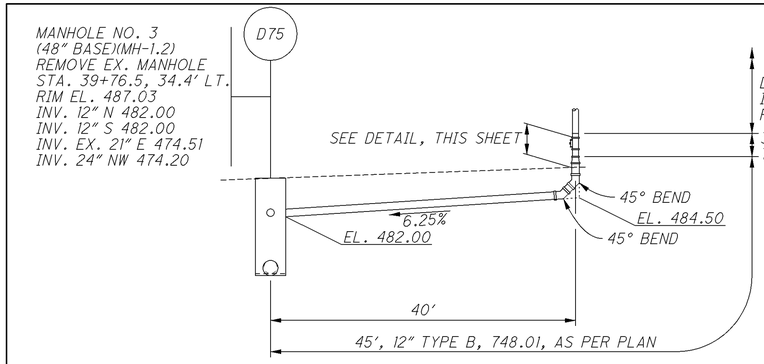
MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 37+00.0, 75.0' LT.
RIM EL. 488.50
INV. 24" E 471.83
INV 24" W 471.75

MANHOLE NO. 3
(48" BASE)(MH-1.2)
STA. 39+58.3, 76.7' LT.
RIM EL. 488.50
INV. 24" SE 473.88
INV 24" W 473.80

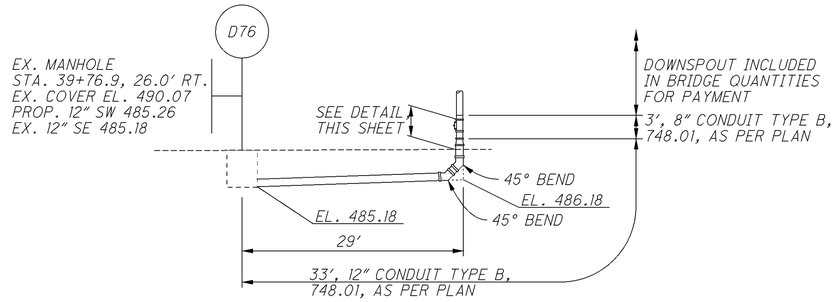
5.56%
0.72%
0.69%
0.74%
0.70%
54' OF 24" TYPE B
145' OF 24" TYPE B
268' OF 24" TYPE B
46' OF 24" TYPE B
9' OF 12" TYPE B

DRAINAGE DETAILS
EVANS STREET, US 50

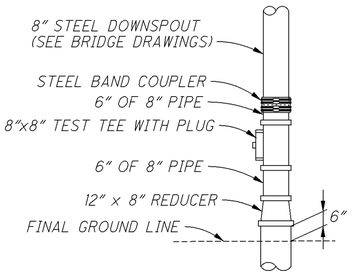
HAM-50-18.79



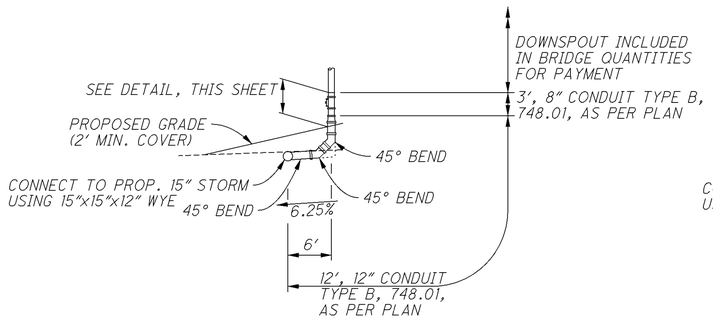
US 50 WESTBOUND SCUPPER DOWNSPOUT OUTLET



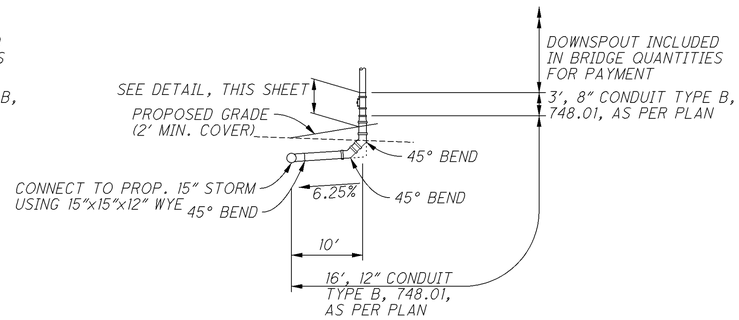
US 50 EASTBOUND SCUPPER DOWNSPOUT OUTLET



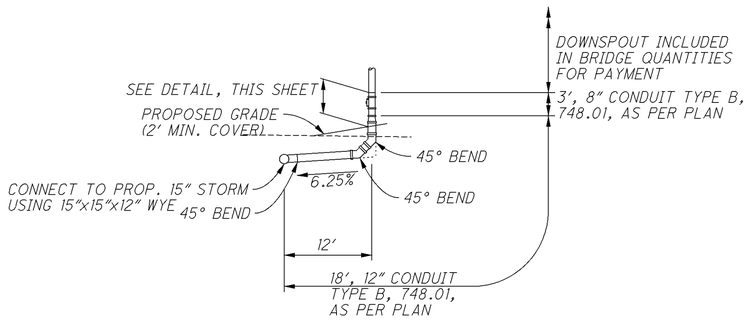
CLEANOUT DETAIL



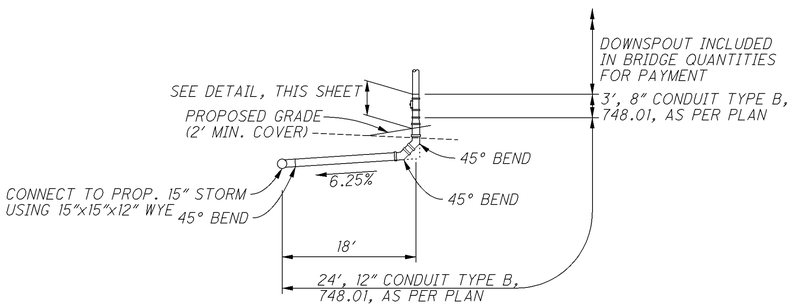
EASTBOUND ELBERON RAMP, RIGHT SIDE SCUPPER DOWNSPOUT



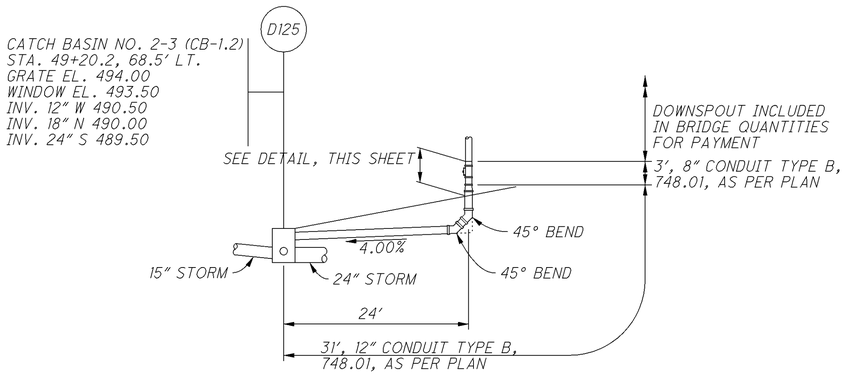
EASTBOUND ELBERON RAMP, LEFT SIDE SCUPPER DOWNSPOUT



EASTBOUND WARSAW RAMP, RIGHT SIDE SCUPPER DOWNSPOUT



EASTBOUND WARSAW RAMP, LEFT SIDE SCUPPER DOWNSPOUT

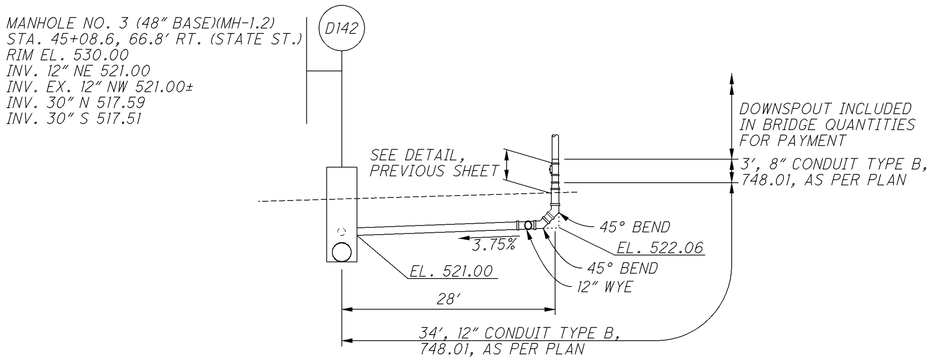


EASTBOUND ELBERON RAMP, PIER 1 SCUPPER DOWNSPOUT

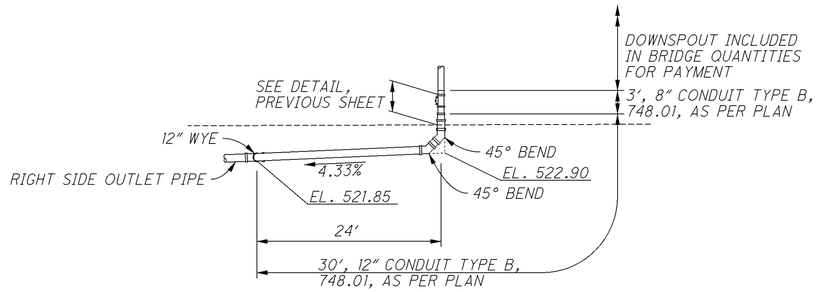
CALCULATED BMB
CHECKED BAA

BRIDGE SCUPPER DOWNSPOUT OUTLETS

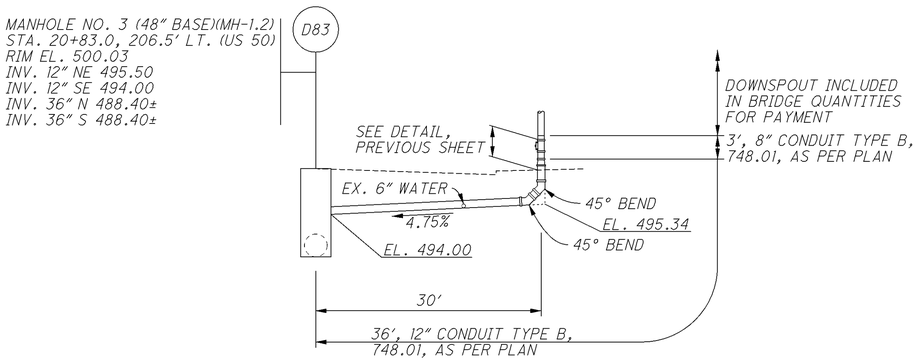
HAM-50-18.79



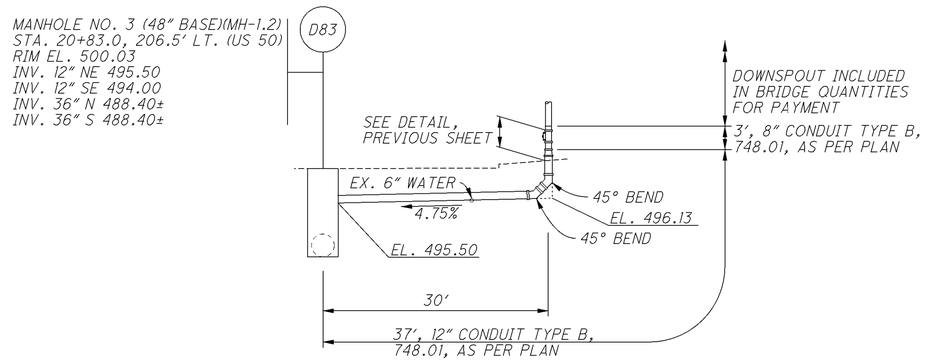
EASTBOUND WARSAW RAMP, REAR ABUTMENT RIGHT SIDE SCUPPER DOWNSPOUT



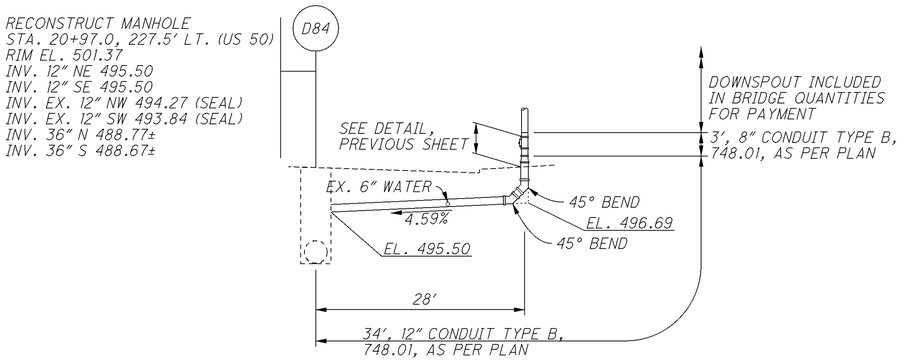
EASTBOUND WARSAW RAMP, REAR ABUTMENT LEFT SIDE SCUPPER DOWNSPOUT



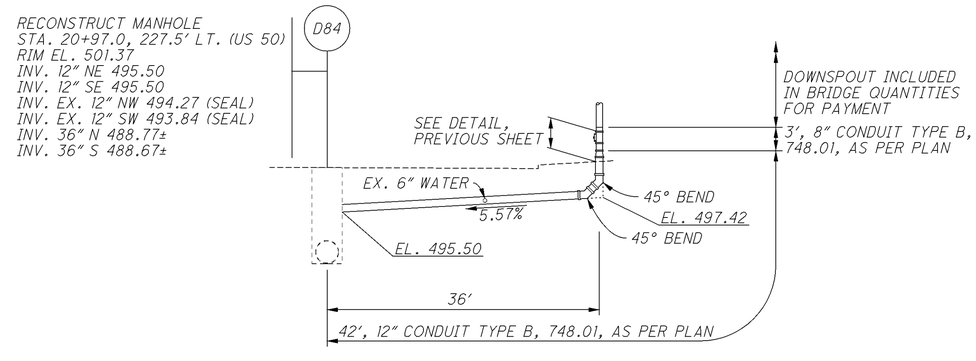
WESTBOUND ELBERON RAMP, FORWARD ABUTMENT RIGHT SIDE SCUPPER DOWNSPOUT



WESTBOUND ELBERON RAMP, FORWARD ABUTMENT LEFT SIDE SCUPPER DOWNSPOUT



WESTBOUND WARSAW RAMP, FORWARD ABUTMENT RIGHT SIDE SCUPPER DOWNSPOUT

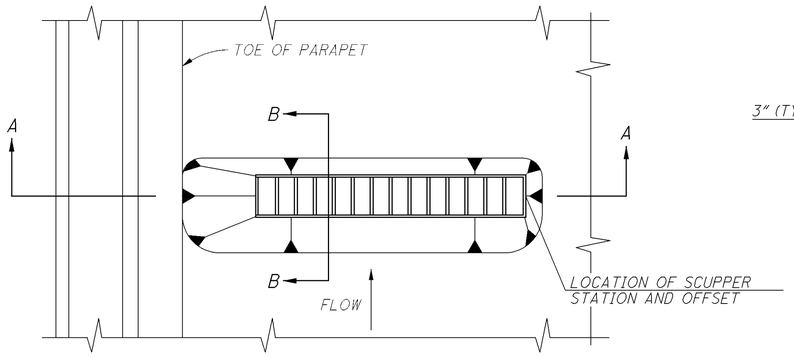


WESTBOUND WARSAW RAMP, FORWARD ABUTMENT LEFT SIDE SCUPPER DOWNSPOUT

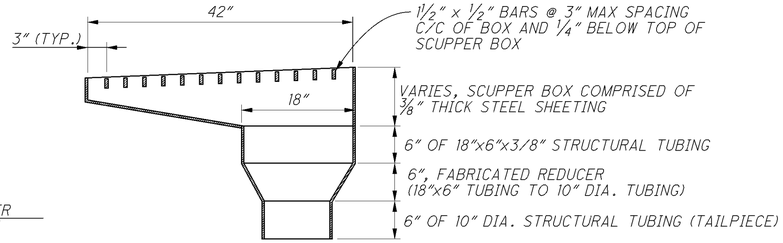
CALCULATED BMB
CHECKED BAA

BRIDGE SCUPPER DOWNSPOUT OUTLETS

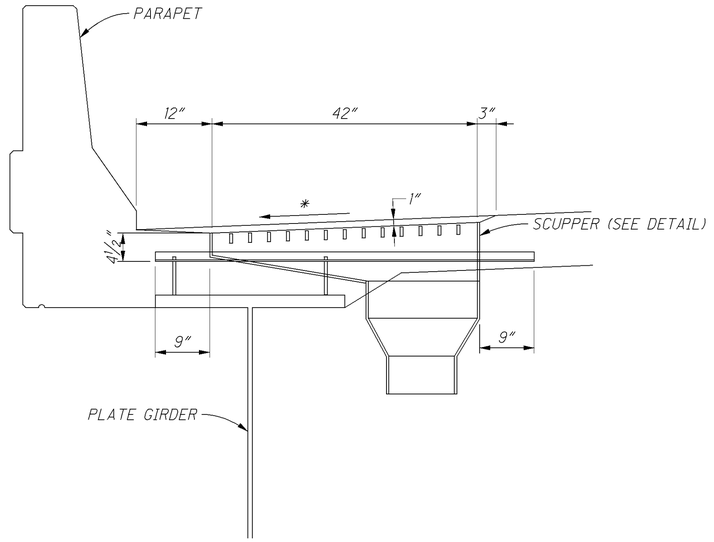
HAM-50-18.79



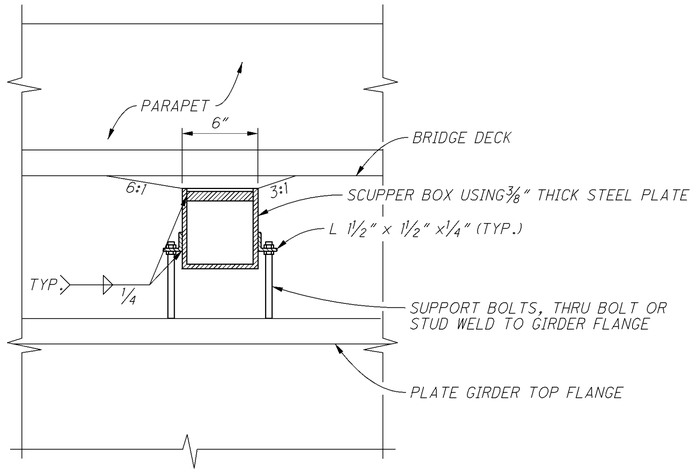
PLAN



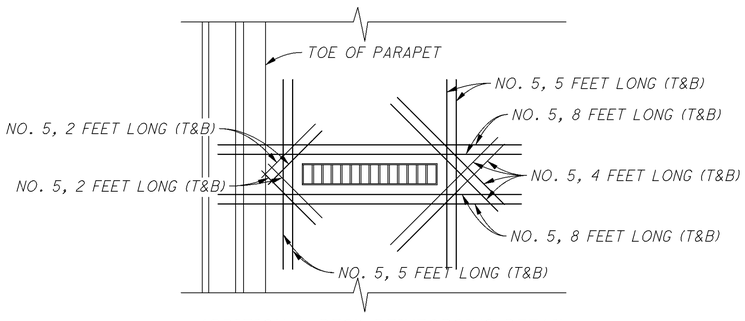
SCUPPER BOX DETAIL



SECTIONI A-A



SECTION B-B



ADDITIONAL DECK REINFORCING DETAIL

T&B = TOP AND BOTTOM

SCUPPER NOTES:

ALL MATERIALS INCLUSING STEEL PLATES, STRUCTURAL TUBING, SUPPORT ANGLES AND OTHER HARDWARE SHALL BE GALVANIZED PER 711.02.

SCUPPER BOXES AND REDUCERS SHALL BE MADE OF ⅜" GALVANIZED STRUCTURAL STEEL PLATES CONFORMING TO 518 AND 711.02.

STRUCTURAL STEEL TUBING SHALL BE PER 518, 707.11 AND 748.06.

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SPECIFIED AND IN ACCORDANCE WITH ITEM 748.06.

PAYMENT:

ALL MATERIALS, EQUIPMENT, DELIVERY AND LABOR NECESSARY IN THE FABRICATION AND INSTALLATION FOR THE SCUPPER AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE OF:

SCUPPER, INCLUDING SUPPORTS, AS PER PLAN.

DOWNSPOUT NOTES:

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SHOWN IN THE PLANS AND IN ACCORDANCE WITH ITEMS 518.06 AND 748.06. ALL FIELD WELDS TO BE GALVANIZED PER 711.02 AND WITH THE APPROVAL OF THE ENGINEER.

DOWNSPOUTS SHALL BE CONNECTED TO THE BRIDGE SCUPPER ASSEMBLIES BY WELDING OR USE OF CLAMP TYPE COUPLINGS WITH RING GASKETS.

HORIZONTAL PIPE RUNS SHALL BE SUPPORTED BY USE OF HANGARS AND STRAPS ATTACHED TO THE CONCRETE BRIDGE DECK. STRAPS SHALL BE PLACED AT A MAXIMUM SPACING OF 6 FEET C/C.

VERTICAL DOWNSPOUTS SHALL BE ATTACHED TO THE SUBSTRUCTURE BY USE OF STRAPS AND AT THE LOCATIONS INDICATED ON THE PLANS. THE DOWNSPOUT CONTRACTOR IS RESPONSIBLE FOR CONNECTING THE VERTICAL DOWNSPOUT TO THE UNDERGROUND PIPE DRAINAGE SYSTEM BY OTHERS.

ALL MATERIALS, EQUIPMENT, BENDS, WYES, TEES, CLEANOUTS, FIELD GALVANIZING AND LABOR NECESSARY FOR THE FABRICATION AND INSTALLATION OF THE DOWNSPOUT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF:

PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

CALCULATED BMB CHECKED

BRIDGE SCUPPER DETAILS

HAM-50-18.79

SUPERELEVATION TABLE

STATION	INSIDE EDGE (PROFILE GRADE)		LANE 1					LANE 2					LANE 3					LANE 4					REMARKS
	OFFSET	ELEVATION	WIDTH	TRANSITION RATE	CROSS SLOPE	ELEVATION CORRECTION	ELEVATION	WIDTH	TRANSITION RATE	CROSS SLOPE	ELEVATION CORRECTION	ELEVATION	WIDTH	TRANSITION RATE	CROSS SLOPE	ELEVATION CORRECTION	ELEVATION	WIDTH	TRANSITION RATE	CROSS SLOPE	ELEVATION CORRECTION	ELEVATION	
37+25		496.70	12.00		-0.016	-0.192	496.51	12.00		-0.016	-0.192	496.32	12.00		-0.016	-0.192	496.12	12.00		-0.016	-0.192	495.93	
37+34.06		496.94	12.00	172:1	-0.016	-0.192	496.75	12.00	172:1	-0.016	-0.192	496.55	12.00	172:1	-0.016	-0.192	496.36	12.00	172:1	-0.016	-0.192	496.17	
37+50		497.37	12.00	172:1	-0.018	-0.215	497.16	12.00	172:1	-0.018	-0.215	496.94	12.00	172:1	-0.018	-0.215	496.73	12.00	172:1	-0.018	-0.215	496.51	
37+75		498.10	12.00	172:1	-0.021	-0.252	497.85	12.00	172:1	-0.021	-0.252	497.60	12.00	172:1	-0.021	-0.252	497.35	12.00	172:1	-0.021	-0.252	497.09	
38+00		498.88	12.00	172:1	-0.024	-0.288	498.60	12.00	172:1	-0.024	-0.288	498.31	12.00	172:1	-0.024	-0.288	498.02	12.00	172:1	-0.024	-0.288	497.73	
38+25		499.72	12.00	172:1	-0.027	-0.324	499.40	12.00	172:1	-0.027	-0.324	499.07	12.00	172:1	-0.027	-0.324	498.75	12.00	172:1	-0.027	-0.324	498.42	
38+50		500.61	12.00	172:1	-0.030	-0.361	500.25	12.00	172:1	-0.030	-0.361	499.89	12.00	172:1	-0.030	-0.361	499.53	12.00	172:1	-0.030	-0.361	499.17	
38+75		501.56	12.00	172:1	-0.033	-0.397	501.16	12.00	172:1	-0.033	-0.397	500.76	12.00	172:1	-0.033	-0.397	500.36	12.00	172:1	-0.033	-0.397	499.97	
39+00.00		502.55	12.00	172:1	-0.036	-0.433	502.12	12.00	172:1	-0.036	-0.433	501.69	12.00	172:1	-0.036	-0.433	501.26	12.00	172:1	-0.036	-0.433	500.82	

CALCULATED MAH
CHECKED ABS

SUPERELEVATION TABLE
US 50 EB

HAM-50-18.79

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SUPERELEVATION TABLE

CALCULATED MAH
CHECKED ABS

LANE 4					LANE 3					LANE 2					LANE 1					INSIDE EDGE (PROFILE GRADE)		STATION	REMARKS
ELEVATION	ELEVATION CORRECTION	CROSS SLOPE	TRANSITION RATE	WIDTH	ELEVATION	ELEVATION CORRECTION	CROSS SLOPE	TRANSITION RATE	WIDTH	ELEVATION	ELEVATION CORRECTION	CROSS SLOPE	TRANSITION RATE	WIDTH	ELEVATION	ELEVATION CORRECTION	CROSS SLOPE	TRANSITION RATE	WIDTH	OFFSET	ELEVATION		
										499.13	-0.192	-0.016		12.00	499.32	-0.192	-0.016		12.00		499.71	17+25	NOTE:
										499.18	-0.192	-0.016	161:1	12.00	499.37	-0.192	-0.016	161:1	12.00		499.75	17+30.00	STA. 17+25 TO STA. 20+25 DOES NOT INCLUDE
										499.40	-0.164	-0.014	161:1	12.00	499.56	-0.164	-0.014	161:1	12.00		499.89	17+50	TURN LANE. (SEE PAV'T DETAILS)
										499.59	-0.128	-0.011	161:1	12.00	499.72	-0.128	-0.011	161:1	12.00		499.97	17+75	
										499.67	-0.092	-0.008	161:1	12.00	499.77	-0.092	-0.008	161:1	12.00		499.95	18+00	
										499.70	-0.057	-0.005	161:1	12.00	499.76	-0.057	-0.005	161:1	12.00		499.88	18+25	
										499.74	-0.021	-0.002	161:1	12.00	499.76	-0.021	-0.002	161:1	12.00		499.80	18+50	
										499.76	0.000	0.000	161:1	12.00	499.76	0.000	0.000	161:1	12.00		499.76	18+65.00	
										499.68	-0.014	-0.001	161:1	12.00	499.70	-0.014	-0.001	161:1	12.00		499.73	18+75	
										499.50	-0.050	-0.004	161:1	12.00	499.55	-0.050	-0.004	161:1	12.00		499.65	19+00	
										499.32	-0.085	-0.007	161:1	12.00	499.41	-0.085	-0.007	161:1	12.00		499.58	19+25	
										499.14	-0.121	-0.010	161:1	12.00	499.26	-0.121	-0.010	161:1	12.00		499.50	19+50	
										498.96	-0.156	-0.013	161:1	12.00	499.12	-0.156	-0.013	161:1	12.00		499.43	19+75	
										498.79	-0.192	-0.016	161:1	12.00	498.98	-0.192	-0.016	161:1	12.00		499.35	20+00.00	
										498.72	-0.192	-0.016		12.00	498.91	-0.192	-0.016		12.00		499.28	20+25	
												↑					↑						
												N/C					N/C						
												↓					↓						
493.39	-0.192	-0.016		12.00	493.58	-0.192	-0.016		12.00	493.78	-0.280	-0.016		17.48	494.06	-0.192	-0.016		12.00		494.25	36+00	
493.65	-0.192	-0.016		12.00	493.84	-0.192	-0.016		12.00	494.03	-0.275	-0.016		17.16	494.30	-0.192	-0.016		12.00			36+15.16	
493.88	-0.178	-0.015		12.00	494.06	-0.178	-0.015		12.00	494.24	-0.252	-0.015		17.03	494.49	-0.178	-0.015		12.00			36+25	
494.52	-0.141	-0.012		12.00	494.67	-0.141	-0.012		12.00	494.81	-0.195	-0.012		16.57	495.00	-0.141	-0.012		12.00			36+50	
495.22	-0.105	-0.009		12.00	495.32	-0.105	-0.009		12.00	495.43	-0.141	-0.009		16.11	495.57	-0.105	-0.009		12.00			36+75	
495.96	-0.069	-0.006		12.00	496.03	-0.069	-0.006		12.00	496.10	-0.090	-0.006		15.65	496.19	-0.069	-0.006		12.00			37+00	
496.76	-0.032	-0.003		12.00	496.79	-0.032	-0.003		12.00	496.82	-0.041	-0.003		15.20	496.86	-0.032	-0.003		12.00			37+25	
497.61	0.004	0.000		12.00	497.60	0.004	0.000		12.00	497.60	0.005	0.000		14.73	497.59	0.004	0.000		12.00			37+50	
498.50	0.040	0.003		12.00	498.46	0.040	0.003		12.00	498.42	0.048	0.003		14.28	498.38	0.040	0.003		12.00			37+75	
499.45	0.077	0.006		12.00	499.38	0.077	0.006		12.00	499.30	0.088	0.006		13.83	499.21	0.077	0.006		12.00			38+00	
500.46	0.113	0.009		12.00	500.34	0.113	0.009		12.00	500.23	0.126	0.009		13.37	500.10	0.113	0.009		12.00			38+25	
501.51	0.149	0.012		12.00	501.36	0.149	0.012		12.00	501.21	0.161	0.012		12.91	501.05	0.149	0.012		12.00			38+50	
502.61	0.186	0.015		12.00	502.43	0.186	0.015		12.00	502.24	0.193	0.015		12.46	502.05	0.186	0.015		12.00			38+75	
503.77	0.222	0.0185		12.00	503.55	0.222	0.0185		12.00	503.33	0.222	0.0185		12.00	503.10	0.222	0.0185		12.00			39+00.00	
504.84	0.222	0.0185		12.00	504.62	0.222	0.0185		12.00	504.40	0.222	0.0185		12.00	504.18	0.222	0.0185		12.00		↓	39+25	

SUPERELEVATION TABLE
US 50 WB

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SUPERELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
552.66	260:1	0.066	0.0046	14.45	50+00.00	552.59						
551.59	260:1	0.138	0.0095	14.48	50+22.84	551.45						
551.49	260:1	0.145	0.0100	14.52	50+25	551.34						
550.29	260:1	0.237	0.0154	15.40	50+50	550.05						
549.03	260:1	0.332	0.0208	16.00	50+75	548.70						
549.01	260:1	0.333	0.0208	16.00	50+75	548.68						
547.70	260:1	0.418	0.0261	16.00	51+00	547.28						
546.30	260:1	0.504	0.0315	16.00	51+25	545.79						
546.14	260:1	0.514	0.0321	16.00	51+27.85	545.63						
544.86	260:1	0.591	0.0369	16.00	51+50	544.27						
543.50	260:1	0.677	0.0423	16.00	51+75	542.82						
542.62	260:1	0.700	0.0437	16.00	51+81.64	541.92						
541.24	260:1	0.736	0.0460	16.00	51+92.20	540.50						
540.22		0.736	0.0460	16.00	52+00	539.48						
			↑									
			N/C									
			↓									
534.08		0.736	0.0460	16.00	54+50	533.34						
533.90	161:1	0.736	0.0460	16.00	54+64.95	533.17						
533.74	161:1	0.674	0.0421	16.00	54+75	533.07						
533.41	161:1	0.518	0.0324	16.00	55+00	532.89						
533.15	161:1	0.363	0.0227	16.00	55+25	532.79						
532.98	161:1	0.256	0.0160	16.00	55+42.23	532.72						
532.89	161:1	0.208	0.0130	16.00	55+50	532.69						
532.64	161:1	0.052	0.0033	16.00	55+75	532.59						
532.56	161:1	0.000	0.0000	16.00	55+83.45	532.56						
532.38	161:1	-0.103	-0.0064	16.00	56+00	532.49						
532.20	161:1	-0.217	-0.0136	16.00	56+18.36	532.41						
532.14	161:1	-0.256	-0.0160	16.00	56+24.67	532.						
532.13		-0.256	-0.0160	16.00	56+25	532.39						
			↑									
			N/C									
			↓									
531.13		-0.256	-0.0160	16.00	58+75	531.38						
530.98	161:1	-0.256	-0.0160	16.00	58+93.92	531.24						
530.89	161:1	-0.294	-0.0184	16.00	59+00	531.19						
530.41	161:1	-0.449	-0.0281	16.00	59+25	530.86						
529.91	161:1	-0.576	-0.0360	16.00	59+45.44	530.48						
529.82		-0.576	-0.0360	16.00	59+50	530.40						
529.23		-0.576	-0.0360	16.00	59+75	529.81						
528.50		-0.576	-0.0360	16.00	60+00	529.08						
527.64		-0.576	-0.0360	16.00	60+25	528.22						
526.65		-0.576	-0.0360	16.00	60+50	527.23						
526.00	161:1	-0.576	-0.0360	16.00	60+64.54	526.57						
525.59	161:1	-0.511	-0.0319	16.00	60+75	526.10						
524.49	161:1	-0.356	-0.0222	16.00	61+00	524.84						
523.69	161:1	-0.256	-0.0160	16.00	61+16.06	523.95						
523.24	161:1	-0.200	-0.0125	16.00	61+25	523.44						
521.88	161:1	-0.045	-0.0028	16.00	61+50.00	521.92						
521.43	161:1	0.000	0.0000	16.00	61+57.28	521.43						
520.34	161:1	0.110	0.0069	16.00	61+75	520.23						
519.68	161:1	0.178	0.0111	16.00	61+85.94	519.50						
518.86	161:1	0.256	0.0160	16.00	61+98.50	518.61						
518.76		0.256	0.0160	16.00	62+00	518.50						

SUPERELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	

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SUPERELEVATION TABLE
ELBERON EB RAMP

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SUPERELEVATION TABLE

LANE 2					LANE 1					CENTERLINE CONTROL		REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	
					565.55		-0.26	-0.016	16.00	91+50	565.81	
					565.49		-0.26	-0.016	16.00	91+61.80	565.74	
					565.44		-0.17	-0.011	16.00	91+75	565.61	
					565.19		-0.02	-0.001	16.00	92+00	565.20	
					565.14		0.00	0.000	16.00	92+03.08	565.14	
					564.72		0.14	0.008	16.00	92+25	564.58	
					564.20		0.26	0.016	16.00	92+44.36	563.95	
					564.03		0.29	0.018	16.00	92+50	563.74	
					563.13		0.45	0.028	16.00	92+75	562.68	
					562.90		0.48	0.030	16.00	92+80.48	562.42	PC
					562.01		0.60	0.038	16.00	93+00	561.41	
					560.68		0.76	0.047	16.00	93+25	559.93	
					560.27		0.80	0.050	16.00	93+32.08	559.47	
					559.03		0.80	0.050	16.00	93+50	558.23	
								FULL SUPER				
					531.76		0.80	0.050	16.00	96+75	530.96	
					531.69		0.80	0.050	16.00	96+76.11	530.89	
					530.88		0.80	0.050	16.00	96+88.13	530.08	
					530.85		0.80	0.050	16.00	96+88.59	530.05	
					530.33		0.76	0.047	16.00	96+95.56	529.58	
					530.00		0.73	0.046	16.00	97+00	529.27	
					528.06		0.57	0.036	16.00	97+25	527.48	
					526.82		0.48	0.030	16.00	97+40.19	526.34	PT
					525.99		0.42	0.026	16.00	97+50	525.57	
					523.81		0.26	0.017	16.00	97+75	523.54	
					523.69		0.26	0.016	16.00	97+76.31	523.44	
					522.26		0.26	0.016	16.00	97+93.13	522.00	
					521.66		0.26	0.016	16.00	98+00.00	521.40	VPI
								N/C				

SUPERELEVATION TABLE

LANE 2					LANE 1					CENTERLINE CONTROL		REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	
505.64		-0.26	-0.016	16.01	505.89		0.26	0.016	16.00	100+00	505.64	
504.20		-0.25	-0.016	15.74	504.45		0.25	0.016	15.74	100+25	504.20	
503.61		-0.25	-0.016	15.59	503.86		0.25	0.016	15.59	100+35.85	503.61	
502.82		-0.25	-0.016	15.38	503.07		0.19	0.012	15.38	100+50	502.88	
501.53		-0.24	-0.016	15.03	501.78		0.09	0.006	15.03	100+75	501.69	
500.48		-0.24	-0.016	14.70	500.71		0.00	0.000	14.70	100+97.67	500.71	
500.38		-0.23	-0.016	14.67	500.61		-0.01	-0.001	14.67	101+00	500.62	
499.34		-0.23	-0.016	14.31	499.57		-0.10	-0.007	14.31	101+25	499.67	
498.44		-0.22	-0.016	13.95	498.67		-0.19	-0.014	13.95	101+50	498.86	
498.25		-0.22	-0.016	13.95	498.48		-0.21	-0.015	13.95	101+55.63	498.69	PC
498.13		-0.22	-0.016	13.79	498.35		-0.22	-0.016	13.85	101+59.49	498.58	
497.62		-0.27	-0.020	13.60	497.89		-0.27	-0.020	13.60	101+75	498.16	
497.04		-0.33	-0.025	13.30	497.37		-0.33	-0.025	13.35	101+94.27	497.71	
496.93		-0.33	-0.025	13.24	497.26		-0.33	-0.025	13.24	102+00	497.59	
496.50		-0.32	-0.025	12.88	496.82		-0.32	-0.025	12.88	102+25	497.14	
496.19		-0.31	-0.025	12.53	496.51		-0.31	-0.025	12.53	102+50	496.82	
495.95		-0.30	-0.025	12.17	496.26		-0.30	-0.025	12.17	102+75	496.56	
495.86		-0.30	-0.025	12.00	496.16		-0.30	-0.025	12.00	102+84.71	496.46	VPI
495.62		-0.30	-0.025	12.00	495.92		-0.30	-0.025	12.00	103+00	496.22	
495.22		-0.30	-0.025	12.00	495.52		-0.30	-0.025	12.00	103+25	495.82	
495.12		-0.30	-0.025	12.00	495.42		-0.30	-0.025	12.00	103+31.42	495.72	
495.08		-0.29	-0.024	12.00	495.37		-0.29	-0.024	12.00	103+35.27	495.66	VPI
494.92		-0.24	-0.020	12.00	495.16		-0.24	-0.020	12.00	103+50	495.40	
494.73		-0.19	-0.016	12.00	494.93		-0.19	-0.016	12.00	103+66.20	495.12	
494.67		-0.19	-0.016	12.00	494.86		-0.19	-0.016	12.00	103+70.05	495.05	VPT/PT

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SUPERELEVATION TABLE
ELBERON WB RAMP

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SUPERELEVATION TABLE

CENTERLINE CONTROL		LANE 1					LANE 2					REMARKS
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
70+00			↑									
70+11.27			|									
70+25			|									
70+50			|									
70+52.62		SEE WARSAW WB										
70+75		SUPERELEVATION										
70+93.97		TABLE										
71+00			|									
71+25			|									
71+36.36			|									
71+50			↓									PC
71+75	554.92	16.00	0.0474	0.7576	161:1	555.68						
71+92.18	554.59	16.00	0.0540	0.8640	161:1	555.46						
72+00	554.45	16.00	0.0540	0.8640		555.31						
			↑									
			FULL SUPER									
			↓									
79+75	547.29	16.00	0.0540	0.8640		548.15						
79+95.47	545.56	16.00	0.0540	0.8640		546.43						
80+00	545.18	16.00	0.0530	0.8474		546.03						
80+25	543.07	16.00	0.0472	0.7557		543.83						
80+50	540.97	16.00	0.0415	0.6639		541.63						
80+75	538.86	16.00	0.0358	0.5722		539.43						
81+00	536.75	16.00	0.0300	0.4805		537.23						
81+05.00	536.33	16.00	0.0289	0.4622		536.79						
81+25	534.67	16.00	0.0243	0.3888		535.06						
81+35.03	533.85	16.00	0.0220	0.3520		534.20						
81+50	532.66	16.00	0.0220	0.3520		533.01						
81+75	530.72	16.00	0.0220	0.3520		531.07						
82+00	528.86	16.00	0.0220	0.3520		529.21						
82+25	527.07	16.00	0.0220	0.3520		527.42						
82+50	525.35	16.00	0.0220	0.3520		525.70						
82+75	523.71	16.00	0.0220	0.3520		524.06						
82+95.00	522.45	16.00	0.0220	0.3520		522.80						
83+00	522.14	16.00	0.0220	0.3520		522.49						
83+25	520.60	16.00	0.0220	0.3520		520.95						
83+50	519.05	16.00	0.0220	0.3520		519.40						
83+75	517.51	16.00	0.0220	0.3520		517.86						
84+00	515.96	16.00	0.0220	0.3520		516.31						
84+25	514.42	16.00	0.0220	0.3520		514.77						
84+50	512.87	16.00	0.0220	0.3520		513.22						
84+75	511.33	16.00	0.0220	0.3520		511.68	19.05	-0.0160	-0.3048		511.37	
84+80.66	510.98	16.00	0.0220	0.3520	161:1	511.33	18.89	-0.0160	-0.3022		511.03	
84+96.11	510.02	16.00	0.0160	0.2560	161:1	510.28	18.45	-0.0160	-0.2952		509.98	
85+00	509.78	16.00	0.0160	0.2560		510.04	18.34	-0.0160	-0.2934		509.74	
			N/C									
			↓									

SUPERELEVATION TABLE

CENTERLINE CONTROL		LANE 1					LANE 2					REMARKS
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
89+00	492.44	12.00	0.0160	0.1920		492.63	12.00	-0.0160	-0.1920		492.44	
89+25	492.06	12.00	0.0160	0.1920		492.25	12.00	-0.0160	-0.1920		492.06	
89+39.43	491.88	12.00	0.0160	0.1920	161:1	492.07	12.00	-0.0160	-0.1920		491.88	
89+50	491.76	12.00	0.0133	0.1592	161:1	491.92	12.00	-0.0160	-0.1920		491.73	
89+75	491.55	12.00	0.0068	0.0815	161:1	491.63	12.00	-0.0160	-0.1920		491.44	
90+00	491.42	12.00	0.0003	0.0039	161:1	491.43	12.00	-0.0160	-0.1920		491.24	
90+01.25	491.42	12.00	0.0000	0.0000	161:1	491.42	12.00	-0.0160	-0.1920		491.23	
90+25	491.38	12.00	-0.0061	-0.0737	161:1	491.31	12.00	-0.0160	-0.1920		491.12	
90+50	491.42	12.00	-0.0126	-0.1514	161:1	491.27	12.00	-0.0160	-0.1920		491.08	
90+63.07	491.47	12.00	-0.0160	-0.1920	161:1	491.28	12.00	-0.0160	-0.1920	161:1	491.08	PC
90+75	491.51	12.00	-0.0191	-0.2290	161:1	491.28	12.00	-0.0191	-0.2290	161:1	491.05	
90+81.52	491.53	12.00	-0.0208	-0.2493	161:1	491.28	12.00	-0.0208	-0.2493	161:1	491.03	VPI
91+00	491.62	12.00	-0.0256	-0.3067	161:1	491.31	12.00	-0.0256	-0.3067	161:1	491.00	
91+24.90	491.74	12.00	-0.0320	-0.3840	161:1	491.35	12.00	-0.0320	-0.3840	161:1	490.97	
91+25	491.74	12.00	-0.0320	-0.3840		491.35	12.00	-0.0320	-0.3840		490.97	
91+30.71	491.76	12.00	-0.0320	-0.3840		491.38	12.00	-0.0320	-0.3840		490.99	VPI
91+50	491.85	12.00	-0.0320	-0.3840		491.47	12.00	-0.0320	-0.3840		491.08	
91+75	491.96	12.00	-0.0320	-0.3840		491.58	12.00	-0.0320	-0.3840		491.19	
91+79.98	491.98	12.00	-0.0320	-0.3840		491.60	12.00	-0.0320	-0.3840		491.22	VPI
92+00	492.07	12.00	-0.0320	-0.3840		491.68	12.00	-0.0320	-0.3840		491.30	
92+25	492.18	12.00	-0.0320	-0.3840		491.79	12.00	-0.0320	-0.3840		491.41	
92+29.27	492.19	12.00	-0.0320	-0.3840		491.81	12.00	-0.0320	-0.3840		491.43	
92+50	492.28	12.00	-0.0320	-0.3840		491.90	12.00	-0.0320	-0.3840		491.52	
92+60.85	492.33	12.00	-0.0320	-0.3840	161:1	491.95	12.00	-0.0320	-0.3840	161:1	491.56	
92+75	492.39	12.00	-0.0283	-0.3401	161:1	492.05	12.00	-0.0283	-0.3401	161:1	491.71	
92+78.60	492.41	12.00	-0.0274	-0.3289	161:1	492.08	12.00	-0.0274	-0.3289	161:1	491.75	VPI
93+00	492.50	12.00	-0.0219	-0.2624	161:1	492.24	12.00	-0.0219	-0.2624	161:1	491.98	
93+22.68	492.60	12.00	-0.0160	-0.1920	161:1	492.41	12.00	-0.0160	-0.1920	161:1	492.22	VPI/ PT

CALCULATED MAH
CHECKED ABS

SUPERELEVATION TABLE
WARSAW EB RAMP

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SUPERELEVATION TABLE

CENTERLINE CONTROL		LANE 1					LANE 2					REMARKS
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
100+25	561.83	11.81	0.0274	0.3236		562.15	19.62	-0.0260	-0.5101		561.64	
100+27.50	561.68	11.81	0.0274	0.3236		562.00	19.58	-0.0238	-0.4656		561.54	
100+36.25	561.15	11.81	0.0274	0.3236		561.48	19.21	-0.0160	-0.3074		561.17	
100+50	560.36	11.81	0.0274	0.3236		560.68	18.71	-0.0106	-0.1987		560.48	
100+75	559.01	11.81	0.0274	0.3236		559.34	17.81	-0.0008	-0.0150		559.32	
101+00	557.79	11.81	0.0274	0.3236		558.12	16.90	0.0089	0.1510		558.27	
101+25	556.70	11.81	0.0274	0.3236		557.02	16.00	0.0187	0.2994		557.32	
101+32.38	556.40	11.81	0.0274	0.3236		556.73	16.00	0.0216	0.3456		557.07	
101+50	555.73	11.81	0.0342	0.4043		556.14	16.00	0.0285	0.4559		556.59	
101+75	554.90	12.30	0.0439	0.5404		555.44	16.00	0.0383	0.6124		556.05	
102+00	554.19	13.23	0.0536	0.7096								
102+11.24	553.91	13.75	0.0580	0.7975								
102+15.21	553.82	13.95	0.0580	0.8091								
102+25	553.60	14.48	0.0580	0.8398								
102+50	553.15	16.00	0.0580	0.9280								
102+75	552.82	16.00	0.0580	0.9280								
103+00	552.61	16.00	0.0580	0.9280								
103+02.50	552.60	16.00	0.0580	0.9280								
103+25	552.49	16.00	0.0580	0.9280								
103+29.50	552.47	16.00	0.0580	0.9280								
103+50	552.29	16.00	0.0580	0.9280								
103+75	551.88	16.00	0.0580	0.9280								
104+00	551.26	16.00	0.0580	0.9280								
104+25	550.42	16.00	0.0580	0.9280								
104+50	549.37	16.00	0.0580	0.9280								
104+75	548.10	16.00	0.0580	0.9280								
105+00	546.61	16.00	0.0580	0.9280								
105+25	544.91	16.00	0.0580	0.9280								
105+50	543.00	16.00	0.0580	0.9280								
105+70.50	541.27	16.00	0.0580	0.9280			SEE WARSAW EB					
105+75	540.87	16.00	0.0580	0.9280			SUPERELEVATION					
106+00	538.67	16.00	0.0580	0.9280			TABLE					
106+25	536.47	16.00	0.0580	0.9280								
106+50	534.27	16.00	0.0580	0.9280								
106+75	532.08	16.00	0.0580	0.9280								
107+00	529.88	16.00	0.0580	0.9280								
107+25	527.68	16.00	0.0580	0.9280								
107+50	525.48	16.00	0.0580	0.9280								
107+68.52	523.85	16.00	0.0580	0.9280								
107+75	523.28	16.00	0.0555	0.8878								
107+97.04	521.34	16.00	0.0469	0.7509								
108+00	521.08	16.00	0.0458	0.7326								
108+25	518.88	16.00	0.0361	0.5773								
108+46.14	517.02	16.00	0.0279	0.4461								
108+50	516.69	16.00	0.0264	0.4221								
108+75	514.55	16.00	0.0167	0.2669								
108+76.76	514.40	16.00	0.0160	0.2560								
108+96.31	512.72	16.00	0.0160	0.2560								
109+00	512.43	16.00	0.0160	0.2560								
109+25	510.42	16.00	0.0160	0.2560								
109+34.05	509.69	16.00	0.0160	0.2560								

SUPERELEVATION TABLE

CENTERLINE CONTROL		LANE 1					LANE 2					REMARKS
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	

CALCULATED MAH
CHECKED ABS

SUPERELEVATION TABLE
WARSAW WB RAMP

HAM-50-18.79

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SUPERELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
552.51		-0.192	-0.0160	12.00	43+88	552.70	12.00	-0.0160	-0.192		552.51	
551.97		-0.192	-0.0160	12.00	44+00	552.16	12.00	-0.0160	-0.192		551.97	
550.84		-0.192	-0.0160	12.00	44+25	551.04	12.00	-0.0160	-0.192		550.84	
550.49		-0.192	-0.0160	12.00	44+33.00	550.68	12.00	-0.0160	-0.192		550.49	
549.71		-0.192	-0.0160	12.00	44+50	549.90	12.00	-0.0160	-0.192		549.71	
548.89		-0.192	-0.0160	12.00	44+67.00	549.08	12.00	-0.0160	-0.192		548.89	
548.50		-0.192	-0.0160	12.00	44+75	548.69	12.00	-0.0160	-0.192		548.50	
547.27		-0.192	-0.0160	12.00	45+00	547.47	12.00	-0.0160	-0.192		547.27	
546.05		-0.192	-0.0160	12.00	45+25	546.24	12.00	-0.0160	-0.192		546.05	
544.82		-0.192	-0.0160	12.00	45+50	545.02	12.00	-0.0160	-0.192		544.82	
544.22		-0.192	-0.0160	12.00	45+62.37	544.41	12.00	-0.0160	-0.192	161:1	544.22	
543.60		-0.192	-0.0160	12.00	45+75	543.79	12.00	-0.0095	-0.114	161:1	543.68	
542.69		-0.192	-0.0160	12.00	45+93.57	542.88	12.00	0.0000	0.000	161:1	542.88	
542.37		-0.192	-0.0160	12.00	46+00	542.57	12.00	0.0033	0.040	161:1	542.60	
541.41		-0.192	-0.0160	12.00	46+19.67	541.60	12.00	0.0134	0.161	161:1	541.76	
541.15	161:1	-0.192	-0.0160	12.00	46+24.77	541.35	12.00	0.0160	0.192	161:1	541.54	
541.14	161:1	-0.193	-0.0161	12.00	46+25	541.33	12.00	0.0161	0.193	161:1	541.53	
540.23	161:1	-0.288	-0.0240	12.00	46+40.37	540.51	12.00	0.0240	0.288	161:1	540.80	PC
539.61	161:1	-0.347	-0.0289	12.00	46+50	539.96	12.00	0.0289	0.347	161:1	540.31	
538.12	161:1	-0.480	-0.0400	12.00	46+71.57	538.60	12.00	0.0400	0.480	161:1	539.08	
537.89		-0.480	-0.0400	12.00	46+75	538.37	12.00	0.0400	0.480		538.85	
536.09		-0.480	-0.0400	12.00	47+00	536.57	12.00	0.0400	0.480		537.05	
535.83	161:1	-0.480	-0.0400	12.00	47+03.38	536.31	12.00	0.0400	0.480	161:1	536.79	
534.21	161:1	-0.347	-0.0289	12.00	47+25	534.56	12.00	0.0289	0.347	161:1	534.91	
532.17	161:1	-0.195	-0.0163	12.00	47+49.67	532.37	12.00	0.0163	0.195	161:1	532.57	
532.15	161:1	-0.193	-0.0161	12.00	47+50	532.34	12.00	0.0161	0.193	161:1	532.53	
529.98	161:1	-0.039	-0.0033	12.00	47+75	530.01	12.00	0.0033	0.039	161:1	530.05	
529.42	161:1	0.000	0.0000	12.00	47+81.38	529.42	12.00	0.0000	0.000	161:1	529.42	
527.79	188:1	0.099	0.0083	12.00	48+00	527.69	12.00	-0.0072	-0.086	216:1	527.60	
525.95	188:1	0.211	0.0176	12.00	48+20.95	525.74	12.00	-0.0153	-0.183	216:1	525.56	PT
525.81	188:1	0.219	0.0183	12.00	48+22.53	525.59	12.00	-0.0159	-0.191	216:1	525.40	
525.60	188:1	0.232	0.0194	12.00	48+25	525.36	12.00	-0.0169	-0.203	201:1	525.16	
525.27	188:1	0.252	0.0210	12.00	48+28.71	525.02	12.00	-0.0185	-0.222	201:1	524.80	PC
523.38	240:1	0.341	0.0284	12.00	48+50	523.04	12.00	-0.0273	-0.327	201:1	522.71	
521.16	240:1	0.445	0.0370	12.00	48+75	520.71	12.00	-0.0376	-0.452	201:1	520.26	
520.27	240:1	0.486	0.0405	12.00	48+85.00	519.78	12.00	-0.0418	-0.501	201:1	519.28	
519.62	240:1	0.523	0.0436	12.00	48+93.92	519.09	12.00	-0.0455	-0.546	201:1	518.55	
519.33	240:1	0.544	0.0453	12.00	49+00.00	518.79	12.00	-0.0480	-0.576	201:1	518.21	
519.15	296:1	0.582	0.0485	12.00	49+11.28	518.57	12.00	-0.0525	-0.630	210:1	517.94	PT
519.19	296:2	0.594	0.0495	12.00	49+15.00	518.59	12.00	-0.0540	-0.648	210:1	517.94	
519.36	296:3	0.628	0.0523	12.00	49+25	518.73	12.00	-0.0580	-0.696	210:1	518.03	
519.36	296:4	0.629	0.0524	12.00	49+25.23	518.73	12.00	-0.0581	-0.697	210:1	518.04	
519.37	296:5	0.631	0.0526	12.00	49+25.95	518.74						

SUPERELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	

CALCULATED MAH
CHECKED ABS

SUPERELEVATION TABLE
ELBERON AVE.

HAM-50-18.79

225
657

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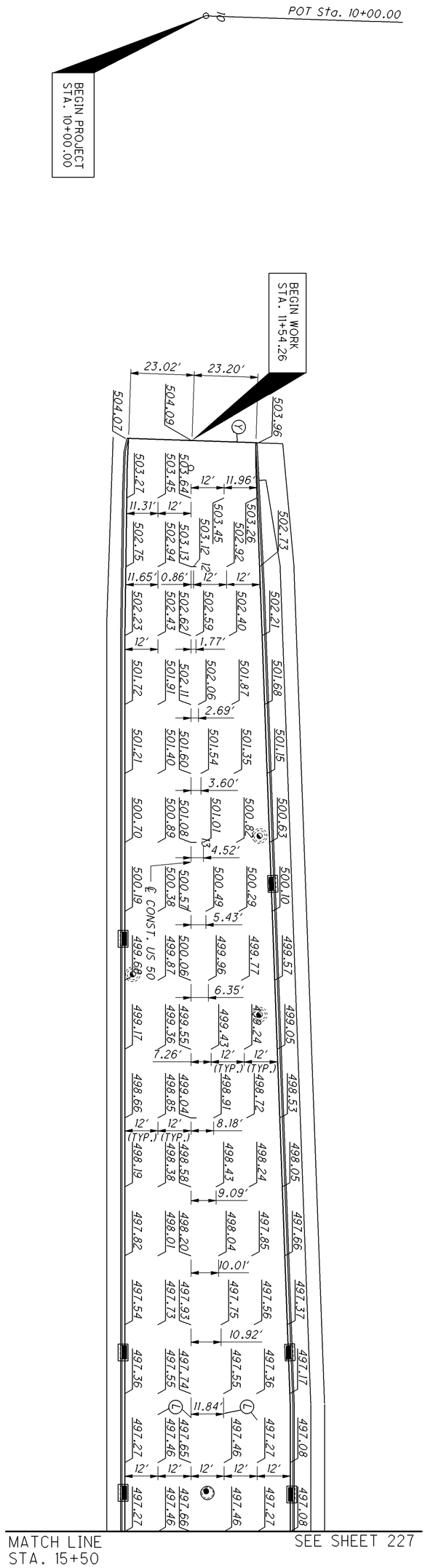
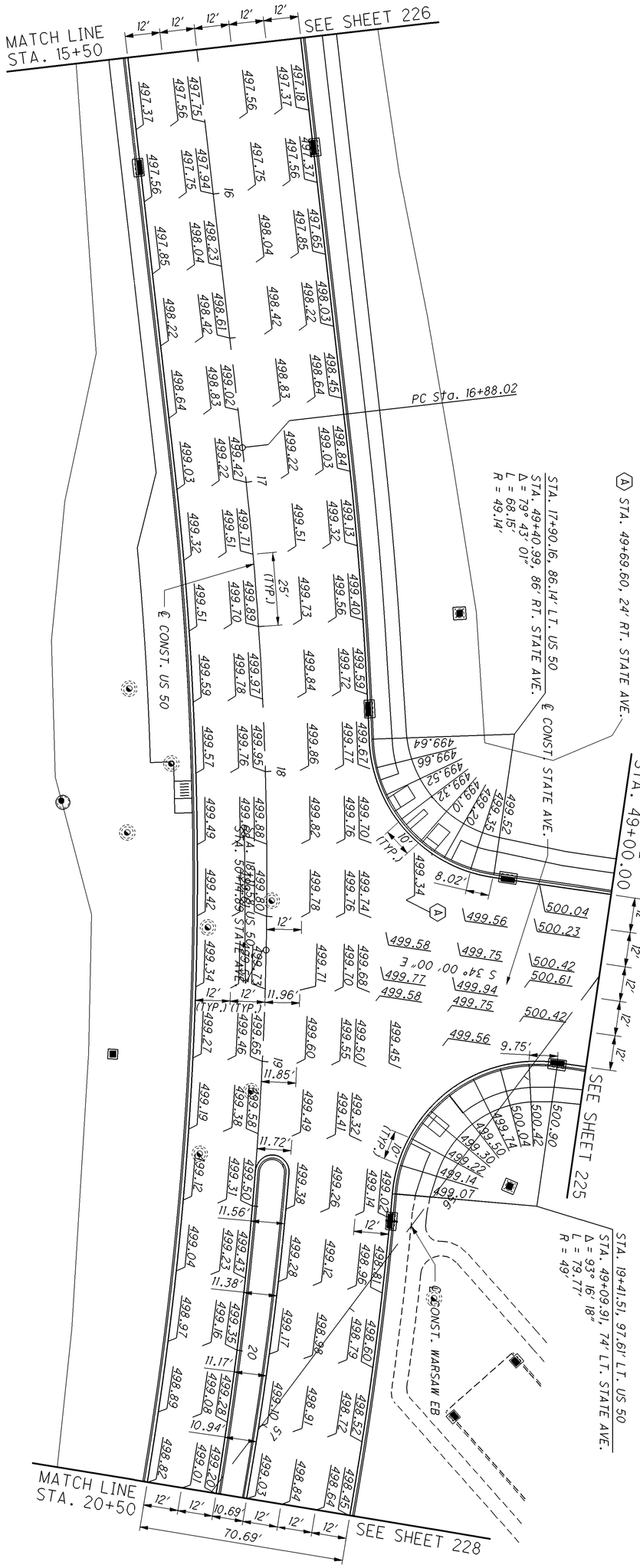
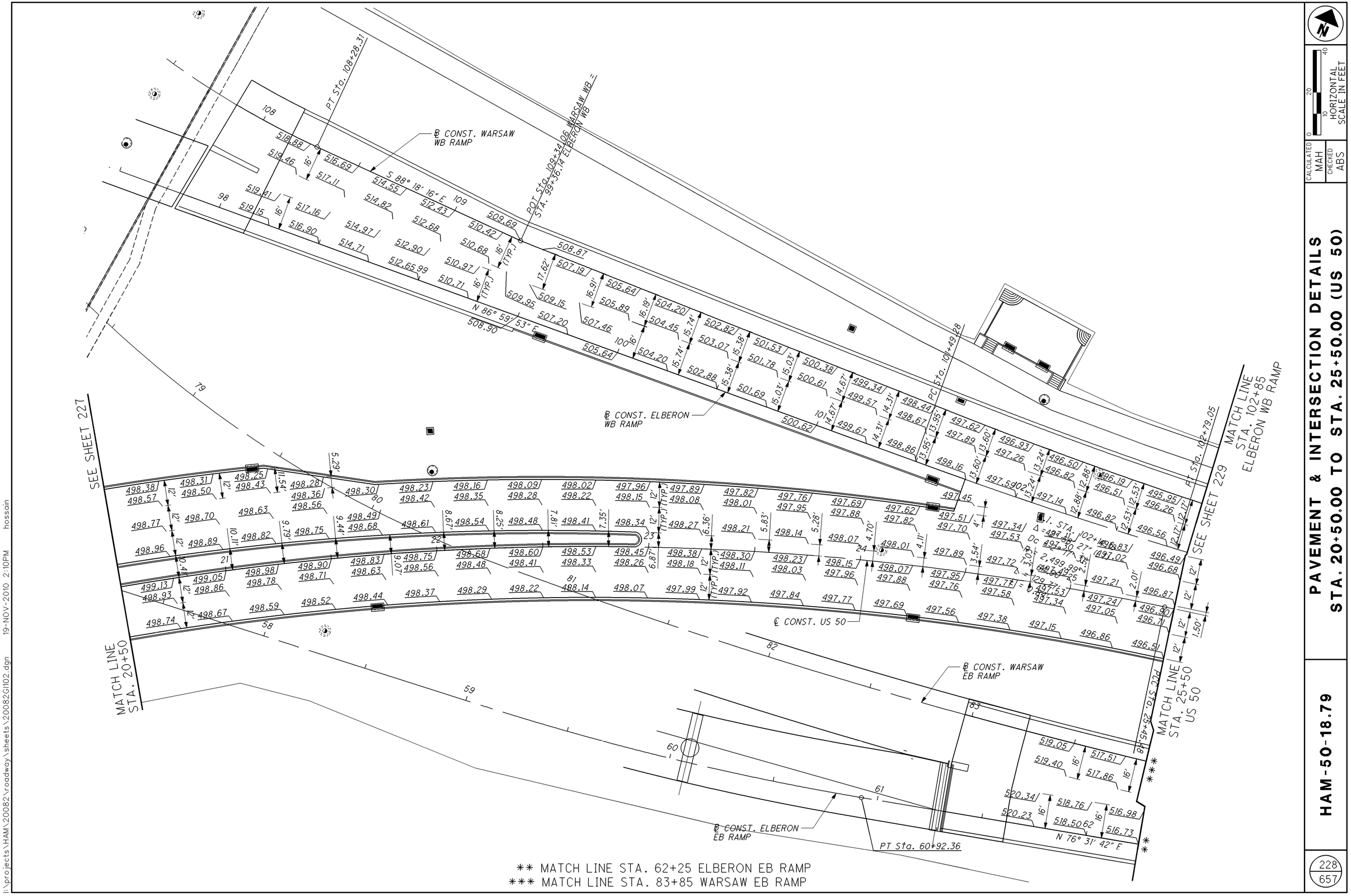


226 / 657	HAM-50-18.79	PAVEMENT & INTERSECTION DETAILS BEGIN WORK TO STA. 15+50.00 (US 50)	CALCULATED MAH CHECKED ABS	0 10 20 40 HORIZONTAL SCALE IN FEET



227 / 657	**HAM-50-18.79**	**PAVEMENT & INTERSECTION DETAILS STA. 15+50.00 TO STA. 20+50.00 (US 50)**	CALCULATED MAH / CHECKED ABS	0 10 20 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

PAVEMENT & INTERSECTION DETAILS
STA. 20+50.00 TO STA. 25+50.00 (US 50)

HAM-50-18.79

228
657

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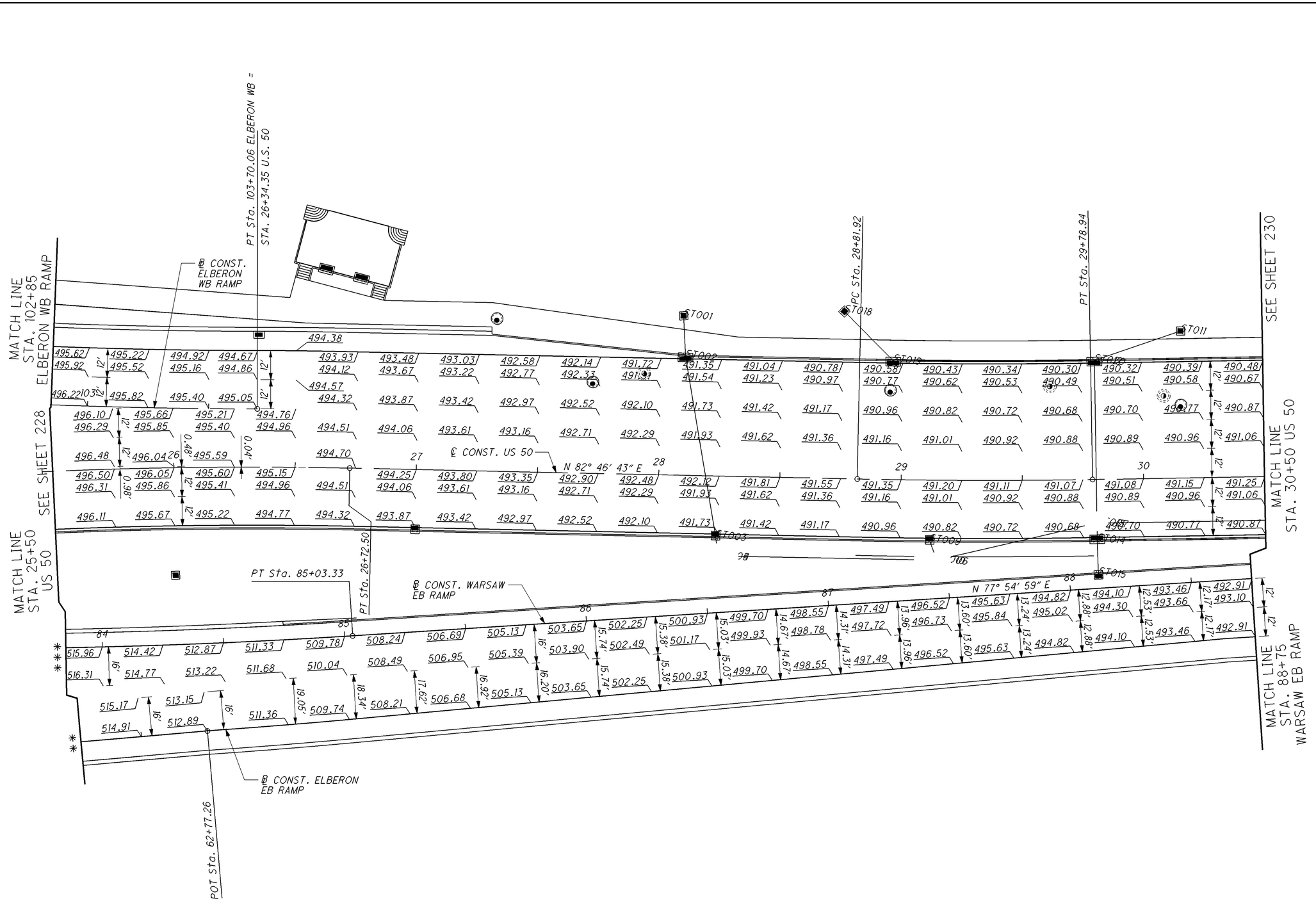

** MATCH LINE STA. 62+25 ELBERON EB RAMP
*** MATCH LINE STA. 83+85 WARSAW EB RAMP

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

PAVEMENT & INTERSECTION DETAILS
STA. 25+50.00 TO STA. 30+50.00 (US 50)

HAM-50-18.79

229
657

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Ⓐ STA. 21+54.12, 2.78′ RT EVANS ST.
STA. 35+06.70, 48.18′ LT U.S. 50 WB
Δ = 123° 36′ 07″
L = 10.79
R = 5′

Ⓑ STA. 21+64.87, 7.50′ RT EVANS ST.
STA. 35+12.70, 58.30′ LT U.S. 50 WB
Δ = 119° 26′ 02″
L = 10.42′
R = 5′

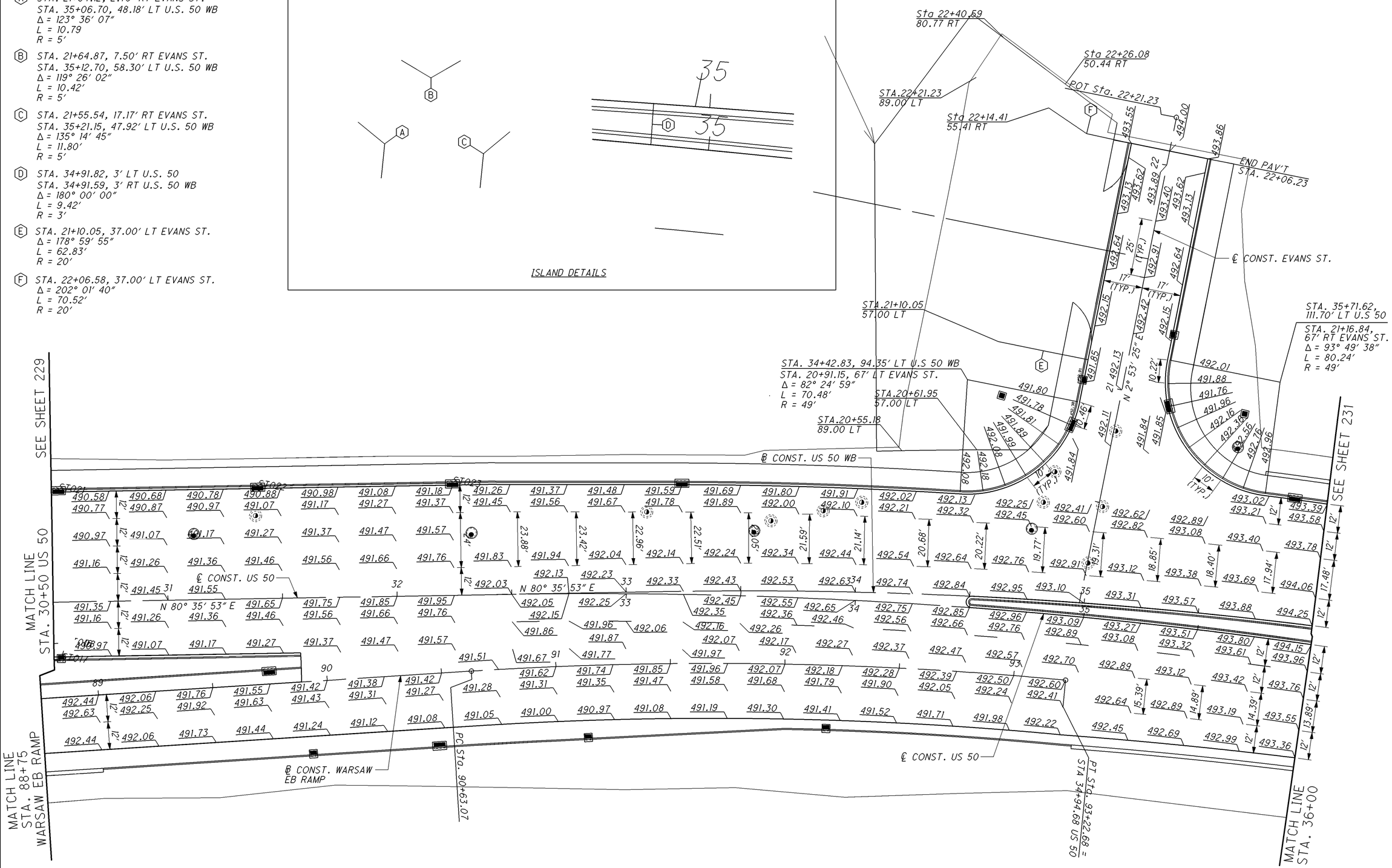
Ⓒ STA. 21+55.54, 17.17′ RT EVANS ST.
STA. 35+21.15, 47.92′ LT U.S. 50 WB
Δ = 135° 14′ 45″
L = 11.80′
R = 5′

Ⓓ STA. 34+91.82, 3′ LT U.S. 50
STA. 34+91.59, 3′ RT U.S. 50 WB
Δ = 180° 00′ 00″
L = 9.42′
R = 3′

Ⓔ STA. 21+10.05, 37.00′ LT EVANS ST.
Δ = 178° 59′ 55″
L = 62.83′
R = 20′

Ⓕ STA. 22+06.58, 37.00′ LT EVANS ST.
Δ = 202° 01′ 40″
L = 70.52′
R = 20′

ISLAND DETAILS



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

PAVEMENT & INTERSECTION DETAILS
STA. 30+50.00 TO STA. 36+00.00 (US 50)

HAM-50-18.79

230
657

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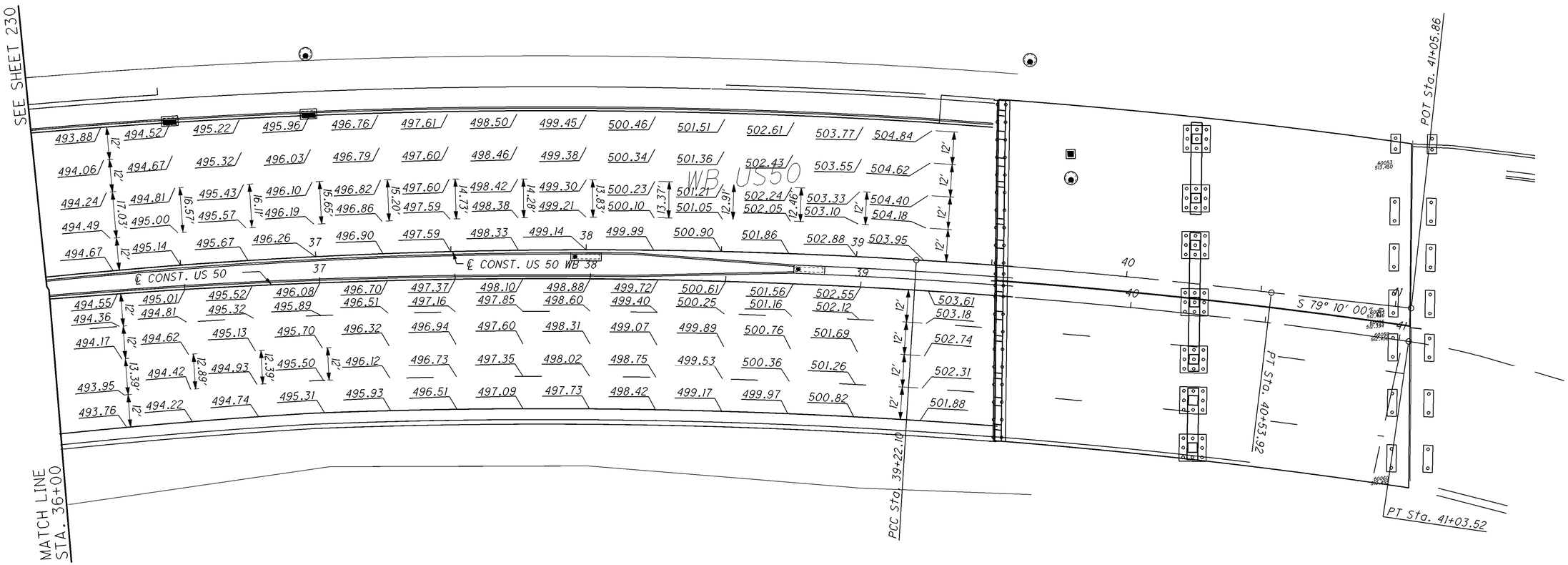

PAVEMENT & INTERSECTION DETAILS
STA. 36+00.00 TO END WORK (US 50)

CALCULATED MAH
CHECKED ABS

HORIZONTAL SCALE IN FEET
0 10 20 40

HAM-50-18.79

231
657

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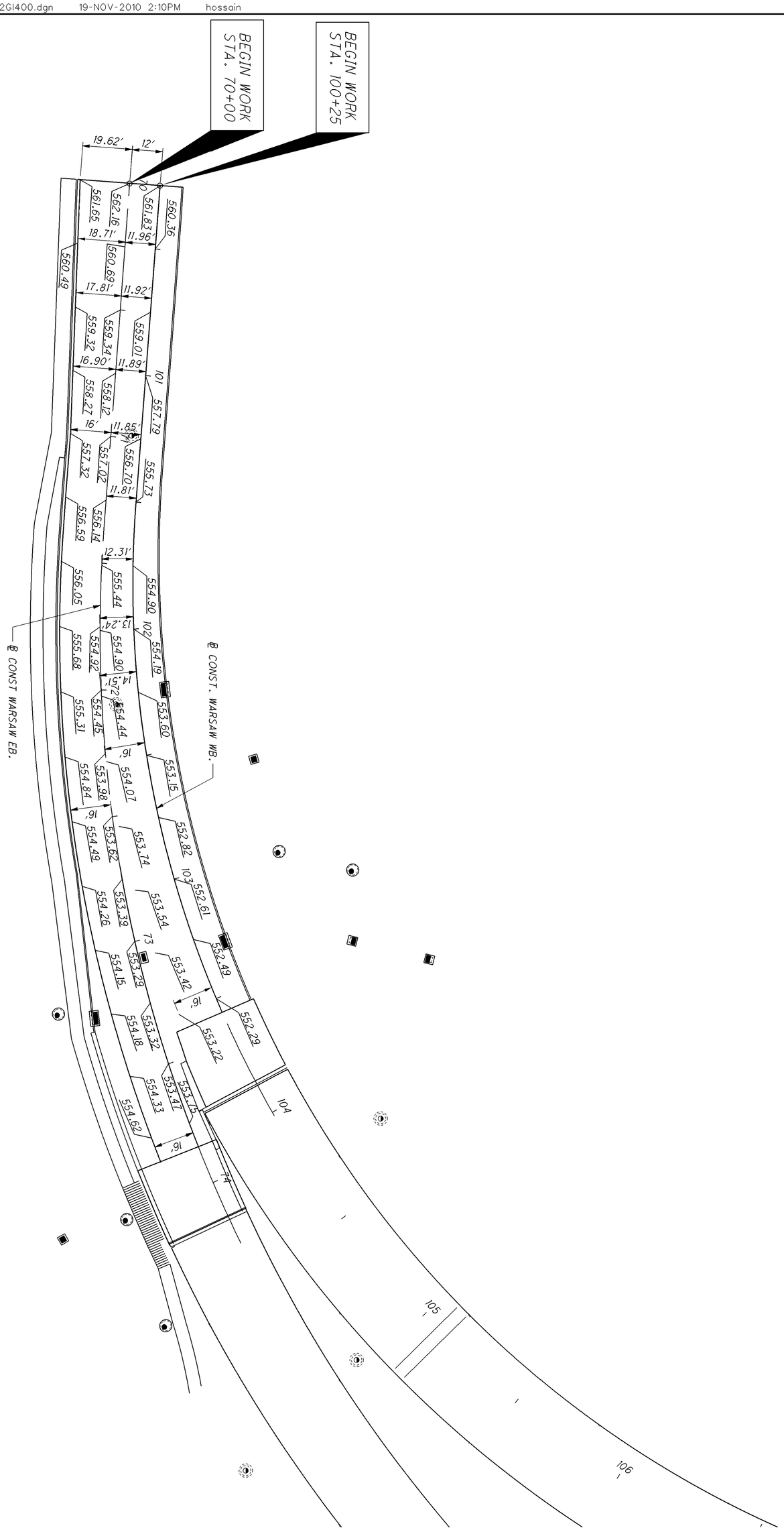


232 / 657	**HAM-50-18.79**	**INTERSECTION & PAVEMENT DETAILS EB & WB WARSAW RAMPS**	CALCULATED MAH / CHECKED ABS	0 10 20 40 HORIZONTAL SCALE IN FEET

(E) STA. 46+17.03, 31.00' RT. (STATE AVE.) = STA. 46+86.87, 22.00' LT. (RTEOP)

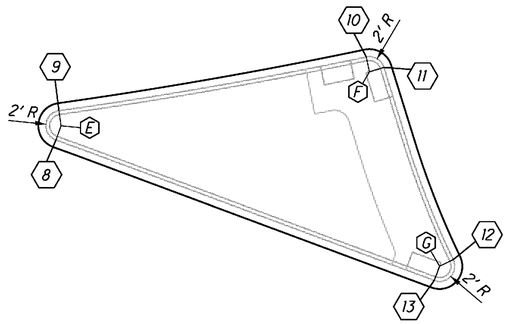
(F) STA. 46+56.33, 31.00' RT. (STATE AVE.) = STA. 49+21.78, 24.00' LT. (ELBERON AVE.)

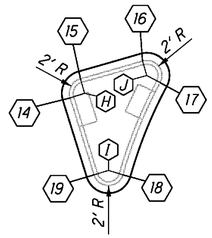
(G) STA. 46+59.82, 58.01' RT. (STATE AVE.) = STA. 48+98.00, 24.00' LT. (ELBERON AVE.) = STA. 47+39.86, 22.00' LT. (RTEOP)

(H) STA. 46+96.35, 31.00' RT. (STATE AVE.) = STA. 49+19.16, 18.00' RT. (ELBERON AVE.)

(I) STA. 46+96.64, 41.64' RT. (STATE AVE.) = STA. 49+07.84, 17.95' RT. (ELBERON AVE.)

(J) STA. 47+04.48, 31.00' RT. (STATE AVE.) = STA. 49+18.98, 26.54' RT. (ELBERON AVE.)





ISLAND DETAILS

CURVE ST-1
P.I. STA. 46+56.25
Δ = 47° 18' 34" (LT)
Dc = 9° 32' 57"
R = 600.00'
T = 262.82'
L = 495.42'
E = 55.04'

Pt Sta. 48+88.86

MATCHLINE STA. 49+00.00

Ⓐ STA. 46+77.44 ℄ STATE AVE.= STA. 49+50.99 ℄ ELBERON AVE.

℄ CONST. STATE AVE. (SR 264)

PC Sta. 43+93.43

S 13° 18' 34" W

1.6%

45

46

47

48

CUR. RTEOP-1

CURVE ST-1

93°27'35"±

29.0'

25.0'

0%

1.30%

4'

10:1 TAPER

STA. 48+03.67, 37.00' RT.
END CROSS SLOPE TRANSITION
ELEV 508.80

STA. 47+83.67, 37.00' RT.
END PAVEMENT WIDTH TAPER
ELEV 510.59

STA. 47+43.67, 41.00' RT.
BEGIN PAVEMENT WIDTH TAPER
BEGIN CROSS SLOPE TRANSITION (ON STATE)
ELEV 513.98

STATE AVE. STA. 47+43.67, 75.54' RT. =
ELBERON AVE. STA. 48+22.83, 49.35' RT.

Ⓒ Δ = 139° 28' 43" (RT)
L = 85.20'
R = 35.00'

STA. 48+22.53, RT.
BEGIN PAVEMENT WIDTH TAPER
ELEV 525.37, 14' RT.

SEE SHEET 224
FOR PROFILE RIGHT EOP
STA. 48+22.53 ELBERON AVE. TO
STA. 47+43.67 STATE AVE.

RIGHT EOP

VAR% 16' TO 14'

VAR 22' TO 14'

4.80%

4.36%

3.53%

5.65%

2.10%

20'

LP

N 20° 23' 11" E

MATCHLINE STA. 48+22.53

STA. 44+15.00, 19.00' RT.
BEGIN PAVEMENT WIDTH TAPER
ELEV 522.89

STA. 44+63.00, 22.21' RT.
BEGIN CROSS SLOPE TRANSITION
ELEV 522.93

R = 370.00'
Δ = 17° 53' 38" (RT)
L = 115.55'

PC STA. 45+06.71, 25.00' RT. (STATE AVE.)
= STA 45+76.35, (RTEOP)
END CROSS SLOPE TRANSITION (ON STATE)
END PAVEMENT WIDTH TAPER
ELEV 523.64

STA. 46+69.74, (RTEOP)
ELEV 522.19

PT Sta. 46+91.88 (RTEOP)

STA. 47+22.38 (RTEOP)
LOW POINT
ELEV 521.21

STA. 47+44.99, (RTEOP)
ELEV 521.42

℄ EOP RT TURN LANE (RTEOP)

℄ CONST. ELBERON AVE.

STA. 48+50.00, 16.96' LT. (ELBERON AVE.)
= STA 47+94.16 (RTEOP)
ELEV 523.52

STA. 48+28.71, 14.00' LT. (ELBERON AVE.)
= STA 48+19.21, (RTEOP)
BEGIN PAVEMENT WIDTH TAPER (ON ELBERON AVE.)
ELEV 525.31

SEE SHEET 224
FOR PROFILE RIGHT EOP
STA. 45+76.35 TO STA. 48+19.21 RTEOP

Ⓐ STA. 49+00.06, RT.
END PAVEMENT WIDTH TAPER
BEGIN 16' PAVEMENT WIDTH

Ⓑ STA. 48+93.95, LT.
END PAVEMENT WIDTH TAPER
BEGIN 22' PAVEMENT WIDTH

NOTE: SEE SHEET 235 FOR PAVEMENT JOINT DETAILS

(*)	STATION/OFFSET	ELEVATION
	STATE AVENUE (SR 264)	
1	46+00.61, 25.00' RT.	522.18
2	46+57.71, 25.00' RT.	519.83
4	46+94.27, 25.00' RT.	517.74
5	47+14.49, 25.00' RT.	516.38
7	46+78.89, 25.00' RT.	518.67 *
8	46+16.15, 32.77' RT.	521.44
9	46+17.03, 29.00' RT.	521.62
10	46+56.33, 29.00' RT.	519.90
15	46+96.35, 29.00' RT.	517.60
16	47+04.48, 29.00' RT.	517.07
17	47+05.83, 32.41' RT.	517.05
	ELBERON AVENUE	
3	48+93.92, 22.00' LT.	520.29
6	49+00.06, 16.00' RT.	518.27
11	49+21.78, 22.00' LT.	519.77
12	48+98.00, 22.00' LT.	520.11
13	48+96.92, 25.45' LT.	520.34
14	49+19.15, 16.00' RT.	517.74
18	49+06.37, 19.57' RT.	517.84
19	49+07.93, 15.95' RT.	517.96

* STA. 46+78.89, 25.00' RT. STATE AVE.= STA. 49+25.95 ℄ ELBERON AVE.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJB
CHECKED NJG

INTERSECTION DETAIL
STATE AVENUE (SR 264) AND ELBERON AVENUE

HAM-50-18.79

GI700

233
657

(A) STA. 46+69.74, 20.00' LT RTEOP =
STA. 46+00.61, 25.00' RT. STATE AVE.

(B) STA. 47+44.99, 20.00' LT. RTEOP =
STA 48+93.92, 22.00' LT. ELBERON AVE.

℄ CONST. STATE AVE. (SR 264)

CURVE DATA-RTEOP-1
Δ = 17° 53' 38" (RT)
R = 370.00'
L = 115.55'

CURVE DATA-RTEOP-1
CENTER OF CURVE
STA. 48+52.41, 400.79' RT.

CURVE RTEOP-1

47 N 20° 23' 11" E

℄ EOP RT TURN LANE (RTEOP)

LIMITS OF PROFILE ALONG OUTSIDE EOP FOR RT. TURN LANE (℄ RTEOP) SEE PROFILE STATE AVE STA. 45+76.35 TO STA. 48+19.21 RTEOP

STA 45+76.35 (RTEOP) = STA. 45+06.71, 25.00' RT. (STATE AVE.)

STA 48+19.21 (RTEOP) = STA. 48+28.71, 14.00' LT. (ELBERON AVE.)

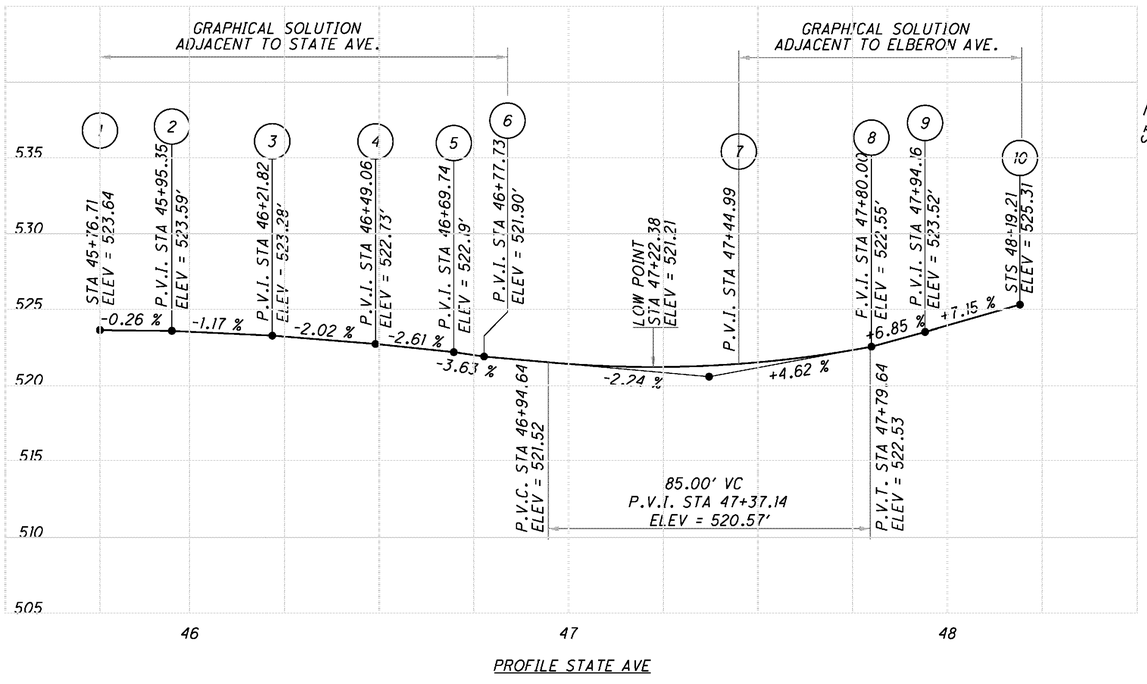
PI

1/4 LENGTH OF RADIUS TYP.

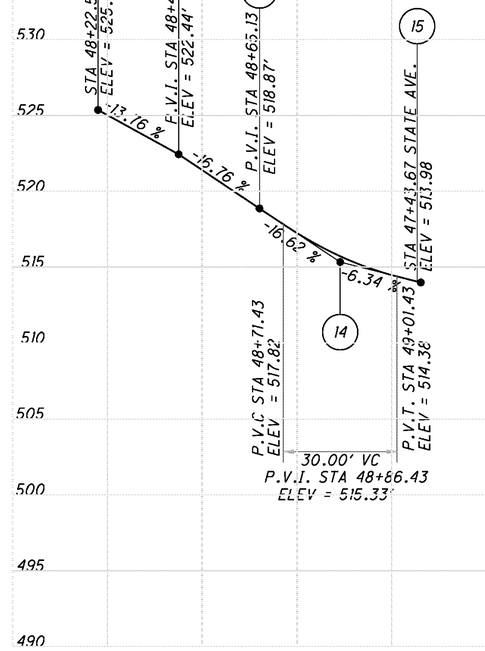
LIMITS OF PROFILE ALONG OUTSIDE EOP FOR RT. TURN LANE SEE PROFILE ELBERON AVE STA. 48+22.53 ELBERON AVE. TO STA. 47+43.67 STATE AVE.

℄ CONST. ELBERON AVE.

LEGEND
(X) LOCATION ON PROFILE



PROFILE STATE AVE



PROFILE ELBERON AVE

HORIZONTAL SCALE IN FEET
0 10 20 40

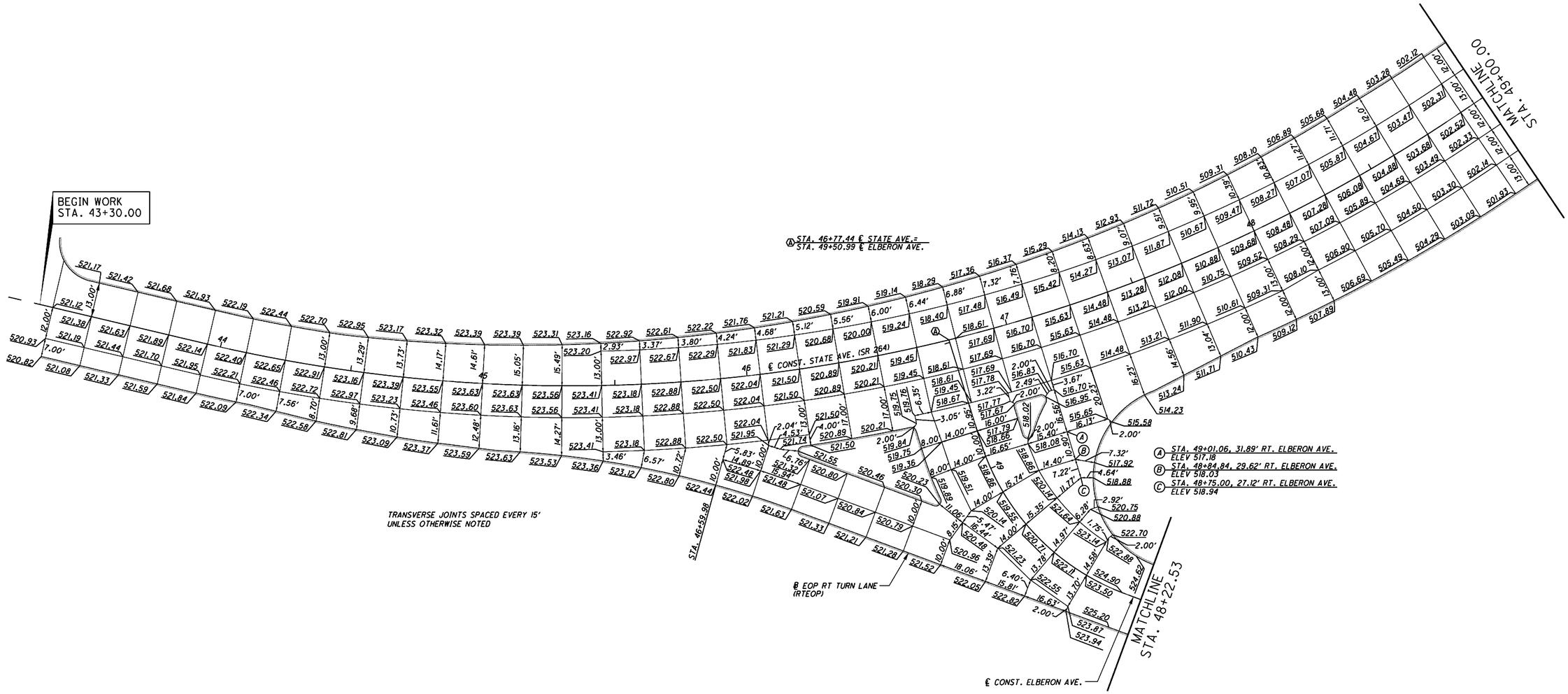
CALCULATED MJB
CHECKED NJG

INTERSECTION DETAIL - RT TURN EOP PROFILES STATE AVENUE (SR 264) AND ELBERON AVENUE

HAM-50-18.79

GI701

234
657



NOTE: SEE SHEET 233 FOR INTERSECTION DETAIL

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJB
CHECKED NJG

PAVEMENT JOINT DETAIL
STATE AVENUE (SR 264) AND ELBERON AVENUE

HAM-50-18.79

GI702

235
657

DETAIL A

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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

INTERSECTION DETAILS
STA. 46+25.00 (ELBERON AVE.)
PAVEMENT & INT
BEGIN WORK TO STA

HAM-50-18.79

℄ CONST. MARYLAND AVE.

POT Sta. 45+36.00

STA. 46+35.43, 54′ LT. ELBERON AVE.
STA. 46+53.75, 49.97′ RT. MARYLAND AVE.
Δ = 73° 08′ 20″
L = 51.06′
R = 40′

PT Sta. 46+43.62

PC Sta. 46+30.03

STA. 47+21.41, 32′ LT. ELBERON AVE.
STA. 46+47.29, 29.50′ LT. MARYLAND AVE.
Δ = 117° 09′ 09″
L = 36.80′
R = 18′

PT Sta. 48+20.95

SEE SHEET 232

SEE SHEET 233

MATCH LINE
STA. 46+25

MATCH LINE
STA. 48+22.53

STA. 46+73.30 ELBERON AVE. =
STA. 46+94.92 MARYLAND AVE.

℄ CONST. ELBERON AVE.

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HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED NAH
CHECKED ABS

PAVEMENT & INTERSECTION DETAILS
STA. 46+25.00 TO STA. 48+00.00 (ELBERON AVE.)

HAM-50-18.79

237
657

Ⓐ STA. 21+54.12, 2.78' RT EVANS ST.
STA. 35+06.70, 48.18' LT U.S. 50 WB
Δ = 123° 36' 07"
L = 10.79
R = 5'

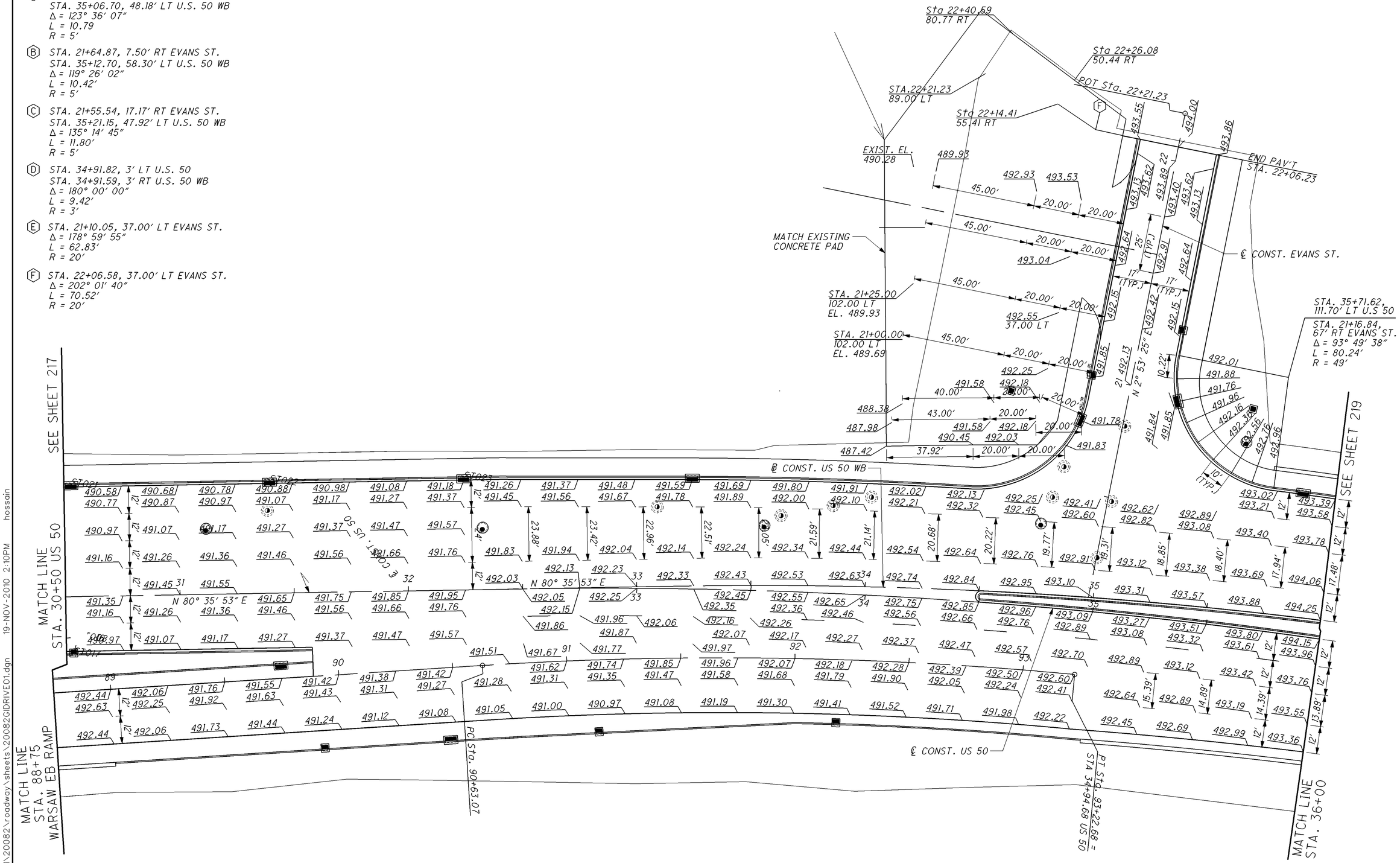
Ⓑ STA. 21+64.87, 7.50' RT EVANS ST.
STA. 35+12.70, 58.30' LT U.S. 50 WB
Δ = 119° 26' 02"
L = 10.42'
R = 5'

Ⓒ STA. 21+55.54, 17.17' RT EVANS ST.
STA. 35+21.15, 47.92' LT U.S. 50 WB
Δ = 135° 14' 45"
L = 11.80'
R = 5'

Ⓓ STA. 34+91.82, 3' LT U.S. 50
STA. 34+91.59, 3' RT U.S. 50 WB
Δ = 180° 00' 00"
L = 9.42'
R = 3'

Ⓔ STA. 21+10.05, 37.00' LT EVANS ST.
Δ = 178° 59' 55"
L = 62.83'
R = 20'

Ⓕ STA. 22+06.58, 37.00' LT EVANS ST.
Δ = 202° 01' 40"
L = 70.52'
R = 20'



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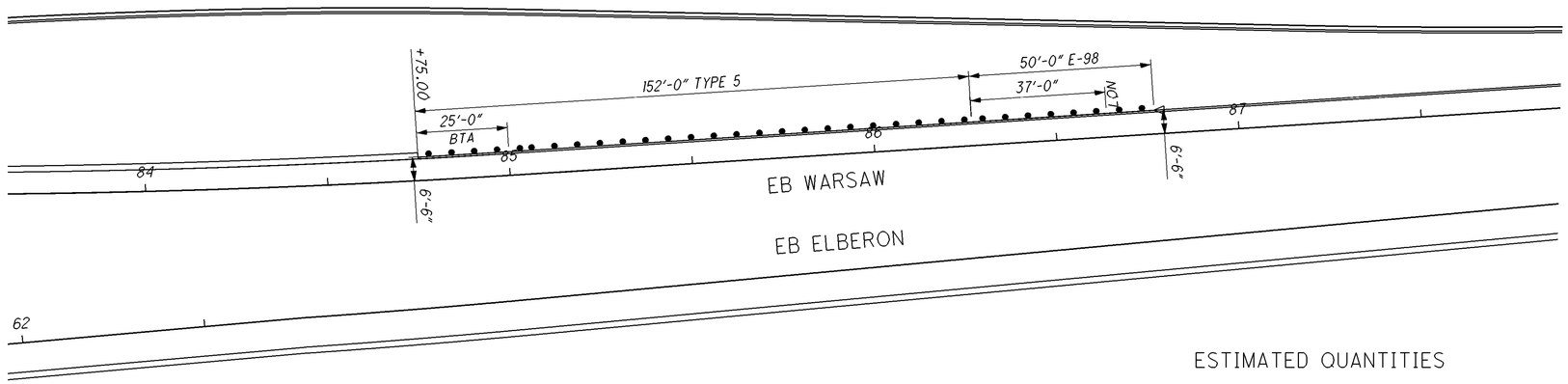
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

PAVEMENT & INTERSECTION DETAILS PRIVATE DRIVE

HAM-50-18.79

238
657



GR-1

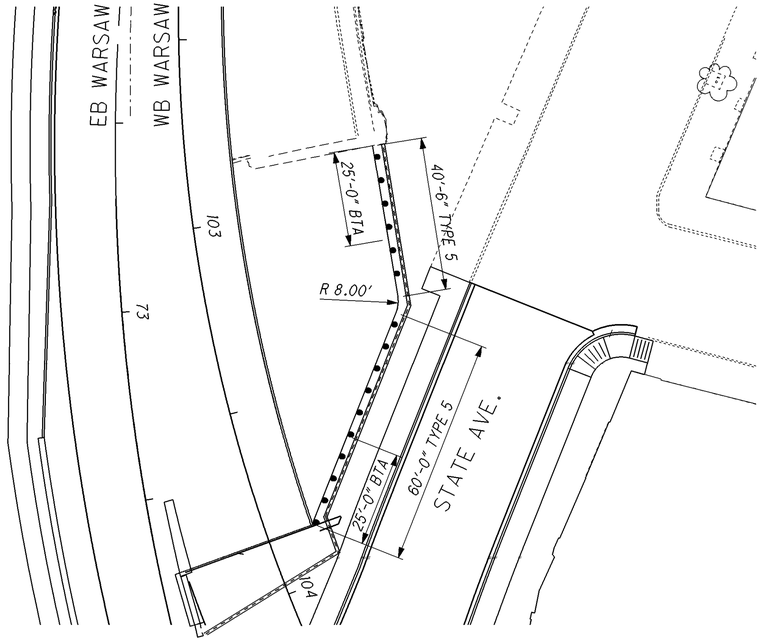
EB WARSAW AVE.

ESTIMATED QUANTITIES

ITEM 606 GUARDRAIL, TYPE 5	152	FT
ITEM 606 BRIDGE TERMINAL ASSEMBLY, TYPE 4	1	EACH
ITEM 606 ANCHOR ASSEMBLY, TYPE E-98	1	EACH

ALL QUANTITIES CARRIED TO SUBSUMMARY SHEET 92.

ALL QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 82.



GR-2

WB WARSAW AVE.

ESTIMATED QUANTITIES

ITEM 606 GUARDRAIL, TYPE 5104FT
ITEM 606 BRIDGE TERMINAL ASSEMBLY, TYPE 4 2 EACH

ALL QUANTITIES CARRIED TO SUBSUMMARY SHEET 92.

ALL QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 82.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

GUARDRAIL DETAILS

HAM-50-18.79

239
657

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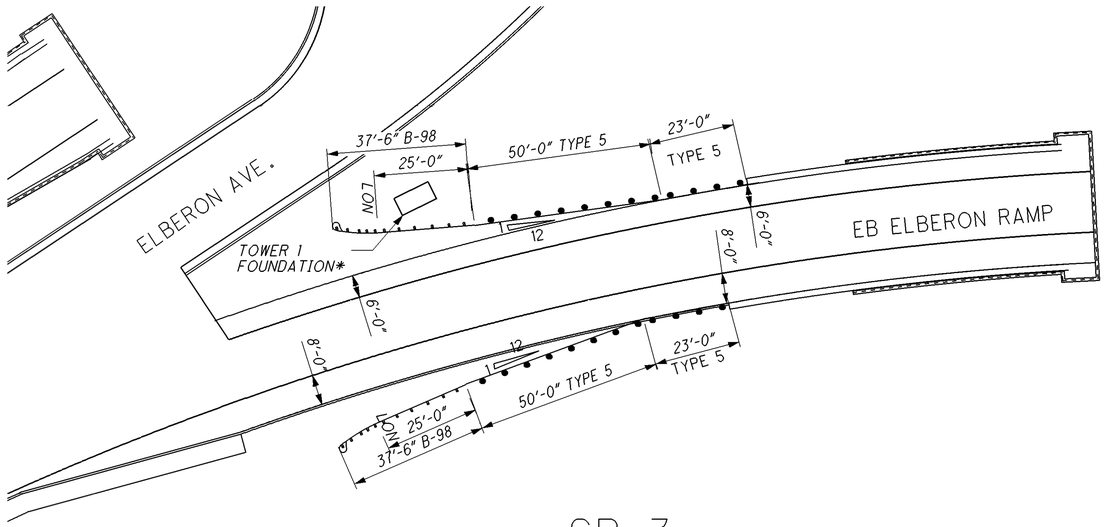


GR-3

EB ELBERON RAMP

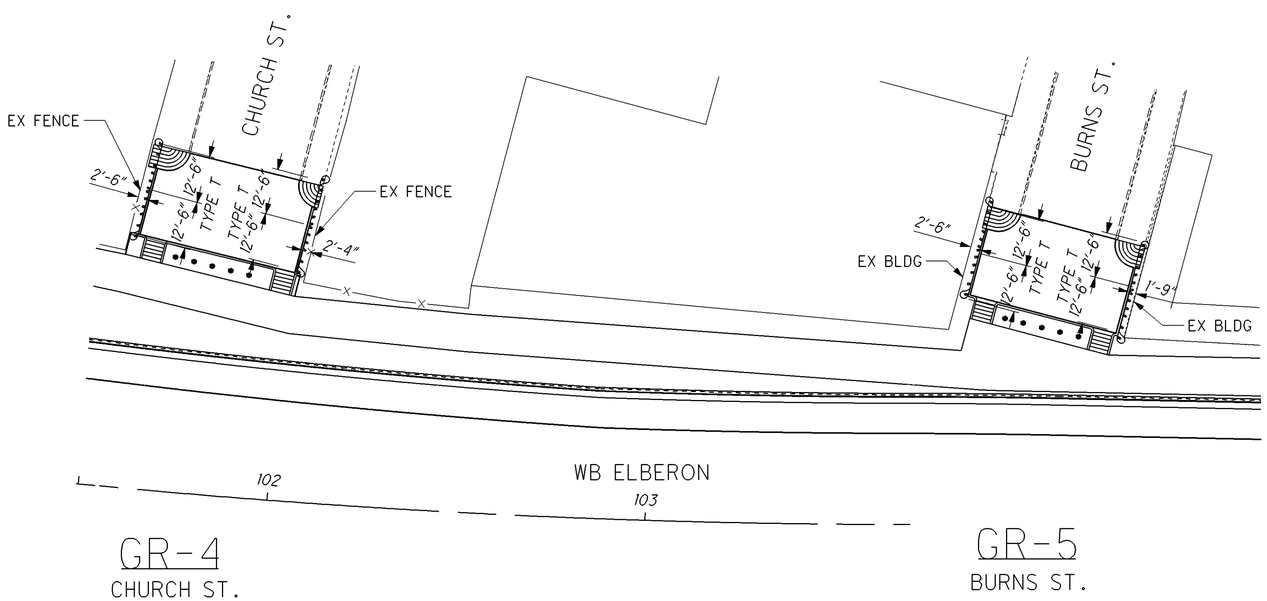
*NOTE:
SEE SHEET 593 FOR TOWER FOUNDATION DETAILS.

ESTIMATED QUANTITIES

ITEM 606 GUARDRAIL, TYPE 5	146	FT
ITEM 606 BRIDGE TERMINAL ASSEMBLY, TYPE 4	2	EACH
ITEM 606 ANCHOR ASSEMBLY, TYPE B-98	2	EACH

ALL QUANTITIES CARRIED TO SUBSUMMARY SHEET 90.

ALL QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 82.



GR-4

CHURCH ST.

GR-5

BURNS ST.

GR-4 ESTIMATED QUANTITIES

ITEM 606 ANCHOR ASSEMBLY, TYPE T	4	EACH

ALL QUANTITIES CARRIED TO SUBSUMMARY SHEET 90.

ALL QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 82.

GR-5 ESTIMATED QUANTITIES

ITEM 606 ANCHOR ASSEMBLY, TYPE T	4	EACH

ALL QUANTITIES CARRIED TO SUBSUMMARY SHEET 88.

ALL QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 82.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MAH
CHECKED ABS

GUARDRAIL DETAILS

HAM-50-18.79

240
657

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CALCULATED RWD | CHECKED NJG

SIGN SHOP DRAWINGS

THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SIGN SHOP DRAWINGS TO THE PROJECT ENGINEER FOR APPROVAL BEFORE THE SIGNS ARE TO BE FABRICATED. THE PROJECT ENGINEER SHOULD FORWARD THE SIGN SHOP DRAWINGS TO THE DISTRICT PRODUCTION DEPARTMENT, ATTENTION : MARC GRAKE AND TO THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION AND ENGINEERING, ATTENTION: GREG LONG FOR REVIEW A MINIMUM OF 4 WEEKS PRIOR TO THE BEGINNING OF SIGN FABRICATION.

PAVEMENT MARKINGS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PLACEMENT OF PAVEMENT MARKINGS IN AREAS WHERE THE EXISTING MARKINGS WERE REMOVED FOR MAINTENANCE OF TRAFFIC PURPOSES. THESE AREAS ARE NOT SHOWN ON THE SIGNING AND PAVEMENT MARKING PLAN SHEETS.

US 50 STA. 4+50 TO STA. 11+54
- ITEM 646 - CENTER LINE 0.13 MILES
- ITEM 646 - LANE LINE 0.26 MILES

ELBERON AVENUE STA. 41+25 TO STA. 44+00
- ITEM 646 - CENTER LINE 0.06 MILES

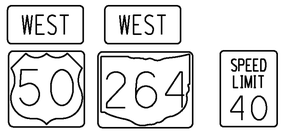
US 50 STA. 40+54 TO STA. 42+00
- ITEM 646 - EDGE LINE 0.11 MILES
- ITEM 646 - LANE LINE 0.14 MILES

REMOVAL OF OVERHEAD SIGNS AND SUPPORTS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE REMOVAL OF EXISTING OVERHEAD SIGNS AND SUPPORTS AND PLACEMENT OF NEW GROUND MOUNTED/BRIDGE MOUNTED SIGNS. THESE AREAS ARE NOT SHOWN ON THE SIGNING AND PAVEMENT MARKING PLAN SHEETS. CONFIRMATION OF WHICH SIGNS AND SUPPORTS ARE TO BE REMOVED AND THE LOCATION OF THE PROPOSED SIGNS SHALL BE PER ODOT STANDARDS AND PER DIRECTION OF THE PROJECT ENGINEER.

US 50 WB - S.L.M. 19.22 / STA. 50+85.18

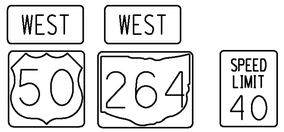
ITEM 630- REMOVAL OF OVERHEAD SIGN & DISPOSAL	4 EACH
ITEM 630 - REMOVAL OF OVERHEAD SIGN SUPPORT & DISPOSAL	1 EACH
ITEM 631 - REMOVAL OF LUMINAIRE AND DISPOSAL, AS PER PLAN	4 EACH
ITEM 630 - SIGN FLAT SHEET	28.5 SQ. FT.
ITEM 630 - SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED, TYPE 1	2 EACH



M3-4-24 M1-4-30-2 | M3-4-24 M1-5-30-3 | R2-1-36

US 50 WB - S.L.M. 19.20 / STA. 60+88.38

ITEM 630- REMOVAL OF OVERHEAD SIGN & DISPOSAL	4 EACH
ITEM 630 - REMOVAL OF OVERHEAD SIGN SUPPORT & DISPOSAL	1 EACH
ITEM 631 - REMOVAL OF LUMINAIRE AND DISPOSAL, AS PER PLAN	4 EACH
ITEM 630 - SIGN FLAT SHEET	28.5 SQ. FT.
ITEM 630 - GROUND MOUNTED SUPPORT, NO. 4 POST	24 FT



M3-4-24 M1-4-30-2 | M3-4-24 M1-5-30-3 | R2-1-36

ITEM 631 -REMOVAL OF LUMINAIRE AND DISPOSAL, AS PER PLAN

PAYMENT FOR THIS ITEM SHALL BE FULL COMPENSATION FOR REMOVAL AND DISPOSAL OF ALL SIGN LIGHTING EQUIPMENT AND INCIDENTALS. THIS SHALL INCLUDE, BUT IS NOT LIMITED TO, LUMINAIRE, WIRING, BRACKET ARM, DISCONNECT SWITCH, BALLAST AND ELECTRICAL SERVICE.

SIGNING AND PAVEMENT MARKING NOTES

HAM-50-18.79

241
657

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SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- A — EXISTING SIGN, REMOVE & RE-ERECT
- A — EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JTP
CHECKED NJG

EXISTING SIGNING PLAN
US 50 - BEGIN WORK TO STA 14+00

HAM-50-18.79

MATCHLINE
SEE SHEET 246

MATCHLINE
SEE SHEET 241

MATCHLINE
SEE SHEET 245

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- A — EXISTING SIGN, REMOVE & RE-ERECT
- A — EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JTP
CHECKED NJG

EXISTING SIGNING PLAN
US 50 - STA 14+00 TO STA 18+79

HAM-50-18.79

243
657

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MATCHLINE
SEE SHEET 246

MATCHLINE
SEE SHEET 241

MATCHLINE
SEE SHEET 245

MARYLAND AVE
WARSAW AVE
US 264
STATE AVE
NEAVE ST
ENGLISH AVE
CHURCH ST
ELBERON AVE
RIVER RD
US 50

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- EXISTING SIGN, REMOVE & RE-ERECT
- EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JTP
CHECKED NJG

EXISTING SIGNING PLAN
US 50 - STA 14+00 TO STA 18+79

HAM-50-18.79

244
657

MATCHLINE
SEE SHEETS 243 & 244

BURNS ST
RIVER RD
W 6TH ST EXPRESSWAY
EVANS ST
WEST RIVER ROAD
ELBERON AVE
WATSON AVE
EXIT ONLY

SR-109 SR-110 SR-111 SR-112 SR-113 SR-114 SR-115 SR-116 SR-117 SR-118 SR-119 SR-120 SR-121 SR-122 SR-123 SR-124 SR-125 SR-126 SR-127 SR-128 SR-129 SR-130

NO WORK
SPEED LIMIT 25
STOP
ONE WAY AHEAD
SPECIAL
SLOW
CITY 138 (BRIDGE MOUNTED)
RT-203-24 (BRIDGE MOUNTED)
SOUTH
WEST
NORTH
EAST
RIVER ROAD
BURNS
ST MICHAEL

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- A — EXISTING SIGN, REMOVE & RE-ERECT
- A — EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

N

0 25 50 100 HORIZONTAL SCALE IN FEET

CALCULATED JTP
CHECKED NJG

EXISTING SIGNING PLAN
US 50 - 18+79 TO END WORK

HAM-50-18.79

245
657

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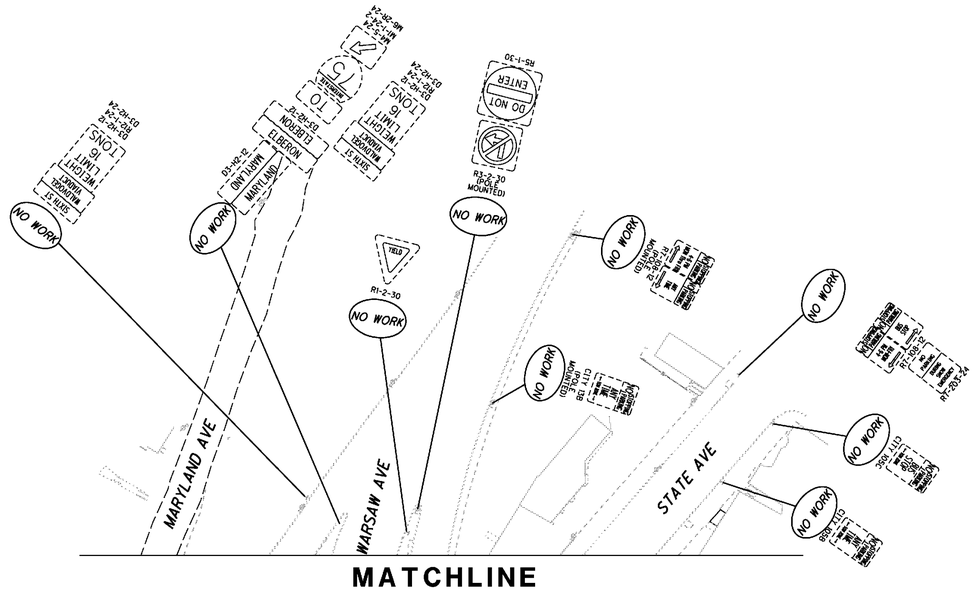
SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- EXISTING SIGN, REMOVE & RE-ERECT
- EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN


NO WORK
MARYLAND AVE
WARSAW AVE
STATE AVE
R1-2-30
R5-1-30
DO NOT ENTER
R3-2-30 (POST MOUNTED)
MARYLAND
ELDERON
WEIGHT LIMIT
MAXIMUM
SIXTH ST
STOP
R1-1-24
R2-1-24
R5-1-24
R5-1-24a
R5-1-24b
R5-1-24c
R5-1-24d
R5-1-24e
R5-1-24f
R5-1-24g
R5-1-24h
R5-1-24i
R5-1-24j
R5-1-24k
R5-1-24l
R5-1-24m
R5-1-24n
R5-1-24o
R5-1-24p
R5-1-24q
R5-1-24r
R5-1-24s
R5-1-24t
R5-1-24u
R5-1-24v
R5-1-24w
R5-1-24x
R5-1-24y
R5-1-24z
R5-1-24aa
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R5-1-24bo
R5-1-24bp
R5-1-24bq
R5-1-24br
R5-1-24bs
R5-1-24bt
R5-1-24bu
R5-1-24bv
R5-1-24bw
R5-1-24bx
R5-1-24by
R5-1-24bz
R5-1-24ca
R5-1-24cb
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R5-1-24cg
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R5-1-24ci
R5-1-24cj
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R5-1-24cl
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R5-1-24co
R5-1-24cp
R5-1-24cq
R5-1-24cr
R5-1-24cs
R5-1-24ct
R5-1-24cu
R5-1-24cv
R5-1-24cw
R5-1-24cx
R5-1-24cy
R5-1-24cz
R5-1-24da
R5-1-24db
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R5-1-24dq
R5-1-24dr
R5-1-24ds
R5-1-24dt
R5-1-24du
R5-1-24dv
R5-1-24dw
R5-1-24dx
R5-1-24dy
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R5-1-24eo
R5-1-24ep
R5-1-24eq
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R5-1-24et
R5-1-24eu
R5-1-24ev
R5-1-24ew
R5-1-24ex
R5-1-24ey
R5-1-24ez
R5-1-24fa
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R5-1-24fe
R5-1-24ff
R5-1-24fg
R5-1-24fh
R5-1-24fi
R5-1-24fj
R5-1-24fk
R5-1-24fl
R5-1-24fm
R5-1-24fn
R5-1-24fo
R5-1-24fp
R5-1-24fq
R5-1-24fr
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R5-1-24bmr
R5-1-24bms
R5-1-24bmt
R5-1-24bmu
R5-1-24bmv
R5-1-24bmw
R5-1-24bmx
R5-1-24bmy
R5-1-24bmz
R5-1-24bna
R5-1-

PROPOSED TRAFFIC CONTROL LEGEND

- (ELW-#) EDGE LINE (WHITE)
- (ELY-#) EDGE LINE (YELLOW)
- (LL-#) LANE LINE (WHITE)
- (CH-#) CHANNELIZING LINE
- (TL-#) TRANSVERSE LINE
- (SL-#) STOP LINE - 24"
- (CW-#) CROSSWALK LINE - 12"
- (CL-#) CENTER LINE
- (A-#) LANE ARROW
- (DL-#) DOTTED LINE

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- (A) EXISTING SIGN, REMOVE & RE-ERECT
- (A) EXISTING SIGN, TO REMAIN
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JTP
CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN
US 50 - BEGIN WORK TO STA 16+00

HAM-50-18.79

247
657

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PROPOSED TRAFFIC CONTROL LEGEND

- (ELW-#) EDGE LINE (WHITE)
- (WLY-#) EDGE LINE (YELLOW)
- (LL-#) LANE LINE (WHITE)
- (CH-#) CHANNELIZING LINE
- (TL-#) TRANSVERSE LINE
- (S-#) STOP LINE - 24"
- (CW-#) CROSSWALK LINE - 12"
- (CL-#) CENTER LINE
- (A-#) LANE ARROW
- (DL-#) DOTTED LINE

MATCH LINE SEE SHEET 253

MATCH LINE STA. 48+00 SEE SHEET 253

R3-H8CC-48 ONLY ONLY ONLY

STA. 48+20

STATE STREET

SPEED LIMIT 25 R2-1-24

STA 49+13 WEST 264 M3-4-24 M1-5-30-3 M6-1R-21 STA. 20+65

STA 48+67 NO STOPPING ANY TIME CITY 13B

SPECIAL (REMOVE & RE-ERECT) LOWER PRICE HILL

STA 48+54 NO STOPPING ANY TIME BUS STOP CITY 10SC/15A

STA 49+10 NO STOPPING ANY TIME BUS STOP CITY 13C/10SA

STATE RD STATE RD SUPPLIED BY CITY

RIVER RD RIVER RD SUPPLIED BY CITY

STA. 49+36

ELBERON EB RAMP

WEST 264 M3-4-24 M1-5-30-3 M6-1R-21 STA. 20+65

NO STOPPING ANY TIME CITY 13B

STA. 20+05

ONLY ONLY ONLY R3-H8CB-48 STA. 21+20

MATCH LINE STA. 21+50 SEE SHEET 249

MATCH LINE STA. 16+00 SEE SHEET 247

US 50

CITY 13B NO STOPPING ANY TIME

STA 19+76

SPECIAL (REMOVE & RE-ERECT) STA. 17+56

M3-4-24 M1-5-30-3 M6-1L-24 STA. 17+96

SUPPLIED BY CITY STATE WEST 264

M4-5-24 M1-1-24-2 M6-1L-24 INTERSTATE 75 TO

M3-2-24 M1-4-30-2 M6-3-24 50 EAST

M2-H7-66 WEST 50 EAST

M3-2-24 M1-5-30-3 M6-1L-24 264 EAST

STA. 18+37

MATCH LINE STA. 58+50 SEE SHEET 249

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- (A) EXISTING SIGN, REMOVE & RE-ERECT
- (A) EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JTP CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN US 50 - STA. 16+00 TO STA. 21+50

HAM-50-18.79

248 657

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PROPOSED TRAFFIC CONTROL LEGEND

- ELW-# EDGE LINE (WHITE)
- WLY-# EDGE LINE (YELLOW)
- LL-# LANE LINE (WHITE)
- CH-# CHANNELIZING LINE
- TL-# TRANSVERSE LINE
- SL-# STOP LINE - 24"
- CW-# CROSSWALK LINE - 12"
- CL-# CENTER LINE
- A-# LANE ARROW
- DL-# DOTTED LINE

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- EXISTING SIGN, REMOVE & RE-ERECT
- EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED JTP | CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN
US 50 - STA. 21+50 TO STA. 27+00

HAM-50-18.79

249
657

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PROPOSED TRAFFIC CONTROL LEGEND

ELW-#	EDGE LINE (WHITE)	SL-#	STOP LINE - 24"
ELY-#	EDGE LINE (YELLOW)	CW-#	CROSSWALK LINE - 12"
LL-#	LANE LINE (WHITE)	CL-#	CENTER LINE
CH-#	CHANNELIZING LINE	A-#	LANE ARROW
TL-#	TRANSVERSE LINE	DL-#	DOTTED LINE

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- EXISTING SIGN, REMOVE & RE-ERECT
- EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JTP
CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN
US 50 - STA. 27+00 TO STA. 32+50

HAM-50-18.79

250
657

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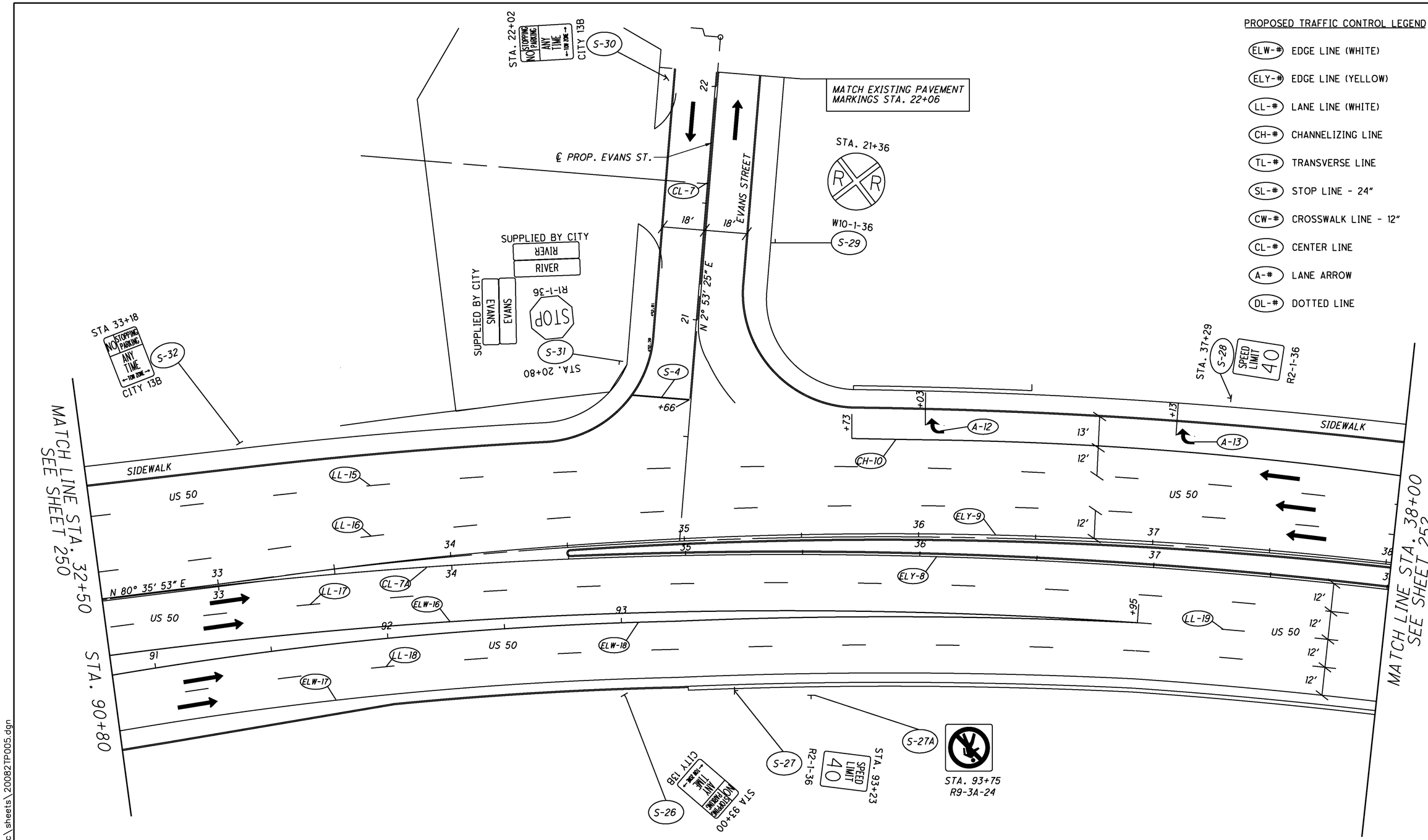

SIGNING AND PAVEMENT MARKING PLAN
US 50 - STA. 32+50 TO STA. 38+00

HAM-50-18.79

251
657

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PROPOSED TRAFFIC CONTROL LEGEND

- (ELW-#) EDGE LINE (WHITE)
- (SL-#) STOP LINE - 24"
- (ELY-#) EDGE LINE (YELLOW)
- (CW-#) CROSSWALK LINE - 12"
- (LL-#) LANE LINE (WHITE)
- (CL-#) CENTER LINE
- (CH-#) CHANNELIZING LINE
- (A-#) LANE ARROW
- (TL-#) TRANSVERSE LINE
- (DL-#) DOTTED LINE

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- EXISTING SIGN, REMOVE & RE-ERECT
- EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

MATCH LINE STA. 38+00
SEE SHEET 251

M3-2-24 M1-4-30-2 M3-2-24 M1-5-30-3

50 EAST 264 EAST

MOUNTED ON LIGHT POLE
D3-H6-84
MERRING WAY
EXIT 1/4 MILE

S-33

STA. 39+34.7

STA. 39+00

50 264 WEST
River Road

GE1-H3, LEVEL 4
15' X 6'

Elberon Ave
Warsaw Ave

GE1-H3, LEVEL 4
8' X 5'

S-34

US 50

MEET EXISTING PAVEMENT MARKINGS STA. 40+54

252 / 657	HAM-50-18.79	SIGNING AND PAVEMENT MARKING PLAN US 50 - STA. 38+00 TO END WORK	CALCULATED JTP CHECKED NJG	0 20 10 40 HORIZONTAL SCALE IN FEET

PROPOSED TRAFFIC CONTROL LEGEND

- (ELW-#) EDGE LINE (WHITE)
- (ELY-#) EDGE LINE (YELLOW)
- (LL-#) LANE LINE (WHITE)
- (CH-#) CHANNELIZING LINE
- (TL-#) TRANSVERSE LINE
- (SL-#) STOP LINE - 24"
- (CW-#) CROSSWALK LINE - 12"
- (CL-#) CENTER LINE
- (A-#) LANE ARROW
- (DL-#) DOTTED LINE

MATCH LINE STA. 46+00 SEE SHEET 255

MATCH LINE STA. 95+75 SEE SHEET TP255

MATCH LINE STA. 53+00 SEE SHEET 248

MATCH LINE STA. 48+00 SEE SHEET 248

MARYLAND AVE.

ELBERON AVE.

ELBERON EB RAMP

STATE STREET

STATE AVE.

SIXTH ST.

SUPPLIED BY CITY

SCHOOL

SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- EXISTING SIGN, REMOVE & RE-ERECT
- EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

HORIZONTAL SCALE IN FEET

CALCULATED JTP

CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN
ELBERON AVE., MARYLAND AVE. AND STATE ST.

HAM-50-18.79

253
657

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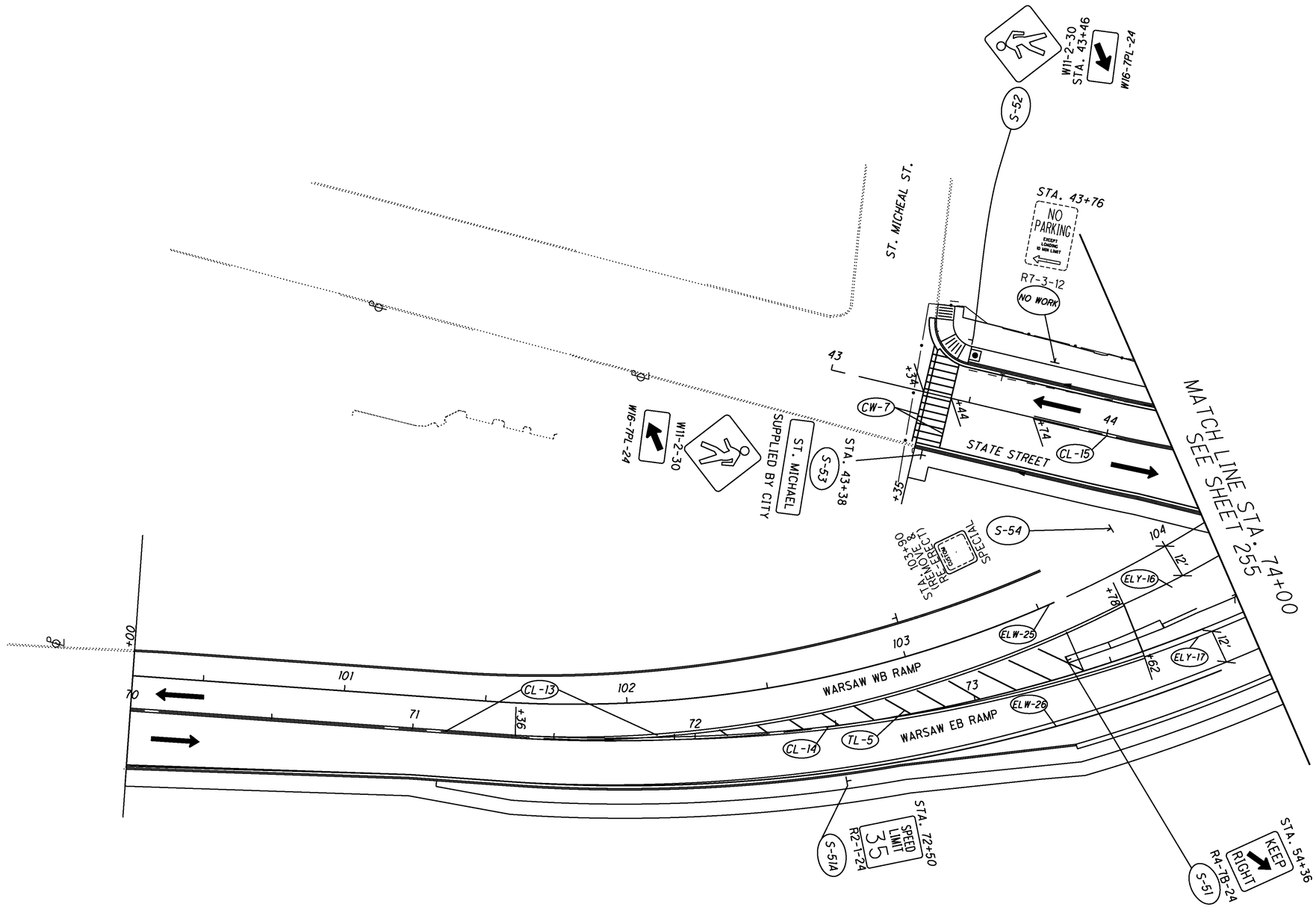
PROPOSED TRAFFIC CONTROL LEGEND

- (ELW-#) EDGE LINE (WHITE)
- (ELY-#) EDGE LINE (YELLOW)
- (LL-#) LANE LINE (WHITE)
- (CH-#) CHANNELIZING LINE
- (TL-#) TRANSVERSE LINE
- (SL-#) STOP LINE - 24"
- (CW-#) CROSSWALK LINE - 12"
- (CL-#) CENTER LINE
- (A-#) LANE ARROW
- (DL-#) DOTTED LINE



SIGN LEGEND

- OVERHEAD TRUSS SIGN STRUCTURE
- CANTILEVER SIGN SUPPORT
- GROUND MOUNTED SIGN SUPPORT
- (A) EXISTING SIGN, REMOVE & RE-ERECT
- (A) EXISTING SIGN, TO REMAIN
- EXISTING SIGN, TO BE REMOVED
- PROPOSED SIGN

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JTP
CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN
WARSAW EB AND WB RAMPS

HAM-50-18.79

254
657

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SIGN LEGEND

OVERHEAD TRUSS SIGN STRUCTURE

CANTILEVER SIGN SUPPORT

GROUND MOUNTED SIGN SUPPORT

A — EXISTING SIGN, REMOVE & RE-ERECT

A — EXISTING SIGN, TO REMAIN

EXISTING SIGN, TO BE REMOVED

PROPOSED SIGN

STA. 44+48
NO STOPPING ANY TIME
CITY I3B
S-57
S-56
SPEED LIMIT 25
R2-1-24
STA. 44+75
264
M1-4-24-3
W11-2-30
STA. 44+92
S-55
STATE STREET
MATCH LINE STA. 74+00 SEE SHEET 254
WARSAW WB RAMP
ELBERON WB RAMP
WARSAW EB RAMP
MATCH LINE STA. 99+00 SEE SHEET 240
MATCH LINE STA. 79+50 SEE SHEET 240
MATCH LINE STA. 46+00 SEE SHEET 253
MATCH LINE STA. 95+75 SEE SHEET 253
ELW-30
TL-6
ELY-20
ELW-29
ELY-19
ELW-28
ELY-18
ELW-27
LL-28
CL-16
105
106
107
108
98
97
96
75
76
77
78
79
10'
12'
8'
16'
6'
45

PROPOSED TRAFFIC CONTROL LEGEND

ELW-#	EDGE LINE (WHITE)	SL-#	STOP LINE - 24"
ELY-#	EDGE LINE (YELLOW)	CW-#	CROSSWALK LINE - 12"
LL-#	LANE LINE (WHITE)	CL-#	CENTER LINE
CH-#	CHANNELIZING LINE	A-#	LANE ARROW
TL-#	TRANSVERSE LINE	DL-#	DOTTED LINE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JTP
CHECKED NJG

SIGNING AND PAVEMENT MARKING PLAN
WARSAW EB AND WB RAMPS

HAM-50-18.79

255
657

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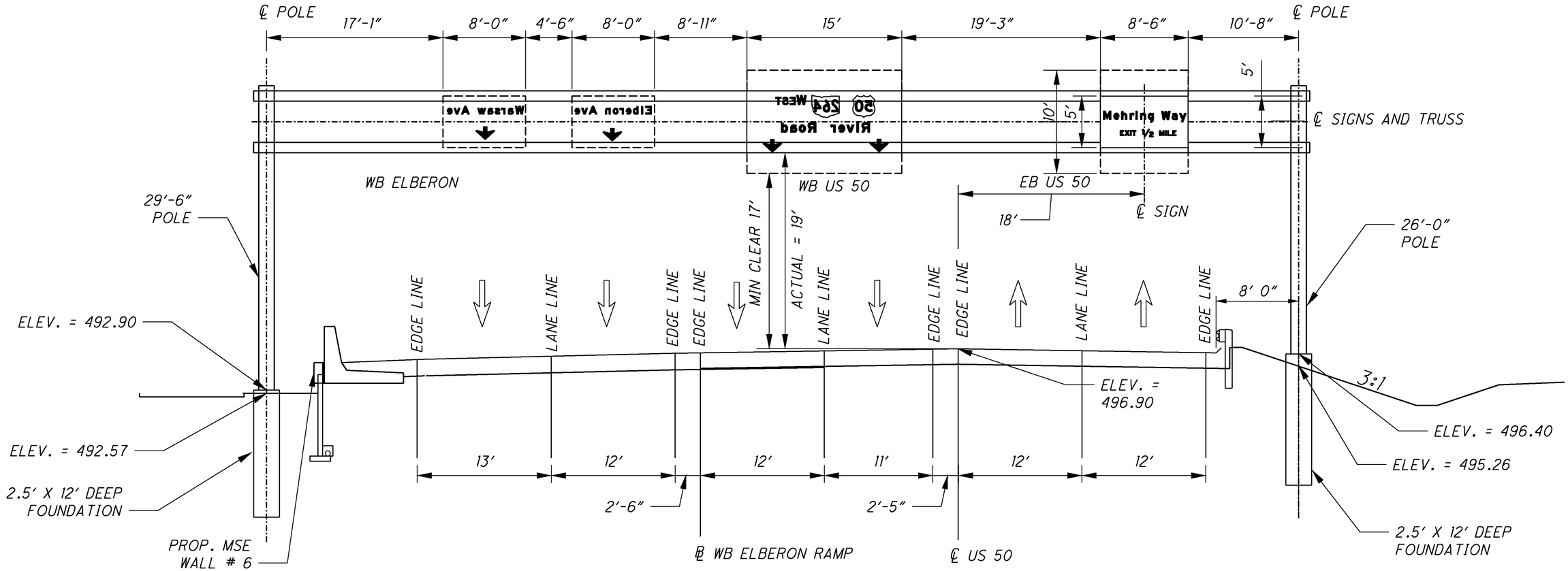


SIGN # S-20
STA. 25+50 (LOOKING EAST)
TC 7.65, DES. 8, 5 FT BOX, 100 FT SPAN

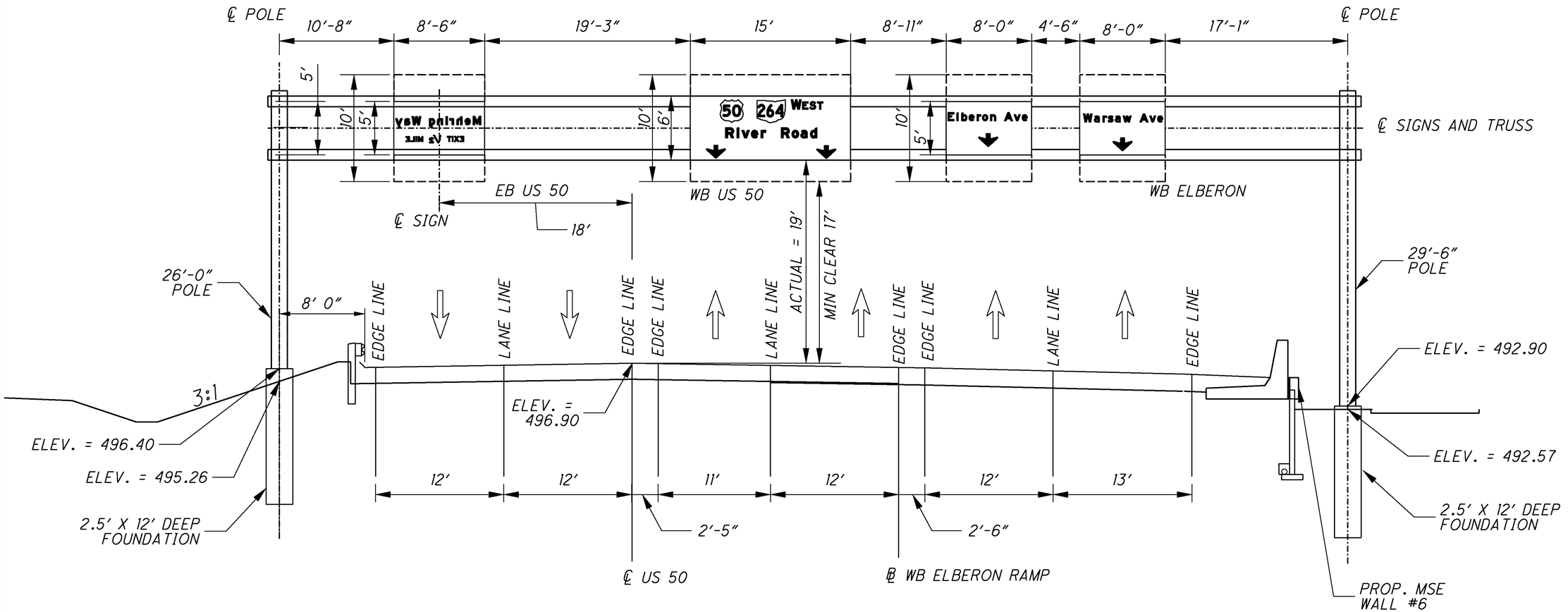
HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED JTP
CHECKED NJG

OVERHEAD SIGN TRUSS DETAIL SHEET

HAM-50-18.79

256
657



SIGN # S-20
STA. 25+50 (LOOKING WEST)
TC 7.65, DES. 8, 5 FT BOX, 100 FT SPAN

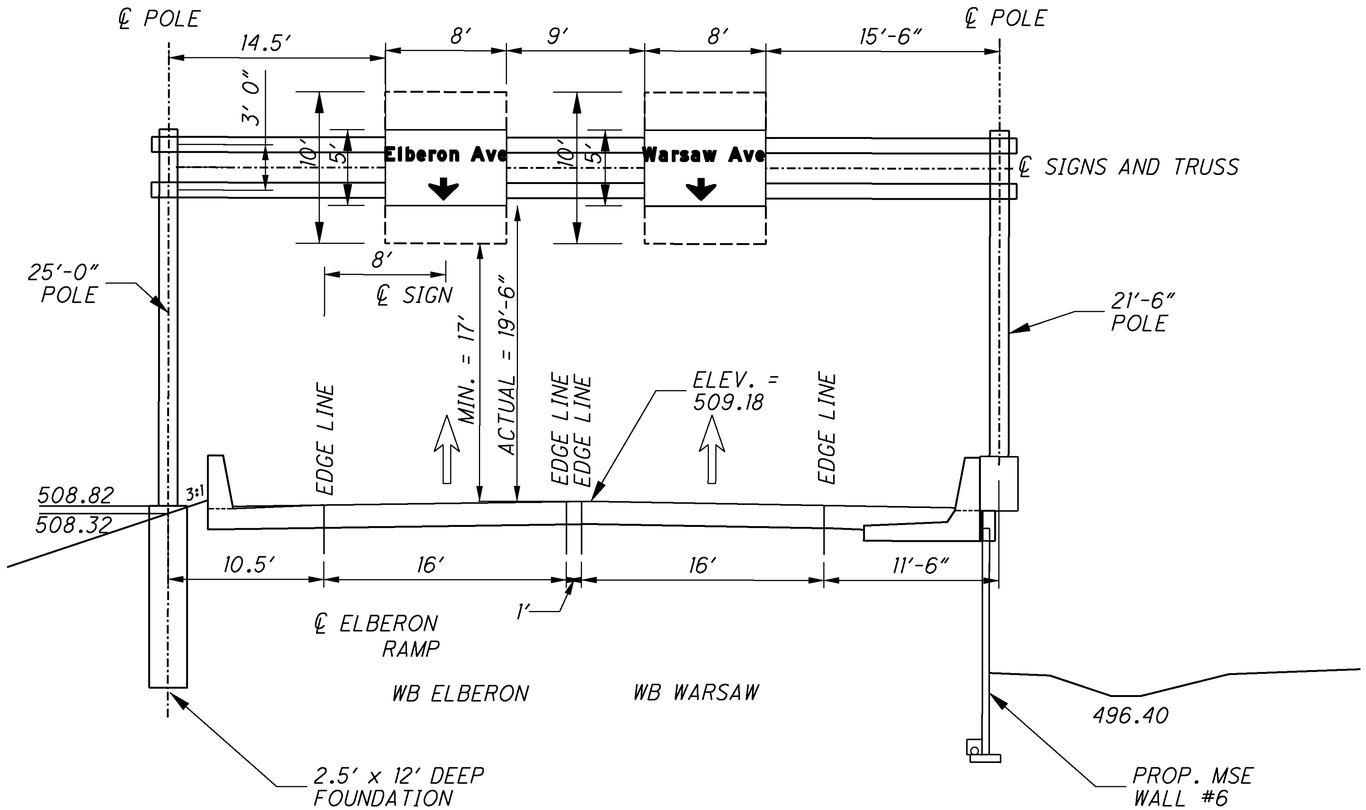
0 5 10 20
HORIZONTAL
SCALE IN FEET

CALCULATED JTP
CHECKED NJG

OVERHEAD SIGN TRUSS DETAIL SHEET

HAM-50-18.79

257
657



SIGN # S-24
STA. 99+45 (LOOKING WEST)
TC 7.65 DESIGN 6, 3 FT BOX, 55.0 FT SPAN

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED JTP
CHECKED NJG

OVERHEAD SIGN TRUSS DETAIL SHEET

HAM-50-18.79

258
657

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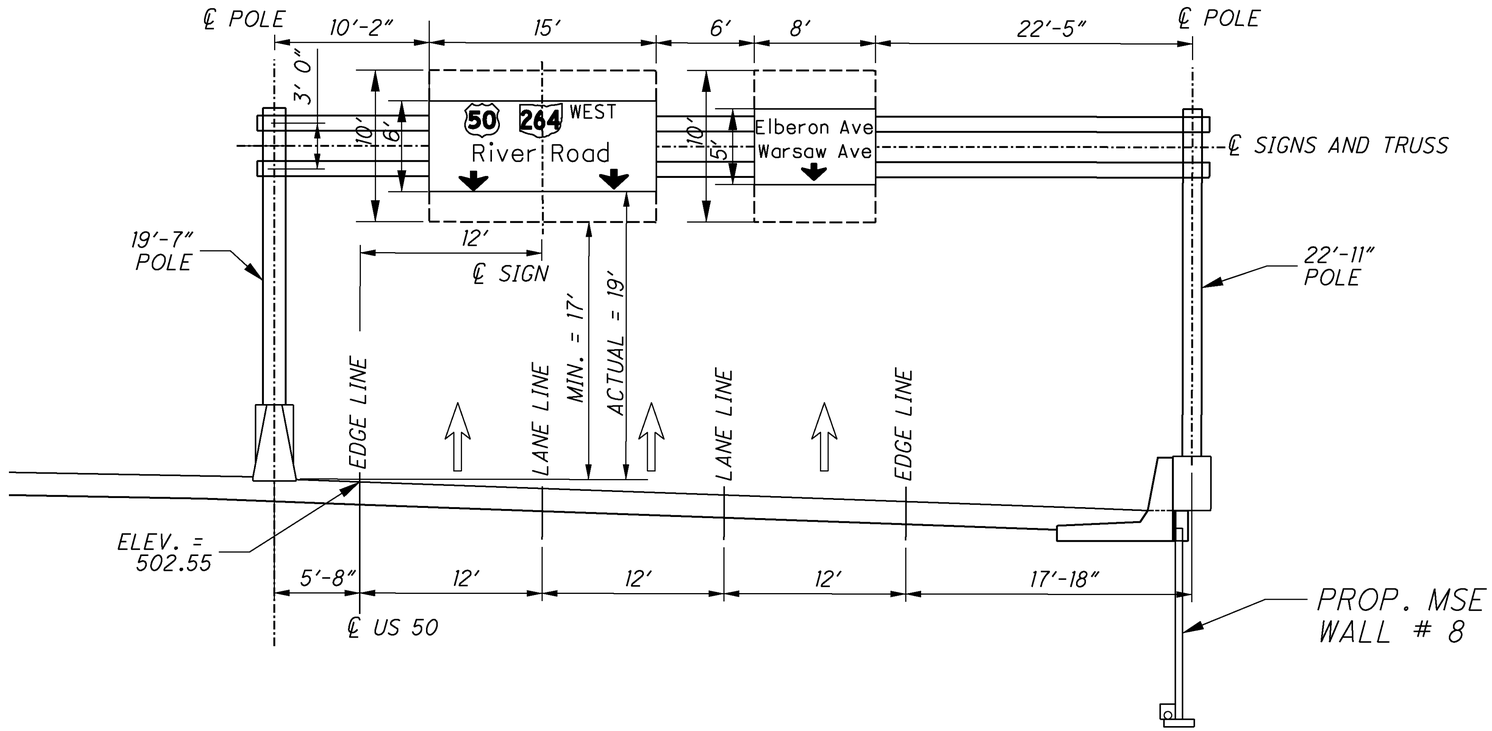

SIGN # S-34
STA. 39+00 (LOOKING WEST)
TC 7.65 DESIGN 6, 3 FT BOX, 59 FT-5 IN SPAN

0 5 10 20
HORIZONTAL SCALE IN FEET

CALCULATED JTP
CHECKED NJG

OVERHEAD SIGN TRUSS DETAIL SHEET

HAM-50-18.79

259
657

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SHEET NO.	REFERENCE NO.	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERRECTION EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND REERECTION EACH	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL EACH
242	SR-001						2		
242	SR-002	1		1					
242	SR-003	1		1					
242	SR-004	3		1					
243	SR-005		1	2					
243	SR-006	1		1					
243	SR-007						4		
243	SR-008	3		2					
243	SR-009						2		
243	SR-010						3		
243	SR-011	1		1					
243	SR-012	2		1					
243	SR-013						1		
243	SR-014	3		1					
243	SR-015				1				
243	SR-016	5		1					
243	SR-017	1		1					
243	SR-018	2		1					
243	SR-019	3		1					
243	SR-020	3		1					
243	SR-021	1		1					
243	SR-022	1		2					
243	SR-023	1		2					
243	SR-024	2		1					
243	SR-025	1		1					
243	SR-026	5		1					
243	SR-027						1		
243	SR-028	1		1					
243	SR-029						1		
243	SR-030	1		1					
243	SR-031	2		1					
243	SR-032	1		1					
243	SR-033	4		1					
SUB-TOTAL		49	1	29	1	0	14	0	0

SHEET NO.	REFERENCE NO.	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERRECTION EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND REERECTION EACH	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL EACH
243	SR-033	4		1					
243	SR-034	2		1					
243	SR-035	1		1					
243	SR-036	1		1					
243	SR-037	2		1					
243	SR-038						2		
243	SR-039	2		1					
243	SR-040	2		1					
243	SR-041	2		1					
243	SR-042						1		
243	SR-043				1				
243	SR-044						1		
243	SR-045						1		
243	SR-046						1		
243	SR-047						2		
243	SR-048						2		
243	SR-049						2		
243	SR-050						4		
243	SR-051				1		1		
244	SR-052						6		
244	SR-053	2		1					
244	SR-054	2		1					
244	SR-055	1		1					
244	SR-056						5		
244	SR-057	5		1					
244	SR-058	3		1					
244	SR-059	4		1					
244	SR-060	3		1					
244	SR-061	3		1					
244	SR-062	1		1					
244	SR-063		1	1					
244	SR-064	2		1					
244	SR-065	1		1					
SUB-TOTAL		43	1	20	2	0	28	0	0
GRAND TOTALS CARRIED TO GENERAL SUMMARY		92	2	49	3	0	42	0	0

CALCULATED JTP
CHECKED NJG

SIGNING REMOVAL SUB-SUMMARY

HAM-50-18.79

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SHEET NO.	REFERENCE NO.	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERRECTION EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND REERECTION EACH	630 *REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL EACH*
244	SR-066						1		
244	SR-067	1		1					
244	SR-068	1		1					
244	SR-069	1		1					
244	SR-070				1				
244	SR-071				1				
244	SR-072				1				
244	SR-073				1				
244	SR-074				1				
244	SR-075				1				
244	SR-076				1				
244	SR-077				1				
244	SR-078				1				
244	SR-079				1				
244	SR-080				1				
244	SR-081				1				
244	SR-082	1		1					
244	SR-083	3		1					
244	SR-084	1		1					
244	SR-085				1				
244	SR-086	1		1					
244	SR-087				1				
244	SR-088				1				
244	SR-089	5		1					
244	SR-090	1		1					
244	SR-091				1				
244	SR-092	5		1					
244	SR-093	2		1					
244	SR-094	1		1					
244	SR-095	5		1					
244	SR-096						2		
244	SR-097	1		1					
244	SR-098	1		1					
	SUB-TOTAL	*30*	*0*	*15*	*16*	*0*	*3*	*0*	*0*

SHEET NO.	REFERENCE NO.	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERRECTION EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND REERECTION EACH	630 *REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL EACH*
244	SR-099	1		1					
244	SR-100						2		
244	SR-101					2			
244	SR-102					2			1
244	SR-103				2				
244	SR-104						2		
244	SR-105		1	1					
244	SR-106				3				
244	SR-107	1		1					
244	SR-108				2				
245	SR-109	3		1					
245	SR-110					2			1
245	SR-111				2				
245	SR-112				1				
245	SR-113				2				
245	SR-114				1				
245	SR-115					1			1
245	SR-116	1		1					
245	SR-117					1	2		
245	SR-118					1			
245	SR-119						1		
245	SR-120	5		1					
245	SR-121	1		1					
245	SR-122						1		
245	SR-123	5		1					
245	SR-124				2				
245	SR-125				1				
245	SR-126	1		1					
245	SR-127	1		1					
245	SR-128				1				
245	SR-129	1		1					
245	SR-130	1		1					
	SUB-TOTAL	*21*	*1*	*12*	*17*	*9*	*8*	*0*	*3*
	GRAND TOTALS CARRIED TO GENERAL SUMMARY	51	1	27	33	9	11	0	3

CALCULATED JTP
CHECKED NJG

SIGNING REMOVAL SUB-SUMMARY

HAM-50-18.79

261
657

SHEET NO.	REFERENCE NO.	STATION	CODE	SIZE (FEET)	630 OVERHEAD SIGN SUPPORT, TYPE TC-9.30, DESIGN 1 EACH	GROUND MOUNTED SUPPORT, NO. 2 POST FT		GROUND MOUNTED SUPPORT, NO. 3 POST FT		STREET NAME SIGN SUPPORT, NO. 3 POST FT	SIGN, FLAT SHEET SQ. FT.	SIGN ERECTED, FLAT SHEET SQ. FT.	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6 EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8 EACH	SIGN, GROUND MOUNTED EXTRUSHEET SQ. FT.	SIGN, OVERHEAD EXTRUSHEET SQ. FT.	CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.40 EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH							
247	S-01	12+27	CITY 13C	1 x 1.5		12					1.5																
247	S-02	13+72	R5-6-30	2.5 x 2.5						15	6.25																
			R3-17a	1 x 2.5							2.5																
			SPECIAL	1 x 2.5							2.5																
247	S-02A	15+24	R3-H8CA-48	4 x 2.5		25					10																
247	S-03	15+67	CITY 13B	1 x 1.5		12																					
247	S-04	15+38	SPECIAL			25					1.5																
247	S-05	12+86	CITY 13B	1 x 1.5		12																					
248	S-06	17+56	SPECIAL			14.25																					
248	S-07	17+96	CITY SUPPLIED							18.5		2.25															
			M3-4-24	2 x 1							2																
			M1-5-30-3	3.2 x 2.5							8																
			M6-1L-24	2 x 1							2																
248	S-07A	17+96	M4-5-24	2 x 1				12			2																
			M1-1-24-2	2 x 1.25							2.5																
			M6-1L-24	2 x 1							2																
248	S-07B	17+96	M3-2-24	2 x 1				12			2																
			M1-4-30-2	2.5 x 2.5							6.25																
			M6-3-24	2 x 1							2																
248	S-08	18+37	M3-2-24	2 x 1				15			2																
			M1-5-30-3	3.2 x 2.5							8																
			M6-1L-24	2 x 1							2																
			M2-H7-66	5.5 x 2				20			11																
248	S-09	19+76	CITY 13B	1 x 1.5		12					1.5																
248	S-09A	21+20	R3-H8CA-48	4 x 2.5		25					10																
248	S-09B	20+65	M3-4-24	2 x 1				12			2																
			M1-5-30-3	3.2 x 2.5							8																
			M6-1R-21	1.4 x 1.25							1.75																
248	S-10	20+05	CITY 13B	1 x 1.5		12					1.5																
248	S-11	49+13	M3-4-24	2 x 1				17			2																
			M1-5-30-3	3.2 x 2.5							8																
			SPECIAL																								
248	S-12	48+67	CITY 13B	1 x 1.5		12					1.5																
248	S-13	48+20	R2-1-24	2 x 2.5		13					5																
248	S-14	48+20	R3-H8CC-48	4 x 2.5		26					10																
248	S-15	48+54	CITY 105C	1 x 1.5		12					1.5																
			CITY 13A	1 x 1.5		12					1.5																
248	S-16	49+10	CITY 13C	1 x 1.5		12					1.5																
			CITY 105A	1 x 1.5		12					1.5																
SUB-TOTAL						248.25		88		33.5	133.25	2.25	0	0	0	0	0	0	0								
TOTALS CARRIED TO GENERAL SUMMARY,					0	248.3		88		33.5	133.3	2.3	0	0	0	0	0	0	0								

CALCULATED JTP
CHECKED NJG

PROPOSED SIGN SUB-SUMMARY

HAM-50-18.79

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PROPOSED SIGN SUB-SUMMARY

CALCULATED JTP | CHECKED NJG

SHEET NO.	REFERENCE NO.	STATION	CODE	SIZE (FEET)	630 OVERHEAD SIGN SUPPORT, TYPE TC-9.30, DESIGN 1 EACH	GROUND MOUNTED SUPPORT, NO. 2 POST FT		GROUND MOUNTED SUPPORT, NO. 3 POST FT		STREET NAME SIGN SUPPORT, NO. 3 POST FT	SIGN, FLAT SHEET SQ. FT.	SIGN ERECTED, FLAT SHEET SQ. FT.	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6 EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8 EACH	SIGN, GROUND MOUNTED EXTRUSHEET SQ. FT.	SIGN, OVERHEAD EXTRUSHEET SQ. FT.	CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.40 EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH							
248	S-17	49+36	CITY SUPPLIED							14		2.25															
			CITY SUPPLIED									2.25															
			CITY SUPPLIED									2.25															
			CITY SUPPLIED									2.25															
249	S-18	82+50	W4-3R-36	3 x 3				14.75			9																
249	S-19	26+16	CITY 13B	1 x 1.5		12					1.5																
249	S-20	25+50	GE1-H3	8.5 x 5										1		42.5		2									
			GE1-H3	15 x 6												90											
			GE1-H3	8 x 5												40											
			GE1-H3	8 x 5												40											
249	S-21	102+09	CITY 13B	1 x 1.5		12					1.5																
249	S-21A	22+00	W3-3A-36	3 x 3						15.5	9																
249	S-22	101+76	CITY 13B	1 x 1.5		12					1.5																
	S-23		NOT USED																								
249	S-24	99+45	GE1-H3	10 x 5									1			40		1									
			GE1-H3	10 x 5												40											
			R2-1-24	2 x 2.5							5																
			R2-1-24	2 x 2.5							5																
250	S-25	31+50	W4-3R-36	3 x 3				14.75			9																
251	S-26	93+00	CITY 13B	1 x 1.5		12					1.5																
251	S-27	93+23	R2-1-36	3 x 4				29.00			12																
251	S-27A	93+23	R9-3A-24	2 x 2		12					4																
251	S-28	37+29	R2-1-36	3 x 4				29.00			12																
251	S-29	21+36	W10-1-36	3				13.50			9																
251	S-30	22+02	CITY 13B	1 x 1.5		12					1.5																
251	S-31	20+80	R1-1-36	3 x 3						15.5	9																
			CITY SUPPLIED									2.25															
			CITY SUPPLIED									2.25															
			CITY SUPPLIED									2.25															
			CITY SUPPLIED									2.25															
251	S-32	33+18	CITY 13B	1 x 1.5		12					1.5																
252	S-33	39+34.7	D3-H6-84	7 x 3	1											21		1									
			M3-2-24	2 x 1							2								1								
			M1-4-30-2	2.5 x 2.5							6.25								1								
			M3-2-24	2 x 1							2								1								
			M1-5-30-3	3.2 x 2.5							8								1								
252	S-34	39+00	GE1-H3	15 x 6									1			90	1	1									
			GE1-H3	8 x 5												40											
253	S-35	43+54	M2-H3-42	3.5 x 4.5				31			17.5																
			M2-H3-42	3.5 x 4.5				31			17.5																
253	S-35A	52+25	R2-1-24	2 x 2.5		13					5																
253	S-36	46+56	CITY SUPPLIED			13.25						2.25															
SUB-TOTAL					1	97.25		163		45	150.25	20.25	2	1	0	443.5	1	5	4								
TOTALS CARRIED TO GENERAL SUMMARY					1	97.3		163		45	150.3	20.3	2	1	0	443.5	1	5	4								

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SHEET NO.	REFERENCE NO.	STATION	CODE	SIZE (FEET)	630 OVERHEAD SIGN SUPPORT, TYPE TC-9.30, DESIGN 1 EACH	GROUND MOUNTED SUPPORT, NO. 2 POST FT		GROUND MOUNTED SUPPORT, NO. 3 POST FT		STREET NAME SIGN SUPPORT, NO. 3 POST FT	SIGN, FLAT SHEET SQ. FT.	SIGN ERECTED, FLAT SHEET SQ. FT.	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6 EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8 EACH	SIGN, GROUND MOUNTED EXTRUSHEET SQ. FT.	SIGN, OVERHEAD EXTRUSHEET SQ. FT.	CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.40 EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH							
253	S-37	47+95	CITY 105C	1 x 1.5		12					1.5															
			CITY 13A	1 x 1.5		12					1.5															
253	S-38	49+09	R1-1-36	3 x 3				13.5			9															
253	S-39	48+69	R1-1-36	3 x 3				13.5			9															
253	S-40	47+00	CITY SUPPLIED							14		2.25														
			CITY SUPPLIED									2.25														
			CITY SUPPLIED									2.25														
			CITY SUPPLIED									2.25														
253	S-40A	47+80	M1-4-30-3	2.5 x 2.5				15			6.25															
			M6-L1-21	1.4 x 1.25							1.75															
253	S-41	47+97	CITY 13C	1 x 1.5		12					1.5															
			CITY 105A	1 x 1.5		12					1.5															
253	S-42	47+37	S1-1-30	2.5 x 1.75				15			6.25															
			S4-3-24	2 x .67							1.35															
253	S-43	48+76	CITY 105C	1 x 1.5		12					1.5															
			CITY 13A	1 x 1.5		12					1.5															
253	S-44	48+11	CITY 13C	1 x 1.5		12					1.5															
			CITY 105A	1 x 1.5		12					1.5															
253	S-45	47+05	W14-2-24	2 x 2		13.25					4															
253	S-46	46+05	CITY 13C	1 x 1.5		12					1.5															
253	S-47	46+57	R1-1-36	3 x 3						13.5	9															
			W14-2-24	2 x 2							4															
253	S-48	46+47	CITY SUPPLIED							14		2.25														
			CITY SUPPLIED									2.25														
			CITY SUPPLIED									2.25														
			CITY SUPPLIED									2.25														
253	S-49	45+78	CITY 13B	1 x 1.5		12					1.5															
253	S-50	45+10	R2-1-24	2 x 2.5		13					5															
253	S-50A	90+25	W4-3L-36	3 x 3		13.5					6															
254	S-51	54+36	R4-7B-24	2 x 2.5		13					5															
254	S-51A	72+50	R2-1-24	2 X 2.5		13					5															
254	S-52	43+46	W11-2-30	2.5 x 2.5				14			6.25															
			W16-7PL-24	2 x 1							2															
254	S-53	43+38	CITY SUPPLIED					14.75																		
			W11-2-30	2.5 x 2.5							6.25															
			W16-7PL-24	2 x 1							2															
254	S-54	103+90	SPECIAL			12																				
255	S-55	44+92	M1-4-24-3	2.5 x 2						16	5															
			W11-2-30	2.5 x 2.5							6.25															
255	S-56	44+75	R2-1-24	2 x 2.5		13					5															
255	S-57	44+48	CITY 13B	1 x 1.5		12					1.5															
SUB-TOTAL						209.75		85.75		57.5	120.85	18	0	0	0	0	0	0	0							
TOTALS CARRIED TO GENERAL SUMMARY,					0	209.8		85.8		57.5	120.9	18	0	0	0	0	0	0	0							

CALCULATED JTP
CHECKED NJG

PROPOSED SIGN SUB-SUMMARY

HAM-50-18.79

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	EDGE LINE, WHITE FEET	EDGE LINE, YELLOW FEET	LANE LINE FEET	CENTER LINE FEET	CHANNELIZING LINE FEET	STOP LINE FEET	CROSSWALK LINE FEET	TRANSVERSE/ DIAGONAL LINE FEET	LANE ARROWS EACH	DOTTED LINE FOOT
232	LL-1	US 50 WESTBOUND	11+54	16+00			446							
232	LL-2	US 50 EASTBOUND	11+54	16+00			446							
232	CL-1	US 50	11+54	16+00				446						
232	CL-2	US 50	11+64	15+04				340						
232	TL-1	US 50	11+64	15+04								225		
232	CH-1	US 50 EASTBOUND	15+29	16+00					71					
232	A-1	US 50 EASTBOUND	15+39										1	
233	LL-3	US 50 WB	16+00	21+50			550							
233	LL-4	US 50 EB	16+00	21+50			550							
233	CL-3	US 50	16+00	17+97				197						
233	CH-2	US 50 EB	16+00	17+97					197					
233	A-2	US 50 EB	16+54										1	
233	A-3	US 50 EB	17+67										1	
233	S-1	US 50 EB	17+97							37				
233	CW-1	US 50	18+03	18+13							140			
233	DL-1	STATE ST/US 50	49+49	19+37										150
233	S-3	US 50 WB	19+37							38				
233	LL-5	NOT USED												
233	LL-6	NOT USED												
233	A-10	US 50 WB	19+67										1	
233	A-11	US 50 WB	20+88										1	
233	CH-5	US 50 WB	19+37	20+98					161					
233	CW-2	STATE STREET	49+53	49+63							190			
233	S-2	STATE STREET SB	49+49							39				
233	A-4	STATE STREET SB	49+19										1	
233	A-5	STATE STREET SB	49+19										1	
233	A-6	STATE STREET SB	49+19										1	
233	A-7	STATE STREET SB	48+30										1	
233	A-8	STATE STREET SB	48+30										1	
233	A-9	STATE STREET SB	48+30										1	
233	CH-3	STATE STREET SB	48+20	49+49					129					
233	CH-4	STATE STREET SB	48+20	49+49					129					
233	CL-4	STATE STREET	48+00	49+49				149						
233	ELY-1	ELBERON EB RAMP	53+00	58+50		550								
233	ELW-1	ELBERON EB RAMP	53+00	58+50	550									
234	TL-2	WARSAW/ELBERON	99+00	99+63								25		
234	ELW-2	WARSAW WB RAMP	99+00	99+63	63									
234	ELW-3	ELBERON WB RAMP	99+00	99+63	63									
234	CH-6	WARSAW/ELBERON	99+63	101+80					217					
234	ELW-4	WARSAW WB RAMP	99+00	27+00	535									
234	ELY-6	ELBERON WB RAMP	99+00	101+75		275								
234	ELW-5	ELBERON WB RAMP	101+75	103+33	158									
234	LL-9	ELBERON WB RAMP	101+80	27+00			255							
234	CH-7	ELBERON WB RAMP	103+33	27+00					102					
234	CL-5	US 50	26+34	27+00				66						
234	ELW-6	US 50	24+41	25+98	157									
234	TL-3	ELBERON	101+75	103+00								75		
234	CL-5A	US 50 EB	22+95	26+34				339						
234	CL-5B	US 50 WB	22+95	26+34				339						
234	LL-7	US 50 WB	21+50	27+00			550							
		SUB-TOTAL			1526	825	2797	1876	1006	114	330	325	11	150
		TOTALS CARRIED TO GENERAL SUMMARY			0.29 M	0.16 M	0.53 M	0.36 M	1006	114	330	325	11	150

CALCULATED JTP
CHECKED NJG

PAVEMENT MARKING SUB-SUMMARY

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	EDGE LINE, WHITE FEET	EDGE LINE, YELLOW FEET	LANE LINE FEET	CENTER LINE FEET	CHANNELIZING LINE FEET	STOP LINE FEET	CROSSWALK LINE FEET	TRANSVERSE/ DIAGONAL LINE FEET	LANE ARROWS EACH	DOTTED LINE FOOT
249	LL-8	US 50 EB	21+50	27+00			550							
249	ELW-7	WARSAW RAMP EB	79+50	85+25	575									
249	ELW-8	ELBERON RAMP EB	58+50	63+85	535									
249	ELW-9	ELBERON RAMP EB	61+40	63+85	245									
249	ELY-2	WARSAW RAMP EB	79+50	85+25		575								
249	ELY-3	ELBERON RAMP EB	58+50	61+40		290								
250	ELW-10	US 50 WB	27+00	28+00	100									
250	CH-8	US 50 WB	27+00	28+30					130					
250	LL-10	US 50 WB	27+00	32+50			550							
250	LL-11	US 50 WB	28+30	32+47			417							
250	LL-12	US 50 WB	27+00	32+50			550							
250	CL-6	US 50	27+00	32+50				550						
250	LL-13	US 50 EB	27+00	32+50			550							
250	ELW-11	US 50 EB	31+57	32+50	93									
250	ELW-12	WARSAW RAMP EB	85+25	85+77	52									
250	ELW-13	ELBERON RAMP EB	82+25	85+77	52									
250	CH-9	WARSAW/ELBERON	85+77	88+60					283					
250	ELW-14	ELBERON RAMP EB	85+25	90+80	555									
250	LL-14	US 50	88+60	90+80			220							
250	ELY-7	US 50	85+25	89+89		464								
250	ELW-15	US 50	89+89	90+80	91									
251	LL-15	US 50 WB	32+50	38+00			550							
251	LL-16	US 50 WB	32+50	38+00			550							
251	LL-17	US 50 EB	32+50	38+00			550							
251	LL-18	US 50 EB	32+50	38+00			550							
251	ELY-8	US 50 EB	33+00	38+00		500								
251	ELY-9	US 50 WB	33+00	38+00		500								
251	S-4	EVANS STREET	20+66							18	85			
251	CL-7	EVANS STREET	20+66	22+06				140						
251	CH-10	US 50 WB	35+73	38+00					227					
251	A-12	US 50 WB	36+03										1	
251	A-13	US 50 WB	37+13										1	
251	ELW-16	US 50 EB	32+50	36+95	445									
251	ELW-17	US 50 EB	32+50	38+00	550									
251	ELW-18	US 50 EB	32+50	36+95	445									
251	LL-19	US 50 EB	36+95	38+00	105									
251	CL-7A	US 50 WB	32+50	33+00				50						
252	CH-11	US 50 WB	38+00	38+31					31					
252	A-14	US 50 WB	38+21										1	
252	LL-20	US 50 WB	38+00	40+54			254							
252	LL-21	US 50 WB	38+00	40+54			254							
252	ELW-19	US 50 WB	38+56	40+54	198									
252	ELY-10	US 50 WB	38+00	40+54		254								
252	ELY-11	US 50 EB	38+00	40+54		254								
252	LL-22	US 50 EB	38+00	40+54			254							
252	LL-23	US 50 EB	38+00	40+54			254							
252	LL-24	US 50 EB	38+00	40+54			254							
252	ELW-20	US 50 EB	38+00	40+54	254									
SUB-TOTAL					4295	2837	6307	740	671	18	85	0	3	0
TOTALS CARRIED TO GENERAL SUMMARY					0.81 M	0.54 M	1.20 M	0.14 M	671	18	85	0	3	0

CALCULATED JTP
CHECKED NJG

PAVEMENT MARKING SUB-SUMMARY

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PAVEMENT MARKING SUB-SUMMARY

CALCULATED JTP
CHECKED NJG

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	EDGE LINE, WHITE FEET	EDGE LINE, YELLOW FEET	LANE LINE FEET	CENTER LINE FEET	CHANNELIZING LINE FEET	STOP LINE FEET	CROSSWALK LINE FEET	TRANSVERSE/ DIAGONAL LINE FEET	LANE ARROWS EACH	DOTTED LINE FOOT
253	ELW-22	ELBERON RAMP WB	90+00	95+75	575									
253	ELY-12	ELBERON RAMP WB	90+00	95+75		575								
253	CL-8	ELBERON AVENUE	43+87	49+09				522						
253	TL-4	ELBERON AVENUE	44+63	45+95								75		
253	CH-12	ELBERON RAMP EB	50+74	52+06					132					
253	CH-13	ELBERON AVENUE	44+63	45+95					132					
253	ELY-13	ELBERON RAMP EB	52+06	53+00		94								
253	ELW-21	ELBERON RAMP EB	50+00	53+00	300									
253	SL-5	MARYLAND AVENUE	46+71							22				
253	CL-9	MARYLAND AVENUE	45+50	46+71				121						
253	CL-10	NOT USED												
253	SL-6	ELBERON AVENUE	49+09							13				
253	SL-7	ELBERON AVENUE	49+02							22				
253	CW-3	ELBERON AVENUE	46+57	46+65							95			
253	CW-4	STATE STREET	46+47	46+57							260			
253	CW-5	ELBERON AVENUE	49+13	49+23							170			
253	CW-6	ELBERON AVENUE	49+05	49+12							115			
253	CL-11	STATE STREET	46+00	48+00				200						
253	CL-12	NOT USED												
253	LL-25	STATE STREET	47+50	48+00			50							
253	LL-26	STATE STREET	46+00	48+00			200							
253	LL-27	NOT USED												
253	ELY-14	STATE STREET	47+02	47+33		40								
253	ELW-23	STATE STREET	46+92	47+33	120									
253	ELY-15	STATE STREET	46+12	46+65		60								
253	ELW-24	STATE STREET	46+08	46+65	75									
254	CW-7	STATE STREET	43+74	44+25				51						
254	CL-15	STATE STREET	43+34	43+44							200			
254	CL-13	WARSAW	100+25	103+78				353						
254	CL-14	WARSAW	71+36	73+62				226						
254	TL-5	WARSAW	72+00	73+40								120		
254	ELW-25	WARSAW RAMP WB	100+25	104+16	391									
254	ELW-26	WARSAW RAMP WB	70+00	74+00	400									
254	ELY-16	WARSAW RAMP EB	103+78	104+16		38								
254	ELY-17	WARSAW RAMP EB	73+62	74+00		38								
255	CL-16	STATE STREET	44+25	46+00				175						
255	LL-28	STATE STREET	45+00	46+00			100							
255	ELY-18	WARSAW RAMP EB	74+00	79+50		550								
255	ELW-27	WARSAW RAMP EB	74+00	79+50	550									
255	ELW-28	WARSAW RAMP WB	104+16	108+45	429									
255	ELY-19	WARSAW RAMP WB	104+16	107+93		377								
255	ELW-29	ELBERON RAMP WB	95+75	99+00	325									
255	ELY-20	ELBERON RAMP WB	95+75	99+00		325								
255	TL-6	WARSAW/ELBERON	98+40	99+00								60		
255	ELW-30	WARSAW RAMP WB	107+93	108+45	52									
SUB-TOTAL					3217	2097	350	1648	264	57	840	255	0	0
TOTALS CARRIED TO GENERAL SUMMARY					0.61 M	0.40 M	0.07 M	0.31 M	264	57	840	255	0	0

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TRAFFIC SIGNAL GENERAL NOTES

614 MAINTENANCE OF TRAFFIC

1. IT IS THE INTENTION TO PERFORM THE REQUIRED WORK WITH THE LEAST INCONVENIENCE TO, AND MAXIMUM SAFETY OF, THE CONTRACTOR AND THE TRAVELING PUBLIC. ANY VARIANCES FROM THESE MAINTENANCE OF TRAFFIC NOTES MUST BE APPROVED IN ADVANCE IN WRITING BY THE ENGINEER. EXCEPT AS MODIFIED BELOW, THE REQUIREMENTS FOR MAINTAINING TRAFFIC AS INDICATED IN THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," CURRENT EDITION, LATEST REVISION, AND PERTINENT ITEMS OF SPECIFICATION AND PROPOSAL SHALL APPLY. THE "CITY OF CINCINNATI TRAFFIC SAFETY HANDBOOK" MAY BE REFERRED TO AS A SUPPLEMENT TO THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
2. IN ADDITION TO ITEM 614, "MAINTAINING TRAFFIC," AS SET FORTH IN THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE FOLLOWING NOTES SHALL ALSO APPLY TO THE WORK CARRIED OUT WITHIN THE LIMITS OF THIS PROJECT.
   A. THROUGHOUT THE PROJECT, THE CONTRACTOR WILL BE REQUIRED TO PROVIDE, ERECT, MAINTAIN, AND REMOVE ALL LIGHTS, SIGNS, BARRICADES, AND ANY OTHER TRAFFIC CONTROL DEVICES NECESSARY FOR THE MAINTENANCE OF TRAFFIC, INCLUDING ADVANCE WARNING AND REGULATORY SIGNS. (MAINTAINING THE TRAFFIC INVOLVES ENSURING THAT THE EQUIPMENT IS IN THE PROPER POSITION, IS CLEAN, LEGIBLE, AND IN OVERALL GOOD WORKING CONDITION). ALL SIGNS SHALL BE REFLECTORIZED OR ILLUMINATED. TYPE "B" FLASHING BARRICADE WARNING LIGHT SHALL BE INSTALLED WITH EVERY ADVANCE WARNING TRAFFIC CONTROL DEVICE.
   B. THE STANDARD DEVICE FOR CLOSING ANY LANES TO TRAFFIC SHALL BE 30 OR 55 GALLON DRUMS THAT ARE PROPERLY WEIGHTED AND REFLECTORIZED. TAPERS FOR LANE CLOSURES SHALL HAVE REFLECTORIZED DRUMS SPACED 50 FEET APART WITH CONSTRUCTION ARROWS (W1-H11/OLD ODOT CODE OW 138) MOUNTED ON THE FIRST, FIFTH, AND LAST DRUMS.
   C. AN ELECTRIC FLASHING ARROW BOARD OF A TYPE SHOWN ON STANDARD CONSTRUCTION DRAWING MT-35.10 SHALL BE INSTALLED IN EACH TAPER CLOSING A LANE TO TRAFFIC, CENTERED IN THE CLOSED LANE.
   D. TYPE "C" STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE INSTALLED EVERY 150 FEET IN THE TAPERS FOR NIGHTTIME LANE CLOSURES.
3. BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF A PERSON OR PERSONS WHO CAN BE CONTACTED 24 HOURS A DAY BY THE CITY OF CINCINNATI AND ALL INTERESTED POLICE AGENCIES. THIS PERSON OR PERSONS SHALL BE RESPONSIBLE FOR PLACING OR REPLACING NECESSARY TRAFFIC CONTROL DEVICES IN ORDER TO ENSURE SAFETY ON THE TRAVELED PAVEMENT.

   A DRAWING FOR EACH LOCATION OF WORK, INDICATING ALL TRAFFIC CONTROL DEVICES TO BE USED, SHALL BE SUBMITTED TO THE CITY TRAFFIC ENGINEER FOR APPROVAL AT LEAST TEN DAYS PRIOR TO START OF WORK. IN ADDITION, A CONSTRUCTION SCHEDULE SHALL BE SUBMITTED FOR EACH LOCATION.
4. THE CONTRACTOR WILL BE REQUIRED TO GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE ENGINEER PRIOR TO THE CLOSURE OF ANY LANE.

   NO EXCAVATION SHALL BE ALLOWED UNATTENDED WITHOUT ADEQUATE COVERINGS. IN ADDITION, ORANGE FLASHERS SHALL BE PROVIDED FOR OVERNIGHT PROTECTION.
5. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT, UNLESS OTHERWISE APPROVED BY THE ENGINEER. VEHICLES AND EQUIPMENT SHALL MOVE WITH (NOT ACROSS OR AGAINST) THE FLOW OF TRAFFIC. VEHICLES AND EQUIPMENT SHALL NOT PARK OR STOP EXCEPT WITHIN DESIGNATED AREAS, AND SHALL ENTER AND LEAVE WORK AREAS IN A MANNER WHICH WILL NOT BE HAZARDOUS TO, OR INTERFERE WITH, THE NORMAL FLOW OF TRAFFIC. PERSONAL VEHICLES WILL NOT BE PERMITTED TO PARK WITHIN THE RIGHT-OF-WAY, EXCEPT IN SPECIFIC AREAS DESIGNATED BY THE ENGINEER.
6. PEDESTRIAN PROTECTION AND PEDESTRIAN ACCESS MUST BE MAINTAINED AT ALL TIMES. PEDESTRIAN SAFETY IS OF UTMOST IMPORTANCE THROUGHOUT THE LIFE OF THE CONTRACT. PEDESTRIANS MUST BE DIRECTED TO THE SAFEST CROSSING POINT AT ALL TIMES, AND THEIR SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. TO ASSURE MAINTENANCE OF ADEQUATE TRAFFIC CONTROL AT ALL TIMES, NO SIGNS ARE TO BE INSTALLED OR REMOVED WITHOUT THE APPROVAL OF THE CITY TRAFFIC ENGINEER, OR HIS DESIGNEE.
8. IF TEMPORARY SIGNS WHICH RESTRICT PARKING ARE INSTALLED, THE LOCAL POLICE DISTRICT MUST BE NOTIFIED AT LEAST 24 HOURS PRIOR TO INSTALLATION.
9. POLICE AND FIRE ACCESS MUST BE MAINTAINED AT ALL TIMES.
10. ACCESS TO ABUTTING PROPERTIES MUST BE MAINTAINED AT ALL TIMES.

    SHOULD YOU HAVE ANY FURTHER QUESTIONS ON MAINTENANCE OF TRAFFIC, PLEASE CONTACT MR. MARK MAHONEY AT 352-6229.

THE FOLLOWING RESTRICTIONS ON LOCAL STREETS SHALL APPLY TO THE CONSTRUCTION INVOLVED WITH THIS PROJECT:

A. BETWEEN THE HOURS OF 7-9:00 A.M. AND 4-6:00 P.M., MONDAY THROUGH FRIDAY, AND DURING ALL NON-WORKING HOURS, THE ENTIRE INTERSECTION SHALL BE OPEN AND AVAILABLE FOR THE MOVEMENT OF TRAFFIC. IN ADDITION, THE TRAFFIC SIGNAL SHALL BE IN NORMAL OPERATION.

   DURING ALL OTHER HOURS, ONE TWELVE FOOT LANE IN EACH DIRECTION SHALL BE OPEN AND AVAILABLE FOR THE MOVEMENT OF TRAFFIC.

   ON ONE-WAY STREETS, TWO TEN-FOOT LANES IN THE DIRECTION OF TRAFFIC SHALL BE OPEN AND AVAILABLE FOR THE MOVEMENT OF TRAFFIC.

B. IF TRAFFIC SIGNALS AT THE INTERSECTION ARE TO BE OUT OF SERVICE, OFF-DUTY CITY OF CINCINNATI POLICE OFFICERS MUST BE FURNISHED BY THE CONTRACTOR UNTIL THE SIGNALS ARE PLACED BACK IN SERVICE.

1302 REFERENCES AND SPECIFICATIONS

2010 CONSTRUCTION AND MATERIALS SPECIFICATIONS BY THE OHIO DEPARTMENT OF TRANSPORTATION AND THE SUPPLEMENT BY THE CITY OF CINCINNATI SPECIFICATIONS AND STANDARDS AS LISTED UNDER SECTION 1300. SEE 1202 FOR A COMPLETE LIST OF REFERENCES.

1303 EQUIPMENT QUALITY

ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND OF FIRST QUALITY AS PER SPECIFICATION 1303.

1304 UTILITIES PERMITS AND REGULATIONS

THE CONTRACT DRAWINGS SHOW ALL UTILITIES, WATER, GAS, AND SEWER LINES KNOWN TO EXIST. HOWEVER, THIS DOES NOT GUARANTEE THAT ALL EXISTING LINES AND APPURTENANCES HAVE BEEN SHOWN ON THE CONTRACT DRAWINGS, AND THE CITY ASSUMES NO RESPONSIBILITY FOR THE ACCURACY THEREOF AND DOES NOT FREE THE CONTRACTOR FROM NECESSARY PRECAUTIONS FOR THE PROTECTION OF ANY UTILITY ENCOUNTERED ON THE PROJECT OR THE RESTORATION OF ANY UTILITY DAMAGED DURING THE WORK. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS, AND COMPLY WITH ALL LOCAL AND NATIONAL SAFETY CODES.

THE CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS BEFORE BREAKING GROUND, ALL PUBLIC AND/OR PRIVATE SERVICE CORPORATIONS HAVING WIRE, POLES, PIPES, CONDUIT, MANHOLES OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION, INCLUDING ALL STRUCTURES WHICH ARE AFFECTED AND NOT SHOWN ON THESE PLANS. OWNERS OF UNDERGROUND UTILITIES WHICH ARE MEMBERS OF THE OHIO UTILITIES PROTECTION SERVICE CAN BE NOTIFIED BY CALLING 800-362-2784 (TOLL FREE). NON-MEMBER UNDERGROUND UTILITY OWNERS MUST BE CALLED DIRECTLY.

SUPPORTING AND/OR PROTECTING EXISTING WATER LINES, GAS MAINS, TELEPHONE CONDUIT, STORM SEWERS, ETC. SHALL BE INCLUDED IN PAYMENT FOR THE VARIOUS CONTRACT ITEMS OF WORK.

ALL WORK REQUIRED FOR THE MAINTENANCE OF SERVICE OF EXISTING UTILITIES SHALL BE DONE BY, AND AT THE EXPENSE OF, THE CONTRACTOR.

ALL MAINTENANCE, REPAIR AND/OR REPLACEMENT OF EXISTING UTILITIES SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE VARIOUS UTILITY COMPANIES HAVING JURISDICTION.

ALL EXISTING STORM SEWERS, DRIVEWAY DRAINS, AND OTHER SURFACE DRAIN PIPES, WHETHER SHOWN ON THE CONTRACT DRAWINGS OR NOT, REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AND RECONNECTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER AT NO COST TO THE CITY. REPLACED DRAIN PIPES SHALL BE LAID ON COMPACTED BEDDING EQUAL IN DENSITY TO SURROUNDING STRATUM. ALL UTILITIES OTHER THAN WATER AND SEWER LINES ARE TO BE RELOCATED, AS DIRECTED BY THE ENGINEER, AT NO COST TO THE CITY.

IT IS ASSUMED THAT THERE ARE WATER AND GAS BRANCH LINES, ETC., SERVING EACH RESIDENCE. THE CONTRACTOR SHALL REPAIR AND REPLACE THESE UTILITIES, IF DAMAGED, AT NO COST TO THE CITY.

1305 COORDINATION

THE CONTRACTOR SHALL NOT REMOVE ANY OPERATING EQUIPMENT FROM SERVICE WITHOUT SEVEN (7) DAYS PRIOR NOTIFICATION TO THE ENGINEER. THE CONTRACTOR SHALL HAVE HIS SUPERVISOR OF CONSTRUCTION CONSULT WITH THE ENGINEER BEFORE AND DURING CONSTRUCTION TO RESOLVE ANY PROBLEMS THAT MAY ARISE.

THE CONTRACTOR SHALL COORDINATE EACH DAY'S ACTIVITIES WITH THE ENGINEER, OR TRAFFIC SERVICES BUREAU INSPECTOR.

THE CONTRACTOR SHALL HAVE A RESPONSIBLE SUPERVISOR ON THE JOB SITE DURING ALL HOURS THAT WORK IS BEING PERFORMED.

1306 CONTRACTOR FURNISHED EQUIPMENT

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE CITY TRAFFIC ENGINEER FOR REVIEW AND APPROVAL SEVEN (7) SETS OF DRAWINGS, CATALOG CUTS, SPECIFICATIONS, DATA SHEETS, WIRING DIAGRAMS, ETC., FOR ALL APPARATUS AND EQUIPMENT THAT THE CONTRACTOR PROPOSES TO FURNISH. NO EQUIPMENT MAY BE PURCHASED OR INSTALLED WITHOUT WRITTEN APPROVAL.

1309 INSTALLATION PRACTICES

MINOR REPOSITIONING OF SIGNS OR SIGNALS MAY BE NECESSARY AND THE CONTRACTOR SHALL MAKE THE ADJUSTMENTS AS DIRECTED BY THE ENGINEER. WORK SHALL BE INCIDENTAL TO THE COST OF THE ITEM BEING REPOSITIONED.

1311 INSPECTION

IN ADDITION TO THE PROVISIONS OF ITEM 105.10, THE CONTRACTOR SHALL OBSERVE THE FOLLOWING:

1. ALL CONDUIT IN TRENCH SHALL BE APPROVED BEFORE BACKFILL AND/OR CONCRETE ENCASEMENT IS COMPLETED.
2. ALL FOUNDATIONS FOR ANCHOR BASE POLES, COMPLETE WITH ANCHOR BOLTS AND REBAR CAGES INTACT, SHALL BE APPROVED PRIOR TO CONCRETE POUR.

1312 ELECTRIC POWER SERVICE

COORDINATE WITH DUKE ENERGY FOR POWER SERVICE. CONTACT JEFF VENTRE, TRAFFIC SERVICES, AT 352-3712 TO ARRANGE FOR SERVICE CONNECTION WITH DUKE ENERGY. CONTRACTOR SHALL NOT MAKE CONNECTIONS TO DUKE ENERGY LINES AT ANY TIME.

ELECTRIC SERVICE REQUIREMENTS:

FOR TRAFFIC SIGNALS, 120 VOLTS 2-WIRE.
FOR STREET LIGHTING, 120/240 3-WIRE.

THE CONTRACTOR SHALL PROVIDE ALL SERVICE EQUIPMENT NECESSARY TO CONNECT THE TRAFFIC SIGNALS AND STREET LIGHTING TO THE POWER SOURCE AS PER CONTRACT PLANS, DETAILS AND STANDARD DRAWING ES-2-2.

1313 TESTING

TESTING SHALL MEET THE REQUIREMENTS OF ODOT 625.19. PRIOR TO ACCEPTANCE THE CONTRACTOR SHALL CONDUCT A TEN (10) DAY BURN TEST OF THE COMPLETED AND OPERATIONAL STREET LIGHTING SYSTEM. THE LIGHTING SYSTEM SHALL OPERATE FOR TEN CONSECUTIVE DAYS WITHOUT INTERRUPTION AND BE FREE OF ANY MALFUNCTIONS.

THE CONTRACTOR SHALL OPERATE ALL NEW TRAFFIC SIGNALS FOR FIVE (5) CONTINUOUS DAYS IN FLASHING OPERATION, UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. REBUILT OR REPLACED TRAFFIC SIGNALS ARE TO BE OPERATED IN COLOR MODE DIRECTLY. PRIOR TO ACCEPTANCE OF ANY NEW, REBUILT OR REPLACED TRAFFIC SIGNAL, THE TRAFFIC SIGNAL SHALL HAVE A FINAL TEST CONSISTING OF 30 MINUTES OF COLOR OPERATION WITHOUT FAILURE OR MALFUNCTIONS.

ALL GROUND RODS SHALL BE TESTED BY THE CONTRACTOR AND HAVE A RESISTANCE TO GROUND OF 25 OHMS OR LESS. .

COST SHALL BE INCIDENTAL TO THE ITEM TESTED.

CTCS TYPE INTERCONNECT CABLE SHALL BE TESTED BY THE CONTRACTOR TO VERIFY THE CAPABILITY OF VOICE TRANSMISSION AND THE ABSENCE OF EXCESSIVE INDUCED NOISE. MEASUREMENTS SHALL BE PERFORMED BY THE CONTRACTOR ON ALL DATA CIRCUITS TO INSURE THAT THE TRANSMISSION BANDWIDTH IS REASONABLE FOR DATA TRANSMISSION AT 1200 BAUD USING FREQUENCY SHIFT KEYED MODULATION OF 1200 AND 2200 HERTZ. THE TESTS SHALL ALSO VERIFY THAT THERE ARE NO SHORTS OR OPEN CIRCUITS TO ANY TERMINATION POINT, AND THAT EACH PAIR IS CAPACITIVELY BALANCED TO GROUND. ANY DISCREPANCIES OR TEST FAILURES SHALL BE CORRECTED BY THE CONTRACTOR.

1314 MAINTENANCE OF EXISTING TRAFFIC SIGNAL

THE CONTRACTOR SHALL MAINTAIN AND KEEP OPERATIONAL THE EXISTING TRAFFIC SIGNAL UNTIL ALL OTHER NEW EQUIPMENT HAS BEEN INSTALLED AND IS FUNCTIONAL. WORK WILL INCLUDE ANY MODIFICATIONS TO EXISTING OR TEMPORARY TRAFFIC SIGNAL INSTALLATIONS AS REQUIRED BY CHANGES IN CONSTRUCTION OR OPERATIONAL CONDITIONS IN THE PROJECT AREA THROUGHOUT THE ENTIRE CONTRACT PERIOD. THIS WILL INCLUDE RELOCATIONS, REMOVALS, COVERING OR UNCOVERING OF TRAFFIC/PEDESTRIAN SIGNALS AND ILLUMINATED/REFLECTORIZED SIGNS AND OTHER TRAFFIC SIGNAL EQUIPMENT, AND THE INSTALLATION OF TEMPORARY POLES OR TEMPORARY POLE GUYS TO SATISFY SAFETY AND OPERATIONAL CONDITIONS THROUGHOUT THE PROJECT. THIS WORK WILL BE PERFORMED AS DIRECTED BY THE ENGINEER.

WHERE PROPOSED NEW EQUIPMENT BLOCKS OR OBSCURES THE LINE OF SIGHT OF EXISTING EQUIPMENT, OR WHERE NEW EQUIPMENT IS PROPOSED IN THE SAME LOCATION AS EXISTING EQUIPMENT, THE CONTRACTOR SHALL TEMPORARILY ADJUST EXISTING OR NEW SIGNALS AND SIGNS. NEW TRAFFIC SIGNALS AND SIGNS WHICH WERE TEMPORARILY ADJUSTED, SHALL BE REPOSITIONED IN THE PROPOSED LOCATIONS AS INDICATED IN THE PLANS AFTER EXISTING EQUIPMENT IS REMOVED.

ALL ADJUSTMENTS SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER.

SCHEDULE CONSTRUCTION TROUGHOUT THE PROJECT TO MAINTAIN THE INTERCONNECT SYSTEM DURING THE CONTRACT PERIOD. USE EXISTING, TEMPORARY CABLE OR NEWLY INSTALLED INTERCONNECT CABLE TO MAINTAIN THE INTERCONNECT SYSTEM.

AT INSTALLATIONS WHERE INTERCONNECT CABLE DOES NOT EXIST, INSTALL THE SPECIFIED NEW INTERCONNECT CABLE SYSTEM PRIOR TO COMPLETING AND OPERATING THE NEW OR RECONSTRUCTED TRAFFIC SIGNAL SYSTEMS OR PROVIDE AN EQUIVALENT MEANS, SUBJECT TO THE ENGINEERS APPROVAL, OF MAINTAINING SIGNAL COORDINATION AT ALL TIMES.

1314 MAINTENANCE OF EXISTING STREET LIGHTING CIRCUIT

KEEP THE EXISTING STREET LIGHTING SYSTEM IN OPERATION UNTIL TESTING AND CITY ACCEPTANCE OF THE NEW CIRCUIT(S).

THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY STREET LIGHTING EQUIPMENT WHILE IN THE CONTRACTORS POSESSION, OR WHERE EXISTING COMPONENTS ARE DAMAGED DUE TO THE CONTRACTORS OPERATIONS.

THIS ITEM SHALL BE PAID ON A LUMP SUM BASIS.

1316 REMOVAL OF EXISTING TRAFFIC SIGNAL, BY LOCATION

THE CONTRACTOR SHALL REMOVE ALL OLD EQUIPMENT AND MAKE THE NECESSARY RESTORATIONS. STORE OLD EQUIPMENT AT PROJECT SITE FOR PICK UP BY THE CITY OF CINCINNATI EXCEPT CUT OFF STEEL EMBEDDED BASE POLES, OLD SIGNAL CABLE, AND OLD SPAN WIRE. THE CONTRACTOR SHALL CONTACT THE TRAFFIC SERVICES BUREAU SUPERVISOR AT 591-6097 TO ARRANGE PICK UP OF THE OLD EQUIPMENT UNDAMAGED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE UNWANTED EQUIPMENT.

CALCULATED ACW CHECKED SLT

TRAFFIC SIGNAL GENERAL NOTES
US50 AND STATE AVE. (SR264)

HAM-50-18.79

268
657

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TRAFFIC SIGNAL GENERAL NOTES

CALCULATED ACW
CHECKED SLT

1316 REMOVAL OF EXISTING STREET LIGHTING EQUIPMENT

THIS ITEM SHALL BE PAID ON A LUMP SUM BASIS FOR EACH CIRCUIT DEEMED REUSABLE BY THE CITY. SALVAGE ALL REUSABLE EQUIPMENT. CALL THE TRAFFIC SERVICES BUREAU AT 513-591-6097 TO MAKE ARRANGEMENTS FOR PICK UP BY THE CITY.

1317 PAINTING

WHEREVER REFERENCES IN THE CITY SPECIFICATIONS ARE MADE CONCERNING "RED LEAD", THE CONTRACTOR SHALL SUBSTITUTE THE MORE ENVIRONMENTALLY ACCEPTED SOYA-ALKYD PRIMER. REFER TO ITEM 1317. COST SHALL BE INCIDENTAL TO ITEMS SPOT PRIMED.

1318 STEEL POLES AND PEDESTALS

ALL STEEL POLES SHALL MEET ALL SPECIFICATIONS IN ITEM 1318 AND STANDARD DRAWING ES-10-1. ALL GALVANIZED EXTERIOR POLE SURFACES SHALL HAVE AN ELECTROSTATICALLY APPLIED POWDER COATING AND ONE COAT OF A ZINC DUST PRIMER (GRAY). POLE AND PEDESTAL COLOR TO BE BLACK, 30% SHEEN, TEXTURED FINISH. THE FINISH SHALL BE PROTECTED DURING TRANSPORTATION BY A SUITABLE PLASTIC OR RUBBER WRAPPING.

ALL POLES, AND ANY MATERIALS ATTACHED TO THEM, SHALL BE LOCATED A MINIMUM OF 2 FEET FROM THE FACE OF THE CURB TO THE FACE OF THE POLE. THIS MAY REQUIRE ATTACHMENT HARDWARE IN EXCESS OF ONE FOOT FOR THE ATTACHMENT OF PEDESTRIAN SIGNALS TO POLES.

WHERE STREET LIGHTING BRACKET ARMS ARE SPECIFIED, POLE PLATES AND 1 1/2" HALF COUPLING SHALL BE WELDED TO THE POLE AS SHOWN IN ES-10-1 AND ES-10-3. BRACKET ARMS SHALL BE SIZE AND TYPE AS PER PLAN. CONTRACTOR TO INSTALL DEAD END CLEVIS TO SERVE STREET LIGHT.

CONTRACTOR SHOULD NOTE THAT NEW 4 INCH PEDESTRIAN SIGNAL PEDESTALS TO BE INSTALLED ARE NOW 10 FEET LONG AND DESIGNATED CITY DESIGN NO. 1045. FOUNDATION FDN-25 REMAINS THE SAME.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE POLES WHILE IN HIS POSSESSION. MINOR DEFECTS OR SCRATCHES ARE TO BE REPAIRED AS DIRECTED BY THE ENGINEER. IF ANY MAJOR DAMAGE OR SCRATCHES OCCUR, THE CITY SHALL REPLACE THE POLE WITH A DUPLICATE, AND THE CONTRACTOR SHALL REIMBURSE THE CITY THE COST OF THE DAMAGED POLE, OR THE COST SHALL BE DEDUCTED FROM THE PAYMENT TO THE CONTRACTOR.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM AS SPECIFIED, AND SHALL BE FULL COMPENSATION FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY FOR EACH ITEM INSTALLED, COMPLETE IN PLACE AND ACCEPTED. (THE WELDING OF NIPPLES FOR CABLE ENTRANCE AND WEATHERHEADS SHALL BE INCIDENTAL TO THE INSTALLATION BY THE CONTRACTOR).

1319 FOUNDATIONS

ALL CONCRETE FOUNDATIONS SHALL BE CONSTRUCTED AS PER SPECIFICATION 1319 AND PER STANDARD DRAWING ES-1-1. ALL FOUNDATIONS SHALL INCLUDE ALL REINFORCING RODS, ANCHOR BOLTS AND CONDUIT ELLS.

FOUNDATIONS SHALL BE CURED FOR A MINIMUM OF SEVEN (7) DAYS BEFORE ERECTION OF POLES, POSTS AND CABINETS.

FOUNDATIONS SHALL BE CURED FOR A MINIMUM OF FOURTEEN (14) DAYS BEFORE LOADING IS APPLIED. SEE ODOT ITEM 632.14.

CURING TIMES CAN BE ACCELERATED USING FAST SET CONCRETE WITH THE SUBMITTAL OF PROPER MATERIAL DOCUMENTATION AND PRIOR APPROVAL FROM THE ENGINEER.

WHERE EXCAVATION CAUSES CAVING DUE TO SOIL CONDITIONS, THE USE OF CORRUGATED PIPE IS AUTHORIZED, AS DIRECTED BY THE ENGINEER. THE EXCAVATION IS TO BE BACKFILLED WITH CONTROL DENSITY FILL AFTER THE FOUNDATION HAS BEEN POURED. THE USE OF SONO-TUBE OR SIMILAR TUBING MATERIAL IS NOT PERMITTED.

THE COST OF THE PIPE, BACKFILL AND LABOR TO INSTALL IT SHALL BE INCIDENTAL TO THE COST OF THE FOUNDATION.

1320 GROUND RODS

A 1" x 10' COPPER CLAD STEEL GROUND ROD SHALL BE DRIVEN INTO THE BOTTOM OF PULLBOXES WHICH ARE ADJACENT TO POLE FOUNDATIONS SO THAT ONE (1) FOOT OF THE ROD IS EXPOSED IN THE PULLBOX. WHERE PULLBOXES ARE NOT ADJACENT TO POLES OR POSTS, DRIVE GROUND RODS ADJACENT TO THE POLE FOUNDATIONS AS PER STANDARD DRAWING ES-1-1. PAYMENTS FOR THE GROUND RODS SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM INSTALLED COMPLETE WITH #4 AWG GROUND WIRE, EXOTHERMIC WELD, TESTED AND ACCEPTED. IF MORE THAN ONE GROUND ROD IS REQUIRED AT A LOCATION TO OBTAIN THE REQUIRED GROUND RESISTANCE, THE ADDITIONAL GROUND RODS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH AND SHALL INCLUDE ALL WIRE, CONNECTIONS AND OTHER MATERIALS AND LABOR TO INSTALL THE COMPLETE TESTED SYSTEM. TESTS SHALL COMPLY WITH ODOT SPEC. "625.19-TESTING OF INSTALLATIONS".

1321 TRENCH, IN SOD AREA, BLACKTOP PATHS & SIDEWALK

ALL TRENCH FOR INSTALLATION OF CONDUIT IN SOD AREAS, UNDER WALKWAYS, OR SIDEWALKS SHALL BE 24" DEEP. TRENCH IN THE SOD AREAS SHALL INCLUDE BACKFILL AND RESTORATION IN ACCORDANCE WITH ITEM 625.13. THE BACKFILL UNDER SIDEWALKS OR WALKWAYS SHALL BE COMPACTED AS PER ITEM 603.10, AND AGGREGATE BASE SHALL BE RESTORED WITH ITEM 404 OR 608.

1321 TRENCH, IN PAVED AREA

TRENCH UNDER ROADWAYS OR DRIVEWAYS SHALL BE 30" DEEP, AND SHALL INCLUDE PREMARKING THE AREA TO BE TRENCHED, SAW CUTTING, REMOVING THE MATERIAL, BACKFILLING, COMPACTING AND RESTORING THE SURFACE IN ACCORDANCE WITH ITEM 603.11 AND AS DIRECTED BY THE ENGINEER.

1321 CONDUIT

ELECTRICAL CONDUIT UNDER SIDEWALKS OR SOD AREAS SHALL BE POLYVINYL CHLORIDE (PVC) SCHEDULE 40 WITH CONCRETE ENCASEMENT. SIZE AS SPECIFIED IN PLANS.

CONDUIT UNDER STREETS SHALL BE 3-INCH GALVANIZED RIGID METAL CONDUIT (RMC) MEETING THE REQUIREMENTS OF ITEM 725.04.

CONDUIT IN SOD AREAS AND UNDER WALKWAYS OR SIDEWALKS SHALL HAVE A MINIMUM COVER OF 18". GALVANIZED STEEL CONDUIT UNDER ROADWAY SHALL HAVE A MINIMUM COVER OF 24". GROUND BUSHINGS SHALL BE PROVIDED TO GROUND RIGID METALLIC CONDUIT TO THE GROUND ROD IN THE PULLBOX.

1321 WEATHERHEAD AND RISER

THE CONTRACTOR SHALL PROVIDE WEATHERHEADS, CONDUIT RISERS, AND ANY OTHER SIGNAL EQUIPMENT ON WOOD UTILITY POLES AS NECESSARY TO SERVE THE TRAFFIC SIGNAL EQUIPMENT AND THE ELECTRIC SERVICE. ALUMINUM CONDUIT FOR RISERS SHALL BE RIGID ALUMINUM CONDUIT PER ANSI C80.5, AND SHALL BE USED IN THE LOWER SECTION OF RISERS, IN LIEU OF STEEL (RMC). REFER TO STANDARD DRAWING ES-3-2 FOR MORE INFORMATION.

1322 ELECTRICAL BOXES

PULLBOXES MAY BE CAST-IN-PLACE OR PRECAST. PRECAST PULLBOXES SHALL HAVE REINFORCING INCLUDED. REFER TO THE STANDARD DRAWING ES-2-1. ALL PULLBOXES IN SIDEWALK OR STREET AREAS SHALL HAVE THE FRAME AND LID CAST INTEGRAL WITH FINAL SIDEWALK OR PAVING. PRECAST PULLBOXES WITH INTEGRAL FRAMES AND LIDS SHALL NOT BE PERMITTED IN THESE AREAS.

1322 RE-USE EXISTING PULLBOX

THE WORK OF THIS ITEM SHALL INCLUDE CLEARING THE PULLBOX OF DEBRIS, CUTTING INTO THE SIDES OF THE PULLBOX FOR NEW CONDUIT ENTRIES AND CEMENT PATCHING AND REPAIRING THE BOX TO SATISFACTORY CONDITION APPROVED BY THE ENGINEER.

PAYMENT FOR 1322 "RE-USE EXISTING PULLBOX" WILL BE MADE AT THE CONTRACT UNIT PRICE BID AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL, TOOLS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK.

1322 INSTALLATION OF PULLBOXES OVER EXISTING CONDUITS

THIS WORK SHALL INCLUDE EXCAVATING FOR THE INSTALLATION OF THE NEW PULLBOX, REMOVING PORTIONS OF EXISTING CONDUIT, MAINTAINING AND PROTECTING EXISTING TRAFFIC AND LIGHTING CABLES OR TEMPORARY REMOVAL AND REINSTALLATION OF THESE CABLES, AS APPROVED BY THE ENGINEER.

THIS WORK SHALL ALSO INCLUDE BACKFILLING PER ITEM 603.10 AND DISPOSAL OF REMOVED CONDUIT SECTIONS AND OTHER UNUSABLE EXCAVATED MATERIAL. TYPE A OR B PULLBOXES AS INDICATED MEETING SPEC. 1322.01 (CAST-IN-PLACE OR PRECAST AS APPROVED) SHALL BE INCLUDED IN THIS BID ITEM.

PAYMENT FOR 1322 "INSTALLATION OF PULLBOXES OVER EXISTING CONDUITS" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PULLBOX SPECIFIED AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL, TOOLS, EQUIPMENT, AND INCIDENTALS TO COMPLETE THIS ITEM OF WORK.

ITEM 632 SIGNALIZATION, MISC:, SECTIONALIZER STANDARD

SECTIONALIZERS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH 1322.04

1323 MESSENGER CABLE, BY SIZE, WITH ACCESSORIES

MESSENGER CABLE SHALL MEET THE REQUIREMENTS OF ITEM 1323.02 AND SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.

1323 CABLES, CONNECTORS AND ACCESSORIES

TRAFFIC SIGNAL CABLE SHALL BE STRANDED COPPER CONDUCTOR AND MEET THE REQUIREMENTS OF IMSA SPECIFICATION 19-1 OR 20-1. ANY OTHER CABLE AND WIRE SHALL BE THE TYPE AND SIZE SPECIFIED IN ACCORDANCE WITH THE PLANS AND STANDARD DRAWINGS. ALL ACCESSORIES, SPLICES AND HARDWARE WILL BE INCLUDED WITH THE CABLE AND WIRE. THE CITY SHALL APPROVE ALL CONNECTIONS AND SPLICES.

CONNECTION TO THE ENERGIZED TRAFFIC SIGNAL INTERCONNECT CABLE, OR DISCONNECTION, SHALL BE MADE BY THE CITY OF CINCINNATI FORCES. THE CONTRACTOR SHALL CONTACT THE TRAFFIC SERVICES BUREAU FIVE (5) DAYS IN ADVANCE AT 591-6097 TO ARRANGE THIS WORK.

CITY FORCES SHALL MAKE ALL SECTIONALIZER CONNECTIONS AND DISCONNECTIONS TO NEW OR EXISTING ENERGIZED INTERCONNECT CABLE. THE CONTRACTOR SHALL DO ALL OTHER WORK INVOLVED IN COMPLETING THE INSTALLATION OF THE CABLE SYSTEM.

ALL THIS WORK SHALL BE INCIDENTAL TO THE COST OF ITEM 1323 "INTERCONNECT CABLE".

CTCS CABLE (TRAFFIC CONTROL COMMUNICATION SYSTEM CABLE) WILL BE INSTALLED BY THE CONTRACTOR. PREVIOUS NOTES RELATING TO CONNECTIONS BY CITY FORCES ALSO APPLY TO THIS CABLE.

CABLE TAGS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR PER PLANS AND DETAILS CONTAINED HEREIN. PAYMENT FOR CABLE TAGS AND THEIR INSTALLATION IS INCIDENTAL TO THE ITEM "CABLE SUPPLIED AND INSTALLED".

ALL POWER, FEEDER AND POLE AND BRACKET CABLE SHALL BE RHH/RHW/USE INSULATION AND RATED FOR 600 VOLTS. STRANDED COPPER WIRE SHALL MEET THE REQUIREMENTS OF ITEM 1323.01. ALL FEEDER AND POLE BRACKET CABLE SHALL BE COLOR CODED RED, BLACK AND GREEN PER CITY SPEC #ES-7-3. CONDUCTOR OUTER JACKET COLOR SHALL BE AS INDICATED ON PLANS SHEETS AND BE PROVIDED BY COLOR IMPREGNATING THE CONDUCTORS' OUTER JACKET ALONG ITS ENTIRE LENGTH DURING THE MANUFACTURING PROCESS.
CONNECTOR KITS AND SPLICE KITS SHALL MEET THE REQUIREMENTS OF ODOT SPEC. ITEM 725.13.

CONNECTION OF ELECTRIC SERVICES TO THE DUKE ENERGY SECONDARY (120/240 VOLT) SYSTEM SHALL BE MADE BY DUKE ENERGY CREWS ONLY.

1324 SAFETY SWITCHES (BY AMPERE SIZE)

TRAFFIC CONTROL DISCONNECT DEVICES (SAFETY SWITCHES) SHALL MEET THE REQUIREMENTS OF ITEM 1324.03. FUSING SHALL BE FURNISHED AND SHALL BE UL CLASS RK-1 RATED FOR 120 VOLTS.

1324 STREET LIGHTING CONTROLLER

SHALL MEET THE REQUIREMENTS OF ITEM 1324.03 FOR STREET LIGHTING RATED FOR 240 VOLTS.
CONTROLLER. FUSING SHALL BE FURNISHED AND SHALL BE UL CLASS RK-1

1324 PHOTO-ELECTRIC CELL

MOUNTED ON TOP OF DESIGNATED POLE, 25 FEET OR MORE ABOVE ANY ARTIFICIAL LIGHT OR STREET LIGHTING. ORIENT UNIT WITH SENSING ELEMENT FACING NORTH.

1324 CONTROLLER WORK PAD

CONTROLLER WORK PAD SHALL BE INSTALLED PER STANDARD CONSTRUCTION DRAWING ES-3-1. THE WORK PAD SHALL BE 54 INCHES LONG AND 36 INCHES WIDE. THE WORK PAD SHALL BE 5 INCHES DEEP.

1327 TRAFFIC SIGNALS

ALL TRAFFIC SIGNAL INDICATIONS SHALL BE OF THE LED TYPE AND ALL TRAFFIC SIGNAL HEADS SHALL BE OF POLYCARBONATE CONSTRUCTION AND BE PROVIDED WITH A 3/8" DRAIN HOLE IN THE BOTTOM AND TUNNEL VISOR. ALL TRAFFIC SIGNALS SHALL BE CONNECTED TO THE DROP PIPE WITH LOCK NUTS ON THE TOP, AND UNDERNEATH THE TOP SECTION. THE TRAFFIC SIGNAL LAMP AND ALL MOUNTING HARDWARE IS INCLUDED IN THE PRICE OF THE TRAFFIC SIGNAL UNIT, INCLUDING THE ATTACHMENT OF REFLECTORIZED SIGNS TO SIGNALS. SEE STANDARD DRAWINGS ES-3-2, ES-3-4 AND ES-3-5 FOR MORE INFORMATION.

WHERE LOUVERS ARE SPECIFIED FOR TRAFFIC SIGNALS, THE CIRCULAR GREEN AND ARROW LENSES SHALL BE FURNISHED WITH LOUVERS IN LIEU OF STANDARD VISORS. THE LOUVERS SHALL BE POLYCARBONATE (ALUMINUM MAY BE FURNISHED ONLY IF POLYCARBONATE UNITS ARE NOT AVAILABLE). FLAT BLACK IN COLOR, 5 VANE, AND 12" LONG. THE COST OF THE LOUVERS SHALL BE INCIDENTAL TO THE TRAFFIC SIGNAL HEADS FURNISHED AND INSTALLED.

1327 PEDESTRIAN SIGNALS

PEDESTRIAN SIGNALS SHALL BE OF ALUMINUM CONSTRUCTION WITH A BLACK FINISH AND SHALL BE THE TYPE D2 (16 INCH, 1 SECTION, LED) & SHALL HAVE THE SYMBOL TYPE LEGENDS SIDE BY SIDE - THE PORTLAND ORANGE HAND (DON'T WALK INDICATION) SHALL OCCUPY THE LEFT ONE HALF OF THE SIGNAL AND LUNAR WHITE WALKING MAN (WALK INDICATION) SHALL OCCUPY THE RIGHT ONE HALF OF THE SIGNAL. SIGNALS SHALL BE PROVIDED WITH A 3/8" DRAIN HOLE IN THE BOTTOM. SIGNALS SHALL BE PROVIDED WITH 1 INCH DEEP EGGCRATE TYPE VISORS. ALL MOUNTING HARDWARE (CLAMSHELL TYPE FOR STEEL POLES, PIPE MOUNT FOR WOOD POLES) SHALL BE INCLUDED IN THE PRICE OF THE SIGNAL. SEE STANDARD DRAWINGS ES-3-2 AND ES-3-6 FOR MORE INFORMATION.

1328 PEDESTRIAN PUSHBUTTONS WITH ASSOCIATED SIGNS

THE CONTRACTOR SHALL FURNISH AND INSTALL PUSHBUTTONS AND SIGNS PER ITEM 1328. FOR LOCATIONS WHERE PUSHBUTTONS ARE TO BE MOUNTED ON THE CONTROLLER CABINET, THE CITY WILL PROVIDE THE PUSHBUTTON. IT REMAINS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND INSTALL THE ASSOCIATED SIGNS.

1328 LOOP DETECTORS

LOOP DETECTORS SHALL BE CONSTRUCTED AS PER STANDARD DRAWING TC-82.10.

1329 REFLECTORIZED SIGNS

SIGNS SHALL BE 24" X 30" AND SHALL BE CITY STANDARD #79A AND 79C.
PAYMENT FOR THE SIGNS IS ON A SQUARE FOOT BASIS PER ITEM 630 SIGN, FLAT SHEET, AS PER PLAN.

1335 CABLE AND POLE IDENTIFICATION

IN ADDITION TO ITEM 1335, ALL AERIAL INTERCONNECT CABLE INSTALLATIONS SHALL INCLUDE THE INSTALLATION OF WEATHERPROOF PLASTIC CABLE TAGS WITH INDELIBLE, IMPRINTED TEXT "COC 591-6000", ZIP TIED TO THE CABLE AT EVERY POLE ATTACHMENT POINT.

ITEM SPECIAL, INFRASTRUCTURE SIGNS

THE CONTRACTOR SHALL INSTALL INFRASTRUCTURE SIGNS ON EACH APPROACH TO EACH INTERSECTION BEING CONSTRUCTED. THESE SIGNS WILL BE SUPPLIED BY THE CITY, AND THE CONTRACTOR CAN PICK THEM UP FROM THE TRAFFIC SERVICES BUREAU. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL REQUIRED TO MOUNT THE SIGNS, AND IS RESPONSIBLE FOR THEIR INSTALLATION.

ITEM 633 CONTROLLER ITEM, MISC.: CONTROLLER UNIT, TYPE 107E WITH CABINET, TYPE 330

AT LEAST 30 DAYS PRIOR TO INSTALLATON, FURNISH THE CONTROLLER TO THE CITY OF CINCINNATI FOR PROGRAMMING. WHEN READY TO PICK UP, PROVIDE AT LEAST 48 HOURS NOTICE TO T. DUKES AT 513-352-4391.

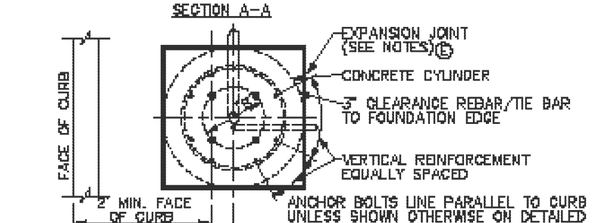
THE CONTRACTOR SHALL SUPPLY A CONTROLLER AND CABINET PER THE SPECIFICATIONS PROVIDED IN THE SPECIAL PROVISIONS, ITEM 633- CONTROLLER ITEM MISC: CONTROLLER UNIT, TYPE 170E, WITH CABINET, TYPE 330.

PAYMENT FOR ITEM 633 CONTROLLER ITEM, MISC.: CONTROLLER UNIT, TYPE 170E, WITH CABINET TYPE 330 SHALL BE MADE AT THE CONTRACT PRICE FOR EACH ANDE SHALL BE FULL COMPENSATION FOR ALL LABOR MATERIAL, EQUIPMENT AND INCIDENTALS TO COMPLETE THIS ITEM OF WORK.

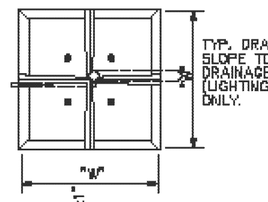
HAM-50-18.79

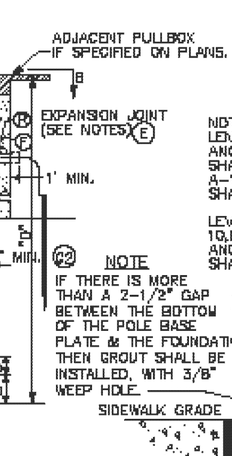
SHEET NO.	DIST.	PROJECT	TOTAL SHEETS
5	OHIO		

SECTION A-A



SECTION B-B



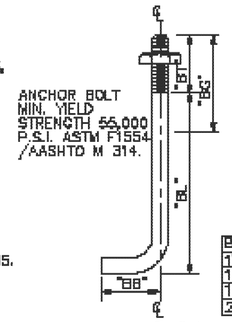


ANCHOR BASE FOUNDATION
ADJACENT TO CURB

(G3)

ANCHOR BASE FOUNDATION
SURROUNDED BY SOIL AT SURFACE

ANCHOR BOLTS



ANCHOR BOLT DIMENSIONS (INCHES)

BOLT SIZE	"BB"	"BC"	"BT"	"BG"
1"x40"	4	30	6	8
1 1/4"x60"	8	45	9	11
1 3/4"x80"	6	75	9	11
2"x96"	6	80	10	12

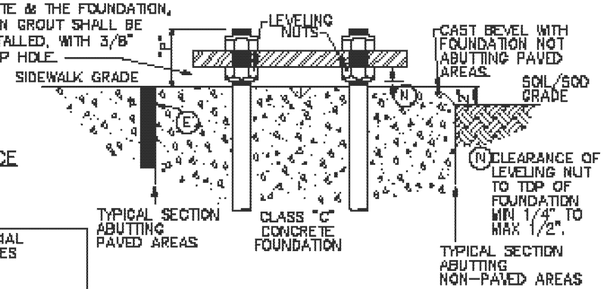
NOTE: GALVANIZING "BG" (THREAD LENGTH) + 1" TO 4". LEVELING NUTS, ANCHOR NUTS, & LEVELING SHIMS SHALL BE GALVANIZED PER ASTM A-153. ANCHOR NUTS, & LEVELING NUTS SHALL COMFORM TO ASTM A-563, GRADE A.

LEVELING SHIMS SHALL HAVE A MIN. 10,000 LB. BREAKING STRENGTH.
ANCHOR BOLTS SHALL BE "L" SHAPED.

(G2) NOTE

IF THERE IS MORE THAN A 2-1/2" GAP BETWEEN THE BOTTOM OF THE POLE BASE PLATE & THE FOUNDATION, THEN GROUT SHALL BE INSTALLED, WITH 3/8" WEEP HOLE.

TYPICAL ANCHOR BASE AND BOLT INSTALLATION SECTION



ANCHOR BASE POLE & FOUNDATION DATA

FOUNDATION DESIGN NUMBER	POLE SIZE GAUGE-BASE (INCHES)xLENGTH (FEET)	ANCHOR BOLT DIMENSIONS BOLT SIZE	BOLT CIRCLE "B"	BOLT PROJECT "P"	FOUNDATION DIMENSION DEPTH "D"	FOUNDATION DIMENSION WIDTH "W"	REINFORCING STEEL VERT. REBAR	REINFORCING STEEL TIE LOOPS	CONCRETE FOR FOUNDATION	STANDARD POLE DRAWING REFERENCE	SPECIAL NOTES
		INCHES			FEET		NO 8	NO 4	CU. YD.		
FDN-1	11 GA.x7.5x25	1x40	10 1/2		7	2	8	8	0.85	ES-10-4	
FDN-2	11 GA.x8x30		11	2 5/8	8	2	8	9	0.98	ES-10-3, ES-10-4	
FDN-3	11 GA.x9x30		12 1/2	3						ES-10-3	
FDN-3	11 GA.x9x35									ES-10-4	
FDN-4	11 GA.x9.5x40		13 1/2	3 1/8						ES-10-4	
FDN-5	11 GA.x10x33 1/2			3 3/8	8	2 1/2	8	9	1.50	ES-10-3	
FDN-6	7 GA.x11x21	1 1/2x80	15	5 1/2	8	3	8	10	2.43		
FDN-7	0 GA.x9x28/28		12 1/2	5 1/4	10	2 1/2			1.87	ES-10-1	MAINT. POLES
FDN-8											
FDN-9	0 GA.x10x28		13 1/2	5 3/4	10	3	8	11	2.69	ES-10-1	DOT DESIGN #3 TC-81.10
FDN-9	0 GA.x10x28									ES-10-1	
FDN-10	3X3 GA.XBX35	1 3/4x90	15	6	11	3	8	12	2.95	ES-10-4	
FDN-10	0 GA.x11x30									ES-10-1, ES-10-3	
FDN-11	3 GA.x13x21		18	6 1/2							
FDN-12	7x7 GA.x12x30	2x96	18	7	12	3	8	13	3.21	ES-10-1	DOT DESIGN #7 TC-81.10
FDN-12	0 GA.x13x33 1/2									ES-10-3	
FDN-13	3X3 GA.13"X34	2 1/4x96	22	7 1/4						ES-10-1, ES-10-3	DOT DESIGN #10 TC-81.10

USE OF LEVELING NUTS

ITEM 1.
A. TURN LEVELING NUT ON EACH BOLT.
B. PLACE POLE IN POSITION ON LEVELING NUTS
C. TURN TOP NUTS INTO PLACE LOOSELY.
D. LEVEL POLE BY ADJUSTING BOTH UPPER & LOWER NUTS.
E. RAKE POLE AS SPECIFIED TO COMPENSATE FOR LOADED DEFLECTION.

ITEM 2.
A. APPLY LOAD, READJUST RAKE OF POLE, IF NEEDED. PROPERLY ADJUSTED RAKE WILL PROVIDE A VERTICAL PLUMB LINE FROM CENTER TOP OF POLE TO CENTER OF BASE.

RAKE (IN.)	POLE SIZE AT BASE (IN.)
5	7.8
6	9.10
7	11.12

NOTE

ANY POLE WITH A GAP BETWEEN THE POLE BASE AND THE FOUNDATION, GREATER THAN 2-1/2" WILL NEED TO BE GROUTED.

FOUNDATIONS

SLOPE – THE TOP OF FOUNDATIONS SHALL BE SLOPED TO MEET EXISTING SIDEWALK. AT LOCATIONS WITHOUT SIDEWALKS, THE FOUNDATION SHALL BE GROOVED TO DRAIN.

TIE LOOPS SHALL BE WELDED EITHER INTO A RING DEVELOPING THE FULL STRENGTH OF THE BAR OR OVERLAP FOR 12". VERTICAL SPACING ON ALL LOOPS 12" C/C EXCEPT AT TOP.

(R) FOUNDATION CONDUIT – MINIMUM RADIUS OF BEND INSTALLED IN FOUNDATION SHALL BE 24" INCHES. CONDUIT SHALL BE PLACED TO CENTER OF ANCHOR BOLTS. CONDUIT THAT LEAVES FOUNDATION UNDER PAVEMENT SHALL BE A MINIMUM OF 24" BELOW PAVEMENT.

(F) ALL CONDUIT PLACED IN FOUNDATIONS SHALL BE 3" PVC, TYPE DB, UNLESS OTHERWISE SPECIFIED ON THE PLANS. THE CORRECT NUMBER AND SIZE CONDUIT SHALL BE INSTALLED IN THE FOUNDATION FOR PROPER CONNECTION TO EXTERNAL CONDUIT RUNS SPECIFIED ON THE PLANS.
WHERE A POLE AND FOUNDATION ARE INSTALLED, AND IT IS NOT INDICATED TO CONNECT TO ANY UNDERGROUND CONDUIT SYSTEM, A 3" PVC CONDUIT SHALL BE PLACED IN THE BASE AS SHOWN IN THE DETAILS, AND THE CONDUIT SHALL BE PLUGGED WITH A NON-SETTING COMPOUND.
INSTALL ADDITIONAL 3/4" PVC SCHEDULE 40 FOR CONNECTING GROUND WIRE FROM POLE TO GROUND ROD.

REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF 708.01 & SHALL BE DEFORMED AND PLAIN BILLET STEEL BARS FOR CONCRETE REINFORCEMENT.

(E) EXPANSION JOINTS SHALL BE 1/2" PREFORMED JOINT FILLER 705.03 AND SHALL BE PROVIDED BETWEEN FOUNDATIONS AND ABUTTING PAVED AREAS AND PULLBOXES.

GROUND RODS
GROUND RODS SHALL BE COPPER CLAD (BONDED COPPER TO STEEL) HIGH STRENGTH STEEL, 1 INCH DIA. x 10 FEET LONG. GROUND CABLE GROUNDING POLE TO GROUND ROD SHALL BE No. 4 AWG STRANDED COPPER CABLE WITH RHH/RHW/USE OR TYPE UF, 600 VOLT INSULATION. USE GROUND ROD CLAMP OR EXOTHERMICALLY WELD COPPER GROUND CABLE TO GROUND ROD.

TYPICAL GROUND ROD INSTALLATION METHODS
(G1) ADJACENT TO FOUNDATION
(G2) IN BOTTOM OF PULLBOX
(G3) IN BOTTOM OF FOUNDATION

PAYMENT FOR GROUND RODS SHALL BE PER ITEM 625 (ODOT) OR 1320 (CITY OF CINCINNATI) PER CONTRACT SPECS.

ANCHOR BOLTS
ANCHOR BOLTS ARE FURNISHED WITH POLES AND PAYMENT WILL BE MADE UNDER THE ITEM FOR SIGNAL OR LIGHTING POLES BUT INSTALLED WITH CONSTRUCTION OF FOUNDATION. WHERE POLE INSTALLATION SPECIFIED TO BE MADE BY OTHERS, ANCHOR BOLTS WILL BE FURNISHED BY OTHERS FOR FOUNDATION CONSTRUCTION.

STAKING SHALL BE PROVIDED BY THE CONTRACTOR, OR OTHERS, AS SPECIFIED ON THE PLANS. WHERE NO SURVEY STATION REFERENCE OR DIMENSIONS ARE PROVIDED IN THE PLANS, THE CITY WILL PROVIDE STAKING.

RAKING
PAYMENT FOR RAKING AND LEVELING SHALL BE INCIDENTAL TO INSTALLATION OF POLES.

STATE OF OHIO — STEVEN GERALD BAILEY — 49531 — REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steven Bailey	7/18/04	UPDATE
T.E.		3/1/98	
R.R.R.	APPROVED	11/1/90	

POLES, SUPPORTS, AND FOUNDATIONS (ES - 1)

ANCHOR BASE POLE FOUNDATIONS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steven Bailey DATE 3-4-98

SCALE	DESIGNED	DRAWN	CHECKED	FILE NO.
	4/27/88	CDS ASSOCIATES		ES-1-1

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

270
657

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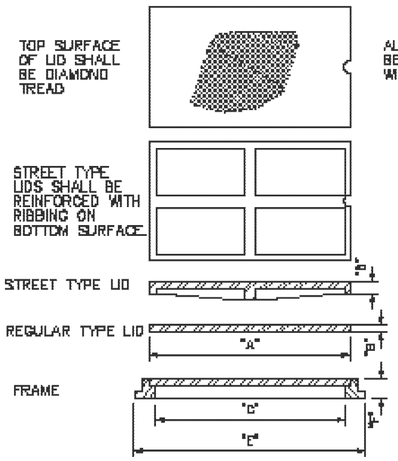
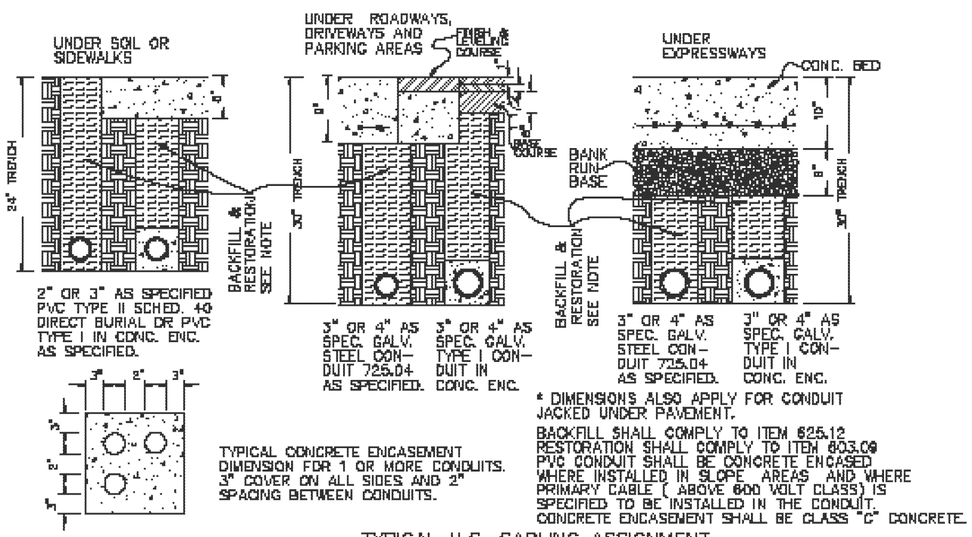
TYPICAL PULLBOX FRAME & COVER DIMENSIONS



TYPICAL CONDUIT INSTALLATIONS

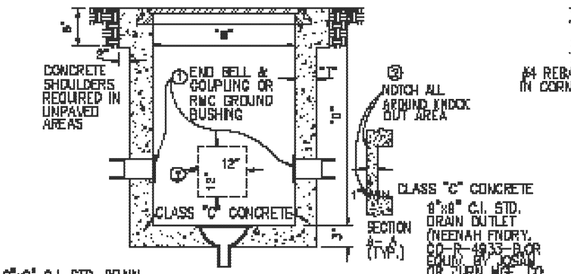


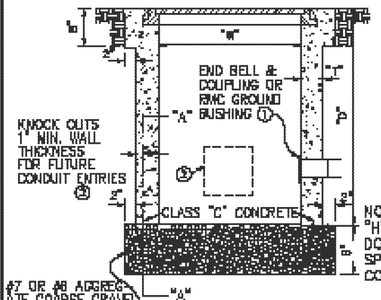
TYPICAL CONCRETE ENCASEMENT DIMENSION FOR 1 OR MORE CONDUITS. 3" COVER ON ALL SIDES AND 2" SPACING BETWEEN CONDUITS.

* DIMENSIONS ALSO APPLY FOR CONDUIT JACKED UNDER PAVEMENT.

BACKFILL SHALL COMPLY TO ITEM 625.12
RESTORATION SHALL COMPLY TO ITEM 603.09
PVC CONDUIT SHALL BE CONCRETE ENCASED WHERE INSTALLED IN SLOPE AREAS AND WHERE PRIMARY CABLE (ABOVE 600 VOLT CLASS) IS SPECIFIED TO BE INSTALLED IN THE CONDUIT. CONCRETE ENCASEMENT SHALL BE CLASS "C" CONCRETE.

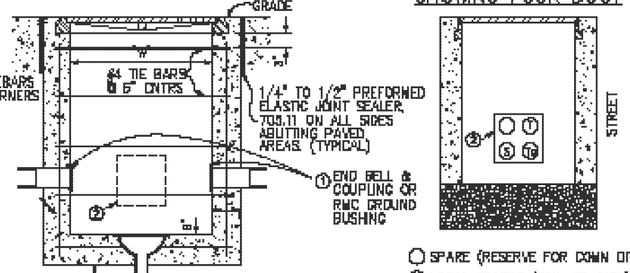
TYPICAL PULLBOX CONSTRUCTION METHODS





NOTE: PULLBOX "H", IS THE DOWNTOWN A SPECIAL, WITH COMPOSITE LID.

TYPICAL U.G. CABLING ASSIGNMENT SHOWING FOUR DUCT

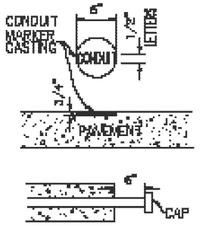


USE MANUFACTURER'S STANDARD SPACERS. INSTALL IN ACCORDANCE WITH MANUFACTURERS RECOMMENDED METHODS.

ALL CABLES INSTALLED IN CONDUIT SHALL BE IDENTIFIED BY RESPECTIVE CKT. ETC., AND SHALL BE MAINTAINED IN THE SAME DUCT THROUGHOUT THE ENTIRE RUN.

○ SPARE (RESERVE FOR DOWN DIV.)
⑦ LOCAL TRAFFIC (TOP. ST. SIDE)
⑩ TRAFFIC SIG. INTERCONNECTION (BOTTOM-ST. SIDE)
⑤ STREET LIGHTING- (BOTTOM-FIELD SIDE)

CONDUIT MARKER
(USE WHERE CONDUIT TERMINATE UNDERGROUND)



DESIGN DATA

PULLBOX DIMENSIONS (INCHES) & CLASS						DESIGN COND. USE PER PULLBOX SIZE	FRAME & COVER DIMENSIONS (IN INCHES) **					
CLASSIFICATION OR TYPE AS SPECIFIED			INSIDE WALL	WALL THICKNESS MIN.	OVERALL DEPTH	MAX. NO. OF COND. PER PULLBOX WALL W/MIN. COND. SIZE*	NOMINAL SIZE OF LID	NOMINAL INSIDE SIZE OF FRAME	NOMINAL OUTSIDE SIZE OF FRAME	NOMINAL FRAME SIZE	FRAME DEPTH	* DESIGN NO.
REGULAR	STREET	W/DRAIN	"W"	"T"	"D"		"A"	"B"	"C"	"E"	"F"	
A		AD	10X 18	3	30	2	10 3/4"x16 3/4"	1/2	10x 18	18x 24	3	R-4964-2 E-1896
B		BD	17X 17	3	30	2	17 5/8"x17 5/8"	1/2	17x 17	22x 22	3	R-4981-2 E-1894
C		CD	24X 24	3	36	4 & STREET CROSSING	23 3/8"x23 1/8"	1	22x 22	30x 30	3	R-4981-2 E-1850
	D		22X 22	8	36	4	20 1/8"x18 3/4"	1 1/2	22x 22	28x 28	4	R-1878-A5
E		ED	24X 36	4	36	4 (24" SIDES) 8 (36" SIDES)	35" 35"	1	33x 34 3/4	39x 41	3 1/8 3 1/8	R-4985-5 E-1871
F		FD	36X 36	4	42	12	37" 37"	1	35x 35	42x 42	3 1/2	E-1843
	G		36X 36	8	42	12	37 1/2"x37 1/2"	1 1/2	35x 35	42x 42	4	R-1878-A10
H		HD	20X 20	3	32	2 & STREET CROSSING	21 13/16"x21 13/16"	1 3/4	19 13/16 x 19 13/16	25 5/16 x 25 5/16	2 7/16	R-1883-E4 PA222240000

* REFER TO ACCEPTABLE FRAMES & COVERS FURNISHED BY: CHRIS ERHARDT FOUNDRY & MACHINE CO., CINCINNATI, OHIO ("E" NUMBERS); NEENAH FOUNDRY CO., NEENAH, WISC. ("R" NUMBERS)

** IF SPECIFIED, PULLBOX LIDS MAY BE COMPOSITE MATERIAL MEETING DETAILED SPECIFATIONS PROVIDED IN THE PLANS.

FRAME ONLY
COMPOSITE LID

NOTES:

FED. DIV. NO.	STATE	PROJECT	FED. PROJ. NO.
5	OHIO		

FRAME & COVER **

REGULAR TYPE PULLBOX FRAMES & COVERS SHALL BE CONSTRUCTED OF GRAY IRON MEETING THE REQUIREMENTS OF ASTM-A48, CLASS 30, WITH MINIMUM TENSILE STRENGTH OF 30,000 PSI.

STREET TYPE PULLBOX FRAMES & COVERS SHALL BE CONSTRUCTED OF DUCTILE IRON MEETING THE REQUIREMENTS OF ASTM A-536, GRADE 80-40-18, WITH A MIN. TENSILE STRENGTH OF 80,000 PSI.

ALL FRAMES & COVERS SHALL BE OF UNIFORM QUALITY & FREE FROM BLOWHOLES, HARDSPOTS, SHRINKAGE DISTORATION, & OTHER DEFECTS, AND SHALL HAVE THE DIMENSIONS SPECIFIED IN THE DESIGN DATA TABLE.

COVERS (OR LIDS) SHALL BE TREADED AND EQUIPPED WITH PICK HOLES FOR LIFTING LID OFF FRAME. WHEN FLANGE AND LID ARE NOT CASTED IN THE PULLBOX, THEY SHOULD BE BOLTED DOWN & CAPPED WITH CONCRETE.

PULLBOX CONSTRUCTION

PULLBOX SHALL BE CONSTRUCTED AS SHOWN, & WITH FRAME, SHALL BE CAST IN PLACE, OR APPROVED PRE-CAST WITH FRAME PRECAST INTO BOX AND WITH REIN., EXCEPT STREET TYPE BOXES.

EXISTING PULLBOXES MAY BE MODIFIED WITH CONCRETE BRICK MEETING REQUIREMENTS OF ITEM 704.02. IF CONCRETE BRICK IS USED, THE SIDE WALLS SHALL HAVE A MINIMUM THICKNESS OF 7 1/2", AND BRICK MASONRY SHALL HAVE CONSTRUCTED IN ACCORDANCE WITH ITEM 602.

STREET TYPE PULLBOXES SHALL BE CAST-IN-PLACE CLASS "C" CONCRETE WITH REINFORCING MEETING THE REQUIREMENTS OF ITEM 708.01

DRAINAGE

WHERE A PULLBOX IS SPECIFIED TO BE DRAINED TO THE SEWER SYSTEM, A 8"x8" CAST IRON STANDARD DRAIN OUTLET, WITH LID, (NEENAH FOUNDRY CO. R-4933-B, OR EQUIVALENT BY JOSAM OR ZURN MGF. CO.) SHALL BE INSTALLED AT THE BOTTOM OF PULLBOX AND CONNECTED TO A 3" CAST IRON PIPE DRAIN LINE TO THE SPECIFIED SEWER CONNECTION. DRAIN LINE SHALL HAVE A MIN. SLOPE OF 1/4" PER FOOT TOWARD SEWER. CAST IRON PIPE, ELBOWS, & OTHER FITTINGS SHALL CONFORM TO REQUIREMENTS OF ASTM-A-74.

UNLESS OTHERWISE SPECIFIED, PULLBOX DRAINAGE SHALL CONSIST OF 6" OF COMPACTED, COARSE, WASHED GRAVEL #7 OR #8 AGGREGATE PER ITEM 703.

CONDUIT ENTRIES

① A CONDUIT ENTRY THROUGH A PULLBOX WALL SHALL CONSIST OF AN END BELL & COUPLING WHICH SHALL PROTRUDE BEYOND THE OUTER FACE OF THE WALL, SUFFICIENT IN SIZE & LENGTH FOR CONNECTION TO THE PROPOSED DUCT SYSTEM IF RMC CONDUIT, A GROUND BUSHING MUST BE PROVIDED.

② A SECTION OF EACH WALL SHALL BE KNOCHED AND RECESSED FOR PROPOSED AND FUTURE CONDUIT ENTRIES. (SEE DETAIL)

WHEN CONDUITS ARE INSTALLED, ALL OPENINGS & SPACES SHALL BE FILLED WITH CLASS "C" CONCRETE & FINISHED OR POINTED UP TO SATISFACTION OF THE ENGINEER.

IN CUTTING OR BREAKING INTO WALLS WHERE THE INSTALLATION OF ADDITIONAL CONDUIT IS SPECIFIED CONNECTED TO AN EXISTING PULLBOX, ANY DAMAGE TO THE WALL SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

UNDERGROUND CONDUIT

ALL CONDUIT SPECIFIED AS PVC TYPE I, (TYPE DB OR SCHEDULE 40) SHALL BE CONCRETE ENCASED.
(NOTE:- ALL UNDERGROUND CONDUIT SHALL BE PVC, CONCRETE ENCASED, UNLESS SPECIFIED OTHERWISE ON THE PLANS.)
ALL CONDUIT SPECIFIED AS DIRECT BURIAL SHALL BE:
PVC- TYPE II (INDUSTRIAL SCHEDULE 40- HEAVY WALL) OR,
RIGID METAL CONDUIT (RMC)- 725.04
MAXIMUM CONDUIT RUN BETWEEN PULLBOXES SHALL NOT EXCEED 150 FT. (UNLESS SPECIFIED ON PLANS). EACH UN-USED CONDUIT SHALL BE PROVIDED WITH A #10 AWG. SOLID COPPER PULL WIRE.

BACKFILL

EXCAVATED MATERIAL SHALL BE USED AS BACKFILL. BACKFILL SHALL BE PLACED IN LAYERS AND TAMPED TO PREVENT FUTURE SETTLEMENT OF BACKFILL MATERIAL IN ACCORDANCE WITH 625.12

RESTORATION

SHALL COMPLY WITH 603.09

SPECIFICATION NUMBERS REFER TO OHIO DEPT. OF TRANSP., "CONSTR. & MATERIAL SPECS. & ASTM SPECIFICATIONS."
CITY OF CINCINNATI SUPPLEMENTAL SPECS. TO O.D.O.T. C & M SPECS. ITEM 1322 ALSO APPLIES FOR CITY PROJECTS AND CONTRACTS.

STATE OF OHIO STEVEN GERALD BAILEY 49631 REGISTERED PROFESSIONAL ENGINEER

ELEC. SERVICE & UNDERGROUND SYSTEMS (ES-2)

STANDARD PULLBOXES & CONDUIT SYSTEM

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

S.C.H.	Steven Bailey	8/3/04	UPDATE				
T.E.							
DESIGN	APPROVED	DATE	TO P	BLUE	BLACK	GREEN	PLAN NO.
		8/14/84					ES-2-1

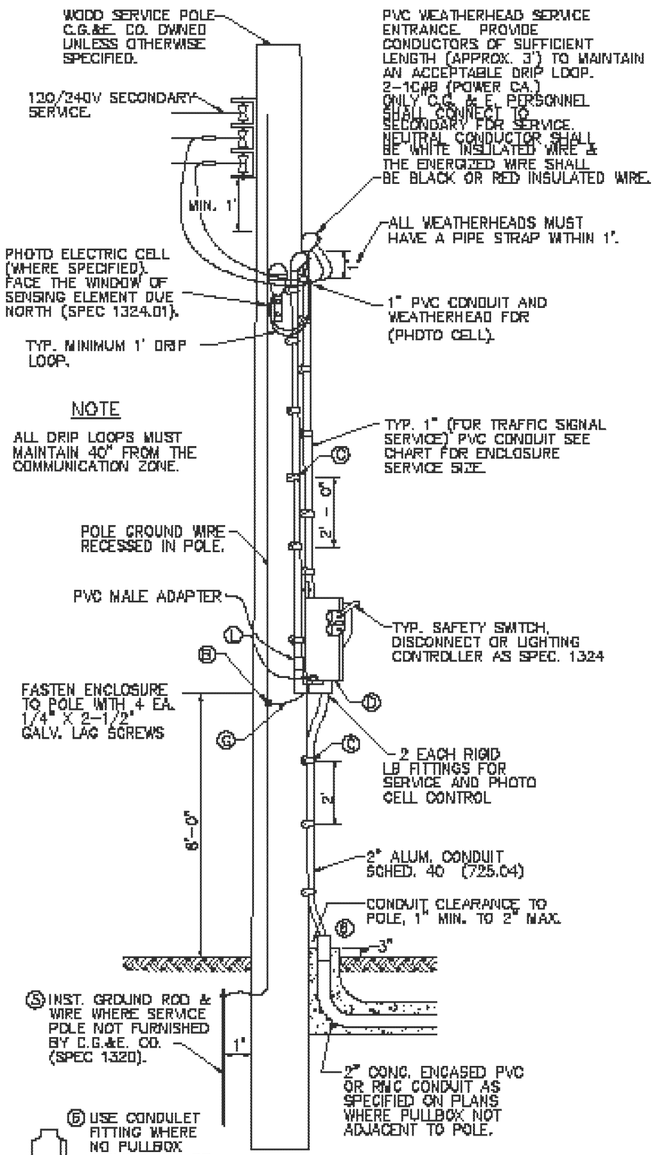
APPROVED Steven Bailey DATE 3-4-99

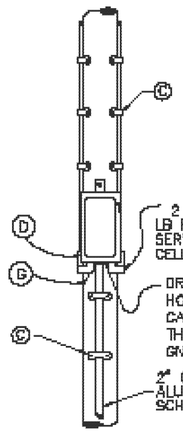
CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

271
657

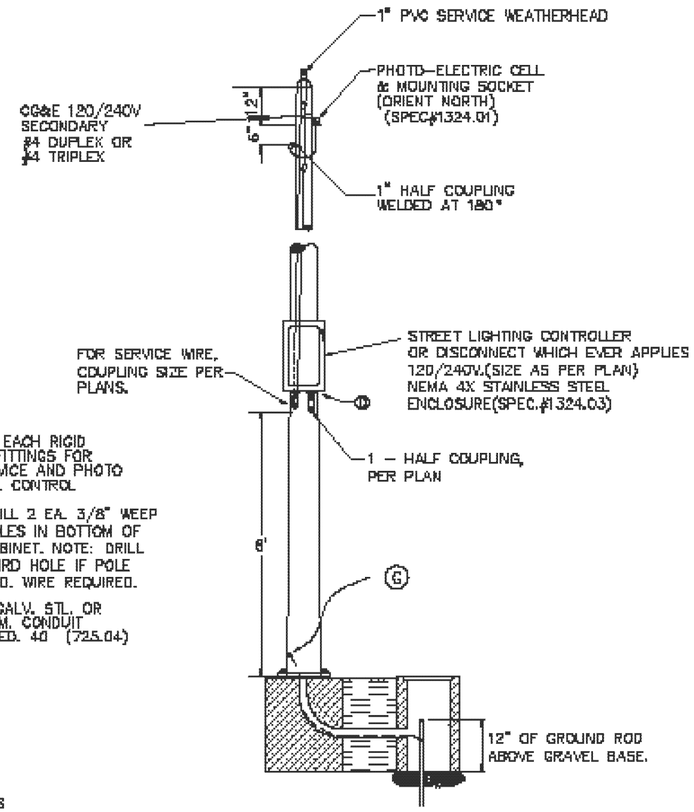




FRONT VIEW
(WOOD POLE)

CONDUIT CLAMPS USE DOUBLE HOLE TYPE.

SECURE WITH 2-1/2" LG. GALV. NAILS.



STEEL POLE

TYPICAL INSTALLATION WHERE MAIN SERVICE DISCONNECT IS LOCATED ON C.G.&E. WOOD POLE CONTROL CABINET, ISLAND LIGHTING SYSTEM, OR OTHER SPECIFIED EQUIPMENT.

LOAD SIZING			
CABINET OR ENCLOSURE SIZE (AMPERES)	POWER CABLE SIZE (AWG)	MAX. FUSE SIZE (AMPS)	POWER SERVICE CONDUIT SIZE (INCHES)
UP TO 50	#8	40	1
50 TO 80	#4	65	1-1/2
80 TO 100	#2	90	1-1/2

PROJECT NO.	CODE	PROJECT	PHASE NO.
5	OHIO		

NOTES

ENCLOSURES

SAFETY SWITCHES SHALL BE NEMA 4X (STAINLESS STEEL) PER SPECIFICATION 1324.03. SWITCHES SHALL BE RATED 240 VOLTS SERVICE (MINIMUM), 3 WIRE, 2 POLE WITH SOLID NEUTRAL.

FUSES SHALL BE 250-VOLT CARTRIDGE TYPE, UL CLASS RK-1, SIZED PER ENCLOSURE AMPERE SIZE (SEE CHART).

REFER TO SPEC 1324 FOR OTHER SPECIFIED ENCLOSURES.

GROUNDING

GROUND ALL METAL NONCURRENT CARRYING EQUIPMENT INCLUDING CONDUIT MESSENGER WIRE, POLE, ENCLOSURE, ENCLOSURE EQUIPMENT PANELS, OR CHASSIS AND GROUND ROD.

ENTRANCE FITTINGS

FURNISH AND INSTALL ANY REQUIRED FITTINGS INCLUDING DRILLING HOLES AND WELDING THE THREADED PIPE NIPPLE TO POLE. PAINT HOLES AND NIPPLES WITH ZINC-RICH SPOT PRIMER PER SPEC 1317.

CONDUIT

PVC CONDUIT SHALL BE SCHEDULE 40.

ALUMINUM CONDUIT SHALL BE SCHEDULE 40

SERVICE CABLE

CABLE SHALL BE:

1. DUPLEX (NO. 4 AWG MINIMUM ACSR INCLUDING A BARE ALUMINUM NEUTRAL). CONNECT TO COPPER POWER CABLES WITH APPROVED BI-METALLIC SPLIT BOLTS OR BUTT CONNECTORS.

   THE INSULATED, UNGROUNDED CONDUCTOR SHALL BE HIGH-DENSITY POLYETHYLENE, 600V RATED, SUITABLE FOR EXPOSURE TO SUNLIGHT AND ATMOSPHERIC ENVIRONS. CABLE SHALL MEET THE REQUIREMENTS OF ICEA S-61-4.02/NEMA WC5-1989 SPECS.

   OR

2. TWO EACH RHH/RHW/USE INSULATED POWER CABLES (SPEC 1323.01) SUPPORTED WITH 1/4-INCH MESSENGER WIRE. (SPEC. 1323.02)

REQUEST FOR SERVICE

IN REQUESTING ELECTRIC SERVICE FROM THE C. G. & E. CO., CONTACT TRAFFIC SERVICES BUREAU, 352-3709.

CG&E CREWS SHALL MAKE THE POWER WIRING CONNECTION TO THEIR SECONDARY LINES.

(1) PVC COUPLING

PROVIDE STAINLESS STEEL BANDING FOR SECURING CONDUIT CLEVISES AND CABINETS TO STEEL POLES.

(2) FOR CONDUITS, USE 3/4" WIDE X .020" THICK BANDING.

(3) FOR ENCLOSURES, USE 3/4" WIDE X .030" THICK BANDING AND SERVICE CLEVIS.

(B) SPLIT BOLT CONNECTOR: DOSSERT, BLACKBURN, OR APPROVED EQUAL.

(C) GALVANIZED STEEL OR MALLEABLE IRON CONDUIT CLAMPS. PROVIDE 2' SPACING C/C FOR ALL CONDUIT 2' ABOVE ENCLOSURES AND 2' SPACING FOR CONDUIT BETWEEN ENCLOSURES TO GRADE. SECURE TO WOOD POLES WITH GALV. NAILS. SEE DETAIL.

(D) DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS AND FITTINGS.

(G) SOLID NO. 6 AWG BARE COPPER GROUND WIRE.

(K) TEMPORARY THREE BOLT CABLE SUSPENSION CLAMP. SERVE WITH 5 TO 7 WAIVES BEFORE REMOVING. (SEE STANDARD DRAWING ES-3-4.)

(L) GROUNDING LUGS: BLACKBURN L-120, TAB 1300 SERIES, OR APPROVED EQUAL. GROUNDING LUG MAY BE PROVIDED IN SIDE ENCLOSURE. IN THIS CASE, FEED GROUND WIRE THROUGH ADDITIONAL ENCLOSURE DRAIN HOLE.

STATE OF OHIO
STEVEN GERALD BAILEY
48331
REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/3/04	UPDATE				
T.E.		3/1/98					
DESIGNED	APPROVED	DATE	TO P	BUILT	SCALE	DRAWING	PLAN NO.
R.R.R.		6/26/92			ES - 16 7/7/72	CDS ASSOCIATES	ES-2-2

ELEC. SERVICE & UNDERGROUND SYSTEMS (ES-2)

ELECTRIC SERVICE
120 VOLTS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 3-4-98

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

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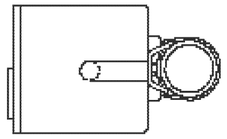
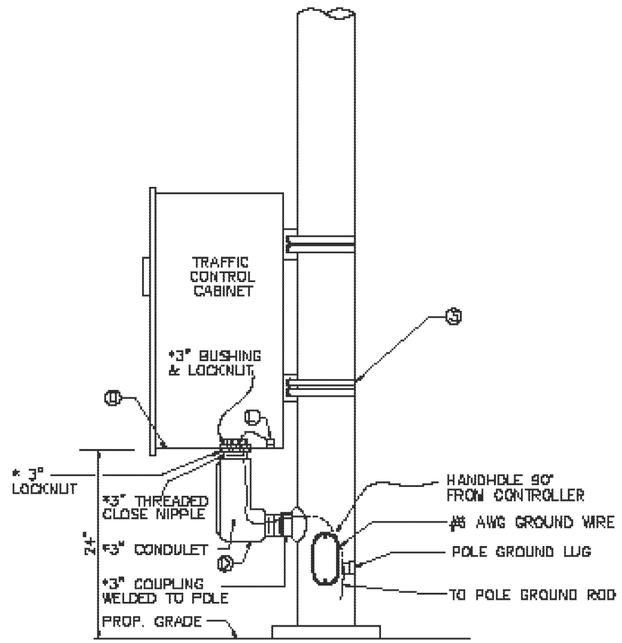


TOP VIEW

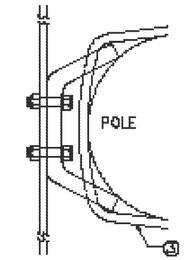
⑤ TYP. TOP VIEW OF CABINET MOUNTED ON STEEL POLE



SIDE VIEW

TYP. CONTROLLER CABINET INSTALLATION ON A STEEL POLE

* 3" CONDUIT AND FITTINGS UNLESS OTHERWISE SPEC.



① TYP. CABINET MOUNTING BRACKET (2 EA. PER CABINET) FURNISH WITH CABINET

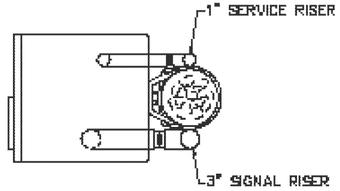
SECURE EACH BRACKET TO CABINET WITH 2 EACH 3/8" STN. STL. BOLTS, NUTS & WASHERS. THREADED END OF BOLT TOWARD INSIDE OF CABINET.

NOTE:

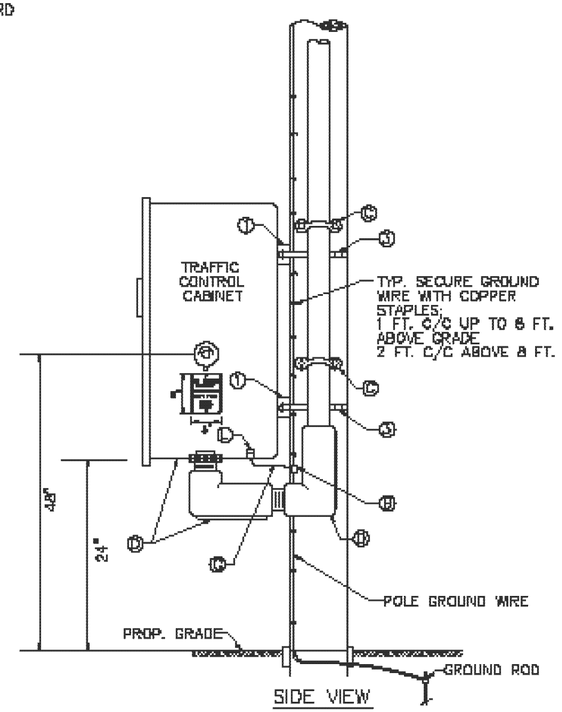
WHEN CONTROLLER IS LOCATED IN A SODDED AREA A 54" x 36" CONCRETE PAD SHALL BE POURED.

© CONDUIT STRAPS USE DOUBLE HOLE TYPE.

SECURE WITH 2-1/2" LG. GALV. NAILS



TOP VIEW



SIDE VIEW

TYP. CONTROLLER CABINET INSTALLATION ON A WOOD POLE

5	OHIO		

NOTES

GENERAL

THE CABINET MAY CONTAIN A TRAFFIC SIGNAL CONTROLLER OR MAY BE A MASTER CONTROLLER, RELAY STATION, DETECTOR OR COUNTER STATION AS SPECIFIED ON THE PLANS.

GROUNDING

GROUND ALL METAL, NON-CURRENT CARRYING EQUIPMENT, INCLUDING CONDUIT, MESSENGER WIRE, POLE, CABINET, CABINET PANELS OR CHASSIS, AND GROUND ROD.

ENTRANCE FITTINGS

FURNISH AND INSTALL ANY REQUIRED FITTINGS INCLUDING DRILLING HOLES AND WELDING THE THREADED PIPE NIPPLE TO POLE. PAINT HOLES AND NIPPLES WITH ZINC-IT SPOT PRIMER PER SPEC. 1317.

CONDUIT

PVC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40. STEEL CONDUIT AND FITTINGS SHALL BE GALVANIZED AND MEET SPEC. 725.04.

REQUEST FOR SERVICE

IN REQUESTING ELECTRIC SERVICE FROM THE CG&E COMPANY, CONTACT TRAFFIC ENGINEERING 352-3737.

① CABINET MOUNTING BRACKETS

MOUNTING BRACKETS SHALL BE FURNISHED WITH THE TRAFFIC CONTROL CABINET. WHERE THE CITY FURNISHES A TYPE OF TRAFFIC CONTROL CABINET WHICH HAS NO BRACKETS, THE CITY WILL FURNISH BRACKETS AS SHOWN IN THE DETAIL. PROVIDE STAINLESS STEEL BANDING AND HARDWARE FOR SECURING CONDUIT AND CABINETS TO STEEL POLES.

② FOR BANDING CONDUITS TO POLES, USE 3/4" WIDE X .020" THICK STN. STL. BANDING.

③ FOR BANDING CABINETS TO POLES, USE 3/4" WIDE X .030" THICK STN. STL. BANDING. (FOR LARGER TC CABINETS, USE TWO BANDS FOR EACH BRACKET.)

⑧ SPLIT BOLT CONNECTOR; DOSSERT, BLACKBURN, OR APPROVED EQUAL.

© GALVANIZED STEEL ALUMINUM OR MALLEABLE IRON DOUBLE HOLE CONDUIT CLAMPS. PROVIDE 2' SPACING C/C FOR ALL CONDUIT ABOVE ENCLOSURES AND 2' SPACING FOR CONDUIT BETWEEN ENCLOSURES TO GRADE.

Ⓓ DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS AND FITTINGS.

Ⓛ GROUNDING LUGS: BLACKBURN L-125, T & B 1300 SERIES, OR APPROVED EQUAL. GROUNDING LUG MAY BE PROVIDED INSIDE ENCLOSURE. IN THIS CASE, FEED GROUND WIRE THROUGH ADDITIONAL ENCLOSURE DRAIN HOLE.

REFER TO STD. DWG ES-2-3 FOR ELECTRIC SERVICE AND RISER DETAILS.

Ⓖ #6 AWG BARE COPPER GROUND WIRE

STATE OF OHIO STEVEN GERALD BAILEY 48331 REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steven Bailey	8/18/04	UPDATE				
T.E.		3/1/98					
DSGN	APPROVED	DATE	NO.	SCALE	SCALE	SHEET	PLAN NO.
R.R.R.		6/3/92			ES - B 4/19/78	CDS ASSOCIATES	ES-3-1

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

TRAFFIC CONTROL CABINET INSTALLATIONS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steven Bailey DATE 3-4-99

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

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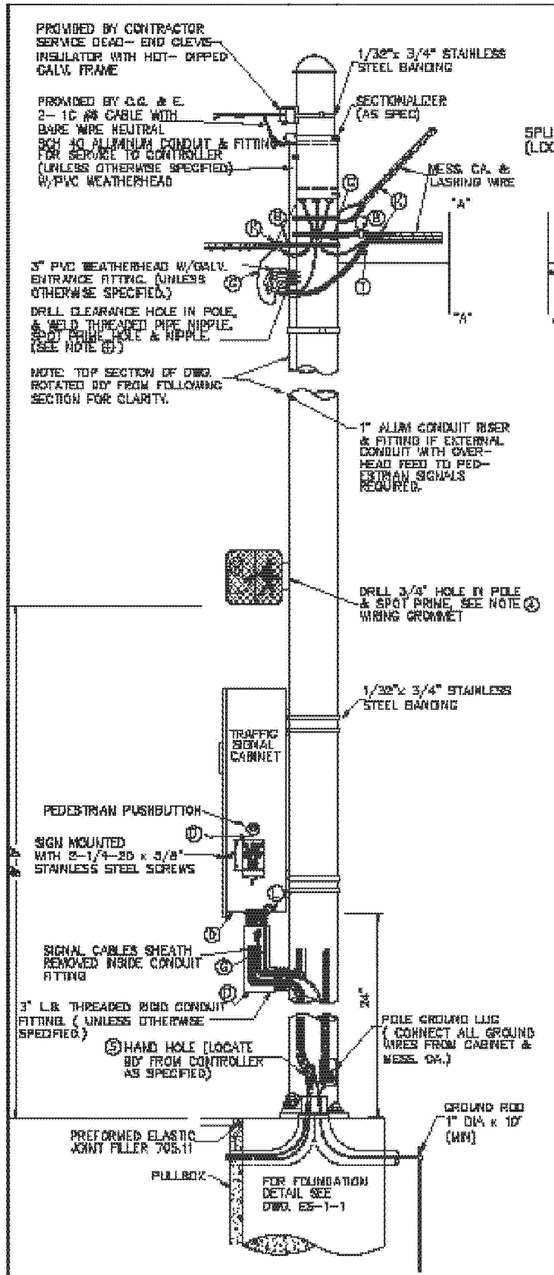
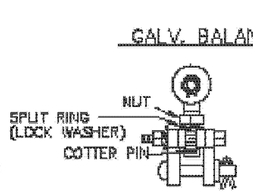
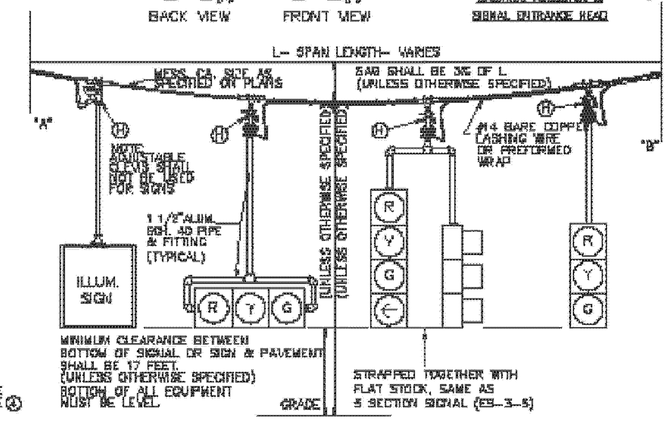


GALV. BALANCE ADJUSTER





TYPICAL SPAN WIRE INSTALLATIONS OF SIGNS & SIGNALS

NOTES:

MESSENGER CABLE SHALL NOT BE ATTACHED ABOVE 18" FROM THE TOP OF THE POLE.

ALL ALUM. PIPE FOR BRACKET ARMS, DROP PIPE, & OTHER APPLICATIONS SHALL BE STD. WT., SCHED. 40.

ALL GALV. PIPE & CONDUIT FITTINGS SHALL BE STEEL OR MALLEABLE IRON (150 LB TEST)

ALL STEEL CONDUIT SHALL BE IN COMPLIANCE WITH SPEC. 725.04

ALL PVC CONDUIT & FITTINGS SHALL BE TYPE II (SCHED. 40)

ALL MESSENGER CABLE SHALL BE COPPER COVERED STEEL 7 STRAND. ASTM B-228. GRADE 30 EHS. REFER TO PLAN FOR SIZE.

(B) SPLIT BOLT CONNECTOR, BOSSERT, BLACKBURN, McGRAW-EDISON, OR APPROVED EQUAL. CONNECT MESS. CA., LASHING WIRE, & GROUND WIRE.

(C) GALV. STEEL OR MALLEABLE IRON DOUBLE HOLE PIPE STRAPS EVERY 2' MAX.

(D) DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINETS & FITTINGS

(G) #8 AWG. BARE COPPER GROUND WIRE. ROUTE INTERNALLY IN STEEL POLE TO POLE GRD. LUG. FOR WOOD POLES, ROUTE EXTERNALLY TO POLE GROUND WIRE.

(H) SEE STANDARDS DWG ES-3-4 FOR TYPICAL SPAN WIRE ASSEMBLY DETAIL.

(K) SERVE WITH 5" TO 7" MAUSE OR SELF WRAP THROUGH THIMBLE EYE BOLT. 3 BOLT CABLE CLAMP TO BE REMOVED AFTER CABLE ENDS HAVE BEEN MAUSED.

(L) GROUNDING LUGS FOR CABINETS SHALL BE: BLACKBURN L-125, T & B1300 SERIES OR APPVD. EQUAL. FOR ALUMINUM SIGNALS ONLY.

(T) 4 TURNS OF PLASTIC TAPE OR NYLON CABLE TIES (OUTDOOR USEAGE TYPE).

MAINTAIN DRIP LOOPS ON ALL WEATHERHEAD ENTRIES.

POLE BRACKETS SHALL BE ALUMINUM W/PLATE CURVED TO CONTOUR OF POLE AND FOR 1 1/2" PIPE BRACKET ARMS.

(1) UPPER BRACKET W/1 1/4" HUB FOR EXTERNAL CONDUIT ENTRY; EAGLE SIGNAL CO. #U115B, GENERAL TRAFFIC EQUIP. CORP. #H1001 24-A OR APPROVED EQUAL.

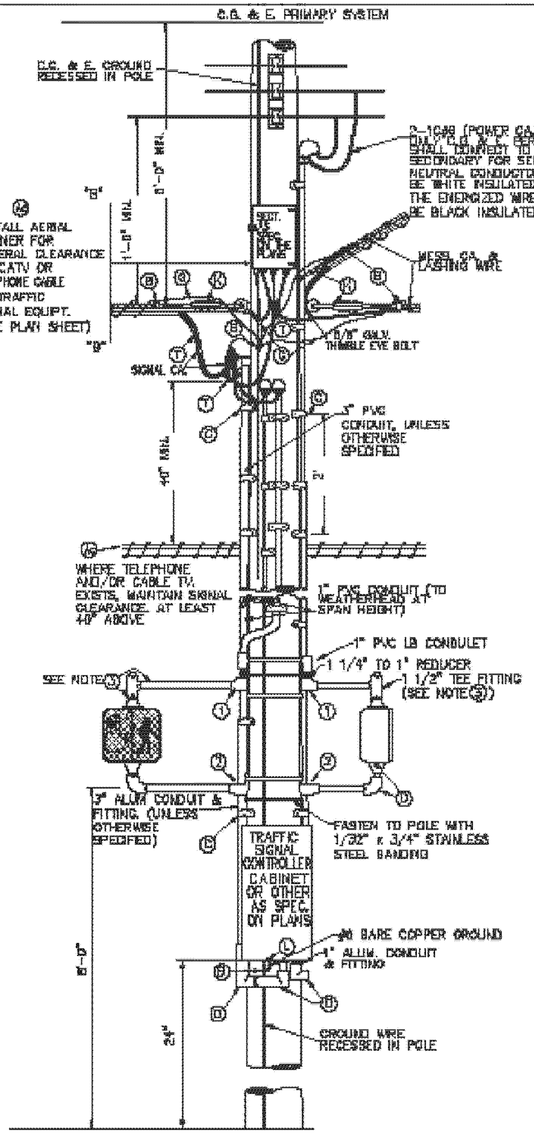
(2) LOWER BRACKET W/O HUB; EAGLE SIGNAL CO. #U116B, GENERAL TRAFFIC EQUIPT. CORP. #H1001234, OR APPROVED EQUAL.

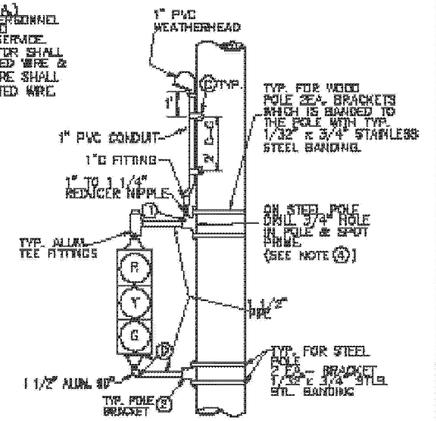
(3) PEDESTRIAN SIGNAL BRACKET SUPPORTS: 1 1/2 INCH ALUMINUM WITH ALUM. FITTINGS FOR PED. SIGNAL, OR CLAMSHELL MOUNTING ON STEEL POLES.

(A) SPOT PRIME EXPOSED SURFACES WITH "ZINC IT" OR APPROVED COLD GALVANIZING COATING. (SEE SPEC. ITEM 1317)

(S) HANDHOLE ON CONTROLLER POLE (90° OR 270°) LOCATED AS SPECIFIED.

NOTE: SPECIFICATION NUMBERS REFER TO STATE OF OHIO, DEPT. OF TRANSP., "CONST. & MATERIALS SPECS", OR ASTM SPECS.





BRACKET ARM ATTACHMENT

TOP VIEW DOUBLE HOLE STRAP & RISER

S.C.H.		8/13/04	UPDATE
T.E.		3/1/98	
		8/14/84	

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

TRAFFIC SIGNAL SPAN WIRE INSTALLATION

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED _____ DATE 7-1-98

PLAN NO. ES-3-2

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

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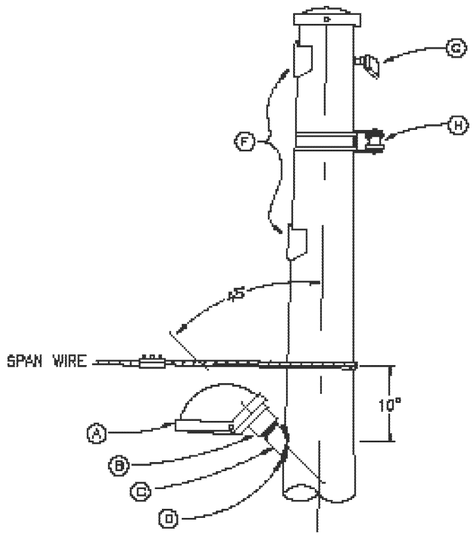
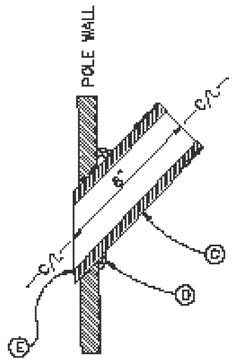
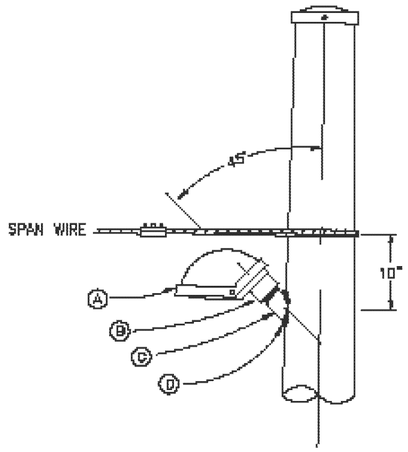
CABLE ENTRANCE DETAIL, SIGNAL & LIGHTING POLES







NOTE:

Ⓐ WEATHERHEAD,PVC SCHD. 40 CARLON MFD. OR APPROVED EQUAL, SEE MATERIAL SCHEDULE CHART FOR EACH INTERSECTION TO DETERMINE SERVICE ENTRANCE SIZE. PROVIDE MIN. DRIP LOOP OF 1FT.

Ⓑ FEMALE ADAPTER, PVC SCHD. 40 CARLON MFD. OR APPROVED EQUAL, SEE MATERIAL SCHEDULE CHART FOR SIZE.

Ⓒ USE A 12" SCHD. 40 RMC GALV. NIPPLE, MAKE A 45°CUT TO OBTAIN 2 EQUAL LENGTHS. SEE MATERIAL SCHEDULE CHART FOR SIZE. NIPPLE TO PIERCE POLE WALL.

Ⓓ MUST BE A CONTINUOUS WELD. CLEAN WELDED AREA AND COAT WITH A COLD GALVANIZING PAINT, "ZINC-IT" BY CRC CHEMICAL COMPANY, OR APPROVED EQUAL.

Ⓔ DEBUR AND CHAMFER FOR SMOOTH CABLE ACCESS.

Ⓕ FACTORY INSTALLED POLE PLATES FOR MOUNTING STREET LIGHT BRACKET ARM. CONTRACTOR TO INSTALL BRACKET ARM WITH 2 #10 WIRES, FOR LUMINAIRE POWER.

Ⓖ FACTORY INSTALLED 2" HALF COUPLING WITH CONTRACTOR INSTALLED 1" WEATHERHEAD, PVC SCHD. 40 CARLON MFD. OR APPROVED EQUAL, USED FOR LUMINARE POWER CABLE. IF HALF COUPLING MISSING INSTALL WEATHERHEAD ON TOP OF POLE CAP.

Ⓗ CONTRACTOR INSTALLED CLEVIS & INSULATOR, (SINGLE BALL RACK). ATTACH WITH 3/4" X 0.030" STAINLESS STEEL BANDING.

STATE OF OHIO
STEVEN GERALD BAILEY
49137
REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/13/04	UPDATE
T.E.		3/1/98	
DESIGN	APPROVED	DATE	NO.
		8/14/84	

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

NIPPLE INSTALLATION DETAILS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steve Bailey DATE 4-27-05

SCALE	SCALE	SHEET	PLAN NO.
			ES-3-3

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

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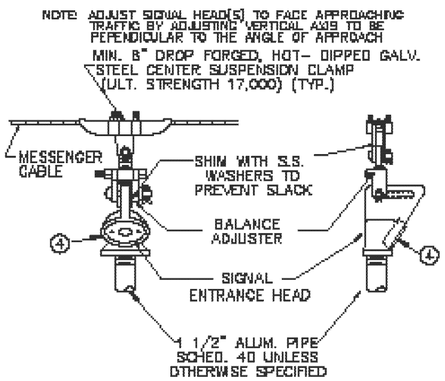
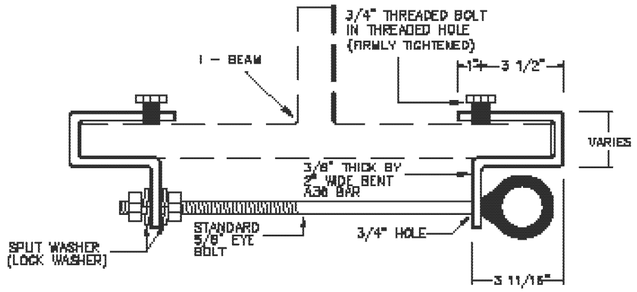
FED. AID PROJ. NO.	STATE	PROJECT	PROJECT NO.
5	OHIO		

NOTE: ADJUST SIGNAL HEAD(S) TO FACE APPROACHING TRAFFIC BY ADJUSTING VERTICAL AXIS TO BE PERPENDICULAR TO THE ANGLE OF APPROACH

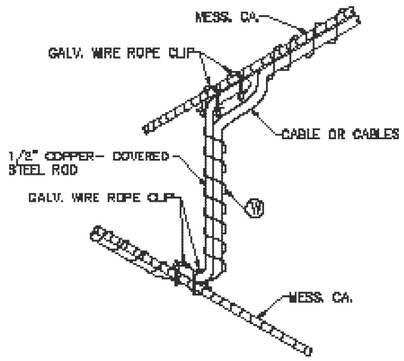


* BALANCE ADJUSTER REQUIRED FOR ALL SIGNAL HEADS. NOT NORMALLY REQUIRED FOR SIGNS.

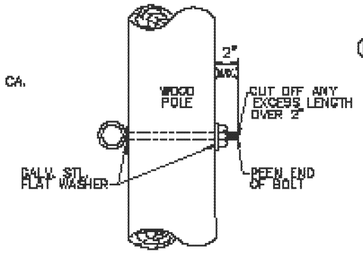
TYPICAL SPAN WIRE HANGER ASSEMBLY



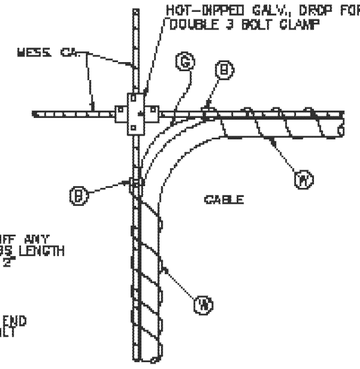
I- BEAM CLAMP



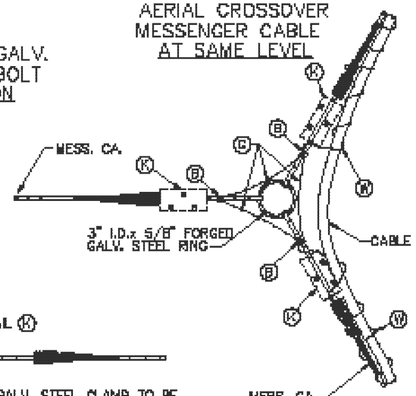
MESSENGER CABLES AT DIFFERENT LEVELS

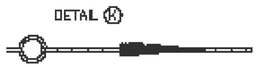


TYPICAL 5/8" GALV. THIMBLE EYE BOLT INSTALLATION



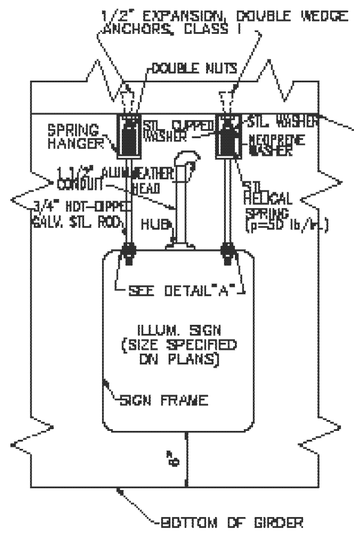
AERIAL CROSSOVER MESSENGER CABLE AT SAME LEVEL

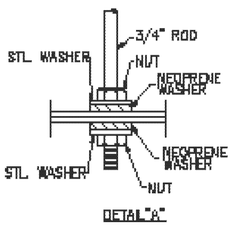




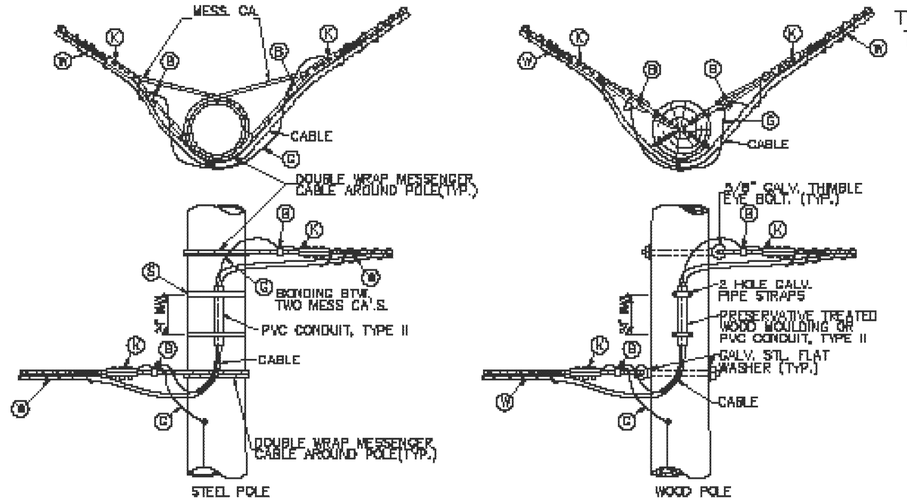
3 BOLT GALV. STEEL CLAMP TO BE USED DURING CONSTRUCTION ONLY. SERVE CABLE ENDS WITH 5 TO 7 MAUSS OF SELF WRAP AS SHOWN BEFORE REMOVING CLAMP.

AERIAL CORNER (BULL RING)





SPRING HANGER FOR BRIDGE MOUNTING



MESSENGER WIRE & CABLE RISE AT DIFFERENT LEVELS

GENERAL NOTES

- (B) SPLIT BOLT CONNECTOR; DOSSERT, BLACKBURN, McGRAW-EDISON, OR APP'VD. EQUAL
- (G) #6 AWG. SOLID BARE COPPER GROUND WIRE
- (K) 3 BOLT CLAMP (SEE DETAIL).
- (S) 1/16"x 7/8" STAINLESS STEEL POLE BANDING
- (W) #14 BARE COPPER LASHING WIRE OR #12 PREFORMED COPPER LASHING RODS
- (+) BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD MUST BE INSTALLED WITH WIRE ENTRANCE FACING APPRDACHING TRAFFIC.

STATE OF OHIO STEVEN GERALD BAILEY 19331 REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steven Bailey	8/18/04	UPDATE
T.E.		3/1/98	
DESIGN	APPROVED	DATE	NO.
		12/07/84	

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

AERIAL & BEAM ATTACHMENTS & HARDWARE

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steven Bailey DT. 3-4-99

SCALE	SCALE	DRAWN	PLAN NO.
-		VGRD	ES-3-4

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

TRAFFIC

HAM-50-18.79

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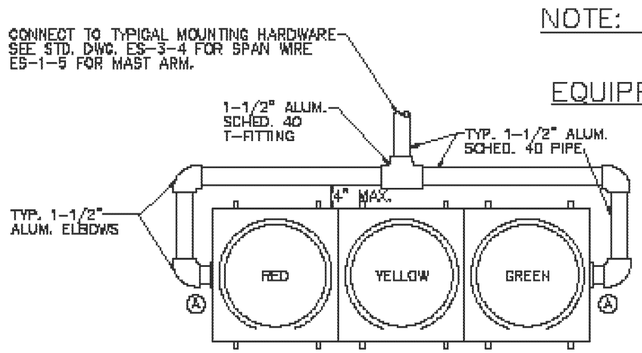
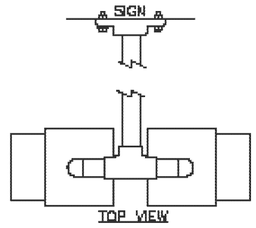
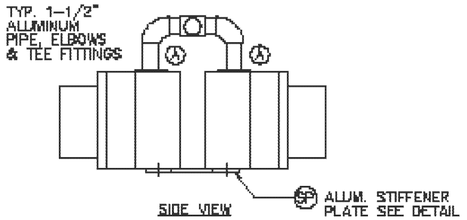
NOTE: ALL TRAFFIC SIGNALS ARE TO BE L.E.D. AND EQUIPPED WITH TUNNEL VISORS

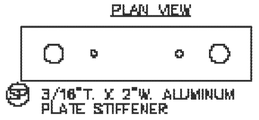


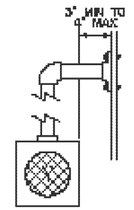


TYP. HORIZONTAL TRAFFIC SIGNAL ARRANGEMENT



Ⓓ TYP. DOUBLE SECTION 8" YELLOW SIGNAL HEAD DETAIL





FRONT VIEW

GENERAL NOTES

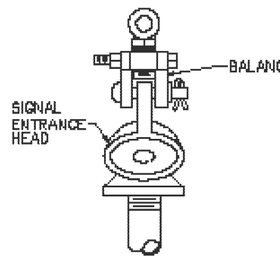
SIGNALS AND OR WARNING SIGN & SIGNALS SHALL BE INSTALLED WITH 17 FEET OF CLEARANCE TO PAVEMENT GRADE.

STEEL PIPE & FITTINGS SHALL BE GALV. SCHED. 40.
ALUM. PIPE & FITTINGS SHALL BE SCHED. 40

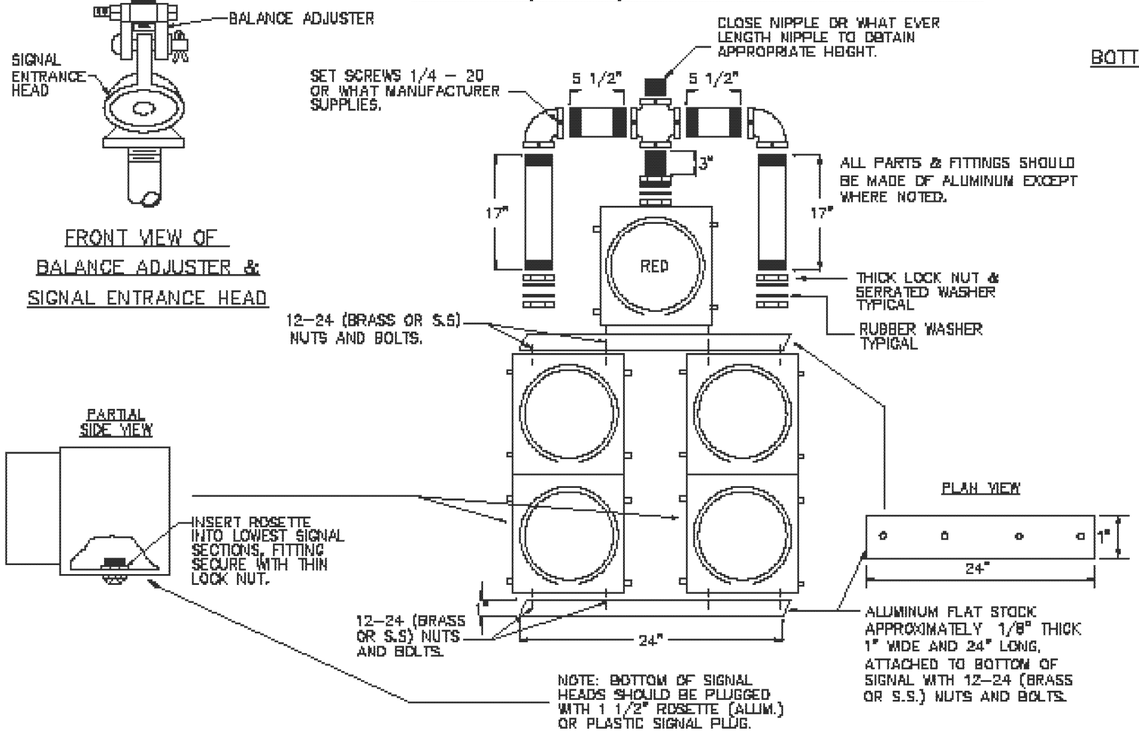
ALL HARDWARE FOR SECURING HUBS TO SIGN CABINETS SHALL BE STAINLESS STEEL NUTS, BOLTS & WASHERS SIZED TO HUB OPENINGS.

HUBS SHALL BE SIZED TO 1-1/2 INCH PIPE. PROVIDE ENTRANCE HOLE (1 INCH) FOR WIRE ENTRY INTO SIGN CABINET. SECURE WEATHERPROOF SEAL OF HUBS TO SIGNS WITH GASKETS.

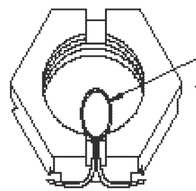
5 SECTION (CLUSTER) POLYCARB TRAFFIC SIGNAL DESIGN

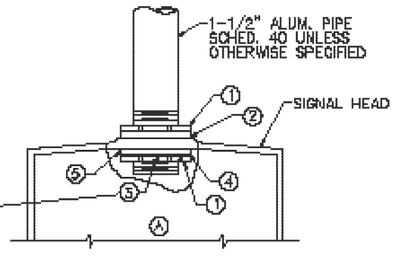


FRONT VIEW OF BALANCE ADJUSTER & SIGNAL ENTRANCE HEAD



BOTTOM VIEW COTTER PIN DETAIL





NOTES (FOR Ⓐ & Ⓑ)

① 1-1/2" ALUMINUM OR GALV. MALLEABLE LOCK NUT. (THICK TYPE 3/8" TO 1/2" THICK).

② SERRATED BUSHING.

Ⓢ DRILL HOLE IN NIPPLE WERE SLOT FOR THE NIPPLES OF THE SERRATED WASHER WOULD FIT IN. INSERT COTTER PIN IN HOLE. AS SHOWN ABOVE.

Ⓣ 1-1/2" STAINLESS STEEL WASHER.

Ⓢ 1-1/2" RUBBER WASHER.

⑥ ALL THREADS ON STEEL PIPE ARE TO BE PAINTED WITH A ZINC RICH PRIMER PRIOR TO ASSEMBLY.

Ⓐ TYPICAL METHOD OF CONNECTING TRAFFIC SIGNAL HEAD WITH NIPPLE OR MANUF'D ENTRANCE FITTING

TOTAL NO. SHTS.	SCALE	PROJECT	FINAL SHEET
5	OHIO		

STATE OF OHIO — STEVEN DONALD BAILEY — 49331 — REGISTERED PROFESSIONAL ENGINEER

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

SPECIAL TRAFFIC SIGNAL & SIGN ARRANGEMENT DETAILS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: Steve Bailey DATE: 3-4-99

S.C.H.	Steve Bailey	8/20/04	UPDATE				
T.E.		3/1/98					
DESIGN	REVISION	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
R.R.R.	APPROVED	6/26/92			NEW STANDARD	CDS ASSOCIATES	ES-3-5

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

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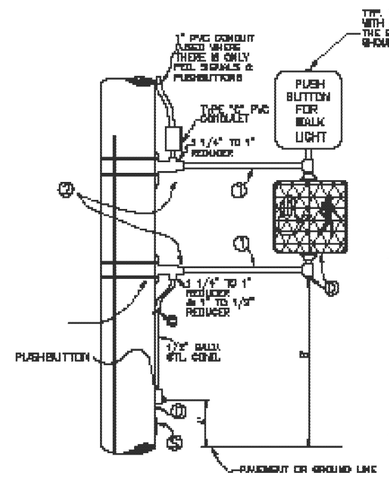
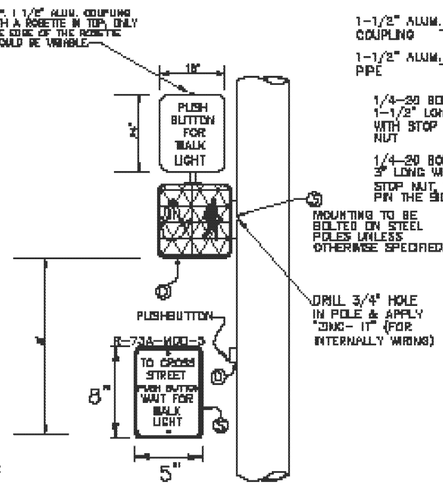
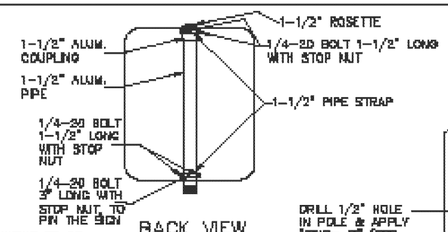


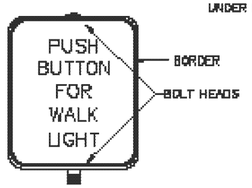
WOOD POLE INSTALLATION



STEEL POLE INSTALLATION

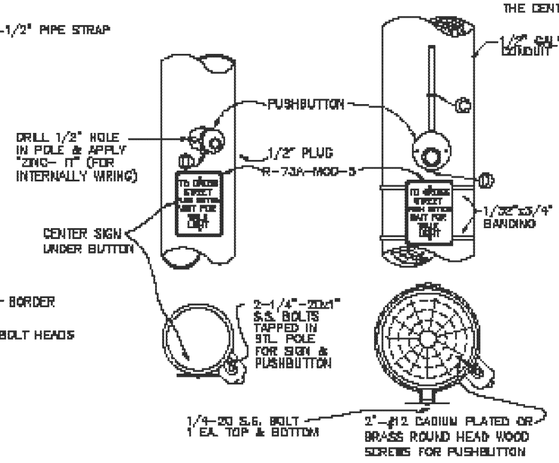


BACK VIEW LARGE PUSHBUTTON SIGN



FRONT VIEW LARGE PUSHBUTTON SIGN

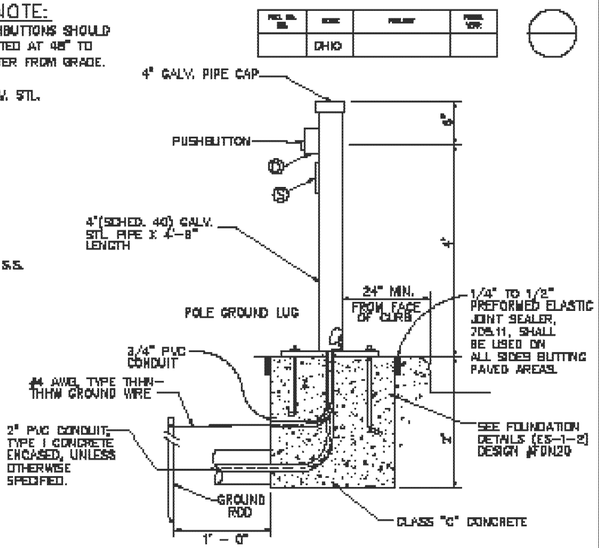
NOTE:
ALL PUSHBUTTONS SHOULD BE MOUNTED AT 48" TO THE CENTER FROM GRADE.



STEEL POLE

WOOD POLE

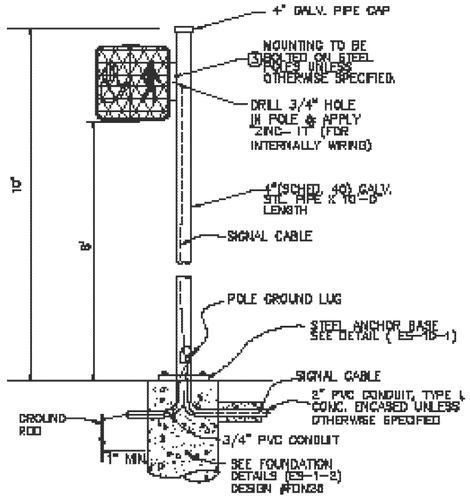
TYPICAL PUSHBUTTON INSTALLATION



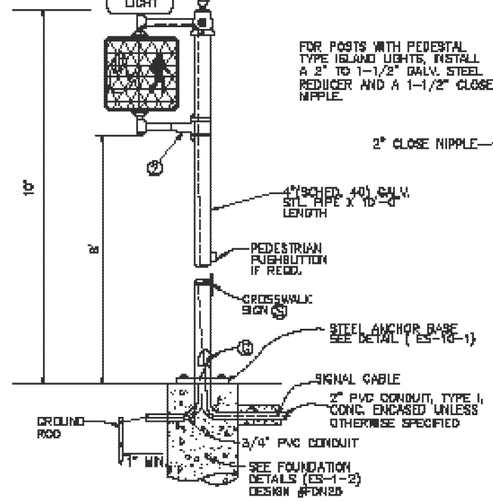
445 PUSHBUTTON PEDESTAL

PEDESTRIAN SIGNAL PEDESTAL

WHEN 1045 HAS ONLY 1 PED. SIGNAL CLAMSHELL MOUNTING SHOULD BE USED AND IT SHOULD BE BOLTED TO THE POLE. IF THERE ARE MORE THAN ONE PED. SIGNAL, THEN THEY SHOULD BE MOUNTED 90 DEGREES FROM EACH OTHER AND BANDED AS SHOWN BELOW TO THE RIGHT.



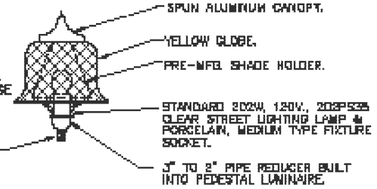
PEDESTRIAN SIGNAL PEDESTAL
1045

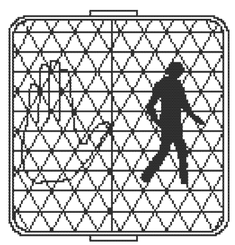


PEDESTRIAN SIGNAL PEDESTAL
1045 WITH PUSHBUTTON, PUSHBUTTON SIGN AND/OR PEDESTAL ISLAND LIGHT FIXTURE
FURNISHED BY CITY

PEDESTAL TOP

FOR MORE INFO, REFER TO ES-6-5





L.E.D. HAND (DONT WALK)
L.E.D. WALKING MAN (WALK)

NOTES

① – GALVANIZED STEEL OR MALLEABLE IRON CONDUIT CLAMPS EVERY 2' MAX.
② – DRILL 3/8" DRAIN HOLE IN LOWEST PART OF CABINET & FITTING.
③ – # 8 AWG BARE COPPER GROUND WIRE TO GROUND ROD.
⑤ – SMALL PUSHBUTTON SIGN, 5"x 8".

ALL ALUMINUM PIPE SHALL BE SCHEDULE40
PVC CONDUIT & FITTINGS SHALL BE SCHEDULE 40
ALL STEEL PIPE SHALL BE GALV. SCHED. 40, (ASTM-A53)
ALL STEEL CONDUIT SHALL BE 713.04
THREADED PARTS SHALL BE TREATED WITH "ZINC-IT" AT TIME OF ASSEMBLY.

① PEDESTRIAN SIGNAL BRACKET SUPPORTS (PED. ARMS): 1-1/2 INCH ALUMINUM, UNLESS OTHERWISE SPECIFIED.
② PEDESTRIAN SIGNAL BRACKETS (POLE PLATE): ALUMINUM CURVED TO FIT THE CONTOUR OF THE POLE, FOR 1-1/2" BRACKET ARMS WITH 1-1/4" HUB, EAGLE SIGNAL CO. #U1139, GENERAL TRAFFIC EQUIP. CORP. # H100124 OR AN APPROVED EQUAL.
③ CLAMSHELL MOUNTING BRACKET: TO BE USED ON ALL STEEL POLES UNLESS OTHERWISE SPECIFIED.

NOTE: SPECIFICATION NUMBERS REFER TO STATE OF OHIO, DEPT. OF TRANSP. "CONST. & MATERIAL SPECS." OR ASTM SPECS.

STATE OF OHIO — STEVEN GERALD BAILEY — 49331 — REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steve Bailey	8/24/04	UPDATE	
T.E.		3-1-98		
	RRR	7/29/72		
DESIGN	REVISION	DATE	WO #	
	APPROVED	10-12-94		

TRAFFIC SIGNAL INSTALLATIONS (ES-3)

PEDESTRIAN SIGNALS & PUSHBUTTONS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: Steve Bailey DATE: 3-4-99

SCALE	SOURCE	DRAWN	FILE NO.
		MYAD	ES-3-6

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

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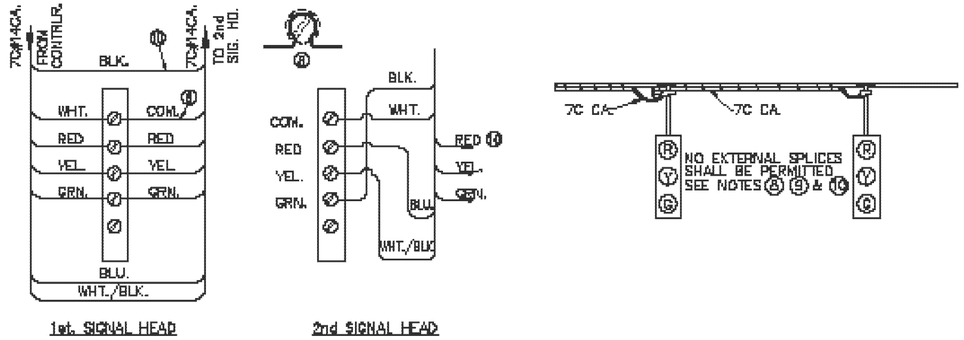

THE 7C CA. SHALL BE ROUTED IN & OUT OF FIRST SIGNAL HEAD IN THIS CASE. EACH SIGNAL HEAD SHALL BE FURNISHED WITH A 5 POLE WIRING TERMINAL. SEE NOTES (A), (B) & (10) FOR WIRING CONNECTIONS.

WIRING DETAIL

NUMBER OF CONDUCTORS	CONDUCTOR COLOR CODE	VEHICLE SIGNALS: 1–3 OR 4 SECTION TRAFFIC SIGNAL HEADS	VEHICLE SIGNALS: 2–3 SECTION TRAFFIC SIGNAL HEADS SEE NOTE (1)	VEHICLE SIGNALS: 1–5 SECTION TRAFFIC SIGNAL HEADS	PEDESTRIAN SIGNALS: 1 PED. SIGNAL W/AUDIBLE DEVICE INCL. PUSHBUTTON	REVERSIBLE LANE CONTROL SIGNAL (15)	PHOTO ELECTRIC CELL (FOR ISLAND LIGHTING)	WARNING SIGNALS: EMERGENCY VEHICLE ADVANCE WARNING OR FLASHING SIGNAL	DETECTORS NOTE (4): LOOP OR MAGNETIC AMPLIFIER LOCATED REMOTE FROM CONTROLLER	SERVICE	OTHERS: ILLUMINATED SIGNS, PUSHBUTTONS, SPARE UNITS, FLASHERS (NOTE 14), SPARE UNIT SIGNAL LENS, ISLAND LIGHTING
1	BLK.	1ST ARROW SIGNAL (OR SPARE)	GRN. SIGNAL (2ND HEAD) & SPARE (1ST HEAD)	GREEN ARROW	SPARE	GREEN ARROW (IN BOUND)	120V. SERVICE	SIGN OR SPARE	120V. SERVICE	120V. SERVICE OR 240V. ST. LIGHT SERVICE	120V. OR ENERGIZED LINE
2	WHT.	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON	COMMON
3	RED	RED SIGNAL	RED SIGNAL (1ST HEAD)	RED SIGNAL	DONT WALK	RED X (OUT BOUND)	120V. CONTROL LINE FROM CELL TO LIGHTING CONTRACTOR	FLASH SIGNAL	DETECTOR TERMINAL CHANNEL 1	240V. ST. LIGHT SERVICE	
4	GRN.	GRN. SIGNAL NOTE (12)	GRN. SIGNAL (1ST HEAD)	GRN. SIGNAL	WALK (17)	GREEN ARROW (OUT BOUND)			DETECTOR TERMINAL CHANNEL 2	EQUIPMENT GROUND REQUIRED FOR 240V. CKTS.	
5	YEL (OR GRN.)	YELLOW SIGNAL	YELLOW SIGNAL (1ST HEAD)	YELLOW SIGNAL	AUDIBLE DEVICE (FLSW) (17)	RED X (IN BOUND)		ALTERNATE FLASHING SIGNAL (OR SPARE)	DETECTOR TERMINAL CHANNEL 3		
6	BLU		RED SIGNAL (2ND HEAD)		PUSHBUTTON				DETECTOR TERMINAL CHANNEL 4		
7	WHT. ILL-FL		YELLOW SIGNAL (2ND HEAD)	YELLOW ARROW	PUSHBUTTON				SPARE		
CABLE REQUIREMENTS		1–7C#14GA.	1–7C#14GA.	1–7C#14GA.	1–7C#14GA.	1–7C#14GA.	1–3C#14GA. (11)	1–7C#14GA.	1–7C#14GA.	2–#8CA. OR (9) 3–#8CA.	1–2C#12CA. (ISLE LIGHTING CIRCUIT)

NOTES

ALL TRAFFIC SIGNAL CABLE SHALL BE SOLID OR STRANDED COPPER CONDUCTORS AND SHALL BE RATED 600V.– ISMA SPEC.1B–1 OR 20–1, UNLESS OTHERWISE SPECIFIED
ALL CABLES SHALL BE ROUTED FROM THE CONTROLLER, DIRECTLY TO THE DEVICE. (HOME RUN)
EXCEPTIONS:
NOTE (1) WHERE (2) TWO VEHICLE SIGNALS ARE CONNECTED TO ONE (1) 7C#14 CA. THIS REFERS TO 2 SIGNALS ON THE SAME MESS. CA., OR MAST ARM, AND WHICH SERVICE THE SAME APPROACH OR PHASE. REFER TO WIRING DETAIL THIS SHEET.
NOTE (2) CONNECT GREEN CONDUCTOR TO ARROW WHERE ARROW IS USED INSTEAD OF GREEN LENS (TYP.)
NOTE (3) WHEN WIRING ILLUMINATED OVERHEAD SIGNS, USE 1–2C#12 CA. & CONNECT IN PARALLEL AS MANY AS 4 OR 5 SIGNS, SO LONG AS THE VOLTAGE DROP IS WITHIN 5%. SEE CHART.
NOTE (4) DETECTOR LEAD–IN CABLE SHALL BE CONNECTED FROM LOOP TO AMPLIFIER AND SHALL BE 2C#14 SHIELDED (19x 27 STRANDING). CONNECT SHIELD AT AMPLIFIER CABINET GROUND ONLY.
NOTE (5) CABLE CONNECTING SIGNAL HEAD TO CONTROL STATION CABINET.
NOTE (6) POWER & SERVICE CONDUCTORS NORMALLY #6 BUT MAY BE SPECIFIED LARGER. CONDUCTOR SHALL BE 600 VOLT, RHH/RHW/USE INSULATED.

NOTE (7) AUDIBLE DEVICE FOR BLIND PEDESTRIANS. PROVIDE CONDUCTORS FOR PROPOSED OR FUTURE DEVICES. CONNECT WALK DEVICE TO WALK SIGNAL CONDUCTOR. PROVIDE SEPARATE CONDUCTOR TO CONTROLLER FOR FLASHING DONT WALK DEVICE.

NOTE (8) TYPICAL METHODS FOR CONNECTING TO TERMINAL STRIP.
1) REMOVE INSULATION FROM APPROX. 1" OF CONDUCTOR AND LOOP AROUND TERMINAL OR
2) CONNECT BOTH CONDUCTORS OF SAME COLOR TO A RING TONGUE OR FORKED TONGUE LUG.
NOTE (9) TYPICAL METHOD FOR DEAD–END CONDUCTOR W/ND TERMINAL CONNECTION.
1) USE INSULATED SPLICE BUTT TYPE CONNECTOR. T & B 2 RB–14, BURNDY #5N–14, 3M CO. "INSULINK" OR APPROVED EQUAL OR
2) TAPE BACK CONDUCTOR END.
NOTE (10) TYPICAL METHOD FOR CONTINUING CONDUCTOR THRU SIGNAL HEAD W/O TERMINAL CONNECTION.
1) MAINTAIN UNUSED CONDUCTOR IN AND OUT OF SIGNAL HEAD W/O CUTTING OR SPLICING. OR
2) SPLICE UNUSED CONDUCTORS W/INSULATED SPLICE BUTT CONNECTORS. SEE NOTE (8) FOR CONNECTOR TYP.
NOTE (11) 3#14 CABLES NORMALLY USED WHERE PHOTOCELL CONTROLS CONTACTOR COIL ONLY. WHERE PHOTOCELL USED TO PROVIDE DIRECT SERVICE FEED, USE 3C#12.

ILLUMINATED SIGNS

NO. OF SIGNS	ALLOWABLE MAX. LENGTH OF 2C#12 FROM CONTRLR. TO SIGNS
2	1000'
3	750'
4	450'
5	350'

STATE OF OHIO
STEVEN GERALD BAILEY
48331
REGISTERED PROFESSIONAL ENGINEER

S.C.H.	Steven Bailey	8/30/04	UPDATE	
T.E.		3/1/98		
CODE	APPROVED	DATE	NO.	SCALE / REMARKS / SHEET NO.
		11/21/94		– / VGRD / ES–3–9

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

WIRING CODE & SPLICING DETAIL

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED Steven Bailey DAT. 3-4-99

CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

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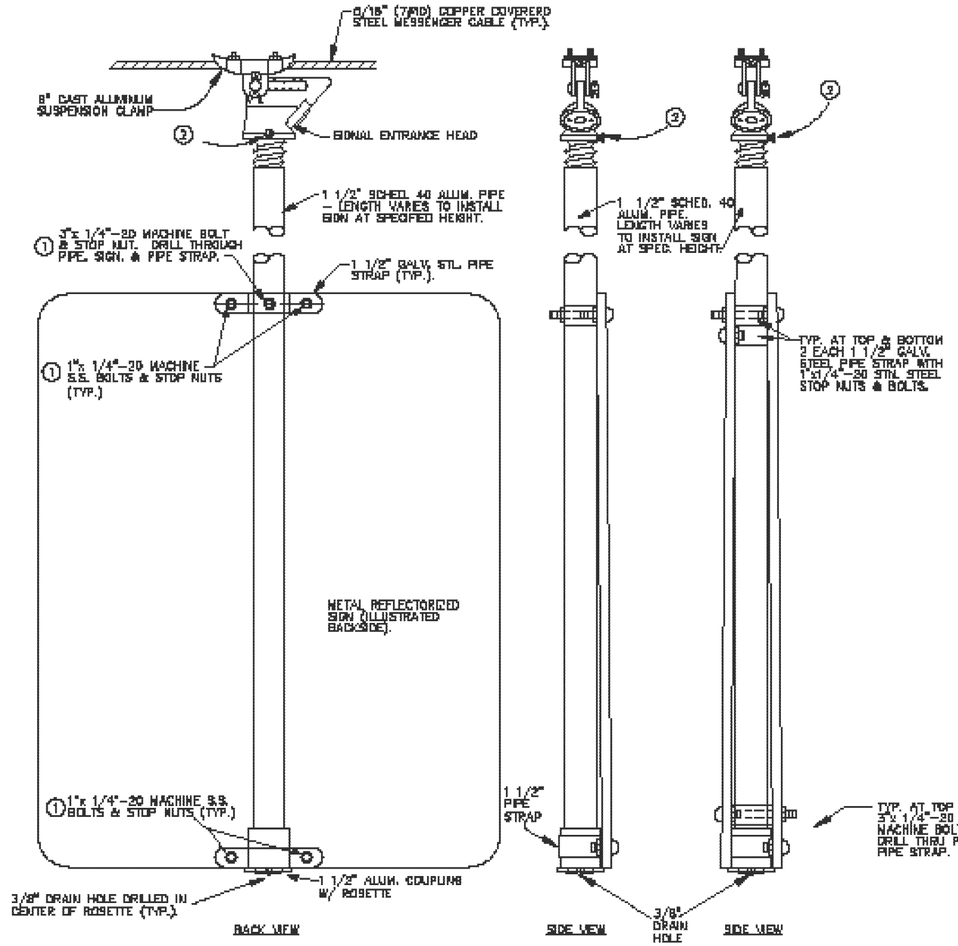
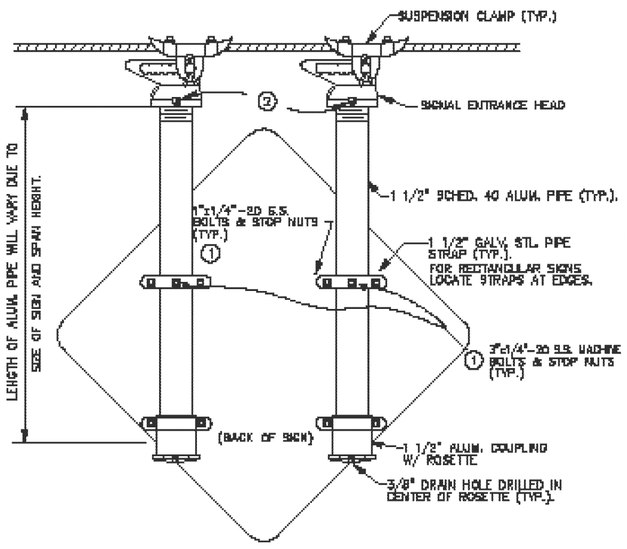
NOTES:

1. ALL BOLTS, STOP NUTS, AND WASHER SHALL BE STN. STEEL. ALL PIPE, SCHED. 40 ALUMINUM.
2. 1/4" x 20 STAINLESS STEEL SET SCREW.

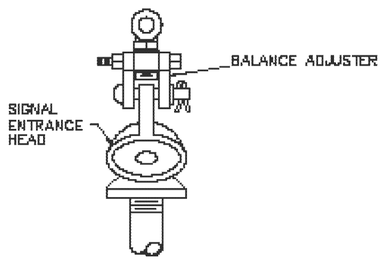


TYPICAL INSTALLATION
STANDARD REFLECTORIZED SIGN
(SIZES 24"x24", 24"x30")

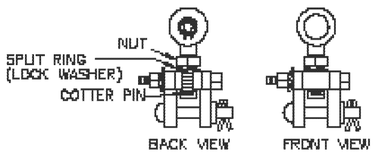
BACK TO BACK
(DOUBLE FACE)
SIGN ATTACHMENT



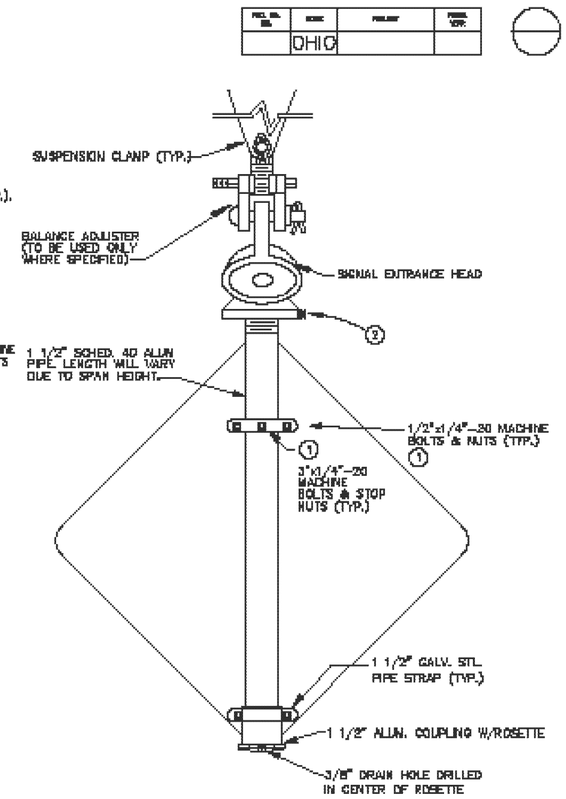
MOUNTING FOR LARGE DIAMOND– SHAPE SIGN
(SIZES 30"x30", 36"x36")
OR STANDARD SIGNS WIDER THAN 24"



FRONT VIEW OF
BALANCE ADJUSTER &
SIGNAL ENTRANCE HEAD



GALV. BALANCE ADJUSTER



MOUNTING FOR SMALL DIAMOND–SHAPE SIGN
(SIZE 24"x24")

STATE OF OHIO
STEVEN GERALD BAILEY
40331
REGISTERED PROFESSIONAL ENGINEER

S.C.H.		9/15/04	UPDATE
T.E.		3/1/98	
DESIGN	REVISION APPROVED	DATE	WO #
R.R.R.		12/06/94	

TRAFFIC SIGNAL INSTALLATIONS (ES–3)

REFLECTORIZED SIGN
INSTALLATION DETAILS

CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

APPROVED: _____ DATE: 3-4-98

SCALE	SOURCE	DRAWN	FILE NO.
N.S.			ES–3–10A

OHIO

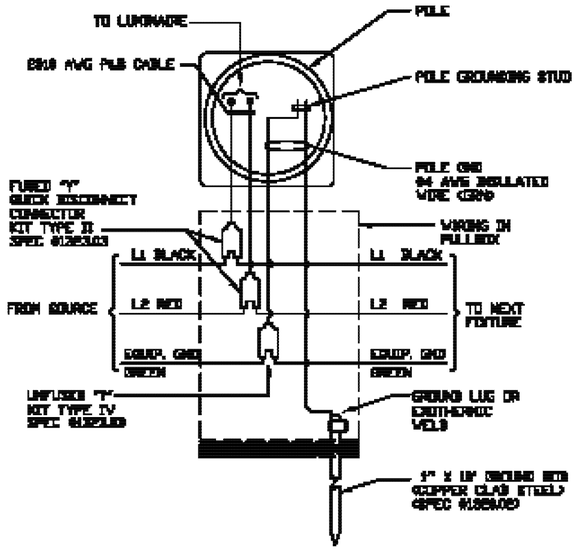
CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

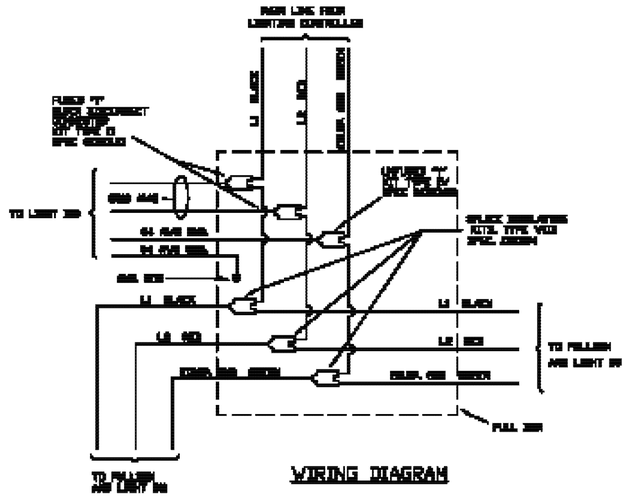
280
657

\signals\sheets\20082-280.dgn 11/15/2010 9:03:57 AM

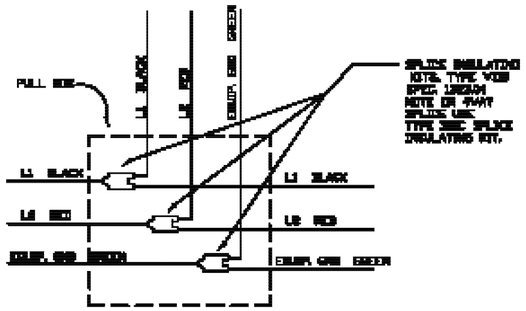


WIRING DIAGRAM

POLE W/PULLBOX

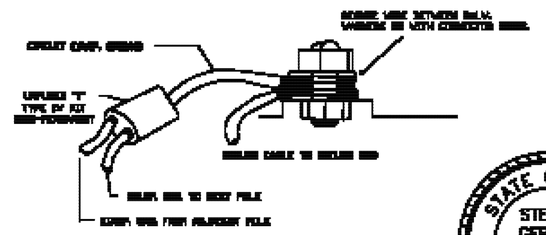


WIRING DIAGRAM



WIRING DIAGRAM

3 WAY SPLICE IN A PULL BOX



DETAIL

3-WIRE EQUIPMENT GROUND

CONNECTION TO POLE LUG.

FUSES

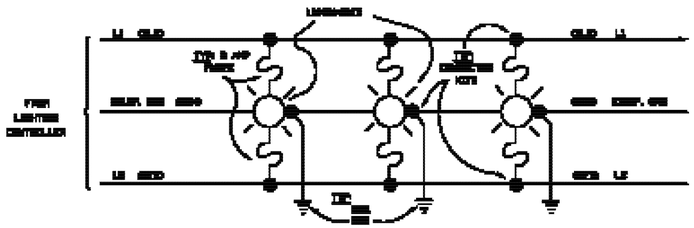
ALL FUSES 200,000 A.I.C. CURRENT LIMITING
FUSES FOR LIGHTING CONNECTOR KITS:
15 AMP UL CLASS CC.

FUSES FOR CONTROL LINE, MAIN SERVICE
& LIGHTING CABINET (SIZE PER PLAN)
UL CLASS RK5 DUAL ELEMENT, TIME DELAY.

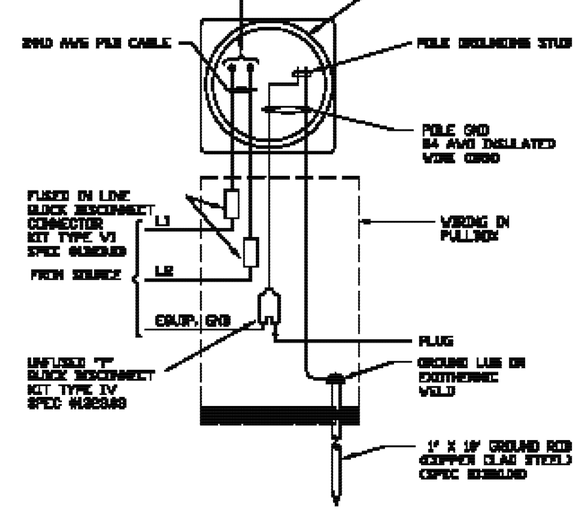
CONNECTOR/SPLICE KITS

TYPE II UNFUSED Y QUICK DISCONNECT TYPE
TYPE IV UNFUSE Y TYPE SEMI-PERMANENT
TYPE VI FUSED IN LINE QUICK DISCONNECT TYPE
TYPE VIIIA IN LINE SPLICE KIT
TYPE VIIIB Y TYPE SPLICE KIT
TYPE VIIIC H TYPE SPLICE KIT

SBC-SPLIT BOLT CONNECTOR.
COVER WITH ELECTRICAL TAPE AND
APPLY LIBERAL COAT OF "SKOTCH KOTE"
FOR A WATERTIGHT SPLICE/CONNECTION.



TYPICAL CIRCUIT WIRING SCHEMATIC



WIRING DIAGRAM

POLE W/PULLBOX

END OF LINE

STATE OF OHIO
STEVEN GERALD BAILEY
48331
REGISTERED
PROFESSIONAL ENGINEER

				STREET LIGHTING INSTALLATIONS (ES-7)			
				CONNECTOR KIT INSTALLATION & POLE WIRING DIAGRAMS			
				CITY OF CINCINNATI DEPT. OF TRANSPORTATION & ENGINEERING DIV. OF TRAFFIC ENGINEERING			
S.C.H.	S.C.H. Bailey	9/15/04	UPDATE	APPROVED S.C.H. Bailey	DATE 4-27-05		
DESIGN	REVISION APPROVED	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
JEW		5-6-03				RCS	ES-7-3

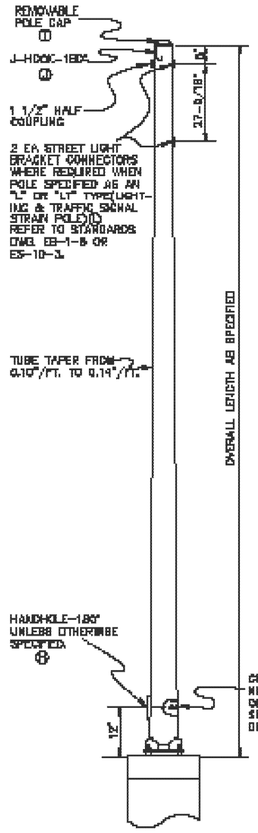
CALCULATED | CHECKED

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

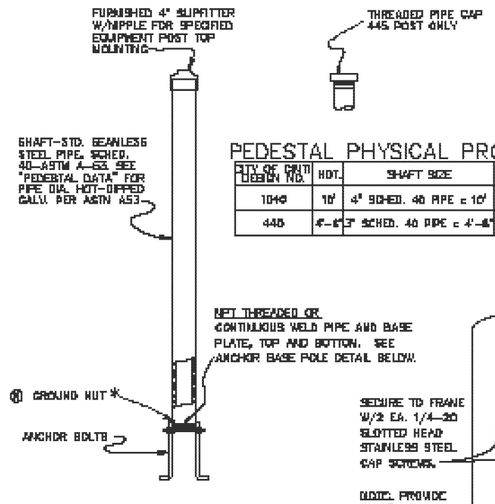
281
657

FED. DIST. NO.	STATE	PROJECT	FEDERAL PROJECT NO.
5	OHIO		



TYPICAL STEEL ANCHOR BASE PEDESTAL

(BREAKAWAY SUPPORT)



PEDESTAL PHYSICAL PROPERTIES

CITY OF CINTI DESIGN NO.	HDT.	SHAFT SIZE	ANCHOR BOLTS
1048	18'	4" SCHED. 40 PIPE x 18'	3/4" x 30"
445	4'-6"	3" SCHED. 40 PIPE x 4'-6"	3/4" x 12"

PEDESTAL BASE DIMENSIONS

(SEE POLE BASE DETAIL)

DIMENSION	INCHES
"F"	8 3/4
"H"	1"
"S"	11"
"T"	1" STEEL PLATE 211.01
"B" BOLT CIRCLE	9 1/2

POLE CAPS

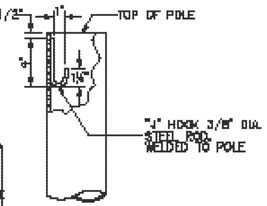
POLE CAPS SHALL BE MADE OF MALLEABLE STEEL OR CAST IRON. SET SCREWS, IF USED, SHALL BE STAINLESS STEEL. CAPS SHALL BE OVERSIZED TO PROVIDE SHAFT VENTILATION. (SEE DETAIL)

REMOVEABLE POLE TOP

ACCESSORY ⑦

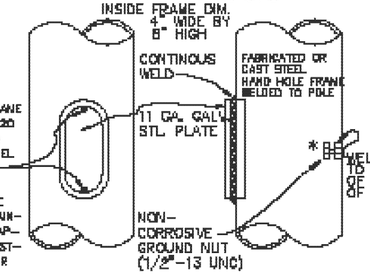
"J" HOOK WIRE SUPPORT

ACCESSORY ①



HAND HOLE ⑧/⑨

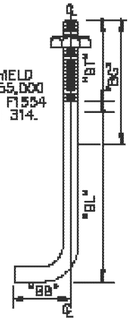
INSIDE FRAME DIM. 4" WIDE BY 8" HIGH



ALTERNATE GROUND NUT LOCATION MAY BE PROVIDED ON HANDHOLE FRAME (POLE INTERIOR) BUT SHALL NOT BE POSITIONED SO AS TO RESTRICT OR IMPEDE ACCESS TO POLE INTERIOR.

* WELD GROUND NUT TO INSIDE OF PIPE WHEN GROUND NUT IS TO BE LOCATED ON POST.

ANCHOR BOLTS



BOLT MIN. YIELD STRENGTH 55,000 P.S.I. ASTM F1554 /AASHTO M 314.

NOTE: GALVANIZING "BG" (THREAD LENGTH) + 1" TO 4". LEVELING NUTS, ANCHOR NUTS, & LEVELING SHIMS SHALL BE GALVANIZED PER ASTM A-153. ANCHOR BOLTS, ANCHOR NUTS, & LEVELING NUTS SHALL CONFORM TO ASTM A-563 GRADE A.

LEVELING SHIMS SHALL HAVE A MIN. 10,000 LB. BREAKING STRENGTH. ANCHOR BOLTS SHALL BE "L" SHAPED.

ANCHOR BOLT DIMENSIONS (INCHES)

ANCHOR BOLTS FOR BRIDGE MOUNTED POLES

ANCHOR BOLTS MUST MEET THE REQUIREMENTS LISTED, EXCEPT THE BOLT SHALL BE 3" LONGER AND SHALL EXTEND INTO THE FIRST FOOT OF THE STRUCTURE.

BOLT SIZE	"BB"	"BL"	"BT"	"BG"
3/4" x 30"	4	30	6	8
1" x 40"	4	30	6	8
1-1/4"x48"	5	34	8	10
1-1/2"x60"	5	45	9	11
1-3/4"x80"	5	75	9	11
2" x 86"	5	80	10	12

GENERAL NOTES

POLES SHALL BE FABRICATED OF STEEL MATERIAL AND SHALL CONFORM TO AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" EXCEPT THAT THE DESIGN WIND LOAD SHALL BE BASED ON 90 MILES PER HOUR.

1. MINIMUM YIELD STRENGTH FOR POLES, AFTER FABRICATION & GALVANIZING SHALL BE 55,000 P.S.I.
2. SHAFT CONSTRUCTION SHALL MEET THE REQUIREMENTS OF C.D.-O.T. SPEC. 725.11. SHAFT TYPE SHALL BE CIRCULAR OR REGULAR POLYGONS WITH EIGHT (8) OR MORE EQUAL SIDES WITH ROUNDED CORNERS TO 1/8 INCH RADIUS. THE MINIMUM DIMENSION ACROSS THE FLATS OF A POLYGONAL POLE SHALL BE CONSIDERED THE DIAMETER OF THE POLE.
3. ACCESSORIES: ALL POLES SHALL BE FURNISHED WITH POLE CAP, "J" HOOK, HAND HOLE & ANCHOR BOLT COVERS. ENTRANCE FITTINGS SHALL BE SPECIFIED. GREY IRON CASTINGS SHALL CONFORM TO ASTM-A126 CLASS A. STEEL CASTINGS SHALL CONFORM TO ASTM A27 GRADE 65-35.
4. WELDING SHALL CONFORM WITH D.O.T. SPEC. 711.07, AND SHALL BE CONTINUOUS STRUCTURAL VALUES DEVELOPING THE FULL STRENGTH OF THE POLE.
5. POLE FINISH

   POLE FINISH SHALL BE ONE OF THE FOLLOWING. UNLESS OTHERWISE SPECIFIED POLES SHALL BE GALVANIZED.

   A) GALVANIZED PER O.D.O.T. SPEC. 725.01-H, AND THE FOLLOWING ASTM SPECS:

SEAMLESS STEEL PIPE	ASTM A53.
POLES	ASTM A123
IRON & STEEL HARDWARE & FASTENERS	ASTM A153

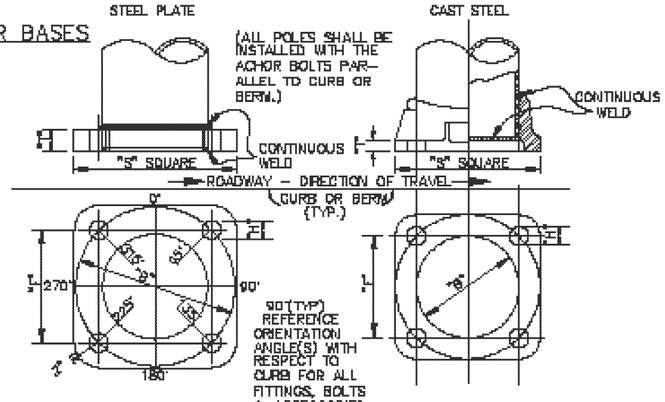
   B) GALVANIZED & PAINTED POLES PER O.D.O.T. SPEC. 725.01-H.

   C) PAINTED POLES - ALL STEEL SHALL BE PRIME PAINTED (INTERIOR AND EXTERIOR) WITH ZINC RICH DUST PRIMER OR RUST INHIBITIVE PRIMER PER T-33 SPEC.
6. MARKING

   THE POLE SHALL HAVE PERMANENTLY ATTACHED, THE FOLLOWING INFORMATION:

   1. THE MANUFACTURER'S NAME OR INITIALS.
   2. THE CITY POLE DESIGN NUMBER.

ANCHOR BASES



THE BASES SHALL BE OF ONE PIECE CAST STEEL CONSTRUCTION CONFORMING TO 711.07 OR STEEL PLATE CONFORMING TO 711.02.

711.07 STEEL CASTINGS. ASTM A486, CLASS 70 OR ASTM A-27, GRADE 70-36 WITH THE FOLLOWING ADDITIONS.
STEEL CASTING SHALL BE FREE FROM POURING FAULTS, SPONGINESS, CRACKS, BLOWHOLES, AND OTHER DEFECTS IN PORTIONS AFFECTING THEIR STRENGTH AND VALUE FOR SERVICE INTENDED. NO SHARP UNFILLETED ANGLES OR CORNERS WILL BE ALLOWED.

711.07 STRUCTURAL STEEL. STEEL SHALL BE STRUCTURAL STEEL ASTM A-36.
THE BASES SHALL TELESCOPE THE LOWER END OF THE SHAFT AND BE SECURED TO THE SHAFT BY TWO CONTINUOUS ELECTRIC ARC WELDS, ONE ON THE TOP OUTSIDE OF THE BASE, THE SECOND ON THE INSIDE OF THE BASE AT THE END OF THE SHAFT. THE TWO WELDS SHALL BE AT LEAST 1 1/2 INCHES APART AND THE WELDED CONNECTION SHALL DEVELOP THE STRENGTH OF THE ADJACENT SHAFT SECTION.
WHERE 2-PLY POLE SHAFTS ARE SPECIFIED, FURNISH STEEL BASE PLATES.

4 EACH CAST IRON, GALVANIZED OR STAINLESS STEEL OR ALUMINUM BOLT COVERS SHALL BE PROVIDED WITH STAINLESS STEEL BOLTS TO SECURE COVER TO BASE. BOLT COVERS SHALL NOT EXTEND BEYOND BASE PLATE.

STEEL POLE PHYSICAL PROPERTIES

X = EXTRA HEAVY CAST BASE

FOUNDATION DESIGN NUMBER	CITY OF CINCINNATI DESIGN NO.	ANCHOR BASE POLES												LOAD & DEFLECTION PROPERTIES		EMBEDDED POLES		
		SHAFT SIZE		ANCHOR BOLTS		BASE DIMENSIONS (INCHES)								MAXIMUM DEFLECTION (INCHES PER 100 LB LOAD	MAXIMUM MOMENT AT YIELD (FT.-LBS.)	SHAFT SIZE		
		GAUGE	BASE DIA.(IN.) X LENGTH (FT.)	SIZE (INCHES)	BOLT CIRCLE INCHES	DIM. B	DIM. H BASE PLATE	DIM. H PIPE	DIM. A	DIM. T BASE PLATE	DIM. T PIPE					GAUGE	EMBEDMENT (FT.) MIN. (FT.)	OVERALL LENGTH (FT.)
FDN-7	28053	0	9 x 28	1 1/4x80	12 1/4	8 5/8	1 3/4	1 3/8	12 3/4	1 1/8	1 5/8	0.53	2930			3	8	32
	27070	0	9 x 28	1 1/4x80	12 1/4	8 5/8	1 3/4	1 3/8	12 3/4	2	1 5/8	0.70	2700			4	8	34
FDN-9	38037	0	10 x 28	1 1/4x80	13 1/4	8 5/8	1 3/4	1 3/8	14 1/4	2	1 7/8	0.37	3850			4	10	32
	33048	0	10 x 28	1 1/4x80	13 1/4	8 5/8	1 3/4	1 3/8	14 1/4	2	1 7/8	0.48	3370			4	10	34
FDN-10	38045	0	11 x 30	1 1/4x90	15	10 5/8	2 1/4	2 1/8	15 5/8	2	1 5/8	0.45	3840			4	11	36
FDN-12	53028	7x7	12 x 30	2x98	18	12 3/4	2 3/4	NOT APPL.	18 1/4	2	NOT APPL.	0.28	5210			7x7	12	38
FDN-18	73025	3x3	13 x 34	2 1/4x98	22	16 5/16	2 3/4	NOT APPL.	23	2 1/4	NOT APPL.	0.25	7270					

POLE DESIGN NUMBER CODE

36 D37

THE FIRST THREE(3) DIGITS REPRESENT MIN. LOAD AT YIELD STRESS IN HUNDREDS OF POUNDS.

THE LAST THREE(3) DIGITS REPRESENT DEFLECTION IN INCHES AND FRACTIONS OF AN INCH PER HUNDRED POUND LOAD.

MANUFACTURER FURNISHED EQUIPMENT-POLES (ES-10)

TRAFFIC SIGNAL STRAIN POLES AND PEDESTAL POLES

CITY OF CINCINNATI
DEPT. OF PUBLIC WORKS
DIV. OF TRAFFIC ENGR.

S.C.H.	Steven Bailey	9/28/04	UPDATE				
T.E.		3/1/98					
DESIGNED	DRAWN	DATE	No.	CHECKED	SCALE	DRAWING	PROJECT NO.
R.R.R.		6/22/84	—	—	—	ES-1-1 4/27/88	TEC ENGINEERING	ES-10-1

CALCULATED	CHECKED

PROJECT NO.	CODE	PROJECT	PHASE NO.
5	OHIO		

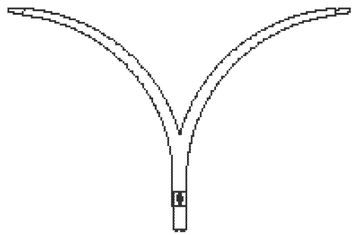
POLE PHYSICAL PROPERTIES

POLE DATA			ANCHOR BOLTS			BASE DIMENSIONS (IN.)			POLE DESIGN NUMBER				FOUNDATION DESIGN NUMBER
									6 FT. DAVIT ARM		8 FT. DAVIT ARM		
HEIGHT LUMINAIRE MTG.HEIGHT (FT.)	BASE DIA. (IN.)	GAUGE	SIZE (IN.)	P BOLT PROJ. (IN.)	H SEE NOTE Ⓐ	B BOLT CIRCLE (IN.)	S DIM.	T DIM. (IN.)	SINGLE ARM	TWIN ARM	SINGLE ARM	TWIN ARM	
25	7 1/2	11	1x 40	2 1/4	–	10 1/2	11	1	11A8025	11A8D025	–	–	FDN-1
30	8	11	1x 40	2 1/4	–	11	11 1/2	1	11A8030	11A8D030	11A8030	11A8D030	FDN-2
35	9	11	1x 40	2 1/2	–	12 1/2	13	1 1/4	11A8035	11A8D035	11A8035	11A8D035	FDN-3
40	8 1/2	11	1x 40	2 1/2	–	13	13 1/2	1 1/4	11A8040	11A8D040	11A8040	11A8D040	FDN-4
35 Ⓑ	9	3x 3	1 3/4x90	3 3/4	–	16	16 5/8	2	33A8035	–	33A8035	–	FDN-10

Ⓐ-BOLT HOLES IN BASE 1/4" LARGER IN DIA. THAN ANCHOR BOLT DIA. -MAY BE CIRCULAR OR SLOTTED.
Ⓑ-"LT" TYPE POLE SHAFT SHALL BE 27'- 6" IN LENGTH.

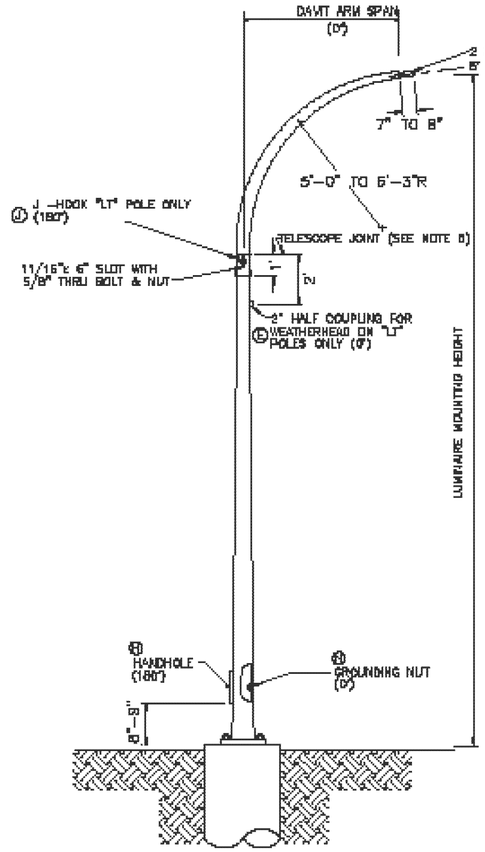
TWIN DAVIT ARM DESIGN

ORIENT ON POLE AS SPECIFIED

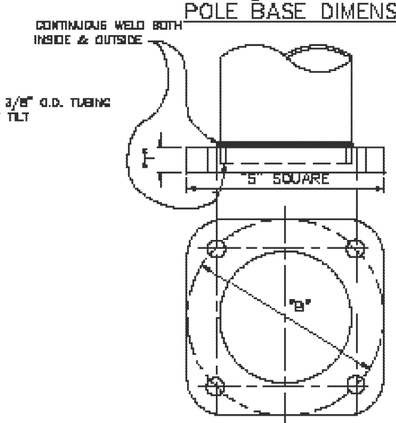


TYPICAL DAVIT ARM TYPE POLE DESIGN

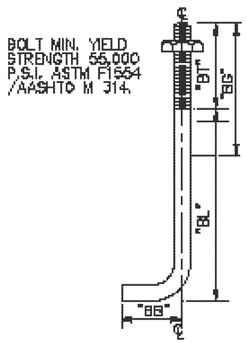
LIGHTING "L" OR LIGHTING & TRAFFIC "LT"



POLE BASE DIMENSIONS



ANCHOR BOLTS

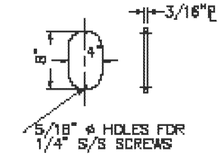


BOLT MIN. YIELD STRENGTH 55,000 P.S.I. ASTM F1554 /AASHTO M 314.

NOTE: GALVANIZING "BG" (THREAD LENGTH) + 1" TO 4". LEVELING NUTS, ANCHOR NUTS, & LEVELING SHIMS SHALL BE GALVANIZED PER ASTM A-153. ANCHOR BOLTS, ANCHOR NUTS, & LEVELING NUTS SHALL CONFORM TO ASTM A-563 GRADE A.

LEVELING SHIMS SHALL HAVE A MIN. 10,000 LB. BREAKING STRENGTH. ANCHOR BOLTS SHALL BE "L" SHAPED.

HAND HOLE COVER



ANCHOR BOLTS DIMENSIONS (INCHES)

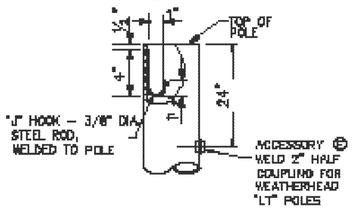
BOLT SIZE	"BB"	"BL"	"BT"	"BG"
1"x 40"	4	30	6	8
1 1/2"x 60"	6	45	9	11

ANCHOR BOLTS FOR BRIDGE MOUNTED POLES

ANCHOR BOLTS MUST MEET THE REQUIREMENTS HEREIN, EXCEPT THE BOLTS SHALL BE "U" SHAPED AND MUST EXTEND INTO THE FIRST POUR OF THE STRUCTURE.

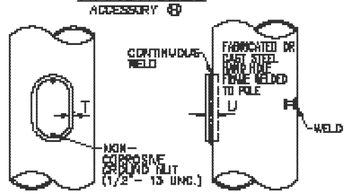
"J" HOOK WIRE SUPPORT

ACCESSORY Ⓔ "LT" POLES



HANDHOLES

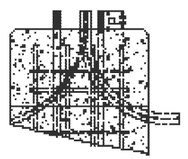
ACCESSORY Ⓓ



ACCESSORY Ⓓ

ALTERNATE GROUND NUT LOCATION MAY BE PROVIDED ON HANDHOLE FRAME (POLE INTERIOR) BUT SHALL NOT BE POSITIONED SO AS TO RESTRICT OR IMPEDE ACCESS TO POLE INTERIOR.

"P" BOLT PROJECTION



GENERAL NOTES

POLES SHALL BE ANCHOR BASE AND FABRICATED OF STEEL MATERIAL AND SHALL COMPLY WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" WITH THE FOLLOWING EXCEPTIONS/AND/OR ADDITIONS:

1. DESIGN WIND LOAD SHALL BE BASED ON 80 MILES PER HOUR.
2. MINIMUM YIELD STRENGTH AFTER FABRICATION SHALL BE 55,000 P.S.I.
3. SHAFT CONSTRUCTION SHALL MEET THE REQUIREMENTS OF O.D.O.T. SPEC. 725.01-B.
4. SHAFT SHALL BE TUBULAR TAPERED AND SHALL PROVIDE A 0.14 INCHES/FOOT TAPER.
5. THE DAVIT ARM SHALL TELESCOPE WITH A SLIP FIT OVER THE MAIN SHAFT AND BE SECURED WITH A 5/8" MIN. STAINLESS STEEL HEX HEAD THROUGH BOLT & NUT. ONE- PIECE POLE ACCEPTABLE FOR 25' SIZE.
6. BASE PLATES SHALL BE STRUCTURAL STEEL ASTM-36 AND SHALL BE SECURED TO THE SHAFT WITH TWO CONTINUOUS WELDS PER O.D.O.T. SPEC. 725.01. SURFACES SHALL THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND.
7. 4 EACH CAST IRON, STEEL OR ALUMINUM BOLT COVERS SHALL BE PROVIDED WITH STAINLESS STEEL BOLTS TO SECURED COVER TO BASE.
8. WELDING SHALL COMPLY WITH O.D.O.T. SPEC. 513.21 AND SHALL BE CONTINUOUS WELDS DEVELOPING THE FULL STRENGTH OF THE POLE.
9. POLE FINISH
   POLE FINISH SHALL BE SPECIFIED AS ONE OF THE FOLLOWING
   A) GALVANIZED PER O.D.O.T. SPEC. 725.01-H.
   B) GALVANIZED & PAINTED POLES PER O.D.O.T. SPEC. 725.01-I.
   C) PAINTED POLES- ALL STEEL SHALL BE PRIME PAINTED (INTERIOR AND EXTERIOR) WITH ZINC RICH DUST PRIMER OR RUST INHIBITIVE PRIMER PER F-73 SPEC.

BASE TYPE
A- ANCHOR BASE

LIGHTING ARM TYPE
D- DAVIT ARM (SINGLE)
DD- DAVIT ARM (TWIN)

II A 9 D 35

POLE GAUGE
LIGHTING ARM LENGTH
LUMINAIRE MOUNTING HEIGHT

STATE OF OHIO
STEVEN GERALD BAILEY
49331
REGISTERED
PROFESSIONAL ENGINEER

S.C.H.	Steven Bailey	3/1/05	UPDATE
DESIGNED	APPROVED	DATE	NO.

MANUFACTURER FURNISHED EQUIPMENT - POLES (ES-10)

LIGHTING POLES WITH DAVIT ARMS

CITY OF CINCINNATI
DEPT. OF PUBLIC WORKS
DIV. OF TRAFFIC ENGR.

APPROVED Steven Bailey DATE 3-4-99

SCALE	SCALE	DRAWN	PLAN NO.
–		VGRD	ES-10-3

TRAFFIC CONTROL GENERAL NOTES

HAM-50-18.79

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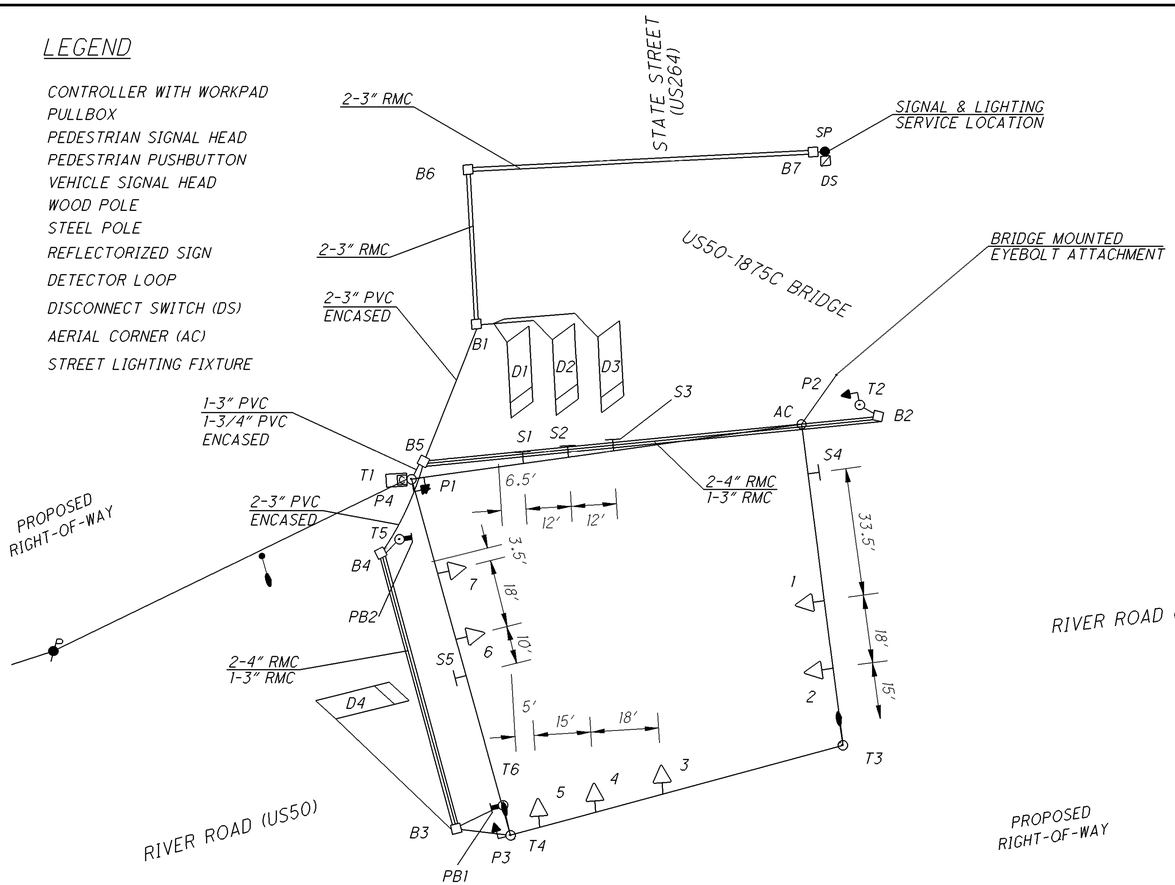
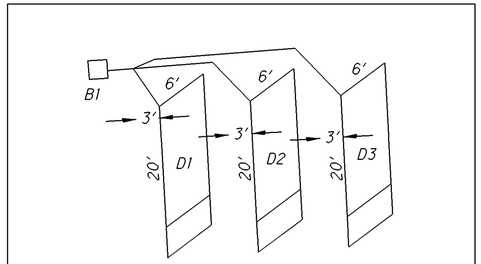
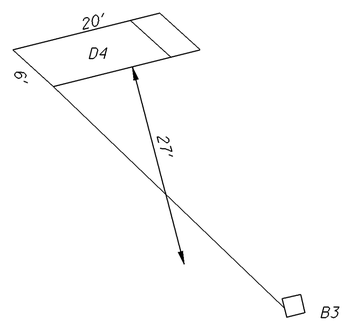




LOOP DETAIL - LOOPS D1, D2, D3
(SCALE: 1" = 10')

EQUIPMENT NO.	EQUIPMENT DESCRIPTION
2,6	TRAFFIC SIGNAL HEAD, 3 SECTION, LED, VERTICAL, 12" RYG
3,4	TRAFFIC SIGNAL HEAD, 4 SECTION, LED, VERTICAL, 12" RYG G ←
1	TRAFFIC SIGNAL HEAD, 5 SECTION, CLUSTER, LED, 12" RYG Y G ← ←
5,7	TRAFFIC SIGNAL HEAD, 5 SECTION, CLUSTER, LED, 12" RYG Y G → →
P1,P2,P3,P4	PEDESTRIAN SIGNAL, TYPE D2, 16" LED W/ CLAMSHELL MOUNTING
PB1,PB2	PEDESTRIAN PUSHBUTTON WITH ASSOCIATED SIGNS
S2,S3,S5	REFLECTORIZED SIGN, 24" X 30", "↱ ONLY", CITY #79C
S1,S4	REFLECTORIZED SIGN, 24" X 30", "↰ ONLY", CITY #79A
D1	LOOP DETECTOR, POWERHEAD, 3-3 TURNS
D2	LOOP DETECTOR, POWERHEAD, 3-3 TURNS
D3	LOOP DETECTOR, POWERHEAD, 3-3 TURNS
D4	LOOP DETECTOR, POWERHEAD, 3-3 TURNS
B2,B3,B4,B5	PULLBOX, 24" X 24", TYPE "C"
B1,B6,B7	PULLBOX, 18" X 18", TYPE "B"
T1	STEEL POLE, ANCHOR BASE, 11" X 30', CITY #38045
T3, T4	STEEL LT POLE, ANCHOR BASE, 11" X 30', CITY #38045LT W/ 6' ARM
T2	STEEL POLE, ANCHOR BASE, 4" X 10', CITY #1045 (PEDESTAL)
T5, T6	STEEL POLE, ANCHOR BASE, 4" X 4', CITY #445 (PEDESTAL)
SP	SERVICE LOCATION (POWER SERVICE "B" FROM LIGHTING PLANS)
S	SECTIONALIZER - CITY STD DWG ES-3-7A



LOOP DETAIL - LOOP D4
(SCALE: 1" = 10')

NOTES:

1. ALL SIGNAL HEADS AND SIGNS SHALL BE FIELD ADJUSTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER TO ENSURE VISIBILITY.
2. ALL OVERHEAD WIRES SHALL BE RUN TO THE NEAREST POLE, DOWN THE POLE, AND UNDERGROUND TO THE CONTROLLER.
3. CITY TO APPROVE LOOP LAYOUT BEFORE CUTTING.
4. THE MESSENGER WIRE TAIL EXTENDING AWAY FROM THE AERIAL CORNER SHALL BE ATTACHED TO THE US50 (1875C) BRIDGE USING THE PROVIDED ATTACHMENT POINT. REFER TO THE BRIDGE PLANS FOR DETAILS.
5. INSTALL A CONCRETE WORK PAD PER STANDARD DRAWING ES-3-1.
6. CONSTRUCT CONCRETE ENCASEMENT OF CONDUIT PER STANDARD DRAWING ES-2-1.
7. ALL CONDUIT IS 2-INCH PVC CONCRETE ENCASED UNLESS OTHERWISE NOTED.
8. REFER TO STREET LIGHTING SHEETS FOR ADDITIONAL LIGHTING INFORMATION AND DETAILS.
9. SERVICE POINT IS TENTATIVELY LOCATED PER INFORMATION FROM THE LIGHTING PLANS. DISCONNECT SWITCH SHALL BE POLE MOUNTED. REFER TO STANDARD DRAWING ES-2-2.
10. ROUTE INTERCONNECT WEST ALONG WOOD POLE LINE ON NORTH SIDE OF RIVER RD FROM SECTIONALIZER ON T1 TO END OF PROJECT.

FULL SIZE SCALE: 1" = 20'
HALF SIZE SCALE: 1" = 40'

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED ACW
CHECKED SLT

TRAFFIC SIGNAL US50 AND STATE AVE. (SR264)

HAM-50-18.79

284
657

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CABLE SCHEDULE				
CABLE NO.	CONNECTING DEVICES	CABLE TYPE	CABLE ROUTING	LINEAR FEET
1	TRAFFIC SIGNAL TS1	7C#14	TS1-T3-T4-B3-B4-B5-T1-C	303
2	TRAFFIC SIGNAL TS2	7C#14	TS2-T3-T4-B3-B4-B5-T1-C	285
3	TRAFFIC SIGNALS TS3, TS4	7C#14	TS3-TS4-T4-B3-B4-B5-T1-C	188
4	TRAFFIC SIGNAL TS5	7C#14	TS5-T4-B3-B4-B5-T1-C	181
5	TRAFFIC SIGNAL TS6	7C#14	TS6-T1-C	77
6	TRAFFIC SIGNAL TS7	7C#14	TS7-T1-C	59
7	PED SIGNAL P1	7C#14	P1-T1-C	20
8	PED SIGNAL P2	7C#14	P2-T2-B2-B5-T1-C	164
9	PED SIGNAL P3	7C#14	P3-T4-B3-B4-B5-T1-C	155
10	PED SIGNAL P4	7C#14	P4-T1-C	20
11	PUSHBUTTON PB1	7C#14	PB1-T6-B3-B4-B5-T1-C	148
12	PUSHBUTTON PB2	7C#14	PB2-T5-B4-B5-T1-C	65
13	LOOP DETECTOR D1 - LEAD IN	2C#14	B1-B5-T1-C	47
14	LOOP DETECTOR D2 - LEAD IN	2C#14	B1-B5-T1-C	47
15	LOOP DETECTOR D3 - LEAD IN	2C#14	B1-B5-T1-C	47
16	LOOP DETECTOR D4 - LEAD IN	2C#14	B3-B4-B5-T1-C	52
17	LOOP WIRE - D1	1C#14	B1-LOOP D1-B1	316
18	LOOP WIRE - D2	1C#14	B1-LOOP D2-B1	460
19	LOOP WIRE - D3	1C#14	B1-LOOP D3-B1	460
20	LOOP WIRE - D4	1C#14	B3-LOOP D3-B3	220
21	STREET LIGHT, POLE T3	2EA#10	T3-T4-B3-B4-B5-T1-LIGHTING CIRCUIT	546
22	STREET LIGHT, POLE T4	2EA#10	T4-B3-B4-B5-T1-LIGHTING CIRCUIT	358
23	POWER CABLE	2EA#6	DS-B7-B6-B5-T1-C	432
24	SERVICE CABLE	#4 DPL.	DUKE SECONDARY-DS	40
25	INTERCONNECT	12C#12	C-T1-P5-P6-P7-P8-P9-P10-SECT	895

MATERIAL SCHEDULE

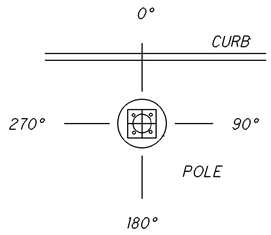
VEHICULAR SIGNAL HEADS (12 INCH)								LOOP DETECTORS																		
NO.	1	2	3	4	5	6	7	D1	D2	D3	D4															
	R	R	R	R	R	R	R	IRREG. DIPOLE, 3 TURNS	DIPOLE, 12'x30', 3 TURNS	DIPOLE, 12'x30', 3 TURNS	6'x15', 3 TURNS															
	Y	Y	Y	Y	Y	Y	Y																			
	G	G	G	G	G	G	G																			
	~~Y~~		~~G~~	~~G~~	~~Y~~		~~Y~~																			
	~~G~~				~~G~~		~~G~~																			

1 SECTION 16-INCH LED PEDESTRIAN HEAD WITH CLAMSHELL MOUNTING

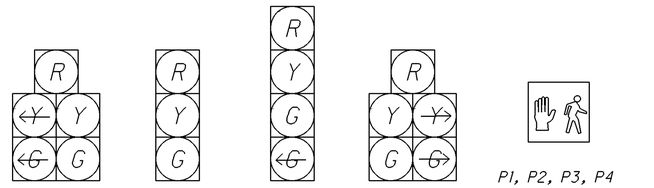
POLE DATA				PUSHBUTTONS				PEDESTRIAN SIGNALS																		
POLE NO.	CITY NUMBER	SHAFT SIZE IN X FT	FOUNDATION TYPE	PB1	PB2			P1	P2	P3	P4															
								D	D	D	D															
								W	W	W	W															
				ANGLE OF ORIENTATION (DEGREES)																							
T1	38045	11x30	FDN-10					0			90															
T2	1045	4x10	FDN-25						180																	
T3	38045LT	11x30	FDN-10																							
T4	38045LT	11x30	FDN-10							270																
T5	445	4x4	FDN-20		270																					
T6	445	4x4	FDN-20	270																						
SP																										

CABLE ENTRANCE (ANGLE)	SPAN WIRE ATTACHMENT HEIGHT (FEET)	SPAN WIRE ATTACHMENT HEIGHT (FEET)	HANDHOLE	LUMINAIRE ARM	SAFETY SWITCH	CONTROLLER
45	27.0	27.0	270			180
	27.0	27.0	180	0		
45	27.0	27.0	180	0		
					270	

TYPICAL POLE ORIENTATION

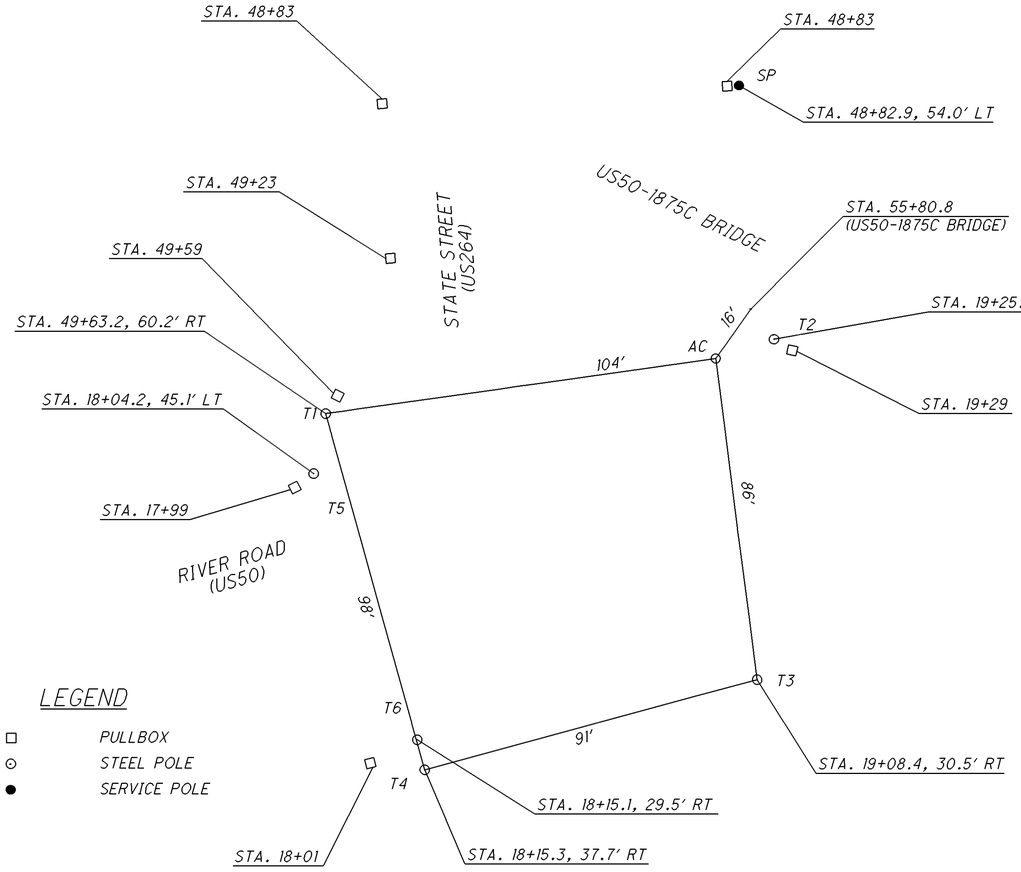


SIGNAL INDICATIONS



ALL LENSES SHALL BE 12" LED

PEDESTRIAN SIGNAL (TYPE D2) LED W/ CLAMSHELL MOUNTING



NOTES:

1. POLE LOCATIONS WERE DETERMINED BY THE AVAILABLE UNDERGROUND UTILITY INFORMATION. REPOSITIONING OF THE POLES MAY BE REQUIRED BY FIELD CONDITIONS AND REQUIRES APPROVAL BY THE ENGINEER.
2. SPAN LENGTHS FOR THE MESSENGER WIRE ARE GIVEN TO INITIALLY CONSTRUCT THE TRAFFIC SIGNAL. THE LENGTHS MAY CHANGE DUE TO TENSIONING OF THE MESSENGER WIRE.
3. THE MESSENGER WIRE TAIL NEAR THE AERIAL CORNER SHALL BE ATTACHED TO THE US50 (1875C) BRIDGE AT THE STATION LISTED. THE MOUNTING ELEVATION OF THE PROVIDED ATTACHMENT IS 27 FEET. REFER TO BRIDGE PLANS FOR ADDITIONAL DETAILS.

FULL SIZE SCALE: 1" = 20'
HALF SIZE SCALE: 1" = 40'

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ACW
CHECKED SLT

TRAFFIC SIGNAL DETAILS US50 AND STATE AVE. (SR264)

HAM-50-18.79

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657

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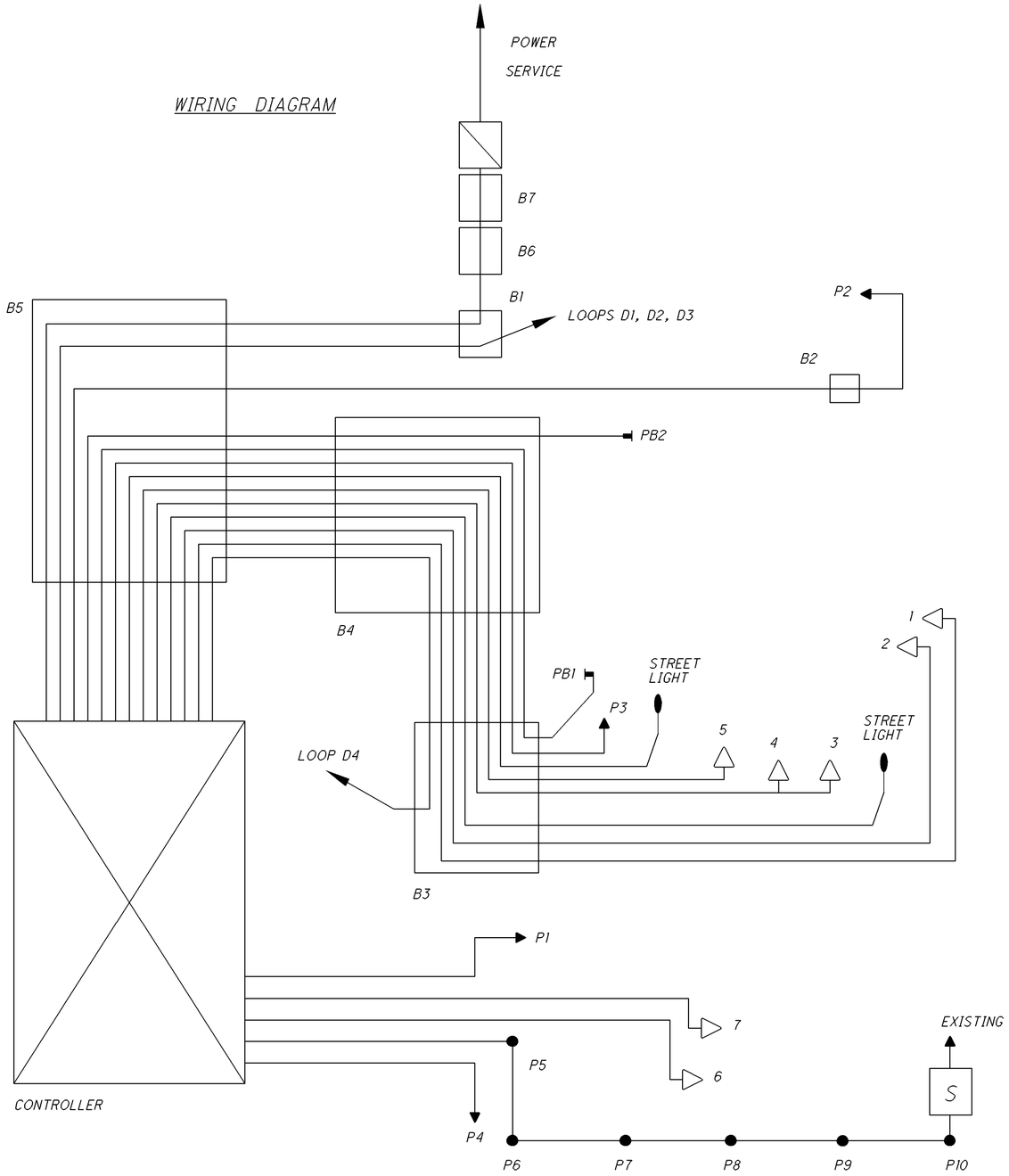
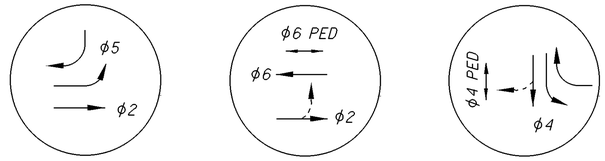
WIRING DIAGRAM



REFER TO PREVIOUS TRAFFIC SIGNAL DETAILS SHEET FOR CONDUCTOR SIZE AND TYPE.

SIGNAL PHASING



THIS IS THE GENERAL SEQUENCING FOR THIS TRAFFIC SIGNAL. REFER TO THE CITY OF CINCINNATI FOR FINAL SEQUENCING, LABELING AND TIMINGS.

CALCULATED ACW
CHECKED SLT

TRAFFIC SIGNAL DETAILS
US50 AND STATE AVE. (SR264)

HAM-50-18.79

THESE ITEMS REFER TO CITY OF CINCINNATI STANDARD SPECIFICATIONS. THEY HAVE BEEN CROSS REFERENCED TO ODOT STANDARD BID ITEMS FOR INCLUSION IN THE GENERAL SUMMARY

CITY OF CINCINNATI SPECIFICATIONS

UNITS	ITEM NO.	TOTAL QTY	DESCRIPTION	ODOT REF
EACH	1312	1	POWER SERVICE	30
LUMP SUM	1314	1	MAINTENANCE OF EXISTING TRAFFIC SIGNAL	1
LUMP SUM	1314	1	MAINTENANCE OF EXISTING STREET LIGHTING CIRCUIT	15
EACH	1316	1	REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION, BY LOCATION	34
EACH	1318	1	STEEL POLE, ANCHOR BASE, 11"x30', CITY #38045	32
EACH	1318	2	STEEL LT POLE, ANCHOR BASE, 11"x30', CITY #38045LT W/ 6' ARM	32
EACH	1318	1	STEEL POLE, ANCHOR BASE, 4"x10', CITY #1045 (PEDESTAL)	33
EACH	1318	2	STEEL POLE, ANCHOR BASE, 4"x4', CITY #445 (PEDESTAL)	33
EACH	1319	3	CONCRETE ANCHOR BASE POLE FOUNDATION, 3 FT. DIA. X 11 FT. DEEP, FOUNDATION #FDN-10	26
EACH	1319	1	CONCRETE ANCHOR BASE POLE FOUNDATION, 2 FT. WIDE X 4 FT. DEEP, FOUNDATION #FDN-25	27
EACH	1319	2	CONCRETE ANCHOR BASE POLE FOUNDATION, 2 FT. WIDE X 2 FT. DEEP, FOUNDATION #FDN-20	27
EACH	1320	7	GROUND ROD	14
LIN. FT.	1321	135	TRENCH, 24 INCHES DEEP, INCLUDING RESTORATION	10
LIN. FT.	1321	287	TRENCH, 30 INCHES DEEP, INCLUDING RESTORATION (PAVED AREAS)	11
LIN. FT.	1321	456	CONDUIT, 3 INCH RIGID METAL CONDUIT	6
LIN. FT.	1321	392	CONDUIT, 4 INCH RIGID METAL CONDUIT	8
LIN. FT.	1321	136	CONDUIT, 3 INCH PVC, CONCRETE ENCASED	7
LIN. FT.	1321	40	CONDUIT, 2 INCH PVC, CONCRETE ENCASED	5
LIN. FT.	1321	10	CONDUIT, 3/4 INCH RIGID METAL CONDUIT	4
EACH	1322	4	PULLBOX, CONCRETE, 24 X 24 INCHES, TYPE C	13
EACH	1322	3	PULLBOX, CONCRETE, 18 X 18 INCHES, TYPE B	12
EACH	1322	1	SECTIONALIZER, STANDARD	38
LIN. FT.	1323	40	SERVICE CABLE, DUPLEX #4 AWG	30
LIN. FT.	1323	216	POWER CABLE, 1 CONDUCTOR, #6 AWG, 600 VOLT, TYPE RHH/RHW/USE, WHITE, AC NEUTRAL	29
LIN. FT.	1323	216	POWER CABLE, 1 CONDUCTOR, #6 AWG, 600 VOLT, TYPE RHH/RHW/USE, BLACK, AC POS	29
LIN. FT.	1323	904	POLE AND BRACKET CABLE, #10 AWG RHH/RHW/USE STRANDED COPPER	3
LIN. FT.	1323	1665	TRAFFIC SIGNAL CABLE, 7 CONDUCTOR, #14 AWG, STRANDED COPPER IMSA 19-1/20-1	25
LIN. FT.	1323	400	MESSENGER WIRE, 7 STRAND #10 AWG (5/16 INCH DIA) WITH ACCESSORIES	24
LIN. FT.	1323	1406	LOOP DETECTOR WIRE, 1 CONDUCTOR #14 AWG, THWN, STRANDED	23
LIN. FT.	1323	297	LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR #14 AWG, STRANDED, SHIELDED, TWISTED PAIR	28
LIN. FT.	1323	895	INTERCONNECT CABLE, 12 CONDUCTOR #12 AWC	39
LIN. FT.	1323	850	MESSENGER WIRE, 7 STRAND NUMBER 12 AVG (1/4"), WITH ACCESSORIES	40
EACH	1324	1	TRAFFIC SIGNAL CONTROLLER, POLE MOUNT TYPE, AS PER PLAN	36
EACH	1324	1	CONTROLLER WORK PAD	35
EACH	1324	1	SAFETY SWITCH, 60 AMP W/60 AMP UL CLASS RK-1, 240 VOLT FUSE	2
EACH	1324	1	PHOTO-ELECTRIC CELL, RECEPTACLE, MOUNTING BRACKET AND 3-#14 AWG CABLE	37
EACH	1325	2	LUMINAIRE, 150W HPS TYPE II W/ LAMP	9
EACH	1327	2	TRAFFIC SIGNAL HEAD, 3 SECTION, LED, VERTICAL, 12" RYG, 1-WAY	18
EACH	1327	2	TRAFFIC SIGNAL HEAD, 4 SECTION, LED, VERTICAL, 12" RYG G ~~←~~ 1-WAY	19
EACH	1327	1	TRAFFIC SIGNAL HEAD, 5 SECTION, LED, CLUSTER, 12" RYG Y ~~G←~~, ~~G→~~ WAY	20
EACH	1327	2	TRAFFIC SIGNAL HEAD, 5 SECTION, LED, CLUSTER, 12" RYG Y G ~~→~~ 1 ~~→~~ WAY	20
EACH	1327	4	PEDESTRIAN SIGNAL HEAD, 1 SECTION, LED, 16" W/ CLAMSHELL MOUNTING	21
EACH	1328	2	PEDESTRIAN PUSHBUTTON W/ ASSOCIATED SIGNS	22
LIN. FT.	1328	406	LOOP DETECTOR PAVEMENT CUTTING	23
EACH	1329	2	REFLECTORIZED SIGN, FLAT SHEET TYPE, 24" X 30", "⌜ ONLY", CITY #79A	16, 17
EACH	1329	3	REFLECTORIZED SIGN, FLAT SHEET TYPE, 24" X 30", "⌝ ONLY", CITY #79C	16, 17

TRAFFIC SIGNAL SUB-SUMMARY

ODOT REF	UNITS	ITEM NO.	TOTAL QTY	DESCRIPTION
1	LUMP SUM	614	1	MAINTAINING TRAFFIC, MISC.: MAINTENANCE OF EXISTING TRAFFIC SIGNAL
2	EACH	625	1	LIGHTING, MISC.: SAFETY SWITCH, 60 AMP W/60 AMP UL CLASS RK-1, 240 VOLT FUSE
3	LIN. FT.	625	904	NO. 10 AWG POLE AND BRACKET CABLE, AS PER PLAN
4	LIN. FT.	625	10	CONDUIT, 3/4", 725.05, AS PER PLAN
5	LIN. FT.	625	40	CONDUIT, 2", 725.05, AS PER PLAN
6	LIN. FT.	625	456	CONDUIT, 3", 725.04, AS PER PLAN
7	LIN. FT.	625	136	CONDUIT, 3", 725.05, AS PER PLAN
8	LIN. FT.	625	392	CONDUIT, 4", 725.04, AS PER PLAN
9	EACH	625	2	LUMINAIRE, CONVENTIONAL, AS PER PLAN
10	LIN. FT.	625	135	TRENCH, 24" DEEP, AS PER PLAN
11	LIN. FT.	625	287	TRENCH, 30" DEEP, AS PER PLAN
12	EACH	625	3	PULL BOX, 725.08, 18", AS PER PLAN
13	EACH	625	4	PULL BOX, 725.08, 24", AS PER PLAN
14	EACH	625	7	GROUND ROD, AS PER PLAN
15	LUMP SUM	625	1	SPECIAL - MAINTAIN EXISTING LIGHTING
16	EACH	630	5	SIGN HANGER ASSEMBLY, SPAN WIRE, AS PER PLAN
17	SQ. FT.	630	25	SIGN, FLAT SHEET, AS PER PLAN
18	EACH	632	2	VEHICULAR SIGNAL HEAD, (LED), 3 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN
19	EACH	632	2	VEHICULAR SIGNAL HEAD, (LED), 4 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN
20	EACH	632	3	VEHICULAR SIGNAL HEAD, (LED), 5 SECTION, 12" LENS, 1-WAY, POLYVARBONATE, AS PER PLAN
21	EACH	632	4	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, AS PER PLAN
22	EACH	632	2	PEDESTRIAN PUSHBUTTON, AS PER PLAN
23	EACH	632	4	DETECTOR LOOP, AS PER PLAN
24	LIN. FT.	632	400	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES, AS PER PLAN
25	LIN. FT.	632	1665	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG, AS PER PLAN
26	EACH	632	3	STRAIN POLE FOUNDATION, AS PER PLAN
27	EACH	632	3	PEDESTAL FOUNDATION, AS PER PLAN
28	LIN. FT.	632	297	LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR, NO. 14 AWG, AS PER PLAN
29	LIN. FT.	632	432	POWER CABLE, 1 CONDUCTOR, NO. 6 AWG, AS PER PLAN
30	LIN. FT.	632	40	SERVICE CABLE, 2 CONDUCTOR, NO. 4 AWG, AS PER PLAN
31	EACH	632	1	POWER SERVICE, AS PER PLAN
32	EACH	632	3	STRAIN POLE, MISC.: FURNISH AND INSTALL CINCINNATI STRAIN POLE
33	EACH	632	3	PEDESTAL, MISC.: FURNISH AND INSTALL CINCINNATI PEDESTAL
34	EACH	632	1	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
35	EACH	633	1	CONTROLLER WORK PAD, AS PER PLAN
36	EACH	633	1	CONTROLLER ITEM, MISC.: CONTROLLER UNIT, TYPE 170E WITH CABINET, TYPE 330
37	EACH	631	1	PHOTOELECTRIC CONTROL, AS PER PLAN
38	EACH	632	1	SIGNALIZATION MISC.: SECTIONALIZER, STANDARD
39	LIN. FT.	632	895	INTERCONNECT CABLE, 12 CONDUCTOR, NO. 12 AWG, AS PER PLAN
40	LIN. FT.	632	850	MESSENGER WIRE, 7 STRAND, 1/4" DIAMETER WITH ACCESSORIES, AS PER PLAN

CALCULATED ACW
CHECKED SLT

TRAFFIC SIGNAL DETAILS
US50 AND STATE AVE. (SR264)

HAM-50-18.79

286A
657

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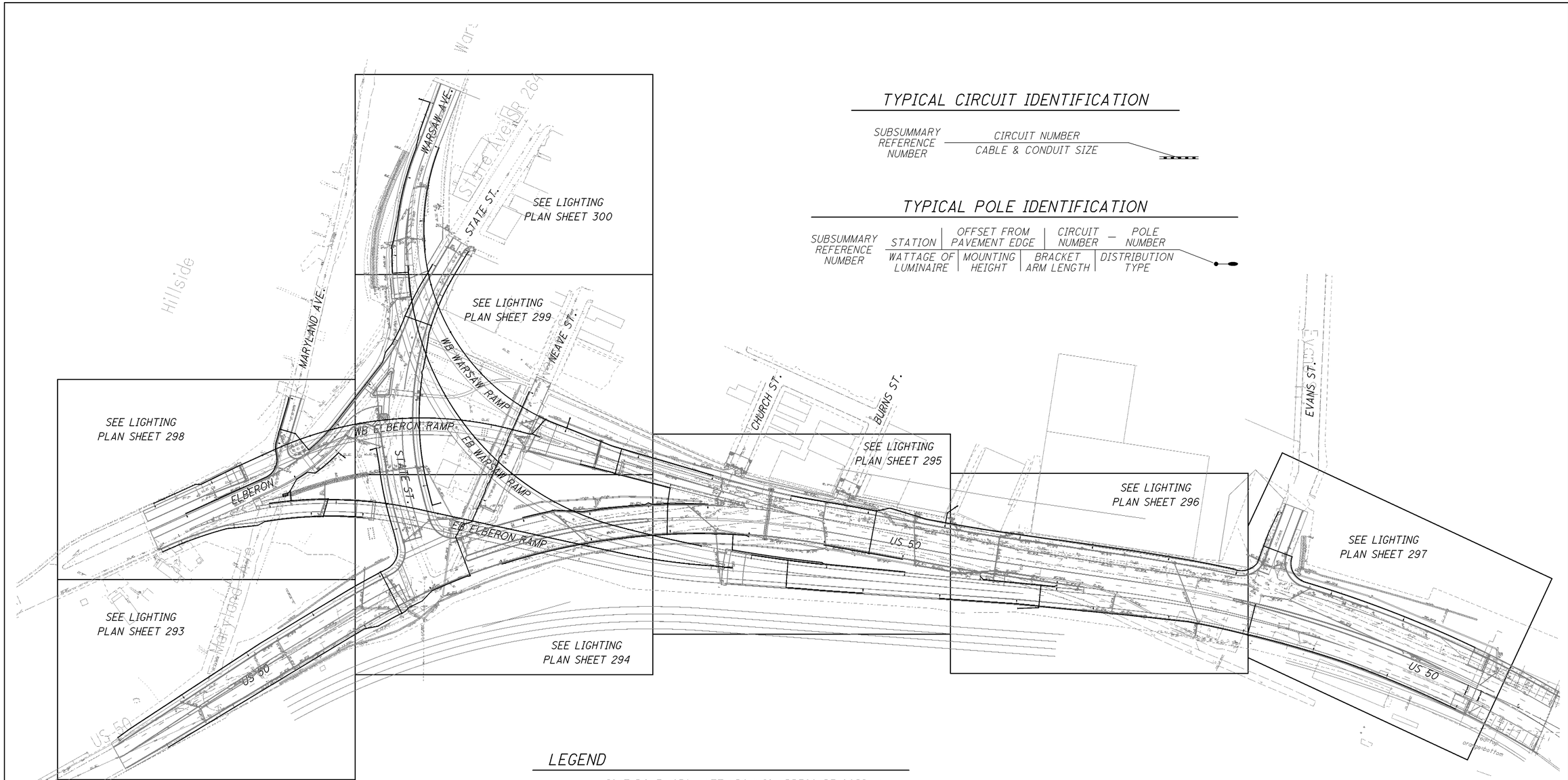

TYPICAL CIRCUIT IDENTIFICATION

SUBSUMMARY REFERENCE NUMBER — CIRCUIT NUMBER / CABLE & CONDUIT SIZE

TYPICAL POLE IDENTIFICATION

SUBSUMMARY REFERENCE NUMBER — STATION | OFFSET FROM PAVEMENT EDGE | CIRCUIT NUMBER – POLE NUMBER

WATTAGE OF LUMINAIRE | MOUNTING HEIGHT | BRACKET ARM LENGTH | DISTRIBUTION TYPE

LEGEND

- TYPE P1 — LIGHT POLE, 250 WATT HPS (HIGH PRESSURE SODIUM) 32′ MOUNTING HEIGHT, 10′ ARM, STYLE P1 LUMINAIRE, TYPE III
- TYPE P2 — TWO-HEAD LIGHT POLE, 250 WATT HPS (HIGH PRESSURE SODIUM), 32′ MOUNTING HEIGHT, 10′ ARM, STYLE P2 LUMINAIRE, TYPE III
- TYPE P3 — LIGHT POLE, 250 WATT HPS (HIGH PRESSURE SODIUM) 28′-6″ MOUNTING HEIGHT, 10′ ARM, STYLE P1 LUMINAIRE, TYPE III
- TYPE P4 — DECORATIVE LIGHT POLE, 150 WATT HPS (HIGH PRESSURE SODIUM), 16′ MOUNTING HEIGHT, STYLE P3 LUMINAIRE, TYPE III
- PROPOSED CONTROL CENTER
- PROPOSED PULL BOX
- CONDUIT STUBBED AND CAPPED
- PROPOSED CIRCUIT - DUCT CABLE
- PROPOSED CIRCUIT - DISTRIBUTION CABLE IN CONDUIT

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N

0 50 100 200 HORIZONTAL SCALE IN FEET

CALCULATED DLB CHECKED BAA

LIGHTING SCHEMATIC PLAN

HAM-50-18.79

SCOPE

THE LIGHTING PORTION OF THIS CONTRACT INCLUDES ALL LABOR AND MATERIAL TO PROVIDE THE SYSTEM AS SHOWN IN THE PLANS, INCLUDING ROADWAY LIGHTING AND POST-TOP LIGHTING. IN ADDITION, STRUCTURE GROUNDING SYSTEMS ARE REQUIRED.

NOTE THAT POLE FOUNDATIONS, ASSOCIATED JUNCTION BOXES ON THE STRUCTURE, AND ASSOCIATED PULL BOXES AT GRADE, ARE DETAILED IN THE STRUCTURAL PORTION OF THIS CONTRACT, AND PAYMENT FOR THESE ITEMS IS MADE IN THE STRUCTURAL PORTION. POLE ANCHOR BOLTS ARE TO BE PROVIDED BY THE POLE SUPPLIERS WITH THE POLES. PLACEMENT OF THESE ANCHOR BOLTS IS PAID BY ITEM 625.

SPECIFICATIONS

SPECIFICATION CITATIONS IN THESE PLANS REFER TO ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS, 2010 EDITION, AND SECTION 1300 OF THE CITY OF CINCINNATI CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) SUPPLEMENT.

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE POLES WHILE IN HIS POSSESSION. MINOR DEFECTS OR SCRATCHES ARE TO BE REPAIRED AS DIRECTED BY THE ENGINEER. IF ANY MAJOR DAMAGE OR SCRATCHES OCCUR, THE CONTRACTOR SHALL REPLACE THE POLE WITH A DUPLICATE, OR THE CONTRACTOR SHALL REIMBURSE THE CITY THE COST OF THE DAMAGED POLE, OR THE COST SHALL BE DEDUCTED FROM THE PAYMENT TO THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

2. PER 1335, EACH LIGHT POLE SHALL BE TAGGED WITH CITY CIRCUIT NUMBER AND FIXTURE NUMBER. TAGS WILL BE PROVIDED BY CITY AND INSTALLED BY CONTRACTOR. COST OF POLE TAGGING IS INCLUDED IN THE COST OF POLE INSTALLATION. FOR CITY CIRCUIT NUMBERS, CONTACT ROY JONES AT (513) 352-3737.

3. PER 1304.01, THE CONTRACTOR SHALL CONTACT THE OHIO UTILITY PROTECTION SERVICE (OUPS), AND COMPLY WITH ALL OUPS REGULATIONS BEFORE EXCAVATING. REGUARDLESS OF THE SURFACE MARKINGS FOR UNDERGROUND UTILITIES, EXERCISE EXTREME CAUTION IN ALL AREAS WHERE UNDERGROUND ACTIVITIES ARE KNOWN TO EXIST. CONSULT AND COOPERATE WITH DUKE ENERGY AND THE CINCINNATI BELL TELEPHONE COMPANY IN ORDER TO PROVIDE ATTACHMENTS TO EACH COMPANY'S RESPECTIVE POLES.

ELECTRICAL CABLE

POWER, FEEDER, AND POLE AND BRACKET CABLE SHALL BE RHH/RHW/USE INSULATED STRAND COPPER AND RATED 600 VOLTS AND MEETING THE REQUIREMENTS OF 1323.01 (725.02) WITH WIRE SIZE AS INDICATED IN THE PLANS AND DETAILS. FEEDER CABLE COLORS SHALL BE RED, BLACK AND GREEN (NEUTRAL) AND SHALL BE IMPREGNATED INTO THE INSULATION.

CONDUIT AND CONDUIT FOR FUTURE USE

CONDUIT SHALL BE RIGID GALVANIZED STEEL OF THE SIZE INDICATED. APPROPRIATE EXPANSION COUPLINGS SHALL BE PROVIDED AT ALL STRUCTURE EXPANSION JOINTS OR WHEREVER MOVEMENT MIGHT OCCUR. ELECTRICAL CONTINUITY SHALL BE MAINTAINED ACROSS THE EXPANSION COUPLINGS. COST OF THE EXPANSION COUPLINGS IS INCLUDED IN THE CONDUIT PRICE.

NOTE THAT ONE CONDUIT HAS BEEN SPECIFIED THROUGH MOST OF THE PROJECT. A SECOND CONDUIT SHALL BE INSTALL NEXT TO LIGHTING CONDUIT. THE CONDUIT NEAREST THE CURB IS FOR THE NEW LIGHTING SYSTEM. THE OTHER IS FOR FUTURE USE, AND THIS ONE IS TO HAVE ENDS CAPPED AND MARKED AS SUCH.

ANY CONDUIT WHICH WILL BE UNUSED BY THIS PROJECT SHALL BE EQUIPPED WITH A PULL ROPE OR WIRE.

DETAILS OF CONDUIT PLACEMENT WITHIN THE STRUCTURE ARE SHOWN IN THE STRUCTURAL PLANS.

LIGHTING SUBSUMMARY SHEETS SHOW A QUANTITY FOR 2" CONDUIT FOR THE PROJECT. THAT SAME QUANTITY SHALL BE USED FOR THE FUTUER CONDUIT.

ITEM SPECIAL - MAINTAIN EXISTING LIGHTING

EXISTING ROADWAYS WHICH ARE TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THIS PROJECT AND WHICH ARE LIGHTED SHALL HAVE THE LIGHTING MAINTAINED AS DESCRIBED HEREIN.

BEFORE ANY WORK IS STARTED IN THE IMMEDIATE VICINITY OF THE EXISTING LIGHTING CIRCUITS, REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING ROADWAY LIGHTING CIRCUITS TO BE MAINTAINED. DURING THIS INSPECTION, A WRITTEN RECORD OF THE CONDITION OF EXISTING LIGHTING SHALL BE MADE BY ODOT'S REPRESENTATIVE. THIS WRITTEN REPORT SHALL NOTE INDIVIDUAL LUMINAIRES WHICH ARE NOT IN WORKING ORDER, INDIVIDUAL POLES WHICH ARE NOT STANDING, AND INDIVIDUAL CIRCUITS WHICH ARE NOT IN WORKING ORDER. THE COMPLETED REPORT SHALL BE SIGNED BY THE REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR.

IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE THE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION. FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT SHALL BE MADE AND SIGNED AS OUTLINED HEREIN.

WHEN THE EXISTING SYSTEM IS IN AN ACCEPTABLE CONDITION, IT SHALL BE TURNED OVER TO THE CONTRACTOR WHO SHALL THEN BE REQUIRED TO MAINTAIN THE EXISTING LIGHTING TO THE CONDITION OUTLINED IN THIS REPORT WITH THE EXCEPTION OF KNOCKDOWNS DUE TO TRAFFIC ACCIDENTS.

REPLACEMENT OF KNOCKED DOWNED UNITS SHALL BE DONE ONLY WHEN THE ENGINEER HAS DETERMINED THAT THE REPLACEMENT OF THE KNOCKED DOWN UNIT IS NECESSARY AND SHALL BE PAID SEPARATELY ON A UNIT BASIS.

BETTERMENTS SHALL BE COVERED IN ITEMS OF WORK PERTAINING TO THE CONSTRUCTION OF PERMANENT IMPROVEMENT.

WHEN THE SEQUENCE OF CONSTRUCTION ACTIVITIES REQUIRES, OR SHOULD THE CONTRACTOR DESIRE, THE REMOVAL OF THE EXISTING LIGHTING BEFORE THE NEW LIGHTING IS OPERATIONAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY LIGHTING OF THIS PORTION OF THE ROADWAY.

PRIOR TO INSTALLING SUCH LIGHTING, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOUR SETS OF THE TEMPORARY LIGHTING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.

THIS PLAN SHALL SHOW LOCATIONS OF POLES, LENGTHS OF BRACKET ARMS, STYLES OF LUMINAIRES, MOUNTING HEIGHTS, WIRING METHODS AND OTHER PERTINENT INFORMATION. THE TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES (13 LUX) WITH AN AVERAGE TO MINIMUM UNIFORMITY NOT TO EXCEED 3:1. MOUNTING HEIGHT OF TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 30 FEET, AND THE MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE "A" FOR STRENGTH REQUIREMENTS AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. WOOD POLES WITH OVERHEAD WIRING MAY BE USED. HOWEVER, TEMPORARY LIGHTING SHALL MEET FEDERAL AND STATE SAFETY CRITERIA. IF BREAKAWAY POLES ARE USED TO MEET THESE CRITERIA, THEN UNDERGROUND WIRING SHALL BE USED. RECONDITIONED OR USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING.

ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WHEN NO LONGER NEEDED, THE TEMPORARY LIGHTING INSTALLATION SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

THE MAINTAINING AGENCY WILL PAY FOR ELECTRICAL ENERGY CONSUMED BY EXISTING POWER SERVICES AND BY PROPOSED PERMANENT POWER SERVICES AFTER ACCEPTANCE OF THE LIGHTING WORK. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL AND MAINTENANCE OF ANY TEMPORARY POWER SERVICES.

THE LUMP SUM PRICE BID FOR ITEM SPECIAL "MAINTAIN EXISTING LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING LIGHTING AS SPECIFIED HEREIN.

THE UNIT PRICE BID FOR ITEM SPECIAL "REPLACEMENT OF EXISTING LIGHTING UNIT" SHALL BE FULL PAYMENT FOR THE REPLACEMENT OF AN EXISTING LIGHTING UNIT WHICH HAS BEEN KNOCKED DOWN AFTER THE AFOREMENTIONED INSPECTION AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO PROVIDE A REPLACEMENT FOR SUCH UNIT.

ITEM 625 - POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOLLOWING IS ADDED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

DUKE ENERGY
P.O. BOX 960, ROOM M50M
CINCINNATI, OHIO 45202
513-287-1217
BILL HEHMAN

THE ENGINEER SHALL ENSURE THAT EACH POWER SERVICE ELECTRICAL ENERGY ACCOUNT IS IN THE NAME OF AND THAT THE BILLING ADDRESS IS TO THE MAINTAINING AGENCY NOTED IN THE PLANS. THIS SHALL BE DONE NOT ONLY FOR EACH NEW POWER SERVICE ESTABLISHED BY THIS PROJECT BUT ALSO FOR EACH EXISTING POWER SERVICE, SINCE THERE MAY BE A REASSIGNMENT OF THE RESPONSIBILITY FOR AN EXISTING SERVICE AS A RESULT OF THE WORK PERFORMED BY THIS PROJECT.

NEW LIGHTING CONTROLLER, ENCLOSURE, PHOTO-ELECTRIC CELL AND SOCKET, RELATED WIRING AND HARDWARE, AND NEW SERVICE CABLE TO THE UTILITY POLE ARE TO BE INSTALLED.

MOUNT PHOTO-ELECTRIC CELL ON TOP OF SERVICE POLE. ORIENT TO THE NORTH AND SHIELD AS NECESSARY.

CONTROLLERS SHALL CONFORM TO 625.15 AND 1324.03.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, POWER SERVICE, AS PER PLAN WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 - LIGHT POLE FOUNDATION, AS PER PLAN

IN ADDTION TO THE REQUIREMENTS OF ITEM 625, LIGHT POLE FOUNDATIONS SHALL BE AS FOLLOWS:

- BOLT CIRCLE SHALL BE 12" DIAMETER.
- ANCHOR BOLTS SHALL BE 1" DIAMETER.
- FOUNDATIONS ARE TO BE 6' IN DEPTH AND 24" DIAMETER

PRIOR TO ANY LIGHT POLE FOUNDATION CONSTRUCTION THE CONTRACTOR SHALL VERIFY THE BOLT CIRCLE DIAMETER AND ANCHOR BOLT SIZE WITH THE LIGHT POLE MANUFACTURER. FOR FURTHER INFORMATION SEE SHEET 269H.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER ODOT ITEM 625, "LIGHT POLE FOUNDATION, AS PER PLAN." THE UNIT PRICE BID SHALL INCLUDE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMAN LIKE MANNER.

ITEM 625 - HIGH VOLTAGE TEST

SYSTEM SHALL BE TESTED PER 1313 AND 625.19.

THIS SHALL INCLUDE ALL LABOR AND MATERIAL TO PROPERLY PERFORM THE HIGH VOLTAGE TEST OF THE LIGHTING SYSTEM, AND SHALL BE CONSIDERED PAYMENT IS LIMP SUM.

PADLOCKS AND KEYS

THE CABINET SHALL HAVE A CORBIN TYPE TUMBLE LOCK KEYED TO THE CITY OF CINCINNATI STANDARD (CORBIN KEY CHANGE NO. IR 6380). A RESEALABLE POUCH SHALL BE MOUNTED TO THE INSIDE DOOR OF THE CABINET AND SHALL BE SUFFICIENT TO ACCOMMODATE ONE COMPLETE SET OF WIRING PLANS. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEMS BEING LOCKED.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO THE SCD HL-30.11 FOR DETAILS OF DRAINING PULL BOXES.

UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 20 FEET.

ITEM 625 - STRUCTURE GROUNDING SYSTEM

THIS ITEM SHALL CONSIST OF PROVIDING GROUND RODS, GROUND ROD CONDUCTOR RISER CABLES, AND GROUNDING CONNECTORS FOR CONDUITS EMBEDDED IN THE STRUCTURE. IN ADDITION, PROVIDE BONDING JUMPERS AROUND STRUCTURE SUPPORT BEAM SPLICES AND HINGES, AND ACROSS EXPANSION JOINTS.

THIS STRUCTURAL GROUNDING SYSTEM SHALL INCLUDE ALL LABOR AND MATERIAL TO PROPERLY GROUND ALL PORTIONS OF THE PROJECT, AND SHALL BE CONSIDERED A SINGLE ITEM FOR PAYMENT.

625, STRUCTURE GROUNDING SYSTEM ..... 4 EACH

THE ABOVE ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE FOLLOWING STRUCTURES:

HAM-264-1448
HAM-264-1457
HAM- 50-1875
HAM- 50-1881

"SCD" REFERS TO STANDARD CONSTRUCTION DRAWING.
"CMS" REFERS TO CONSTRUCTION AND MATERIAL SPECIFICATION (ODOT) CURRENT EDTION.
"QPL" REFERS TO QUALIFIED PRODUCT LIST (ODOT).

CALCULATED DLB
CHECKED BAA

LIGHTING GENERAL NOTES

HAM-50-18.79

ITEM 625 - LIGHT POLE, DECORATIVE, AS PER PLAN (TYPE P1, P2 AND P3)

THIS WORK CONSISTS OF FURNISHING AND INSTALLING UNION METAL CORPORATION, VALMONT INDUSTRIES OR APPROVED EQUAL DECORATIVE STREET LIGHTING POLE AS SPECIFIED BELOW AND AS DETAILED IN THE PLANS.

FURNISH ALL MATERIAIS FOR EACH DECORATIVE LIGHTING STANDARD INCLUDING, BUT NOT LIMITED TO, DECORATIVE POST, DECORATIVE BASE, DECORATIVE ARM, AND HARDWARE.

THE DECORATIVE POST SHALL CONSIST OF A STEEL ANCHOR PLATE, A HAND HOLE, A 16 FLUTE 11 GAUGE MINIMUM STEEL SHAFT, AND A CLAMSHELL BASE. STEEL MUST BE MANUFACTURED IN THE UNITED STATES. THE HEIGHT OF THE POST COMBINED WITH THE RISE OF THE DECORATIVE ARM SHALL REACH A NOMINAL LUMINAIRE MOUNTING HEIGHTS LISTED BELOW. THE SHAFT SHALL HAVE 8" MINIMUM DIAMETER AT THE BASE AND 0.14 IN/FT TAPER. THE POST MATERIAL SHALL BE LOW CARBON STEEL ALLOY MEETING ASTM A595 GRADE 55. THE POST SHALL BE HOT DIP GALVANIZED AND HAVE A BLACK POWDER COAT FINISH.

THE DECORATIVE BASE SHALL BE 24" IN DIAMETER, TAPERED, AND FLUTED, FORMED TRUE TO THE PATTERN WITH COMPLETE DETAIL. IF THE BASE IS DESIGNED AS A STRUCTURAL ELEMENT, THE MATERIAL SHALL BE CAST IRON MEETING ASTM A48 CLASS 30. OTHERWISE CAST ALUMINUM MEETING ASTM A319-0 CAN BE USED. A DOOR SHALL BE LOCATED ON THE BASE FOR ANCHORAGE AND WIRING ACCESS. A GROUNDING SCREW SHALL BE PROVIDED INSIDE THE BASE OPPOSITE THE DOOR FOR EASY ACCESS.

THE DECORATIVE ARM SHALL BE 2" IN DIAMETER AND CONSIST OF A SMOOTH UPRISING ARM AND DECORATIVE ARM SUPPORT. THE MATERIAL SHALL BE HEAVY WALL CAST ALUMINUM MEETING ASTM 356, OR STEEL ALLOY MEETING ASTM A501. IF THE SPAN OF THE ARM IS LONGER THAN 8', THE PIPE SHALL BE SCHEDULE 80. ALL WELDING SHALL BE PER ANSI/AWS D 1.2-90. THE DECORATIVE ARM SUPPORT SHALL ATTACH TO THE POST. THE LUMINAIRE MOUNTING PIECE SHALL HAVE A REMOVABLE FINIAL FOR WIRING ACCESS. A PLUMBING DEVICE SHALL BE USED FOR LUMINAIRE LEVELING. THE ARMS SHALL BE SET PERPENDICULAR TO THE EDGE OF THE ROADWAY UNLESS OTHERWISE ORDERED OR SPECIFIED. THE ALUMINUM ARM SHALL BE PRIME PAINTED WITH RED OXIDE PRIMER. THE STEEL ARM SHALL BE HOT DIP GALVANIZED. THE ARM SHALL HAVE A BLACK POWDER COAT FINISH.

THE LIGHT STANDARD SHALL BE INSTALLED WITH BREAKAWAY ANCHOR BOLTS. ALL HARDWARE SHALL BE TAMPER RESISTANT STAINLESS STEEL.

THE LIGHT STANDARD SHALL BE INSTALLED IN A WAY THAT THE ACCESS DOOR FACES 180 AWAY FROM THE ROADWAY. BRASS IDENTIFICATION PLATES SHALL BE AFFIXED DIRECTLY ABOVE THE ACCESS DOOR TO EACH POLE AS SPECIFIED ON THE PLANS.

ALL STEEL COMPONENTS, EXCEPT STAINLESS STEEL, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 AND A153. AFTER GALVANIZING BUT PRIOR TO PAINTING, ALL GALVANIZED SURFACES MUST BE ALLOWED TO COOL AND VENT GASES PRODUCED DURING THE COOLING PROCESS. AFTER GALVANIZED SURFACES HAVE BEEN ALLOWED TO AIR DRY, THEY SHALL BE SOLVENT WIPED AS DEFINED BY SSPC-SP1, THEN CLEANED TO ACHIEVE A "BRUSH BLAST" CONDITION AS DEFINED BY SSPC-SP7. GALVANIZING WILL BE TESTED AFTER BRUSH BLAST TO ASSURE SUFFICIENT GALVANIZING REMAINS TO MEET SPECIFICATION.

THE EXTERIOR OF THE SURFACE WILL BE COATED WITH POLYESTER POWDER TO A MINIMUM DRY FILM THICKNESS OF 4 MILS. THE COATING WILL BE ELECTROSTATICALLY APPLIED AND CURED BY HEATING THE SUBSTRATE TO 351F (177C) MINIMUM AND 399F (204C) MAXIMUM. THE POWDER COLOR SHALL BE BLACK. ALL OTHER MATERIALS, INCLUDING BUT NOT LIMITED TO, DECORATIVE BASE, DECORATIVE ARM AND HARDWARE SHALL HAVE A BLACK POWDER COAT FINISH TO MATCH.

LIGHT POLE P1

A LIGHT POLE WITH A SINGLE BRACKET ARM AND A MOUNTING HEIGHT OF 32 FEET, SEE SHEET 305.

LIGHT POLE P2

A LIGHT POLE WITH A DOUBLE BRACKET ARMS (TWO-10' ARMS AT 0 AND 180 DEGREES) AND A MOUNTING HEIGHT OF 32 FEET, SEE SHEET 305.

LIGHT POLE P3

A LIGHT POLE WITH A SINGLE BRACKET ARM AND A MOUNTING HEIGHT OF 28.5 FEET, SEE SHEET 305.

PAYMENT FOR THIS ITEM INCLUDES BRACKET ARMS.

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED POLE.

ITEM 625 - LIGHT POLE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (GENERIC BID)

WORK CONSISTS OF FURNISHING AND INSTALLING DECORATIVE STREET LIGHTING STANDARDS AS DETAILED AND AT LOCATIONS SHOWN ON THE PLANS, THIS SPECIAL PROVISION AND/OR AS DIRECTED BY THE ENGINEER.

FURNISH ALL MATERIAIS FOR EACH DECORATIVE LIGHTING STANDARD INCLUDING, BUT NOT LIMITED TO, DECORATIVE POST, DECORATIVE BASE, AND HARDWARE.

THE DECORATIVE POST SHALL CONSIST OF A 5" DIAMETER (.250 WALL THICKNESS) EXTRUDED FROM 6063 ALLOY ALUMINUM. SHAFT IS HEAT TREATED TO PRODUCE A T6 TEMPER. SHAFT PROVIDED WITH HAND HOLE AND COVER. THE POLE SHALL HAVE A NOMINAL LUMINAIRE MOUNTING HEIGHT AS LISTED BELOW.

THE DECORATIVE BASE SHALL BE 18" IN DIAMETER, ONE PIECE, CORROSION RESISTANT DURABLE CAST ALUMINUM CONSTRUCTION. MINIMUM .255 WALL THICKNESS. BASE CONSISTS OF A SMOOTH, BOTTOM SECTION AND A DECORATIVE TOP SECTION. BASE IS FURNISHED WITH HAND HOLE AND COVER. HAND HOLE COVER SUPPLIED WITH TAMPER RESISTANT HARDWARE. GROUNDING LUG PROVIDED INSIDE BASE OPPSITE HAND HOLE.

VIBRATION DAMPER SHALL BE PROVIDED.

POLE PROVIDED WITH REINFORCING SLEEVE TO SUPPORT SHAFT, REINFORCING SLEEVE SHALL EXTEND INTO SHAFT AND BASE. SLEEVE WELDED TO BASE.

THE LIGHT STANDARD SHALL BE INSTALLED WITH BREAKAWAY ANCHOR BOLTS. ALL HARDWARE SHALL BE TAMPER RESISTANT STAINLESS STEEL.

BASE SHALL BE ANCHORED WITH (4) 1"x36" FULLY GALVANIZED ANCHOR BOLTS. EACH BOLT SUPPLIED WITH TWO NUTS AND TWO WASHERS.

PLE AND BASE FINISH SHALL BE ELECTROSTATICALLY APPLIED BAKED ON TEXTURED ACRYLIC ENAMEL, BLACK IN COLOR.

LIGHT POLE P4

A LIGHT POLE WITH A MOUNTING HEIGHT OF 16 FEET, SEE SHEET 305.

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED POLE.

625 - LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P1, P2 AND P3) (GENERIC BID)

LUMINAIRE IS 240 VOLT, (MT), 250 WATT, HPS, TYPE III DISTRIBUTION PER THE DESIGN SHOWN ON SHEET 305.

LUMINAIRE SHALL BE APPROVED BY MANUFACTURER FOR USE ON BRIDGES.

HOUSING SHALL BE CONSTRUCTED OF CAST ALUMINUM, OVAL IN PLAN VIEW, WITH A LONG DIMENSION OF APPROXIMATELY 44 INCHES. MOUNTING BRACKET SHALL ACCEPT A TENON OF 2-3/8 INCHES.

OPTICAL ASSEMBLY SHALL BE FULLY SEALED TO PREVENT INTRUSION OF RAIN, DIRT, OR INSECTS.

ALL ELECTRICAL COMPONENTS ARE TO BE UL-CERTIFIED AND CONFIGURED FOR EASY MAINTENANCE AND REMOVAL. INTEGRAL BALLAST SHALL BE HIGH POWER FACTOR AND MEET ANSI C82 BALLAST STANDARD. BALLASTS SHALL ACCEPT A RANGE OF INPUT VOLTAGES FROM 120 TO 277 VAC.

HOUSING SHALL BE FINISHED WITH POLYESTER OR TGIC POWDER COAT, BLACK, TEXTURED. EXPOSED HARDWARE TO BE STAINLESS STEEL.

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED LUMINARE.

ITEM 625 - LUMINAIRE, DECORATIVE, AS PER PLAN (POST-TOP, TYPE P4) (GENERIC BID)

THE POST-TOP LUMINAIRE SHALL BE 240 VOLT, (MT), 150 WATT, HPS, IES TYPE III DISTRIBUTION AS PER THE DESIGN SHOWN ON SHEET 305.

LUMINAIRE BODY SHALL BE CAST ALUMINUM HOUSING AND DECORATIVE CAGE, ENTIRE ASSEMBLY SEALED WITH A CONTINUOUS SILICONE GASKET.

LUMINAIRE SHALL BE ONE PIECE CLEAR ACRYLIC LENS ENCASES CLEAR PRISMATIC GLASS REFRACTOR. TYPE III (ASYMMETRIC) OR TYPE V (SYMMETRIC) LIGHT DISTRIBUTION. 90° PERFORATED HOUSE SIDE SHIELD MOUNTED INSIDE REFRACTOR. FOUR CAST ALUMINUM VERTICAL ARMS SHALL FORM A GUARD AROUND THE LENS. LUMINAIRE HOOD SHALL BE CAST OR SPUN ALUMINUM. FITTER SHALL BE CAST ALUMINUM AND CAPABLE OF SECURE VERTICAL MOUNTING TO THE POLE TOP.

ALL ELECTRICAL COMPONENTS ARE TO BE UL-CERTIFIED AND CONFIGURED FOR EASY MAINTENANCE AND REMOVAL. THE BALLAST SHALL BE H.P.F./C.W.A. AUTOTRANSFORMER, -20° STARTING TEMPERTURE. (MULTI-TAP VOLTAGE - 120/208/240/277/480). QUICK DISCONNECT SUPPLIED FROM BALLAST TO TERMINAL BLOCK.

LUMINAIRE SHALL BE APPROVED BY MANUFACTURER FOR USE ON BRIDGES.

ALL HARDWARE TO BE STAINLESS STEEL. GASKETS TO BE SILICONE OR EPDM.

HOUSING FINISH SHALL BE ELECTROSTATICALLY APPLIED BAKED ON TEXTURED ACRYLIC ENAMEL. BLACK IN COLOR.

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED LUMINARE.

ITEM 625 - LIGHT POLE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (ALTERNATE BID)

POLES SHALL FOLLOW NOTES AND SPECIFICATIONS AS LISTED IN THE GENERIC BID ITEM AND SHALL BE MANUFACTURED BY SUN VALLEY CS-4109-P (REV. 4).

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED POLE.

625 - LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P1, P2 AND P3) (ALTERNATE BID)

LUMINAIRE SHALL FOLLOW NOTES AND SPECIFICATIONS AS LISTED IN THE GENERIC BID ITEM AND SHALL BE MANUFACTURED BY GE/M2AC-25-S-O-A-2-G-MC3-2.

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED POLE.

ITEM 625 - LUMINAIRE, DECORATIVE, AS PER PLAN (POST-TOP, TYPE P4) (ALTERNATE BID)

LUMINAIRE SHALL FOLLOW NOTES AND SPECIFICATIONS AS LISTED IN THE GENERIC BID ITEM AND SHALL BE MANUFACTURED BY SUN VALLEY CS-4109-1 (REV. 4).

THE UNIT BID PRICE SHALL MEET THE REQUIREMENT OF ITEM 625 AND SECTION 1300 AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS TO INSTALL A COMPLETE AND ACCEPTED POLE.

"SCD" REFERS TO STANDARD CONSTRUCTION DRAWING.
"CMS" REFERS TO CONSTRUCTION AND MATERIAL SPECIFICATION (ODOT) CURRENT EDTION.
"OPL" REFERS TO QUALIFIED PRODUCT LIST (ODOT).

CALCULATED DLB
CHECKED BAA

LIGHTING GENERAL NOTES

HAM-50-18.79

SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	288		290	291	292							100% CITY	100% STATE						
																		ELECTRICAL	
			240	200	200								640	603	00400	640	FT	4" CONDUIT, TYPE E	288
			42	60	60								162	625	00500	162	EACH	CONNECTOR KIT, TYPE II	
			30	39	39								108	625	00700	108	EACH	CONNECTOR KIT, TYPE IV	
			18	18	18								54	625	00900	54	EACH	CONNECTOR KIT, TYPE VI	
			45	42	39								126	625	00950	126	EACH	CONNECTOR KIT, TYPE VII	
			20	21	19								60	625	10481	60	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN (TYPE P1)	288A
			2	0	0								2	625	10481	2	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN (TYPE P2)	288A
			13	4	3								20	625	10481	20	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN (TYPE P3)	288A
			0	13	14								27	625	10481	27	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (GENERIC BID)	288A
			0	13	14							27		625	10481	27	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (ALTERNATE BID	288A
			23	22	19								64	625	14501	64	EACH	LIGHT POLE FOUNDATION, AS PER PLAN	288
			15492	15972	13911								45375	625	23200	45375	FT	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	
			4466	4004	3596								12066	625	23400	12066	FT	NO. 10 AWG POLE AND BRACKET CABLE	
			4674	3570	2470								10714	625	25400	10714	FT	CONDUIT, 2", 725.04	
			4674	3570	2470							10714		625	25400	10714	FT	CONDUIT, 2", 725.04	288
			20	21	19								60	625	27551	60	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P1) (GENERIC BID)	288A
			20	21	19							60		625	27551	60	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P1) (ALTERNATE BID)	288A
			2	0	0								2	625	27551	2	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P2) (GENERIC BID)	288A
			2	0	0							2		625	27551	2	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P2) (ALTERNATE BID)	
			13	4	3								20	625	27551	20	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P3) (GENERIC BID)	288A
			13	4	3							20		625	27551	20	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (TYPE P3) (ALTERNATE BID)	
			0	13	14								27	625	27551	27	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (GENERIC BID)	288A
			0	13	14							27		625	27551	27	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (ALTERNATE BID	288A
			0	13	14								27	625	27551	27	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (GENERIC BID)	288A
			0	13	14							27		625	27551	27	EACH	LUMINAIRE, DECORATIVE, AS PER PLAN (POST-TOP TYPE P4) (ALTERNATE BID	288A
			2872	2731	2007								7610	625	29002	7610	FT	TRENCH, 24" DEEP	
			302	314	106								722	625	29600	722	FT	TRENCH IN PAVED AREA, TYPE B	
			13	9	5								27	625	29920	27	EACH	STRUCTURE JUNCTION BOX (18"x12"x8", 725.10)	
			13	12	12								37	625	30700	37	EACH	PULL BOX, 725.08, 18"	
			24	28	24								76	625	32000	76	EACH	GROUND ROD	
	4												4	625	33000	4	EACH	STRUCTURE GROUNDING SYSTEM	288
			2	3	2								7	625	34001	7	EACH	POWER SERVICE, AS PER PLAN	288
													LUMP	625	38000	LUMP		HIGH VOLTAGE TEST	288
													LUMP	SPECIAL	62540000	LUMP		MAINTAIN EXISTING LIGHTING	288

CALCULATED DLB
CHECKED BAA

LIGHTING GENERAL SUMMARY

HAM-50-18.79

289
657

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REFERENCE NO.	SHEET NO.	SIDE	ROADWAY	STATION TO STATION		625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P1 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P1 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P2 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P2 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P3 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P3 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P4 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P4 ALT EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P1 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P2 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P3 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P4 GEN EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P4 ALT EACH	625 PULL BOX, 725.08, 18" EA	625 STRUCTURE JUNCTION BOX (18"x12"x8", 725.10) EA	625 TRENCH, 24" DEEP FT	625 TRENCH IN PAVED AREA, TYPE B FT	625 LIGHT POLE FOUNDATION, AS PER PLAN EACH	625 CONDUIT, 2", 725.04 FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE FT	625 GROUND ROD EA	625 CONNECTOR KIT, TYPE II EA	625 CONNECTOR KIT, TYPE IV EA	625 CONNECTOR KIT, TYPE VI EA	625 CONNECTOR KIT, TYPE VII EA	625 POWER SERVICE, AS PER PLAN EA		603 4" CONDUIT, TYPE E FT
			LIGHTING CIRCUIT "A"																															
A-1	297	RT	EB US 50	39+33.0	37+83.0					1	1					1			1			149	116	477			1	2					
A-2	297	RT	EB US 50	37+83.0	36+27.4					1	1					1			1			152	116	486		2	1						
A-3	297-296	RT	EB US 50	36+27.4	93+20.91					1	1					1			1			131	116	423		2	1						
A-4	296	RT	EB WARSAW RAMP	93+11.0	93+20.91	1	1							1						10		1	10	126	60	1				3			
A-5	296	RT	EB WARSAW RAMP	91+61.0	93+11.0	1	1							1						148		1	148	126	474	1				3			
A-6	296	RT	EB WARSAW RAMP	90+11.0	91+61.0	1	1							1						149		1	149	126	477	1				3			
PB-A2	296	RT	EB WARSAW RAMP	89+05.0	90+11.0													1		106			106		348	1				3			20
A-7	296	RT	EB WARSAW RAMP	88+61.0	89+05.0					1	1					1			1	10			44	116	162		2	1					
A-8	295-296	RT	EB ELBERON RAMP	65+47.0	88+61.0					1	1					1							150	116	480								
A-14	297	RT	EB WARSAW RAMP	89+05.0	88+62.7															43			93		309	1					1		
A-9			NOT USED																														
A-10			NOT USED																														
A-11			NOT USED																														
PB-A1	297-296	RT/LT	EB US 50	93+20.91	34+93.0													1			61		61		213					3			20
PB-A3	297	LT	EB US 50	34+93.0														1															20
A-12	296	LT	EB WARSAW RAMP	89+36.0	89+05.0			1	1						1					32		1	32	156	126	1	2	1					
A-13	296	LT	EB WARSAW RAMP	87+86.0	89+05.0			1	1						1					122		1	122	156	396	1	2	1					
PB-A4	296	LT/RT	EB WARSAW RAMP	89+05.0														1			42		42		156					3			20
			LIGHTING CIRCUIT "B"																														
B-1	297	LT	WB US 50	39+21.0	37+74.0					1	1					1			1			150	116	480			1	2					
B-2	297	LT	WB US 50	37+74.0	36+29.0					1	1					1			1			150	116	480		2	1						
B-3	297	LT	WB US 50	36+29.0	35+67.2					1	1					1		1	1	10			53	116	219		2	1					20
B-4	297	RT/LT	EVANS ST/WB US 50	21+14.35	35+67.2	1	1							1						54		1	54	126	192	1	2	1					
PB-B2	297	LT/RT	EVANS ST	21+14.35														1			60		60		210					3			20
B-5	297	LT	EVANS ST	21+87.0	21+14.35	1	1							1						73		1	73	126	249			1	2				
B-6	296-297	LT	WB US 50/EVANS ST	34+44.0	21+14.35	1	1							1						80		1	80	126	270	1	2	1					
B-7	296	LT	WB US 50	33+12.5	34+44.0	1	1							1						135		1	135	126	435	1	2	1					
B-8	296	LT	WB US 50	31+62.5	33+12.5	1	1							1						150		1	150	126	480	1	2	1					
B-9	296	LT	WB US 50	30+20.12	31+62.5	1	1							1						143		1	143	126	459	1	2	1					
B-10	295-296	LT	WB US 50	28+70.0	30+20.12	1	1							1						150		1	150	126	480	1	2	1					
PB-B3	295	LT	WB US 50	27+33.65	28+70.0													1		139			139		447					3			20
B-11	295	LT	WB US 50	27+18.2	27+33.65					1	1					1			1	10			16	116	78		2	1					
B-12	295	LT	WB US 50	103+00.67	27+18.2					1	1					1			1				153	116	489		2	1					
B-13	295	RT	EB US 50	26+44.35	27+33.65	1	1							1						90		1	90	126	300	1				3			
B-14	295	RT	EB US 50	28+00.0	27+33.65	1	1							1						67		1	67	126	231	1				3			
PB-B4	295	RT/LT	EB US 50	27+33.65														1			86		86		288					3			20
B-15	295-296	LT	WB US 50	28+70.0	28+88.0													1		43			93		309	1					1		20
			LIGHTING CIRCUIT "C"																														
C-1	295	LT	EB WARSAW RAMP	86+38.0	84+86.0	1	1							1						153		1	153	126	489	1		1	2				
C-2	295	LT	EB WARSAW RAMP	84+86.0	84+83.5	1	1							1						6		1	6	126	48		2	1					
C-3	295	LT	EB WARSAW RAMP	83+38.0	84+10.0					1	1					1			1				71	116	243			1	2				
PB-C2	295	LT	EB WARSAW RAMP	84+10.0	84+83.5														1	10			71		243					3			
C-4	295	RT	EB ELBERON RAMP	63+97.0	62+47.0					1	1					1			1				150	116	480			1	2				
C-5	295	RT/LT	EB ELBERON RAMP	62+47.0	84+10.0					1	1					1			1		53		53	116	189		2	1					
PB-C1	295	LT	EB WARSAW RAMP	84+83.5	82+98.5													1		182			182		576					3			20
PB-C3	295	LT/RT	EB WARSAW RAMP	82+98.5	24+62.85													1		30			30		120					3			20
C-6	295	RT	EB ELBERON RAMP	24+94.5	24+62.85	1	1							1				1		32		1	32	126	126	1		1	2				
C-7	295	RT	EB US 50	23+38.0	24+62.85															123		1	123	126	399	1	2	1					
PB-C5	295	RT	EB US 50	23+31.5	23+38.0													1		7			7		51					3			20
C-8	294	RT	EB US 50	19+97.0	21+81.0	1	1							1						181		1	181	126	573	1		1	2				
C-9	294,295	RT	EB US 50	21+81.0	23+31.5	1	1							1						150		1	150	126	480	1	2	1					
C-10	295	LT	WB US 50	24+12.0	23+35.5	1	1							1						79		1	79	126	267	1		1	2				
C-11	294,295	LT	WB US 50	22+98.9	23+35.5	1	1							1						38		1	38	126	144	1	2	1					
C-12	294	LT	WB US 50	21+86.1	22+98.9	1	1							1						117		1	117	126	381	1	2	1					
RT - RIGHT LT - LEFT GEN - GENERIC BID ALT - ALTERNATE BID																																	
TOTALS CARRIED TO GENERAL SUMMARY						20	20	2	2	13	13	0	0	20	2	13	0	0	13	13	2872	302	23	4674	4466	15492	24	42	30	18	45	2		240

CALCULATED DLB
CHECKED BAA

LIGHTING SUBSUMMARY

HAM-50-18.79

REFERENCE NO.	SHEET NO.	SIDE	ROADWAY	STATION TO STATION		625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P1 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P1 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P2 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P2 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P3 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P3 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P4 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P4 ALT EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P1 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P2 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P3 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P4 GEN EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P4 ALT EACH	625 PULL BOX, 725.08, 18" EA	625 STRUCTURE JUNCTION BOX (18"x12"x8", 725.10) EA	625 TRENCH, 24" DEEP FT	625 TRENCH IN PAVED AREA, TYPE B FT	625 LIGHT POLE FOUNDATION, AS PER PLAN EACH	625 CONDUIT, 2", 725.04 FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE FT	625 GROUND ROD EA	625 CONNECTOR KIT, TYPE II EA	625 CONNECTOR KIT, TYPE IV EA	625 CONNECTOR KIT, TYPE VI EA	625 CONNECTOR KIT, TYPE VII EA	625 POWER SERVICE, AS PER PLAN EA		603 4" CONDUIT, TYPE E FT
			LIGHTING CIRCUIT "C" (CONT.)																															
C-13	294	LT	WB US 50	21+60.7	21+86.1	1	1							1						131		1	131	126	423	1		1	2					
PB-C6	295	LT/RT	EB US 50	23+35.5	23+31.5													1			60		60		210					3			20
C-14	295	RT/LT	WB US 50	100+66.0	23+35.5	1	1							1						31		1	31	126	123	1		1	2					
PB-C7	299,295	RT	EB ELBERON RAMP	99+55.54	100+66.0													1		111			111		363		2	1					20
C-15	299	RT	WB ELBERON RAMP	98+85.0	99+55.54					1	1					1				10		1	71	126	243	1		1	2					
C-16	295,299	LT	WB U.S. 50	100+41.0	99+90.95					1	1					1			1				150	116	480			1	2					
C-17	299	LT	WB ELBERON RAMP	99+90.95	99+55.54					1	1					1			1				36	116	138		2	1					
PB-C8	299	LT/RT	WB ELBERON RAMP	99+55.54	99+55.54														1		51		51		183					3			
C-18	299	LT	WB ELBERON RAMP	108+35.38	99+55.54					1	1					1			1				115	116	375		2	1					
PB-C9	299	LT	WB ELBERON RAMP	108+35.38	108+35.58														1	3			20		90					3			
C-19	299	LT	WB ELBERON RAMP	108+35.58	108+35													1		18			18		84	1				3	1		
			LIGHTING CIRCUIT "D"																															
D-1	293	RT	EB US 50	12+47.0	13+97.0	1	1							1						150		1	150	126	480	1		1	2					
D-2	293	RT	EB US 50	13+97.0	15+47.0	1	1							1						150		1	150	126	480	1	2	1						
D-3	293-294	RT	EB US 50	15+47.0	16+97.0	1	1							1						150		1	150	126	480	1	2	1						
D-4	294	RT	EB US 50	16+97.0	17+73.8	1	1							1						76		1	76	126	258	1	2	1						
D-5	294	RT	EB US 50	18+47.0	17+73.8	1	1							1						74		1	74	126	252	1	2	1						
PB-D2	294	RT	US 50	19+29.6	18+47.0													1		81			81		273					3			20
PB-D3	294	LT/RT	US 50	19+29.6	19+29.6													1			81		81		273					3			20
D-6	294	LT	US 50	19+98.0	19+29.6	1	1							1						95		1	95	126	315	1	2	1						
D-7	294,299	LT	US 50	49+17.0	19+98.0	1	1							1						100		1	100	126	330	1	2	1						
D-8	299	LT	US 50	21+21.55	49+17.0	1	1							1						132		1	132	126	426	1		1	2					
D-9	293	LT	US 50	11+72.0	13+22.0	1	1							1						150		1	150	126	480	1		1	2					
D-10	293	LT	US 50	13+22.0	14+72.0	1	1							1						150		1	150	126	480	1	2	1						
D-11	293	LT	US 50	14+72.0	16+22.0	1	1							1						150		1	150	126	480	1	2	1						
D-12	293-294	LT	US 50	16+22.0	17+72.0	1	1							1						150		1	150	126	480	1	2	1						
D-13	294	LT	US 50	17+72.0	17+73.8	1	1							1						5		1	5	126	45	1	2	1						
D-14	294	RT/LT	STATE ST/US 50	49+08.0	17+73.8	1	1							1						100		1	100	126	330	1	2	1						
D-15	299,294	RT	STATE ST	47+56.0	49+08.0	1	1							1						163		1	163	126	519	1	2	1						
PB-D5	299	RT	STATE ST	47+56.0	47+59.0													1		13			63		249	1				3	1		20
PB-D4	294	LT/RT	US 50	17+73.8	17+73.8													2			91		91		303	2				6			40
			LIGHTING CIRCUIT "E"																															
E-1	295,294	LT	EB WARSAW RAMP	82+38.0	81+37.5							1	1					1	1					64	330			1	2					
E-2	294	LT	EB WARSAW RAMP	81+37.5	80+37.0							1	1					1	1					64	330		2	1						
E-3	294	LT	EB WARSAW RAMP	80+37.0	79+36.5							1	1					1	1					64	330		2	1						
E-4	294,299	LT	EB WARSAW RAMP	79+36.5	78+34.0							1	1					1	1					64	330		2	1						
E-5	299	LT	EB WARSAW RAMP	78+34.0	77+32.0							1	1					1	1					64	330		2	1						
E-6	299	LT	EB WARSAW RAMP	77+32.0	76+31.0							1	1					1	1					64	330		2	1						
E-7	299	LT	EB WARSAW RAMP	76+31.0	75+31.0							1	1					1	1					64	330		2	1						
E-8	299	LT	EB WARSAW RAMP	75+31.0	74+30.0							1	1					1	1					64	330		2	1						
E-9	299-300	LT	EB WARSAW RAMP	74+30.0	73+75.0							1	1					1	1					64	192		2	1						
PB-E1	300	LT/RT	EB WARSAW RAMP	73+75.0	73+75.0																1		31		31					3			
PB-E2	300	RT	EB WARSAW RAMP	73+75.0	73+42.0																1				35					3			
E-10	300	RT	EB WARSAW RAMP	73+42.0	73+28.5							1	1					1	1		1	10			15	116	75		2	1				
PB-E3	300	RT	EB WARSAW RAMP	73+28.5	71+92.0															1		142			142		456					3			20
E-11	300	RT	EB WARSAW RAMP	71+92.0	70+42.0	1	1							1						153		1	153	126	489	1	2	1						
E-12	300	RT	EB WARSAW RAMP	70+42.0	70+43.0	1	1							1						1	8		18	126	84	2	2	1		3	1		20
E-13	300	LT	EB WARSAW RAMP	73+75.0	73+69.0															1			6		48								
PB-E4	300	RT	EB WARSAW RAMP	70+43.0	70+43.0															1		4			54		192	1						
			LIGHTING CIRCUIT "F"																															
F-1	300	LT	WB WARSAW RAMP	101+43.0	102+93.0	1	1							1						146		1	146	126	468	1		1	2					
F-2	300	LT	WB WARSAW RAMP	102+93.0	103+50.0	1	1							1						55		1	55	126	195	1	2	1						
PB-F1	300,299	LT	WB WARSAW RAMP	103+50.0	104+25.0													1		10			10		240					3			20
F-3	299	LT	WB WARSAW RAMP	104+25.0	105+25.0							1	1					1	1					64	330		2	1						
F-4	299	LT	WB WARSAW RAMP	105+25.0	106+25.0							1	1					1	1					64	330		2	1						
F-5	299	LT	WB WARSAW RAMP	106+25.0	107+31.0							1	1					1	1					64	330		2	1						
RT - RIGHT LT - LEFT GEN - GENERIC BID ALT - ALTERNATE BID																																		
TOTALS CARRIED TO GENERAL SUMMARY						21	21	0	0	4	4	13	13	21	0	4	13	13	12	9	2731	314	22	3570	4004	15972	28	60	39	18	42	3		200

CALCULATED DLB
CHECKED BAA

LIGHTING SUBSUMMARY

HAM-50-18.79

REFERENCE NO.	SHEET NO.	SIDE	ROADWAY	STATION TO STATION		625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P1 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P1 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P2 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P2 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P3 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P3 ALT EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P4 GEN EACH	625 LUMINAIRE, DECORATIVE, AS PER PLAN TYPE P4 ALT EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P1 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P2 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P3 EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P4 GEN EACH	625 LIGHT POLE, DECORATIVE, AS PER PLAN TYPE P4 ALT EACH	625 PULL BOX, 725.08, 18" EA	625 STRUCTURE JUNCTION BOX (18"x12"x8", 725.10) EA	625 TRENCH, 24" DEEP FT	625 TRENCH IN PAVED AREA, TYPE B FT	625 LIGHT POLE FOUNDATION, AS PER PLAN EACH	625 CONDUIT, 2", 725.04 FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE FT	625 GROUND ROD EA	625 CONNECTOR KIT, TYPE II EA	625 CONNECTOR KIT, TYPE IV EA	625 CONNECTOR KIT, TYPE VI EA	625 CONNECTOR KIT, TYPE VII EA	625 POWER SERVICE, AS PER PLAN EA		603 4" CONDUIT, TYPE E FT
				LIGHTING CIRCUIT "F"																														
F-6	299	LT	WB WARSAW RAMP	107+31.0	107+90.0							1	1					1	1					64	198		2	1					
PB-F2	299	LT	WB WARSAW RAMP	107+90.0	108+35.0															1			95		498					9			
PB-F3	299	LT/LT	WB WARSAW/ELBERON R	107+90.0	97+44.0															1		38	38		354					3			
F-7	299	LT	WB ELBERON RAMP	97+44.0	96+44.0							1	1					1	1					64	330		2	1					
F-8	299	LT	WB ELBERON RAMP	96+44.0	95+47.0							1	1					1	1					64	330		2	1					
F-9	299	LT	WB ELBERON RAMP	95+47.0	94+51.0							1	1					1	1					64	330		2	1					
F-10	299,298	LT	WB ELBERON RAMP	94+51.0	93+54.0							1	1					1	1					64	330		2	1					
F-11	298	LT	WB ELBERON RAMP	93+54.0	92+57.0							1	1					1	1					64	330		2	1					
F-12	298	LT	WB ELBERON RAMP	92+57.0	91+54.0							1	1					1	1					64	330		2	1					
F-13	298	LT	WB ELBERON RAMP	91+54.0	91+20.0					1	1					1				1	5		5	116	108		2	1					
PB-F4	298	LT	WB ELBERON RAMP	91+20.0																1							2	1					20
F-14	298	LT	WB ELBERON RAMP	90+25.0	91+20.0	1	1							1						96		1	96	126	318	1		1	2				
				LIGHTING CIRCUIT "G"																														
PB-G1	295	LT	EB ELBERON RAMP	61+32.0	60+54.0															1					291			1	2				
G-1	295,294	LT	EB ELBERON RAMP	60+54.0	59+53.0							1	1					1	1					64	330		2	1					
G-2	294	LT	EB ELBERON RAMP	59+53.0	58+53.0							1	1					1	1					64	330		2	1					
G-3	294	LT	EB ELBERON RAMP	58+53.0	57+52.0							1	1					1	1					64	330		2	1					
G-4	294	LT	EB ELBERON RAMP	57+52.0	56+52.0							1	1					1	1					64	330		2	1					
G-5	294	LT	EB ELBERON RAMP	56+52.0	55+52.0							1	1					1	1					64	330		2	1					
G-6	294	LT	EB ELBERON RAMP	55+52.0	54+52.0							1	1					1	1					64	330		2	1					
G-7	294,298	LT	EB ELBERON RAMP	54+52.0	53+58.0							1	1					1	1					64	330		2	1					
G-8	298	LT	EB ELBERON RAMP	53+58.0	53+41.5					1	1					1							5	64	81		2	1					
PB-G2	298	LT	EB ELBERON RAMP	53+41.5	52+71.5															1			72		246	1				3			
PB-G3	298	LT	EB ELBERON RAMP	52+71.5	52+71.5															1			20		90					3			20
G-9	298	LT	EB ELBERON RAMP	52+30.0	52+71.5	1	1							1								1	43	126	159	1		1	2				
G-10	298	RT	EB ELBERON RAMP	50+05.0	51+55.0	1	1							1						149		1	149	126	477	1		1	2				
G-11	298	RT	EB ELBERON RAMP	51+55.0	53+05.0	1	1							1						152		1	152	126	486	1	2	1					
G-12	298	RT	EB ELBERON RAMP	53+05.0	53+31.5	1	1							1						23		1	23	126	99	1	2	1					
PB-G4	298	RT/LT	EB ELBERON RAMP	53+31.5	53+41.5															1		36	36		138		2	1					20
PB-G5	298	LT	EB ELBERON RAMP	52+71.5	52+64.0															1			20		90	1				3			20
G-13	294,298	RT	EB ELBERON RAMP	54+09.39	53+31.49					1	1					1					1		77	126	261			1	2				
G-14	298	RT	ELBERON AVE	46+87.0	52+71.5	1	1							1						25		1	25	126	105	1	2	1					
G-15	298	RT	ELBERON AVE	47+83.0	46+87.0	1	1							1						102		1	102	126	336	1	2	1					
PB-G6	298	LT	ELBERON AVE	47+83.0	47+80.0															1			16		258	1				3	1		20
				LIGHTING CIRCUIT "H"																														
H-1	298	LT	ELBERON AVE	44+65.0	45+95.0	1	1							1						131		1	131	126	423	1		1	2				
H-2	298	LT/RT	ELBERON/MARYLAND	45+95.0	46+31.51	1	1							1						118		1	118	126	384	1	2	1					
H-3	298	RT	MARYLAND AVE	46+31.51	46+05.0	1	1							1						28		1	28	126	114	1	2	1					
H-4	298	RT	MARYLAND AVE	45+41.33	46+05.0	1	1							1						64		1	64	126	222	1		1	2				
PB-H1	298	RT/LT	MARYLAND AVE	46+05.0	46+05.0															1		32	32		126					3			20
PB-H2	298	LT/RT	MARYLAND/ELBERON	46+05.0	47+40.16															1			41		153					3			20
PB-H3	298	LT	STATE ST	47+40.16	48+18.05															1			74		252								
H-5	298,299	LT	ELBERON AVE	48+18.05	46+40.3	1	1							1						100		1	100	126	330	1	2	1					
H-6	299	LT	STATE/ELBERON	46+40.3	44+55.3	1	1							1						101		1	101	126	333	1	2	1					
H-7	299	RT	STATE ST	45+55.3	45+08.64	1	1							1						50		1	50	126	180	1	2	1					
H-8	300,299	RT	STATE ST	44+00.0	45+08.64	1	1							1						115		1	115	126	375	1		1	2				
PB-H4	299	RT/LT	STATE ST	45+08.64	45+08.64															1			56		198	1				3			20
PB-H5	299	LT	STATE ST	45+08.64																1			56		198	1				3			20
H-9	300,299	LT	STATE ST	43+43.07	44+47.0	1	1							1						100		1	100	126	330	1		1	2				
H-10	299	LT	STATE ST	44+47.0	45+08.64	1	1							1						62		1	62	126	216	1	2	1					
H-11	299	LT	STATE ST	46+55.3	45+08.64	1	1							1						150		1	150	126	480	1	2	1					
H-12	294,299	LT	STATE ST	48+40.0	46+55.3	1	1							1						167		1	167	126	531	1	2	1					
PB-H6	294	LT	STATE ST	48+82.86	48+40.0															1			107		381	1				3	1		20
RT - RIGHT LT - LEFT GEN - GENERIC BID ALT - ALTERNATE BID																																		
TOTALS CARRIED TO GENERAL SUMMARY						19	19	0	0	3	3	14	14	19	0	3	14	14	12	5	2007	106	19	2470	3596	13911	24	60	39	18	39	2		200

CALCULATED DLB
CHECKED BAA

LIGHTING SUBSUMMARY

HAM-50-18.79

MATCH LINE - SEE SHEET 298

LIGHTING CIRCUIT "D"

D-1 STA. 12+47, U.S. 50, 31.50' RT
250W, 32', 10', TYPE III

D-2 STA. 13+97, U.S. 50, 31.50' RT
250W, 32', 10', TYPE III

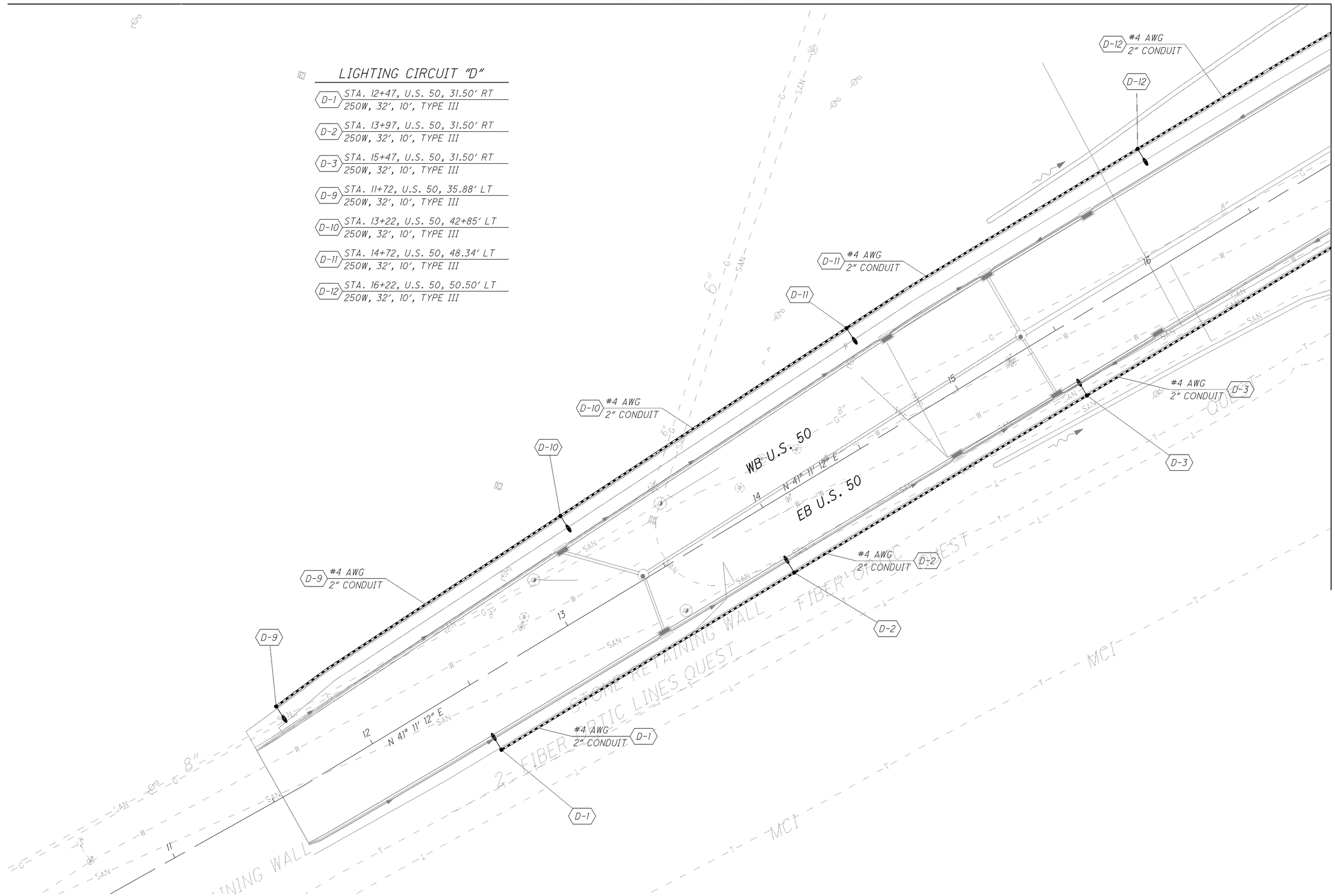
D-3 STA. 15+47, U.S. 50, 31.50' RT
250W, 32', 10', TYPE III

D-9 STA. 11+72, U.S. 50, 35.88' LT
250W, 32', 10', TYPE III

D-10 STA. 13+22, U.S. 50, 42+85' LT
250W, 32', 10', TYPE III

D-11 STA. 14+72, U.S. 50, 48.34' LT
250W, 32', 10', TYPE III

D-12 STA. 16+22, U.S. 50, 50.50' LT
250W, 32', 10', TYPE III



MATCH LINE - SEE SHEET 294

HORIZONTAL SCALE IN FEET
0 10 20 40

PARTIAL LIGHTING PLAN

HAM-50-18.79

293
657

MATCH LINE - SEE SHEET 299

MATCH LINE - SEE SHEET 298

MATCH LINE - SEE SHEET 295

MATCH LINE - SEE SHEET 293

WB U.S. 50

EB U.S. 50

EB ELBERON RAMP

EB WARSAW RAMP

STATE ST.

S 34° 00' 00" E

N 54° 38' 20" E

POWER SERVICE "H", 240 VOLT, STA. 48+83, STATE ST, 29' LT. EDGE OF PAVEMENT

4 AWG 2" CONDUIT

LIGHTING CIRCUIT "C"

- C-8 STA. 19+97, EB U.S. 50, 26+75' RT — 250W, 32', 10', TYPE III
- C-9 STA. 21+81, EB U.S. 50, 26.75' RT — 250W, 32', 10', TYPE III
- C-10 STA. 21+60.7, WB U.S. 50, 49.33' LT — 250W, 32', 10', TYPE III
- C-11 STA. 21+86.1, WB U.S. 50, 35.65' LT — 250W, 32', 10', TYPE III
- C-12 STA. 22+98.9, WB U.S. 50, 37' LT — 250W, 32', 10', TYPE III

LIGHTING CIRCUIT "H"

- H-12 STA. 48+40, STATE ST., 37.07' LT — 250W, 32', 10', TYPE III
- PB-H6 PULL BOX, STA. 48+82.86, STATE ST., 37.77' LT

LIGHTING CIRCUIT "G"

- G-2 STA. 59+53. EB ELBERON RAMP, 22.75' LT — 150W, 16', TYPE III (JUNCTION BOX)
- G-3 STA. 58+53, EB ELBERON RAMP, 22.75' LT — 150W, 16', TYPE III (JUNCTION BOX)
- G-4 STA. 57+52, EB ELBERON RAMP, 22.75' LT — 150W, 16', TYPE III (JUNCTION BOX)
- G-5 STA. 56+52, EB ELBERON RAMP, 22.75' LT — 150W, 16', TYPE III (JUNCTION BOX)
- G-6 STA. 55+52, EB ELBERON RAMP, 22.75' LT — 150W, 16', TYPE III (JUNCTION BOX)
- G-7 STA. 54+52, EB ELBERON RAMP, 22.75' LT — 150W, 16', TYPE III (JUNCTION BOX)
- G-13 STA. 54+09.38, EB ELBERON RAMP, 8.83' RT — 250W, 28.5', 10', TYPE III

LIGHTING CIRCUIT "E"

- E-2 STA. 81+37.5, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)
- E-3 STA. 80+37, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)
- E-4 STA. 79+36.5, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)

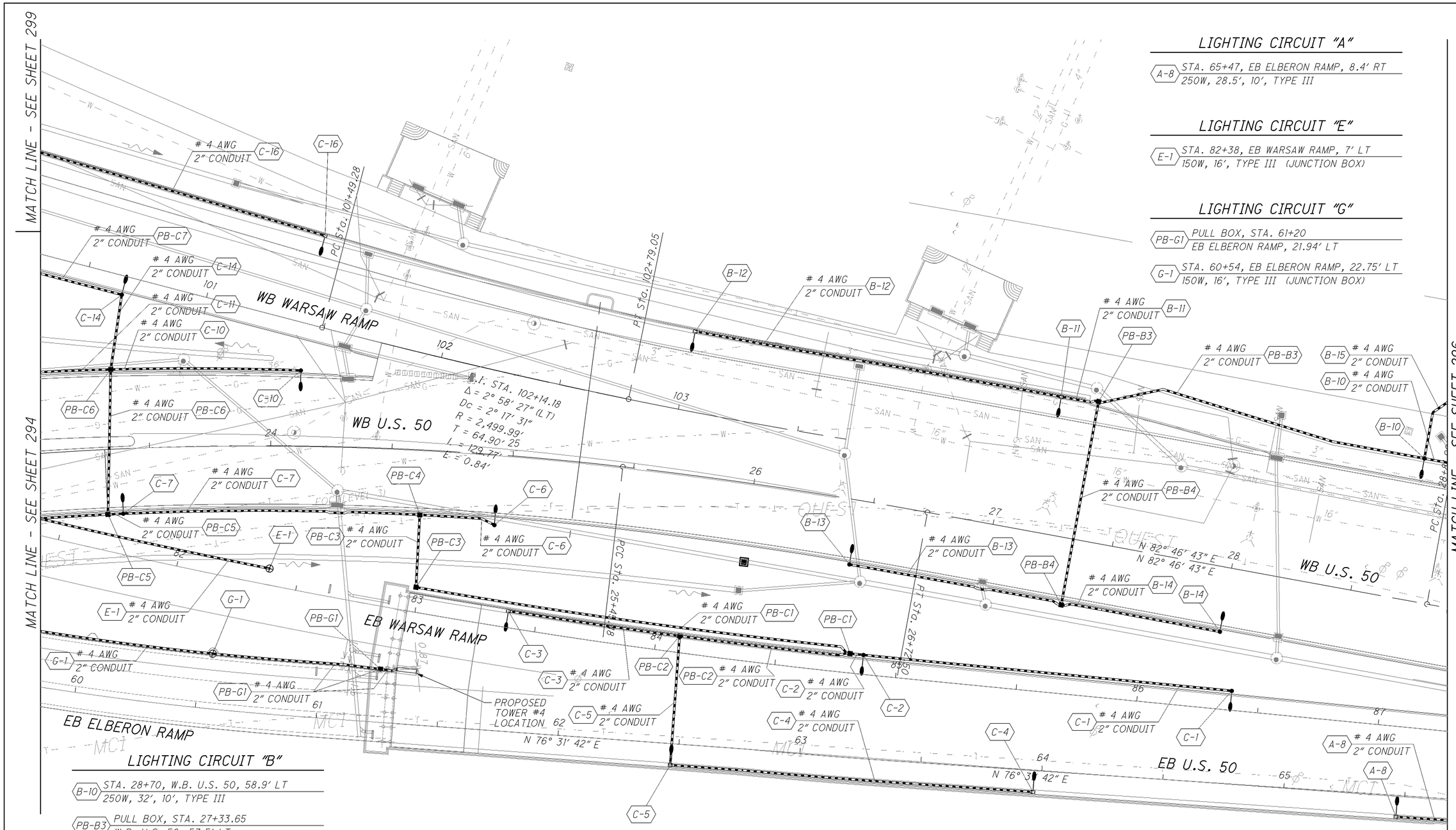
LIGHTING CIRCUIT "D"

- D-4 STA. 16+97, U.S. 50, 32.87' RT — 250W, 32', 10', TYPE III
- PB-D1 PULL BOX, STA. 17+73.8, U.S. 50, 41.0' RT
- D-5 STA. 18+47, U.S. 50, 41.38' RT — 250W, 32', 10', TYPE III
- PB-D2 PULL BOX, STA. 19+29.6, U.S. 50, 27.8' RT
- PB-D3 PULL BOX, STA. 19+29.6, U.S. 50, 53.1' LT
- D-6 STA. 19+98, U.S. 50, 105.91' LT — 250W, 32', 10', TYPE III
- D-13 STA. 17+72, U.S. 50, 49.53' LT — 250W, 32', 10', TYPE III
- PB-D4 PULL BOX, STA. 17+73.8, U.S. 50, 50.1' LT
- D-14 STA. 49+08, STATE ST., 49.5' RT — 250W, 32', 10', TYPE III

HORIZONTAL SCALE IN FEET

PARTIAL LIGHTING PLAN

HAM-50-18.79



LIGHTING CIRCUIT "A"

A-8 STA. 65+47, EB ELBERON RAMP, 8.4' RT
250W, 28.5', 10', TYPE III

LIGHTING CIRCUIT "E"

E-1 STA. 82+38, EB WARSAW RAMP, 7' LT
150W, 16', TYPE III (JUNCTION BOX)

LIGHTING CIRCUIT "G"

PB-G1 PULL BOX, STA. 61+20
EB ELBERON RAMP, 21.94' LT

G-1 STA. 60+54, EB ELBERON RAMP, 22.75' LT
150W, 16', TYPE III (JUNCTION BOX)

LIGHTING CIRCUIT "B"

B-10 STA. 28+70, W.B. U.S. 50, 58.9' LT
250W, 32', 10', TYPE III

PB-B3 PULL BOX, STA. 27+33.65
W.B. U.S. 50, 57.5' LT

B-11 STA. 27+18.2, W.B. U.S. 50, 56.83' LT
250W, 28.5', 10', TYPE III

B-12 STA. 103+00.67, W.B. U.S. 50, 32.84' LT
250W, 28.5', 10', TYPE III

B-13 STA. 26+44.35, E.B. U.S. 50, 26.75' RT
250W, 32', 10', TYPE III

PB-B4 PULL BOX, STA. 27+33.65
E.B. U.S. 50, 27.56' RT

B-14 STA. 28+00, E.B. U.S. 50, 26.62' RT
250W, 32', 10', TYPE III

LIGHTING CIRCUIT "C"

C-1 STA. 86+38, EB WARSAW RAMP, 8' LT
250W, 32', 10', TYPE III

C-2 STA. 84+86, EB WARSAW RAMP, 8' LT
250W, 32', 10', TYPE III

PB-C1 PULL BOX, STA. 84+83.5
EB WARSAW RAMP, 8' LT

PB-C2 PULL BOX, STA. 84+10
EB WARSAW RAMP, 6.85' LT

LIGHTING CIRCUIT "C" (CONT.)

C-3 STA. 83+38, EB WARSAW RAMP, 6.85' LT
250W, 28.5', 10', TYPE III

C-4 STA. 63+97, EB ELBERON RAMP, 8.83' RT
250W, 28.5', 10, TYPE III

C-5 STA. 62+47, EB ELBERON RAMP, 8.83' RT
250W, 28.5', 10', TYPE III

PB-C3 PULL BOX, STA. 82+98.5
EB WARSAW RAMP, 10.25' LT

LIGHTING CIRCUIT "C" (CONT.)

C-6 STA. 24+94.5, EB U.S. 50, 29' RT
250W, 32', 10', TYPE III

PB-C4 PULL BOX, STA. 24+62.85
EB U.S.50, 26.75' RT

C-7 STA. 23+38, EB U.S. 50, 26.75' RT
250W, 32', 10', TYPE III

PB-C5 PULL BOX, STA. 23+31.5
EB U.S. 50, 26.75' RT

LIGHTING CIRCUIT "C" (CONT.)

PB-C6 PULL BOX, STA. 23+35.5
WB U.S.50, 32.9' LT

C-10 STA. 24+12, WB U.S. 50, 31.18' RT
250W, 32', 10', TYPE III

C-14 STA. 100+66, WB U.S. 50, 7.75' RT
250W, 32', 10', TYPE III

C-16 STA. 100+41, WB U.S. 50, 37' LT
250W, 28.5', 10', TYPE III

HORIZONTAL SCALE IN FEET
0 10 20 40

PARTIAL LIGHTING PLAN

HAM-50-18.79

295
657

LIGHTING CIRCUIT "B

- B-6 — STA. 34+44, WB U.S. 50, 54.84' LT — 250W, 32', 10', TYPE III
- B-7 — STA. 33+12.5, WB U.S. 50, 59.25' LT — 250W, 32', 10', TYPE III
- B-8 — STA. 31+62.5, WB U.S. 50, 60.5' LT — 250W, 32', 10', TYPE III
- B-9 — STA. 30+20.12, WB U.S. 50, 58.9' LT — 250W, 32', 10', TYPE III
- PB-B5 — PULL BOX, STA. 28+85.2, WB U.S. 50, 92.9' LT

LIGHTING CIRCUIT "A

- PB-A1 — PULL BOX, STA. 93+20.91, EB WARSAW RAMP, 30' RT
- A-4 — STA. 93+11, EB WARSAW RAMP, 30' RT — 250W, 32', 10', TYPE III
- A-5 — STA. 91+61, EB WARSAW RAMP, 32.28' RT — 250W, 32', 10', TYPE III
- A-6 — STA. 90+11, EB WARSAW RAMP, 34' RT — 250W, 32', 10', TYPE III
- PB-A2 — PULL BOX, STA. 89+05, EB WARSAW RAMP, 34' RT
- A-7 — STA. 88+61, EB WARSAW RAMP, 32.87' RT — 250W, 28.5', 10', TYPE III
- A-12 — STA. 89+36, EB WARSAW RAMP, 10' RT — 250W, 32', 10', TYPE III
- PB-A4 — PULL BOX, STA. 89+05, EB WARSAW RAMP, 8' LT
- A-13 — STA. 87+86, EB WARSAW RAMP, 32.87' RT — 250W, 28.5', 10', TYPE III

POWER SERVICE "B", 240 VOLT, STA. 28+88±, WB U.S. 50, 95.8'± LT OF BASE LINE

PB-B5

#4 AWG 2" CONDUIT B-15

#4 AWG 2" CONDUIT B-10

B-9

#4 AWG 2" CONDUIT B-9

SEE SHEET 305 FOR B-8 FOUNDATION INFORMATION

B-8

#4 AWG 2" CONDUIT B-8

SEE SHEET 305 FOR B-7 FOUNDATION INFORMATION

B-7

#4 AWG 2" CONDUIT B-7

B-6 #4 AWG 2" CONDUIT

B-6

MATCH LINE - SEE SHEET 295

MATCH LINE - SEE SHEET 297

WB U.S. 50

N 80° 35' 53" E

EB U.S. 50

N 80° 35' 53" E

A-13

A-13 #4 AWG 2" CONDUIT

A-12 #4 AWG 2" CONDUIT

A-7

PB-A4 #4 AWG 2" CONDUIT

PB-A4

A-12

PB-A2

A-8 #4 AWG 2" CONDUIT

A-7 #4 AWG 2" CONDUIT

#4 AWG 2" CONDUIT A-14

POWER SERVICE "A", 240 VOLT, STA. 88+62.7, EB WARSAW RAMP, 41.61' RT OF BASE LINE

PB-A2 #4 AWG 2" CONDUIT

A-6

A-6 #4 AWG 2" CONDUIT

A-5

A-5 #4 AWG 2" CONDUIT

A-4

A-4 #4 AWG 2" CONDUIT

PB-A1

QUEST

MCI

4.5'X2.5' WAT. VAULT

CABLE

HORIZONTAL SCALE IN FEET

0 10 20 40

PARTIAL LIGHTING PLAN

HAM-50-18.79

296
657

LIGHTING CIRCUIT "A"

- A-1 — STA. 39+33, EB U.S. 50, 52.83' RT; 250W, 28.5', 10', TYPE III
- A-2 — STA. 37+83, EB U.S. 50, 52.83' RT; 250W, 28.5', 10', TYPE III
- A-3 — STA. 36+27.4, EB U.S. 50, 54.18' RT; 250W, 32', 10', TYPE III
- A-9 — NOT USED
- A-10 — NOT USED
- A-11 — NOT USED
- PB-A3 — PULL BOX, STA. 34+93, EB U.S. 50, 3.02' LT

LIGHTING CIRCUIT "B"

- B-1 — STA. 39+21, WB U.S. 50, 60.75' LT; 250W, 32', 10', TYPE III
- B-2 — STA. 37+74, WB U.S. 50, 61.27' LT; 250W, 32', 10', TYPE III
- B-3 — STA. 36+29, WB U.S. 50, 62.79' LT; 250W, 32', 10', TYPE III
- PB-B1 — PULL BOX, STA. 35+67.2 WB U.S. 50, 65.26' LT
- B-4 — STA. 21+14.35, EVANS ST., 30.17' RT; 250W, 32', 10', TYPE III
- PB-B2 — PULL BOX, STA. 21+14.35, EVANS ST., 29.5' LT
- B-5 — STA. 21+87, EVANS ST., 25.9' LT; 250W, 32', 10', TYPE III

N

HORIZONTAL SCALE IN FEET
0 10 20 40

PARTIAL LIGHTING PLAN

HAM-50-18.79

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LIGHTING CIRCUIT "H"

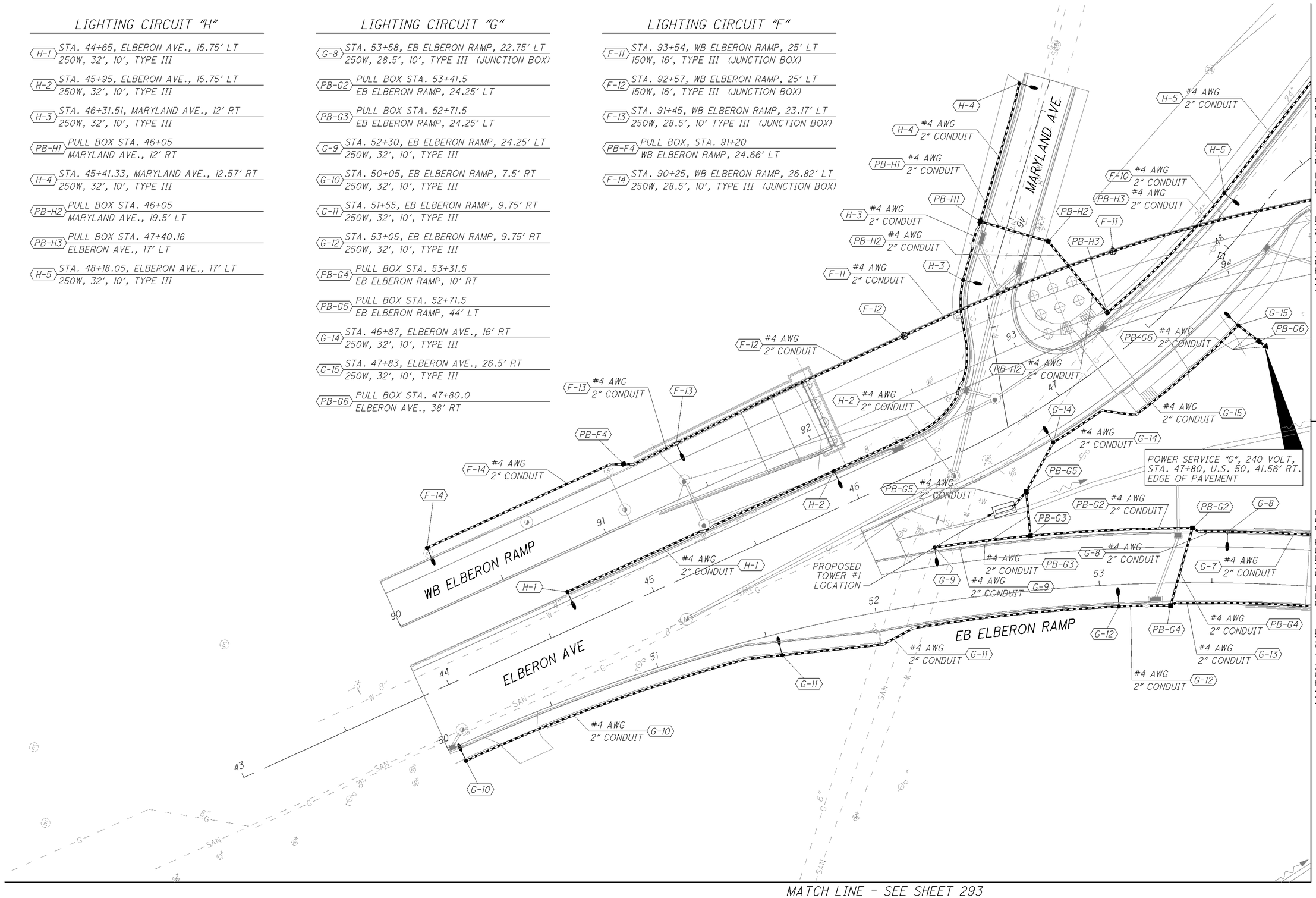
- H-1 — STA. 44+65, ELBERON AVE., 15.75' LT — 250W, 32', 10', TYPE III
- H-2 — STA. 45+95, ELBERON AVE., 15.75' LT — 250W, 32', 10', TYPE III
- H-3 — STA. 46+31.51, MARYLAND AVE., 12' RT — 250W, 32', 10', TYPE III
- PB-H1 — PULL BOX STA. 46+05 — MARYLAND AVE., 12' RT
- H-4 — STA. 45+41.33, MARYLAND AVE., 12.57' RT — 250W, 32', 10', TYPE III
- PB-H2 — PULL BOX STA. 46+05 — MARYLAND AVE., 19.5' LT
- PB-H3 — PULL BOX STA. 47+40.16 — ELBERON AVE., 17' LT
- H-5 — STA. 48+18.05, ELBERON AVE., 17' LT — 250W, 32', 10', TYPE III

LIGHTING CIRCUIT "G"

- G-8 — STA. 53+58, EB ELBERON RAMP, 22.75' LT — 250W, 28.5', 10', TYPE III (JUNCTION BOX)
- PB-G2 — PULL BOX STA. 53+41.5 — EB ELBERON RAMP, 24.25' LT
- PB-G3 — PULL BOX STA. 52+71.5 — EB ELBERON RAMP, 24.25' LT
- G-9 — STA. 52+30, EB ELBERON RAMP, 24.25' LT — 250W, 32', 10', TYPE III
- G-10 — STA. 50+05, EB ELBERON RAMP, 7.5' RT — 250W, 32', 10', TYPE III
- G-11 — STA. 51+55, EB ELBERON RAMP, 9.75' RT — 250W, 32', 10', TYPE III
- G-12 — STA. 53+05, EB ELBERON RAMP, 9.75' RT — 250W, 32', 10', TYPE III
- PB-G4 — PULL BOX STA. 53+31.5 — EB ELBERON RAMP, 10' RT
- PB-G5 — PULL BOX STA. 52+71.5 — EB ELBERON RAMP, 44' LT
- G-14 — STA. 46+87, ELBERON AVE., 16' RT — 250W, 32', 10', TYPE III
- G-15 — STA. 47+83, ELBERON AVE., 26.5' RT — 250W, 32', 10', TYPE III
- PB-G6 — PULL BOX STA. 47+80.0 — ELBERON AVE., 38' RT

LIGHTING CIRCUIT "F"

- F-11 — STA. 93+54, WB ELBERON RAMP, 25' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-12 — STA. 92+57, WB ELBERON RAMP, 25' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-13 — STA. 91+45, WB ELBERON RAMP, 23.17' LT — 250W, 28.5', 10' TYPE III (JUNCTION BOX)
- PB-F4 — PULL BOX, STA. 91+20 — WB ELBERON RAMP, 24.66' LT
- F-14 — STA. 90+25, WB ELBERON RAMP, 26.82' LT — 250W, 28.5', 10', TYPE III (JUNCTION BOX)



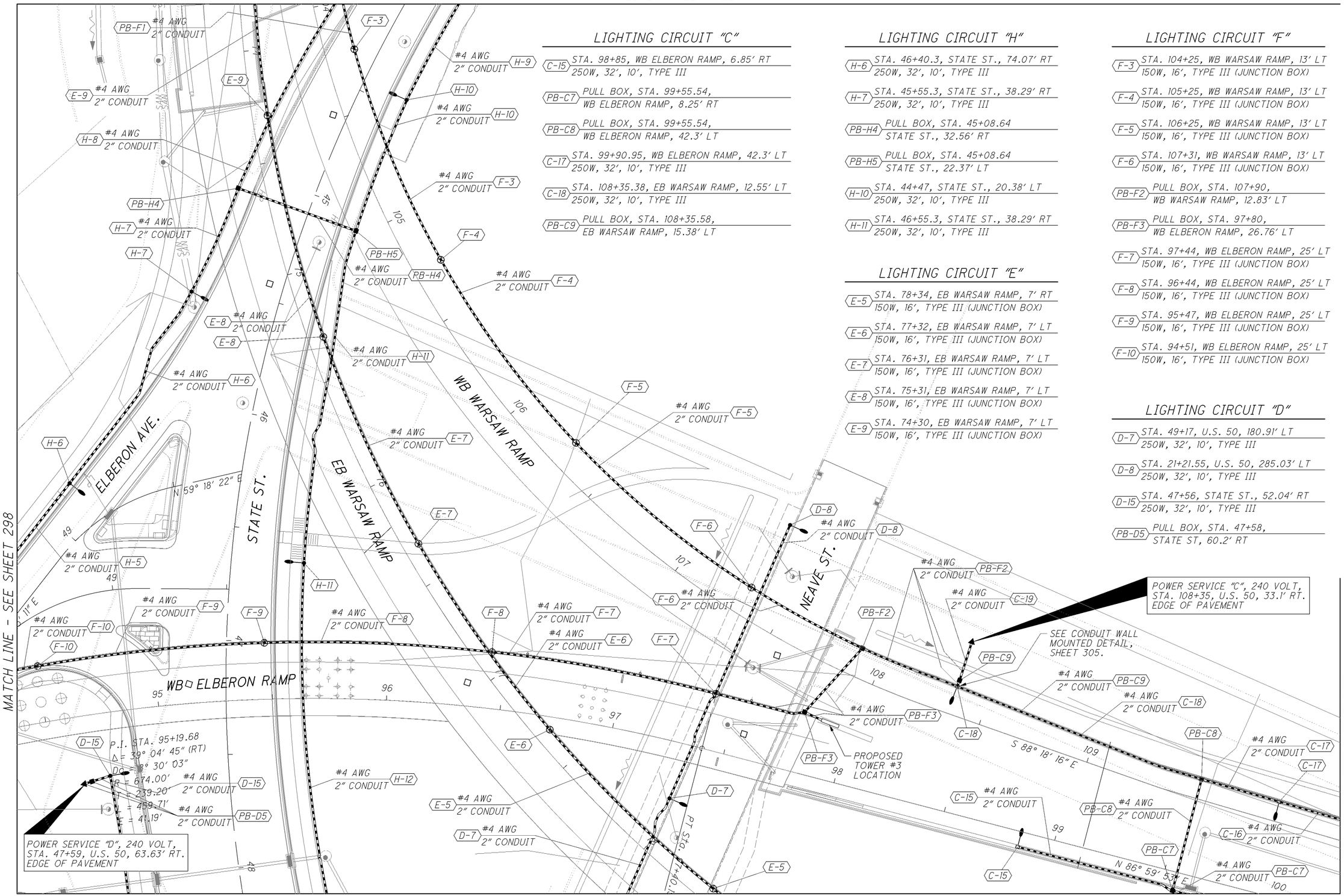
HORIZONTAL SCALE IN FEET (0, 10, 20, 30)

PARTIAL LIGHTING PLAN

HAM-50-18.79

298
657

MATCH LINE - SEE SHEET 300



MATCH LINE - SEE SHEET 298

MATCH LINE - SEE SHEET 295

MATCH LINE - SEE SHEET 294

LIGHTING CIRCUIT "C"

- C-15 — STA. 98+85, WB ELBERON RAMP, 6.85' RT — 250W, 32', 10', TYPE III
- PB-C7 — PULL BOX, STA. 99+55.54, WB ELBERON RAMP, 8.25' RT
- PB-C8 — PULL BOX, STA. 99+55.54, WB ELBERON RAMP, 42.3' LT
- C-17 — STA. 99+90.95, WB ELBERON RAMP, 42.3' LT — 250W, 32', 10', TYPE III
- C-18 — STA. 108+35.38, EB WARSAW RAMP, 12.55' LT — 250W, 32', 10', TYPE III
- PB-C9 — PULL BOX, STA. 108+35.58, EB WARSAW RAMP, 15.38' LT

LIGHTING CIRCUIT "H"

- H-6 — STA. 46+40.3, STATE ST., 74.07' RT — 250W, 32', 10', TYPE III
- H-7 — STA. 45+55.3, STATE ST., 38.29' RT — 250W, 32', 10', TYPE III
- PB-H4 — PULL BOX, STA. 45+08.64, STATE ST., 32.56' RT
- PB-H5 — PULL BOX, STA. 45+08.64, STATE ST., 22.37' LT
- H-10 — STA. 44+47, STATE ST., 20.38' LT — 250W, 32', 10', TYPE III
- H-11 — STA. 46+55.3, STATE ST., 38.29' RT — 250W, 32', 10', TYPE III

LIGHTING CIRCUIT "E"

- E-5 — STA. 78+34, EB WARSAW RAMP, 7' RT — 150W, 16', TYPE III (JUNCTION BOX)
- E-6 — STA. 77+32, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)
- E-7 — STA. 76+31, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)
- E-8 — STA. 75+31, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)
- E-9 — STA. 74+30, EB WARSAW RAMP, 7' LT — 150W, 16', TYPE III (JUNCTION BOX)

LIGHTING CIRCUIT "F"

- F-3 — STA. 104+25, WB WARSAW RAMP, 13' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-4 — STA. 105+25, WB WARSAW RAMP, 13' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-5 — STA. 106+25, WB WARSAW RAMP, 13' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-6 — STA. 107+31, WB WARSAW RAMP, 13' LT — 150W, 16', TYPE III (JUNCTION BOX)
- PB-F2 — PULL BOX, STA. 107+90, WB WARSAW RAMP, 12.83' LT
- PB-F3 — PULL BOX, STA. 97+80, WB ELBERON RAMP, 26.76' LT
- F-7 — STA. 97+44, WB ELBERON RAMP, 25' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-8 — STA. 96+44, WB ELBERON RAMP, 25' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-9 — STA. 95+47, WB ELBERON RAMP, 25' LT — 150W, 16', TYPE III (JUNCTION BOX)
- F-10 — STA. 94+51, WB ELBERON RAMP, 25' LT — 150W, 16', TYPE III (JUNCTION BOX)

LIGHTING CIRCUIT "D"

- D-7 — STA. 49+17, U.S. 50, 180.91' LT — 250W, 32', 10', TYPE III
- D-8 — STA. 21+21.55, U.S. 50, 285.03' LT — 250W, 32', 10', TYPE III
- D-15 — STA. 47+56, STATE ST., 52.04' RT — 250W, 32', 10', TYPE III
- PB-D5 — PULL BOX, STA. 47+58, STATE ST, 60.2' RT

HORIZONTAL SCALE IN FEET
0 10 20 40

PARTIAL LIGHTING PLAN

HAM-50-18.79

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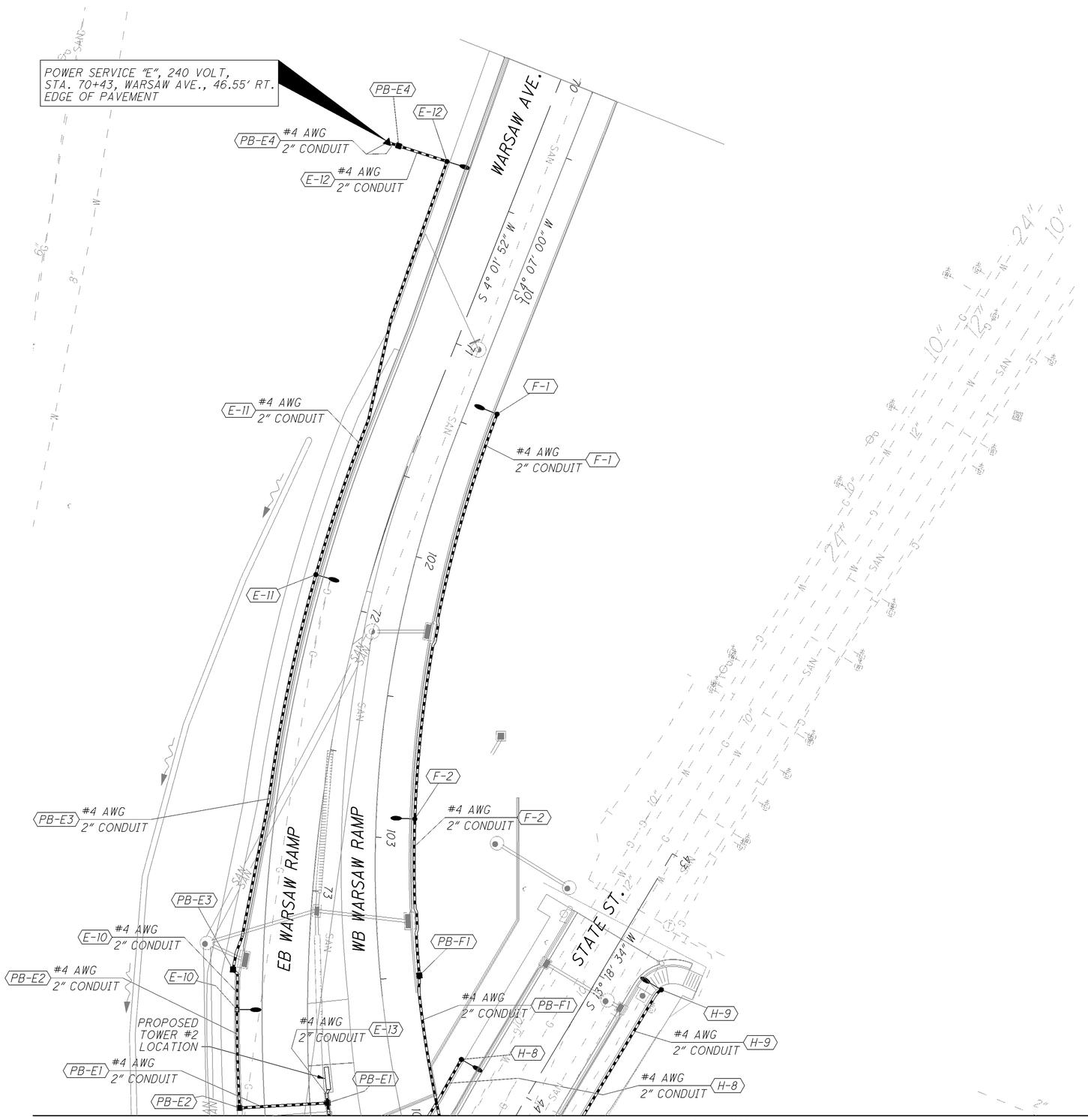
657



LIGHTING CIRCUIT "E"

- PB-E1 — PULL BOX, STA. 73+75, EB WARSAW RAMP, 7' LT
- PB-E2 — PULL BOX, STA. 73+75, EB WARSAW RAMP, 24.8' RT
- E-10 — STA. 73+42, WARSAW AVE., 24.8' RT; 250W, 28.5', 10', TYPE III (JUNCTION BOX)
- PB-E3 — PULL BOX, STA. 73+28.5, EB WARSAW AVE., 26.5' RT
- E-11 — STA. 71+92, WARSAW AVE., 18.75' RT; 250W, 32', 10', TYPE III
- E-12 — STA. 70+42, WARSAW AVE., 26+62' RT; 250W, 32', 10', TYPE III
- PB-E4 — PULL BOX, STA. 70+43, WARSAW AVE., 44.5' RT

LIGHTING CIRCUIT "F"

- F-1 — STA. 101+43, WB WARSAW RAMP, 22.5' LT; 250W, 28.5', 10', TYPE III (JUNCTION BOX)
- F-2 — STA. 102+93, WB WARSAW RAMP, 22.5' LT; 250W, 28.5', 10', TYPE III (JUNCTION BOX)
- PB-F1 — PULL BOX, STA. 103+50, WB WARSAW RAMP, 13.7' LT

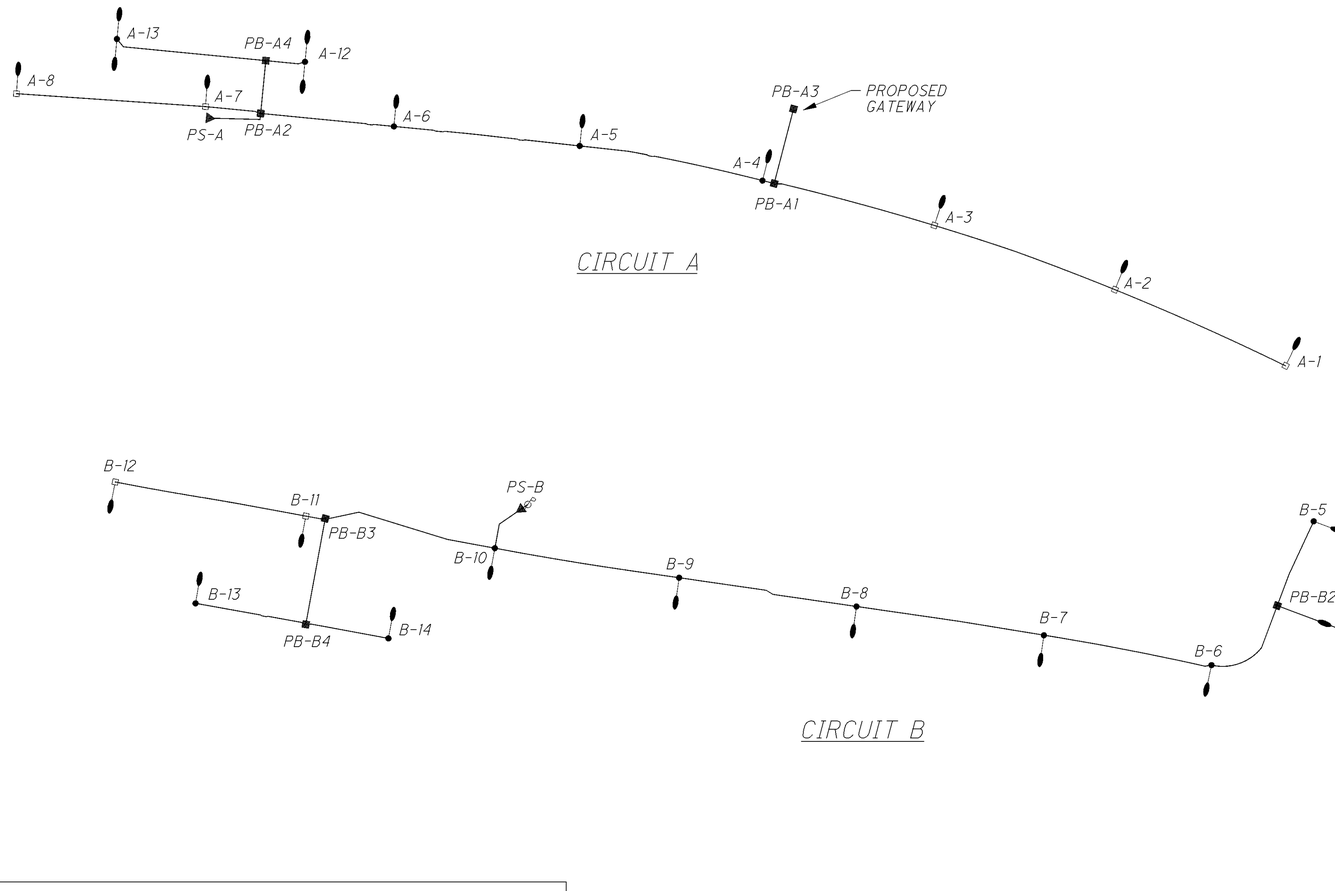
LIGHTING CIRCUIT "H"

- H-8 — STA. 44+00, STATE ST., 26.5' RT; 250W, 32', 10', TYPE III
- H-9 — STA. 43+43.07, STATE ST., 21.29' LT; 250W, 32', 10', TYPE III

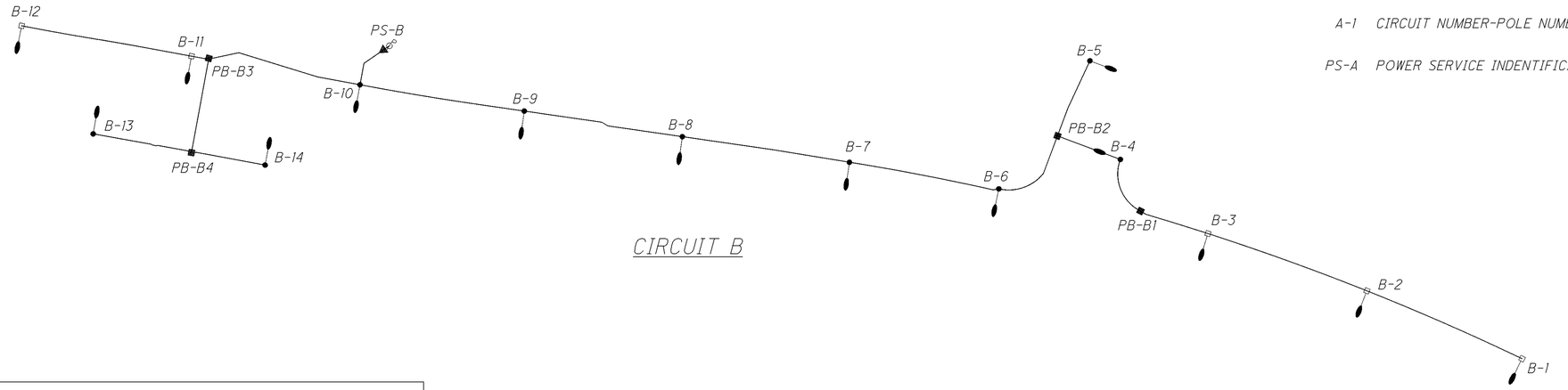
HORIZONTAL SCALE IN FEET
0 10 20 40

PARTIAL LIGHTING PLAN

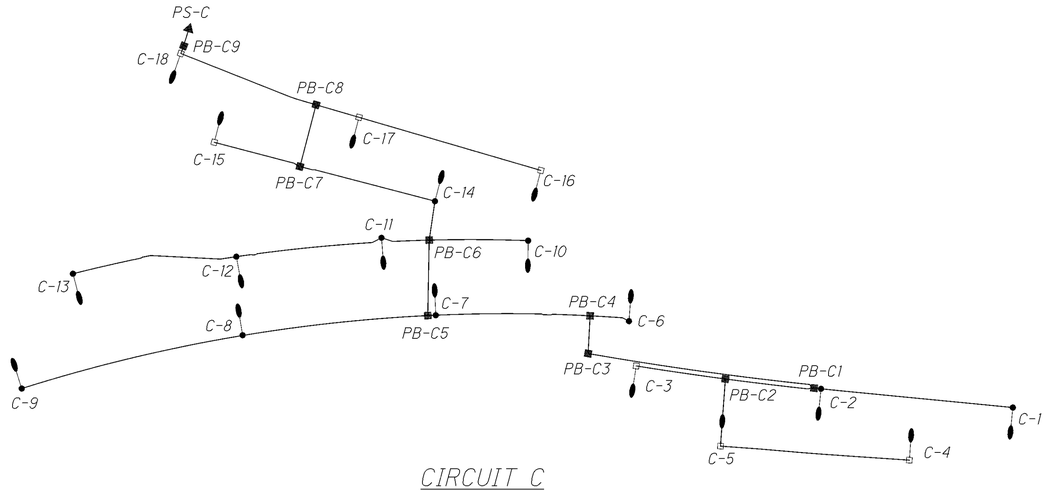
HAM-50-18.79



CIRCUIT A



CIRCUIT B



CIRCUIT C

LEGEND

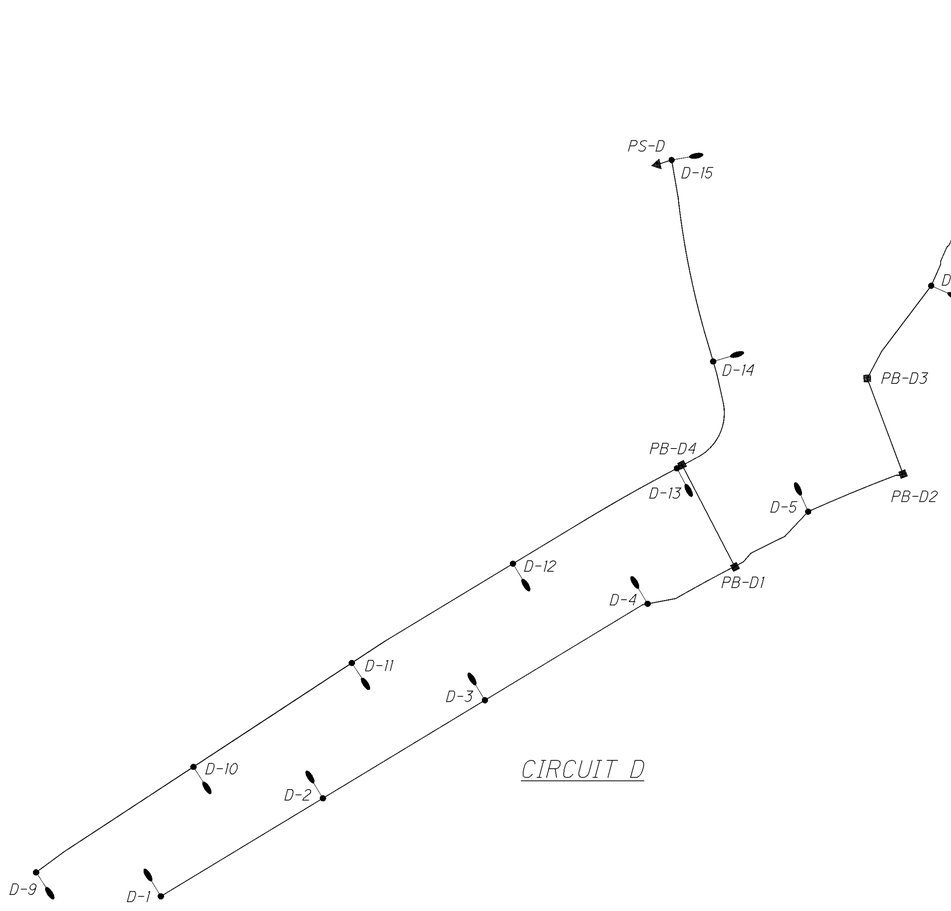
- 250 WATT HPS (TYPE P1)
- 250 WATT HPS - TWO-HEAD (TYPE P2)
- 250 WATT HPS - WALL MOUNTED (TYPE P3)
- 150 WATT HPS (TYPE P4)
- PROPOSED CONTROL CENTER
- PROPOSED PULL BOX
- PROPOSED TOWER
- A-1 CIRCUIT NUMBER-POLE NUMBER
- PS-A POWER SERVICE INDENTIFICATION

POWER SERVICE DATA

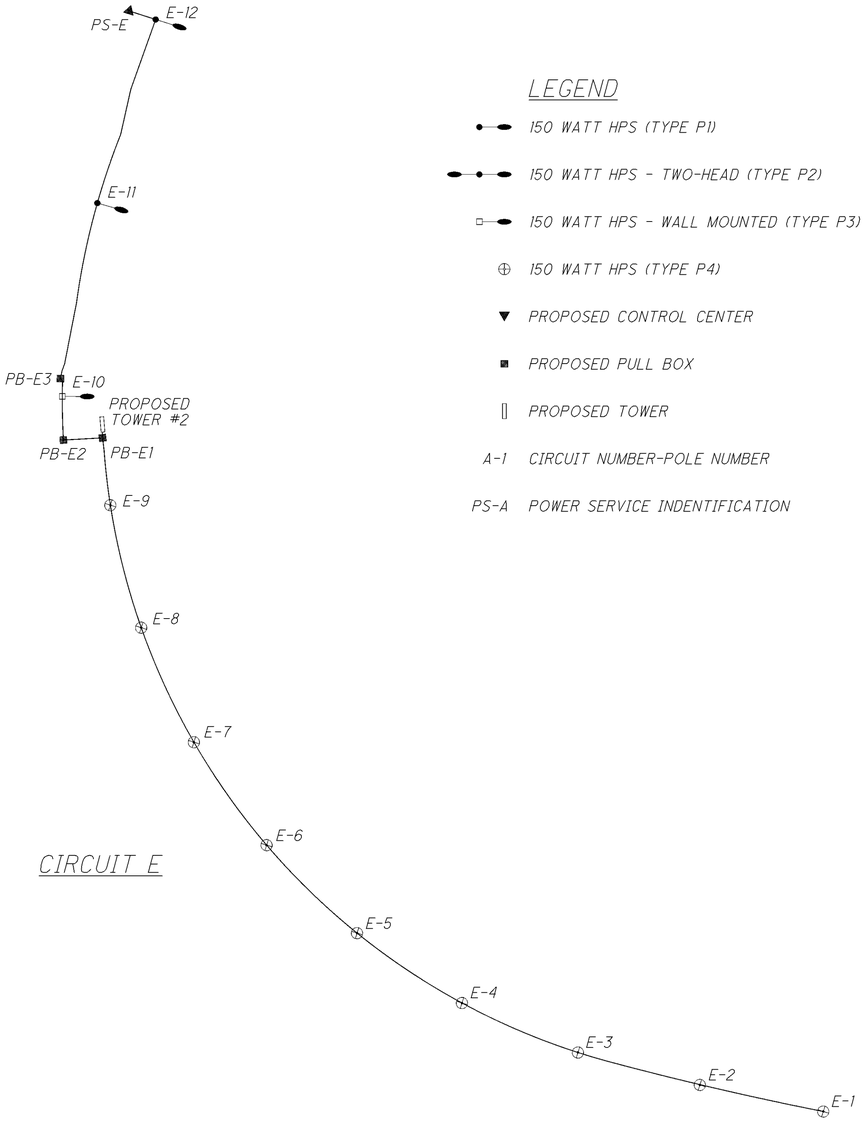
POWER SERVICE	LINE VOLTAGE (VOLTS)	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CABLE (AWG)	ENCLOSURE RATING (AMPS)	CIRCUIT NUMBER	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)	CIRCUIT CABLE SIZE (AWG)
PS-A	240	4.9	4	60	A	20.6	30	4
PS-B	240	4.4	4	60	B	18.2	30	4
PS-C	240	5.6	4	60	C	23.4	30	4
	240	3.7	4	60	F	15.2	30	4
PS-D	240	4.7	4	60	D	19.5	30	4
PS-E	240	3.1	4	60	E	13.1	30	4
PS-G	240	4.8	4	60	G	20	30	4
PS-H	240	3.7	4	60	H	15.6	30	4

LIGHTING CIRCUIT DIAGRAMS

HAM-50-18.79



CIRCUIT D



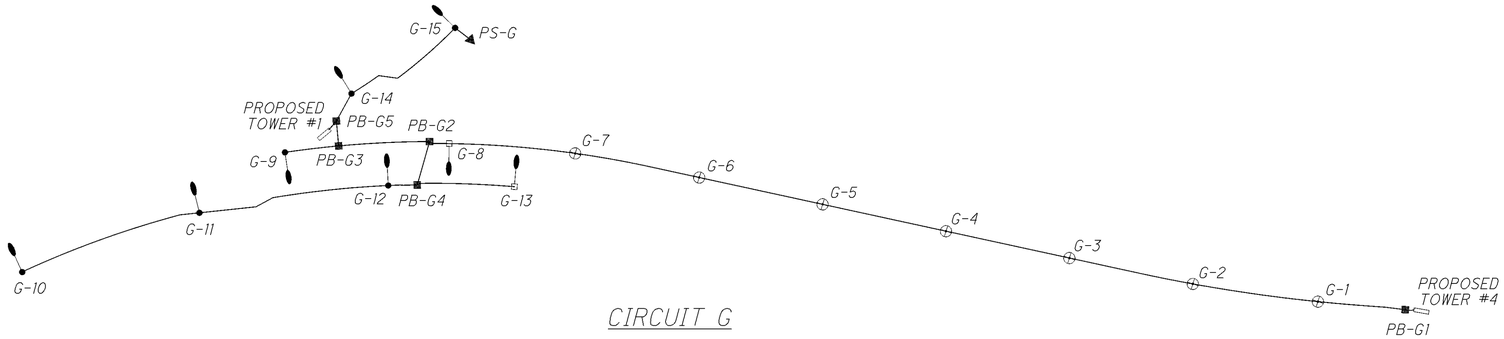
CIRCUIT E

LEGEND

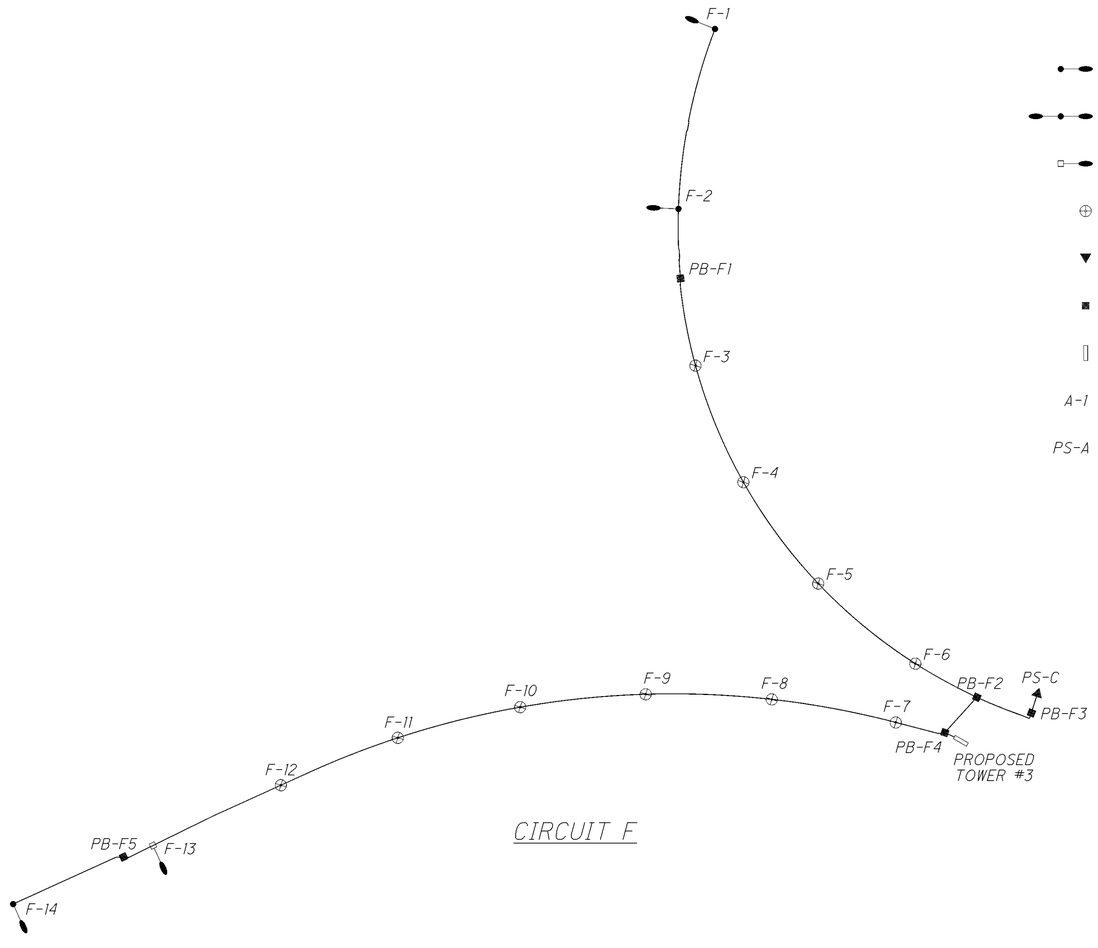
- 150 WATT HPS (TYPE P1)
- 150 WATT HPS - TWO-HEAD (TYPE P2)
- 150 WATT HPS - WALL MOUNTED (TYPE P3)
- 150 WATT HPS (TYPE P4)
- PROPOSED CONTROL CENTER
- PROPOSED PULL BOX
- PROPOSED TOWER
- A-1 CIRCUIT NUMBER-POLE NUMBER
- PS-A POWER SERVICE INDENTIFICATION

LIGHTING CIRCUIT DIAGRAMS

HAM-50-18.79



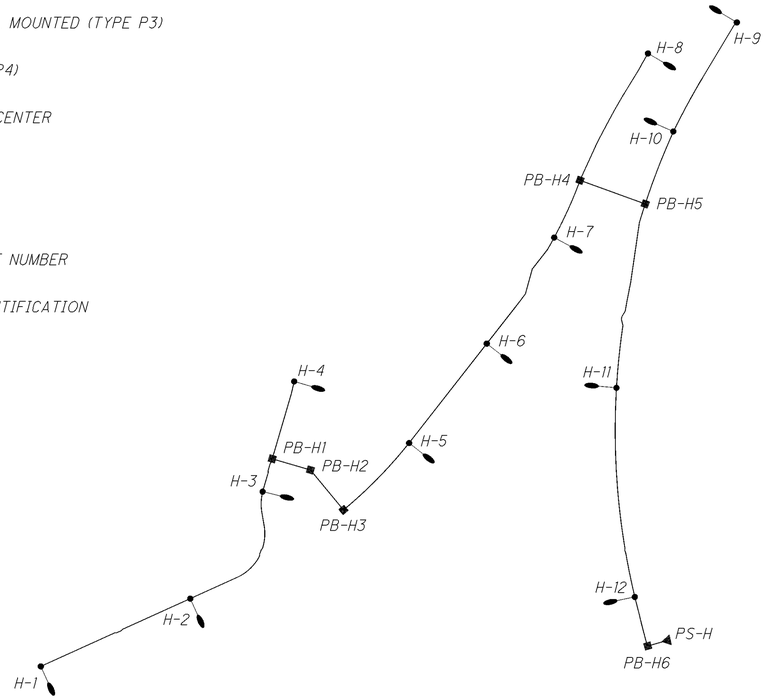
CIRCUIT G



CIRCUIT F

LEGEND

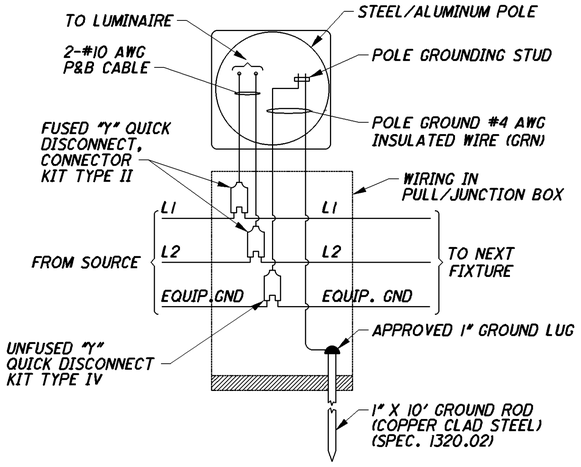
- 250 WATT HPS (TYPE P1)
- 250 WATT HPS - TWO-HEAD (TYPE P2)
- 250 WATT HPS - WALL MOUNTED (TYPE P3)
- 150 WATT HPS (TYPE P4)
- PROPOSED CONTROL CENTER
- PROPOSED PULL BOX
- PROPOSED TOWER
- A-1 CIRCUIT NUMBER-POLE NUMBER
- PS-A POWER SERVICE INDENTIFICATION



CIRCUIT H

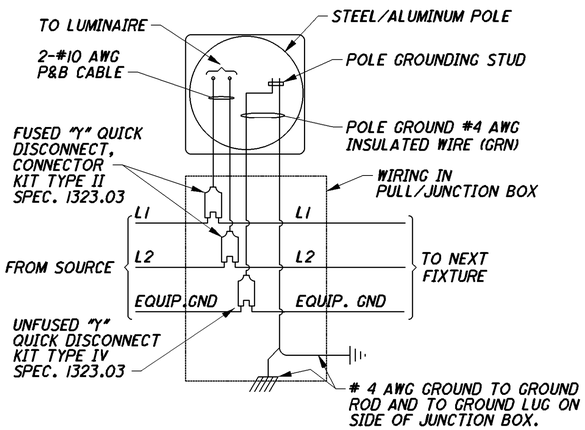
LIGHTING CIRCUIT DIAGRAMS

HAM-50-18.79



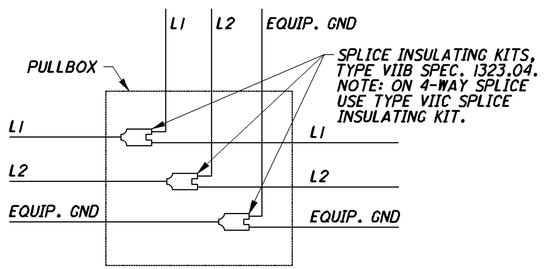
WIRING DIAGRAM #1

POLE WITH PULL BOX/JUNCTION BOX
(NOT TO SCALE)



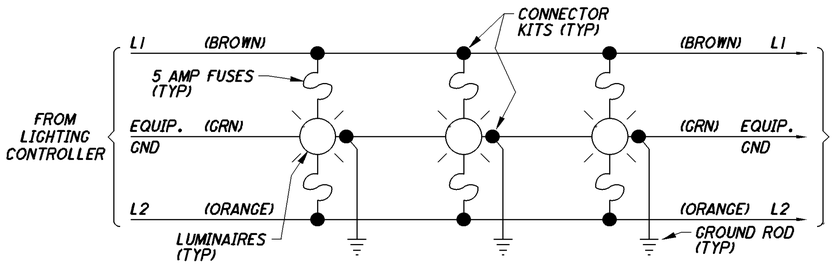
WIRING DIAGRAM #2

STEEL POLE WITH PULL/JUNCTION BOX
(NOT TO SCALE)



WIRING DIAGRAM #3

3-WAY SPLICE IN A PULL/JUNCTION BOX
(NOT TO SCALE)

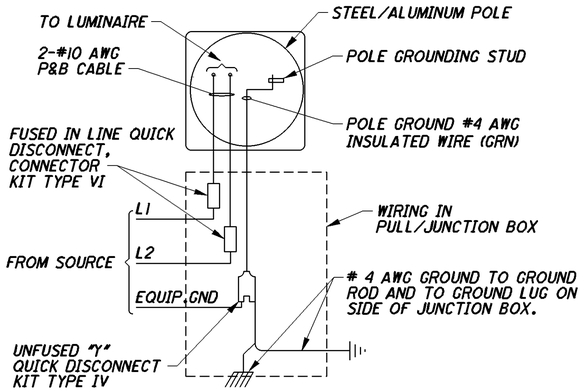


TYPICAL CIRCUIT WIRING SCHEMATIC

(NOT TO SCALE)

NOTES

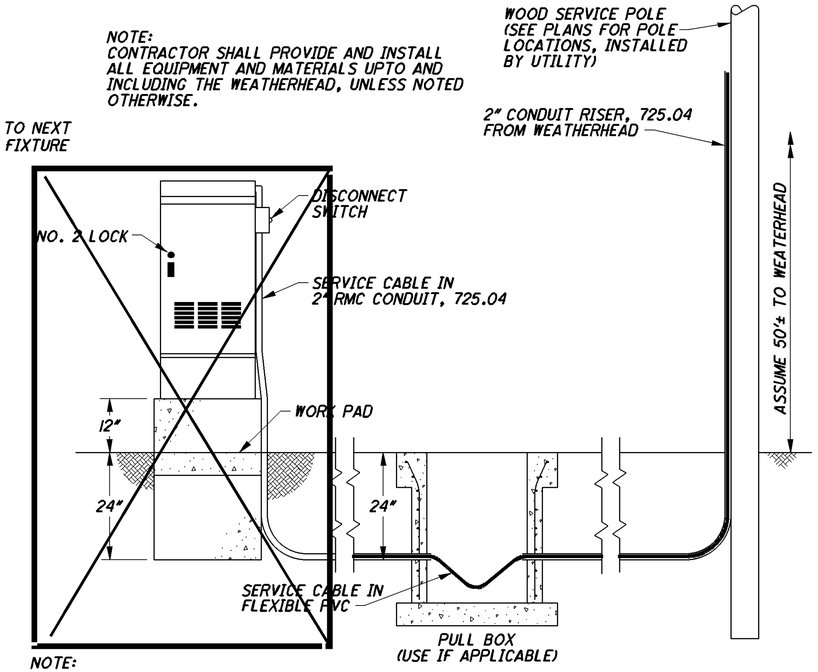
1. REFER TO LIGHTING CONTROLLER SCHEDULE FOR EACH LOCATION.
2. FOR CONTROLLER INSTALLATION DETAILS, SEE SCD HL-40.10.



WIRING DIAGRAM #4

POLEITH PULL/JUNCTION BOX
END OF LINE
(NOT TO SCALE)

NOTE:
CONTRACTOR SHALL PROVIDE AND INSTALL ALL EQUIPMENT AND MATERIALS UPTO AND INCLUDING THE WEATHERHEAD, UNLESS NOTED OTHERWISE.



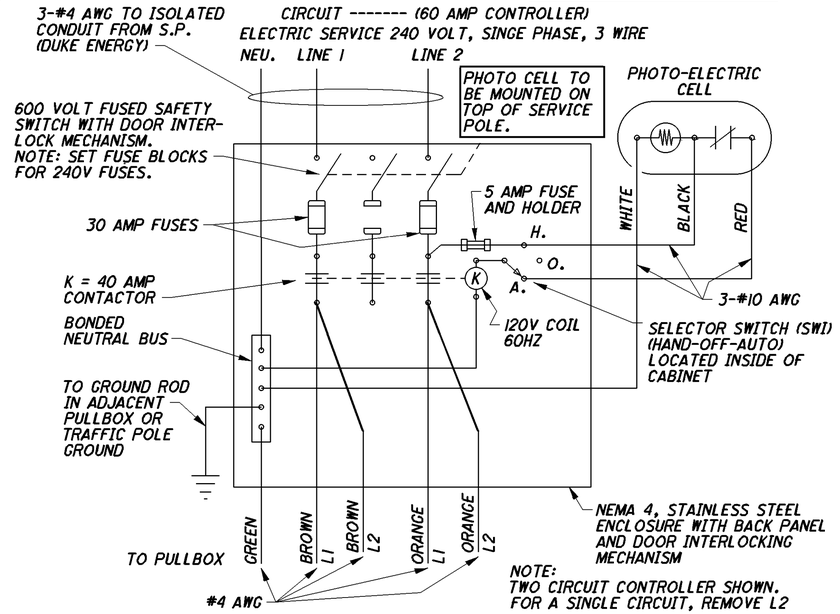
NOTE:
CONTRACTOR SHALL FOLLOW CITY STANDARD DRAWING ES-7-1 FOR THE 1045 POWER POST FROM THE PULL BOX TO THE LIGHTING CONTROLLER

POWER SERVICE DETAIL

(NOT TO SCALE)

(K)=40 AMP SQUARE D LIGHTING CONTACTOR 3 POLE W/120V COIL CLASS 8903 TYPE S ELECTRICALLY HELD

(SWI) = SELECTOR SWITCH WITH PANEL MOUNTING AND HAND-OFF-AUTO LEGEND PLATE SQUARE D CLASS 9001



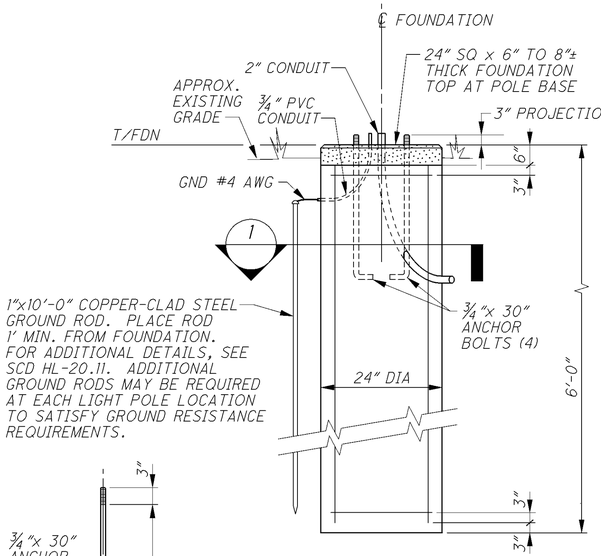
LIGHTING CONTROLLER WIRING

FOR ADDITIONAL INFORMATION, SEE STD. DWG HL-60.31
(NOT TO SCALE)

LIGHTING DETAILS

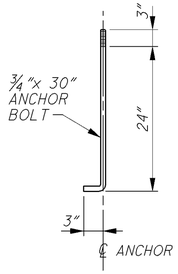
HAM-50-18.79

I:\projects\HAM\us050\18.79_PID20082\Design\CD 11-23-10\20082\lighting\sheets\20082LD001.dgn 27-APR-2011 9:18AM jsmithso

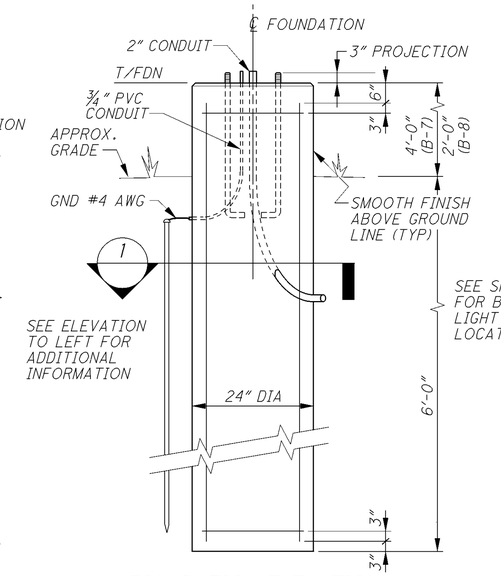


FOUNDATION ELEVATION

FOR ADDITIONAL FOUNDATION INFORMATION, SEE SCD HL-20.11.

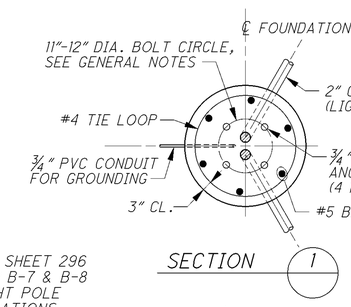


ANCHOR BOLT DETAIL

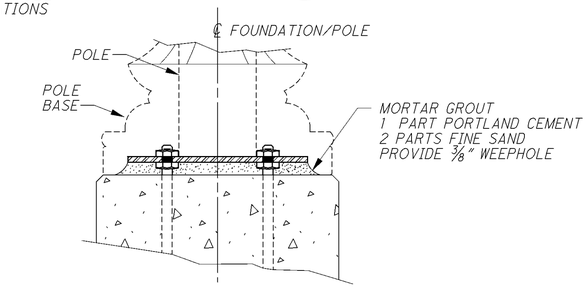


FOUNDATION ELEVATION POLE B-7 & B-8

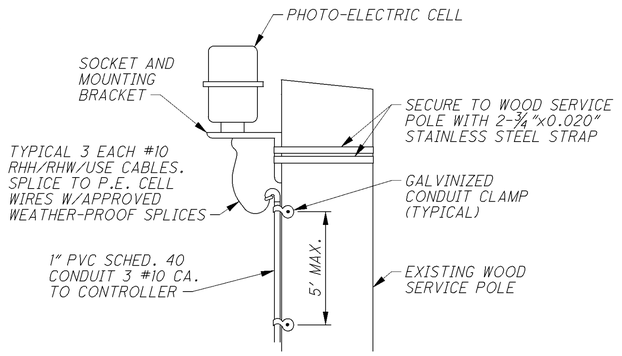
FOR ADDITIONAL FOUNDATION INFORMATION, SEE SCD HL-20.11.



SECTION 1



(NOT TO SCALE)



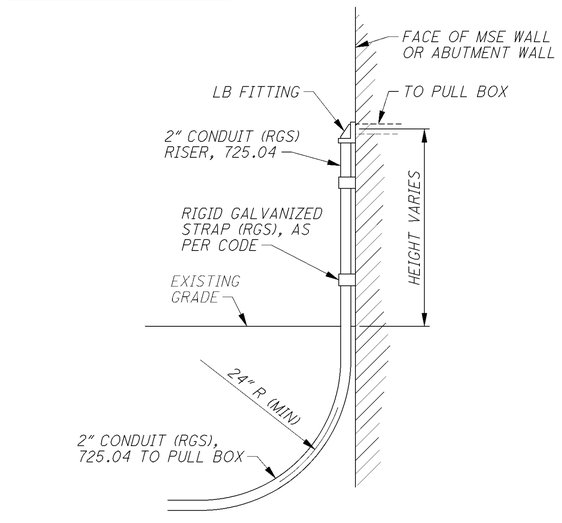
THE PHOTO-ELECTRIC CELL & SOCKET SHALL MEET THE REQUIREMENTS OF SPEC. ITEM 725.19. FISHER-PIERCE MODEL 6600A, AREA LIGHTING RESEARCH CO, MODEL BF1200 OR APPROVED EQUAL.

PHOTO CELL INSTALLATION DETAIL

(NOT TO SCALE)
MOUNTED ON WOOD SERVICE POLE

FOUNDATION DETAILS

(NOT TO SCALE)



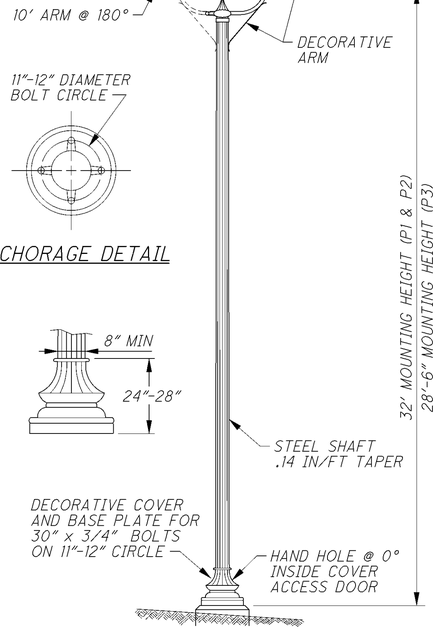
CONDUIT WALL MOUNTING DETAIL

(NOT TO SCALE)
MOUNTING TO FACE OF WALL

THE CONTRACTOR SHALL VARIFY THE LOCATION AND HEIGHT OF THE OF THE PROPOSED CONDUIT EXIT POINT IN THE WALL.

THE CONTRACTOR SHALL SEAL THE OPENING AROUND THE CONDUIT WITH A WATER-PROFF MATERIAL AS PER THE WALL MANUFACTURER. THE COST SHALL BE INCLUDED WITH THE CONDUIT.

SEE MSE WALL PLANS AND DETAILS FOR OPENINGS.

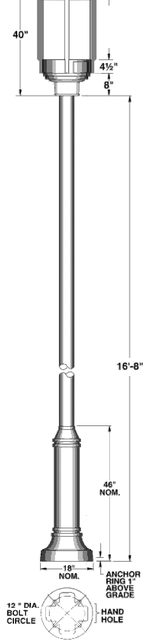


ANCHORAGE DETAIL

TYPE P1, P2 & P3 GENERIC BID

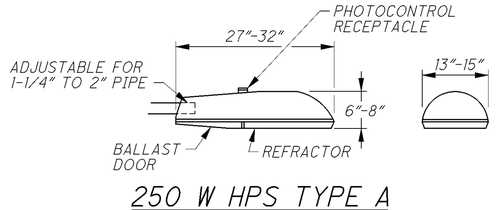
(NOT TO SCALE)

TYPE P1 - 32' HEIGHT - SINGLE (10') ARM
TYPE P2 - 32' HEIGHT - DOUBLE (10') ARM
TYPE P3 - 28'-6" HEIGHT - SINGLE (10') ARM



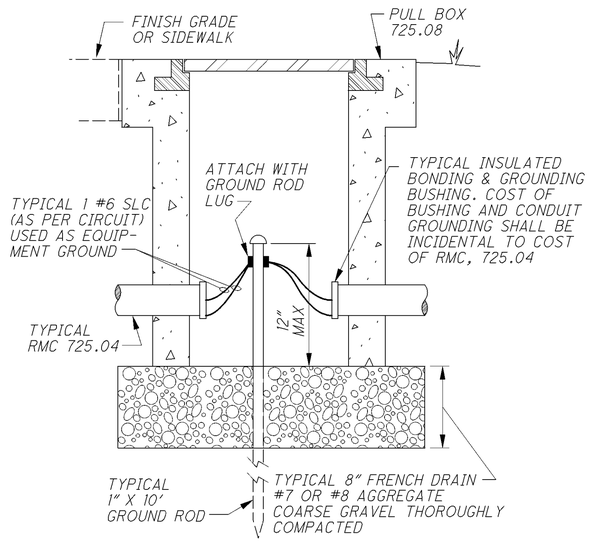
TYPE P4 GENERIC BID

(NOT TO SCALE)



250 W HPS TYPE A ROADWAY LUMINAIRE DETAIL ALTERNATE BID

GE/M2AC-25-S-O-A-2-G-MC3-2
(NOT TO SCALE)



PULL BOX DETAIL AT CONTROL CENTER

(NOT TO SCALE)
GROUNDING OF STEEL CONDUIT

LIGHTING DETAILS

HAM-50-18.79

VOLTAGE DROP CALCULATIONS

VOLATGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: A

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
A-1	A-2	159	1.3	1.3	206.7	4	0.11	4.81	2.00	A-1
A-2	A-3	162	1.3	2.6	421.2	4	0.22	4.70	1.96	A-2
A-3	PB-A1	141	1.3	3.9	549.9	4	0.28	4.49	1.87	A-3
Gateway	PB-A3	100	5	5	500	4	0.26	4.20	1.75	Gateway
PB-A3	PB-A1	71	0	5	355	4	0.18	3.94	1.64	PB-A3
PB-A1	A-4	20	8.9	8.9	178	4	0.09	3.76	1.57	PB-A1
A-4	A-5	158	1.3	10.2	1611.6	4	0.83	3.67	1.53	A-4
A-5	A-6	159	1.3	11.5	1828.5	4	0.95	2.83	1.18	A-5
A-6	PB-A2	116	1.3	12.8	1484.8	4	0.77	1.89	0.79	A-6
A-13	PB-A4	132	2.6	2.6	343.2	4	0.18	1.12	0.47	A-13
A-12	PB-A4	42	2.6	2.6	109.2	4	0.06	0.94	0.39	A-12
PB-A4	PB-A2	52	5.2	5.2	270.4	4	0.14	0.89	0.37	PB-A4
A-8	A-7	160	1.3	1.3	208	4	0.11	0.75	0.31	A-8
A-7	PB-A2	54	1.3	2.6	140.4	4	0.07	0.64	0.27	A-7
PB-A2	PS-A	53	20.6	20.6	1091.8	4	0.56	0.56	0.24	PB-A2

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: B

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
B-1	B-2	160	1.3	1.3	208	4	0.11	5.55	2.31	B-1
B-2	B-3	160	1.3	2.6	416	4	0.22	5.44	2.27	B-2
B-3	B-4	128	1.3	3.9	499.2	4	0.26	5.23	2.18	B-3
B-4	PB-B2	70	1.3	5.2	364	4	0.19	4.97	2.07	B-4
B-5	PB-B2	83	1.3	1.3	107.9	4	0.06	4.78	1.99	B-5
PB-B2	B-6	90	6.5	6.5	585	4	0.30	4.73	1.97	PB-B2
B-6	B-7	145	1.3	7.8	1131	4	0.59	4.42	1.84	B-6
B-7	B-8	160	1.3	9.1	1456	4	0.75	3.84	1.60	B-7
B-8	B-9	153	1.3	10.4	1591.2	4	0.82	3.08	1.29	B-8
B-9	B-10	160	1.3	11.7	1872	4	0.97	2.26	0.94	B-9
B-14	PB-B4	77	1.3	1.3	100.1	4	0.05	1.29	0.54	B-14
B-13	PB-B4	100	1.3	1.3	130	4	0.07	1.24	0.52	B-13
PB-B4	PB-B3	96	2.6	2.6	249.6	4	0.13	1.17	0.49	PB-B4
B-12	B-11	163	1.3	1.3	211.9	4	0.11	1.04	0.44	B-12
B-11	PB-B3	26	1.3	2.6	67.6	4	0.03	0.93	0.39	B-11
PB-B3	B-10	149	5.2	5.2	774.8	4	0.40	0.90	0.37	PB-B3
B-10	PS-B	53	18.2	18.2	964.6	4	0.50	0.50	0.21	B-10

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: C

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
C-4	C-5	160	1.3	1.3	208	4	0.11	7.26	3.03	C-4
C-5	PB-C2	63	1.3	2.6	163.8	4	0.08	7.16	2.98	C-5
C-3	PB-C2	81	1.3	1.3	105.3	4	0.05	7.07	2.95	C-3
PB-C2	PB-C1	81	3.9	3.9	315.9	4	0.16	7.02	2.92	PB-C2
C-1	C-2	163	1.3	1.3	211.9	4	0.11	6.85	2.86	C-1
C-2	PB-C1	16	1.3	2.6	41.6	4	0.02	6.75	2.81	C-2
PB-C1	PB-C4	222	6.5	6.5	1443	4	0.75	6.72	2.80	PB-C1
C-6	PB-C4	42	1.3	1.3	54.6	4	0.03	5.98	2.49	C-6
PB-C4	C-7	133	7.8	7.8	1037.4	4	0.54	5.95	2.48	PB-C4
C-7	PB-C5	17	1.3	9.1	154.7	4	0.08	5.41	2.25	C-7
C-8	C-9	191	1.3	1.3	248.3	4	0.13	5.33	2.22	C-8
C-9	PB-C5	160	1.3	2.6	416	4	0.22	5.20	2.17	C-9
PB-C5	PB-C6	70	11.7	11.7	819	4	0.42	4.99	2.08	PB-C5
C-13	PB-C6	89	1.3	1.3	115.7	4	0.06	4.56	1.90	C-13
C-10	C-11	141	1.3	1.3	183.3	4	0.09	4.50	1.88	C-10
C-11	C-12	127	1.3	2.6	330.2	4	0.17	4.41	1.84	C-11
C-12	PB-C6	48	1.3	3.9	187.2	4	0.10	4.24	1.77	C-12
PB-C6	C-14	41	16.9	16.9	692.9	4	0.36	4.14	1.73	PB-C6
C-14	PB-C7	121	1.3	18.2	2202.2	4	1.14	3.78	1.58	C-14
C-15	PB-C7	81	1.3	1.3	105.3	4	0.05	2.64	1.10	C-15
PB-C7	PB-C8	61	19.5	19.5	1189.5	4	0.62	2.59	1.08	PB-C7
C-16	C-17	160	1.3	1.3	208	4	0.11	1.97	0.82	C-16
C-17	PB-C8	46	1.3	2.6	119.6	4	0.06	1.87	0.78	C-17
PB-C8	C-18	125	22.1	22.1	2762.5	4	1.43	1.80	0.75	PB-C8
C-18	PS-C	31	1.3	23.4	725.4	4	0.38	0.38	0.16	C-18

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: D

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
D-1	D-2	160	1.3	1.3	208	4	0.11	5.33	2.22	D-1
D-2	D-3	160	1.3	2.6	416	4	0.22	5.23	2.18	D-2
D-3	D-4	160	1.3	3.9	624	4	0.32	5.01	2.09	D-3
D-4	PB-D1	86	1.3	5.2	447.2	4	0.23	4.69	1.95	D-4
D-8	D-7	142	1.3	1.3	184.6	4	0.10	4.46	1.86	D-8
D-7	D-6	110	1.3	2.6	286	4	0.15	4.36	1.82	D-7
D-6	D-5	262	1.3	3.9	1021.8	4	0.53	4.21	1.76	D-6
D-5	PB-D1	84	1.3	5.2	436.8	4	0.23	3.68	1.54	D-5
D-9	D-10	160	1.3	1.3	208	4	0.11	3.46	1.44	D-9
D-10	D-11	160	1.3	2.6	416	4	0.22	3.35	1.40	D-10
D-11	D-12	160	1.3	3.9	624	4	0.32	3.14	1.31	D-11
D-12	D-13	160	1.3	5.2	832	4	0.43	2.81	1.17	D-12
D-13	PB-D4	15	1.3	6.5	97.5	4	0.05	2.38	0.99	D-13
PB-D4	D-14	55	16.9	16.9	929.5	4	0.48	2.33	0.97	PB-D4
D-14	D-15	173	1.3	18.2	3148.6	4	1.63	1.85	0.77	D-14
D-15	PS-D	22	1.3	19.5	429	4	0.22	0.22	0.09	D-15

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: E

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
E-1	E-2	110	0.8	0.8	88	4	0.05	4.86	2.02	E-1
E-2	E-3	110	0.8	1.6	176	4	0.09	4.81	2.00	E-2
E-3	E-4	110	0.8	2.4	264	4	0.14	4.72	1.97	E-3
E-4	E-5	110	0.8	3.2	352	4	0.18	4.58	1.91	E-4
E-5	E-6	110	0.8	4	440	4	0.23	4.40	1.83	E-5
E-6	E-7	110	0.8	4.8	528	4	0.27	4.17	1.74	E-6
E-7	E-8	110	0.8	5.6	616	4	0.32	3.90	1.62	E-7
E-8	E-9	110	0.8	6.4	704	4	0.36	3.58	1.49	E-8
E-9	Tower 2	110	2	8.4	924	4	0.48	3.22	1.34	E-9
Tower 2	E-10	130	0.8	9.2	1196	4	0.62	2.74	1.14	Tower 2
E-10	E-11	167	1.3	10.5	1753.5	4	0.91	2.12	0.88	E-10
E-11	E-12	163	1.3	11.8	1923.4	4	1.00	1.21	0.51	E-11
E-12	PS-E	32	1.3	13.1	419.2	4	0.22	0.22	0.09	E-12

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: G

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
Tower 4	G-1	110	2	2	220	4	0.11	5.83	2.43	Tower 4
G-1	G-2	110	0.8	2.8	308	4	0.16	5.71	2.38	G-1
G-2	G-3	110	0.8	3.6	396	4	0.20	5.55	2.31	G-2
G-3	G-4	110	0.8	4.4	484	4	0.25	5.35	2.23	G-3
G-4	G-5	110	0.8	5.2	572	4	0.30	5.10	2.12	G-4
G-5	G-6	110	0.8	6	660	4	0.34	4.80	2.00	G-5
G-6	G-7	110	0.8	6.8	748	4	0.39	4.46	1.86	G-6
G-7	G-8	111	0.8	7.6	843.6	4	0.44	4.07	1.70	G-7
G-8	PB-G2	23	1.3	8.9	204.7	4	0.11	3.64	1.52	G-8
G-10	G-11	159	1.3	1.3	206.7	4	0.11	3.53	1.47	G-10
G-11	G-12	162	1.3	2.6	421.2	4	0.22	3.42	1.43	G-11
G-12	PB-G4	33	1.3	3.9	128.7	4	0.07	3.21	1.34	G-12
G-13	PB-G4	88	1.3	1.3	114.4	4	0.06	3.14	1.31	G-13
PB-G4	PB-G2	46	5.2	5.2	239.2	4	0.12	3.08	1.28	PB-G4
PB-G2	PB-G3	82	14.1	14.1	1156.2	4	0.60	2.96	1.23	PB-G2
G-9	PB-G3	53	1.3	1.3	68.9	4	0.04	2.36	0.98	G-9
PB-G3	PB-G5	53	15.4	15.4	816.2	4	0.42	2.32	0.97	PB-G3
Tower 1	PB-G5	50	2	2	100	4	0.05	1.90	0.79	Tower 1

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: F

VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

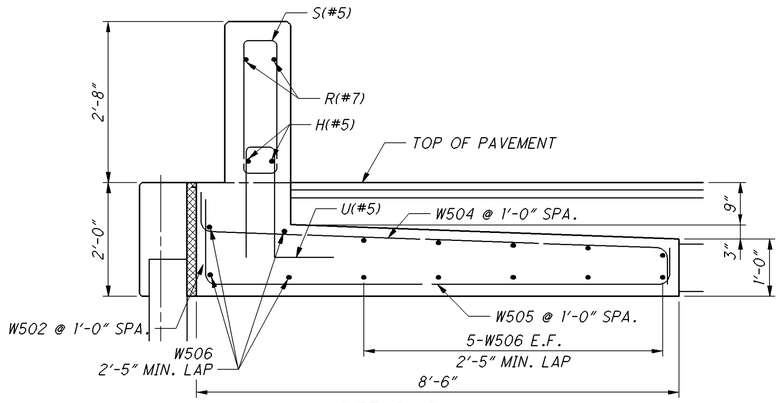
SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
F-1	F-2	156	1.3	1.3	202.8	4	0.10	4.16	1.73	F-1
F-2	F-3	135	1.3	2.6	351	4	0.18	4.05	1.69	F-2
F-3	F-4	110	0.8	3.4	374	4	0.19	3.87	1.61	F-3
F-4	F-5	110	0.8	4.2	462	4	0.24	3.68	1.53	F-4
F-5	F-6	110	0.8	5	550	4	0.28	3.44	1.43	F-5
F-6	PB-F2	66	0.8	5.8	382.8	4	0.20	3.15	1.31	F-6
F-14	F-13	132	1.3	1.3	171.6	4	0.09	2.95	1.23	F-14
F-13	F-12	122	1.3	2.6	317.2	4	0.16	2.87	1.19	F-13
F-12	F-11	110	0.8	3.4	374	4	0.19	2.70	1.13	F-12
F-11	F-10	110	0.8	4.2	462	4	0.24	2.51	1.04	F-11
F-10	F-9	110	0.8	5	550	4	0.28	2.27	0.95	F-10
F-9	F-8	110	0.8	5.8	638	4	0.33	1.98	0.83	F-9
F-8	F-7	110	0.8	6.6	726	4	0.38	1.65	0.69	F-8
F-7	PB-F4	88	0.8	7.4	651.2	4	0.34	1.28	0.53	F-7
Tower 3	PB-F4	50	2	2	100	4	0.05	0.94	0.39	Tower 3
PB-F4	PB-F2	60	9.4	9.4	564	4	0.29	0.89	0.37	PB-F4
PB-F2	PS-C	76	15.2	15.2	1155.2	4	0.60	0.60	0.25	PB-F2

VOLTAGE DROP CALCULATIONS

VOLTAGE:240 WIRE FACTOR USED (THREE - NO. 4 AWG WIRES) = 0.5174 ohms/mft/1000 Circuit: H

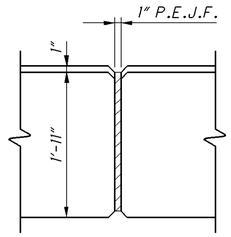
VOLTAGE DROP (IN SECTION) = AMPS IN & BEYOND SECTION (A) X SECTION LENGTH (FT) X WIRE FACTOR

SECTION			AMPERES		AMPERE-FEET	AWG	VOLTAGE DROP		% DROP	AT POINT
FROM	TO	FEET	AT POINT	ACCUM.			IN SECTION	ACCUM.		
H-1	H-2	141	1.3	1.3	183.3	4	0.09	5.46	2.27	H-1
H-2	H-3	128	1.3	2.6	332.8	4	0.17	5.36	2.23	H-2
H-3	PB-H1	38	1.3	3.9	148.2	4	0.08	5.19	2.16	H-3
H-4	PB-H1	74	1.3	1.3	96.2	4	0.05	5.11	2.13	H-4
PB-H1	H-5	158	5.2	5.2	821.6	4	0.43	5.06	2.11	PB-H1
H-5	H-6	110	1.3	6.5	715	4	0.37	4.64	1.93	H-5
H-6	H-7	111	1.3	7.8	865.8	4	0.45	4.27	1.78	H-6
H-7	PB-H4	60	1.3	9.1	546	4	0.28	3.82	1.59	H-7
H-8	PB-H4	125	1.3	1.3	162.5	4	0.08	3.54	1.47	H-8
PB-H4	PB-H5	65	10.4	10.4	676	4	0.35	3.46	1.44	PB-H4
H-9	H-10	110	1.3	1.3	143	4	0.07	3.11	1.29	H-9
H-10	PB-H5	72	1.3	2.6	187.2	4	0.10	3.03	1.26	H-10
PB-H5	H-11	160	13	13	2080	4	1.08	2.93	1.22	PB-H5
H-11	H-12	177	1.3	14.3	2531.1	4	1.31	1.86	0.77	H-11
H-12	PS-H	68	1.3	15.6	1060.8	4	0.55	0.55	0.23	H-12

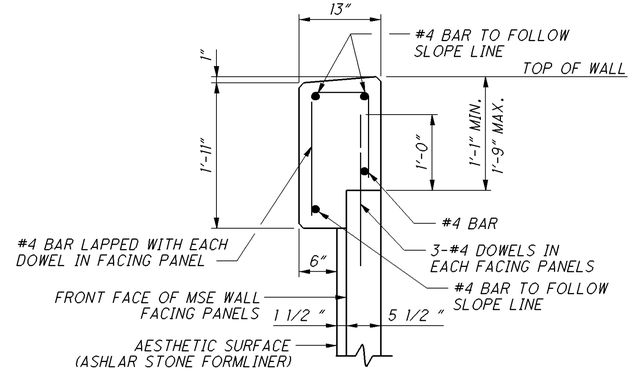


DETAIL B

ALTERNATIVE RAILING DETAIL
(SEE NOTE 3)



COPING EXPANSION JOINT DETAIL



CAST-IN-PLACE CONCRETE COPING

NOTES

1. ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION):
   APPLY A PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

   THE LOCATION OF THE PERMENT GRAFFITI PROTECTION SHALL BE AS DEFINED IN THE PLANS.

2. THE AESTHETIC SURFACE TREATMENT FOR ALL MSE WALLS SHALL BE ASHLAR STONE.

3. RAILING, MISC: RAILING ALTERNATIVE, TEXAS RAILING IS A REQUIRED BID ITEM. IF SELECTED BY THE OWNER IT WILL REPLACE BID ITEM 898: QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET) AND ITEM 509: EPOXY COATED REINFORCING STEEL AND REDUCE THE QUANTITY OF ITEM 512: SEALING OF CONCRETE SURFACES (NON-EPOXY) CLEAR. THE QUANTITIES LISTED IN THE ESTIMATED QUANTITY TABLES FOR QC/QA CONCRETE INCLUDES THE CONCRETE NECESSARY TO BUILD BOTH THE RAILING AND THE MOMENT SLAB AS DETAILED IN THE PLANS. THE QUANTITY OF ITEM 509 IN THE ESTIMATED QUANTITY TABLES INCLUDES REINFORCING STEEL NECESSARY TO BUILD BOTH THE RAILING AND THE MOMENT SLABS AS DETAILED IN THE PLANS. CONCRETE IN ALTERNATE RAILING SHALL BE QC/QA CONCRETE, CLASS QSC2. ALL REINFORCEMENT IN THE ALTERNATE RAILING SHALL BE EPOXY COATED. IF SELECTED BY THE OWNER, ALTERNATE RAILING AND ALL NECESSARY TANSISTIONS SHALL BE DETAILED PER TEXAS DOT STANDARD DRAWING FOR TRAFFIC RAIL, TEXAS CLASSIC, TYPE T411 (WITHOUT BRONZE STAR, USE WINDOW TYPE A) AND DETAIL B ON SHEET 308 AND SUBMITTED FOR SHOP DRAWING REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW ALL CONSTRUCTION DETAILS INCLUDING TRANSITIONS, NECESSARY TO BUILD THE RAILING. THE COST OF ALL LABOR, MATERIAL, EQUIPMENT, AND SHOP DRAWING PREPARATION NECESSARY FOR THE CONSTRUCTION OF THIS RAILING SHALL BE INCLUDED WITH THIS ITEM FOR PAYMENT.

THE FOLLOWING TABLE SHOWS THE REDUCTIONS IN QUANTITIES, APPLIED TO THE ESTIMATED QUANTITY TABLES, FOR EACH WALL IF THE ALTERNTIVE TEXAS RAILING IS SELECTED.

WALL NUMBER	ITEM 898 QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET) REDUCTION	ITEM 509 EPOXY COATED REINFORCING STEEL REDUCTION	ITEM 512 SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR REDUCTION
	CU YD	POUND	SQ YD
2	426	62,855	655
3	32	4,736	49
4	58	8,777	89
6	452	66,945	693
7	0	0	0
8	406	59,530	622
9	0	0	0

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SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED BMG | DRAWN NAL | REVIEWED EBS | DATE 6/14/10 | CHECKED PJL | REVISED | STRUCTURE FILE NUMBER

WALL AESTHETIC DETAILS I

HAM-50-18.79
PID No. 20082

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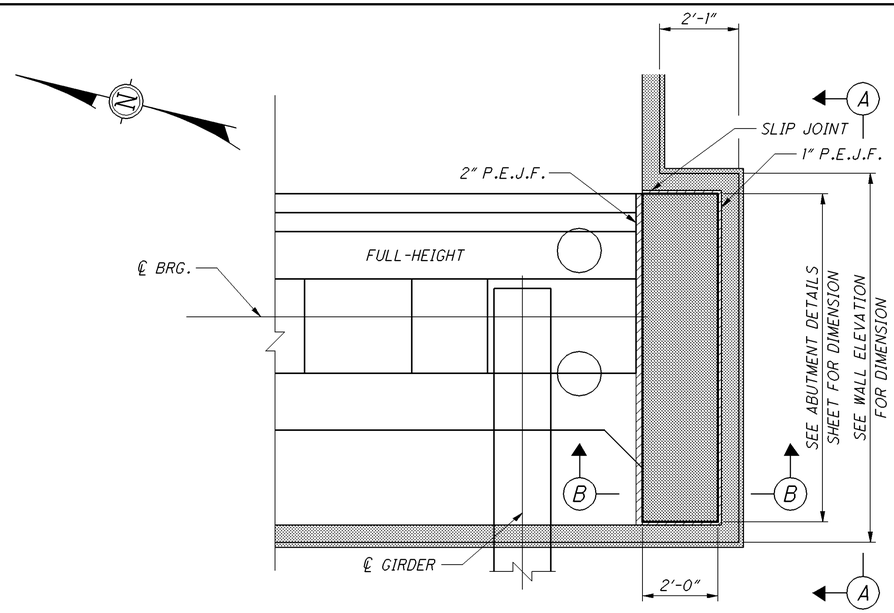
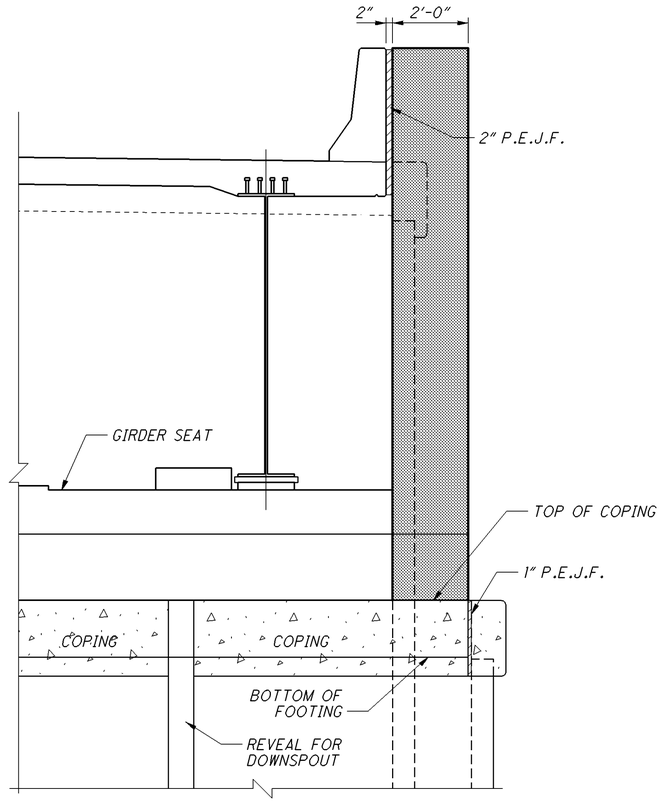


PLAN

LEGEND:

- ARCHITECTURAL WALL



ELEVATION

VIEW A-A

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HORIZONTAL SCALE IN FEET
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CALCULATED | CHECKED

WALL AESTHETIC DETAILS II

HAM-50-18.79

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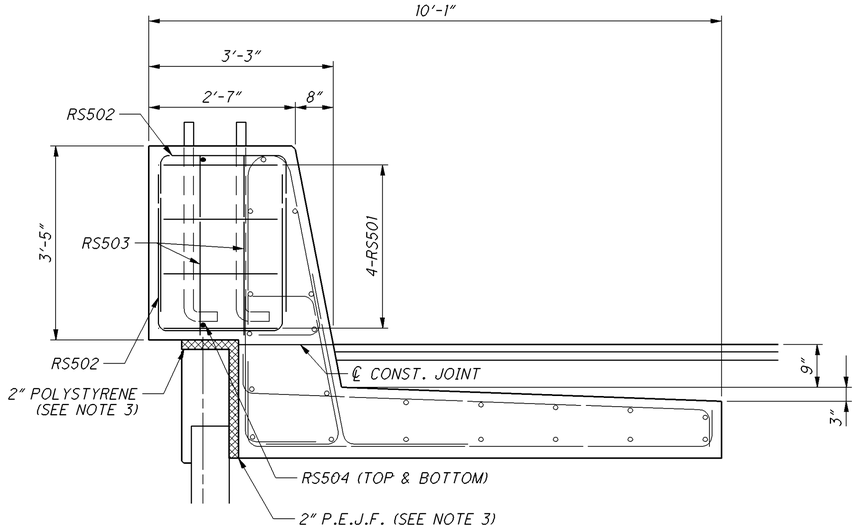
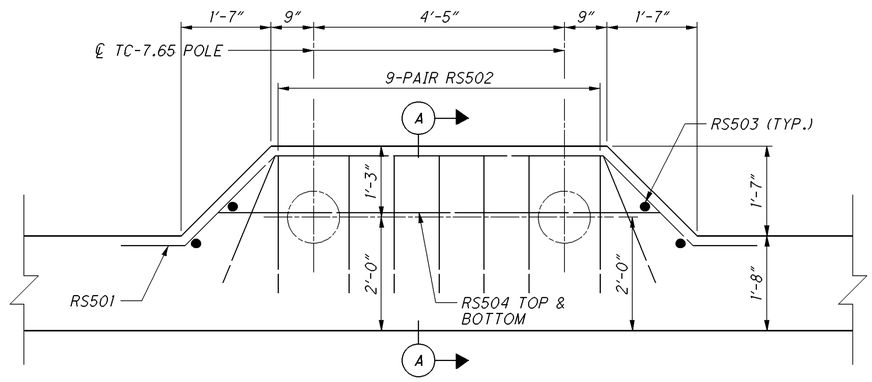


SECTION A-A

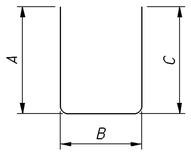
SEE SHEET 309B FOR ALTERNATE DETAIL



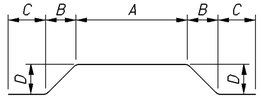
SIGN POST PLAN

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D
ADDITIONAL SIGN SUPPORT REINFORCEMENT								
RS501	4	16'-11"	71	21	5'-9"	1'-7"	3'-5"	1'-7"
RS502	18	7'-6"	141	2	2'-9"	2'-3"	2'-9"	
RS504	4	3'-1"	13	STR				
RS505	2	5'-10"	13	STR				
TOTAL			238					

ADDITIONAL REINFORCEMENT CARRIED TO ESTIMATED QUANTITIES.



TYPE-2



TYPE-21

NOTES:

1. SEE STANDARD DRAWINGS TC-7.65 AND TC-21.10 FOR ANCHORAGE DETAILS NOT SHOWN.
2. RS501 LAP LENGTH = 3'-5"
   RS502 LAP LENGTH = 2'-5"
3. POLYSTYRENE AND P.E.J.F. INCLUDED WITH ITEM 840, CONCRETE COPING AS PER PLAN FOR PAYMENT.
4. SEE SHEET 330 AND 341 FOR SIGN SUPPORT LOCATIONS.

DESIGN AGENCY
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312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP			

SIGN SUPPORT DETAILS

HAM-50-18.79
PID No. 20082

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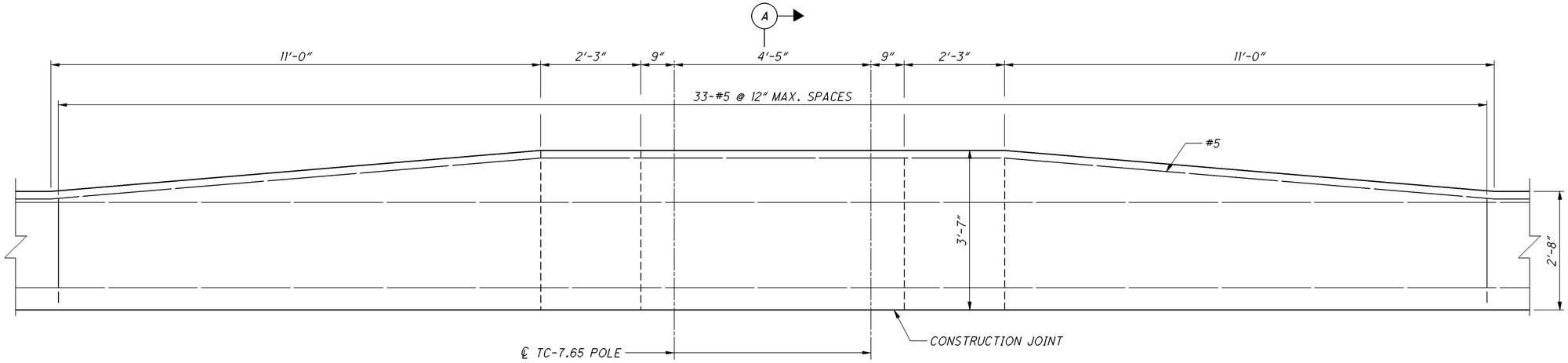
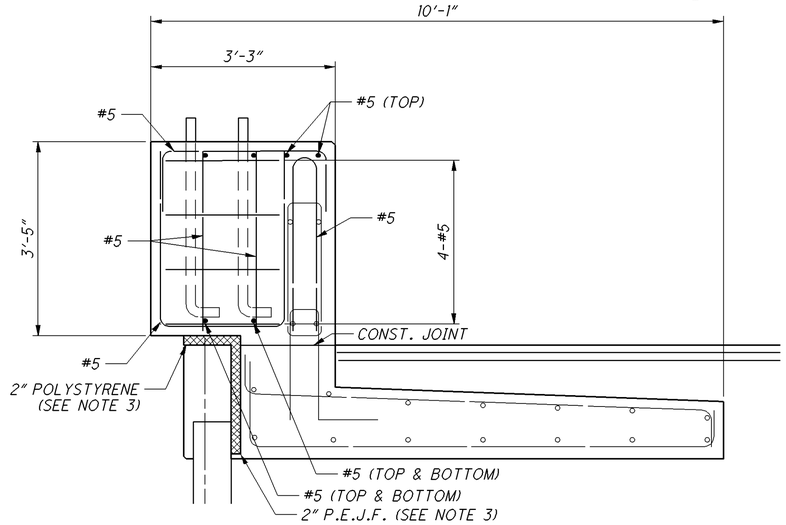
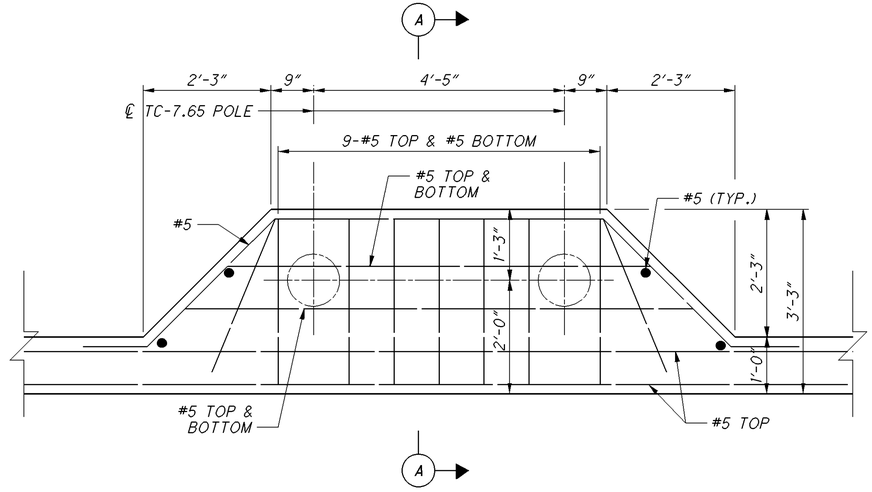


ELEVATION



SECTION A-A



SIGN POST PLAN

NOTES:

1. SEE STANDARD DRAWINGS TC-7.65 AND TC-21.10 FOR ANCHORAGE DETAILS NOT SHOWN.
2. #5 LAP LENGTH = 3'-5"
3. POLYSTYRENE AND P.E.J.F. INCLUDED WITH ITEM 840, CONCRETE COPING AS PER PLAN FOR PAYMENT.
4. SEE SHEET 330 AND 341 FOR SIGN SUPPORT LOCATIONS.

DESIGN AGENCY
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312 ELM STREET
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SAP			

ALTERNATE SIGN SUPPORT DETAILS

HAM-50-18.79
PID No. 20082

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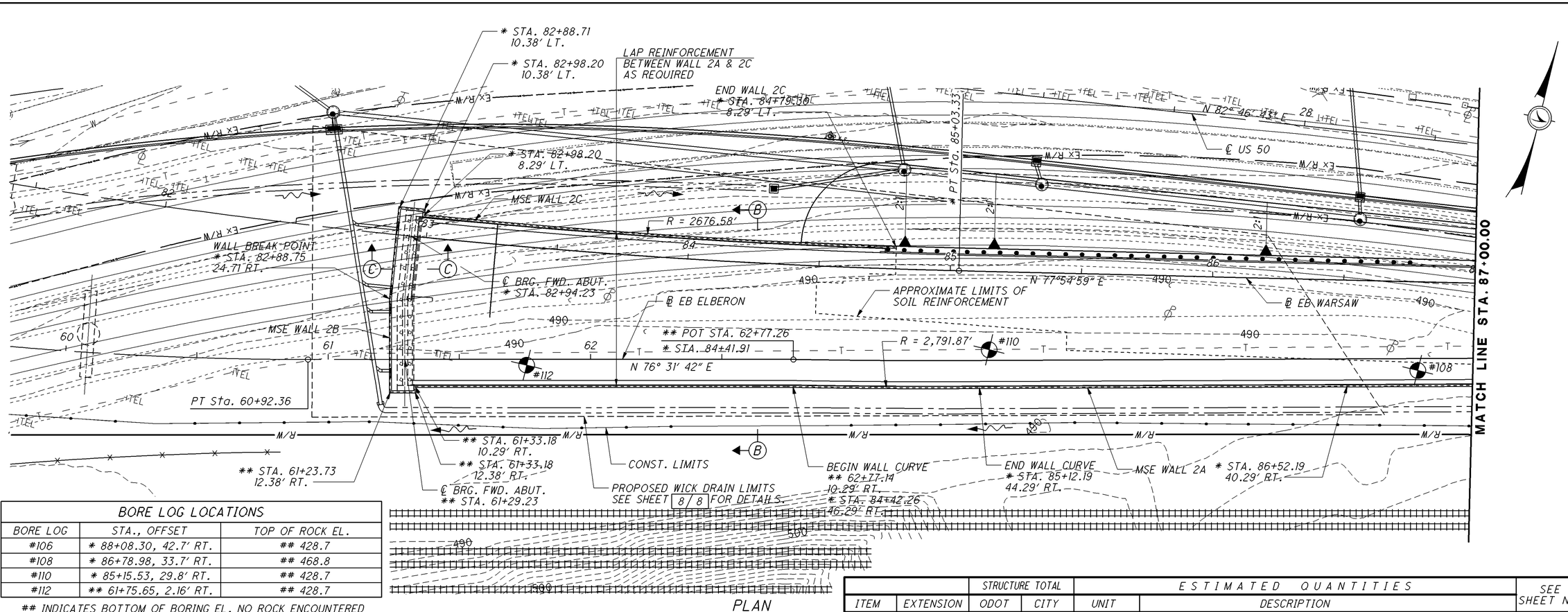

PLAN

BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET	TOP OF ROCK EL.
#106	* 88+08.30, 42.7' RT.	** 428.7
#108	* 86+78.98, 33.7' RT.	** 468.8
#110	* 85+15.53, 29.8' RT.	** 428.7
#112	** 61+75.65, 2.16' RT.	** 428.7

** INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED

PLAN

		STRUCTURE TOTAL		ESTIMATED QUANTITIES		SEE
ITEM	EXTENSION	ODOT	CITY	UNIT	DESCRIPTION	SHEET NO.
SPECIAL	203E07504	37,944		FT	WICK DRAIN	
203	20000	3,823		CU YD	EMBANKMENT	
203	35001	3,528		CU YD	GRANULAR EMBANKMENT, AS PER PLAN	6/8
503	11100	1		LUMP	COFFERDAMS AND EXCAVATION BRACING	
509	10000	62,855		POUND	EPOXY COATED REINFORCING STEEL	
512	10001	977		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)	
512	10050	2,311		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR	
517	76300		730	FT	RAILING, MISC.: RAILING ALTERNATE, TEXAS RAILING	
840	20000	17,374		SQ FT	MECHANICALLY STABILIZED EARTH WALL	
840	21000	9,880		CU YD	WALL EXCAVATION	
840	22001	4,675		SQ YD	FOUNDATION PREPARATION, AS PER PLAN	1/8
840	23000	13,265		CU YD	SELECT GRANULAR BACKFILL	
840	25010	1,619		FT	6" DRAINAGE PIPE, PERFORATED	
840	25020	72		FT	6" DRAINAGE PIPE, NON-PERFORATED	
840	26001	879		FT	CONCRETE COPING, AS PER PLAN	
840	26050	17,374		SQ FT	AESTHETIC SURFACE TREATMENT	
840	27000	5		DAYS	ON-SITE ASSISTANCE	
898	11000	426		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)	

NOTES:

1. ALL WALL STATIONS AND OFFSETS, MEASURED TO ℄ OF WALL.
2. FOR EXCAVATION PLAN, SEE SHEET 2 / 8 .
3. FOR DRAINAGE PLAN, SEE SHEET 3 / 8 .
4. FOR WALL ELEVATIONS, SEE SHEET 4 / 8 .
5. FOR SECTION A-A, SEE SHEET 5 / 8 .
6. FOR SECTION B-B, SEE SHEET 6 / 8 .
7. FOR SECTION C-C, SEE SHEET 7 / 8 .
8. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 4 / 8 .
9. FOR SETTLEMENT PLATFORM LOCATIONS AND WICK DRAIN DETAILS, SEE SHEET 8 / 8 .
10. FOUNDATION PREPARATION AS PER PLAN SHALL CONFORM TO SS840 WITH THE EXCEPTION THAT NO GRANULAR MATERIAL, TYPE C IS INCLUDED IN 4,235 SQ YD OF THE QUANTITY AND 440 SQ YD OF THIS ITEM WILL INCLUDE TYPE C MATERIAL AS SHOWN ON SECTION A-A SHEET 5 / 8 .

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PJL			

WALL 2 SITE PLAN

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PID No. 20082

1 / 8

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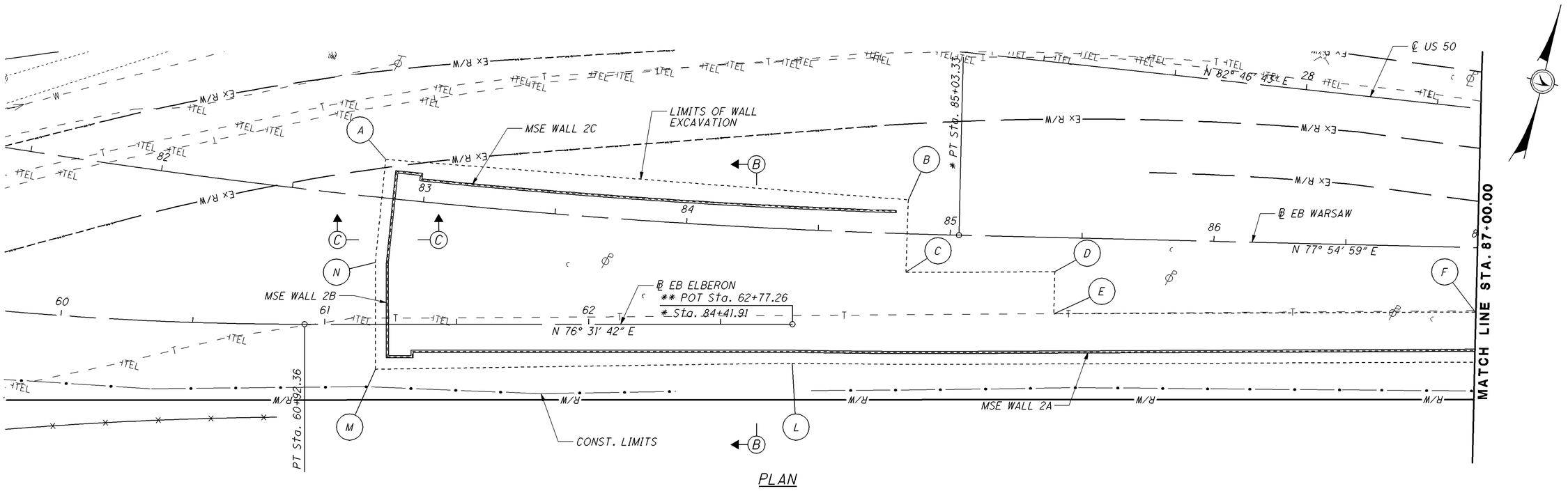
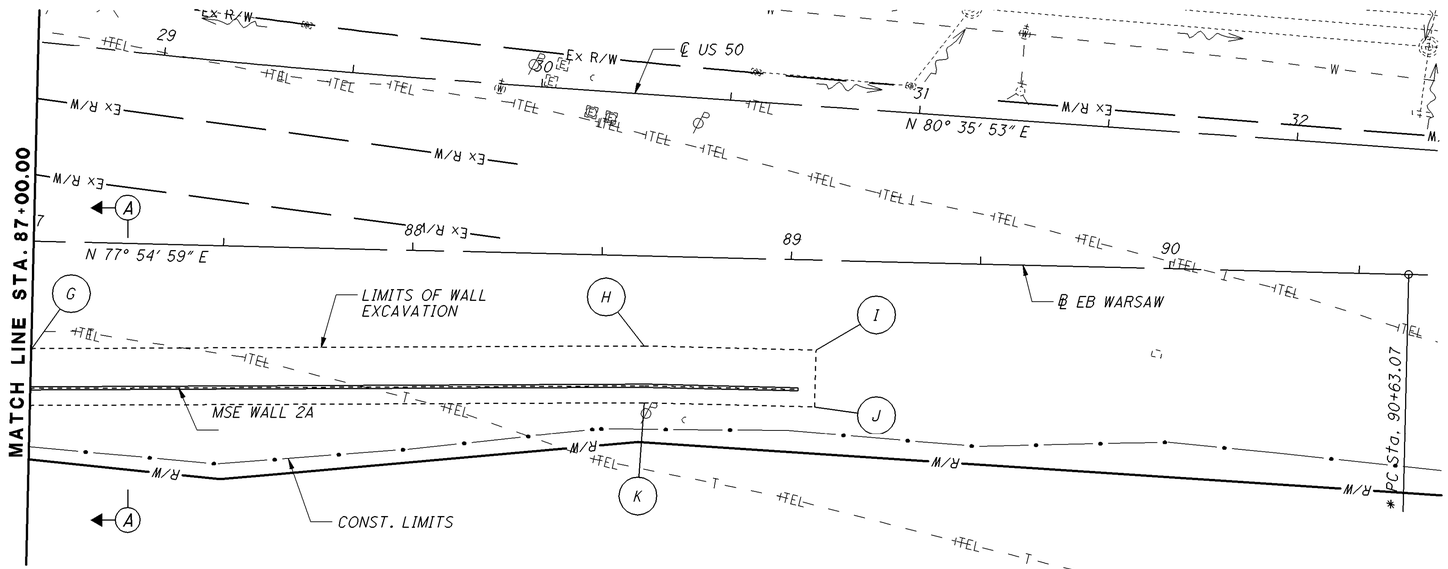


PLAN



PLAN

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
A	* 82+84.18	14.51' LT.
B	* 84+83.82	12.79' LT.
C	* 84+83.78	14.63' RT.
D	* 85+40.00	13.02' RT.
E	* 85+40.00	29.03' RT.
F	* 87+00.00	24.46' RT.
G	* 87+00.00	28.46' LT.
H	* 88+61.75	23.84' RT.
I	* 89+07.15	23.83' LT.
J	* 89+07.15	38.79' LT.
K	* 88+62.17	38.79' RT.
L	** 62+77.11	14.79' RT.
M	** 61+09.87	17.08' RT.
N	* 82+84.30	25.18' RT.

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ EB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ EB ELBERON.

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1 / 8 .
2. FOR DRAINAGE PLAN, SEE SHEET 3 / 8 .
3. FOR WALL ELEVATIONS, SEE SHEET 4 / 8 .
4. FOR SECTION A-A, SEE SHEET 5 / 8 .
5. FOR SECTION B-B, SEE SHEET 6 / 8 .
6. FOR SECTION C-C, SEE SHEET 7 / 8 .

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WALL 2 EXCAVATION PLAN

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2 / 8

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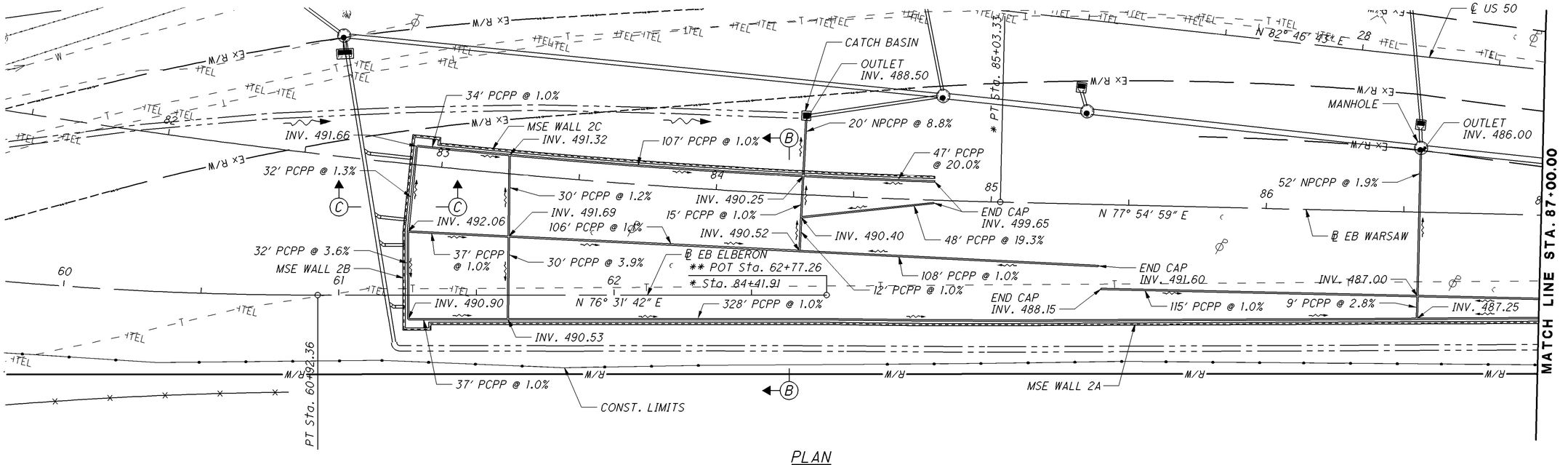
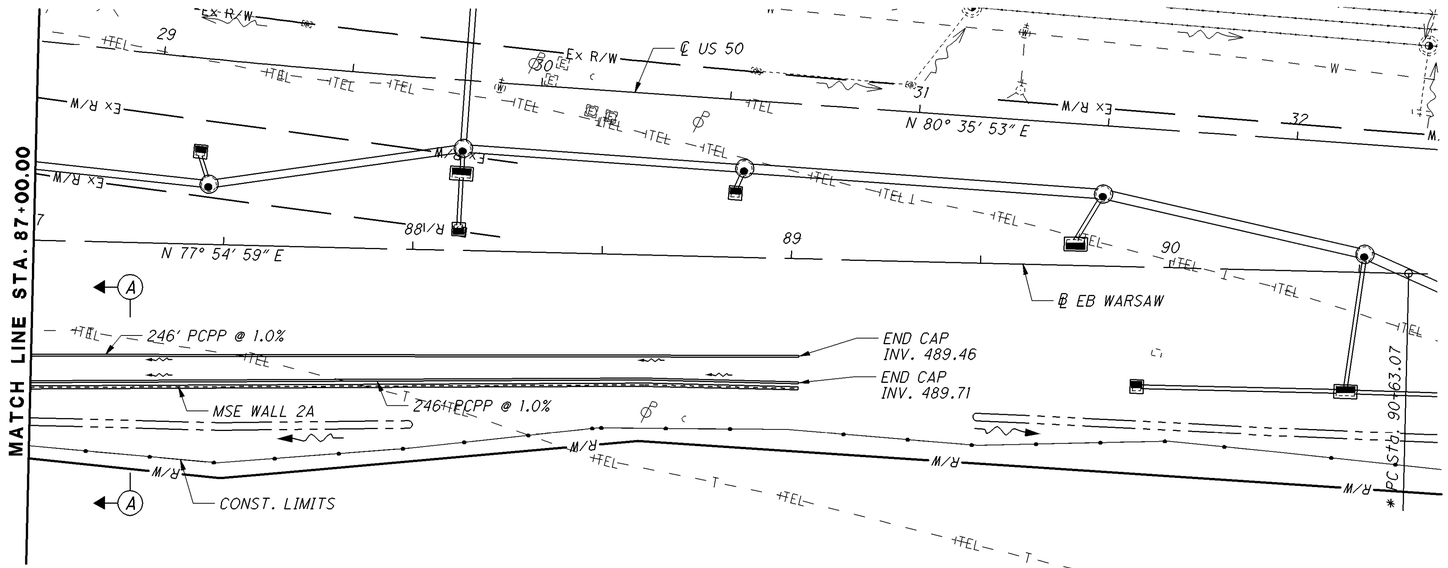


PLAN



PLAN

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1 / 8 .
2. FOR EXCAVATION PLAN AND WALL EMBANKMENT LIMITS, SEE SHEET 2 / 8 .
3. FOR WALL ELEVATIONS, SEE SHEET 4 / 8 .
4. FOR SECTION A-A, SEE SHEET 5 / 8 .
5. FOR SECTION B-B, SEE SHEET 6 / 8 .
6. FOR SECTION C-C, SEE SHEET 7 / 8 .

DESIGN AGENCY
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WALL 2 DRAINAGE PLAN

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PID No. 20082

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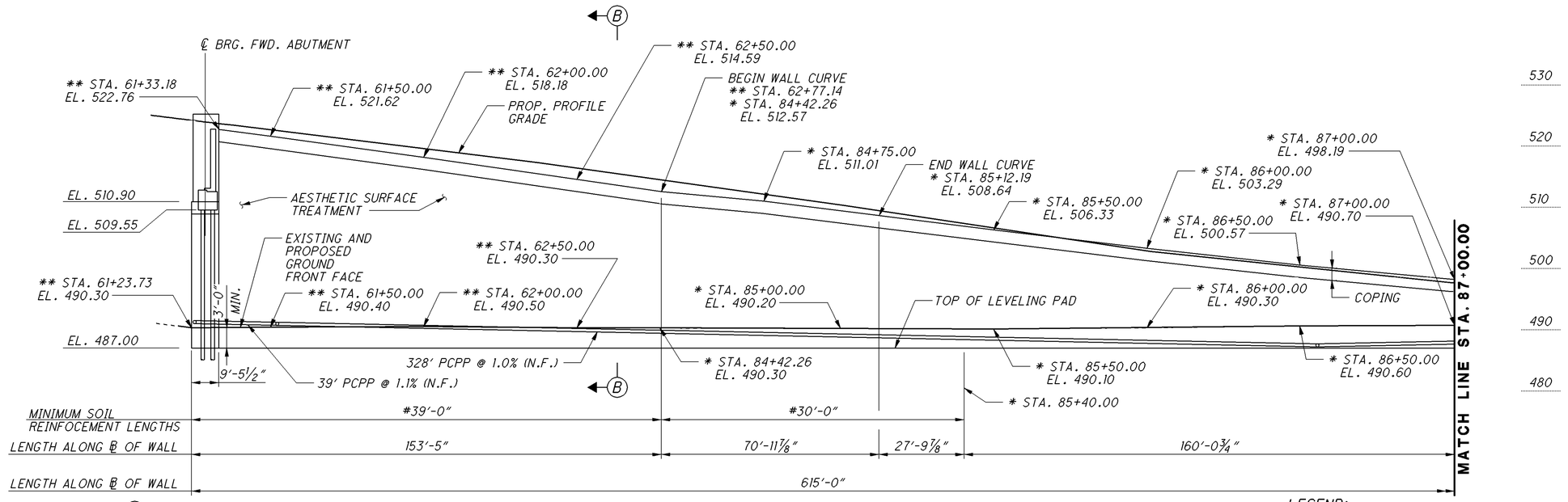
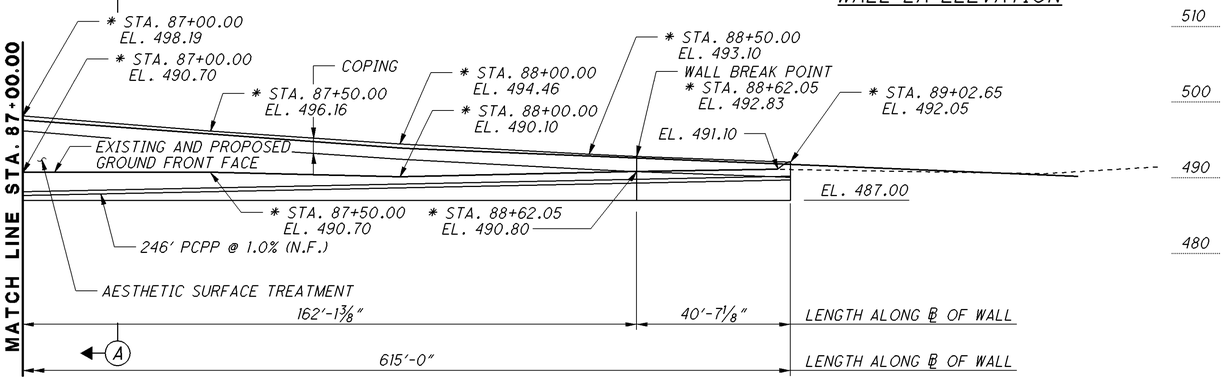
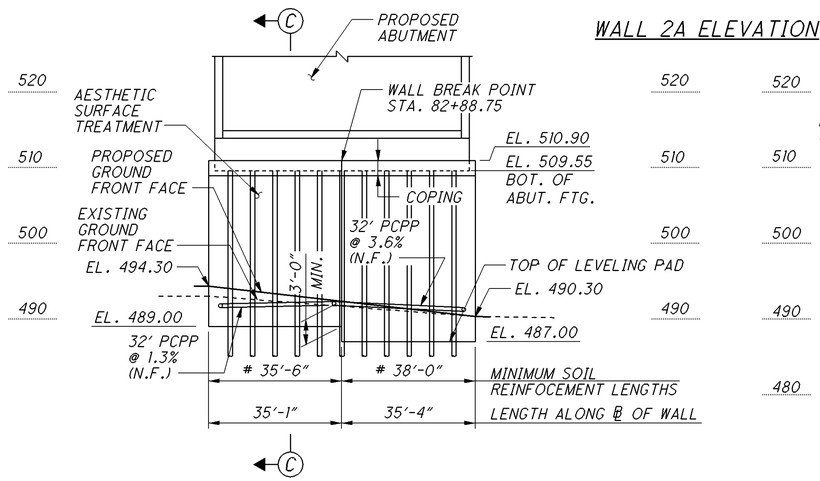


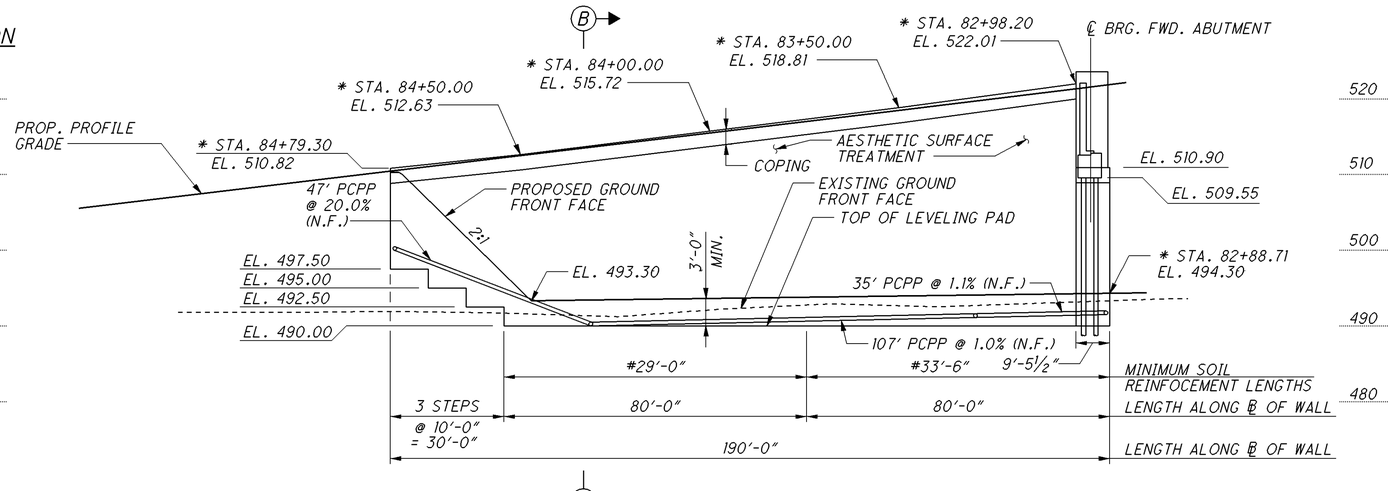
WALL 2A ELEVATION



WALL 2A ELEVATION



WALL 2B ELEVATION



WALL 2C ELEVATION

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ EB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ EB ELBERON.

# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGHT

NOTES:

1. FOR WALL PLAN STATIONS, SEE SHEET 1 / 8 .
2. FOR EXCAVATION PLAN AND WALL EMBANKMENT LIMITS, SEE SHEET 2 / 8 .
3. FOR DRAINAGE PLAN, SEE SHEET 3 / 8 .
4. FOR SECTION A-A, SEE SHEET 5 / 8 .
5. FOR SECTION B-B, SEE SHEET 6 / 8 .
6. FOR SECTION C-C, SEE SHEET 7 / 8 .

DESIGN AGENCY
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WALL 2 ELEVATIONS

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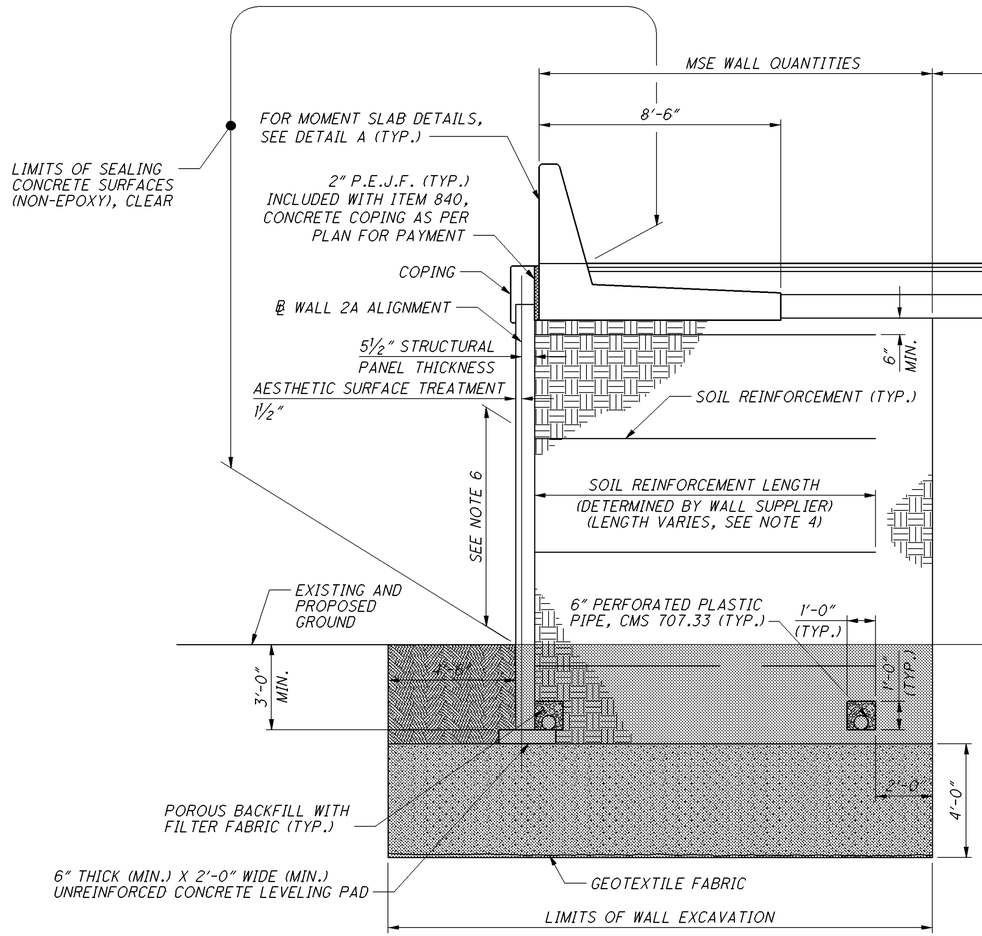
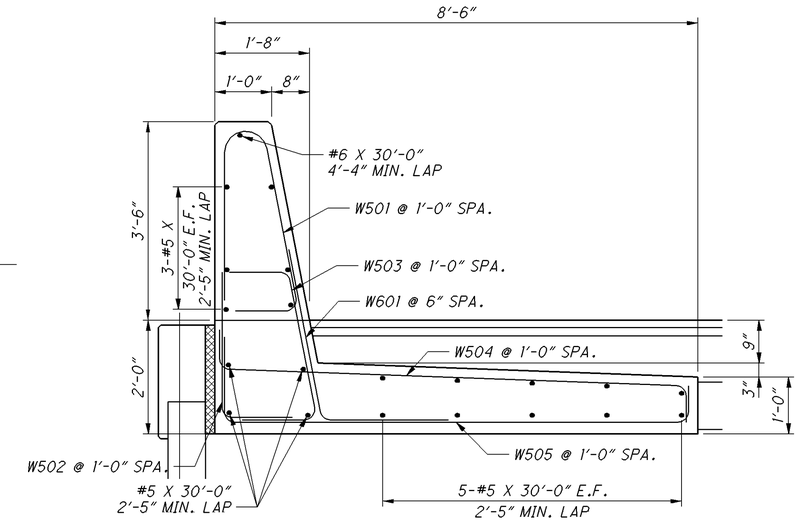


SECTION A-A

SEE SHEET 270 FOR ALTERNATE DETAIL

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH THE ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C



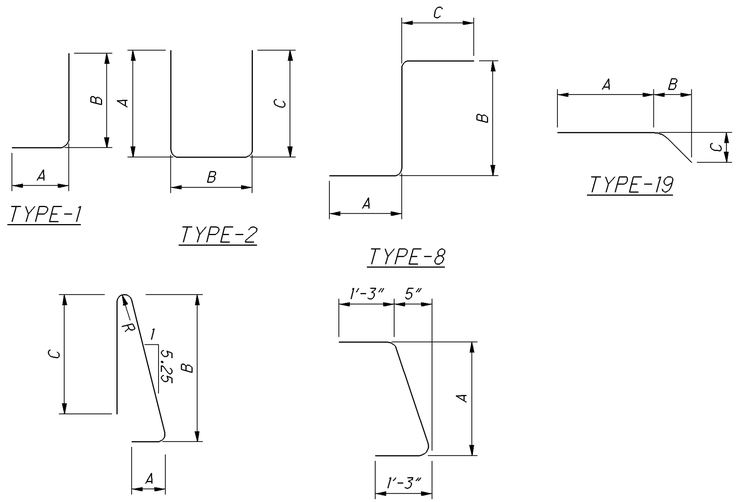
DETAIL A

SEE SHEET 308 FOR ALTERNATE DETAIL

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.5 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 2A, ON SHEET 4/8, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION A-A, SEE SHEETS 1/8, 2/8, 3/8, & 4/8.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R
W501	731	7'-7"	5,782	23	1'-5"	3'-2"	3'-0"	3 3/8
W502	731	7'-1"	5,401	1	2'-7"	4'-7"	·	·
W503	731	4'-10"	3,686	30	2'-6"	·	·	·
W504	731	9'-7"	7,307	8	1'-0"	8'-2"	8"	·
W505	731	9'-7"	7,307	2	1'-0"	8'-2"	8"	·
W506	540	30'-0"	16,897	S	·	·	·	·
W601	1460	6'-11"	15,168	19	2'-5"	7"	4'-5"	·
W602	29	30'-0"	1,307	S	·	·	·	·
TOTAL			62,855					



DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 2 DETAILS I

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PID No. 20082

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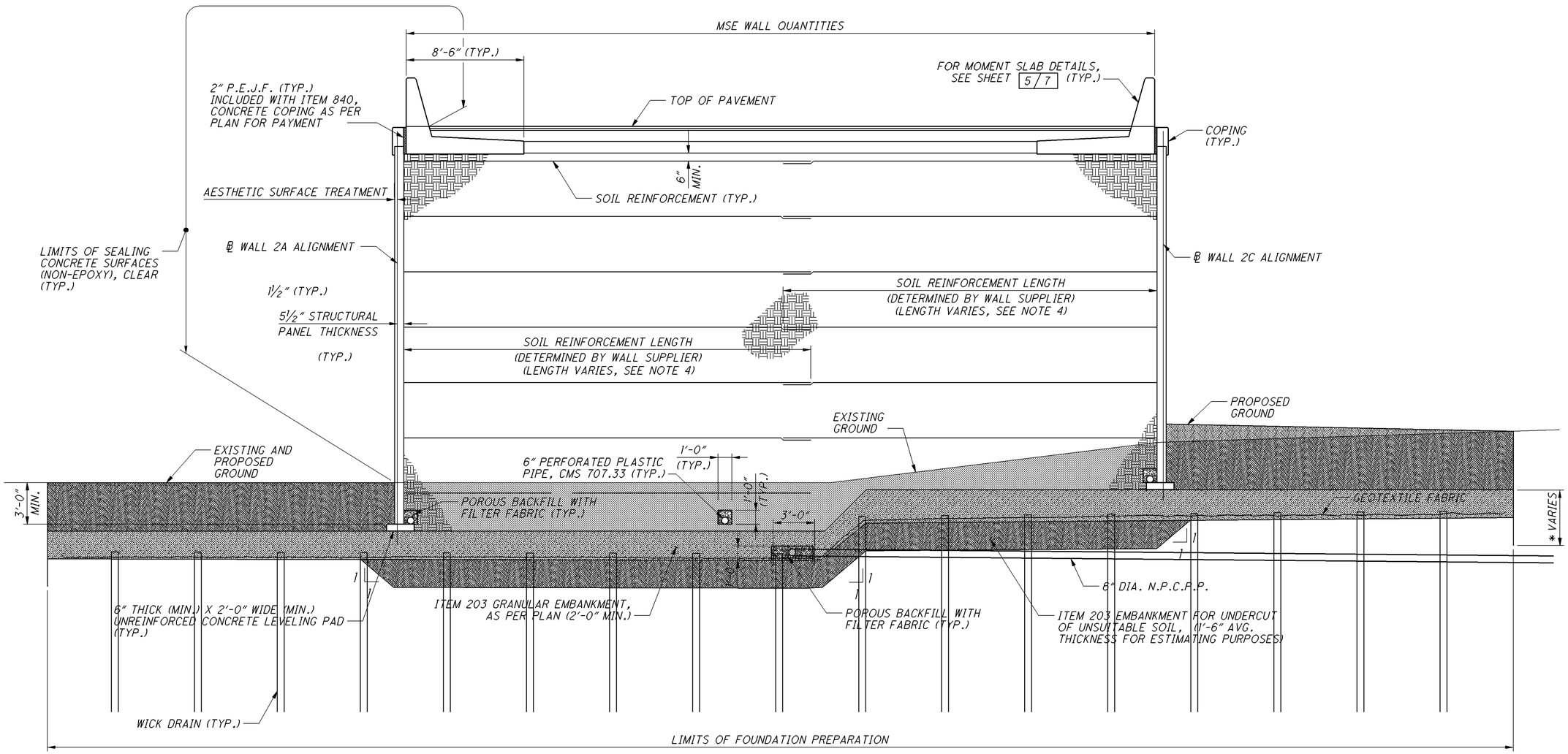

SECTION B-B

* SEE SHEET 8/8 FOR DETAILS.

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT
- ITEM 203 GRANULAR EMBANKMENT, AS PER PLAN (SEE NOTE 8)

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.5 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 2A AND 2C, ON SHEET 4/8, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION B-B, SEE SHEETS 1/8, 2/8, 3/8, & 4/8.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
7. 6" DIA. N.P.C.P.P. TO BE INCLUDED WITH ITEM 203E35001, GRANULAR EMBANKMENT, AS PER PLAN, FOR PAYMENT.
8. PROVIDE GRANULAR EMBANKMENT CONSISTENT WITH ODOT 703.02.A. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.

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WALL 2 DETAILS II

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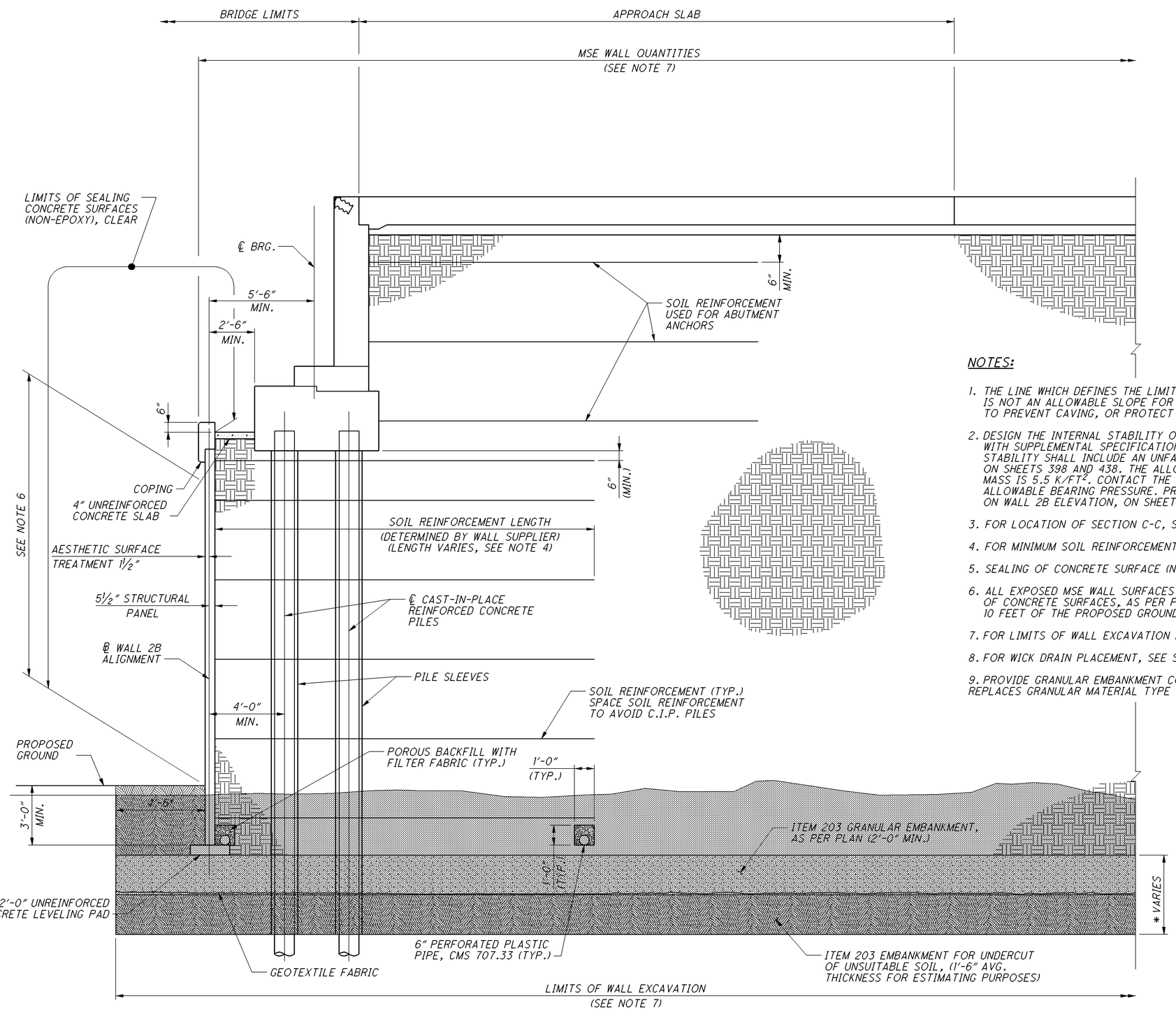

SECTION C-C

WARSAW EASTBOUND RAMP FORWARD ABUTMENT (BRIDGE NO. HAM-050-1881)
ELBERON EASTBOUND RAMP FORWARD ABUTMENT (BRIDGE NO. HAM-050-1875)

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840 TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE AS SHOWN ON SHEETS 398 AND 438. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.5 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 2B ELEVATION, ON SHEET [4/8], TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION C-C, SEE SHEETS [1/8], [2/8], [3/8], & [4/8].
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET [4/8].
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
7. FOR LIMITS OF WALL EXCAVATION AND PAY LIMITS OF WALL QUANTITIES, SEE SHEET [2/8].
8. FOR WICK DRAIN PLACEMENT, SEE SHEET [1/8].
9. PROVIDE GRANULAR EMBANKMENT CONSISTENT WITH ODOT 703.02.A. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT
- ITEM 203 GRANULAR EMBANKMENT, AS PER PLAN (SEE NOTE 9)

* SEE SHEET [8/8] FOR DETAILS.

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312 ELM STREET
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WALL 2 DETAILS III

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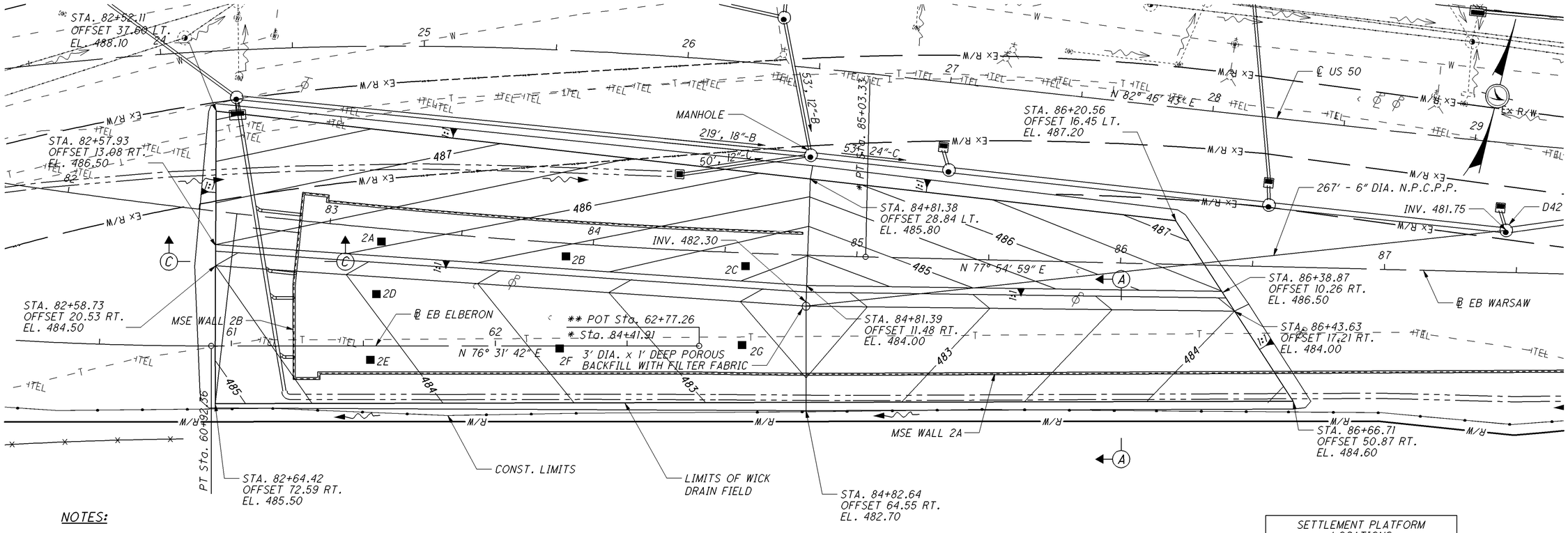

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1 / 8.
2. FOR EXCAVATION PLAN AND WALL EMBANKMENT LIMITS, SEE SHEET 2 / 8.
3. FOR WALL ELEVATIONS, SEE SHEET 4 / 8.
4. FOR SECTION A-A, SEE SHEET 5 / 8.
5. FOR SECTION B-B, SEE SHEET 6 / 8.
6. FOR SECTION C-C, SEE SHEET 7 / 8.
7. CONTOURS SHOWN REPRESENT THE LOWER LIMIT OF ITEM 203, GRANULAR EMBANKMENT, AS PER PLAN. THE LOWER LIMIT OF EXCAVATION SHALL BE DEFINED AS 4'-0" BELOW THE NEAREST LEVELING PAD OR THE GIVEN CONTOUR ELEVATION, WHICHEVER IS LOWER. PROVIDE ITEM 203, EMBANKMENT FROM THE BOTTOM OF EXCAVATION TO THE BOTTOM OF GRANULAR EMBANKMENT, IF NECESSARY. A MINIMUM THICKNESS OF 2'-0" OF ITEM 203 GRANULAR EMBANKMENT SHALL BE PROVIDED AT ALL LOCATIONS.
8. WICK DRAINS TO BE DRIVIEN TO REFUSAL ON SHALE AND LIMESTONE BEDROCK. AN ESTIMATED TIP ELEVATION OF 450.0 IS TO BE USED FOR ESTIMATING PURPOSES ONLY.
9. INSTALL WICK DRAINS WITHIN THE PLAN LIMITS SHOWN. PLACE THE WICK DRAINS EVENLY AT 6'-0" SPACING IN TWO PERPENDICULAR DIRECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PLACE WICK DRAINS NO CLOSER THAN 3 FEET FROM ANY PROPOSED BRIDGE PILING.

WICK DRAIN AND SUBBASE GRADING PLAN

SETTLEMENT PLATFORM LOCATIONS	
2A	STA. 83+20, 5' RT.
2B	STA. 83+90, 5' RT.
2C	STA. 84+58, 5' RT.
2D	STA. 83+20, 25' RT.
2E	STA. 83+20, 50' RT.
2F	STA. 83+90, 40' RT.
2G	STA. 84+58, 35' RT.

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WALL 2 WICK DRAIN AND GRADING PLAN

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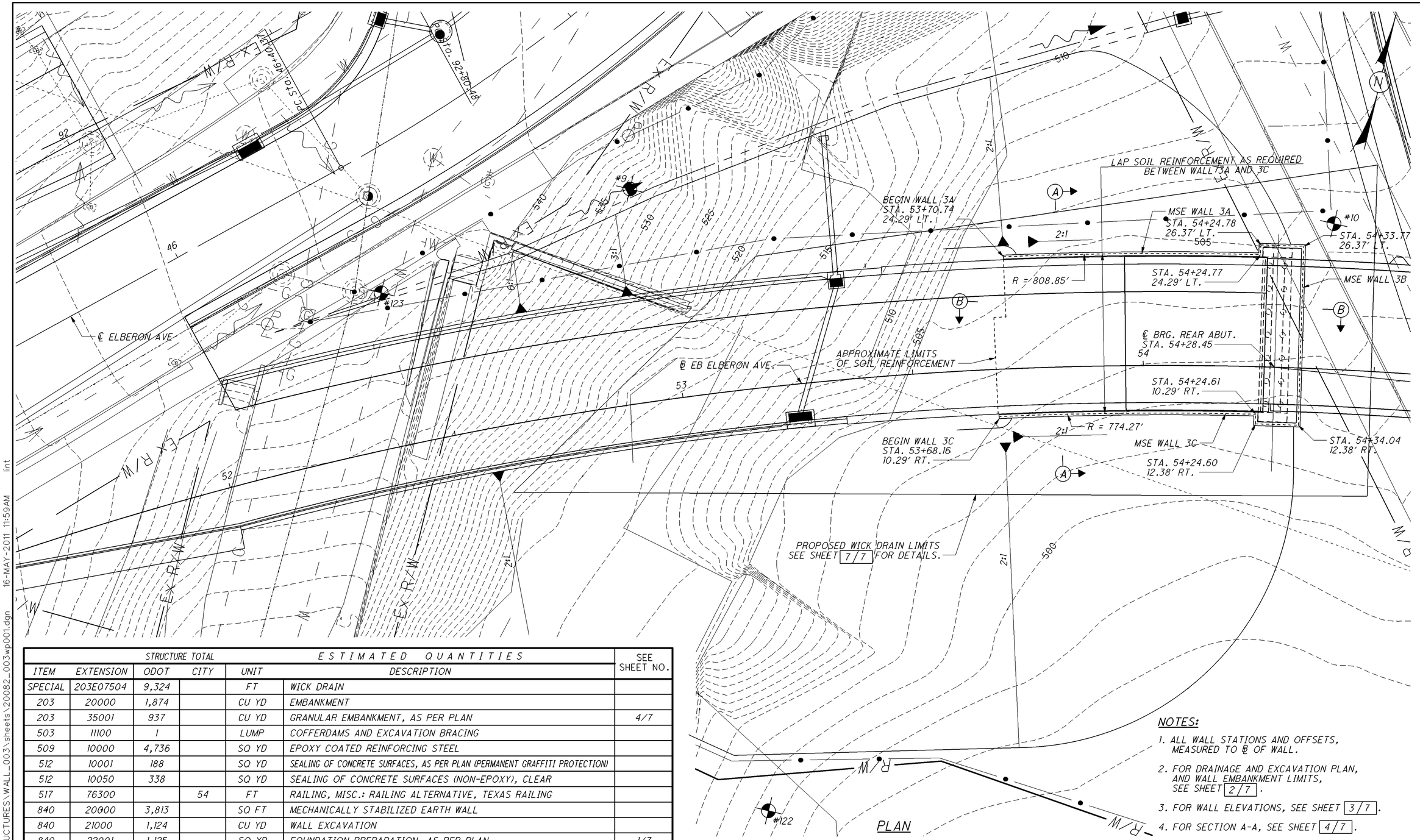

STRUCTURE TOTAL				ESTIMATED QUANTITIES		SEE SHEET NO.
ITEM	EXTENSION	ODOT	CITY	UNIT	DESCRIPTION	
SPECIAL	203E07504	9,324		FT	WICK DRAIN	
203	20000	1,874		CU YD	EMBANKMENT	
203	35001	937		CU YD	GRANULAR EMBANKMENT, AS PER PLAN	4/7
503	11100	1		LUMP	COFFERDAMS AND EXCAVATION BRACING	
509	10000	4,736		SQ YD	EPOXY COATED REINFORCING STEEL	
512	10001	188		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)	
512	10050	338		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR	
517	76300		54	FT	RAILING, MISC.: RAILING ALTERNATIVE, TEXAS RAILING	
840	20000	3,813		SQ FT	MECHANICALLY STABILIZED EARTH WALL	
840	21000	1,124		CU YD	WALL EXCAVATION	
840	22001	1,125		SQ YD	FOUNDATION PREPARATION, AS PER PLAN	1/7
840	23000	1,701		CU YD	SELECT GRANULAR BACKFILL	
840	25010	260		FT	6" DRAINAGE PIPE, PERFORATED	
840	25020	100		FT	6" DRAINAGE PIPE, NON-PERFORATED	
840	26001	169		FT	CONCRETE COPING, AS PER PLAN	
840	26050	3,813		SQ FT	AESTHETIC SURFACE TREATMENT	
840	27000	5		DAYS	ON-SITE ASSISTANCE	
898	11000	32		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)	

BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET FROM BASELINE EB ELBERON AVE.	TOP OF ROCK EL.
#9	52+94.93, 46.3' LT.	462.8
#122	53+07.33, 91.1' RT.	445.3
#10	54+39.87, 31.6' LT.	434.8
#123	52+40.71, 33.5' LT.	461.9

INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED

NOTES:

1. ALL WALL STATIONS AND OFFSETS, MEASURED TO ℄ OF WALL.
2. FOR DRAINAGE AND EXCAVATION PLAN, AND WALL EMBANKMENT LIMITS, SEE SHEET 2/7.
3. FOR WALL ELEVATIONS, SEE SHEET 3/7.
4. FOR SECTION A-A, SEE SHEET 4/7.
5. FOR SECTION B-B, SEE SHEET 5/7.
6. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 3/7.
7. FOR SETTLEMENT PLATFORM LOCATIONS AND WICK DRAIN DETAILS , SEE SHEET 7/7.
8. FOUNDATION PREPARATION AS PER PLAN SHALL CONFORM TO SS840 WITH THE EXCEPTION THAT NO GRANULAR MATERIAL, TYPE C IS INCLUDED IN THE QUANTITY.

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WALL 3 SITE PLAN

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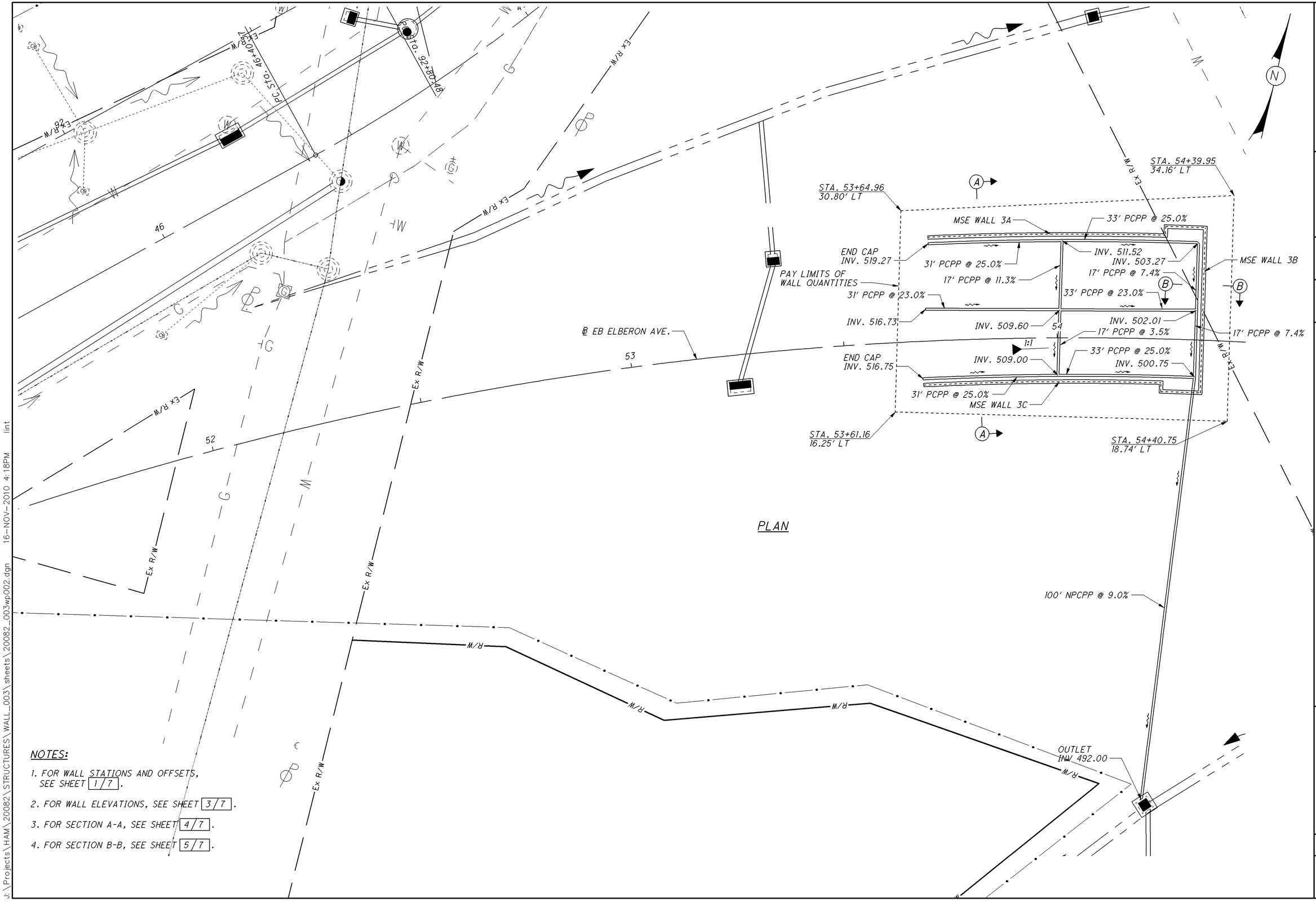

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/7.
2. FOR WALL ELEVATIONS, SEE SHEET 3/7.
3. FOR SECTION A-A, SEE SHEET 4/7.
4. FOR SECTION B-B, SEE SHEET 5/7.

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312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 3 DRAINAGE, EXCAVATION AND EMBANKMENT PLAN

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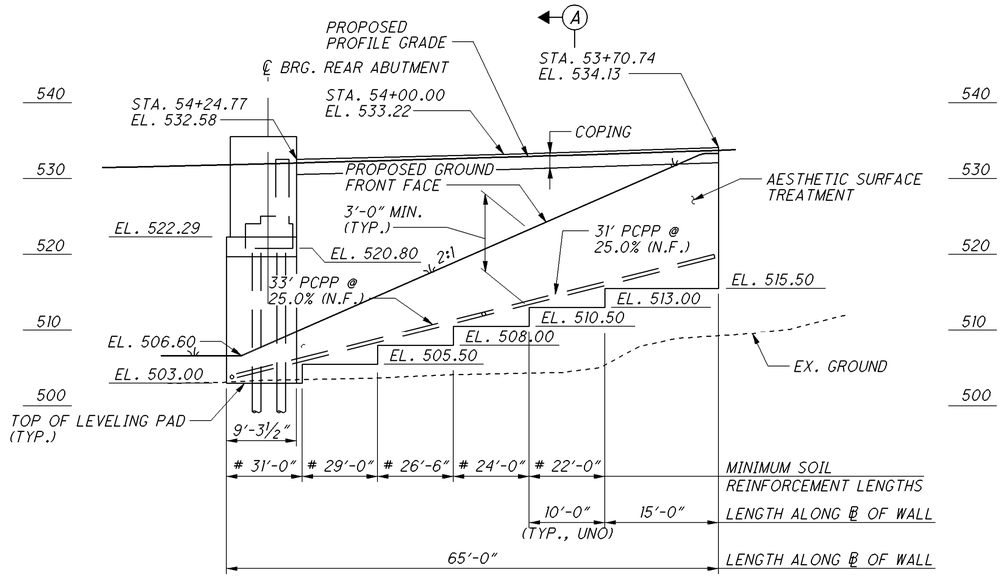
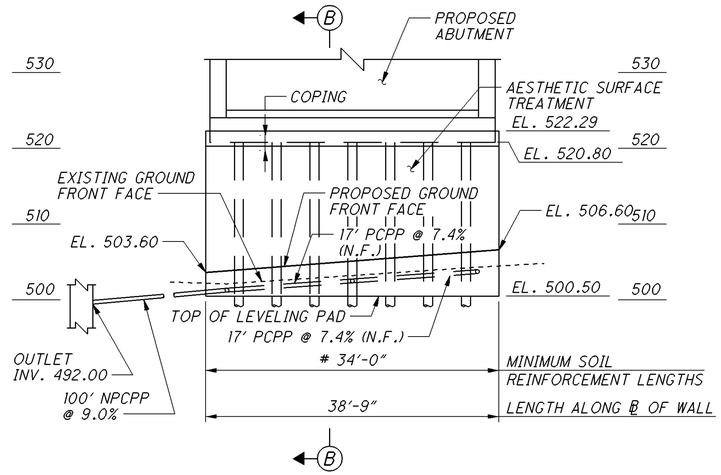
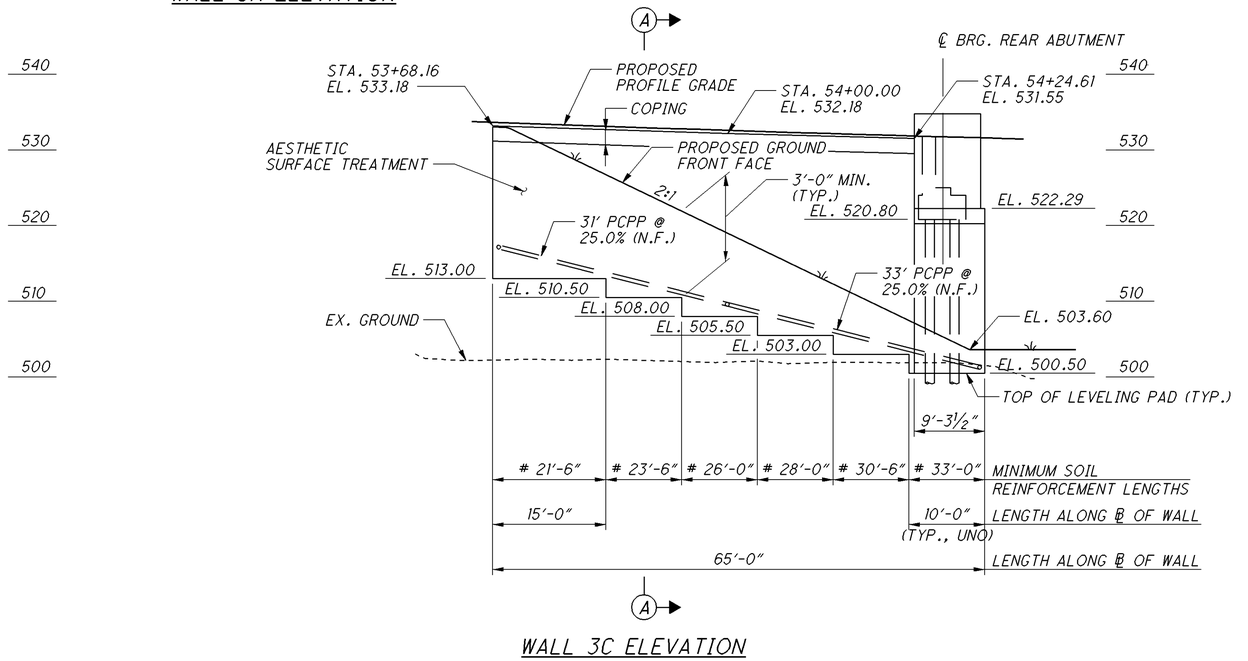


WALL 3A ELEVATION



WALL 3B ELEVATION



WALL 3C ELEVATION

LEGEND:

\# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGHT

NOTES:

1. FOR WALL PLAN STATIONS, SEE SHEET 1/7.
2. FOR DRAINAGE AND EXCAVATION PLAN, AND WALL EMBANKMENT LIMITS, SEE SHEET 2/7.
3. FOR SECTION A-A, SEE SHEET 4/7.
4. FOR SECTION B-B, SEE SHEET 5/7.

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WALL 3 ELEVATIONS

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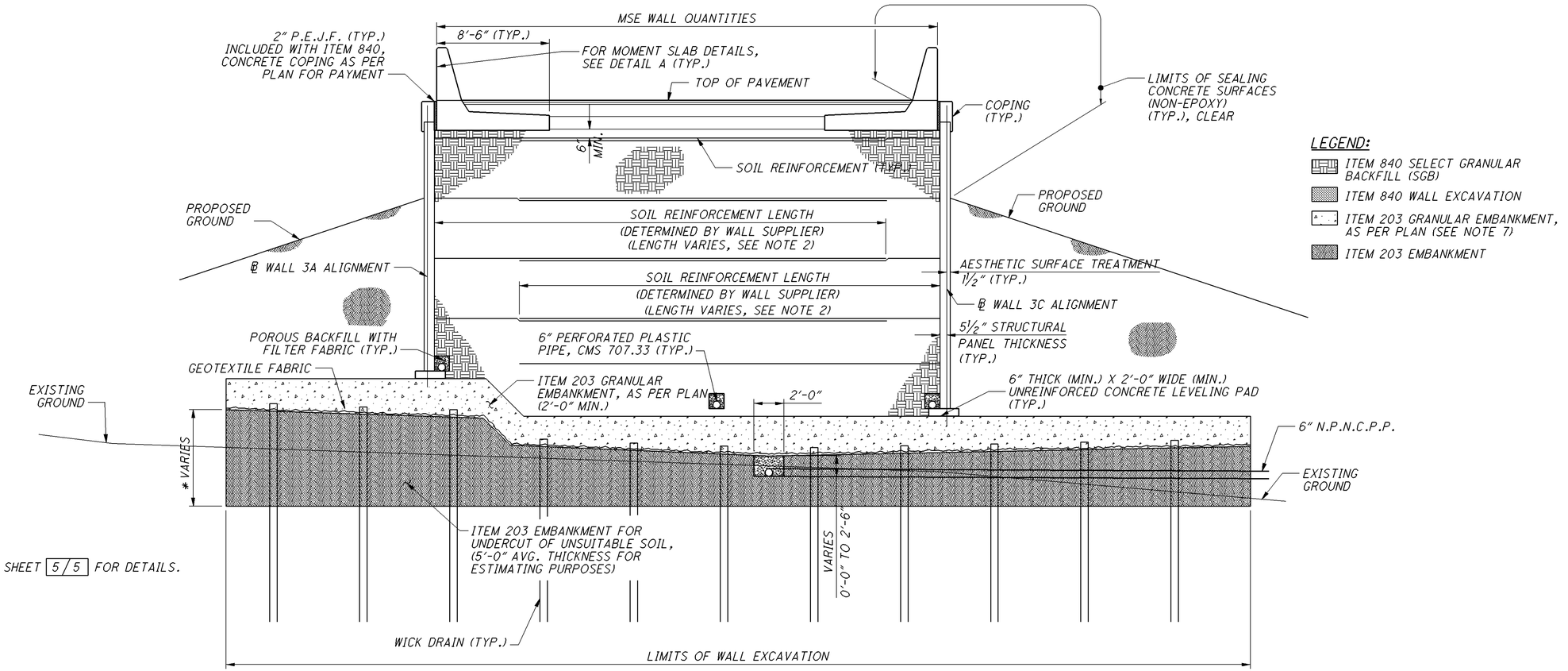


* SEE SHEET 5/5 FOR DETAILS.

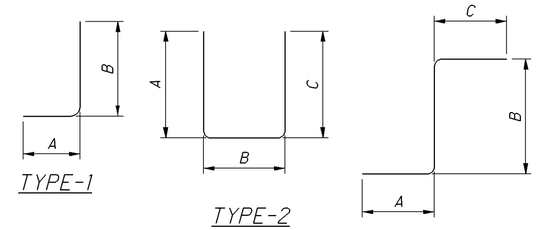
LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 GRANULAR EMBANKMENT, AS PER PLAN (SEE NOTE 7)
- ITEM 203 EMBANKMENT

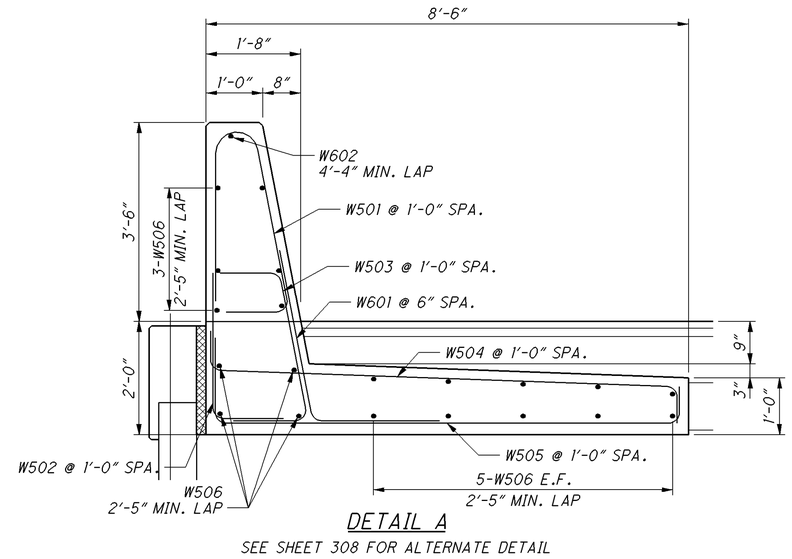
SECTION A-A

NOTES:

1. FOR LOCATION OF SECTION A-A, SEE SHEETS 1/5, 2/5, & 3/5.
2. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 3/5.
3. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
4. FOR ADDITIONAL NOTES AND DETAILS SEE SHEET 5/5.
5. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
6. 6" DIA. N.P.C.P.P. TO BE INCLUDED WITH ITEM 203E35001, GRANULAR EMBANKMENT, AS PER PLAN, FOR PAYMENT.
7. PROVIDE GRANULAR EMBANKMENT CONSISTENT WITH ODOT 703.02.A. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.



MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R
W501	56	7'-7"	443	23	1'-5"	3'-2"	3'-0"	3 3/8
W502	56	7'-1"	414	1	2'-7"	4'-7"	·	·
W503	56	4'-10"	283	30	2'-6"	·	·	·
W504	56	9'-7"	560	8	1'-0"	8'-2"	8"	·
W505	56	9'-7"	560	2	1'-0"	8'-2"	8"	·
W506	40	27'-4"	1,252	S	·	·	·	·
W601	109	6'-11"	1,133	19	2'-5"	7"	4'-5"	·
W602	2	27'-4"	91	S	·	·	·	·
TOTAL			4,736					



DETAIL A

SEE SHEET 308 FOR ALTERNATE DETAIL

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 3 DETAILS I

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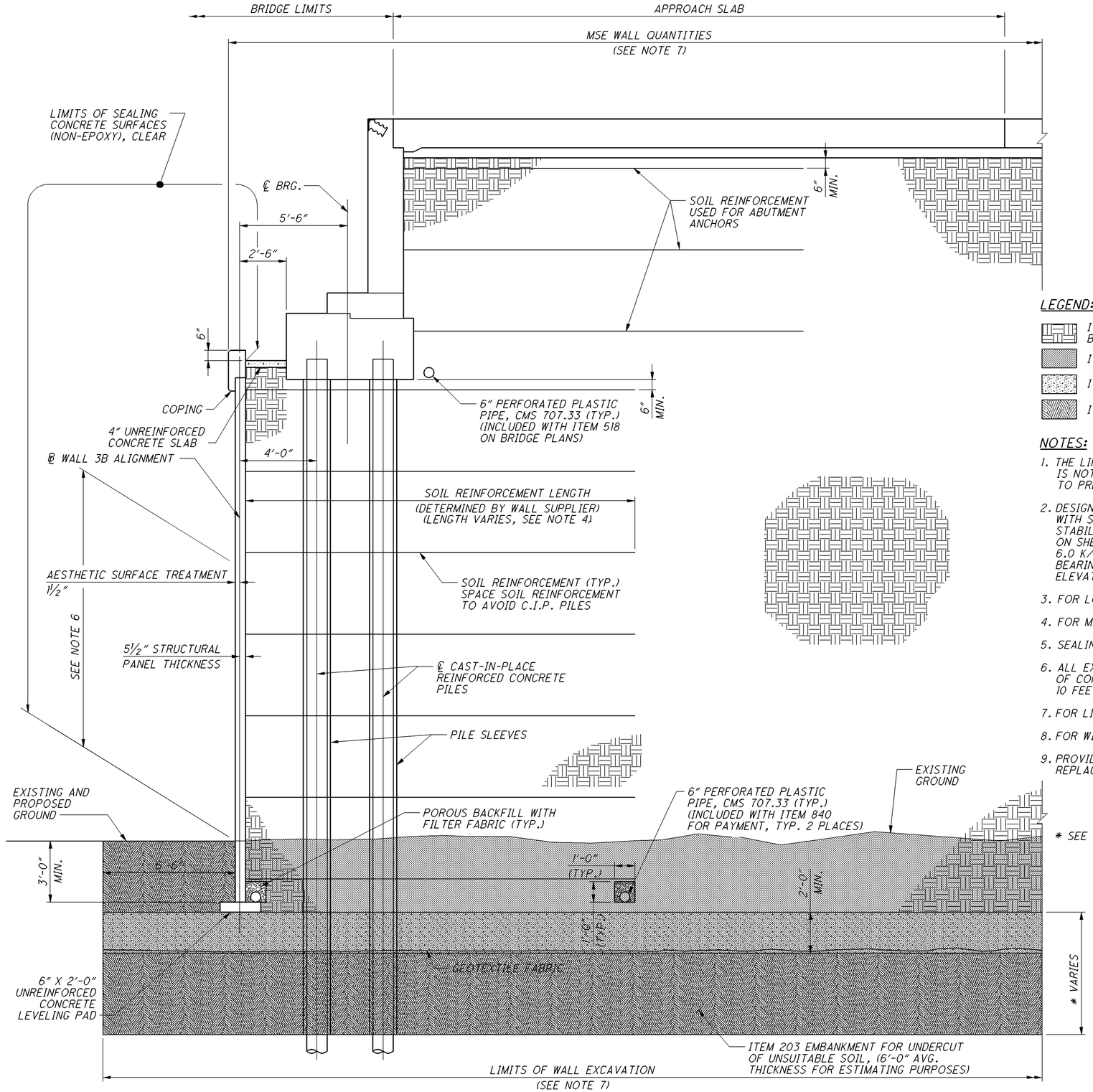

SECTION B-B

ELBERON EASTBOUND RAMP REAR ABUTMENT DETAIL (BRIDGE NO. HAM-050-1875)

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 GRANULAR EMBANKMENT, AS PER PLAN (SEE NOTE 9)
- ITEM 203 EMBANKMENT

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840 TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE AS SHOWN ON SHEET 398. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 6.0 K/FT². CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL ELEVATIONS, ON SHEET 3/7, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION B-B, SEE SHEETS 1/7, 2/7, & 3/7.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 3/7.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
7. FOR LIMITS OF WALL EXCAVATION AND PAY LIMITS OF WALL QUANTITIES, SEE SHEET 2/7.
8. FOR WICK DRAIN PLACEMENT, SEE SHEET 1/7.
9. PROVIDE GRANULAR EMBANKMENT CONSISTENT WITH ODOT 703.02.A. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.

* SEE SHEET 7/7 FOR DETAILS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
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WALL 3 DETAILS II

HAM-50-18.79
PID No. 20082

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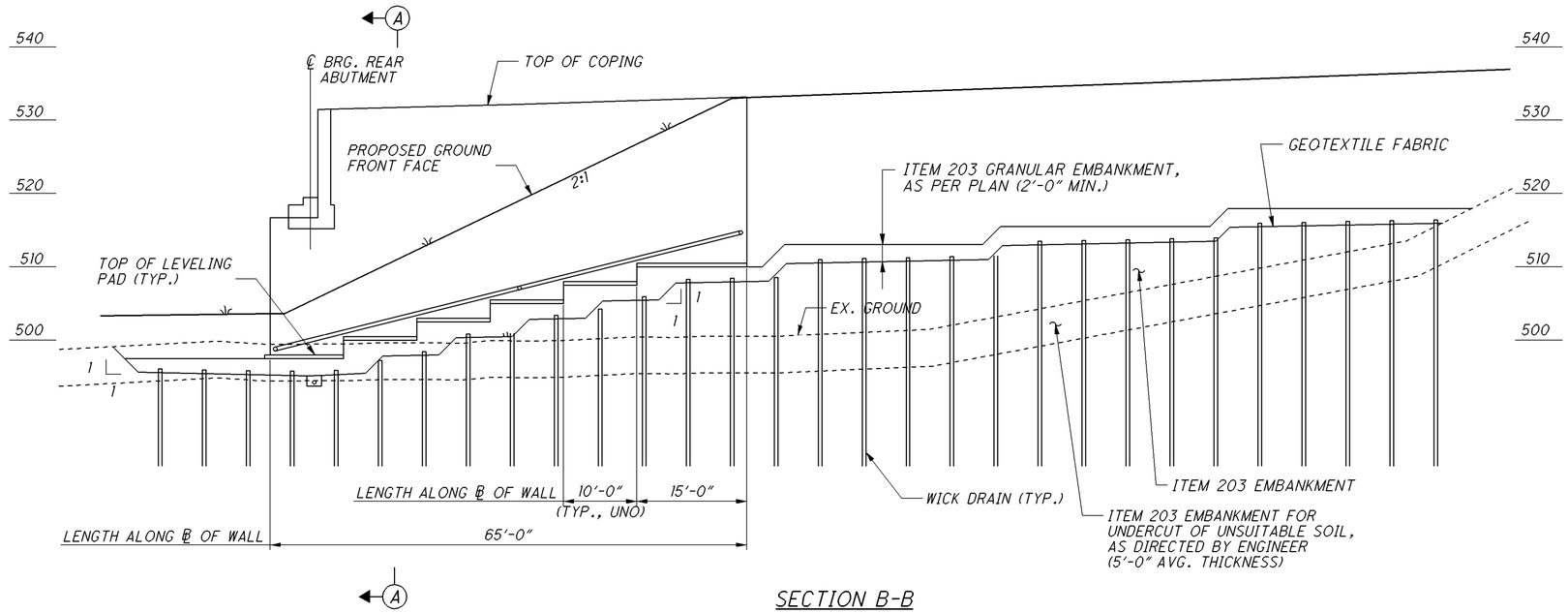

SECTION B-B

WICK DRAIN DETAILS

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312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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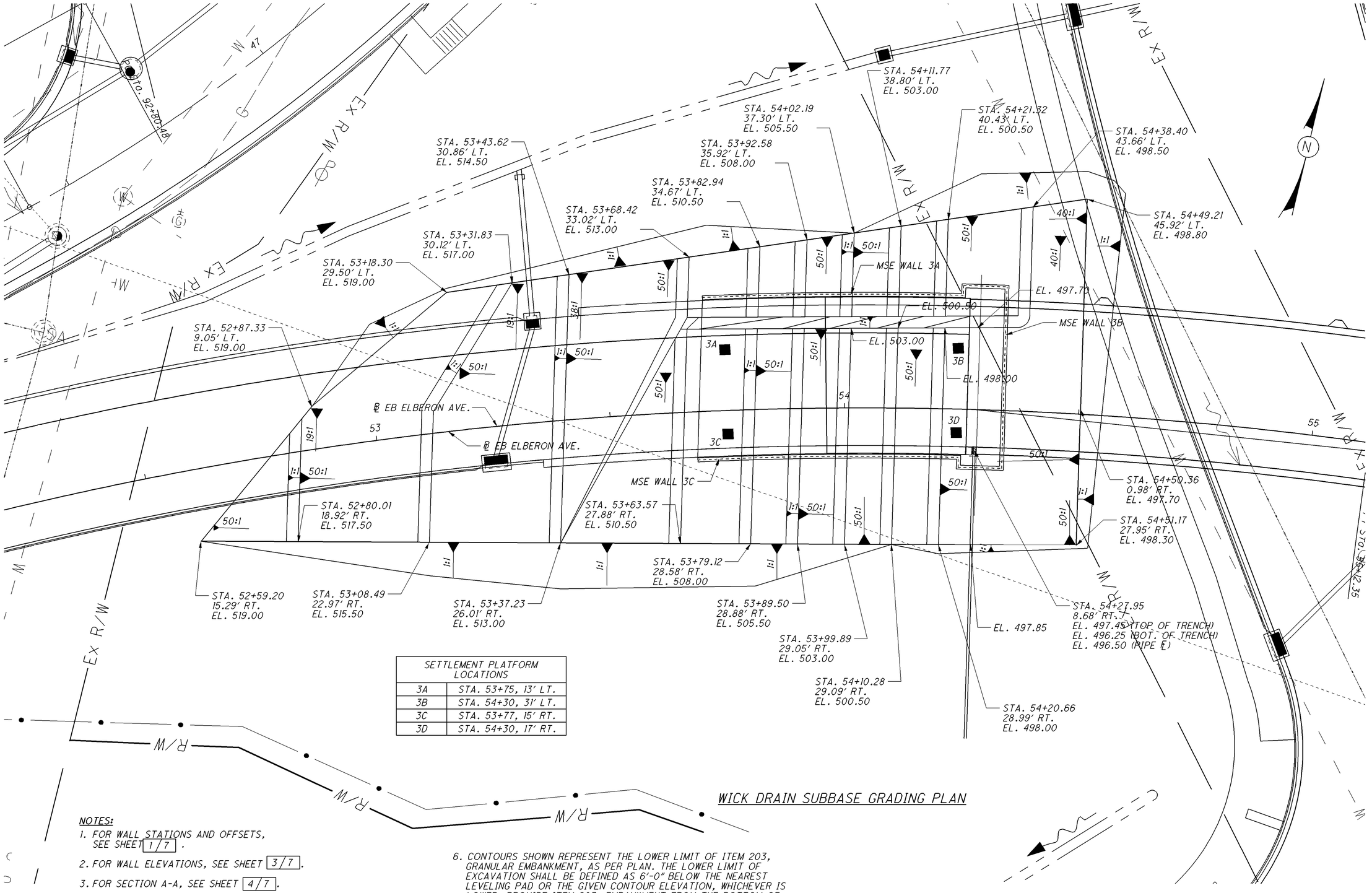
WALL 3 DETAIL III

HAM-50-18.79
PID No. 20082



SETTLEMENT PLATFORM LOCATIONS	
3A	STA. 53+75, 13' LT.
3B	STA. 54+30, 31' LT.
3C	STA. 53+77, 15' RT.
3D	STA. 54+30, 17' RT.

WICK DRAIN SUBBASE GRADING PLAN

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/7 .
2. FOR WALL ELEVATIONS, SEE SHEET 3/7.
3. FOR SECTION A-A, SEE SHEET 4/7.
4. FOR SECTION B-B, SEE SHEET 5/7.
5. WICK DRAINS TO BE DRIVEN TO REFUSAL ON SHALE AND LIMESTONE BEDROCK. AN ESTIMATED TIP ELEVATION OF EL. 480.0 IS TO BE USED FOR ESTIMATING PURPOSES ONLY.
6. CONTOURS SHOWN REPRESENT THE LOWER LIMIT OF ITEM 203, GRANULAR EMBANKMENT, AS PER PLAN. THE LOWER LIMIT OF EXCAVATION SHALL BE DEFINED AS 6'-0" BELOW THE NEAREST LEVELING PAD OR THE GIVEN CONTOUR ELEVATION, WHICHEVER IS LOWER. PROVIDE ITEM 203, EMBANKMENT FROM THE BOTTOM OF EXCAVATION TO THE BOTTOM OF GRANULAR EMBANKMENT, IF NECESSARY, A MINIMUM THICKNESS OF 2'-0" OF ITEM 203 GRANULAR EMBANKMENT SHALL BE PROVIDED AT ALL LOCATIONS. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.
7. INSTALL WICK DRAINS WITHIN THE PLAN LIMITS SHOWN. PLACE THE WICK DRAINS EVENLY AT 6'-0" SPACING IN TWO PERPENDICULAR DIRECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PLACE WICK DRAINS NO CLOSER THAN 3 FEET FROM ANY PROPOSED BRIDGE PILING.

DESIGN AGENCY
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CINCINNATI, OHIO 45202

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WALL 3 SUBBASE GRADING PLAN

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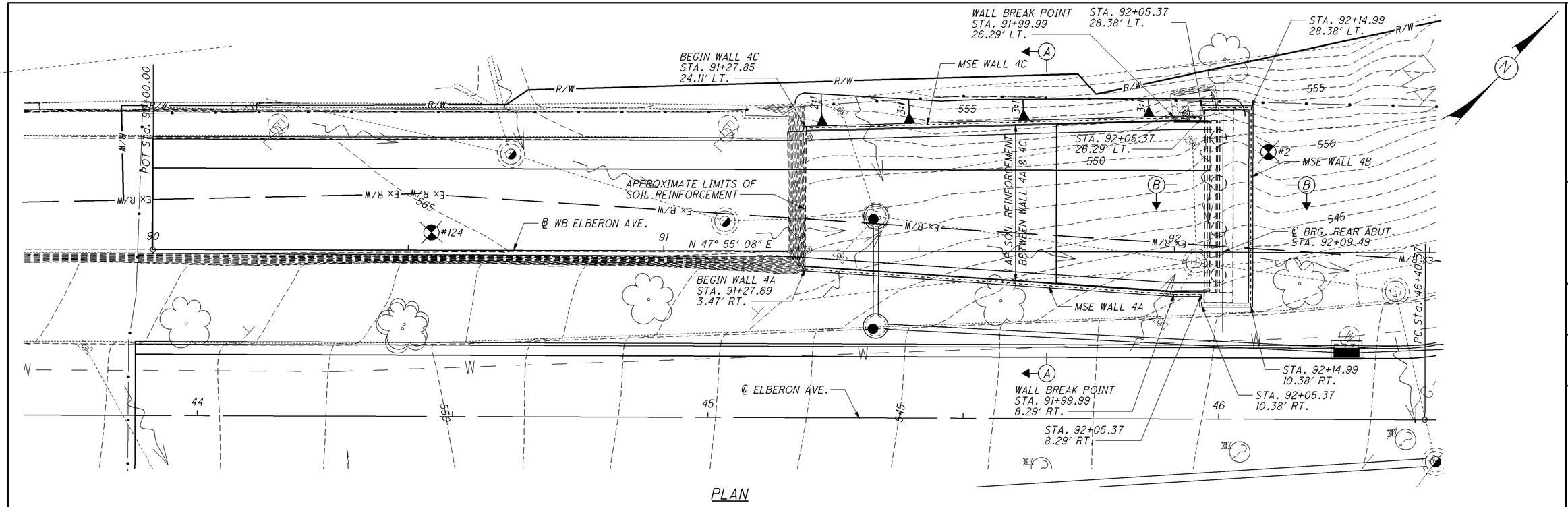

PLAN

BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET FROM CENTER LINE WB ELBERON	TOP OF ROCK EL.
#124	90+54.53, 3.5' LT.	535.2
#2	92+18.38, 19.6' LT.	490.2

INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED

		STRUCTURE TOTAL		ESTIMATED QUANTITIES	
ITEM	EXTENSION	ODOT	CITY	UNIT	DESCRIPTION
503	11101	1		LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN
509	10000	8,777		POUND	EPOXY COATED REINFORCING STEEL
512	10001	238		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)
512	10050	432		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR
517	76300		99	FT	RAILING, MISC.: RAILING ALTERNATIVE, TEXAS RAILING
840	20900	3,894		SQ FT	MECHANICALLY STABILIZED EARTH WALL
840	21000	1,083		CU YD	WALL EXCAVATION
840	22000	367		SQ YD	FOUNDATION PREPARATION
840	23000	2,248		CU YD	SELECT GRANULAR BACKFILL
840	25010	324		FT	6" DRAINAGE PIPE, PERFORATED
840	25020	30		FT	6" DRAINAGE PIPE, NON-PERFORATED
840	26001	214		FT	CONCRETE COPING, AS PER PLAN
840	26050	3,894		SQ FT	AESTHETIC SURFACE TREATMENT
840	27000	5		DAYS	ON-SITE ASSISTANCE
898	11000	58		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN: THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATE DESIGN.

NOTES:

1. ALL WALL STATIONS AND OFFSETS, MEASURED TO ℄ OF WALL.
2. FOR DRAINAGE AND EXCAVATION PLAN, AND WALL EMBANKMENT LIMITS, SEE SHEET 2/5.
3. FOR WALL ELEVATIONS, SEE SHEET 2/5.
4. FOR SECTION A-A, SEE SHEET 3/5.
5. FOR SECTION B-B, SEE SHEET 4/5.
6. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 2/5.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 4 SITE PLAN

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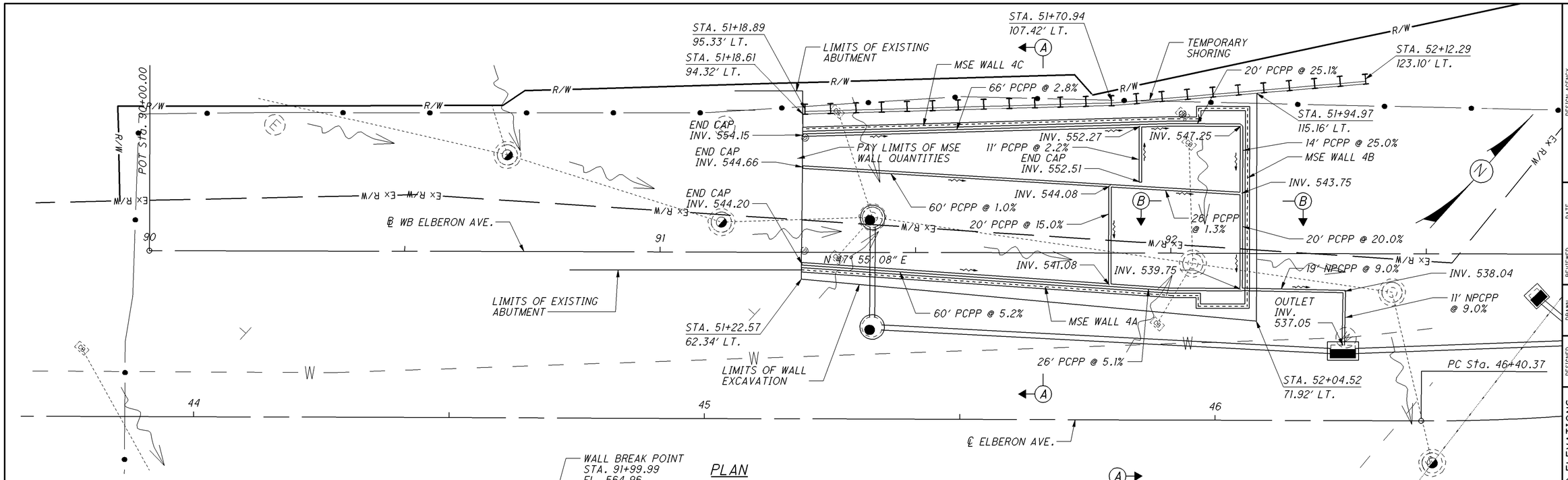

LEGEND:

# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGHT

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1 / 5 .
2. FOR SECTION A-A, SEE SHEET 3 / 5 .
3. FOR SECTION B-B, SEE SHEET 4 / 5 .
4. FOR TEMPORARY SHORING DETAILS, SEE SHEET 5 / 5 .

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
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WALL 4 DRAINAGE, EXCAVATION AND EMBANKMENT PLAN AND ELEVATIONS

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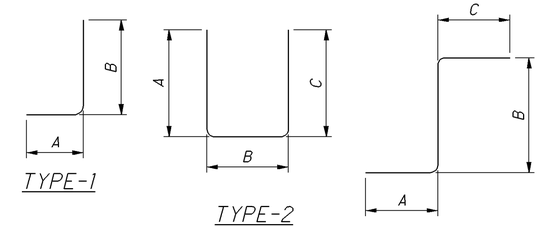
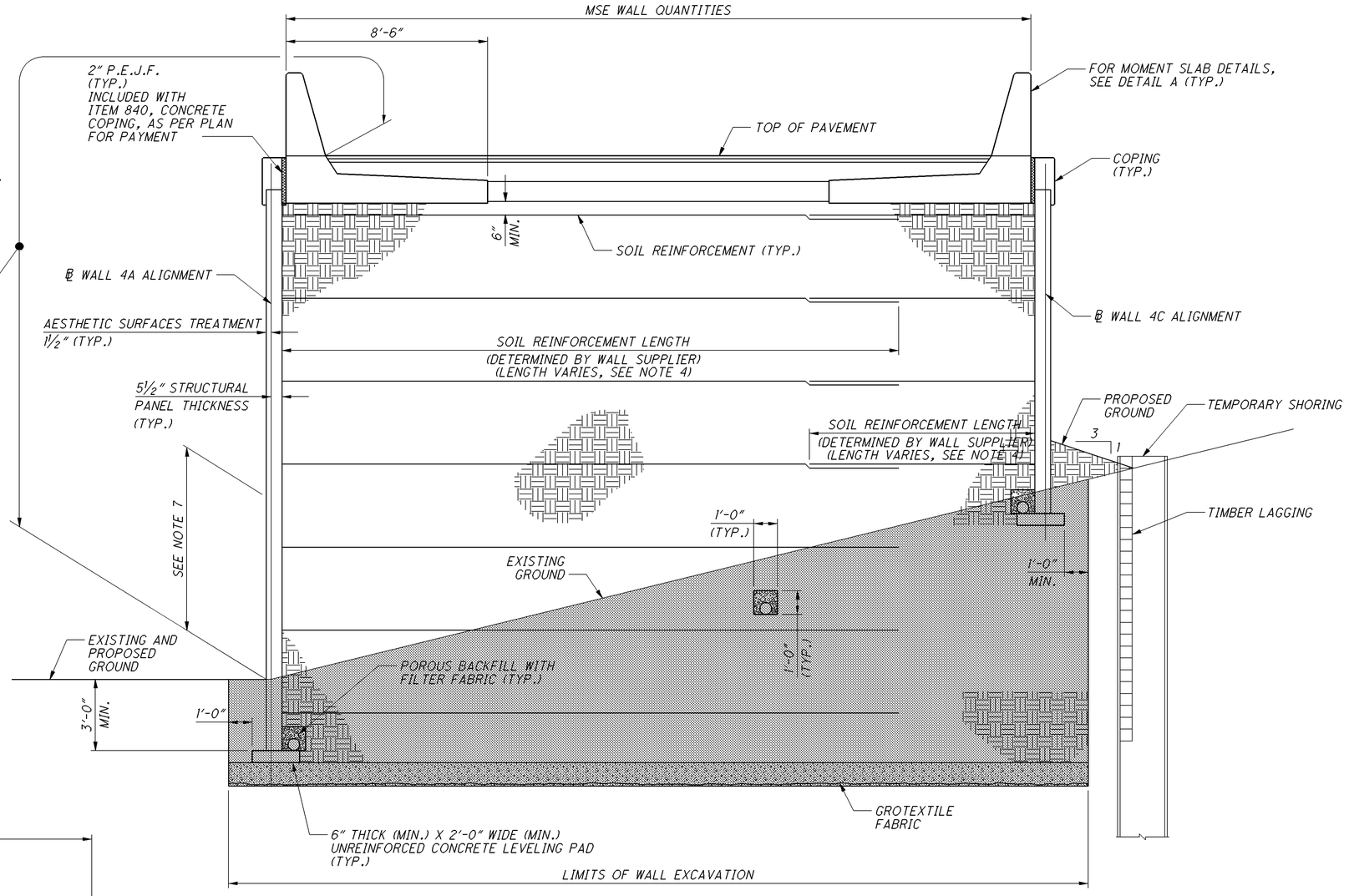
LEGEND:

ITEM 840 SELECT GRANULAR BACKFILL (SGB)

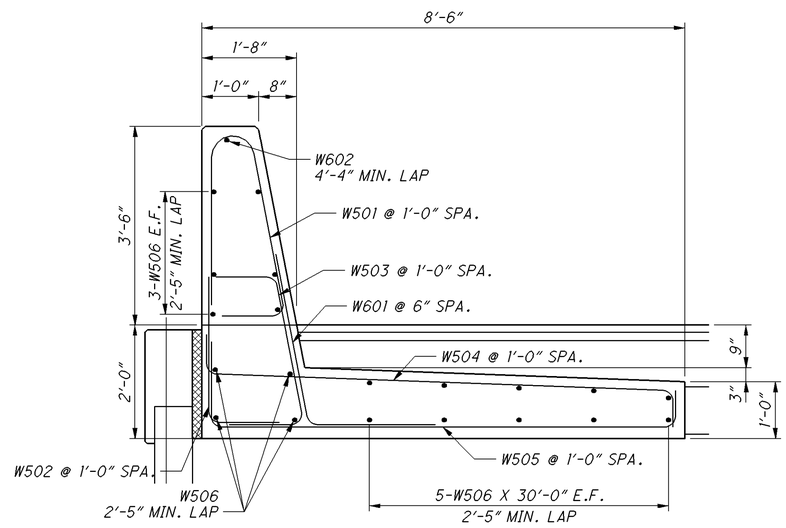
ITEM 840 WALL EXCAVATION

GRANULAR MATERIAL, TYPE C





SECTION A-A



DETAIL A

SEE SHEET 308 FOR ALTERNATE DETAIL

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R
W501	100	7'-7"	791	23	1'-5"	3'-2"	3'-0"	3⅜
W502	100	7'-1"	739	1	2'-7"	4'-7"		
W503	100	4'-10"	505	30	2'-6"			
W504	100	9'-7"	1,000	8	1'-0"	8'-2"	8"	
W505	100	9'-7"	1,000	2	1'-0"	8'-2"	8"	
W506	80	30'-0"	2,504	S				
W601	198	6'-11"	2,057	19	2'-5"	7"	4'-5"	
W602	4	30'-0"	181	S				
TOTAL			8,777					

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 4A AND 4C, ON SHEET 2/5, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION A-A, SEE SHEETS 1/5 & 2/5.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 2/5.
5. FOR TEMPORARY SHORING DETAILS, SEE SHEET 5/5.
6. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
7. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 4 DETAILS I

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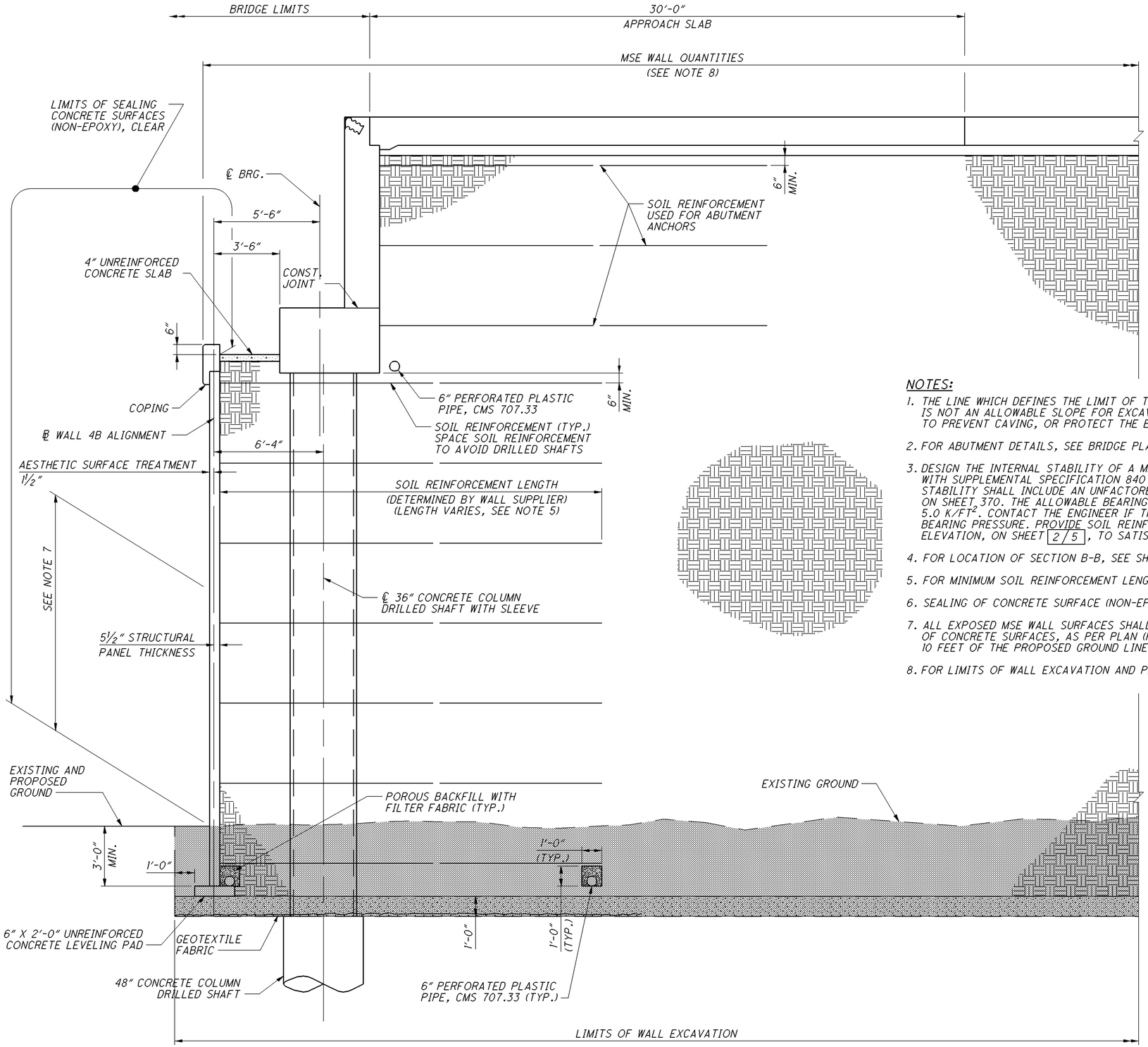

SECTION B-B

ELBERON WESTBOUND RAMP REAR ABUTMENT
(BRIDGE NO. HAM-264-1457)

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 GRANULAR MATERIAL, TYPE C

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. FOR ABUTMENT DETAILS, SEE BRIDGE PLANS HAM-264-1457.
3. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840 TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE AS SHOWN ON SHEET 370. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 4B ELEVATION, ON SHEET 2/5, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
4. FOR LOCATION OF SECTION B-B, SEE SHEETS 1/5 & 2/5.
5. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 2/5.
6. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
7. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
8. FOR LIMITS OF WALL EXCAVATION AND PAY LIMITS OF WALL QUANTITIES, SEE SHEET 2/5.

DESIGN AGENCY
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312 ELM STREET
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WALL 4 DETAILS II

HAM-50-18.79
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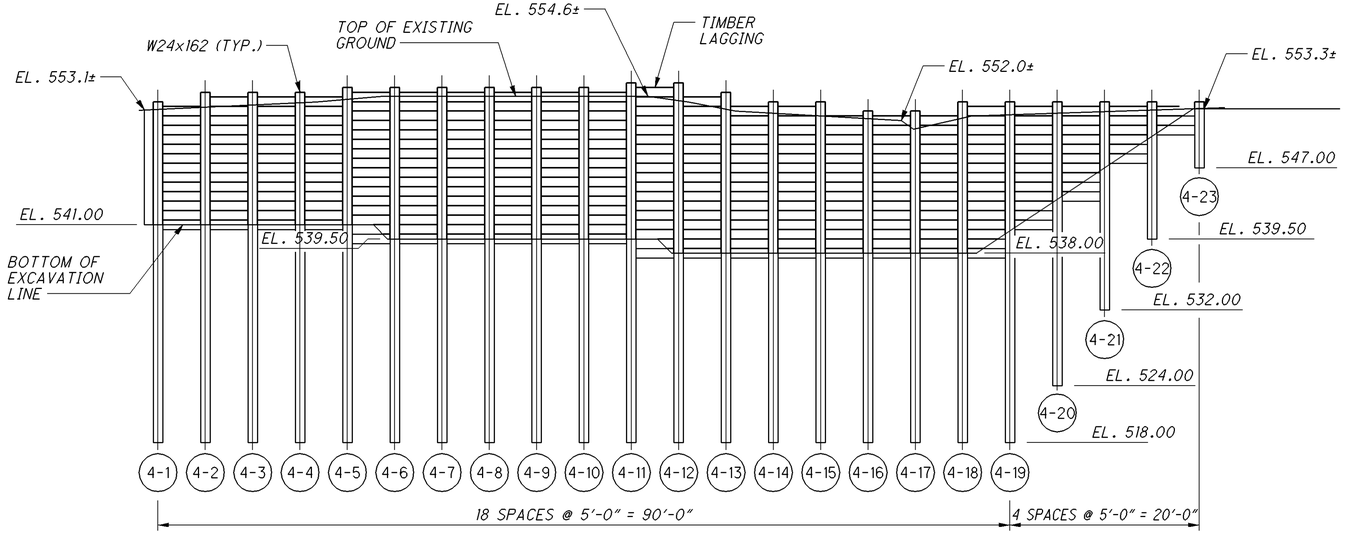
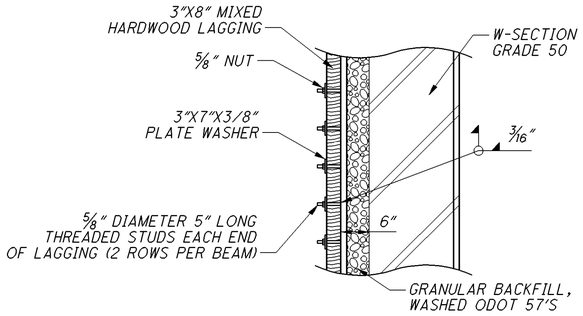
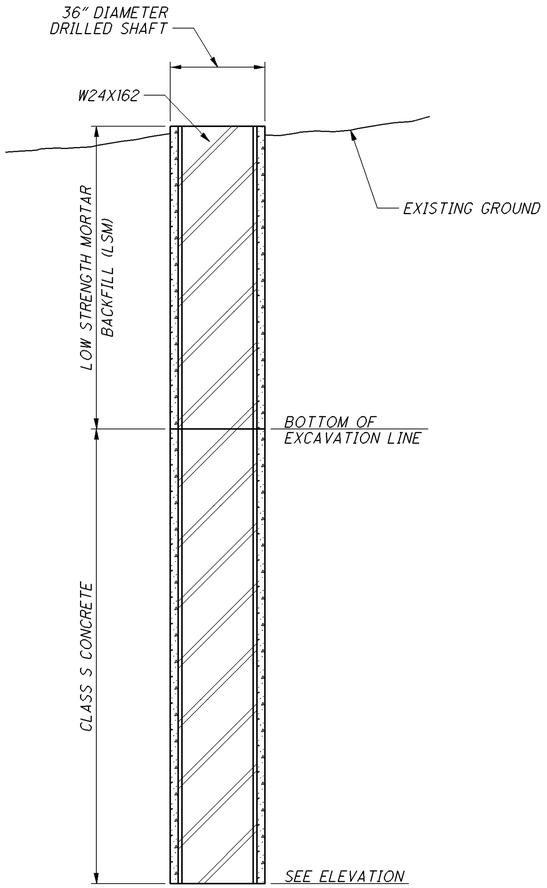


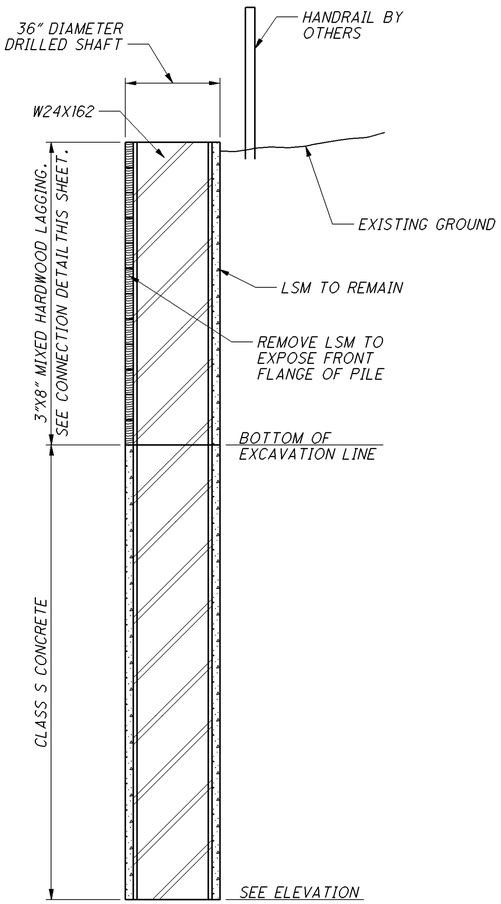
TEMPORARY SHORING ELEVATION



LAGGING CONNECTION DETAIL



TYPICAL SECTION
PRIOR TO EXCAVATION



TYPICAL SECTION
AFTER EXCAVATION

PILE NUMBER	4-1	4-2	4-3	4-4	4-5	4-6	4-7	4-8	4-9	4-10	4-11	4-12
TOP OF PILE	554.0	555.0	555.0	555.0	555.5	555.5	555.5	555.5	555.5	555.5	556.0	556.0
TOP OF LAGGING	553.5	554.5	554.5	554.5	555.0	555.0	555.0	555.0	555.0	555.0	555.5	554.5

PILE NUMBER	4-13	4-14	4-15	4-16	4-17	4-18	4-19	4-20	4-21	4-22	4-23	
TOP OF PILE	555.0	554.0	554.0	553.0	553.0	553.5	553.5	553.5	553.5	553.5	553.5	
TOP OF LAGGING	553.5	553.5	552.5	552.5	552.5	553.5	553.5	553.5	553.5	553.5		

NOTES:

1. FOR SHORING PLAN VIEW, SEE SHEET 2/5.
2. STRUCTURAL STEEL SHALL BE ASTM A572, GRADE 50.
3. PILES AND CONCRETE MUST BE INSTALLED PRIOR TO TEMPORARY WALL EXCAVATION.
4. INSTALLATION OF LAGGING SHALL PROCEED FROM THE EXISTING GROUND TO THE EXCAVATION LINE (TOP-DOWN).
5. UNSUPPORTED EXCAVATION SHALL BE DEFINED AS EXCAVATION THAT EXTENDS MORE THAN 4 FEET BELOW AN INSTALLED BRACE, AND SHALL NOT BE PERMITTED.
6. ALL EXPOSED EXCAVATION SURFACES SHALL BE SUPPORTED AS DEFINED IN THE PLANS WITHIN 6 DAYS FROM THE INITIAL EXCAVATION.
7. ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT THE EXCAVATION SUPPORT WALL SHALL BE INCLUDED WITH ITEM 503 COFFERDAMS AND EXCAVATION BRACING FOR PAYMENT.

LEGEND:

(4-1) - WALL NUMBER - PILE NUMBER

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WALL 4 DETAILS III

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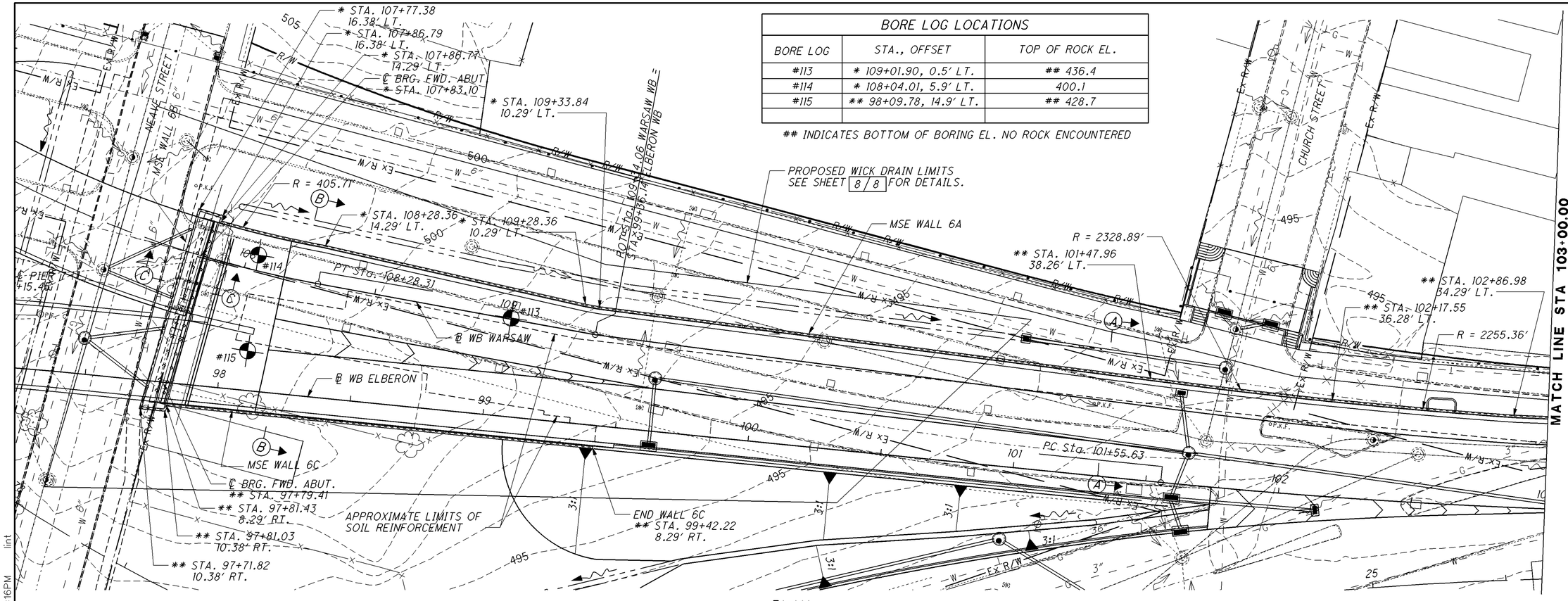
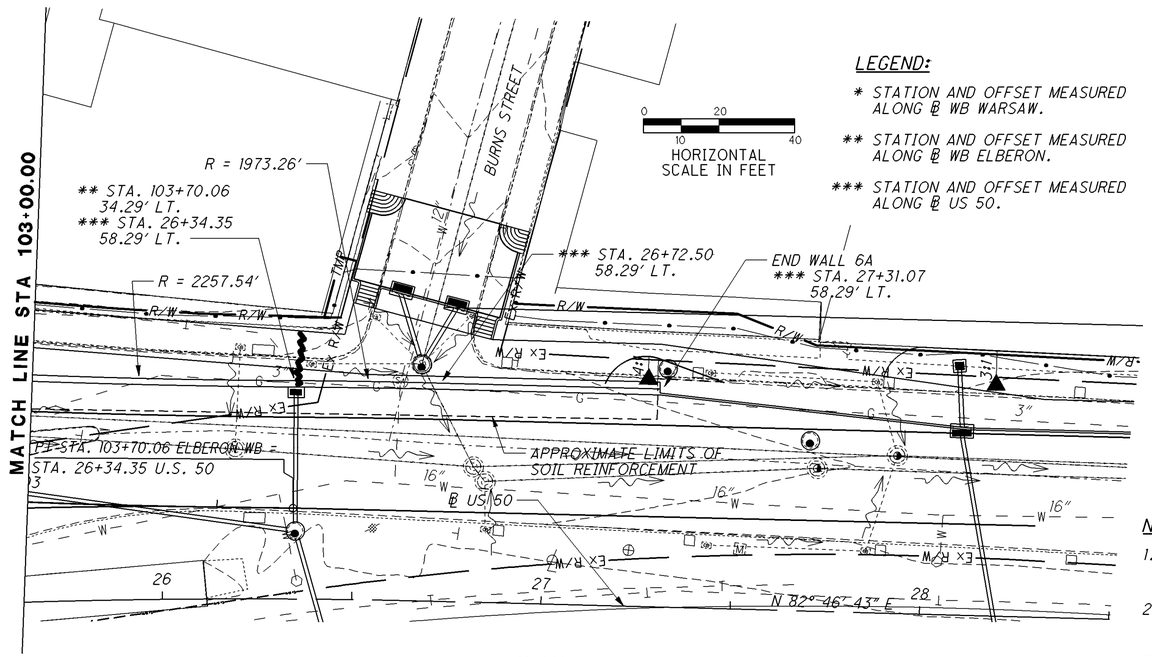
BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET	TOP OF ROCK EL.
#113	* 109+01.90, 0.5' LT.	## 436.4
#114	* 108+04.01, 5.9' LT.	400.1
#115	** 98+09.78, 14.9' LT.	## 428.7

INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED



PLAN



PLAN

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ WB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ WB ELBERON.

*** STATION AND OFFSET MEASURED ALONG ℄ US 50.

ITEM	EXTENSION	STRUCTURE TOTAL ODOT	STRUCTURE TOTAL CITY	UNIT	DESCRIPTION	SEE SHEET NO.
SPECIAL	203E07504	27,714		FT	WICK DRAIN	
203	20000	1,809		CU YD	EMBANKMENT	
203	35001	3,014		CU YD	GRANULAR EMBANKMENT, AS PER PLAN	6/8
503	11100	1		LUMP	COFFERDAMS AND EXCAVATION BRACING	
509	10000	66,707		POUND	EPOXY COATED REINFORCING STEEL	
512	10001	1031		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)	
512	10050	1,441		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR	
517	76300		771	FT	RAILING, MISC.: RAILING ALTERNATIVE, TEXAS RAILING	
840	20000	12,708		SQ FT	MECHANICALLY STABILIZED EARTH WALL	
840	21000	9,944		CU YD	WALL EXCAVATION	
840	22001	4,262		SQ YD	FOUNDATION PREPARATION, AS PER PLAN	1/8
840	23000	7,590		CU YD	SELECT GRANULAR BACKFILL	
840	25010	1,797		FT	6" DRAINAGE PIPE, PERFORATED	
840	25020	219		FT	6" DRAINAGE PIPE, NON-PERFORATED	
840	26001	928		FT	CONCRETE COPING, AS PER PLAN	
840	26050	12,708		SQ FT	AESTHETIC SURFACE TREATMENT	
840	27000	5		DAYS	ON-SITE ASSISTANCE	
898	11000	450		CU YD	OC/OA CONCRETE, CLASS OSC2, SUPERSTRUCTURE (PARAPET)	

NOTES:

1. ALL WALL STATIONS AND OFFSETS MEASURED TO ℄ OF WALL.
2. FOR EXCAVATION PLAN, AND WALL EMBANKMENT LIMITS, SEE SHEET 2/8.
3. FOR DRAINAGE PLAN, SEE SHEET 3/8.
4. FOR WALL ELEVATIONS, SEE SHEET 4/8.
5. FOR SECTION A-A, SEE SHEET 5/8.
6. FOR SECTION B-B, SEE SHEET 6/8.
7. FOR SECTION C-C, SEE SHEET 7/8.
8. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 4/8.
9. FOR SETTLEMENT PLATFORM LOCATIONS AND, WICK DRAIN DEATILS SEE SHEET 8/8.
10. FOUNDATION PREPARATION AS PER PLAN SHALL CONFORM TO SS840 WITH THE EXCEPTION THAT NO GRANULAR MATERIAL, TYPE C IS INCLUDED IN 3,617 SQ YD OF THE QUANTITY AND 645 SQ YD OF THIS ITEM WILL INCLUDE TYPE C MATERIAL AS SHOWN ON SECTION A-A SHEET 5/8.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 6 SITE PLAN

HAM-50-18.79
PID No. 20082

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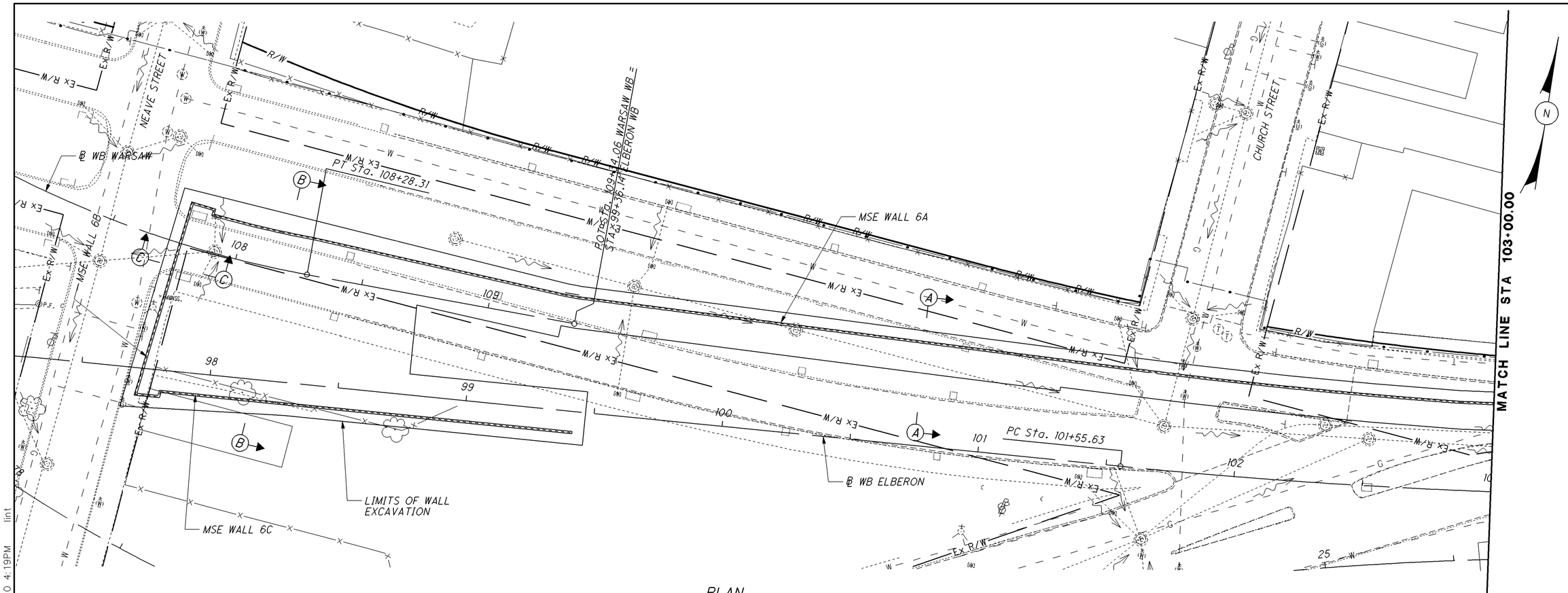
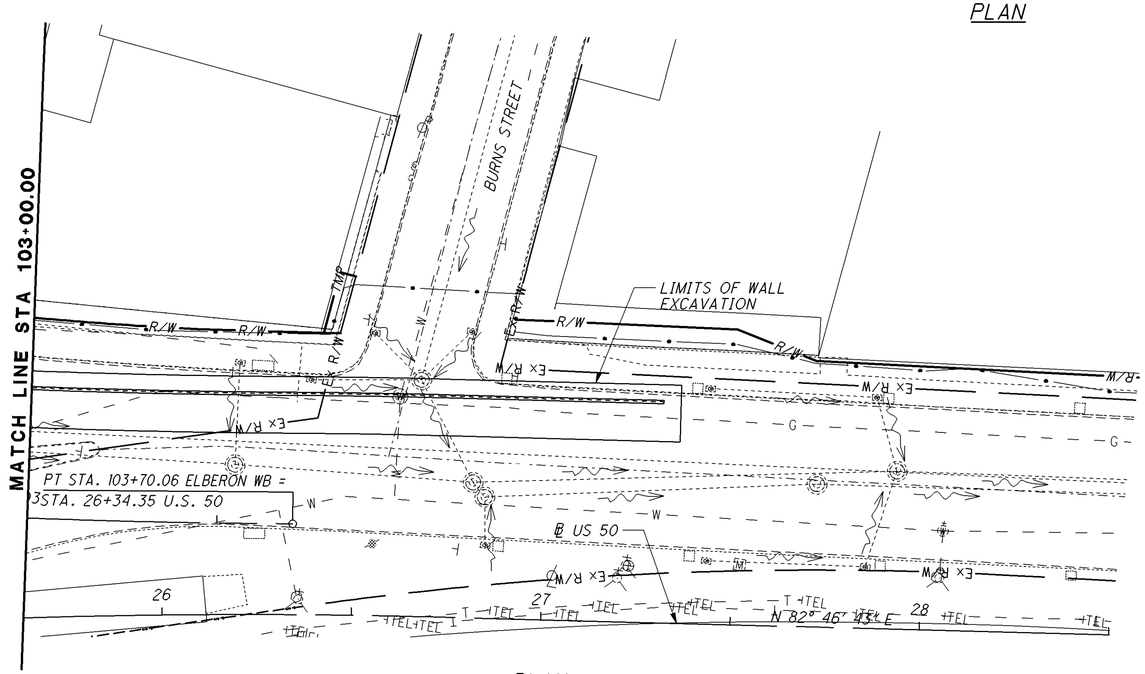


PLAN



PLAN

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
A	* 107+67.29	22.35' LT.
B	* 107+76.32	15.29' LT.
C	** 97+71.05	9.29' RT.
D	** 97+03.80	16.70' RT.
E	* 108+50.00	1.83' RT.
F	* 108+37.04	8.53' RT.
G	** 98+45.41	17.79' RT.
H	* 108+54.87	9.18' RT.
J	** 98+84.99	15.42' LT.
K	** 98+84.92	6.65' LT.
L	* 109+28.85	20.78' LT.
M	* 109+33.84	11.29' LT.
N	* 109+27.81	3.66' RT.
P	** 99+50.86	23.90' RT.
R	** 99+13.22	5.43' LT.
S	** 99+13.22	9.29' RT.
T	** 99.18.72	16.05' RT.
U	** 99+20.72	12.65' LT.
V	** 101+04.85	18.83' LT.
W	** 101+98.85	27.05' LT.
X	** 102+05.41	45.88' LT.
Y	** 102+17.58	37.27' LT.
Z	** 103+00.00	43.55' LT.
AA	** 103+00.00	35.29' LT.
BB	** 103+00.00	23.70' LT.
CC	** 103+00.00	15.72' LT.
EE	*** 27.32.10	59.29' LT.
FF	*** 27+32.10	48.58' LT.
GG	*** 27+39.30	67.29' LT.
HH	*** 27+39.50	40.91' LT.

PAY LIMITS OF MSE WALL EMBANKMENT		
	STATION	OFFSET
JJ	** 101+03.44	12.07' LT.
DD	** 103+00.00	12.39' LT.
KK	** 103+70.06	13.64' LT.
LL	*** 27+39.50	40.08' LT.
MM	** 99+56.22	10.51' LT.
NN	** 99+56.22	7.83' RT.
PP	** 100+43.32	12.86' LT.

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ WB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ WB ELBERON.

*** STATION AND OFFSET MEASURED ALONG ℄ US 50.

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/8.
2. FOR DRAINAGE PLAN, SEE SHEET 3/8.
3. FOR WALL ELEVATIONS, SEE SHEET 4/8.
4. FOR SECTION A-A, SEE SHEET 5/8.
5. FOR SECTION B-B, SEE SHEET 6/8.
6. FOR SECTION C-C, SEE SHEET 7/8.

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WALL 6 EXCAVATION AND EMBANKMENT PLAN

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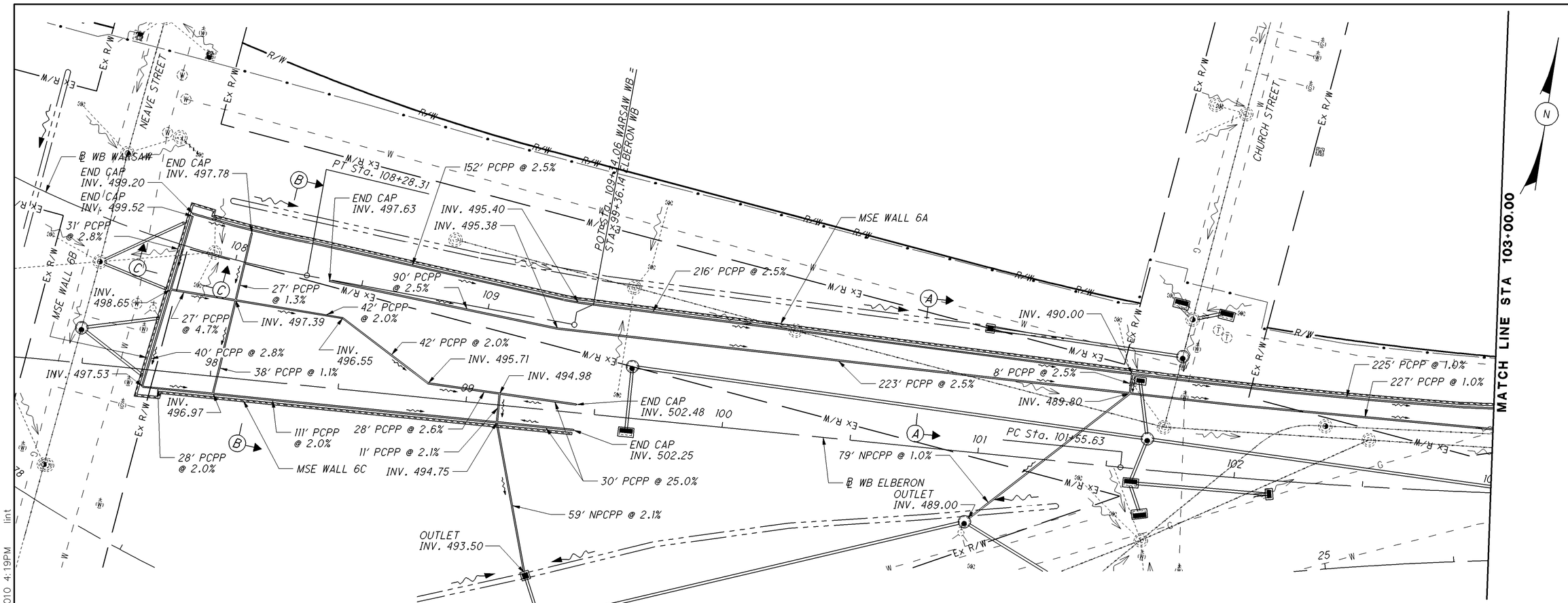

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/8.
2. FOR EXCAVATION AND EMBANKMENT PLAN, SEE SHEET 2/8.
3. FOR WALL ELEVATIONS, SEE SHEET 4/8.
4. FOR SECTION A-A, SEE SHEET 5/8.
5. FOR SECTION B-B, SEE SHEET 6/8.
6. FOR SECTION C-C, SEE SHEET 7/8.

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312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 6 DRAINAGE PLAN

HAM-50-18.79
PID No. 20082

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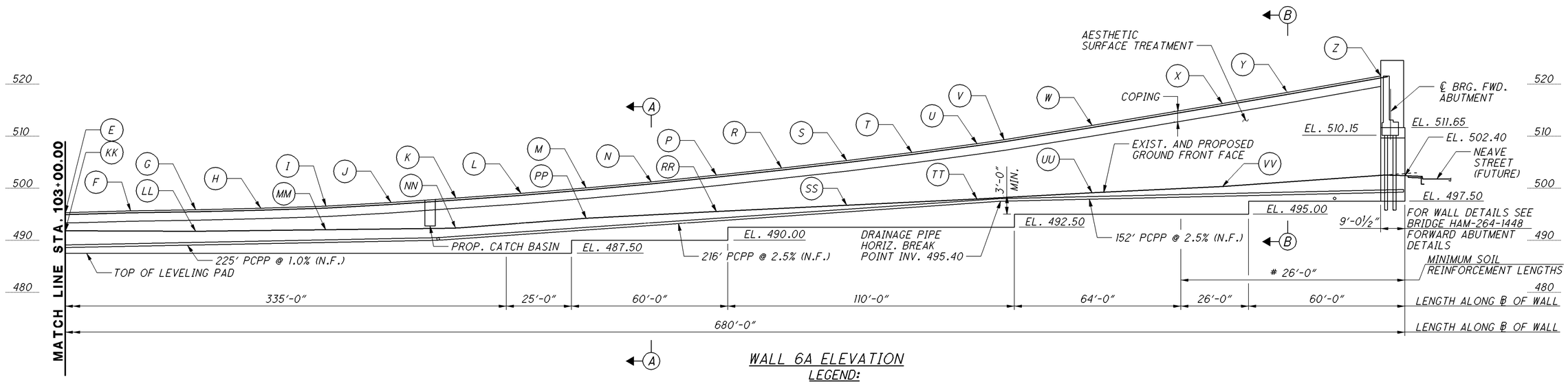


WALL 6A ELEVATION

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ WB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ WB ELBERON.

*** STATION AND OFFSET MEASURED ALONG ℄ US 50.

\# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGHT

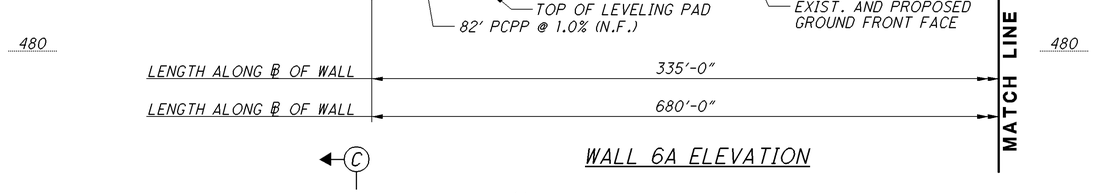
NOTES:

1. FOR WALL PLAN STATIONS, SEE SHEET 1 / 8 .
2. FOR EXCAVATION PLAN, AND WALL PAY LIMITS, SEE SHEET 2 / 8 .
3. FOR DRAINAGE PLAN, SEE SHEET 3 / 8 .
4. FOR SECTION A-A, SEE SHEET 5 / 8 .
5. FOR SECTION B-B, SEE SHEET 6 / 8 .
6. FOR SECTION C-C, SEE SHEET 7 / 8 .

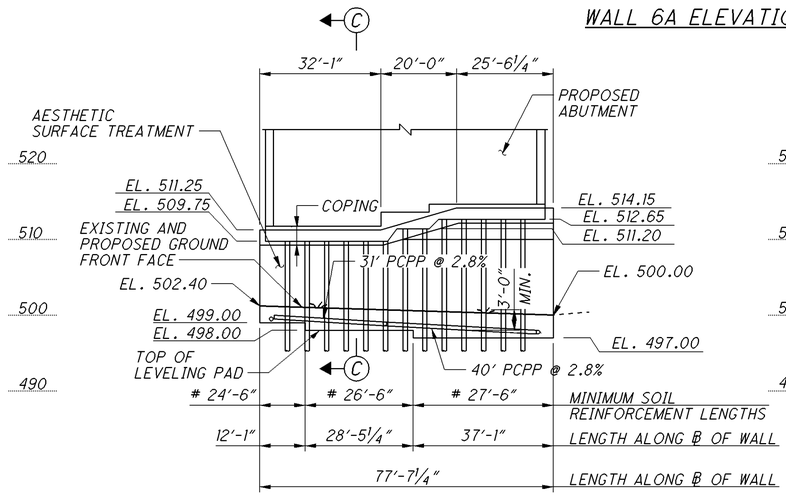
WALL 6C		
	STATION	ELEVATION
AA	** 97+81.43	522.89
BB	** 98+00.00	521.20
CC	** 98+25.00	518.89
DD	** 98+50.00	516.65
EE	** 98+75.00	514.46
FF	** 99+00.00	512.40
GG	** 99+25.00	510.45
HH	** 99+42.22	509.21

WALL 6A		
	STATION	ELEVATION
A	*** 27+31.07	492.60
B	*** 26+75.00	493.61
C	*** 26+34.35	494.34
	** 103+70.06	
D	** 103+25.00	494.88
E	** 103+00.00	495.30
F	** 102+75.00	495.63
G	** 102+50.00	495.86
H	** 102+25.00	496.17
I	** 102+00.00	496.57
J	** 101+75.00	497.25
K	** 101+50.00	498.12
L	** 101+25.00	499.00
M	** 101+00.00	500.05
N	** 100+75.00	501.19
P	** 100+50.00	502.50
R	** 100+25.00	503.87
S	** 100+00.00	505.30
T	** 99+75.00	506.85
U	** 99+50.00	508.54
V	** 99+39.55	509.29
	* 109+33.84	
W	* 109+00.00	512.04
X	* 108+50.00	516.24
Y	* 108+25.00	518.40
Z	* 107+86.77	521.63

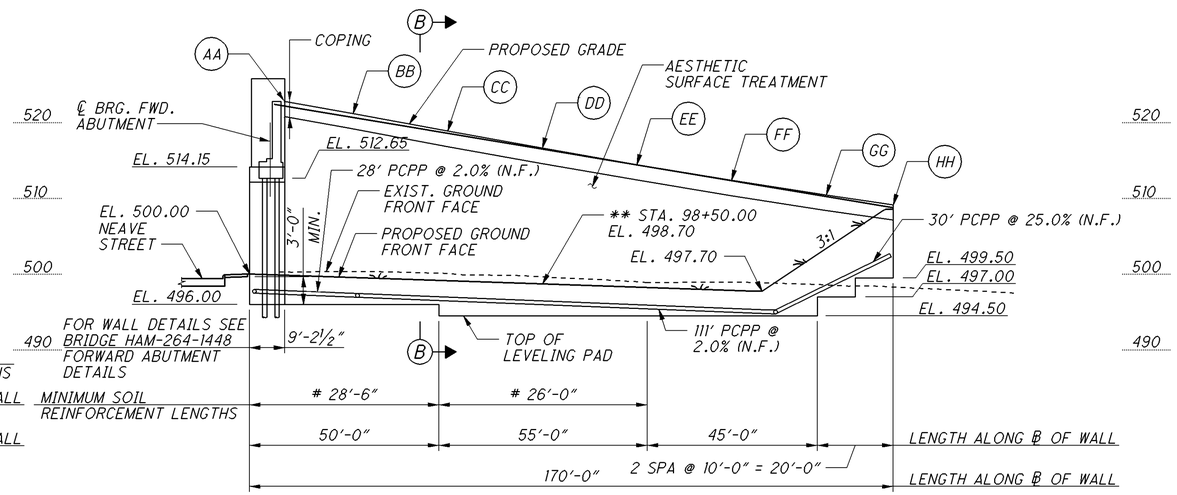
GROUND ELEVATIONS FRONT FACE		
	STATION	ELEVATION
JJ	*** 26+34.35	491.50
	** 103+70.06	
KK	** 103+00.00	491.70
LL	** 102+50.00	491.70
MM	** 102+00.00	492.00
NN	** 101+50.00	492.30
PP	** 101+00.00	494.20
RR	** 100+50.00	495.50
SS	** 100+00.00	496.70
TT	** 99+50.00	497.90
UU	* 109+00.00	499.10
VV	* 108+50.00	500.30



WALL 6A ELEVATION



WALL 6B ELEVATION



WALL 6C ELEVATION

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WALL 6 ELEVATIONS

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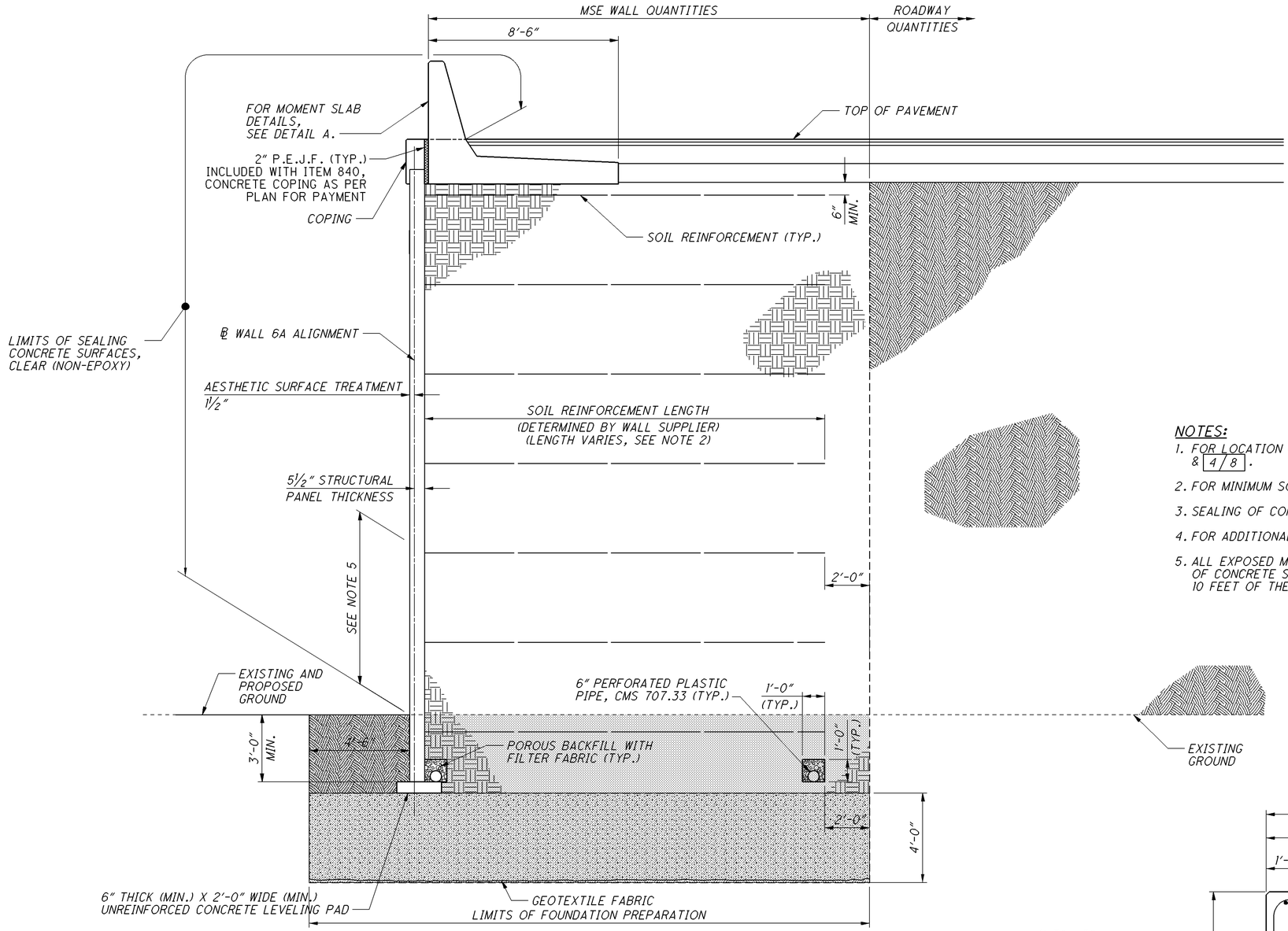


LEGEND:

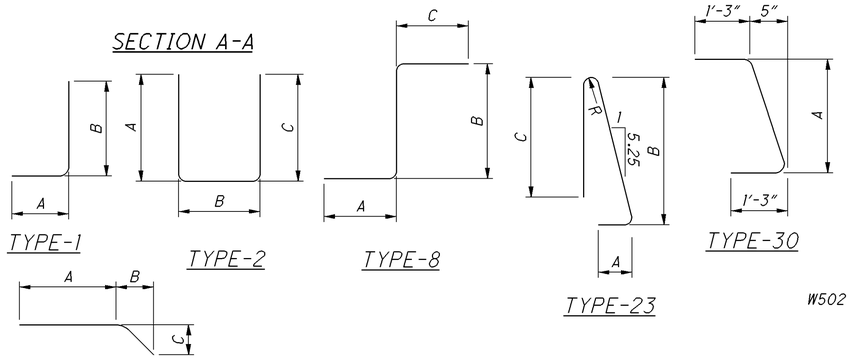
- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C

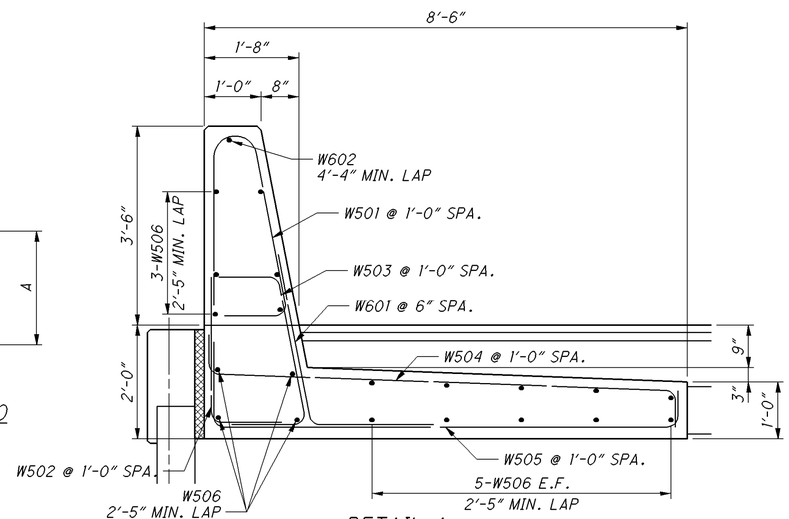
NOTES:

1. FOR LOCATION OF SECTION A-A, SEE SHEETS 1/8, 2/8, 3/8, & 4/8.
2. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8.
3. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
4. FOR ADDITIONAL NOTES AND DETAILS SEE SHEET 6/8.
5. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R
W501	773	7'-7"	6,114	23	1'-5"	3'-2"	3'-0"	3⅜"
W502	773	7'-1"	5,711	1	2'-7"	4'-7"	·	·
W503	773	4'-10"	3,897	30	2'-6"	·	·	·
W504	773	9'-7"	7,727	8	1'-0"	8'-2"	8"	·
W505	773	9'-7"	7,727	2	1'-0"	8'-2"	8"	·
W506	580	30'-0"	18,149	S	·	·	·	·
W601	1543	6'-11"	16,030	19	2'-5"	7"	4'-5"	·
W602	30	30'-0"	1,352	S	·	·	·	·
TOTAL			66,707					

SECTION A-A





DETAIL A

SEE SHEET 308 FOR ALTERNATIVE DETAIL.
SEE SHEET 309A AND 309B FOR SIGN SUPPORT DETAILS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 6 DETAILS 1

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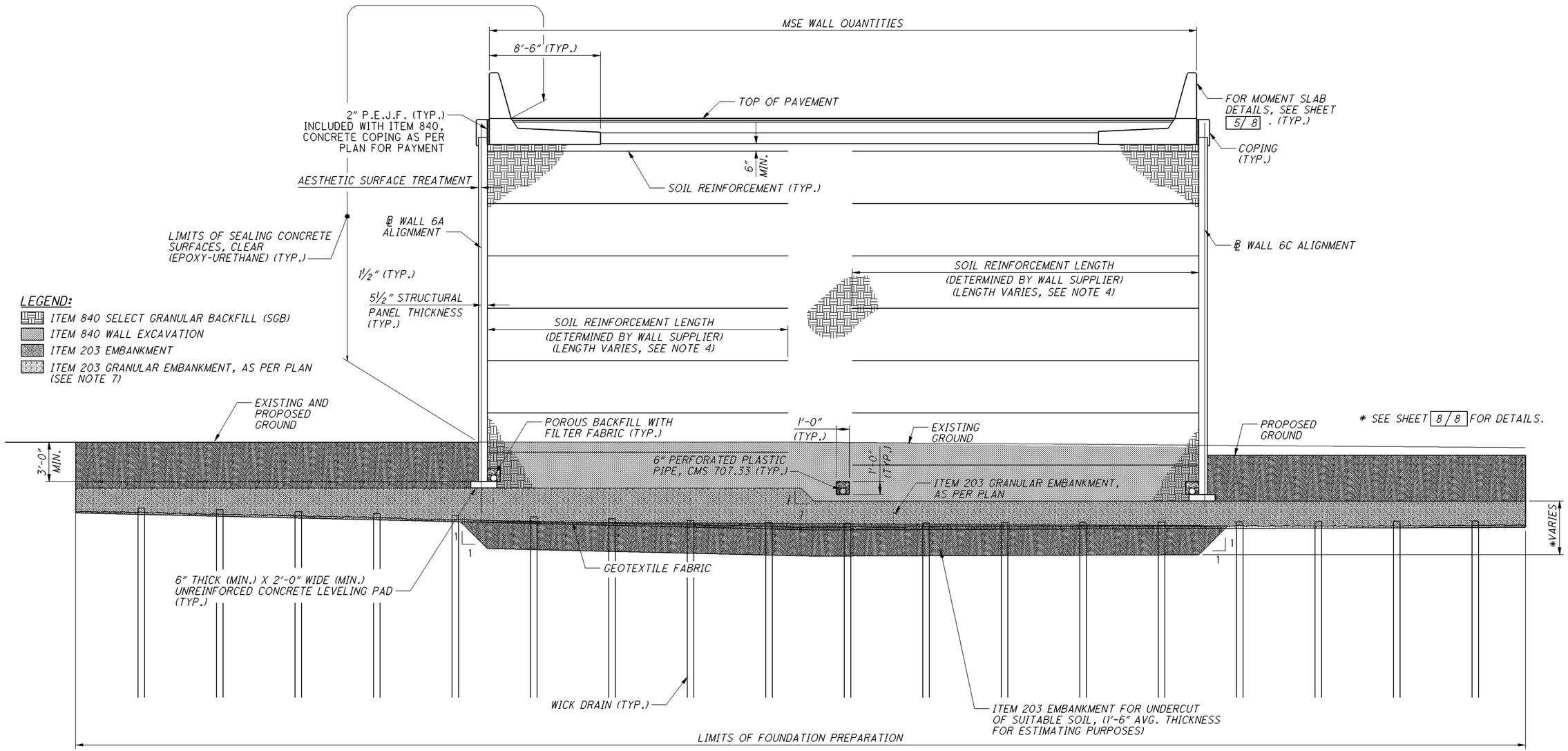

SECTION B-B

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.

2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 6A AND 6C ON SHEET 4/8 , TO SATISFY EXTERNAL STABILITY REQUIREMENTS.

3. FOR LOCATION OF SECTION B-B, SEE SHEETS 1/8 , 2/8 , 3/8 , & 4/8 .

4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8 .

5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.

6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

7. .PROVIDE GRANULAR EMBANKMENT CONSISTENT WITH ODOT 703.02.A. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.

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PB AMERICAS, INC.
312 ELM STREET
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WALL 6 DETAILS II

HAM-50-18.79
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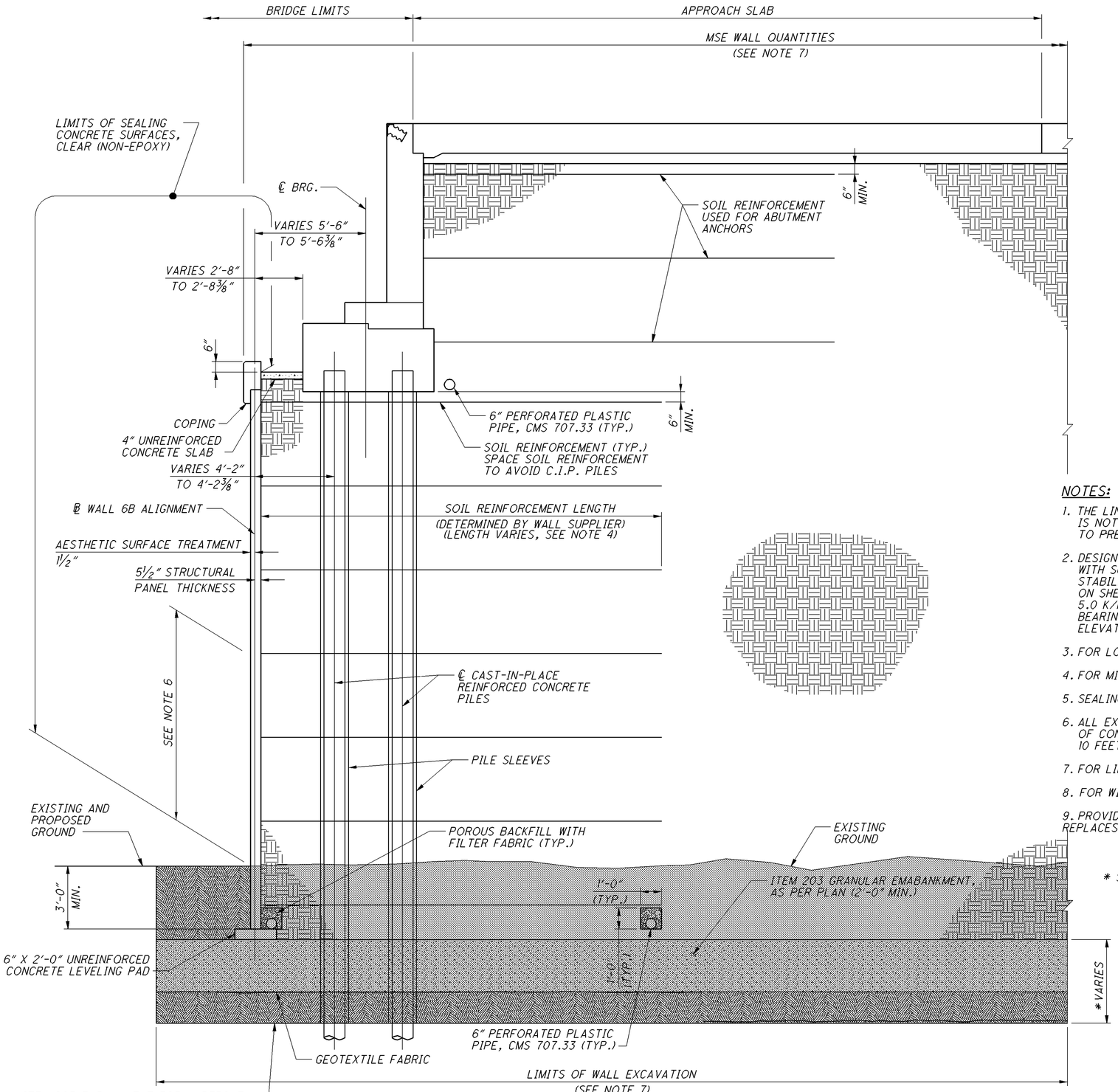

SECTION C-C

WARSAW WESTBOUND RAMP FORWARD ABUTMENT (BRIDGE NO. HAM-264-1448)
ELBERON WESTBOUND RAMP FORWARD ABUTMENT (BRIDGE NO. HAM-264-1457)

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT
- ITEM 203 GRANULAR EMBANKMENT, AS PER PLAN (SEE NOTE 9)

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840 TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE AS SHOWN ON SHEET 340. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 6B ELEVATION, ON SHEET 4/8, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION C-C, SEE SHEET 1/8, 2/8, 3/8, & 4/8.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
7. FOR LIMITS OF WALL EXCAVATION AND PAY LIMITS OF WALL QUANTITIES, SEE SHEET 2/8.
8. FOR WICK DRAIN PLACEMENT, SEE SHEET 1/8.
9. PROVIDE GRANULAR EMBANKMENT CONSISTENT WITH ODOT 703.02.A. THIS MATERIAL REPLACES GRANULAR MATERIAL TYPE C NORMALLY USED WITH SS840.

* SEE SHEET 8/8 FOR DETAILS.

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WALL 6 DETAILS III

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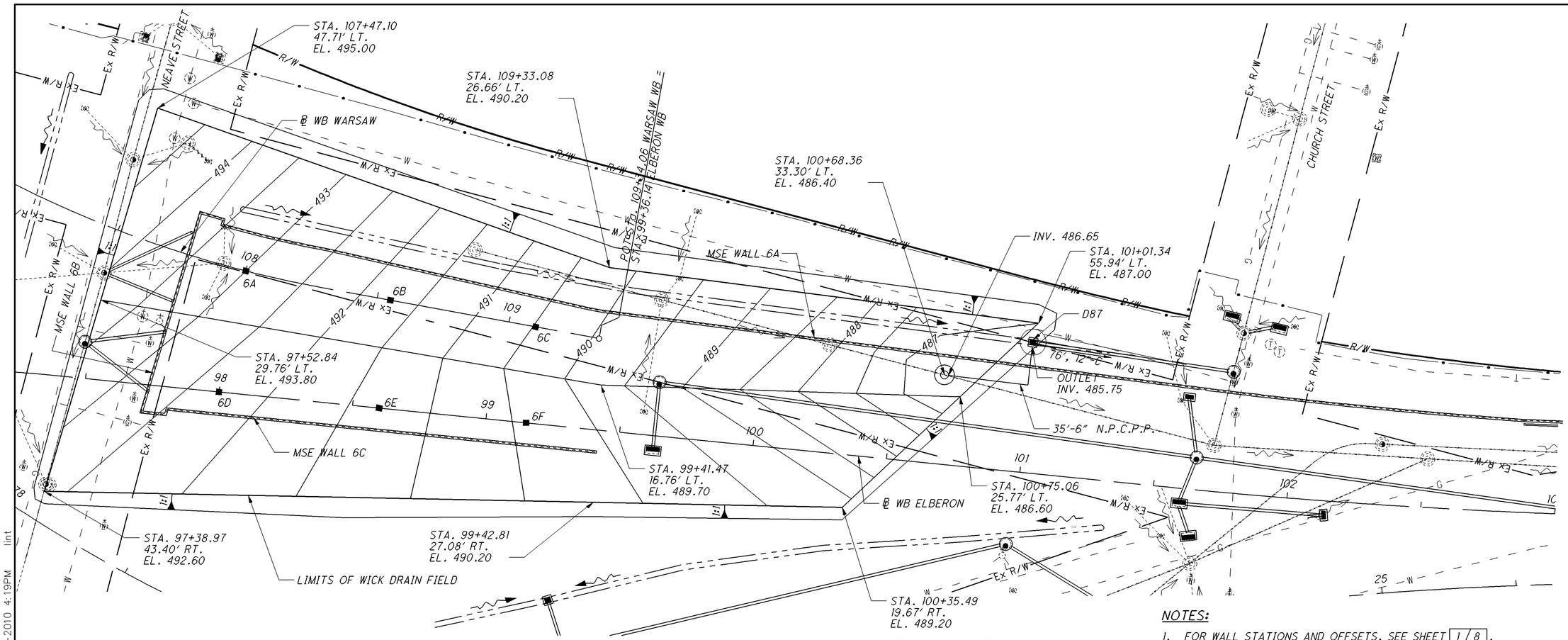

WICK DRAIN AND SUBBASE GRADING PLAN

SETTLEMENT PLATFORM LOCATIONS	
6A	STA. 108+00, 0'
6B	STA. 108+55, 0'
6C	STA. 109+10, 0'
6D	STA. 98+00, 0'
6E	STA. 98+60, 0'
6F	STA. 99+15, 0'

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/8.
2. FOR EXCAVATION AND EMBANKMENT PLAN, SEE SHEET 2/8.
3. FOR WALL ELEVATIONS, SEE SHEET 4/8.
4. FOR SECTION A-A, SEE SHEET 5/8.
5. FOR SECTION B-B, SEE SHEET 6/8.
6. FOR SECTION C-C, SEE SHEET 7/8.
7. WICK DRAINS TO BE DRIVIN TO REFUSAL ON SHALE AND LIMESTONE BEDROCK. AN ESTIMATED TIP ELEVATION OF EL. 460.0 IS TO BE USED FOR ESTIMATING PURPOSES ONLY.
8. CONTOURS SHOWN REPRESENT THE LOWER LIMIT OF ITEM 203, GRANULAR EMBANKMENT, AS PER PLAN. THE LOWER LIMIT OF EXCAVATION SHALL BE DEFINED AS 4'-0" BELOW THE NEAREST LEVELING PAD OR THE GIVEN CONTOUR ELEVATION, WHICHEVER IS LOWER. PROVIDE ITEM 203, EMBANKMENT FROM THE BOTTOM OF EMBANKMENT FROM THE BOTTOM OF EXCAVATION TO THE BOTTOM OF GRANULAR EMBANKMENT, IF NECESSARY. A MINIMUM THICKNESS OF 2'-0" OF ITEM 203 GRANULAR EMBANKMENT SHALL BE PROVIDED AT ALL LOCATIONS.
9. INSTALL WICK DRAINS WITHIN THE PLAN LIMITS SHOWN. PLACE THE WICK DRAINS EVENLY AT 6'-0" SPACING IN TWO PERPENDICULAR DIRECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO PLACE WICK DRAINS NO CLOSER THAN 3 FEET FROM ANY PROPOSED BRIDGE PILING.

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WALL 6 WICK DRAIN AND GRADING PLAN

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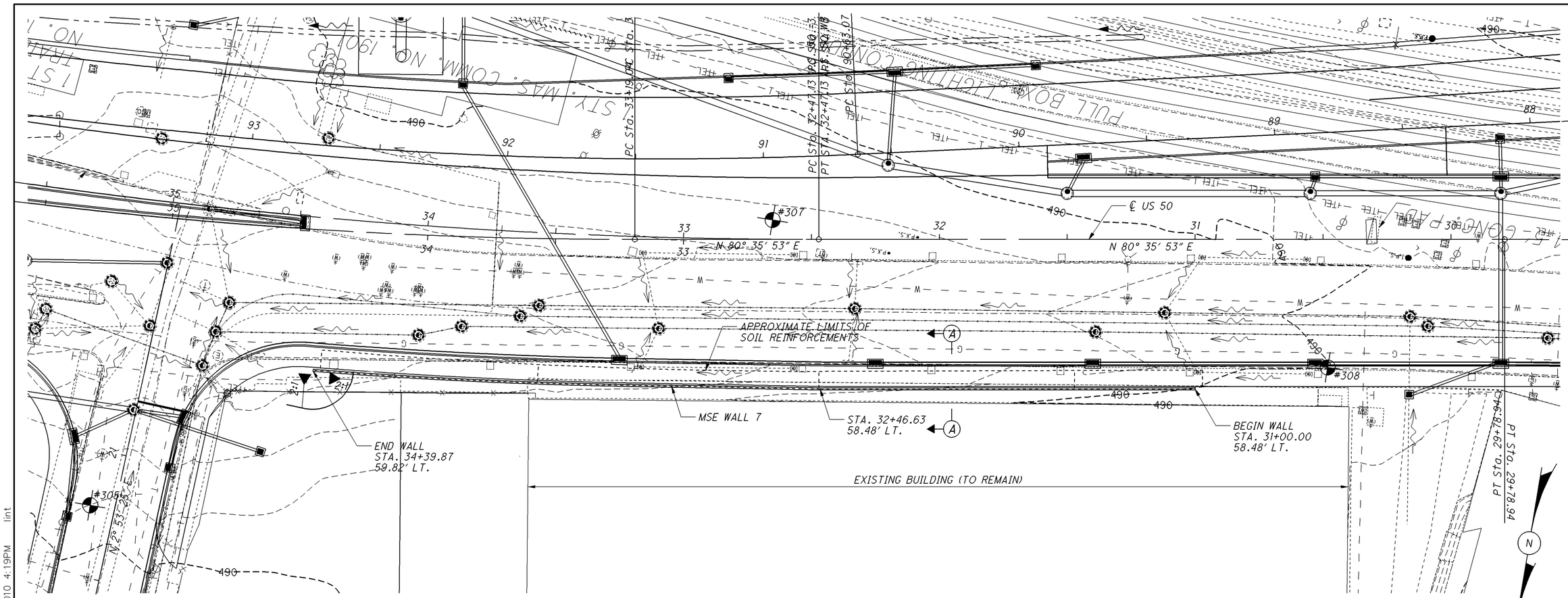

PLAN

BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET FROM CENTER LINE US 50	TOP OF ROCK EL.
#305	35+17.79, 121.4' LT.	## 477.6
#307	32+65.21, 7.5' RT.	## 477.5
#308	30+48.16, 50.0' LT.	## 478.6

INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED

		STRUCTURE TOTAL	ESTIMATED QUANTITIES	
ITEM	EXTENSION		UNIT	DESCRIPTION
503	11100	1	LUMP	COFFERDAMS AND EXCAVATION BRACING
509	10000	7,737	POUND	EPOXY COATED REINFORCING STEEL
512	10001	383	SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)
512	10050	140	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR
517	76300	345	ft	RAILING MISC.: STATE OF NEW YORK, STEEL BRIDGE RAILING, FOUR-RAIL
840	20000	2,422	SQ FT	MECHANICALLY STABILIZED EARTH WALL
840	21000	784	CU YD	WALL EXCAVATION
840	22000	473	SQ YD	FOUNDATION PREPARATION
840	23000	897	CU YD	SELECT GRANULAR BACKFILL
840	25010	697	FT	6" DRAINAGE PIPE, PERFORATED
840	25020	46	FT	6" DRAINAGE PIPE, NON-PERFORATED
840	26001	345	FT	CONCRETE COPING, AS PER PLAN
840	26050	2,422	SQ FT	AESTHETIC SURFACE TREATMENT
840	27000	5	DAYS	ON-SITE ASSISTANCE
898	11000	61	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)

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HORIZONTAL SCALE IN FEET

NOTES:

1. ALL WALL STATIONS AND OFFSETS MEASURED TO ℄ OF WALL WITH REFREENCE TO US 50.
2. FOR DRAINAGE AND EXCAVATION PLAN, AND WALL EMBANKMENT LIMITS, SEE SHEET 2/3 .
3. FOR WALL ELEVATIONS, SEE SHEET 2/3 .
4. FOR SECTION A-A, SEE SHEET 3/3 .
5. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 2/3 .

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	CHECKED
BMG	PJL

DRAWN	REVIEWED	DATE
NAL	EBS	11/16/10

REVISED

STRUCTURE FILE NUMBER

WALL 7 SITE PLAN

HAM-50-18.79
PID No. 20082

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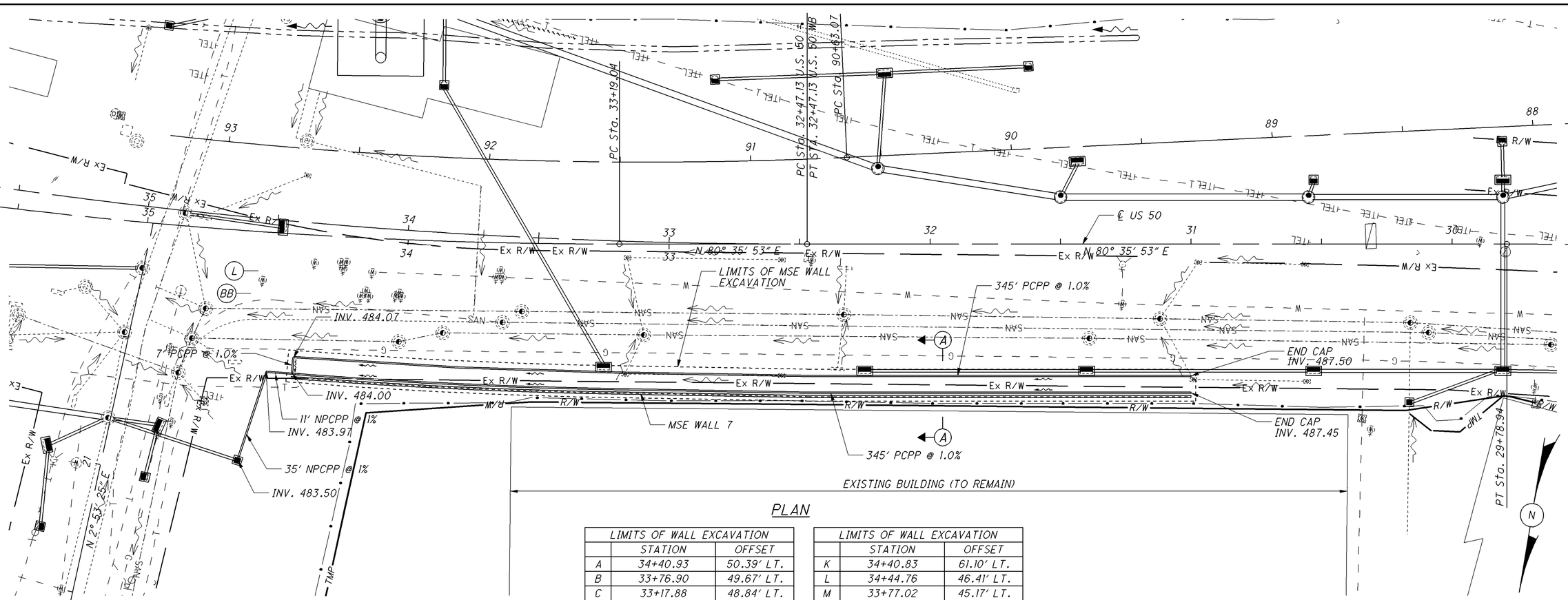
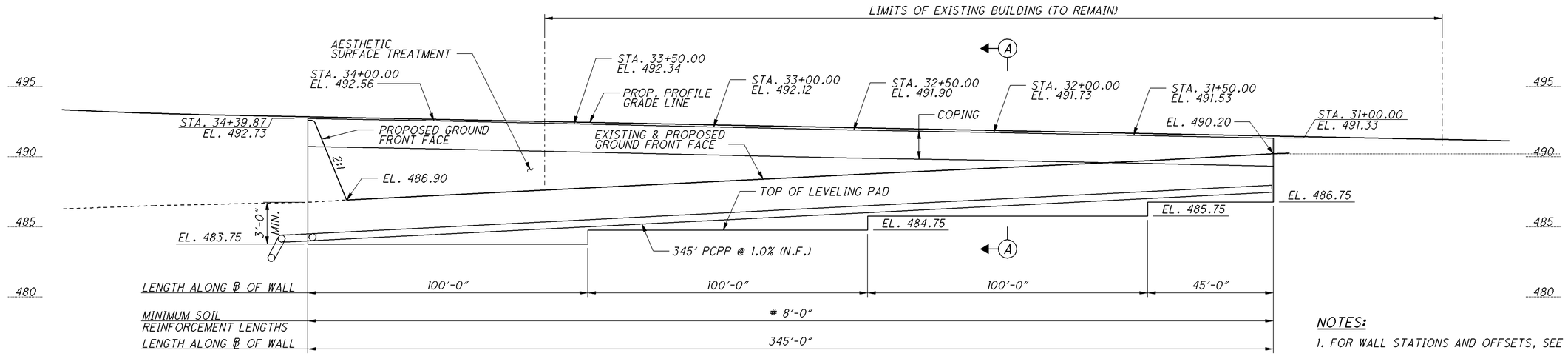


PLAN

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
A	34+40.93	50.39' LT.
B	33+76.90	49.67' LT.
C	33+17.88	48.84' LT.
D	32+46.54	49.02' LT.
E	30+99.00	49.02' LT.
F	30+99.00	59.48' LT.
G	32+46.63	59.48' LT.
H	33+18.35	59.54' LT.
J	33+77.09	60.38' LT.

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
K	34+40.83	61.10' LT.
L	34+44.76	46.41' LT.
M	33+77.02	45.17' LT.
N	33+42.95	44.30' LT.
P	32+45.17	44.04' LT.
R	30+95.20	44.61' LT.
S	30+93.90	63.97' LT.
T	33+78.95	65.39' LT.
U	34+45.61	65.90' LT.



WALL 7 ELEVATION

LEGEND:

# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGHT.

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/3.
2. FOR SECTION A-A, SEE SHEET 3/3.
3. FOR COPING DETAILS, SEE SHEET 217.
4. FOR AESTHETIC SURFACE TREATMENT AND COPING DETAILS, SEE SHEET 217.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 7 DRAINAGE, EXCAVATION AND EMBANKMENT PLAN, AND ELEVATION

HAM-50-18.79
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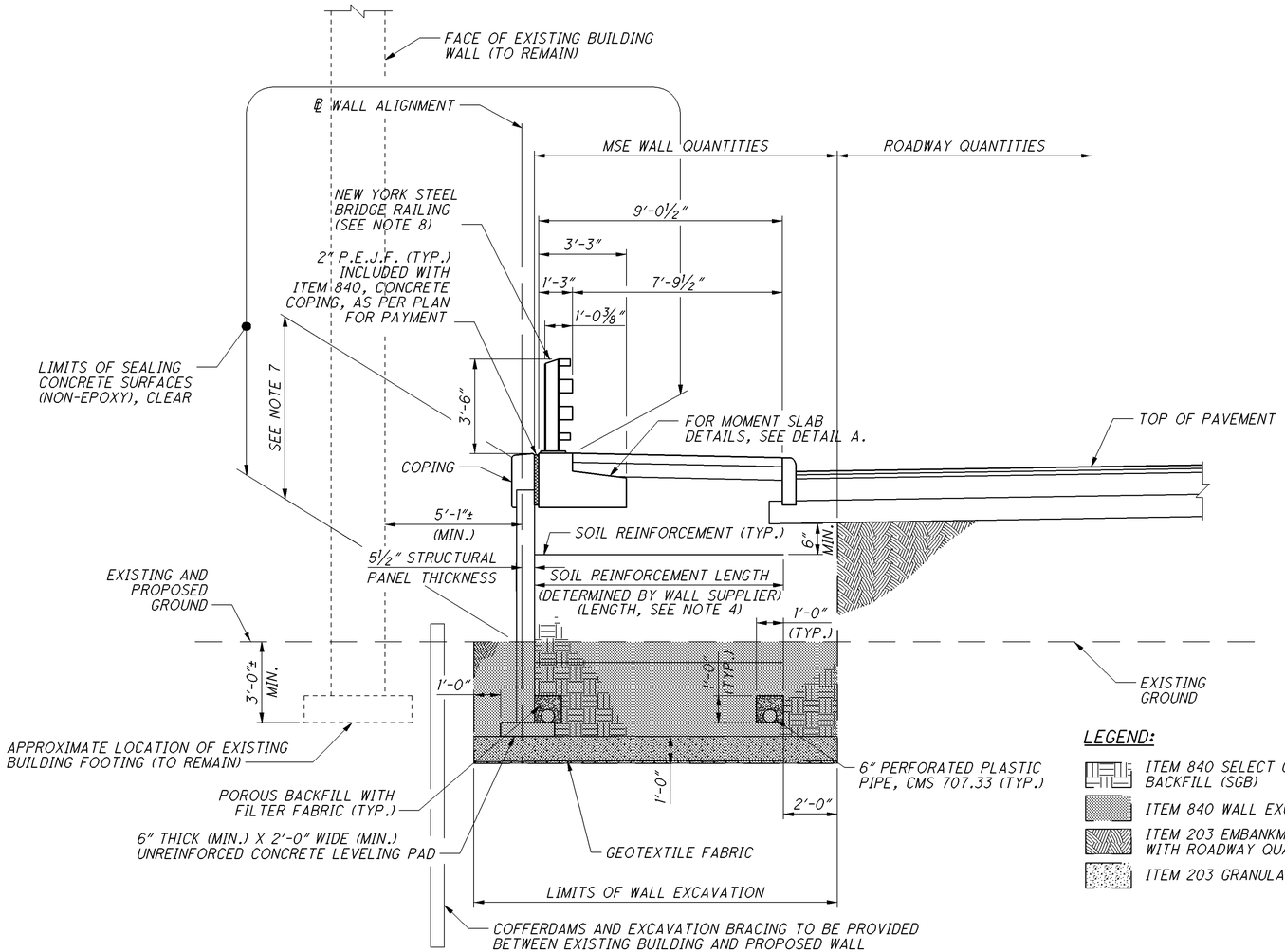
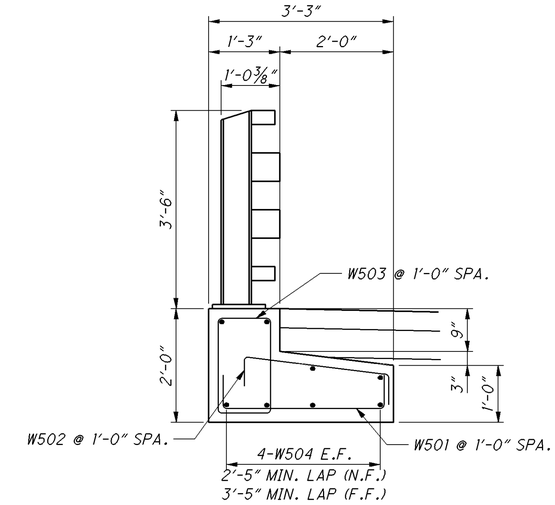


SECTION A-A

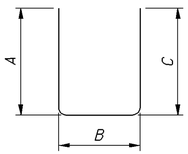


DETAIL A

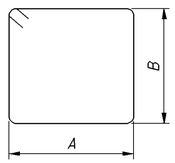
LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R
W501	346	4'-4"	1564	2	1'-0"	2'-11"	8"	·
W502	346	3'-5"	1233	2	1'-0"	2'-0"	8"	·
W503	346	4'-8"	1685	3	11"	1'-8"	·	·
W504	104	30'-0"	3255	S	·	·	·	·
TOTAL			7737					



TYPE-2



TYPE-3

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT². CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 6A ON SHEET 2/3, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION A-A, SEE SHEET 3/3.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 2/3.
5. EXISTING FOOTING LOCATION IS APPROXIMATE, CONTRACTOR SHALL VERIFY EXISTING FOOTING LOCATION AND SHALL TAKE CARE NOT TO DAMAGE EXISTING FOOTING OR BUILDING DURING EXCAVATION OR CONSTRUCTION OF MSE WALL.
6. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
7. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.
8. PROVIDE RAILING CONSISTENT WITH STATE OF NEW YORK, STEEL BRIDGE, FOUR-RAIL, DETAIL SHEET BD-RS2E. ALL LABOR AND MATERIALS NECESSARY TO CONSTRUCT THE RAILING SHALL BE INCLUDED WITH ITEM 517 RAILING MISC. FOR PAYMENT.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 7 DETAILS

HAM-50-18.79
PID No. 20082

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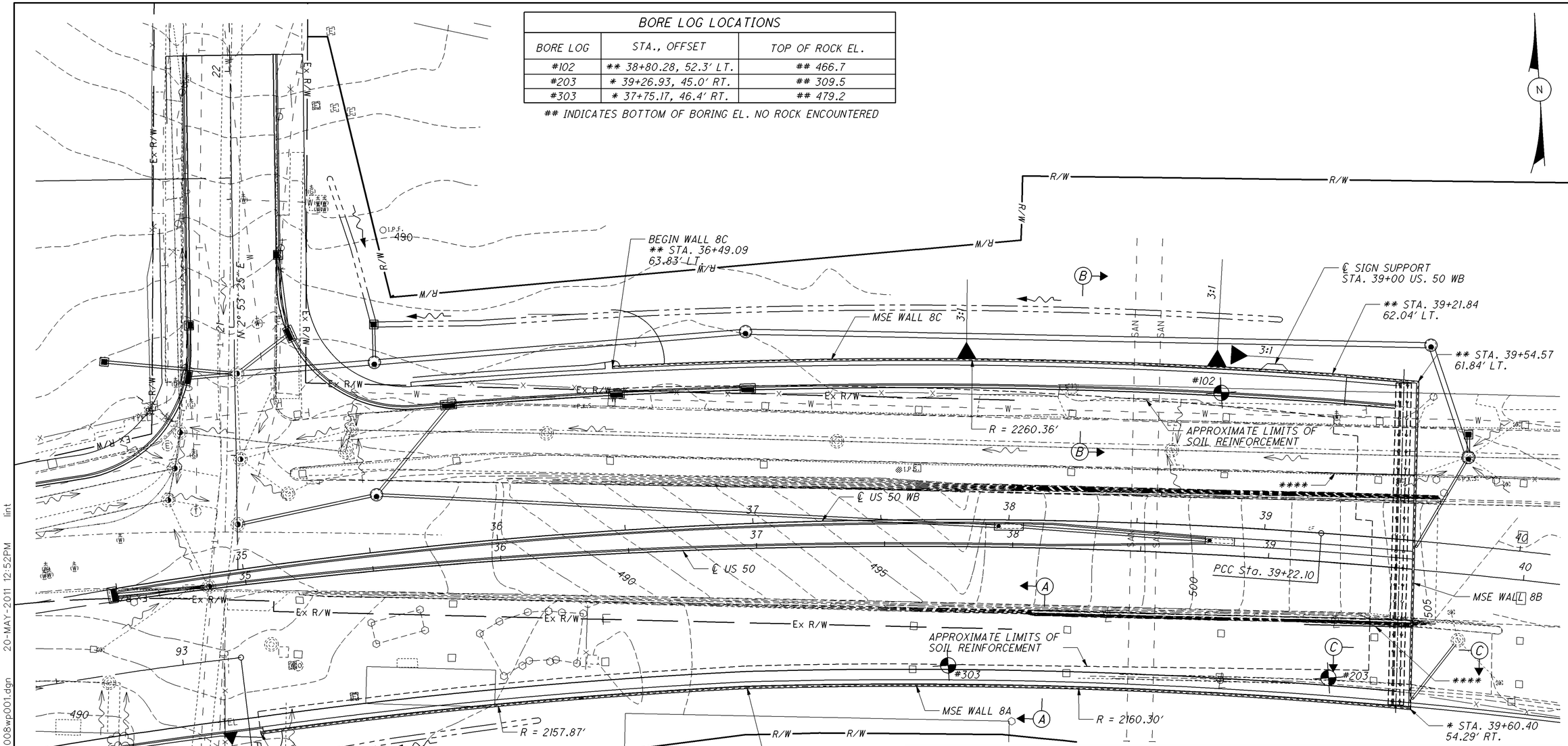
BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET	TOP OF ROCK EL.
#102	** 38+80.28, 52.3' LT.	## 466.7
#203	* 39+26.93, 45.0' RT.	## 309.5
#303	* 37+75.17, 46.4' RT.	## 479.2

INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED



PLAN

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ US 50.

** STATION AND OFFSET MEASURED ALONG ℄ US 50 WB.

**** TEMPORARY MSE WALL (SEE DETAILS ON SHEET 13/25 OF BRIDGE HAM-050-1903 L & R

NOTES:

1. ALL WALL STATIONS AND OFFSETS MEASURED TO ℄ OF WALL.
2. FOR EXCAVATION PLAN AND WALL PAY LIMITS, SEE SHEET 2/7.
3. FOR DRAINAGE PLAN, SEE SHEET 3/7.
4. FOR WALL ELEVATIONS, SEE SHEET 4/7.
5. FOR SECTION A-A, SEE SHEET 5/7.
6. FOR SECTION B-B, SEE SHEET 6/7.
7. FOR SECTION C-C, SEE SHEET 7/7.

STRUCTURE TOTAL				ESTIMATED QUANTITIES	
ITEM	EXTENSION	ODOT	CITY	UNIT	DESCRIPTION
203	20000	175		CU YD	EMBANKMENT
203	35110	445		CU YD	GRANULAR MATERIAL, TYPE B
503	11100	1		LUMP	COFFERDAMS AND EXCAVATION BRACING
509	10000	59,530		POUND	EPOXY COATED REINFORCING STEEL
512	10001	946		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)
512	10050	1,263		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR
517	76300		692	FT	RAILING, MISC.: RAILING ALTERNATE, TEXAS RAILING
840	20000	10,083		SQ FT	MECHANICALLY STABILIZED EARTH WALL
840	21000	2,538		CU YD	WALL EXCAVATION
840	22000	1,603		SQ YD	FOUNDATION PREPARATION
840	23000	5,129		CU YD	SELECT GRANULAR BACKFILL
840	25010	1,745		FT	6" DRAINAGE PIPE, PERFORATED
840	25020	50		FT	6" DRAINAGE PIPE, NON-PERFORATED
840	26001	893		FT	CONCRETE COPING, AS PER PLAN
840	26050	10,083		SQ FT	AESTHETIC SURFACE TREATMENT
840	27000	5		DAYS	ON-SITE ASSISTANCE
898	11000	406		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)

DESIGN AGENCY
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312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 8 SITE PLAN

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PAY LIMITS OF MSE WALL EMBANKMENT		
	STATION	OFFSET
A	* 34+89.45	42.00' RT.
B	* 34+89.56	48.92' RT.
C	* 36+02.83	38.67' RT.
D	* 37+02.78	34.93' RT.
E	* 39+19.80	25.36' RT.
F	** 39+10.58	25.46' LT.
G	** 38+50.00	30.02' LT.
H	** 37+75.00	35.23' LT.
J	** 37+01.66	40.74' LT.
K	** 36+39.59	44.25' LT.
L	** 36+39.98	63.54' LT.

POT Sta. 22+21.29

PT Sta. 93+22.68

PCC Sta. 39+22.10

MSE WALL 8C

MSE WALL 8B

MSE WALL 8A

℄ US 50

℄ US 50 WB

N 2° 53' 25" E

Ex R/W

R/W

SAN

PLAN

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
AA	* 34+92.53	43.24' RT.
AB	* 34+92.92	64.30' RT.
AC	* 34+97.74	48.77' RT.
AD	* 34+97.96	59.60' RT.
AE	* 35+75.43	47.22' RT.
AF	* 35+75.43	58.05' RT.
AG	* 35+75.43	63.05' RT.
AH	* 36+94.75	44.83' RT.
AJ	* 36+94.75	61.67' RT.
AK	* 36+94.78	55.67' RT.
AL	* 37+10.82	38.83' RT.
AM	* 37+10.82	35.09' RT.

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
AN	* 38+31.07	55.67' RT.
AP	* 38+31.07	60.42' RT.
AR	* 39+67.40	60.67' RT.
AS	* 39+61.90	55.67' RT.
AT	* 39+41.60	39.83' RT.
AU	* 39+34.05	34.32' RT.
AV	* 39+33.43	23.29' RT.
AW	* 39+21.92	23.80' RT.
AX	** 39+40.60	6.40' LT.
AY	** 39+34.11	6.44' LT.
AZ	** 39+13.89	15.43' LT.
BA	** 39+30.61	16.28' LT.

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
BB	** 39+29.81	31.78' LT.
BC	** 39+32.68	33.50' LT.
BD	** 39+15.13	44.76' LT.
BE	** 39+14.33	41.71' LT.
BF	** 39+55.81	63.45' LT.
BG	** 39+60.36	68.49' LT.
BH	** 39+00.00	68.72' LT.
BJ	** 39+00.00	63.72' LT.
BK	** 38+49.96	47.35' LT.
BL	** 38+49.92	43.85' LT.
BM	** 38+25.10	68.86' LT.
BN	** 38+25.10	63.86' LT.

LIMITS OF WALL EXCAVATION		
	STATION	OFFSET
BP	** 37+74.99	68.43' LT.
BR	** 37+75.01	63.93' LT.
BS	** 37+74.95	50.20' LT.
BT	** 37+74.92	46.20' LT.
BU	** 37+25.10	68.84' LT.
BV	** 37+25.01	64.34' LT.
BW	** 37+01.77	52.84' LT.
BX	** 37+01.58	49.35' LT.
BY	** 36+58.68	53.98' LT.
BZ	** 36+58.80	65.01' LT.
CA	** 36+54.98	69.09' LT.
CB	** 36+54.74	50.63' LT.

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ US 50.

** STATION AND OFFSET MEASURED ALONG ℄ US 50 WB.

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/7.
2. FOR DRAINAGE PLAN, SEE SHEET 3/7.
3. FOR WALL ELEVATIONS, SEE SHEET 4/7.
4. FOR SECTION A-A, SEE SHEET 5/7.
5. FOR SECTION B-B, SEE SHEET 6/7.
6. FOR SECTION C-C, SEE SHEET 7/7.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
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WALL 8 EXCAVATION AND EMBANKMENT PLAN

HAM-50-18.79
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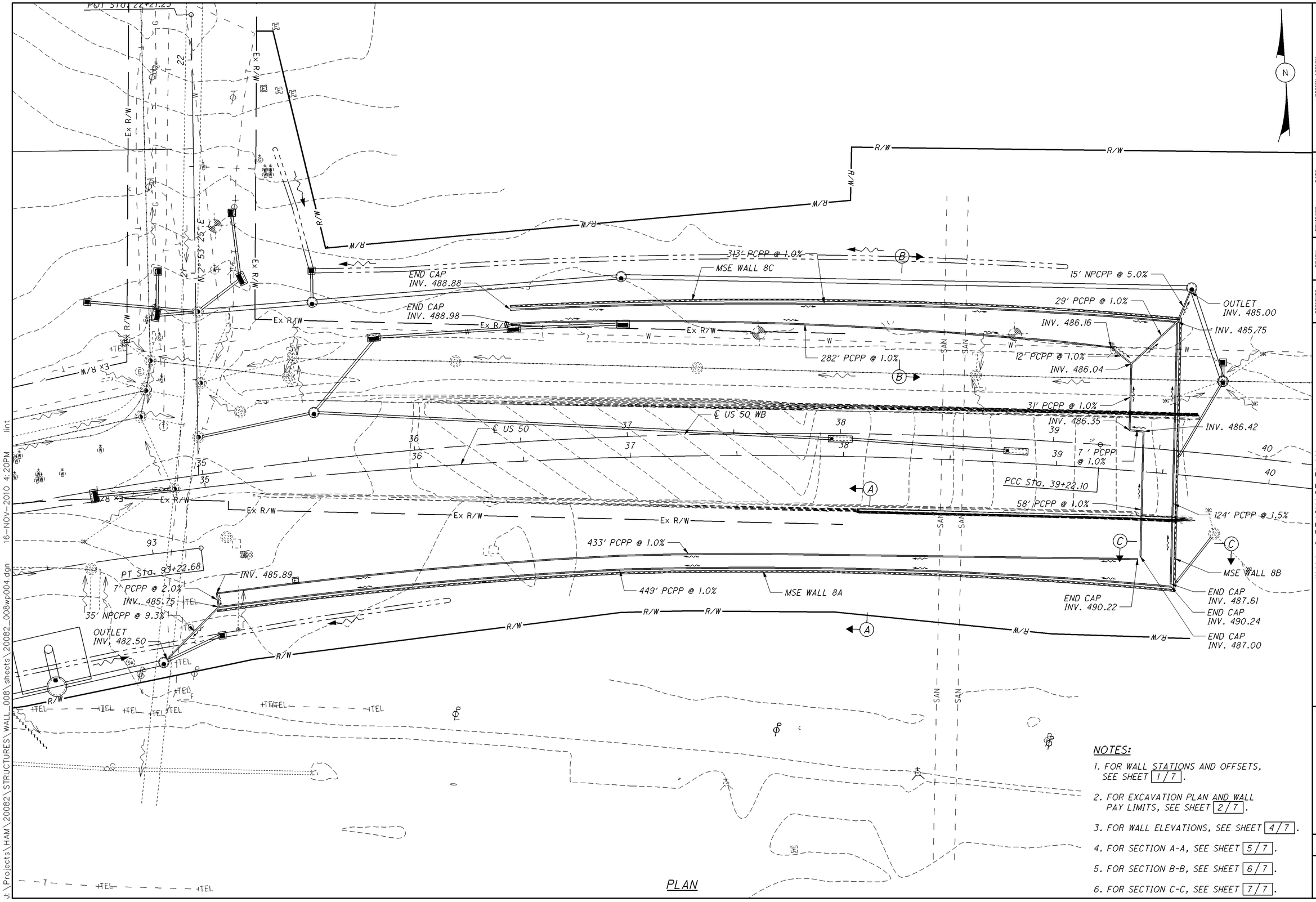

PLAN

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/7.
2. FOR EXCAVATION PLAN AND WALL PAY LIMITS, SEE SHEET 2/7.
3. FOR WALL ELEVATIONS, SEE SHEET 4/7.
4. FOR SECTION A-A, SEE SHEET 5/7.
5. FOR SECTION B-B, SEE SHEET 6/7.
6. FOR SECTION C-C, SEE SHEET 7/7.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 8 DRAINAGE PLAN

HAM-50-18.79
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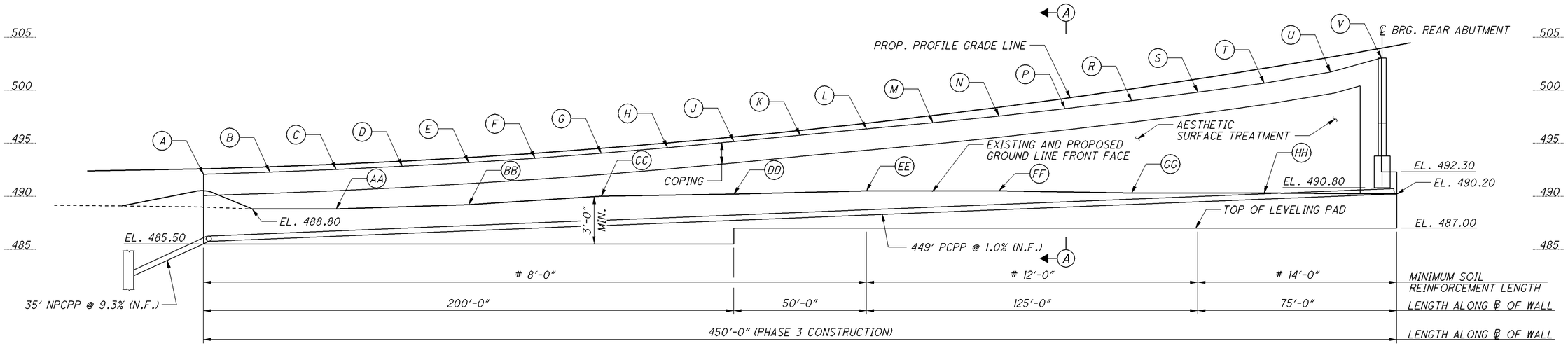
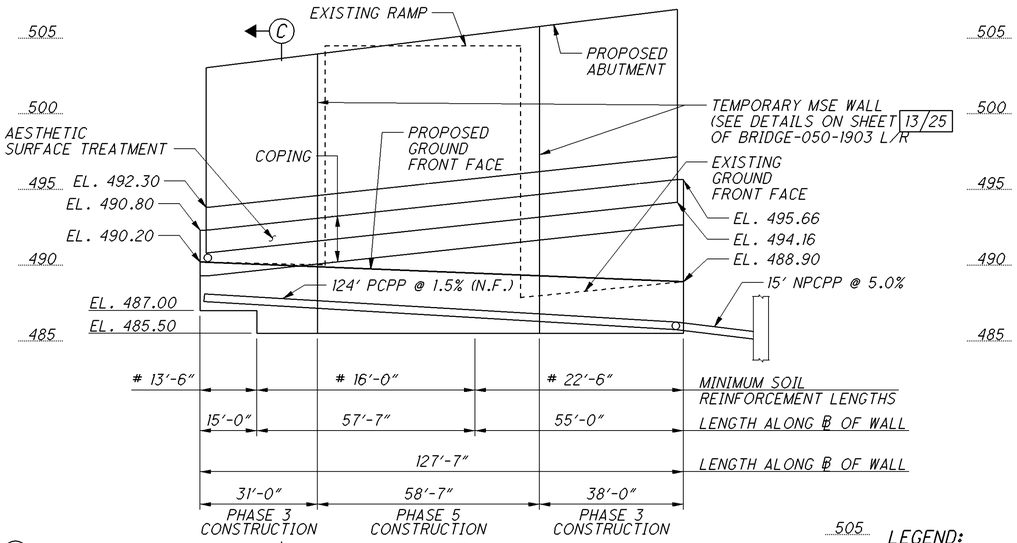
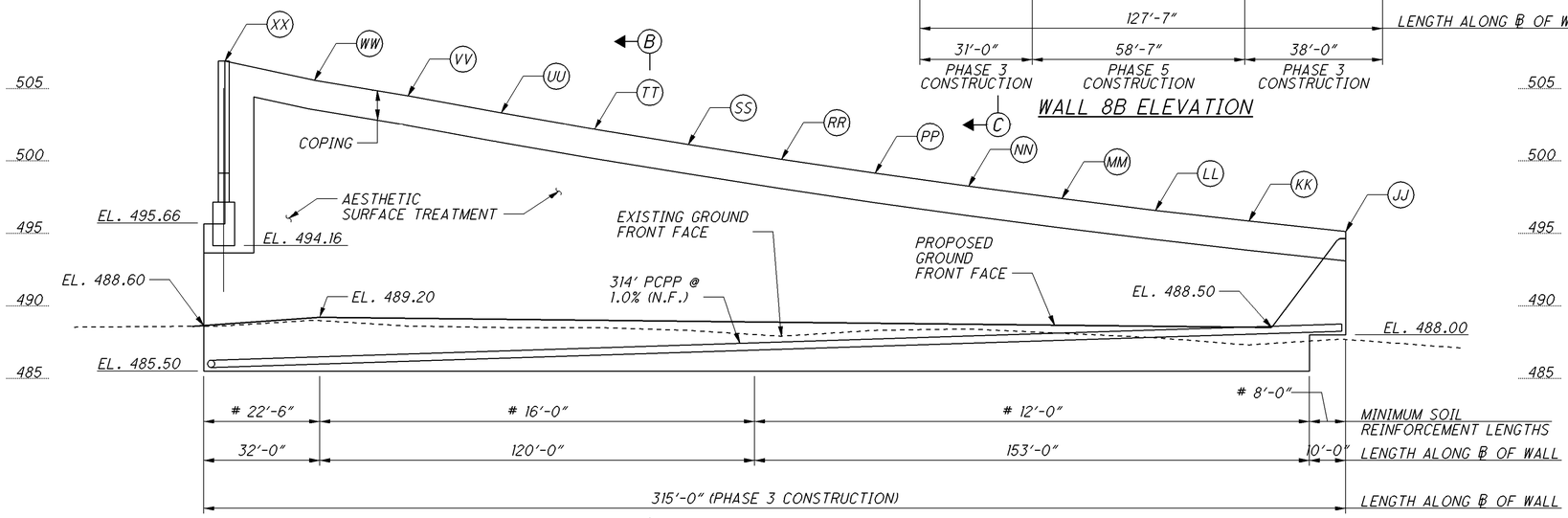


WALL 8A ELEVATION



WALL 8B ELEVATION



WALL 8C ELEVATION

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ US 50.

** STATION AND OFFSET MEASURED ALONG ℄ US 50 WB.

# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGTH

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/7.
2. FOR EXCAVATION PLAN AND WALL PAY LIMITS, SEE SHEET 2/7.
3. FOR DRAINAGE PLAN, SEE SHEET 3/7.
4. FOR SECTION A-A, SEE SHEET 5/7.
5. FOR SECTION B-B, SEE SHEET 6/7.
6. FOR SECTION C-C, SEE SHEET 7/7.

WALL 8A		
	STATION	ELEVATION
A	34+98.96	492.08
B	35+25.00	492.28
C	35+50.00	492.53
D	35+75.00	492.83
E	36+00.00	493.19
F	36+25.00	493.59
G	36+50.00	494.06
H	36+75.00	494.58
J	37+00.00	495.15
K	37+25.00	495.77
L	37+50.00	496.35
M	37+75.00	496.93
N	38+00.00	497.57
P	38+25.00	498.26
R	38+50.00	499.00
S	38+75.00	499.80
T	39+00.00	500.66
U	39+25.00	501.70
V	39+54.46	503.03
AA	35+50.00	488.80
BB	36+00.00	489.20
CC	36+50.00	490.00
DD	37+00.00	490.20
EE	37+50.00	490.50
FF	38+00.00	490.50
GG	38+50.00	490.30
HH	39+00.00	490.30

WALL 8C		
	STATION	ELEVATION
JJ	36+49.09	495.13
KK	36+75.00	495.85
LL	37+00.00	496.59
MM	37+25.00	497.40
NN	37+50.00	498.25
PP	37+75.00	499.15
RR	38+00.00	500.11
SS	38+25.00	501.13
TT	38+50.00	502.19
UU	38+75.00	503.31
VV	39+00.00	504.49
WW	39+25.00	505.56
XX	39+54.57	506.89

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED BMG | DRAWN NAL | REVIEWED EBS | DATE 11/16/10 | CHECKED PJL | REVISED | STRUCTURE FILE NUMBER

WALL 8 ELEVATIONS

HAM-50-18.79
PID No. 20082

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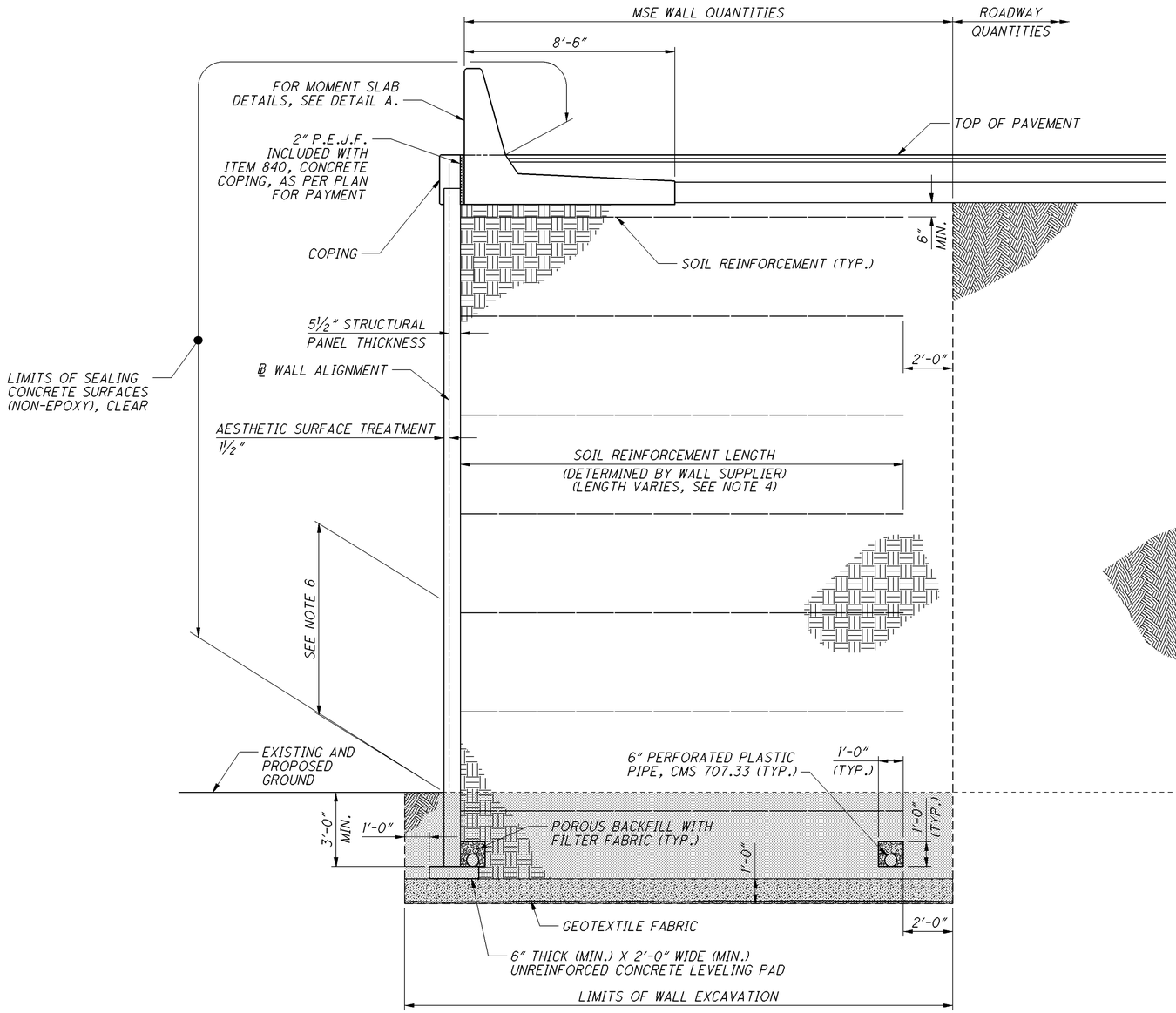


SECTION A-A

LEGEND:

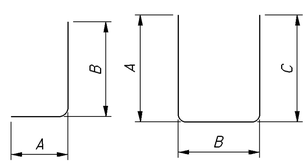
- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH THE ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 8A ON SHEET 4/7, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION A-A, SEE SHEETS 1/7, 2/7, 3/7, & 4/7.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/7.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R
W501	695	7'-7"	5,498	23	1'-5"	3'-2"	3'-0"	3 3/8
W502	695	7'-1"	5,135	1	2'-7"	4'-7"	·	·
W503	695	4'-10"	3,504	30	2'-6"	·	·	·
W504	695	9'-7"	6,947	8	1'-0"	8'-2"	8"	·
W505	695	9'-7"	6,947	2	1'-0"	8'-2"	8"	·
W506	500	30'-0"	15,645	S	·	·	·	·
W601	1386	6'-11"	14,399	19	2'-5"	7"	4'-5"	·
W602	27	30'-0"	1,217	S	·	·	·	·
TOTAL			59,292					

TYPE-1



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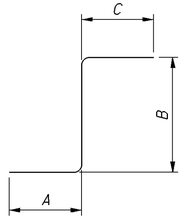

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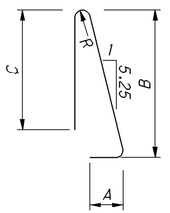

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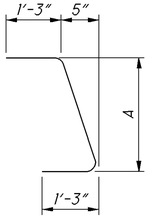

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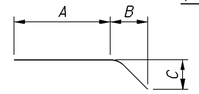

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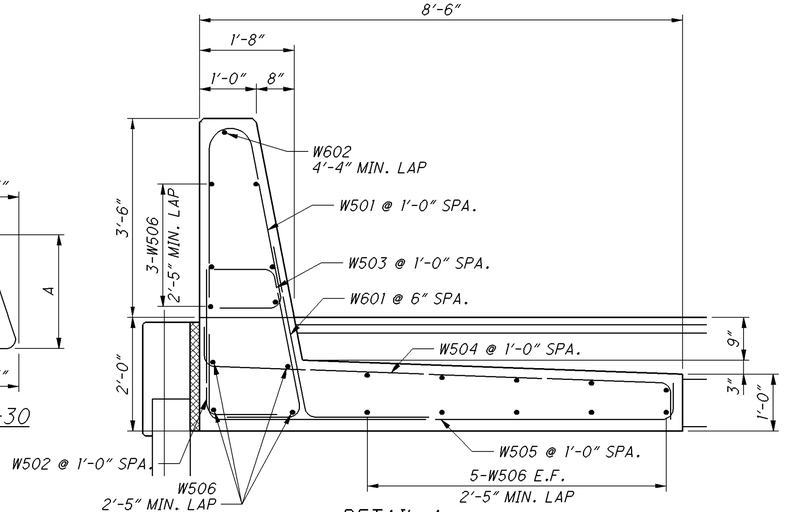

DETAIL A

SEE SHEET 308 FOR ALTERNATE DETAIL.
SEE SHEET 309A AND 309B FOR SIGN SUPPORT DETAILS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 8 DETAILS

HAM-50-18.79
PID No. 20082

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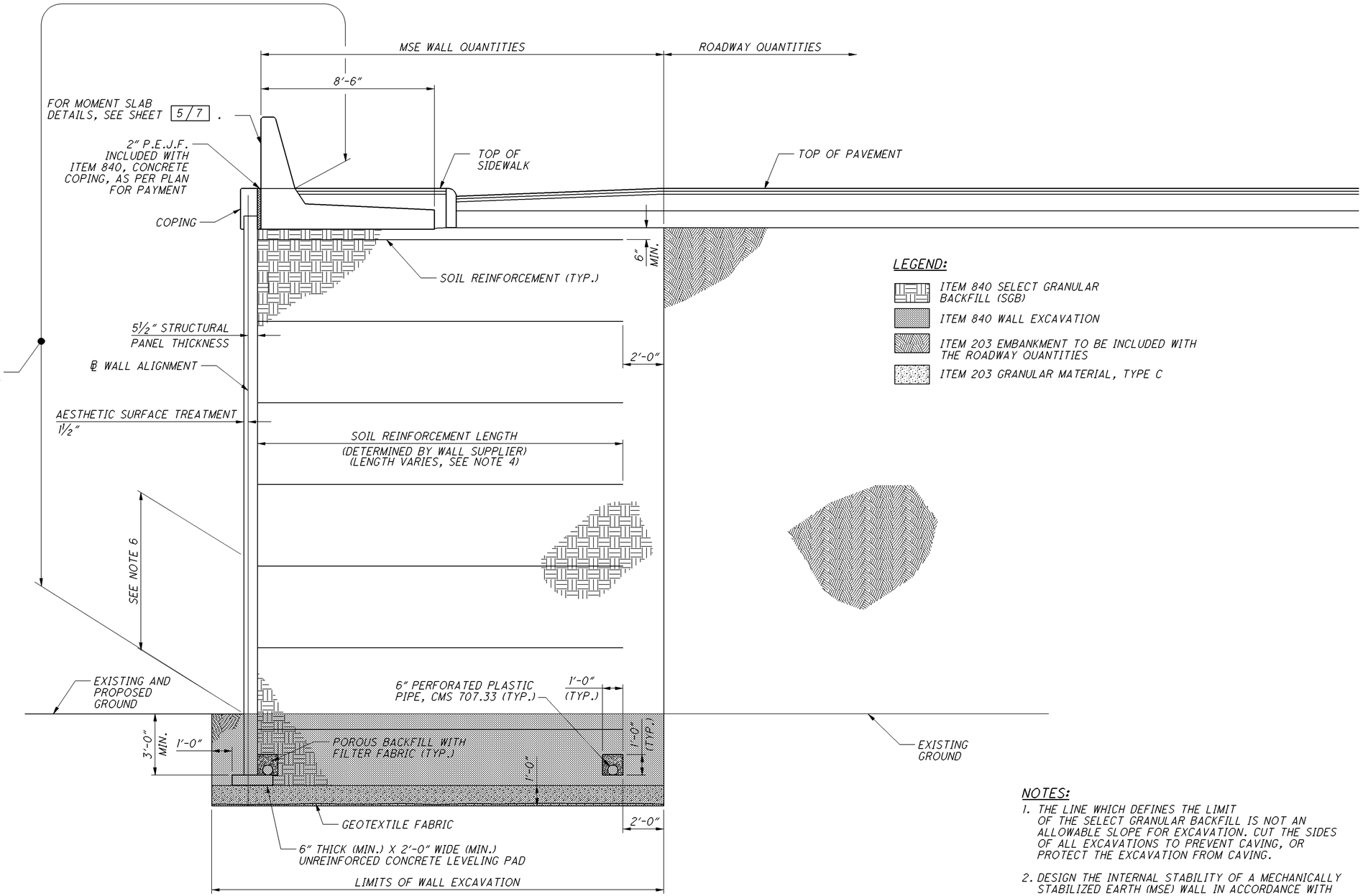

SECTION B-B

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH THE ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 8C ON SHEET 4/7, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION B-B, SEE SHEETS 1/7, 2/7, 3/7, & 4/7.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/7.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
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WALL 8 DETAILS II

HAM-50-18.79
PID No. 20082

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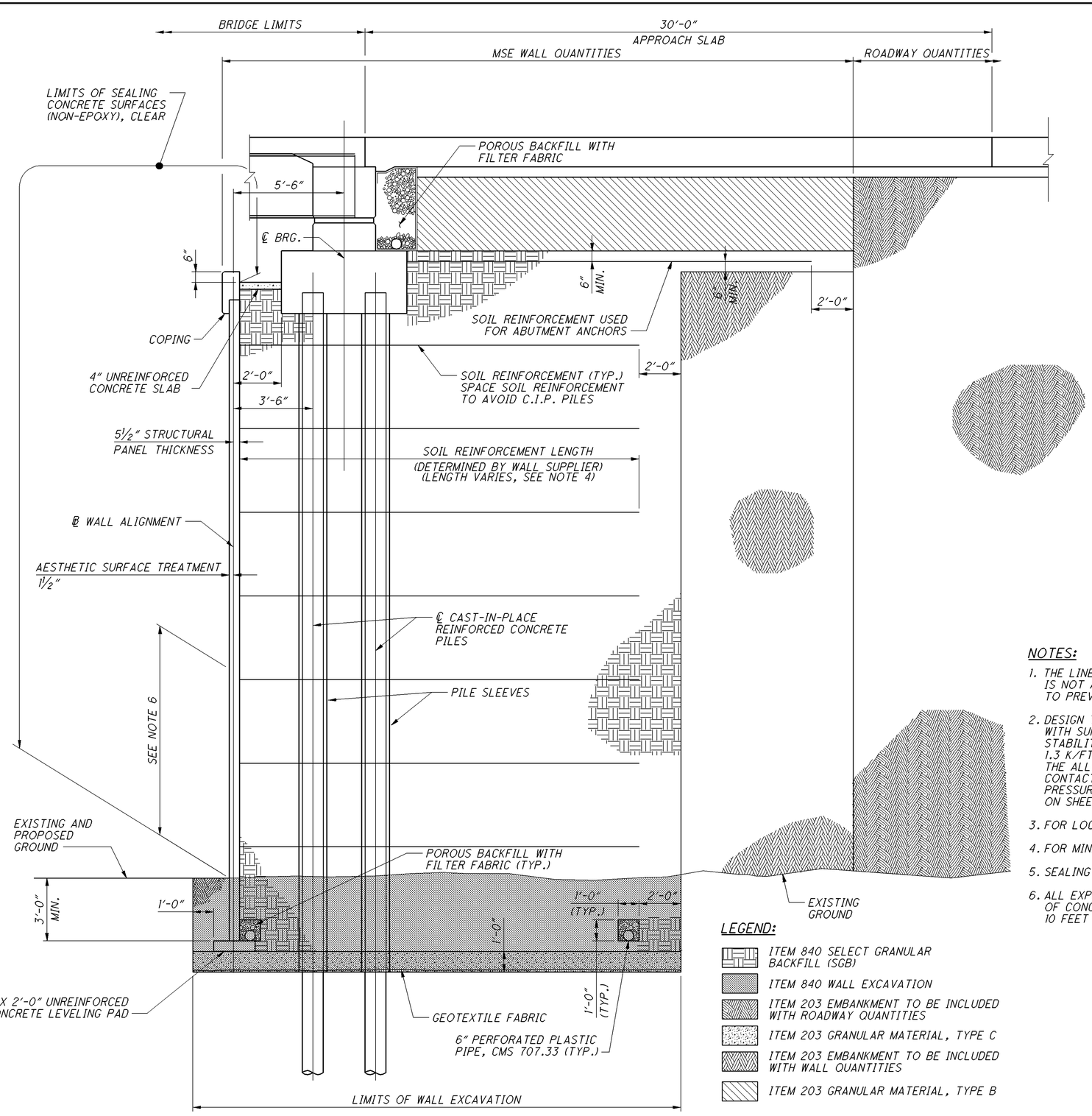

SECTION C-C
US 50 REAR ABUTMENT
(BRIDGE NO. HAM-050-1903 L/R)

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH WALL QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE B

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840 TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE OF 1.3 K/FT APPLIED PERPENDICULAR TO THE FACE OF WALL AT THE BASE OF THE CONCRETE FOOTING. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 5.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 8B ELEVATION, ON SHEET 4/7, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION C-C, SEE SHEET 1/7, 2/7, 3/7, & 4/7.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/7.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 8 DETAILS III

HAM-50-18.79
PID No. 20082

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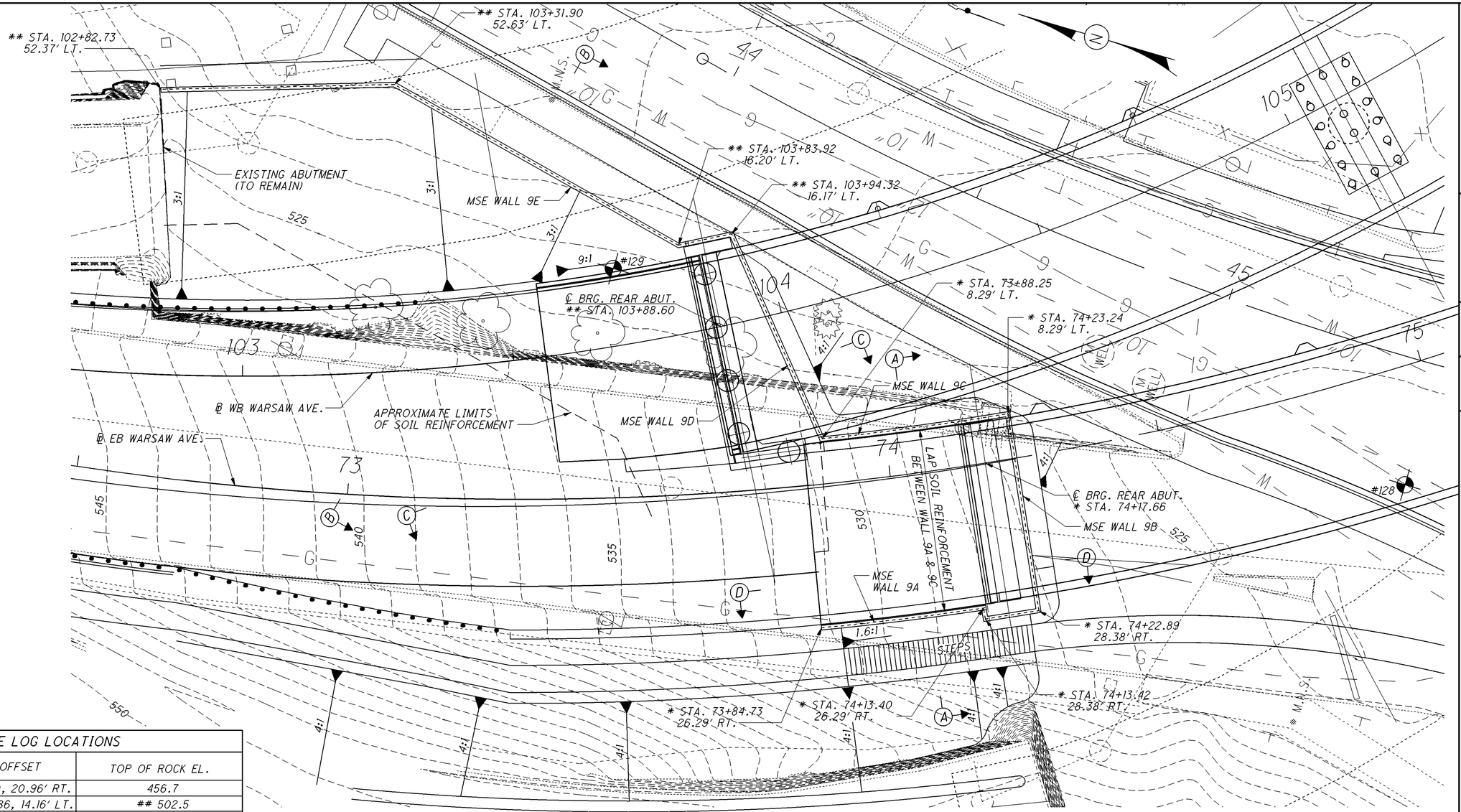

BORE LOG LOCATIONS		
BORE LOG	STA., OFFSET	TOP OF ROCK EL.
#128	* 74+90.70, 20.96' RT.	456.7
#129	** 103+70.86, 14.16' LT.	## 502.5

INDICATES BOTTOM OF BORING EL. NO ROCK ENCOUNTERED

ESTIMATED QUANTITIES					
ITEM	EXTENSION	STRUCTURE TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
203	20000	140	CU YD	EMBANKMENT	
503	11101	1	LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	1/8
512	10001	289	SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)	
512	10050	560	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), CLEAR	
840	20000	6,138	SQ FT	MECHANICALLY STABILIZED EARTH WALL	
840	21000	2,521	CU YD	WALL EXCAVATION	
840	22001	922	SQ YD	FOUNDATION PREPARATION, AS PER PLAN	1/8
840	23000	5,236	CU YD	SELECT GRANULAR BACKFILL	
840	23050	208	CU YD	NATURAL SOIL	
840	25010	431	FT	6" DRAINAGE PIPE, PERFORATED	
840	25020	8	FT	6" DRAINAGE PIPE, NON-PERFORATED	
840	26001	260	FT	CONCRETE COPING, AS PER PLAN	
840	26050	6,138	SQ FT	AESTHETIC SURFACE TREATMENT	
840	27000	5	DAYS	ON-SITE ASSISTANCE	

PLAN

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ EB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ WB WARSAW.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATE DESIGN.

NOTES:

1. ALL WALL STATIONS AND OFFSETS MEASURED TO ℄ OF WALL.
2. FOR EXCAVATION PLAN AND WALL EMBANKMENT LIMITS, SEE SHEET 2/8.
3. FOR DRAINAGE PLAN, SEE SHEET 3/8.
4. FOR WALL ELEVATIONS, SEE SHEET 4/8.
5. FOR SECTION A-A, SEE SHEET 5/8.
6. FOR SECTION B-B, SEE SHEET 6/8.
7. FOR SECTION C-C AND D-D, SEE SHEET 7/8.
8. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 4/8.
9. FOUNDATION PREPARATION AS PER PLAN SHALL CONFORM TO SS840 WITH THE EXCEPTION THAT THE WORK SHALL INCLUDE UNDERCUT OF UNSUITABLE SOIL AND BACKFILL W/ ITEM 203 GRANULAR MATERIAL TYPE C. THE AVERAGE ANTICIPATED DEPTH OF ITEM 203 IS 2.5 FEET.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 9 SITE PLAN

HAM-50-18.79
PID No. 20082

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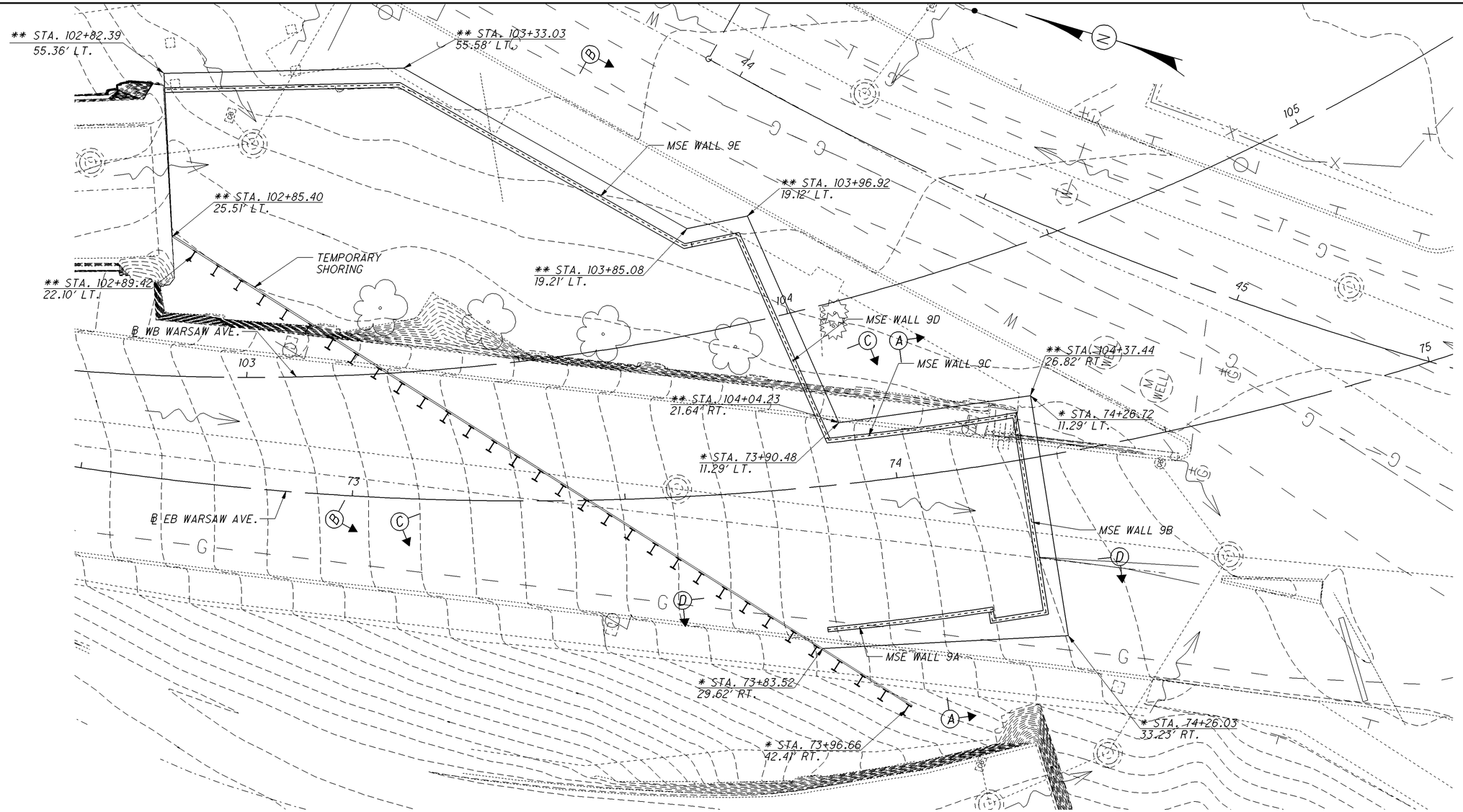

PLAN

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ EB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ WB WARSAW.

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/8.
2. FOR DRAINAGE PLAN, SEE SHEET 3/8.
3. FOR WALL ELEVATIONS, SEE SHEET 4/8.
4. FOR SECTION A-A, SEE SHEET 5/8.
5. FOR SECTION B-B, SEE SHEET 6/8.
6. FOR SECTION C-C, SEE SHEET 7/8.
7. FOR TEMPORARY SHORING DETAILS, SEE SHEET 8/8.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 9 EXCAVATION AND EMBANKMENT PLAN

HAM-50-18.79
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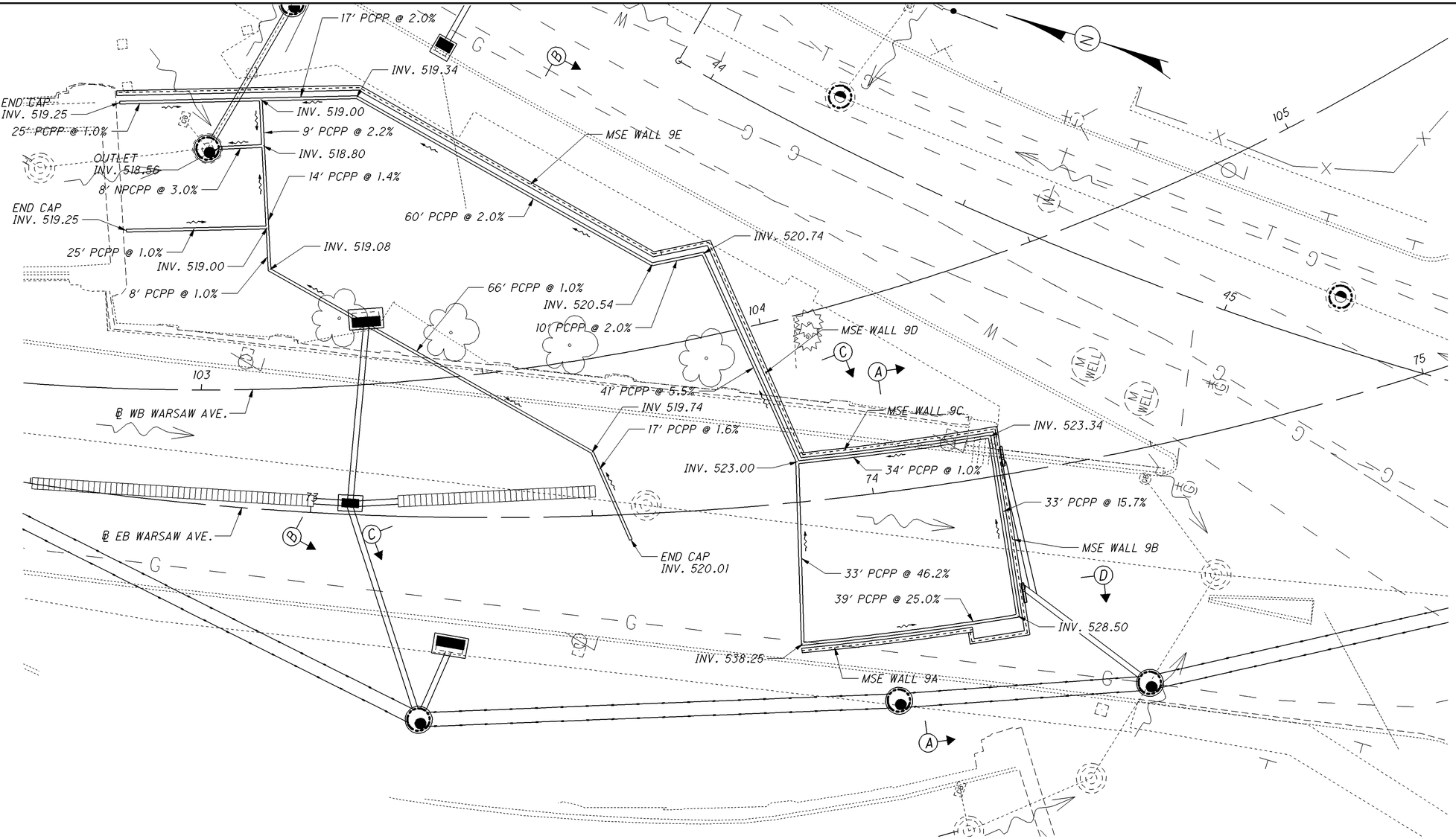

PLAN

NOTES:

1. FOR WALL STATIONS AND OFFSETS, SEE SHEET 1/8.
2. FOR EXCAVATION PLAN AND WALL EMBANKMENT LIMITS, SEE SHEET 2/8.
3. FOR WALL ELEVATIONS, SEE SHEET 4/8.
4. FOR SECTION A-A, SEE SHEET 5/8.
5. FOR SECTION B-B, SEE SHEET 6/8.
6. FOR SECTION C-C AND D-D, SEE SHEET 7/8.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 9 DRAINAGE PLAN

HAM-50-18.79
PID No. 20082

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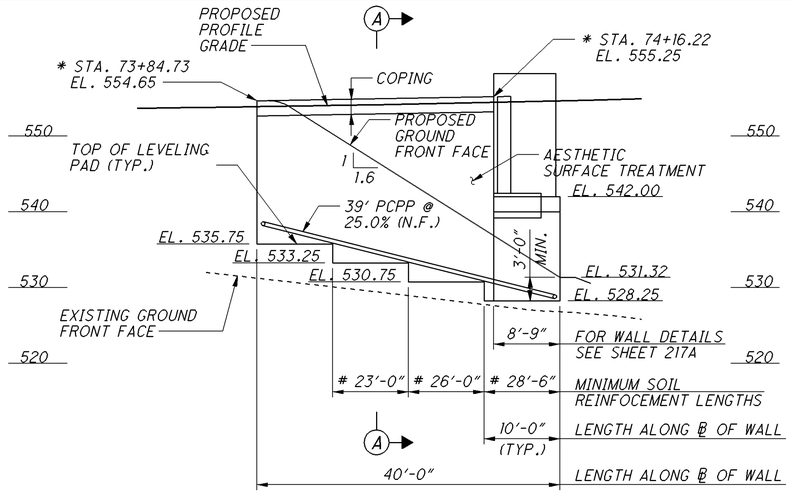
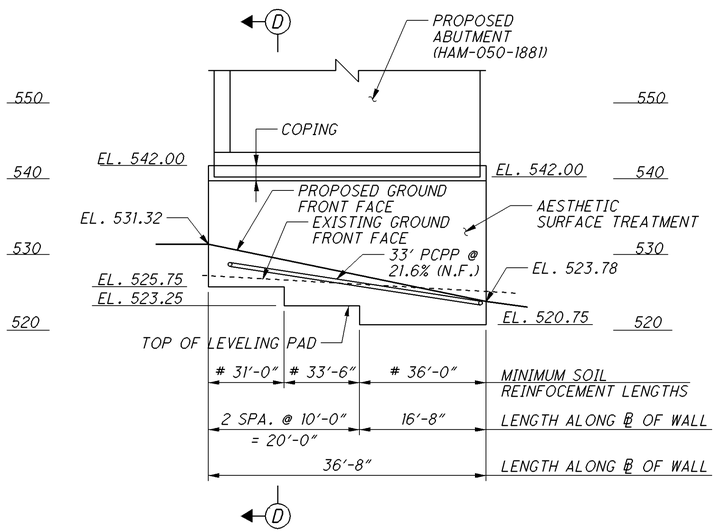
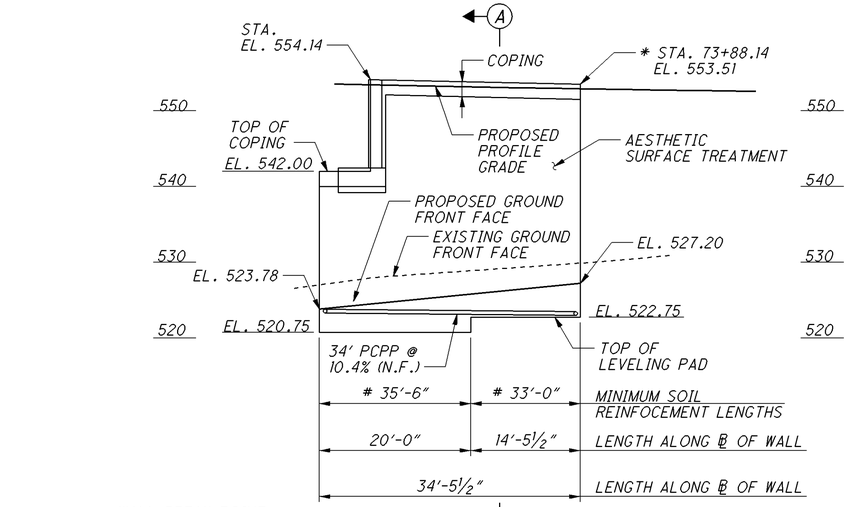


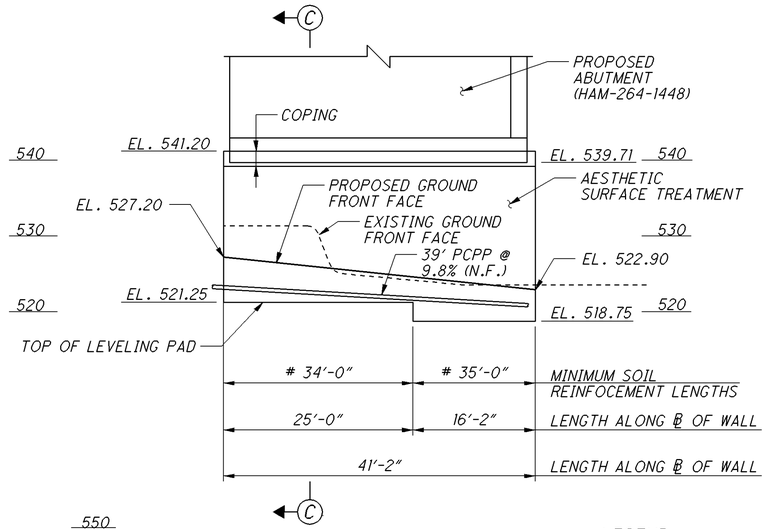
WALL 9A ELEVATION



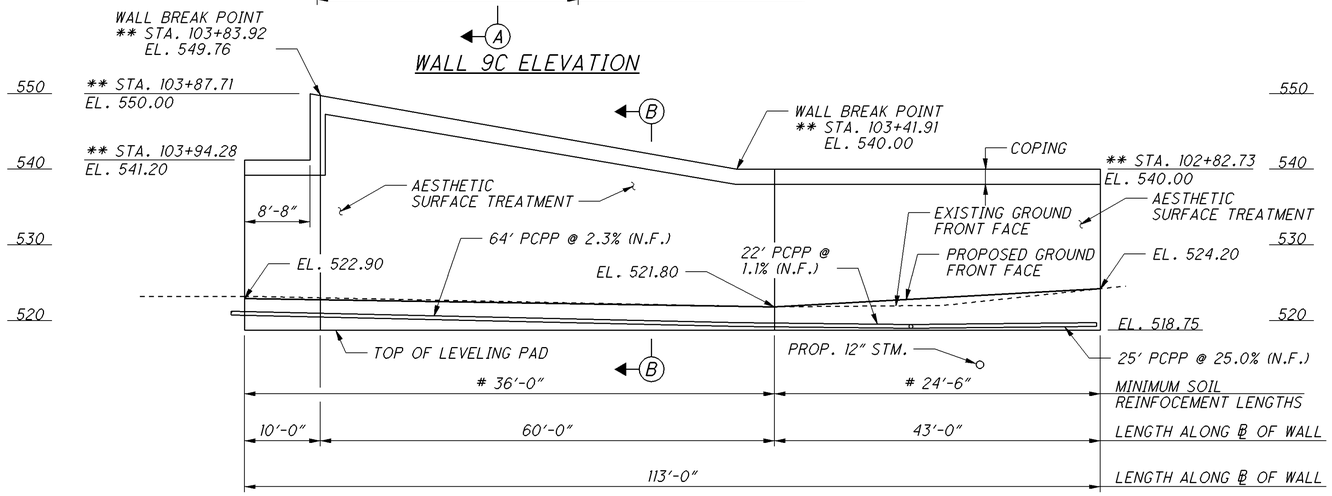
WALL 9B ELEVATION



WALL 9C ELEVATION



WALL 9D ELEVATION



WALL 9E ELEVATION

LEGEND:

* STATION AND OFFSET MEASURED ALONG ℄ EB WARSAW.

** STATION AND OFFSET MEASURED ALONG ℄ WB WARSAW.

\# INDICATES MINIMUM SOIL REINFORCEMENT LENGTH IN EXCESS OF 70% OF WALL HEIGHT.

NOTES:

1. FOR WALL PLAN STATIONS, SEE SHEET 1/8.
2. FOR EXCAVATION PLAN, AND WALL PAY LIMITS, SEE SHEET 2/8.
3. FOR DRAINAGE PLAN, SEE SHEET 3/8.
4. FOR SECTION A-A, SEE SHEET 5/8.
5. FOR SECTION B-B, SEE SHEET 6/8.
6. FOR SECTION C-C AND D-D, SEE SHEET 7/8.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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WALL 9 ELEVATIONS

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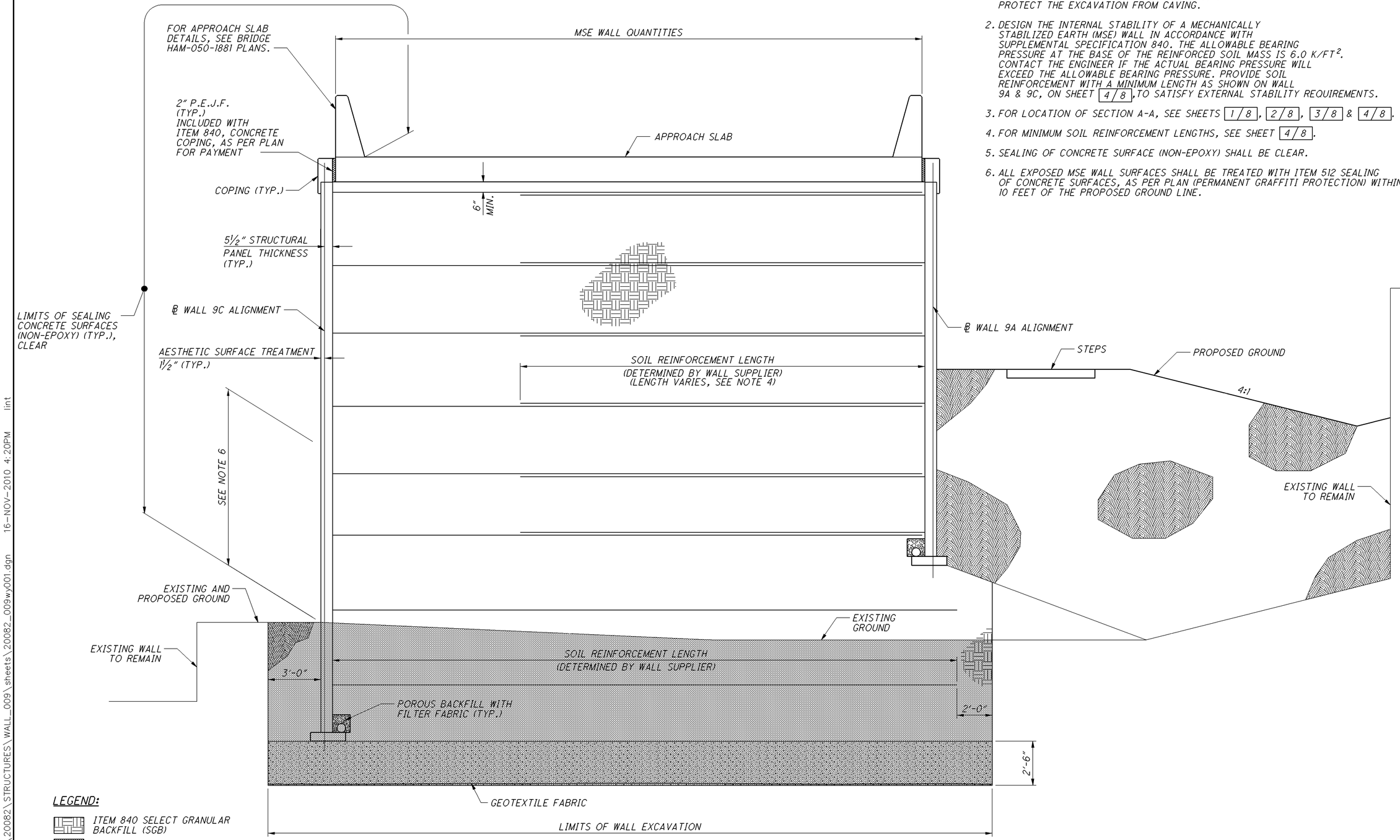
NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 6.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 9A & 9C, ON SHEET 4/8, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION A-A, SEE SHEETS 1/8, 2/8, 3/8 & 4/8.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.



LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH THE ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C

SECTION A-A

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
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WALL 9 DETAILS I

HAM-50-18.79
PID No. 20082

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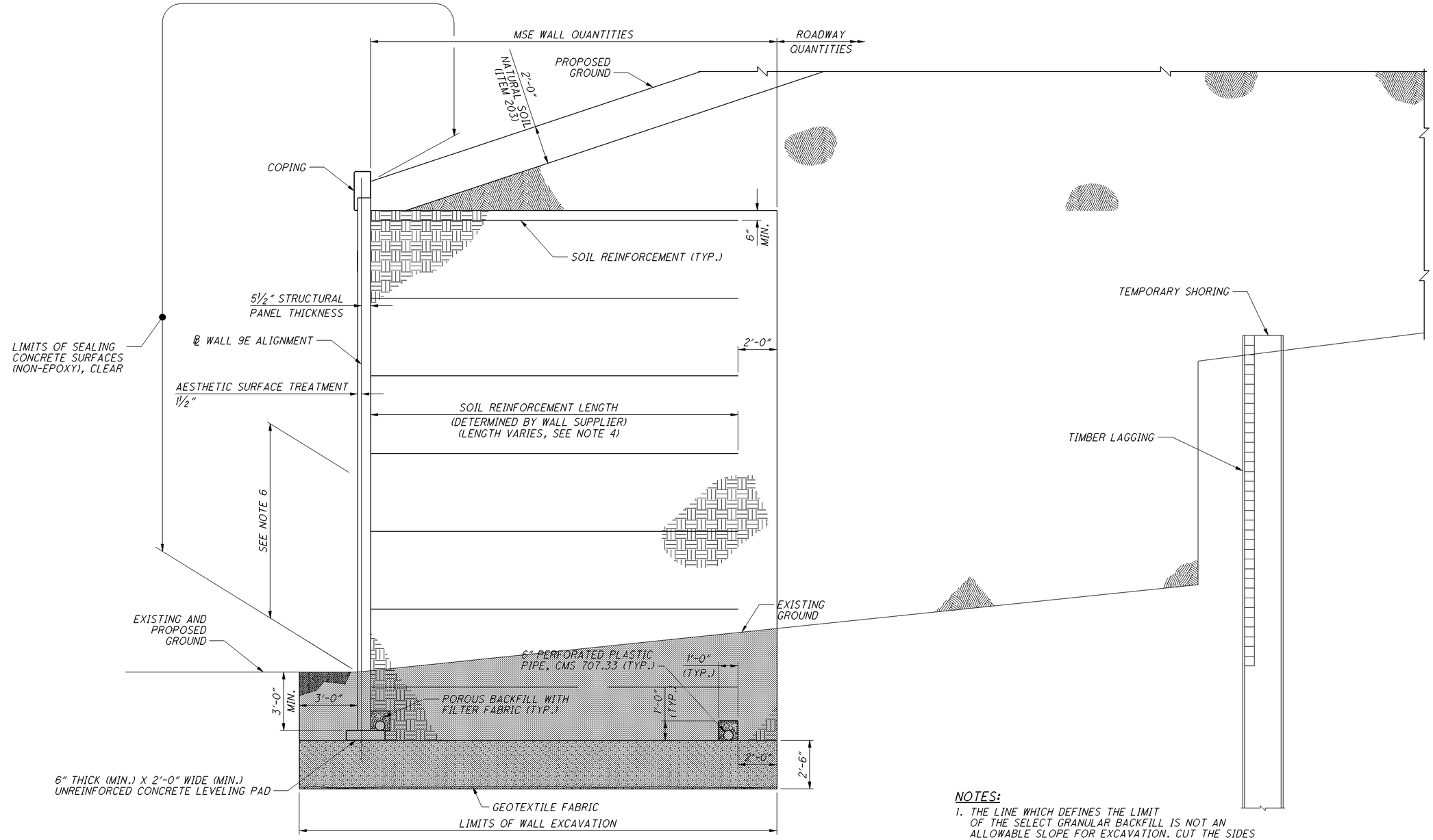

SECTION B-B

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT
- GRANULAR MATERIAL, TYPE C

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840. THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 6.0 K/FT^2. CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 9E, ON SHEET 4/8, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
3. FOR LOCATION OF SECTION B-B, SEE SHEETS 1/8, 2/8, 3/8 & 4/8.
4. FOR MINIMUM SOIL REINFORCEMENT LENGTHS, SEE SHEET 4/8.
5. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
6. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
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WALL 9 DETAILS II

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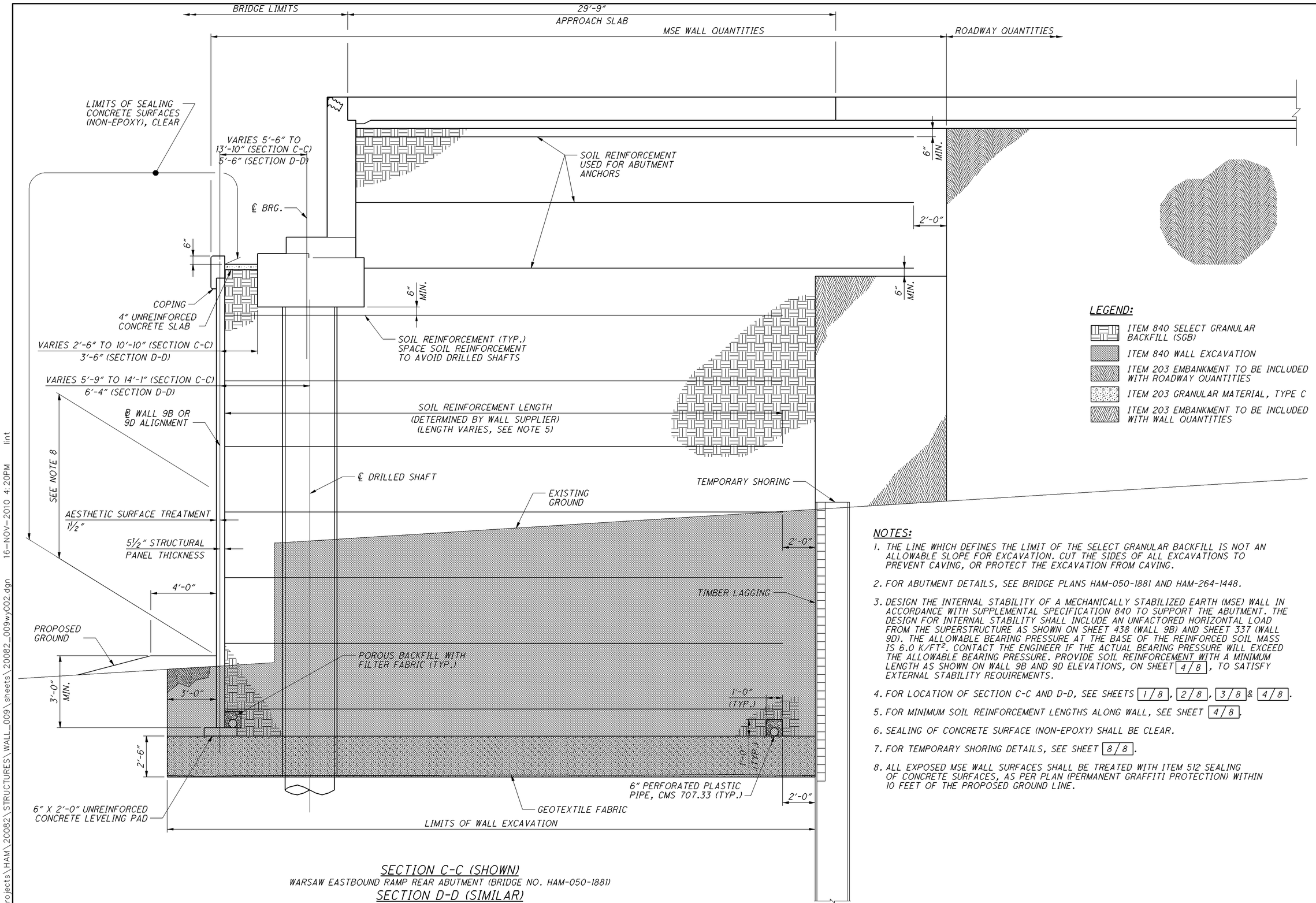

SECTION C-C (SHOWN)

WARSAW EASTBOUND RAMP REAR ABUTMENT (BRIDGE NO. HAM-050-1881)

SECTION D-D (SIMILAR)

WARSAW WESTBOUND RAMP REAR ABUTMENT (BRIDGE NO. HAM-264-1448)

LEGEND:

- ITEM 840 SELECT GRANULAR BACKFILL (SGB)
- ITEM 840 WALL EXCAVATION
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH ROADWAY QUANTITIES
- ITEM 203 GRANULAR MATERIAL, TYPE C
- ITEM 203 EMBANKMENT TO BE INCLUDED WITH WALL QUANTITIES

NOTES:

1. THE LINE WHICH DEFINES THE LIMIT OF THE SELECT GRANULAR BACKFILL IS NOT AN ALLOWABLE SLOPE FOR EXCAVATION. CUT THE SIDES OF ALL EXCAVATIONS TO PREVENT CAVING, OR PROTECT THE EXCAVATION FROM CAVING.
2. FOR ABUTMENT DETAILS, SEE BRIDGE PLANS HAM-050-1881 AND HAM-264-1448.
3. DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 840 TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE AS SHOWN ON SHEET 438 (WALL 9B) AND SHEET 337 (WALL 9D). THE ALLOWABLE BEARING PRESSURE AT THE BASE OF THE REINFORCED SOIL MASS IS 6.0 K/FT². CONTACT THE ENGINEER IF THE ACTUAL BEARING PRESSURE WILL EXCEED THE ALLOWABLE BEARING PRESSURE. PROVIDE SOIL REINFORCEMENT WITH A MINIMUM LENGTH AS SHOWN ON WALL 9B AND 9D ELEVATIONS, ON SHEET 4/8, TO SATISFY EXTERNAL STABILITY REQUIREMENTS.
4. FOR LOCATION OF SECTION C-C AND D-D, SEE SHEETS 1/8, 2/8, 3/8 & 4/8.
5. FOR MINIMUM SOIL REINFORCEMENT LENGTHS ALONG WALL, SEE SHEET 4/8.
6. SEALING OF CONCRETE SURFACE (NON-EPOXY) SHALL BE CLEAR.
7. FOR TEMPORARY SHORING DETAILS, SEE SHEET 8/8.
8. ALL EXPOSED MSE WALL SURFACES SHALL BE TREATED WITH ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION) WITHIN 10 FEET OF THE PROPOSED GROUND LINE.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 9 DETAILS III

HAM-50-18.79
PID No. 20082

7 / 8

354
657

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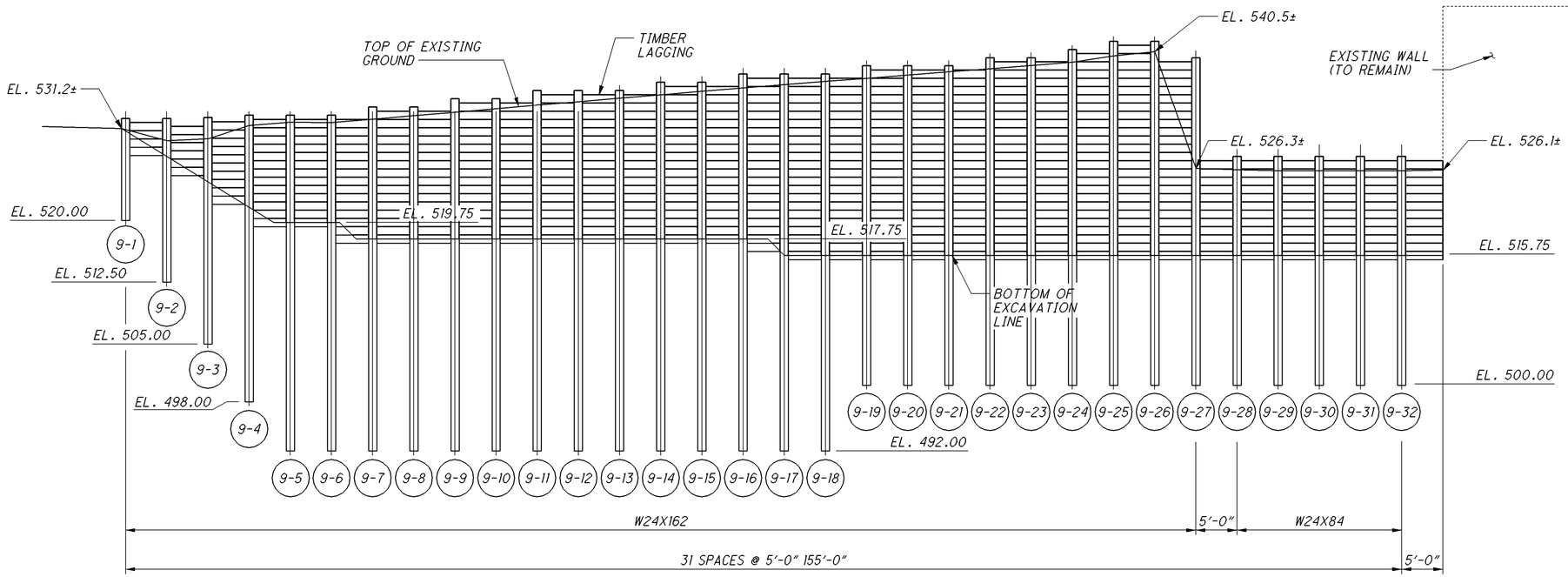
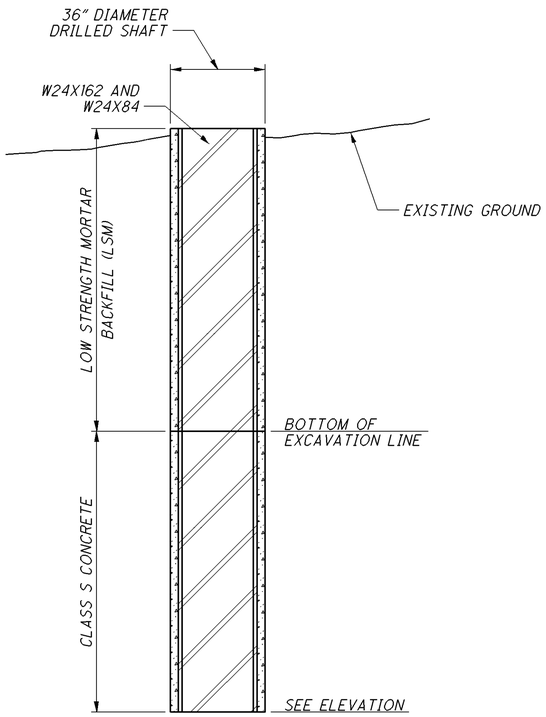


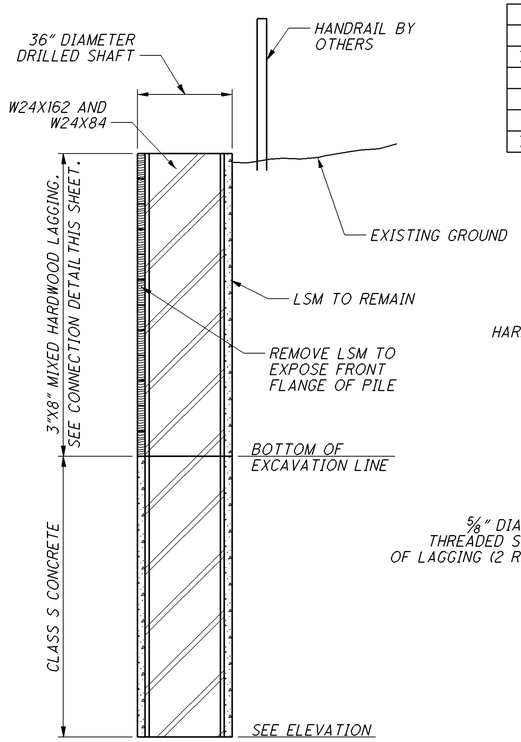
TEMPORARY SHORING ELEVATION

PILE NUMBER	9-1	9-2	9-3	9-4	9-5	9-6	9-7	9-8	9-9	9-10	9-11	9-12	9-13	9-14	9-15	9-16
TOP OF PILE	532.4	532.4	532.5	532.8	532.8	532.8	533.8	533.8	534.8	534.8	535.8	535.8	535.8	536.8	536.8	537.8
TOP OF LAGGING	531.9	531.5	532.0	532.3	532.3	532.2	533.3	533.3	534.3	534.3	535.3	535.3	535.3	536.3	537.3	537.3

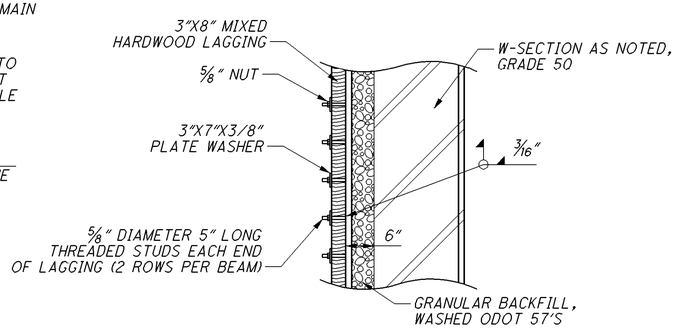
PILE NUMBER	9-17	9-18	9-19	9-20	9-21	9-22	9-23	9-24	9-25	9-26	9-27	9-28	9-29	9-30	9-31	9-32
TOP OF PILE	537.8	537.8	538.8	538.8	538.8	539.8	539.8	540.8	541.8	541.8	539.8	527.8	527.8	527.8	527.8	527.8
TOP OF LAGGING	537.3	537.3	538.3	538.3	538.3	539.3	539.3	540.3	541.3	539.3	527.3	527.3	527.3	527.3	527.3	527.3



TYPICAL SECTION
PRIOR TO EXCAVATION



TYPICAL SECTION
AFTER EXCAVATION



LAGGING CONNECTION DETAIL

NOTES:

1. FOR SHORING PLAN VIEW, SEE SHEET 2/8.
2. STRUCTURAL STEEL SHALL BE ASTM A572, GRADE 50.
3. PILES AND CONCRETE MUST BE INSTALLED PRIOR TO TEMPORARY WALL EXCAVATION.
4. INSTALLATION OF LAGGING SHALL PROCEED FROM THE EXISTING GROUND TO THE EXCAVATION LINE (TOP-DOWN).
5. UNSUPPORTED EXCAVATION SHALL BE DEFINED AS EXCAVATION THAT EXTENDS MORE THAN 4 FEET BELOW AN INSTALLED BRACE, AND SHALL NOT BE PERMITTED.
6. ALL EXPOSED EXCAVATION SURFACES SHALL BE SUPPORTED AS DEFINED IN THE PLANS WITHIN 6 DAYS FROM THE INITIAL EXCAVATION.
7. ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT THE EXCAVATION SUPPORT WALL SHALL BE INCLUDED WITH ITEM 503 COFFERDAMS AND EXCAVATION BRACING FOR PAYMENT.

LEGEND:

(9-1) - WALL NUMBER - PILE NUMBER

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL			

WALL 9 DETAILS IV

HAM-50-18.79
PID No. 20082

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EXIST. WALL
DEITRIECH INVESTMENTS, INC.
PO BOX 18986
FAIRFIELD, OH 45018
WILDER AVE.
12" SAN
BEGIN WALL MATCH EXIST.
POT Sta. 10+00.00
COFFERDAMS AND EXCAVATION BRACING (TYP.)
PROPOSED DRAINAGE PIPE
H & N LAND CO.
PO BOX 4131
CINCINNATI, OH 45204
Ex R/W
PORTIONS OF STRUCTURE REMOVED
SEE SHEET 361/657 FOR CONSTRUCTION PHASING NOTES
EX. WALL
STEPHEN R. WEBER
2419 GLENWAY AVE.
CINCINNATI, OH 45204
POT Sta. 12+41.59
CONSTRUCTION LIMITS
B-1
B-2
B-3
BRENNER & JANSEN PROPERTIES, INC.
PO BOX 36008
CINCINNATI, OH 45236
PC Sta. 10+22.52
PT Sta. 10+67.93
EX. SAN LINE (TO BE REMOVED)
PROPOSED FOOTING
PROPOSED RETAINING WALL
EX. ABANDONED SAN. MH (TO BE REMOVED)
℄ WALL
5'-0" SIDEWALK
PROPOSED DRAINAGE PIPE
Ex SH
PROPOSED SAN. LINE
EXIST. SAN. MH (TO BE REMOVED)
PROP. MH NO. 3
PROP. MH No. 1
END WALL MATCH EXIST.
EDGE OF PVMT.
PROPOSED RETAINING WALL
PROPOSED STAIRS WITH HANDRAIL
PROPOSED SIDEWALK
PROPOSED STAIRS WITH HANDRAIL
POSSIBLE UTILITY LINE CONFLICTS (GAS AND WATER)
OUTLET TO EX. CATCH BASIN
GLENWAY AVE.
EXIST. CURB
TEE INTO EXIST. STM.
CONSTRUCTION LIMITS

PLAN

| | | |

SEEDING	
END WIDTH	SQ. YDS.
	115
37	
	98
41	
	213

℄ WALL

LIMITS OF CONSTRUCTION

5'-0" PROPOSED SIDEWALK

SAWCUT

1 (MAX.) 1

10+22.52

LIMITS OF CONSTRUCTION

SHEETING AND SHORING, TO BE DESIGNED BY THE CONTRACTOR (TYP.)

PROPOSED SIDEWALK (TYP.)

SAWCUT

¼"/FT.

1 (MAX.) 1

10+00.00

℄ WALL

605 600 595 590 585 610

60 50 40 30 20 10 0 10 20 30 40 50 60

ITEM 202 - PORTIONS OF STRUCTURE REMOVED

ITEM 203 - EXCAVATION

ITEM 503- UNCLASSIFIED EXCAVATION

* TOTAL INCLUDES ITEM 203 ONLY

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		216*	
146*			
		73*	
28*			
		289*	

CALCULATED JLM

CHECKED NCK

CROSS SECTIONS

STA. 10+00.00 TO STA. 10+22.52

HAM-50-18.79

357
657

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SEEDING	
END WIDTH	SQ. YDS.
	182
38	
	33
38	
	215

℄ WALL

LIMITS OF CONSTRUCTION

SAWCUT

1 (MAX.) 1

610 605 600 595 590 585

10+57.93

LIMITS OF CONSTRUCTION

5'-0" PROPOSED SIDEWALK

1/4"/FT.

SAWCUT

1 (MAX.) 1

10+50.00

℄ WALL

60 50 40 30 20 10 0 10 20 30 40 50 60

ITEM 202 - PORTIONS OF STRUCTURE REMOVED

ITEM 203 - EXCAVATION

ITEM 503- UNCLASSIFIED EXCAVATION

* TOTAL INCLUDES ITEM 203 ONLY

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		394*	
295*			
		84*	
278*			
		478*	

CALCULATED JLM

CHECKED NCK

CROSS SECTIONS

STA. 10+50.00 TO STA. 10+57.93

HAM-50-18.79

358
657

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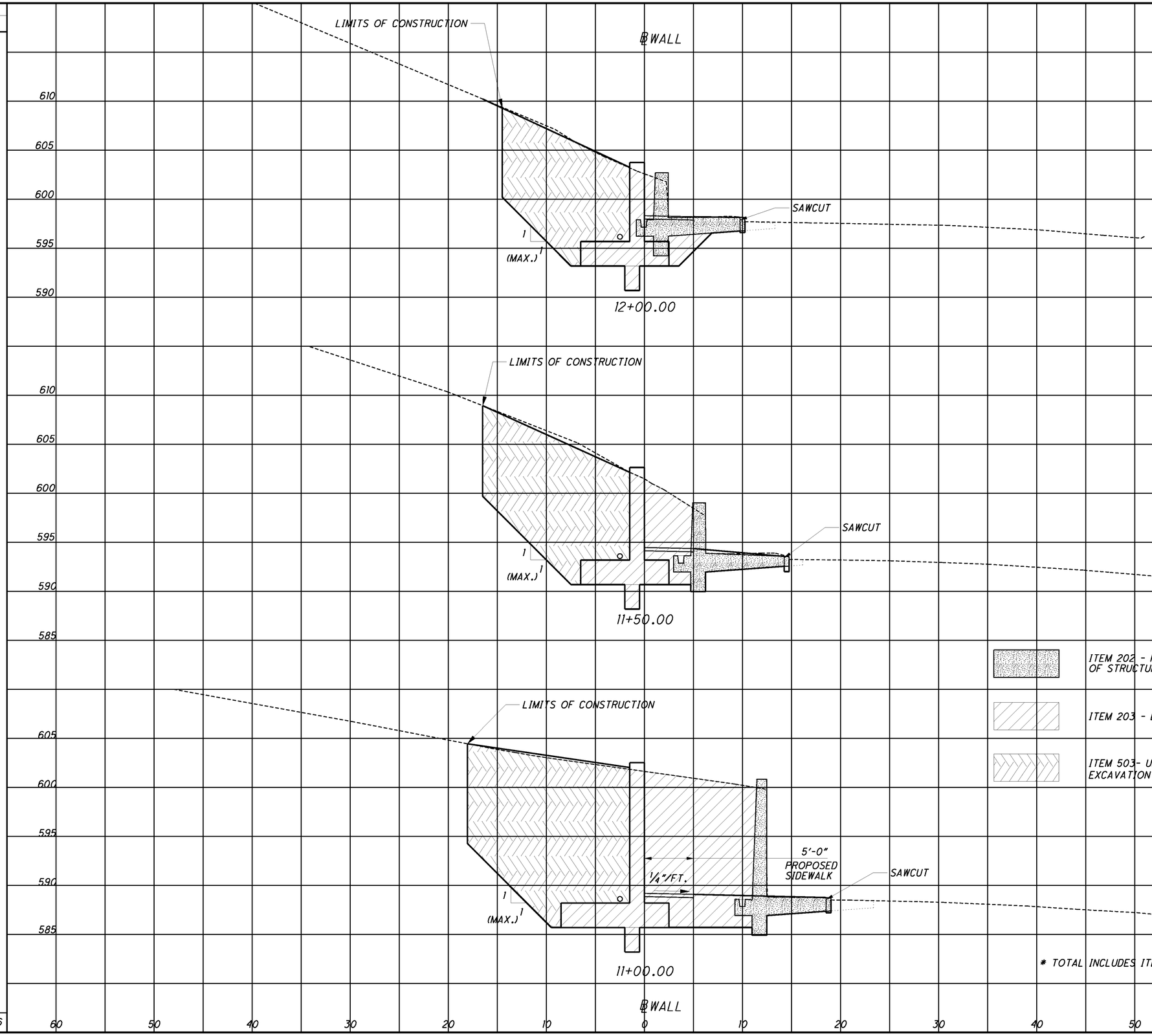
SEEDING END WIDTH	SEEDING SQ. YDS.
	134
32	
	175
31	
	197
40	
	506



ITEM 202 - PORTIONS OF STRUCTURE REMOVED

ITEM 203 - EXCAVATION

ITEM 503- UNCLASSIFIED EXCAVATION

* TOTAL INCLUDES ITEM 203 ONLY

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		59*	
46*			
		112*	
75*			
		265*	
211*			
		436*	

CALCULATED JLM

CHECKED NCK

CROSS SECTIONS

STA. 11+00.00 TO STA. 12+00.00

HAM-50-18.79

359
657

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SEEDING	
END WIDTH	SQ. YDS.

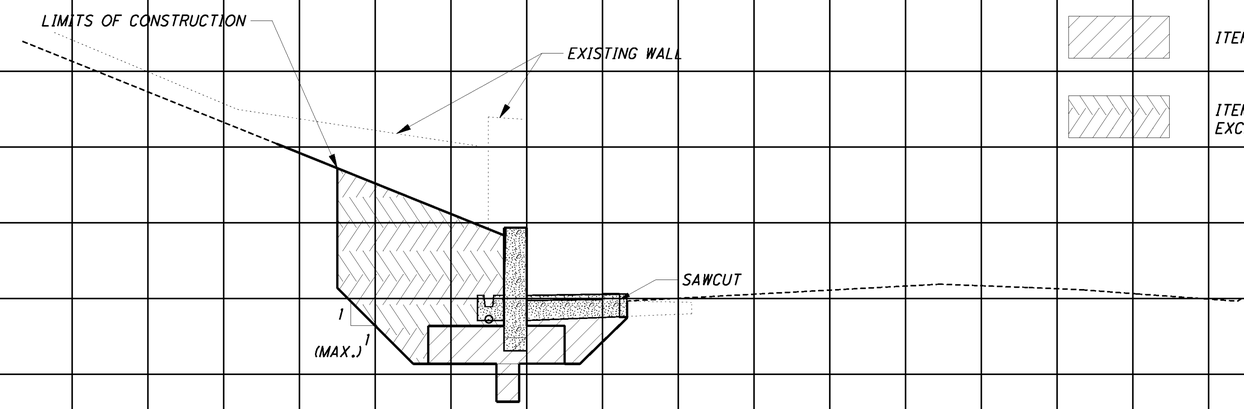
END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED JLM

CHECKED NCK

℄ WALL



ITEM 202 - PORTIONS OF STRUCTURE REMOVED

ITEM 203 - EXCAVATION

ITEM 503- UNCLASSIFIED EXCAVATION

26

31*

* TOTAL INCLUDES ITEM 203 ONLY

CROSS SECTIONS STA. 12+41.59

HAM-50-18.79

360
657

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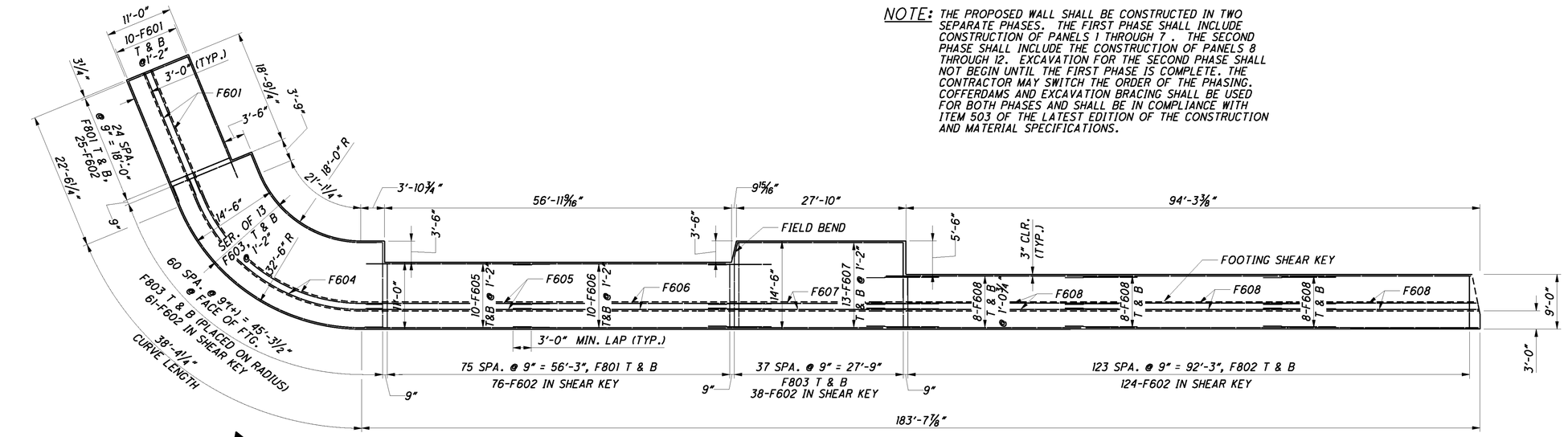
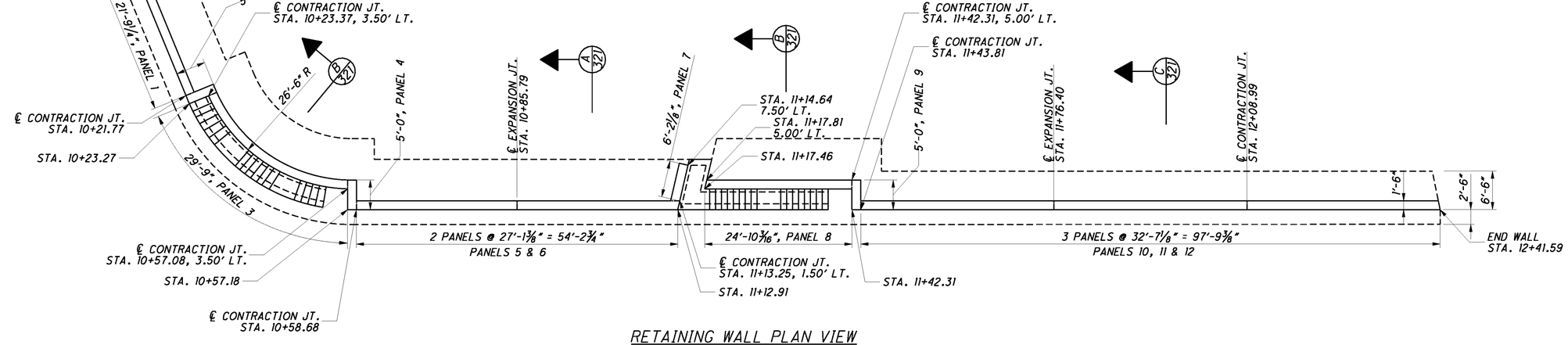
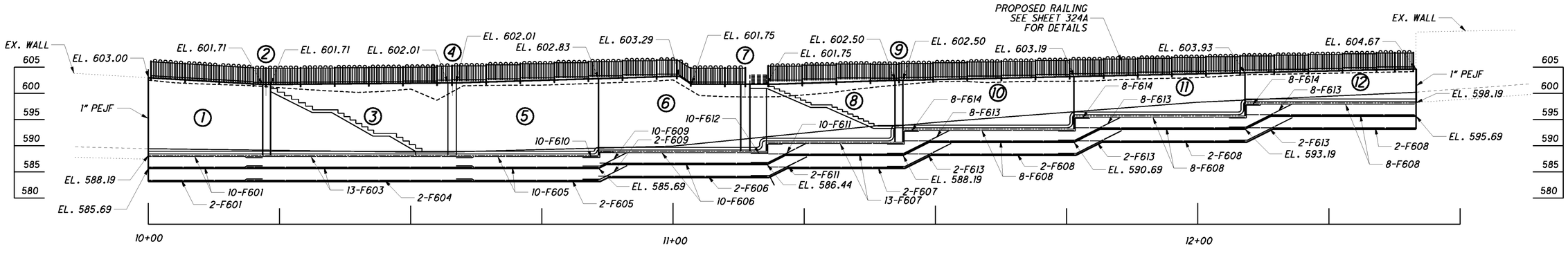
NOTE: THE PROPOSED WALL SHALL BE CONSTRUCTED IN TWO SEPARATE PHASES. THE FIRST PHASE SHALL INCLUDE CONSTRUCTION OF PANELS 1 THROUGH 7 . THE SECOND PHASE SHALL INCLUDE THE CONSTRUCTION OF PANELS 8 THROUGH 12. EXCAVATION FOR THE SECOND PHASE SHALL NOT BEGIN UNTIL THE FIRST PHASE IS COMPLETE. THE CONTRACTOR MAY SWITCH THE ORDER OF THE PHASING. COFFERDAMS AND EXCAVATION BRACING SHALL BE USED FOR BOTH PHASES AND SHALL BE IN COMPLIANCE WITH ITEM 503 OF THE LATEST EDITION OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.



FOOTING PLAN



RETAINING WALL PLAN VIEW



RETAINING WALL ELEVATION VIEW

DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED	DRAWN	REVIEWED	DATE
JLM	JLM	SSK	6/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NCK			

PLAN AND ELEVATION
RETAINING WALL

HAM-50-18.79
PID 20082

361
657

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ESTIMATED QUANTITIES

CALC'D BY : JLM DATE: 4/1/10
CHECKED BY : NCK DATE: 4/9/10

ITEM	EXT.	TOTAL	UNIT	ITEM DESCRIPTION
202	11200	LUMP		PORTIONS OF STRUCTURE REMOVED
202	35100	114	FT	PIPE REMOVED, 24" AND UNDER
202	58000	2	EACH	MANHOLE REMOVED
203	10000	1203	CU. YD.	EXCAVATION
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	21300	LUMP		UNCLASSIFIED EXCAVATION
509	10000	68089	POUND	EPOXY COATED REINFORCING STEEL
511	46000	179	CU. YD.	CLASS C CONCRETE, RETAINING WALL ABOVE FOOTING
511	46500	278	CU.YD	CLASS C CONCRETE, FOOTING
511	71100	6	CU.YD	CONCRETE, MISC. : STAIRS
512	10050	359	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY)
516	13600	38	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
517	76300	253	FT.	RAILING, MISC.: HAND RAILING FOR WALL
517	76300	49	FT.	RAILING MISC.: HAND RAILING FOR STAIRS
518	21200	175	CU.YD.	POROUS BACKFILL WITH FILTER FABRIC
518	40000	240	FT.	6" PERFORATED CORRUGATED PLASTIC PIPE
518	40010	66	FT.	6" NON-PEFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS
603	04600	67	FT.	12" CONDUIT, TYPE C
604	30100	1	EACH	MANHOLE NO. 1
604	31500	1	EACH	MANHOLE NO. 3
608	10000	1322	SQ. FT.	4" CONCRETE WALK
659	00100	2	EACH	SOIL ANALYSIS TEST
659	00300	104	CU.YD.	TOPSOIL
659	10000	934	SQ. YD.	SEEDING AND MULCHING
659	14000	47	SQ. YD.	REPAIR SEEDING AND MULCHING
659	15000	47	SQ. YD.	INTER-SEEDING
659	20000	0.13	TON	COMMERCIAL FERTILIZER
659	31000	0.20	ACRES	LIME
659	35000	5	M. GAL	WATER

NOTES:

DESIGN DATA:

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI
REINFORCING STEEL - ASTM A615, A616, OR A617
GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.

SEEDING AND MULCING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, SOIL ANALYSIS TEST	2 EACH
659, TOPSOIL	104 CU. YD.
659, SEEDING AND MULCHING	934 SQ.YD.
659, REPAIR SEEDING AND MULCHING	47 SQ. YD.
659, INTER -SEEDING	47 SQ. YD.
659, COMMERCIAL FERTILIZER	.13 TON
659, LIME	.20 ACRES
659, WATER	5 M.GAL

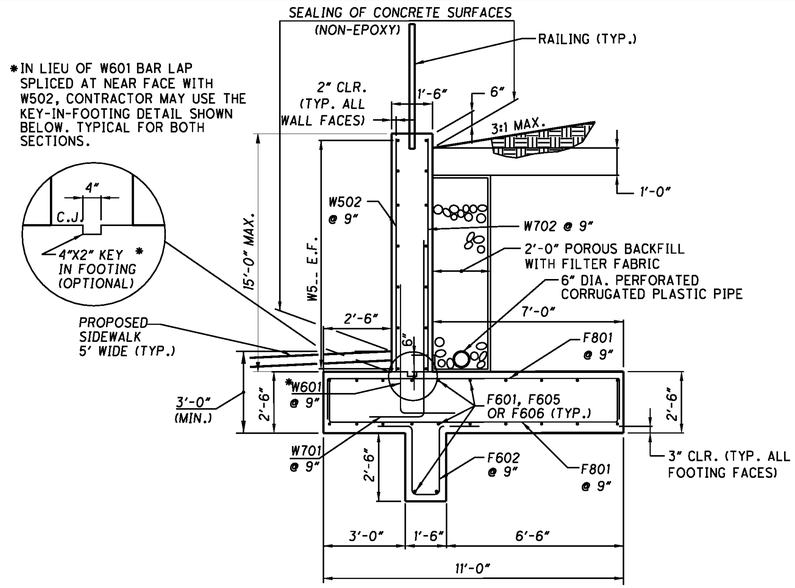
SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

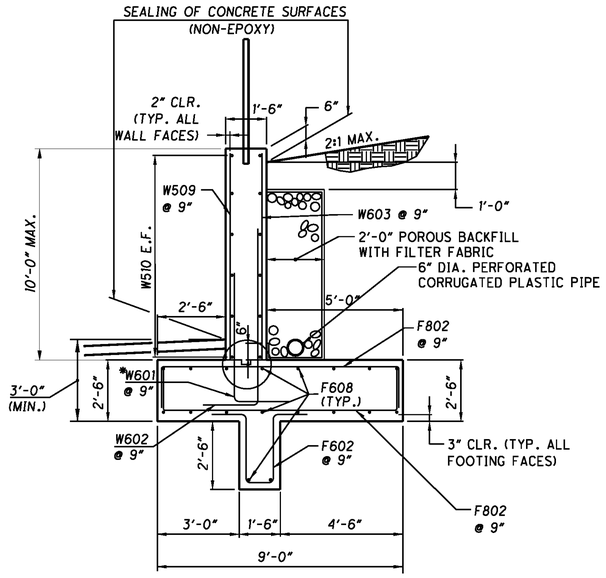
DESIGNED JLM | DRAWN JLM | REVIEWED SSK | DATE 6/10
CHECKED NCK | REVISED | STRUCTURE FILE NUMBER

STRUCTURE NOTES AND ESTIMATED QUANTITIES
RETAINING WALL

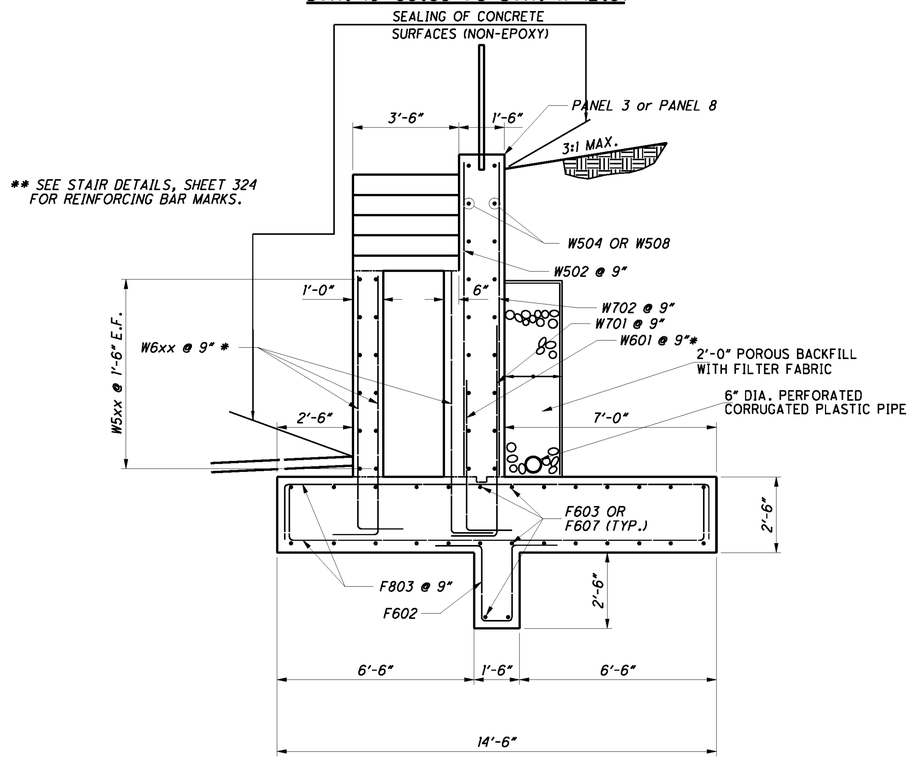
HAM-50-18.79
PID 20082



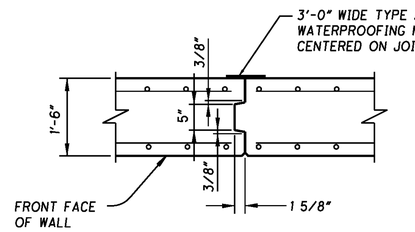
TYPICAL WALL SECTION -A (WALL PANELS ①,⑤,⑥)
STA. 10+00.00 TO STA. 10+21.77
STA. 10+58.68 TO STA. 11+12.91



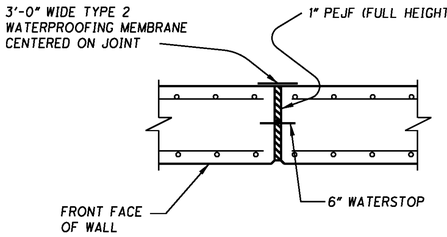
TYPICAL WALL SECTION - C (WALL PANELS ⑩, ⑪, ⑫)
STA. 11+43.81 TO STA. 12+41.59



TYPICAL WALL SECTION - B (WALL PANELS ③, ⑧)
AT STAIRS
STA. 10+23.27 TO STA. 10+57.18
STA. 11+17.46 TO STA. 11+42.31



CONTRACTION JOINT DETAIL



EXPANSION JOINT DETAIL

NOTE: COSTS FOR EXPANSION AND CONTRACTION JOINTS IS TO BE INCLUDED WITH ITEM 511, CLASS C CONCRETE, RETAINING WALL ABOVE FOOTING.

NOTE:

POROUS BACKFILL WITH FILTER FABRIC, 2'-0" THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, AND LATERALLY TO THE ENDS OF THE WALL.

DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED	DRAWN	REVIEWED	DATE
JLM	JLM	SSK	6/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NCK			

WALL DETAILS
RETAINING WALL

HAM-50-18.79
PID 20082

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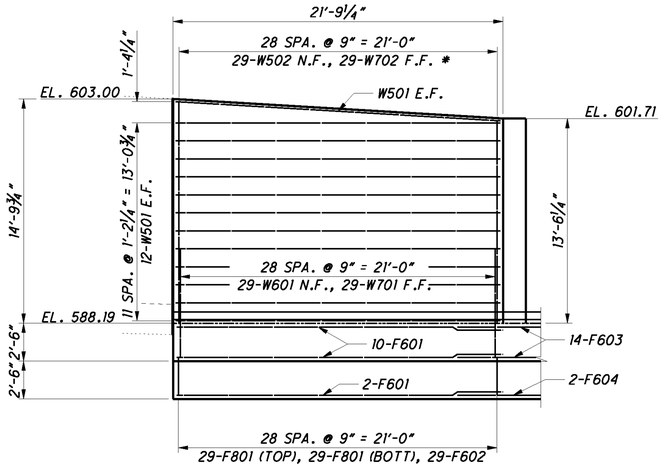
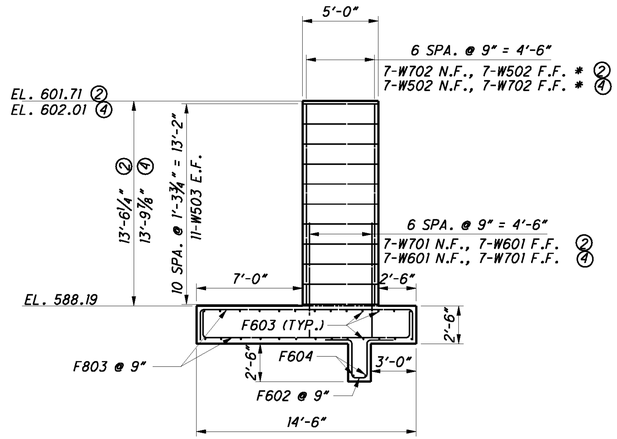
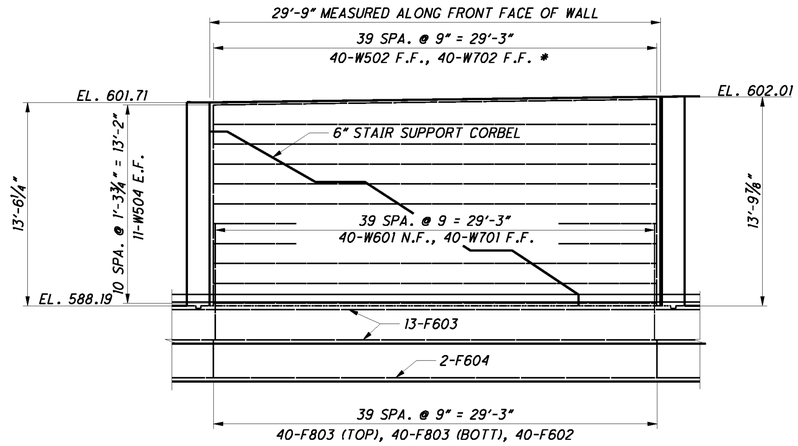


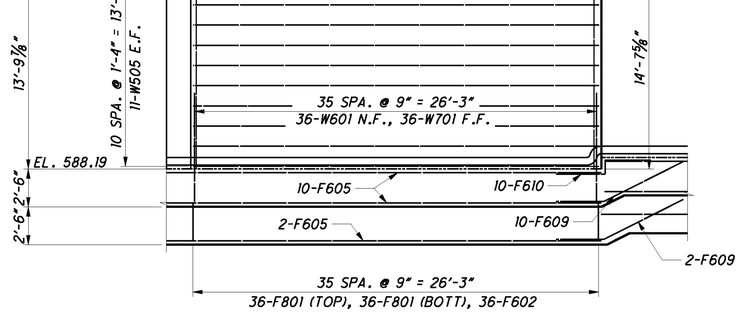
PANEL 1



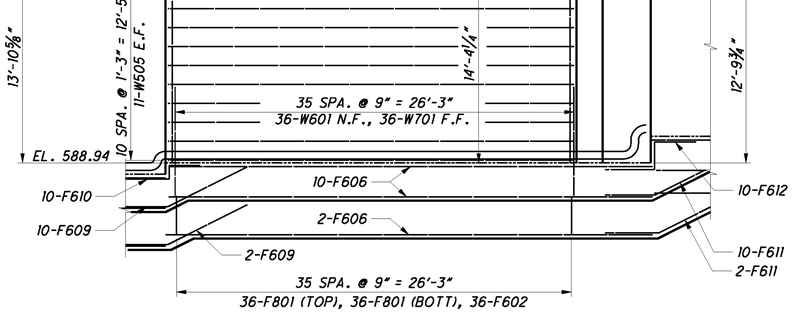
PANELS 2 AND 4



PANEL 3



PANEL 5



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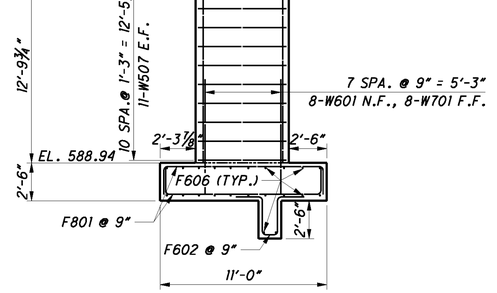

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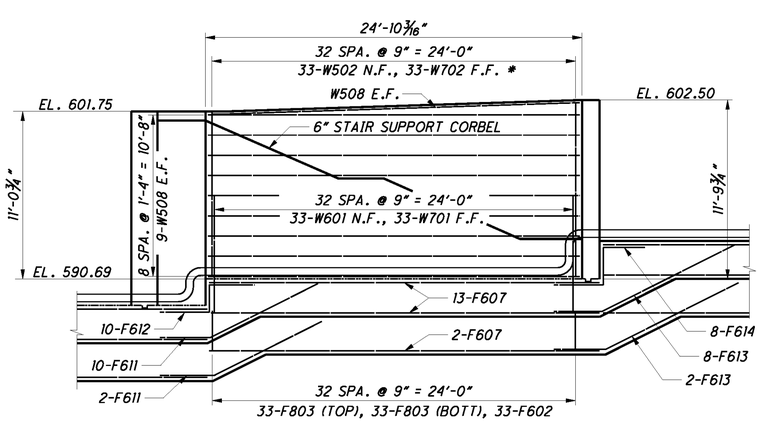

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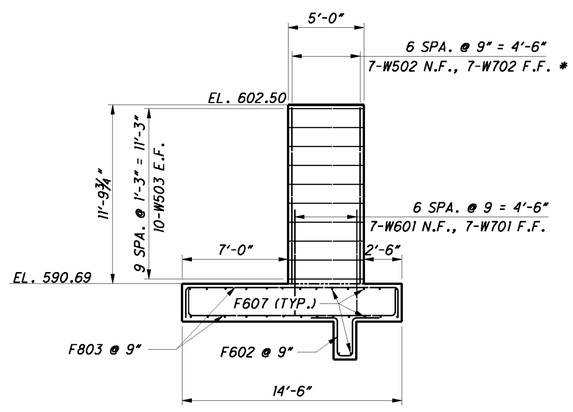

PANEL 9

LEGEND

* - FIELD CUT BARS TO ADJUST HEIGHT (TYPICAL AT EACH PANEL)
N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE

NOTES

1.) SEE SHEET 324a FOR RAILING DETAILS.

DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED	DRAWN	REVIEWED	DATE
JLM	JLM	SSK	6/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NCK			

WALL PANEL DETAILS
RETAINING WALL

HAM-50-18.79
PID 20082

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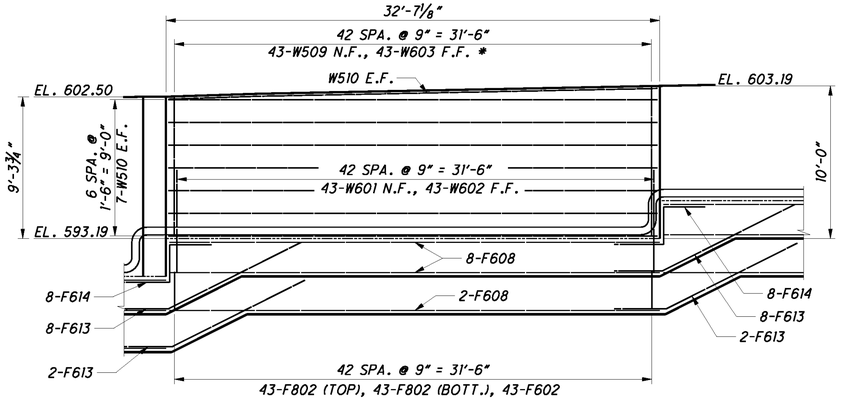

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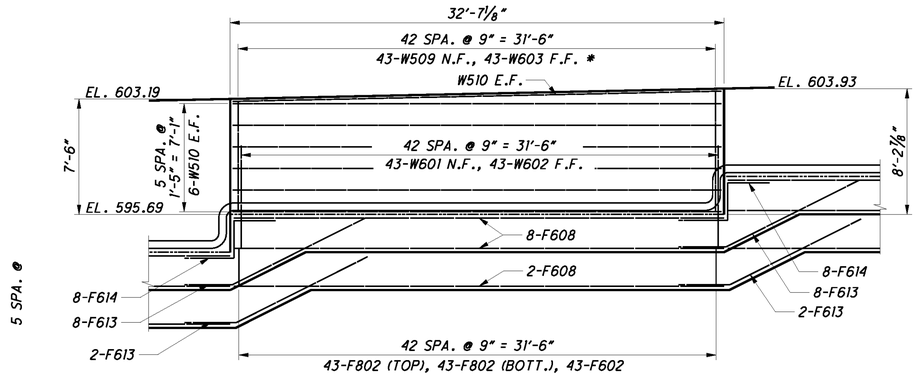
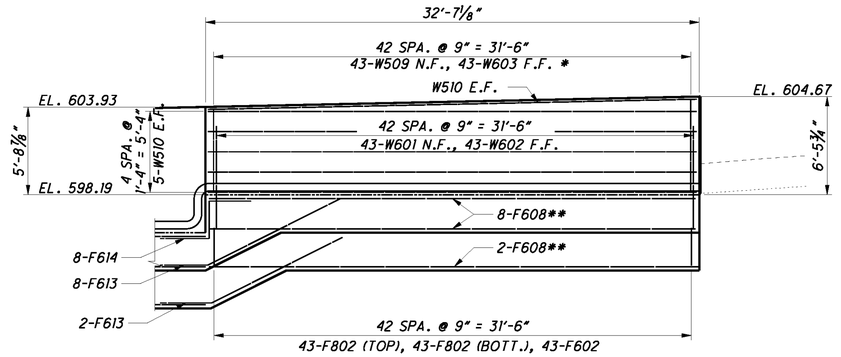


PANEL 11



PANEL 12

LEGEND

* - FIELD CUT BARS TO ADJUST HEIGHT (TYPICAL AT EACH PANEL)
** - FIELD CUT BARS TO ADJUST LENGTH
N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE

NOTES

1.) SEE SHEET 324a FOR RAILING DETAILS.

DESIGN AGENCY
RESOURCE INTERNATIONAL, INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED	DRAWN	REVIEWED	DATE
JLM	JLM	SSK	6/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NCK			

WALL PANEL DETAILS
RETAINING WALL

HAM-50-18.79
PID 20082

365
657

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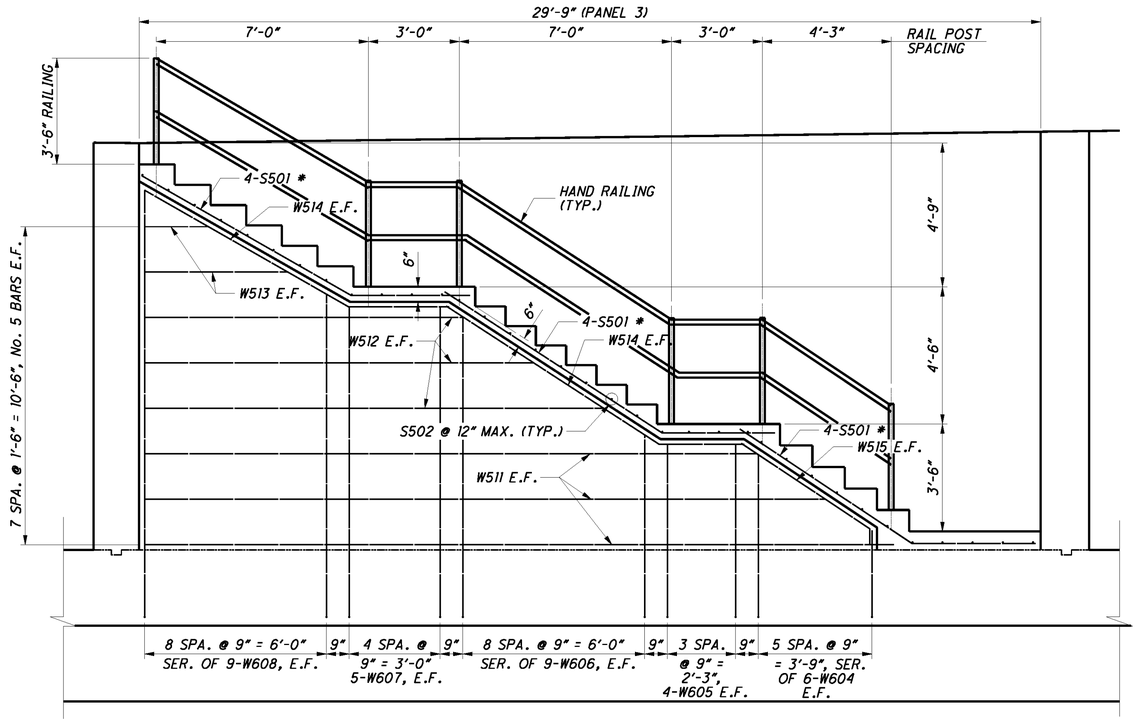
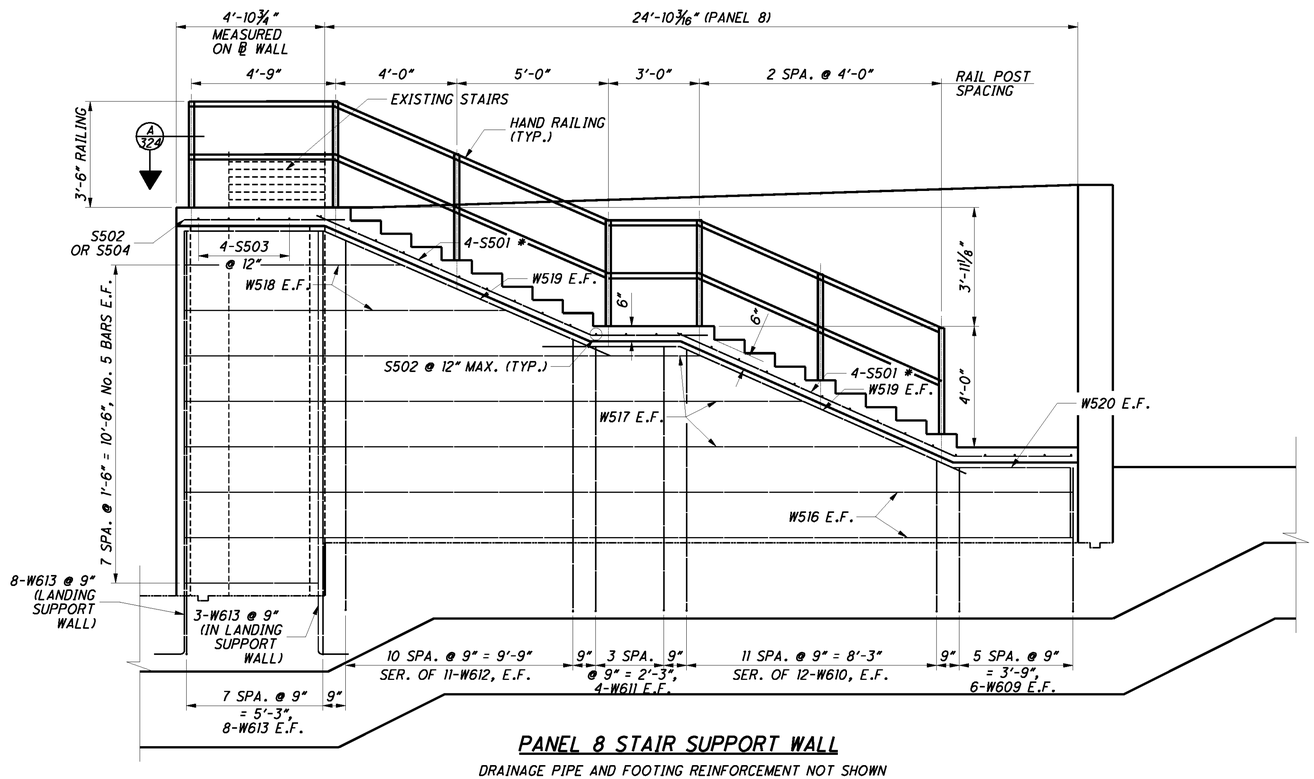


PANEL 3 STAIR SUPPORT WALL

DRAINAGE PIPE AND FOOTING REINFORCEMENT NOT SHOWN



PANEL 8 STAIR SUPPORT WALL

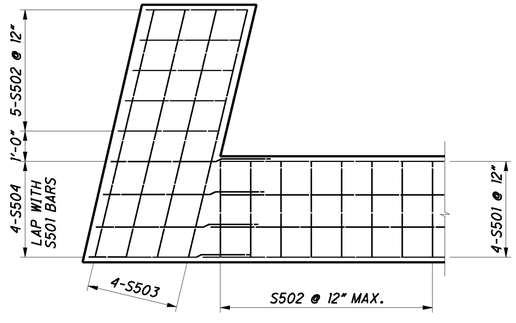
DRAINAGE PIPE AND FOOTING REINFORCEMENT NOT SHOWN

LEGEND

\# - FIELD BEND AND CUT BARS TO FIT
N.F. - NEAR FACE
F.F. - FAR FACE
E.F. - EACH FACE

NOTES:

1.) FOR DETAILS NOT SHOWN SEE ODOT SCD RM-2.1 CONCRETE STEPS



VIEW A

LANDING DETAIL

DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED	DRAWN	REVIEWED	DATE
JLM	JLM	SSK	6/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NCK			

STAIR DETAILS

RETAINING WALL

HAM-50-18.79
PID 20082

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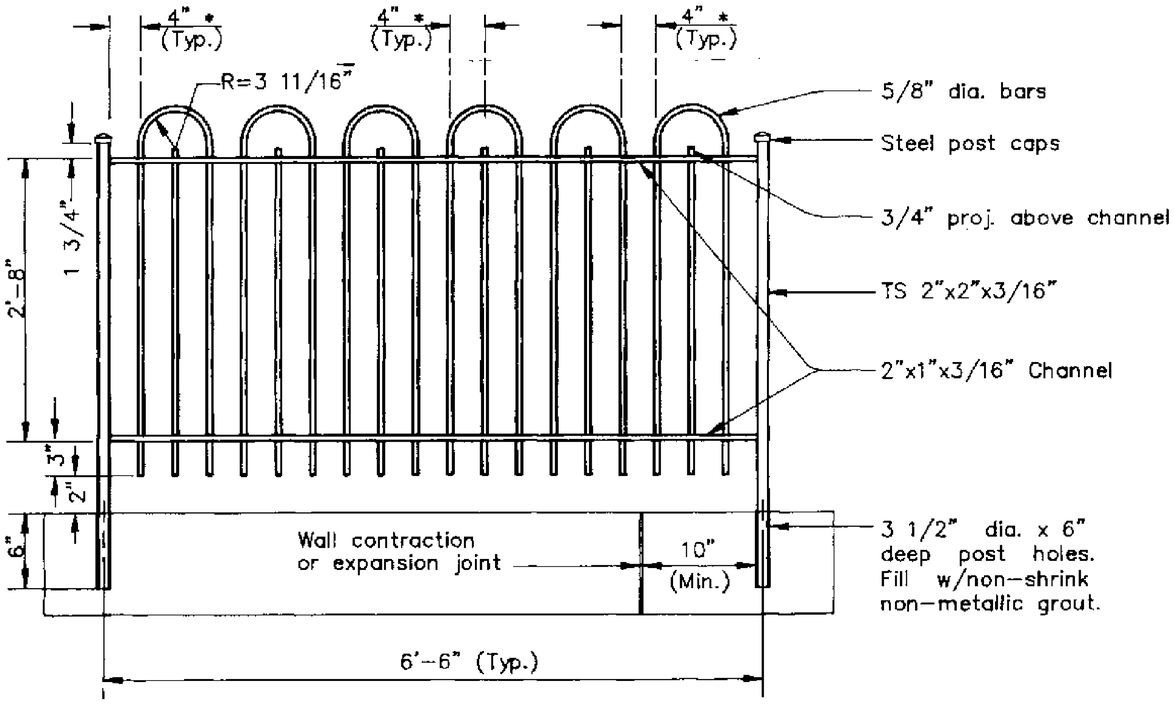
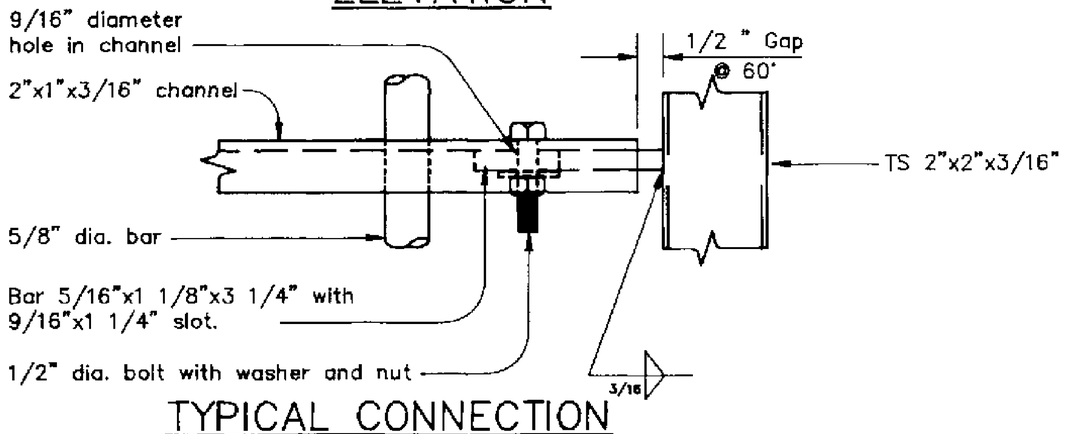


ELEVATION



TYPICAL CONNECTION

* Dimension may vary to fit specific location but shall be 6" maximum.

GENERAL NOTES:

1.) After fabricating, railing and post shall be hot-dip galvanized in accordance with 711.02. Sharp edges and burrs shall be removed before and after galvanization.

2.) Bars and channels in railing shall be fabricated from A36 steel. Posts shall be fabricated from A500 steel. All welds shall be made with E70XX electrodes by an A.W.S. certified welder.

3.) Fasteners shall be A307 bolts. Bolts, nuts, and washers shall be hot-dip galvanized in accordance with 711.02. Stainless steel hardware may be used at no additional cost to the city.

4.) Shop drawings shall be submitted and approved by the engineer prior to fabrication.

CITY OF CINCINNATI
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING

STANDARD RAILING DETAIL

City Engineer

ACC. NO. 26999

PAGE 035

NOTES:

1.) RAIL POSTS MAY BE FORMED WITH CONCRETE WALL IN LIEU OF CORING HOLES AND PROVIDING NON- METALLIC GROUT

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DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
8350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED JLM | DRAWN JLM | REVIEWED SSK | DATE 6/10
CHECKED NCK | REVISED | STRUCTURE FILE NUMBER

RAILING DETAILS
RETAINING WALL

HAM-50-18.79
PID 20082

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
WALL PANELS											
W501	26	21'-5"	581	STR							
W502	203	14'-7"	3088	STR							
W503	44	4'-8"	214	STR							
W504	22	29'-5"	675	STR*							
W505	46	26'-9"	1283	STR							
W506	2	20'-1"	42	2	15'-2 1/2"	4-0"	2'-10 1/2"				
W507	22	5'-10"	134	STR							
W508	18	24'-6"	460	STR							
W509	129	9'-10"	1323	STR							
W510	42	32'-3"	1413	STR							
W511	2 SER. OF 3	20'-2" TO 24'-9"	141	STR							2'- 3 1/2"
W512	2 SER. OF 3	10'-6" TO 15'-2"	80	STR							2'-4"
W513	2 SER. OF 2	2'-2" TO 4'-9"	14	STR							2'-7"
W514	4	11'-1"	46	2	7'-9"	2'-10 1/2"	1'-7 3/4"				
W515	2	5'-7"	12	2	5'-1"	3 1/2"	5 1/4"				
W516	4	29'-5"	123	STR							
W517	2 SER. OF 3	17'-0" TO 23'-9"	128	STR							3'-4 1/2"
W518	2 SER. OF 2	7'-2" TO 10'-7"	37	STR							3'-5"
W519	4	14'-11"	62	2	10'-4 1/16'	4'-1 5/8"	1'-10 1/16"				
W520	2	6'-1"	13	1	3'-10 13/16"	2'-3 3/4"					
W601	332	7'-1"	3532	1	6'-3"	1'-0"					
W602	129	8'-10"	1712	1	7'-6"	1'-6"					
W603	129	9'-10"	1905	STR							
W604	2 SER. OF 6	2'-11" TO 5'-5"	75	STR.							6"
W605	8	5'-9"	69	STR.							
W606	2 SER. OF 9	6'-1" TO 10'-0"	217	STR.							5 7/8"
W607	10	10'-3"	154	STR.							
W608	2 SER. OF 9	10'-9" TO 14'-2"	337	STR.							5 1/8"
W609	12	4'-9"	86	STR.							
W610	2 SER. OF 12	5'-0" TO 8'-8"	246	STR.							4"
W611	8	8'-9"	105	STR.							
W612	2 SER. OF 11	9'-0" TO 12'-3"	351	STR.							4 5/16"
W613	27	14'-3"	578								
W701	203	9'-1"	3769	1	7'-7"	1'-8"					
W702	203	14'-7"	6051	STR							
SUB-TOTAL			29055								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FOOTING											
F601	22	21'-6"	710	STR							
F602	324	8'-4"	4055	4							
F603	26	28'-6" TO 45'-0"	1435	STR*							1'-4 1/2"
F604	4	40'-3" TO 41'-6"	246	STR*							1'-3"
F605	22	27'-1"	895	STR							
F606	22	31'-11"	1055	STR							
F607	28	25'-9"	1083	STR							
F608	54	32'-4"	2622	STR							
F609	12	9'-0"	162	2	5'-8"	2'-11 1/2"	1'-5 3/4"				
F610	10	6'-8"	100	3	1'-0"						
F611	12	11'-6"	207	2	8'-0"	3'-2"	1'-7"				
F612	10	7'-6"	113	3	1'-10"						
F613	30	13'-2"	593	2	9'-9 1/2'	3'-0"	1'-6 3/8"				
F614	24	8'-2'	294	3	2'-6"						
F801	202	14'-1"	7596	5	10'-6"	2'-0"					
F802	248	12'-1"	8001	5	8'-6"	2'-0"					
F803	198	17'-7"	9296	5	14'-0"	2'-0"					
SUB-TOTAL			38464								
STAIRS											
S501	20	14'-0"	292	BT.	(SEE DIAGRAM BELOW)						
S502	67	3'-2"	221	STR							
S503	4	8'-4"	35	STR							
S504	4	5'-3"	22	STR							
SUB-TOTAL			570								
TOTAL			68089								

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE W501 IS A NO. 5 BAR.

2. BAR DIMENSIONS ARE OUT TO OUT UNLESS OTHERWISE NOTED. "R" INDICATES THE INSIDE RADIUS, UNELSS OTHERWISE NOTED.

3. ALL REINFORCING STEEL SHALL BE EPOXY COATED INCLUDING THE FIELD CUT BARS.

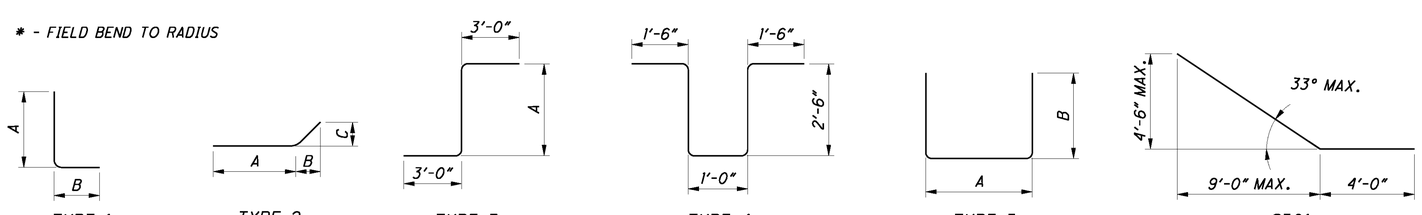
4. "STR" IN THE TYPE COLUMN INDICATES A STRAIGHT BAR.

5. ALL REINFORCING STEEL CLEARANCES ARE 2" UNLESS OTHERWISE NOTED.

6. THE FOLLOWING LAP LENGTH SHALL BE USED FOR LONGITUDINAL BARS, UNLESS OTHERWISE NOTED:

# 5 BAR	2'-6"

* - FIELD BEND TO RADIUS



DESIGN AGENCY
RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

DESIGNED JLM | DRAWN JLM | REVIEWED SSK | DATE 6/10 | CHECKED NCK | REVISED | STRUCTURE FILE NUMBER

REINFORCING STEEL LIST
RETAINING WALL

HAM-50-18.79
PID 20082

368
657

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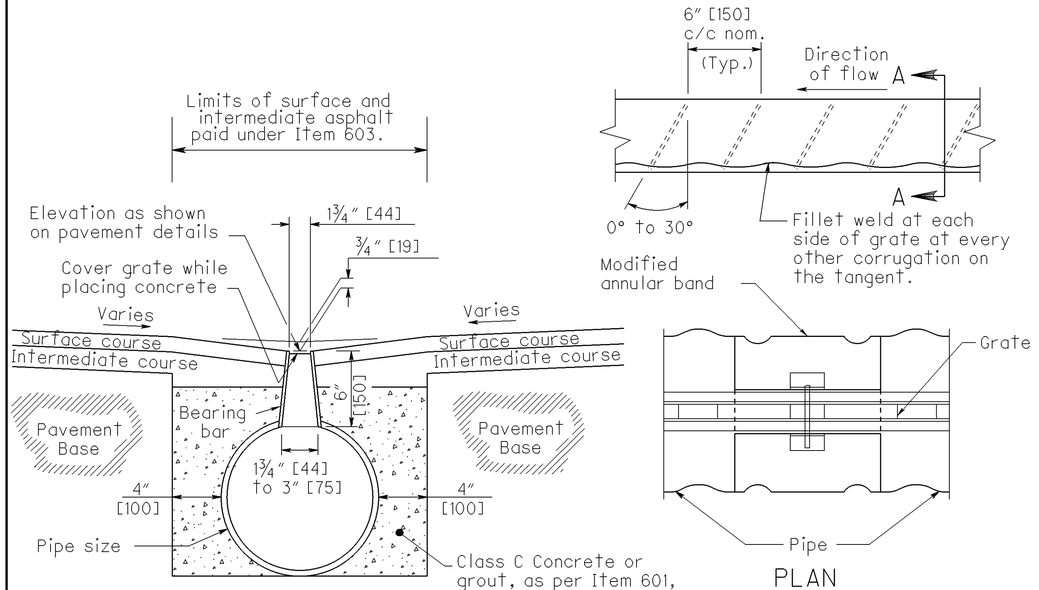
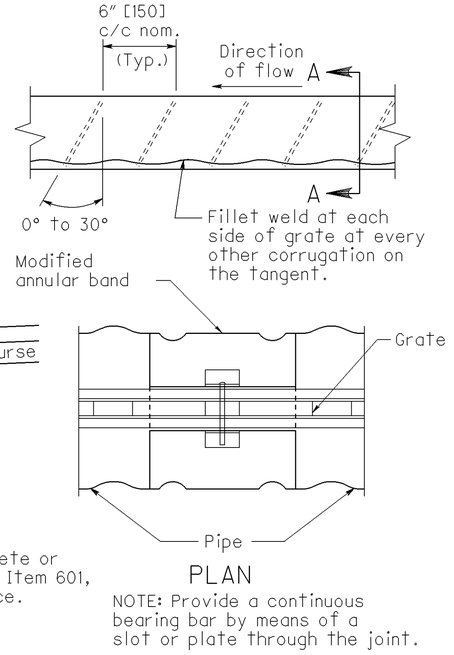
TYPE 1



SECTION A-A



PLAN

NOTE: Provide a continuous bearing bar by means of a slot or plate through the joint.

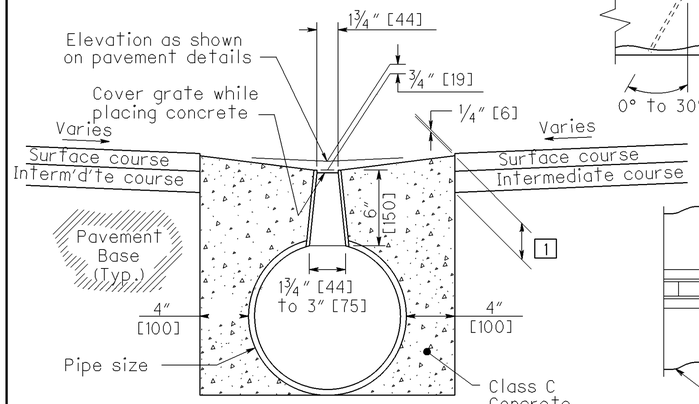
____" [mm] SLOTTED DRAIN, TYPE 1

(Refer to Sample Plan Note D119)

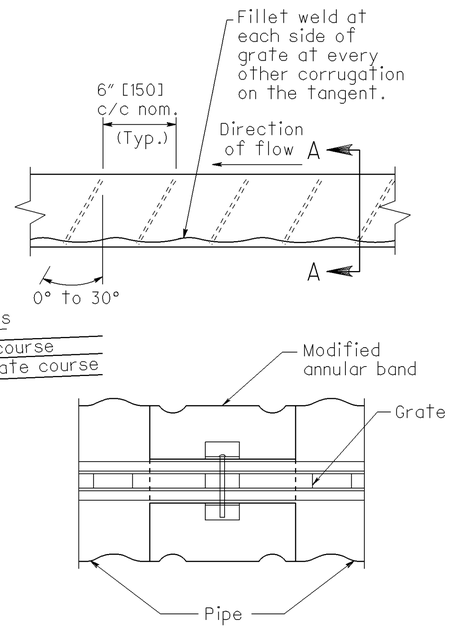
TYPE 2

NOTE: The asphalt surface course shall be placed ¼" [6] higher than the outside edge of the concrete surface.

[1] Surface on the side shall be formed to provide a straight edge for the top 3" [75].



SECTION A-A

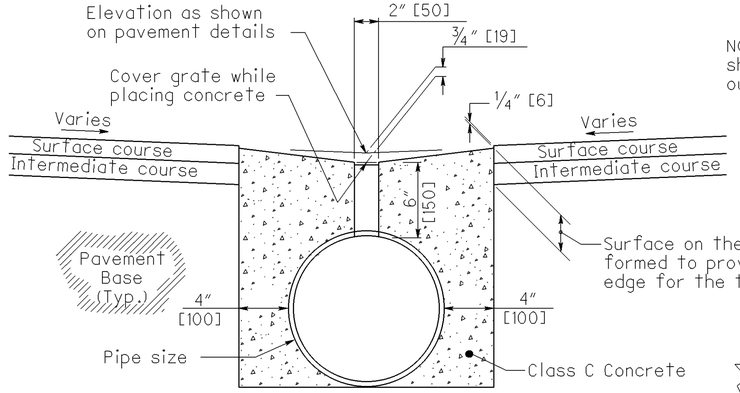


PLAN

____" [mm] SLOTTED DRAIN, TYPE 2

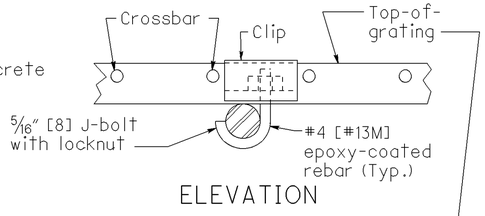
(Refer to Sample Plan Note D119)

TYPE 3

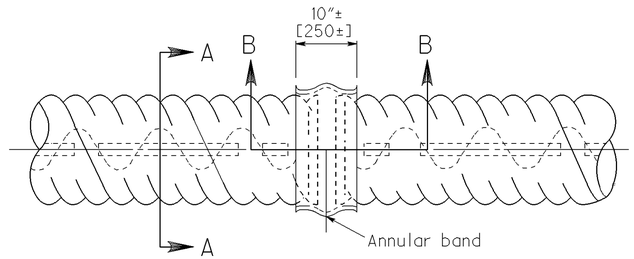


SECTION A-A

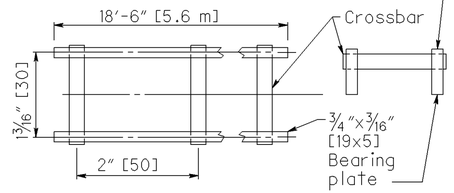
NOTE: The asphalt surface course shall be placed ¼" [6] higher than the outside edge of the concrete surface.



ELEVATION

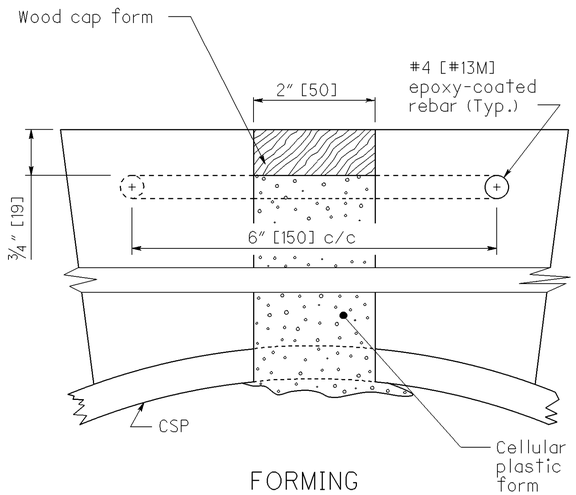


PLAN



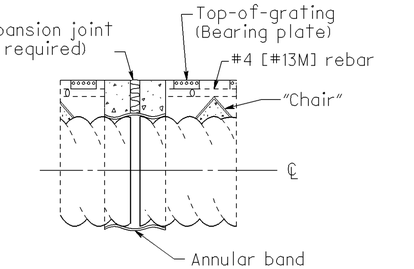
GRATING END VIEW

GRATING DETAILS

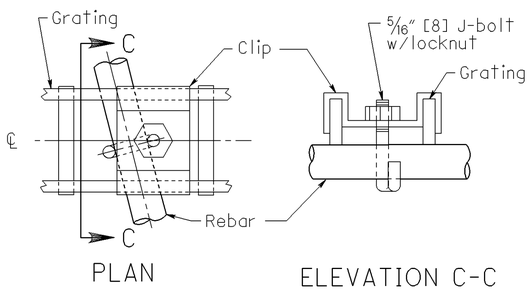


FORMING

Plastic form and wood cap to be placed on pipe in shop; to be removed after concrete has cured.



SECTION B-B



PLAN

ELEVATION C-C

____" [mm] SLOTTED DRAIN, TYPE 3

(Refer to Sample Plan Note D119)

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CALCULATED MH CHECKED JK

OHIO DEPARTMENT OF TRANSPORTATION
Brad Fagnell 7-20-01
ENGINEER OF BRIDGES DATE

REVISIONS

HYDR. ENGR. D. Gruver
DRAWN D. Focke

All metric dimensions (in brackets [ ]) are in millimeters unless otherwise noted.

OFFICE OF STRUCTURAL ENGINEERING

STANDARD HYDRAULIC CONSTRUCTION DRAWING
SLOTTED DRAINS

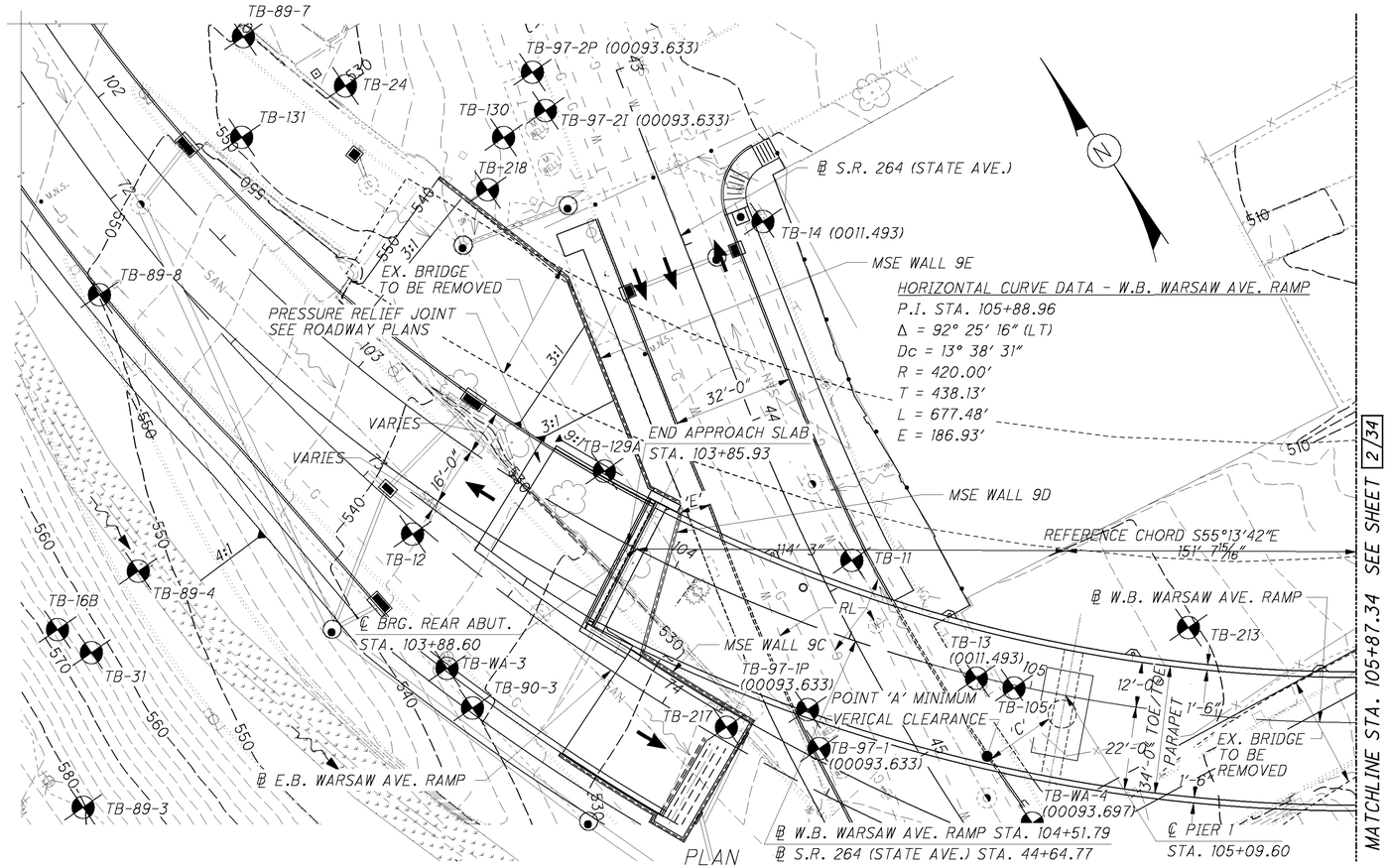
NUMBER DM-1.3

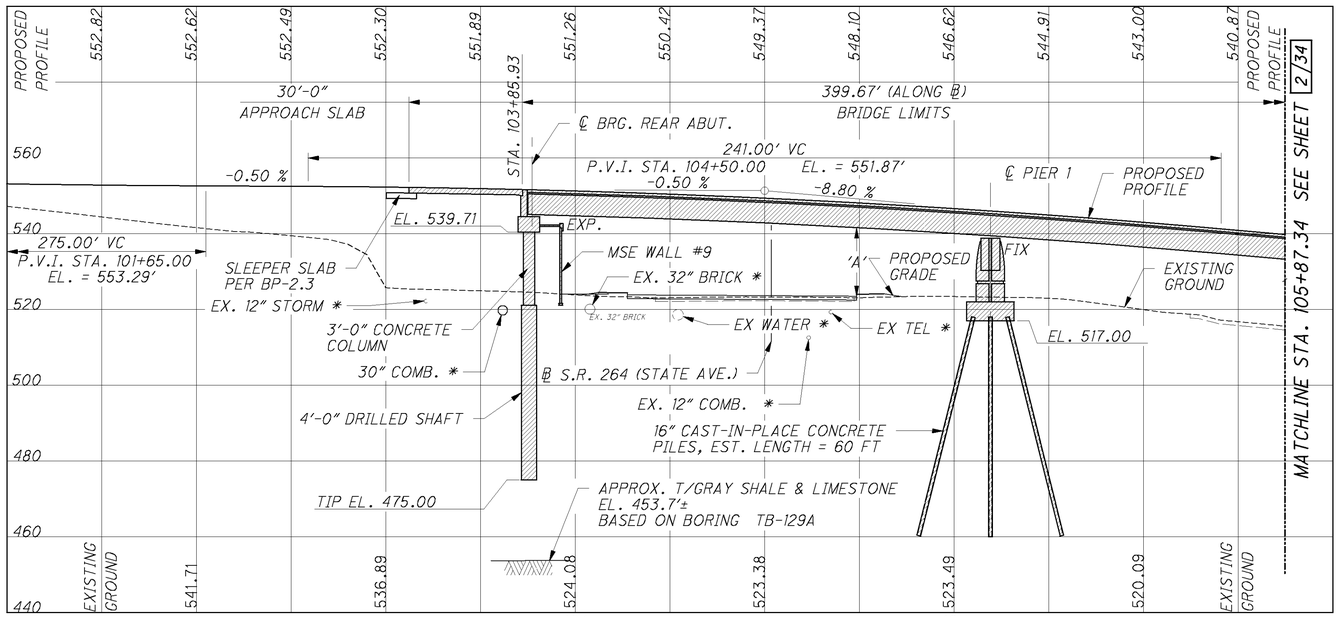
1 / 1

STANDARD CONSTRUCTION DRAWING DM-1.3

HAM-50-18.79

369
657





PROFILE ALONG ℄ W.B. WARSAW AVE. RAMP

* EX UTILITIES TO BE RELOCATED BY OTHERS

BENCHMARK DATA

BM #1 STA. 102+33.95 (HUB SET)	ELEV. 533.32	OFFSET 48.84' LT
BM #2 STA. 102+61.09 (PKF)	ELEV. 520.21	OFFSET 99.63' LT
BM #3 STA. 107+73.32 (PKF)	ELEV. 502.57	OFFSET 24.51 LT

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS AND MSE WALL PLAN.

DESIGN TRAFFIC:
2006 ADT = 4305 2006 ADTT = 43
2026 ADT = 4390 2026 ADTT = 44

SEE ROADWAY PLANS FOR DISPOSITION OF EXISTING UTILITIES.

LEGEND

- SOIL BORING LOCATION
- EXISTING PIER LOCATION
- POINT OF MINIMUM VERTICAL CLEARANCE

RL - EXISTING UTILITY TO BE RELOCATED
TB - TEST BORING

VERTICAL CLEARANCE
REQUIRED MINIMUM VERTICAL CLEARANCE = 16'-6"
'A' ACTUAL MINIMUM VERTICAL CLEARANCE = 17'-3"

HORIZONTAL CLEARANCE
'C' REQUIRED MINIMUM HORIZONTAL CLEARANCE = 15'-0"
'C' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 19'-2"

'E' REQUIRED MINIMUM HORIZONTAL CLEARANCE = 15'-0"
'E' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 8'-6"

EXISTING STRUCTURE

TYPE: 5-SPAN STEEL FRAMES WITH ALTERNATELY SUSPENDED SPANS SUPPORTING A GIRDER-FLOORBEAM-STRINGER SYSTEM WITH REINFORCED CONCRETE DECK. THE SUPERSTRUCTURE IS SUPPORTED BY REINFORCED CONCRETE ABUTMENT ON SPREAD FOOTINGS AND TAPERED, BUILT-UP STEEL COLUMN STRADDLE BENTS ON DRILLED CASSIONS OR PEDESTALS AND PILING.

SPANS: 61.355', 86.234', 55.000', 78.026', 56.084' (MEASURED ALONG CHORDS BETWEEN ℄ BEARING ABUTMENT AND PIERS.

ROADWAY: 24' F/F SAFETY CURB

LOADING: POSTED 16 TON

WEARING SURFACE: CONCRETE

SKEW: NONE (RADIAL)

APPROACH SLABS: AS-1-54 (25' LONG)

CROWN: VARIES

STRUCTURAL FILE NUMBER: 3102785

DATE BUILT: 1950

DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: 3-SPAN CONTINUOUS PLATE GIRDERS A709 GRADE 50 (PAINTED) WITH COMPOSITE CONCRETE DECK. SUPPORTED BY REINFORCED CONCRETE ABUTMENTS AND PIERS ON PILING OR DRILLED SHAFTS.

SPANS: 121', 152.5', 121', c/c BEARINGS ALONG ℄ (114'-3", 151'-7 15/16", 114'-3" c/c BEARINGS ALONG REFERENCE CHORD)

ROADWAY: 34'-0" TOE/TOE PARAPET

LOADING: HS25 CASE II AND ALTERNATE MILITARY FUTURE WEARING SURFACE (FWS) OF 60 PSF

SKEW: NONE (RADIAL)

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: 30' LONG (AS-1-81) MODIFIED

ALIGNMENT: LEFT CURVE - RADIUS = 420'

SUPERELEVATION: VARIES TO 0.058 FT/FT

COORDINATES: LATITUDE N 39° 06' 05"
LONGITUDE W 84° 33' 15"

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050
Columbus, Ohio 43240

DESIGNED XAC | DRAWN KML | REVIEWED RMK | DATE 02-20-08
CHECKED SJA | REVISED | STRUCTURE FILE NUMBER 3111636

HAMILTON COUNTY
STA. 103+85.93
STA. 107+85.60

SITE PLAN 1
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

1 / 34

370
657

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MATCHLINE STA. 105+87.34 SEE SHEET 1/34

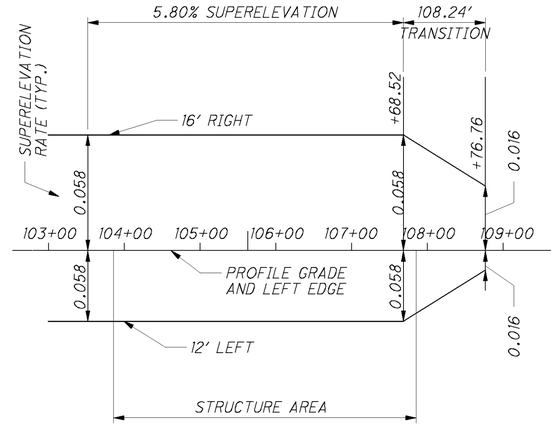
HORIZONTAL CURVE DATA - W.B. WARSAW AVE. RAMP
P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'

EX. NEAVE STREET TO BE REMOVED BY OTHERS
NEAVE ST.
MSE WALL 6A
P.I. STA. 108+28.13
P.I. STA. 109+34.06
℄ BRG. FWD. ABUT. STA. 107+83.10
PROPOSED SCUPPER
EX. BRIDGE TO BE REMOVED
TB-12 (0011.493)
REFERENCE CHORD S55°13'42"E
TB-WA-6 (00093.697)
℄ PIER 2 STA. 106+62.10
POINT 'B' MINIMUM VERICAL CLEARANCE
TB-WA-7 (00093.697)
TB-WA-5 (00093.697)
TB-EW-3 (00093.697)
1'-6" PARAPET 34'-0" TOE/TOE 1'-6"
MSE WALL 6B
MSE WALL 6C
TB-211
TB-210
TB-WW-2 (00093.697)
TB-113
TB-114
TB-115
SETTLEMENT PLATFORM LOCATION (TYP.)
S 88° 18' 16" E
VARIES
16'-0" 1 LANE
BEGIN APPROACH SLAB STA. 107+85.60
7'-10"
PRESSURE RELIEF JOINT SEE ROADWAY PLANS
℄ W.B. ELBERON AVE. RAMP
℄ W.B. WARSAW AVE. RAMP
500
510
106
107
98
99

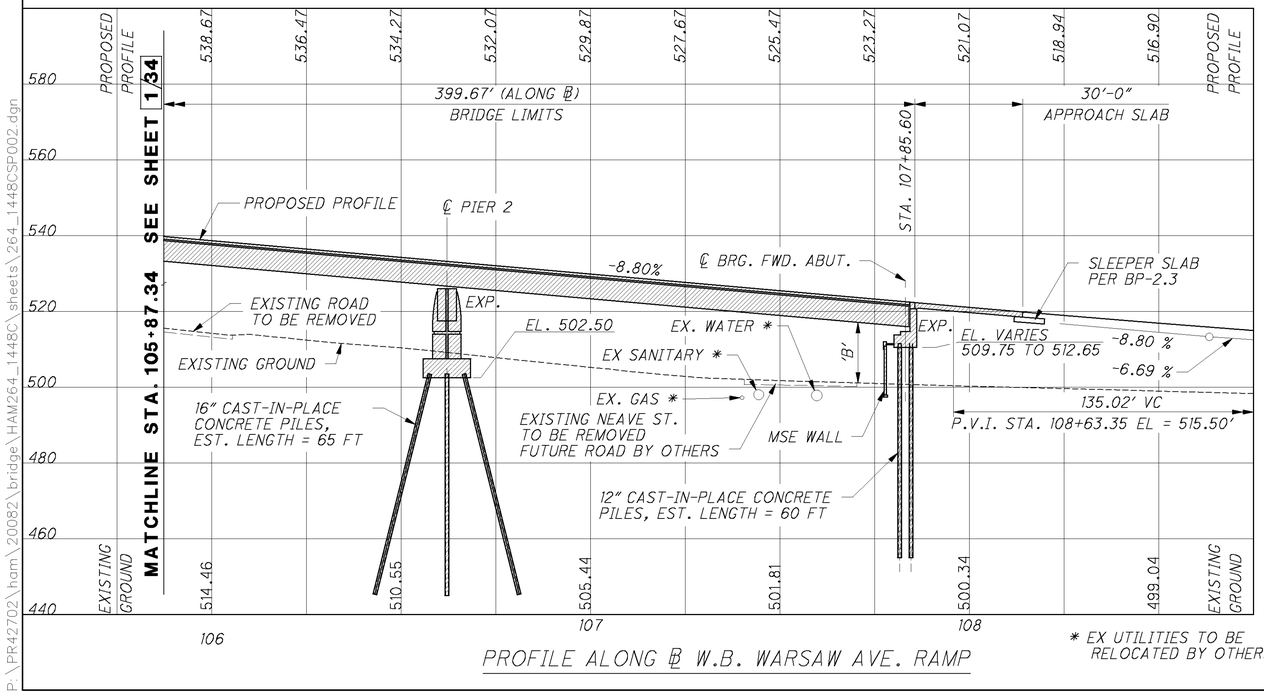
PLAN

VERTICAL CLEARANCE
REQUIRED MINIMUM VERTICAL CLEARANCE = 14'-6"
'B' ACTUAL MINIMUM VERTICAL CLEARANCE = 15'-6"

HORIZONTAL CLEARANCE
REQUIRED MINIMUM HORIZONTAL CLEARANCE = 15'-0"
'D' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 7'-0"



SUPERELEVATION DIAGRAM



PROFILE ALONG ℄ W.B. WARSAW AVE. RAMP

* EX UTILITIES TO BE RELOCATED BY OTHERS

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DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 771-7904
Cincinnati, Ohio 45242

DATE 02-20-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111636
DRAWN KML
REVISED
DESIGNED XAC
CHECKED SJA

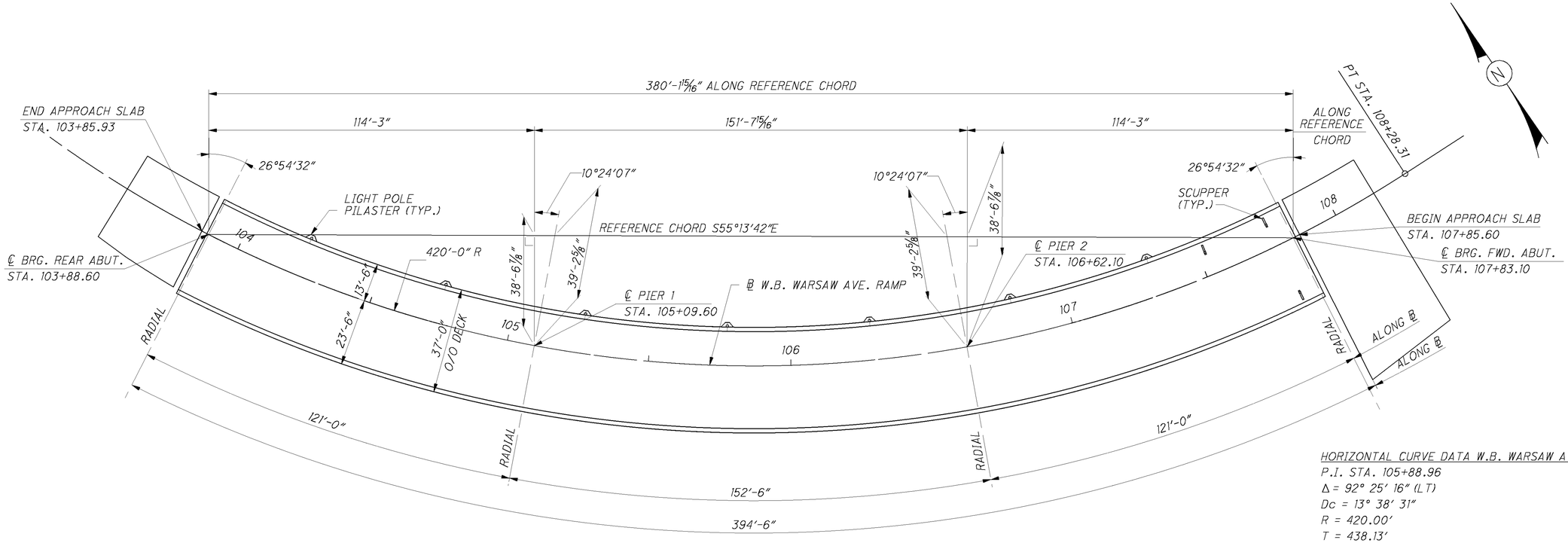
HAMILTON COUNTY
STA. 103+85.93
STA. 107+85.60

SITE PLAN 2
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

2 / 34

371
657



GENERAL PLAN

HORIZONTAL CURVE DATA W.B. WARSAW AVE. RAMP:
P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
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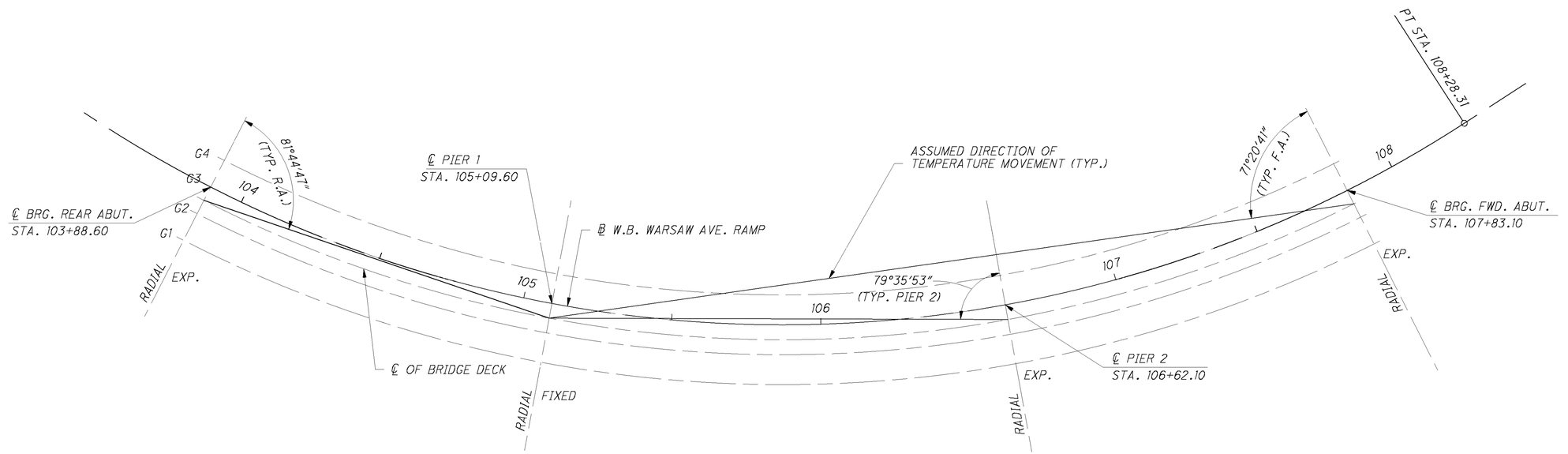

BEARING MOVEMENT DIAGRAM

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DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Columbus, Ohio 43240

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

HAMILTON COUNTY
STA. 103+85.93
STA. 107+85.60

GENERAL PLAN
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

DESIGN REFERENCES:

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	REVISED 07-19-2002
BR-1	REVISED 07-19-2002
GSD-1-96	REVISED 07-19-2002
EXJ-4-87	REVISED 07-19-2002

AND TO SUPPLEMENTAL SPECIFICATIONS:
898 DATED 10-15-10

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002 SPECIFICATIONS, THE 2003 AASHTO HORIZONTALLY CURVED STEEL GIRDER GUIDE SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL.

SPECIAL DESIGN SPECIFICATIONS:

THE GRILLAGE DESIGN METHOD WAS USED TO ANALYZE THE STRUCTURE. THE COMPUTER PROGRAM USED FOR STRUCTURAL ANALYSIS WAS MDX. THE BRIDGE COMPONENTS DESIGNED BY THIS METHOD AND THE LIVE LOAD DISTRIBUTION FACTORS USED WERE:

DEAD LOAD DISTRIBUTION: NON-COMPOSITE DEAD LOAD AND FUTURE WEARING SURFACE DEAD LOAD WERE DISTRIBUTED BASED ON TRIBUTARY AREA. COMPOSITE PARAPET DEAD LOAD WAS APPLIED AS LINE LOAD TO EXTERIOR GIRDERS.

LIVE LOADS FLOATED BETWEEN BARRIERS FOR MAXIMUM EFFECT.

DESIGN LOADING:

HS25, CASE II, AND ALTERNATE MILITARY LOADING

FUTURE WEARING SURFACE OF 60 PSF

VEHICLE COLLISION - PIER 1 HAS BEEN DESIGNED FOR A STATIC HORIZONTAL FORCE OF 400 KIPS, ASSUMED TO ACT IN ANY DIRECTION, AT A DISTANCE OF 4.0 FEET ABOVE FINISHED GRADE (REF. AASHTO LRFD 3.6.5.2). PIER DESIGN WAS CHECKED FOR AASHTO STANDARD SPECIFICATION CASE VII, TREATING THIS FORCE AS EARTHQUAKE LOAD.

THIS STRUCTURE HAS BEEN DESIGN TO ACCOMMODATE 3 INCHES OF HORIZONTAL MOVEMENT AND $\frac{5}{8}$ INCH OF VERTICAL SETTLEMENT OF THE REAR ABUTMENT DUE TO HILLSIDE CREEP.

DESIGN DATA:

CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4,500 PSI (SUPERSTRUCTURE).

CONCRETE, CLASS QSC1 - COMPRESSIVE STRENGTH 4,000 PSI (SUBSTRUCTURE).

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI.

SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82, OR A615

STRUCTURAL STEEL ASTM A709 GRADE 50 - YIELD STRENGTH 50,000 PSI.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL
2½ INCH CONCRETE COVER
SEALING OF CONCRETE SURFACES

WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE ONE INCH THICK.

MAINTENANCE OF TRAFFIC:

TRAFFIC WILL BE DETOURED DURING BRIDGE CONSTRUCTION. BRIDGE MUST BE BUILT IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC GENERAL NOTES.

FINISH COLORS:

THE COLOR FOR THE ALTERNATE STEEL PARAPET RAILS AND ALL HARDWARE SHALL BE FEDERAL COLOR NUMBER 27038, BLACK 30% SHEEN.

THE COLOR FOR ITEM 513 - STRUCTURAL STEEL MEMBERS (OUTSIDE FACE AND BOTTOM) FLANGES OF THE FASCIA BEAMS, LEVEL 5, SHALL BE FEDERAL COLOR NUMBER 27038, BLACK 30% SHEEN. ALL OTHER BRIDGE SUPERSTRUCTURE STRUCTURAL STEEL ELEMENTS SHALL BE PAINTED WITH ODOT STANDARD, FEDERAL COLOR NUMBER 10324, DARK NEUTRAL.

THE COLOR FOR ITEM 512 - THE PIERS WILL BE SEALED WITH EPXOY URETHANE SEALER, FEDERAL COLOR NUMBER 11136, TERRA COTTA. ALL REMAINING CONCRETE SURFACES ARE TO BE SEALED WITH CLEAR NON-EPOXY.

DESIGN AND MAINTENANCE TO ALLOW FOR HILLSIDE MOVEMENT:

IT IS ANTICIPATED THAT THE REAR ABUTMENT COULD MOVE DUE TO HILLSIDE CREEP. FOR THIS REASON A DISTANCE OF 6" WAS PROVIDED FROM THE END OF THE GIRDER TO THE ABUTMENT BACKWALL. FUTURE MAINTENANCE STEPS WILL BE REQUIRED EACH TIME THE REAR ABUTMENT MOVES MORE THAN 1".

REMOVE TOP 1'-6" OF REAR ABUTMENT BACKWALL AND REPLACE EXPANSION JOINT IF THE JOINT OPENING (SEE DIM. A ON DETAILS) IS LESS THAN 1 ½" AT 60 DEGREES FAHRENHEIT. THE EXPANSION JOINT WAS DESIGNED TO INITIALLY PROJECT 3" FROM THE BACKWALL TO ALLOW FOR FUTURE ADJUSTMENT WITHOUT HAVING TO REMOVE THE ENTIRE BACKWALL.

RESET ABUTMENT BEARINGS WHEN SHEAR DEFORMATION OF THE ELASTOMERIC PAD EXCEEDS 1" TOP TO BOTTOM AT 60 DEGREES FAHRENHEIT. THE BEARING WAS DESIGNED WITH OVERSIZED HOLES IN THE MASONRY PLATE TO ALLOW FOR HORIZONTAL ADJUSTMENT. ADD OR REMOVE STEEL SHIMS FOR SEISMIC PEDESTAL TO MAINTAIN 1" GAP FROM BEARING LOAD PLATE.

UTILITY LINES

UTILITY LINES: THE UTILITY(IES) SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

DRILLED SHAFTS:

THE DESIGN LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 122 TONS AT THE REAR ABUTMENT. THIS LOAD IS RESISTED BY END BEARING ONLY. THE ALLOWABLE END BEARING IS 10 TONS PER SQUARE FOOT. THE REINFORCING STEEL SHALL BE EPOXY COATED ACCORDING TO 709.00.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)

PILE DESIGN LOADS (ULTIMATE BEARING VALUE): THE ULTIMATE BEARING VALUE IS 95 TONS PER PILE FOR THE FORWARD ABUTMENT PILES. THE ULTIMATE BEARING VALUE IS 180 TONS PER PILE FOR THE PIER PILES.

FORWARD ABUTMENT PILES:
12" CAST-IN-PLACE CONCRETE PILES
26 PILES 65 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

PIER 1 PILES:
16" CAST-IN-PLACE CONCRETE PILES
16 PILES 55 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

PIER 2 PILES:
16" CAST-IN-PLACE CONCRETE PILES
16 PILES 55 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

BATTERED PILES:

BATTERED PILES: THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1-UG}{\sqrt{(1+G^2)}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.

G = RATE OF BATTER (1/3, 1/4, ETC.)

SUGGESTED GIRDER ERECTION SEQUENCE:

A SUGGESTED ERECTION SEQUENCE IS DEVELOPED AS SHOWN ON SHEET 24/34 . THE CONTRACTOR HAS AN OPTION TO DEVELOP HIS OWN METHOD OF CONSTRUCTION. THE COST OF THE ALTERNATE DESIGN IS PAID UNDER ITEM 513 - SUPERSTRUCTURE STEEL MEMBERS, LEVEL 5.

EXISTING STRUCTURE PLANS:

CONSTRUCTION PLANS FOR THE EXISTING BRIDGE ARE ON FILE AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 8 OFFICE, 505 SOUTH STATE ROUTE 741, LEBANON, OHIO AND ARE AVAILABLE FOR REFERENCE.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING WEST BOUND WARSAW AVENUE RAMP, EXCEPT THE REAR ABUTMENT AND ITS TURNED BACK WINGWALL THAT WILL BE PART OF THE PROPOSED RETAINING WALL. CARE SHALL BE TAKEN WHEN REMOVING THE SUPERSTRUCTURE, EXPANSION JOINT AND BEARINGS ON THE EXISTING BRIDGE.

ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION):

APPLY A CLEAR PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

PERMANENT GRAFFITI PROTECTION ON PIERS SHALL BE APPLIED TO THE LIMITS SHOWN IN THE PLANS.

ITEM 524 - DRILLED SHAFTS, 48" DIAMETER ABOVE BEDROCK, AS PER PLAN

ALTERNATE INSTALLATION OF DRILLED SHAFTS SO THAT ADJACENT SHAFT CONCRETE HAS CURED 3 DAYS PRIOR TO DRILLING ANOTHER SHAFT WITHIN 12 FEET CENTER TO CENTER.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 17", AS PER PLAN:

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. IN ADDITION, THE PARAPET TRANSITIONS ON THE APPROACH SLABS, INCLUDING THE CONCRETE, REINFORCING STEEL, HMWM AND SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) SHALL BE INCLUDED IN THE COST OF THE APPROACH SLABS. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) AS PER PLAN:

THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM SPECIAL - INCLINOMETER

REAR ABUTMENT:
FURNISH AND INSTALL A 3.34 INCH (85 MM) DIAMETER INCLINOMETER CASING THROUGH THE ABUTMENT SEAT AS SHOWN ON THE ABUTMENT DRAWINGS. THE INCLINOMETER CASING IS TO BE CAPPED AT THE TOP. THE INCLINOMETER CASING IS TO BE COMPRISED OF ABS PLASTIC WITH QC (QUICK CONNECT) CONNECTIONS. PROTECT THE TOP OF THE INCLINOMETER CASING WITH A FLUSH MOUNT PROTECTIVE COVER INSTALLED IN THE ABUTMENT SEAT. PROVIDE THE FLUSH MOUNT PROTECTIVE COVER IN ACCORDANCE WITH SECTION 506.2.2 OF THE ODOT SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS.

FORM A VOID BETWEEN THE BOTTOM OF ABUTMENT FOOTING AND THE TOP OF THE PRIMARY GROUT TO ALLOW FOR VERTICAL DISPLACEMENT. PLACE SECONDARY GROUT AT LEAST 30 DAYS AFTER BRIDGE PARAPET IS CONSTRUCTED.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE CASING REMAINS IN PLACE DURING PLACEMENT OF ADJACENT FILL AND CONCRETE SO THAT THE INCLINOMETER IS NOT DAMAGED OR ROTATED. ORIENT THE CASING GROOVES PARALLEL AND PERPENDICULAR TO THE FOOTING.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF THE INSTRUMENTATION AND ALL DAMAGE DURING THE LIFE OF THE CONTRACT. PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM SPECIAL - INCLINOMETERS" AND INCLUDES FURNISHING ALL MATERIALS (SLOPE INDICATOR TUBING,COUPLINGS, END PLUGS, OUTER CASING AND PROTECTIVE CAP) AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE INCLINOMETER CASING AT THE DESIGNATED PLAN LOCATIONS.

THE INCLINOMETER CASING SHOULD MEET THE DETAILS DESCRIBED ABOVE OR APPROVED EQUIVALENT. SUPPLIERS OF INCLINOMETER CASING INCLUDE:

GLOBAL DRILLING SUPPLIERS, INC.
12101 CENTRON PLACE
CINCINNATI, OHIO 45246
PH: 513-671-8700

DURHAM GEO SLOPE INDICATORS
12123 HARBOUR REACH DR.
MUKILTEO, WA 98275
PH: 773-728-5822

DESIGN AGENCY: BURGESS & NIPLE

DESIGNED	DRAWN	REVIEWED	DATE
XAC	SJA	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

GENERAL NOTES 1
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

4 / 34

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ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS TO INDICATE THE DESIGNATIONS CONTAINED IN THE LEGEND BELOW:

ABUT. - ABUTMENT
APPR. - APPROACH

℄ - BASELINE
BOT. - BOTTOM
BRGS. - BEARINGS
B.S. - BOTH SIDES

℄ - CENTERLINE
C/C - CENTER TO CENTER
CIP - CAST-IN-PLACE
C.J. - CONTRUCTION JOINT
CJP - COMPLETE JOINT PENETRATION
CLR. - CLEARANCE
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONST. - CONSTRUCTION
CS - INDICATES BUTT WELD SUBJECT TO COMPRESSIVE STRESSES ONLY
CU YD - CUBIC YARD
CVN - CHARPY V-NOTCH

DIA. - DIAMETER

E.F. - EACH FACE
EL. - ELEVATION
EQ. - EQUAL

EX. - EXISTING
EXP. - EXPANSION

F.A. - FORWARD ABUTMENT
F.F. - FAR FACE
F.S. - FIELD SPLICE
FT/FT - FOOT PER FOOT
FTG. - FOOTING
FWD. - FORWARD

GEN. - GENERAL

HPC - HIGH PERFORMANCE CONCRETE

LF - LEFT FORWARD
LT. - LEFT

MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
MOT - MAINTENANCE OF TRAFFIC
MSE - MECHANICALLY STABILIZED EARTH

N.F. - NEAR FACE
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
NO./# - NUMBER

O/O - OUT TO OUT

PC - POINT OF CURVATURE
P.C.P.P - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PG - PROFILE GRADE
PI - POINT OF INTERSECTION
PROP. - PROPOSED
PT - POINT OF TANGENCY
PVC - POINT OF VERTICAL CURVATURE
PVI - POINT OF VERTICAL INTERSECTION
PVT - POINT OF VERTICAL TANGENCY

R. - RADIUS
R.A. - REAR ABUTMENT
RF - RIGHT FORWARD
RT. - RIGHT
R/W - RIGHT OF WAY

SAN. - SANITARY
SER. - SERIES
SHT. - SHEET
S.O. - SERIES OF
SPA. - SPACES OR SPACING
SR - STATE ROUTE
STA. - STATION
STD. - STANDARD
STM. - STORM
STR. - STRAIGHT

TBM - TEMPORARY BENCH MARK
TEMP. - TEMPORARY
T.O.S. - TOE OF SLOPE
T/PARAPET - TOE OF PARAPET
T/T - TOE TO TOE
TYP. - TYPICAL

U.G. - UNDERGROUND

VAR. - VARIES
VC - VERTICAL CURVE
VERT. - VERTICAL

W/O - WITHOUT
WB - WESTBOUND

PILE DRIVING CONSTRAINTS

PRIOR TO DRIVING ABUTMENT PILES TO THE ULTIMATE BEARING VALUE (UBV), CONSTRUCT THE MSE WALL AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENT UP TO THE BOTTOM OF THE FOOTING FOR A MINIMUM DISTANCE OF 200 FT BEHIND EACH ABUTMENT. PROVIDE A SURCHARGE FROM THE BOTTOM OF THE ABUTMENT FOOTING TO THE BOTTOM OF THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BEHIND EACH ABUTMENT. SURCHARGE LOADS SHALL REMAIN UNTIL THE REQUIRED SETTLEMENT HAS OCCURED AND AS DIRECTED BY THE ENGINEER. COMPLETE THE MSE WALL AND EMBANKMENT CONSTRUCTION IMMEDIATELY FOLLOWING THE SURCHARGE REMOVAL.

THE CONTRACTOR MAY PRE-DRIVE ABUTMENT PILES BEFORE CONSTRUCTING MSE WALLS. PRE-DRIVING CONSISTS OF INSTALLING THE ABUTMENT PILES INTO THE SOIL ONLY AS FAR AS NECESSARY SO THAT THE PIPE WILL REMAIN VERTICAL DURING MSE WALL CONSTRUCTION. IF PRE-DRIVING PILES, INSTALL PILE SLEEVES AROUND PILES BEFORE CONSTRUCTING THE MSE WALL. AT LEAST THREE FEET OF PILE MUST EXTEND ABOVE THE TOP OF THE PILE SLEEVE TO MEET THE REQUIREMENTS OF CMS 507.09 REGARDING SPLICES. DO NOT DRIVE ABUTMENT PILES TO THE UBV UNTIL AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED, AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

IF NOT PRE-DRIVING ABUTMENT PILES, INSTALL THE ABUTMENT PILES THROUGH PILE SLEEVES AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

ABUTMENT PILE DRIVING TO THE UBV (FOR PILES DRIVEN AFTER MSE CONSTRUCTION) OR PILE REDRIVING (FOR PILES PRE-DRIVEN BEFORE MSE CONSTRUCTION) MAY NOT BEGIN UNTIL A MINIMUM 30 CALENDAR DAY WAITING PERIOD HAS ELAPSED AFTER THE COMPLETION OF EMBANKMENT AND SURCHARGE CONSTRUCTION. IN ADDITION, CONSECUTIVE SETTLEMENT READINGS, RECORDED AFTER EMBANKMENT CONSTRUCTION IS COMPLETE AND AT LEAST ONE WEEK (168 HOURS) APART, SHALL RESULT IN ELEVATION DIFFERENCES EQUAL TO OR LESS THAN 1/8 INCH FOR ABUTMENT CONSTRUCTION TO CONTINUE. IF SETTLEMENT RATES EXCEED 2 INCH PER MONTH AFTER EMBANKMENT CONSTRUCTION HAS BEEN COMPLETE FOR 40 DAYS, REMAINING ABUTMENT CONSTRUCTION, INCLUDING ANY NECESSARY CORRECTIVE MEASURES, MAY PROCEED ONLY AT THE DIRECTION OF THE ENGINEER.

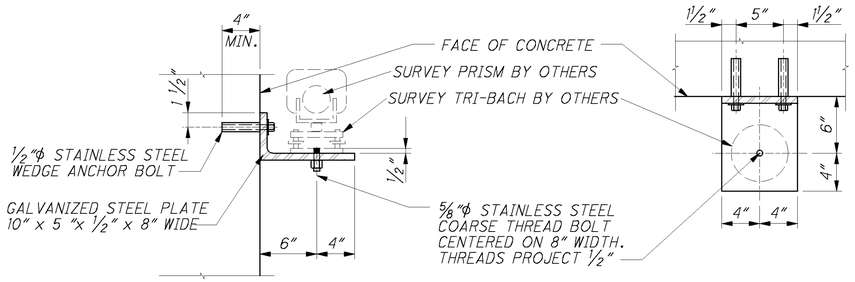
THE ENGINEER MAY ADJUST THE SPECIFIED WAITING PERIOD BASED ON SETTLEMENT PLATFORM READINGS. AFTER THE SPECIFIED WAITING PERIOD HAS ELAPSED, DRIVE ABUTMENT PILES TO THE UBV. IN ORDER TO REMOVE ANY NEGATIVE SKIN FRICTION THAT HAS DEVELOPED DURING THE WAITING PERIOD, DRIVE EACH ABUTMENT PILE A DISTANCE OF AT LEAST 0.5 INCH.

ITEM 513 - STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT

FURNISH AND INSTALL STEEL BRACKETS TO SUPPORT A CIRCULAR SURVEY PRISM AT LOCATIONS SHOWN ON THE REAR ABUTMENT ELEVATION.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE BRACKET IS INSTALLED LEVEL AND PLUM. LOCATE ABUTMENT REINFORCEMENT PRIOR TO DRILLING ANCHOR BOLTS AND ADJUST BRACKET LOCATION TO MISS THE REINFORCEMENT.

PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM 513 -STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT" AND INCLUDES FURNISHING ALL MATERIALS AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE PRISM MOUNTS AT THE DESIGNATED LOCATIONS.



SURVEY PRISM MOUNT ELEVATION

SURVEY PRISM MOUNT PLAN

ITEM SPECIAL-SETTLEMENT PLATFORMS:

DESCRIPTION: THIS ITEM CONSISTS OF FURNISHING, CONSTRUCTING, AND MAINTAINING SETTLEMENT PLATFORMS AND SETTLMENT MONUMENTS AND OBTAINING SETTLEMENT READINGS AS REQUIRED BY THE PLANS OR AS DIRECTED BY THE ENGINEER. AT THE OPTION AND EXPENSE OF THE CONTRACTOR, ADDITIONAL SETTLEMENT PLATFORMS MAY BE INSTALLED AT LOCATIONS APPROVED BY THE ENGINEER. SETTLEMENT READINGS SHALL BE TAKEN WEEKLY DURING CONSTRUCTION AND DURING ANY SPECIFIED WAITING PERIOD. THE READINGS SHALL BE PLOTTED ON GRAPH PAPER PRESENTING DEFORMATION (ON THE NEGATIVE Y-AXIS) AND FILL HEIGHT (ON THE POSITIVE Y-AXIS) VERSUS TIME (ON THE X-AXIS). A COPY OF EACH CUMULATIVE PLOT SHALL BE SENT TO THE DISTRICT GEOTECHNICAL ENGINEER AND THE OFFICE OF GEOTECHNICAL ENGINEERING, ATTENTION: GEOTECHNICAL DESIGN COORDINATOR, AFTER EACH SETTLEMENT READING IS RECORDED.

THE DEPARTMENT WILL CONSIDER VIBRATING WIRE SETTLEMENT MONITORING PLATFORMS IN LIEU OF THE CONVENTIONAL SETTLEMENT PLATFORMS. THE CONTRACTOR SHOULD PROVIDE DETAILS OF THE PROPOSED VIBRATING WIRE SETTLEMENT PLATFORMS AS WELL AS DESIGN DRAWINGS OF THE PROPOSED PLATFORM AND CABLING LAYOUT TO THE ENGINEER AT LEAST 30 DAYS PRIOR TO CONSTRUCTION. THE DEPARTMENT WILL REQUIRE 10 WORKING DAYS FOR REVIEW AND APPROVAL. THE DESIGN DRAWINGS SHOULD ILLUSTRATE THE PROPOSED SETTLEMENT VIBRATING WIRE SETTLEMENT PLATFORM LOCATIONS WITH ALL EXISTING AND PROPOSED SITE FEATURES TO VERIFY THE PROPOSED CABLING WILL NOT CONFLICT WITH EXISTING FACILITIES, PROPOSED FACILITIES OR UTILITIES. NO ADDITIONAL PAYMENT WILL BE PROVIDED IF THE CONTRACTOR ELECTS TO UTILIZE VIBRATING WIRE SETTLEMENT PLATFORMS.

MATERIALS: SOUND LUMBER SUCH AS 3/4-INCH (19MM) EXTERIOR GRADE PLYWOOD SHALL BE USED FOR THE BASE. THE PIPE SHALL BE 2-1/2-INCH (64MM) STANDARD BLACK PIPE WITH THREADED FITTINGS AS SHOWN ON THE PLANS. A STEEL PLATE 36" X 36" X 1/8" (915MM X 915MM X 3.2MM) MAY BE SUBSTITUTED FOR THE LUMBER FOR THE PLATFORMS, AT THE CONTRACTOR'S OPTION.

CONSTRUCTION METHODS: THE PLATFORM SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS. THE PLATFORM SHALL BE SET ON A LEVEL SURFACE. THE PIPE SHALL BE FIRMLY SECURED TO THE PLATFORM AND SHALL BE MAINTAINED IN A PLUMB POSITION DURING THE PLACEMENT OF THE EMBANKMENT. THE PIPE SHALL BE MARKED AT INTERVALS TO FACILITATE MEASUREMENT OF THE DEPTH OF FILL. THE CONTRACTOR SHALL STOP WORK IN ANY LOCATION WHERE THE SETTLEMENT PLATFORM HAS BEEN DISTURBED OR DAMAGED. PLATFORMS OR PIPES DAMAGED OR DISPLACED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR PROPER CONDITION AT THE CONTRACTOR'S EXPENSE.

PRIOR TO PAVING, THE TOP OF THE SETTLEMENT PLATFORM PIPE SHALL BE CUT OFF TWO FEET (600MM) BELOW THE FINISHED SURFACE OF THE SUBGRADE OR FINISHED GROUND SURFACE, WHICHEVER IS APPLICABLE.

CONTRACTOR WILL ESTABLISH SURVEY MONUMENTS AT A MINIMUM OF SIX (6) LOCATIONS AROUND EXTERIOR PERIMETER OF WALL TO MONITOR SETTLEMENT AT BASE. MONUMENTS TO BE SURVEYED AT REGULAR INTERVALS DURING CONSTRUCTION AT SAME FREQUENCY AS SETTLEMENT PLATFORMS. MONUMENTS MAY CONSIST OF CHISELED NOTCHES ON WALL FACE OR STEEL RODS OR CONCRETE PIERS SET AT LEAST 30 INCHES BELOW GRADE AT BASE OF WALL.

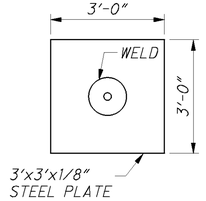
METHOD OF MEASUREMENT: THE NUMBER OF SETTLEMENT PLATFORMS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF SETTLEMENT PLATFORMS COMPLETED, MAINTAINED, AND ACCEPTED BY THE ENGINEER.

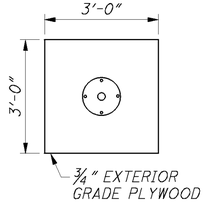
BASIS OF PAYMENT: PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE EACH FOR "ITEM SPECIAL-SETTLEMENT PLATFORMS" WHICH IS COMPENSATION FOR CONSTRUCTION MAINTAINING, AND MONITORING THE SETTLEMENT PLATFORMS AND MONUMENTS INCLUDING FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. PAYMENT SHALL NOT BE MADE FOR SETTLEMENT PLATFORMS WHICH BECOME USELESS DUE TO DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS.

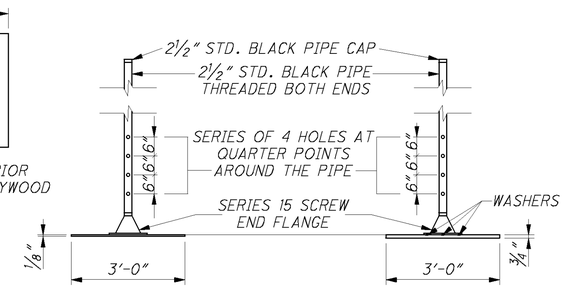
THE PLATFORMS MUST BE READ WEEKLY DURING CONSTRUCTION OF THE EMBANKMENTS AND WEEKLY DURING THE 60 DAY WAITING PERIOD. THE INFORMATION FROM THE PLATFORM CAN BE USED BY THE OFFICE OF GEOTECHNICAL ENGINEERING TO SHORTEN OR LENGTHEN THE WAITING PERIOD.

THE CONTRACTOR SHALL PROVIDE PROTECTION FOR ALL PLATFORMS DURING CONSTRUCTION. THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE ABOVE WORK TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM SPECIAL - SETTLEMENT PLATFORM 6 EACH







NOTES:

1. SETTLEMENT PLATES SHALL BE PLACED AT THE LOCATIONS INDICATED IN THE WICKDRAIN PLANS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CONTRACTOR HAS OPTION OF USING EITHER STEEL OR PLYWOOD PLATFORM BASE.
3. CONTRACTOR SHALL FURNISH MATERIALS AND LABOR TO EXTEND PIPE UP THROUGH ENTIRE FILL.
4. SETTLEMENT PLATFORMS SHALL BE ANCHORED BY STAKES DRIVEN AT EACH CORNER TO PREVENT OVERTURNING.

DESIGN AGENCY BURGESS & NIPLE

DESIGNED XAC | DRAWN SJA | REVIEWED RMK | DATE 02-20-08
CHECKED SJA | REVISED | STRUCTURE FILE NUMBER 3111636

GENERAL NOTES 2
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

5 / 34

374 / 657

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ESTIMATED QUANTITIES

CALC.	DATE	CHK'D	DATE
JHL	1/8/2009	ADZ	1/21/2009

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTS.	PIERS	SUPER.	APPROACH SLAB	GENERAL	SHT. REF.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN						4 / 34
202	22900	134	SY	APPROACH SLAB REMOVED				134		
SPECIAL	20307502	1	EACH	INCLINOMETER	1					5 / 34
SPECIAL	20365000	6	EACH	SETTLEMENT PLATFORM	6					5 / 34
503	21300	LUMP		UNCLASSIFIED EXCAVATION						
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION						
507	00501	1560	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN, AS PER PLAN	1560					5 / 34
507	00550	1690	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	1690					
507	00700	2000	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		2000				
507	00750	2160	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED		2160				
509	10000	217865	LB	EPOXY COATED REINFORCING STEEL	26978	35581	155306			
512	10001	84	SY	SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION)		84				4 / 34
512	10050	1208	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	319		889			
512	10100	192	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		192				
513	10300	634780	LB	STRUCTURAL STEEL MEMBERS, LEVEL 5			634780			
513	20000	4107	EACH	WELDED STUD SHEAR CONNECTORS			4107			
513	95030	2	EACH	STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT	2					5 / 34
514	00060	30640	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			30640			
514	00066	30640	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			30640			
514	10000	23	EACH	FINAL INSPECTION REPAIR			23			
516	11211	37	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN (5")			37			9 / 34
516	11211	71	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN (4")			71			9 / 34
516	13600	11	SF	1" PREFORMED EXPANSION JOINT FILLER	11					
516	13900	18	SF	2" PREFORMED EXPANSION JOINT FILLER	18					
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (1'-8" DIA. x 5 3/16") (SPECIAL)	4					
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2'-1 1/4" DIA. x 5 1/2") (FIXED)		4				
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2'-2 1/2" DIA. x 6 3/8") (EXPANSION)		4				
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (1'-8" DIA. x 5 3/16") (EXPANSION)	4					
517	76300	802	FT	RAILING, MISC: RAILING ALTERNATE, MINNESOTA RAILING *			802			6 & 25 / 34
518	12300	3	EACH	SCUPPERS, INCLUDING SUPPORTS			3			
518	51100	35	FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS					35	
518	60030	24	FT	PIPE HORIZONTAL CONDUCTOR					24	
523	20000	3	EACH	DYNAMIC LOAD TESTING	1	2				
524	94903	230	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN	230					4 / 34
898	10201	444	CY	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			444			4 / 34
898	10709	352	SY	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN				352		4 / 34
898	11000	92	CY	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			92			
898	20100	125	CY	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		125				
898	20160	213	CY	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING) **	213					
898	20300	93	CY	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		93				

* RAILING, MISC: RAILING ALTERNATE, MINNESOTA RAILING IS A REQUIRED BID ITEM. IF SELECTED BY THE OWNER IT WILL REPLACE BID ITEM 898: QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET). CONCRETE IN ALTERNATE RAILING SHALL BE QC/QA CONCRETE,CLASS QSC2. IF SELECTED BY THE OWNER ALTERNATE RAILING AND ALL NECESSARY TRANSITIONS SHALL BE DETAILED PER MINNESOTA STANDARD DRAWING FIGURE 5-397.157 AND SUBMITTED FOR SHOP DRAWING REVIEW PRIOR TO FABRICATION. THE COST OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR PAINING, REINFORCEMENT, SEALING, RAILINGS AND SHOP DRAWING PREPARATION SHALL BE INCLUDED WITH THIS ITEM FOR PAYMENT. SEE SHEET 4/34 FOR COLOR REQUIREMENTS. ALL REINFORCEMENT SHALL BE EPOXY COATED. THE ALTERNATE RAILING OPTION WILL REPLACE 20,479 POUNDS OF REINFORCEMENT AND 695 SQ. YD. OF SEALING.

** CONCRETE FOR REAR ABUTMENT COLUMNS IS INCLUDED WITH THIS ITEM FOR PAYMENT.

DESIGN AGENCY BURGESS & NIPLE

DESIGNED XAC | DRAWN SJA | REVIEWED RMK | DATE 02-20-08

CHECKED SJA | REVISED | STRUCTURE FILE NUMBER 3111636

ESTIMATED QUANTITIES
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

6 / 34

375
657

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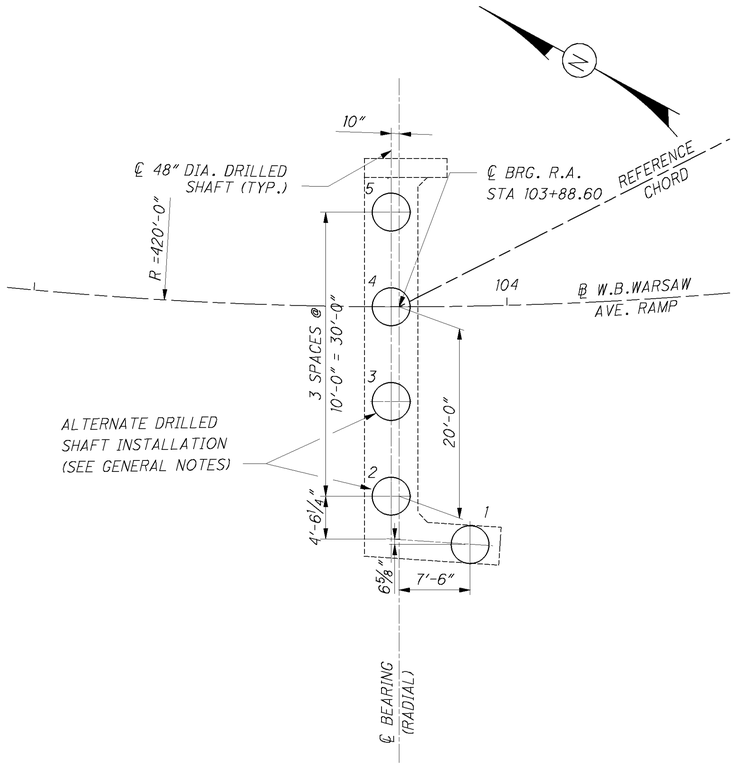
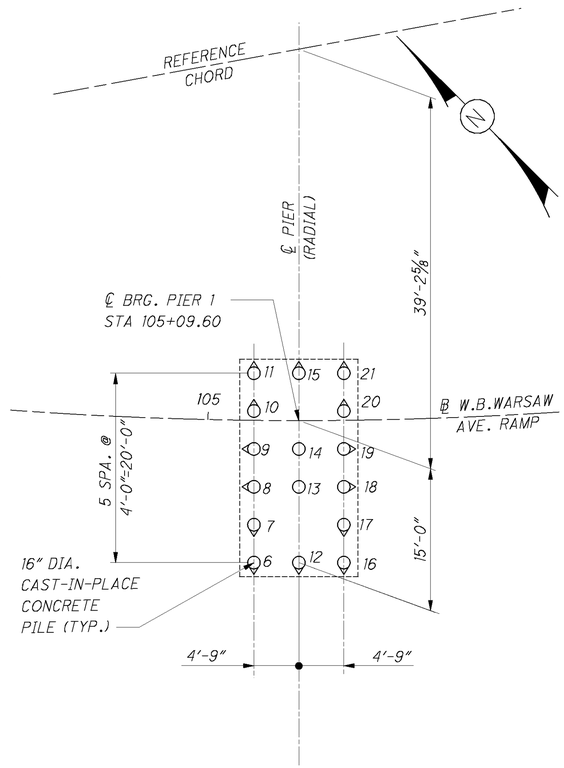
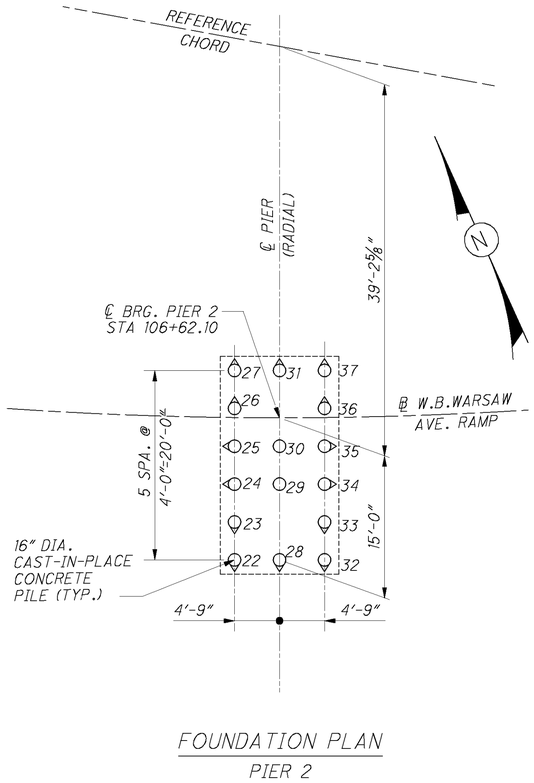


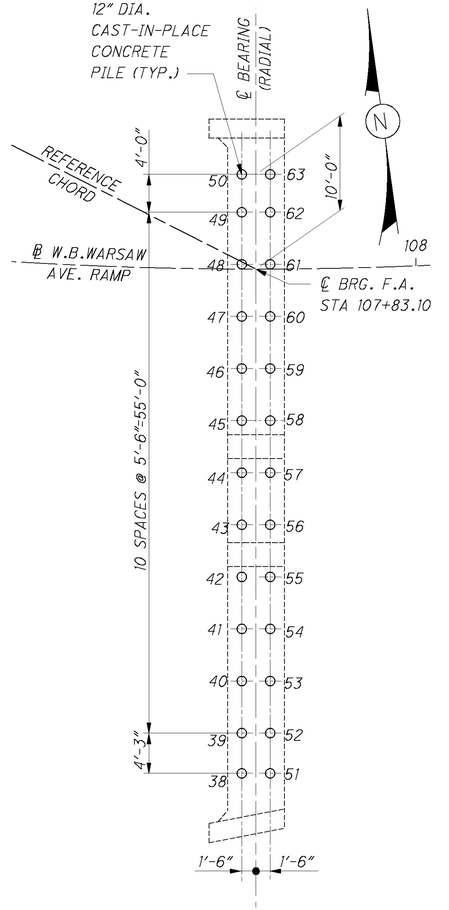
FOUNDATION PLAN
REAR ABUTMENT



FOUNDATION PLAN
PIER 1



FOUNDATION PLAN
PIER 2



FOUNDATION PLAN
FORWARD ABUTMENT

LEGEND:

- PROPOSED 48" DIA. DRILLED SHAFT
- PROPOSED VERTICAL PILE
- PROPOSED PILE BATTERED (1:4) IN DIRECTION OF ARROW
- N○ DENOTES PILE NUMBER 'N'

NOTES:

1. REMOVE EXISTING FOUNDATIONS AND PORTIONS OF EXISTING FOUNDATIONS THAT INTERFERE WITH PROPOSED FOUNDATIONS AS PER 202.03.

DESIGN AGENCY
BURGESS & NIPLE
INC. OHIO CORP. (513) 772-7008
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

FOUNDATION PLAN
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

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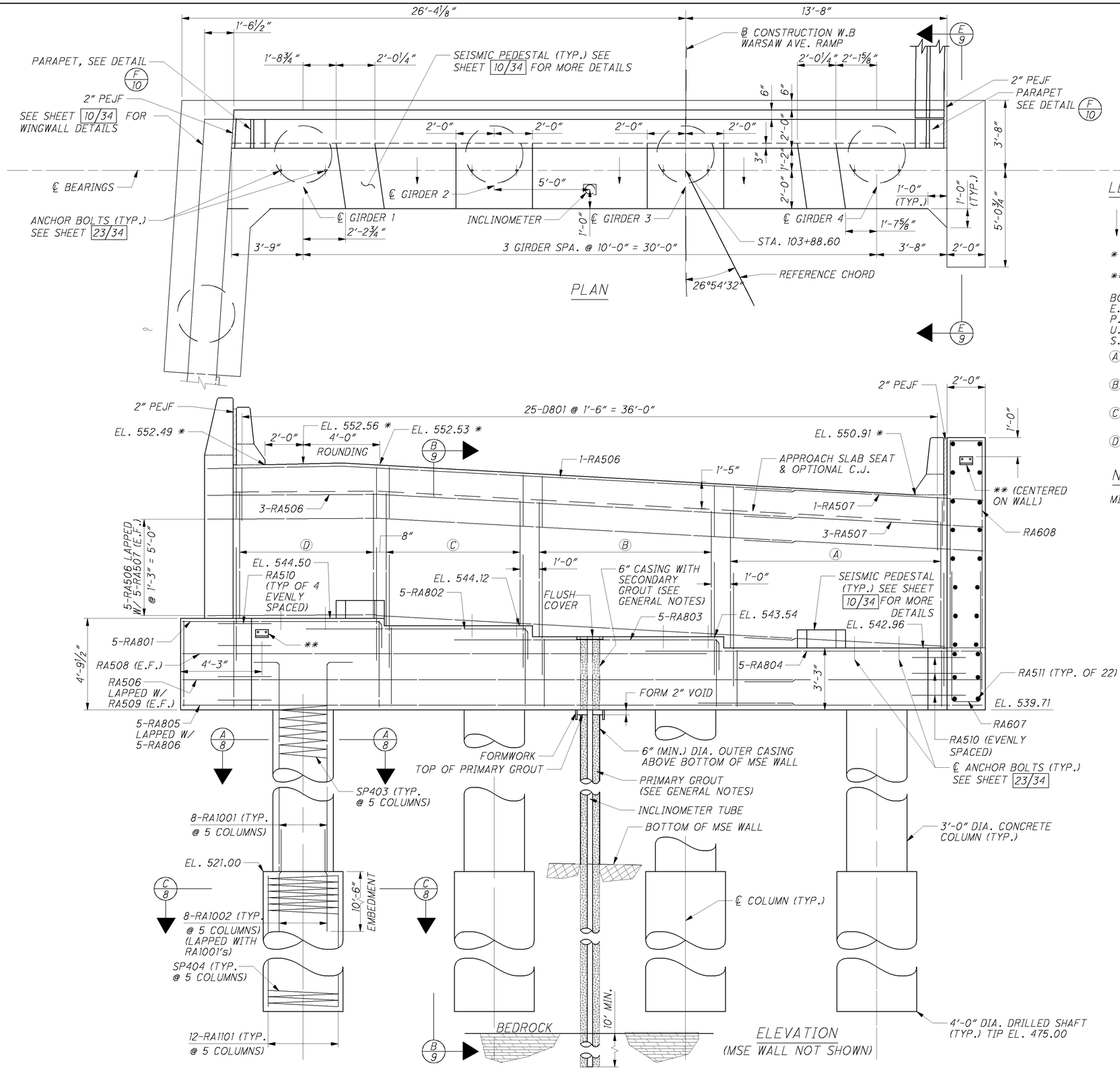

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 771-1591
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
XAC	XAC	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

REAR ABUTMENT PLAN AND ELEVATION
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

8 / 34

377 / 657

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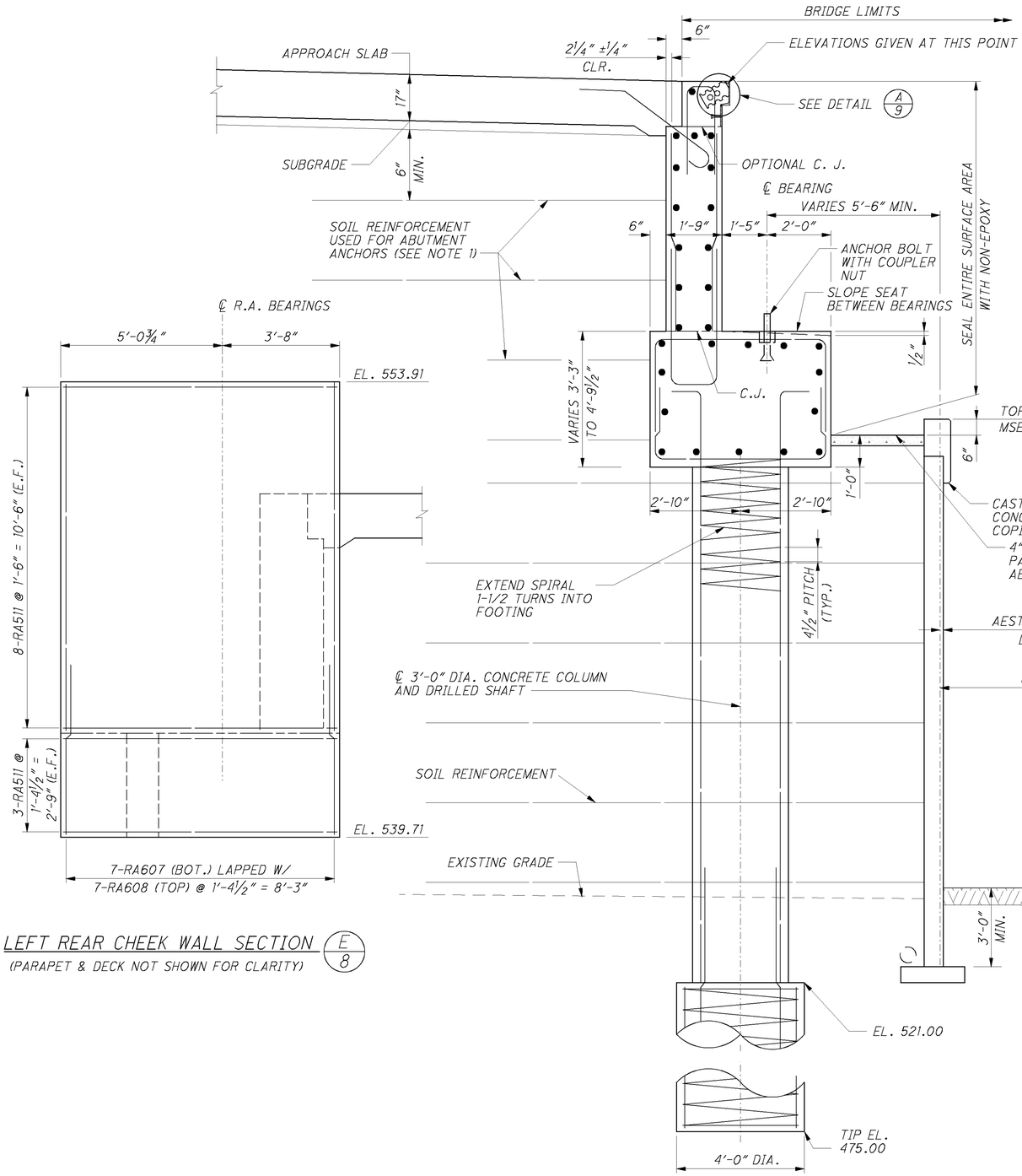


LEFT REAR CHEEK WALL SECTION E/8

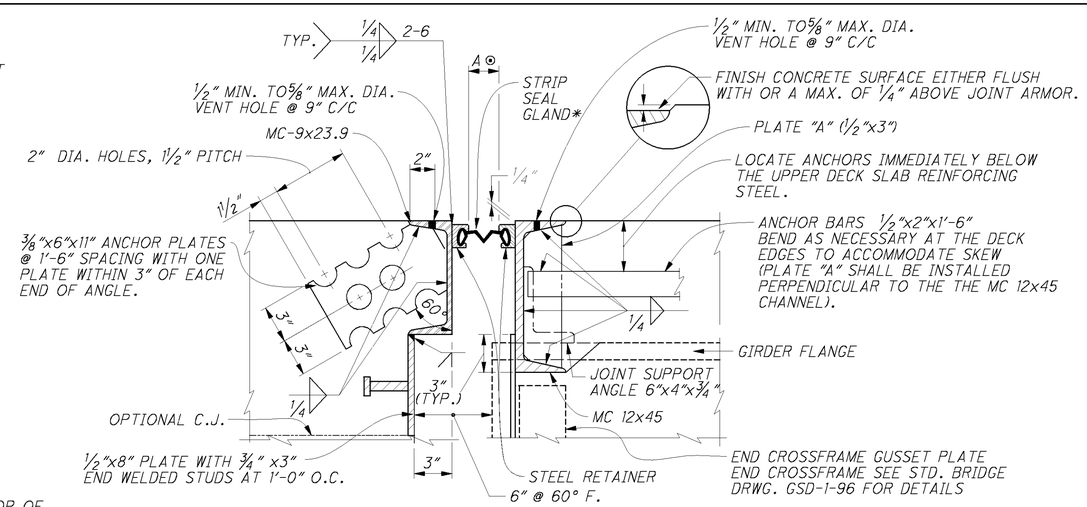
(PARAPET & DECK NOT SHOWN FOR CLARITY)

ABUTMENT SECTION B/8

REAR ABUTMENT

NOTES:

1. IN ADDITION TO LATERAL EARTH PRESSURE, AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE OF 2.77 KIPS PER FOOT APPLIED PERPENDICULAR TO THE FACE OF WALL AND THE BASE OF THE CONCRETE FOOTING SHALL BE RESISTED BY SOIL REINFORCEMENT ANCHORS.
2. SEE SHEET 8/34 FOR LEGEND AND ADDITIONAL NOTES.



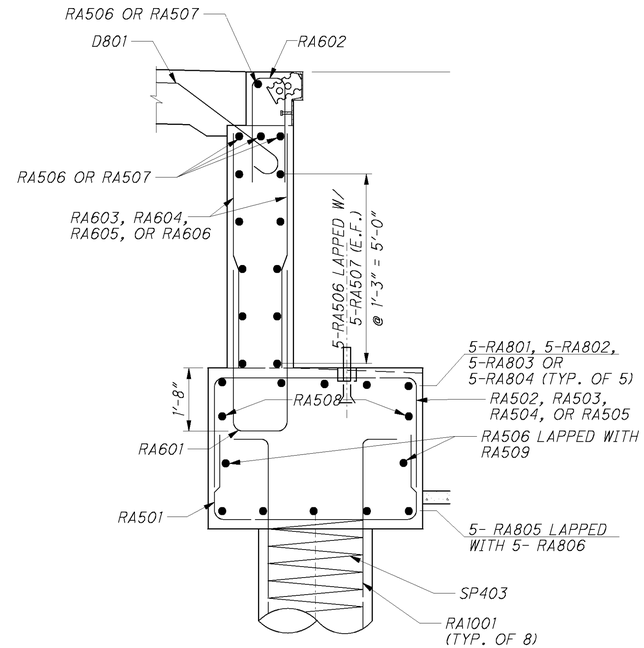
DETAIL A/9

* 5" STRIP SEAL GLAND FOR REAR ABUTMENT
4" STRIP SEAL GLAND FOR FWD. ABUTMENT

MODIFIED EXPANSION JOINT DETAIL
REAR ABUTMENT ONLY (SEE STANDARD DRAWING EXJ-4-87 FOR MORE DETAILS)

	JOINT OPENING DIMENSIONS						
TEMP (°F)	30	40	50	60	70	80	90
"A" - REAR	3 ¾"	3 11/16"	3 9/16"	3 ½"	3 ⅜"	3 5/16"	3 ¼"
"A" - FORWARD	2 ½"	2 ¼"	2 1/16"	1 ⅞"	1 11/16"	1 ½"	1 ¼"

MINIMUM JOINT OPENING (DIMENSION"A") AT TIME THE SEAL GLAND RETAINERS ARE INSTALLED SHALL NOT BE LESS THAN 1½". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE 1½" OPENING.



REAR ABUTMENT REINFORCING

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2068
Columbus, Ohio 43220

DESIGNED	DRAWN	REVIEWED	DATE
XAC	GTT	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

REAR ABUTMENT SECTION AND DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

9 / 34

378
657

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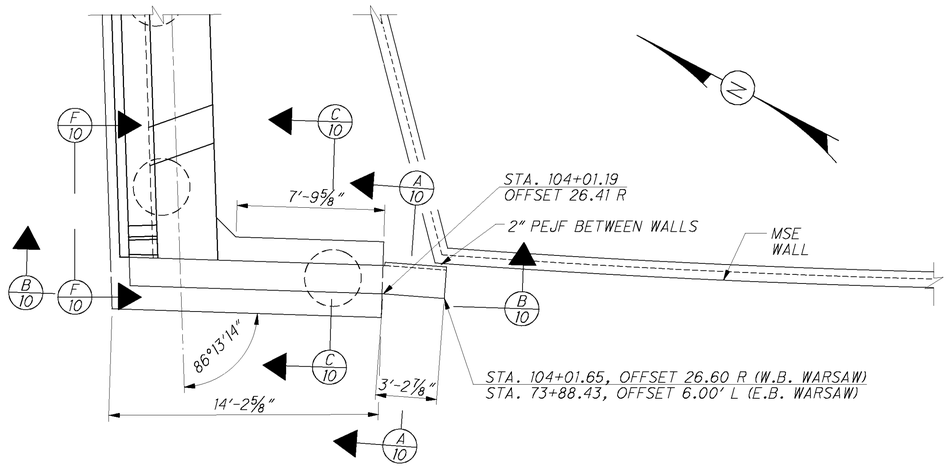
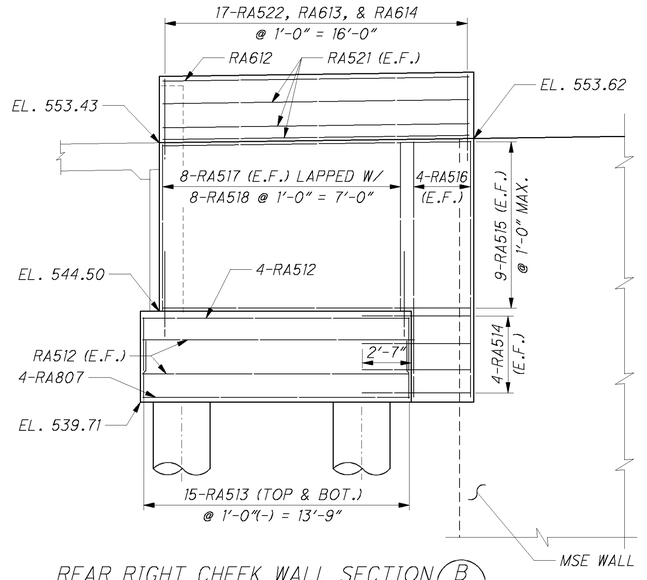
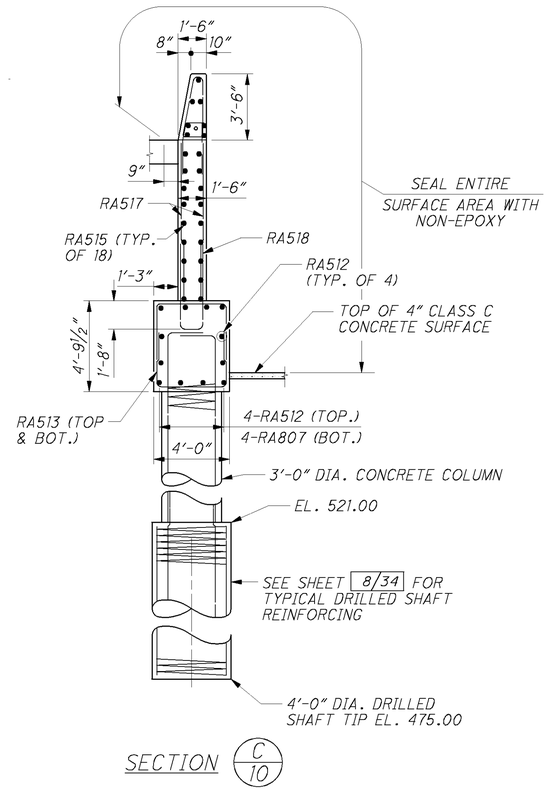


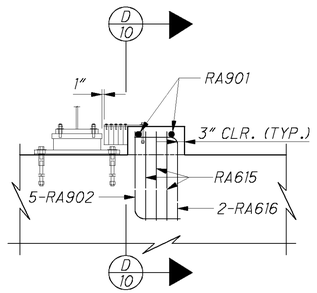
REAR ABUTMENT RIGHT WINGWALL PLAN



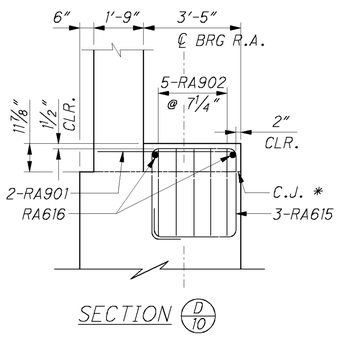
REAR RIGHT CHEEK WALL SECTION (B/10)
(ADJACENT PARAPETS NOT SHOWN FOR CLARITY)



SECTION (C/10)



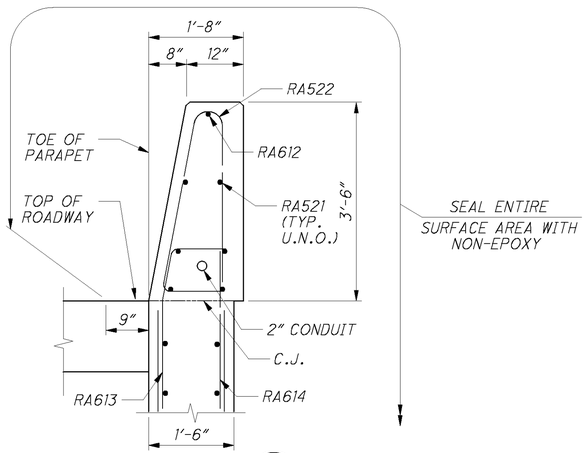
GIRDER 1 SHOWN,
GIRDER 4 OPPOSITE HAND



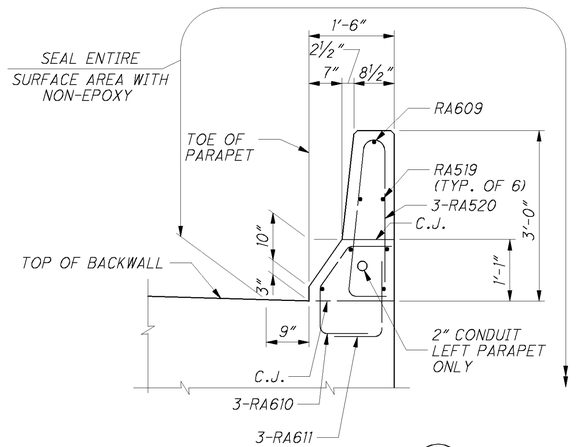
SECTION (D/10)

* FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼" DEEP MINIMUM.

REAR ABUTMENT SEISMIC PEDESTAL DETAILS



PARAPET DETAIL (A/10)



PARAPET DETAIL (F/10)

(RIGHT RETAINING WALL PARAPET NOT SHOWN FOR CLARITY)

NOTE:

1. SEE SHEET 8/34 FOR LEGEND & ADDITIONAL NOTES.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
XAC	XAC	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

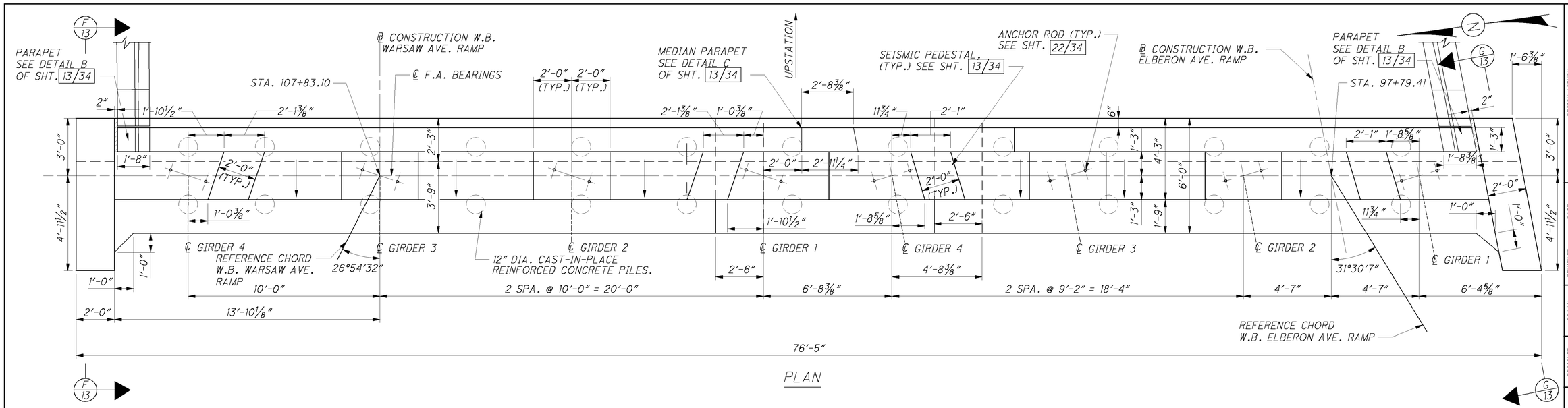
REAR ABUTMENT WINGWALL DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

10 / 34

379
657

P:\PR42702\ham\20082\bridge\HAM264_1448C\sheets\264_1448CAR001.dgn



LEGEND:

BOT. = BOTTOM
E.F. = EACH FACE
F.F. = FAR FACE
N.F. = NEAR FACE
S.O. = SERIES OF
U.N.O. = UNLESS NOTED OTHERWISE

* = ELEVATIONS GIVEN @ FACE OF JOINT ARMOR

** = SEE DETAIL D ON SHEET 13/34

▼ = SLOPE ½" BETWEEN BEARING SEATS

Ⓐ = 4-FA501, FA603, FA605 & FA606 @ 1'-5" = 4'-3"

Ⓑ = 5-FA502, FA603, FA604 & FA606 @ 1'-3" = 5'-0"

NOTES:

1. MIN. LAP LENGTHS:
   #5's = 2'-6"
   #6's = 3'-10" (UNLESS NOTED OTHERWISE)
   #8's = 4'-11"

DESIGN AGENCY
BURGESS & NIPLE
8 E. Long Street, Suite 1100
Columbus, Ohio 43215

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

FORWARD ABUTMENT PLAN AND ELEVATION
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

11 / 34

380 / 657

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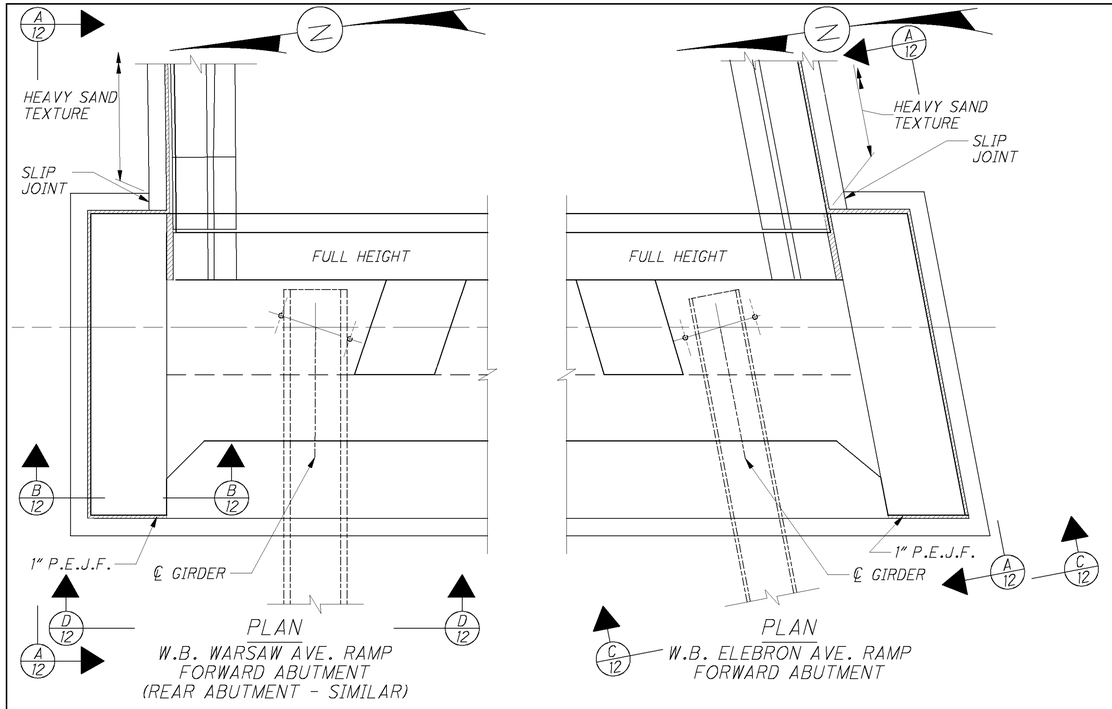
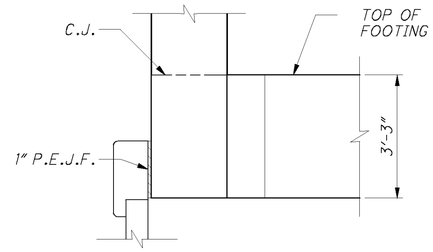
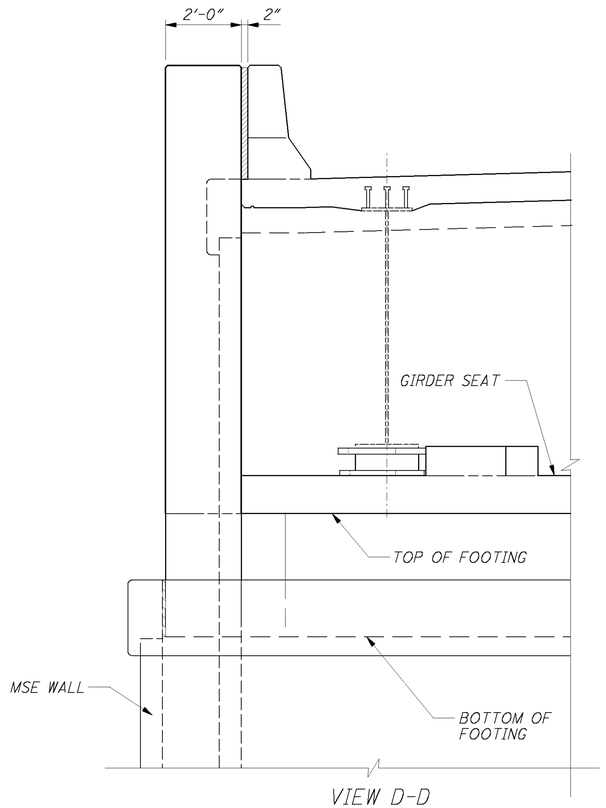
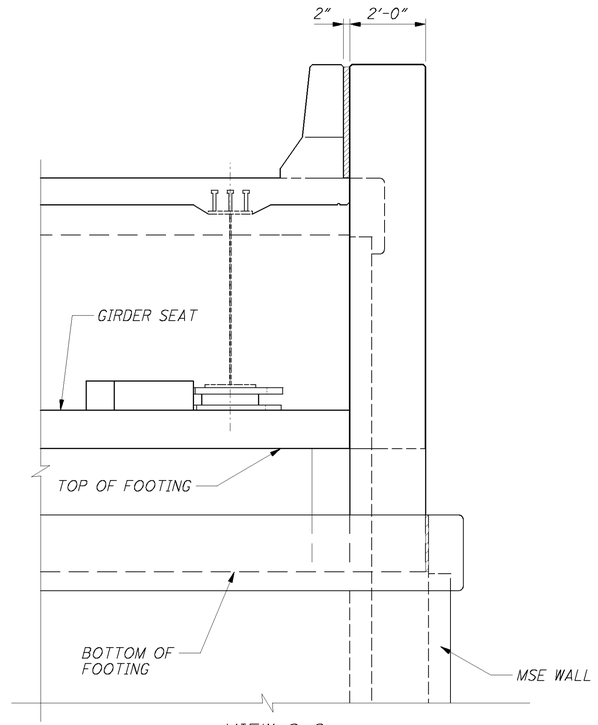




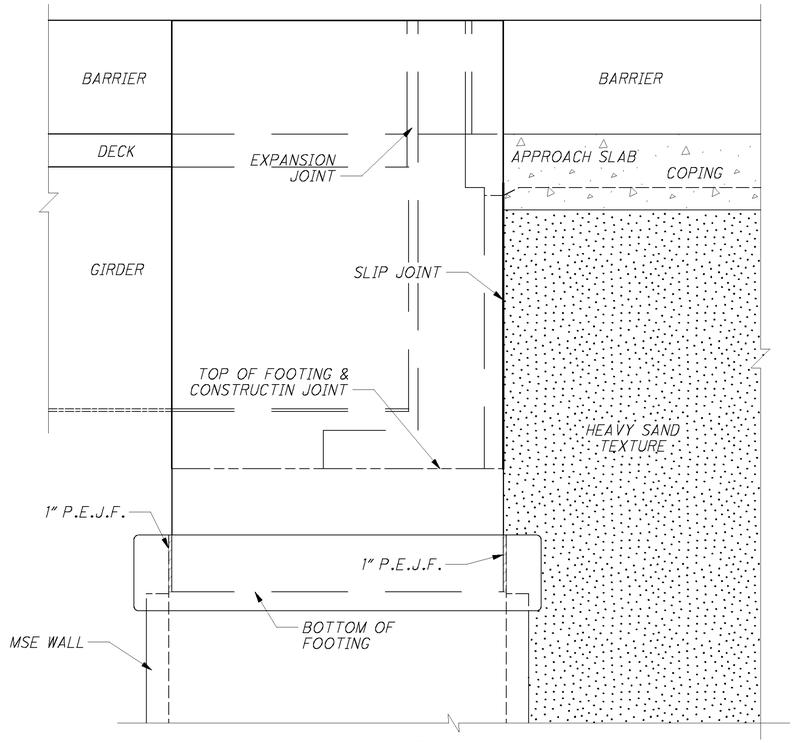
SECTION B-B



VIEW D-D



VIEW C-C



VIEW A-A

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2241
8240 Doubs Woods Court
Dublin, Ohio 43016-8240

DESIGNED XAC
DRAWN KML
CHECKED SJA
REVIEWED RMK
DATE 02-20-08
REVISED
STRUCTURE FILE NUMBER 3111636

ABUTMENT ARCHITECTURAL DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

12 / 34

381
657

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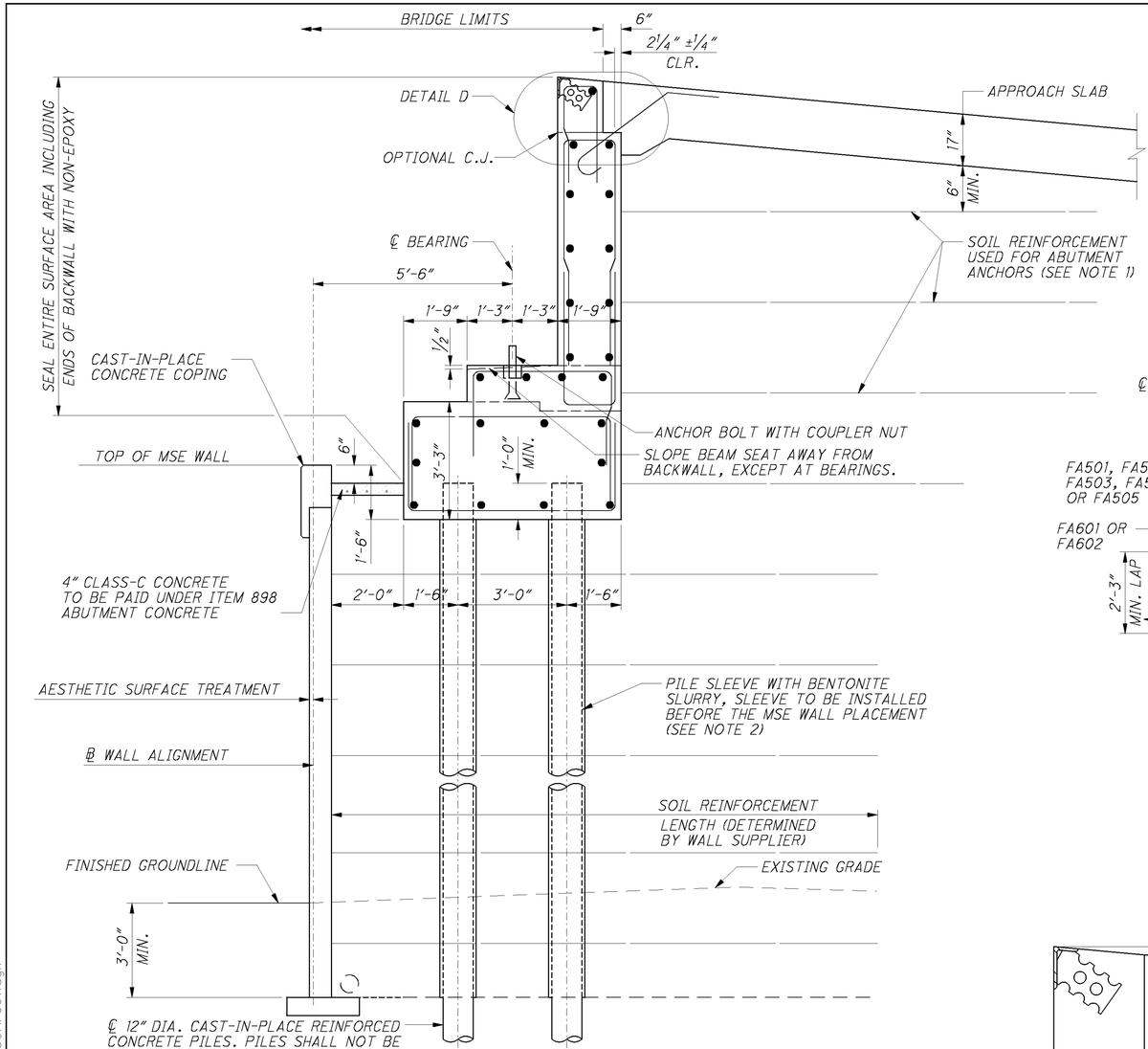
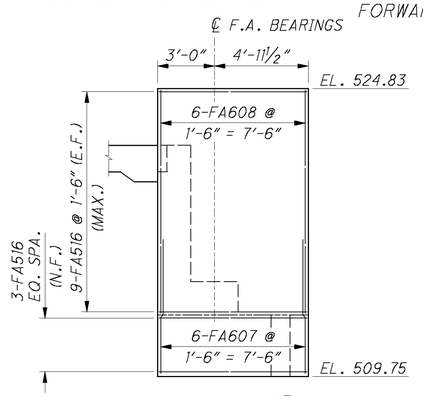
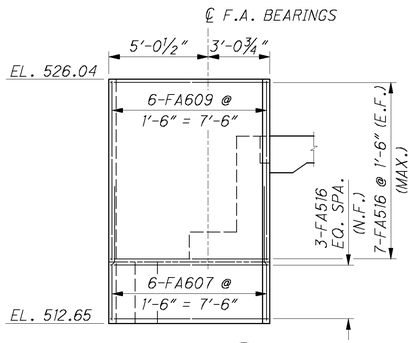


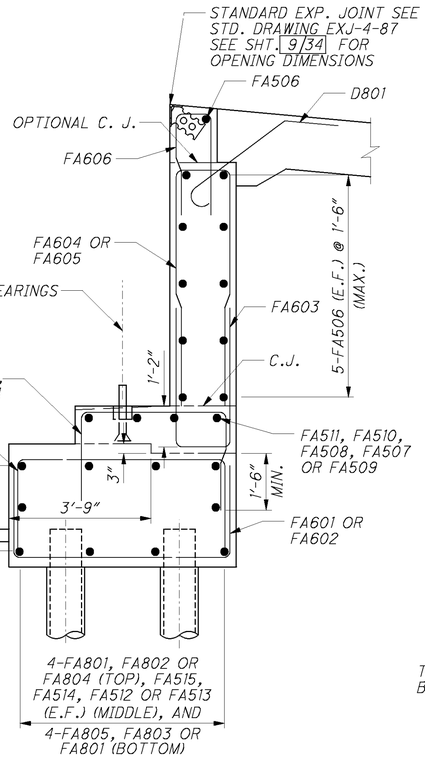
ABUTMENT SECTION (A/11)
FORWARD ABUTMENT



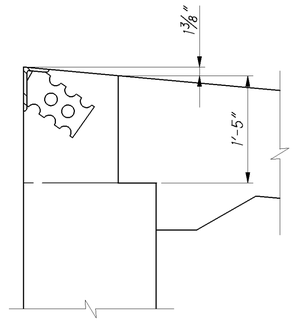
SECTION (F/11)
(PARAPETS & DECK NOT SHOWN FOR CLARITY)



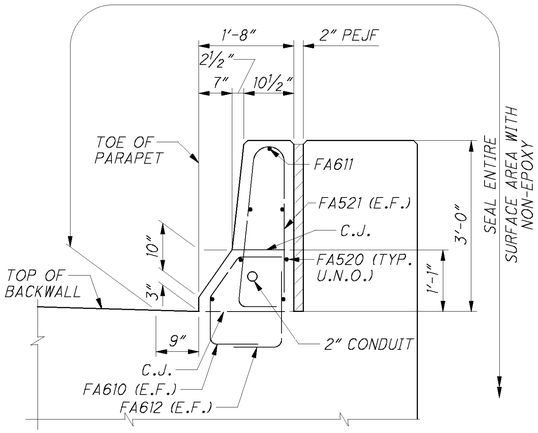
SECTION (G/11)
(PARAPETS & DECK NOT SHOWN FOR CLARITY)



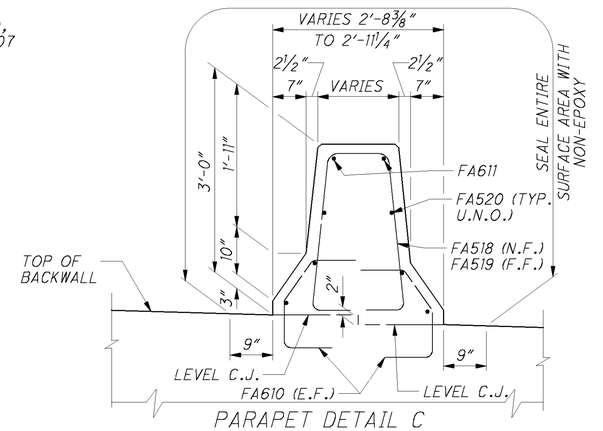
FWD. ABUTMENT REINFORCING



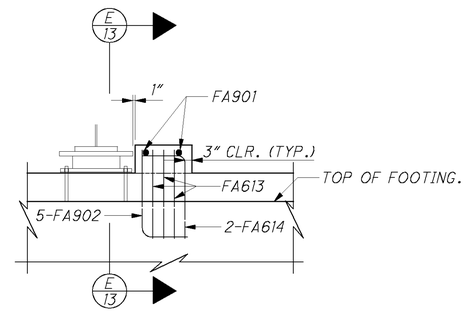
DETAIL D
(REINFORCING NOT SHOWN FOR CLARITY)



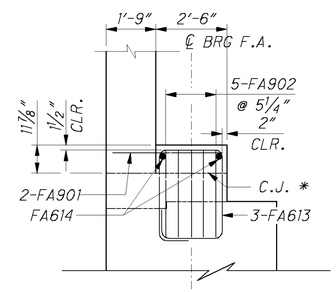
PARAPET DETAIL B



PARAPET DETAIL C



GIRDER 4 SHOWN, GIRDER 1 OPPOSITE HAND



SECTION (E/13)

* FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼″ DEEP MINIMUM.

FORWARD ABUTMENT SEISMIC PEDESTAL DETAILS

NOTES:

1. IN ADDITION TO LATERAL EARTH PRESSURE, AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE OF 2.83 KIPS PER FOOT APPLIED PERPENDICULAR TO THE FACE OF WALL AND THE BASE OF THE CONCRETE FOOTING SHALL BE RESISTED BY SOIL REINFORCEMENT ANCHORS.
2. SLEEVES FOR PILES SHALL BE INSTALLED FROM THE BOTTOM ELEVATION OF THE MSE WALL TO THE FOOTING ELEVATION PRIOR TO BACKFILL PLACEMENT. SEE MSE WALL PLANS AND NOTES FOR ADDITIONAL DETAILS.

DESIGN AGENCY: BURGESS & NIPLE
361 Summit Blvd., Ste. 110, Birmingham (Cincinnati), Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
XAC	GTT	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

FORWARD ABUTMENT DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

13 / 34

382 / 657

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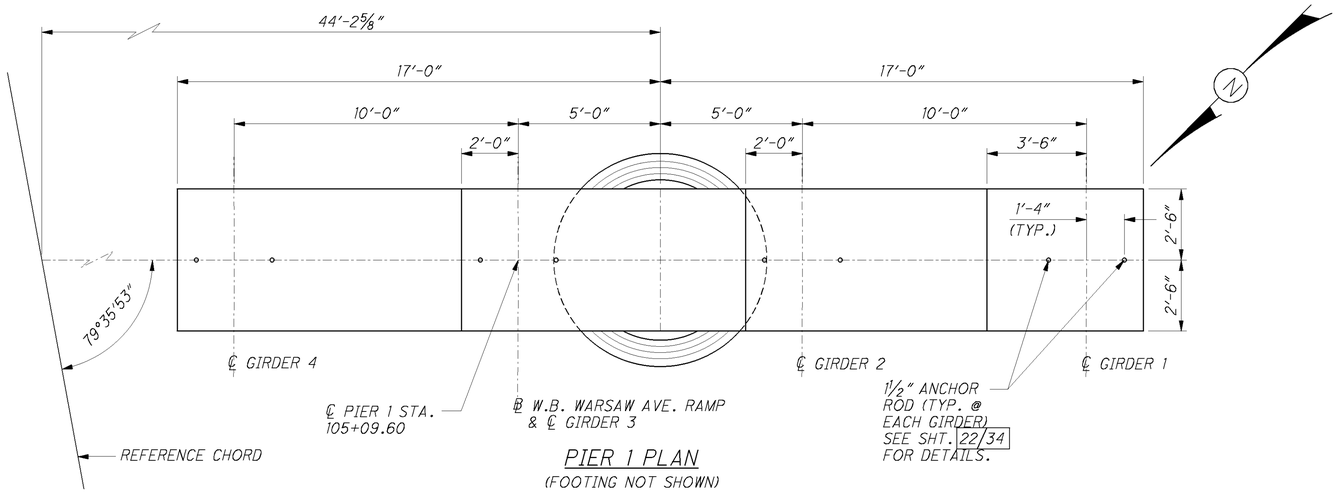
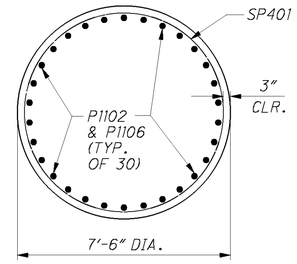


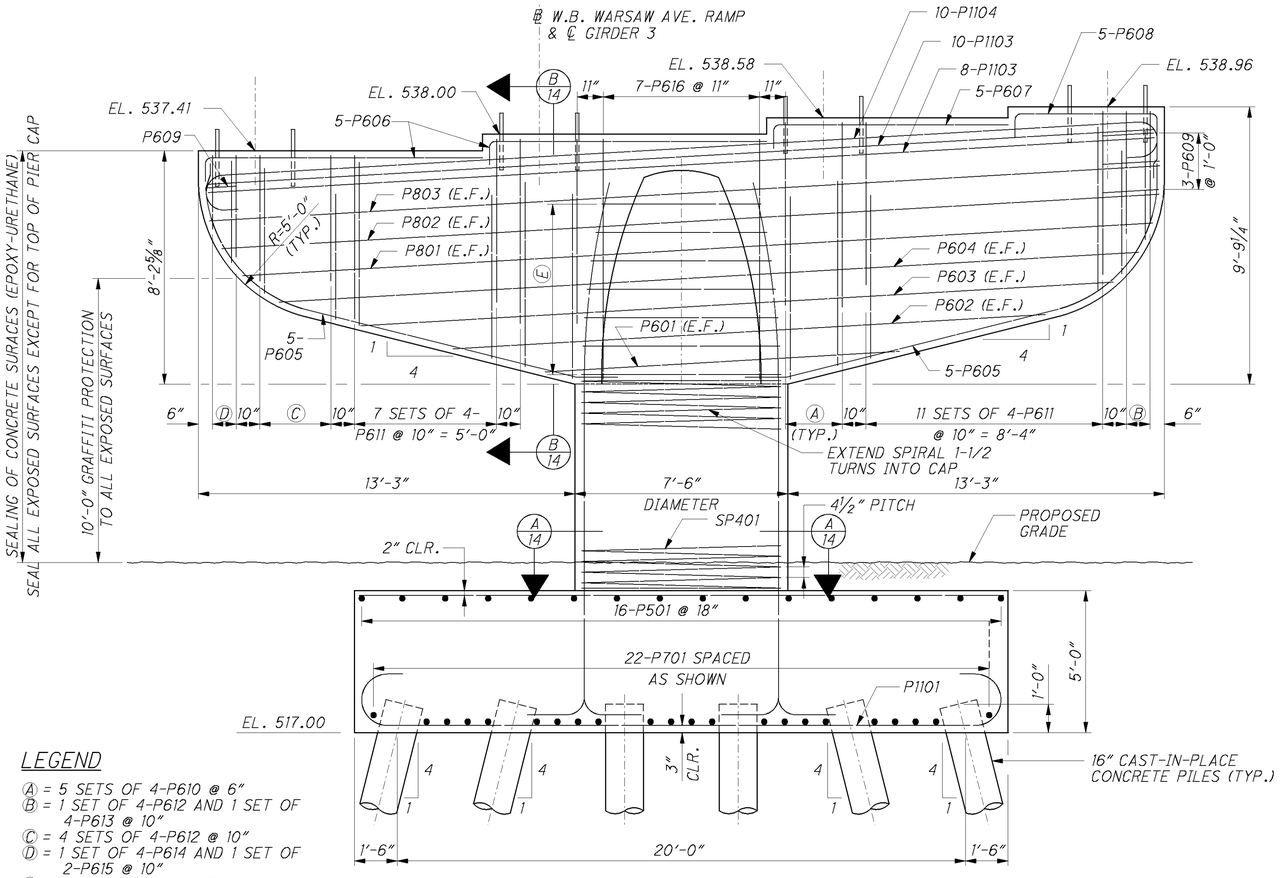
PIER 1 PLAN
(FOOTING NOT SHOWN)



SECTION (A/14)

NOTES

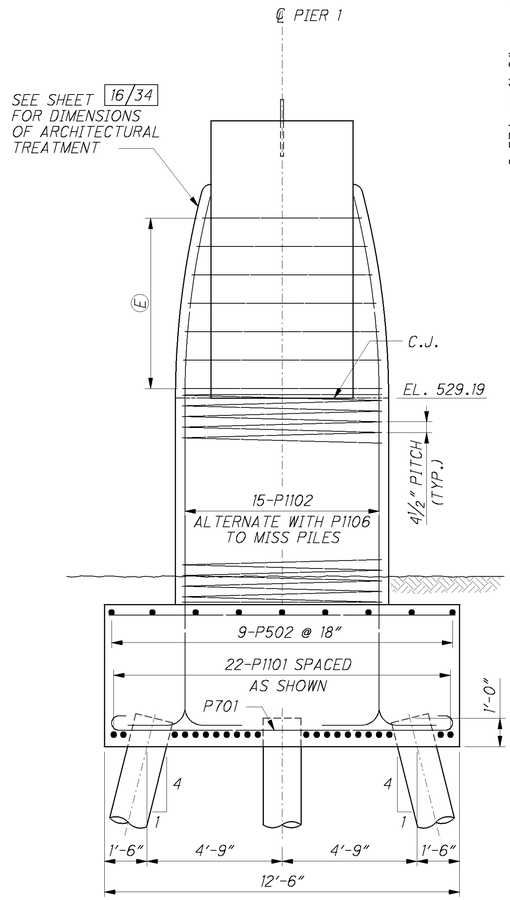
1. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
2. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD ⅛ INCH AT PIERS TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
3. SEALING OF BEAM SEATS: IF THE BEAMS SEATS ARE SEALED WITH AN EPOXY OR NON-EPOXY SEALER PRIOR TO SETTING THE BEARINGS, DO NOT APPLY SEALER TO THE CONCRETE SURFACES UNDER THE PROPOSED BEARING LOCATIONS. IF THESE LOCATIONS ARE SEALED, REMOVE THE SEALER TO THE SATISFACTION OF THE ENGINEER PRIOR TO SETTING THE BEARINGS. THE DEPARTMENT WILL NOT PAY FOR THIS REMOVAL.



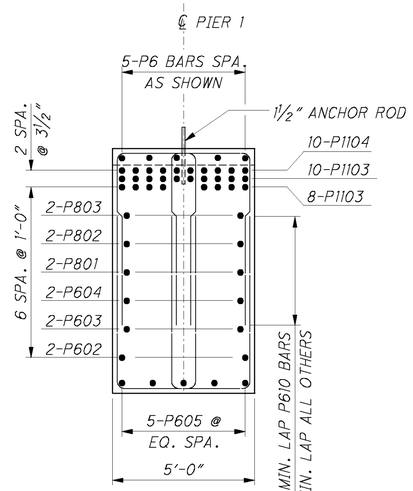
PIER 1 ELEVATION

LEGEND

Ⓐ = 5 SETS OF 4-P610 @ 6"
Ⓑ = 1 SET OF 4-P612 AND 1 SET OF 4-P613 @ 10"
Ⓒ = 4 SETS OF 4-P612 @ 10"
Ⓓ = 1 SET OF 4-P614 AND 1 SET OF 2-P615 @ 10"
Ⓔ = P401 THROUGH P407 @ 1'-0"
C.J. = CONSTRUCTION JOINT
W.B. = WESTBBOUND



PIER 1 SIDE VIEW
(CAP REINFORCING STEEL NOT SHOWN)



SECTION (B/14)

DESIGN AGENCY
BURGESS & NIPLE
37 West Broad, Suite 1100
Columbus, Ohio 43215

DATE 01-28-08
REVIEWED TMB
STRUCTURE FILE NUMBER 3111636
DRAWN RMK
REVISED
DESIGNED RMK
CHECKED JHL

PIER 1 DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

14 / 34

383
657

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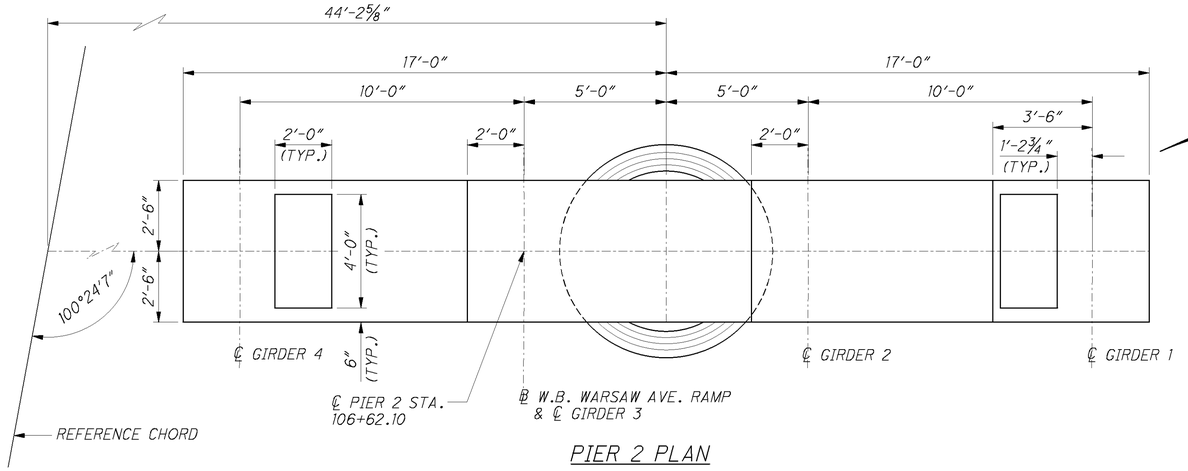
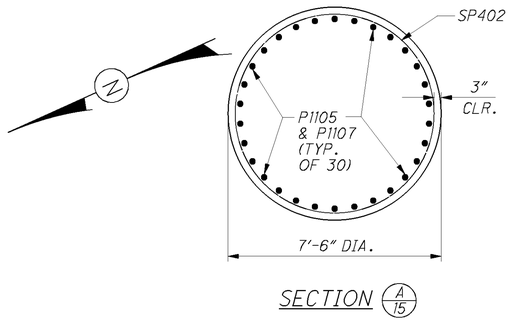


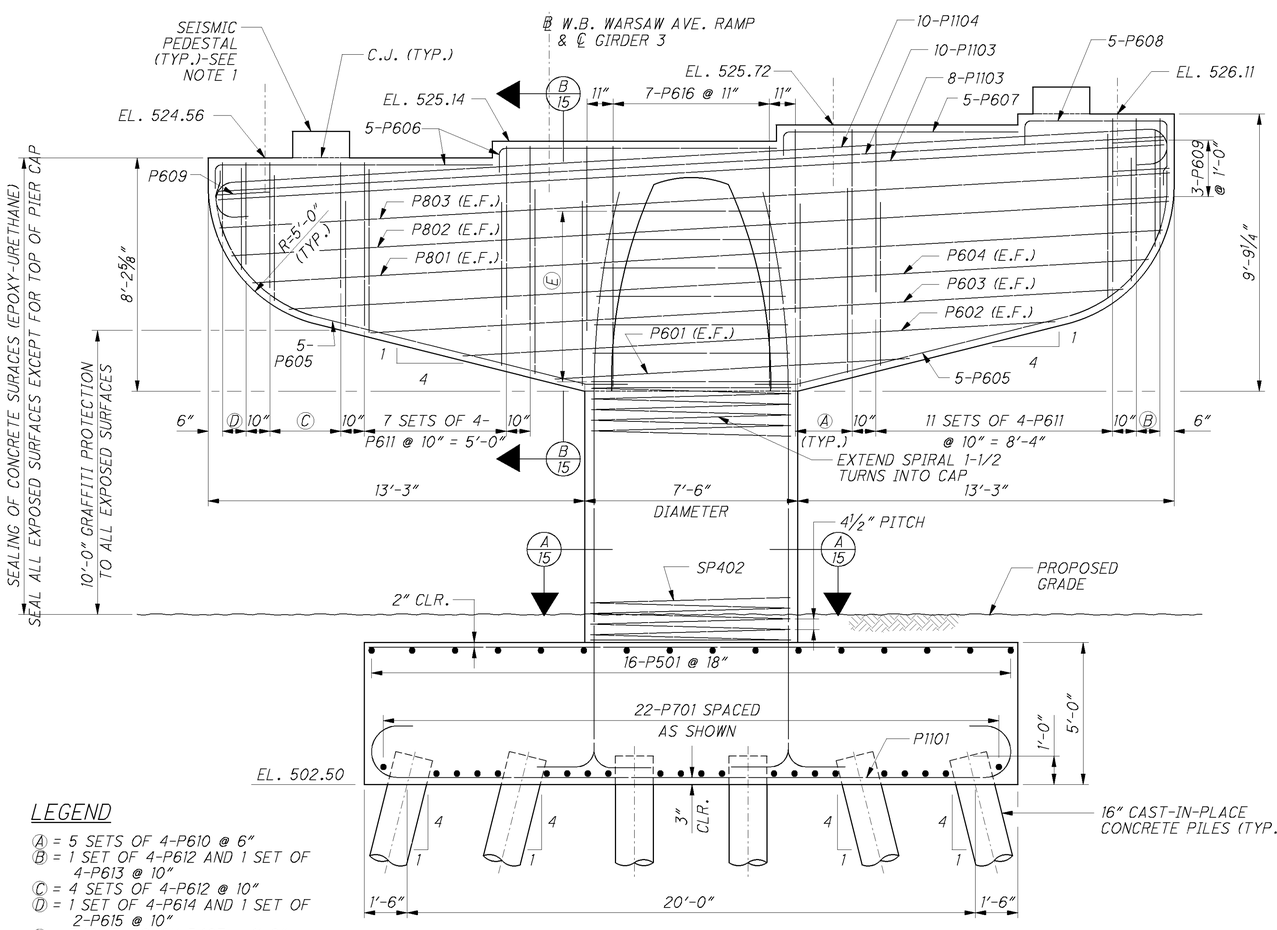
PIER 2 PLAN
(FOOTING NOT SHOWN)



SECTION (A/15)

NOTES

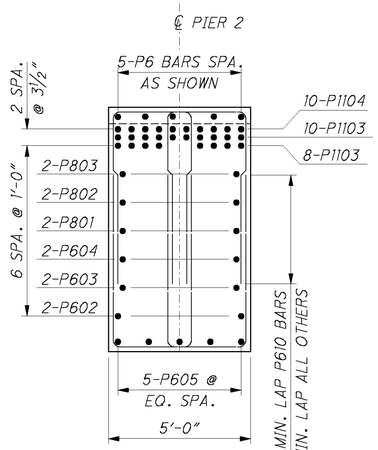
1. SEE SHEET 16/34 FOR SEISMIC PEDESTAL DETAILS.
2. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD ⅛ INCH AT PIERS TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
3. SEALING OF BEAM SEATS: IF THE BEAMS SEATS ARE SEALED WITH AN EPOXY OR NON-EPOXY SEALER PRIOR TO SETTING THE BEARINGS, DO NOT APPLY SEALER TO THE CONCRETE SURFACES UNDER THE PROPOSED BEARING LOCATIONS. IF THESE LOCATIONS ARE SEALED, REMOVE THE SEALER TO THE SATISFACTION OF THE ENGINEER PRIOR TO SETTING THE BEARINGS. THE DEPARTMENT WILL NOT PAY FOR THIS REMOVAL.



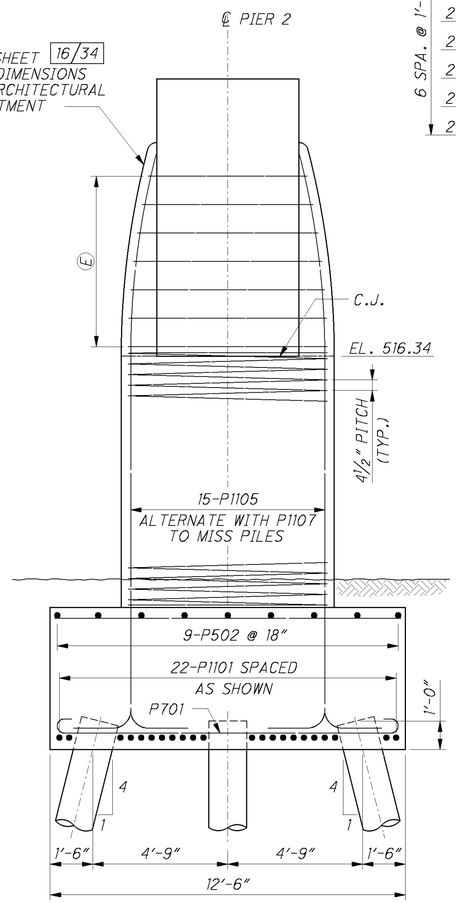
LEGEND

Ⓐ = 5 SETS OF 4-P610 @ 6"
Ⓑ = 1 SET OF 4-P612 AND 1 SET OF 4-P613 @ 10"
Ⓒ = 4 SETS OF 4-P612 @ 10"
Ⓓ = 1 SET OF 4-P614 AND 1 SET OF 2-P615 @ 10"
Ⓔ = P401 THROUGH P407 @ 1'-0"
C.J. = CONSTRUCTION JOINT
W.B. = WESTBBOUND

PIER 2 ELEVATION



SECTION (B/15)



PIER 2 SIDE VIEW
(CAP REINFORCING STEEL NOT SHOWN)

DESIGN AGENCY
BURGESS & NIPLE
8191 Beech Street, 2nd Floor
Cincinnati, Ohio 45230

DESIGNED	DRAWN	REVIEWED	DATE
RMK	RMK	TMB	01-28-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JHL		3111636	

PIER 2 DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

15 / 34

384
657

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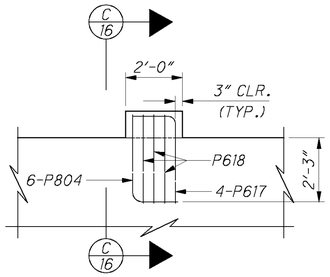
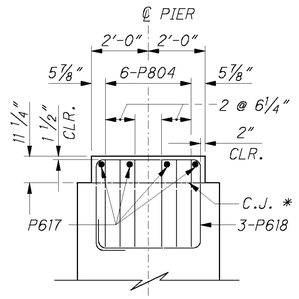


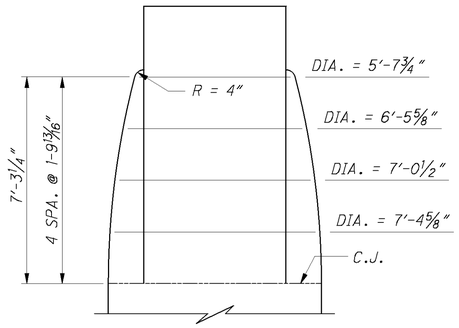
FRONT VIEW OF SEISMIC PEDESTAL

PEDESTAL FOR GIRDER 4 SHOWN
PEDESTAL FOR GIRDER 1 OPPOSITE HAND



SECTION (C/16)

* FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼" DEEP MINIMUM.



ARCHITECTURAL TREATMENT

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DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
5085 Reed Road, Columbus, Ohio 43220

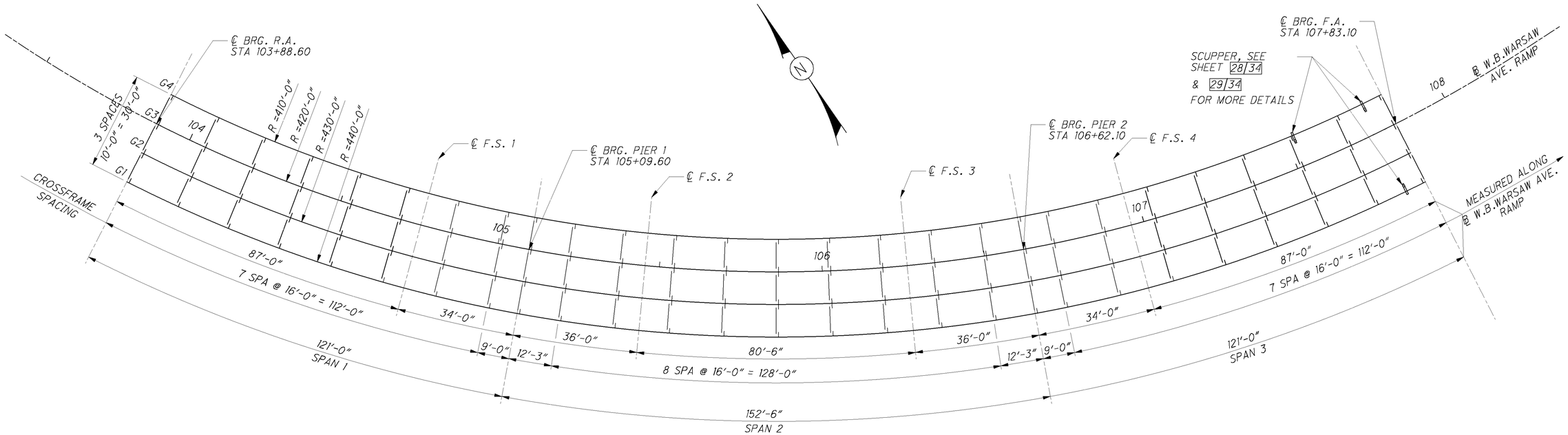
DESIGNED	DRAWN	REVIEWED	DATE
RMK	RMK	TMB	01-28-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JHL		3111636	

PIER DETAILS 3
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

16 / 34

385
657



FRAMING PLAN

NOTES:

1. ALL MATERIAL TO BE ASTM-A709, GRADE 50.
2. ALL ℄ BEARINGS AND CROSSFRAMES ARE RADIAL TO THE CENTER OF CURVATURE.
3. ALL STEEL TO BE SHOP PRIMED AND FIELD PAINTED ACCORDING TO ITEM 514.
4. BEARING STIFFENERS AND ENDS OF GIRDERS TO BE VERTICAL AFTER TOTAL DEAD LOAD IS APPLIED.
5. SPLICES AND INTERMEDIATE STIFFENERS TO BE NORMAL TO GIRDERS.
6. END CROSSFRAMES SHALL BE PER STANDARD DRAWINGS GSD-1-96 AND EXJ-4-87.

DESIGN AGENCY
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Columbus, Ohio 43230

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

FRAMING PLAN
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

17 / 34

386
657

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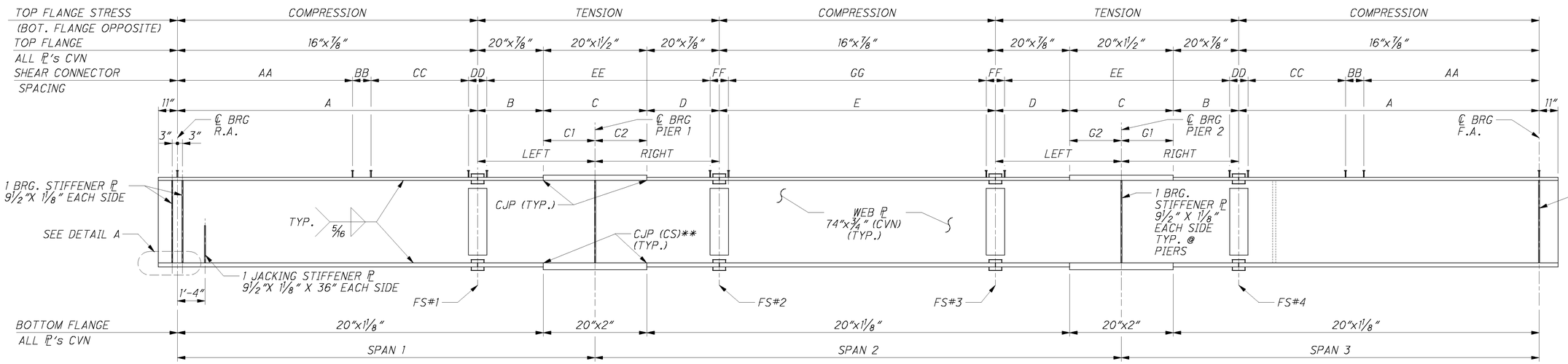


GIRDER ELEVATION
(CROSSFRAME STIFFENERS NOT SHOWN)

** CJP (CS) TYP FOR BOTTOM FLANGE BUTT WELDS

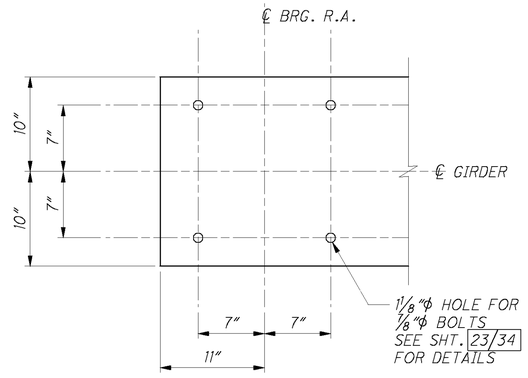
GIRDER	GIRDER DIMENSIONS				
	A	B	C	D	E
1	91'-1 11/16"	19'-10 1/8"	31'-5 1/8"	22'-0 "	84'-4 "
2	89'-0 7/8"	19'-5 11/16"	30'-8 9/16"	21'-6 "	82'-5 "
3	87'-0 "	19'-0 "	30'-0 "	21'-0 "	80'-6 "
4	84'-11 1/8"	18'-6 9/16"	29'-3 7/16"	20'-6 "	78'-7 "

SHEAR CONNECTOR SPACING							
	AA	BB	CC	DD	EE	FF	GG
GIRDER	SPA. @ 14 1/2''		SPA. @ 13''		SPA. @ 13 1/2''		SPA. @ 13 1/2''
1	42 SPA. = 50'-9 "	0'-7 "	35 SPA. = 37'-11 "	4'-2 15/16"	61 SPA. = 68'-7 1/2"	4'-7 "	71 SPA. = 79'-10 1/2"
2	41 SPA. = 49'-6 1/2"	0'-10 "	34 SPA. = 36'-10 "	3'-11 3/8"	60 SPA. = 67'-6 "	3'-11 "	70 SPA. = 78'-9 "
3	40 SPA. = 48'-4 "	1'-1 "	33 SPA. = 35'-9 "	3'-7 3/4"	59 SPA. = 66'-4 1/2"	3'-9 3/4"	68 SPA. = 76'-6 "
4	39 SPA. = 47'-1 1/2"	1'-1 "	32 SPA. = 34'-8 "	4'-1 7/8"	57 SPA. = 64'-1 1/2"	4'-3 1/4"	66 SPA. = 74'-3 "

GIRDER	SPAN LENGTHS				
	SPAN 1	SPAN 2	SPAN 3	TOTAL	RADIUS
℄	121'-0 "	152'-6 "	121'-0 "	394'-6 "	420'-0 "
1	126'-9 1/8"	159'-9 1/8"	126'-9 1/8"	413'-3 7/16"	440'-0 "
2	123'-10 3/16"	156'-1 9/16"	123'-10 9/16"	403'-10 11/16"	430'-0 "
3	121'-0 "	152'-6 "	121'-0 "	394'-6 "	420'-0 "
4	118'-1 7/16"	148'-10 7/16"	118'-1 7/16"	385'-1 5/16"	410'-0 "

GIRDER	FIELD SPLICE DISTANCE FROM PIER			
	PIER 1		PIER 2	
	LEFT	RIGHT	LEFT	RIGHT
1	35'-7 7/16"	37'-8 9/16"	37'-8 9/16"	35'-7 7/16"
2	34'-9 11/16"	36'-10 5/16"	36'-10 5/16"	34'-9 11/16"
3	34'-0 "	36'-0 "	36'-0 "	34'-0 "
4	33'-2 5/16"	35'-1 11/16"	35'-1 11/16"	33'-2 5/16"

GIRDER	FLANGE SPLICE DISTANCE FROM PIER			
	PIER 1		PIER 2	
	C1	C2	G1	G2
1	15'-8 9/16"	15'-8 9/16"	15'-8 9/16"	15'-8 9/16"
2	15'-4 5/16"	15'-4 5/16"	15'-4 5/16"	15'-4 5/16"
3	15'-0 "	15'-0 "	15'-0 "	15'-0 "
4	14'-7 11/16"	14'-7 11/16"	14'-7 11/16"	14'-7 11/16"



DETAIL A

BOTTOM FLANGE BOLT HOLE DETAIL
(REAR ABUTMENT ONLY)

NOTES:

1. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
2. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
3. GRIND COMPLETE JOINT PENETRATION WELDS SMOOTH IN LONGITUDINAL DIRECTION TO REMOVE WELD REINFORCEMENT.
4. ALL LONGITUDINAL DIMENSIONS SHOWN ARE ALONG ℄ OF GIRDER AND ARE HORIZONTAL (EFFECTS OF THE LONGITUDINAL GRADE ARE NOT INCLUDED.)
5. SHEAR STUD SPACING MAY BE ADJUSTED LOCALLY AS REQUIRED TO CLEAR FLANGE SPLICES.

DESIGN AGENCY
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Columbus, Ohio 43240

DESIGNED XAC | DRAWN KML | REVIEWED RMK | DATE 02-20-08
CHECKED BES | REVISED | STRUCTURE FILE NUMBER 3111636

GIRDER ELEVATION
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

18 / 34

387
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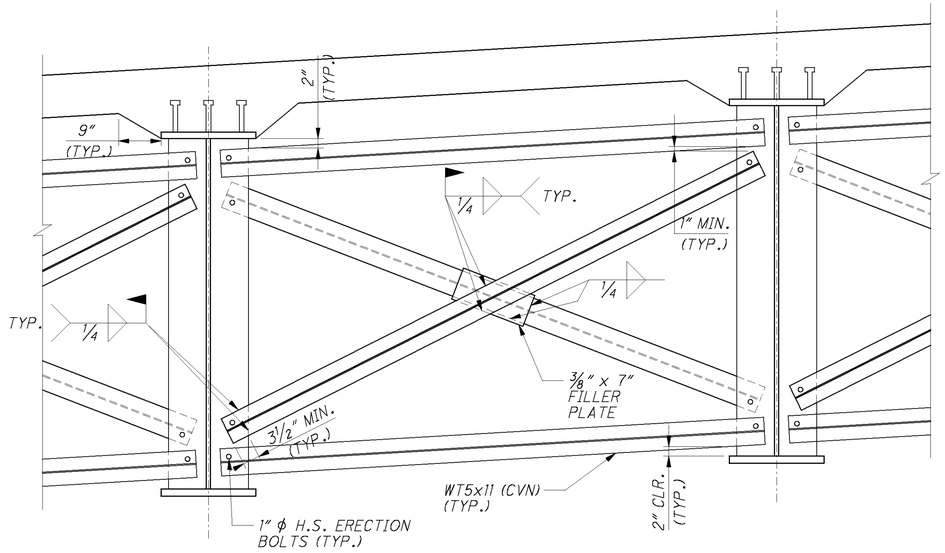
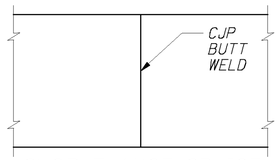
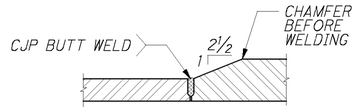


TYPICAL INTERMEDIATE CROSSFRAME



SHOP FLANGE SPLICE

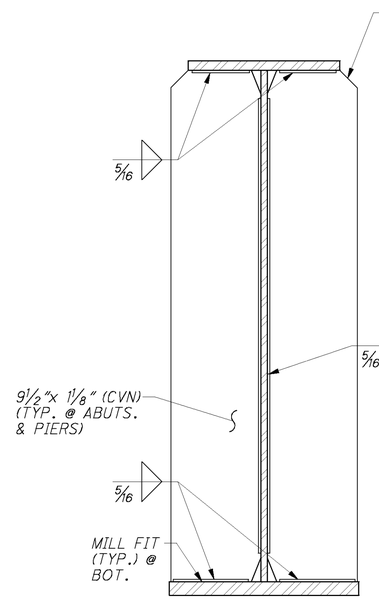
PLAN VIEW



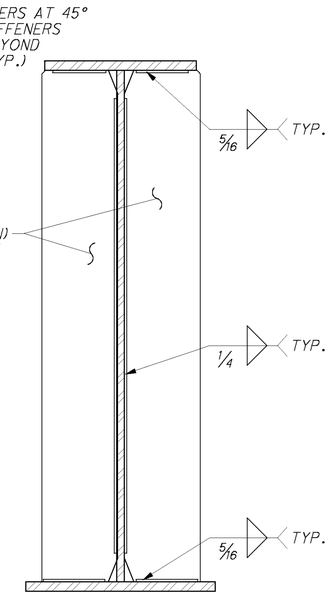
FLANGE WELD DETAIL

(WELD CONFIGURATION SHOWN FOR ILLUSTRATION ONLY. ACTUAL CONFIGURATION TO BE DETERMINED BY THE CONTRACTOR)

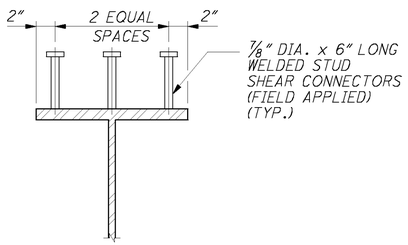
(GRIND COMPLETE JOINT PENETRATION WELD SMOOTH IN A LONGITUDINAL DIRECTION TO REMOVE WELD REINFORCEMENT.)



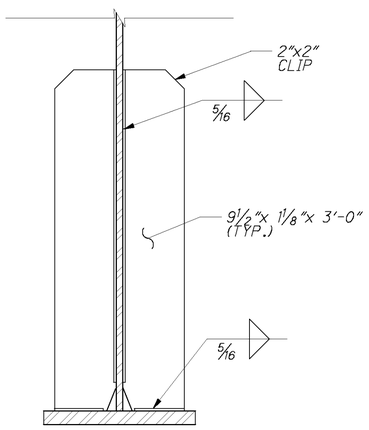
BEARING STIFFENER



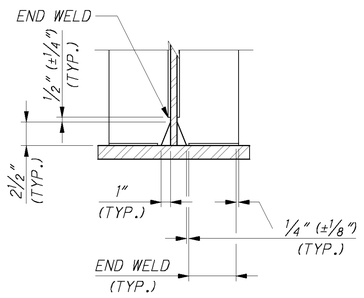
INTERMEDIATE STIFFENER WITH CROSSFRAMES



GIRDER SHEAR CONNECTOR DETAIL



JACKING STIFFENER



STIFFENER WELD DETAIL

NOTES:

1. INTERMEDIATE STIFFENERS ON FASCIA GIRDERS SHALL ONLY BE PLACED ON THE INSIDE OF THE WEB.
2. SEE SHT. 28/34 & 29/34 FOR SCUPPER DETAILS.
3. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
4. ERECTION BOLTS: THE HOLE DIAMETER IN THE CROSS FRAMES AND GIRDER STIFFENERS SHALL BE 3/16" LARGER THAN THE DIAMETER OF THE ERECTION BOLTS. ERECTION BOLTS SHALL BE HIGH STRENGTH BOLTS AND SHALL REMAIN IN PLACE. SUPPLY TWO HARDENED WASHERS WITH EACH HIGH STRENGTH BOLT. FULLY TORQUE THE BOLTS OR USE A LOCK WASHER IN ADDITION TO THE TWO HARDENED WASHERS. FURNISH ERECTION BOLTS AS PART OF ITEM 513.

DESIGN AGENCY
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DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

CROSSFRAME DETAILS

BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

19 / 34

388
657

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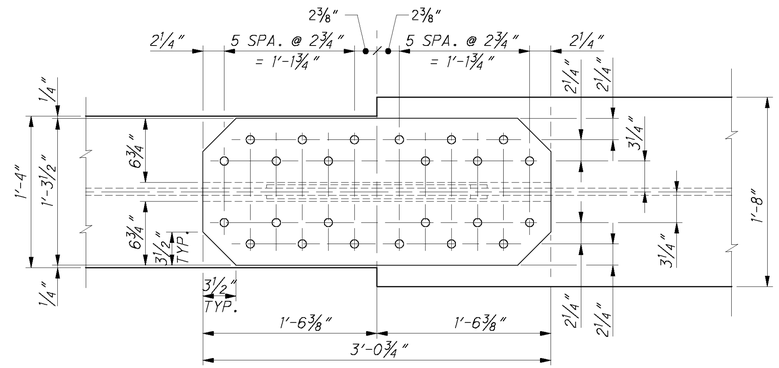
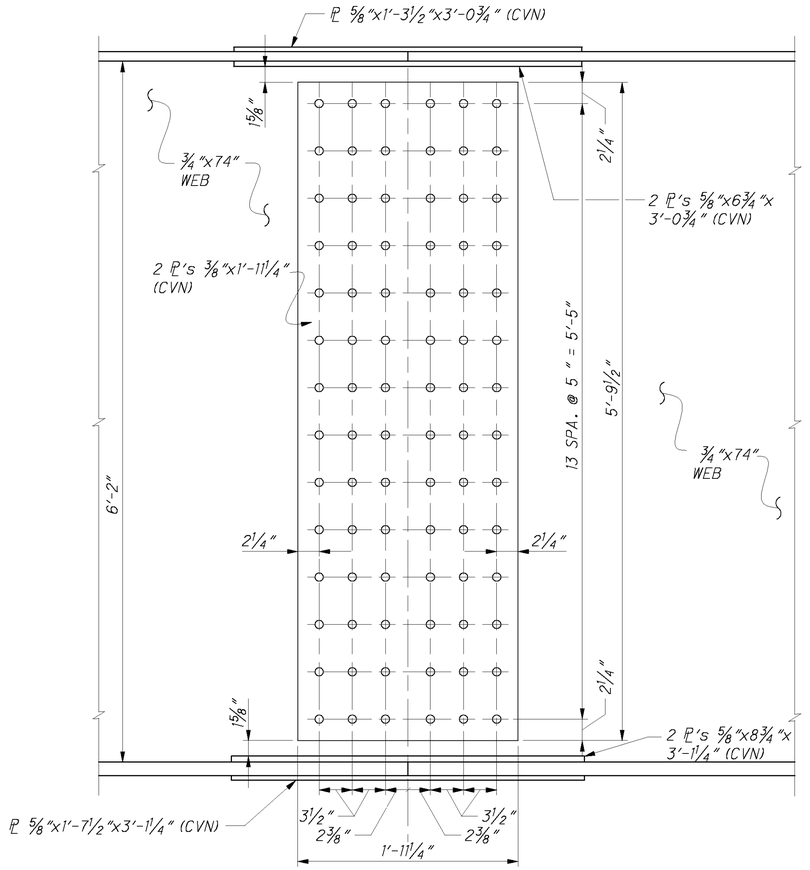
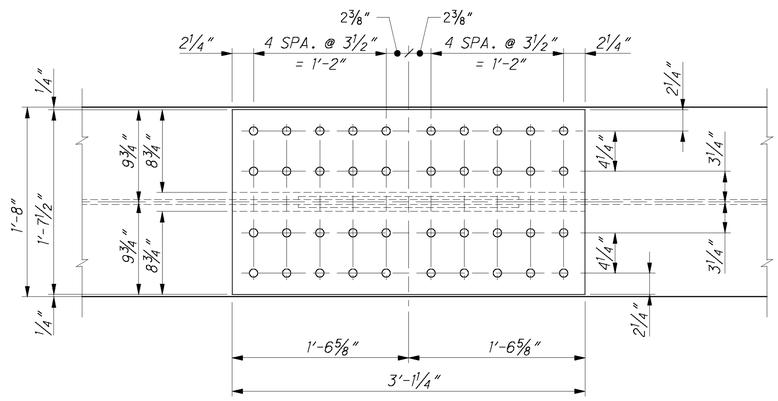


TOP FLANGE PLAN

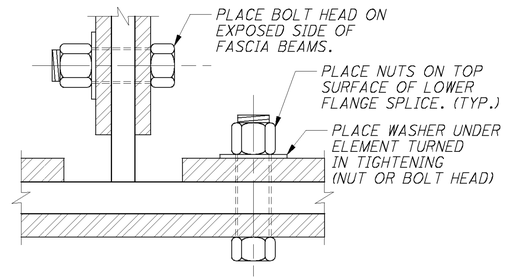
F.S.1 & F.S.3 SHOWN
F.S.2 & F.S.4 OPPOSITE HAND



GIRDER FIELD SPLICE ELEVATION



BOTTOM FLANGE PLAN



PARTIAL SECTION

(AT ℄ OF GIRDER SPLICE)

NOTES:

1. ALL BOLTS SHALL BE 1⅛" DIA. HIGH STRENGTH BOLTS, ASTM A325 TYPE 1, GALVANIZED.
2. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BES		3111636	

FIELD SPLICE DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

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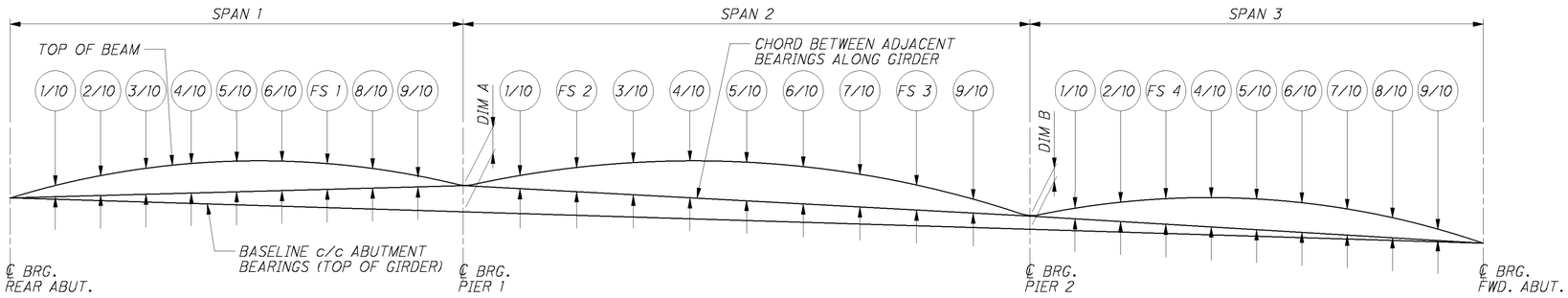

CAMBER DIAGRAM
(NOT TO SCALE)

BLOCKING DIMENSION		
GIRDER	DIM. A	DIM. B
G1	3′-4 1/8″	1′-9 13/16″
G2	3′-3 15/16″	1′-9 1/16″
G3	3′-3 3/4″	1′-9″
G4	3′-3 9/16″	1′-8 1/2″

NOTES:

1. POSITIVE CAMBER IS UPWARD.
2. GEOMETRIC CORRECTION IS A COMBINATION OF VERTICAL CURVE AND SUPERELEVATION TRANSITION CORRECTIONS.
3. CAMBER VALUES DO NOT INCLUDE ALLOWANCES FOR LOSS DUE TO HEAT CURVING. IF HEAT CURVING IS USED, ADJUST CAMBERS PER AASHTO 10.15.3.

CAMBER TABLE (VALUE IN INCHES)

		SPAN 1										SPAN 2										SPAN 3									
GIRDER 1	REAR ABUT.	1/10 SPAN	2/10 SPAN	3/10 SPAN	4/10 SPAN	5/10 SPAN	6/10 SPAN	SPLICE NO. 1	8/10 SPAN	9/10 SPAN	℄ PIER 1	1/10 SPAN	SPLICE NO. 2	3/10 SPAN	4/10 SPAN	5/10 SPAN	6/10 SPAN	7/10 SPAN	SPLICE NO. 3	9/10 SPAN	℄ PIER 2	1/10 SPAN	2/10 SPAN	SPLICE NO. 4	4/10 SPAN	5/10 SPAN	6/10 SPAN	7/10 SPAN	8/10 SPAN	9/10 SPAN	FWD. ABUT.
DELFECTION DUE TO WEIGHT OF STEEL	0	1/4″	1/16″	9/16″	5/8″	5/8″	1/2″	5/16″	3/16″	1/16″	0	0″	3/16″	5/16″	1/16″	1/2″	1/16″	5/16″	3/16″	0″	0	1/16″	3/16″	5/16″	1/2″	5/8″	5/8″	9/16″	7/16″	1/4″	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/8″	1 9/16″	2 1/16″	2 5/16″	2 3/16″	1 3/4″	1 1/16″	5/8″	3/16″	0	1/8″	1 13/16″	1/4″	1 13/16″	2″	1 13/16″	1 1/4″	5/16″	1/8″	0	3/16″	5/8″	1 1/16″	1 11/16″	2 1/8″	2 1/4″	2 1/16″	1 9/16″	7/8″	0
GEOMETRIC CORRECTION	0	2 3/4″	4 1/8″	6 3/8″	7 1/4″	7 3/16″	7 1/4″	6 1/8″	4 1/8″	2 3/4″	0	2 5/8″	4 9/16″	4 1/8″	4 5/8″	3 13/16″	3 1/16″	2 5/16″	1 13/16″	3/4″	0	1/8″	1/4″	5/16″	1/2″	5/8″	3/4″	7/8″	1″	1/8″	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 1/8″	6 1/8″	9″	10 3/16″	10 3/8″	9 1/2″	7 1/2″	5 11/16″	3″	0	2 3/4″	5 9/16″	6 1/16″	6 1/8″	6 5/16″	5 5/16″	3 1/8″	2 13/16″	1/8″	0	3/8″	1 1/16″	1 11/16″	2 11/16″	3 3/8″	3 5/8″	3 1/2″	3″	2″	0
GIRDER 2																															
DELFECTION DUE TO WEIGHT OF STEEL	0	3/16″	3/8″	1/2″	1/2″	1/2″	3/8″	1/4″	1/8″	1/16″	0	0″	3/16″	5/16″	1/16″	1/16″	1/16″	5/16″	3/16″	0″	0	1/16″	1/8″	1/4″	3/8″	1/2″	1/2″	1/2″	3/8″	3/16″	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/16″	1 1/4″	1 5/8″	1 13/16″	1 11/16″	1 3/8″	1 1/16″	1/2″	1/8″	0	1/8″	3/4″	1/8″	1 9/16″	1 3/4″	1 9/16″	1 1/8″	3/4″	1/8″	0	1/8″	1/16″	1 3/16″	1 5/16″	1 1/16″	1 3/16″	1 5/16″	1 1/8″	1/4″	0
GEOMETRIC CORRECTION	0	2 3/4″	4 13/16″	6 3/8″	7 1/4″	7 9/16″	7 1/4″	6 1/8″	4 1/8″	2 3/4″	0	2 5/8″	4 9/16″	4 1/8″	4 5/8″	3 13/16″	3 1/16″	2 5/16″	1 13/16″	3/4″	0	1/16″	1/8″	3/16″	5/16″	5/16″	1/16″	1/2″	9/16″	1/2″	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 5/8″	6 1/16″	8 1/2″	9 9/16″	9 3/4″	9″	7 3/16″	5 1/2″	2 15/16″	0	2 3/4″	5 1/2″	6 5/16″	6 5/8″	6″	5 1/16″	3 3/4″	2 3/4″	1/8″	0	1/4″	1 1/16″	1 1/4″	2″	2 1/2″	2 3/4″	2 5/8″	2 7/16″	1 3/8″	0
GIRDER 3																															
DELFECTION DUE TO WEIGHT OF STEEL	0	1/8″	5/16″	3/8″	7/16″	3/8″	5/16″	3/16″	3/16″	0″	0	0″	3/16″	1/4″	3/8″	1/16″	3/8″	1/4″	3/16″	0″	0	0″	1/8″	3/16″	5/16″	3/8″	1/16″	3/8″	1/4″	1/8″	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	9/16″	1″	1 5/16″	1 1/16″	1 3/8″	1 1/16″	1/16″	5/8″	1/16″	0	1/8″	1 1/16″	1″	1 3/8″	1 9/16″	1 3/8″	1″	1/16″	1/8″	0	1/8″	3/8″	1/16″	1 1/16″	1 5/16″	1 1/16″	1 5/16″	1 3/16″	9/16″	0
GEOMETRIC CORRECTION	0	2 3/4″	4 13/16″	6 3/8″	7 1/4″	7 9/16″	7 1/4″	6 1/8″	4 13/16″	2 3/4″	0	2 9/16″	4 9/16″	4 1/8″	4 5/8″	3 13/16″	3 1/16″	2 5/16″	1 13/16″	3/4″	0	0″	0″	0″	0″	0″	0″	0″	0″	0″	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 1/16″	6 1/8″	8 1/16″	9 1/8″	9 5/16″	8 5/8″	7″	5 5/8″	2 13/16″	0	2 11/16″	5 1/16″	6 1/8″	6 3/8″	5 5/16″	4 7/16″	3 9/16″	2 11/16″	1/8″	0	1/8″	1/2″	1/8″	1 3/8″	1 11/16″	1 1/8″	1 11/16″	1 3/16″	1 1/16″	0
GIRDER 4																															
DELFECTION DUE TO WEIGHT OF STEEL	0	1/8″	1/4″	1/4″	5/16″	5/16″	1/4″	1/8″	1/16″	0″	0	1/16″	3/16″	1/4″	3/8″	3/8″	3/8″	1/4″	3/16″	1/16″	0	0″	1/16″	1/8″	1/4″	5/16″	5/16″	1/4″	3/16″	1/8″	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16″	1 3/16″	1″	1 1/8″	1 1/16″	1 3/16″	1/2″	1/4″	1/16″	0	1/8″	1 1/16″	15/16″	1 1/4″	1 3/8″	1 1/4″	15/16″	1 1/16″	1/8″	0	1/16″	1/4″	1/2″	1 3/16″	1″	1 1/8″	1″	3/4″	3/8″	0
GEOMETRIC CORRECTION	0	2 3/4″	4 13/16″	6 3/8″	7 1/4″	7 9/16″	7 1/4″	6 1/8″	4 1/8″	2 3/4″	0	2 9/16″	4 9/16″	4 1/8″	4 5/8″	3 13/16″	3 1/16″	2 5/16″	1 13/16″	3/4″	0	- 1/16″	- 1/8″	- 3/16″	- 1/4″	- 5/16″	- 3/8″	- 1/2″	- 9/16″	- 1/2″	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 5/16″	5 1/8″	7 5/8″	8 11/16″	8 15/16″	8 5/16″	6 3/4″	5 5/16″	2 13/16″	0	2 3/4″	5 1/16″	6 1/16″	6 1/4″	5 9/16″	4 11/16″	3 1/2″	2 11/16″	15/16″	0	0″	3/16″	1/16″	1 3/16″	1″	1 1/16″	3/4″	7/8″	0″	0

CAMBER IS CALCULATED FOR THE ENTIRE DECK SLAB PLACED AT THE SAME TIME.

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DESIGN AGENCY: BURGESS & NIPLE
BURGESS & NIPLE, INC. | 5085 Reed Road, Columbus, Ohio 43220

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

CAMBER DIAGRAM
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

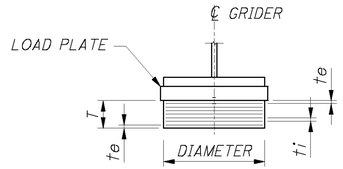
HAM-50-18.79
PID No. 20082

LAMINATED ELASTOMERIC BEARINGS

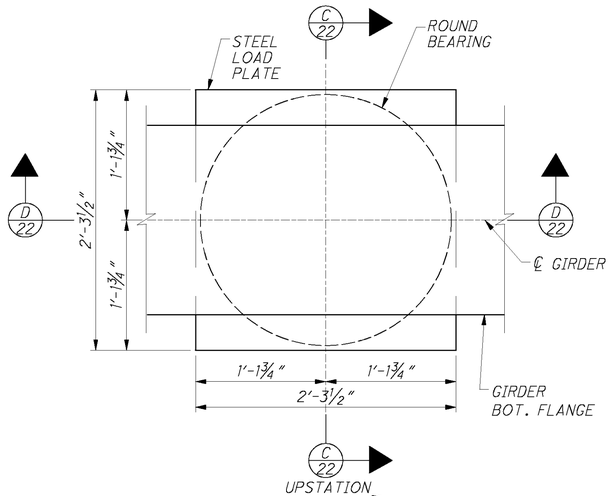
LOCATION	BEARING TYPE	BEARING DIMENSIONS DIAMETER	ti	te	T	N	STEEL LOAD PLATE LENGTH x WIDTH x THICKNESS	BEVEL DIMENSIONS A	B	REACTIONS (KIPS) DL	LL	MAXIMUM DESIGN REACTION (KIPS)
REAR ABUTMENT	SPECIAL	20"	3/4"	1/2"	5 3/16"	6	1'-9" x 2'-0" x 2" AVG.	2 1/4"	1 3/4"	123	81	204
PIER 1	FIXED	25 1/4"	13/16"	1/2"	5 1/2"	6	2'-2 1/4" x 3'-1 1/2" x 2" AVG.	2 7/8"	1 1/8"	401	148	549
PIER 2	EXP.	26 1/2"	13/16"	1/2"	6 3/8"	7	2'-3 1/2" x 2'-3 1/2" x 2" AVG.	3 3/16"	13/16"	401	148	549
FORWARD ABUTMENT	EXP.	20"	3/4"	1/2"	5 3/16"	6	1'-9" x 2'-7" x 2" AVG.	2 15/16"	1 1/16"	123	81	204

ti = THICKNESS OF INTERNAL LAMINATE
te = THICKNESS OF EXTERNAL LAMINATE
T = TOTAL THICKNESS OF ELASTOMERIC BEAING

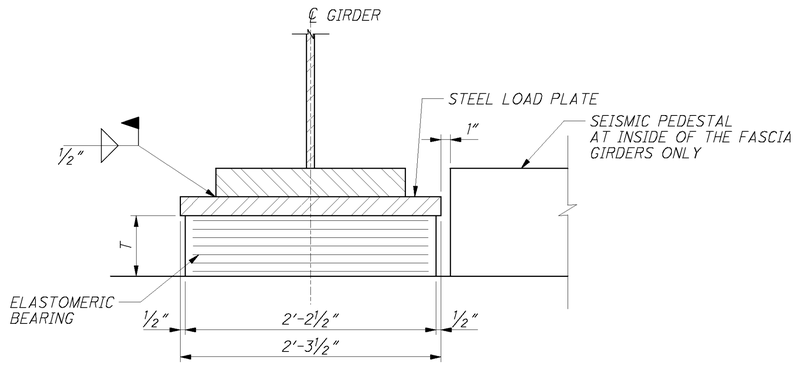
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.075"
DUROMETER OF ELASTOMER = 60 DUROMETER
LOAD PLATE THICKNESS IS MEASURED AT CENTERLINE OF BEARINGS.



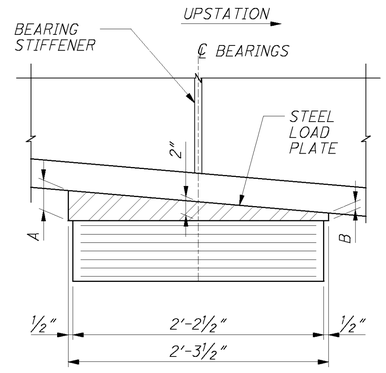
LAMINATED ELASTOMERIC EXPANSION BEARINGS



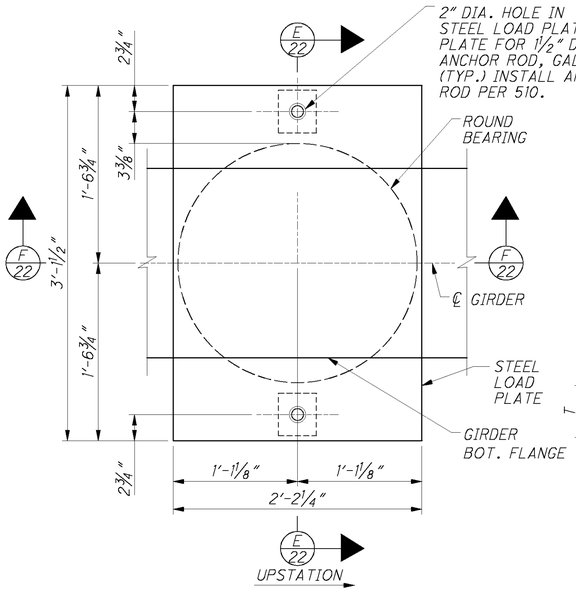
BEARING PLAN
(PIER 2 EXPANSION BEARING)



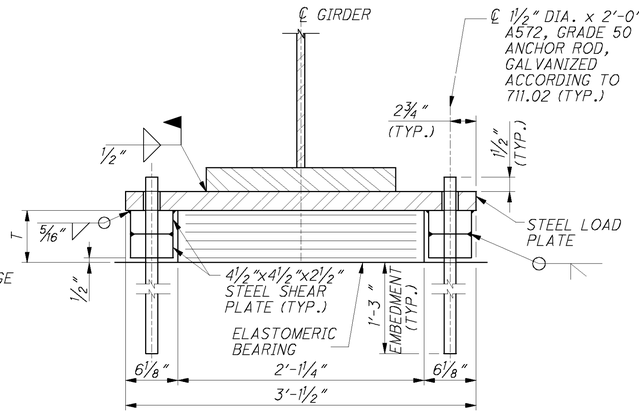
SECTION C 22



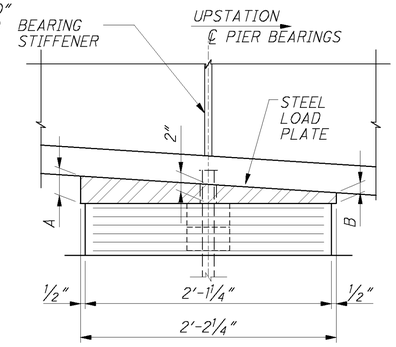
SECTION D 22



BEARING PLAN
(PIER 1 FIXED BEARING)



SECTION E 22



SECTION F 22

NOTES:

EACH BEARING ASSEMBLY SHALL BE SHOP MARKED WITH THE FOLLOWING INFORMATION: TOP, FORWARD STATION DIRECTION, AND LOCATION (REAR ABUTMENT, PIER, FORWARD ABUTMENT).

ABUTMENT AND PIER ELASTOMERIC BEARINGS:
THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6. (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

BEARING REPOSITIONING:
IF BEAMS ARE PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F ± 10°F, THE BEAMS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ± 10°F.

WELDING:
CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300° F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

LOAD PLATE:
THE STEEL LOAD PLATE, STEEL PLATE, STEEL FILL PLATE AND MASONRY PLATE SHALL BE THE SAME MATERIAL AS THE ATTACHED STRUCTURAL STEEL AND BE SIMILARLY CLEANED AND COATED. SURFACE PREPARATION AND PRIMING SHALL BE DONE IN THE SHOP AND BE INCLUDED IN THE PRICE BID FOR BEARINGS. FIELD COATS SHALL BE INCLUDED IN THE PRICE BID FOR PAINTING MAIN STRUCTURAL STEEL.

THE STEEL LOAD PLATES AND STEEL MASONRY PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

BASIS OF PAYMENT:
THE UNIT BID PRICE INCLUDES ALL MATERIALS, LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL ELASTOMERIC BEARINGS INCLUDING STEEL LOAD PLATES, STEEL PLATE, STEEL FILL PLATE, MASONRY PLATE, ANCHOR BOLTS, THREADED STUDS, NUTS, WASHERS AND FABRIC PADS. PAYMENT WILL BE INCLUDED WITH THE APPROPRIATE 516 ITEM.

DESIGN AGENCY
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DESIGNED	DRAWN	REVIEWED	DATE
XAC	XAC	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

BEARING DETAILS 1
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

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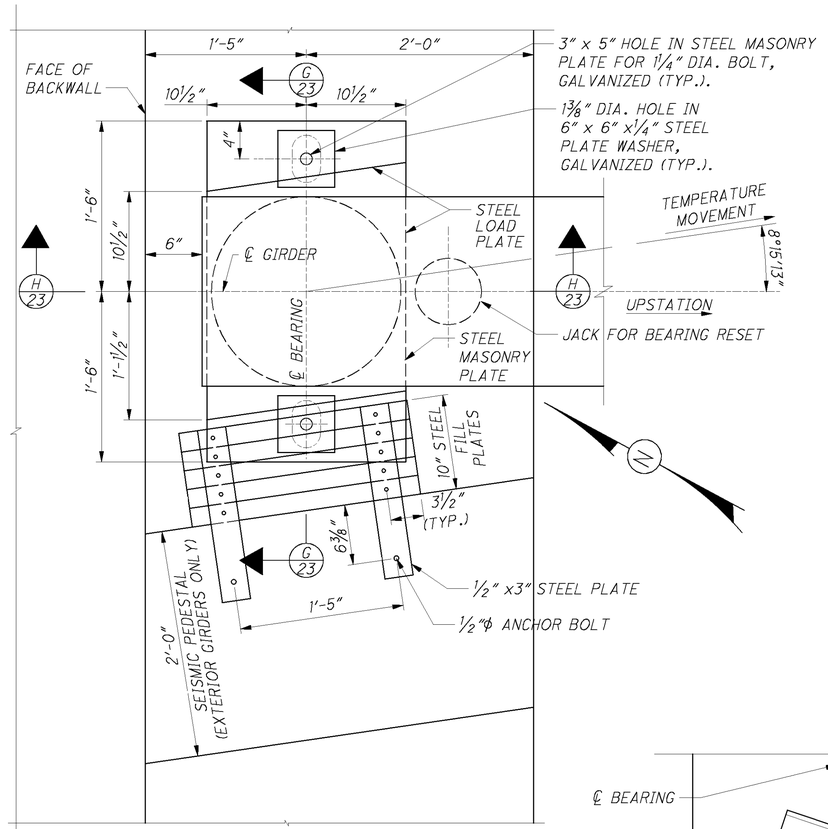
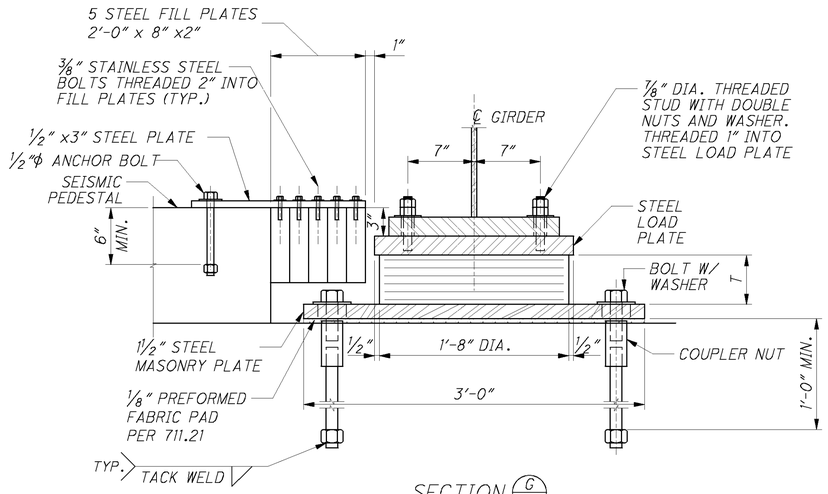
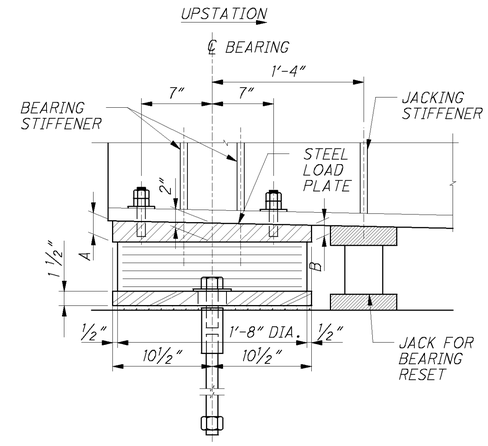


REAR ABUTMENT BEARING PLAN

(GIRDER G4 SHOWN, GIRDER G1 OPPOSITE HAND
GIRDER G2 & G3 - NO SEISMIC PEDESTAL)



SECTION G 23



SECTION H 23

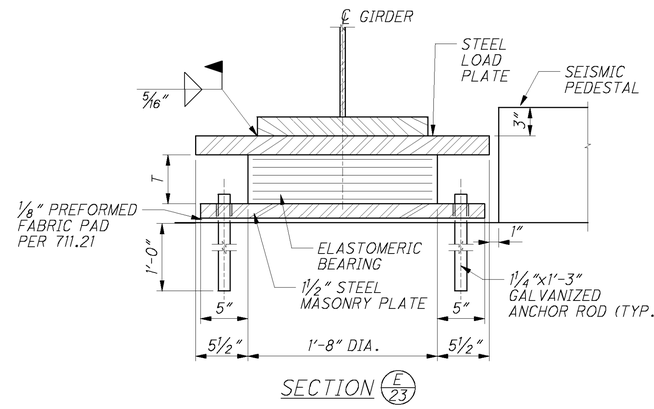
JACKING DESIGN CRITERIA			
LOCATION	DEAD LOAD REACTION (KIPS)	LIVE LOAD & IMPACT REACTION (KIPS)	TOTAL REACTION (KIPS)
REAR ABUTMENT	123	102	225

NOTES:

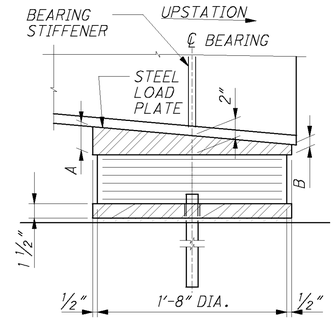
1. JACKING STIFFENERS HAVE BEEN DESIGNED SO THAT BEARINGS CAN BE REPLACED WITH THE BRIDGE UNDER DEAD LOAD AND FULL LIVE LOAD.
2. JACKS SHALL BE PLACED AT THE POSITION SHOWN. ALL ABUTMENT BEARINGS SHALL BE RAISED SIMULTANEOUSLY USING JACKS THAT WILL ALLOW SYNCHRONOUS LIFT.

FORWARD ABUTMENT BEARING PLAN

(GIRDER G4 SHOWN, GIRDER G1 OPPOSITE HAND
GIRDER G2 & G3 - NO SEISMIC PEDESTAL)



SECTION E 23



SECTION F 23

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 459-3706
Cincinnati, Ohio 45202
DESIGNED XAC
DRAWN XAC
CHECKED SJA
REVIEWED RMK
DATE 02-20-08
REVISED
STRUCTURE FILE NUMBER 3111636

BEARING DETAILS 2

BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

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GIRDER ERECTION NOTES:

THE CONSTRUCTION SEQUENCE SHOWN DEMONSTRATES ONE FEASIBLE ALTERNATIVE TO ERECT THE CURVED GIRDERS. THE CONTRACTOR HAS THE OPTION OF USING AN ALTERNATE METHOD OF GIRDER ERECTION WITH PRIOR APPROVAL OF THE ENGINEER.

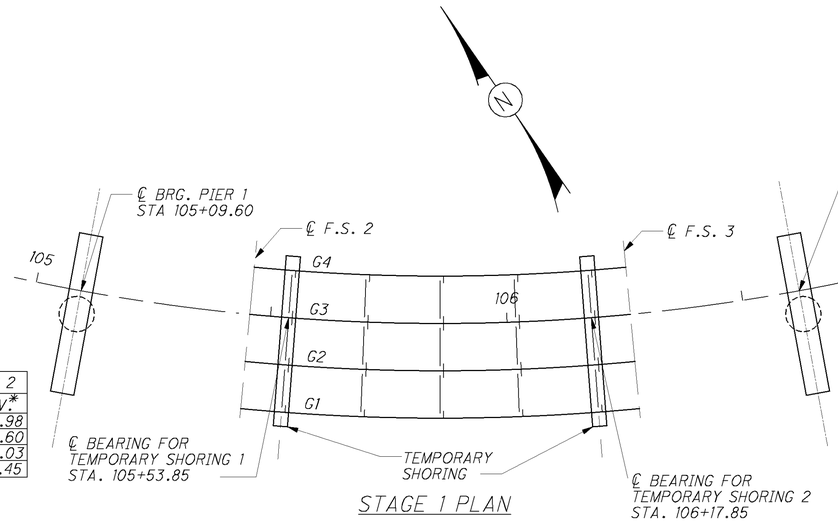
THE TEMPORARY SHORING REACTIONS REPRESENT VERTICAL DEAD LOAD REACTIONS OF THE GIRDERS AND CROSSFRAMES. CONTRACTOR MUST ACCOUNT FOR ADDITIONAL LOADS DUE TO HIS ERECTION METHODS.

SUBMIT SHOP DRAWINGS WITH PROPOSED GIRDER ERECTION DETAILS IN CONFORMANCE WITH SECTION 501.04.

VERTICAL AND HORIZONTAL STABILITY SHALL BE MAINTAINED FOR EACH STAGE BY THE CONTRACTOR AS ALL INTERMEDIATE STAGES ARE UNSTABLE WITHOUT TEMPORARY SHORING AND BRACING. THE DESIGN OF SHORING AND BRACING SHALL INCLUDE ADDITIONAL LOADING DUE TO WIND AND CONSTRUCTION LIVE LOAD ON THE PREVIOUS STAGE(S). THE CONTRACTOR SHALL SUBMIT THE SHORING AND BRACING DESIGN TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING ANY GIRDERS.

	SHORING REACTIONS	TEMPORARY SHORING 1			TEMPORARY SHORING 2		
GIRDER	DEAD LOAD	STA.	OFFSET	ELEV.*	STA.	OFFSET	ELEV.*
G1	14.9 KIPS	105+53.85	20' RT.	536.80	106+17.85	20' RT.	530.98
G2	15.3 KIPS	105+53.85	10' RT.	536.42	106+17.85	10' RT.	530.60
G3	15.0 KIPS	105+53.85	0	535.84	106+17.85	0	530.03
G4	14.0 KIPS	105+53.85	10' LT.	535.27	106+17.85	10' LT.	529.45

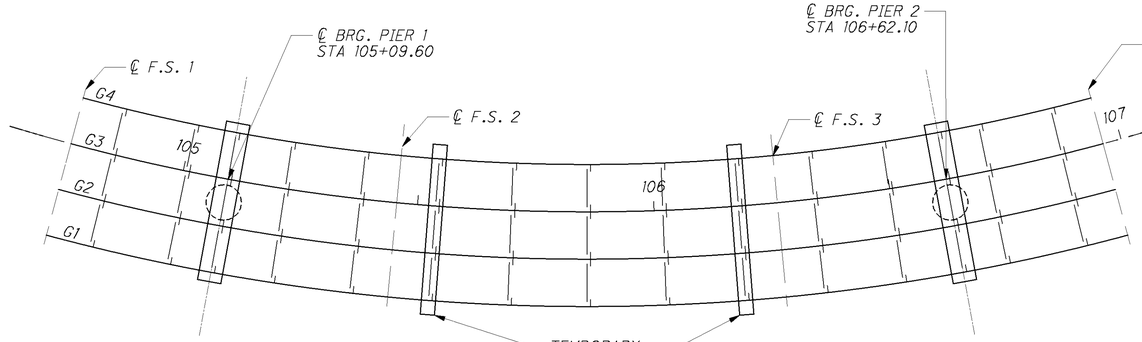
*ELEVATIONS ARE ARE AT BOTTOM OF BOTTOM GIRDER FLANGE. ELEVATION GIVEN IS FINAL GIRDER ELEVATION + TOTAL GIRDER CAMBER



STAGE 1 PLAN

STAGE 1:

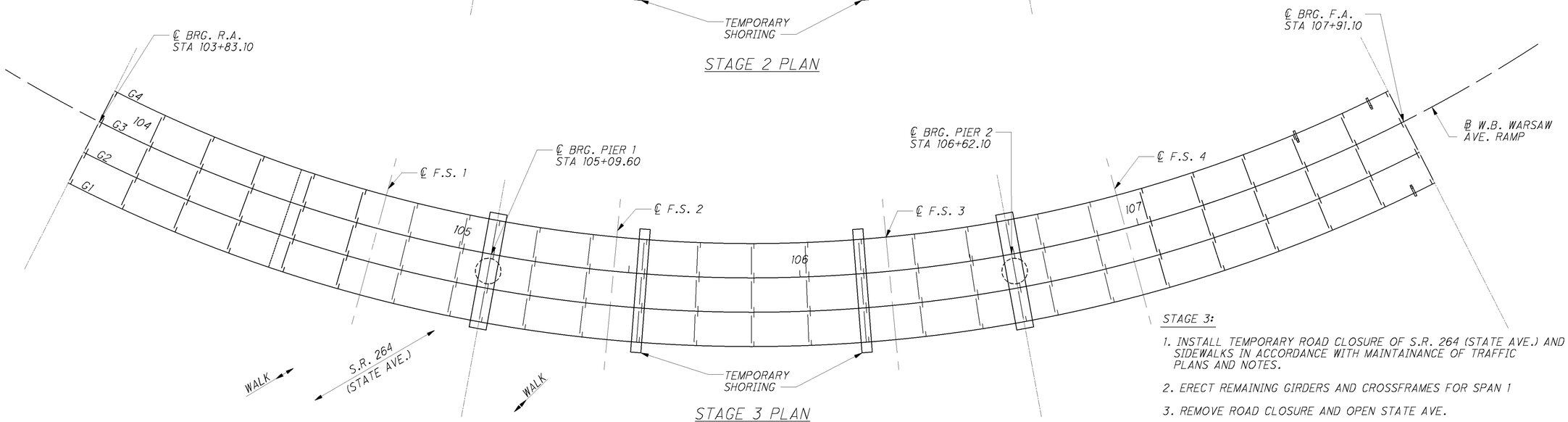
1. CONSTRUCT TEMPORARY SHORING WITH BEARINGS CENTERED BELOW CROSSFRAME STIFFENERS AS SHOWN
2. ERECT GIRDER G4 BETWEEN SPLICE 2 AND 3
3. BRACE GIRDER G4 AND ERECT GIRDER G3
4. INSTALL CROSSFRMES BETWEEN GIRDERS G4 AND G3
5. INSTALL GIRDER G2 AND CROSSFRAMES BETWEEN GIRDER G3 AND G2
6. INSTALL GIRDER G1 AND CROSSFRAMES BETWEEN GIRDER G1 AND G1



STAGE 2 PLAN

STAGE 2:

1. ERECT GIRDERS AND CROSSFRAMES BETWEEN SPICE 1 AND 2
2. ERECT GIRDERS AND CROSSFRAMES BETWEEN SPLICE 3 AND 4



STAGE 3 PLAN

STAGE 3:

1. INSTALL TEMPORARY ROAD CLOSURE OF S.R. 264 (STATE AVE.) AND SIDEWALKS IN ACCORDANCE WITH MAINTAINANCE OF TRAFFIC PLANS AND NOTES.
2. ERECT REMAINING GIRDERS AND CROSSFRAMES FOR SPAN 1
3. REMOVE ROAD CLOSURE AND OPEN STATE AVE.
4. ERECT REMAINING GIRDERS AND CROSSFRAMES FOR SPAN 3
5. REMOVE TEMPORARY GIRDER BRACING AND SHORING

DESIGN AGENCY
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(614) 459-2050 FAX (614) 459-2070
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DESIGNED XAC | DRAWN SJA | REVIEWED RMK | DATE 02-20-08
CHECKED SJA | REVISED | STRUCTURE FILE NUMBER 3111636

SUGGESTED GIRDER ERECTION SEQUENCE
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

24 / 34

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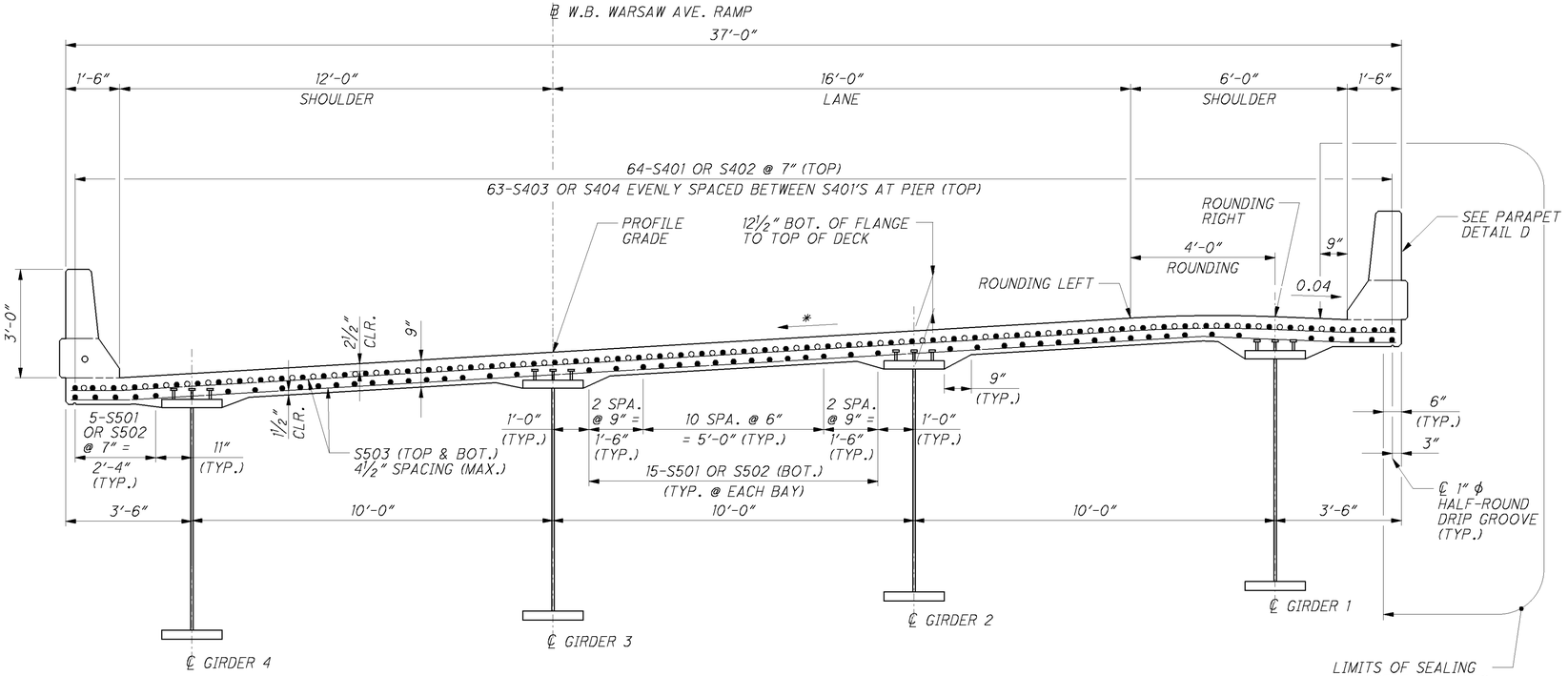
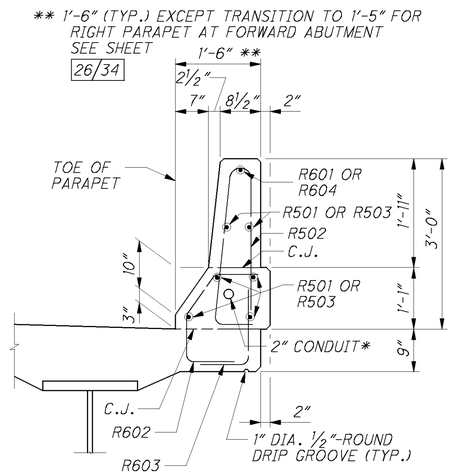


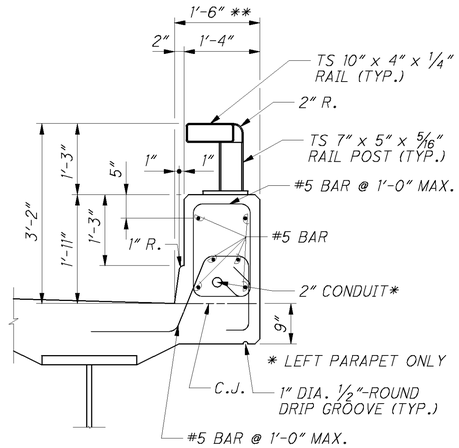
BRIDGE TRANSVERSE SECTION

(* VARIES -0.016 FT/FT TO 0.058 FT/FT, SEE DIAGRAM ON SHEET 2/34)



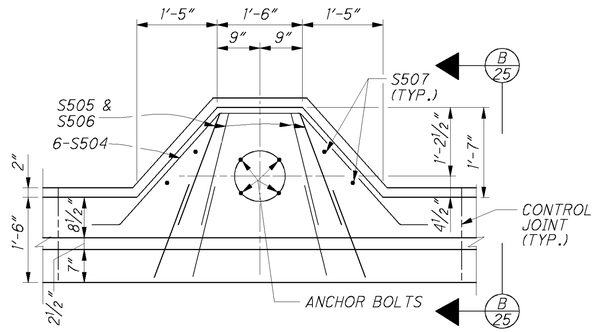
PARAPET DETAIL D

* LEFT PARAPET ONLY

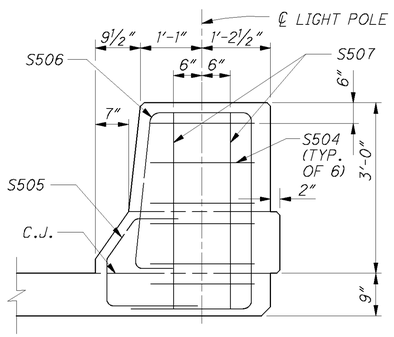


ALTERNATE PARAPET DETAIL

(ALTERNATE BID ITEM)



LIGHT POLE PILASTER DETAIL



VIEW (B/25)

LEGEND:

C.J. = CONSTRUCTION JOINT
BOT. = BOTTOM

NOTES:

1. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 3½ INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE IS ± 3 INCHES.

   THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

2. SUPERSTRUCTURE SHALL BE SEALED WITH NON-EPOXY AS INDICATED

3. SEE SHEET 6/34 FOR NOTES FOR ALTERNATE PARAPETS.

DESIGN AGENCY
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Cincinnati, Ohio 45202

DATE 02-20-08
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STRUCTURE FILE NUMBER 3111636
DRAWN KML
REVISED
DESIGNED KML
CHECKED SJA

TRANSVERSE SECTION
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

25/34

394/657

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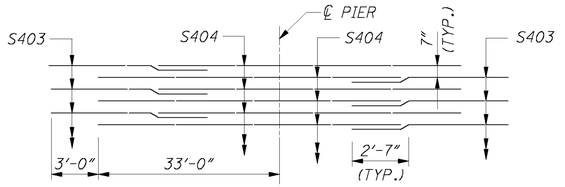
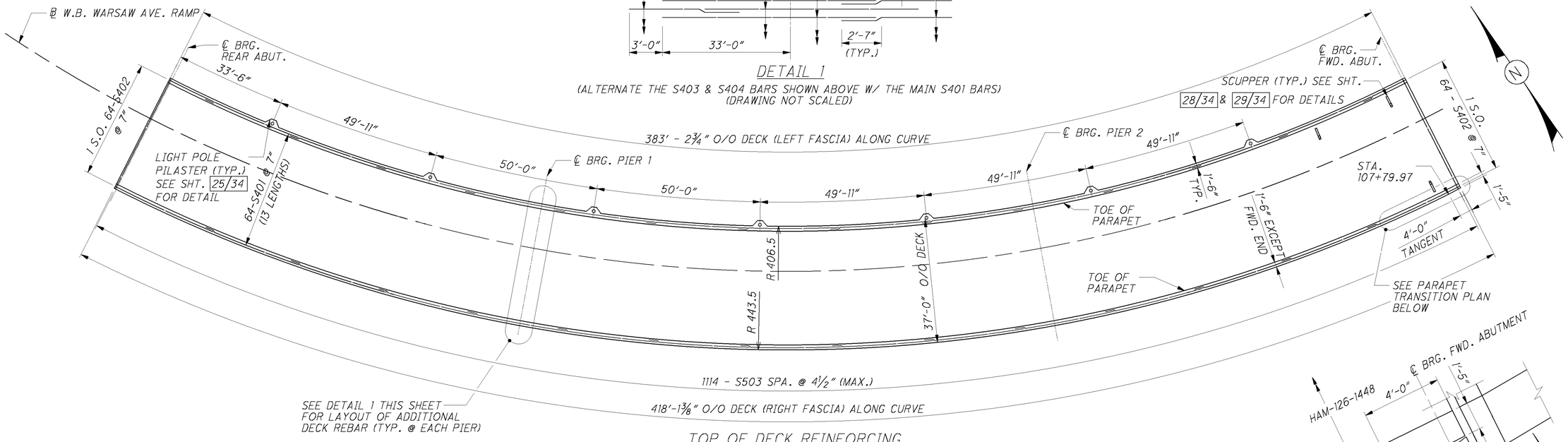
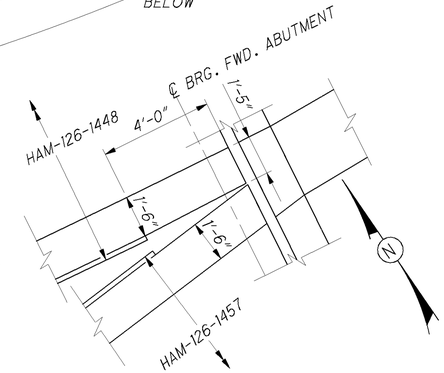


DETAIL 1

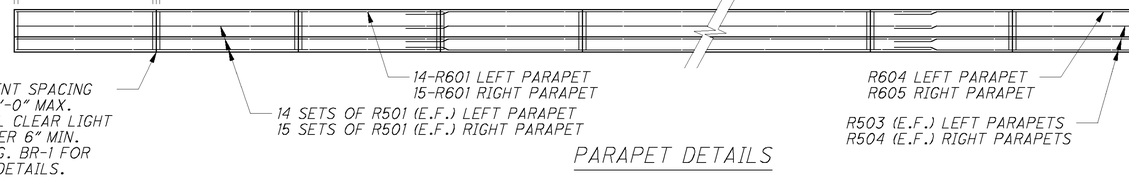
(ALTERNATE THE S403 & S404 BARS SHOWN ABOVE W/ THE MAIN S401 BARS)
(DRAWING NOT SCALED)



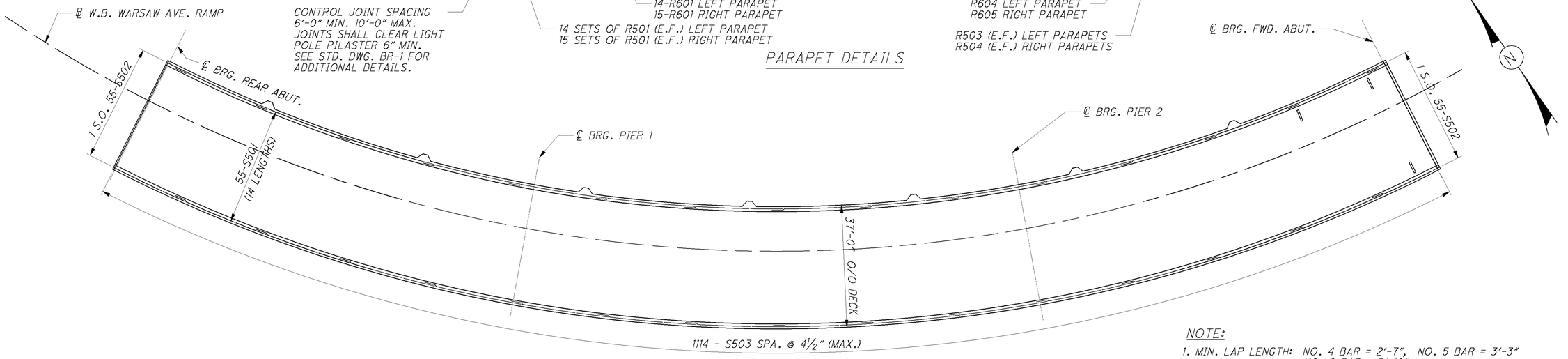
TOP OF DECK REINFORCING



PARAPET TRANSITION PLAN



PARAPET DETAILS



BOTTOM OF DECK REINFORCING

NOTE:

1. MIN. LAP LENGTH: NO. 4 BAR = 2'-7", NO. 5 BAR = 3'-3"
   NO. 6 BAR = 3'-10"

2. PLACE TRANSVERSE S503 BARS RADIALLY.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 779-7851
(Cincinnati, Ohio 45242)

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

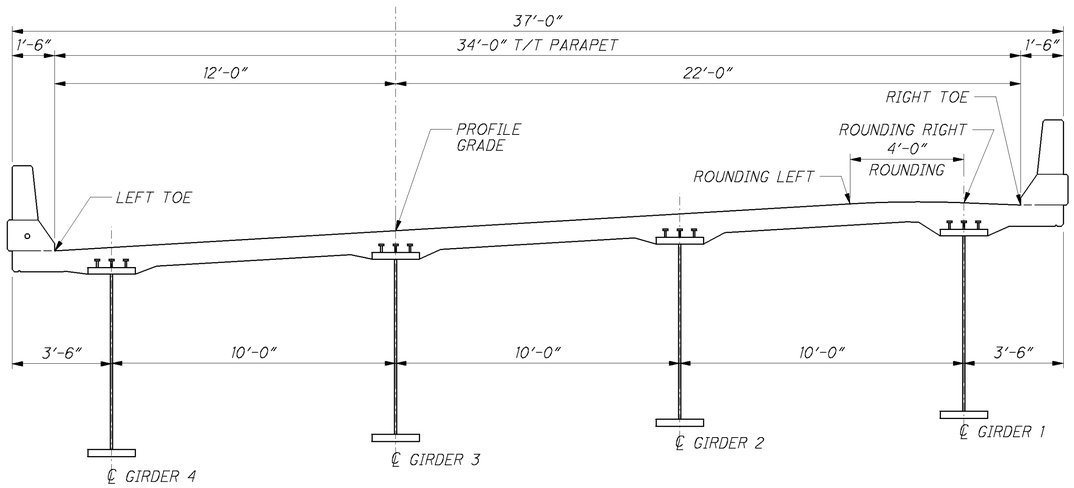
DECK PLAN
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

26 / 34

395 / 657

P:\PR42702\ham\20082\structures\HAM264_1448C\sheets\264_1448CDP001.dgn



BRIDGE TYPICAL SECTION

SCREED ELEVATIONS

SCREED LOCATIONS	STATION	LEFT TOE	GIRDER 4	PROFILE GRADE & GIRDER 3	GIRDER 2	ROUNDING LEFT	GIRDER 1	RIGHT TOE
℄ BRG. REAR ABUT.	103+88.60	550.88	550.99	551.57	552.15	552.50	552.54	552.46
1/10 SPAN	104+00.70	550.58	550.70	551.29	551.88	552.24	552.28	552.20
2/10 SPAN	104+12.80	550.23	550.35	550.95	551.55	551.92	551.96	551.88
3/10 SPAN	104+24.90	549.82	549.93	550.54	551.15	551.53	551.57	551.49
4/10 SPAN	104+37.00	549.34	549.46	550.07	550.68	551.07	551.10	551.02
5/10 SPAN	104+49.10	548.80	548.92	549.52	550.14	550.52	550.56	550.48
6/10 SPAN	104+61.20	548.20	548.32	548.92	549.52	549.90	549.94	549.86
SPLICE NO.1	104+75.60	547.41	547.53	548.13	548.72	549.08	549.12	549.04
8/10 SPAN	104+85.40	546.83	546.95	547.56	548.13	548.49	548.52	548.44
9/10 SPAN	104+97.50	546.08	546.20	546.78	547.37	547.72	547.75	547.67
℄ PIER 1	105+09.60	545.29	545.41	545.99	546.57	546.92	546.95	546.87
1/10 SPAN	105+24.85	544.24	544.36	544.94	545.52	545.86	545.90	545.82
SPLICE NO.2	105+45.60	542.71	542.83	543.41	543.99	544.35	544.38	544.30
3/10 SPAN	105+55.35	541.94	542.06	542.65	543.23	543.59	543.63	543.55
4/10 SPAN	105+70.60	540.67	540.79	541.38	541.97	542.34	542.37	542.29
5/10 SPAN	105+85.85	539.34	539.45	540.05	540.64	541.01	541.05	540.97
6/10 SPAN	106+01.10	537.99	538.10	538.69	539.29	539.65	539.69	539.61
7/10 SPAN	106+16.35	536.62	536.73	537.32	537.91	538.27	538.30	538.22
SPLICE NO.3	106+26.10	535.73	535.85	536.43	537.02	537.37	537.41	537.33
9/10 SPAN	106+46.85	533.87	533.98	534.56	535.14	535.49	535.52	535.44
℄ PIER 2	106+62.10	532.51	532.63	533.21	533.79	550.14	534.17	534.09
1/10 SPAN	106+74.20	531.45	531.57	532.15	532.74	533.09	533.12	533.04
2/10 SPAN	106+86.30	530.40	530.52	531.11	531.70	532.06	532.09	532.01
SPLICE NO.4	106+96.10	529.56	529.68	530.27	530.86	531.23	531.27	531.19
4/10 SPAN	107+10.50	528.32	528.44	529.04	529.64	530.02	530.05	529.97
5/10 SPAN	107+22.60	527.27	527.39	527.99	528.60	528.99	529.03	528.95
6/10 SPAN	107+34.70	526.22	526.33	526.94	527.55	527.94	527.97	527.89
7/10 SPAN	107+46.80	525.14	525.26	525.86	526.47	526.86	526.89	526.81
8/10 SPAN	107+58.90	524.06	524.17	524.77	525.37	525.75	525.78	525.70
9/10 SPAN	107+71.00	522.97	523.09	523.67	524.25	524.61	524.64	524.56
℄ BRG. FWD. ABUT.	107+83.10	521.93	522.04	522.56	523.08	523.40	523.42	523.34

NOTES:

1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

DESIGN AGENCY
BURGESS & NIPLE
(BURGESS & NIPLE, LTD.) Ohio
Cincinnati, Ohio 45202

DATE 02-20-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111636
DRAWN KML
REVISED
DESIGNED XAC
CHECKED SJA

SCREED ELEVATIONS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

27 / 34

396
657

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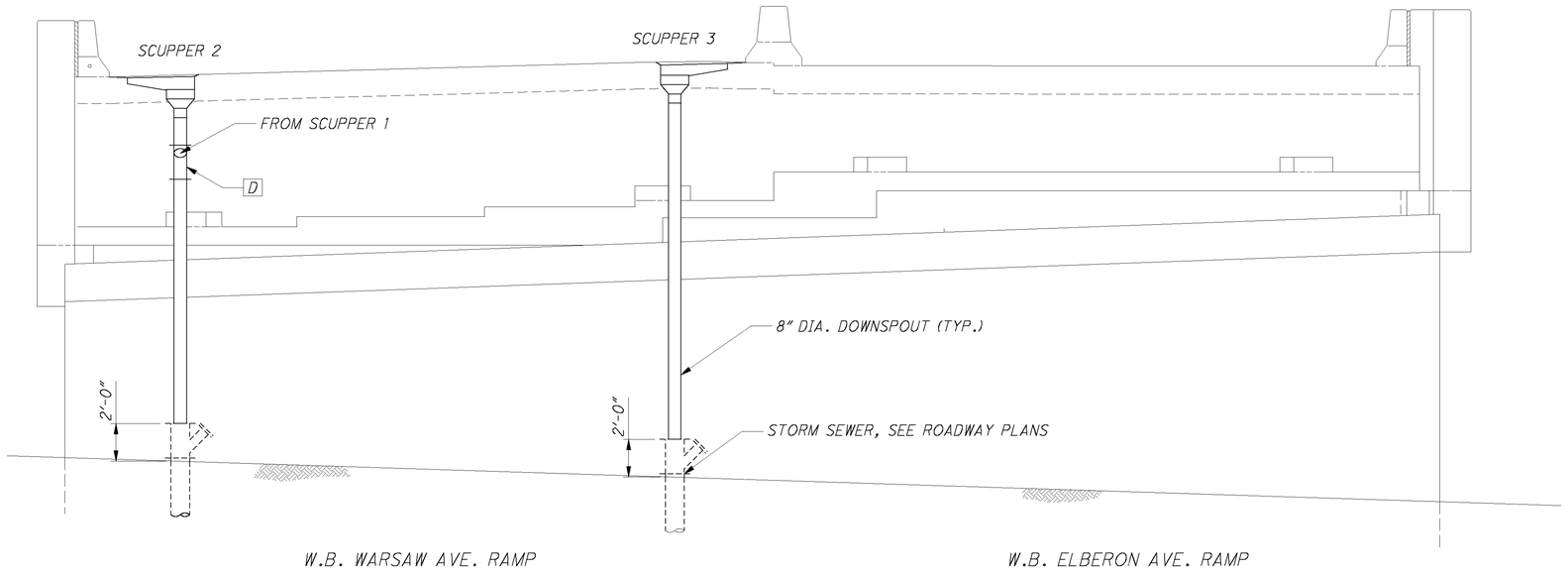
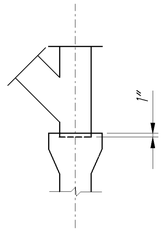
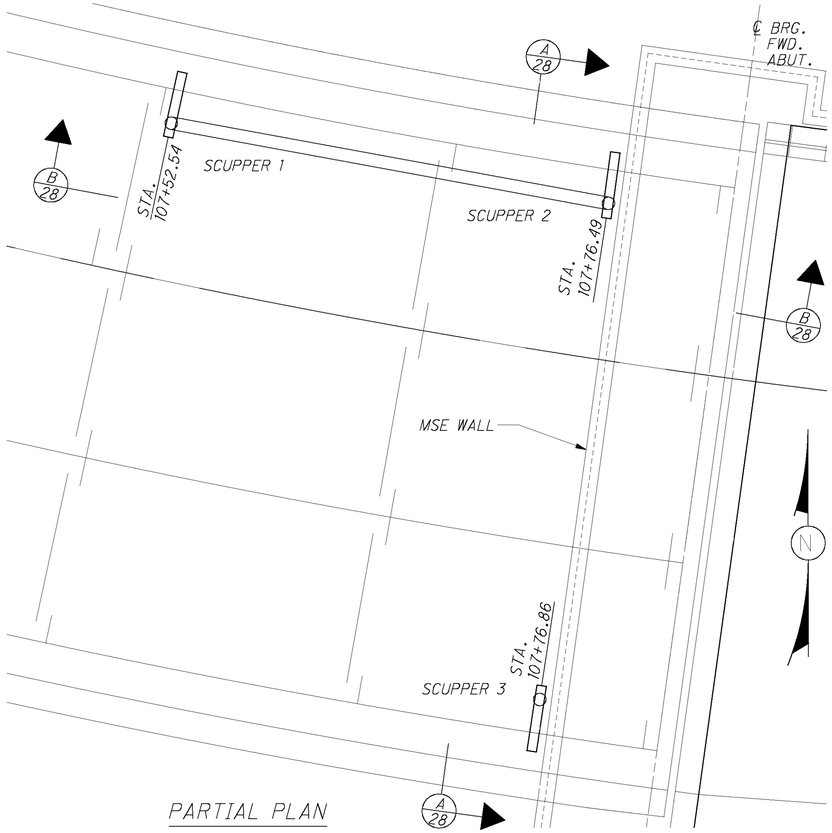


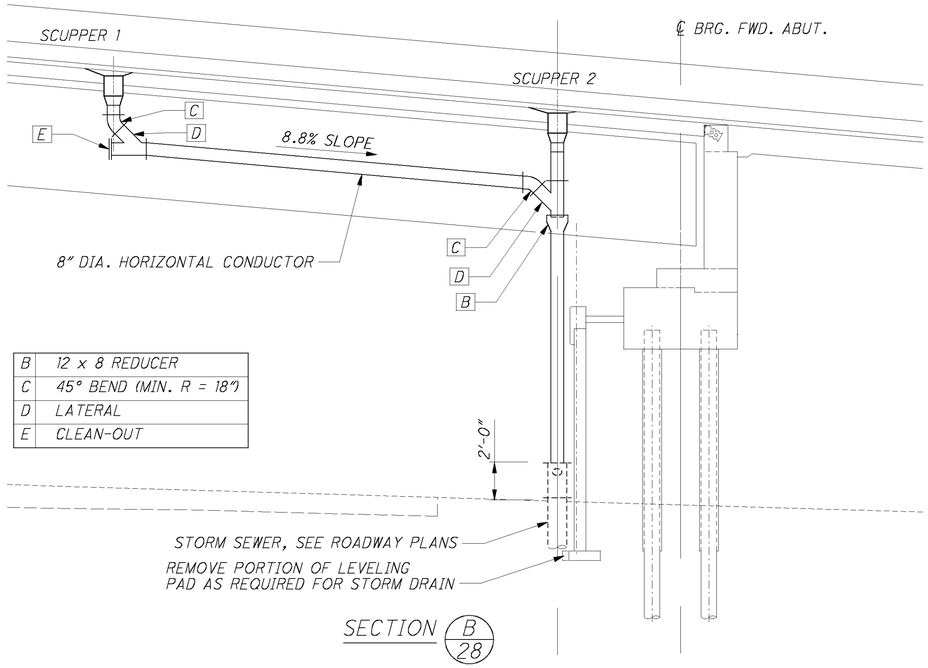
SECTION A/28



REDUCER DETAIL



PARTIAL PLAN



B	12 x 8 REDUCER
C	45° BEND (MIN. R = 18")
D	LATERAL
E	CLEAN-OUT

SECTION B/28

DESIGN AGENCY
BURGESS & NIPLE
(C) BURGESS & NIPLE, LTD. 2008
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

SCUPPER DETAILS 1
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

28 / 34

397
657

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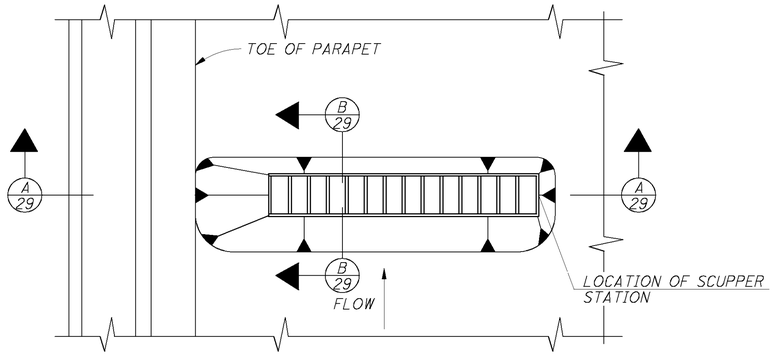
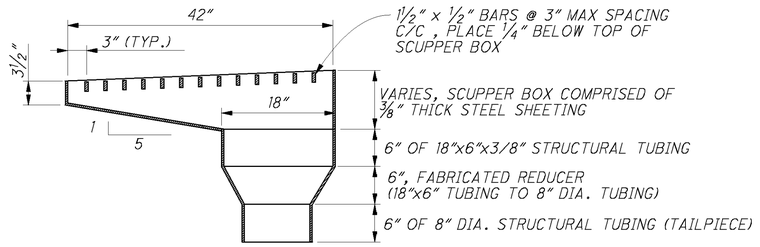
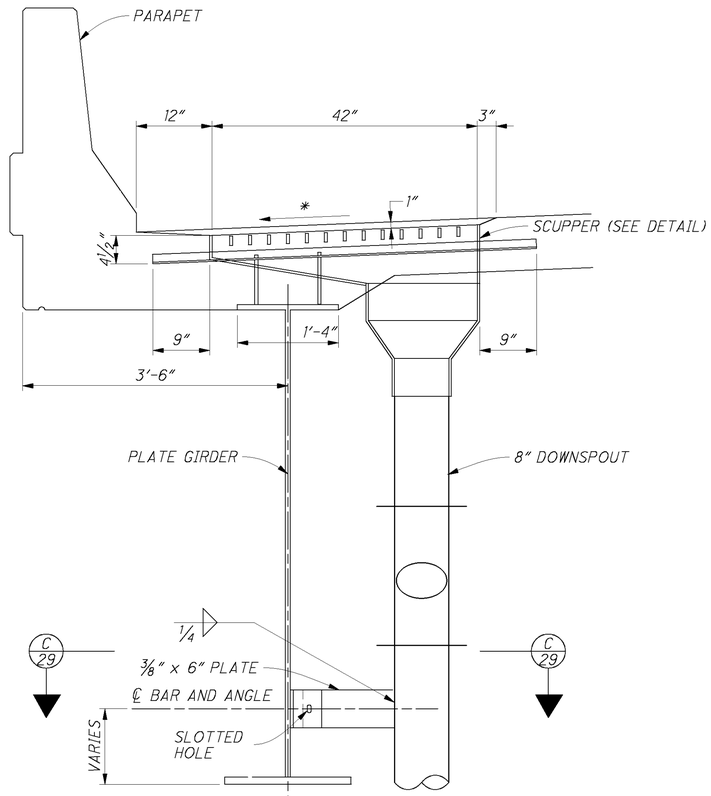


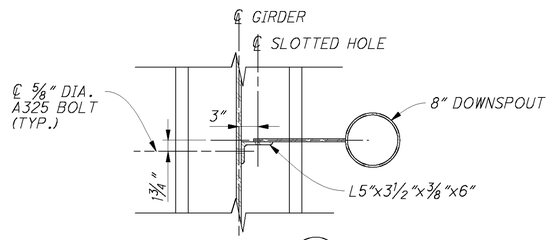
PLAN



SCUPPER BOX DETAIL



SECTION A 29



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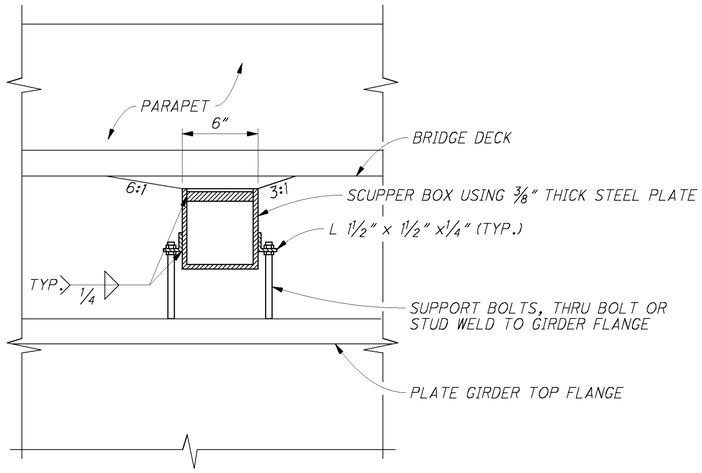
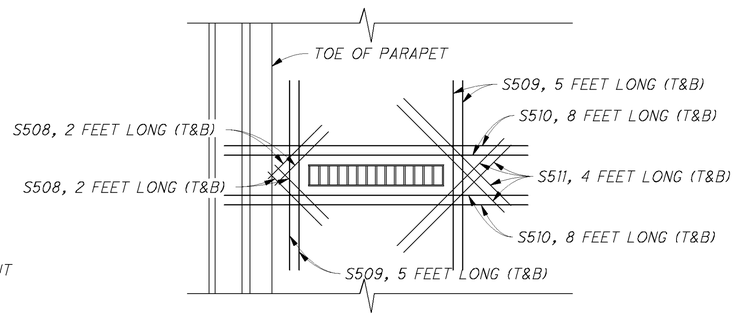


SECTION B 29



ADDITIONAL DECK REINFORCING DETAIL

T&B = TOP AND BOTTOM

SCUPPER NOTES:

ALL MATERIALS INCLUDING STEEL PLATES, STRUCTURAL TUBING, SUPPORT ANGLES AND OTHER HARDWARE SHALL BE GALVANIZED PER 711.02.

SCUPPER BOXES AND REDUCERS SHALL BE MADE OF ⅜" GALVANIZED STRUCTURAL STEEL PLATES CONFORMING TO 518 AND 711.02.

STRUCTURAL STEEL TUBING SHALL BE PER 518 AND 707.10.

FIELD CUT DECK REINFORCING AS REQUIRED TO INSTALL SCUPPERS.

PAYMENT:

ALL MATERIALS, EQUIPMENT, DELIVERY AND LABOR NECESSARY IN THE FABRICATION AND INSTALLATION FOR THE SCUPPER AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE OF:

SCUPPER, INCLUDING SUPPORTS, AS PER PLAN.

DOWNSPOUT NOTES:

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SHOWN IN THE PLANS AND IN ACCORDANCE WITH ITEMS 518.06 AND 748.06. ALL FIELD WELDS TO BE GALVANIZED PER 711.02 AND WITH THE APPROVAL OF THE ENGINEER.

DOWNSPOUTS SHALL BE CONNECTED TO THE BRIDGE SCUPPER ASSEMBLIES BY WELDING OR USE OF CLAMP TYPE COUPLINGS WITH RING GASKETS.

VERTICAL DOWNSPOUTS SHALL BE ATTACHED TO THE MSE WALL AND COPING BY USE OF STRAPS. THE DOWNSPOUT CONTRACTOR IS RESPONSIBLE FOR CONNECTING THE VERTICAL DOWNSPOUT TO THE UNDERGROUND PIPE DRAINAGE SYSTEM BY OTHERS.

HORIZONTAL PIPE RUNS SHALL BE SUPPORTED BY USE OF HANGERS AND STRAPS ATTACHED TO THE CONCRETE BRIDGE DECK. STRAPS SHALL BE PLACED AT A MAXIMUM SPACING OF 6 FEET C/C.

ALL MATERIALS, EQUIPMENT, BENDS, WYES, TEES, CLEANOUTS, FIELD GALVANIZING AND LABOR NECESSARY FOR THE FABRICATION AND INSTALLATION OF THE DOWNSPOUT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF:

8" PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

PIPE HORIZONTAL CONDUCTORS

* CROSS SLOPE AT SCUPPERS

SCUPPER 1: 5.8%
SCUPPER 2: 5.5%
SCUPPER 3: 4%

DESIGN AGENCY
BURGESS & NIPLE
5085 Reed Road, Columbus, Ohio 43220

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-18-10
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SJA		3111636	

SCUPPER DETAILS 2
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

29 / 34

398
657

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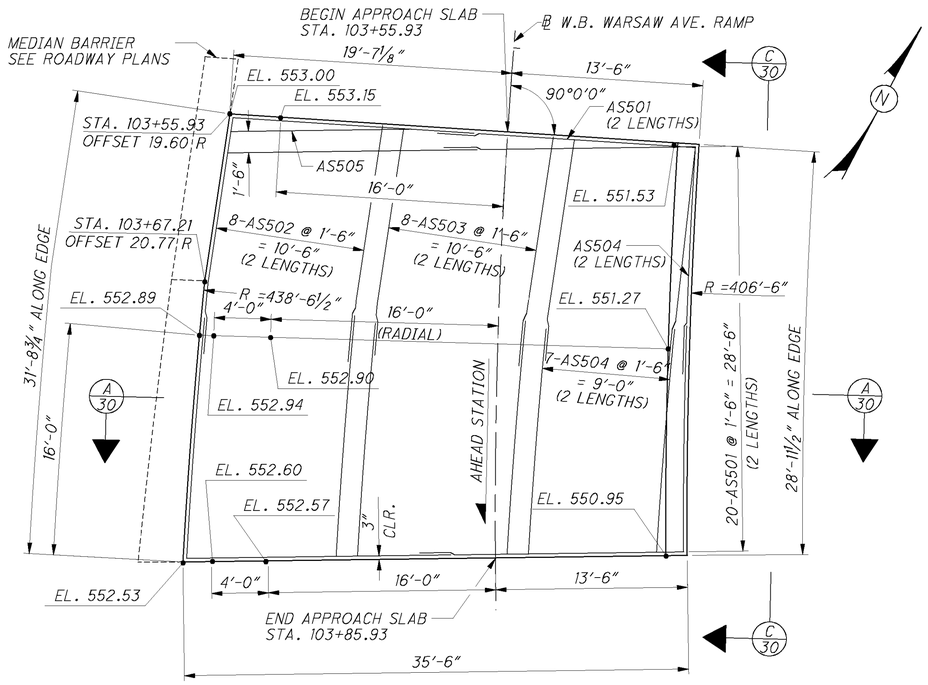
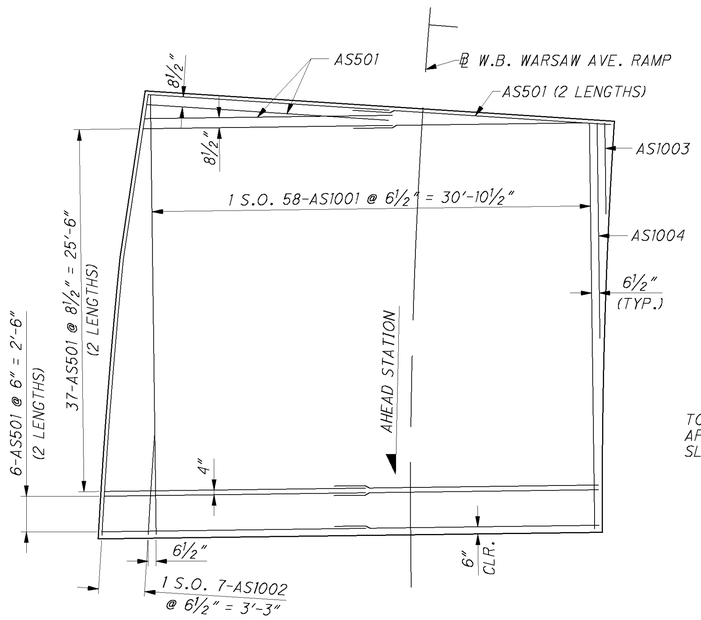
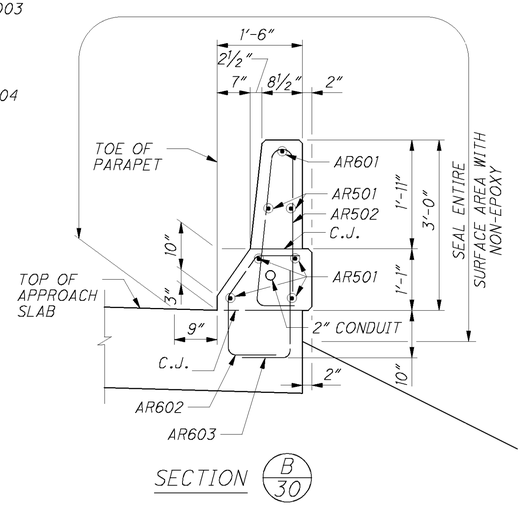


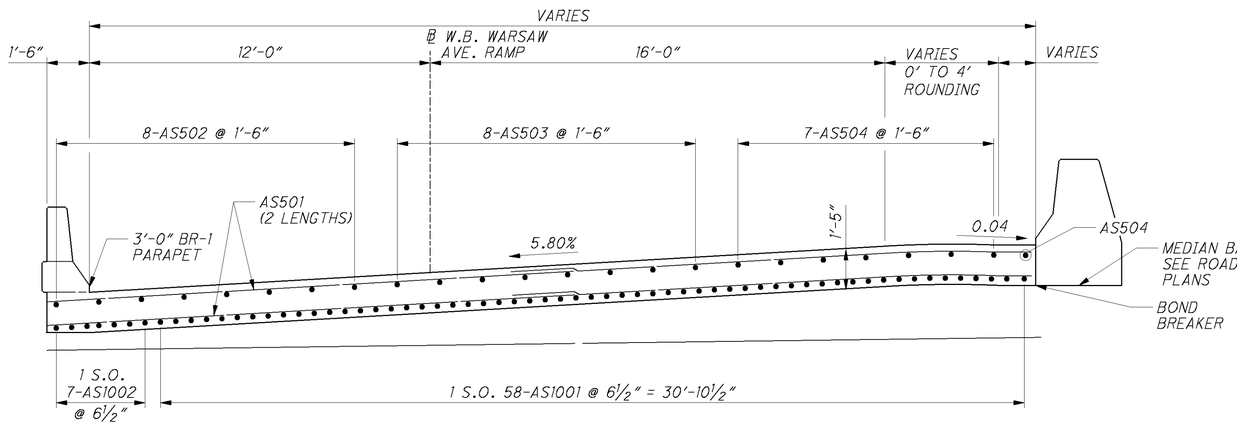
REAR APPROACH SLAB
(TOP REINFORCING)



REAR APPROACH SLAB
(BOTTOM REINFORCING)

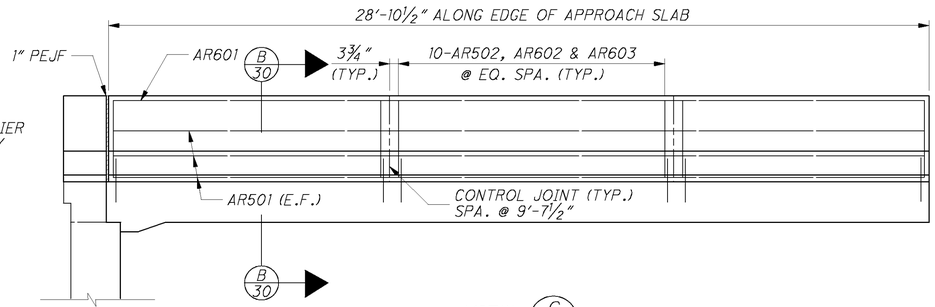


SECTION B/30



SECTION A/30

(REINFORCING SPACING MEASURED
PERPENDICULAR TO LEFT EDGE OF PARAPET)



VIEW C/30

NOTE:

1. SEE STANDARD DRAWING BR-1 FOR ADDITIONAL PARAPET DETAILS.
2. MINIMUM LAP LENGTH FOR #5 BARS = 2'-6"

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

REAR APPROACH SLAB
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

30 / 34

399
657

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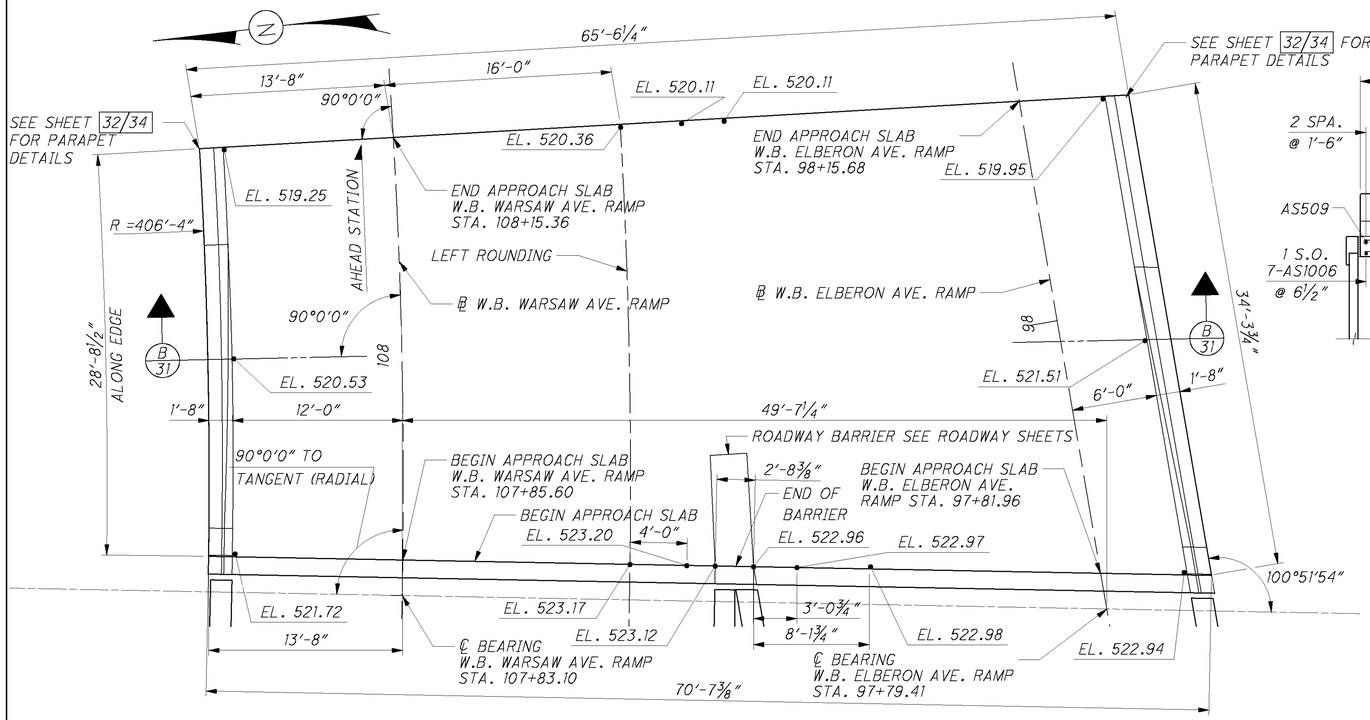
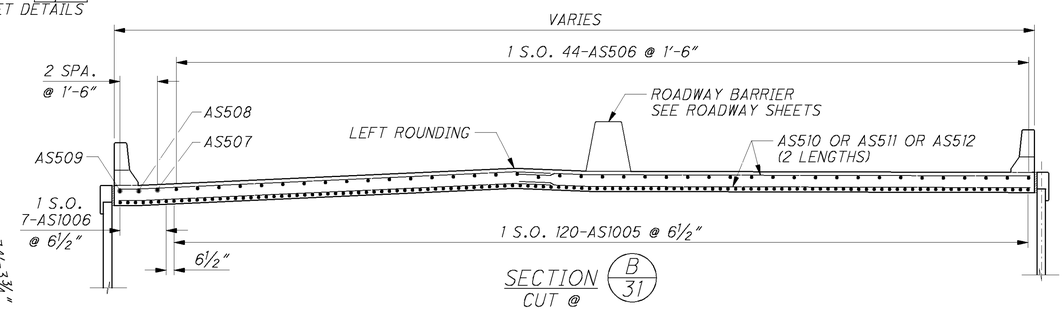


FORWARD APPROACH SLAB



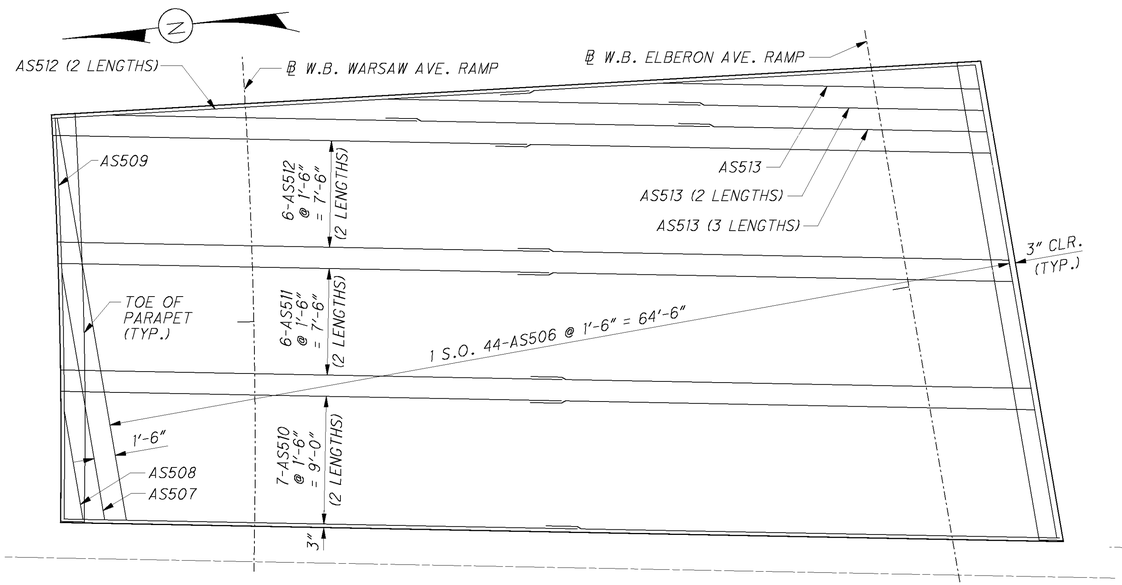
SECTION B/31
CUT @ STA. 108+00
(REINFORCING SPACING MEASURED PERPENDICULAR TO EDGE OF RIGHT PARAPET)

LEGEND:

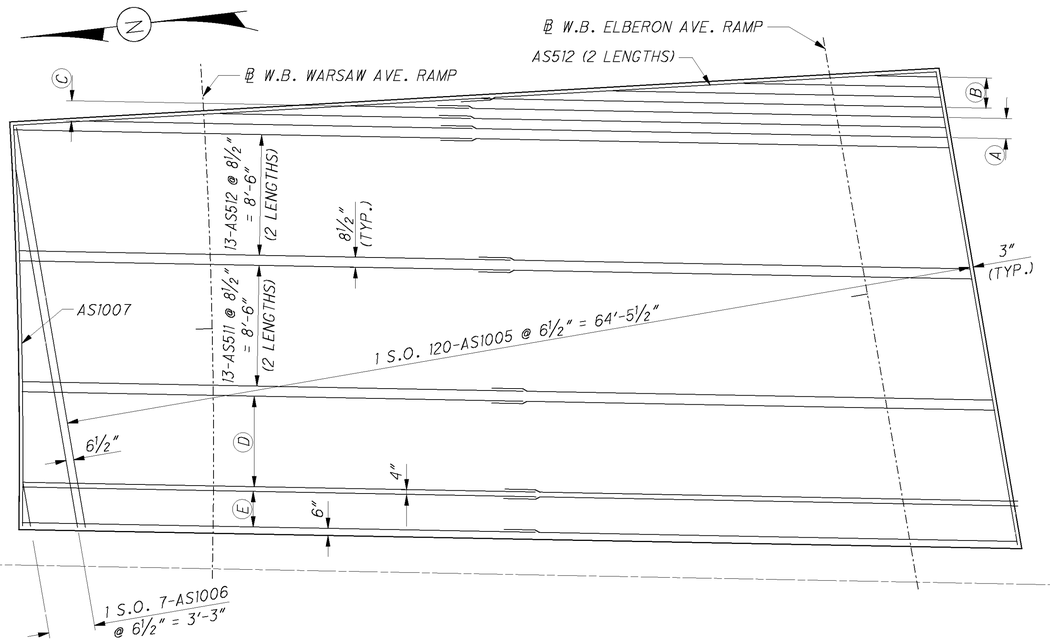
- (A) = 3-AS514 @ 8½"
- (B) = 1 S.O. 4-AS515 @ 8½"
- (C) = 1 S.O. 3-AS516 @ 8½"
- (D) = 10-AS510 @ 8½" = 6'-4½" (2 LENGTHS)
- (E) = 6-AS510 @ 6" = 2'-6" (2 LENGTHS)

NOTE:

1. MINIMUM LAP LENGTH FOR #5 BARS = 2'-6"



FORWARD APPROACH SLAB
(TOP REINFORCING)



FORWARD APPROACH SLAB
(BOTTOM REINFORCING)

DESIGN AGENCY
BURGESS & NIPLE
INFRASTRUCTURE | GIS | BIM
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

FORWARD APPROACH SLAB 1
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

31 / 34

400 / 657

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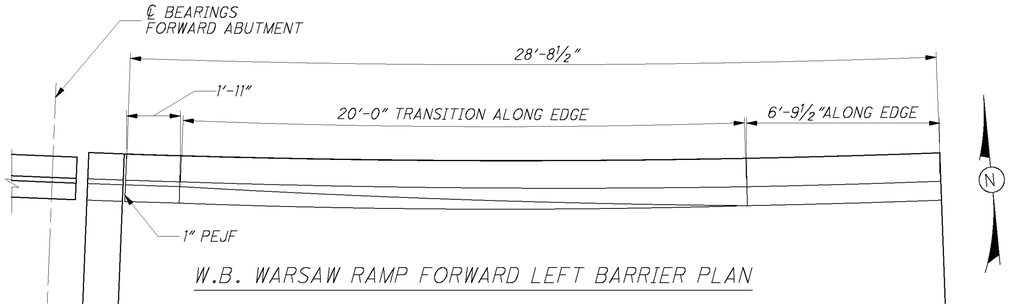
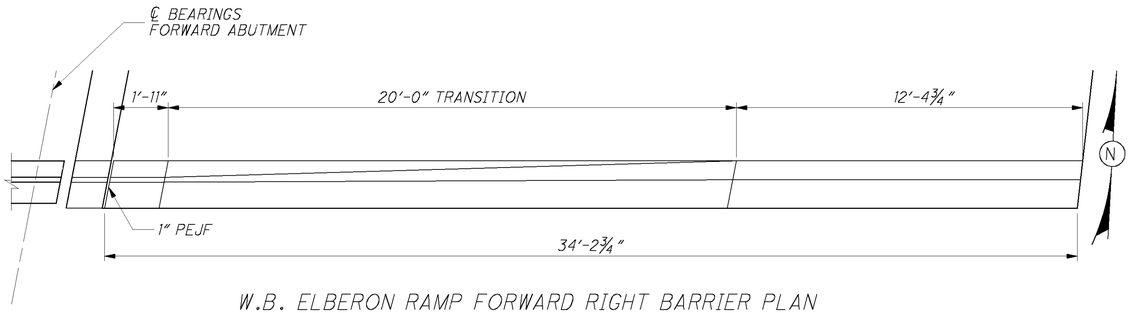
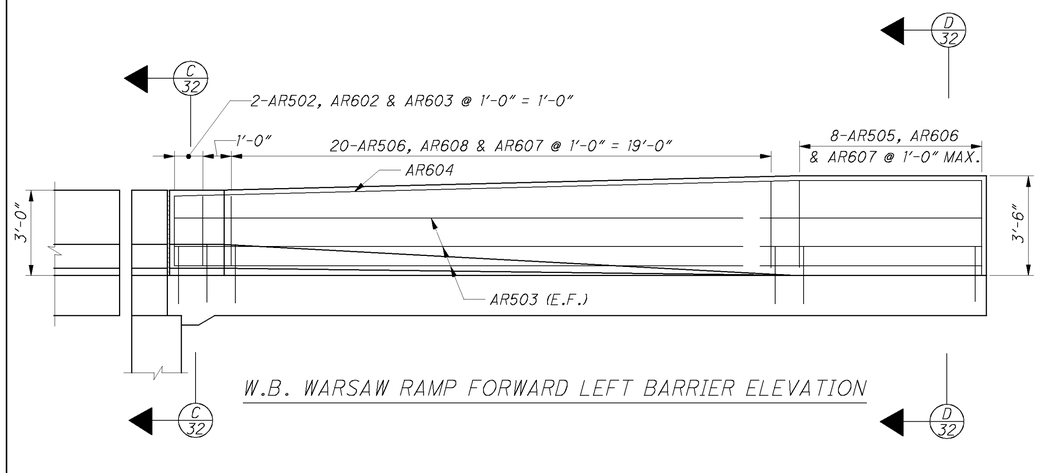


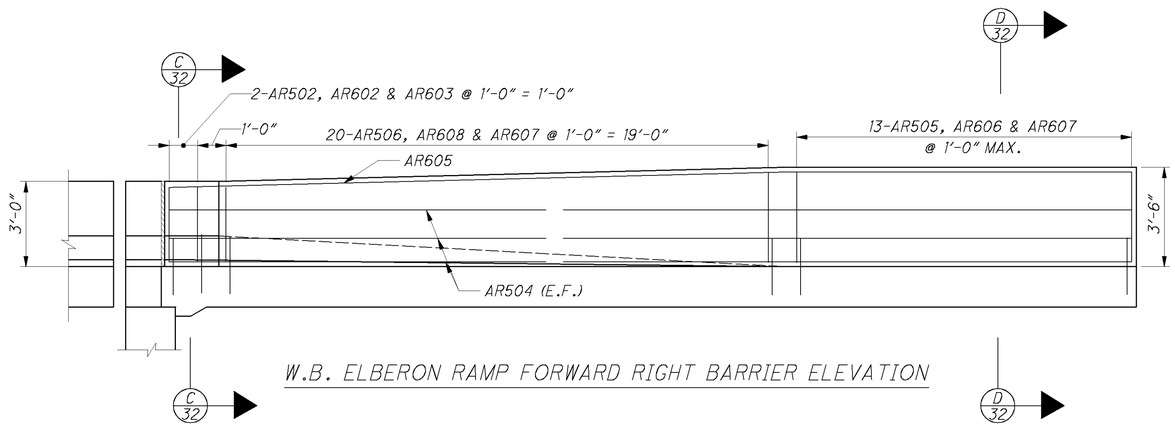
W.B. WARSAW RAMP FORWARD LEFT BARRIER PLAN



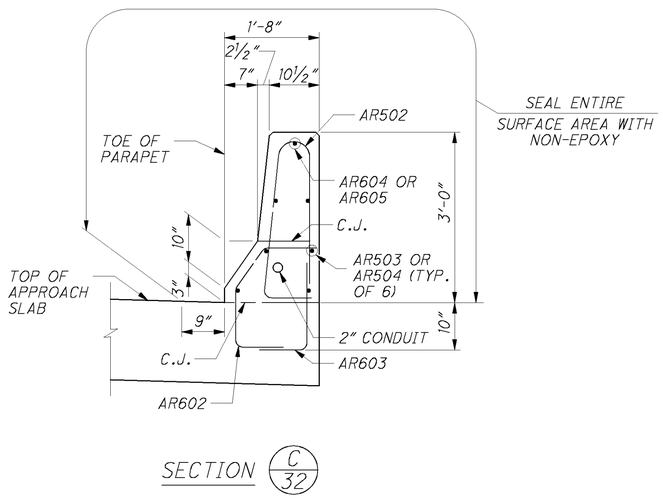
W.B. ELBERON RAMP FORWARD RIGHT BARRIER PLAN



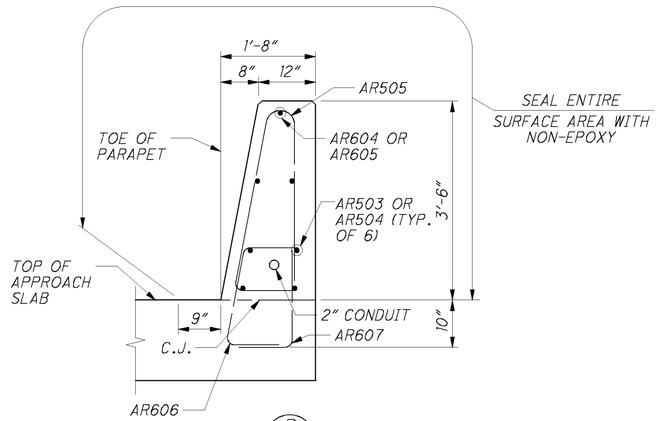
W.B. WARSAW RAMP FORWARD LEFT BARRIER ELEVATION



W.B. ELBERON RAMP FORWARD RIGHT BARRIER ELEVATION



SECTION C/32



SECTION D/32

NOTE:

1. SEE STANDARD DRAWING BR-1 AND SBR-1 FOR MORE DETAILS.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 459-3964
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

FORWARD APPROACH SLAB 2
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

32 / 34

401
657

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FORWARD ABUTMENT REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
D802	49	5'-2"	676	28	2'-10"	1'-5"				
FA501	31	8'-8"	280	18	3'-11"	2'-6"	2'-6"			
FA502	5	11'-8"	61	18	3'-11"	4'-0"	4'-0"			
FA503	1	10'-10"	11	18	3'-11"	3'-7"	3'-7"			
FA504	6	10'-8"	67	18	3'-11"	3'-6"	3'-6"			
FA505	8	9'-8"	81	18	3'-11"	3'-0"	3'-0"			
FA506	20	36'-9"	767	STR						
FA507	6	12'-0"	75	STR						
FA508	6	11'-5"	71	STR						
FA509	4	14'-0"	58	STR						
FA510	4	10'-0"	42	STR						
FA511	4	33'-5"	139	STR						
FA512	1	29'-7"	31	STR						
FA513	1	30'-9"	32	STR						
FA514	2	14'-0"	29	STR						
FA515	2	35'-6"	74	STR						
FA516	38	7'-6"	297	STR						
FA517	6	5'-0"	31	26	0'-6½"	0'-7½"	1'-8½"	1'-11"	1'-7"	
FA518	1	9'-7"	10	5	1'-1"	2'-8"	0'-3½"	2'-7"		
FA519	1	9'-4"	10	5	1'-1"	2'-8"	0'-3½"	2'-4"		
FA520	18	0'-10"	16	STR						
FA521	4	6'-2"	25	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-3½"	
FA601	106	10'-2"	1619	18	5'-8"	2'-5"	2'-5"			
	4	10'-6"				2'-7"	2'-7"			
FA602	S.O.	TO	266	18	5'-8"	TO	TO			0'-4⅝"
	4	11'-8"				3'-2"	3'-2"			
FA603	51	11'-5"	875	18	1'-5"	5'-2"	5'-2"			
FA604	24	9'-11"	357	18	1'-5"	4'-5"	4'-5"			
FA605	27	13'-5"	544	18	1'-5"	6'-2"	6'-2"			
FA606	51	6'-11"	530	18	0'-11"	3'-2"	3'-2"			
FA607	12	16'-6"	297	18	1'-8"	7'-7"	7'-7"			
FA608	6	23'-0"	207	18	1'-8"	10'-10"	10'-10"			
FA609	6	19'-6"	176	18	1'-8"	9'-1"	9'-1"			
FA610	8	4'-5"	53	6	0'-11"	2'-0"	0'-10½"	0'-6"	0'-8½"	
FA611	4	0'-10"	5	STR						
FA612	4	3'-3"	20	1	0'-11"	2'-6"				
FA613	12	13'-6"	243	35	2'-0"	4'-2"	1'-0"	1'-0"		
FA614	8	5'-7"	67	1	1'-7"	4'-2"				
	2	29'-7"								
FA801	S.O.	TO	644	STR						0'-4⅝"
	4	30'-9"								
FA802	4	15'-5"	165	STR						
FA803	4	20'-0"	214	20	3'-6"	6'-0"	13'-1"			
FA804	4	37'-3"	398	STR						
FA805	4	39'-11"	426	20	3'-6"	6'-0"	33'-0"			
FA901	8	3'-11"	107	STR						
FA902	20	5'-6"	374	1	1'-7"	4'-2"				
		TOTAL	10470							

PARAPET ON APPROACH SLAB REINFORCING STEEL LIST (△)

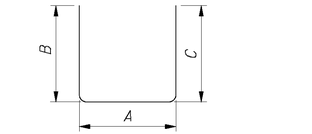
MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
AR501	6	28'-7"	179	STR						
AR502	34	5'-10"	204	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
AR503	6	28'-4"	177	STR						
AR504	6	33'-9"	211	STR						
AR505	21	7'-4"	161	2	3'-0"	3'-2"	1'-1"	0'-7"	0'-2¾"	
	2	5'-10"			2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
AR506	S.O.	TO	273	2	TO	TO	TO	TO	TO	0'-1"
	20	7'-4"			3'-0"	3'-2"	1'-1"	0'-7"	0'-2¾"	
AR601	1	28'-7"	43	STR						
AR602	34	3'-1"	157	6	0'-9"	0'-9½"	0'-10½"	0'-6"	0'-8½"	
AR603	34	2'-6"	128	1	0'-11"	1'-9"				
AR604	1	28'-4"	43	STR						
AR605	1	33'-9"	51	STR						
AR606	21	3'-8"	113	12	1'-1"	0'-4"	1'-9"	1'-1"		
AR607	61	2'-8"	244	1	1'-1"	1'-9"				
	2	3'-1"			0'-9"	0'-9½"	0'-10½"	0'-6"	0'-8½"	
AR608	S.O.	TO	205	6	TO	TO	TO	TO	TO	0'-0⅜"
	20	3'-9"			1'-1"	0'-0"	1'-1"	0'-4"	1'-9"	
		TOTAL	2189							

APPROACH SLAB REINFORCING STEEL LIST (△)

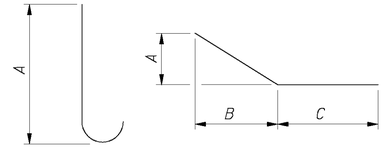
MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
AS501	132	18'-10"	2593	STR						
AS502	16	17'-0"	284	STR						
AS503	16	16'-5"	274	STR						
AS504	16	15'-11"	266	STR						
AS505	1	12'-9"	13	STR						
	1	28'-8"								
AS506	S.O.	TO	1434	STR						0'-1½"
	44	33'-10"								
AS507	1	17'-9"	19	STR						
AS508	1	7'-9"	8	STR						
AS509	1	28'-4"	30	STR						
AS510	46	36'-5"	1747	STR						
AS511	38	35'-5"	1443	STR						
AS512	42	34'-7"	1515	STR						
AS513	6	22'-3"	139	STR						
AS514	3	30'-0"	94	STR						
	1	4'-8"								
AS515	S.O.	TO	78	STR						9'-4"
	4	32'-8"								
	1	14'-7"								
AS516	S.O.	TO	75	STR						9'-4"
	3	33'-3"								
	1	29'-11"			28'-6½"					
AS1001	S.O.	TO	7768	19	TO					0'-0½"
	58	32'-4"			30'-11½"					
	1	8'-8"			7'-3"					
AS1002	S.O.	TO	623	19	TO					4'-0"
	7	32'-8"			31'-3"					
AS1003	1	6'-5"	28	STR						
AS1004	1	15'-2"	65	STR						
	1	29'-11"			28'-6"					
AS1005	S.O.	TO	16825	19	TO					0'-0½"
	120	35'-3"			33'-10"					
	1	4'-7"			3'-2"					
AS1006	S.O.	TO	476	19	TO					3'-8⅞"
	7	27'-0"			25'-7"					
AS1007	1	29'-9"	128	19	28'-4"					
		TOTAL	35925							

PARAPET REINFORCING STEEL LIST

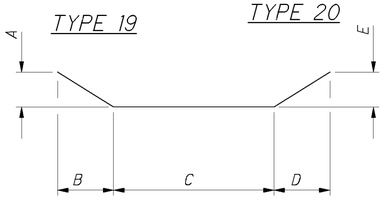
MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
R501	174	30'-0"	5444	STR						
R502	803	5'-10"	4886	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
R503	6	8'-5"	53	STR						
R504	6	16'-7"	104	STR						
R601	29	30'-0"	1307	STR						
R602	803	3'-1"	3719	6	0'-9"	0'-9½"	0'-10½"	0'-6"	0'-8½"	
R603	803	2'-3"	2714	1	0'-11"	1'-6"				
R604	1	16'-7"	25	STR						
R605	1	25'-4"	38	STR						
		TOTAL	18290							



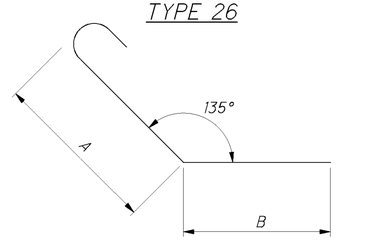
TYPE 18



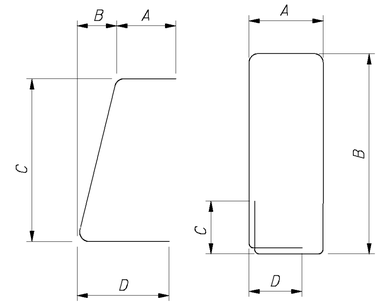
TYPE 19 TYPE 20



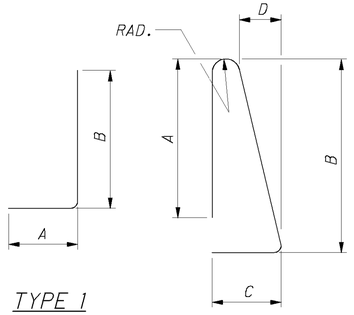
TYPE 26



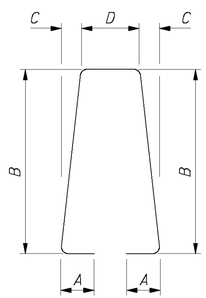
TYPE 28



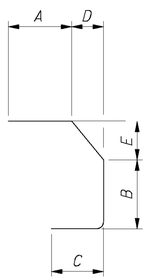
TYPE 12 TYPE 35



TYPE 1 TYPE 2



TYPE 5



TYPE 6

LEGEND:

△ = REINFORCING STEEL INCLUDED W/ ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB, T=17"), AS PER PLAN

RAD. = RADIUS

NOTES:

1. ALL BARS SHALL BE EPOXY COATED.
2. BAR DIMENSIONS SHOWN ARE OUT TO OUT.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX
Cincinnati, Ohio 45202

DATE 02-18-10
REVIEWED RMK
STRUCTURE FILE NUMBER 3111636
DRAWN AAA
REVISED
DESIGNED JHL
CHECKED MAK

REINFORCING STEEL LIST 1
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

33 / 34

402
657

P:\PR42702\ham\20082\structures\HAM264_1448C\sheets\264_1448CRL001.dgn

REAR ABUTMENT REINFORCING STEEL LIST

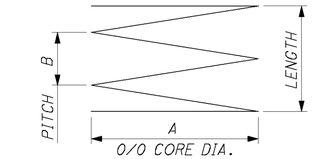
	MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
	D801	25	5'-2"	345	28	2'-10"	1'-5"				
	RA1001	40	22'-3"	3830	1	1'-10"	20'-9"				
	RA1002	40	18'-9"	3227	STR						
*	RA1101	60	45'-6"	14504	STR						
	RA501	38	10'-1"	400	18	5'-4"	2'-6"	2'-6"			
	RA502	12	10'-7"	132	18	5'-4"	2'-9"	2'-9"			
	RA503	10	11'-9"	123	18	5'-4"	3'-4"	3'-4"			
	RA504	8	12'-11"	108	18	5'-4"	3'-11"	3'-11"			
	RA505	8	13'-7"	113	18	5'-4"	4'-3"	4'-3"			
	RA506	16	30'-0"	501	STR						
	RA507	14	14'-2"	207	1	1'-6"	12'-10"				
	RA508	2	28'-10"	60	STR						
	RA509	2	15'-5"	32	1	1'-6"	14'-1"				
	RA510	7	4'-0"	29	26	0'-10½"	0'-10½"	1'-7½"	0'-10½"	0'-10½"	
	RA511	22	8'-3"	189	STR						
	RA512	8	13'-9"	115	STR						
	RA513	30	10'-5"	326	18	3'-8"	3'-6"	3'-6"			
	RA514	8	5'-7"	47	STR						
	RA515	18	16'-2"	304	STR						
	RA516	8	13'-5"	112	STR						
	RA517	16	8'-9"	146	STR						
	RA518	8	9'-11"	83	18	1'-2"	4'-6"	4'-6"			
	RA519	6	1'-2"	7	STR						
	RA520	3	5'-10"	18	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
	RA521	6	16'-2"	101	STR						
	RA522	17	7'-5"	132	2	3'-0"	3'-2"	1'-1"	0'-8"	0'-2¾"	
	RA601	38	12'-1"	690	18	1'-5"	5'-6"	5'-6"			
	RA602	38	8'-1"	461	18	0'-11"	3'-9"	3'-9"			
		2	6'-4"								
	RA603	S.O.	TO	239	STR						0'-0⅝"
		12	6'-11"								
		2	6'-5"								
	RA604	S.O.	TO	202	STR						0'-0½"
		10	6'-11"								
		2	6'-5"								
	RA605	S.O.	TO	159	STR						0'-0¾"
		8	6'-10"								
	RA606	16	6'-5"	154	STR						
	RA607	7	15'-0"	158	18	1'-8"	6'-10"	6'-10"			
	RA608	7	22'-8"	238	18	1'-8"	10'-8"	10'-8"			
	RA609	1	1'-2"	2	STR						
	RA610	3	4'-3"	19	6	0'-9"	2'-0"	0'-10½"	0'-6"	0'-8½"	
	RA611	3	3'-3"	15	1	0'-11"	2'-6"				
	RA612	1	16'-2"	24	STR						
	RA613	17	3'-11"	100	9	1'-1"	0'-2"	2'-0"	0'-11"		
	RA614	17	2'-11"	74	STR						
	RA615	6	13'-6"	122	35	3'-0"	3'-2"	1'-0"	1'-0"		
	RA616	4	4'-7"	28	1	1'-7"	3'-1½"				
	RA801	5	12'-2"	162	1	2'-3"	10'-1"				
	RA802	5	11'-10"	158	1	2'-5"	9'-7"				
	RA803	5	14'-3"	190	1	2'-5"	12'-0"				
	RA804	5	17'-4"	231	1	2'-0"	15'-6"				
	RA805	5	30'-0"	401	STR						
	RA806	5	18'-4"	245	1	2'-0"	16'-6"				
	RA807	4	13'-9"	147	STR						
	RA901	4	4'-8"	63	STR						
	RA902	10	4'-5"	150	1	1'-7"	3'-1½"				
	SP403	5	19'-0"	1389	15	2'-6"	0'-4½"				
*	SP404	5	45'-6"	4527	15	3'-6"	0'-4½"				
			TOTAL	35539							

PIER REINFORCING STEEL LIST

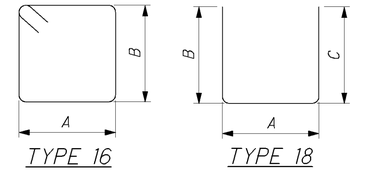
MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
SP401	1	7'-2"	346	15	7'-0"	0'-4½"				
SP402	1	8'-10"	417	15	7'-0"	0'-4½"				
P401	2	23'-6"	31	97	7'-0"	1'-7"				
P402	2	23'-3"	31	97	6'-11"	1'-7"				
P403	2	22'-10"	31	97	6'-9½"	1'-7"				
P404	2	22'-3"	30	97	6'-7½"	1'-7"				
P405	2	21'-4"	29	97	6'-4"	1'-7"				
P406	2	20'-4"	27	97	6'-0"	1'-7"				
P407	2	19'-0"	25	97	5'-7"	1'-7"				
P501	32	12'-2"	406	STR						
P502	18	22'-8"	426	STR						
P601	4	12'-6"	75	STR						
P602	4	20'-10"	125	STR						
P603	4	26'-6"	159	STR						
P604	4	30'-3"	181	STR						
P605	20	18'-1"	543	98						
P606	20	10'-7"	317	1	9'-9"	1'-0"				
P607	10	9'-1"	136	1	8'-3"	1'-0"				
P608	10	7'-11"	118	18	5'-0"	1'-0"	2'-3"			
P609	8	8'-2"	98	18	4'-6"	2'-0"	2'-0"			
P610	80	15'-5"	1852	18	2'-9"	6'-6"	6'-6"			
P611	144	13'-11"	3010	18	2'-9"	5'-9"	5'-9"			
P612	40	11'-3"	675	18	2'-9"	4'-5"	4'-5"			
P613	8	10'-1"	121	18	2'-9"	3'-10"	3'-10"			
P614	8	9'-7"	115	18	2'-9"	3'-7"	3'-7"			
P615	4	11'-1"	66	16	2'-9"	2'-7"				
P616	14	21'-6"	452	18	4'-8"	8'-7"	8'-7"			
P617	8	4'-5"	53	1	1'-6"	3'-1"				
P618	6	14'-8"	132	96						
P701	44	13'-10"	1244	22	12'-2"					
P801	4	32'-0"	341	STR						
P802	4	32'-11"	351	STR						
P803	4	33'-5"	356	STR						
P804	12	4'-5"	141	1	1'-6"	3'-1"				
P1101	44	25'-10"	6039	22	22'-8"					
P1102	15	20'-7"	1640	99	11'-9"	7'-2"	2'-0"			
P1103	36	33'-3"	6359	STR						
P1104	20	36'-8"	3896	22	33'-6"					
P1105	15	22'-3"	1773	99	13'-5"	7'-2"	2'-0"			
P1106	15	20'-7"	1641	100	11'-9"	7'-2"	2'-0"			
P1107	15	22'-3"	1773	100	13'-5"	7'-2"	2'-0"			
		TOTAL	35581							

DECK SLAB REINFORCING STEEL LIST

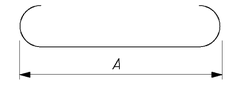
MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
S401	832	30'-0"	16673	STR						
	2	14'-7"								
S402	S.O.	TO	1992	STR						0'-3⅜"
	64	32'-0"								
S403	126	31'-7"	2658	STR						
S404	126	40'-0"	3367	STR						
S501	770	30'-0"	24093	STR						
	2	6'-4"								
S502	S.O.	TO	1731	STR						0'-3⅜"
	55	23'-10"								
S503	2228	36'-8"	85206	STR						
S504	42	7'-0"	307	60	1'-10"	1'-4"	1'-10"	0'-6"		
S505	28	3'-10"	112	6	0'-9"	0'-10½"	1'-6"	0'-6"	0'-8½"	
S506	28	10'-4"	302	62	2'-2"	3'-5"	1'-9"	0'-6"	2'-9"	
S507	28	3'-5"	100	STR						
S508	24	2'-0"	50	STR						
S509	24	5'-0"	125	STR						
S510	24	8'-0"	200	STR						
S511	24	4'-0"	100	STR						
		TOTAL	137016							



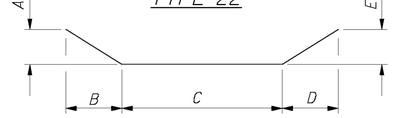
TYPE 15



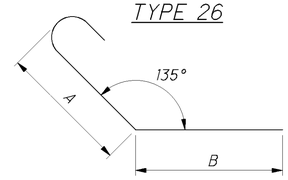
TYPE 16 TYPE 18



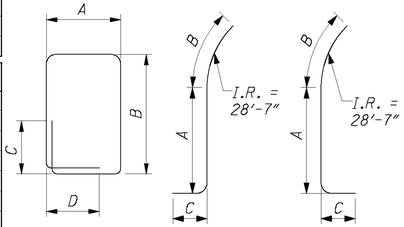
TYPE 22



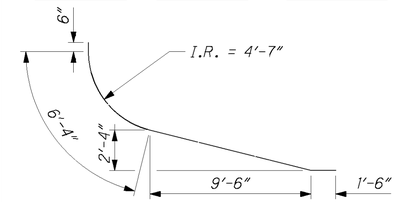
TYPE 26



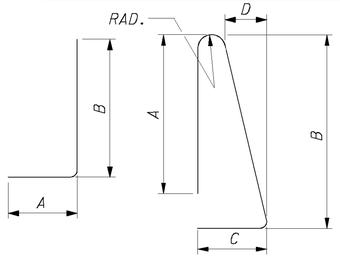
TYPE 28



TYPE 35 TYPE 99 TYPE 100

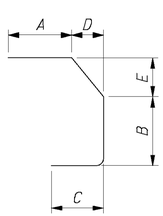


TYPE 98



TYPE 1

TYPE 2



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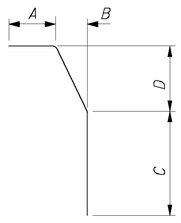

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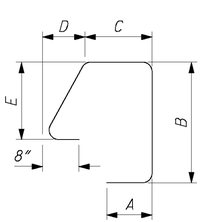

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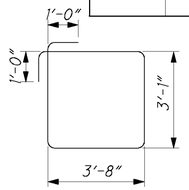

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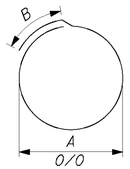

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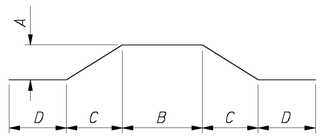

TYPE 60

LEGEND:

RAD. = RADIUS
* = REINFORCING STEEL INCLUDED W/ ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN FOR PAYMENT

NOTES:

1. ALL BARS SHALL BE EPOXY COATED.
2. BAR DIMENSIONS SHOWN ARE OUT TO OUT.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2068
Columbus, Ohio 43230

DATE 02-18-10
REVIEWED RMK
STRUCTURE FILE NUMBER 3111636
DRAWN AAA
REVISED
DESIGNED JHL/RMK
CHECKED MAK/JHL

REINFORCING STEEL LIST 2
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

34 / 34

403
657

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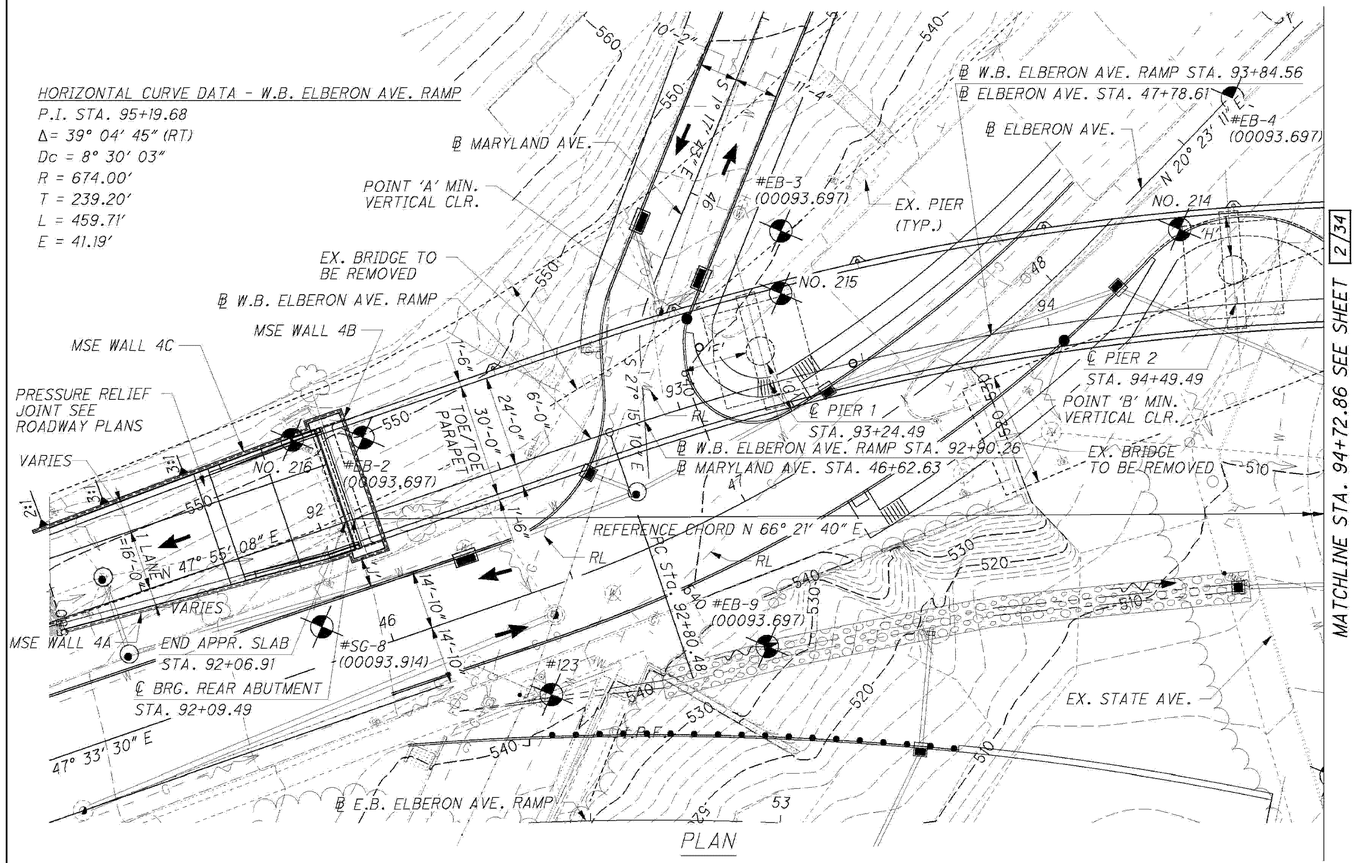

VERTICAL CLEARANCE

REQUIRED MINIMUM VERTICAL CLEARANCE = 14'-6"

'A' ACTUAL MINIMUM VERTICAL CLEARANCE = 14'-10½"
'B' ACTUAL MINIMUM VERTICAL CLEARANCE = 19'-11¼"

HORIZONTAL CLEARANCE

REQUIRED MINIMUM HORIZONTAL CLEARANCE = 15'-0"
'F' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 16'-7"
'G' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 14'-3"
'H' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 10'-5"
'J' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 7'-9"

BENCHMARK DATA

BM #1 STA. 92+55.69, ELEV. 541.03, OFFSET 54.63', RT
CHISELED BENCH MARK FOUND
BM #2 STA. 97+87.15, ELEV. 502.57, OFFSET 60.54', LT
PK NAIL FOUND

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
2006 ADT = 5325 2006 ADTT = 53
2026 ADT = 5325 2026 ADTT = 53

SEE ROADWAY PLANS FOR DISPOSITION OF EXISTING UTILITIES.

LEGEND

- SOIL BORING LOCATION
- EXISTING PIER LOCATION
- I.P.F. = IRON PIN FOUND
- POINT OF MINIMUM VERTICAL CLEARANCE

RL - EXISTING UTILITY TO BE RELOCATED

EXISTING STRUCTURE

TYPE: 9-SPAN STEEL FRAMES WITH ALTERNATELY SUSPENDED SPANS SUPPORTING A GIRDER-FLOORBEAM-STRINGER SYSTEM WITH REINFORCED CONCRETE DECK. THE SUPERSTRUCTURE IS SUPPORTED BY REINFORCED CONCRETE ABUTMENT ON SPREAD FOOTINGS AND TAPERED, BUILT-UP STEEL COLUMN STRADDLE BENTS ON DRILLED CASSIONS OR PEDESTALS AND PILING.

SPANS: 80.393', 72.0', 86.632', 52.0', 67.988' 61.790', 100.983' 55.117', 55.482' (MEASURED ALONG CHORDS BETWEEN ℄ BEARING ABUTMENT AND PIERS.)

ROADWAY: VARIES, 22.0' - 24.0 F/F SAFETY CURB W/ 5'-0" SIDEWALK

LOADING: POSTED 16 TONS

WEARING SURFACE: CONCRETE

SKEW: VARIES

APPROACH SLABS: AS-1-54 (25' LONG)

CROWN: VARIES

STRUCTURAL FILE NUMBER: 3102785

DATE BUILT: 1950

DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: 5-SPAN CONTINUOUS PLATE GIRDERS A709 GRADE 50 (PAINTED) WITH COMPOSITE CONCRETE DECK. SUPPORTED BY REINFORCED CONCRETE ABUTMENTS AND PIERS ON PILING OR DRILLED SHAFTS.

SPANS: 115', 125', 125', 115', 89'-11⁹⁄₁₆", c/c BEARINGS ALONG ℄ (109'-6¼", 123'-11³⁄₁₆", 124'-9½", 112'-6⅞", 84'-9⅜" c/c BEARINGS ALONG REFERENCE CHORD)

ROADWAY: 30'-0" TOE/TOE PARAPET

LOADING: HS25 CASE II AND ALTERNATE MILITARY FUTURE WEARING SURFACE (FWS) OF 60 PSF

SKEW: RADIAL EXCEPT 10°51'54" LF AT FWD. ABUT.

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: 30' LONG (AS-1-81), MODIFIED

ALIGNMENT: TANGENT WITH RIGHT CURVE - RADIUS = 674'

SUPERELEVATION: VARIES TO 0.050 FT/FT MAX

COORDINATES: LATITUDE N 39° 06' 05"
LONGITUDE W 84° 33' 17"

DESIGN AGENCY: BURGESS & NIPLE
All data from 2013 Ohio Coordinate Zone (Grid) Ohio NAD

DATE 03-05-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111652
DRAWN KML
REVISED
DESIGNED SJA
CHECKED XAC

HAMILTON COUNTY
STA. 92+06.91
STA. 97+81.96

SITE PLAN 1
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

1 / 34

404
657

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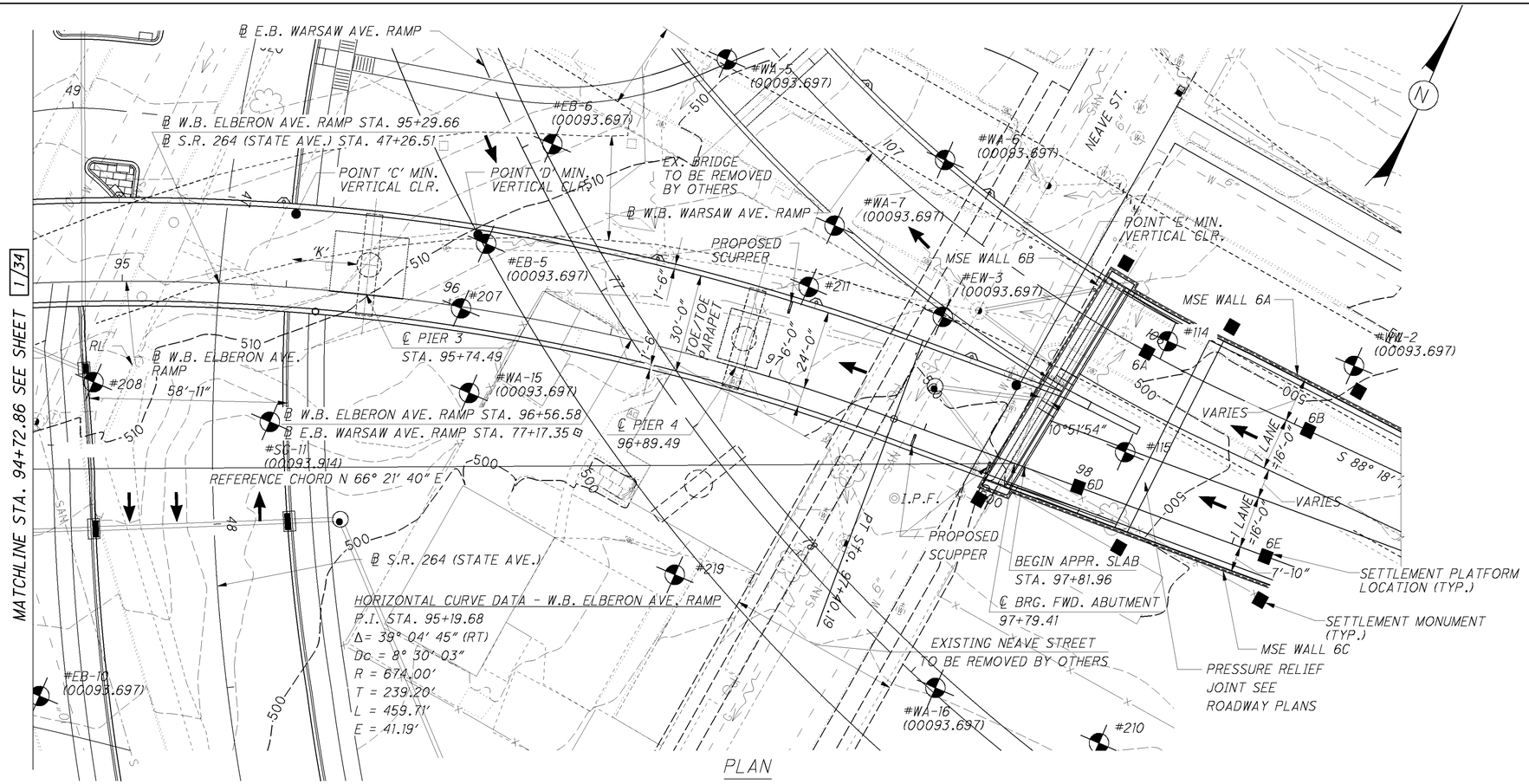
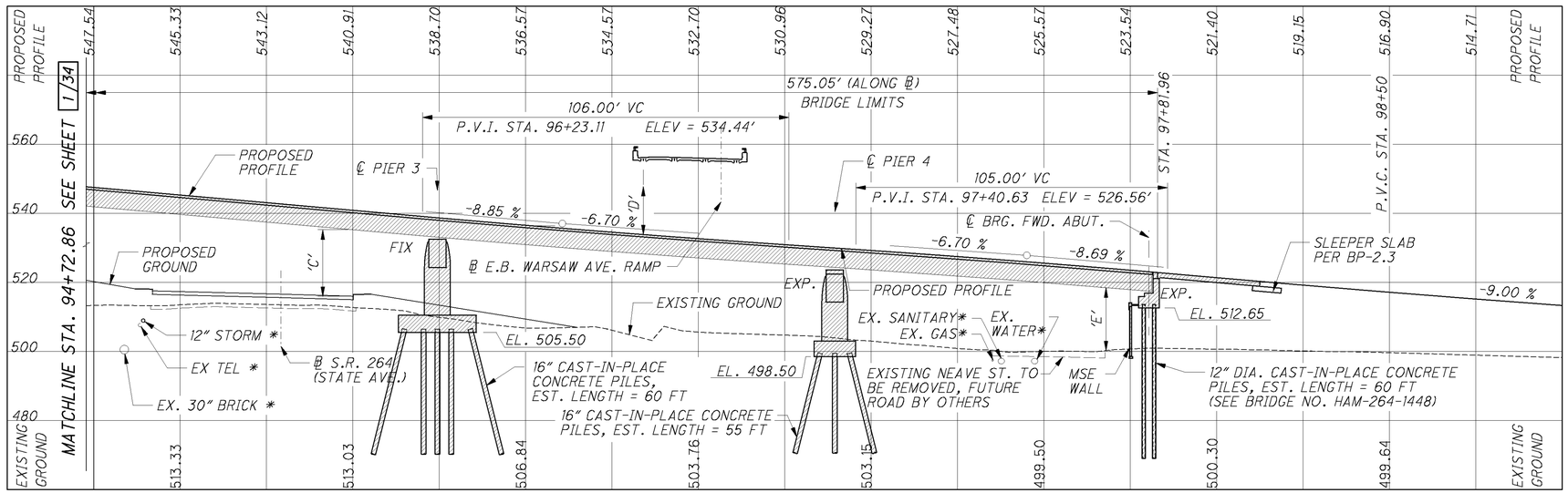


PLAN



PROFILE ALONG ℄ W.B. ELBERON AVE. RAMP

<u>VERTICAL CLEARANCE</u>
'C' REQUIRED MINIMUM VERTICAL CLEARANCE = 16'-6"
'C' ACTUAL MINIMUM VERTICAL CLEARANCE = 19'-1"

'D' REQUIRED MINIMUM VERTICAL CLEARANCE = 16'-6"
'D' ACTUAL MINIMUM VERTICAL CLEARANCE = 16'-6"

'E' REQUIRED MINIMUM VERTICAL CLEARANCE = 14'-6"
'E' ACTUAL MINIMUM VERTICAL CLEARANCE = 18'-3"

<u>HORIZONTAL CLEARANCE</u>
REQUIRED MINIMUM HORIZONTAL CLEARANCE = 15'-0"
'K' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 19'-9"

* EX UTILITIES TO BE RELOCATED BY OTHERS

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 459-2051
Cincinnati, Ohio 45242

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

HAMILTON COUNTY
STA. 92+06.91
STA. 97+81.96

SITE PLAN 2
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

2 / 34

405
657

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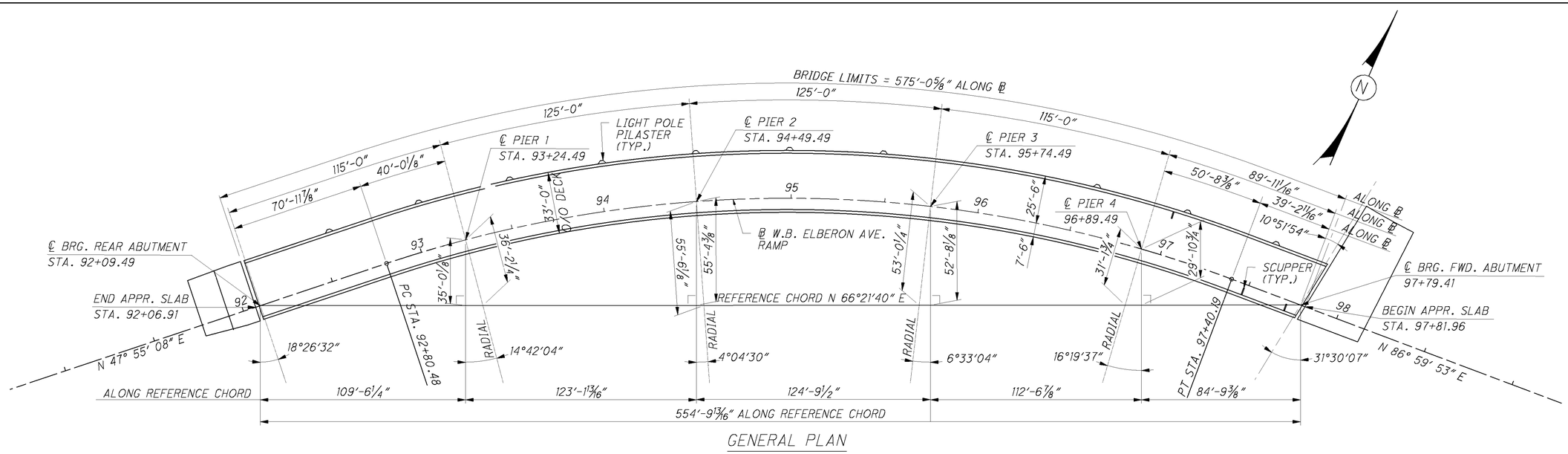
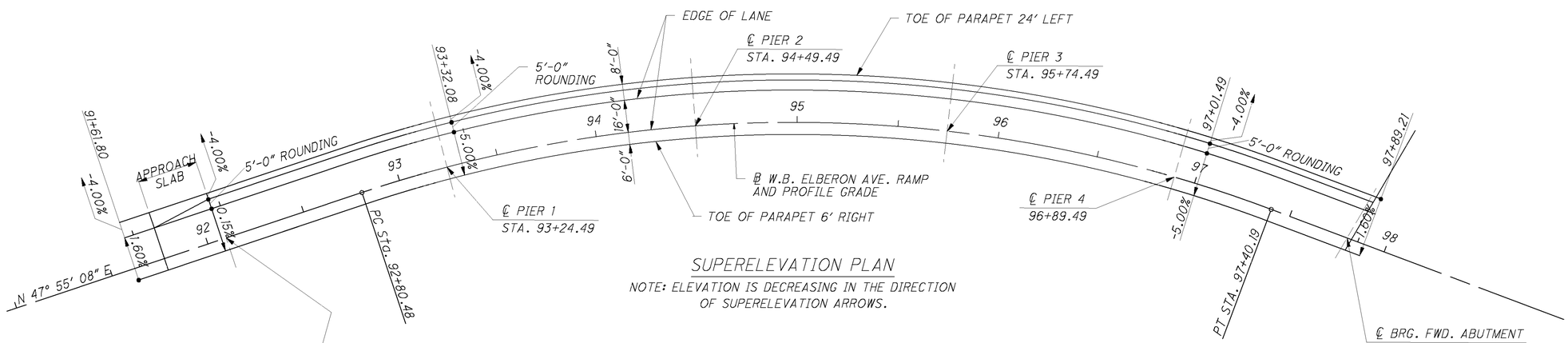


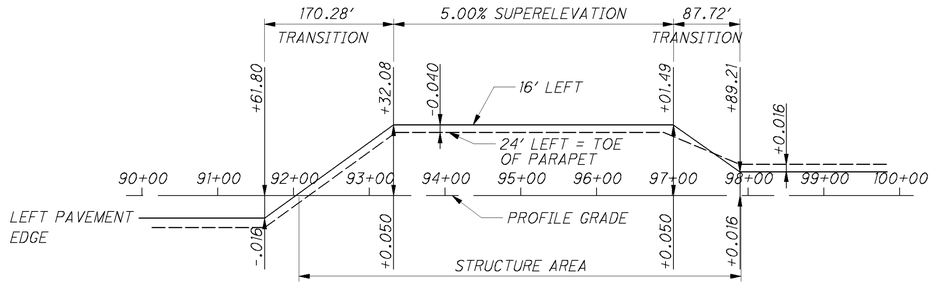
GENERAL PLAN

CURVE DATA - WB ELBERON RAMP
P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'



SUPERELEVATION PLAN

NOTE: ELEVATION IS DECREASING IN THE DIRECTION OF SUPERELEVATION ARROWS.



SUPERELEVATION DIAGRAM

DESIGN AGENCY
BURGESS & NIPPLE
81 East Gay Street, Suite 1000
Columbus, Ohio 43215

DESIGNED	DRAWN	REVIEWED	DATE
SJA	GTT	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3162508	

GENERAL PLAN
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

3 / 34

406
657

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DESIGN REFERENCES:

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81	REVISED 07-19-2002
BR-1	REVISED 07-19-2002
GSD-1-96	REVISED 07-19-2002
EXJ-4-87	REVISED 07-19-2002
SBR-1-99	REVISED 07-19-2002

AND TO SUPPLEMENTAL SPECIFICATIONS:
898 DATED 10-15-10

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 2002 SPECIFICATIONS, THE 2003 AASHTO HORIZONTALLY CURVED STEEL GIRDER GUIDE SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL.

SPECIAL DESIGN SPECIFICATIONS:

THE GRILLAGE DESIGN METHOD WAS USED TO ANALYZE THE STRUCTURE. THE COMPUTER PROGRAM USED FOR STRUCTURAL ANALYSIS WAS MDX. THE BRIDGE COMPONENTS DESIGNED BY THIS METHOD AND THE LIVE LOAD DISTRIBUTION FACTORS USED WERE:

DEAD LOAD DISTRIBUTION: NON-COMPOSITE DEAD LOAD AND FUTURE WEARING SURFACE DEAD LOAD WERE DISTRIBUTED BASED ON TRIBUTARY AREA. COMPOSITE PARAPET DEAD LOAD WAS APPLIED AS LINE LOAD TO EXTERIOR GIRDERS.

LIVE LOADS FLOATED BETWEEN BARRIERS FOR MAXIMUM EFFECT.

DESIGN LOADING:

HS25, CASE II, AND ALTERNATE MILITARY LOADING

FUTURE WEARING SURFACE OF 60 PSF

VEHICLE COLLISION - PIERS 1-3 HAVE BEEN DESIGNED FOR A STATIC HORIZONTAL FORCE OF 400 KIPS, ASSUMED TO ACT IN ANY DIRECTION, AT A DISTANCE OF 4.0 FEET ABOVE FINISHED GRADE (REF. AASHTO LRFD 3.6.5.2). PIER DESIGN WAS CHECKED FOR AASHTO STANDARD SPECIFICATION CASE VII, TREATING THIS FORCE AS EARTHQUAKE LOAD.

THIS STRUCTURE HAS BEEN DESIGN TO ACCOMMODATE 3 INCHES OF HORIZONTAL MOVEMENT DUE TO HILLSIDE CREEP. THIS MAY RESULT IN $\frac{5}{8}$ INCH OF VERTICAL SETTLEMENT OF THE REAR ABUTMENT AND PIER 1 ALONG WITH $\frac{3}{4}$ INCH OF VERTICAL SETTLEMENT AT PIER 2.

DESIGN DATA:

CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4,500 PSI (SUPERSTRUCTURE).

CONCRETE, CLASS QSC1 - COMPRESSIVE STRENGTH 4,000 PSI (SUBSTRUCTURE).

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI.

SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82, OR A615

STRUCTURAL STEEL ASTM A709 GRADE 50 - YIELD STRENGTH 50,000 PSI.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL
$2\frac{1}{2}$ INCH CONCRETE COVER
SEALING OF CONCRETE SURFACES

WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE ONE (1) INCH THICK.

MAINTENANCE OF TRAFFIC:

TRAFFIC WILL BE DETOURED DURING BRIDGE CONSTRUCTION. BRIDGE MUST BE BUILT IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC GENERAL NOTES.

FINISH COLORS:

THE COLOR FOR THE ALTERNATE STEEL PARAPET RAILS AND ALL HARDWARE SHALL BE FEDERAL COLOR NUMBER 27038, BLACK 30% SHEEN.

THE COLOR FOR ITEM 513 - STRUCTURAL STEEL MEMBERS (OUTSIDE FACE AND BOTTOM) FLANGES OF THE FASCIA BEAMS, LEVEL 5, SHALL BE FEDERAL COLOR NUMBER 27038, BLACK 30% SHEEN. ALL OTHER BRIDGE SUPERSTRUCTURE STRUCTURAL STEEL ELEMENTS SHALL BE PAINTED WITH ODOT STANDARD, FEDERAL COLOR NUMBER 10324, DARK NEUTRAL.

THE COLOR FOR ITEM 512 - THE PIERS WILL BE SEALED WITH EPXOY URETHANE SEALER, FEDERAL COLOR NUMBER 11136, TERRA COTTA. ALL REMAINING CONCRETE SURFACES ARE TO BE SEALED WITH CLEAR NON-EPOXY.

ITEM 512 SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION):

APPLY A CLEAR PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

PERMANENT GRAFFITI PROTECTION SHALL BE APPLIED TO THE LIMITS SHOWN IN THE PLANS.

ITEM 524 - DRILLED SHAFTS, 48" DIAMETER ABOVE BEDROCK, AS PER PLAN

& ITEM 524 - DRILLED SHAFTS, 54" DIAMETER ABOVE BEDROCK, AS PER PLAN

ALTERNATE INSTALLATION OF DRILLED SHAFTS SO THAT ADJACENT SHAFT CONCRETE HAS CURED 3 DAYS PRIOR TO DRILLING ANOTHER SHAFT WITHIN 12 FEET CENTER TO CENTER.

DRILLED SHAFTS:

THE DESIGN LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 90 TONS AT THE REAR ABUTMENT, 155 TONS AT PIER 1 AND 159 TONS AT PIER 2. THIS LOAD IS RESISTED BY END BEARING ONLY. THE ALLOWABLE END BEARING IS 10 TONS PER SQUARE FOOT. THE REINFORCING STEEL SHALL BE EPOXY COATED ACCORDING TO 709.00.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)

PILE DESIGN LOADS (ULTIMATE BEARING VALUE): THE ULTIMATE BEARING VALUE IS 120 TONS PER PILE FOR PIER 3 PILES AND 176 TONS PER PILE FOR PIER 4 PILES.

PIER 3 PILES:
16" CAST-IN-PLACE CONCRETE PILES
17 PILES 65 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

PIER 4 PILES:
16" CAST-IN-PLACE CONCRETE PILES
12 PILES 60 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

FORWARD ABUTENT:
FORWARD ABUTMENT PILES ARE INCLUDED WITH BRIDGE HAM-264-1448.

BATTERED PILES:

BATTERED PILES: THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1-UG}{\sqrt{(1+G^2)}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.

G = RATE OF BATTER (1/3, 1/4, ETC.)

SUGGESTED GIRDER ERECTION SEQUENCE:

A SUGGESTED ERECTION SEQUENCE IS DEVELOPED AS SHOWN ON SHEET 23/34. THE CONTRACTOR HAS AN OPTION TO DEVELOP HIS OWN METHOD OF CONSTRUCTION. THE COST OF THE ALTERNATE DESIGN IS PAID UNDER ITEM 513 - SUPERSTRUCTURE STEEL MEMBERS, LEVEL 5.

DESIGN AND MAINTENANCE TO ALLOW FOR HILLSIDE MOVEMENT:

IT IS ANTICIPATED THAT THE REAR ABUTMENT AND PIERS 1 &2 COULD MOVE DUE TO HILLSIDE CREEP. FOR THIS REASON A DISTANCE OF 6" WAS PROVIDED FROM THE END OF THE GIRDER TO THE ABUTMENT BACKWALL. FUTURE MAINTENANCE STEPS WILL BE REQUIRED EACH TIME THE ABUTMENT OR PIERS MOVE MORE THAN 1".

REMOVE TOP 1'-6" OF REAR ABUTMENT BACKWALL AND REPLACE EXPANSION JOINT IF THE JOINT OPENING (SEE DIM. A ON DETAILS) IS LESS THAN $1\frac{1}{2}$" AT 60 DEGREES FAHRENHEIT. THE EXPANSION JOINT WAS DESIGNED TO INITIALLY PROJECT 3" FROM THE BACKWALL TO ALLOW FOR FUTURE ADJUSTMENT WITHOUT HAVING TO REMOVE THE ENTIRE BACKWALL.

RESET ABUTMENT AND PIER BEARINGS WHEN SHEAR DEFORMATION OF THE ELASTOMERIC PAD EXCEEDS 1" TOP TO BOTTOM AT 60 DEGREES FAHRENHEIT. THE REAR ABUTMENT BEARING WAS DESIGNED WITH OVERSIZED HOLES IN THE MASONRY PLATE TO ALLOW FOR HORIZONTAL ADJUSTMENT. ADD OR REMOVE STEEL SHIMS FOR SEISMIC PEDESTAL TO MAINTAIN 1" GAP FROM BEARING LOAD PLATE.

UTILITY LINES:

UTILITY LINES: THE UTILITY(IES) SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

EXISTING STRUCTURE PLANS:

CONSTRUCTION PLANS FOR THE EXISTING BRIDGE ARE ON FILE AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 8 OFFICE, 505 SOUTH STATE ROUTE 741, LEBANON, OHIO AND ARE AVAILABLE FOR REFERENCE.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 17", AS PER PLAN:

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. IN ADDITION, THE PARAPET TRANSITIONS ON THE APPROACH SLABS, INCLUDING THE CONCRETE, REINFORCING STEEL, HMWM AND SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) SHALL BE INCLUDED IN THE COST OF THE APPROACH SLABS. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) AS PER PLAN:

THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

FORWARD ABUTENT AND FORWARD APPROACH SLAB:

THE FORWARD ABUTMENT AND APPROACH SLAB ARE DETAILED AND INCLUDED WITH BRIDGE HAM-264-1448 FOR PAYMENT.

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DESIGN AGENCY
BURGESS & NIPLE
INFRASTRUCTURE SOLUTIONS
Columbus, Ohio 43240

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

GENERAL NOTES 01
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

ABBREVIATIONS

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THESE PLANS TO INDICATE THE DESIGNATIONS CONTAINED IN THE LEGEND BELOW:

ABUT. - ABUTMENT
APPR. - APPROACH

℄ - BASELINE
BOT. - BOTTOM
BRGS. - BEARINGS
B.S. - BOTH SIDES

℄ - CENTERLINE
C/C - CENTER TO CENTER
CIP - CAST-IN-PLACE
C.J. - CONTRUCTION JOINT
CJP - COMPLETE JOINT PENETRATION
CLR. - CLEARANCE
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONST. - CONSTRUCTION
CS - INDICATES BUTT WELD SUBJECT TO COMPRESSIVE STRESSES ONLY
CU YD - CUBIC YARD
CVN - CHARPY V-NOTCH

DIA. - DIAMETER

E.F. - EACH FACE
EL. - ELEVATION
EQ. - EQUAL
EX. - EXISTING
EXP. - EXPANSION

F.A. - FORWARD ABUTMENT
F.F. - FAR FACE
F.S. - FIELD SPLICE
FT/FT - FOOT PER FOOT
FTG. - FOOTING
FWD. - FORWARD

GEN. - GENERAL

HPC - HIGH PERFORMANCE CONCRETE

LF - LEFT FORWARD
LT. - LEFT

MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
MOT - MAINTENANCE OF TRAFFIC
MSE - MECHANICALLY STABILIZED EARTH

N.F. - NEAR FACE
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
NO./# - NUMBER

O/O - OUT TO OUT

PC - POINT OF CURVATURE
P.C.P.P - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PG - PROFILE GRADE
PI - POINT OF INTERSECTION
PROP. - PROPOSED
PT - POINT OF TANGENCY
PVC - POINT OF VERTICAL CURVATURE
PVI - POINT OF VERTICAL INTERSECTION
PVT - POINT OF VERTICAL TANGENCY

R. - RADIUS
R.A. - REAR ABUTMENT
RF - RIGHT FORWARD
RT. - RIGHT
R/W - RIGHT OF WAY

SAN. - SANITARY
SER. - SERIES
SHT. - SHEET
S.O. - SERIES OF
SPA. - SPACES OR SPACING
SR - STATE ROUTE
STA. - STATION
STD. - STANDARD
STM. - STORM
STR. - STRAIGHT

TBM - TEMPORARY BENCH MARK
TEMP. - TEMPORARY
T.O.S. - TOE OF SLOPE
T/PARAPET - TOE OF PARAPET
T/T - TOE TO TOE
TYP. - TYPICAL

U.G. - UNDERGROUND

VAR. - VARIES
VC - VERTICAL CURVE
VERT. - VERTICAL

W/O - WITHOUT
WB - WESTBOUND

PILE DRIVING CONSTRAINTS

PRIOR TO DRIVING ABUTMENT PILES TO THE ULTIMATE BEARING VALUE (UBV), CONSTRUCT THE MSE WALL AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENT UP TO THE BOTTOM OF THE FOOTING FOR A MINIMUM DISTANCE OF 200 FT BEHIND EACH ABUTMENT. PROVIDE A SURCHARGE FROM THE BOTTOM OF THE ABUTMENT FOOTING TO THE BOTTOM OF THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BEHIND EACH ABUTMENT. SURCHARGE LOADS SHALL REMAIN UNTIL THE REQUIRED SETTLEMENT HAS OCCURED AND AS DIRECTED BY THE ENGINEER. COMPLETE THE MSE WALL AND EMBANKMENT CONSTRUCTION IMMEDIATELY FOLLOWING THE SURCHARGE REMOVAL.

THE CONTRACTOR MAY PRE-DRIVE ABUTMENT PILES BEFORE CONSTRUCTING MSE WALLS. PRE-DRIVING CONSISTS OF INSTALLING THE ABUTMENT PILES INTO THE SOIL ONLY AS FAR AS NECESSARY SO THAT THE PIPE WILL REMAIN VERTICAL DURING MSE WALL CONSTRUCTION. IF PRE-DRIVING PILES, INSTALL PILE SLEEVES AROUND PILES BEFORE CONSTRUCTING THE MSE WALL. AT LEAST THREE FEET OF PILE MUST EXTEND ABOVE THE TOP OF THE PILE SLEEVE TO MEET THE REQUIREMENTS OF CMS 507.09 REGARDING SPLICES. DO NOT DRIVE ABUTMENT PILES TO THE UBV UNTIL AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED, AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

IF NOT PRE-DRIVING ABUTMENT PILES, INSTALL THE ABUTMENT PILES THROUGH PILE SLEEVES AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

ABUTMENT PILE DRIVING TO THE UBV (FOR PILES DRIVEN AFTER MSE CONSTRUCTION) OR PILE REDRIVING (FOR PILES PRE-DRIVEN BEFORE MSE CONSTRUCTION) MAY NOT BEGIN UNTIL A MINIMUM 30 CALENDAR DAY WAITING PERIOD HAS ELAPSED AFTER THE COMPLETION OF EMBANKMENT AND SURCHARGE CONSTRUCTION. IN ADDITION, CONSECUTIVE SETTLEMENT READINGS, RECORDED AFTER EMBANKMENT CONSTRUCTION IS COMPLETE AND AT LEAST ONE WEEK (168 HOURS) APART, SHALL RESULT IN ELEVATION DIFFERENCES EQUAL TO OR LESS THAN 1/8 INCH FOR ABUTMENT CONSTRUCTION TO CONTINUE. IF SETTLEMENT RATES EXCEED 2 INCH PER MONTH AFTER EMBANKMENT CONSTRUCTION HAS BEEN COMPLETE FOR 40 DAYS, REMAINING ABUTMENT CONSTRUCTION, INCLUDING ANY NECESSARY CORRECTIVE MEASURES, MAY PROCEED ONLY AT THE DIRECTION OF THE ENGINEER.

THE ENGINEER MAY ADJUST THE SPECIFIED WAITING PERIOD BASED ON SETTLEMENT PLATFORM READINGS. AFTER THE SPECIFIED WAITING PERIOD HAS ELAPSED, DRIVE ABUTMENT PILES TO THE UBV. IN ORDER TO REMOVE ANY NEGATIVE SKIN FRICTION THAT HAS DEVELOPED DURING THE WAITING PERIOD, DRIVE EACH ABUTMENT PILE A DISTANCE OF AT LEAST 0.5 INCH.

ITEM 513 - STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT

FURNISH AND INSTALL STEEL BRACKETS TO SUPPORT A CIRCULAR SURVEY PRISM AT LOCATIONS SHOWN ON THE REAR ABUTMENT ELEVATION.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE BRACKET IS INSTALLED LEVEL AND PLUM. LOCATE ABUTMENT REINFORCEMENT PRIOR TO DRILLING ANCHOR BOLTS AND ADJUST BRACKET LOCATION TO MISS THE REINFORCEMENT.

PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM 513 -STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT" AND INCLUDES FURNISHING ALL MATERIALS AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE PRISM MOUNTS AT THE DESIGNATED LOCATIONS.

ITEM SPECIAL - INCLINOMETER

REAR ABUTMENT:
FURNISH AND INSTALL A 3.34 INCH (85 MM) DIAMETER INCLINOMETER CASING THROUGH THE ABUTMENT SEAT AS SHOWN ON THE ABUTMENT DRAWINGS. THE INCLINOMETER CASING IS TO BE CAPPED AT THE TOP. THE INCLINOMETER CASING IS TO BE COMPRISED OF ABS PLASTIC WITH QC (QUICK CONNECT) CONNECTIONS. PROTECT THE TOP OF THE INCLINOMETER CASING WITH A FLUSH MOUNT PROTECTIVE COVER INSTALLED IN THE ABUTMENT SEAT. PROVIDE THE FLUSH MOUNT PROTECTIVE COVER IN ACCORDANCE WITH SECTION 506.2.2 OF THE ODOT SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS.

PIERS 1 AND 2:
FURNISH AND INSTALL A 3.34 INCH (85 MM) DIAMETER INCLINOMETER CASING THROUGH THE FOOTING AS SHOWN ON THE PIER DRAWINGS. THE INCLINOMETER CASING IS TO BE COMPRISED OF ABS PLASTIC WITH QC (QUICK CONNECT) CONNECTIONS. PROTECT THE TOP OF THE INCLINOMETER CASING WITH A PROTECTIVE COVER. PROVIDE THE PROTECTIVE COVER IN ACCORDANCE WITH SECTION 506.2.1 OF THE ODOT SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS. THE TOP CAP SHALL INCLUDE A HASP SO THAT THE TOP CAN BE LOCKED.

FORM A VOID BETWEEN THE BOTTOM OF ABUTMENT OR PIER FOOTING AND THE TOP OF THE PRIMARY GROUT TO ALLOW FOR VERTICAL DISPLACEMENT. PLACE SECONDARY GROUT AT LEAST 30 DAYS AFTER BRIDGE PARAPET IS CONSTRUCTED.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE CASING REMAINS IN PLACE DURING PLACEMENT OF ADJACENT FILL AND CONCRETE SO THAT THE INCLINOMETER IS NOT DAMAGED OR ROTATED. ORIENT THE CASING GROOVES PARALLEL AND PERPENDICULAR TO THE FOOTING.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF THE INSTRUMENTATION AND ALL DAMAGE DURING THE LIFE OF THE CONTRACT. PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM SPECIAL - INCLINOMETERS" AND INCLUDES FURNISHING ALL MATERIALS (SLOPE INDICATOR TUBING,COUPLINGS, END PLUGS, OUTER CASING AND PROTECTIVE CAP) AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE INCLINOMETER CASING AT THE DESIGNATED PLAN LOCATIONS.

THE INCLINOMETER CASING SHOULD MEET THE DETAILS DESCRIBED ABOVE OR APPROVED EQUIVALENT. SUPPLIERS OF INCLINOMETER CASING INCLUDE:

GLOBAL DRILLING SUPPLIERS, INC.
12101 CENTRON PLACE
CINCINNATI, OHIO 45246
PH: 513-671-8700

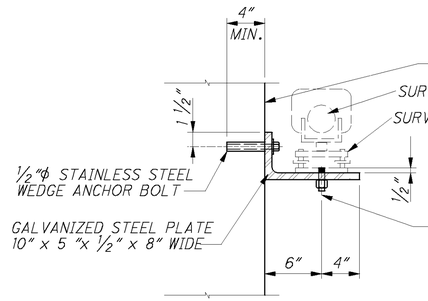
DURHAM GEO SLOPE INDICATORS
12123 HARBOUR REACH DR.
MUKILTEO, WA 98275
PH: 773-728-5822

ITEM 513 - STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT

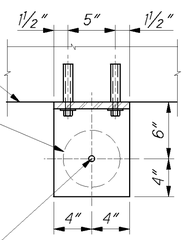
FURNISH AND INSTALL STEEL BRACKETS TO SUPPORT A CIRCULAR SURVEY PRISM AT LOCATIONS SHOWN ON THE REAR ABUTMENT AND PIER 1 & 2 ELEVATION.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE BRACKET IS INSTALLED LEVEL AND PLUM. LOCATE ABUTMENT AND PIER REINFORCEMENTT PRIOR TO DRILLING ANCHOR BOLTS AND ADJUST BRACKET LOCATION TO MISS THE REINFORCEMENT.

PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM 513 -STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT" AND INCLUDES FURNISHING ALL MATERIALS AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE PRISM MOUNTS AT THE DESIGNATED LOCATIONS.



SURVEY PRISM MOUNT ELEVATION



SURVEY PRISM MOUNT PLAN

ESTIMATED QUANTITIES

CALC.	DATE	CHK'D	DATE
JHL	1/8/2009	ADZ	1/21/2009

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTS.	PIERS	SUPER.	APPROACH SLAB	GENERAL	SHT. REF.
202	11002	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN					LUMP	
202	22900	134	SY	APPROACH SLAB REMOVED				134		
SPECIAL	20307502	3	EACH	INCLINOMETER	1	2				5 / 34
503	21300	LUMP		UNCLASSIFIED EXCAVATION						
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION						
507	00700	1680	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		1680				
507	00750	1825	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED		1825				
509	10000	280847	LB	EPOXY COATED REINFORCING STEEL	9753	71197	199897			
512	10001	118	SY	SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION)		118				4 / 34
512	10050	1339	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	102		1237			
512	10100	381	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		381				
513	10300	642378	LB	STRUCTURAL STEEL MEMBERS, LEVEL 5			642378			
513	20000	6336	EACH	WELDED STUD SHEAR CONNECTORS			6336			
513	95030	4	EACH	STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT	2	2				5 / 34
514	00060	33787	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			33787			
514	00066	33787	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			33787			
514	10000	25	EACH	FINAL INSPECTION REPAIR			25			
516	11211	37	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN			37			10 / 34
516	13600	7	SF	1" PREFORMED EXPANSION JOINT FILLER	7					
516	13900	15	SF	2" PREFORMED EXPANSION JOINT FILLER	15					
516	44200	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (1'-6" DIA. x 3 9/16") (EXPANSION)	4					
516	44300	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2'-0" DIA. x 4 3/8") (EXPANSION)		4				
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (1'-6" DIA. x 8 1/2") (SPECIAL)	4					
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2'-2" DIA. x 6") (FIXED)		4				
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2'-2" DIA. x 6") (EXPANSION)		4				
516	44400	4	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2'-2" DIA. x 6 7/8") (EXPANSION)		4				
517	76300	1159	FT	RAILING, MISC: RAILING ALTERNATE, MINNESOTA RAILING *			1159			6 & 24 / 34
518	12300	3	EACH	SCUPPERS, INCLUDING SUPPORTS			3			
518	51100	27	FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS					34	
518	60030	103	FT	PIPE HORIZONTAL CONDUCTOR					103	
523	20000	2	EACH	DYNAMIC LOAD TESTING		2				
524	94903	156	FT	DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN	156					4 / 34
524	94907	756	FT	DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK, AS PER PLAN		756				4 / 34
898	10201	555	CY	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			555			4 / 34
898	10709	108	SY	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN				108		4 / 34
898	11000	135	CY	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			135			
898	20100	256	CY	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		256				
898	20160	54	CY	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	54					
898	20300	311	CY	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		311				

* RAILING, MISC: RAILING ALTERNATE, MINNESOTA RAILING IS A REQUIRED BID ITEM. IF SELECTED BY THE OWNER IT WILL REPLACE BID ITEM 898: QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET). CONCRETE IN ALTERNATE RAILING SHALL BE QC/QA CONCRETE,CLASS QSC2. IF SELECTED BY THE OWNER ALTERNATE RAILING AND ALL NECESSARY TRANSITIONS SHALL BE DETAILED PER MINNESOTA STANDARD DRAWING FIGURE 5-397.157 AND SUBMITTED FOR SHOP DRAWING REVIEW PRIOR TO FABRICATION. THE COST OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR PAINING, REINFORCEMENT, SEALING, RAILINGS AND SHOP DRAWING PREPARATION SHALL BE INCLUDED WITH THIS ITEM FOR PAYMENT. SEE SHEET 4 /34 FOR COLOR REQUIREMENTS. ALL REINFORCEMENT SHALL BE EPOXY COATED. THE ALTERNATE RAILING OPTION WILL REPLACE 27,596 POUNDS OF REINFORCEMENT AND 948 SQ. YD. OF SEALING.

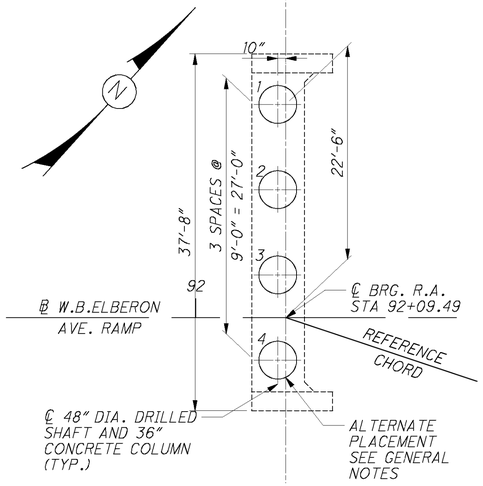
P:\PR42702\ham\20082\structures\HAM264_1457C\sheets\264_1457CE0001.dgn

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2241
Columbus, Ohio 43212

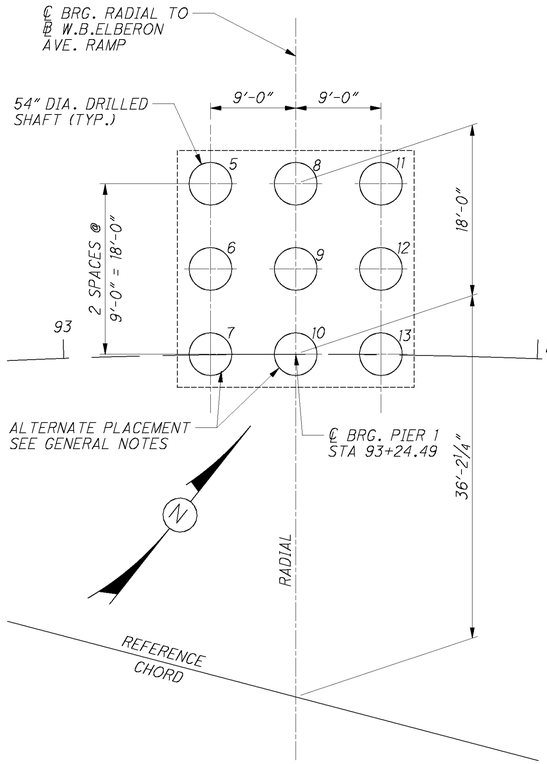
DATE 03-05-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111652
DRAWN SJA
REVISED
DESIGNED SJA
CHECKED XAC

ESTIMATED QUANTITIES
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

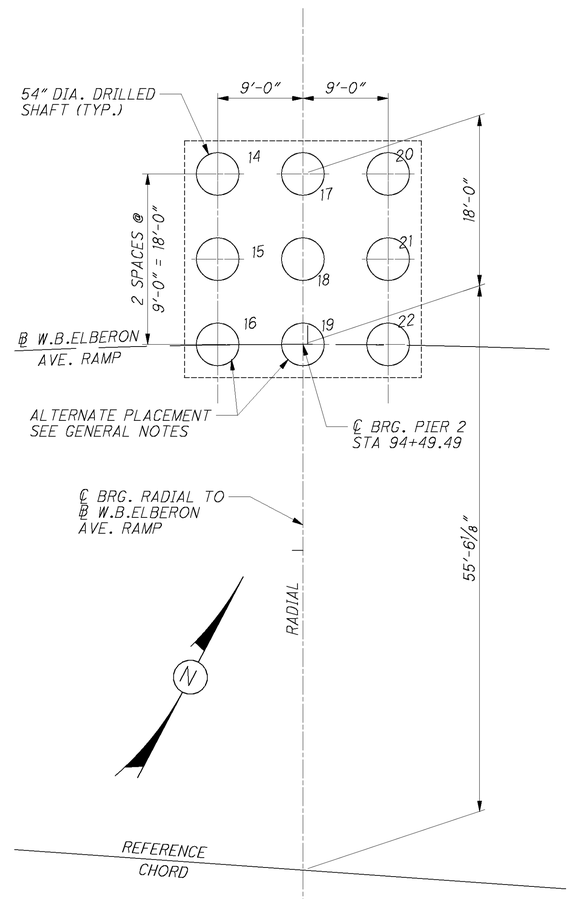
HAM-50-18.79
PID No. 20082



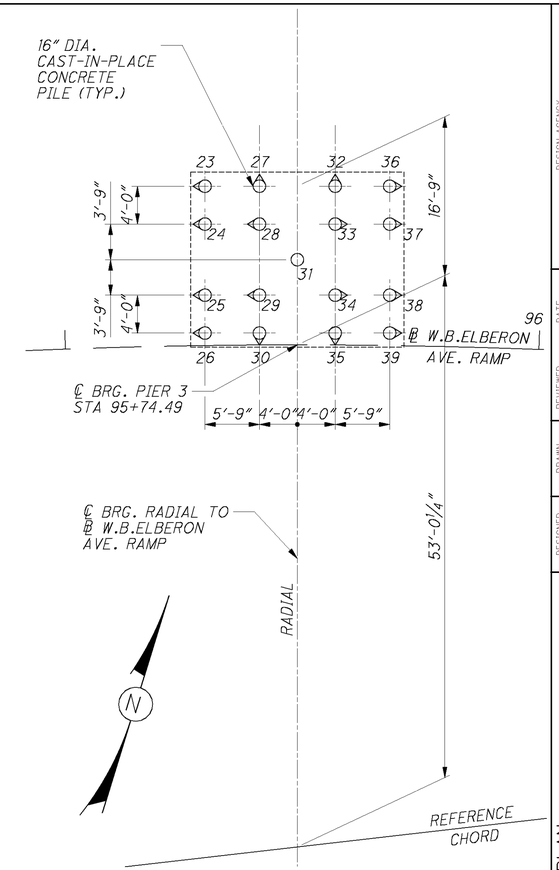
FOUNDATION PLAN
REAR ABUTMENT



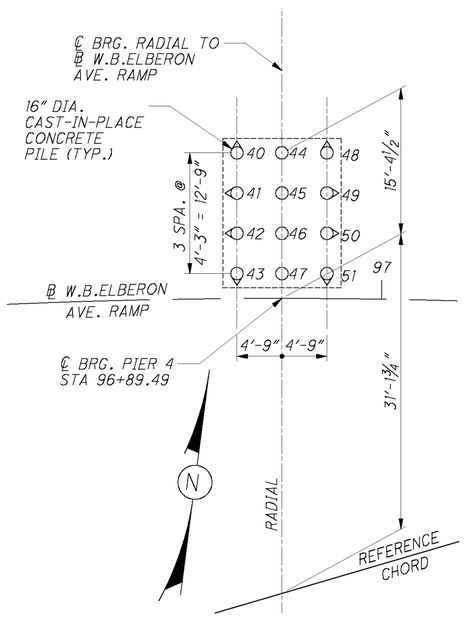
FOUNDATION PLAN
PIER 1



FOUNDATION PLAN
PIER 2



FOUNDATION PLAN
PIER 3



FOUNDATION PLAN
PIER 4

LEGEND:

- PROPOSED 48" OR 54" DIA. DRILLED SHAFT
- PROPOSED VERTICAL PILE
- PROPOSED PILE BATTERED (1:4) IN DIRECTION OF ARROW
- N○ DENOTES PILE NUMBER 'N'

NOTES:

1. REMOVE EXISTING FOUNDATIONS AND PORTIONS OF EXISTING FOUNDATIONS THAT INTERFERE WITH PROPOSED FOUNDATIONS AS PER 202.03.
2. FOR FOWARD ABUTMENT FOUNDATION PLAN SEE BRIDGE NO. HAM-264-1448.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 779-7851
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

FOUNDATION PLAN
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

7 / 34

410
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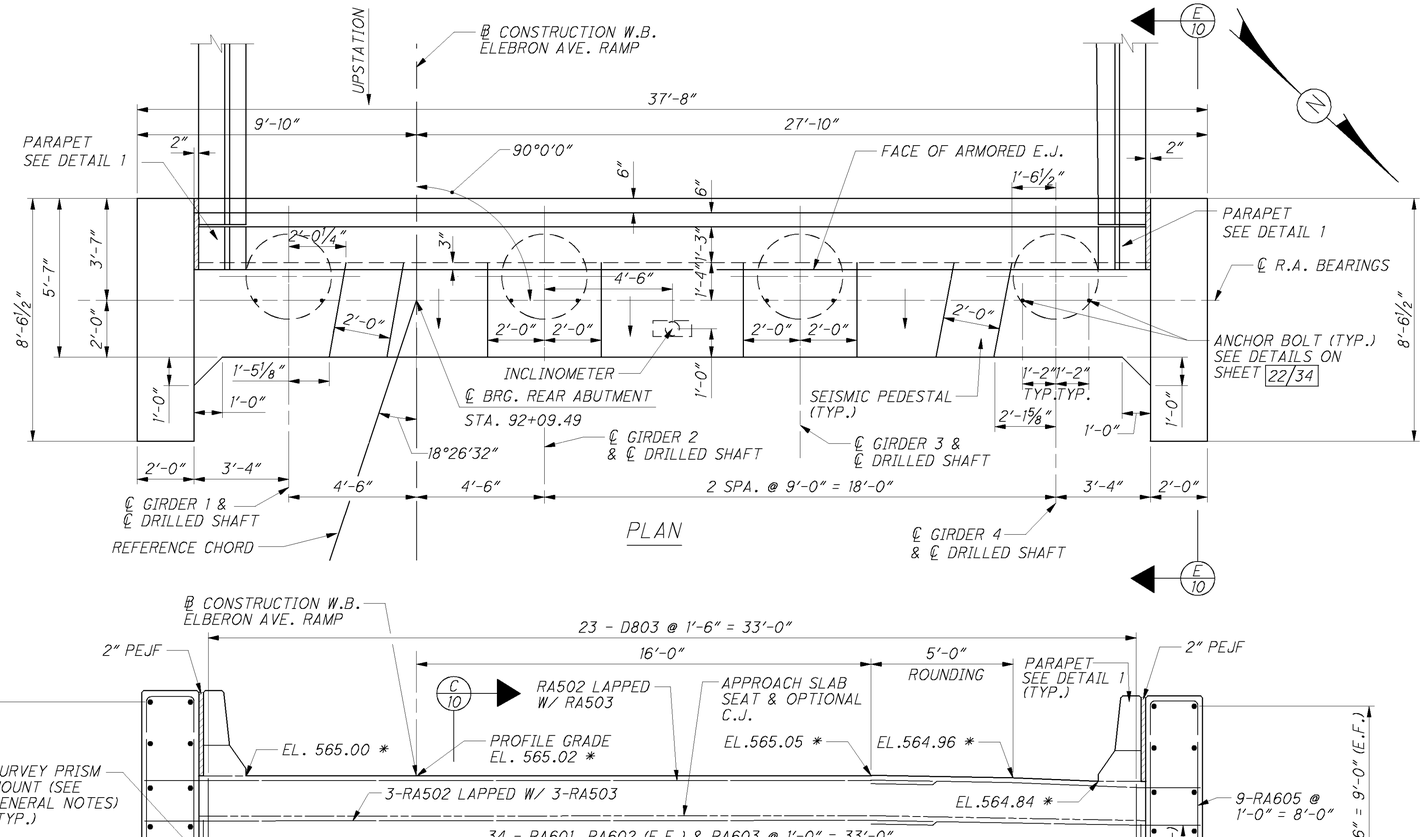
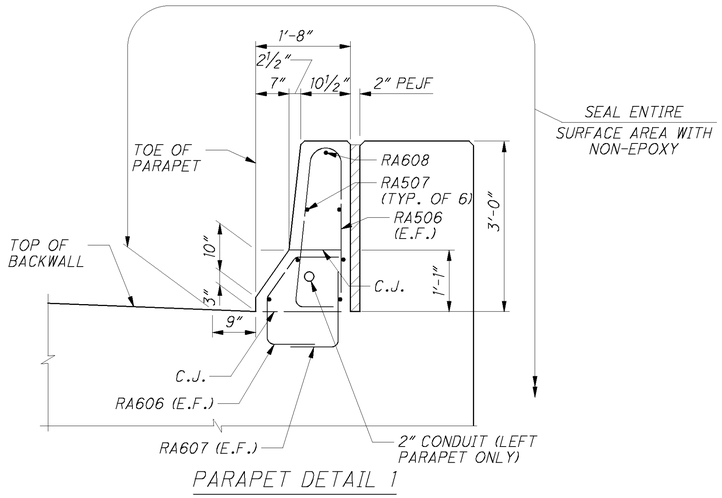
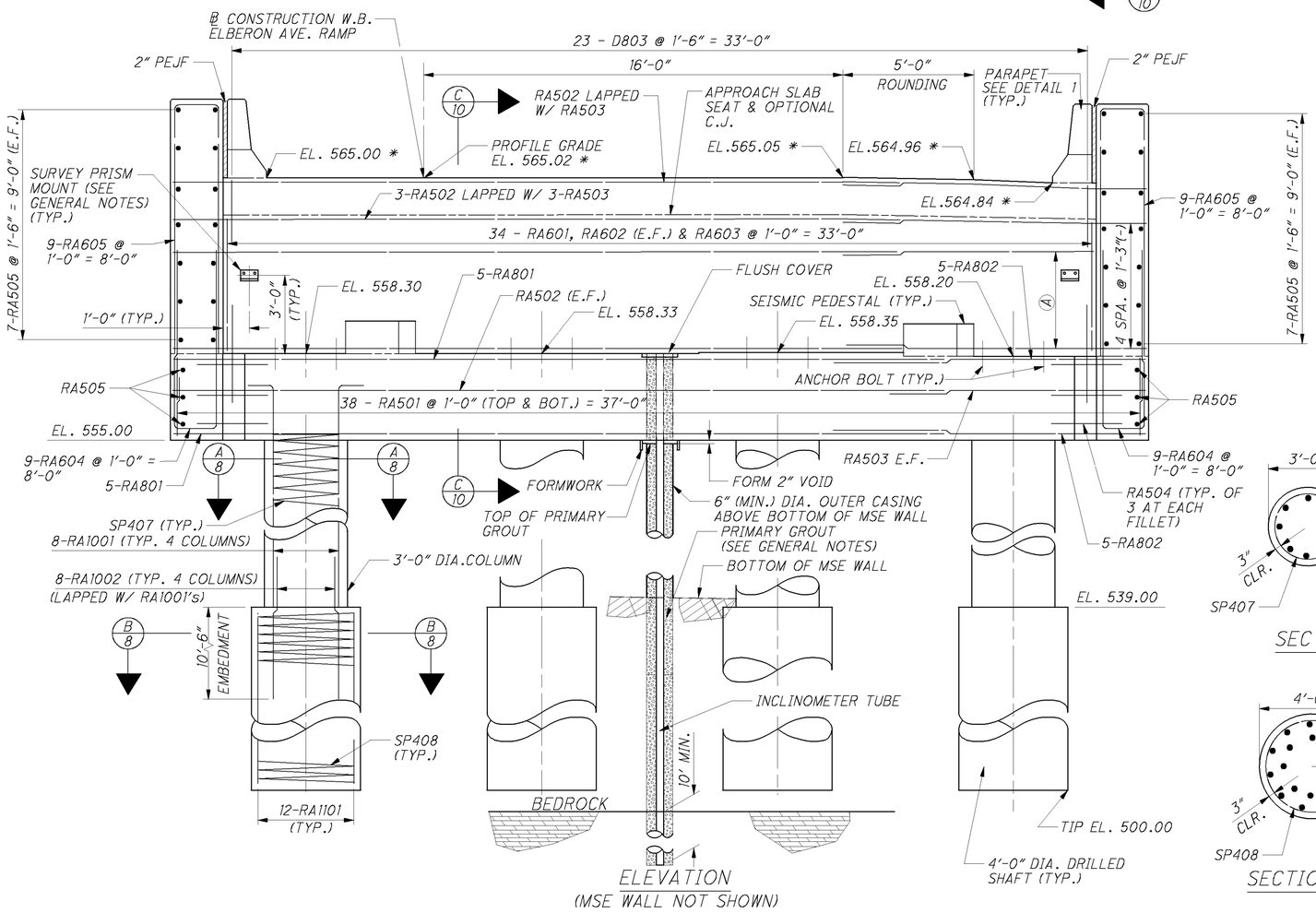
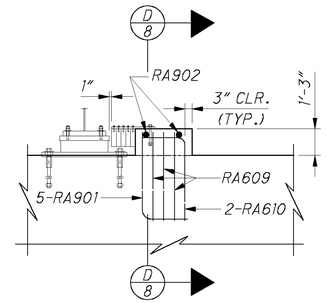




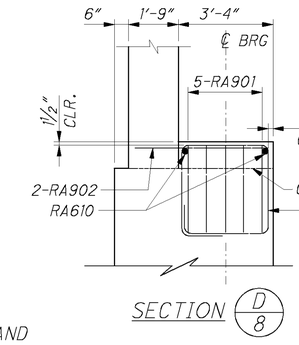
PARAPET DETAIL 1



ELEVATION
(MSE WALL NOT SHOWN)



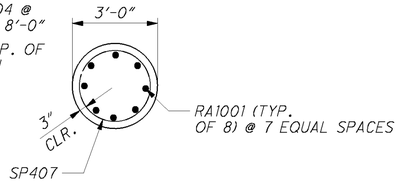
GIRDER 1 SHOWN, GIRDER 4 OPPOSITE HAND



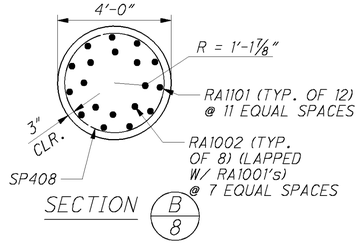
SECTION D 8

** FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼" DEEP MINIMUM.

REAR ABUTMENT SEISMIC PEDESTAL DETAILS



SECTION A 8



SECTION B 8

LEGEND:

▼ SLOPE ½" BETWEEN BEARING SEATS (TYP.)

* ELEVATION GIVEN AT FACE OF JOINT ARMOR

BOT. = BOTTOM
E.F. = EACH FACE
N.F. = NEAR FACE
Ⓐ = 4-RA502 LAPPED W/ 4-RA503 (TYP. E.F.)

NOTES:

1. FORWARD ABUTMENT IS DETAILED AND BID WITH BRIDGE HAM-264-1448.
2. MIN. LAP LENGTHS:
   #5's = 2'-6"
   #6's = 3'-10"
   #8's = 4'-11"
   #10's = 8'-2"

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 459-3706
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

REAR ABUTMENT PLAN AND ELEVATION
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

8 / 34

411
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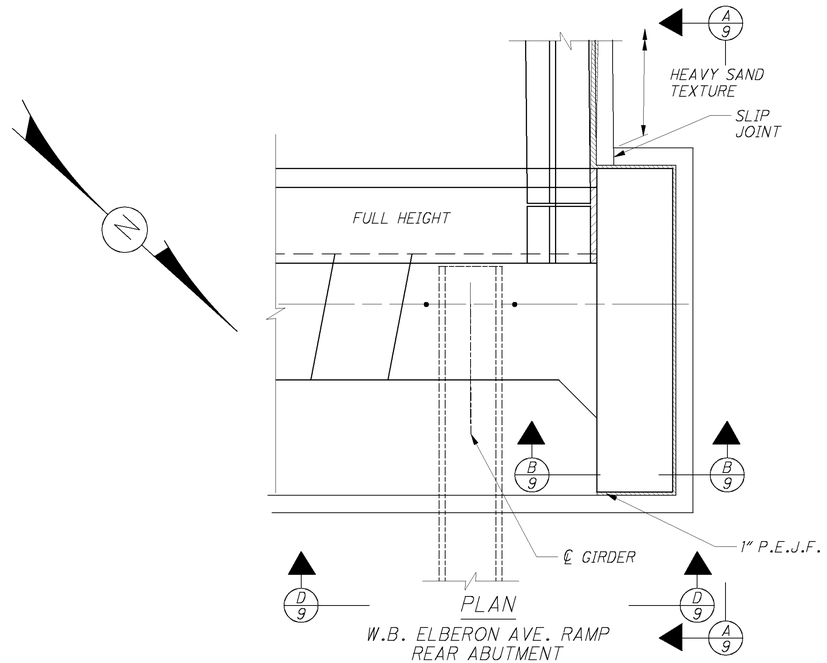
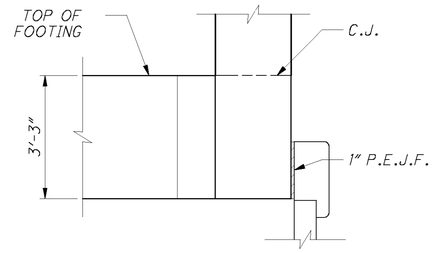
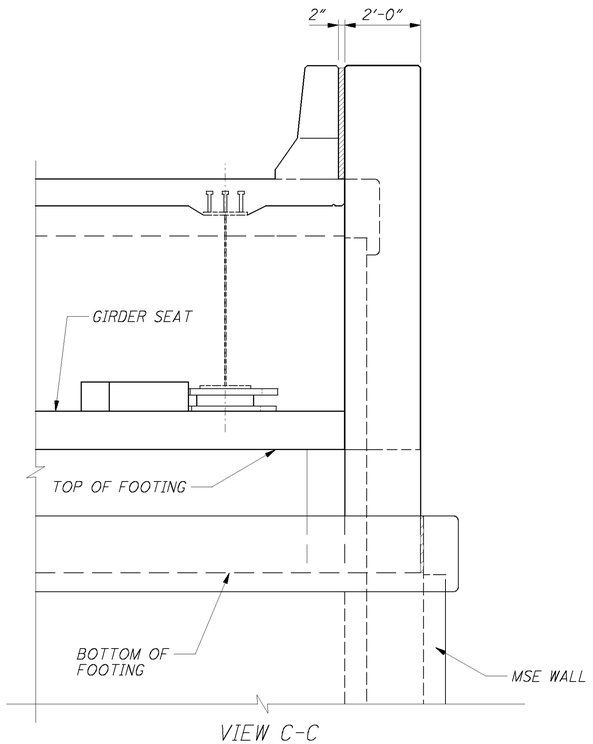


PLAN

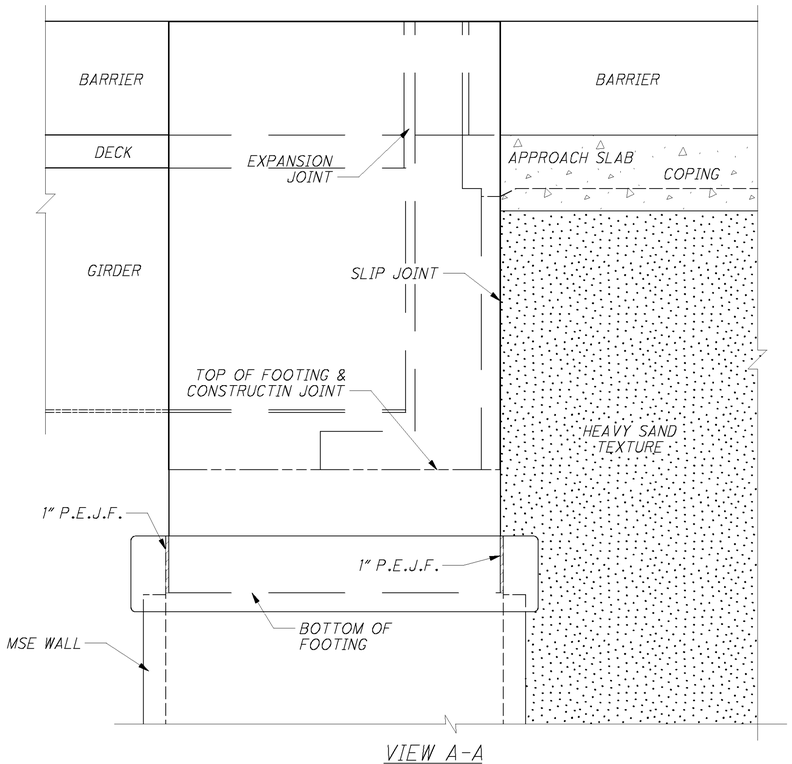
W.B. ELBERON AVE. RAMP
REAR ABUTMENT



SECTION B-B



VIEW C-C



VIEW A-A

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050
5085 Reed Road, Columbus, Ohio 43220

DESIGNED	DRAWN	REVIEWED	DATE
XAC	KML	RMK	02-20-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SJA		3111636	

ABUTMENT ARCHITECTURAL DETAILS
BRIDGE NO. HAM-264-1448
W.B. WARSAW AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

9 / 34

412
657

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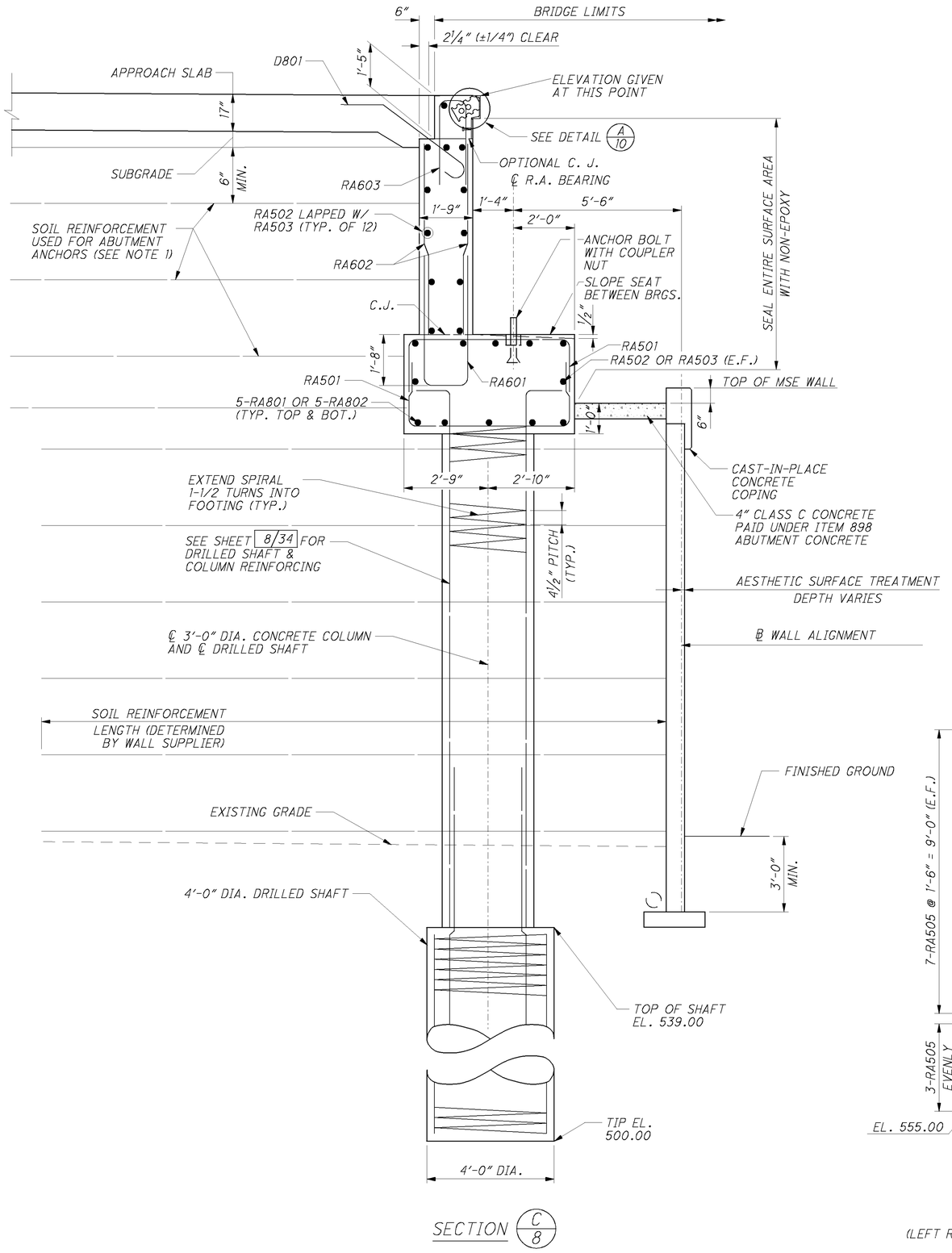
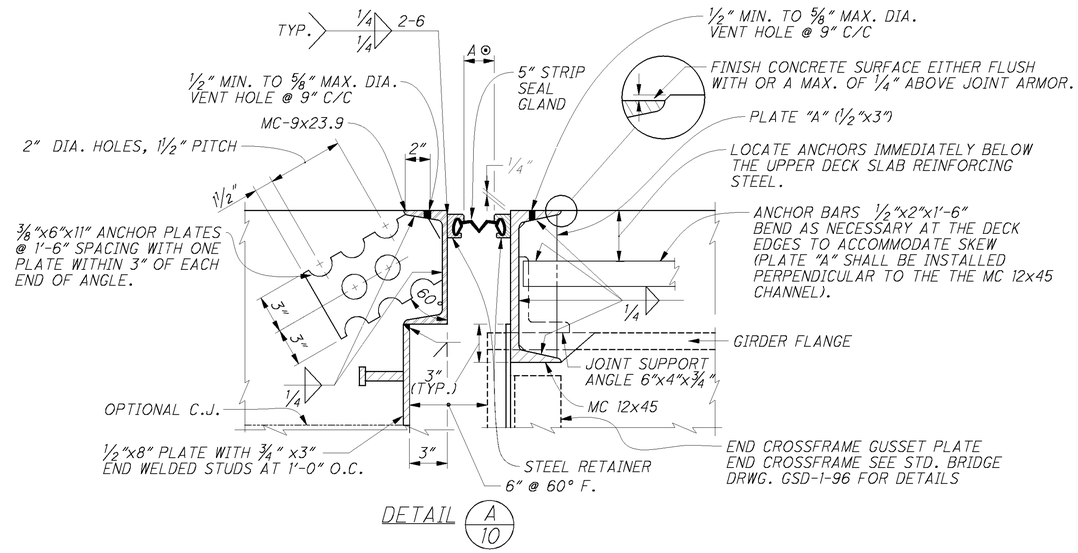


SECTION C/8

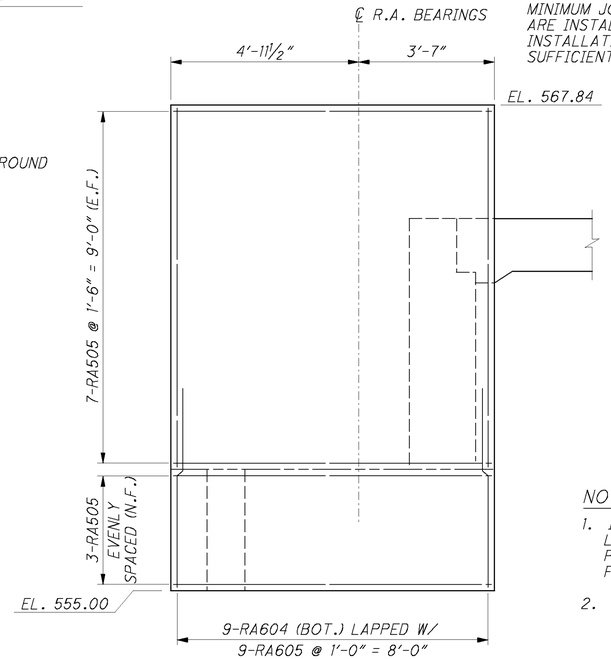


DETAIL A/10

MODIFIED EXPANSION JOINT DETAIL
REAR ABUTMENT ONLY (SEE STANDARD DRAWING EXJ-4-87 FOR MORE DETAILS)

	JOINT OPENING DIMENSIONS						
TEMP (°F)	30	40	50	60	70	80	90
"A" - REAR ABUT.	3 3/16"	2 15/16"	2 5/8"	2 3/8"	2 1/16"	1 13/16"	1 9/16"
"A" - FORWARD ABUTMENT SEE BRIDGE HAM-264-1448							

MINIMUM JOINT OPENING (DIMENSION"A") AT TIME THE SEAL GLAND RETAINERS ARE INSTALLED SHALL NOT BE LESS THAN 1½". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE 1½" OPENING.



SECTION E/8

(LEFT REAR CHEEK WALL SHOWN, RIGHT REAR CHEEK WALL SIMILAR)
(PARAPET & DECK NOT SHOWN FOR CLARITY)

NOTES:

1. IN ADDITION TO LATERAL EARTH PRESSURE, AN UNFACTORED HORIZONTAL LOAD FROM THE SUPERSTRUCTURE OF 1.85 KIPS PER FOOT APPLIED PERPENDICULAR TO THE FACE OF WALL AND THE BASE OF THE CONCRETE FOOTING SHALL BE RESISTED BY SOIL REINFORCEMENT ANCHORS.
2. SEE SHEET 8/34 FOR ADDITIONAL NOTES & LEGEND.

DESIGN AGENCY
BURGESS & NIPLE
811 Madison Avenue, Suite 1000
Toledo, Ohio 43604

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

REAR ABUTMENT SECTION AND DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

10 / 34

413 / 657

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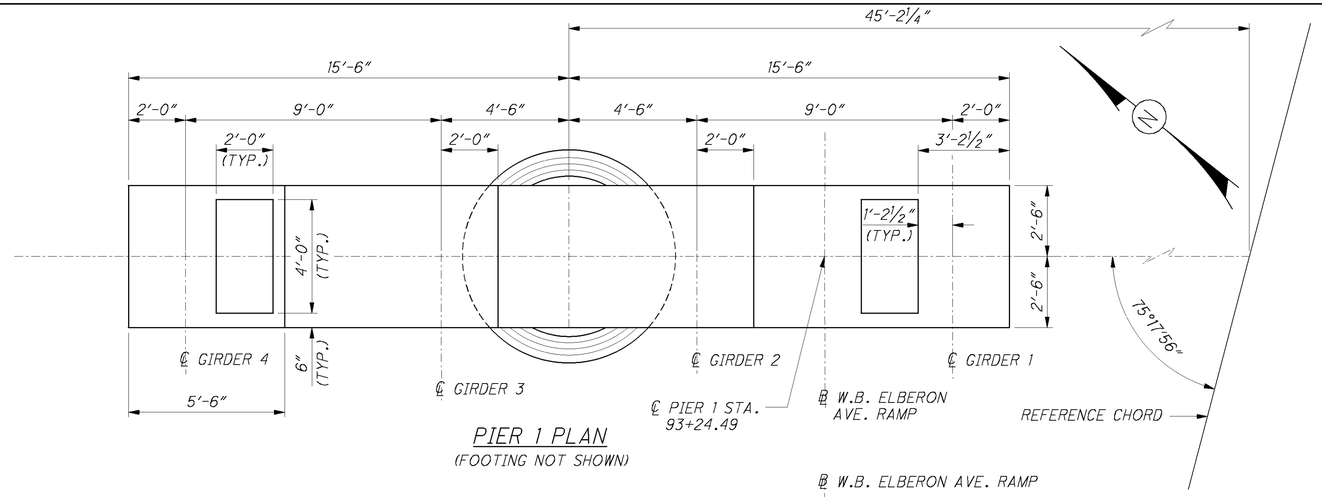
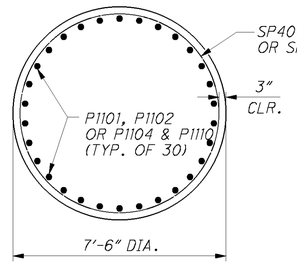


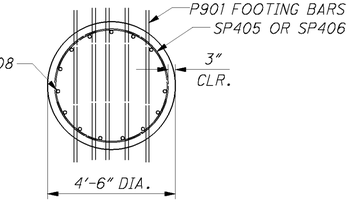
PIER 1 PLAN
(FOOTING NOT SHOWN)

NOTES

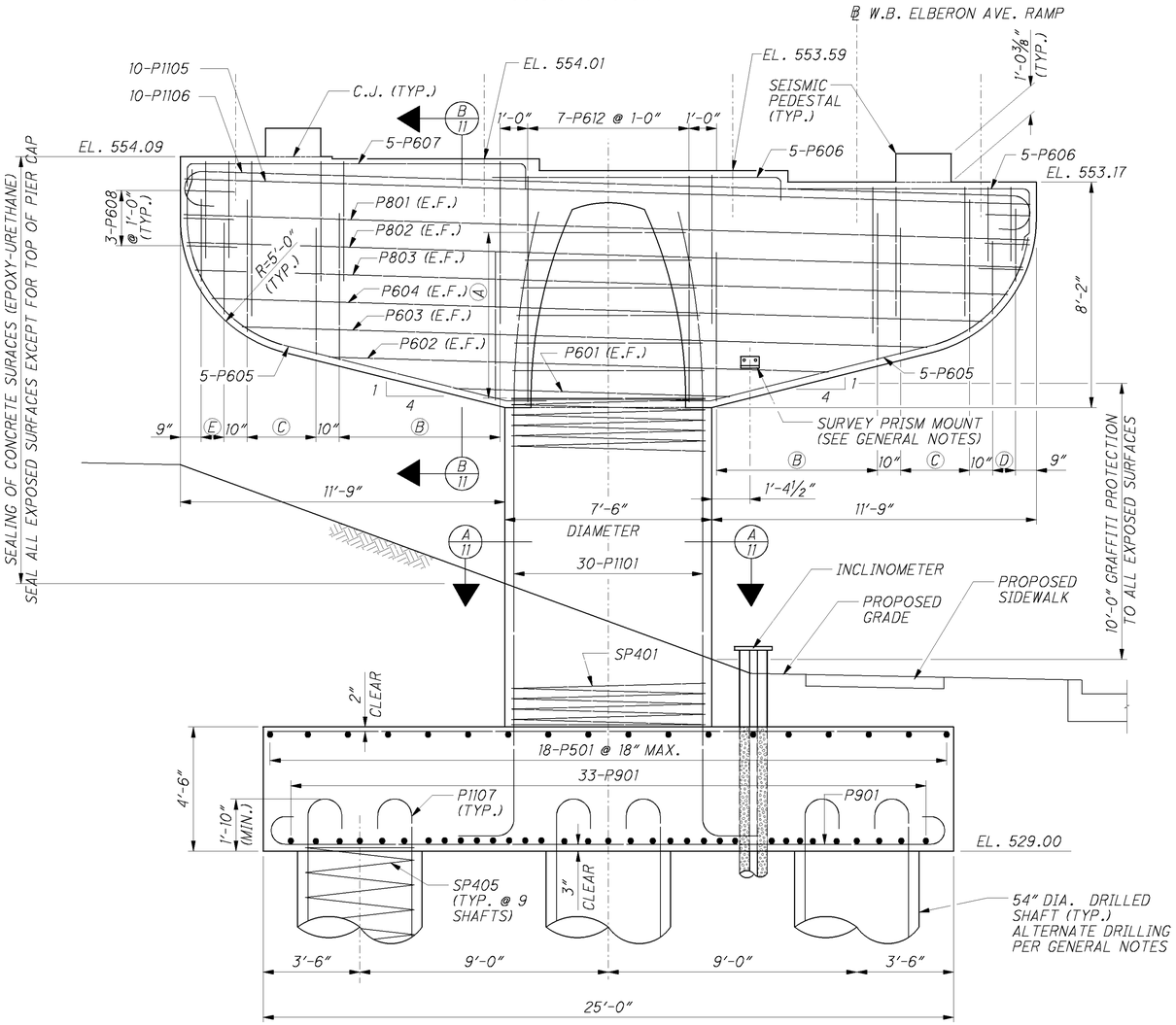
1. SEE SHEET 12/34 FOR SEISMIC PEDESTAL DETAILS.
2. SEE SHEET 14/34 FOR ARCHITECTURAL TREATMENT.
3. SEE SHEET 12/34 FOR INCLINOMETER DETAILS.
3. MINIMUM LAP LENGTH FOR #6 BARS = 2'-2"



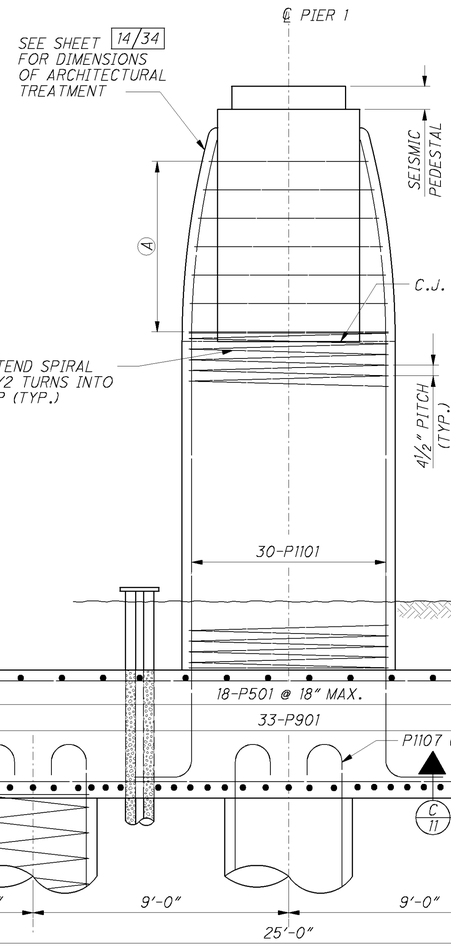
SECTION A/11 A/12 A/14



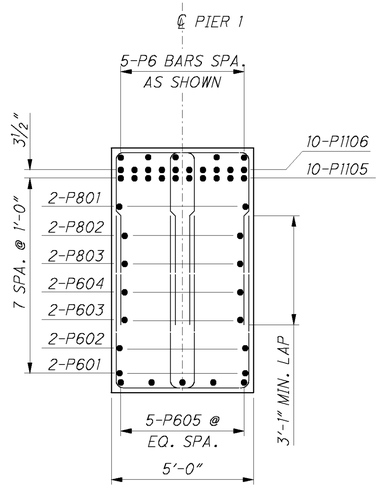
SECTION C/11 C/12



PIER 1 ELEVATION



PIER 1 SIDE VIEW
(CAP REINFORCING STEEL NOT SHOWN)



SECTION B/11 B/12 B/13 B/14

LEGEND

(A) = P401 THROUGH P407 @ 1'-0"
(B) = 8 SETS OF 2-P609 @ 10" = 5'-10" (T&B)
(C) = 4 SETS OF 2-P610 @ 10" = 2'-6" (T&B)
(D) = 2 SETS OF 2-P611 @ 10" = 10" (T&B)
(E) = 2 SETS OF 2-P615 @ 10" = 10" (T&B)

BOT. = BOTTOM
C.J. = CONSTRUCTION JOINT
T&B = TOP & BOTTOM
W.B. = WEST BOUND

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
SJA	AAA	TMB	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RMK		3162508	

PIER 1 DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

11 / 34

414
657

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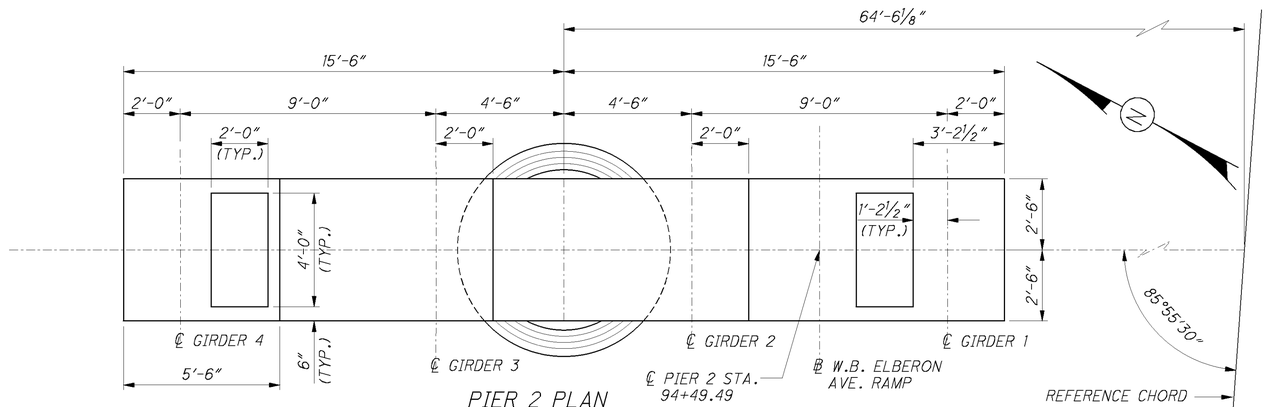
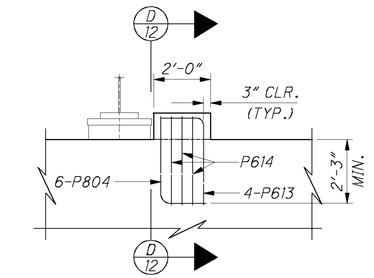
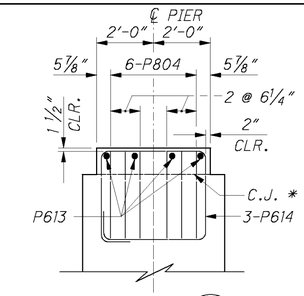


PIER 2 PLAN
(FOOTING NOT SHOWN)

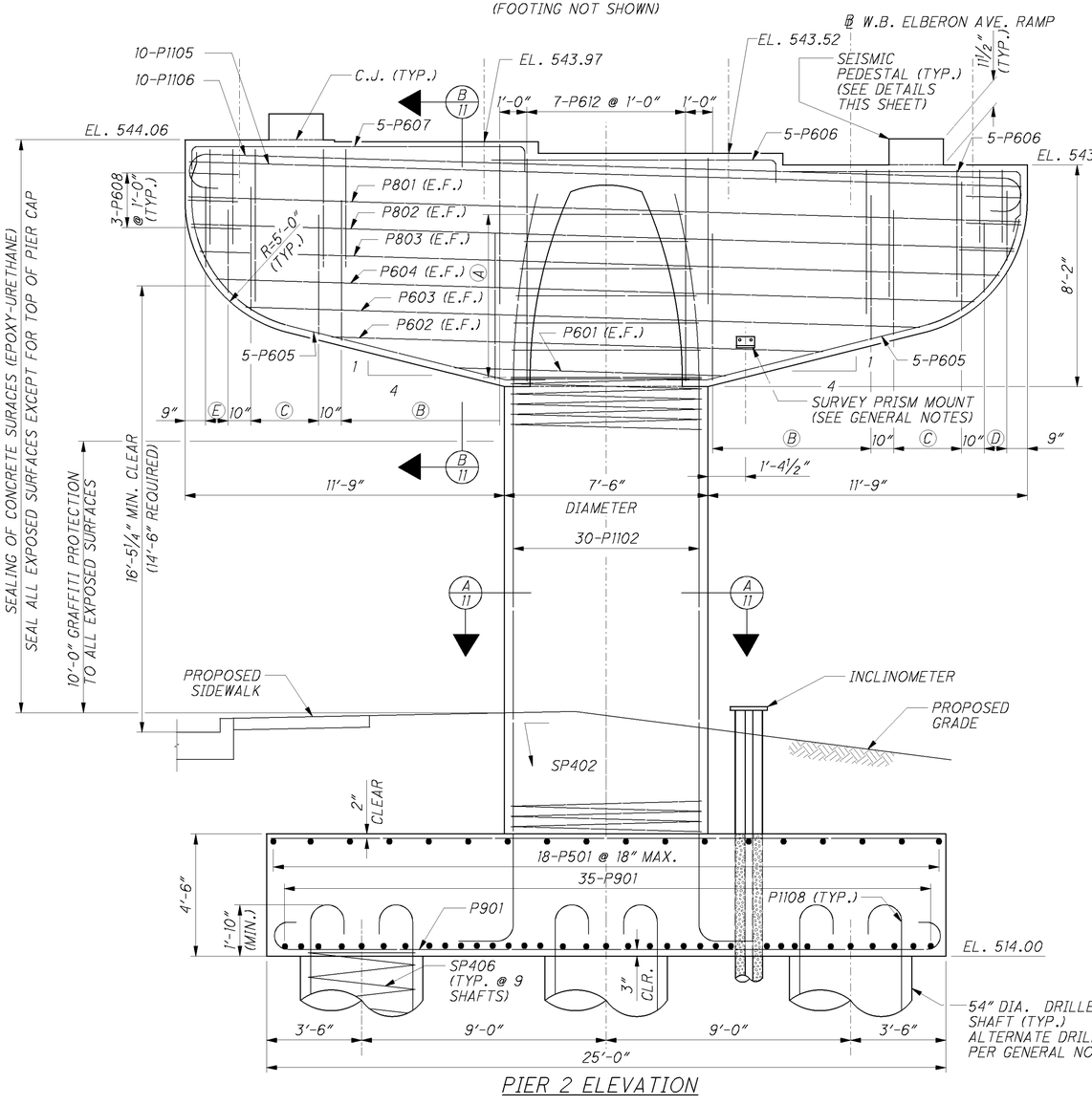


FRONT VIEW OF SEISMIC PEDESTAL
PEDESTAL FOR GIRDER 4 SHOWN
PEDESTAL FOR GIRDER 1 OPPOSITE HAND

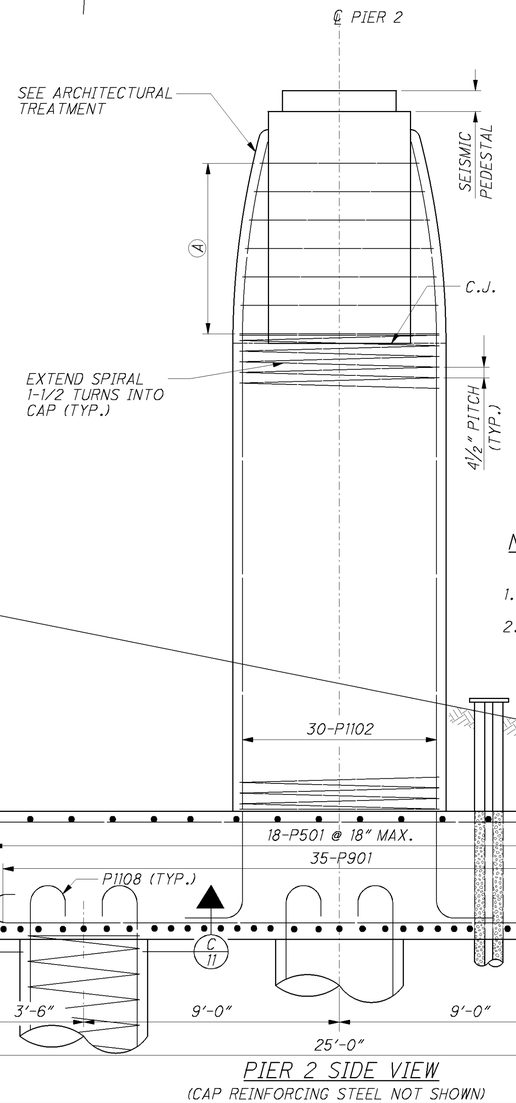


SECTION D 12

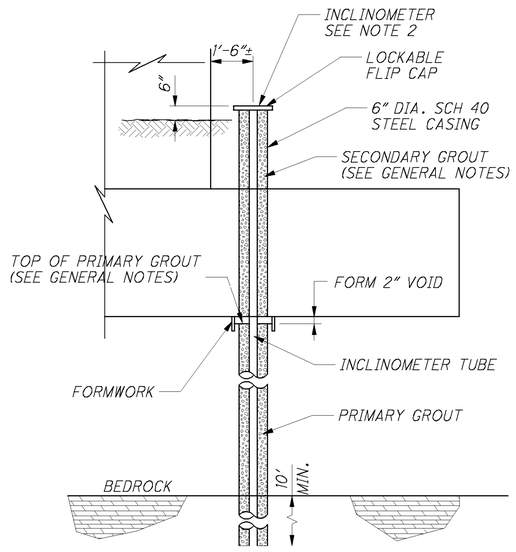
* FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE 1/4" DEEP MINIMUM.



PIER 2 ELEVATION



PIER 2 SIDE VIEW
(CAP REINFORCING STEEL NOT SHOWN)



SECTION VIEW OF INCLINOMETER

NOTES

1. SEE SHEET 14/34 FOR ARCHITECTURAL TREATMENT.
2. INSTALL AN INCLINOMETER BETWEEN TWO DRILLED SHAFTS AT PIERS 1 AND 2. SEE GENERAL NOTES FOR ADDITIONAL DETAILS.

LEGEND

(A) = P401 THROUGH P407 @ 1'-0"
(B) = 8 SETS OF 2-P609 @ 10" = 5'-10" (T&B)
(C) = 4 SETS OF 2-P610 @ 10" = 2'-6" (T&B)
(D) = 2 SETS OF 2-P611 @ 10" = 10" (T&B)
(E) = 2 SETS OF 2-P615 @ 10" = 10" (T&B)

BOT. = BOTTOM
C.J. = CONSTRUCTION JOINT
T&B = TOP & BOTTOM
W.B. = WEST BOUND

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Columbus, Ohio 43230

DESIGNED SJA | DRAWN AAA | CHECKED RMK | REVIEWED TMB | DATE 03-05-08 | REVISED | STRUCTURE FILE NUMBER 3162508

PIER 2 DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

12 / 34

415 / 657

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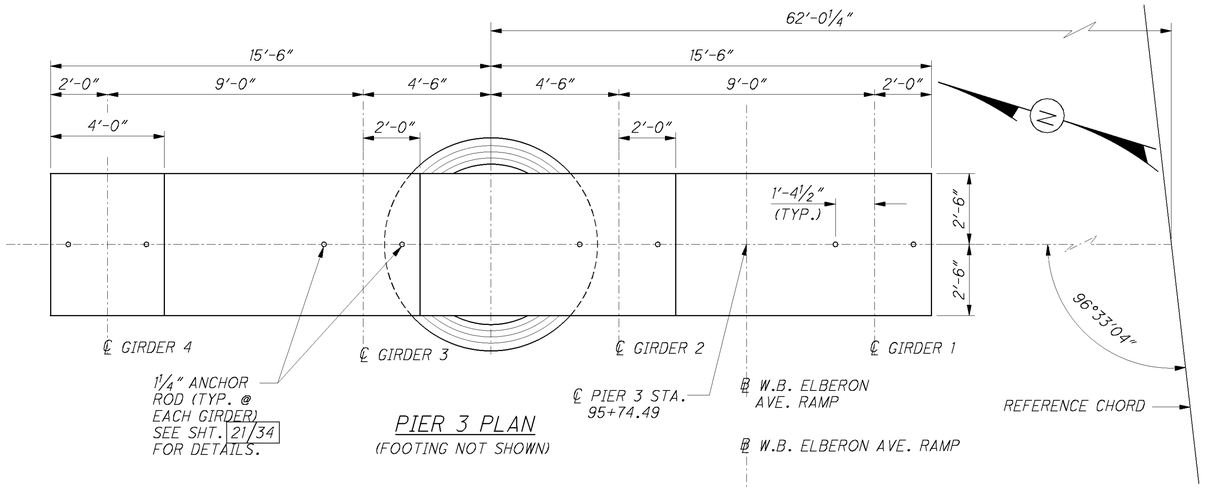


PIER 3 PLAN
(FOOTING NOT SHOWN)

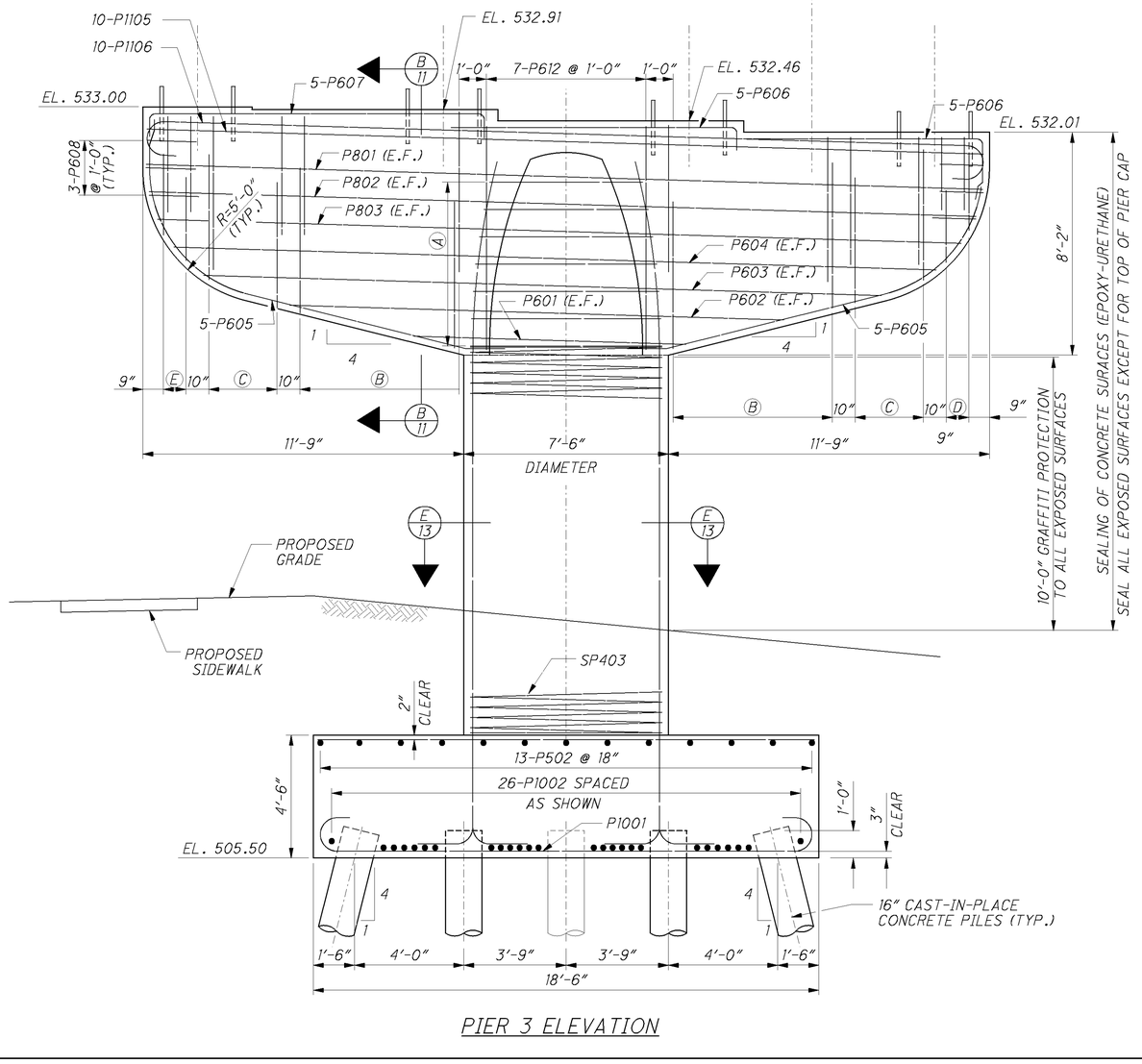
NOTES

1. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
2. SEE SHEET 14/34 FOR ARCHITECTURAL TREATMENT.

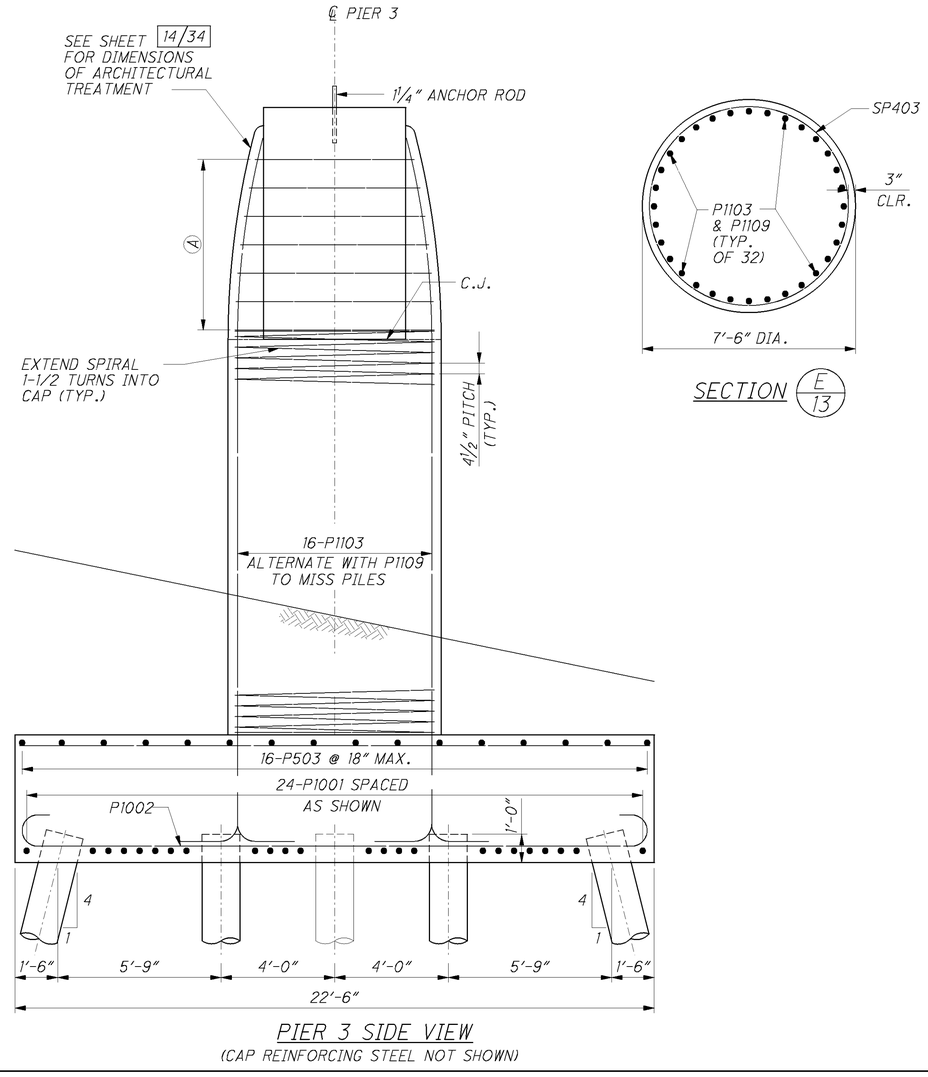
LEGEND

(A) = P401 THROUGH P407 @ 1'-0"
(B) = 8 SETS OF 2-P609 @ 10" = 5'-10" (T&B)
(C) = 4 SETS OF 2-P610 @ 10" = 2'-6" (T&B)
(D) = 2 SETS OF 2-P611 @ 10" = 10" (T&B)
(E) = 2 SETS OF 2-P615 @ 10" = 10" (T&B)

BOT. = BOTTOM
C.J. = CONSTRUCTION JOINT
T&B = TOP & BOTTOM
W.B. = WEST BOUND



PIER 3 ELEVATION



PIER 3 SIDE VIEW
(CAP REINFORCING STEEL NOT SHOWN)

SECTION E/13

DESIGN AGENCY
BURGESS & NIPLE
8050 Corporate Park Dr., Suite 150
Cincinnati, Ohio 45242

DESIGNED	DRAWN	REVIEWED	DATE
SJA	AAA	TMB	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RMK		3162508	

PIER 3 DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

13 / 34

416 / 657

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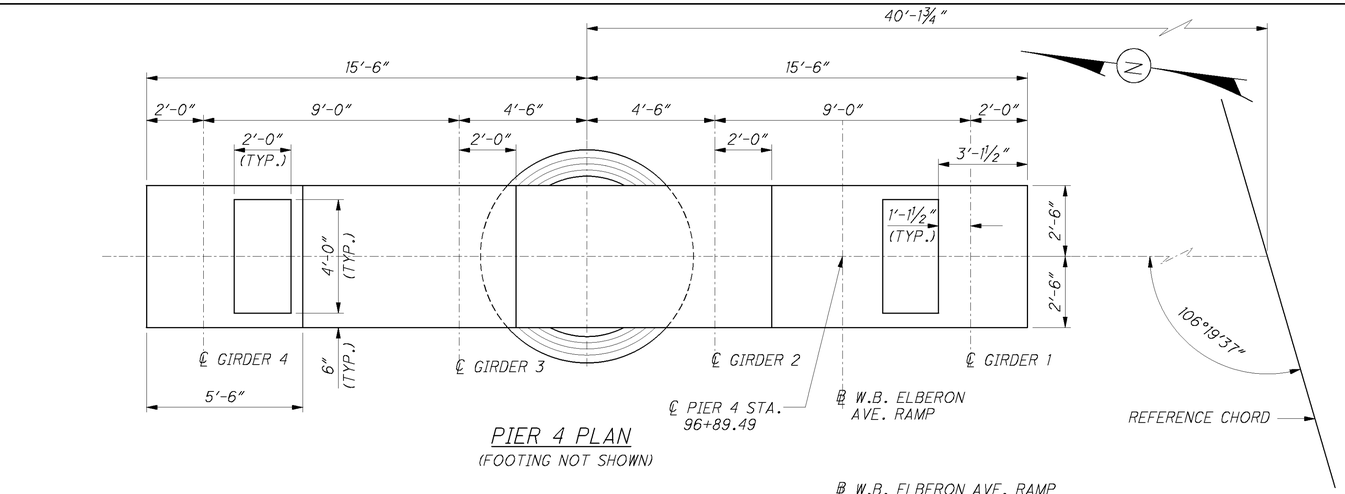
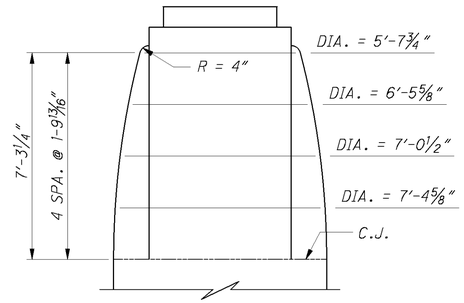
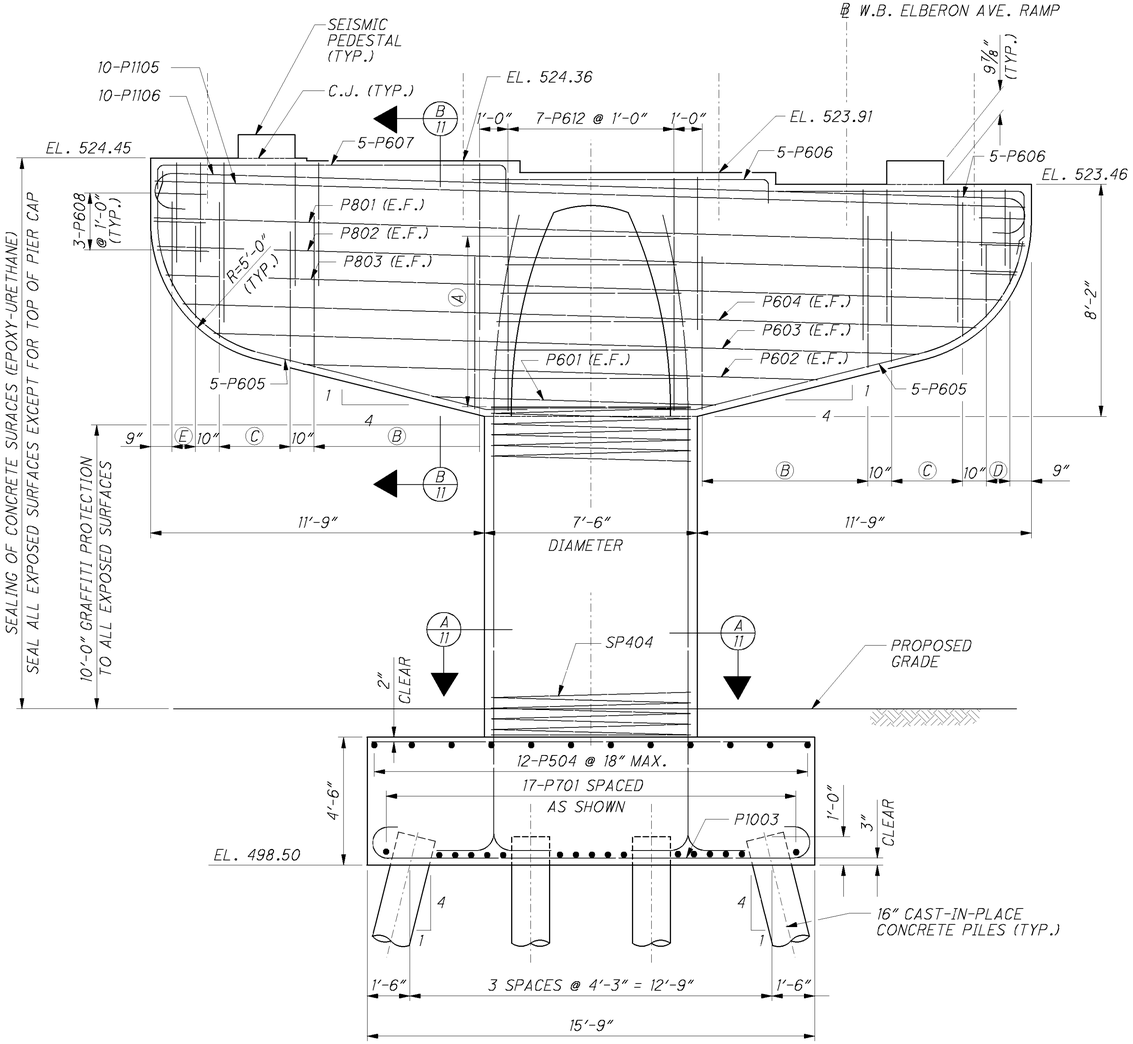


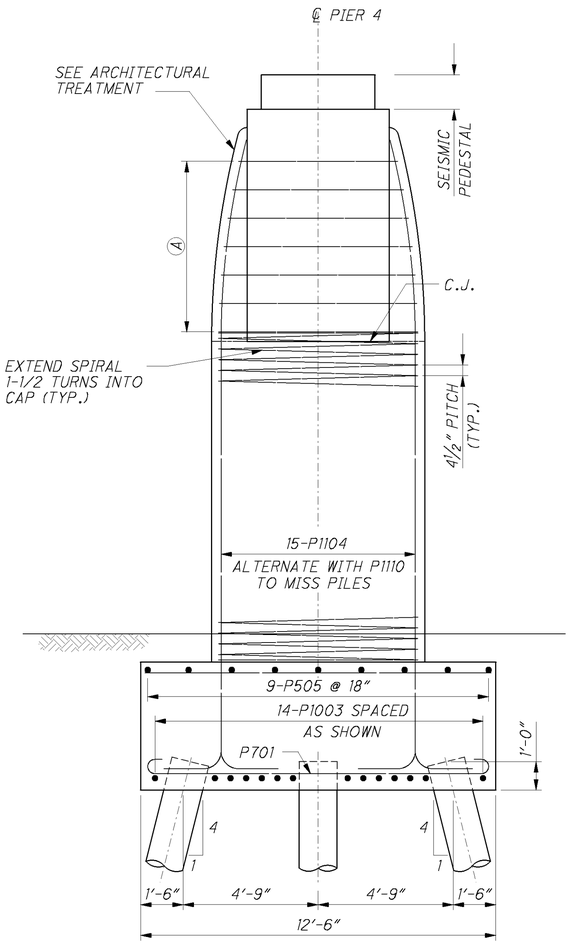
PIER 4 PLAN
(FOOTING NOT SHOWN)



ARCHITECTURAL TREATMENT



PIER 4 ELEVATION



PIER 4 SIDE VIEW
(CAP REINFORCING STEEL NOT SHOWN)

LEGEND

Ⓐ = P401 THROUGH P407 @ 1'-0"
Ⓑ = 8 SETS OF 2-P609 @ 10" = 5'-10" (T&B)
Ⓒ = 4 SETS OF 2-P610 @ 10" = 2'-6" (T&B)
Ⓓ = 2 SETS OF 2-P611 @ 10" = 10" (T&B)
Ⓔ = 2 SETS OF 2-P615 @ 10" = 10" (T&B)

BOT. = BOTTOM
C.J. = CONSTRUCTION JOINT
T&B = TOP & BOTTOM
W.B. = WEST BOUND

NOTES

1. SEE SHEET 12/34 FOR SEISMIC PEDESTAL DETAILS.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Columbus, Ohio 43240

DESIGNED SJA | DRAWN AAA | CHECKED RMK | REVIEWED RMK | DATE 03-05-08
REVISED | STRUCTURE FILE NUMBER 3162508

PIER 4 DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

14 / 34

417
657

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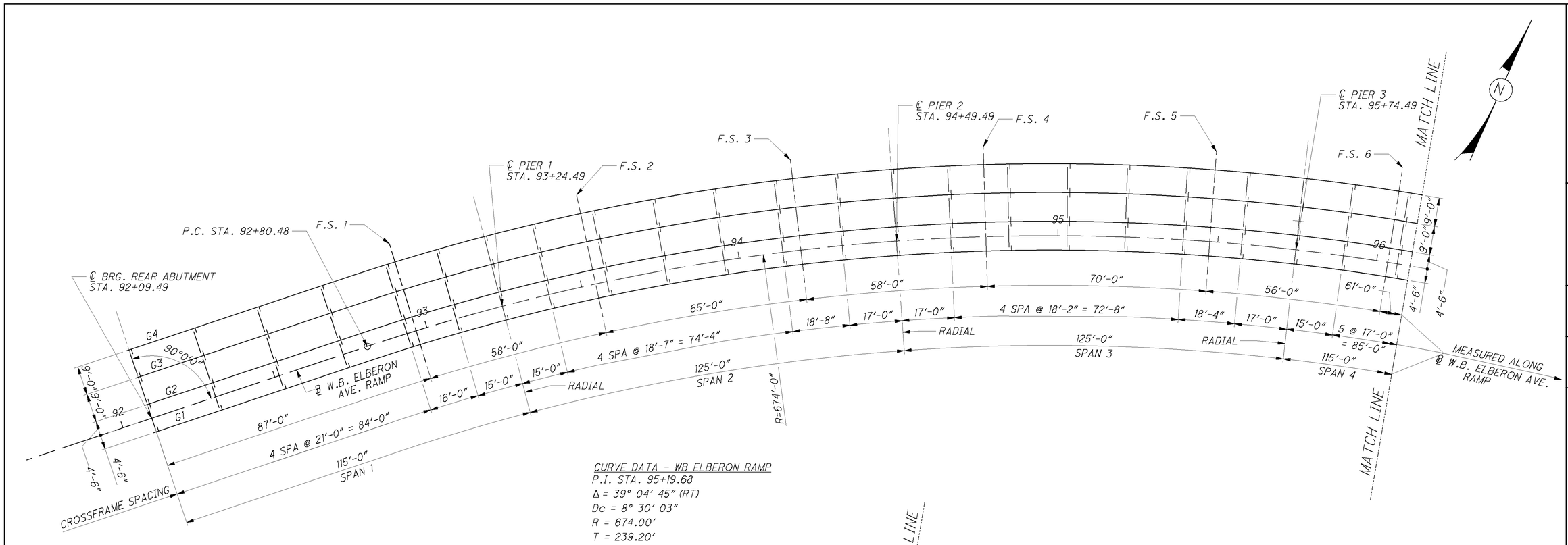
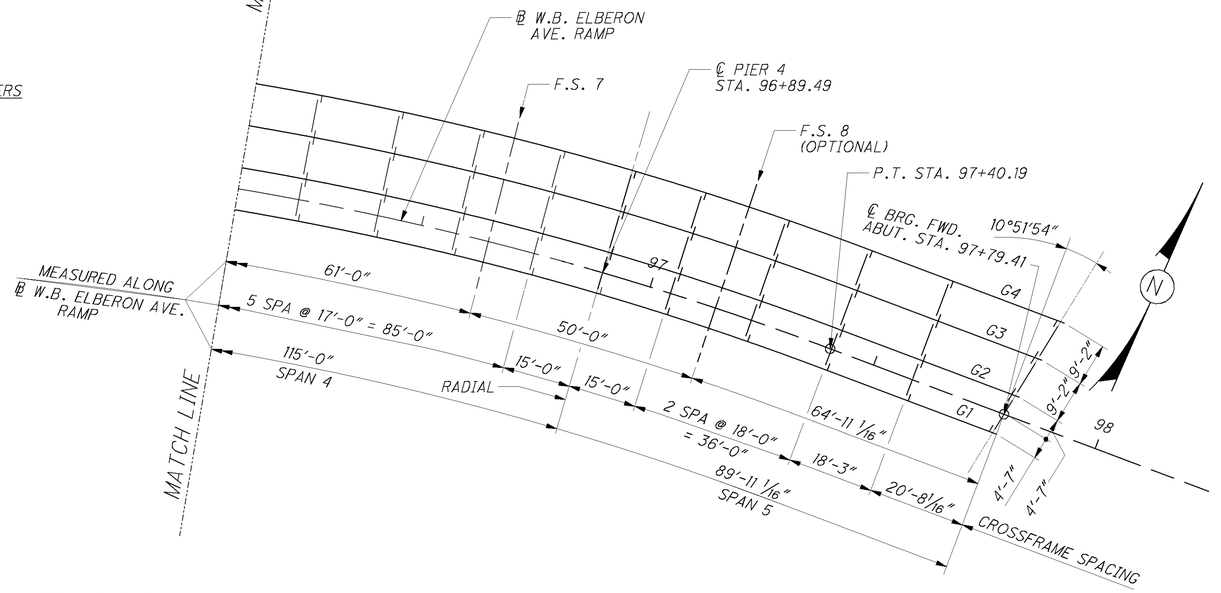


CURVE DATA - WB ELBERON RAMP
P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′

RADIUS OF CURVED GIRDERS
G1 = 669′-6″
G2 = 678′-6″
G3 = 687′-6″
G4 = 696′-6″

NOTES:

1. ALL MATERIAL TO BE ASTM-A709, GRADE 50.
2. ALL BEARINGS EXCEPT FORWARD ABUTMENT AND CROSSFRAMES ARE RADIAL TO THE CENTER OF CURVATURE.
3. ALL STEEL TO BE SHOP PRIMED AND FIELD PAINTED ACCORDING TO ITEM 514.
4. BEARING STIFFENERS AND ENDS OF GIRDERS TO BE VERTICAL AFTER TOTAL DEAD LOAD IS APPLIED.
5. SPLICES AND INTERMEDIATE STIFFENERS TO BE NORMAL TO GIRDERS.
6. END CROSSFRAMES SHALL BE PER STANDARD DRAWINGS GSD-1-96 AND EXJ-4-87.



FRAMING PLAN

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2068
Cincinnati, Ohio 45202

DESIGNED SJA | DRAWN KML | REVIEWED RMK | DATE 03-05-08
CHECKED XAC | REVISED | STRUCTURE FILE NUMBER 3111652

FRAMING PLAN
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

15 / 34

418
657

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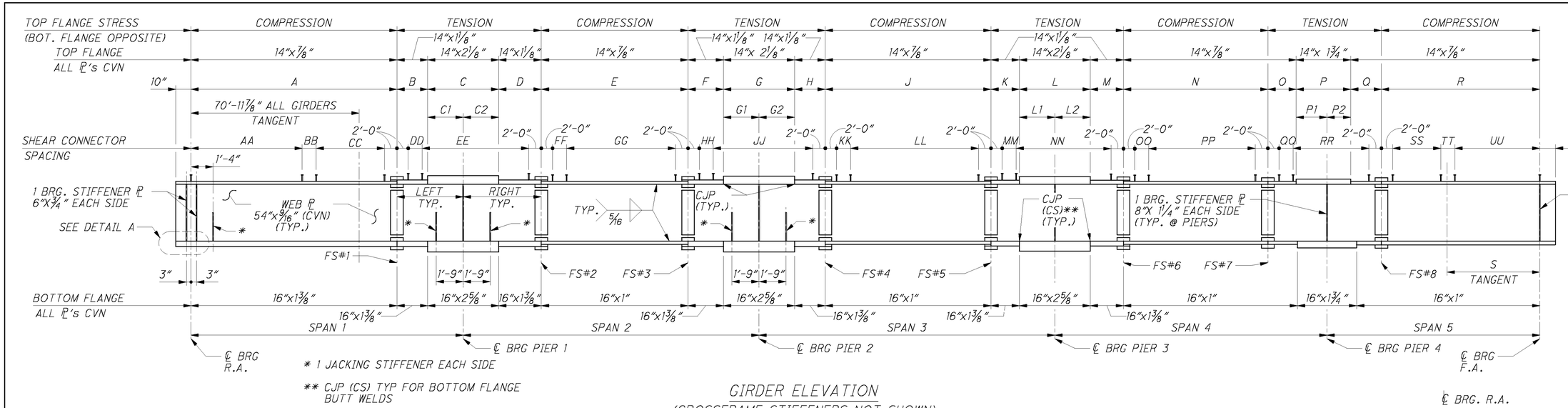


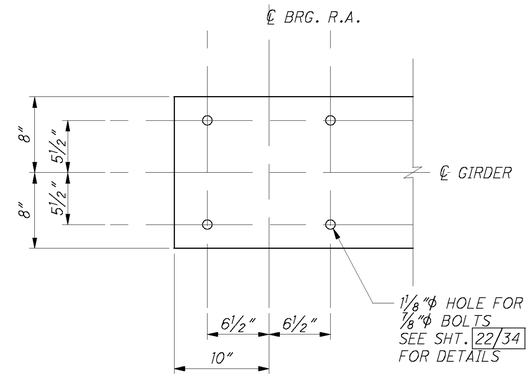
* 1 JACKING STIFFENER EACH SIDE

** CJP (CS) TYP FOR BOTTOM FLANGE BUTT WELDS

GIRDER ELEVATION
(CROSSFRAME STIFFENERS NOT SHOWN)

NOTES:

1. ALL MATERIAL TO BE ASTM-A709, GRADE 50.
2. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
3. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
4. COMPLETE JOINT PENETRATION WELDS SHALL BE GROUND SMOOTH IN LONGITUDINAL DIRECTION TO REMOVE WELD REINFORCRMENT.
5. ALL LONGITUDINAL DIMENSIONS SHOWN ARE ALONG ℄ OF GIRDER AND ARE HORIZONTAL (EFFECTS OF THE LONGITUDINAL GRADE ARE NOT INCLUDED.)
6. SHEAR STUD SPACING MAY BE ADJUSTED LOCALLY AS REQUIRED TO CLEAR FLANGE SPLICES.



DETAIL A

BOTTOM FLANGE BOLT HOLE DETAIL
(REAR ABUTMENT ONLY)

	GIRDER DIMENSIONS (MEASURED IN FEET ALONG ℄ OF GIRDER)																
GIRDER	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
1	86'-10 11/16"	13'-9 3/4"	30'-0 "	13'-9 5/8"	64'-6 13/16"	15'-9 5/8"	28'-0 "	13'-9 3/4"	69'-6 3/8"	14'-3 13/16"	25'-0 "	16'-3 11/16"	60'-7 1/8"	13'-10 "	22'-0 "	13'-10 "	63'-10 11/16"	38'-4 5/16"
2	87'-1 5/16"	14'-0 "	30'-4 13/16"	13'-11 13/16"	65'-5 3/16"	16'-0 1/8"	28'-4 1/2"	14'-0 "	70'-5 5/8"	14'-6 1/8"	25'-4 1/16"	16'-6 5/16"	61'-4 1/8"	14'-0 1/4"	22'-3 9/16"	14'-0 1/4"	65'-11 1/2"	40'-1 1/16"
3	87'-3 1/8"	14'-2 9/16"	30'-9 1/16"	14'-2 1/16"	66'-3 5/8"	16'-2 1/16"	28'-9 1/16"	14'-2 3/16"	71'-4 13/16"	14'-8 7/16"	25'-8 1/16"	16'-8 15/16"	62'-2 1/16"	14'-2 7/16"	22'-7 1/8"	14'-2 1/16"	68'-3/8 "	41'-9 13/16"
4	87'-6 1/16"	14'-4 1/16"	31'-2 1/2"	14'-4 1/4"	67'-2 1/16"	16'-5 1/4"	29'-1 9/16"	14'-4 1/16"	72'-4 1/16"	14'-10 3/4"	26'-0 1/8"	16'-11 9/16"	63'-0 1/16"	14'-4 1/16"	22'-10 5/8"	14'-4 1/16"	70'-1 3/16"	43'-6 1/2"

	SHEAR CONNECTOR SPACING																			
	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM	NN	OO	PP	QQ	RR	SS	TT	UU
GIRDER	SPA. @ 16"		SPA. @ 12"		SPA. @ 14"		SPA. @ 12"		SPA. @ 14"		SPA. @ 13"		SPA. @ 12"		SPA. @ 11"		SPA. @ 12"	SPA. @ 10"		SPA. @ 14"
1	35 SPA.=46'-8 "	1'-2 11/16"	37 SPA.=37'-0 "	1'-1 3/8"	45 SPA.=52'-6 "	0'-6 13/16"	60 SPA.=60'-0 "	1'-1 3/8"	45 SPA.=52'-6 "	0'-6 3/8"	60 SPA.=65'-0 "	0'-7 1/2"	51 SPA.=51'-0 "	0'-8 1/8"	61 SPA.=55'-11 "	0'-8 "	45 SPA.=45'-0 "	30 SPA.=25'-0 "	0'-8 11/16"	31 SPA.=36'-2 "
2	35 SPA.=46'-8 "	0'-5 5/16"	38 SPA.=38'-0 "	0'-8 5/8"	46 SPA.=53'-8 "	0'-5 3/16"	61 SPA.=61'-0 "	0'-8 5/8"	46 SPA.=53'-8 "	1'-5 5/8"	60 SPA.=65'-0 "	1'-4 1/2"	51 SPA.=51'-0 "	0'-6 1/8"	62 SPA.=56'-10 "	1'-4 "	45 SPA.=45'-0 "	32 SPA.=26'-8 "	1'-1 1/2"	31 SPA.=36'-2 "
3	35 SPA.=46'-8 "	0'-7 1/8"	38 SPA.=38'-0 "	1'-5 15/16"	46 SPA.=53'-8 "	1'-3 5/8"	61 SPA.=61'-0 "	0'-3 15/16"	47 SPA.=54'-10 "	1'-3 13/16"	61 SPA.=66'-1 "	1'-1 7/16"	52 SPA.=52'-0 "	0'-5 11/16"	63 SPA.=57'-9 "	1'-0 "	46 SPA.=46'-0 "	35 SPA.=29'-2 "	0'-8 3/8"	31 SPA.=36'-2 "
4	35 SPA.=46'-8 "	0'-10 7/16"	38 SPA.=38'-0 "	1'-1 1/4"	47 SPA.=54'-10 "	1'-2 1/16"	62 SPA.=62'-0 "	1'-1 1/4"	47 SPA.=54'-10 "	1'-2 1/16"	62 SPA.=67'-2 "	0'-10 7/16"	53 SPA.=53'-0 "	1'-3 1/16"	63 SPA.=57'-9 "	0'-8 "	47 SPA.=47'-0 "	37 SPA.=30'-10 "	1'-1 3/16"	31 SPA.=36'-2 "

	SPAN LENGTHS				
GIRDER	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5
℄	115'-0 "	125'-0 "	125'-0 "	115'-0 "	89'-11 1/16"
1	114'-8 1/2"	124'-2 "	124'-2 "	114'-2 13/16"	88'-8 1/16"
2	115'-3 1/2"	125'-10 "	125'-10 "	115'-9 7/16"	91'-1 1/2"
3	115'-10 9/16"	127'-6 1/16"	127'-6 1/16"	117'-3 5/8"	93'-6 3/8"
4	116'-5 5/8"	129'-2 1/16"	129'-2 1/16"	118'-10 1/16"	95'-11 1/4"

	WEB SPLICE DISTANCE FROM PIER							
	PIER 1		PIER 2		PIER 3		PIER 4	
GIRDER	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT
℄	28'-0 "	30'-0 "	30'-0 "	28'-0 "	27'-0 "	29'-0 "	25'-0 "	25'-0 "
1	27'-9 3/4"	29'-9 5/8"	29'-9 5/8"	27'-9 3/4"	26'-9 13/16"	28'-9 11/16"	24'-10 "	24'-10 "
2	28'-2 1/4"	30'-2 3/8"	30'-2 3/8"	28'-2 1/4"	27'-2 3/16"	29'-2 5/16"	25'-2 "	25'-2 "
3	28'-6 3/4"	30'-7 3/16"	30'-7 3/16"	28'-6 3/4"	27'-6 1/2"	29'-7 "	25'-6 "	25'-6 "
4	28'-11 3/16"	31'-0 "	31'-0 "	28'-11 3/16"	27'-10 13/16"	29'-11 5/8"	25'-10 "	25'-10 "

	FLANGE SPLICE DISTANCE FROM PIER							
	PIER 1		PIER 2		PIER 3		PIER 4	
GIRDER	C1	C2	G1	G2	L1	L2	P1	P2
1	14'-0 "	16'-0 "	14'-0 "	14'-0 "	12'-6 "	12'-6 "	11'-0 "	11'-0 "
2	14'-2 1/4"	16'-2 9/16"	14'-2 1/4"	14'-2 1/4"	12'-8 "	12'-8 "	11'-1 3/4"	11'-1 3/4"
3	14'-4 1/2"	16'-5 3/16"	14'-4 1/2"	14'-4 1/2"	12'-10 1/16"	12'-10 1/16"	11'-3 9/16"	11'-3 9/16"
4	14'-6 3/4"	16'-7 3/4"	14'-6 3/4"	14'-6 3/4"	13'-1/16"	13'-1/16"	11'-5 5/16"	11'-5 5/16"

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 771-7904
5085 Reed Road, Columbus, Ohio 43220

DATE 03-05-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111652
DRAWN KML
REVISED
DESIGNED SJA
CHECKED XAC

GIRDER ELEVATION
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

16 / 34

419
657

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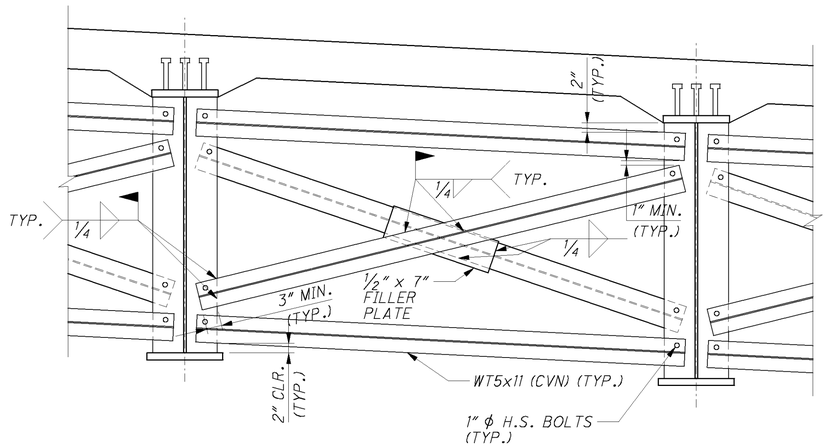
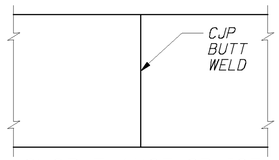
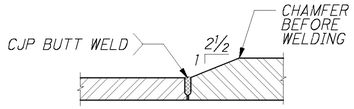


TYPICAL INTERMEDIATE CROSSFRAME



SHOP FLANGE SPLICE

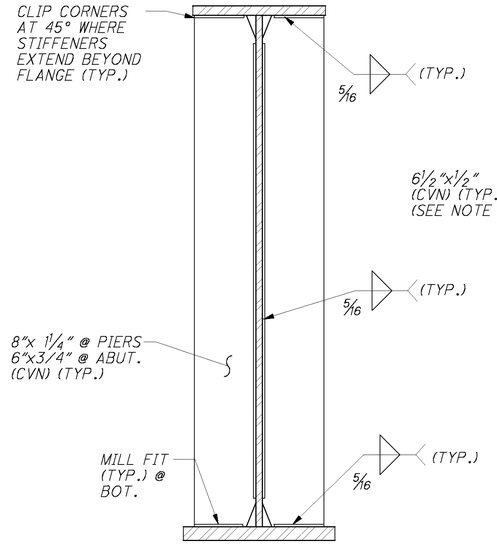
PLAN VIEW



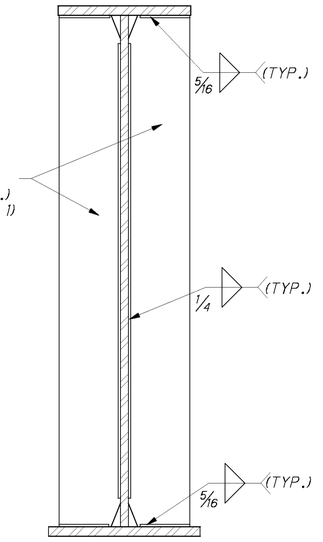
FLANGE WELD DETAIL

(WELD CONFIGURATION SHOWN FOR ILLUSTRATION ONLY. ACTUAL CONFIGURATION TO BE DETERMINED BY THE CONTRACTOR)

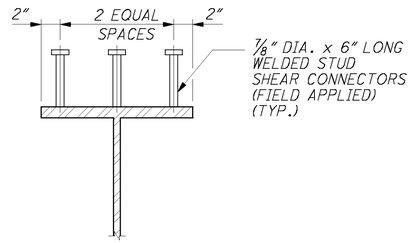
(GRIND COMPLETE JOINT PENETRATION WELD SMOOTH IN A LONGITUDINAL DIRECTION TO REMOVE WELD REINFORCEMENT.)



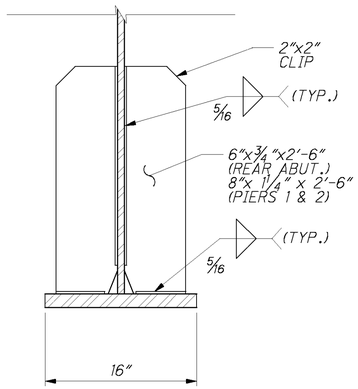
BEARING STIFFENER



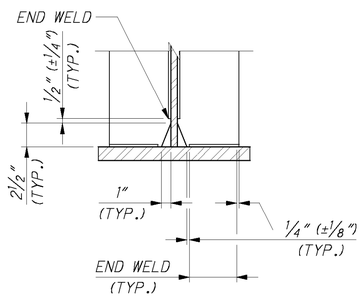
INTERMEDIATE STIFFENER WITH CROSSFRAMES



GIRDER SHEAR CONNECTOR DETAIL



JACKING STIFFENER



STIFFENER WELD DETAIL

NOTES:

1. INTERMEDIATE STIFFENERS ON FASCIA GIRDERS SHALL ONLY BE PLACED ON THE INSIDE OF THE WEB.
2. SEE SHT. 28, 29 & 30/34 FOR SCUPPER DETAILS.
3. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
4. ERECTION BOLTS: THE HOLE DIAMETER IN THE CROSS FRAMES AND GIRDER STIFFENERS SHALL BE 3/16" LARGER THAN THE DIAMETER OF THE ERECTION BOLTS. ERECTION BOLTS SHALL BE HIGH STRENGTH BOLTS AND SHALL REMAIN IN PLACE. SUPPLY TWO HARDENED WASHERS WITH EACH HIGH STRENGTH BOLT. FULLY TORQUE THE BOLTS OR USE A LOCK WASHER IN ADDITION TO THE TWO HARDENED WASHERS. FURNISH ERECTION BOLTS AS PART OF ITEM 513.

DESIGN AGENCY
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Cincinnati, Ohio 45202

DESIGNED SJA | DRAWN KML | CHECKED XAC | REVIEWED RMK | DATE 03-05-08

STRUCTURE FILE NUMBER 3111652

GIRDER DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

17 / 34

420
657

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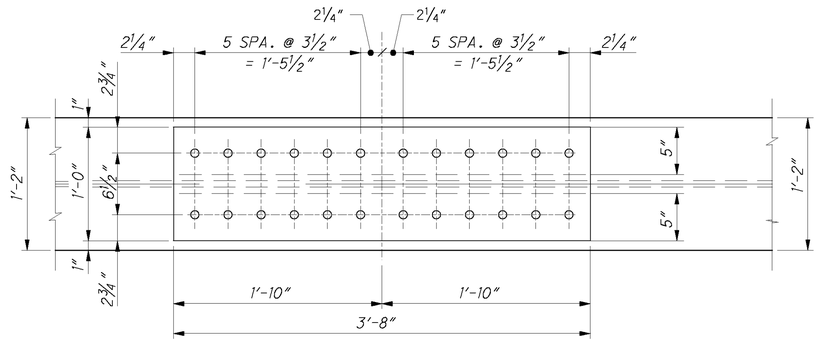
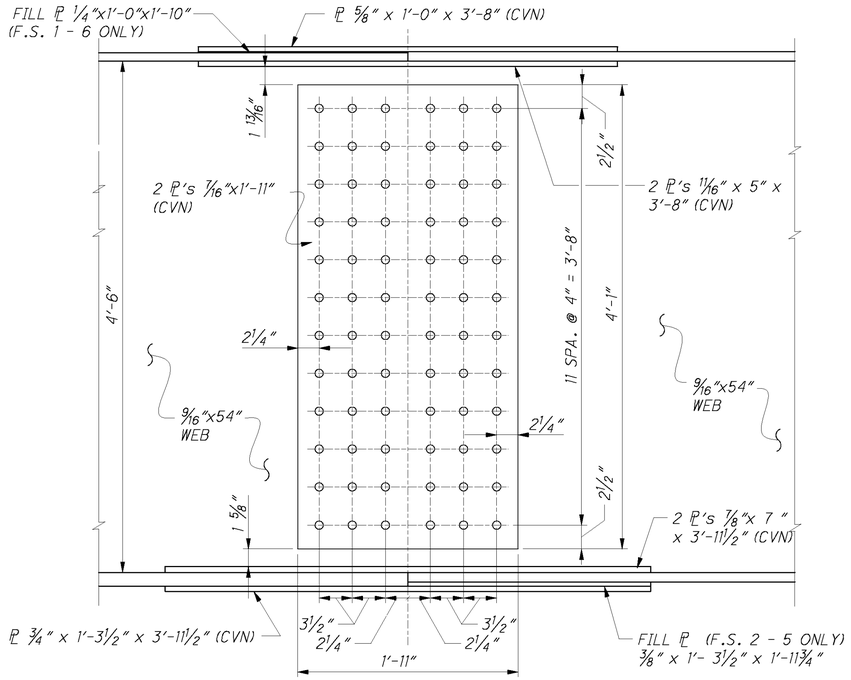
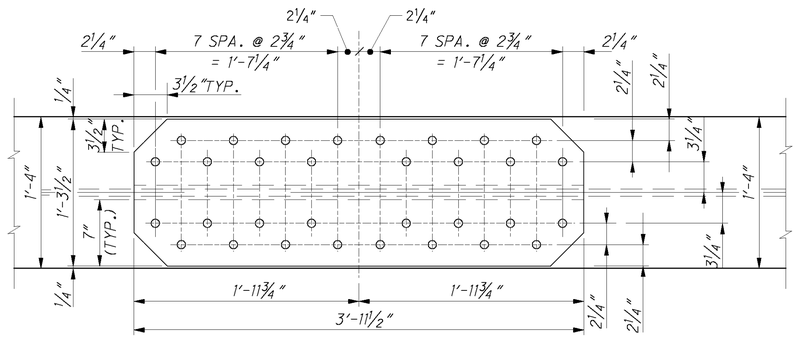


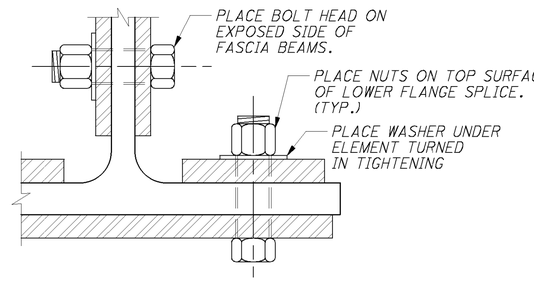
TOP FLANGE PLAN



GIRDER FIELD SPLICE ELEVATION



BOTTOM FLANGE PLAN



PARTIAL SECTION

(AT ℄ OF FIELD SPLICE)

NOTES:

1. ALL BOLTS SHALL BE 1⅛" DIA. HIGH STRENGTH BOLTS, ASTM A325 TYPE 1, GALVANIZED.
2. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

SPLICE DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

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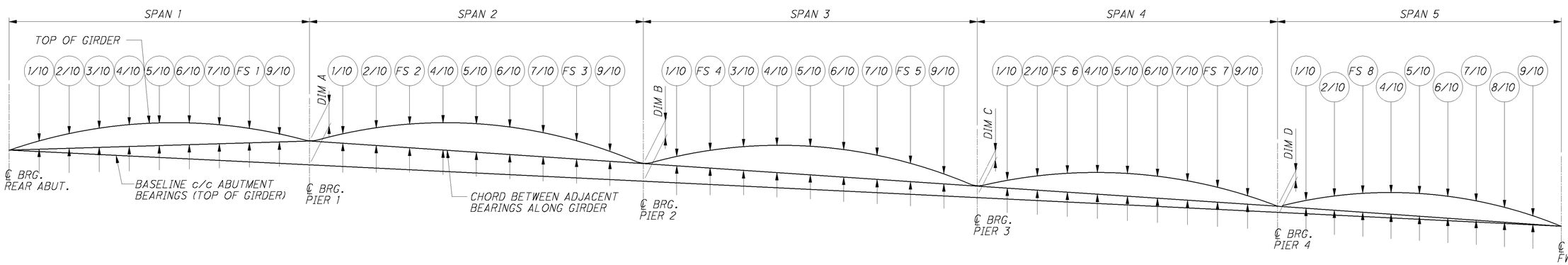

CAMBER TABLE (VALUE IN INCHES)

GIRDER 1	REAR ABUT.	SPAN 1 1/10	SPAN 1 2/10	SPAN 1 3/10	SPAN 1 4/10	SPAN 1 5/10	SPAN 1 6/10	SPAN 1 7/10	SPAN 1 SPLICE NO. 1	SPAN 1 9/10	℄ PIER 1	SPAN 2 1/10	SPAN 2 2/10	SPAN 2 SPLICE NO. 2	SPAN 2 4/10	SPAN 2 5/10	SPAN 2 6/10	SPAN 2 7/10	SPAN 2 SPLICE NO. 3	SPAN 2 9/10	℄ PIER 2	SPAN 3 1/10	SPAN 3 SPLICE NO. 4	SPAN 3 3/10	SPAN 3 4/10	SPAN 3 5/10	SPAN 3 6/10	SPAN 3 7/10	SPAN 3 SPLICE NO. 5	SPAN 3 9/10	℄ PIER 3
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/16"	5/16"	3/8"	7/16"	7/16"	3/8"	1/4"	3/16"	1/16"	0	0"	0"	0"	1/8"	1/8"	1/8"	1/16"	1/16"	0"	0	1/16"	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	3/4"	1 5/16"	1 3/4"	1 15/16"	1 1/8"	1 5/16"	1 3/16"	1/8"	1/4"	0	- 1/16"	1/16"	1/8"	9/16"	1 1/16"	5/8"	1/16"	5/16"	0"	0	3/16"	9/16"	13/16"	1 1/8"	1 3/16"	1 1/8"	13/16"	1/2"	3/16"	0
GEOMETRIC CORRECTION	0	2 1/16"	4 3/8"	5 3/4"	6 9/16"	6 13/16"	6 9/16"	5 3/4"	5 1/8"	2 1/16"	0	2 3/16"	3 1/8"	1 11/16"	5 3/8"	5 1/8"	4 1/4"	3 3/16"	2 9/16"	1 1/16"	0	0"	0"	0"	0"	0"	0"	0"	0"	0"	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 3/8"	6"	7 1/8"	8 15/16"	9 1/8"	8 9/16"	7 3/16"	6 3/16"	2 3/4"	0	2 1/8"	3 15/16"	1 13/16"	6 1/16"	5 15/16"	5"	3 11/16"	2 15/16"	1 1/16"	0	1/4"	11/16"	1"	1 3/8"	1 1/16"	1 3/8"	1"	5/8"	1/4"	0
GIRDER 2																														
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/16"	5/16"	3/8"	7/16"	7/16"	3/8"	1/4"	3/16"	1/16"	0	0"	0"	0"	1/8"	1/8"	1/8"	1/16"	1/16"	0"	0	1/16"	1/8"	3/16"	1/4"	5/16"	1/4"	3/16"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/16"	1 5/16"	1 11/16"	1 1/8"	1 13/16"	1 9/16"	1 1/8"	1/8"	1/4"	0	- 1/16"	1/16"	3/16"	9/16"	1 1/16"	5/8"	1/16"	1/4"	0"	0	3/16"	9/16"	1/8"	1 3/16"	1 5/16"	1 3/16"	1/8"	9/16"	3/16"	0
GEOMETRIC CORRECTION	0	2 1/16"	4 3/8"	5 3/4"	6 9/16"	6 13/16"	6 9/16"	5 3/4"	4 15/16"	2 1/16"	0	2 1/16"	4 1/8"	1 15/16"	5 3/16"	5 5/16"	4 3/8"	3 5/16"	2 5/8"	1 1/8"	0	0"	0"	0"	0"	0"	0"	0"	0"	0"	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 5/16"	6"	7 13/16"	8 1/8"	9 1/16"	8 1/2"	7 1/8"	6"	2 3/4"	0	2 3/8"	4 3/16"	2 1/8"	6 1/4"	6 1/8"	5 1/4"	3 13/16"	2 15/16"	1 1/8"	0	1/4"	11/16"	1 1/16"	1 1/16"	1 5/8"	1 1/16"	1 1/16"	11/16"	1/4"	0
GIRDER 3																														
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/16"	5/16"	1/16"	1/16"	1/16"	3/8"	1/4"	3/16"	1/16"	0	0"	0"	0"	1/8"	1/8"	1/8"	1/8"	1/16"	0"	0	1/16"	1/8"	1/4"	5/16"	5/16"	5/16"	1/4"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/16"	1 5/16"	1 3/4"	1 1/8"	1 1/8"	1 9/16"	1 1/8"	1/8"	1/4"	0	- 1/16"	1/8"	3/16"	5/8"	3/4"	1 1/16"	1/2"	5/16"	0"	0	3/16"	5/8"	15/16"	1 5/16"	1 1/16"	1 5/16"	15/16"	5/8"	3/16"	0
GEOMETRIC CORRECTION	0	2 1/16"	4 3/8"	5 3/4"	6 9/16"	6 13/16"	6 1/2"	5 3/4"	4 1/8"	2 1/16"	0	2 3/4"	4 3/8"	2 3/16"	5 3/4"	5 1/16"	4 1/2"	3 3/8"	2 11/16"	1 1/8"	0	0"	0"	0"	0"	0"	0"	0"	0"	0"	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 9/16"	6"	7 15/16"	8 1/8"	9 1/8"	8 1/16"	7 1/8"	5 15/16"	2 3/4"	0	2 11/16"	4 1/2"	2 3/8"	6 1/2"	6 5/16"	5 5/16"	4"	3 1/16"	1 1/8"	0	1/4"	3/4"	1 3/16"	1 5/8"	1 3/4"	1 3/8"	1 3/16"	3/4"	1/4"	0
GIRDER 4																														
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/16"	5/16"	1/16"	1/16"	1/16"	3/8"	1/4"	3/16"	1/16"	0	0"	0"	1/16"	1/8"	3/16"	1/8"	1/8"	1/16"	0"	0	1/16"	3/16"	1/4"	5/16"	3/8"	5/16"	1/4"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	3/4"	1 3/8"	1 13/16"	2"	1 15/16"	1 11/16"	1 3/16"	15/16"	1/4"	0	0"	3/16"	1/4"	3/4"	15/16"	13/16"	9/16"	3/8"	0"	0	1/4"	3/4"	1 1/8"	1 1/2"	1 5/8"	1 1/2"	1 1/8"	11/16"	1/4"	0
GEOMETRIC CORRECTION	0	2 1/16"	4 3/8"	5 3/4"	6 9/16"	6 13/16"	6 9/16"	5 3/4"	4 13/16"	2 1/16"	0	2 15/16"	4 9/16"	2 5/16"	5 1/8"	5 3/16"	4 5/8"	3 1/16"	2 3/4"	1 1/8"	0	0"	0"	0"	0"	0"	0"	0"	0"	0"	0
TOTAL (REQUIRED SHOP CAMBER)	0	3 3/8"	6 1/16"	8"	9"	9 3/16"	8 5/8"	7 3/16"	5 15/16"	2 3/4"	0	2 5/16"	4 3/4"	2 5/8"	6 3/4"	6 11/16"	5 9/16"	4 1/8"	3 3/16"	1 1/8"	0	5/16"	15/16"	1 3/8"	1 13/16"	2"	1 13/16"	1 3/8"	13/16"	5/16"	0

CAMBER TABLE (VALUE IN INCHES)

GIRDER 1	℄ PIER 3	SPAN 4 1/10	SPAN 4 2/10	SPAN 4 SPLICE NO. 6	SPAN 4 4/10	SPAN 4 5/10	SPAN 4 6/10	SPAN 4 7/10	SPAN 4 SPLICE NO. 7	SPAN 4 9/10	℄ PIER 4	SPAN 5 1/10	SPAN 5 2/10	SPAN 5 SPLICE NO. 8	SPAN 5 4/10	SPAN 5 5/10	SPAN 5 6/10	SPAN 5 7/10	SPAN 5 8/10	SPAN 5 9/10	FWD. ABUT.
DEFLECTION DUE TO WEIGHT OF STEEL	0	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/16"	0"	0	0"	1/16"	1/16"	1/8"	3/16"	3/16"	1/8"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	0"	3/16"	5/16"	5/8"	1 11/16"	1 11/16"	1/2"	5/16"	1/16"	0	1/16"	1/4"	1/16"	5/8"	3/4"	1 3/16"	1 1/16"	9/16"	5/16"	0
GEOMETRIC CORRECTION	0	-1 1/16"	-2 1/2"	-3"	-3 3/4"	-3 15/16"	-3 3/4"	-3 1/4"	-2 9/16"	-1 1/4"	0	5/8"	1 3/16"	1 9/16"	1 15/16"	2"	1 15/16"	1 3/4"	1 5/16"	3/4"	0
TOTAL (REQUIRED SHOP CAMBER)	0	-1 1/16"	-2 1/4"	-2 5/8"	-3"	-3 1/8"	-2 15/16"	-2 5/8"	-2 3/16"	-1 3/16"	0	1 11/16"	1 1/2"	2 1/16"	2 1/16"	2 15/16"	2 15/16"	2 9/16"	2"	1 1/8"	0
GIRDER 2																					
DEFLECTION DUE TO WEIGHT OF STEEL	0	0"	1/16"	1/16"	1/8"	1/8"	1/8"	1/8"	1/16"	0"	0	0"	1/16"	1/16"	1/8"	3/16"	3/16"	1/16"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	0"	1/8"	1/4"	9/16"	1 11/16"	5/8"	1/16"	1/4"	0"	0	1/8"	5/16"	1/2"	3/4"	1/8"	1/8"	3/4"	9/16"	5/16"	0
GEOMETRIC CORRECTION	0	-1 1/16"	-2 1/2"	-3"	-3 3/4"	-3 15/16"	-3 3/4"	-3 1/4"	-2 9/16"	-1 1/4"	0	1 1/16"	1 3/4"	2 1/8"	2 1/2"	2 5/8"	2 1/2"	2 1/8"	1 5/8"	1/8"	0
TOTAL (REQUIRED SHOP CAMBER)	0	-1 1/16"	-2 5/16"	-2 11/16"	-3 1/16"	-3 1/8"	-3"	-2 1/16"	-2 1/4"	-1 1/4"	0	1 3/16"	2 1/8"	2 3/4"	3 1/16"	3 11/16"	3 9/16"	3 1/16"	2 5/16"	1 1/4"	0
GIRDER 3																					
DEFLECTION DUE TO WEIGHT OF STEEL	0	0"	0"	1/16"	1/8"	1/8"	1/8"	1/8"	1/16"	0"	0	0"	1/16"	1/8"	3/16"	3/16"	3/16"	3/16"	1/8"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	0"	1/8"	1/4"	5/8"	1 11/16"	5/8"	1/2"	1/4"	0"	0	1/8"	5/16"	9/16"	1 3/16"	1"	1"	1/8"	1 1/16"	3/8"	0
GEOMETRIC CORRECTION	0	-1 1/16"	-2 1/2"	-3"	-3 3/4"	-3 15/16"	-3 3/4"	-3 1/4"	-2 9/16"	-1 1/4"	0	1 1/16"	2 5/16"	2 1/16"	3 1/8"	3 3/16"	3 1/16"	2 9/16"	1 15/16"	1 1/16"	0
TOTAL (REQUIRED SHOP CAMBER)	0	-1 1/16"	-2 3/8"	-2 11/16"	-3"	-3 1/8"	-3"	-2 5/8"	-2 1/4"	-1 1/4"	0	1 9/16"	2 11/16"	3 3/8"	4 1/8"	4 3/8"	4 1/4"	3 5/8"	2 3/4"	1 1/2"	0
GIRDER 4																					
DEFLECTION DUE TO WEIGHT OF STEEL	0	0"	0"	1/16"	1/8"	1/8"	1/8"	1/8"	1/16"	0"	0	1/16"	1/16"	1/8"	3/16"	1/4"	1/4"	3/16"	3/16"	1/16"	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	0"	3/16"	5/16"	11/16"	1 13/16"	3/4"	1/2"	1/4"	0"	0	3/16"	1/16"	5/8"	1"	1 3/16"	1 3/16"	1 1/16"	1 3/16"	7/16"	0
GEOMETRIC CORRECTION	0	-1 1/16"	-2 1/2"	-3"	-3 3/4"	-3 15/16"	-3 3/4"	-3 1/4"	-2 9/16"	-1 1/4"	0	1 1/2"	2 1/16"	2 13/16"	3 3/8"	3 9/16"	3 3/8"	2 13/16"	2 1/8"	1 1/8"	0
TOTAL (REQUIRED SHOP CAMBER)	0	-1 1/16"	-2 5/16"	-2 5/8"	-2 15/16"	-3"	-2 1/8"	-2 5/8"	-2 1/4"	-1 1/4"	0	1 3/4"	2 5/16"	3 9/16"	4 9/16"	5"	4 13/16"	4 1/16"	3 1/8"	1 5/8"	0

CAMBER IS CALCULATED FOR THE ENTIRE DECK SLAB PLACED AT THE SAME TIME.

BLOCKING DIMENSION				
GIRDER	DIM. A	DIM. B	DIM. C	DIM. D
G1	3'-2 15/16"	2'-3"	0'-4 3/8"	0'-5/8"
G2	3'-6 13/16"	2'-7 1/8"	0'-8 1/16"	0'-4 5/8"
G3	3'-10 13/16"	2'-11 7/8"	1'-5/8"	0'-8 13/16"
G4	4'-5/16"	3'-1/16"	1'-1 9/16"	0'-9 3/8"

NOTES:

1. POSITIVE CAMBER IS UPWARD.
2. GEOMETRIC CORRECTION IS A COMBINATION OF VERTICAL CURVE AND SUPERELEVATION TRANSITION CORRECTIONS.
3. CAMBER VALUES DO NOT INCLUDE ALLOWANCES FOR LOSS DUE TO HEAT CURVING. IF HEAT CURVING IS USED, ADJUST CAMBERS PER AASHTO 10.15.3.

DESIGN AGENCY: BURGESS & NIPLE, 8 Triad Center, Suite 350, Salt Lake City, Utah 84180

DESIGNED SJA | DRAWN KML | CHECKED XAC | REVIEWED RMK | DATE 03-05-08

STRUCTURE FILE NUMBER 3111652

CAMBER DIAGRAM

BRIDGE NO. HAM-264-1457 OVER S.R. 264

W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79

PID No. 20082

19 / 34

422 / 657

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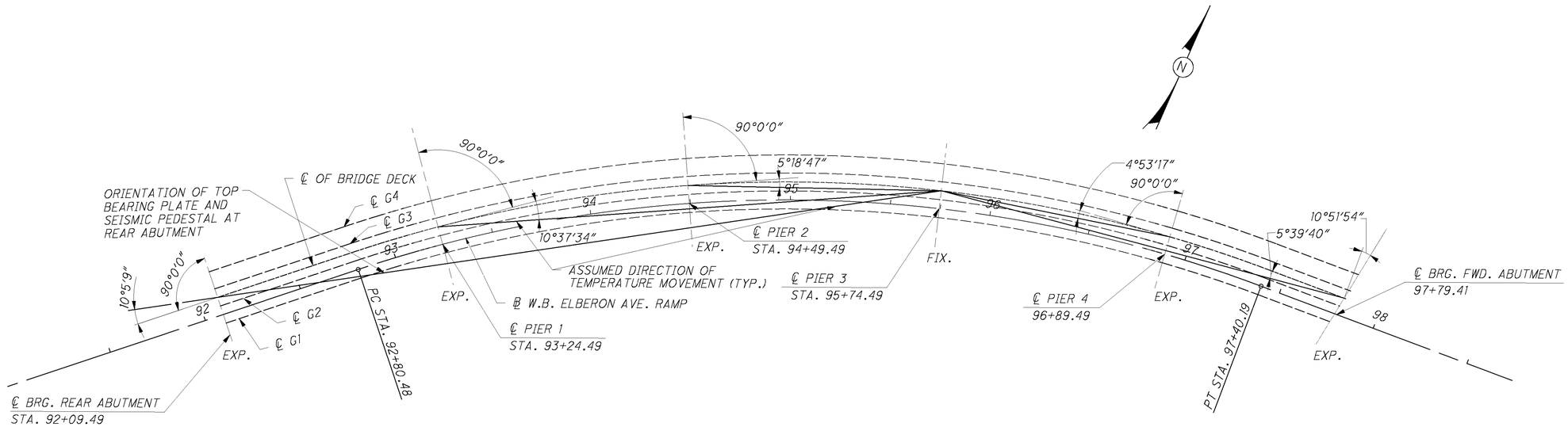

BEARING MOVEMENT DIAGRAM

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DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2241
Columbus, Ohio 43240

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

BEARING MOVEMENT DIAGRAM
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

20 / 34

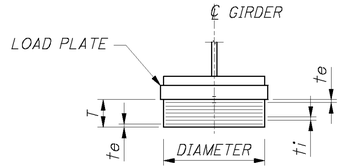
423
657

LAMINATED ELASTOMERIC BEARINGS

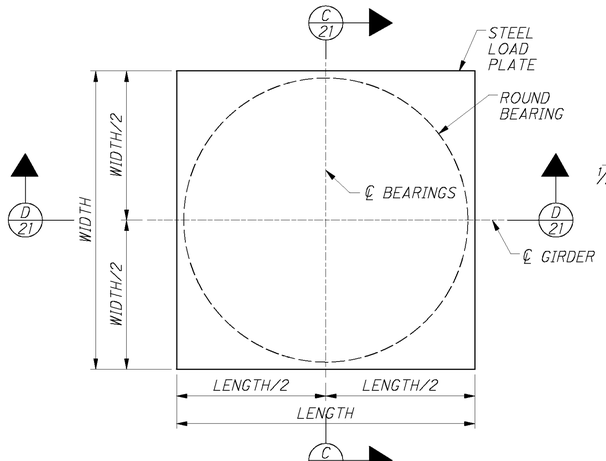
LOCATION	BEARING TYPE	BEARING DIMENSIONS DIAMETER	ti	te	T	N	STEEL LOAD PLATE LENGTH x WIDTH x THICKNESS	BEVEL DIMENSIONS A	B	REACTIONS (KIPS) DL	LL	MAXIMUM DESIGN REACTION (KIPS)
REAR ABUTMENT	SPECIAL	18"	3/4"	1/2"	8 1/2"	10	1'-7" x 1'-8" x 2" AVG.	2 1/4"	1 3/4"	82	71	153
PIER 1	EXP.	26"	3/4"	1/2"	6 1/8"	8	2'-3" x 2'-3" x 2 3/4" AVG.	3 5/8"	1 1/8"	275	125	400
PIER 2	EXP.	26"	3/4"	1/2"	6"	7	2'-3" x 2'-3" x 2 3/4" AVG.	3 15/16"	1 1/2"	251	125	376
PIER 3	FIXED	26"	3/4"	1/2"	6"	7	2'-3" x 3'-2 1/2" x 2 3/4" AVG.	3 15/16"	1 1/2"	249	127	376
PIER 4	EXP.	24"	3/4"	1/2"	4 3/8"	5	2'-1" x 2'-1" x 2 3/4" AVG.	3 1/2"	1 15/16"	223	114	337
FORWARD ABUTMENT	EXP.	18"	3/4"	1/2"	3 9/16"	4	1'-7" x 2'-5" x 2" AVG.	2 13/16"	1 3/16"	64	71	135

ti = THICKNESS OF INTERNAL LAMINATE
te = THICKNESS OF EXTERNAL LAMINATE
T = TOTAL THICKNESS OF ELASTOMERIC BEARING

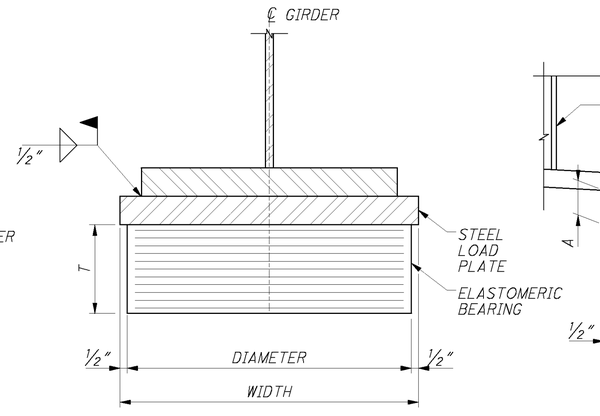
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.075"
DUROMETER OF ELASTOMER = 50 DUROMETER
LOAD PLATE THICKNESS IS MEASURED AT CENTERLINE OF BEARINGS.



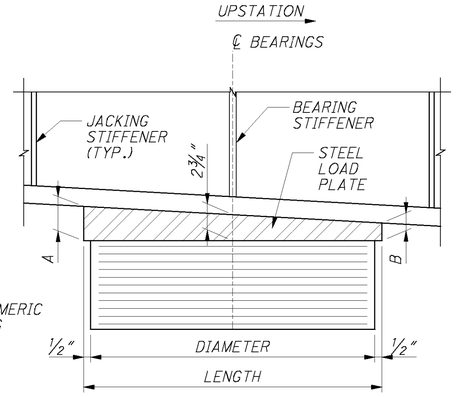
LAMINATED ELASTOMERIC BEARINGS



PIER BEARING PLAN
(EXPANSION)
PIER 1, 2 & 4

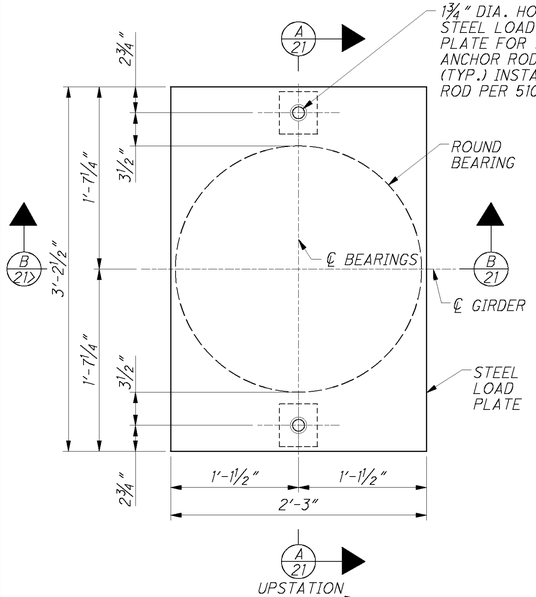


SECTION C 21

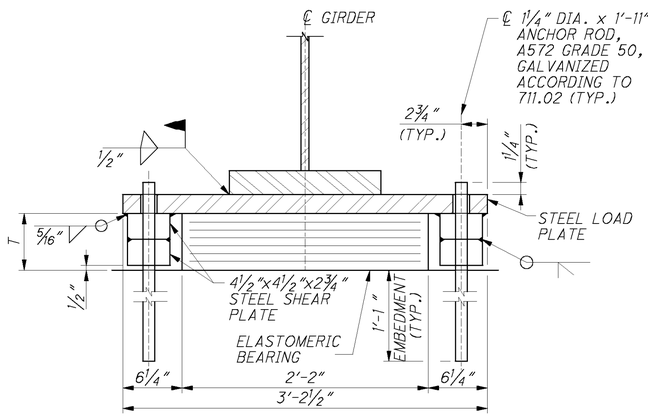


SECTION D 21

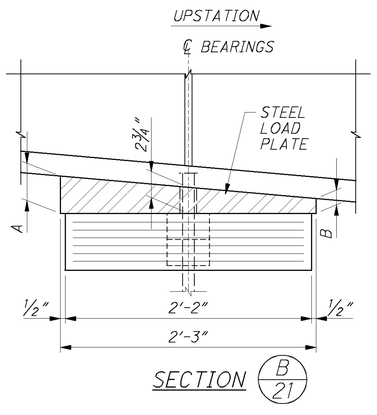
JACKING STIFFENERS FOR
PIERS 1 & 2 SHOWN
(PIER 4 - NO JACKING
STIFFENERS REQUIRED)



PIER BEARING PLAN
(FIXED)
PIER 3



SECTION A 21



SECTION B 21

NOTES:

EACH BEARING ASSEMBLY SHALL BE SHOP MARKED WITH THE FOLLOWING INFORMATION: TOP, FORWARD STATION DIRECTION, LOCATION (REAR ABUTMENT, PIER 1, PIER 2, PIER 3, PIER 4, FORWARD ABUTMENT.)

REAR ABUTMENT ELASTOMERIC BEARINGS:
THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.5. (METHOD B) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

PIERS & FORWARD ABUTMENT ELASTOMERIC BEARINGS:
THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6. (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

BEARING REPOSITIONING:
IF GIRDERS ARE PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F ± 10°F, THE GIRDERS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ± 10°F.

WELDING:
CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300° F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

LOAD PLATE:
THE STEEL LOAD PLATE, STEEL PLATE, STEEL FILL PLATE AND MASONRY PLATE SHALL BE THE SAME MATERIAL AS THE ATTACHED STRUCTURAL STEEL AND BE SIMILARLY CLEANED AND COATED. SURFACE PREPARATION AND PRIMING SHALL BE DONE IN THE SHOP AND BE INCLUDED IN THE PRICE BID FOR BEARINGS. FIELD COATS SHALL BE INCLUDED IN THE PRICE BID FOR PAINTING MAIN STRUCTURAL STEEL.

THE STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

BASIS OF PAYMENT:
THE UNIT BID PRICE INCLUDES ALL MATERIALS, LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL ELASTOMERIC BEARINGS INCLUDING STEEL LOAD PLATES, STEEL PLATE, STEEL FILL PLATE, MASONRY PLATE, ANCHOR BOLTS, THREADED STUDS, NUTS, WASHERS AND FABRIC PADS. PAYMENT WILL BE INCLUDED WITH THE APPROPRIATE 516 ITEM.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Columbus, Ohio 43230

DESIGNED SJA | DRAWN KML | CHECKED XAC | REVIEWED RMK | DATE 03-05-08
STRUCTURE FILE NUMBER 3111652

BEARING DETAILS 1
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

21 / 34

424 / 630

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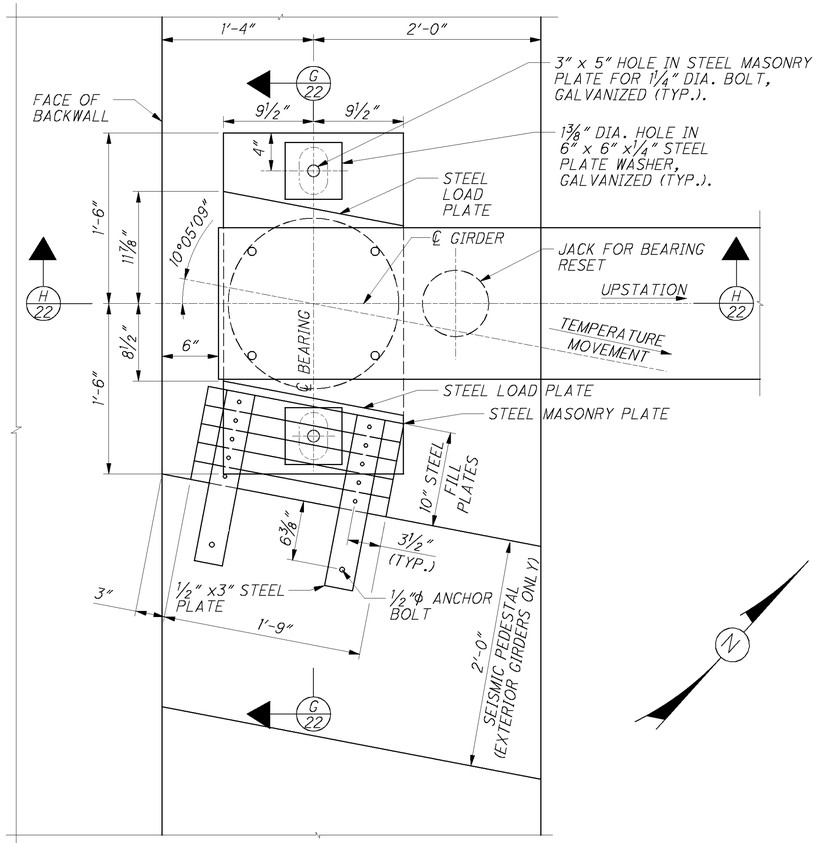
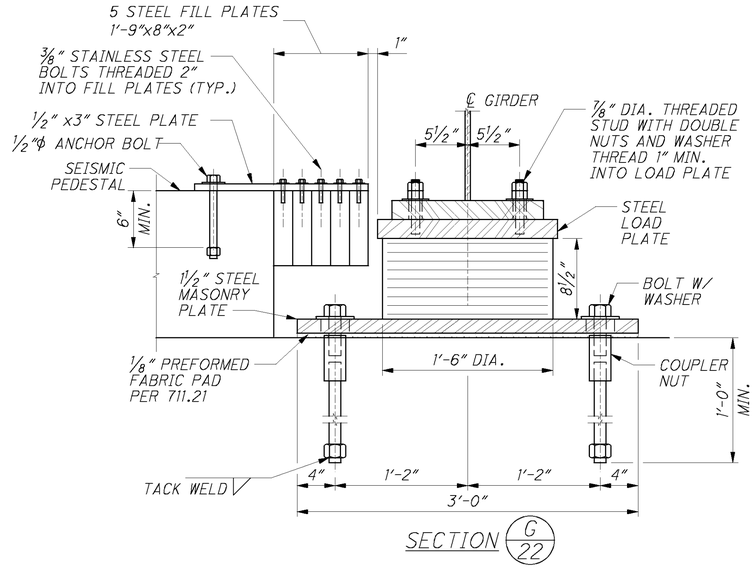
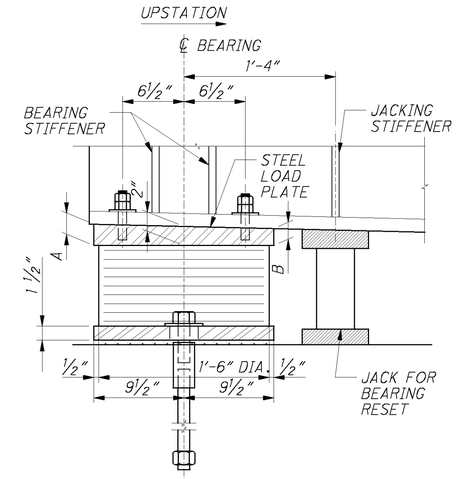


REAR ABUTMENT BEARING PLAN

(SPECIAL)



SECTION G 22

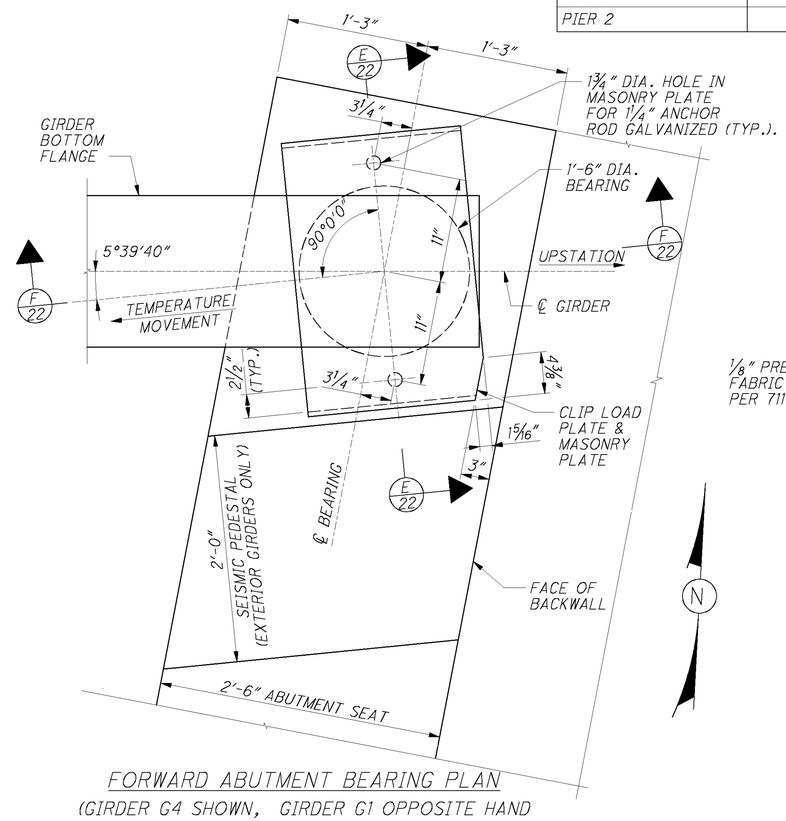


SECTION H 22

JACKING DESIGN CRITERIA			
LOCATION	DEAD LOAD REACTION (KIPS)	LIVE LOAD & IMPACT REACTION (KIPS)	TOTAL REACTION (KIPS)
REAR ABUTMENT	82	89	171
PIER 1	275	156	431
PIER 2	251	156	407

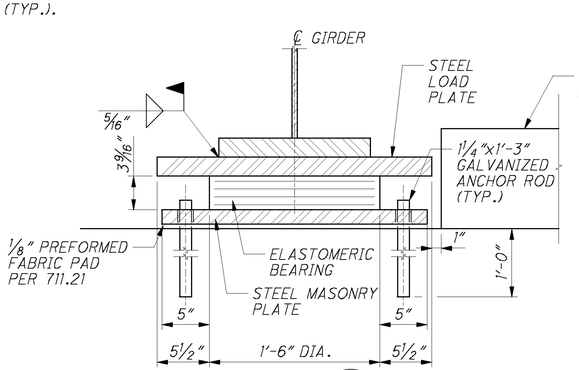
NOTES:

1. JACKING STIFFENERS HAVE BEEN DESIGNED SO THAT BEARINGS CAN BE REPLACED WITH THE BRIDGE UNDER DEAD LOAD AND FULL LIVE LOAD.
2. JACKS SHALL BE PLACED AT THE POSITION SHOWN. EACH ABUTMENT OR PIER SHALL BE RAISED SIMULTANEOUSLY USING JACKS THAT WILL ALLOW SYNCHRONOUS LIFT.

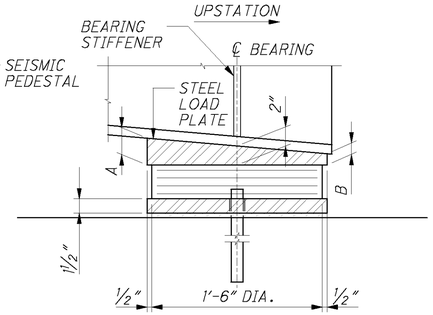


FORWARD ABUTMENT BEARING PLAN

(GIRDER G4 SHOWN, GIRDER G1 OPPOSITE HAND
GIRDER G2 & G3 - NO SEISMIC PEDESTAL)



SECTION E 22



SECTION F 22

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DESIGN AGENCY
BURGESS & NIPLE
8 E. Long Street, Suite 1100
Columbus, Ohio 43215

DESIGNED SJA | DRAWN KML | CHECKED XAC | REVIEWED RMK | DATE 03-05-08

STRUCTURE FILE NUMBER 3111652

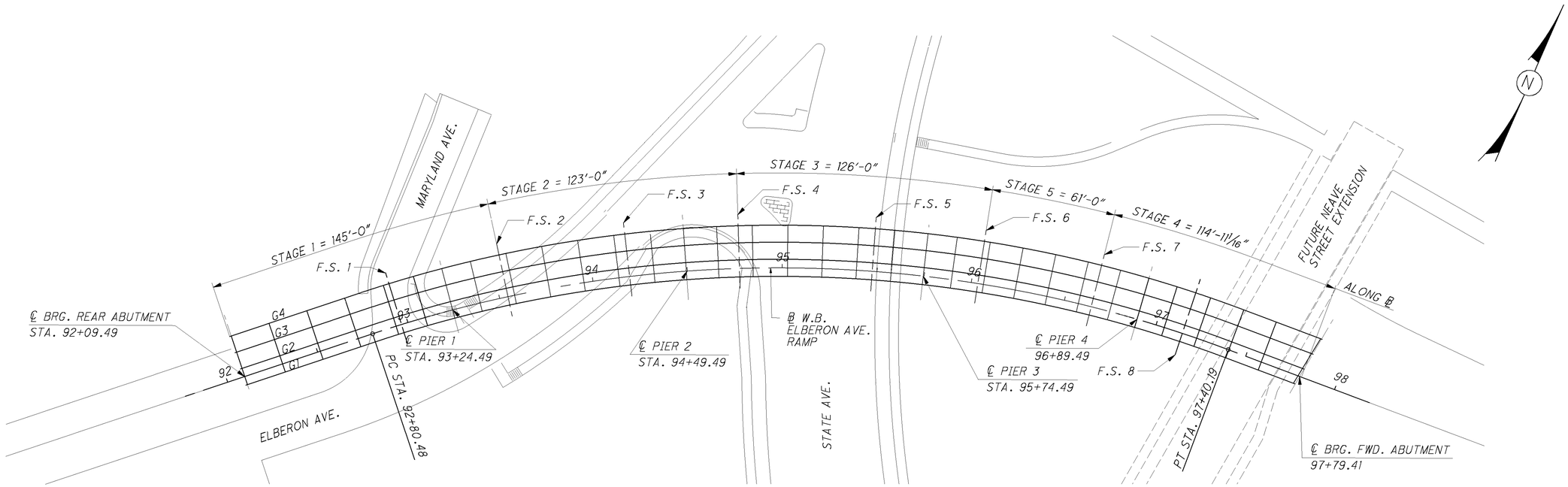
BEARING DETAILS 2

BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

22 / 34

425
657



PLAN

GIRDER ERECTION NOTES:

THE CONSTRUCTION SEQUENCE SHOWN DEMONSTRATES ONE FEASIBLE ALTERNATIVE TO ERECT THE CURVED GIRDERS. THE CONTRACTOR HAS THE OPTION OF USING AN ALTERNATE METHOD OF GIRDER ERECTION WITH PRIOR APPROVAL OF THE ENGINEER.

** THE GIRDER WEIGHTS REPRESENT VERTICAL DEAD LOAD OF THE SPLICED GIRDER SEGMENT ONLY. CONTRACTOR MUST ACCOUNT FOR ADDITIONAL LOADS DUE TO WIND AND HIS ERECTION METHODS.

SUBMIT SHOP DRAWINGS WITH PROPOSED GIRDER ERECTION DETAILS IN CONFORMANCE WITH SECTION 501.04.

VERTICAL AND HORIZONTAL STABILITY SHALL BE MAINTAINED FOR EACH STAGE BY THE CONTRACTOR AS ALL INTERMEDIATE STAGES ARE UNSTABLE WITHOUT TEMPORARY SHORING AND BRACING. THE DESIGN OF SHORING AND BRACING SHALL INCLUDE ADDITIONAL LOADING DUE TO WIND AND CONSTRUCTION LIVE LOAD ON THE PREVIOUS STAGE(S). THE CONTRACTOR SHALL SUBMIT THE SHORING AND BRACING DESIGN TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING ANY GIRDERS.

COORDINATE WITH ROADWAY AND UTILITY CONSTRUCTION BELOW BRIDGE.

GIRDER	STAGE 1 **	STAGE 2 **	STAGE 3 **	STAGE 4 **	STAGE 5 **
	GIRDER WEIGHT (KIPS) (GIRDER + F.S. 1)	GIRDER WEIGHT (KIPS) (GIRDER + F.S. 3)	GIRDER WEIGHT (KIPS) (GIRDER + F.S. 5)	GIRDER WEIGHT (KIPS) (GIRDER ONLY)	GIRDER WEIGHT (KIPS) (GIRDER + F.S. 8)
G1	39	32	32	13	27
G2	39	33	32	13	28
G3	40	33	33	13	29
G4	40	33	33	13	29

SUGGESTED GIRDER ERECTION SEQUENCE:

1. SPLICE ON GROUND THEN ERECT SEGMENT OF GIRDER G1
2. BRACE GIRDER G1 TO SUBSTRUCTURE TO PREVENT OVERTURNING
3. SPLICE ON GROUND AND THEN ERECT SEGMENT OF GIRDER G2
4. INSTALL CROSSFRAMES BETWEEN GIRDERS G1 AND G2
5. SPLICE ON GROUND THEN ERECT SEGMENT OF GIRDER G3
6. INSTALL CROSSFRAMES BETWEEN GIRDER G2 AND G3
7. SPLICE ON GROUND AND THEN ERECT SEGMENT OF GIRDER G4
8. INSTALL CROSSFRAMES BETWEEN GIRDER G3 AND G4

DESIGN AGENCY
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Columbus, Ohio 43230

REVIEWED RMK DATE 03-05-08
STRUCTURE FILE NUMBER 3111652
DRAWN SJA REVISED
DESIGNED SJA CHECKED XAC

SUGGESTED GIRDER ERECTION SEQUENCE
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

23 / 34

426
657

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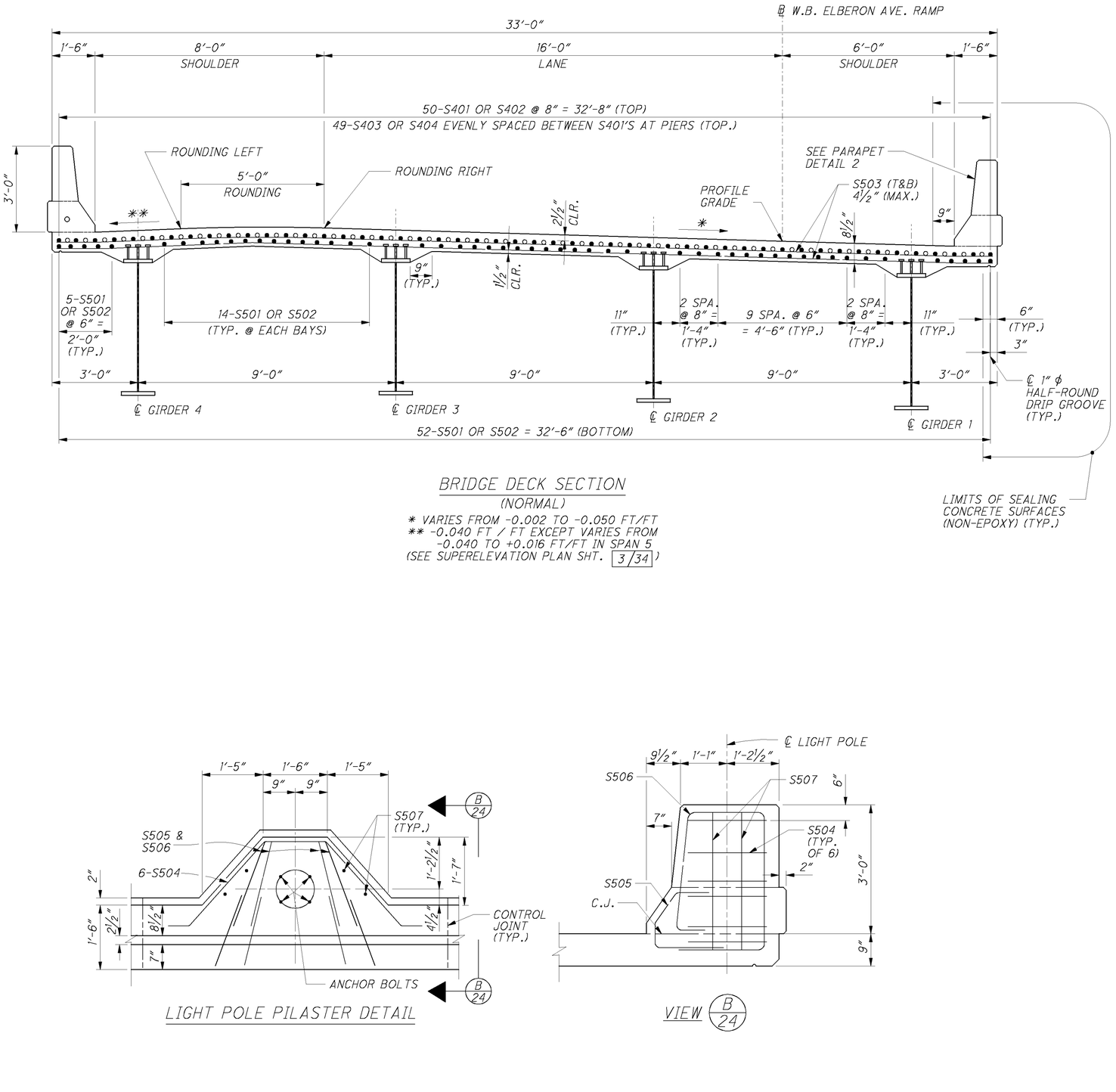
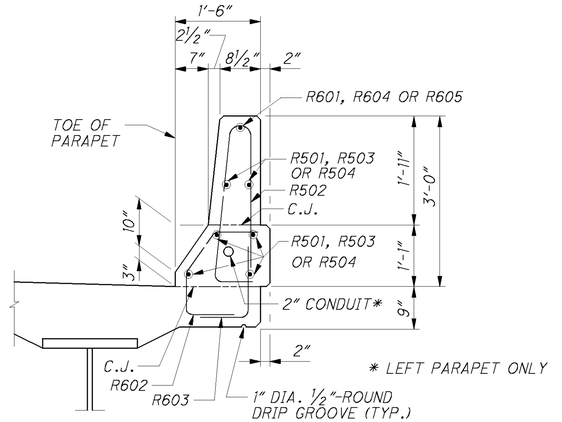
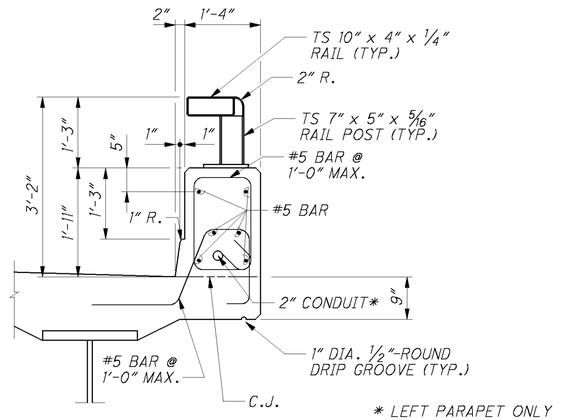


BRIDGE DECK SECTION
(NORMAL)

* VARIES FROM -0.002 TO -0.050 FT/FT
** -0.040 FT / FT EXCEPT VARIES FROM -0.040 TO +0.016 FT/FT IN SPAN 5
(SEE SUPERELEVATION PLAN SHT. 3/34)



PARAPET DETAIL 2



ALTERNATE PARAPET DETAIL
(ALTERNATE BID ITEM)

LIGHT POLE PILASTER DETAIL

VIEW B/24

LEGEND:

C.J. = CONSTRUCTION JOINT
T&B = TOP & BOTTOM

NOTES:

1. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 4⅛ INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE IS ± 3 INCHES.

   THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

2. SUPERSTRUCTURE SHALL BE SEALED WITH NON-EPOXY AS INDICATED

3. SEE SHEET 6/33 FOR NOTES FOR ALTERNATE PARAPETS.

DESIGN AGENCY: BURGESS & NIPLE
371 EAST STREET • P.O. BOX 1008 • Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

TYPICAL SECTION
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

24/34

427/657

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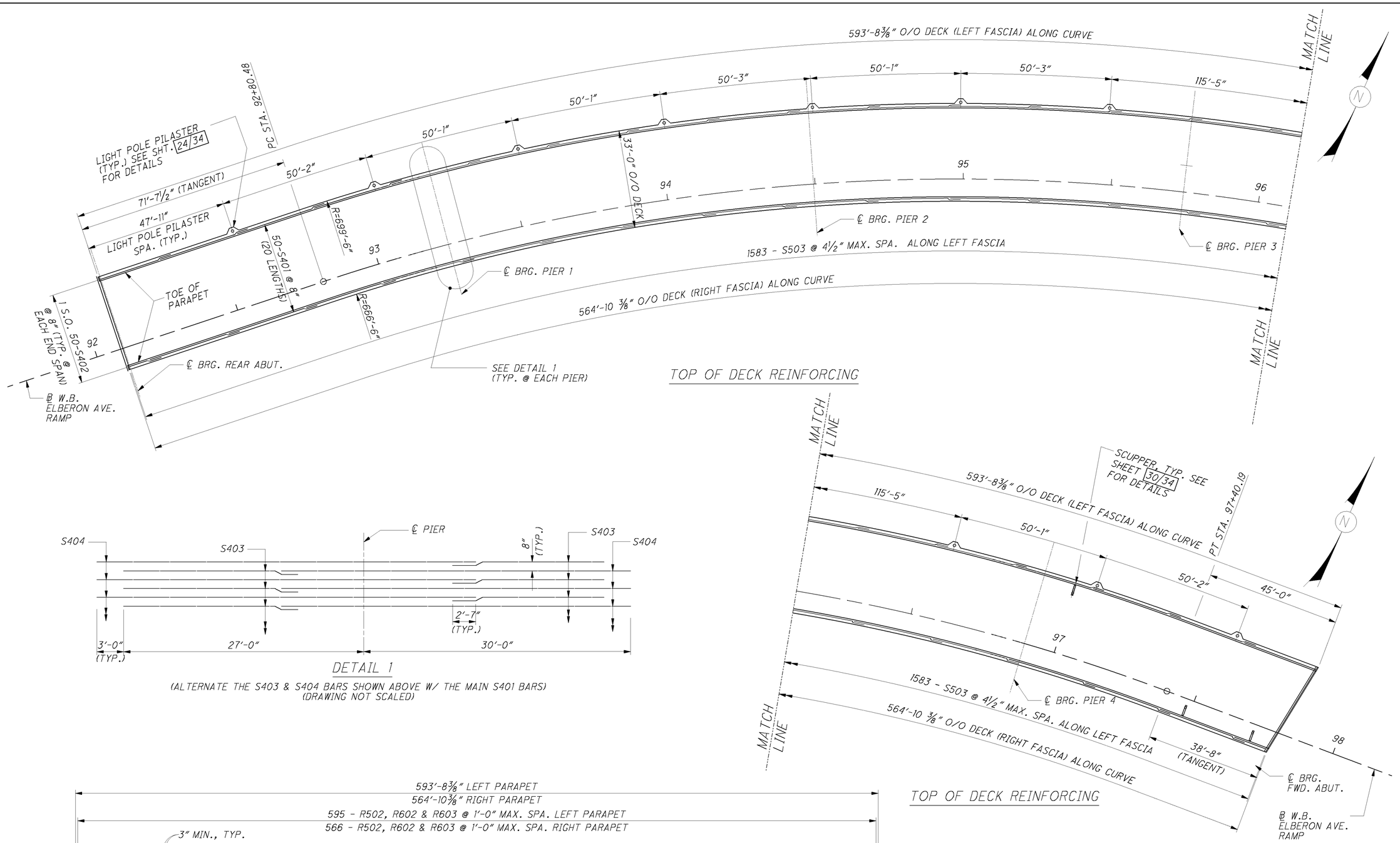
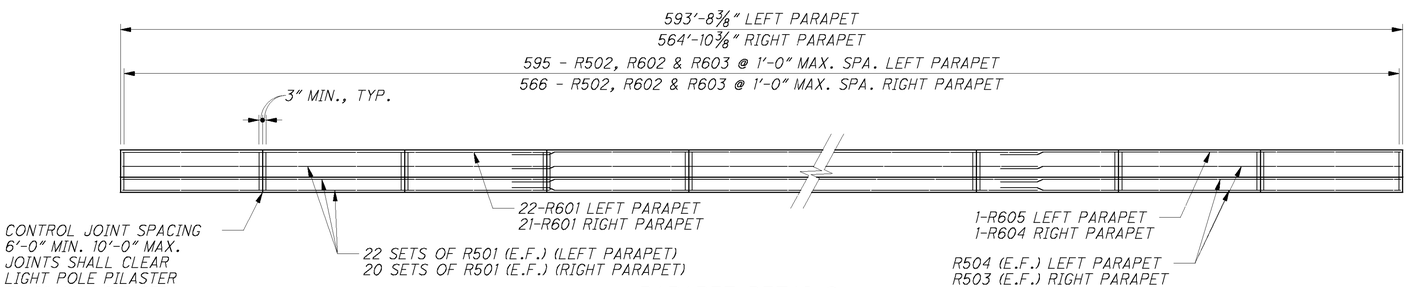


TOP OF DECK REINFORCING

DETAIL 1

(ALTERNATE THE S403 & S404 BARS SHOWN ABOVE W/ THE MAIN S401 BARS)
(DRAWING NOT SCALED)



PARAPET DETAILS

NOTE:

1. MIN. LAP LENGTH: NO. 4 BAR = 2'-7"
2. MIN. LAP LENGTH: NO. 5 BAR = 3'-3"
3. MIN. LAP LENGTH: NO. 6 BAR = 3'-10"

DESIGN AGENCY
BURGESS & NIPLE
8 East Gay Street, Suite 1100
Columbus, Ohio 43215

DATE 03-05-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111652
DRAWN KML
REVISED
DESIGNED SJA
CHECKED XAC

DECK PLAN 1
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

25 / 34

428 / 657

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NOTE:

1. MIN. LAP LENGTH: NO. 5 BAR = 3'-3"

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2044
Columbus, Ohio 43202

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

DECK PLAN 2
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

26 / 34

429 / 657

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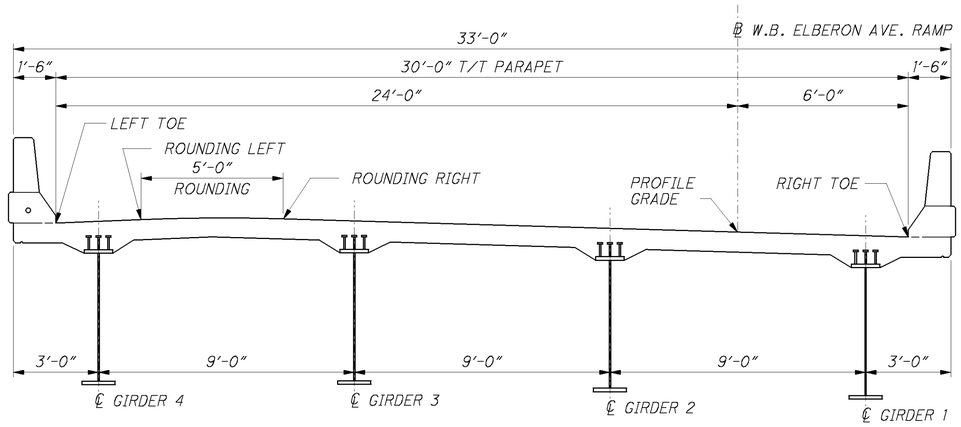
SCREED ELEVATIONS

SCREED LOCATIONS	STATION	LEFT TOE	GIRDER 4	ROUNDING LEFT	ROUNDING RIGHT	GIRDER 3	GIRDER 2	GIRDER 1	RIGHT TOE
℄ BRG. REAR ABUT.	92+09.49	564.82	564.88	564.94	565.03	565.03	565.00	564.98	564.98
1/10 SPAN	92+20.99	564.66	564.72	564.78	564.86	564.85	564.78	564.72	564.71
2/10 SPAN	92+32.49	564.46	564.52	564.58	564.64	564.61	564.51	564.41	564.39
3/10 SPAN	92+43.99	564.19	564.25	564.31	564.36	564.32	564.17	564.03	564.01
4/10 SPAN	92+55.49	563.85	563.91	563.97	564.01	563.96	563.77	563.59	563.56
5/10 SPAN	92+66.99	563.45	563.51	563.57	563.59	563.53	563.31	563.09	563.05
6/10 SPAN	92+78.49	562.98	563.04	563.10	563.12	563.04	562.78	562.52	562.48
7/10 SPAN	92+89.99	562.45	562.51	562.57	562.58	562.50	562.19	561.89	561.84
SPLICE NO.1	92+96.49	562.13	562.19	562.25	562.26	562.16	561.84	561.52	561.46
9/10 SPAN	93+12.99	561.26	561.32	561.38	561.37	561.26	560.88	560.50	560.43
℄ PIER 1	93+24.49	560.61	560.67	560.73	560.71	560.60	560.17	559.75	559.68
1/10 SPAN	93+36.99	559.84	559.90	559.96	559.93	559.81	559.36	558.91	558.83
2/10 SPAN	93+49.49	558.98	559.04	559.10	559.07	558.95	558.49	558.04	557.97
SPLICE NO.2	93+57.49	558.40	558.46	558.52	558.49	558.37	557.91	557.46	557.39
4/10 SPAN	93+74.49	557.12	557.18	557.24	557.20	557.08	556.62	556.17	556.10
5/10 SPAN	93+86.99	556.10	556.16	556.22	556.18	556.05	555.60	555.15	555.07
6/10 SPAN	93+99.49	555.00	555.06	555.12	555.08	554.96	554.50	554.05	553.98
7/10 SPAN	94+11.99	553.87	553.93	553.99	553.96	553.83	553.38	552.93	552.86
SPLICE NO.3	94+19.49	553.19	553.25	553.31	553.28	553.16	552.70	552.25	552.18
9/10 SPAN	94+36.99	551.61	551.67	551.73	551.71	551.58	551.13	550.68	550.61
℄ PIER 2	94+49.49	550.51	550.57	550.63	550.60	550.48	550.03	549.58	549.50
1/10 SPAN	94+61.99	549.42	549.48	549.54	549.51	549.39	548.93	548.48	548.41
SPLICE NO.4	94+77.49	548.09	548.15	548.21	548.18	548.05	547.60	547.14	547.07
3/10 SPAN	94+86.99	547.28	547.34	547.40	547.36	547.24	546.78	546.33	546.25
4/10 SPAN	94+99.49	546.20	546.26	546.32	546.28	546.16	545.70	545.24	545.17
5/10 SPAN	95+11.99	545.11	545.17	545.23	545.19	545.06	544.60	544.15	544.07
6/10 SPAN	95+24.49	543.99	544.05	544.11	544.07	543.95	543.49	543.03	542.96
7/10 SPAN	95+36.99	542.85	542.91	542.97	542.94	542.81	542.36	541.90	541.83
SPLICE NO.5	95+47.49	541.89	541.95	542.01	541.98	541.85	541.40	540.95	540.87
9/10 SPAN	95+61.99	540.57	540.63	540.69	540.66	540.54	540.08	539.63	539.56
℄ PIER 3	95+74.49	539.45	539.51	539.57	539.54	539.42	538.97	538.52	538.44
1/10 SPAN	95+85.99	538.45	538.51	538.57	538.55	538.42	537.97	537.52	537.45
2/10 SPAN	95+97.49	537.50	537.56	537.62	537.59	537.47	537.02	536.57	536.49
SPLICE NO.6	96+03.49	537.02	537.08	537.14	537.11	536.98	536.53	536.09	536.01
4/10 SPAN	96+20.49	535.69	535.74	535.80	535.77	535.65	535.20	534.75	534.68
5/10 SPAN	96+31.99	534.81	534.87	534.93	534.90	534.77	534.32	533.87	533.80
6/10 SPAN	96+43.49	533.94	534.00	534.06	534.03	533.91	533.46	533.01	532.93
7/10 SPAN	96+54.99	533.09	533.15	533.21	533.18	533.06	532.61	532.16	532.09
SPLICE NO.7	96+64.49	532.40	532.46	532.52	532.50	532.37	531.92	531.48	531.40
9/10 SPAN	96+77.99	531.46	531.52	531.58	531.56	531.44	530.99	530.54	530.46
℄ PIER 4	96+89.49	530.69	530.75	530.81	530.79	530.66	530.21	529.76	529.69



BRIDGE TYPICAL SECTION

NOTES:

1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

SCREED ELEVATIONS

SCREED LOCATIONS	LEFT TOE		GIRDER 4		ROUNDING LEFT		ROUNDING RIGHT		GIRDER 3		GIRDER 2		GIRDER 1		RIGHT TOE	
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
℄ PIER 4	96+89.49	530.69	96+89.49	530.75	96+89.49	530.81	96+89.49	530.79	96+89.49	530.66	96+89.49	530.21	96+89.49	529.76	96+89.49	529.69
1/10 SPAN	96+98.79	530.07	96+98.77	530.13	96+98.76	530.20	96+98.69	530.17	96+98.66	530.05	96+98.54	529.61	96+98.42	529.16	96+98.40	529.09
2/10 SPAN	97+08.10	529.42	97+08.06	529.48	97+08.02	529.53	97+07.89	529.51	97+07.83	529.39	97+07.59	528.98	97+07.35	528.56	97+07.31	528.49
SPLICE NO.8	97+14.49	528.96	97+14.49	529.01	97+14.49	529.05	97+14.49	529.01	97+14.49	528.90	97+14.49	528.49	97+14.49	528.08	97+14.49	528.01
4/10 SPAN	97+26.70	528.05	97+26.63	528.09	97+26.55	528.13	97+26.30	528.10	97+26.17	528.01	97+25.70	527.67	97+25.22	527.33	97+25.13	527.28
5/10 SPAN	97+36.00	527.33	97+35.91	527.36	97+35.81	527.40	97+35.50	527.36	97+35.34	527.28	97+34.75	526.99	97+34.15	526.69	97+34.05	526.64
6/10 SPAN	97+45.49	526.57	97+45.36	526.59	97+45.23	526.62	97+44.81	526.59	97+44.59	526.53	97+43.83	526.28	97+43.06	526.03	97+42.93	525.98
7/10 SPAN	97+55.12	525.76	97+54.95	525.78	97+54.79	525.81	97+54.23	525.78	97+53.95	525.73	97+52.94	525.54	97+51.93	525.34	97+51.76	525.31
8/10 SPAN	97+64.75	524.93	97+64.55	524.94	97+64.34	524.96	97+63.65	524.95	97+63.30	524.91	97+62.05	524.78	97+60.80	524.63	97+60.60	524.61
9/10 SPAN	97+74.39	524.07	97+74.14	524.08	97+73.89	524.09	97+73.07	524.09	97+72.65	524.07	97+71.16	523.99	97+69.68	523.90	97+69.43	523.89
℄ BRG. FWD. ABUT.	97+84.02	523.18	97+83.73	523.19	97+83.45	523.20	97+82.49	523.21	97+82.01	523.21	97+80.28	523.19	97+78.55	523.15	97+78.26	523.15

DESIGN AGENCY
BURGESS & NIPLE
8 E. Long Street • Ste 1100
Columbus, Ohio 43215

DATE 03-05-08
REVIEWED RMK
STRUCTURE FILE NUMBER 3111652
DRAWN KML
REVISED
DESIGNED SJA
CHECKED XAC

SCREED ELEVATIONS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

27 / 34

430 / 657

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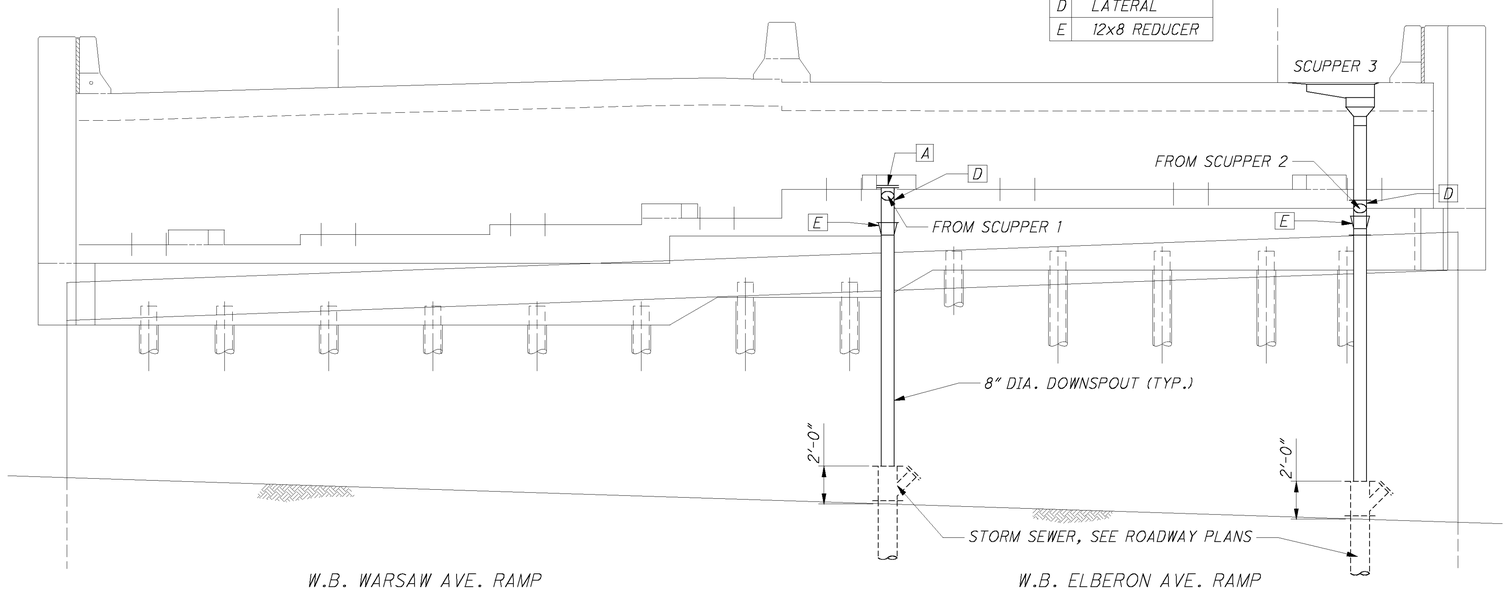
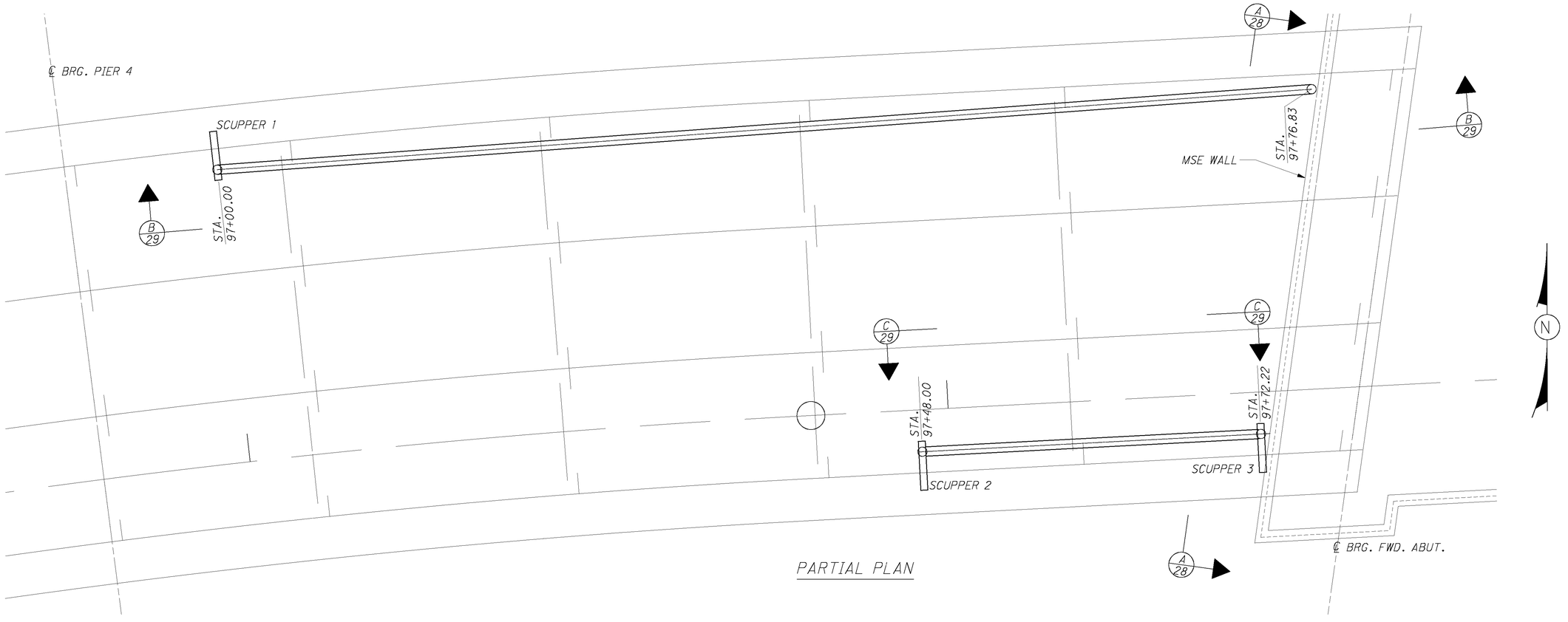
A	CLEAN-OUT
D	LATERAL
E	12x8 REDUCER



SECTION A/28



PARTIAL PLAN

P:\PR42702\ham\20082\structures\HAM264_1457C\sheets\264_1457CMD001.dgn

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2241
5085 Reed Road, Columbus, Ohio 43220

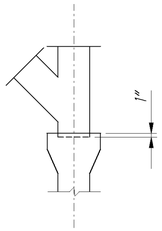
DESIGNED SJA	DRAWN KML	REVIEWED RMK	DATE 03-05-08
CHECKED XAC	REVISED	STRUCTURE FILE NUMBER 3111652	

SCUPPER DETAIL 1
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

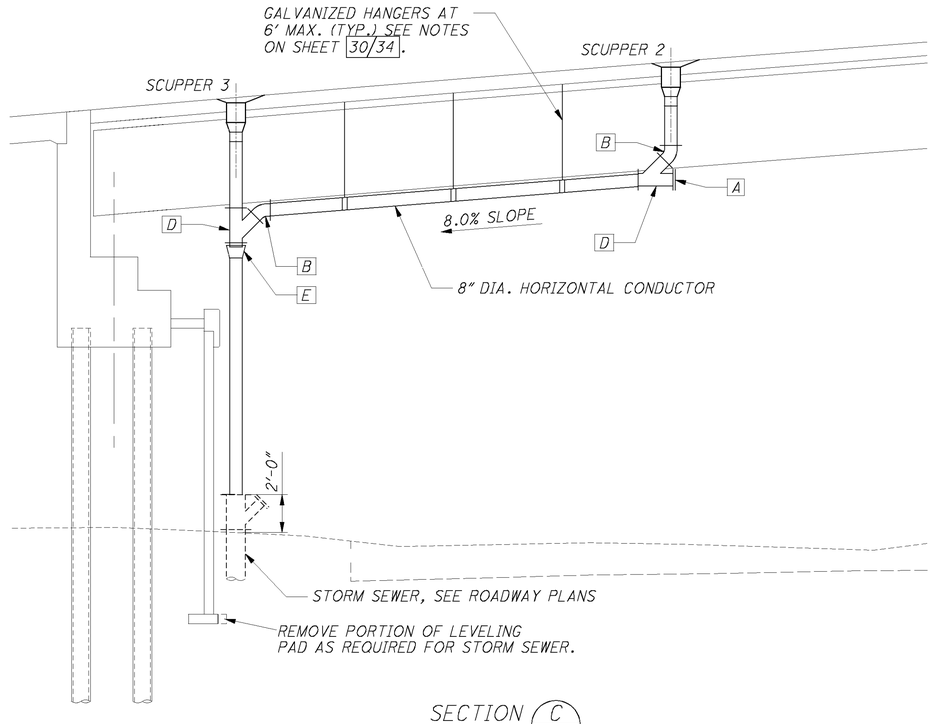
HAM-50-18.79
PID No. 20082

28 / 34

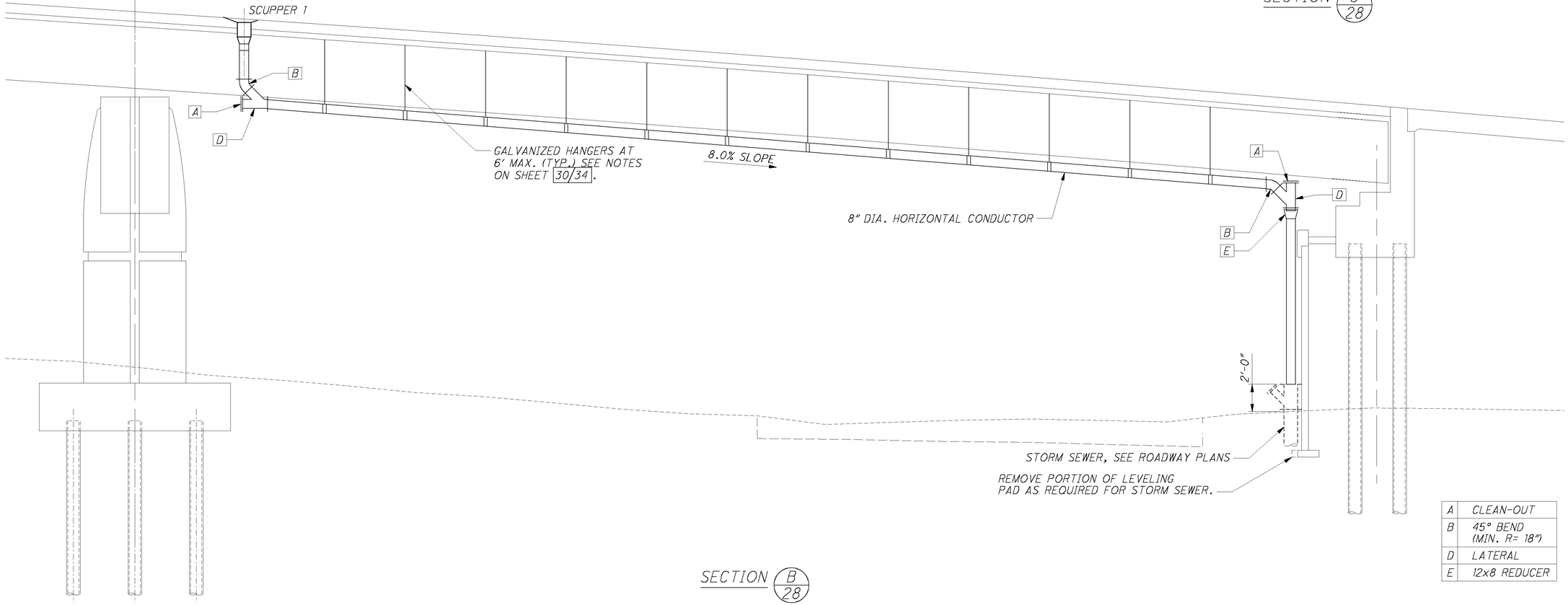
431
657



REDUCER DETAIL



SECTION C / 28



SECTION B / 28

A	CLEAN-OUT
B	45° BEND (MIN. R= 18")
D	LATERAL
E	12x8 REDUCER

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX
Columbus, Ohio 43240

REVIEWED DATE
STRUCTURE FILE NUMBER 3111652
DRAWN KML
REVISED
DESIGNED SJA
CHECKED XAC

SCUPPER DETAIL 2
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

29 / 34

432 / 657

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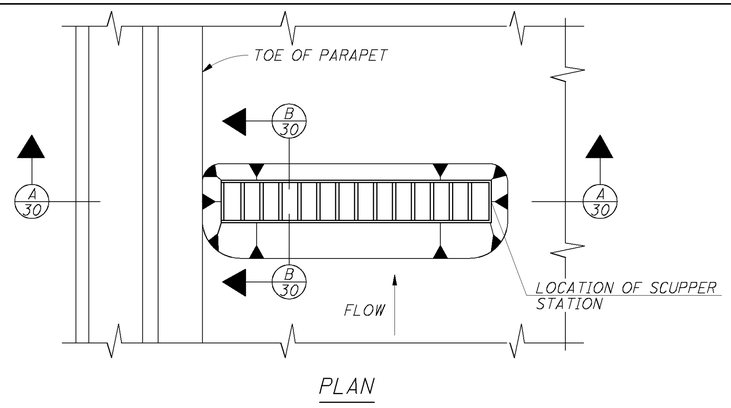
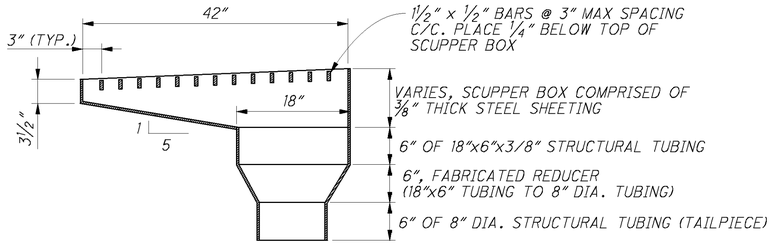
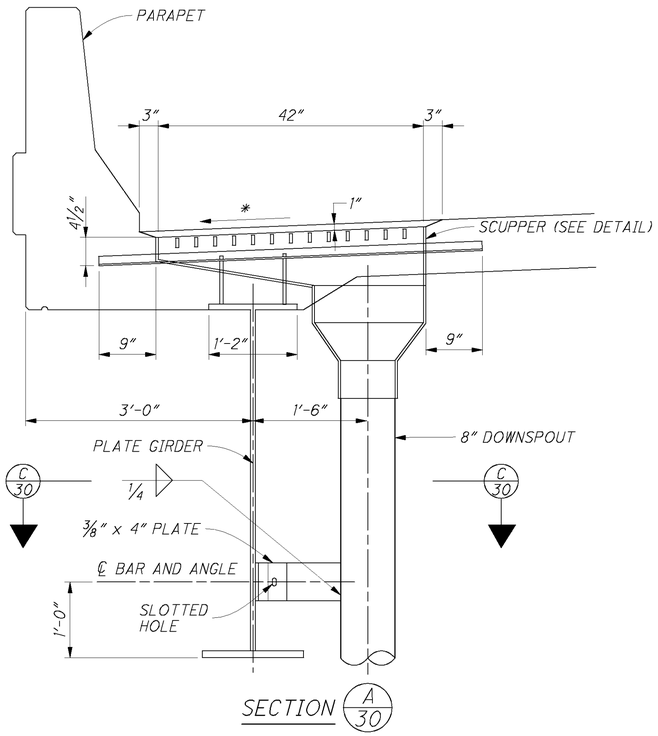


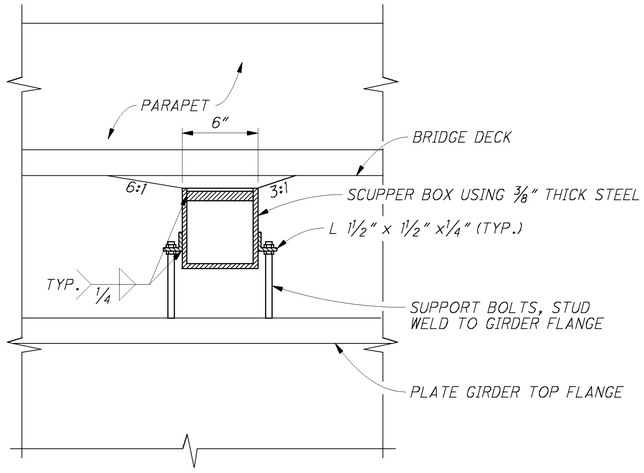
PLAN



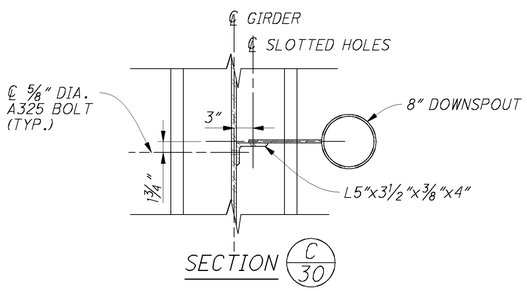
SCUPPER BOX DETAIL



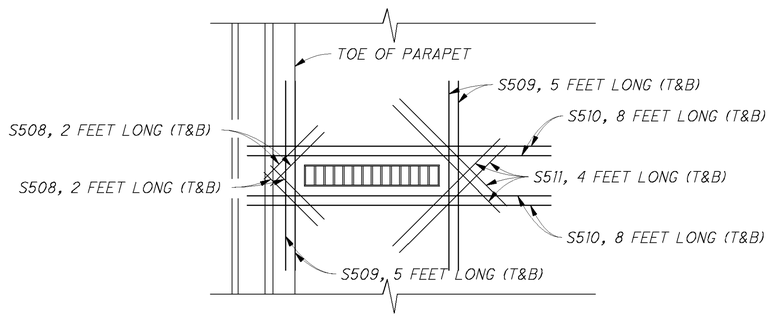
SECTION A 30



SECTION B 30



SECTION C 30



ADDITIONAL DECK REINFORCING DETAIL

T&B = TOP AND BOTTOM

SCUPPER NOTES:

ALL MATERIALS INCLUDING STEEL PLATES, STRUCTURAL TUBING, SUPPORT ANGLES AND OTHER HARDWARE SHALL BE GALVANIZED PER 711.02.

SCUPPER BOXES AND REDUCERS SHALL BE MADE OF ⅜" GALVANIZED STRUCTURAL STEEL PLATES CONFORMING TO 518 AND 711.02.

STRUCTURAL STEEL TUBING SHALL BE PER 518 AND 707.10.

FIELD CUT DECK REINFORCING AS REQUIRED TO INSTALL SCUPPERS.

PAYMENT:

ALL MATERIALS, EQUIPMENT, DELIVERY AND LABOR NECESSARY IN THE FABRICATION AND INSTALLATION FOR THE SCUPPER AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE OF:

SCUPPER, INCLUDING SUPPORTS, AS PER PLAN.

DOWNSPOUT NOTES:

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SHOWN IN THE PLANS AND IN ACCORDANCE WITH ITEMS 518.06 AND 748.06. ALL FIELD WELDS TO BE GALVANIZED PER 711.02 AND WITH THE APPROVAL OF THE ENGINEER.

DOWNSPOUTS SHALL BE CONNECTED TO THE BRIDGE SCUPPER ASSEMBLIES BY WELDING OR USE OF CLAMP TYPE COUPLINGS WITH RING GASKETS.

HORIZONTAL PIPE RUNS SHALL BE SUPPORTED BY USE OF GALVANIZED HANGERS AND STRAPS ATTACHED TO THE CONCRETE BRIDGE DECK OR CROSSFRAMES. STRAPS SHALL BE PLACED AT A MAXIMUM SPACING OF 6 FEET C/C.

VERTICAL DOWNSPOUTS SHALL BE ATTACHED TO THE MSE WALL AND COPING BY USE OF STRAPS. THE DOWNSPOUT CONTRACTOR IS RESPONSIBLE FOR CONNECTING THE VERTICAL DOWNSPOUT TO THE UNDERGROUND PIPE DRAINAGE SYSTEM BY OTHERS.

ALL MATERIALS, EQUIPMENT, BENDS, WYES, TEES, CLEANOUTS, FIELD GALVANIZING AND LABOR NECESSARY FOR THE FABRICATION AND INSTALLATION OF THE DOWNSPOUT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF:

8" PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

PIPE HORIZONTAL CONDUCTORS

LEGEND:

* SCUPPER 1 = 0.040 FT/FT
* SCUPPER 2 = 0.032 FT/FT
* SCUPPER 3 = 0.023 FT/FT

DESIGN AGENCY
BURGESS & NIPLE
8050 Corporate Center Drive, Suite 300
Cincinnati, Ohio 45242

DESIGNED	DRAWN	REVIEWED	DATE
SJA	KML	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

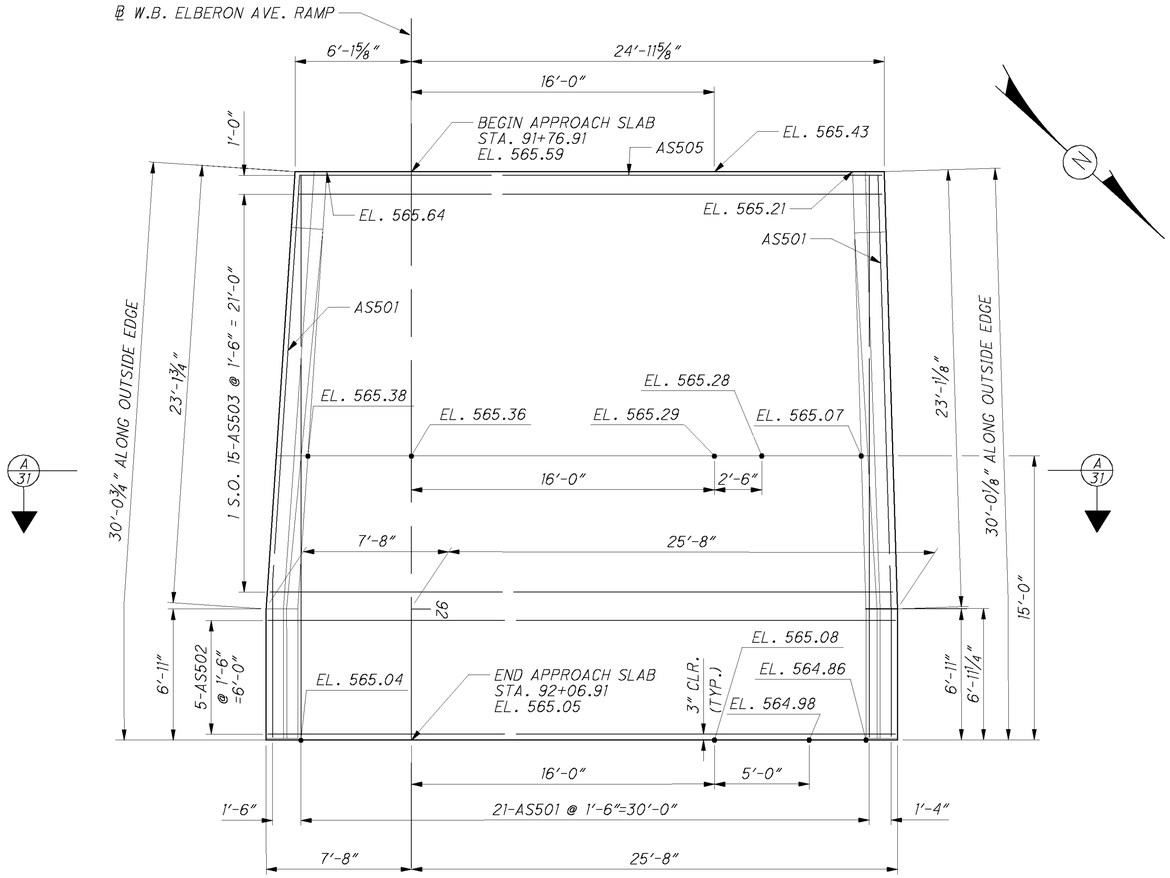
SCUPPER DETAIL 3
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

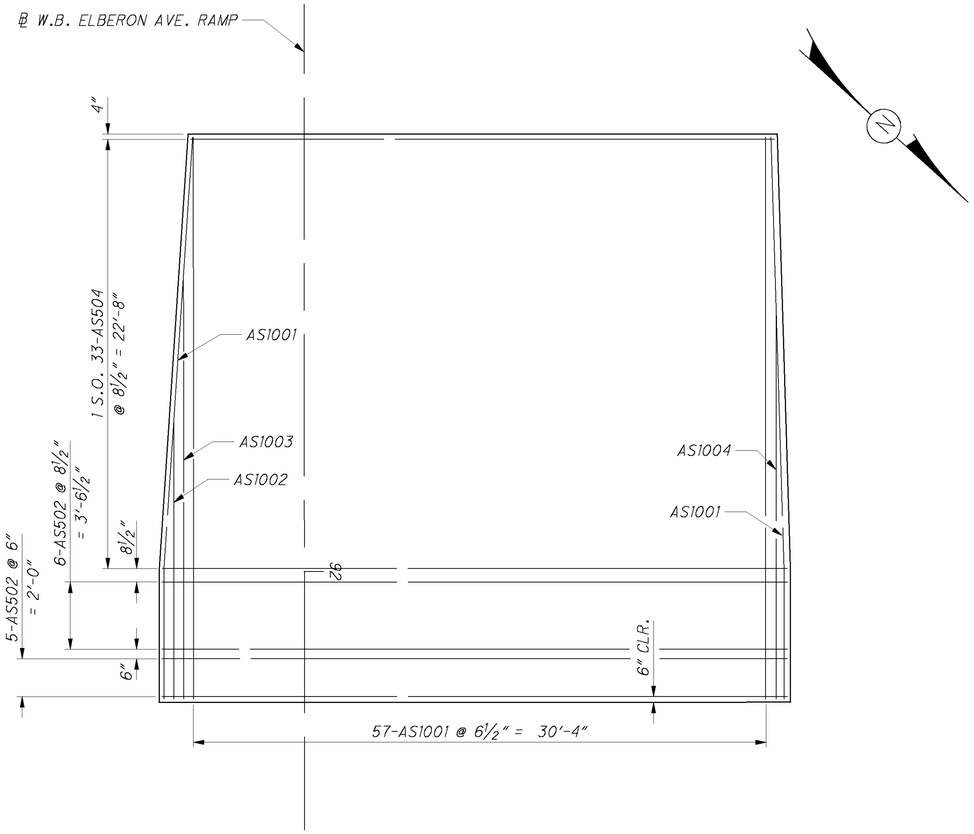
30 / 34

433 / 657

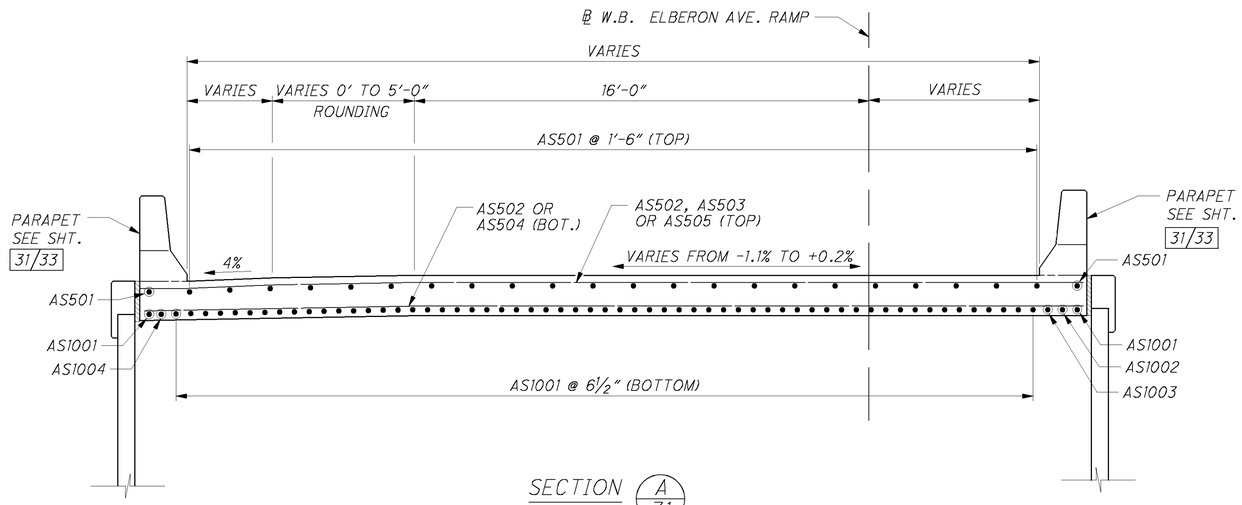
P:\PR42702\ham\20082\structures\HAM264_1457C\sheets\264_1457CMD002.dgn



REAR APPROACH SLAB
LAYOUT AND TOP REINFORCING



REAR APPROACH SLAB
BOTTOM REINFORCING



SECTION A/31

NOTE:

SEE STANDARD DRAWING BR-1 AND SBR-1 FOR MORE DETAILS.

DESIGN AGENCY
BURGESS & NIPPLE
(614) 459-2050
(614) 459-2080 FAX
Columbus, Ohio 43230

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	RMK	03-05-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

REAR APPROACH SLAB PLAN & SECTION
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

31 / 34

434
657

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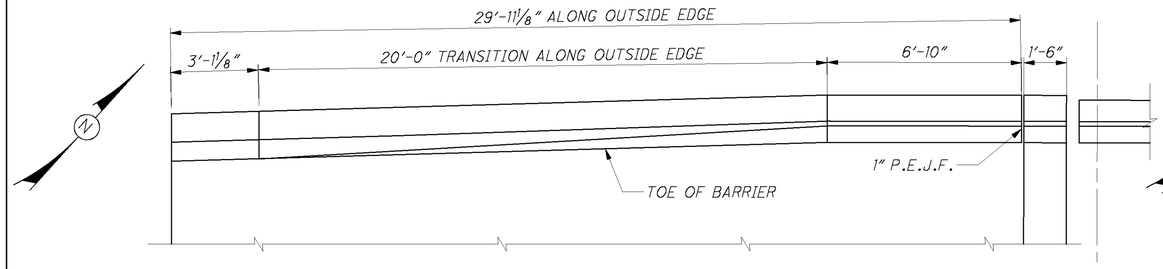
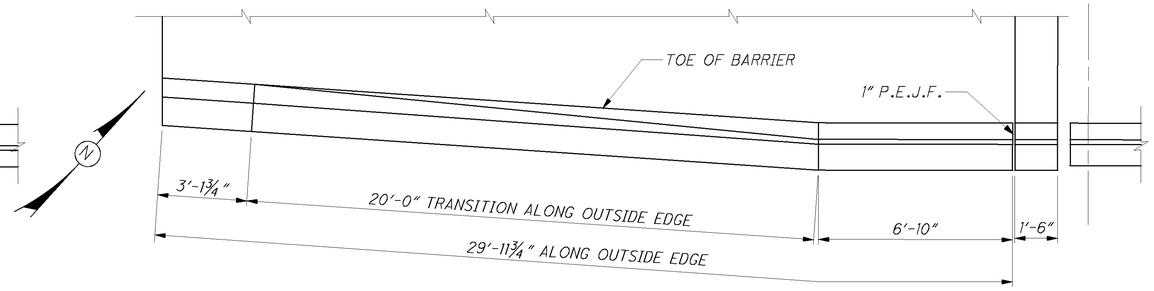
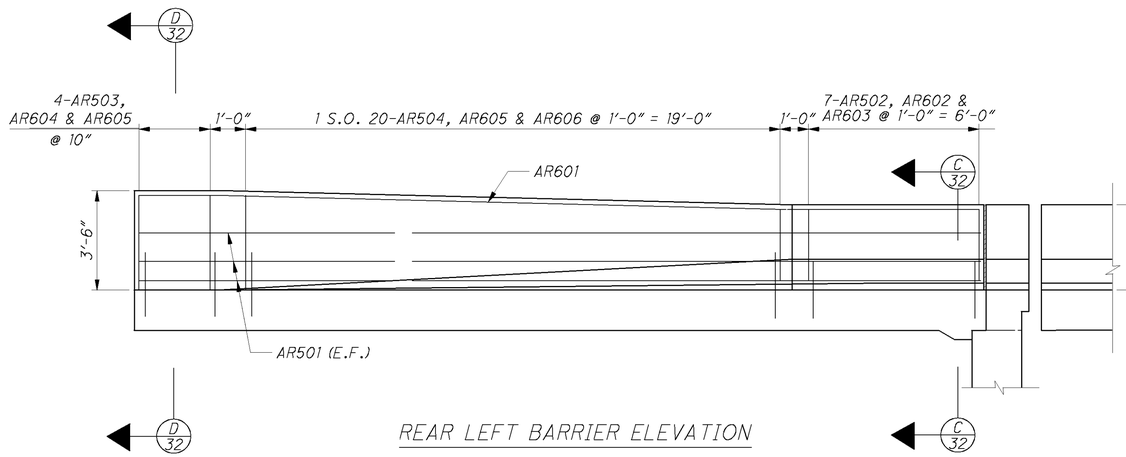


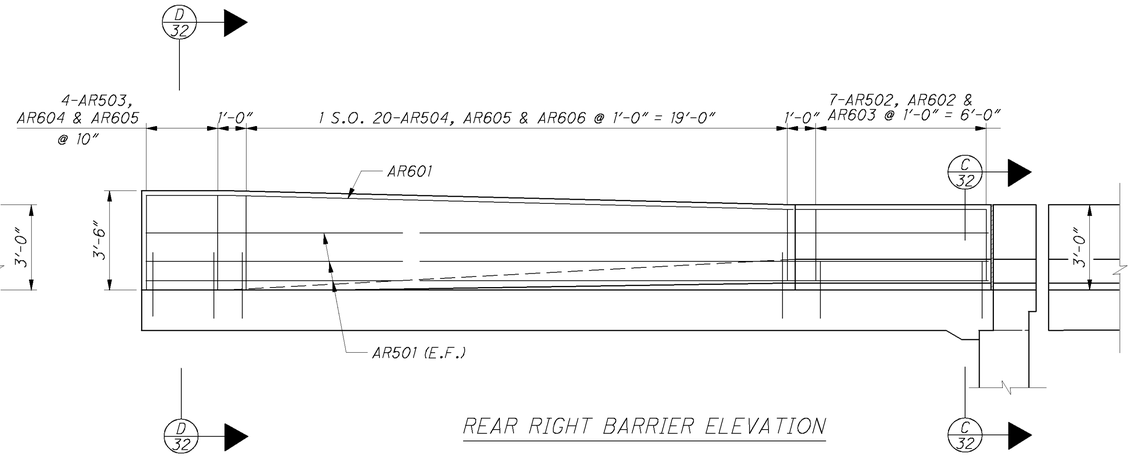
REAR LEFT BARRIER PLAN



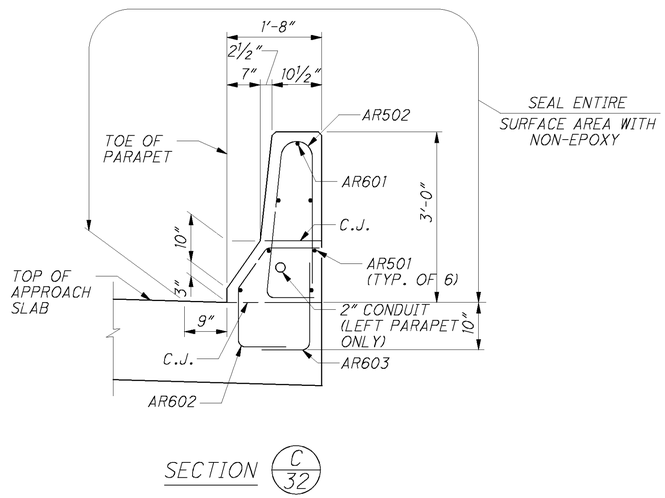
REAR RIGHT BARRIER PLAN



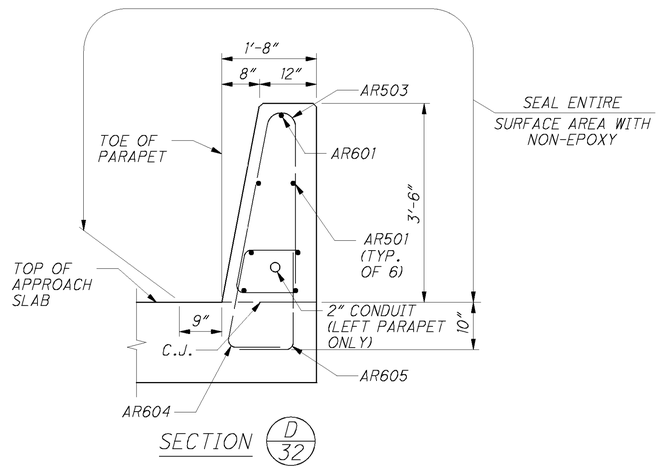
REAR LEFT BARRIER ELEVATION



REAR RIGHT BARRIER ELEVATION



SECTION C 32



SECTION D 32

NOTE:

SEE STANDARD DRAWING BR-1 AND SBR-1 FOR MORE DETAILS.

DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (513) 771-1380
Cincinnati, Ohio 45202

DESIGNED	DRAWN	REVIEWED	DATE
SJA	SJA	RMK	02-18-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
XAC		3111652	

REAR APPROACH SLAB DETAILS
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

32 / 34

435
657

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DECK SLAB REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
S401	1000	30'-0"	20040	STR						
	2	9'-4"								
S402	S.O.	TO	1105	STR						0'-3½"
	50	23'-9"								
S403	196	40'-0"	5237	STR						
S404	196	19'-7"	2564	STR						
S501	1092	30'-0"	34169	STR						
	2	3'-0"								
S502	S.O.	TO	1107	STR						0'-3⅜"
	52	17'-5"								
S503	3166	32'-8"	107870	STR						
S504	60	7'-0"	438	60	1'-10"	1'-4"	1'-10"	0'-6"		
S505	40	3'-10"	160	6	0'-9"	0'-10½"	1'-6"	0'-6"	0'-8½"	
S506	40	10'-4"	431	62	2'-2"	3'-5"	1'-9"	0'-6"	2'-9"	
S507	40	3'-4"	139	STR						
S508	24	2'-0"	50	STR						
S509	24	5'-0"	125	STR						
S510	24	8'-0"	200	STR						
S511	24	4'-0"	100	STR						
		TOTAL	173735							

APPROACH SLAB REINFORCING STEEL LIST (△)

MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
AS501	23	29'-6"	708	STR						
AS502	16	32'-10"	548	STR						
	1	30'-9"								
AS503	S.O.	TO	497	STR						0'-1¾"
	15	32'-9"								
	1	30'-8"								
AS504	S.O.	TO	1093	STR						0'-0⅞"
	33	32'-10"								
AS505	1	30'-8"	32	STR						
AS1001	59	30'-11"	7849	19	29'-6"					
AS1002	1	16'-0"	69	19	14'-7"					
AS1003	1	23'-10"	103	19	22'-5"					
AS1004	1	22'-1"	95	19	20'-8"					
		TOTAL	10994							

PARAPET REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
R501	252	30'-0"	7885	STR						
R502	1161	5'-10"	7064	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
R503	6	29'-6"	185	STR						
R504	6	4'-11"	31	STR						
R601	43	30'-0"	1938	STR						
R602	1161	3'-0"	5231	6	0'-9"	0'-9"	0'-10½"	0'-6"	0'-8½"	
R603	1161	2'-2"	3778	1	0'-11"	1'-5"				
R604	1	15'-0"	23	STR						
R605	1	17'-8"	27	STR						
		TOTAL	26162							

PARAPET ON APPROACH SLAB REINFORCING STEEL LIST (△)

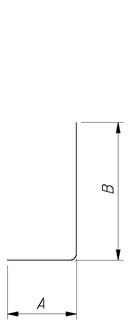
MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
AR501	12	29'-6"	369	20	0'-3"	6'-8"	22'-10"			
AR502	14	5'-10"	84	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
AR503	8	7'-4"	61	2	3'-0"	3'-2"	1'-1"	0'-7"	0'-2¾"	
	2	5'-10"			2'-6"	2'-9"	0'-8"	0'-3½"	0'-1½"	
AR504	S.O.	TO	273	2	TO	TO	TO	TO	TO	0'-1"
	20	7'-4"			3'-0"	3'-2"	1'-1"	0'-7"	0'-2¾"	
AR601	2	29'-6"	89	20	0'-3"	6'-8"	22'-10"			
AR602	14	3'-1"	65	6	0'-9"	0'-9½"	0'-10½"	0'-6"	0'-8½"	
AR603	14	2'-6"	53	1	0'-11"	1'-9"				
AR604	8	3'-8"	43	12	1'-1"	0'-4"	1'-9"	1'-1"		
AR605	48	2'-8"	192	1	1'-1"	1'-9"				
	2	3'-1"			0'-9"	0'-9½"	0'-10½"	0'-6"	0'-8½"	
AR606	S.O.	TO	205	6	TO	TO	TO	TO	TO	0'-0⅜"
	20	3'-9"			1'-1"	0'-0"	1'-1"	0'-4"	1'-9"	
		TOTAL	1434							

LEGEND:

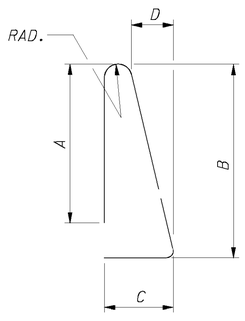
△ = REINFORCING STEEL INCLUDED W/ ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN FOR PAYMENT.
RAD. = RADIUS

NOTES:

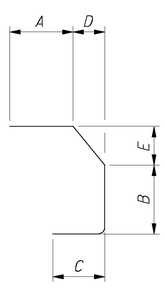
1. ALL BARS SHALL BE EPOXY COATED.
2. BAR DIMENSIONS SHOWN ARE OUT TO OUT.



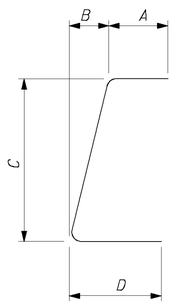
TYPE 1



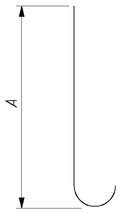
TYPE 2



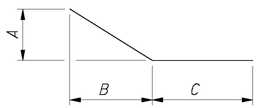
TYPE 6



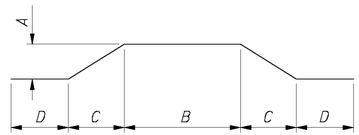
TYPE 12



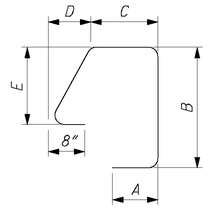
TYPE 19



TYPE 20



TYPE 60



TYPE 62

DESIGN AGENCY
BURGESS & NIPLE
191 West Nationwide Blvd. Suite 1500
Columbus, Ohio 43215

DESIGNED JHL | DRAWN AAA | REVIEWED RMK | DATE 02-18-10
CHECKED MAK | REVISED | STRUCTURE FILE NUMBER 3111652

REINFORCING STEEL LIST 1
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

HAM-50-18.79
PID No. 20082

33 / 34

436
657

P:\PR42702\ham\20082\structures\HAM264_1457C\sheets\264_1457CRL001.dgn

PIER REINFORCING STEEL LIST

	MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
	SP401	1	11'-6"	493	15	7'-0"	0'-4½"				
	SP402	1	16'-5"	685	15	7'-0"	0'-4½"				
	SP403	1	13'-10"	584	15	7'-0"	0'-4½"				
	SP404	1	12'-4"	525	15	7'-0"	0'-4½"				
**	SP405	9	39'-0"	8022	15	4'-0"	0'-4½"				
**	SP406	9	45'-0"	9222	15	4'-0"	0'-4½"				
	P401	4	23'-6"	63	97	7'-0"	1'-7"				
	P402	4	23'-3"	62	97	6'-11"	1'-7"				
	P403	4	22'-10"	61	97	6'-9½"	1'-7"				
	P404	4	22'-3"	59	97	6'-7½"	1'-7"				
	P405	4	21'-4"	57	97	6'-4"	1'-7"				
	P406	4	20'-4"	54	97	6'-0"	1'-7"				
	P407	4	19'-0"	51	97	5'-7"	1'-7"				
	P501	72	24'-8"	1852	STR						
	P502	13	22'-2"	301	STR						
	P503	16	18'-2"	303	STR						
	P504	12	12'-2"	152	STR						
	P505	9	15'-5"	145	STR						
	P601	8	11'-4"	136	STR						
	P602	8	19'-6"	234	STR						
	P603	8	25'-4"	304	STR						
	P604	8	27'-11"	335	STR						
	P605	40	17'-0"	1021	95						
	P606	40	11'-1"	666	1	10'-3"	1'-0"				
	P607	20	16'-2"	486	18	12'-6"	2'-0"	2'-0"			
	P608	24	8'-2"	294	18	4'-6"	2'-0"	2'-0"			
	P609	256	14'-3"	5479	18	2'-9"	5'-11"	5'-11"			
	P610	128	11'-9"	2259	18	2'-9"	4'-8"	4'-8"			
	P611	32	9'-1"	437	18	2'-9"	3'-4"	3'-4"			
	P612	28	20'-8"	869	18	4'-8"	8'-2"	8'-2"			
	P613	24	4'-5"	159	1	1'-6"	3'-1"				
	P614	18	14'-10"	401	35	3'-8"	3'-2"	1'-0"	1'-0"		
	P615	32	10'-1"	485	18	2'-9"	3'-10"	3'-10"			
	P701	17	13'-10"	481	22	12'-2"					
	P801	8	30'-7"	653	STR						
	P802	8	30'-2"	644	STR						
	P803	8	29'-4"	627	STR						
	P804	36	4'-5"	425	1	1'-6"	3'-1"				
	P901	136	27'-2"	12562	22	24'-8"					
	P1001	24	21'-0"	2169	22	18'-2"					
	P1002	26	25'-0"	2797	22	22'-2"					
	P1003	14	18'-3"	1099	22	15'-5"					
	P1101	30	24'-5"	3892	99	15'-7"	7'-2"	2'-0"			
	P1102	30	29'-4"	4676	99	20'-6"	7'-2"	2'-0"			
	P1103	32	26'-9"	2274	99	17'-11"	7'-2"	2'-0"			
	P1104	30	25'-2"	2006	99	16'-4"	7'-2"	2'-0"			
	P1105	40	30'-4"	6446	STR						
	P1106	40	33'-8"	7155	22	30'-6"					
**	P1107	135	42'-7"	30543	19	41'-0"					
**	P1108	135	48'-7"	34847	19	47'-0"					
	P1109	16	26'-9"	2274	100	17'-11"	7'-2"	2'-0"			
	P1110	15	25'-2"	2005	100	16'-4"	7'-2"	2'-0"			
			TOTAL	153831							

REAR ABUTMENT REINFORCING STEEL LIST

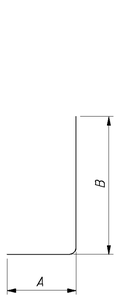
	MARK	NO.	LENGTH	WEIGHT	TYPE	DIM A.	DIM B	DIM C	DIM D	DIM E/RAD	INCR.
	D803	23	5'-2"	317	28	2'-10"	1'-5"				
*	RA1001	32	19'-6"	2685	1	1'-10"	18'-0"				
*	RA1002	32	18'-9"	2582	STR						
*	RA1101	48	38'-6"	9818	STR						
	RA501	76	10'-6"	832	18	5'-3"	2'-9"	2'-9"			
	RA502	14	30'-0"	438	STR						
	RA503	14	9'-8"	141	STR						
	RA504	6	4'-0"	25	26	0'-10½"	0'-10½"	1'-7½"	0'-10½"	0'-10½"	
	RA505	34	8'-0"	284	STR						
	RA506	4	6'-2"	25	2	2'-6"	2'-9"	0'-8"	0'-3½"	0'-3½"	
	RA507	12	0'-10"	10	STR						
	RA601	34	12'-3"	626	18	1'-5"	5'-7"	5'-7"			
	RA602	68	5'-0"	511	STR						
	RA603	34	8'-1"	413	18	0'-11"	3'-9"	3'-9"			
	RA604	18	15'-6"	419	18	1'-8"	7'-1"	7'-1"			
	RA605	18	20'-0"	541	18	1'-8"	9'-4"	9'-4"			
	RA606	4	4'-5"	27	6	0'-11"	2'-0"	0'-10½"	0'-6"	0'-8½"	
	RA607	4	3'-3"	20	1	0'-11"	2'-6"				
	RA608	2	0'-10"	3	STR						
	RA609	6	13'-2"	119	35	3'-0"	3'-0"	1'-0"	1'-0"		
	RA610	4	4'-4"	26	1	1'-6"	3'-0"				
	RA801	10	30'-0"	801	STR						
	RA802	10	12'-1"	323	STR						
	RA901	10	4'-3"	142	1	1'-6"	3'-0"				
	RA902	4	4'-9"	65	STR						
	SP407	4	16'-3"	960	15	2'-6"	0'-4½"				
*	SP408	4	38'-6"	3078	15	3'-6"	0'-4½"				
			TOTAL	25231							

LEGEND:

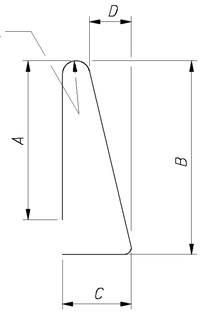
* = REINFORCING STEEL INCLUDED W/ ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN FOR PAYMENT
** = REINFORCING STEEL INCLUDED W/ ITEM 524 - DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK, AS PER PLAN FOR PAYMENT

NOTES:

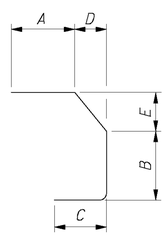
1. ALL BARS SHALL BE EPOXY COATED.
2. BAR DIMENSIONS SHOWN ARE OUT TO OUT.



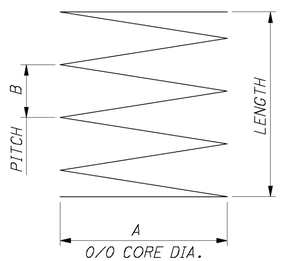
TYPE 1



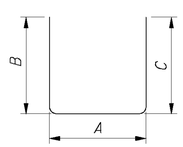
TYPE 2



TYPE 6



TYPE 15



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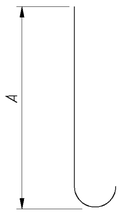

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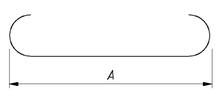

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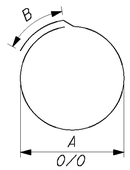

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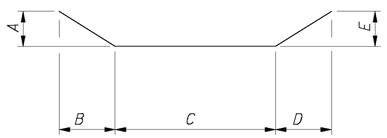

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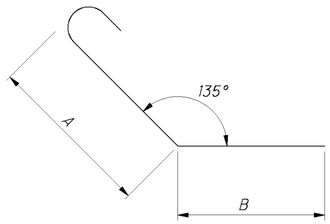

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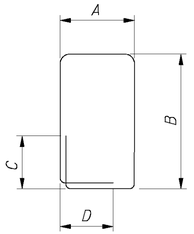

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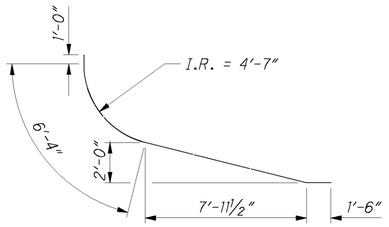

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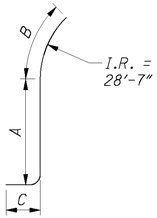

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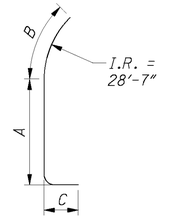

TYPE 100

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DESIGN AGENCY
BURGESS & NIPLE
(614) 459-2050 FAX (614) 459-2070
Columbus, Ohio 43230

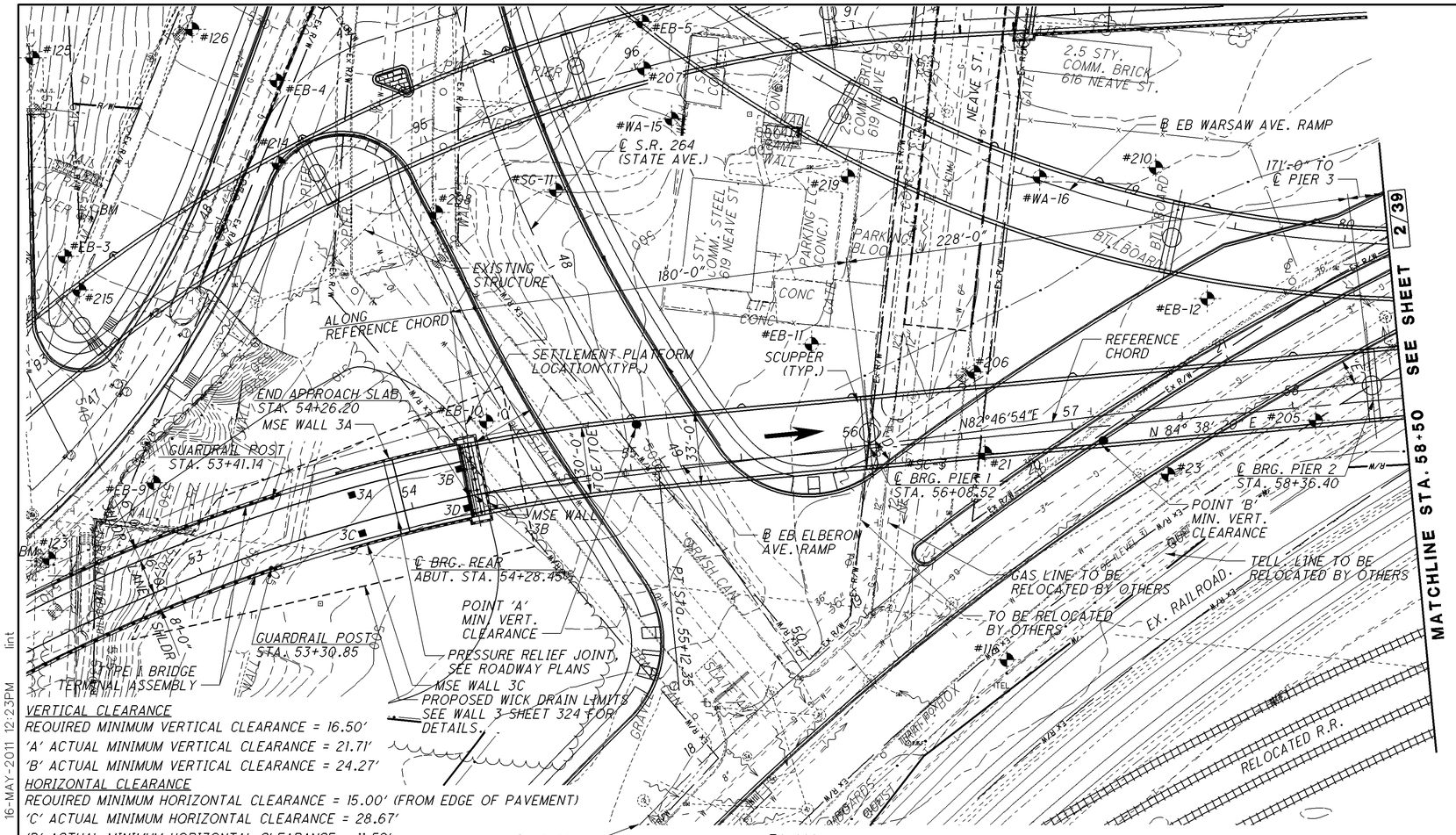
DESIGNED JHL | DRAWN AAA | REVIEWED RMK | DATE 02-18-10
CHECKED MAK | REVISED | STRUCTURE FILE NUMBER 3111652

REINFORCING STEEL LIST 2
BRIDGE NO. HAM-264-1457
W.B. ELBERON AVE. RAMP OVER S.R. 264

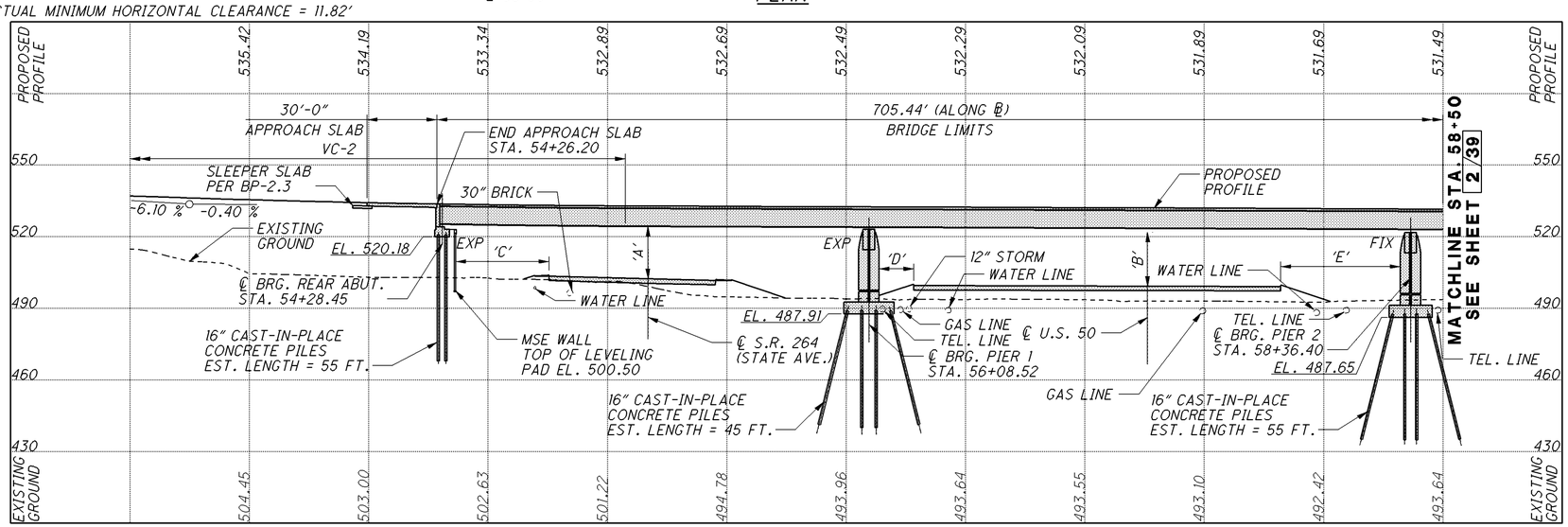
HAM-50-18.79
PID No. 20082

34 / 34

437
657



PLAN



PROFILE ALONG ℄ EB. ELBERON AVE. RAMP

BENCHMARK DATA

BM STA. 52+50.05 , ELEV. 541.03 , OFFSET 42.78', LT.
CHISELED BENCH MARK FOUND

BM STA. 54+04.22 , ELEV. 508.93 , OFFSET 78.32', LT.
PK NAIL SET

BM STA. 62+91.20 , ELEV. 493.11 , OFFSET 85.06', LT.
PK NAIL FOUND

BM STA. 63+96.84 , ELEV. 493.63 , OFFSET 112.06', LT.
BENCH MARK

NOTES:

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:

1996 ADT = 7,082 1996 ADTT = 284
2020 ADT = 9,171 2020 ADTT = 367

LEGEND:

SOIL BORING LOCATION

CURVE DATA

HORIZONTAL	VERTICAL	
	VC-1	VC-2
P.I. STA. 52+65.68 Δ = 37°24'59" (RT) Dc = 7°18'11" R = 784.56' T = 265.68' L = 512.35' E = 43.77'	P.V.I. STA 50+75.35 ELEV = 548.82' 105.00' VC -5.00 % -6.10 %	P.V.I. STA 53+25.00 ELEV = 533.59' 364.99' VC -6.10 % -0.40 %

EXISTING STRUCTURE

TYPE: 4-SPAN STEEL FRAMES WITH ALTERNATING SUSPENDED SPANS SUPPORTING A GIRDER - FLOORBEAM - STRINGER SYSTEM WITH REINFORCED CONCRETE DECK. THE SUPERSTRUCTURE IS SUPPORTED BY REINFORCED CONCRETE ABUTMENTS ON SPREAD FOOTINGS AND TAPERED, BUILT UP STEEL COLUMN STRADDLE BENTS ON PEDESTALS AND PILING.

LENGTH OF SPANS: 60.171', 84.254', 77.055' 57.668' (MEASURED ALONG CHORDS BETWEEN ℄ BEARING ABUTMENT AND PIERS)

ROADWAY WIDTH: VARIES 22'-24' FACE TO FACE CURB WITH 5' SIDEWALK

SKEW ANGLE: TANGENT

LOADING: POSTED 16 TON

DATE OF CONSTRUCTION: 1947

STRUCTURE FILE NO.: 3102785

APPROACH SLAB: 25'-0" (ESTIMATED)

WEARING SURFACE: ASPHALT

PROPOSED STRUCTURE

TYPE: 4-SPAN CONTINUOUS COMPOSITE STEEL GIRDERS WITH REINFORCED CONCRETE DECK, STUB ABUTMENTS, AND T-TYPE PIERS. (A709 GRADE 50 STEEL)

SPANS: 180' - 228' - 171' - 121' C/C BRGS. ALONG REFERENCE CHORD

ROADWAY: 30'-0" TOE/TOE PARAPET

LOADING: HS25 CASE II AND ALTERNATE MILITARY, FWS = 60 PSF

SKEW: NONE (RADIAL)

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: 30'-0" LONG (AS-1-81)

ALIGNMENT: RIGHT CURVE (784.56' RADIUS), TANGENT, LEFT CURVE (1,300' RADIUS)

SUPERELEVATION: VARIES TO 0.046 MAX.

COORDINATES: LATITUDE 39°06'04" N
LONGITUDE 84°33'10" W

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DRAWN	REVIEWED	DATE
LEL	EBS	11/16/10
DESIGNED	CHECKED	STRUCTURE FILE NUMBER
PJL	SAP	3102793

HAMILTON COUNTY
STA. 54+26.20
STA. 61+31.64

SITE PLAN 1

BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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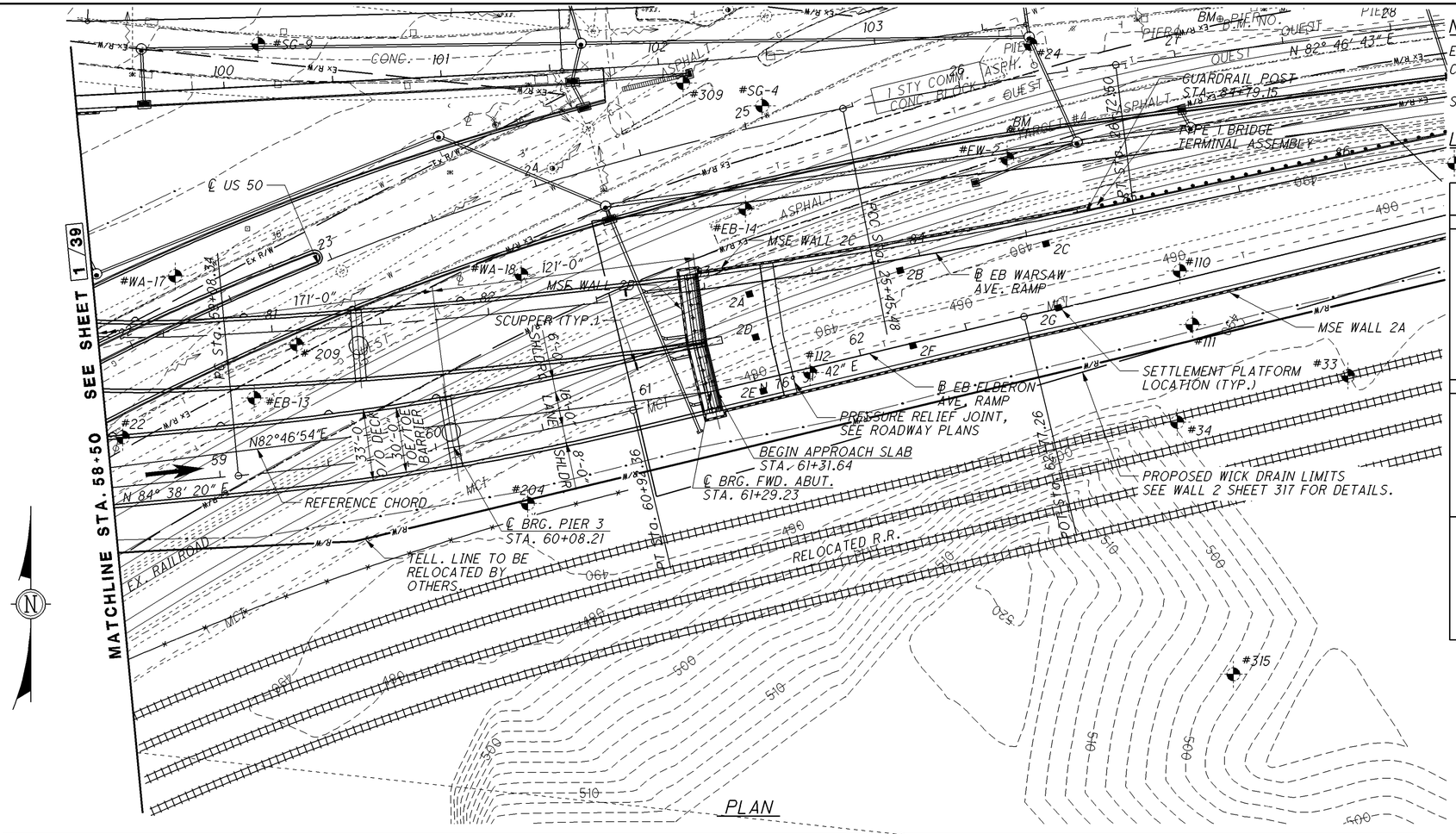


NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

SEE SHEET 1/39 FOR ADDITIONAL DETAILS.

LEGEND

SOIL BORING LOCATION

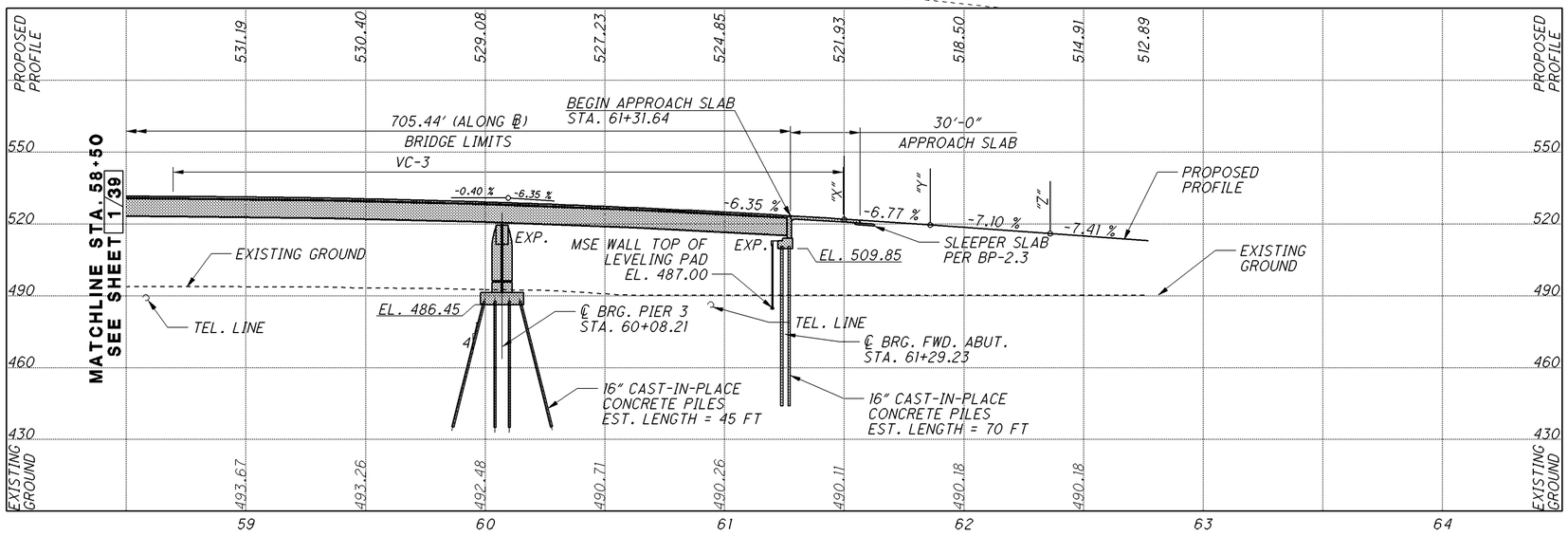
CURVE DATA

HORIZONTAL

P.I. STA. 60+00.50
Δ = 8°06'39" (LT)
Dc = 4°24'27"
R = 1,300.00'
T = 92.17'
L = 184.03'
E = 3.26'

VERTICAL

VC-3	"X"
P.V.I. STA 60+09.58 ELEV = 530.85' 280.00' VC -0.40 % — -6.35 %	P.V.I. STA 61+50.00 ELEV = 521.93' -6.35 % — -6.77 % NO CURVE
"Y"	**"Z"**
P.V.I. STA 61+85.94 ELEV = 519.50' -6.77 % — -7.10 % NO CURVE	P.V.I. STA 62+36.11 ELEV = 515.94' -7.10 % — -7.41 % NO CURVE



PROFILE ALONG ℄ EB ELBERON AVE. RAMP

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		30102793	

HAMILTON COUNTY
STA. 54+26.20
STA. 61+31.64

SITE PLAN 2
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM--50-18.79
PID No. 20082

2 / 39

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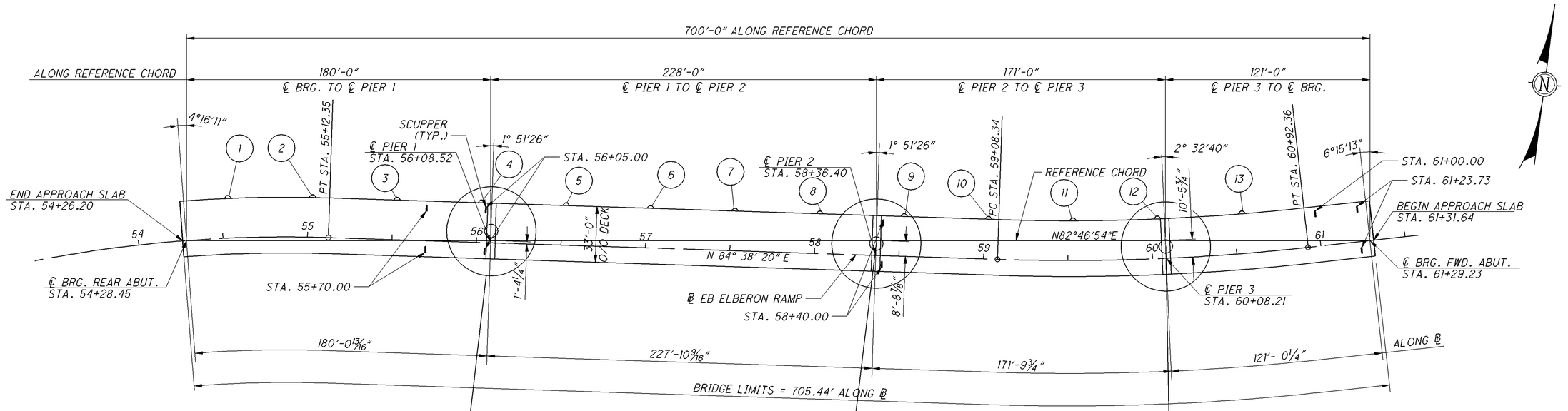

P.I. STA. 52+65.68
Δ = 37° 24' 59" (RT)
Dc = 7° 18' 11"
R = 784.56'
T = 265.68'
L = 512.35'
E = 43.77'

GENERAL PLAN

P.I. STA. 60+00.50
Δ = 8° 06' 39" (LT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 92.17'
L = 184.03'
E = 3.26'

EB ELBERON AVE. RAMP
PAVEMENT TRANSITION DETAIL

LIGHT STANDARD LOCATIONS	
POINT	STATION
1	54+52.00
2	55+02.00
3	55+52.00
4	56+02.00
5	56+52.00
6	57+02.00
7	57+52.00
8	58+02.00
9	58+53.00
10	59+02.00
11	59+53.00
12	60+04.00
13	60+54.00

PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

GENERAL PLAN
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

3 / 39

440
657

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STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-81	DATED/REVISED	07-19-02
BR-1	DATED/REVISED	07-19-02
GSD-1-96	DATED/REVISED	07-19-02
EXJ-4-87	DATED/REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

840	DATED	07-17-09
898	DATED	07-17-09

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE FOLLOWING SPECIFICATIONS:

- "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17th EDITION, 2002.
- THE ODOT BRIDGE DESIGN MANUAL.
- AASHTO GUIDE SPECIFICATIONS FOR HORIZONTALLY CURVED STEEL GIRDER HIGHWAY BRIDGES, 2003.
- SECTION 3.6.5 OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2005, INCLUDING THE 2008 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007 SHALL BE REFERENCED AS IT APPLIES TO THE PIER COLUMN DESIGN. NO OTHER SECTION OF THIS SPECIFICATION SHALL BE APPLICABLE FOR THESE PLANS.

DESIGN LOADING

DESIGN LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING.

FUTURE WEARING SURFACE (FWS) OF 60 POUNDS PER SQUARE FOOT.

DESIGN DATA

CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

CONCRETE CLASS QSC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996, GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

STRUCTURAL STEEL - ASTM A709 GRADE 50, MINIMUM YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2-1/2" CONCRETE COVER
SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

PILE DRIVING CONSTRAINTS

PRIOR TO DRIVING ABUTMENT PILES TO THE ULTIMATE BEARING VALUE (UBV), CONSTRUCT THE MSE WALL AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENT UP TO THE BOTTOM OF THE FOOTING FOR A MINIMUM DISTANCE OF 200 FT BEHIND EACH ABUTMENT. PROVIDE A SURCHARGE FROM THE BOTTOM OF THE ABUTMENT FOOTING TO THE BOTTOM OF THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BEHIND EACH ABUTMENT. SURCHARGE LOADS SHALL REMAIN UNTIL THE REQUIRED SETTLEMENT HAS OCCURED AND AS DIRECTED BY THE ENGINEER. COMPLETE THE MSE WALL AND EMBANKMENT CONSTRUCTION IMMEDIATELY FOLLOWING THE SURCHARGE REMOVAL.

THE CONTRACTOR MAY PRE-DRIVE ABUTMENT PILES BEFORE CONSTRUCTING MSE WALLS. PRE-DRIVING CONSISTS OF INSTALLING THE ABUTMENT PILES INTO THE SOIL ONLY AS FAR AS NECESSARY SO THAT THE PIPE WILL REMAIN VERTICAL DURING MSE WALL CONSTRUCTION. IF PRE-DRIVING PILES, INSTALL PILE SLEEVES AROUND PILES BEFORE CONSTRUCTING THE MSE WALL. AT LEAST THREE FEET OF PILE MUST EXTEND ABOVE THE TOP OF THE PILE SLEEVE TO MEET THE REQUIREMENTS OF CMS 507.09 REGARDING SPLICES. DO NOT DRIVE ABUTMENT PILES TO THE UBV UNTIL AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED, AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

IF NOT PRE-DRIVING ABUTMENT PILES, INSTALL THE ABUTMENT PILES THROUGH PILE SLEEVES AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

PILE DRIVING CONSTRAINTS (CONT.)

ABUTMENT PILE DRIVING TO THE UBV (FOR PILES DRIVEN AFTER MSE CONSTRUCTION) OR PILE REDRIVING (FOR PILES PRE-DRIVEN BEFORE MSE CONSTRUCTION) MAY NOT BEGIN UNTIL A MINIMUM 30 CALENDAR DAY WAITING PERIOD HAS ELAPSED AFTER THE COMPLETION OF EMBANKMENT AND SURCHARGE CONSTRUCTION. IN ADDITION, CONSECUTIVE SETTLEMENT READINGS, RECORDED AFTER EMBANKMENT CONSTRUCTION IS COMPLETE AND AT LEAST ONE WEEK (168 HOURS) APART, SHALL RESULT IN ELEVATION DIFFERENCES EQUAL TO OR LESS THAN 1/8 INCH FOR ABUTMENT CONSTRUCTION TO CONTINUE. IF SETTLEMENT RATES EXCEED 1/2 INCH PER MONTH AFTER EMBANKMENT CONSTRUCTION HAS BEEN COMPLETE FOR 40 DAYS, REMAINING ABUTMENT CONSTRUCTION, INCLUDING ANY NECESSARY CORRECTIVE MEASURES, MAY PROCEED ONLY AT THE DIRECTION OF THE ENGINEER.

THE ENGINEER MAY ADJUST THE SPECIFIED WAITING PERIOD BASED ON SETTLEMENT PLATFORM READINGS. AFTER THE SPECIFIED WAITING PERIOD HAS ELAPSED, DRIVE ABUTMENT PILES TO THE UBV. IN ORDER TO REMOVE ANY NEGATIVE SKIN FRICTION THAT HAS DEVELOPED DURING THE WAITING PERIOD, DRIVE EACH ABUTMENT PILE A DISTANCE OF AT LEAST 0.5 INCH.

PROPRIETARY RETAINING WALL DATA

THE PROPRIETARY WALL SUPPLIER SHALL DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL STRIP LOAD FROM THE SUPERSTRUCTURE OF 1.9 K/FT (REAR ABUTMENT) AND 1.3 K/FT (FORWARD ABUTMENT) APPLIED PERPENDICULAR TOTHE FACE OF WALL AT THE BASE OF THE CONCRETE FOOTING.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)

PILE DESIGN LOADS (ULTIMATE BEARING VALUE): THE ULTIMATE BEARING VALUE IS 158 TONS PER PILE FOR THE 16" CAST-IN-PLACE CONCRETE FORWARD ABUTMENT PILES AND 150 TONS PER PILE FOR THE 16" CAST-IN-PLACE REAR ABUTMENT PILES.

THE ULTIMATE BEARING VALUE IS 164 TONS PER PILE FOR THE PIER 1 PILES, 160 TONS PER PILE FOR PIER 2 PILES, AND 158 TONS PER PILE FOR PIER 3 PILES. ALL PIER PILES SHALL BE 16" CAST-IN-PLACE CONCRETE.

ABUTMENT PILES:
11 PILES 60 FEET LONG, ORDER LENGTH (REAR ABUTMENT)
8 PILES 75 FEET LONG, ORDER LENGTH (FORWARD ABUTMENT)
2 DYNAMIC LOAD TESTING ITEM

PIER 1 PILES:
28 PILES 50 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

PIER 2 PILES:
24 PILES 60 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

PIER 3 PILES:
20 PILES 50 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

BATTERED PILES

BATTERED PILES: THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1-UG}{\sqrt{(1+G^2)}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.

G = RATE OF BATTER (1/3, 1/4, ETC.)

UTILITY LINES

UTILITY LINES: THE UTILITY(IES) SHALL BORE ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN: THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING EASTBOUND ELBERON AVENUE RAMP.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN:

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN: THIS ITEM SHALL INCLUDE THE REMOVAL OF THE APPROACH SLABS FOR THE EXISTING EASTBOUND ELBERON AVENUE RAMP.

ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN

ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN: LOCATE THE LOWER CONTACT POINT OF THE OVERHANG FALSEWORK AT LEAST 76 INCHES +/- 2 IN. BELOW THE BOTTOM OF THE GIRDER'S TOP FLANGE. THE BRACKET CONTACT POINT LOCATION REQUIREMENTS OF C&MS 508 DO NOT APPLY.

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION):

APPLY A CLEAR PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

PERMANENT GRAFFITI PROTECTION SHALL BE APPLIED TO THE LIMITS SHOWN IN THE PLANS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN

THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), AS PER PLAN

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS, REFER TO SHEETS 24 THRU 81.

COLORS:

THE COLOR FOR THE ALTERNATE STEEL PARAPET RAILS AND ALL HARDWARE SHALL BE FEDERAL COLOR NUMBER 27038 (BLACK, 30% SHEEN).

LIGHT POLES LOCATED ON THE BRIDGE SHALL BE FEDERAL COLOR NUMBER 27038 (BLACK, 30% SHEEN).

THE COLOR FOR ITEM 513 STRUCTURAL STEEL MEMBERS, LEVEL 5, SHALL BE AS FOLLOWS:

THE OUTSIDE FACE AND BOTTOM FLANGES OF THE FASCIA BEAMS TO BE PAINTED FEDERAL COLOR NUMBER 27038 (BLACK, 30% SHEEN)

ALL REMAINING BRIDGE SUPERSTRUCTURE ELEMENTS TO BE PAINTED FEDERAL COLOR NUMBER 10324 (DARK NEUTRAL)

ITEM 512 SEALING OF CONCRETE SURFACES (NON-EPOXY) SHALL BE CLEAR.

THE COLOR FOR ITEM 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) AT THE PIERS SHALL BE FEDERAL COLOR NUMBER 11136 (TERRA COTTA)

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

GENERAL NOTES
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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PROPOSED WORK:

1. PROTECT AND MAINTAIN ALL TRAFFIC DURING CONSTRUCTION.
2. INSTALL DETOUR AND REMOVE EXISTING STRUCTURE.
3. CONSTRUCT ABUTMENT AND PIER FOUNDATIONS.
4. CONSTRUCT MSE RETAINING WALLS.
5. CONSTRUCT PIERS AND ABUTMENTS.
6. CONSTRUCT SUPERSTRUCTURE.
7. SEAL CONCRETE SURFACES AS SHOWN IN THE PLANS.

EXISTING STRUCTURE PLANS:

CONSTRUCTION PLANS FOR EXISTING BRIDGE ARE ON FILE AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 8 OFFICE, 505 SOUTH STATE ROUTE 741, LEBANON, OHIO AND ARE AVAILABLE FOR REFERENCE.

ABBREVIATIONS:

N.F. = NEAR FACE
F.F. = FAR FACE
E.F. = EACH FACE
TYP. = TYPICAL
MIN. = MINIMUM
STA. = STATION
SPA. = SPACES
CONST. = CONSTRUCTION
EL. ELEVATION
C.I.P. = CAST-IN-PLACE
BRG. = BEARING
EX. = EXISTING
PROP. = PROPOSED
A.P.P. = AS PER PLAN
R.A. = REAR ABUTMENT
F.A. = FORWARD ABUTMENT
O/O = OUT TO OUT
CLR. = CLEAR
LT. = LEFT
RT. = RIGHT
EST. = ESTIMATE
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
P.C.P.P. = PERFORATED CORRUGATED PLASTIC PIPE
N.P.C.P.P. = NON-PERFORATED CORRUGATED PLASTIC PIPE
INV. = INVERT
FWD. = FORWARD
ABUT. = ABUTMENT
CONC. = CONCRETE
EA. = EACH
STD. = STANDARD
DWG. = DRAWING
DIA. = DIAMETER
E.B. = EASTBOUND
W.B. = WESTBOUND
W.P. = WORK POINT
C/C = CENTER TO CENTER
STRUCT. = STRUCTURE
TEMP. = TEMPORARY
C.J. = CONSTRUCTION JOINT

BARRIER TRANSITIONS FOR ALTERNATE BID ITEM RAILING

DESIGN DETAILS ARE INCLUDED FOR BARRIER TRANSITIONS FOR STANDARD ODOT RAILING. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR TRANSITIONS OF THE ALTERNATE BID ITEM RAILING SELECTED. DESIGN DETAILS OF SIMILAR AESTHETIC RAILING TRANSITIONS ARE ON FILE WITH THE CITY FROM PREVIOUS PROJECTS SUCH AS THE FORMER COLUMBIA PARKWAY PROJECT. THE CONTRACTOR SHOULD CONTACT RICHARD SZEKERESH, P.E., PRINCIPAL STRUCTURAL ENGINEER FOR THE CITY OF CINCINNATI AT (513) 352-3419 OR RICHARD.SZEKERESH@CINCINNATI-OH.GOV FOR THESE DRAWINGS PRIOR TO DEVELOPING OR SUBMITTING SHOP DRAWINGS.

ITEM SPECIAL - MISC: TEMPORARY SURCHARGE

DESCRIPTION: THIS ITEM CONSISTS OF DESIGNING, CONSTRUCTING, AND REMOVING A TEMPORARY SURCHARGE AT THE LOCATIONS AND LIMITS SHOWN IN THE PLANS.

AS DIRECTED IN THE PILE DRIVING CONSTRAINTS, A TEMPORARY SURCHARGE IS NECESSARY AT THE ABUTMENTS FOR THIS BRIDGE TO MITIGATE EMBANKMENT SETTLEMENT. CONSTRUCT THE TEMPORARY SURCHARGE SO IT EXTENDS VERTICALLY FROM THE ELEVATION OF THE BOTTOM OF THE PROPOSED ABUTMENT FOOTING TO THE PROPOSED ROADWAY SUBGRADE ELEVATION. CONSTRUCT THE TEMPORARY SURCHARGE USING ITEM 203 EMBANKMENT WITH A DRY DENSITY OF AT LEAST 105 PCF AFTER COMPACTION. SUPPORT THE SIDES OF THE TEMPORARY SURCHARGE SO THAT THE TOP OF THE SURCHARGE MATERIAL IS NO MORE THAN 2 FEET (MEASURED HORIZONTALLY) FROM THE BACK FACE OF THE PROPOSED MSE WALLS. CONSTRUCT THE TEMPORARY SURCHARGE SO THAT IT EXTENDS AT LEAST 200 FEET BEHIND EACH ABUTMENT. PREPARE AND PROVIDE SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE TEMPORARY SURCHARGE, INCLUDING THE METHOD USED TO SUPPORT THE SIDES OF THE TEMPORARY SURCHARGE AND ALL DETAILS OF THE SUPPORT SYSTEM. ENSURE THE TEMPORARY SURCHARGE DESIGN ACCOMMODATES THE LOCATION AND COMPOSITION OF THE PROPOSED MSE WALLS FOR THE BRIDGE STRUCTURE. HAVE TWO OHIO REGISTERED ENGINEERS SIGN, SEAL, AND DATE THE DRAWINGS AND CALCULATIONS ACCORDING TO C&MS 501.05. SUBMIT THE DRAWINGS AND CALCULATIONS TO THE ENGINEER AT LEAST 30 DAYS BEFORE CONSTRUCTION OF THE TEMPORARY SURCHARGE BEGINS.

REMOVE THE TEMPORARY SURCHARGE AFTER THE CONDITIONS SPECIFIED IN THE PILE DRIVING CONSTRAINTS ARE SATISFIED AND THE ENGINEER AUTHORIZES REMOVAL. BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO DESIGN, CONSTRUCT AND REMOVE THE TEMPORARY SURCHARGE AT THE REAR AND FORWARD ABUTMENTS FOR THE BRIDGE AT THE CONTRACT LUMP SUM BID PRICE FOR ITEM SPECIAL 690E98400 SPECIAL-MISC: TEMPORARY SURCHARGE.

ITEM SPECIAL-SETTLEMENT PLATFORMS:

DESCRIPTION: THIS ITEM CONSISTS OF FURNISHING, CONSTRUCTING, AND MAINTAINING SETTLEMENT PLATFORMS AND OBTAINING SETTLEMENT READINGS AS REQUIRED BY THE PLANS OR AS DIRECTED BY THE ENGINEER. AT THE OPTION AND EXPENSE OF THE CONTRACTOR, ADDITIONAL SETTLEMENT PLATFORMS MAY BE INSTALLED AT LOCATIONS APPROVED BY THE ENGINEER. SETTLEMENT READINGS SHALL BE TAKEN WEEKLY DURING CONSTRUCTION AND DURING ANY SPECIFIED WAITING PERIOD. THE READINGS SHALL BE PLOTTED ON GRAPH PAPER PRESENTING DEFORMATION (ON THE NEGATIVE Y-AXIS) AND FILL HEIGHT (ON THE POSITIVE Y-AXIS) VERSUS TIME (ON THE X-AXIS). A COPY OF EACH CUMULATIVE PLOT SHALL BE SENT TO THE DISTRICT GEOTECHNICAL ENGINEER AND THE OFFICE OF GEOTECHNICAL ENGINEERING, ATTENTION: GEOTECHNICAL DESIGN COORDINATOR, AFTER EACH SETTLEMENT READING IS RECORDED.

THE DEPARTMENT WILL CONSIDER VIBRATING WIRE SETTLEMENT MONITORING PLATFORMS IN LIEU OF THE CONVENTIONAL SETTLEMENT PLATFORMS. THE CONTRACTOR SHOULD PROVIDE DETAILS OF THE PROPOSED VIBRATING WIRE SETTLEMENT PLATFORMS AS WELL AS DESIGN DRAWINGS OF THE PROPOSED PLATFORM AND CABLING LAYOUT TO THE ENGINEER AT LEAST 30 DAYS PRIOR TO CONSTRUCTION. THE DEPARTMENT WILL REQUIRE 10 WORKING DAYS FOR REVIEW AND APPROVAL. THE DESIGN DRAWINGS SHOULD ILLUSTRATE THE PROPOSED SETTLEMENT VIBRATING WIRE SETTLEMENT PLATFORM LOCATIONS WITH ALL EXISTING AND PROPOSED SITE FEATURES TO VERIFY THE PROPOSED CABLING WILL NOT CONFLICT WITH EXSITING FACILITIES, PROPOSED FACILITIES OR UTILITIES. NO ADDITIONAL PAYMENT WILL BE PROVIDED IF THE CONTRACTOR ELECTS TO UTILIZE VIBRATING WIRE SETTLEMENT PLATFORMS.

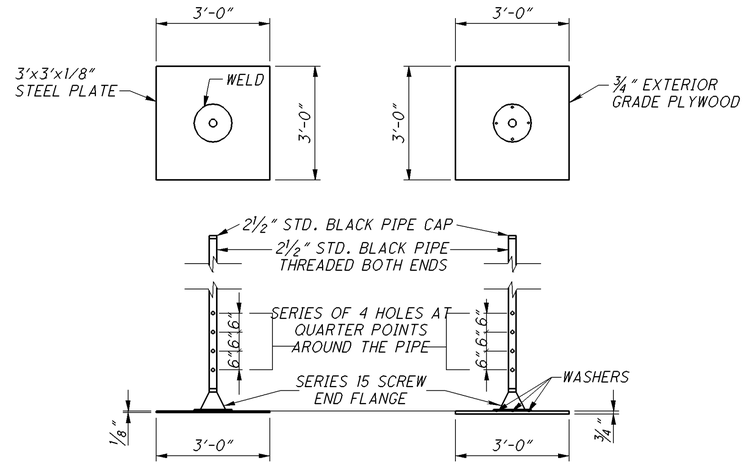
MATERIALS: SOUND LUMBER SUCH AS ¾ INCH EXTERIOR GRADE PLYWOOD SHALL BE USED FOR THE BASE. THE PIPE SHALL BE 2½" STANDARD BLACK PIPE WITH THREADED FITTINGS AS SHOWN ON THE PLANS. A STEEL PLATE 36"x36"x1/8" MAY BE SUBSTITUTED FOR THE LUMBER FOR THE PLATFORMS, AT CONTRACTORS OPTION.

CONSTRUCTION REQUIREMENTS: THE 36"x36" PLATFORM SHALL BE CONFORM TO THE DETAILS SHOWN ON THE PLANS. THE PLATFORM SHALL BE SET ON A LEVEL SURFACE. THE PIPES SHALL BE FIRMLY SECURED TO THE PLATFORMS AND SHALL BE MAINTAINED IN PLUMB POSITION DURING THE PLACEMENT OF THE EMBANKMENT. PIPES SHALL BE MARKED AT INTERVALS BY THE CONTRACTOR TO FACILITATE MEASUREMENT OF THE DEPTH OF FILL. THE CONTRACTOR SHALL STOP WORK IN ANY LOCATION WHERE A SETTLEMENT PLATFORM HAS BEEN DISTURBED OR DAMAGED UNTIL THE NECESSARY CORRECTIONS OR REPLACEMENT HAS BEEN PERFORMED.

PRIOR TO PAVING, THE TOP OF THE SETTLEMENT PLATFORM PIPE SHALL BE CUT OFF 2 FEET BELOW THE FINISHED SURFACE OF THE SUBGRADE OR TOPSOIL SURFACE, WHICHEVER IS APPLICABLE.

METHOD OF MEASUREMENT: THE NUMBER OF SETTLEMENT PLATFORMS TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF SETTLEMENT PLATFORMS COMPLETED, MAINTAINED, AND ACCEPTED BY THE ENGINEER.

BASIS OF PAYMENT: PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER EACH FOR "ITEM SPECIAL, SETTLEMENT PLATFORMS" WHICH IS COMPENSATED FOR CONSTRUCTION, MAINTAINING AND MONITORING THE SETTLEMENT PLATFORMS INCLUDING FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK. PAYMENT WILL NOT BE MADE FOR SETTLEMENT PLATFORMS WHICH BECOME USELESS BECAUSE OF DAMAGE INFLICTED BY THE CONTRACTOR'S OPERATIONS



NOTES:

1. SETTLEMENT PLATES SHALL BE PLACED AT THE LOCATIONS INDICATED ON WALLS 2 AND 3 SHEETS 319 AND 324, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CONTRACTOR HAS OPTION OF USING EITHER STEEL OR PLYWOOD PLATFORM BASE.
3. CONTRACTOR SHALL FURNISH MATERIALS AND LABOR TO EXTEND PIPE UP THROUGH ENTIRE FILL.
4. SETTLEMENT PLATFORMS SHALL BE ANCHORED BY STAKES DRIVEN AT EACH CORNER TO PREVENT OVERTURNING.
5. CONTRACTOR WILL ESTABLISH MONUMENTS AT A MINIMUM OF SIX (6) LOCATIONS AROUND EXTERIOR PERIMETER OF WALL TO MONITOR SETTLEMENT AT BASE. MONUMENTS TO BE SURVEYED AT REGULAR INTERVALS DURING CONSTRUCTION AT SAME FREQUENCY AS SETTLEMENT PLATFORMS. MONUMENTS MAY CONSIST OF CHISELED NOTCHES ON WALL FACE OR STEEL RODS OR CONCRETE PIERS SET AT LEAST 30 INCHES BELOW GRADE AT BASE OF WALL.

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GENERAL NOTES
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HAM-50-18.79
PID No. 20082

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ITEM	EXTENSION	STRUCTURE TOTAL ODOT	STRUCTURE TOTAL CITY	UNIT	ESTIMATED QUANTITIES DESCRIPTION	HAM-050-1875 ABUT.	PIER	SUPER.	GEN.	SEE SHEET NO.
202	11203	1		LUMP	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					4/39
202	22901	134		SQ YD	APPROACH SLAB REMOVED, AS PER PLAN				134	4/39
SPECIAL	203E65000	7		EACH	SETTLEMENT PLATFORM	7				
503	11100	1		LUMP	COFFERDAMS AND EXCAVATION BRACING					4/39
503	21300	1		LUMP	UNCLASSIFIED EXCAVATION					
505	11100	1		LUMP	PILE DRIVING EQUIPMENT MOBILIZATION					
507	00700	4,645		FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	1,165	3,480			
507	00750	5,100		FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	1,260	3,840			
509	10000	356,968		LB	EPOXY COATED REINFORCING STEEL	15,101	106,280	235,587		
512	10001	84		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)		84			4/39
512	10050	1,763		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY)	141		1,622		
512	10100	404		SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		404			
513	10300	1,484,020		LB	STRUCTURAL STEEL MEMBERS, LEVEL 5			1,484,020		
513	20000	5,432		EACH	WELDED STUD SHEAR CONNECTORS			5,432		
514	00060	62,649		SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			62,649		
514	00066	62,649		SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			62,649		
514	10000	26		EACH	FINAL INSPECTION REPAIR			26		
516	11211	33		FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN (5" SEAL)			33		10/39
516	11211	33		FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN (4" SEAL)			33		12/39
516	13600	37		SQ FT	1" PREFORMED EXPANSION JOINT FILLER			37		
516	13900	75		SQ FT	2" PREFORMED EXPANSION JOINT FILLER			75		
516	44301	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (20" x 26" x 4 5/16" BEARING WITH 21" x 39" LOAD PLATE		4			23/39
516	44301	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (16" x 24" x 4 5/8" BEARING WITH 17" x 25" LOAD PLATE		4			23/39
516	44401	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (10" x 15" x 5 1/16" BEARING WITH 11" x 20" LOAD PLATE	4				23/39
516	44401	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (22" x 28" x 6 7/16" BEARING WITH 23" x 29" LOAD PLATE		4			23/39
516	44401	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (12" x 20" x 6 3/4" BEARING WITH 13" x 26" LOAD PLATE	4				23/39
517	76300		1,467	FT	RAILING, MISC.: RAILING ALTERNATE, MINNESOTA RAILING (SEE NOTE 2)			1,467		
518	12300	9		EACH	SCUPPERS, INCLUDING SUPPORTS			9		
518	51100	430		FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS			430		
523	20000	5		EACH	DYNAMIC LOAD TESTING	2	3			
SPECIAL	690E98400	1		LUMP	SPECIAL-MISC.: TEMPORARY SURCHARGE					
898	10201	707		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			707		4/39
898	10709	111		SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN			111		4/39
898	11000	180		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			180		
898	20100	268		CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		268			
898	20160	135		CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	135				
898	20300	245		CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		245			

CALC. BY: BKJ DATE: 8-07
CHK'D BY: PJL DATE: 9-07

NOTES:

1. FOR LIST OF ABBREVIATIONS SEE SHEET 5/39.

2. RAILING, MISC: RAILING ALTERNATIVE, MINNESOTA RAILING IS A REQUIRED BID ITEM. IF SELECTED BY THE OWNER IT WILL REPLACE BID ITEM 898: QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET). CONCRETE IN ALTERNATE RAILING SHALL BE QC/QA CONCRETE, CLASS QSC2. IF SELECTED BY THE OWNER ALTERNATE RAILING AND ALL NECESSARY TRANSITIONS SHALL BE DETAILED PER MINNESOTA STANDARD DRAWING FIGURE 5-397.157 AND SUBMITTED FOR SHOP DRAWING REVIEW PRIOR TO FABRICATION. THE COST OF ALL LABOR MATERIALS, AND EQUIPMENT NECESSARY FOR PAINTING, REINFORCEMENT, SEALING, RAILINGS, AND SHOP DRAWING PREPARATION SHALL BE INCLUDED WITH THIS ITEM FOR PAYMENT. SEE SHEET 4/39 FOR COLOR REQUIREMENTS. ALL REINFORCEMENT SHALL BE EPOXY COATED. THE ALTERNATE RAILING OPTION WILL REPLACE 37,888 POUNDS OF REINFORCEMENT AND 1,182 SQ.YD. OF SEALING.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

ESTIMATED QUANTITIES
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

6/39

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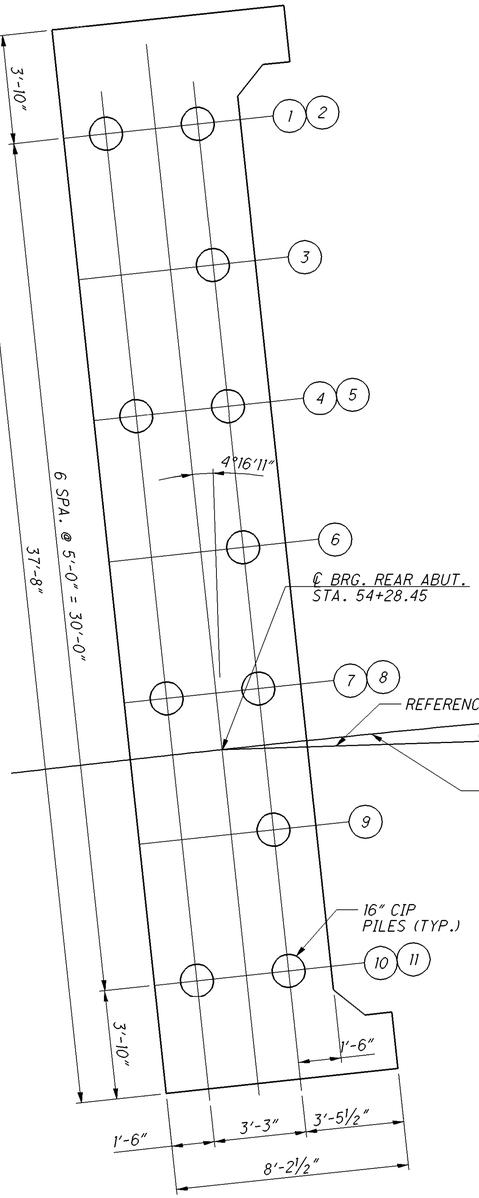
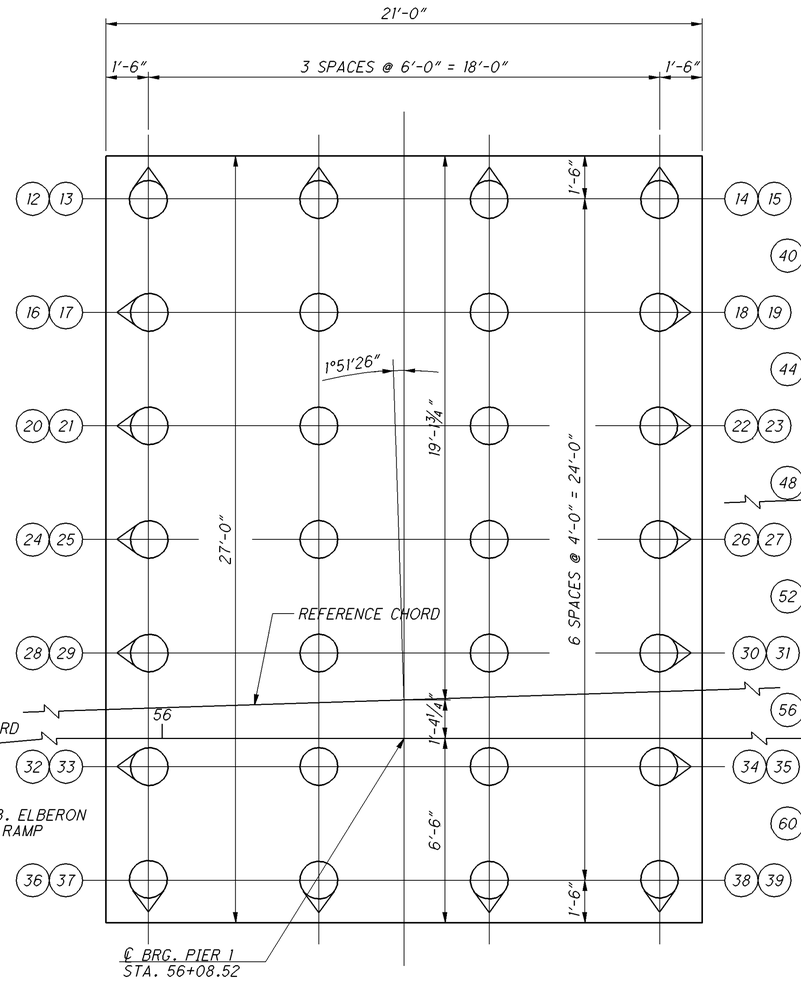
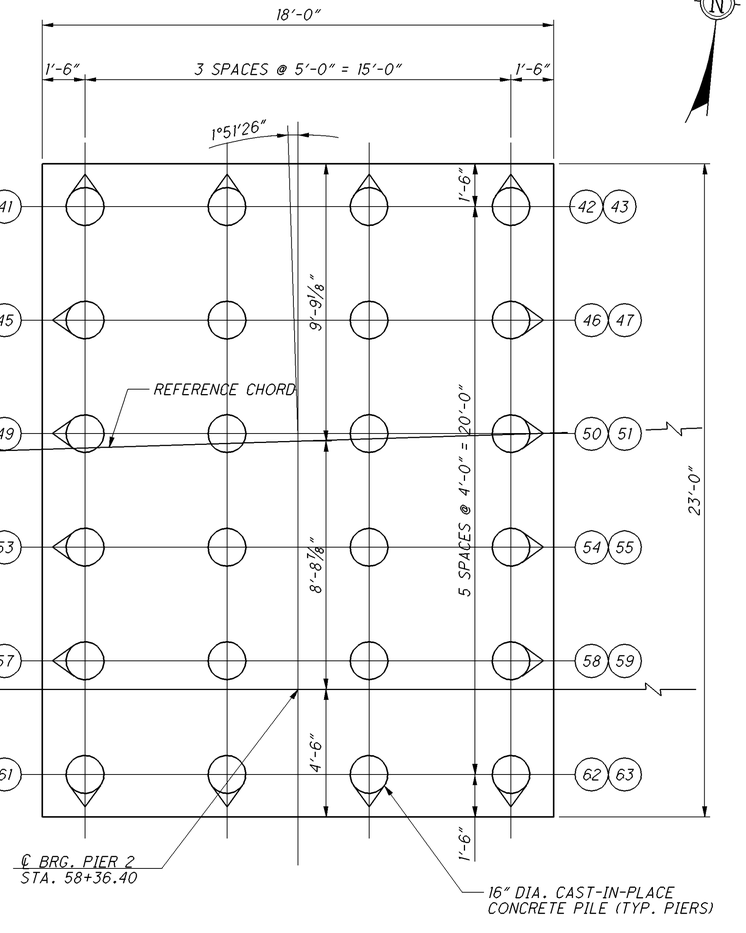


REAR ABUTMENT



PIER 1



PIER 2

FOUNDATION LAYOUT PLAN

LEGEND

- PROPOSED VERTICAL PILE
- PROPOSED PILE BATTERED (1:4) IN DIRECTION OF ARROW
- (N) DENOTES PILE NUMBER 'N'

FOUNDATION LAYOUT PLAN

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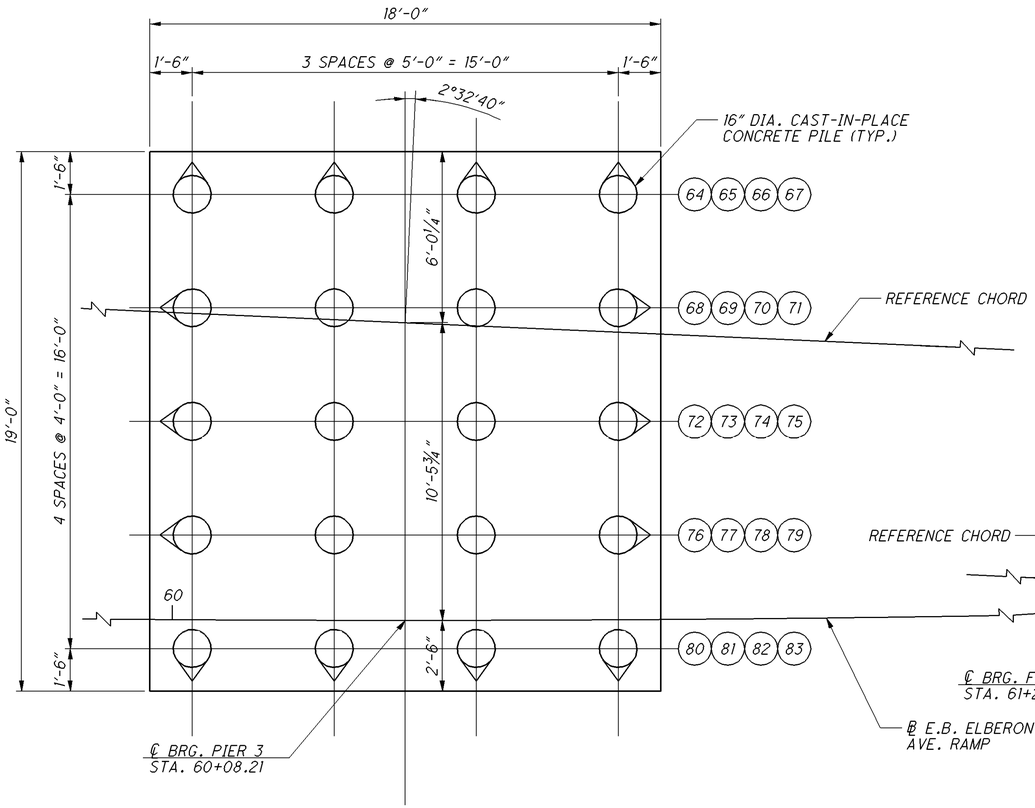
LEGEND

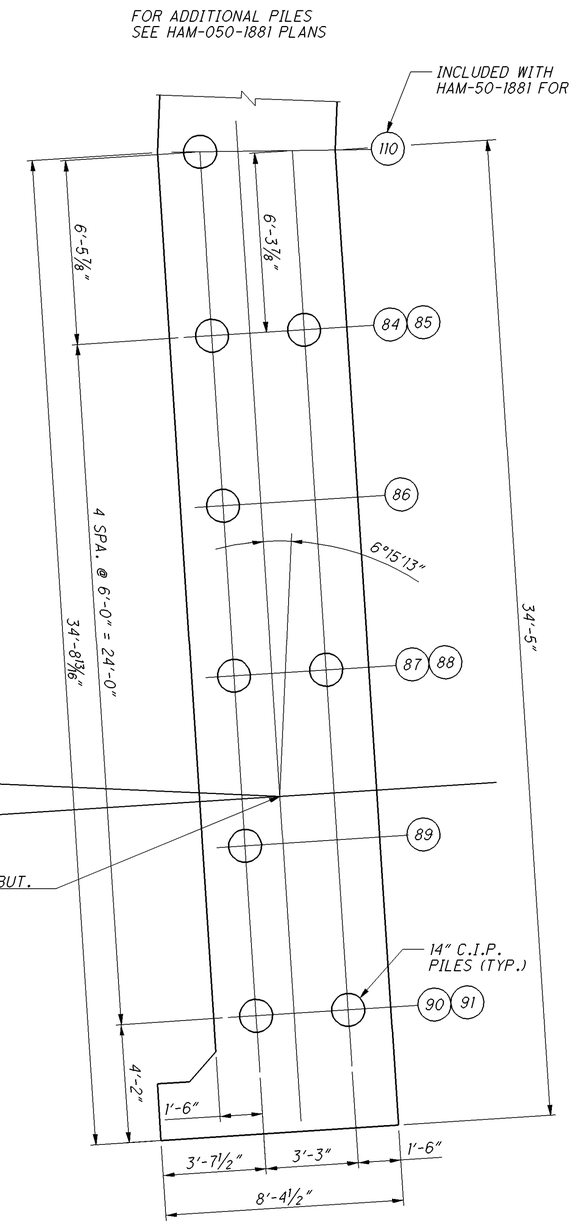
PROPOSED VERTICAL PILE

PROPOSED PILE BATTERED (1:4) IN DIRECTION OF ARROW

(N) DENOTES PILE NUMBER 'N'



PIER 3



FORWARD ABUTMENT

FOUNDATION LAYOUT PLAN

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
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DESIGNED	DRAWN	REVIEWED	DATE
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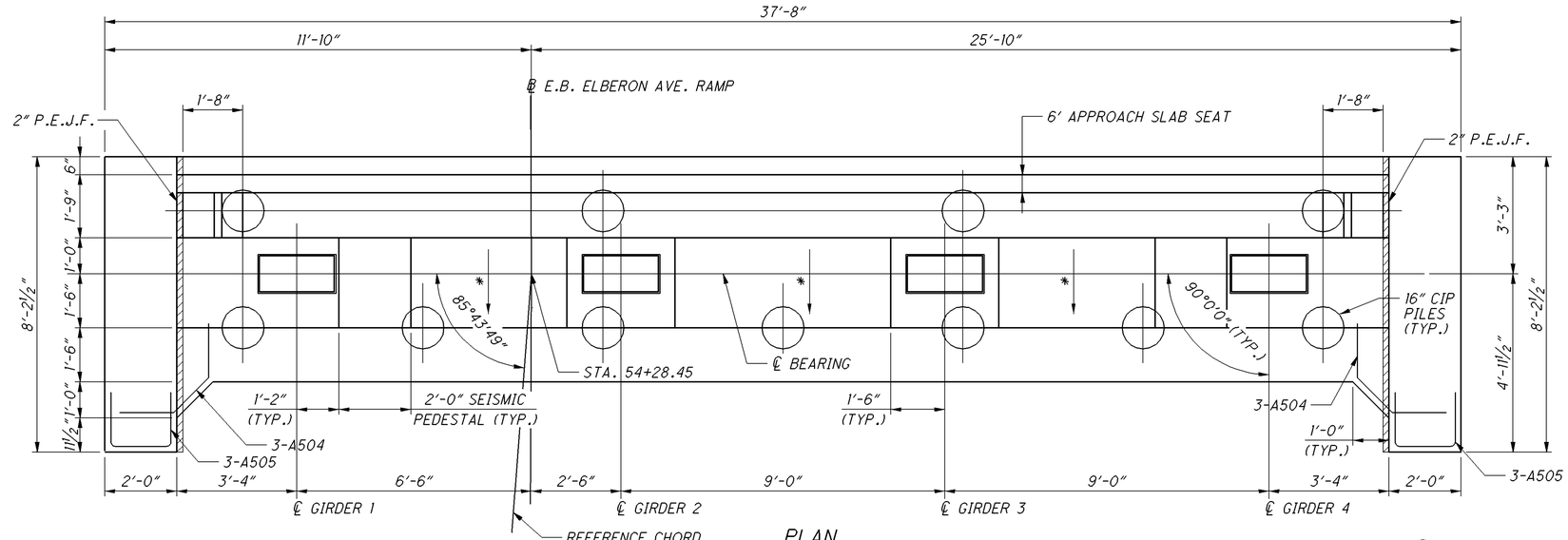
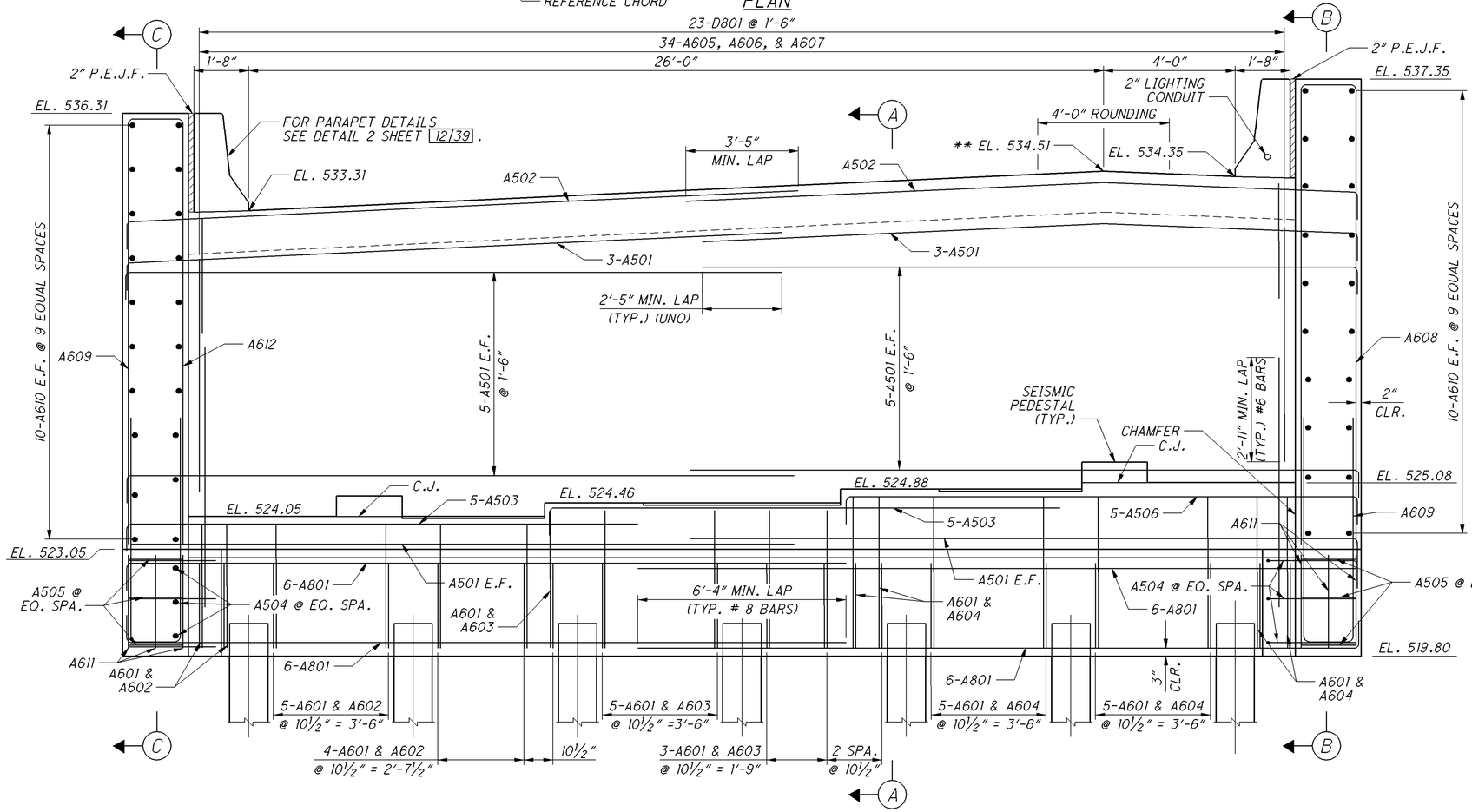


PLAN



ELEVATION

LEGEND:

* - SLOPE ¾" BETWEEN BEARING SEATS

** - ELEVATION AT APPARENT GRADE BREAK AT CENTER OF SHOULDER ROUNDING.

NOTES:

1. ALL BACKWALL ELEVATIONS GIVEN AT FACE OF JOINT ARMOR.
2. FOR SEISMIC PEDESTAL DETAILS, SEE SHEET 10/39.
3. FOR SECTION A-A & B-B, SEE SHEET 10/39.
4. FOR FOUNDATION LAYOUT PLAN, SEE SHEET 7/39.
5. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.332 INCHES AT THE REAR ABUTMENT TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

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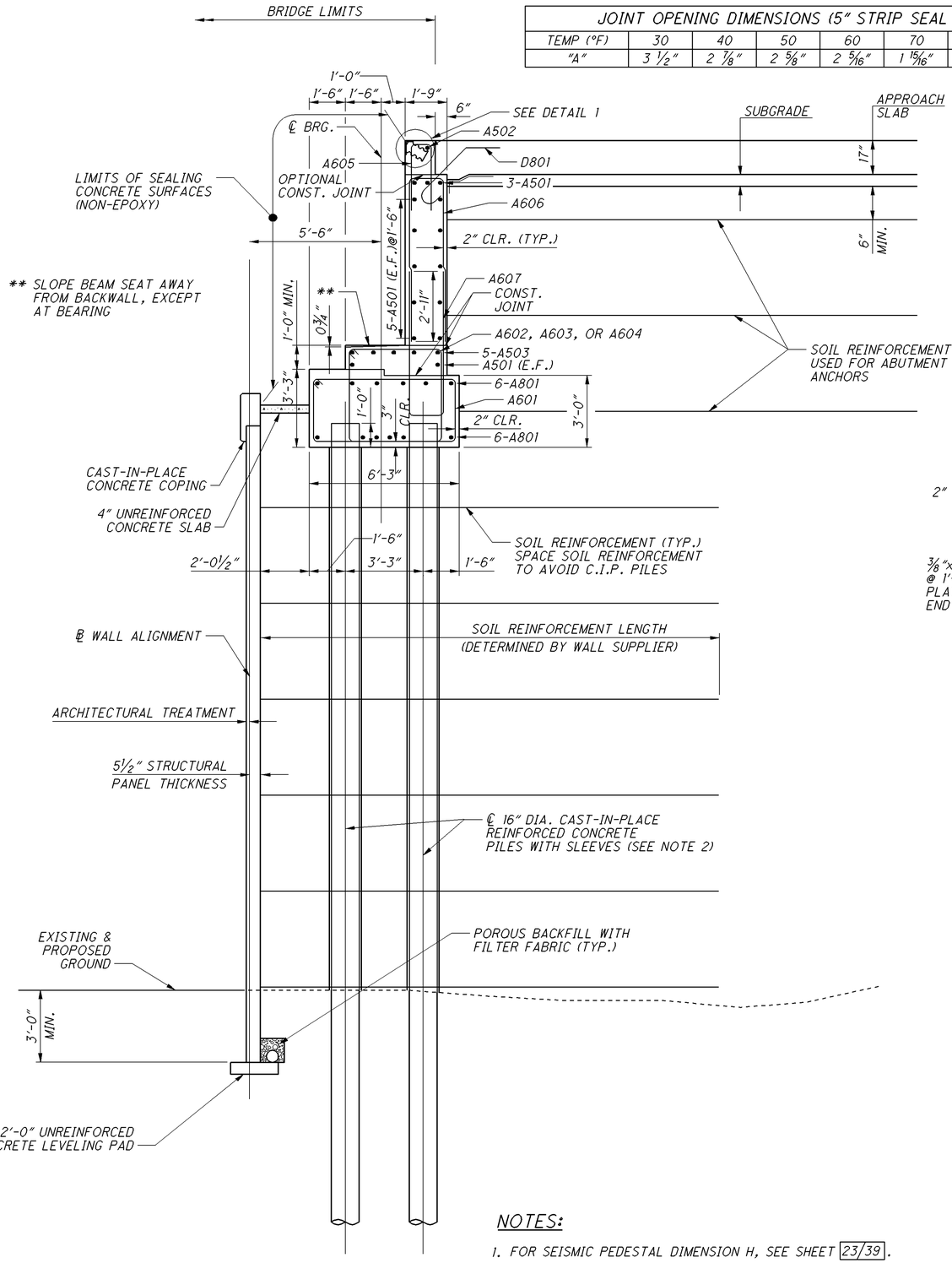
JOINT OPENING DIMENSIONS (5" STRIP SEAL GLAND)							
TEMP (°F)	30	40	50	60	70	80	90
"A"	3 1/2"	2 7/8"	2 5/8"	2 5/16"	1 15/16"	1 5/8"	1 3/8"

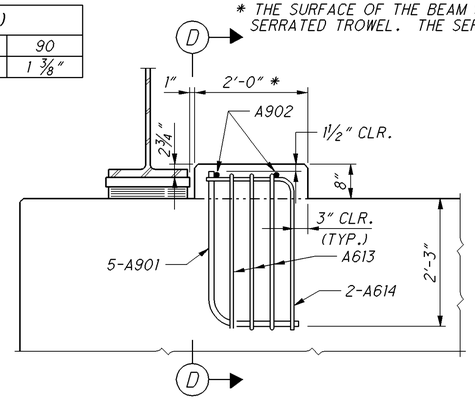


SECTION A-A

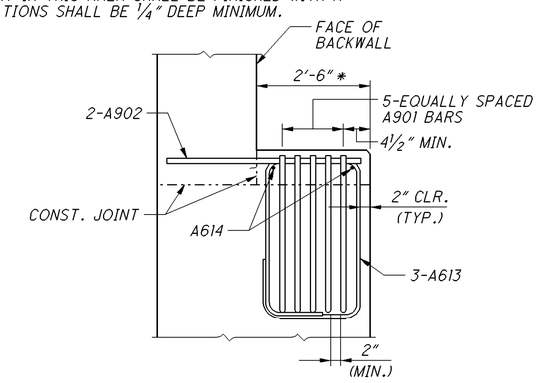
NOTES:

1. FOR SEISMIC PEDESTAL DIMENSION H, SEE SHEET 23/39.
2. FOR LOCATION OF SECTION A-A & B-B SEE SHEET 9/39.
3. FOR FOUNDATION LAYOUT PLAN, SEE SHEET 7/39.

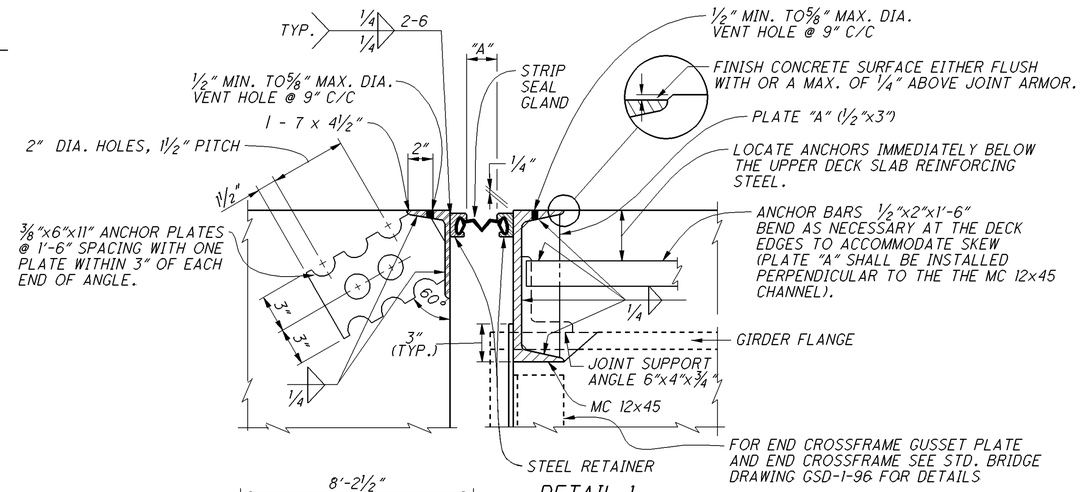
* THE SURFACE OF THE BEAM SEAT IN THIS AREA SHALL BE FINISHED WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼" DEEP MINIMUM.



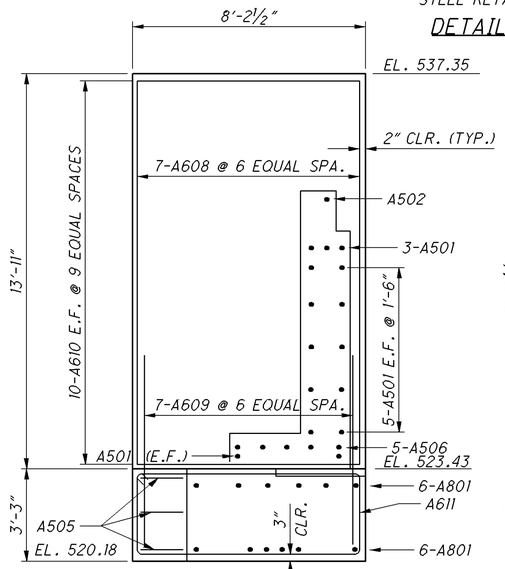
FRONT VIEW OF SEISMIC PEDESTAL



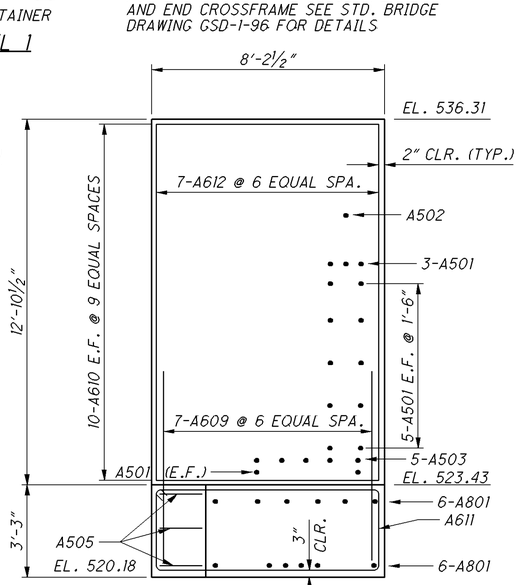
SECTION D-D



DETAIL 1



SECTION B-B
ELBERON RAMP EASTBOUND



SECTION C-C
ELBERON RAMP EASTBOUND

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

REAR ABUTMENT DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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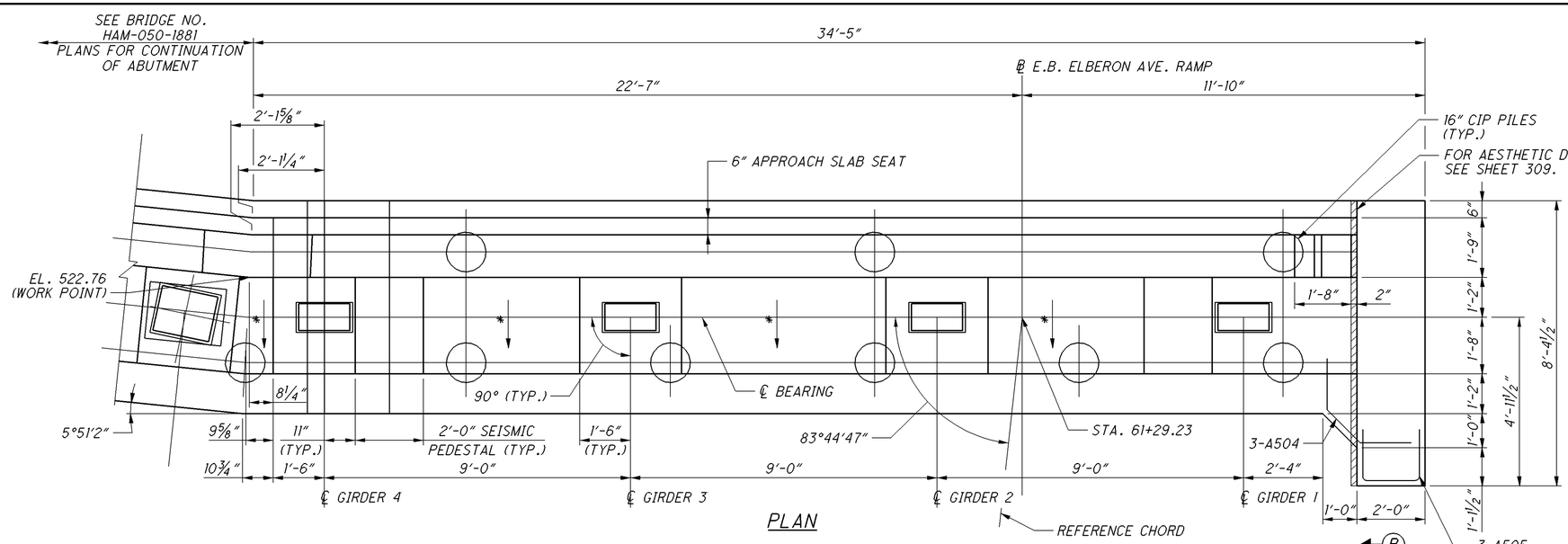

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DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL		3102793	

FORWARD ABUTMENT
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

11 / 39

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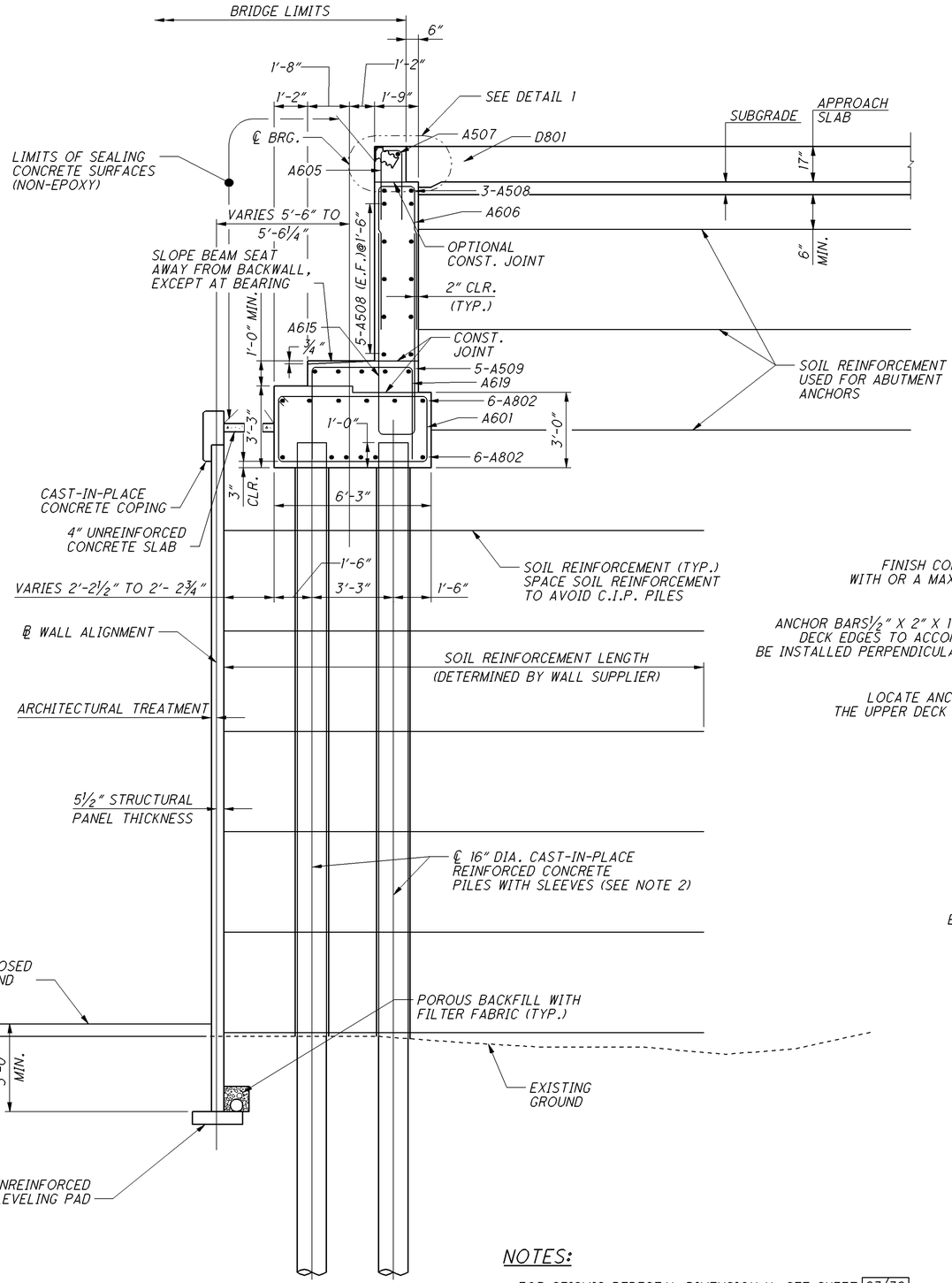
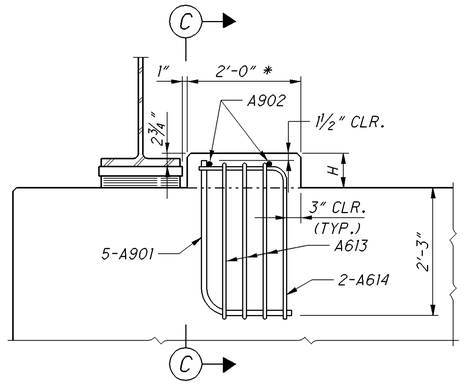
657

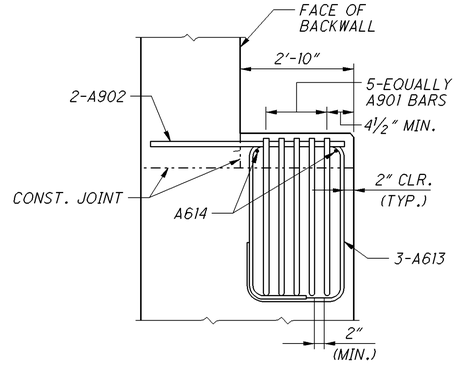


SECTION A-A



FRONT VIEW OF SEISMIC PEDESTAL

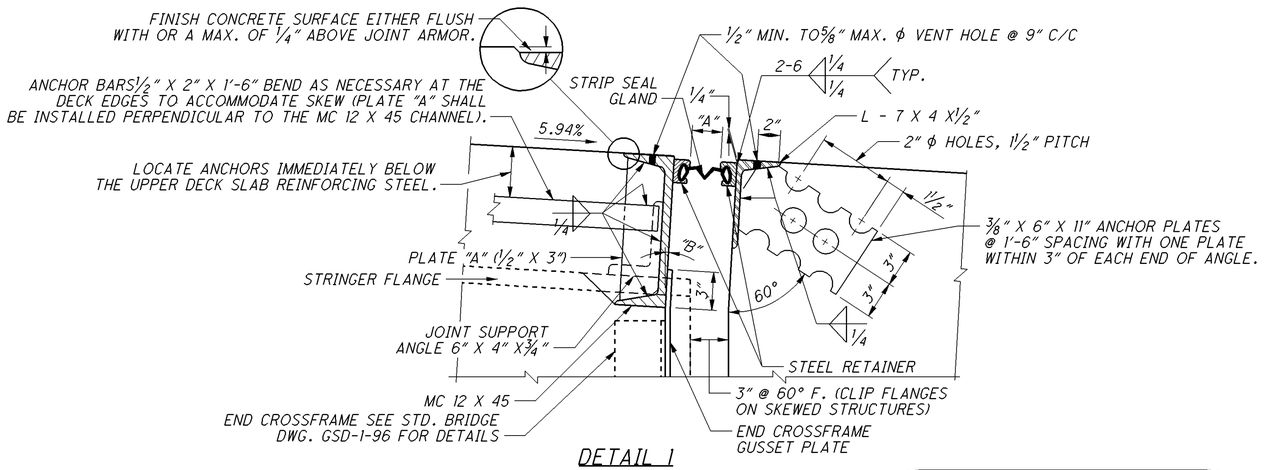
* FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATION SHALL BE ¼" DEEP MINIMUM.



SECTION C-C

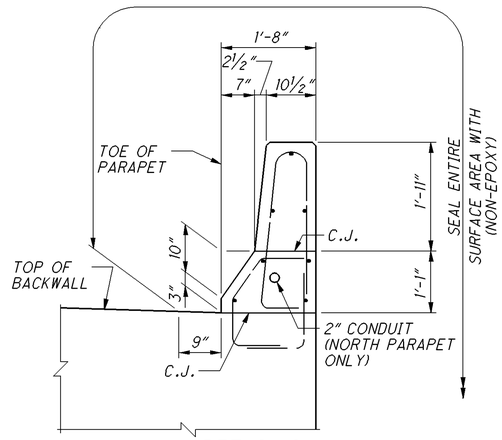
JOINT OPENING DIMENSIONS (4" STRIP SEAL GLAND)							
TEMP (°F)	30	40	50	60	70	80	90
"A"	2 5/8"	2 3/8"	2 1/8"	1 7/8"	1 11/16"	1 7/16"	1¼"

"B" = 3°23'06"



DETAIL 1

MODIFIED EXPANSION JOINT DETAIL (SEE STANDARD DRAWING EXJ-4-87 FOR NOTES & DETAILS)



DETAIL 2

NOTES:

1. FOR SEISMIC PEDESTAL DIMENSION H, SEE SHEET 23/39.
2. FOR LOCATION OF SECTION A-A, SEE SHEET 11/39.
3. FOR LOCATION OF DETAIL 2, SEE SHEETS 9/39 AND 11/39.
4. FOR REINFORCING STEEL IN DETAIL 2, SEE SHEETS 31/39 AND 32/39.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED BMG | CHECKED PJL
DRAWN NAL | REVISED
REVIEWED EBS | DATE 11/16/10
STRUCTURE FILE NUMBER 3102793

FORWARD ABUTMENT DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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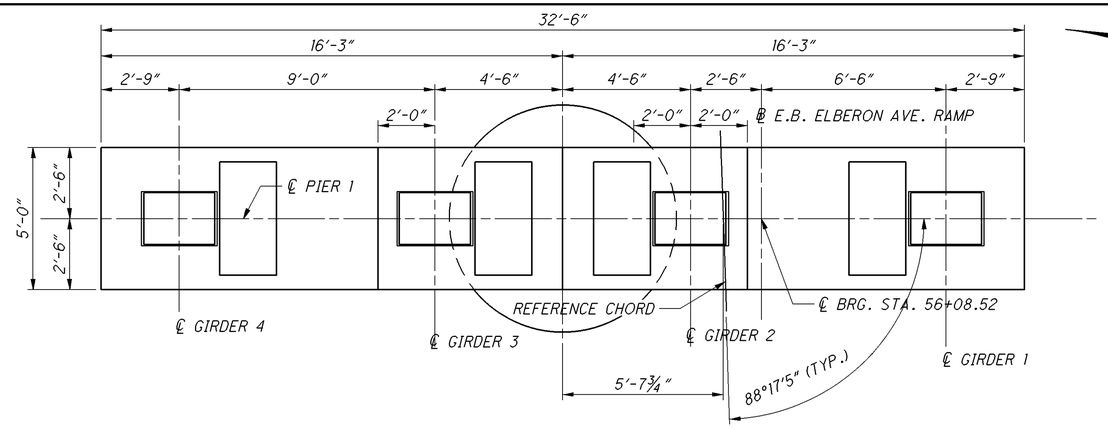
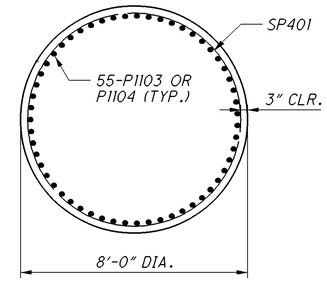




NOTES:

1. SEE SHEET 23/39 FOR SEISMIC PEDESTAL DIMENSION H.
2. SEE SHEET 16/39 FOR AESTHETIC DETAILS.
3. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT. SPIRAL REINFORCEMENT SHALL EXTEND FROM THE TOP OF THE FOOTING TO THE BOTTOM ROW OF HORIZONTAL CAP REINFORCEMENT.
4. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.310 INCHES AT PIER 1 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
5. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

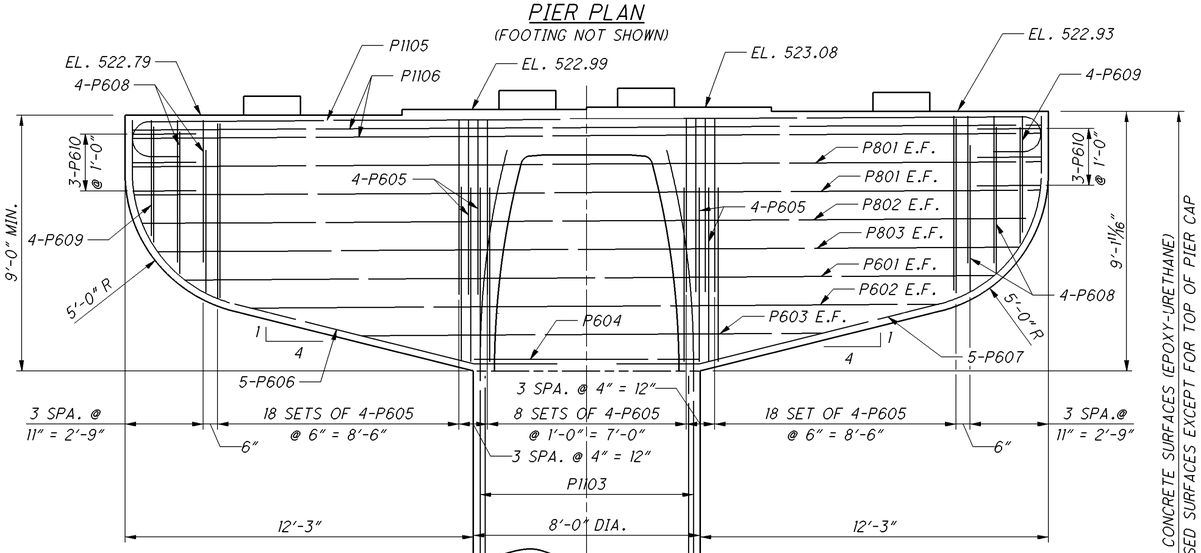
MINIMUM LAPS:

#6 BARS 3'-10"

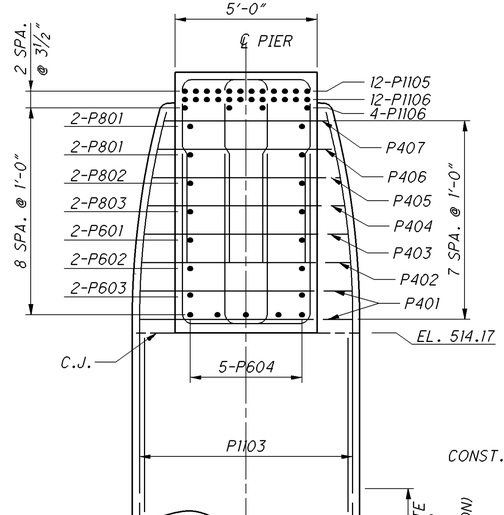
#11 BARS 12'-7"

PIER PLAN

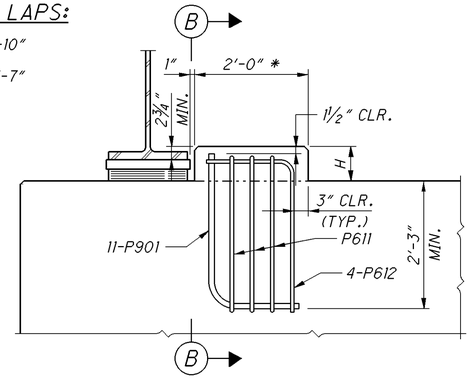
(FOOTING NOT SHOWN)

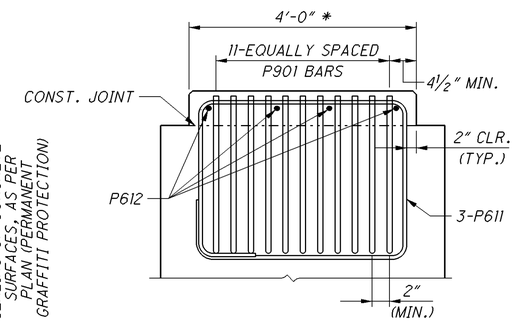


SECTION A-A



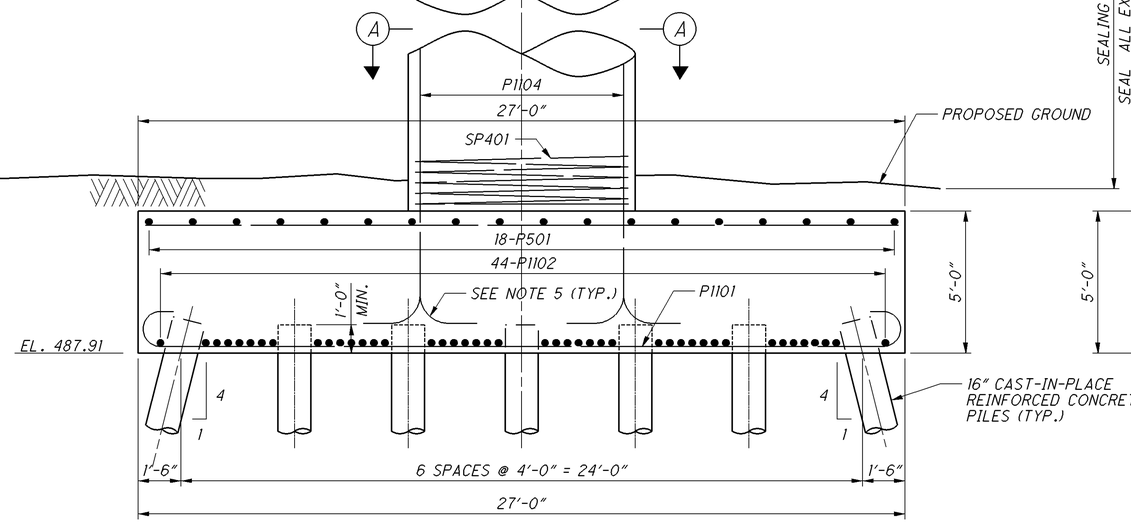
FRONT VIEW OF SEISMIC PEDESTAL





SECTION B-B

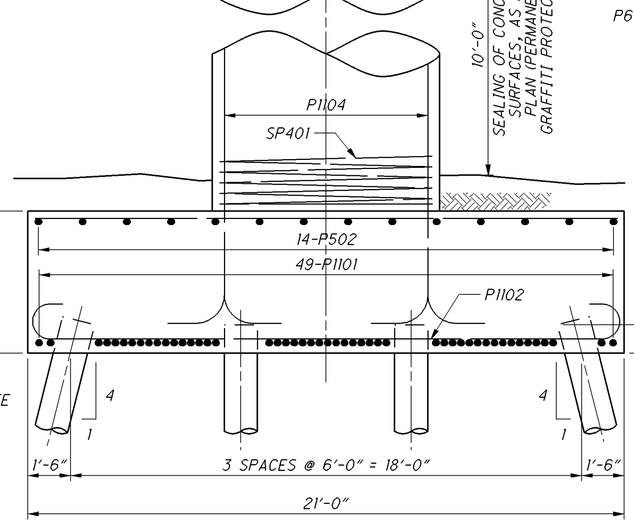
* THE SURFACE OF THE BEAM SEAT IN THIS AREA SHALL BE FINISHED WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼" DEEP MINIMUM.



ELEVATION SECTION

ELBERON RAMP EASTBOUND (LOOKING UPSTATION AT PIER 1)

SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
SEAL ALL EXPOSED SURFACES EXCEPT FOR TOP OF PIER CAP



PIER SIDE VIEW

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102793	

PIER 1 DETAILS

BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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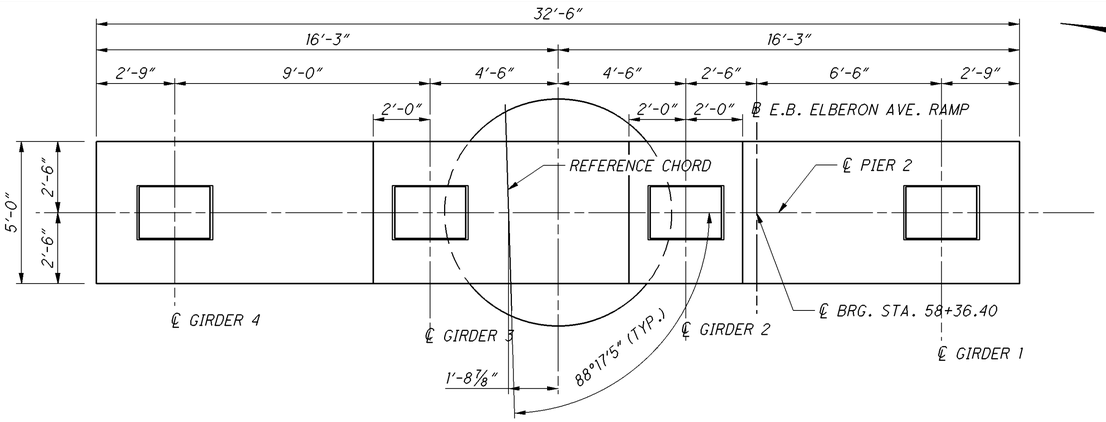
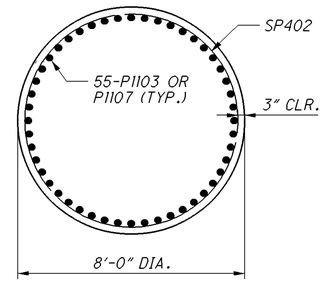


PIER PLAN
(FOOTING NOT SHOWN)



SECTION A-A

NOTES:

1. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS.
2. SEE SHEET 16/39 FOR AESTHETIC DETAILS.

3. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT. SPIRAL REINFORCEMENT SHALL EXTEND FROM THE TOP OF THE FOOTING TO THE BOTTOM ROW OF HORIZONTAL CAP REINFORCEMENT.

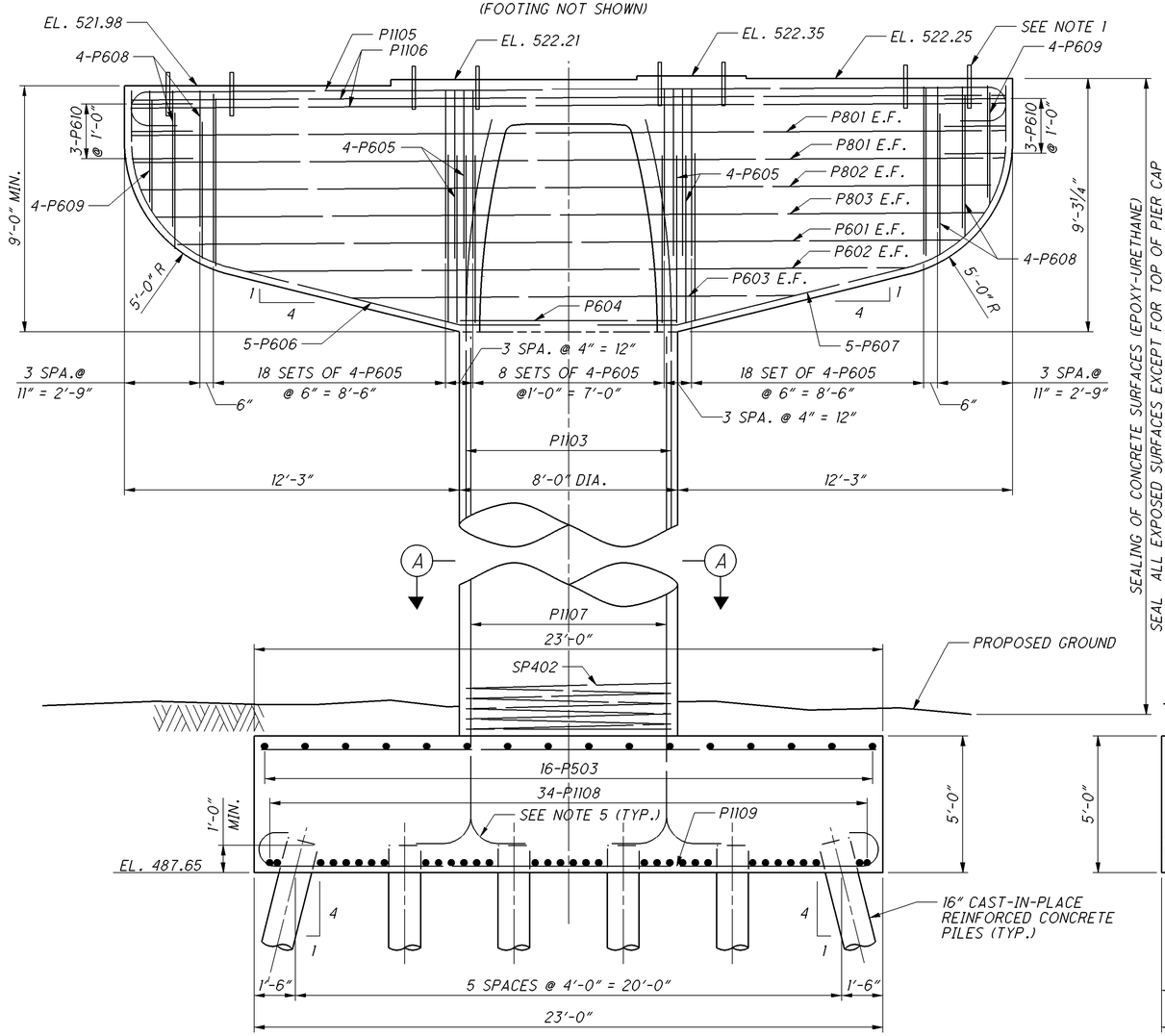
4. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD0.206 INCHES AT PIER 2 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

5. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

MINIMUM LAPS:

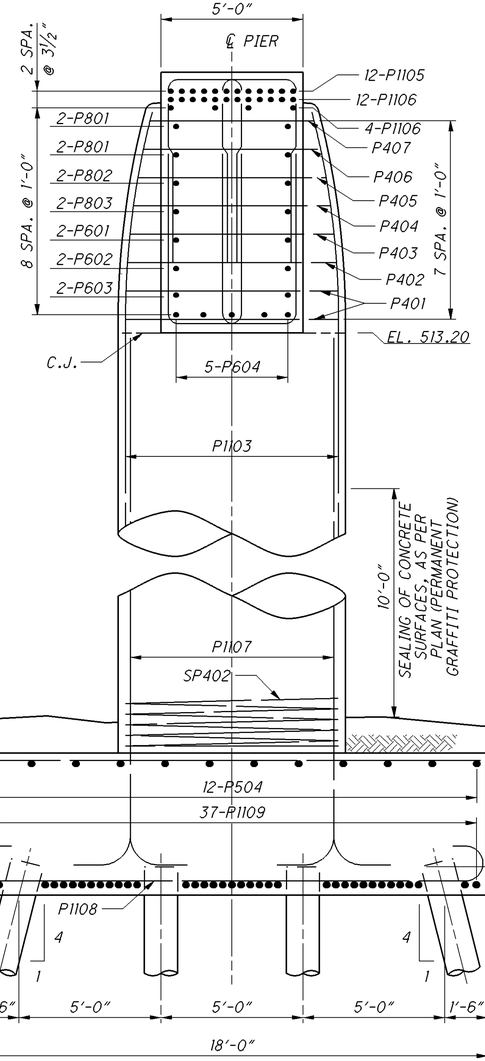
#6 BARS 3'-10"

#11 BARS 12'-7"



ELEVATION SECTION
ELBERON RAMP EASTBOUND (LOOKING UPSTATION AT PIER 2)

SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
SEAL ALL EXPOSED SURFACES EXCEPT FOR TOP OF PIER CAP



PIER SIDE VIEW

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102793	

PIER 2 DETAILS
BRIDGE NO. HAM-050-1875
OVER S.R. 264 AND U.S.R. 50
EB ELBERON AVE. RAMP

HAM-50-18.79
PID No. 20082

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451
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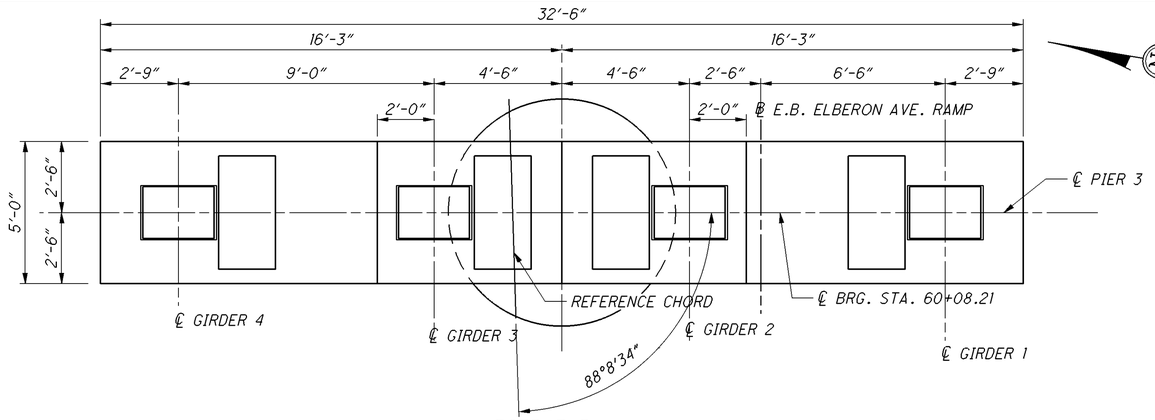
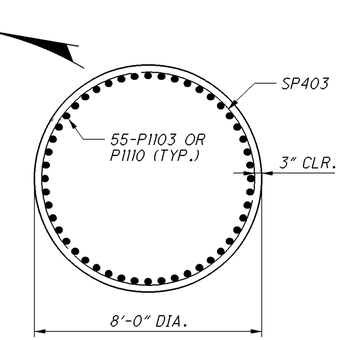


PIER 3 PLAN



SECTION A-A

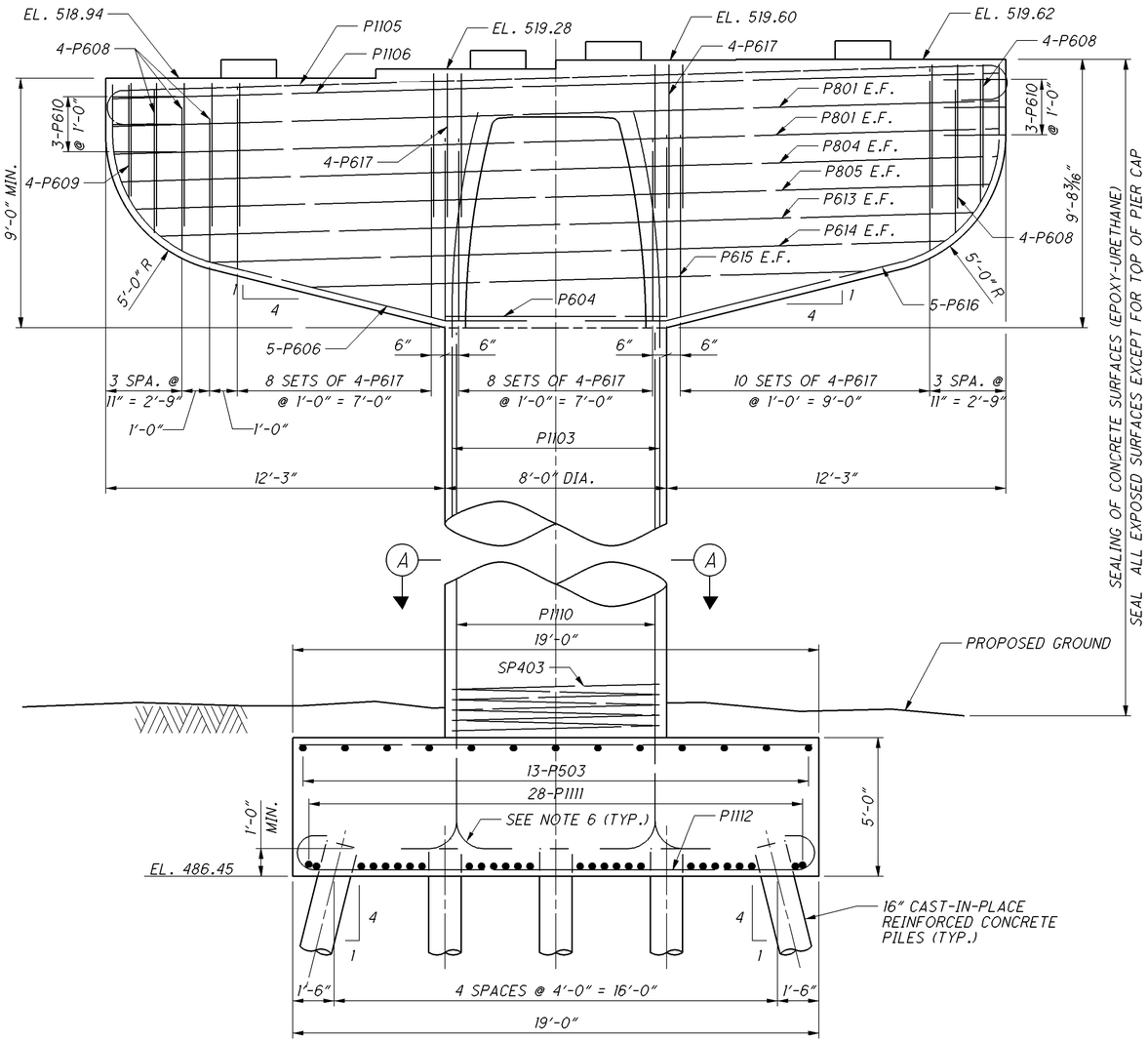
NOTES:

1. SEE SHEET 23/39 FOR SEISMIC PEDESTAL DIMENSION H.
2. SEE SHEET 16/39 FOR AESTHETIC DETAILS.
3. SEE SHEET 13/39 FOR SEISMIC PEDESTAL DETAILS.
4. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT. SPIRAL REINFORCEMENT SHALL EXTEND FROM THE TOP OF THE FOOTING TO THE BOTTOM ROW OF HORIZONTAL CAP REINFORCEMENT.
5. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.216 INCHES AT PIER 3 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
6. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

MINIMUM LAPS:

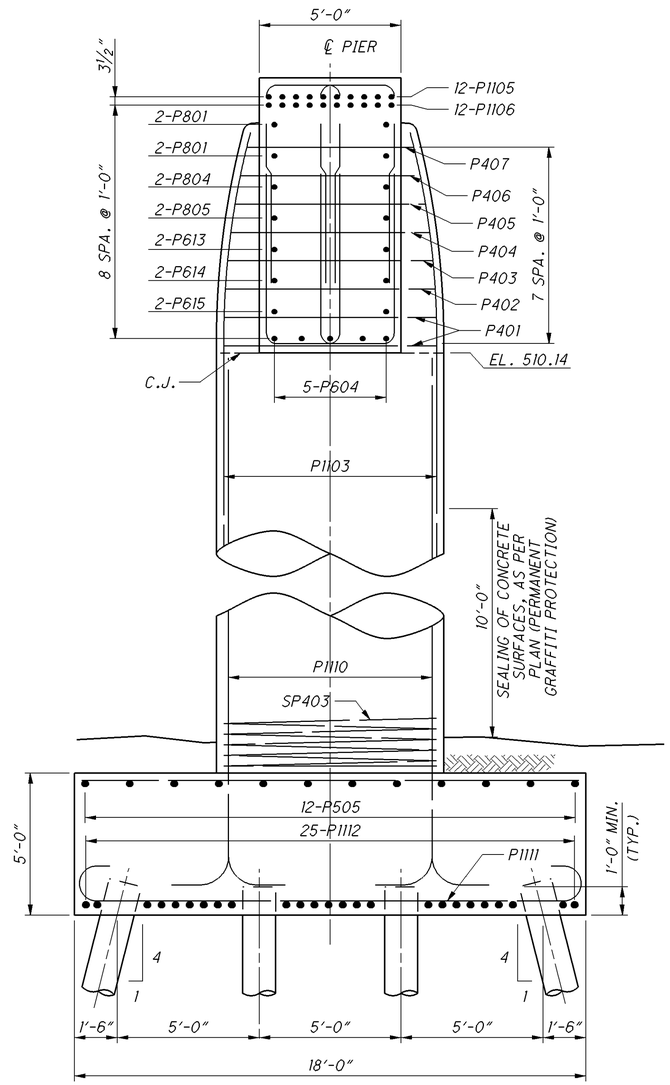
#6 BARS 3'-10"

#11 BARS 12'-7"



ELEVATION SECTION

ELBERON RAMP EASTBOUND (LOOKING UPSTATION AT PIER 3)



PIER SIDE VIEW

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED JSK | REVISED | STRUCTURE FILE NUMBER 3102793

PIER 3 DETAILS

BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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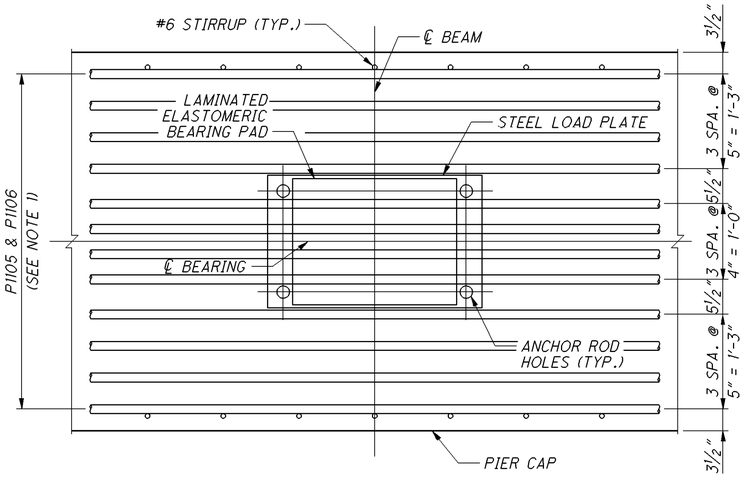
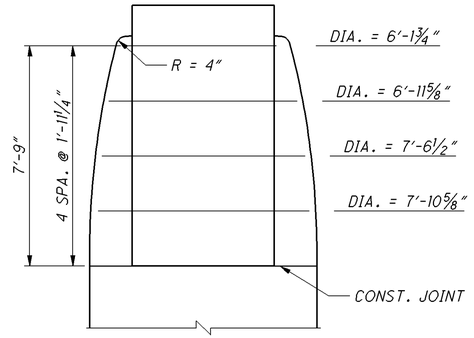


BEARING ANCHOR ROD PLAN

PIER 2 ONLY
TYPICAL EACH GIRDER



AESTHETIC TREATMENT

NOTES:

1. BARS IN UPPER LAYERS SHALL BE PLACED DIRECTLY ABOVE BOTTOM LAYERS WITH CLEAR DISTANCE BETWEEN LAYERS NOT NESS THAN 1 INCH.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102793	

PIER DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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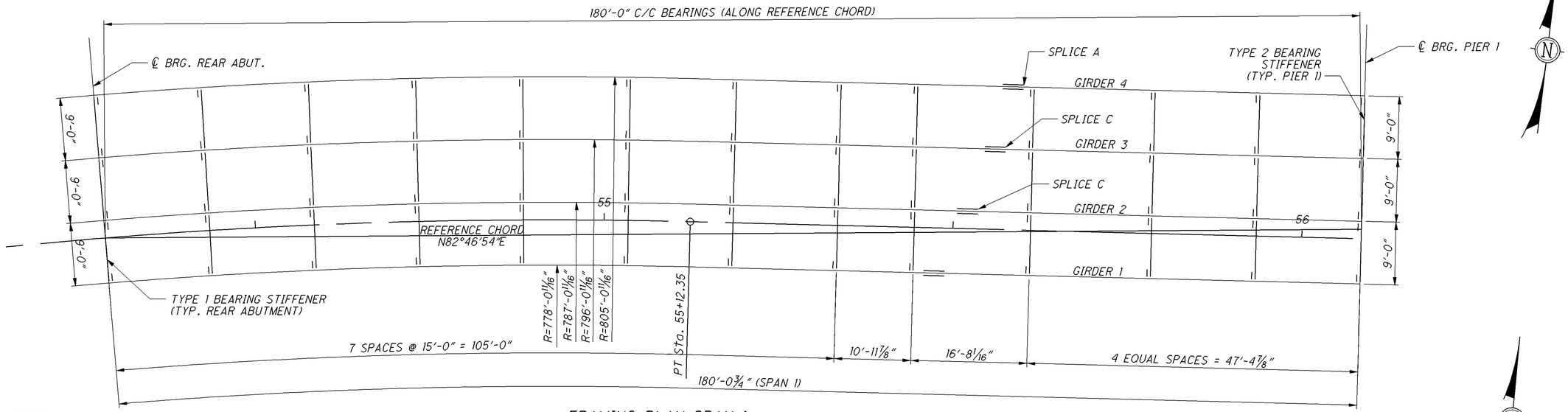
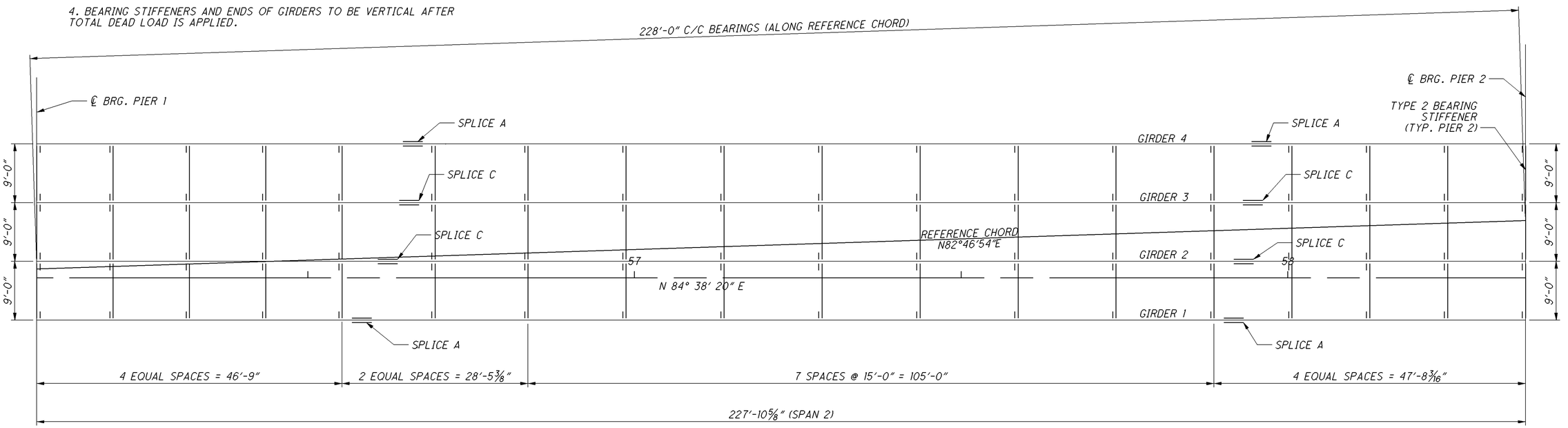


FRAMING PLAN SPAN 1

NOTES:

1. ALL MATERIAL TO BE ASTM-A709, GRADE 50.
2. MEASUREMENTS OF ALL BEARINGS AND CROSSFRAMES ARE RADIAL TO THE CENTERLINE OF CURVATURE.
3. ALL STEEL TO BE SHOP PRIMED AND FIELD PAINTED ACCORDING TO ITEM 514.
4. BEARING STIFFENERS AND ENDS OF GIRDERS TO BE VERTICAL AFTER TOTAL DEAD LOAD IS APPLIED.
5. SPLICES AND INTERMEDIATE STIFFENERS TO BE NORMAL TO GIRDERS.
6. END CROSSFRAMES SHALL BE PER STANDARD DRAWINGS GSD-1-96 AND EXJ-4-87.



FRAMING PLAN SPAN 2

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
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FRAMING PLAN 1 OF 2
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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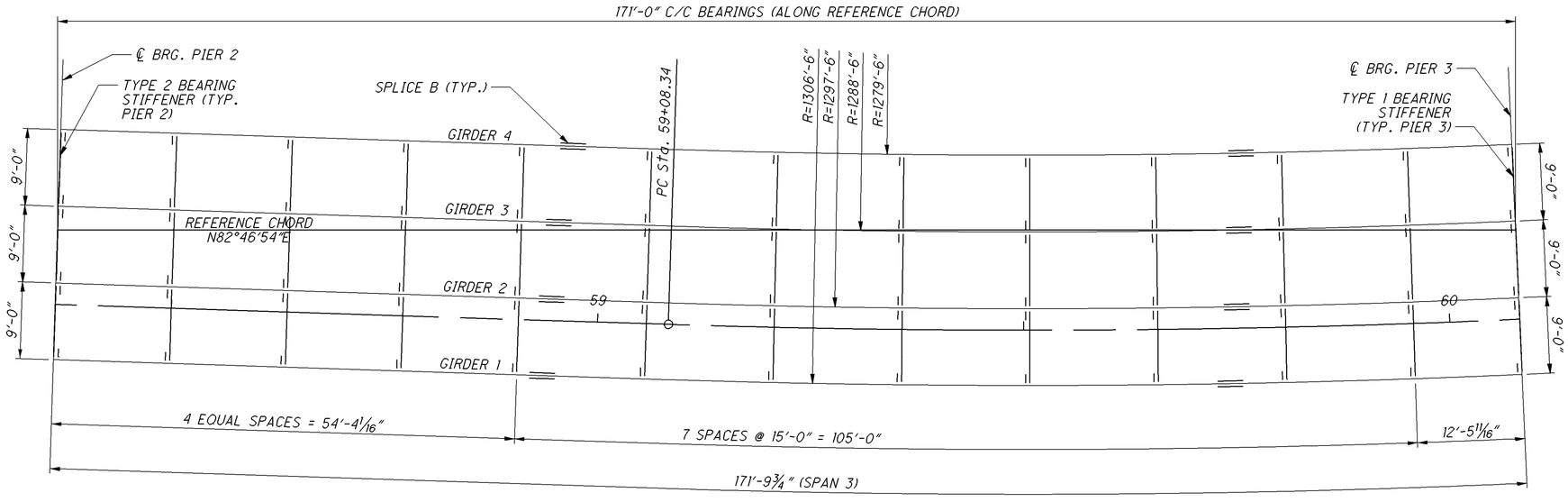
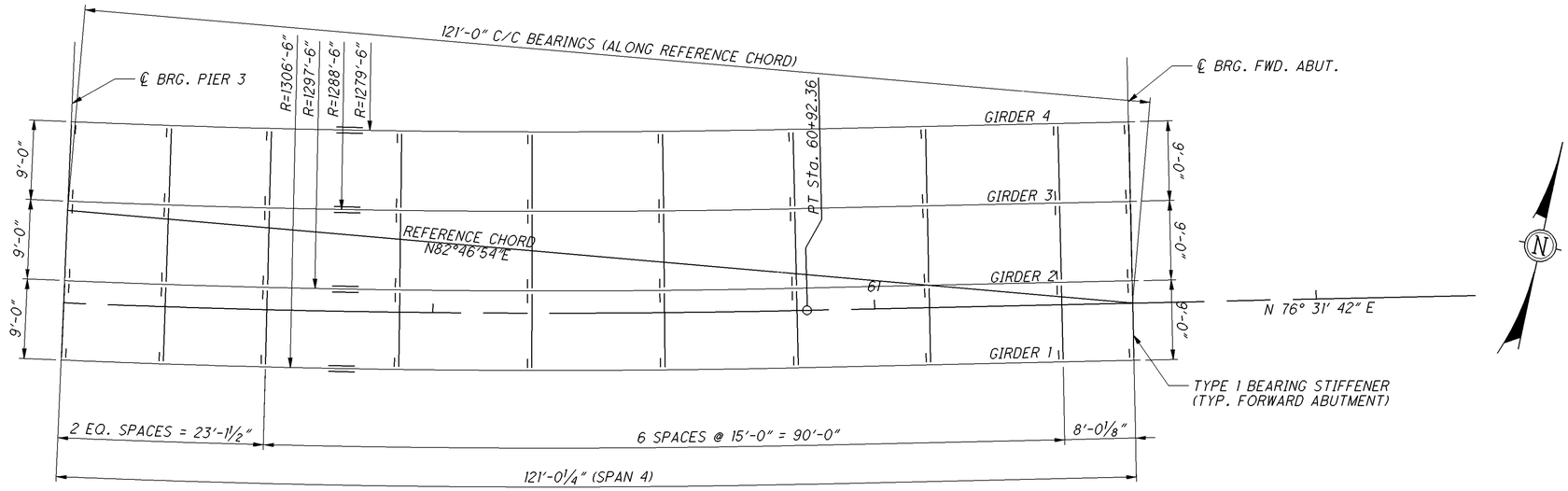


FRAMING PLAN SPAN 3



FRAMING PLAN SPAN 4

NOTES:

1. SEE SHEET 17/39 FOR DETAIL NOTES.

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DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

FRAMING PLAN 2 OF 2
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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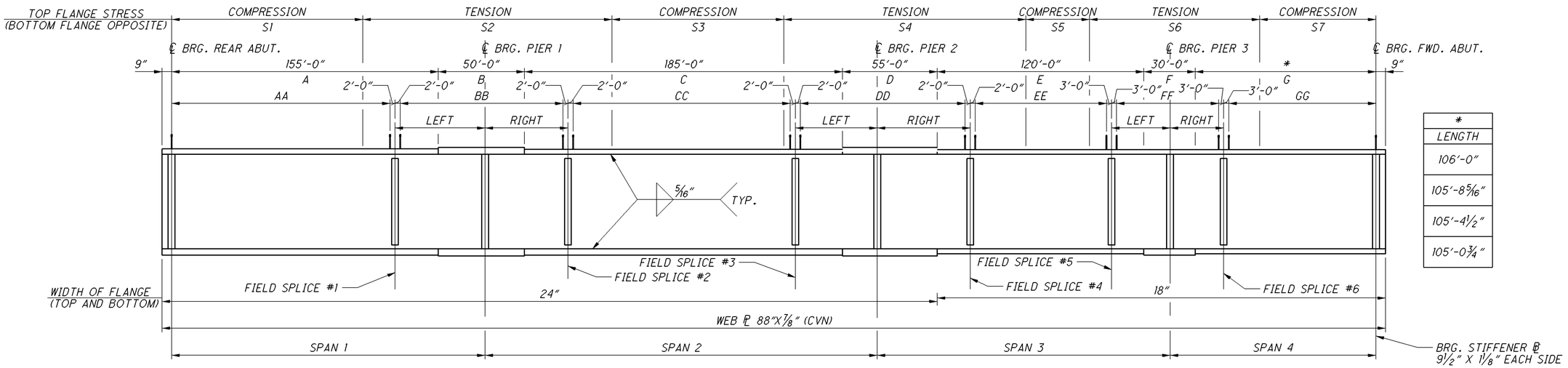

*
LENGTH
106'-0"
105'-8 5/16"
105'-4 1/2"
105'-0 3/4"

GIRDER ELEVATION

(CROSSFRAME STIFFENERS NOT SHOWN)

GIRDER PLATES THICKNESS (CVN)								
GIRDER	PLATE	A	B	C	D	E	F	G
1	TOP	1 1/2"	3"	1 1/2"	2 1/4"	7/8"	7/8"	7/8"
	BOTTOM	1 3/4"	3"	1 3/4"	2 1/2"	7/8"	1 1/2"	7/8"
2	TOP	1 1/2"	3"	1 1/2"	2 1/4"	7/8"	7/8"	7/8"
	BOTTOM	1 3/4"	3"	1 3/4"	2 1/2"	7/8"	1 1/2"	7/8"
3	TOP	1 1/2"	3"	1 1/2"	2 1/4"	7/8"	7/8"	7/8"
	BOTTOM	1 3/4"	3"	1 3/4"	2 1/2"	7/8"	1 1/2"	7/8"
4	TOP	1 1/2"	3"	1 1/2"	2 1/4"	7/8"	7/8"	7/8"
	BOTTOM	1 3/4"	3"	1 3/4"	2 1/2"	7/8"	1 1/2"	7/8"

SPAN LENGTHS					
GIRDER	SPAN 1	SPAN 2	SPAN 3	SPAN 4	TOTAL
℄	180'-0 13/16"	227'-10 9/16"	171'-9 3/4"	121'-0 1/4"	700'-9 3/8"
1	179'-4 7/16"	227'-10 9/16"	172'-3 3/4"	121'-5 1/4"	701'-0"
2	180'-4"	227'-10 9/16"	171'-7 1/2"	120'-10 1/4"	700'-8 5/16"
3	181'-3 1/2"	227'-10 9/16"	170'-11 3/16"	120'-3 1/4"	700'-4 1/2"
4	182'-3 1/16"	227'-10 9/16"	170'-2 7/8"	119'-8 1/4"	700'-0 3/4"

FIELD SPLICE DISTANCE FROM PIER						
GIRDER	PIER 1		PIER 2		PIER 3	
	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT
1	60'-4 9/16"	50'-5 3/8"	43'-11 3/4"	58'-0 1/2"	33'-10 3/16"	32'-1 3/16"
2	56'-9 1/8"	53'-5 3/8"	43'-4 13/16"	57'-10 13/16"	33'-2 1/2"	31'-6 1/4"
3	53'-11 5/8"	55'-9 3/8"	42'-11 3/8"	57'-6"	33'-0 3/4"	31'-6 3/8"
4	52'-7 3/16"	55'-4 1/16"	42'-7 5/16"	57'-10 5/16"	32'-11 1/16"	31'-4 15/16"

FIELD SECTION LENGTHS							
GIRDER	FS 1	FS 2	FS 3	FS 4	FS 5	FS 6	FS 7
1	119'-8 7/8"	110'-9 15/16"	133'-5 3/8'	102'-0 1/4"	80'-5 1/16"	65'-11 3/8"	90'-1 1/16"
2	124'-3 13/16"	110'-2 1/2"	131'-0 3/8"	101'-3 5/8"	80'-6 1/8"	64'-8 3/4"	90'-1 1/16"
3	128'-13/16"	109'-9"	129'-1 13/16"	100'-5 3/8"	80'-4 1/16"	64'-7 1/16"	89'-6"
4	130'-4 15/16"	107'-11 5/8"	129'-10 13/16"	100'-6 1/4"	79'-4 15/16"	64'-3 15/16"	89'-0 3/8"

TOP FLANGE STRESS							
GIRDER	S1	S2	S3	S4	S5	S6	S7
1	93'-8 5/8"	149'-2 1/2"	106'-6 1/8"	142'-8 1/8"	38'-8 1/4"	101'-5 1/2"	68'-8 1/16"
2	110'-1 1/16"	133'-3"	111'-11 1/16"	131'-1 3/16"	49'-4 5/16"	90'-6"	74'-5 5/8"
3	114'-5 3/16"	132'-0 1/4"	110'-10 1/16"	128'-9 5/8"	51'-0"	88'-3 3/4"	74'-11 3/4"
4	114'-2 5/8"	138'-6 1/2"	102'-7 11/16"	145'-7 7/16"	31'-1 5/16"	98'-7 3/16"	69'-4 1/16"

ROWS OF SHEAR CONNECTORS (SEE NOTE 7)							
GIRDER	AA	BB	CC	DD	EE	FF	GG
1	59	54	65	50	38	30	44
2	61	54	64	49	38	30	44
3	63	53	63	49	38	30	43
4	64	52	63	49	38	30	43

NOTES:

1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

2. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.

3. FLANGE SPLICE LOCATIONS MAY BE CONSIDERED OPTIONAL IF NO CHANGE IN FLANGE THICKNESS OR WIDTH IS REQUIRED.

4. GRIND COMPLETE JOINT PENETRATION WELDS SMOOTH IN LONGITUDINAL DIRECTION TO REMOVE WELD REINFORCEMENT.

5. ALL LONGITUDINAL DIMENSIONS SHOWN ARE ALONG ℄ OF GIRDER AND ARE HORIZONTAL (EFFECTS OF THE LONGITUDINAL GRADE ARE NOT INCLUDED.)

6. SHEAR STUD SPACING MAY BE ADJUSTED LOCALLY AS REQUIRED TO CLEAR FLANGE SPLICES.

7. ROWS OF 4 SHEAR CONNECTORS TO BE SPACED AT 24" MAXIMUM.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

GIRDER ELEVATION
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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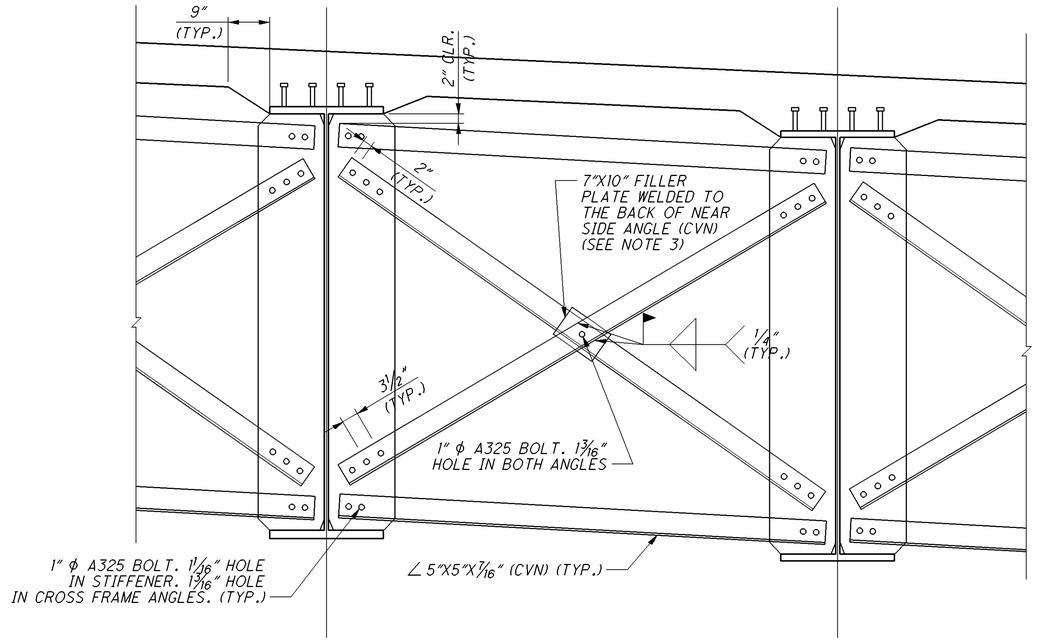
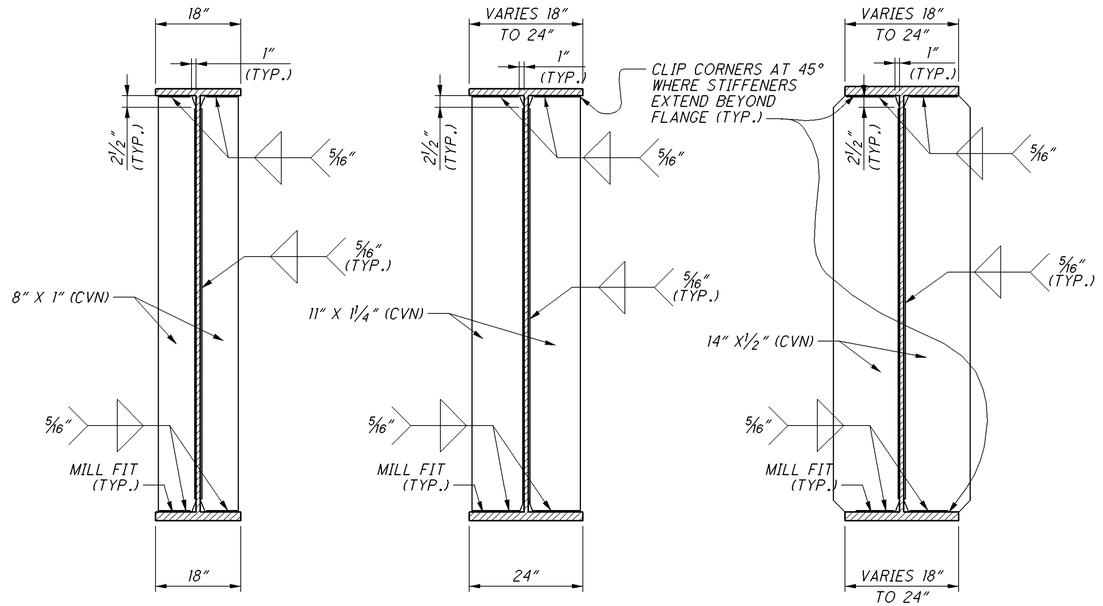


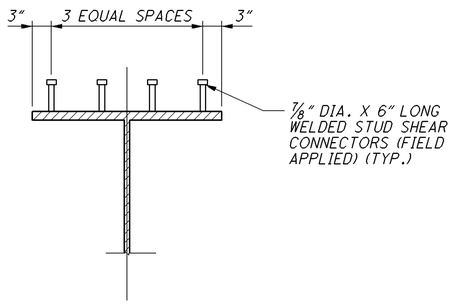
TYPICAL INTERMEDIATE CROSSFRAME



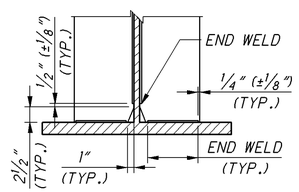
BEARING STIFFENER
TYPE 1

BEARING STIFFENER
TYPE 2

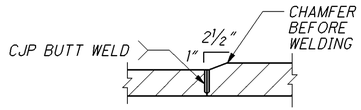
INTERMEDIATE STIFFENER WITH CROSSFRAMES



GIRDER SHEAR CONNECTOR DETAIL



STIFFENER WELD DETAIL



FLANGE WELD DETAIL

(WELD CONFIGURATION SHOWN FOR ILLUSTRATION ONLY. ACTUAL CONFIGURATION TO BE DETERMINED BY THE CONTRACTOR)

(GRIND COMPLETE JOINT PENETRATION WELD SMOOTH IN A LONGITUDINAL DIRECTION TO REMOVE WELD REINFORCEMENT.)

NOTES:

1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

2. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325 UNLESS OTHERWISE NOTED.

3. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.

4. SEE SHEETS 36/39 THRU 39/39 FOR SCUPPER DETAILS.

5. FILLER PLATE THICKNESS SHALL BE SAME THICKNESS AS CONNECTOR PLATE.

6. INTERMEDIATE STIFFENERS ON FACIA GIRDERS SHALL ONLY BE PLACED ON THE INSIDE OF THE WEB.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

CROSSFRAME AND SPLICE DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

20/39

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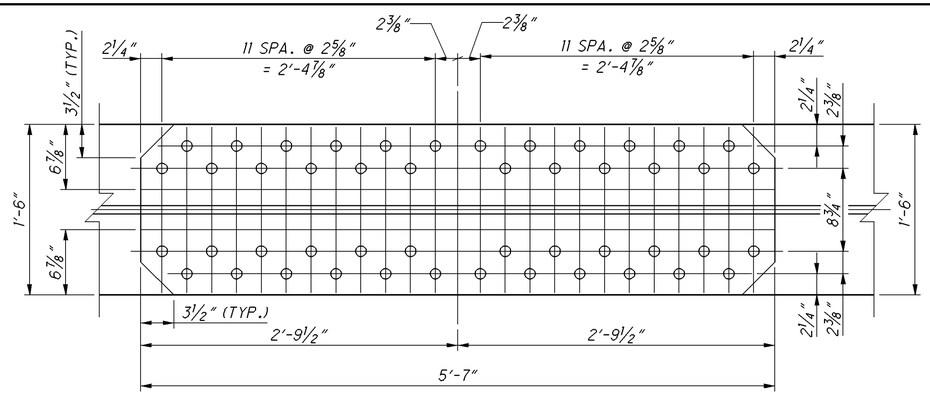
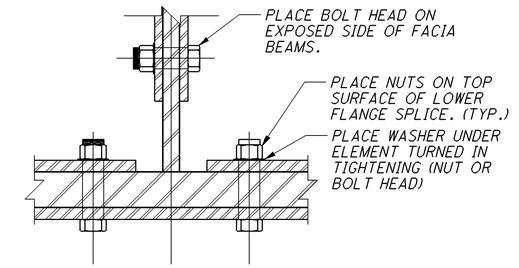
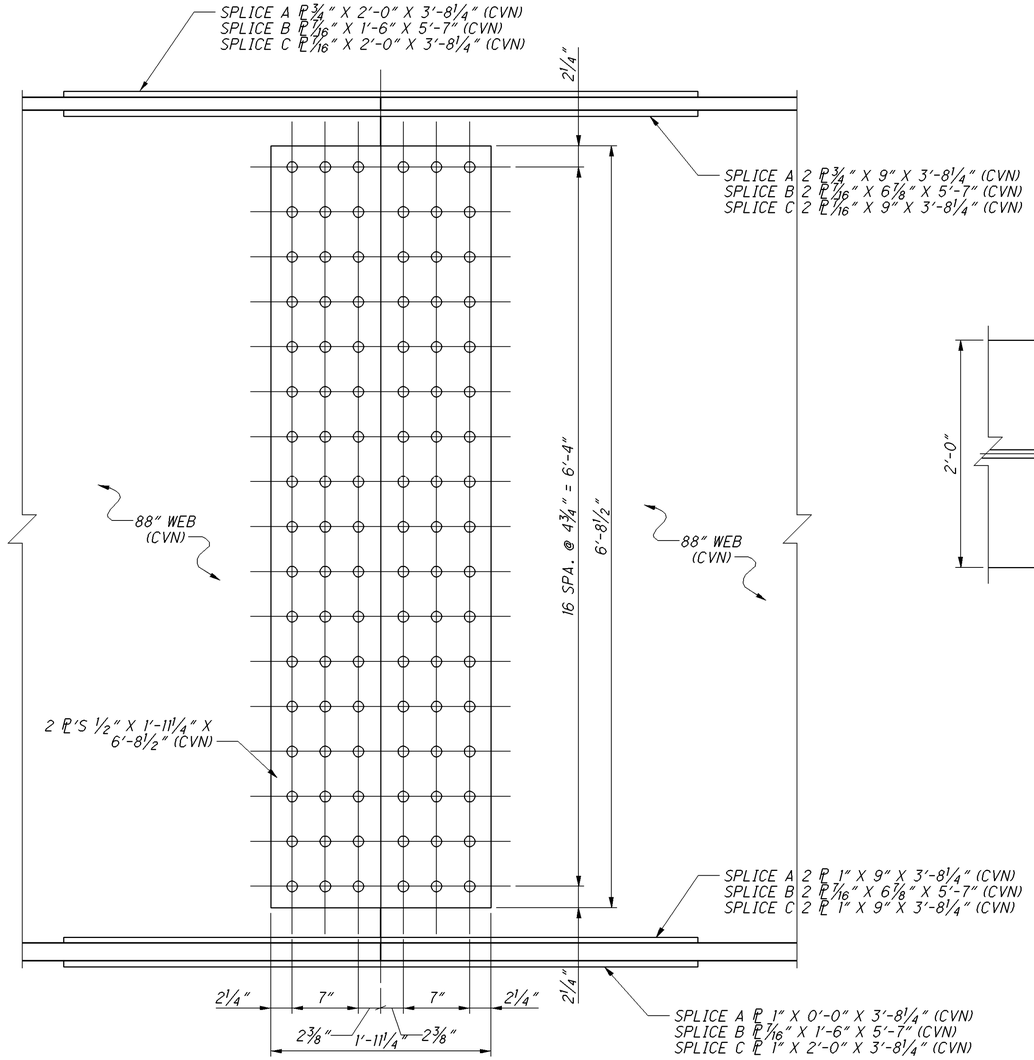


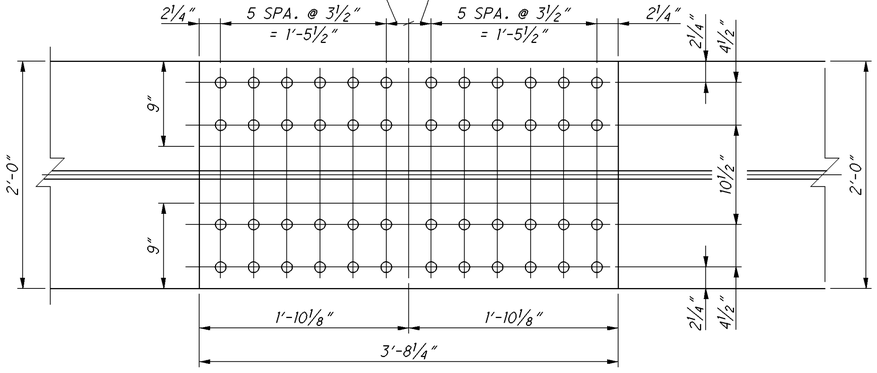
TOP & BOTTOM FLANGE PLAN
SLICE B



PARTIAL SECTION
(SECTION AT ℄ GIRDER SPLICE)



GIRDER FIELD SPLICE ELEVATION



TOP & BOTTOM FLANGE PLAN
SLICE A & C

NOTES:

1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

2. ALL BOLTS SHALL BE 1 1/8" DIA. HIGH STRENGTH BOLTS, ASTM A325 TYPE 1, GALVANIZED.

3. THREADS SHALL BE EXCLUDED FROM SHEAR PLANES.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

FIELD SPLICE DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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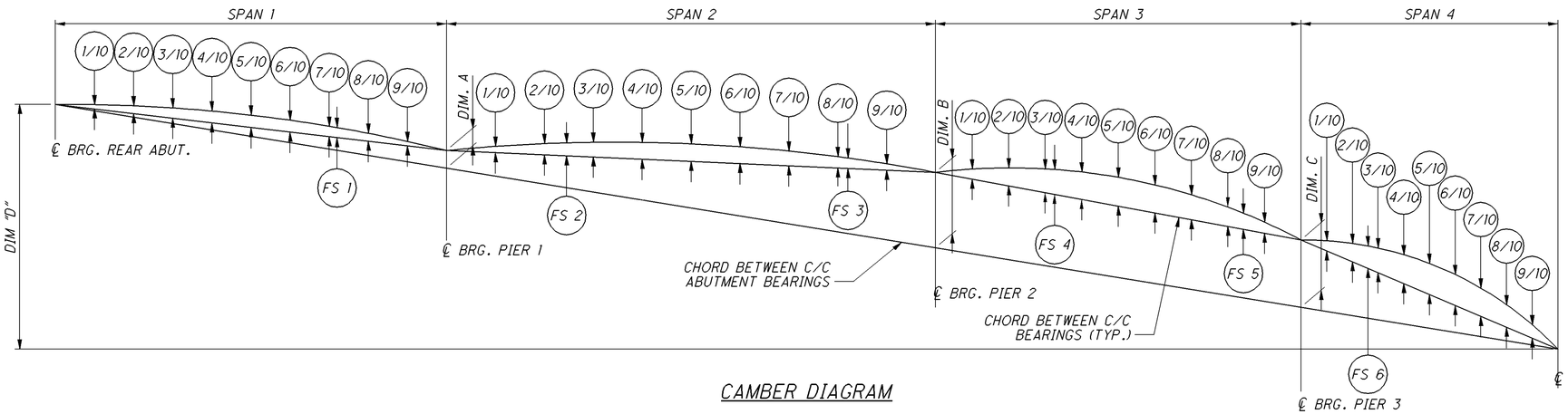
CAMBER TABLE (VALUE IN INCHES)

GIRDER	SPAN LOCATION	SPAN 1											SPAN 2											
		℄ BRG. REAR ABUT	1/10	2/10	3/10	4/10	5/10	6/10	7/10	SPLICE 1	8/10	9/10	℄ BRG. PIER 1	1/10	2/10	SPLICE 2	3/10	4/10	5/10	6/10	7/10	8/10	SPLICE 3	9/10	℄ BRG. PIER 2
4	DEFLECTION DUE TO WEIGHT OF STEEL	0	7/16	13/16	1	1 1/8	1	13/16	9/16	9/16	5/16	1/8	0	1/16	3/8	9/16	3/4	1	1 1/8	1 1/8	7/8	9/16	1/2	1/4	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 7/8	1 5/8	2 1/8	2 5/16	2 1/8	1 3/4	1 3/16	1 3/16	1 1/16	1/4	0	1/8	1 1/16	1	1 3/8	1 15/16	2 3/16	2 1/8	1 1/16	1 1/16	15/16	3/8	0
	GEOMETRIC CORRECTION	0	-9/16	-9/16	-1 3/8	-1 5/8	-1 3/8	-1 1/8	-1 3/16	-1 3/16	- 9/16	- 1/4	0	-1 1/4	-1 1/16	-1	-1 5/16	-1 3/16	-1 1/16	- 9/16	- 7/16	- 1/4	- 1/4	- 1/8	0
	HEAT CURVING ADJUSTMENT	0	3/16	5/16	3/8	7/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	15/16	2 3/16	2 3/16	2 3/16	1 3/4	1 7/16	15/16	7/8	7/16	1/16	0	-1	0	9/16	1 3/16	2 1/8	2 11/16	2 11/16	2 3/16	1 3/8	1 3/16	1/2	0
3	DEFLECTION DUE TO WEIGHT OF STEEL	0	3/8	5/8	13/16	7/8	13/16	5/8	7/16	3/8	3/16	1/16	0	1/8	7/16	5/8	13/16	1 1/16	1 3/16	1 3/16	15/16	5/8	1/2	1/4	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	3/4	1 3/8	1 3/4	1 7/8	1 3/4	1 3/8	15/16	7/8	1/2	1/8	0	1/4	1 3/16	1 1/8	1 1/2	2	2 1/4	2 3/16	1 3/4	1 1/16	15/16	7/16	0
	GEOMETRIC CORRECTION	0	-1	-1 7/16	-2 1/8	-2 5/16	-1 15/16	-1 3/16	-1 1/8	-3/4	- 3/8	0	-3/4	-1 1/16	-5/8	-5/8	- 1/2	- 7/16	- 3/8	- 1/4	- 3/16	- 1/8	- 1/16	0
	HEAT CURVING ADJUSTMENT	0	3/16	5/16	3/8	7/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	1/4	7/8	13/16	7/8	5/8	1/2	3/16	1/8	- 1/8	- 3/16	0	- 3/8	9/16	1 1/16	1 11/16	2 9/16	3 1/16	3	2 7/16	1 1/2	1 5/16	9/16	0
2	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/4	1/2	5/8	1 1/16	5/8	7/16	1/4	1/4	1/8	-0	0	3/16	1/2	1 1/16	1/8	1 3/16	1 1/4	1 3/16	1	5/8	9/16	1/4	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	9/16	1 1/16	1 3/8	1 7/16	1 5/16	1 1/16	11/16	5/8	5/16	1/16	0	5/16	15/16	1 1/4	1 9/16	2 1/8	2 3/8	2 1/4	1 3/4	1 1/8	15/16	7/16	0
	GEOMETRIC CORRECTION	0	-1 5/8	-2 5/8	-3 3/16	-3 3/16	-2 11/16	-2 3/16	-1 5/8	-1 9/16	-1 1/16	- 9/16	0	- 3/16	- 1/8	- 1/8	- 1/8	- 1/8	- 1/8	- 1/16	- 1/16	- 1/16	- 1/16	-0	0
	HEAT CURVING ADJUSTMENT	0	3/16	5/16	3/8	7/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	-9/16	-3/4	-13/16	-5/8	-3/4	-11/16	-1 1/16	-11/16	-1 1/16	- 1/2	0	3/8	1 5/16	1 3/4	2 5/16	3 3/16	3 1/2	3 3/8	2 11/16	1 11/16	1 7/16	5/8	0
1	DEFLECTION DUE TO WEIGHT OF STEEL	0	3/16	3/8	7/16	7/16	3/8	1/4	1/8	1/8	0	- 1/16	0	1/4	9/16	3/4	15/16	1 1/4	1 3/8	1 1/4	1	5/8	9/16	1/4	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/16	1 3/16	1	1 1/16	15/16	1 1/16	3/8	3/8	1/8	- 1/16	0	3/8	1	1 5/16	1 11/16	2 3/16	2 1/16	2 1/4	1 13/16	1 1/8	15/16	7/16	0
	GEOMETRIC CORRECTION	0	-2	-3 5/16	-3 5/8	-3 3/16	-3	-2 3/8	-1 13/16	-1 3/4	-1 3/16	-5/8	0	3/16	1/8	1/8	1/8	1/8	1/8	1/16	1/16	1/16	1/16	0	0
	HEAT CURVING ADJUSTMENT	0	3/16	5/16	1/16	1/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	-1 3/16	-1 1/8	-1 3/4	-1 5/8	-1 11/16	-1 1/16	-1 5/16	-1 1/4	-1 1/16	-11/16	0	13/16	1 3/4	2 1/4	2 3/4	3 9/16	3 1/8	3 5/8	2 1/8	1 13/16	1 9/16	11/16	0

CAMBER TABLE (VALUE IN INCHES)

GIRDER	SPAN LOCATION	SPAN 3												SPAN 4										
		℄ BRG. PIER 2	1/10	2/10	3/10	SPLICE 4	4/10	5/10	6/10	7/10	8/10	SPLICE 5	9/10	℄ BRG. PIER 3	1/10	2/10	SPLICE 6	3/10	4/10	5/10	6/10	7/10	8/10	9/10	℄ BRG. FWD. ABUT.
4	DEFLECTION DUE TO WEIGHT OF STEEL	0	- 1/16	- 1/16	0	1/16	1/8	3/16	3/16	1/8	1/16	1/16	0	0	0	1/16	1/8	1/8	3/16	1/4	1/4	1/4	3/16	1/16	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	- 1/16	1/16	1/4	5/16	1/2	5/8	11/16	9/16	5/16	5/16	1/8	0	1/16	3/16	5/16	3/8	1/2	9/16	5/8	9/16	7/16	1/4	0
	GEOMETRIC CORRECTION	0	2 7/8	5 3/4	8 3/16	8 3/8	8 15/16	8 1/2	7 1/4	6 3/16	4 7/8	4 5/8	2 13/16	0	1 1/8	1 7/8	2 1/8	2 5/16	2 5/16	2 5/16	2 9/16	2 1/2	2 1/16	1 3/16	0
	HEAT CURVING ADJUSTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	2 13/16	5 13/16	8 1/2	8 3/4	9 9/16	9 5/16	8 1/16	6 7/8	5 5/16	5 1/16	2 15/16	0	1 1/4	2 3/16	2 9/16	2 13/16	3	3 1/8	3 7/16	3 5/16	2 5/8	1 9/16	0
3	DEFLECTION DUE TO WEIGHT OF STEEL	0	- 1/16	- 1/16	0	1/16	1/8	3/16	3/16	1/8	1/16	1/16	0	0	1/16	1/16	1/8	3/16	1/4	1/4	1/4	1/4	3/16	1/8	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	- 1/16	1/16	5/16	3/8	9/16	11/16	11/16	9/16	5/16	5/16	1/8	0	1/16	3/16	5/16	3/8	9/16	5/8	11/16	5/8	7/16	1/4	0
	GEOMETRIC CORRECTION	0	2 3/4	5 7/16	7 3/4	7 15/16	8 11/16	8 9/16	7 11/16	6 5/8	5 3/16	4 15/16	3	0	1 5/16	2 5/16	2 11/16	2 7/8	3 1/8	3 3/16	3 1/4	3	2 3/8	1 3/8	0
	HEAT CURVING ADJUSTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	2 5/8	5 1/2	8 1/16	8 5/16	9 5/16	9 7/16	8 9/16	7 3/8	5 5/8	5 3/8	3 1/16	0	1 11/16	2 9/16	3 1/8	3 7/16	3 7/8	4 1/16	4 3/16	3 7/8	3	1 3/4	0
2	DEFLECTION DUE TO WEIGHT OF STEEL	0	- 1/16	- 1/16	0	1/16	1/8	3/16	3/16	1/8	1/16	1/16	0	0	1/16	1/8	1/8	3/16	1/4	1/4	5/16	1/4	3/16	1/8	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	- 1/16	1/8	5/16	3/8	9/16	3/4	3/4	5/8	3/8	5/16	1/8	0	1/16	3/16	5/16	3/8	9/16	11/16	11/16	5/8	1/2	1/4	0
	GEOMETRIC CORRECTION	0	2 1/2	5	7 1/16	7 3/8	8 5/16	8 11/16	8 5/16	7 5/16	5 5/8	5 3/8	3 3/16	0	1 5/8	2 13/16	3 3/8	3 11/16	4 3/16	4 5/16	4 1/4	3 3/4	2 1/8	1 5/8	0
	HEAT CURVING ADJUSTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	2 7/16	5 1/16	7 7/16	7 3/4	8 15/16	9 9/16	9 3/16	8 1/16	6 1/16	5 3/4	3 5/16	0	1 11/16	3 1/8	3 13/16	4 1/4	5	5 5/16	5 3/16	4 5/8	3 9/16	2	0
1	DEFLECTION DUE TO WEIGHT OF STEEL	0	- 1/16	- 1/16	0	0	1/8	3/16	3/16	1/8	1/16	1/16	0	0	1/16	1/8	1/8	3/16	1/4	5/16	5/16	1/4	3/16	1/8	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	-0	1/8	5/16	3/8	9/16	3/4	3/4	5/8	3/8	5/16	1/8	0	1/16	1/4	5/16	7/16	9/16	11/16	3/4	11/16	1/2	1/4	0
	GEOMETRIC CORRECTION	0	2 3/8	4 3/4	6 3/4	7	8 1/16	8 3/4	8 5/8	7 11/16	5 7/8	5 9/16	3 5/16	0	1 3/4	3 1/8	3 3/4	4 1/8	4 13/16	5	4 3/4	4 1/8	3 1/8	1 3/4	0
	HEAT CURVING ADJUSTMENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	REQUIRED SHOP CAMBER	0	2 5/16	4 13/16	7 1/16	7 7/16	8 3/4	9 5/8	9 9/16	8 7/16	6 5/16	6	3 7/16	0	1 7/8	3 7/16	4 1/4	4 3/4	5 5/8	6	5 13/16	5 1/16	3 13/16	2 1/8	0



CAMBER DIAGRAM

BLOCKING DIMENSIONS				
GIRDER	DIM "A"	DIM "B"	DIM "C"	DIM "D"
4	8 7/8"	3'-5 3/8"	3'-2 1/16"	11'-5 3/4"
3	1'-0 1/16"	3'-7 5/8"	3'-4 3/4"	11'-1 5/16"
2	1'-4 1/2"	3'-10 3/4"	3'-8 9/16"	10'-7 3/16"
1	1'-7 3/16"	4'-0 9/16"	3'-10 11/16"	10'-3 1/2"

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

CAMBER TABLE AND CAMBER DIAGRAM
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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LAMINATED ELASTOMERIC BEARINGS DATA

LOCATION	BEARING TYPE	BEARING DIMENSIONS						STEEL LOAD PLATE		BEVEL DIMENSIONS			REACTIONS (KIPS)		MAXIMUM DESIGN	SEISMIC PED.
		L	W	ti	te	T	N	LENGTH	WIDTH	A	B	C	DL	LL	REACTIONS (KIPS)	H
REAR ABUTMENT	EXP.	12"	20"	7/16"	1/4"	6 3/4"	13	13"	26"	1 11/16"	1 5/8"	1 1/2"	174	103	277	12"
PIER 1	EXP.	22"	28"	5/8"	3/8"	6 7/16"	9	23"	29"	1 9/16"	1 9/16"	1 1/2"	565	205	770	11"
PIER 2	FIXED	20"	26"	5/8"	3/8"	4 5/16"	6	21"	39"	1 9/16"	1 9/16"	1 1/2"	460	189	649	
PIER 3	EXP.	16"	24"	1/2"	1/4"	4 5/8"	8	17"	25"	2 1/16"	1 13/16"	1 1/2"	320	161	481	10"
FWD. ABUTMENT	EXP.	10"	15"	3/8"	1/4"	5 1/16"	11	11"	20"	2 1/8"	1 13/16"	1 1/2"	94	87	181	10"

ti = THICKNESS OF INTERNAL LAMINATE
te = THICKNESS OF EXTERNAL LAMINATE
T = TOTAL THICKNESS OF ELASTOMERIC BEARING

L = LENGTH OF ELASTOMERIC BEARING
W = WIDTH OF ELASTOMERIC BEARING
N = NO. OF STEEL LAMINATES

NOTES:

1. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS.

2. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300° (F) AS DETERMINED BY USE OF A PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICE.

3. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.5 (METHOD B) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

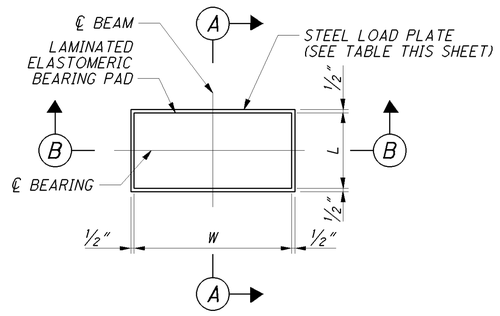
4. ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS AND LOAD PLATES SHALL BE INCLUDED IN ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE, AS PER PLAN FOR PAYMENT.

5. FOR LIST OF ABBREVIATIONS, SEE SHEET 5/39 .

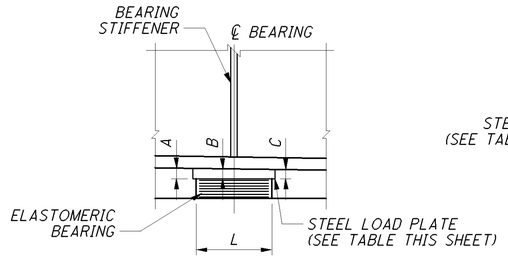
6. STEEL LOAD PLATES SHALL BE ASTM A709 GRADE 50 AND SHALL BE SHOP PAINTED WITH IN ORGANIC ZINE PRIMER AS SPECIFIED IN CMS 513.27. PAYMENT IS INCLUDED IN THE UNIT PRICE BID FOR EACH BEARING. APPLY PAINT TO THE EXPOSED STEEL LOAD PLATES IN ACCORDANCE WITH CMS 514.

7. THE STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

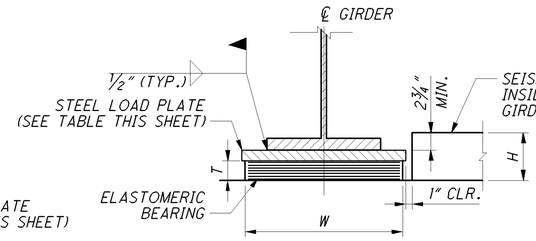
8. BEARING REPOSITIONING:
IF BEAMS ARE PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F ± 10°F, THE BEAMS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ± 10°F.



BEARING PLAN VIEW
(EXPANSION BEARING)



SECTION A-A



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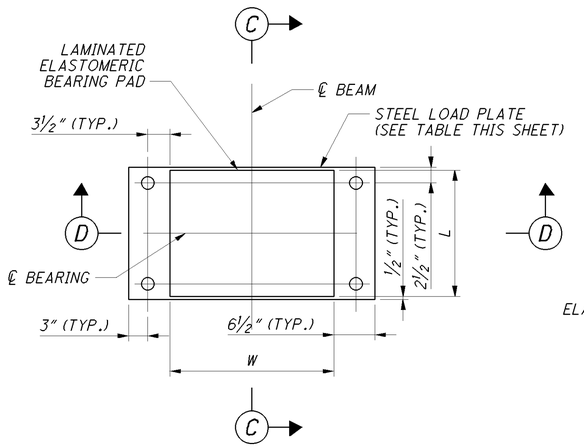
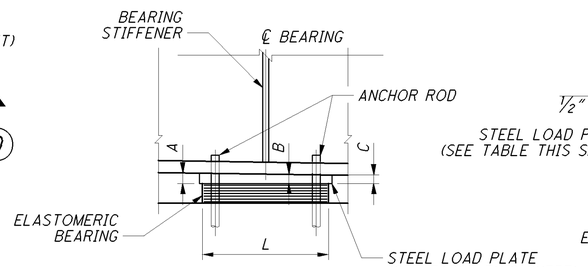
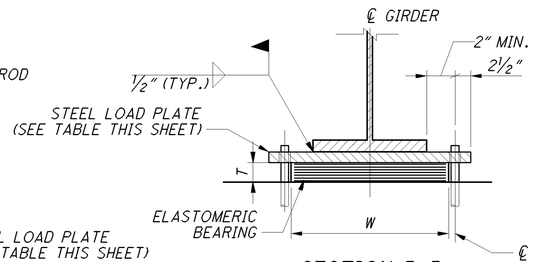


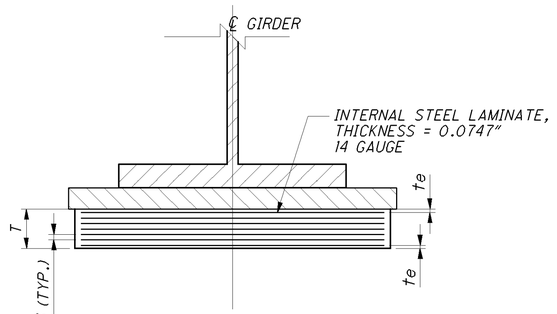
BEARING PLAN VIEW
(FIXED BEARING)



SECTION C-C



SECTION D-D



LAMINATED ELASTOMERIC BEARING PAD DETAIL

℄ 2" ϕ HOLE IN STEEL LOAD PLATE FOR 1 1/2" ϕ X 2'-0" A572, GRADE 50 ANCHOR ROD. GALVANIZED ACCORDING TO 711.02. INSTALL ANCHOR ROD PER 510. INCLUDE DOWEL HOLES AND ANCHOR RODS WITH ITEM 516 FOR PAYMENT.

DESIGN AGENCY
PB AMERICAS, INC.
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SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

BEARING DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

23/39

460/657

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NOTES:

1. THE CONSTRUCTION SEQUENCE SHOWN DEMONSTRATES ONE FEASIBLE ALTERNATIVE TO ERECT THE CURVED GIRDERS. THE CONTRACTOR HAS THE OPTION OF USING AN ALTERNATIVE METHOD OF GIRDER ERECTION WITH PRIOR APPROVAL OF THE ENGINEER.

2. THE TEMPORARY SHORING REACTIONS REPRESENT VERTICAL DEAD LOAD REACTIONS OF THE GIRDERS AND CROSSFRAMES. CONTRACTOR MUST ACCOUNT FOR ADDITIONAL LOADS DUE TO HIS ERECTION METHODS.

3. SUBMIT SHOP DRAWINGS WITH PROPOSED GIRDER ERECTION DETAILS IN CONFORMANCE WITH SECTION 501.04.

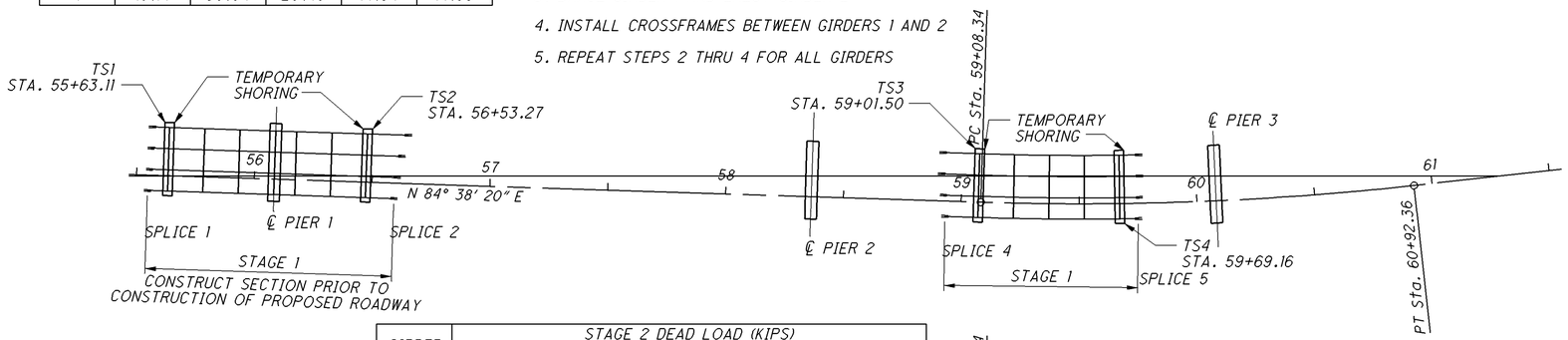
4. VERTICAL AND HORIZONTAL STABILITY SHALL BE MAINTAINED FOR EACH STAGE BY THE CONTRACTOR AS ALL INTERMEDIATE STAGES ARE UNSTABLE WITHOUT TEMPORARY SHORING AND BRACING. THE DESIGN OF SHORING AND BRACING SHALL INCLUDE ADDITIONAL LOADING DUE TO WIND AND CONSTRUCTION LIVE LOAD ON THE PREVIOUS STAGE(S). THE CONTRACTOR SHALL SUBMIT THE SHORING AND BRACING DESIGN TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING ANY GIRDERS.

5. THIS RECOMMENDED CONSTRUCTION PLAN ASSUMES THAT TEMPORARY SHORING SHALL BE CONSTRUCTED PRIOR TO THE PROPOSED ROADWAY WORK AND AFTER THE RAILROAD RELOCATION.

GIRDER	STAGE 1 DEAD LOAD (KIPS)				
	TS1	PIER 1	TS2	TS3	TS4
1	20.77	36.04	16.36	15.36	14.34
2	18.36	36.04	18.45	15.05	14.67
3	16.38	36.04	20.18	14.85	14.83
4	15.14	36.04	20.48	14.34	14.98

STAGE 1

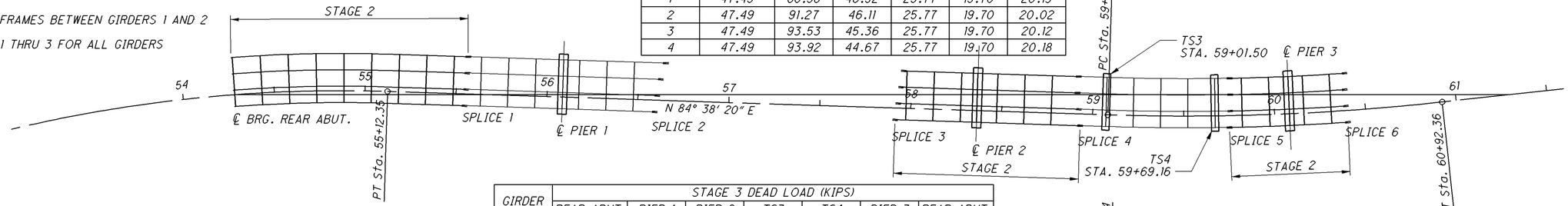
1. CONSTRUCT TEMPORARY SHORING WITH BEARINGS CENTERED BELOW CROSSFRAME STIFFENERS AS SHOWN
2. ERECT GIRDER 1 AS SHOWN
3. BRACE GIRDER 1 AND ERECT GIRDER 2
4. INSTALL CROSSFRAMES BETWEEN GIRDERS 1 AND 2
5. REPEAT STEPS 2 THRU 4 FOR ALL GIRDERS
6. ALL PROPOSED WORK FOR NEAVE ST. SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF TEMPORARY SUPPORTS AT STA. 56+53.27.
7. ALL RAILROAD RELOCATION WORK SHALL BE COMPLETED PRIOR TO STAGE 1 CONSTRUCTION.



STAGE 2

1. ERECT GIRDER 1 AS SHOWN
2. BRACE GIRDER 1 AND ERECT GIRDER 2
3. INSTALL CROSSFRAMES BETWEEN GIRDERS 1 AND 2
4. REPEAT STEPS 1 THRU 3 FOR ALL GIRDERS

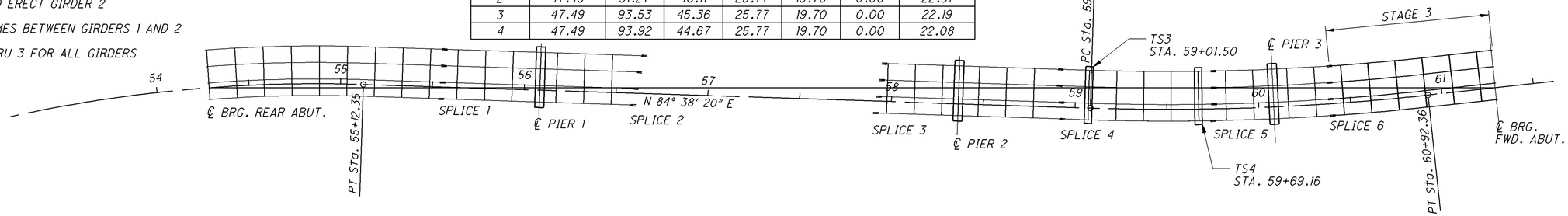
GIRDER	STAGE 2 DEAD LOAD (KIPS)					
	REAR ABUT.	PIER 1	PIER 2	TS3	TS4	PIER 3
1	47.49	88.58	46.92	25.77	19.70	20.13
2	47.49	91.27	46.11	25.77	19.70	20.02
3	47.49	93.53	45.36	25.77	19.70	20.12
4	47.49	93.92	44.67	25.77	19.70	20.18



STAGE 3

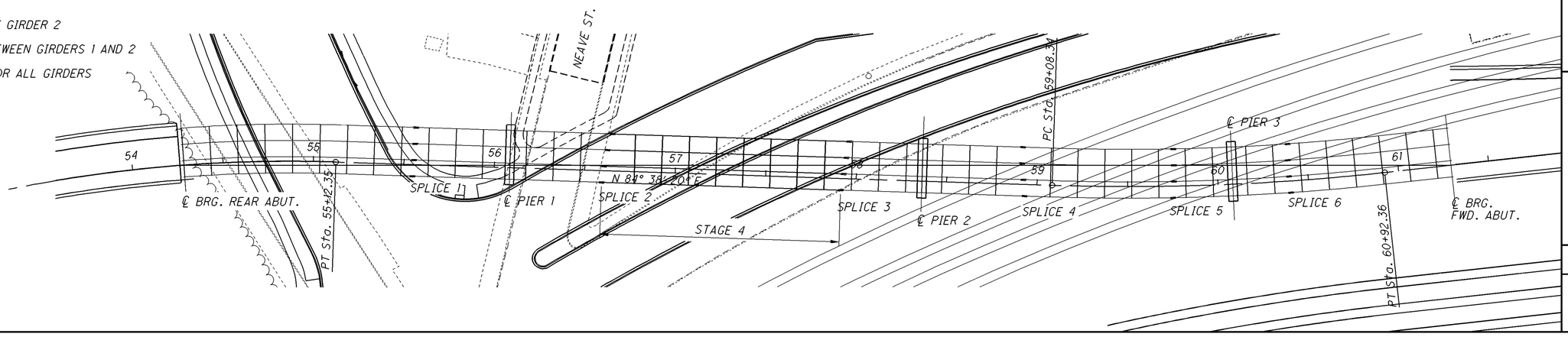
1. ERECT GIRDER 1 AS SHOWN
2. BRACE GIRDER 1 AND ERECT GIRDER 2
3. INSTALL CROSSFRAMES BETWEEN GIRDERS 1 AND 2
4. REPEAT STEPS 1 THRU 3 FOR ALL GIRDERS

GIRDER	STAGE 3 DEAD LOAD (KIPS)						
	REAR ABUT.	PIER 1	PIER 2	TS3	TS4	PIER 3	REAR ABUT.
1	47.49	88.58	46.92	25.77	19.70	30.70	22.42
2	47.49	91.27	46.11	25.77	19.70	0.00	22.31
3	47.49	93.53	45.36	25.77	19.70	0.00	22.19
4	47.49	93.92	44.67	25.77	19.70	0.00	22.08



STAGE 4

1. ERECT GIRDER 1 AS SHOWN
2. BRACE GIRDER 1 AND ERECT GIRDER 2
3. INSTALL CROSSFRAMES BETWEEN GIRDERS 1 AND 2
4. REPEAT STEPS 1 THRU 3 FOR ALL GIRDERS



DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

SUGGESTED GIRDER ERECTION SEQUENCE
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

24 / 39

461
657

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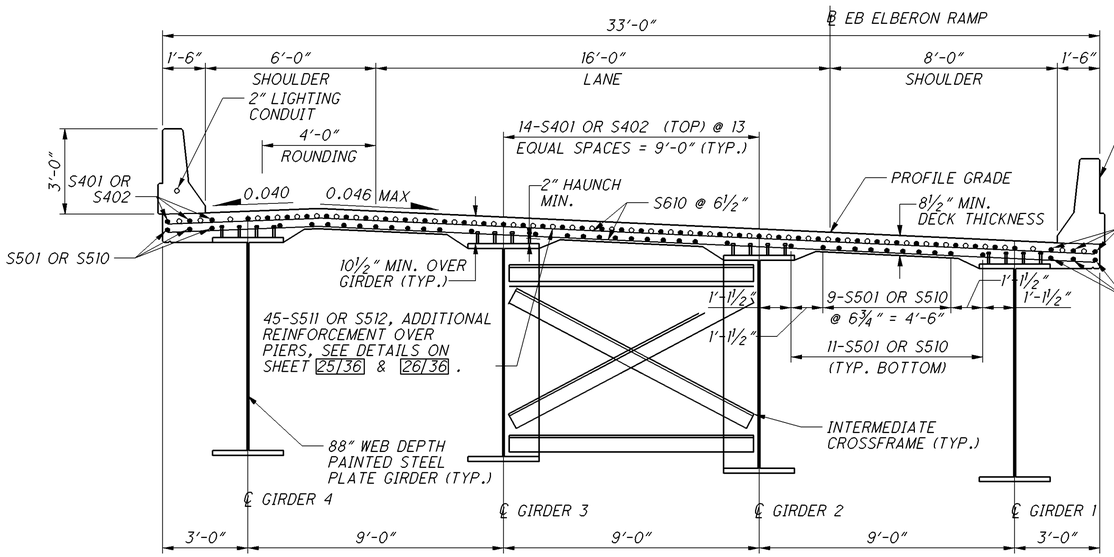
NOTES:

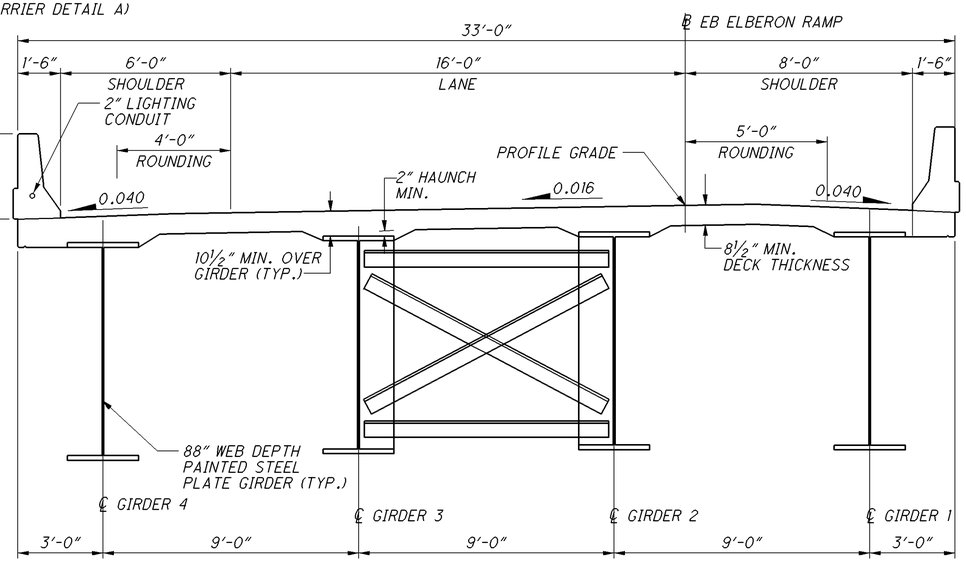
1. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 5 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE IS +/- 3 INCHES.

2. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.



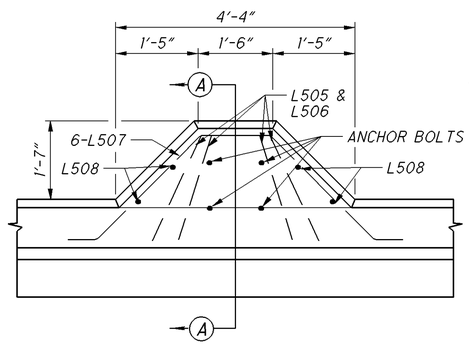
TYPICAL SECTION

ELBERON RAMP EASTBOUND (LOOKING UPSTATION AT PIER 1)

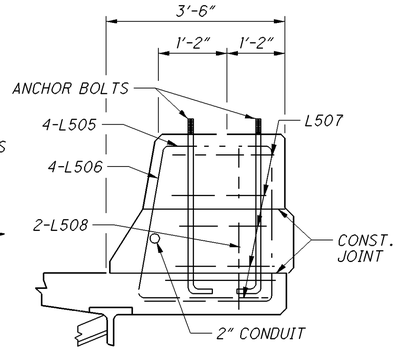


TYPICAL SECTION

ELBERON RAMP EASTBOUND (LOOKING UPSTATION AT PIER 2)
(REINFORCING NOT SHOWN FOR CLARITY)

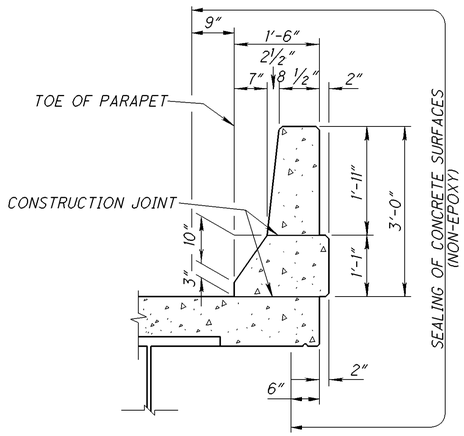


PLAN

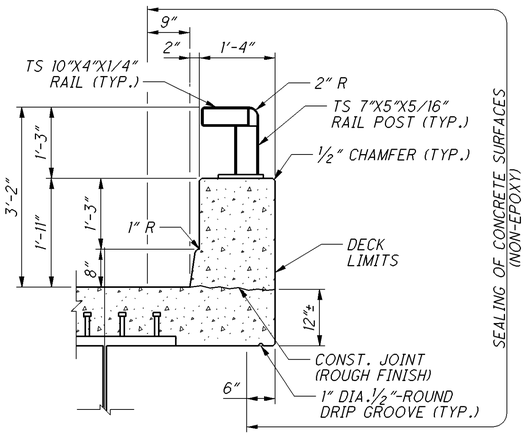


SECTION "A-A"

LIGHT POLE PILASTER FOR BRIDGE WITH STANDARD ROADWAY RAILING



BARRIER DETAIL A



OPTIONAL BARRIER DETAIL

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

TRANSVERSE SECTION
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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657

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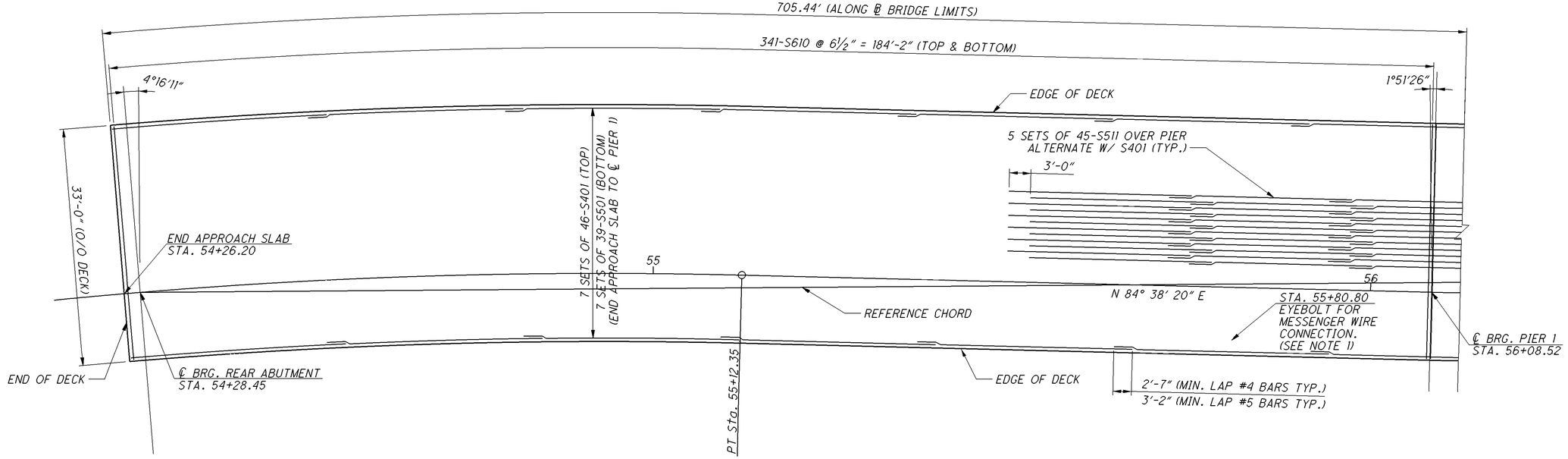
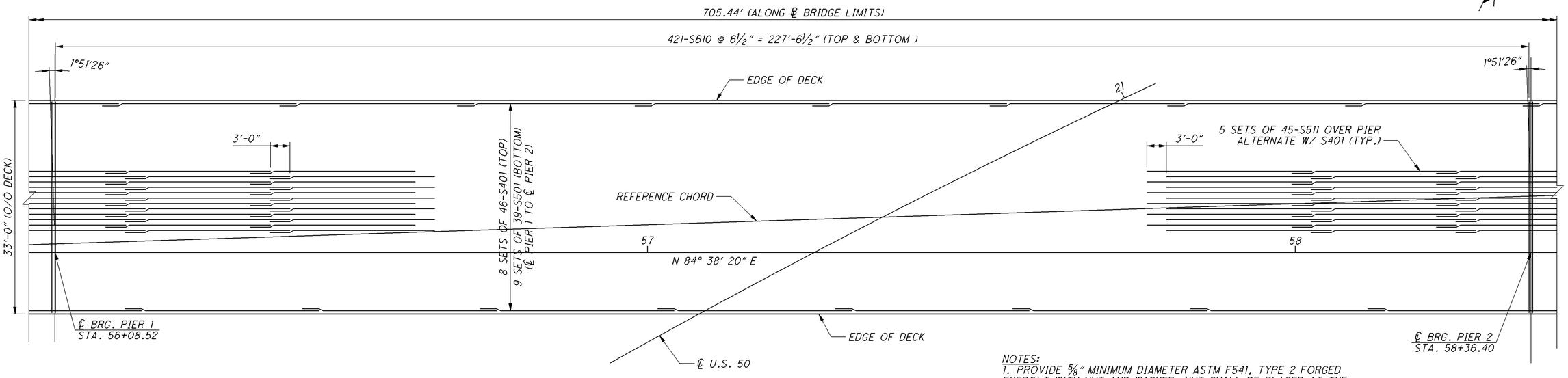


SPAN 1 DECK PLAN



SPAN 2 DECK PLAN

NOTES:
1. PROVIDE ⅝" MINIMUM DIAMETER ASTM F541, TYPE 2 FORGED EYEBOLT WITH NUT AND WASHER. NUT SHALL BE PLACED AT THE END OF THREADING AND WELDED TO THREADS. THE WASHER SHALL BE PLACED AT THE DECK EDGE. ALL MATERIAL SHALL BE GALVANIZED PER CMS 711.02. THE EYEBOLT SHALL BE LOCATED AT THE VERTICAL CENTER OF THE DECK EDGE AND SHALL BE CAST IN PLACE INTO THE CONCRETE A MINIMUM OF 8". THE CONTRACTOR SHALL SELECT AN EYEBOLT WITH A MINIMUM TENSILE CAPACITY (ALLOWABLE CAPACITY) OF 1325 POUNDS.

PAYMENT FOR ALL LABOR AND MATERIALS NECESSARY TO PERFORM THIS WORK SHALL BE INCLUDED WITH ITEM 898 OC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	6/2/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	3102793

DECK PLAN 1 OF 2
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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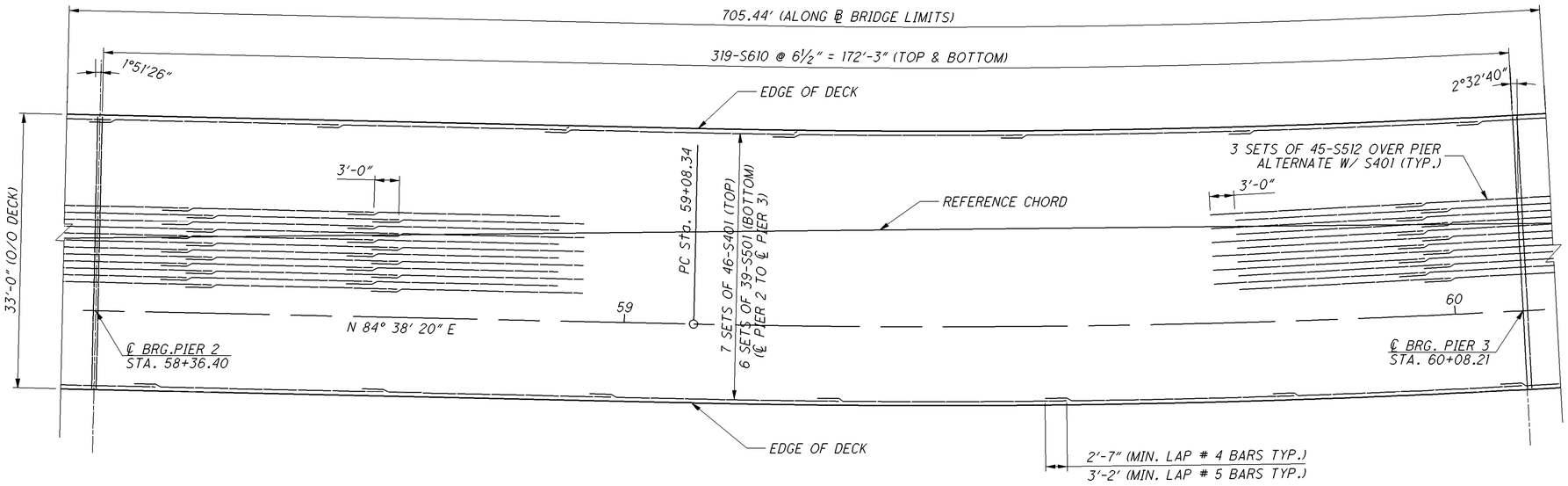
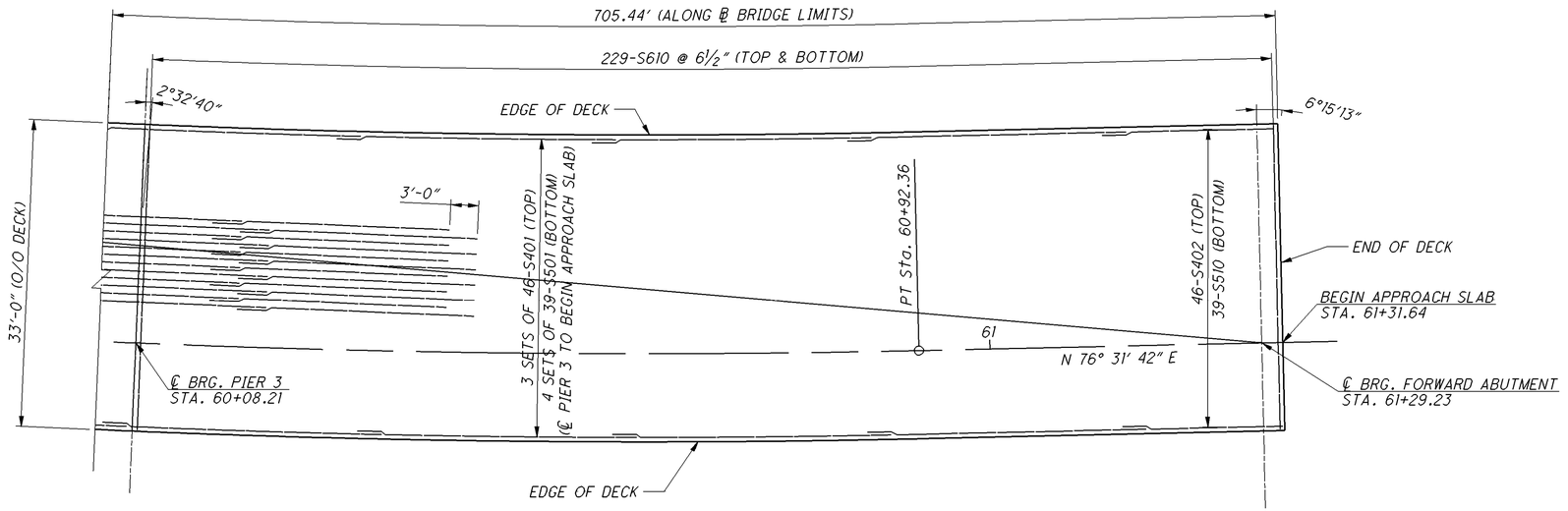


SPAN 3 DECK PLAN



SPAN 4 DECK PLAN

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	6/2/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	3102793

DECK PLAN 2 OF 2
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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SCREED TABLE

	SPAN LOCATION	SPAN 1												SPAN 2										
		℄ BRG. REAR ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	SPLICE 1	8/10	9/10	℄ BRG. PIER 1	1/10	2/10	SPLICE 2	3/10	4/10	5/10	6/10	7/10	8/10	SPLICE 3	9/10	℄ BRG. PIER 2
LEFT TOE OF BARRIER	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+56.14	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+64.74	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+95.57	58+13.61	58+36.40
	DECK ELEVATION	534.33	534.06	533.84	533.55	533.31	533.11	532.91	532.71	532.70	532.52	532.32	532.12	531.92	531.83	531.78	531.73	531.64	531.55	531.46	531.37	531.28	531.26	531.19	531.10
	DEFLECTION	0.00	0.08	0.15	0.19	0.21	0.18	0.15	0.10	0.10	0.06	0.02	0.00	0.01	0.06	0.09	0.12	0.16	0.18	0.18	0.14	0.09	0.08	0.03	0.00
	SCREED ELEVATION	534.33	534.14	533.99	533.75	533.52	533.29	533.06	532.82	532.79	532.57	532.34	532.12	531.93	531.89	531.87	531.85	531.80	531.73	531.64	531.51	531.37	531.34	531.22	531.10
GIRDER 4	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+56.14	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+64.74	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+95.57	58+13.61	58+36.40
	DECK ELEVATION	534.39	534.12	533.90	533.61	533.37	533.17	532.97	532.77	532.76	532.58	532.38	532.18	531.98	531.89	531.84	531.79	531.70	531.61	531.52	531.43	531.34	531.32	531.25	531.16
	DEFLECTION	0.00	0.08	0.15	0.19	0.21	0.18	0.15	0.10	0.10	0.06	0.02	0.00	0.01	0.06	0.09	0.12	0.16	0.18	0.18	0.14	0.09	0.08	0.03	0.00
	SCREED ELEVATION	534.39	534.20	534.05	533.81	533.58	533.35	533.12	532.88	532.85	532.63	532.40	532.18	531.99	531.95	531.93	531.91	531.86	531.79	531.70	531.57	531.43	531.40	531.28	531.16
LEFT CROWN	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+56.14	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+64.74	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+95.57	58+13.61	58+36.40
	DECK ELEVATION	534.49	534.22	534.00	533.71	533.47	533.27	533.07	532.87	532.86	532.68	532.48	532.28	532.08	531.99	531.94	531.89	531.80	531.71	531.62	531.53	531.44	531.42	531.35	531.26
	DEFLECTION	0.00	0.08	0.15	0.19	0.21	0.18	0.15	0.10	0.10	0.06	0.02	0.00	0.01	0.06	0.09	0.12	0.16	0.18	0.18	0.14	0.09	0.08	0.03	0.00
	SCREED ELEVATION	534.49	534.30	534.15	533.91	533.68	533.45	533.22	532.98	532.95	532.73	532.50	532.28	532.09	532.05	532.03	532.01	531.96	531.89	531.80	531.67	531.53	531.50	531.38	531.26
GIRDER 3	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+55.89	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+62.29	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+94.33	58+13.61	58+36.40
	DECK ELEVATION	534.19	533.92	533.71	533.46	533.26	533.11	532.95	532.80	532.79	532.65	532.50	532.34	532.18	532.09	532.06	532.00	531.91	531.82	531.73	531.63	531.54	531.53	531.45	531.36
	DEFLECTION	0.00	0.07	0.13	0.16	0.17	0.14	0.12	0.08	0.07	0.04	0.01	0.00	0.02	0.07	0.09	0.12	0.17	0.19	0.18	0.14	0.09	0.08	0.03	0.00
	SCREED ELEVATION	534.19	533.99	533.83	533.62	533.44	533.25	533.07	532.88	532.86	532.69	532.51	532.34	532.20	532.16	532.14	532.12	532.08	532.01	531.91	531.78	531.63	531.61	531.49	531.36
GIRDER 2	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+55.51	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+60.62	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+93.12	58+13.61	58+36.40
	DECK ELEVATION	533.78	533.51	533.29	533.11	532.97	532.88	532.79	532.70	532.70	532.61	532.52	532.43	532.32	532.23	532.21	532.14	532.05	531.96	531.87	531.78	531.69	531.68	531.60	531.50
	DEFLECTION	0.00	0.06	0.10	0.13	0.14	0.11	0.09	0.05	0.05	0.02	0.00	0.00	0.03	0.08	0.09	0.13	0.18	0.20	0.19	0.15	0.09	0.09	0.03	0.00
	SCREED ELEVATION	533.78	533.57	533.39	533.24	533.11	532.99	532.88	532.75	532.75	532.63	532.52	532.43	532.35	532.31	532.30	532.27	532.23	532.16	532.05	531.93	531.78	531.76	531.63	531.50
PGL	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+55.51	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+60.62	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+93.12	58+13.61	58+36.40
	DECK ELEVATION	533.66	533.40	533.18	533.01	532.89	532.82	532.74	532.67	532.67	532.60	532.53	532.46	532.36	532.27	532.25	532.18	532.09	532.00	531.91	531.82	531.73	531.72	531.64	531.54
	DEFLECTION	0.00	0.06	0.10	0.13	0.14	0.11	0.09	0.05	0.05	0.02	0.00	0.00	0.03	0.08	0.09	0.13	0.18	0.20	0.19	0.15	0.09	0.09	0.03	0.00
	SCREED ELEVATION	533.66	533.45	533.28	533.14	533.03	532.93	532.83	532.73	532.72	532.62	532.53	532.46	532.39	532.35	532.34	532.31	532.27	532.20	532.09	531.97	531.82	531.80	531.67	531.54
RIGHT CROWN	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+55.22	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+60.09	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+92.41	58+13.61	58+36.40
	DECK ELEVATION	533.55	533.28	533.06	532.91	532.81	532.75	532.70	532.64	532.64	532.59	532.53	532.48	532.40	532.31	532.29	532.22	532.13	532.04	531.95	531.86	531.77	531.76	531.68	531.58
	DEFLECTION	0.00	0.05	0.09	0.12	0.12	0.09	0.07	0.04	0.04	0.02	0.00	0.00	0.03	0.08	0.09	0.14	0.18	0.20	0.19	0.15	0.09	0.09	0.03	0.00
	SCREED ELEVATION	533.55	533.33	533.15	533.03	532.93	532.85	532.77	532.69	532.68	532.61	532.54	532.48	532.43	532.39	532.38	532.36	532.31	532.24	532.14	532.01	531.86	531.85	531.71	531.58
GIRDER 1	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+54.92	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+59.55	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+91.70	58+13.61	58+36.40
	DECK ELEVATION	533.37	533.10	532.88	532.75	532.65	532.59	532.54	532.48	532.48	532.43	532.37	532.32	532.24	532.15	532.13	532.06	531.97	531.88	531.79	531.70	531.61	531.60	531.52	531.42
	DEFLECTION	0.00	0.04	0.08	0.10	0.11	0.08	0.06	0.03	0.03	0.01	0.00	0.00	0.03	0.08	0.10	0.14	0.18	0.20	0.19	0.15	0.09	0.09	0.03	0.00
	SCREED ELEVATION	533.37	533.14	532.96	532.85	532.76	532.67	532.60	532.52	532.51	532.44	532.37	532.32	532.28	532.24	532.23	532.20	532.15	532.08	531.98	531.85	531.70	531.69	531.55	531.42
RIGHT TOE OF BARRIER	STATION	54+28.45	54+46.46	54+64.46	54+82.47	55+00.48	55+18.48	55+36.49	55+54.50	55+54.92	55+72.50	55+90.51	56+08.52	56+31.30	56+54.09	56+59.55	56+76.88	56+99.67	57+22.46	57+45.24	57+68.03	57+90.82	57+91.70	58+13.61	58+36.40
	DECK ELEVATION	533.30	533.03	532.81	532.69	532.59	532.53	532.48	532.42	532.42	532.37	532.31	532.26	532.18	532.09	532.07	532.00	531.91	531.82	531.73	531.64	531.55	531.54	531.46	531.36
	DEFLECTION	0.00	0.04	0.08	0.10	0.11	0.08	0.06	0.03	0.03	0.01	0.00	0.00	0.03	0.08	0.10	0.14	0.18	0.20	0.19	0.15	0.09	0.09	0.03	0.00
	SCREED ELEVATION	533.30	533.07	532.89	532.79	532.70	532.61	532.54	532.46	532.45	532.38	532.31	532.26	532.22	532.18	532.17	532.14	532.09	532.02	531.92	531.79	531.64	531.63	531.49	531.36

NOTES:

1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10 | CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

SCREED TABLE 1 OF 2

BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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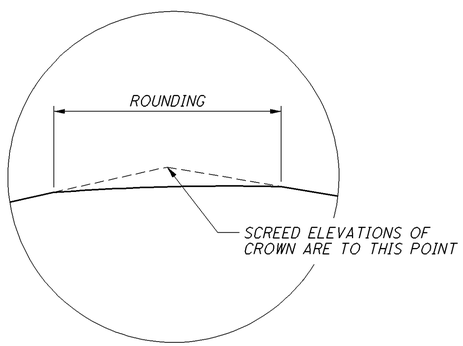
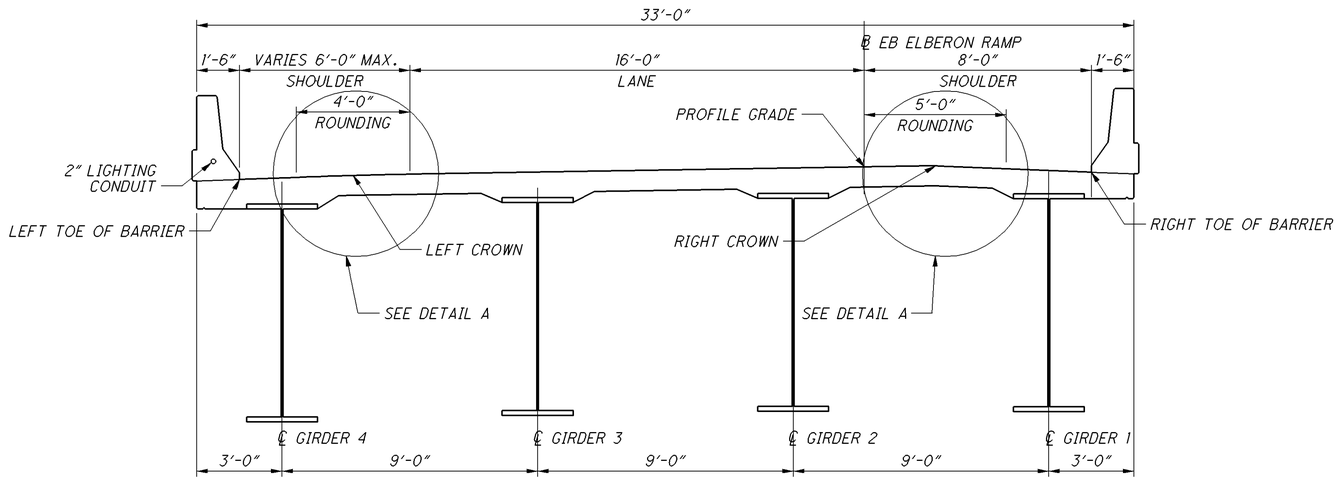
SCREED TABLE

		SPAN 3													SPAN 4									
	SPAN LOCATION	℄ BRG. PIER 2	1/10	2/10	3/10	SPLICE 4	4/10	5/10	6/10	7/10	8/10	SPLICE 5	9/10	℄ BRG. PIER 3	1/10	2/10	SPLICE 6	3/10	4/10	5/10	6/10	7/10	8/10	9/10	℄ BRG.
LEFT TOE OF BARRIER	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+91.68	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.67	59+91.03	60+08.21	60+20.31	60+32.41	60+39.90	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.10	531.03	530.96	530.85	530.80	530.61	530.26	529.84	529.45	529.03	528.98	528.55	528.01	527.59	527.13	526.83	526.65	526.14	525.62	525.13	524.61	524.05	523.48	522.89
	DEFLECTION	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.04	0.03	0.02	0.01	0.00	0.00	0.02	0.02	0.03	0.04	0.05	0.05	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.10	531.02	530.96	530.88	530.83	530.65	530.31	529.90	529.49	529.06	529.00	528.56	528.01	527.59	527.15	526.86	526.68	526.18	525.67	525.18	524.65	524.09	523.50	522.89
GIRDER 4	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+91.68	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.67	59+91.03	60+08.21	60+20.31	60+32.41	60+39.90	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.16	531.09	531.02	530.91	530.86	530.67	530.32	529.90	529.51	529.09	529.04	528.61	528.07	527.65	527.19	526.89	526.71	526.20	525.68	525.19	524.67	524.11	523.53	522.91
	DEFLECTION	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.04	0.03	0.02	0.01	0.00	0.00	0.02	0.02	0.03	0.04	0.05	0.05	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.16	531.08	531.02	530.94	530.89	530.71	530.37	529.96	529.55	529.12	529.06	528.62	528.07	527.65	527.21	526.92	526.74	526.24	525.73	525.24	524.71	524.15	523.55	522.91
LEFT CROWN	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+91.68	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.67	59+91.03	60+08.21	60+20.31	60+32.41	60+39.90	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.26	531.19	531.12	531.01	530.96	530.77	530.42	530.00	529.61	529.19	529.14	528.71	528.17	527.75	527.29	526.99	526.81	526.30	525.78	525.29	524.77	524.21	523.63	523.01
	DEFLECTION	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.04	0.03	0.02	0.01	0.00	0.00	0.02	0.02	0.03	0.04	0.05	0.05	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.26	531.18	531.12	531.04	530.99	530.81	530.47	530.06	529.65	529.22	529.16	528.72	528.17	527.75	527.31	527.02	526.84	526.34	525.83	525.34	524.81	524.25	523.65	523.01
GIRDER 3	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+91.29	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.77	59+91.03	60+08.21	60+20.31	60+32.41	60+39.44	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.36	531.29	531.22	531.12	531.07	530.90	530.59	530.22	529.84	529.42	529.37	528.94	528.40	527.98	527.53	527.25	527.04	526.53	526.00	525.48	524.93	524.35	523.73	523.08
	DEFLECTION	0.00	0.00	0.01	0.03	0.03	0.04	0.06	0.06	0.05	0.03	0.03	0.01	0.00	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.36	531.29	531.23	531.14	531.10	530.94	530.65	530.28	529.89	529.45	529.40	528.95	528.40	527.98	527.54	527.27	527.08	526.58	526.06	525.54	524.98	524.38	523.75	523.08
GIRDER 2	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+92.46	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.70	59+91.03	60+08.21	60+20.31	60+32.41	60+39.49	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.50	531.44	531.37	531.26	531.21	531.08	530.84	530.53	530.17	529.75	529.70	529.27	528.72	528.30	527.85	527.57	527.37	526.85	526.31	525.75	525.15	524.53	523.87	523.18
	DEFLECTION	0.00	0.00	0.01	0.03	0.03	0.05	0.06	0.06	0.05	0.03	0.03	0.01	0.00	0.01	0.02	0.03	0.03	0.05	0.06	0.06	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.50	531.43	531.37	531.29	531.25	531.13	530.90	530.59	530.22	529.78	529.72	529.28	528.72	528.31	527.87	527.60	527.40	526.90	526.37	525.81	525.21	524.57	523.89	523.18
PGL	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+92.46	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.70	59+91.03	60+08.21	60+20.31	60+32.41	60+39.49	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.54	531.48	531.41	531.30	531.26	531.13	530.90	530.61	530.26	529.84	529.79	529.36	528.81	528.39	527.94	527.66	527.46	526.94	526.40	525.82	525.22	524.58	523.91	523.21
	DEFLECTION	0.00	0.00	0.01	0.03	0.03	0.05	0.06	0.06	0.05	0.03	0.03	0.01	0.00	0.01	0.02	0.03	0.03	0.05	0.06	0.06	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.54	531.47	531.41	531.33	531.29	531.18	530.96	530.67	530.31	529.87	529.81	529.37	528.81	528.40	527.96	527.69	527.49	526.99	526.46	525.88	525.27	524.62	523.93	523.21
RIGHT CROWN	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+92.90	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.43	59+91.03	60+08.21	60+20.31	60+32.41	60+39.76	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.58	531.52	531.45	531.34	531.30	531.18	530.97	530.70	530.35	529.93	529.88	529.45	528.90	528.48	528.03	527.74	527.55	527.03	526.49	525.90	525.28	524.63	523.95	523.24
	DEFLECTION	0.00	0.00	0.01	0.03	0.03	0.05	0.06	0.06	0.05	0.03	0.03	0.01	0.00	0.01	0.02	0.03	0.03	0.05	0.06	0.06	0.05	0.04	0.02	0.00
	SCREED ELEVATION	531.58	531.51	531.45	531.37	531.33	531.23	531.03	530.76	530.40	529.96	529.91	529.46	528.90	528.49	528.05	527.77	527.58	527.08	526.54	525.96	525.33	524.67	523.97	523.24
GIRDER 1	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+93.33	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.16	59+91.03	60+08.21	60+20.31	60+32.41	60+40.02	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.42	531.36	531.29	531.18	531.13	531.02	530.81	530.54	530.19	529.77	529.73	529.29	528.74	528.32	527.87	527.57	527.39	526.87	526.33	525.74	525.12	524.47	523.79	523.08
	DEFLECTION	0.00	0.00	0.01	0.03	0.03	0.05	0.06	0.06	0.05	0.03	0.03	0.01	0.00	0.01	0.02	0.03	0.03	0.05	0.06	0.06	0.06	0.04	0.02	0.00
	SCREED ELEVATION	531.42	531.35	531.29	531.21	531.17	531.07	530.87	530.60	530.24	529.80	529.76	529.30	528.74	528.33	527.89	527.60	527.42	526.92	526.38	525.80	525.18	524.51	523.81	523.08
RIGHT TOE OF BARRIER	STATION	58+36.40	58+53.58	58+70.76	58+87.94	58+93.33	59+05.12	59+22.30	59+39.48	59+56.67	59+73.85	59+75.16	59+91.03	60+08.21	60+20.31	60+32.41	60+40.02	60+44.51	60+56.62	60+68.72	60+80.82	60+92.92	61+05.02	61+17.12	61+29.23
	DECK ELEVATION	531.36	531.30	531.23	531.12	531.07	530.96	530.75	530.48	530.13	529.71	529.67	529.23	528.68	528.26	527.81	527.51	527.33	526.81	526.27	525.68	525.06	524.41	523.73	523.02
	DEFLECTION	0.00	0.00	0.01	0.03	0.03	0.05	0.06	0.06	0.05	0.03	0.03	0.01	0.00	0.01	0.02	0.03	0.03	0.05	0.06	0.06	0.06	0.04	0.02	0.00
	SCREED ELEVATION	531.36	531.29	531.23	531.15	531.11	531.01	530.81	530.54	530.18	529.74	529.70	529.24	528.68	528.27	527.83	527.54	527.36	526.86	526.32	525.74	525.12	524.45	523.75	523.02



DETAIL A



SCREED POINT LOCATIONS

NOTES:

1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

SCREED TABLE 2 OF 2
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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466
657

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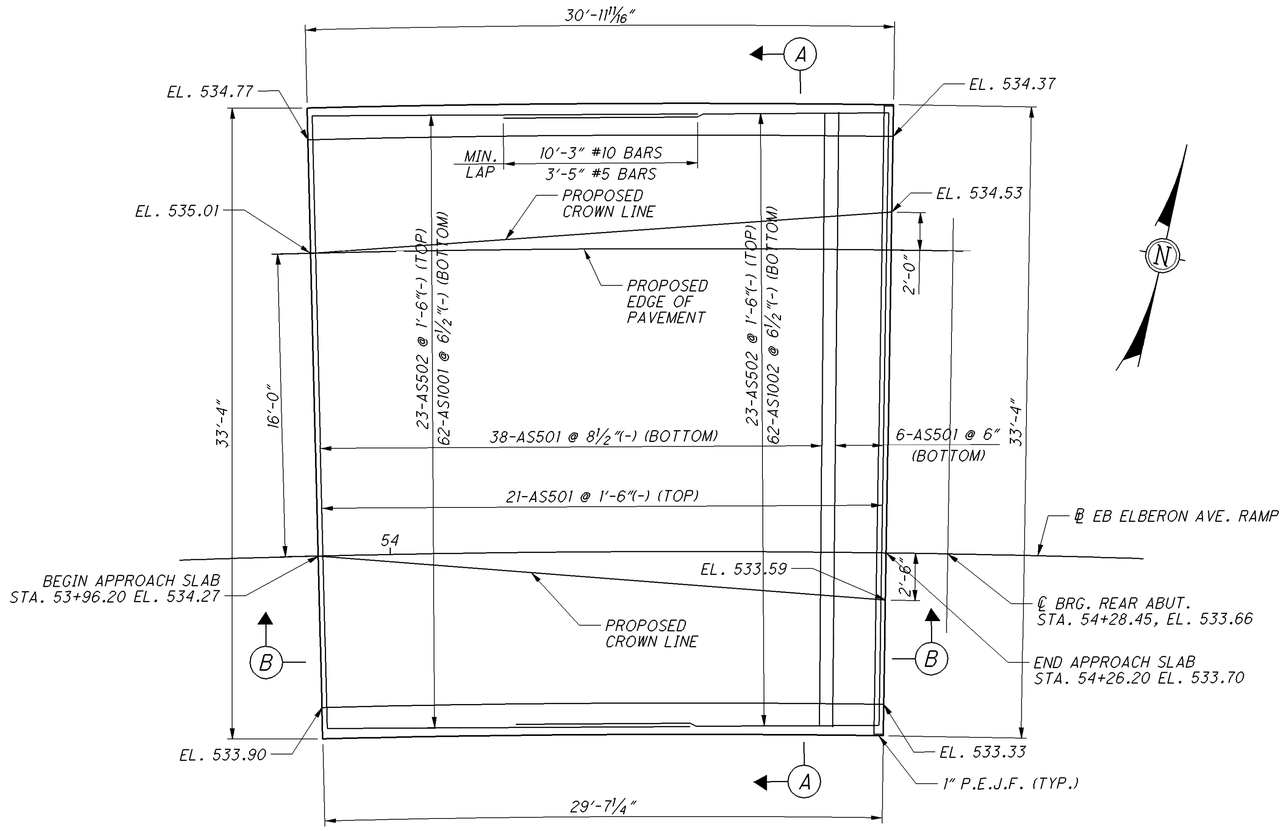
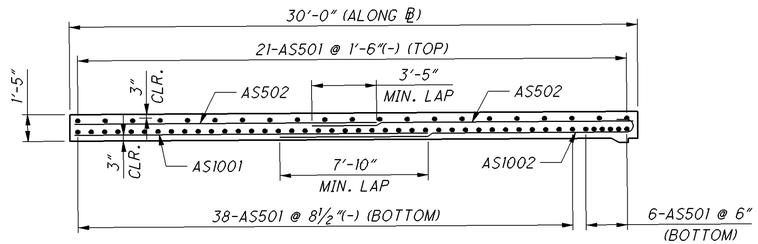
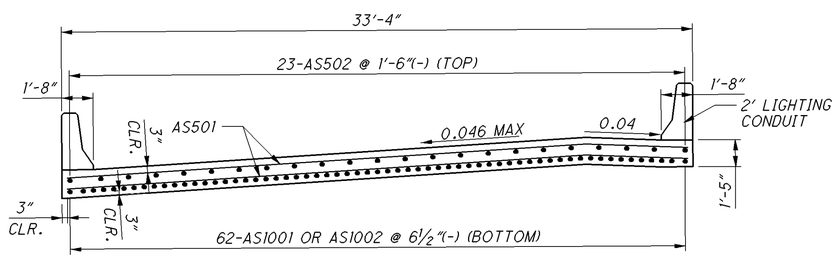


REAR APPROACH SLAB PLAN



SECTION B-B



SECTION A-A

NOTE:

1. SEE STANDARD DRAWING AS-1-81 FOR MORE DETAILS.
2. SEE HAM-050-1881 FOR FORWARD APPROACH SLAB DETAILS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

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APPROACH SLAB DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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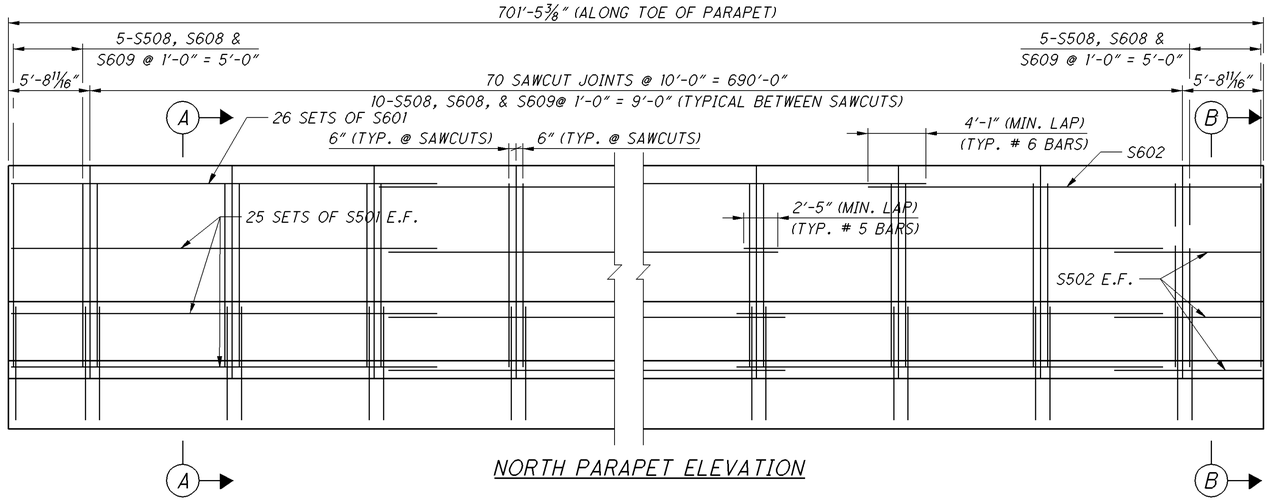
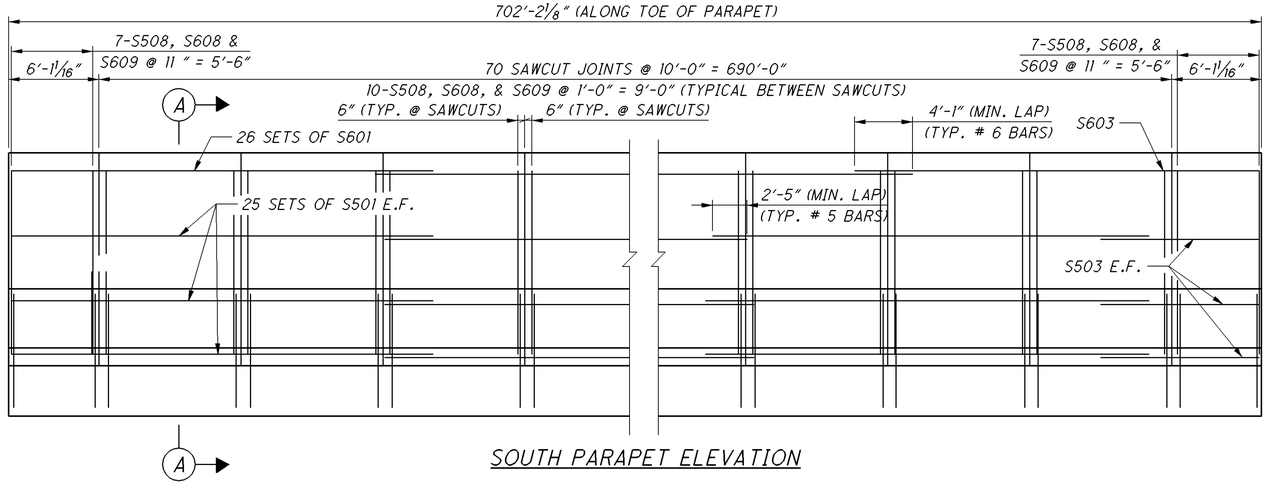


NORTH PARAPET ELEVATION



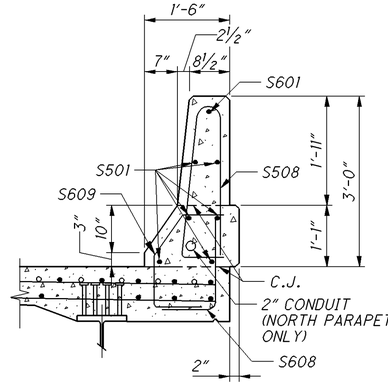
SOUTH PARAPET ELEVATION

NOTE:

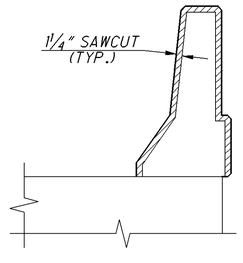
1. SEE STANDARD CONSTRUCTION DRAWING BR-1 FOR ADDITIONAL NOTES AND DETAILS.

2. PROVIDE 2" RIGID GALVANIZED STEEL CONDUIT, INCLUDING CAPPED VERTICAL EXTENSION. (SEE LIGHTING PLAN SHEETS FOR DETAILS) SEE SHEET 32/39 FOR APPROACH SLAB CONDUIT.

3. PROVIDE EXPANSION COUPLINGS. (SEE LIGHTING GENERAL NOTES FOR DETAILS)

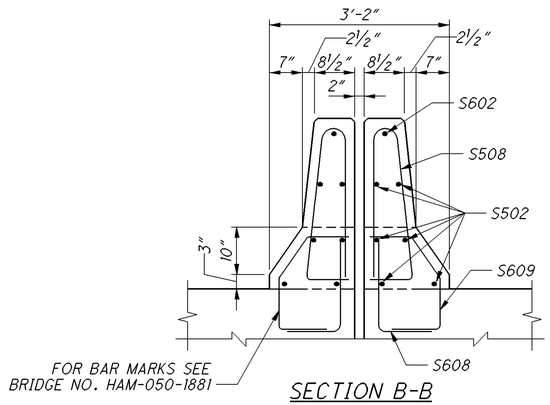


SECTION A-A

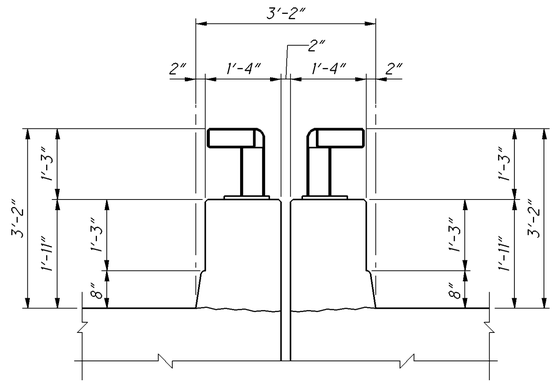


DETAIL A

(SECTION THROUGH SAWCUT)
SAWCUT PERIMETER = 7'-1"

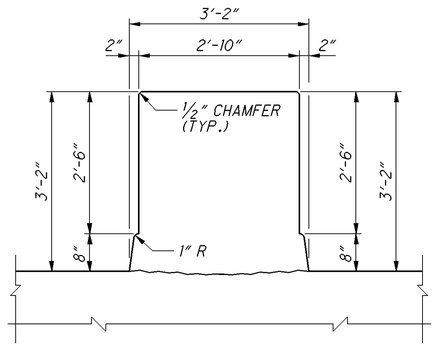


SECTION B-B



SECTION B-B

ALTERNATE



SECTION H-H

ALTERNATE

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DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
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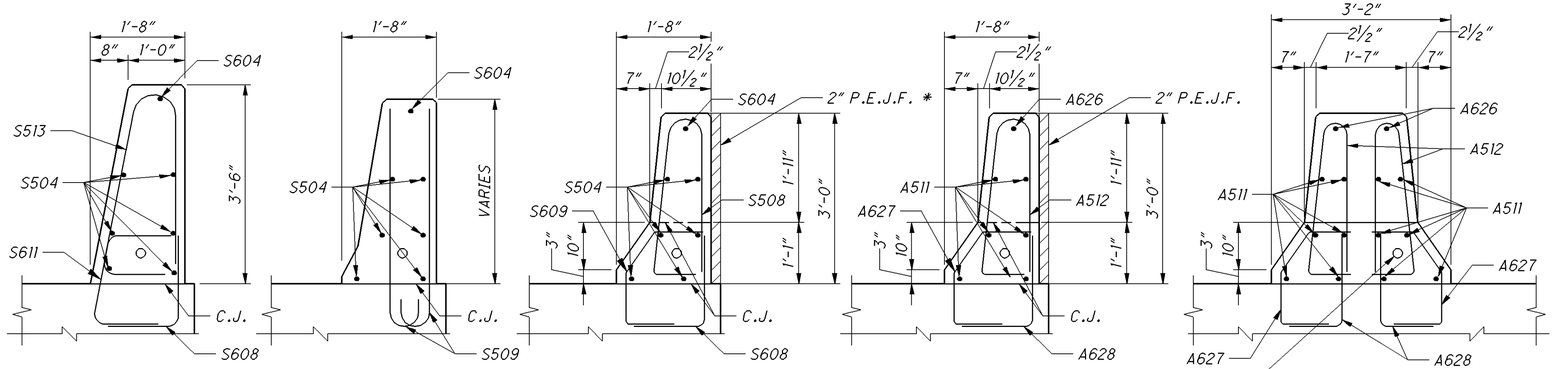
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

PARAPET DETAILS

BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082



SECTION C-C

SECTION D-D

(REAR NORTH SHOWN OTHERS SIMILAR)

SECTION E-E

SECTION F-F

SECTION G-G

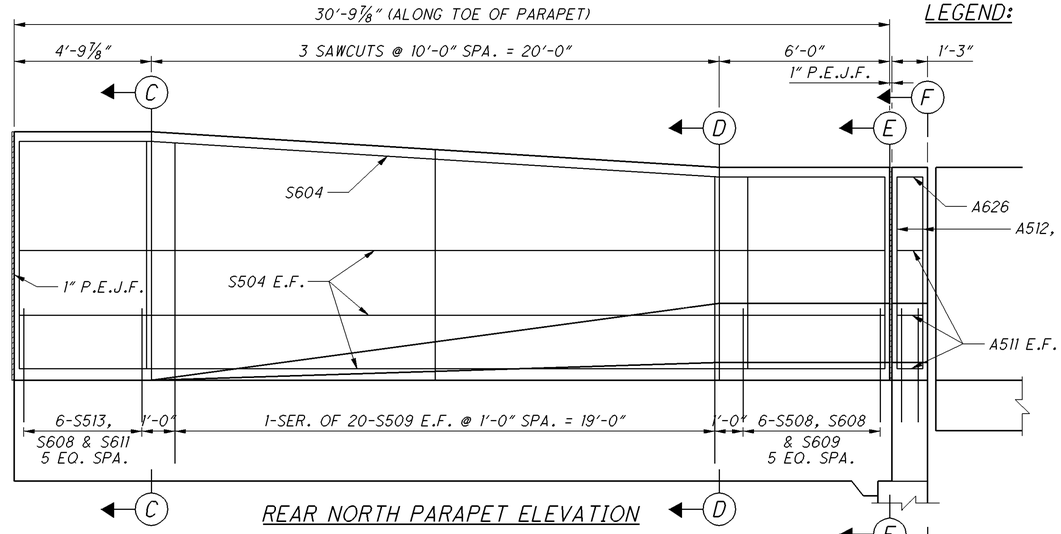
SECTION H-H

NOTE:

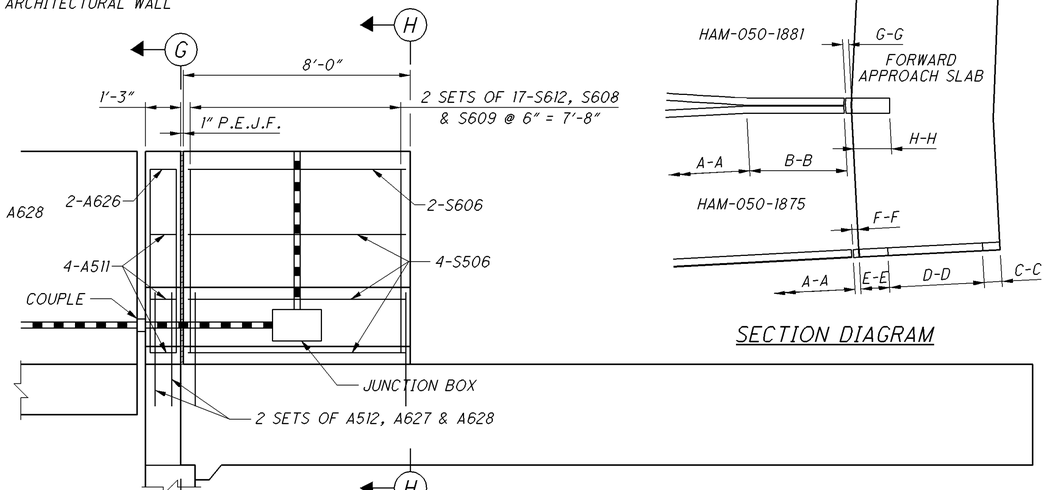
1. 2" LIGHTING CONDUIT TO BE PLACED IN NORTH PARAPET ONLY.
2. FOR ALTERNATE SECTION H-H, SEE SHEET 31/39 .

LEGEND:

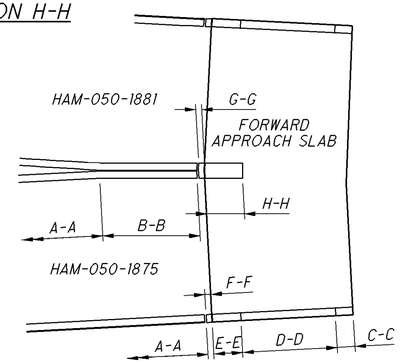
* 2" P.E.J.F. ONLY NEEDED IN AREA OF ARCHITECTURAL WALL



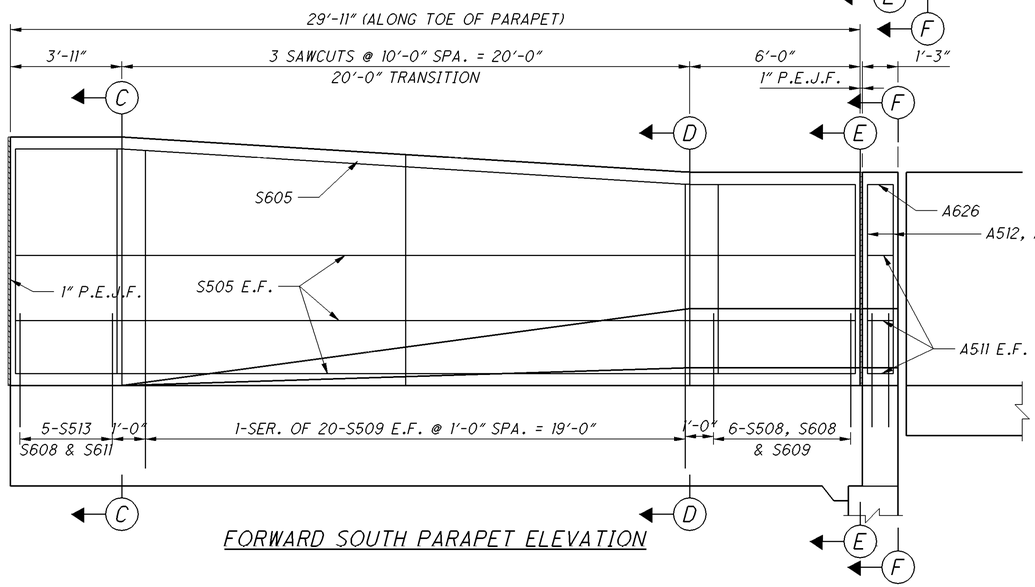
REAR NORTH PARAPET ELEVATION



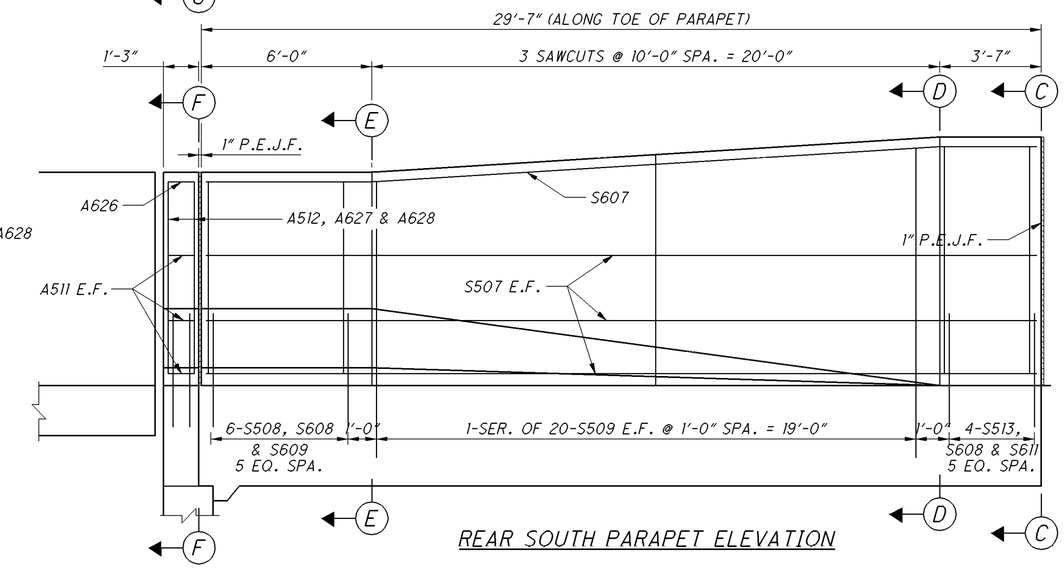
FORWARD NORTH PARAPET ELEVATION



SECTION DIAGRAM



FORWARD SOUTH PARAPET ELEVATION



REAR SOUTH PARAPET ELEVATION

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

PARAPET DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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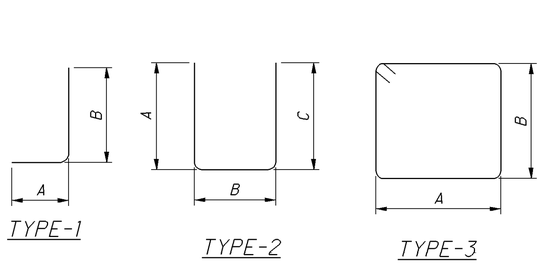
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
SUPERSTRUCTURE											
S401	1150	30'-0"	23,046	STR							
S402	46	18'-9"	576	STR							
S501	1314	30'-0"	41,115	STR							
S502	6	11'-6"	72	STR							
S503	6	12'-3"	77	STR							
S504	6	30'-5"	190	STR							
S505	6	29'-7"	185	STR							
S506	12	3'-8"	46	STR							
S507	6	29'-3"	183	STR							
S508	1422	6'-0"	8,899	23	8"	2'-9"	2'-6"			1½"	
	6	4'-7"			4'-0"						
S509	SER. OF	TO	611	16	TO						⅜"
	20	5'-2"			4'-7"						
S510	39	7'-8"	312	STR							
S511	450	21'-1"	9,895	STR							
S512	135	25'-6"	3,591	STR							
S513	15	7'-5"	116	23	1'-1"	3'-2"	3'-0"			2¾"	
S601	52	30'-0"	2,343	STR							
S602	1	27'-3"	41	STR							
S603	1	28'-0"	42	STR							
S604	1	30'-5"	46	STR							
S605	1	29'-7"	44	STR							
S606	2	3'-8"	11	STR							
S607	1	29'-3"	44	STR							
S608	1471	2'-5"	5,339	1	11"	1'-8"					
S609	1456	3'-10"	8,383	14	10½"	1'-8"	8½"	6"	9"		
S610	2620	32'-8"	128,551	STR							
S611	15	3'-8"	83	30	1'-8"	1'-1"					
S612	34	6'-0"	306		8"	2'-9"	2'-6"			1½"	
SUPERSTRUCTURE TOTAL			234,147								
LIGHT PILASTER											
L505	52	2.83	154	2	7"	1'-10"	7"				
L506	52	9.25	502	9	6"	3'-7"	2'-4"	3'-7"			
L507	78	7.25	590	33	1'-10"	1'-4"	1'-0"	6"			
L508	52	3.58	194	STR							
LIGHT PILASTER TOTAL			1,440								
GRAND TOTAL			235,587								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
REAR APPROACH SLAB											
AS501	65	32'-10"	2,226	STR							
AS502	46	16'-6"	792	STR							
AS1001	62	20'-9"	1,342	STR							
AS1002	62	22'-2"	1,434	16	20'-9"						
APPROACH SLAB TOTAL			5,794								
FOR INFORMATION ONLY NOT INCLUDED WITH ITEM 509.											

NOTE:

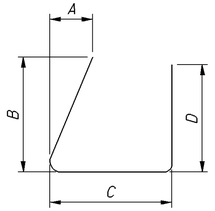
1. FOR FORWARD APPROACH SLAB SEE BRIDGE NO. HAM-050-1881.



TYPE-1

TYPE-2

TYPE-3



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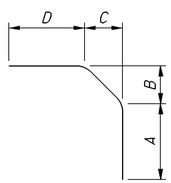
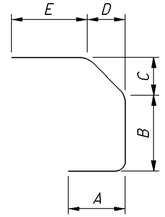


TYPE-13



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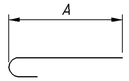
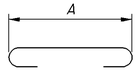
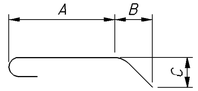


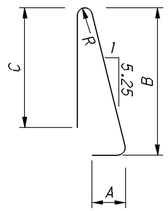
TYPE-16



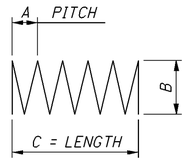
TYPE-17



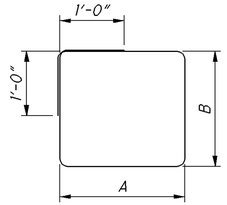
TYPE-18



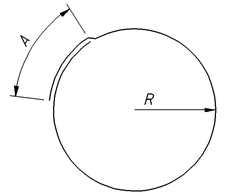
TYPE-23



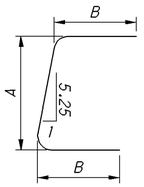
TYPE - 27



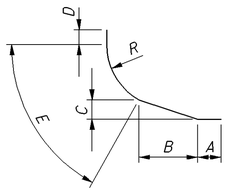
TYPE-28



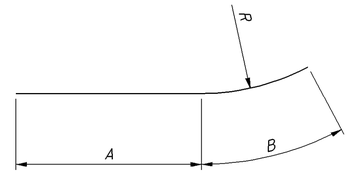
TYPE - 29



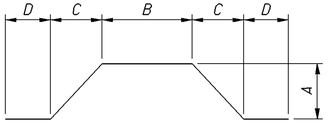
TYPE 30



TYPE-31



TYPE - 32



TYPE - 33

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DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

REINFORCING STEEL LIST

BRIDGE NO. HAM-050-1875

EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79

PID No. 20082

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
PIER 1											
SP401	1	21'-1"	925	27	4½"	7'-6"	21'-1"				
P401	2	25'-2""	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11"	13	29	1'-7"					2'-11"	
P501	18	20'-8"	388	STR.							
P502	14	26'-8"	390	STR.							
P601	2	28'-6"	86	STR.							
P602	2	24'-3"	73	STR.							
P603	2	16'-3"	49	STR.							
P604	5	8'-0"	60	STR.							
P605	192	15'-4"	4,422	2	6'-4"	3'-0"	6'-4"				
P606	5	19'-8"	148	31	2'-11"	6'-8¼"	2'-2"	1'-9"		4'-9"	
P607	5	19'-11"	150	31	2'-11"	6'-8¼"	2'-2"	2'-0"		4'-9"	
P608	16	13'-0'	312	2	5'-2"	3'-0"	5'-2"				
P609	8	10'-10"	130	2	4'-1"	3'-0"	4'-1"				
P610	6	8'-10"	80	2	2'-3"	4'-8"	2'-3"				
P611	12	15'-0"	270	28	3'-8"	3'-1"					
P612	16	4'-6"	108	1	1'-6"	3'-1 "					
P801	4	32'-0"	342	STR.							
P802	2	31'-4"	167	STR.							
P803	2	30'-4"	162	STR.							
P901	44	4'-4"	648	1	1'-6"	3'-1"					
P1101	49	29'-10"	7,767	17	26'-8"						
P1102	44	23'-10"	5,572	17	20'-8"						
P1103	55	20'-7"	6,015	32	13'-3"	7'-4"				29'-4"	
P1104	55	26'-4"	7,695	1	2'-0"	24'-8"					
P1105	12	35'-2"	2,242	17	32'-0"						
P1106	16	32'-0"	2,720	STR.							
PIER 1 SUB-TOTAL			41,045								
PIER 2											
SP402	1	20'-6"	901	27	4½"	7'-6"	20'-6"				
P401	2	25'-2"	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11"	13	29	1'-7"					2'-11"	
P503	16	17'-8"	295	STR.							
P504	12	22'-8"	284	STR.							
P601	2	28'-6"	86	STR.							
P602	2	24'-3"	73	STR.							
P603	2	16'-3"	49	STR.							
P604	5	8'-0"	60	STR.							
P605	192	15'-4"	4,422	2	6'-4"	3'-0"	6'-4"				
P606	5	19'-8'	148	31	2'-11'	6'-8¼"	2'-2"	1'-9"		4'-9"	
P607	5	19'-11"	150	31	2'-11"	6'-8¼"	2'-2"	2'-0"		4'-9"	
P608	16	13'-0"	312	2	5'-2"	3'-0"	5'-2"				
P609	8	10'-10'	130	2	4'-1"	3'-0"	4'-1"				
P610	6	8'-10'	80	2	2'-3"	4'-8"	2'-3"				

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
PIER 2 (CONT.)											
P801	4	32'-0"	342	STR.							
P802	2	31'-4"	167	STR.							
P803	2	30'-4"	162	STR.							
P1103	55	20'-7"	6,015	32	13'-3"	7'-4"				29'-4"	
P1105	12	35'-2"	2,242	17	32'-0'						
P1106	16	32'-0'	2,720	STR.							
P1107	55	25'-10"	7,549	1	2'-0"	24'-2"					
P1108	34	20'-10"	3,763	17	17'-8"						
P1109	37	25'-10"	5,078	17	22'-8"						
PIER 2 SUB-TOTAL			35,152								
PIER 3											
SP403	1	18'-8"	824	27	4½"	7'-6"	18'-8"				
P401	2	25'-2"	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11"	13	29	1'-7"					2'-11"	
P503	13	17'-8"	240	STR.							
P505	12	18'-8"	234	STR.							
P604	5	8'-0"	60	STR.							
P606	5	19'-8"	148	31	2'-11"	6'-8¼"	2'-2"	1'-9"		4'-9"	
P608	20	13'-0"	391	2	5'-2"	3'-0"	5'-2"				
P609	4	10'-10"	65	2	4'-1"	3'-0"	4'-1"				
P610	6	8'-10"	80	2	2'-3"	4'-8"	2'-3"				
P611	12	15'-0"	270	28	3'-8"	3'-1"					
P612	16	4'-6"	108	1	1'-6"	3'-1"					
P613	2	29'-5"	88	STR.							
P614	2	26'-6"	79	STR.							
P615	2	20'-0"	60	STR.							
P616	5	20'-8"	155	31	2'-11"	6'-8¼"	2'-2"	2'-6"		4'-9"	
P617	112	15'-10"	2,664	2	6'-7"	3'-0"	6'-7"				
P801	4	32'-0"	342	STR.							
P804	2	31'-8"	169	STR.							
P805	2	30'-9"	164	STR.							
P901	44	4'-4"	509	1	1'-6"	3'-1"					
P1103	55	20'-7"	6,015	32	13'-3"	7'-4"				29'-4"	
P1105	12	35'-2"	2,242	17	32'-0"						
P1106	12	32'-0"	2,040	STR.							
P1110	55	24'-2"	7,013	1	2'-0"	22'-4"					
P1111	28	20'-10"	3,099	17	17'-8"						
P1112	25	21'-10'	2,900	17	18'-8"						
PIER 3 SUB-TOTAL			30,083								
PIER TOTAL			106,280								

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10 | CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

REINFORCING STEEL LIST
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
REAR ABUTMENT											
A501	30	21'-1"	660	1	10"	20'-4"					
A502	2	21'-3"	44	1	10"	20'-6"					
A503	10	16'-3"	169	1	10"	15'-6"					
A504	6	4'-5"	28	13	1'-6"	1'-0"	1'-0"				
A505	6	4'-5"	28	2	1'-6"	1'-8"	1'-6"				
A506	5	16'-11"	88	2	10"	15'-6"	10"				
A507	0	30'-1"	0	1	10"	29'-4"					
A508	0	29'-1"	0	1	10"	28'-4"					
A509	0	30'-9"	0	1	10"	30'-0"					
A510	0	7'-7"	0	1	1'-9"	5'-11"					
A511	12	11"	11	STR							
A512	4	6'-0"	25	23	8"	2'-9"	2'-6"			2 9/16"	
A601	34	16'-4"	834	3	5'-11"	2'-7"					
A602	11	14'-8"	242	3	3'-11"	3'-9"					
A603	9	15'-6"	210	3	3'-11"	4'-2"					
A604	14	16'-4"	343	3	3'-11"	4'-7"					
A605	34	6'-0"	306	2	2'-9"	10"	2'-9"				
A606	34	15'-11"	813	2	7'-5"	1'-5"	7'-5"				
A607	34	16'-3"	830	2	7'-7'	1'-5"	7'-7"				
A608	7	29'-2"	307	2	13'-11"	1'-8"	13'-11"				
A609	14	13'-6"	284	2	6'-1"	1'-8"	6'-1"				
A610	40	7'-10"	471	STR							
A611	6	20'-8"	186	3	7'-10"	2'-10"					
A612	7	27'-2"	286	2	12'-11"	1'-8"	12'-11"				
A613	6	10'-10"	98	28	2'-1'	2'-9"	1'-0"				
A614	4	4'-2"	25	1	1'-7"	2'-9"					
A615	0	15'-3"	0	2	7'-1"	1'-5"	7'-1"				
A616	0	26'-10"	0	2	12'-9"	1'-8"	12'-9"				
A617	0	8'-0"	0	STR							
A618	0	21'-0"	0	3	8'-0"	2'-10"					
A619	0	15'-8"	0	3	4'-3"	3'-11"					
A620	0	15'-10"	0	3	4'-3"	4'-0"					
A621	0	17'-0"	0	3	4'-3"	4'-7"					
A622	0	17'-8"	0	3	4'-3"	4'-11"					
A623	0	15'-6"	0	3	4'-3"	3'-10"					
A624	0	16'-8"	0	3	5'-11"	2'-9"					
A625	0	17'-10"	0	3	5'-11"	3'-4"					
A626	2	11"	3	STR							
A627	4	3'-10"	23	14	10 9/16"	1'-8"	8 5/8"	6"	9"		
A628	4	2'-5"	15	1	11"	1'-8"					
A801	24	22'-11"	1469	1	1'-4"	21'-10"					
A802	0	20'-7"	0	1	1'-4"	19'-5"					
A803	0	19'-5"	0	STR							
A901	10	4'-1"	139	1	1'-7"	2'-9"					
A902	4	2'-5"	33	STR							
D801	23	5'-2"	316	18	2'-10"	11"	1'-0"				
REAR ABUT. SUB-TOTAL			8,286								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
FORWARD ABUTMENT											
A501		21'-1"	0	1	10"	20'-4"					
A502		21'-3"	0	1	10"	20'-6"					
A503		16'-3"	0	1	10"	15'-6"					
A504	3	4'-5"	14	13	1'-6"	1'-0"	1'-0"				
A505	3	4'-5"	14	2	1'-6"	1'-8"	1'-6"				
A506		16'-11"	0	2	10"	15'-6"	10"				
A507	1	30'-1"	31	1	10"	29'-4"					
A508	13	29'-1"	394	1	10"	28'-4"					
A509	5	30'-9"	160	1	10"	30'-0"					
A510	5	7'-7"	40	1	1'-9"	5'-11"					
A511	18	11"	17	STR							
A512	6	6'-0"	38	23	8"	2'-9"	2'-6"			2 9/16"	
A601	30	16'-4"	736	3	5'-11"	2'-7"					
A602		14'-8"	0	3	3'-11"	3'-9"					
A603		15'-6"	0	3	3'-11"	4'-2"					
A604		16'-4"	0	3	3'-11"	4'-7"					
A605	33	6'-0"	297	2	2'-9"	10"	2'-9"				
A606	33	15'-11"	789	2	7'-5"	1'-5"	7'-5"				
A607		16'-3"	0	2	7'-7'	1'-5"	7'-7"				
A608		29'-2"	0	2	13'-11"	1'-8"	13'-11"				
A609	7	13'-6"	142	2	6'-1"	1'-8"	6'-1"				
A610		7'-10"	0	STR							
A611		20'-8"	0	3	7'-10"	2'-10"					
A612		27'-2"	0	2	12'-11"	1'-8"	12'-11"				
A613	6	10'-10"	98	28	2'-1'	2'-9"	1'-0"				
A614	4	4'-2"	25	1	1'-7"	2'-9"					
A615	33	15'-3"	756	2	7'-1"	1'-5"	7'-1"				
A616	7	26'-10"	282	2	12'-9"	1'-8"	12'-9"				
A617	20	8'-0"	240	STR							
A618	3	21'-0"	95	3	8'-0"	2'-10"					
A619	28	15'-8"	659	3	4'-3"	3'-11"					
A620	1	15'-10"	24	3	4'-3"	4'-0"					
A621	1	17'-0"	26	3	4'-3"	4'-7"					
A622	1	17'-8"	27	3	4'-3"	4'-11"					
A623	1	15'-6"	23	3	4'-3"	3'-10"					
A624	1	16'-8"	25	3	5'-11"	2'-9"					
A625	1	17'-10"	27	3	5'-11"	3'-4"					
A626	3	11"	4	STR							
A627	6	3'-10"	35	14	10 9/16"	1'-8"	8 5/8"	6"	9"		
A628	6	2'-5"	22	1	11"	1'-8"					
A801		22'-11"	0	1	1'-4"	21'-10"					
A802	18	20'-7"	989	1	1'-4"	19'-5"					
A803	6	19'-5"	311	STR							
A901	10	4'-1"	139	1	1'-7"	2'-9"					
A902	4	2'-5"	33	STR							
D801	22	5'-2"	303	18	2'-10"	11"	1'-0"				
FWD. ABUT.SUB-TOTAL			6,815								
ABUTMENT TOTAL			15,101								

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102793

REINFORCING STEEL LIST
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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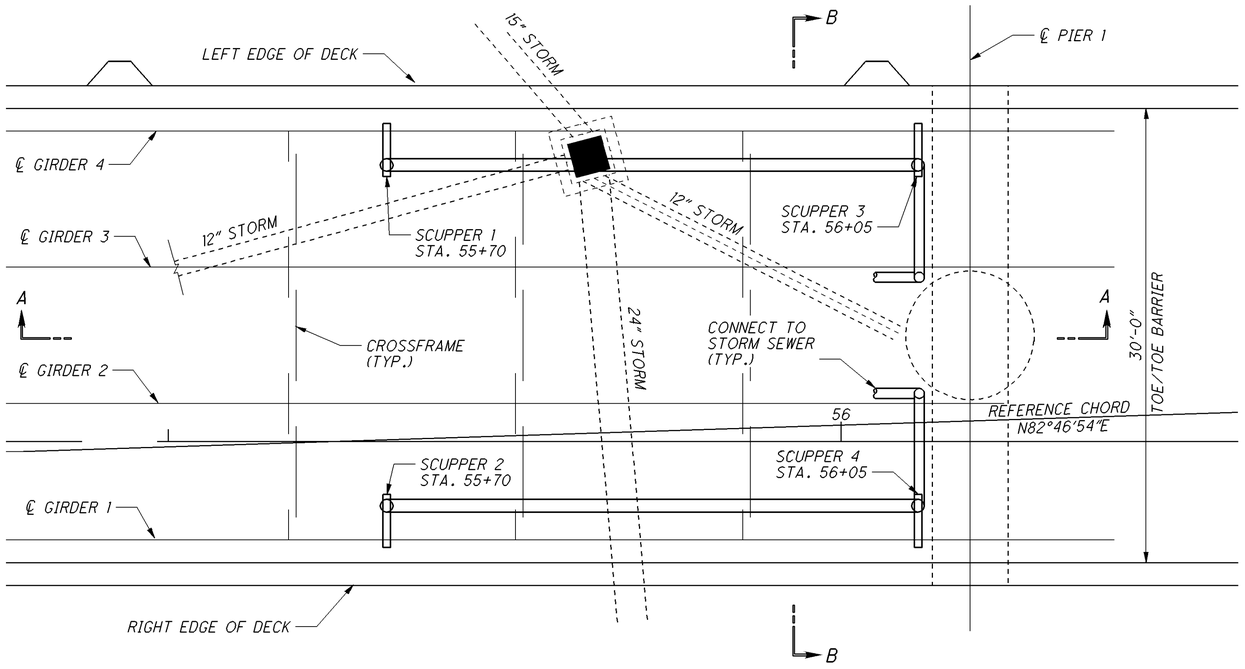
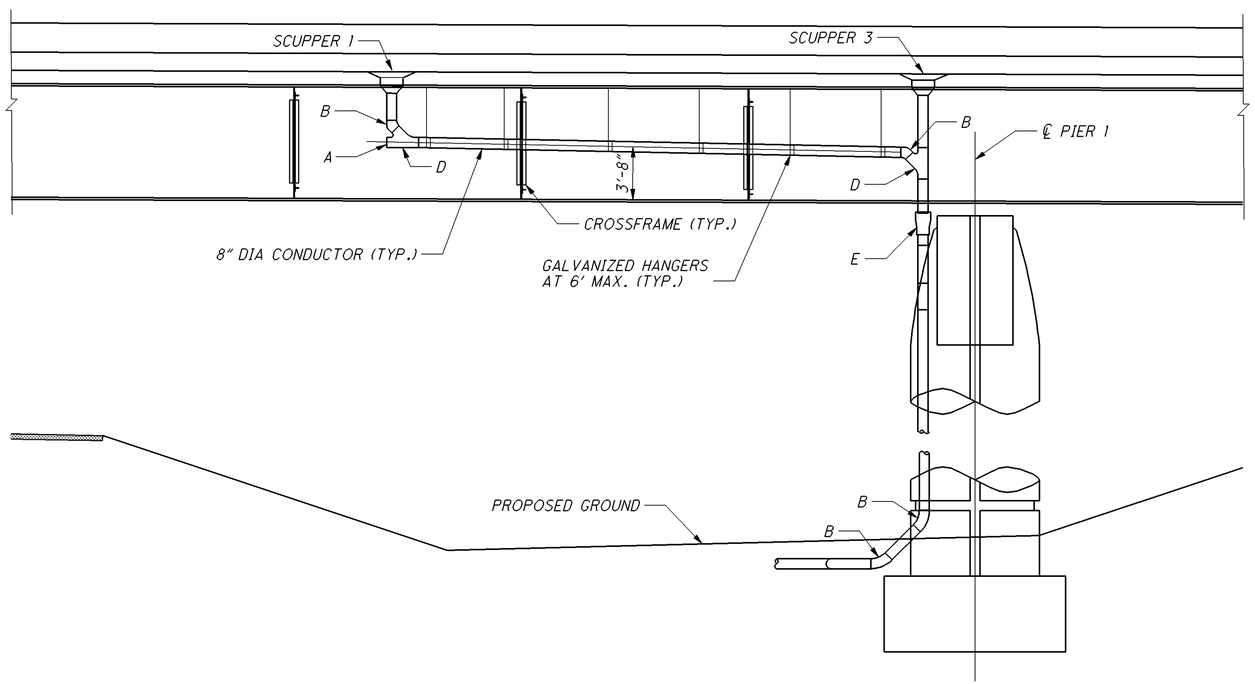
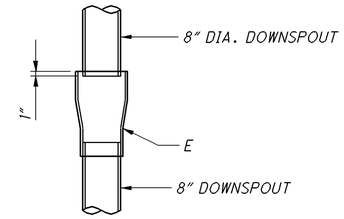


PARTIAL PLAN

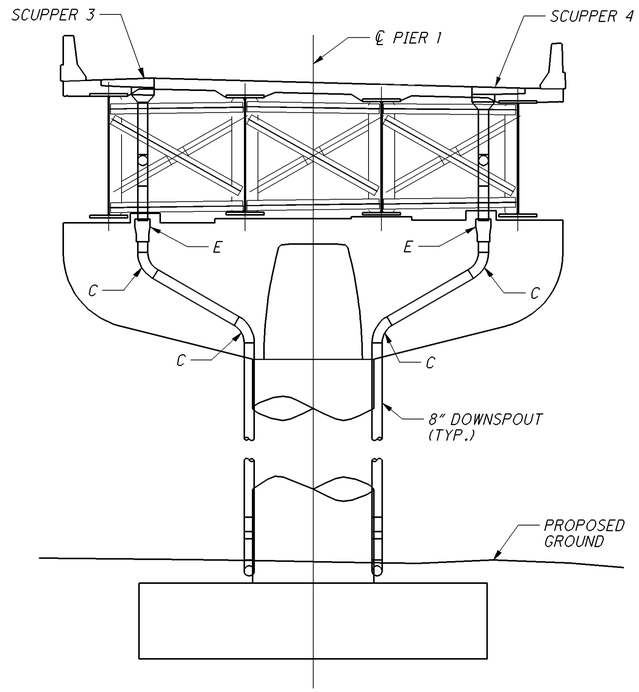


SECTION A-A



REDUCER DETAIL

A	CLEANOUT
B	45° BEND
C	60° BEND
D	LATERAL
E	12X8 REDUCER



SECTION B-B

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

SCUPPER DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

36 / 39

473
657

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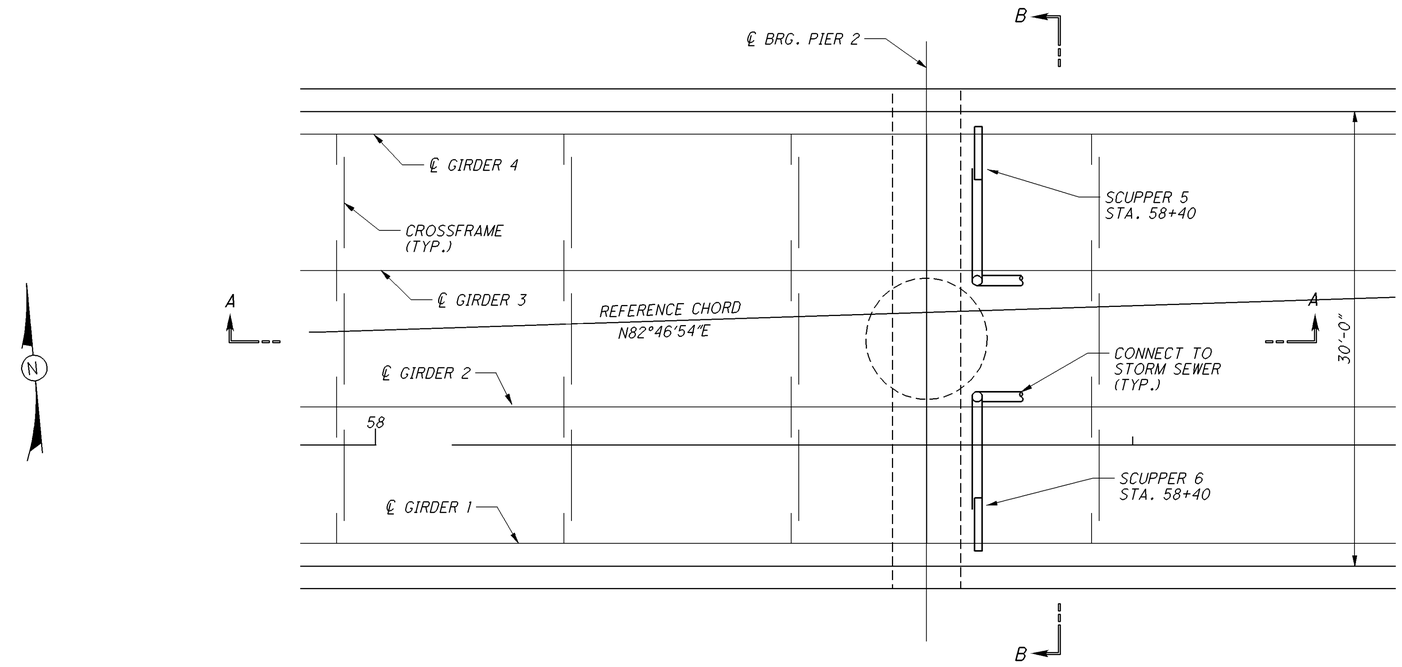
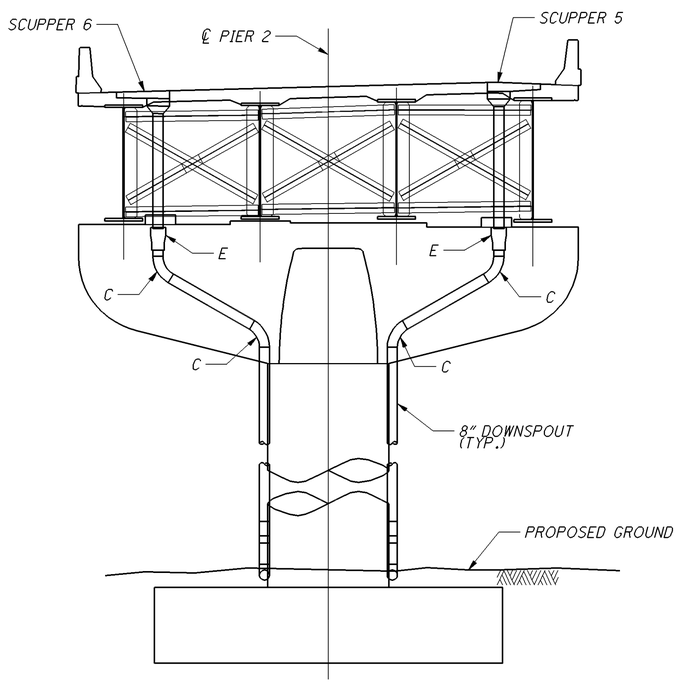
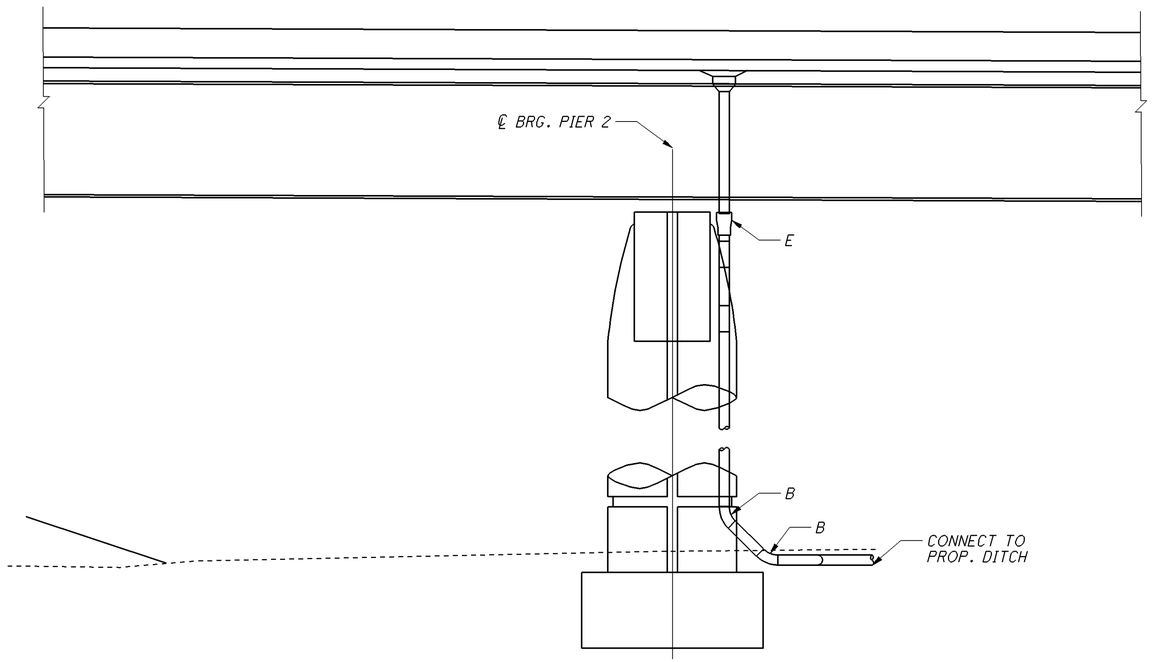
A	CLEANOUT
B	45° BEND
C	60° BEND
D	LATERAL
E	12X8 REDUCER



PARTIAL PLAN



SECTION B-B



SECTION A-A

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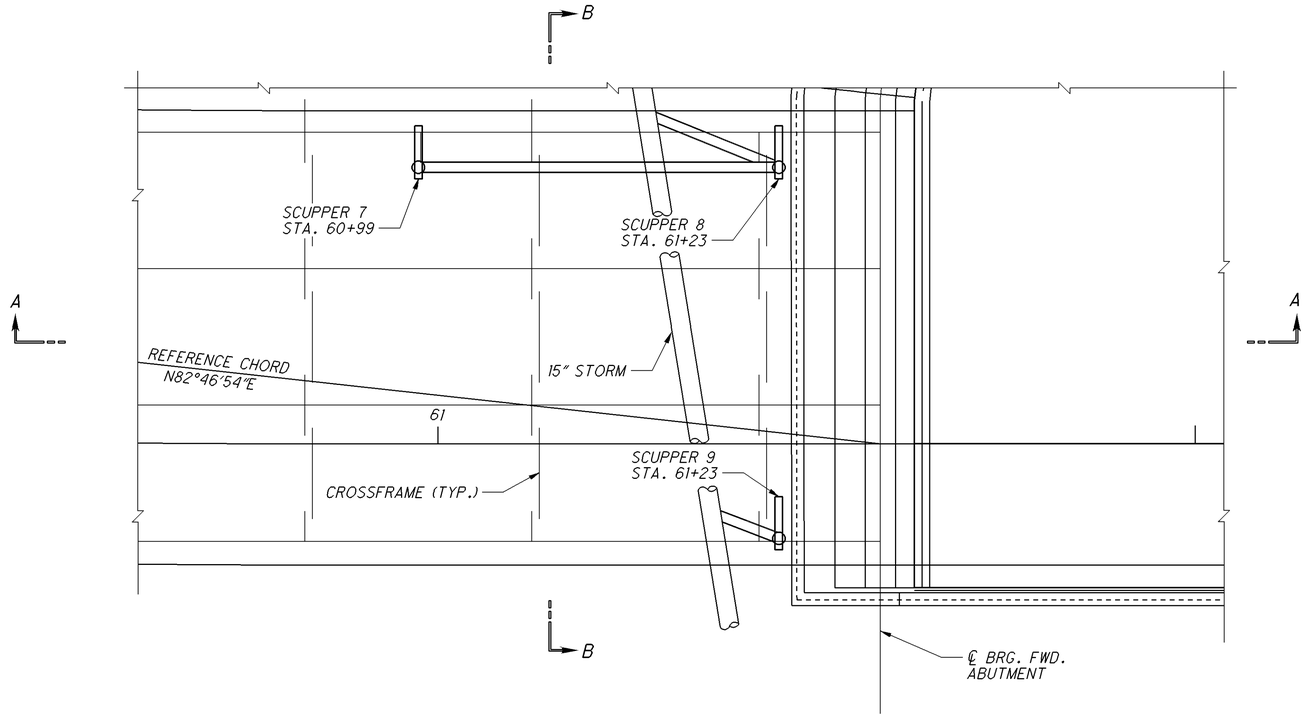
DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	EJC	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

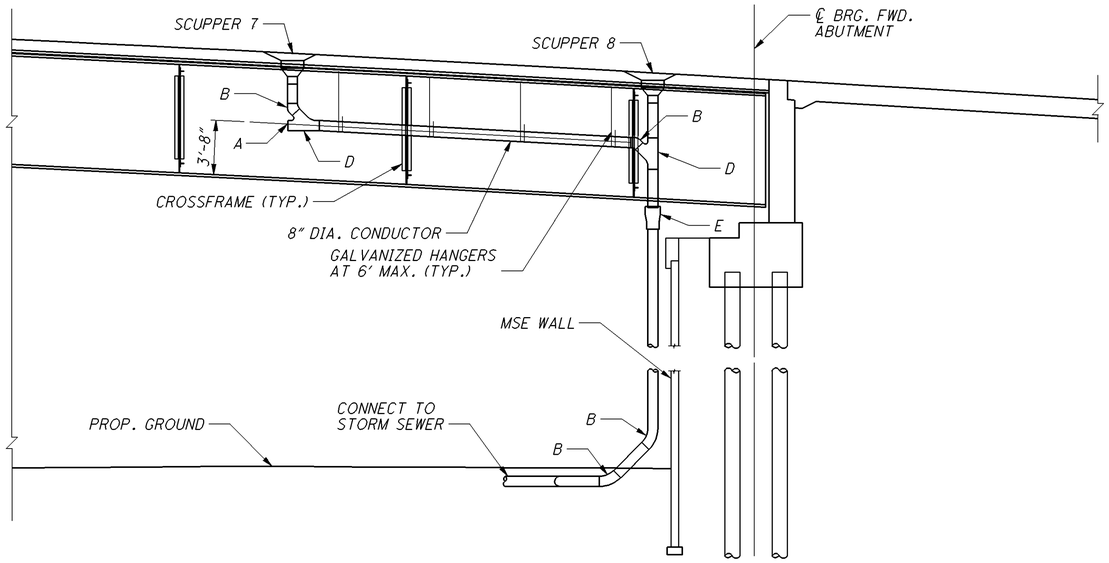
SCUPPER DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

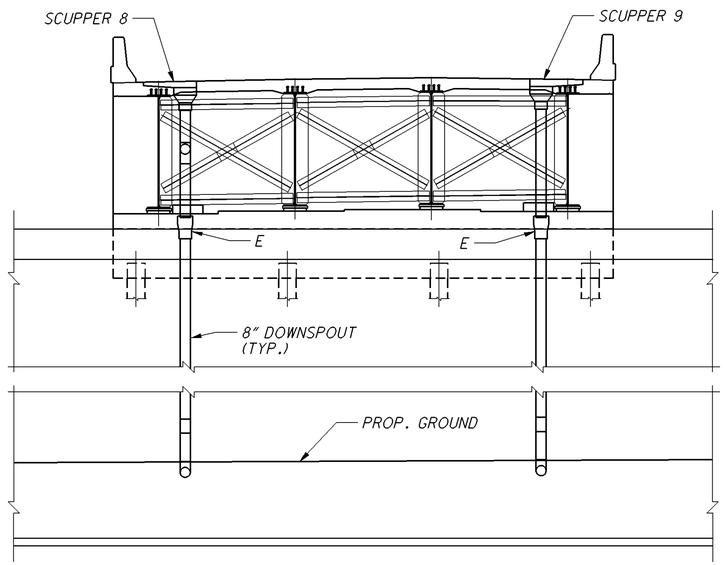


PARTIAL PLAN

A	CLEANOUT
B	45° BEND
C	60° BEND
D	LATERAL
E	12X8 REDUCER



SECTION A-A



SECTION B-B

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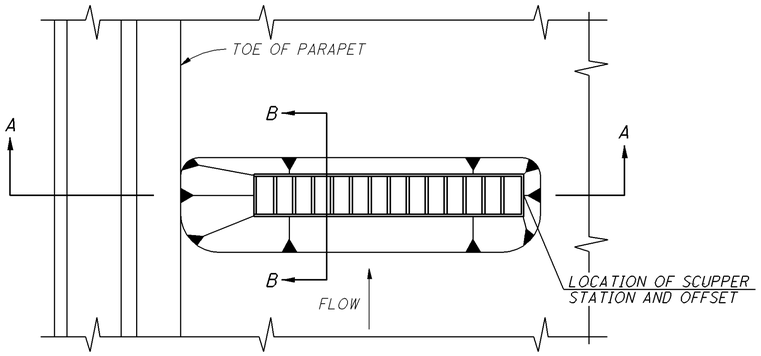
DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

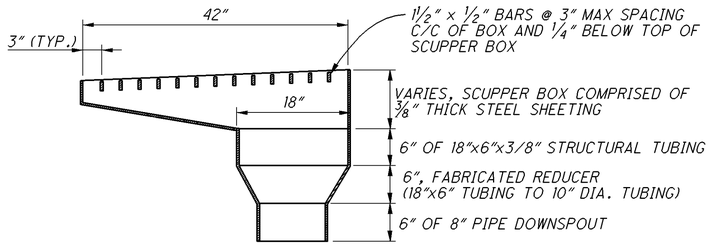
DESIGNED	DRAWN	REVIEWED	DATE
PJL	BKJ	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

SCUPPER DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

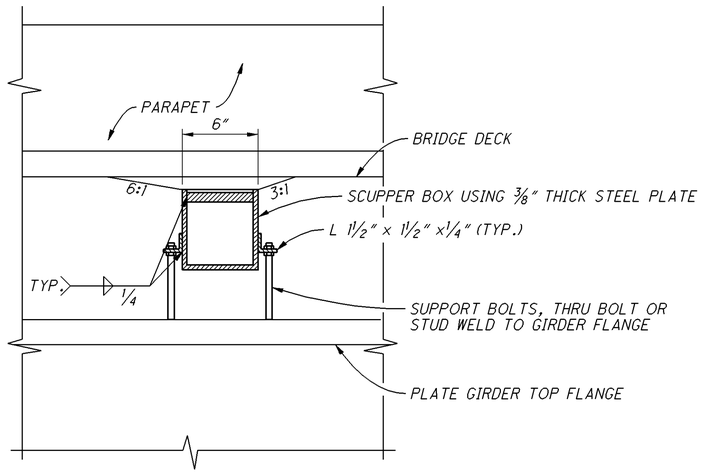
HAM-50-18.79
PID No. 20082



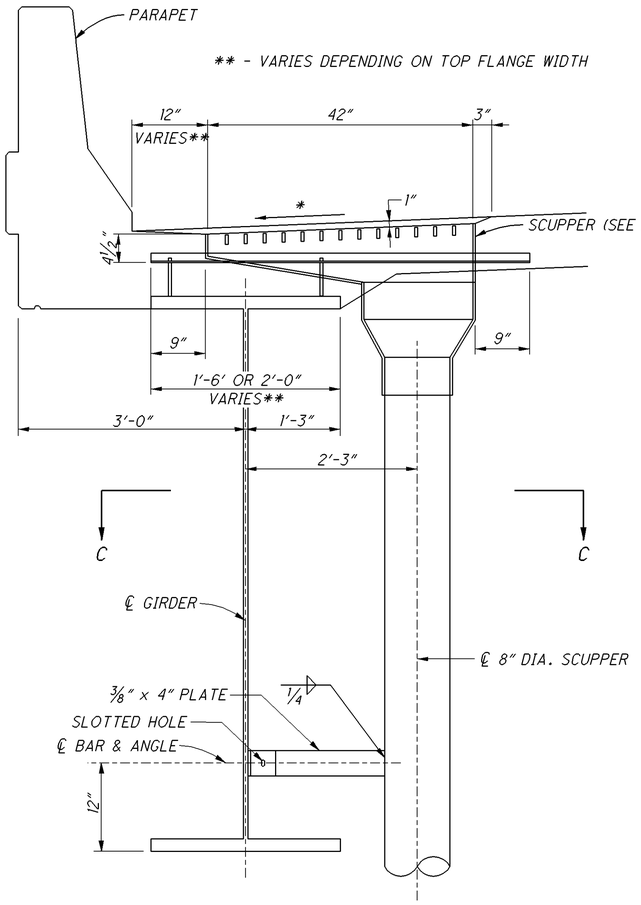
PLAN



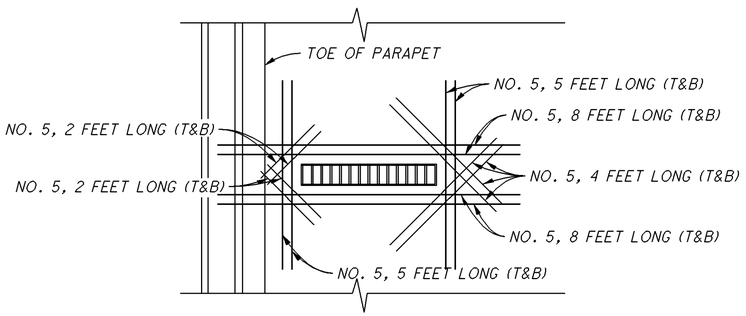
SCUPPER BOX DETAIL



SECTION B-B

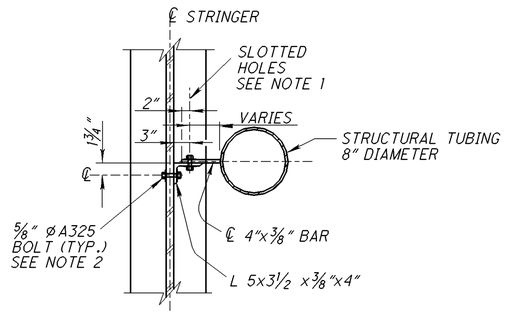


SECTION A-A



ADDITIONAL DECK REINFORCING DETAIL

T&B = TOP AND BOTTOM



SECTION C-C

SCUPPER NOTES:

ALL MATERIALS INCLUSING STEEL PLATES, STRUCTURAL TUBING, SUPPORT ANGLES AND OTHER HARDWARE SHALL BE GALVANIZED PER 711.02.

SCUPPER BOXES AND REDUCERS SHALL BE MADE OF ⅜" GALVANIZED STRUCTURAL STEEL PLATES CONFORMING TO 518 AND 711.02.

STRUCTURAL STEEL TUBING SHALL BE PER 518, 707.11 AND 748.06.

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SPECIFIED AND IN ACCORDANCE WITH ITEM 748.06.

PAYMENT:

ALL MATERIALS, EQUIPMENT, DELIVERY AND LABOR NECESSARY IN THE FABRICATION AND INSTALLATION FOR THE SCUPPER AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE OF:

SCUPPER, INCLUDING SUPPORTS, AS PER PLAN.

DOWNSPOUT NOTES:

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SHOWN IN THE PLANS AND IN ACCORDANCE WITH ITEMS 518.06 AND 748.06. ALL FIELD WELDS TO BE GALVANIZED PER 711.02 AND WITH THE APPROVAL OF THE ENGINEER.

DOWNSPOUTS SHALL BE CONNECTED TO THE BRIDGE SCUPPER ASSEMBLIES BY WELDING OR USE OF CLAMP TYPE COUPLINGS WITH RING GASKETS.

HORIZONTAL PIPE RUNS SHALL BE SUPPORTED BY USE OF HANGARS AND STRAPS ATTACHED TO THE CONCRETE BRIDGE DECK. STRAPS SHALL BE PLACED AT A MAXIMUM SPACING OF 6 FEET C/C.

VERTICAL DOWNSPOUTS SHALL BE ATTACHED TO THE SUBSTRUCTURE BY USE OF STRAPS AND AT THE LOCATIONS INDICATED ON THE PLANS. THE DOWNSPOUT CONTRACTOR IS RESPONSIBLE FOR CONNECTING THE VERTICAL DOWNSPOUT TO THE UNDERGROUND PIPE DRAINAGE SYSTEM BY OTHERS.

ALL MATERIALS, EQUIPMENT, BENDS, WYES, TEES, CLEANOUTS, HORIZONTAL CONDUCTORS, HANGERSM FIELD GALVANIZING AND LABOR NECESSARY FOR THE FABRICATION AND INSTALLATION OF THE DOWNSPOUT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF:

PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

FASTENER NOTES:

1. THE SIZE OF THE SLOTTED HOLES SHALL BE 1¹⁄₁₆" x 1⁹⁄₁₆". THE SLOT SHALL BE HORIZONTAL IN THE 4" x ⅜" BAR AND VERTICAL IN THE ANGLE. BOLTS SHALL BE ⅝" DIAMETER A325 TYPE 1, GALVANIZED, WITH HEX NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513.
2. THE BOLTS SHALL BE ⅝" DIAMETER A325 TYPE 1 GALVANIZED EACH ASSEMBLY SHALL INCLUDE A BOLT, NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513. AFTER THE DECK CONCRETE HAS BEEN POURED, FIELD DRILL THE 1³⁄₁₆" DIAMETER HOLE IN THE WEB.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	BKJ	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

SCUPPER DETAILS
BRIDGE NO. HAM-050-1875
EB ELBERON AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

39/39

476
657

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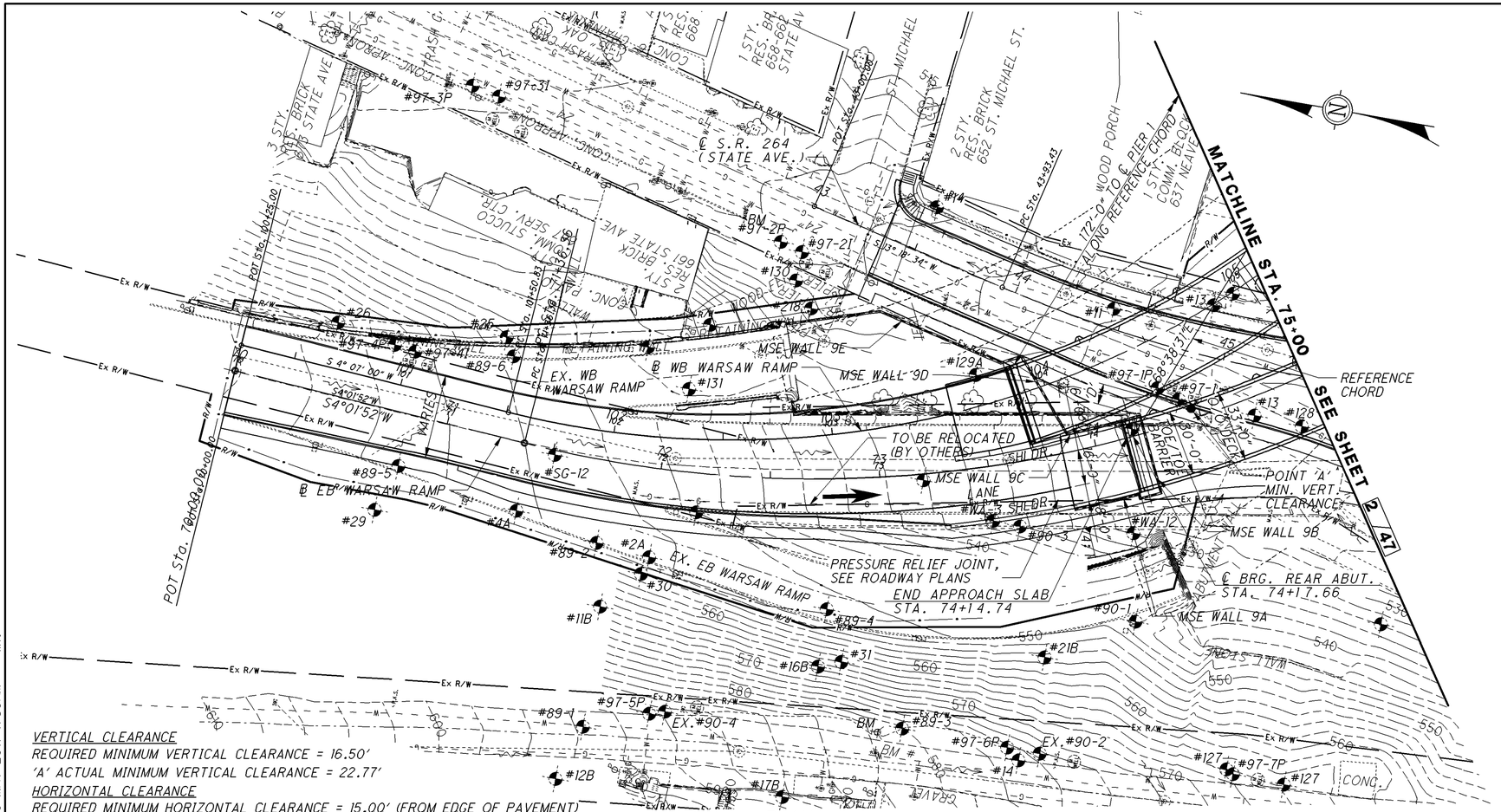
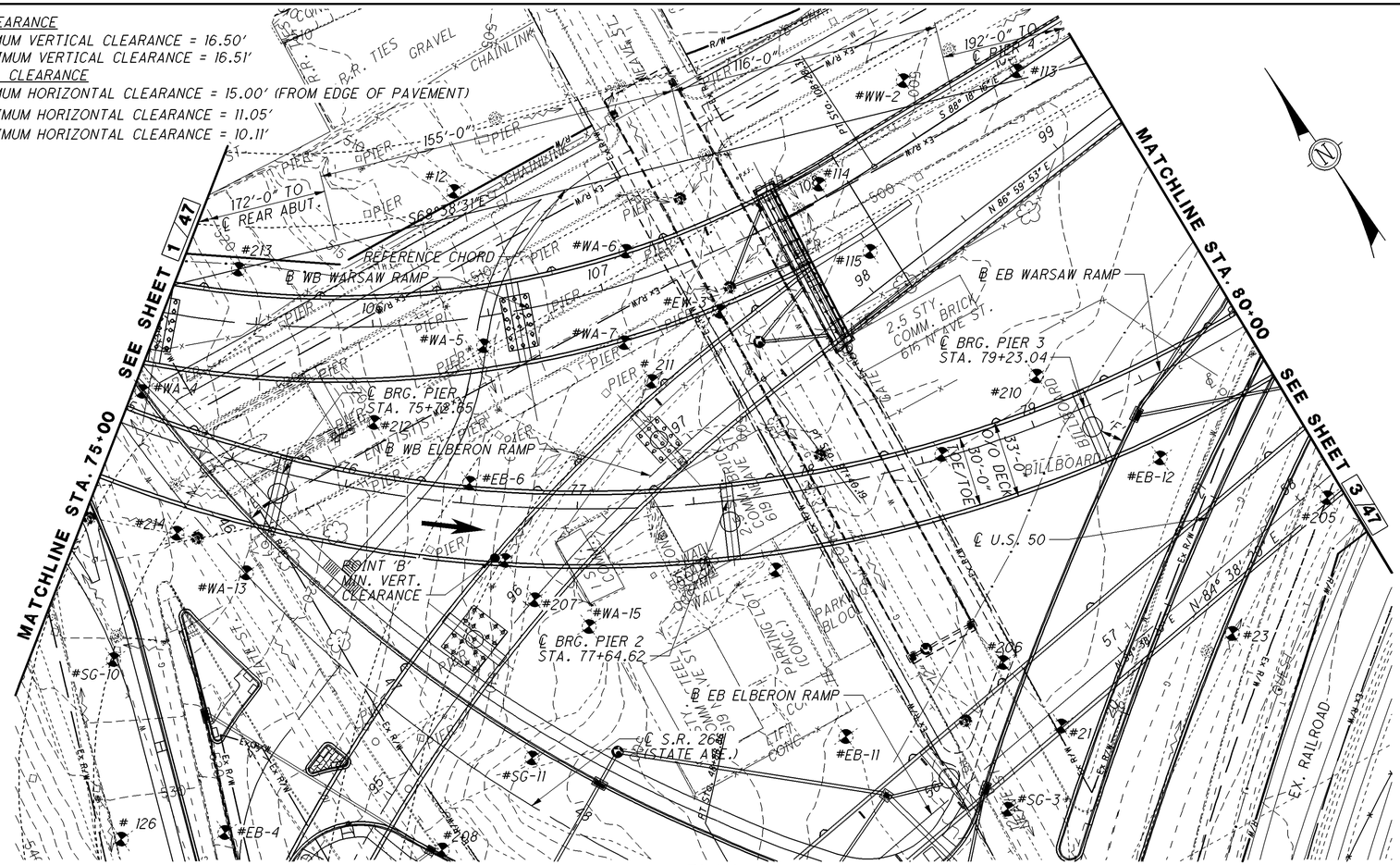
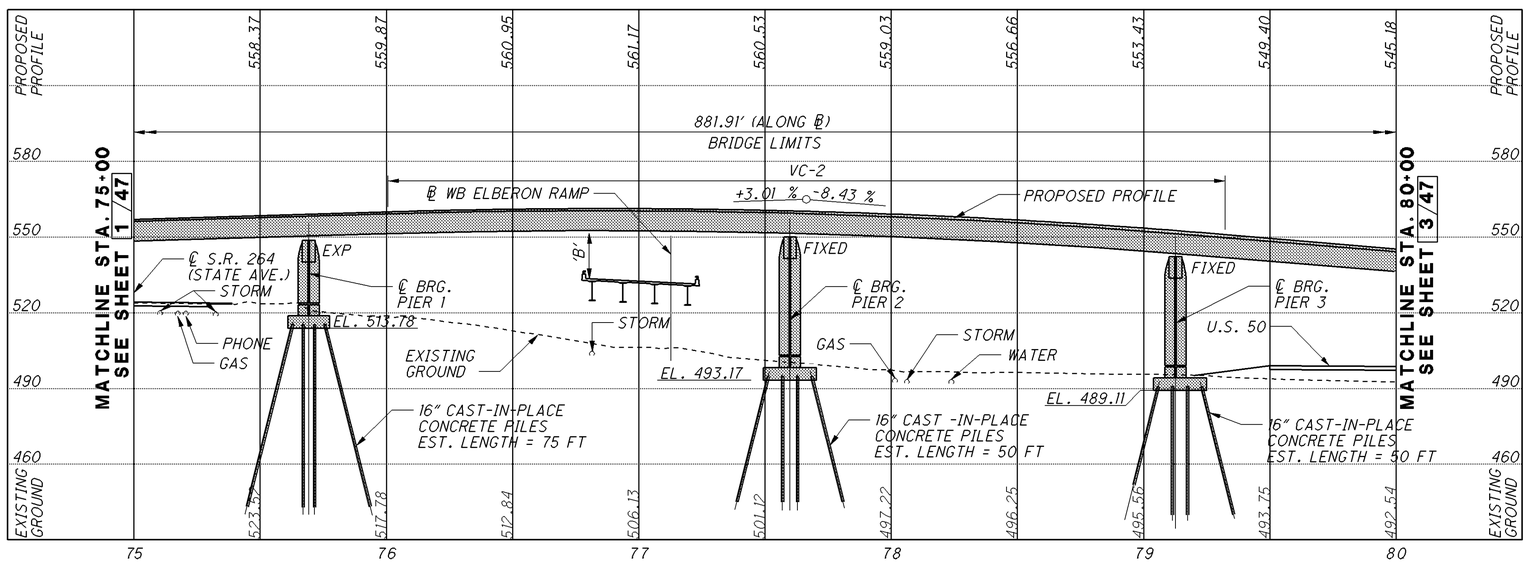

MATCHLINE STA. 75+00
SEE SHEET 2/47
REFERENCE CHORD
℄ S.R. 264 (STATE AVE.)
℄ WB WARSAW RAMP
℄ EB WARSAW RAMP
EX. WB WARSAW RAMP
EX. EB WARSAW RAMP
MSE WALL 9E
MSE WALL 9D
MSE WALL 9C
MSE WALL 9B
MSE WALL 9A
TO BE RELOCATED (BY OTHERS)
SHLDR
LANE
PRESSURE RELIEF JOINT, SEE ROADWAY PLANS
END APPROACH SLAB STA. 74+14.74
℄ BRG. REAR ABUT. STA. 74+17.66
POINT 'A' MIN. VERT. CLEARANCE
POT Sta. 70+38.00
POT Sta. 80+00.00
POT Sta. 43+93.63
POT Sta. 45+00.00
POT Sta. 40+45.00
POT Sta. 40+50.83
POT Sta. 43+93.63
2 STY. BRICK RES. 652 ST. MICHAEL ST.
1 STY. RES. BR 658-662 STATE AV
3 STY. BRICK 645 STATE AVE
2 STY BRICK RES 661 STATE AVE
1 STY. COMM. BLDG 637 NEAVE
CONC. PARKING
CONC. PAVEMENT
WOOD PORCH
72'-0" TO ℄ PIER 1 ALONG REFERENCE CHORD
S 4° 07' 00" W 167'
S4°01'52"W
VARIES
#97-1P
#97-2P
#97-3P
#97-5P
#97-6P
#97-7P
#97-21
#97-31
#97-41
#97-51
#89-1
#89-2
#89-3
#89-4
#89-5
#89-6
#90-1
#90-2
#90-3
#90-4
#SG-12
#WA-12
#WA-13
#1
#2A
#2B
#4A
#11B
#12B
#13
#14
#16B
#17B
#21B
#25
#26
#29
#30
#31
#44
#127
#128
#129A
#130
#131
BM #97-2R
BM #89-3
BM #89-4
540
550
560
570
580
590
600
610
620
630
640
650
660
670
680
690
700
710
720
730
740
750
760
770
780
790
800
810
820
830
840
850
860
870
880
890
900
910
920
930

* VERTICAL CLEARANCE
REQUIRED MINIMUM VERTICAL CLEARANCE = 16.50'
'B' ACTUAL MINIMUM VERTICAL CLEARANCE = 16.51'
** HORIZONTAL CLEARANCE
REQUIRED MINIMUM HORIZONTAL CLEARANCE = 15.00' (FROM EDGE OF PAVEMENT)
'E' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 11.05'
'F' ACTUAL MINIMUM HORIZONTAL CLEARANCE = 10.11'



PLAN



PROFILE ALONG ℄ EB WARSAW AVE. RAMP

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

SEE SHEET 1/47 FOR ADDITIONAL DETAILS.

LEGEND

SOIL BORING LOCATION

CURVE DATA

HORIZONTAL	VERTICAL
P.I. STA. 77+55.47 Δ = 96°45'57" (LT) Dc = 10°25'03" R = 550.00' T = 619.11' L = 928.89' E = 278.13'	VC-2 P.V.I. STA 77+66.43 ELEV = 564.87' 331.64' VC K=29 +3.01 % -8.43 %

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DRAWN LEL | REVIEWED EBS | DATE 11/16/10
DESIGNED PJL | CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102858

HAMILTON COUNTY
STA. 74+14.74
STA. 82+96.65

SITE PLAN 2
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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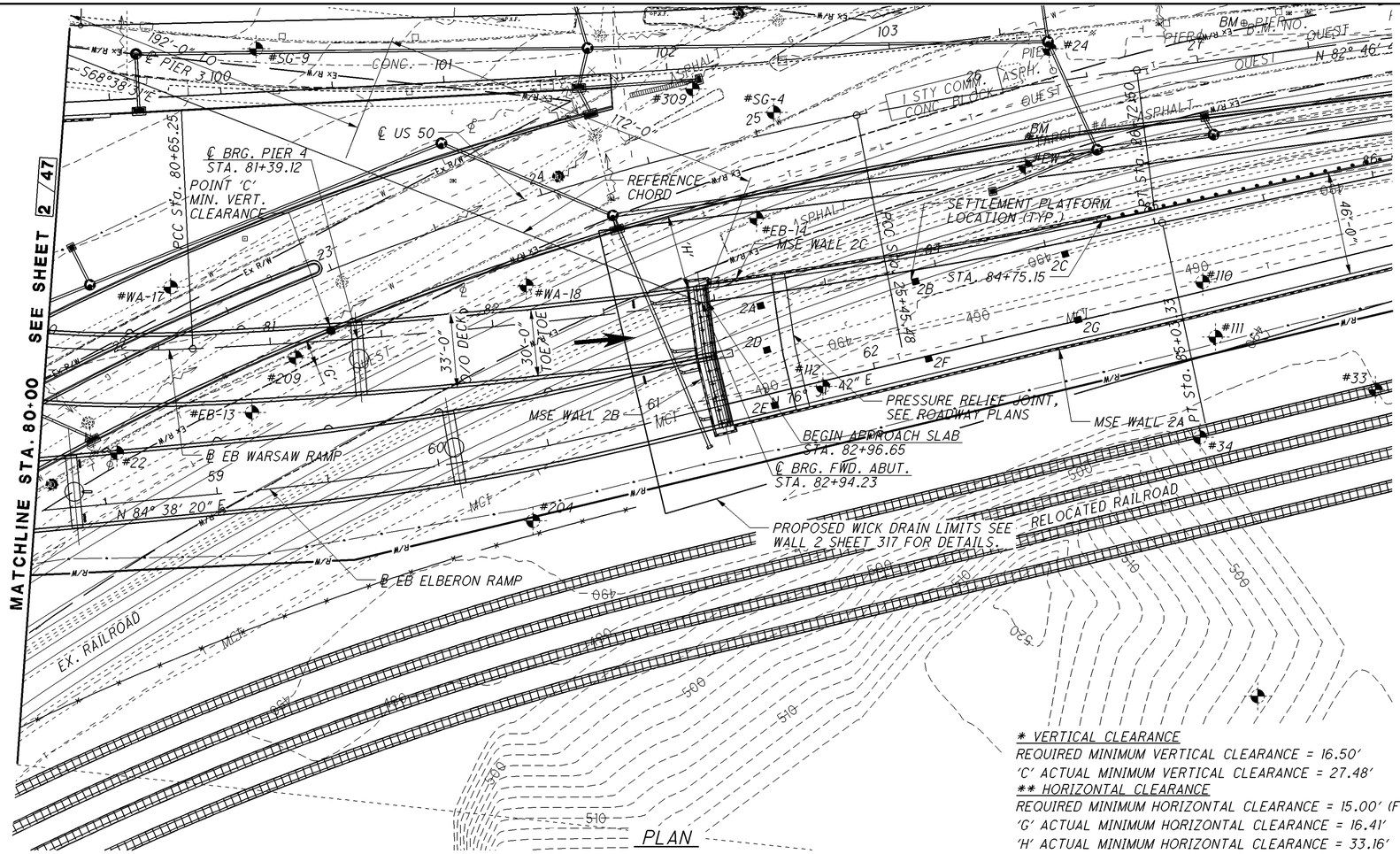

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

SEE SHEET 1/47 FOR ADDITIONAL DETAILS.

LEGEND

SOIL BORING LOCATION

CURVE DATA

HORIZONTAL	VERTICAL
P.I. STA. 82+84.78 Δ = 9°20'56" (LT) Dc = 2°08'02" R = 2,684.87' T = 219.53' L = 438.08' E = 8.96'	VC-3 P.V.I. STA 82+00.00 ELEV = 528.32' 190.00' VC K=85 -8.43 % -6.18 %

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED PJL | DRAWN LEL | CHECKED SAP | REVIEWED EBS | DATE 11/16/10

STRUCTURE FILE NUMBER 3102858

REVISED

HAMILTON COUNTY
STA. 74+14.74
STA. 82+96.65

SITE PLAN 3
BRIDGE NO. HAM-50-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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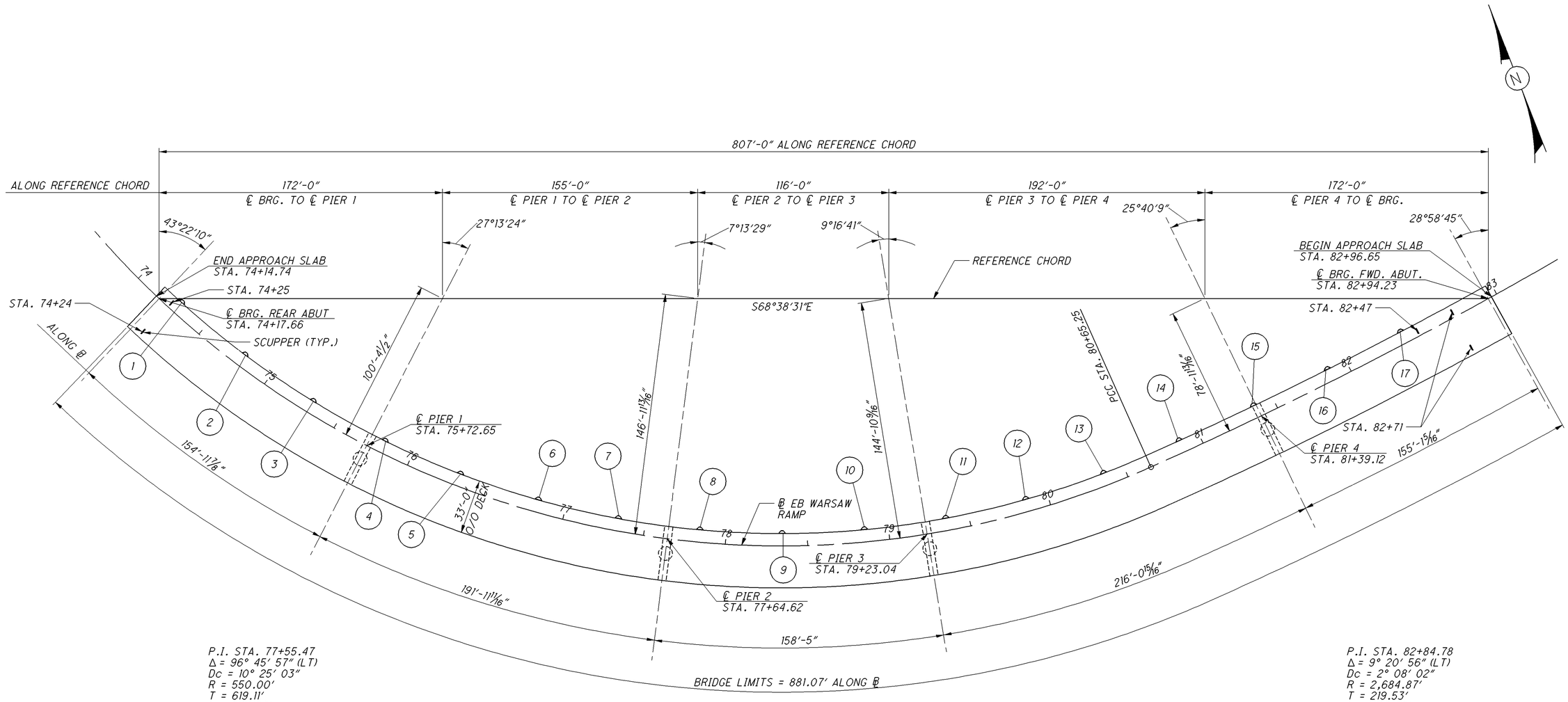
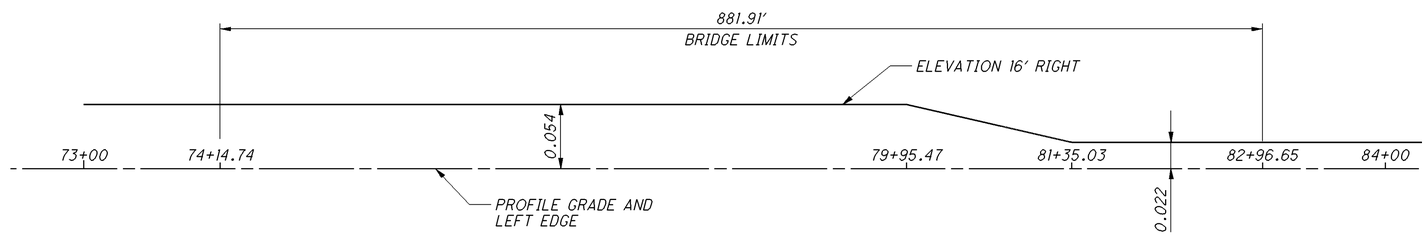


P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'

P.I. STA. 82+84.78
Δ = 9° 20' 56" (LT)
Dc = 2° 08' 02"
R = 2,684.87'
T = 219.53'
L = 438.08'
E = 8.96'

GENERAL PLAN



EB WARSAW AVE. RAMP
PAVEMENT TRANSITION DETAIL

LIGHT STANDARD LOCATIONS	
POINT	STATION
1	74+29.42
2	74+80.06
3	75+30.85
4	75+81.50
5	76+32.06
6	76+82.72
7	77+33.25
8	77+83.90
9	78+34.55
10	78+85.20
11	79+35.77
12	79+86.41
13	80+37.03
14	80+87.46
15	81+37.51
16	81+87.59
17	82+37.72

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

GENERAL PLAN
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-81	DATED/REVISED	07-19-02
BR-1	DATED/REVISED	07-19-02
EXJ-4-87	DATED/REVISED	07-19-02
SBR-1-99	DATED/REVISED	07-19-02
GSD-1-96	DATED/REVISED	07-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

840	DATED	07-17-09
898	DATED	07-17-09

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE FOLLOWING SPECIFICATIONS:

- "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17th EDITION, 2002.
- THE ODOT BRIDGE DESIGN MANUAL.
- AASHTO GUIDE SPECIFICATIONS FOR HORIZONTALLY CURVED STEEL GIRDER HIGHWAY BRIDGES, 2003.
- SECTION 3.6.5 OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2005, INCLUDING THE 2008 INTERM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007 SHALL BE REFERENCED AS IT APPLIES TO THE PIER COLUMN DESIGN. NO OTHER SECTION OF THIS SPECIFICATION SHALL BE APPLICABLE FOR THESE PLANS.

DESIGN LOADING

DESIGN LOADING: HS25, CASE II AND THE ALTERNATE MILITARY LOADING.

FUTURE WEARING SURFACE (FWS) OF 60 POUNDS PER SQUARE FOOT.

DESIGN DATA

CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

CONCRETE CLASS QSC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996, GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

STRUCTURAL STEEL - ASTM A709 GRADE 50, MINIMUM YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2-1/2" CONCRETE COVER
SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING EASTBOUND WARSAW AVENUE RAMP.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE APPROCH SLABS FOR THE EXISTING EASTBOUND WARSAW AVENUE RAMP.

ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN

ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN: LOCATE THE LOWER CONTACT POINT OF THE OVERHANG FALSEWORK AT LEAST 76 INCHES MEASURED BELOW THE BOTTOM OF THE GIRDER'S TOP FLANGE. THE BRACKET CONTACT POINT LOCATION REQUIREMENTS OF C&MS 508 DO NOT APPLY.

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN, (PERMANENT GRAFFITI PROTECTION):

APPLY A CLEAR PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

PERMANENT GRAFFITI PROTECTION SHALL BE APPLIED TO THE LIMITS SHOWN IN THE PLANS.

PILE DRIVING CONSTRAINTS

PRIOR TO DRIVING ABUTMENT PILES TO THE ULTIMATE BEARING VALUE (UBV), CONSTRUCT THE MSE WALL AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENT UP TO THE BOTTOM OF THE FOOTING FOR A MINIMUM DISTANCE OF 200 FT BEHIND EACH ABUTMENT. PROVIDE A SURCHARGE FROM THE BOTTOM OF THE ABUTMENT FOOTING TO THE BOTTOM OF THE SUBGRADE, FOR A MINIMUM DISTANCE OF 200 FEET BEHIND EACH ABUTMENT. SURCHARGE LOADS SHALL REMAIN UNTIL THE REQUIRED SETTLEMENT HAS OCCURED AND AS DIRECTED BY THE ENGINEER. COMPLETE THE MSE WALL AND EMBANKMENT CONSTRUCTION IMMEDIATELY FOLLOWING THE SURCHARGE REMOVAL.

THE CONTRACTOR MAY PRE-DRIVE ABUTMENT PILES BEFORE CONSTRUCTING MSE WALLS. PRE-DRIVING CONSISTS OF INSTALLING THE ABUTMENT PILES INTO THE SOIL ONLY AS FAR AS NECESSARY SO THAT THE PIPE WILL REMAIN VERTICAL DURING MSE WALL CONSTRUCTION. IF PRE-DRIVING PILES, INSTALL PILE SLEEVES AROUND PILES BEFORE CONSTRUCTING THE MSE WALL. AT LEAST THREE FEET OF PILE MUST EXTEND ABOVE THE TOP OF THE PILE SLEEVE TO MEET THE REQUIREMENTS OF CMS 507.09 REGARDING SPLICES. DO NOT DRIVE ABUTMENT PILES TO THE UBV UNTIL AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED, AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

IF NOT PRE-DRIVING ABUTMENT PILES, INSTALL THE ABUTMENT PILES THROUGH PILE SLEEVES AFTER THE ABOVE REQUIRED MSE WALL AND EMBANKMENT HAVE BEEN CONSTRUCTED AND THE SPECIFIED WAITING PERIOD HAS ELAPSED.

ABUTMENT PILE DRIVING TO THE UBV (FOR PILES DRIVEN AFTER MSE CONSTRUCTION) OR PILE REDRIVING (FOR PILES PRE-DRIVEN BEFORE MSE CONSTRUCTION) MAY NOT BEGIN UNTIL A MINIMUM 30 CALENDAR DAY WAITING PERIOD HAS ELAPSED AFTER THE COMPLETION OF EMBANKMENT AND SURCHARGE CONSTRUCTION. IN ADDITION, CONSECUTIVE SETTLEMENT READINGS, RECORDED AFTER EMBANKMENT CONSTRUCTION IS COMPLETE AND AT LEAST ONE WEEK (168 HOURS) APART, SHALL RESULT IN ELEVATION DIFFERENCES EQUAL TO OR LESS THAN 1/8 INCH FOR ABUTMENT CONSTRUCTION TO CONTINUE. IF SETTLEMENT RATES EXCEED 1/2 INCH PER MONTH AFTER EMBANKMENT CONSTRUCTION HAS BEEN COMPLETE FOR 40 DAYS, REMAINING ABUTMENT CONSTRUCTION, INCLUDING ANY NECESSARY CORRECTIVE MEASURES, MAY PROCEED ONLY AT THE DIRECTION OF THE ENGINEER.

THE ENGINEER MAY ADJUST THE SPECIFIED WAITING PERIOD BASED ON SETTLEMENT PLATFORM READINGS. AFTER THE SPECIFIED WAITING PERIOD HAS ELAPSED, DRIVE ABUTMENT PILES TO THE UBV. IN ORDER TO REMOVE ANY NEGATIVE SKIN FRICTION THAT HAS DEVELOPED DURING THE WAITING PERIOD, DRIVE EACH ABUTMENT PILE A DISTANCE OF AT LEAST 0.5 INCH.

PROPRIETARY RETAINING WALL DATA

THE PROPRIETARY WALL SUPPLIER SHALL DESIGN THE INTERNAL STABILITY OF A MECHANICALLY STABILIZED EARTH (MSE) WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS TO SUPPORT THE ABUTMENT. THE DESIGN FOR INTERNAL STABILITY SHALL INCLUDE AN UNFACTORED HORIZONTAL STRIP LOAD FROM THE SUPERSTRUCTURE OF 1.6 K/FT (REAR ABUTMENT) AND 1.7 K/FT (FORWARD ABUTMENT) APPLIED PERPENDICULAR TOTHE FACE OF WALL AT THE BASE OF THE CONCRETE FOOTING.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)

PILE DESIGN LOADS (ULTIMATE BEARING VALUE): THE ULTIMATE BEARING VALUE IS 158 TONS PER PILE FOR THE 16" CAST-IN-PLACE CONCRETE FORWARD ABUTMENT PILES.

THE ULTIMATE BEARING VALUE IS 175 TONS PER PILE FOR THE PIER 1 PILES, 140 TONS PER PILE FOR PIER 2 PILES, 155 TONS PER PILE FOR PIER 3 PILES, AND 175 TONS PER PILE FOR PIER 4 PILES. ALL PIER PILES SHALL BE 16" CAST-IN-PLACE CONCRETE.

ABUTMENT PILES:
9 PILES 75 FEET LONG, ORDER LENGTH (FORWARD ABUTMENT)
1 DYNAMIC LOAD TESTING ITEM

PIERS 1 PILES:
24 PILES 80 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

PIER 2 & 3 PILES:
28 PILES 55 FEET LONG, ORDER LENGTH
2 DYNAMIC LOAD TESTING ITEM

PIER 4 PILES:
24 PILES 45 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEM

BATTERED PILES

BATTERED PILES: THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1-UG}{\sqrt{(1+G^2)}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.

G = RATE OF BATTER (1/3, 1/4, ETC.)

UTILITY LINES

UTILITY LINES: THE UTILITY(IES) SHALL BORE ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

DRILLED SHAFTS

THE DESIGN LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 200 TONS AT THE ABUTMENTS. THIS LOAD IS RESISTED BY SHAFT END BEARING. THE ALLOWABLE BEARING END PRESSURE IS 10 TONS PER SQUARE FOOT. THE REINFORCING STEEL SHALL BE EPOXY COATED ACCORDING TO 709.00.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), AS PER PLAN

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN

THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS, REFER TO SHEETS 24 THRU 81.

COLORS:

THE COLOR FOR THE ALTERNATE STEEL PARAPET RAILS AND ALL HARDWARE SHALL BE FEDERAL COLOR NUMBER 27038 (BLACK, 30% SHEEN).

LIGHT POLES LOCATED ON THE BRIDGE SHALL BE FEDERAL COLOR NUMBER 27038 (BLACK, 30% SHEEN).

THE COLOR FOR ITEM 513 STRUCTURAL STEEL MEMBERS, LEVEL 5, SHALL BE AS FOLLOWS:

THE OUTSIDE FACE AND BOTTOM FLANGES OF THE FASCIA BEAMS TO BE PAINTED FEDERAL COLOR NUMBER 27038 (BLACK, 30% SHEEN)

ALL REMAINING BRIDGE SUPERSTRUCTURE ELEMENTS TO BE PAINTED FEDERAL COLOR NUMBER 10324 (DARK NEUTRAL)

ITEM 512 SEALING OF CONCRETE SURFACES (NON-EPOXY) SHALL BE CLEAR.

THE COLOR FOR ITEM 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) AT THE PIERS SHALL BE FEDERAL COLOR NUMBER 11136 (TERRA COTTA)

DESIGN AND MAINTENANCE TO ALLOW FOR HILLSIDE MOVEMENT:

IT IS ANTICIPATED THAT THE REAR ABUTMENT COULD MOVE DUE TO HILLSIDE CREEP. FOR THIS REASON A DISTANCE OF 6" WAS PROVIDED FROM THE END OF THE GIRDER TO THE ABUTMENT BACKWALL.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

GENERAL NOTES
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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PROPOSED WORK:

1. PROTECT AND MAINTAIN ALL TRAFFIC DURING CONSTRUCTION.
2. INSTALL DETOUR AND REMOVE EXISTING STRUCTURE.
3. CONSTRUCT ABUTMENT AND PIER FOUNDATIONS.
4. CONSTRUCT MSE RETAINING WALLS.
5. CONSTRUCT PIERS AND ABUTMENTS.
6. CONSTRUCT SUPERSTRUCTURE.
7. SEAL CONCRETE SURFACES AS SHOWN IN THE PLANS.

EXISTING STRUCTURE PLANS:

CONSTRUCTION PLANS FOR EXISTING BRIDGE ARE ON FILE AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 8 OFFICE, 505 SOUTH STATE ROUTE 741, LEBANON, OHIO AND ARE AVAILABLE FOR REFERENCE.

ABBREVIATIONS:

N.F. = NEAR FACE	P.E.J.F. = PREFORMED EXPANSION
F.F. = FAR FACE	JOINT FILLER
E.F. = EACH FACE	P.C.P.P. = PERFORATED CORRUGATED
TYP. = TYPICAL	PLASTIC PIPE
MIN. = MINIMUM	N.P.C.P.P. = NON-PERFORATED CORRUGATED
STA. = STATION	PLASTIC PIPE
SPA. = SPACES	INV. = INVERT
CONST. = CONSTRUCTION	FWD. = FORWARD
EL. ELEVATION	ABUT. = ABUTMENT
C.I.P. = CAST-IN-PLACE	CONC. = CONCRETE
BRG. = BEARING	EA. = EACH
EX. = EXISTING	STD. = STANDARD
PROP. = PROPOSED	DWG. = DRAWING
A.P.P. = AS PER PLAN	DIA. = DIAMETER
R.A. = REAR ABUTMENT	E.B. = EASTBOUND
F.A. = FORWARD ABUTMENT	W.B. = WESTBOUND
O/O = OUT TO OUT	W.P. = WORK POINT
CLR. = CLEAR	C/C = CENTER TO CENTER
LT. = LEFT	STRUCT. = STRUCTURE
RT. = RIGHT	TEMP. = TEMPORARY
EST. = ESTIMATE	C.J. = CONSTRUCTION JOINT

BARRIER TRANSITIONS FOR ALTERNATE BID ITEM RAILING

DESIGN DETAILS ARE INCLUDED FOR BARRIER TRANSITIONS FOR STANDARD ODOT RAILING. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR TRANSITIONS OF THE ALTERNATE BID ITEM RAILING SELECTED. DESIGN DETAILS OF SIMILAR AESTHETIC RAILING TRANSITIONS ARE ON FILE WITH THE CITY FROM PREVIOUS PROJECTS SUCH AS THE FORMER COLUMBIA PARKWAY PROJECT. THE CONTRACTOR SHOULD CONTACT RICHARD SZEKERESH, P.E., PRINCIPAL STRUCTURAL ENGINEER FOR THE CITY OF CINCINNATI AT (513) 352-3419 OR RICHARD.SZEKERESH@CINCINNATI-OH.GOV FOR THESE DRAWINGS PRIOR TO DEVELOPING OR SUBMITTING SHOP DRAWINGS.

ITEM SPECIAL - INCLINOMETER

REAR ABUTMENT:
FURNISH AND INSTALL A 3.34 INCH (85 MM) DIAMETER INCLINOMETER CASING THROUGH THE ABUTMENT SEAT AS SHOWN ON THE ABUTMENT DRAWINGS. THE INCLINOMETER CASING IS TO BE CAPPED AT THE TOP. THE INCLINOMETER CASING IS TO BE COMPRISED OF ABS PLASTIC WITH QC (QUICK CONNECT) CONNECTIONS. PROTECT THE TOP OF THE INCLINOMETER CASING WITH A FLUSH MOUNT PROTECTIVE COVER INSTALLED IN THE ABUTMENT SEAT. PROVIDE THE FLUSH MOUNT PROTECTIVE COVER IN ACCORDANCE WITH SECTION 506.2.2 OF THE ODOT SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS.

FORM A VOID BETWEEN THE BOTTOM OF ABUTMENT FOOTING AND THE TOP OF THE PRIMARY GROUT TO ALLOW FOR VERTICAL DISPLACEMENT. PLACE SECONDARY GROUT AT LEAST 30 DAYS AFTER BRIDGE PARAPET IS CONSTRUCTED.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE CASING REMAINS IN PLACE DURING PLACEMENT OF ADJACENT FILL AND CONCRETE SO THAT THE INCLINOMETER IS NOT DAMAGED OR ROTATED. ORIENT THE CASING GROVES PARALLEL AND PERPENDICULAR TO THE FOOTING.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF THE INSTRUMENTATION AND DAMAGE FROM EQUIPMENT DURING THE LIFE OF THE CONTRACT. PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM SPECIAL - INCLINOMETERS" AND INCLUDES FURNISHING ALL MATERIALS (SLOPE INDICATOR TUBING,COUPLINGS, END PLUGS, OUTER CASING AND PROTECTIVE CAP) AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE INCLINOMETER CASING AT THE DESIGNATED PLAN LOCATIONS.

THE INCLINOMETER CASING SHOULD MEET THE DETAILS DESCRIBED ABOVE OR APPROVED EQUIVALENT. SUPPLIERS OF INCLINOMETER CASING INCLUDE:

GLOBAL DRILLING SUPPLIERS, INC.
12101 CENTRON PLACE
CINCINNATI, OHIO 45246
PH: 513-671-8700

DURHAM GEO SLOPE INDICATORS
12123 HARBOUR REACH DR.
MUKILTEO, WA 98275
PH: 773-728-5822

ITEM SPECIAL-SETTLEMENT PLATFORMS:

DESCRIPTION: THIS ITEM CONSISTS OF FURNISHING, CONSTRUCTING, AND MAINTAINING SETTLEMENT PLATFORMS AND OBTAINING SETTLEMENT READINGS AS REQUIRED BY THE PLANS OR AS DIRECTED BY THE ENGINEER. AT THE OPTION AND EXPENSE OF THE CONTRACTOR, ADDITIONAL SETTLEMENT PLATFORMS MAY BE INSTALLED AT LOCATIONS APPROVED BY THE ENGINEER. SETTLEMENT READINGS SHALL BE TAKEN WEEKLY DURING CONSTRUCTION AND DURING ANY SPECIFIED WAITING PERIOD. THE READINGS SHALL BE PLOTTED ON GRAPH PAPER PRESENTING DEFORMATION (ON THE NEGATIVE Y-AXIS) AND FILL HEIGHT (ON THE POSITIVE Y-AXIS) VERSUS TIME (ON THE X-AXIS). A COPY OF EACH CUMULATIVE PLOT SHALL BE SENT TO THE DISTRICT GEOTECHNICAL ENGINEER AND THE OFFICE OF GEOTECHNICAL ENGINEERING, ATTENTION: GEOTECHNICAL DESIGN COORDINATOR, AFTER EACH SETTLEMENT READING IS RECORDED.

THE DEPARTMENT WILL CONSIDER VIBRATING WIRE SETTLEMENT MONITORING PLATFORMS IN LIEU OF THE CONVENTIONAL SETTLEMENT PLATFORMS. THE CONTRACTOR SHOULD PROVIDE DETAILS OF THE PROPOSED VIBRATING WIRE SETTLEMENT PLATFORMS AS WELL AS DESIGN DRAWINGS OF THE PROPOSED PLATFORM AND CABLING LAYOUT TO THE ENGINEER AT LEAST 30 DAYS PRIOR TO CONSTRUCTION. THE DEPARTMENT WILL REQUIRE 10 WORKING DAYS FOR REVIEW AND APPROVAL. THE DESIGN DRAWINGS SHOULD ILLUSTRATE THE PROPOSED SETTLEMENT VIBRATING WIRE SETTLEMENT PLATFORM LOCATIONS WITH ALL EXISTING AND PROPOSED SITE FEATURES TO VERIFY THE PROPOSED CABLING WILL NOT CONFLICT WITH EXSITING FACILITIES, PROPOSED FACILITIES OR UTILITIES. NO ADDITIONAL PAYMENT WILL BE PROVIDED IF THE CONTRACTOR ELECTS TO UTILIZE VIBRATING WIRE SETTLEMENT PLATFORMS.

MATERIALS: SOUND LUMBER SUCH AS ¾ INCH EXTERIOR GRADE PLYWOOD SHALL BE USED FOR THE BASE. THE PIPE SHALL BE 2½" STANDARD BLACK PIPE WITH THREADED FITTINGS AS SHOWN ON THE PLANS. A STEEL PLATE 36"x36"x1/8" MAY BE SUBSTITUTED FOR THE LUMBER FOR THE PLATFORMS, AT CONTRACTORS OPTION.

CONSTRUCTION REQUIREMENTS: THE 36"x36" PLATFORM SHALL BE CONFORM TO THE DETAILS SHOWN ON THE PLANS. THE PLATFORM SHALL BE SET ON A LEVEL SURFACE. THE PIPES SHALL BE FIRMLY SECURED TO THE PLATFORMS AND SHALL BE MAINTAINED IN PLUMB POSITION DURING THE PLACEMENT OF THE EMBANKMENT. PIPES SHALL BE MARKED AT INTERVALS BY THE CONTRACTOR TO FACILITATE MEASUREMENT OF THE DEPTH OF FILL. THE CONTRACTOR SHALL STOP WORK IN ANY LOCATION WHERE A SETTLEMENT PLATFORM HAS BEEN DISTURBED OR DAMAGED UNTIL THE NECESSARY CORRECTIONS OR REPLACEMENT HAS BEEN PERFORMED.

PRIOR TO PAVING, THE TOP OF THE SETTLEMENT PLATFORM PIPE SHALL BE CUT OFF 2 FEET BELOW THE FINISHED SURFACE OF THE SUBGRADE OR TOPSOIL SURFACE, WHICHEVER IS APPLICABLE.

METHOD OF MEASUREMENT: THE NUMBER OF SETTLEMENT PLATFORMS TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF SETTLEMENT PLATFORMS COMPLETED, MAINTAINED, AND ACCEPTED BY THE ENGINEER.

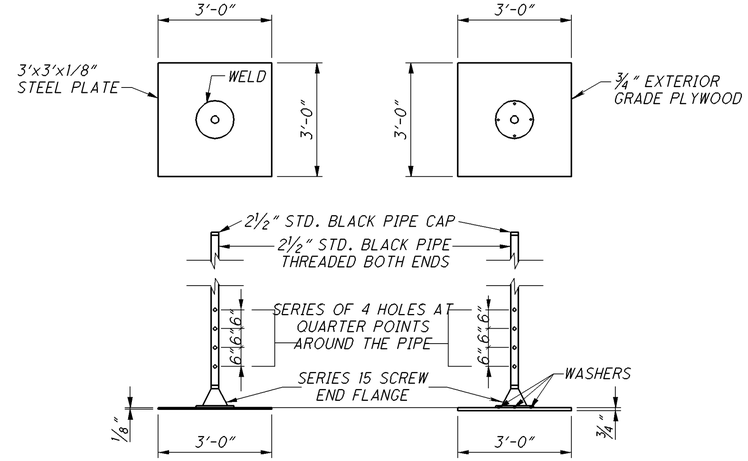
BASIS OF PAYMENT: PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER EACH FOR "ITEM SPECIAL, SETTLEMENT PLATFORMS" WHICH IS COMPENSATED FOR CONSTRUCTION, MAINTAINING AND MONITORING THE SETTLEMENT PLATFORMS INCLUDING FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK. PAYMENT WILL NOT BE MADE FOR SETTLEMENT PLATFORMS WHICH BECOME USELESS BECAUSE OF DAMAGE INFLICTED BY THE CONTRACTOR'S OPERATIONS

ITEM SPECIAL - MISC: TEMPORARY SURCHARGE

DESCRIPTION: THIS ITEM CONSISTS OF DESIGNING, CONSTRUCTING, AND REMOVING A TEMPORARY SURCHARGE AT THE LOCATIONS AND LIMITS SHOWN IN THE PLANS.

AS DIRECTED IN THE PILE DRIVING CONSTRAINTS, A TEMPORARY SURCHARGE IS NECESSARY AT THE ABUTMENTS FOR THIS BRIDGE TO MITIGATE EMBANKMENT SETTLEMENT. CONSTRUCT THE TEMPORARY SURCHARGE SO IT EXTENDS VERTICALLY FROM THE ELEVATION OF THE BOTTOM OF THE PROPOSED ABUTMENT FOOTING TO THE PROPOSED ROADWAY SUBGRADE ELEVATION. CONSTRUCT THE TEMPORARY SURCHARGE USING ITEM 203 EMBANKMENT WITH A DRY DENSITY OF AT LEAST 105 PCF AFTER COMPACTION. SUPPORT THE SIDES OF THE TEMPORARY SURCHARGE SO THAT THE TOP OF THE SURCHARGE MATERIAL IS NO MORE THAN 2 FEET (MEASURED HORIZONTALLY) FROM THE BACK FACE OF THE PROPOSED MSE WALLS. CONSTRUCT THE TEMPORARY SURCHARGE SO THAT IT EXTENDS AT LEAST 200 FEET BEHIND EACH ABUTMENT. PREPARE AND PROVIDE SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE TEMPORARY SURCHARGE, INCLUDING THE METHOD USED TO SUPPORT THE SIDES OF THE TEMPORARY SURCHARGE AND ALL DETAILS OF THE SUPPORT SYSTEM. ENSURE THE TEMPORARY SURCHARGE DESIGN ACCOMMODATES THE LOCATION AND COMPOSITION OF THE PROPOSED MSE WALLS FOR THE BRIDGE STRUCTURE. HAVE TWO OHIO REGISTERED ENGINEERS SIGN, SEAL, AND DATE THE DRAWINGS AND CALCULATIONS ACCORDING TO C&MS 501.05. SUBMIT THE DRAWINGS AND CALCULATIONS TO THE ENGINEER AT LEAST 30 DAYS BEFORE CONSTRUCTION OF THE TEMPORARY SURCHARGE BEGINS.

REMOVE THE TEMPORARY SURCHARGE AFTER THE CONDITIONS SPECIFIED IN THE PILE DRIVING CONSTRAINTS ARE SATISFIED AND THE ENGINEER AUTHORIZES REMOVAL. BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO DESIGN, CONSTRUCT AND REMOVE THE TEMPORARY SURCHARGE AT THE REAR AND FORWARD ABUTMENTS FOR THE BRIDGE AT THE CONTRACT LUMP SUM BID PRICE FOR ITEM SPECIAL 690E98400 SPECIAL-MISC: TEMPORARY SURCHARGE.



NOTES:

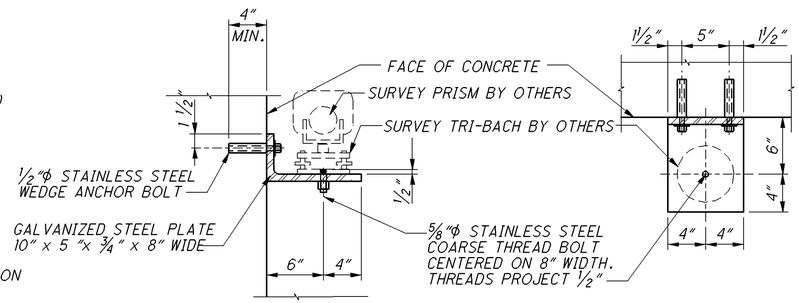
1. SETTLEMENT PLATES SHALL BE PLACED AT THE LOCATIONS INDICATED ON WALL 6 SHEET 337, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CONTRACTOR HAS OPTION OF USING EITHER STEEL OR PLYWOOD PLATFORM BASE.
3. CONTRACTOR SHALL FURNISH MATERIALS AND LABOR TO EXTEND PIPE UP THROUGH ENTIRE FILL.
4. SETTLEMENT PLATFORMS SHALL BE ANCHORED BY STAKES DRIVEN AT EACH CORNER TO PREVENT OVERTURNING.
5. CONTRACTOR WILL ESTABLISH MONUMENTS AT A MINIMUM OF SIX (6) LOCATIONS AROUND EXTERIOR PERIMETER OF WALL TO MONITOR SETTLEMENT AT BASE. MONUMENTS TO BE SURVEYED AT REGULAR INTERVALS DURING CONSTRUCTION AT SAME FREQUENCY AS SETTLEMENT PLATFORMS. MONUMENTS MAY CONSIST OF CHISELED NOTCHES ON WALL FACE OR STEEL RODS OR CONCRETE PIERS SET AT LEAST 30 INCHES BELOW GRADE AT BASE OF WALL.

ITEM 513 - STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT

FURNISH AND INSTALL STEEL BRACKETS TO SUPPORT A CIRCULAR SURVEY PRISM AT LOCATIONS SHOWN ON THE REAR ABUTMENT ELEVATION.

CARE SHOULD BE TAKEN DURING INSTALLATION TO INSURE THE BRACKET IS INSTALLED LEVEL AND PLUM. LOCATE ABUTMENT REINFORCEMENT PRIOR TO DRILLING ANCHOR BOLTS AND ADJUST BRACKET LOCATION TO MISS THE REINFORCEMENT.

PAYMENT FOR THIS ITEM SHALL BE PAID UNDER "ITEM 513 -STRUCTURAL STEEL MISC. : SURVEY PRISM MOUNT" AND INCLUDES FURNISHING ALL MATERIALS AS WELL AS LABOR AND EQUIPMENT NECESSARY TO INSTALL THE PRISM MOUNTS AT THE DESIGNATED LOCATIONS.



SURVEY PRISM MOUNT ELEVATION

SURVEY PRISM MOUNT PLAN

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10
CHECKED SAP | REVISED | STRUCTURE FILE NUMBER 3102858

GENERAL NOTES
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

6 / 47
482
657

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ITEM	EXTENSION	STRUCTURE TOTAL ODOT	STRUCTURE TOTAL CITY	UNIT	ESTIMATED QUANTITIES DESCRIPTION	HAM-050-1881 ABUT.	HAM-050-1881 PIER	HAM-050-1881 SUPER.	HAM-050-1881 GEN.	SEE SHEET NO.
202	11203	1		LUMP	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER					5/47
202	22901	134		SQ YD	APPROACH SLAB REMOVED, AS PER PLAN				134	5/47
SPECIAL	203E65000	4		EACH	SETTLEMENT PLATFORM	4				
SPECIAL	203E07502	1		EACH	INCLINOMETER	1				
503	11100	1		LUMP	COFFERDAMS AND EXCAVATION BRACING					
503	21300	1		LUMP	UNCLASSIFIED EXCAVATION					
505	11100	1		LUMP	PILE DRIVING EQUIPMENT MOBILIZATION					
507	00700	6,190		FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	630	5,560			
507	00750	6,755		FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	675	6,080			
509	10000	499,718		POUND	EPOXY COATED REINFORCING STEEL	14,995	157,261	327,462		
512	10001	112		SQ YD	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)		112			5/47
512	10050	2,108		SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY)	133		1,975		
512	10100	1,302		SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		1,302			
513	10300	1,827,097		POUND	STRUCTURAL STEEL MEMBERS, LEVEL 5			1,827,097		
513	20000	5,910		EACH	WELDED STUD SHEAR CONNECTORS			5,910		
513	95030	2		EACH	STRUCTURAL STEEL, MISC.: SURVEY PRISM MOUNTS			2		
514	00060	77,023		SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			77,023		
514	00066	77,023		SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			77,023		
514	10000	31		EACH	FINAL INSPECTION REPAIR			31		
516	11211	65		FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL, AS PER PLAN			65		11&13/47
516	13600	25		SQ FT	1" PREFORMED EXPANSION JOINT FILLER			25		
516	13900	79		SQ FT	2" PREFORMED EXPANSION JOINT FILLER			79		
516	44401	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (20" x 20" x 14¼" BEARING WITH 21" x 21" x 2" LOAD PLATE)	4				30/47
516	44401	16		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (22" x 24" x 8⅝" BEARING WITH 23" x 25" x 2" LOAD PLATE)		16			30/47
516	44401	4		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (16" x 20" x 11⅝" BEARING WITH 17" x 21" x 2" LOAD PLATE)	4				30/47
517	76300		1,840	FT	RAILING, MISC.: RAILING ALTERNATE, MINNESOTA RAILING (SEE NOTE 2)			1,840		
518	12300	5		EACH	SCUPPERS, INCLUDING SUPPORTS			5		
518	51100	235		FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS			235		
523	20000	4		EACH	DYNAMIC LOAD TESTING	1	3			
524	94702	86		FT	DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK	86				
524	94930	170		FT	DRILLED SHAFTS, 66" DIAMETER, ABOVE BEDROCK	170				
SPECIAL	690E98400	1		LUMP	SPECIAL-MISC.: TEMPORARY SURCHARGE					
898	10201	943		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			943		5/47
898	10709	323		SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN			323		5/47
898	11000	236		CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			236		
898	20100	447		CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		447			
898	20160	135		CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	135				
898	20300	351		CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		351			

CALC. BY: BKJ DATE: 3/2008
CHK'D BY: PJL DATE: 3/2008

NOTES:

1. FOR LIST OF ABBREVIATIONS SEE SHEET 6/47.

2. RAILING, MISC: RAILING ALTERNATIVE, MINNESOTA RAILING IS A REQUIRED BID ITEM. IF SELECTED BY THE OWNER IT WILL REPLACE BID ITEM 898: QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET). CONCRETE IN ALTERNATE RAILING SHALL BE QC/QA CONCRETE, CLASS QSC2. IF SELECTED BY THE OWNER ALTERNATE RAILING AND ALL NECESSARY TRANSITIONS SHALL BE DETAILED PER MINNESOTA STANDARD DRAWING FIGURE 5-397.157 AND SUBMITTED FOR SHOP DRAWING REVIEW PRIOR TO FABRICATION. THE COST OF ALL LABOR MATERIALS, AND EQUIPMENT NECESSARY FOR PAINTING, REINFORCEMENT, SEALING, RAILINGS, AND SHOP DRAWING PREPARATION SHALL BE INCLUDED WITH THIS ITEM FOR PAYMENT. SEE SHEET 5/47 FOR COLOR REQUIREMENTS. ALL REINFORCEMENT SHALL BE EPOXY COATED. THE ALTERNATE RAILING OPTION WILL REPLACE 47,363 POUNDS OF REINFORCEMENT AND 1,471 SQ.YD. OF SEALING.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102793	

ESTIMATED QUANTITIES
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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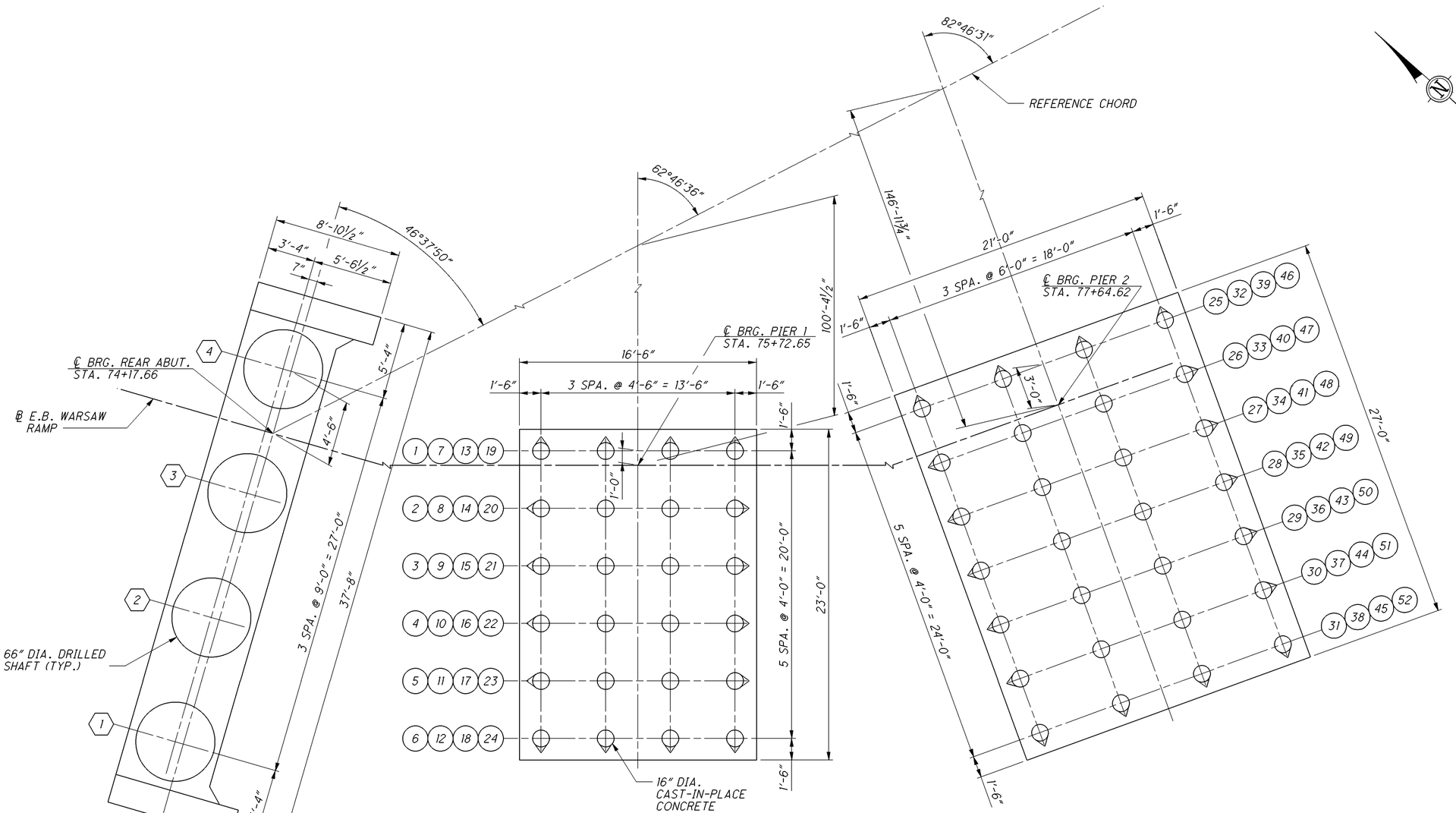

REAR ABUTMENT

PIER 1

PIER 2

FOUNDATION LAYOUT PLAN

LEGEND:

- PROPOSED VERTICAL PILE
- PROPOSED PILE BATTERED (1:4) IN DIRECTION OF ARROW
- (N) DENOTES PILE NUMBER "N"
- ⟨N⟩ DENOTES DRILLED SHAFT NUMBER "N"

NOTE:

FOR ADDITIONAL FOUNDATION LAYOUT PLAN, SEE SHEET 9/47.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL		3102858	

FOUNDATION LAYOUT PLAN I
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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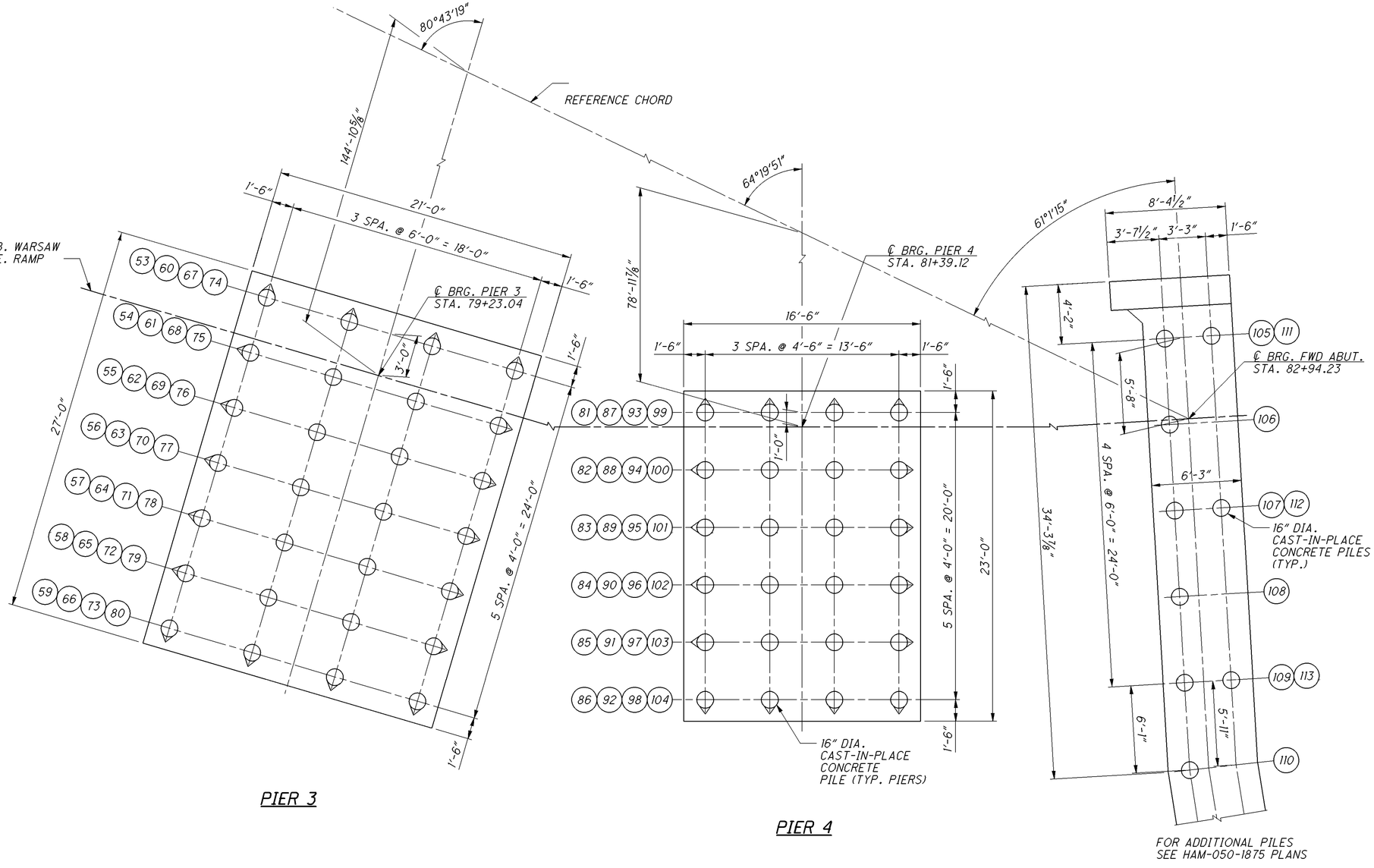

PIER 3

PIER 4

FORWARD ABUTMENT

FOUNDATION LAYOUT PLAN

LEGEND:

- ◯ PROPOSED VERTICAL PILE
- ◁◯ PROPOSED PILE BATTERED (1:4) IN DIRECTION OF ARROW
- (N) DENOTES PILE NUMBER 'N'

NOTE:

FOR ADDITIONAL FOUNDATION LAYOUT PLAN, SEE SHEET 8/47.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
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PJL		3102858	

FOUNDATION LAYOUT PLAN II

BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

9 / 47

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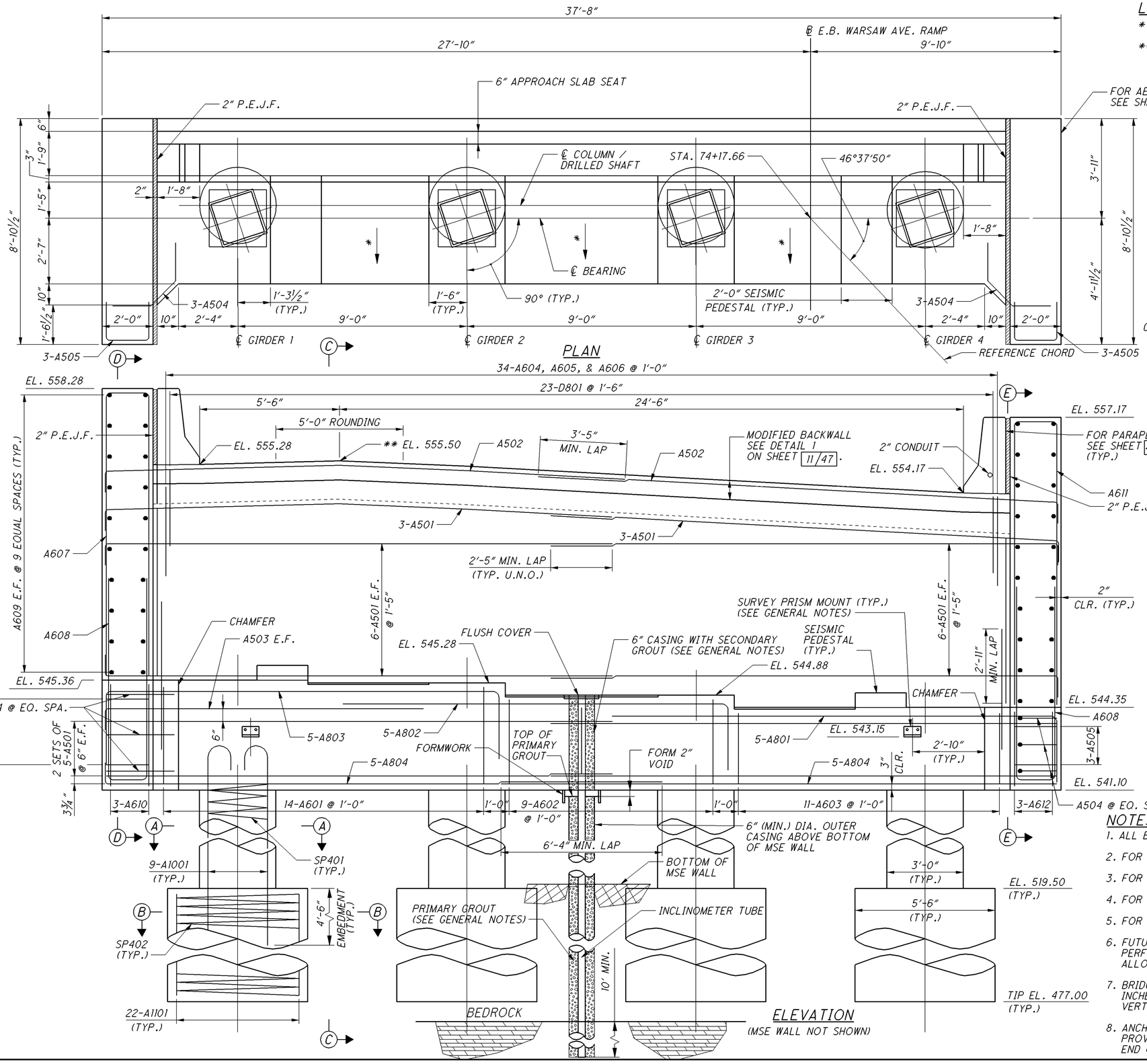

NOTES:

1. ALL BACKWALL ELEVATIONS GIVEN AT FACE OF JOINT ARMOR.
2. FOR JOINT ARMOR DETAIL, SEE SHEET 11/47.
3. FOR SECTIONS A-A, B-B, C-C, D-D, AND E-E, SEE SHEET 11/47.
4. FOR FOUNDATION LAYOUT PLAN, SEE SHEET 8/47.
5. FOR SEISMIC PEDESTAL DIMENSION H, SEE SHEET 32/47.
6. FUTURE JACKING OF THE ABUTMENT BEAM SEAT SHALL BE PERFORMED UNDER DEAD LOAD ONLY, NO LIVE LOAD WILL BE ALLOWED.
7. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.438 INCHES AT THE REAR ABUTMENT TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
8. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL		3102858	

REAR ABUTMENT
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

10 / 47

486 / 657

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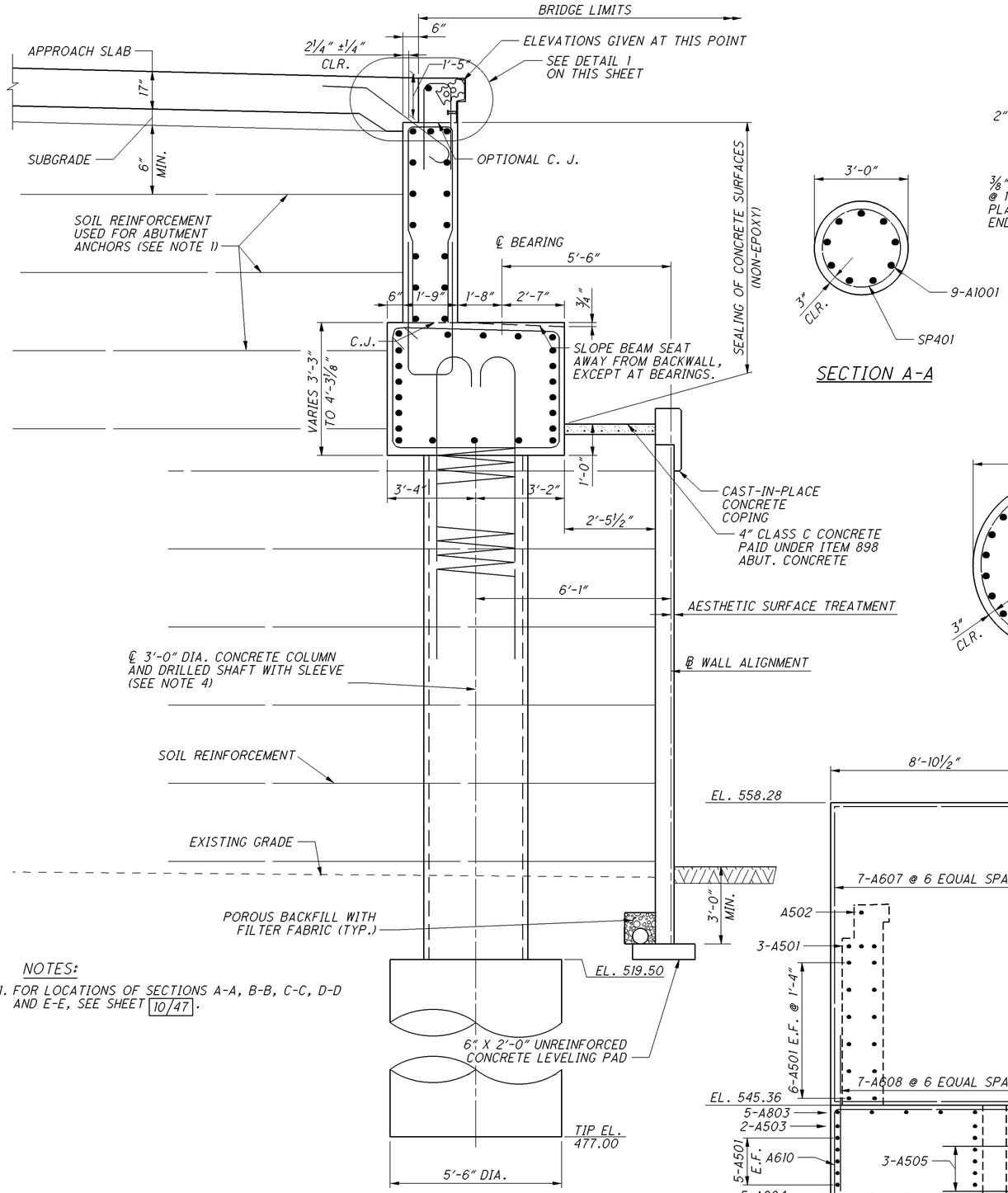
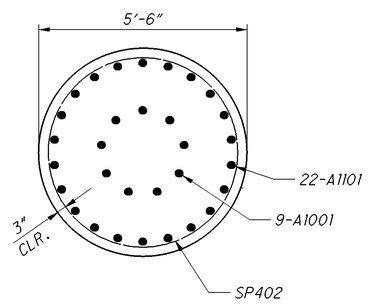


SECTION C-C

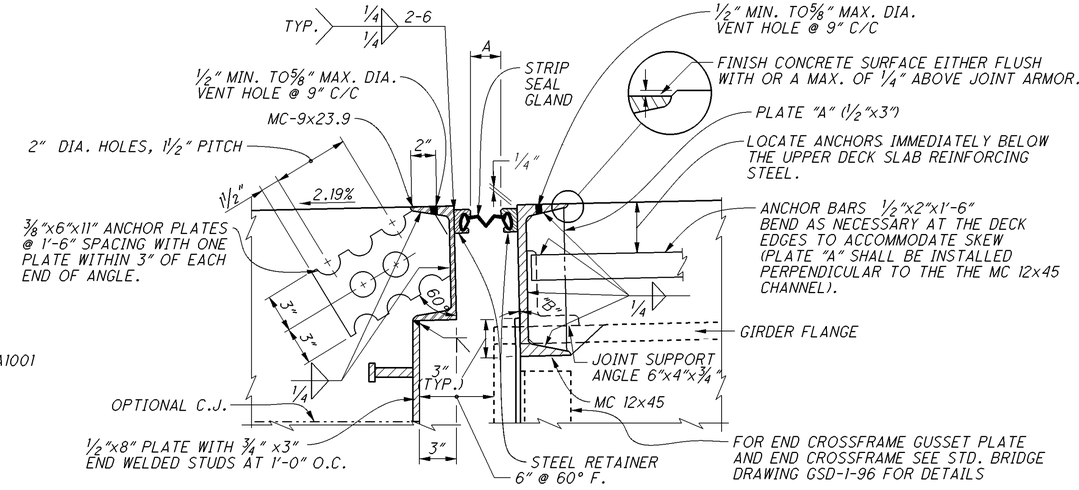
NOTES:

1. FOR LOCATIONS OF SECTIONS A-A, B-B, C-C, D-D AND E-E, SEE SHEET 10/47.

SECTION A-A



SECTION B-B

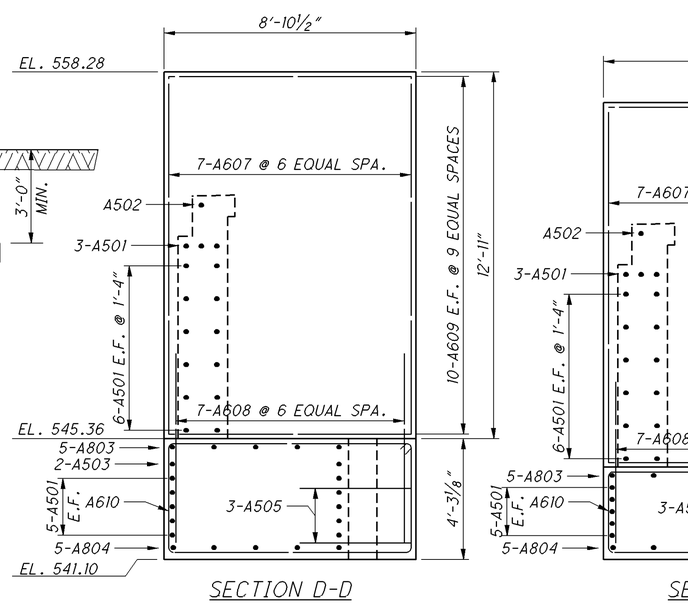


DETAIL 1

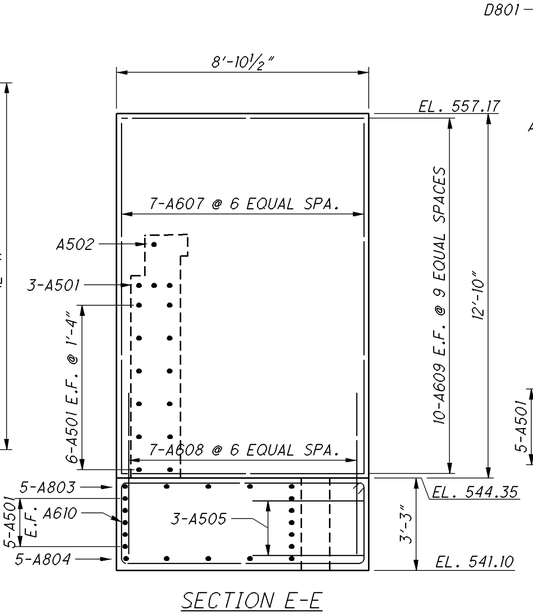
JOINT OPENING DIMENSIONS (5" STRIP SEAL GLAND)							
TEMP (°F)	30	40	50	60	70	80	90
"A"	3¼"	2 15/16"	2 9/16"	2¼"	1 15/16"	1⅝"	1¼"

"B" = 1°15'16"

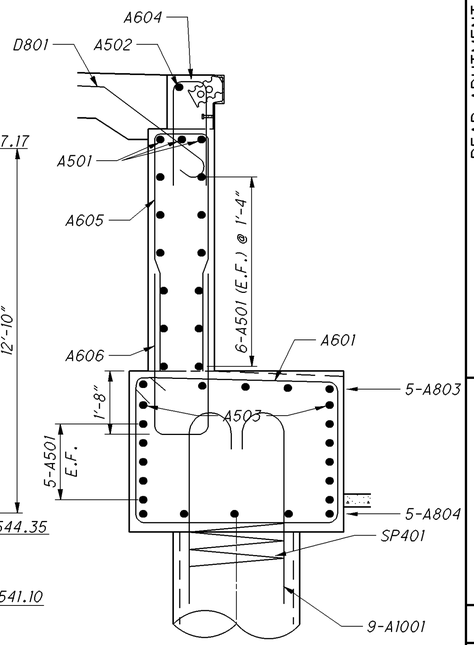
MINIMUM JOINT OPENING (DIMENSION"A") AT TIME THE SEAL GLAND RETAINERS ARE INSTALLED SHALL NOT BE LESS THAN 1½". IF THE JOINT OPENING IS LESS, INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE 1½" OPENING.



SECTION D-D



SECTION E-E



REAR ABUTMENT REINFORCING

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL		3102858	

REAR ABUTMENT DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

11 / 47

487 / 657

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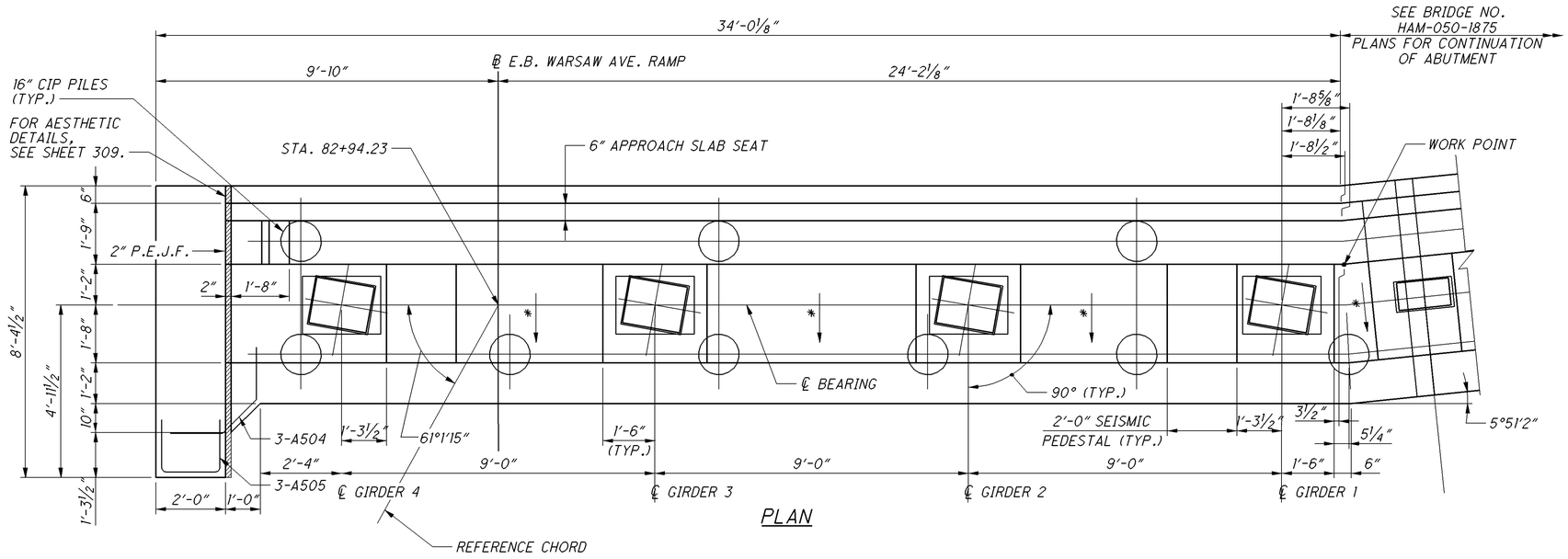
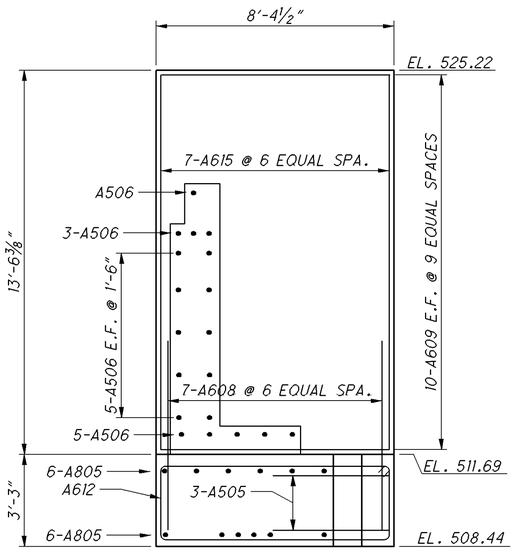
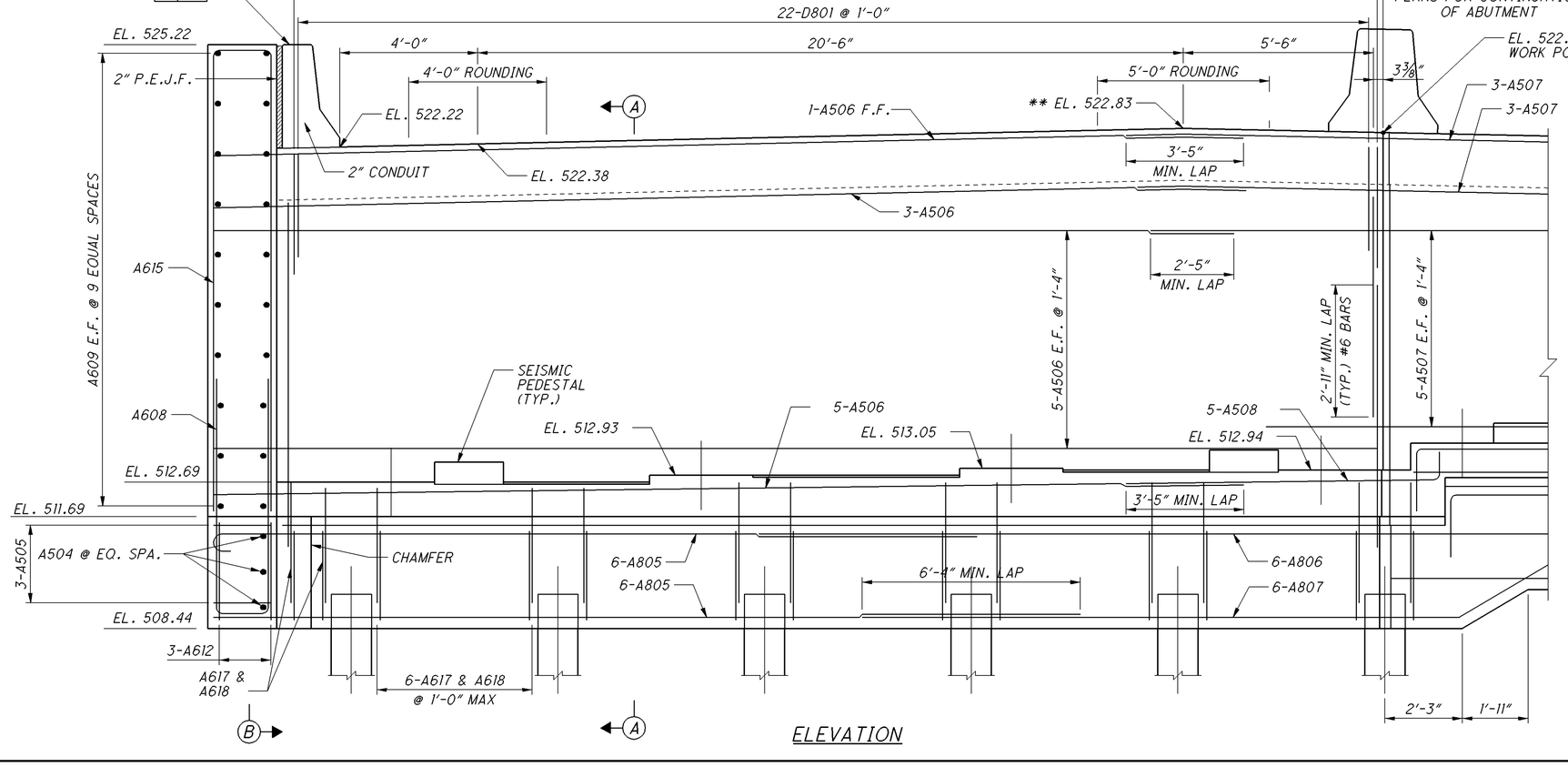


PLAN



SECTION B-B



ELEVATION

LEGEND:

* - SLOPE 3/4" BETWEEN BEARING SEATS

** - ELEVATION AT APPARENT GRADE BREAK AT CENTER OF SHOULDER ROUNDING.

NOTES:

1. ALL BACKWALL ELEVATIONS GIVEN AT FACE OF JOINT ARMOR.
2. FOR SEISMIC PEDESTAL DETAILS, SEE SHEET 13/47.
3. FOR SECTION A-A, SEE SHEET 13/47.
4. FOR FOUNDATION LAYOUT PLAN, SEE SHEET 9/47.
5. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.381 INCHES AT THE FORWARD ABUTMENT TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
BMG	NAL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL		3102858	

FORWARD ABUTMENT
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

12 / 47

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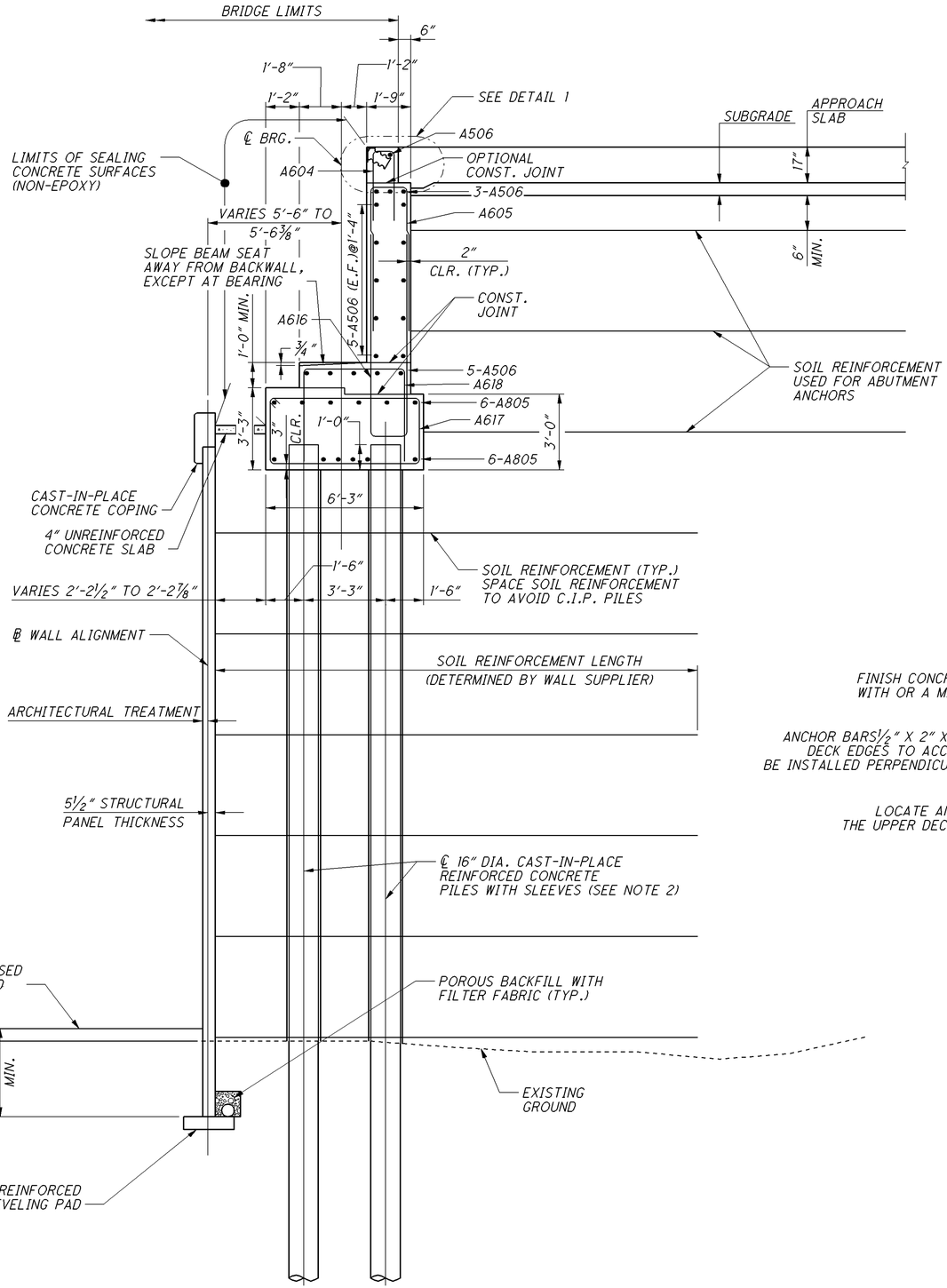
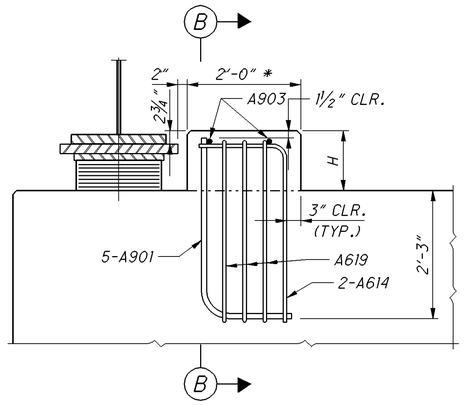
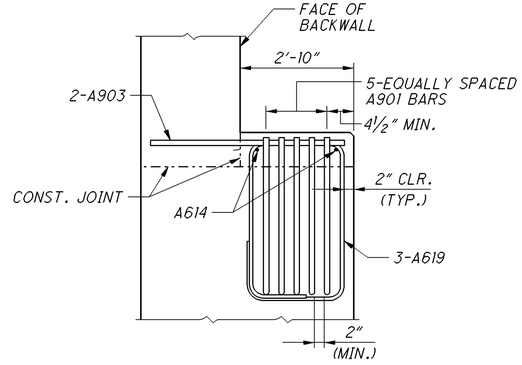


SECTION A-A



FRONT VIEW OF SEISMIC PEDESTAL

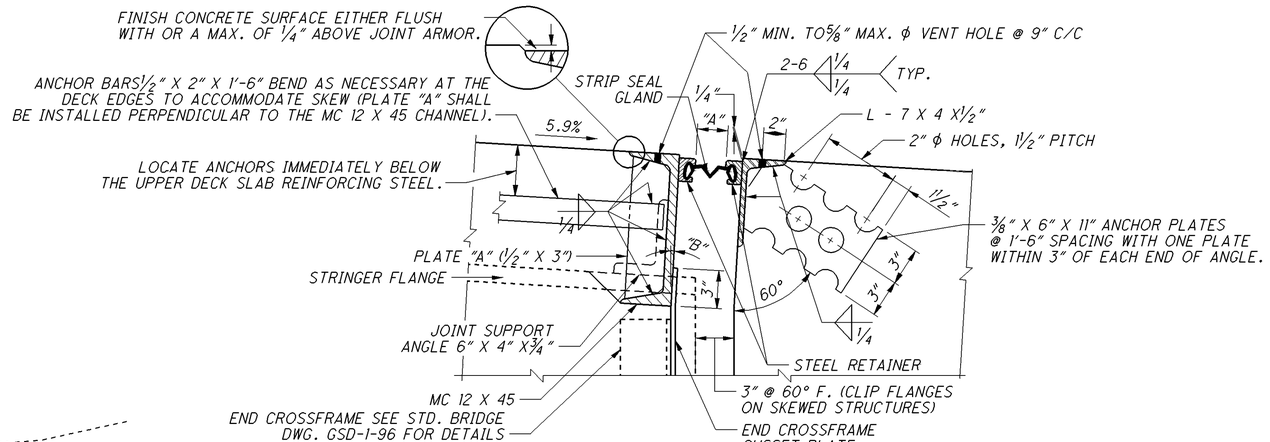
* FINISH THE SURFACE OF THE BEAM SEAT IN THIS AREA WITH A SERRATED TROWEL. THE SERRATION SHALL BE 1/4" DEEP MINIMUM.



SECTION B-B

JOINT OPENING DIMENSIONS (5" STRIP SEAL GLAND)							
TEMP (°F)	30	40	50	60	70	80	90
"A"	3 1/4"	2 15/16"	2 9/16"	2 1/4"	1 7/8"	1 1/2"	1 3/16"

"B" = 3°21'44"



DETAIL 1

MODIFIED EXPANSION JOINT DETAIL (SEE STANDARD DRAWING EXJ-4-87 FOR NOTES & DETAILS)

NOTES:

1. FOR SEISMIC PEDESTAL DIMENSION H, SEE SHEET 32/47.
2. FOR LOCATION OF SECTION A-A, SEE SHEET 12/47.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
PJL		3102858	

FORWARD ABUTMENT DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

13 / 47

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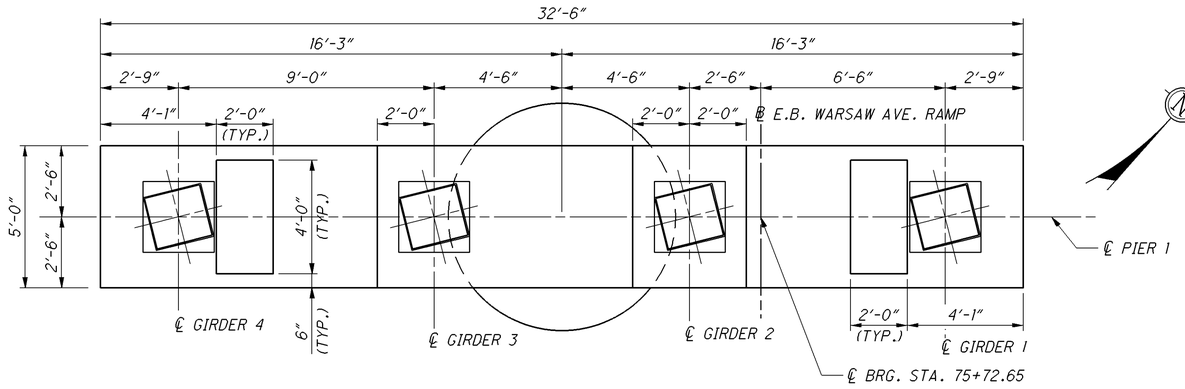
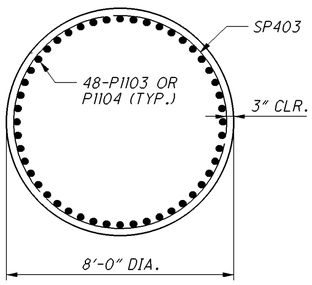




NOTES:

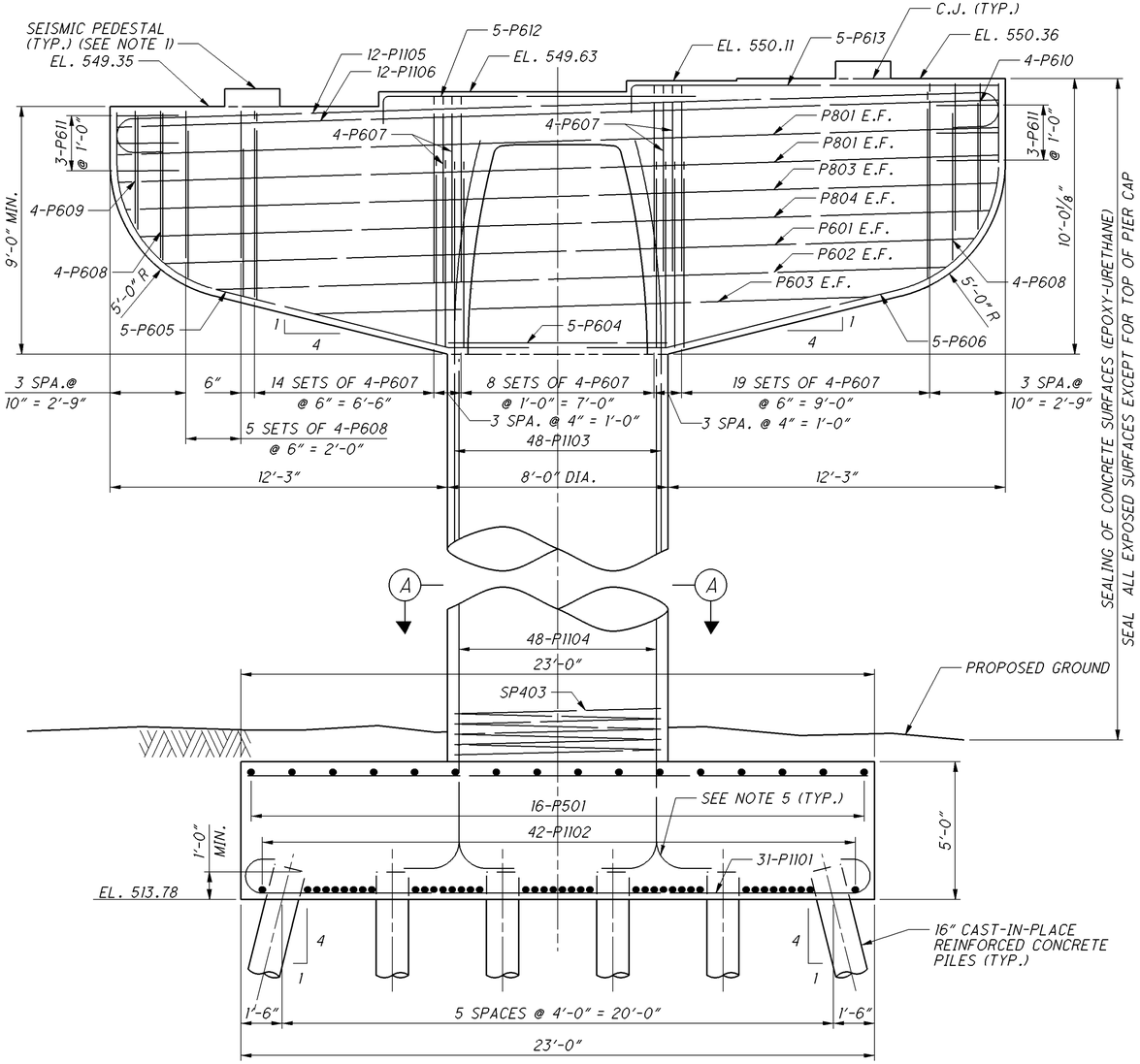
1. SEE SHEET 17/47 FOR SEISMIC PEDESTAL DETAILS.
2. SEE SHEET 18/47 FOR AESTHETIC DETAILS.
3. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT. SPIRAL REINFORCEMENT SHALL EXTEND FORM THE TOP OF THE FOOTING TO THE BOTTOM ROW OF HORIZONTAL CAP REINFORCEMENT.
4. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.545 INCHES AT PIER 1 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
5. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

MINIMUM LAPS:

#6 BARS 3'-10"

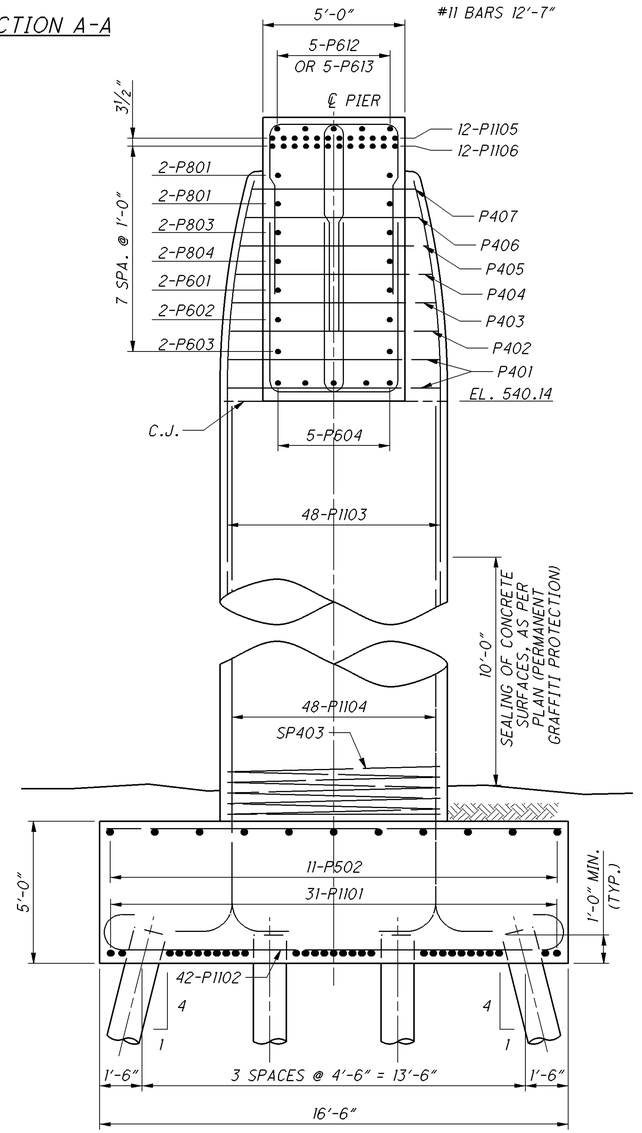
#11 BARS 12'-7"

PIER PLAN



ELEVATION SECTION

SECTION A-A



PIER SIDE VIEW

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102858	

PIER 1 DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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490/657

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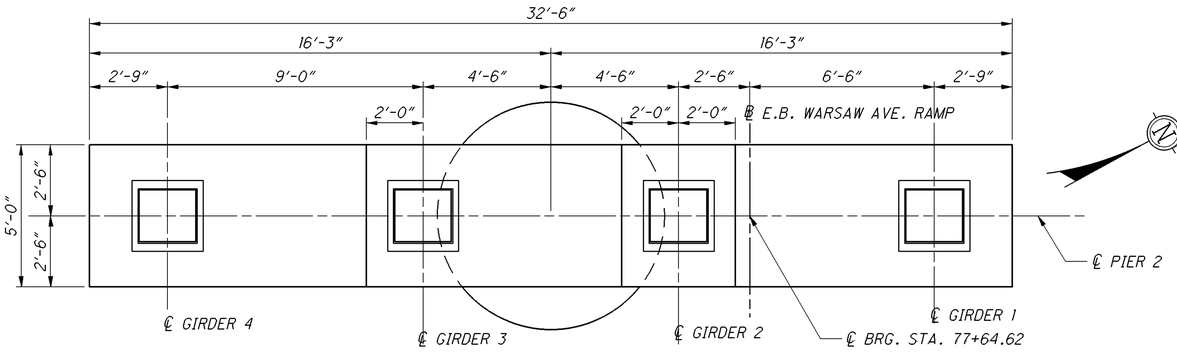
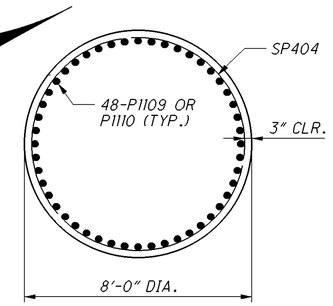




NOTES:

1. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS. SEE SHEET 18/47 FOR MORE DETAILS.

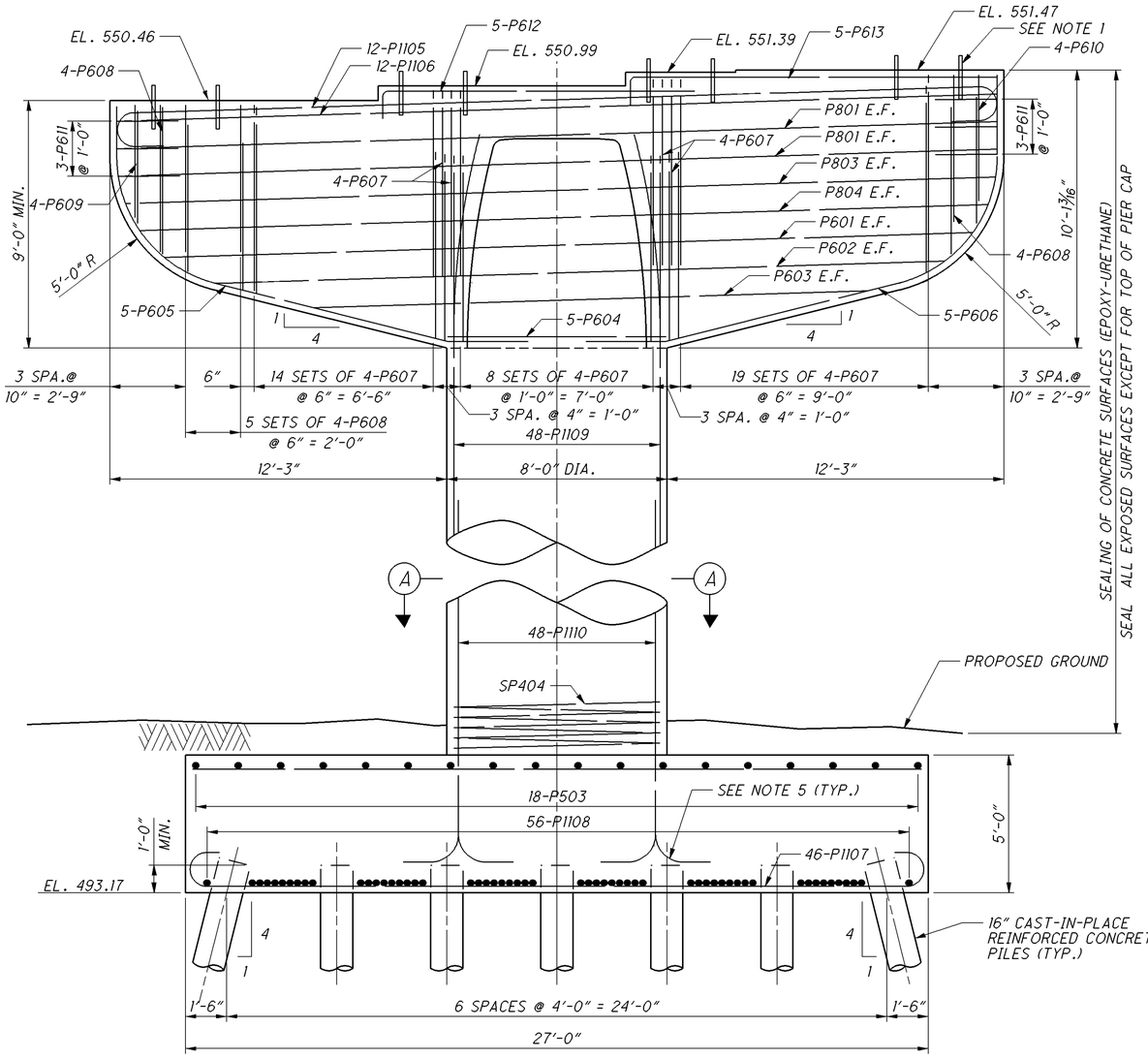
2. SEE SHEET 18/47 FOR AESTHETIC DETAILS.

3. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT. SPIRAL REINFORCEMENT SHALL EXTEND FROM THE TOP OF THE FOOTING TO THE BOTTOM ROW OF HORIZONTAL CAP REINFORCEMENT.

4. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.449 INCHES AT PIER 2 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

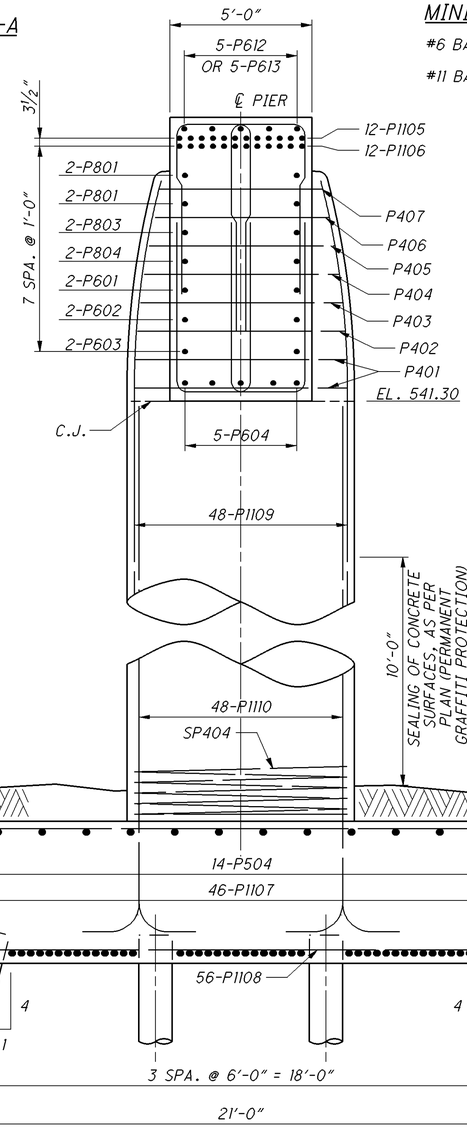
5. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

PIER PLAN



ELEVATION SECTION

SECTION A-A



PIER SIDE VIEW

MINIMUM LAPS:

#6 BARS 3'-10"

#11 BARS 12'-7"

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102858	

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

PIER 2 DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

15 / 47

491
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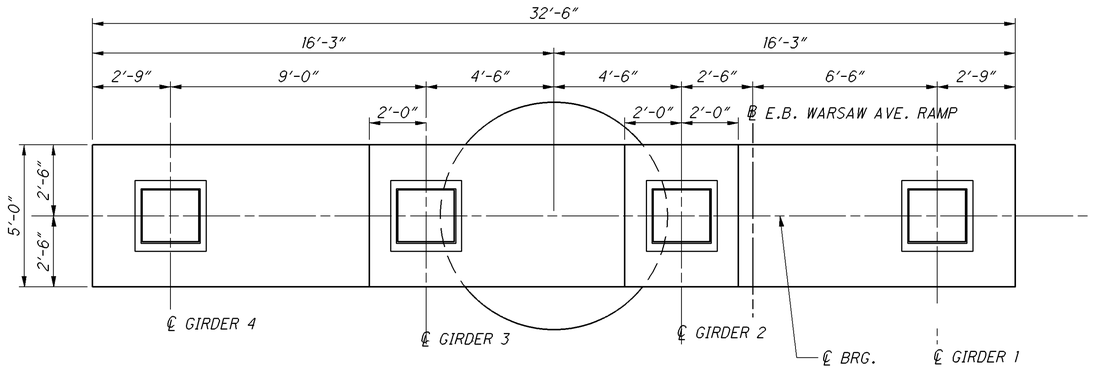
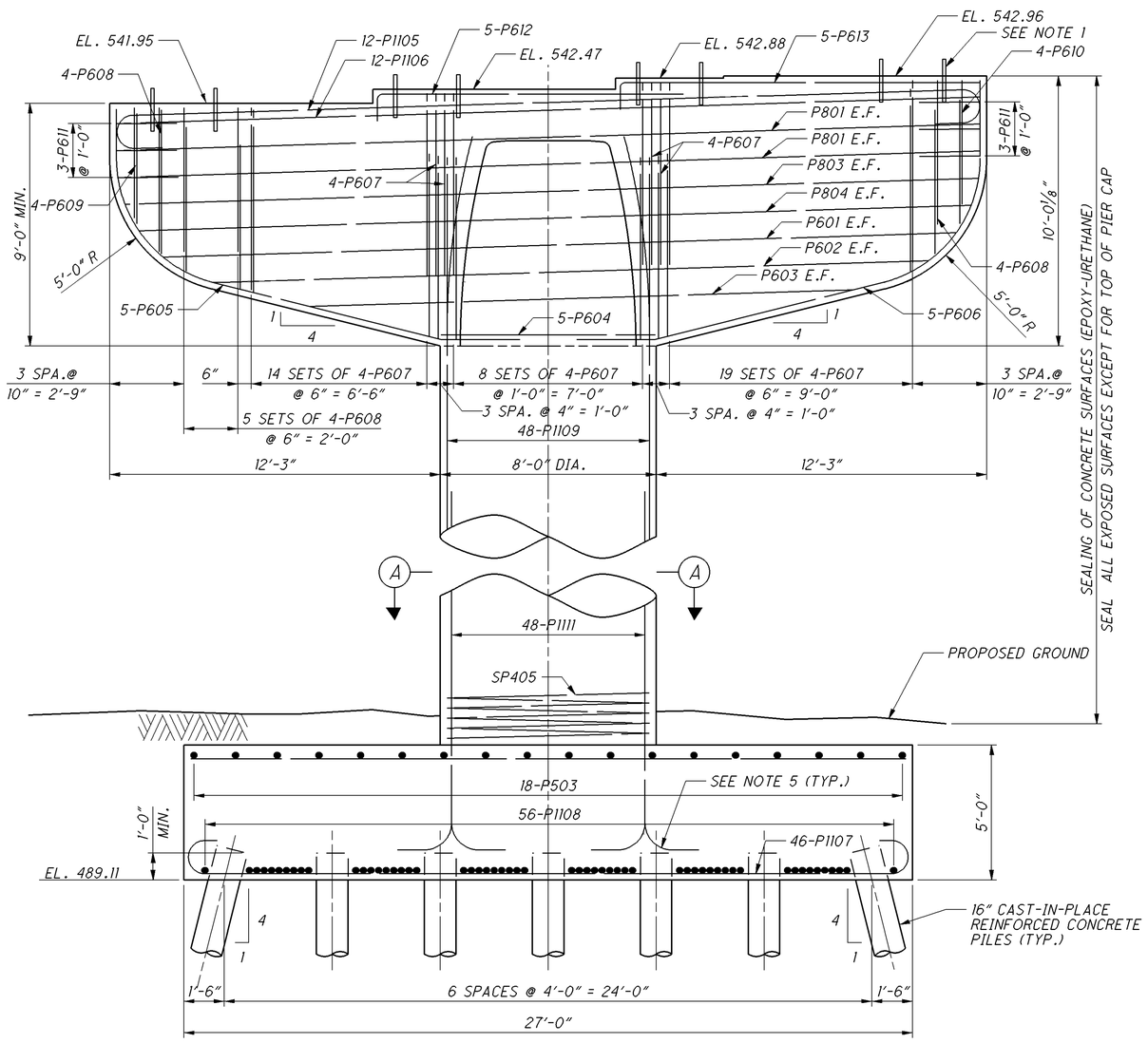
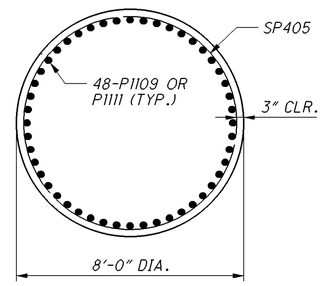


PIER PLAN



ELEVATION SECTION



SECTION A-A

NOTES:

1. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS. SEE SHEET 18/47 FOR MORE DETAILS.

2. SEE SHEET 18/47 FOR AESTHETIC DETAILS.

3. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT. SPIRAL REINFORCEMENT SHALL EXTEND FROM THE TOP OF THE FOOTING TO THE BOTTOM ROW OF HORIZONTAL CAP REINFORCEMENT.

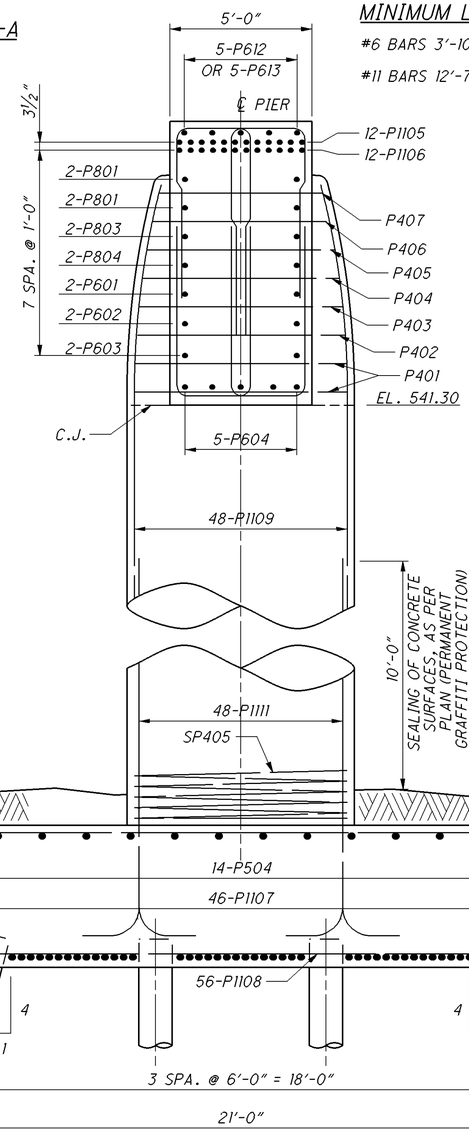
4. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.545 INCHES AT PIER 3 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

5. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

MINIMUM LAPS:

#6 BARS 3'-10"

#11 BARS 12'-7"



PIER SIDE VIEW

DESIGN AGENCY	PB AMERICAS, INC. 312 ELM STREET SUITE 2500 CINCINNATI, OHIO 45202
DESIGNED	PJL
DRAWN	LEL
REVIEWED	EBS
DATE	11/16/10
CHECKED	JSK
REVISED	
STRUCTURE FILE NUMBER	3102858

PIER 3 DETAILS

BRIDGE NO. HAM-050-1881

EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79

PID No. 20082

16 / 47

492 / 657

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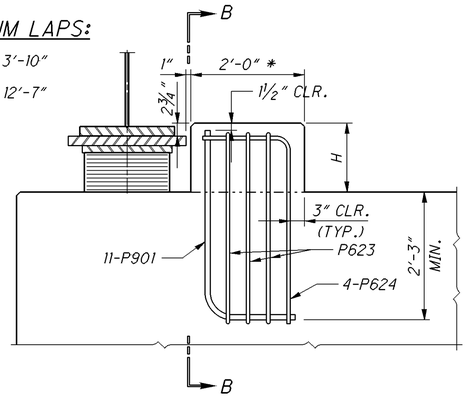
NOTES:

1. SEE SHEET 31/47 FOR SEISMIC PEDESTAL DIMENSION H.
2. SEE SHEET 18/47 FOR AESTHETIC DETAILS.
3. ANCHORAGE OF SPIRAL REINFORCEMENT SHALL BE PROVIDED BY 1½ EXTRA TURNS OF SPIRAL BAR AT EACH END OF A SPIRAL UNIT.
4. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.526 INCHES AT PIER 4 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
5. ALTERNATE DIRECTION OF THE BOTTOM LEG OF FOOTING/ COLUMN DOWEL BARS.

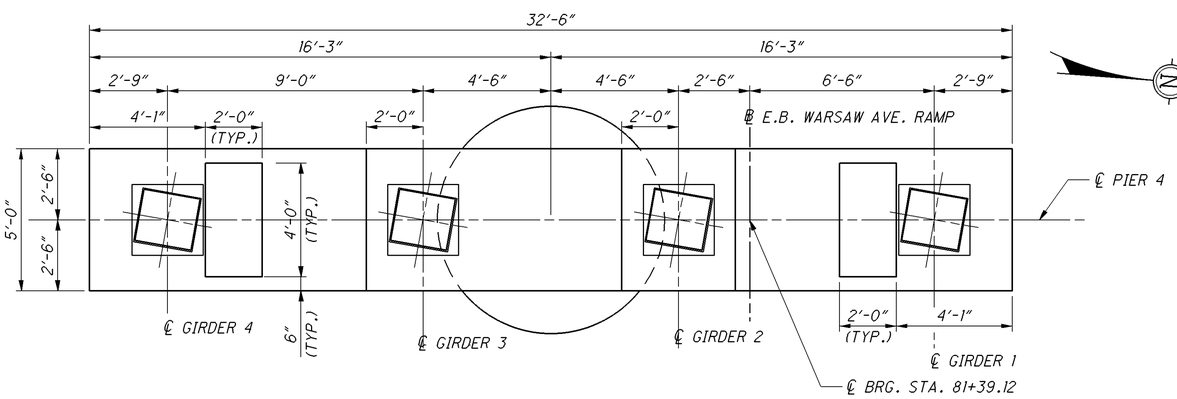
MINIMUM LAPS:

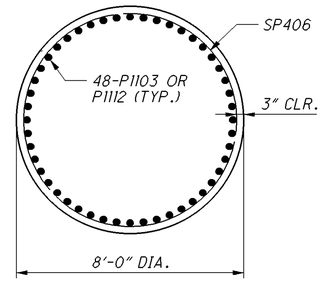
#6 BARS 3'-10"

#11 BARS 12'-7"

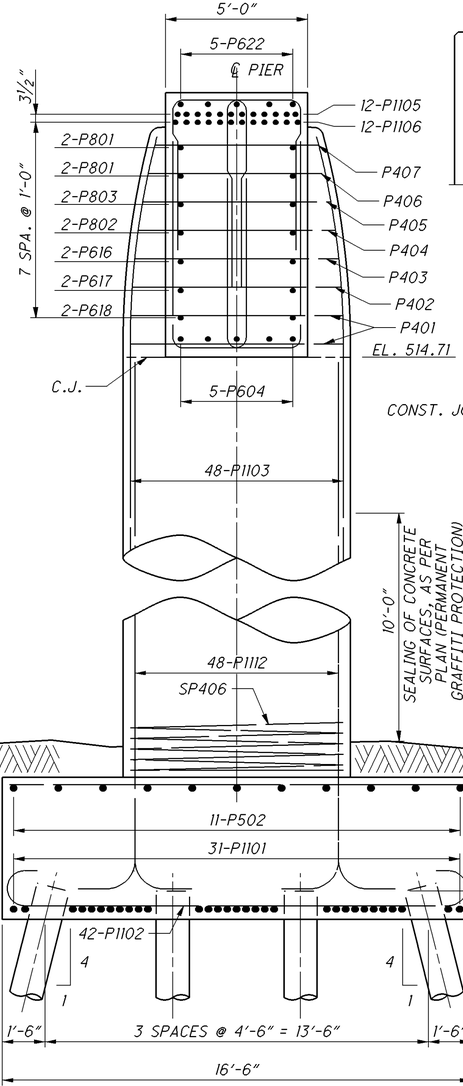


PIER PLAN

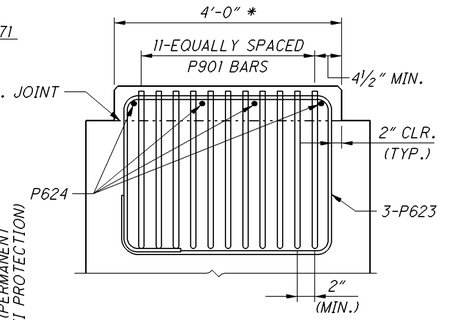




SECTION A-A



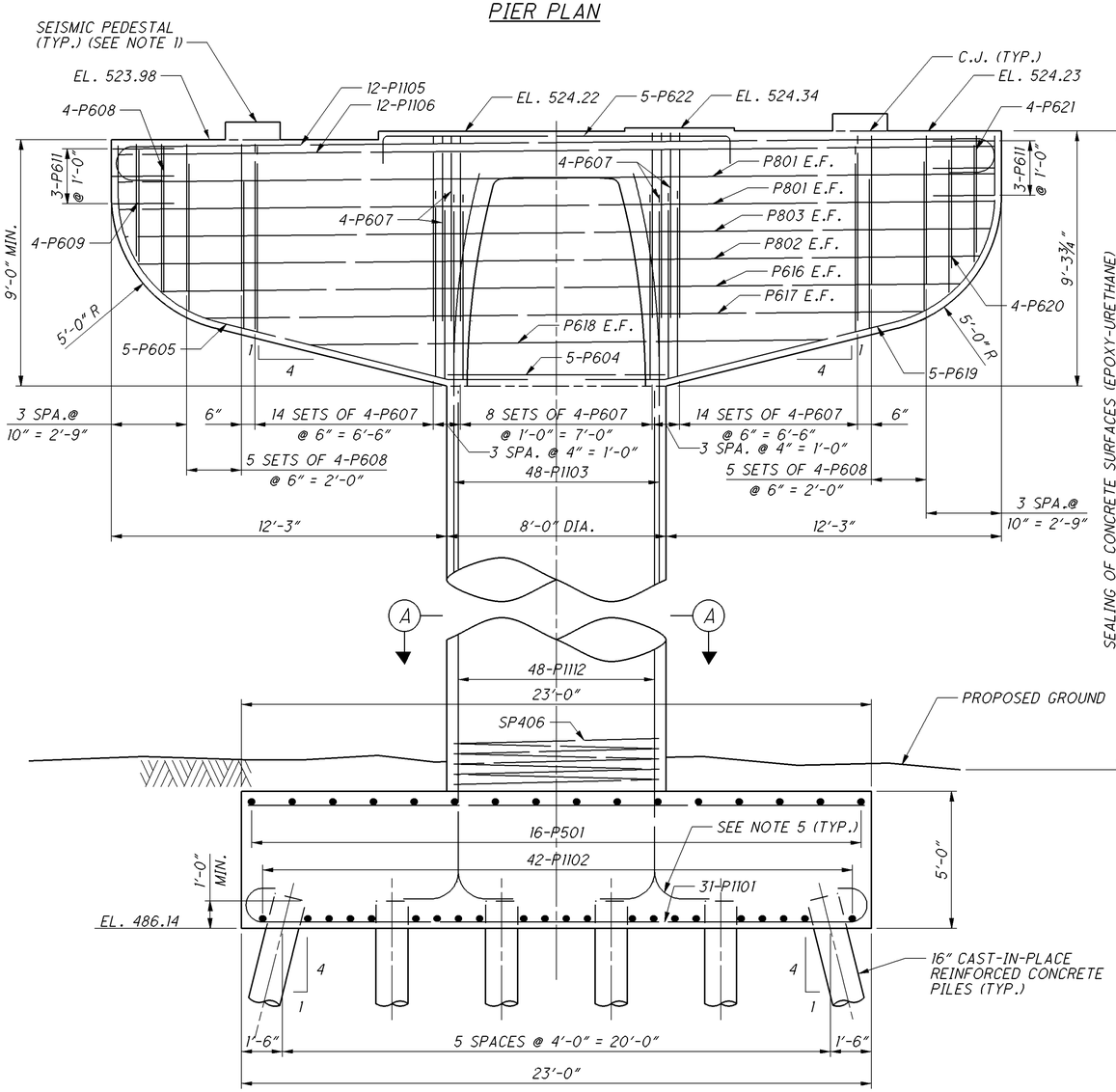
FRONT VIEW OF SEISMIC PEDESTAL



SECTION B-B

* THE SURFACE OF THE BEAM SEAT IN THIS AREA SHALL BE FINISHED WITH A SERRATED TROWEL. THE SERRATIONS SHALL BE ¼" DEEP MINIMUM.

ELEVATION SECTION



SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
SEAL ALL EXPOSED SURFACES EXCEPT FOR TOP OF PIER CAP

PIER SIDE VIEW

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102858	

PIER 4 DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

17 / 47

493 / 657

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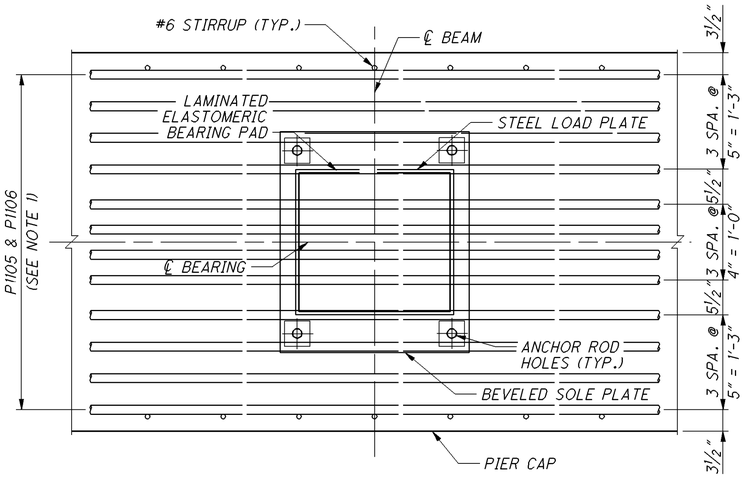
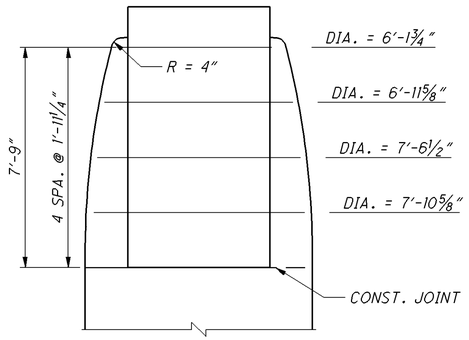


BEARING ANCHOR ROD PLAN

PIERS 2 & 3
TYPICAL EACH GIRDER



AESTHETIC TREATMENT

NOTES:

1. BARS IN UPPER LAYERS SHALL BE PLACED DIRECTLY ABOVE BOTTOM LAYERS WITH CLEAR DISTANCE BETWEEN LAYERS NOT NESS THAN 1 INCH.

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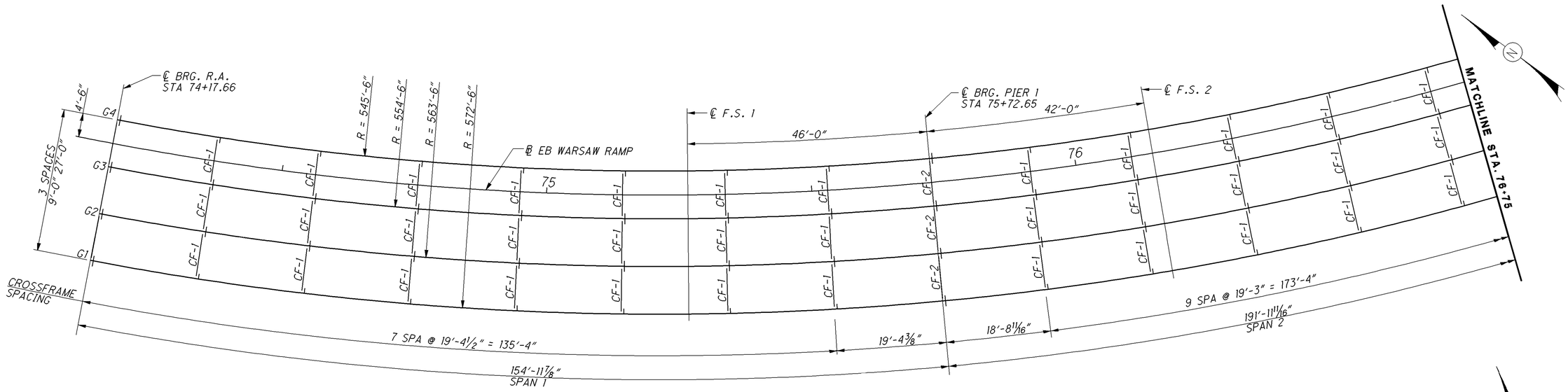
DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

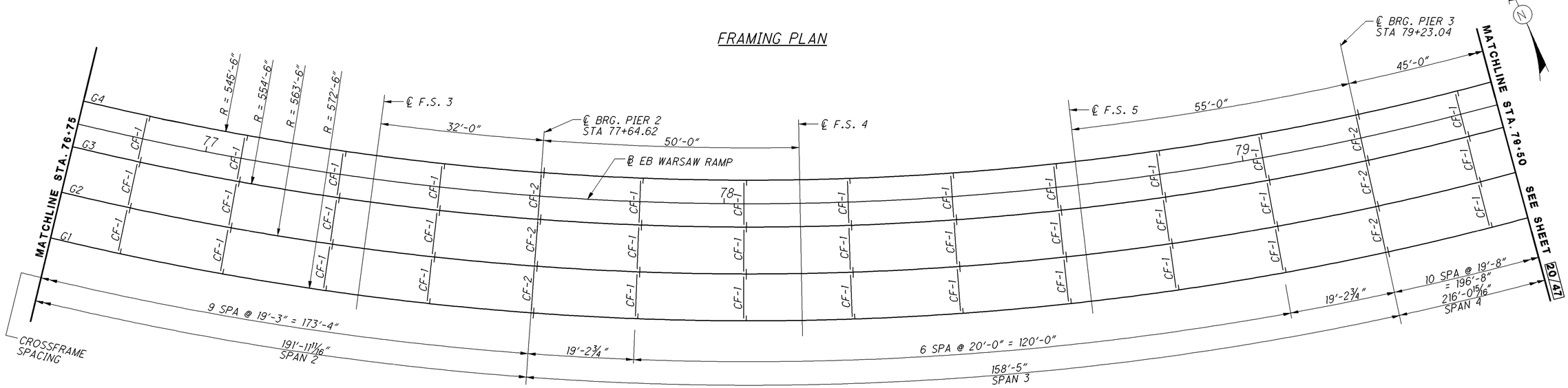
DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSK		3102858	

PIER AESTHETIC DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082



FRAMING PLAN



FRAMING PLAN

NOTES:

1. ALL MATERIAL TO BE ASTM-A709, GRADE 50.
2. ALL BEARINGS AND CROSSFRAMES ARE RADIAL TO THE CENTER OF CURVATURE.
3. ALL STEEL TO BE SHOP PRIMED AND FIELD PAINTED ACCORDING TO ITEM 514.
4. BEARING STIFFENERS AND ENDS OF GIRDERS TO BE VERTICAL AFTER TOTAL DEAD LOAD IS APPLIED.
5. SPLICES AND INTERMEDIATE STIFFENERS TO BE NORMAL TO GIRDERS.
6. END CROSSFRAMES SHALL BE PER STANDARD DRAWING GSD-1-96.

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

FRAMING PLAN
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

19 / 47

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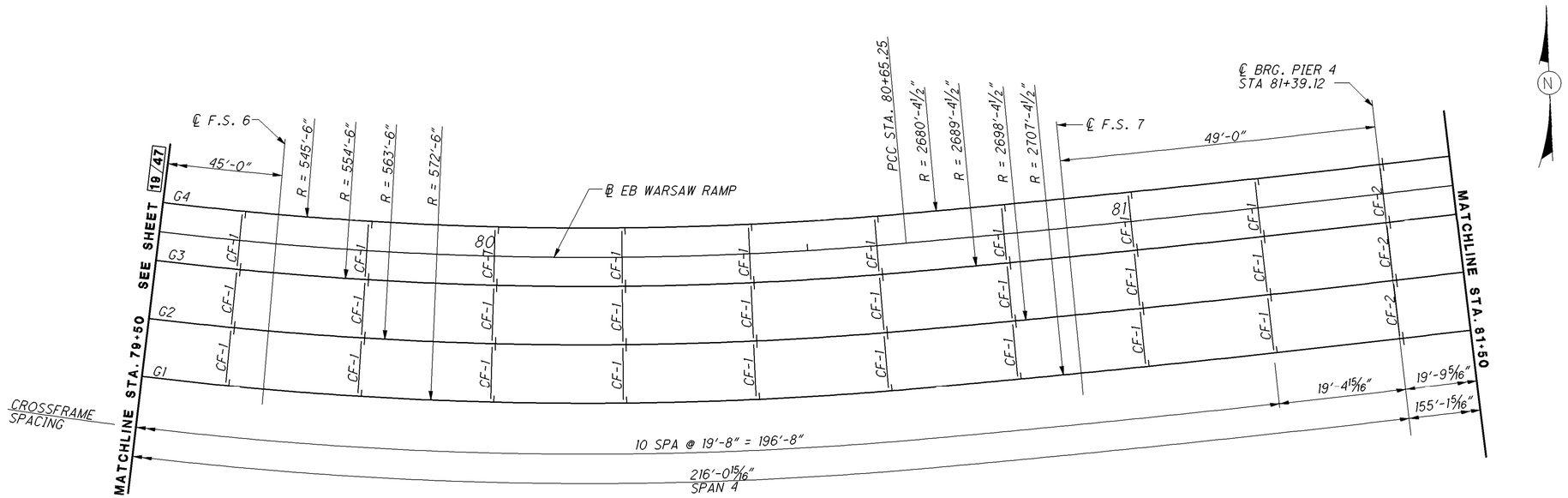

FRAMING PLAN

NOTES:

1. ALL MATERIAL TO BE ASTM-A709, GRADE 50.
2. ALL BEARINGS AND CROSSFRAMES ARE RADIAL TO THE CENTER OF CURVATURE.
3. ALL STEEL TO BE SHOP PRIMED AND FIELD PAINTED ACCORDING TO ITEM 514.
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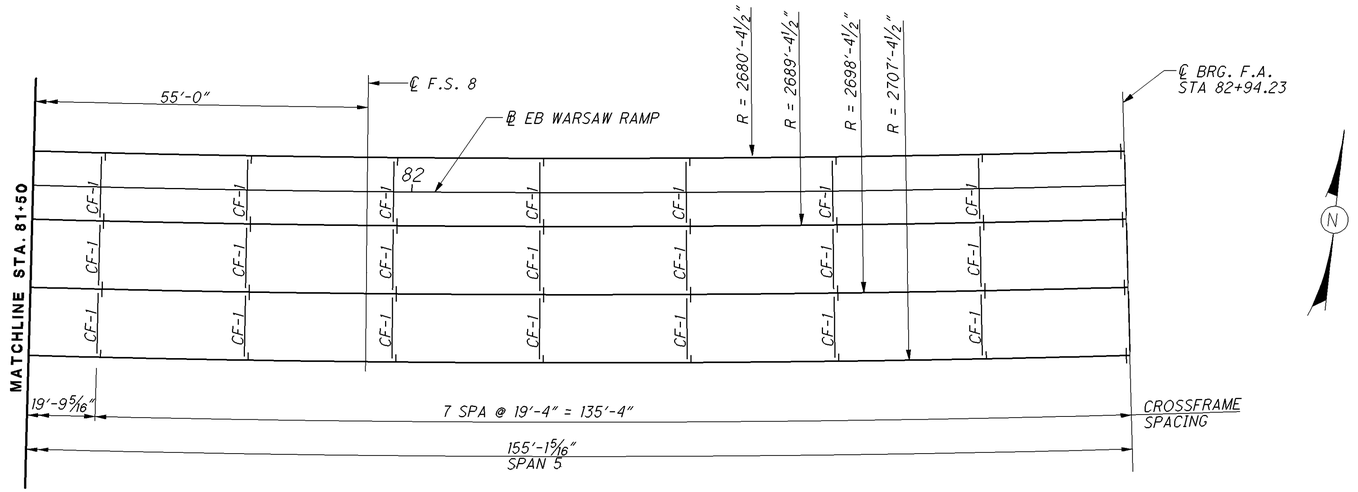
5. SPLICES AND INTERMEDIATE STIFFENERS TO BE NORMAL TO GIRDERS.
6. END CROSSFRAMES SHALL BE PER STANDARD DRAWING GSD-1-96.



FRAMING PLAN

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

FRAMING PLAN
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

20/47

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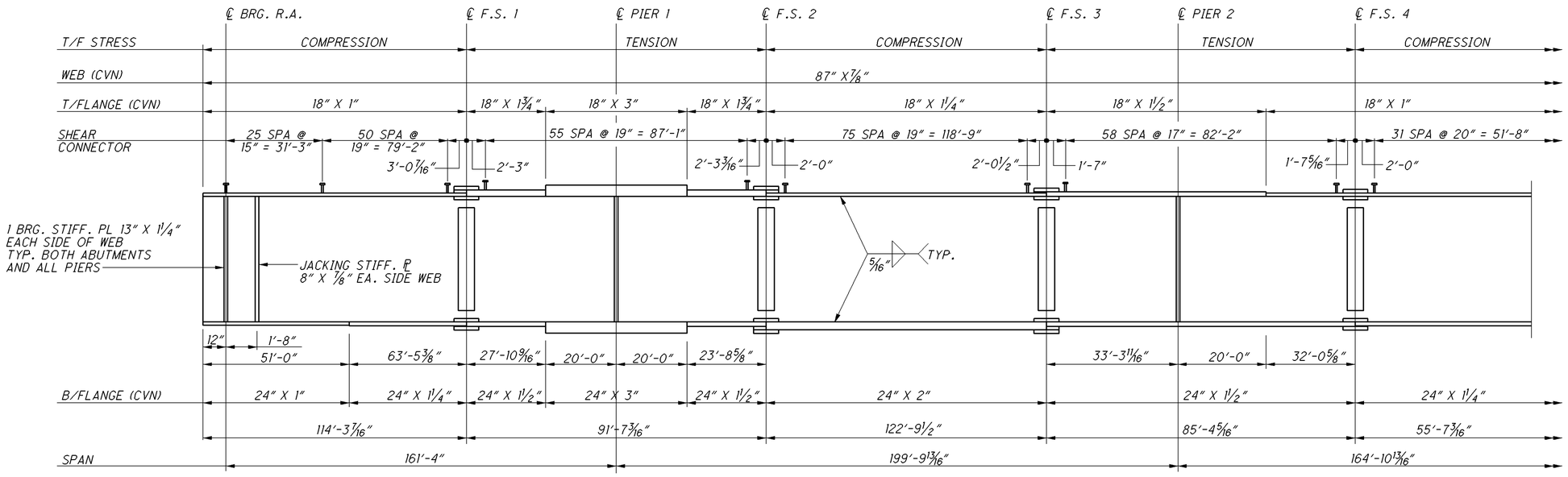

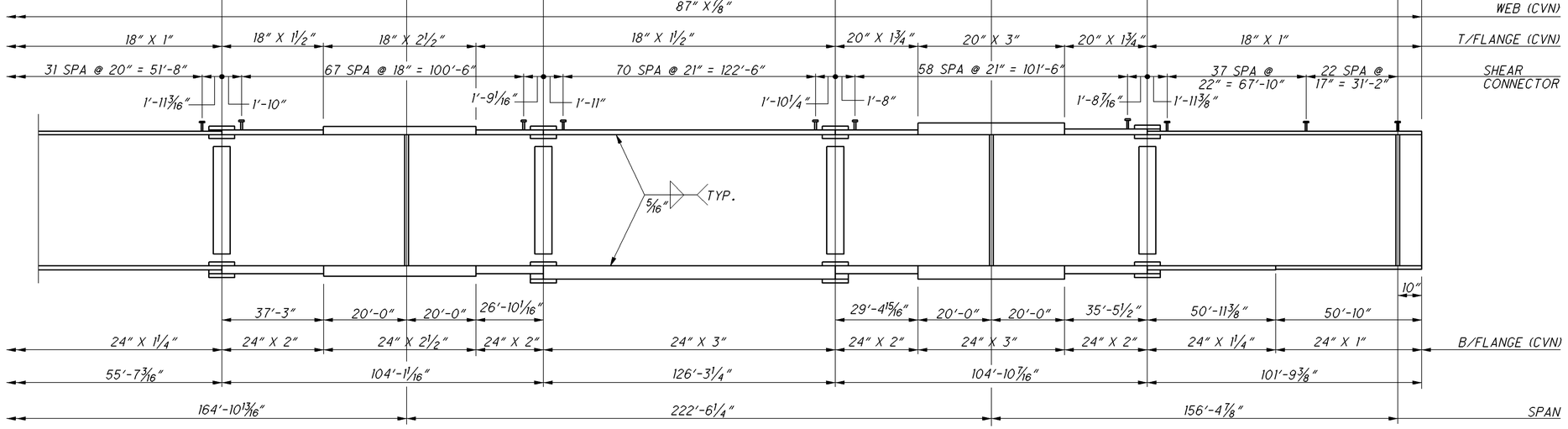

GIRDER ELEVATION - GIRDER 1

NOTES:

1. WHERE A SHAPE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01
2. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER 3/4" THICK.
3. ALL LONGITUDINAL DIMENSIONS SHOWN ARE ALONG ℄ GIRDER AND ARE HORIZONTAL (EFFECTS OF THE LONGITUDINAL GRADE ARE NOT INCLUDED.)
4. SHEAR STUD SPACING MAY BE ADJUSTED LOCALLY AS REQUIRED TO CLEAR FLANGE SPLICES.

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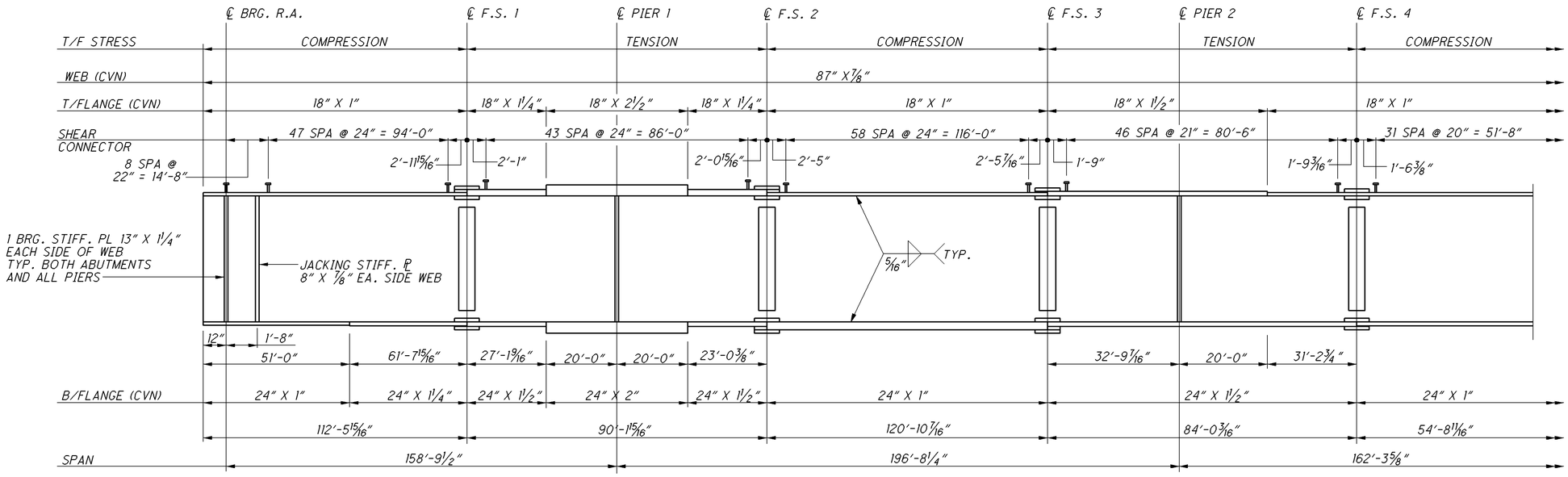
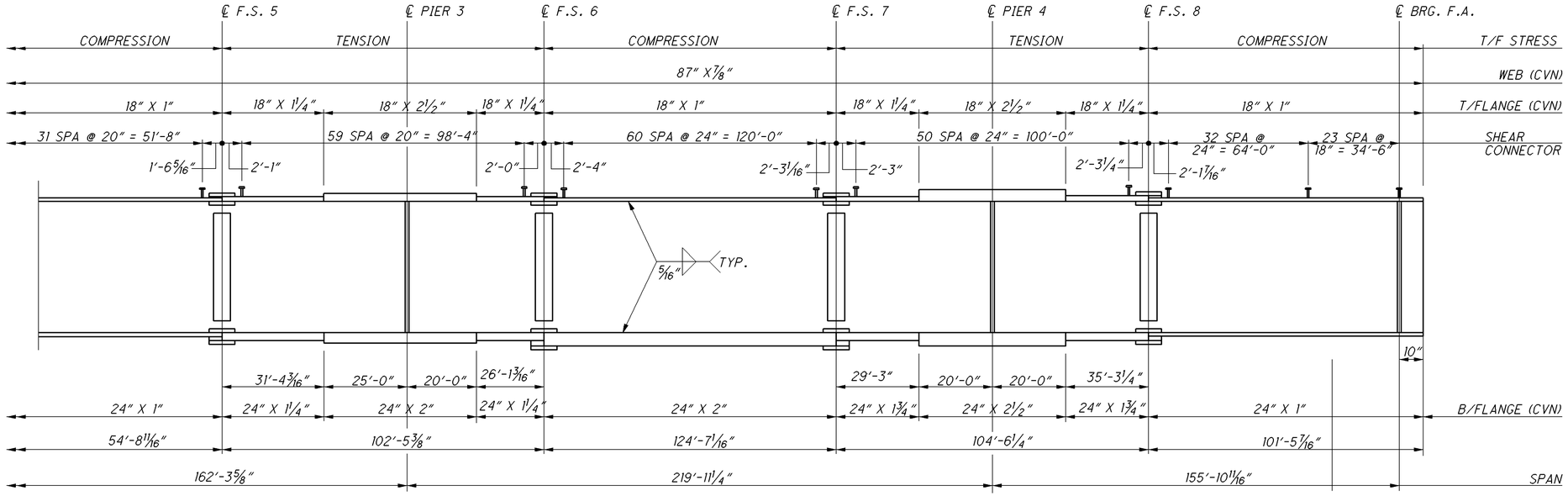
DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

GIRDER ELEVATION
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082





NOTES:

1. WHERE A SHAPE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01
2. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER 3/4" THICK.
3. ALL LONGITUDINAL DIMENSIONS SHOWN ARE ALONG ℄ GIRDER AND ARE HORIZONTAL (EFFECTS OF THE LONGITUDINAL GRADE ARE NOT INCLUDED.)
4. SHEAR STUD SPACING MAY BE ADJUSTED LOCALLY AS REQUIRED TO CLEAR FLANGE SPLICES.

GIRDER ELEVATION - GIRDER 2

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

GIRDER ELEVATION
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

22 / 47

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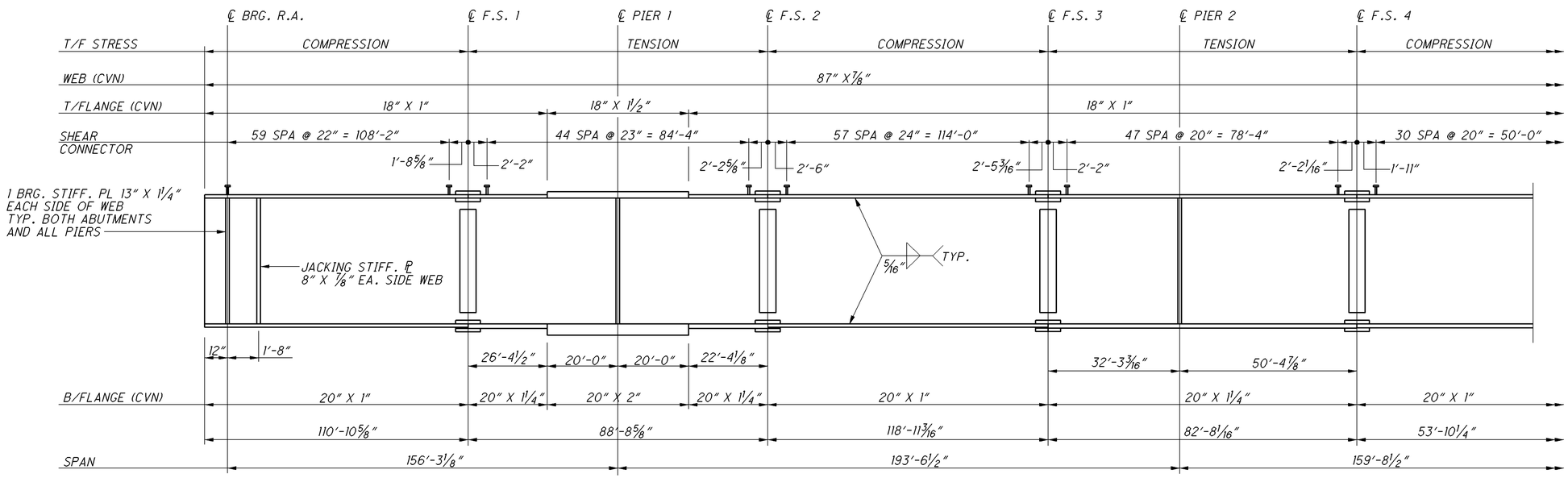

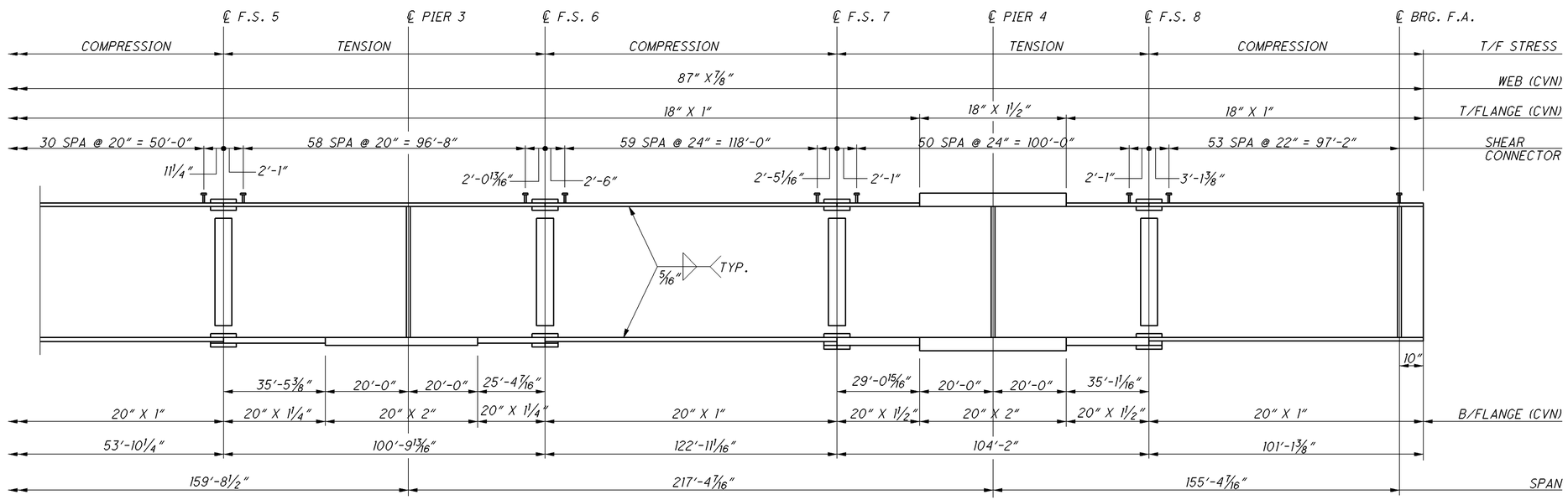

NOTES:

1. WHERE A SHAPE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01
2. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER 3/4" THICK.
3. ALL LONGITUDINAL DIMENSIONS SHOWN ARE ALONG ℄ GIRDER AND ARE HORIZONTAL (EFFECTS OF THE LONGITUDINAL GRADE ARE NOT INCLUDED.)
4. SHEAR STUD SPACING MAY BE ADJUSTED LOCALLY AS REQUIRED TO CLEAR FLANGE SPLICES.

GIRDER ELEVATION - GIRDER 3

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

GIRDER ELEVATION
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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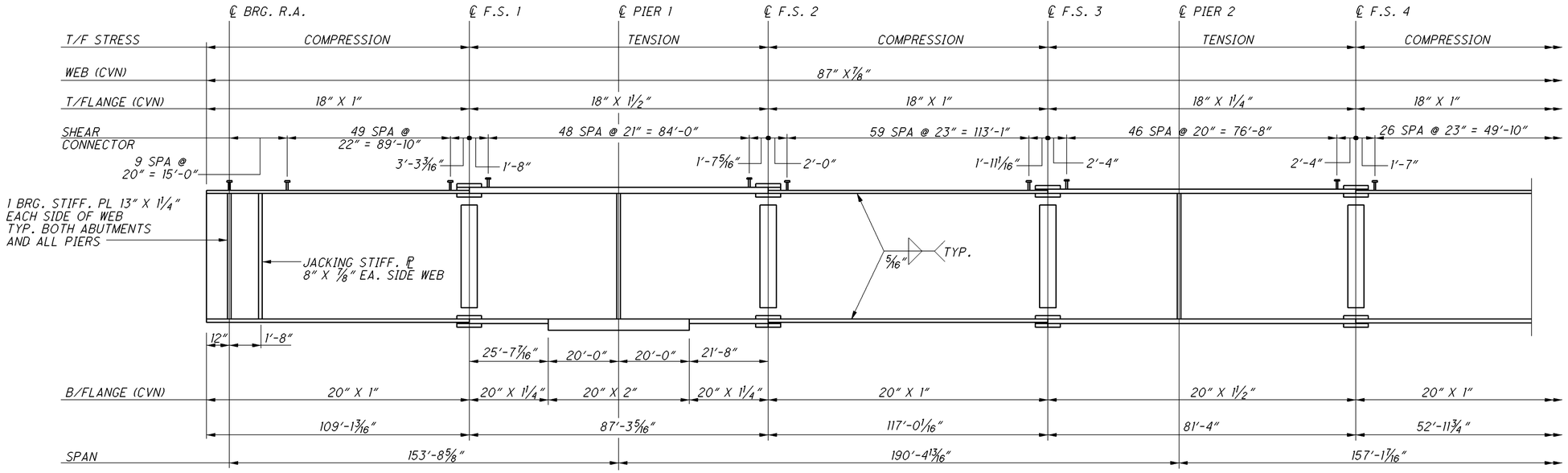

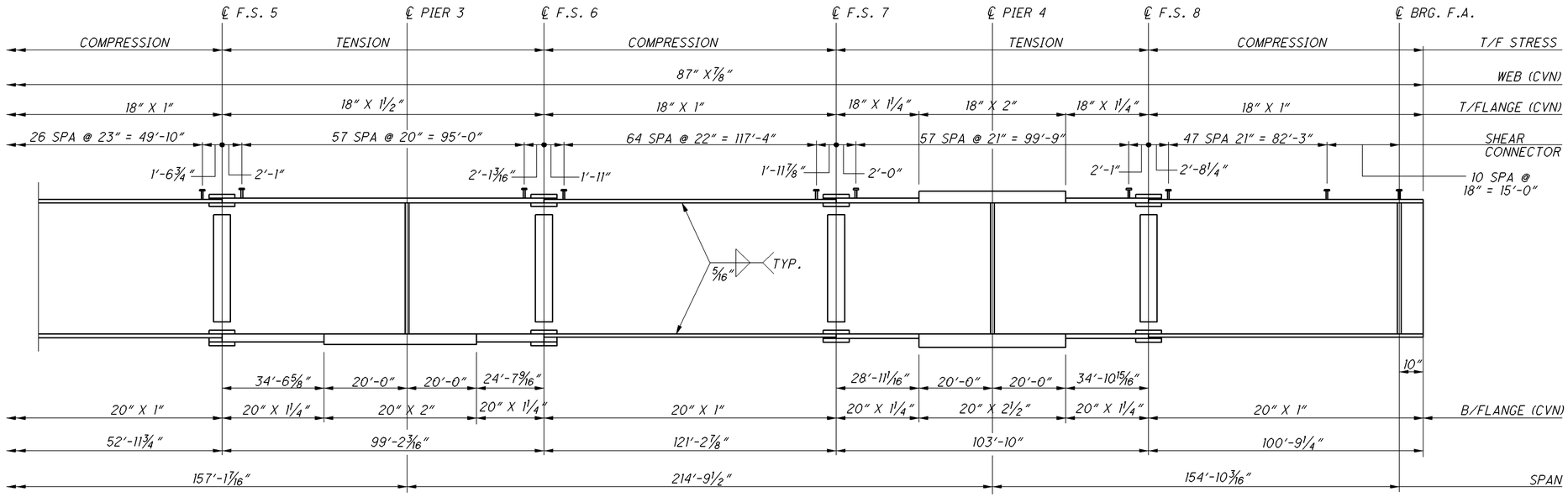

NOTES:

1. WHERE A SHAPE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01

2. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER 3/4" THICK.

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GIRDER ELEVATION - GIRDER 4

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

GIRDER ELEVATION
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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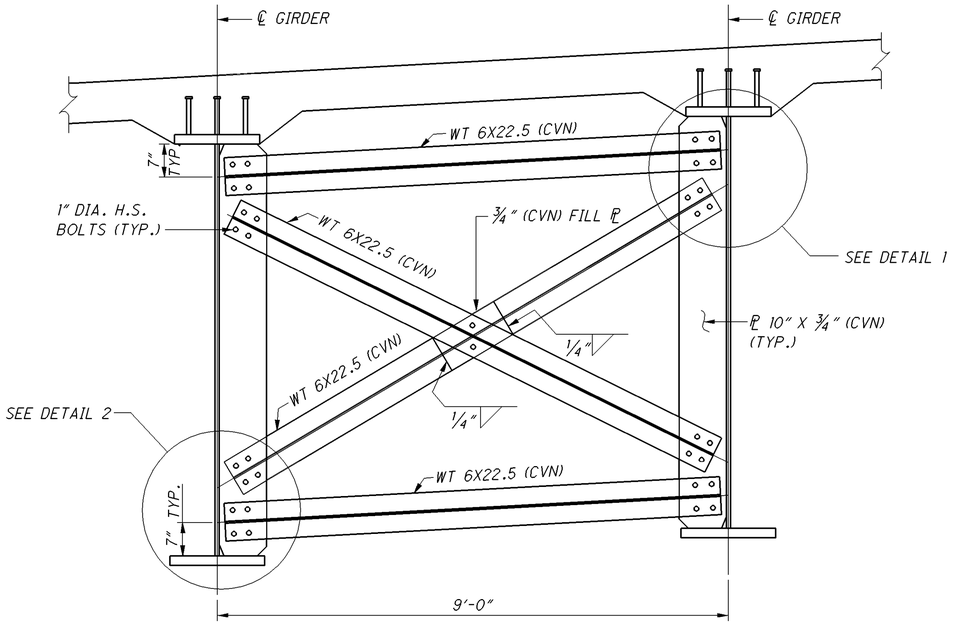

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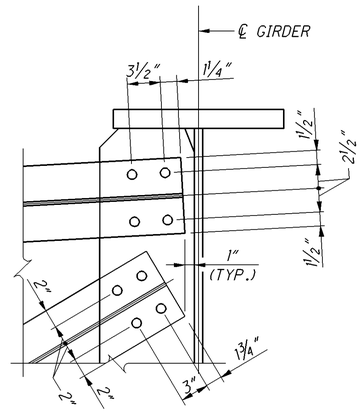
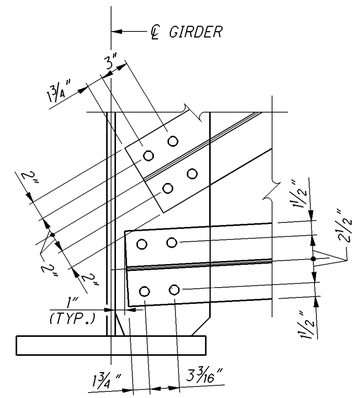


DETAIL 1



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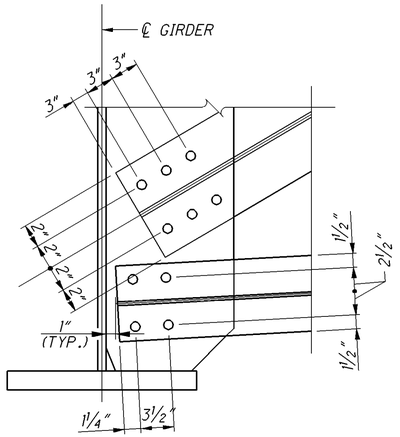

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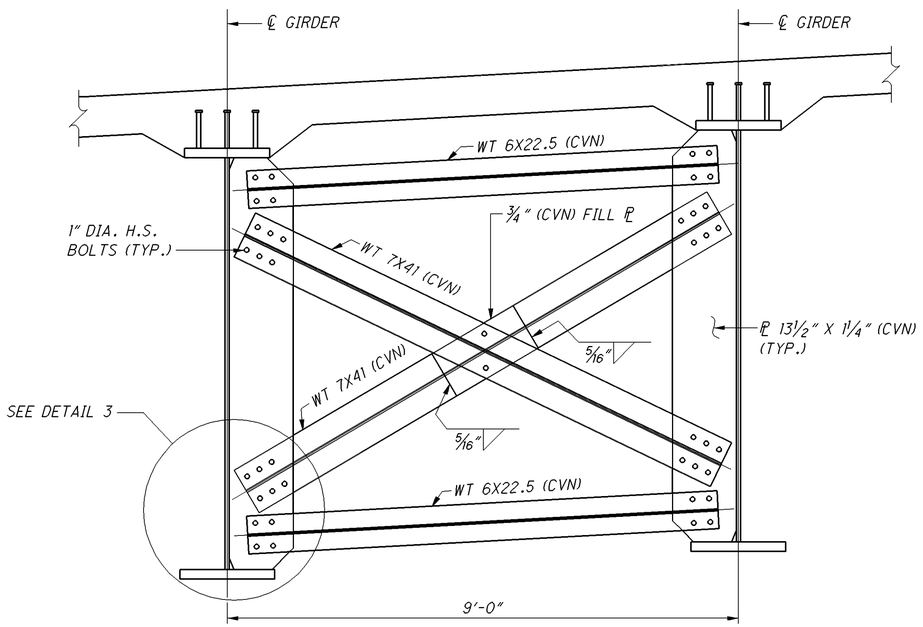

CROSSFRAME - TYPE CF-2

NOTES:

1. ALL CROSSFRAME MEMBERS INCLUDING CONNECTION STIFFENERS, FILL PLATES AND WT SHAPES SHALL BE DESIGNATED (CVN) AND MEET THE MINIMUM TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. ALL BOLTS USED IN CROSSFRAME CONNECTIONS SHALL BE 1" DIAMETER HIGH STRENGTH A325, TYPE 1 GALVANIZED. ALL HOLES IN CROSSFRAME CONNECTIONS SHALL BE 1 1/16" DIAMETER.
3. SEE SHEETS 19/47 AND 20/47 FOR LOCATIONS OF CROSSFRAME TYPES CF-1 & CF-2.

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ELA		3102858	

PLATE GIRDER DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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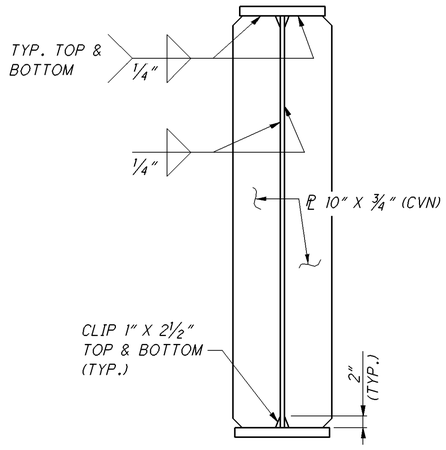
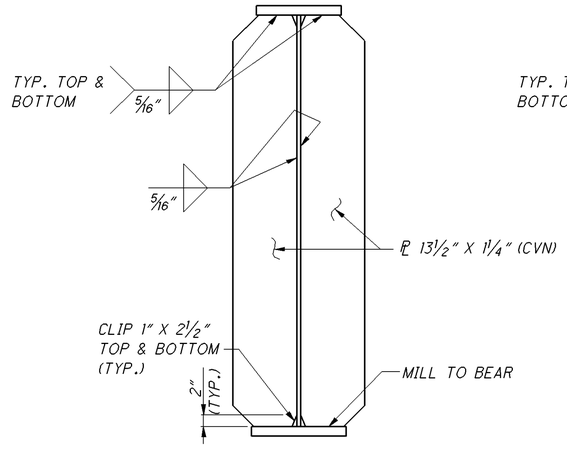
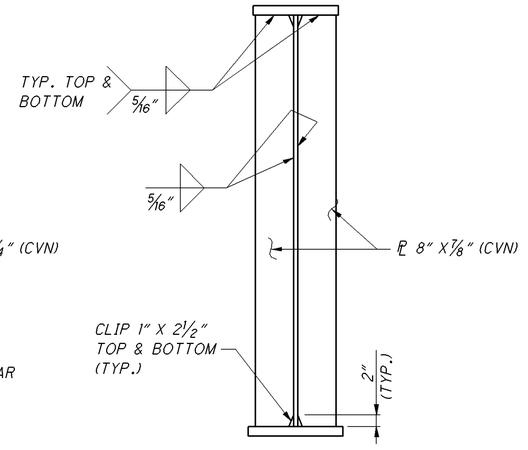


INTERMEDIATE STIFFENER CONNECTION PLATE



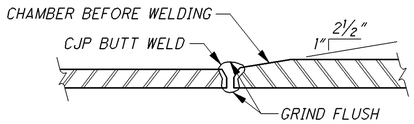
INTERIOR BEARING STIFFENER



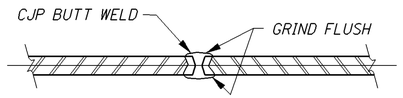
JACKING STIFFENER

STIFFENER WELD DETAIL

SHEAR CONNECTOR DETAIL



FLANGE WELD DETAIL



SHOP WEB SPLICE

NOTES:

1. ALL STIFFENER PLATES DESIGNATED (CVN) SHALL MEET THE MINIMUM TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01
2. SEE SHEET 25/47 FOR HOLES IN STIFFENERS FOR CROSSFRAME CONNECTIONS.
3. INTERMEDIATE STIFFENER CONNECTION PLATES ON FASCIA GIRDERS SHALL ONLY BE PLACED ON THE INSIDE OF THE WEB.

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED MJD | DRAWN DDE | CHECKED ELA | REVIEWED PJL | DATE 11/16/10 | REVISED | STRUCTURE FILE NUMBER 3102858

PLATE GIRDER DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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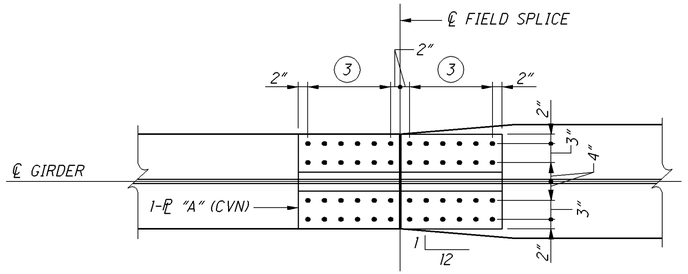
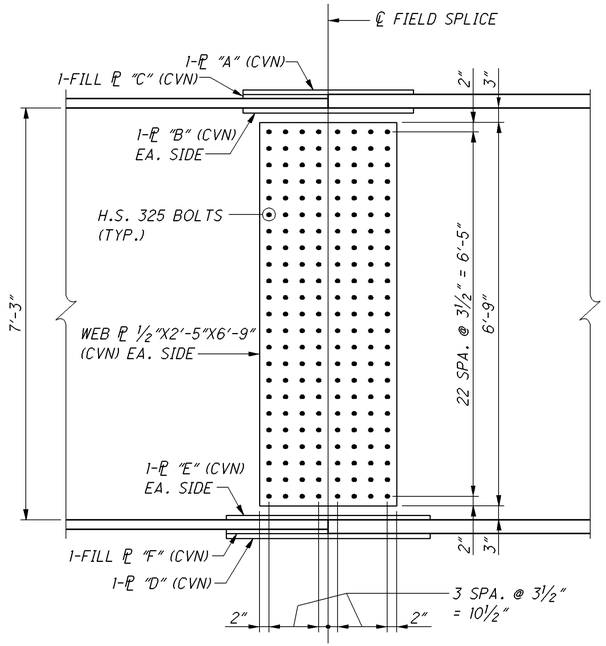
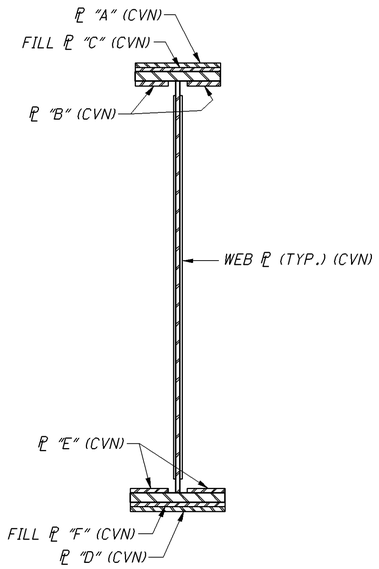


PLAN
TOP FLANGE



ELEVATION



SECTION THRU BEAM @ SPLICE

NOTES:

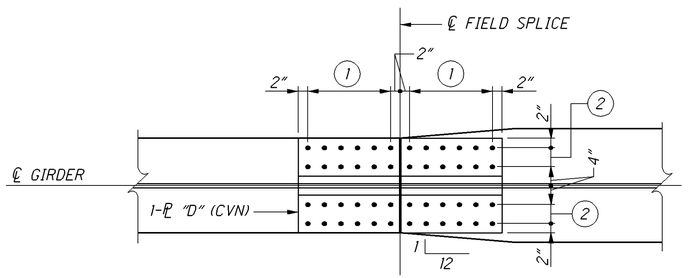
1. PLATE SIZES AND NUMBER OF ROWS OF BOLTS IN BOTTOM FLANGE SHOWN ON SHEET 28/47 .
2. BOLTS USED IN FIELD SPLICE CONNECTIONS SHALL BE 1" DIAMETER HIGH STRENGTH A325, TYPE 1 GALVANIZED. ALL HOLES SHALL BE 1 1/16" DIAMETER.
3. ALL PLATES DESIGNATED CVN SHALL MEET THE MINIMUM TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01

LEGEND:

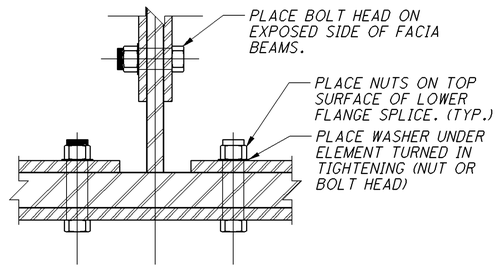
(1) NUMBER OF ROWS OF BOLTS ACROSS BOTTOM FLANGE

(2) NUMBER OF LINES OF BOLTS IN BOTTOM FLANGE

(3) NUMBER OF ROWS OF BOLTS ACROSS TOP FLANGE



PLAN
BOTTOM FLANGE



PARTIAL SECTION
(SECTION AT ℄ GIRDER SPLICE)

PLATE GIRDER DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
ELA	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

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FIELD SPLICE NO. 1

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 36"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 36"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	¾"	¼"	N/A	½"
PLATE D	24" X ½" X 50"	24" X ½" X 43"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X ½" X 50"	10" X ½" X 43"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	¼"	¼"	¼"	¼"
①	6 SPA. @ 3½"	5 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	4 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 2

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 36"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X 10½" X 36"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	¾"	¼"	N/A	½"
PLATE D	24" X ½" X 64"	24" X ½" X 43"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X ½" X 64"	10" X ½" X 43"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	¾"	½"	¼"	¼"
①	8 SPA. @ 3½"	5 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	4 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 3

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 36"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 36"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	¼"	½"	N/A	¼"
PLATE D	24" X ⅞" X 64"	24" X ½" X 43"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X ⅞" X 64"	10" X ½" X 43"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	½"	½"	¼"	½"
①	8 SPA. @ 3½"	5 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	4 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 4

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 36"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 36"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	N/A	N/A	N/A	¼"
PLATE D	24" X ½" X 57"	24" X ½" X 43"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X ½" X 57"	10" X ½" X 43"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	¼"	½"	¼"	½"
①	7 SPA. @ 3½"	5 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	4 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 5

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 36"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 36"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	½"	¼"	N/A	½"
PLATE D	24" X ½" X 57"	24" X ½" X 43"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X ½" X 57"	10" X ½" X 43"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	¾"	¼	¼"	¼"
①	7 SPA. @ 3½"	5 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	4 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 6

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 43"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 43"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	1"	¼"	N/A	½"
PLATE D	24" X ⅞" X 71"	24" X ½" X 57"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X 1 X 71"	10" X ⅞" X 57"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	1"	¾"	¼"	¼"
①	9 SPA. @ 3½"	7 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½
②	6"	6"	4"	4"
③	5 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 7

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 43"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 43"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	¼"	¼"	½"	¼"
PLATE D	24" X ⅞" X 71"	24" X ⅞" X 57"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X 1 X 71"	10" X ⅞" X 57"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	1"	¼"	½"	¼"
①	9 SPA. @ 3½"	7 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	5 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

FIELD SPLICE NO. 8

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4
PLATE A	18" X ½" X 36"	18" X ½" X 36"	18" X ½" X 29"	18" X ½" X 36"
PLATE B	7" X ½" X 36"	7" X ½" X 36"	7" X ½" X 29"	7" X ½" X 36"
PLATE C	¼	¼"	N/A	¼"
PLATE D	24" X ½" X 57"	24" X ½" X 43"	20" X ½" X 36"	20" X ½" X 43"
PLATE E	10" X ½" X 57"	10" X ½" X 43"	8" X ½" X 36"	8" X ½" X 43"
PLATE F	¾"	¾"	½"	¼"
①	7 SPA. @ 3½"	5 SPA. @ 3½"	4 SPA. @ 3½"	5 SPA. @ 3½"
②	6"	6"	4"	4"
③	4 SPA. @ 3½"	4 SPA. @ 3½"	3 SPA. @ 3½"	4 SPA. @ 3½"

DESIGN AGENCY
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QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
ELA	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

PLATE GIRDER SPLICES
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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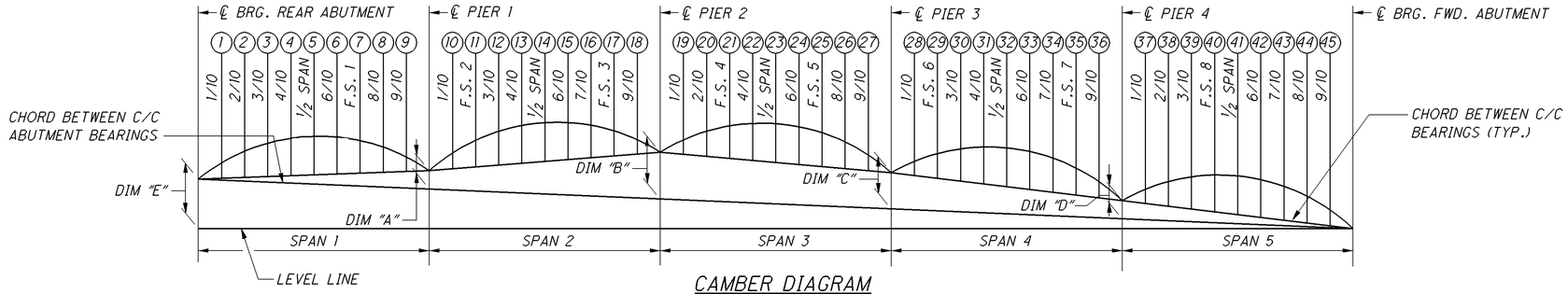

CAMBER DIAGRAM

NOTES:

1. POSITIVE CAMBER IS UPWARD.
2. GEOMETRIC CORRECTION IS A COMBINATION OF VERTICAL CURVE AND SUPERELEVATION TRANSITION CORRECTIONS.
3. GIRDER CAMBER IS CALCULATED FOR ENTIRE DECK SLAB PLACED AT THE SAME TIME.

CAMBER TABLE

	LOCATION	SPAN 1									SPAN 2									SPAN 3								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
GIRDER 4	DELFECTION DUE TO WEIGHT OF STEEL	1/4"	1/2"	9/16"	5/8"	9/16"	1/2"	5/16"	3/16"	1/16"	1/8"	3/8"	9/16"	3/4"	13/16"	3/4"	5/8"	5/16"	1/8"	-0"	0"	1/8"	1/8"	1/8"	1/8"	1/16"	-0"	-1/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1/2"	7/8"	1 1/8"	1 3/16"	1 1/8"	1 5/16"	5/8"	5/16"	1/16"	1/4"	3/4"	1 1/8"	1 1/2"	1 5/8"	1 9/16"	1 1/4"	1 1/16"	5/16"	-1/16"	0"	1/8"	3/16"	3/16"	1/8"	1/16"	-1/16"	-1/8"
	DEFLECTION DUE TO HEAT CURVING	1/4"	1/2"	5/8"	1 1/16"	5/8"	9/16"	3/8"	3/16"	1/16"	1/16"	5/16"	1/2"	5/8"	3/4"	3/4"	9/16"	5/16"	1/8"	-0"	0"	1/8"	1/8"	1/8"	1/8"	1/16"	-0"	-1/16"
	GEOMETRIC CORRECTION	-1 5/16"	-1 5/16"	-1 3/16"	-1"	-1 3/16"	-1 1/16"	-1/2"	-5/16"	-3/16"	5 9/16"	11 9/16"	14 1 1/16"	17 3/16"	18 1/8"	17 9/16"	15 7/16"	10 1/4"	6 1 1/16"	4 5/8"	8 5/16"	11 1/4"	12 7/16"	13"	12 7/16"	11 3/4"	8 5/16"	4 1 1/16"
	REQUIRED SHOP CAMBER	1/16"	9/16"	1 1/8"	1 1/2"	1 1/2"	1 1/4"	1 3/16"	3/8"	0"	6"	12 15/16"	16 7/8"	20 1/16"	21 5/16"	20 5/8"	17 15/16"	11 9/16"	7 5/16"	4 9/16"	8 3/8"	11 9/16"	12 15/16"	13 1/2"	12 7/8"	12 1/16"	8 3/16"	4 1/2"
GIRDER 3	DELFECTION DUE TO WEIGHT OF STEEL	1/4"	1/2"	5/8"	5/8"	9/16"	7/16"	1/4"	1/8"	-0"	3/16"	9/16"	13/16"	1 1/16"	1 3/16"	1 1/8"	15/16"	1/2"	1/4"	-1/8"	-1/8"	-1/8"	-1/8"	-3/16"	-3/16"	-3/16"	-1/4"	-3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	9/16"	1 1/16"	1 1/4"	1 5/16"	1 3/16"	1 5/16"	5/8"	1/4"	1/16"	5/16"	1 5/16"	1 3/8"	1 13/16"	2 1/16"	2"	1 5/8"	1/8"	1/2"	-3/16"	-3/16"	-1/8"	-1/8"	-1/8"	-3/16"	-1/4"	-5/16"	-1/4"
	DEFLECTION DUE TO HEAT CURVING	5/16"	1/2"	5/8"	1 1/16"	5/8"	1/2"	3/8"	3/16"	1/16"	1/16"	5/16"	1/2"	1 1/16"	3/4"	3/4"	5/8"	3/8"	3/16"	-1/8"	-1/8"	-1/16"	-1/16"	-1/16"	-1/16"	-1/8"	-3/16"	-1/8"
	GEOMETRIC CORRECTION	-1 5/16"	-1 5/16"	-1 3/16"	-1"	-1 3/16"	-1 1/16"	-1/2"	-5/16"	-3/16"	5 9/16"	11 9/16"	14 1 1/16"	17 3/16"	18 1/8"	17 9/16"	15 7/16"	10 1/4"	6 1 1/16"	4 5/8"	8 5/16"	11 1/4"	12 7/16"	13"	12 7/16"	11 3/4"	8 5/16"	4 1 1/16"
	REQUIRED SHOP CAMBER	3/16"	3/4"	1 5/16"	1 5/8"	1 9/16"	1 1/4"	1 1/16"	1/4"	-1/16"	6 1/8"	13 5/16"	17 5/16"	20 1 1/16"	22 1/16"	21 3/8"	18 5/8"	12"	7 5/8"	4 1/4"	7 1/8"	10 7/8"	12 3/16"	12 5/8"	12"	11 3/16"	7 9/16"	4 1/8"
GIRDER 2	DELFECTION DUE TO WEIGHT OF STEEL	5/16"	9/16"	5/8"	5/8"	1/2"	5/16"	1/8"	0"	-1/16"	1/4"	3/4"	1 1/16"	1 3/8"	1 9/16"	1 1/2"	1 1/4"	1 1/16"	3/8"	-3/16"	-5/16"	-1/16"	-1/16"	-1/2"	-1/2"	-1/2"	-1/16"	-5/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	5/8"	1 3/16"	1 3/8"	1 7/16"	1 1/4"	1 5/16"	9/16"	1/4"	0"	3/8"	1 1/16"	1 9/16"	2 1/8"	2 7/16"	2 3/8"	2"	1 1/8"	5/8"	-1/4"	-3/8"	-1/16"	-1/16"	-1/2"	-9/16"	-9/16"	-9/16"	-3/8"
	DEFLECTION DUE TO HEAT CURVING	1/4"	1/2"	5/8"	5/8"	5/8"	1/2"	5/16"	1/8"	1/16"	1/16"	1/4"	7/16"	5/8"	1 1/16"	1 1/16"	5/8"	5/16"	3/16"	-1/16"	-1/8"	-1/8"	-1/8"	-1/8"	-1/8"	-3/16"	-1/8"	-1/8"
	GEOMETRIC CORRECTION	-1 5/16"	-1 5/16"	-1 3/16"	-1"	-1 3/16"	-1 1/16"	-1/2"	-5/16"	-3/16"	5 9/16"	11 9/16"	14 1 1/16"	17 3/16"	18 1/8"	17 9/16"	15 7/16"	10 1/4"	6 1 1/16"	4 5/8"	8 5/16"	11 1/4"	12 7/16"	13"	12 7/16"	11 3/4"	8 5/16"	4 1 1/16"
	REQUIRED SHOP CAMBER	1/4"	1 5/16"	1 1/16"	1 1 1/16"	1 1/2"	1 1/8"	1/2"	1/16"	-3/16"	6 1/4"	13 5/8"	17 3/4"	21 1/4"	22 3/4"	22 1/8"	19 1/4"	12 3/8"	7 7/8"	4 1/8"	7 1/16"	10 1/4"	11 7/16"	11 7/8"	11 1/4"	10 1/2"	7 1/8"	3 15/16"
GIRDER 1	DELFECTION DUE TO WEIGHT OF STEEL	5/16"	9/16"	5/8"	5/8"	7/16"	1/4"	0"	-1/8"	-1/8"	5/16"	7/8"	1 5/16"	1 1 1/16"	1 15/16"	1 1/8"	1 5/8"	1 5/16"	9/16"	-5/16"	-9/16"	-1 1/16"	-3/4"	-1 3/16"	-7/8"	-1 3/16"	-1 1/16"	-7/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	3/4"	1 5/16"	1 9/16"	1 9/16"	1 5/16"	1 5/16"	7/16"	1/8"	-1/16"	3/8"	1 3/16"	1 1 3/16"	2 7/16"	2 1 3/16"	2 3/4"	2 5/16"	1 5/16"	3/4"	-3/8"	-5/8"	-3/4"	-1 3/16"	-7/8"	-1 5/16"	-1 5/16"	-1 3/16"	-1/2"
	DEFLECTION DUE TO HEAT CURVING	5/16"	1/2"	5/8"	5/8"	9/16"	7/16"	1/4"	1/8"	0"	1/16"	1/4"	7/16"	9/16"	1 1/16"	1 1/16"	5/8"	3/8"	3/16"	-1/16"	-1/8"	-3/16"	-3/16"	-3/16"	-1/4"	-1/4"	-3/16"	-1/8"
	GEOMETRIC CORRECTION	-1 5/16"	-1 5/16"	-1 3/16"	-1"	-1 3/16"	-1 1/16"	-1/2"	-5/16"	-3/16"	5 9/16"	11 9/16"	14 1 1/16"	17 3/16"	18 1/8"	17 9/16"	15 7/16"	10 1/4"	6 1 1/16"	4 5/8"	8 5/16"	11 1/4"	12 7/16"	13"	12 7/16"	11 3/4"	8 5/16"	4 1 1/16"
	REQUIRED SHOP CAMBER	3/8"	1 1/8"	1 5/8"	1 1 3/16"	1 1/2"	1 5/16"	1/4"	-3/16"	-5/16"	6 3/8"	13 1 5/16"	18 1/4"	21 1 5/16"	23 1/2"	22 1 5/16"	20"	12 7/8"	8 3/16"	3 1/8"	7"	9 5/8"	10 1 1/16"	11 1/16"	10 7/16"	9 3/4"	6 5/8"	3 5/8"

CAMBER TABLE

	LOCATION	SPAN 4									SPAN 5								
		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
GIRDER 4	DELFECTION DUE TO WEIGHT OF STEEL	1/4"	5/8"	15/16"	1 1/8"	1 3/16"	1 1/16"	3/4"	1/2"	1/8"	1/16"	3/16"	3/8"	7/16"	5/8"	1 1/16"	5/8"	1/2"	1/4"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1/2"	1 5/16"	1 15/16"	2 3/8"	2 1/2"	2 1/4"	1 1 1/16"	1 3/16"	5/16"	1/16"	1/4"	5/8"	1 3/16"	1 3/16"	1 5/16"	1 3/16"	1 5/16"	1/2"
	DEFLECTION DUE TO HEAT CURVING	3/16"	1/2"	3/4"	15/16"	1"	7/8"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
	GEOMETRIC CORRECTION	-1/8"	-3/8"	-5/8"	-3/4"	-3/4"	-3/4"	-3/4"	-3/4"	-1 1/16"	-1 9/16"	-2 3/4"	-3 5/8"	-3 1 5/16"	-4 5/16"	-4 1 1/16"	-3 9/16"	-2 3/4"	-1 9/16"
	REQUIRED SHOP CAMBER	1 3/16"	2"	2 15/16"	3 1 1/16"	3 1/8"	3 1/16"	1 1 1/16"	1 5/16"	-3/16"	-1 1/16"	-2 5/16"	-2 5/8"	-2 1 1/16"	-2 7/16"	-2 1/8"	-1 3/4"	-1 5/16"	-3/4"
GIRDER 3	DELFECTION DUE TO WEIGHT OF STEEL	7/16"	1"	1 3/8"	1 1 1/16"	1 1 3/16"	1 5/8"	1 1/4"	7/8"	5/16"	-1/16"	0"	1/8"	1/4"	7/16"	1/2"	7/16"	3/8"	3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1 1/16"	1 1 1/16"	2 1/16"	2 1 5/16"	3 1/8"	2 1 3/16"	2 1/8"	1 1/2"	1/2"	-1/16"	1/8"	3/8"	1/2"	7/8"	1"	1"	3/4"	7/16"
	DEFLECTION DUE TO HEAT CURVING	1/4"	9/16"	13/16"	1"	1"	15/16"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
	GEOMETRIC CORRECTION	1/4"	5/16"	3/8"	5/16"	1/8"	-1/8"	-5/16"	-7/16"	-9/16"	-1 9/16"	-2 3/4"	-3 5/8"	-3 1 5/16"	-4 5/16"	-4 1 1/16"	-3 9/16"	-2 3/4"	-1 9/16"
	REQUIRED SHOP CAMBER	1 9/16"	3 1/2"	5"	5 15/16"	6"	5 1/4"	3 1/16"	1 15/16"	3/16"	-1 5/8"	-2 5/8"	-3 1/16"	-3 3/16"	-3"	-2 5/8"	-2 1/8"	-1 9/16"	-7/8"
GIRDER 2	DELFECTION DUE TO WEIGHT OF STEEL	9/16"	1 5/16"	1 15/16"	2 5/16"	2 3/8"	2 3/16"	1 1 1/16"	1 1/4"	7/16"	-1/8"	-1/8"	-1/16"	-0"	3/16"	1/4"	1/4"	1/4"	1/8"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1/8"	2 1/16"	2 15/16"	3 9/16"	3 1 1/16"	3 3/8"	2 5/8"	1 7/8"	5/8"	-3/16"	-1/8"	1/16"	1/4"	9/16"	3/4"	3/4"	5/8"	5/16"
	DEFLECTION DUE TO HEAT CURVING	1/4"	1/2"	3/4"	15/16"	1"	7/8"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
	GEOMETRIC CORRECTION	9/16"	1 1/16"	1 7/16"	1 5/16"	1 5/16"	9/16"	3/16"	-1/8"	-1/2"	-1 9/16"	-2 3/4"	-3 5/8"	-3 1 5/16"	-4 5/16"	-4 1 1/16"	-3 9/16"	-2 3/4"	-1 9/16"
	REQUIRED SHOP CAMBER	2 1/4"	4 15/16"	7"	8 1/8"	8"	6 15/16"	4 1/2"	3"	5/8"	-1 13/16"	-3"	-3 9/16"	-3 1 1/16"	-3 9/16"	-3 1/8"	-2 9/16"	-1 7/8"	-1 1/16"
GIRDER 1	DELFECTION DUE TO WEIGHT OF STEEL	3/4"	1 3/4"	2 7/16"	2 15/16"	3 1/16"	2 3/4"	2 3/16"	1 9/16"	9/16"	-1/4"	-5/16"	-5/16"	-1/4"	-1/8"	0"	1/16"	1/8"	1/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	2 9/16"	2 1/16"	3 1/16"	4 3/16"	4 3/8"	3 15/16"	3 1/16"	2 1/4"	1 3/16"	-1/4"	-5/16"	-3/16"	-1/16"	1/4"	7/16"	1/2"	7/16"	1/4"
	DEFLECTION DUE TO HEAT CURVING	1/4"	9/16"	3/4"	15/16"	15/16"	7/8"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
	GEOMETRIC CORRECTION	3/4"	1 1/16"	2"	1 1/8"	1 1/16"	15/16"	7/16"	1/16"	-1/16"	-1 9/16"	-2 3/4"	-3 5/8"	-3 1 5/16"	-4 5/16"	-4 1/16"	-3 9/16"	-2 3/4"	-1 9/16"
	REQUIRED SHOP CAMBER	4 5/16"	6 1/8"	8 5/8"	9 15/16"	9 3/4"	8 1/2"	5 1 1/16"	3 1/8"	15/16"	-2 1/16"	-3 3/8"	-4 1/8"	-4 1/4"	-4 1/8"	-3 1 1/16"	-3"	-2 3/16"	-1 3/16"

BLOCKING

GIRDER	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"
1	10'-4 1/8"	18'-8"	16'-1"	5'-4 5/8"	32'-7 1/2"
2	10'-3 1/2"	18'-6 3/4"	15'-11 1/4"	5'-4 3/8"	32'-5 5/8"
3	10'-2 3/4"	18'-4 7/8"	15'-8 1/2"	5'-4 1/4"	32'-2 1/8"
4	10'-1 7/8"	18'-3"	15'-5 3/4"	5'-4 1/4"	31'-10 3/4"

SPAN LENGTH

	SPAN 1	SPAN 2	SPAN 3	SPAN 4	SPAN 5
GIRDER 4	153'-8 5/8"	190'-4 13/16"	157'-1 7/16"	214'-9 1/2"	154'-10 3/16"
℄ EB RAMP	154'-11 7/8"	191'-11 1 1/16"	158'-5"	216'-0 15/16"	155'-1 5/16"
GIRDER 3	156'-3 1/8"	193'-6 1/2"	159'-8 1/2"	219'-11 1/4"	155'-10 1 1/16"
GIRDER 2	158'-9 1/2"	196'-8 1/4"	162'-3 5/8"	219'-11 1/4"	155'-10 1 1/16"
GIRDER 1	161'-4"	199'-9 13/16"	164'-10 13/16"	222'-6 1/4"	155'-5 1/16"

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJD	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ELA		3102858	

GIRDER CAMBER DIAGRAM
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

505
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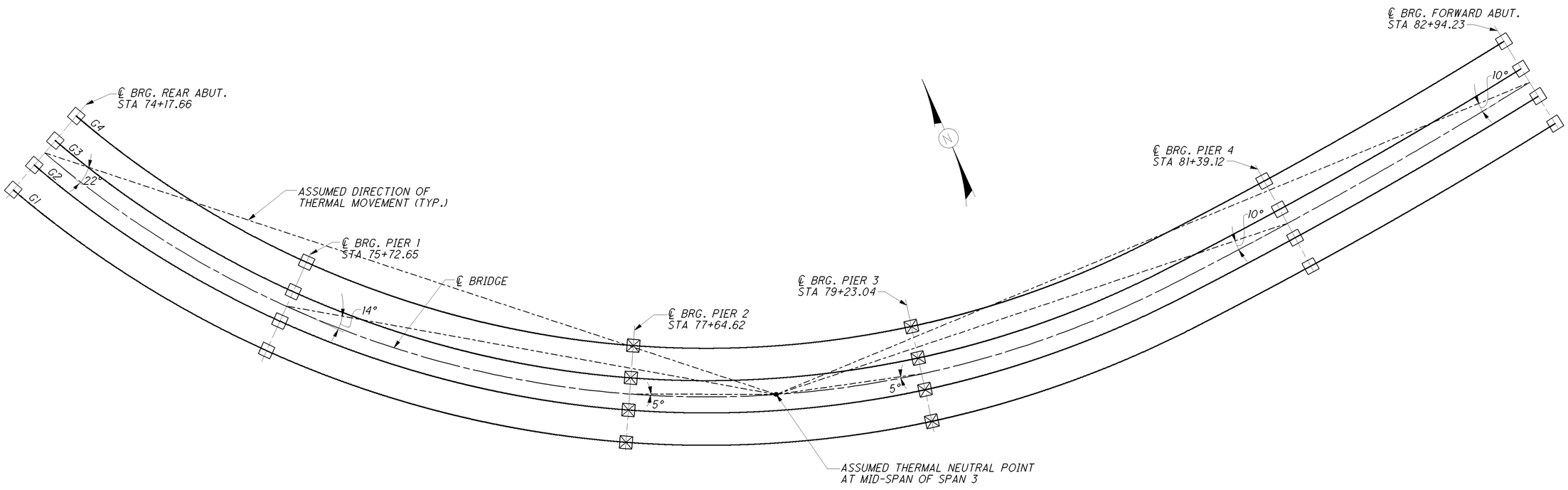

BEARING PLAN

NOTES:

EACH BEARING ASSEMBLY SHALL BE SHOP MARKED WITH THE FOLLOWING INFORMATION: TOP, FORWARD STATION DIRECTION, LOCATION (REAR ABUTMENT, PIER NUMBER, FORWARD ABUTMENT) AND BEAM LINE NUMBER.

PIER ELASTOMERIC BEARINGS:
THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER, THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.5 (METHOD B) OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES.

ABUTMENT ELASTOMERIC BEARINGS:
THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER, THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.5 (METHOD B) OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES.

BEARING REPOSITIONING:
IF BEAMS ARE PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60°F ± 10°F, THE BEAMS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ± 10°F.

WELDING:
CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

LOAD PLATE:
THE STEEL LOAD PLATE AND BEVELED SOLE PLATE SHALL BE THE SAME MATERIAL AS THE ATTACHED STRUCTURAL STEEL AND SHALL BE SIMILARLY CLEANED AND COATED. SURFACE PREPARATION AND PRIMING SHALL BE DONE IN THE SHOP AND BE INCLUDED IN THE PRICE BID FOR BEARINGS. FIELD COATS SHALL BE INCLUDED IN THE PRICE BID FOR PAINTING MAIN STRUCTURAL STEEL.

THE STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS AND LOAD PLATES SHALL BE INCLUDED IN ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE, AS PER PLAN FOR PAYMENT.

LEGEND

☒ FIXED BEARINGS

☐ EXPANSION BEARINGS

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QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

BEARING DETAILS - 1 OF 3
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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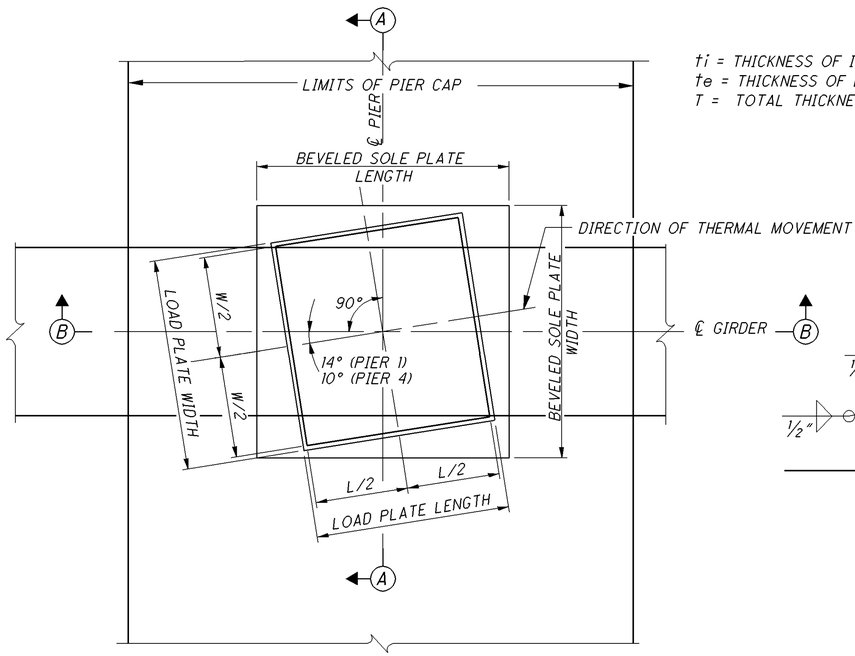
LAMINATED ELASTOMERIC BEARINGS DATA

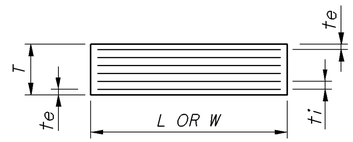
LOCATION	BEARING TYPE	BEARING DIMENSIONS						STEEL PLATES (LENGTH×WIDTH×THICKNESS)		BEVEL DIMENSIONS			SERVICE REACTION		MAXIMUM REACTION
		L	W	ti	te	T	N	LOAD PLATE	BEVELED SOLE PLATE	A	B	C	DL	LL	
Pier 1	EXPANSION	22.0"	24.0"	13/16"	1/2"	8.625"	9	1'-11"x2'-1"x2"	2'-6"x2'-6"x2 1/2"	2"	2 1/2"	3"	569.2k	169.5k	739k
Pier 2	FIXED	22.0"	24.0"	13/16"	1/2"	8.625"	9	1'-11"x2'-1"x2"	2'-11"x2'-7"x2 1/2"	3"	2 1/2"	2"	430.8k	170.0k	601k
Pier 3	FIXED	22.0"	24.0"	13/16"	1/2"	8.625"	9	1'-11"x2'-1"x2"	2'-11"x2'-7"x2 1/2"	3 1/8"	2 1/2"	1 1/8"	559.0k	180.2k	740k
Pier 4	EXPANSION	22.0"	24.0"	13/16"	1/2"	8.625"	9	1'-11"x2'-1"x2"	2'-6"x2'-6"x2 1/2"	3 3/4"	2 1/2"	1 1/4"	567.0k	165.9k	733k



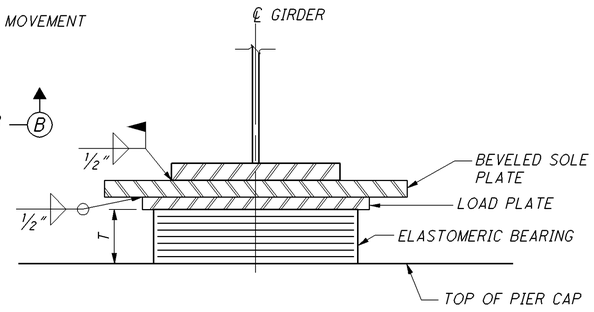
BEARING PLAN
PIERS 1 & 4 - EXPANSION BEARINGS

ti = THICKNESS OF INTERNAL LAMINATE
te = THICKNESS OF EXTERNAL LAMINATE
T = TOTAL THICKNESS OF ELASTOMERIC BEARING

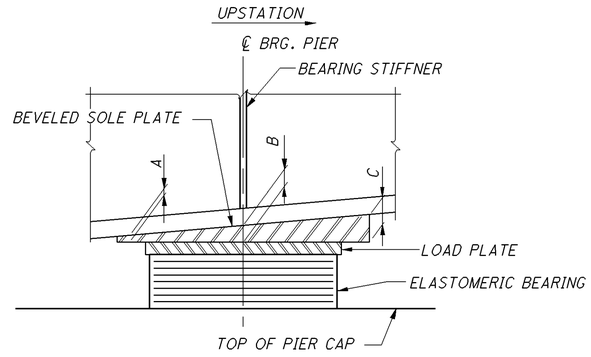
N = NUMBER OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.125"
DUROMETER OF ELASTOMER = 60 DUROMETER
BEVELED SOLE PLATE THICKNESS IS MEASURED AT ℄ OF PIER



ELASTOMERIC BEARINGS



SECTION A-A



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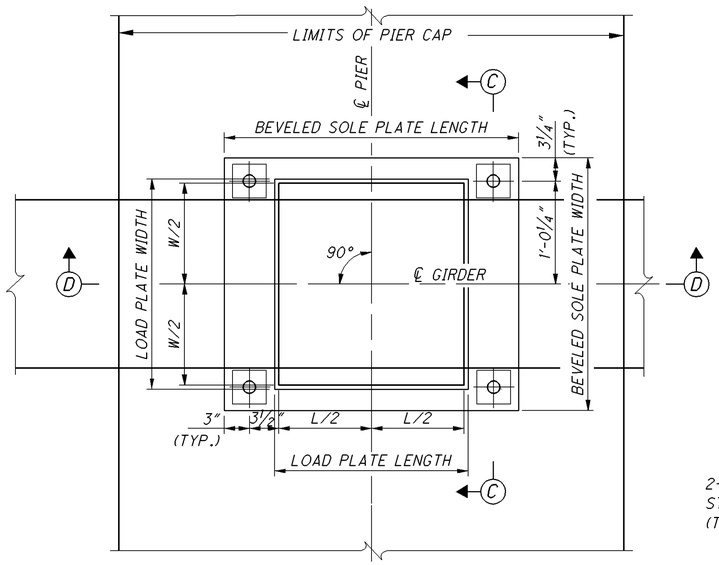
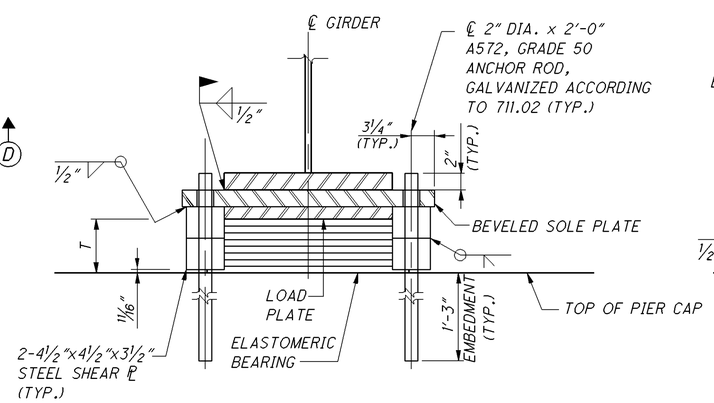
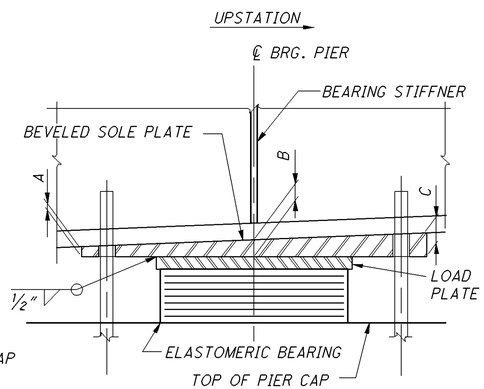


BEARING PLAN
PIERS 2 & 3 - FIXED BEARINGS



SECTION C-C



SECTION D-D

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

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ELA	DDE	PJL	11/16/10
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MJD		3102858	

BEARING DETAILS - 2 OF 3
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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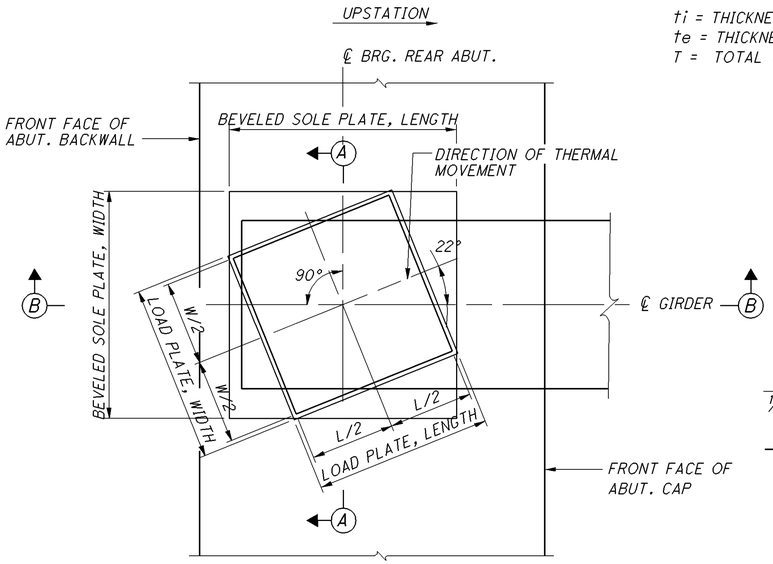
LAMINATED ELASTOMERIC BEARINGS DATA

LOCATION	BEARING TYPE	BEARING DIMENSIONS						STEEL PLATES (LENGTHxWIDTHxTHICKNESS)		BEVEL DIMENSIONS			SERVICE REACTION		MAXIMUM REACTION
		L	W	ti	te	T	N	LOAD PLATE	BEVELED SOLE PLATE	A	B	C	DL	LL	
REAR ABUT.	EXPANSION	20.0"	20.0"	3/4"	1/2"	14.250"	16	1'-9"x1'-9"x2"	2'-3"x2'-3"x2 1/2"	2 1/4"	2 1/2"	2 3/4"	140.2k	80.6k	221k
FORWARD ABUT.	EXPANSION	16.0"	20.0"	3/4"	1/2"	11.625"	13	1'-5"x1'-9"x2"	1'-8"x2'-3"x2 1/2"	3 1/8"	2 1/2"	1 1/8"	111.4k	72.6k	184k

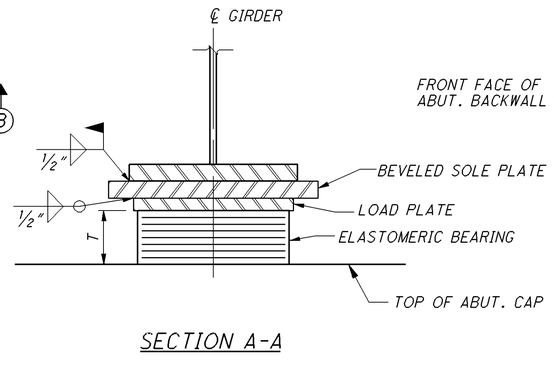
ti = THICKNESS OF INTERNAL LAMINATE
te = THICKNESS OF EXTERNAL LAMINATE
T = TOTAL THICKNESS OF ELASTOMERIC BEARING

N = NUMBER OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.125"
DUROMETER OF ELASTOMER = 50 DUROMETER
BEVELED SOLE PLATE THICKNESS IS MEASURED AT ℄ OF ABUTMENT

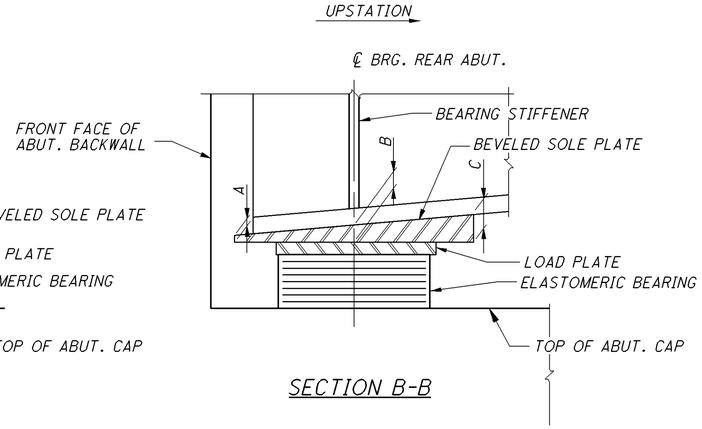
ELASTOMERIC BEARINGS



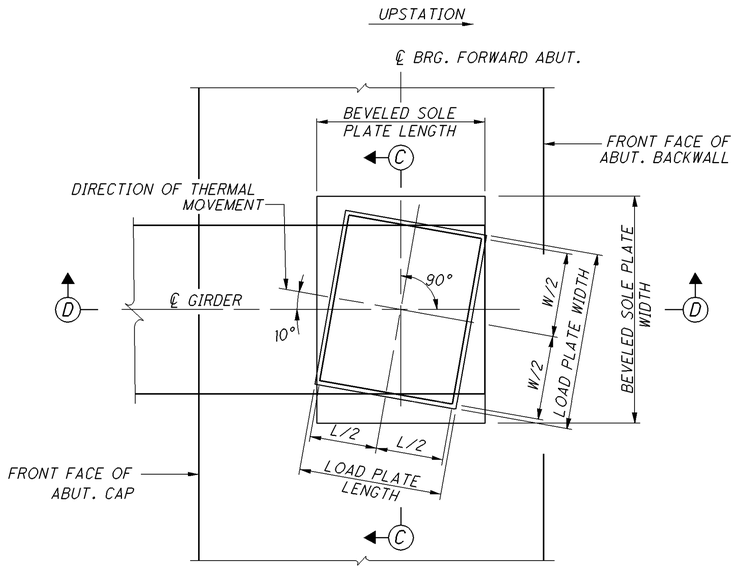
BEARING PLAN
REAR ABUTMENT - EXPANSION BEARING



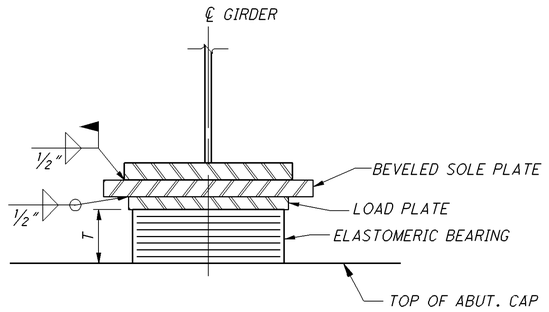
SECTION A-A



SECTION B-B



BEARING PLAN
FORWARD ABUTMENT - EXPANSION BEARING



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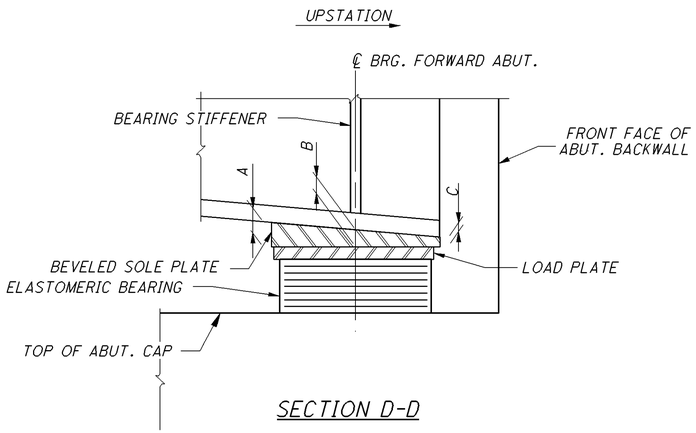

SECTION D-D

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED ELA | DRAWN DDE | REVIEWED PJL | DATE 11/16/10
CHECKED MJD | REVISED | STRUCTURE FILE NUMBER 3102858

BEARING DETAILS - 3 OF 3
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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NOTES:

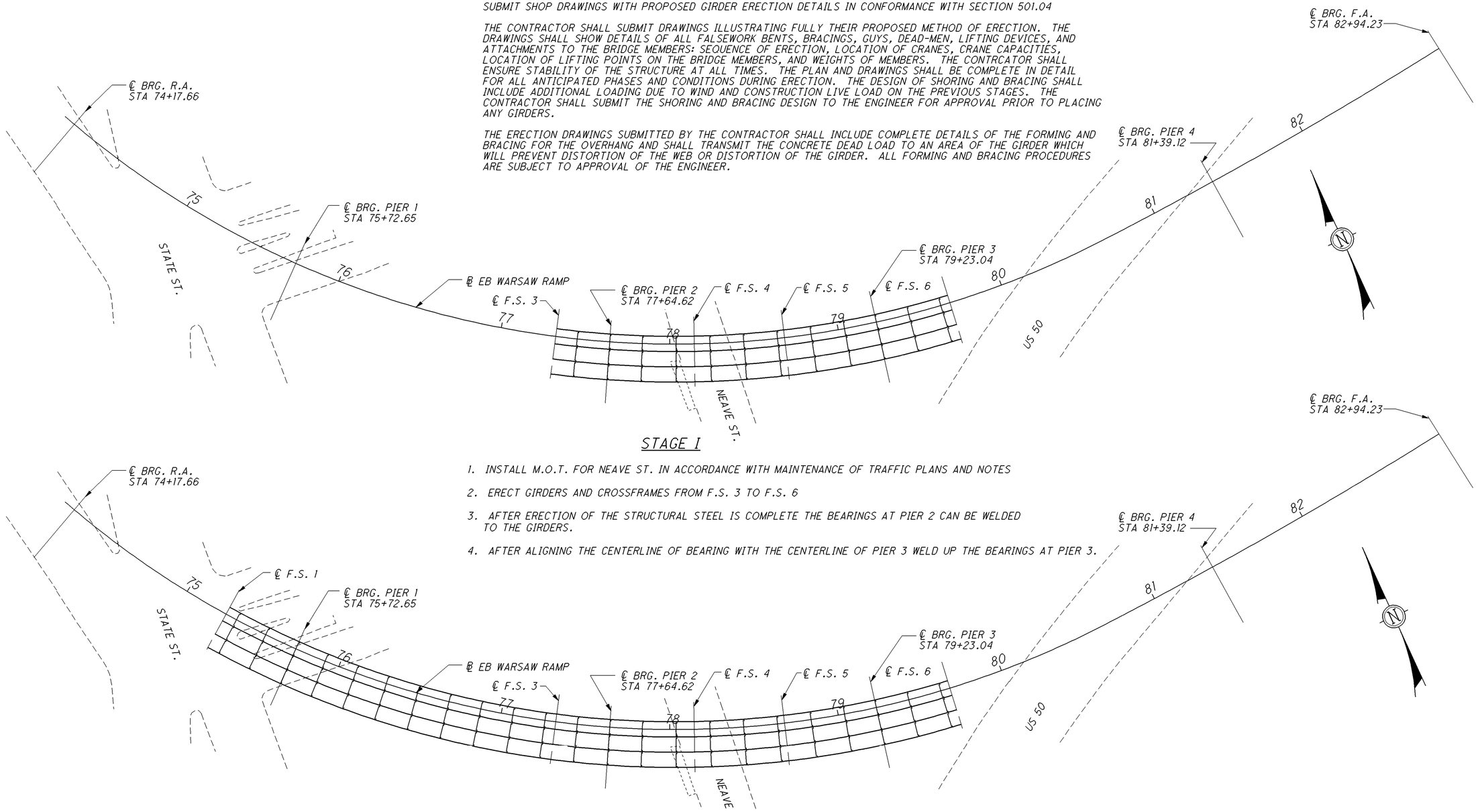
THE PROPOSED GIRDER ERECTION SEQUENCE IS PRESENTED AS ONE METHOD THAT THE CONTRACTOR MAY USE TO ERECT THE GIRDERS. THE PROPOSED SCHEME UTILIZES LIFTING CRANES AND HOLDING CRANES TO FACILITATE THE ERECTION. ALTERNATE ERECTION SCHEMES MAY BE DEVELOPED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW.

ACTUAL CRANE LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR.

SUBMIT SHOP DRAWINGS WITH PROPOSED GIRDER ERECTION DETAILS IN CONFORMANCE WITH SECTION 501.04

THE CONTRACTOR SHALL SUBMIT DRAWINGS ILLUSTRATING FULLY THEIR PROPOSED METHOD OF ERECTION. THE DRAWINGS SHALL SHOW DETAILS OF ALL FALSEWORK BENTS, BRACINGS, GUYS, DEAD-MEN, LIFTING DEVICES, AND ATTACHMENTS TO THE BRIDGE MEMBERS: SEQUENCE OF ERECTION, LOCATION OF CRANES, CRANE CAPACITIES, LOCATION OF LIFTING POINTS ON THE BRIDGE MEMBERS, AND WEIGHTS OF MEMBERS. THE CONTRCATOR SHALL ENSURE STABILITY OF THE STRUCTURE AT ALL TIMES. THE PLAN AND DRAWINGS SHALL BE COMPLETE IN DETAIL FOR ALL ANTICIPATED PHASES AND CONDITIONS DURING ERECTION. THE DESIGN OF SHORING AND BRACING SHALL INCLUDE ADDITIONAL LOADING DUE TO WIND AND CONSTRUCTION LIVE LOAD ON THE PREVIOUS STAGES. THE CONTRACTOR SHALL SUBMIT THE SHORING AND BRACING DESIGN TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING ANY GIRDERS.

THE ERECTION DRAWINGS SUBMITTED BY THE CONTRACTOR SHALL INCLUDE COMPLETE DETAILS OF THE FORMING AND BRACING FOR THE OVERHANG AND SHALL TRANSMIT THE CONCRETE DEAD LOAD TO AN AREA OF THE GIRDER WHICH WILL PREVENT DISTORTION OF THE WEB OR DISTORTION OF THE GIRDER. ALL FORMING AND BRACING PROCEDURES ARE SUBJECT TO APPROVAL OF THE ENGINEER.



STAGE I

1. INSTALL M.O.T. FOR NEAVE ST. IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLANS AND NOTES
2. ERECT GIRDERS AND CROSSFRAMES FROM F.S. 3 TO F.S. 6
3. AFTER ERECTION OF THE STRUCTURAL STEEL IS COMPLETE THE BEARINGS AT PIER 2 CAN BE WELDED TO THE GIRDERS.
4. AFTER ALIGNING THE CENTERLINE OF BEARING WITH THE CENTERLINE OF PIER 3 WELD UP THE BEARINGS AT PIER 3.

STAGE II

1. INSTALL M.O.T. FOR STATE ST. IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLANS AND NOTES
2. ERECT GIRDERS AND CROSSFRAMES FROM F.S. 3 TO F.S. 1
3. AFTER ERECTION OF THE STRUCTURAL STEEL IS COMPLETE THE BEARINGS AT PIER 1 CAN BE WELDED TO THE GIRDERS.

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
MJB	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ELA		3102858	

SUGGESTED GIRDER ERECTION SEQUENCE
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

33 / 47

509
657

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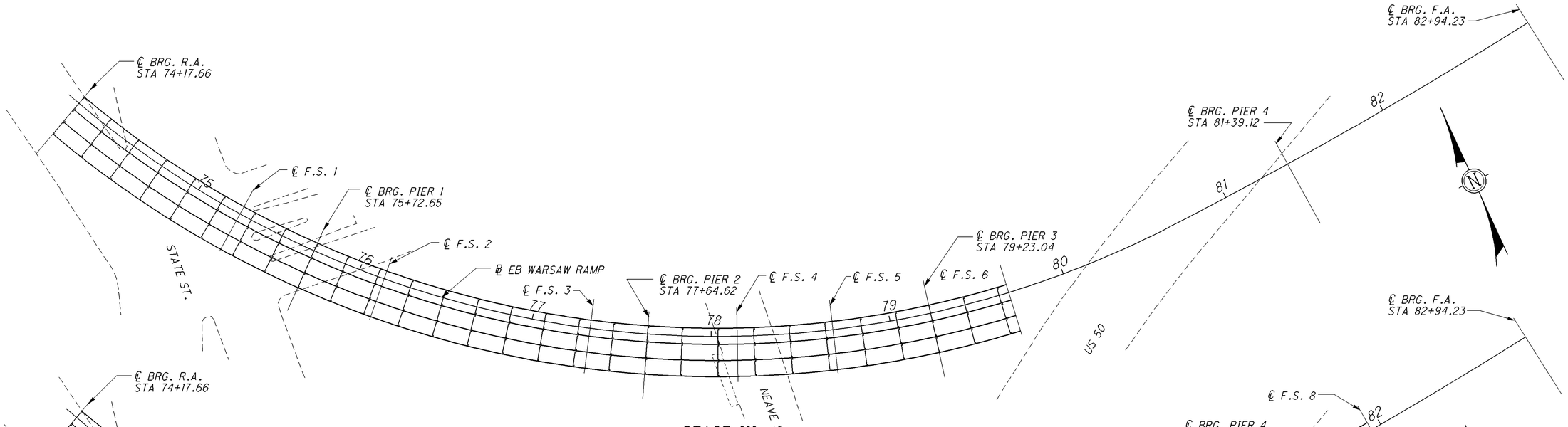

STAGE III

1. INSTALL M.O.T. FOR STATE ST. IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLANS AND NOTES
2. ERECT GIRDERS AND CROSSFRAMES FROM F.S. 1 TO REAR ABUT.
3. AFTER ERECTION OF THE STRUCTURAL STEEL IS COMPLETE THE BEARINGS AT THE REAR ABUTMENT CAN BE WELDED TO THE GIRDERS.

STAGE IV

1. INSTALL M.O.T. FOR US 50 IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLANS AND NOTES
2. ERECT GIRDERS AND CROSSFRAMES FROM F.S. 6 TO F.S. 8
3. AFTER ERECTION OF THE STRUCTURAL STEEL IS COMPLETE THE BEARINGS AT PIER 4 CAN BE WELDED TO THE GIRDERS.

STAGE V

1. INSTALL M.O.T. FOR US 50 IN ACCORDANCE WITH MAINTENANCE OF TRAFFIC PLANS AND NOTES
2. ERECT GIRDERS AND CROSSFRAMES FROM F.S. 8 TO FORWARD ABUTMENT
3. AFTER ERECTION OF THE STRUCTURAL STEEL IS COMPLETE THE BEARINGS AT THE FORWARD ABUTMENT CAN BE WELDED TO THE GIRDERS.

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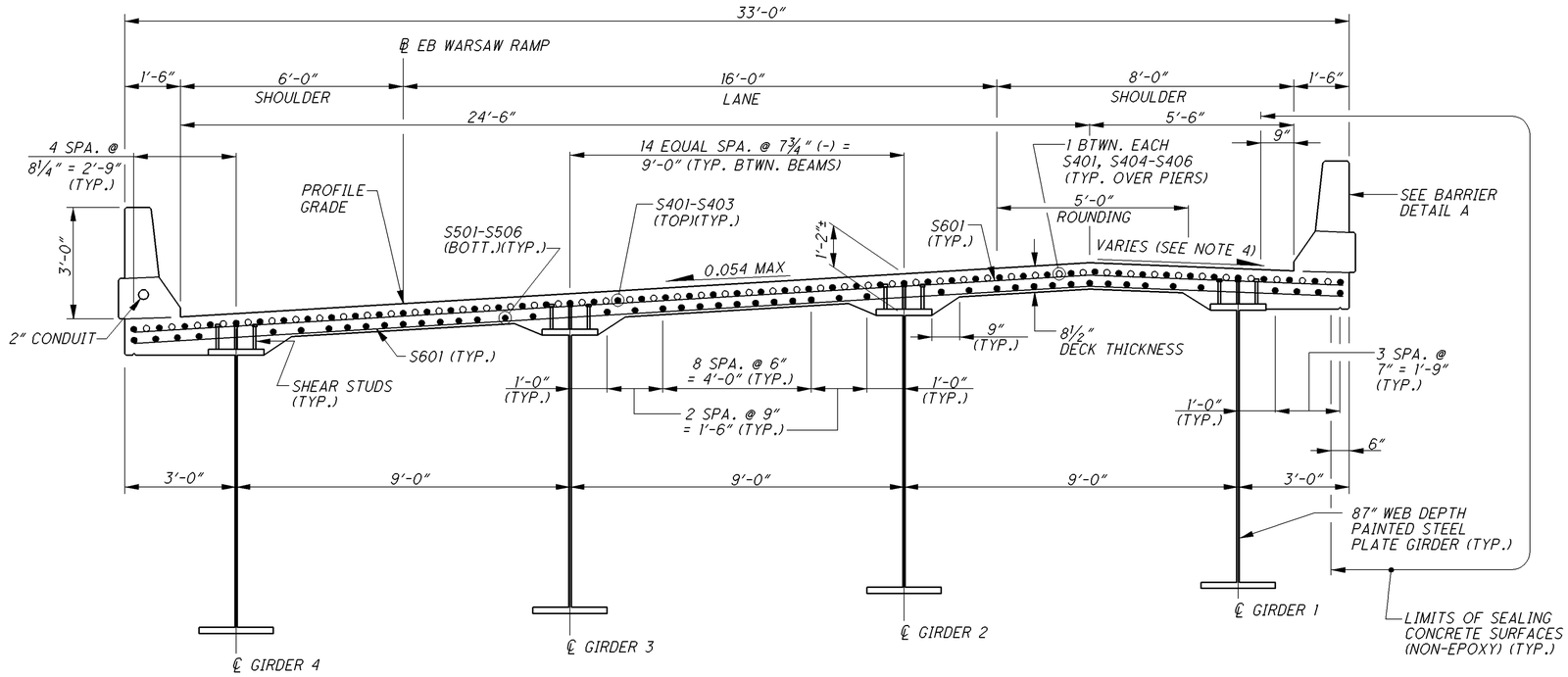
DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

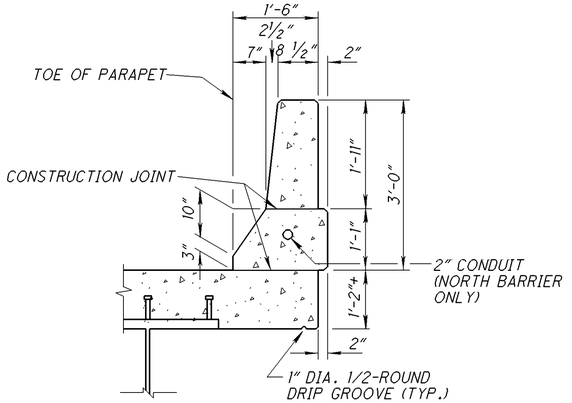
DESIGNED	DRAWN	REVIEWED	DATE
MJB	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ELA		3102858	

SUGGESTED GIRDER ERECTION SEQUENCE

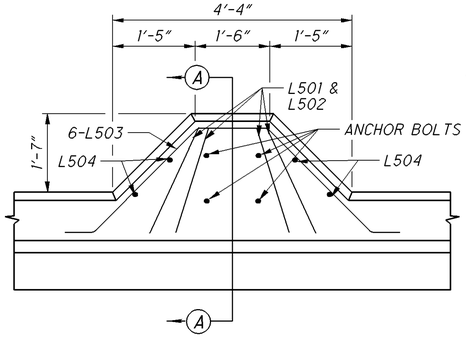
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

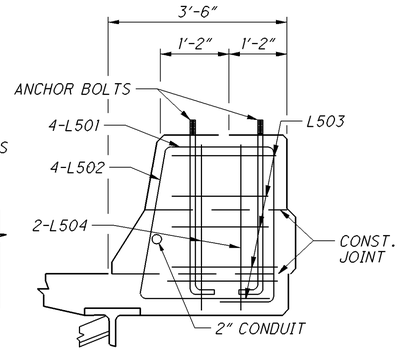




BARRIER DETAIL A



PLAN



SECTION "A-A"

LIGHT POLE PILASTER FOR BRIDGE WITH STANDARD ROADWAY RAILING

NOTES:

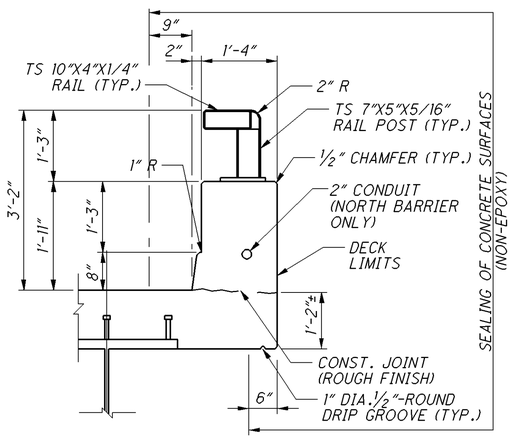
1. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 5½ INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM/GIRDER FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM/GIRDER FLANGE IS +/- 3-INCHES.

THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

2. SUPERSTRUCTURE SHALL BE SEALED WITH EPOXY-URETHANE AS INDICATED.

3. FOR LIGHT POLE LOCATIONS SEE SHEET 4/47 .

4. VARIES FROM 4.0% AT STA. 82+66.65 TO 0.09% AT STA. 82+96.65



ALTERNATE BARRIER DETAIL

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
ELA	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

TRANSVERSE SECTION
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S. R. 50

HAM-50-18.79
PID No. 20082

35 / 47

511
657

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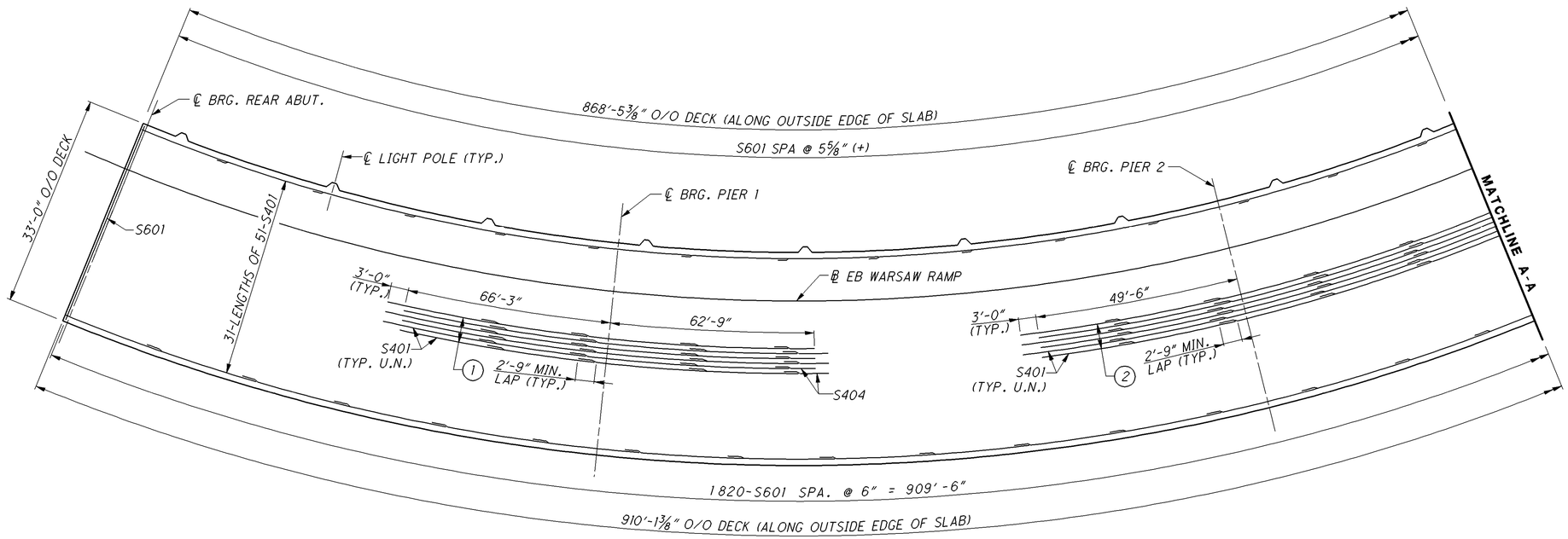
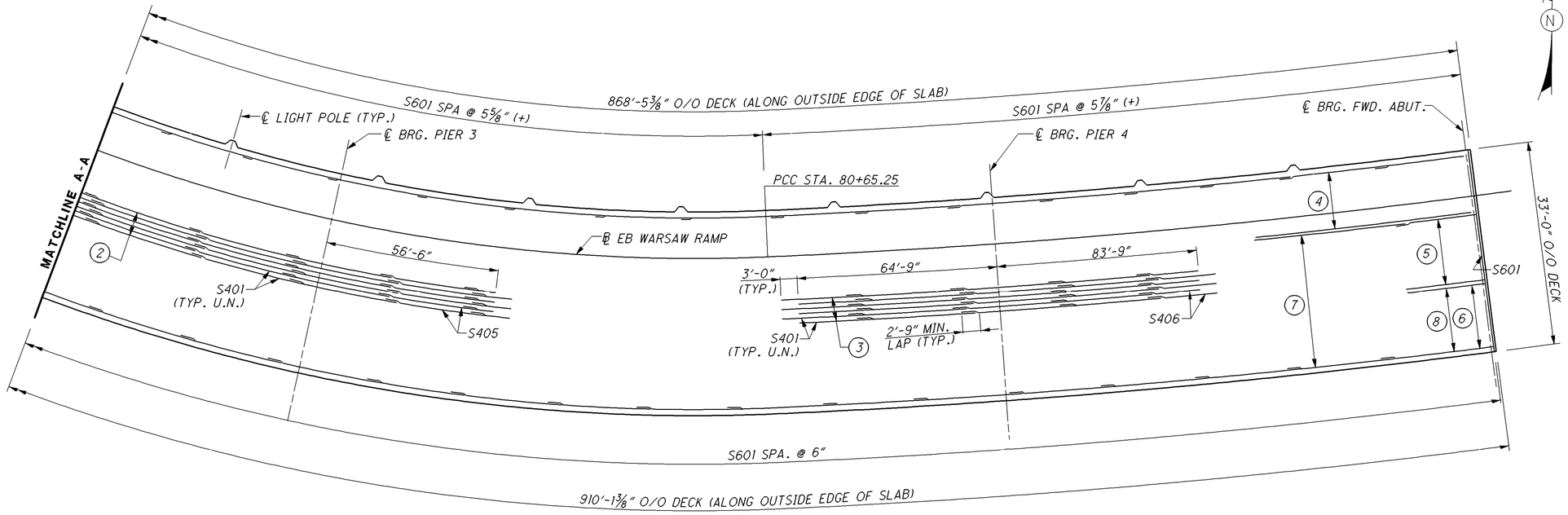


TOP OF DECK REINFORCING



TOP OF DECK REINFORCING

LEGEND

1. ALTERNATE 4 SETS OF 50-S401 & 50-S404 WITH TOP LONGITUDINAL S401 DECK BAR
2. ALTERNATE 9 SETS OF 50-S401 & 50-S405 WITH TOP LONGITUDINAL S401 DECK BAR
3. ALTERNATE 5 SETS OF 50-S401 & 50-S406 WITH TOP LONGITUDINAL S401 DECK BAR
4. 1 SET OF 8-S401
5. 1 SET OF 21-S402
6. 1 SET OF 22-S403
7. 1 SET OF 43-S401
8. 1 SET OF 22-S401

NOTES:

1. MIN. LAP FOR NO. 4 BAR = 2'-9"
2. SEE SHEET 41/47 FOR PARAPET REINFORCEMENT
3. SEE SHEET 4/47 FOR LIGHT POLE LOCATIONS
4. SEE SHEET 35/47 FOR TYPICAL SECTION

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
ELA	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

DECK PLAN
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

36/47

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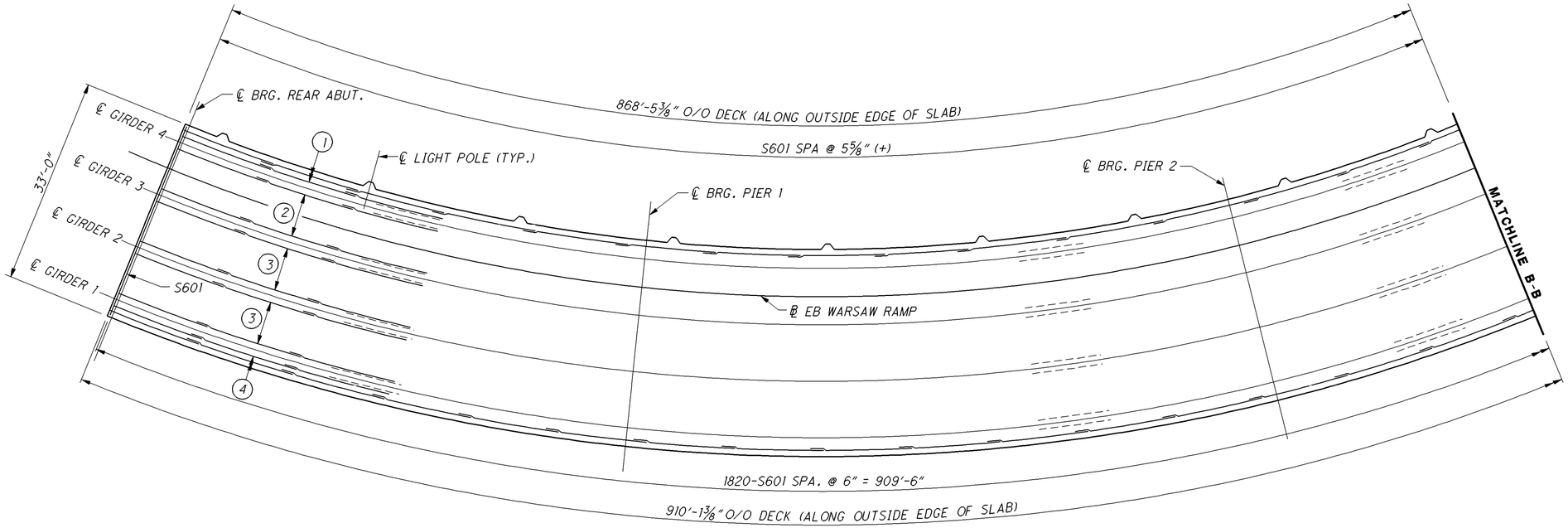
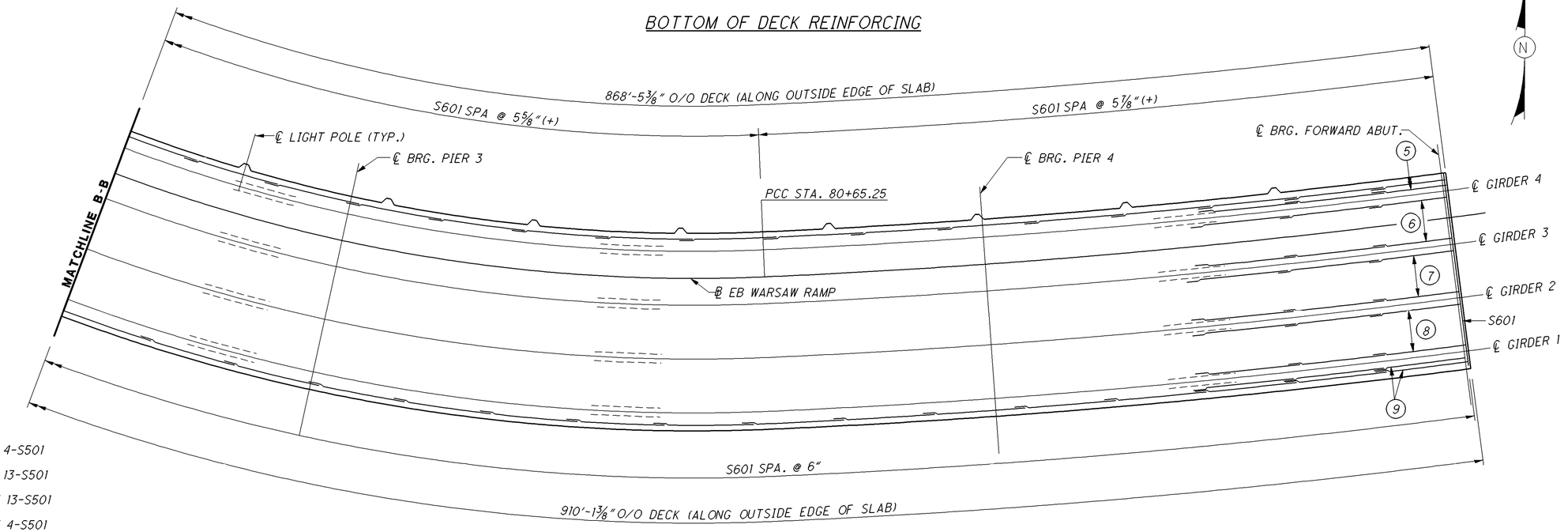


BOTTOM OF DECK REINFORCING



BOTTOM OF DECK REINFORCING

LEGEND

1. 31 SETS OF 4-S501
2. 31 SETS OF 13-S501
3. 32 SETS OF 13-S501
4. 32 SETS OF 4-S501
5. 1 SET OF 4-S502
6. 1 SET OF 13-S503
7. 1 SET OF 13-S504
8. 1 SET OF 13-S505
9. 1 SET OF 4-S506

NOTES:

1. MIN. LAP FOR NO. 5 BAR = 2'-5"
2. SEE SHEET 41/47 FOR PARAPET REINFORCEMENT
3. SEE SHEET 4/47 FOR LIGHT POLE LOCATIONS
4. SEE SHEET 35/47 FOR TYPICAL SECTION

DESIGN AGENCY
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
ELA	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
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DECK PLAN
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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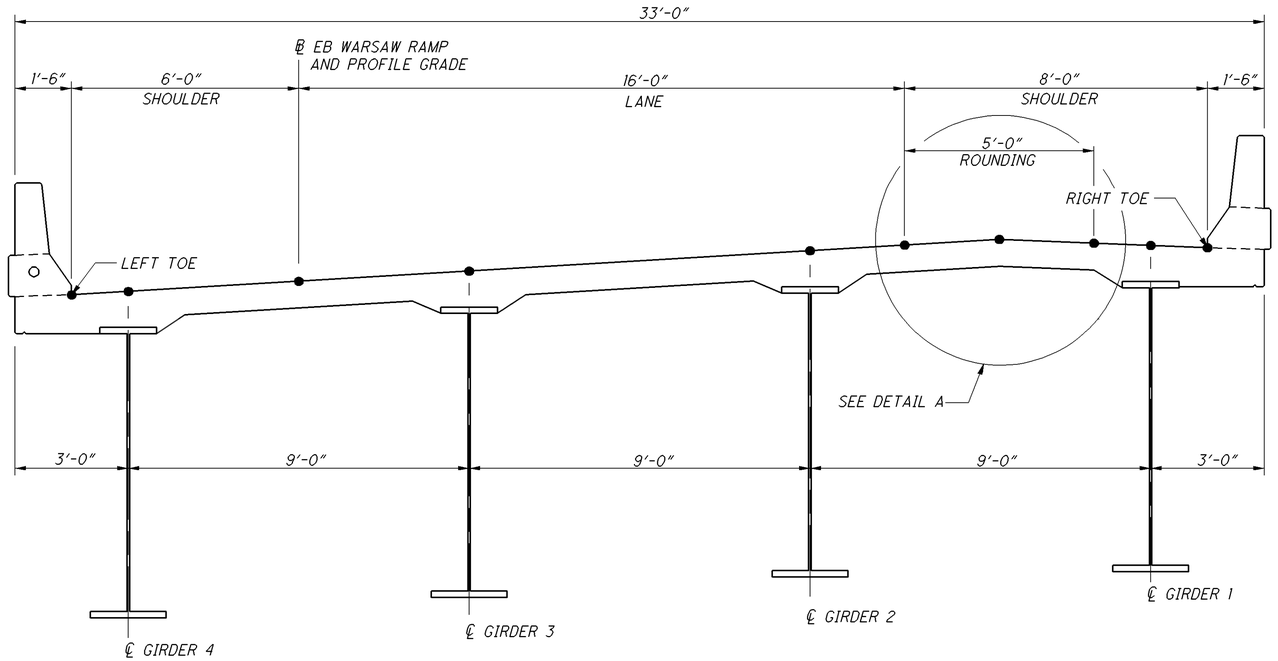
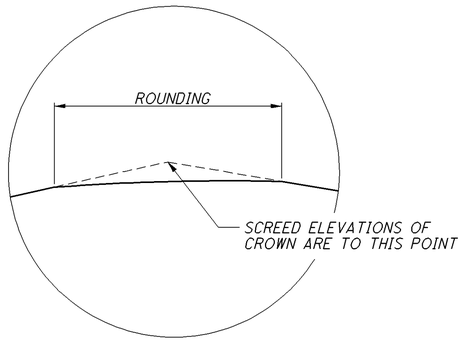


BRIDGE TYPICAL SECTION



DETAIL A

LEGEND

- LOCATION OF SCREED LINE

NOTES:

1. SCREED ELEVATIONS ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

SCREED ELEVATIONS

SPAN LOCATION	STATION	LEFT TOE	GIRDER 4	PROFILE GRADE	GIRDER 3	GIRDER 2	LEFT ROUNDING	CROWN	RIGHT ROUNDING	GIRDER 1	RIGHT TOE
ABUT. 1	74+17.66	554.210	554.291	554.534	554.777	555.263	555.398	555.533	555.433	555.373	555.313
1/10 SPAN	74+33.16	554.636	554.717	554.964	555.210	555.702	555.839	555.976	555.878	555.819	555.759
2/10 SPAN	74+48.66	555.104	555.185	555.434	555.683	556.179	556.318	556.456	556.360	556.302	556.242
3/10 SPAN	74+64.16	555.590	555.671	555.920	556.169	556.666	556.804	556.943	556.846	556.788	556.728
4/10 SPAN	74+79.66	556.065	556.146	556.394	556.642	557.136	557.273	557.411	557.314	557.256	557.196
5/10 SPAN	74+95.16	556.523	556.604	556.850	557.097	557.585	557.722	557.858	557.759	557.700	557.640
6/10 SPAN	75+10.65	556.970	557.051	557.294	557.538	558.022	558.156	558.291	558.190	558.130	558.070
F.S. 1	75+26.65	557.419	557.500	557.741	557.983	558.463	558.595	558.728	558.625	558.564	558.504
8/10 SPAN	75+41.65	557.839	557.920	558.160	558.401	558.881	559.013	559.146	559.044	558.982	558.922
9/10 SPAN	75+57.15	558.279	558.360	558.601	558.842	559.324	559.458	559.591	559.490	559.429	559.369
℄ PIER 1	75+72.65	558.736	558.817	559.060	559.303	559.789	559.924	560.059	559.959	559.899	559.839
1/10 SPAN	75+91.85	559.335	559.416	559.662	559.907	560.398	560.534	560.671	560.572	560.513	560.453
F.S. 2	76+14.65	560.018	560.099	560.349	560.598	561.095	561.234	561.372	561.275	561.217	561.157
3/10 SPAN	76+30.24	560.410	560.491	560.744	560.997	561.499	561.639	561.779	561.684	561.627	561.567
4/10 SPAN	76+49.44	560.766	560.847	561.104	561.360	561.870	562.012	562.154	562.061	562.006	561.946
5/10 SPAN	76+68.64	560.973	561.054	561.314	561.573	562.087	562.231	562.375	562.284	562.230	562.170
6/10 SPAN	76+87.83	561.030	561.111	561.371	561.631	562.147	562.292	562.436	562.346	562.291	562.231
7/10 SPAN	77+07.03	560.936	561.017	561.276	561.535	562.048	562.192	562.335	562.244	562.189	562.129
F.S. 3	77+32.62	560.590	560.671	560.924	561.177	561.681	561.821	561.962	561.868	561.811	561.751
9/10 SPAN	77+45.42	560.331	560.412	560.662	560.911	561.408	561.547	561.686	561.590	561.532	561.472
℄ PIER 2	77+64.62	559.853	559.934	560.177	560.420	560.906	561.041	561.176	561.076	561.016	560.956
1/10 SPAN	77+80.46	559.383	559.464	559.701	559.938	560.416	560.548	560.680	560.577	560.515	560.455
2/10 SPAN	77+96.30	558.841	558.922	559.154	559.387	559.855	559.985	560.114	560.008	559.945	559.885
F.S. 4	78+14.62	558.114	558.195	558.423	558.651	559.110	559.237	559.364	559.256	559.191	559.131
4/10 SPAN	78+27.99	557.504	557.585	557.812	558.038	558.492	558.618	558.744	558.634	558.569	558.509
5/10 SPAN	78+43.83	556.697	556.778	557.003	557.227	557.679	557.804	557.929	557.819	557.753	557.693
6/10 SPAN	78+59.67	555.796	555.877	556.101	556.326	556.779	556.904	557.029	556.919	556.853	556.793
F.S. 5	78+68.04	555.280	555.361	555.587	555.812	556.267	556.393	556.519	556.409	556.344	556.284
8/10 SPAN	78+91.36	553.720	553.801	554.030	554.260	554.726	554.855	554.983	554.876	554.812	554.752
9/10 SPAN	79+07.20	552.560	552.641	552.876	553.112	553.588	553.720	553.851	553.747	553.685	553.625
PIER 3	79+23.04	551.329	551.410	551.653	551.896	552.382	552.517	552.652	552.552	552.492	552.432
1/10 SPAN	79+44.65	549.572	549.653	549.905	550.156	550.658	550.797	550.937	550.841	550.784	550.724
F.S. 6	79+68.04	547.677	547.758	548.018	548.278	548.795	548.939	549.083	548.992	548.937	548.877
3/10 SPAN	79+87.86	546.069	546.150	546.416	546.681	547.208	547.355	547.502	547.414	547.361	547.301
4/10 SPAN	80+09.47	544.313	544.389	544.643	544.898	545.401	545.543	545.684	545.598	545.547	545.487
5/10 SPAN	80+31.08	542.534	542.603	542.835	543.067	543.528	543.657	543.786	543.701	543.650	543.590
6/10 SPAN	80+52.69	540.717	540.778	540.986	541.194	541.607	541.722	541.838	541.751	541.699	541.639
7/10 SPAN	80+74.30	538.842	538.896	539.077	539.258	539.619	539.720	539.820	539.731	539.677	539.617
F.S. 7	80+90.12	537.486	537.535	537.695	537.855	538.175	538.264	538.353	538.261	538.205	538.145
9/10 SPAN	81+17.51	535.154	535.193	535.317	535.441	535.688	535.757	535.825	535.729	535.671	535.611
PIER 4	81+39.12	533.389	533.422	533.521	533.620	533.818	533.873	533.928	533.828	533.768	533.708
1/10 SPAN	81+54.63	532.163	532.196	532.291	532.386	532.575	532.627	532.680	532.577	532.516	532.456
2/10 SPAN	81+70.14	530.979	531.012	531.104	531.195	531.376	531.426	531.476	531.371	531.309	531.249
3/10 SPAN	81+85.65	529.833	529.866	529.954	530.043	530.219	530.267	530.315	530.208	530.144	530.084
F.S. 8	81+94.12	529.220	529.253	529.341	529.429	529.602	529.650	529.698	529.590	529.526	529.466
5/10 SPAN	82+16.68	527.619	527.652	527.739	527.825	527.997	528.044	528.092	527.984	527.919	527.859
6/10 SPAN	82+32.19	526.540	526.573	526.661	526.748	526.922	526.970	527.018	526.911	526.847	526.787
7/10 SPAN	82+47.70	525.473	525.506	525.596	525.686	525.864	525.913	525.962	525.857	525.793	525.733
8/10 SPAN	82+63.21	524.420	524.453	524.545	524.637	524.821	524.872	524.924	524.820	524.757	524.697
9/10 SPAN	82+78.72	523.381	523.414	523.510	523.606	523.797	523.850	523.902	523.800	523.739	523.679
ABUT. 2	82+94.23	522.364	522.397	522.496	522.595	522.793	522.848	522.903	522.803	522.743	522.683

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
ELA	DDE	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

SCREED ELEVATIONS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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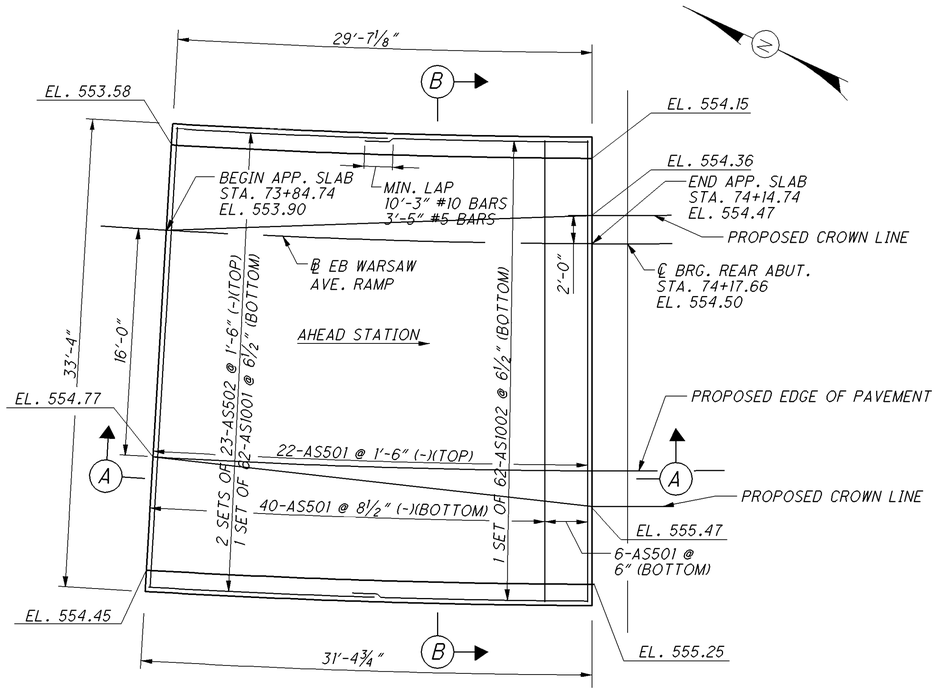
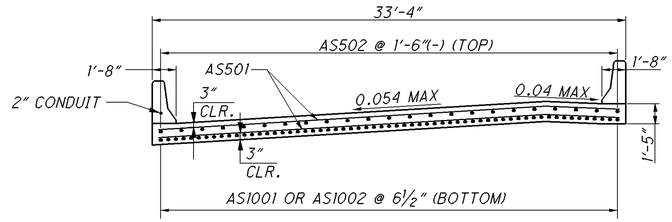
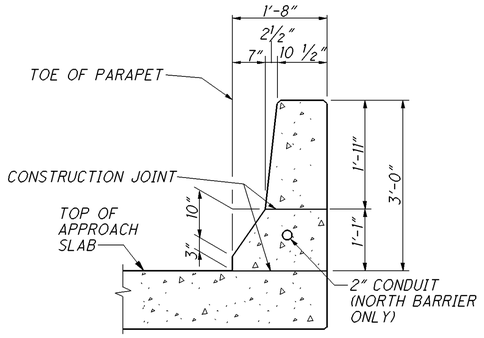


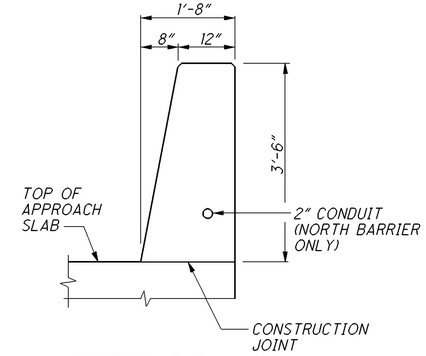
REAR APPROACH SLAB PLAN



SECTION B-B



SECTION C-C



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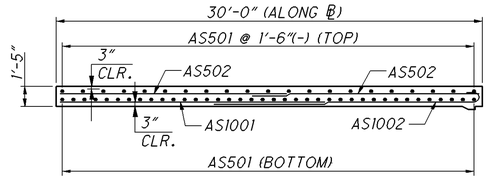
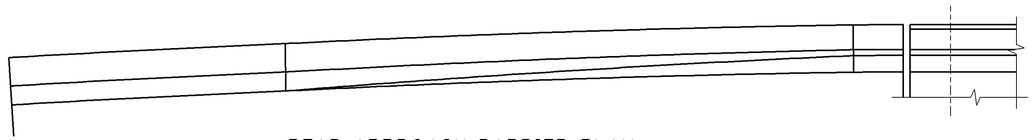
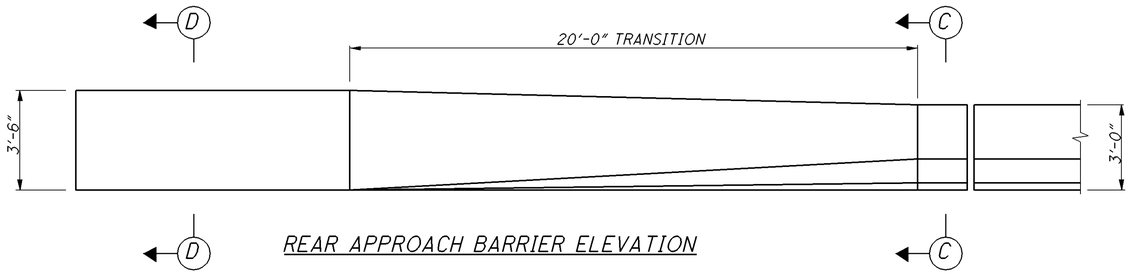


SECTION A-A



REAR APPROACH BARRIER PLAN



REAR APPROACH BARRIER ELEVATION

NOTES:

1. FOR BARRIER REINFORCEMENT, SEE SHEETS 41A / 47.

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

APPROACH SLAB
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

39 / 47

515
657

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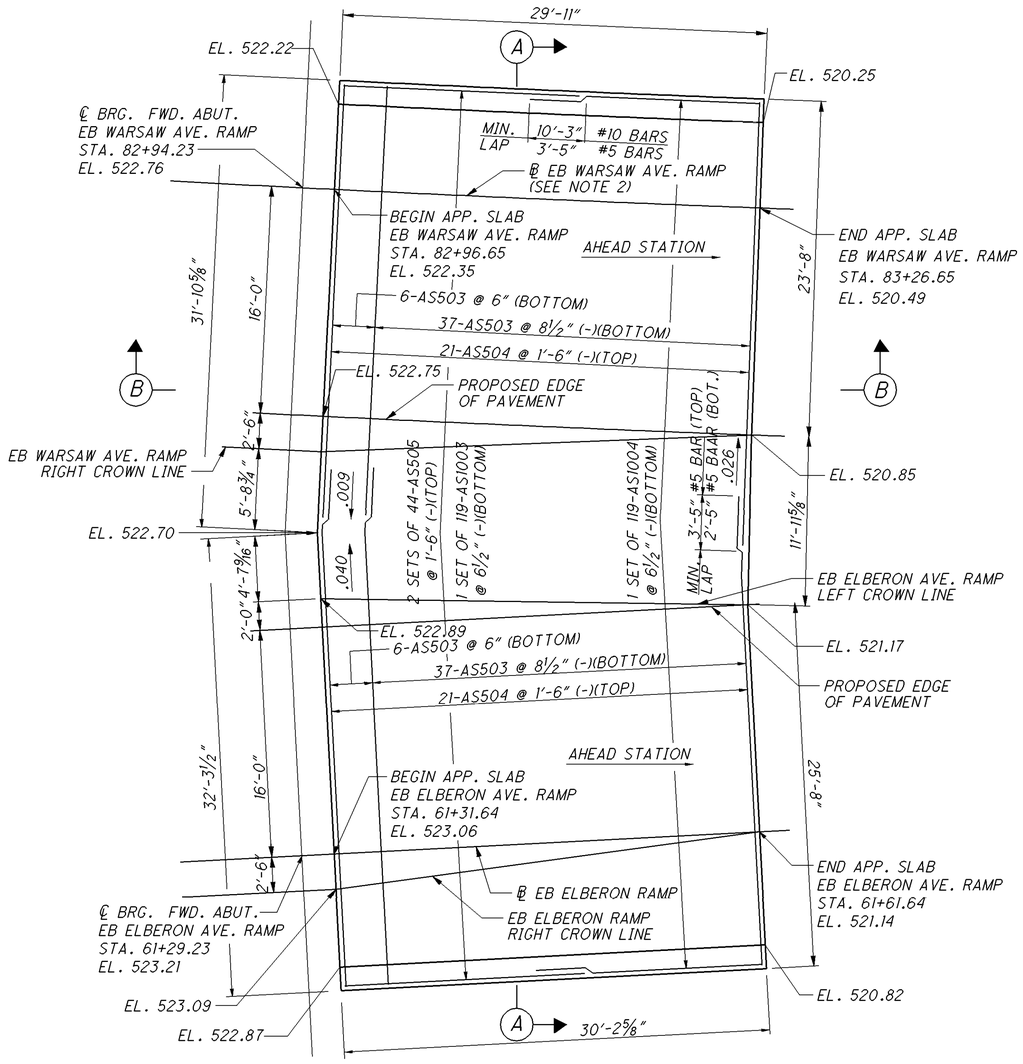
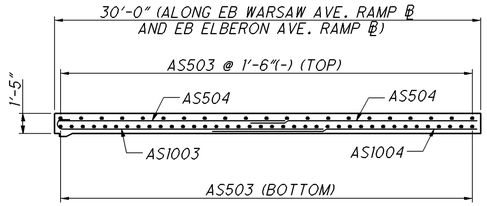
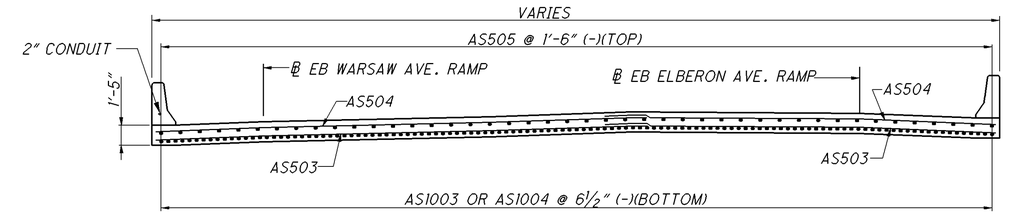


FORWARD APPROACH SLAB PLAN

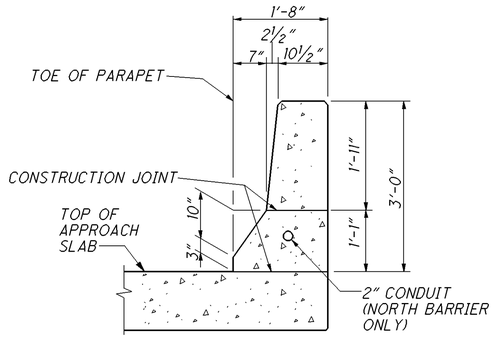
EB WARSAW AVE. RAMP AND EB ELBERON AVE. RAMP



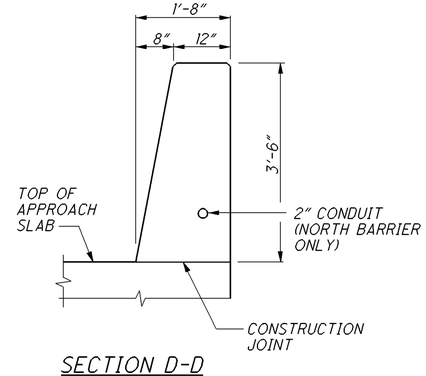
SECTION B-B



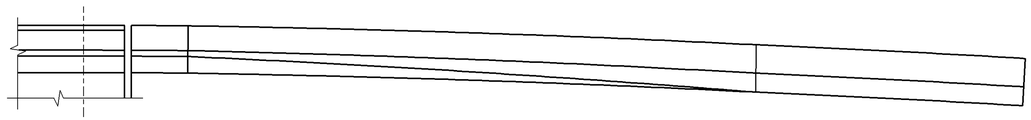
SECTION A-A



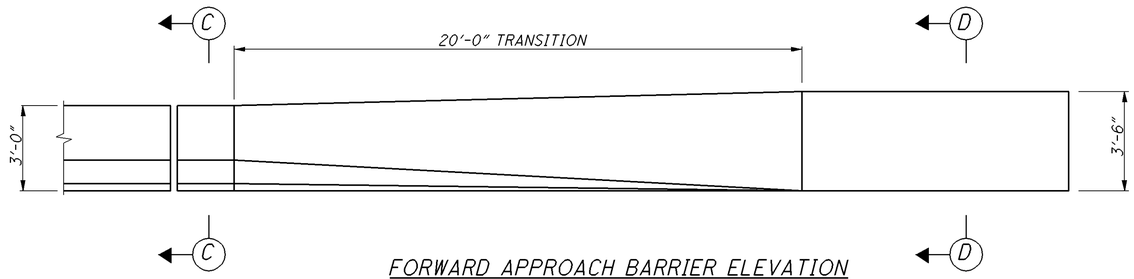
SECTION C-C



SECTION D-D



FORWARD APPROACH BARRIER PLAN



FORWARD APPROACH BARRIER ELEVATION

NOTES:

1. FOR BARRIER REINFORCEMENT, SEE SHEETS 41A/47.

2. PROVIDE CROSS SLOPE TRANSITION FROM BRIDGE DECK TO ROADWAYSECTION ON THE APPROACH SLAB. ESTABLISH GRADE BREAK AT THE RAMP BASELINE TO PREFORM TRANSITION.

DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

APPROACH SLAB
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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516
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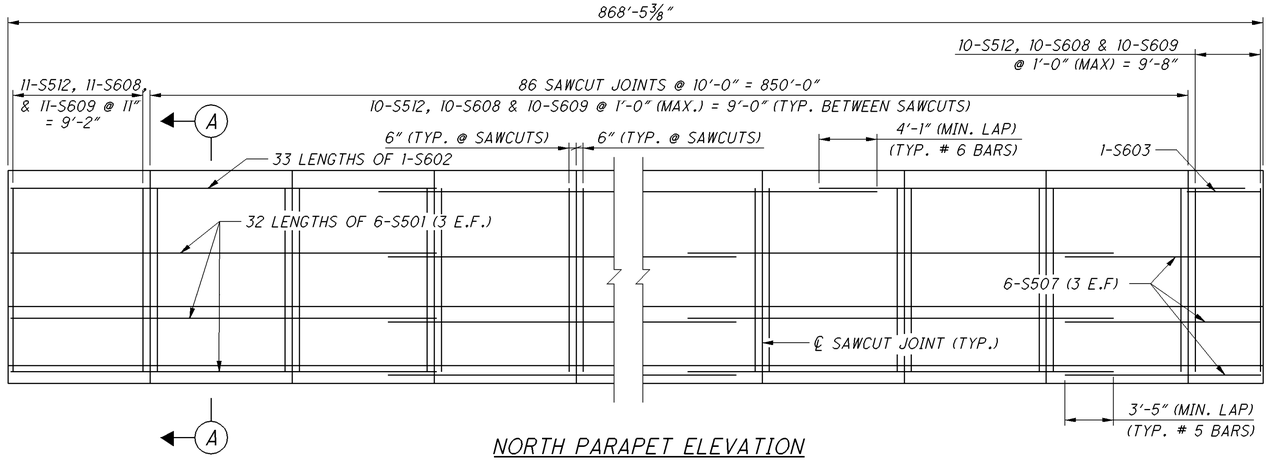
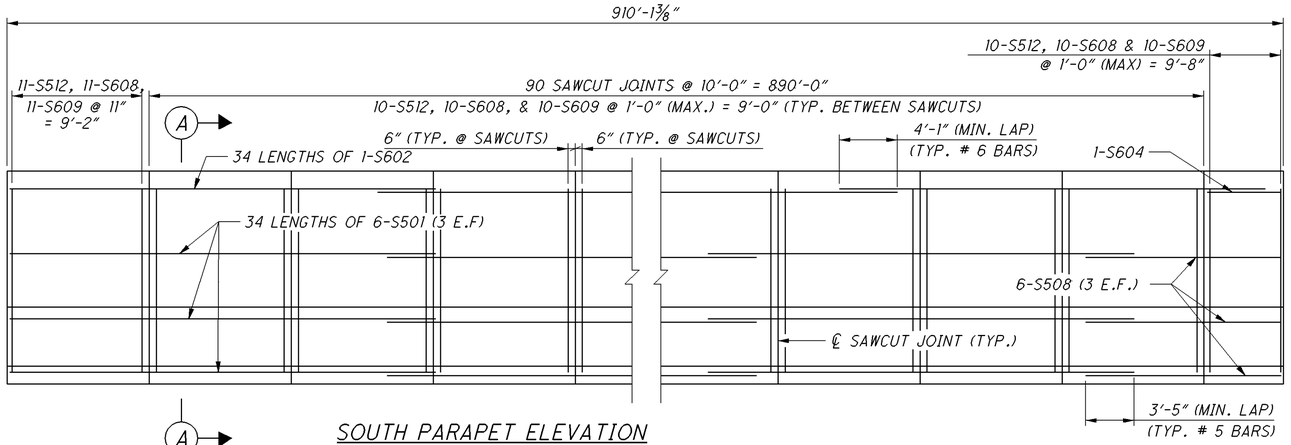
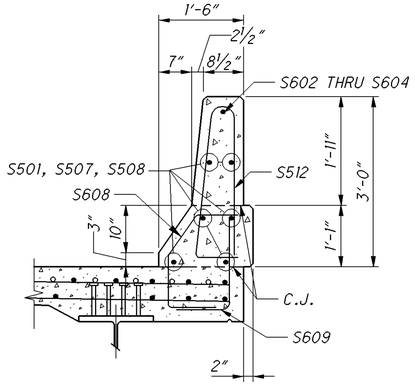


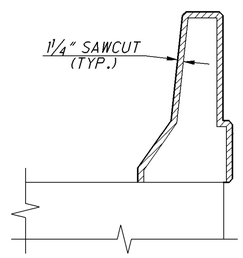
NORTH PARAPET ELEVATION
(LOOKING NORTH)



SOUTH PARAPET ELEVATION
(LOOKING NORTH)



SECTION A-A



DETAIL A
(SECTION THROUGH SAWCUT)
SAWCUT PERIMETER = 7'-6"

NOTES:

1. SEE STANDARD DRAWING BR-1 FOR ADDITIONAL INFORMATION.
2. SEE SHEETS 39/47 AND 40/47 FOR DETAILS OF PARAPET ON APPROACH.

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
ELA	CBS	PJL	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJD		3102858	

PARAPET DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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657

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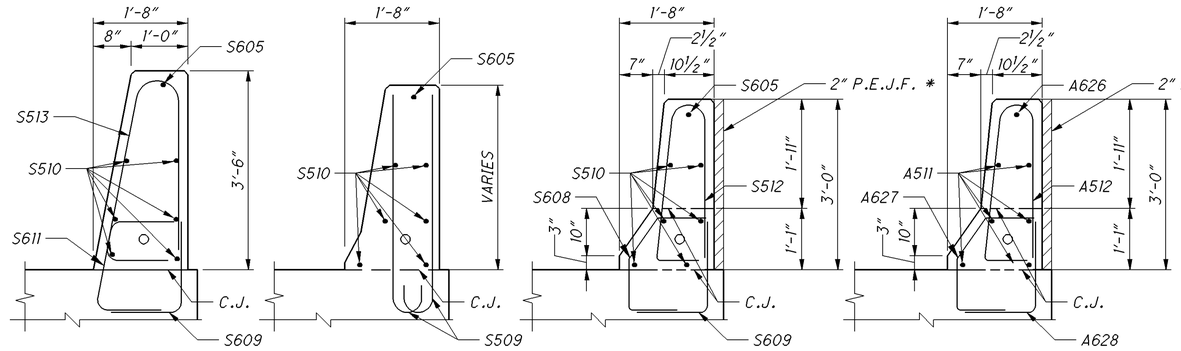
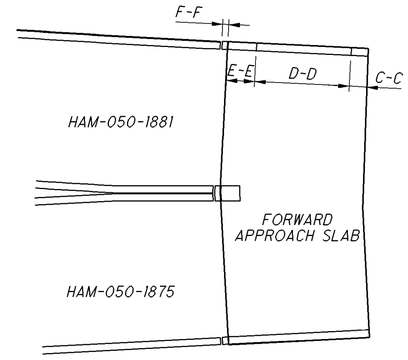


SECTION C-C | SECTION D-D | SECTION E-E | SECTION F-F

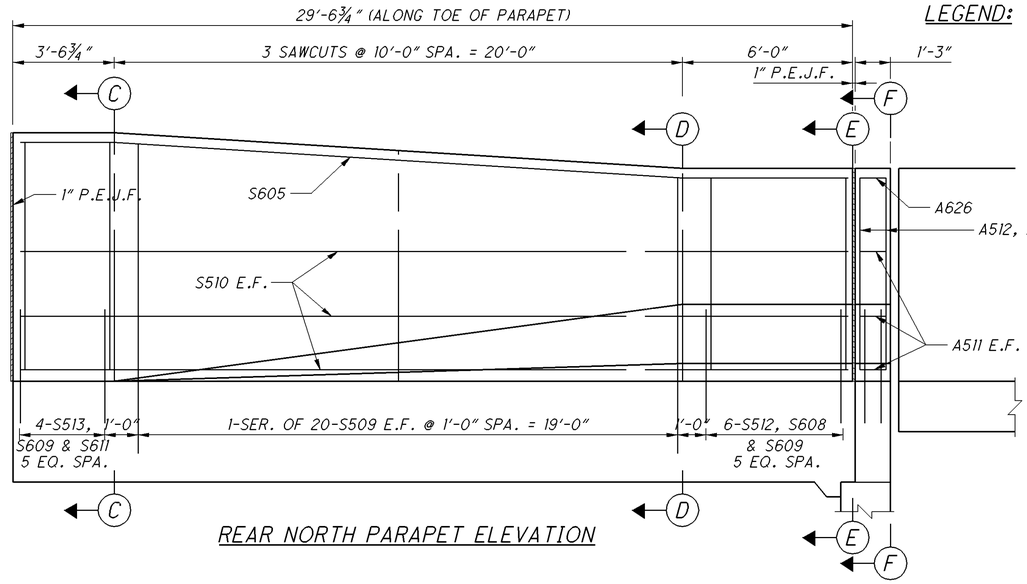
(REAR NORTH SHOWN OTHERS SIMILAR)

* 2" P.E.J.F. ONLY NEEDED IN AREA OF ARCHITECTURAL WALL

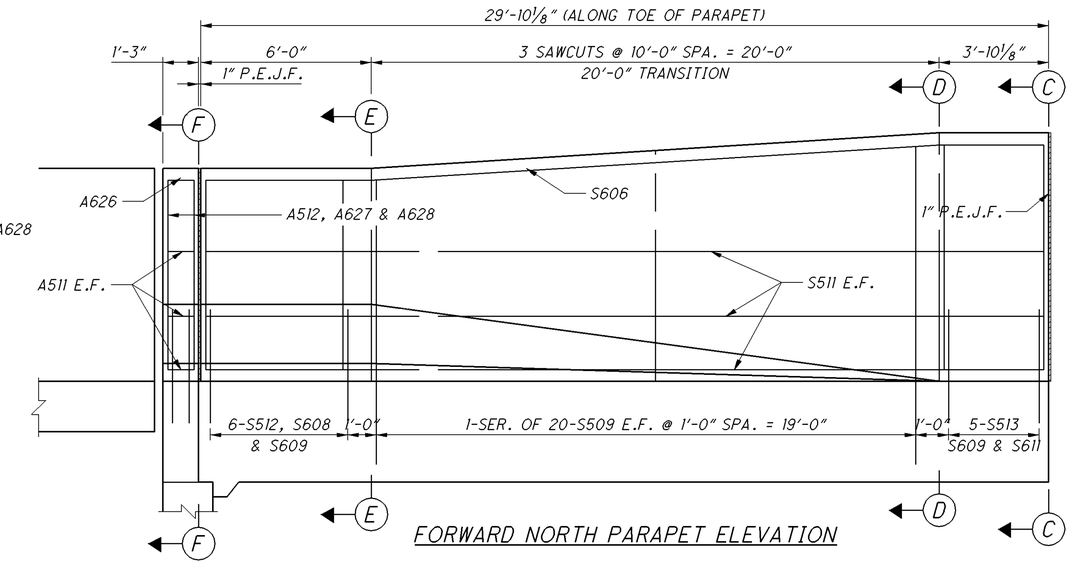


SECTION DIAGRAM

LEGEND:



REAR NORTH PARAPET ELEVATION

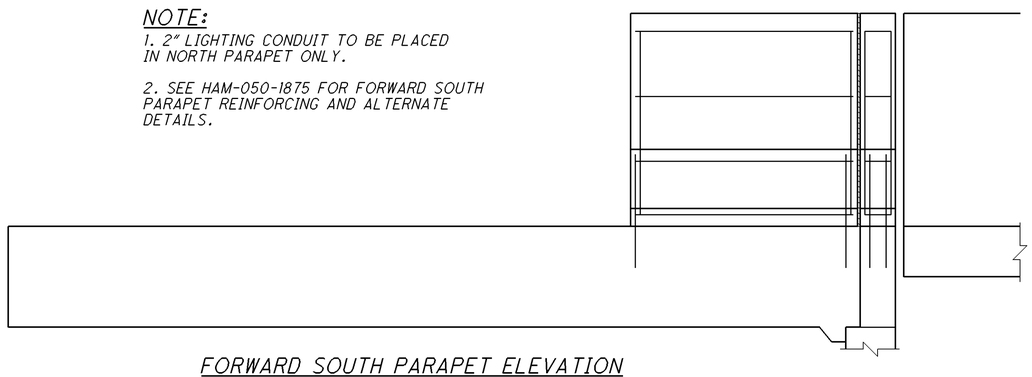


FORWARD NORTH PARAPET ELEVATION

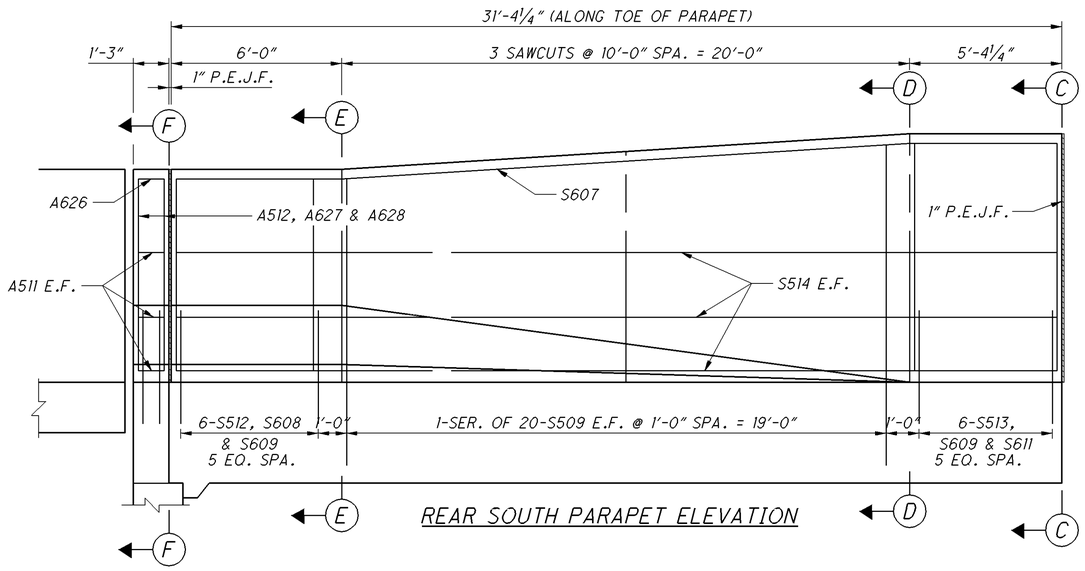
NOTE:

1. 2" LIGHTING CONDUIT TO BE PLACED IN NORTH PARAPET ONLY.

2. SEE HAM-050-1875 FOR FORWARD SOUTH PARAPET REINFORCING AND ALTERNATE DETAILS.



FORWARD SOUTH PARAPET ELEVATION



REAR SOUTH PARAPET ELEVATION

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

PARAPET DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

41A / 47

518
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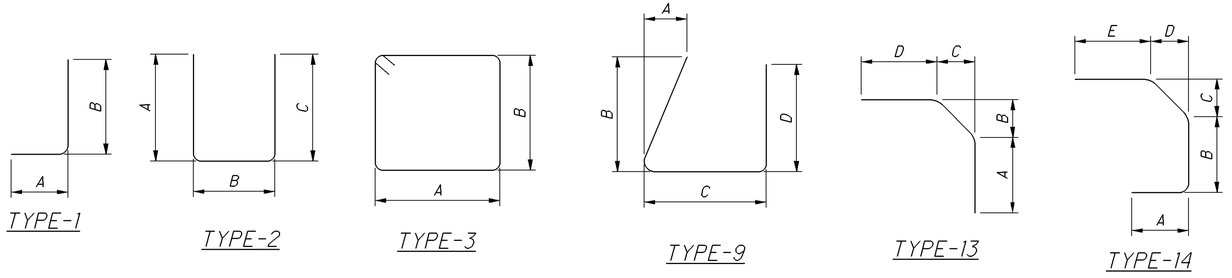
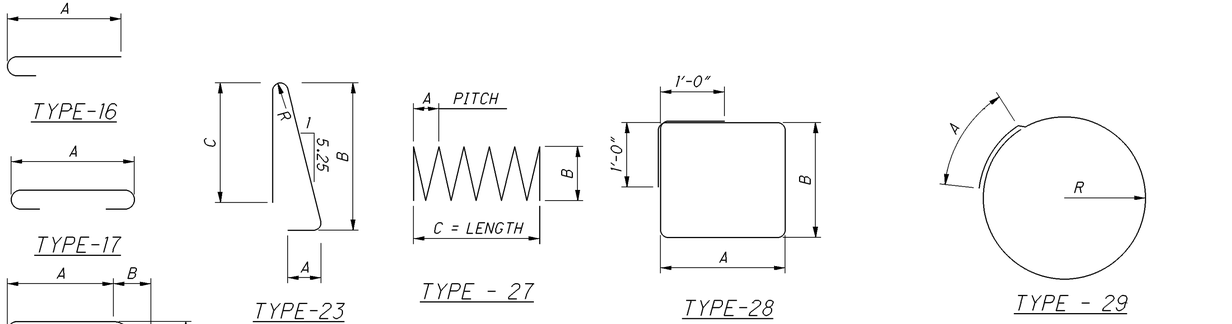
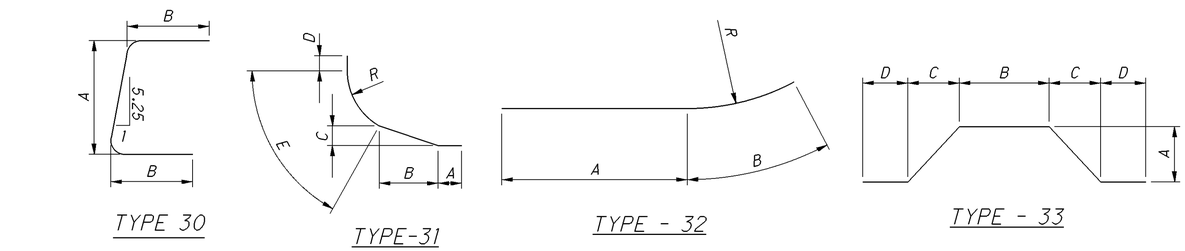
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
SUPERSTRUCTURE											
S401	2,554	30'-0"	51,182	STR							
S402	21	15'-10"	222	STR							
S403	22	39'-9"	584	STR							
S404	50	23'-0"	768	STR							
S405	50	29'-6"	985	STR							
S406	50	15'-3"	509	STR							
S501	1,883	30'-0"	58,919	STR							
S502	4	13'-0"	54	STR							
S503	13	27'-6"	373	STR							
S504	13	11'-3"	153	STR							
S505	13	22'-8"	307	STR							
S506	4	27'-1"	113	STR							
S507	6	17'-5"	109	STR							
S508	6	5'-11"	37	STR							
	6	4'-7"			4'-0"						
S509	SER OF	TO	611	16	TO						
	20	5'-2"			4'-7"						
S510	6	29'-2"	183	STR							
S511	6	29'-6"	185	STR							
S512	1,800	6'-0"	11,264	23	8"	2'-9"	2'-6"			1½"	
S513	15	7'-5"	116	23	1'-1"	3'-2"	3'-0"			2⅞"	
S514	6	31'-0"	194	STR							
S601	3,640	32'-8"	178,598	STR							
S602	67	30'-0"	3,019	STR							
S603	1	12'-10"	19	STR							
S604	1	28'-7"	43	STR							
S605	1	29'-2"	44	STR							
S606	1	29'-6"	44	STR							
S607	1	31'-0"	47	STR							
S608	1,800	3'-10"	10,364	14	10½"	1'-8"	8½"	6"	9"		
S609	1,800	2'-5"	6,534	1	11"	1'-8"					
SUPERSTRUCTURE TOTAL			325,580								
LIGHT PILASTER											
L501	68	2'-10"	201	2	7"	1'-10'	7"				
L502	68	9'-3"	656	9	6"	3'-7"	2'-4"	3'-7"			
L503	102	7'-3"	771	33	1'-10"	1'-4"	1'-0"	6"			
L504	68	3'-7"	254	STR							
LIGHT PILASTER TOTAL			1,882								
GRAND TOTAL			327,462								

MARK	NUMBER REAR	FWD.	TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
APPROACH SLABS													
AS501	68		68	32'-10"	2,329	STR.							
AS502	46		46	17'-2"	824	STR.							
AS503		86	86	33'-1"	2,968	STR.							
AS504		42	42	33'-7"	1,471	STR.							
AS505		88	88	16'-10"	1,545	STR.							
AS1001	62		62	20'-7"	5,491	STR.							
AS1002	62		62	20'-7"	5,491	16	20'-7"						
AS1003		119	119	20'-3"	10,369	STR.							
AS1004		119	119	21'-8"	11,095	16	20'-3"						
APPROACH SLAB TOTAL					41,583								
FOR INFORMATION ONLY NOT INCLUDED WITH ITEM 509.													







DESIGN AGENCY
PARSONS BRINCKERHOFF
QUADE & DOUGLAS, INC.
6235 ENTERPRISE COURT
DUBLIN, OHIO 43016

DESIGNED PJL | DRAWN LEL | REVIEWED EBS | DATE 11/16/10 | CHECKED SAP | REVISED

STRUCTURE FILE NUMBER 3102858

REINFORCING LIST 1
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

42 / 47

519
657

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MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
PIER 1											
SP403	1	21'-9"	953	27	4½"	7'-6"	21'-9"				
P401	2	25'-2"	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11"	13	29	1'-7"					2'-11"	
P501	16	16'-2"	270	STR.							
P502	11	22'-8"	260	STR.							
P601	2	29'-5"	88	STR.							
P602	2	26'-7"	80	STR.							
P603	2	20'-2"	61	STR.							
P604	5	8'-0"	60	STR.							
P605	5	19'-8"	148	31	2'-11"	6'-8¼"	2'-2"	1'-9"		4'-9"	
P606	5	20'-9"	156	31	2'-11"	6'-8¼"	2'-2"	2'-10"		4'-9"	
P607	180	16'-2"	4,371	2	6'-9"	3'-0"	6'-9"				
P608	28	13'-6"	568	2	5'-5"	3'-0"	5'-5"				
P609	4	10'-10"	65	2	4'-1"	3'-0"	4'-1"				
P610	4	11'-10"	71	2	4'-7"	3'-0"	4'-7"				
P611	6	8'-10"	80	2	2'-3"	4'-8"	2'-3"				
P612	5	12'-2"	91	1	1'-0"	11'-4"					
P613	5	14'-2"	106	1	1'-0"	13'-4"					
P623	6	16'-4"	147	28	3'-8"	3'-8"					
P624	8	5'-1"	60	1	1'-6"	3'-8"					
P801	4	32'-0"	342	STR.							
P802	2	31'-8"	169	STR.							
P803	2	30'-11"	165	STR.							
P901	22	4'-11"	368	1	1'-6"	3'-8"					
P1101	31	25'-10"	4,255	17	22'-8"						
P1102	42	19'-4'	4,314	17	16'-2"						
P1103	48	20'-7"	5,249	32	13'-3"	7'-4"				29'-4"	
P1104	48	27'-3"	6,949	1	2'-0"	25'-7"					
P1105	12	35'-2"	2,242	17	32'-0"						
P1106	12	32'-0"	2,040	STR.							
PIER 1 TOTAL			33,852								
PIER 2											
SP404	1	43'-6"	1,858	27	4½"	7'-6"	43'-6"				
P401	2	25'-2"	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11'	13	29	1'-7"					2'-11"	
P503	18	20'-8"	388	STR.							
P504	14	26'-8"	389	STR.							
P601	2	29'-5"	88	STR.							
P602	2	26'-7"	80	STR.							
P603	2	20'-2"	61	STR.							

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
PIER 2											
P604	5	8'-0"	60	STR.							
P605	5	19'-8"	148	31	2'-11"	6'-8¼"	2'-2"	1'-9"			
P606	5	20'-9"	156	31	2'-11"	6'-8¼"	2'-2"	2'-10"			
P607	180	16'-2"	4,371	2	6'-9"	3'-0"	6'-9"			4'-9"	
P608	28	13'-6"	568	2	5'-5"	3'-0"	5'-5"			4'-9"	
P609	4	10'-10'	65	2	4'-1"	3'-0"	4'-1"				
P610	4	11'-10"	71	2	4'-7"	3'-0"	4'-7"				
P611	6	8'-10"	80	2	2'-3"	4'-8"	2'-3"				
P612	5	12'-2"	91	1	1'-0"	11'-4"					
P613	5	14'-2"	106	1	1'-0"	13'-4"					
P801	4	32'-0"	342	STR.							
P803	2	31'-8"	169	STR.							
P804	2	30'-11"	165	STR.							
P1105	12	35'-2"	2,242	17	32'-0"						
P1106	12	32'-0"	2,040	STR.							
P1107	46	30'-0"	7,332	17	26'-10"						
P1108	56	23'-10"	7,091	17	20'-8"						
P1109	48	29'-7"	7,544	32	22'-3"	7'-4"				29'-4"	
P1110	48	39'-8"	10,116	1	2'-0"	38'-0"					
PIER 2 TOTAL			45,745								
PIER 3											
SP405	1	39'-1"	1,674	27	4½"	7'-6"	39'-1"				
P401	2	25'-2"	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11"	13	29	1'-7"					2'-11"	
P503	18	20'-8"	388	STR.							
P504	14	26'-8"	389	STR.							
P601	2	29'-5"	88	STR.							
P602	2	26'-7"	80	STR.							
P603	2	20'-2"	61	STR.							
P604	5	8'-0"	60	STR.							
P605	5	19'-8"	148	31	2'-11"	6'-8¼"	2'-2"	1'-9"		4'-9"	
P606	5	20'-9"	156	31	2'-11"	6'-8¼"	2'-2"	2'-10"		4'-9"	
P607	180	16'-2"	4,371	2	6'-9"	3'-0"	6'-9"				
P608	28	13'-6"	568	2	5'-5"	3'-0"	5'-5"				
P609	4	10'-10"	65	2	4'-1"	3'-0"	4'-1"				
P610	4	11'-10"	71	2	4'-7"	3'-0"	4'-7"				
P611	6	8'-10"	80	2	2'-3"	4'-8"	2'-3"				
P612	5	12'-2"	91	1	1'-0"	11'-4"					
P613	5	14'-2"	106	1	1'-0"	13'-4"					
P801	4	32'-0'	342	STR.							
P803	2	31'-8"	169	STR.							
P804	2	30'-11"	165	STR.							
P1105	12	35'-2"	2,242	17	32'-0"						
P1106	12	32'-0"	2,040	STR.							
P1107	46	30'-0"	7,332	17	26'-10"						
P1108	56	23'-10"	7,091	17	20'-10'						

NOTE:

1. PIER REINFORCEMENT CONTINUED ON SHEET 44/47 .

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | CHECKED SAP | REVISED

REVIEWED EBS | DATE 11/16/10 | STRUCTURE FILE NUMBER 3102858

REINFORCING STEEL LIST

BRIDGE NO. HAM-050-1881

EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79

PID No. 20082

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MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
PIER 3											
P1109	48	29'-7"	7,544	32	22'-3"	7'-4"				29'-4"	
P1111	48	35'-2"	8,968	1	2'-0"	33'-6"					
PIER 3 TOTAL			44,413								
PIER 4											
SP406	1	24'-1"	1,050	27	4½"	7'-6"	24'-1"				
P401	2	25'-2"	34	29	1'-7"					3'-9"	
P402	1	24'-8"	16	29	1'-7"					3'-8"	
P403	1	24'-1"	16	29	1'-7"					3'-7"	
P404	1	23'-7"	16	29	1'-7"					3'-6"	
P405	1	22'-7"	15	29	1'-7"					3'-4"	
P406	1	21'-6"	14	29	1'-7"					3'-2"	
P407	1	19'-11"	13	29	1'-7"					2'-11"	
P501	16	16'-2"	270	STR.							
P502	11	22'-8"	260	STR.							
P604	5	8'-0"	60	STR.							
P605	5	19'-8"	148	31	2'-11"	6'-8¼"	2'-2"	1'-9"		4'-9"	
P607	160	16'-2"	3,885	2	6'-9"	3'-0"	6'-9"				
P608	44	13'-6"	892	2	5'-5"	3'-0"	5'-5"				
P609	4	10'-10"	65	2	4'-1"	3'-0"	4'-1"				
P611	6	8'-10"	80	2	2'-3"	4'-8"	2'-3"				
P616	2	29'-3"	88	STR.							
P617	2	26'-3"	79	STR.							
P618	2	18'-10"	57	STR.							
P619	5	20'-9"	156	31	2'-11"	6'-8¼"	2'-2"	2'-10"		4'-9"	
P620	4	12'-4"	74	2	4'-10"	3'-0"	4'-10"				
P621	4	11'-2"	67	2	4'-3"	3'-0"	4'-3"				
P622	5	14'-4"	108	2	1'-0"	12'-8"	1'-0"				
P623	6	16'-2"	146	28	3'-8"	3'-8"					
P624	8	5'-0"	60	1	1'-6"	3'-8"					
P801	4	32'-0"	342	STR.							
P802	2	30'-9"	164	STR.							
P803	2	31'-8"	169	STR.							
P901	22	4'-11"	368	1	1'-6"	3'-8"					
P1101	31	25'-10"	4,255	17	22'-8"						
P1102	42	19'-4"	4,314	17	12'-2"						
P1103	48	20'-7"	5,249	32	13'-3"	7'-4"				29'-4"	
P1105	12	35'-2"	2,242	17	32'-0"						
P1106	12	32'-0"	2,040	STR.							
P1112	48	25'-3"	6,439	1	2'-0"	23'-7"					
PIER 4 TOTAL			33,251								
PIER TOTAL			157,261								

MARK	NUMBER REAR ABUT.	FWD. ABUT.	TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
ABUTMENTS													
D801	23	22	45	5'-2"	621	18	2'-10"	11"	1'-0"				
A501	50		50	21'-1"	1,099	1	10"	20'-4"					
A502	2		2	21'-3"	44	1	10"	20'-6"					
A503	2		2	12'-7"	26	1	10"	11'-10"					
A504	6	3	9	4'-5"	41	13	1'-6"	1'-0"	1'-0"	1'-6"			
A505	6	3	9	4'-5"	41	2	1'-6"	1'-8"	1'-6"				
A506		19	19	30'-9"	609	1	10"	30'-0"					
A507		16	16	15'-0"	250	STR							
A508		5	5	9'-9"	51	1	10"	9'-0"					
A511	6	12	18	11"	17	STR							
A512	2	4	6	6'-0"	38	23	8"	2'-9"	2'-6"			2"	
A601	14		14	19'-2"	403	3	6'-2"	3'-9"					
A602	9		9	18'-4"	248	3	6'-2"	3'-4"					
A603	11		11	17'-4"	286	3	6'-2"	2'-10"					
A604	34	32	66	6'-0"	595	2	2'-9"	10"	2'-9"				
A605	34	32	66	19'-1"	1,892	2	9'-0"	1'-5"	9'-0"				
A606	34		34	11'-11"	609	2	5'-5"	1'-5"	5'-5"				
A607	7		7	26'-10"	282	2	12'-9"	1'-8"	12'-9"				
A608	14	7	21	15'-4"	484	2	7'-0"	1'-8"	7'-0"				
A609	40	20	60	8'-6"	766	STR							
A610	3		3	24'-0"	108	3	8'-6"	3'-10'					
A611	7		7	24'-6"	258	2	11'-7"	1'-8"	11'-7"				
A612	3	3	6	22'-0"	198	3	8'-6'	2'-10'					
A613	6		6	14'-6"	131	28	3'-11"	2'-9"	1'-0"				
A614	4	3	7	4'-2"	44	1	1'-7"	2'-9"					
A615		7	7	26'-0"	273	2	12'-4'	1'-8"	12'-4"				
A616		32	32	14'-9"	709	2	6'-10'	1'-5"	6'-10"				
A617		32	32	16'-4"	785	3	5'-11"	2'-7"					
A618		32	32	15'-6"	745	3	4'-3"	3'-10"					
A619		3	3	11'-8"	53	28	2'-6"	2'-9"	1'-0"				
A626	1	2	3	11"	4	STR							
A627	2	4	6	3'-10"	35	14	10½"	1'-8"	8½"	6"	9"		
A628	2	4	6	2'-5"	22	1	11"	1'-8"					
A801	5		5	18'-7"	248	1	1'-4"	17'-6"					
A802	5		5	16'-4"	218	1	1'-4"	15'-2"					
A803	5		5	17'-10"	238	2	1'-4"	15'-6"	1'-4"				
A804	10		10	23'-0"	614	1	1'-4"	21'-10"					
A805		12	12	31'-2"	999	1	1'-4"	30'-0'					
A806		6	6	18'-2"	291	1	1'-4"	17'-0"					
A807		6	6	19'-1"	306	19	12'-6"	6'-0"	3'-4"				
A901	10	5	15	4'-1"	208	1	1'-7"	2'-9"					
A902	4		4	5'-8"	77	STR							
A903		2	2	4'-3"	29	STR							
A1001	36		36	21'-11"	4,247	16							
A1101	176		176	42'-3"	25,637	STR							
SP401	4		4	27'-5"	1,265	27							
SP402	4		4	27'-5"	4,804	27							
REAR ABUTMENT TOTAL					43,628								
FORWARD ABUTMENT TOTAL					7,320								
ABUTMENT TOTAL					50,948								

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED PJL | DRAWN LEL | CHECKED SAP | REVIEWED EBS | DATE 11/16/10 | REVISED | STRUCTURE FILE NUMBER 3102858

REINFORCING STEEL LIST

BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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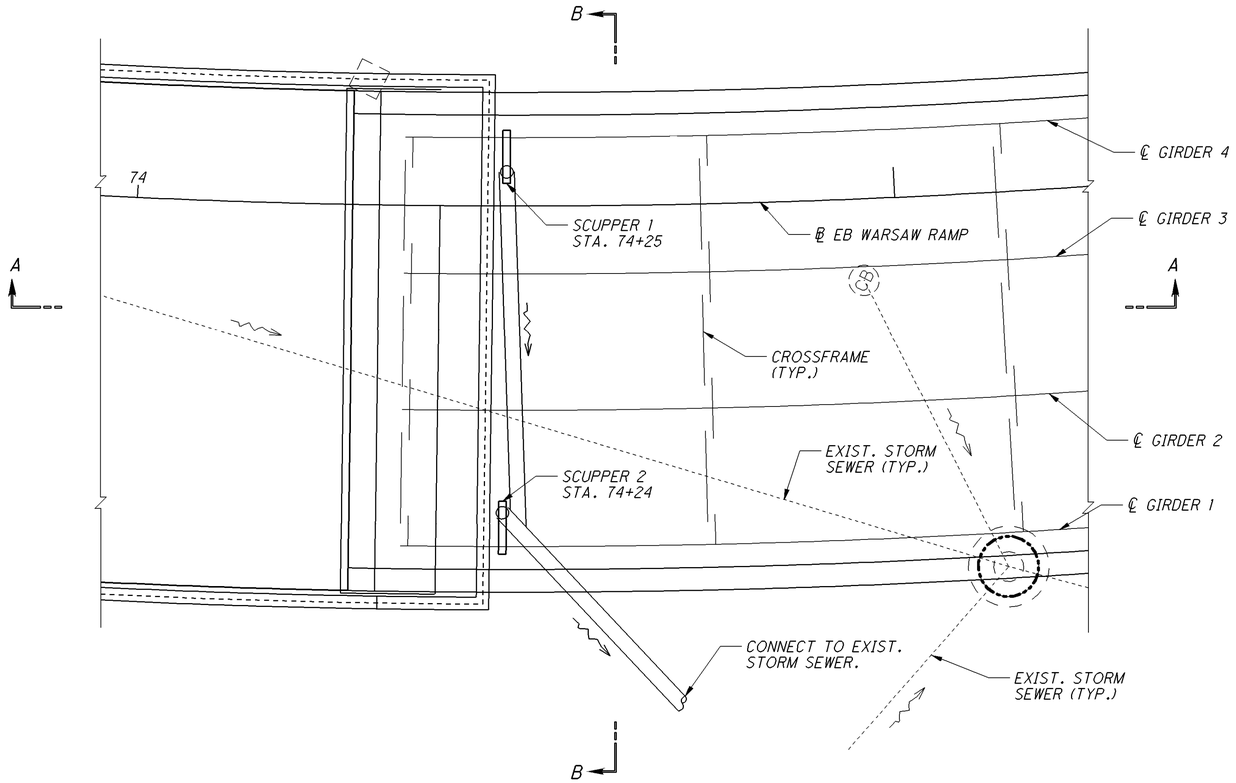
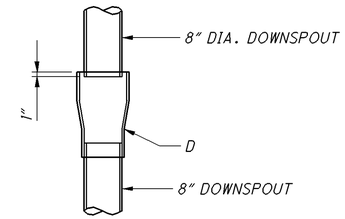
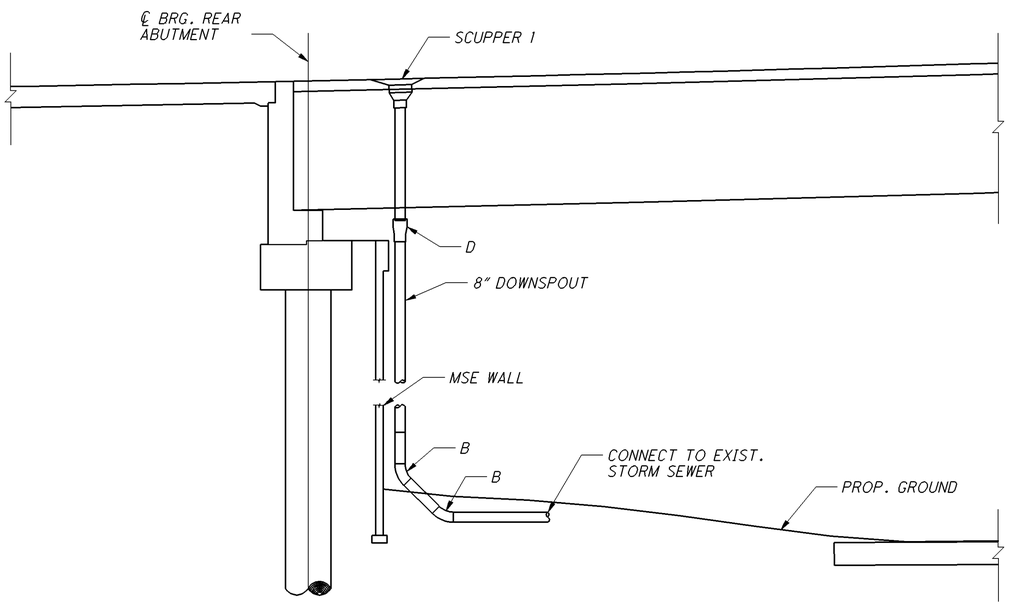


PARTIAL PLAN

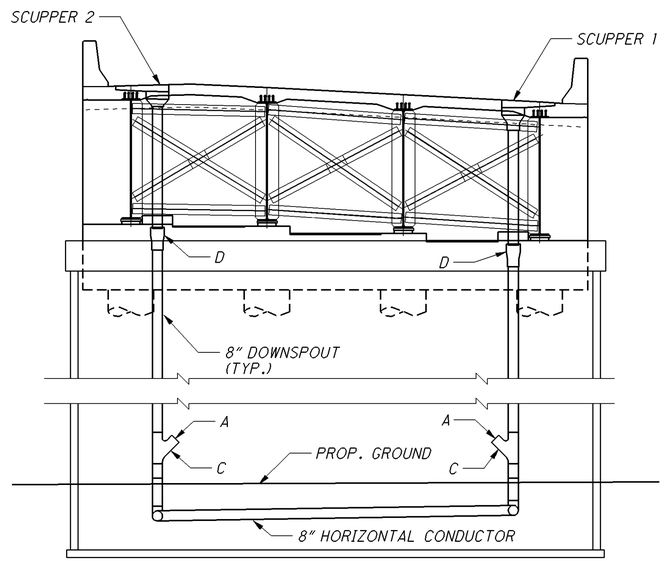


REDUCER DETAIL

A	CLEANOUT
B	45° BEND
C	LATERAL
D	12X8 REDUCER



SECTION A-A



SECTION B-B

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DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

SCUPPER DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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522
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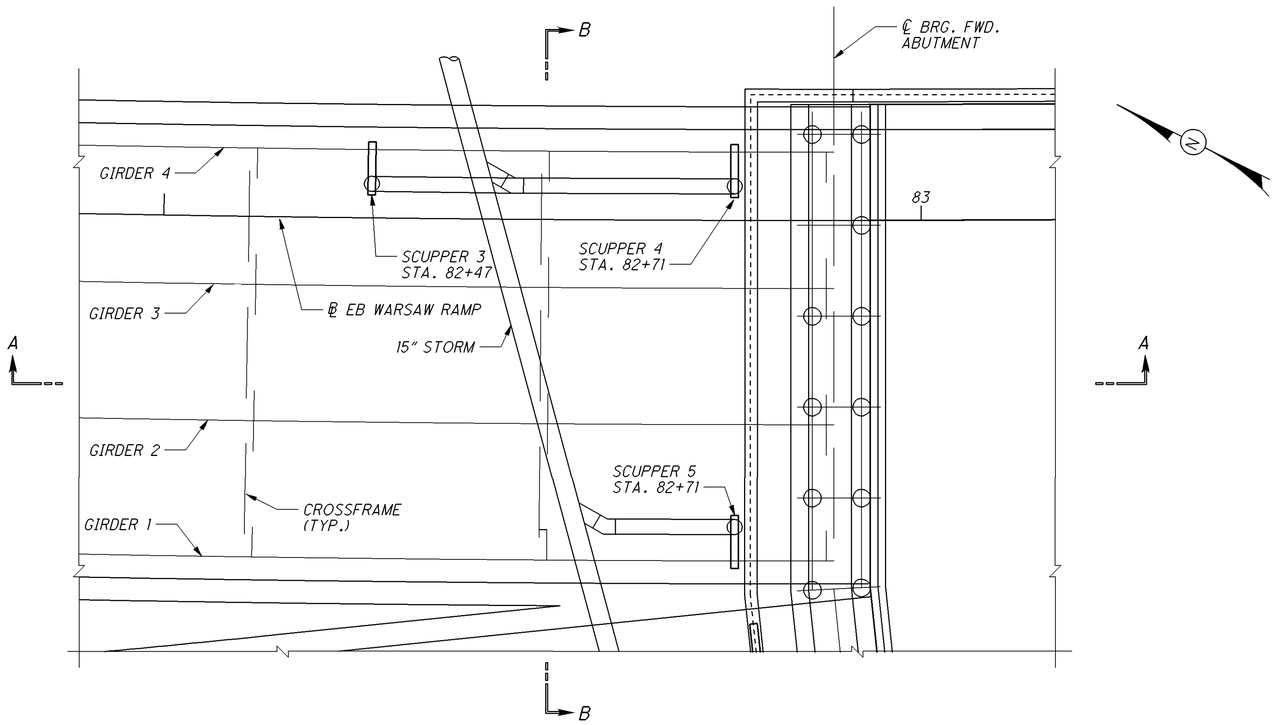
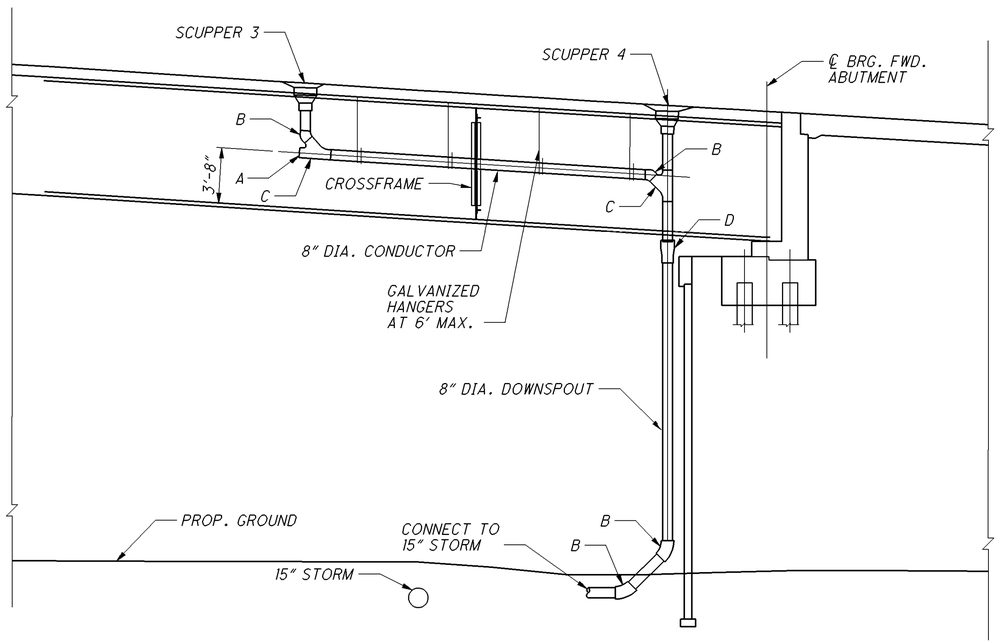
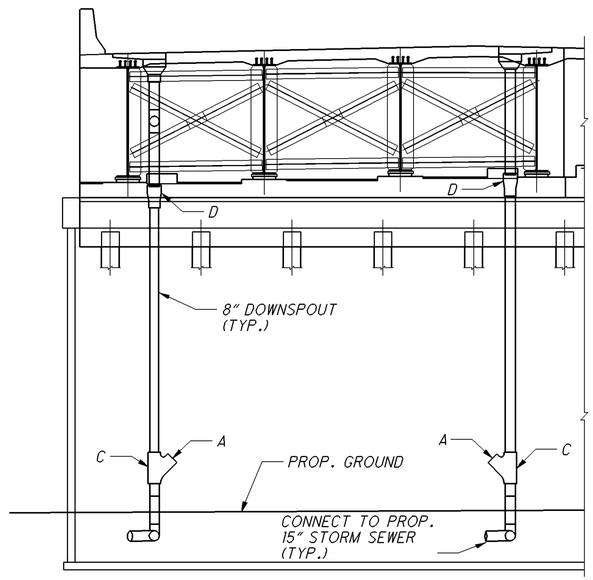


PARTIAL PLAN

A	CLEANOUT
B	45° BEND
C	LATERAL
D	12X8 REDUCER



SECTION A-A



SECTION B-B

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	LEL	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

SCUPPER DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

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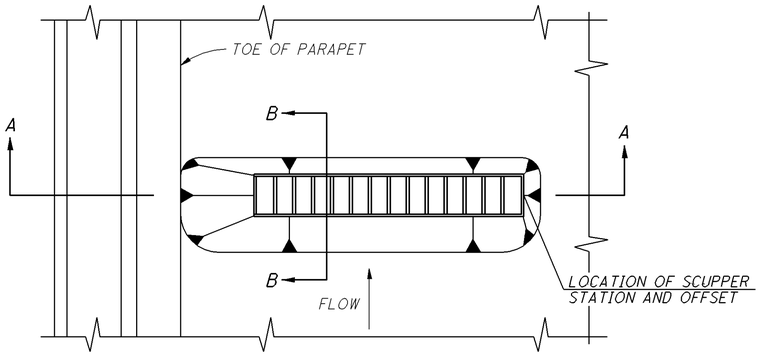
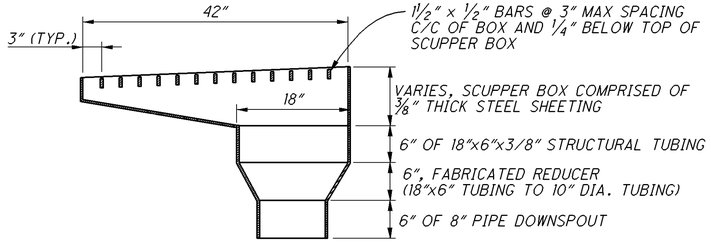
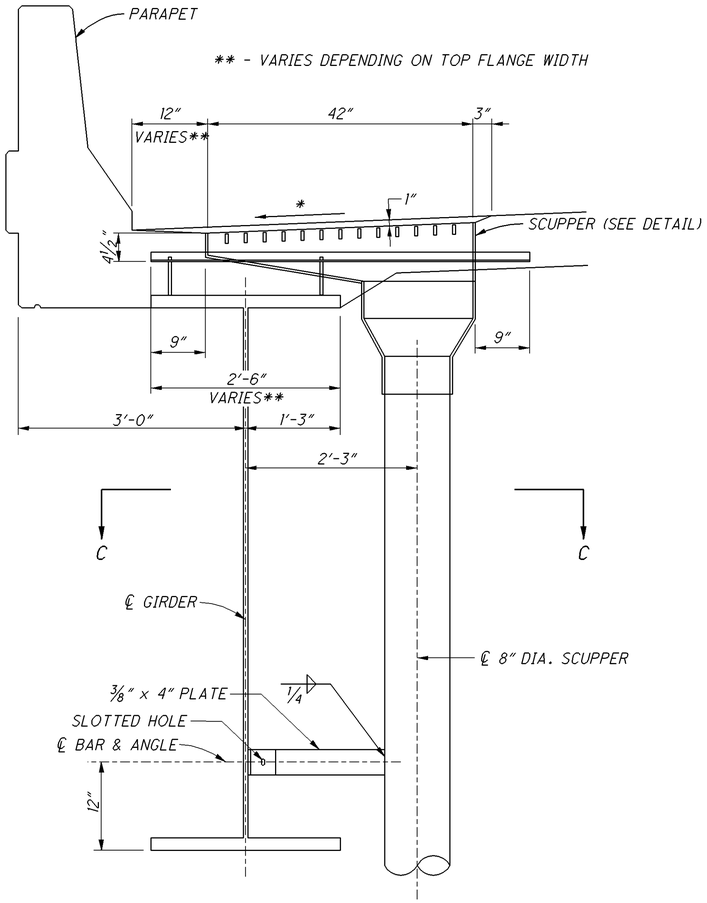


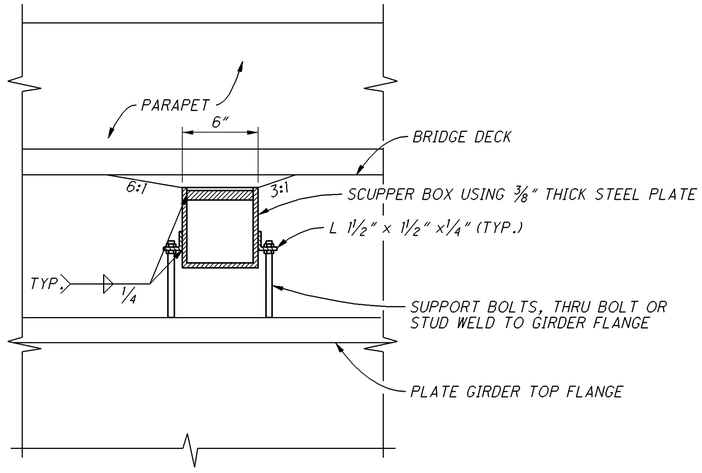
PLAN



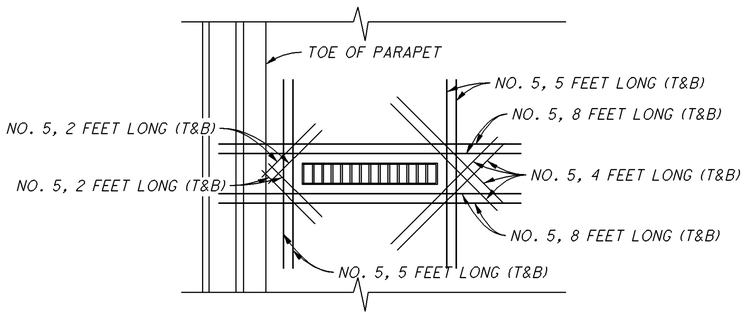
SCUPPER BOX DETAIL



SECTION A-A



SECTION B-B



ADDITIONAL DECK REINFORCING DETAIL

T&B = TOP AND BOTTOM

SCUPPER NOTES:

ALL MATERIALS INCLUSING STEEL PLATES, STRUCTURAL TUBING, SUPPORT ANGLES AND OTHER HARDWARE SHALL BE GALVANIZED PER 711.02.

SCUPPER BOXES AND REDUCERS SHALL BE MADE OF ⅜" GALVANIZED STRUCTURAL STEEL PLATES CONFORMING TO 518 AND 711.02.

STRUCTURAL STEEL TUBING SHALL BE PER 518, 707.11 AND 748.06.

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SPECIFIED AND IN ACCORDANCE WITH ITEM 748.06.

PAYMENT:

ALL MATERIALS, EQUIPMENT, DELIVERY AND LABOR NECESSARY IN THE FABRICATION AND INSTALLATION FOR THE SCUPPER AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE OF:

SCUPPER, INCLUDING SUPPORTS, AS PER PLAN.

DOWNSPOUT NOTES:

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SHOWN IN THE PLANS AND IN ACCORDANCE WITH ITEMS 518.06 AND 748.06. ALL FIELD WELDS TO BE GALVANIZED PER 711.02 AND WITH THE APPROVAL OF THE ENGINEER.

DOWNSPOUTS SHALL BE CONNECTED TO THE BRIDGE SCUPPER ASSEMBLIES BY WELDING OR USE OF CLAMP TYPE COUPLINGS WITH RING GASKETS.

HORIZONTAL PIPE RUNS SHALL BE SUPPORTED BY USE OF HANGARS AND STRAPS ATTACHED TO THE CONCRETE BRIDGE DECK. STRAPS SHALL BE PLACED AT A MAXIMUM SPACING OF 6 FEET C/C.

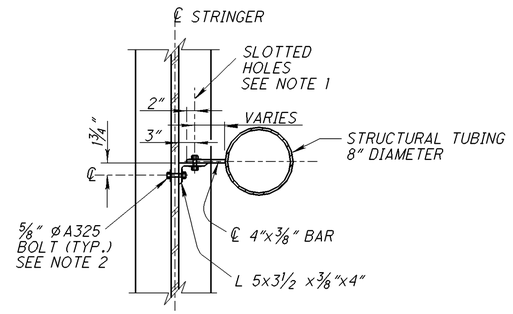
VERTICAL DOWNSPOUTS SHALL BE ATTACHED TO THE SUBSTRUCTURE BY USE OF STRAPS AND AT THE LOCATIONS INDICATED ON THE PLANS. THE DOWNSPOUT CONTRACTOR IS RESPONSIBLE FOR CONNECTING THE VERTICAL DOWNSPOUT TO THE UNDERGROUND PIPE DRAINAGE SYSTEM BY OTHERS.

ALL MATERIALS, EQUIPMENT, BENDS, WYES, TEES, CLEANOUTS, HORIZONTAL CONDUCTORS, HANGERSM FIELD GALVANIZING AND LABOR NECESSARY FOR THE FABRICATION AND INSTALLATION OF THE DOWNSPOUT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF:

PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

FASTENER NOTES:

1. THE SIZE OF THE SLOTTED HOLES SHALL BE 11/16" x 1 9/16". THE SLOT SHALL BE HORIZONTAL IN THE 4" x ⅜" BAR AND VERTICAL IN THE ANGLE. BOLTS SHALL BE ⅝" DIAMETER A325 TYPE 1, GALVANIZED, WITH HEX NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513.
2. THE BOLTS SHALL BE ⅝" DIAMETER A325 TYPE 1 GALVANIZED EACH ASSEMBLY SHALL INCLUDE A BOLT, NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513. AFTER THE DECK CONCRETE HAS BEEN POURED, FIELD DRILL THE 13/16" DIAMETER HOLE IN THE WEB.



SECTION C-C

DESIGN AGENCY
PB AMERICAS, INC.
312 ELM STREET
SUITE 2500
CINCINNATI, OHIO 45202

DESIGNED	DRAWN	REVIEWED	DATE
PJL	BKJ	EBS	11/16/10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SAP		3102858	

SCUPPER DETAILS
BRIDGE NO. HAM-050-1881
EB WARSAW AVE. RAMP OVER S.R. 264 AND U.S.R. 50

HAM-50-18.79
PID No. 20082

47 / 47

524
657

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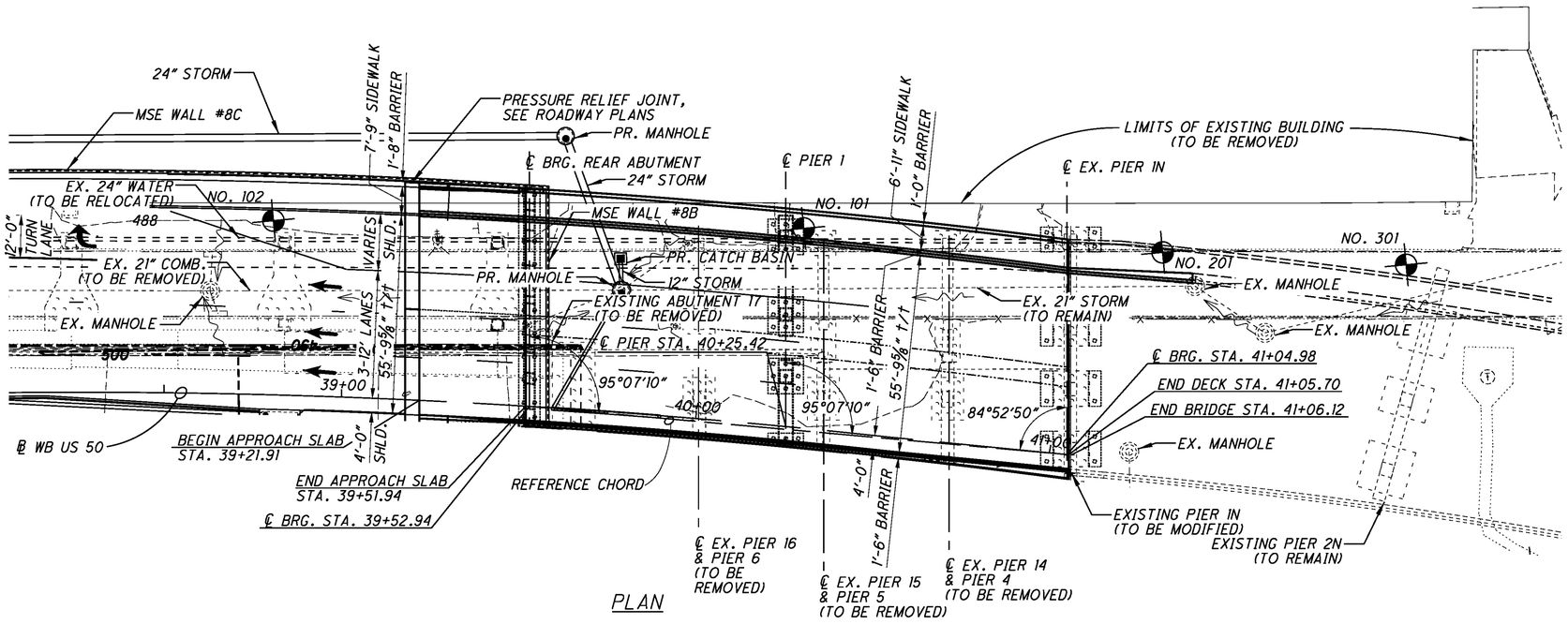
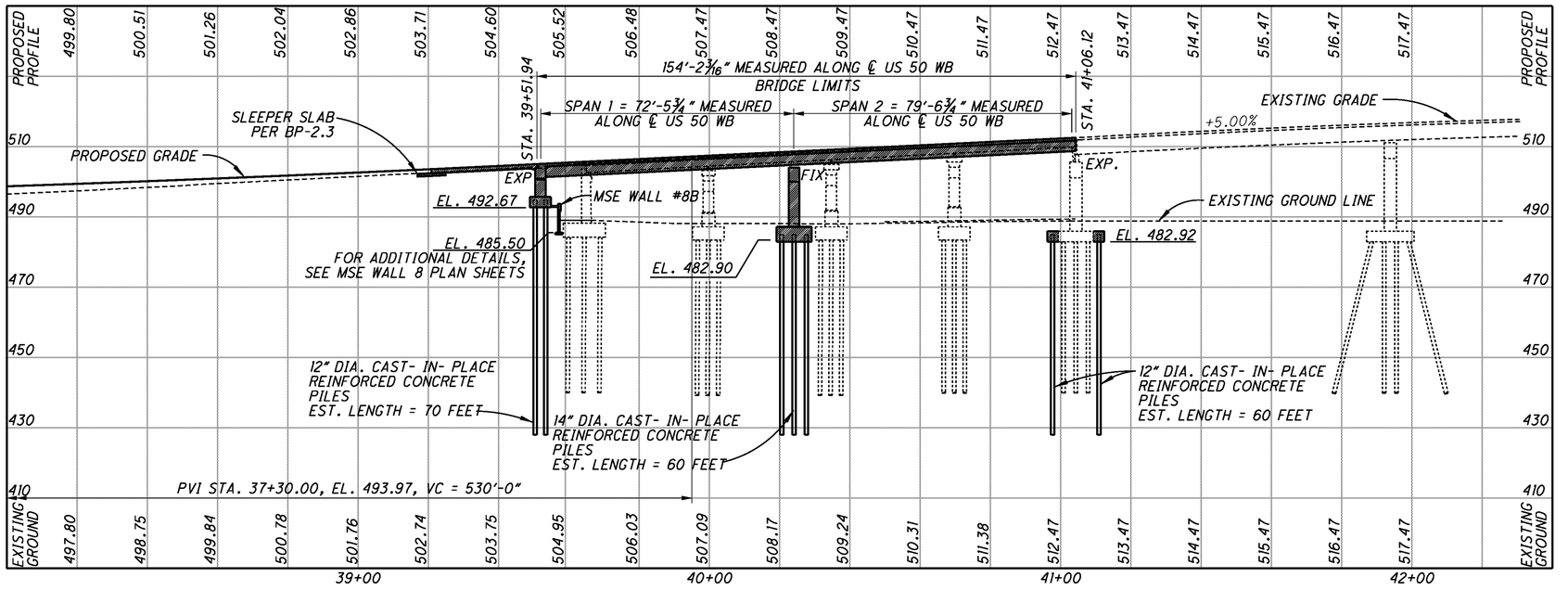
HORIZONTAL CURVE DATA US 50 W.B.
P.I. STA. 39+88.03
Δ = 03°26'09" (RT)
Dc = 02°36'23"
R = 2,198.33'
T = 65.93'
L = 131.82'
E = 0.99'
eMAX = N/C



PLAN



PROFILE ALONG ℄ WESTBOUND U.S. 50

BENCHMARK DATA

BM #1 STA. 37+13.12 ELEV. 493.12 OFFSET 625.73' LT.

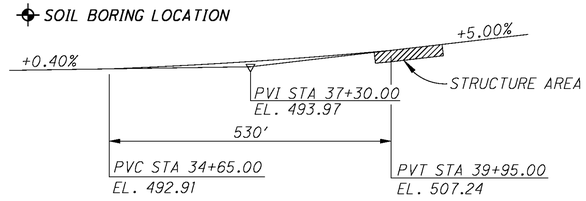
NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
2006 ADT = 52500 2006 ADTT = 1313 (CURRENT)
2026 ADT = 53400 2026 ADTT = 1335 (DESIGN)
DIRECTIONAL DISTRIBUTION = 50%

LEGEND

SOIL BORING LOCATION



VERTICAL ALIGNMENT

EXISTING STRUCTURE

TYPE: SIMPLE SPAN STEEL BEAMS WITH REINFORCED CONCRETE DECK SUPPORTED ON REINFORCED CONCRETE SUBSTRUCTURE.
SPANS: 34'-4", 35'-0", 35'-0", 35'-0"
ROADWAY: VARIES F/F SAFETY CURB
LOADING: CF=2000 (57) ADEQUATE FOR AASHTO ALTERNATE LOADING
WEARING SURFACE: ASPHALT
SKEW: NONE
APPROACH SLABS: NONE
ALIGNMENT:
CROWN:
STRUCTURAL FILE NUMBER: 3102807L & 3102815R
DATE BUILT: BUILT IN 1940 REHAB IN 1963
DISPOSITION: PARTIALLY REMOVED

PROPOSED STRUCTURE (LEFT)

TYPE: W44 ROLLED BEAMS WITH COMPOSITE REINFORCED CONCRETE DECK ON SEMI-INTEGRAL REAR ABUTMENT WITH MSE WALLS, REINFORCED CONCRETE CAP AND COLUMN PIERS, AND MODIFIED EXISTING PIER IN
SPANS: 72'-6½" SPAN 1, 79'-5 13/16" SPAN 2, MEASURED ALONG REFERENCE CHORD ℄ BRG. TO ℄ BRG.
ROADWAY: VARIES FROM 55'-9⅝" TO 54'-10¾" TOE OF PARAPET TO TOE OF SIDEWALK CURB + 8'-5" SIDEWALK
LOADING: HS25 (CASE II) AND ALTERNATE MILITARY
STRUCTURAL FILE NUMBER: 3102807
FUTURE WEARING SURFACE: 60 PSF
SKEW: 05°07'10" RF MEASURED FROM REFERENCE CHORD
APPROACH SLABS: 30' LONG (AS-1-81)
ALIGNMENT: CURVED RIGHT
CROWN: SUPERELEVATION
COORDINATES: LATITUDE N 39°06'07"
LONGITUDE W 84°32'47"

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
KZF DESIGN, INC. 700 Walnut Street, Suite 400 Cincinnati, OH 45202
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE
DEF	DAT	RBK	---	BMB	11-29-10

STRUCTURE FILE NUMBER 3102807

HAMILTON COUNTY
STA. 39+51.94
STA. 41+06.12

SITE PLAN
BRIDGE NO. HAM-50-1903 LEFT
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

1 / 65

525
630

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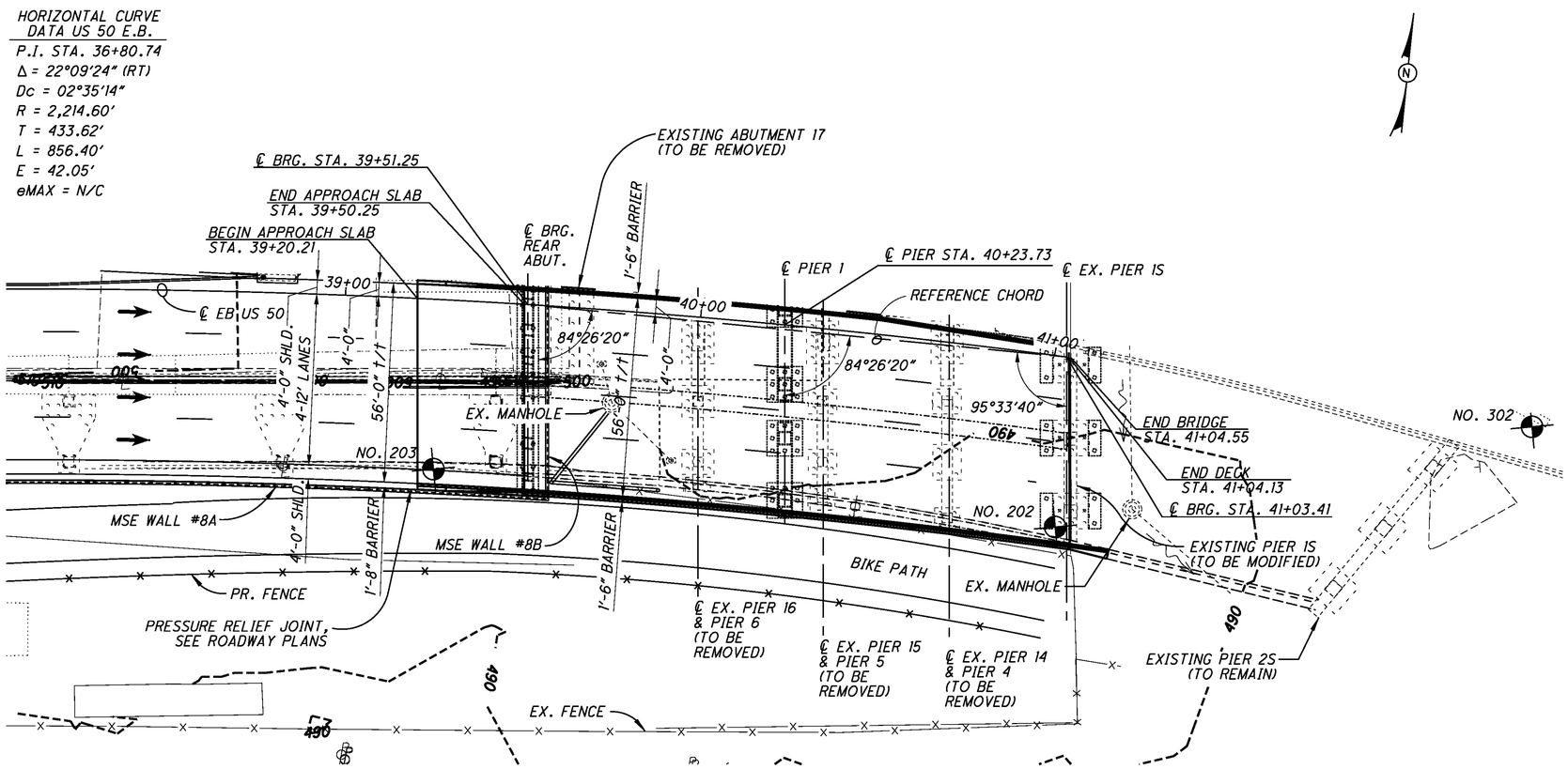
HORIZONTAL CURVE DATA US 50 E.B.
P.I. STA. 36+80.74
Δ = 22°09'24" (RT)
Dc = 02°35'14"
R = 2,214.60'
T = 433.62'
L = 856.40'
E = 42.05'
eMAX = N/C



PLAN

BENCHMARK DATA

BM #1 STA. 37+13.12 ELEV. 493.12 OFFSET 625.73' LT.

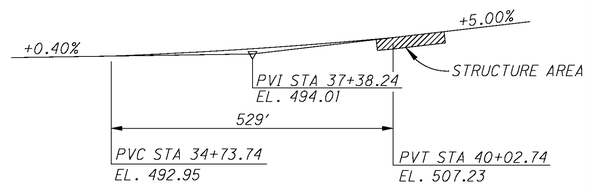
NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
2006 ADT = 52500 2006 ADTT = 1313 (CURRENT)
2026 ADT = 53400 2026 ADTT = 1335 (DESIGN)
DIRECTIONAL DISTRIBUTION = 50%

LEGEND

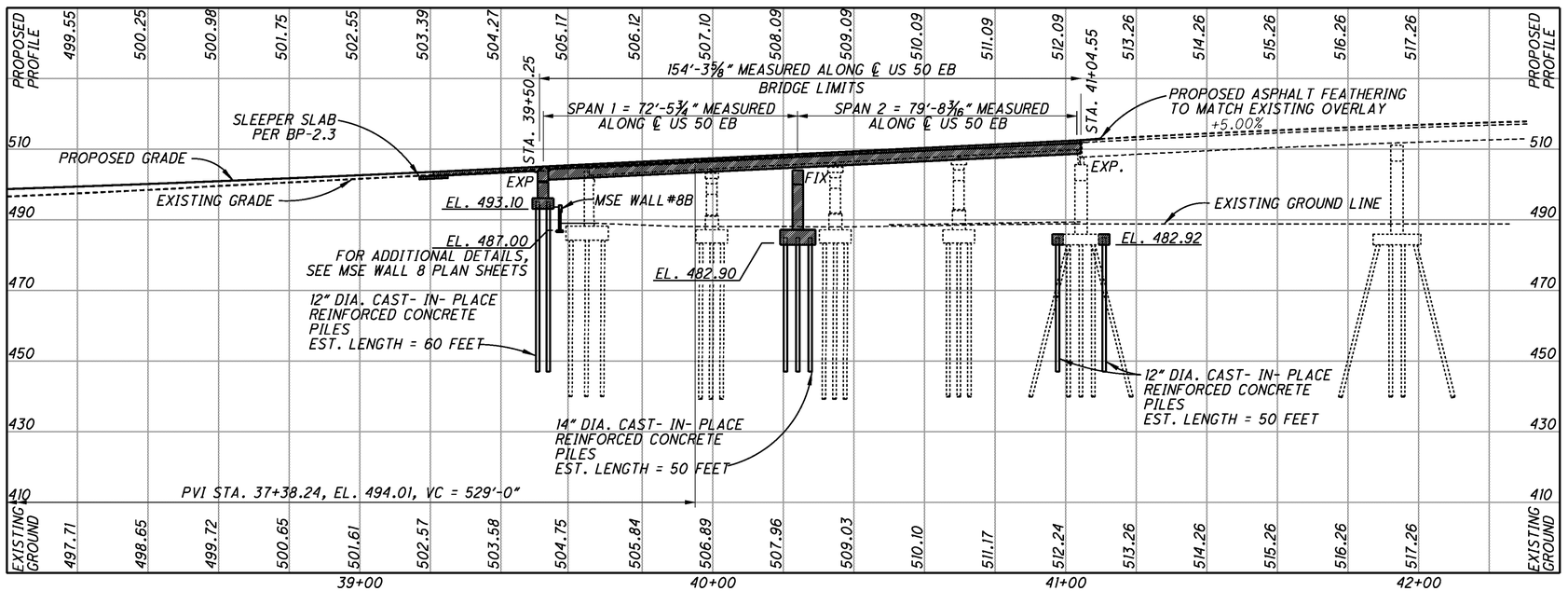
SOIL BORING LOCATION



VERTICAL ALIGNMENT

EXISTING STRUCTURE

TYPE: SIMPLE SPAN STEEL BEAMS WITH REINFORCED CONCRETE DECK SUPPORTED ON REINFORCED CONCRETE SUBSTRUCTURE.
SPANS: 34'-4", 35'-0", 35'-0", 35'-0"
ROADWAY: VARIES F/F SAFETY CURB
LOADING: CF=2000 (57) ADEQUATE FOR AASHTO ALTERNATE LOADING
WEARING SURFACE: ASPHALT
SKEW: NONE
APPROACH SLABS: NONE
ALIGNMENT:
CROWN:
STRUCTURAL FILE NUMBER: 3102807L & 3102815R
DATE BUILT: BUILT IN 1940 REHAB IN 1963
DISPOSITION: PARIALLY REMOVED



PROFILE ALONG ℄ EASTBOUND U.S. 50

PROPOSED STRUCTURE (RIGHT)

TYPE: W44 ROLLED BEAMS WITH COMPOSITE REINFORCED CONCRETE DECK ON SEMI-INTEGRAL REAR ABUTMENT WITH MSE WALLS, REINFORCED CONCRETE CAP AND COLUMN PIERS, AND MODIFIED EXISTING PIER 1S
SPANS: 72'-7⅛" SPAN 1, 79'-6½" SPAN 2 MEASURED ALONG REFERENCE CHORD ℄ BRG. TO ℄ BRG.
ROADWAY: VARIES FROM 56'-0" TO 54'-0⅜" TOE/TOE PARAPET
LOADING: HS25 (CASE II) AND ALTERNATE MILITARY
STRUCTURAL FILE NUMBER: 3102815
FUTURE WEARING SURFACE: 60 PSF
SKEW: 05°33'40" RF MEASURED FROM REFERENCE CHORD
APPROACH SLABS: 30' LONG (AS-1-81)
ALIGNMENT: CURVED RIGHT
CROWN: SUPERELEVATION
COORDINATES: LATITUDE N 39°06'07"
LONGITUDE W 84°32'47"

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
CINCINNATI, OHIO 45246 TEL 513.821.6211 FAX 513.821.8830 WEB www.kzf.com

DESIGNED DEF | DRAWN RBK | CHECKED DAT | REVIEWED BMB | DATE 11-29-10 | STRUCTURE FILE NUMBER 3102815 | REVISED

HAMILTON COUNTY
STA. 39+50.25
STA. 41+04.55

SITE PLAN
BRIDGE NO. HAM-50-1903 RIGHT
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

2 / 65

526
630

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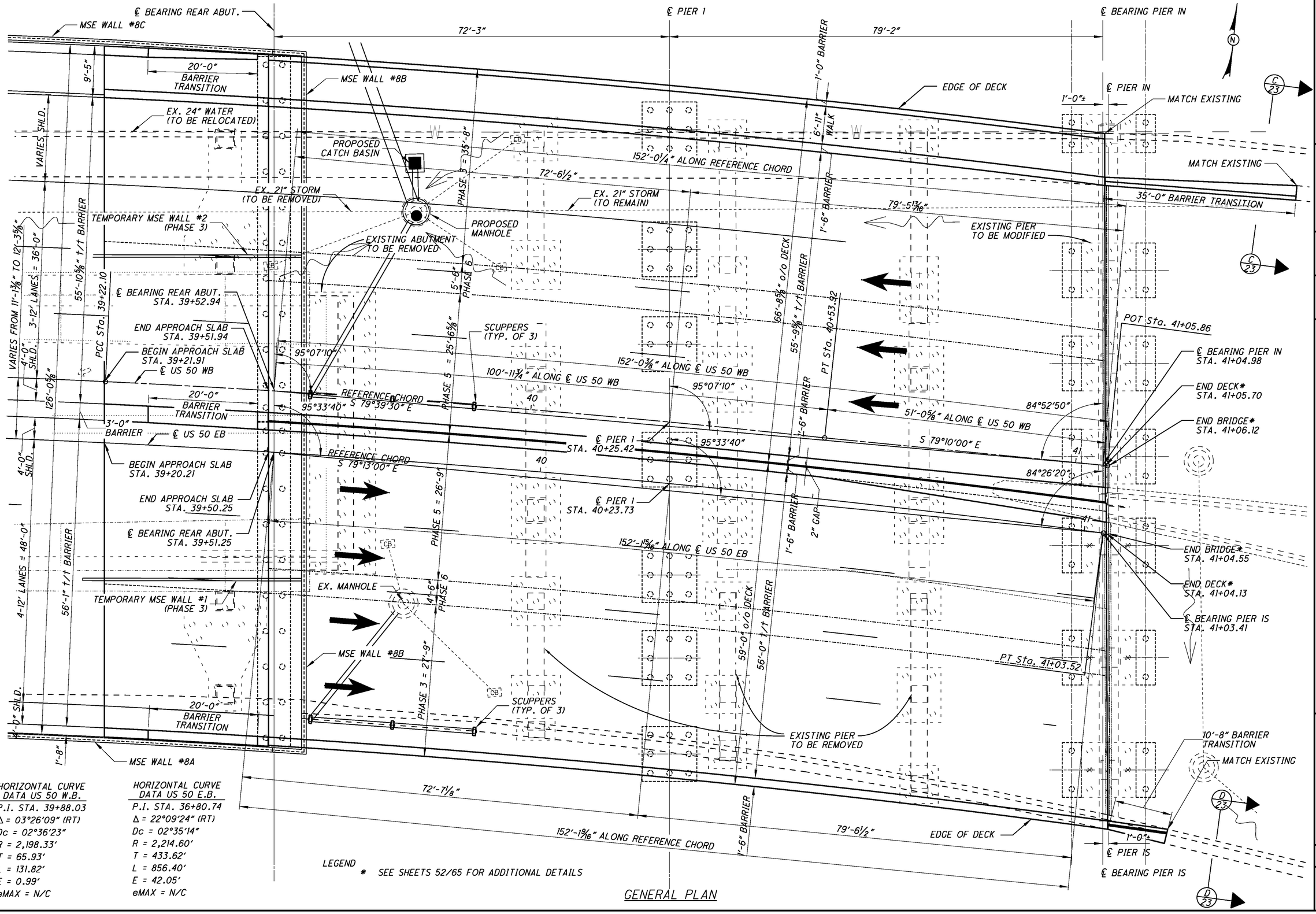

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
434 Brannan Street, San Francisco, CA 94107
TEL 513.621.6211 FAX 513.621.38530 WEB www.kzf.com

DESIGNED DEF | DRAWN RBK | CHECKED DAT | REVIEWED BMB | DATE 11-29-10 | REVISED | STRUCTURE FILE NUMBER 31028017/3102815

GENERAL PLAN
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

3 / 65

527 / 657

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HORIZONTAL CURVE DATA US 50 W.B.

P.I. STA. 39+88.03
Δ = 03°26'09" (RT)
Dc = 02°36'23"
R = 2,198.33'
T = 65.93'
L = 131.82'
E = 0.99'
eMAX = N/C

HORIZONTAL CURVE DATA US 50 E.B.

P.I. STA. 36+80.74
Δ = 22°09'24" (RT)
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L = 856.40'
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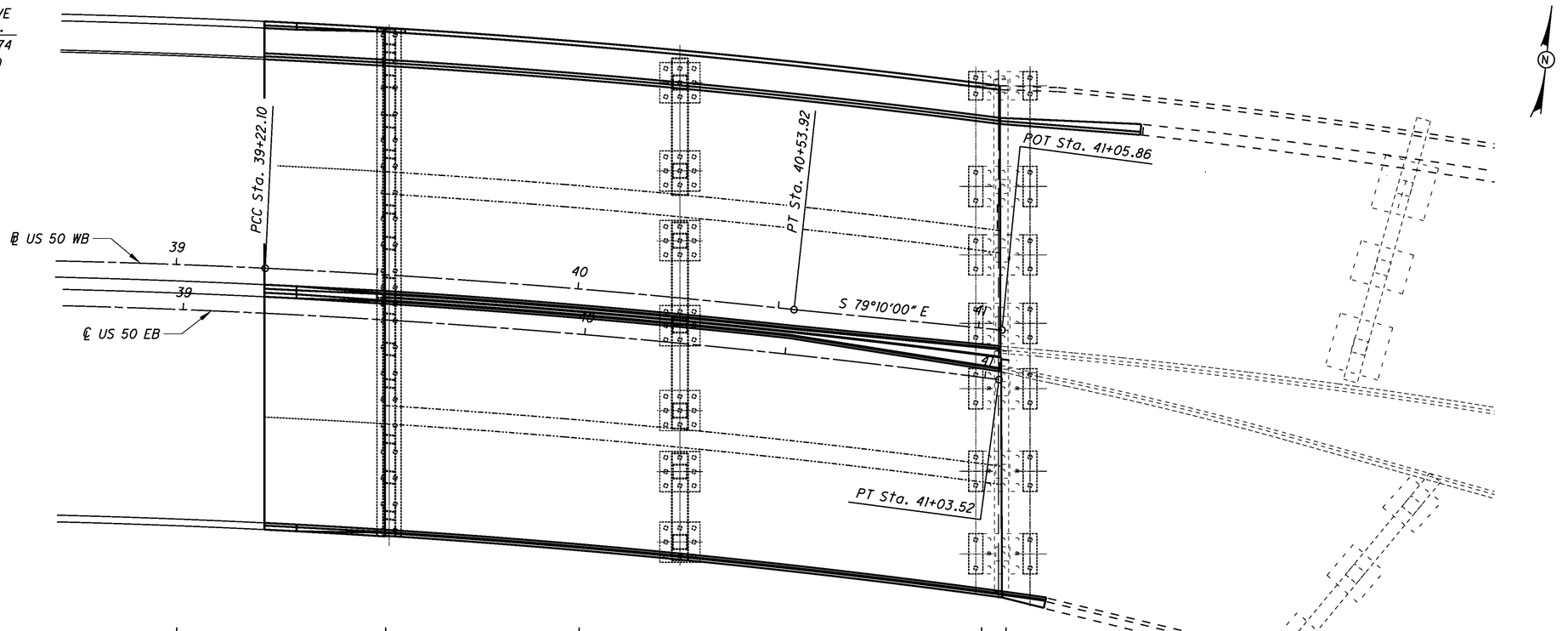
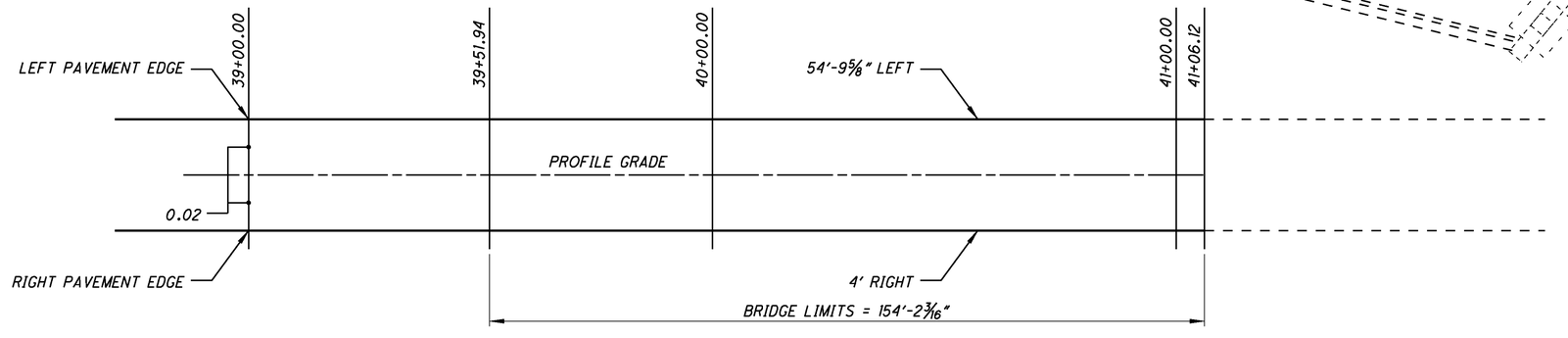
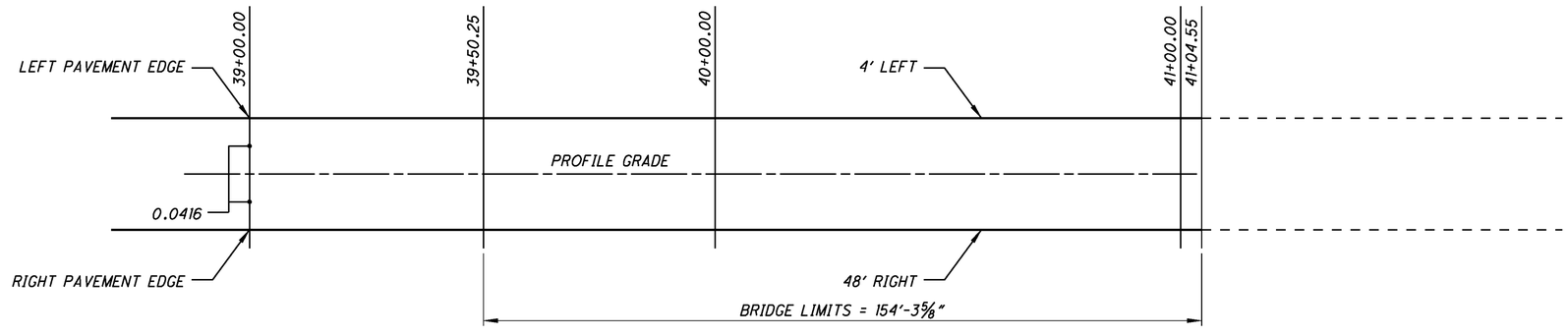




PAVEMENT TRANSITION DETAIL
BRIDGE NO. HAM-50-1903 L

NOTES:
1. FOR MORE DETAILS, SEE ROADWAY PAVEMENT DETAIL SHEETS.



PAVEMENT TRANSITION DETAIL
BRIDGE NO. HAM-50-1903 R

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4700 Duke Drive, Suite 200, Mason, Ohio 45040
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

PAVEMENT TRANSITION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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GENERAL NOTES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFERENCE SHALL BE MADE TO STANDARD DRAWING(S):

AS-1-81	REVISED	07-19-02	BR-1	REVISED	07-19-02
BR-2-98	REVISED	07-19-02	EXJ-4-87	REVISED	07-19-02
GSD-1-96	REVISED	07-19-02	PCB-91	REVISED	07-19-02
SICD-1-96	REVISED	07-19-02			

AND TO FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

840	DATED	10-15-10	843	DATED	04-18-03
898	DATED	10-15-10			

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17TH EDITION (2002), AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING:

HS25, CASE II AND THE ALTERNATE MILITARY LOADING
FUTURE WEARING SURFACE (FWS) OF 60 LBS./SQ. FT.

DESIGN STRESSES:

CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
CONCRETE CLASS QSC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)
REINFORCING STEEL - ASTM A615 OR A996 GRADE 60,
MINIMUM YIELD STRENGTH 60,000 PSI
STRUCTURAL STEEL - ASTM A709 GRADE 50, YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL
2½" CONCRETE COVER
HMWM RESIN SEALER AT DECK JOINTS

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK

PILE DESIGN LOADS (ULTIMATE BEARING VALUE):

THE ULTIMATE BEARING VALUE IS 85 TONS PER 12" CIP REINFORCED CONCRETE PILE FOR THE REAR ABUTMENT PILES.
THE ULTIMATE BEARING VALUE IS 130 TONS PER 14" CIP REINFORCED CONCRETE PILE FOR THE PROPOSED PIER 1 PILES.
THE ULTIMATE BEARING VALUE IS 85 TONS PER 12" CIP REINFORCED CONCRETE PILE FOR THE MODIFIED PIER IN/IS PILES.

ABUTMENT PILES:
20 PILES 60 FEET LONG, ORDER LENGTH
22 PILES 70 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

PIER PILES:
25 PIER PILES 50 FEET LONG, ORDER LENGTH (PROPOSED PIER 1)
36 PIER PILES 60 FEET LONG, ORDER LENGTH (PROPOSED PIER 1)
12 PIER PILES 50 FEET LONG, ORDER LENGTH (MODIFIED PIER IN/IS)
16 PIER PILES 60 FEET LONG, ORDER LENGTH (MODIFIED PIER IN/IS)
2 DYNAMIC LOAD TESTING ITEMS

MAINTENANCE OF TRAFFIC:

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS, REFER TO MAINTENANCE OF TRAFFIC SHEETS.

UTILITY LINES:

ALL UTILITY(IES) SHALL BE LOCATED, FLAGGED, VERIFIED AND CONFIRMED BY THE CONTRACTOR WHICH ARE TO BE RELOCATED, ABANDONED OR LEFT IN PLACE BEFORE REMOVAL, RENOVATION, AND INSTALLATION OF THE NEW BRIDGE FOUNDATIONS. COORDINATE ALL UTILITY(IES) WITH THE ROADWAY PLANS AND UTILITY(IES) PLANS.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

CONCRETE PARAPETS:

AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1¼" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AT A MINIMUM OF 6 FEET AND A MAXIMUM OF 10 FEET CENTERS. USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF ¼ INCH. SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM ½ INCH OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN:

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICIATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARTELY LISTED FOR PAYMENT, EXCEPT FOR WEARING COURSE REMOVAL. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF THE HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

TEMPORARY MSE WALLS:
TEMPORARY MSE WALLS #1 AND #2 ARE NEEDED TO SUPPORT THE STAGED CONSTRUCTION OF THE BRIDGE ABUTMENT. THE TEMPORARY MSE WALLS SHALL NOT BE REMOVED, BUT SHALL BE INCORPORATED INTO THE EMBANKMENT FOR THE PERMANENT MSE WALLS AS CONSTRUCTION IS COMPLETED IN STAGES. THIS ITEM SHALL INCLUDE THE DESIGN AND CONSTRUCTION OF SELF-SUPPORTING, TEMPORARY MSE WALLS USED TO SUPPORT THE LONGITUDINAL STAGE CONSTRUCTION AND BACKFILL, THE APPROACH SLAB, AND THE APPROACH PAVEMENT, OVER THE LIMITS OF THE EXCAVATION FOR THE PROPOSED MSE ABUTMENTS. THE TEMPORARY MSE WALLS SHALL BE DESIGNED TO SUPPORT THE DIFFERENT PHASES OF STAGE CONSTRUCTIONS, FROM THE BOTTOM OF THE MSE EMBANKMENT TO THE PROPOSED FINISHED GRADE. THE DESIGN FOR THE TEMPORARY MSE WALLS SHALL BE IN ACCORDANCE WITH THE SAME SPECIFICATIONS AND REQUIREMENTS AS THE PERMANENT MSE RETAINING WALLS. THE TEMPORARY MSE WALL DESIGN SHALL BE COMPLETED PER CMS 501.05.

ITEM 507 - 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN, AS PER PLAN:

LOW OVERHEAD CONDITIONS EXIST AT PIER 1S AND PIER 1N FOR INSTALLATION OF THE FOLLOWING PILES: 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130. SUBMIT, FOR THE ENGINEER'S ACCEPTANCE, A WRITTEN INSTALLATION PLAN FOR DRIVING THE LOW OVERHEAD PILES TO THE ULTIMATE BEARING VALUE PROVIDED IN THE PLANS. INCLUDE IN THE PLAN THE PROPOSED EQUIPMENT AND METHODS FOR DRIVING THE PILES IN THE LOW OVERHEAD CONDITIONS. ALSO INCLUDE A WAVE EQUATION ANALYSES THAT DEMONSTRATES THE PROPOSED EQUIPMENT AND METHODS ARE SUITABLE FOR DRIVING THE PILES. SUBMIT THE INSTALLATION PLAN AT LEAST 30 DAYS BEFORE BEGINNING TO DRIVE THE PILING IN THE LOW OVERHEAD CONDITIONS. ALLOW AT LEAST 14 DAYS FOR THE DEPARTMENT'S REVIEW.

PAYMENT FOR ITEM 507 - 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN, AS PER PLAN INCLUDES ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO DRIVE THE PILES IN THE LOW OVERHEAD CONDITIONS, INCLUDING THE COST OF SPLICING WITHIN THE PLAN ORDER LENGTH.

ITEM 516 - SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:

INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1¼" x #10 GAGE (LENGTH x SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTNER SPACING IS 9 INCHES. USE OF OTHER SIMILIAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP, FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY-DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I.DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094±0.01
BREAKING STRENGTH, GRAB, LBS MINIMUM (LONG. x TRANS.)	D751	700x700
ADHESIVE STRIP, 1" WIDE x 2" LONG, LBS MINIMUM	D751	9
BURST STRENGTH, PSI MINIMUM	D751	1400
HEAT AGING, 70 HR. 212°F, 180° BEND WITHOUT CRACKING	D2136	NO CRACKING OR COATING
LOW TEMP. BRITTLENESS, 1 HR, -40°F, BEND AROUND ¼" MANDREL	D2136	NO CRACKING OR COATING

METHOD OF MEASUREMENT:
THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT:
THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN:

PRIOR TO THE SURFACE CLEANING SPECIFIED IN 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING THE EXPOSED REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), AS PER PLAN:

FURNISH APPROACH SLAB CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 989, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN:

THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

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GENERAL NOTES
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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GENERAL NOTES

DECK PLACEMENT DESIGN ASSUMPTIONS:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ANALYSIS AND DESIGN OF THE BRIDGE SUPERSTRUCTURE (STEEL BEAMS AND ALL BRACING), AS WELL AS THE ANALYSIS AND DESIGN OF THE CONSTRUCTION FALSEWORK AND SUPPORT SYSTEMS. THE CONTRACTOR SHALL SUBMIT FOR REVIEW ALL ANALYSIS AND DESIGN CALCULATIONS RELATED TO CONFORMANCE WITH THESE NOTES, THE ASSUMPTIONS BELOW AND ODOT'S BRIDGE DESIGN MANUAL (BDM) SECTIONS 302.2.7.2b, 302.2.7.2c, AND 302.2.7.3. ALL CALCULATIONS SHALL BE PREPARED AND SEALED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER.

THE FOLLOWING ASSUMPTIONS ARE MADE:

1. THE RAIL-TO-RAIL LENGTH (W) ASSUMPTION WAS 36.667 FT. MEASURED PERPENDICULAR TO THE CENTERLINE OF THE BRIDGE. REFER TO MAXIMUM WHEEL LOAD DATA UNDER SECTION E., LOAD DATA, OF ODOT'S BRIDGE DESIGN MANUAL SECTION 302.2.7.2.c.
2. AN EIGHT-WHEEL FINISHING MACHINE WAS ASSUMED, WITH A MAXIMUM WHEEL LOAD OF 1.0 KIP FOR A TOTAL MACHINE LOAD OF 8.0 KIPS.
3. A MINIMUM OUT-TO-OUT WHEEL SPACING OF 103 INCHES WAS ASSUMED AT EACH END OF THE MACHINE.
4. A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 INCHES WAS ASSUMED.
5. A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65 INCHES WAS ASSUMED

THE CONTRACTOR SHALL CONFIRM THE ABOVE ASSUMPTIONS ARE INCORPORATED IN THEIR DESIGN CALCULATIONS, AND IF DEVIATIONS ARE MADE TO THE ABOVE ASSUMPTIONS, CONTRACTOR SHALL MODIFY THE DESIGN AND CALCULATIONS TO INCORPORATE SAID DEVIATIONS.

PROPOSED WORK:

1. PROTECT AND MAINTAIN ALL TRAFFIC DURING CONSTRUCTION.
2. INSTALL DETOUR, PORTABLE CONRETE BARRIER AND TEMPORARY BEAM.
3. REMOVE PORTION OF EXISTING STRUCTURE.
4. CONSTRUCT PORTION OF ABUTMENT, TEMPORARY MSE RETAINING WALL, MSE RETAINING WALL, PIERS, AND SUPERSTRUCTURE AND SEAL CONCRETE SURFACES AS SHOWN IN THE PLANS.
5. INSTALL DETOUR AND PORTABLE CONCRETE BARRIER.
6. REMOVE REMAINING PORTION OF EXISTING STRUCTURE.
7. CONSTRUCT REMAINING PORTION OF ABUTMENT, MSE RETAINING WALL, PIERS AND SUPERSTRUCTURE AND SEAL CONCRETE SURFACES AS SHOWN IN THE PLANS.
8. CONSTRUCT REMAINING PORTION OF SUPERSTRUCTURE AND SEAL CONCRETE SURFACES AS SHOWN IN THE PLANS.

SEQUENCE OF CONSTRUCTION:

SEE PHASE CONSTRUCTION PLAN DETAILS FOR SEQUENCE OF CONSTRUCTION NOTES ON SHEETS 09/65 - 14/65 .

FINISH COLORS

THE COLOR FOR ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 2, SHALL BE AS FOLLOWS:

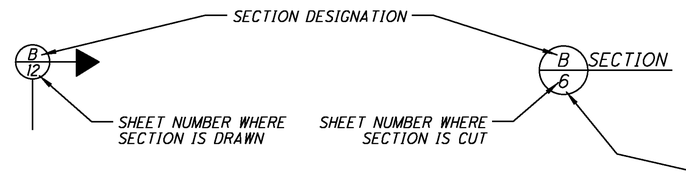
THE OUTSIDE FACE AND BOTTOM FLANGES OF THE FASCIA BEAMS TO BE PAINTED FEDERAL COLOR NUMBER 27038 (SEMI-GLOSS BLACK, 30% SHEEN)

ALL REMAINING BRIDGE SUPERSTRUCTURE ELEMENTS TO BE PAINTED FEDERAL COLOR NUMBER 10324 (DARK NEUTRAL)

ABBREVIATION LIST

N.F. =	NEAR FACE	P.E.J.F. =	PREFORMED EXPANSION JOINT FILLER
F.F. =	FAR FACE	P.C.P.P. =	PERFORATED CORRUGATED PLASTIC PIPE
E.F. =	EACH FACE	N.P.C.P.P. =	NON-PERFORATED CORRUGATED PLASTIC PIPE
TYP. =	TYPICAL	INV. =	INVERT
MIN. =	MINIMUM	FWD. =	FORWARD
STA. =	STATION	ABUT. =	ABUTMENT
SPA. =	SPACES	CONC. =	CONCRETE
CONST. =	CONSTRUCTION	EA. =	EACH
EL. =	ELEVATION	STD. =	STANDARD
C.I.P. =	CAST-IN-PLACE	DWG. =	DRAWING
BRG. =	BEARING	DIA. =	DIAMETER
EX. =	EXISTING	E.B. =	EASTBOUND
PROP. =	PROPOSED	W.B. =	WESTBOUND
A.P.P. =	AS PER PLAN	W.P. =	WORK POINT
R.A. =	REAR ABUTMENT	C/C =	CENTER TO CENTER
F.A. =	FORWARD ABUTMENT	STRUCT. =	STRUCTURE
O/O =	OUT TO OUT	TEMP. =	TEMPORARY
F/F =	FACE TO FACE	C.J. =	CONSTRUCTION JOINT
CLR. =	CLEAR	BTM. =	BOTTOM
LT. =	LEFT		
RT. =	RIGHT		
EST. =	ESTIMATE		
EQ. =	EQUAL		

SECTION CONVENTION



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DEF	RBK	BMB	11-29-10
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DAT		3102807/3102815	

GENERAL NOTES
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CALCULATED BY: RBK DATE: 02/25/09
CHECKED BY: DAT DATE: 02/27/09

PARTICIPATION	ESTIMATED QUANTITIES									
100% DISTRICT	ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	A.P.P.
LUMP	202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	5/65
LUMP	503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	5/65
LUMP	503	21300	LUMP		UNCLASSIFIED EXCAVATION				LUMP	
LUMP	505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
1870	507	00500	1870	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	1430	440			
440	507	00501	440	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN, AS PER PLAN		440			5/65
2500	507	00550	2500	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	1540	960			
1980	507	00600	1980	FT	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		1980			
2160	507	00650	2160	FT	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED		2160			
142793	509	10000	142793	POUND	EPOXY COATED REINFORCING STEEL	10226	24568	107999		
396	510	10000	396	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		396			
936	512	10100	936	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	82	291	471	92	
4	512	33000	4	SQ YD	TYPE 2 WATERPROOFING	4				
324089	513	10240	324089	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 2			324089		
3969	513	20000	3969	EACH	WELDED STUD SHEAR CONNECTORS			3969		
14548	514	00060	14548	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			14548		
14548	514	00066	14548	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			14548		
7	514	10000	7	EACH	FINAL INSPECTION REPAIR			7		
66	516	11210	66	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			66		
14	516	13600	14	SQ FT	1" PERFORMED EXPANSION JOINT FILLER			14		
352	516	13900	352	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	21		331		
100	516	14021	100	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	100				5/65
7	516	44100	7	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)			7		
					15"x15"x2½" BEARING WITH 16"x16" LOAD PLATE					
7	516	44100	7	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)			7		
					19"x19"x2½" BEARING WITH 27"x21" LOAD PLATE					
7	516	44100	7	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)			7		
					16"x12"x2½" BEARING WITH 18"x14" LOAD PLATE					
154	517	75120	154	FT	RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)			154		
3	518	12201	3	EACH	SCUPPERS, INCLUDING SUPPORTS, AS PER PLAN			3		65/65
55	518	21200	55	CU YD	POROUS BACKFILL WITH FILTER FABRIC				55	
67	518	40000	67	FT	6" PERFORATED CORRUGATED PLASTIC PIPE				67	
48	518	51101	48	FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN			48		65/65
8	519	11101	8	SQ FT	PATCHING CONCRETE STRUCTURE, AS PER PLAN		8			5/65
3	523	20000	3	EACH	DYNAMIC LOAD TESTING	1	2			
29	898	10200	29	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK)			29		
345	898	10201	345	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			345		5/65
223	898	10709	223	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN				223	5/65
51	898	11000	51	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			47	4	
67	898	20100	67	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		67			
72	898	20160	72	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	72				
81	898	20300	81	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		81			

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ESTIMATED QUANTITIES
BRIDGE HAM-50-1903 L
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

CALCULATED BY: RBK DATE: 02/25/09
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PARTICIPATION	ESTIMATED QUANTITIES									
100% DISTRICT	ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	A.P.P.
LUMP	202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	5/65
LUMP	503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	5/65
LUMP	503	21300	LUMP		UNCLASSIFIED EXCAVATION				LUMP	
LUMP	505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
1370	507	00500	1370	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	1100	270			
270	507	00501	270	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN, AS PER PLAN		270			5/65
1800	507	00550	1800	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	1200	600			
1125	507	00600	1125	FT	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		1125			
1250	507	00650	1250	FT	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED		1250			
123826	509	10000	123826	POUND	EPOXY COATED REINFORCING STEEL	8834	24569	90423		
292	510	10000	292	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		292			
640	512	10100	640	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	73	247	268	52	
4	512	33000	4	SQ YD	TYPE 2 WATERPROOFING	4				
277593	513	10240	277593	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 2			277593		
3402	513	20000	3402	EACH	WELDED STUD SHEAR CONNECTORS			3402		
12470	514	00060	12470	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			12470		
12470	514	00066	12470	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT			12470		
6	514	10000	6	SQ YD	FINAL INSPECTION REPAIR			6		
58	516	11210	58	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			58		
10	516	13600	10	SQ FT	1" PERFORMED EXPANSION JOINT FILLER			10		
352	516	13900	352	SQ FT	2" PREFORMED EXPANSION JOINT FILLER	21		331		
82	516	14021	82	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	82				5/65
6	516	44100	6	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 15"x15"x2½" BEARING WITH 16"x16" LOAD PLATE			6		
6	516	44100	6	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 19"x19"x2½" BEARING WITH 27"x21" LOAD PLATE			6		
6	516	44100	6	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 16"x12"x2½" BEARING WITH 18"x14" LOAD PLATE			6		
LUMP	516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN			LUMP		15/65
3	518	12201	3	EACH	SCUPPERS, INCLUDING SUPPORTS, AS PER PLAN			3		65/65
49	518	21200	49	CU YD	POROUS BACKFILL WITH FILTER FABRIC				49	
58	518	40000	58	FT	6" PERFORATED CORRUGATED PLASTIC PIPE				58	
15	518	40012	15	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE				15	
48	518	51101	48	FT	8" PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN			48		65/65
5	519	11101	5	SQ FT	PATCHING CONCRETE STRUCTURE, AS PER PLAN		5			5/65
26	898	10200	26	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK)			29		
282	898	10201	282	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			282		5/65
198	898	10709	198	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN				198	5/65
47	898	11000	47	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET)			43	4	
52	898	20100	52	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		52			
64	898	20160	64	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	64				
63	898	20300	63	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		63			

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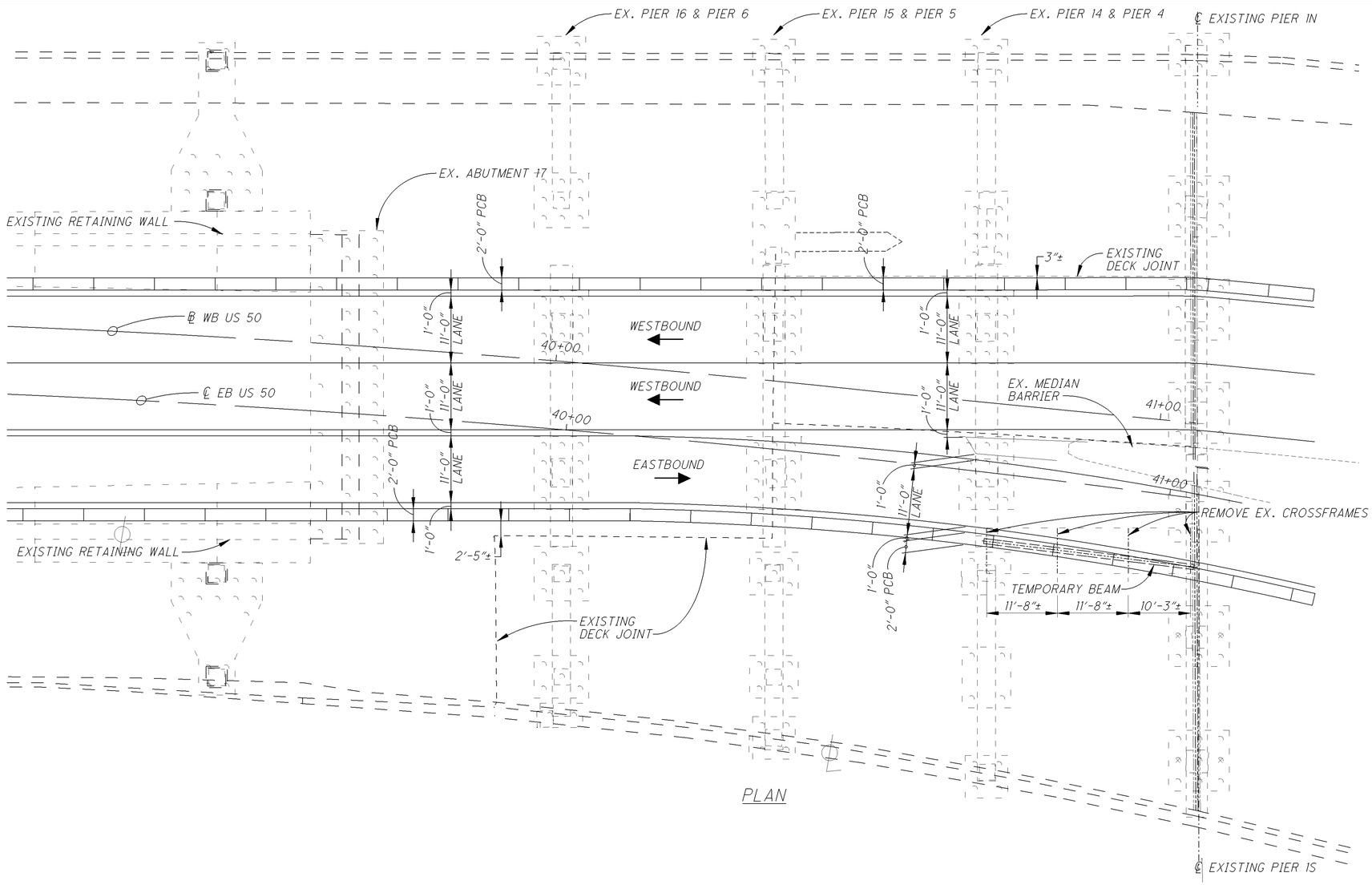
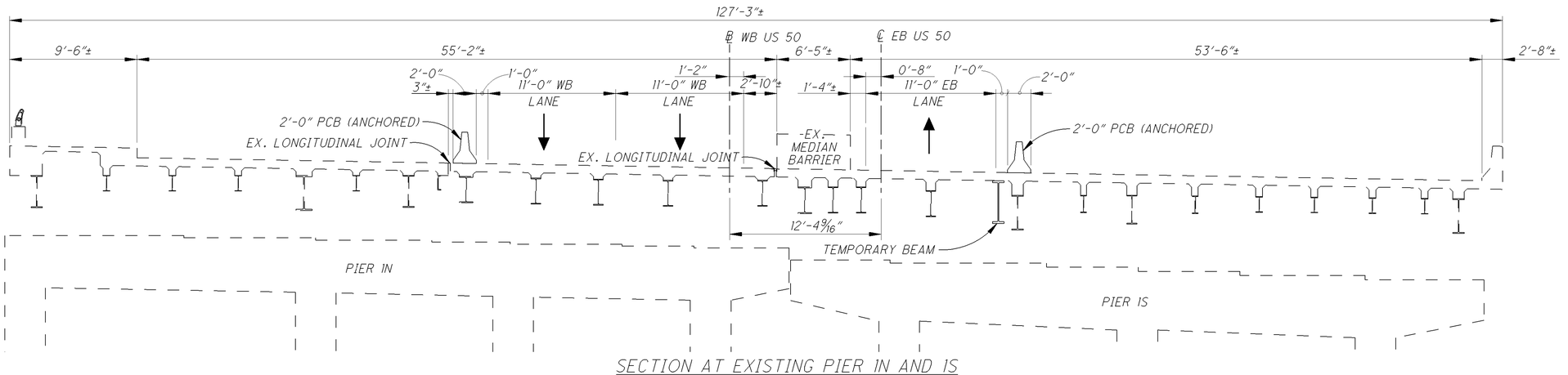


PLAN



SECTION AT EXISTING PIER IN AND IS

PHASE 1

PHASE 1 OCCURS DURING MOT PHASE 4A.

MAINTAIN (2) 11'-0" LANES WESTBOUND AND (1) 11'-0" LANE EASTBOUND. INSTALL TEMPORARY BEAM AND PCB. PCB MUST BE ANCHORED TO THE BRIDGE DECK USING 1"ϕ HIGH STRENGTH THROUGH BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED THEY MUST BE EMBEDDED A MINIMUM OF 6½" INTO FIRM CONCRETE. GENERALLY, ALL ANCHORS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE BARRIER WITH THE ANCHOR PATTERN SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. 4 ANCHOR BOLTS ARE REQUIRED PER BARRIER.

REMOVE FOUR EXISTING 21WF62 BRACES BETWEEN EXISTING PIER 14 AND EXISTING PIER 15. REMOVE END CROSSFRAME AT EXISTING PIER IS AS NEEDED FOR INSTALLING TEMPORARY BEAM.

TEMPORARY BEAM SHALL BE IN PLACE PRIOR TO PHASE 1 AND LEFT IN PLACE UNTIL PHASE 4.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
400 Seventh Street, San Francisco, CA 94103
TEL 415 621 6811 FAX 415 621 3830 WEB www.kzfdesign.com

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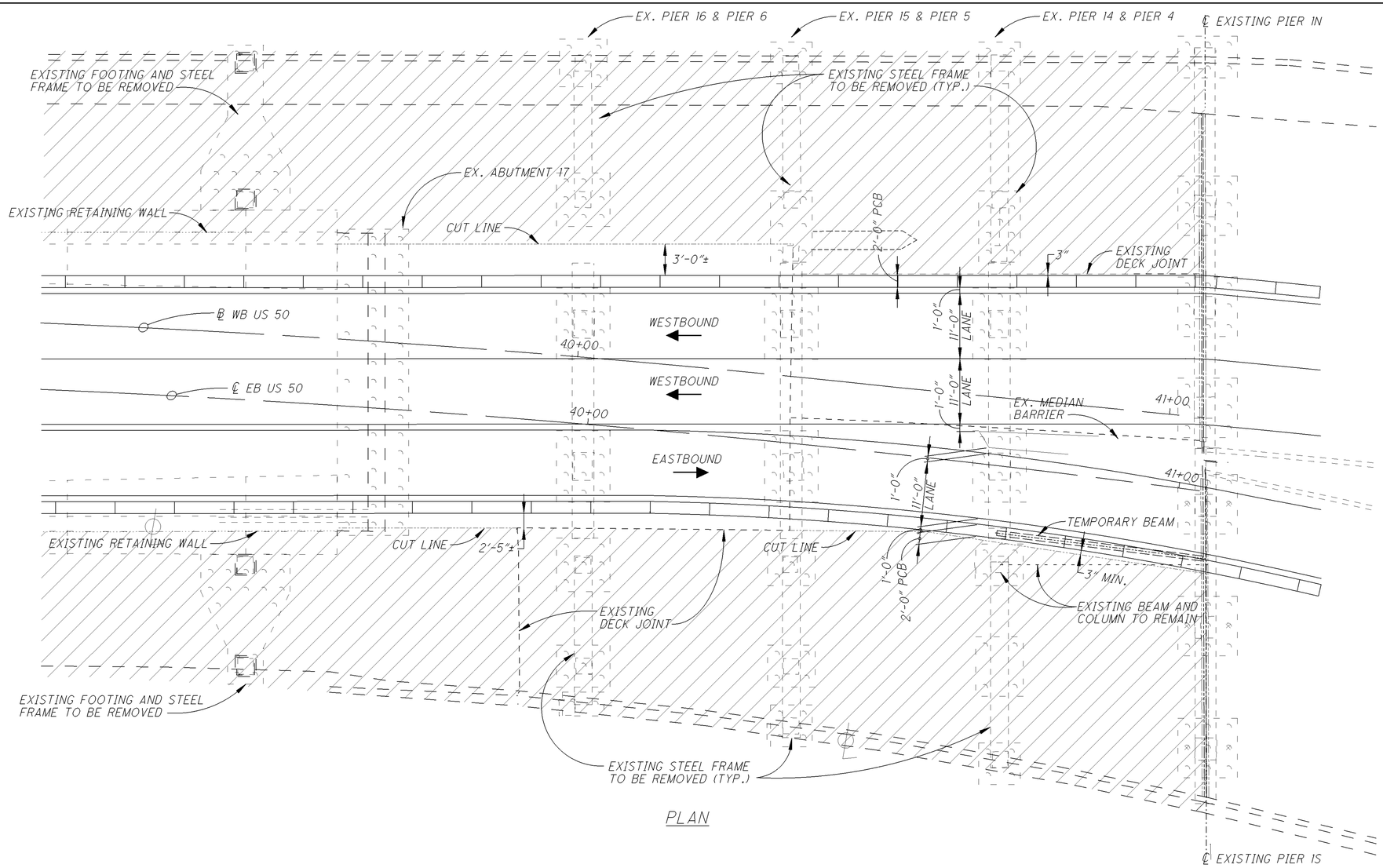
CHECKED	DAT	REVISED				STRUCTURE FILE NUMBER	3102807/3102815

PHASE 1 CONSTRUCTION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082



PLAN

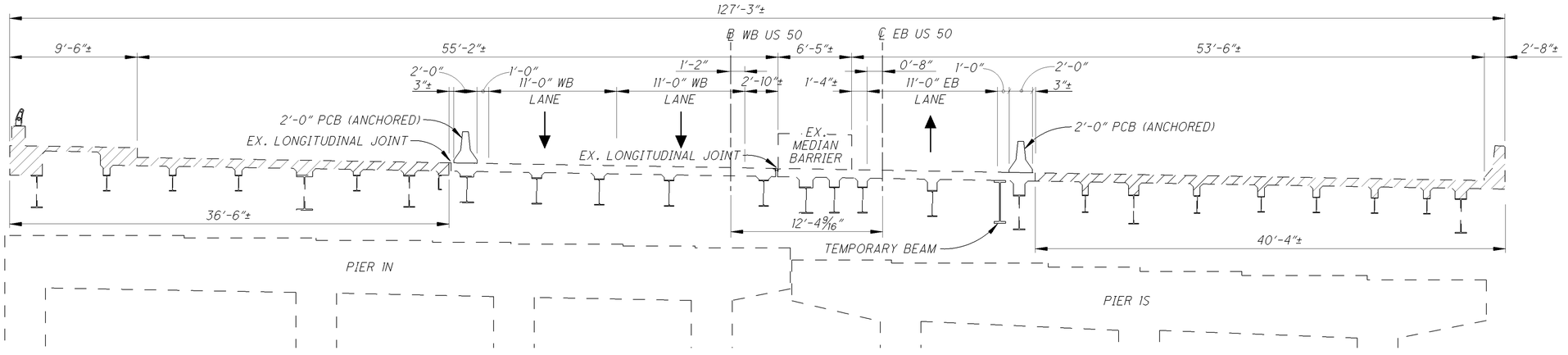
DENOTES PORTION OF STRUCTURE TO BE REMOVED.

PHASE 2

PHASE 2 OCCURS DURING MOT PHASE 4A.

REMOVE PORTIONS OF EXISTING BRIDGE WHILE MAINTAINING (2) 11'-0" LANES WESTBOUND AND (1) 11'-0" LANES EASTBOUND.

PCB MUST BE ANCHORED TO THE BRIDGE DECK USING 1"ϕ HIGH STRENGTH THROUGH BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED THEY MUST BE EMBEDDED A MINIMUM OF 6½" INTO FIRM CONCRETE. GENERALLY, ALL ANCHORS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE BARRIER WITH THE ANCHOR PATTERN SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. 4 ANCHOR BOLTS ARE REQUIRED PER BARRIER.



SECTION AT EXISTING PIER IN AND IS

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
KZF Design, Inc. 1700 Market St. Suite 1005 Philadelphia PA 19103
TEL 913.621.6211 FAX 913.621.8600 WEB www.kzfdesign.com

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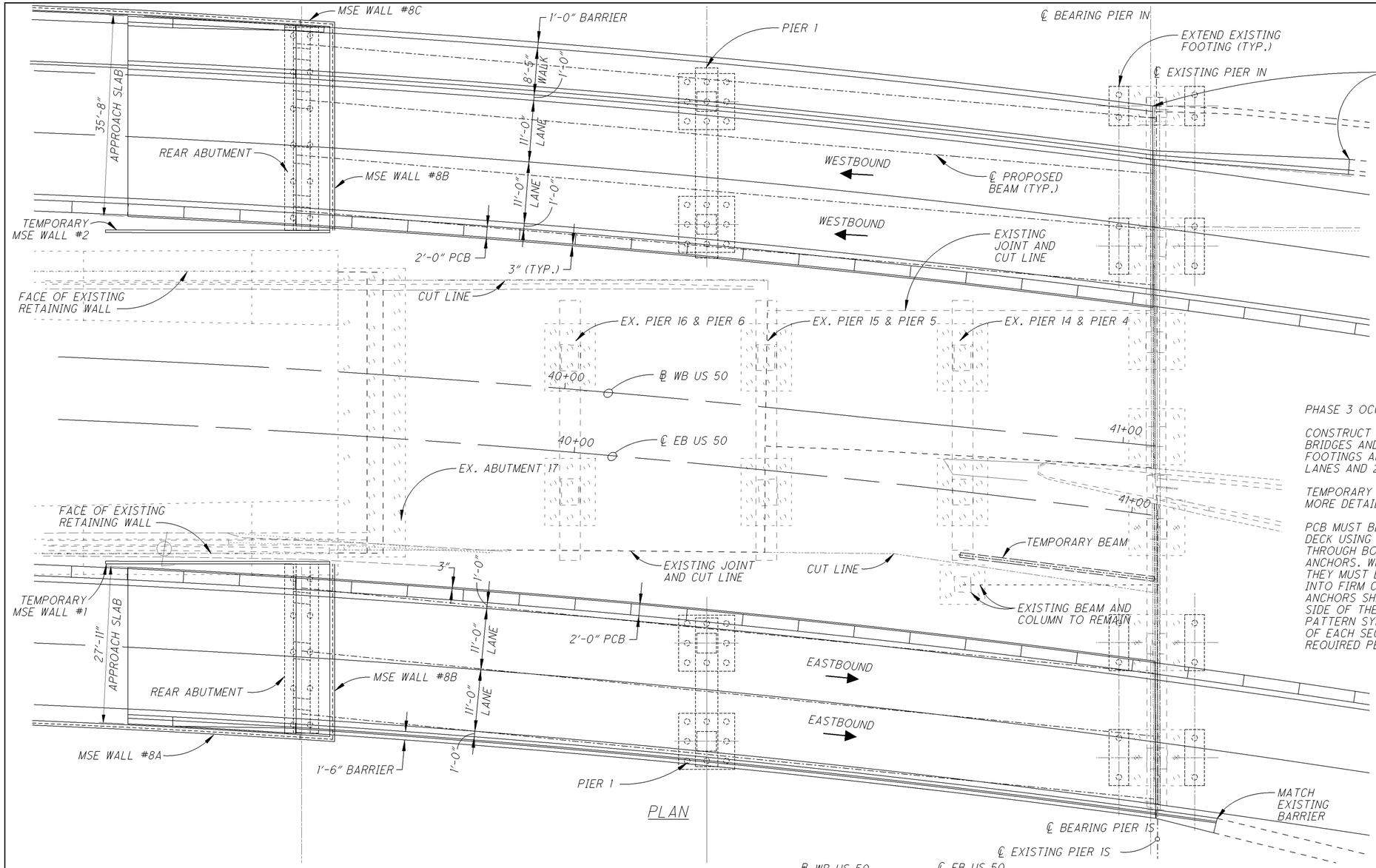
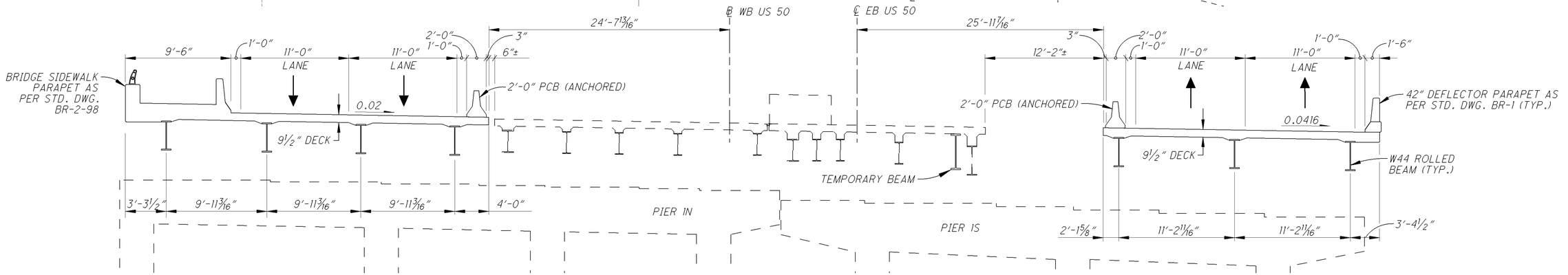
PHASE 2 CONSTRUCTION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082



PLAN



SECTION AT EXISTING PIER IN AND IS

PHASE 3

PHASE 3 OCCURS DURING MOT PHASE 4B.

CONSTRUCT PORTIONS OF NEW EASTBOUND AND WESTBOUND BRIDGES AND RETAINING WALLS. EXTEND EXISTING PIER FOOTINGS AND ADD PILING. MAINTAIN 2-11' WESTBOUND LANES AND 2-11' EASTBOUND LANES.

TEMPORARY MSE WALLS SHALL BE CONSTRUCTED. FOR MORE DETAILS SEE SHEET 16-17/65.

PCB MUST BE ANCHORED TO THE BRIDGE DECK USING 1"Ø HIGH STRENGTH THROUGH BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED THEY MUST BE EMBEDDED A MINIMUM OF 6½" INTO FIRM CONCRETE. GENERALLY, ALL ANCHORS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE BARRIER WITH THE ANCHOR PATTERN SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. 4 ANCHOR BOLTS ARE REQUIRED PER BARRIER.

DESIGN AGENCY
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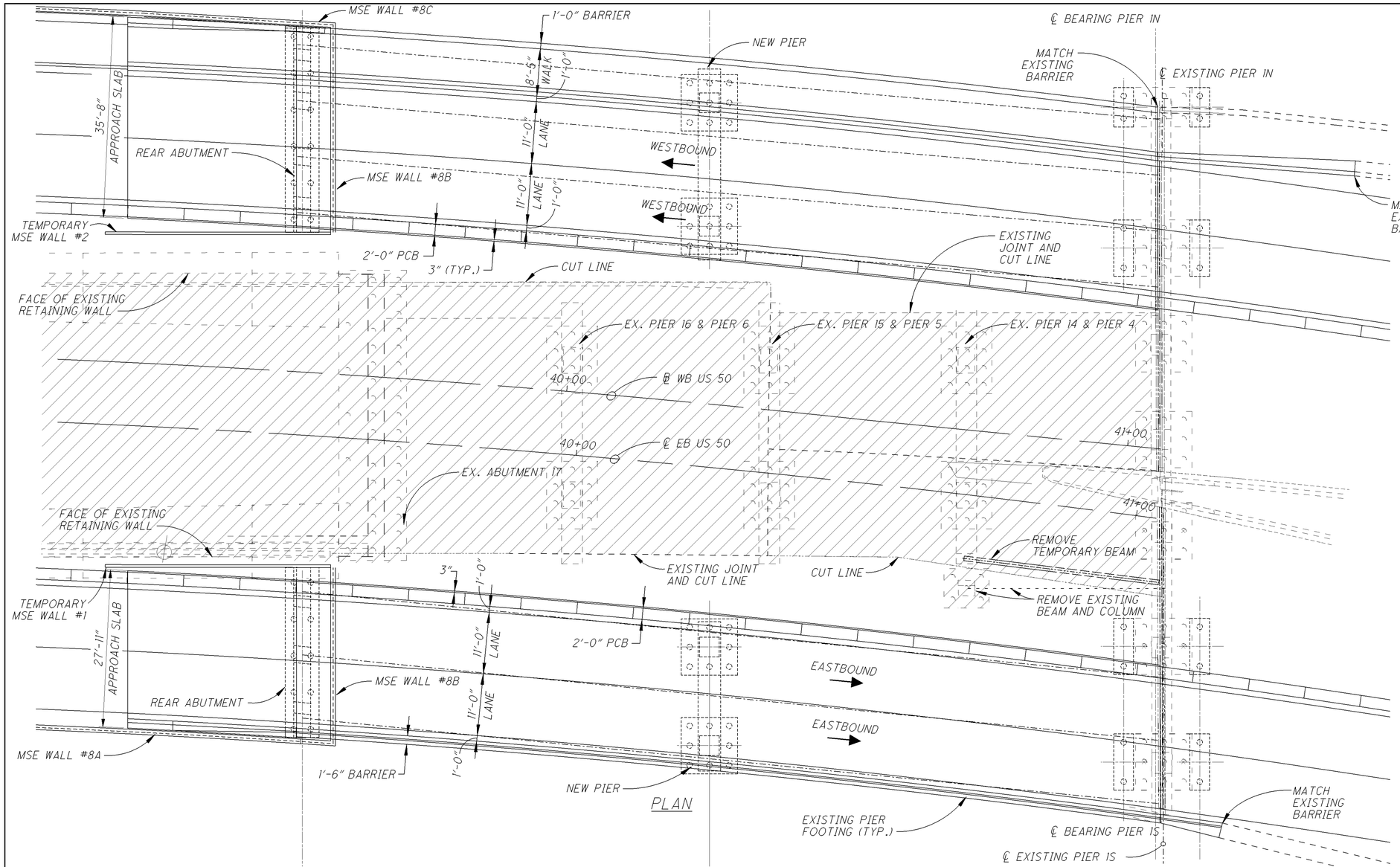
DAT		3102807/3102815	

PHASE 3 CONSTRUCTION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082



PLAN

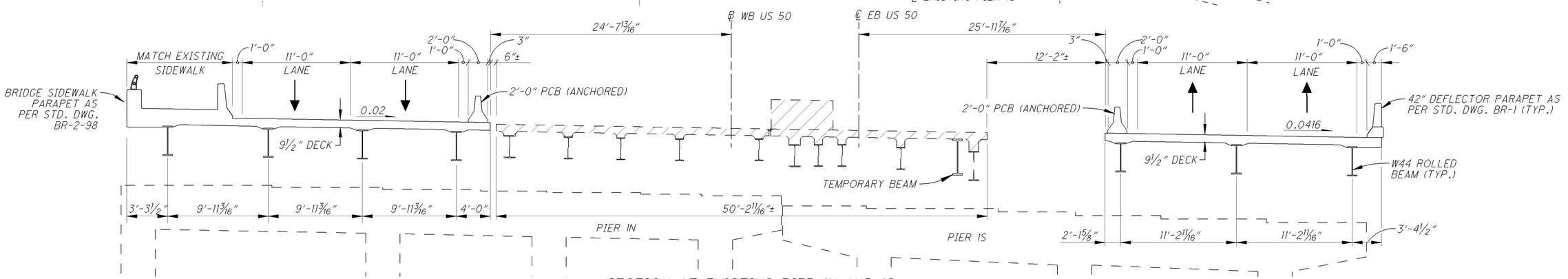
DENOTES PORTION OF STRUCTURE TO BE REMOVED.

PHASE 4

PHASE 4 OCCURS DURING MOT PHASE 4B.

REMOVE REMAINING PORTIONS OF EXISTING BRIDGE WHILE MAINTAINING 2-11' LANES WESTBOUND AND 2-11' LANES EASTBOUND.

PCB MUST BE ANCHORED TO THE BRIDGE DECK USING 1"Φ HIGH STRENGTH THROUGH BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED THEY MUST BE EMBEDDED A MINIMUM OF 6½" INTO FIRM CONCRETE. GENERALLY, ALL ANCHORS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE BARRIER WITH THE ANCHOR PATTERN SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. 4 ANCHOR BOLTS ARE REQUIRED PER BARRIER.



SECTION AT EXISTING PIER IN AND IS

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400 Second Street, Suite 300, San Francisco, CA 94107
TEL 415 621 6871 FAX 415 621 3830 WEB www.kzfdesign.com

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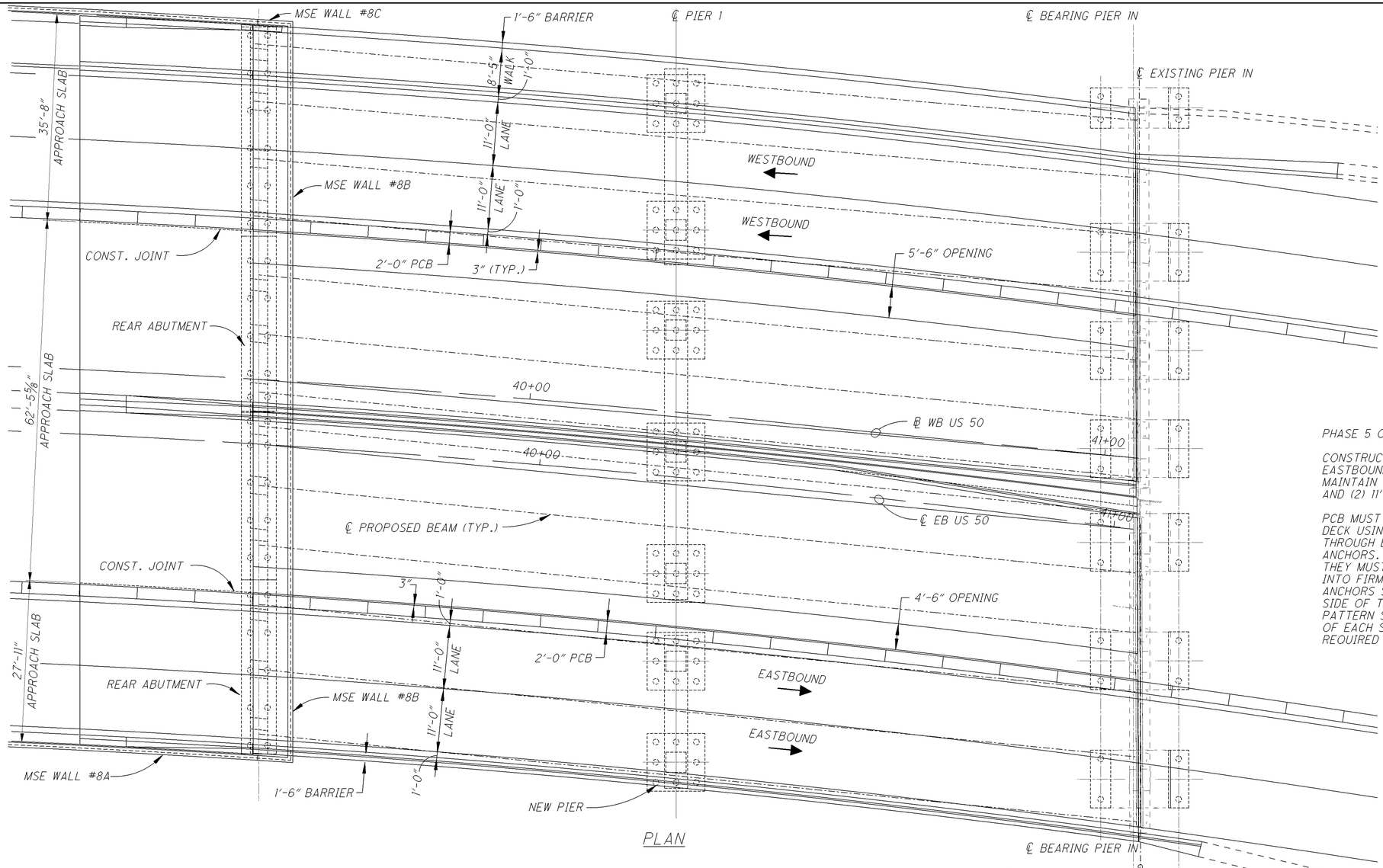
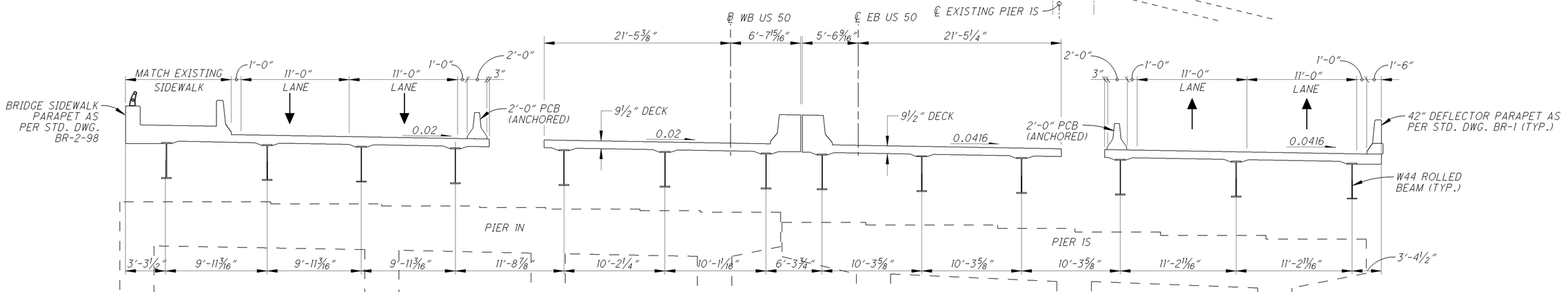
DAT		3102807/3102815	

PHASE 4 CONSTRUCTION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082



PLAN



SECTION AT EXISTING PIER IN AND IS

PHASE 5

PHASE 5 OCCURS DURING MOT PHASE 4B

CONSTRUCT CENTER PORTION OF NEW EASTBOUND AND WESTBOUND BRIDGES. MAINTAIN (2) 11'-0" WESTBOUND LANES AND (2) 11'-0" EASTBOUND LANES.

PCB MUST BE ANCHORED TO THE BRIDGE DECK USING 1"Φ HIGH STRENGTH THROUGH BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED THEY MUST BE EMBEDDED A MINIMUM OF 6½" INTO FIRM CONCRETE. GENERALLY, ALL ANCHORS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE BARRIER WITH THE ANCHOR PATTERN SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. 4 ANCHOR BOLTS ARE REQUIRED PER BARRIER.

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DEF	DAT

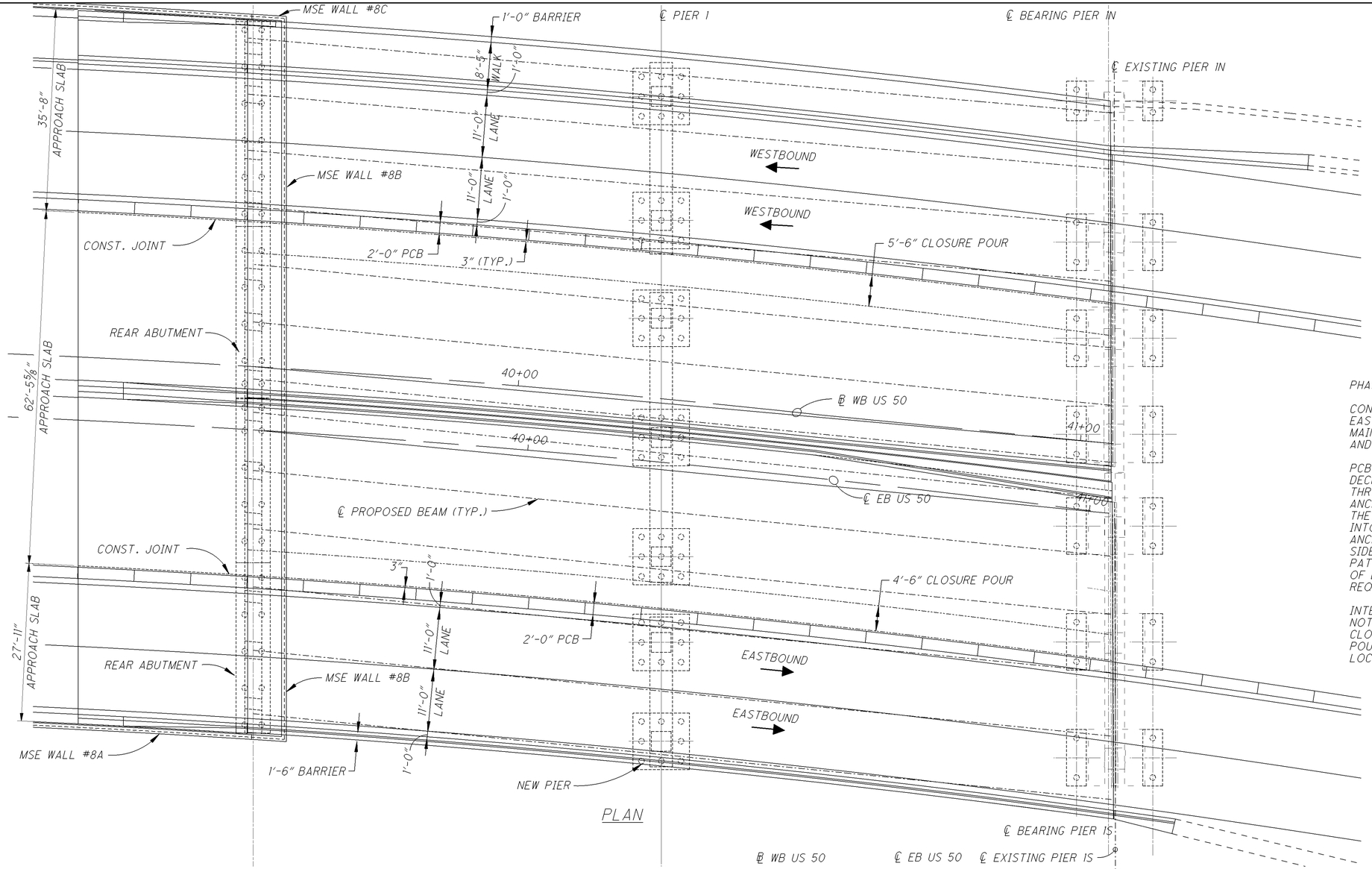
DRAWN	REVISED
RBK	

REVIEWED	DATE
BMB	11-29-10

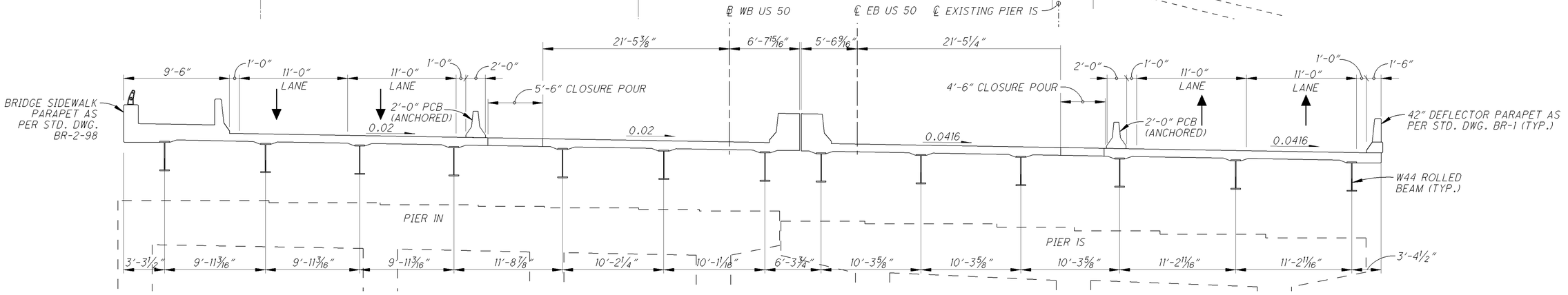
STRUCTURE FILE NUMBER
3102807/3102815

PHASE 5 CONSTRUCTION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082



PLAN



SECTION AT EXISTING PIER IN AND IS

PHASE 6

PHASE 6 OCCURS DURING MOT PHASE 4B.

CONSTRUCT CLOSURE POUR OF NEW EASTBOUND AND WESTBOUND BRIDGES. MAINTAIN (2) 11'-0" WESTBOUND LANES AND (2) 11'-0" EASTBOUND LANES.

PCB MUST BE ANCHORED TO THE BRIDGE DECK USING 1"ϕ HIGH STRENGTH THROUGH BOLTS OR APPROVED RESIN ANCHORS. WHEN RESIN ANCHORS ARE USED THEY MUST BE EMBEDDED A MINIMUM OF 6½" INTO FIRM CONCRETE. GENERALLY, ALL ANCHORS SHALL BE PLACED ON THE TRAFFIC SIDE OF THE BARRIER WITH THE ANCHOR PATTERN SYMMETRICAL ABOUT THE CENTER OF EACH SEGMENT. 4 ANCHOR BOLTS ARE REQUIRED PER BARRIER.

INTERMEDIATE AND END CROSSFRAMES SHALL NOT BE PERMANETLY ATTACHED IN THE CLOSURE POUR LOCATION UNTIL THE CONCRETE POURS ON BOTH SIDES OF THE CLOSURE POUR LOCATION HAVE BEEN COMPLETED.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
KZF Design, 700 Main Street, Hamilton, Ohio 45013
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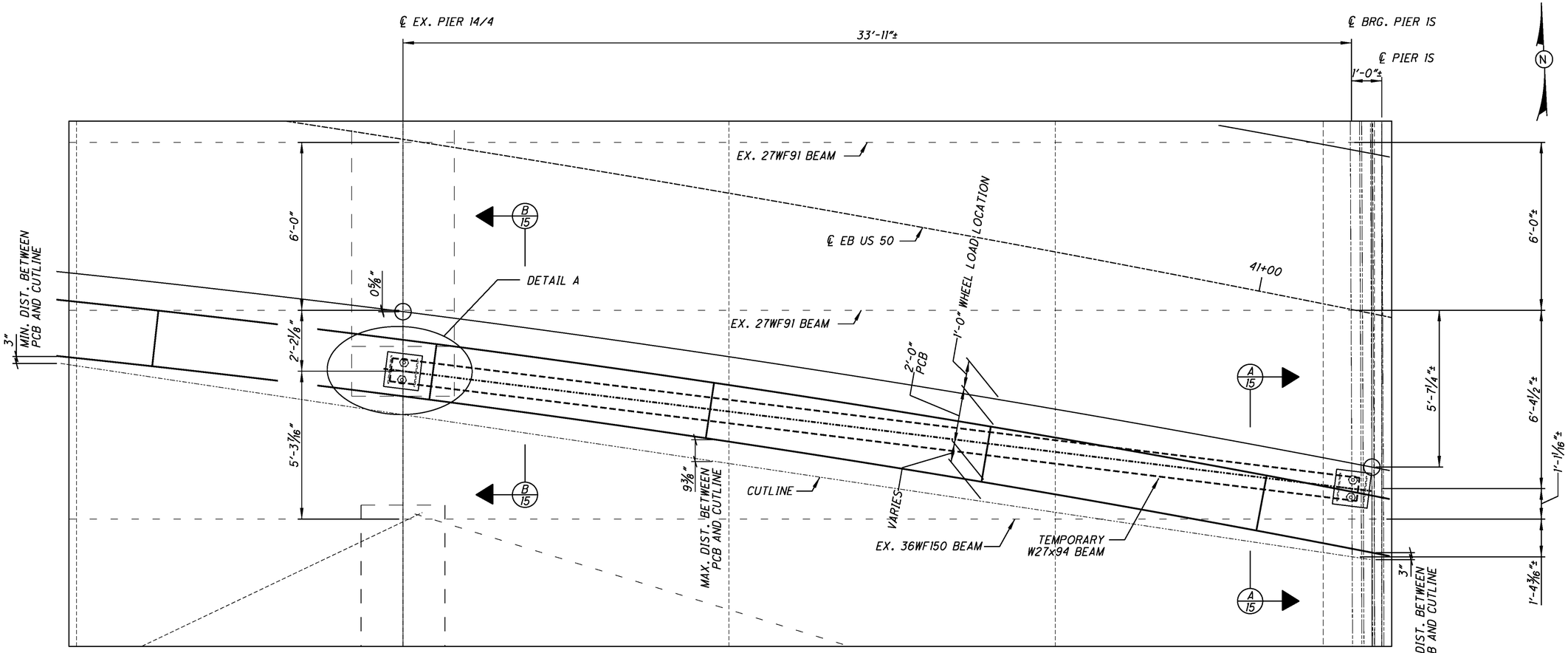
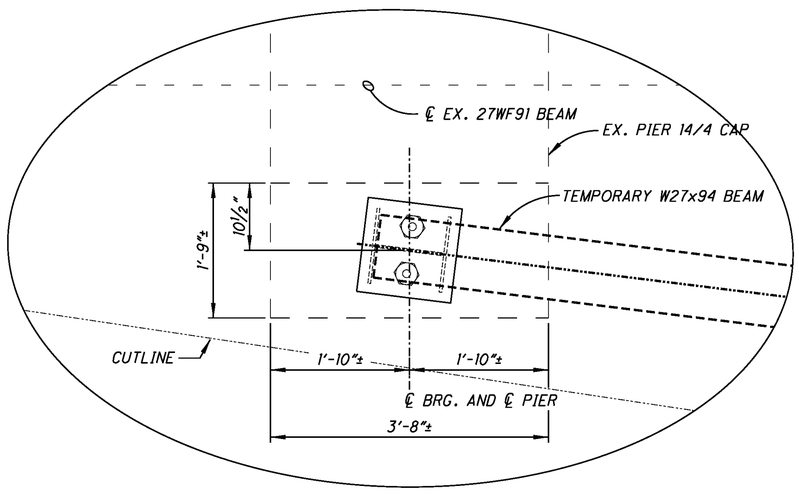
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 3102807/3102815

PHASE 6 CONSTRUCTION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

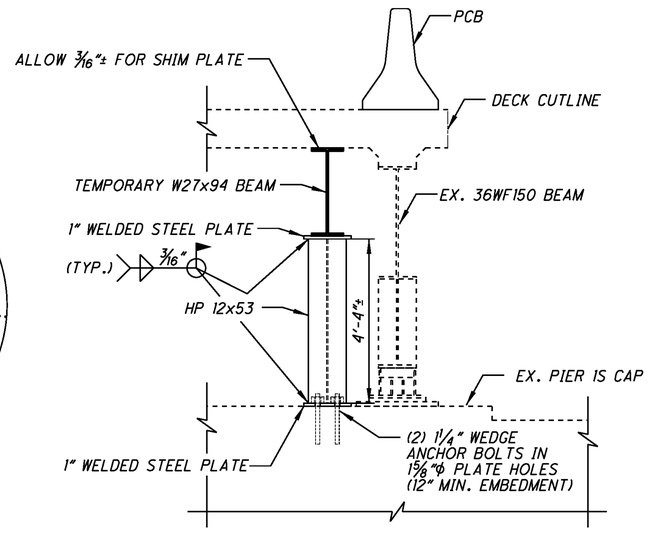
HAM-50-18.79
PID No. 20082



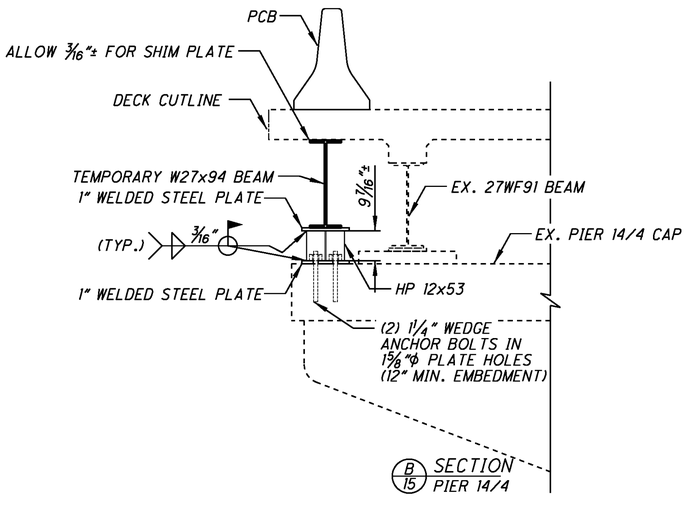
PARTIAL PLAN
PHASE 2



DETAIL A



A 15 SECTION
PIER IS



B 15 SECTION
PIER 14/4

NOTE:
1. THE TEMPORARY BEAM SHALL BE INSTALLED PRIOR TO PHASE 1 AND SHALL BE REMOVED DURING PHASE 4. ALL COST ASSOCIATED WITH INSTALLATION OF THE TEMPORARY BEAM SHALL BE INCLUDED IN ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4701 Belleview, Suite 300, Kansas City, Missouri 64112
TEL 913.621.6211 FAX 913.621.9830 WEB www.kzf.com

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DEF	RBK	BMB	11-29-10
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DAT		31028073102815	

TEMPORARY BEAM DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

15 / 65

539
657

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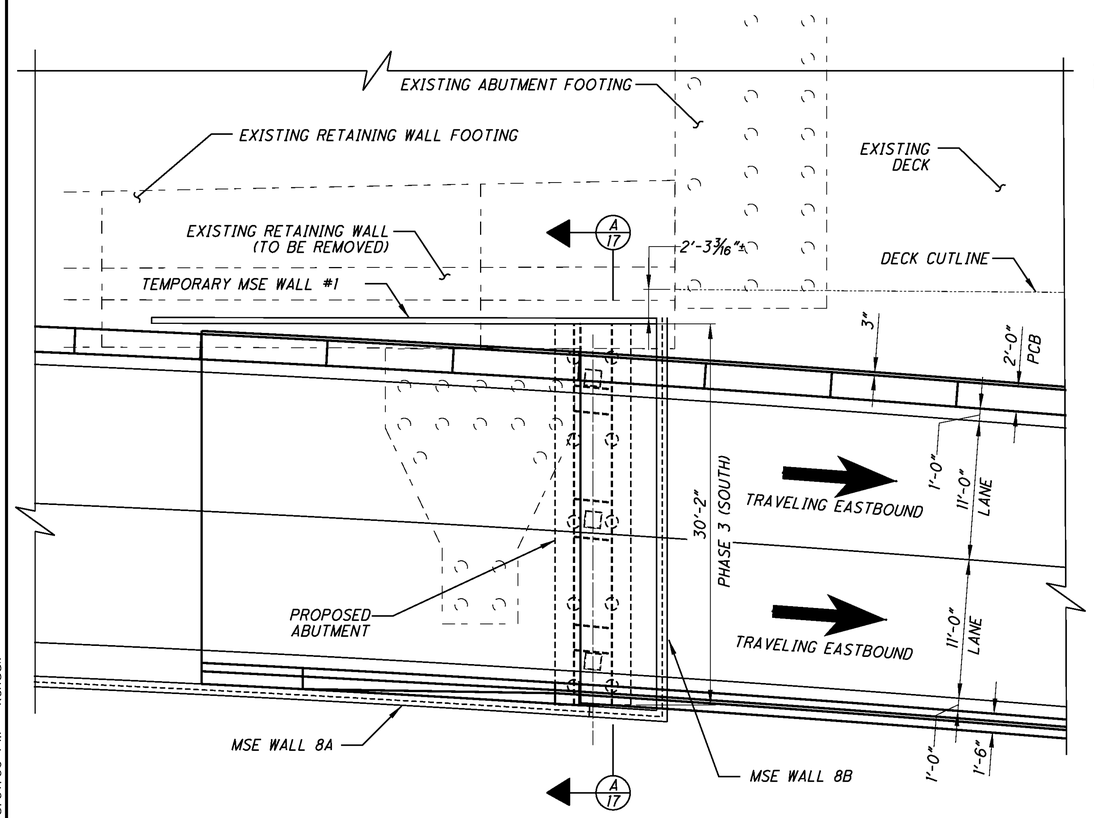
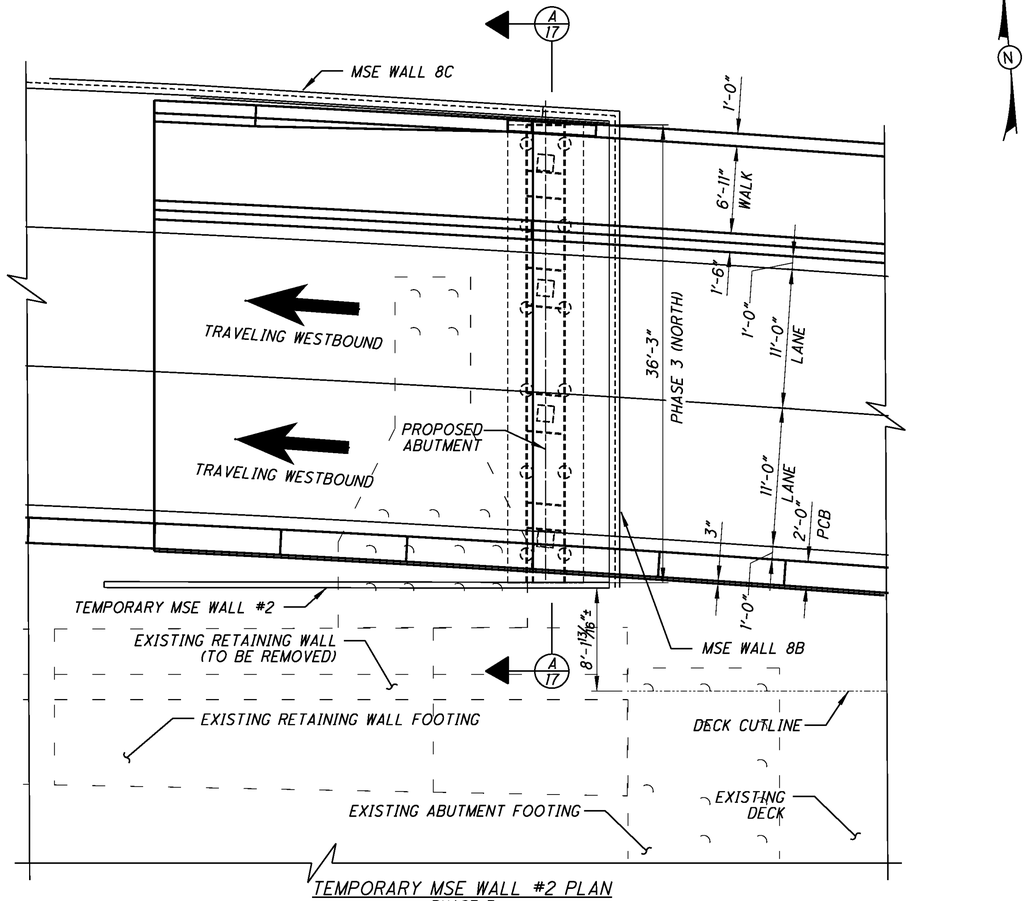
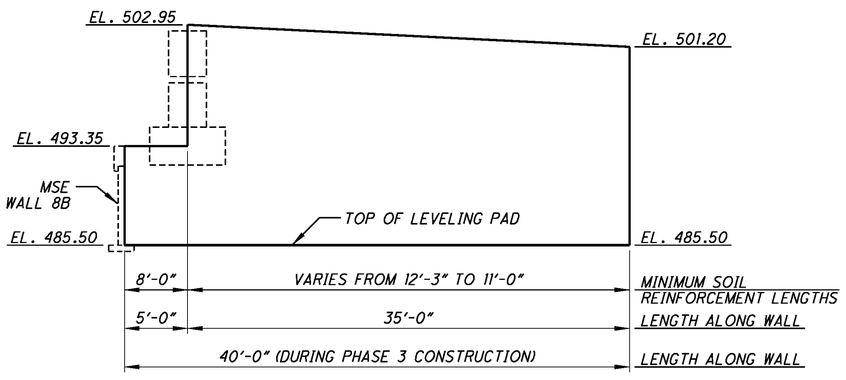


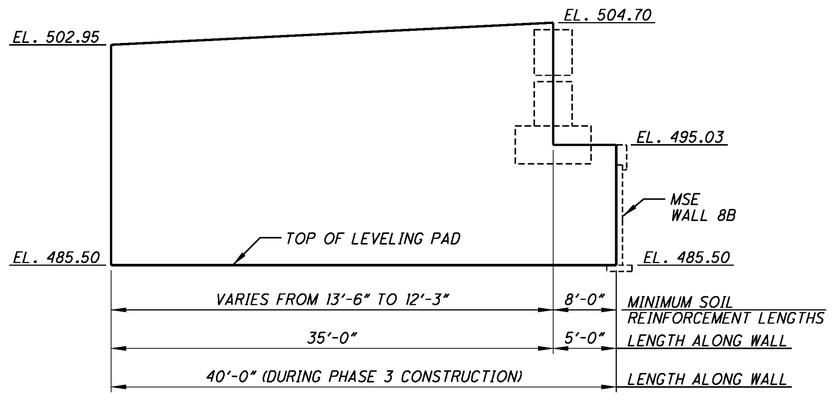
TEMPORARY MSE WALL #1 PLAN
PHASE 3



TEMPORARY MSE WALL #2 PLAN
PHASE 3



TEMPORARY MSE WALL #1 ELEVATION
(LOOKING SOUTH)



TEMPORARY MSE WALL #2 ELEVATION
(LOOKING NORTH)

NOTES:
1. MINIMUM SOIL REINFORCEMENT LENGTHS BASED ON 70% OF WALL HEIGHT

DESIGN AGENCY
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Architecture | Engineering | Interiors | Planning
4270 Ivy Pointe Blvd., Suite 225, Cincinnati, OH 45245
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TEMPORARY MSE WALL DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

16 / 65

540
657

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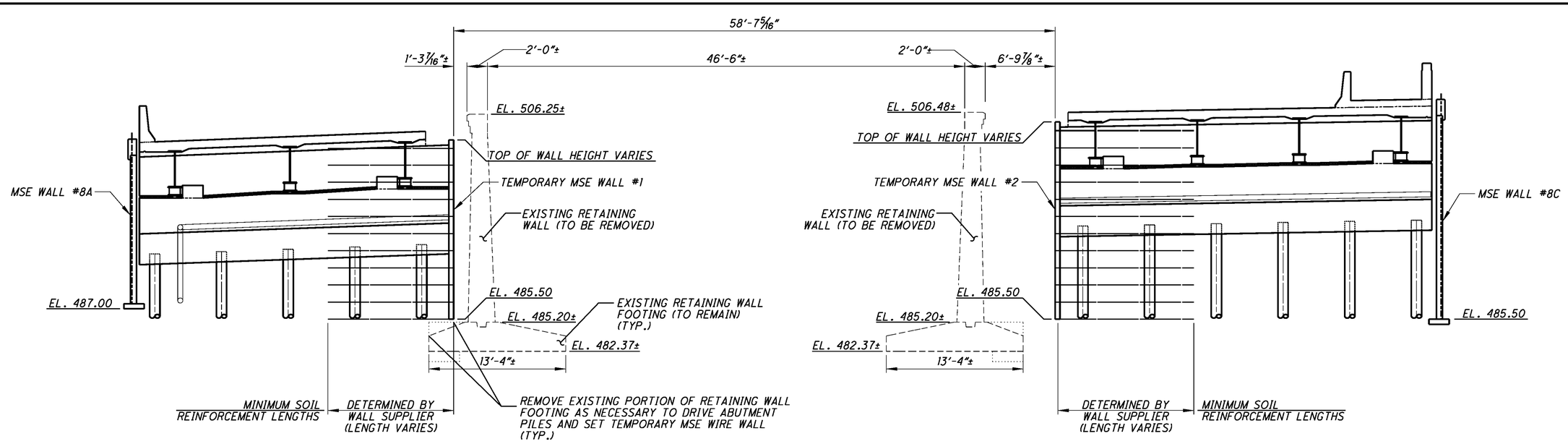

A/17 SECTION PHASE 3

NOTES:
1. FOR ADDITIONAL DETAILS ON MSE WALL 8 SEE RETAINING WALL PLAN SHEETS.

DESIGN AGENCY
KZF DESIGN
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420 Delaware Avenue, Post Office Box 4748, Buffalo, New York 14240-4748
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DAT		31028017/3102815	

TEMPORARY MSE WALL DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

17 / 65

541
657

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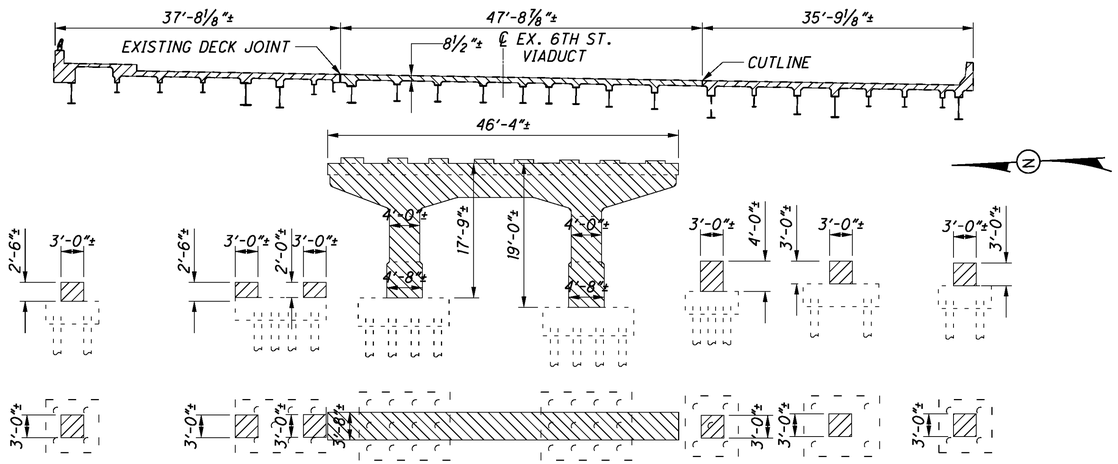
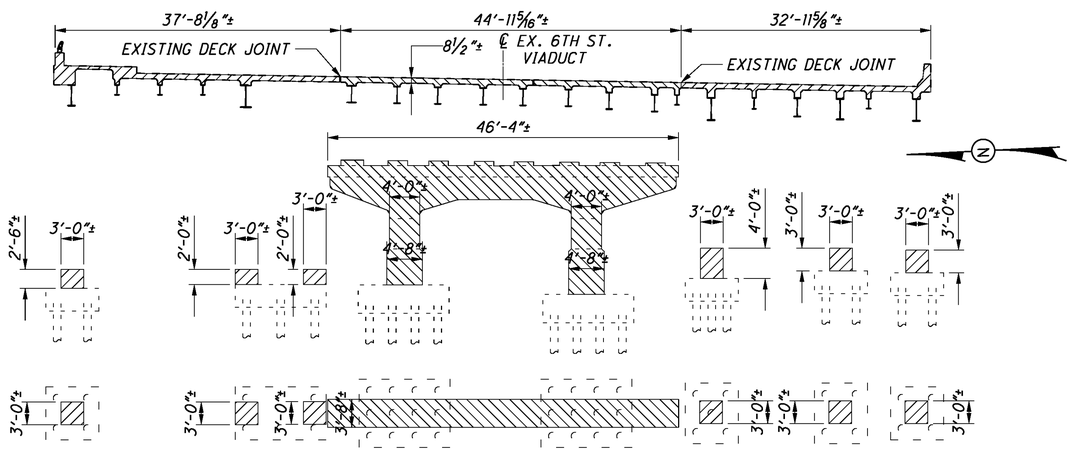
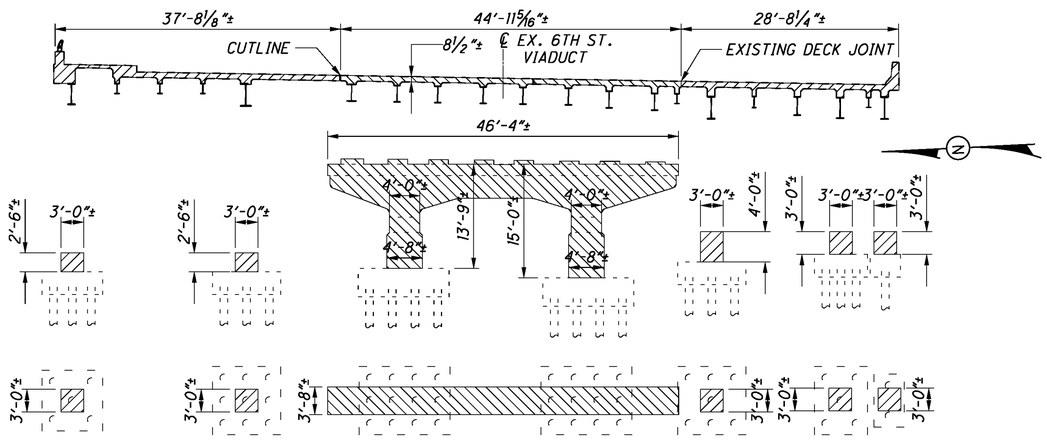


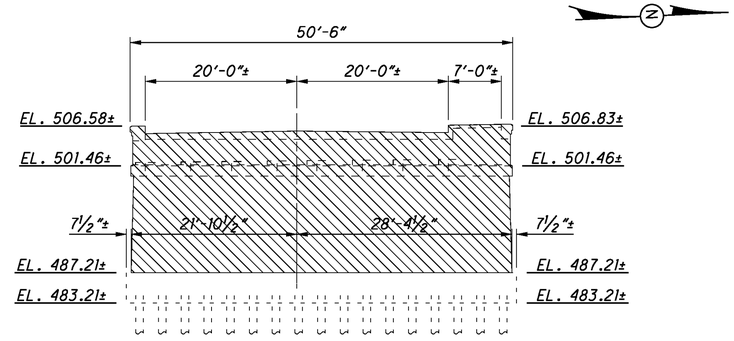
EXISTING PIER 4 & 14
LOOKING UP STATION

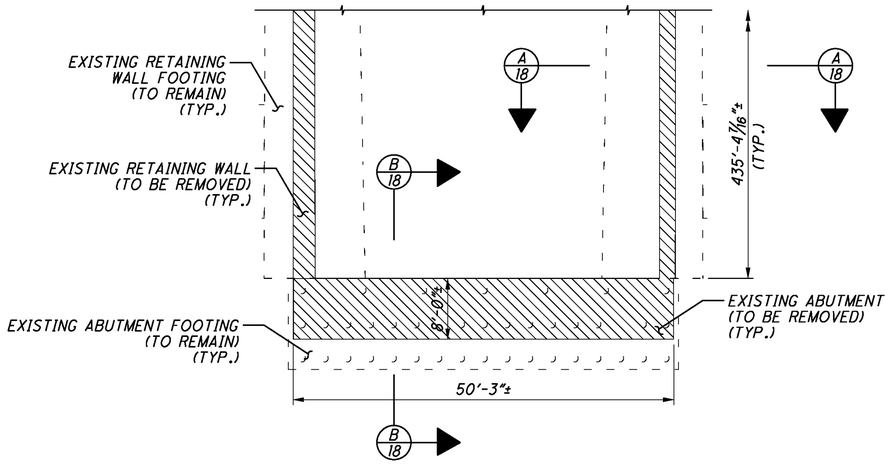


EXISTING PIER 5 & 15
LOOKING UP STATION

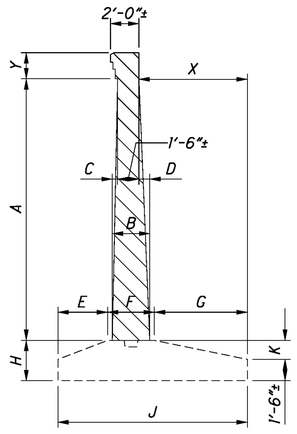


EXISTING PIER 6 & 16
LOOKING UP STATION



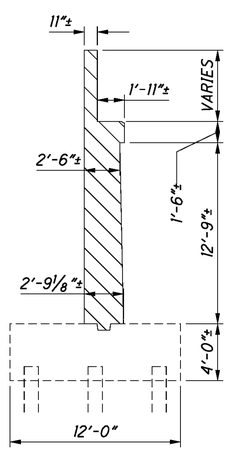


EXISTING ABUTMENT 17
LOOKING BACK STATION



EXISTING CONCRETE RETAINING WALL DIMENSIONS					
	7'-7 1/2"±		0'-4 1/2"±		6'-6 1/2"±
X	TO	C	TO	G	TO
	1'-0"±		0'-0"±		0'-0"±
	2'-0 1/4"±		0'-9 1/8"±		2'-10"±
Y	TO	D	TO	H	TO
	1'-10"±		0'-0"±		1'-6"±
	18'-5"±		3'-6"±		13'-4"±
A	TO	E	TO	J	TO
	2'-10 5/8"±		1'-0"±		4'-0"±
	2'-7 5/8"±		3'-3 1/2"±		1'-4"±
B	TO	F	TO	K	TO
	2'-9 1/8"±		0'-0"±		0'-0"±

A / 18 SECTION
SOUTH EXISTING RETAINING WALL SHOWN
NORTH EXISTING RETAINING WALL SIMILAR



B / 18 SECTION
EXISTING REAR ABUTMENT

STAGE 2 REMOVAL

STAGE 4 REMOVAL

NOTES:
1. ONLY CONCRETE STRUCTURE SHOWN, EXISTING STEEL FRAME TO BE REMOVED.

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REMOVAL DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

18 / 65

542
657

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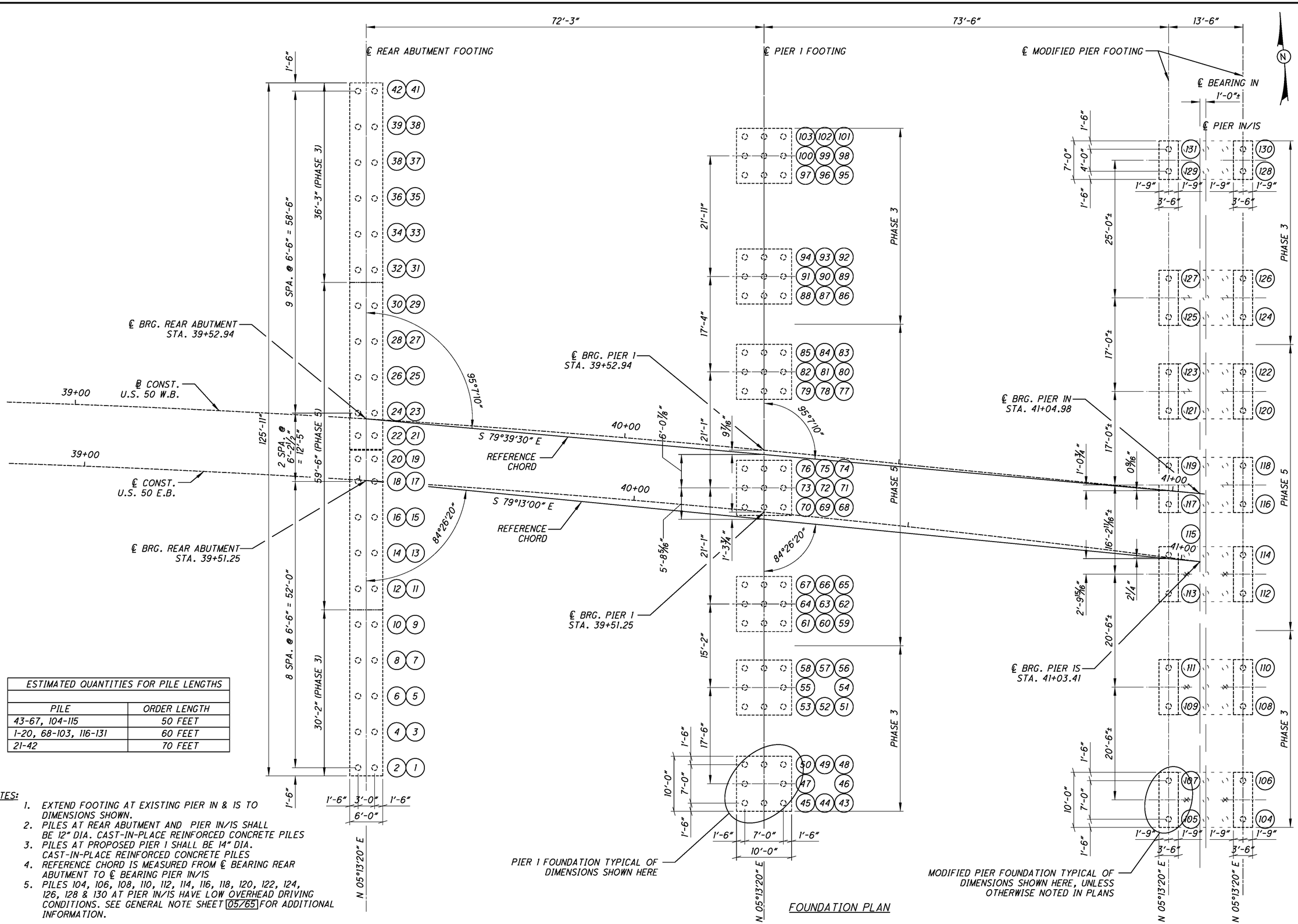

ESTIMATED QUANTITIES FOR PILE LENGTHS	
PILE	ORDER LENGTH
43-67, 104-115	50 FEET
1-20, 68-103, 116-131	60 FEET
21-42	70 FEET

NOTES:

1. EXTEND FOOTING AT EXISTING PIER IN & IS TO DIMENSIONS SHOWN.
2. PILES AT REAR ABUTMENT AND PIER IN/IS SHALL BE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES
3. PILES AT PROPOSED PIER 1 SHALL BE 14" DIA. CAST-IN-PLACE REINFORCED CONCRETE PILES
4. REFERENCE CHORD IS MEASURED FROM ℄ BEARING REAR ABUTMENT TO ℄ BEARING PIER IN/IS
5. PILES 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128 & 130 AT PIER IN/IS HAVE LOW OVERHEAD DRIVING CONDITIONS. SEE GENERAL NOTE SHEET 05/65 FOR ADDITIONAL INFORMATION.

FOUNDATION PLAN

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FOUNDATION PLAN
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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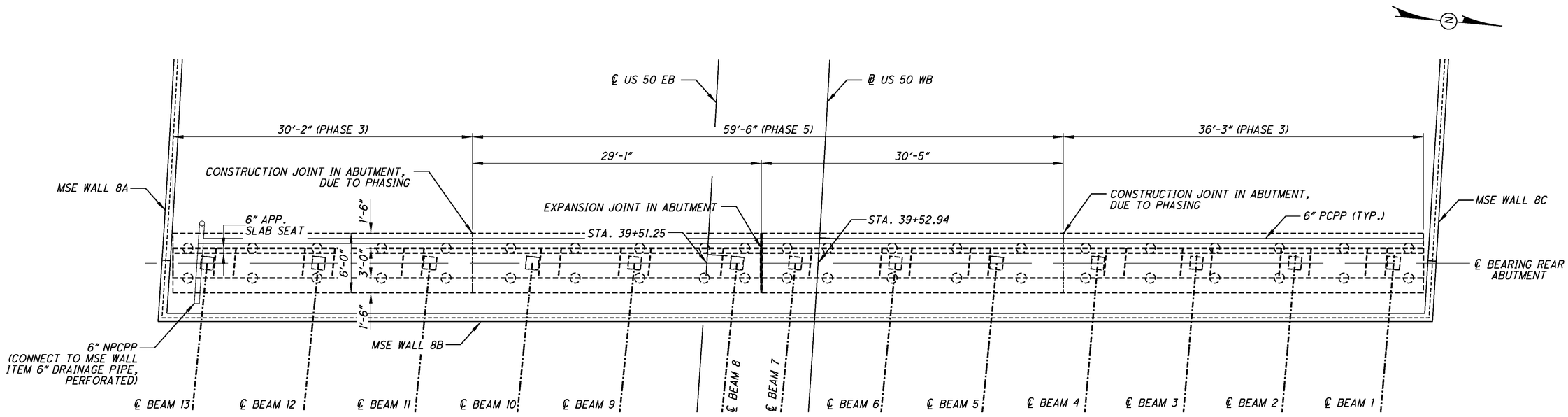
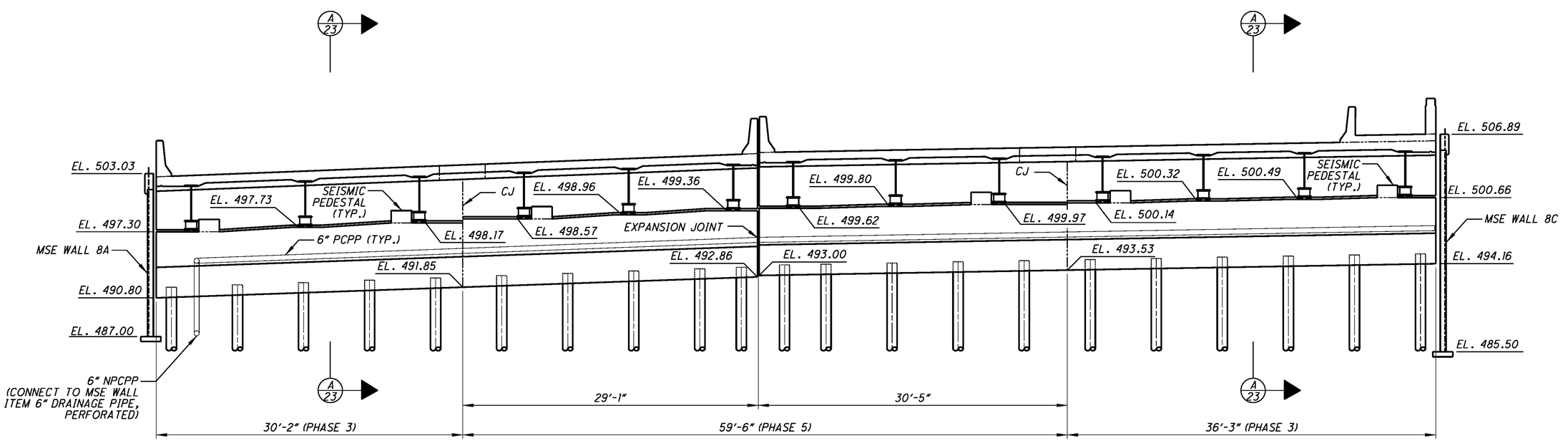


PLAN
BRIDGE NO. HAM-50-1903 L/R



ELEVATION
BRIDGE NO. HAM-50-1903 L/R

NOTES:

1. TYPE 2 WATERPROOFING SHALL BE APPLIED AT VERTICAL CONSTRUCTION JOINT ON BACK SIDE OF ABUTMENT FROM TOP OF OF THE FOOTING TO THE APPROACH SLAB SEAT, 3'-0" WIDE CENTERED ON THE JOINT.

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REAR ABUTMENT DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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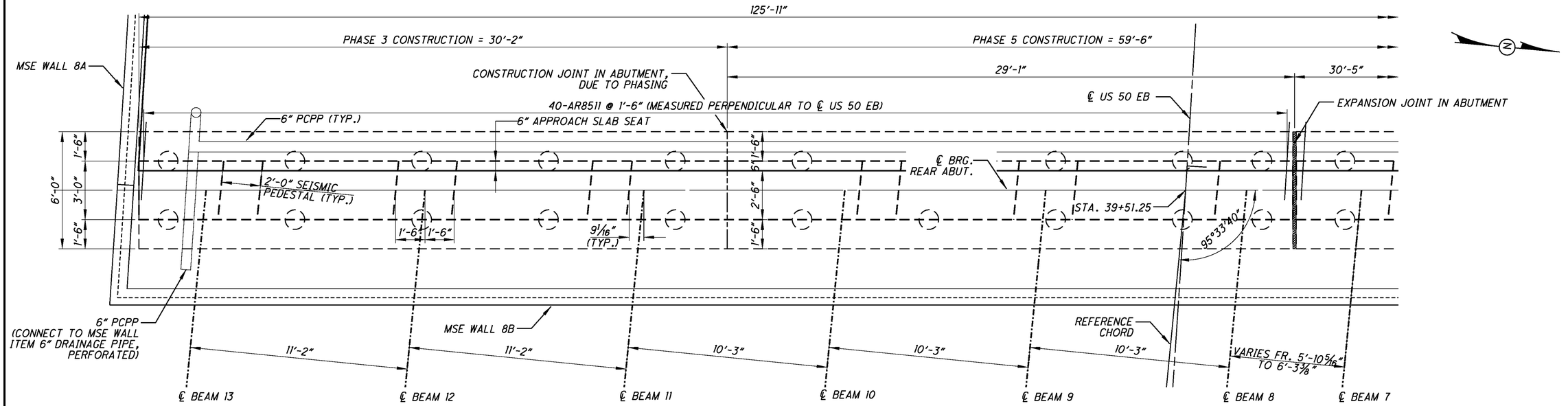

PLAN
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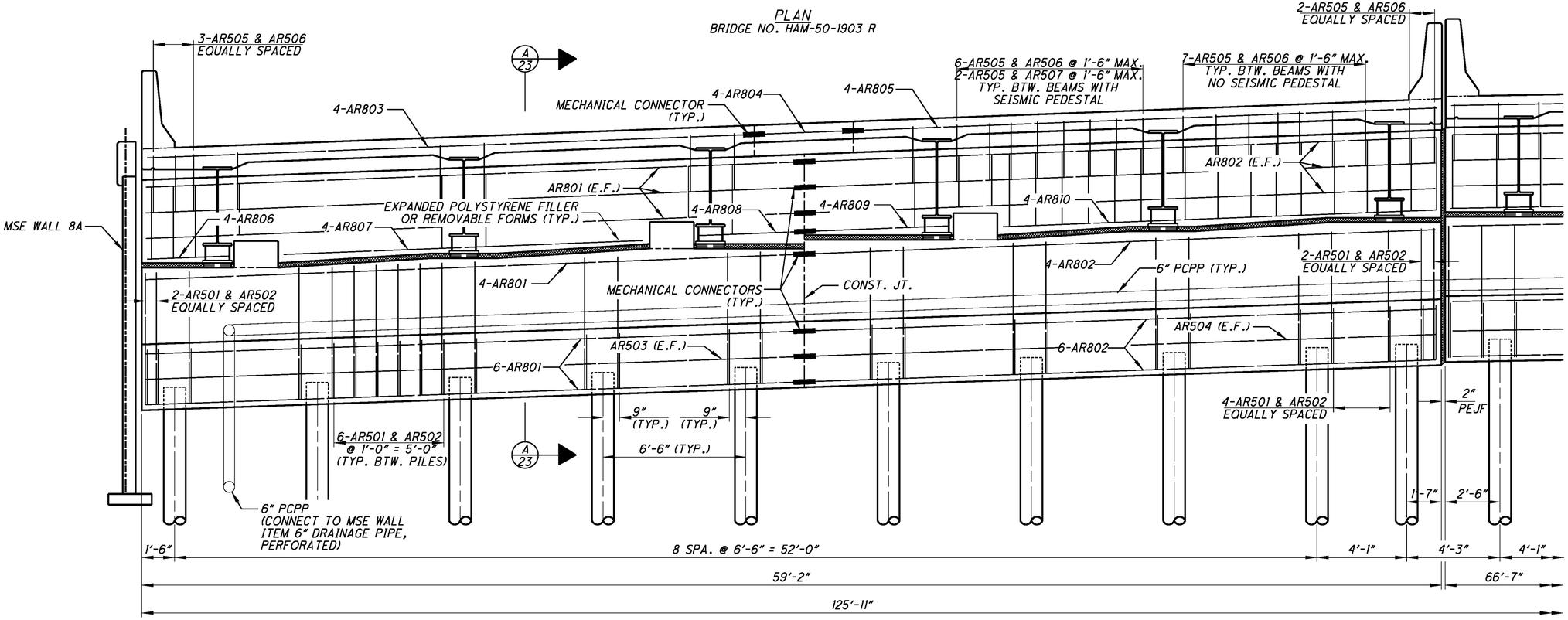

ELEVATION
BRIDGE NO. HAM-50-1903 R

NOTES:
1. MECHANICAL CONNECTORS TO BE INCLUDED FOR PAYMENT WITH ITEM 898 QC/QA CONCRETE.

REAR ABUTMENT DETAILS
BRIDGE HAM-50-1903 R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

21 / 65

545 / 657

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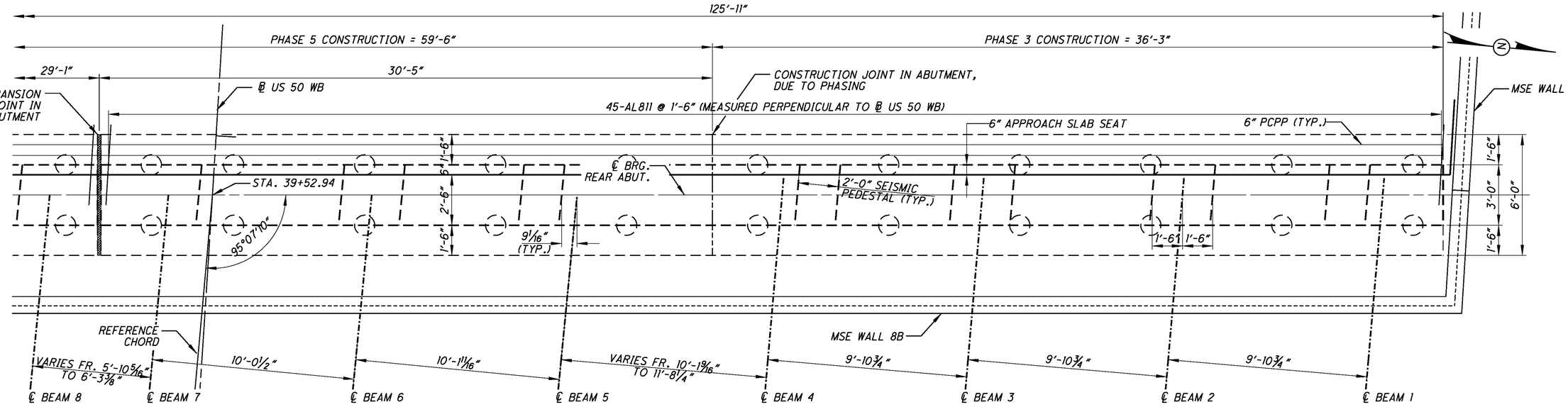
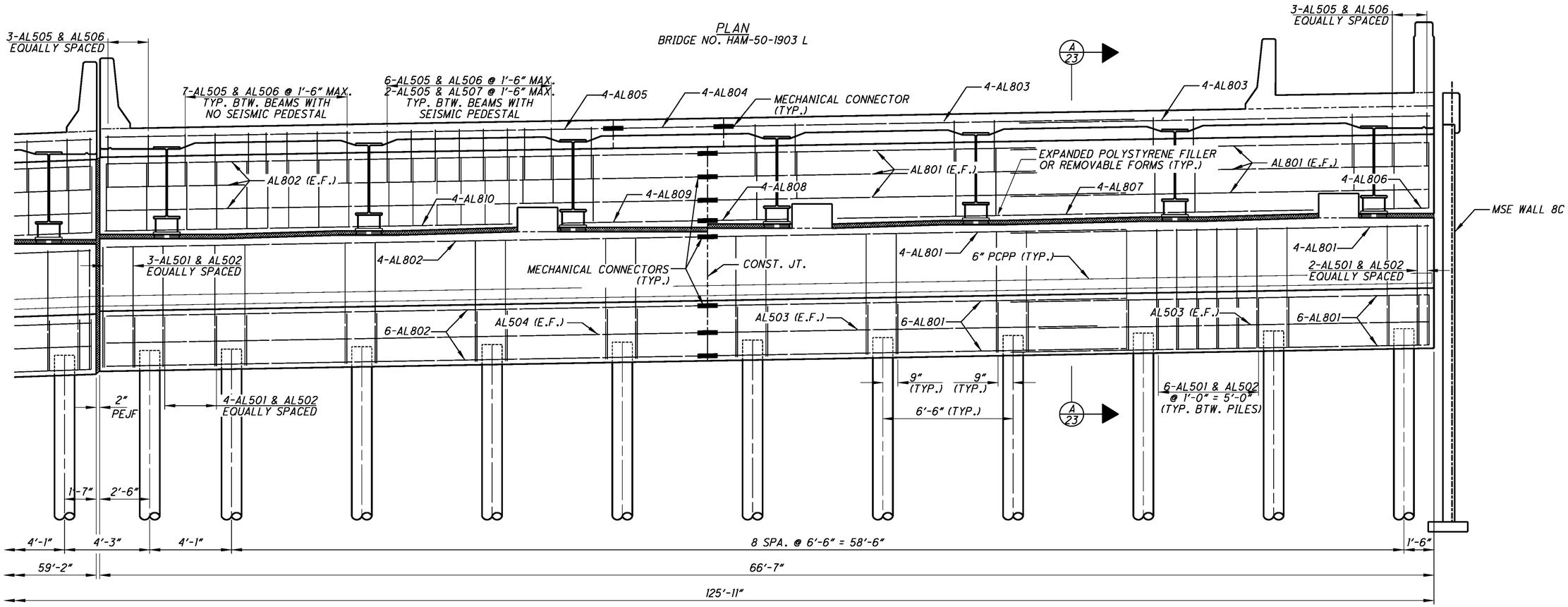


PLAN
BRIDGE NO. HAM-50-1903 L



ELEVATION
BRIDGE NO. HAM-50-1903 L

NOTES:
1. MECHANICAL CONNECTORS TO BE INCLUDED FOR PAYMENT WITH ITEM 898 QC/OA CONCRETE

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REAR ABUTMENT DETAILS
BRIDGE HAM-50-1903 L
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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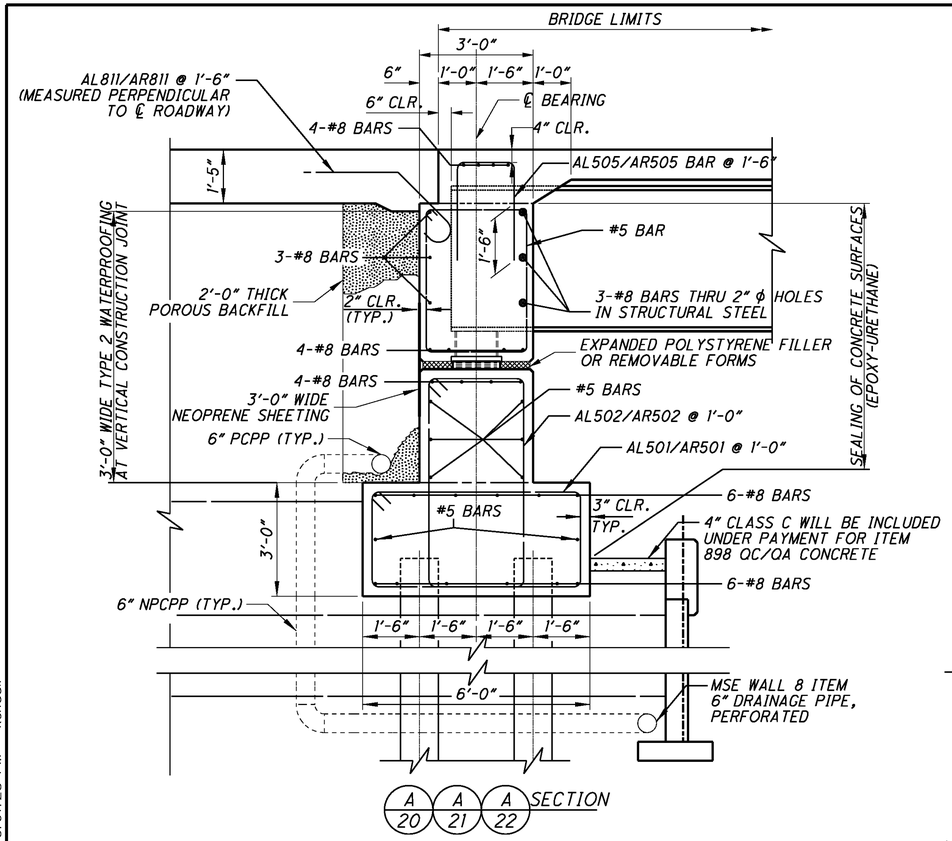
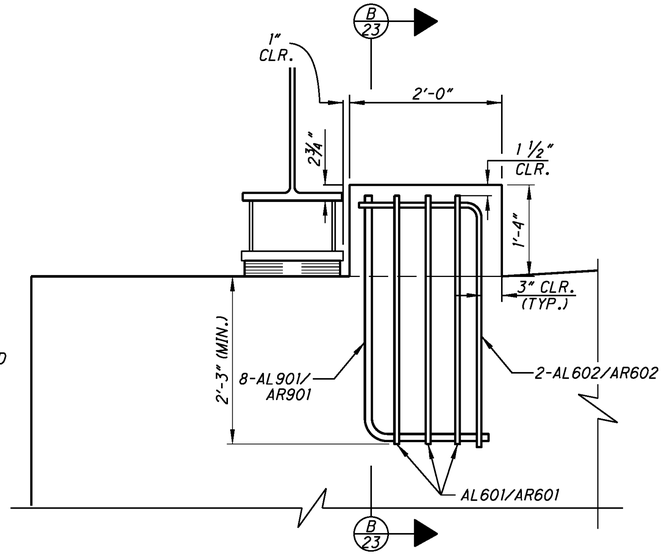
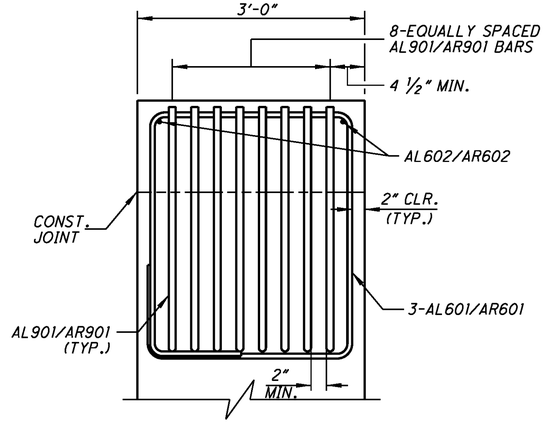
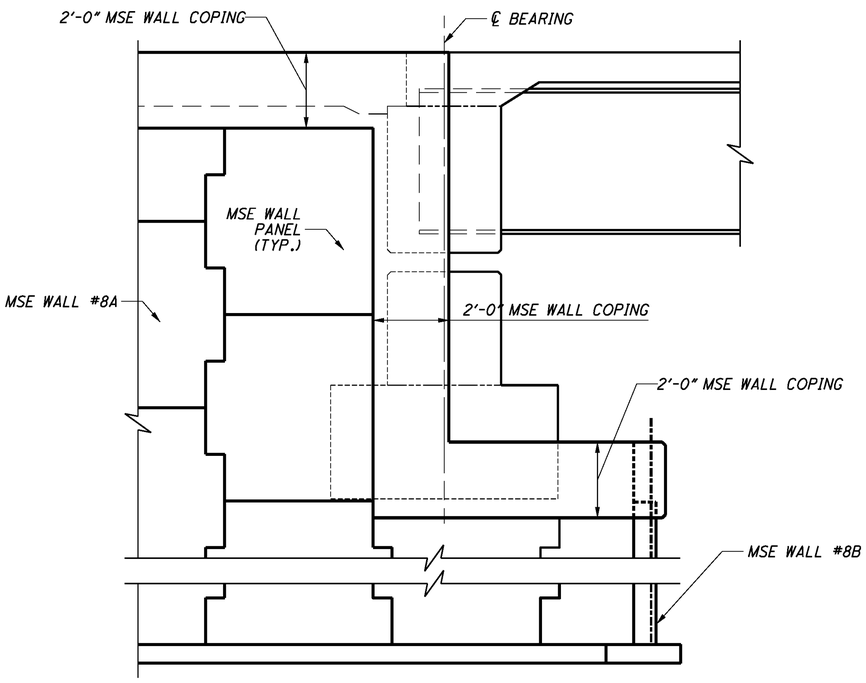




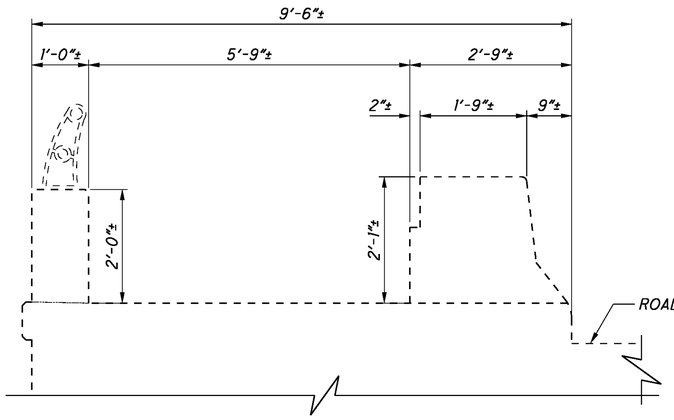
SEISMIC PEDESTAL DETAIL



B 23 SECTION



ELEVATION
MSE WALL #8 AND COPING



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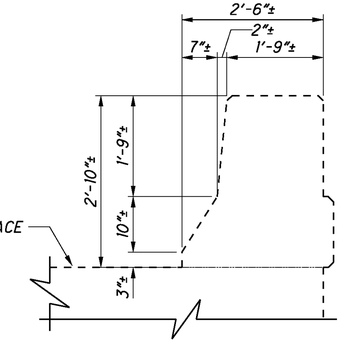
EXISTING CONDITIONS



D 3 SECTION
EXISTING CONDITIONS

NOTES:
1. FOR ADDITIONAL ABUTMENT DETAILS, SEE ODOT STD. DWG. A-1-69 AND SICD-1-96
2. FOR ADDITIONAL MSE DETAILS, SEE MSE WALL 8 DETAIL SHEETS.

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REAR ABUTMENT DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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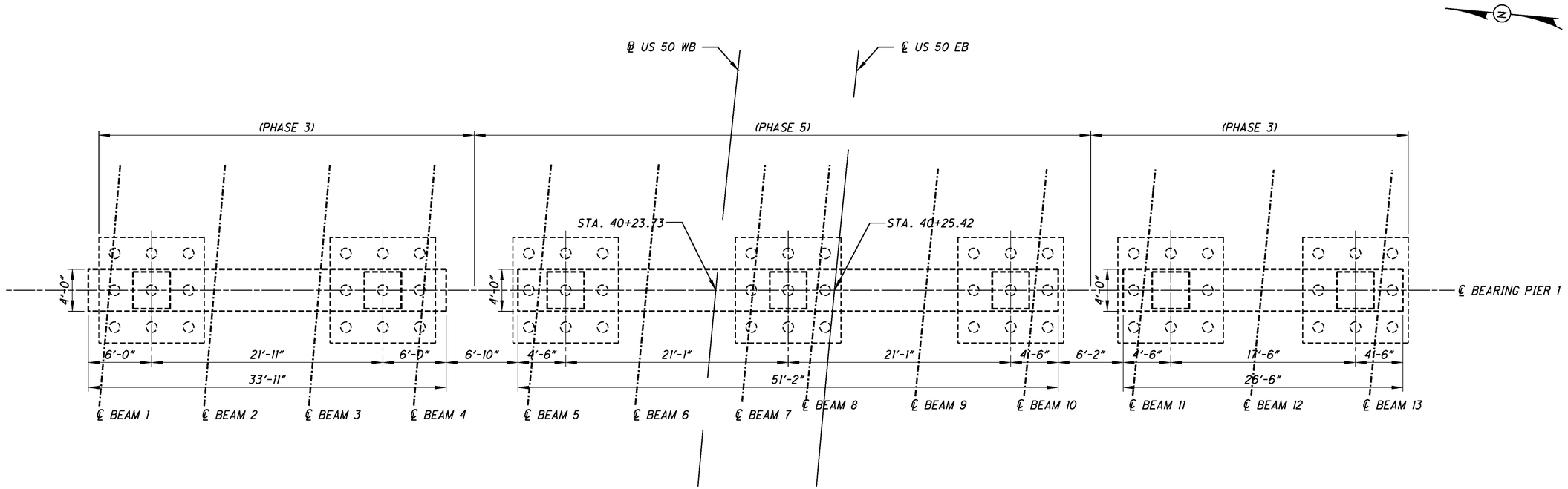
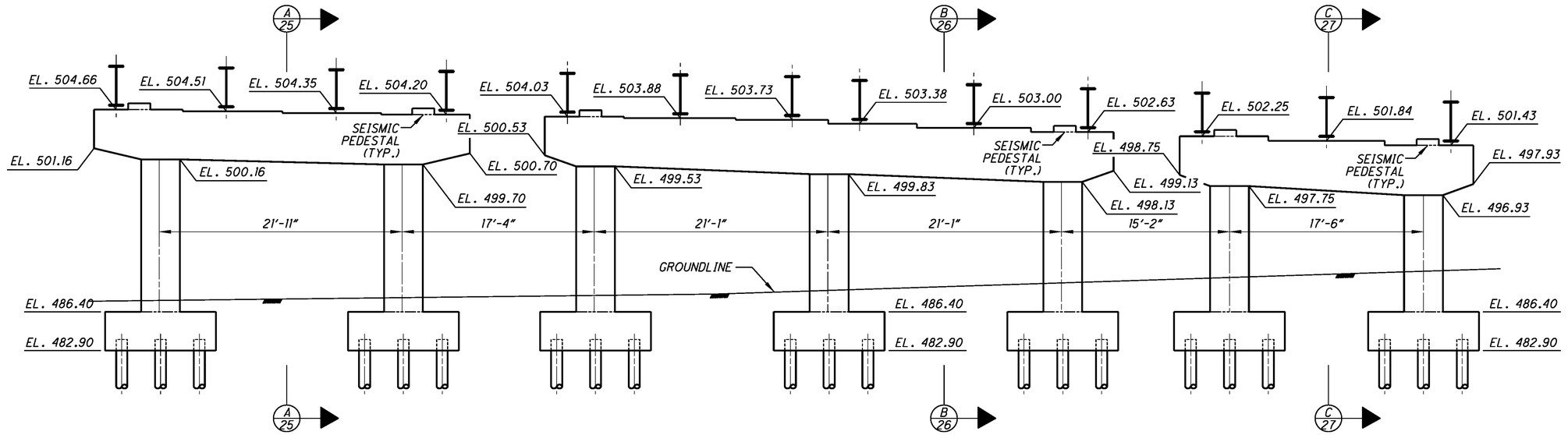


PLAN
BRIDGE NO. HAM-50-1903 L/R



ELEVATION
BRIDGE NO. HAM-50-1903 L/R

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4270 Ivy Pointe Blvd., Suite 225, Cincinnati, Ohio 45245
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PIER 1 DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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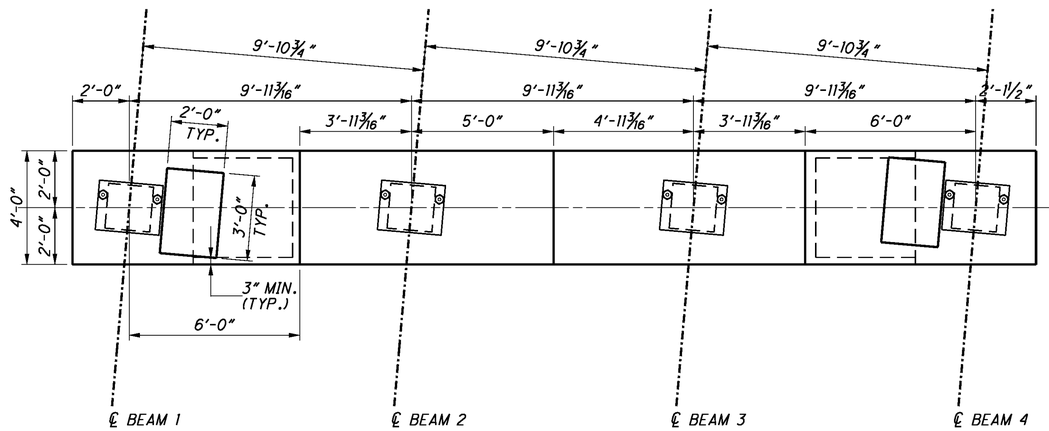

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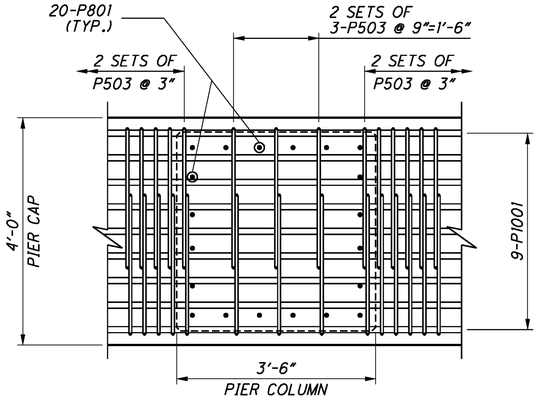
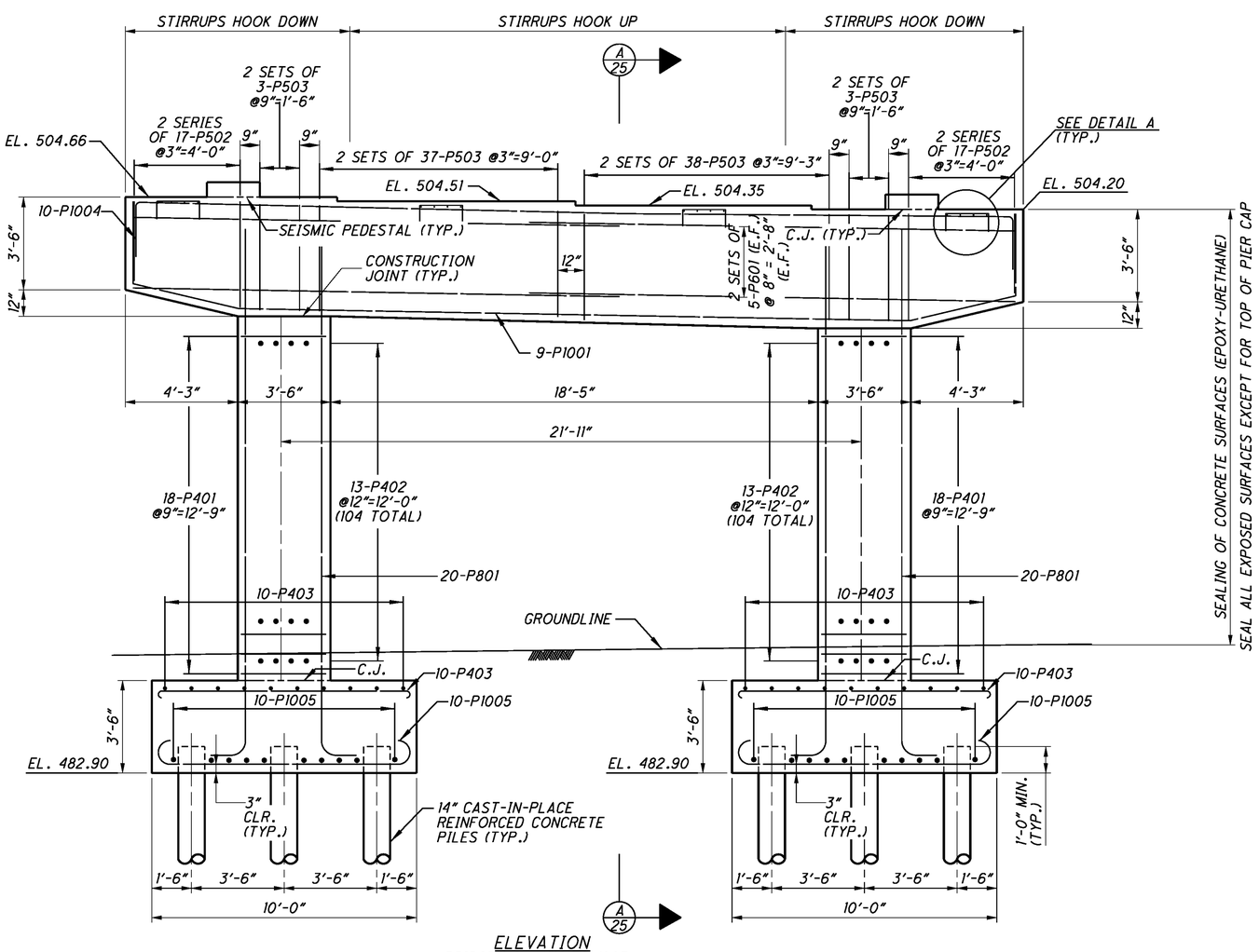
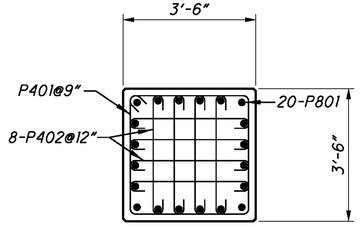


PIER 1 PLAN DETAIL
INTERSECTION OF REINFORCING
IN CAP AND COLUMN (TYP.)



ELEVATION
BRIDGE NO. HAM-50-1903 L



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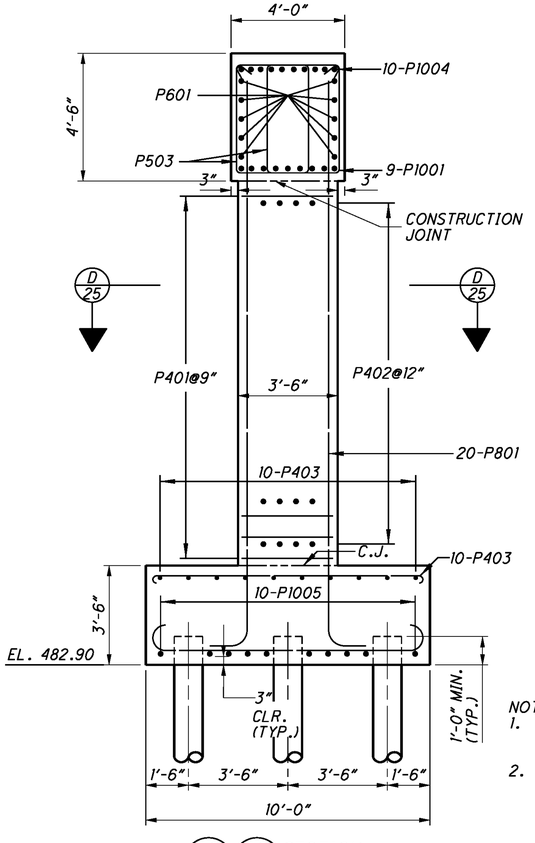
SECTION



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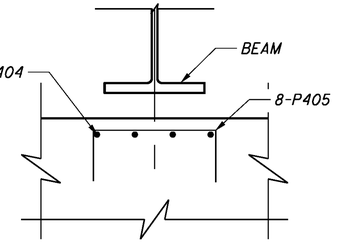

DETAIL A
BEAM SEAT REINFORCING

NOTES:
1. THE CORNER WITH THE 135° BENDS OF THE CLOSED TYPE STIRRUP SHALL BE PLACED IN THE COMPRESSION ZONE OF THE CONCRETE PIER CAP.
2. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS. FOR ADDITIONAL DETAILS ON ANCHOR DOWELS, SEE SHEET 39/65.
3. MIN. LAP #6 BAR = 2'-11"

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PIER 1 DETAILS
BRIDGE HAM-50-1903 L
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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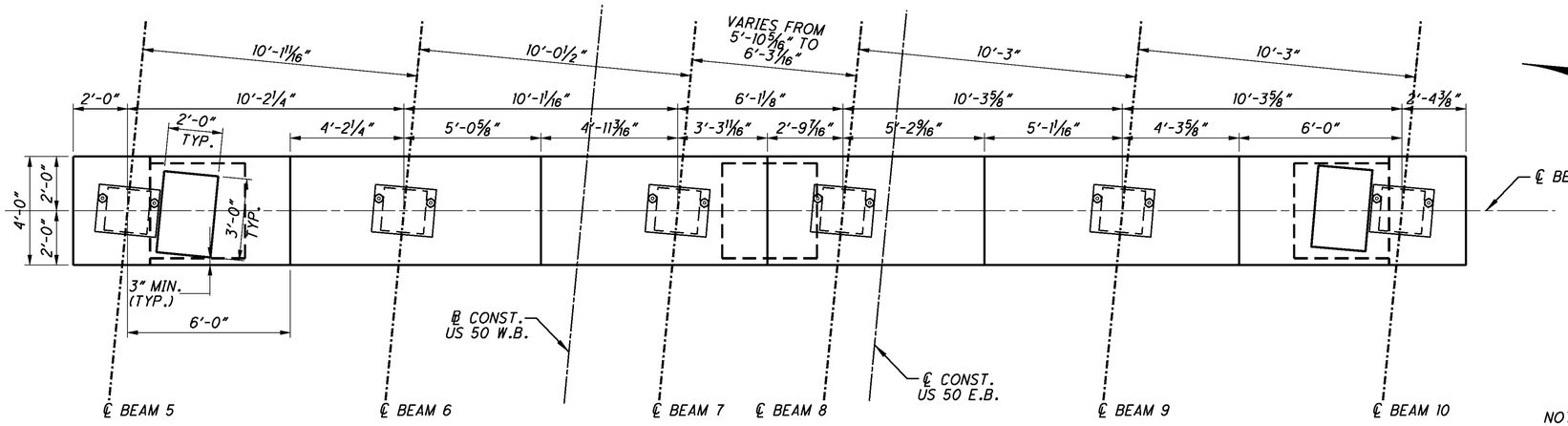
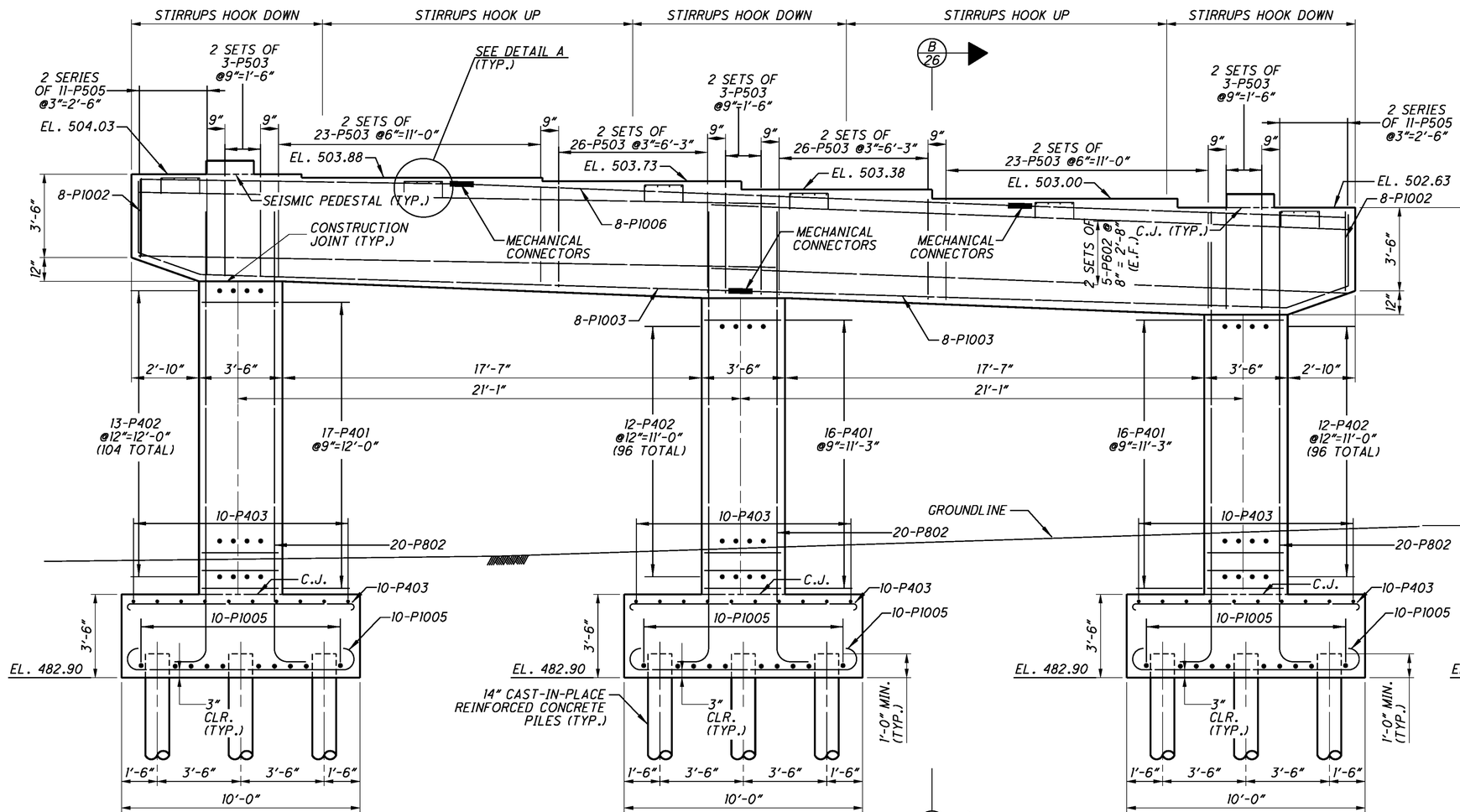
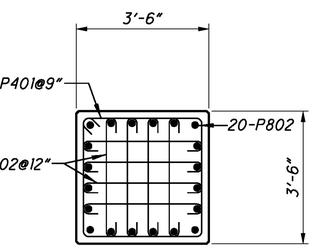


PLAN
BRIDGE NO. HAM-50-1903 L/R



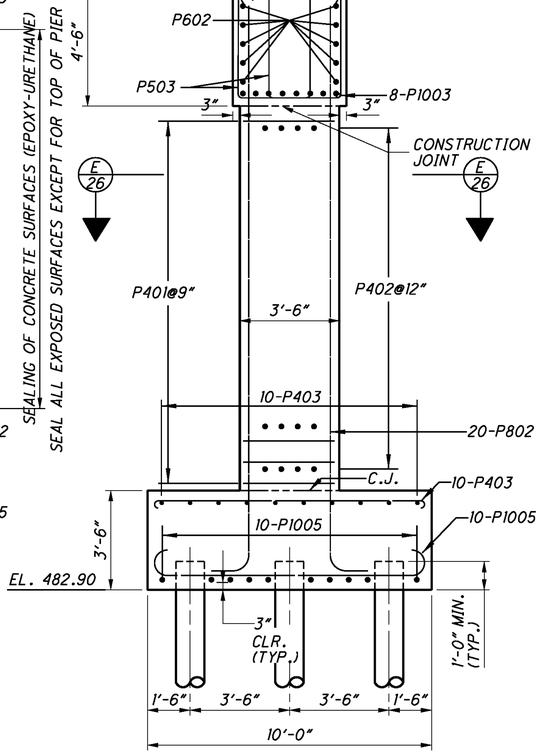
ELEVATION
BRIDGE NO. HAM-50-1903 L/R



E 26 SECTION

NOTES:

1. THE CORNER WITH THE 135° BENDS OF THE CLOSED TYPE STIRRUP SHALL BE PLACED IN THE COMPRESSION ZONE OF THE CONCRETE PIER CAP.
2. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS. FOR ADDITIONAL DETAILS ON ANCHOR DOWELS, SEE SHEET 39/65.
3. MECHANICAL CONNECTORS SHALL BE INCLUDED IN PAYMENT FOR ITEM 898 - QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING).
4. MIN. LAP #6 BAR = 2'-11"



B 24 B 26 SECTION

PIER 1 DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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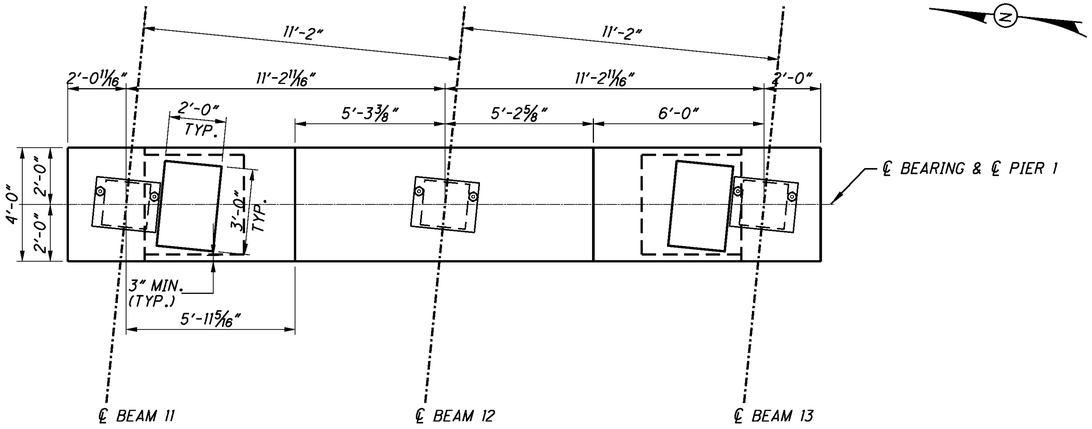
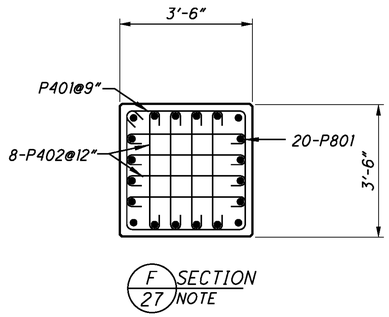


PLAN
BRIDGE NO. HAM-50-1903 R



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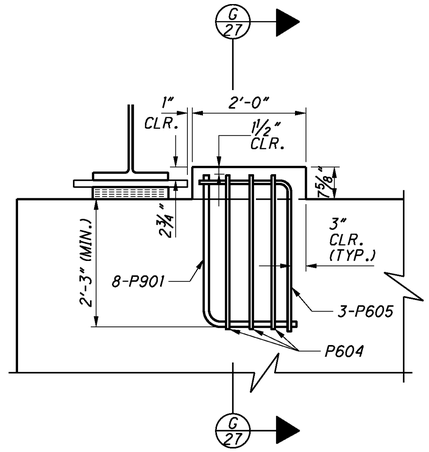
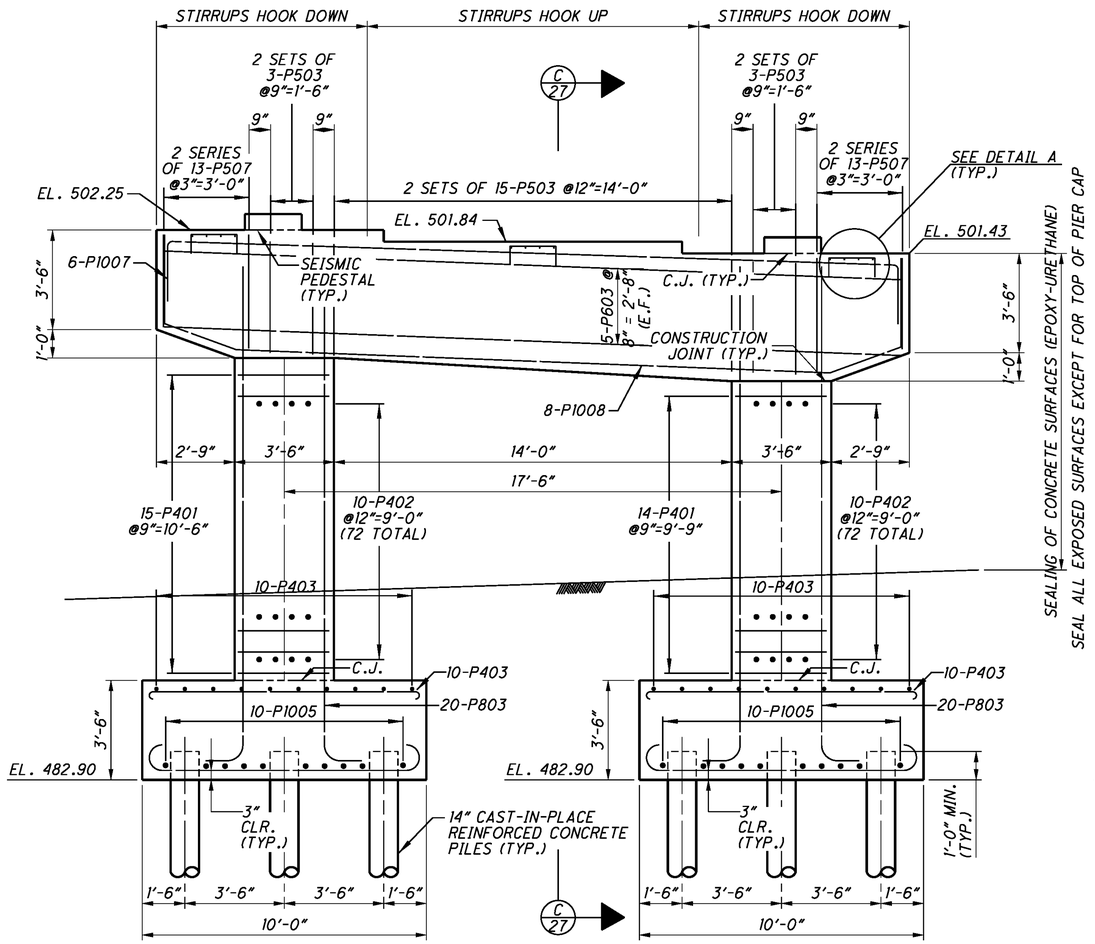
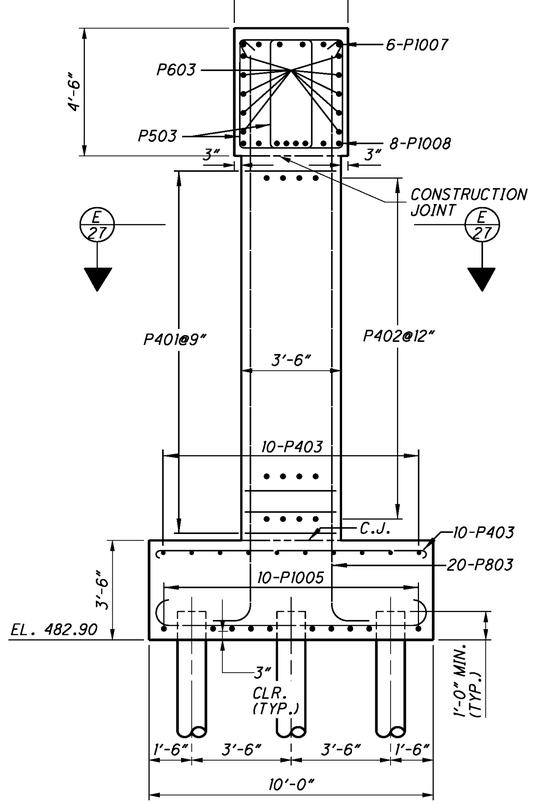


FRONT VIEW OF SEISMIC PEDESTAL

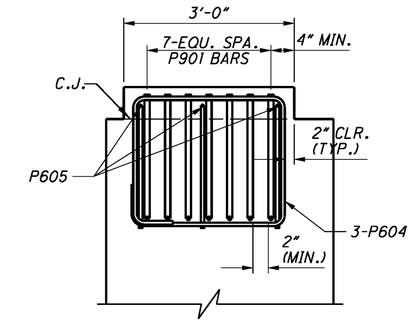


ELEVATION
BRIDGE NO. HAM-50-1903 R

SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
SEAL ALL EXPOSED SURFACES EXCEPT FOR TOP OF PIER CAP



C/24 C/27 SECTION



G/27 SECTION

NOTES:
1. THE CORNER WITH THE 135° BENDS OF THE CLOSED TYPE STIRRUP SHALL BE PLACED IN THE COMPRESSION ZONE OF THE CONCRETE PIER CAP.
2. BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS. FOR ADDITIONAL DETAILS ON ANCHOR DOWELS, SEE SHEET 39/65.

DESIGN AGENCY
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DAT		3102807/3102815	

PIER 1 DETAILS
BRIDGE HAM-50-1903 R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

27 / 65

551 / 657

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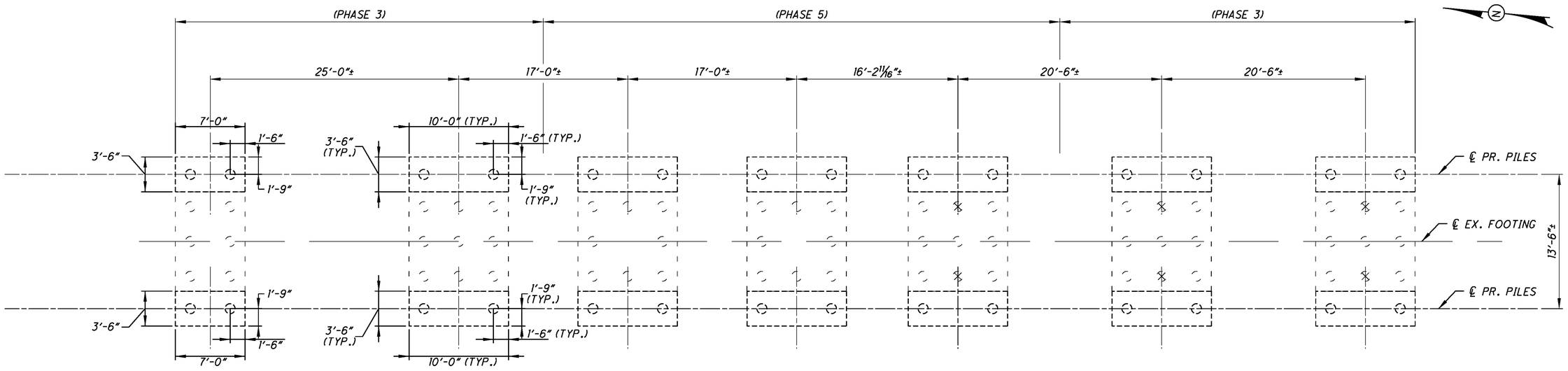
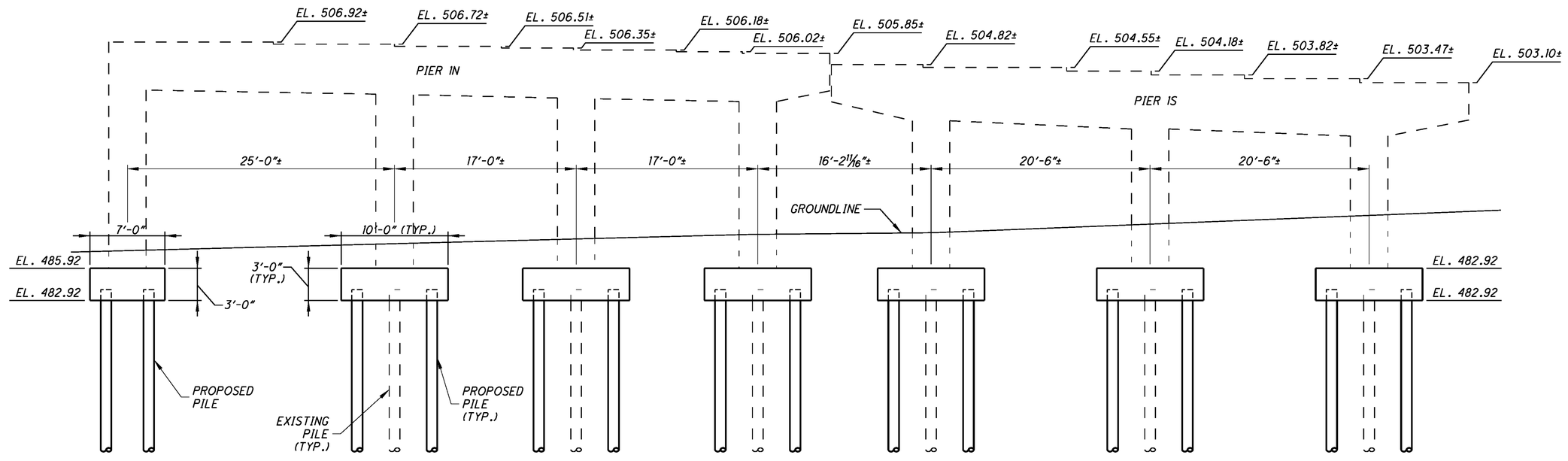


PLAN
BRIDGE NO. HAM-50-1903 L/R



ELEVATION
BRIDGE NO. HAM-50-1903 L/R

NOTES:
1. PROPOSED PILES SHALL BE 12" CAST-IN-PLACE REINFORCED CONCRETE PILES

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
CLEVELAND, OHIO 44113-1406 TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

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PIER IN/IS DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

28 / 65

552
657

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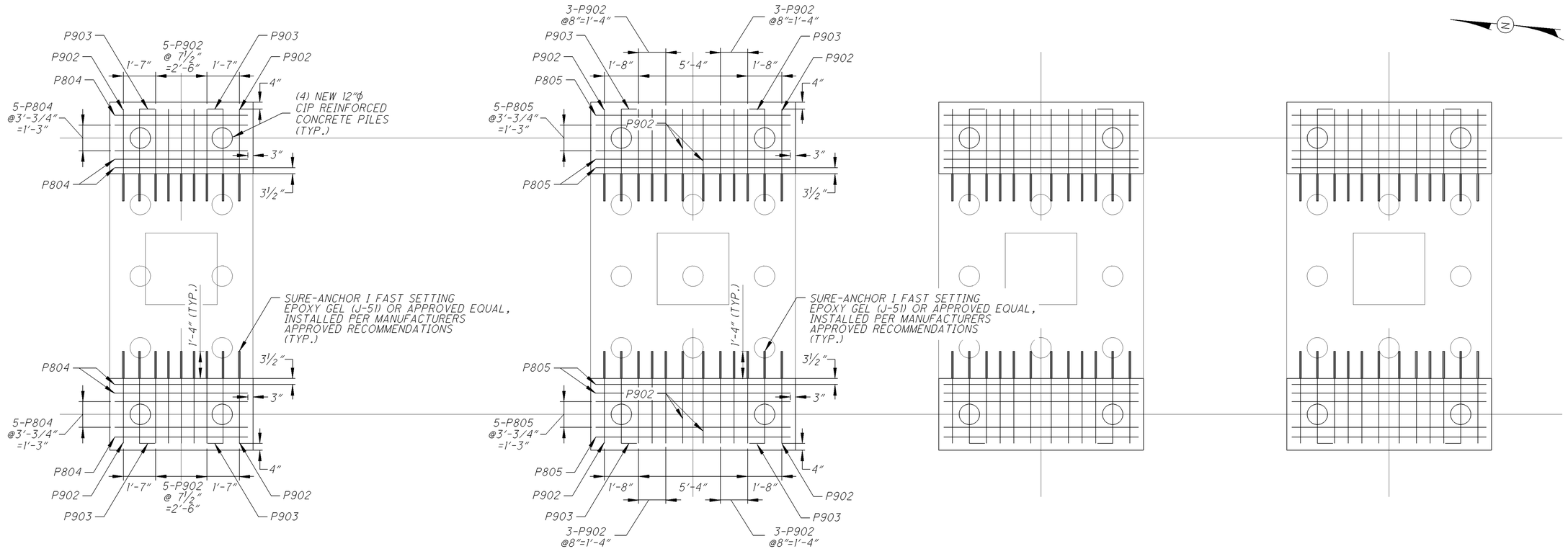
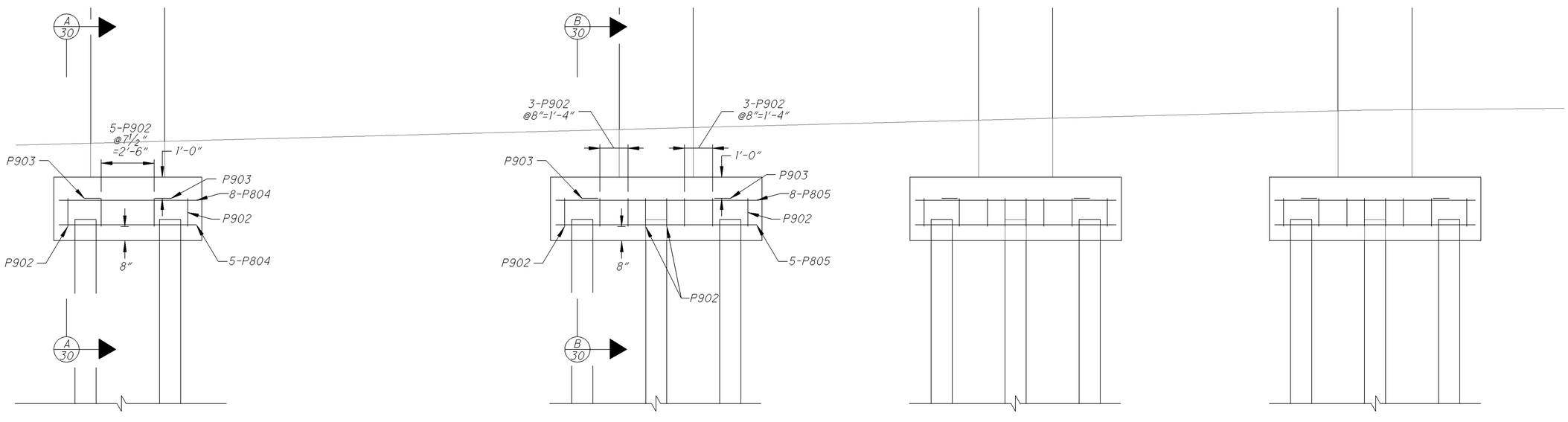


TYPICAL FOR 3 SECTIONS

PLAN
BRIDGE NO. HAM-50-1903 L/R



TYPICAL FOR 3 SECTIONS

ELEVATION
BRIDGE NO. HAM-50-1903 L/R

NOTES:
1. PROPOSED PILES SHALL BE 12" CAST-IN-PLACE REINFORCED CONCETE PILES

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
Cincinnati, Ohio 45246 Northern Kentucky
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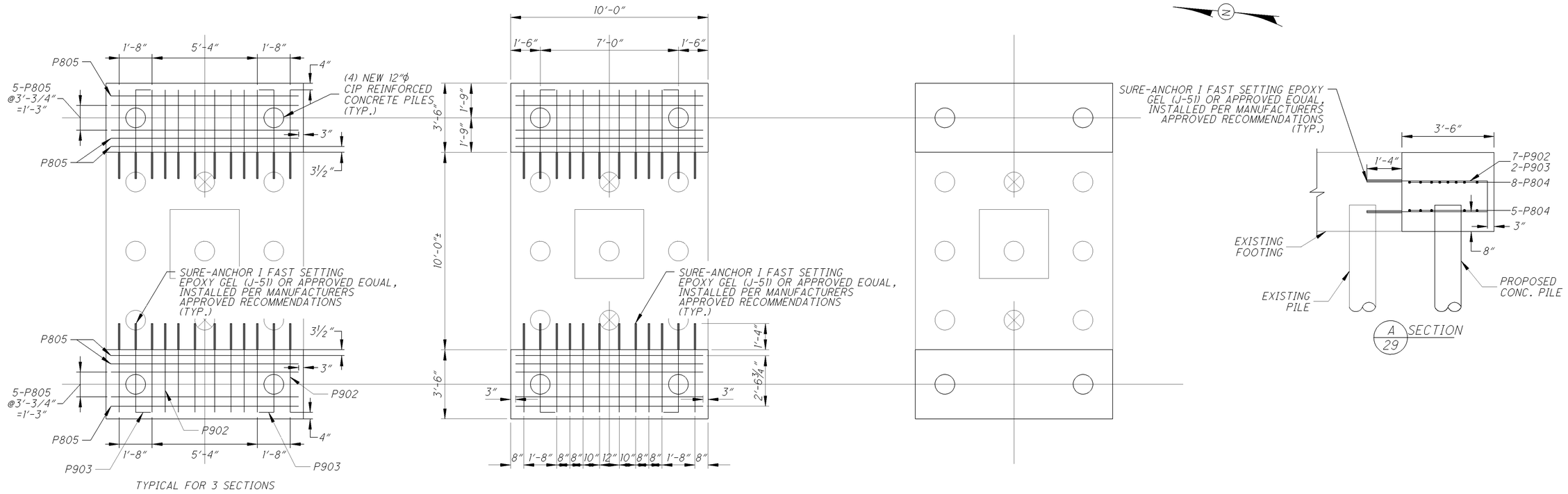
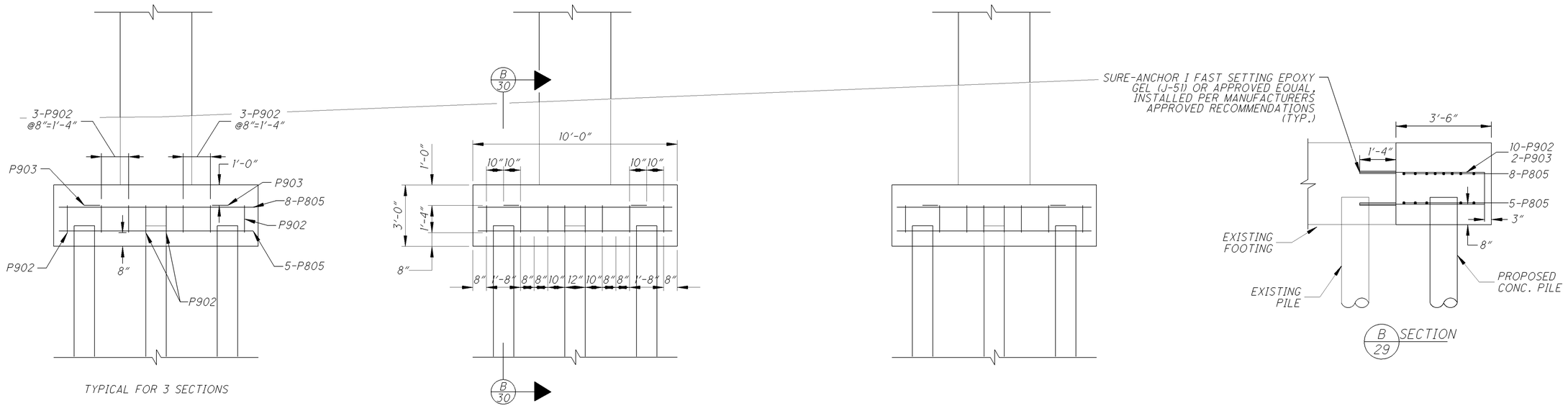
PIER IN/IS DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082





NOTES:

1. PROPOSED PILES SHALL BE 12" CAST-IN-PLACE REINFORCED CONCETE PILES

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
Cincinnati, Ohio | Northern Kentucky | Indianapolis
TEL 513.621.6211 FAX 513.621.8630 WEB www.kzfdesign.com

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DEF	RBK	BMB	11-29-10
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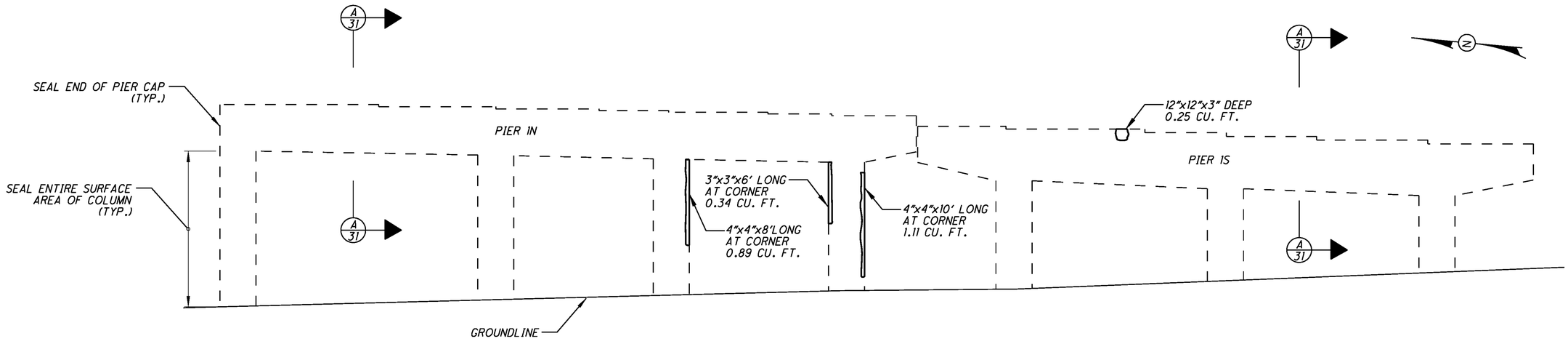
DAT		3102807/3102815	

PIER IN/IS DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

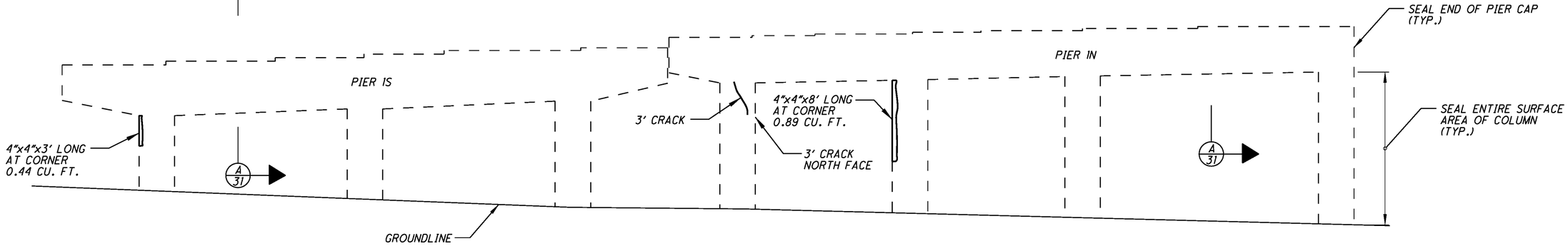
30 / 65

554
657



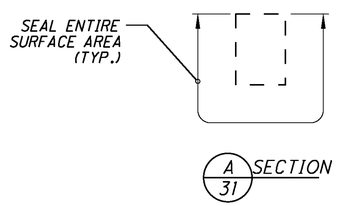
PIER IN
(LOOKING EAST)

PIER IS
(LOOKING EAST)



PIER IS
(LOOKING WEST)

PIER IN
(LOOKING WEST)



NOTES:

1. CONCRETE SEALER SHALL BE EPOXY-URETHANE AND SHALL BE INCLUDED WITH ITEM 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) FOR PAYMENT
2. PATCH CONCRETE WITH TROWABLE MORTAR AS DETERMINED BY ODOT CONSTRUCTION ENGINEER. PAYMENT SHALL BE INCLUDED WITH ITEM 519 PATCHING CONCRETE STRUCTURE.
3. EPOXY INJECT ALL CRACKS AS DETERMINED BY ODOT CONSTRUCTION ENGINEER. PAYMENT SHALL BE INCLUDED WITH ITEM 519 PATCHING CONCRETE STRUCTURE.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4270 Ivy Pointe Blvd., Suite 225, Cincinnati, OH 45245
TEL 513.821.6211 FAX 513.821.9830 WEB www.kzf.com

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DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/31028115	

PIER IN/IS DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

31 / 65

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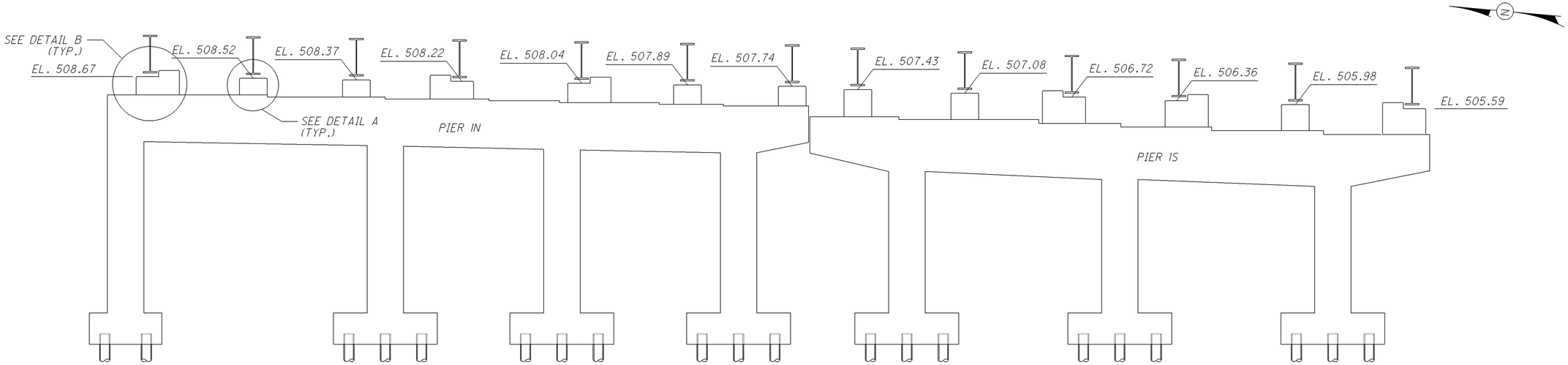
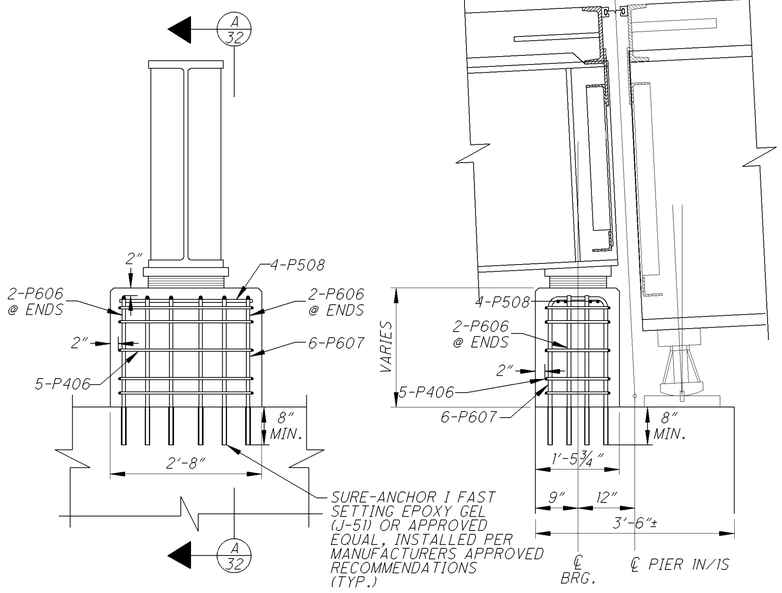
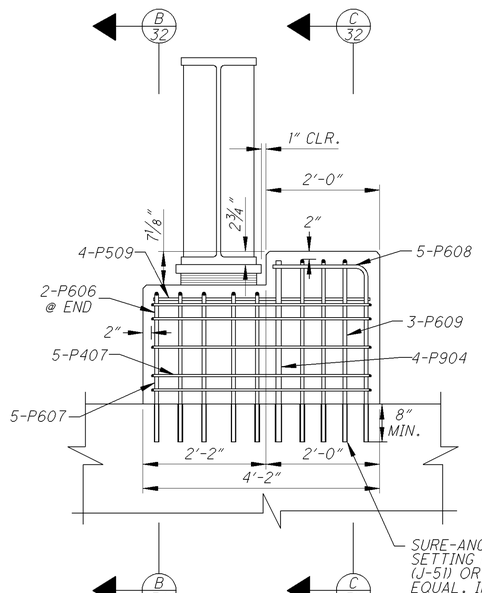


ELEVATION
BRIDGE NO. HAM-50-1903 L/R

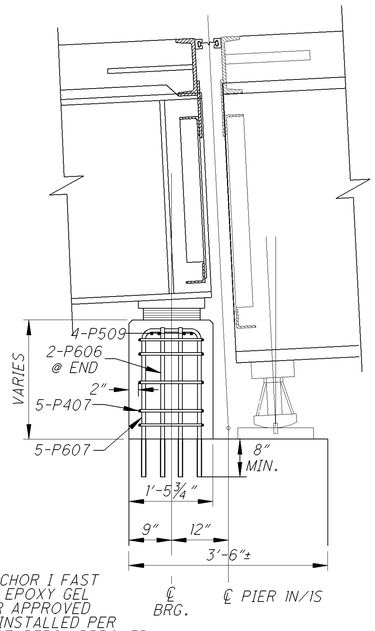


DETAIL A
BEAM SEAT PEDESTAL

A
32
SECTION



DETAIL B
BEAM SEAT/SEISMIC PEDESTAL



B
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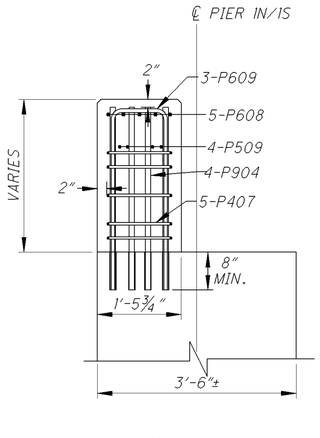
SECTION



C
32
SECTION

DESIGN AGENCY
KZFDESIGN
Architecture | Engineering | Interiors | Planning
437 Grant Street, Suite 1501, Pittsburgh, PA 15219
TEL. 412.921.8211 FAX 412.921.8606 WEB www.kzfdesign.com

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DAT		3102807/3102815	

PIER IN/IS DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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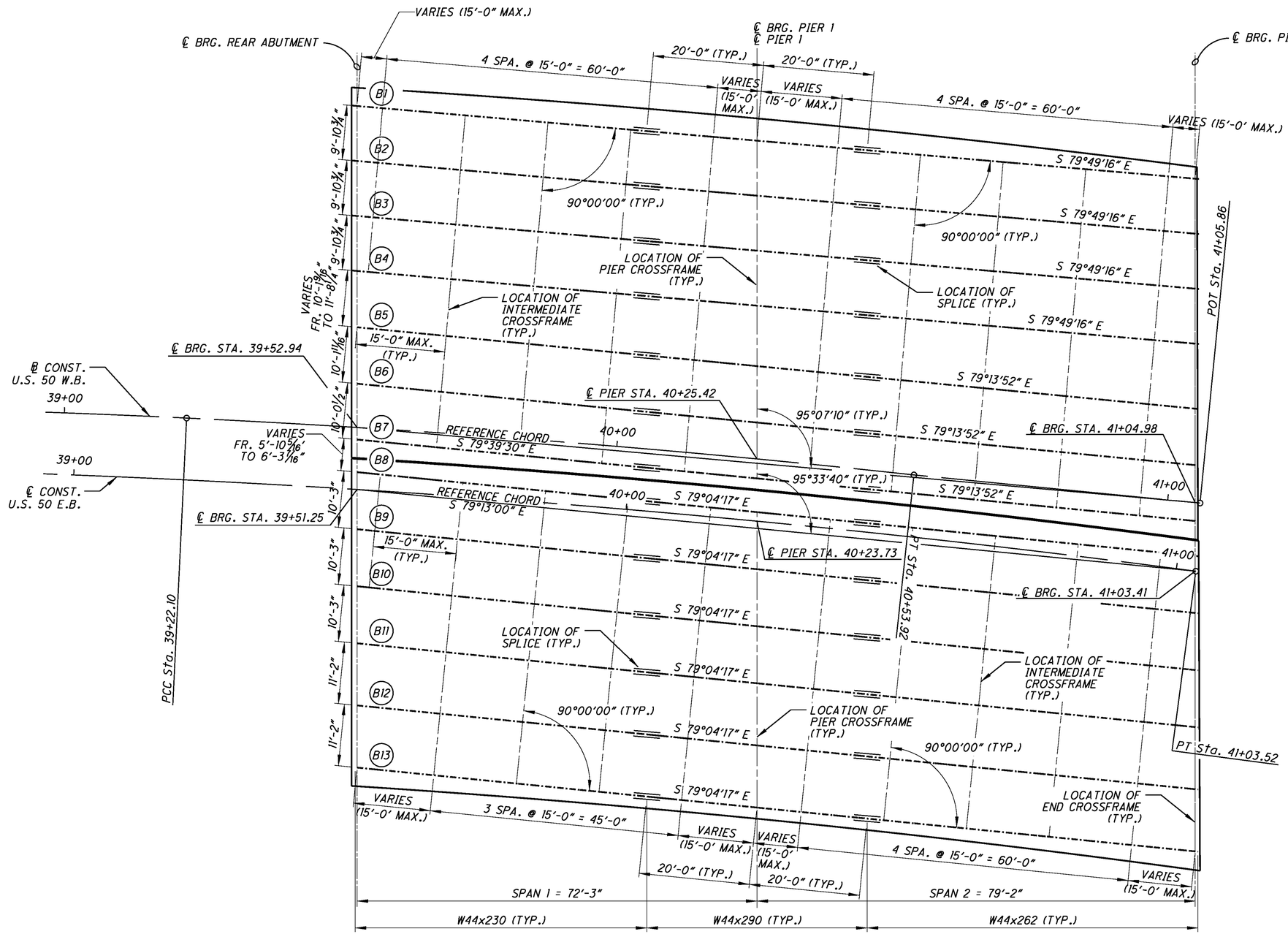
657



BEAM LENGTHS	
BEAM 1	153'-7⅞"
BEAM 2	153'-7⅞"
BEAM 3	153'-7⅞"
BEAM 4	153'-7⅞"
BEAM 5	153'-9⅝"
BEAM 6	153'-9⅝"
BEAM 7	153'-9⅝"
BEAM 8	153'-10⅛"
BEAM 9	153'-10⅛"
BEAM 10	153'-10⅛"
BEAM 11	153'-10⅛"
BEAM 12	153'-10⅛"
BEAM 13	153'-10⅛"

NOTES:
1. SEE SHEET 37/65 FOR CROSSFRAME DETAILS.
2. THE CONTRACTOR HAS THE OPTION TO SUBSTITUTE THE W44 ROLLED BEAMS WITH A PLATE GIRDER OF SIMILAR PROPERTIES. ALL COST TO MAKE THE SUBSTITUTION SHOULD BE BORNE BY THE CONTRACTOR AT NO COST TO THE STATE. ALL DESIGN CALCULATIONS, RATING AND ASSOCIATED CAD PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SIGNED AND SEALED BY AN OHIO PROFESSIONAL ENGINEER. THIS SUBSTITUTION SHALL ALSO BE AGREED UPON WITH THE APPROVAL OF THE ENGINEER.

FRAMING PLAN
BRIDGE NO. HAM-50-1903 L/R

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
425 Metro Place North, Suite 300, Dublin, Ohio 43017
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

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FRAMING PLAN
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

33 / 65

557 / 657

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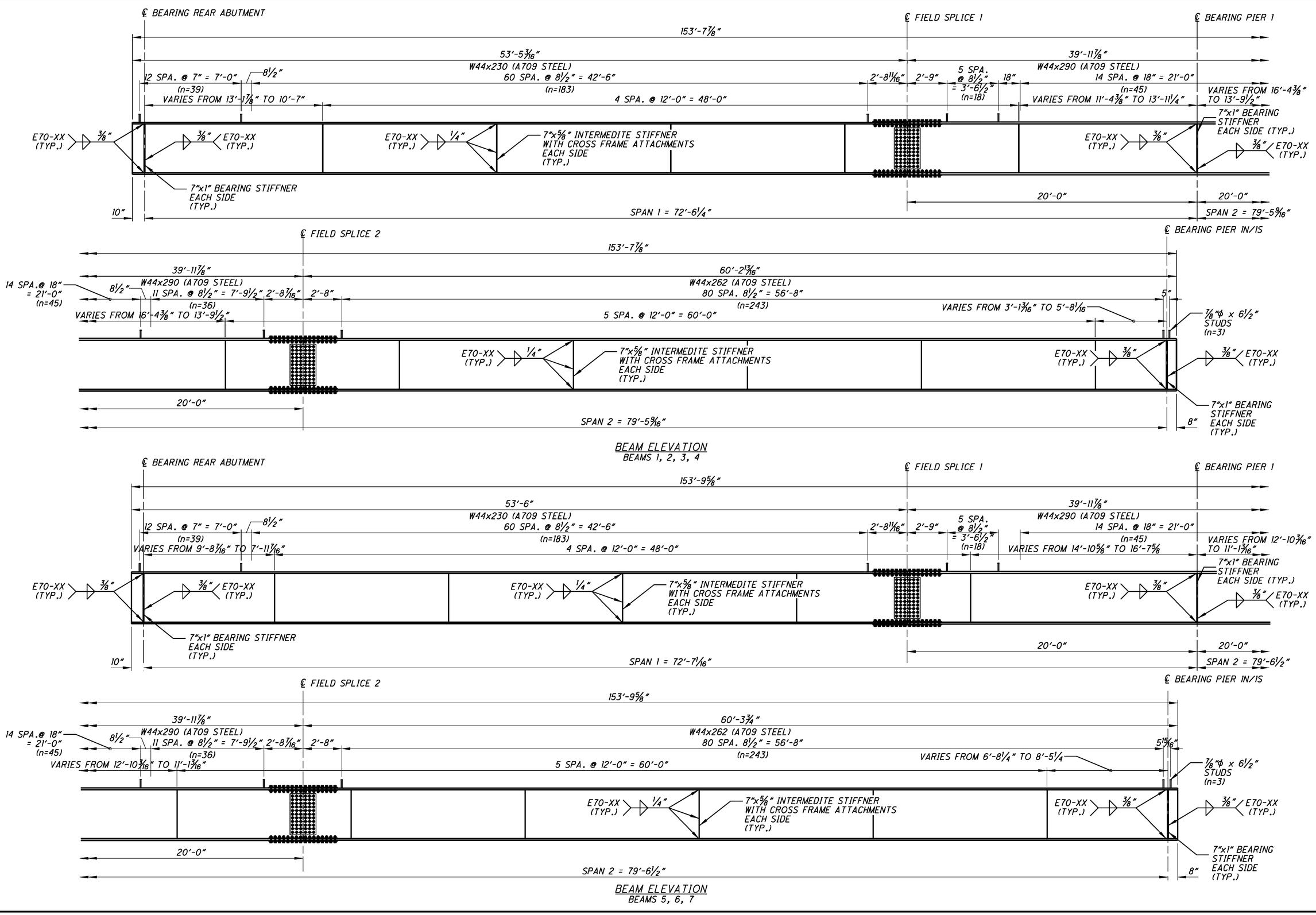

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
428 Main Street, Suite 100, Cincinnati, Ohio 45202
TEL 513.421.4211 FAX 513.421.3830 WEB www.kzf.com

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DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

BEAM ELEVATION
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

34 / 65

558
657

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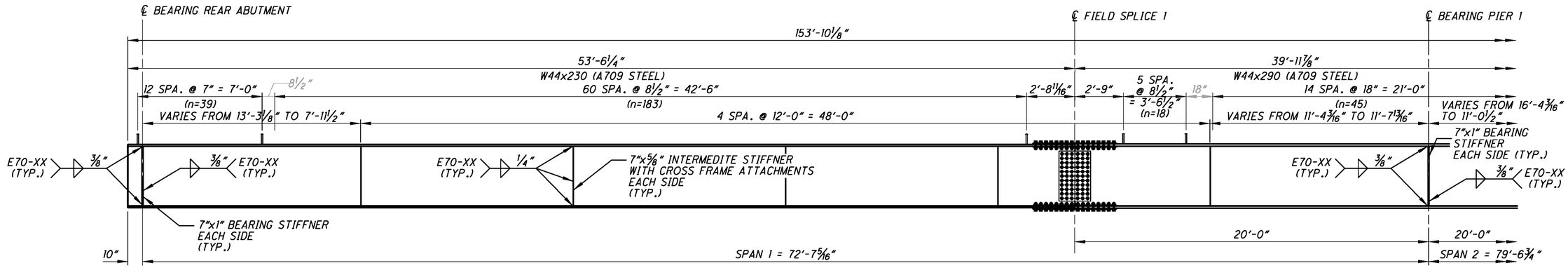
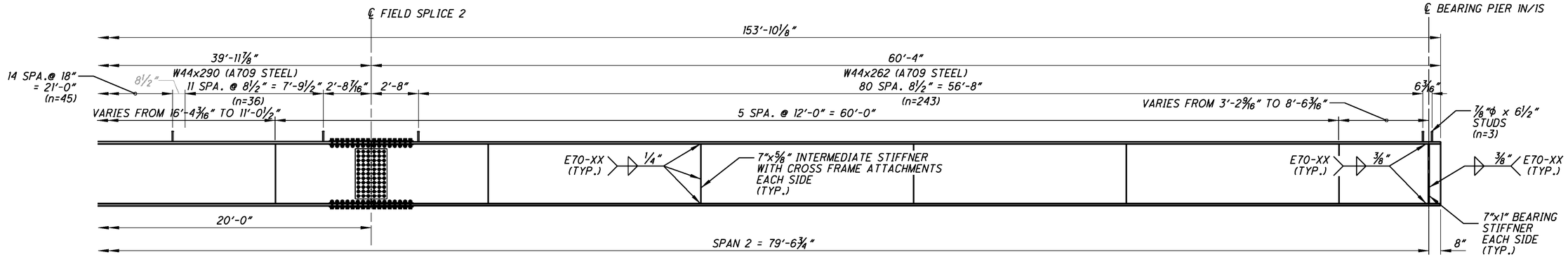
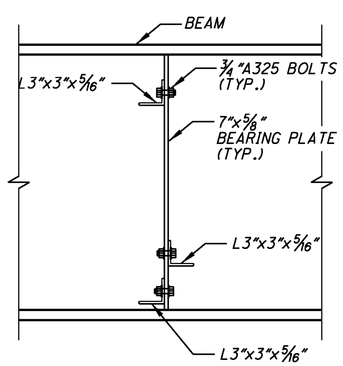
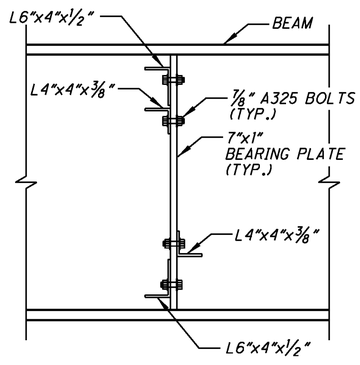




BEAM ELEVATION
BEAMS 8, 9, 10, 11, 12, 13



(A) 37 INTERMEDIATE CROSSFRAME SECTION



(B) 37 PIER 1 CROSSFRAME SECTION

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4200 Shawnee Mission Parkway, Suite 200 Fairway, Kansas 66205
TEL 913.621.6211 FAX 913.621.8830 WEB www.kzf.com

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BEAM ELEVATION
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

35 / 65

559 / 657

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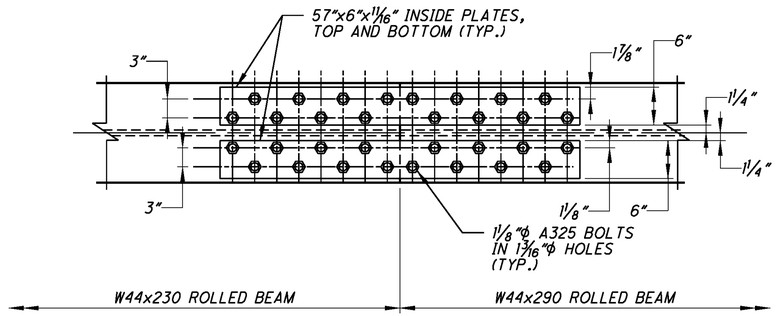
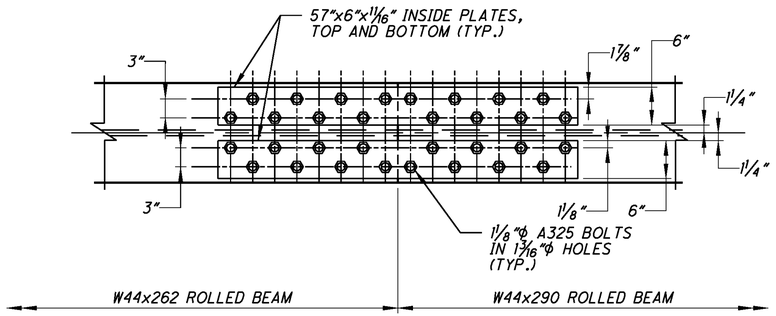
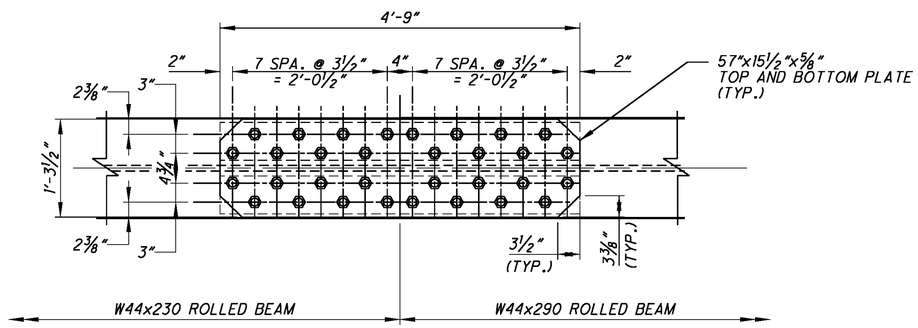


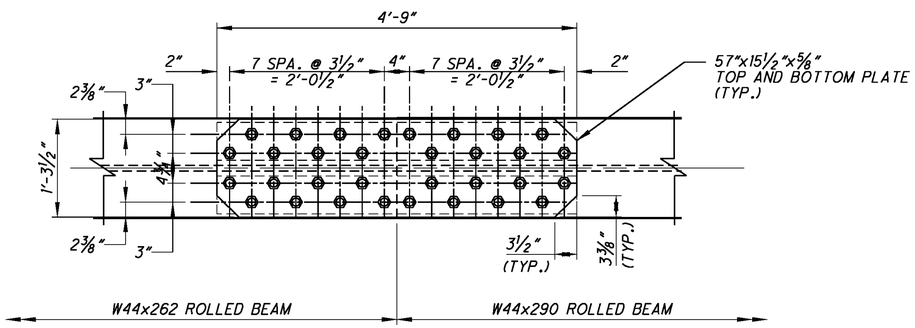
W44x230 - W44x290 PLAN
INSIDE FLANGE PLATES



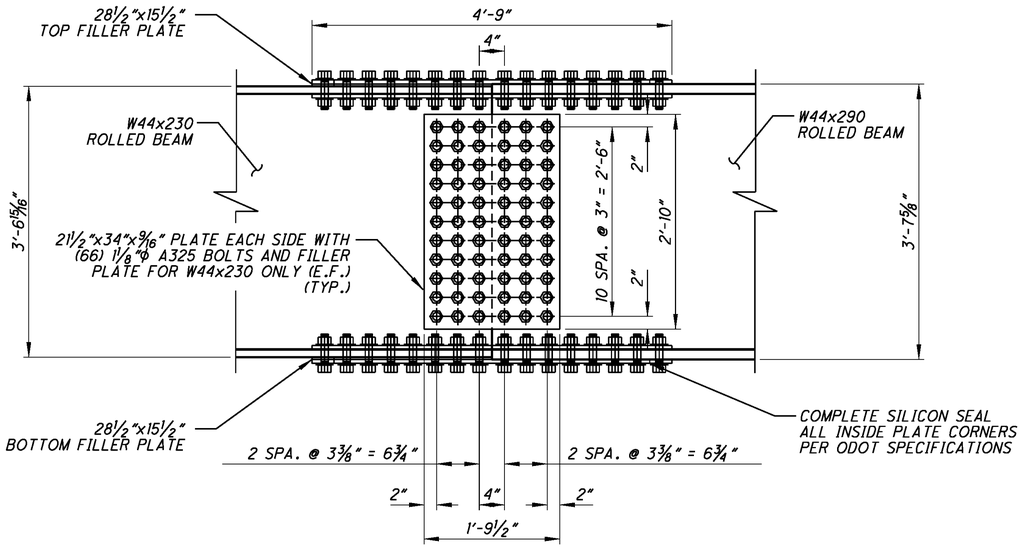
W44x262 - W44x290 PLAN
INSIDE FLANGE PLATES



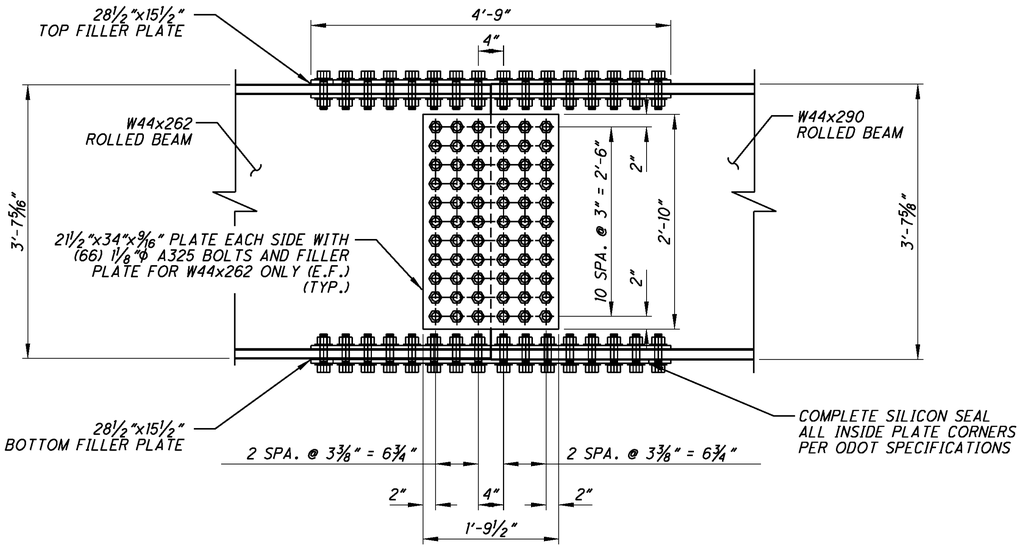
W44x230 - W44x290 PLAN
OUTSIDE FLANGE PLATES



W44x262 - W44x290 PLAN
OUTSIDE FLANGE PLATES



W44x230 - W44x290 ELEVATION



W44x262 - W44x290 ELEVATION

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
CINCINNATI, OHIO 45202 COLUMBUS, OHIO 43215
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

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DEF	RBK	BMB	11-29-10
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DAT		31028017/3102815	

BEAM SPLICE DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

36 / 65

560 / 657

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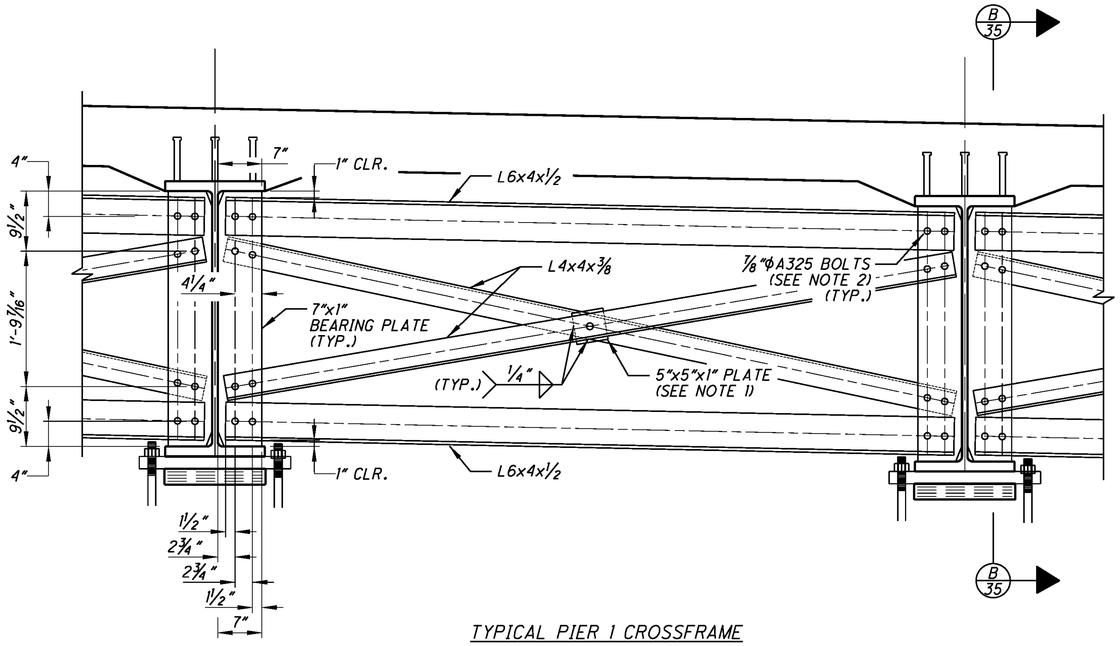
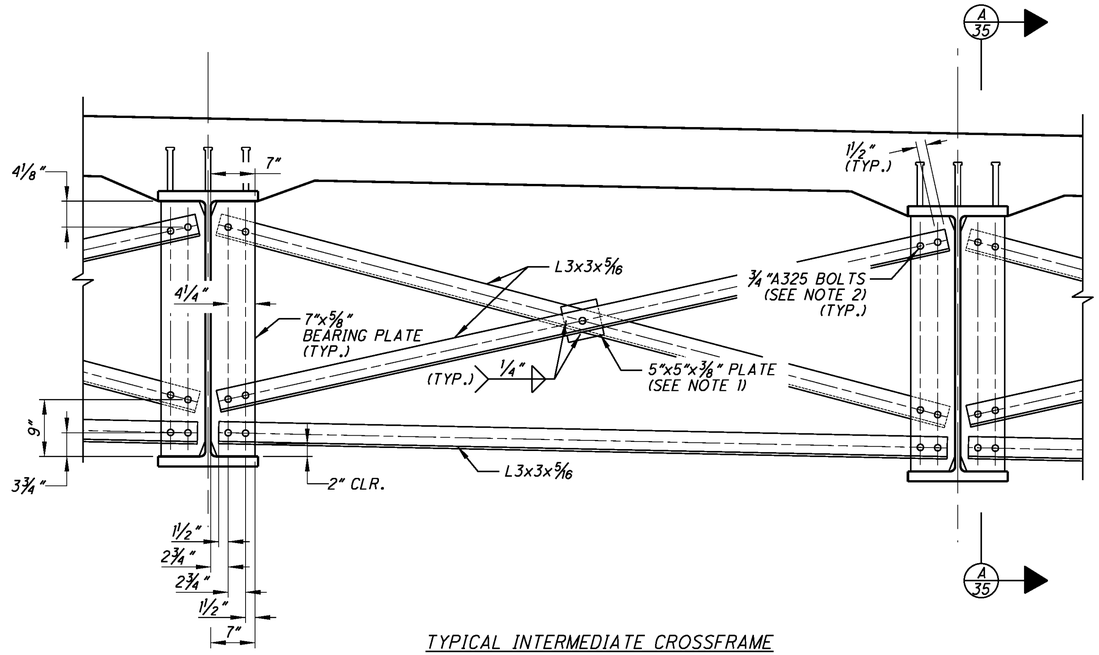
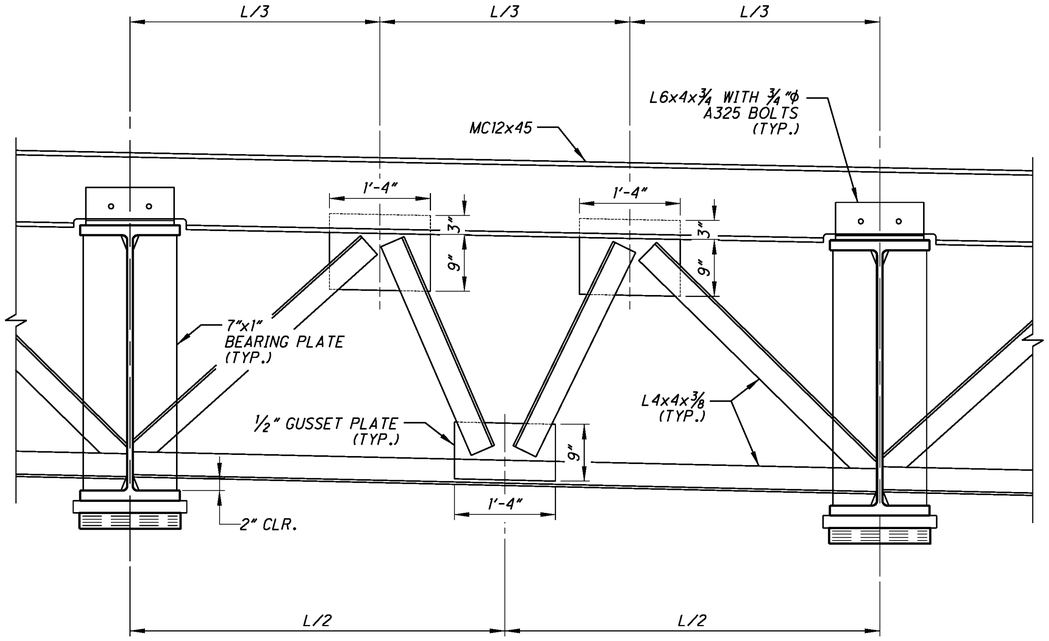


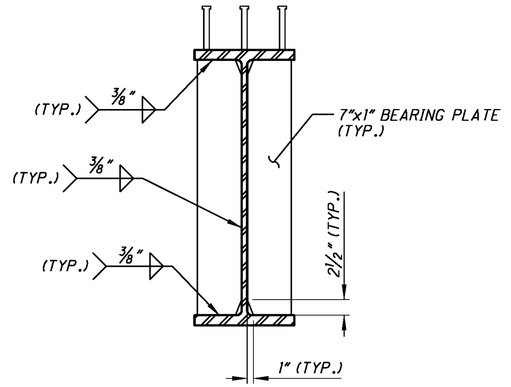
TYPICAL PIER 1 CROSSFRAME



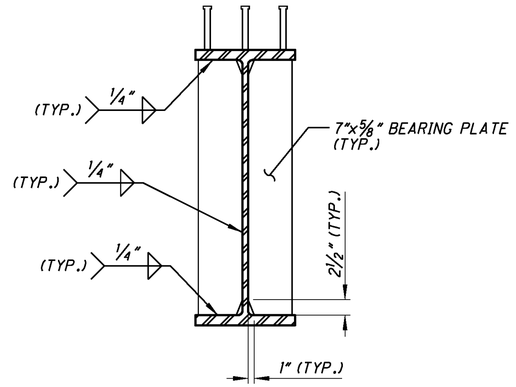
TYPICAL INTERMEDIATE CROSSFRAME



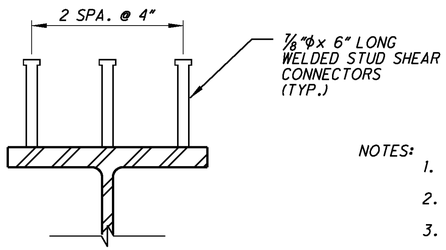
TYPICAL END CROSSFRAME



BEARING STIFFENER



INTERMEDIATE STIFFENER
WITH CROSSFRAMES



BEAM SHEAR CONNECTOR DETAIL

NOTES:

1. FILLER PLATE WELDED TO NEAR SIDE ANGLE BACK WITH 1 1/16" HOLE FOR ⅞"φ A325 BOLTS IN BOTH ANGLES
2. PROVIDE 15/16"φ HOLE IN BEARING PLATE AND 1"φ HOLE IN ANGLE FOR ⅞"φ A325 BOLTS
3. PROVIDE 13/16"φ HOLE IN BEARING PLATE AND ⅞"φ HOLE IN ANGLE FOR ¾"φ A325 BOLTS
4. ALL STEEL MATERIAL SHALL BE MINIMUM ASTM A709 - GRADE 50
5. FOR ADDITIONAL INFORMATION, SEE ODOT STANDARD DRAWINGS GSD-1-96 AND EXJ-4-87
6. ALL ⅞"φ AND ¾"φ BOLTS SHALL BE TYPE 1 GALVANIZED BOLTS

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4900 Parkway Plaza Blvd., Suite 150, Charlotte, NC 28217
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

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BEAM DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

37 / 65

561
657

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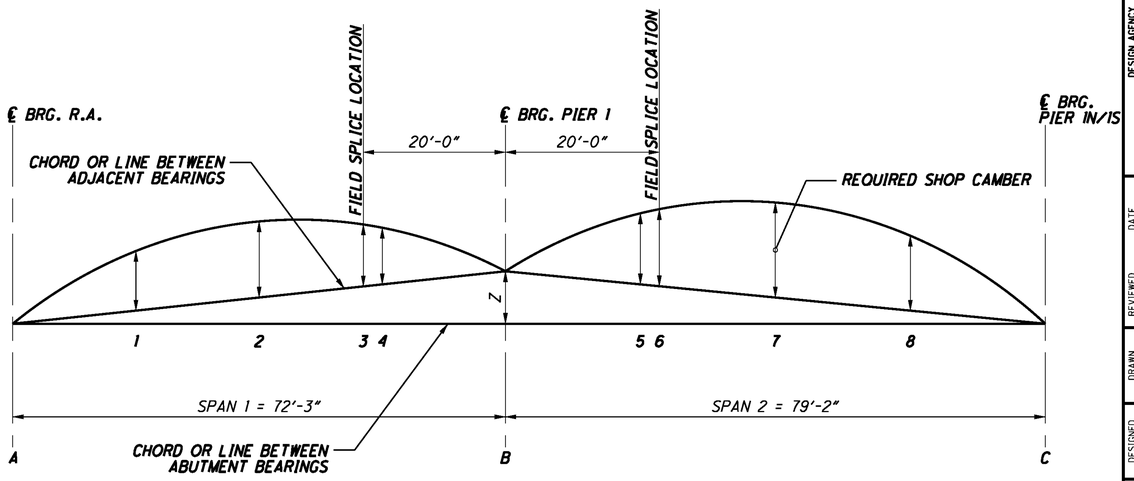
DEFLECTION AND CAMBER TABLE (IN.)

		SPAN 1					SPAN 2					
	LOCATION	A	1	2	3	4	B	5	6	7	8	C
BEAM 1	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	3/16	3/16	3/16	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	9/16	9/16	15/16	13/16	0
BEAM 2	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	3/16	3/16	3/16	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	9/16	9/16	15/16	13/16	0
BEAM 3	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	3/16	3/16	3/16	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	9/16	9/16	15/16	13/16	0
BEAM 4	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	1/4	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	1/2	1/2	1	13/16	0
BEAM 5	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	1/4	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	1/2	1/2	1	13/16	0
BEAM 6	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	3/16	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	1/2	1/2	15/16	13/16	0
BEAM 7	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	3/16	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	0
	REQUIRED SHOP CAMBER	0	1/2	9/16	3/16	3/16	0	1/2	1/2	15/16	13/16	0
BEAM 8	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	1/4	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	0	0	0	0	0	0	0	1/16	1/16	0
	REQUIRED SHOP CAMBER	0	7/16	1/2	3/16	3/16	0	7/16	7/16	15/16	3/4	0
BEAM 9	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	1/4	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	0	0	0	0	0	0	0	1/16	1/16	0
	REQUIRED SHOP CAMBER	0	7/16	1/2	3/16	3/16	0	7/16	7/16	15/16	3/4	0
BEAM 10	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	1/4	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	0	0	0	0	0	0	0	1/16	1/16	0
	REQUIRED SHOP CAMBER	0	7/16	1/2	3/16	3/16	0	7/16	7/16	15/16	3/4	0
BEAM 11	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	1/8	1/16	1/16	0	1/8	1/8	1/4	3/16	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	0	0	0	0	0	0	0	1/16	1/16	0
	REQUIRED SHOP CAMBER	0	7/16	1/2	3/16	3/16	0	7/16	7/16	15/16	3/4	0
BEAM 12	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	3/16	1/16	1/16	0	1/8	1/8	1/4	1/4	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	0	0	0	0	0	0	0	1/16	1/16	0
	REQUIRED SHOP CAMBER	0	7/16	9/16	3/16	3/16	0	7/16	7/16	15/16	13/16	0
BEAM 13	DEFLECTION DUE TO WEIGHT OF STEEL	0	1/8	3/16	1/16	1/16	0	1/8	1/8	1/4	1/4	0
	DEFLECTION DUE TO WEIGHT OF SLAB	0	5/16	3/8	1/8	1/8	0	5/16	5/16	5/8	1/2	0
	DEFLECTION DUE TO REMAINING DEAD LOAD	0	0	0	0	0	0	0	0	1/16	1/16	0
	REQUIRED SHOP CAMBER	0	7/16	9/16	3/16	3/16	0	7/16	7/16	15/16	13/16	0



CAMBER DIAGRAM

NOTE
SPAN 1 IS DIVIDED INTO 4 EQUAL INCREMENTS OF 18'-0¾"
& SPAN 2 IS DIVIDED INTO 4 EQUAL INCREMENTS OF 19'-9½".

BLOCKING TABLE (IN.)	
BEAM NUMBER	Z
1	2 3/16
2	2 1/2
3	2 5/8
4	2 7/16
5	2 9/16
6	2 5/8
7	2 3/4
8	2
9	2 1/16
10	2 1/16
11	2 1/16
12	2 1/16
13	2 1/8

DESIGN AGENCY
KZF DESIGN
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4601 Madison, Suite 300, Kansas City, Missouri 64112
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CAMBER DIAGRAM
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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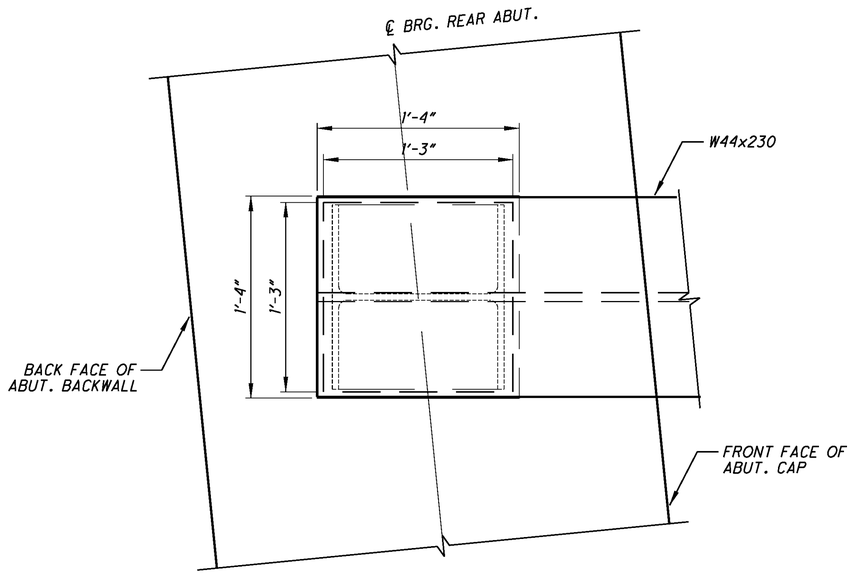
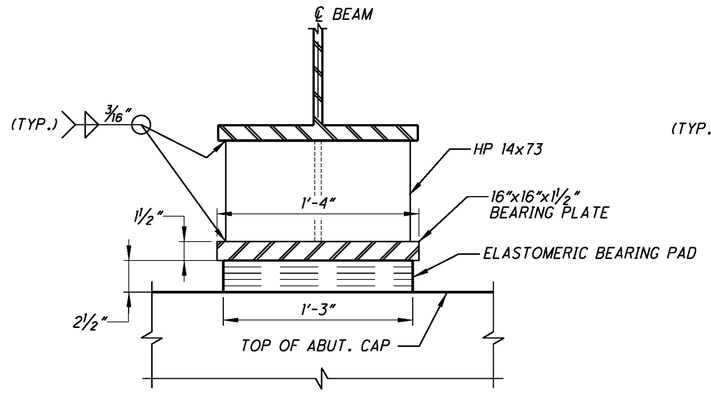
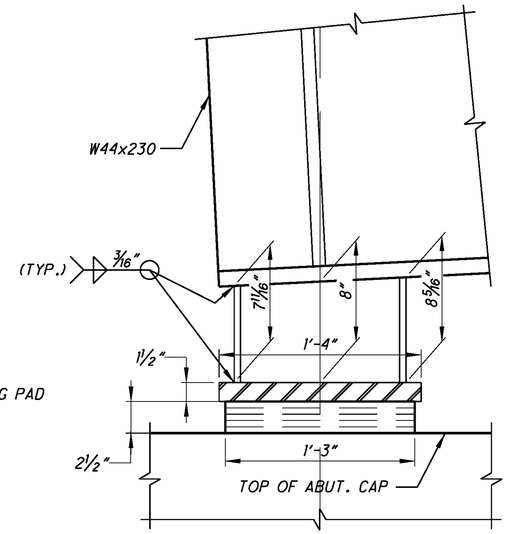


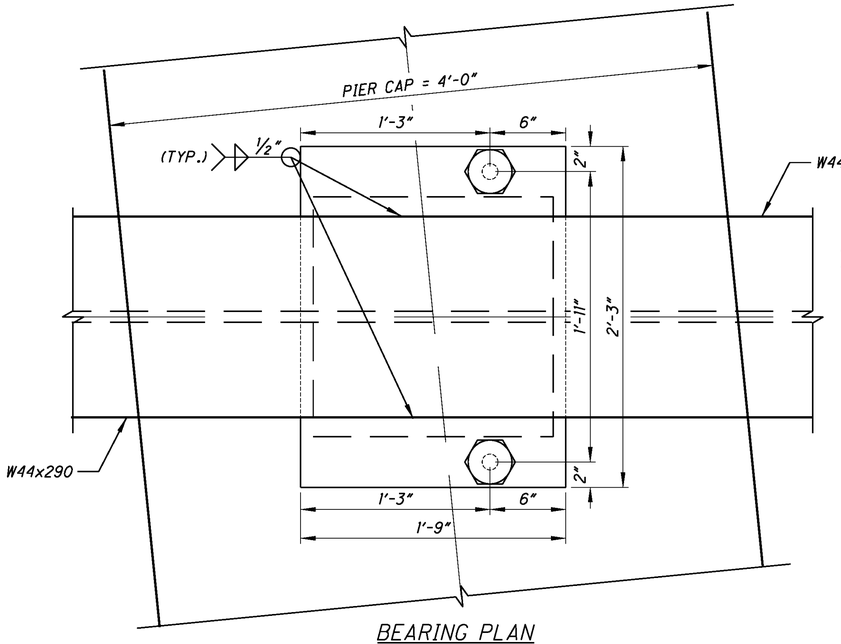
BEARING PLAN
REAR ABUTMENT - EXPANSION BEARING



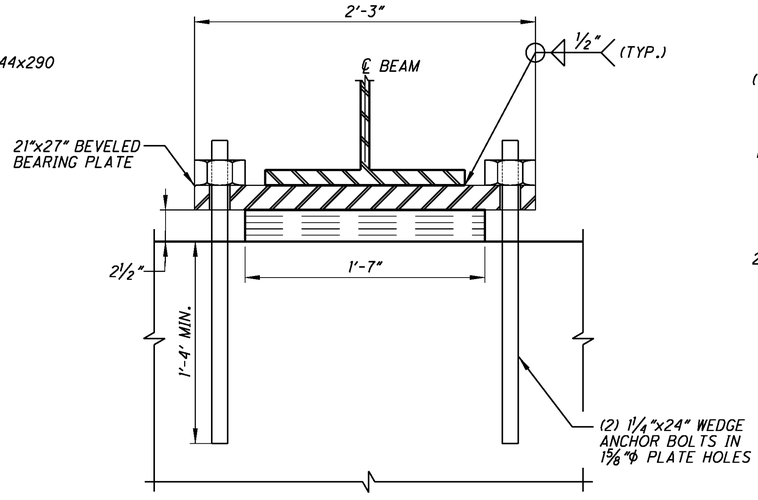
BEARING SECTION
REAR ABUTMENT - EXPANSION BEARING



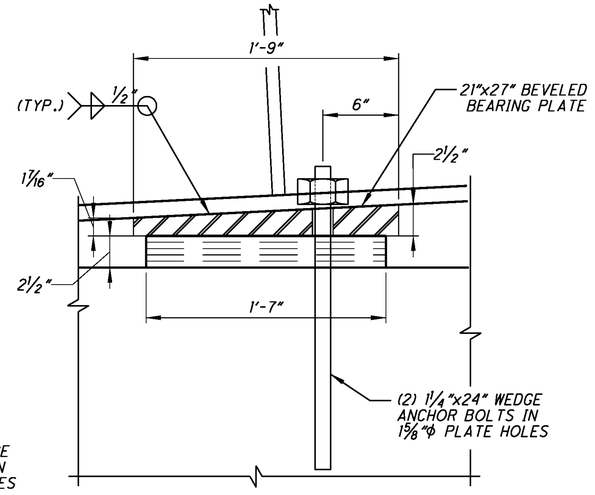
BEARING ELEVATION
REAR ABUTMENT - EXPANSION BEARING



BEARING PLAN
PIER 1 - FIXED BEARING



BEARING SECTION
PIER 1 - FIXED BEARING



BEARING ELEVATION
PIER 1 - FIXED BEARING

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DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

BEARING DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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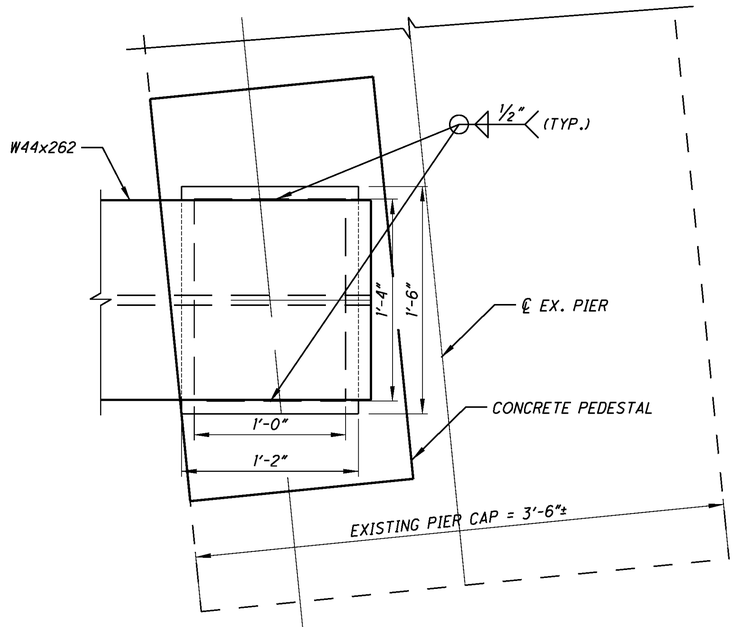
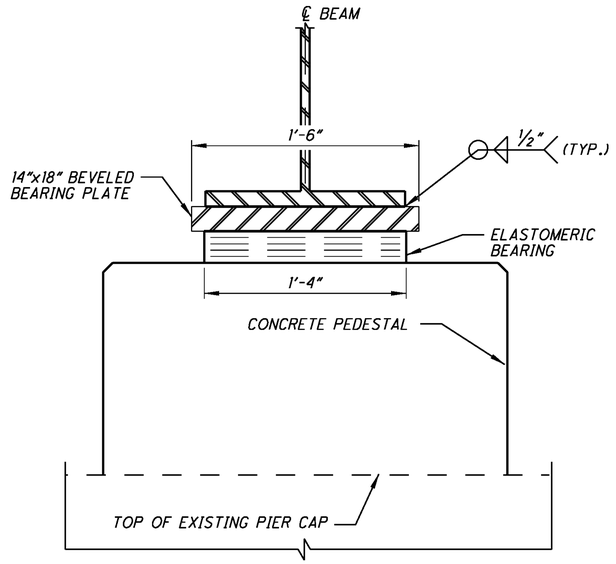
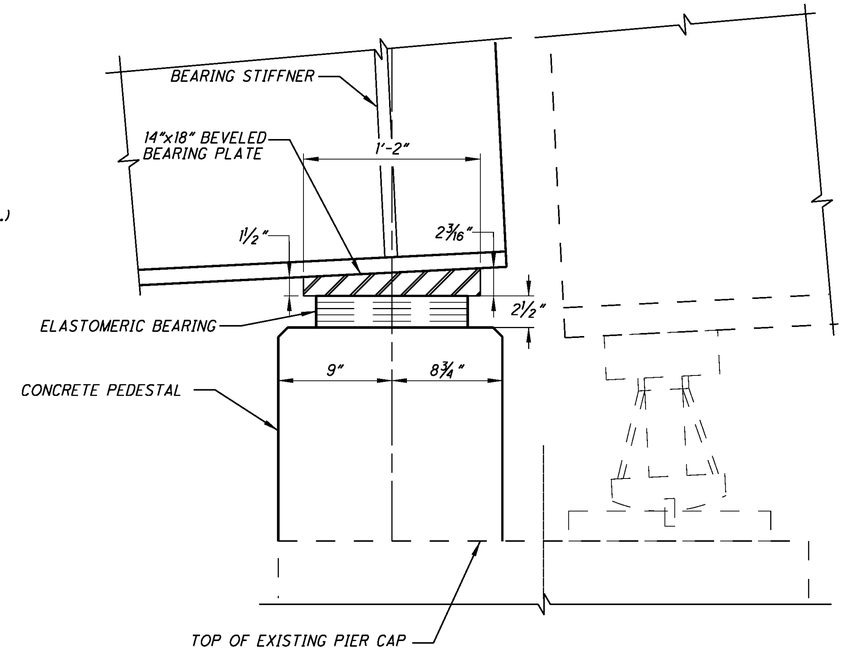


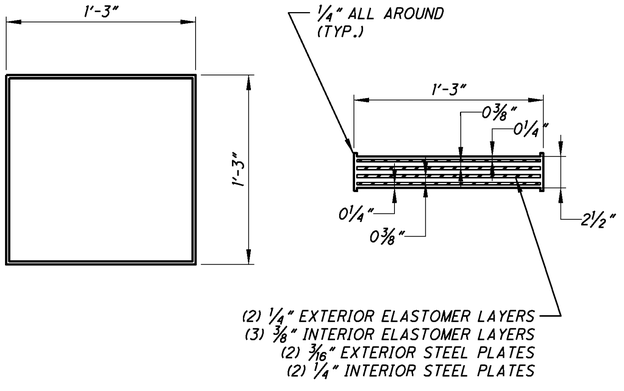
BEARING PLAN
PIER IN/IS - EXPANSION BEARING



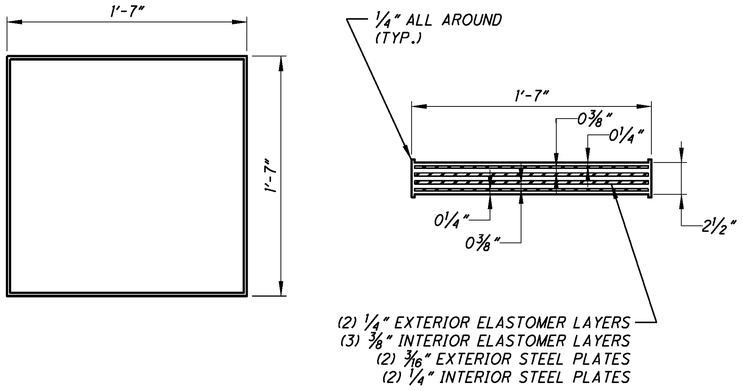
BEARING SECTION
PIER IN/IS - EXPANSION BEARING



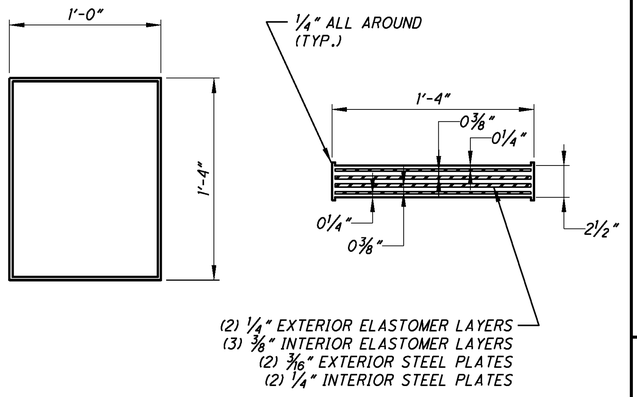
BEARING ELEVATION
PIER IN/IS - EXPANSION BEARING



BEARING PAD DETAILS
REAR ABUTMENT



BEARING PAD DETAILS
PIER 1



BEARING PAD DETAILS
PIER IN/IS

NOTE:
1. FOR ADDITIONAL DETAILS ON CONCRETE PEDESTAL, SEE SHEET 32/65
2. WELDING: CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300 °F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES
3. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
4. BEARINGS SHALL BE DESIGNED FOR THE FOLLOWING LOADS:

	REAR ABUTMENT	PIER 1	PIER IN/IS
MAX. DEAD LOAD =	70 KIPS	257 KIPS	82 KIPS
MAX. LIVE LOAD =	82 KIPS	107 KIPS	83 KIPS
TOTAL DESIGN LOAD =	152 KIPS	364 KIPS	165 KIPS

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4601 College Blvd., Suite 205, Leawood, Kansas 66211
TEL 913.621.6211 FAX 913.621.9830 WEB www.kzf.com

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BEARING DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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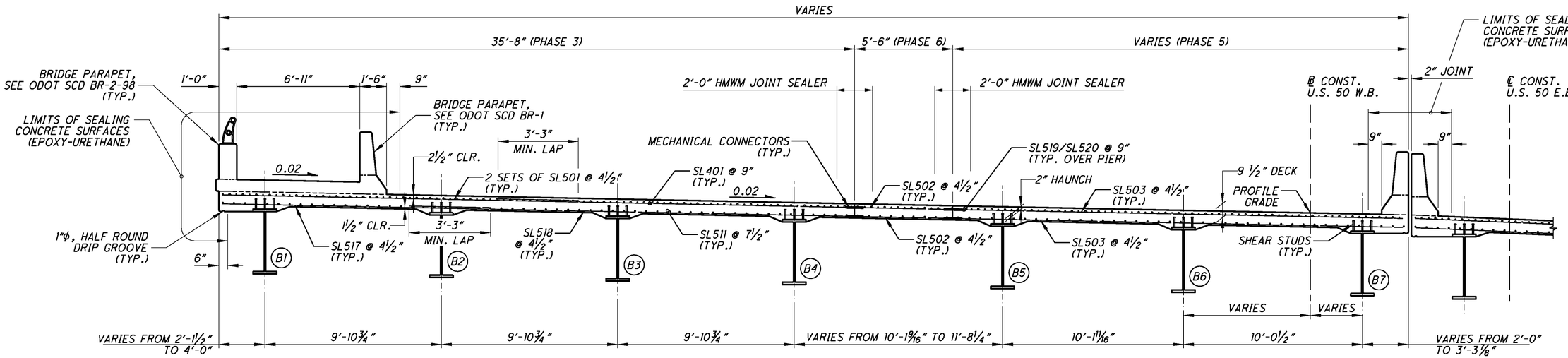
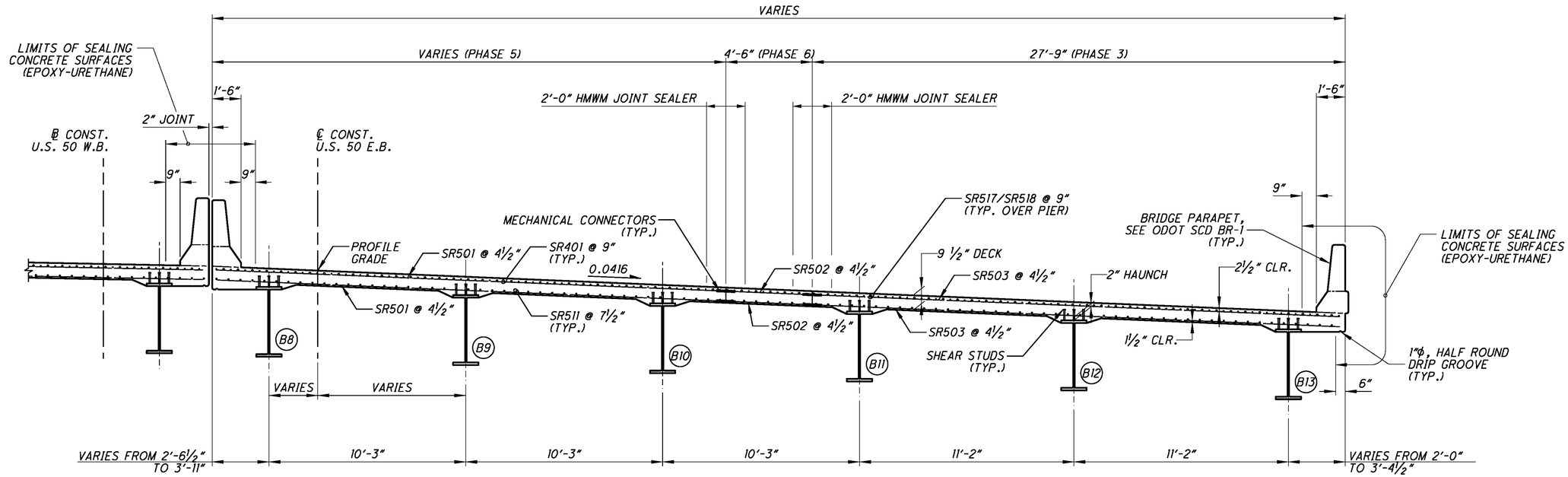


BRIDGE TYPICAL SECTION
BRIDGE NO. HAM-50-1903 L



BRIDGE TYPICAL SECTION
BRIDGE NO. HAM-50-1903 R

NOTES:
1. FOR ADDITIONAL SIDEWALK AND BARRIER DETAILS, SEE SHEET 47/65
2. MIN. LAP FOR A NO. 5 BAR = 3'-3"
3. HMWM RESIN SEALER AND MECHANICAL CONNECTORS SHALL BE INCLUDED IN PAYMENT FOR ITEM 898 - OC/OA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN.

TRANSVERSE SECTION
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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565
657

DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
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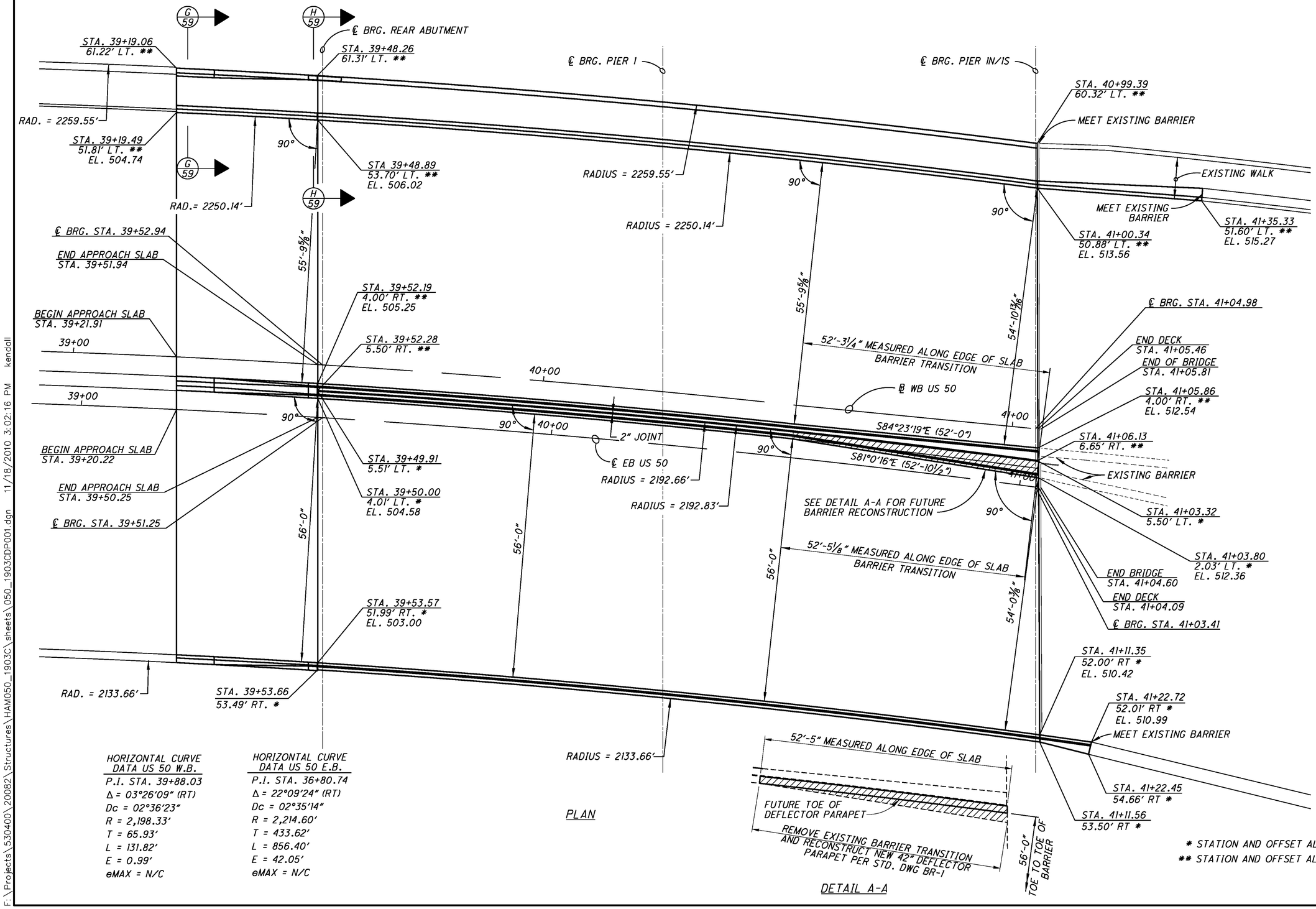

HORIZONTAL CURVE DATA US 50 W.B.	
P.I. STA.	39+88.03
Δ	03°26'09" (RT)
Dc	02°36'23"
R	2,198.33'
T	65.93'
L	131.82'
E	0.99'
eMAX	N/C

HORIZONTAL CURVE DATA US 50 E.B.	
P.I. STA.	36+80.74
Δ	22°09'24" (RT)
Dc	02°35'14"
R	2,214.60'
T	433.62'
L	856.40'
E	42.05'
eMAX	N/C

DESIGN AGENCY
KZF DESIGN
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427 Second Street, Suite 200, Hamilton, Ohio 45011
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BRIDGE DECK LAYOUT
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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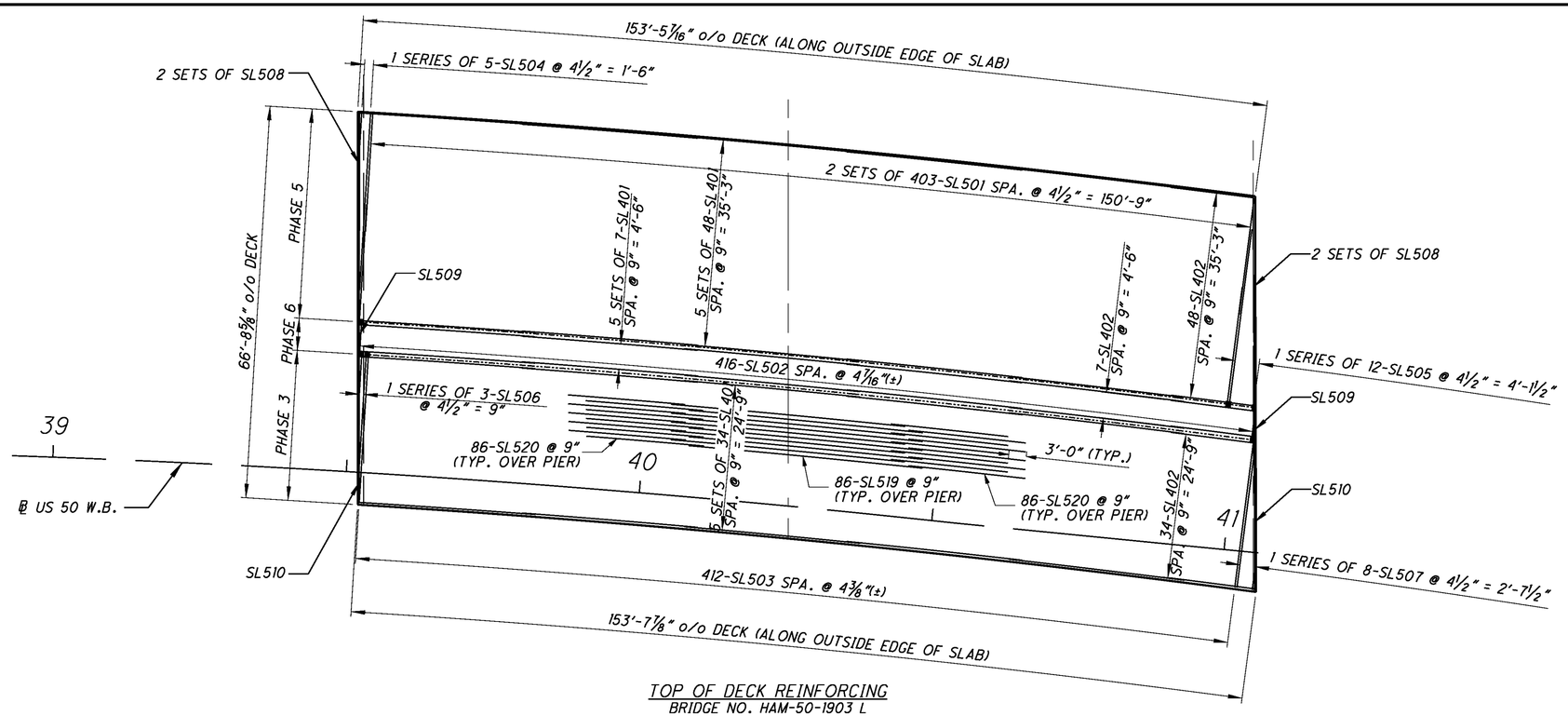
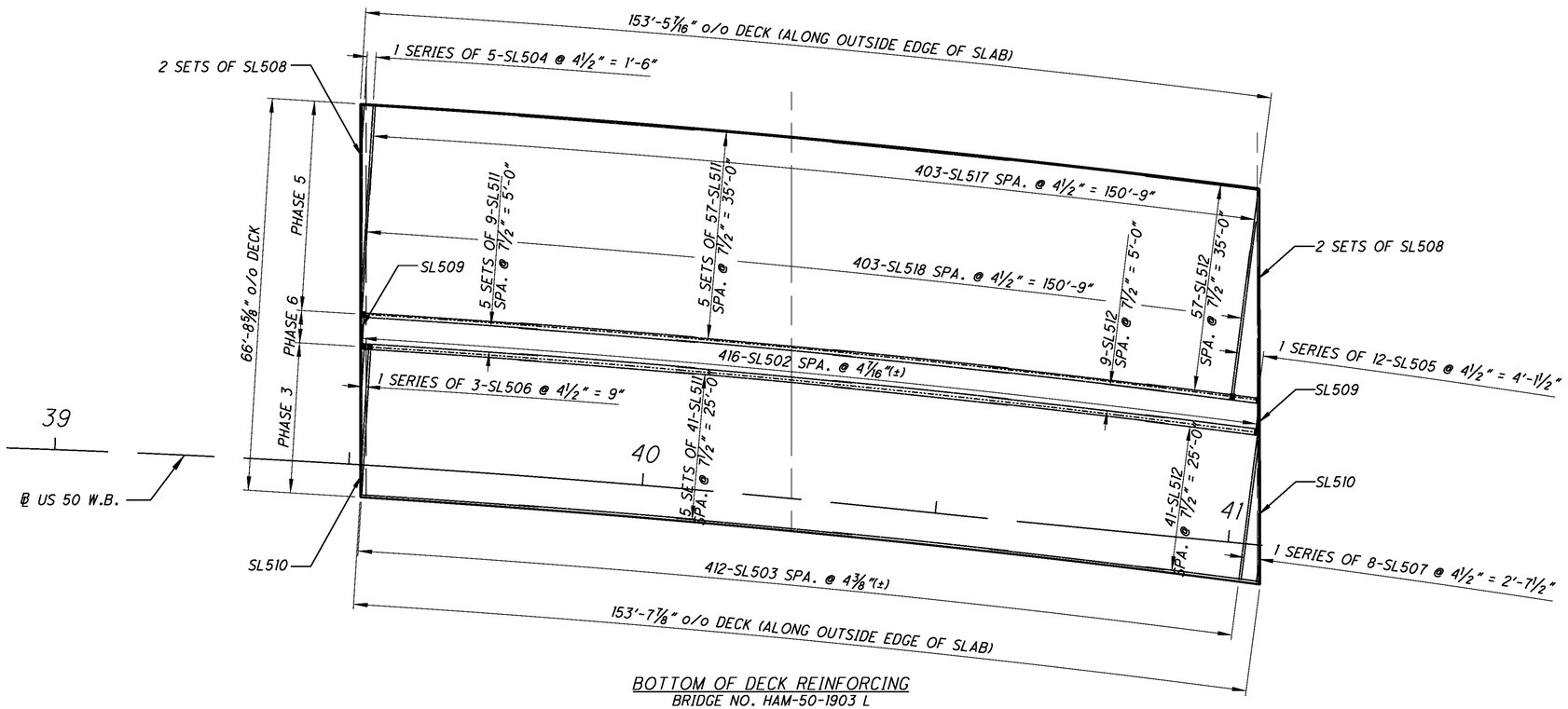


TOP OF DECK REINFORCING
BRIDGE NO. HAM-50-1903 L



BOTTOM OF DECK REINFORCING
BRIDGE NO. HAM-50-1903 L

NOTES:
1. MIN. LAP FOR A NO. 4 BAR = 2'-7"
2. MIN. LAP FOR A NO. 5 BAR = 3'-3"
3. FOR REINFORCING IN PARAPET SEE SHEET 49-51/65

DESIGN AGENCY
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CINCINNATI, OHIO 45202 COLUMBUS, OHIO 43215
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DEF	RBK	BMB	11-29-10
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DAT		31028017/3102815	

DECK PLAN
BRIDGE HAM-50-1903 L
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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567
657

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TOP OF DECK REINFORCING
BRIDGE NO. HAM-50-1903 R

BOTTOM OF DECK REINFORCING
BRIDGE NO. HAM-50-1903 R

NOTES:
1. MIN. LAP FOR A NO. 4 BAR = 2'-7"
2. MIN. LAP FOR A NO. 5 BAR = 3'-3"
3. FOR REINFORCING IN PARAPET SEE SHEET 49-51/65

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
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CINCINNATI, OHIO 45202 WEB www.kzf.com
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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
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DECK PLAN
BRIDGE HAM-50-1903 R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

44 / 65

568
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SCREED TABLE
BRIDGE NO. HAM-50-1903 L

	SPAN LOCATION	CL BRG REAR ABUT	1/4 SPAN	1/2 SPAN	SPLICE	3/4 SPAN	CL BRG PIER 1	1/4 SPAN	SPLICE	1/2 SPAN	3/4 SPAN	CL BRG PIER 1N
LEFT EDGE OF DECK	STATION	39+49.24	39+66.85	39+84.47	40+00.28	40+02.10	40+19.75	40+39.09	40+39.22	40+59.20	40+79.11	40+99.05
	OFFSET	61.22 LT.	61.22 LT.	61.22 LT.	61.22 LT.	61.22 LT.	61.22 LT.	61.22 LT.	61.22 LT.	61.17 LT.	60.84 LT.	60.33 LT.
	DECK ELEVATION	506.25	507.07	507.92	508.71	508.80	509.68	510.65	510.66	511.65	512.64	513.63
	DEFLECTION	0.000 IN.	0.499 IN.	0.568 IN.	0.255 IN.	0.224 IN.	0.000 IN.	0.469 IN.	0.492 IN.	0.945 IN.	0.772 IN.	0.000 IN.
	SCREED ELEVATION	506.25	507.11	507.97	508.73	508.82	509.68	510.69	510.70	511.73	512.71	513.63
BEAM 1	STATION	39+49.44	39+67.10	39+84.77	40+00.61	40+02.44	40+20.11	40+39.47	40+39.60	40+59.53	40+79.40	40+99.26
	OFFSET	57.94 LT.	57.55 LT.	57.29 LT.	57.19 LT.	57.18 LT.	57.22 LT.	57.43 LT.	57.43 LT.	57.75 LT.	57.98 LT.	58.21 LT.
	DECK ELEVATION	506.19	507.01	507.86	508.64	508.74	509.62	510.59	510.60	511.60	512.60	513.60
	DEFLECTION	0.000 IN.	0.499 IN.	0.568 IN.	0.255 IN.	0.224 IN.	0.000 IN.	0.469 IN.	0.492 IN.	0.945 IN.	0.772 IN.	0.000 IN.
	SCREED ELEVATION	506.19	507.05	507.91	508.67	508.75	509.62	510.63	510.64	511.68	512.66	513.60
LEFT FACE OF BARRIER	STATION	39+49.80	39+67.48	39+85.18	40+01.05	40+02.88	40+20.60	40+40.03	40+40.16	40+60.12	40+80.04	40+99.98
	OFFSET	51.81 LT.	51.81 LT.	51.81 LT.	51.81 LT.	51.81 LT.	51.81 LT.	51.81 LT.	51.81 LT.	51.74 LT.	51.40 LT.	50.89 LT.
	DECK ELEVATION	506.08	506.91	507.77	508.56	508.65	509.54	510.51	510.51	511.51	512.50	513.49
	DEFLECTION	0.000 IN.	0.499 IN.	0.568 IN.	0.255 IN.	0.224 IN.	0.000 IN.	0.469 IN.	0.492 IN.	0.945 IN.	0.772 IN.	0.000 IN.
	SCREED ELEVATION	506.08	506.95	507.82	508.58	508.67	509.54	510.55	510.56	511.59	512.56	513.49
BEAM 2	STATION	39+50.02	39+67.76	39+85.51	40+01.43	40+03.26	40+21.01	40+40.45	40+40.58	40+60.50	40+80.37	41+00.23
	OFFSET	48.03 LT.	47.64 LT.	47.39 LT.	47.29 LT.	47.29 LT.	47.33 LT.	47.55 LT.	47.55 LT.	47.87 LT.	48.10 LT.	48.32 LT.
	DECK ELEVATION	506.02	506.84	507.70	508.49	508.58	509.47	510.44	510.45	511.45	512.45	513.45
	DEFLECTION	0.000 IN.	0.499 IN.	0.568 IN.	0.255 IN.	0.224 IN.	0.000 IN.	0.469 IN.	0.492 IN.	0.945 IN.	0.772 IN.	0.000 IN.
	SCREED ELEVATION	506.02	506.88	507.74	508.51	508.60	509.47	510.48	510.49	511.53	512.51	513.45
BEAM 3	STATION	39+50.62	39+68.44	39+86.26	40+02.25	40+04.09	40+21.91	40+41.44	40+41.58	40+61.47	40+81.34	41+01.20
	OFFSET	38.12 LT.	37.73 LT.	37.49 LT.	37.40 LT.	37.39 LT.	37.44 LT.	37.67 LT.	37.67 LT.	37.99 LT.	38.21 LT.	38.44 LT.
	DECK ELEVATION	505.85	506.68	507.54	508.33	508.42	509.31	510.30	510.30	511.30	512.30	513.30
	DEFLECTION	0.000 IN.	0.499 IN.	0.568 IN.	0.255 IN.	0.224 IN.	0.000 IN.	0.469 IN.	0.492 IN.	0.945 IN.	0.772 IN.	0.000 IN.
	SCREED ELEVATION	505.85	506.72	507.58	508.35	508.44	509.31	510.33	510.34	511.38	512.37	513.30
BEAM 4	STATION	39+51.21	39+69.11	39+87.02	40+03.07	40+04.92	40+22.83	40+42.44	40+42.58	40+62.44	40+82.31	41+02.17
	OFFSET	28.20 LT.	27.82 LT.	27.59 LT.	27.50 LT.	27.50 LT.	27.56 LT.	27.79 LT.	27.79 LT.	28.10 LT.	28.33 LT.	28.56 LT.
	DECK ELEVATION	505.68	506.51	507.38	508.17	508.27	509.16	510.15	510.15	511.15	512.15	513.15
	DEFLECTION	0.000 IN.	0.514 IN.	0.585 IN.	0.262 IN.	0.231 IN.	0.000 IN.	0.483 IN.	0.506 IN.	0.972 IN.	0.794 IN.	0.000 IN.
	SCREED ELEVATION	505.68	506.55	507.42	508.20	508.29	509.16	510.19	510.20	511.24	512.22	513.15
CONST. JOINT	STATION	39+51.37	39+69.27	39+98.17	40+03.24	40+05.09	40+23.01	40+42.67	40+42.81	40+62.70	40+82.63	41+02.57
	OFFSET	25.56 LT.	25.56 LT.	25.56 LT.	25.56 LT.	25.56 LT.	25.56 LT.	25.56 LT.	25.56 LT.	25.45 LT.	25.09 LT.	24.54 LT.
	DECK ELEVATION	505.63	506.47	507.89	508.14	508.24	509.13	510.11	510.12	511.11	512.10	513.09
	DEFLECTION	0.000 IN.	0.515 IN.	0.586 IN.	0.263 IN.	0.231 IN.	0.000 IN.	0.484 IN.	0.507 IN.	0.975 IN.	0.797 IN.	0.000 IN.
	SCREED ELEVATION	505.63	506.52	507.94	508.17	508.25	509.13	510.16	510.16	511.20	512.17	513.09
CONST. JOINT	STATION	39+51.71	39+69.65	39+87.59	40+03.72	40+05.55	40+23.53	40+43.24	40+43.35	40+63.25	40+83.17	41+03.11
	OFFSET	20.06 LT.	20.06 LT.	20.06 LT.	20.06 LT.	20.06 LT.	20.06 LT.	20.06 LT.	20.06 LT.	19.95 LT.	19.57 LT.	19.02 LT.
	DECK ELEVATION	505.54	506.38	507.25	508.06	508.15	509.05	510.03	510.04	511.03	512.02	513.01
	DEFLECTION	0.000 IN.	0.519 IN.	0.589 IN.	0.265 IN.	0.232 IN.	0.000 IN.	0.487 IN.	0.508 IN.	0.981 IN.	0.801 IN.	0.000 IN.
	SCREED ELEVATION	505.54	506.42	507.30	508.08	508.17	509.05	510.07	510.08	511.11	512.09	513.01
BEAM 5	STATION	39+51.83	39+69.82	39+87.83	40+03.99	40+05.83	40+23.84	40+43.58	40+43.69	40+63.55	40+83.44	41+03.32
	OFFSET	18.06 LT.	17.49 LT.	17.07 LT.	16.83 LT.	16.81 LT.	16.69 LT.	16.73 LT.	16.73 LT.	16.83 LT.	16.85 LT.	16.87 LT.
	DECK ELEVATION	505.50	506.34	507.21	508.01	508.10	509.00	509.98	509.99	510.98	511.98	512.97
	DEFLECTION	0.000 IN.	0.520 IN.	0.591 IN.	0.266 IN.	0.233 IN.	0.000 IN.	0.489 IN.	0.509 IN.	0.984 IN.	0.803 IN.	0.000 IN.
	SCREED ELEVATION	505.50	506.38	507.25	508.03	508.12	509.00	510.02	510.03	511.07	512.05	512.97
BEAM 6	STATION	39+52.46	39+70.53	39+88.62	40+04.86	40+06.71	40+24.80	40+44.62	40+44.74	40+64.55	40+84.43	41+04.32
	OFFSET	7.89 LT.	7.33 LT.	6.92 LT.	6.67 LT.	6.65 LT.	6.54 LT.	6.59 LT.	6.59 LT.	6.69 LT.	6.71 LT.	6.73 LT.
	DECK ELEVATION	505.33	506.17	507.04	507.85	507.94	508.84	509.83	509.84	510.83	511.83	512.82
	DEFLECTION	0.000 IN.	0.508 IN.	0.578 IN.	0.260 IN.	0.228 IN.	0.000 IN.	0.478 IN.	0.498 IN.	0.963 IN.	0.786 IN.	0.000 IN.
	SCREED ELEVATION	505.33	506.21	507.09	507.87	507.96	508.84	509.87	509.88	510.91	511.89	512.82
CL US 50 WB	STATION	39+52.94	39+71.05	39+89.16	40+05.43	40+07.28	40+25.42	40+45.31	40+45.43	40+65.20	40+85.09	41+04.98
	OFFSET	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	DECK ELEVATION	505.19	506.05	506.93	507.74	507.83	508.74	509.74	509.74	510.73	511.72	512.72
	DEFLECTION	0.000 IN.	0.508 IN.	0.578 IN.	0.260 IN.	0.228 IN.	0.000 IN.	0.478 IN.	0.498 IN.	0.963 IN.	0.786 IN.	0.000 IN.
	SCREED ELEVATION	505.19	506.09	506.98	507.76	507.85	508.74	509.78	509.78	510.81	511.79	512.72
BEAM 7	STATION	39+53.08	39+71.24	39+89.41	40+05.72	40+07.58	40+25.75	40+45.67	40+45.79	40+65.53	40+85.42	41+05.30
	OFFSET	2.18 RT.	2.74 RT.	3.14 RT.	3.38 RT.	3.40 RT.	3.50 RT.	3.44 RT.	3.44 RT.	3.35 RT.	3.33 RT.	3.31 RT.
	DECK ELEVATION	505.16	506.00	506.88	507.69	507.78	508.69	509.68	509.69	510.68	511.67	512.67
	DEFLECTION	0.000 IN.	0.508 IN.	0.578 IN.	0.260 IN.	0.228 IN.	0.000 IN.	0.478 IN.	0.498 IN.	0.963 IN.	0.786 IN.	0.000 IN.
	SCREED ELEVATION	505.16	506.04	506.93	507.71	507.80	508.69	509.72	509.73	510.76	511.74	512.67
RIGHT FACE OF BARRIER	STATION	39+53.19	39+71.33	39+89.47	40+05.78	40+07.63	40+25.80	40+45.73	40+45.84	40+65.60	40+85.48	41+05.37
	OFFSET	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.	4.00 RT.
	DECK ELEVATION	505.13	505.98	506.86	507.68	507.77	508.68	509.68	509.68	510.67	511.66	512.66
	DEFLECTION	0.000 IN.	0.508 IN.	0.578 IN.	0.260 IN.	0.228 IN.	0.000 IN.	0.478 IN.	0.498 IN.	0.963 IN.	0.786 IN.	0.000 IN.
	SCREED ELEVATION	505.13	506.02	506.91	507.70	507.79	508.68	509.72	509.72	510.75	511.73	512.66
RIGHT EDGE OF DECK	STATION	39+53.29	39+71.43	39+89.59	40+05.91	40+07.76	40+25.95	40+45.89	40+46.00	40+65.76	40+85.69	41+05.63
	OFFSET	5.50 RT.	5.50 RT.	5.50 RT.	5.50 RT.	5.50 RT.	5.50 RT.	5.50 RT.	5.50 RT.	5.65 RT.	6.05 RT.	6.63 RT.
	DECK ELEVATION	505.10	505.96	506.84	507.66	507.75	508.66	509.65	509.66	510.65	511.63	512.62
	DEFLECTION	0.000 IN.	0.508 IN.	0.578 IN.	0.260 IN.	0.228 IN.	0.000 IN.	0.478 IN.	0.498 IN.	0.963 IN.	0.786 IN.	0.000 IN.
	SCREED ELEVATION	505.10	506.00	507.42	507.92	507.98	508.66	510.13	510.16	511.61	512.42	512.62

SCREED TABLE
BRIDGE NO. HAM-50-1903 R

	SPAN LOCATION	CL BRG REAR ABUT	1/4 SPAN	1/2 SPAN	SPLICE	3/4 SPAN	CL BRG PIER 1	1/4 SPAN	SPLICE	1/2 SPAN	3/4 SPAN	CL BRG PIER 1S
LEFT EDGE OF DECK	STATION	39+50.90	39+68.96	39+87.03	40+03.25	40+05.11	40+23.20	40+43.04	40+43.15	40+62.90	40+82.78	41+02.69
	OFFSET	5.51 LT.	5.52 LT.	5.52 LT.	5.52 LT.	5.52 LT.	5.52 LT.	5.52 LT.	5.52 LT.	5.52 LT.	5.51 LT.	5.50 LT.
	DECK ELEVATION	504.99	505.82	506.69	507.49	507.58	508.49	509.48	509.48	510.47	511.46	512.46
	DEFLECTION	0.000 IN.	0.481 IN.	0.547 IN.	0.246 IN.	0.216 IN.	0.000 IN.	0.451 IN.	0.469 IN.	0.908 IN.	0.742 IN.	0.000 IN.
	SCREED ELEVATION	504.99	505.86	506.73	507.51	507.60	508.49	509.52	509.52	510.55	511.53	512.46
LEFT FACE OF BARRIER	STATION	39+51.00	39+69.07	39+87.15	40+03.38	40+05.24	40+23.35	40+43.20	40+43.31	40+63.14	40+83.14	41+03.14
	OFFSET	4.01 LT.	4.02 LT.	4.02 LT.	4.02 LT.	4.02 LT.	4.02 LT.	4.02 LT.	4.02 LT.	3.44 LT.	2.65 LT.	2.04 LT.
	DECK ELEVATION	504.93	505.77	506.63	507.43	507.53	508.43	509.42	509.43	510.40	511.36	512.34
	DEFLECTION	0.000 IN.	0.481 IN.	0.547 IN.	0.246 IN.	0.216 IN.	0.000 IN.	0.451 IN.	0.469 IN.	0.908 IN.	0.742 IN.	0.000 IN.
	SCREED ELEVATION	504.93	505.81	506.68	507.45	507.54	508.43	509.46	509.47	510.47	511.43	512.34
BEAM 8	STATION	39+51.05	39+69.17	39+87.30	40+03.59	40+05.44	40+23.57	40+43.45	40+43.56	40+63.32	40+83.19	41+03.05
	OFFSET	3.12 LT.	2.53 LT.	2.08 LT.	1.80 LT.	1.78 LT.	1.63 LT.	1.63 LT.	1.63 LT.	1.81 LT.	2.18 LT.	2.72 LT.
	DECK ELEVATION	504.89	505.71	506.56	507.35	507.44	508.34	509.34	509.34	510.34	511.35	512.36
	DEFLECTION	0.000 IN.	0.481 IN.	0.547 IN.	0.246 IN.	0.216 IN.	0.000 IN.	0.451 IN.	0.469 IN.	0.908 IN.	0.742 IN.	0.000 IN.
	SCREED ELEVATION	504.89	505.75	506.60	507.37	507.46	508.34	509.37	509.38	510.41	511.41	512.36
CL US 50 EB	STATION	39+51.25	39+69.35	39+87.47	40+03.73	40+05.59	40+23.73	40+43.62	40+43.73	40+63.53	40+83.46	41+03.41
	OFFSET	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	DECK ELEVATION	504.77	505.61	506.48	507.28	507.38	508.28	509.28	509.28	510.27	511.27	512.27
	DEFLECTION	0.000 IN.	0.481 IN.	0.547 IN.	0.246 IN.	0.216 IN.	0.000 IN.	0.451 IN.	0.469 IN.	0.908 IN.	0.742 IN.	0.000 IN.
	SCREED ELEVATION	504.77	505.65	506.53	507.30	507.39	508.28	509.31	509.32	510.35	511.33	512.27
BEAM 9	STATION	39+51.70	39+69.91	39+88.12	40+04.48	40+06.35	40+24.56	40+44.53	40+44.64	40+64.49	40+84.45	41+04.41
	OFFSET	7.16 RT.	7.75 RT.	8.19 RT.	8.46 RT.	8.48 RT.	8.63 RT.	8.61 RT.	8.61 RT.	8.42 RT.	8.05 RT.	7.50 RT.
	DECK ELEVATION	504.50	505.32	506.17	506.97	507.06	507.96	508.96	508.97	509.97	510.98	512.00
	DEFLECTION	0.000 IN.	0.481 IN.	0.547 IN.	0.246 IN.	0.216 IN.	0.000 IN.	0.451 IN.	0.469 IN.	0.908 IN.	0.742 IN.	0.000 IN.
	SCREED ELEVATION	504.50	505.36	506.22	506.99	507.08	507.96	509.00	509.01	510.05	511.05	512.00
BEAM 10	STATION	39+52.35	39+70.64	39+88.94	40+05.38	40+07.25	40+25.55	40+45.61	40+45.72	40+65.67	40+85.73	41+05.77
	OFFSET	17.44 RT.	18.02 RT.	18.46 RT.	18.72 RT.	18.75 RT.	18.88 RT.	18.86 RT.	18.86 RT.	18.65 RT.	18.27 RT.	17.71 RT.
	DECK ELEVATION	504.10	504.92	505.78	506.59	506.68	507.59	508.59	508.60	509.60	510.62	511.65
	DEFLECTION	0.000 IN.	0.481 IN.	0.547 IN.	0.246 IN.	0.216 IN.	0.000 IN.	0.451 IN.	0.469 IN.	0.908 IN.	0.742 IN.	0.000 IN.
	SCREED ELEVATION	504.10	504.96	505.83	506.61	506.70	507.59	508.63	508.64	509.68	510.68	511.65
CONST. JOINT	STATION	39+52.60	39+70.88	39+89.16	40+05.59	40+07.47	40+25.78	40+45.87	40+45.98	40+65.97	40+86.10	41+06.25
	OFFSET	21.24 RT.	21.23 RT.	21.23 RT.	21.23 RT.	21.23 RT.	21.23 RT.	21.23 RT.	21.23 RT.	21.23 RT.	21.24 RT.	21.25 RT.
	DECK ELEVATION	503.95	504.80	505.68	506.49	506.59	507.50	508.51	508.51	509.51	510.52	511.52
	DEFLECTION	0.000 IN.	0.486 IN.	0.552 IN.	0.248 IN.	0.218 IN.	0.000 IN.	0.454 IN.	0.472 IN.	0.916 IN.	0.749 IN.	0.000 IN.
	SCREED ELEVATION	503.95	504.84	505.72	506.51	506.60	507.50	508.54	508.55	509.59	510.58	511.52
CONST. JOINT	STATION	39+52.89	39+71.20	39+89.53	40+05.99	40+07.87	40+26.22	40+46.35	40+46.46	40+66.50	40+86.66	41+06.87
	OFFSET	25.74 RT.	25.73 RT.	25.73 RT.	25.73 RT.	25.73 RT.	25.73 RT.	25.73 RT.	25.73 RT.	25.73 RT.	25.74 RT.	25.75 RT.
	DECK ELEVATION	503.78	504.63	505.51	506.33	506.42	507.34	508.34	508.35	509.35	510.36	511.37
	DEFLECTION	0.000 IN.	0.492 IN.	0.559 IN.	0.251 IN.	0.221 IN.	0.000 IN.	0.460 IN.	0.479 IN.	0.929 IN.	0.760 IN.	0.000 IN.
	SCREED ELEVATION	503.78	504.67	505.56	506.35	506.44	507.34	508.38	508.39	509.43	510.42	511.37
BEAM 11	STATION	39+53.01	39+71.39	39+89.77	40+06.29	40+08.16	40+26.56	40+46.71	40+46.82	40+66.86	40+87.01	41+07.15
	OFFSET	27.72 RT.	28.30 RT.	28.73 RT.	28.99 RT.	29.01 RT.	29.14 RT.	29.10 RT.	29.10 RT.	28.89 RT.	28.49 RT.	27.92 RT.
	DECK ELEVATION	503.70	504.53	505.40	506.20	506.30	507.21	508.22	508.23	509.24	510.26	511.29
	DEFLECTION	0.000 IN.	0.496 IN.	0.564 IN.	0.254 IN.	0.223 IN.	0.000 IN.	0.465 IN.	0.484 IN.	0.938 IN.	0.766 IN.	0.000 IN.
	SCREED ELEVATION	503.70	504.57	505.44	506.23	506.32	507.21	508.26	508.27	509.32	510.33	511.29
BEAM 12	STATION	39+53.74	39+72.21	39+90.69	40+07.29	40+09.17	40+27.66	40+47.92	40+48.03	40+68.17	40+88.43	41+08.67
	OFFSET	38.92 RT.	39.49 RT.	39.91 RT.	40.16 RT.	40.19 RT.	40.30 RT.	40.26 RT.	40.26 RT.	40.04 RT.	39.63 RT.	39.04 RT.
	DECK ELEVATION	503.27	504.10	504.98	505.79	505.88	506.80	507.82	507.82	508.84	509.87	510.91
	DEFLECTION	0.000 IN.	0.512 IN.	0.582 IN.	0.262 IN.	0.230 IN.	0.000 IN.	0.480 IN.	0.499 IN.	0.967 IN.	0.790 IN.	0.000 IN.
	SCREED ELEVATION	503.27	504.15	505.03	505.81	505.90	506.80	507.86	507.86	508.92	509.93	510.91
BEAM 13	STATION	39+54.47	39+73.04	39+91.61	40+08.30	40+10.19	40+28.77	40+49.14	40+49.25	40+69.50	40+89.85	41+10.20
	OFFSET	50.12 RT.	50.69 RT.	51.10 RT.	51.34 RT.	51.36 RT.	51.47 RT.	51.42 RT.	51.42 RT.	51.18 RT.	50.76 RT.	50.16 RT.
	DECK ELEVATION	502.84	503.68	504.56	505.38	505.47	506.39	507.41	507.42	508.44	509.48	510.52
	DEFLECTION	0.000 IN.	0.512 IN.	0.582 IN.	0.262 IN.	0.230 IN.	0.000 IN.	0.480 IN.	0.499 IN.	0.967 IN.	0.790 IN.	0.000 IN.
	SCREED ELEVATION	502.84	503.72	504.60	505.40	505.49	506.39	507.45	507.46	508.52	509.54	510.52
RIGHT FACE OF BARRIER	STATION	39+54.59	39+73.13	39+91.68	40+08.34	40+10.25	40+28.83	40+49.20	40+49.31	40+69.59	40+90.01	41+10.45
	OFFSET	51.99 RT.	51.98 RT.	51.98 RT.	51.98 RT.	51.98 RT.	51.98 RT.	51.98 RT.	51.98 RT.	51.99 RT.	51.99 RT.	52.00 RT.
	DECK ELEVATION	502.76	503.63	504.52	505.35	505.45	506.38	507.39	507.40	508.41	509.43	510.46
	DEFLECTION	0.000 IN.	0.512 IN.	0.582 IN.	0.262 IN.	0.230 IN.	0.000 IN.	0.480 IN.	0.499 IN.	0.967 IN.	0.790 IN.	0.000 IN.
	SCREED ELEVATION	502.76	503.67	504.57	505.37	505.47	506.38	507.43	507.44	508.49	509.50	510.46
RIGHT EDGE OF DECK	STATION	39+54.69	39+73.24	39+91.81	40+08.48	40+10.39	40+28.98	40+49.36	40+49.48	40+69.77	40+90.21	41+10.66
	OFFSET	53.49 RT.	53.48 RT.	53.48 RT.	53.48 RT.	53.48 RT.	53.48 RT.	53.48 RT.	53.48 RT.	53.49 RT.	53.49 RT.	53.50 RT.
	DECK ELEVATION	502.71	503.57	504.47	505.30	505.39	506.32	507.34	507.35	508.36	509.38	510.40
	DEFLECTION	0.000 IN.	0.512 IN.	0.582 IN.	0.262 IN.	0.230 IN.	0.000 IN.	0.480 IN.	0.499 IN.	0.967 IN.	0.790 IN.	0.000 IN.
	SCREED ELEVATION	502.71	503.61	504.52	505.32	505.41	506.32	507.38	507.39	508.44	509.45	510.40

NOTE:
THE ELEVATIONS SHOWN ARE THE TOP OF THE CONCRETE DECK THAT ARE REQUIRED BEFORE THE CONCRETE IS PLACED.

KZF DESIGN
DESIGN AGENCY
Architecture | Engineering | Interiors | Planning
425 Second Street, Suite 900 San Francisco, California 94107
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DESIGNED DEF | DRAWN RBK | CHECKED DAT | REVIEWED BMB | DATE 11-29-10 | REVISED | STRUCTURE FILE NUMBER 3102807/3102815

SCREED TABLE
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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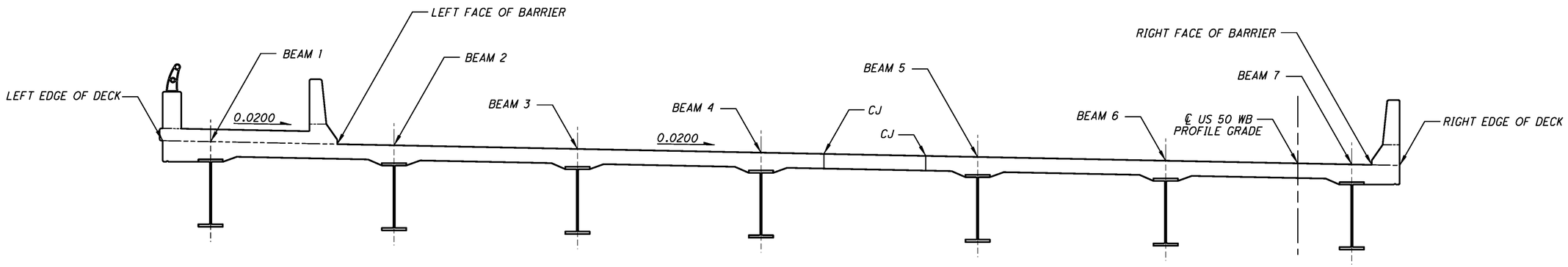
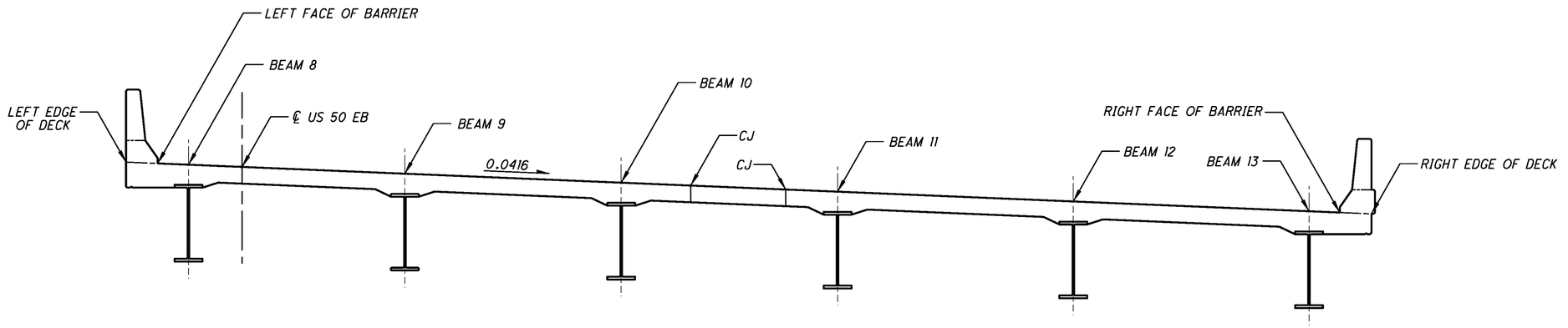


BRIDGE TYPICAL SECTION
BRIDGE NO. HAM-50-1903 L



BRIDGE TYPICAL SECTION
BRIDGE NO. HAM-50-1903 R

SCREED LOCATION POINTS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
KZF DESIGN, INC. 700 Main Street, Hamilton, Ohio 45013
TEL. 513.821.6211 FAX 513.821.9830 WEB www.kzf.com

DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

HAM-50-18.79
PID No. 20082

46 / 65

570
657

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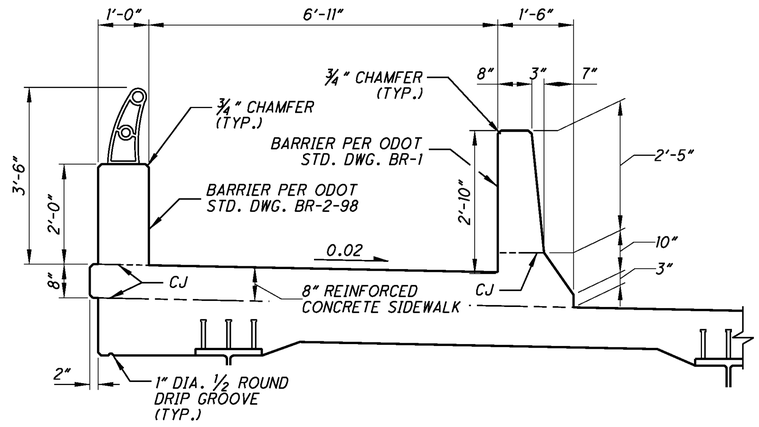
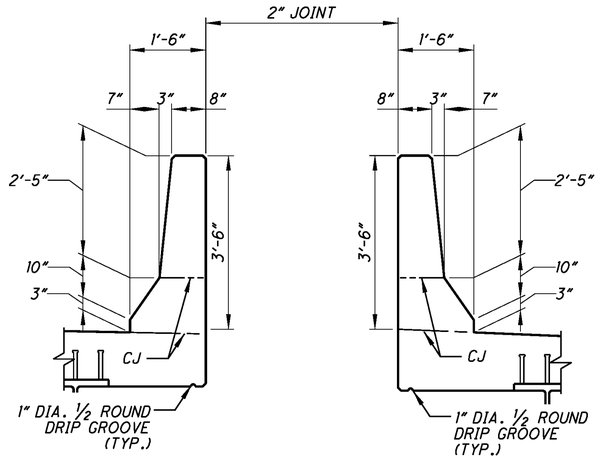
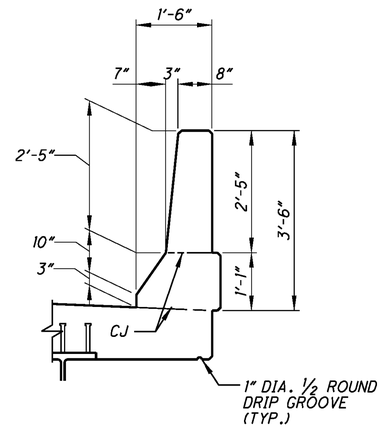


NORTH PEDESTRIAN/VEHICULAR BARRIER AND SIDEWALK SECTION
BRIDGE NO. HAM-50-1903 L

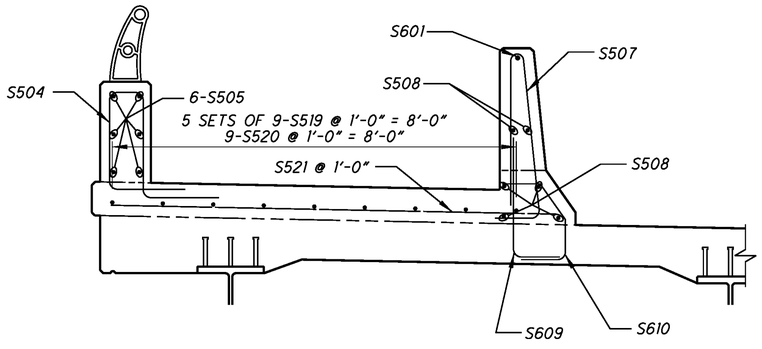


SOUTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 L

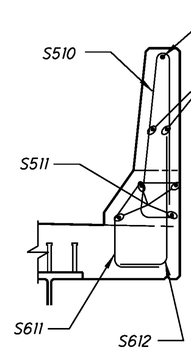
NORTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 R



SOUTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 R



NORTH PEDESTRIAN/VEHICULAR BARRIER AND SIDEWALK SECTION
BRIDGE NO. HAM-50-1903 L



SOUTH VEHICULAR BARRIER SECTION
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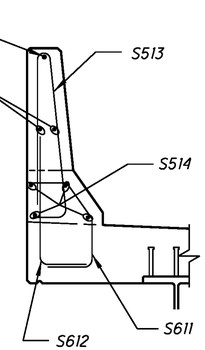
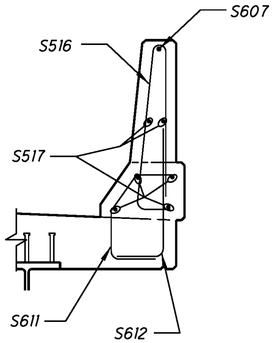
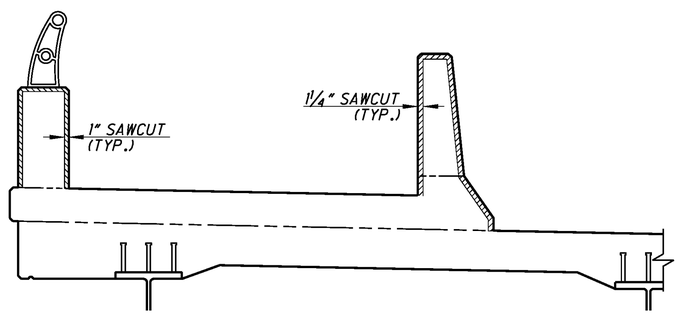


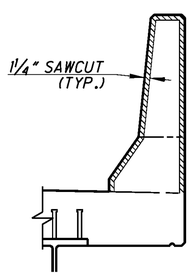
NORTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 R



SOUTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 R



NORTH PEDESTRIAN/VEHICULAR BARRIER AND SIDEWALK SECTION
BRIDGE NO. HAM-50-1903 L



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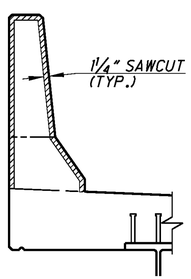
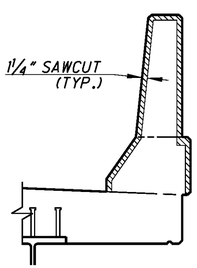
BRIDGE NO. HAM-50-1903 L



NORTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 R



SOUTH VEHICULAR BARRIER SECTION
BRIDGE NO. HAM-50-1903 R

NOTES:
1. FOR ADDITIONAL PARAPET DETAILS, SEE SHEET 48-49/65
2. FOR ADDITIONAL PARAPET DETAILS, SEE ODOT STD. DWG. BR-1 AND BR-2-98
3. REINFORCING IN NORTH PEDESTRIAN BARIER (SEE ODOT STD. DWG. BR-2-98) SHALL BE INCLUDED IN ITEM 517, RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)

DESIGN AGENCY
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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 31028017/31028115

SIDEWALK AND PARAPET DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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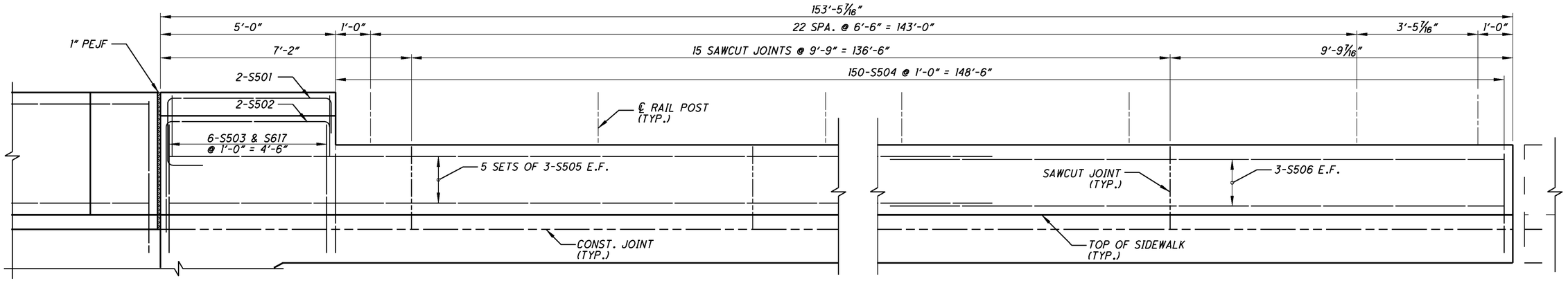
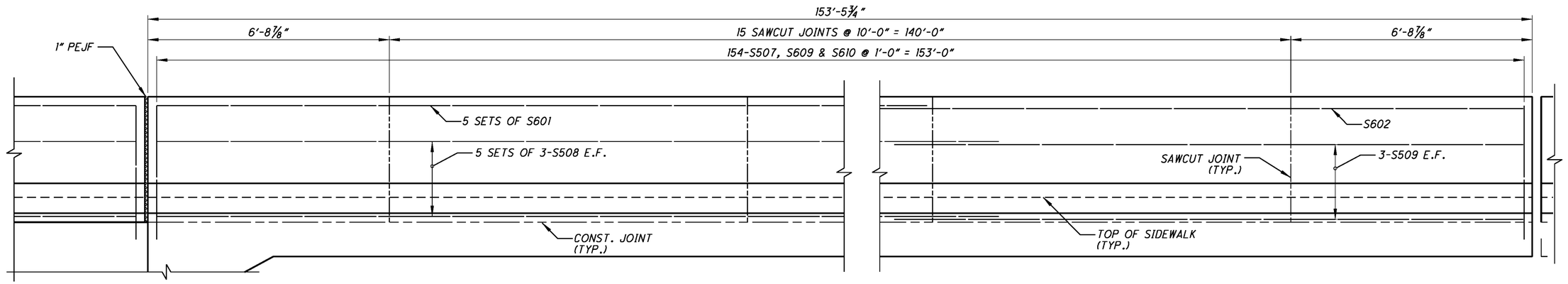
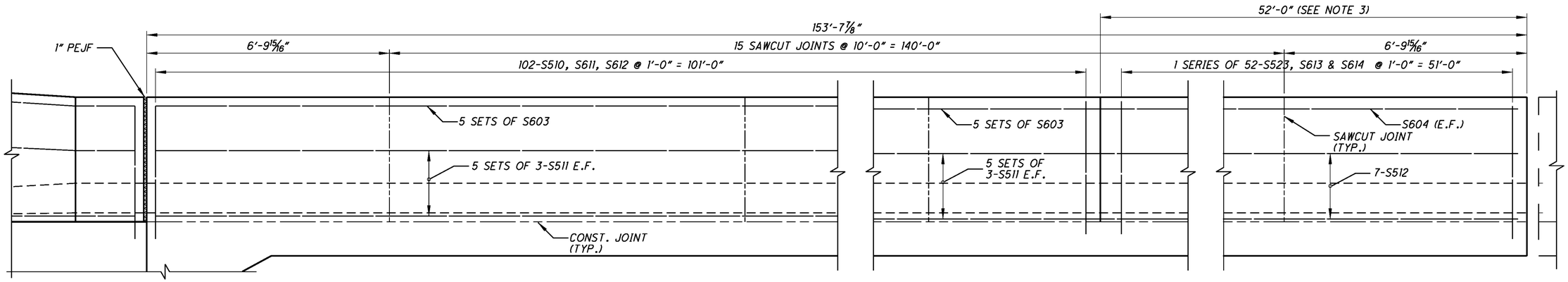


NORTH PEDESTRAIN BARRIER - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L



NORTH VEHICULAR BARRIER - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L



SOUTH VEHICULAR BARRIER - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L

NOTES:

1. MIN. LAP FOR A NO. 5 BAR = 2'-11"
2. MIN. LAP FOR A NO. 6 BAR = 3'-5"
3. FOR PARAPET TO BARRIER TRANSITION, SEE SHEET 50-51/65
4. REINFORCING IN NORTH PEDESTRIAN BARIER (SEE ODOT STD. DWG. BR-2-98) SHALL BE INCLUDED IN ITEM 517, RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)

DESIGN AGENCY
KZF DESIGN
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CINCINNATI, OHIO 45202 WEB www.kzf.com
TEL 513.421.6211 FAX 513.421.3830

DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
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PARAPET DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

48 / 65

572 / 657

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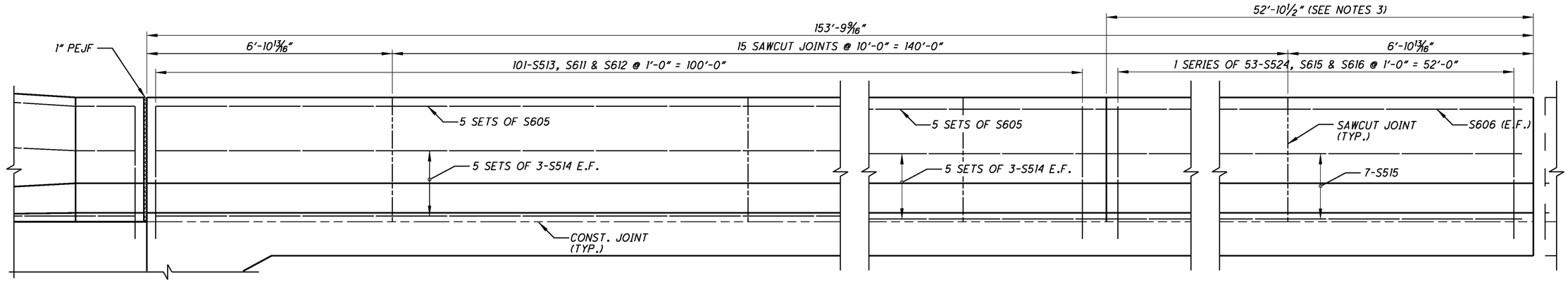
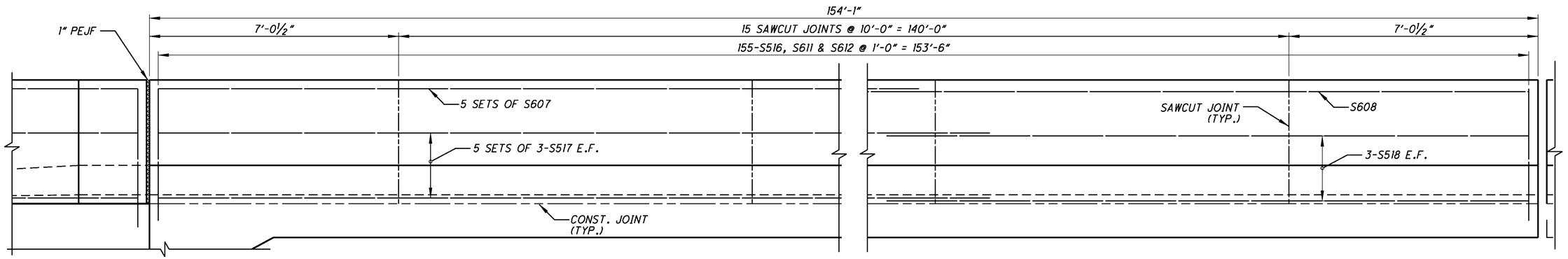


NORTH VEHICULAR BARRIER - LOOKING NORTH
HAM-50-1903 R



SOUTH VEHICULAR BARRIER - LOOKING NORTH
HAM-50-1903 R

NOTES:
1. MIN. LAP FOR A NO. 5 BAR = 2'-11"
2. MIN. LAP FOR A NO. 6 BAR = 3'-5"
3. FOR PARAPET TO BARRIER TRANSITION, SEE SHEET 50-51/65

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
401 East Court Avenue, Suite 200, Des Moines, IA 50309
TEL 515.421.8271 FAX 515.421.9830 WEB www.kzf.com

DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		3102807/3102815	

PARAPET DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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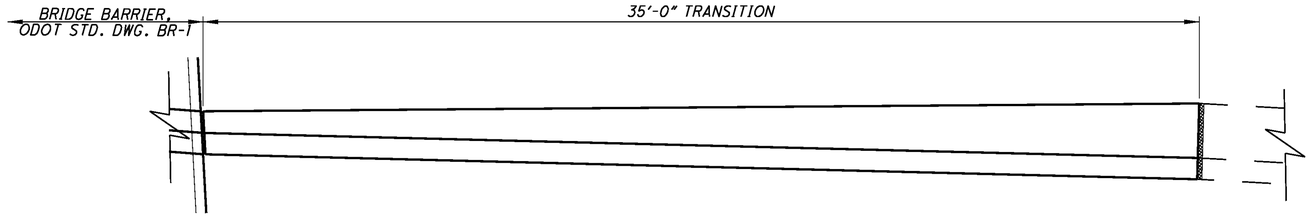
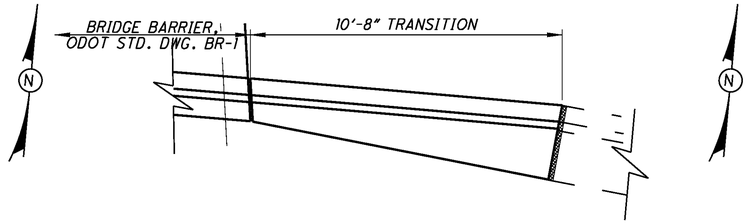
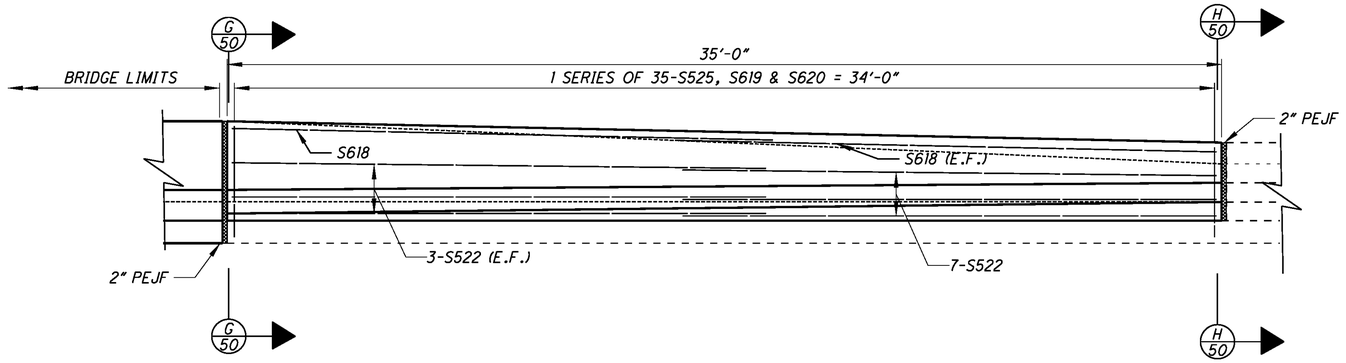
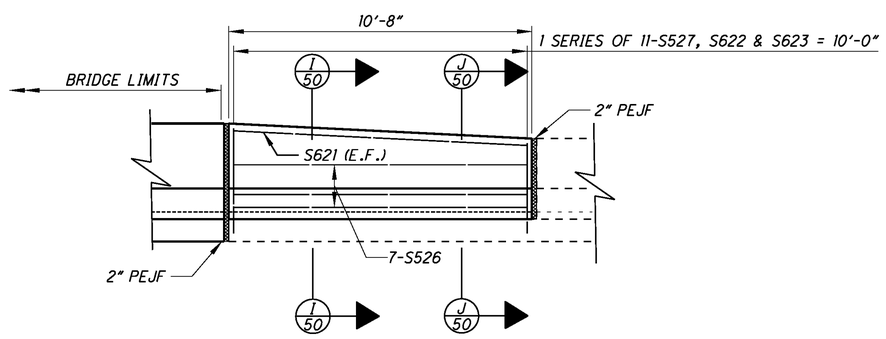




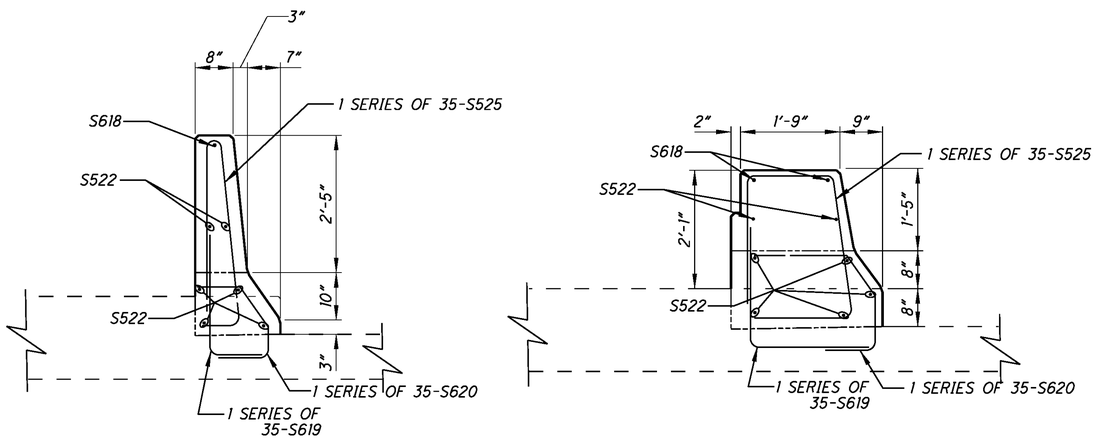
LEFT FORWARD BARRIER PLAN
BRIDGE NO. HAM-50-1903 L



RIGHT FORWARD BARRIER PLAN
BRIDGE NO. HAM-50-1903 R



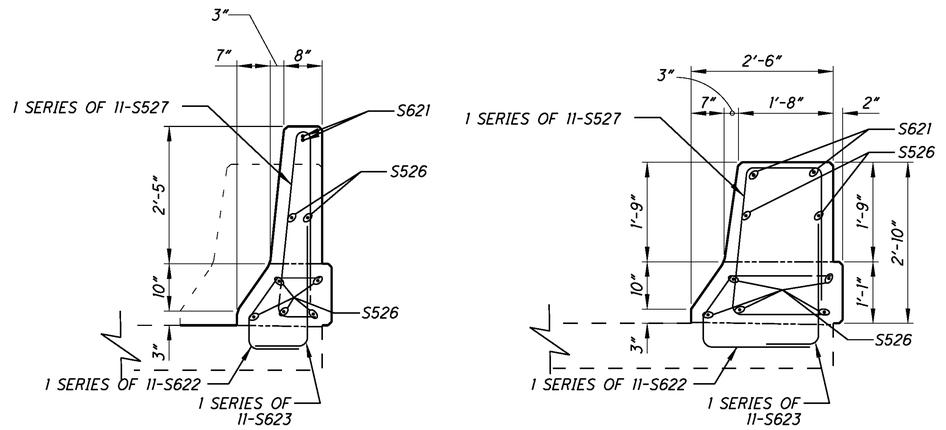
LEFT FORWARD BARRIER ELEVATION - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L



G/50 SECTION

H/50 SECTION

RIGHT FORWARD BARRIER ELEVATION - LOOKING NORTH
BRIDGE NO. HAM-50-1903 R



I/50 SECTION

J/50 SECTION

NOTES:
1. FOR ADDITIONAL BARRIER DETAILS, SEE SHEET 48-49/65

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
401 Wilshire Blvd., Suite 1000, Santa Monica, CA 90401
TEL 513.421.6211 FAX 513.421.3850 WEB www.kzf.com

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BARRIER TRANSITION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

50/65

574/657

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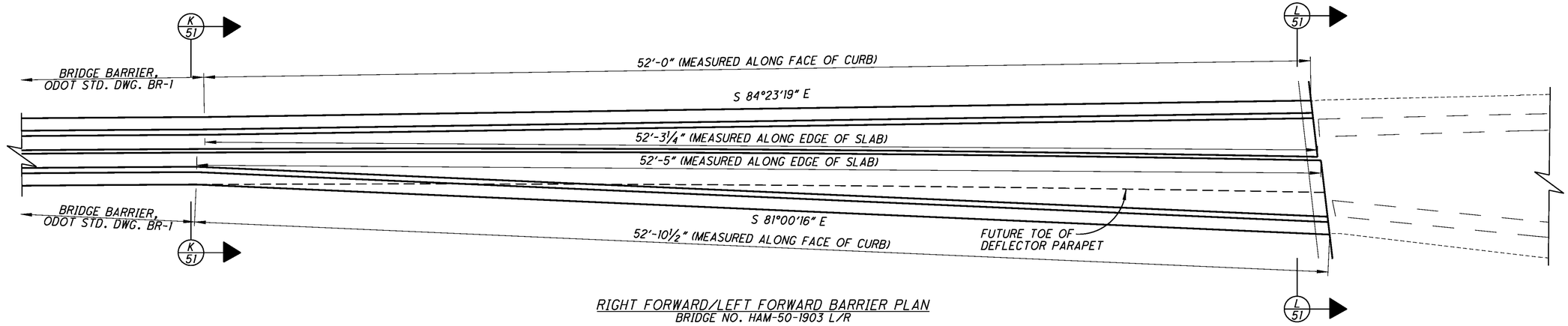
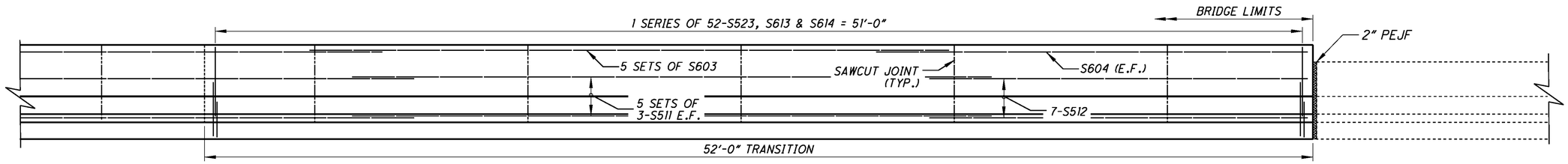
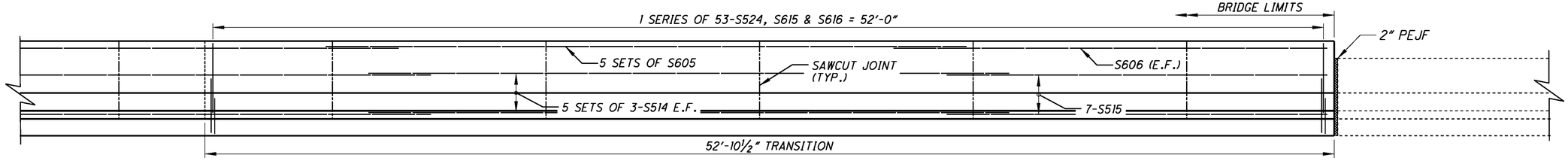


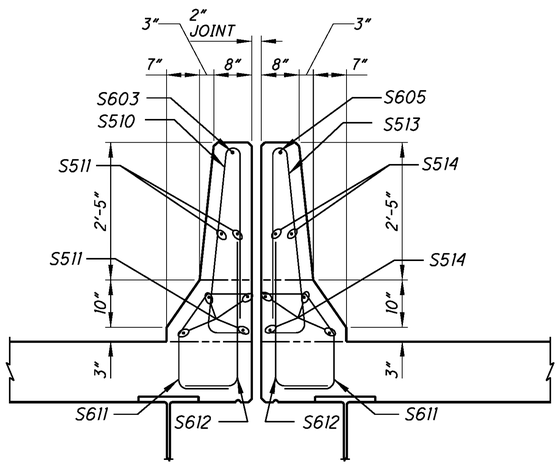
RIGHT FORWARD/LEFT FORWARD BARRIER PLAN
BRIDGE NO. HAM-50-1903 L/R



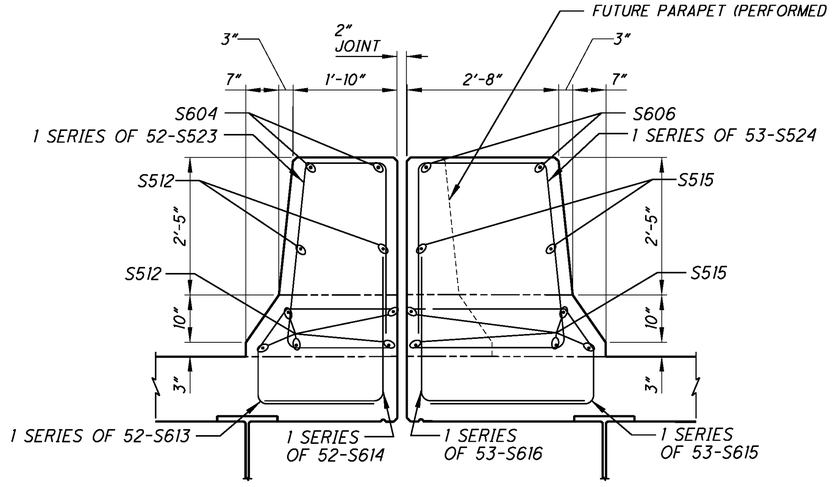
LEFT FORWARD BARRIER ELEVATION - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L



RIGHT FORWARD BARRIER ELEVATION - LOOKING SOUTH
BRIDGE NO. HAM-50-1903 R



K 51 SECTION



L 51 SECTION

NOTES:
1. FOR ADDITIONAL BARRIER DETAILS, SEE SHEET 48-49/65

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4200 West Jefferson Blvd. Fort Wayne, Indiana 46804
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DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

BARRIER TRANSITION DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

51 / 65

575 / 657

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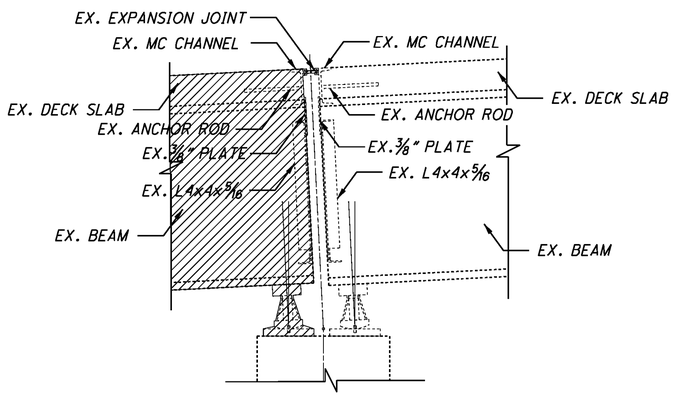
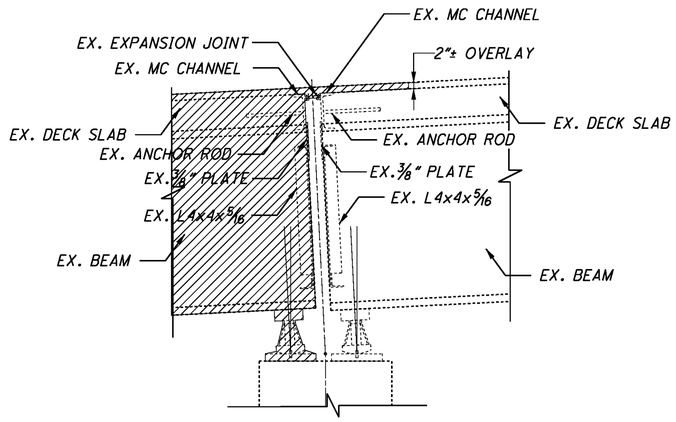
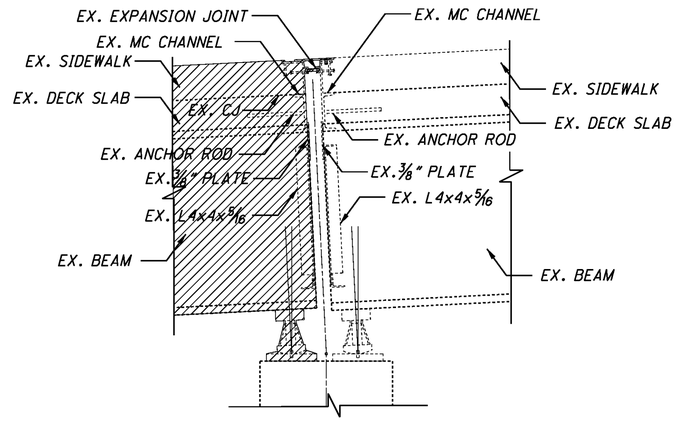


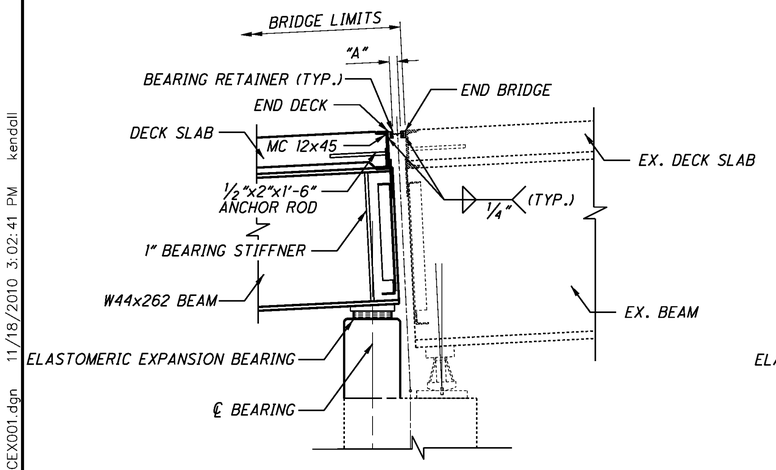
EXISTING EXPANSION JOINT SECTION
BRIDGE NO. HAM-50-1903 L



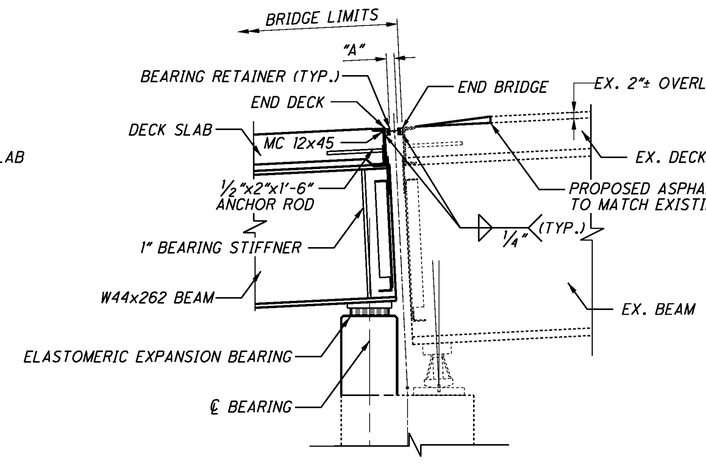
EXISTING EXPANSION JOINT SECTION
BRIDGE NO. HAM-50-1903 R



EXISTING EXPANSION JOINT SECTION AT SIDEWALK
BRIDGE NO. HAM-50-1903 L



PROPOSED EXPANSION JOINT SECTION
BRIDGE NO. HAM-50-1903 L



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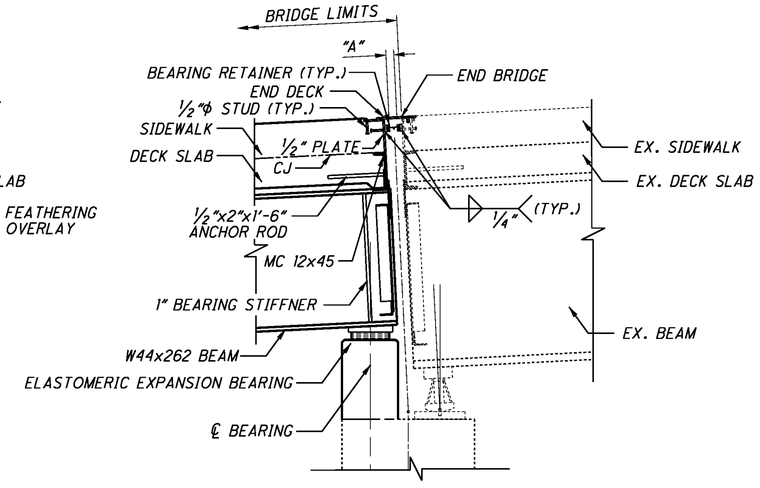
BRIDGE NO. HAM-50-1903 R



PROPOSED EXPANSION JOINT SECTION AT SIDEWALK
BRIDGE NO. HAM-50-1903 L

3" STRIP SEAL DIMENSION "A" (SEE STD. DWG. EXJ-4-87)							
	30°	40°	50°	60°	70°	80°	90°
LEFT BRIDGE (WESTBOUND)	1 3/16	1 3/4	1 1/16	1 7/32	1 5/32	1 1/16	1 1/2
RIGHT BRIDGE (EASTBOUND)	1 3/16	1 3/4	1 1/16	1 7/32	1 5/32	1 1/16	1 1/2
LEFT BRIDGE (SIDEWALK)	1 3/16	1 3/4	1 1/16	1 7/32	1 5/32	1 1/16	1 1/2

LEGEND:

PORTIONS OF STRUCTURE TO BE REMOVED

NOTES:

1. CONTRACTOR TO FIELD VERIFY COMPLETE MAKE-UP OF EXISITING EXPANSION JOINT. IF EXISTING EXPANSION JOINT IS DIFFERENT THAN THAT OF WHICH IS DELINEATED IN THE PLANS, CONTRACTOR SHALL SUBMIT A PROPOSED REMOVAL AND INSTALLATION PROCEDURE TO ODOT INSPECTOR FOR APPROVAL PRIOR TO BEGINNING WORK.
2. REFER TO ODOT STD. DWG. EXJ-4-87 AND GSD-1-96 FOR MORE DETAILS.
3. THE STRIP SEAL SHALL BE OF ONE CONTINUOUS PIECE ACROSS THE TOTAL WIDTH OF EACH STRUCTURE. NO SPLICES WILL BE ACCEPTABLE.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4212 Reading Road, Suite 20, Cincinnati, Ohio 45229
TEL 513.421.4211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 31028017/3102815

EXPANSION JOINT DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

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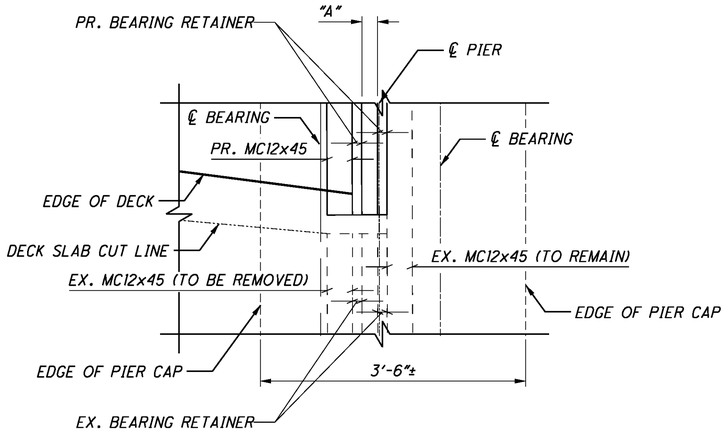
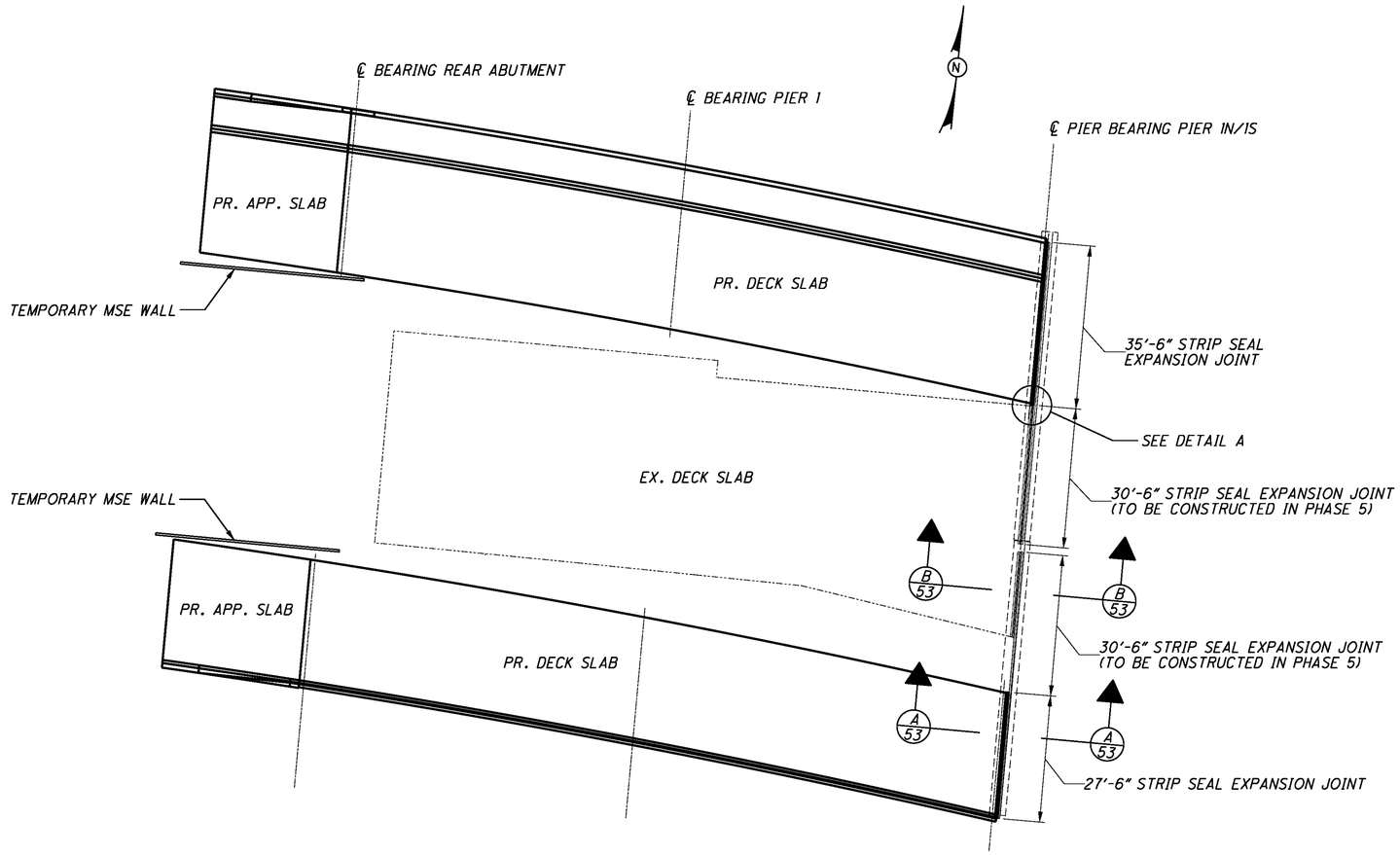
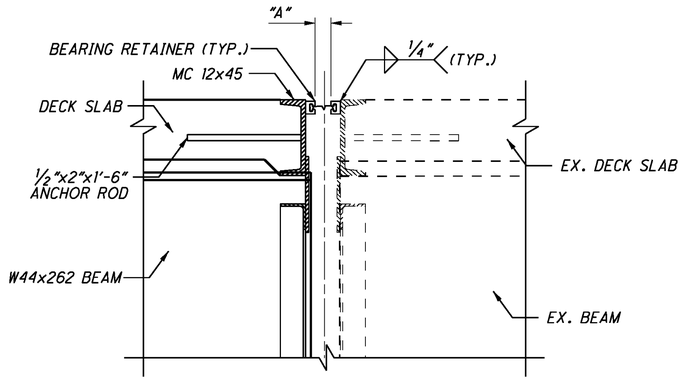


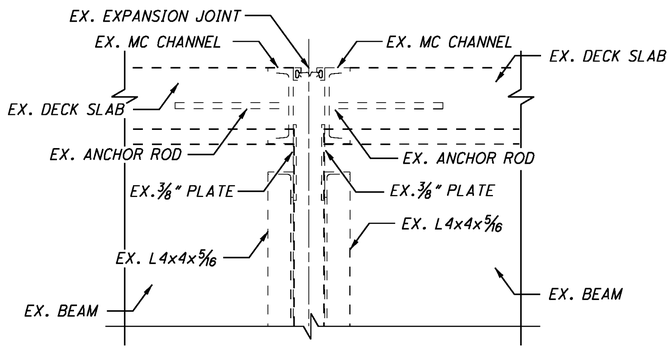
DETAIL A
BRIDGE NO. HAM-50-1903 L SHOWN
BRIDGE NO. HAM-50-1903 R SIMILIAR



SCHEMATIC PLAN - PHASE 3 CONSTRUCTION
BRIDGE NO. HAM-50-1903 L/R



A 53 SECTION



B 53 SECTION

NOTES:
1. CONTRACTOR TO FIELD VERIFY COMPLETE MAKE-UP OF EXISITING EXPANSION JOINT. IF EXISTING EXPANSION JOINT IS DIFFERENT THAN SHOWN IN THE PLANS, CONTRACTOR SHALL SUBMIT A PROPOSED REMOVAL AND INSTALLATION PROCEDURE TO ODOT INSPECTOR FOR APPROVAL PRIOR TO BEGINNING WORK.
2. REFER TO ODOT STD. DWG. EXJ-4-87 AND GSD-1-96 FOR ADDITIONAL DETAILS.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4270 Ivy Pointe Blvd., Cincinnati, OH 45245
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 31028017/3102815

EXPANSION JOINT DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

53 / 65

577 / 657

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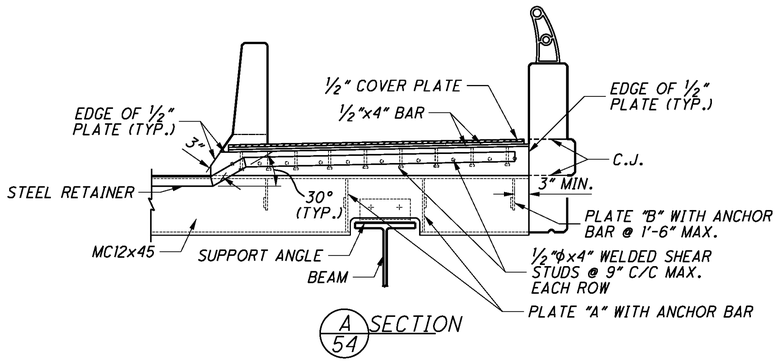
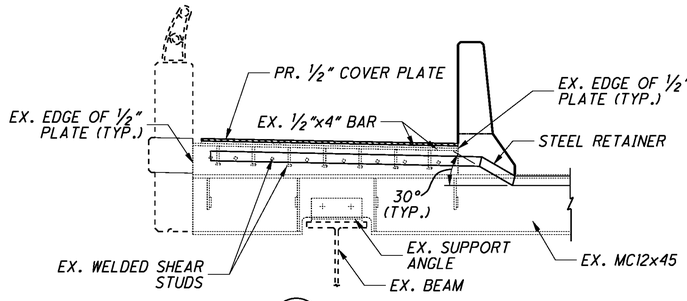
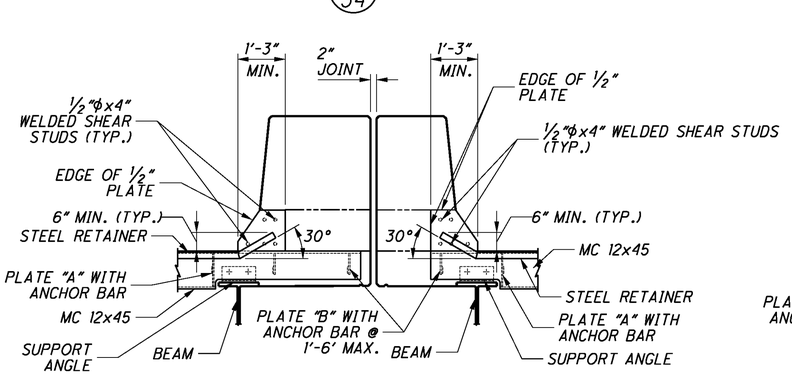


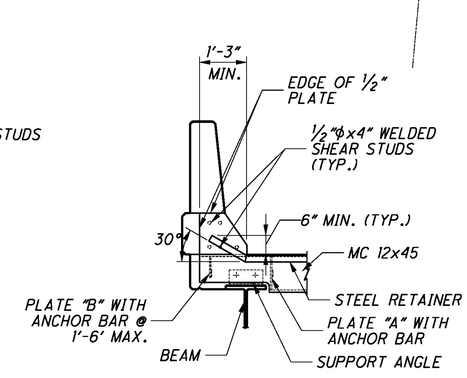
A/54 SECTION



B/54 SECTION



C/54 SECTION



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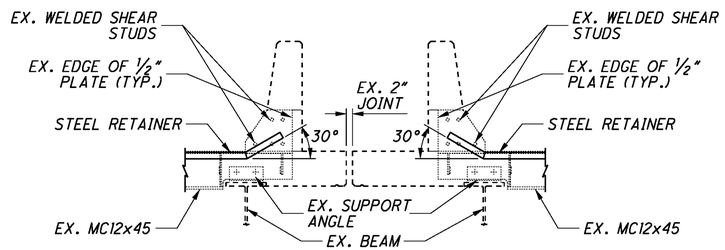

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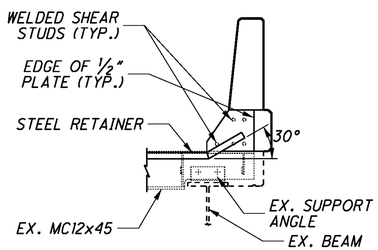
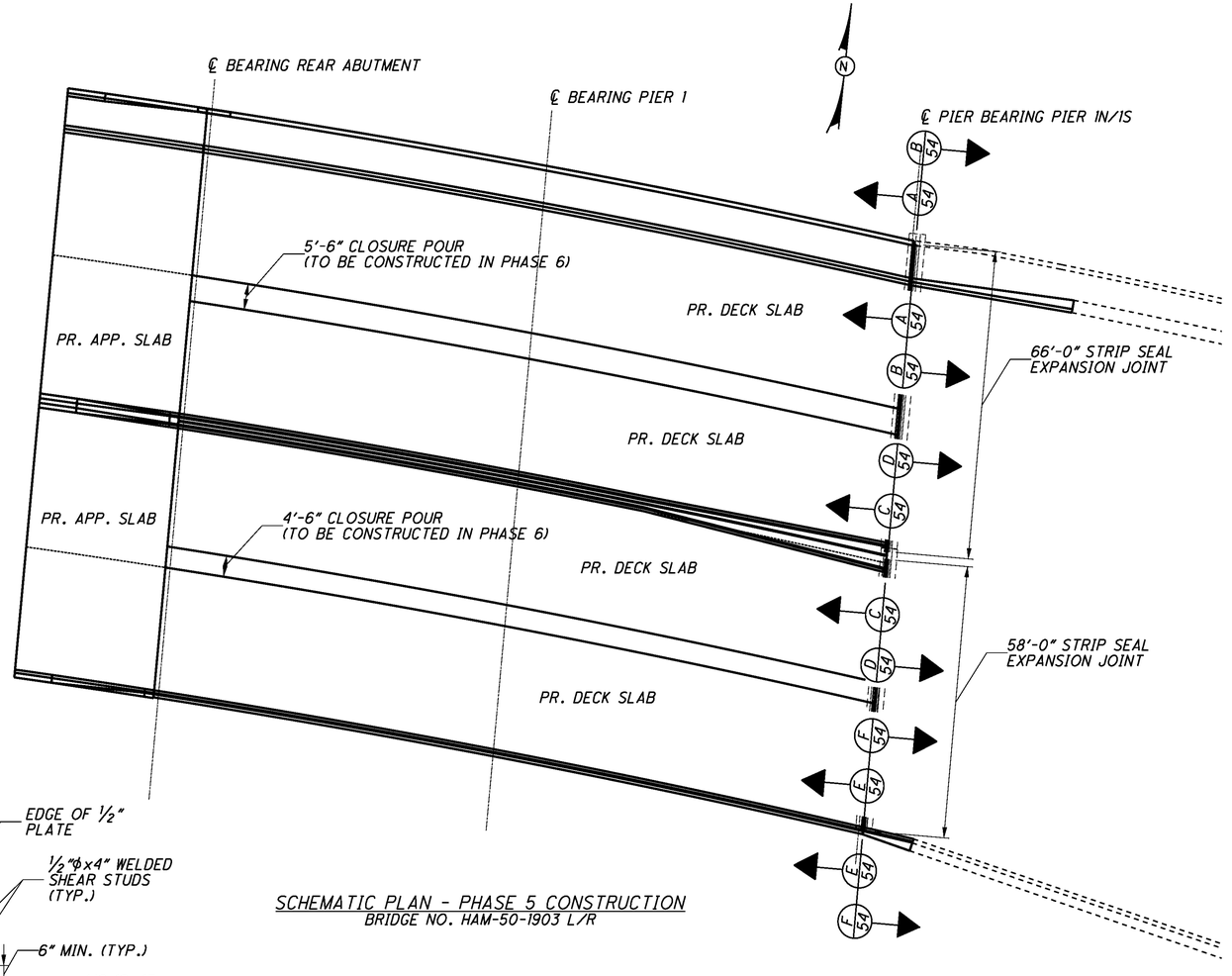


F/54 SECTION



SCHEMATIC PLAN - PHASE 5 CONSTRUCTION
BRIDGE NO. HAM-50-1903 L/R

NOTES:

1. CONTRACTOR TO FIELD VERIFY COMPLETE MAKE-UP OF EXISITING EXPANSION JOINT. IF EXISTING EXPANSION JOINT IS DIFFERENT THAN SHOWN IN THE PLANS, CONTRACTOR SHALL SUBMIT A PROPOSED REMOVAL AND INSTALLATION PROCEDURE TO ODOT INSPECTOR FOR APPROVAL PRIOR TO BEGINNING WORK.
2. REFER TO ODOT STD. DWG. EXJ-4-87 FOR ADDITIONAL DETAILS.

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4675 Lake Forest Drive, Suite 400 Cincinnati, Ohio 45242
TEL 513.821.6211 FAX 513.821.3830 WEB www.kzf.com

DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 3102807/3102815

EXPANSION JOINT DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

54 / 65

578
657

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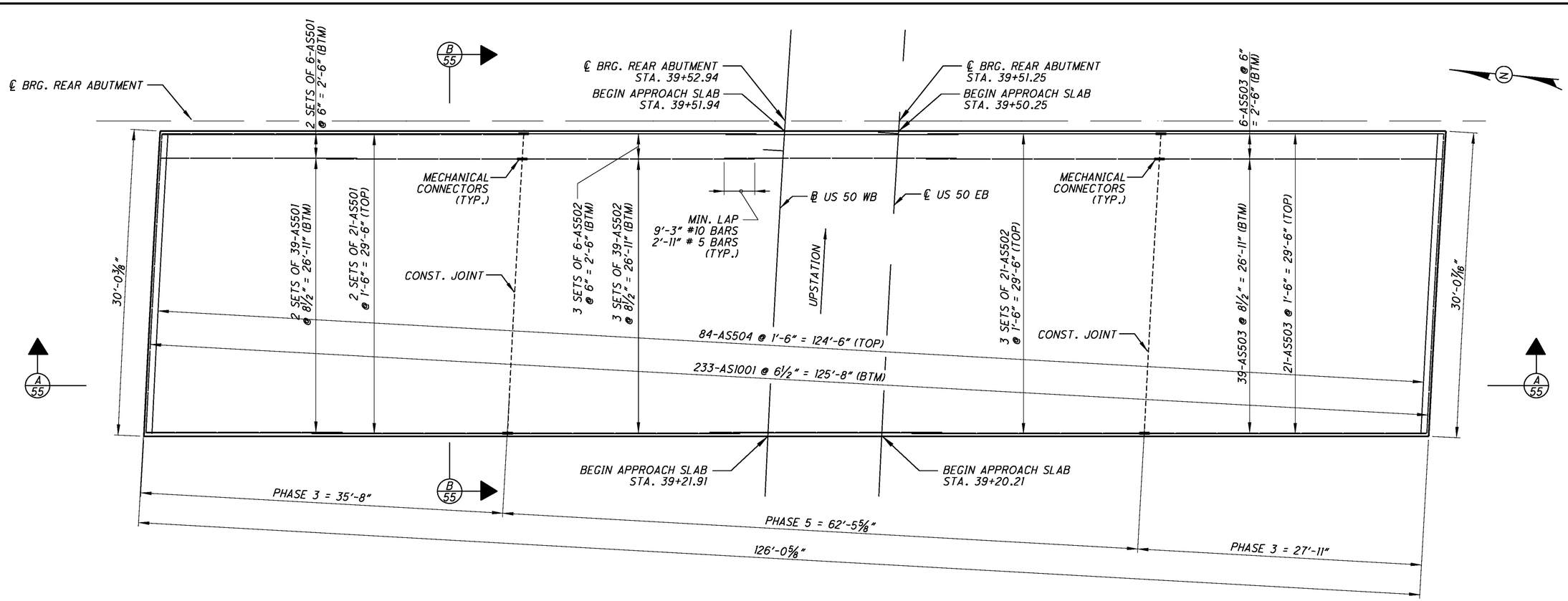
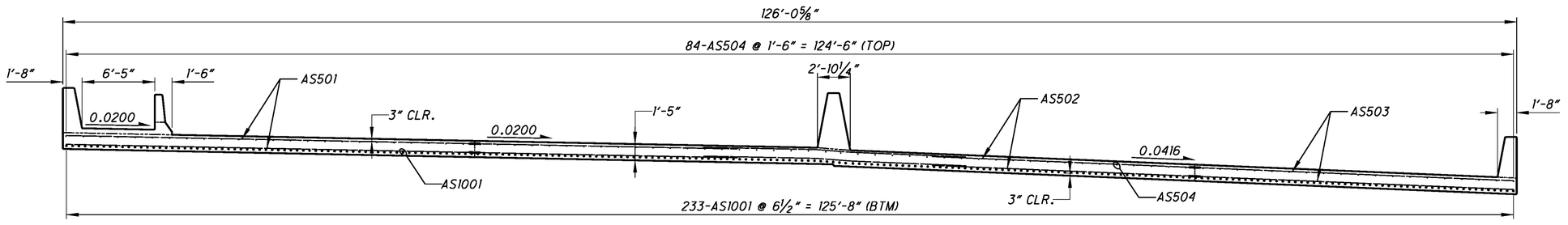
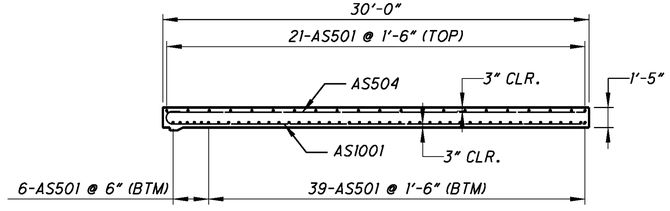


REAR APPROACH SLAB PLAN
BRIDGE NO. HAM-50-1903 L/R



A 55 SECTION
BRIDGE NO. HAM-50-1903 L/R



B 55 SECTION
BRIDGE NO. HAM-50-1903 L/R

NOTES:
1. MIN. LAP FOR NO. 5 BAR = 2'-11"
2. REINFORCING IN APPROACH SLAB SHALL BE PAID FOR UNDER ITEM 898, QC/QA CONCRETE, CLASS QSC2 SUPERSTRUCTURE (APPROACH SLAB)

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
4020 Kinross Lakes Parkway, Richfield, Ohio 44286
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

APPROACH SLAB DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

55 / 65

579
657

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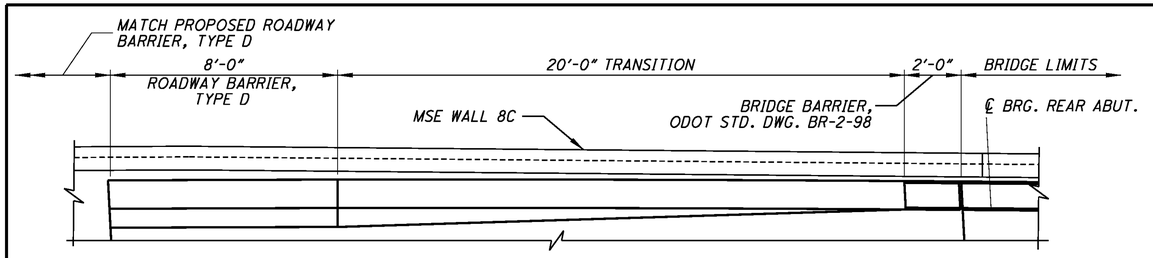
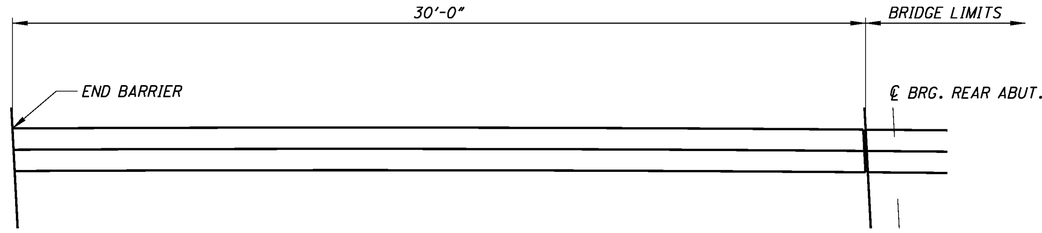
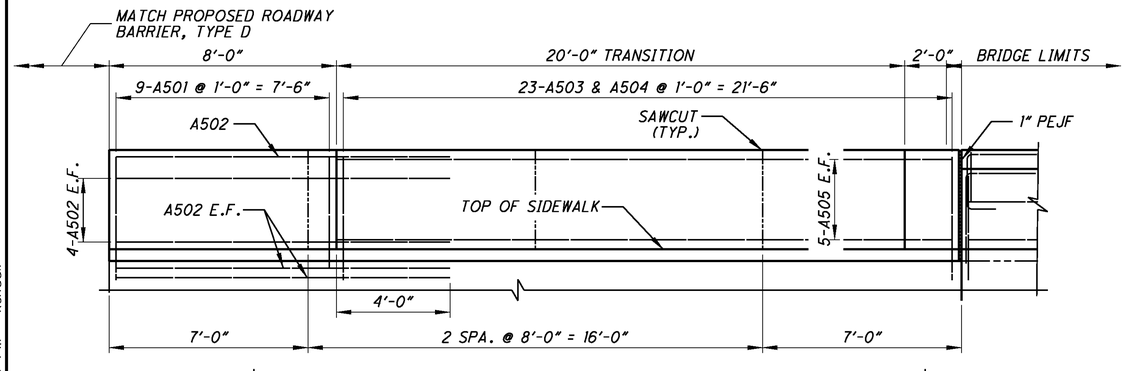


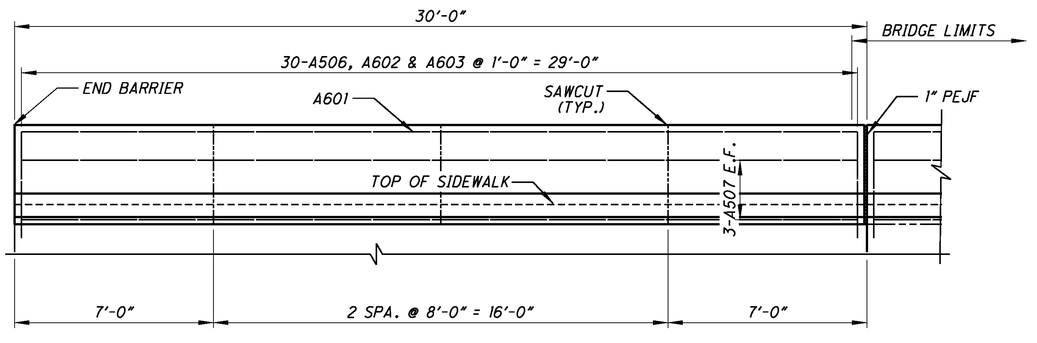


B/56 → LEFT REAR PEDESTRIAN BARRIER PLAN
BRIDGE NO. HAM-50-1903 L

A/56 →

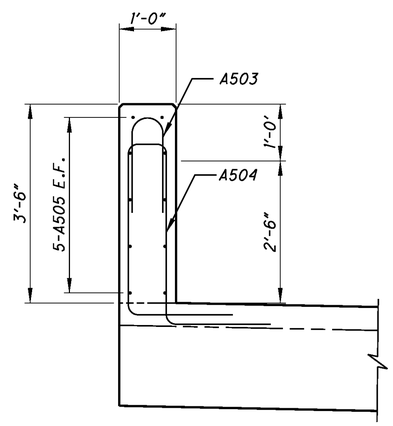


C/56 → LEFT REAR VEHICULAR BARRIER PLAN
BRIDGE NO. HAM-50-1903 L

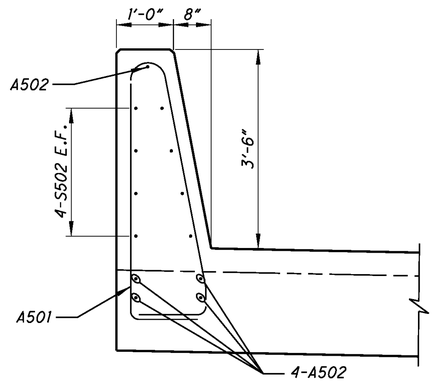


B/56 ↓ A/56 ↓

LEFT REAR PEDESTRIAN BARRIER ELEVATION - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L



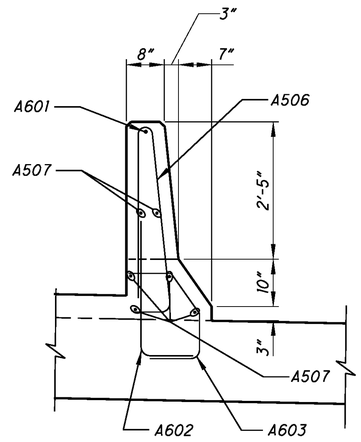
A/56 SECTION



B/56 SECTION

C/56 ↓

LEFT REAR VEHICULAR BARRIER ELEVATION - LOOKING NORTH
BRIDGE NO. HAM-50-1903 L



C/56 SECTION

NOTES:
1. FOR ADDITIONAL BARRIER TRANSITION DETAILS, SEE SHEET 48-49/65

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
Cincinnati, Ohio | Northern Kentucky | Columbus
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
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APPROACH SLAB DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

56/65

580/657

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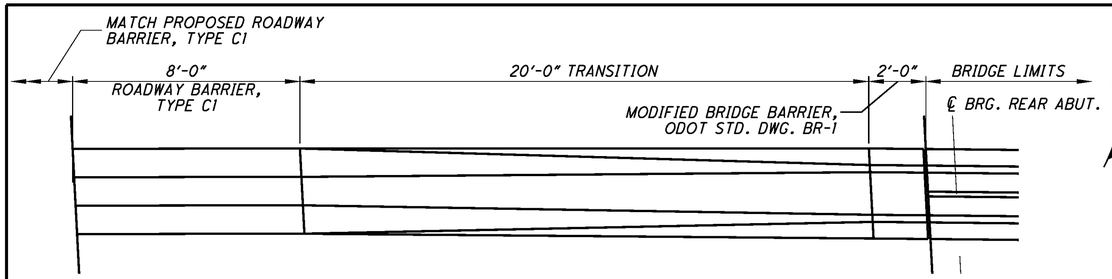
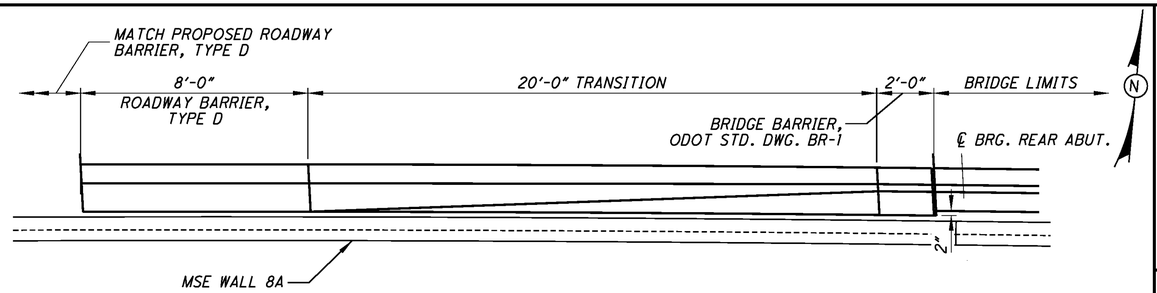
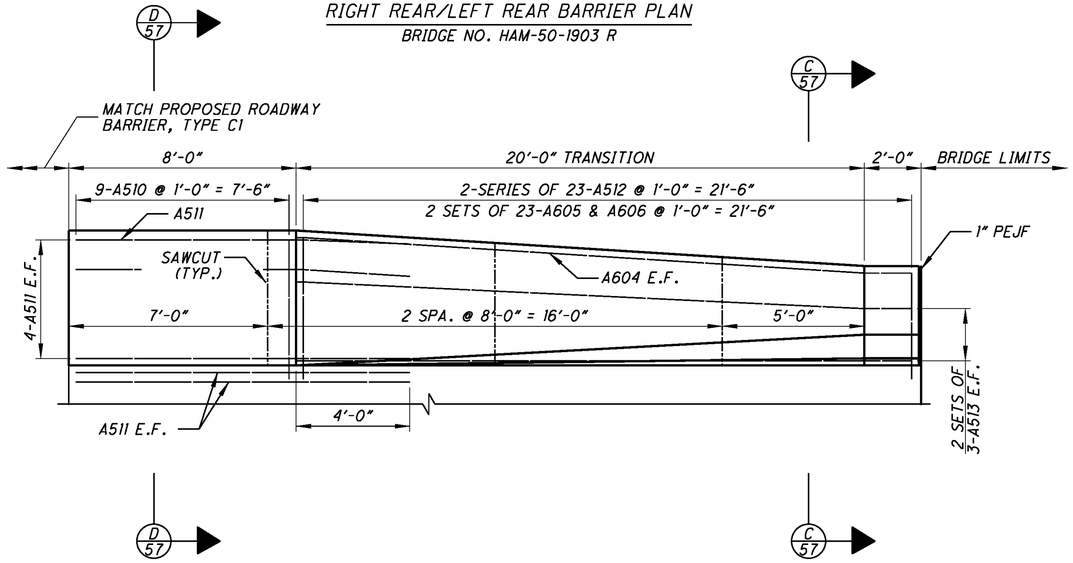




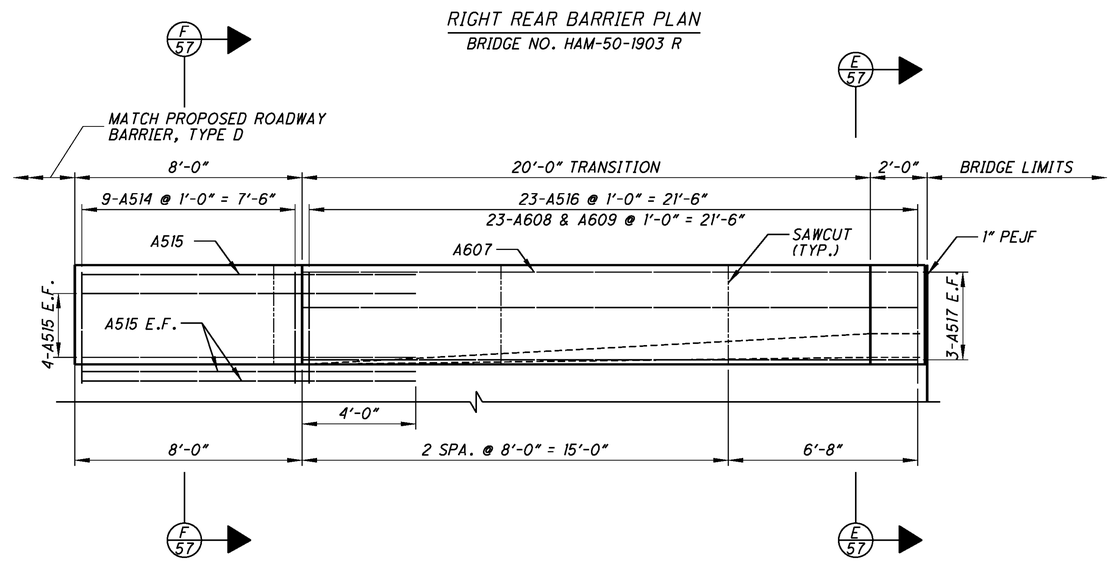
RIGHT REAR/LEFT REAR BARRIER PLAN

BRIDGE NO. HAM-50-1903 R



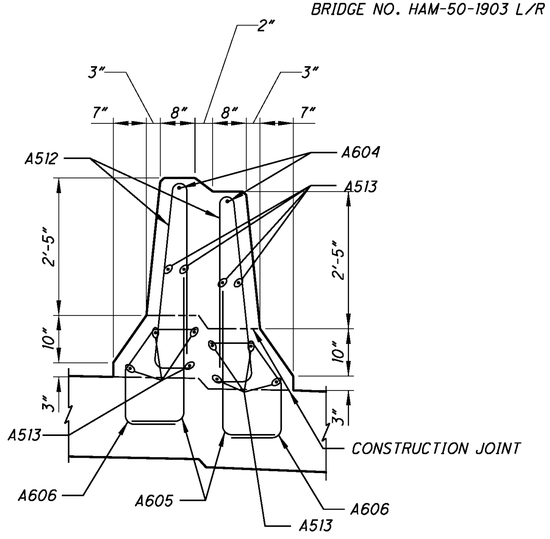
RIGHT REAR BARRIER PLAN

BRIDGE NO. HAM-50-1903 R

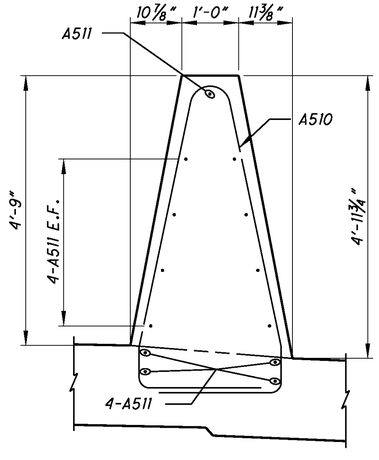


RIGHT REAR/LEFT REAR BARRIER ELEVATION - LOOKING NORTH

BRIDGE NO. HAM-50-1903 L/R



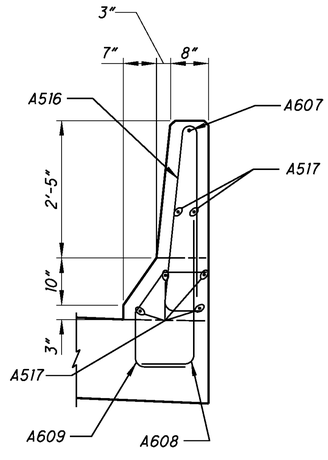
C 57 SECTION



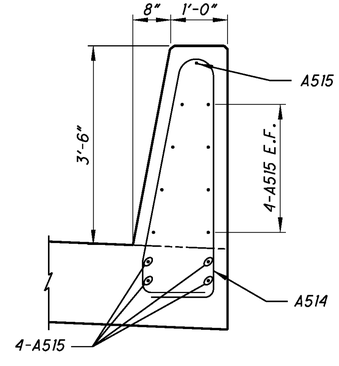
D 57 SECTION

RIGHT REAR BARRIER ELEVATION - LOOKING NORTH

BRIDGE NO. HAM-50-1903 R



E 57 SECTION



F 57 SECTION

NOTES:

1. FOR ADDITIONAL BARRIER TRANSITION DETAILS, SEE SHEET 48-49/65

DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
Cincinnati, Ohio 45202 TEL: 513.421.6211 FAX: 513.421.3830 WEB: www.kzf.com

DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

APPROACH SLAB DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

57 / 65

581 / 657

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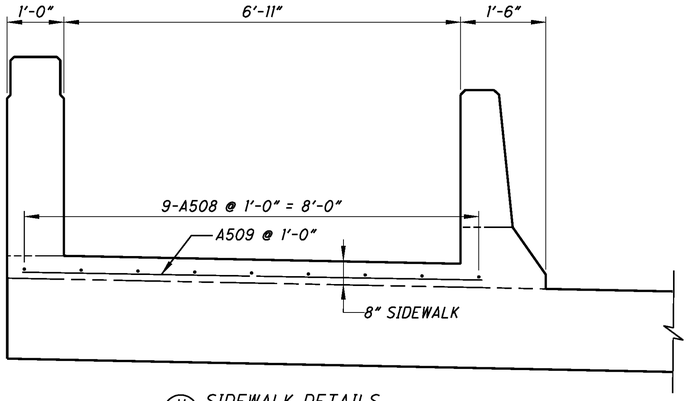
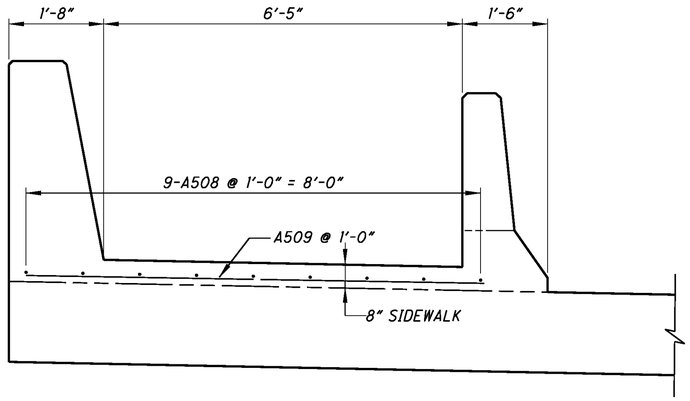


H/42 SIDEWALK DETAILS
BRIDGE NO. HAM-50-1903 L



G/42 SIDEWALK DETAILS
BRIDGE NO. HAM-50-1903 L

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DESIGN AGENCY
KZF DESIGN
Architecture | Engineering | Interiors | Planning
CINCINNATI, OHIO 45202 Phone & Fax Numbers
TEL 513.421.6211 FAX 513.421.3830 WEB www.kzf.com

DESIGNED	DRAWN	REVIEWED	DATE
DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

APPROACH SLAB DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	TOP	BOTTOM	TOTAL				A	B	C	D	E	R	INC
DECK SLAB REINFORCING STEEL LIST													
SL401	445	0	445	30'-0"	8918	STR							
SL402	89	0	89	15'-10"	941	STR							
SL501	806		806	20'-0"	16813	STR							
SL502	416	416	832	5'-6"	4773	STR							
SL503	412	412	824	25'-3"	21701	STR							
	1	1	2	6'-0"									
SL504	SERIES OF	SERIES OF	SERIES OF	TO	188	STR							
	5	5	5	30'-0"									
	1	1	2	2'-0"									
SL505	SERIES OF	SERIES OF	SERIES OF	TO	407	STR							
	12	12	12	30'-0"									
	1	1	2	2'-0"									
SL506	SERIES OF	SERIES OF	SERIES OF	TO	100	STR							
	3	3	3	30'-0"									
	1	1	2	3'-2"									
SL507	SERIES OF	SERIES OF	SERIES OF	TO	218	STR							
	8	8	8	23'-0"									
SL508	4	4	8	20'-1"	168	STR							
SL509	2	2	4	5'-6"	23	STR							
SL510	2	2	4	25'-6"	106	STR							
SL511		535	535	30'-0"	16740	STR							
SL512		107	107	19'-3"	2148	STR							
SL513	12	12	24	2'-0"	50	STR							
SL514	12	12	24	4'-0"	100	STR							
SL515	12	12	24	5'-0"	125	STR							
SL516	12	12	24	8'-0"	200	STR							
SL517		403	403	15'-0'	6305	STR							
SL518		403	403	25'-0"	10508	STR							
SL519	86		86	40'-0"	3588	STR							
SL520	86		86	20'-0"	1794	STR							
SR401	395	0	395	30'-0"	7916	STR							
SR402	79	0	79	15'-10"	836	STR							
SR501	404	404	808	26'-6"	22333	STR							
SR502	414	414	828	4'-6"	3886	STR							
SR503	421	421	842	27'-6"	24151	STR							
	1	1	2	5'-6"									
SR504	SERIES OF	SERIES OF	SERIES OF	TO	121	STR							
	4	4	4	23'-6"									
	1	1	2	2'-2"									
SR505	SERIES OF	SERIES OF	SERIES OF	TO	253	STR							
	9	9	9	24'-10"									
	1	1	2	3'-6"									
SR506	SERIES OF	SERIES OF	SERIES OF	TO	104	STR							
	4	4	4	21'-6"									
	1	1	2	1'-2"									
SR507	SERIES OF	SERIES OF	SERIES OF	TO	235	STR							
	9	9	9	23'-10"									
SR508	2	2	4	26'-9"	112	STR							
SR509	2	2	4	4'-6"	19	STR							
SR510	2	2	4	27'-9"	116	STR							
SR511		470	470	30'-0"	14706	STR							
SR512		94	94	19'-3"	1887	STR							
SR513	12	12	24	2'-0"	50	STR							
SR514	12	12	24	4'-0"	100	STR							
SR515	12	12	24	5'-0"	125	STR							
SR516	12	12	24	8'-0"	200	STR							
SR517	76		76	40'-0"	3171	STR							
SR518	76		76	20'-0"	1585	STR							
				SUB-TOTAL	177821	LBS							

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FORWARD	TOTAL				A	B	C	D	E	R	INC
REAR ABUTMENT REINFORCING STEEL LIST													
AL501	63		63	15'-6"	1018	3	5'-6"	2'-6"					
AL502	63		63	16'-6"	1084	3	2'-6"	6'-0"					
AL503	10		10	19'-5"	203	STR							
AL504	8		8	30'-0"	250	STR							
AL505	51		51	6'-11"	368	2	2'-7"	2'-0"	2'-7"				
AL506	45		45	10'-6"	493	3	2'-6"	3'-0"					
AL507	6		6	9'-2"	57	3	2'-6"	2'-4"					
AL601	9		9	11'-6"	155	3	2'-8"	3'-5"					
AL602	6		6	4'-9"	43	1	3'-4"	1'-7"					
AL801	44		44	20'-11"	2457	STR							
AL802	22		22	30'-0"	1762	STR							
AL803	8		8	20'-6"	438	STR							
AL804	4		4	5'-6"	59	STR							
AL805	4		4	25'-4"	271	STR							
AL806	4		4	3'-3"	35	STR							
AL807	4		4	23'-9"	254	STR							
AL808	4		4	4'-0"	43	STR							
AL809	4		4	7'-3"	77	STR							
AL810	4		4	20'-4"	217	STR							
AL811	45		45	4'-8"	561	18	2'-10"	1'-0"	1'-0"				
AL901	24		24	4'-8"	381	1	3'-4"	1'-7"					
AR501	56		56	15'-6"	905	3	5'-6"	2'-6"					
AR502	56		56	16'-6"	964	3	2'-6"	6'-0"					
AR503	8		8	30'-0"	250	STR							
AR504	8		8	28'-9"	240	STR							
AR505	43		43	6'-11"	310	2	2'-7"	2'-0"	2'-7"				
AR506	37		37	10'-6"	405	3	2'-6"	3'-0"					
AR507	6		6	9'-2"	57	3	2'-6"	2'-4"					
AR601	9		9	11'-6"	155	3	2'-8"	3'-5"					
AR602	6		6	4'-9"	43	1	3'-4"	1'-7"					
AR801	22		22	30'-0"	1762	STR							
AR802	22		22	28'-9"	1689	STR							
AR803	4		4	27'-8"	295	STR							
AR804	4		4	4'-6"	48	STR							
AR805	4		4	26'-7"	284	STR							
AR806	4		4	3'-8"	39	STR							
AR807	4		4	16'-5"	175	STR							
AR808	4		4	4'-9"	51	STR							
AR809	4		4	6'-6"	69	STR							
AR810	4		4	19'-9"	211	STR							
AR811	40		40	4'-8"	498	18	2'-10"	1'-0"	1'-0"				
AR901	24		24	4'-8"	381	1	3'-4"	1'-7"					
				SUB-TOTAL	19059	LBS							

NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT
5. REINFORCING IN APPROACH SLAB SHALL BE INCLUDED IN ITEM 898, OC/OA CONCRETE, CLASS OSC2 SUPERSTRUCTURE (APPROACH SLAB)
6. REINFORCING IN NORTH PEDESTRIAN BARIER (SEE ODOT STD. DWG. BR-2-98) SHALL BE INCLUDED IN ITEM 517, RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)

DESIGN AGENCY
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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 3102807/3102815

REINFORCING STEEL LIST
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

59 / 65

583
657

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MARK	NUMBER				LENGTH	WEIGHT	TYPE	DIMENSIONS						
	PIER 1 (NORTH)	PIER 1 (CENTER)	PIER 1 (SOUTH)	TOTAL				A	B	C	D	E	R	INC
PIER 1 REINFORCING STEEL LIST														
P401	36	49	29	114	12'-0"	914	3	3'-1"	3'-1"					
P402	208	296	144	648	3'-7"	1551	17	3'-0"						
P403	40	60	40	140	10'-1"	943	17	9'-6"						
P404	16	24	12	52	3'-7"	124	STR							
P405	32	48	24	104	2'-9"	191	2	0'-'8"	1'-7"	0'-8"				
P501	REINFORCING STEEL BAR DESIGNATION NOT USED IN STEEL LIST													
	4			4	10'-6"				3'-0"					
P502	SERIES OF			SERIES OF	TO	822	3	2'-6"	TO					1 5/8"
	17			17	12'-8"				4'-1"					
P503	162	214	42	418	12'-8"	5522	3	2'-6"	4'-1"					
P504	REINFORCING STEEL BAR DESIGNATION NOT USED IN STEEL LIST													
		4		4	11'-0"				3'-3"					
P505		SERIES OF		SERIES OF	TO	543	3	2'-6"	TO					0'-2"
		11		11	12'-8"				4'-1"					
P506	REINFORCING STEEL BAR DESIGNATION NOT USED IN STEEL LIST													
			4	4	10'-10"				3'-2"					
P507			SERIES OF	SERIES OF	TO	637	3	2'-6"	TO					1 7/8"
			13	13	12'-8"				4'-1"					
P601	20			20	18'-5"	553	STR							
P602		20		20	26'-9"	804	STR							
P603			10	10	26'-0"	391	STR							
P604	6	6	6	18	10'-2"	275	3	2'-8"	2'-9"					
P605	6	6	6	18	4'-3"	115	1	1'-7"	2'-10"					
P801	40			40	21'-2"	2261	1	1'-4"	20'-0"					
P802		60		60	20'-2"	3231	1	1'-4"	19'-0"					
P803			40	40	19'-2"	2047	1	1'-4"	18'-0"					
P901	16	16	16	48	4'-2"	680	1	1'-7"	2'-10"					
P1001	9			9	39'-4"	1523	15	0'-0"	3'-0"	1'-0"	4'-0"	25'-4"		
P1002		16		16	16'-2"	1113	1	2'-0"	14'-6"					
P1003		16		16	29'-8"	2042	13	3'-0"	1'-0"	4'-0"	22'-8"			
P1004	10			10	36'-6"	1571	2	2'-0"	33'-2"	2'-0"				
P1005	40	60	40	140	11'-8"	7028	17	9'-6"						
P1006		8		8	23'-6"	809	STR							
P1007			6	6	29'-0"	749	2	2'-0"	25'-8"	2'-0"				
P1008			8	8	34'-11"	1202	15	0'-0"	3'-0"	1'-0"	4'-0"	20'-11"		
					SUB-TOTAL	37640	LBS							

NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT
5. REINFORCING IN APPROACH SLAB SHALL BE INCLUDED IN ITEM 898, OC/OA CONCRETE, CLASS QSC2 SUPERSTRUCTURE (APPROACH SLAB)
6. REINFORCING IN NORTH PEDESTRIAN BARIER (SEE ODOT STD. DWG. BR-2-98) SHALL BE INCLUDED IN ITEM 517, RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)

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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
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REINFORCING STEEL LIST
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

60 / 65

584
657

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MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	LEFT STRUCT.	RIGHT STRUCT.	TOTAL				A	B	C	D	E	R	INC
BRIDGE BARRIER REINFORCING STEEL LIST													
S501	2		2	8'-3"	17	7	1'-0"	4'-8"	1'-11"	1'-0"			
S502	2		2	8'-7"	18	2	1'-0"	4'-8"	3'-2"				
S503	6		6	3'-7"	22	24	0'-6"	1'-6"				0'-3"	
S504	150		150	7'-8"	1199	30	1'-6"	8"	2'-4"	2'-2"			
S505	30		30	30'-0"	939	STR							
S506	6		6	17'-7"	110	STR							
S507	154		154	7'-1"	1138	23	0'-8"	3'-3"	3'-0"			0'-1 1/2"	
S508	30		30	30'-0"	939	STR							
S509	6		6	17'-7"	110	STR							
S510	102		102	7'-1"	754	23	0'-8"	3'-3"	3'-0"			0'-1 1/2"	
S511	30		30	30'-0"	939	STR							
S512	7		7	17'-9"	130	STR							
S513		101	101	7'-1"	746	23	0'-8"	3'-3"	3'-0"			0'-1 1/2"	
S514		30	30	30'-0"	939	STR							
S515		7	7	17'-10"	130	STR							
S516		155	155	7'-1"	1145	23	0'-8"	3'-3"	3'-0"			0'-1 1/2"	
S517		30	30	30'-0"	939	STR							
S518		6	6	18'-3"	114	STR							
S519	45		45	30'-0"	1408	STR							
S520	9		9	17'-7"	165	STR							
S521	154		154	9'-0"	1446	STR							
S522	13		13	18'-8"	253	STR							
	1		1	6'-10"			0'-8"			0'-3"			
S523	SERIES OF		SERIES OF	TO	434	36	TO	3'-3"	3'-0"	TO			0'-0 1/2"
	52		52	9'-2"			1'-10"			1'-5"			
		1	1	6'-10"			0'-8"			0'-3"			
S524		SERIES OF	SERIES OF	TO	488	36	TO	3'-3"	3'-0"	TO			0'-1"
		53	53	10'-10"			2'-8"			2'-3"			
	1		1	7'-1"			0'-8"			0'-3"			
S525	SERIES OF		SERIES OF	TO	298	36	TO	3'-3"	3'-0"	TO			0'-0 3/4"
	35		35	9'-3"			1'-9"			1'-4"			
S526		7	7	10'-4"	75	STR							
		1	1	7'-1"			0'-8"			0'-3"			
S527		SERIES OF	SERIES OF	TO	93	36	TO	3'-3"	3'-0"	TO			0'-2 1/2"
		11	11	9'-1'			1'-8"			1'-3"			
S601	5		5	30'-0"	225	STR							
S602	1		1	20'-1"	30	STR							
S603	5		5	30'-0"	225	STR							
S604	2		2	20'-3"	61	STR							
S605		5	5	30'-0"	225	STR							
S606		2	2	20'-4"	61	STR							
S607		5	5	30'-0"	225	STR							
S608		1	1	21'-0"	32	STR							
S609	154		154	3'-3"	752	1	0'-11"	2'-6"					
S610	154		154	3'-0"	694	14	0'-10 1/2"	0'-6 1/2"	0'-8 1/2"	0'-6"	0'-9"		
S611	102	256	358	3'-0"	1613	14	0'-10 1/2"	0'-6 1/2"	0'-8 1/2"	0'-6"	0'-9"		
S612	102	256	358	3'-3"	1748	1	2'-6"	0'-11"					
	1		1	3'-1"			0'-10 1/2"				0'-9"		
S613	SERIES OF		SERIES OF	TO	332	14	TO	0'-6 1/2"	0'-8 1/2"	0'-6"	TO		0'-0 1/2"
	52		52	5'-5"			2'-0 1/2"				1'-11"		
	1		1	3'-3"			0'-11"						
S614	SERIES OF		SERIES OF	TO	299	1	TO	2'-6"					0'-0 1/4"
	52		52	4'-5"			2'-1"						
		1	1	3'-1"			0'-10 1/2"				0'-9"		
S615		SERIES OF	SERIES OF	TO	405	14	TO	0'-6 1/2"	0'-8 1/2"	0'-6"	TO		0'-1"
		53	53	7'-1"			2'-10 1/2"				2'-9"		
		1	1	3'-3"			0'-11"						
S616		SERIES OF	SERIES OF	TO	338	1	TO	2'-6"					0'-0 1/2"
		53	53	5'-3"			2'-11"						
S617	6		6	9'-11"	89	30	1'-10"	0'-8"	3'-2"	3'-0"			
S618	3		3	19'-1"	86	STR							
	1		1	3'-3"			0'-11"						
S619	SERIES OF		SERIES OF	TO	199	1	TO	2'-6"					0'-0 3/8"
	35		35	4'-4"			2'-0"						
	1		1	3'-1"			0'-10 1/2"				0'-9"		
S620	SERIES OF		SERIES OF	TO	210	14	TO	0'-6 1/2"	0'-8 1/2"	0'-6"	TO		0'-0 5/8"
	35		35	4'-11"			1'-11 1/2"				1'-10"		
S621		2	2	10'-4"	31	STR							
		1	1	3'-1"			0'-10 1/2"				0'-9"		
S622		SERIES OF	SERIES OF	TO	65	14	TO	0'-6 1/2"	0'-8 1/2"	0'-6"	TO		0'-2"
		11	11	4'-9"			1'-10 1/2"				1'-9"		
		1	1	3'-3"			0'-11"						
S623		SERIES OF	SERIES OF	TO	62	1	TO	2'-6"					0'-1 1/4"
		11	11	4'-3"			1'-11"						
			SUB-TOTAL	22996									

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	PIER IN	PIER IS	TOTAL				A	B	C	D	E	R	INC
PIER IN/IS REINFORCING STEEL LIST													
P406	20	15	35	6'-8"	156	3	2'-4"	1'-2"					
P407	15	15	30	9'-8"	194	3	3'-10"	1'-2"					
P508	16	12	28	2'-4"	68	STR							
P509	12	12	24	3'-10"	96	STR							
P606	22	18	40	3'-0"	180	STR							
P607	39	33	72	6'-10"	739	2	3'-0"	1'-2"	3'-0"				
P608	15	15	30	5'-1"	229	1	1'-8"	3'-7"					
P609	9	9	18	8'-0"	216	2	3'-7"	1'-2"	3'-7"				
P804	26		26	6'-6"	451	STR							
P805	78	78	156	9'-6"	3957	STR							
P902	74	60	134	9'-9"	4442	2	4'-6"	1'-4"	4'-6"				
P903	16	12	28	5'-0"	476	1	0'-9"	4'-6"					
P904	12	12	24	3'-7"	292	STR							
			SUB-TOTAL		11497	LBS							

NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT
5. REINFORCING IN APPROACH SLAB SHALL BE INCLUDED IN ITEM 898, QC/QA CONCRETE, CLASS QSC2 SUPERSTRUCTURE (APPROACH SLAB)
6. REINFORCING IN NORTH PEDESTRIAN BARIER (SEE ODOT STD. DWG. BR-2-98) SHALL BE INCLUDED IN ITEM 517, RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)

DESIGN AGENCY
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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
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REINFORCING STEEL LIST
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

61 / 65

585
657

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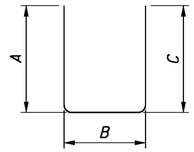
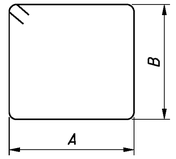
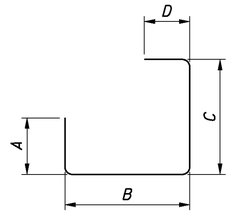
TYPE-1



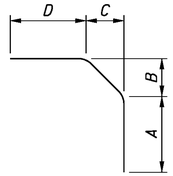
TYPE-2



TYPE-3



TYPE-7



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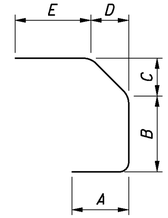

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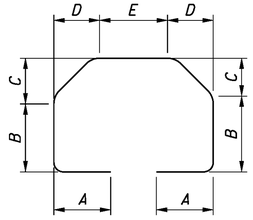

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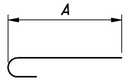

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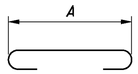

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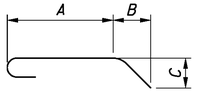

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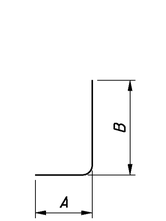
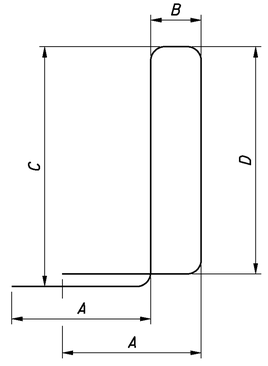


TYPE-23

TYPE-24



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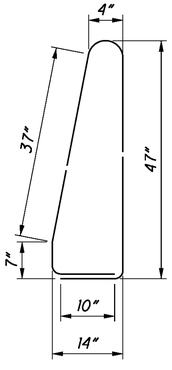

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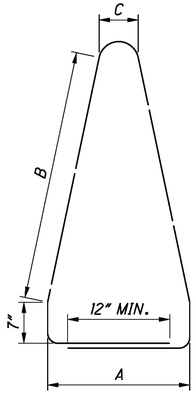

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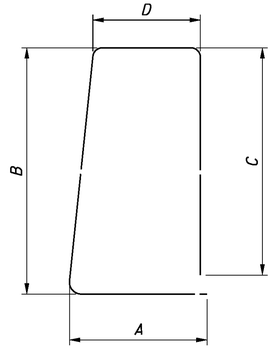

TYPE-36

MARK	NUMBER TOP	NUMBER BOTTOM	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
APPROACH SLAB REINFORCING STEEL LIST													
A501	9		9	9'-5"	88	34							
A502	13		13	11'-9"	159	STR							
A503	23		23	3'-7"	86	24	0'-6"	1'-6"				0-3"	
A504	23		23	9'-11"	238	30	1'-10"	8"	3'-3"	3'-0"			
A505	10		10	21'-8"	226	STR							
A506	30		30	6'-10"	214	23	0'-8"	3'-3"	3'-0"			0'-1 1/2"	
A507	6		6	29'-8"	186	STR							
A508	9		9	29'-8"	278	STR							
A509	31		31	8'-0"	259	STR							
A510	9		9	14'-2'	133	35	2'-6"	4'-5"	0'-8"				
A511	13		13	11'-10"	160	STR							
	2		2	6'-10"				3'-3"	3'-0"				
A512	SERIES OF		SERIES OF	TO	388	23	0'-8"	TO	TO			0'-1 1/2"	0'-1 3/8"
	23		23	9'-4"				4'-6"	4'-3"				
A513	12		12	21'-10"	273	STR							
A514	9		9	9'-5"	205	34							
A515	13		13	11'-10"	296	STR							
A516	23		23	6'-10'	524	23	0'-8"	3'-3"	3'-0"			0'-1 1/2"	
A517	6		6	21'-10"	137	STR							
			0										
A601	1		1	29'-8"	45	STR							
A602	30		30	3'-3"	146	1	0'-11"	2'-6"					
A603	30		30	3'-0"	135	14	0'-10 1/2"	0'-6 1/2"	0'-8 1/2"	0'-6"	0'-9"		
A604	2		2	22'-0"	66	STR							
A605	46		46	3'-3"	225	1	0'-11"	2'-6"					
A606	46		46	3'-0"	207	14	0'-10 1/2"	0'-6 1/2"	0'-8 1/2"	0'-6"	0'-9"		
A607	1		1	22'-0"	33	STR							
A608	23		23	3'-3"	112	1	0'-11"	2'-6"					
A609	23		23	3'-0"	104	14	0'-10 1/2"	0'-6 1/2"	0'-8 1/2"	0'-6"	0'-9"		
AS501	42	90	132	19'-3"	2650	STR							
AS502	63	135	198	22'-10'	4715	STR							
AS503	21	45	66	27'-9"	1910	STR							
AS504	84		84	29'-6'	2585	STR							
AS1001		233	233	30'-11"	30997	16	29'-6"						
				SUB-TOTAL	47781	LBS							
				LEFT	142792	LBS							
				RIGHT	123825	LBS							
				STRUCTURE TOTAL	266617	LBS							

NOTES:
1. ALL REINFORCING STEEL TO BE EPOXY COATED
2. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS
3. REFER TO ODOT CMS SEC. 509.05 FOR STANDARD BAR DIMENSIONS
4. ALL DIMENSIONS ARE OUT TO OUT
5. REINFORCING IN APPROACH SLAB SHALL BE INCLUDED IN ITEM 898, OC/QA CONCRETE, CLASS QSC2 SUPERSTRUCTURE (APPROACH SLAB)
6. REINFORCING IN NORTH PEDESTRIAN BARIER (SEE ODOT STD. DWG. BR-2-98) SHALL BE INCLUDED IN ITEM 517, RAILING (CONCRETE PARAPET WITH TWIN STEEL TUBE RAILING)

DESIGN AGENCY
KZF DESIGN
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CLEVELAND, OHIO 44113 Phone & Facsimile
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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 3102807/3102815

REINFORCING STEEL LIST
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

62 / 65

586 / 657

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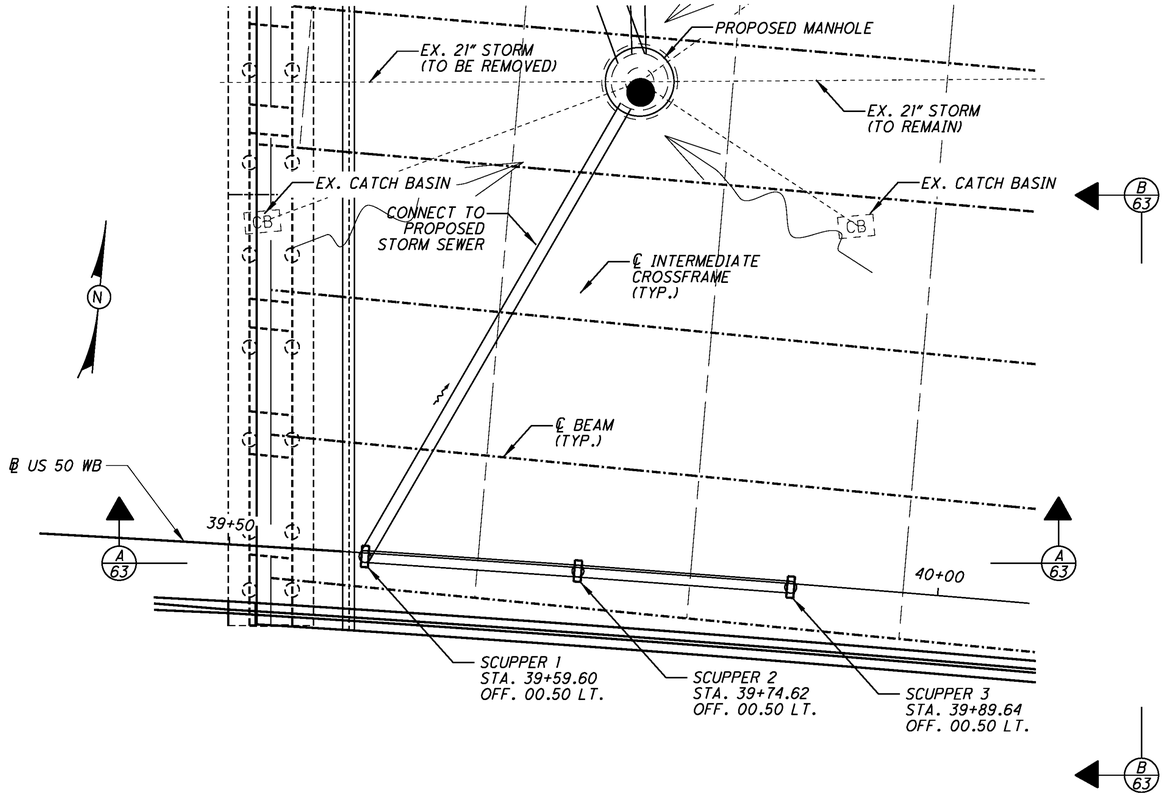
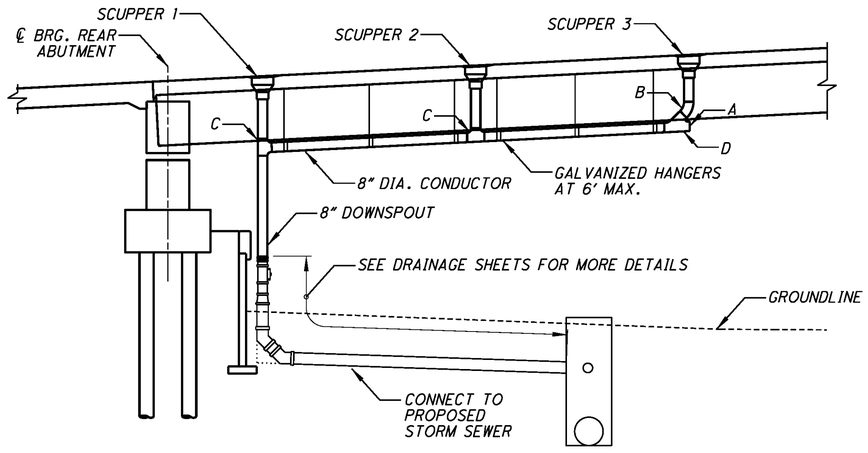


PARTIAL PLAN
BRIDGE NO. HAM-50-1903 L

A	CLEANOUT
B	45° BEND
C	TEE
D	LATERAL



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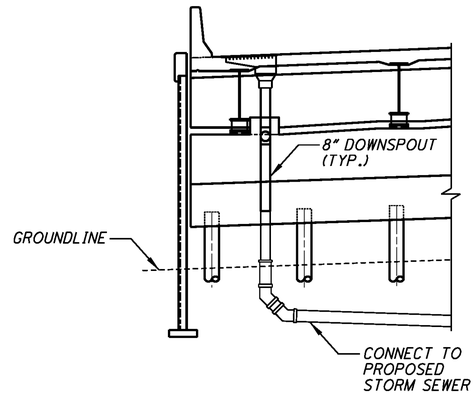

B 63 SECTION

DESIGN AGENCY
KZF DESIGN
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DEF	RBK	BMB	11-29-10
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DAT		31028017/3102815	

SCUPPER DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

63 / 65

587
657

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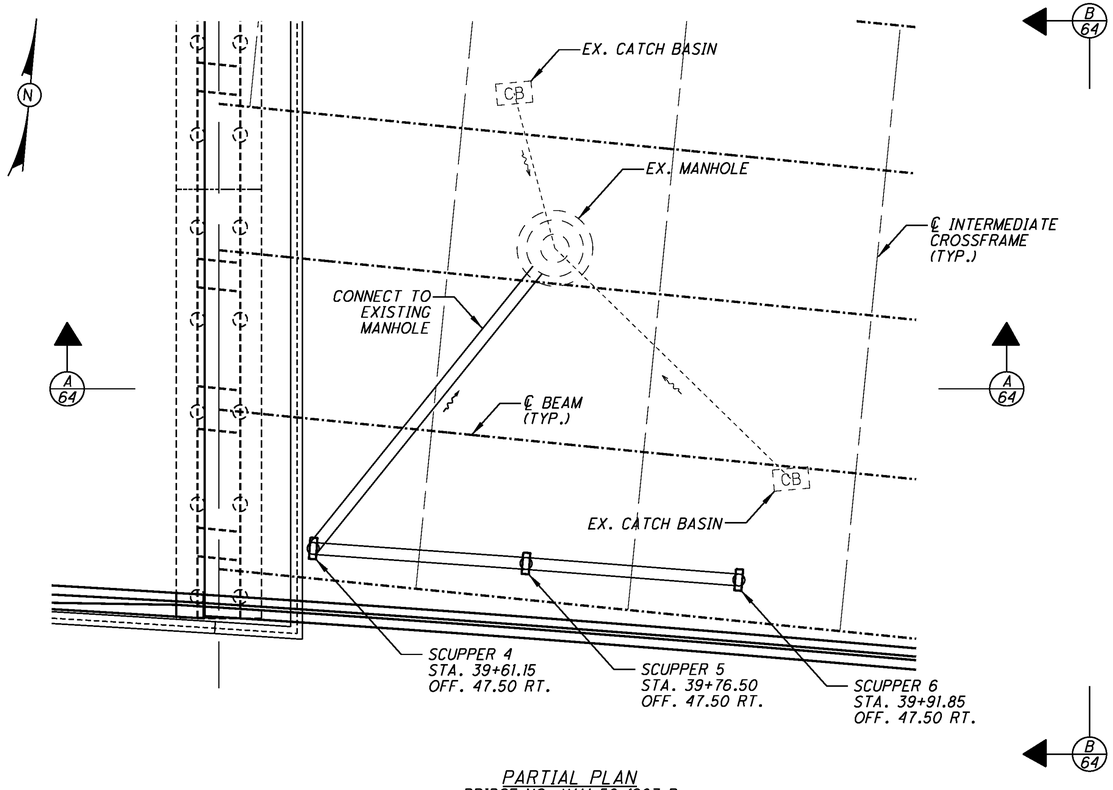
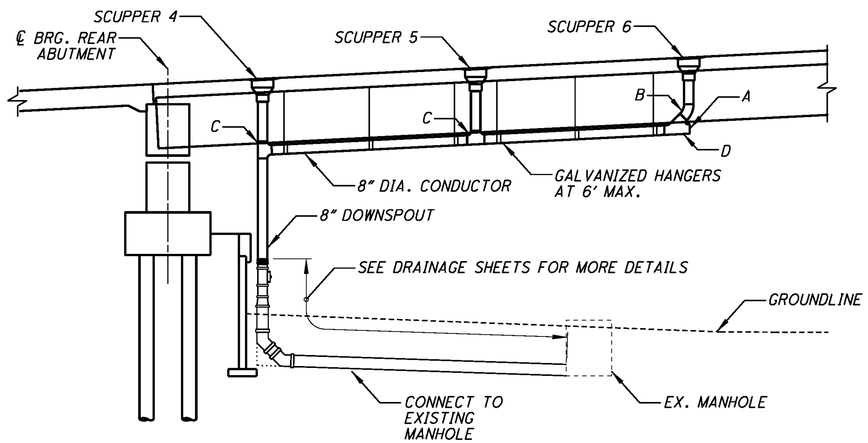


PARTIAL PLAN
BRIDGE NO. HAM-50-1903 R

A	CLEANOUT
B	45° BEND
C	TEE
D	LATERAL



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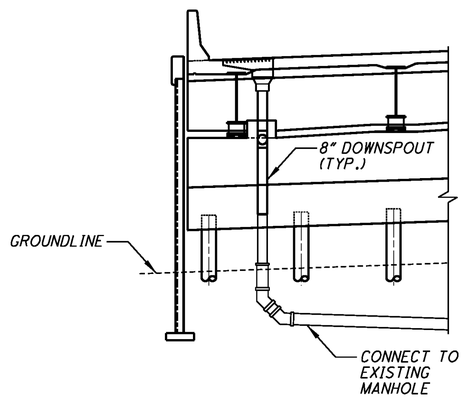

B 64 SECTION

SCUPPER DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

64 / 65

588
657

DESIGNED DEF
DRAWN RBK
CHECKED DAT
REVIEWED BMB
DATE 11-29-10
STRUCTURE FILE NUMBER 3102807/3102815
REVISED

DESIGN AGENCY
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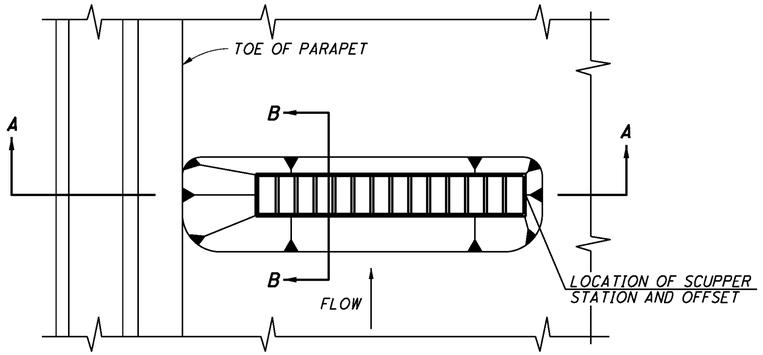
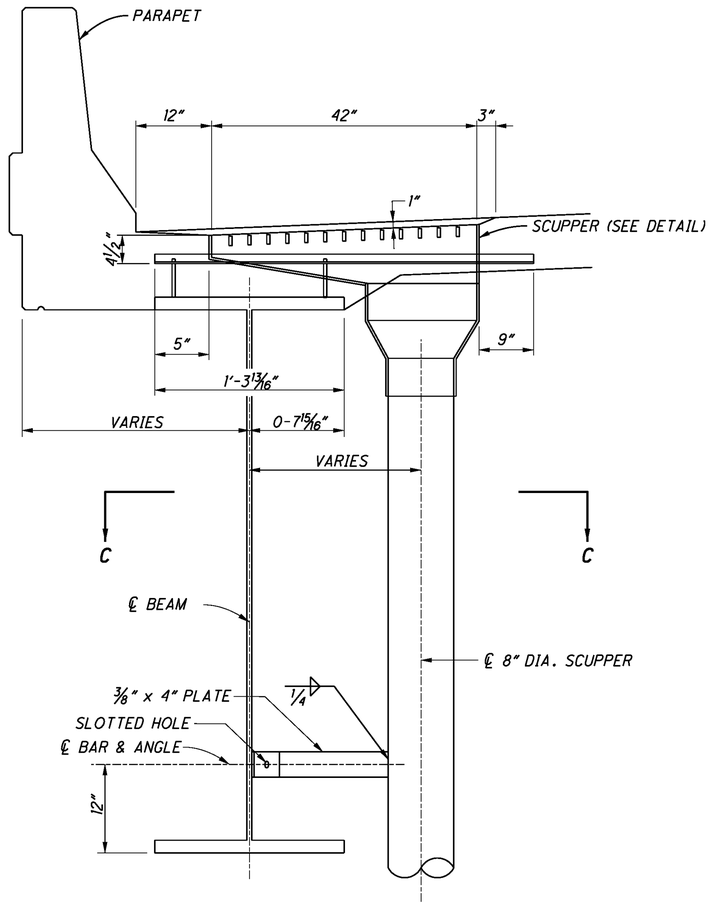


PLAN



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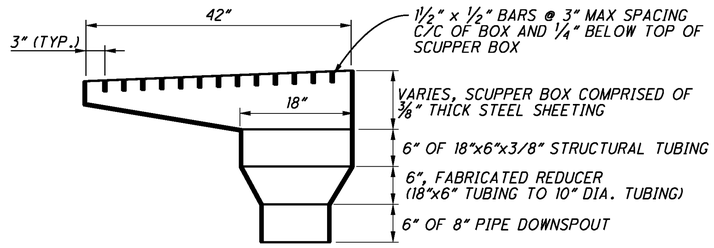

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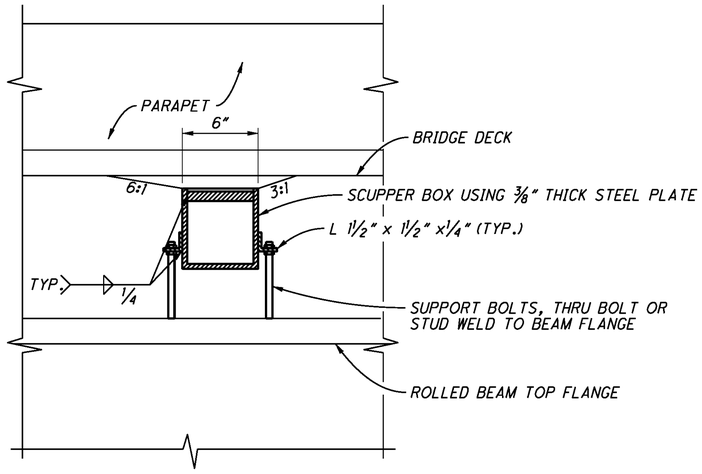

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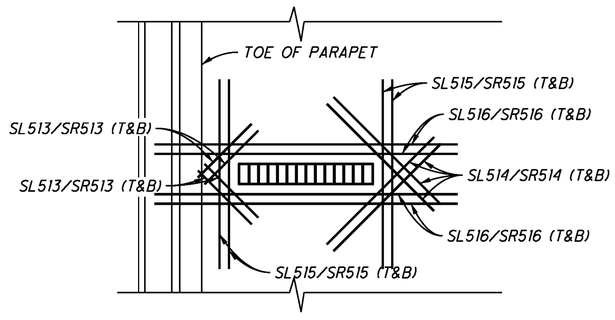


ADDITIONAL DECK REINFORCING DETAIL

T&B = TOP AND BOTTOM

SCUPPER NOTES:

ALL MATERIALS INCLUDING STEEL PLATES, STRUCTURAL TUBING, SUPPORT ANGLES AND OTHER HARDWARE SHALL BE GALVANIZED PER 711.02.

SCUPPER BOXES AND REDUCERS SHALL BE MADE OF ⅜" GALVANIZED STRUCTURAL STEEL PLATES CONFORMING TO 518 AND 711.02.

STRUCTURAL STEEL TUBING SHALL BE PER 518, 707.11 AND 748.06.

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SPECIFIED AND IN ACCORDANCE WITH ITEM 748.06.

PAYMENT:

ALL MATERIALS, EQUIPMENT, DELIVERY AND LABOR NECESSARY IN THE FABRICATION AND INSTALLATION FOR THE SCUPPER AS DETAILED SHALL BE INCLUDED IN THE UNIT PRICE OF:

SCUPPER, INCLUDING SUPPORTS, AS PER PLAN.

DOWNSPOUT NOTES:

ALL DOWNSPOUTS TO BE GALVANIZED STEEL PIPE OF THE SIZE SHOWN IN THE PLANS AND IN ACCORDANCE WITH ITEMS 518.06 AND 748.06. ALL FIELD WELDS TO BE GALVANIZED PER 711.02 AND WITH THE APPROVAL OF THE ENGINEER.

DOWNSPOUTS SHALL BE CONNECTED TO THE BRIDGE SCUPPER ASSEMBLIES BY WELDING OR USE OF CLAMP TYPE COUPLINGS WITH RING GASKETS.

HORIZONTAL PIPE RUNS SHALL BE SUPPORTED BY USE OF HANGARS AND STRAPS ATTACHED TO THE CONCRETE BRIDGE DECK. STRAPS SHALL BE PLACED AT A MAXIMUM SPACING OF 6 FEET C/C.

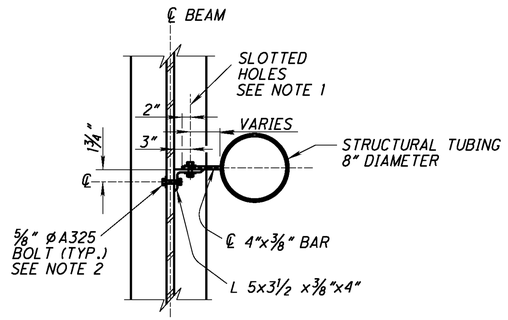
VERTICAL DOWNSPOUTS SHALL BE ATTACHED TO THE SUBSTRUCTURE BY USE OF STRAPS AND AT THE LOCATIONS INDICATED ON THE PLANS. THE DOWNSPOUT CONTRACTOR IS RESPONSIBLE FOR CONNECTING THE VERTICAL DOWNSPOUT TO THE UNDERGROUND PIPE DRAINAGE SYSTEM BY OTHERS.

ALL MATERIALS, EQUIPMENT, BENDS, WYES, TEES, CLEANOUTS, HORIZONTAL CONDUCTORS, HANGERS, FIELD GALVANIZING AND LABOR NECESSARY FOR THE FABRICATION AND INSTALLATION OF THE DOWNSPOUT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF:

PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN

FASTENER NOTES:

1. THE SIZE OF THE SLOTTED HOLES SHALL BE 11/16" x 1 9/16". THE SLOT SHALL BE HORIZONTAL IN THE 4" x ⅜" BAR AND VERTICAL IN THE ANGLE. BOLTS SHALL BE ⅝" DIAMETER A325 TYPE 1, GALVANIZED, WITH HEX NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513.
2. THE BOLTS SHALL BE ⅝" DIAMETER A325 TYPE 1 GALVANIZED EACH ASSEMBLY SHALL INCLUDE A BOLT, NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513. AFTER THE DECK CONCRETE HAS BEEN POURED, FIELD DRILL THE 13/16" DIAMETER HOLE IN THE WEB.



SECTION C-C

KZF DESIGN
DESIGN AGENCY
Architecture | Engineering | Interiors | Planning
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DESIGNED DEF | DRAWN RBK | REVIEWED BMB | DATE 11-29-10
CHECKED DAT | REVISED | STRUCTURE FILE NUMBER 31028017/3102815

SCUPPER DETAILS
BRIDGE HAM-50-1903 L/R
OVER VACANT LAND

HAM-50-18.79
PID No. 20082

65 / 65

589
657

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CALCULATED	CHECKED
RBK	DAT

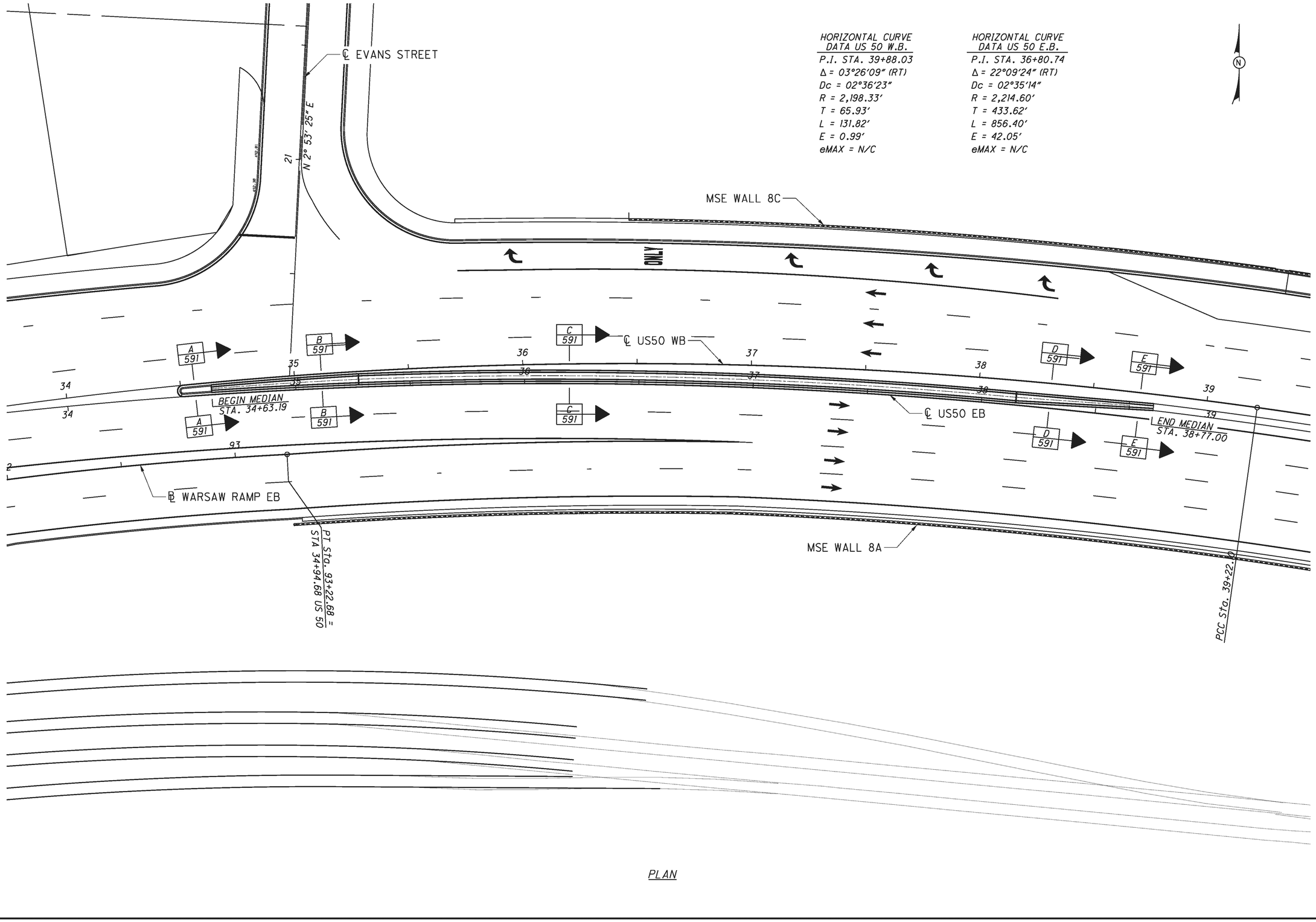
MEDIAN BARRIER AND FOUNDATION

HAM-50-18.79

590
657

HORIZONTAL CURVE DATA US 50 W.B.
P.I. STA. 39+88.03
Δ = 03°26'09" (RT)
Dc = 02°36'23"
R = 2,198.33'
T = 65.93'
L = 131.82'
E = 0.99'
eMAX = N/C

HORIZONTAL CURVE DATA US 50 E.B.
P.I. STA. 36+80.74
Δ = 22°09'24" (RT)
Dc = 02°35'14"
R = 2,214.60'
T = 433.62'
L = 856.40'
E = 42.05'
eMAX = N/C



PLAN

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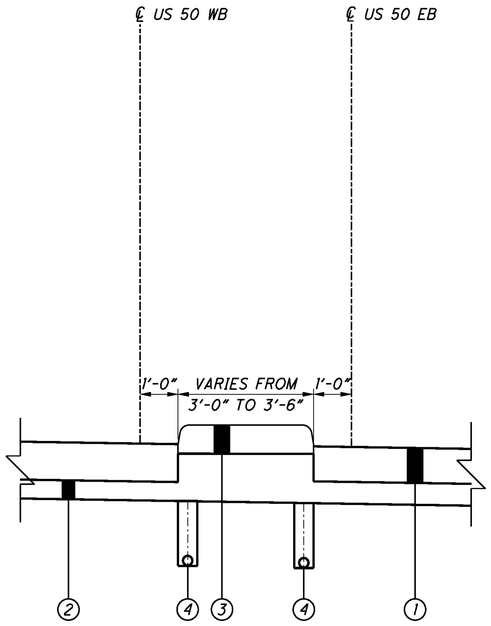
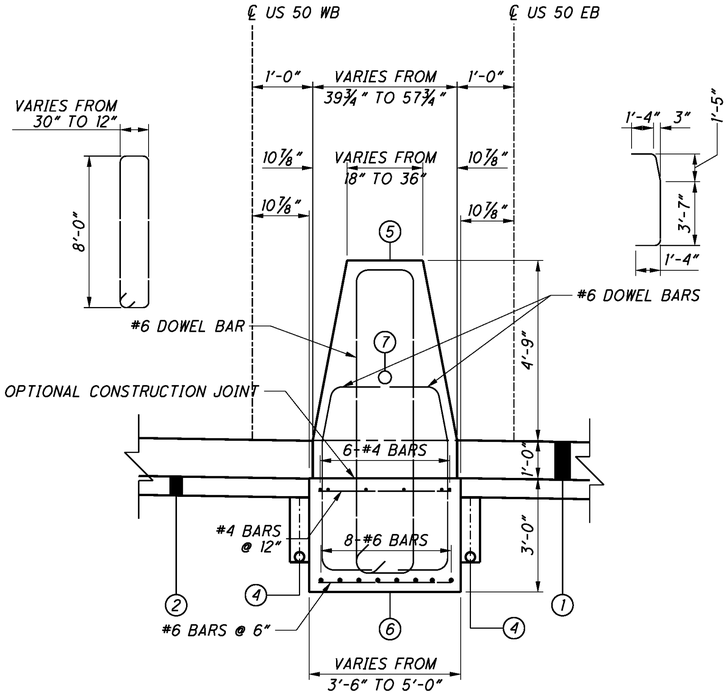
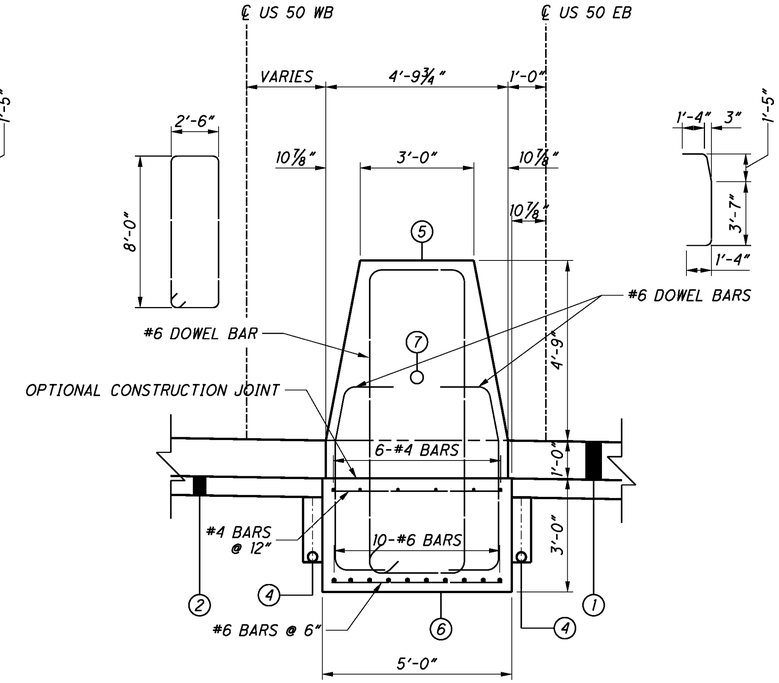


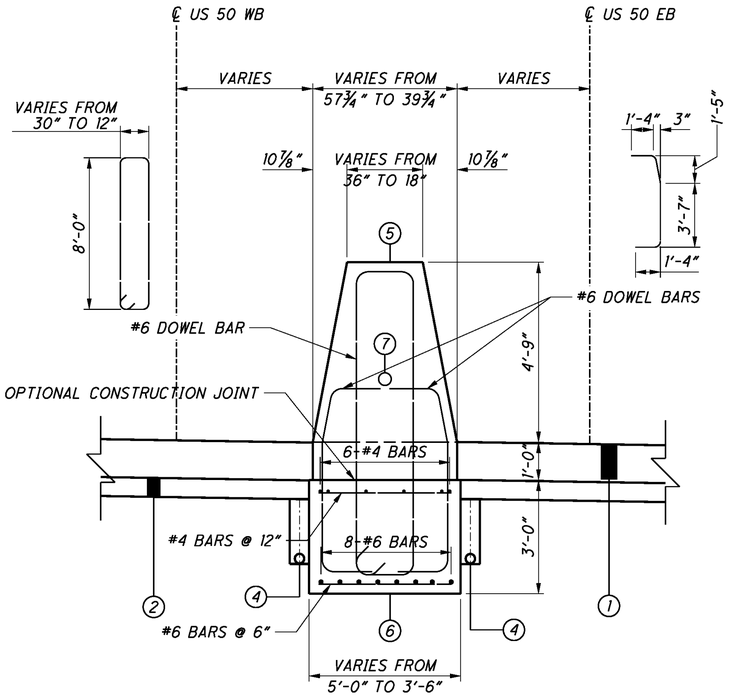
A 590 SECTION
FROM STA. 34+50.84
TO STA. 34+63.19



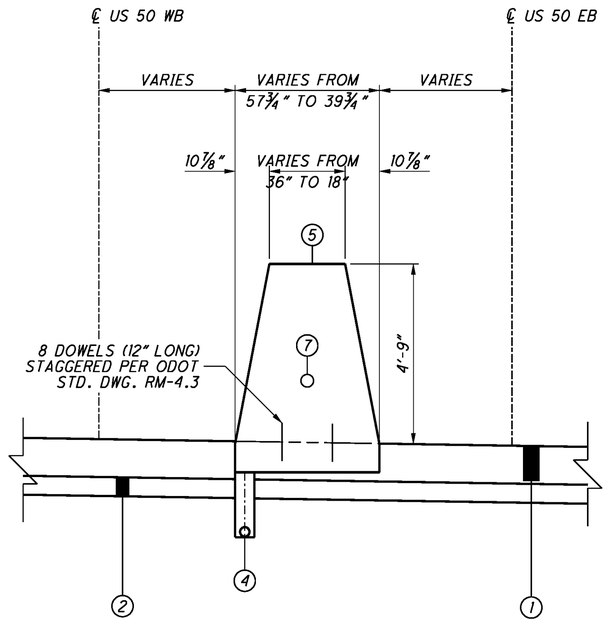
B 590 TRANSITION SECTION
FROM STA. 34+63.19
TO STA. 35+27.54



C 590 SECTION
FROM STA. 35+27.54
TO STA. 38+15.00



D 590 TRANSITION SECTION
FROM STA. 38+15.00
TO STA. 38+64.65



E 590 TRANSITION SECTION
FROM STA. 38+64.65
TO STA. 38+77.00

1. ITEM 305 - 12" CONCRETE PAVEMENT
2. ITEM 304 - 6" AGGREGATE BASE
3. ITEM 609 - 6" CONCRETE TRAFFIC ISLAND
4. ITEM 605 - 6" BASE PIPE UNDERDRAINS
5. ITEM 511 - CLASS C CONCRETE
6. ITEM 511 - CLASS C CONCRETE, FOOTING
7. ITEM 625 - CONDUIT, 4", 725.04 (INCLUDED IN HIGHWAY LIGHTING PAY ITEMS)

DESIGN DATA:
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI, ASTM A615

NOTES:
1. EPOXY COATED REINFORCING STEEL SHALL BE INCLUDED WITH PAYMENT FOR ITEM 511
2. SEE LIGHTING PLAN SHEETS FOR CONDUIT QUANTITIES
3. DRAINAGE INLETS AND UNDERDRAINS SHALL BE FIELD ADJUSTED
4. SEE DRAINAGE PLAN SHEETS FOR UNDERDRAIN QUANTITIES

CALCULATED RBK
CHECKED DAT

MEDIAN BARRIER AND FOUNDATION

HAM-50-18.79

591
657

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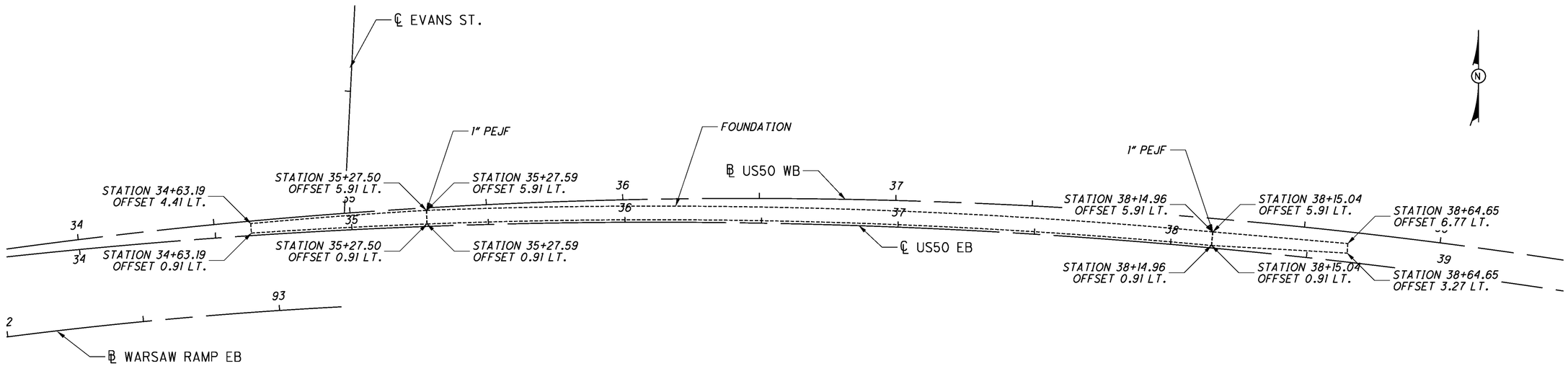
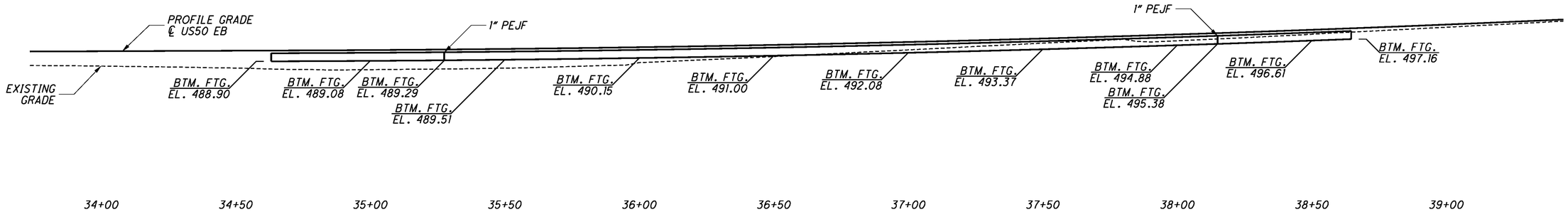


FOUNDATION PLAN



FOUNDATION PROFILE

CALCULATED BY:	RBK	DATE:	03/11/09
CHECKED BY:	DAT	DATE:	03/11/09

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
503	21300	LUMP		UNCLASSIFIED EXCAVATION
511	46000	332	CU YD	CLASS C CONCRETE
511	46500	214	CU YD	CLASS C CONCRETE, FOOTING
516	13600	36	SQ FT	1" PREFORMED EXPANSION JOINT FILLER
609	54000	43	SQ YD	6" CONCRETE TRAFFIC ISLAND

NOTES:
1. STATION AND OFFSETS FOR GATWAY ELEMENT FOOTING ARE MEASURED FROM ℄ CONSTRUCTION US 50 EASTBOUND
2. SEE ROADWAY SHEETS FOR PAVEMENT DETAILS AND PLAN AND PROFILE DETAILS

CALCULATED RBK
CHECKED DAT

MEDIAN BARRIER AND FOUNDATION

HAM-50-18.79

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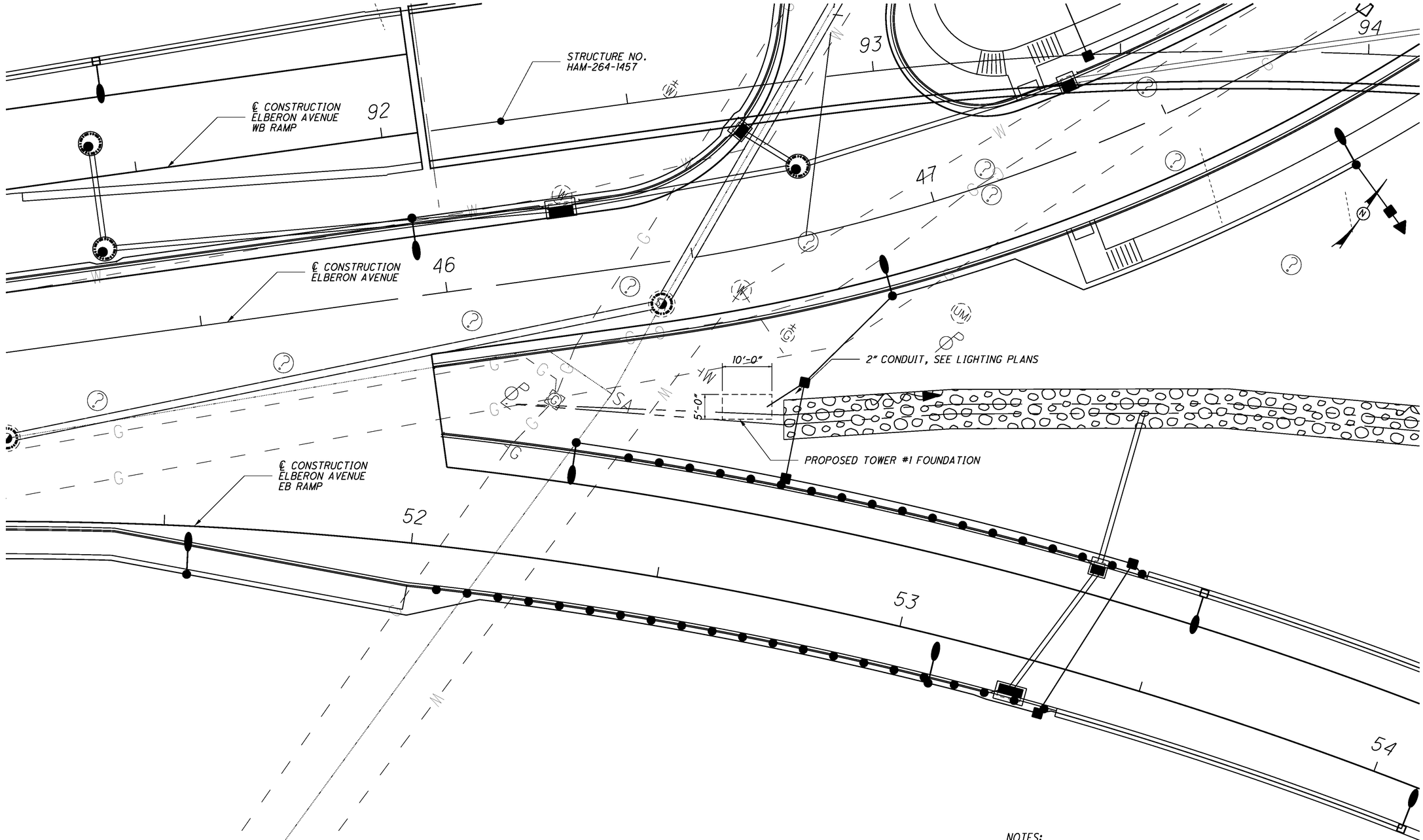

NOTES:

1. STATION AND OFFSETS FOR FOR TOWER ELEMENT FOOTING ARE MEASURED FROM ℄ CONSTRUCTION ELBERON AVENUE

CALCULATED RBK
CHECKED DAT

TOWER #1 FOUNDATION DETAILS

HAM-50-18.79

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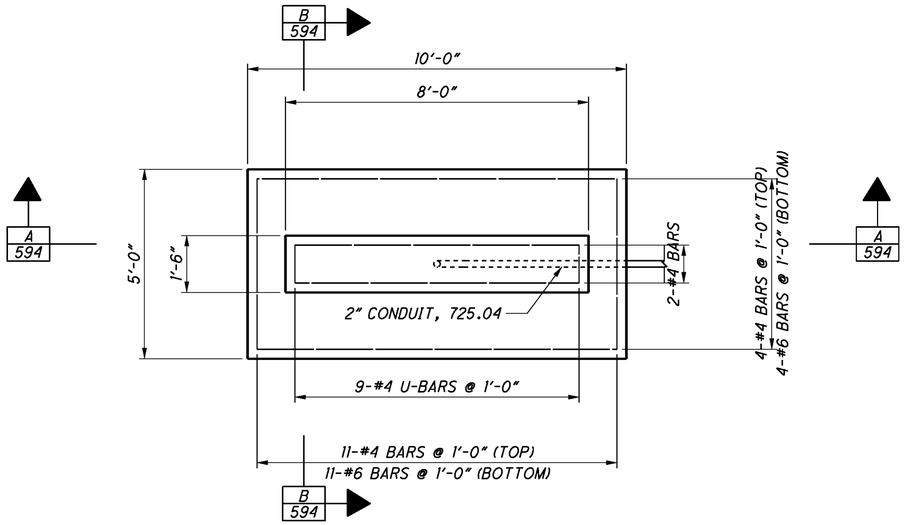
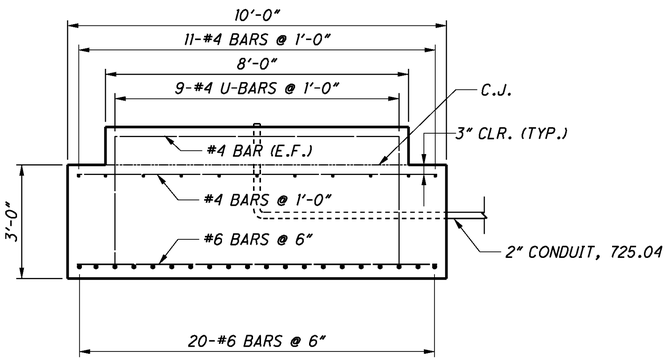
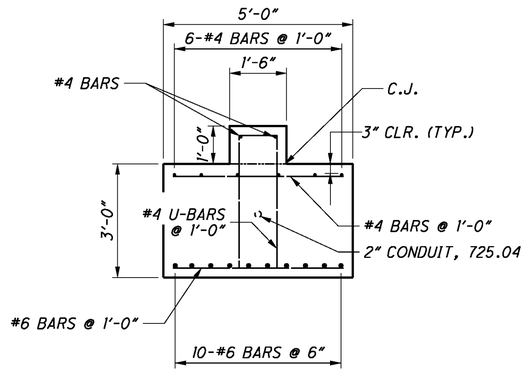


FOOTING PLAN



A 594 SECTION



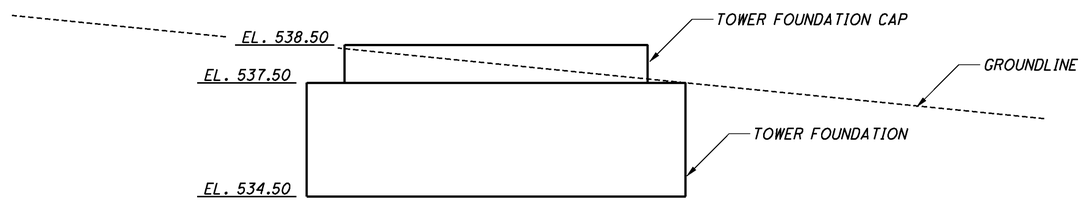
B 594 SECTION

CALCULATED BY: RBK DATE: 03/11/09
CHECKED BY: DAT DATE: 03/11/09

PARTICIPATION	ESTIMATED QUANTITIES				
100% LOCAL	ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
LUMP	503	21300	LUMP		UNCLASSIFIED EXCAVATION
1	511	46000	1	CU YD	CLASS C CONCRETE
6	511	46500	6	CU YD	CLASS C CONCRETE, FOOTING

DESIGN DATA:
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI, ASTM A615

NOTES:
1. EPOXY COATED REINFORCING STEEL SHALL BE INCLUDED WITH PAYMENT FOR ITEM 511
2. SEE LIGHTING PLAN SHEETS FOR CONDUIT QUANTITIES



TOWER #1 FOUNDATION ELEVATION

CALCULATED RBK
CHECKED DAT

TOWER #1 FOUNDATION DETAILS

HAM-50-18.79

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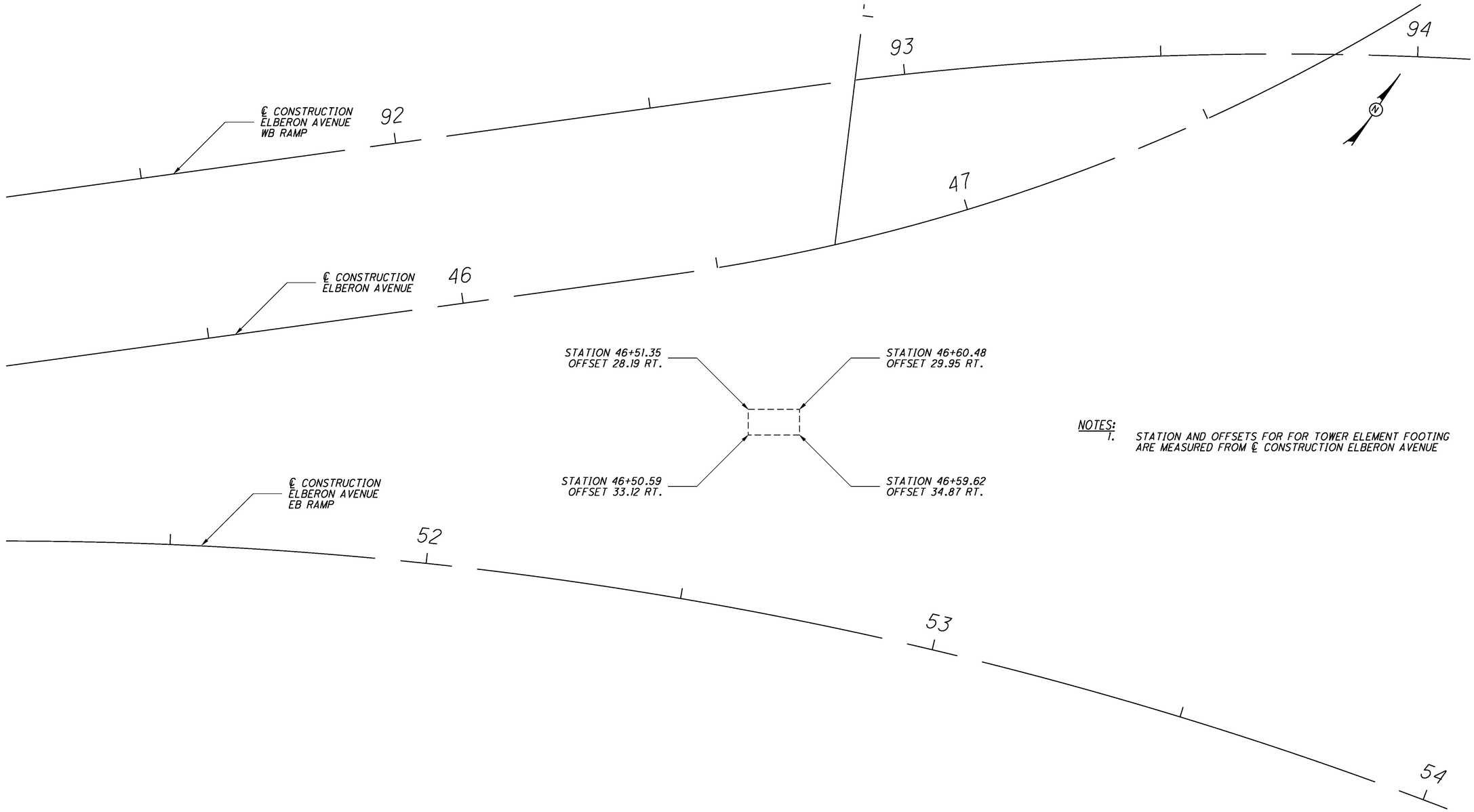

NOTES:

1. STATION AND OFFSETS FOR FOR TOWER ELEMENT FOOTING ARE MEASURED FROM ℄ CONSTRUCTION ELBERON AVENUE

CALCULATED RBK
CHECKED DAT

TOWER #1 FOUNDATION DETAILS

HAM-50-18.79

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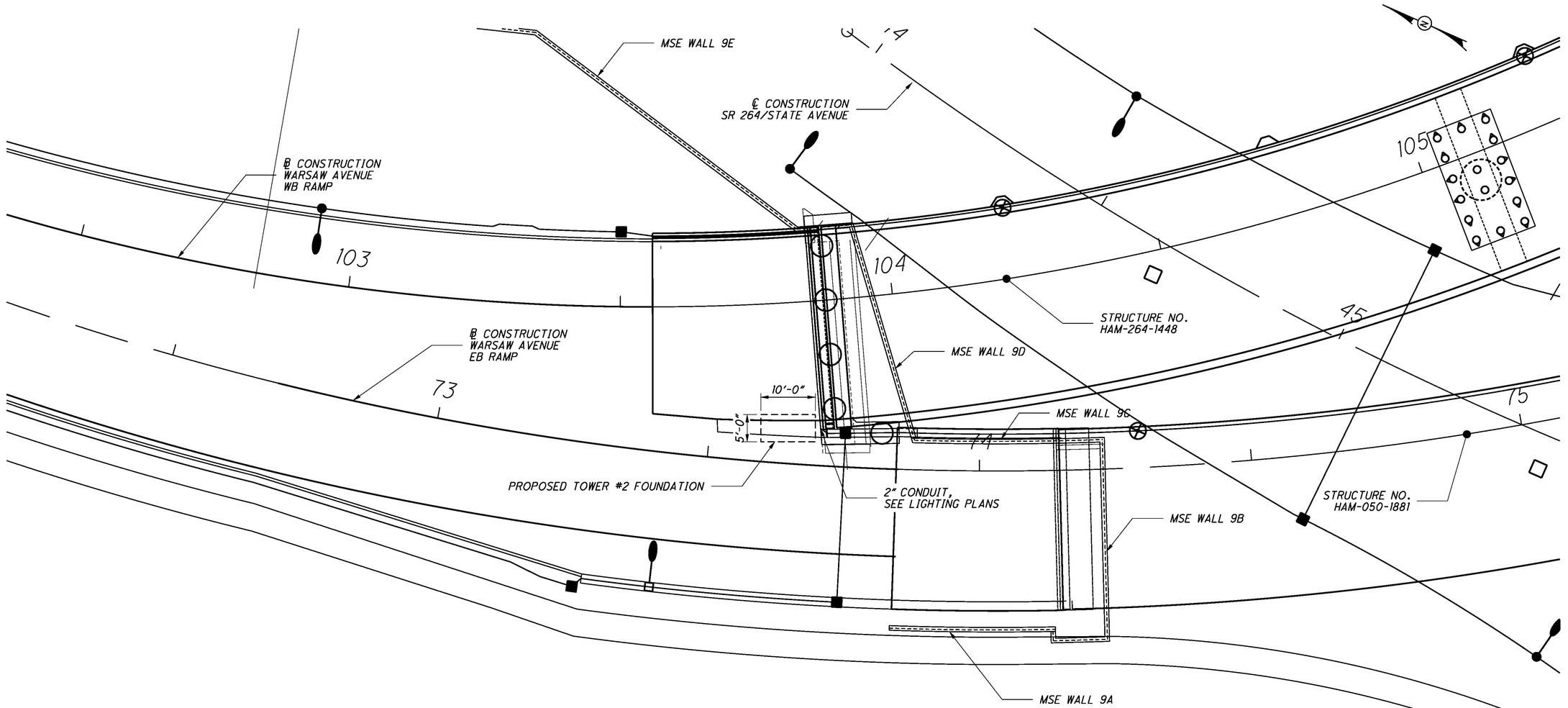

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CALCULATED RBK
CHECKED DAT

TOWER #2 FOUNDATION DETAILS

HAM-50-18.79

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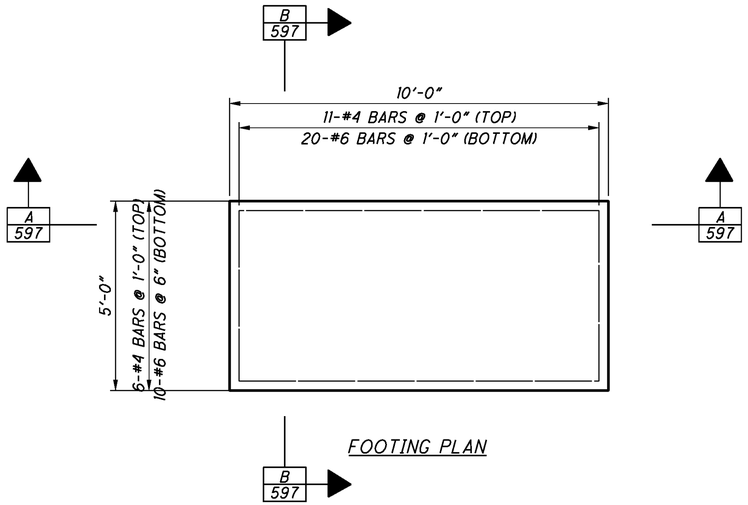
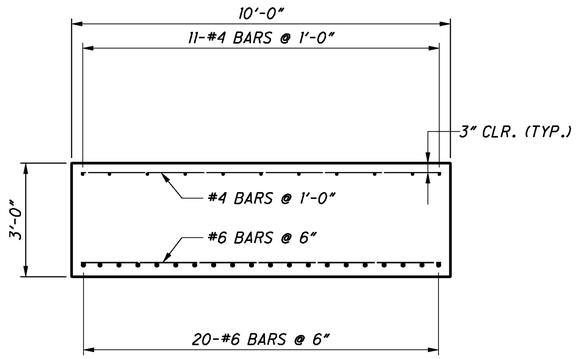
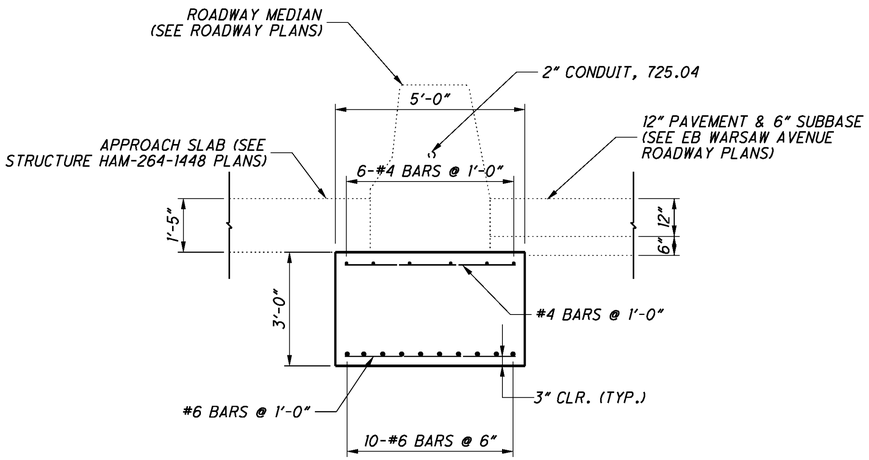


FOOTING PLAN



A 597 SECTION



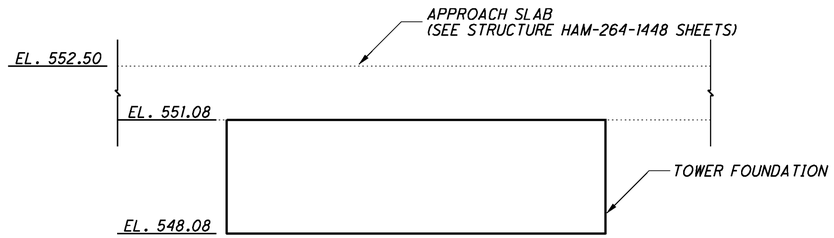
B 597 SECTION

CALCULATED BY: RBK	DATE: 03/11/09
CHECKED BY: DAT	DATE: 03/11/09

PARTICIPATION	ESTIMATED QUANTITIES				
100% LOCAL	ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
LUMP	503	21300	LUMP		UNCLASSIFIED EXCAVATION
6	511	46500	6	CU YD	CLASS C CONCRETE, FOOTING

DESIGN DATA:
CONCRETE CLASS C - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI, ASTM A615

NOTES:
1. EPOXY COATED REINFORCING STEEL SHALL BE INCLUDED WITH PAYMENT FOR ITEM 511
2. SEE LIGHTING PLAN SHEETS FOR CONDUIT QUANTITIES



TOWER FOUNDATION #2 ELEVATION

CALCULATED RBK
CHECKED DAT

TOWER #2 FOUNDATION DETAILS

HAM-50-18.79

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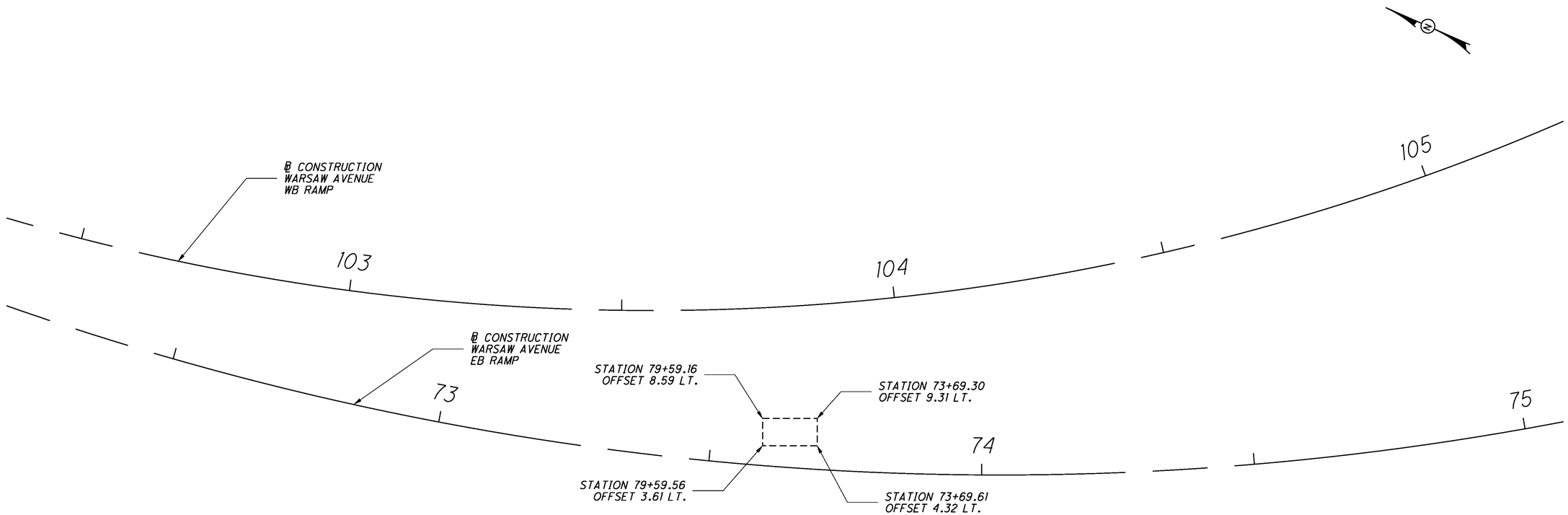

NOTES:

1. STATION AND OFFSETS FOR FOR TOWER ELEMENT FOOTING ARE MEASURED FROM ℄ CONSTRUCTION WARSAW AVENUE EB RAMP

CALCULATED RBK
CHECKED DAT

TOWER #2 FOUNDATION DETAILS

HAM-50-18.79

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	GENERAL SUMMARY						
ODOT ITEM	ODOT ITEM NUMBER AND/OR EXTENSION	100% PROJECT COST	100% GCWW COST	TOTAL QUANTITY	UNITS	DESCRIPTION	GCWW SPEC. NUMBER
SPECIAL	638E80500	20		0	FT.	FURNISHING AND LAYING 4" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E80600	232		0	FT.	FURNISHING AND LAYING 6" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E80700	459		0	FT.	FURNISHING AND LAYING 8" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E80800	31		0	FT.	FURNISHING AND LAYING 10" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E80900	158		0	FT.	FURNISHING AND LAYING 12" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E81000	2079		0	FT.	FURNISHING AND LAYING 16" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E81200	16		0	FT.	FURNISHING AND LAYING 24" DUCTILE IRON PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E81600	750		0	FT.	FURNISHING AND LAYING 24" PRESTRESSED CONCRETE WATER PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E81800	232		0	FT.	FURNISHING AND LAYING 36" PRESTRESSED CONCRETE WATER PIPE AND FITTINGS (CIN. 1101)	1101
SPECIAL	638E82000	6		0	TON	HAULING WATER WORK MATERIAL (CIN. 1102)	1102
SPECIAL	638E84500	66		0	CU. YD.	CONCRETE, CLASS C (CIN. 1110)	1110
SPECIAL	638E85800	11		0	EACH	FURNISHING AND INSTALLING FIRE HYDRANT (CIN. 1112)	1112
SPECIAL	638E86000	5		0	EACH	REMOVING FIRE HYDRANT (CIN. 1114)	1114
SPECIAL	638E86100	7		0	EACH	FURNISHING AND INSTALLING 6" FIRE HYDRANT EXTENSION (CIN. 1115)	1115
SPECIAL	638E86100	4		0	EACH	FURNISHING AND INSTALLING 18" FIRE HYDRANT EXTENSION (CIN. 1115)	1115
SPECIAL	638E86300	14		0	EACH	FURNISHING AND INSTALLING VALVE BOX, COMPLETE (CIN. 1116)	1116
SPECIAL	638E86300	2		0	EACH	FURNISHING AND INSTALLING VALVE BOX W 1" AIR RELEASE, COMPLETE (CIN. 1116)	1116
SPECIAL	638E86300	15		0	EACH	FURNISHING AND INSTALLING VALVE BOX W 2" AIR RELEASE, COMPLETE (CIN. 1116)	1116
SPECIAL	638E86302	6		0	EACH	FIELD WELDING TIE JOINT (CIN. 1117)	1117
SPECIAL	638E86400	100		0	CU. YD.	*ADDITIONAL EXCAVATION (CIN. 1119)	1119
SPECIAL	638E86404	100		0	CU. YD.	*EXPLORATORY EXCAVATION (CIN. 1120)	1120
SPECIAL	638E86600	6		0	EACH	REMOVING EXISTING MANHOLE CURB AND COVER (CIN. 1122)	1122
SPECIAL	638E86700	13		0	EACH	REMOVING EXISTING VALVE BOX (CIN. 1122)	1122
SPECIAL	638E86800	100		0	FT.	*CHANGING 8" AND UNDER PIPE SEWER (CIN. 1123)	1123
SPECIAL	638E86900	100		0	FT.	*CHANGING 10" THRU 24" PIPE SEWER (CIN. 1123)	1123
SPECIAL	638E87100	22		0	EACH	RESETTING EXISTING VALVE BOX, COMPLETE (CIN. 1125)	1125
SPECIAL	638E87300	72		0	FT.	HAULING, INSTALLING AND CONNECTING 1" COPPER SERVICE PIPE (CIN. 1126)	1126
SPECIAL	638E87500	80		0	FT.	HAULING, INSTALLING AND CONNECTING 2" COPPER SERVICE PIPE (CIN. 1126)	1126
SPECIAL	638E88500	1		0	EACH	DISCONNECTING EXISTING (3/4)" SERVICE BRANCH (CIN. 1130)	1130
SPECIAL	638E88700	2		0	EACH	FURNISHING AND INSTALLING CURB AND ROADWAY BOX (CIN. 1131)	1131
SPECIAL	638E90300	1		0	EACH	REMOVING CURB AND ROADWAY BOX (CIN. 1138)	1138
509	E25000	7874		0	POUND	REINFORCING STEEL	509
602	E98200	1		0	CU. YD.	*BRICK MASONRY	602
604	E34501	9		0	EACH	MANHOLE ADJUSTED TO GRADE	604
638	E11500	1		0	MBF	*SHEETING AND BRACING ORDERED LEFT IN PLACE	637
202	202E98200	600		0	L.F.	*STREET CAR RAILS REMOVED	202
	* CONTINGENCY						

CAUTION UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG

CALL 1-800-362-2764 (TOLL FREE)
(IT'S THE LAW)

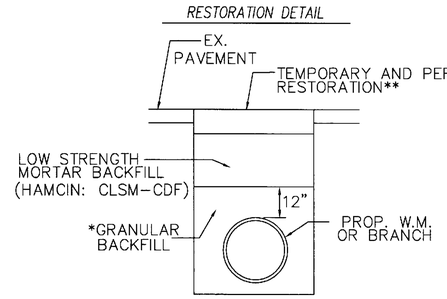
OhioEPA

Ohio Environmental Protection Agency
"Self-Certification" letter required prior to the start of construction.

☒ OEPA CERTIFICATION EXEMPT

Supervising Engineer - Design 6/11/10

RESTORATION DETAIL



*BACKFILL OF THE WATER MAIN TRENCH SHALL BE DONE IN ACCORDANCE WITH C.W.W. SPECIFICATIONS. ALL WATER MAIN(S) LOCATED OUTSIDE OF THE PAVEMENT AREA SHALL UTILIZE GRANULAR BACKFILL IN LIEU OF THE CONTROL DENSITY FILL. ALL OF THESE COSTS SHALL BE INCLUDED UNDER ITEM 1101, "FURNISHING AND INSTALLING DUCTILE IRON PIPE AND FITTINGS".

**TEMPORARY AND PERMANENT RESTORATION SHALL BE DONE IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND/OR PROJECT PLAN TYPICAL SECTIONS. IN AREA(S) WHERE THE EXISTING PAVEMENT; BASE AND/OR SUB-BASE ARE NOT TO BE DISTURBED, THE COST FOR PAVEMENT RESTORATION SHALL BE INCLUDED IN THE APPROPRIATE CONTRACTOR'S UNIT BID PRICE FOR ITEM 1101 OR ITEM 1126. IN THOSE AREAS WHERE THE PAVEMENT; BASE AND/OR SUB-BASE IS TO BE REPLACED UNDER THE ROADWAY CONTRACT, THE COST FOR PAVEMENT RESTORATION SHALL BE INCLUDED UNDER THE APPROPRIATE PAVEMENT BID ITEMS.

CONTROLLED DENSITY FILL MUST MEET BOTH HAMCIN: CLSM-CDF PERFORMANCE SPECIFICATION AND O.D.O.T. SPECIFICATION. ALL FLOWABLE FILL PRODUCTS SHALL MEET THE REQUIREMENTS OF THE CURRENT CINCINNATI WATER WORKS MATERIALS TESTING AND SPECIFICATIONS FOR FLOWABLE FILL PRODUCTS (DATED 2/8/99). THE C.W.W. REQUIREMENT IS IN ADDITION TO HAMCIN SPECIFICATIONS FOR FLOWABLE FILL PRODUCTS. COPIES OF THE C.W.W. REQUIREMENT ARE MADE AVAILABLE AT THE C.W.W. ENGINEERING OFFICES AT 4747 SPRING GROVE AVENUE, CONTACT; RUSS WEBER AT 591-7862. ALSO, THE CONTRACTOR SHALL SUBMIT, PRIOR TO THE START OF CONSTRUCTION, THE NECESSARY DOCUMENTATION FOR REVIEW AND APPROVAL BY THE C.W.W.

INDEX

GENERAL SUMMARY 1
GENERAL PROVISIONS 1A
SUGGESTED BILL OF MATERIALS 1B
PLAN / PROFILE 6-14
RESTORATION DETAILS 1

APPROVED:

STATE OF OHIO
JASON A. FLEMING
E-67710
REGISTERED
PROFESSIONAL ENGINEER

SUPERVISING ENGINEER - DESIGN 6/11/10 DATE

PRINCIPAL ENGINEER - SYSTEM FACILITIES 6/11/10 DATE

CHIEF ENGINEER 6/11/10 DATE

CINCINNATI FIRE DEPARTMENT

CINCINNATI WATER WORKS
ENGINEERING DIVISION
June, 2010

Revisions		
No.	By	Date

Designed By:

Drawn By:

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C. CHECKED J.A.F.

HAM 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 - 4-3474

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Notice of Confidentiality – Public Infrastructure Record

This Document is a Public Infrastructure Record of the City of Cincinnati and its Greater Cincinnati Water Works, and is not subject to the public disclosure requirements of the public records laws of the State of Ohio and federal government. This Document is being provided on the basis of your reported need, and shall be considered confidential. By accepting this Document, you agree that it will not be shared or otherwise disclosed to anyone other than persons who have a direct need to know for the sole purpose of carrying out the project for which this Document was obtained. Anyone receiving this Document is bound by the same confidentiality requirements and must take precautions to protect against its dissemination.

The failure to observe the confidentiality requirements of this Notice shall serve as the basis for the City of Cincinnati to immediately seek legal recourse, including the recovery of actual damages resulting from unauthorized access or disclosure of this Document.

GENERAL PROVISIONS

THE CONTRACTOR IS ADVISED THAT THERE ARE SEVERAL CHANGES TO THE MOST RECENT EDITION OF THE CITY OF CINCINNATI SUPPLEMENT DATED JANUARY 1, 2008. THESE GENERAL PROVISIONS INCLUDE THESE CHANGES. THE SUPPLEMENT AND A SUMMARY OF CHANGES CAN BE PURCHASED OR DOWNLOADED FROM THE CITY'S WEBSITE: HTTP: //WWW.CINCINNATI-OH.GOV/TRANSENG/PAGES/-7297-/.

WATER MAIN ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS, DATED JANUARY 1, 2008, AND MODIFIED BY THE CITY OF CINCINNATI SUPPLEMENT TO SAID STATE OF OHIO SPECIFICATIONS, EFFECTIVE JANUARY 1, 2008, AND ANY SUPPLEMENTS OR CHANGES THERETO. COPIES OF THE STATE SPECIFICATIONS ARE ON FILE AT THE OFFICE OF CONTRACT SALES OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, 25 SOUTH FRONT STREET,COLUMBUS, OHIO, AND AT THE OFFICES OF THE CITY ENGINEER OF CINCINNATI, OHIO. SUBMITTAL OF A BID FOR THIS PROJECT IMPLIES THAT THE CONTRACTOR HAS TAKEN ALL PROVISIONS OF THE SUPPLEMENT INTO ACCOUNT.

WATER MAIN ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF CINCINNATI, DEPARTMENT OF PURCHASING, STANDARD SPECIFICATION NO. 4-11-74 TITLED SUPPLEMENTAL CONDITIONS - HEAVY CONSTRUCTION WORK.

THE GREATER CINCINNATI WATER WORKS (GCWW) UNDERSTANDS THAT DIFFERING SITE CONDITIONS RESULTS IN EXTRA WORK/CHANGE ORDERS TO THE PROJECT. CHANGE ORDERS ON GCWW CONTRACTS WILL BE DONE IN STRICT ACCORDANCE WITH ITEM 109.05 C OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 2008 OR MOST RECENT EDITION AND AS MODIFIED IN THIS CITY OF CINCINNATI SUPPLEMENT. GCWW LIMITS THE MARK UP ON WAGES AND FRINGE BENEFITS AS DESCRIBED IN 109.05 C. 2. "LABOR" TO 30%. IT IS EXPRESSLY UNDERSTOOD THAT REGARDLESS OF THE NATURE OF THE CLAIM, OR CHANGE IN SCOPE OF WORK, THE CONTRACTOR IS NOT ENTITLED TO COMPENSATION FOR LOSS OF ANTICIPATED PROFIT OR PRODUCTION.

AS DEFINED IN THE CITY OF CINCINNATI SUPPLEMENT, SECTIONS 107.07 AND 107.071, THE CONTRACTOR IS REQUIRED TO SUBMIT, AT THE TIME OF THE PRE-CONSTRUCTION MEETING, A SITE SAFETY PLAN. FURTHERMORE, THE CONTRACTOR SHALL HAVE AN AUTHORIZED AND COMPETENT SAFETY REPRESENTATIVE ASSIGNED TO THE PROJECT SITE.

THE CONTRACTOR IS ADVISED THAT HE HAS CERTAIN RESPONSIBILITIES UNDER SECTION 153.64 OF THE OHIO REVISED CODE. FOR ALL UNDERGROUND UTILITIES, CONTACT THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 (TOLL FREE) 48 HOURS IN ADVANCE OF WORK. THE CONTRACTOR IS ADVISED THAT ALL UTILITY INFORMATION HAS BEEN SHOWN ON THE CONTRACT PLANS FROM INFORMATION PROVIDED BY THE OWNER OF EACH UTILITY IN COMPLIANCE WITH SEC. 153.64 OF THE OHIO REVISED CODE. IN CASES WHERE UTILITY INFORMATION IS INCORRECT AND IT RESULTS IN A CHANGE IN THE CONTRACT PLANS THE CONTRACTOR SHALL FIRST NOTIFY THE OWNER OF THE UTILITY TO DETERMINE THE NECESSARY COURSE OF ACTION. THE CONTRACTOR SHALL SUBMIT ANY SUBSEQUENT CLAIMS AS A RESULT OF DOWNTIME OR ADDITIONAL WORK TO THE OWNER OF THE CONFLICTING UTILITY. THE GCWW WILL NOT ACCEPT CLAIMS FOR ANY UTILITY OTHER THAN THOSE AS A RESULT OF INCORRECT WATER MAIN AND RELATED APPURTENANCE INFORMATION.

THE CONTRACTOR MUST LOCATE OR "POT HOLE" ALL UTILITIES WITHIN THE ALIGNMENT OF THE PROPOSED MAIN A MINIMUM OF 50 FEET AHEAD OF PIPE LAYING. TEST HOLES MUST BE DUG, OR TRENCH EXCAVATED, A MINIMUM OF 50 FEET (15.2 M) IN ADVANCE OF PIPE LAYING, TO ASSURE PROPER CLEARANCE BETWEEN THE WATER MAIN AND ANY UTILITY CROSSING, OR UNDERGROUND STRUCTURE. ALL UTILITIES AND STRUCTURES SHALL BE SUITABLY BRACED AND SUPPORTED. THE CONTRACTOR SHALL UNDERSTAND THAT ANY OBSTRUCTIONS ENCOUNTERED IN THE INSTALLATION OF THE MAIN, DUE TO THE FAILURE OF HAVING 50 FEET (15.2M) OF TRENCH EXCAVATED AHEAD OF LAYING OPERATIONS, MAY REQUIRE REMOVAL AND RELAYING OF THE PIPE AT THE AT THE CONTRACTORS EXPENSE. THE GCWW WILL NOT ACCEPT A CLAIM FOR DIFFERENT UTILITY CONDITIONS ENCOUNTERED WHEN TEST HOLES ARE NOT PERFORMED AS REQUIRED.

ITEM 1120, "EXPLORATORY EXCAVATION", SHALL NOT INCLUDE EXCAVATIONS WITHIN THE LIMITS OF THE PROPOSED TRENCH AS DEFINED IN 1101.04 AND 1101.05. TEST HOLES ARE REQUIRED ON ALL UTILITIES WITHIN 50 FEET OF THE LAST LAID PIPE. TEST HOLES WITHIN THE ALIGNMENT OF THE PROPOSED TRENCH ARE INCLUDED IN THE CONTRACTOR'S UNIT BID FOR ITEM 1101. LOCATIONS TO BE EXPLORED WILL VARY FROM AREAS WITHIN THE ROADWAY TO AREAS OUTSIDE OF THE ROADWAY.

IT IS THE NATURE OF CONSTRUCTION THAT UNMARKED UTILITIES OR UTILITIES NOT SHOWN ON THE PLANS MAY BE ENCOUNTERED WITHIN THE EXCAVATION FOR THE PROPOSED WORK. THE CONTRACTOR IS RESPONSIBLE TO IDENTIFY AND REMOVE ANY ABANDONED UTILITIES ENCOUNTERED THAT CROSS THE EXCAVATION. NO EXTRA PAYMENT WILL BE MADE TO THE CONTRACTOR FOR THE IDENTIFICATION AND REMOVAL OF THE ABANDONED UTILITY. ALL COSTS SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT PRICE BID FOR THE APPROPRIATE ITEM 1101-FURNISHING & LAYING PIPE AND FITTINGS." IF ABANDONED UTILITIES ARE ENCOUNTERED ALONG THE LENGTH OF THE TRENCH, THE CONTRACTOR MAY BE REQUIRED TO REMOVE THE ABANDONED UTILITY AS DIRECTED BY THE PROJECT ENGINEER. SUCH WORK WOULD BE PAID UNDER A CHANGE ORDER.

STREET PAVEMENT OR SIDEWALK SHOULD NOT BE DISTURBED FOR A DISTANCE OF MORE THAN 200 FEET (61.0 M) AHEAD OF THE LAST LAID PIPE. BACKFILL SHALL BE COMPLETED WITHIN 50 FEET (15.2 M) OF THE LAST LAID PIPE. TEMPORARY OR PERMANENT SURFACE RESTORATION MUST BE INSTALLED WITHIN A DISTANCE OF 200 FEET (61.0 M) OF THE LAID PIPE, INCLUDING THOSE AREAS WHERE MAIN INSTALLATIONS OCCUR WITHIN A CLOSED LANE OR CLOSED STREET CONDITION. ROADWAY PLATES MAY BE USED AS A TEMPORARY MEASURE FOR A PERIOD NOT TO EXCEED 24 HOURS WITHOUT THE APPROVAL OF THE GCWW.

ANY UNDERMINED PAVEMENT OF MORE THAN 6 INCHES HORIZONTAL MUST BE REMOVED PRIOR TO STARTING TRENCH BACKFILL. IF UNDERMINING OF PAVEMENT OCCURS MORE THAN 1 FOOT, THEN PAVEMENT MUST BE SHORED TO PROTECT TRAFFIC, OR ARRANGEMENTS MADE FOR ADDITIONAL LANE CLOSURES MUST BE MADE. IF PROBLEMS CONTINUE TO OCCUR REGARDING TRENCHING INTEGRITY, SHEETING AND BRACING CAN BE REQUIRED BY THE CITY ENGINEER OR THE CITY ENGINEER'S REPRESENTATIVE, AT THE CONTRACTOR'S EXPENSE. IF ANY TUNNELING IS NECESSARY, ADEQUATE INFORMATION SHOWN IN BOTH PLAN AND PROFILE AND TUNNELING PROCEDURES MUST BE SUBMITTED TO THE CITY ENGINEER'S OFFICE PRIOR TO COMMENCEMENT OF WORK.

THE GCWW HAS MADE EVERY EFFORT TO DEPICT THE PIPE SEWERS AND LATERAL INFORMATION ON THE PLANS. THE CONTRACTOR IS ADVISED THAT SEWER LATERALS ARE SHOWN IN PLAN VIEW ONLY. THE CONTRACTOR SHALL DETERMINE THE ELEVATION OF THE SEWER LATERALS IN ADVANCE OF LAYING THE WATER MAIN AT THESE CROSSINGS. IF THE SEWER LATERALS REQUIRE CHANGING IN ORDER TO AVOID CONFLICT WITH THE WATER MAIN, OR IF THE CONTRACTOR ENCOUNTERS A PIPE SEWER OR LATERAL IN THE EXCAVATION THAT WAS NOT SHOWN ON THE PLANS AND REQUIRES A CHANGE OF GRADE OR ALIGNMENT DUE TO THE INSTALLATION OF THE WATER MAIN, THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIAL, TOOLS, AND EQUIPMENT REQUIRED TO CHANGE THE GRADE OR ALIGNMENT OF PIPE SEWERS AND LATERALS OF VARIOUS SIZES, ALLOWING INSTALLATION OF WATER MAINS AND APPURTENANCES AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE GCWW INSPECTOR. THIS WORK SHALL INCLUDE ALL NECESSARY EXCAVATION, BACKFILL, AND RESTORATION. THE CONTRACTOR WILL BE COMPENSATED UNDER ITEM 1123, "CHANGING PIPE SEWERS 8 INCH AND UNDER". WHEN CROSSING SANITARY AND COMBINATION SEWERS, A VERTICAL CLEARANCE OF 18" MUST BE MAINTAINED.

THE CONTRACTOR IS RESPONSIBLE FOR ALL PIPE SEWERS DISTURBED IN THE COMPLETION OF THIS PROJECT. IN THE EVENT IT BECOMES NECESSARY TO REPAIR OR REPLACE EXISTING PIPE SEWERS, THE CONTRACTOR MUST NOTIFY SEWER MAINTENANCE, 244-1369, BEFORE PROCEEDING WITH THE WORK.
FINAL RESTORATION SHALL BE DONE IN ACCORDANCE WITH THE RESTORATION DETAIL DRAWING AS SHOWN ON SHEET 1.

THE CONTRACTOR IS ADVISED THAT DUE TO THE ALIGNMENT OF THE PROPOSED WATER MAIN, IT MAY BE NECESSARY TO A TEMPORARY VALVE BOX OVER AN EXISTING CHAMBERED VALVE THAT MUST REMAIN IN SERVICE DURING THE WATER MAIN INSTALLATION AS DIRECTED BY THE GCWW INSPECTOR. THE CHAMBER SHALL BE ABANDONED, A VALVE BOX (FURNISHED BY THE CONTRACTOR) PLACED OVER THE VALVE, AND UPON PROJECT COMPLETION, THE VALVE BOX MUST BE REMOVED. THE CONTRACTOR WILL NOT RECEIVE ADDITIONAL COMPENSATION FOR THIS WORK, BUT SHOULD INCLUDE THE COST OF THIS WORK IN HIS UNIT BID PRICE FOR ITEM 1101, "FURNISHING & LAYING DUCTILE IRON PIPE AND FITTINGS".

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE WATER SUPPLY FOR DOMESTIC AND FIRE FIGHTING PURPOSES. IN ORDER TO ACCOMPLISH THE WATER MAIN CONNECTIONS WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE CONSUMERS, IT MAY BE NECESSARY TO DO THE WORK AT OTHER THAN NORMAL WORKING HOURS OR AS MAY BE SCHEDULED BY THE THE CONTRACTOR IS ADVISED THAT THE OPERATING PRESSURE OF THE EXISTING WATER MAIN WITHIN THE LIMITS OF THE SUBJECT PROJECT IS APPROXIMATELY 49-55 P.S.I.

IN ORDER TO MINIMIZE THE INCONVENIENCE OF THE CONSUMERS, THE NUMBER OF SHUTDOWNS REQUIRED TO DO THE PROPOSED WATER MAIN WORK SHALL BE LIMITED. ONLY ONE SHUTDOWN, LIMITED TO 8 HOURS, WILL BE ALLOWED DURING A 24 HOUR PERIOD.

ALL GAS SERVICE BRANCHES HAVE A MINIMUM COVER OF 18 INCHES. ALL WATER SERVICE BRANCHES HAVE A MINIMUM COVER OF 3.0 FEET.

THE CONTRACTOR IS ADVISED THAT IT SHALL BE NECESSARY TO INSTALL TEMPORARY PLUGS/CAPS ON THE EXISTING AND PROPOSED WATER MAINS IN ORDER TO MAINTAIN SERVICE DURING TESTING AND WATER MAIN AND BRANCH CONNECTIONS. THESE TEMPORARY PLUGS SHALL BE FURNISHED BY THE CONTRACTOR. HE IS RESPONSIBLE FOR THEIR PROPER INSTALLATION. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR THE APPROPRIATE ITEM 1101, "FURNISHING & LAYING DUCTILE IRON PIPE AND FITTINGS".

THE CONTRACTOR IS REQUIRED TO EXCAVATE AND EXPOSE THE EXISTING UTILITIES AND EXISTING WATER MAINS ALONG THE LINE OF THE PROPOSED WATER MAIN AND ALL PROPOSED CONNECTION POINTS TO VERIFY LOCATION, DIAMETER, LINE AND GRADE.ALSO, IF THE REMOVAL OF THE BULKHEAD OR PLUG IS REQUIRED ALL EXCAVATION AND TEMPORARY/PERMANENT RESTORATION SHALL BE COMPENSATED UNDER THE CONTRACTOR'S UNIT BID PRICE FOR ITEM 1101, "FURNISHING & LAYING DUCTILE IRON PIPE AND FITTINGS".

THE CONTRACTOR IS ADVISED THAT ALL C.J. PLUGS ARE TO BE RESTRAINED WITH A FIELD LOK GASKET AND ALL M.J. CAPS ARE TO BE RESTRAINED USING A MEGALUG ASSEMBLY. THIS INCLUDES TEMPORARY PLUGS AND CAPS FOR TESTING PURPOSES. WHEN A TEMPORARY PLUG IS USED, THE CONTRACTOR IS PERMITTED TO REMOVE THE PLUG BY CUTTING THE SECTION OF PIPE CONTAINING THE PLUG AND USING A SOLID SLEEVE AT THAT POINT TO COMPLETE THE TIE-IN.

IN THE EVENT THAT A CAP IS USED, THE CONTRACTOR SHALL REMOVE THE MEGALUG ASSEMBLY AND CAP BEFORE COMPLETING THE TIE-IN.

THE CONTRACTOR IS ADVISED THAT ON ANY FIRE HYDRANT REQUIRED TO BE RELOCATED WITH THIS PROJECT, ALL BOLT ASSEMBLIES SHALL BE REPLACED. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 1113 "RELOCATING EXISTING FIRE HYDRANTS". NO PART OF ANY FIRE HYDRANT SETTING SHALL BE INSTALLED CLOSER THAN FIVE FEET TO ANY DRIVEWAY, INLET, UTILITY POLE OR GUY WIRE ANCHOR.

ITEM 1111, "WATER WORKS VALVE CHAMBERS", SHALL ALSO COVER THE FURNISHING AND INSTALLING OF PRECAST REINFORCED CONCRETE CHAMBERS IN ACCORDANCE WITH O.D.O.T. SPECIFICATION 706.13. ALL PERTINENT PROVISIONS OF THIS ITEM AND GCWW STANDARD DRAWING NO. 104-1A SHALL APPLY. PRECAST CHAMBERS SHALL BE USED IN ALL LOCATIONS WHERE SPACE PERMITS AND AS DIRECTED BY THE GCWW. AIR COCKS MAY BE NECESSARY FOR THE PROPER OPERATION OF THE WATER SYSTEM. THE CHAMBER AND M.H.C. & C. REQUIRED FOR THE AIR COCK, WHICH MAY NOT BE SHOWN ON THE DRAWING, WILL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, IF REQUIRED BY THE GCWW.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR THE REMOVAL AND REPLACEMENT OF ANY POLES AND GUYS NECESSARY FOR THE INSTALLATION OF THE PROPOSED WATER MAINS, AND ANY COST CONNECTED THERETO SHALL BE AT HIS ALL PIPE AND SPECIALS SHALL BE IN ACCORDANCE WITH CITY OF CINCINNATI SPECIFICATION 40-110-91. ALL PROCURED WATER MAIN AND APPURTENANCE MATERIALS, OTHER THAN THOSE FURNISHED THROUGH THE GCWW MUST BE PROPERLY CERTIFIED; CERTIFIED FOR GCWW INSPECTION: OR ALREADY INSPECTED BY THE GCWW. PIPE, FITTINGS, VALVES AND FIRE HYDRANTS MUST BE GCWW INSPECTED AND STAMPED MATERIALS. THE CONTRACTOR SHOULD BE ADVISED THAT ALL FITTINGS (BENDS, OFFSET BENDS, TEES, CROSSES, SLEEVES, CAPS AND PLUGS) SUPPLIED FOR THIS JOB MAY BE EITHER ANSI/AWWA C-110 FULL-BODY DUCTILE IRON, CEMENT LINED FITTINGS OR ANSI/AWWA C-153 COMPACT DUCTILE IRON, FUSION BONDED EPOXY COATED FITTINGS IN ACCORDANCE WITH CITY OF CINCINNATI, DEPARTMENT OF PURCHASING, STANDARD SPECIFICATION NO. 40-110-03 FOR PIPE AND FITTINGS WATER, DUCTILE IRON 3" TO 60".

ALL FITTINGS ARE SUBJECT TO INSPECTION AND APPROVAL BY APPROPRIATE GCWW INSPECTION PERSONNEL. MINOR PINHOLES AND ABRASIONS TO EPOXY COATED VALVES AND FITTINGS ARE TO BE REPAIRED USING 3M HOT MELT PATCH COMPOUNDS (H.M.P.C.) IN THE STICK FORM. REPAIR PROCEDURES SHALL BE IN ACCORDANCE WITH THE GENERAL APPLICATION STEPS IDENTIFIED FOR THE H.M.P.C.

ALL REPAIRS TO EPOXY COATED FITTINGS ARE SUBJECT TO INSPECTION AND APPROVAL BY APPROPRIATE GCWW INSPECTION PERSONNEL. ALL REJECTED MATERIAL, INCLUDING PIPE AND FITTINGS, SHALL BE REMOVED FROM THE PROJECT SITE IMMEDIATELY. THE CONTRACTOR MUST MAINTAIN ACCESS TO SIDEWALKS AT ALL TIMES. STORAGE OF ANY MATERIALS WITHIN THE PUBLIC RIGHT OF WAY, INCLUDING SIDEWALKS, IS NOT PERMITTED UNLESS APPROVED BY GCWW, THE PROJECT ENGINEER, OR AS INDICATED ON THE APPROVED PLANS.

ALL COPPER TUBING SHALL BE TYPE "K" OF A STANDARD NOMINAL SIZE: 3/4", 1", 1-1/2" AND 2". ALL FITTINGS WILL HAVE COPPER FLARE TYPE CONNECTIONS AND SHALL BE IN ACCORDANCE WITH CITY OF CINCINNATI SPECIFICATION NO. 40-113-76. THE CONTRACTOR SHALL FURNISH THE NECESSARY CERTIFICATIONS FOR BRANCH MATERIAL.

ALL PROPOSED WATER MAINS WILL BE HYDROSTATICALLY TESTED FOR LEAKAGE IN ACCORDANCE WITH 1101.054,'HYDROSTATIC TEST FOR LEAKAGE', OF THE APPROPRIATE ITEM 1101, "FURNISHING & LAYING DUCTILE IRON PIPE AND FITTINGS". THE CONTRACTOR WILL BE RESPONSIBLE FOR FILLING, FLUSHING, AND PRESSURE TESTING NEW WATER MAINS, 20" OR SMALLER. THE CONTRACTOR WILL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT (INCLUDING THE NECESSARY PUMPS TO APPLY THE PRESSURE TEST).

THE WATER WORKS WILL PROVIDE THE NECESSARY METER AND GAUGE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR ITEM 1101, "FURNISHING & LAYING DUCTILE IRON PIPE AND FITTINGS". ONCE THE FILLING AND PRESSURE TESTING ARE COMPLETED, THE CONTRACTOR WILL BE RESPONSIBLE FOR FLUSHING THE PROPOSED WATER MAIN AND THE CGWW WILL BE RESPONSIBLE FOR BACTERIA SAMPLING. THE GCWW WILL BE RESPONSIBLE FOR FILLING, PRESSURE TESTING AND FLUSHING NEW WATER MAINS GREATER THAN 20".

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 - 4-3474

1A/14
599A
657

SUGGESTED BILL OF MATERIAL
(FURNISHED BY CONTRACTOR)

750	L.F.	– 24" PRESTRESSED CONCRETE CYLINDER PIPE, CINTI. STD. CLASS II
232	L.F.	– 36" PRESTRESSED CONCRETE CYLINDER PIPE, CINTI. STD. CLASS II
1	EACH	– 4" DUCTILE IRON PIPE, C.J., TH. CL. 55, 18' LENGTH
12	EACH	– 6" DUCTILE IRON PIPE, C.J., TH. CL. 55, 18' LENGTH
26	EACH	– 8" DUCTILE IRON PIPE, C.J., TH. CL. 55, 18' LENGTH
2	EACH	– 10" DUCTILE IRON PIPE, C.J., TH. CL. 55, 18' LENGTH
9	EACH	– 12" DUCTILE IRON PIPE, C.J., TH. CL. 56, 18' LENGTH
113	EACH	– 16" DUCTILE IRON PIPE, C.J., TH. CL. 56, 18' LENGTH
1	EACH	– 24" DUCTILE IRON PIPE, C.J., TH. CL. 56, 18' LENGTH
10	EACH	– POLY TUBE, 20" WIDE X 20' LONG, 8 MIL. THICK
29	EACH	– POLY TUBE, 24" WIDE X 20' LONG, 8 MIL. THICK
12	EACH	– POLY TUBE, 30" WIDE X 20' LONG, 8 MIL. THICK
123	EACH	– POLY TUBE, 37" WIDE X 20' LONG, 8 MIL. THICK
1	EACH	– POLY TUBE, 54" WIDE X 20' LONG, 8 MIL. THICK
30	ROLLS	– POLY TAPE, 2" WIDE X 100' LONG
2	EACH	– 4" 45° BENDS, 2 M.J.
5	EACH	– 6" 45° BENDS, 2 M.J.
2	EACH	– 8" 45° BENDS, 2 M.J.
4	EACH	– 12" 45° BENDS, 2 M.J.
16	EACH	– 16" 45° BENDS, 2 M.J.
1	EACH	– 16" 22 1/2° BENDS, 2 M.J.
1	EACH	– 10" 11 1/4° BENDS, 2 M.J.
1	EACH	– 16" 11 1/4° BENDS, 2 M.J.
2	EACH	– 6" CAP, M.J. (TEMP.)
1	EACH	– 8" CAP, M.J. (TEMP.)
1	EACH	– 10" CAP, M.J. (TEMP.)
1	EACH	– 12" CAP, M.J. (TEMP.)
2	EACH	– 16" CAP, M.J. (TEMP.)
1	EACH	– 4" PLUG, M.J. (TEMP.)
1	EACH	– 4" SOLID SLEEVE, 2 M.J.
3	EACH	– 16" SOLID SLEEVE, 2 M.J.
3	EACH	– 6" SOLID SLEEVE, D.P.
1	EACH	– 10" SOLID SLEEVE, D.P.
1	EACH	– 12" SOLID SLEEVE, D.P.
1	EACH	– 8" X 6" TEES, 2 M.J. X FLG.
1	EACH	– 10" X 6" TEES, 2 M.J. X FLG.
1	EACH	– 12" X 4" TEES, 2 M.J. X FLG.
1	EACH	– 12" X 6" TEES, 2 M.J. X FLG.
8	EACH	– 16" X 6" TEES, 2 M.J. X FLG.
1	EACH	– 16" X 8" TEES, 2 M.J. X FLG.
1	EACH	– 16" X 10" TEE, 3 M.J.
1	EACH	– 24" X 12" TEE, 3 M.J.
1	EACH	– 10" X 8" REDUCERS, 2 M.J.
1	EACH	– 4" VALVES, FLG. X M.J.
11	EACH	– 6" VALVES, FLG. X M.J.
1	EACH	– 8" VALVES, FLG. X M.J.
1	EACH	– 12" VALVES, 2 M.J.
16	EACH	– VALVE BOX COMPLETE, (IRON)
16	EACH	– VALVE BOX FROST PLUGS
1	EACH	– 4" FLANGE TYTE RUBBER GASKETS
11	EACH	– 6" FLANGE TYTE RUBBER GASKETS
1	EACH	– 8" FLANGE TYTE RUBBER GASKETS
7	EACH	– 6" FIRE HYDRANT EXTENSION, 6" LONG
4	EACH	– 6" FIRE HYDRANT EXTENSION, 18" LONG
11	EACH	– 6" FIRE HYDRANTS
8	EACH	– 4" MEGALUG ASSEMBLIES
36	EACH	– 6" MEGALUG ASSEMBLIES
8	EACH	– 8" MEGALUG ASSEMBLIES
7	EACH	– 10" MEGALUG ASSEMBLIES
16	EACH	– 12" MEGALUG ASSEMBLIES
63	EACH	– 16" MEGALUG ASSEMBLIES
10	EACH	– 16" FIELD LOK GASKETS
3	EACH	– 16" TRANSITION COUPLING
4	EACH	– 24" TRANSITION COUPLING
72	Lin. Ft.	– 1" Copper Service Pipe
80	Lin. Ft.	– 2" Copper Service Pipe
1	EACH	– 1" Ferrule
1	EACH	– 2" Ferrule
1	EACH	– 1" Insulating Coupling
1	EACH	– 2" Insulating Coupling
1	EACH	– 1" x 1" Copper to Lead Coupling
1	EACH	– 2" x 2" Copper to Lead Coupling
1	EACH	– 1" Stop Cock
1	EACH	– 2" Stop Cock
2	EACH	– Curb Boxes

FURNISHED BY G.C.W.W.

(16" BUTTERFLY VALVE MATERIAL)

2–16" BUTTERFLY VALVES, 2 FLG. CL. 250B
W/ANSI B16.1 CL 250 FLG. W/125# DRILLING
4–16" D.I.P. ADAPTERS, FLG. X P.E.
W/ANSI B16.1 CL. 250 FLG.W/125# DRILLING (4.0' LONG)
4–16" FLANGE TYTE RUBBER GASKET
64–1" X 6 1/2" STUD BOLT
128–1" COARSE HEX NUT

(24" BUTTERFLY VALVE MATERIAL)

3–24" BUTTERFLY VALVE, STD. CL. 250B
W/ANSI B–16.1 CL. 125 FLANGES W/125# DRILLING
120–1 1/4" X 8 1/2" STUD BOLTS
240–1 1/4" HEX NUTS & WASHERS
6–24" FLANGE TYTE RUBBER GASKET
6–24" D.I.P. ADAPTERS, FLG. X P.E.,
4.0' LONG W/ANSI B–16.1 CL. 125# DRILLING
3–24" PIPE COUPLING

(36" BUTTERFLY VALVE MATERIAL)

2–36" BUTTERFLY VALVE, STD. CL. 250B
W/ANSI B–16.1 CL. 125 FLANGES W/125# DRILLING
128–1 1/2" X 10 1/4" STUD BOLTS
256–1 1/2" HEX NUTS & WASHERS
4–36" FLANGE TYTE RUBBER GASKET
4–36" D.I.P. ADAPTERS, FLG. X P.E.,
4.0' LONG W/ANSI B–16.1 CL. 125# DRILLING
2–24" PIPE COUPLING

AIR RELEASE MATERIAL

(1" Air Release Material)

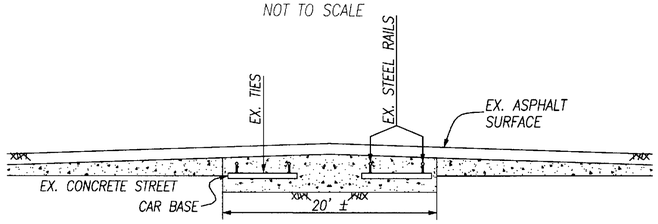
2–Valve Box Complete, (Iron)
2–Valve Box Frost Plugs
2–1" Ferrules
10–L.F. 1" Copper Service Pipe
2–1" Blow–Off Assembly
(AY McDonald Part #76109BCAP)

(2" Air Release Material)

15–Valve Box Complete, (Iron)
15–Valve Box Frost Plugs
15–2" Ferrules
75–L.F. 2" Copper Service Pipe
15–2" Blow–Off Assembly
(AY McDonald Part #76109BCAP)

STREET CAR BASE AND RAIL

NOT TO SCALE



STREET CAR BASE AND RAIL NOTE:

THE CONTRACTOR IS ADVISED THAT STREET CAR BASE AND RAILS SHALL BE ENCOUNTERED THROUGHOUT THIS PROJECT. WHEN IT BECOMES NECESSARY TO REMOVE ANY EXISTING STREET CAR BASE AND RAILS THAT CONFLICT WITH THE WATER MAIN INSTALLATION OR CONNECTIONS, THE CONTRACTOR SHALL REMOVE ALL RAILS, BASE AND TIES WITHIN THE CONFINES OF THE TRENCH. ALL COST ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR ITEM 202 – "STREET CAR RAILS REMOVED".

ITEM 202 – "STREET CAR RAILS REMOVED"

DESCRIPTION: THIS ITEM WILL COVER THE REMOVAL OF ANY STREET CAR BASE AND RAILS ENCOUNTERED WITHIN THE CONFINES OF THE TRENCH DURING CONSTRUCTION OF THE PROPOSED WATER MAIN(S). BASIS OF PAYMENT: THE CONTRACTOR SHALL BE COMPENSATED FOR THIS WORK PER LINEAL FOOT OF PROPOSED WATER MAIN TRENCH IN WHICH THE RAILS, BASE, AND TIES ARE TO BE REMOVED.

THE MATERIALS LISTED ARE ONLY SUGGESTED FOR USE DURING THE WATER MAIN AND BRANCH RELOCATION WORK AS PROPOSED ON THE DRAWINGS. THE CONTRACTOR SHALL FURNISH ADDITIONAL MATERIAL WHERE NEEDED. NO ALLOWANCE WILL BE MADE FOR UNUSED MATERIAL NOR WILL ANY EXTRA PAYMENT BE MADE FOR ADDITIONAL SPECIALS REQUIRED TO COMPLETE THE WATER MAIN WORK. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN FIELD MEASUREMENTS BEFORE ORDERING. BEFORE ORDERING MATERIAL THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN FIELD MEASUREMENTS AND FOR FIELD VERIFYING THE O.D. OF EXISTING WATER MAINS WHERE SLEEVES AND PIPE COUPLINGS ARE INVOLVED.

NOTE 1:
VALVES FURNISHED BY THE CONTRACTOR SHALL BE; U.S. PIPE METROSEAL GATE VALVE, KENNEDY VALVE KEN SEAL II RESILIENT GATE VALVE, CLOW F–6100 SERIES RESILIENT WEDGE GATE VALVE, MUELLER 2360 RESILIENT WEDGE GATE VALVE.

NOTE 2:
LOW–LEAD BRASS MATERIAL REQUIREMENTS: ALL COMPONENTS IN CONTACT WITH WATER SHALL BE FABRICATED FROM SEBILOY II OR FEDERALLOY I–836 ALLOYS OR A MATERIAL APPROVED BY THE ENGINEER.

ALL COMPONENTS THAT DO NOT COME IN CONTACT WITH WATER SHALL COMPLY WITH THE REQUIREMENTS OF ASTM B 62 COPPER ALLOY NUMBER. COATED OR WASHED METALS ARE NOT ACCEPTABLE IF THEIR LEAD LEVELS EXCEED .25% BY WEIGHT PRIOR TO THE COATING OR WASHING PROCESS.

ALL SERVICE FITTINGS AND MATERIALS SHALL BE CERTIFIED AS SUITABLE FOR CONTACT WITH DRINKING WATER BY AN ACCREDITED CERTIFICATION ORGANIZATION IN ACCORDANCE WITH ANSI/NSF STANDARD 61, DRINKING WATER SYSTEMS COMPONENTS – HEALTH EFFECTS.

ALL SERVICE FITTINGS SHALL EITHER BE STAMPED OR EMBOSSED WITH THE LETTER "NL", TO INDICATE "NO–LEAD", OR MARKED TO INDICATE THAT THE PRODUCT IS MANUFACTURED FROM THE LOW–LEAD ALLOYS.

CERTIFICATION OF COMPLIANCE IS REQUIRED TO BE SUBMITTED TO THE CINCINNATI WATER WORKS PRIOR TO USE.

CWW NOTE:
ALL FIELD LAYOUT OF DUCTILE IRON WATER MAIN PIPE AND SPECIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PERFORMED BY A LICENSED SURVEYOR. CONCRETE WATER MAIN LAYOUT TO BE PERFORMED BY GCWW SURVEY STAFF.

CONCRETE PIPE SPECIAL NOTES

THIS PROJECT HAS BEEN DESIGNATED AS A 24" & 36" REINFORCED CONCRETE PIPE INSTALLATION. THE CONTRACTOR IS ADVISED THAT HIS BID SHALL REFLECT THE FURNISHING (MANUFACTURE, DELIVERY AND STORAGE) OF 24" AND 36" RCP AS DESIGNED AND SPECIFIED WITHIN THIS PROJECT PLAN AND CONTRACT DOCUMENT.
DUE TO THE NATURE OF THIS PROJECT AND THE LONG LEAD TIMES REQUIRED TO MANUFACTURE, DELIVER AND STORE RCP, THE CONTRACTOR SHALL, UPON RECOMMENDATION FOR AWARD, BEGIN THE PROCESS FOR RELEASE OF PIPE FROM MANUFACTURER. SUPPLY THE CWW A LAYING SCHEDULE AND SHOP DRAWINGS FOR REVIEW AND APPROVAL. THE MANUFACTURER OF MATERIAL SHALL BEGIN IMMEDIATELY UPON THIS APPROVAL. THE CONTRACTOR SHALL BE COMPENSATED FOR STORED MATERIAL. THE GREATER CINCINNATI WATER WORKS SHALL BE RESPONSIBLE FOR THE SURVEY LAYOUT OF ALL PIPE FOR THIS PROJECT. ADDITIONALLY, THE CWW MUST BE ADVISED OF THE MANUFACTURE DATE AS A CWW REPRESENTATIVE SHALL BE IN THE MANUFACTURER'S PLANT TO WITNESS AND CONDUCT QUALITY ASSURANCE AND MATERIAL TESTS. ALL COSTS ASSOCIATED WITH THIS TESTING SHALL BE THE RESPONSIBILITY OF THE CWW.

CONCRETE PIPE SPECIFICATIONS:
THE VENDOR WILL BE REQUIRED TO PRODUCE AN AFFIDAVIT STATING THAT ALL MATERIALS WERE MANUFACTURED IN ACCORDANCE WITH APPLICABLE AWWA AND CITY OF CINCINNATI SPECIFICATIONS, OR, WHERE CONSTRUCTION SEQUENCE REQUIRED PARTIAL DELIVERIES, 89% LESS SHIPPING, WILL BE PAID FOR MATERIALS STORED AT THE MANUFACTURER'S YARD UPON RECEIPT OF AN AFFIDAVIT STATING THE ABOVE COMPLIANCE WITH SPECIFICATIONS AND THAT ALL MATERIAL WILL BE RESERVED AND MARKED FOR THE EXCLUSIVE USE OF THE CITY OF CINCINNATI, AND WILL BE AVAILABLE FOR SHIPMENT UPON DEMAND OF THE CITY OF CINCINNATI FOR ITS USE ON THIS CONTRACT. ANY MATERIAL STORED AT MANUFACTURER'S YARD THAT IS RESERVED AND MARKED FOR CITY'S USE UNDER CONTRACT SHALL BE FULLY PROTECTED FROM LOSS OR DAMAGE BY INSURANCE. THE INSURANCE SHALL BE IN AN AMOUNT EQUAL TO THE CONTRACT VALUE OF THE STORED MATERIAL.

AFFIDAVIT OF COMPLIANCE:
AN AFFIDAVIT OF COMPLIANCE AS STIPULATED IN AWWA C 301, SECTION 1.10.IS REQUIRED. THE AFFIDAVIT SHALL STATE THAT ALL PIPE AND FITTINGS SUPPLIED UNDER THIS CONTRACT COMPLY WITH APPLICABLE AWWA AND CITY OF CINCINNATI SPECIFICATIONS.

SPECIFICATIONS:
SHALL BE IN ACCORDANCE WITH CITY OF CINCINNATI STANDARD SPECIFICATION NO. 46–187–97 DATED FEBRUARY 1, 1997 AND DRAWING NO. D–3474–G. BID PRICES SHALL INCLUDE ALL NUTS, BOLTS, GASKETS, LUBRICATION, AND ANY OTHER NECESSARY INCIDENTALS TO THE CONSTRUCTION OF THE PROPOSED INSTALLATION. FLANGES SHALL BE CLASS 125 AS TO THE DIMENSIONS IN ACCORDANCE WITH A.S.N.I. SPECIFICATIONS B–16.1, LATEST REVISION UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS. THE BLIND FLANGES FOR MANHEADS ARE TO BE SHIPPED ASSEMBLED WHERE INDICATED ON THE DRAWINGS, PIPE JOINTS SHALL BE RESTRAINED BY USE OF A SUITABLE MECHANICAL DEVICE, OTHER THAN CLAMP TYPE, APPROVED BY THE CWW DIRECTOR. IT SHALL PROVIDE A POSITIVE LOCKING OF THE JOINT WHEN THE PIPE IS INSTALLED, UNDER INDICATED PRESSURE CONDITIONS. BIDDERS SHALL SUBMIT WITH THEIR BIDS, DRAWINGS AND EXPLANATORY LITERATURE OF THE TYPE OF RESTRAINING DEVICE TO BE FURNISHED, IF THE DEVICE IS OTHER THAN PREVIOUSLY FURNISHED TO THE WATER WORKS BY THE MANUFACTURER. TEMPORARY TEST BULKHEADS SHALL BE RESTRAINED UTILIZING STANDARD CLAMP TYPE JOINTS, THE BULKHEADS SHALL HAVE TWO 2" TAPS FOR MUELLER THREADED OUTLETS. CONCRETE PIPE MANUFACTURER TO FURNISH ALL FASTENERS AND GASKETS.
THE CONTRACTOR SHALL ORDER 2 EACH ADDITIONAL HALF BEVEL AND FULL BEVEL ADAPTERS BEYOND WHAT MAY BE REQUIRED IN THE LAYING SCHEDULE PRODUCED BY THE CONCRETE PIPE MANUFACTURER. THIS WILL INSURE THAT FLEXIBILITY EXISTS DURING PIPE INSTALLATION, NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS MATERIAL. ANY UNUSED CONCRETE PIPE MATERIAL SHALL BECOME THE PROPERTY OF THE CINCINNATI WATER WORKS. THE CONTRACTOR SHALL DELIVER THIS UNUSED MATERIAL TO THE CINCINNATI WATER WORKS PIPE YARD AT 4747 SPRING GROVE AVENUE. ALL ASSOCIATED COSTS WILL NOT BE COMPENSATED AND SHOULD BE INCLUDED UNDER ITEM 1101. "FURNISHING AND LAYING 24" & 36" REINFORCED CONCRETE PIPE".

CONCRETE PIPE SPECIAL NOTES CONTINUED SHEET 2

Designed By:	Revisions No.	By	Date
Drawn By:			

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4–3474

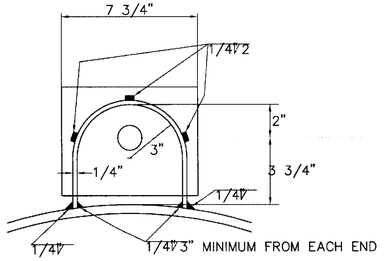
1B 14
599B
657

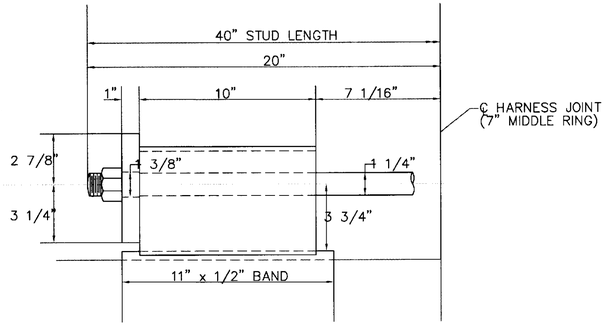
CONCRETE PIPE SPECIAL NOTES CONTINUED:

*BACKFILL OF THE WATER MAIN TRENCH SHALL BE DONE IN ACCORDANCE WITH C.W.W. SPECIFICATIONS. ALL WATER MAIN(S) LOCATED OUTSIDE OF THE PAVEMENT AREA SHALL UTILIZE GRANULAR BACKFILL IN LIEU OF THE CONTROL DENSITY FILL. ALL OF THESE COSTS SHALL BE INCLUDED UNDER ITEM 1101, "FURNISHING AND INSTALLING DUCTILE IRON PIPE AND FITTINGS".

**TEMPORARY AND PERMANENT RESTORATION SHALL BE DONE IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND/OR PROJECT PLAN TYPICAL SECTIONS. IN AREA(S) WHERE THE EXISTING PAVEMENT; BASE AND/OR SUB-BASE ARE NOT TO BE DISTURBED, THE COST FOR PAVEMENT RESTORATION SHALL BE INCLUDED IN THE APPROPRIATE CONTRACTOR'S UNIT BID PRICE FOR ITEM 1101 OR ITEM 1126. IN THOSE AREAS WHERE THE PAVEMENT; BASE AND/OR SUB-BASE IS TO BE REPLACED UNDER THE ROADWAY CONTRACT, THE COST FOR PAVEMENT RESTORATION SHALL BE INCLUDED UNDER THE APPROPRIATE PAVEMENT BID ITEMS.

CONTROLLED DENSITY FILL MUST MEET BOTH HAMCIN: CLSM-CDF PERFORMANCE SPECIFICATIONS AND O.D.O.T. SPECIFICATION. ALL FLOWABLE FILL PRODUCTS SHALL MEET THE REQUIREMENTS OF THE CURRENT CINCINNATI WATER WORKS MATERIALS TESTING AND SPECIFICATIONS FOR FLOWABLE FILL PRODUCTS (DATED 2/8/99). THE C.W.W. REQUIREMENT IS IN addition TO HAMCIN SPECIFICATIONS FOR FLOWABLE FILL PRODUCTS. COPIES OF THE C.W.W. REQUIREMENT ARE MADE AVAILABLE AT THE C.W.W. ENGINEERING OFFICES AT 4747 SPRING GROVE AVENUE, CONTACT; RUSS WEBER AT 591-7862. ALSO, THE CONTRACTOR SHALL SUBMIT, PRIOR TO THE START OF CONSTRUCTION, THE NECESSARY DOCUMENTATION FOR REVIEW AND APPROVAL BY THE C.W.W.



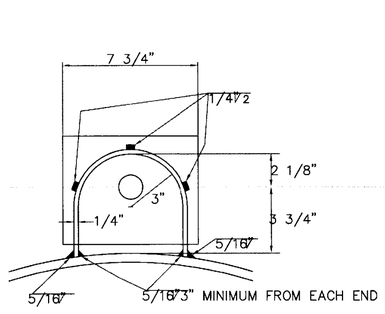


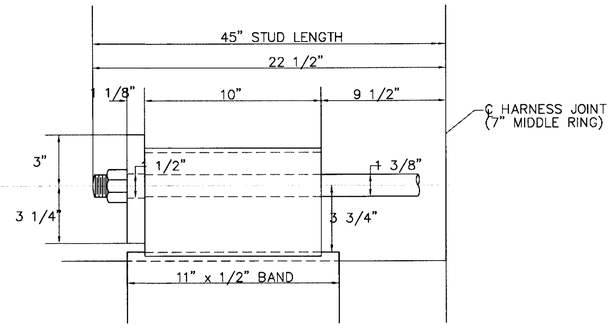
STUDS TO BE 1-1/4" DIA. ASTM A193 GRADE B7 OR EQUAL. TO BE FURNISHED BY THE CONCRETE PIPE MANUFACTURER.

ALL LUG MATERIAL SHALL CONFORM TO ASTM A283, GRADE "B" OR A285, GRADE "C", OR EQUAL.

4 LUGS EQUALLY SPACED (90°) REQUIRED FOR EACH SIDE OF PIPE JOINT.

24" LUG DETAIL





STUDS TO BE 1-3/8" DIA. ASTM A193 GRADE B7 OR EQUAL. TO BE FURNISHED BY THE CONCRETE PIPE MANUFACTURER.

ALL LUG MATERIAL SHALL CONFORM TO ASTM A283, GRADE "B" OR A285, GRADE "C", OR EQUAL.

4 LUGS EQUALLY SPACED (90°) REQUIRED FOR EACH SIDE OF PIPE JOINT.

36" LUG DETAIL

Revisions		
No.	By	Date

Designed By:

Drawn By:

HORIZONTAL & VERTICAL SCALE IN FEET (0, 10, 20, 40)

CALCULATED M.J.C. CHECKED J.A.F.

HAM 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 - 4-3474

2 | 14

600
657

LOG OF BORING

BORING NO: B-3 BASELINE, STATION & OFFSET: STA 10+03.42, 8.0' RT. SURFACE ELEV.: 589
PROJECT IDENTIFICATION: HAM-50-18.79, PID 20082
DATE STARTED: 9/18/08 DATE COMPLETED: 9/18/08 METHOD: 3.75" HSA WATER ELEV.: DRY
HAMILTON COUNTY, OHIO
NORTHING: EASTING: SEALING/BACKFILLING TYPE: AC
HAMMER SYSTEM TYPE: CME AUTOMATIC
CALIBRATION DATE: 6-11-07 ER: 79.3%

Elev. (ft)	Depth (ft)	Std. Pen.	N_{60}	Rec. (%)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L.	L.L.	P.I.	W.C.	ODOT Class
589±	0				6.0" – Asphalt											
					13.0" – Concrete											
587.4±		3/4/5	12	44	Hard to very stiff, brownish gray SILTY CLAY, little coarse to fine sand, trace coarse to fine gravel (cobble and boulder fragments), moist to damp.	SS-1									15	A-6b Visual
		3/4/5	12	44	-SS-1: *Visual USCS CL; qh = 4.5+ tsf -SS-2: USCS CL; qh = 4.5+ tsf	SS-2	1	8	4	31	57	18	39	21	17	A-6b
	5															
		3/4/5	12	44	-SS-3: *Visual USCS CL; qh = 4.5+ tsf	SS-3				same as SS-2					17	A-6b Visual
		3/4/5	12	44	-SS-4: USCS CL; qh = 4.5+ tsf	SS-4	3	9	4	32	53	19	37	18	16	A-6b
	10															
		3/4/5	12	44	-SS-5: *Visual USCS CL	SS-5				same as SS-4					16	A-6b Visual
576±																
		3/4/5	12	44	Stiff, gray SILTY CLAY, little coarse to fine sand, damp. -SS-6: *Visual USCS CL; qh = 3.75 tsf	SS-6									19	A-6b Visual
	15															
		3/4/5	12	44	-SS-7: USCS CL; qh = 4.0 tsf	SS-7	0	0	0	22	78	24	46	22	21	A-6b
571±																
		3/4/5	12	44	Medium hard, gray WEATHERED SHALE, damp.	SS-8									8	
569±	20															
		3/4/5	12	44	SHALE: gray, highly weathered, very weak to weak, thin bedded to laminated, jointed, highly fractured, narrow, slightly rough, limestone laminations. -RC-1: 6.0' (20.0'-26.0') -RQD = 11% -Loss = 50%	RC-1										
	25															

BOTTOM OF BORING = 26.0 FEET

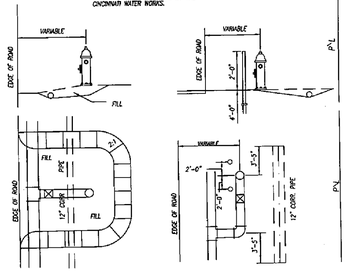
HAM-50-18.79

STRUCTURE FOUNDATION EXPLORATION
WALDVOGEL RETAINING WALL

DRAWN RRM
CHECKED JPS

SETTING ON ROADWAYS WITHOUT CURBS

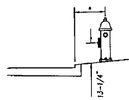
4" I.D. CAST IRON PIPE, 5' LONG, TO BE FILLED WITH CONCRETE WITH EXPOSED PART TO BE MARKED WITH BLACK AND WHITE PAINTED STRIPES. GUARD POSTS TO BE INSTALLED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE CINCINNATI WATER WORKS.



DRAIN PIPE WILL BE INSTALLED AT ALL TIMES WHEN HYDRANT LEAD IS WITHIN EXISTING OR PROPOSED DRAINAGE DITCH.

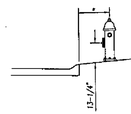
NOTE:
1. NO PART OF ANY FIRE HYDRANT SETTING SHALL BE CLOSER THAN 5'-0" TO ANY DRIVEWAY, SEWER INLET, UTILITY POLE, ANCHOR WIRE, OR SIDEWALK ENTRANCE.
2. THERE SHALL BE NO ADDITIONAL COMPENSATION FOR GUARD POST, DRAIN PIPE, OR GRADING WORK.

BATTERED OR STRAIGHT CURB



* AS INDICATED ON PLANS

ROLLED CURB

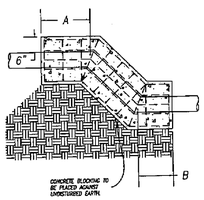


FIRE HYDRANT SETTING MEASUREMENTS

CINCINNATI WATER WORKS
ENGINEERING DIVISION

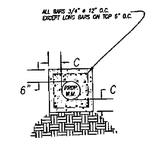
DATE 10/28/96

APPROVED Paul E. Tomes — STANDARD DRAWING 103-1



SIZE	BEND ANGLE	75 P.S.I. & UNDER A	B	C	CU. YDS. CONC. PER LIN. FT.	STEEL LBS. PER LIN. FT.	75 P.S.I. TO 125 P.S.I. A	B	C	CU. YDS. CONC. PER LIN. FT.	STEEL LBS. PER LIN. FT.	125 P.S.I. TO 200 P.S.I. A	B	C	CU. YDS. CONC. PER LIN. FT.	STEEL LBS. PER LIN. FT.
4"	11-1/4	1'-0"	1'-0"	0'-8"	.10	18	1'-0"	1'-0"	0'-8"	.10	18	1'-0"	1'-0"	0'-9"	.10	18
	22-1/2	1'-0"	1'-0"	0'-8"	.10	18	1'-0"	1'-0"	0'-8"	.10	18	1'-0"	1'-0"	0'-9"	.10	18
	45	1'-0"	1'-0"	0'-8"	.10	18	1'-0"	1'-0"	0'-8"	.10	18	2'-0"	1'-0"	1'-0"	.18	29
6"	11-1/4	1'-0"	1'-0"	0'-8"	.15	22	1'-0"	1'-0"	0'-8"	.15	22	1'-0"	1'-0"	0'-9"	.15	22
	22-1/2	1'-0"	1'-0"	0'-8"	.15	22	1'-0"	1'-0"	0'-8"	.15	22	2'-0"	1'-0"	0'-9"	.15	22
	45	2'-0"	1'-0"	0'-8"	.15	22	2'-0"	1'-0"	1'-0"	.20	29	3'-0"	1'-0"	1'-0"	.28	39
8"	11-1/4	1'-0"	1'-0"	0'-8"	.17	26	1'-0"	1'-0"	0'-8"	.17	26	1'-0"	1'-0"	0'-9"	.17	26
	22-1/2	1'-0"	1'-0"	0'-8"	.17	26	2'-0"	1'-0"	0'-8"	.17	26	2'-0"	1'-0"	1'-0"	.33	30
	45	2'-0"	1'-0"	1'-0"	.23	30	3'-0"	1'-0"	1'-0"	.23	30	5'-0"	1'-0"	1'-0"	.33	30
10"	11-1/4	1'-0"	1'-0"	0'-8"	.17	29	1'-0"	1'-0"	0'-8"	.17	29	2'-0"	1'-0"	0'-9"	.17	29
	22-1/2	1'-0"	1'-0"	0'-8"	.17	29	2'-0"	1'-0"	1'-0"	.23	31	3'-0"	1'-0"	1'-0"	.33	31
	45	3'-0"	1'-0"	1'-0"	.23	31	4'-0"	1'-0"	1'-0"	.23	31	7'-0"	2'-0"	1'-0"	.33	31
12"	11-1/4	1'-0"	1'-0"	0'-9"	.20	30	1'-0"	1'-0"	0'-8"	.20	30	2'-0"	1'-0"	0'-9"	.20	30
	22-1/2	2'-0"	1'-0"	0'-8"	.20	30	2'-0"	1'-0"	1'-0"	.26	40	4'-0"	1'-0"	1'-0"	.26	40
	45	4'-0"	1'-0"	1'-0"	.26	40	6'-0"	2'-0"	1'-0"	.26	40	9'-0"	2'-0"	1'-0"	.26	40
16"	11-1/4	1'-0"	1'-0"	0'-9"	.24	34	1'-0"	1'-0"	0'-9"	.24	34	2'-0"	1'-0"	1'-0"	.32	39
	22-1/2	2'-0"	1'-0"	1'-0"	.32	39	3'-0"	1'-0"	1'-0"	.32	39	6'-0"	2'-0"	1'-0"	.32	39
	45	6'-0"	2'-0"	1'-0"	.32	39	10'-0"	3'-0"	1'-0"	.32	39	18'-0"	4'-0"	1'-0"	.51	51

NOTE: 1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12 – W5.8 X W5.8) @ 42 LBS. PER 100 S.F.



TOP AND BOTTOM VERTICAL BENDS FULL ENCASEMENT

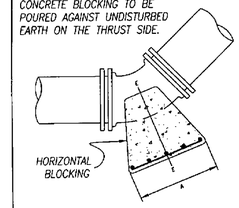
CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 10/29/98

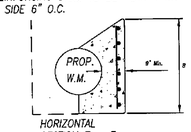
APPROVED Paul E. Tomes — STANDARD DRAWING 101-4

NOTE:
PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.

NOTE:
CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH ON THE THRUST SIDE.



3/4" REINFORCING BARS TO BE PLACED ON THRUST SIDE 6" O.C.



HORIZONTAL SECTION E – E

IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12X12–W5.8XW5.8) @ 42 LBS. PER 100 S.F.

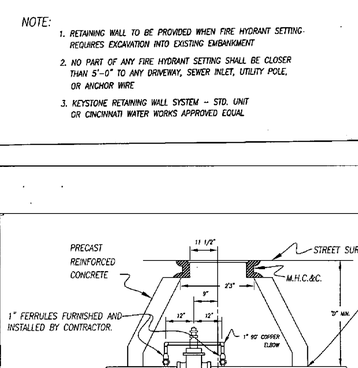
SIZE	BEND ANGLE	75 P.S.I. & UNDER A	B	CU. YDS. CONC.	LBS. STEEL	75 P.S.I. TO 125 P.S.I. A	B	CU. YDS. CONC.	LBS. STEEL	125 P.S.I. TO 200 P.S.I. A	B	CU. YDS. CONC.	LBS. STEEL
4	11 1/4	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	1'0"	1'0"	0.1	14
	22 1/2	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	1'0"	1'0"	0.1	14
	45	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	1'0"	1'0"	0.1	14
6	11 1/4	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	1'0"	1'0"	0.1	14
	22 1/2	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	1'0"	1'0"	0.1	14
	45	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	2'0"	1'0"	0.1	16
8	11 1/4	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	17	1'0"	1'0"	0.1	17
	22 1/2	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	17	1'0"	1'0"	0.1	17
	45	2'0"	1'0"	0.2	–	2'0"	1'0"	0.2	20	2'0"	2'0"	0.2	24
10	11 1/4	1'0"	1'0"	0.1	–	1'0"	1'0"	0.1	14	1'0"	1'0"	0.1	14
	22 1/2	1'0"	1'0"	0.1	–	2'0"	1'0"	0.2	18	2'0"	2'0"	0.2	24
	45	2'0"	1'0"	0.2	–	3'0"	2'0"	0.3	26	3'0"	2'0"	0.4	40
12	11 1/4	1'0"	1'0"	0.1	–	1'0"	2'0"	0.2	20	1'0"	2'0"	0.2	18
	22 1/2	1'0"	1'0"	0.2	–	2'0"	2'0"	0.2	24	2'0"	2'0"	0.3	30
	45	2'0"	2'0"	0.3	–	2'0"	2'0"	0.4	48	3'0"	3'0"	0.6	63
16	11 1/4	1'0"	2'0"	0.2	16	2'0"	2'0"	0.2	21	2'0"	2'0"	0.3	30
	22 1/2	2'0"	2'0"	0.3	24	3'0"	2'0"	0.4	30	3'0"	3'0"	0.6	63
	45	3'0"	3'0"	0.6	54	4'0"	3'0"	0.8	68	4'0"	3'0"	1.2	120
20	11 1/4	2'0"	2'0"	0.3	21	2'0"	2'0"	0.4	30	3'0"	2'0"	0.5	43
	22 1/2	3'0"	2'0"	0.6	45	3'0"	2'0"	0.8	63	4'0"	4'0"	1.2	96
	45	4'0"	3'0"	1.0	74	5'0"	4'0"	1.4	108	6'0"	5'0"	2.2	160

TYPICAL BLOCKING DETAIL CAST IRON BENDS – HORIZONTAL

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 10/22/98

APPROVED Paul E. Tomes — STANDARD DRAWING 101-1



PLAN VIEW

SECTION A–A

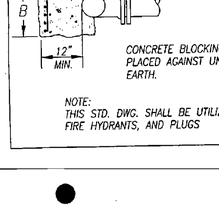
NOTE:
1. RETAINING WALL TO BE PROVIDED WHEN FIRE HYDRANT SETTING REQUIRES EXCAVATION INTO EXISTING EMBANKMENT
2. NO PART OF ANY FIRE HYDRANT SETTING SHALL BE CLOSER THAN 5'-0" TO ANY DRIVEWAY, SEWER INLET, UTILITY POLE, OR ANCHOR WIRE
3. KEYSTONE RETAINING WALL SYSTEM – STD. UNIT OR CINCINNATI WATER WORKS APPROVED EQUAL

RETAINING WALL FOR FIRE HYDRANT SETTING

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 10/28/96

APPROVED Paul E. Tomes — STANDARD DRAWING 103-1A



CONCRETE BLOCKING TO BE PLACED AGAINST UNDISTURBED EARTH.

NOTE:
THIS STD. DWG. SHALL BE UTILIZED FOR BLOCKING OF TEES, 90° BENDS, FIRE HYDRANTS, AND PLUGS

SIZE		75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
RUN	BRANCH	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL
6"	6"	1'9"	1'6"	0.1	17	2'6"	1'6"	0.1	23	2'6"	2'0"	0.2	30
8"	6"	1'6"	1'9"	0.1	17	2'0"	1'9"	0.1	23	2'6"	2'0"	0.2	30
12"	6"	1'6"	2'0"	0.2	18	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	30
16"	6"	1'6"	2'6"	0.2	23	1'6"	2'6"	0.2	23	2'0"	2'6"	0.2	30
20"	6"	1'6"	2'9"	0.2	26	1'6"	2'9"	0.2	26	1'9"	2'9"	0.2	33
8"	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
10"	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
12"	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
16"	8"	2'0"	2'0"	0.2	24	2'6"	2'6"	0.3	35	3'0"	2'4"	0.3	32
20"	8"	2'0"	2'0"	0.2	24	2'6"	2'9"	0.4	35	3'0"	2'9"	0.4	39
12"	12"	3'0"	3'0"	0.5	54	4'0"	2'6"	0.4	55	4'6"	3'6"	0.7	95
16"	12"	3'0"	3'0"	0.5	54	4'0"	2'6"	0.4	55	4'6"	3'9"	0.7	98
20"	12"	3'0"	3'0"	0.5	54	4'0"	2'9"	0.6	60	4'6"	4'0"	1.0	108
20"	16"	4'0"	3'6"	0.8	84	4'6"	4'0"	1.0	108	6'0"	5'0"	1.5	180
20"	20"	4'6"	4'6"	1.1	122	5'6"	5'0"	1.4	165	7'0"	6'0"	2.0	252

NOTE: 1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12 – W5.8 X W5.8) @ 42 LBS. PER 100 S.F.

TYPICAL BLOCKING DETAIL CAST IRON TEES

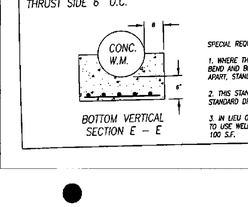
CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 10/19/98

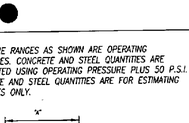
APPROVED Paul E. Tomes — STANDARD DRAWING 101-5

NOTE:
PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.

NOTE:
CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH ON THE THRUST SIDE.



3/4" REINFORCING BARS TO BE PLACED ON THRUST SIDE 6" O.C.



BOTTOM VERTICAL SECTION E – E

SPECIAL REQUIREMENTS
1. WHERE THE DISTANCE BETWEEN CONCRETE BLOCKING FOR A TOP VERTICAL BEND AND BLOCKING FOR A BOTTOM VERTICAL BEND IS LESS THAN 3 FEET APART, STANDARD DRAWING NO. 101-4 SHALL APPLY.
2. THIS STANDARD DRAWING DOES NOT APPLY TO CREEK CROSSING, SEE STANDARD DRAWING NO. 105-1.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12X12–W5.8XW5.8) @ 42 LBS. PER 100 S.F.

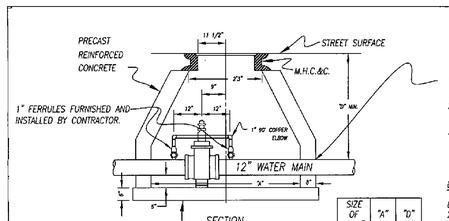
SIZE	BEND ANGLE	75 P.S.I. & UNDER A	B	CU. YDS. CONC.	LBS. STEEL	75 P.S.I. TO 125 P.S.I. A	B	CU. YDS. CONC.	LBS. STEEL	125 P.S.I. TO 200 P.S.I. A	B	CU. YDS. CONC.	LBS. STEEL
4	11 1/4	1'0"	0'8"	0.1	NA	1'0"	0'8"	0.1	15	1'0"	0'8"	0.1	15
	22 1/2	1'0"	0'8"	0.1	NA	1'0"	0'8"	0.1	15	1'0"	0'8"	0.1	15
	45	1'0"	0'8"	0.1	NA	1'0"	0'8"	0.1	15	1'0"	0'8"	0.1	15
6	11 1/4	1'0"	0'8"	0.1	–	1'0"	0'8"	0.1	16	1'0"	0'8"	0.1	16
	22 1/2	1'0"	0'8"	0.1	–	1'0"	0'8"	0.1	16	1'0"	0'8"	0.1	16
	45	1'0"	0'8"	0.1	–	1'0"	0'8"	0.1	16	1'0"	0'8"	0.1	16
8	11 1/4	1'0"	0'8"	0.1	–	1'0"	0'8"	0.1	20	1'0"	0'8"	0.1	20
	22 1/2	1'0"	0'8"	0.1	–	1'0"	0'8"	0.1	20	1'0"	0'8"	0.2	30
	45	1'0"	0'8"	0.1	–	1'0"	0'8"	0.1	20	1'0"	0'8"	0.2	30
10	11 1/4	1'0"	0'8"	0.2	–	1'0"	0'8"	0.2	21	1'0"	0'8"	0.2	21
	22 1/2	1'0"	0'8"	0.2	–	1'0"	0'8"	0.2	21	1'0"	0'8"	0.2	21
	45	1'0"	0'8"	0.2	–	1'0"	0'8"	0.2	30	2'0"	0'8"	0.3	39
12	11 1/4	1'0"	0'8"	0.2	–	1'0"	0'8"	0.2	25	1'0"	0'8"	0.2	22
	22 1/2	1'0"	0'8"	0.2	–	1'0"	0'8"	0.2	25	1'0"	0'8"	0.3	31
	45	1'0"	0'8"	0.3	–	2'0"	0'8"	0.4	48	3'0"	0'8"	0.5	58
16	11 1/4	1'0"	0'8"	0.3	27	1'0"	0'8"	0.3	27	1'0"	0'8"	0.3	27
	22 1/2	1'0"	0'8"	0.3	27	1'0"	0'8"	0.4	30	2'0"	0'8"	0.5	48
	45	2'0"	0'8"	0.5	49	3'0"	0'8"	0.7	71	4'0"	0'8"	0.9	94
20	11 1/4	1'0"	0'8"	0.3	31	1'0"	0'8"	0.3	31	1'0"	0'8"	0.3	44
	22 1/2	1'0"	0'8"	0.5	44	2'0"	0'8"	0.8	58	3'0"	0'8"	0.8	84
	45	3'0"	0'8"	0.8	80	4'0"	0'8"	1.2	113	5'0"	0'8"	1.8	159

TYPICAL BLOCKING DETAIL CAST IRON BENDS – BOTTOM VERTICAL

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 10/29/98

APPROVED Paul E. Tomes — STANDARD DRAWING 101-2



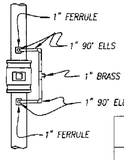
NOTE: PRECAST REINFORCED CONCRETE CHAMBER SHALL MEET ODOT SPECIFICATION 706.13 AND ASTM SPECIFICATION C-478

1. PROVIDE A MINIMUM OF 2 1/2" CLEARANCE BETWEEN PRECAST CHAMBER AND PIPE.
2. 1/2" EXPANSION FELT AROUND PIPE THE FULL THICKNESS OF THE CHAMBER WALL.
3. ALL OPENINGS AROUND PIPE SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR.

LOW LEAD BY-PASS MATERIAL

8-LIN. FT. 1" COPPER SERVICE PIPING
2-1" FERRULES
4-1" 90° ELLS (SWEAT FITTINGS)
1-1" BRASS TEE (SWEAT X FEMALE WITH IRON PIPE THREADED OUTLET)
1-1" BRASS PLUG (IRON PIPE THREADED)

NOTE: MATERIALS FURNISHED AND INSTALLED BY CONTRACTOR.



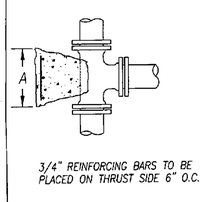
BY-PASS ASSEMBLY DETAIL

12" VALVE CHAMBER FOR WATER PRESSURE OVER 100 P.S.I. (PRE-CAST)

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 5-12-05

APPROVED Joe Zalla — STANDARD DRAWING 104-6A



CONCRETE BLOCKING TO BE PLACED AGAINST UNDISTURBED EARTH.

NOTE:
THIS STD. DWG. SHALL BE UTILIZED FOR BLOCKING OF TEES, 90° BENDS, FIRE HYDRANTS, AND PLUGS

SIZE		75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
RUN	BRANCH	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL
6"	6"	1'9"	1'6"	0.1	17	2'6"	1'6"	0.1	23	2'6"	2'0"	0.2	30
8"	6"	1'6"	1'9"	0.1	17	2'0"	1'9"	0.1	23	2'6"	2'0"	0.2	30
12"	6"	1'6"	2'0"	0.2	18	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	30
16"	6"	1'6"	2'6"	0.2	23	1'6"	2'6"	0.2	23	2'0"	2'6"	0.2	30
20"	6"	1'6"	2'9"	0.2	26	1'6"	2'9"	0.2	26	1'9"	2'9"	0.2	33
8"	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
10"	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
12"	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
16"	8"	2'0"	2'0"	0.2	24	2'6"	2'6"	0.3	35	3'0"	2'4"	0.3	32
20"	8"	2'0"	2'0"	0.2	24	2'6"	2'9"	0.4	35	3'0"	2'9"	0.4	39
12"	12"	3'0"	3'0"	0.5	54	4'0"	2'6"	0.4	55	4'6"	3'6"	0.7	95
16"	12"	3'0"	3'0"	0.5	54	4'0"	2'6"	0.4	55	4'6"	3'9"	0.7	98
20"	12"	3'0"	3'0"	0.5	54	4'0"	2'9"	0.6	60	4'6"	4'0"	1.0	108
20"	16"	4'0"	3'6"	0.8	84	4'6"	4'0"	1.0	108	6'0"	5'0"	1.5	180
20"	20"	4'6"	4'6"	1.1	122	5'6"	5'0"	1.4	165	7'0"	6'0"	2.0	252

NOTE: 1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12 – W5.8 X W5.8) @ 42 LBS. PER 100 S.F.

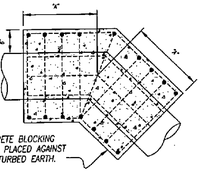
TYPICAL BLOCKING DETAIL CAST IRON TEES

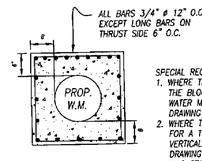
CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 10/19/98

APPROVED Paul E. Tomes — STANDARD DRAWING 101-5

NOTE:
1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.





ALL BARS 3/4" ø 12" O.C. EXCEPT LONG BARS ON THRUST SIDE 6" O.C.

SPECIAL REQUIREMENTS
1. WHERE THE DIMENSIONS INDICATED WILL NOT PERMIT THE BLOCKING TO BEAR AGAINST UNDISTURBED EARTH, WATER MAIN SHALL BE ENCASED AS SHOWN ON STANDARD DRAWING NO. 101-4.
2. WHERE THE DISTANCE BETWEEN CONCRETE BLOCKING FOR A TOP VERTICAL BEND AND BLOCKING FOR A BOTTOM VERTICAL BENDS IS LESS THAN 3 FEET APART, STANDARD DRAWING NO. 101-4 SHALL APPLY.
3. THIS STANDARD DRAWING DOES NOT APPLY TO CREEK CROSSING, SEE STANDARD DRAWING NO. 105-1.

NOTE:
IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 x 12 – W 5.8 x W 5.8) @ 42 LBS PER. 100 S.F.

SIZE	BEND ANGLE	75 P.S.I. & UNDER A	B	CU. YDS. CONC.	LBS. STEEL	75 P.S.I. TO 125 P.S.I. A	B	CU. YDS. CONC.	LBS. STEEL	125 P.S.I. TO 200 P.S.I. A	B	CU. YDS. CONC.	LBS. STEEL
4"	11-1/4	1'0"	0'8"	0.2	36	1'0"	0'8"	0.2	36	1'0"	0'8"	0.2	36
	22-1/2	1'0"	0'8"	0.2	36	1'0"	0'8"	0.2	36	1'0"	0'8"	0.3	55
	45	1'0"	0'8"	0.3	55	1'0"	0'8"	0.3	55	2'0"	1'0"	0.7	100
6"	11-1/4	1'0"	0'8"	0.3	44	1'0"	0'8"	0.3	44	1'0"	0'8"	0.4	67
	22-1/2	1'0"	0'8"	0.4	67	1'0"	0'8"	0.4	67	2'0"	0'8"	0.5	89
	45°	2'0"	0'8"	0.5	89	2'0"	1'0"	0.8	116	3'0"	1'0"	1.1	174
8"	11-1/4"	1'0"	0'8"	0.5	78	1'0"	0'8"	0.5	78	1'0"	0'8"	0.5	78
	22-1/2"	1'0"	0'8"	0.5	77	2'0"	0'8"	0.8	103	3'0"	1'0"	1.1	150
	45°	2'0"	1'0"	0.9	129	3'0"	1'0"	1.3	218	5'0"	1'0"	2.1	300
10"	11-1/4"	1'0"	0'8"	0.5	88	1'0"	0'8"	0.5	88	2'0"	0'8"	0.7	115
	22-1/2"	1'0"	0'8"	0.5	88	2'0"	1'0"	1.0	124	3'0"	1'0"	1.4	186
	45°	3'0"	1'0"	1.4	186	4'0"	1'0"	2.2	279	7'0"	1'0"	3.4	435
12"	11-1/4"	1'0"	0'8"	0.6	90	1'0"	0'8"	0.6	90	2'0"	0'8"	0.8	119
	22-1/2"	2'0"	0'8"	0.8	119	2'0"	1'0"	1.2	168	4'0"	1'0"	2.1	240
	45°	4'0"	1'0"	2.1	240	6'0"	1'0"	3.2	403	9'0"	1'0"	4.9	605
16"	11-1/4"	1'0"	0'8"	0.7	100	1'0"	0'8"	0.7	100	2'0"	1'0"	1.3	155
	22-1/2"	2'0"	1'0"	1.3	155	3'0"	1'0"	2.2	271	8'0"	1'0"	4.1	503
	45°	8'0"	1'0"	3.8	464	10'0"	1'0"	6.3	774	9'0"	1'0"	9.8	863

TYPICAL BLOCKING DETAIL CAST IRON BENDS – TOP VERTICAL

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 11/9/98

APPROVED Paul E. Tomes — STANDARD DRAWING 101-3

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4-3474

Revisions: No. | By | Date

Designed By: Drawn By:

3 | 14
601
657

GREATER CINCINNATI WATER WORKS PLANS

WW-001843 MF#15714 D-3474-G

CONSTRUCTION SPECIFICATIONS:

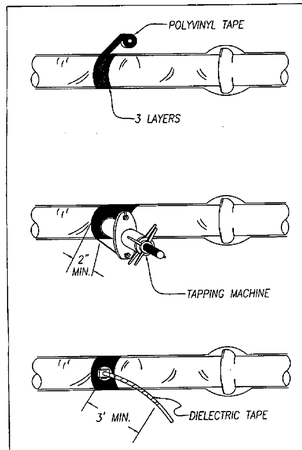
PIT CONSTRUCTION DETAILS:
1) METER PIT FLOOR SHALL BE 6" CONCRETE WITH 42 LB. ROAD MESH INSTALLED. THE FLOOR, AT ITS SHALLOWEST POINT MUST BE A MINIMUM OF 6", SLOPED TOWARD THE DRAIN OR SUMP PUMP LOCATION. FLOOR SLAB MUST ALSO HAVE WATER STOP INSTALLED.

B) METER PIT WALLS SHALL BE 8" CONCRETE WITH 5/8" DIAMETER STEEL REINFORCING RODS 18" CENTERED HORIZONTALLY AND VERTICALLY. REINFORCING STEEL TO BE ANGLED AND EXTEND 18" CENTERED INTO TOP SLAB.

C) METER PIT TOP SLAB SHALL BE 8" CONCRETE WITH 5/8" DIAMETER REINFORCING RODS, 6" ON CENTER-SHORT SPAN AND 18" ON CENTER-LONG SPAN. REINFORCING STEEL IN TOP SLAB SHALL BE LOCATED IN THE BOTTOM PORTION OF THE SLAB, 2" FROM THE SURFACE. 5/8" REINFORCING STEEL TO BE 2' LONG IN TOP OF SLAB DIAGONALLY AT CORNER OF OPENINGS. TOP SLAB SHALL BE SET TO FINISHED GRADE.

CONCRETE CONSTRUCTION
ALL CONCRETE USED IN CONSTRUCTION OF METER PIT WALLS, FLOORS, AND REINFORCED SLABS SHALL BE COMPOSED OF ONE PART CEMENT, TWO PARTS SAND, AND THREE PARTS AGGREGATE BY WEIGHT AND A MAXIMUM WATER CEMENT RATIO OF 0.50. BEFORE CONCRETE IS PLACED, THE FORMS , REINFORCEMENT STEEL, WATER STOPS, AND ANCHOR BOLTS SHALL BE RIGIDLY SECURED IN PROPER POSITION. ALL DIRT, MUD, WATER, DEBRIS AND OTHER FOREIGN MATERIAL SHALL BE REMOVED FROM THE SPACE TO BE OCCUPIED BY THE CONCRETE. CONCRETE SHALL BE DEPOSITED AND COMPACTED IN THE WALL SLABS BEFORE ANY REINFORCING STEEL IS PLACED IN THE SLAB AREA AND SHALL SETTLE AT LEAST 2 HOURS BEFORE THE SLAB CONCRETE IS POURED. CONCRETE SHALL BE PROTECTED FROM LOSS OF MOISTURE FOR A CURING PERIOD OF AT LEAST 7 DAYS.

MATERIAL AND CONSTRUCTION SPECIFICATIONS		
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
APPROVED	DATE	STANDARD DRAWING
Paul E. Town	1/1/04	108-1



OPENINGS FOR BRANCHES, SERVICE TAPS, BLOW-OFFS, AIR VALVES, AND SIMULAR APPURTENANCES SHALL BE MADE BY:

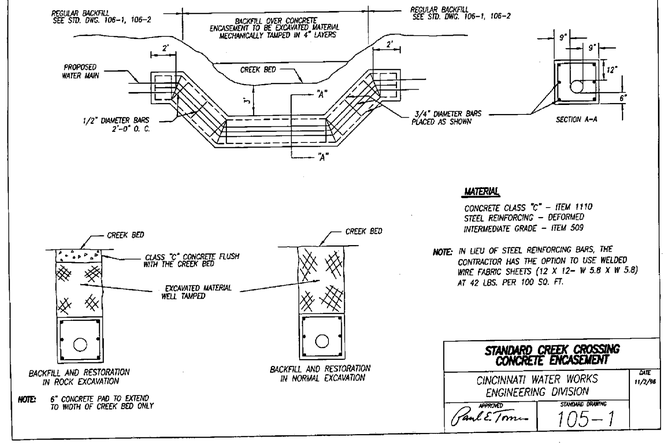
1.) WRAPPING (3) THREE LAYERS OF POLYVINYL – COMPATIBLE ADHESIVE TAPE COMPLETELY AROUND THE PIPE TO COVER THE AREA WHERE THE TAPPING MACHINE AND CHAIN WILL BE MOUNTED, EXTENDING A MINIMUM OF 2" BEYOND THE MOUNTING SURFACE.

2.) MOUNT THE TAPPING MACHINE ON THE PIPE AREA COVERED BY THE TAPE AND MAKE THE TAP AND INSTALL THE FERRULE DIRECTLY THROUGH THE TAPE AND POLYETHYLENE.

3.) INSPECT THE ENTIRE CIRCUMFERENTIAL AREA FOR DAMAGE AND MAKE ANY NECESSARY REPAIRS WITH TAPE.

4.) ON HOUSE SERVICES, TO MINIMIZE THE POSSIBILITY OF DISSIMILAR METAL CORROSION AT SERVICE CONNECTIONS, WRAP THE FERRULE AND A MINIMUM CLEAR DISTANCE OF THREE FEET OF THE COPPER SERVICE WITH POLYETHYLENE OR A SUITABLE DIELECTRIC TAPE.

TAPPING POLYETHYLENE ENCASED PIPE	
CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 11/5/98
APPROVED	STANDARD DRAWING
Paul E. Town	105-5A



NOTE: 6" CONCRETE PAD TO EXTEND TO WIDTH OF CREEK BED ONLY

MATERIAL
CONCRETE CLASS "C" – ITEM 1110
STEEL REINFORCING – DEFORMED INTERMEDIATE GRADE – ITEM 509

NOTE: IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12– W 5.8 X W 5.8) AT 42 LBS. PER 100 SQ. FT.

STANDARD CREEK CROSSING CONCRETE ENCASEMENT	
CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 11/2/98
APPROVED	STANDARD DRAWING
Paul E. Town	105-1

REINFORCING STEEL
ALL REINFORCING STEEL SHALL BE FREE FROM DIRT, OIL, GREASE, OR AVOIDABLE, LOOSE RUST WHEN PLACED IN CONCRETE. REINFORCING STEEL SHALL BE SECURELY HELD IN PLACE DURING THE CONCRETE POURING OPERATION. IN NO CASE SHALL REINFORCING STEEL BE DRIVEN OR FORCED INTO CONCRETE AFTER IT HAS TAKEN ITS INITIAL SET.

WATERPROOFING
THE EXTERIOR SIDE OF PIT WALLS SHALL BE WATERPROOFED WITH TWO COATS OF ONE OF THE FOLLOWING MATERIALS APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. THOROSEAL; U.S.S. CHEMICAL TARMASTIC #102; KOPPERS BITUMASTIC SUPER SERVICE BLACK; DAMCHEX; AMERCOAT #78; SEALTIGHT MEL-ROL AND MEL-PRIME PRIMER OR APPROVED EQUAL. VOIDS BETWEEN PIPE AND WALL SHALL BE GROUTED WITH A HYDRAULIC CEMENT SUCH AS WATERPLUG OR APPROVED EQUAL.

DRAIN
EACH PIT SHALL BE DRAINED BY MEANS OF A 4" DRAIN LEADING TO A GRAVEL FILLED SUMP 3'X3'X3'. THE PIT SHALL BE SLOPED TO A FLOOR DRAIN PLACED IN A CORNER OPPOSITE THE LID. THE FLOOR DRAIN CASTING SHALL HAVE A 4" OUTLET AND A RAISED OR BEEHIVE DOME GRATE SIMILAR TO WADE #1634; JOSAM #7324; OR AN APPROVED EQUAL.

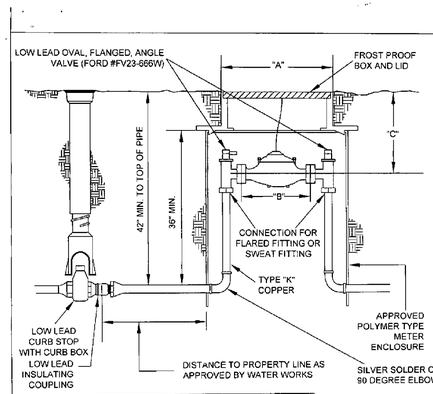
PIT LIDS
PITS NOT SUBJECT TO PARKING OR TRAFFIC SHALL BE CONSTRUCTED USING BILCO J-1AL (24"X24"), JD-2AL (48"X48") AND HAVE A FACTORY DRILLED 1-3/4" HOLE IN THE TOP.

PITS CONSTRUCTED IN PARKING AREAS SHALL HAVE A GUARD POST SET IN THE GROUND AT EACH CORNER OF THE ROOF SLAB, OR HAVE THE ROOF SLAB RAISED AT LEAST 6" ABOVE GROUND LEVEL TO PREVENT PARKING ON THE PIT.

PITS SUBJECT TO HEAVY TRAFFIC LOADS SHALL BE EQUIPPED WITH LIDS AS FOLLOWS: BILCO -1AL-H-20(24"X24"), J-D-2AL-H-20 (48"X48"),JD-3AL-H-20 (48"X72").

(CONTINUED ON NEXT PAGE)

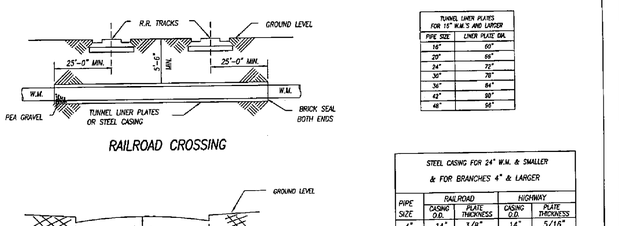
MATERIAL AND CONSTRUCTION SPECIFICATIONS		
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
APPROVED	DATE	STANDARD DRAWING
Paul E. Town	1/1/04	108-1A



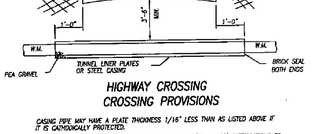
DETAILS
A) SEE 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
B) METER TO BE SET AT RIGHT ANGLES TO RIGHT OF WAY AND MUST BE LEVEL AND CENTERED WITH VALVES UPRIGHT. METER TO BE 15" -19" BELOW FINISHED GRADE.
C) FROST PROOF SETTING IN AN EMBANKMENT MAY REQUIRE A RETAINING WALL.
D) WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, AN AY McDONALD 74602Y REDUCING YOKE VALVE SHALL BE INSTALLED. OR IF A SILVER SOLDER REDUCING FITTING IS USED, IT SHALL BE LOCATED ON THE RISER WITHIN 4" OF THE INLET VALVE.
E) METER ENCLOSURE COVER TO BE FORD METER BOX #24 MONITOR COVER OR AN AY McDONALD 74-M3W. THE OUTER LID MUST BE ARMORCAST A6-459 GCWW LID OR AN APPROVED EQUAL.
F) HEAVY DUTY OUTER LIDS ARE REQUIRED IN PAVED OR TRAVELED AREAS.
G) STOP BOX OR ROADWAY BOX MUST BE INSTALLED.

METER SIZE	METER ENCLOSURE DIAMETER	"A"	"B"	"C"
1 1/2"	24"	20 3/4"	13"	15" TO 19"
2"	30"	20 3/4"	17"	15" TO 19"

OUTSIDE AMR METER BOX SETTING FOR 1 1/2" AND 2" METERS	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
APPROVED	DATE / STANDARD DRAWING
	5-12-08 / 108-5B



RAILROAD CROSSING



HIGHWAY CROSSING
CROSSING PROVISIONS

CASING PIPE MAY HAVE A PLATE THICKNESS 1/16" LESS THAN AS LISTED ABOVE IF IT IS CATHODICALLY PROTECTED.

TUNNEL LINER PLATES (ITEM 1107) AND STEEL CASING (ITEM 1108) INSTALLATIONS TO BE IN ACCORDANCE WITH THE CITY OF CINCINNATI'S SUPPLEMENT TO STATE OF OHIO, DEPARTMENT OF HIGHWAY CONSTRUCTION AND MATERIAL SPECIFICATIONS. TUNNEL LINER CASE SHALL BE DESIGNED AND SUBMITTED TO CINCINNATI WATER WORKS FOR APPROVAL ON A PROJECT BY PROJECT BASIS.

ALL WATER MAIN JOINTS WITHIN CASING OR TUNNEL LINER TO BE RESTRAINED.

ALL PIPE WITHIN CASING SHALL BE INSTALLED WITH CASING INSULATORS WITH 2" WIDE CLASS REINFORCED RUNNER EPDT MODEL A12 OR APPROVED EQUAL) WITH 2–INSULATORS PER PIPE SECTION. (ALL INSULATORS TO BE PRE APPROVED BY C.W.W.)

COMPLETELY FILL ALL VOIDS BETWEEN THE OUTSIDE OF THE PIPE AND THE CASING WITH PEA GRAVEL.

TUNNEL LINER PLATES FOR 15" W.M.'S AND LARGER	
PIPE SIZE	LINER PLATE DIA.
16"	60"
20"	66"
24"	72"
30"	78"
36"	84"
42"	90"
48"	96"

STEEL CASING FOR 24" W.M. & SMALLER & FOR BRANCHES 4" & LARGER

PIPE SIZE	RAILROAD CASING O.D.	RAILROAD PLATE THICKNESS	HIGHWAY CASING O.D.	HIGHWAY PLATE THICKNESS
4"	14"	3/8"	14"	5/16"
6"	18"	3/8"	16"	5/16"
8"	20"	3/8"	18"	5/16"
10"	22"	3/8"	20"	5/16"
12"	24"	3/8"	24"	5/16"
16"	30"	7/16"	30"	3/8"
24"	42"	7/16"	42"	7/16"

HIGHWAY & RAILROAD CASING CROSSING	
CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 11/2/98
APPROVED	STANDARD DRAWING
Paul E. Town	105-2

PIT LIDS (CONTINUED)
ALL BILCO LIDS SHALL BE EQUIPPED WITH STAINLESS STEEL HARDWARE AND MUST HAVE A 25 YEAR WARRANTY. LIDS SHALL BE CENTERED LENGTHWISE OVER THE DOMESTIC METER.

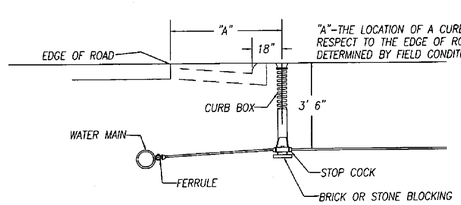
PIPES, METERS AND FITTINGS
ALL METERS SHALL BE PURCHASED FROM THE GCWW. SERVICE BRANCHES 3/4" THROUGH 2" SHALL BE SOFT ANNEALED TYPE "K" COPPER CONFORMING TO ASTM-B88, FROM THE MAIN TO THE WATER METER. ONLY COMPLETE ROLLS OF 60' OR 100' TYPE "K" COPPER MAY BE USED ON 3/4" AND 1" BRANCHES. AT NO TIME SHALL COPPER BE RUN THROUGH ANY CONDUIT. CONNECTIONS BETWEEN PIPE 3/4" OR 1" SHALL BE BY FLARED FITTING. CONNECTIONS BETWEEN PIPE 1 1/2" AND 2" SHALL BE WITH SILVER SOLDER OR FLARED FITTING. VALVES, FITTINGS, TEST TEES AND DETECTOR CHECK TRIM SHALL BE **"LOW LEAD" GCWW APPROVED BRASS.** SERVICE BRANCHES LARGER THAN 2" SHALL BE EITHER TYPE "K" COPPER OR DUCTILE IRON FROM THE MAIN TO THE METER SETTING OUTLET VALVE. DUCTILE IRON PIPE SHALL CONFORM TO CINCINNATI SPECIFICATION #40-110-91(CLASS 55) OR THE LATEST REVISION THEREOF AND SHALL BE INSPECTED BY THE CINCINNATI WATER WORKS ENGINEERING DIVISION.

INSULATION COUPLINGS
AN INSULATING COUPLING MUST BE INSTALLED ON THE HOUSE SIDE OF THE CORPORATION STOP ON ALL WATER SERVICE BRANCHES 3/4" THROUGH AND INCLUDING 2".

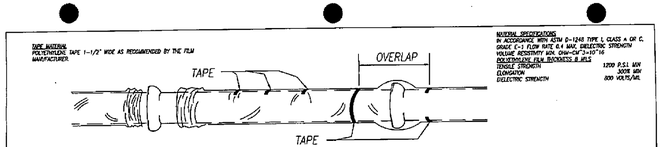
CURB BOXES/ROADWAY BOXES AND TELESCOPES
A GCWW APPROVED CURB BOX MUST BE INSTALLED OVER THE CORPORATION STOP ON ALL 3/4" AND 1" SERVICE LINE INSTALLATIONS AND SET TO ROUGH GRADE. IN THE INSTANCE WHERE A CORPORATION STOP WILL BE UNDER A PAVED AREA, A ROADWAY BOX MUST BE INSTALLED ON A 3/4" AND 1" SERVICE LINE INSTALLATION. ROADWAY BOXES MUST BE INSTALLED OVER THE CORPORATION STOP ON 1 1/2" AND 2" SERVICE LINE INSTALLATIONS AND SET TO ROUGH GRADE. (SEE E-476-M OR W-477-M FOR CURB BOX/ROADWAY BOX SPECIFICATIONS.)

(CONTINUED ON NEXT PAGE)

MATERIAL AND CONSTRUCTION SPECIFICATIONS		
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
APPROVED	DATE	STANDARD DRAWING
	8/1/08	108-1B



STANDARD SERVICE BRANCH INSTALLATION WITH CURB BOX	
CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 10/19/98
APPROVED	STANDARD DRAWING
Paul E. Town	107-1



PIPE WRAPPING
POLYETHYLENE TAPE 1–1/2" WIDE AS RECOMMENDED BY THE FILM MANUFACTURER.

MATERIAL SPECIFICATIONS
IN ACCORDANCE WITH ASTM D-1248 TYPE I, CLASS A OR C, GRADE C-1 FLOW RATE 0.4 MAX DIELECTRIC STRENGTH VOLUME RESISTIVITY 60X 09A–CM 3–10^16
POLYETHYLENE FILM THICKNESS & WEIGHT
0.008" 46 LBS/MSF
TENSILE STRENGTH 1200 P.S.I. MIN
ELONGATION 300% MIN
DIELECTRIC STRENGTH 800 VOLTS/MIL

THE FOLLOWING METHOD ILLUSTRATES THE PROCEDURE FOR APPLYING POLYETHYLENE:

CUT POLYETHYLENE TUBE TO A LENGTH APPROXIMATELY TWO FEET LONGER THAN THE LENGTH OF THE PIPE SECTION, SLIP THE TUBE AROUND THE PIPE, CENTERING IT TO PROVIDE A ONE–FOOT OVERLAP ON EACH ADJACENT PIPE SECTION, AND BUNCHING IT ACCORDION FASHION LENGTHWISE UNTIL IT CLEARS THE PIPE ENDS.

LOWER THE PIPE INTO THE TRENCH AND MAKE THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE. A SHALLOW BELL HOLE MUST BE MADE AT THE JOINTS TO FACILITATE INSTALLATION OF THE POLYETHYLENE TUBE.

AFTER ASSEMBLING THE PIPE JOINT, MAKE THE OVERLAP OF THE POLYETHYLENE TUBE, PULL THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE, SLIP IT OVER THE END OF THE NEW LENGTH OF PIPE AND SECURE IT IN PLACE. THEN SLIP THE END OF THE POLYETHYLENE FROM THE NEW PIPE SECTION OVER THE END OF THE PRECEDING LENGTH OF PIPE, SECURE THE OVERLAP IN PLACE, TAKE UP THE SLACK WIDTH TO MAKE IT SNUG, BUT NOT TO TIGHT, FIT ALONG THIS BARREL OF PIPE, SECURING THE FOLD AT QUARTER POINTS.

REPAIR ANY RIPS, PUNCTURES, OR OTHER DAMAGE TO THE POLYETHYLENE WITH ADHESIVE TAPE OR WITH A SHORT LENGTH OF THE POLYETHYLENE TUBE CUT OPEN, WRAPPED AROUND THE PIPE, AND SECURED IN PLACE. PROCEED WITH INSTALLATION OF THE NEXT SECTION OF PIPE IN THE SAME MANNER.

PIPE–SHAPED APPURTENANCES:
BENDS, REDUCERS, OFFSETS AND OTHER PIPE–SHAPED APPURTENANCES SHALL BE COVERED WITH POLYETHYLENE IN THE SAME MANNER AS THE PIPE.

JUNCTIONS BETWEEN WRAPPED AND UNWRAPPED PIPE:
WHERE POLYETHYLENE WRAPPED PIPE JOINS A PIPE WHICH IS NOT WRAPPED, EXTEND THE POLYETHYLENE TUBE TO COVER THE UNWRAPPED PIPE A DISTANCE OF AT LEAST TWO FEET. SECURE THE END WITH CIRCUMFERENTIAL TURNS OF TAPE.

ODD SHAPED APPURTENANCES:
VALVES, TEES, CROSSES AND OTHER ODD–SHAPED PIECES WHICH CANNOT BE WRAPPED PRACTICALLY IN A TUBE SHALL BE WRAPPED WITH A FLAT SHEET OR SPLIT LENGTH OF POLYETHYLENE TUBE. THE SHEET SHALL BE PASSED UNDER THE APPURTENANCE AND BROUGHT UP AROUND THE BODY. SEAMS SHALL BE MADE BY BRINGING THE EDGES TOGETHER, FOLDING OVER TWICE, AND TAPPING DOWN. SLACK WIDTH AND OVERLAPS AT JOINTS SHALL BE HANDLED AS DESCRIBED ABOVE. TAPE POLYETHYLENE SECURELY IN PLACE AT VALVE STEM AND OTHER PENETRATIONS.

BACKFILL FOR POLYETHYLENE WRAPPED PIPE:
BACKFILL MATERIAL SHALL BE THE SAME AS SPECIFIED FOR PIPE WITHOUT POLYETHYLENE WRAPPING. SPECIAL CARE SHOULD BE TAKEN TO PREVENT DAMAGE TO THE POLYETHYLENE WRAPPING WHEN PLACING BACKFILL. BACKFILL MATERIAL SHOULD BE FREE FROM CINDERS, REFUSE, BOULDERS, ROCKS, STONES OR OTHER MATERIAL THAT COULD DAMAGE POLYETHYLENE.

TUBE SIZE REQUIRED							
PIPE DIAMETER	4"	6"	8"	10"	12"	16"	20"
MIN. FLAT TUBE WIDTH (INCHES)	14	16	20	24	27	34	41

POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE	
CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 10/19/98
APPROVED	STANDARD DRAWING
Paul E. Town	105-5

CALCULATED M.J.C.
CHECKED J.A.F.

0 10 20 40
HORIZONTAL & VERTICAL SCALE IN FEET

HAM. 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT
GCWW JOB NO. 09060
WW001843 – 4–3474

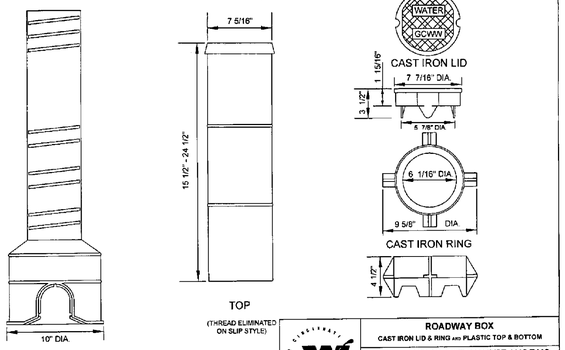
No.	Revisions By	Date

Designed By: Drawn By:

4 | 14
602
657

GREATER CINCINNATI WATER WORKS PLANS

WW–001843 MF#15714 D–3474–G



ROADWAY BOX
CAST IRON LID & RING AND PLASTIC TOP & BOTTOM
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-2A

BACKFLOW
ALL BACKFLOW DEVICES MUST BE NO SMALLER THAN THE SIZE OF THE METER. ALL BACKFLOW DEVICES MUST BE TESTED AT THE TIME OF INSTALLATION AND ONCE A YEAR THEREAFTER.

ABOVE GROUND BACKFLOW DEVICE ENCLOSURE
WHEN FROST PROOF PROTECTION IS NECESSARY, A HOTBOX OR APPROVED EQUAL MUST BE USED. THE DEPTH OF WATER INSIDE THE ENCLOSURE SHALL NOT EXCEED 6" DURING FULL FLOW OF THE BACKFLOW RELIEF VALVE DISCHARGE, NOR SHALL WATER STAND TO ANY DEPTH GREATER THAN 1/4" AFTER COMPLETION OF FULL FLOW.
ALL TEST COCKS, VALVE HANDLES OR HAND WHEELS SHALL BE WITHIN A MAXIMUM OF 24" OF ACCESS OPENING.
HINGED ACCESS PANELS SHALL BE SECURELY RESTRAINED IN THE OPEN AND CLOSED POSITIONS SO AS TO AVOID INJURY. HINGED ACCESS TO THE BACKFLOW PREVENTER SHALL BE LOCKABLE.

BACKFLOW DEVICE SPECIFICATIONS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-1F

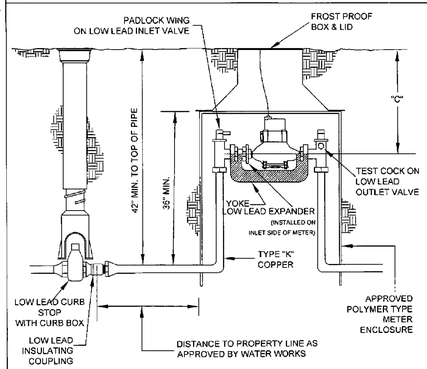
CURB BOXES/ROADWAY BOXES AND TELESCOPES: (CONTINUED)
A VALVE BOX MUST BE INSTALLED OVER THE CORPORATION STOP ON ALL 4" AND LARGER SERVICE LINE INSTALLATIONS. (SEE E-125-M OR E-125-MX FOR VALVE BOX SPECIFICATIONS) IRON TELESCOPES MUST BE USED IN TRAFFIC AREAS. PLASTIC TELESCOPES MAY BE INSTALLED IN GRASS AREAS. CONCRETE BRICKS MUST BE USED UNDER THE IRON TELESCOPE AND IRON VALVE BOX. OAK BLOCKS MAY BE USED UNDER THE PLASTIC TELESCOPE AND PLASTIC VALVE BOX.

REMOVABLE METAL LADDER
THE REMOVABLE METAL LADDER SHALL BE AN APPROVED OSHA TYPE 1 INDUSTRIAL-HEAVY 250 POUND RATED LADDER THAT MEETS THE AMERICAN NATIONAL STANDARD SAFETY CODE FOR PORTABLE METAL LADDERS. ANSI A 14.2 - (LATEST REVISION). THE LADDER MUST REACH FROM THE PIT FLOOR AND EXTEND INTO THE PIT OPENING.

METER BOX ENCLOSURE/OUTSIDE SETTING
ALL WATER METER SETTINGS (5/8" - 2") IN AN OUTSIDE METER BOX MUST BE INSTALLED WITH A SONOCO POLYMER METER BOX ENCLOSURE OR AN APPROVED EQUAL. FORD METER BOX METAL ENCLOSURES (CASTING) AND ARMORCAST LIDS OR AN APPROVED EQUAL ARE INDICATED ON SPECIFIC STANDARD DRAWINGS. SETTING MUST BE CENTERED IN BOX, 15" TO 19" BELOW GRADE.

HYDROSTATIC TESTING OF SERVICE BRANCHES
BRANCHES MORE THAN 300 FEET IN LENGTH BETWEEN CURB STOP AND METER SETTING MUST BE HYDROSTATICALLY TESTED. BRANCHES LESS THAN 300 FEET WILL BE INSPECTED IN ACCORDANCE WITH STANDARD INSPECTION PROCEDURES. THE HYDROSTATIC TEST, AS WELL AS THE STANDARD BRANCH INSPECTION, MUST BE WITNESSED BY A GCWW REPRESENTATIVE. THE HYDROSTATIC TESTING SHALL BE AT A PRESSURE 50 PSI GREATER THAN THE EXISTING STATIC PRESSURE IN THE WATER MAIN, MAINTAINED FOR 5 MINUTES, WITH NO PRESSURE LOSS.
NO BACKFILL OF ANY PORTION OF THE LINE MAY OCCUR UNTIL THE INSPECTION AND HYDROSTATIC TESTING IS COMPLETE. IT MAY BE NECESSARY, AT TIMES, TO BACKFILL A PORTION OF THE TRENCH BEFORE THE ENTIRE BRANCH IS INSTALLED.
(CONTINUED ON NEXT PAGE)

MATERIAL AND CONSTRUCTION SPECIFICATIONS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-1C



DETAILS
A) SEE 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
B) METER TO BE SET AT RIGHT ANGLES TO RIGHT OF WAY AND MUST BE LEVEL AND CENTERED WITH YOKE VALVES UPRIGHT. METER TO BE 15" -19" BELOW FINISHED GRADE.
C) FROST PROOF SETTING IN AN EMBANKMENT MAY REQUIRE A RETAINING WALL.
D) WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, AN AY McDONALD 74602Y REDUCING YOKE VALVE SHALL BE INSTALLED. OR IF A SILVER SOLDER REDUCING FITTING IS USED, IT SHALL BE LOCATED ON THE RISER WITHIN 4" OF THE INLET VALVE.
E) METER ENCLOSURE COVER TO BE FORD METER BOX #FW-3 OR AN AY McDONALD 74-M3W. THE OUTER L/D MUST BE ARMORCAST A6-449 GCWW LID OR AN APPROVED EQUAL.
F) HEAVY DUTY OUTER LIDS ARE REQUIRED IN PAVED OR TRAVELED AREAS.
G) STOP BOX OR ROADWAY BOX MUST BE INSTALLED.

METER SIZE	METER ENCLOSURE DIAMETER	"C"
5/8"	20"	15" TO 19"
3/4"	20"	15" TO 19"

OUTSIDE AMR METER BOX SETTING FOR 5/8" & 3/4" METERS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Joe Kotter | DATE: 5-12-06 | STANDARD DRAWING: 108-5

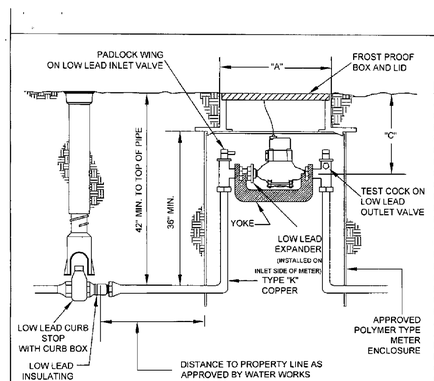
METER SIZE (IN INCHES)	METER TYPE	LAYING LENGTH (IN INCHES)
5/8	POSITIVE DISPLACEMENT	7 1/2
3/4	POSITIVE DISPLACEMENT	9
1	POSITIVE DISPLACEMENT	10 3/4
1 1/2	POSITIVE DISPLACEMENT	13
2	POSITIVE DISPLACEMENT	17
2	TURBINE	17
3	COMPOUND	24
3	TURBINE	24
4	COMPOUND	29
4	TURBINE	29
4	FIRE PROTECTION ASSEMBLY	33
6	COMPOUND	36
6	TURBINE	36
6	FIRE PROTECTION ASSEMBLY	45
8	TURBINE	42
8	FIRE PROTECTION ASSEMBLY	53
10	TURBINE	48
10	FIRE PROTECTION ASSEMBLY	68
12	TURBINE	68
16	TURBINE	68
20	TURBINE	68

LAYING LENGTH INCLUDES STRAINER AND SPACER

WATER METER LAYING LENGTHS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-1G

HYDROSTATIC TESTING OF SERVICE BRANCHES (CONTINUED)
THE GCWW INSPECTOR ON SITE MAY AUTHORIZE THE BACKFILL AFTER INSPECTING THE PORTION OF THE BRANCH TO BE COVERED. IN SUCH CASES, THE HYDROSTATIC TEST SHALL BE COMPLETED ON EACH SECTION BEFORE BACKFILLING.
THE FOLLOWING PROCEDURE WILL BE USED FOR THE TEST:
A) THE SERVICE SHALL BE INSTALLED IN ACCORDANCE WITH GCWW REGULATIONS. IT SHALL BE THE CERTIFIED PERSON'S RESPONSIBILITY TO CALL THE GCWW TO ARRANGE FOR AN INSPECTION OF THE BRANCH. AN INSPECTION WILL BE MADE BY THE GCWW INSPECTOR AT THE TIME OF THE HYDROSTATIC TEST.
B) AFTER COMPLETING INSTALLATION, THE BRANCH SHALL BE FILLED WITH WATER AT WATER MAIN PRESSURE. THE CERTIFIED PERSON WILL CONNECT THE HYDROSTATIC TEST EQUIPMENT TO THE LINE. A PRESSURE GAUGE APPROPRIATE FOR THE PRESSURE BEING MEASURED, AND A BALL VALVE, MUST BE INSTALLED AT THE OUTLET END OF THE LINE. AFTER THE EQUIPMENT IS CONNECTED, THE CURB STOP WILL BE SHUT OFF, ISOLATING THE PRESSURE IN THE LINE. THE CERTIFIED PERSON WILL THEN INCREASE THE LINE PRESSURE 50 PSI GREATER THAN THE NORMAL STATIC PRESSURE AT THE WATER MAIN. THE BALL VALVE WILL THEN BE CLOSED SO AS TO ISOLATE THE LINE FROM THE HYDROSTATIC TEST EQUIPMENT. THE GCWW INSPECTOR WILL MONITOR THE PRESSURE GAUGE FOR A PERIOD OF 5 MINUTES. THERE SHALL BE NO ALLOWABLE PRESSURE LOSS DURING THIS PERIOD.

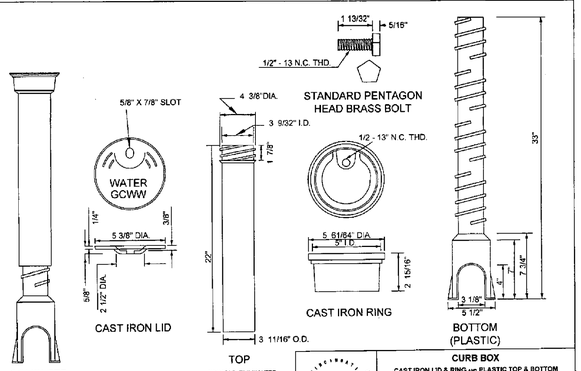
MATERIAL AND CONSTRUCTION SPECIFICATIONS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-1D



DETAILS
A) SEE 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
B) METER TO BE SET AT RIGHT ANGLES TO RIGHT OF WAY AND MUST BE LEVEL AND CENTERED WITH YOKE VALVES UPRIGHT. METER TO BE 15" -19" BELOW FINISHED GRADE.
C) FROST PROOF SETTING IN AN EMBANKMENT MAY REQUIRE A RETAINING WALL.
D) WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, AN AY McDONALD 74602Y REDUCING YOKE VALVE SHALL BE INSTALLED. OR IF A SILVER SOLDER REDUCING FITTING IS USED, IT SHALL BE LOCATED ON THE RISER WITHIN 4" OF THE INLET VALVE.
E) METER ENCLOSURE COVER TO BE FORD METER BOX #24 MONITOR COVER OR AN AY McDONALD 74-M3W. THE OUTER LID MUST BE ARMORCAST A6-459 GCWW LID OR AN APPROVED EQUAL.
F) HEAVY DUTY OUTER LIDS ARE REQUIRED IN PAVED OR TRAVELED AREAS.
G) STOP BOX OR ROADWAY BOX MUST BE INSTALLED.

METER SIZE	METER ENCLOSURE DIAMETER	"A"	"C"
1"	24"	20 3/4"	15" TO 19"

OUTSIDE AMR METER BOX SETTING FOR 1" METERS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Joe Kotter | DATE: 5-12-06 | STANDARD DRAWING: 108-5A



CURB BOX
CAST IRON LID & RING AND PLASTIC TOP & BOTTOM
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-2

AMR SYSTEM INSTALLATIONS ON ***NEW*** SERVICES:
METER PITS OR FROST PROOF BOXES SHALL BE SET AS CLOSE AS PRACTICAL TO THE PROPERTY LINE. IN THE INSTANCE WHERE A METER IS TO BE INSTALLED IN A FROST PROOF BOX, THE APPROPRIATE FORD METER BOX ENCLOSURE AND COVER MUST BE INSTALLED. SEE SPECIFIC DRAWING PERTAINING TO METER SIZE. OUTER LIDS MUST BE ARMORCAST A6-449 OR 459 DEPENDING ON METER SIZE. GCWW PERSONNEL OR AUTHORIZED AGENT WILL INSTALL 5/8" THROUGH 1" METERS, WIRE AND METER INTERFACE UNIT IN FORD METER BOX SETTINGS. GCWW PERSONNEL OR AUTHORIZED AGENT WILL INSTALL ALL MIU'S.
IN THE UNUSUAL EVENT THAT A METER IS INSTALLED INSIDE A BUILDING, A HOLE MUST BE DRILLED THROUGH THE FOUNDATION OR WALL 36" TO 80" ABOVE THE FINISHED GRADE. MIU WILL BE INSTALLED AT THIS LOCATION. 3/4" CONDUIT MUST BE RUN FROM THE METER SETTING TO THE HOLE. 5/8" - 2" METERS REQUIRE A 1/4" HOLE WHILE 3" OR LARGER METERS REQUIRE A 3/4" HOLE. WIRE MUST BE RUN THROUGH THE CONDUIT WITH A MINIMUM OF 1 FOOT OF EXCESS WIRE SECURED ON THE INLET VALVE AND A MINIMUM OF 1 FOOT OF EXCESS WIRE OUTSIDE OF THE FOUNDATION OR WALL. AFTER RUNNING THE WIRE, THE HOLE MUST BE SEALED WITH FLEXIBLE SEALANT.
GCWW PERSONNEL OR AUTHORIZED AGENT WILL CONNECT ALL CABLE.

AUTOMATIC METER READING SYSTEM (AMR) STANDARDS
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION
APPROVED: Paul Tomes | DATE: 1/1/04 | STANDARD DRAWING: 108-1E

0 10 20 40
HORIZONTAL & VERTICAL SCALE IN FEET

CALCULATED: M.J.C.
CHECKED: J.A.F.

HAM. 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 - 4-3474

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Drawn By:

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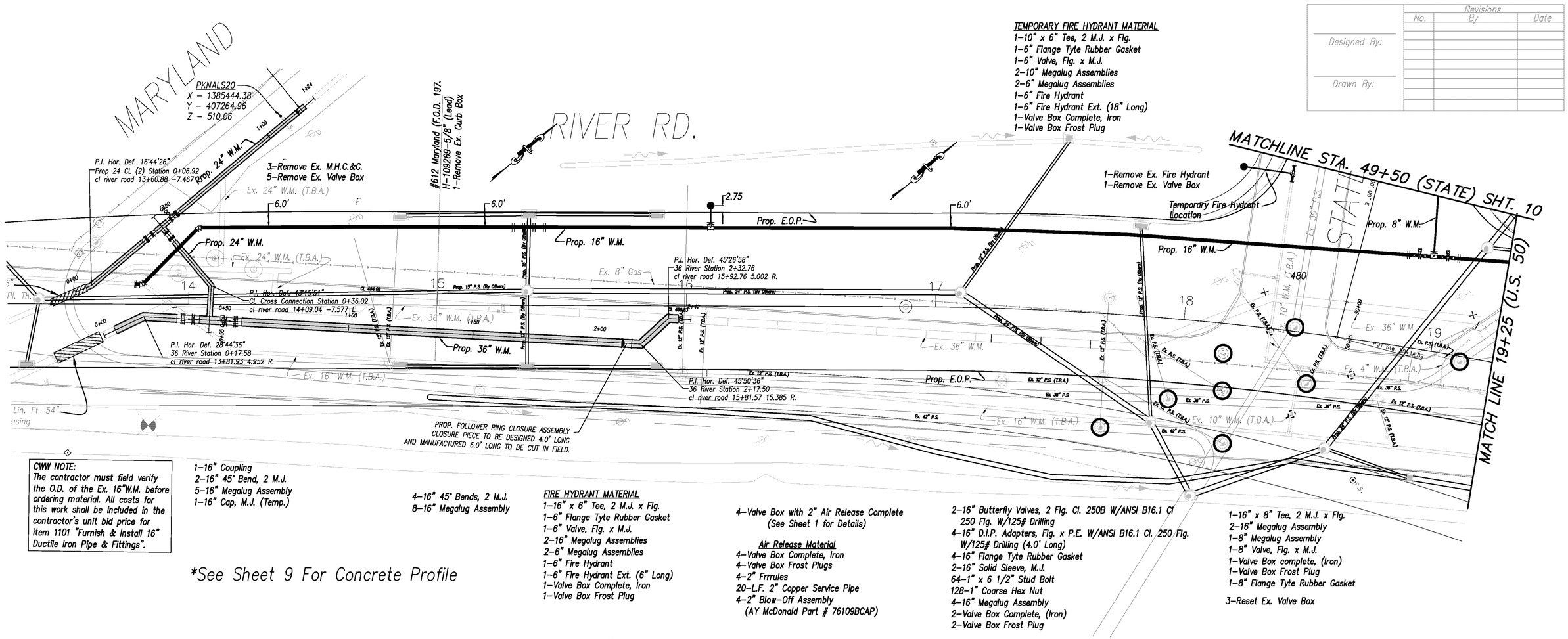
GREATER CINCINNATI WATER WORKS PLANS
WW-001843 MF#15714 D-3474-G



CWW NOTE:
The contractor must field verify the O.D. of the Ex. 16"W.M. before ordering material. All costs for this work shall be included in the contractor's unit bid price for item 1101 "Furnish & Install 16" Ductile Iron Pipe & Fittings".

1-16" Coupling
2-16" 45° Bend, 2 M.J.
5-16" Megalug Assembly
1-16" Cap, M.J. (Temp.)

4-16" 45° Bends, 2 M.J.
8-16" Megalug Assembly

FIRE HYDRANT MATERIAL
1-16" x 6" Tee, 2 M.J. x Flg.
1-6" Flange Tyte Rubber Gasket
1-6" Valve, Flg. x M.J.
2-16" Megalug Assemblies
2-6" Megalug Assemblies
1-6" Fire Hydrant
1-6" Fire Hydrant Ext. (6" Long)
1-Valve Box Complete, Iron
1-Valve Box Frost Plug

4-Valve Box with 2" Air Release Complete
(See Sheet 1 for Details)

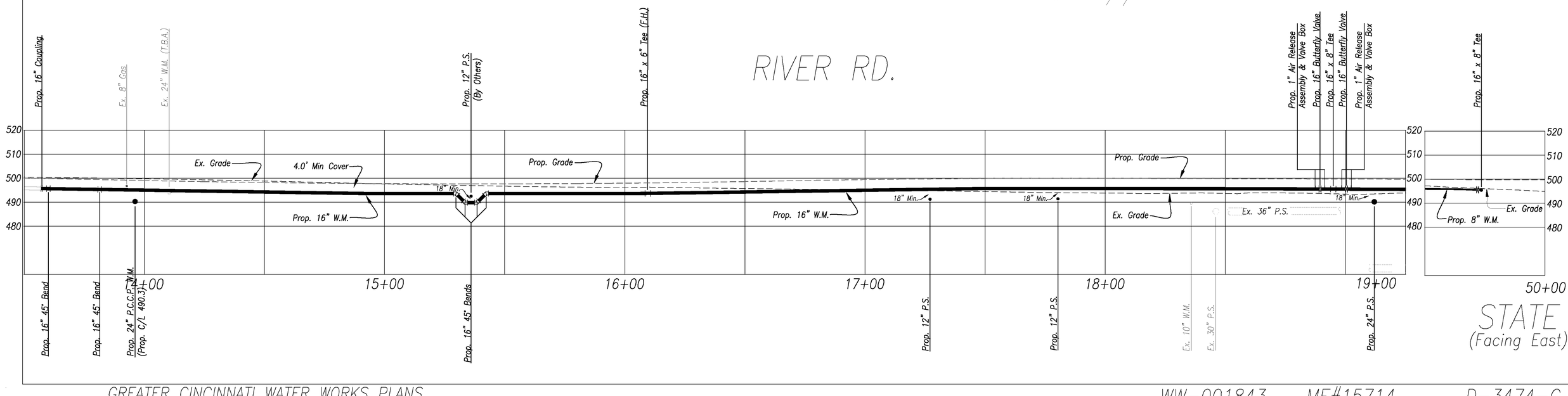
Air Release Material
4-Valve Box Complete, Iron
4-Valve Box Frost Plugs
4-2" Frrrules
20-L.F. 2" Copper Service Pipe
4-2" Blow-Off Assembly
(AY McDonald Part # 76109BCAP)

2-16" Butterfly Valves, 2 Flg. Cl. 250B W/ANSI B16.1 Cl 250 Flg. W/125# Drilling
4-16" D.I.P. Adapters, Flg. x P.E. W/ANSI B16.1 Cl. 250 Flg. W/125# Drilling (4.0' Long)
4-16" Flange Tyte Rubber Gasket
2-16" Solid Sleeve, M.J.
64-1" x 6 1/2" Stud Bolt
128-1" Coarse Hex Nut
4-16" Megalug Assembly
2-Valve Box Complete, (Iron)
2-Valve Box Frost Plug

1-16" x 8" Tee, 2 M.J. x Flg.
2-16" Megalug Assembly
1-8" Megalug Assembly
1-8" Valve, Flg. x M.J.
1-Valve Box complete, (Iron)
1-Valve Box Frost Plug
1-8" Flange Tyte Rubber Gasket

3-Reset Ex. Valve Box

*See Sheet 9 For Concrete Profile



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HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT
GCWW JOB NO. 09060
WW001843 - 4-3474

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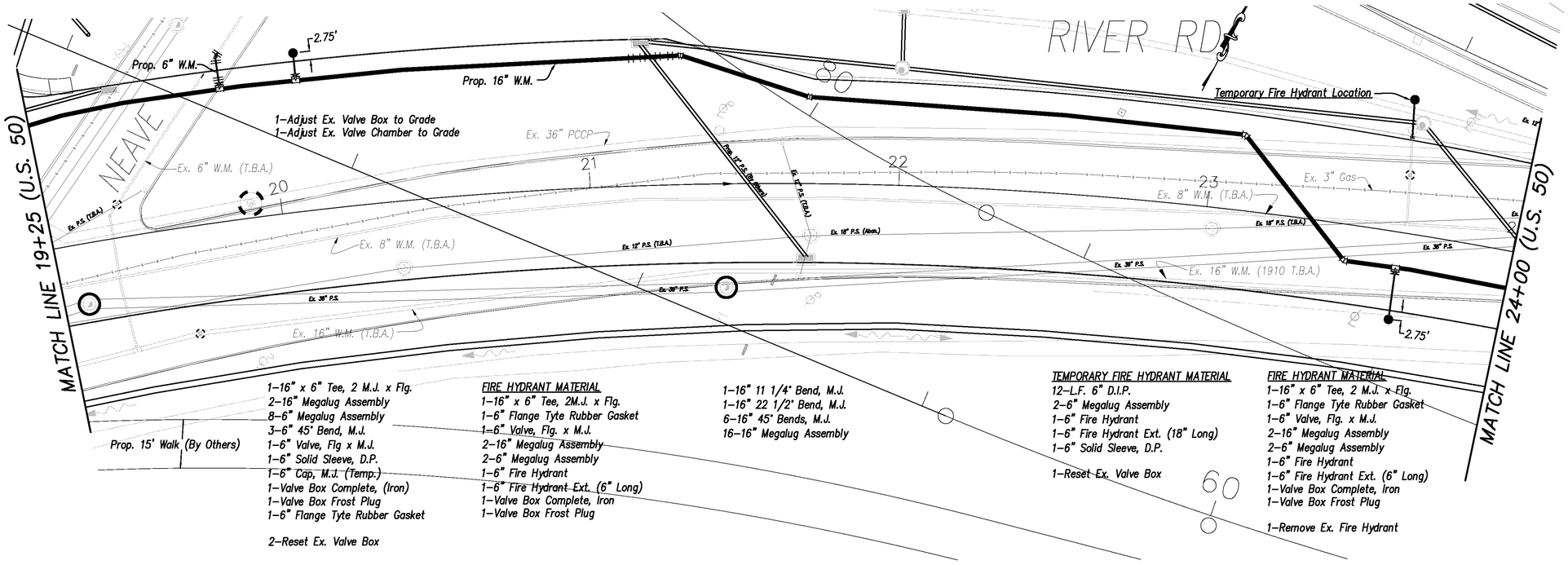
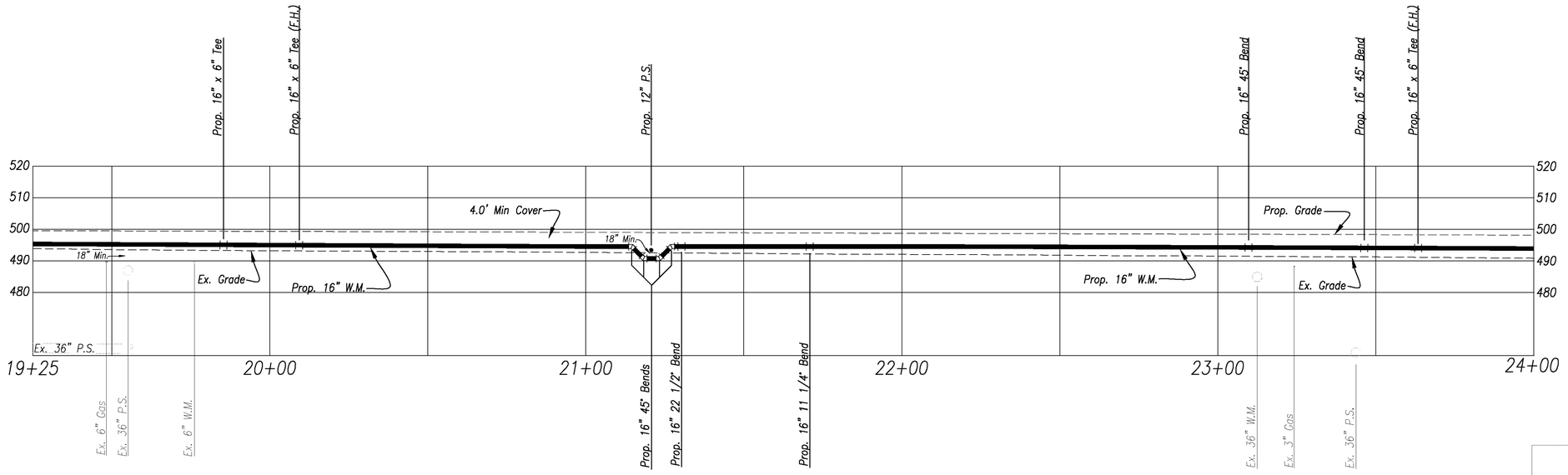
GREATER CINCINNATI WATER WORKS PLANS
WW-001843 MF#15714 D-3474-G





HORIZONTAL & VERTICAL SCALE IN FEET

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 - 4-3474

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RIVER RD.

MATCH LINE 24+00 (U.S. 50)

MATCH LINE 29+00 (U.S. 50)

Ex. 6" W.M.

Ex. 36" PCCP

Ex. 36" P.S.

Ex. 10" W.M.

Ex. 8" W.M. (T.B.A.)

Ex. 10" W.M. (T.B.A.)

Ex. 16" W.M. 1910 (T.B.A.)

Ex. 16" W.M. 1910 (T.B.A.)

Ex. 36" PCCP

Prop. 16" W.M.

Temporary Fire Hydrant Location

PKNAIL52
X - 1386704.16
Y - 407928.04
Z - 490.79

#1960 River Rd. (Renew)
H-78226-1"
72-L.F. 1" Cop. Serv. Pipe
1-1" Ferrule
1-1" Stop Cock
1-1" Insul. Coup.
1-1" x 1" Cop. to Lead Coup.
1-Curb Box

135
490.790
P.K.S.

134
491.420
prspks

RRSPKS4
X - 1386502.35
Y - 407860.82
Z - 491.42

130
493.110
P.K.S.

PKNAIL2
X - 1386473.75
Y - 407814.40
Z - 493.11

2.75'

25

26

4

85

65

1-16" x 10" Tee, 3 M.J.
1-10" 11 1/4° Bend, M.J.
1-10" Solid Sleeve, D.P.
2-16" Megalug Assembly
4-10" Megalug Assembly
1-10" Cap, M.J. (Temp.)

5-Adjust Ex. Valve Chamber to Grade

FIRE HYDRANT MATERIAL
1-16" x 6" Tee, M.J. x Flg.
1-6" Flange Tyte Rubber Gasket
1-6" Valve, Flg. x M.J.
2-16" Megalug Assembly
2-6" Megalug Assembly
1-6" Fire Hydrant
1-6" Fire Hydrant Ext. (6" Long)
1-Valve Box Complete, Iron
1-Valve Box Frost Plug

1-Remove Ex. Fire Hydrant
1-Remove Ex. Valve Box

TEMPORARY FIRE HYDRANT MATERIAL
28-L.F. 6" D.I.P.
7-L.F. 16" D.I.P.
1-16" x 6" Tee, M.J. x Flg.
1-6" Flange Tyte Rubber Gasket
1-6" Valve, Flg. x M.J.
1-16" Megalug Assembly
2-6" Megalug Assembly
1-6" Fire Hydrant
1-6" Fire Hydrant Ext. (18" Long)
1-16" Solid Sleeve, D.P.
1-Valve Box Complete, Iron
1-Valve Box Frost Plug

Prop. 16" x 10" Tee

Prop. 16" x 6" Tee (F.H.)

Prop. 12" P.S. (By Others)

Prop. 12" P.S. (By Others)

Prop. Grade

Ex. Grade

Prop. 16" W.M.

4.0' Min Cover

18" Min.

18" Min.

18" Min.

Prop. Grade

Prop. 16" W.M.

520
510
500
490
480

24+00
25+00
26+00
27+00
28+00
29+00

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 - 4-3474

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No.	By	Date

#1940 River Rd. (Renew)
1–81226–2"
80–L.F. 2" Cop. Serv. Pipe
1–2" Ferrule
1–2" Stop Cock
1–2" Insul. Coup.
1–2" x 2" Cop. to Lead Coup.
1–Curb Box

#1920 River Rd. 6" Fire Branch
H–272986–DC2067
1–16" x 6" Tee, 2M.J. x Flg.
2–6" 45° Bend, 2M.J.
1–6" Flange Tyte Rubber Gasket
1–6" Valve, Flg. x M.J.
2–16" Megalug Assembly
8–6" Megalug Assembly
1–6" Cap, M.J. (Temp.)
1–Valve Box Complete, Iron
1–Valve Box Frost Plug
1–Reset Ex. Valve Box

RIVER RD.

CWW NOTE:
The contractor must field verify the O.D. of the Ex. 16"W.M. before ordering material. All costs for this work shall be included in the contractor's unit bid price for item 1101 "Furnish & Install 16" Ductile Iron Pipe & Fittings".

(2" Air Release Assembly Material)
1–Valve Box Complete, (Iron)
1–Valve Box Frost Plugs
1–2" Ferrules
5–L.F. 2" Copper Service Pipe
1–2" Blow–Off Assembly
(AY McDonald Part #76109BCAP)

#1900 River Rd. (F.O.D.)
H–201158–3/4"
1–Disconnect Ex. Service Branch
4–24"
1–Adju.

MATCH LINE 29+00 (U.S. 50)

MATCH LINE 34+75 (U.S. 50)

Ex. 24" P.S. 475.0 Inv.
Ex. 36" P.S. 457.0 Inv.
Ex. 18" P.S. 476.5 Inv.
Prop. 6" W.M.
Prop. 16" W.M.
Temporary Fire Hydrant Location
Ex. 16" W.M. 1910 (T.B.A.)
Ex. 12" P.S. (T.B.A.)
Ex. 24" W.M.
Ex. 36" W.M.
30
90
138 491.81 p.s.
PKNAIL S3
X – 1387052.43
Y – 407921.34
Z – 489.03
140 489.030 p.k.s.
PKNAIL
X – 1386861.86
Y – 407897.89
Z – 491.01
P.S.

4–16" 45° Bends, M.J.
11–16" Megalug Assembly
1–16" Solid Sleeve, M.J.
1–16" Cap, M.J. (Temp.)

1–16" Mech. Jt. Coupling
2–24" Mech. Jt. Coupling

13–Reset Ex. Valve Box to Grade

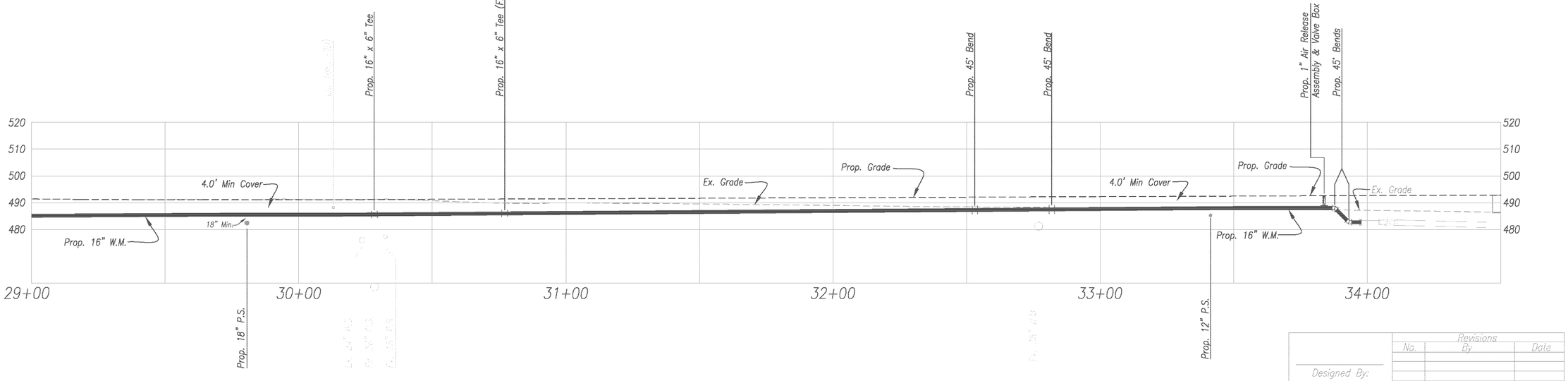
#1901 River Rd. (F.O.D.)
H–240972–4"
1–Abandon Ex. Vault

#1901 River Rd. (F.O.D.)
H–245467–4"

FIRE HYDRANT MATERIAL
1–16" x 6" Tee, 2M.J. x Flg.
1–6" Flange Tyte Rubber Gasket
1–6" Valve, Flg. x M.J.
2–16" Megalug Assembly
2–6" Megalug Assembly
1–6" Fire Hydrant
1–6" Fire Hydrant Ext. (6" Long)
1–Valve Box Complete, Iron
1–Valve Box Frost Plug

1–Remove Ex. Fire Hydrant
1–Reset Ex. Valve Box

TEMPORARY FIRE HYDRANT MATERIAL
34 L.F. 6" D.I.P.
1–6" Megalug Assembly
1–6" Fire Hydrant
1–6" Fire Hydrant Ext. (18" Long)
1–" Solid Sleeve, D.P.



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Revisions
No.	By	Date

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4–3474

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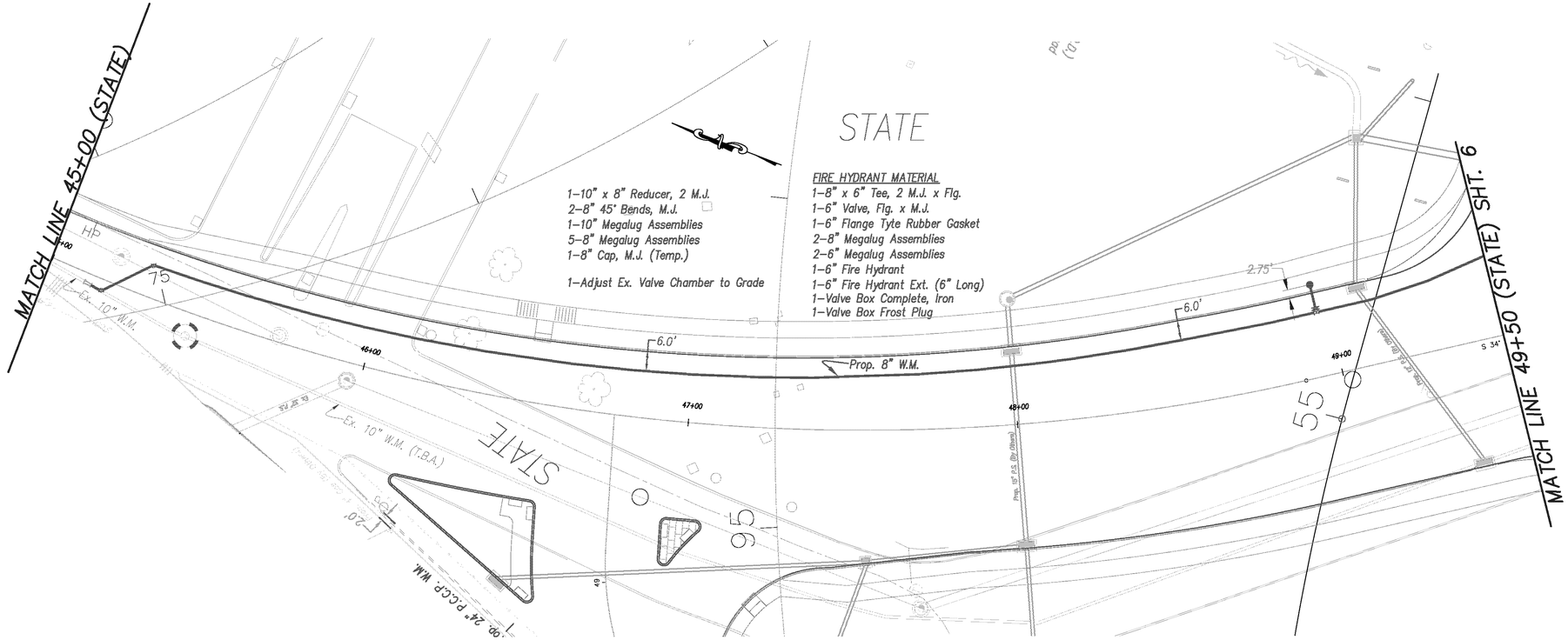

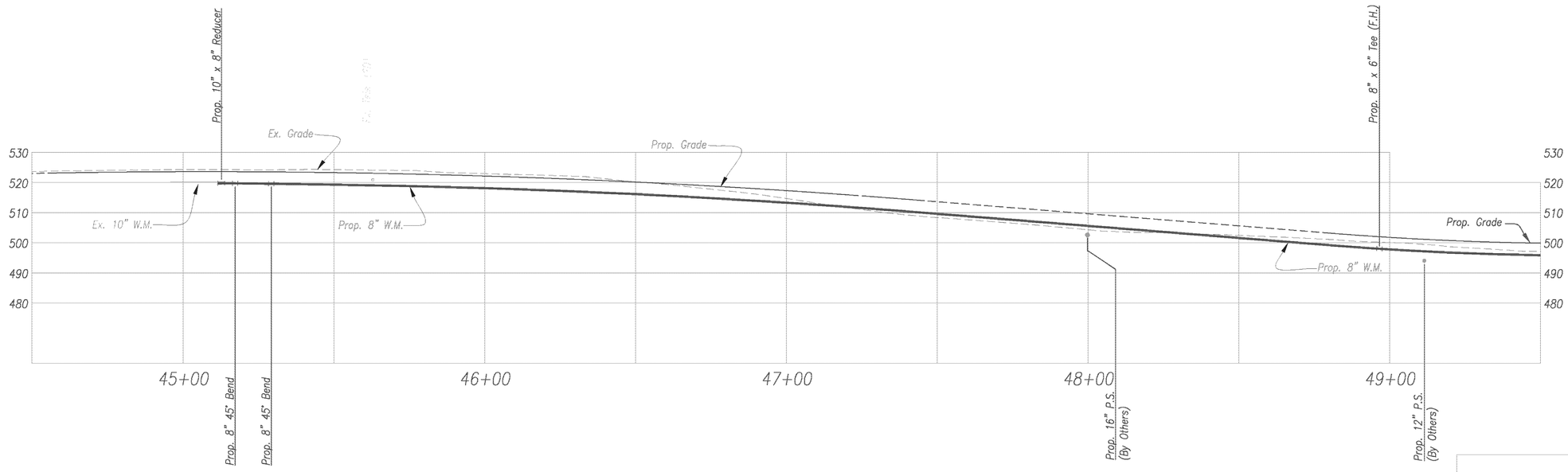

Designed By:	Revisions		
	No.	By	Date
Drawn By:			

0 10 20 40
HORIZONTAL & VERTICAL SCALE IN FEET

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4–3474

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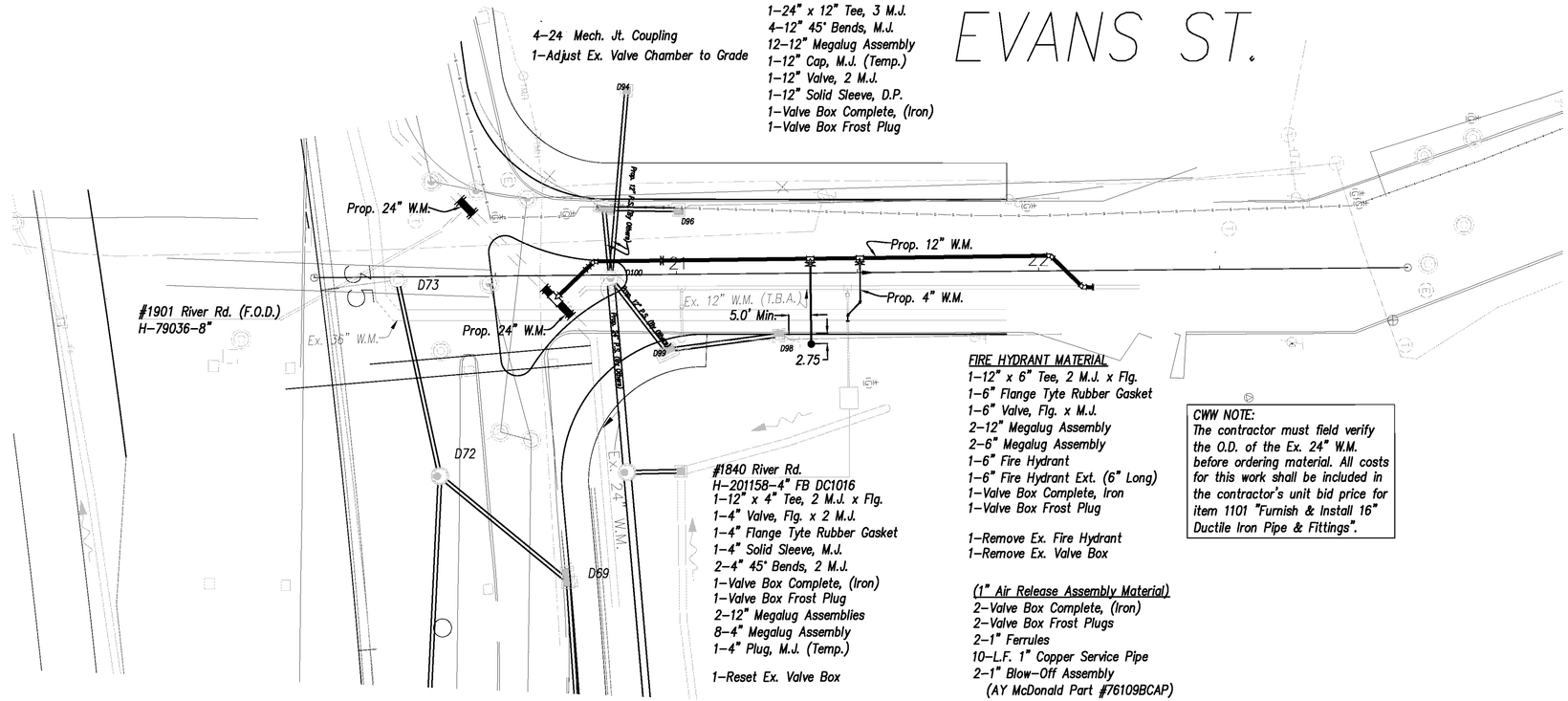
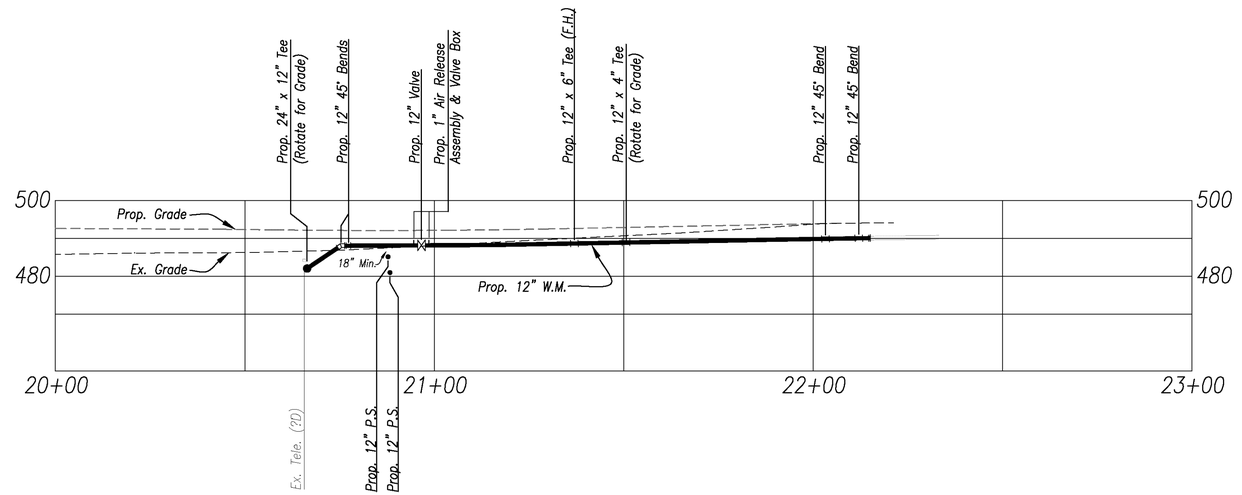
EVANS ST.





HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4–3474

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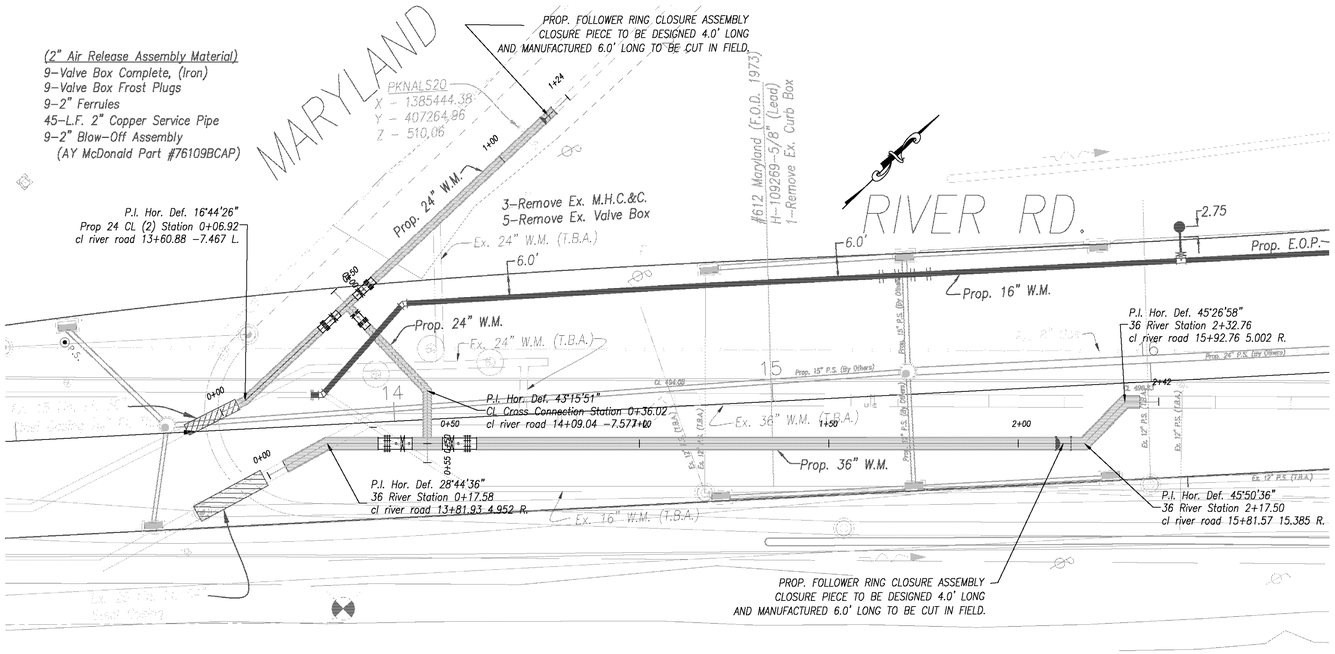
Revisions

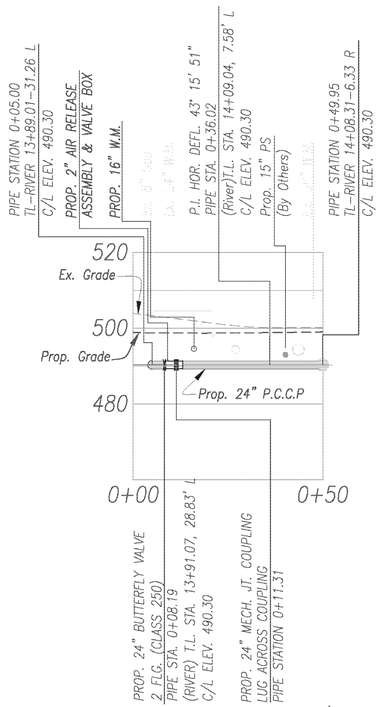
No.	By	Date

Designed By:

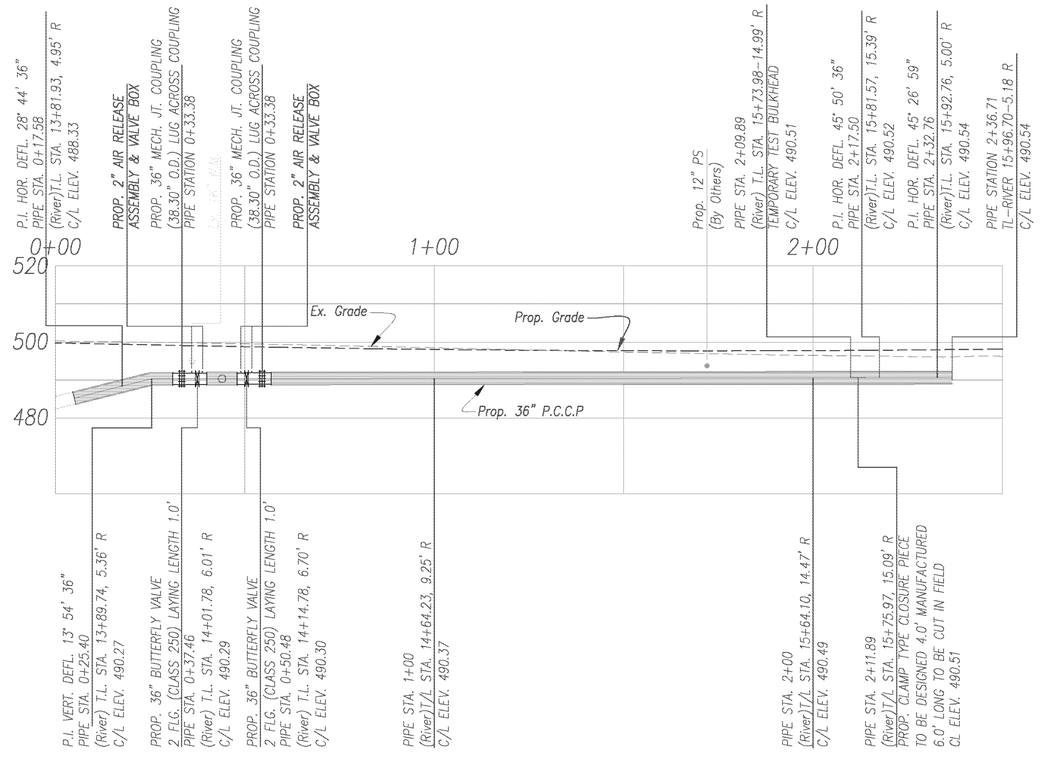
Drawn By:



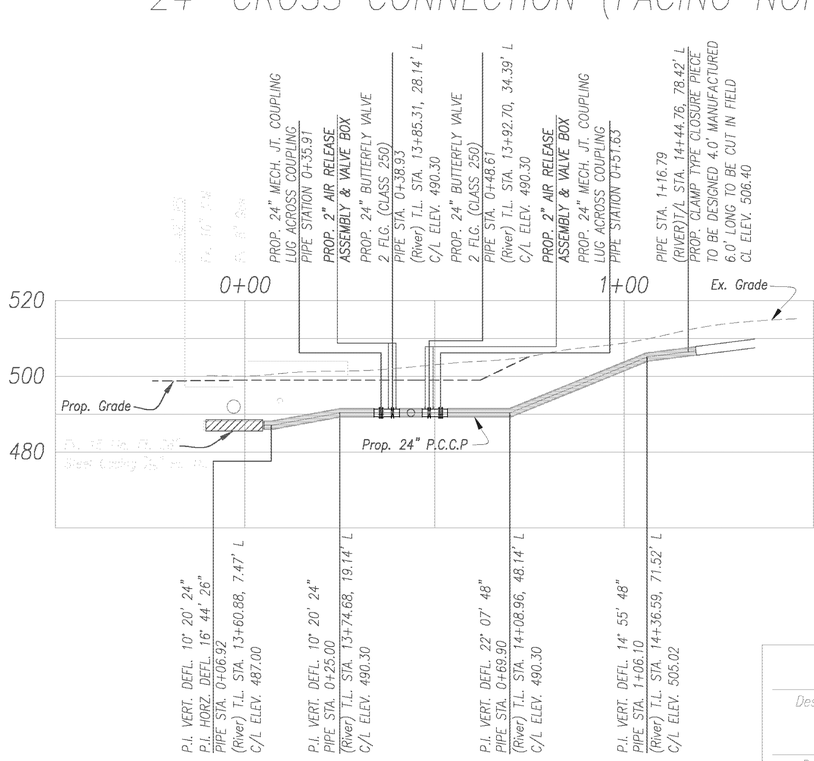
RIVER RD. (FACING NORTH)



24" CROSS CONNECTION (FACING NORTH)



RIVER RD. (FACING NORTH)



MARYLAND (FACING WEST)

(24" Butterfly Valve Material)

3–24" Butterfly Valve, Std. Cl. 250B
W/ANSI B–16.1 Cl. 125 Flanges W/125# Drilling
120–1 1/4" x 8 1/2" stud Bolts
240–1 1/4" Hex Nuts & Washers
6–24" Flange Tyte Rubber Gasket
6–24" D.I.P. Adapters, Flg. x P.E.,
4.0' Long W/ANSI B–16.1 Cl. 125# Drilling
3–24" Pipe Coupling
3–Valve Box Complete, (Iron)
3–Valve Box Frost Plug

(36" Butterfly Valve Material)

2–36" Butterfly Valve, Std. Cl. 250B
W/ANSI B–16.1 Cl. 125 Flanges W/125# Drilling
128–1 1/2" x 10 1/4" Stud Bolts
256–1 1/2" Hex Nuts & Washers
4–36" Flange Tyte Rubber Gasket
4–36" D.I.P. Adapters, Flg. x P.E.,
4.0' Long W/ANSI B–16.1 Cl. 125# Drilling
2–24" Pipe Coupling
2–Valve Box Complete, (Iron)
2–Valve Box Frost Plug

HORIZONTAL & VERTICAL SCALE IN FEET
0 10 20 40

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4–3474

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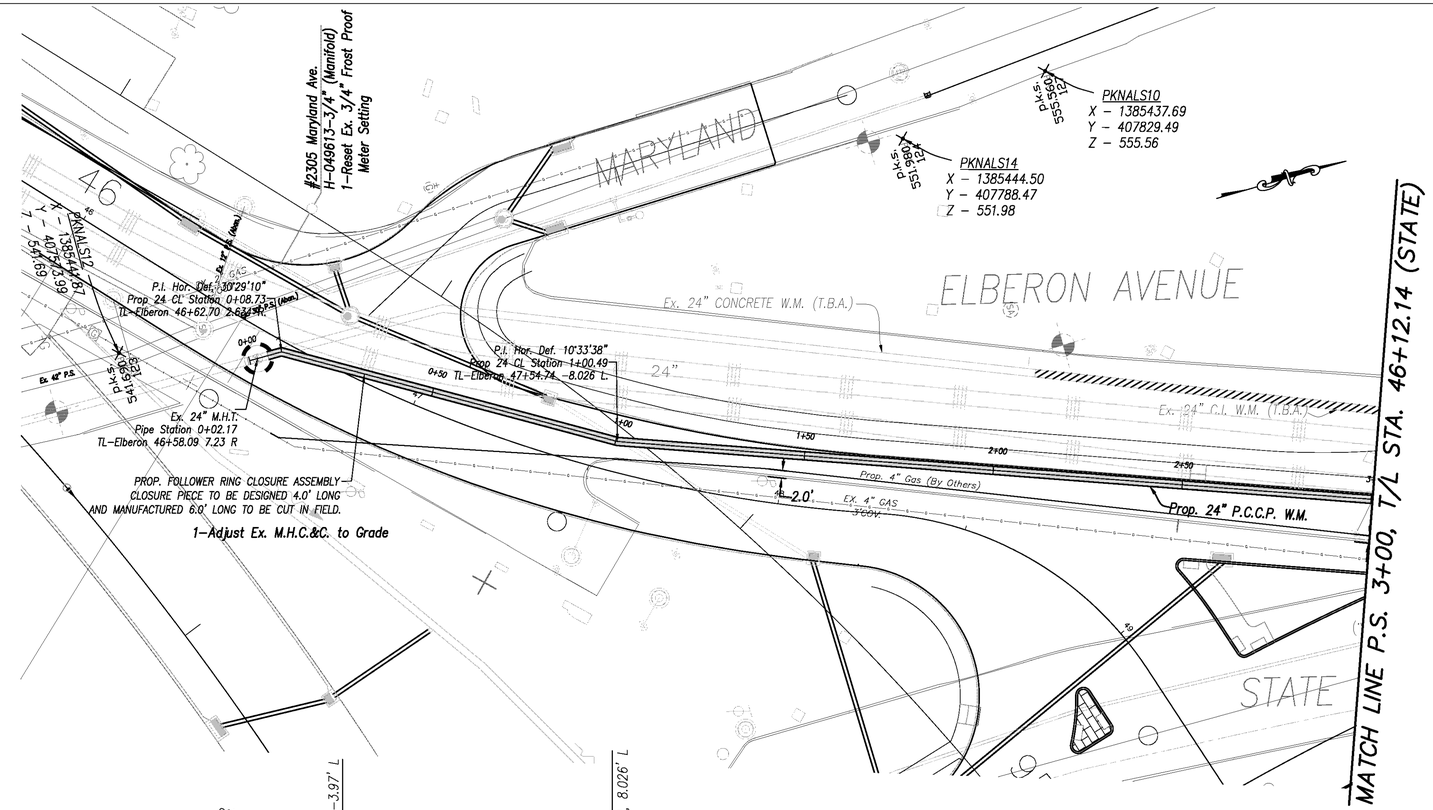
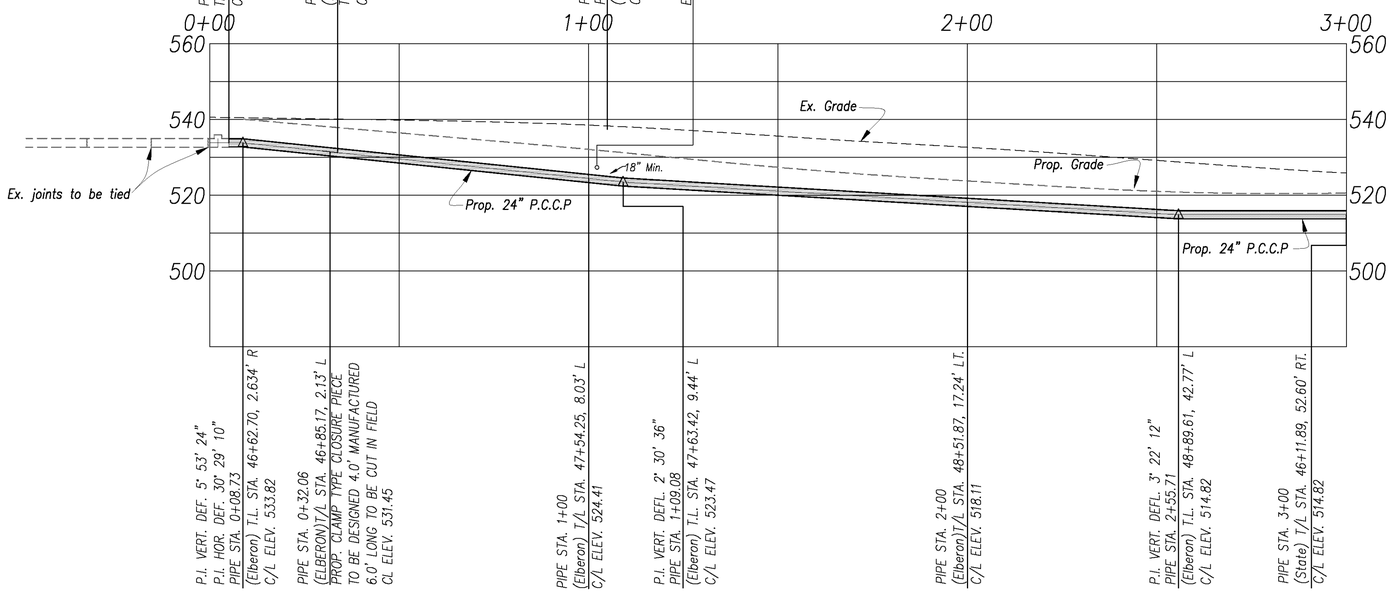
Revisions

No.	By	Date

Designed By:

Drawn By:





HORIZONTAL & VERTICAL SCALE IN FEET

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50-18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

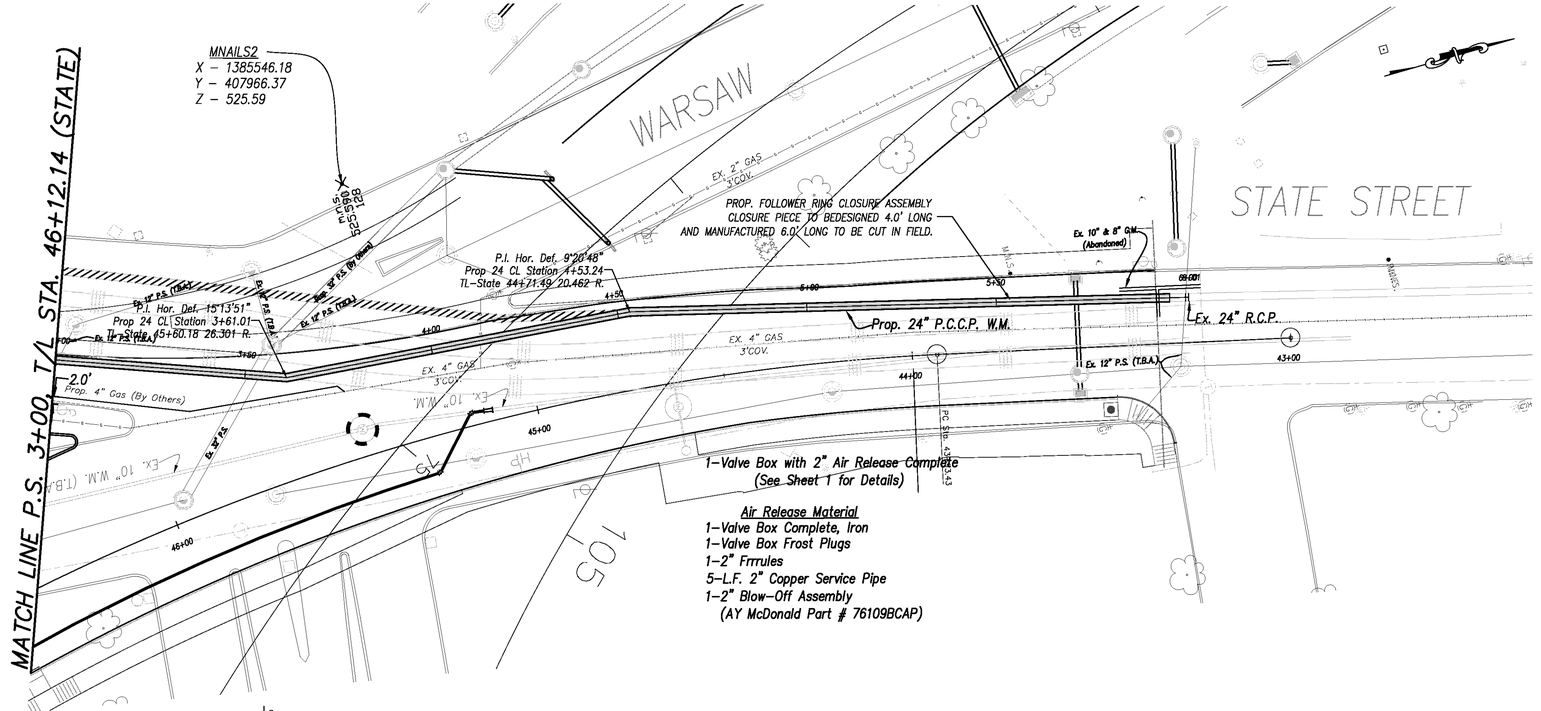
GCWW JOB NO. 09060
WW001843 - 4-3474

13/14
611
657

Designed By:	Revisions		
	No.	By	Date
Drawn By:			

GREATER CINCINNATI WATER WORKS PLANS

WW-001843 MF#15714 D-3474-G



0 10 20 40
HORIZONTAL & VERTICAL SCALE IN FEET

CALCULATED M.J.C.
CHECKED J.A.F.

HAM. 50–18.79 WALDVOGEL VIADUCT
GCWW WATER MAIN REPLACEMENT

GCWW JOB NO. 09060
WW001843 – 4–3474

Designed By:	Revisions		
	No.	By	Date
Drawn By:			

14/14
612
657

UTILITIES	
TYPE	NAME & ADDRESS
WATER	CINCINNATI WATER WORKS 4747 SPRING GROVE AVENUE CINCINNATI, OHIO 45232 513-591-7865
STORM	CINCINNATI STORMWATER MANAGEMENT UTILITY 705 CENTRAL AVENUE, ROOM 400 CINCINNATI, OHIO 45202 513-352-5344
SANITARY	METROPOLITAN SEWER DISTRICT 1600 GEST STREET CINCINNATI, OHIO 45204 513-244-5122
CABLE	TIME WARNER CABLE 11252 CORNELL PARK DRIVE CINCINNATI, OHIO 45242 513-489-5067
ELECTRIC	DUKE ENERGY P.O. BOX 960, ROOM M 50 M CINCINNATI, OHIO 45202 513-287-2742
GAS	GAS DISTRIBUTING ENGINEERING, ROOM 460-A DUKE ENERGY 139 EAST FOURTH STREET CINCINNATI, OHIO 45202 513-287-2730
TELEPHONE	CINCINNATI BELL TELEPHONE COMPANY 201 EAST FOURTH STREET CINCINNATI, OHIO 45202 513-566-5050 MCI/WORLDCOM 730 WEST HENRY STREET INDIANAPOLIS, INDIANA 46225 317-685-8050 QWEST COMMUNICATIONS CORPORATION 125 EAST ELLIS DRIVE WAYNESVILLE, OHIO 45068 513-659-4871 SPRINT EASTERN REGION, GREAT LAKES DISTRICT FIBER OPERATIONS 5600 NORTH RIVER ROAD, SUITE 500 ROSEMONT, ILLINOIS 60018 847-318-3193

RIGHT OF WAY LEGEND SHEET HAM-50-18.79

HAMILTON COUNTY
STORRS TOWNSHIP
TWP. 4, F.R. 1
SECTION 29, SECTION 30,
CITY OF CINCINNATI

INDEX OF SHEETS:

LEGEND SHEET	1
CENTERLINE PLAT	2-3
PROPERTY MAP	4-8
SUMMARY OF ADDITIONAL R/W	9-15
R/W TOPO SHEETS	16,18,20,22,24,26,28,30,32,34,36,38,40,42
R/W BOUNDARY SHEETS	17,19,21,23,25,27,29,31,33,35,37,39,41,43,44
RAILROAD PLAT	45

PROJECT DESCRIPTION

REMOVAL OF THE EXISTING WALDVOGEL MEMORIAL VIADUCT, INCLUDING FOUR RAMPS TO ELBERON AND WARSAW AVENUES. REPLACEMENT OF STRUCTURES FOR THE FOUR RAMPS TO ELBERON AND WARSAW AND REPLACEMENT OF STRUCTURES FOR THE CONNECTION TO THE SIXTH STREET EXPRESSWAY. REMOVAL AND REPLACEMENT OF ROADWAYS FOR THE REQUIRED PORTIONS OF RIVER ROAD, ELBERON AVENUE, WARSAW AVENUE, STATE AVENUE, EVANS STREET, AND MARYLAND AVE.

PROJECT CONTROL

STATE PLANE GRID - OHIO STATE PLANE SOUTH ZONE NAD83 (95)

PROJECT ADJUSTMENT FACTOR - 1.000075745737

HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

PLANS PREPARED BY:

FIRM NAME: RESOURCE INTERNATIONAL, INC.

PLANS PREPARED BY: L.S.

FIELD REVIEW BY: MARK S.WARD
DATE COMPLETED: 3/6/09

OWNERSHIP VERIFIED BY: MARK S. WARD
DATE COMPLETED: 3/9/09

DATE COMPLETED: 3/13/09

NOTES: THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

LEGEND

WD = WARRANTY DEED
T = TEMPORARY EASEMENT
U = UTILITY EASEMENT

STRUCTURE KEY

- RESIDENTIAL
- OUT-BUILDING
- COMMERCIAL

CONVENTIONAL SYMBOLS

County Line
Township Line
Section Line
Corporation Line or
Fence Line (Ex) (Pr)
Center Line
Right of Way (Ex) Ex R/W
Right of Way (Pr) R/W
Standard Highway Ease.(Ex) Ex SH
Temporary Right of Way TMP
Channel Ease. (Pr) CH
Utility Ease. (Ex) Ex U
Railroad or
Guardrail (Ex) (Pr)
Construction Limits
Edge of Pavement (Ex)
Edge of Pavement (Pr)
Edge of Shoulder (Ex)
Edge of Shoulder (Pr)

Ditch / Creek (Ex)
Ditch / Creek (Pr)
Tree Line (Ex)
Ownership Hook Symbol , Example
Property Line Symbol , Example
Break Line Symbol , Example
Tree (Pr) , Tree (Ex) , Shrub (Ex)
Tree (Remove) , Shrub (Remove)
Evergreen (Ex) , Stump
Evergreen (Remove) , Stump (Remove)
Wetland (Pr) , Grass (Pr) , Aerial Target
Post (Ex) , Mailbox (Ex) , Mailbox (Pr)
Light (Ex) , Telephone Marker (Ex)
Fire Hydrant (Ex) , Water Meter (Ex)
Water Valve (Ex) , Utility Valve Unknown (Ex.)
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

I, MARK S. WARD, P.S., HAVE CONDUCTED A SURVEY OF THE EXISTING CONDITIONS FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN THE SPRING, 2007. THE RESULT OF THAT SURVEY ARE CONTAINED HEREIN. THE HORIZONTAL COORDINATES EXPRESSED HEREIN ARE BASED ON THE OHIO STATE PLANE COORDINATES SYSTEM, SOUTH ZONE. THE PROJECT ADJUSTMENT FACTOR FOR THIS PROJECT IS 1.000075745737 FURTHER MORE I HAVE CALCULATED THE PROPOSED PROPERTY LINES, GROSS TAKE, PRESENT ROADWAY OCCUPIED (PRO), NET TAKE AND NET RESIDUE; AS WELL AS PREPARED THE LEGAL DESCRIPTIONS NECESSARY TO ACQUIRE THESE PARCELS AS SHOWN HEREIN. AS PART OF THIS PROJECT I HAVE DETERMINED THE LOCATIONS OF THE EXISTING PROPERTY LINES FOR PROPERTY TAKES CONTAINED HEREIN. I ALSO HAVE SET MONUMENTS AT THE PROPOSED PROPERTY CORNER, SECTION CORNERS AND OTHER POINTS SHOWN HEREIN. THE CENTERLINE MONUMENTATION CALLED FOR HEREIN WILL BE SET UNDER MY DIRECT SUPERVISION DURING THE CONSTRUCTION OF THIS PROJECT. THIS WORK WILL BE DONE IN ACCORDANCE WITH OAC 4733-37 AS CITED BELOW. ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH OHIO ADMINISTRATIVE CODE 4733-37 COMMONLY KNOWN AS MINIMUM STANDARDS FOR BOUNDARY SURVEY IN THE STATE OF OHIO UNLESS SO NOTED. THE WORDS I AND MY AS USED HEREIN ARE TO MEAN THAT EITHER MYSELF OR SOMEONE WORKING FOR ME UNDER MY DIRECT CONTROL OR SUPERVISION.

Mark S. Ward 6-10-10
MARK S. WARD
PROFESSIONAL SURVEYOR NO. S-7514

SURVEYORS SEAL

STATE OF OHIO · MARK S. WARD · REGISTERED · SURVEYOR

SIGNED: Mark S. Ward
DATE: 6-10-10

FEDERAL PROJECT NO. E060(812)
PID NO. 20082
DESIGNER CFR/NGG
REVIEWER MSW
RIGHT OF WAY LEGEND SHEET
HAM-50-18.79
1 / 45
613 / 657

NOTE: FOR CENTERLINE CURVE DATA, SEE SHEET 3

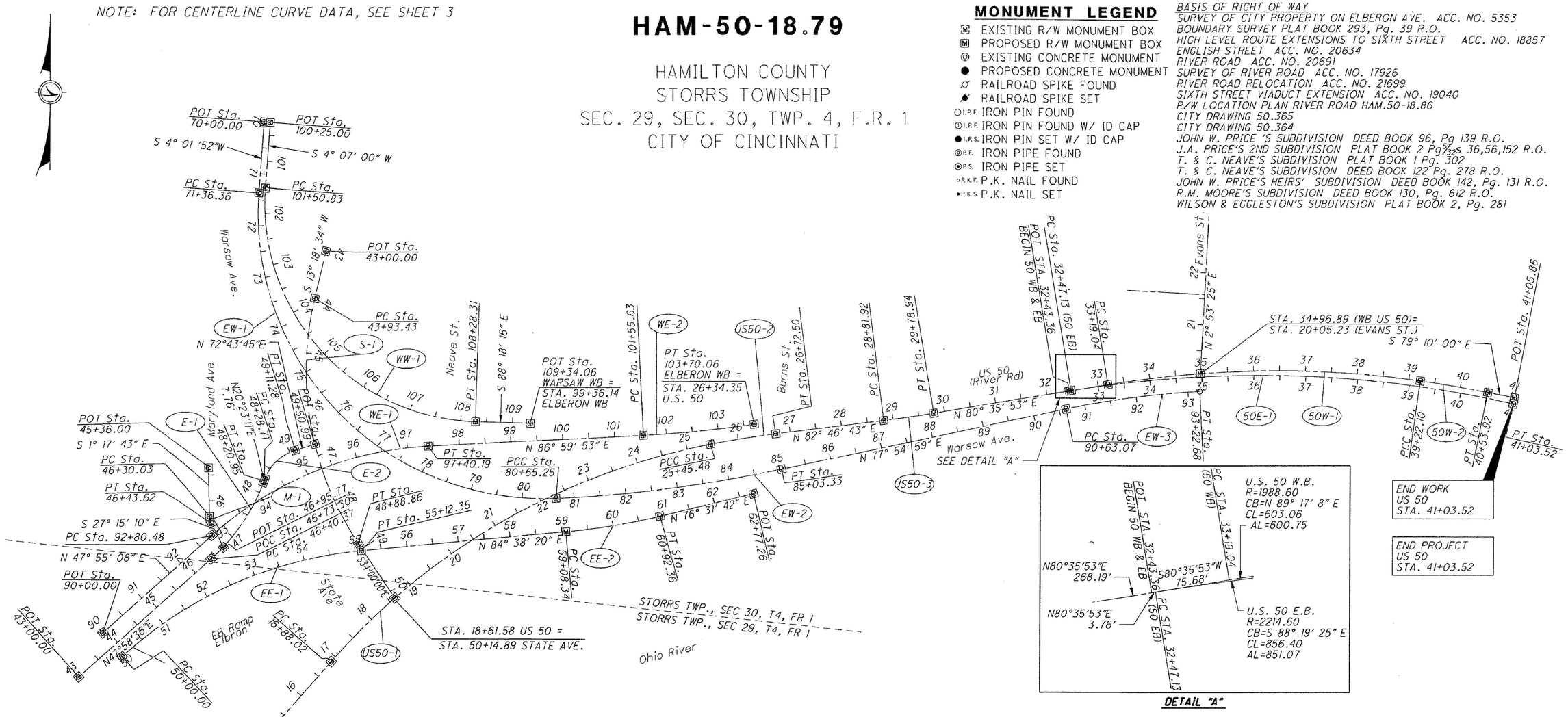
HAM-50-18.79

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, SEC. 30, TWP. 4, F.R. 1
CITY OF CINCINNATI

MONUMENT LEGEND

- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- I.P.F. IRON PIN FOUND
- I.P.F. IRON PIN FOUND W/ ID CAP
- I.P.S. IRON PIN SET W/ ID CAP
- P.F. IRON PIPE FOUND
- P.S. IRON PIPE SET
- P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET

BASIS OF RIGHT OF WAY
SURVEY OF CITY PROPERTY ON ELBERON AVE. ACC. NO. 5353
BOUNDARY SURVEY PLAT BOOK 293, Pg. 39 R.O.
HIGH LEVEL ROUTE EXTENSIONS TO SIXTH STREET ACC. NO. 18857
ENGLISH STREET ACC. NO. 20634
RIVER ROAD ACC. NO. 20691
SURVEY OF RIVER ROAD ACC. NO. 17926
RIVER ROAD RELOCATION ACC. NO. 21699
SIXTH STREET VIADUCT EXTENSION ACC. NO. 19040
R/W LOCATION PLAN RIVER ROAD HAM.50-18.86
CITY DRAWING 50.365
CITY DRAWING 50.364
JOHN W. PRICE 'S SUBDIVISION DEED BOOK 96, Pg 139 R.O.
J.A. PRICE'S 2ND SUBDIVISION PLAT BOOK 2 Pgs 36,56,152 R.O.
T. & C. NEAVE'S SUBDIVISION PLAT BOOK 1 Pg. 302
T. & C. NEAVE'S SUBDIVISION DEED BOOK 122 Pg. 278 R.O.
JOHN W. PRICE'S HEIRS' SUBDIVISION DEED BOOK 142, Pg. 131 R.O.
R.M. MOORE'S SUBDIVISION DEED BOOK 130, Pg. 612 R.O.
WILSON & EGGLESTON'S SUBDIVISION PLAT BOOK 2, Pg. 281



DETAIL "A"

BASIS FOR BEARINGS:

ALL BEARINGS SHOWN ARE FOR PROJECT USE ONLY. OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83 (95)

THE PROPOSED RIGHT OF WAY SHALL BE REFERENCED FROM THE CENTERLINE OF RIGHT OF WAY.

THE PLACING OF MONUMENTS SHALL BE UNDER THE DIRECTION OF A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE CENTERLINE MONUMENT ASSEMBLY BOX(S) WILL BE INSTALLED BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN WITH CAP MARKING THE ACTUAL CENTERLINE STATION POINT AND ANY REFERENCE MONUMENTS ARE TO BE SET BY THE RIGHT OF WAY DESIGN CONSULTANT.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN ON THIS PLAT, REQUIRES PRIOR APPROVAL OF THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR CENTERLINE MONUMENTS, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1 OF THE OHIO DEPARTMENT OF TRANSPORTATION.

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN 2006 BY RESOURCE INTERNATIONAL, INC.

THE ESTABLISHMENT OF THE PROPERTY LINES AND EXISTING RIGHT OF WAY LINES SHOWN ON THIS PLAN AS OF THIS DATE WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

BY Mark S. Ward
MARK S. WARD

SURVEYOR NO. S-7514 DATE 3.18.09

STATE OF OHIO
SURVEYORS SEAL
MARK S. WARD 7514 REGISTERED SURVEYOR

SIGNED: Mark S. Ward
DATE: 3-18-09

RECEIVED _____, 20___
RECORDED _____, 20___
BOOK _____ PAGE _____
COUNTY RECORDER

HORIZONTAL SCALE IN FEET
0 100 200

PID NO. 20082

R/W DESIGNER CFR/NGC
R/W REVIEWER MSW

CENTERLINE PLAT

HAM-50-18.79

45

614
657

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HAM-50-18.79

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, SEC. 30, TWP. 4, F.R. 1
CITY OF CINCINNATI

MOUMENTS TO BE SET DURING CONSTRUCTION

℄ OF RIGHT OF WAY & CONSTRUCTION STATION	ADJUSTABLE ℄ MONUMENTS ITEM 604E 38500	AFFECTED ROUTE ROUTE
		U.S. 50
10+00.00	1	P.O.T.
11+64.17	1	P.O.T.
16+88.02	1	P.C.
25+45.48	1	P.C.C.
26+72.50	1	P.T.
28+81.92	1	P.C.
29+78.94	1	P.T.
32+47.13	1	P.C.
41+03.52	1	P.T.
		U.S. 50W
32+43.36	1	P.O.T.
33+19.04	1	P.C.
39+22.10	1	P.C.
40+53.92	1	P.T.
41+05.86	1	P.O.T.
		ELBERON AVE.
43+00.00	1	P.O.T.
46+40.37	1	P.C.
48+20.95	1	P.T.
48+28.71	1	P.C.
49+11.28	1	P.T.
49+50.99	1	P.O.T.
		ELBERON EAST
50+00.00	1	P.C.
55+12.35	1	P.T.
59+08.34	1	P.C.
60+92.36	1	P.T.
62+77.26	1	P.O.T.
		ELBERON WEST
90+00.00	1	P.O.T.
92+80.48	1	P.C.
97+40.19	1	P.T.
101+55.63	1	P.C.
103+70.06	1	P.T.
		EVANS ST.
20+05.23	1	P.O.T.
22+21.23	1	P.O.T.
		MARYLAND AVE.
45+36.00	1	P.O.T.
46+30.03	1	P.C.
46+43.62	1	P.T.
46+95.77	1	P.O.T.
		STATE AVE.
43+00.00	1	P.O.T.
43+93.43	1	P.C.
48+88.86	1	P.T.
50+14.89	1	P.O.T.
		WARSAW EAST
70+00.00	1	P.O.T.
71+36.36	1	P.C.
80+65.25	1	P.T.
85+03.33	1	P.T.
90+63.07	1	P.C.
93+22.68	1	P.T.
		WARSAW WEST
100+25.00	1	P.O.T.
101+50.83	1	P.C.
108+28.31	1	P.T.
109+34.06	1	P.O.T.
TOTAL TO GENERAL SUMMARY	50	

RECEIVED _____, 20____
RECORDED _____, 20____
BOOK _____ PAGE _____

_____
COUNTY RECORDER

CENTERLINE CURVE DATA

US 50

US 50 CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47′ 30″ (RT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 444.98′
L = 857.46′
E = 83.80′
CHORD INFORMATION
PC-PCC = N 60° 04′ 57″ E 842.01′

US 50 CURVE US50-2
P.I. STA. 26+09.02
Δ = 3° 48′ 02″ (RT)
Dc = 2° 29′ 31″
R = 1,914.97
T = 63.53′
L = 127.02′
E = 1.05′
CHORD INFORMATION
PCC-PT = N 80° 52′ 42″ E 127.00′

US 50 CURVE US50-3
P.I. STA. 29+30.44
Δ = 2° 10′ 50″ (LT)
Dc = 2° 14′ 52″
R = 2,549.00′
T = 48.51′
L = 97.01′
E = 0.46′
CHORD INFORMATION
PC-PT = N 81° 41′ 18″ E 97.01′

US 50 (WESTBOUND) CURVE 50W-1
P.I. STA. 36+22.91
Δ = 17° 22′ 31″ (RT)
Dc = 2° 52′ 52″
R = 1,988.60′
T = 303.86′
L = 603.06′
E = 23.08′
CHORD INFORMATION
PC-PCC = N 89° 17′ 08″ E 600.75′

US 50 (WESTBOUND) CURVE 50W-2
P.I. STA. 39+88.03
Δ = 3° 26′ 09″ (RT)
Dc = 2° 36′ 23″
R = 2,198.33′
T = 65.93′
L = 131.82′
E = 0.99′
CHORD INFORMATION
PCC-PT = S 80° 18′ 32″ E 131.80′

US 50 (EASTBOUND) CURVE 50E-1
P.I. STA. 36+80.74
Δ = 22° 09′ 24″ (RT)
Dc = 2° 35′ 14″
R = 2,214.60′
T = 433.62′
L = 856.40′
E = 42.05′
CHORD INFORMATION
PC-PT = S 88° 19′ 25″ E 851.07′

ELBERON

ELBERON CURVE E-1
P.I. STA. 47+32.45
Δ = 27° 35′ 25″ (LT)
Dc = 15° 16′ 44″
R = 375.00′
T = 92.08′
L = 180.58′
E = 11.14′
CHORD INFORMATION
PC-PT = N 34° 10′ 54″ E 178.84′

ELBERON CURVE E-2
P.I. STA. 48+73.13
Δ = 52° 20′ 35″ (RT)
Dc = 63° 23′ 52″
R = 90.38′
T = 44.41′
L = 82.56′
E = 10.32′
CHORD INFORMATION
PC-PT = N 46° 33′ 28″ E 79.72′

EASTBOUND ELBERON RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24′ 59″ (RT)
Dc = 7° 18′ 11″
R = 784.56′
T = 265.68′
L = 512.35′
E = 43.77′
CHORD INFORMATION
PC-PT = N 65° 55′ 51″ E 503.29′

EASTBOUND ELBERON RAMP CURVE EE-2
P.I. STA. 60+00.50
Δ = 8° 06′ 39″ (LT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 92.17′
L = 184.03′
E = 3.26′
CHORD INFORMATION
PC-PT = N 80° 35′ 01″ E 183.87′

WESTBOUND ELBERON RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′
CHORD INFORMATION
PC-PT = N 67° 27′ 31″ E 450.85′

WESTBOUND ELBERON RAMP CURVE WE-2
P.I. STA. 102+14.18
Δ = 2° 58′ 27″ (LT)
Dc = 2° 17′ 31″
R = 2,499.99′
T = 64.90′
L = 129.77′
E = 0.84′
CHORD INFORMATION
PC-PT = N 85° 30′ 40″ E 129.76′

WARSAW

EASTBOUND WARSAW CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
CHORD INFORMATION
PC-PCC = S 44° 21′ 06″ E 822.36′

EASTBOUND WARSAW CURVE EW-2
P.I. STA. 82+84.78
Δ = 9° 20′ 56″ (LT)
Dc = 2° 08′ 02″
R = 2,684.87′
T = 219.53′
L = 438.08′
E = 8.96′
CHORD INFORMATION
PCC-PT = N 82° 35′ 27″ E 437.60′

EASTBOUND WARSAW CURVE EW-3
P.I. STA. 91+24.43
Δ = 3° 48′ 52″ (RT)
Dc = 3° 22′ 13″
R = 1,700.00′
T = 56.61′
L = 113.17′
E = 0.94′
CHORD INFORMATION
PC-PT = N 79° 49′ 25″ E 113.15′

WESTBOUND WARSAW CURVE WW-1
P.I. STA. 105+88.96
Δ = 92° 25′ 16″ (LT)
Dc = 13° 38′ 31″
R = 420.00′
T = 438.13′
L = 677.48′
E = 186.93′
CHORD INFORMATION
PC-PT = S 42° 05′ 38″ E 606.38′

MARYLAND AVE

MARYLAND AVE. CURVE M-1
P.I. STA. 46+36.95
Δ = 25° 57′ 27″ (LT)
Dc = 190° 59′ 09″
R = 30.00′
T = 6.91′
L = 13.59′
E = 0.79′
CHORD INFORMATION
PC-PT = S 14° 16′ 26″ E 13.48′

STATE AVENUE

STATE AVE. CURVE S-1
P.I. STA. 46+56.25
Δ = 47° 18′ 34″ (LT)
Dc = 9° 32′ 57″
R = 600.00′
T = 262.82′
L = 495.42′
E = 55.04′
CHORD INFORMATION
PC-PT = S 10° 20′ 43″ E 481.47′

PID NO. 20082
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

CENTERLINE PLAT

HAM-50-18.79

3 / 45

615
657

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NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29 & SEC. 30, T4, FR 1
CITY OF CINCINNATI

STORRS TWP. SEC 29, T4, FR 1

STORRS TWP. SEC 30, T4, FR 1

MATCHLINE STATE ST. STA. 46+00.00 SEE SHEET 7

MATCHLINE STA. 19+75.00 U.S. 50, SEE SHEET 5

BEGIN ACQUISITION STA. 43+85.00

BEGIN ACQUISITION STA. 45+22.42

BEGIN ACQUISITION STA. 11+54.21

℄ R/W & CONST. PROP. MARYLAND AVE.
STA. 46+73.30 ELBERON AVE.
=STA. 46+94.93 MARYLAND AVE

℄ R/W & CONST. PROP. ELBERON AVE.

℄ R/W & CONST. PROP. STATE AVE

℄ R/W & CONST. PROP. ELBERON WB RAMP

℄ R/W & CONST. PROP. ELBERON EB RAMP

℄ R/W & CONST. PROP. US 50 (RIVER RD.)

℄ STA. 18+61.58 US 50 (RIVER RD.)
=STA. 50+14.89 STATE AVE.

JOHN W. PRICE HEIRS SUB

T.C. NEAVES SUB

CENTRAL RAILROAD COMPANY OF INDIANA

BALTIMORE AND OHIO RAILROAD

RELOCATED BALTIMORE AND OHIO RAILROAD

RELOCATED CENTRAL RAILROAD COMPANY OF INDIANA

SEE SHEET 8 FOR ENTIRE PARCEL

38 151-0001-0055-00

30 151-0001-0057-90

151-0001-0066-00 31

151-0001-0108-00 36

33 151-0001-0063-00

32 151-0001-0065-00

10 151-0001-0067-00

13 151-0001-0112-00

16 149-0010-0024-00

16 149-0010-0025-00

72 151-0001-0131-00

11 151-0001-0120-00

151-0001-0100-00 12

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14 149-0010-0097-00

15 149-0010-0105-90

48 178-0028-CD01-00

49 178-0028-CD02-00

149-0010-0001-90 40

149-0010-0001-90 57

149-0010-0107-00 55

149-0010-0046-00
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149-0010-0054-00
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149-0010-0058-00

149-0010-0106-90 20

149-0010-0033-90
149-0010-0032-90
149-0010-0031-90
149-0010-0103-90
149-0010-0094-00

149-0010-0037-90

149-0010-0038-00

149-0010-0059-90

149-0010-0036-90

149-0010-0035-90

149-0010-0034-90

149-0010-0023-90

149-0010-0022-90

149-0010-0021-90

149-0010-0020-00

149-0010-0019-90

149-0010-0018-90

149-0010-0017-90

149-0010-0016-90

149-0010-0015-90

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149-0010-0013-90

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149-0010-0004-90

149-0010-0003-90

149-0010-0002-90

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151-0001-0065-90

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151-0001-0069-90

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151-0001-0115-90

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151-0001-0119-90

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151-0001-0121-90

151-0001-0122-90

151-0001-0123-90

151-0001-0124-90

151-0001-0125-90

151-0001-0126-90

151-0001-0127-90

151-0001-0128-90

151-0001-0129-90

151-0001-0130-90

151-0001-0131-90

(10) NEFF & LORRAINE WAYNE
(11) CENTRAL RAILROAD COMPANY OF INDIANA
(12) BALTIMORE & OHIO RAILROAD COMPANY
(13) STEPHEN TURNER ENTERPRISES INC
(14) CITY OF CINCINNATI
(15) STATE OF OHIO
(16) CITY OF CINCINNATI
(17) STATE OF OHIO
(18) HAMILTON COUNTY
(19) CITY OF CINCINNATI
(20) STATE OF OHIO
(21) CITY OF CINCINNATI
(30) CITY OF CINCINNATI
(31) SAMUEL L PETERS
(32) JAMES & CLIFFORD WAGNER
(33) TOM W. & ANITA ABANTO-PRETTY
(34) CITY OF CINCINNATI
(35) STATE OF OHIO
(36) MAX B. & ANGELA HOFMEYER
(37) STATE OF OHIO
(38) KVT INCORPORATED
(39) STATE OF OHIO
(40) CITY OF CINCINNATI
(48) PRICE HILL PROPERTIES
(49) OWNERSHIP UNKNOWN
(55) STATE OF OHIO
(57) CITY OF CINCINNATI
(59) JERIANN CHILDS
(72) STATE OF OHIO

REV. BY	DATE	DESCRIPTION
NLC	5/07/10	ADDED EXISTING VIADUCT
NLC	03/31/10	UPDATED ℄'S ON 11 & 12
NLC	05-21-09	REVISED RAILROAD LABELS
NLC	05-13-09	ADDED PROJECT CONTROL NOTE
DATE COMPLETED	3/13/09	

HORIZONTAL SCALE IN FEET 0 25 50 100

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

PROPERTY MAP

HAM-50-18.79

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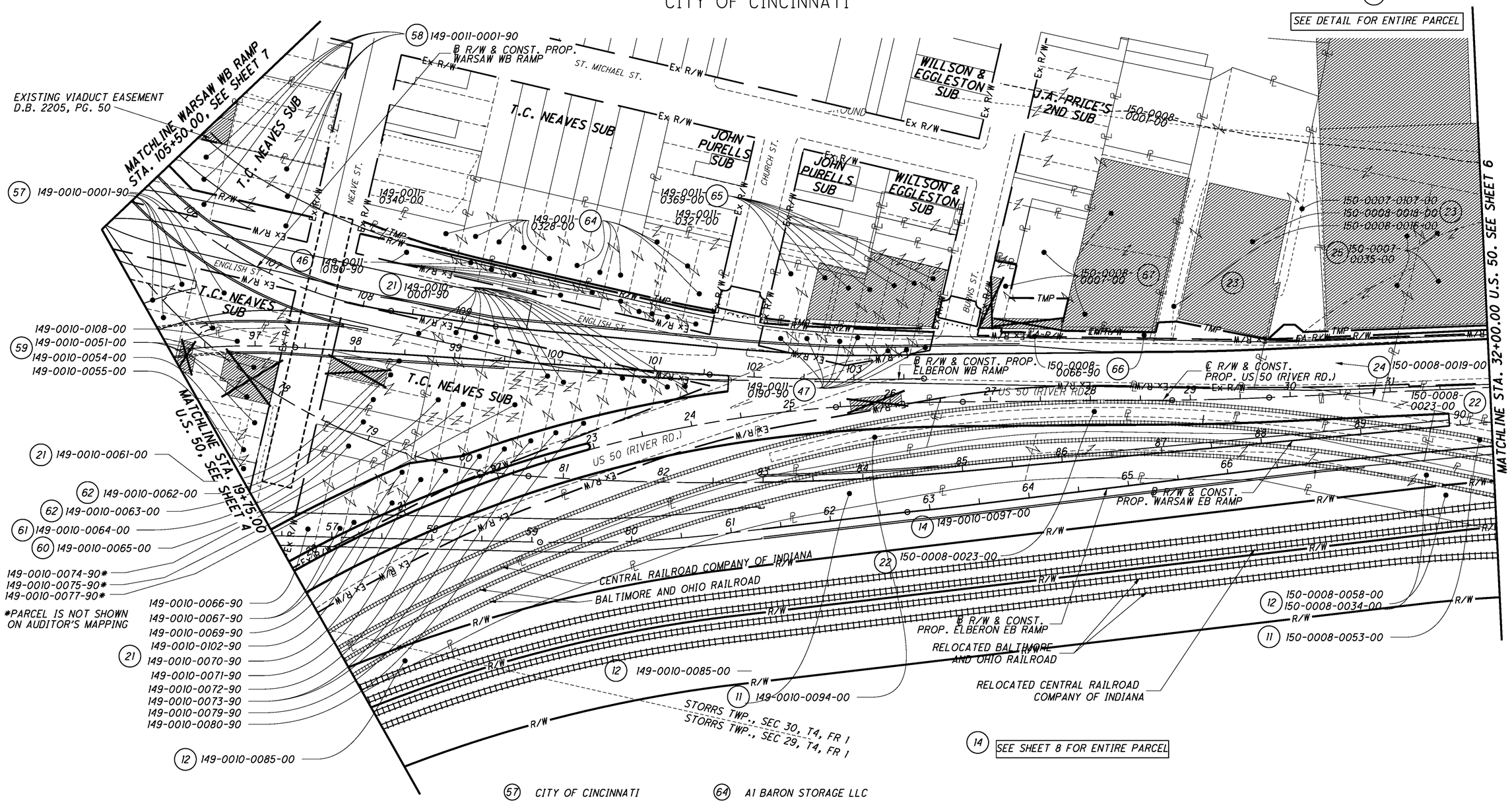
NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4, FR 1
CITY OF CINCINNATI



(11) CENTRAL RAILROAD COMPANY OF INDIANA
(12) BALTIMORE & OHIO RAILROAD COMPANY
(14) CITY OF CINCINNATI
(21) CITY OF CINCINNATI
(22) RIVER CONTAINER CONCEPTS LLC
(23) ALBERT & CARLA LANG
(24) WILLIAM P COLGAN
(25) WILLIAM P COLGAN
(46) CITY OF CINCINNATI
(47) CITY OF CINCINNATI
(57) CITY OF CINCINNATI
(58) CITY OF CINCINNATI
(59) JERIANN CHILDS
(60) TLC PROPERTIES INC
(61) JERIANN CHILDS
(62) EVANS DONALD
(64) AI BARON STORAGE LLC
(65) FELDKAMP ENTERPRISES INC
(66) CITY OF CINCINNATI
(67) MODERN MANUFACTURING INC

REV. BY	DATE	DESCRIPTION
NLC	10-26-10	UPDATED CITY OF CINCINATTI OWNERSHIP #
NLC	6-4-10	UPDATED LA-R/W ON PARCEL 67
NLC	5-14-10	UPDATED LA-R/W ON PARCEL 66
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	3-31-10	UPDATED ℄'S ON 11 & 12, ADDED ESMT TO 63
NLC	05-21-09	REVISED RAILROAD LABELS
NLC	05-13-09	ADDED PROJECT CONTROL NOTE
DATE COMPLETED		3/13/09

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 20082

R/W DESIGNER CFRNGG
R/W REVIEWER MSW

PROPERTY MAP

HAM-50-18.79

5 / 45

617
657

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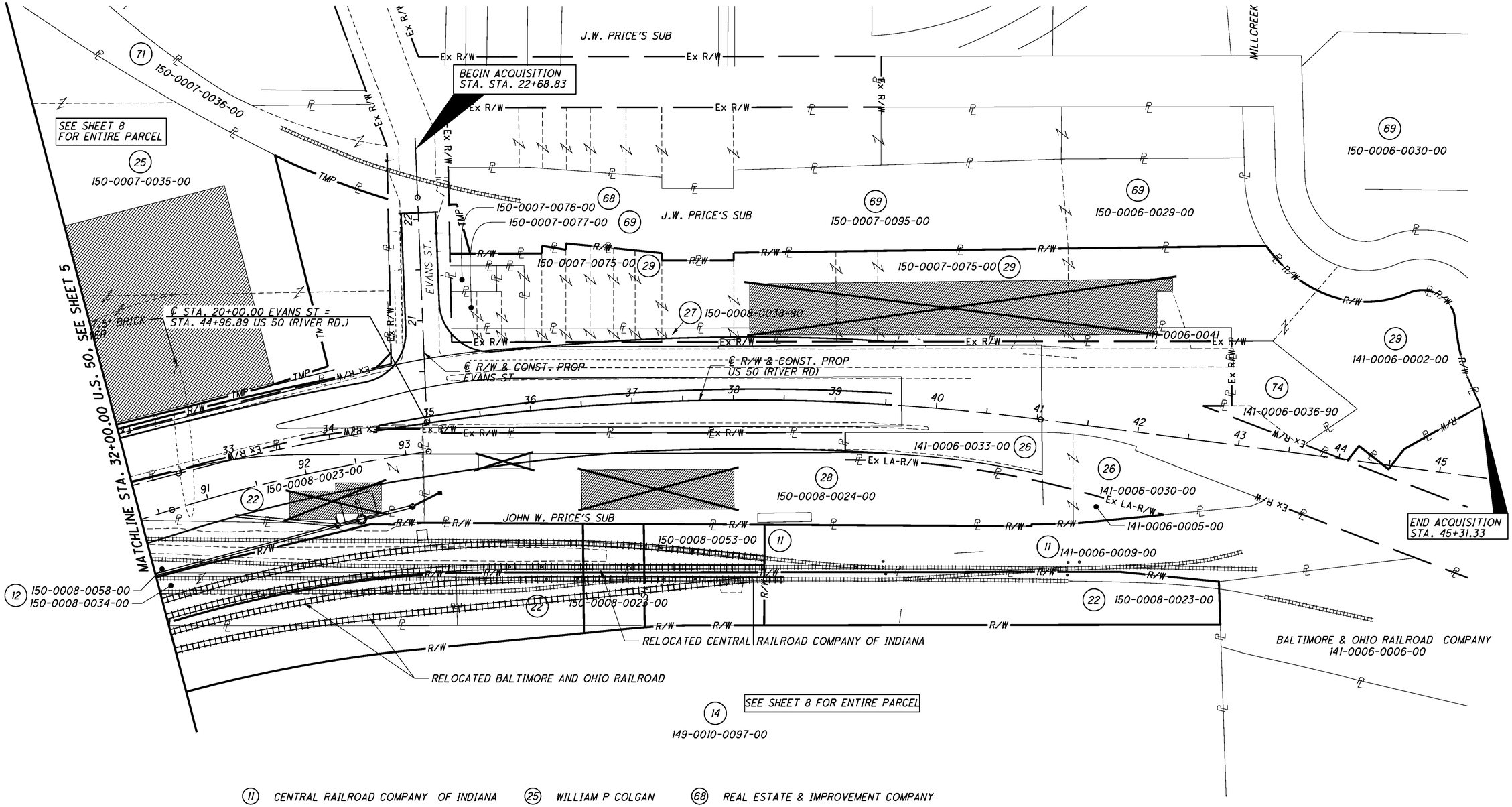
NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



(11) CENTRAL RAILROAD COMPANY OF INDIANA
(12) BALTIMORE & OHIO RAILROAD COMPANY
(14) CITY OF CINCINNATI
(22) RIVER CONTAINER CONCEPTS LLC
(25) WILLIAM P COLGAN
(26) STATE OF OHIO
(27) CITY OF CINCINNATI
(28) JERRY A LEVINE
(29) JEFFERSON AIR INC
(68) REAL ESTATE & IMPROVEMENT COMPANY
(69) BALTIMORE & OHIO RAILROAD COMPANY
(71) BALTIMORE & OHIO RAILROAD COMPANY
(74) STATE OF OHIO

REV. BY	DATE	DESCRIPTION
NLC	5/7/10	ADDED EXISTING VIADUCT
NLC	3/31/10	UPDATED PARCELS 11, 12, 22, 28 & 29
NLC	12/4/09	REVISED PARCELS 25 & 71
NLC	5/21/09	REVISED RAILROAD LABELING
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	SH EASEMENTS, ℄ ON 150-0008-0023-00

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 20082

R/W DESIGNER CFRNGG
R/W REVIEWER MSW

PROPERTY MAP

HAM-50-18.79

6 / 45

618
657

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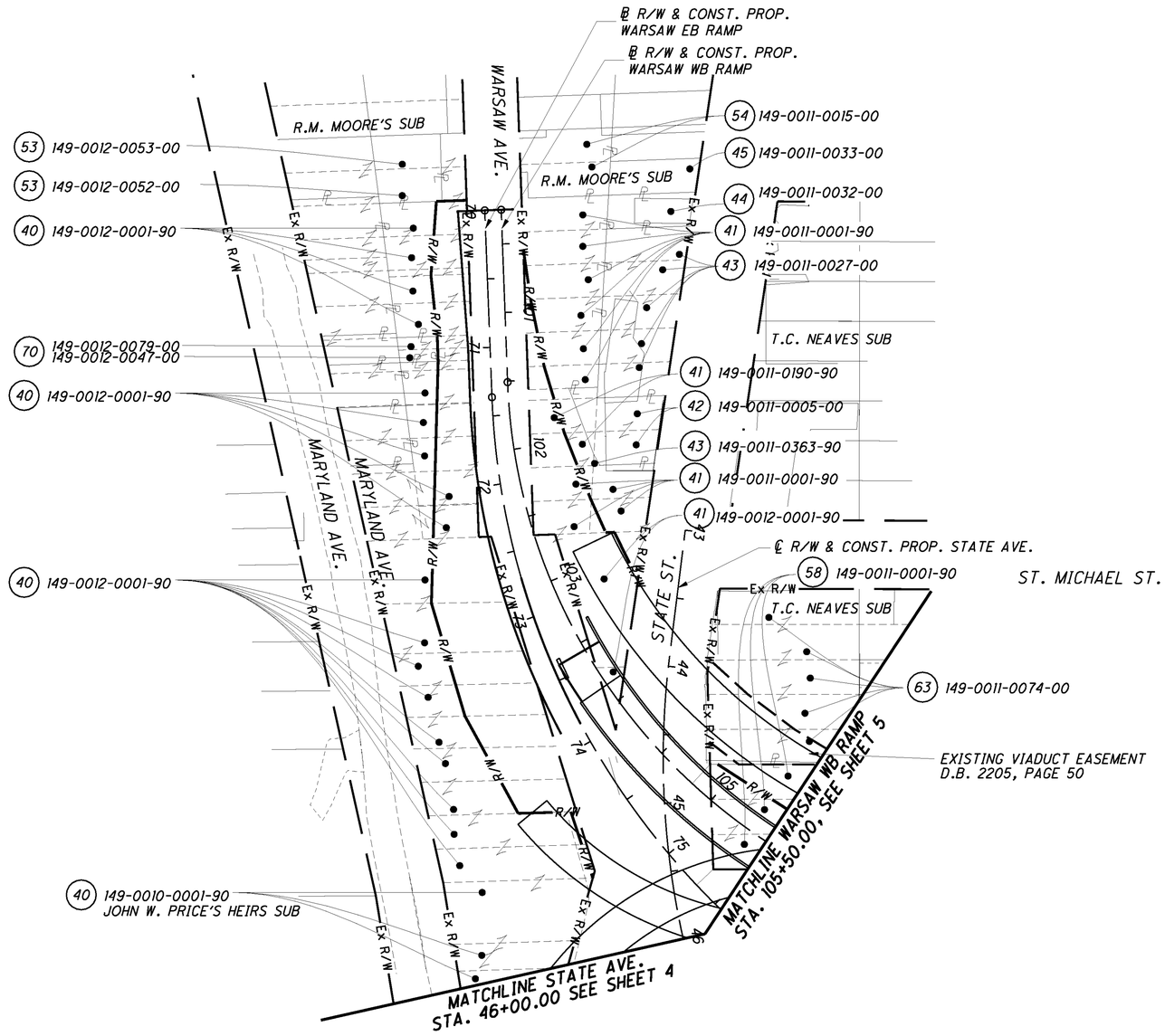
NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29 & 30, T 4, FR 1
CITY OF CINCINNATI



40 CITY OF CINCINNATI
41 CITY OF CINCINNATI
42 HAROLD J BLACKBURN
43 JOHN W & KAREN A LEACH
44 JOHN G & CAROL STEUER
45 THOMAS CHARLES HANSEL JR
53 TALMADGE O HENRY JR BELL
54 THEODORE J SOWMA
58 CITY OF CINCINNATI
70 REGGENTIN THOMAS A
63 RADEL ASSOCIATES LLC

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

PROPERTY MAP

HAM-50-18.79

REV. BY	DATE	DESCRIPTION
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	3-31-10	ADDED ESMT TO 63
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

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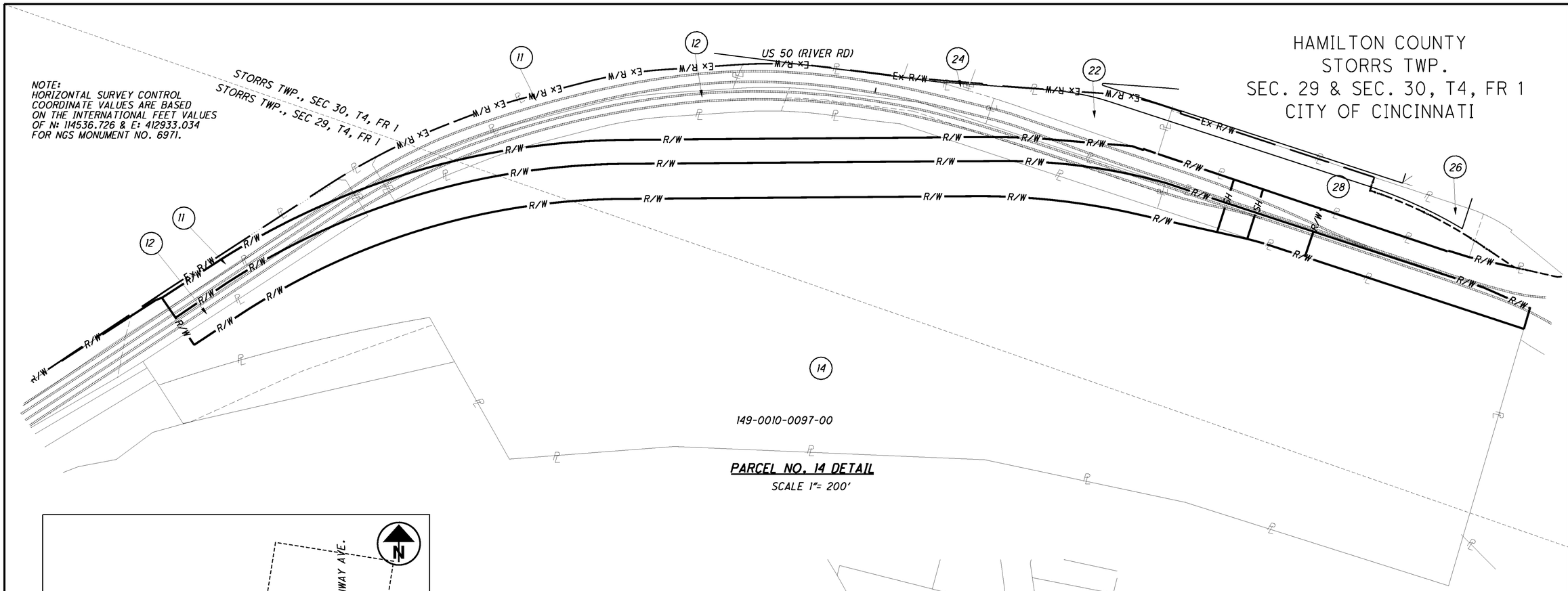
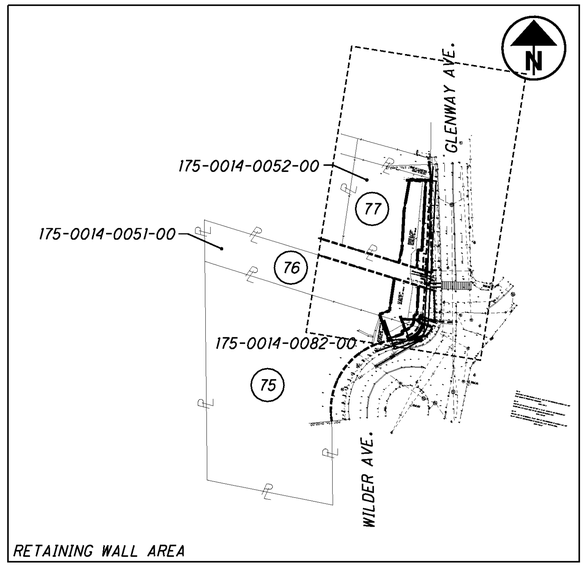
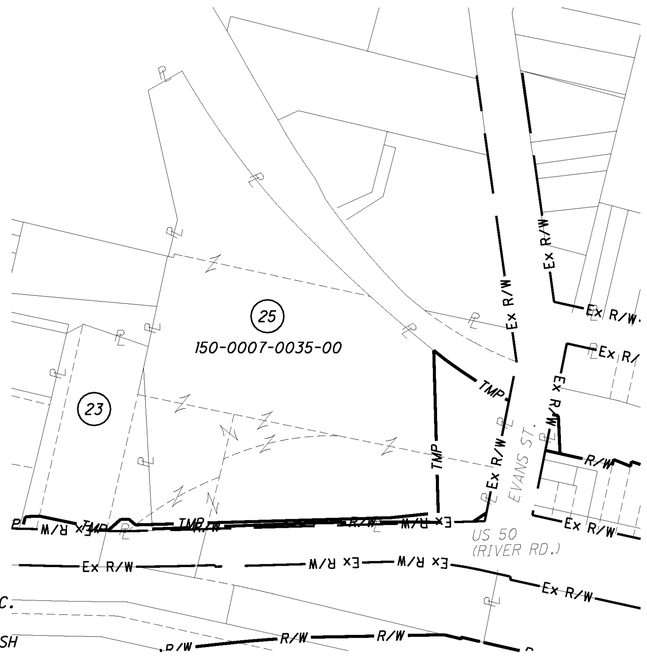
NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TWP.
SEC. 29 & SEC. 30, T4, FR 1
CITY OF CINCINNATI



PARCEL NO. 14 DETAIL
SCALE 1"= 200'





PARCEL NO. 25 DETAIL
SCALE 1"= 200'

(11) CENTRAL RAILROAD COMPANY OF INDIANA
(12) BALTIMORE & OHIO RAILROAD COMPANY
(14) CITY OF CINCINNATI
(22) RIVER CONTAINER CONCEPTS LLC
(23) ALBERT & CARLA LANG
(24) WILLIAM P COLGAN
(25) WILLIAM P COLGAN
(28) JERRY A LEVINE
(75) DEITRIECH INVESTMENTS, INC.
(76) STEVEN & KATHLEEN PAVELISH
(77) BRENNER & JANSEN PROPERTIES, INC.

REV. BY	DATE	DESCRIPTION
NLC	5/7/10	ADDED EXISTING VIADUCT
NLC	3/31/10	UPDATED PARCELS 11, 12, 22 & 28
NLC	12/4/09	REVISED PARCEL 25
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED SH EASEMENTS

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 50 100 200

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

PROPERTY MAP

HAM-50-18.79

8 / 45

620
657

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TOTAL NUMBER OF :

77 OWNERSHIPS
71 PARCELS
29 TOTAL TAKES
5 OWNERSHIPS W/ STRUCTURES INVOLVED

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1-9	NOT USED																
10-T	NEFF & LORRAINE WAYNE	17	8142	4557	151-0001-0067-00	2.485		0.005		0.005					TO COMPLETE GRADING		
11-WD	CENTRAL RAILROAD COMPANY OF INDIANA	21,23	7408	779	149-0010-0094-00	1.042	0.000	0.776	0.000	0.776							
11-WD1		17,19,21	7408	779	151-0001-0120-00	3.200	0.000	0.160	0.000	0.160							
11-WD2		25,27	10100	2476	150-0008-0053-00	1.063	0.000	0.219	0.000	0.219	YES				1 STORY MASONRY, NO. 1901		
11-WD3		19,21	7408	779	151-0001-0120-00		0.000	0.176	0.000	0.176							
11-WD4		27,29	10100	2476	150-0008-0053-00		0.000	0.536	0.000	0.536							
11-SH		27,29	10100	2476	150-0008-0053-00		0.000	0.066	0.000	0.066					NOTE: 11-SH OVERLAPS 11-WD4		
	TOTAL					5.305	0.000	1.757	0.000	1.757			3.548				
12-WD	BALTIMORE & OHIO RAILROAD COMPANY	21,23,25,27	2395	534	151-0001-0100-00	0.697	0.000	0.000	0.000	0.000							
			2395	534	150-0008-0034-00	0.138	0.000	0.241	0.000	0.241							
			2395	534	150-0008-0058-00	0.630	0.000	0.197	0.000	0.197							
			2395	534	149-0010-0085-00	1.513	0.000	0.718	0.000	0.718							
12-WD1		21	2395	534	149-0010-0085-00		0.000	0.001	0.000	0.001							
12-WD2		19,21	2395	534	149-0010-0085-00		0.000	0.267	0.000	0.267							
12-WD3		19,21	2395	534	149-0010-0085-00		0.000	0.298	0.000	0.298							
12-WD4		21	2395	534	149-0010-0085-00		0.000	0.133	0.000	0.133							
12-WD5		25,27	2395	534	150-0008-0034-00		0.000	0.113	0.000	0.113							
		25,27	2395	534	150-0008-0058-00		0.000	0.102	0.000	0.102							
12-WD6		27	2395	534	150-0008-0034-00		0.000	0.211	0.000	0.211							
		27	2395	534	150-0008-0058-00		0.000	0.009	0.000	0.009							
	TOTAL					2.978	0.000	2.290	0.000	2.290			0.688				
13-WD	STEPHEN TURNER ENTERPRISES INC	17,19	7844	2417	151-0001-0112-00	0.240	0.000	0.009	0.000	0.009		0.232					
13-T		17,19	7844	2417	151-0001-0112-00			0.026		0.026					TO COMPLETE GRADING		
14-WD	CITY OF CINCINNATI	21	5730	1827	149-0010-0097-00	30.113	0.000	0.064	0.000	0.064					2 BILLBOARDS		
14-WD1		21,23,25	5730	1827	149-0010-0097-00		0.000	0.658	0.000	0.658							
14-WD2		19,21,23,25,27,29	5730	1827	149-0010-0097-00		0.000	2.609	0.000	2.609							
14-WD3		19,21,23,25,27	5730	1827	149-0010-0097-00		0.000	1.164	0.000	1.164							
14-SH		27,29	5730	1827	149-0010-0097-00		0.000	0.006	0.000	0.006							
	TOTAL					30.113	0.000	4.501	0.000	4.501			25.612				

NOTE: ALL TEMPORARY PARCELS TO BE OF 24 MONTH DURATION.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

LEGEND:

WD = WARRANTY DEED
WL = WARRANTY DEED WITH LIMITATION OF ACCESS
LA = LIMITATION OF ACCESS
T = TEMPORARY EASEMENT
SH = STANDARD HIGHWAY EASEMENT

REV. BY	DATE	DESCRIPTION
NLC	5-17-10	UPDATED PARCEL COUNT
NLC	3-31-10	REV. 11-WD2, 11-WD4, 11-SH, 12-WD, 12-WD4, 12-WD5, 12-WD6, 14-WD1, 14-WD2, 14-WD3, 14-SH
NLC	12/14/09	ADDED "2 BILLBOARDS" TO 14-WD
NLC	12/4/09	UPDATED PARCEL COUNT
NLC	7/23/09	UPDATED PARCEL COUNT
NLC	05-21-09	ADDED SH DESC. TO LEGEND
NLC	4/28/09	REMOVED 11-WD5, ADDED 11-SH & 14-SH

FIELD REVIEW BY MARK S. WARD DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD DATE: 3/9/09
DATE COMPLETED 3/13/09

FEDERAL PROJECT NO. E060(812)
PID NO. 20082
STATE JOB NO.
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 1-14)

HAM-50-18.79

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES ①= AS SURVEYED ACREAGE

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
15	STATE OF OHIO	19	3949	669	149-0010-0105-90	0.035 ①		0.035		0.035					TOTAL TAKE		
16-WD	CITY OF CINCINNATI	21,35,37,41	4380	1098	149-0010-0020-00	0.040	0.000	0.040	0.000	0.040							
			3451	618	149-0010-0021-90	0.189	0.000	0.029	0.000	0.029							
			3741	105	149-0010-0089-90	0.054	0.000	0.054	0.000	0.054							
			3648	72	149-0010-0013-90	0.038	0.000	0.038	0.000	0.038							
			3685	638	149-0010-0014-90	0.049	0.000	0.049	0.000	0.049							
			3236	247	149-0010-0016-90	0.167	0.000	0.167	0.000	0.167							
			3236	247	149-0010-0017-90	0.046	0.000	0.046	0.000	0.046							
			3236	247	149-0010-0018-90	0.047	0.000	0.047	0.000	0.047							
			3236	247	149-0010-0019-90	0.118	0.000	0.118	0.000	0.118							
					149-0010-0034-90	0.095	0.000	0.012	0.000	0.012							
			3336	325	149-0010-0035-90	0.084	0.000	0.003	0.000	0.003							
					149-0010-0036-90	0.063	0.000	0.043	0.000	0.043							
					149-0010-0001-90	0.344	0.000	0.294	0.000	0.294							
16-WD1		19,21	3451	618	149-0010-0021-90	0.189	0.000	0.001	0.000	0.001							
			3537	838	149-0010-0032-90	0.041 ①	0.000	0.041	0.000	0.041					TOTAL TAKE		
			3451	900	149-0010-0033-90	0.041 ①	0.000	0.041	0.000	0.041					TOTAL TAKE		
					149-0010-0034-90	0.095	0.000	0.043	0.000	0.043							
			3336	325	149-0010-0035-90	0.084	0.000	0.045	0.000	0.045							
			3529	575	149-0010-0036-90	0.063	0.000	0.045	0.000	0.045							
			4380	1098	149-0010-0109-00	0.011	0.000	0.007	0.000	0.007							
16-WD2		19	3578	614	149-0010-0024-90	0.025	0.000	0.005	0.000	0.005							
			4380	1098	149-0010-0025-90	0.026	0.000	0.021	0.000	0.021							
			3101	468	149-0010-0026-90	0.031	0.000	0.029	0.000	0.029							
			3527	678	149-0010-0027-90	0.031	0.000	0.034	0.000	0.034							
			3540	878	149-0010-0028-90	0.036	0.000	0.026	0.000	0.026							
			3297	397	149-0010-0029-90	0.029	0.000	0.024	0.000	0.024							
			3617	866	149-0010-0030-90	0.048	0.000	0.038	0.000	0.038							
			3537	838	149-0010-0031-90	0.038	0.000	0.038	0.000	0.038							
	TOTAL					2.124	0.000	1.378	0.000	1.378		0.748					

NOTE: ALL TEMPORARY PARCELS TO BE OF 24 MONTH DURATION.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

LEGEND:

WD = WARRANTY DEED
WL = WARRANTY DEED WITH LIMITATION OF ACCESS
LA = LIMITATION OF ACCESS
T = TEMPORARY EASEMENT
SH = STANDARD HIGHWAY EASEMENT

REV. BY	DATE	DESCRIPTION
NLC	05-21-09	ADDED SH DESC. TO LEGEND
FIELD REVIEW BY MARK S. WARD		DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD		DATE: 3/9/09
DATE COMPLETED 3/13/09		

FEDERAL PROJECT NO. E060(812)

PID NO. 20082

STATE JOB NO.

R/W DESIGNER CFR/NGG

R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 15-16)

HAM-50-18.79

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES ①= AS SURVEYED ACREAGE

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
17	STATE OF OHIO	21	3910	744	149-0010-0103-90	0.026		0.026		0.026					TOTAL TAKE		
18-WD	HAMILTON COUNTY	21	3910	742	149-0010-0037-90	0.010	0.000	0.010	0.000	0.010		0.000			TOTAL TAKE		
19-WD	CITY OF CINCINNATI	21	3505	811	149-0010-0059-90	0.015	0.000	0.015	0.000	0.015		0.000			TOTAL TAKE		
20	STATE OF OHIO	21	3954	105	149-0010-0106-90	0.015											
21-WD	CITY OF CINCINNATI	21,23,37,43			149-0010-0061-90	0.057	0.000	0.057	0.000	0.057							
			3521	122	149-0010-0066-90	0.067	0.000	0.067	0.000	0.067							
			3552	464	149-0010-0067-90	0.098	0.000	0.098	0.000	0.098							
			4218	1382	149-0010-0069-90	0.026	0.000	0.026	0.000	0.026							
			3758	34	149-0010-0070-90	0.051	0.000	0.051	0.000	0.051							
			3758	34	149-0010-0071-90	0.041	0.000	0.041	0.000	0.041							
			3579	541	149-0010-0072-90	0.067	0.000	0.067	0.000	0.067							
			3734	780	149-0010-0073-90	0.097	0.000	0.097	0.000	0.097							
			3939	468	149-0010-0079-90	0.035	0.000	0.035	0.000	0.035							
			3710	478	149-0010-0080-90	0.034	0.000	0.034	0.000	0.034							
					149-0010-0102-90	0.019	0.000	0.019	0.000	0.019							
					149-0010-0001-90	0.324	0.000	0.324	0.000	0.324							
	TOTAL					0.916	0.000	0.916	0.000	0.916		0.000					
22-WD	RIVER CONTAINER CONCEPTS LLC	23,25,27	10100	2476	150-0008-0023-00	1.973①	0.000	1.084	0.000	1.084							
22-WD1		27,29	10100	2476	150-0008-0023-00		0.000	0.363	0.000	0.363							
22-WD2		29,31	10100	2476	150-0008-0023-00		0.000	0.526	0.000	0.526							
	TOTAL					1.973①	0.000	1.973	0.000	1.973			0.000				
22-SH		27,29	10100	2476	150-0008-0023-00	1.973①	0.000	0.072	0.000	0.072					NOTE: 22-SH OVERLAPS 22-WD2		
23-WL	ALBERT & CARLA LANG	25	9448	7346	150-0007-0107-00	0.144	0.000	0.002	0.000	0.002		0.143					
23-T		25	9448	7346	150-0008-0016-00			0.007		0.007					TO COMPLETE GRADING		
			9448	7346	150-0008-0018-00			0.019		0.019							
			9448	7346	150-0007-0107-00			0.014		0.014							
	TOTAL							0.040		0.040							
23-LA		25	9448	7346	150-0008-0016-00			0.000	0.000	0.000					TO RESTRICT ACCESS		
					150-0008-0018-00			0.000	0.000	0.000							

NOTE: ALL TEMPORARY PARCELS TO BE OF 24 MONTH DURATION.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

LEGEND:

WD = WARRANTY DEED
WL = WARRANTY DEED WITH LIMITATION OF ACCESS
LA = LIMITATION OF ACCESS
T = TEMPORARY EASEMENT
SH = STANDARD HIGHWAY EASEMENT

REV. BY	DATE	DESCRIPTION
NLC	4-30-10	ADDED 23-LA
NLC	3-31-10	REV. 22-WD, 22-WD1, 22-WD2, 22-SH, REMOVED 22-SH1, 22-WD3, 23-WD, ADDED 23-WL
NLC	7/23/09	ADDED 22-SH1
NLC	05-21-09	ADDED SH DESC. TO LEGEND
NLC	4/28/09	ADDED 22-SH, REVISED 22-WD3
FIELD REVIEW BY MARK S. WARD		DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD		DATE: 3/9/09
DATE COMPLETED 3/13/09		

FEDERAL PROJECT NO. E06(812)

PID NO. 20082

STATE JOB NO.

R/W DESIGNER CFR/NGG

R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 17-23)

HAM-50-18.79

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RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES ①= AS SURVEYED ACREAGE

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
24	NOT USED																
25-WD	WILLIAM P COLGAN	25,27	7295	1030	150-0007-0035-00	3.734	0.000	0.020	0.000	0.020		3.714					
					150-0008-0019-00	0.163①	0.149	0.163	0.149	0.014			0.000		TOTAL TAKE, ① 0.163 ACRES AS SURVEYED		
	TOTAL 25-WD					3.897	0.149	0.183	0.149	0.034		3.714	0.000				
25-WD1		27	7295	1030	150-0007-0035-00	3.734	0.000	0.002	0.000	0.002							
25-T		25,27,33	7295	1030	150-0007-0035-00			0.407		0.407					TO COMPLETE GRADING		
26	STATE OF OHIO	27,29,31	3438	879	141-0006-0030-00	0.200											
					150-0008-0033-00	0.236											
					150-0007-SL01-00												
27-WD	CITY OF CINCINNATI	27,29,31	10974	1538	150-0007-0038-90	0.050①	0.000	0.050	0.000	0.050							
					141-0006-0041-00	0.188 ①	0.000	0.188	0.000	0.188							
	TOTAL					0.238	0.000	0.238	0.000	0.238	YES	0.000					
28-WD	JERRY A LEVINE	27,29	4031	1735	150-0008-0024-00	1.164 ①	0.000	1.164	0.000	1.164			0.000		TOTAL TAKE , 1 STORY STEEL, ① 1.164 ACRES AS SURV.		
					141-0006-0005-00	0.012	0.000	0.012	0.000	0.012			0.000		TOTAL TAKE		
	TOTAL 28-WD					1.176	0.000	1.176	0.000	1.176	YES		0.000				
29-WD	JEFFERSON AIR INC	27,29,31	6410	1286	150-0007-0075-00	1.367①	0.000	1.367	0.000	1.367					TOTAL TAKE, 1 STORY BLOCK, NO. 620		
					141-0006-0002-00	0.503①	0.000	0.503	0.000	0.503					TOTAL TAKE, ① 0.503 ACRES AS SURVEYED		
	TOTAL					1.870	0.000	1.870	0.000	1.870		0.000			① 1.367 ACRES AS SURVEYED		
30-WD	CITY OF CINCINNATI	35	2210	274	151-0001-0057-90	0.2557	0.000	0.184	0.000	0.184		0.071					
31	SAMUEL L PETERS	35	1992	515	151-0001-0066-00	0.68									NO TAKE		
32	JAMES & CLIFFORD WAGNER	35			151-0001-0065-00	0.172									NO TAKE		
33	TOM W. & ANITA ABANTO-PRETTY	35			151-0001-0063-00	0.051									NO TAKE		
					151-0001-0169-00	0.076											
34	CITY OF CINCINNATI	35			151-0001-0057-90	0.0042									NO TAKE		
35	STATE OF OHIO	35			151-0001-0060-90	0.046									NO TAKE		
					151-0001-0061-90	0.079											
36	MAX B. & ANGELA HOFMEYER	35			151-0001-0108-00	0.047									NO TAKE		

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REV. BY	DATE	DESCRIPTION
NLC	5-17-10	UPDATED PAR. # ON 25-WD, DEED ON 27-WD & GROSS TAKE FOR 29-WD
NLC	3-31-10	REV. 29-WD & 27-WD
NLC	12-4-09	REV. RECORD AREA ON 24-WD, REV. 25-T
NLC	05-21-09	ADDED SH DESC. TO LEGEND

FIELD REVIEW BY MARK S. WARD DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD DATE: 3/9/09
DATE COMPLETED 3/13/09

FEDERAL PROJECT NO. E060(812)
PID NO. 20082
STATE JOB NO.
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 24-36)

HAM-50-18.79

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES ① = AS SURVEYED ACREAGE

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
37	STATE OF OHIO	35			151-0001-0059-90	0.104									NO TAKE		
					151-0001-0109-90												
38	KVT INCORPORATED	35			151-0001-0055-00	3.922									NO TAKE		
39-WD	CITY OF CINCINNATI	35	1059	413	151-0001-0057-90	0.027	0.000	0.027	0.000	0.027			0.000		TOTAL TAKE		
40-WD	CITY OF CINCINNATI	39,41	1926	504	149-0010-0001-90	0.303	0.000	0.155	0.000	0.155							
					149-0012-0001-90	1.144	0.000	0.254	0.000	0.254							
40-WD1		37	1926	504	149-0010-0001-90	0.303	0.000	0.023	0.000	0.023							
	TOTAL					1.750	0.000	0.432	0.000	0.432		1.319					
41-WD	CITY OF CINCINNATI	39,41	1957	242	149-0012-0001-90	0.109	0.000	0.100	0.000	0.100							
					149-0011-0001-90	0.276	0.000	0.068	0.000	0.068							
					149-0011-0190-90	0.054	0.000	0.029	0.000	0.029							
	TOTAL					0.438	0.000	0.196	0.000	0.196		0.242					
42	HAROLD J BLACKBURN	39	6697	1477	149-0011-0005-00	0.026									NO TAKE		
43	JOHN W & KAREN A LEACH	39	5514	1028	149-0011-0027-00	0.159									NO TAKE		
44	JOHN G & CAROL STEUER	39	10053	249	149-0011-0032-00	0.034									NO TAKE		
45	THOMAS CHARLES HANSEL JR	39			149-0011-0033-00	0.04									NO TAKE		
46-WD	CITY OF CINCINNATI	43	2027	628	149-0011-0190-90	0.202①	0.000	0.169	0.000	0.169		0.033					
46-T		43			149-0011-0190-90			0.033		0.033					TO COMPLETE GRADING		
47-WD	CITY OF CINCINNATI	23	2027	628	149-0011-0190-90	0.1241	0.000	0.113	0.000	0.113		0.011					
47-T		23			149-0011-0190-90			0.011		0.011					TO COMPLETE GRADING		
48	PRICE HILL PROPERTIES	35	9112	4108	178-0028-CD07										NO TAKE		

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WL = WARRANTY DEED WITH LIMITATION OF ACCESS
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T = TEMPORARY EASEMENT
SH = STANDARD HIGHWAY EASEMENT

REV. BY	DATE	DESCRIPTION
NLC	5-17-10	ADDED 39-WD, UPDATED DEED ON PARCELS 46 & 47
NLC	3-31-10	REV. 46-WD & 46-T
NLC	05-21-09	ADDED SH DESC. TO LEGEND

FIELD REVIEW BY MARK S. WARD DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD DATE: 3/9/09
DATE COMPLETED 3/13/09

FEDERAL PROJECT NO. E06(812)
PID NO. 20082
STATE JOB NO.
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 37-48)

HAM-50-18.79

13 / 45

625
657

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
49	PRICE HILL PROPERTIES	37	9112	407	178-0028-CD02										NO TAKE		
50-52	NOT USED																
53	TALMADGE O HENRY JR BELL	39	4150	690	149-0012-0052-00	0.025									NO TAKE		
					149-0012-0053-00												
54	THEODORE J SOWMA	39	4222	659	149-0011-0015-00	0.072									NO TAKE		
55	STATE OF OHIO	37	3954	103	149-0010-0107-90	0.006									TOTAL TAKE		
56	NOT USED																
57-WD	CITY OF CINCINNATI	37,41,43	1926	504	149-0010-0001-90	0.471	0.000	0.471	0.000	0.471		0.000			TOTAL TAKE		
58-WD	CITY OF CINCINNATI	41,43	1926	504	149-0011-0001-90	0.363	0.000	0.173	0.000	0.173		0.191					
59-WD	JERIANN CHILDS	21,37,41,43	7229	947	149-0010-0051-00	0.171	0.000	0.171	0.000	0.171	YES				TOTAL TAKE, 2 STORY STEEL, NO. 619		
			7229	947	149-0010-0054-00	0.057	0.000	0.057	0.000	0.057					TOTAL TAKE, 2.5 STORY BRICK		
			7229	947	149-0010-0055-00	0.057	0.000	0.057	0.000	0.057					TOTAL TAKE, 1 STORY STEEL		
			7229	947	149-0010-0056-00	0.057	0.000	0.057	0.000	0.057					TOTAL TAKE		
			7229	947	149-0010-0057-00	0.058	0.000	0.058	0.000	0.058					TOTAL TAKE		
			7229	947	149-0010-0058-00	0.119	0.000	0.119	0.000	0.119					TOTAL TAKE		
			7229	947	149-0010-0108-00	0.05	0.000	0.050	0.000	0.050					TOTAL TAKE		
			8328	84	149-0010-0046-00	0.141	0.000	0.141	0.000	0.141					TOTAL TAKE		
	TOTAL					0.710	0.000	0.710	0.000	0.710		0.000					
60-WD	TLC PROPERTIES INC	21,37,43	9591	3525	149-0010-0065-00	0.043	0.000	0.043	0.000	0.043		0.000			TOTAL TAKE		
61-WD	JERIANN CHILDS	21,37,43	7229	947	149-0010-0064-00	0.057	0.000	0.057	0.000	0.057		0.000			TOTAL TAKE		
62-WD	EVANS DONALD	21,37,43	10084	3062	149-0010-0062-00	0.057	0.000	0.057	0.000	0.057					TOTAL TAKE		
					149-0010-0063-00	0.057	0.000	0.057	0.000	0.057					TOTAL TAKE		
	TOTAL					0.114	0.000	0.114	0.000	0.114		0.000					

NOTE: ALL TEMPORARY PARCELS TO BE OF 24 MONTH DURATION.

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REV. BY	DATE	DESCRIPTION
NLC	5-17-10	UPDATED 59-WD
NLC	05-21-09	ADDED SH DESC. TO LEGEND

FIELD REVIEW BY MARK S. WARD DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD DATE: 3/9/09
DATE COMPLETED 3/13/09

FEDERAL PROJECT NO. E060(812)
PID NO. 20082
STATE JOB NO.
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 49-62)

HAM-50-18.79

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

ALL AREAS IN ACRES ① = AS SURVEYED ACREAGE

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
63	RADEL ASSOCIATES LLC	41	9642	4506	149-0011-0074-00	0.312									NO TAKE, EX. VIADUCT ESMT. D.B. 2205, PG. 50		
					149-0011-0082-00	0.057											
					149-0011-0083-00	0.114											
64	A1 BARON STORAGE LLC	43	4387	1781	149-0011-0328-00	0.5624									NO TAKE		
65-T	FELDKAMP ENTERPRISES INC	23,43	10654	1328	149-0011-0369-00	0.273		0.001		0.001							
66-WL	CITY OF CINCINNATI	23,25	2125	327	150-0008-0066-90	0.026	0.000	0.007		0.007		0.019					
66-T		25	2125	327	150-0008-0066-90			0.013		0.013					TO COMPLETE GRADING		
66-LA		25	2125	327	150-0008-0066-90			0.000	0.000	0.000					TO RESTRICT ACCESS		
67-WL	MODERN MANUFACTURING INC	25	9971	3232	150-0008-0007-00	0.834	0.000	0.002		0.002		0.832					
67-LA1															TO RESTRICT ACCESS		
67-LA2															TO RESTRICT ACCESS		
67-T		23,25	9971	3232	150-0008-0007-00	0.834		0.082		0.082	YES				TO REMOVE TRANSPORT CONTAINERS AND COMPLETE GRADING		
68-WD	REAL ESTATE & IMPROVEMENT COMPANY	33	1463	291	150-0007-0076-00	0.026	0.000	0.026		0.026		0.000			TOTAL TAKE		
69-WD	BALTIMORE & OHIO RAILROAD COMPANY	27,33	2079	409	150-0007-0077-00	0.076①	0.000	0.076		0.076		0.000			TOTAL TAKE, ①0.076 ACRES AS SURVEYED		
69-T		33	2079	409	150-0007-0095-00	1.012		0.015		0.015					TO COMPLETE GRADING		
70	REGGENTIN THOMAS A	39			149-0012-0047-00	0.006									NO TAKE		
					149-0012-0079-00	0.006											
71	BALTIMORE & OHIO RAILROAD COMPANY	33	2079	409	150-0007-0036-00										NO TAKE		
72	STATE OF OHIO	17,19			151-0001-0131-90	0.04											
		17			151-0001-0131-90	0.04											
73	STATE OF OHIO	x			149-0010-0104-90	0.001											
74	STATE OF OHIO	x			141-0006-0036-90	0.122											
75-WD	DEITRIECH INVESTMENTS, INC.	43A	5855	418	175-0014-0082-00	0.487	0.000	0.013	0.000	0.013		0.474					
75-T		43A	5855	418	175-0014-0082-00	0.487	0.000	0.015	0.000	0.015					FOR WALL CONSTRUCTION		
76-WD	STEVEN & KATHLEEN PAVELISH	43A	11240	1480	175-0014-0051-00	0.270	0.000	0.024	0.000	0.024		0.246					
76-T		43A	11240	1480	175-0014-0051-00	0.270	0.000	0.044	0.000	0.044					FOR WALL CONSTRUCTION		
77-WD	BRENNER & JANSEN PROPERTIES, INC.	43A	8651	109	175-0014-0052-00	0.331	0.000	0.031	0.000	0.031		0.300					
77-T		43A	8651	109	175-0014-0052-00	0.331	0.000	0.065	0.000	0.065					FOR WALL CONSTRUCTION		

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REV. BY	DATE	DESCRIPTION
NLC	6-4-10	ADDED 67-LA1 & 67-LA-2
NLC	5-14-10	UPDATED 66-WL
NLC	4-30-10	ADDED 66-LA
NLC	3-31-10	REV. OWNER ON PARCEL 76
NLC	12-4-09	REMOVED 71-T
NLC	05-21-09	ADDED SH DESC. TO LEGEND

FIELD REVIEW BY MARK S. WARD DATE: 3/6/09
OWNERSHIP VERIFIED BY MARK S. WARD DATE: 3/9/09
DATE COMPLETED 3/13/09

FEDERAL PROJECT NO. E060(812)
PID NO. 20082
STATE JOB NO.
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

SUMMARY OF ADDITIONAL RIGHT OF WAY (PARCELS 63-74)

HAM-50-18.79

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, T 4 ,FR 1
CITY OF CINCINNATI

COMMERCIAL
(10)
NEFF & LORRAINE WAYNE
151-0001-0067-00
2414 RIVER RD

(13) STEPHEN TURNER ENTERPRISES INC
151-0001-0112-00
2400 RIVER RD

WOODED AREA

1 STY.
RES.
WOOD
2450 RIVER RD.

WOOD PORCH

HANDRAIL
HANDRAIL

CHAIN LINK

STONE WALL

STONE WALL

2' STONE WALL

CONC.

CONC. RET. WALL

RAIL

1.5 STY.
COMM. BRICK
2414 RIVER RD.

(72) STATE OF OHIO
151-0001-0131-90

ASPHALT PARKING LOT

CONST. LIMITS

3' CONC. BLK

13-T

10-T

13-WD

TMP

6' CHAIN LINK

GATE

16.63'

Ex R/W

BEGIN WORK
STA. 10+00.00

PI Sta. 11+64.17
Δ= 1° 54' 51" (LT)
(NO CURVE)

℄ R/W & CONST. PROP.
US 50 (RIVER RD.)

N 43° 06' 03" E 164.17'

N 41° 11' 12" E 523.85'

US 50 (RIVER RD.)

BEGIN ACQUISITION
STA. 11+54.21

STONE RETAINING WALL

2- FIBER OPTIC LINES

QUEST

COMMERCIAL (11)

CONST. LIMITS

11-WD1

CENTRAL RAILROAD COMPANY OF INDIANA
151-0001-0120-00

MATCHLINE US 50 STA. 13+00.00, SEE SHEET 18.

(12) COMMERCIAL

BALTIMORE & OHIO RAILROAD COMPANY
151-0001-0100-00

BALTIMORE & OHIO
RAILROAD COMPANY
149-0010-0085-00

RR MILE POST

O.P.F.

(14)
CITY OF CINCINNATI
149-0010-0097-00

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA 10+00 TO STA. 13+00

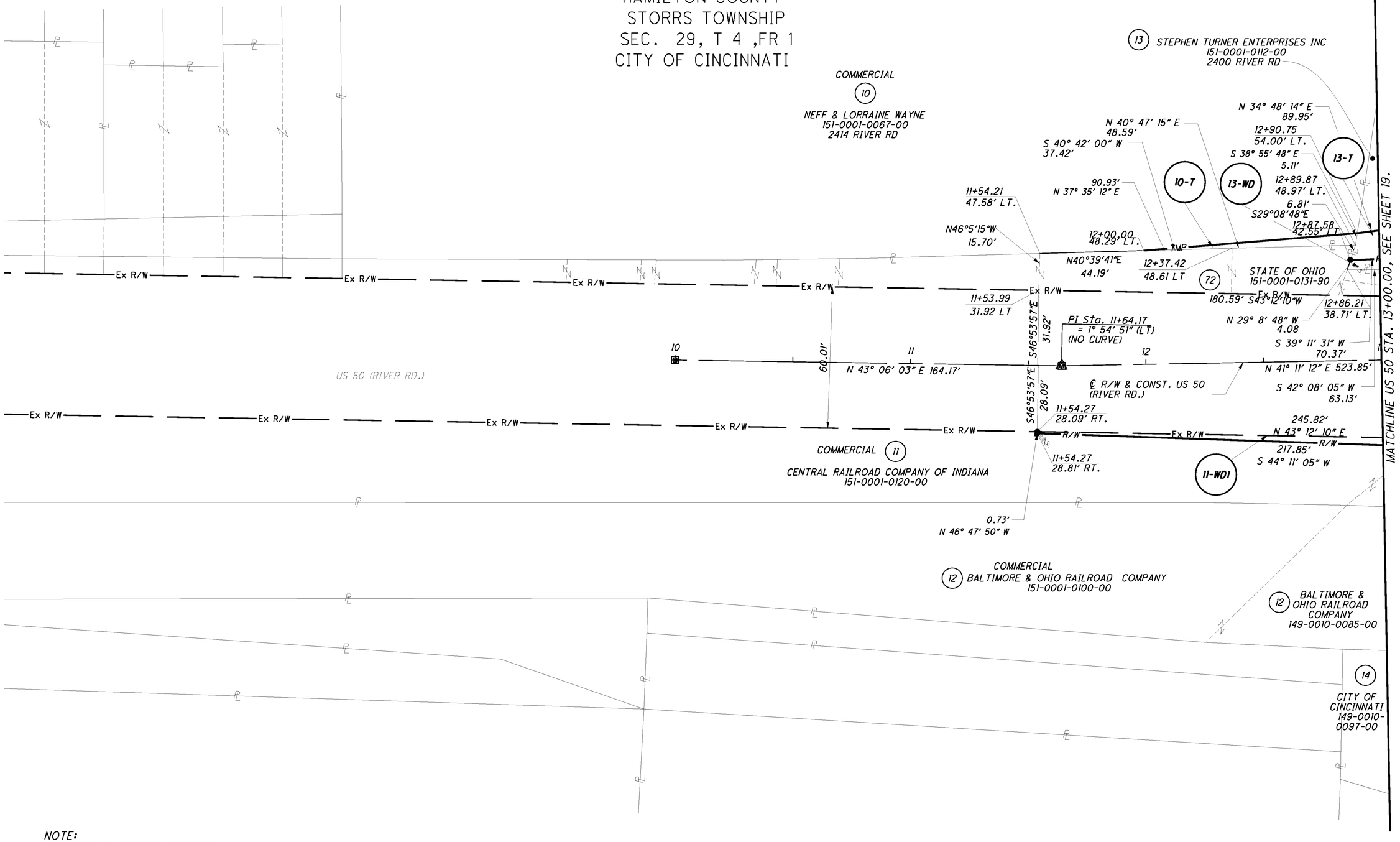
HAM-50-18.79

16 / 45

628
657

G:\projects\HAM\20082\row\sheets\20082RT100.dgn 10/27/2010 8:52:51 AM scottj

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, T 4 ,FR 1
CITY OF CINCINNATI



NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/16/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA 10+00 TO STA. 13+00

HAM-50-18.79

17 / 45

629
657

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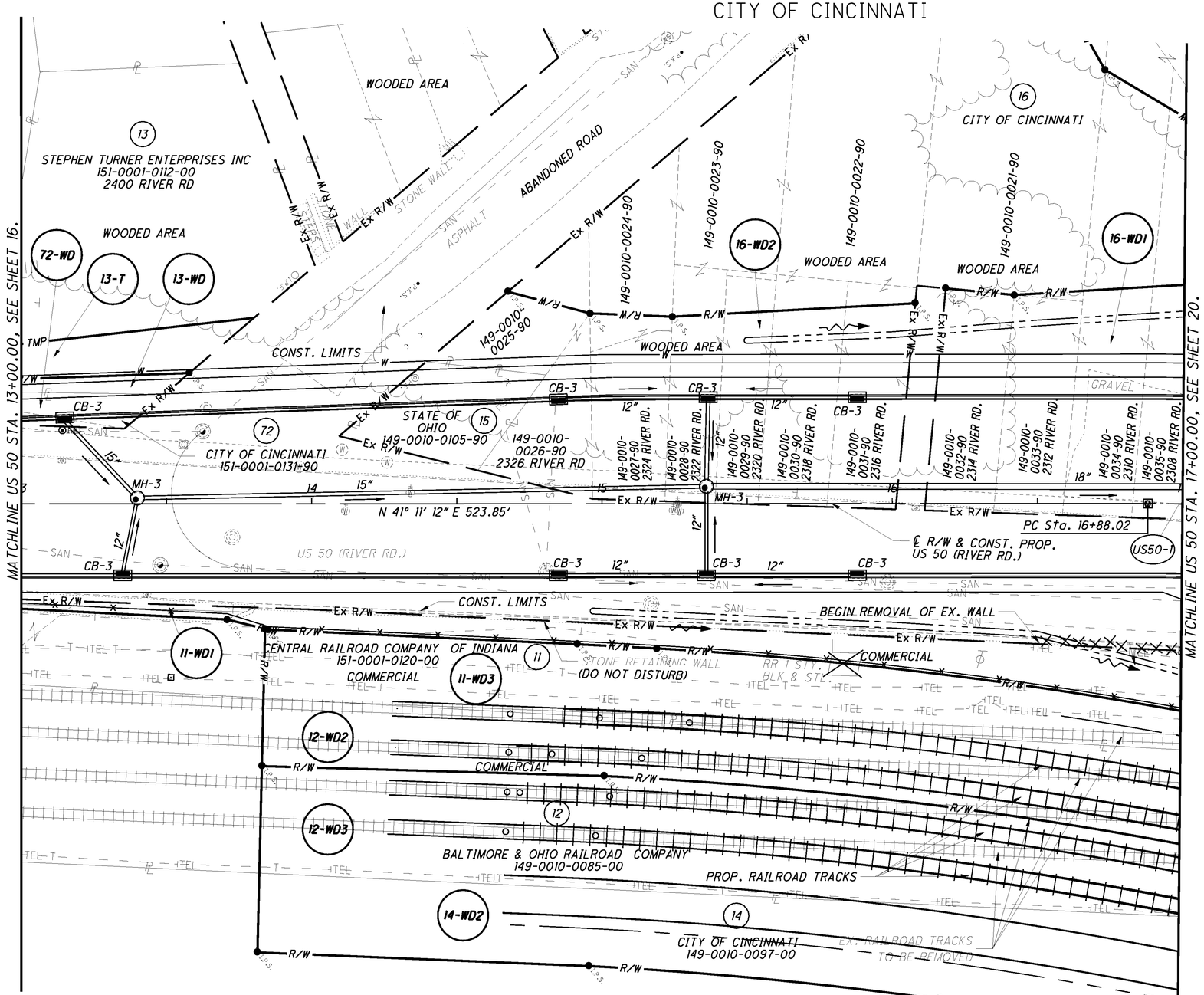
HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, T 4 ,FR 1
CITY OF CINCINNATI



US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
CHORD INFORMATION
PC-PCC = N 60° 04' 57" E 842.01'

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	5/21/09	REVISED RAILROAD LINETYPE
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 5 10 20

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 13+00.00 TO STA. 17+00.00

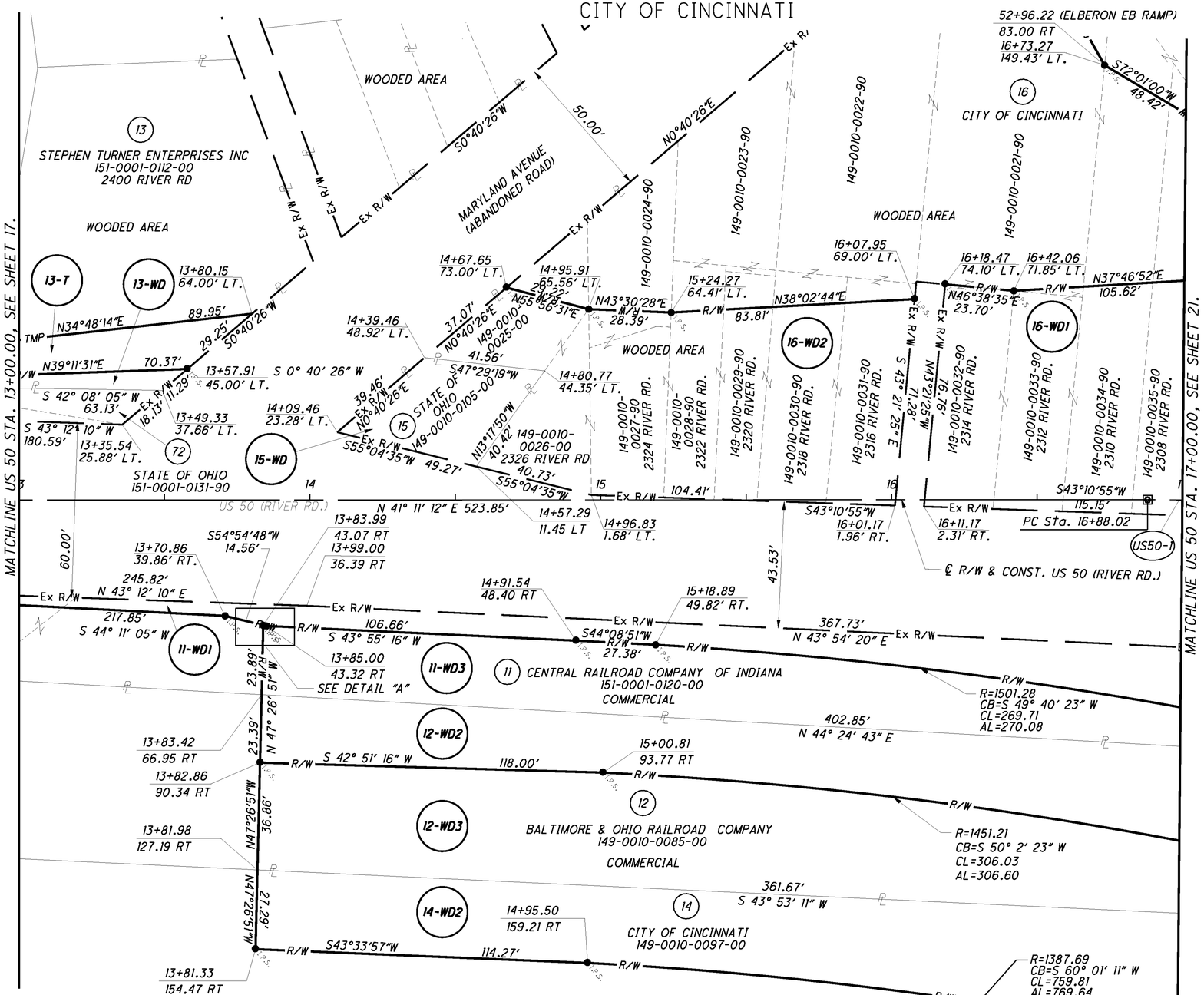
HAM-50-18.79

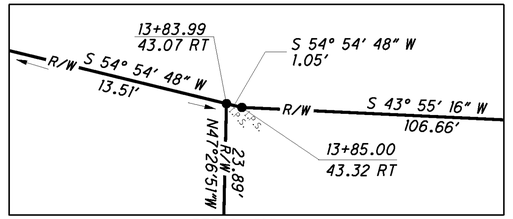
18 / 45

630
657

G:\projects\HAM\20082\row\sheets\20082RT101.dgn 10/27/2010 8:56:55 AM scottj

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, T 4 ,FR 1
CITY OF CINCINNATI





US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
CHORD INFORMATION
PC-PCC = N 60° 04' 57" E 842.01'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	7/20/09	LABELED 15-WD, MARYLAND AVENUE, REVISED CURVE DATA ON 12-WD3, ADDED LEAD-IN DATA
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 13+00.00 TO STA. 17+00.00

HAM-50-18.79

19 / 45
631
657

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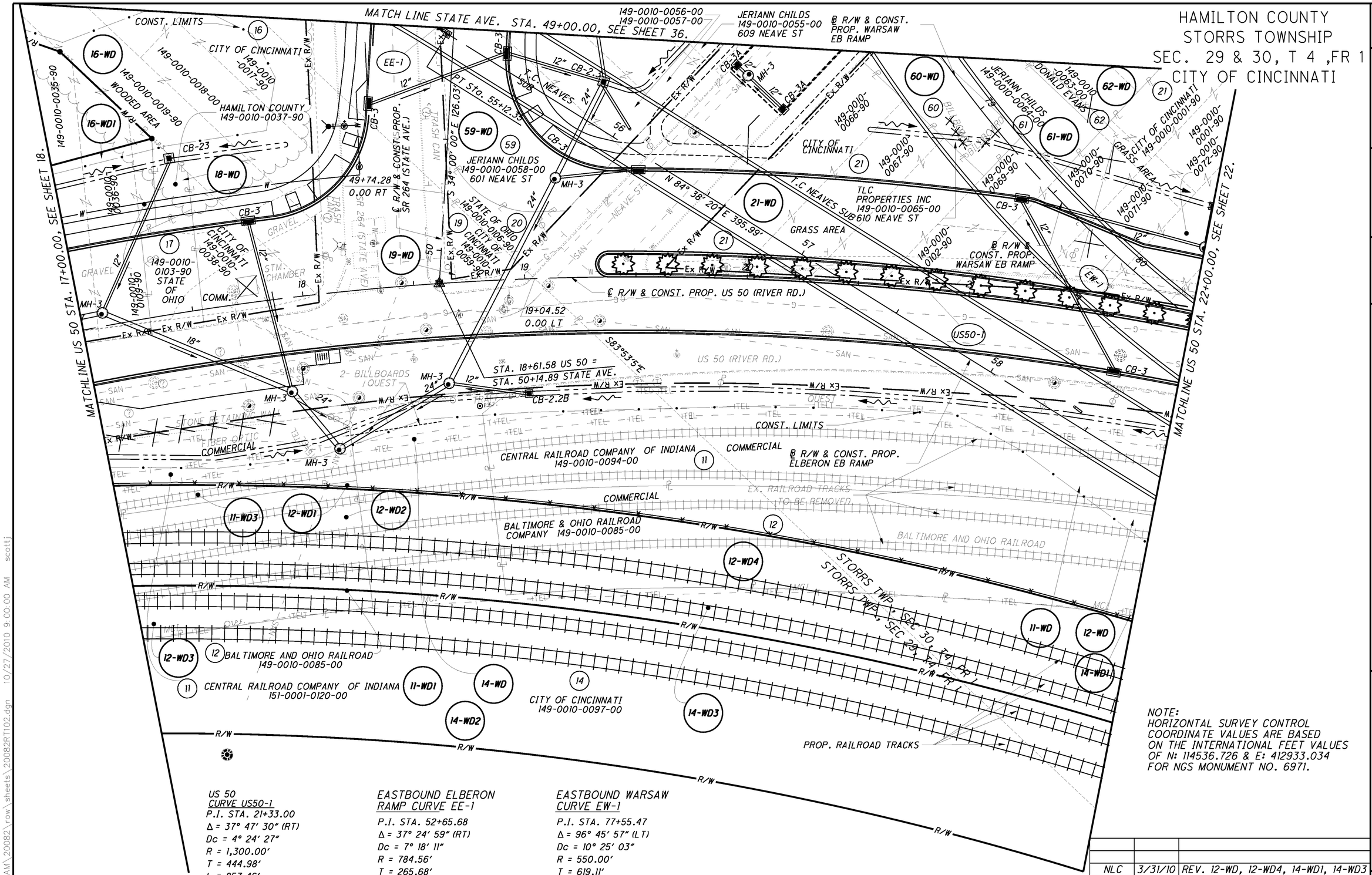

US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
CHORD INFORMATION
PC-PCC = N 60° 04' 57" E 842.01'

EASTBOUND ELBERON
RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24' 59" (RT)
Dc = 7° 18' 11"
R = 784.56'
T = 265.68'
L = 512.35'
E = 43.77'
CHORD INFORMATION
PC-PT = N 65° 55' 51" E 503.29'

EASTBOUND WARSAW
CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3/31/10	REV. 12-WD, 12-WD4, 14-WD1, 14-WD3
NLC	12/14/09	LABELED "2 BILLBOARDS" ON 14-WD
NLC	5/21/09	REVISED RAILROAD LINETYPE
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 5 10 20

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 17+00.00 TO STA. 22+00.00

HAM-50-18.79

20 / 45

632
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

MATCH LINE STATE AVE. STA. 49+00.00, SEE SHEET 37.

MATCHLINE US 50 STA. 17+00.00, SEE SHEET 19.

MATCHLINE US 50 STA. 22+00.00, SEE SHEET 23.

	BEARING	DISTANCE
A	N40°02'42"W	37.27'
B	S83°53'05"E	43.14'
C	S6°12'36"W	4.20'
D	S43°02'50"W	27.04'
E	N39°58'58"W	31.12'
F	S6°12'36"W	31.87'
G	N79°06'20"E	18.04'
H	S44°35'16"E	24.45'
I	S44°50'17"W	12.73'
J	S44°24'43"W	8.58'
K	S44°35'16"E	3.97'
L	N14°03'35"E	17.55'

LEAD-IN C1
Δ = 02° 38' 00" (LT)
R = 1300.00'
L = 59.75'
CH= S 50°22'35" W
59.74'

LEAD-IN C2
Δ = 96° 45' 57" (LT)
R = 550.00'
L = 928.89'
CH= N 49°46'58" E
42.93'

LEAD-IN C3
Δ = 05° 22' 34" (LT)
R = 1253.94'
L = 117.66'
CH= S 51°11'45" W
117.61'

LEAD-IN C4
Δ = 02° 35' 28" (RT)
R = 1300.00'
L = 58.79'
CH= N 52°01'27" E
58.78'

US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
CHORD INFORMATION
PC-PCC = N 60° 04' 57" E 842.01'

EASTBOUND ELBERON
RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24' 59" (RT)
Dc = 7° 18' 11"
R = 784.56'
T = 265.68'
L = 512.35'
E = 43.77'
CHORD INFORMATION
PC-PT = N 65° 55' 51" E 503.29'

EASTBOUND WARSAW
CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. 12-WD, 12-WD4, 14-WD1, 14-WD2, 14-WD3
NLC	7/21/09	ADDED LEAD-IN DATA
NLC	7/20/09	LABELED 20-WD, REVISED CURVE DATA ON 11-WD, 16-WD1 & 12-WD2
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED LEGAL DESC. LEAD-IN DATA

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 17+00.00 TO STA. 22+00.00

HAM-50-18.79

21 / 45

633
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

MATCHLINE U.S. STA. 22+00.00, SEE SHEET 20.

MATCHLINE US 50 STA. 27+00.00, SEE SHEET 24.

℄ R/W & CONST. PROP. ELBERON WB RAMP

℄ R/W & CONST. PROP. US 50 (RIVER RD.)

℄ R/W & CONST. PROP. WARSAW EB RAMP

℄ R/W & CONST. PROP. ELBERON EB RAMP

CONST. LIMITS

JOHN B. PURCELLS SUB

T.C. NEAVES SUB

WILSON & EGGLESTONS SUB

CITY OF CINCINNATI

149-0011-0190-90

FELDKAMP ENTERPRISES INC
149-0011-0369-00

RIVER CONTAINER CONCEPTS LLC
150-0008-0023-00

CENTRAL RAILROAD COMPANY OF INDIANA
149-0010-0094-00

BALTIMORE & OHIO RAILROAD COMPANY
149-0010-0085-00

CITY OF CINCINNATI
149-0010-0097-00

END ELBERON WB RAMP
PT Sta. 103+70.06
N 82° 46' 43" E 209.42'

26+48.30
INTERSECTION

END ELBERON EB RAMP
Sta. 62+77.26
N 76° 31' 42" E 184.90'

PCC Sta. 25+45.48

PCC Sta. 80+65.25

PC Sta. 59+08.34

PT Sta. 60+92.36

PT Sta. 85+03.33

PT Sta. 26+72.50

PC Sta. 101+55.63

MSE WALL #6

MSE WALL #2

EX. RAILROAD TRACKS TO BE REMOVED

PROP. RAILROAD TRACKS

47-WD · 21-WD · 11-WD · 12-WD · 14-WD1 · 14-WD3 · 22-WD · 67-LA1 · 66-WL · 47-T · EW-1 · EW-2 · EE-2 · US50-1 · US50-2 · WE-2

US 50
CURVE US50-1

P.I. STA. 21+33.00
Δ = 37° 47' 30" (RT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 444.98'
L = 857.46'
E = 83.80'
CHORD INFORMATION
PC-PCC = N 60° 04' 57" E 842.01'

US 50
CURVE US50-2

P.I. STA. 26+09.02
Δ = 3° 48' 02" (RT)
Dc = 2° 29' 31"
R = 1,914.97
T = 63.53'
L = 127.02'
E = 1.05'
CHORD INFORMATION
PCC-PT = N 80° 52' 42" E 127.00'

EASTBOUND ELBERON RAMP CURVE EE-2

P.I. STA. 60+00.50
Δ = 8° 06' 39" (LT)
Dc = 4° 24' 27"
R = 1,300.00'
T = 92.17'
L = 184.03'
E = 3.26'
CHORD INFORMATION
PC-PT = N 80° 35' 01" E 183.87'

WESTBOUND ELBERON RAMP CURVE WE-2

P.I. STA. 102+14.18
Δ = 2° 58' 27" (LT)
Dc = 2° 17' 31"
R = 2,499.99'
T = 64.90'
L = 129.77'
E = 0.84'
CHORD INFORMATION
PC-PT = N 85° 30' 40" E 129.76'

EASTBOUND WARSAW CURVE EW-1

P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

EASTBOUND WARSAW CURVE EW-2

P.I. STA. 82+84.78
Δ = 9° 20' 56" (LT)
Dc = 2° 08' 02"
R = 2,684.87'
T = 219.53'
L = 438.08'
E = 8.96'
CHORD INFORMATION
PCC-PT = N 82° 35' 27" E 437.60'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	6-4-10	ADDED 67-LA1
NLC	5-14-10	UPDATED 66-WL
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	3-31-10	REV. 12-WD, 14-WD1, 14-WD2, 14-WD3, 22-WD
NLC	05-21-09	REVISED RAILROAD LABEL
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 22+00.00 TO STA. 27+00.00

HAM-50-18.79

22 / 45

634 / 657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

MATCHLINE U.S. 50 STA. 22+00.00, SEE SHEET 21

MATCHLINE US 50 STA. 27+00.00, SEE SHEET 25.

℄ R/W & CONST. ELBERON WB RAMP

℄ R/W & CONST. US 50 (RIVER RD.)

℄ R/W & CONST. WARSAW EB RAMP

℄ R/W & CONST. ELBERON EB RAMP

CHURCH ST.

BURNS ST.

US 50 (RIVER RD.)

CITY OF CINCINNATI 149-0010-0072-90

CITY OF CINCINNATI 149-0010-0073-90

CITY OF CINCINNATI 149-0010-0079-90

CITY OF CINCINNATI 149-0010-0080-90

CITY OF CINCINNATI 149-0011-0190-90

FELDKAMP ENTERPRISES INC 149-0011-0369-00

CENTRAL RAILROAD COMPANY OF INDIANA 149-0010-0094-00

BALTIMORE & OHIO RAILROAD COMPANY 149-0010-0085-00

CITY OF CINCINNATI 149-0010-0097-00

RIVER CONTAINER CONCEPTS LLC 150-0008-0023-00

END ELBERON WB RAMP PT Sta. 103+70.06

PC Sta. 101+55.63

PCC Sta. 80+65.25

PCC Sta. 25+45.48

PT Sta. 59+08.34

PT Sta. 60+92.36

PT Sta. 85+03.33

PT Sta. 26+72.50

END ELBERON EB RAMP Sta. 62+77.26

STA. 22+11.19 US 50 = STA. 80+46.10 WARSAW EB RAMP

STORRS TWP. SEC 30, T4, FR 1

STORRS TWP. SEC 29, T4, FR 1

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

US 50
CURVE US50-2
P.I. STA. 26+09.02
Δ = 3° 48′ 02″ (RT)
Dc = 2° 29′ 31″
R = 1,914.97
T = 63.53′
L = 127.02′
E = 1.05′
CHORD INFORMATION
PCC-PT =N80°52′42″E 127.00′

US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47′ 30″ (RT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 444.98′
L = 857.46′
E = 83.80′
CHORD INFORMATION
PC-PCC =N60°04′57″E 842.01′

EASTBOUND WARSAW
CURVE EW-2
P.I. STA. 82+84.78
Δ = 9° 20′ 56″ (LT)
Dc = 2° 08′ 02″
R = 2,684.87′
T = 219.53′
L = 438.08′
E = 8.96′
CHORD INFORMATION
PCC-PT = N 82° 35′ 27″ E 437.60′

EASTBOUND ELBERON
RAMP CURVE EE-2
P.I. STA. 60+00.50
Δ = 8° 06′ 39″ (LT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 92.17′
L = 184.03′
E = 3.26′
CHORD INFORMATION
PC-PT = N 80° 35′ 01″ E 183.87′

WESTBOUND ELBERON
RAMP CURVE WE-2
P.I. STA. 102+14.18
Δ = 2° 58′ 27″ (LT)
Dc = 2° 17′ 31″
R = 2,499.99′
T = 64.90′
L = 129.77′
E = 0.84′
CHORD INFORMATION
PC-PT = N 85° 30′ 40″ E 129.76′

EASTBOUND WARSAW
CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
CHORD INFORMATION
PC-PCC = S 44° 21′ 06″ E 822.36′

	BEARING	DISTANCE
A	N6°08′33″E	5.04′
B	N6°22′02″E	16.89′
C	S83°37′58″E	2.18′
D	S6°22′02″W	16.42′
E	N84°12′04″E	2.23′
F	S6°22′02″W	3.53′

REV. BY	DATE	DESCRIPTION
NLC	6-4-10	ADDED 67-LA1
NLC	5-14-10	UPDATED 66-WL
NLC	3-31-10	REV. 12-WD, 14-WD1, 14-WD2, 14-WD3, 22-WD
NLC	7/22/09	ADDED LEAD-IN DATA
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED LEGAL DESC. LEAD-IN DATA

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 22+00.00 TO STA. 27+00.00

HAM-50-18.79

23 / 45

635 / 657

G:\projects\HAM\20082\row\sheets\20082RB103.dgn 10/27/2010 9:03:57 AM scottj

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

BURNS STREET
ASPHALT PARKING LOT
67-T
67-WL
CONST. LIMITS
MODERN MANUFACTURING INC
150-0008-0007-00
624 BURNS ST
2 STORY ABANDONED BLDG
UNKNOWN 21"x21" STRUC.
ALBERT & CARLA LANG
150-0008-0016-00
1946 RIVER RD
ALBERT & CARLA LANG
150-0008-0018-00
1940 W. SIXTH ST.
2 STORY COMMERCIAL BRICK BLDG
FLOWER BED
STEPS
ALBERT & CARLA LANG
150-0007-0107-00
1 STORY COMMERCIAL BLOCK BLDG
WILLIAM P COLGAN
150-0007-0035-00
1900 W. SIXTH ST.
23-T
23-WL
CONST. LIMITS
WALL #7
66-WL
67-LA2
66-T
66-LA
23-LA
US50-3
CITY OF CINCINNATI
150-0008-0066-90
US 50 (RIVER RD.)
PC Sta. 28+81.92
PT Sta. 29+78.94
N 82° 46' 43" E 209.42'
WILLIAM P COLGAN
150-0008-0019-00
RIVER RD
25-T
25-WD
℄ R/W & CONST. PROP.
US 50 (RIVER RD.)
N 80° 35' 53" E 268.19'
COMMERICAL
22-WD
11-WD2
CENTRAL RAILROAD COMPANT OF INDIANA
22 RIVER CONTAINER CONCEPTS LLC
150-0008-0023-00
10'x4.5' CONC. PAD
MATCHLINE US 50 STA. 27+00.00, SEE SHEET 22.
MATCHLINE US 50 STA. 32+00.00, SEE SHEET 26.
WALL #2
12 149-0010-0085-00
12 150-0008-0058-00
N 77° 54' 59" E 559.74'
BALTIMORE AND OHIO RAILROAD
BALTIMORE & OHIO RAILROAD COMPANY
150-0008-0034-00
COMMERICAL
CENTRAL RAILROAD
COMPANY OF INDIANA
150-0008-0053-00
EX. RAILROAD TRACKS
TO BE REMOVED
℄ R/W & CONST. PROP
WARSAW EB RAMP
12-WD
14-WD1
22-WD
12-WD5
CONST. LIMITS
14-WD3
14 CITY OF CINCINNATI
149-0010-0097-00
14-WD2
PROP. RAILROAD TRACKS

US 50
CURVE US50-3
P.I. STA. 29+30.44
Δ = 2° 10' 50" (LT)
Dc = 2° 14' 52"
R = 2,549.00'
T = 48.51'
L = 97.01'
E = 0.46'
CHORD INFORMATION
PC-PT = N 81° 41' 18" E
97.01'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	6-4-10	ADDED 67-LA2
NLC	5-14-10	UPDATED 66-WL
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	4-30-10	ADDED 23-LA & 66-LA
NLC	3-31-10	REV. 11-WD2, 12-WD, 12-WD514-WD1, 14-WD2, 14-WD3, 22-WD, 25-WD, REMOVED 23-WD, 66-WD, ADDED 23-WL & 66-WL
NLC	05-21-09	REVISED RAILROAD LABELS
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 27+00.00 TO STA. 32+00.00

HAM-50-18.79

24 / 45

636
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

COMMERICAL
ASPHALT PARKING LOT

COMMERICAL
MODERN MANUFACTURING INC
150-0008-0007-00
624 BURNS ST

ALBERT & CARLA LANG
150-0008-0016-00
1946 RIVER RD

ALBERT & CARLA LANG
150-0007-0107-00

COMMERICAL
ALBERT & CARLA LANG
150-0008-0018-00
1940 W. SIXTH ST.

WILLIAM P COLGAN
150-0007-0035-00
1900 W. SIXTH ST.

COMMERICAL

US 50
CURVE US50-3
P.I. STA. 29+30.44
Δ = 2° 10' 50" (LT)
Dc = 2° 14' 52"
R = 2,549.00'
T = 48.51'
L = 97.01'
E = 0.46'
CHORD INFORMATION
PC-PT = N 81° 41' 18" E
97.01'

MATCHLINE US 50 STA. 27+00.00, SEE SHEET 23.

MATCHLINE US 50 STA. 32+00.00, SEE SHEET 27.

US 50 (RIVER RD.)

PC Sta. 28+81.92

PT Sta. 29+78.94

RIVER CONTAINER CONCEPTS LLC
150-0008-0023-00
COMMERICAL

WILLIAM P COLGAN
150-0008-0019-00
RIVER RD
COMMERICAL

CITY OF CINCINNATI
150-0008-0066-90

149-0010-0085-00

CITY OF CINCINNATI
149-0010-0097-00

BALTIMORE & OHIO RAILROAD COMPANY
150-0008-0034-00

BALTIMORE & OHIO RAILROAD COMPANY
150-0008-0058-00

CENTRAL RAILROAD COMPANY OF INDIANA
150-0008-0053-00
COMMERICAL

℄ R/W & CONST. WARSAW EB RAMP

℄ R/W & CONST. US 50 (RIVER RD.)

	BEARING	DISTANCE
A	N6°35'46"E	16.40'
B	N81°09'08"E	22.91'
C	S8°50'24"E	2.00'
D	N81°09'08"E	3.38'
E	S6°39'45"W	29.28'
F	S6°39'45"W	9.52'
G	S89°29'19"W	39.96'
H	S82°46'43"W	18.63'
I	N6°36'32"E	4.21'
J	S83°18'58"W	23.02'

	BEARING	DISTANCE
K	N7°25'06"E	6.17'
L	N84°13'20"E	4.15'
M	N6°53'04"E	10.25'
N	N80°26'14"E	18.51'
O	N84°10'54"E	2.47'
P	N41°08'37"E	21.61'
Q	N83°12'02"E	11.01'
R	S56°33'39"E	11.33'
S	N81°09'36"E	21.74'
T	S10°19'16"E	6.08'

	BEARING	DISTANCE
U	S10°19'15"E	1.92'
V	S81°09'36"W	36.71'
W	S84°10'54"W	24.95'
X	N06°39'45"E	0.58
Y	N89°29'19"E	6.14
Z	S84°10'54"W	6.24

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	6-4-10	ADDED 67-LA2
NLC	5-14-10	UPDATED 66-WL
NLC	5-10-10	ADDED MISSING ℄
NLC	4-30-10	ADDED 23-LA & 66-LA
NLC	3-31-10	REV. 11-WD2, 12-WD, 12-WD514-WD1, 14-WD2, 14-WD3, 22-WD, 25-WD, REMOVED 23-WD, 66-WD, ADDED 23-WL & 66-WL
NLC	7/21/09	ADDED LEAD-IN DATA
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED LEGAL DESC. LEAD-IN DATA

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 27+00.00 TO STA. 32+00.00

HAM-50-18.79

25 / 45

637
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

MATCHLINE EVANS ST. STA. 21+00.00, SEE SHEET 32.

MATCHLINE US 50 STA. 32+00.00, SEE SHEET 24.

STA. 37+00.00, SEE SHEET 28.

MATCHLINE US 50 & 50 WB

1 STY. COMM. BLOCK 1900 W. SIXTH ST.

25 WILLIAM P COLGAN 150-0007-0035-00 1900 W. SIXTH ST.

ASPHALT PARKING LOT

25-T

25-WD

25-WD1

WALL #7

9' CHAINLINK

US50 (RIVER ROAD)

BEGIN 50 WB & EB STA. 32+43.36

N 80° 35' 53" E 75.66'

N 80° 35' 53" E 268.19'

3.76'

N80°35'53"E

PC Sta. 32+47.13

PC Sta. 33+19.04

℄ R/W & CONST. PROP. US 50 (RIVER RD.)

11-WD2

22-WD

22

RIVER CONTAINER CONCEPTS LLC 150-0008-0023-00

EW-3

℄ R/W & CONST. PROP. WARSAW EB RAMP

ASPHALT PARKING LOT

2" STL. (NO SIGN)

4.5'x2.5' WAT. VAULT

3 DIA. PLANTER

CB-3A

CB-3

MH-3

12" STM. CLEAN OUT

LIGHTING CONDUIT

PULL BOX

CONST. LIMITS

150-0008-0058-00

12-WD5

BALTIMORE & OHIO RAILROAD COMPANY 150-0008-0034-00

EX. RAILROAD TRACKS TO BE REMOVED

PROP. RAILROAD TRACKS

12-WD

14-WD3

14-WD2

12-WD6

11-WD4

22-WD1

11-SH

22-SH

14-SH

14 CITY OF CINCINNATI 149-0010-0097-00

22 RIVER CONTAINER CONCEPTS LLC 150-0008-0023-00

11 CENTRAL RAILROAD COMPANY OF INDIANA 150-0008-0053-00

28 JERRY A LEVINE 150-0008-0024-00

28-WD

JOHN W. PRICE'S SUB

POST ABAND.

ASPHALT

6' CHAINLINK

END WARSAW EB RAMP PT Sta. 93+22.68

STAIRS

STY. MFG. TRAILER NO. 1881

PARKING LOT

1 CARPORT

3' CONC. BARRIER

Ex R/W

CB-2.2B

BILLBOARD OVERHEAD CATWALK

29 JEFFERSON AIR INC 150-0007-0075-00 620 W SIXTH ST

29-WD

27 CITY OF CINCINNATI 150-0008-0038-00

27-WD

℄ R/W & CONST. PROP. US 50 EB RAMP

℄ R/W & CONST. PROP. US 50 WB RAMP

50W-1

50E-1

18" MH-3

STA. 34+96.89 (WB US 50)= STA. 20+05.23 (EVANS ST.)

Δ2°53'27"E 600.16'

WALL #8

US 50 (WESTBOUND)
CURVE 50W-1
P.I. STA. 36+22.91
Δ = 17° 22' 31" (RT)
Dc = 2° 52' 52"
R = 1,988.60'
T = 303.86'
L = 603.06'
E = 23.08'
CHORD INFORMATION
PC-PCC = N 89° 17' 08" E 600.75'

US 50 (EASTBOUND)
CURVE 50E-1
P.I. STA. 36+80.74
Δ = 22° 09' 24" (RT)
Dc = 2° 35' 14"
R = 2,214.60'
T = 433.62'
L = 856.40'
E = 42.05'
CHORD INFORMATION
PC-PT=S88°19'25" E 851.07'

EASTBOUND WARSAW
CURVE EW-3
P.I. STA. 91+24.43
Δ = 3° 48' 52" (RT)
Dc = 3° 22' 13"
R = 1,700.00'
T = 56.61'
L = 113.17'
E = 0.94'
CHORD INFORMATION
PC-PT = N 79° 49' 25" E 113.15'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

NOTE: 11-SH, 14-SH & 22-SH OVERLAP PARCELS 11-WD4, 22-WD1 & 14-WD2

REV. BY	DATE	DESCRIPTION
NLC	8-6-10	ADDED BILLBOARD
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	4-30-10	LABELED LAMAR BILLBOARD
NLC	3-31-10	REV. 11-WD4, 11-SH, 12-WD5, 12-WD6, 14-WD2, 14-WD3, 14-SH, 22-WD1, 22-SH
NLC	7/23/09	ADDED 22-SHI
NLC	5/21/09	REVISED RAILROAD MAPPING
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED 11-SH, 14-SH & 22-SH

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 32+00.00 TO STA. 37+00.00

HAM-50-18.79

26 / 45

638 / 657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1

MATCHLINE EVANS ST. STA. 21+00.00, SEE SHEET 33.

	BEARING	DISTANCE
A	N49°05'57"E	20.47'
B	S4°06'53"W	11.15'
C	S81°09'36"W	14.85'
D		

25 WILLIAM P COLGAN 150-0007-0035-00 1900 W. SIXTH ST.

25-T

N8°48'45"W 214.31' TMP

63.83' N 76° 47' 00" E TMP

34+11.00 71.00' LT. 34+72.58 73.96' LT. 34+71.13 62.92' LT. S4°06'53"W 150.93' R/W

34+56.74 61.61' LT. S 81° 09' 36" W 42.38'

34+15.60 58.41' LT.

25-WD1

TMP R/W Ex R/W 310.09' S 81° 09' 36" W 314.38' N81°09'36"E

32+43.76 57.50' LT.

25-WD

33+49.54 62.93' LT.

N80°35'53"E 205.61'

R=3573.99 CB=N 82° 26' 23" E CL=176.21 AL=176.22

BEGIN 50 WB & EB Sta. 32+43.36

33+53.23 5.03' LT.

R=478.00 CB=N 88° 10' 29" E CL=116.75 AL=117.04

℄ R/W & CONST. PROP. EVANS ST.

S03°03'40"E 5.12'

34+92.21

STA. 34+96.89 (WB US 50)= STA. 20+05.23 (EVANS ST.)

234.47' N 81° 09' 36" E

N 80° 35' 53" E 75.60' Ex R/W

N 80° 35' 53" E 264.42' 3.76' N80°35'53"E

PC Sta. 32+47.13 PC Sta. 33+19.04

LEAD-IN C1

34+69.71 1.74' RT.

S84°48'38"E 22.72'

34+92.21 5.12' RT.

35+10.08 7.63' RT. 4.00' S 4° 06' 53" W

℄ R/W & CONST. US 50 (RIVER RD.)

22-WD

COMMERICAL ASPHALT PARKING LOT

22

RIVER CONTAINER CONCEPTS LLC 150-0008-0023-00

℄ R/W & CONST. WARSAW EB RAMP

END WARSAW EB RAMP PT Sta. 93+22.68

35+09.61 11.60 RT

PARKING LOT

50E-1

398.02' S 84° 48' 24" E

92.52' N 4° 06' 53" E

EW-3

N83°46'50"W 233.53'

PC Sta. 90+63.07

11-WD2

R=1457.69 CB=S 81° 00' 52" W CL=58.87 AL=58.87

32+76.39 93.56' RT.

34+49.24 91.80' RT.

34+80.13 96.88' RT.

N84°48'38"W 88.43'

32+16.29 93.32' RT.

N81°41'46"E 142.64'

23.15' 30.00' N84°01'30"W

34+25.16 89.61' RT.

11-WD4

S05°10'30"W 2.14'

34+48.88 93.91' RT.

12-WD

JERRY A LEVINE 150-0008-0024-00

28

28-WD

MATCHLINE US 50 WB & 50 EB STA. 37+00.00, SEE SHEET 29.

MATCHLINE US 50 STA. 32+00.00, SEE SHEET 25.

BALTIMORE & OHIO RAILROAD COMPANY 150-0008-0058-00

12-WD5

S 84° 48' 38" E 279.83'

N 84° 25' 34" W 155.79'

11 150-0008-0053-00 CENTRAL RAILROAD COMPANY OF INDIANA

597.89'

36+42.63 115.46' RT.

60.00'

R=1182.85 CB=S85°08'59"W CL=298.99 AL=299.80

12 BALTIMORE & OHIO RAILROAD COMPANY 150-0008-0034-00

12-WD6

35+05.10 149.82' RT.

S 84° 48' 38" E 125.26'

N04°42'56"E 47.97'

11-SH

22-WD1

N84°48'38"W 295.39'

S04°06'53"W 52.13'

34+98.26 201.57' RT.

22 RIVER CONTAINER CONCEPTS LLC 150-0008-0023-00

36+39.12 163.32' RT.

52.13' N04°42'56"E

R=747.00 CB=S 88° 12' 08" E CL=56.65 AL=56.67

22-SH

14-WD2

R=1387.69 CB=S 83° 4' 30" W CL=286.58 AL=287.10

14 CITY OF CINCINNATI 149-0010-0097-00

N84°48'38"W 124.71'

36+35.11 215.32' RT.

36+83.15 221.65 RT

14-SH R=747.00 CB=N 89° 44' 40" W CL=16.45 AL=16.46

R/W R/W S89°35'48"W 181.68' R/W N04°42'56"E 7.60'

34+32.76 217.88' RT.

60.00'

43.77' S89°37'28"W

36+34.51 222.89' RT.

14-SH

29 JEFFERSON AIR INC 150-0007-0075-00 620 W SIXTH ST

61.50' S4°34'16"W

36.51' S84°48'38"E

72.30' N4°06'53"E

20+88.38 100.21 RT S84°48'38"E 696.38'

36+01.85 81.26 LT (US-50) N 84° 48' 38" W 759.74'

Ex R/W

150-0007-0077-00 BALTIMORE & OHIO RAILROAD COMPANY 69

69-WD

27-WD

27 CITY OF CINCINNATI 150-0008-0038-90

℄ R/W & CONST. US 50 (EB)

29-WD

℄ R/W & CONST. US 50 (WB)

50W-1

36

20+91.28 27.97 RT

35+32.89 89.17' LT.

13.50' N4°06'53"E

35+31.25 75.78' LT.

20+77.78 27.68 RT

300.16' N2°53'27"E 302.16'

89.50'

34+92.21

35

17.99'

34+10.00 71.00' LT. 73.96' LT.

34+56.74 61.61' LT.

34+15.60 58.41' LT.

33+49.54 62.93' LT.

33+53.23 5.03' LT.

34+69.71 1.74' RT.

34+92.21 5.12' RT.

33

34

92

93

91

22

US 50 (WESTBOUND) CURVE 50W-1

P.I. STA. 36+22.91
Δ = 17° 22' 31" (RT)
Dc = 2° 52' 52"
R = 1,988.60'
T = 303.86'
L = 603.06'
E = 23.08'
CHORD INFORMATION
PC-PCC = N 89° 17' 08" E
600.75'

US 50 (EASTBOUND) CURVE 50E-1

P.I. STA. 36+80.74
Δ = 22° 09' 24" (RT)
Dc = 2° 35' 14"
R = 2,214.60'
T = 433.62'
L = 856.40'
E = 42.05'
CHORD INFORMATION
PC-PT=S88°19'25" E 851.07'

EASTBOUND WARSAW CURVE EW-3

P.I. STA. 91+24.43
Δ = 3° 48' 52" (RT)
Dc = 3° 22' 13"
R = 1,700.00'
T = 56.61'
L = 113.17'
E = 0.94'
CHORD INFORMATION
PC-PT = N 79° 49' 25" E
113.15'

LEAD-IN C1

Δ = 06°20'27" (RT)
R = 2214.60'
L = 245.09'
CH= N 83°46'06" E
244.96'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

NOTE: 11-SH, 14-SH, 22-SH & 22-SH1 OVERLAP PARCELS 11-WD4, 22-WD1, 22-WD2 & 14-WD2

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. 11-WD4, 11-SH, 12-WD5, 12-WD6, 14-WD2, 14-WD3, 14-SH, 22-WD1, 22-SH
NLC	12/4/09	REVISED 25-T
NLC	8/17/09	REVISED BEARING ON 22-SH
NLC	7/23/09	ADDED 22-SH1
NLC	7/21/09	ADDED LEAD-IN DATA
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED 11-SH, 14-SH & 22-SH

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 32+00.00 TO STA. 37+00.00

HAM-50-18.79

27 / 45

639
657

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NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

69 BALTIMORE & OHIO RAILROAD COMPANY 150-0007-0095-00

69 BALTIMORE & OHIO RAILROAD COMPANY 150-0006-0029-00

29 JEFFERSON AIR INC 150-0007-0075-00 620 W SIXTH ST

29-WD

27-WD CITY OF CINCINNATI 150-0008-0038-90

27 CITY OF CINCINNATI 141-0006-0041-00

26 STATE OF OHIO 141-0006-0033-00

26 STATE OF OHIO 141-0006-0030-00

28 JERRY A LEVINE 150-0008-0024-00

28-WD

28 JERRY A LEVINE 141-0006-0005-00

11 CENTRAL RAILROAD COMPANY OF INDIANA 150-0008-0053-00

11-SH

11-WD4

14 CITY OF CINCINNATI 149-0010-0097-00

14-SH

14-WD2

22-SH

22-WD1

22-WD2

22 150-0008-0023-00 RIVER CONTAINER CONCEPTS

50W-1

50W-2

50E-1

STA. 37+00.00, SEE SHEET 26.

MATCHLINE US 50 WB & 50 EB

MATCHLINE

STA. 43+50, SEE SHEET 30

CONST. LIMITS

J.W. PRICE'S SUB

CONC. BARRIER

620 W. SIXTH ST.

MSE WALL # 8

5" STEEL BOLLARD

WOOD STEPS

METAL STEPS

CONC.

6' CHAINLINK

GATE

PROPANE TANK

R.R. SWITCH BLDG.

JOHN W. PRICE'S SUB

CENTRAL RAILROAD COMPANY OF INDIANA

ASPHALT

US 50 (RIVER RD)

INK004

℄ R/W & CONST. PROP. US 50 WB RAMP

℄ R/W & CONST. PROP US 50 (RIVER RD)

PCC Sta. 39+22.10

POT Sta. 41+05.86

END WORK STA. 41+03.52

S 79° 10' 00" E 51.93'

PT Sta. 40+53.92

PT Sta. 41+03.52

S77°14'43"E

EXTENSION OF ℄ R/W & CONST. PROP US 50 (RIVER RD)

Ex R/W

Ex LA-R/W

R/W

CB-3 12"

CB-3

12" SAN

SAN

US 50 (WESTBOUND)
CURVE 50W-1
P.I. STA. 36+22.91 T = 303.86'
Δ = 17° 22' 31" (RT) L = 603.06'
Dc = 2° 52' 52" E = 23.08'
R = 1,988.60'
CHORD INFORMATION
PC-PCC = N 89° 17' 08" E 600.75'

US 50 (WESTBOUND)
CURVE 50W-2
P.I. STA. 39+88.03 T = 65.93'
Δ = 03° 26' 09" (RT) L = 131.82'
Dc = 2° 36' 23" E = 0.99'
R = 2,198.33'
CHORD INFORMATION
PCC-PT = S 80° 18' 32" E 131.80'

US 50 (EASTBOUND)
CURVE 50E-1
P.I. STA. 36+80.74 T = 433.62'
Δ = 22° 09' 24" (RT) L = 856.40'
Dc = 2° 35' 14" E = 42.05'
R = 2,214.60'
CHORD INFORMATION
PC-PT = S 88° 19' 25" E 851.07'

REV. BY	DATE	DESCRIPTION
NLC	5/7/10	ADDED EXISTING VIADUCT
NLC	3-31-10	REV. 11-WD4, 11-SH, 14-WD2, 14-SH, 22-WD1, 22-WD2, 28-WD, 29-WD
NLC	7/23/09	ADDED 22-SH1
NLC	5/21/09	REVISED RAILROAD MAPPING
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED 11-SH, 14-SH & 22-SH, REVISED 22-WD3, REMOVED 11-WD5

DATE COMPLETED 3/13/09

N

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 37+00.00 TO STA 43+50.00

HAM-50-18.79

28 / 45

640 / 657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

37+34.54
146.28' LT.
7.34'
S 5° 14' 01" W
38+01.04
145.13' LT.
37+34.30
138.93' LT.
S 78° 55' 15" E
95.00'
70.91'
S 84° 48' 38" E
7.59'
N 5° 02' 18" E
38+01.03
137.54 LT

69 BALTIMORE & OHIO RAILROAD COMPANY
150-0007-0095-00

524.81'
S 85° 29' 19" E

29 JEFFERSON AIR INC
150-0007-0075-00
620 W SIXTH ST
29-WD

69 BALTIMORE & OHIO RAILROAD COMPANY
150-0006-0029-00

R/W
Ex R/W
Ex LA-R/W

N 84° 48' 38" W
696.38'
N 84° 48' 38" W
759.74'

27 CITY OF CINCINNATI
150-0008-0038-90
27-WD

CITY OF CINCINNATI
141-0006-0041-00
27

STA. 37+00.00, SEE SHEET 27.

MATCHLINE US 50 WB & 50 EB

MATCHLINE US 50 STA 43+50, SEE SHEET 31

℄ R/W & CONST. PROP. US 50 (RIVER RD)
℄ R/W & CONST. US 50 (WB)

50W-1
50W-2
50E-1

38
39
40
41
42

713.65'
S84°48'38"E

PCC Sta. 39+22.10
POT Sta. 41+05.86
S 79° 10' 00" E 51.93'
PT Sta. 40+53.92
PT Sta. 41+03.52

EXTENSION OF
℄ R/W & CONST.
PROP. US 50 (RIVER RD)
S77°14'43"E

26 STATE OF OHIO
1500007SL01

39+11.51
29.77' RT.
S 84° 48' 38" E
398.02'

R=872.89
CB=S 76° 59' 08" E
CL=237.68
AL=238.42

26 STATE OF OHIO
141-0006-0033-00

S5°11'22"W
27.02'
39+12.77
56.76' RT.

28-WD

28 JERRY A LEVINE
150-0008-0024-00

41+55.56
65.83' RT.
42+36.10
77.28' RT.
81.35'
S 69°09'38" E
28 JERRY A LEVINE
141-0006-0005-00

S07°03'37"W
1.80'
41+08.26
103.70' RT.
S 89°38'03"W
89.89'
40.75'
N85°44'48"W
41+48.56
97.68' RT.
41+08.43
105.50' RT.

37+05.85
119.57' RT.
118.95'
N 84°25'34" W
597.89'
38+31.66
122.65' RT.

11-SH
11-WD4
11 CENTRAL RAILROAD
COMPANY OF INDIANA
150-0008-0053-00

S04°42'56"W
47.57'
46.77'
S05°27'24"W

42+00.46
138.67' RT.
S79°04'12"E
97.97'

37+03.83
166.77' RT.
N84°48'38"W
118.34'
38+31.89
169.41 RT
S84°48'38"E
350.22'

S04°42'56"W
52.13'
52.12'
S05°27'24"W

22-SH
14-WD2
22-WD1
22 150-0008-0023-00
RIVER CONTAINER
CONCEPTS
22-WD2

37+46.09
220.77' RT.
37+01.51
219.18' RT.
S04°42'56"W
1.94'
40.18
N84°48'38"W
77.48'
S 84°48'38" E
449.33'
38+32.16
221.54 RT
14
CITY OF CINCINNATI
149-0010-0097-00

14-SH
37+01.42
221.12' RT.
R=747.00
CB=N 88° 12' 08" W
CL=56.65
AL=56.67

US 50 (WESTBOUND)
CURVE 50W-1
P.I. STA. 36+22.91 T = 303.86'
Δ = 17° 22' 31" (RT) L = 603.06'
Dc = 2° 52' 52" E = 23.08'
R = 1,988.60'
CHORD INFORMATION
PC-PCC= N 89° 17' 08" E 600.75'

US 50 (WESTBOUND)
CURVE 50W-2
P.I. STA. 39+88.03 T = 65.93'
Δ = 03° 26' 09" (RT) L = 131.82'
Dc = 2° 36' 23" E = 0.99'
R = 2,198.33'
CHORD INFORMATION
PCC-PT = S 80° 18' 32" E 131.80'

US 50 (EASTBOUND)
CURVE 50E-1
P.I. STA. 36+80.74 T = 433.62'
Δ = 22° 09' 24" (RT) L = 856.40'
Dc = 2° 35' 14" E = 42.05'
R = 2,214.60'
CHORD INFORMATION
PC-PT = S 88° 19' 25" E 851.07'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	5-17-10	UPDATED 29-WD
NLC	3-31-10	REV. 11-WD4, 11-SH, 14-WD2, 14-SH, 22-WD1, 22-WD2, 28-WD, 29-WD
NLC	7/23/09	ADDED 22-SH1
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	ADDED 11-SH, 14-SH & 22-SH, REVISED 22-WD3, REMOVED 11-WD5

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 37+00.00 TO STA 43+50.00

HAM-50-18.79

29 / 45
641
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

69 BALTIMORE & OHIO RAILROAD COMPANY 150-0006-0029-00

69 BALTIMORE & OHIO RAILROAD COMPANY 150-0006-0030-00

29-WD

29 JEFFERSON AIR INC 150-0007-0075-00 620 W SIXTH ST

27-WD

CONC.
CONC.

24"

CITY OF CINCINNATI 141-0006-0041 (27)

Ex R/W

MILL CREEK

29 JEFFERSON AIR INC 141-0006-0002-00 620 W SIXTH ST

29-WD

73 STATE OF OHIO 141-0006-0036-90

MATCHLINE EXT. US 50 STA 43+50, SEE SHEET 28

S 77° 14' 43" E

EXTENSION OF ℄ R/W & CONST.
PROP. US 50 (RIVER RD)
(FOR STATION/OFFSET INFORMATION ONLY)

END ACQUISITION
STA. 45+31.33

11 150-0008-0053-00 CENTRAL RAILROAD COMPANY OF INDIANA

22 150-0008-0023-00 RIVER CONTAINER CONCEPTS

22-WD2

CITY OF CINCINNATI 14 149-0010-0097-00

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. 22-WD2, 27-WD & 29-WD
NLC	5/21/09	REVISED RAILROAD MAPPING
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	REVISED 22-WD3

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 43+50 TO STA. 45+00

HAM-50-18.79

30 / 45

642
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

69 BALTIMORE & OHIO RAILROAD COMPANY 150-0006-0029-00

69 BALTIMORE & OHIO RAILROAD COMPANY 150-0006-0030-00

MATCHLINE EXT. US 50 STA 43+50, SEE SHEET 29

43+01.61
198.40' LT.

S 85° 29' 19" E
524.81'

R/W

R=126.71
CB=S 43° 42' 18" E
CL=66.45
AL=67.24

29-WD

29 JEFFERSON AIR INC
150-0007-0075-00
620 W SIXTH ST

MILLCREEK

44+46.60
170.89' LT.

R/W

R=33.12
CB=S 59° 10' 58" E
CL=49.99
AL=56.65

44+94.13
155.39' LT.

S 46° 22' 31" W
66.59'

43+57.00
161.69' LT.

R=106.09
CB=S 83° 06' 38" E
CL=90.07
AL=93.02

N 84° 48' 38" W
696.38'

42+78.20
114.26' LT.

N05°11'29"E
13.50'

S01°44'37"E
15.17'

44+97.92
140.71' LT.

27

N84°50'58"W
40.55'

42+79.98
100.87' LT.

43+20.12
106.23' LT.

CITY OF CINCINNATI
141-0006-0041-90

29 JEFFERSON AIR INC
141-0006-0002-00
620 W SIXTH ST

R=211.72
CB=S 12° 25' 41" E
CL=78.51
AL=78.96

N46°07'36"W
106.44'

27-WD

759.74'
N 84° 48' 38" W

29-WD

Ex R/W

42+79.71
36.81' LT.

73 STATE OF OHIO
141-0006-0036-90

44+11.25
51.22' LT.

45+31.33
69.66' LT.

Ex R/W

N60°55'09"E
62.85'

43+64.42
9.30' LT.

44+17.80
14.99' LT.

N46°41'56"W
37.00'

S43°18'04"W
18.76'

S43°18'04"W
25.00'

S65°45'45"W
86.33'

43

S 77° 14' 43" E

N63°48'38"W
45.08'

44

44+08.27
1.17' RT.

44+62.37
17.71' LT.

EXTENSION OF ℄ R/W & CONST.
PROP. US 50 (RIVER RD)
(FOR STATION/OFFSET INFORMATION ONLY)

45

44+49.67
3.82' RT.

46

Ex R/W

11
150-0008-0053-00
CENTRAL RAILROAD
COMPANY OF INDIANA

S79°04'12"E
97.97'

42+98.38
135.55' RT.

S03°18'32"W
42.35'

22
150-0008-0023-00
RIVER CONTAINER
CONCEPTS

22-WD2

N84°48'38"W
449.33'

43+05.33
177.32' RT.

CITY OF CINCINNATI 14
149-0010-0097-00

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. 22-WD2, 27-WD & 29-WD
NLC	5/13/09	ADDED PROJECT CONTROL NOTE
NLC	4/28/09	REVISED 22-WD3

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 43+50 TO 45+00

HAM-50-18.79

31 / 45

643
657

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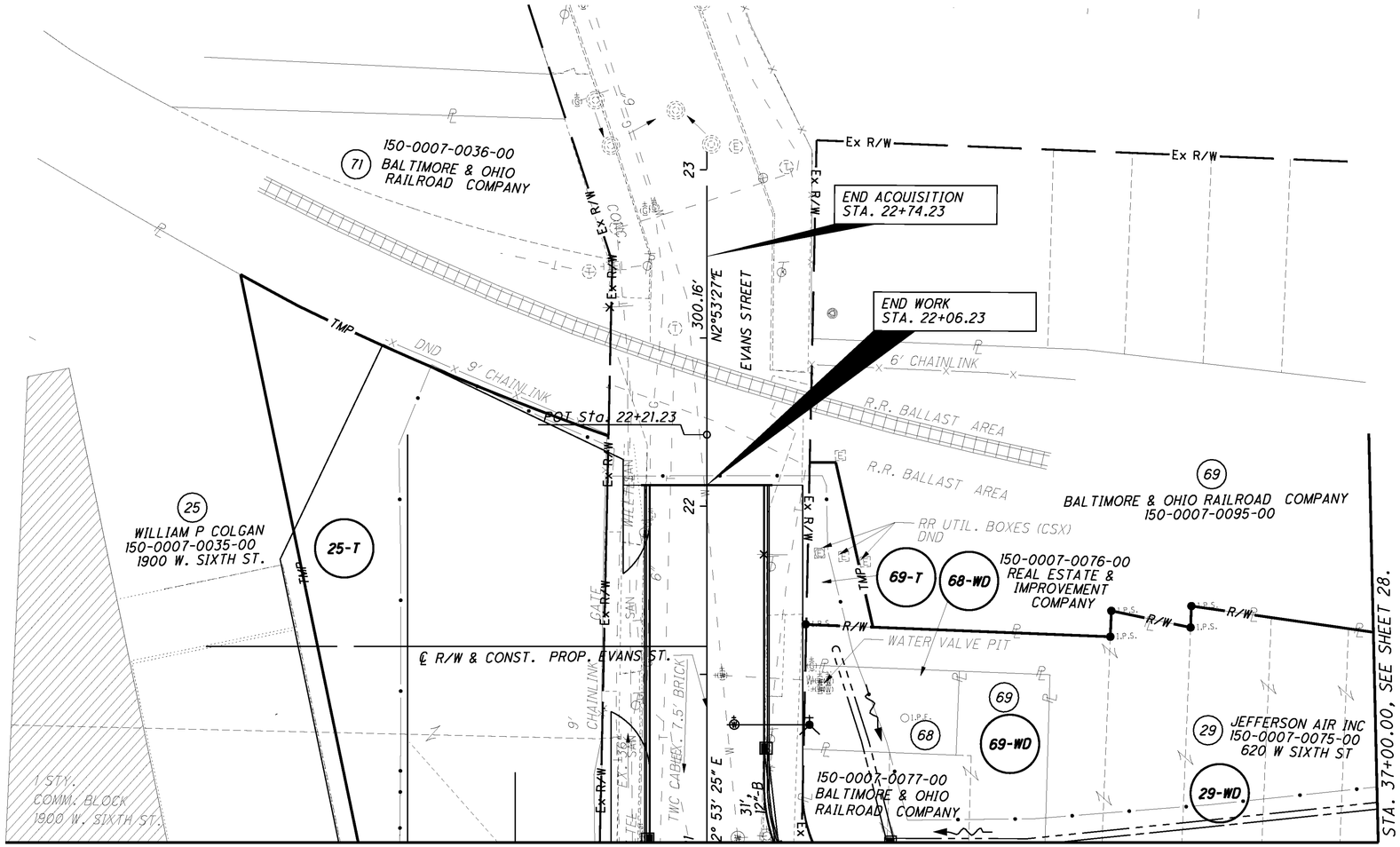
HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



MATCHLINE EVANS ST. STA. 21+00.00, SEE SHEET 26.

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	ADDED 'DND' TO RR UTIL BOXES IN 69-T
NLC	12/4/09	REVISED 25-T, REMOVED 71-T
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 21+00.00 TO STA. 23+00.00

HAM-50-18.79

32 / 45

644
657

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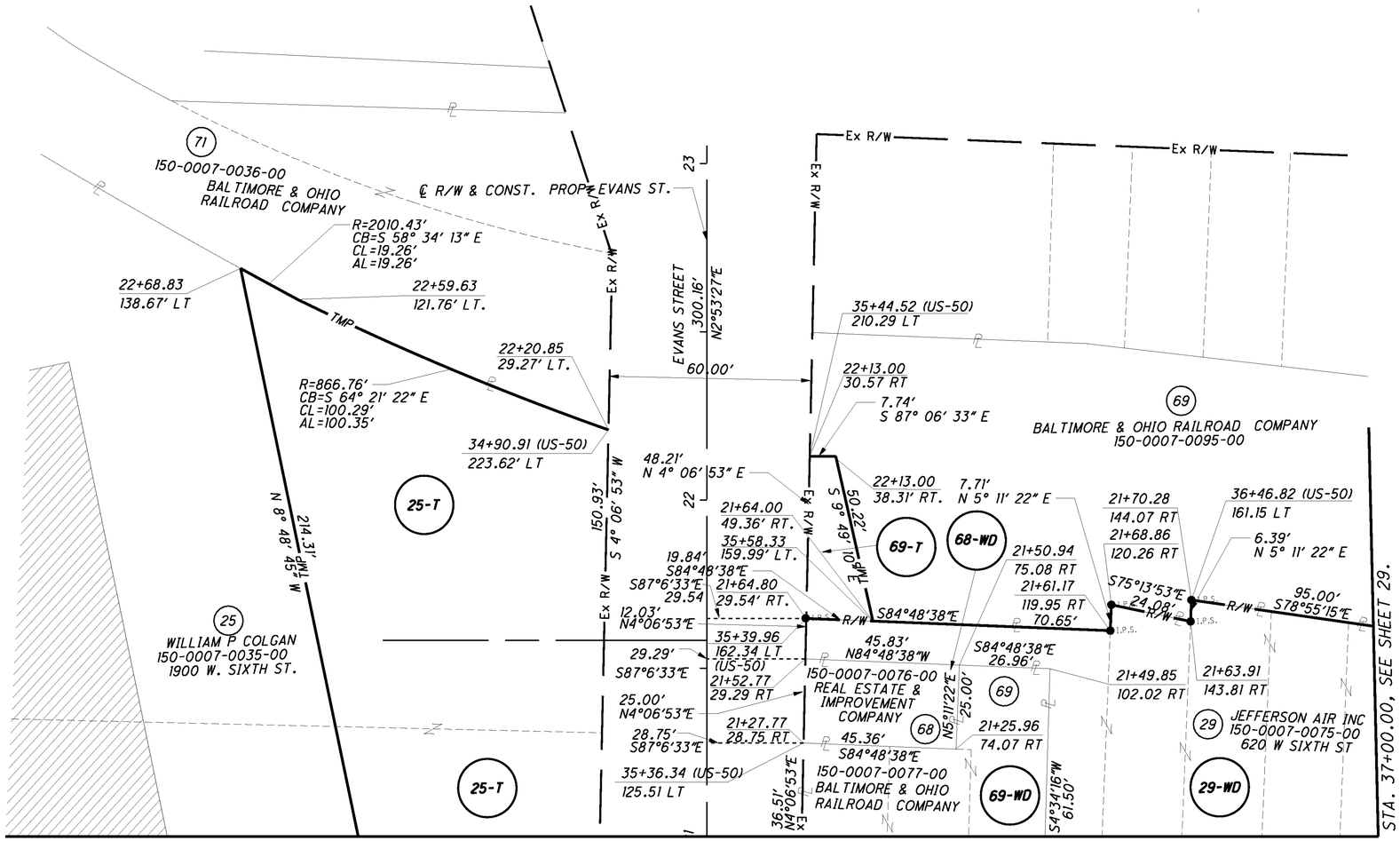
HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



MATCHLINE EVANS ST. STA. 21+00.00, SEE SHEET 27.

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	5/17/10	UPDATED 29-WD
NLC	12/4/09	REVISED 25-T, REMOVED 71-T
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 21+00.00 TO STA. 23+00.00

HAM-50-18.79

33 / 45

645
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

(16) CITY OF CINCINNATI
(30) CITY OF CINCINNATI
(31) SAMUEL L PETERS
(32) JAMES & CLIFFORD WAGNER
(33) TOM W. & ANITA ABANTO-PRETTY
(34) CITY OF CINCINNATI
(35) STATE OF OHIO
(36) MAX B. & ANGELA HOFMEYER
(37) STATE OF OHIO
(38) KVT INCORPORATED
(39) STATE OF OHIO
(48) PRICE HILL PROPERTIES
(49) OWNERSHIP UNKNOWN

ELBERON CURVE E-1
P.I. STA. 47+32.45
Δ = 27° 35′ 25″ (LT)
Dc = 15° 16′ 44″
R = 375.00′
T = 92.08′
L = 180.58′
E = 11.14′
CHORD INFORMATION
PC-PT = N 34° 10′ 54″ E 178.84′

EASTBOUND ELBERON RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24′ 59″ (RT)
Dc = 7° 18′ 11″
R = 784.56′
T = 265.68′
L = 512.35′
E = 43.77′
CHORD INFORMATION
PC-PT = N 65° 55′ 51″ E 503.29′

WESTBOUND ELBERON RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′
CHORD INFORMATION
PC-PT = N 67° 27′ 31″ E 450.85′

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

MARYLAND AVE. CURVE M-1
P.I. STA. 46+36.95
Δ = 25° 57′ 27″ (LT)
Dc = 190° 59′ 09″
R = 30.00′
T = 6.91′
L = 13.59′
E = 0.79′
CHORD INFORMATION
PC-PT = S 14° 16′ 26″ E 13.48′

MATCHLINE MARYLAND AVE. STA. 46+25.00, SEE SHEET 36.
6.5′ CONCRETE WALL
℄ R/W & CONST. PROP. MARYLAND AVE.
(49) 178-0028-CD02-00
(48) 178-0028-CD07-00
STORRS TWP., SEC 30, T4, FR 1
STORRS TWP., SEC 29, T4, FR 1
S 83° 53′ 05″ E
STA. 46+73.30 ELBERON AVE. =STA. 46+94.93 MARYLAND AVE
PT Sta. 46+43.62
PT Sta. 46+30.03
(30)
151-0001-0057-90 MSE WALL #4
30-WD
℄ R/W & CONST. PROP. ELBERON WB RAMP
CONST. LIMITS
℄ R/W & CONST. PROP. ELBERON AVE.
EX. WALL TO REMAIN
POT Sta. 90+00.00
(38) 151-0001-0055-00
1′ CONCRETE WALL
MH-3
280.48′
N 47° 55′ 08″ E
340.37′
N 47° 58′ 36″ E
ELBERON AVE.
46+32.77
46.00 RT
BILLBOARD
149-0010-0001-90
16-WD
CONCRETE WALL
WOOD POST
℄ R/W & CONST. PROP. ELBERON EB RAMP
149-0010-0019-90
EE-1
39-WD
149-0010-0030-90 628 MARYLAND AVE
BEGIN WORK STA. 43+87.69
BEGIN ACQUISITION STA. 43+85
POT Sta. 43+00.00
POT Sta. 50+00.00
STONE WALL
FLOWER BED
CONC.
WOOD POST
SHED
WOOD PORCH
2 STY. RES. WOOD 2351 ELBERON AVE
(34) 151-0001-0057-90
(31) 151-0001-0066-00
GRAVEL
WOOD SHED
CHAIN LINK
3 STY. RES. WOOD STONE 2361 ELBERON AVE
2 STY. RES. WOOD 2359 ELBERON AVE.
UNNAMED ALLEY
(10) 151-0001-0067-00
(32) 151-0001-0065-00
(33) 151-0001-0063-00
151-0001-0169-00
151-0001-0061-90
(36) 151-0001-0108-00
151-0001-0109-90
(37)
151-0001-0059-90
(35) 151-0001-0060-90
STONE WALL
149-0010-0021-90 624 MARYLAND AVE
149-0010-0022-90 616 MARYLAND AVE
MATCHLINE ELBERON AVE. EB RAMP STA. 53+00.00, SEE SHEET 36.

REV. BY	DATE	DESCRIPTION
NLC	5/17/10	ADDED 39-WD
NLC	5/7/10	ADDED EXISTING VIADUCT
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
BEGIN WORK TO STA. 53+00.00

HAM-50-18.79

34 / 45
646 / 657

G:\projects\HAM_20082\row\sheets\2008RT200.dgn 10/27/2010 9:20:13 AM scottj

(16) CITY OF CINCINNATI

(30) CITY OF CINCINNATI
2301 ELBERON AVE

(31) SAMUEL L PETERS
2361 ELBER N AVE

(32) JAMES & CLIFFORD WAGNER
2361 ELBERON AVE

(33) TOM W. & ANITA ABANTO-PRETTY
2359 ELBERON AVE

(34) CITY OF CINCINNATI
2301 ELBERON AVE

(35) STATE OF OHIO

(36) MAX B. & ANGELA HOFMEYER
2351 ELBERON AVE

(37) STATE OF OHIO

(38) KVT INCORPORATED
2398 ELBERON AVE

(39) CITY OF CINCINNATI
2301 ELBERON AVE

(48) PRICE HILL PROPERTIES

ELBERON CURVE E-1
P.I. STA. 47+32.45
Δ = 27° 35' 25" (LT)
Dc = 15° 16' 44"
R = 375.00'
T = 92.08'
L = 180.58'
E = 11.14'
CHORD INFORMATION
PC-PT = N 34° 10' 54" E 178.84'

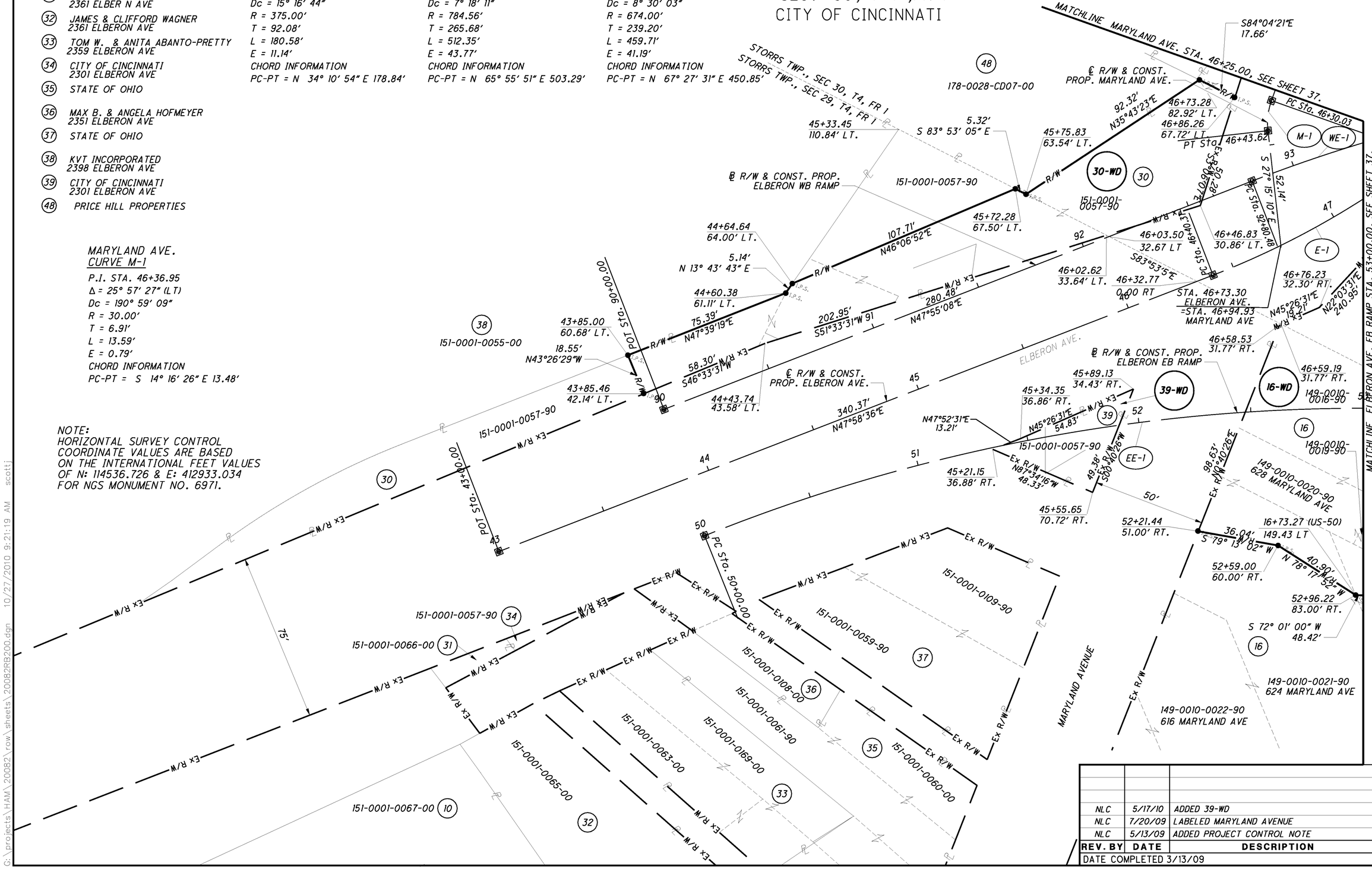
EASTBOUND ELBERON RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24' 59" (RT)
Dc = 7° 18' 11"
R = 784.56'
T = 265.68'
L = 512.35'
E = 43.77'
CHORD INFORMATION
PC-PT = N 65° 55' 51" E 503.29'

WESTBOUND ELBERON RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'
CHORD INFORMATION
PC-PT = N 67° 27' 31" E 450.85'

MARYLAND AVE. CURVE M-1
P.I. STA. 46+36.95
Δ = 25° 57' 27" (LT)
Dc = 190° 59' 09"
R = 30.00'
T = 6.91'
L = 13.59'
E = 0.79'
CHORD INFORMATION
PC-PT = S 14° 16' 26" E 13.48'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



REV. BY	DATE	DESCRIPTION
NLC	5/17/10	ADDED 39-WD
NLC	7/20/09	LABELED MARYLAND AVENUE
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
BEGIN WORK TO STA. 53+00.00

HAM-50-18.79

35 / 45

647 / 657

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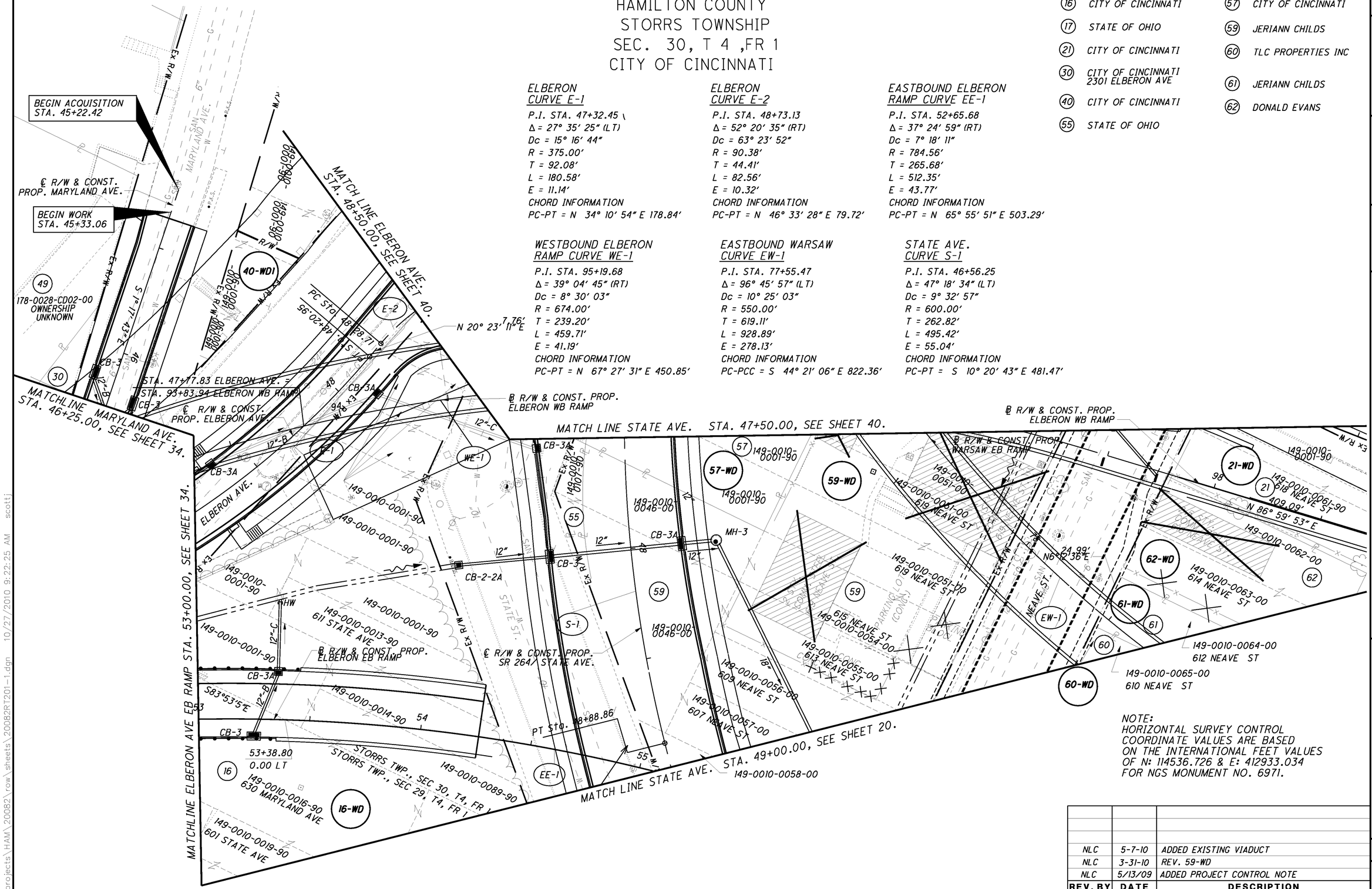
HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



ELBERON
CURVE E-1

P.I. STA. 47+32.45
Δ = 27° 35' 25" (LT)
Dc = 15° 16' 44"
R = 375.00'
T = 92.08'
L = 180.58'
E = 11.14'
CHORD INFORMATION
PC-PT = N 34° 10' 54" E 178.84'

ELBERON
CURVE E-2

P.I. STA. 48+73.13
Δ = 52° 20' 35" (RT)
Dc = 63° 23' 52"
R = 90.38'
T = 44.41'
L = 82.56'
E = 10.32'
CHORD INFORMATION
PC-PT = N 46° 33' 28" E 79.72'

EASTBOUND ELBERON
RAMP CURVE EE-1

P.I. STA. 52+65.68
Δ = 37° 24' 59" (RT)
Dc = 7° 18' 11"
R = 784.56'
T = 265.68'
L = 512.35'
E = 43.77'
CHORD INFORMATION
PC-PT = N 65° 55' 51" E 503.29'

WESTBOUND ELBERON
RAMP CURVE WE-1

P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'
CHORD INFORMATION
PC-PT = N 67° 27' 31" E 450.85'

EASTBOUND WARSAW
CURVE EW-1

P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

STATE AVE.
CURVE S-1

P.I. STA. 46+56.25
Δ = 47° 18' 34" (LT)
Dc = 9° 32' 57"
R = 600.00'
T = 262.82'
L = 495.42'
E = 55.04'
CHORD INFORMATION
PC-PT = S 10° 20' 43" E 481.47'

16 *CITY OF CINCINNATI*
17 *STATE OF OHIO*
21 *CITY OF CINCINNATI*
30 *CITY OF CINCINNATI 2301 ELBERON AVE*
40 *CITY OF CINCINNATI*
55 *STATE OF OHIO*
57 *CITY OF CINCINNATI*
59 *JERIANN CHILDS*
60 *TLC PROPERTIES INC*
61 *JERIANN CHILDS*
62 *DONALD EVANS*

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 47+50.00 TO STA. 49+00.00

HAM-50-18.79

REV. BY	DATE	DESCRIPTION
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	3-31-10	REV. 59-WD
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

36 / 45
648
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

ELBERON CURVE E-1
P.I. STA. 47+32.45
Δ = 27° 35′ 25″ (LT)
Dc = 15° 16′ 44″
R = 375.00′
T = 92.08′
L = 180.58′
E = 11.14′
CHORD INFORMATION
PC-PT = N 34° 10′ 54″ E 178.84′

ELBERON CURVE E-2
P.I. STA. 48+73.13
Δ = 52° 20′ 35″ (RT)
Dc = 63° 23′ 52″
R = 90.38′
T = 44.41′
L = 82.56′
E = 10.32′
CHORD INFORMATION
PC-PT = N 46° 33′ 28″ E 79.72′

EASTBOUND ELBERON RAMP CURVE EE-1
P.I. STA. 52+65.68
Δ = 37° 24′ 59″ (RT)
Dc = 7° 18′ 11″
R = 784.56′
T = 265.68′
L = 512.35′
E = 43.77′
CHORD INFORMATION
PC-PT = N 65° 55′ 51″ E 503.29′

WESTBOUND ELBERON RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′
CHORD INFORMATION
PC-PT = N 67° 27′ 31″ E 450.85′

EASTBOUND WARSAW CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
CHORD INFORMATION
PC-PCC = S 44° 21′ 06″ E 822.36′

STATE AVE. CURVE S-1
P.I. STA. 46+56.25
Δ = 47° 18′ 34″ (LT)
Dc = 9° 32′ 57″
R = 600.00′
T = 262.82′
L = 495.42′
E = 55.04′
CHORD INFORMATION
PC-PT = S 10° 20′ 43″ E 481.47′

(16) CITY OF CINCINNATI
(17) STATE OF OHIO
(21) CITY OF CINCINNATI
(30) CITY OF CINCINNATI 2301 ELBERON AVE
(40) CITY OF CINCINNATI
(55) STATE OF OHIO
(57) CITY OF CINCINNATI
(59) JERIANN CHILDS
(60) TLC PROPERTIES INC
(61) JERIANN CHILDS
(62) DONALD EVANS

MATCHLINE MARYLAND AVE. STA. 46+25.00, SEE SHEET 35.
MATCHLINE ELBERON AVE EB RAMP STA. 53+00.00, SEE SHEET 35.
MATCH LINE ELBERON AVE. STA. 48+50.00, SEE SHEET 41.
MATCH LINE STATE AVE. STA. 47+50.00, SEE SHEET 41.
MATCH LINE STATE AVE. STA. 49+00.00, SEE SHEET 21.

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. 59-WD
NLC	7/20/09	LABELED STATE AVENUE
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 47+50.00 TO STA. 49+00.00

HAM-50-18.79

37 / 45

649 / 657

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(40) CITY OF CINCINNATI

(41) CITY OF CINCINNATI

(42) HAROLD J BLACKBURN
661 STATE AVE

(43) JOHN W & KAREN A LEACH
667 STATE AV

(44) JOHN G & CAROL STEUER
673 STATE AVE

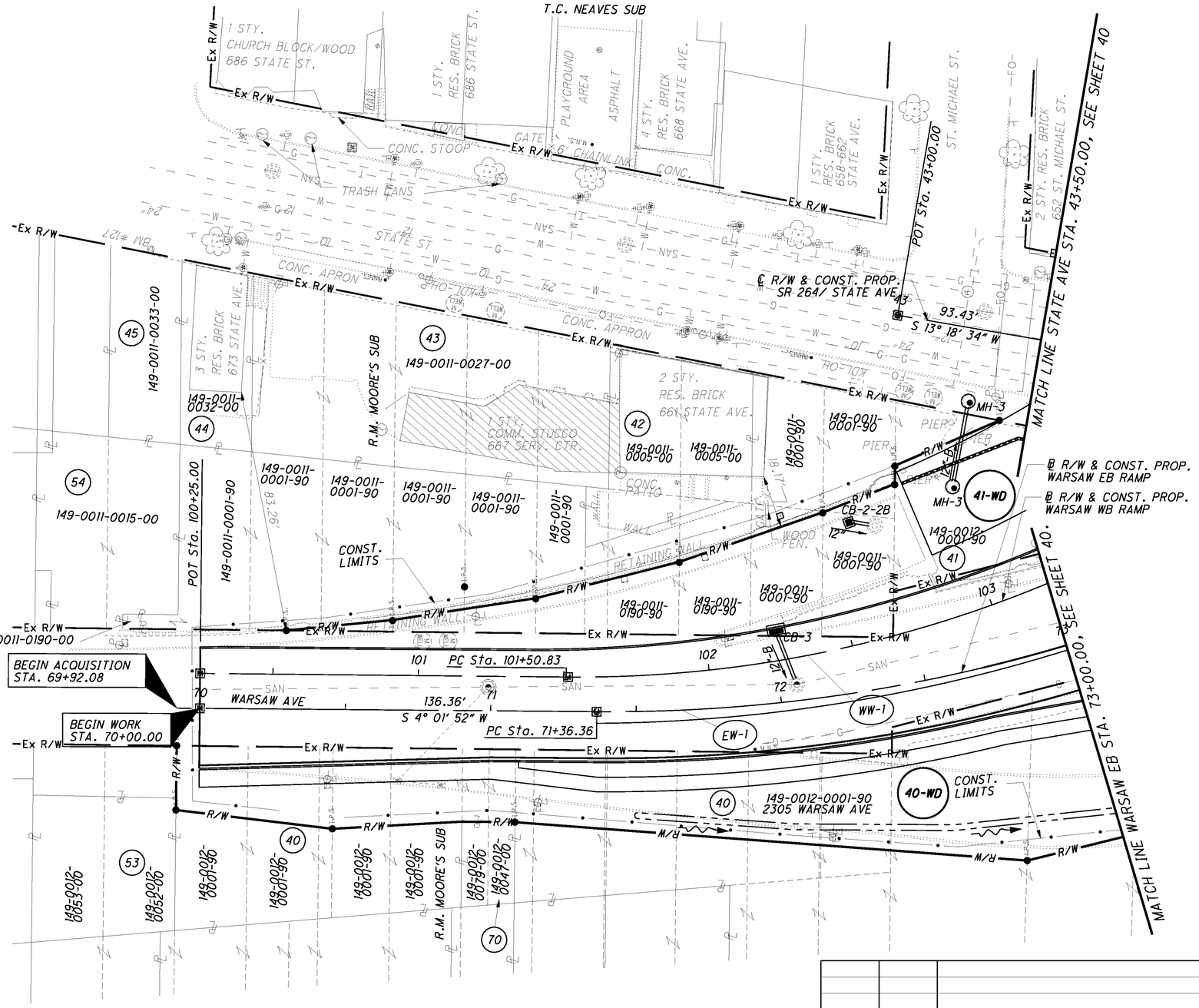
(45) THOMAS CHARLES HANSEL JR
675 STATE AVE

(53) TALMADGE O HENRY JR BELL
2353 WARSAW AVE

(54) THEODORE J SOWMA
2346 WARSAW AVE

(70) REGGENTIN THOMAS A
2343 WARSAW AVE &
2341 WARSAW AVE

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

EASTBOUND WARSAW
CURVE EW-1

P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

WESTBOUND WARSAW
CURVE WW-1

P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'
CHORD INFORMATION
PC-PT = S 42° 05' 38" E 606.38'

REV. BY	DATE	DESCRIPTION
NLC	5/7/10	ADDED EXISTING VIADUCT
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
BEGIN WORK TO STA. 73+00.00

HAM-50-18.79

38 / 45

650
657

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(40) CITY OF CINCINNATI

(41) CITY OF CINCINNATI

(42) HAROLD J BLACKBURN
661 STATE AVE

(43) JOHN W & KAREN A LEACH
667 STATE AV

(44) JOHN G & CAROL STEUER
673 STATE AVE

(45) THOMAS CHARLES HANSEL JR
675 STATE AVE

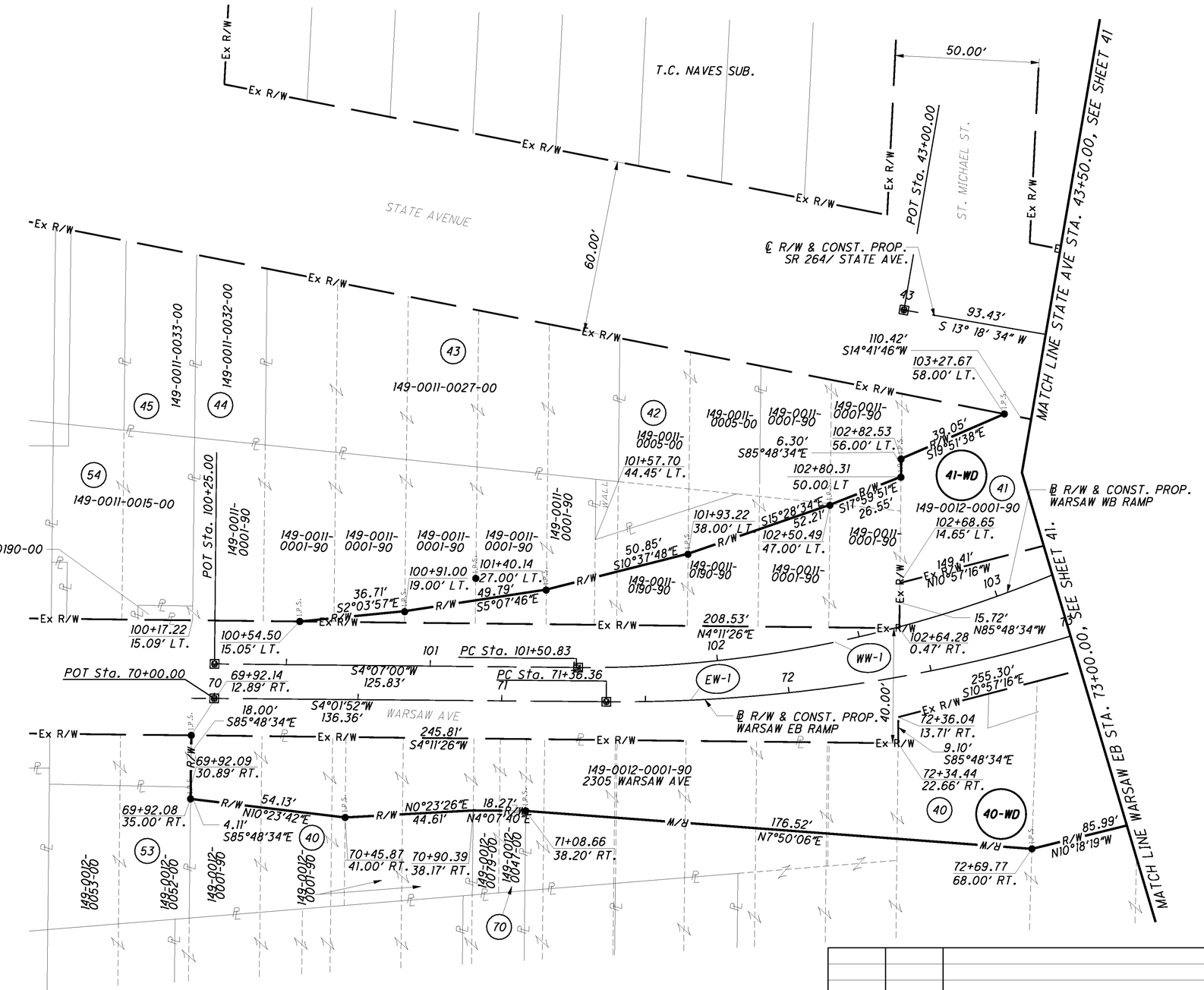
(53) TALMADGE O HENRY JR BELL
2353 WARSAW AVE

(54) THEODORE J SOWMA
2346 WARSAW AVE

(70) REGGENTIN THOMAS A
2343 WARSAW AVE &
2341 WARSAW AVE

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI



EASTBOUND WARSAW
CURVE EW-1

P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

WESTBOUND WARSAW
CURVE WW-1

P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'
CHORD INFORMATION
PC-PT = S 42° 05' 38" E 606.38'

REV. BY	DATE	DESCRIPTION
NLC	7/20/09	CORRECTED LABEL FOR STATE AVENUE
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082

R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
BEGIN WORK TO STA. 73+00.00

HAM-50-18.79

39 / 45

651
657

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

ELBERON
CURVE E-2
P.I. STA. 48+73.13
Δ = 52° 20' 35" (RT)
Dc = 63° 23' 52"
R = 90.38'
T = 44.41'
L = 82.56'
E = 10.32'
CHORD INFORMATION
PC-PT = N 46° 33' 28" E 79.72'

WESTBOUND ELBERON
RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'
CHORD INFORMATION
PC-PT = N 67° 27' 31" E 450.85'

EASTBOUND WARSAW
CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

WESTBOUND WARSAW
CURVE WW-1
P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'
CHORD INFORMATION
PC-PT = S 42° 05' 38" E 606.38'

STATE AVE.
CURVE S-1
P.I. STA. 46+56.25
Δ = 47° 18' 34" (LT)
Dc = 9° 32' 57"
R = 600.00'
T = 262.82'
L = 495.42'
E = 55.04'
CHORD INFORMATION
PC-PT = S 10° 20' 43" E 481.47'

MATCH LINE STATE AVE. STA. 43+50.00, SEE SHEET 38
MATCH LINE WARSAW EB STA. 73+00.00, SEE SHEET 38.
MATCHLINE WB WARSAW RAMP STA. 107+00.00, SEE SHEET 42.
MATCH LINE STATE AVE. STA. 47+50.00, SEE SHEET 36.
MATCH LINE ELBERON AVE. STA. 48+50.00, SEE SHEET 36.

149-0011-0084-00
149-0011-0081-90
149-0011-0082-90
149-0011-0001-00
149-0011-0074-00
149-0010-0108-00
149-0010-0051-00
149-0010-0104-90
149-0010-0098-90
149-0010-0001-90
149-0010-0001-90A
149-0012-0001-00
149-0012-0001-90

63 CHAINLINK GRAVEL CONC. RAMP WOOD PORCH R.R. TIES
58 58-WD 59 59-WD 41 41-WD 40 40-WD 57 57-WD 16 16-WD
WW-1 WE-1 EW-1 S-1 E-2
T.C. NEAVES SUB
EX. VIADUCT EASEMENT D.B. 2205, PG. 50
PC Sta. 43+93.43
CONST. LIMITS
℄ R/W & CONST. PROP. STATE AVE.
℄ R/W & CONST. PROP. WARSAW WB RAMP
℄ R/W & CONST. PROP. WARSAW EB RAMP
℄ R/W & CONST. PROP. ELBERON WB RAMP
℄ R/W & CONST. PROP. ELBERON AVE.
℄ STA. 46+77.44 STATE AVE. = STA. 49+50.99 ELBERON AVE.
PT Sta. 49+11.28
2305 WARSAW AVE
2303 ELBERON AVE
MSE WALL #9
WALL STONE
ABUTMENT WALL
MH WARSAW AVE
ELBERON AVE.
CB-3A CB-3 CB-6 CB-2-2B MH-3 MH
Ex R/W R/W
PIER ENGLISH ST. STATE AVE.
2.82' 39.72' N 72° 43' 45" E 97.43' S 13° 18' 34" W

(16) CITY OF CINCINNATI
(40) CITY OF CINCINNATI
(41) CITY OF CINCINNATI
(57) CITY OF CINCINNATI
(58) CITY OF CINCINNATI
(59) JERIANN CHILDS
(63) RADEL ASSOCIATES LLC
(73) STATE OF OHIO

REV. BY	DATE	DESCRIPTION
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	3-31-10	ADDED ESMT TO 63
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 43+50 TO STA. 47+50

HAM-50-18.79

40 / 45
652
657

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HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

	BEARING	DISTANCE
A	N0°10'04"E	12.20'
B	S50°12'17"W	3.72'

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.

ELBERON
CURVE E-2
P.I. STA. 48+73.13
Δ = 52° 20' 35" (RT)
Dc = 63° 23' 52"
R = 90.38'
T = 44.41'
L = 82.56'
E = 10.32'
CHORD INFORMATION
PC-PT = N 46° 33' 28" E 79.72'

WESTBOUND ELBERON
RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04' 45" (RT)
Dc = 8° 30' 03"
R = 674.00'
T = 239.20'
L = 459.71'
E = 41.19'
CHORD INFORMATION
PC-PT = N 67° 27' 31" E 450.85'

EASTBOUND WARSAW
CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45' 57" (LT)
Dc = 10° 25' 03"
R = 550.00'
T = 619.11'
L = 928.89'
E = 278.13'
CHORD INFORMATION
PC-PCC = S 44° 21' 06" E 822.36'

WESTBOUND WARSAW
CURVE WW-1
P.I. STA. 105+88.96
Δ = 92° 25' 16" (LT)
Dc = 13° 38' 31"
R = 420.00'
T = 438.13'
L = 677.48'
E = 186.93'
CHORD INFORMATION
PC-PT = S 42° 05' 38" E 606.38'

STATE AVE.
CURVE S-1
P.I. STA. 46+56.25
Δ = 47° 18' 34" (LT)
Dc = 9° 32' 57"
R = 600.00'
T = 262.82'
L = 495.42'
E = 55.04'
CHORD INFORMATION
PC-PT = S 10° 20' 43" E 481.47'
R=188.00
CB=N 10° 36' 57" W
AL=15.47
CL=15.46

MATCHLINE WB WARSAW RAMP STA. 107+00.00, SEE SHEET 43.
MATCH LINE STATE AVE. STA. 43+50.00, SEE SHEET 39.
MATCH LINE WARSAW EB STA. 73+00.00, SEE SHEET 39.
MATCH LINE STATE AVE. STA. 47+50.00, SEE SHEET 37.
MATCH LINE ELBERON AVE. STA. 48+50.00, SEE SHEET 37.
149-0011-0085-00 643 NEAVE ST
149-0011-0083-00 641 NEAVE ST
149-0011-0082-00 637 NEAVE ST
149-0011-0074-00 652 STATE ST
149-0011-0001-90
149-0010-0108-00 619 NEAVE ST
149-0010-0051-00
T.C. NAVES SUB.
Ex. VIADUCT EASMENT D.B. 2205, PG. 50
WARSAW AVE
2305 WARSAW AVE
2303 ELBERON AVE
ENGLISH ST.
ELBERON AVE.
PC Sta. 43+93.43
PT Sta. 49+11.28
℄ STA. 77+17.35 WARSAW EB RAMP
STA. 96+56.59 ELBERON WB RAMP
℄ STA. 46+77.44 STATE AVE.= STA. 104+51.79 WARSAW WB RAMP
℄ STA. 47+26.51 STATE AVE.= STA. 95+29.66 ELBERON WB RAMP
℄ STA. 45+37.12 STATE AVE.= STATE AVE. STA. 75+00.08 WARSAW EB RAMP
℄ STA. 46+77.44 STATE AVE.= STA. 49+50.99 ELBERON AVE.
℄ R/W & CONST. PROP. WARSAW WB RAMP
℄ R/W & CONST. PROP. SR 264/ STATE AVE.
℄ R/W & CONST. PROP. WARSAW EB RAMP
℄ R/W & CONST. PROP. ELBERON WB RAMP
℄ R/W & CONST. PROP. ELBERON AVE.
105+86.00 27.02' LT.
104+86.00 22.91' LT.
104+81.64 19.11' LT.
105+89.77 0.00 RT
105+00.02 0.00 RT
104+81.61
105+30.91 38.70' RT.
104+02.27 0.00 RT
103+72.81 0.00 RT
104+16.08 14.45' RT.
75+86.28 0.00 RT
75+66.90 17.74' RT.
76+90.14 17.56' RT.
77+23.45 28.79' LT.
46+89.45 0.00 RT
76+36.79 107.29' RT.
76+48.82 119.58' RT.
74+77.00 49.88' RT.
74+79.85 54.12' RT.
74+35.13 39.00' RT.
74+17.24 72.00' RT.
73+45.89 73.30' RT.
75+88.14 116.55' RT.
76+48.31 123.25' RT.
49+00.15 0.00 LT
48+67.37 0.00 LT
75+73.00 115.31' RT.
S 83° 50' 33" E 123.41'
S 83° 48' 57" E 99.33'
S 83° 48' 57" E 102.97'
S 50° 54' 57" E 93.92'
S 83° 48' 57" E 5.62'
S 13° 18' 34" W 93.43'
S 48° 59' 16" W 19.11
N 4° 30' 18" E 76.62'
N 14° 41' 46" W 110.42'
N 10° 57' 16" W 149.41'
S 10° 57' 16" E 255.30'
N 12° 06' 48" W 50.79'
N 85° 19' 44" W 38.43'
N 10° 18' 19" W 85.99'
N 22° 26' 03" W 80.74'
N 83° 51' 22" E 205.64'
N 83° 51' 22" E 204.15'
S 70° 02' 01" W 56.85'
S 6° 12' 36" W 76.06'
N 4° 30' 18" E 118.47'
S 4° 30' 18" W 118.47'
S 22° 03' 31" W
N 22° 03' 31" E 240.95'
N 82°14'34"E 52.61'
N72°43'45"E 39.72'
N0°10'41"E 21.19'
S 38° 23' 11" E 18.37'
50.00'
45.00'
52.49'
60.00'
63-WD
58-WD
59-WD
57-WD
41-WD
40-WD
16-WD
WW-1
WE-1
S-1
E-2
149-0012-0001-90
149-0010-0001-90
149-0010-0104-90
149-0010-0001-90
149-0010-0001-90
149-0010-0001

EASTBOUND WARSAW CURVE EW-1
P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
CHORD INFORMATION
PC-PCC = S 44° 21′ 06″ E 822.36′

EASTBOUND WARSAW CURVE EW-2
P.I. STA. 82+84.78
Δ = 9° 20′ 56″ (LT)
Dc = 2° 08′ 02″
R = 2,684.87′
T = 219.53′
L = 438.08′
E = 8.96′
CHORD INFORMATION
PCC-PT = N 82° 35′ 27″ E 437.60′

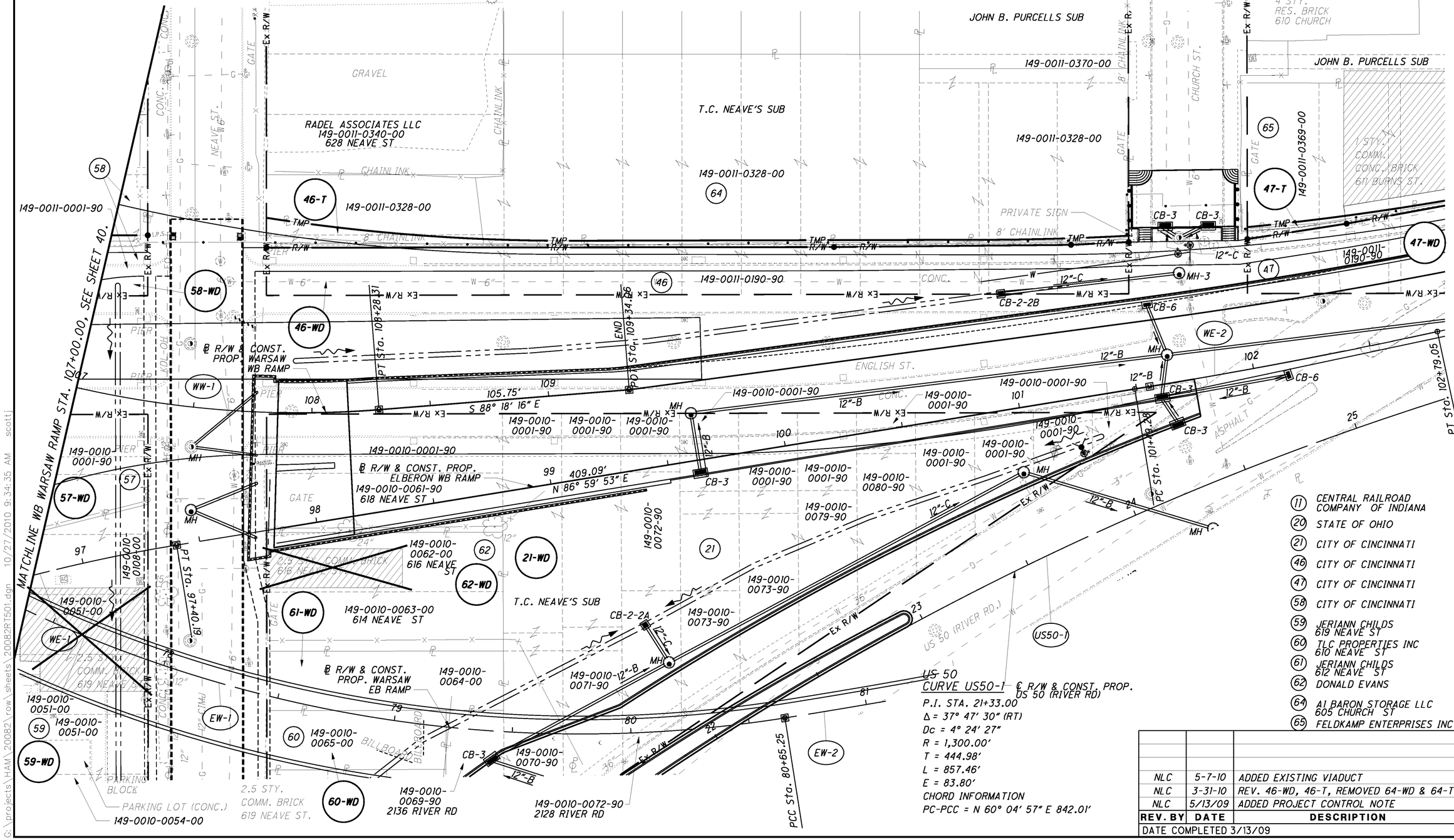
WESTBOUND WARSAW CURVE WW-1
P.I. STA. 105+88.96
Δ = 92° 25′ 16″ (LT)
Dc = 13° 38′ 31″
R = 420.00′
T = 438.13′
L = 677.48′
E = 186.93′
CHORD INFORMATION
PC-PT = S 42° 05′ 38″ E 606.38′

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

WESTBOUND ELBERON RAMP CURVE WE-1
P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′
CHORD INFORMATION
PC-PT = N 67° 27′ 31″ E 450.85′

WESTBOUND ELBERON RAMP CURVE WE-2
P.I. STA. 102+14.18
Δ = 2° 58′ 27″ (LT)
Dc = 2° 17′ 31″
R = 2,499.99′
T = 64.90′
L = 129.77′
E = 0.84′
CHORD INFORMATION
PC-PT = N 85° 30′ 40″ E 129.76′

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.



(11) CENTRAL RAILROAD COMPANY OF INDIANA
(20) STATE OF OHIO
(21) CITY OF CINCINNATI
(46) CITY OF CINCINNATI
(47) CITY OF CINCINNATI
(58) CITY OF CINCINNATI
(59) JERIANN CHILDS 619 NEAVE ST
(60) TLC PROPERTIES INC 610 NEAVE ST
(61) JERIANN CHILDS 612 NEAVE ST
(62) DONALD EVANS
(64) AI BARON STORAGE LLC 605 CHURCH ST
(65) FELDKAMP ENTERPRISES INC

REV. BY	DATE	DESCRIPTION
NLC	5-7-10	ADDED EXISTING VIADUCT
NLC	3-31-10	REV. 46-WD, 46-T, REMOVED 64-WD & 64-T
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY TOPO SHEET
STA. 107+00.00 TO STA. 109+34.06

HAM-50-18.79

42 / 45
654
657

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EASTBOUND WARSAW CURVE EW-1

P.I. STA. 77+55.47
Δ = 96° 45′ 57″ (LT)
Dc = 10° 25′ 03″
R = 550.00′
T = 619.11′
L = 928.89′
E = 278.13′
CHORD INFORMATION
PC-PCC = S 44° 21′ 06″ E 822.36′

EASTBOUND WARSAW CURVE EW-2

P.I. STA. 82+84.78
Δ = 9° 20′ 56″ (LT)
Dc = 2° 08′ 02″
R = 2,684.87′
T = 219.53′
L = 438.08′
E = 8.96′
CHORD INFORMATION
PCC-PT = N 82° 35′ 27″ E 437.60′

WESTBOUND WARSAW CURVE WW-1

P.I. STA. 105+88.96
Δ = 92° 25′ 16″ (LT)
Dc = 13° 38′ 31″
R = 420.00′
T = 438.13′
L = 677.48′
E = 186.93′
CHORD INFORMATION
PC-PT = S 42° 05′ 38″ E 606.38′

HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 30, T 4 ,FR 1
CITY OF CINCINNATI

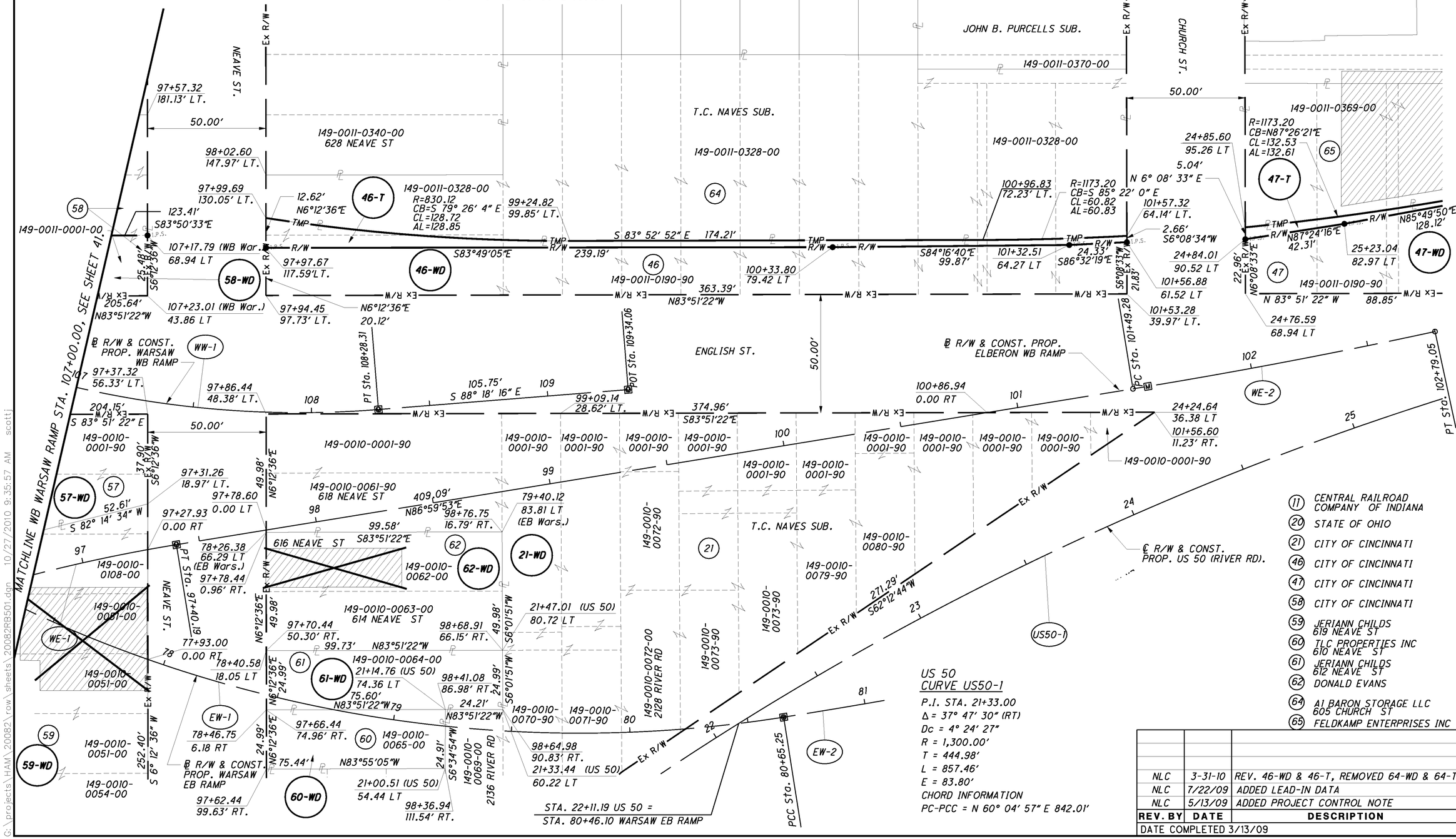
WESTBOUND ELBERON RAMP CURVE WE-1

P.I. STA. 95+19.68
Δ = 39° 04′ 45″ (RT)
Dc = 8° 30′ 03″
R = 674.00′
T = 239.20′
L = 459.71′
E = 41.19′
CHORD INFORMATION
PC-PT = N 67° 27′ 31″ E 450.85′

WESTBOUND ELBERON RAMP CURVE WE-2

P.I. STA. 102+14.18
Δ = 2° 58′ 27″ (LT)
Dc = 2° 17′ 31″
R = 2,499.99′
T = 64.90′
L = 129.77′
E = 0.84′
CHORD INFORMATION
PC-PT = N 85° 30′ 40″ E 129.76′

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.



US 50
CURVE US50-1

P.I. STA. 21+33.00
Δ = 37° 47′ 30″ (RT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 444.98′
L = 857.46′
E = 83.80′
CHORD INFORMATION
PC-PCC = N 60° 04′ 57″ E 842.01′

11	CENTRAL RAILROAD COMPANY OF INDIANA
20	STATE OF OHIO
21	CITY OF CINCINNATI
46	CITY OF CINCINNATI
47	CITY OF CINCINNATI
58	CITY OF CINCINNATI
59	JERIANN CHILDS 619 NEAVE ST
60	TLC PROPERTIES INC 610 NEAVE ST
61	JERIANN CHILDS 612 NEAVE ST
62	DONALD EVANS
64	AI BARON STORAGE LLC 605 CHURCH ST
65	FELDKAMP ENTERPRISES INC

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. 46-WD & 46-T, REMOVED 64-WD & 64-T
NLC	7/22/09	ADDED LEAD-IN DATA
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 20082
R/W DESIGNER CFR/NGG
R/W REVIEWER MSW

RIGHT OF WAY BOUNDARY SHEET
STA. 107+00.00 TO STA. 109+34.06

HAM-50-18.79

43 / 45
655
657

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STEPHEN WILDER'S SUBDIVISION
PLAT BOOK 1, PAGE 282
BLOCK 12

(75)
DEITRIECH INVESTMENTS, INC.
175-0014-0082-00
RESIDENTIAL
PO BOX 18986
FAIRFIELD, OH 45018

(76)
STEVEN & KATHLEEN PAVELISH
175-0014-0051-00
RESIDENTIAL
PO BOX 4131
CINCINNATI, OH 45204

(77)
BRENNER & JANSEN PROPERTIES, INC.
175-0014-0052-00
RESIDENTIAL
PO BOX 36008
CINCINNATI, OH 45236

PEERLESS STREET

C1
Δ = 36°12'52" LT.
Dc = 358°05'55"
R = 16.00'
L = 10.11'
T = 5.23'
E = 0.83'
Ch = N39°36'29"E
9.95'

C2
Δ = 14°52'13" LT.
Dc = 62°02'55"
R = 92.34'
L = 23.97'
T = 12.05'
E = 0.78'
Ch = S75°33'34"W
23.90'

C3
Δ = 31°24'38" LT.
Dc = 358°05'55"
R = 16.00'
L = 8.78'
T = 4.50'
E = 0.62'
Ch = N05°47'44"E
8.66'

(A) 9+71.34, 7.93' LT.
(B) N32°17'05"W, 2.57'
(C) 9+91.77, 10.50' LT.
(D) N32°17'05"W, 3.50'
(E) N57°42'55"E, 5.75'
(F) N80°05'24"E, 3.50'
(G) S14°46'50"E, 17.96'
(H) S14°28'24"E, 10.63'
(I) S09°07'16"W, 8.95'
(J) 10+58.91, 9.55' LT.

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED NLC
CHECKED MSW

PID 20082

RIGHT OF WAY DETAIL SHEET
RETAINING WALL

HAM-50-18.79

PORTIONS OF STRUCTURE REMOVED
CONSTRUCTION LIMITS
EXIST. WALL
SHEET PILING
TMP
POT STA. 10+00.00
PC Sta. 10+22.52
PT Sta. 10+57.93
POT STA. 12+41.89
PROPOSED FOOTING
PROPOSED DRAINAGE PIPE
PROPOSED RETAINING WALL
PROPOSED SIDEWALK
PROPOSED STAIRS WITH HANDRAIL
5'-0" SIDEWALK
OUTLET TO EX. CATCH BASIN
EX. WALL
CONST. LIMITS
GLENWAY AVE. (60')
WILDER AVE.
Ex R/W
Ex SH
℄ WALL
12" SAN
75-T
76-T
77-T
75-WD
76-WD
77-WD
N32°17'05"W 1.91'
9+96.31 45.00' LT.
9+96.34 43.09' LT.
N57°42'55"E 13.97'
10+10.31 45.00' LT.
N04°36'37"W 43.26'
11+15.01 43.00' LT.
11+35.84 38.00' LT.
11+54.79 35.00' LT.
19.18' N00°54'44"W
12+04.79 35.00' LT.
50.00' N09°54'36"W
12+46.36 30.00' LT.
41.87' N03°03'06"W
N79°32'33"E 21.50'
N79°55'31"E 6.39'
12+46.57 8.50' LT.
92.48' N09°54'36"W
12+46.59 2.11' LT.
S12°52'58"E 32.87'
S13°46'26"E 36.06'
12+13.76 0.40' LT.
11+77.78 2.03' RT.
S14°36'15"E 39.16'
11+38.76 5.23' RT.
S14°25'02"E 13.98'
11+21.84 6.33' RT.
S11°18'36"E 11.70'
9+91.77 14.00' LT.
9+97.52 14.00' LT.
N57°42'55"E 20.41'
S86°09'53"E 44.11'
10+31.97 17.09' LT.
10+62.71 14.00' LT.
N09°54'36"W 5.75'
10+68.46 14.00' LT.
10+68.46 10.50' LT.
N09°54'36"W 38.46'
10+67.36 6.63' LT.
11+06.92 10.50' LT.
33.50' S85°56'21"E
11+29.87 14.00' LT.
N85°56'55"W 24.73'
11+54.08 14.00' LT.
N80°05'24"E 5.50'
11+54.08 8.50' LT.
N09°54'36"W 24.21'
N85°56'55"W 20.95'
S85°56'21"E 21.45'
23.42' N19°42'05"W
10+96.96 10.31' RT.
10+83.84 11.84' RT.
10+73.25 12.68' RT.
10+61.55 12.87' RT.
10+53.18 10.95' RT.
10+48.30 8.48' RT.
S16°58'17"W 5.48'
S28°32'35"W 8.50'
10+45.19 2.11' RT. CALCULATED
10+42.61 BACK= 10+37.84 AHEAD ℄ WALL
S57°43'15"W 14.62'
10+20.75 0.32' LT.
S71°35'17"W 10.12'
10+30.57 2.11' RT.
S86°09'53"E 25.55'
S84°19'09"E 21.29'
N83°23'12"W 20.45'
BM #1
BM #3

NOTE:
HORIZONTAL SURVEY CONTROL
COORDINATE VALUES ARE BASED
ON THE INTERNATIONAL FEET VALUES
OF N: 114536.726 & E: 412933.034
FOR NGS MONUMENT NO. 6971.

REV. BY	DATE	DESCRIPTION
NLC	3-31-10	REV. OWNER ON 76
NLC	7/23/09	CORRECTED LABELS
NLC	5/13/09	ADDED PROJECT CONTROL NOTE

DATE COMPLETED 3/13/09

HAM-50-18.79

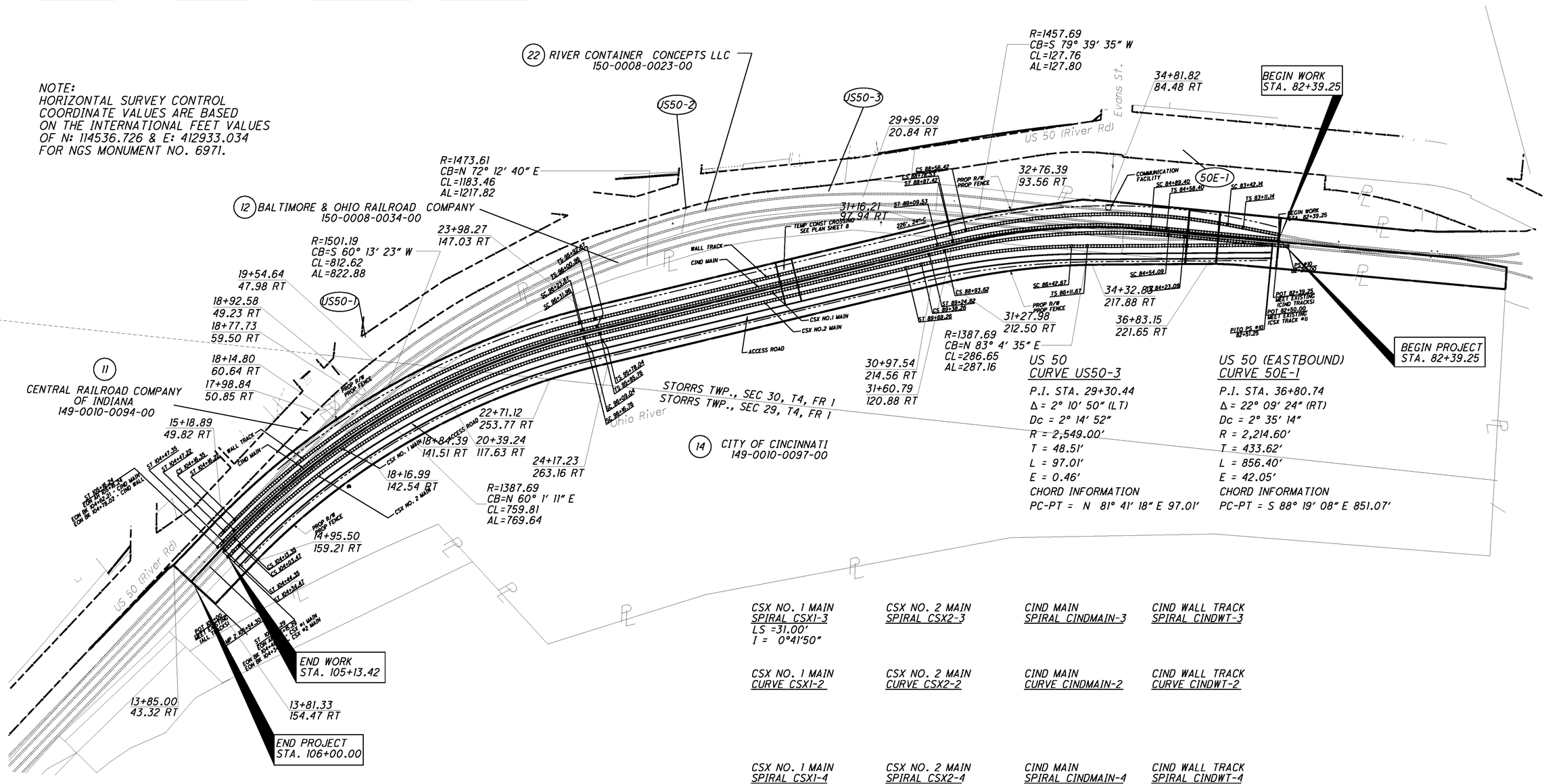
HAMILTON COUNTY
STORRS TOWNSHIP
SEC. 29, SEC. 30, TWP. 4, F.R. 1
CITY OF CINCINNATI

CSX NO. 1 MAIN SPIRAL CSX1-1	CSX NO. 2 MAIN SPIRAL CSX2-1	CIND MAIN SPIRAL CINDMAIN-1	CIND WALL TRACK SPIRAL CINDWT-1
CSX NO. 1 MAIN CURVE CSX1-1	CSX NO. 2 MAIN CURVE CSX2-1	CIND MAIN CURVE CINDMAIN-1	CIND WALL TRACK CURVE CINDWT-1
CSX NO. 1 MAIN SPIRAL CSX1-2	CSX NO. 2 MAIN SPIRAL CSX2-2	CIND MAIN SPIRAL CINDMAIN-2	CIND WALL TRACK SPIRAL CINDWT-2

US 50
CURVE US50-1
P.I. STA. 21+33.00
Δ = 37° 47′ 30″ (RT)
Dc = 4° 24′ 27″
R = 1,300.00′
T = 444.98′
L = 857.46′
E = 83.80′
CHORD INFORMATION
PC-PCC = N 60° 04′ 57″ E 842.01′

US 50
CURVE US50-2
P.I. STA. 26+09.02
Δ = 3° 48′ 02″ (RT)
Dc = 2° 29′ 31″
R = 1,914.97
T = 63.53′
L = 127.02′
E = 1.05′
CHORD INFORMATION
PC-PT = N 80° 52′ 42″ E 127.00′

NOTE:
HORIZONTAL SURVEY CONTROL COORDINATE VALUES ARE BASED ON THE INTERNATIONAL FEET VALUES OF N: 114536.726 & E: 412933.034 FOR NGS MONUMENT NO. 6971.



US 50
CURVE US50-3
P.I. STA. 29+30.44
Δ = 2° 10′ 50″ (LT)
Dc = 2° 14′ 52″
R = 2,549.00′
T = 48.51′
L = 97.01′
E = 0.46′
CHORD INFORMATION
PC-PT = N 81° 41′ 18″ E 97.01′

US 50 (EASTBOUND)
CURVE 50E-1
P.I. STA. 36+80.74
Δ = 22° 09′ 24″ (RT)
Dc = 2° 35′ 14″
R = 2,214.60′
T = 433.62′
L = 856.40′
E = 42.05′
CHORD INFORMATION
PC-PT = S 88° 19′ 08″ E 851.07′

CSX NO. 1 MAIN SPIRAL CSX1-3 LS =31.00′ I = 0°41′50″	CSX NO. 2 MAIN SPIRAL CSX2-3	CIND MAIN SPIRAL CINDMAIN-3	CIND WALL TRACK SPIRAL CINDWT-3
CSX NO. 1 MAIN CURVE CSX1-2	CSX NO. 2 MAIN CURVE CSX2-2	CIND MAIN CURVE CINDMAIN-2	CIND WALL TRACK CURVE CINDWT-2
CSX NO. 1 MAIN SPIRAL CSX1-4	CSX NO. 2 MAIN SPIRAL CSX2-4	CIND MAIN SPIRAL CINDMAIN-4	CIND WALL TRACK SPIRAL CINDWT-4

N

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED | CHECKED

RAILROAD PLAT

HAM-50-18.79

45 / 45

657
657

PROJECT DESCRIPTION

THE COMPLETE PROJECT CONSISTS OF THE REPLACEMENT OF THE EXISITING WALDVOGEL (6TH STREET) VIADUCT CONNECTING RIVER ROAD (US 50) TO THE ELBERON AND WARSAW AVENUES IN CININCINNATI, OHIO. THE NEW ALIGNMENT WILL ENDEAVOR TO RELOCATE A SUBSTANTIAL AMOUNT OF THE CURRENT ELEVATED ROADWAY ON-GRADE.

HISTORIC RECORDS

THE CURRENT WALDVOGEL VIADUCT WAS CONSTRUCTED IN 1949. SUBSEQUENT EXPLORATIONS WERE PERFORMED BY THE H.C. NUTTING COMPANY FOR THE CITY OF CINCINNATI IN REPORTS PREPARED IN 1951 AND 1989. ADDITIONAL REPORTS FOR PREVIOUS REPLACEMENT DESIGNS WERE PUBLISHED IN 1990, 1991, 1996, 1998, AND 1999. HISTORIC BORINGS FROM THE 1999 EXPLORATIONS ARE PRESENTED ON THE SOIL PROFILES. (SEE "AVAILABLE INFORMATION" BELOW)

GEOLOGY

THE PROJECT SITE IS LOCATED AT THE TRANSITION BETWEEN THE DEEP ALLUVIAL OHIO RIVER BASIN TO THE EAST AND THE COLLUVIAL AND BEDROCK SLOPES OF THE LOWER PRICE HILL TO THE WEST. THE UNDERLYING BEDROCK CONSISTS OF THE KOPE FORMATION OF INTERBEDDED SHALE AND LIMESTONE.

RECONNAISSANCE

THE SITE PROPOSED FOR THE ROADWAY AND BRIDGE REPLACEMENTS CURRENTLY CONSIST OF A STEEP WESTERN HILLSIDE (LOWER PRICE HILL) DESCENDING TO A BROAD ALLUVIAL PLAIN. ELEVATION DIFFERENTIAL ON THE HILLSIDE IS APPROXIMATELY 65 FEET, DESCENDING TO THE EASTERN PLANE. ACROSS THE ALLUVIAL PLAIN, THE GROUND SURFACE IS RELATIVELY LEVEL AT APPROXIMATELY EL. 490 (MSL). THE WESTERN PORTION OF THE SITE IS AN AREA OF LONG STANDING RESIDENTIAL DEVELOPMENT, TRANSITIONING TO COMMERCIAL USE OVER THE LEVEL PLAINS. SEVERAL RETAINING STRUCTURES ARE LOCATED ALONG STATE AVENUE TO ACCOMODATE THE STREETS. SIDEHILL CUTS AND FILLS WERE MADE TO ESTABLISH ROADWAYS ALONG THE WESTERN HILLSIDE.

SUBSURFACE EXPLORATION

THE TEST BORINGS WERE PERFORMED WITH TRACK AND TRUCK MOUNTED DRILL RIGS ADVANCING HOLLOW - STEM AUGERS. SAMPLING WAS PERFORMED WITH AN AUTOMATIC HAMMER ON CME MODEL 55 AND 450 RIGS. STANDARD SPLIT SPOON SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1586. SAMPLES WERE GENERALLY OBTAINED AT A 2.5 FT INTERVAL. AT SELECTED LOCATIONS, THIN WALLED SHELBY TUBE SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1587.

EXPLORATION FINDINGS

THE SHALLOW SUBSURFACE PROFILE CONSISTS OF A SURFICIAL LAYER OF RANDOM FILL. BELOW THE FILL IS A CRUST OF STIFF LEAN SILTY CLAY WHICH GENERALLY CLASSIFIES AS A-7-6 AND 6A.
THE CRUST TYPICALLY EXTENDS APPROXIMATELY 20 FEET FROM THE GROUND SURFACE. THE ALLUVIUM BECOMES SILTIER AND LESS STIFF WITH DEPTH, CLASSIFYING A-4-6 TO A-6B TO APPROXIMATELY 40 FEET. BELOW APPROXIMATELY 40 FEET, THE ALLUVIUM TRANSITIONS TO GRANULAR OUTWASH DEPOSITS, MEDIUM DENSE TO DENSE SAND AND SAND AND GRAVEL. GRANULAR SOILS ARE TYPICALLY WELL GRADED AND MEDIUM DENSE TO VERY DENSE. STATIC GROUNDWATER WAS TYPICALLY ENCOUNTERED AT THE CONTACT BETWEEN THE ALLUVIAL SOILS AND THE OUTWASH SOILS. NATIVE BEDROCK, INTERBEDDED SHALE AND LIMESTONE, WAS ENCOUNTERED BETWEEN 70 AND IN EXCESS OF 100 FEET FROM THE GROUND SURFACE. THE PROFILE AT THE WESTERN PORTION OF THE SITE ADJACENT TO THE WESTERN TERMINI OF THE ELBERON AND WARSAW AVENUE RAMPS, TRANSITIONS TO DEEP, RANDOMLY DEPOSITED COLLUVIAL SOILS WITH INTERBEDDED GRANULAR SEAMS OVERLYING GRANULAR SOILS AT THE TOE OF THE SLOPE. THE SOILS OVERLIE A SLOPING BEDROCK SURFACE OF INTERBEDDED SHALE AND LIMESTONE BEDROCK.

SPECIFICATIONS

ALLBORINGS WERE PERFORMED IN ACCORDANCE WITH ODOT SSI (1996). DRAWINGS WERE PREPARED IN ACCORDANCE WITH ODOT SGE (2007).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK DATA THAT CAN BE CONVENIENTLY SHOWN ON THE PROFILE SHEETS HAS BEEN REPORTED. PREVIOUS SUBSURFACE INVESTIGATIONS AND SOIL AND BEDROCK TESTS WERE PERFORMED IN 1952, 1989, 1990, 1991, 1996 AND 1999. COPIES OF THIS AND OTHER AVAIALABLE DATA MAY BE INSPECTED AT THE DEPUTY DIRECTOR'S OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OHIO, AT THE OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8 AND AT THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION & ENGINEERING. SOIL AND ROCK CORE SAMPLES MAY BE REVIEWED AT THELEN ASSOCIATES, INC., 1780 CARILLON BLVD., CINCINNATI, OHIO

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Sample Location			Confining		Drained	Angle of Internal
Boring	Sample	Sample	Pressure, Pc		Cohesion, C	Friction ϕ
No.	No.	Depth, Ft.	psi	psf	psf	degrees
112	11A	30.2-30.7	26.0	3,744	771	21.0
116	11B	30.6-31.1	21.0	3,024	0	30.5
116	11C	31.1-31.6	30.5	4,392	0	30.5
118	13C	41.4-42.0	45.5	6,552	0	30.6

ONE-DIMENSIONAL CONCOLIDATION PROPERTIES

Sample Location			Pre-Consolidation Pressure P_c tsf	Overburden Pressure, P_o tsf	Initial Void Ratio, e_o	Compression Index, C_c	Recompression Index, C_r
Boring No.	Sample No.	Sample Depth ft.					
108	PT1B	18.2-18.4	1.10	1.20	0.6340	0.147	0.016
109	6B	13.7-14.1	2.20	0.84	0.6992	0.158	0.030
110	4A	7.2-7.4	1.10	0.44	0.7278	0.192	0.023
112	7A	15.2-15.4	1.20	0.90	0.6698	0.165	0.024
210	5	10.7-10.9	2.10	0.65	0.6895	0.158	0.021
210	9	20.7-21.2	1.50	1.40	0.7307	0.166	0.018

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	7	0
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	27	2
FINE SAND	A-3	14	3
COARSE AND FINE SAND	A-3a	8	4
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4	6	0
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT AND CLAY	A-2-6	6	23
SANDY SILT	A-4a	6	0
SILT	A-4b	25	2
ELASTIC SILT AND CLAY	A-5	2	0
SILT AND CLAY	A-6a	26	3
SILTY CLAY	A-6b	19	5
ELASTIC CLAY	A-7-5	2	0
CLAY	A-7-6	36	5
	TOTAL	184	47
UNCONTROLLED FILL			VISUAL
WEATHERED INTERBEDDED SHALE AND LIMESTONE			VISUAL
INTERBEDDED SHALE AND LIMESTONE			VISUAL
SHALE			VISUAL
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS			VISUAL
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS			VISUAL

EXPLORATION LOCATION-PLAN VIEW

HISTORIC BORING LOCATION-PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

ST INDICATES A SHELBY TUBE SAMPLE

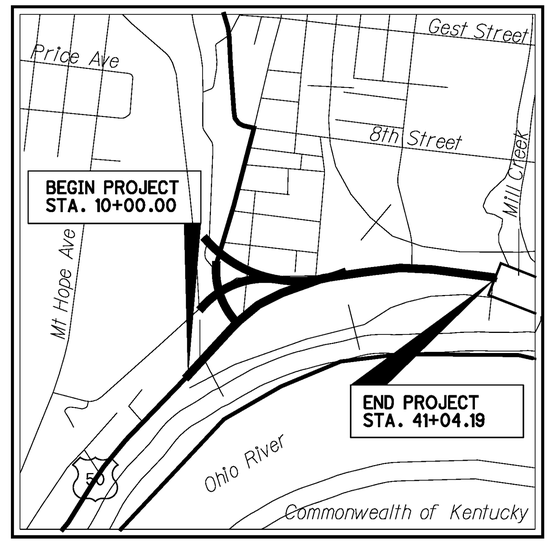
—W INDICATES FREE WATER ELEVATION

⊖ INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

● INDICATES PLASTIC MATERIAL WITH A HIGH WATER CONTENT

WC INDICATES WATER CONTENT IN PERCENT

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES



LOCATION MAP
SCALE IN MILES

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL

Boring No.	Sample No.	Sample Depth, ft.	Unconfined Compressive Strength, psf	Dry Density, pcf	Moisture Content, %	Shear Strength, psf
102	7A	15.2-15.7	2,840	107.9	20.4	1,420
105	7A	15.2-15.7	3,860	108.6	19.6	1,930
105	9A	20.2-20.7	3,320	124.3	22.1	1,660
108	PT-1C	18.8-19.0	2,030	109.1	21.0	1,015
109	6A	13.2-13.7	5,500	107.2	20.5	2,750
110	4B	7.2-7.4	2,770	103.4	24.3	1,385
112	7B	15.4-15.9	3,890	107.3	20.8	1,945
116	7	15.2-15.7	920	86.1	35.2	460
116	11A	30.1-30.6	2,800	103.7	24.1	1,400
117	7	15.5-16.0	7,860	105.7	20.9	3,930
119	7	15.0-16.5	6,170	100.9	23.9	3,085
120	11B	30.3-30.8	2,620	105.0	22.1	1,310
127	3	5.3-5.9	7,530	103.3	22.7	3,765
205	7A	17.7-18.2	4,000	107.2	21.0	2,000
205	12A	40.2-40.7	2,630	102.0	24.4	1,315
209	5B	13.2-13.7	1,740	99.6	26.1	870
209	8A	20.2-20.7	5,300	107.6	22.8	2,650
213	10B	25.2-25.7	1,750	106.5	21.4	875

RECON. - ATS 2/6 - 2/10/06
DRILLING - GB 2/13 - 4/21/06, 6/20 - 6/21/07
DRILLING - LW 3/22 - 4/25/06, 6/20-6/26/07
DRAWN - MS 5/20/06 - 7/31/07
DRAWN - KPR 10/4/07 - 6/11/10
REVIEWED - ATS 6/12/10

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PID NO. 20082

SOIL PROFILE
WALDVOGEL VIADUCT REPLACEMENT

HAM-50-18.79

SOIL PROFILE INDEX OF SHEETS		
SUMMARY OF SOIL TEST DATA	3 - 10	
SUMMARY OF HISTORICAL SOIL TEST DATA	11-14	
SUMMARY OF SOIL TESTS UNCONFINED COMPRESSION TEST	12-20	
SUMMARY OF SOIL TESTS TRIAXIAL COMPRESSION TEST	21-22	
SUMMARY OF SOIL TESTS CONSOLIDATION TEST	23	
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET
U.S. 50		
BEGIN 13+00	24	24
13+00 17+00	25	26
17+00 22+00	27	28
22+00 27+00	29	29
27+00 32+00	30	30
32+00 37+00	31	31
37+00 END	32	33
EB ELBERON RAMP		
BEGIN 53+00	34	34
53+00 58+00	35	36
58+00 66+95.64	37	38
WB ELBERON RAMP		
BEGIN 94+00	39	40
94+00 99+00	41	42
99+00 102+79.05	43	43
EB WARSAW RAMP		
BEGIN 73+00	44	44
73+00 78+00	45	46
78+00 83+00	47	48
83+00 88+00	49	50
88+00 93+22.68	52	52
WB WARSAW RAMP		
BEGIN 104+00	53	54
104+00 109+34.06	55	56
ELBERON AVENUE		
BEGIN 46+00	57	57
46+00 49+50.99	58	59
STATE AVENUE		
46+00 50+14.89	60	61
MARYLAND AVENUE		
BEGIN 46+96.76	62	63
EVENS STREET		
20+05.23 END	64	64

BRIDGE NO. HAM-264-1448 INDEX OF SHEETS		
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET
BEGIN 105+87.34	66	67
105+87.34 END	68	69
BORING LOGS	70-74	
HISTORIC BORING LOGS	75-76	
SOIL TEST DATA	77	

BRIDGE NO. HAM-264-1457 INDEX OF SHEETS		
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET
BEGIN 94+72.86	79	80
94+72.86 END	81	82
BORING LOGS	83-86	
HISTORIC BORING LOGS	87-89	
SOIL TEST DATA	90	

BRIDGE NO. HAM-050-1875 INDEX OF SHEETS		
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET
BEGIN 58+00	92	93
58+00 END	94	95
BORING LOGS	96-98	
HISTORIC BORING LOGS	99-102	
SOIL TEST DATA	103-107	

BRIDGE NO. HAM-050-1881 INDEX OF SHEETS		
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET
BEGIN 75+00	109	110
75+00 80+00	111	112
75+00 80+00	111	112
80+00 END	113	114
BORING LOGS	115-119	
HISTORIC BORING LOGS	120-122	
SOIL TEST DATA	123-128	

BRIDGE NO. HAM-050-1903 INDEX OF SHEETS		
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET
BEGIN END	130	131
BORING LOGS	132-134	
SOIL TEST DATA	135-136	

DRAWN KPR
CHECKED

SOIL PROFILE INDEX OF SHEETS

HAM-050-18.79

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-101-0-05	00.30	01.50	SS-1	67										A-2-6 (VISUAL)
Sta. 40+52, 48' L	02.50	04.00	SS-2	100										A-2-6 (VISUAL)
	05.00	06.50	SS-3	100										A-4a (VISUAL)
	07.50	09.00	SS-4	67										A-7-6 (VISUAL)
	10.00	11.50	SS-5	100										A-7-6 (VISUAL)
	12.50	14.00	SS-6	100										A-6a (VISUAL)
	15.00	16.50	SS-7	67										A-6a (VISUAL)
	17.50	19.00	SS-8	100										A-6a (VISUAL)
	20.00	21.50	SS-9	100										A-6a (VISUAL)
	25.00	26.50	SS-10	100										A-6a (VISUAL)
	30.00	31.50	SS-11	100										A-6a (VISUAL)
	35.00	36.50	SS-12	100										A-6a (VISUAL)
	40.00	41.50	SS-13	100										A-3a (VISUAL)
	45.00	46.50	SS-14	100										A-3a (VISUAL)
	50.00	51.50	SS-15	100										A-3a (VISUAL)
	55.00	56.50	SS-16	100										A-3a (VISUAL)
	60.00	61.50	SS-17	100										A-3a (VISUAL)
	65.00	66.50	SS-18	100										A-3a (VISUAL)
	70.00	71.50	SS-19	100										A-3a (VISUAL)
	75.00	76.50	SS-20	100										A-3a (VISUAL)
	80.00	81.50	SS-21	100										A-3a (VISUAL)
B-102-0-05														
Sta. 38+34, 57' L	00.30	01.50	SS-1	72										A-6a (VISUAL)
	02.50	04.00	SS-2	100										A-6a (VISUAL)
	05.00	06.50	SS-3	100										A-6a (VISUAL)
	07.50	09.00	SS-4	100										A-6a (VISUAL)
	10.00	11.50	SS-5	100										A-6a (VISUAL)
	12.50	14.00	SS-6	100										A-6a (VISUAL)
	15.00	16.50	SS-7A	75									20	A-6a (VISUAL)
	15.00	16.50	SS-7B	75	0	0	22	46	32	31		11		A-6a (8)
	17.00	18.50	SS-8	100										A-6a (VISUAL)
	20.00	21.50	SS-9	100										A-6a (VISUAL)
B-103-0-05														
Sta. 37+63, 60' L	01.00	02.50	SS-1	100									17	A-4b (VISUAL)
	02.50	04.00	SS-2	33	58	9	10	23		47		25	11	A-4b (1)
	05.00	06.50	SS-3	100						35		8	27	A-4b (0)
	07.50	09.00	SS-4	100									19	A-6b (VISUAL)
	10.00	11.50	SS-5	100						39		15	17	A-6b
	12.50	14.00	SS-6	50									19	A-6b (VISUAL)
	15.00	16.50	SS-7	100						27		18	20	A-6b (11)
	17.50	19.00	SS-8	100	0	0	19	49	32				17	A-6b (11)
	20.00	21.50	SS-9	100									20	A-6b (11)
	25.00	26.50	SS-10	44						35		14	23	A-6a (10)
	30.00	31.50	SS-11	100									25	A-6a (9)
	35.00	36.50	SS-12	100	3	1	8	61	27	30		12	26	A-6a (9)
	40.00	41.50	SS-13	100	45	23	17	15					10	A-1b (0)
	45.00	46.50	SS-14	100	3	20	52	25					20	A-3a
	50.00	51.50	SS-15	100	4	6	38	31	21	16		6	22	A-4b (3)
	55.00	56.50	SS-16	100	0	10	82	8					20	A-3 (0)
	60.00	61.50	SS-17	100	0	13	74	13					17	A-3a (0)
B-104-0-05														
Sta. 31+9, 9' R	00.20	01.50	SS-1	67										A-1a (VISUAL)
	02.50	04.00	SS-2	100									22	A-4a (VISUAL)
	05.00	06.50	SS-3	100									24	A-6a (VISUAL)
	07.50	09.00	SS-4	100									26	A-6a (VISUAL)
	10.00	11.50	SS-5	100						40		16	24	A-6b (10)
	12.50	14.00	SS-6	100						43		19	18	A-7-6 (12)
	15.00	16.50	SS-7	100										A-7-6 (VISUAL)
	17.50	19.00	SS-8	100										A-7-6 (VISUAL)
	20.00	21.50	SS-9	100	0	0	28	48	24	29		9	22	A-4a (8)

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-106-0-05														
Sta. 66+48, 30' R	00.00	01.50	SS-1	67									28	A-2-6 (VISUAL)
	05.50	04.00	SS-2	72						24		5	19	A-4b (8)
	05.00	06.50	SS-3	67									32	A-6b (VISUAL)
	07.50	09.00	SS-4	55						40		18	22	A-6b (11)
	10.00	11.50	SS-5	100									20	A-6b (VISUAL)
	12.50	14.00	SS-6	100									20	A-6b (VISUAL)
	15.00	16.50	SS-7	100									20	A-6b (VISUAL)
	17.50	19.00	SS-8	100						36		16	21	A-6b (10)
	20.00	21.50	SS-9	100									22	A-6b (10)
	25.00	26.50	SS-10	100	0	0	26	47	27	29		10	21	A-4b (8)
	30.00	31.50	SS-11	100									23	A-6b (VISUAL)
	35.00	36.50	SS-12	72									25	A-4b (VISUAL)
	40.00	41.00	SS-13A	17									29	A-4b (VISUAL)
	41.00	41.50	SS-13B	17	38	15	19	20	7					A-3a (0)
	45.00	46.50	SS-14	34										A-1b (VISUAL)
	50.00	51.50	SS-15	67	14	59	21	7						A-1b (0)
	55.00	56.50	SS-16	72										A-1b (VISUAL)
	60.00	61.50	SS-17	72	48	37	7	8						A-1b (0)
B-108-0-05	01.00	01.50	SS-1	100									21	A-6b (VISUAL)
Sta. 65+15, 12' R	02.50	04.00	SS-2	100	58	12	19	11					9	A-1a (0)
	05.00	06.50	SS-3	100									30	A-6b (VISUAL)
	07.50	09.00	SS-4	72									21	A-6b (VISUAL)
	10.00	11.50	SS-5	100	0	2	4	94		43		17	20	A-7-6 (11)
	12.50	14.00	SS-6	100									20	A-7-6 (12)
	15.00	16.50	SS-7	100	0	0	4	52	43	42		18	18	A-7-6 (12)
	17.50	19.00	SS-8	100	0	0	24	42	34	34		17	23	A-6b (11)
	20.00	21.50	SS-9	100									29	A-6b (11)
B-109-0-05	00.00	01.50	SS-1	50	30	20	25	25					33	A-3
Sta. 65+23, 37' R	02.50	04.00	SS-2	33									22	A-2-6 (VISUAL)
	05.00	06.50	SS-3	100									36	A-6b (VISUAL)
	07.50	09.00	SS-4	0									30	
	10.00	11.50	SS-5	72						44		22	28	A-7-6 (13)
	13.00	15.00	SS-6	75									21	A-7-6 (13)
	15.00	16.50	SS-7	72									21	A-7-6 (13)
	17.50	19.00	SS-8	72									23	A-6a (10)
	20.00	21.50	SS-9	72						36		14	21	A-6a (10)
	25.00	26.50	SS-10	67	0	0	20	53	27	33		13	21	A-6a (10)
	30.00	31.50	SS-11	72										A-6a (VISUAL)
	35.00	36.50	SS-12	67	0	0	20	47	33				25	A-6a (9)
	40.00	41.50	SS-13	100										A-6b (VISUAL)
	45.00	46.50	SS-14	55	40	43	7	10						A-1b (0)
	50.00	51.50	SS-15	100										A-1b (0)
	55.00	56.50	SS-16	72	24	26	33	17						A-3a (VISUAL)
	60.00	61.50	SS-17	72										A-3a (VISUAL)
B-110-0-05	00.00	01.50	SS-1	100									43	A-3a (VISUAL)
Sta. 63+49, 1' R	02.50	04.00	SS-2	100						48		25	45	A-7-6 (16)
	05.00	06.50	SS-3	100									32	A-7-6 (VISUAL)
	07.00	09.00	SS-4	83	0	1	3	39	57	42		19	24	A-7-6 (12)
	09.00	10.50	SS-5	100						41		18	23	A-7-6 (11)
	12.50	14.00	SS-6	100									22	A-7-6 (11)
	15.00	16.50	SS-7	100									19	A-7-6 (11)
	17.50	19.00	SS-8	100									22	A-6b (VISUAL)
	20.00	21.50	SS-9	100									24	A-6b (VISUAL)
	25.00	26.50	SS-10	100										A-6b (VISUAL)
	30.00	31.50	SS-11	100									28	A-6b (VISUAL)
	35.00	36.50	SS-12	100									29	A-7-6 (VISUAL)
	40.00	41.50	SS-13	100	62	8	12	11	7				16	A-1b (0)
	45.00	46.50	SS-14	100	55	24	6	14						A-1a (0)
	50.00	51.50	SS-15	100										A-3a (VISUAL)
	55.00	56.50	SS-16	100	20	15	44	21						A-3a
	60.00	61.50	SS-17	100										A-3a (VISUAL)

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SOIL PROFILE

SUMMARY OF SOIL TEST DATA

HAM-50-18.79

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-112-0-05	00.00	01.00	SS-1A	100									10	A-1b (VISUAL)
Sta. 61+73.5, 6' R	01.00	01.50	SS-1B		42	12	27	18						A-1b
	02.50	04.00	SS-2	100	37	11	30	21						A-1b
	05.00	06.50	SS-3	100	0	4	7	44	44	40		16	30	A-6b (10)
	07.50	09.00	SS-4	100						43		21	24	A-7-6 (13)
	10.00	11.50	SS-5	100						43		21	21	A-7-6 (13)
	12.50	14.00	SS-6	100									23	A-7-6 (13)
	15.00	17.00	SS-7	75	0	0	15	48	37	30		13	21	A-6a (9)
	17.00	18.50	SS-8	100						31		14	24	A-6a (10)
	20.00	21.50	SS-9	100										A-6a (10)
	25.00	26.50	SS-10	100									27	A-6b (VISUAL)
	30.00	31.50	SS-11	72										A-6b (VISUAL)
	35.00	36.50	SS-12	67									29	A-6b (VISUAL)
	40.00	41.50	SS-13	100									30	A-2-4 (VISUAL)
	45.00	46.50	SS-14	55	54	14	13	11	7				19	A-1b
	50.00	51.50	SS-15	100	36	18	31	15						A-1b (0)
	55.00	56.50	SS-16	72										A-3 (VISUAL)
	60.00	61.50	SS-17	72										A-3 (VISUAL)
B-113-0-05	00.90	02.40	SS-1	44										A-6a (VISUAL)
Sta. 109+10, 5' L	02.50	02.90	SS-2A	44										A-6a (VISUAL)
	02.90	04.00	SS-2B											A-6a (VISUAL)
	05.00	06.50	SS-3	22	73	17	2	8						A-1b (0)
	07.50	09.00	SS-4	67										A-1a (VISUAL)
	10.00	11.50	SS-5	100										A-6b (VISUAL)
	12.50	14.00	SS-6	67	0	0	23	54	23				24	A-4b
	15.00	16.50	SS-7	100										A-4b
	17.50	19.00	SS-8	100										A-6b (VISUAL)
	20.00	21.50	SS-9	100										A-6b (VISUAL)
	25.00	26.50	SS-10	100										A-6b (VISUAL)
	30.00	30.40	SS-11A	78										A-1b (VISUAL)
	30.40	31.50	SS-11B		14	37	39	11						A-1b (0)
	35.00	36.50	SS-12	72										A-6b (VISUAL)
	40.00	41.50	SS-13	67	1	2	39	40	3				26	A-4a
	45.00	46.50	SS-14	100	5	39	35	4						A-3 (0)
	50.00	51.50	SS-15	100										A-3a (VISUAL)
	55.00	56.50	SS-16	72										A-3a (VISUAL)
	60.00	61.50	SS-17	100										A-3a (VISUAL)
B-114-0-05	00.70	02.20	SS-1	22										
Sta. 108+12.5, 6' L	02.50	04.00	SS-2	100									19	A-6b (VISUAL)
	05.00	06.50	SS-3	100									22	A-6b (VISUAL)
	07.50	09.00	SS-4	100									24	A-6b (VISUAL)
	10.00	11.50	SS-5	100									27	A-6b (VISUAL)
	12.50	14.00	SS-6	100									28	A-4b (VISUAL)
	15.00	16.50	SS-7	100						28		18	29	A-4b (0)
	17.50	19.00	SS-8	100						27		18	30	A-4b (0)
	20.00	21.50	SS-9	72	0	0	4	69	27				27	A-4b
	25.00	26.50	SS-10	100									31	A-6b (VISUAL)
	30.00	31.50	SS-11	100	1	1	8	90						A-4a
	35.00	36.50	SS-12	72									29	A-4b (VISUAL)
	40.00	41.50	SS-13	100									29	A-4b (VISUAL)
	45.00	46.50	SS-14	18										A-3a (VISUAL)
	50.00	51.50	SS-15	72	4	62	30	4						A-1b (0)
	55.00	56.50	SS-16	67										A-3 (VISUAL)
	60.00	61.50	SS-17	100	1	20	71	8						A-3 (0)
	65.00	66.50	SS-18	13										A-3 (0)
	70.00	71.50	SS-19	18	0	2	89	9						A-3 (0)
	75.00	76.50	SS-20	72										A-3 (0)
	80.00	81.50	SS-21	72										A-3 (VISUAL)
	85.00	86.50	SS-22	33	69	8	16	7						A-1a (0)
	90.00	91.50	SS-23	17										A-1b (VISUAL)
	95.00	96.50	SS-24	11										A-1b (VISUAL)
	100.00	101.50	SS-25	11										BEDROCK

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-115-0-05														
Sta. 98+12, 2' R	00.00	00.20	SS-1A	67									7	A-2-6 (VISUAL)
	00.20	01.50	SS-1B											A-2-6 (VISUAL)
	02.50	04.00	SS-2										5	A-3a (VISUAL)
	05.00	06.50	SS-3	33									9	A-4b
	07.50	09.00	SS-4	100									21	A-4b
	10.00	11.50	SS-5	100	0	1	23	55	21				25	A-4b
	12.50	14.00	SS-6	100									26	A-4b
	15.00	16.50	SS-7	100	0	1	35	47	17				27	A-4b
	17.50	19.00	SS-8	100									26	A-1b (0)
	20.00	21.50	SS-9	100	0	1	14	60	25	30		8	27	A-1b (0)
	25.00	26.50	SS-10	100									27	A-1b (0)
	30.00	31.50	SS-11	100						29		8	24	A-4a (8)
	35.00	36.50	SS-12	100									26	A-4a (8)
	40.00	41.50	SS-13	100	16	54	22		8					A-1b (0)
	45.00	46.50	SS-14	100	42	36	11		11					A-1b (0)
	50.00	51.50	SS-15	100										A-3a (VISUAL)
	55.00	56.50	SS-16	100	0	29	59		12					A-3a (0)
	60.00	61.50	SS-17	100	20	36	36		8					A-1b (0)
	65.00	66.50	SS-18	100										A-1b (VISUAL)
	70.00	71.50	SS-19	100										A-1b (VISUAL)
B-116-0-05	00.00	01.50	SS-1	100	46	18	19		16				15	A-3 (0)
Sta. 19+70.5, 70' R	02.50	04.00	SS-2	17	50	11	14		25				12	A-3a
	05.00	06.50	SS-3	67										A-3a
	07.50	09.00	SS-4	67									30	A-2-6 (VISUAL)
	10.00	11.50	SS-5	100	0	1	17	54	28	31		8	36	A-4b (8)
	12.00	13.50	SS-6	100						42		22	27	A-7-6 (13)
	15.00	17.50	SS-7	71									35	A-7-6 (13)
	17.50	19.00	SS-8	100						47		27	26	A-7-6 (16)
	21.00	23.50	SS-9	100						47		21	21	A-7-6 (14)
	25.00	26.50	SS-10	100									25	A-4b
	29.50	31.50	SS-11	50									24	A-4b
	31.50	33.00	SS-12	100	0	0	5	60	35				26	A-4b
	35.00	36.50	SS-13	100									26	A-4b
	40.00	41.50	SS-14	100	17	5	21	39	18	28		11	18	A-6a (5)
	45.00	46.50	SS-15	100	19	2	10		69					A-6b (VISUAL)
	50.00	51.50	SS-16	100	2	28	61		9					A-3 (0)
	55.00	56.50	SS-17	100	37	33	18		12					A-1b (0)
	60.00	61.50	SS-18	100										BEDROCK
B-117-0-05	01.00	02.50	SS-1	67	59	15	15		11				6	A-1a (0)
Sta. 17+77.5, 64' R	02.50	04.00	SS-2	100	24	18	25		33	32		11	19	A-2-6 (0)
	05.00	06.50	SS-3	100	12	12	23		52	30		8	27	A-4b (3)
	07.00	08.50	SS-4	100						56		28	28	A-7-5 (18)
	10.00	11.50	SS-5	100	0	2	3	36	59				28	A-7-6 (14)
	12.50	14.00	SS-6	100						48		22	23	A-7-6 (14)
	15.00	16.50	SS-7	100									20	A-7-6 (14)
	17.50	19.00	SS-8	100									19	A-7-6 (14)
	20.00	21.50	SS-9	100										A-7-6 (14)
B-118-0-05	00.00	01.00	SS-1	67										
Sta. 16+35, 56' R	01.00	01.50	SS-2	100	56	8	6		29	44		23	14	A-4a (5)
	02.50	04.00	SS-3	100									29	A-4a (VISUAL)
	05.00	06.50	SS-4	100	4	6	8	31	51	47		20	26	A-7-6 (13)
	07.50	09.00	SS-5	100	23	16	29		32				25	A-2-6 (1)
	10.00	11.50	SS-6	11						37		14	26	A-2-6 (1)
	12.50	14.00	SS-7	100						53		28	24	A-7-6 (18)
	15.00	17.00	SS-8	100	0	0	5	40	55				20	A-7-6 (18)
	17.00	18.50	SS-9	100									24	A-6b (VISUAL)
	20.00	21.50	SS-10	100									24	A-6b (VISUAL)
	25.00	26.50	SS-11	100	0	0	21	48	31				24	A-4b
	30.00	31.50	SS-12	100									31	A-4b
	35.00	36.50	SS-13	83	0	0	17	55	28	28		4	30	A-4b (8)
	40.00	41.50	SS-14	100									31	A-4b (8)
	45.00	46.50	SS-15	100	72	7	9		15					A-1a (0)
	50.00	51.50	SS-16	100	21	16	71		8					A-3a (0)
	55.00	56.50	SS-17	100	38	20	30		12					A-1b (0)
	60.00	61.50	SS-18	100										A-1b (VISUAL)

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SOIL PROFILE
SUMMARY OF SOIL TEST DATA

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-119-0-05	01.00	02.50	SS-1	100									12	A-1b (VISUAL)
Sta. 14+97.5, 47' R	02.50	04.00	SS-2	100									14	A-6b (VISUAL)
	05.00	06.50	SS-3	100									20	A-2-6 (VISUAL)
	07.50	09.00	SS-4	33									27	A-2-6 (VISUAL)
	10.00	11.50	SS-5	100						52		25	26	A-7-6 (16)
	12.50	14.00	SS-6	100									25	A-7-6 (16)
	15.00	16.50	SS-7	100										A-6b (VISUAL)
	17.50	19.00	SS-8	100									23	A-6b (VISUAL)
	20.00	21.50	SS-9	100									22	A-6b (VISUAL)
B-120-0-05	00.80	02.30	SS-1	67										A-1b (VISUAL)
Sta. 13+96, 41' R	02.50	04.00	SS-2	33										A-2-6 (VISUAL)
	05.00	06.50	SS-3	67										A-2-6 (VISUAL)
	07.50	09.00	SS-4	100										A-2-6 (VISUAL)
	10.00	11.50	SS-5	17										A-2-6 (VISUAL)
	12.50	14.00	SS-6	100										A-7-6 (VISUAL)
	15.00	16.50	SS-7	100						53		31	23	A-7-6 (19)
	17.50	19.00	SS-8	100										A-7-6 (VISUAL)
	20.00	21.50	SS-9	100										A-7-6 (VISUAL)
	25.00	26.50	SS-10	33						34		11	25	A-6a (8)
	30.00	31.50	SS-11	50									22	A-6a (8)
	31.50	33.00	SS-12	100						34		11	25	A-6a (8)
	35.00	36.50	SS-13	100										A-6a (8)
	40.00	41.50	SS-14	100	0		6		57	37			25	A-4b
	45.00	46.50	SS-15	100	56	17	20		7					A-1b (0)
	50.00	51.50	SS-16	100										A-1b (0)
	55.00	56.50	SS-17	100										A-1b (0)
	60.00	61.50	SS-18	27										BEDROCK
B-123-0-05	01.00	02.50	SS-1	67									4	A-3a (VISUAL)
Sta. 52+31, 11' R	02.50	04.00	SS-2	67	64	15	7		14				5	A-1b (0)
	05.00	06.50	SS-3	100						44		22	16	A-7-6 (14)
	07.50	09.00	SS-4	11									6	A-1b (0)
	10.00	11.50	SS-5	33	83	5	3		9				2	A-1b (0)
	12.50	14.00	SS-6	100						43		26	18	A-7-6 (12)
	15.00	16.50	SS-7	100	38	2	1	20	39				21	A-7-6 (12)
	17.50	19.00	SS-8	100	37	6	2		55	40		20	17	A-7-6 (12)
	20.00	21.50	SS-9	100						39		14	20	A-6a (10)
	25.00	26.50	SS-10	67									18	A-6a (10)
	30.00	31.50	SS-11	100									20	A-6a (10)
	35.00	36.50	SS-12	100									15	A-6a (10)
	40.00	41.50	SS-13	100						37		14	17	A-6a (10)
	45.00	46.50	SS-14	100	3	9	5	30	53				16	A-6a (10)
	50.00	51.50	SS-15	100									16	A-6a (10)
	55.00	56.50	SS-16	100									16	A-6a (10)
	60.00	61.50	SS-17	67	53	9	13		25					A-6b
	65.00	66.50	SS-18	100	47	14	17		22					A-6b
	70.00	71.50	SS-19	67	28	9	17		46					A-5

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-124-0-05	01.00	02.50	SS-1	100									23	A-2-6 (VISUAL)
Sta. 90+52, 2' R	02.50	04.00	SS-2	100								45	21	22	A-7-6 (13)
	05.00	06.50	SS-3	100										23	A-6b (VISUAL)
	07.50	09.00	SS-4	100										16	A-6b (VISUAL)
	10.00	11.50	SS-5	100								49	22	21	A-7-6 (15)
	12.50	14.00	SS-6	100											A-7-6 (15)
	15.00	16.50	SS-7	100								52	27	13	A-7-6 (16)
	17.50	19.00	SS-8	100											A-7-6 (16)
	20.00	21.50	SS-9	100											A-7-6 (16)
	25.00	26.50	SS-10	100										13	A-7-6 (16)
	30.00	31.50	SS-11	100											BEDROCK
B-125-0-05	00.50	01.50	SS-1	0											CONCRETE
Sta. 48+43.5, 82' L	02.50	04.00	SS-2	44											A-7-6 (VISUAL)
	05.00	06.50	SS-3	67											A-7-6 (VISUAL)
	07.50	09.00	SS-4	44								47	19	18	A-7-6 (13)
	10.00	11.50	SS-5	67										24	A-7-6 (12)
	12.50	14.00	SS-6	39										18	A-7-6 (12)
	15.00	16.50	SS-7	33								43	19	19	A-7-6 (12)
	17.50	19.00	SS-8	0											A-7-6 (12)
	20.00	21.50	SS-9	33										20	A-7-6 (12)
	25.00	26.50	SS-10	100										25	A-4b
	30.00	31.50	SS-11	72								32	14	28	A-6a (10)
	35.00	36.50	SS-12	33										23	A-6b (VISUAL)
	40.00	41.50	SS-13	67										20	A-6b (VISUAL)
	45.00	46.50	SS-14	12								40	17	19	A-6a (11)
	50.00	51.50	SS-15	72								37	12	14	A-6b (9)
	55.00	56.50	SS-16	44										16	A-3 (0)
	60.00	61.50	SS-17	22											A-1b (0)
	65.00	66.50	SS-18	11										9	A-1b (VISUAL)
	70.00	71.50	SS-19	17											BEDROCK
B-126-0-05	00.00	01.50	SS-1	12										16	A-2-6 (1)
Sta. 48+79, 22' L	02.50	04.00	SS-2	18	40	17	13	13	17	35		14	24	A-2-6 (1)
	05.00	06.50	SS-3	18										15	A-2-6 (1)
	07.50	09.00	SS-4	18	24	8	4	54		40		20	11	A-6b (10)
	10.00	11.50	SS-5	18										19	A-6b (10)
	12.50	14.00	SS-6	18										18	A-6b (10)
	15.00	16.50	SS-7	18	46	2	3	49		37		20	9	A-6b (6)
	17.50	19.00	SS-8	18											A-6b (7)
	20.00	21.50	SS-9	18										18	A-6b (7)
	25.00	26.50	SS-10	12										15	A-6b (7)
	30.00	31.50	SS-11	18											A-6b (7)
	35.00	36.50	SS-12	18	25	8	7	60		38		16	14		A-6b (7)
	40.00	41.50	SS-13	18											A-6b (7)
	45.00	46.50	SS-14	18											A-6b (7)
	50.00	51.50	SS-15	18	58	8	10	24		23		7	5	A-2-4 (0)
	55.00	56.50	SS-16	6	46	14	19	21					4	A-2-4 (0)
	60.00	61.50	SS-17	18										A-2-4 (VISUAL)
	65.00	65.50	SS-18	6										BEDROCK

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SOIL PROFILE

SUMMARY OF SOIL TEST DATA

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-128-0-05	02.00	03.50	SS-1	6										A-2-6 (VISUAL)
Sta. 75+30, 15' L	05.00	06.50	SS-2	9										A-2-6 (VISUAL)
	07.50	09.00	SS-3	1										A-6b (VISUAL)
	10.00	11.50	SS-4	4										A-6b (VISUAL)
	12.50	14.00	SS-5	10										A-6b (VISUAL)
	15.00	16.50	SS-6	10										A-6b (VISUAL)
	17.50	19.00	SS-7	4										A-6b (VISUAL)
	20.00	21.50	SS-8	12										A-6b (VISUAL)
	25.00	26.50	SS-9	18										A-6b (VISUAL)
	30.00	31.50	SS-10	6										A-6b (VISUAL)
	35.00	36.50	SS-11	14										A-6b (VISUAL)
	40.00	41.50	SS-12	12										A-6b (VISUAL)
	45.00	46.50	SS-13	10										A-6b (VISUAL)
	50.00	51.50	SS-14	13										A-6b (VISUAL)
	55.00	56.50	SS-15	8										A-6b (VISUAL)
	60.00	61.50	SS-16	5										A-1b (VISUAL)
	65.00	66.50	SS-17	4										A-1b (VISUAL)
	70.00	71.50	SS-18	0										A-1b (VISUAL)
B-129A-0-05	00.20	01.50	SS-1	22									18	A-2-6 (VISUAL)
Sta. 103+78, 12' L	02.50	04.00	SS-2	67									19	A-6b (VISUAL)
	05.00	06.50	SS-3	100						31		10	25	A-5 (8)
	07.50	09.00	SS-4	22									22	A-6b (VISUAL)
	10.00	11.50	SS-5	0										A-6b (VISUAL)
	12.50	14.00	SS-6	22						36		16	18	A-6b (VISUAL)
	15.00	16.50	SS-7	33										A-6b (VISUAL)
	17.50	19.00	SS-8	22									16	A-6b (VISUAL)
	20.00	21.50	SS-9	72									14	A-6b (VISUAL)
	25.00	26.50	SS-10	44										A-6b (VISUAL)
	30.00	31.50	SS-11	56						34		15	16	A-6a (VISUAL)
	35.00	36.50	SS-12	6										A-6a (10)
	40.00	41.50	SS-13	67									17	A-5 (VISUAL)
	45.00	46.50	SS-14	22						25		9	15	A-5 (8)
	50.00	51.50	SS-15	17										A-5 (VISUAL)
	55.00	56.50	SS-16	17									12	A-5 (VISUAL)
	60.00	61.50	SS-17	67									11	A-5 (VISUAL)
	65.00	66.50	SS-18	17										BEDROCK
	70.00	70.40	SS-19	22										BEDROCK
B-130-0-05	01.00	01.50	SS-1	100	25	7	7	61					14	A-6a
Sta. 102+96, 70' L	02.50	04.00	SS-2	67	4	4	6	86		35		12	14	A-6a (9)
	05.00	06.50	SS-3	100									24	A-6b (VISUAL)
	07.50	09.00	SS-4	100									21	A-6b (VISUAL)
	10.00	11.50	SS-5	67	50	8	8	33					8	A-2-6
	12.50	14.00	SS-6	67									17	A-6b (VISUAL)
	15.00	16.50	SS-7	100									16	A-6b (VISUAL)
	17.50	19.00	SS-8	100	40	26	32	2		26		10	11	A-2-4 (0)
	20.00	21.50	SS-9	100	51	14	15	20					6	A-2-4 (0)
	25.00	26.50	SS-10	100						27		6	21	A-4a
	30.00	31.50	SS-11	100									16	A-6b (VISUAL)
	35.00	36.50	SS-12	100									13	A-2-6 (VISUAL)
	40.00	41.50	SS-13	100	34	28	21	17					13	A-2-6
	45.00	46.50	SS-14	100									14	A-6a (VISUAL)
	50.00	51.50	SS-15	100	20	6	4	32	38	33		15	13	A-6a (9)
	55.00	56.50	SS-16	100									20	A-6a (VISUAL)
	60.00	61.50	SS-17	67	56	12	14	13	5					A-1b
	65.00	66.50	SS-18	67										BEDROCK
	70.00	71.50	SS-19	22										BEDROCK

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-131-0-05	01.00	02.50	SS-1	67									18	A-7-6 (15)
Sta. 102+38.5, 21' L	02.50	04.00	SS-2	67								24	22	A-7-6 (15)
	05.00	06.50	SS-3	100									23	A-7-6 (16)
	07.50	09.00	SS-4	11								27	23	A-7-6 (16)
	10.00	11.50	SS-5	33										A-7-6 (16)
	12.50	14.00	SS-6	100										A-7-6 (16)
	15.00	16.50	SS-7	100										A-7-6 (16)
	17.50	19.00	SS-8	100								25	21	A-7-6 (16)
	20.00	21.50	SS-9	100										A-6b (VISUAL)
	25.00	26.50	SS-10	67										A-6b (VISUAL)
	30.00	31.50	SS-11	100										A-6b (VISUAL)
	35.00	36.50	SS-12	100	57	13	9	16	5					A-1b
	40.00	41.50	SS-13	100										A-3a (VISUAL)
	45.00	46.50	SS-14	100								15	20	A-6a (10)
	50.00	51.50	SS-15	100								14	20	A-6a (10)
	55.00	56.50	SS-16	100									15	A-6b (VISUAL)
	60.00	61.50	SS-17	67									19	A-6b (VISUAL)
	65.00	66.50	SS-18	100										A-6b (VISUAL)
	70.00	71.50	SS-19	67	74	7	7		12					A-1a (0)
	75.00	76.50	SS-20	67										BEDROCK
B-203-0-05	00.00	01.50	SS-1	22										A-1a (VISUAL)
Sta. 39+19, 54' R	02.50	04.00	SS-2	72	86	6	4		4				22	A-1b (0)
	05.00	06.50	SS-3	50									32	A-6b (VISUAL)
	07.50	09.00	SS-4	100									22	A-6b (VISUAL)
	10.00	11.00	SS-5A	92									21	A-6b (VISUAL)
	11.00	12.00	SS-5B										19	A-6a (9)
	12.00	13.50	SS-6	100								13	18	A-6a (9)
	15.00	16.50	SS-7	100								10	21	A-4b (8)
	17.50	18.50	SS-8A	100									19	A-4b (8)
	18.50	20.00	SS-8B	100									22	A-4b (5)
	20.00	21.50	SS-9	100	0	0	42	40	18				24	A-4b (5)
	25.00	26.50	SS-10	100	0	0	25	52	23	28		8	22	A-4b (8)
	30.00	31.50	SS-11	100	0	0	11	60	29	34		13	24	A-6a (9)
	35.00	36.50	SS-12	100									24	A-6a (9)
	40.00	40.50	SS-13A	50										A-6b (VISUAL)
	40.50	41.50	SS-13B											A-6a (VISUAL)
	45.00	46.50	SS-14	67	48	38	7		7					A-1b (0)
	50.00	51.50	SS-15	28										A-1b (VISUAL)
	55.00	56.50	SS-16	33										A-3a (VISUAL)
	60.00	61.50	SS-17	72	10	60	24		6					A-1b (0)
	65.00	66.50	SS-18	72	2	9	47		42					A-4a
	70.00	71.50	SS-19	33	13	30	43		27					A-2-4
	75.00	76.50	SS-20	67										A-3 (VISUAL)
	80.00	81.50	SS-21	67										A-3 (VISUAL)
	85.00	86.50	SS-22	67										A-3 (VISUAL)
	90.00	91.50	SS-23	72	1	17	75		7					A-3a (0)
	95.00	96.50	SS-24	67										A-3a (VISUAL)
	100.00	101.50	SS-25	44										A-1b (VISUAL)
B-204-0-05	00.00	01.50	SS-1	100	44	20	16		20				23	A-1b
Sta. 60+42, 39' R	02.50	04.00	SS-2	100									23	A-1b (VISUAL)
	05.00	06.50	SS-3	100	41	13	21		25					A-1b
	07.50	09.00	SS-4	100									23	A-6b (VISUAL)
	10.00	12.00	SS-5	67									24	A-7-6 (16)
	12.00	13.50	SS-6	100	0	1	4	42	53	51		25	24	A-7-6 (16)
	15.00	16.50	SS-7	100									24	A-7-6 (16)
	17.50	19.00	SS-8	100									21	A-6b (11)
	20.00	21.50	SS-9	100						37		17	24	A-6b (11)
	25.00	27.00	SS-10	83										A-6b (10)
	27.00	28.50	SS-11	100	0	0	12	52	36	32		16	26	A-6b (10)
	30.00	31.50	SS-12	100									24	A-6b (10)
	35.00	36.50	SS-13	100	0	2	7	56	35	35		16	24	A-6b (10)
	40.00	41.50	SS-14	100									26	A-6b (10)
	45.00	46.50	SS-15	100	71	4	10		15	24		6		A-1a (0)
	50.00	51.50	SS-16	100	52	32	8		8					A-3a (0)
	55.00	56.50	SS-17	100	1	11	76		12					A-3a (0)
	60.00	61.50	SS-18	100	1	20	66		13				29	A-3a (0)
	65.00	66.50	SS-19	100	24	51	16		9					A-1b (0)
	70.00	71.50	SS-20	100	4	20	64	6	6					A-3a (0)
	75.00	76.50	SS-21	100	68	12	14		6					A-1a (0)
	80.00	81.50	SS-22	100	70	10	18		2					A-1a (0)
	85.00	86.50	SS-23	100	22	37	39		1					A-1b (0)
	90.00	91.50	SS-24	100	2	62	22		13					A-3a (0)

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-205-0-05	00.00	01.50	SS-1	67										A-2-6 (VISUAL)
Sta. 58+9.5, 10' R	02.50	04.00	SS-2	67										A-2-6 (VISUAL)
	07.50	09.00	SS-3	33										A-3a (VISUAL)
	10.00	11.50	SS-4	67									24	A-2-6 (VISUAL)
	12.50	14.00	SS-5	100						47		22	29	A-7-6 (14)
	15.00	16.50	SS-6	72									34	A-7-6 (VISUAL)
	17.50	19.50	SS-7	58										A-6b (VISUAL)
	19.50	21.00	SS-8	100									23	A-6b (VISUAL)
	25.00	26.50	SS-9	100									25	A-6a (8)
	30.00	31.50	SS-10	100									24	A-6a (8)
	35.00	36.50	SS-11	100						28		11	24	A-6a (8)
	40.00	42.00	SS-12	50										A-6a (VISUAL)
	42.00	43.50	SS-13	100	53	12	17	12	6				15	A-1b (0)
	45.00	46.50	SS-14	100						24		7	23	A-2-4 (0)
	50.00	51.50	SS-15	100										A-2-4 (VISUAL)
	55.00	56.50	SS-16	100	37	34	15		14					A-1b (0)
	60.00	61.50	SS-17	100	2	25	65		10					A-3 (0)
	65.00	66.50	SS-18	100										A-3 (VISUAL)
	70.00	71.50	SS-19	100										A-3 (VISUAL)
	75.00	76.50	SS-20	100	9	7	76		8					A-3 (0)
	80.00	81.50	SS-21	100										A-3 (VISUAL)
	85.00	86.50	SS-22	100	12	32	47		8					A-3 (0)
	90.00	91.50	SS-23	100										A-1a (VISUAL)
	95.00	96.50	SS-24	100	61	12	14		13					A-1a (0)
	100.00	101.50	SS-25	33										A-1a (VISUAL)
B-206-0-05	00.30	01.50	SS-1	50										
Sta. 56+54.5, 25.5'L	02.50	04.00	SS-2	50	16	2	17		65				25	A-6b (VISUAL)
	05.00	06.50	SS-3	56	1	8	57		34	32		10	23	A-2-6 (0)
	07.50	09.00	SS-4	72	0	1	20	46	33				23	A-4b (VISUAL)
	10.00	12.00	SS-5	92										A-4b (VISUAL)
	12.00	13.50	SS-6							33		10		A-4b (8)
	15.00	17.00	SS-7	71										A-6a (VISUAL)
	17.00	18.50	SS-8	67						36		13	23	A-6a (9)
	20.00	22.00	SS-9	92										A-6b (VISUAL)
	22.00	23.50	SS-10	72									21	A-6b (VISUAL)
	25.00	27.00	SS-11	96										A-6b (VISUAL)
	27.00	28.50	SS-12	100						23		4	22	A-4b
	30.00	32.00	SS-13	92										A-4b (VISUAL)
	32.00	33.50	SS-14	72										A-3a (VISUAL)
	35.00	35.90	SS-15A	100	18	52	20		10					A-3a (VISUAL)
	35.90	36.50	SS-15B	100										A-4b (VISUAL)
	40.00	41.50	SS-16	72	0	1	9	61	29	33		11		A-6a (8)
	45.00	46.50	SS-17	83										A-1b (VISUAL)
	50.00	51.50	SS-18	100	2	87	8		3					A-1b (0)
	55.00	56.50	SS-19	67	2	38	52		8					A-3 (0)
	60.00	61.50	SS-20	100										A-3 (VISUAL)
	65.00	66.50	SS-21	100										A-3 (VISUAL)
	70.00	71.50	SS-22	72										A-3 (VISUAL)
	75.00	76.50	SS-23	72	0	10	83		7					A-3 (VISUAL)
	80.00	81.50	SS-24	33	70	11	11	6	2				10	A-1a (0)
	85.00	86.50	SS-25	17										A-1a (VISUAL)
	90.00	91.50	SS-26	22										A-1a (VISUAL)
	95.00	96.00	SS-27	22										

EXPLORATION NO., STATION & OFFSET
B-207-0-05
Sta. 96+4.5, 8' R
B-208-0-05
Sta. 47+78, 48' L
B-209-0-05
Sta. 81+56, 3' R

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
00.00	01.50	SS-1	100										A-2-6 (VISUAL)
02.50	04.00	SS-2	100										A-6a (VISUAL)
05.00	06.50	SS-3	100										A-6a (VISUAL)
07.50	09.00	SS-4	100										A-6a (VISUAL)
10.00	11.50	SS-5	100										A-6a (VISUAL)
12.50	14.00	SS-6	100										A-6a (VISUAL)
15.00	16.50	SS-7	100	53	12	17	12	6				15	A-6a (VISUAL)
17.50	19.00	SS-8	100										A-4b (VISUAL)
20.00	21.50	SS-9	100										A-4b (VISUAL)
25.00	26.50	SS-10	100										A-4b (VISUAL)
30.00	31.50	SS-11	100	53	12	17	12	6				15	A-4b (VISUAL)
35.00	36.50	SS-12	100										A-4b (VISUAL)
40.00	42.00	SS-13	100										A-4b (VISUAL)
45.00	46.50	SS-14	100										A-3a (VISUAL)
50.00	51.50	SS-15	100										A-3 (VISUAL)
55.00	56.50	SS-16	100										A-1b (VISUAL)
60.00	61.50	SS-17	100										A-3a (VISUAL)
65.00	66.50	SS-18	100										A-3a (VISUAL)
70.00	71.50	SS-19	100										A-3a (VISUAL)
75.00	76.50	SS-20	33										A-1b (VISUAL)
80.00	81.50	SS-21	100										A-1b (VISUAL)
82.50	83.00	SS-22	33										BEDROCK
00.80	02.30	SS-1	22										A-2-6 (VISUAL)
02.50	04.00	SS-2	17										A-2-6 (VISUAL)
05.00	06.50	SS-3	33										A-6b (VISUAL)
07.50	09.00	SS-4	100	0	0	21	57	22	27		10	19	A-4b (8)
10.00	11.50	SS-5	72						26		8	21	A-4b (8)
12.50	14.00	SS-6	72	0	0	53	35	12	NP		NP	19	A-4b (2)
15.00	16.50	SS-7	72										A-4b (VISUAL)
17.50	19.00	SS-8	100	0	0	13	63	24	30		10	24	A-4b (8)
20.00	21.50	SS-9	100										A-4b (VISUAL)
25.00	26.50	SS-10	100										A-4b (VISUAL)
30.00	31.50	SS-11	100	0	1	17	62	20	28		6	26	A-4b (8)
35.00	36.50	SS-12	100	2	14	65		19					A-3a
40.00	41.50	SS-13	100										A-3a (VISUAL)
45.00	46.50	SS-14	100	18	28	45		9					A-3 (0)
50.00	51.50	SS-15	100										A-3 (VISUAL)
55.00	56.50	SS-16	78	21	4	54		21					A-3a
60.00	61.50	SS-17	72										A-3a (VISUAL)
65.00	66.50	SS-18	5										BEDROCK
00.00	01.50	SS-1	72										A-1b (VISUAL)
02.50	04.00	SS-2	11										A-2-6 (VISUAL)
07.50	09.00	SS-3	33										A-2-6 (VISUAL)
10.00	11.50	SS-4	100						43		20	26	A-7-6 (13)
13.00	15.00	SS-5	62										A-7-6 (VISUAL)
15.00	16.50	SS-6	72						52		21	24	A-7-6 (15)
17.50	19.00	SS-7	87									23	A-6b (VISUAL)
20.00	22.00	SS-8	100										A-6b (VISUAL)
22.00	23.50	SS-9	100									21	A-6b (VISUAL)
25.00	26.50	SS-10	100						39		14	23	A-6a (10)
30.00	31.50	SS-11	100									24	A-6b (VISUAL)
35.00	36.50	SS-12	100									20	A-6b (VISUAL)
40.00	41.50	SS-13	72									23	A-6b (VISUAL)
45.00	46.50	SS-14	61	46	11	19		24	25		7	11	A-2-4 (4)
50.00	51.50	SS-15	50	32	25	32		10					A-1b (0)
55.00	56.50	SS-16	72	1	22	71		7					A-3 (0)
60.00	61.50	SS-17	67										A-3 (VISUAL)
65.00	66.50	SS-18	78										A-3 (VISUAL)
70.00	71.50	SS-19	72										A-3 (VISUAL)
75.00	76.50	SS-20	78	11	14	67		8					A-3 (0)
80.00	81.50	SS-21	50										A-2-4 (VISUAL)

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-210-0-05	00.10	01.50	SS-1	100									17	A-1b (VISUAL)
Sta. 79+75, 24' L	02.50	04.00	SS-2	11									14	A-3a (VISUAL)
	05.00	06.50	SS-3	100									21	A-2-6 (VISUAL)
	07.50	09.00	SS-4	100						33		14	23	A-6a (10)
	10.00	12.00	SS-5	96									21	A-6a (VISUAL)
	12.00	13.50	SS-6	100						35		14	22	A-6a (10)
	15.00	16.50	SS-7	100									22	A-6a (VISUAL)
	17.50	19.00	SS-8	100						29		10	22	A-4b (8)
	20.00	22.00	SS-9	100									24	A-6b (VISUAL)
	22.00	23.50	SS-10	100									26	A-6b (VISUAL)
	25.00	26.50	SS-11	100	1	1	29	55	15	23		4	26	A-4b (7)
	30.00	31.50	SS-12	100									27	A-6b (VISUAL)
	35.00	36.50	SS-13	100									25	A-6b (VISUAL)
	40.00	41.50	SS-14	100	32	33	16		19					A-1b
	45.00	46.00	SS-15A	100	0	2	3	66	28	32		10	31	A-1a (0)
	46.00	46.50	SS-15B	100	7	15	58		18					A-3a
	50.00	51.50	SS-16	100										A-3a (VISUAL)
	55.00	56.50	SS-17	100										A-3a (VISUAL)
	60.00	61.50	SS-18	100					19					A-3a (VISUAL)
	65.00	66.50	SS-19	100	0	0	90		10					A-3 (0)
	70.00	71.50	SS-20	100										A-3a (VISUAL)
	75.00	76.50	SS-21	100		0	93		7					A-3 (0)
	80.00	81.50	SS-22	100										A-3a (VISUAL)
	85.00	86.50	SS-23	17										A-3a (VISUAL)
	90.00	91.50	SS-24	11										A-1b (VISUAL)
B-211-0-05	00.50	01.50	SS-1	39										A-3a (VISUAL)
Sta. 97+2.5, 15' L	02.50	04.00	SS-2	11										A-3a (VISUAL)
	05.00	06.50	SS-3	6										A-6b (VISUAL)
	07.50	09.00	SS-4	100										A-6a (VISUAL)
	10.00	11.50	SS-5	100										A-4b (VISUAL)
	11.50	13.50	SS-6	83	0	1	33	53	13	NP		NP		A-4b (1)
	14.00	15.50	SS-7	100										A-4b (VISUAL)
	17.50	19.00	SS-8	100										A-4b (VISUAL)
	20.00	21.50	SS-9	100										A-6a (VISUAL)
	25.00	26.50	SS-10	100										A-6a (VISUAL)
	30.00	31.50	SS-11	100										A-6a (VISUAL)
	35.00	36.50	SS-12	100										A-6a (VISUAL)
	40.00	41.50	SS-13	100										A-4a (VISUAL)
	45.00	46.50	SS-14	100										A-7-6 (VISUAL)
	50.00	51.50	SS-15	100										A-3a (VISUAL)
	55.00	56.50	SS-16	67										A-3a (VISUAL)
	60.00	61.50	SS-17	72										A-3a (VISUAL)
	65.00	66.50	SS-18	78										A-3 (VISUAL)
	70.00	71.50	SS-19	100										A-1a (VISUAL)
	75.00	76.50	SS-20	100										A-3 (VISUAL)
	80.00	81.50	SS-21	100										A-1a (VISUAL)

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-212-0-05	01.00	02.50	SS-1	100									17	A-4b (VISUAL)
Sta. 106+7, 43' R	02.50	04.00	SS-2	100	6	7	25	40	22	30		8	17	A-4b (5)
	05.00	06.50	SS-3	100									20	A-4b (8)
	07.50	09.00	SS-4	100	14	2	4	40	40	42		14	20	A-7-6 (10)
	10.00	11.50	SS-5	100						49		25	21	A-7-6 (16)
	12.50	14.00	SS-6	100						27		8	17	A-4b (8)
	15.00	16.50	SS-7	100	0	0	32	46	22				17	A-4b (7)
	17.50	19.00	SS-8	100	0	0	30	51	19	24		3	20	A-4b (7)
	20.00	22.00	SS-9	100										A-4b (7)
	22.00	23.50	SS-10	100									23	A-4b (7)
	25.00	26.50	SS-11	100	0	0	23	58	19	27		6	24	A-4b (8)
	30.00	31.50	SS-12	100									26	A-4b (8)
	35.00	36.50	SS-13	100									29	A-4b (8)
	40.00	41.50	SS-14	100									27	A-4b (8)
	45.00	46.50	SS-15	100									17	A-4b (VISUAL)
	50.00	51.50	SS-16	100	0	0	24	66	10	NP		NP	25	A-4b (8)
	55.00	56.50	SS-17	100	48	24	9		19					A-1b
	60.00	61.50	SS-18	100	0	0	86		14					A-1a (0)
	65.00	66.50	SS-19	100										A-1a (0)
	70.00	71.50	SS-20	100	60	12	14	9	5				14	A-3a (0)
	75.00	76.50	SS-21	100	0	1	86		13					A-3
	80.00	81.50	SS-22	61										A-7-6 (VISUAL)
	81.50	83.00	SS-23	11										A-7-6 (VISUAL)
B-213-0-05	00.00	01.50	SS-1	67	18	9	31		42	43		22	19	A-7-5 (5)
Sta. 105+3, 2' R	02.50	04.00	SS-2	100									18	A-7-5 (VISUAL)
	05.00	06.50	SS-3	100						25		9	25	A-4b (8)
	07.50	09.00	SS-4	100									20	A-4b (VISUAL)
	10.00	11.50	SS-5	100									25	A-6b (VISUAL)
	12.50	14.00	SS-6	100	0	1	2	37	60	52		29	22	A-7-6 (18)
	15.00	16.50	SS-7	100									23	A-7-6 (VISUAL)
	17.50	19.00	SS-8	100	0	0	34	46	20	22		4	19	A-4b (6)
	20.00	21.50	SS-9	100									21	A-4b (VISUAL)
	25.00	27.00	SS-10	100										A-4b (VISUAL)
	27.00	28.50	SS-11	100	0	1	15	73	11	24		6		A-4b (8)
	30.00	31.50	SS-12	44									7	A-4b (VISUAL)
	35.00	36.50	SS-13	100	1	1	34	39	25	30		13	21	A-6a (7)
	40.00	41.50	SS-14	100	35	28	15	17	6					A-1b (0)
	45.00	46.50	SS-15	100	23	51	11		15					A-1b (0)
	50.00	51.50	SS-16	100	44	32	6	15						A-1b (0)
	55.00	56.50	SS-17	100	7	19	24	34	16					A-4b
	60.00	61.50	SS-18	100										A-6b (VISUAL)
	65.00	66.50	SS-19	100	28	24	28		20				9	A-1b
	70.00	71.50	SS-20	5				LIMESTONE COBBLES						
	75.00	76.50	SS-21	100	0	1	91		9				20	A-3 (0)
B-214-0-07	00.20	01.50	SS-1	78									16	A-2-6 (VISUAL)
Sta. 75+37, 18' R	02.50	04.00	SS-2	100									21	A-6b (VISUAL)
	05.00	07.00	SS-3	92										A-6b (VISUAL)
	07.00	08.50	SS-4	100									23	A-6b (VISUAL)
	10.00	12.00	SS-5	46	1	10	19	42	28	30		13	15	A-6a (8)
	12.00	13.50	SS-6	72									16	A-6a (VISUAL)
	15.00	16.50	SS-7	11									12	A-6a (VISUAL)
	17.50	19.00	SS-8	67									14	A-6b (VISUAL)
	20.00	22.00	SS-9	23	0	2	7	38	53	36		18	14	A-6b (11)
	22.00	23.50	SS-10	55									12	A-6b (VISUAL)
	25.00	26.50	SS-11	72	40	11	40		9	24		9	12	A-2-4 (0)
	26.50	28.50	SS-12	27	4	3	28		65	21		4	14	A-4b (6)
	30.00	30.80	SS-13A	78	35	8	26		31				7	A-1b (0)
	30.80	31.50	SS-13B	78	0	0	1	47	52	35		16	27	A-6b (10)
	35.00	36.50	SS-14	67	60	17	8		15				3	A-1a (0)
	40.00	41.50	SS-15	72	35	9	5		51	25		10	14	A-6a (3)
	45.00	46.50	SS-16	100									13	A-6b (VISUAL)
	50.00	51.50	SS-17	67	49	2	3		46	34		21	10	A-6b (6)
	55.00	56.50	SS-18	67	0	1	12	79	8	23		3	26	A-4b (8)
	60.00	61.50	SS-19	22									10	BEDROCK

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SUMMARY OF SOIL TEST DATA

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-215-0-07														
Sta. 45+19.9, 55' L	01.50	03.00	SS-1	100									18	A-2-6 (VISUAL)
	05.00	06.50	SS-2	100						45		21	29	A-7-6 (0)
	07.50	09.00	SS-3	100									26	A-7-6 (VISUAL)
	10.00	11.50	SS-4	100	0	2	1	27	70	57		34	23	A-7-6 (19)
	12.50	14.00	SS-5	100						50		27	22	A-7-6
	15.00	16.50	SS-6	100	0	0	3	39	58	48		25	23	A-7-6 (18)
	17.50	19.00	SS-7	100									15	A-6b (VISUAL)
	20.00	21.50	SS-8	100									18	A-6b (VISUAL)
	25.00	26.50	SS-9	72						34		16	21	A-6b (0)
	30.00	31.50	SS-10	100									15	A-6b (VISUAL)
	35.00	36.00	SS-11	67	13	7	4	30	46	37		21	13	A-6b (12)
	36.00	37.50	SS-12	100						37		18	16	A-6b
	40.00	41.50	SS-13	100									14	A-6b (VISUAL)
	45.00	46.50	SS-14	100	8	16	8	43	25	32		14	20	A-6a (8)
	50.00	51.50	SS-15	100									13	A-6b (VISUAL)
	55.00	56.50	SS-16	100									16	A-6b (VISUAL)
	60.00	61.50	SS-17	33	49	8	22	14	7				4	A-1b (0)
	65.00	66.50	SS-18	0										BEDROCK
B-216-0-07														
Sta. 48+28.6, 111' L	00.00	01.50	SS-1	67									8	A-7-6 (VISUAL)
	02.50	04.00	SS-2	100	40	4	9	47		41		20	6	A-7-6 (6)
	05.00	06.50	SS-3	100	10	14	18	58		30		11	18	A-6a (5)
	07.50	09.00	SS-4	100									17	A-7-6 (VISUAL)
	10.00	11.50	SS-5	100	38	2	1	23	36	49		27	21	A-7-6 (13)
	12.50	14.00	SS-6	100									14	A-7-6 (VISUAL)
	15.00	16.50	SS-7	22									14	A-7-6 (VISUAL)
	17.50	19.00	SS-8	100									16	A-6a (VISUAL)
	20.00	21.50	SS-9	100	6	6	4	34	50	33		15	15	A-6a (10)
	25.00	26.50	SS-10	100									15	A-6a (VISUAL)
	30.00	31.50	SS-11	44									16	A-6a (VISUAL)
	35.00	36.50	SS-12	100	34	9	5	28	24	31		14	15	A-6a (5)
	40.00	41.50	SS-13	100										A-6a (VISUAL)
	45.00	46.50	SS-14	100	48	8	10	17	17	29		14	18	A-2-6 (1)
	50.00	51.50	SS-15	100									18	A-6b (VISUAL)
	55.00	56.50	SS-16	100									12	BEDROCK
B-217-0-07	01.00	01.50	SS-1	55									2	A-8a (VISUAL)
Sta. 102+51.5, 55' L	01.50	03.00	SS-2	67									1	A-7-6 (VISUAL)
	05.00	06.50	SS-3	83									16	A-7-6 (VISUAL)
	07.50	09.00	SS-4	50	7	3	1	90		42		21	16	A-7-6 (13)
	10.00	11.50	SS-5	50									13	A-7-6 (VISUAL)
	12.50	14.00	SS-6	17									15	A-7-6 (VISUAL)
	15.00	16.50	SS-7	44									16	A-7-6 (VISUAL)
	17.50	19.00	SS-8	22	50	15	19	16		23		8	15	A-2-4 (0)
	20.00	21.50	SS-9	50									14	A-6b (VISUAL)
	25.00	26.50	SS-10	67	1	0	2	48	49	35		17	19	A-6b (11)
	30.00	32.00	SS-11	00										A-6a (VISUAL)
	32.50	34.00	SS-12	55	35	5	2	58		29		12	16	A-6a (5)
	35.00	36.50	SS-13	72									7	A-6a (VISUAL)
	40.00	41.50	SS-14	50									8	A-6a (VISUAL)
	45.00	46.50	SS-15	72						35		17	15	A-6b (0)
	50.00	51.50	SS-16	72									14	A-6b (VISUAL)
	55.00	56.50	SS-17	72									14	A-6b (VISUAL)
	60.00	61.50	SS-18	67	51	6	18	15		24		9	13	A-2-4 (0)
	65.00	66.50	SS-19	78									1	A-6b (VISUAL)
	70.00	71.50	SS-20	78									6	BEDROCK

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-219-0-07														
Sta. 07+00, 58' L	00.30	01.50	SS-1	78										A-7-6 (VISUAL)
	02.50	04.00	SS-2	100	50	25	59		6				8	A-1a (0)
	05.00	06.50	SS-3		70	12	9		9				10	A-1a (0)
	07.50	08.50	SS-4A	100	44	32	24		0				38	A-1a (0)
	08.50	09.00	SS-4B	100									22	A-6b (VISUAL)
	10.00	12.00	SS-5	46									21	A-6b (VISUAL)
	12.00	13.50	SS-6	72	0	1	27	55	17	23		7	27	A-4b (8)
	15.00	17.00	SS-7	8									27	A-4b (VISUAL)
	17.00	18.50	SS-8	67									28	A-4b (VISUAL)
	20.00	21.50	SS-9		0	0	16	61	23	29		12	27	A-6b (8)
	23.00	25.00	SS-10	100									29	A-6a (VISUAL)
	25.00	26.50	SS-11	100	45	0	9	33	13	30		11	25	A-6a (3)
	28.00	30.00	SS-12	100									29	A-6a (VISUAL)
	30.00	31.50	SS-13	100	0	1	19	58	22	28		11	27	A-6a (8)
	35.00	36.50	SS-14	100									29	A-6a (VISUAL)
	40.00	41.50	SS-15	100	2	39	52		7				21	A-3 (0)
	45.00	46.50	SS-16	100									23	A-1b (VISUAL)
	50.00	51.50	SS-17	100	0	1	41		58	24		5	28	A-4b (5)
	55.00	56.50	SS-18	100	36	31	13		20	21		3	15	A-1b (0)
	60.00	61.50	SS-19	100	1	37	39		23				19	A-3a (0)
	65.00	66.50	SS-20	100	0	7	88		5				23	A-3 (0)
	70.00	71.50	SS-21	100										A-3a (VISUAL)
	75.00	76.50	SS-22	100	0	20	68		12				16	A-3a (0)
	80.00	80.50	SS-23	17										BEDROCK
B-303-0-05														
Sta. 37+70, 49' R	00.00	01.50	SS-1	50									26	A-6b (VISUAL)
	02.50	04.00	SS-2	56	11	4	4	35	46	45		21	24	A-7-6 (12)
	05.00	06.50	SS-3	67	52	19	10	10	8				18	A-2-6
	07.50	08.00	SS-4A	67									21	A-6a (VISUAL)
	08.00	09.00	SS-4B	67						36		15	23	A-6a (10)
	10.00	11.50	SS-5	100									21	A-6b (VISUAL)
B-304-0-05														
Sta. 35+35, 57' L	01.00	02.50	SS-1	100									10	A-2-6 (VISUAL)
	02.50	04.00	SS-2	67	66	15	6		13					A-2-6 (6)
	05.00	06.50	SS-3	100									14	A-3a (VISUAL)
	07.50	09.00	SS-4	100						36		14	23	A-6a (10)
	10.00	11.50	SS-5	100										A-6b (VISUAL)
B-305-0-05														
Sta. 35+11, 131' L	01.00	02.50	SS-1	100									21	A-4a (VISUAL)
	02.50	04.00	SS-2	100	66	15	6		54				13	A-4a
	05.00	06.50	SS-3	100						22		5	13	A-4a
	07.50	09.00	SS-4	100						36		15	37	A-2-6
	10.00	11.50	SS-5	100									25	A-6b (VISUAL)
B-306-0-05														
Sta. 34+31, 11' R	00.50	01.50	SS-1	61	44	13	16		26	30		10	11	A-2-4 (0)
	02.50	04.00	SS-2	50									23	A-2-4 (VISUAL)
	05.00	06.50	SS-3	67	0	0	2	39	59	49		14	24	A-7-5 (11)
	07.50	09.00	SS-4	100									20	A-6b (VISUAL)
	10.00	11.50	SS-5	100						39		16	19	A-6b (10)
B-307-0-05														
Sta. 32+65, 2' L	00.20	00.60	SS-1A	57										
	00.60	01.50	SS-1B	57	42	15	11		30				13	A-2-6
	02.50	04.00	SS-2	88	15	8	8	37	31	41		7	32	A-5 (7)
	05.00	06.50	SS-3	72									27	A-6b (VISUAL)
	07.50	08.00	SS-4	100	0	0	2	43	55	41		15	22	A-7-6 (10)
	10.00	11.50	SS-5	100									20	A-7-6 (VISUAL)
B-308-0-05														
Sta. 30+39, 57' L	01.00	02.50	SS-1	44										A-3a (VISUAL)
	02.50	04.00	SS-2	56										A-3a (VISUAL)
	05.00	06.50	SS-3	67										A-3a (VISUAL)
	07.50	09.00	SS-4	11										A-3a (VISUAL)
	10.00	11.50	SS-5	94										A-6b (VISUAL)

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CHECKED ATS

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

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SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., NORTHING, EASTING	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-309-0-05														
Sta. 24+69, 44' L	01.10	02.50	SS-1	11										A-2-6 (VISUAL)
	02.50	04.00	SS-2	89										A-6a (VISUAL)
	05.00	06.50	SS-3	17										A-6a (VISUAL)
	07.50	09.00	SS-4	0										A-6a (VISUAL)
	10.00	11.50	SS-5	61										A-7-6 (VISUAL)
B-310-0-05														
Sta. 69+52, CL	01.00	02.50	SS-1	50										A-6a (VISUAL)
	02.50	04.50	SS-2	100										A-7-6 (VISUAL)
	05.00	06.50	SS-3	100										A-7-6 (VISUAL)
	07.50	09.00	SS-5	100										A-7-6 (VISUAL)
	07.50	09.00	SS-6	100										A-7-6 (VISUAL)
B-311-0-05														
Sta. 43+50, 8' R	02.50	04.00	SS-1	50										A-6b (VISUAL)
	05.00	06.50	SS-2	100										A-6b (VISUAL)
	07.50	09.00	SS-3	100										A-6b (VISUAL)
	10.00	11.50	SS-4	100										A-6b (VISUAL)

SUMMARY OF SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)

DRAWN KPR CHECKED ATS

SOIL PROFILE

SUMMARY OF SOIL TEST DATA

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SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-SG1-0-99	01.50	02.00	SS-1A		48	22	14	2	14	NP		NP	11	A-1-b (0)
Sta. 11+75.0, 9.7' LT	02.00	03.00	SS-1B		2	2	2	19	75	44		21	21	A-7-6 (13)
	03.00	04.50	SS-2										21	A-7-6 (VISUAL)
	05.50	07.00	SS-3											A-6b (VISUAL)
B-SG2-0-99	00.00	01.00	SS-1A		16	22	23	11	28	29		5	19	A-4a (1)
Sta. 15+60.8, 37.2' LT	01.00	02.00	SS-1B											A-2-7 (VISUAL)
	02.00	03.50	SS-2		2	4	6	23	65	36		14	25	A-6a (10)
	03.50	05.00	SS-3										25	A-6a (VISUAL)
B-SG3-0-99	00.50	01.50	SS-1A		61	18	13	2	6	NP		NP	10	A-1a (0)
Sta. 19+45.8, 36.2' LT	01.50	02.00	SS-1B											A-2-7 (VISUAL)
	02.00	03.50	SS-2		6	8	15	24	47	27		8	22	A-4a (7)
	03.50	05.00	SS-3											A-6a (VISUAL)
B-EB12-0-99	00.00	02.00	SS-1											A-1b (VISUAL)
Sta. 21+5.7, 29.4' LT	02.50	04.00	SS-2											A-1b (VISUAL)
	08.00	09.50	SS-3										25	A-6a (VISUAL)
	10.00	11.50	SS-4											A-6a (VISUAL)
	12.50	14.00	SS-5										26	A-7-6 (VISUAL)
	15.00	16.50	SS-6											A-7-6 (VISUAL)
	17.50	19.00	SS-7											A-7-6 (VISUAL)
	20.00	21.50	SS-8		0	1	5	36	58	49		26	25	A-7-6 (15)
	25.00	26.50	SS-9											A-7-6 (VISUAL)
	30.00	31.50	SS-10										23	A-6a (VISUAL)
	35.00	36.50	SS-11										24	A-4a (VISUAL)
	40.00	41.50	SS-12											A-4b (VISUAL)
	45.00	46.50	SS-13											A-4b (VISUAL)
	50.00	51.50	SS-14		1	4	2	29	28					A-3a (0)
	55.00	56.50	SS-15											A-3a (VISUAL)
	60.00	61.50	SS-16											A-3a (VISUAL)
	65.00	66.50	SS-17		3	12	60	16	15	9				A-3a (0)
	70.00	71.50	SS-18											A-3a (VISUAL)
	75.00	76.50	SS-19											A-3a (VISUAL)
B-WA18-0-99	01.00	01.50	SS-1											A-2-6 (VISUAL)
Sta. 23+80.7, 36.5' RT	02.50	04.00	SS-2										14	A-4a (VISUAL)
	05.00	06.50	SS-3										90	A-6a (VISUAL)
	07.50	09.00	SS-4										39	A-6a (VISUAL)
	10.00	11.50	SS-5											A-6b (VISUAL)
	12.50	14.00	ST-6		0	1	5	47	47	39		19	24	A-6b (VISUAL)
	15.00	16.50	SS-7										22	A-6b (VISUAL)
	17.50	19.00	SS-8											A-4a (VISUAL)
	20.00	21.50	SS-9										23	A-4a (VISUAL)
	25.00	26.50	SS-10											A-6a (VISUAL)
	30.00	31.50	SS-11		0	0	5	59	36	34		15	29	A-6a (8)
	35.00	36.50	ST-12											A-6a (VISUAL)
	35.00	36.50	SS-13											A-6a (VISUAL)
	40.00	41.50	SS-14											A-1-b (VISUAL)
	45.00	46.50	SS-15											A-1-b (VISUAL)
	50.00	51.50	SS-16		0	1	34	12	3					A-3a (0)
	55.00	56.50	SS-17											A-3a (VISUAL)
	60.00	61.50	SS-18											A-3a (VISUAL)
	65.00	66.50	SS-19											A-1b (VISUAL)
	70.00	71.50	SS-20											A-1b (VISUAL)
B-SG4-0-99	00.00	02.00	SS-1										23	A-2-7 (VISUAL)
Sta. 25+9.5, 8.7' LT	02.00	03.50	SS-2		5	10	23	26	36	22		5	14	A-4a (5)
	03.50	04.50	SS-3A											A-4a (VISUAL)
	04.50	05.00	SS-3B		6	5	3	24	62	37		18	21	A-6b (11)

SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-EW2-0-99	00.00	01.50	SS-1											A-1b (VISUAL)
Sta. 26+16.7, 35.7' RT	02.50	04.00	SS-2											A-4a (VISUAL)
	05.00	06.50	SS-3										28	A-6a (VISUAL)
	07.50	09.00	SS-4											A-6a (VISUAL)
	10.00	11.50	SS-5										26	A-6a (VISUAL)
	12.50	14.00	SS-6											A-6a (VISUAL)
	15.00	16.50	SS-7										22	A-6b (VISUAL)
	17.50	19.00	SS-8											A-6a (VISUAL)
	20.00	21.50	SS-9										24	A-6a (VISUAL)
	25.00	26.50	SS-10											A-6a (VISUAL)
	30.00	31.50	SS-11										28	A-6a (VISUAL)
	35.00	36.50	SS-12										29	A-6a (VISUAL)
	40.50	41.50	SS-13											A-6a (VISUAL)
	45.00	46.50	SS-14		56	25	8		11					A-1a (0)
	50.00	51.50	SS-15											A-1a (VISUAL)
	55.00	56.50	SS-16											A-3a (VISUAL)
	60.00	61.50	SS-17											A-1a (VISUAL)
	65.00	66.50	SS-18		65	9	17		9					A-1a (0)
	70.00	71.50	SS-19											A-1b (VISUAL)
B-SG5-99	00.00	02.00	SS-1		18	19	16	15	32	24		7	14	A-4a (2)
Sta. 30+17, 0.7' RT	02.00	03.50	SS-2		41	18	13	12	16	25		4	14	A-2-4 (0)
	03.50	05.00	SS-3										8	A-2-4(VISUAL)
	05.00	06.50	SS-4											A-2-4(VISUAL)
	06.50	08.00	SS-5											A-2-4(VISUAL)
B-SG6-0-99	00.00	00.50	SS-1A											A-3a (VISUAL)
Sta. 34+59, 7.8' RT	00.50	02.00	SS-1B		26	13	12	18	31	27		9	14	A-4a (3)
	02.00	03.50	SS-2		61	7	7	9	16	NP		NP	12	A-1b (0)
	03.50	05.00	SS-3										32	A-2-7 (VISUAL)
	05.00	06.50	SS-4										32	A-6a (VISUAL)
B-SG7-0-99	01.00	02.50	SS-1		13	11	6	23	47	34		14	20	A-6a (9)
Sta. 38+50.6, 17.3' RT	03.00	04.50	SS-2		15	16	18	24	27	31		6	25	A-4a (3)
	04.50	06.00	SS-3										21	A-4a (VISUAL)
B-SG8-0-99	00.50	01.00	SS-1A		21	55	12	1	11	NP		NP	13	A-1b (0)
Sta. 51+84.7, 55.5' LT	01.00	02.00	SS-1B											A-6b (VISUAL)
	02.50	04.00	SS-2		2	4	3	22	69	42		22	25	A-7-6 (13)
	04.00	05.50	SS-3										22	A-7-6 (VISUAL)
B-EB9-0-99	01.00	01.50	SS-1											A-6a (VISUAL)
Sta. 52+94.8, 47' LT	02.50	04.00	SS-2										19	A-6a (VISUAL)
	05.00	06.50	SS-3											A-6a (VISUAL)
	07.50	09.00	SS-4										22	A-4a (VISUAL)
	10.00	11.50	SS-5											A-6a (VISUAL)
	12.50	14.00	SS-6		14	7	5	37	37	31		13	19	A-6a (8)
	15.00	16.50	SS-7											A-6b (VISUAL)
	17.50	19.00	SS-8										17	A-6b (VISUAL)
	20.00	21.50	SS-9											A-6b (VISUAL)
	25.00	26.50	SS-10										15	A-6b (VISUAL)
	30.00	31.50	SS-11											A-1b (VISUAL)
	35.00	36.50	SS-12											A-6b (VISUAL)
	40.00	41.50	SS-13											A-6b (VISUAL)
	45.00	46.50	SS-14											A-6b (VISUAL)
	50.00	51.50	SS-15											A-3 (VISUAL)
	55.00	56.50	SS-16											A-3 (VISUAL)
	58.50	102.00	RC											BEDROCK

DRAWN KPR CHECKED ATS

SOIL PROFILE

SUMMARY OF SOIL TEST DATA

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SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-EB10-0-99	01.00	01.50	SS-1											A-6a (VISUAL)
STA. 54+39.9, 31.6' LT	02.50	04.00	SS-2										24	A-6a (VISUAL)
	05.00	06.50	SS-3											A-6a (VISUAL)
	07.50	09.00	SS-4											A-6a (VISUAL)
	10.00	11.50	SS-5										16	A-6a (VISUAL)
	12.50	14.00	SS-6											A-4a (VISUAL)
	15.00	16.50	SS-7		0	0	30	47	23	25		8	20	A-4a (7)
	17.50	19.00	SS-8											A-4a (VISUAL)
	20.00	21.50	SS-9										22	A-4a (VISUAL)
	25.00	26.50	SS-10											A-6a (VISUAL)
	30.00	31.50	SS-11										28	A-6a (VISUAL)
	35.00	36.50	SS-12											A-4a (VISUAL)
	40.00	41.50	SS-13										22	A-4a (VISUAL)
	45.00	46.50	SS-14											A-4a (VISUAL)
	50.00	51.50	SS-15											A-4a (VISUAL)
	55.00	56.50	SS-16		0	24	57	5	4					A-3a (0)
	60.00	61.50	SS-17											A-4a (VISUAL)
	65.00	66.50	SS-18											A-1b (VISUAL)
	70.00	71.50	SS-19											A-1b (VISUAL)
	75.00	76.50	SS-20											A-1b (VISUAL)
B-EB11-0-99	01.00	01.50	SS-1											A-4a (VISUAL)
Sta. 55+86.5, 49.2' LT	02.50	04.00	SS-2										24	A-4a (VISUAL)
	05.00	06.50	SS-3											A-6a (VISUAL)
	07.50	09.00	SS-4		0	0	13	40	47	34		15	21	A-6a (8)
	10.00	11.50	SS-5											A-6a (VISUAL)
	12.50	14.00	SS-6										21	A-4a (VISUAL)
	15.00	16.50	SS-7											A-4a (VISUAL)
	17.50	19.00	SS-8										23	A-6a (VISUAL)
	20.00	21.50	SS-9		0	2	13	46	39	32		14	23	A-6a (8)
	25.00	26.50	SS-10											A-6a (VISUAL)
	30.00	31.50	SS-11										23	A-1b (VISUAL)
	35.00	36.50	SS-12											A-1b (VISUAL)
	40.00	41.50	SS-13										25	A-6a (VISUAL)
	45.00	46.50	SS-14											A-1b (VISUAL)
	50.00	51.50	SS-15											A-3a (VISUAL)
	55.00	56.50	SS-16											A-3a (0)
	60.00	61.50	SS-17		0	15	71	6	8					A-3a (VISUAL)
	65.00	66.50	SS-18											A-3a (VISUAL)
	70.00	71.50	SS-19											A-3a (VISUAL)
	75.00	76.50	SS-20											A-1b (VISUAL)
B-EB12-0-99	01.00	01.50	SS-1											A-1b (VISUAL)
STA. 57+66.3, 52.9' LT	02.50	04.00	SS-2											A-1b (VISUAL)
	05.00	06.50	SS-3										26	A-6a (VISUAL)
	07.50	09.00	SS-4											A-6a (VISUAL)
	10.00	11.50	SS-5										26	A-7-6 (VISUAL)
	12.50	14.00	SS-6											A-7-6 (VISUAL)
	15.00	16.50	SS-7											A-7-6 (VISUAL)
	17.50	19.00	SS-8		0	1	5	36	58	49		25	26	A-7-6 (10)
	20.00	21.50	SS-9											A-7-6 (VISUAL)
	25.00	26.50	SS-10										23	A-6a (VISUAL)
	30.00	31.50	SS-11										24	A-4a (VISUAL)
	35.00	36.50	SS-12											A-4b (VISUAL)
	40.00	41.50	SS-13											A-4b (VISUAL)
	45.00	46.50	SS-14		1	4	2	29	28					A-3a (0)
	50.00	51.50	SS-15											A-3a (VISUAL)
	55.00	56.50	SS-16											A-3a (VISUAL)
	60.00	61.50	SS-17		3	12	60	16	16	9				A-3a (0)
	65.00	66.50	SS-18											A-3a (VISUAL)
	70.00	71.50	SS-19											A-3a (VISUAL)

SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-EW2-0-99														
B-EB13-0-99	00.00	01.50	SS-1											A-1b (VISUAL)
Sta. 59+19.3, 34.8' LT	02.50	04.00	SS-2											A-1b (VISUAL)
	05.00	06.50	SS-3										33	A-7-6 (VISUAL)
	07.50	09.00	SS-4										25	A-6b (VISUAL)
	10.00	11.50	SS-5											A-6a (VISUAL)
	12.50	14.00	SS-6										23	A-6a (VISUAL)
	15.00	16.50	SS-7											A-6a (VISUAL)
	17.50	19.00	SS-8		0	0	15	45	40	35		16	21	A-6a (10)
	20.00	21.50	SS-9											A-6a (VISUAL)
	25.00	26.50	SS-10										23	A-4a (VISUAL)
	30.00	31.50	SS-11										24	A-6a (VISUAL)
	35.00	36.50	SS-12										29	A-6a (VISUAL)
	40.00	41.50	SS-13										25	A-6a (VISUAL)
	45.00	46.50	SS-14											A-1b (VISUAL)
	50.00	51.50	SS-15		0	1	90	4	5					A-3a (0)
	55.00	56.50	SS-16											A-3a (VISUAL)
	60.00	61.50	SS-17											A-1b (VISUAL)
	65.00	66.50	SS-18											A-3a (VISUAL)
	70.00	71.50	SS-19		7	32	37		24					A-3a (0)
	75.00	76.50	SS-20											A-3a (VISUAL)
	80.00	81.50	SS-21											A-3a (VISUAL)
B-EW3-0-99														
Sta. 97+43.3, 16' LT	01.00	01.50	SS-1											A-6a (VISUAL)
	02.50	04.00	SS-2											A-6a (VISUAL)
	05.00	06.50	SS-3		0	1	23	42	34	29		12	17	A-6a (6)
	07.50	09.00	SS-4											A-6a (VISUAL)
	10.00	11.50	SS-5										19	A-4a (VISUAL)
	12.50	14.00	SS-6											A-4a (VISUAL)
	15.00	16.50	SS-7		0	3	31	46	20	NP		NP	26	A-4a (0)
	17.50	19.00	SS-8										22	A-4a (VISUAL)
	20.00	21.50	SS-9											A-6a (VISUAL)
	25.00	26.50	SS-10										23	A-6b (VISUAL)
	30.00	31.50	SS-11										22	A-6a (VISUAL)
	35.00	36.50	SS-12											A-6a (VISUAL)
	40.00	41.50	SS-13		0	0	4	54	32	35		14	23	A-6a (10)
	45.00	46.50	SS-14											A-6a (VISUAL)
	50.00	51.50	SS-15											A-1b (VISUAL)
	55.00	56.50	SS-16A											A-1b (VISUAL)
	60.00	61.50	SS-16B											A-6b (VISUAL)
	65.00	66.50	SS-17											A-1b (VISUAL)
	70.00	71.50	SS-18											A-1b (VISUAL)
	75.00	76.50	SS-19											A-3a (VISUAL)
	80.00	81.50	SS-20											A-3a (VISUAL)
	65.00	66.50	SS-21		4	16	65	9	6					A-3a (0)
	70.00	71.50	SS-22											A-3a (VISUAL)
	75.00	76.50	SS-23											A-3a (VISUAL)
	80.00	81.50	SS-24											A-3a (VISUAL)
B-SG8-0-99	00.50	02.00	SS-1A		21	55	12	1	11	NP		NP	13	A-1b (0)
Sta. 91+92, 24.2' RT	00.50	02.00	SS-1B											A-1b (VISUAL)
	02.00	04.50	SS-2		2	4	3	22	69	42		22	25	A-7-6 (13)
	04.50	06.00	SS-3										22	A-7-6 (VISUAL)
B-SG9-0-99	00.80	02.30	SS-1		37	21	17	9	16	NP		NP	13	A-1b (0)
Sta. 100+16.8, 19.4' RT	02.30	03.80	SS-2		35	17	21	10	17	NP		NP	14	A-2-4 (0)
	03.80	05.30	SS-3											A-2-4 (VISUAL)
	05.30	06.80	SS-4											A-2-4 (VISUAL)
	06.80	08.30	SS-5										22	A-6a (VISUAL)
	08.50	10.00	SS-6											
B-SG4-0-99	00.00	02.00	SS-1										23	A-2-7 (VISUAL)
	02.00	03.50	SS-2		5	10	23	26	36	22		5	14	A-4a (5)
	03.50	04.50	SS-3A											A-4a (VISUAL)
	04.50	05.00	SS-3B		6	5	3	24	62	37		18	21	A-6b (11)
B-SG12-0-99	01.00	02.50	SS-1		28	6	4	20	42	35		17	15	A-6b (8)
Sta. 71+51.1, 2.1' RT	03.00	04.50	SS-2		3	3	3	28	63	36		18	17	A-6b (11)
	04.50	06.00	SS-3										19	A-6b (VISUAL)

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CHECKED ATS

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

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SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-EB6-0-99	00.00-	01.50	SS-1										14	A-6a (VISUAL)
Sta. 76+53.1, 8.7' LT	02.50-	04.00	SS-2											A-6a (VISUAL)
	05.00-	06.50	SS-3											A-4b (VISUAL)
	07.50-	09.00	SS-4		19	0	0	58	23	25		8	20	A-4b (8)
	10.00-	11.50	SS-5											A-4b (VISUAL)
	12.50-	14.00	SS-6											A-4b (VISUAL)
	15.00-	16.50	SS-7											A-4b (VISUAL)
	17.50-	19.00	SS-8											A-4b (VISUAL)
	20.00-	21.50	SS-9										26	A-6a (VISUAL)
	25.00-	26.50	SS-10											A-6a (VISUAL)
	30.00-	31.50	SS-11										26	A-6a (VISUAL)
	35.00-	36.50	SS-12										41	A-6a (VISUAL)
	40.00-	41.50	SS-13										27	A-4a (VISUAL)
	45.00-	46.50	SS-14											A-3a (VISUAL)
	50.00-	51.50	SS-15											A-1b (VISUAL
	55.00-	56.50	SS-16											A-1b (VISUAL
	60.00-	61.50	SS-17											A-3a (VISUAL)
	65.00-	66.50	SS-18		0	9	79	7	5	NP		NP	14	A-3a (0)
	70.00-	71.50	SS-19											A-3a (VISUAL)
	75.00-	76.50	SS-20											A-3a (VISUAL)
	80.00-	81.50	SS-21											A-3a (VISUAL)
B-EB5-0-99	00.00-	01.50	SS-1											A-6a (VISUAL)
Sta. 76+70.6, 23.1' RT	02.50-	04.00	SS-2											A-6a (VISUAL)
	05.00-	06.50	SS-3										22	A-4a (VISUAL)
	07.50-	09.00	SS-4											A-4a (VISUAL)
	10.00-	11.50	SS-5											A-4a (VISUAL)
	12.50-	14.00	SS-6											A-4a (VISUAL)
	15.00-	16.50	SS-7		0	0	30	50	20	24		8		A-4a (7)
	17.50-	19.00	SS-8											A-4a (VISUAL)
	20.00-	21.50	SS-9											A-4a (VISUAL)
	25.00-	26.50	SS-10											A-4b (VISUAL)
	30.00-	31.50	SS-11										25	A-4b (VISUAL)
	35.00-	36.50	SS-12											A-4a (VISUAL)
	40.00-	41.50	SS-13											A-6a (VISUAL)
	45.00-	46.50	SS-14											A-6a (VISUAL)
	50.00-	51.50	SS-15											A-1-b (VISUAL
	55.00-	56.50	SS-16											A-3a (VISUAL
	60.00-	61.50	SS-17											A-3a (VISUAL)
	65.00-	66.50	SS-18		0	7	72	14	7					A-3a (0)
	70.00-	71.50	SS-19											A-3a (VISUAL)
	75.00-	76.50	SS-20											A-3a (VISUAL)
	80.00-	81.50	SS-21											A-3a (VISUAL)
	81.50-	107.0	RC											BEDROCK
B-WA12-0-99	00.00-	01.50	SS-1											A-6a (VISUAL)
Sta. 74+7, 42.8' RT	02.50-	04.00	SS-2										18	A-6b (VISUAL)
	05.00-	06.50	SS-3											A-6b (VISUAL)
	07.50-	09.00	SS-4		5	5	4	32	54	38		19	18	A-6b (VISUAL)
	10.00-	11.50	SS-5											A-6b (VISUAL)
	12.50-	14.00	SS-6											A-6b (VISUAL)
	15.00-	16.50	SS-7										18	A-6b (VISUAL)
	17.50-	19.00	SS-8										18	A-6b (VISUAL)
	20.00-	21.50	SS-9											A-6b (VISUAL)
	25.00-	26.50	SS-10										12	A-6b (VISUAL)
	30.00-	31.50	SS-11											A-6a (VISUAL)
	35.00-	36.50	SS-12											A-6a (VISUAL)
	40.00-	41.50	SS-13										14	A-6a (VISUAL)
	45.00-	46.50	SS-14											A-6a (VISUAL)
	50.00-	51.50	SS-15											A-6a (VISUAL)
	55.00-	56.50	SS-16											A-1b (VISUAL)
	60.00-	61.50	SS-17											A-1b (VISUAL)
	65.00-	66.50	SS-18											A-1b (VISUAL)
	70.00-	111.0	RC											BEDROCK

SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-WA5-0-99	00.00-	01.50	SS-1											A-2-4 (VISUAL)
Sta. 106+45.9, 63.4' RT	02.50-	04.00	SS-2										13	A-4a (VISUAL)
	05.00-	06.50	SS-3											A-4a (VISUAL)
	07.50-	09.00	SS-4											A-4a (0)
	10.00-	11.50	SS-5											A-4a (VISUAL)
	12.50-	14.00	SS-6											A-4b (VISUAL)
	15.00-	16.50	SS-7											A-4b (VISUAL)
	17.50-	19.00	SS-8											A-4a (VISUAL)
	20.00-	21.50	SS-9		0	0	10	54	26	29		9	24	A-4a (VISUAL)
	25.00-	26.50	ST-10											A-4b (VISUAL)
	30.00-	31.50	SS-11										27	A-4b (VISUAL)
	35.00-	36.50	ST-12		0	0	24	48	30	27		9	29	A-4a (8)
	40.00-	41.50	SS-13											A-4a (VISUAL)
	45.00-	46.50	SS-14											A-6a (VISUAL)
	50.00-	51.50	SS-15											A-3a (VISUAL
	55.00-	56.50	SS-16											A-3a (VISUAL
	60.00-	61.50	SS-17											A-3a (VISUAL)
	65.00-	66.50	SS-18		0	7	80	9	4					A-3a (0)
	70.00-	71.50	SS-19											A-3a (VISUAL)
	75.00-	76.50	SS-20											A-3a (VISUAL)
	80.00-	81.50	SS-21											A-3a (VISUAL)
	85.00-	86.50	SS-22											A-3a (VISUAL)
B-WA16-0-99	00.00-	01.50	SS-1											A-1b (VISUAL)
Sta. 78+58.8, 1.4' LT	02.50-	04.00	SS-2										19	A-6a (VISUAL)
	05.00-	06.50	SS-3											A-6a (VISUAL)
	07.50-	09.00	SS-4										22	A-6a (VISUAL)
	10.00-	11.50	SS-5											A-6b (VISUAL)
	12.50-	14.00	SS-6		0	0	21	41	38	31		14	28	A-6b (8)
	15.00-	16.50	SS-7											A-6b (VISUAL)
	17.50-	19.00	SS-8										19	A-6b (VISUAL)
	20.00-	21.50	SS-9											A-6b (VISUAL)
	25.00-	26.50	SS-10											A-2-6 (VISUAL)
	30.00-	31.50	SS-11											A-2-6 (VISUAL)
	35.00-	36.50	SS-12		18	43	17	15	7					A-1-b
	40.00-	41.50	SS-13											A-3a (VISUAL)
	45.00-	46.50	SS-14											A-3a (VISUAL)
	50.00-	51.50	SS-15											A-4a (VISUAL)
	55.00-	56.50	SS-16										20	A-4a (VISUAL)
	60.00-	61.50	SS-17											A-3a (VISUAL)
	65.00-	66.50	SS-18											A-3a (VISUAL)
	70.00-	71.50	SS-19		20	57	9	4						A-3a (0)
	75.00-	76.50	SS-20											A-3a (VISUAL)
	80.00-	81.50	SS-21											A-3a (VISUAL)
	85.00-	86.50	SS-22											A-1-a (VISUAL)
	90.00-	91.50	SS-23											
B-WA17-0-99	00.00-	01.50	SS-1											A-1b (VISUAL)
Sta. 78+58.8, 1.4' LT	02.50-	04.00	SS-2											A-1b (VISUAL)
	05.00-	06.50	SS-3											A-6a (VISUAL)
	07.50-	09.00	SS-4										31	A-6a (VISUAL)
	10.00-	11.50	SS-5											A-6b (VISUAL)
	12.50-	14.00	SS-6										27	A-6b (VISUAL)
	15.00-	16.50	SS-7										39	A-7-6 (VISUAL)
	17.50-	19.00	SS-8											A-7-6 (VISUAL)
	20.00-	21.50	SS-9											A-7-6 (VISUAL)
	25.00-	26.50	SS-10										26	A-6a (VISUAL)
	30.00-	31.50	SS-11											A-6a (VISUAL)
	35.00-	36.50	SS-12											A-4a (VISUAL)
	40.00-	41.50	SS-13											A-4a (VISUAL)
	45.00-	46.50	SS-14											A-2-6 (VISUAL)
	50.00-	51.50	SS-15											A-2-6 (VISUAL)
	55.00-	56.50	SS-16		6	20	56		18					A-3a (0)
	60.00-	61.50	SS-17											A-3a (VISUAL)
	65.00-	66.50	SS-18											A-3a (VISUAL)
	70.00-	71.50	SS-19		0	8	84	8	4					A-1-b (VISUAL)
	75.00-	76.50	SS-20											A-3a (0)
	80.00-	81.50	SS-21											A-3a (VISUAL)

DRAWN KPR CHECKED ATS

SOIL PROFILE

SUMMARY OF SOIL TEST DATA

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SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-WA6-0-99	02.50	04.00	SS-1											A-1-a (VISUAL)
Sta. STA. 107+14.6,13.1' LT	05.00	06.50	SS-2											A-4a (VISUAL)
	07.50	09.00	SS-3											A-4a (VISUAL)
	10.00	11.50	SS-4											A-4a (VISUAL)
	12.50	14.00	SS-5											A-4a (VISUAL)
	17.50	19.00	SS-6											A-4a (VISUAL)
	20.00	21.50	SS-7											A-6a (VISUAL)
	25.00	26.50	SS-8											A-6a (VISUAL)
	35.00	36.50	SS-9											A-6a (VISUAL)
	40.00	41.50	SS-10											A-6a (VISUAL)
	45.00	46.50	SS-11											A-6a (VISUAL)
	50.00	51.50	SS-12											A-1b (VISUAL)
	55.00	56.50	SS-13											A-1b (VISUAL)
	60.00	61.50	SS-14											A-1b (VISUAL)
	65.00	66.50	SS-15											A-1b (VISUAL)
	70.00	71.50	SS-16											A-1b (VISUAL)
	75.00	76.50	SS-17											A-3a (VISUAL)
	80.00	81.50	SS-18											A-1b (VISUAL)
	85.00	86.50	SS-19											A-1-a (VISUAL)
	90.00	91.50	SS-20											A-1-a (VISUAL)
	95.00	96.50	SS-21											A-1-a (VISUAL)
	100.00	101.50	SS-22											
B-WA7-0-99	00.00	01.50	SS-1											A-6b (VISUAL)
Sta.	02.50	04.00	SS-2											A-6b (VISUAL)
	05.00	06.50	SS-3										21	A-4a (VISUAL)
	07.50	09.00	SS-4										21	A-4a (VISUAL)
	10.00	11.50	SS-5		0	1	21	59	20	25		7	22	A-4a (8)
	12.50	14.00	SS-6											A-4a (VISUAL)
	15.00	16.50	SS-7										23	A-6a (VISUAL)
	17.50	19.00	SS-8											A-6a (VISUAL)
	20.00	21.50	SS-9											A-6a (VISUAL)
	25.00	26.50	SS-10										28	A-6a (VISUAL)
	30.00	31.50	SS-11										25	A-6a (VISUAL)
	35.00	36.50	SS-12											A-6a (VISUAL)
	40.00	41.50	SS-13		16	37	29	11	7					A-1-b (0)
	45.00	46.50	SS-14											A-3a (VISUAL)
	50.00	51.50	SS-15											A-3a (VISUAL)
B-EB4-0-99	00.00	01.50	SS-1											A-1b (VISUAL)
Sta. 48+65.6, 7.3' LT	02.50	04.00	SS-2											A-1b (VISUAL)
	05.00	06.50	SS-3		0	1	19	45	35	27		11	16	A-6a (8)
	07.50	09.00	SS-4											A-6a (VISUAL)
	10.00	11.50	SS-5										21	A-6a (VISUAL)
	12.50	14.00	SS-6										20	A-6a (VISUAL)
	15.00	16.50	SS-7											A-6a (VISUAL)
	17.50	19.00	SS-8											A-6b (VISUAL)
	20.00	21.50	SS-9										17	A-6b (VISUAL)
	25.00	26.50	SS-10											A-1-b (VISUAL)
	30.00	31.50	SS-11											A-6a (VISUAL)
	35.00	36.50	SS-12											A-6a (VISUAL)
	40.00	41.50	SS-13											A-6b (VISUAL)
	45.00	46.50	SS-14										13	A-6b (VISUAL)
	50.00	51.50	SS-15											A-1b (VISUAL)
	55.00	56.50	SS-16											A-1b (VISUAL)
	60.00	61.50	SS-17											A-1b (VISUAL)
	65.00	66.50	SS-18											A-1b (VISUAL)
	66.50	105.5	RC											BEDROCK
B-SG11-0-05	00.00	01.50	SS-1A											A-6b (VISUAL)
Sta. 47+68.5, 17.4' RT	00.00	01.50	SS-1B		11	10	12	18	49	34		16	18	A-6b (9)
	01.50	03.00	SS-2		13	7	9	19	52	36		17	21	A-6b (10)
	03.00	04.50	SS-3											A-6b (VISUAL)
	04.50	06.00	SS-4										23	A-6b (VISUAL)
	06.00	07.50	SS-5A											A-6b (VISUAL)
	06.00	07.50	SS-5B											A-6b (VISUAL)
	07.50	09.00	SS-6										33	A-6b (VISUAL)

SUMMARY OF HISTORICAL SOIL TEST DATA
WALDVOGEL VIADUCT REPLACEMENT

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-WA13-0-99	00.00	01.50	SS-1											A-6b (VISUAL)
Sta. STA. STA. 46+21.1, 0.5' LT	02.50	04.00	SS-2											A-6b (VISUAL)
	05.00	06.50	SS-3											A-7-6 (VISUAL)
	07.50	09.00	SS-4											A-7-6 (VISUAL)
	10.00	11.50	SS-5											A-7-6 (VISUAL)
	12.50	14.00	SS-6											A-6a (VISUAL)
	15.00	16.50	SS-7											A-4b (VISUAL)
	17.50	19.00	SS-8											A-4b (VISUAL)
	20.00	21.50	SS-9		0	3	19	53	25	25		7	22	A-4b (8)
	25.00	26.50	SS-10											A-4b (VISUAL)
	30.00	31.50	SS-11											A-4b (VISUAL)
	35.00	36.50	SS-12											A-6a (VISUAL)
	40.00	41.50	SS-13		1	2	67	15	15					A-4a (0)
	45.00	46.50	SS-14											A-4b (VISUAL)
	50.00	51.50	SS-15											A-1b (VISUAL)
	55.00	56.50	SS-16											A-1b (VISUAL)
	60.00	61.50	SS-17											A-3a (VISUAL)
	65.00	66.50	SS-18											A-3a (VISUAL)
	70.00	71.50	SS-19		0	0	44	47	9					A-4 (0)
	75.00	76.50	SS-20											A-1-B (VISUAL)
B-WA13-0-99	00.00	01.50	SS-1											A-1-a (VISUAL)
Sta. STA. STA. 46+21.1, 0.5' LT	02.50	04.00	SS-2										12	A-4a (VISUAL)
	05.00	06.50	SS-3											A-4a (VISUAL)
	07.50	09.00	SS-4		1	0	17	47	35	31		13	20	A-6a (8)
	10.00	11.50	SS-5										21	A-6a (VISUAL)
	12.50	14.00	SS-6											A-6a (VISUAL)
	15.00	16.50	SS-7										19	A-4a (VISUAL)
	17.50	19.00	SS-8										22	A-4a (VISUAL)
	20.00	21.50	ST-9											A-4a (VISUAL)
	25.00	26.50	SS-10											A-3a (VISUAL)
	30.00	31.50	SS-11											A-6a (VISUAL)
	35.00	36.50	SS-12										21	A-4a (VISUAL)
	40.00	41.50	SS-13											A-4a (VISUAL)
	45.00	46.50	SS-14											A-3a (VISUAL)
	50.00	51.50	SS-15		4	9	69	9	0					A-3a (0)
	55.00	56.50	SS-16											A-3a (VISUAL)
	60.00	61.50	SS-17											A-3a (VISUAL)
	65.00	66.50	SS-18											A-3a (0)
	70.00	71.50	SS-19		0	1	75	15	9					A-3a (VISUAL)
	75.00	76.50	SS-20											A-3a (VISUAL)
	80.00	81.50	SS-21											A-3a (VISUAL)

DRAWN KPR CHECKED ATS

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

HAM-50-18.79

14 / 64

14
136

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **102** SAMPLE NUMBER : **7A** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown and gray moist stiff SILTY CLAY** DEPTH (FT.): **15.2** to **15.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

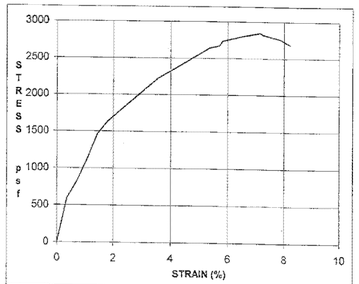
AVERAGE DIAMETER (in.)	2.82
HEIGHT (in.)	5.60
HEIGHT TO DIAMETER RATIO	1.98
AVERAGE AREA (sq. ft.)	0.0434
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.63
DRY WEIGHT (lbs.)	2.19
DRY DENSITY (pcf)	**107.9**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	B8
WET WEIGHT + CAN (lbs.)	3.05
DRY WEIGHT + CAN (lbs.)	2.61
WEIGHT WATER (lbs.)	0.45
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.18
MOISTURE (%)	**20.4**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0434	0
20	26.0	26.0	0.4	0.0436	597
40	36.0	36.0	0.7	0.0437	823
60	49.0	49.0	1.1	0.0439	1116
80	64.0	64.0	1.4	0.0440	1453
100	72.0	72.0	1.8	0.0442	1629
200	100.0	100.0	3.6	0.0450	2221
300	121.0	121.0	5.4	0.0459	2637
320	123.0	123.0	5.7	0.0461	2671
325	126.0	126.0	5.8	0.0461	2733
365	130.0	130.0	6.5	0.0464	2799
400	133.0	133.0	7.1	0.0468	2844
405	132.0	132.0	7.2	0.0468	2820
440	130.0	130.0	7.9	0.0471	2759
460	127.0	127.0	8.2	0.0473	2685



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	7.1
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,340
SHEAR STRENGTH (psf)	1420

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **105** SAMPLE NUMBER : **7A** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist stiff SILTY CLAY** DEPTH (FT.): **15.2** to **15.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/07/06**

NATURAL UNIT WEIGHT

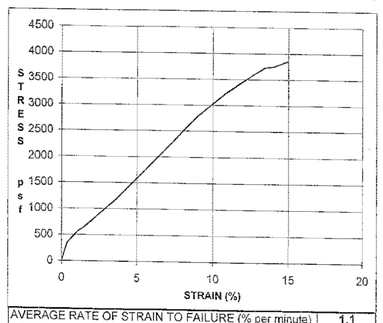
AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	5.57
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0436
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.63
DRY WEIGHT (lbs.)	2.20
DRY DENSITY (pcf)	**108.6**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	h3
WET WEIGHT + CAN (lbs.)	3.12
DRY WEIGHT + CAN (lbs.)	2.69
WEIGHT WATER (lbs.)	0.43
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	2.20
MOISTURE (%)	**19.6**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0436	0
20	15.0	15.0	0.4	0.0438	343
40	20.0	20.0	0.7	0.0439	455
60	25.0	25.0	1.1	0.0441	567
80	28.0	28.0	1.4	0.0443	632
100	32.0	32.0	1.8	0.0444	720
200	53.0	53.0	3.6	0.0453	1171
300	78.0	78.0	5.4	0.0461	1691
400	105.0	105.0	7.2	0.0470	2234
500	133.0	133.0	9.0	0.0479	2775
600	157.0	157.0	10.8	0.0489	3211
700	178.0	178.0	12.6	0.0499	3567
750	188.0	188.0	13.5	0.0504	3729
780	190.0	190.0	14.0	0.0507	3745
835	198.0	198.0	15.0	0.0513	3858



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	15.0
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,860
SHEAR STRENGTH (psf)	1930

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

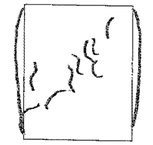
PROJECT NUMBER : **051008NE**
BORING NUMBER : **105** SAMPLE NUMBER : **9A** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist stiff SILTY CLAY, trace fine sand** DEPTH (FT.): **20.2** to **20.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/07/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.63
HEIGHT (in.)	5.36
HEIGHT TO DIAMETER RATIO	2.04
AVERAGE AREA (sq. ft.)	0.0378
VOLUME (cu. ft.)	0.0169
WET WEIGHT (lbs.)	2.56
DRY WEIGHT (lbs.)	2.10
DRY DENSITY (pcf)	**124.3**

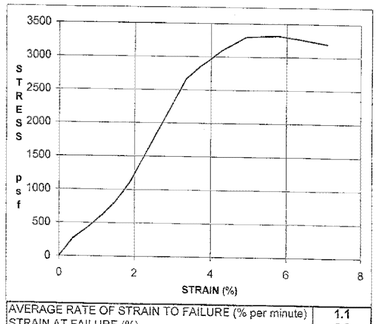
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	s1
WET WEIGHT + CAN (lbs.)	3.34
DRY WEIGHT + CAN (lbs.)	2.87
WEIGHT WATER (lbs.)	0.46
WEIGHT CAN (lbs.)	0.78
WEIGHT SOLID (lbs.)	2.10
MOISTURE (%)	**22.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0378	0
20	10.0	10.0	0.4	0.0379	264
40	16.0	16.0	0.7	0.0381	420
60	23.0	23.0	1.1	0.0382	602
80	31.0	31.0	1.5	0.0383	809
100	42.0	42.0	1.9	0.0385	1091
180	104.0	104.0	3.4	0.0391	2661
200	112.0	112.0	3.7	0.0392	2855
210	115.0	115.0	3.9	0.0393	2926
230	122.0	122.0	4.3	0.0395	3092
250	127.0	127.0	4.7	0.0396	3206
265	131.0	131.0	4.9	0.0397	3297
310	133.0	133.0	5.8	0.0401	3318
335	132.0	132.0	6.2	0.0403	3277
380	130.0	130.0	7.1	0.0406	3198



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	5.8
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,320
SHEAR STRENGTH (psf)	1660

REMARKS :

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
UNCONFINED COMPRESSION TEST DATA

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

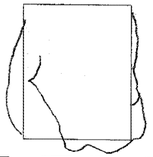
PROJECT NUMBER : **051008NE**
BORING NUMBER : **108** SAMPLE NUMBER : **PT-1C** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist stiff SILTY CLAY** DEPTH (FT.): **18.8** to **19.0**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.79
HEIGHT (in.)	5.54
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0424
VOLUME (cu. ft.)	0.0196
WET WEIGHT (lbs.)	2.59
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**109.1**

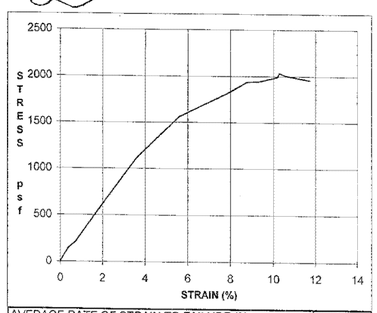
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	z5
WET WEIGHT + CAN (lbs.)	3.00
DRY WEIGHT + CAN (lbs.)	2.55
WEIGHT WATER (lbs.)	0.45
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.12
MOISTURE (%)	**21.0**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0424	0
20	6.0	6.0	0.4	0.0426	141
40	9.0	9.0	0.7	0.0427	211
60	14.0	14.0	1.1	0.0429	327
80	19.0	19.0	1.4	0.0430	442
100	24.0	24.0	1.8	0.0432	556
200	49.0	49.0	3.6	0.0440	1114
310	70.0	70.0	5.6	0.0449	1558
440	84.0	84.0	7.9	0.0461	1824
485	90.0	90.0	8.7	0.0465	1937
520	91.0	91.0	9.4	0.0468	1945
565	94.0	94.0	10.2	0.0472	1991
570	96.0	96.0	10.3	0.0473	2031
590	95.0	95.0	10.6	0.0475	2002
650	94.0	94.0	11.7	0.0480	1957



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**10.3**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**2,030**
SHEAR STRENGTH (psf)	**1015**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **109** SAMPLE NUMBER : **6A** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist very stiff SILTY CLAY** DEPTH (FT.): **13.2** to **13.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/07/06**

NATURAL UNIT WEIGHT

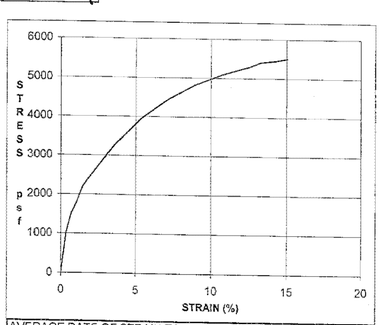
AVERAGE DIAMETER (in.)	2.84
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0438
VOLUME (cu. ft.)	0.0204
WET WEIGHT (lbs.)	2.64
DRY WEIGHT (lbs.)	2.19
DRY DENSITY (pcf)	**107.2**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	oh6
WET WEIGHT + CAN (lbs.)	3.11
DRY WEIGHT + CAN (lbs.)	2.66
WEIGHT WATER (lbs.)	0.45
WEIGHT CAN (lbs.)	0.48
WEIGHT SOLID (lbs.)	2.18
MOISTURE (%)	**20.5**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0438	0
20	45.0	45.0	0.4	0.0440	1023
40	67.0	67.0	0.7	0.0442	1517
60	80.0	80.0	1.1	0.0443	1805
80	97.0	97.0	1.4	0.0445	2180
100	106.0	106.0	1.8	0.0446	2374
200	148.0	148.0	3.6	0.0455	3254
300	183.0	183.0	5.4	0.0463	3949
400	210.0	210.0	7.2	0.0472	4446
500	232.0	232.0	9.0	0.0482	4817
600	250.0	250.0	10.7	0.0491	5088
700	265.0	265.0	12.5	0.0501	5285
740	273.0	273.0	13.3	0.0506	5400
800	279.0	279.0	14.3	0.0512	5451
840	284.0	284.0	15.0	0.0516	5502



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**15.0**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**5,500**
SHEAR STRENGTH (psf)	**2750**

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

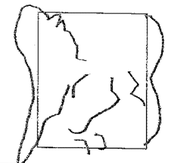
PROJECT NUMBER : **051008NE**
BORING NUMBER : **110** SAMPLE NUMBER : **4B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist stiff SILTY CLAY** DEPTH (FT.): **7.2** to **7.4**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.87
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.95
AVERAGE AREA (sq. ft.)	0.0448
VOLUME (cu. ft.)	0.0209
WET WEIGHT (lbs.)	2.69
DRY WEIGHT (lbs.)	2.16
DRY DENSITY (pcf)	**103.4**

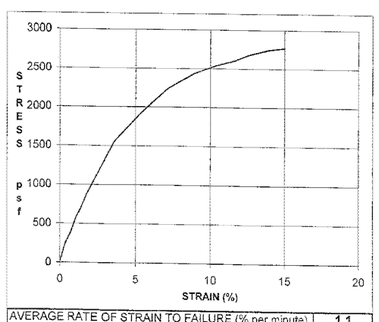
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	T6
WET WEIGHT + CAN (lbs.)	2.53
DRY WEIGHT + CAN (lbs.)	2.12
WEIGHT WATER (lbs.)	0.41
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	1.69
MOISTURE (%)	**24.3**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0448	0
20	11.0	11.0	0.4	0.0450	244
40	17.0	17.0	0.7	0.0452	376
60	26.0	26.0	1.1	0.0453	574
80	32.0	32.0	1.4	0.0455	703
100	40.0	40.0	1.8	0.0457	876
200	72.0	72.0	3.6	0.0465	1548
300	91.0	91.0	5.4	0.0474	1920
400	108.0	108.0	7.2	0.0483	2236
500	120.0	120.0	8.9	0.0493	2436
580	127.0	127.0	10.4	0.0500	2538
650	132.0	132.0	11.6	0.0507	2601
700	137.0	137.0	12.5	0.0513	2672
780	143.0	143.0	14.0	0.0521	2744
840	146.0	146.0	15.0	0.0528	2766



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**15.0**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**2,770**
SHEAR STRENGTH (psf)	**1385**

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
UNCONFINED COMPRESSION TESTS DATA

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **112** SAMPLE NUMBER : **7B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist stiff SILTY CLAY** DEPTH (FT.): **15.4** to **15.9**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

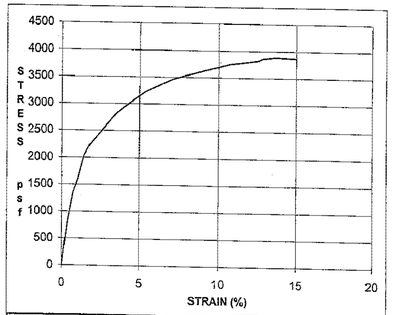
AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0429
VOLUME (cu. ft.)	0.0200
WET WEIGHT (lbs.)	2.59
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**107.3**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	r2d2
WET WEIGHT + CAN (lbs.)	2.93
DRY WEIGHT + CAN (lbs.)	2.48
WEIGHT WATER (lbs.)	0.44
WEIGHT CAN (lbs.)	0.35
WEIGHT SOLID (lbs.)	2.14
MOISTURE (%)	**20.8**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0429	0
20	35.0	35.0	0.4	0.0430	814
40	58.0	58.0	0.7	0.0432	1343
60	71.0	71.0	1.1	0.0433	1639
80	88.0	88.0	1.4	0.0435	2024
100	97.0	97.0	1.8	0.0436	2222
200	126.0	126.0	3.6	0.0445	2834
300	146.0	146.0	5.4	0.0453	3223
400	160.0	160.0	7.2	0.0462	3466
500	170.0	170.0	8.9	0.0471	3611
600	180.0	180.0	10.7	0.0480	3749
700	187.0	187.0	12.5	0.0490	3816
720	190.0	190.0	12.9	0.0492	3862
765	193.0	193.0	13.7	0.0497	3886
840	195.0	195.0	15.0	0.0504	3866



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	13.7
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,890
SHEAR STRENGTH (psf)	1945

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

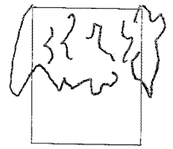
PROJECT NUMBER : **051008NE**
BORING NUMBER : **116** SAMPLE NUMBER : **7** LAB NUMBER :
SAMPLE DESCRIPTION : **Olive brown to gray moist soft to medium stiff very SILTY CLAY** DEPTH (FT.): **15.2** to **15.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.86
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0444
VOLUME (cu. ft.)	0.0207
WET WEIGHT (lbs.)	2.41
DRY WEIGHT (lbs.)	1.78
DRY DENSITY (pcf)	**86.1**

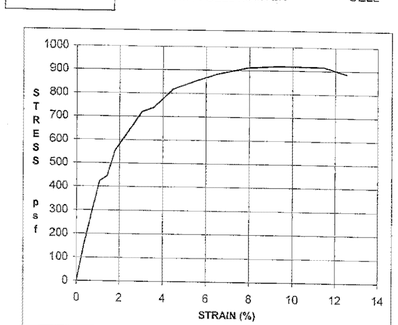
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	ky-15
WET WEIGHT + CAN (lbs.)	2.89
DRY WEIGHT + CAN (lbs.)	2.27
WEIGHT WATER (lbs.)	0.62
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	1.77
MOISTURE (%)	**35.2**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0444	0
20	7.0	7.0	0.4	0.0446	157
40	13.0	13.0	0.7	0.0448	290
60	19.0	19.0	1.1	0.0449	423
80	20.0	20.0	1.4	0.0451	444
100	25.0	25.0	1.8	0.0452	552
170	33.0	33.0	3.0	0.0458	720
200	34.0	34.0	3.6	0.0461	738
250	38.0	38.0	4.5	0.0465	817
305	40.0	40.0	5.5	0.0470	851
365	42.0	42.0	6.5	0.0475	883
445	44.0	44.0	8.0	0.0483	911
520	45.0	45.0	9.3	0.0490	918
640	46.0	46.0	11.5	0.0502	917
700	45.0	45.0	12.5	0.0508	886



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	9.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	920
SHEAR STRENGTH (psf)	460

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

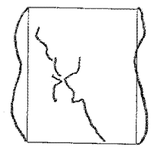
PROJECT NUMBER : **051008NE**
BORING NUMBER : **116** SAMPLE NUMBER : **11A** LAB NUMBER :
SAMPLE DESCRIPTION : **Chocolate brown moist stiff very SILTY CLAY** DEPTH (FT.): **30.1** to **30.6**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/07/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.82
HEIGHT (in.)	5.57
HEIGHT TO DIAMETER RATIO	1.98
AVERAGE AREA (sq. ft.)	0.0433
VOLUME (cu. ft.)	0.0201
WET WEIGHT (lbs.)	2.59
DRY WEIGHT (lbs.)	2.08
DRY DENSITY (pcf)	**103.7**

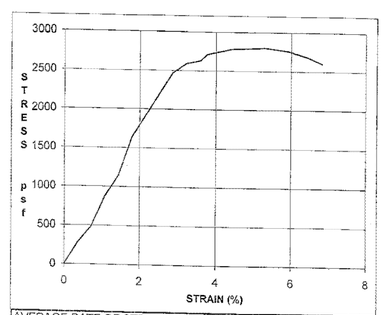
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	t5
WET WEIGHT + CAN (lbs.)	3.00
DRY WEIGHT + CAN (lbs.)	2.50
WEIGHT WATER (lbs.)	0.50
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	2.08
MOISTURE (%)	**24.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0433	0
20	12.0	12.0	0.4	0.0435	276
40	21.0	21.0	0.7	0.0436	481
60	38.0	38.0	1.1	0.0438	868
80	50.0	50.0	1.4	0.0440	1137
100	72.0	72.0	1.8	0.0441	1632
160	110.0	110.0	2.9	0.0446	2466
180	116.0	116.0	3.2	0.0448	2591
200	118.0	118.0	3.6	0.0449	2626
210	122.0	122.0	3.8	0.0450	2710
245	126.0	126.0	4.4	0.0453	2780
295	128.0	128.0	5.3	0.0457	2798
330	127.0	127.0	5.9	0.0461	2758
360	124.0	124.0	6.5	0.0463	2677
380	121.0	121.0	6.8	0.0465	2602



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	5.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,800
SHEAR STRENGTH (psf)	1400

REMARKS :

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
UNCONFINED COMPRESSION TEST DATA

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **117** SAMPLE NUMBER : **7** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist very stiff SILTY CLAY** DEPTH (FT.): **15.5** to **16.0**

SAMPLE OBTAINED BY : **SPLIT SPOON** CONDITION **UNTRIMMED** DATE : **06/10/06**

NATURAL UNIT WEIGHT

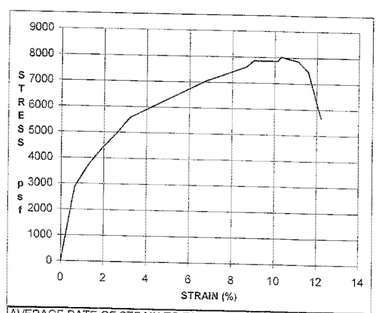
AVERAGE DIAMETER (in.)	1.36
HEIGHT (in.)	3.11
HEIGHT TO DIAMETER RATIO	2.29
AVERAGE AREA (sq. ft.)	0.0101
VOLUME (cu. ft.)	0.0026
WET WEIGHT (lbs.)	0.33
DRY WEIGHT (lbs.)	0.28
DRY DENSITY (pcf)	**105.7**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	Z2
WET WEIGHT + CAN (lbs.)	0.76
DRY WEIGHT + CAN (lbs.)	0.71
WEIGHT WATER (lbs.)	0.06
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	0.27
MOISTURE (%)	**20.9**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0101	0
20	29.0	29.0	0.6	0.0101	2862
40	38.0	38.0	1.3	0.0102	3725
60	45.0	45.0	1.9	0.0103	4383
80	51.0	51.0	2.6	0.0103	4935
100	58.0	58.0	3.2	0.0104	5575
150	66.0	66.0	4.8	0.0106	6238
210	76.0	76.0	6.8	0.0108	7038
270	84.0	84.0	8.7	0.0110	7618
280	87.0	87.0	9.0	0.0111	7862
315	88.0	88.0	10.1	0.0112	7854
320	90.0	90.0	10.3	0.0112	8018
345	89.0	89.0	11.1	0.0113	7858
360	85.0	85.0	11.6	0.0114	7464
380	65.0	65.0	12.2	0.0115	5666



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.9**
STRAIN AT FAILURE (%)	**9.0**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**7,860**
SHEAR STRENGTH (psf)	**3930**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

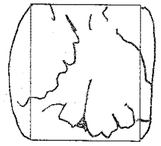
PROJECT NUMBER : **051008NE**
BORING NUMBER : **119** SAMPLE NUMBER : **7** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist very stiff SILTY CLAY** DEPTH (FT.): **15.0** to **16.5**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **05/22/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	1.37
HEIGHT (in.)	2.74
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0103
VOLUME (cu. ft.)	0.0023
WET WEIGHT (lbs.)	0.29
DRY WEIGHT (lbs.)	0.24
DRY DENSITY (pcf)	**100.9**

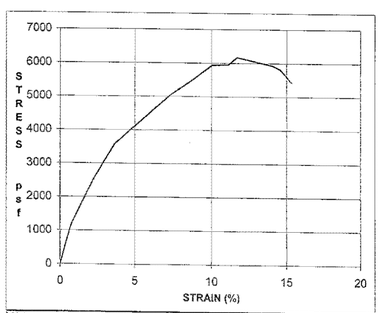
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	D3
WET WEIGHT + CAN (lbs.)	0.54
DRY WEIGHT + CAN (lbs.)	0.48
WEIGHT WATER (lbs.)	0.06
WEIGHT CAN (lbs.)	0.25
WEIGHT SOLID (lbs.)	0.23
MOISTURE (%)	**23.9**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0103	0
20	12.0	12.0	0.7	0.0104	1157
40	19.0	19.0	1.5	0.0104	1818
60	26.0	26.0	2.2	0.0105	2470
80	32.0	32.0	2.9	0.0106	3017
100	38.0	38.0	3.7	0.0107	3556
140	45.0	45.0	5.1	0.0109	4147
200	56.0	56.0	7.3	0.0111	5041
240	62.0	62.0	8.8	0.0113	5493
275	68.0	68.0	10.0	0.0114	5940
305	69.0	69.0	11.1	0.0116	5954
320	72.0	72.0	11.7	0.0117	6175
385	71.0	71.0	14.1	0.0120	5925
400	70.0	70.0	14.6	0.0121	5805
420	66.0	66.0	15.3	0.0122	5426



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**2.2**
STRAIN AT FAILURE (%)	**11.7**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**6,170**
SHEAR STRENGTH (psf)	**3085**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

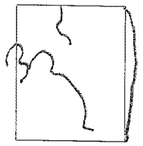
PROJECT NUMBER : **051008NE**
BORING NUMBER : **120** SAMPLE NUMBER : **11B** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist stiff SILTY CLAY** DEPTH (FT.): **30.3** to **30.8**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.84
HEIGHT (in.)	5.55
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0439
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.60
DRY WEIGHT (lbs.)	2.13
DRY DENSITY (pcf)	**105.0**

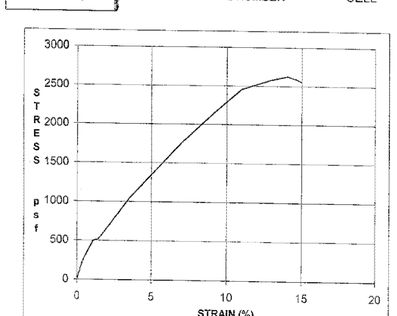
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	oh3
WET WEIGHT + CAN (lbs.)	3.08
DRY WEIGHT + CAN (lbs.)	2.61
WEIGHT WATER (lbs.)	0.47
WEIGHT CAN (lbs.)	0.49
WEIGHT SOLID (lbs.)	2.12
MOISTURE (%)	**22.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0439	0
20	10.0	10.0	0.4	0.0440	227
40	16.0	16.0	0.7	0.0442	362
60	22.0	22.0	1.1	0.0444	496
80	23.0	23.0	1.4	0.0445	517
110	29.0	29.0	2.0	0.0448	648
200	48.0	48.0	3.6	0.0455	1054
300	66.0	66.0	5.4	0.0464	1423
390	83.0	83.0	7.0	0.0472	1759
510	104.0	104.0	9.2	0.0483	2152
610	121.0	121.0	11.0	0.0493	2454
720	130.0	130.0	13.0	0.0504	2578
780	134.0	134.0	14.1	0.0511	2624
810	133.0	133.0	14.6	0.0514	2588
830	132.0	132.0	15.0	0.0516	2558



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.2**
STRAIN AT FAILURE (%)	**14.1**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**2,620**
SHEAR STRENGTH (psf)	**1310**

REMARKS :

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
UNCONFINED COMPRESSION TEST DATA

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE** LAB NUMBER :
BORING NUMBER : **127** SAMPLE NUMBER : **3** DEPTH (FT.): **5.3** to **5.9**
SAMPLE DESCRIPTION : **Brown, trace gray wet very stiff SILTY CLAY**

SAMPLE OBTAINED BY : **SPLIT SPOON** CONDITION **UNTRIMMED** DATE : **03/09/06**

NATURAL UNIT WEIGHT

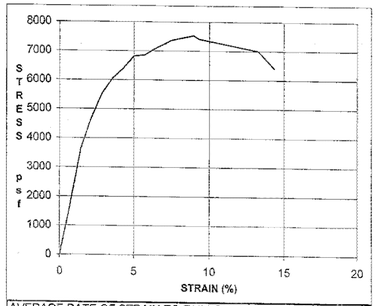
AVERAGE DIAMETER (in.)	1.36
HEIGHT (in.)	2.79
HEIGHT TO DIAMETER RATIO	2.05
AVERAGE AREA (sq. ft.)	0.0100
VOLUME (cu. ft.)	0.0023
WET WEIGHT (lbs.)	0.30
DRY WEIGHT (lbs.)	0.24
DRY DENSITY (pcf)	**103.3**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	H2
WET WEIGHT + CAN (lbs.)	0.79
DRY WEIGHT + CAN (lbs.)	0.73
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.49
WEIGHT SOLID (lbs.)	0.24
MOISTURE (%)	**22.7**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0100	0
20	17.0	17.0	0.7	0.0101	1681
40	37.0	37.0	1.4	0.0102	3633
60	48.0	48.0	2.2	0.0103	4678
80	57.0	57.0	2.9	0.0103	5515
100	63.0	63.0	3.6	0.0104	6050
120	67.0	67.0	4.3	0.0105	6386
140	72.0	72.0	5.0	0.0106	6811
160	73.0	73.0	5.7	0.0107	6854
180	76.0	76.0	6.5	0.0107	7081
210	80.0	80.0	7.5	0.0109	7368
250	83.0	83.0	9.0	0.0110	7526
260	82.0	82.0	9.3	0.0111	7406
370	81.0	81.0	13.3	0.0116	6997
400	75.0	75.0	14.3	0.0117	6399



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**2.2**
STRAIN AT FAILURE (%)	**9.0**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**7,530**
SHEAR STRENGTH (psf)	**3765**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

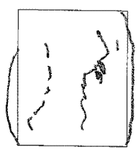
PROJECT NUMBER : **051008NE** LAB NUMBER :
BORING NUMBER : **205** SAMPLE NUMBER : **7A** DEPTH (FT.): **17.7** to **18.2**
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist very stiff SILTY CLAY with iron oxide stains**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/14/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.86
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0445
VOLUME (cu. ft.)	0.0207
WET WEIGHT (lbs.)	2.69
DRY WEIGHT (lbs.)	2.22
DRY DENSITY (pcf)	**107.2**

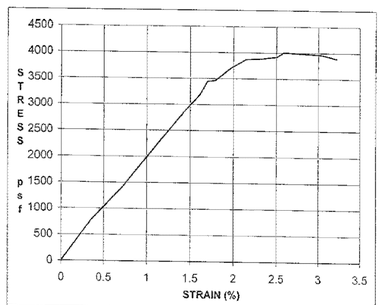
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	z3
WET WEIGHT + CAN (lbs.)	3.11
DRY WEIGHT + CAN (lbs.)	2.65
WEIGHT WATER (lbs.)	0.47
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.22
MOISTURE (%)	**21.0**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0445	0
20	35.0	35.0	0.4	0.0447	783
40	63.0	63.0	0.7	0.0449	1405
60	96.0	96.0	1.1	0.0450	2133
80	129.0	129.0	1.4	0.0452	2855
90	144.0	144.0	1.6	0.0453	3182
95	156.0	156.0	1.7	0.0453	3443
100	157.0	157.0	1.8	0.0453	3462
110	168.0	168.0	2.0	0.0454	3698
120	176.0	176.0	2.1	0.0455	3867
130	177.0	177.0	2.3	0.0456	3882
140	179.0	179.0	2.5	0.0457	3919
145	183.0	183.0	2.6	0.0457	4003
170	182.0	182.0	3.0	0.0459	3963
180	179.0	179.0	3.2	0.0460	3890



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**2.6**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**4,000**
SHEAR STRENGTH (psf)	**2000**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

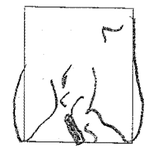
PROJECT NUMBER : **051008NE** LAB NUMBER :
BORING NUMBER : **205** SAMPLE NUMBER : **12A** DEPTH (FT.): **40.2** to **40.7**
SAMPLE DESCRIPTION : **Brown and gray moist stiff SILTY CLAY**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/14/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	5.56
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0435
VOLUME (cu. ft.)	0.0202
WET WEIGHT (lbs.)	2.56
DRY WEIGHT (lbs.)	2.06
DRY DENSITY (pcf)	**102.0**

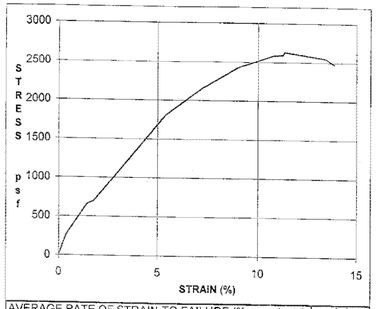
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	z10
WET WEIGHT + CAN (lbs.)	2.96
DRY WEIGHT + CAN (lbs.)	2.47
WEIGHT WATER (lbs.)	0.50
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.04
MOISTURE (%)	**24.4**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0435	0
20	11.0	11.0	0.4	0.0437	252
40	17.0	17.0	0.7	0.0438	388
60	23.0	23.0	1.1	0.0440	523
80	29.0	29.0	1.4	0.0441	657
100	31.0	31.0	1.8	0.0443	700
200	56.0	56.0	3.6	0.0451	1241
300	83.0	83.0	5.4	0.0460	1805
400	101.0	101.0	7.2	0.0469	2154
500	116.0	116.0	9.0	0.0478	2426
600	126.0	126.0	10.8	0.0488	2583
625	127.0	127.0	11.2	0.0490	2591
630	129.0	129.0	11.3	0.0491	2629
745	128.0	128.0	13.4	0.0502	2548
770	125.0	125.0	13.8	0.0505	2475



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**11.3**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**2,630**
SHEAR STRENGTH (psf)	**1315**

REMARKS :

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
UNCONFINED COMPRESSION TEST DATA

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **207** SAMPLE NUMBER : **RC-1** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **85.0** to **85.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

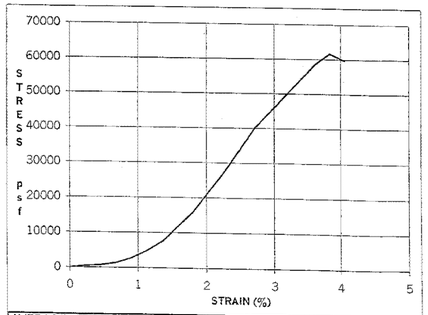
AVERAGE DIAMETER (in.)	1.96
HEIGHT (in.)	4.44
HEIGHT TO DIAMETER RATIO	2.26
AVERAGE AREA (sq. ft.)	0.0210
VOLUME (cu. ft.)	0.0078
WET WEIGHT (lbs.)	1.20
DRY WEIGHT (lbs.)	1.14
DRY DENSITY (pcf)	**146.7**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	e
WET WEIGHT + CAN (lbs.)	1.45
DRY WEIGHT + CAN (lbs.)	1.40
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.33
WEIGHT SOLID (lbs.)	1.07
MOISTURE (%)	**5.0**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0210	0
10	2	9.8	0.2	0.0211	463
20	3	14.6	0.5	0.0211	693
30	6	29.3	0.7	0.0212	1384
40	12	58.6	0.9	0.0212	2761
50	21	102.5	1.1	0.0213	4821
60	33	161.1	1.4	0.0213	7559
80	70	341.8	1.8	0.0214	15961
100	120	586.0	2.3	0.0215	27236
120	177	864.3	2.7	0.0216	39988
140	219	1069.4	3.2	0.0217	49247
150	240	1172.0	3.4	0.0218	53844
160	261	1274.5	3.6	0.0218	58419
170	276	1347.8	3.8	0.0219	61532
180	268	1308.7	4.1	0.0219	59705



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.4
STRAIN AT FAILURE (%)	3.8
UNCONFINED COMPRESSIVE STRENGTH (ksf)	61.6
SHEAR STRENGTH (ksf)	30.8

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

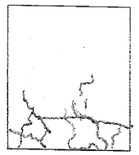
PROJECT NUMBER : **051008NE**
BORING NUMBER : **207** SAMPLE NUMBER : **RC-2** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **91.0** to **91.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	1.97
HEIGHT (in.)	4.44
HEIGHT TO DIAMETER RATIO	2.26
AVERAGE AREA (sq. ft.)	0.0211
VOLUME (cu. ft.)	0.0078
WET WEIGHT (lbs.)	1.17
DRY WEIGHT (lbs.)	1.12
DRY DENSITY (pcf)	**143.0**

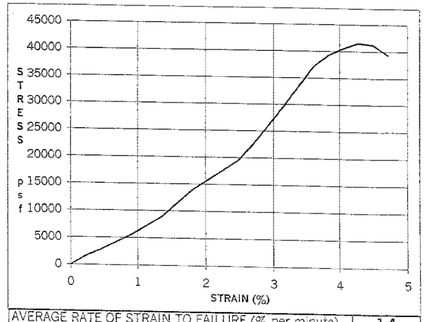
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	DF
WET WEIGHT + CAN (lbs.)	1.58
DRY WEIGHT + CAN (lbs.)	1.53
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	1.10
MOISTURE (%)	**4.9**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0211	0
10	7	34.2	0.2	0.0211	1620
20	12	58.6	0.5	0.0211	2771
40	24	117.2	0.9	0.0212	5517
60	39	190.4	1.4	0.0213	8925
80	61	297.9	1.8	0.0214	13895
110	86	420.0	2.5	0.0216	19455
120	100	488.3	2.7	0.0216	22570
140	132	644.6	3.2	0.0217	29655
160	166	810.6	3.6	0.0218	37120
170	176	859.4	3.8	0.0219	39264
180	182	888.7	4.1	0.0219	40508
190	187	913.2	4.3	0.0220	41523
200	186	908.3	4.5	0.0220	41204
210	178	869.2	4.7	0.0221	39339



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.4
STRAIN AT FAILURE (%)	4.3
UNCONFINED COMPRESSIVE STRENGTH (ksf)	41.5
SHEAR STRENGTH (ksf)	20.8

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

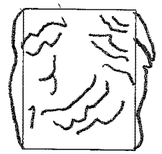
PROJECT NUMBER : **051008NE**
BORING NUMBER : **209** SAMPLE NUMBER : **5B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled gray to olive brown moist medium stiff SILTY CLAY** DEPTH (FT.): **13.2** to **13.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.85
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0442
VOLUME (cu. ft.)	0.0206
WET WEIGHT (lbs.)	2.58
DRY WEIGHT (lbs.)	2.05
DRY DENSITY (pcf)	**99.6**

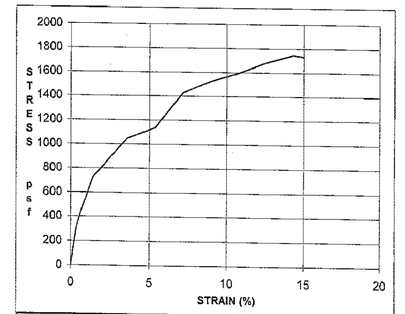
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	X2X
WET WEIGHT + CAN (lbs.)	3.06
DRY WEIGHT + CAN (lbs.)	2.53
WEIGHT WATER (lbs.)	0.53
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	2.03
MOISTURE (%)	**26.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0442	0
20	14.0	14.0	0.4	0.0444	315
40	21.0	21.0	0.7	0.0445	471
60	27.0	27.0	1.1	0.0447	604
80	33.0	33.0	1.4	0.0449	736
100	35.0	35.0	1.8	0.0450	777
200	48.0	48.0	3.6	0.0459	1047
300	53.0	53.0	5.4	0.0467	1134
400	68.0	68.0	7.2	0.0476	1427
500	74.0	74.0	9.0	0.0486	1523
600	79.0	79.0	10.8	0.0495	1594
700	85.0	85.0	12.5	0.0506	1681
740	87.0	87.0	13.3	0.0510	1706
800	90.0	90.0	14.3	0.0516	1743
837	90.0	90.0	15.0	0.0520	1730



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	14.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,740
SHEAR STRENGTH (psf)	870

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

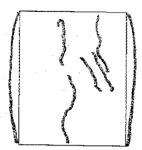
PROJECT NUMBER : **051008NE**
BORING NUMBER : **209** SAMPLE NUMBER : **8A** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist very stiff SILTY CLAY with iron oxide stains** DEPTH (FT.): **20.2** to **20.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0428
VOLUME (cu. ft.)	0.0199
WET WEIGHT (lbs.)	2.63
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**107.6**

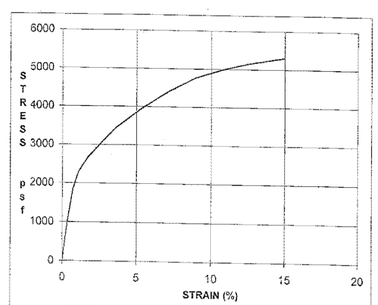
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	np-4
WET WEIGHT + CAN (lbs.)	3.05
DRY WEIGHT + CAN (lbs.)	2.57
WEIGHT WATER (lbs.)	0.48
WEIGHT CAN (lbs.)	0.44
WEIGHT SOLID (lbs.)	2.13
MOISTURE (%)	**22.8**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0428	0
20	45.0	45.0	0.4	0.0430	1048
40	79.0	79.0	0.7	0.0431	1832
60	98.0	98.0	1.1	0.0433	2265
80	108.0	108.0	1.4	0.0434	2487
100	117.0	117.0	1.8	0.0436	2684
200	152.0	152.0	3.6	0.0444	3424
300	179.0	179.0	5.4	0.0452	3957
400	203.0	203.0	7.2	0.0461	4403
500	224.0	224.0	9.0	0.0470	4764
600	239.0	239.0	10.7	0.0480	4983
700	252.0	252.0	12.5	0.0489	5149
800	263.0	263.0	14.3	0.0500	5264
820	265.0	265.0	14.7	0.0502	5282
837	267.0	267.0	15.0	0.0504	5302



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	15.0
UNCONFINED COMPRESSIVE STRENGTH (psf)	5,300
SHEAR STRENGTH (psf)	2650

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

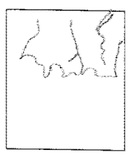
PROJECT NUMBER : **051008NE**
BORING NUMBER : **213** SAMPLE NUMBER : **RC-1** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **82.0** to **82.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.00
HEIGHT (in.)	4.75
HEIGHT TO DIAMETER RATIO	2.38
AVERAGE AREA (sq. ft.)	0.0217
VOLUME (cu. ft.)	0.0086
WET WEIGHT (lbs.)	1.27
DRY WEIGHT (lbs.)	1.19
DRY DENSITY (pcf)	**138.0**

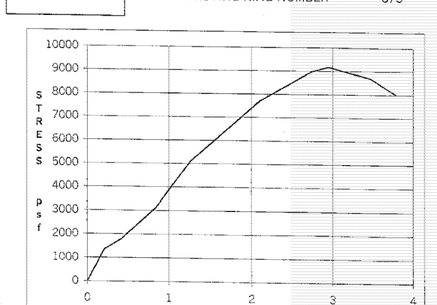
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	Q8
WET WEIGHT + CAN (lbs.)	1.68
DRY WEIGHT + CAN (lbs.)	1.60
WEIGHT WATER (lbs.)	0.08
WEIGHT CAN (lbs.)	0.41
WEIGHT SOLID (lbs.)	1.18
MOISTURE (%)	**7.1**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0217	0
10	6	29.3	0.2	0.0217	1347
20	8	39.1	0.4	0.0218	1793
30	11	53.7	0.6	0.0218	2460
40	14	68.4	0.8	0.0219	3124
60	23	112.3	1.3	0.0220	5111
80	29	141.6	1.7	0.0221	6416
90	32	156.3	1.9	0.0221	7065
100	35	170.9	2.1	0.0222	7711
110	37	180.7	2.3	0.0222	8134
120	39	190.4	2.5	0.0223	8555
130	41	200.2	2.7	0.0223	8974
140	42	205.1	2.9	0.0224	9173
165	40	195.3	3.5	0.0225	8689
180	37	180.7	3.8	0.0226	8011



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.3
STRAIN AT FAILURE (%)	2.9
UNCONFINED COMPRESSIVE STRENGTH (ksf)	9.2
SHEAR STRENGTH (ksf)	4.6

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

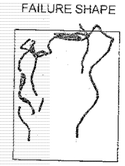
PROJECT NUMBER : **051008NE**
BORING NUMBER : **213** SAMPLE NUMBER : **10B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown moist medium stiff sandy CLAY** DEPTH (FT.): **25.2** to **25.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/19/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.84
HEIGHT (in.)	5.57
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0441
VOLUME (cu. ft.)	0.0205
WET WEIGHT (lbs.)	2.64
DRY WEIGHT (lbs.)	2.18
DRY DENSITY (pcf)	**106.5**

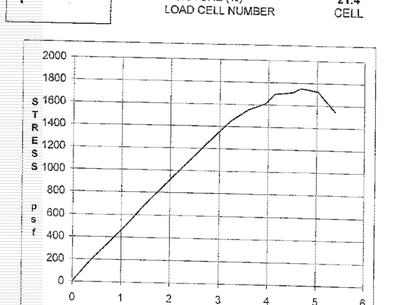
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	ky-19
WET WEIGHT + CAN (lbs.)	3.13
DRY WEIGHT + CAN (lbs.)	2.67
WEIGHT WATER (lbs.)	0.46
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	2.17
MOISTURE (%)	**21.4**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0441	0
20	8.0	8.0	0.4	0.0443	181
40	15.0	15.0	0.7	0.0444	338
60	22.0	22.0	1.1	0.0446	494
80	30.0	30.0	1.4	0.0447	671
100	37.0	37.0	1.8	0.0449	824
160	59.0	59.0	2.9	0.0454	1299
180	66.0	66.0	3.2	0.0458	1448
200	71.0	71.0	3.6	0.0457	1552
220	74.0	74.0	4.0	0.0459	1612
230	78.0	78.0	4.1	0.0460	1696
250	79.0	79.0	4.5	0.0462	1711
260	81.0	81.0	4.7	0.0463	1751
280	80.0	80.0	5.0	0.0464	1723
300	72.0	72.0	5.4	0.0466	1545



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	4.7
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,750
SHEAR STRENGTH (psf)	875

REMARKS :

DRAWN KPR CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
UNCONFINED COMPRESSION TEST DATA

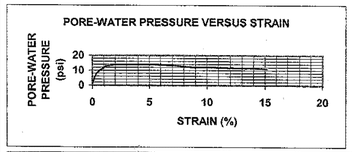
HAM-50-18.79

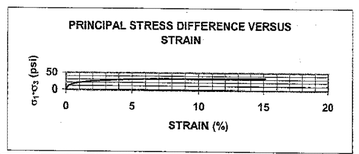
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

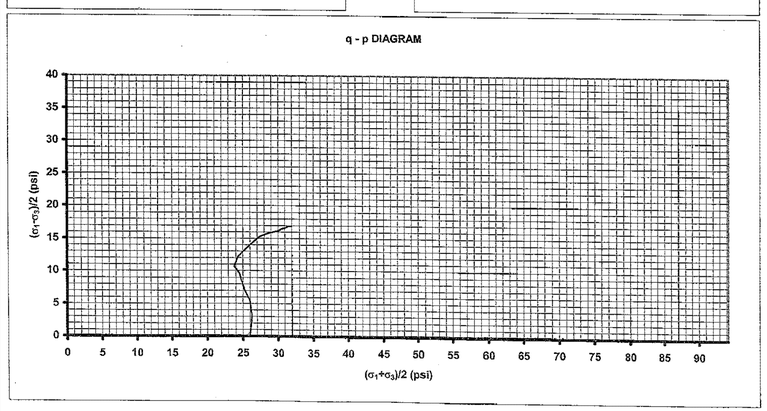
Client: Parsons, Brinckerhoff, Quade Douglas, Inc. **Project #:** 051008NE
Project: Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnti, Ohio **Date:** 7/13/06
Boring: 112 **Sample:** 11A **Depth (feet):** 30.2-30.7 **Sample Type:** Undisturbed
Sample Description: Gray moist medium stiff SILTY CLAY
Liquid Limit: **Plastic Limit:** **Plastic Index:** **USCS:**
Gravel(%): **Sand(%):** **Silt(%):** **Clay(%):** **Specific Gravity:** 2.75

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	102.2	105.5
Water Content (%)	20.4	25.4
Void Ratio	0.68	0.63
Saturation (%)	83	100
Diameter (in.)	2.805	2.775
Height (in.)	5.577	5.518
Saturation Data		
Pore Pressure Parameter B		0.97
Total Back Pressure (psi)		50

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.05
Effective Consolidation Stress (psi)	26
Strain Data	
Axial Strain at Failure (%)	3.9
Strain Rate (% per minute)	0.04
Soil Strength Parameters	
α (degrees)	20
ϕ (degrees)	21
y - intercept (psi)	5
cohesion (psf)	771





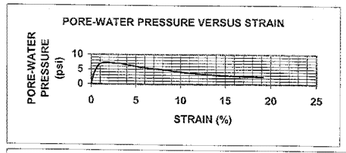


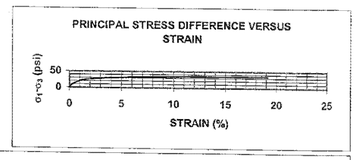
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

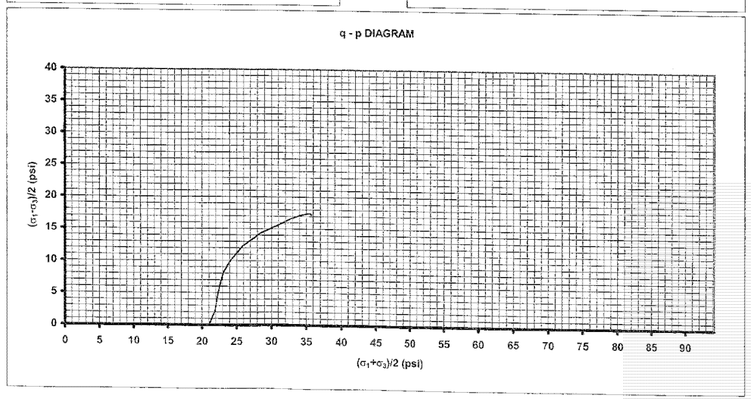
Client: Parsons, Brinckerhoff, Quade Douglas, Inc. **Project #:** 051008NE
Project: Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnti, Ohio **Date:** 7/12/06
Boring: 116 **Sample:** 11B **Depth (feet):** 30.6-31.1 **Sample Type:** Undisturbed
Sample Description: Chocolate brown moist stiff very SILTY CLAY with iron oxide stains
Liquid Limit: **Plastic Limit:** **Plastic Index:** **USCS:**
Gravel(%): **Sand(%):** 5 **Silt(%):** 60 **Clay(%):** 35 **Specific Gravity:** 2.75

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	103.0	105.5
Water Content (%)	23.7	23.2
Void Ratio	0.67	0.63
Saturation (%)	98	100
Diameter (in.)	2.837	2.814
Height (in.)	5.574	5.530
Saturation Data		
Pore Pressure Parameter B		0.95
Total Back Pressure (psi)		50

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.22
Effective Consolidation Stress (psi)	21
Strain Data	
Axial Strain at Failure (%)	1.6
Strain Rate (% per minute)	0.04
Soil Strength Parameters	
α (degrees)	27
ϕ (degrees)	30.5
y - intercept (psi)	0
cohesion (psf)	0





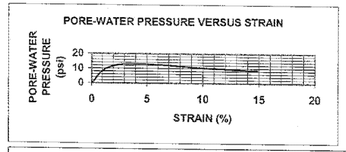


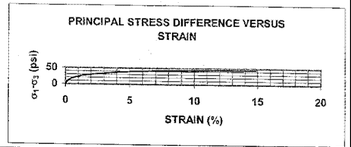
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

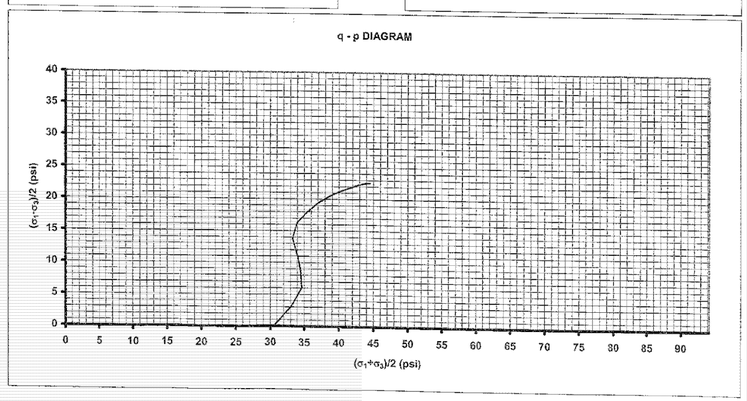
Client: Parsons, Brinckerhoff, Quade Douglas, Inc.O67 **Project #:** 051008NE
Project: Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnti, Ohio **Date:** 7/11/06
Boring: 116 **Sample:** 11C **Depth (feet):** 31.1-31.6 **Sample Type:** Undisturbed
Sample Description: Chocolate brown moist very SILTY CLAY
Liquid Limit: **Plastic Limit:** **Plastic Index:** **USCS:**
Gravel(%): **Sand(%):** **Silt(%):** **Clay(%):** **Specific Gravity:** 2.75

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	103.0	106.9
Water Content (%)	21.1	23.0
Void Ratio	0.67	0.61
Saturation (%)	87	100
Diameter (in.)	2.853	2.817
Height (in.)	5.594	5.525
Saturation Data		
Pore Pressure Parameter B		0.96
Total Back Pressure (psi)		50.5

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.23
Effective Consolidation Stress (psi)	30.5
Strain Data	
Axial Strain at Failure (%)	3.8
Strain Rate (% per minute)	0.04
Soil Strength Parameters	
α (degrees)	27
ϕ (degrees)	30.5
y - intercept (psi)	0
cohesion (psf)	0







DRAWN KPR
CHECKED

SOIL PROFILE - SUMMARY OF SOIL TESTS
TRIAXIAL COMPRESSION TEST DATA

HAM-50-18.79

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

Client: Parsons, Brinckerhoff, Quade Douglas, Inc. **Project #:** 051008NE

Project: Geotechnical Exploration, Replacement of Waidvogel Viaduct, Cincinnti, Ohio **Date:** 6/15/06

Boring: 118 **Sample:** PT13C **Depth (feet):** 41.5-42.0 **Sample Type:** Undisturbed

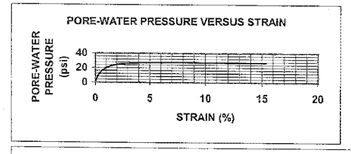
Sample Description: Gray moist medium stiff very SILTY CLAY

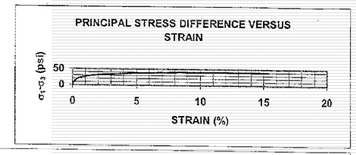
Liquid Limit: 28 **Plastic Limit:** 24 **Plastic Index:** 4 **USCS:** ML/A-4b

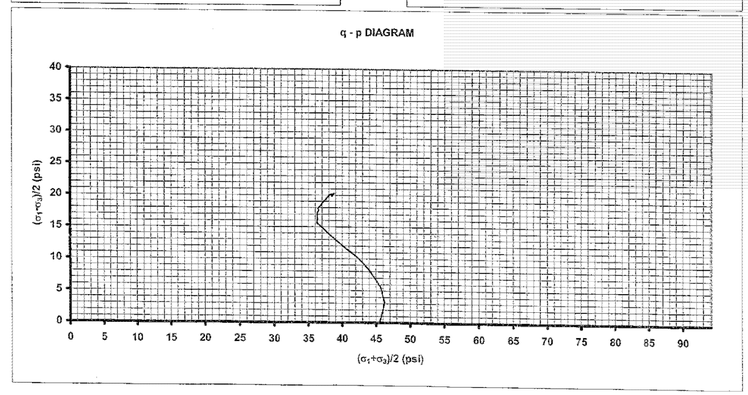
Gravel(%): **Sand(%):** 17 **Silt(%):** 55 **Clay(%):** 28 **Specific Gravity:** 2.75

Sample Data Before/After Consolidation		
	Before	After
Dry Density (pcf)	94.4	101.0
Water Content (%)	28.1	26.9
Void Ratio	0.82	0.70
Saturation (%)	94	100
Diameter (in.)	2.841	2.777
Height (in.)	5.561	5.439
Saturation Data		
Pore Pressure Parameter B		0.95
Total Back Pressure (psi)		37.5

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.06
Effective Consolidation Stress (psi)	45.5
Strain Data	
Axial Strain at Failure (%)	9.2
Strain Rate (% per minute)	0.04
Soil Strength Parameters	
α (degrees)	27
ϕ (degrees)	30.6
y - intercept (psi)	0
cohesion (psf)	0





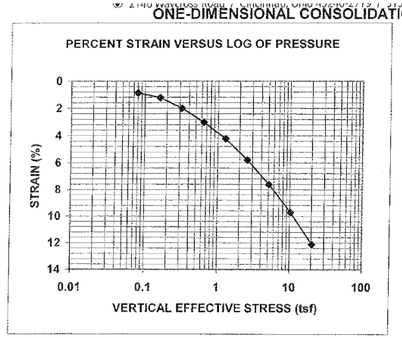


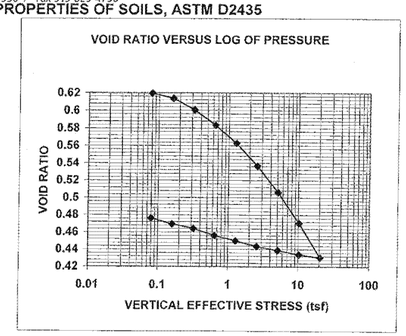
SOIL PROFILE - SUMMARY OF SOIL TESTS
TRIAXIAL COMPRESSION TEST DATA

DRAWN KPR
CHECKED ATS

HAM-50-18.79

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

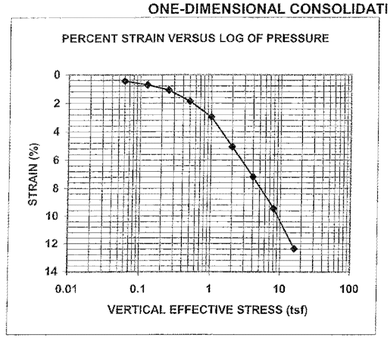
	INITIAL	FINAL
WATER CONTENT (%)	20.9	17.7
DRY UNIT WEIGHT (pcf)	105.1	118.1
VOID RATIO	0.6340	0.4869
SATURATION (%)	90.5	100.0

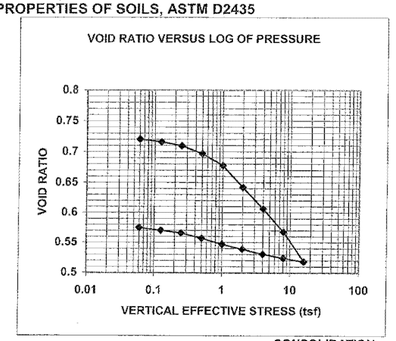
CONSOLIDATION PROPERTIES	
P_c (tsf)	1.1
P_o (tsf)	1.2
C_c	0.147
C_r	0.016

SAMPLE DESCRIPTION			Brown moist medium stiff SILTY CLAY					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION:CL	SPECIFIC GRAVITY
0	24	42	34	34	17	17	ODOT CLASSIFICATION:A-6b (11)	2.75

CLIENT	Parsons, Brinckerhoff, Quade Douglas, Inc.			BORING NUMBER	108
PROJECT	Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnati, Ohio			SAMPLE NUMBER	PT 1B
PROJECT #	051008NE	DATE	6/27/2006	DEPTH (feet)	18.2-18.4

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

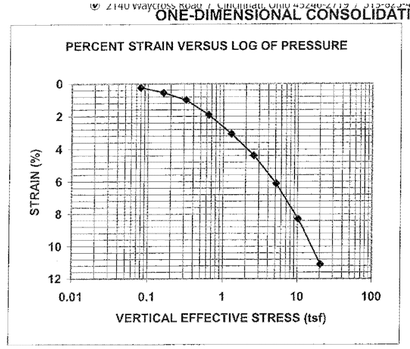
	INITIAL	FINAL
WATER CONTENT (%)	24.5	21.9
DRY UNIT WEIGHT (pcf)	96.1	106.1
VOID RATIO	0.7278	0.5820
SATURATION (%)	89.6	100.0

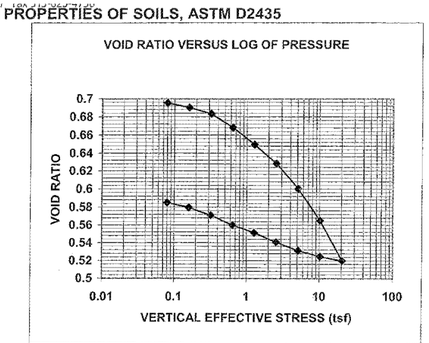
CONSOLIDATION PROPERTIES	
P_c (tsf)	1.1
P_o (tsf)	0.44
C_c	0.192
C_r	0.023

SAMPLE DESCRIPTION			Mottled brown, trace gray moist stiff SILTY CLAY					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION IS: CL	SPECIFIC GRAVITY
				41	23	18	ODOT CLASSIFICATION IS: A-7-6	2.66

CLIENT	Parsons Brinckerhoff Quade, Douglas, Inc.			BORING NUMBER	110
PROJECT	Replacement of Waldvogel Viaduct, Cincinnati, Ohio			SAMPLE NUMBER	4A
PROJECT NUMBER	051008NE	DATE	6/13/06	DEPTH (feet)	7.2-7.4

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

	INITIAL	FINAL
WATER CONTENT (%)	19.4	21.7
DRY UNIT WEIGHT (pcf)	101.1	103.9
VOID RATIO	0.6992	0.5962
SATURATION (%)	76.4	100.0

CONSOLIDATION PROPERTIES	
P_c (tsf)	2.2
P_o (tsf)	0.84
C_c	0.158
C_r	0.03

SAMPLE DESCRIPTION			Mottled brown, trace gray moist very stiff SILTY CLAY					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION IS CL	SPECIFIC GRAVITY
				44	22	22	ODOT CLASSIFICATION IS A-7-6	2.75

CLIENT	Parsons, Brinckerhoff, Quade Douglas, Inc.			BORING NUMBER	109
PROJECT	Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnati, Ohio			SAMPLE NUMBER	6B
PROJECT #	051008NE	DATE	6/27/06	DEPTH (feet)	13.7-14.1

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TESTS
CONSOLIDATION TEST DATA

HAM-50-18.79

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\024_20082GP100planandprofile.dgn 6/12/2010 4:02:51 PM kroell

BEGIN WORK
STA. 10+00.00

BEGIN PROJECT
STA. 11+54.26

POT Sta. 10+00.00

POT Sta. 11+64.17

RESIDENTIAL

INDUSTRIAL

N 43° 06' 03" E

N 41° 11' 12" E

23.5'

22.5'

25'

B-SG1-0-99

MATCH LINE
STA. 13+00.00

PROPOSED PROFILE

EXISTING PROFILE

EXISTING GROUND

B-SG1-0-99
STA. 11+75.0, 9.7' LT

19 18/8/10
25 10/11/18
25 6/10/12
WC

PROPOSED PROFILE US 50

504.15 503.64 503.13 502.62 502.10 501.59 501.08

506.59 505.88 505.06 504.15 503.32 502.31 501.30

10+00 11+00 12+00 13+00

515 510 505 500 495 490 485 480

DRAWN KPR
CHECKED ATS

HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE (US 50)
BEGIN WORK TO STA. 13+00.00

HAM-50-18.79

24 / 64

24
136

EXISTING PROFILE

PROPOSED PROFILE

13+00

14+00

15+00

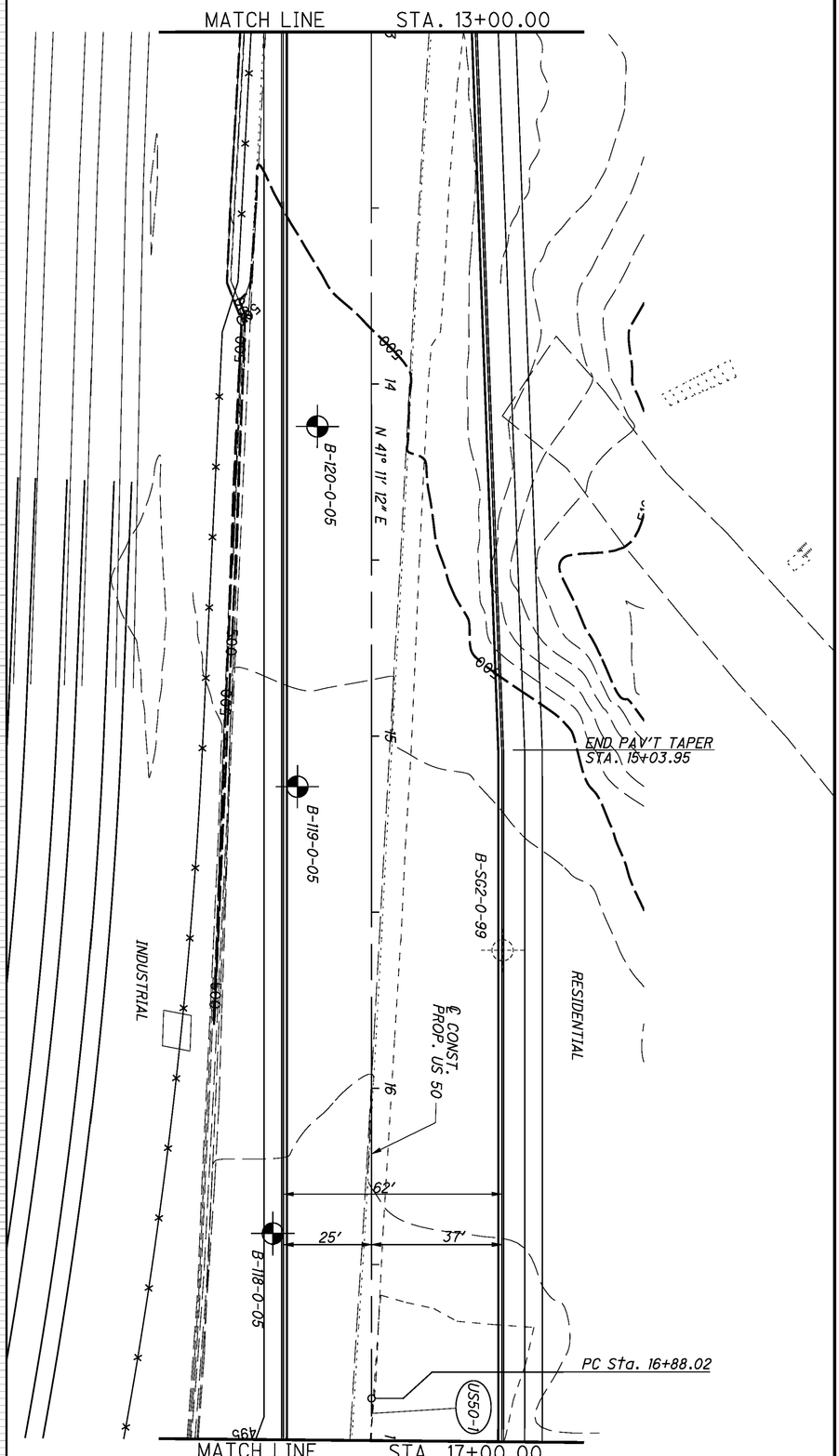
16+00

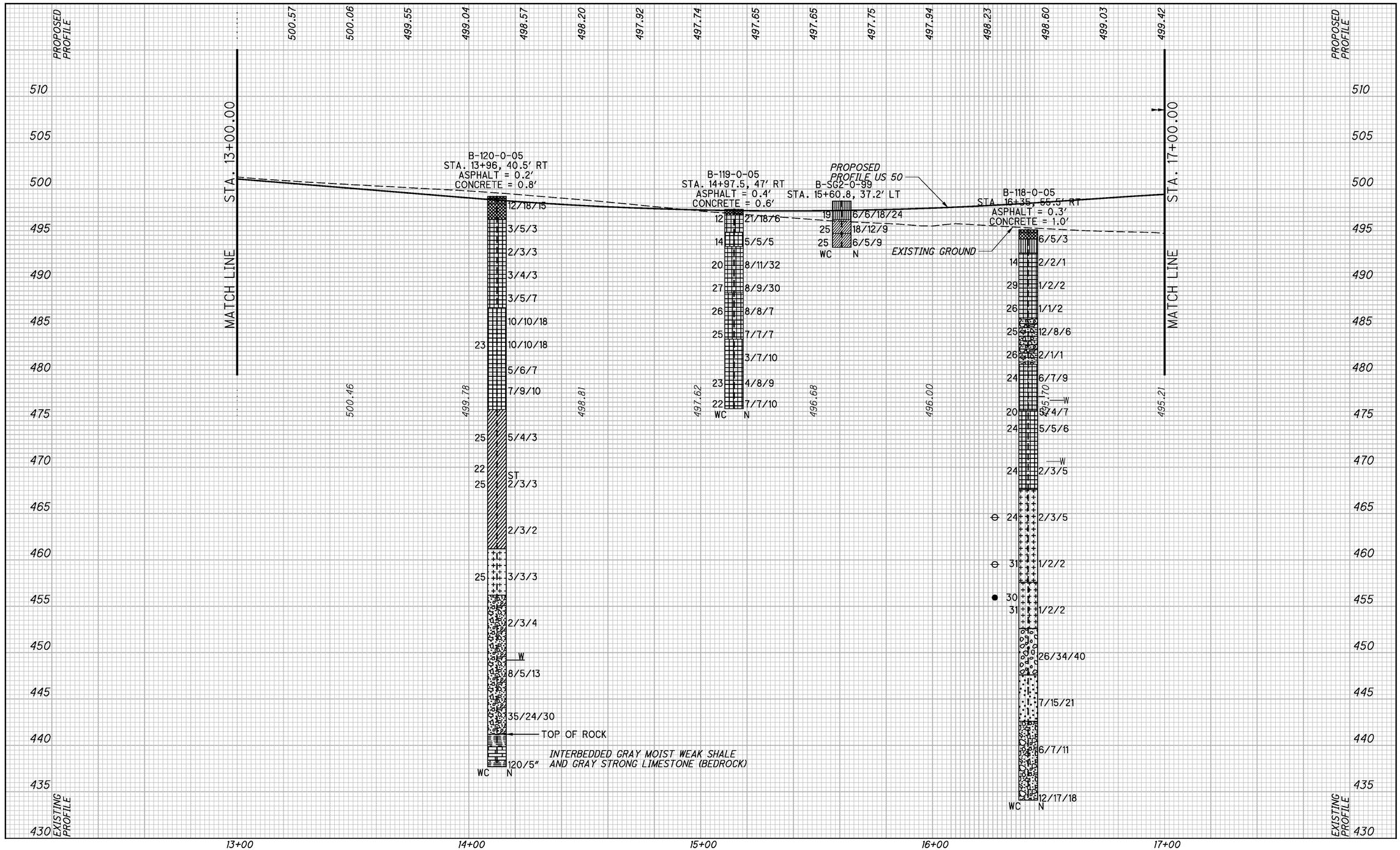
17+00

FOR PROFILE SEE SHEET 26

EXISTING PROFILE

PROPOSED PROFILE





T:\Projects\2007\070583N\Draw\Soil Plan and Profile\026_20082GF101profile.dgn 6/12/2010 4:03:32 PM kroell

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

PROFILE (US 50)
STA. 13+00.00 TO STA. 17+00.00

HAM-50-18.79

26 / 64

26
136

RESIDENTIAL

MEAVE ST.

B-206-0-05

RESIDENTIAL / COMMERCIAL

HAM-050-1881

℄ CONST. PROP. WARSAW EB RAMP

B-SG3-0-99

B-EB12-0-99

STA. 17+00.00

STA. 22+00.00

℄ CONST. PROP. US 50

US50-1

MATCH LINE

MATCH LINE

B-117-0-05

+13.83

B-116-0-05

B-205-0-05

INDUSTRIAL

HAM-050-1875

CSRR

+95.68

℄ CONST. PROP. ELBERON EB RAMP

NSRR

PROPOSED PROFILE

PROPOSED PROFILE

FOR PROFILE SEE SHEET 28

EXISTING PROFILE

EXISTING PROFILE

17+00 18+00 19+00 20+00 21+00 22+00

HORIZONTAL SCALE IN FEET

0 10 20 40

DRAWN KPR CHECKED ATS

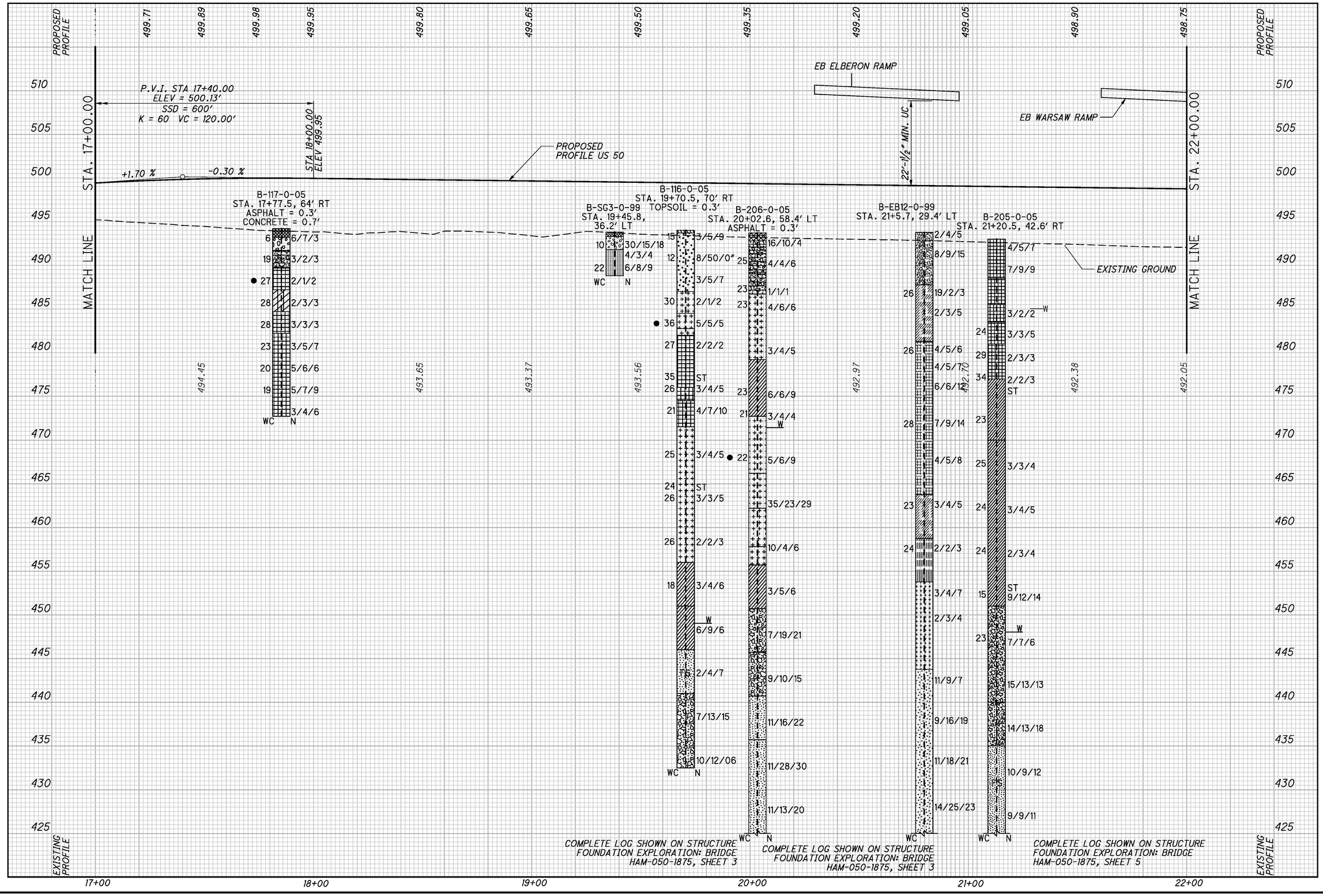
PLAN AND PROFILE (US 50)
STA. 17+00.00 TO STA. 22+00.00

HAM-50-18.79

27 / 64

27 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\027_2008ZGP102plan.dgn 6/12/2010 4:03:56 PM kroell



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

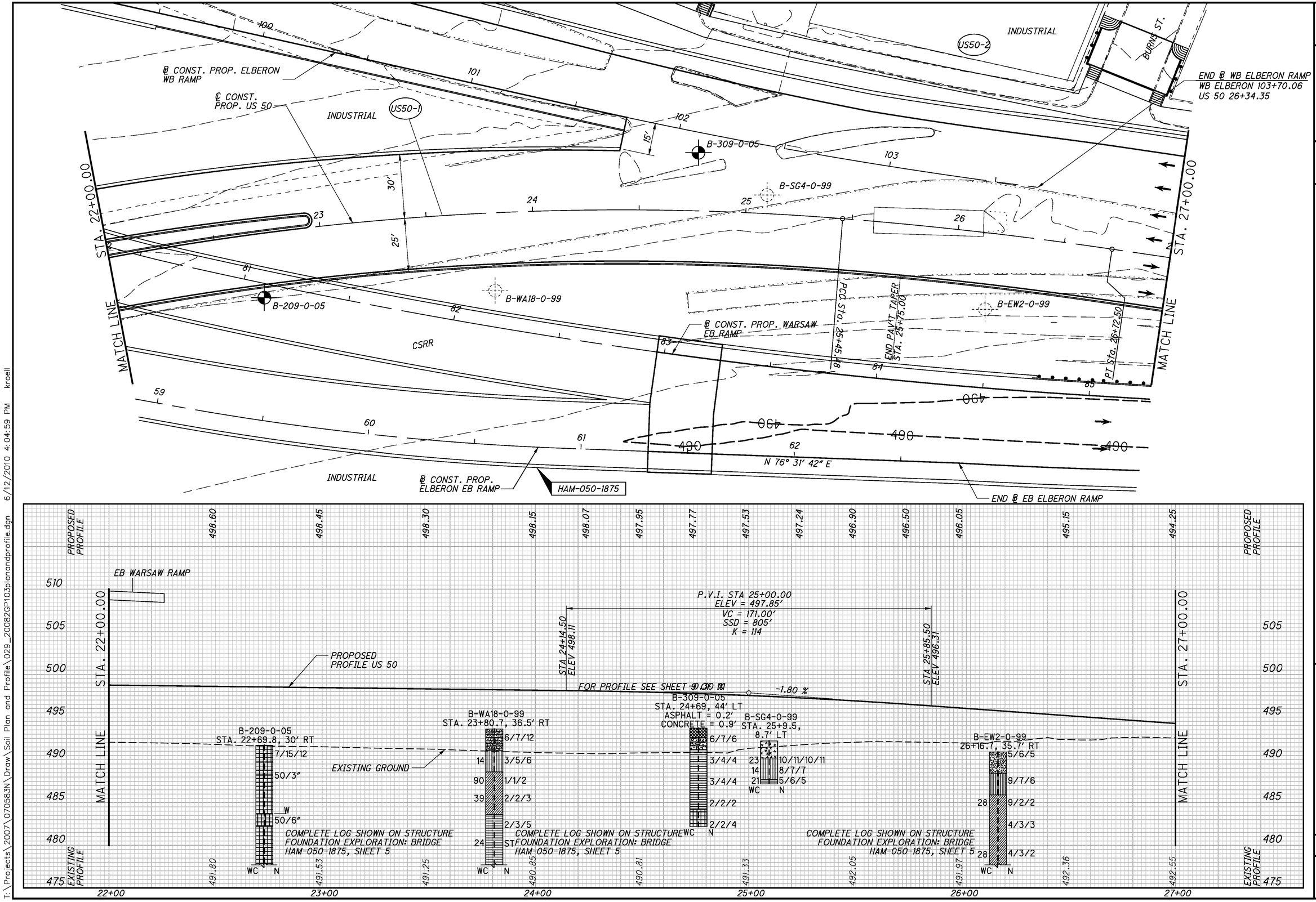
PROFILE (US 50)
STA. 17+00.00 TO STA. 22+00.00

HAM-50-18.79

28 / 64

28 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\028_20082GF102profile.dgn 6/12/2010 4:04:27 PM kroell



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

PLAN AND PROFILE (US 50)
STA. 22+00.00 TO STA. 27+00.00

HAM-50-18.79

29 / 64

29 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\029_20082GP103planandprofile.dgn 6/12/2010 4:04:59 PM kroell

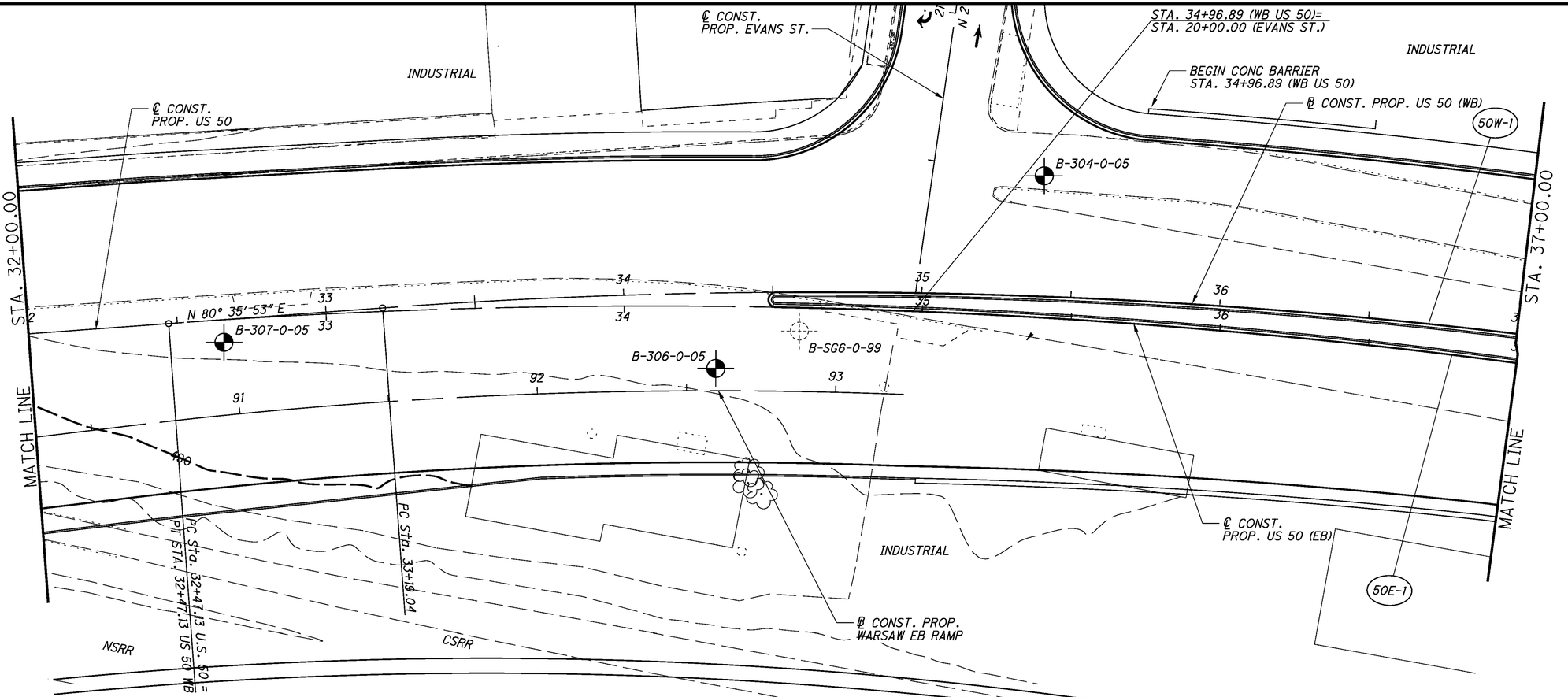
T:\Projects\2007\070583N\Draw\Soil Plan and Profile\030_20082GP104planandprofile.dgn 6/12/2010 4:05:21 PM kroell

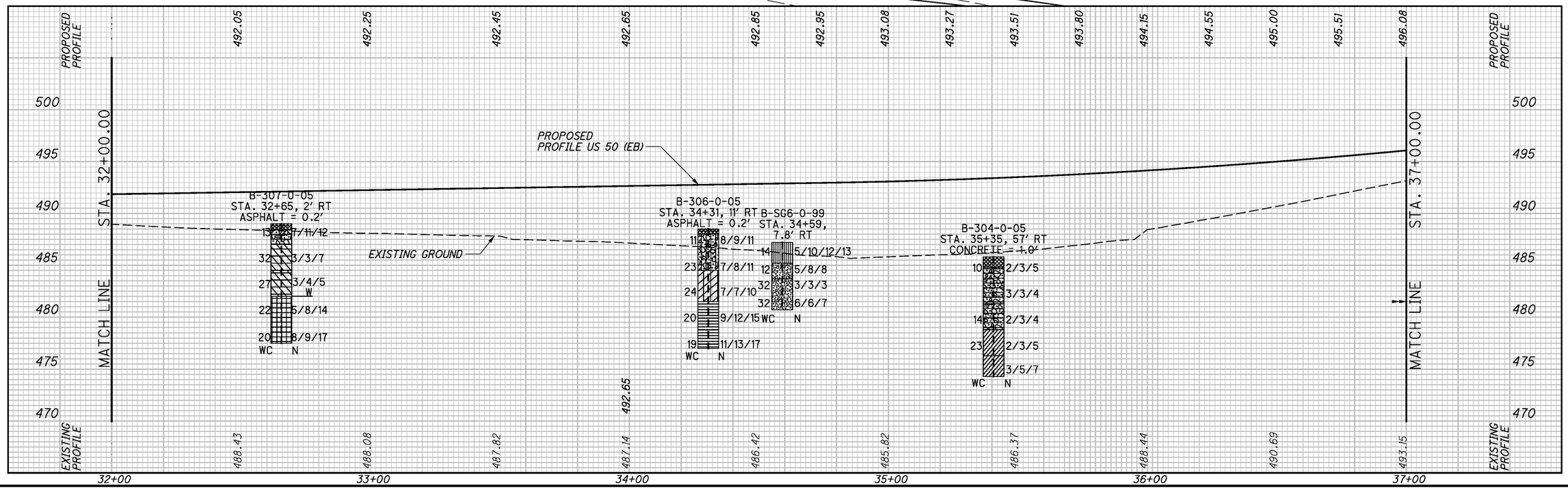
HORIZONTAL SCALE IN FEET

DRAWN KPR CHECKED ATS

PLAN AND PROFILE (US 50)
STA. 27+00.00 TO STA. 32+00.00

HAM-50-18.79





PLAN AND PROFILE (US 50)
STA. 32+00.00 TO STA. 37+00.00

HAM-50-18.79

31 / 64

31 / 136

DRAWN KPR
CHECKED ATS

HORIZONTAL SCALE IN FEET

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\031_20082GP105planandprofile.dgn 6/12/2010 4:05:52 PM kroell

INDUSTRIAL

℄ CONST. PROP. US 50 (WB)

50W-1

50W-2

B-103-0-05

B-102-0-05

B-101-0-05

STA. 37+00.00

62'

50'

I.P.S.

110'

48'

4'

490

500

38

39

40

41

B-SG7-0-99

B-303-0-05

B-203-0-05

MATCH LINE

℄ CONST. PROP. US 50 (EB)

50E-1

INDUSTRIAL

PCC Sta. 39+22.10

END PAV'T TAPER STA. 39+22.10

END PAV'T TAPER STA. 39+53.57

PDT Sta. 41+05.86

HAM-050-1903 L/R

S 79° 10' 00" E

PT Sta. 40+53.92

END WORK STA. 41+03.52

PT Sta. 41+03.52

PROPOSED PROFILE

EXISTING PROFILE

FOR PROFILE SEE SHEET 33

37+00 38+00 39+00 40+00 41+00

N

0 10 20 40 HORIZONTAL SCALE IN FEET

DRAWN KPR CHECKED ATS

PLAN STA. 37+00.00 TO END WORK

HAM-50-18.79

32 / 64

32 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\032_20082GP106plan.dgn 6/12/2010 4:06:19 PM kroell

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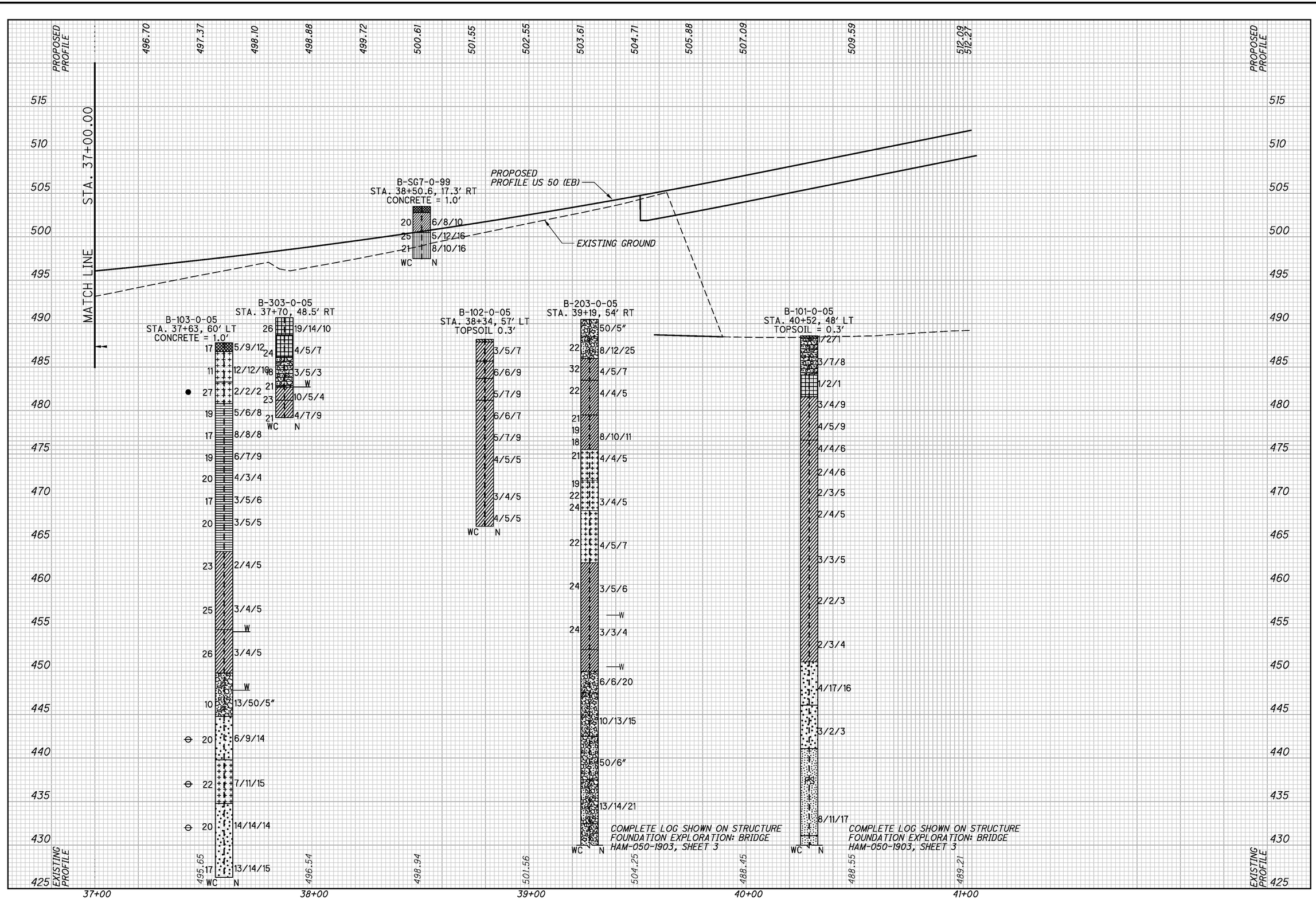
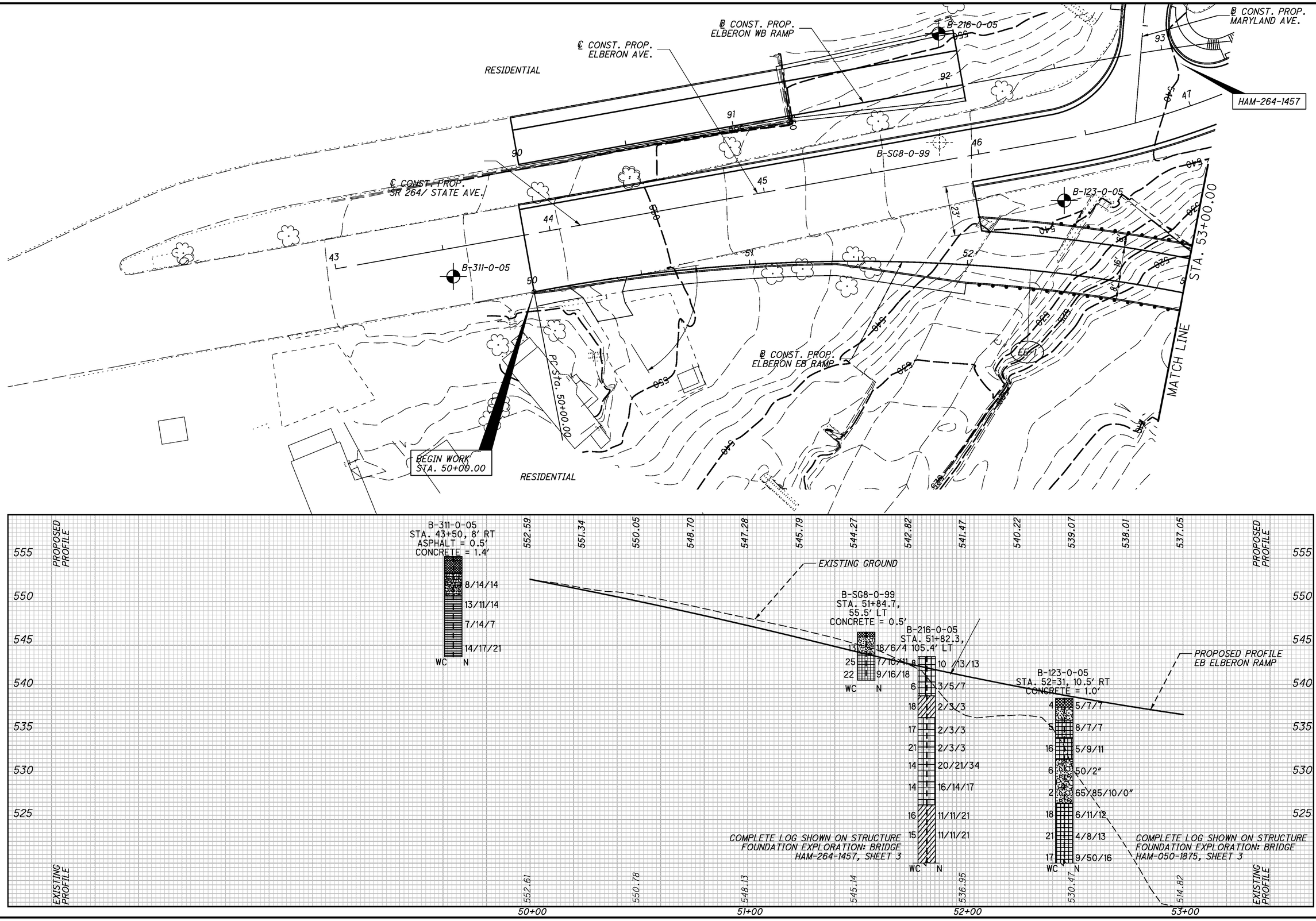


0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN KPR
CHECKED ATS

PROFILE
STA. 37+00.00 TO END WORK

HAM-50-18.79



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HORIZONTAL SCALE IN FEET

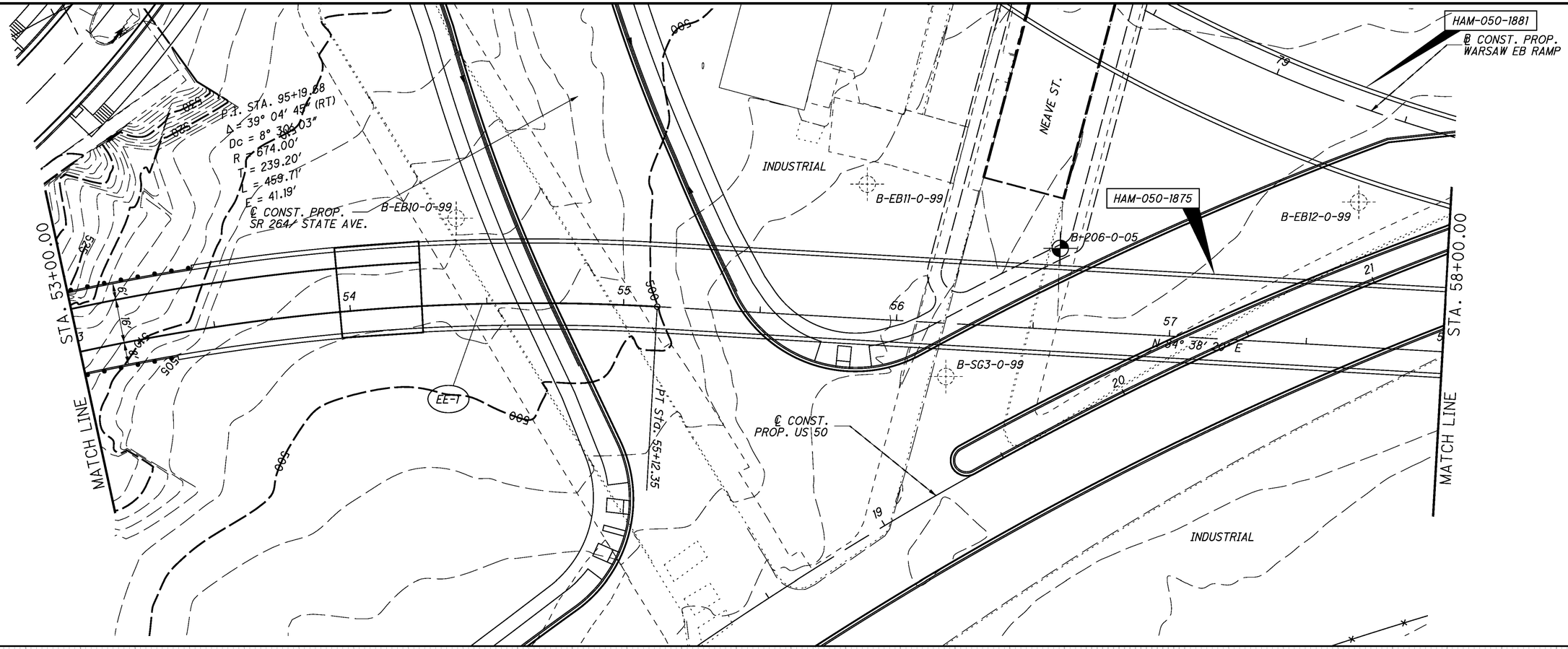
DRAWN KPR CHECKED

PLAN (EB ELBERON RAMP) BEGIN WORK TO STA. 53+00.00

HAM-50-18.79

34/64

34/136



PROPOSED PROFILE

PROPOSED PROFILE

FOR PROFILE SEE SHEET 36

EXISTING PROFILE

EXISTING PROFILE

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\035_20082GP201plan.dgn 6/12/2010 4:07:32 PM kroell

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

PLAN (EB ELBERON RAMP)
STA. 53+00.00 TO STA. 58+00.00

HAM-50-18.79

35 / 64

35 / 136

PROPOSED PROFILE

STA. 53+00.00

MATCH LINE

6.10 %

-0.40 %

P.V.I. STA 53+25.00
ELEV = 533.59'
VC = 364.99'
K = 64

STA 55+07.50
ELEV 532.86

536.19 535.42 534.76 534.19 533.72 533.34 533.07 532.89 532.79 532.69 532.59 532.49 532.39 532.29 532.19 532.09 531.99 531.89 531.79 531.69

STA. 58+00.00

MATCH LINE

PROPOSED PROFILE

PROPOSED PROFILE
EB ELBERON RAMP

STATE AVE.

EXISTING GROUND

US 50

B-EB10-0-99
STA. 54+39.9, 31.6' LT
CONCRETE = 0.8'

	14/7/6
24	6/5/5
	4/5/5
	5/4/5
16	4/4/6
	4/5/5
20	3/4/5
	4/3/4
22	3/3/4
	3/3/3
28	2/3/3
	7/10/5
22	3/4/5
	W
	3/5/9
	7/9/10

WC N

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1875, SHEET 3

B-EB11-0-99
STA. 55+86.5, 49.2' LT
CONCRETE = 0.5'

	3/4/4
24	2/3/3
	5/4/5
21	3/5/6
	3/4/6
21	3/4/5
	2/3/5
23	4/4/4
23	3/4/6
	2/1/2
23	4/5/6
	12/12/7
25	5/5/7

WC N

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1875, SHEET 3

B-SG3-0-099
STA. 56+19.2,
19.5' RT
CONCRETE = 0.5'

10	30/15/18
	4/3/4
22	6/8/9

WC N

B-206-0-05
STA. 56+58.3, 29.7' LT
PAVEMENT = 1.3'

	16/10/4
25	4/4/6
23	1/1/1
23	4/6/6
	3/4/5
23	6/6/9
21	3/4/4
	W
22	5/6/9
	35/23/29
	10/4/6
	3/5/6

WC N

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1875, SHEET 3

B-EB12-0-99
STA. 57+66.3, 52.9' LT

	2/4/5
	8/9/15
26	19/2/3
	2/3/5
26	4/5/6
	4/5/7
	6/6/12
28	7/9/14
	4/5/8
23	3/4/5
24	2/2/3
	3/4/7

WC N

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1875, SHEET 3

EXISTING PROFILE

514.82 504.45 503.00 502.63 501.22 494.78 493.64 493.55 493.10

EXISTING PROFILE

53+00 54+00 55+00 56+00 57+00 58+00

540 535 530 525 520 515 510 505 500 495 490 485 480 475 470 465 460 455 450 445

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

PROFILE (EB ELBERON RAMP)
STA. 53+00.00 TO STA. 58+00.00

HAM-50-18.79

36/64

36/136

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HAM-050-1881

STA. 58+00.00

MATCH LINE

B-205-0-05

B-209-0-05

B-EB13-0-99

B-204-0-05

HAM-050-1875

EL-2

PT Sta. 60+92.36

B-112-0-05

N 76° 31' 42" E

℄ CONST. PROP. US 50

℄ CONST. PROP. WARSAW EB RAMP

℄ CONST. PROP. ELBERON EB RAMP

PT Sta. 62+77.26

INDUSTRIAL

22'

30'

8'

1.5

0.18

FOR PROFILE SEE SHEET 38

PROPOSED PROFILE

EXISTING PROFILE

HORIZONTAL SCALE IN FEET

DRAWN KPR CHECKED ATS

PLAN (EB ELBERON RAMP)
STA. 58+00.00 TO STA. 66+98.64

HAM-50-18.79

37/64

37/136

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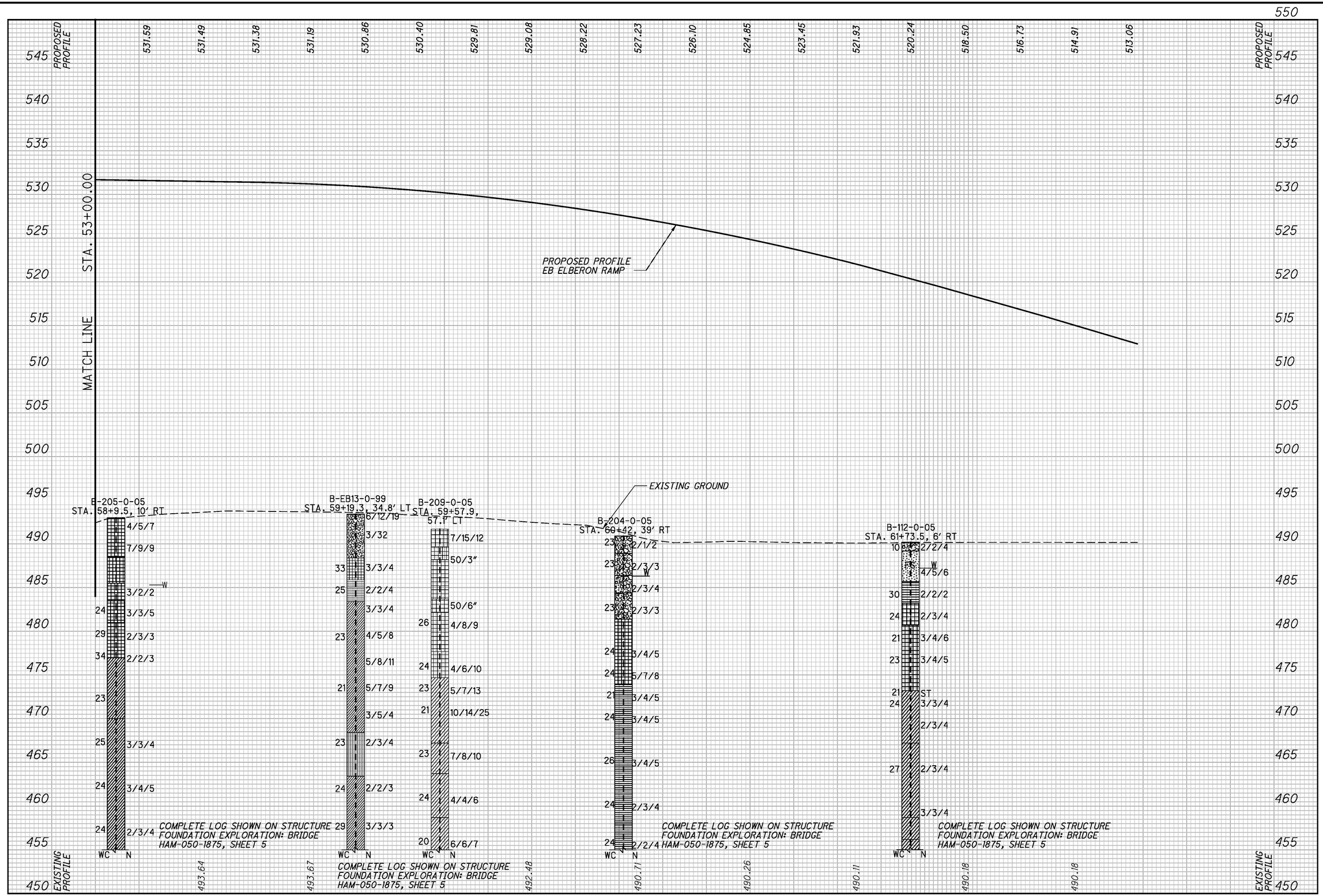

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

PROFILE (EB ELBERON RAMP)
STA. 58+00.00 TO STA. 62+77.26

HAM-50-18.79

38 / 64

38 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\038_2008GF202profile.dgn 6/12/2010 4:08:33 PM kroell

RESIDENTIAL

℄ CONST. PROP. ELBERON WB RAMP

℄ CONST. PROP. MARYLAND AVE.

HAM-264-1457

BEGIN WORK STA. 90+00.00

POT Sta. 90+00.00

B-216-0-07

B-215-0-07

EW-1

RESIDENTIAL

STA. 94+00.00

℄ CONST. PROP. ELBERON AVE.

B-124-0-05

N 47° 55' 08" E

B-SG8-0-99

PC Sta 92+80.48

MATCH LINE

B-123-0-05

℄ CONST. PROP. ELBERON EB RAMP

INDUSTRIAL

WALL #3

PROPOSED PROFILE

EXISTING PROFILE

FOR PROFILE SEE SHEET 40

HORIZONTAL SCALE IN FEET

DRAWN KPR

CHECKED ATS

PLAN (WB ELBERON RAMP)
BEGIN WORK TO STA. 94+00.00

HAM-50-18.79

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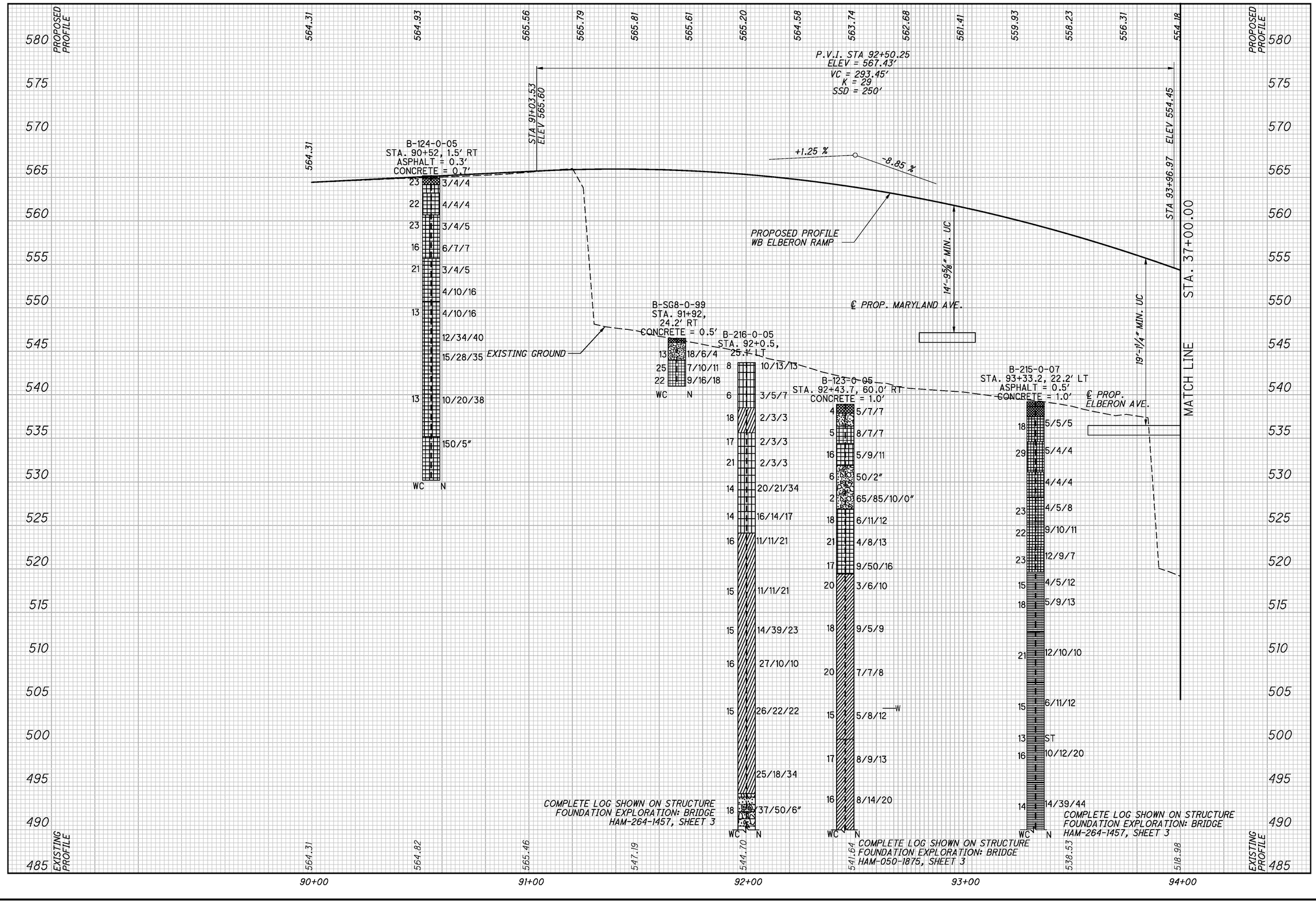

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HORIZONTAL SCALE IN FEET
0 10 20 40

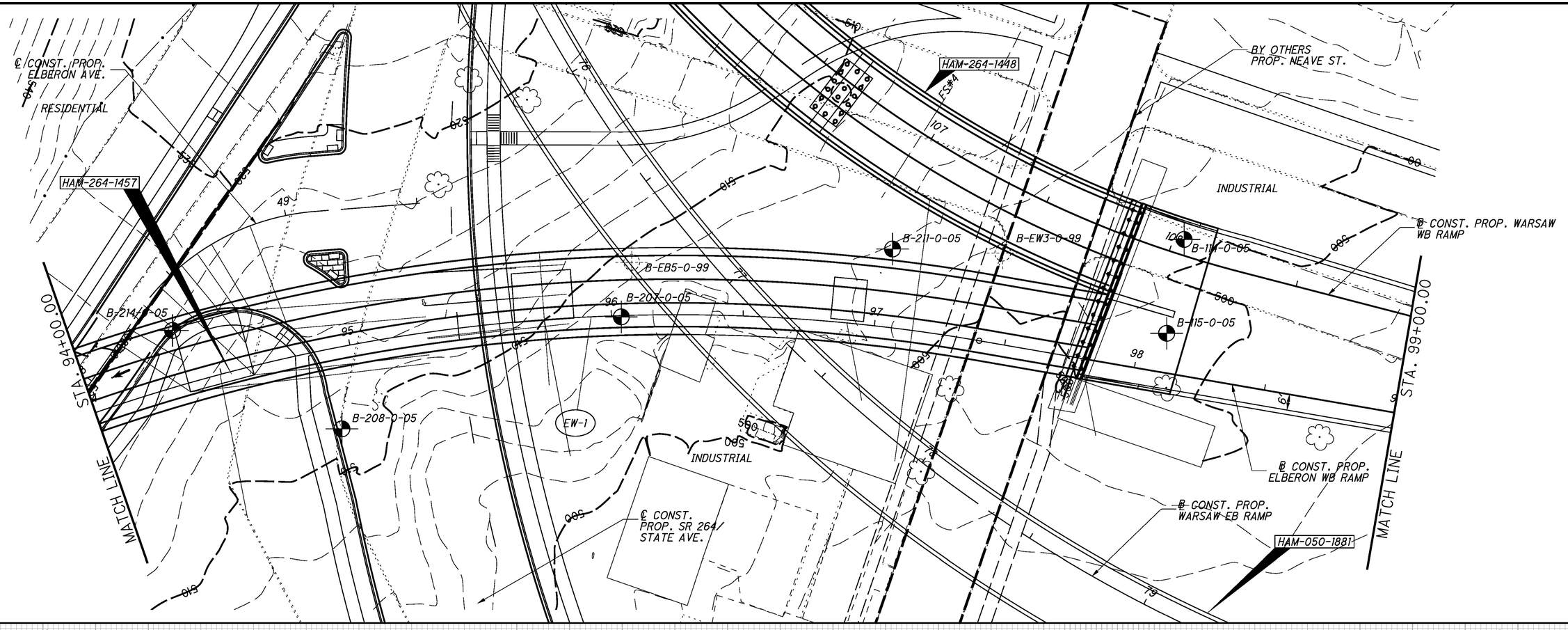
DRAWN KPR
CHECKED

PROFILE (WB ELBERON RAMP)
BEGIN WORK TO STA. 94+00.00

HAM-50-18.79

40 / 64

40
136



FOR PROFILE SEE SHEET 42

PROPOSED PROFILE

EXISTING PROFILE

PROPOSED PROFILE

EXISTING PROFILE

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

PLAN AND PROFILE (WB ELBERON RAMP)
STA. 94+00.00 STA. 99+00.00

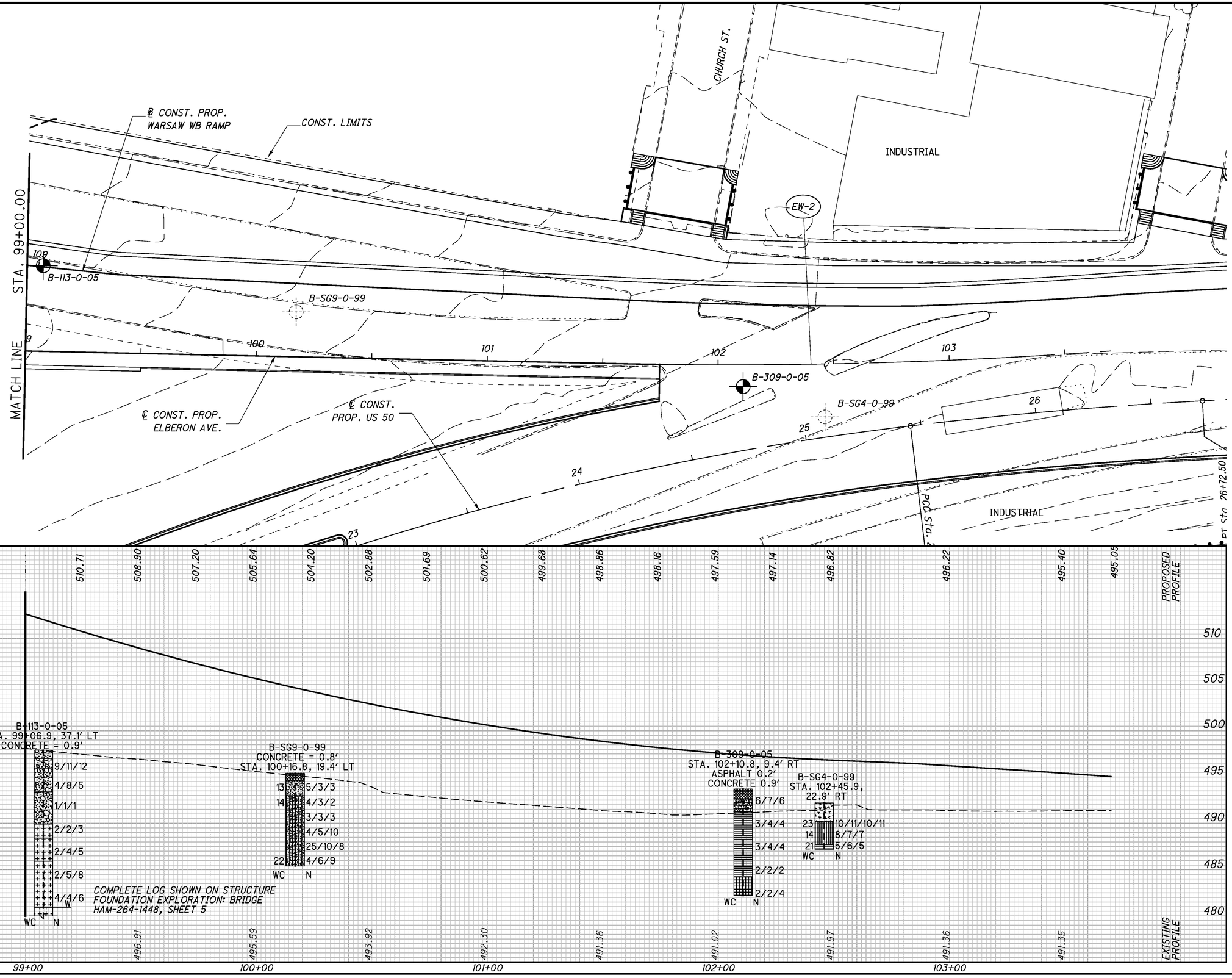
HAM-50-18.79

41 / 64

41
136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\041_20082GP301plan.dgn 6/12/2010 4:09:39 PM kroell

PROPOSED PROFILE
PROPOSED PROFILE
549.76
545.33
540.91
538.70
536.57
534.57
532.70
530.96
529.28
527.48
525.61
523.54
521.40
519.15
516.90
514.71
512.65
550
545
540
535
530
525
520
515
510
505
500
495
490
485
480
475
470
465
455
PROPOSED PROFILE WB ELBERON RAMP
℄ PROP. EB WARSAW RAMP
16'-6" MIN. UC
19'-1" MIN. UC
℄ PROP. STATE AVE.
-8.85 %
-6.70 %
-6.70 %
-8.69 %
-8.69 %
-9.00 %
P.V.I. STA 97+40.63
ELEV = 526.56'
VC = 105.00'
K = 53
SSD = 594'
STA 96+88.13
ELEV 530.08
STA 97+93.13
ELEV 522.00
STA 95+70.11
ELEV 539.13
STA 96+76.11
ELEV 530.88
P.V.I. STA 96+23.11
ELEV = 534.44'
VC = 106.00'
K = 49
STA 98+50.00
ELEV 516.90
MATCH LINE
STA. 94+00.00
MATCH LINE
STA. 99+00.00
B-214-0-07
STA. 94+36.7, 20.9' LT
TOPSOIL 2"
16 10/13/13
21 3/5/7
23 2/3/3
15 ST
16 20/21/34
12 16/14/17
14 11/11/21
14 PT
12 7/21/20
12 14/39/23
14 ST
7 27/10/10
27
30 26/22/22
14 25/18/34
13 29/37/50/6"
10 13/21/24
B-208-0-05
STA. 94+90.8, 30.6' RT
ASPHALT = 0.4'
PAAVERS = 0.4'
12/6/8
21/6/4
4/4/5
19 6/9/12
21 5/6/7
19 5/7/6
3/6/5 W TRACE
24 3/4/8
3/4/4
3/3/7
26 2/4/5
13/15/16
12/14/14
21/18/15 W
B-207-0-05
STA. 96+4.5, 8' RT
2/3/5
5/5/6
3/4/5
3/4/5
4/5/6
3/4/5
2/3/3
2/3/3
3/2/3
2/2/2
2/2/2
2/3/3
4/4/4
B-EB5-0-99
STA. 96+08.2,
20' LT
6/7/8
6/8/10
22 3/6/12
7/9/12
4/5/7
2/3/5
2/4/4
2/2/3
1/2/2
25 2/2/2
3/4/4
25 2/2/3
25 2/4/6
B-211-0-05
STA. 97+2.5, 16' LT
TOPSOIL = 0.5'
8/50/1"
3/7/7
3/3/3
3/3/4
3/3/4
ST
2/2/4
1/2/2 W
2/1/2
2/3/6
4/4/5
3/5/6
B-EW3-0-99
STA. 97+43.3,
34.2' LT
7/10/8
50/0
17 3/4/4
3/4/4
19 3/3/3
2/3/4
25 ST
22 2/3/5
1/2/2
23 1/3/4
22 3/4/6 ST
23 3/3/5 ST
23/20/8
B-115-0-05
STA. 98+9.8,
9.8' LT
TOPSOIL = 0.2'
7 3/5/6
5 1/4/2
9 1/2/1
21 3/3/4
25 2/3/4 W
26 1/2/4 W
27 2/2/3
26 2/3/4
27 4/4/5
27 3/4/5
24 5/6/8
26 6/8/9
B-114-0-05
STA. 98+10.2, 51.1' LT
CONCRETE = 0.7'
4/7/7
19 3/4/6
22 3/4/7
24 4/5/7
27 3/4/6 W
28 2/3/5
29 3/2/2
30 2/3/3
27 2/3/4
31 2/2/4 W
3/2/2
29 3/4/9
WC N
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1457, SHEET 3
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1457, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1457, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1448, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1457, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1448, SHEET 3
COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-264-1448, SHEET 3
EXISTING PROFILE
EXISTING PROFILE
94+00
95+00
96+00
97+00
98+00
99+00
0 10 20 40
HORIZONTAL SCALE IN FEET
DRAWN KPR
CHECKED ATS
PROFILE (WB ELBERON RAMP)
STA. 94+00.00 TO STA. 99+00.00
HAM-50-18.79
42/64
42/136
T:\Projects\2007\070583N\Draw\Soil Plan and Profile\042_20082GF301profile.dgn 6/12/2010 4:10:08 PM kroell



N

0 10 20 40 HORIZONTAL SCALE IN FEET

DRAWN KPR CHECKED ATS

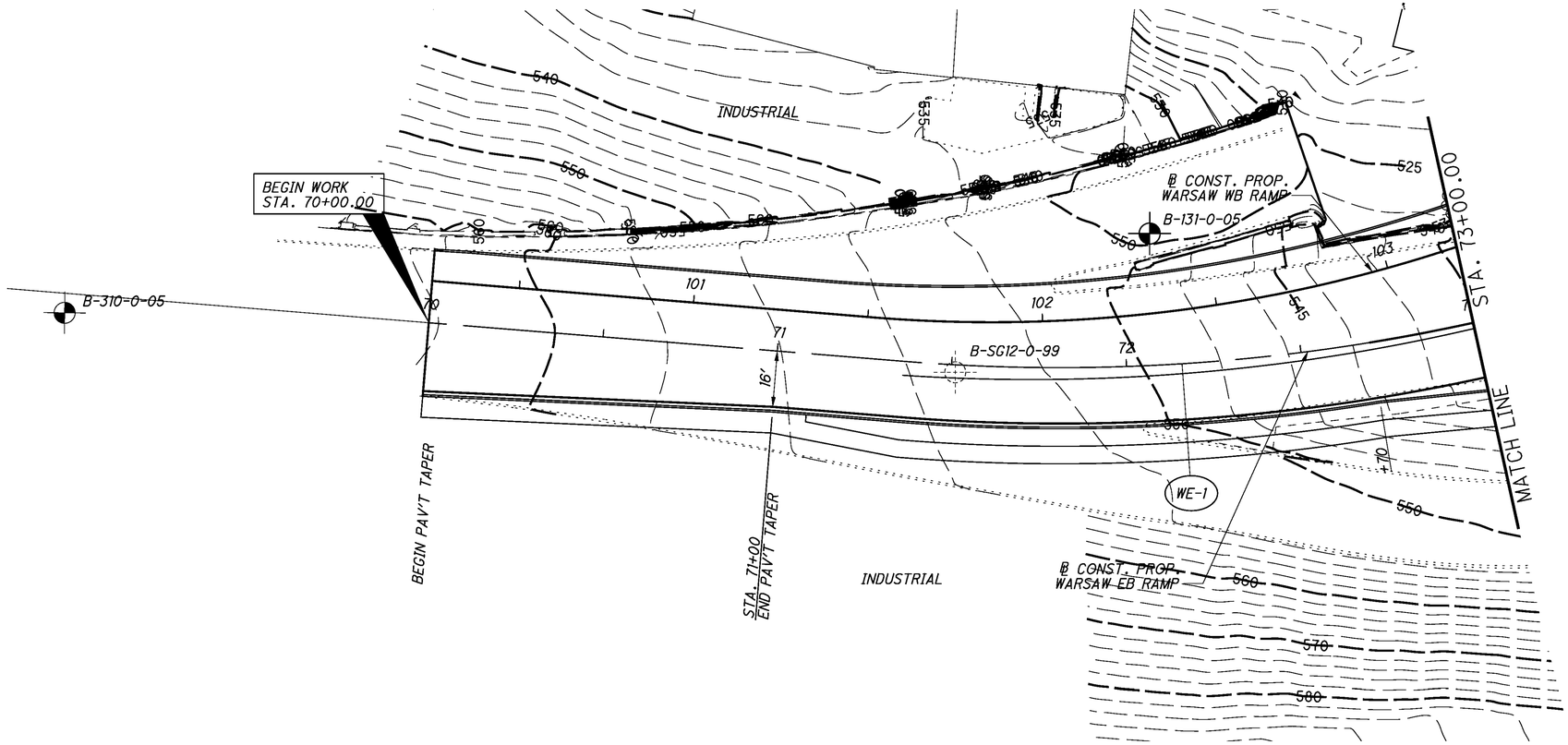
PLAN (WB ELBERON RAMP)
STA. 99+00.00 TO STA. 102+79.05

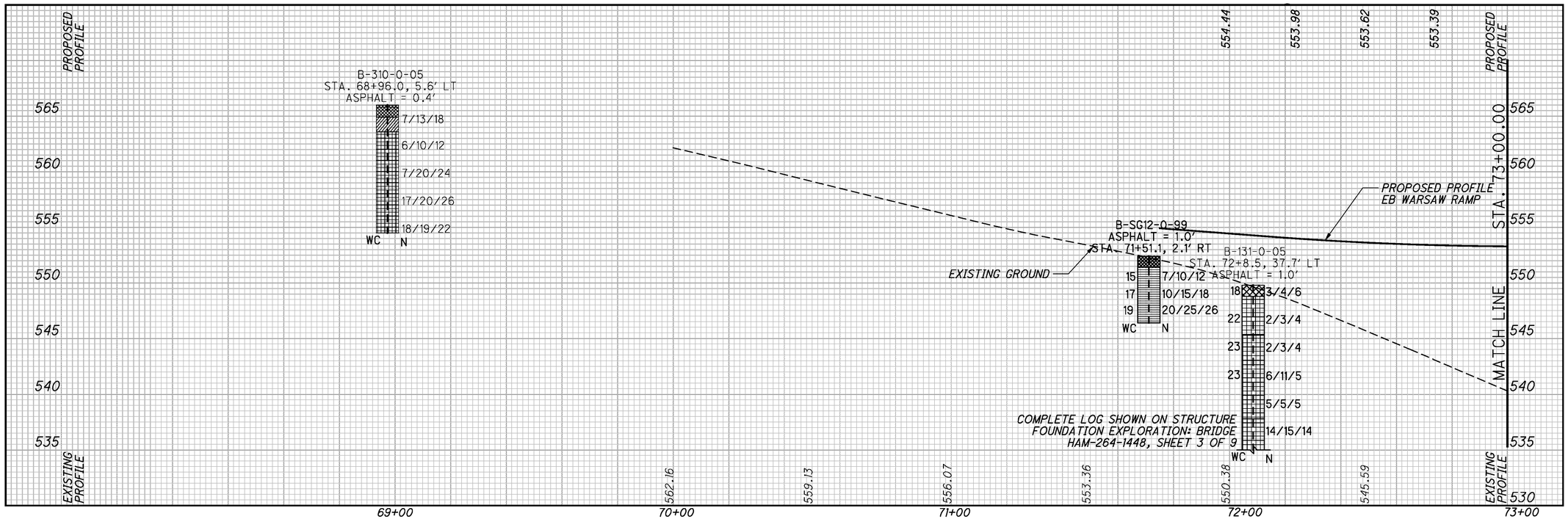
HAM-50-18.79

43 / 64

43 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\043_20082GP302plan.dgn 6/12/2010 4:10:34 PM kroell





HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

PLAN AND PROFILE (EB WARSAW RAMP)
BEGIN WORK TO STA. 73+00.00

HAM-50-18.79

44 / 64

44
136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\045_20082GP401plan.dgn 6/12/2010 4:11:20 PM kroell

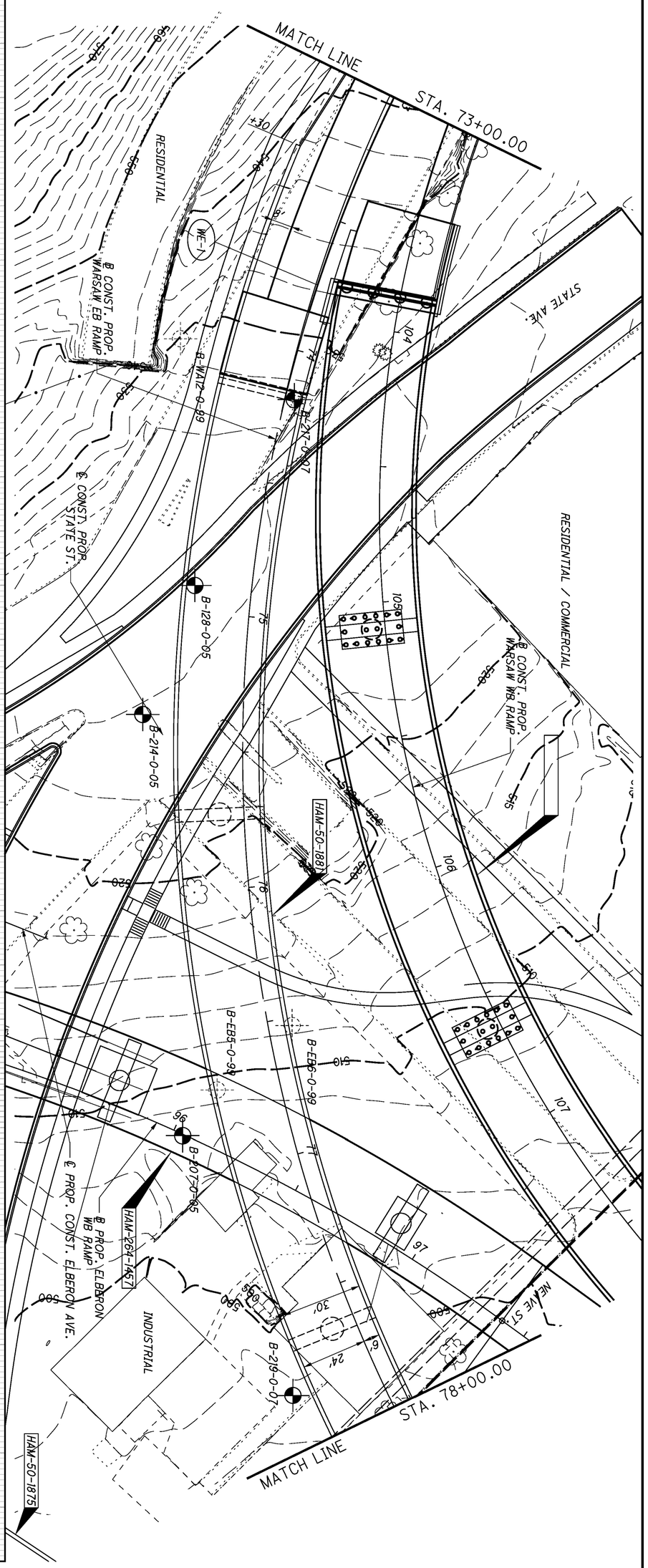
EXISTING PROFILE

PROPOSED PROFILE

FOR PROFILE SEE SHEET 46

EXISTING PROFILE

PROPOSED PROFILE



45 / 136	45 / 64	HAM-50-18.79	PLAN (EB WARSAW RAMP) STA. 73+00.00 TO STA. 78+00.00	DRAWN KPR	CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\046_20082GF401profile.dgn 6/12/2010 4:11:47 PM kroell

PROPOSED PROFILE

553.32 553.47 553.75 554.16 554.70 555.36 556.86 558.37 559.87 560.52 560.95 561.17 561.17 560.96 560.53 559.89 559.03

PROPOSED PROFILE

565 560 555 550 545 540 535 530 525 520 515 510 505 500 495 490 485 480 475

-1.90 % +3.01 %

P.V.I. STA 73+34.46
ELEV = 551.89'
VC = 240.39'
K = 49

STA 74+54.66
ELEV 555.50

PROPOSED PROFILE
EB WARSAW RAMP

℄ ELBERON WB RAMP

℄ STATE AVE.

STA. 73+00.00

STA. 78+00.00

MATCH LINE

MATCH LINE

EXISTING GROUND

B-WA12-0-99
STA. 74+7,
42.8' RT

3/4/5
4/6/9
10/9/12
3/8/12
6/7/8
10/5/11
5/8/12
4/9/11
8/12/12
17/15/15
7/9/10
4/17/35
10/18/22
50/3
17/10/19

B-217-0-07
STA. 72+80,
3.4' LT
ASPHALT 1.0'

3/7/9
5/7/11
9/15/18
13/10/13
13/13/19
50/6"
20/15/16
W
11/13/50/2"
17/16/20
7/39/20
W
PT
12/13/20
40/35/36
12/13/18
10/18/26
8/16/36

B-128-0-05
STA. 74+90.7, 21.0' RT
ASPHALT = 0.4'
CONCRETE = 0.9'

17/8/11
7/7/8
5/6/12
15/8/8
41/15/23
9/15/35
11/19/50/1"
8/25/14
9/10/22
22/25/28
18/21/25
21/22/25
9/10/18

B-214-0-07
STA. 75+37.0, 37' RT
TOPSOIL 2"

10/13/13
3/5/7
2/3/3
ST
20/21/34
16/14/17
11/11/21
ST
7/21/20
14/39/23
PT
27/10/10
26/22/22

B-EB6-0-99
STA. 76+53.1,
8.7' LT

3/4/4
7/9/14
7/8/8
3/3/4
2/3/4
2/2/2
2/1/1
1/1/1
1/1/2
1/2/1

B-EB5-0-99
STA. 76+70.6,
23.1' RT

6/7/8
6/8/10
5/6/12
7/9/12
7/8/9
4/5/7
2/3/5
2/4/4
2/2/3
1/2/2
2/2/2

B-207-0-05
STA. 76+82.8,
39.4' RT

2/3/5
5/5/6
3/4/5
3/4/5
4/5/6
3/4/5
2/3/3
3/2/3
2/2/2

B-219-0-07
STA. 77+80.9, 32.0' RT
TOPSOIL = 0.3'

4/10/9
4/5/5
1/2/2
1/1/2
ST
1/2/2
1/1/1
1/1/1

WC N

COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-050-1881, SHEET 3

COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-050-1881, SHEET 3

COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-050-1881, SHEET 5

COMPLETE LOGS SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-050-1881, SHEET 5

EXISTING PROFILE

529.35 523.88 523.52 517.82 497.22

EXISTING PROFILE

76+00 74+00 75+00 76+00 77+00 78+00

1/2/3

0 10 20 40 HORIZONTAL SCALE IN FEET

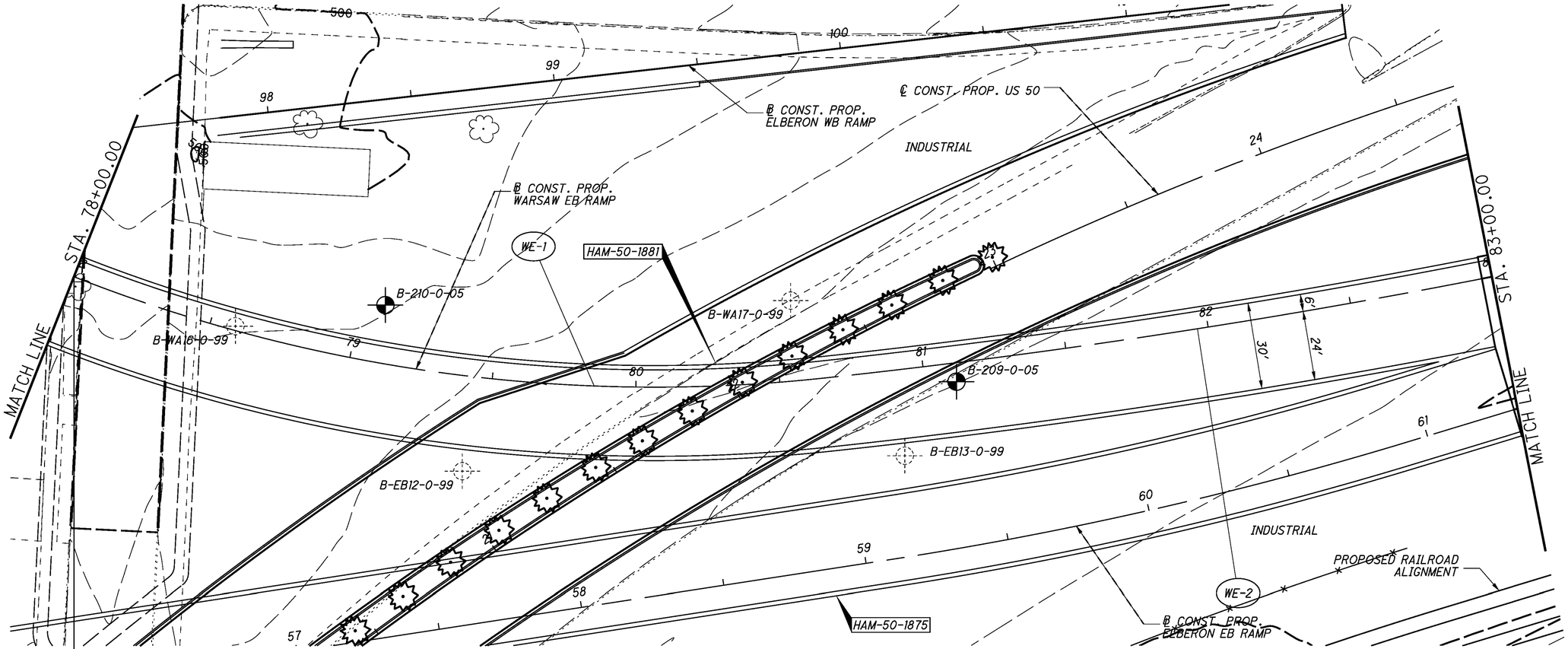
DRAWN KPR CHECKED ATS

PROFILE GRADE LINE (EB WARSAW RAMP)
STA. 73+00.00 TO STA. 78+00.00

HAM-50-18.79

46 / 64

46 / 136



PROPOSED PROFILE

PROPOSED PROFILE

FOR PROFILE SEE SHEET 48

EXISTING PROFILE

EXISTING PROFILE

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

PLAN (EB WARSAW RAMP)
STA. 78+00.00 TO STA. 83+00.00

HAM-50-18.79

47 / 64

47
136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\047_20082GP402plan.dgn 6/12/2010 4:12:10 PM kroell

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PROPOSED PROFILE

PROPOSED PROFILE EB WARSAW RAMP

MATCH LINE STA. 78+00.00

MATCH LINE STA. 83+00.00

557.95 556.66 555.15 553.43 551.49 549.40 545.18 540.97 536.75 534.67 532.66 530.72 528.85 527.06 525.35 523.71 522.14

565 560 555 550 545 540 535 530 525 520 515 510 505 500 495 490 485 480 475

27'-5¼" MIN. UC

℄ US 50

STA. 81+05.00
ELEV 536.33

STA 82+95.00
ELEV 522.45

-8.43 %

-6.18 %

P.V.I. STA 82+00.00
ELEV = 528.32'
VC = 190.00'
K = 85

B-WA16-0-99
STA. 78+58.8,
1.4' LT

B-210-0-05
STA. 79+75, 24' LT
TOPSOIL = 0.1

B-EB12-0-99
STA. 79+42.9,
33' RT

B-WA17-0-99
STA. 80+65.3,
27.9' LT

B-EB13-0-99
STA. 80+90.2,
23.9' RT

B-209-0-05
STA. 81+56, 3' RT

	WC	N
	19	3/4/7
		4/5/6
		4/5/5
	22	4/4/7
		3/5/6
	26	3/4/4
		2/2/4
	19	3/5/6

	WC	N
17		8/6/8
14		3/4/5
21		25/24/7
23		
22		ST 5/7/8
22		4/6/8
22		4/6/8
24		ST
26		5/5/6

	WC	N
		2/4/5
		8/9/15
26		19/2/3
		2/3/5
		4/5/6
		4/5/7
	6/6/12	

	WC	N
		8/20/15
		15/15/12
		1/2/1
31		1/2/1
		2/2/3
27		2/3/3
39		2/2/5

	WC	N
		6/12/19
		3/32
33		3/3/4
25		2/2/4
		3/3/4
23		4/5/8
		5/8/11

	WC	N
		7/15/12
		50/3"
		W 50/6"
26		4/8/9
		ST
24		4/6/10

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1881, SHEET 5

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1875, SHEET 3

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1881, SHEET 7

COMPLETE LOG SHOWN ON STRUCTURE FOUNDATION EXPLORATION: BRIDGE HAM-050-1875, SHEET 5

493.26 493.14 492.53

EXISTING PROFILE EXISTING PROFILE

78+00 79+00 80+00 81+00 82+00 83+00

0 10 20 40 HORIZONTAL SCALE IN FEET

DRAWN KPR CHECKED ATS

PROFILE (EB WARSAW RAMP)
STA. 78+00.00 TO STA. 83+00.00

HAM-50-18.79

48 / 64

48 / 136

FOR PROFILE SEE SHEET 50

PROPOSED PROFILE

EXISTING PROFILE

PROPOSED PROFILE

EXISTING PROFILE

N

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

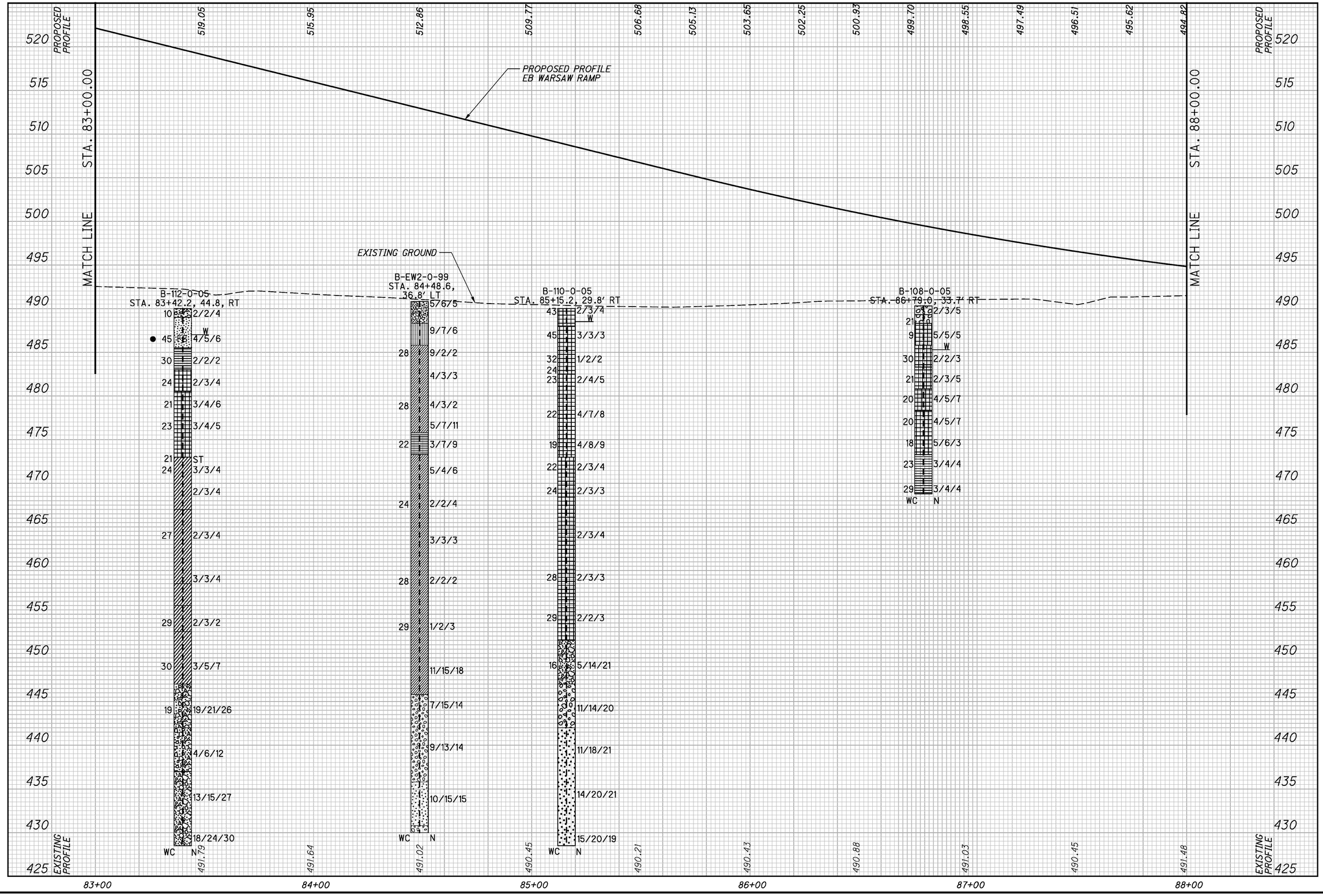
PLAN (EB WARSAW RAMP)
STA. 83+00.00 TO STA. 88+00.00

HAM-50-18.79

49 / 64

49
136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\049_20082GP403plan.dgn 6/12/2010 4:12:54 PM kroell



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

PROFILE (EB WARSAW RAMP)
STA. 83+00.00 TO STA. 88+00.00

HAM-50-18.79

50/64

50/136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\050_20082GF403profile.dgn 6/12/2010 4:13:18 PM kroell

℄ CONST. PROP. US 50

INDUSTRIAL

℄ CONST. PROP. EVANS ST.

STA. 88+00.00

MATCH LINE

N 80° 35' 53" E

B-104-0-05

B-307-0-05

B-306-0-05

B-SG6-0-99

B-106-0-05

WE-3

INDUSTRIAL

℄ CONST. PROP. WARSAW EB RAMP

FOR PROFILE SEE SHEET 52

PROPOSED PROFILE

EXISTING PROFILE

88+00 89+00 90+00 91+00 92+00 93+00

HORIZONTAL SCALE IN FEET

DRAWN KPR CHECKED ATS

PLAN (EB WARSAW RAMP)
STA. 88+00.00 TO STA. 93+22.68

HAM-50-18.79

51 / 64

51
136

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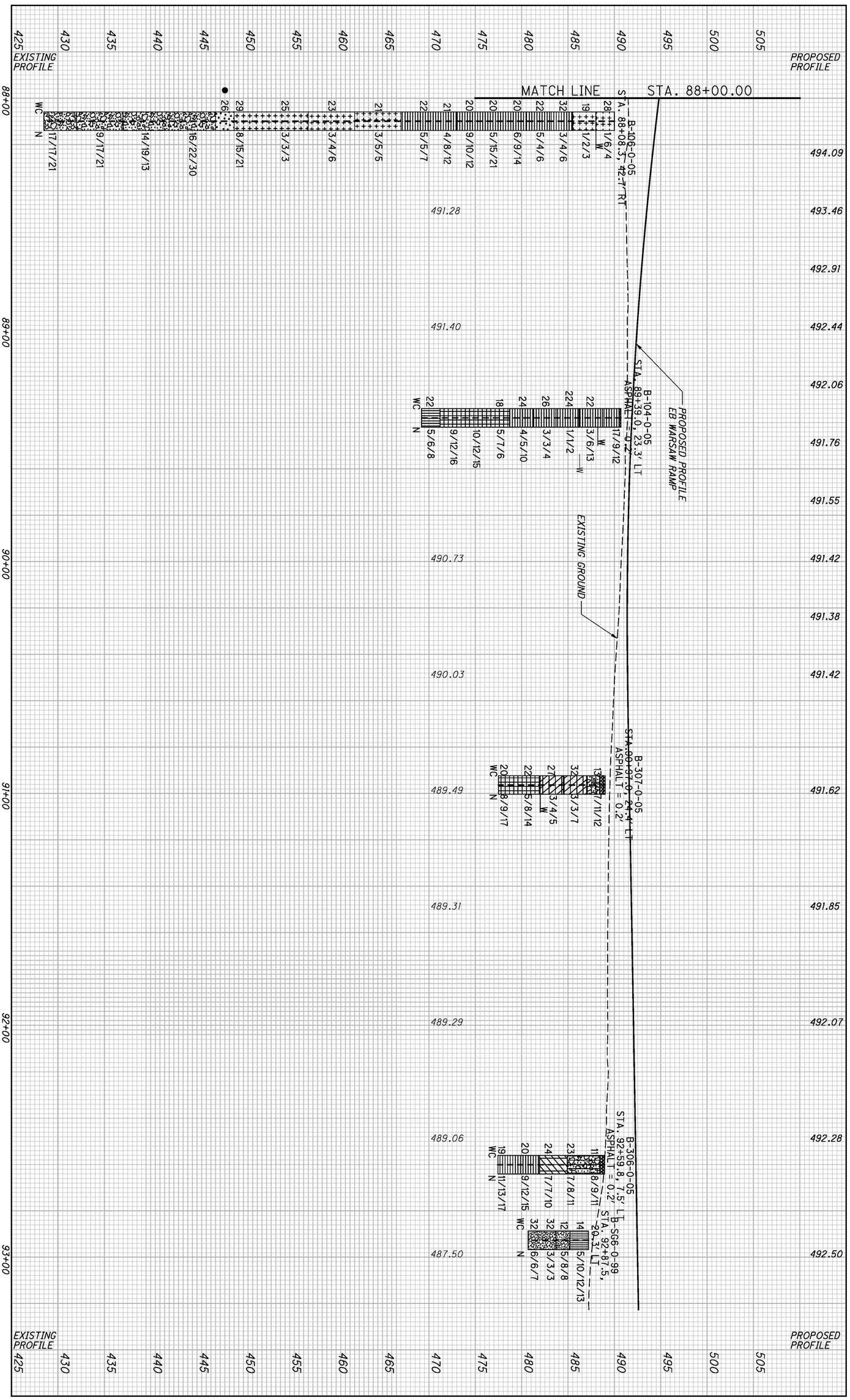


52 / 136	52 / 64	HAM-50-18.79	PROFILE (EB WARSAW RAMP) STA. 88+00.00 TO STA. 93+22.68	DRAWN KPR / CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\053_20082GP500plan.dgn 6/12/2010 4:14:24 PM kroell

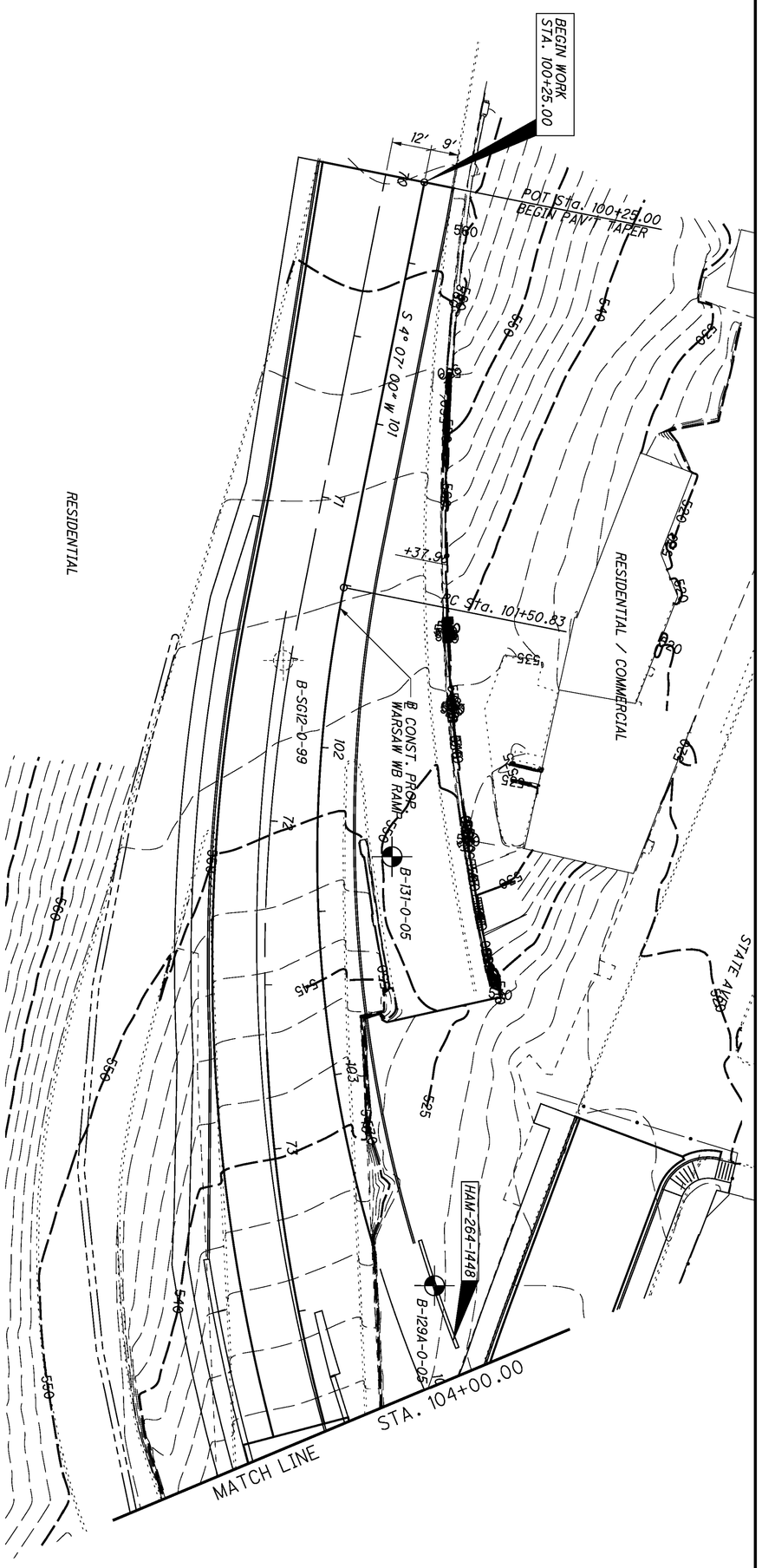
EXISTING PROFILE

PROPOSED PROFILE

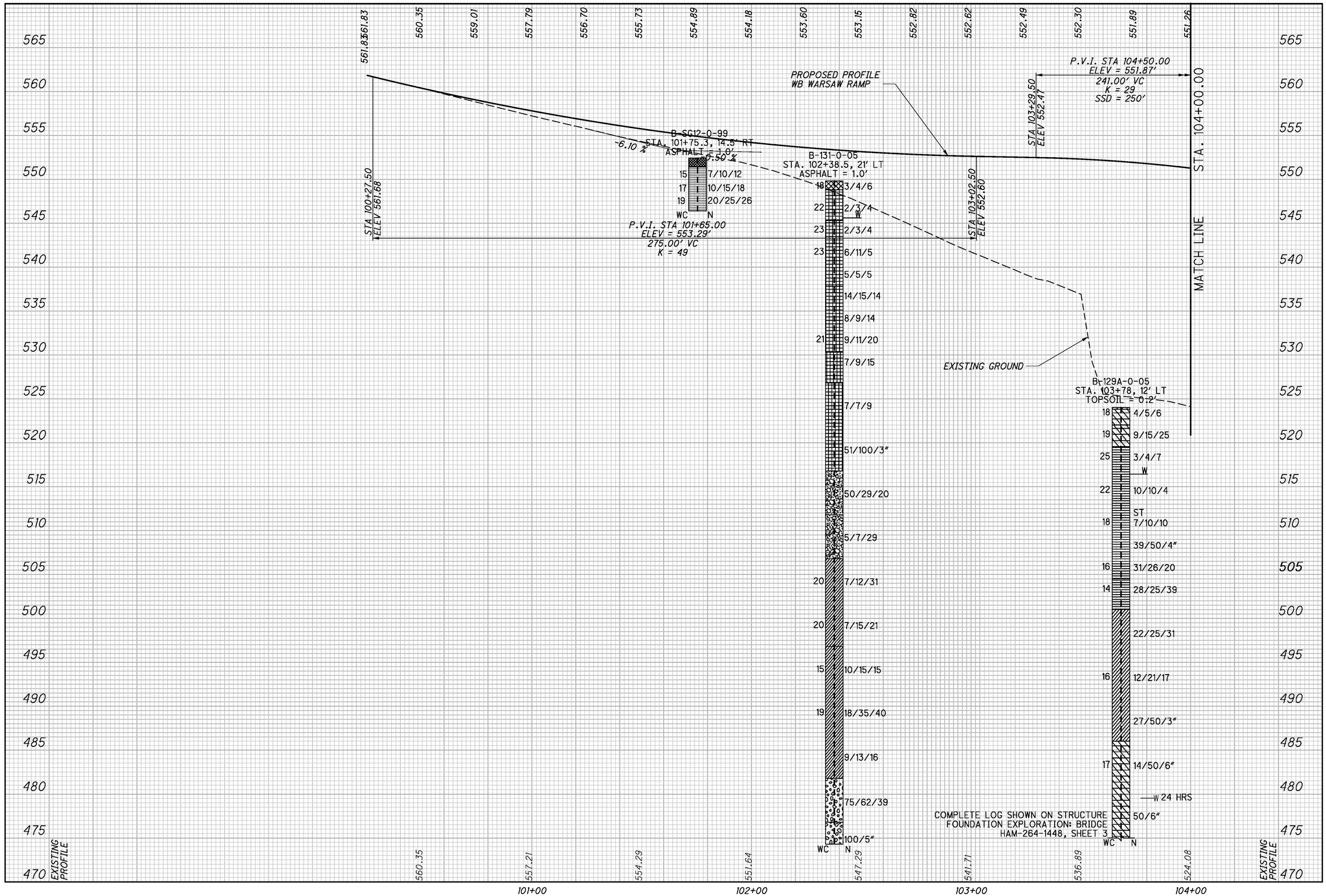
FOR PROFILE SEE SHEET 54

EXISTING PROFILE

PROPOSED PROFILE



53 / 136	53 / 64	HAM-50-18.79	PLAN AND PROFILE (WB WARSAW RAMP) BEGIN WORK TO STA. 104+00.00	DRAWN KPR CHECKED	0 20 10 40 HORIZONTAL SCALE IN FEET	N



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

PROFILE (WB WARSAW RAMP)
BEGIN WORK TO STA. 104+00.00

HAM-50-18.79

54 / 64

54 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\054_20082GF500profile.dgn 6/12/2010 4:14:48 PM kroell

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\055_20082GP501plan.dgn 6/12/2010 4:15:13 PM kroell

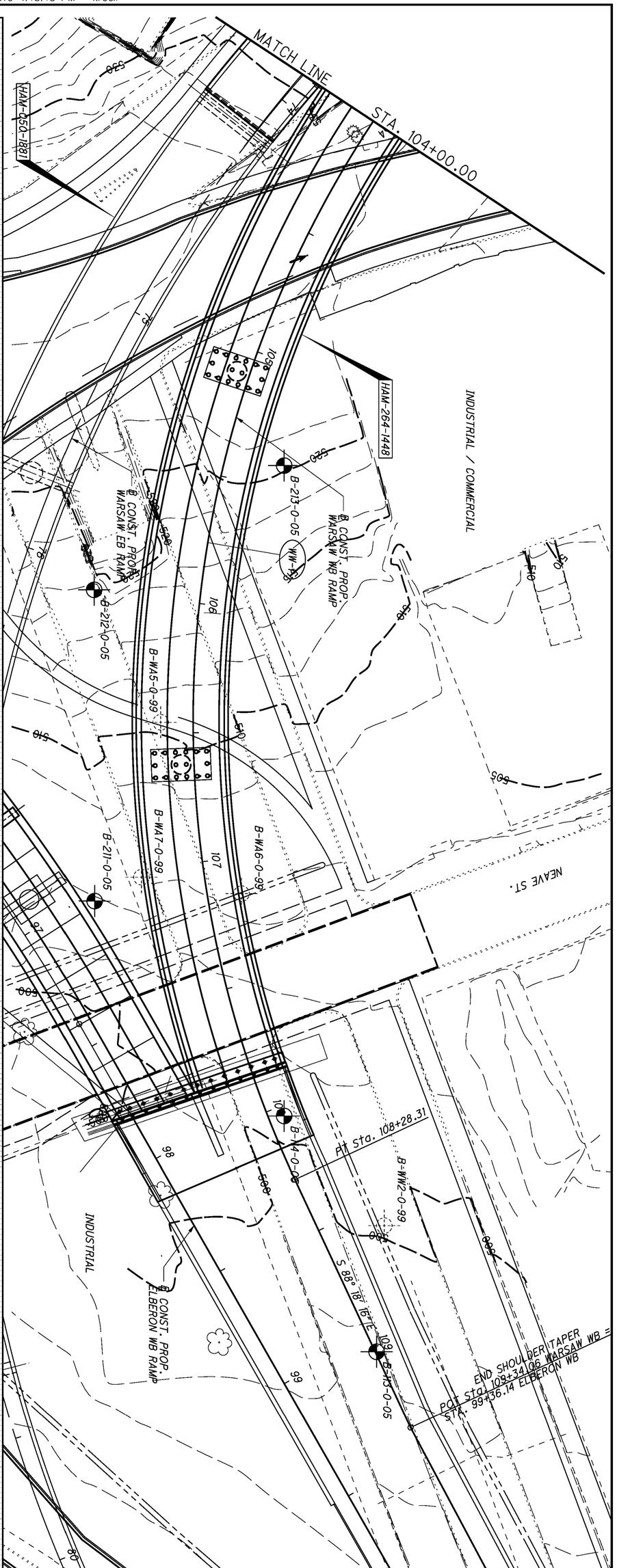
EXISTING PROFILE

PROPOSED PROFILE

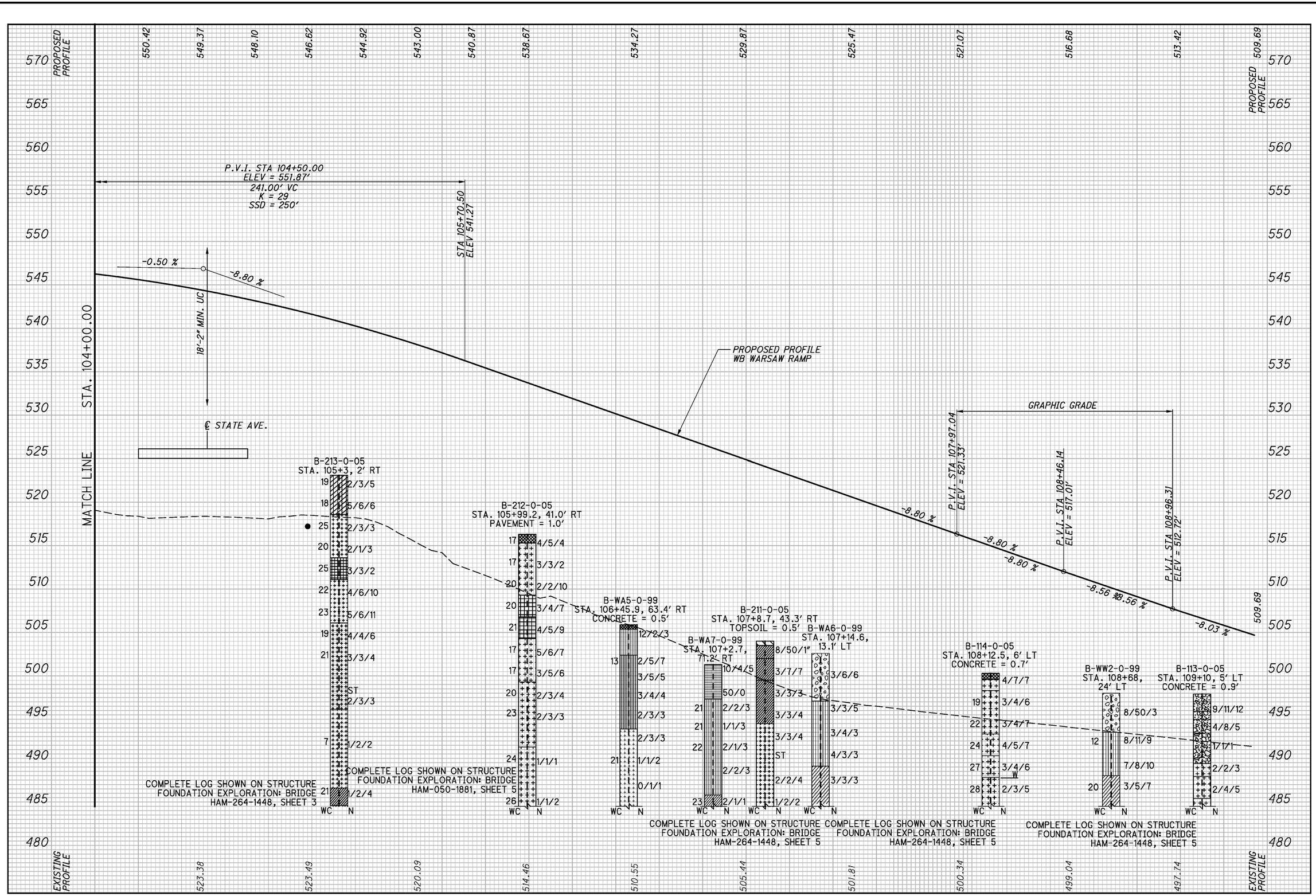
FOR PROFILE SEE SHEET 56

EXISTING PROFILE

PROPOSED PROFILE



55 / 136	55 / 64	HAM-50-18.79	PLAN (EB WARSAW RAMP) STA. 104+00.00 TO STA. 109+34.06	DRAWN KPR CHECKED	0 20 10 40 HORIZONTAL SCALE IN FEET


PROPOSED PROFILE
550.42
549.37
548.10
546.62
544.92
543.00
540.87
538.67
534.27
529.87
525.47
521.07
516.68
513.42
509.69
570
565
560
555
550
545
540
535
530
525
520
515
510
505
500
495
490
485
480
P.V.I. STA 104+50.00
ELEV = 551.87'
241.00' VC
K = 29
SSD = 250'
STA 105+70.50
ELEV 541.27
-0.50 %
-8.80 %
18'-2" MIN. UC
℄ STATE AVE.
STA. 104+00.00
MATCH LINE
PROPOSED PROFILE
WB WARSAW RAMP
GRAPHIC GRADE
P.V.I. STA 107+97.04
ELEV = 521.33'
P.V.I. STA 108+46.14
ELEV = 517.01'
P.V.I. STA 108+96.31
ELEV = 512.72'
-8.80 %
-8.80 %
-8.80 %
-8.56 %
-8.56 %
-8.03 %
B-213-0-05
STA. 105+3, 2' RT
B-212-0-05
STA. 105+99.2, 41.0' RT
PAVEMENT = 1.0'
B-WA5-0-99
STA. 106+45.9, 63.4' RT
CONCRETE = 0.5'
B-WA7-0-99
STA. 107+2.7,
71.2' RT
B-211-0-05
STA. 107+8.7, 43.3' RT
TOPSOIL = 0.5'
B-WA6-0-99
STA. 107+14.6,
13.1' LT
B-114-0-05
STA. 108+12.5, 6' LT
CONCRETE = 0.7'
B-WW2-0-99
STA. 108+68,
24' LT
B-113-0-05
STA. 109+10, 5' LT
CONCRETE = 0.9'
COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-264-1448, SHEET 3
COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-050-1881, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-264-1448, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-264-1448, SHEET 5
COMPLETE LOG SHOWN ON STRUCTURE
FOUNDATION EXPLORATION: BRIDGE
HAM-264-1448, SHEET 5
WC
N
ST
W
EXISTING PROFILE
523.38
523.49
520.09
514.46
510.55
505.44
501.81
500.34
499.04
497.74
104+00
105+00
106+00
107+00
108+00
109+00
0
10
20
40
HORIZONTAL SCALE IN FEET
DRAWN KPR
CHECKED ATS
PROFILE (WB WARSAW RAMP)
STA. 104+00.00 TO STA. 109+34.06
HAM-50-18.79
56
64
56
136
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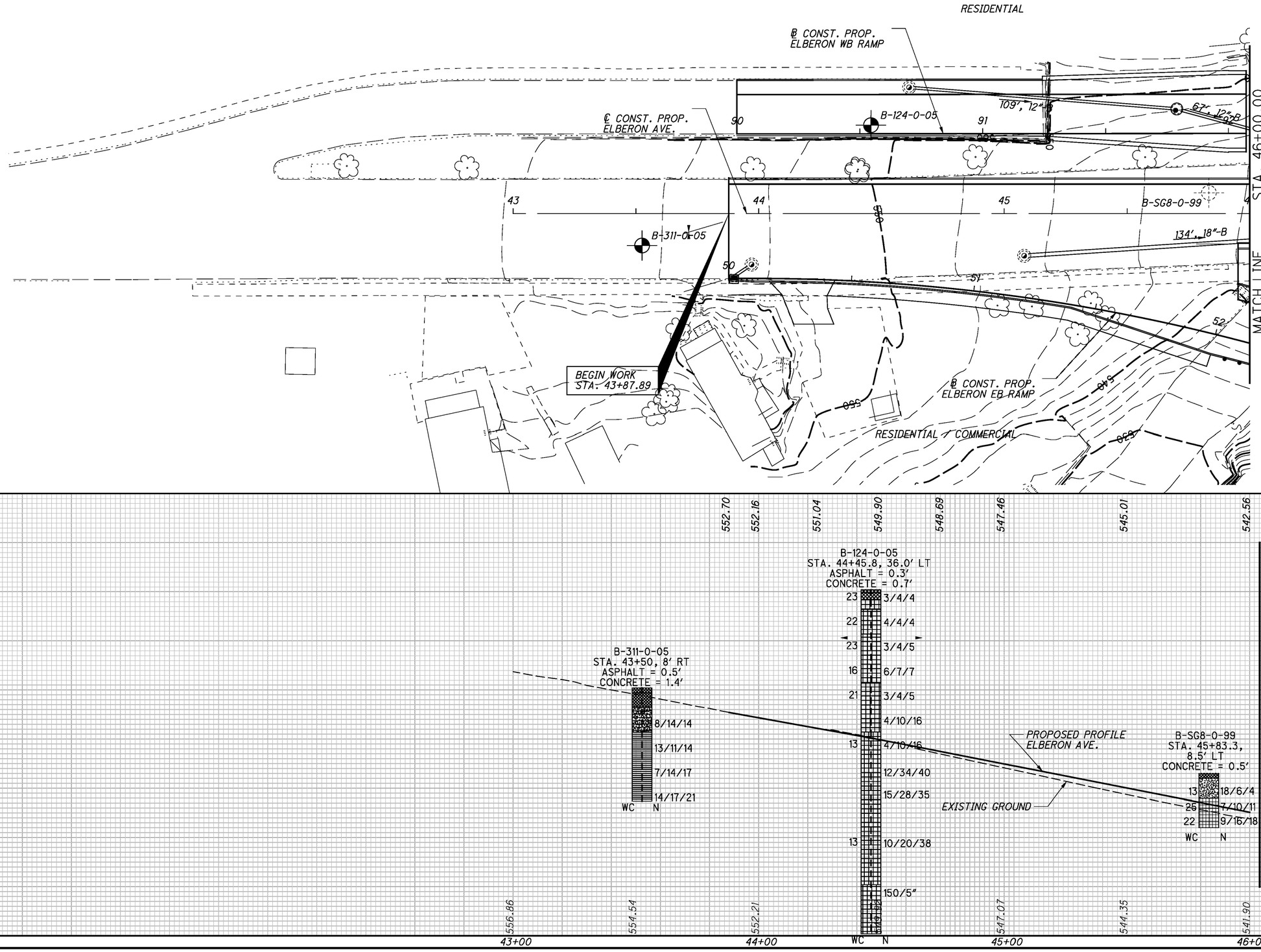


PLAN AND PROFILE (ELBERON AVE.)
BEGIN WORK TO STA. 46+00.00

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

HAM-50-18.79

57 / 64

57 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\057_200829P600planandprofile.dgn 6/12/2010 4:15:59 PM kroell

PROPOSED PROFILE

FOR PROFILE SEE SHEET 59

EXISTING PROFILE

PROPOSED PROFILE

EXISTING PROFILE

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

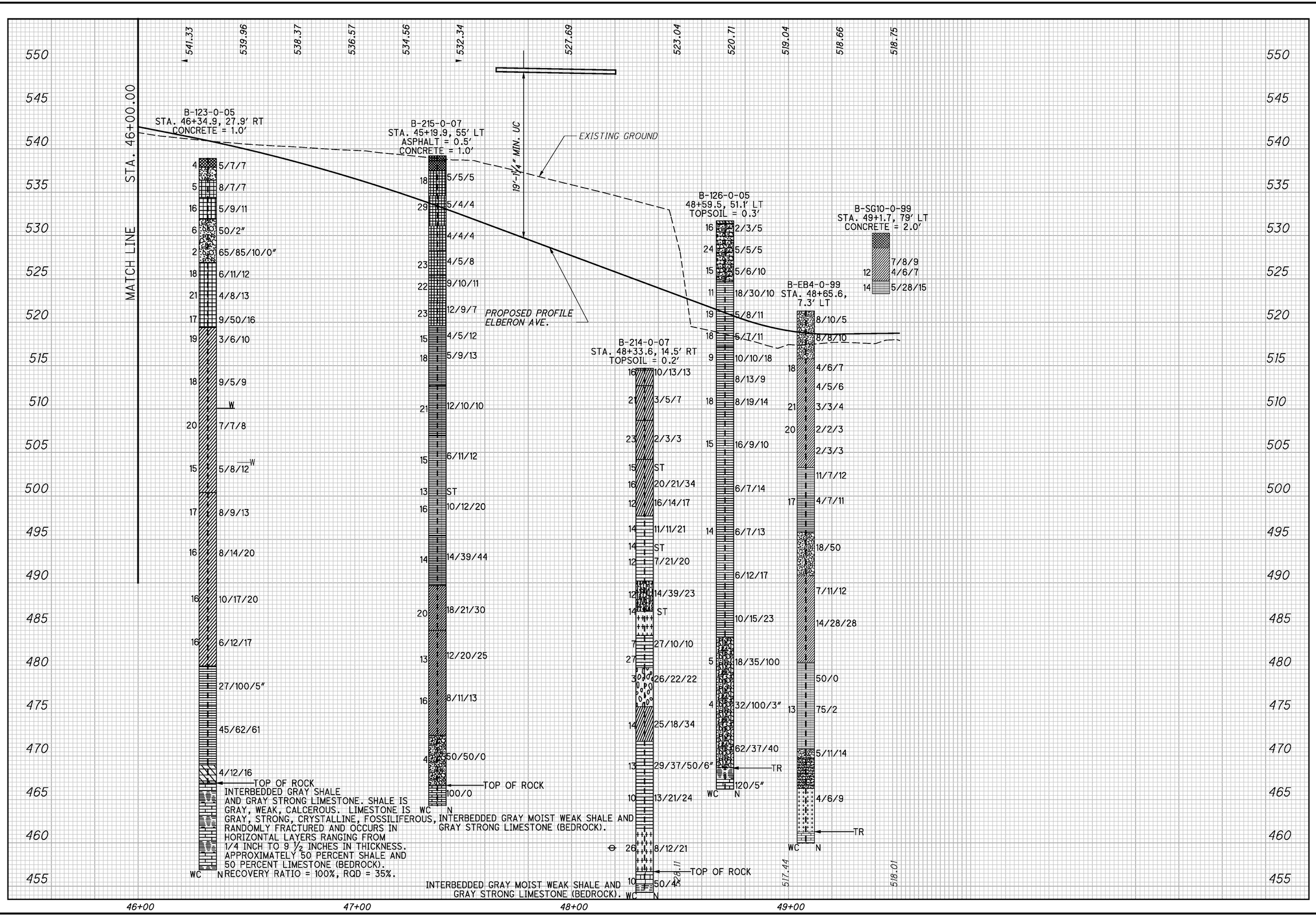
PLAN (ELBERON AVE) STA. 46+00.00 TO STA. 49+50.99

HAM-50-18.79

58 / 64

58
136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\058_20082GP601plan.dgn 6/12/2010 4:16:18 PM kroell



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED

PROFILE (ELBRON AVE.)
STA. 46+00.00 TO STA. 49+50.99

HAM-50-18.79

59 / 64

59 / 136

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\059_20082GF601profile.dgn 6/12/2010 4:16:44 PM kroell

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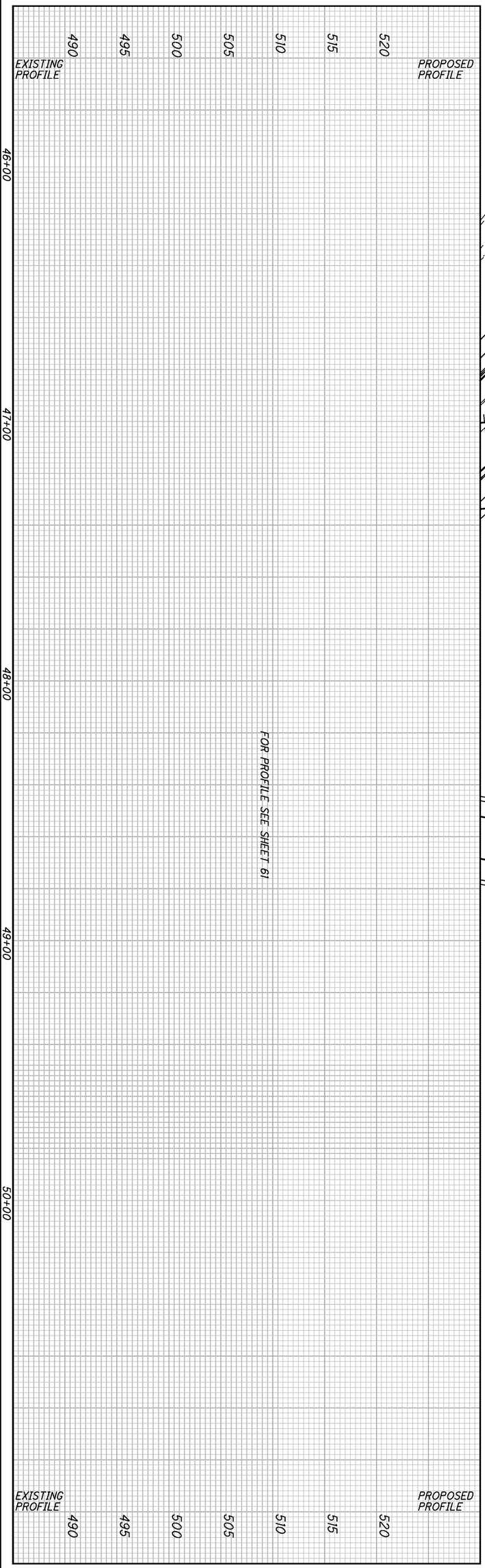

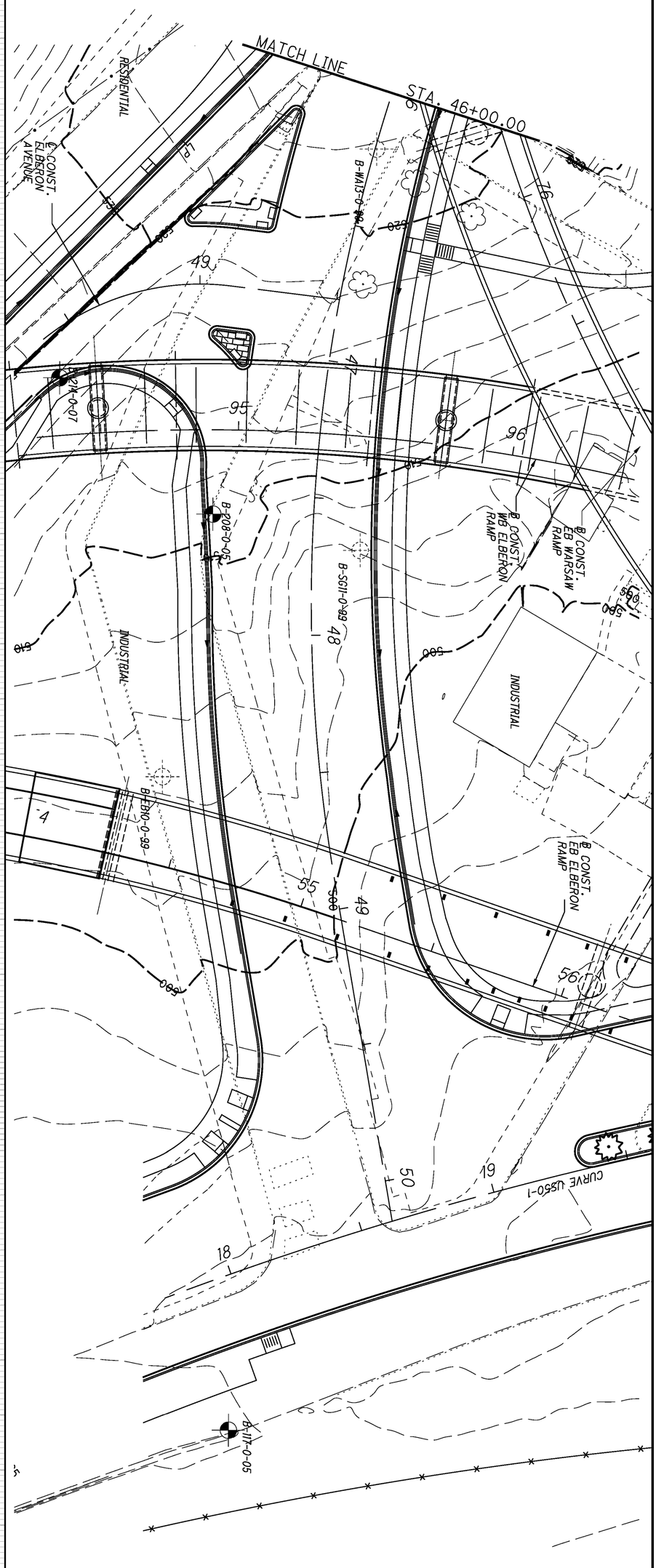

60 / 136	60 / 64	HAM-50-18.79	PLAN AND PROFILE (STATE AVENUE) (SR 246) STA. 46+00.00 TO STA. 50+14.89	DRAWN KPR CHECKED	0 20 10 40 HORIZONTAL SCALE IN FEET	N

T:\Projects\2007\070583N\Draw\Soil Plan and Profile\061_200820F701profile.dgn 6/12/2010

PROFILE (STATE AVE.) (SR 246)
STA. 46+00.00 TO STA. 50+14.89

HAM-50-18.79

61/64

61/136

DRAWN KPR
CHECKED ATS

HORIZONTAL SCALE IN FEET
0 10 20 40

PROPOSED PROFILE

521.31 520.21 518.89 517.37 515.63 513.68 511.68 509.68 507.68 505.68 503.68 501.86 500.61 499.94 499.77 499.77 PROPOSED PROFILE

MATCH LINE STA. 46+00.00

B-WA13-0-99
STA. 46+21.1,
0.5' LT

B-214-0-07
STA. 75+37, 18' RT
TOPSOIL 2"

B-208-0-05
STA. 47+78, 48' LT
ASPHALT = 0.4'
PAVERS = 0.8'

PROPOSED PROFILE
STATE AVE.

B-SG11-0-99
STA. 47+68.5,
17.4' RT

B-EB10-0-99
STA. 48+46.0, 57.0RT
CONCRETE = 2.6'

B-117-0-05
STA. 50+79.9, 71.3' RT
CONCRETE = 1.0'

	B-WA13-0-99	B-214-0-07	B-208-0-05	B-SG11-0-99	B-EB10-0-99	B-117-0-05
		TOPSOIL 2"	ASPHALT = 0.4' PAVERS = 0.8'		CONCRETE = 2.6'	CONCRETE = 1.0'
		10/13/43				6/7/3
	6/7/11	16				19 3/2/3
	3/2/3	21 3/5/7				27 2/1/2
	20 3/12/4		12/6/8			28 2/3/3
	50/0	23 2/3/3	21/6/4			28 3/3/3
	28 1/2/10	15 ST	4/4/5			23 3/5/7
	21 5/5/5	16 20/21/34	19 6/9/12			20 5/6/6
	16 4/6/8	12 16/14/17	21 5/6/7	18 2/4/3/4	14/7/6	19 5/7/9
	2/3/3	14 11/11/21	19 5/7/6	21 5/5/5	24 6/5/5	3/4/6
	22 3/3/3	14 ST	3/6/5	4/5/6	4/5/5	
	21 2/3/4	12 7/21/20	24 3/4/8	23 4/3/5	5/4/5	
	519.88	12 14/39/23	3/4/4	3/3/4	16 4/4/6	
	2/3/4	14 ST		33 5/6/8	502.37	
		7 27/10/10	3/3/7	WC	4/5/5	
	2/1/3	27		502.36	20 3/4/5	
		3 26/22/22	26 2/4/5		4/3/4	
	5/7/6	14 25/18/34	13/15/16		22 3/3/4	
	5/17/17	13 29/37/50/6"	12/14/14		3/3/3	
		10 13/21/24	21/18/15		28 2/3/3	
	5/7/10		RS		7/10/5	
	6/11/21	26 8/12/21	12/14/17		22 3/4/5	
		TOP OF ROCK			W	
		10 50/4"	28/20/41		3/5/9	
	19 25/8/8	WC N			7/9/10	
		INTERBEDDED GRAY MOIST WEAK SHALE AND GRAY STRONG LIMESTONE (BEDROCK).	18/22/35			
	3/6/11		TOP OF ROCK		5/8/13	
	5/7/8		50/2"			
			WC N		15/16/16	
	19-50/3		INTERBEDDED GRAY MOIST WEAK SHALE AND GRAY STRONG LIMESTONE (BEDROCK).		8/9/14	
	2 50/0				TOP OF ROCK	
	INTERBEDDED SHALE AND LIMESTONE HALE, DARK GRAY, SOFT TO MEDIUM HARD, COUPIES 20% OF MATRIX. LIMESTONE - LIGHT GRAY HARD, OCCURS IN 2" TO 5" LAYERS, OCCUPIES 10% OF MATRIX				120/6"	
	INTERBEDDED SHALE AND LIMESTONE HALE, DARK GRAY, HARD, OCCUPIES 95% OF MATRIX. LIMESTONE - LIGHT GRAY HARD, OCCURS IN 2" TO 4" LAYERS, OCCUPIES 5% OF MATRIX				GRAY MODERATELY HARD SHALE AND LIMESTONE LAYERS	
	2 BOTTOM OF TEST BORING = EL. 413.7				200/3"	

EXISTING PROFILE

EXISTING PROFILE

520 515 510 505 500 495 490 485 480 475 470 465 460 455 450 445 440 435 430

46+00 47+00 48+00 WC N 49+00 50+00

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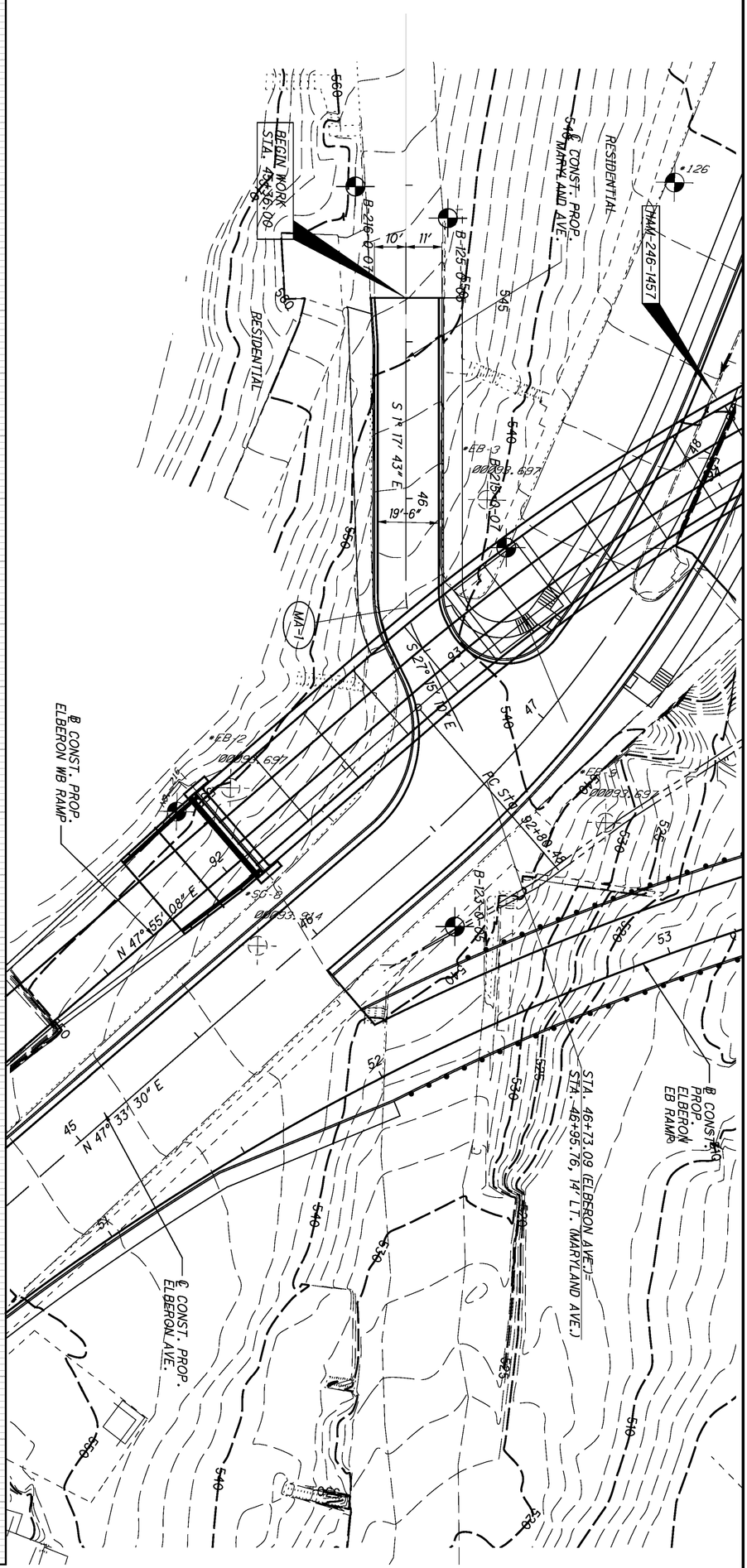
EXISTING PROFILE

PROPOSED PROFILE

FOR PROFILE SEE SHEET 63

EXISTING PROFILE

PROPOSED PROFILE



62 / 136	62 / 64	HAM-50-18.79	PLAN (MARYLAND AVENUE) BEGIN WORK TO STA. 46+95.76	DRAWN KPR CHECKED	0 20 10 40 HORIZONTAL SCALE IN FEET	N

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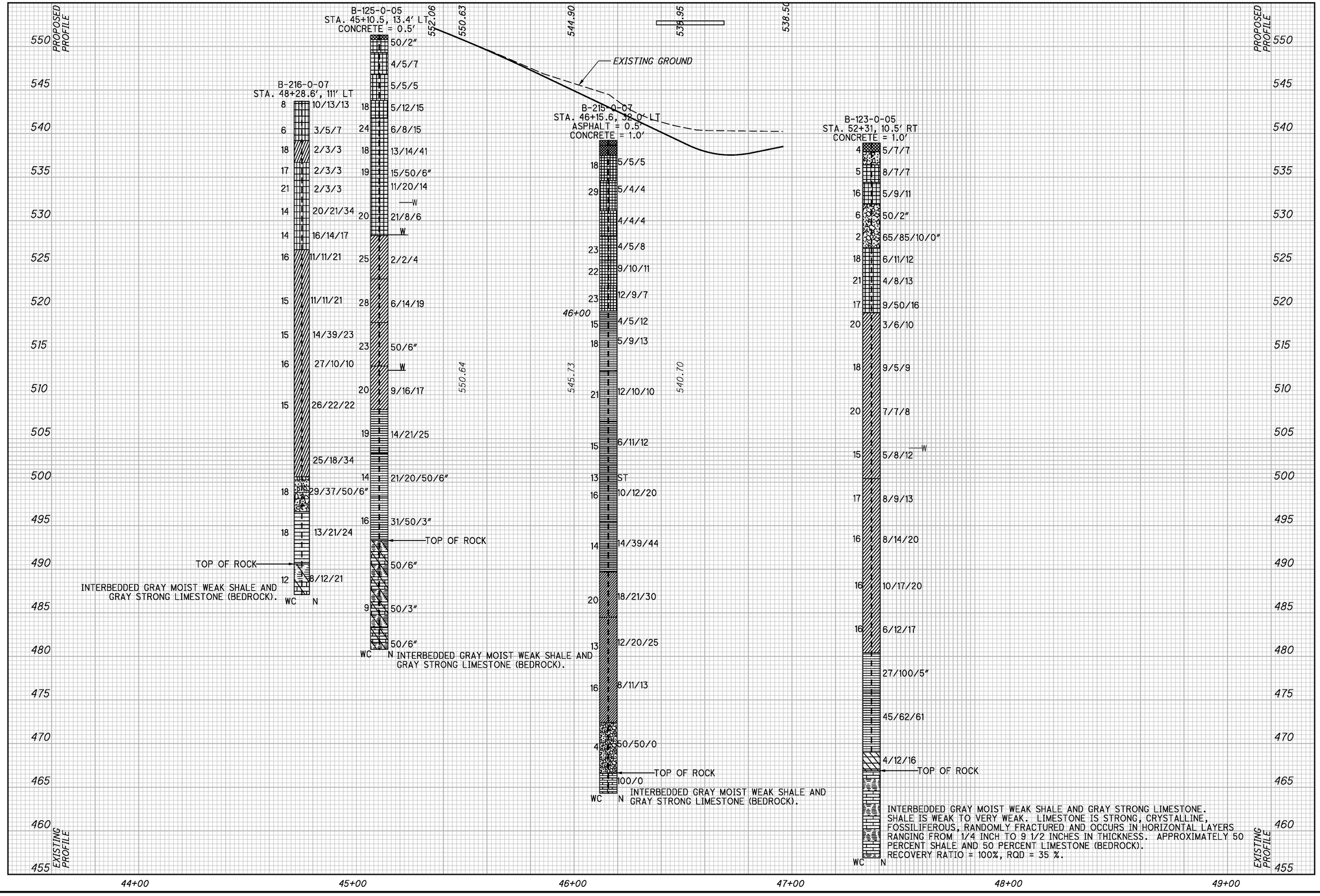


0 10 20 40
HORIZONTAL SCALE IN FEET

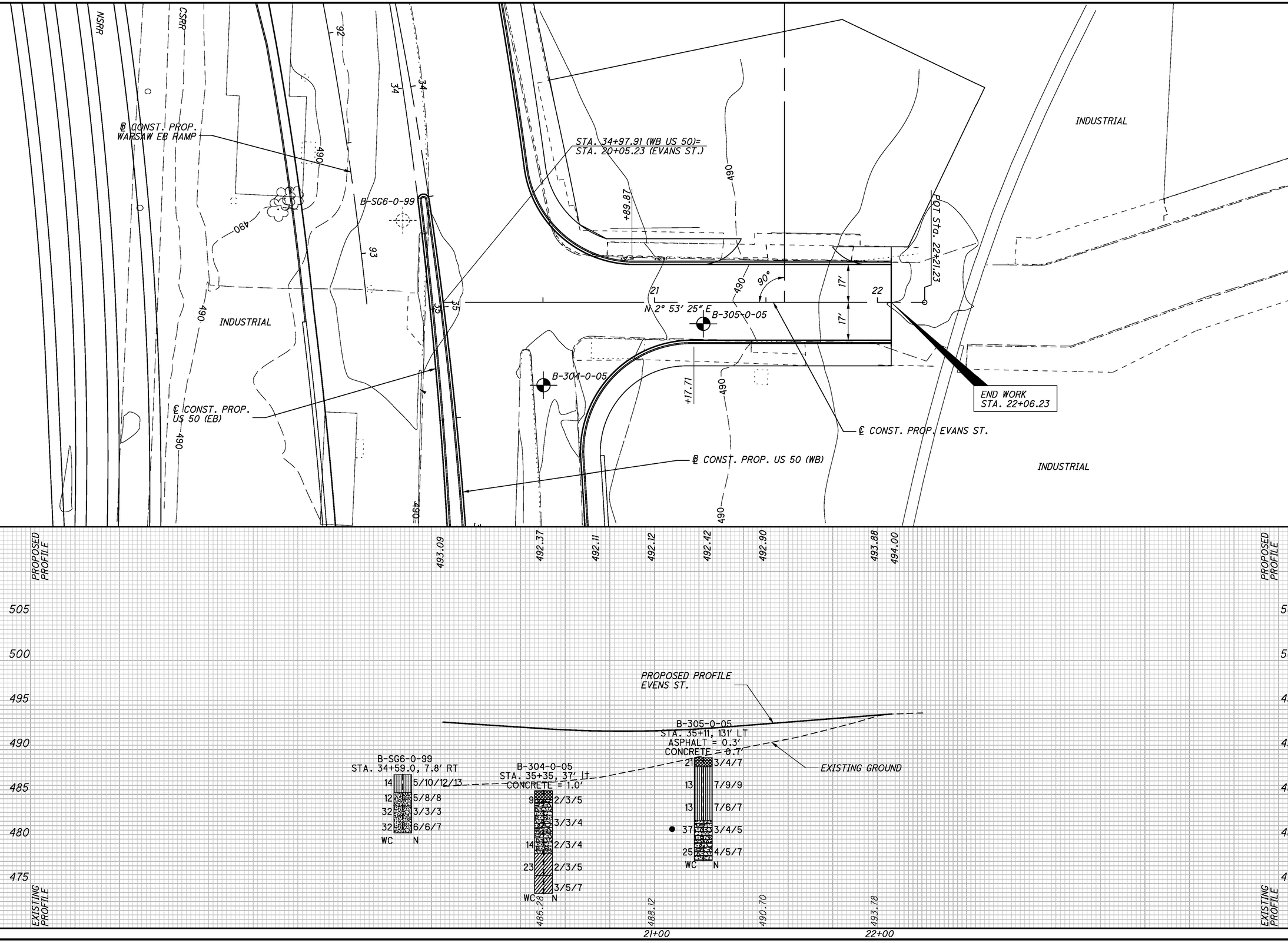
DRAWN KPR
CHECKED ATS

PROFILE (MARYLAND AVE.)
BEGIN WORK TO STA. 46+95.76

HAM-50-18.79

63 / 64

63 / 136



DRAWN KPR CHECKED

HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE (EVENS ST.)
STA. 20+05.23 TO END WORK

HAM-50-18.79

64 / 64

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PROJECT DESCRIPTION

THE DESIGN AND CONSTRUCTION OF THE RETAINING WALL RELOCATION AS PART OF THE WALDVOGEL VIADUCT PROJECT IN CINCINNATI, OHIO. THE RETAINING WALL IS BEING RELOCATED IN ORDER TO IMPROVE THE SIGHT DISTANCE THROUGH THE INTERSECTION OF GLENWAY AVENUE AND WILDER AVENUE.

HISTORIC RECORDS

NO HISTORIC RECORDS WERE OBTAINED.

GEOLOGY

THE STUDY AREA LIES WITHIN THE PRE-ILLINOIAN DEPOSITED CINCINNATI TILL, WHICH IS COMPRISED OF STRONGLY WEATHERED SILTY CLAY TO CLAY TILL COVERED BY LOESS. THIS AREA IS CHARACTERIZED BY DISSECTED GROUND MORAINE DEPOSITS MIXED WITH WEATHERED BEDROCK DEPOSITED AS COLLUVIUM.

BASED ON THE ODNR BEDROCK GEOLOGY AND TOPOGRAPHY MAPS OF THE COVINGTON, KY QUADRANGLE, THE UNDERLYING BEDROCK CONSISTS OF THE ORDOVICIAN-AGED KOPE FORMATION. THE KOPE FORMATION IS COMPRISED OF INTERBEDDED SHALE AND LIMESTONE, AVERAGING 75% SHALE AND 25% LIMESTONE, AND RANGES BETWEEN 200 AND 260 FEET THICK. THE BEDROCK ELEVATION IN THE VICINITY OF THE SITE LIES AT AN APPROXIMATE ELEVATION OF 550+ FEET MEAN SEA LEVEL (MSL). THE OVERBURDEN SOIL IN THE VICINITY OF THE SITE, ACCORDING TO BORING LOGS, RANGES BETWEEN 18.0 AND 23.5 FEET THICK.

RECONNAISSANCE

ON JUNE 18, 2008 A SITE RECONNAISSANCE VISIT WAS MADE. THE SITE CURRENTLY CONTAINS AN EXISTING CONCRETE RETAINING WALL LOCATED ALONG THE WEST SIDE OF THE INTERSECTION OF GLENWAY AVENUE AND WILDER AVENUE. THE WALL EXTENDS ALL ALONG WILDER AVENUE UNTIL INTERSECTING WITH GLENWAY AVENUE, AND THEN EXTENDS ALONG GLENWAY AVENUE NORTHWARD FOR APPROXIMATELY 400 FEET. THE PROPOSED WALL WILL BE RELOCATED BEHIND THE EXISTING LOCATION, CUTTING BACK THE EXISTING CURVATURE OF THE INTERSECTION AND THEREFORE INCREASING VISIBILITY. HEAVY VEGETATION AND MATURE TREES DENSELY COVER THE STEEP HILLSIDE AREA ABOVE AND BEHIND THE EXISTING RETAINING WALL. A STAIRWAY CUTS MIDWAY THROUGH THE AREA AND EXTENDS FROM GLENWAY AVENUE WESTWARD, UP THE EXISTING HILLSIDE, TO WARSAW AVENUE. AN OVERHEAD POWER TRANSMISSION LINE ALSO EXTENDS FROM THE INTERSECTION OF WILDER AND GLENWAY AVENUES WESTWARD ACROSS WARSAW AVENUE. A SIDEWALK AND CURB RUN ALONG THE BOTTOM OF THE WALL, WITH SOME PARKING AREAS ALONG WILDER AVENUE. SEVERAL RESIDENTIAL HOMES ARE BUILT INTO THE HILLSIDE AND LIE ALONG EACH END OF THE EXISTING RETAINING WALL WITH SEVERAL STAIRWAYS LEADING FROM THE HOMES DOWNWARD TOWARD THE STREETS. THE EXISTING TERRAIN ACROSS THE SITE SLOPES STEEPLY DOWN EASTWARD AND SOUTHWARD TOWARD THE INTERSECTION AND CONTINUES FARTHER EASTWARD.

SUBSURFACE EXPLORATION

ON SEPTEMBER 18TH AND 19TH, 2008, A TOTAL OF THREE (3) STRUCTURE BORINGS, IDENTIFIED AS B-1 THROUGH B-3, WERE DRILLED TO DEPTHS BETWEEN 25.0 TO 31.0 FEET BELOW THE EXISTING GROUND SURFACE. THE BORING LOCATIONS WERE DETERMINED AND FIELD LOCATED BY RII REPRESENTATIVES. ALL BORINGS WERE TERMINATED AFTER OBTAINING AT LEAST FIVE (5) FEET OF CORE FROM COMPETENT BEDROCK. THE BORINGS WERE SAMPLED WITH AN ALL TERRAIN VEHICLE (ATV)-MOUNTED ROTARY DRILLING MACHINE, UTILIZING 3.75-INCH CONTINUOUS, HOLLOW-STEM AUGERS TO ADVANCE THE HOLES. RII UTILIZED A CALIBRATED AUTOMATIC DROP HAMMER TO GENERATE CONSISTENT ENERGY TRANSFER TO THE SAMPLER. THE HAMMER WAS CALIBRATED ON JUNE 11, 2007, WITH AN ENERGY RATIO (ER) OF 79.3%. UPON COMPLETION OF DRILLING, THE BORINGS WERE BACKFILLED WITH SOIL CUTTINGS. THE CONCRETE PAVEMENT ENCOUNTERED IN BORING B-3 WAS REPAIRED USING A QUICKSET CONCRETE PATCH.

EXPLORATION FINDINGS

BORING B-3 WAS DRILLED THROUGH THE EXISTING PAVEMENT OF WILDER AVENUE, AND ENCOUNTERED 6.0 INCHES OF ASPHALT OVERLYING 13.0 INCHES OF CONCRETE. THE REMAINING TWO BORINGS, B-1 AND B-2, WERE DRILLED BEHIND THE EXISTING RETAINING WALL AND ENCOUNTERED 6.0 AND 5.0 INCHES OF TOPSOIL AT THE GROUND SURFACE, RESPECTIVELY, AS IDENTIFIED BY THE SIGNIFICANT PRESENCE OF VEGETATION AND ORGANIC MATERIAL.

BENEATH THE SURFACE MATERIALS, NATURAL SOILS WERE ENCOUNTERED CONSISTING OF COHESIVE SOILS. THE COHESIVE SOIL WAS DESCRIBED AS BROWN, BROWNISH GRAY, BROWN CHANGING TO GRAY OR GRAY SILTY CLAY (USCS CL) OR CLAY (USCS CH).

BASED ON THE SPT BLOW COUNTS OBTAINED, THE COHESIVE SOIL ENCOUNTERED RANGED FROM STIFF ($9 \leq N60 \leq 15$ BLOWS PER FOOT [BPF]) TO HARD ($N60 \geq 31$ BPF). BLOW COUNTS (N60) RANGED FROM 5 TO 40 BPF, GENERALLY INCREASING WITH DEPTH. THE UNCONFINED COMPRESSIVE STRENGTH OF THE COHESIVE SOIL SAMPLES TESTED, AS OBTAINED FROM THE HAND PENETROMETER, RANGED FROM 3.75 TSF TO OVER 4.5 TSF (LIMIT OF THE INSTRUMENT).

NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED RANGED FROM 8 TO 21 PERCENT. THE NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED FOR PLASTICITY INDEX RANGED FROM 1 TO 13 PERCENT BELOW THEIR CORRESPONDING PLASTIC LIMITS. IN GENERAL, THE SOIL EXHIBITED NATURAL MOISTURE CONTENTS TO BE SIGNIFICANTLY BELOW TO BE AT OPTIMUM MOISTURE LEVELS (BASED ON CORRELATION TABLES).

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
SILTY CLAY	*A-6b*	*8*	*13*
CLAY	*A-7-6*	*1*	*1*
	TOTAL	*9*	*14*
WEATHERED SHALE	*VISUAL*		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		
BORING LOCATION - PLAN VIEW			
DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
N_{60} INDICATES STANDARDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
WC INDICATES WATER CONTENT IN PERCENT.			
SS INDICATES A SPLIT SPOON SAMPLE, STANDARD PENETRATION TEST.			
TR INDICATES TOP OF ROCK.			

EXPLORATION FINDINGS (CONTINUED)

THE TOP OF BEDROCK ACROSS THE SITE RANGES IN DEPTHS FROM 18.0 TO 23.5 FEET. THE SURFICIAL BEDROCK IS GENERALLY DESCRIBED AS WEATHERED, AUGERABLE SHALE. THE UNDERLYING CORED BEDROCK OBTAINED CONSISTS OF SHALE GENERALLY DESCRIBED AS GRAY, MODERATELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, JOINTED AND HIGHLY FRACTURED.

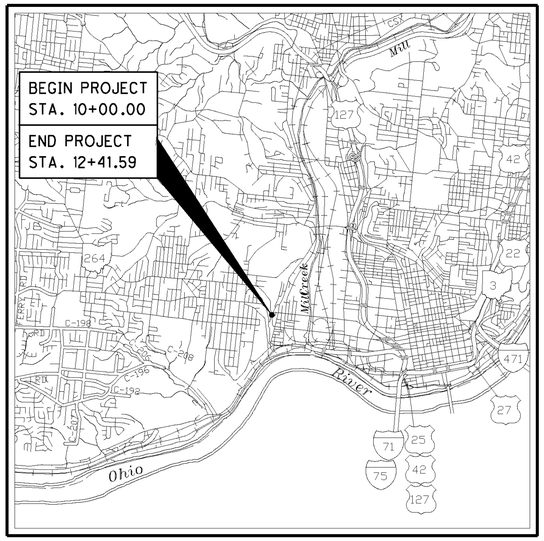
GROUNDWATER WAS NOT ENCOUNTERED INITIALLY IN ANY OF THE TEST BORINGS. UPON COMPLETION OF DRILLING AND AFTER REMOVING THE AUGERS GROUNDWATER WAS OBSERVED TO HAVE ACCUMULATED IN THE BOREHOLE TO DEPTHS BETWEEN 4.2 FEET AND 9.7 FEET. IT SHOULD BE NOTED THAT WATER WAS INTRODUCED INTO THE BOREHOLE AS A CIRCULATING FLUID FOR ROCK CORING IN ALL BORINGS. THEREFORE, THE GROUNDWATER READINGS UPON COMPLETION MAY NOT BE REPRESENTATIVE OF THE STATIC GROUNDWATER LEVEL AT THIS SITE. ALSO, PLEASE NOTE THAT CAVE-IN OCCURRED IN BORINGS B-1 AND B-3 AFTER REMOVING THE AUGERS.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JULY 2008.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

RECON. - IC 6/18/08
DRILLING - CM 9/18-19/08
DRAWN - RRM 10/26/10
REVIEWED - JPS 10/26/10

DESIGN AGENCY
RESOURCE INTERNATIONAL
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OH 43231 614-823-4949

PID NO. 20082

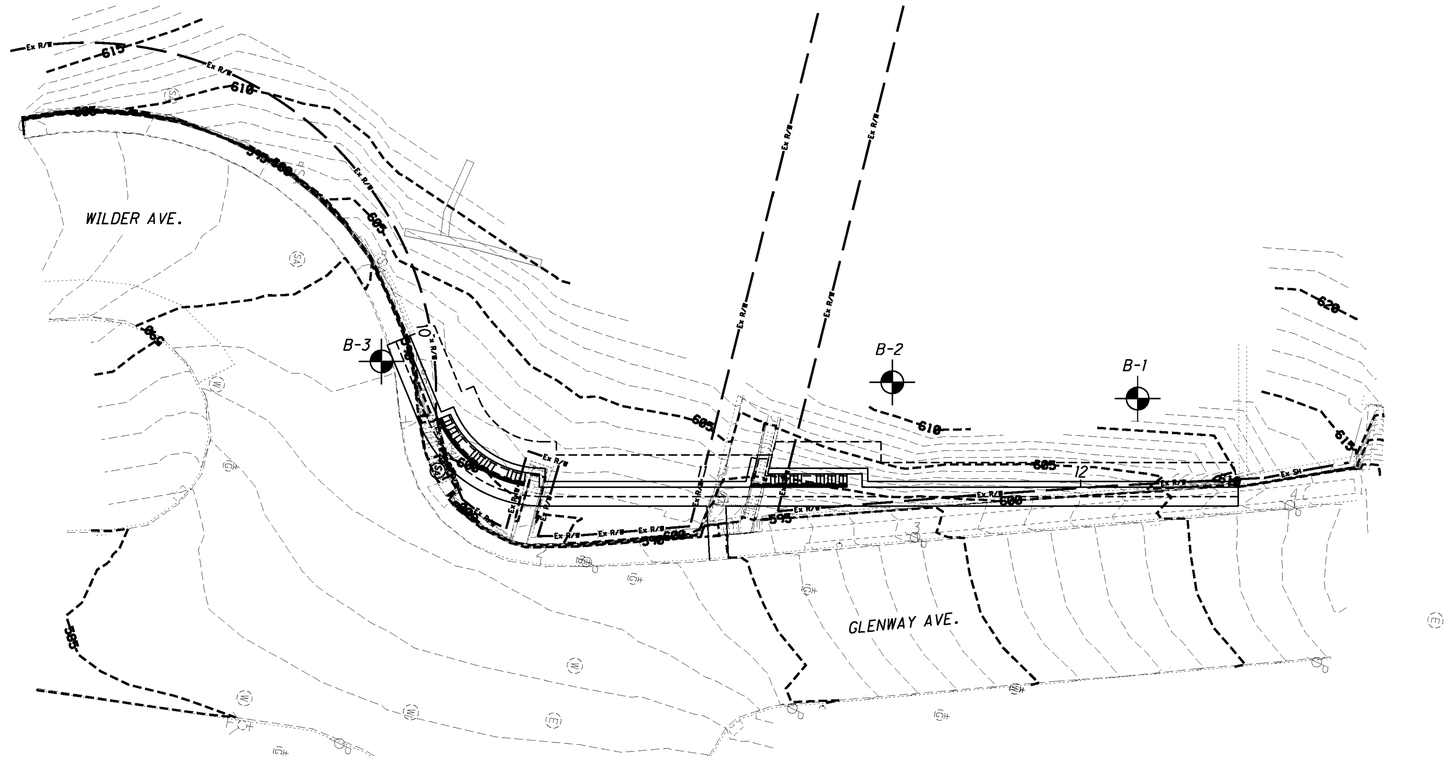
STRUCTURE FOUNDATION EXPLORATION
WALDVOGEL RETAINING WALL

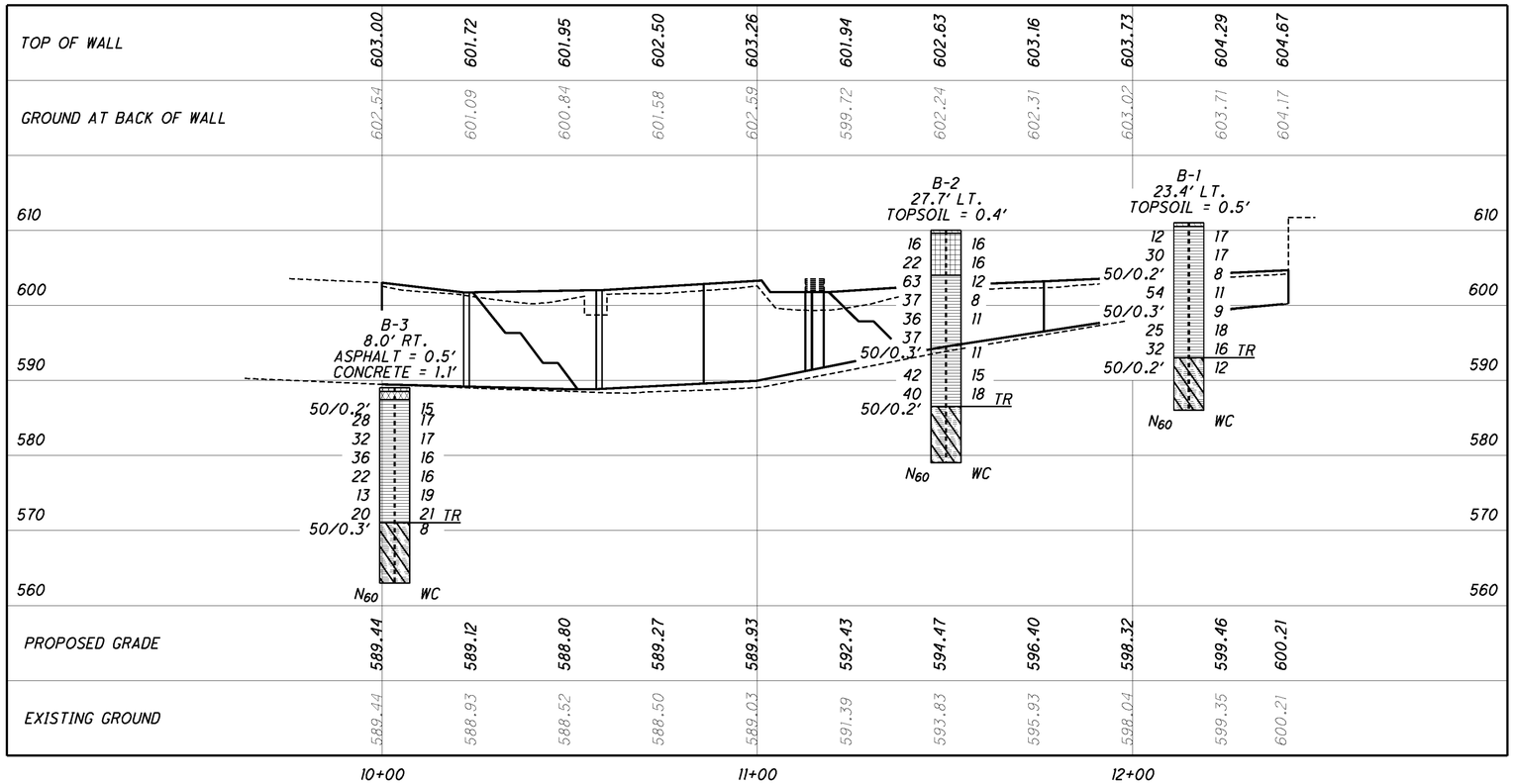
HAM-50-18.79

1 / 5

64a
136

RII PROJECT: B-05-036





RII PROJECT: B-05-036

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN RRM
CHECKED JPS

STRUCTURE FOUNDATION EXPLORATION
WALDVOGEL RETAINING WALL

HAM-50-18.79

2 / 5

64b
136

LOG OF BORING

BORING NO: B-1 BASELINE, STATION & OFFSET: STA 12+15.04, 23.4' LT. SURFACE ELEV.: 611.0
DATE STARTED: 9/19/08 DATE COMPLETED: 9/19/08 METHOD: 3.75" HSA WATER ELEV.: DRY
NORTHING: _____ EASTING: _____ SEALING/BACKFILLING TYPE: AC

PROJECT IDENTIFICATION: HAM-50-18.79, PID 20082
HAMILTON COUNTY, OHIO
HAMMER SYSTEM TYPE: CME AUTOMATIC
CALIBRATION DATE: 6-11-07 ER: 79.3%

Elev. (ft)	Depth (ft)	Std. Pen.	N_{60}	Rec. (%)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L.	L.L.	P.I.	W.C.	ODOT Class
611±	0															
610.5±					6.0" – Topsoil											
		3/4/5	12	44	Stiff to very stiff, brown SILTY CLAY, trace fine to coarse sand, damp. –SS-1: USCS CL; qh = 4.5 tsf	SS-1	0	4	3	32	61	24	47	23	17	A-6b
		8/10/13	30	89	–SS-2: *Visual USCS CL; qh = 4.5 tsf	SS-2	same as SS-1								17	A-6b Visual
	5															
605±		12/17/50/2"	50/2"	57	Hard to very stiff, brownish gray SILTY CLAY, little coarse to fine sand, some to little fine gravel (cobble and boulders fragments), damp. –SS-3: USCS CL; qh = 4.5 tsf	SS-3	23	19	4	18	36	21	41	20	8	A-6b
		13/18/23	54	56	–SS-4: *Visual USCS CL; qh = 4.5 tsf	SS-4	same as SS-3								11	A-6b Visual
	10															
		18/26/50/3"	50/3"	87	–SS-5: USCS CL; qh = 4.5 tsf	SS-5	11	15	4	31	39	20	37	17	9	A-6b
		15/10/9	25	78	–SS-6: *Visual USCS CL; qh = 4.5 tsf	SS-6	same as SS-5								18	A-6b Visual
	15															
		8/11/13	32	83	–SS-7: *Visual USCS CL; qh = 4.5 tsf	SS-7	same as SS-5									A-6b Visual
593±																
		15/18/50/2"	50/2"	93	Hard, brownish gray WEATHERED SHALE, damp.	SS-8									16	
591±	20															
				65	SHALE: gray, highly weathered, very weak, thin bedded to laminated, jointed, highly fractured, narrow, slightly rough. –limestone laminations @ 21.6' to 22.0' –RC-1: 5.0' (20.0'–25.0') –RQD = 0% –Loss = 35%	RC-1									12	
	25															

BOTTOM OF BORING = 25.0 FEET

LOG OF BORING

BORING NO: B-2 BASELINE, STATION & OFFSET: STA 11+50.27, 27.7' LT. SURFACE ELEV.: 610.0 PROJECT IDENTIFICATION: HAM-50-18.79, PID 20082
DATE STARTED: 9/19/08 DATE COMPLETED: 9/20/08 METHOD: 3.75" HSA WATER ELEV.: DRY HAMILTON COUNTY, OHIO
NORTHING: _____ EASTING: _____ SEALING/BACKFILLING TYPE: AC HAMMER SYSTEM TYPE: CME AUTOMATIC
CALIBRATION DATE: 6-11-07 ER: 79.3%

Elev. (ft)	Depth (ft)	Std. Pen.	N_{60}	Rec. (%)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L.	L.L.	P.I.	W.C.	ODOT Class
610±	0															
609.6±					5.0" – Topsoil											
		4/5/7	16	78	Very stiff, brown CLAY, little coarse to fine sand, damp. -SS-1: *Visual USCS CH; qh = 4.5+ tsf -contains organics	SS-1								16	A-7-6 Visual
		8/9/8	22	89	-SS-2: USCS CH; qh = 4.5+ tsf	SS-2	0	8	5	28	60	25	51	26	16	A-7-6
	5															
604±		15/16/32	63	72	Hard, brown changing to gray SILTY CLAY, some to little coarse to fine sand, little to trace fine gravel (cobble and boulder fragments), damp. -SS-3: *Visual USCS CL; qh = 4.5+ tsf	SS-3								12	A-6b Visual
		8/13/15	37	78	-SS-4: USCS CL; qh = 4.5+ tsf	SS-4	10	31	6	26	27	19	34	15	8	A-6b
	10															
		9/15/12	36	89	-SS-5: *Visual USCS CL; qh = 4.5+ tsf	SS-5				same as SS-4					11	A-6b Visual
		10/13/15	37	72	-SS-6: *Visual USCS CL; qh = 4.5+ tsf	SS-6				same as SS-4						A-6b Visual
	15															
		28/50/3"	50/3"	78	-SS-7: USCS CL; qh = 4.5+ tsf	SS-7	4	11	4	31	50	19	41	22	11	A-6b
		9/15/17	42	89	-SS-8: *Visual USCS CL; qh = 4.5 tsf	SS-8				same as SS-7					15	A-6b Visual
	20															
		9/13/17	40	83		SS-9				same as SS-7					18	A-6b Visual
586.5±																
		27/50/2"	50/2"	88	Hard, gray WEATHERED SHALE, damp.	SS-10										
	25															
584±				70	SHALE: gray, highly to moderately weathered, very weak to weak, thin bedded to laminated, jointed, highly fractured, narrow, slightly rough, limestone laminations. -RC-1: 5.0' (26.0'-31.0') -RQD = 33% -Loss = 30%	RC-1										
	30															

BOTTOM OF BORING = 31.0 FEET

LOG OF BORING

BORING NO: B-3 BASELINE, STATION & OFFSET: STA 10+03.42, 8.0' RT. SURFACE ELEV.: 589
DATE STARTED: 9/18/08 DATE COMPLETED: 9/18/08 METHOD: 3.75" HSA WATER ELEV.: DRY
NORTHING: _____ EASTING: _____ SEALING/BACKFILLING TYPE: AC

PROJECT IDENTIFICATION: HAM-50-18.79, PID 20082
HAMILTON COUNTY, OHIO
HAMMER SYSTEM TYPE: CME AUTOMATIC
CALIBRATION DATE: 6-11-07 ER: 79.3%

Elev. (ft)	Depth (ft)	Std. Pen.	N_{60}	Rec. (%)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L.	L.L.	P.I.	W.C.	ODOT Class
589±	0				6.0" – Asphalt											
					13.0" – Concrete											
587.4±		3/4/5	12	44	Hard to very stiff, brownish gray SILTY CLAY, little coarse to fine sand, trace coarse to fine gravel (cobble and boulder fragments), moist to damp.	SS-1									15	A-6b Visual
		3/4/5	12	44	-SS-1: *Visual USCS CL; qh = 4.5+ tsf -SS-2: USCS CL; qh = 4.5+ tsf	SS-2	1	8	4	31	57	18	39	21	17	A-6b
	5															
		3/4/5	12	44	-SS-3: *Visual USCS CL; qh = 4.5+ tsf	SS-3				same as SS-2					17	A-6b Visual
		3/4/5	12	44	-SS-4: USCS CL; qh = 4.5+ tsf	SS-4	3	9	4	32	53	19	37	18	16	A-6b
	10															
		3/4/5	12	44	-SS-5: *Visual USCS CL	SS-5				same as SS-4					16	A-6b Visual
576±																
		3/4/5	12	44	Stiff, gray SILTY CLAY, little coarse to fine sand, damp. -SS-6: *Visual USCS CL; qh = 3.75 tsf	SS-6									19	A-6b Visual
	15															
		3/4/5	12	44	-SS-7: USCS CL; qh = 4.0 tsf	SS-7	0	0	0	22	78	24	46	22	21	A-6b
571±																
		3/4/5	12	44	Medium hard, gray WEATHERED SHALE, damp.	SS-8									8	
569±	20															
		3/4/5	12	44	SHALE: gray, highly weathered, very weak to weak, thin bedded to laminated, jointed, highly fractured, narrow, slightly rough, limestone laminations. -RC-1: 6.0' (20.0'-26.0') -RQD = 11% -Loss = 50%	RC-1										
	25															

BOTTOM OF BORING = 26.0 FEET

PROJECT DESCRIPTION

THE COMPLETE PROJECT CONSISTS OF THE REPLACEMENT OF THE EXISITING WALDVOGEL (6TH STREET) VIADUCT CONNECTING RIVER ROAD (US 50) TO THE ELBERON AND WARSAW AVENUES IN CININCINNATI, OHIO. THE NEW ALIGNMENT WILL ENDEAVOR TO RELOCATE A SUBSTANTIAL AMOUNT OF THE CURRENT ELEVATED ROADWAY ON-GRADE. BRIDGE HAM-264-1448 WILL REPLACE THE RAMP CONNECTING WESTBOUND US 50 TO WARSAW AVENUE.

HISTORIC RECORDS

THE CURRENT WALDVOGEL VIADUCT WAS CONSTRUCTED IN 1949. SUBSEQUENT EXPLORATIONS WERE PERFORMED BY THE H.C. NUTTING COMPANY FOR THE CITY OF CINCINNATI IN REPORTS PREPARED IN 1951 AND 1989. ADDITIONAL REPORTS FOR PREVIOUS REPLACEMENT DESIGNS WERE PUBLISHED IN 1990, 1991, 1996, 1998, AND 1999. HISTORIC BORINGS FROM THE 1999 EXPLORATIONS ARE PRESENTED ON THE SOIL PROFILES. (SEE "AVAILABLE INFORMATION" BELOW)

GEOLOGY

THE PROJECT SITE IS LOCATED AT THE TRANSITION BETWEEN THE DEEP ALLUVIAL OHIO RIVER BASIN TO THE EAST AND THE COLLUVIAL AND BEDROCK SLOPES OF THE LOWER PRICE HILL TO THE WEST. THE UNDERLYING BEDROCK CONSISTS OF THE KOPE FORMATION OF INTERBEDDED SHALE AND LIMESTONE.

RECONNAISSANCE

THE SITE PROPOSED FOR THE ROADWAY AND BRIDGE REPLACEMENTS CURRENTLY CONSIST OF A STEEP WESTERN HILLSIDE (LOWER PRICE HILL) DESCENDING TO A BROAD ALLUVIAL PLAIN. ELEVATION DIFFERENTIAL ON THE HILLSIDE IS APPROXIMATELY 65 FEET, DESCENDING TO THE EASTERN PLANE. ACROSS THE ALLUVIAL PLAIN, THE GROUND SURFACE IS RELATIVELY LEVEL AT APPROXIMATELY EL. 490 (MSL). THE WESTERN PORTION OF THE SITE IS AN AREA OF LONG STANDING RESIDENTIAL DEVELOPMENT, TRANSITIONING TO COMMERCIAL USE OVER THE LEVEL PLAINS. SEVERAL RETAINING STRUCTURES ARE LOCATED ALONG STATE AVENUE TO ACCOMODATE THE STREETS. SIDEHILL CUTS AND FILLS WERE MADE TO ESTABLISH ROADWAYS ALONG THE WESTERN HILLSIDE.

SUBSURFACE EXPLORATION

THE TEST BORINGS WERE PERFORMED WITH TRACK AND TRUCK MOUNTED DRILL RIGS ADVANCING HOLLOW - STEM AUGERS. SAMPLING WAS PERFORMED WITH AN AUTOMATIC HAMMER ON CME MODEL 55 ANND 450 RIGS. STANDARD SPLIT SPOON SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1586. SAMPLES WERE GENERALLY OBTAINED AT A 2.5 FT INTERVAL. AT SELECTED LOCATIONS, THIN WALLED SHELBY TUBE SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1587.

EXPLORATION FINDINGS

THE SHALLOW SUBSURFACE PROFILE CONSISTS OF A SURFICIAL LAYER OF RANDOM FILL. BELOW THE FILL IS A CRUST OF STIFF LEAN SILTY CLAY WHICH GENERALLY CLASSIFIES AS A-7-6 AND 6A.
THE CRUST TYPICALLY EXTENDS APPROXIMATELY 20 FEET FROM THE GROUND SURFACE. THE ALLUVIUM BECOMES SILTIER AND LESS STIFF WITH DEPTH, CLASSIFYING A-4-6 TO A-6B TO APPROXIMATELY 40 FEET. BELOW APPROXIMATELY 40 FEET, THE ALLUVIUM TRANSITIONS TO GRANULAR OUTWASH DEPOSITS, MEDIUM DENSE TO DENSE SAND AND SAND AND GRAVEL. GRANULAR SOILS ARE TYPICALLY WELL GRADED AND MEDIUM DENSE TO VERY DENSE. STATIC GROUNDWATER WAS TYPICALLY ENCOUNTERED AT THE CONTACT BETWEEN THE ALLUVIAL SOILS AND THE OUTWASH SOILS. NATIVE BEDROCK, INTERBEDDED SHALE AND LIMESTONE, WAS ENCOUNTERED BETWEEN 70 AND IN EXCESS OF 100 FEET FROM THE GROUND SURFACE. THE PROFILE AT THE WESTERN PORTION OF THE SITE ADJACENT TO THE WESTERN TERMINI OF THE ELBERON AND WARSAW AVENUE RAMPS, TRANSITIONS TO DEEP, RANDOMLY DEPOSITED COLLUVIAL SOILS WITH INTERBEDDED GRANULAR SEAMS OVERLYING GRANULAR SOILS AT THE TOE OF THE SLOPE. THE SOILS OVERLIE A SLOPING BEDROCK SURFACE OF INTERBEDDED SHALE AND LIMESTONE BEDROCK.

SPECIFICATIONS

ALL BORINGS WERE PERFORMED IN ACCORDANCE WITH ODOT SSI (1996). DRAWINGS WERE PREPARED IN ACCORDANCE WITH ODOT SGE (2007).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK DATA THAT CAN BE CONVENIENTLY SHOWN ON THE PROFILE SHEETS HAS BEEN REPORTED. PREVIOUS SUBSURFACE INVESTIGATIONS AND SOIL AND BEDROCK TESTS WERE PERFORMED IN 1952, 1989, 1990, 1991, 1996 AND 1999. COPIES OF THIS AND OTHER AVAIALABLE DATA MAY BE INSPECTED AT THE DEPUTY DIRECTOR'S OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OHIO, AT THE OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8 AND AT THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION & ENGINEERING. SOIL AND ROCK CORE SAMPLES MAY BE REVIEWED AT THELEN ASSOCIATES, INC., 1780 CARILLON BLVD., CINCINNATI, OHIO

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL

Boring No.	Sample No.	Sample Depth, ft.	Unconfined Compressive Strength, psf	Dry Density, pcf	Moisture Content, %	Shear Strength, psf
213	10B	25.2-25.7	1,750	106.5	21.4	875

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	3	0
GRAVEL AND/OR STONE FRAGMENTSWITH SAND	A-1-b	12	6
FINE SAND	A-3	4	6
COARSE AND FINE SAND	A-3a	1	8
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4	2	0
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT AND CLAY	A-2-6	0	1
SANDY SILT	A-4a	3	0
SILT	A-4b	12	16
SILT	A-5	2	0
SILT AND CLAY	A-6a	7	23
SILTY CLAY	A-6b	3	27
ELASTIC CLAY	A-7-5	1	0
CLAY	A-7-6	8	13
WEATHERED INTERBEDDED SHALE AND LIMESTONE			VISUAL
INTERBEDDED SHALE AND LIMESTONE			VISUAL
PAVEMENT OR BASE			VISUAL

EXPLORATION LOCATION-PLAN VIEW

HISTORIC BORING LOCATION-PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

ST INDICATES A SHELBY TUBE SAMPLE

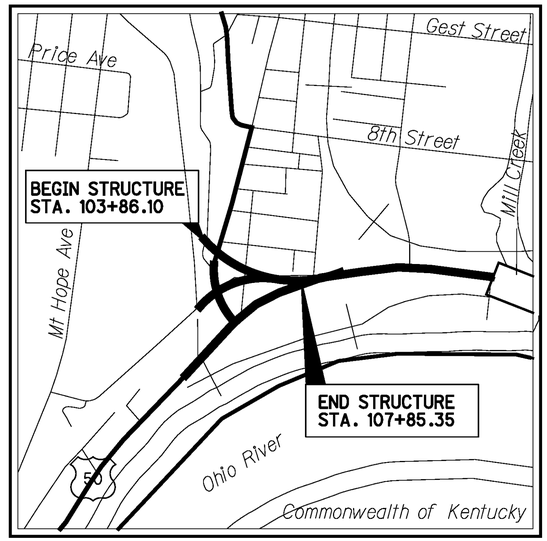
W INDICATES FREE WATER ELEVATION

INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

INDICATES PLASTIC MATERIAL WITH A HIGH WATER CONTENT

WC INDICATES WATER CONTENT IN PERCENT

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES



LOCATION MAP

SCALE IN MILES

0 1 2

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

RECON. - ATS 2/6 - 2/10/06
DRILLING - GB 2/13 - 4/21/06, 6/20 - 6/21/07
DRILLING - LW 3/22 - 4/25/06, 6/20-6/26/07
DRAWN - MS 5/20/06 - 7/31/07
DRAWN - KPR 10/4/07 - 6/11/10
REVIEWED - ATS 6/12/10

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers
1780 Carillon Blvd., Cincinnati, Ohio 45240-2836
(513) 469-6500 Fax (513) 469-6555
Geotechnical Testing Laboratory (513) 469-6500

PID NO. 20082

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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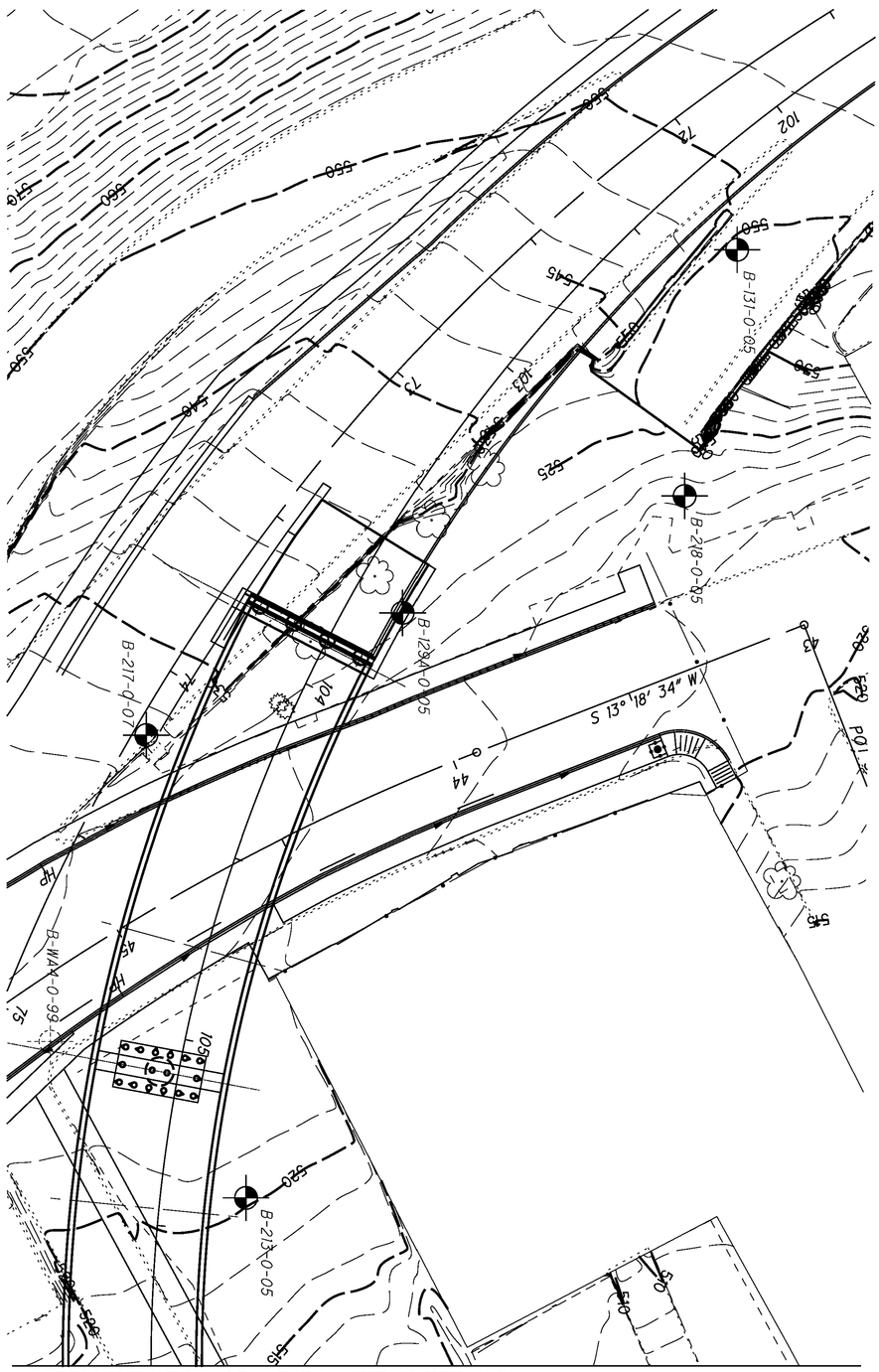
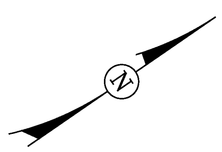
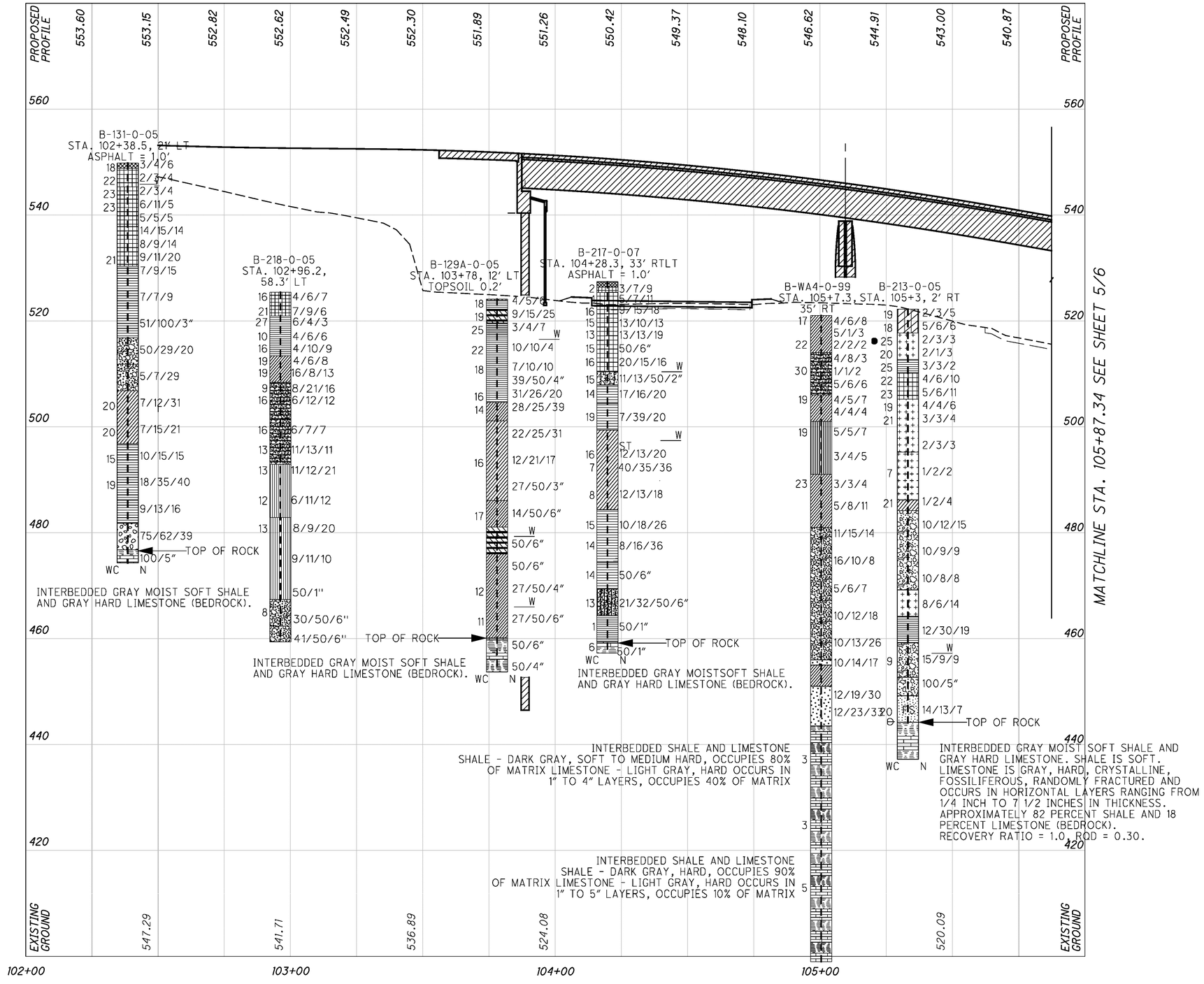




66 / 136	2 / 13	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-264-1448	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG W.B. WARSAW AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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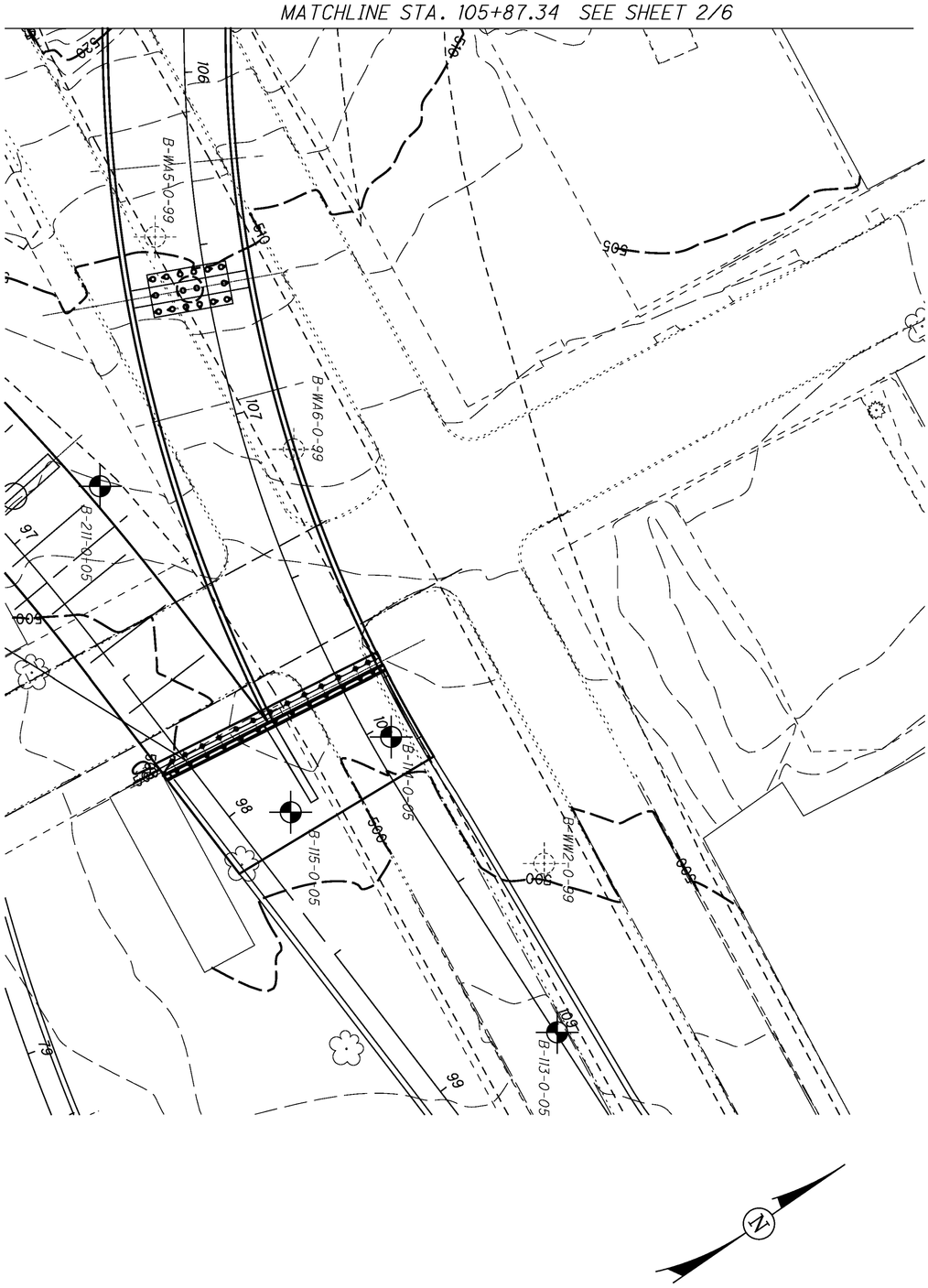
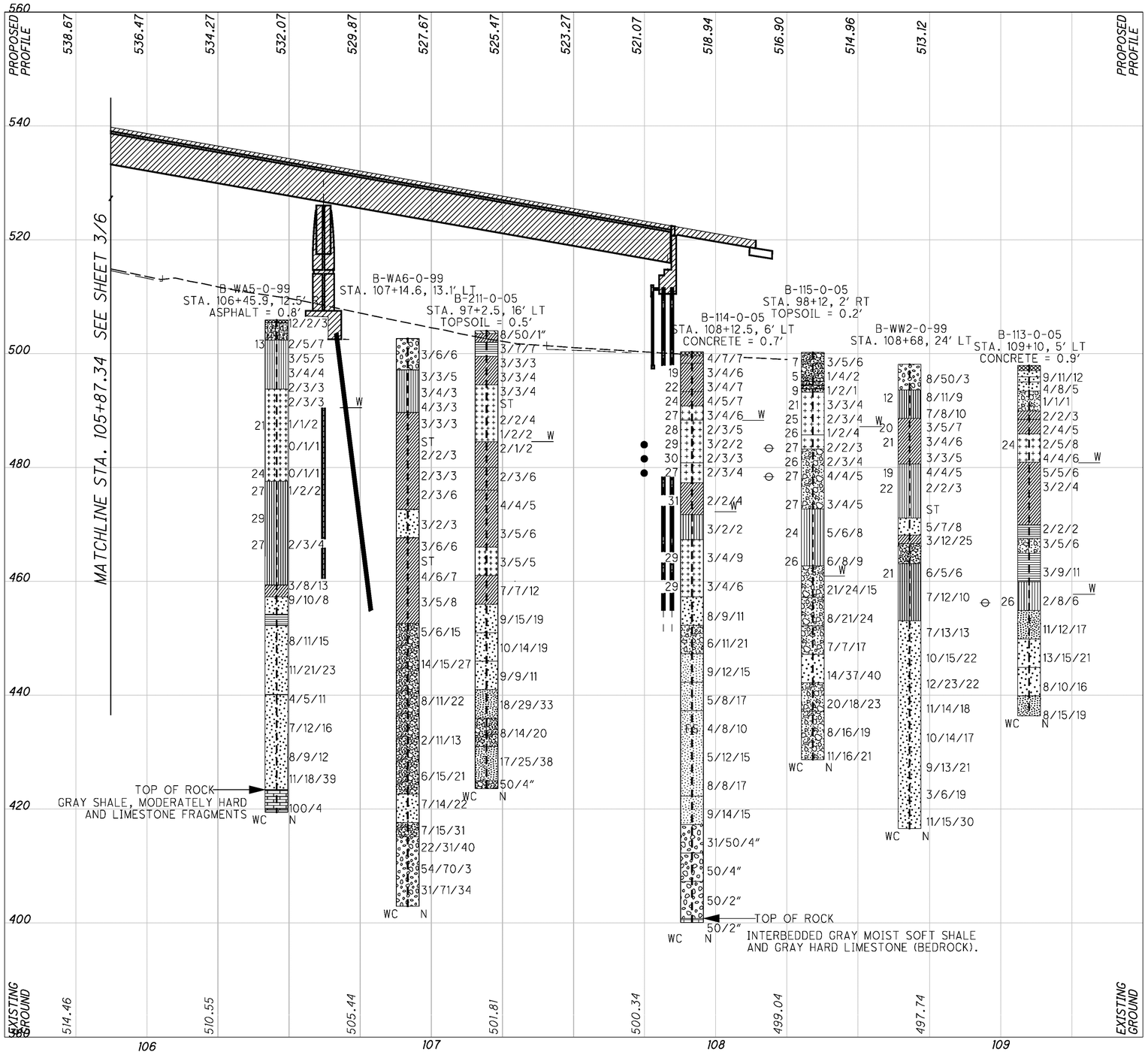
MATCHLINE STA. 105+87.34 SEE SHEET 2/6



68 / 136	4 / 13	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-264-1448	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG W.B. WARSAW AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 109+10, 5' Left
BORING # 113 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (in)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
497.9	GROUND SURFACE		0.9	I	9/11/12	1	DS	8									
497.0	CONCRETE (11")	2.0		I/D	4/8/5	2A 2B	DS	8									
495.0	Mixed brown and gray moist stiff FILL, silty clay with limestone fragments and fine to coarse gravel.	2.9															
494.1	Mixed brown, some gray moist stiff FILL, silty clay and clay with limestone fragments and fine gravel.	4.5	5	D	1/1/1	3	DS	4	73	17	2	8					A-3a A-1-b (0)
493.4	Mixed brown moist medium dense FILL, fine to coarse sand and gravel.	8.0		I/D	2/2/3	4	DS	12				VISUAL					A-6a
489.9	Mixed brown moist very loose FILL, (pea gravel).	9.5	10	I	2/4/5	5	DS	18				VISUAL					A-6a
488.4	Brown moist medium stiff SILTY CLAY, trace fine sand.	12.0		I	2/5/8	6	DS	12	0	0	23	54	23			23.6	A-4b
485.9	Brown moist medium stiff to stiff SILTY CLAY, trace fine sand.		15	I	4/4/6	7	DS	18				VISUAL					A-4b
480.9	Brown moist medium dense clayey SILT with silty fine sand layers.	17.0		I	5/5/6	8	DS	18				VISUAL					A-6a
469.9	Brown moist medium stiff very SILTY CLAY, partially varved.	28.0	20	I	3/2/4	9	DS	18				VISUAL					A-6a
467.5	Brown moist stiff to very stiff SILTY CLAY, trace fine sand.	30.4	25	I	2/2/2	10	DS	18				VISUAL					A-6b
464.9	Brown moist medium dense silty fine GRAVEL and fine SAND.	33.0	30	D	3/5/6	11A 11B	DS	14	14	37	39	VISUAL 11					A-6b A-1-b (0)
459.9	Brown, olive brown moist stiff to very stiff SILTY CLAY, trace clayey silt, partially varved.	38.0	35	I	3/9/11	12	DS	13				VISUAL					A-6b
454.9	Brown, olive brown wet loose sandy SILT.	43.0	40	D	2/8/6	13	DS	12	1	2	39	40	3			26.3	A-4a
449.9	Brown wet medium dense fine SAND, trace coarse sand.	48.0	45	D	11/12/17	14	DS	18	5	39	35	4					A-3 (0)
444.9	Brown wet dense fine to medium, some coarse SAND, trace fine gravel.	53.0	50	D	13/15/21	15	DS	18				VISUAL					A-3a
439.9	Brown wet medium dense fine to medium, trace coarse SAND.	58.0	55	D	8/10/16	16	DS	13				VISUAL					A-3a
436.4	Brown wet dense silty fine to medium SAND.	61.5	60	D	8/15/19	17	DS	18				VISUAL					A-3
	Bottom of test boring at 61.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 497.9
Date Started 2-24-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB
Engineer ATS
Date Completed 2-24-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 17.0, 40.0 ft
AT COMPLETION 39.0 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 108+12.5, 6' Left
BORING # 114 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
500.3	GROUND SURFACE			I	4/7/7	1	DS	22									
499.6	CONCRETE PAVEMENT	0.7		I	3/4/6	2	DS	100				VISUAL				18.9	A-6a
498.3	Brown moist very stiff SILTY CLAY.	2.0	5	I	3/4/7	3	DS	100				VISUAL				21.8	A-6a
493.3	Brown moist stiff very SILTY CLAY with iron oxide stains, trace fine sand.	7.0		I	4/5/7	4	DS	100				VISUAL				24.2	A-6a
490.8	Brown moist medium stiff very SILTY CLAY with silty fine sand seams and iron oxide stains.	9.5	10	I	3/4/6	5	DS	100				VISUAL				26.7	A-6b
488.3	Brown moist stiff SILTY CLAY, trace fine sand.	12.0		I	2/3/5	6	DS	100				VISUAL				27.6	A-4b
480.8	Brown moist very loose to loose clayey SILT, trace fine sand.	19.5	15	I	3/2/2	7	DS	100						28	10	29.4	A-4b (0)
477.3	Brown moist loose clayey SILT with fine sand layers, partially varved.	23.0		I	2/3/3	8	DS	100						28	10	29.7	A-4b (0)
471.7	Gray, trace brown moist soft to medium stiff SILTY CLAY, partially varved.	28.6	20	I	2/3/4	9	DS	72	0	0	4	69	27			27.1	A-4b
467.3	Gray, some brown moist very loose sandy SILT.	33.0	25	I	2/2/4	10	DS	100				VISUAL				30.8	A-6a
457.3	Gray moist loose to medium dense clayey SILT with wet fine to coarse sand layers, partially varved.	43.0	30	I	3/2/2	11	DS	100	1	1	8	90					A-4a
452.3	Brown wet medium dense silty fine to coarse SAND, trace fine gravel and silty clay.	48.0	35	I	3/4/9	12	DS	72				VISUAL				29.2	A-4b
447.3	Brown wet dense fine to medium GRAVEL and SAND.	53.0	40	D	3/4/6	13	DS	100				VISUAL				28.8	A-4b
442.3	Brown wet medium dense silty fine SAND.	58.0	45	D	8/9/11	14	DS	100				VISUAL					A-3a
437.3	Brown wet medium dense fine to medium, trace coarse SAND (SP-SM).	63.0	50	D	6/11/21	15	DS	72	4	62	30	4					A-1-b (0)
422.3	Brown wet medium dense fine SAND.	78.0	55	D	9/12/15	16	DS	67				VISUAL					A-3
417.3	Brown, some grayish brown wet medium dense silty fine SAND.	83.0	60	D	5/8/17	17	DS	100	1	20	71	8					A-3 (0)
412.3	Gray, some brown wet very dense fine to coarses SAND and GRAVEL with limestone cobbles and boulders.	88.0	65	D	4/8/10	18	DS	72				VISUAL					A-3
407.3	Gray, brown wet very dense fine to coarse GRAVEL and SAND with limestone cobbles and boulders (boulder bed).	93.0	70	D	5/12/15	19	DS	100	0	2	89	9					A-3 (0)
400.8	Gray, brown wet and dense fine to coarse SAND and GRAVEL with limestone cobbles, boulders, trace shale (boulder bed).		75	D	8/8/17	20	DS	72				VISUAL					A-3
400.1	Interbedded gray moist very soft SHALE and gray hard LIMESTONE (bedrock).	99.5 100.2	80	D	9/14/15	21	DS	72				VISUAL					A-3
	Split spoon refusal and bottom of test boring at 100.2 feet.		85	D	31/50/4"	22	DS	33	69	8	16	7					A-1-a (0)
			90	D	50/4"	23	DS	17									
			95	D	50/2"	24	DS	11									
			100	D	50/2"	25	DS	11									

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 500.3
Date Started 2-22-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB
Engineer ATS
Date Completed 2-23-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 12.0-28.0 ft
AT COMPLETION 45.3 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

6 / 13

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 98+12, 2' Right
BORING # 115 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	Cond.	SAMPLE Standard Penetration	No.	Type	R (in)	GRADATION PERCENTAGE AG	C$	$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
500.2	GROUND SURFACE		0.2	I	3/5/6	1A	DS	12								6.9	
500.0	TOPSOIL with fine to coarse sand.	0.2				1B											
	Mixed brown moist medium stiff FILL, silty clay with fine to coarse sand, gravel, brick and cinders.	2.0		D	1/4/2	2	DS					VISUAL				5.2	A-1b
498.2	Mixed brown moist loose FILL, coarse sand and fine gravel.	4.5	5	D	1/2/1	3	DS	6				VISUAL				8.9	A-2-6
495.7	Mixed brown moist very loose FILL, fine to coarse sand and gravel, trace silty clay.	7.0		I	3/3/4	4	DS	18				VISUAL				21.4	A-4b
493.2			10	I	2/3/4	5	DS	18	0	1	23	55	21			24.8	A-4b
	Brown moist loose sandy SILT.	14.5		I	1/2/4	6	DS	18				VISUAL				25.8	A-4b
485.7	Brown moist loose clayey SILT.	17.0	15	I	2/2/3	7	DS	18	0	1	35	47	17			26.6	A-4b
483.2				I	2/3/4	8	DS	18				VISUAL				26.4	A-4b
			20	I	4/4/5	9	DS	18	0	1	14	60	25	30	8	26.6	A-4b (0)
	Brown moist medium dense clayey SILT.	27.5	25	I	3/4/5	10	DS	18				VISUAL				27.3	A-4b
472.7			30	I	5/6/8	11	DS	18						29	8	23.6	A-4a (8)
	Brown moist medium dense sandy SILT, partially varved with fine sand seams.	37.5	35	I	6/8/9	12	DS	18				VISUAL				26.3	A-4b
462.7			40	D	21/24/15	13	DS	18	16	54	22	8					A-1-b (0)
	Brown moist dense silty GRAVEL and SAND.	43.0															
457.2			45	D	8/21/24	14	DS	18	42	36	11	11					A-1-b (0)
	Brown wet dense fine to coarse SAND and fine GRAVEL.	48.0	50	D	7/7/17	15	DS	18				VISUAL					A-1-b
452.2																	
	Brown wet medium dense fine to coarse SAND, trace fine gravel.	53.0	55	D	14/37/40	16	DS	18	0	29	59	12					A-3a (0)
447.2																	
	Brown wet very dense silty fine to coarse SAND.	58.0	60	D	20/18/23	17	DS	18	20	36	36	8					A-1-b (0)
442.2																	
	Brown wet dense silty fine to medium, trace coarse SAND and fine GRAVEL.	63.0	65	D	8/16/19	18	DS	18									
437.2																	
	Gray wet very dense fine to coarse SAND and GRAVEL (boulder bed).	71.5	70	D	11/16/21	19	DS	18									
428.7																	
	Bottom of test boring at 71.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 500.2
Date Started 2-13-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB/FG
Engineer ATS
Date Completed 2-13-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 13.0, 14.0 ft
AT COMPLETION 37.8 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 102+38.5, 21' Left
BORING # 131 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	Cond.	SAMPLE Standard Penetration	No.	Type	R (in)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
549.8	GROUND SURFACE			I	3/4/6	1	DS	12								18.2	
548.8	ASPHALT PAVEMENT (12")	1.0		I	2/3/4	2	DS	18						46	24	22.3	A-7-6 (15)
	Mixed brown and gray moist stiff FILL, clay with shale, limestone and rock fragments.	4.5	5	I	2/3/4	3	DS	4				VISUAL				22.9	A-7-6
545.3				I	6/11/5	4	DS	12						48	27	23.1	A-7-6 (16)
	Mixed brown and gray moist medium stiff to stiff FILL, clay with limestone fragments.	12.0	10	I	5/5/5	5	DS	12				VISUAL					A-7-6
537.8				I	14/15/14	6	DS	18				VISUAL					A-7-6
	Brown moist stiff CLAY with shale and limestone fragments (colluvium).	19.5	15	I	8/9/14	7	DS	18				VISUAL					A-7-6
530.3				I	9/11/20	8	DS	18						49	25	20.7	A-7-6 (16)
	Brown moist very stiff SILTY CLAY with shale fragments and limestone floaters.	23.0	20	I	7/9/15	9	DS	18				VISUAL					A-6b
526.8			25	I	7/7/9	10	DS	18				VISUAL					A-6b
	Gray moist stiff SILTY CLAY with shale and limestone fragments with wet soft clay seams.	33.0	30	I	51/100/3"	11	DS	3				VISUAL					A-6b
516.8			35	D	50/29/20	12	DS	18	57	13	9	16	5				A-1-b
	Gray moist very dense clayey SAND with limestone fragments.	38.0															
511.8			40	I	5/7/29	13	DS	18				VISUAL					A-1-b
	Gray wet medium dense clayey SAND with limestone fragments.	43.0															
506.8			45	I	7/12/31	14	DS	18						33	15	19.5	A-6a (10)
	Gray moist medium stiff SILT and CLAY with shale and limestone fragments (colluvium).	53.0	50	I	7/15/21	15	DS	18						28	14	20.2	A-6a (10)
496.8			55	I	10/15/15	16	DS	18				VISUAL				15.3	A-6b
			60	I	18/35/40	17	DS	18				VISUAL				19.3	A-6b
	Olive brown moist stiff SILTY CLAY with shale and limestone fragments (colluvium).	68.0	65	I	9/13/16	18	DS	18				VISUAL					A-6b
481.8			70	I	75/62/39	19	DS	18	74	7	7	12					A-1-a (0)
	Brown moist very dense clayey SAND with gravel and rock fragments.	73.0															
476.8	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	75.5	75	I	100/5"	20	DS	3									
474.3																	
	Split spoon refusal and bottom of test boring at 75.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 549.8
Date Started 4-9-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 4-9-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 4.0 ft
AT COMPLETION 47.0 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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71
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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING: Station 102+38.5, 21' Left
BORING # 131 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	Cond.	SAMPLE Standard Penetration	No.	Type	R (in)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
549.8	GROUND SURFACE																
548.8	ASPHALT PAVEMENT (12")	1.0		I	3/4/6	1	DS	12								18.2	
545.3	Mixed brown and gray moist stiff FILL, clay with shale, limestone and rock fragments.	4.5		I	2/3/4	2	DS	18						46	24	22.3	A-7-6 (15)
			5	I	2/3/4	3	DS	4				VISUAL				22.9	A-7-6
				I	6/11/5	4	DS	12						48	27	23.1	A-7-6 (16)
537.8	Mixed brown and gray moist medium stiff to stiff FILL, clay with limestone fragments.	12.0	10	I	5/5/5	5	DS	12				VISUAL					A-7-6
				I	14/15/14	6	DS	18				VISUAL					A-7-6
			15	I	8/9/14	7	DS	18				VISUAL					A-7-6
530.3	Brown moist stiff CLAY with shale and limestone fragments (colluvium).	19.5		I	9/11/20	8	DS	18						49	25	20.7	A-7-6 (16)
526.8	Brown moist very stiff SILTY CLAY with shale fragments and limestone floaters.	23.0	20	I	7/9/15	9	DS	18				VISUAL					A-6b
			25	I	7/7/9	10	DS	18				VISUAL					A-6b
516.8	Gray moist stiff SILTY CLAY with shale and limestone fragments with wet soft clay seams.	33.0	30	I	51/100/3"	11	DS	3				VISUAL					A-6b
511.8	Gray moist very dense clayey SAND with limestone fragments.	38.0	35	D	50/29/20	12	DS	18	57	13	9	16	5				A-1-b
506.8	Gray wet medium dense clayey SAND with limestone fragments.	43.0	40	I	5/7/29	13	DS	18				VISUAL					A-1-b
			45	I	7/12/31	14	DS	18						33	15	19.5	A-6a (10)
496.8	Gray moist medium stiff SILT and CLAY with shale and limestone fragments (colluvium).	53.0	50	I	7/15/21	15	DS	18						28	14	20.2	A-6a (10)
			55	I	10/15/15	16	DS	18				VISUAL				15.3	A-6b
			60	I	18/35/40	17	DS	18				VISUAL				19.3	A-6b
481.8	Olive brown moist stiff SILTY CLAY with shale and limestone fragments (colluvium).	68.0	65	I	9/13/16	18	DS	18				VISUAL					A-6b
476.8	Brown moist very dense clayey SAND with gravel and rock fragments.	73.0	70	I	75/62/39	19	DS	18	74	7	7	12					A-1-a (0)
474.3	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	75.5	75	I	100/5"	20	DS	3									
	Split spoon refusal and bottom of test boring at 75.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 549.8
Date Started 4-9-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 4-9-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 4.0 ft
AT COMPLETION 47.0 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING: Station 97+2.5, 16' Left
BORING # 211 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	Cond.	SAMPLE Standard Penetration	No.	Type	R (in)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
504.0	GROUND SURFACE																
503.5	TOPSOIL	0.5		I	8/50/1"	1A 1B	DS	7									
502.0	Mixed brown and gray moist medium stiff to stiff FILL, silty clay with brick and concrete fragments.	2.0		I	3/7/7	2	DS	2				VISUAL					A-6b
499.5	Mixed olive brown and gray moist stiff FILL, silty clay and clay, trace cinders.	4.5	5	I	3/3/3	3	DS	1.0				VISUAL					A-6b
494.5	Brown moist medium stiff to stiff SILTY CLAY, slightly varved, trace fine sand.	9.5		I	3/3/4	4	DS	18				VISUAL					A-6a
			10	I	3/3/4	5	DS	18				VISUAL					A-4b
				U		6	PT	20⁄24"	0	1	33	53	13	NON-PLASTIC			A-4b (1)
			15	I	2/2/4	7	DS	18				VISUAL					A-4b
484.5	Brown moist loose to very loose clayey SILT, some fine to medium sand.	19.5		I	1/2/2	8	DS	18				VISUAL					A-4b
480.0	Brown moist medium stiff SILT and CLAY, partially varved with thin sand seams.	24.0	20	I	2/1/2	9	DS	18				VISUAL					A-6a
476.0	Brown and gray moist medium stiff SILT and CLAY, partially varved with thin fine sand seams.	28.0	25	I	2/3/6	10	DS	18				VISUAL					A-6a
			30	I	4/4/5	11	DS	18				VISUAL					A-6a
466.0	Gray moist medium stiff very SILT and CLAY, partially varved with fine sand seams.	38.0	35	I	3/5/6	12	DS	18				VISUAL					A-6a
461.0	Gray moist loose clayey SILT with fine sand seams.	43.0	40	I	3/5/5	13	DS	18				VISUAL					A-4b
456.0	Dark olive gray moist stiff SILT and CLAY, some fine sand and organic specks.	48.0	45	D	7/7/12	14	DS	18				VISUAL					A-6a
451.0	Brown wet dense fine to medium, some coarse SAND, trace fine gravel.	53.0	50	D	9/15/19	15	DS	18				VISUAL					A-3a
446.0	Brown wet dense silty fine, trace medium SAND, trace fine gravel.	58.0	55	D	10/14/19	16	DS	12				VISUAL					A-3a
441.0	Brown wet dense silty fine to coarse SAND, trace fine gravel.	63.0	60	D	9/9/11	17	DS	13				VISUAL					A-3a
436.0	Brown wet very dense silty fine, trace medium SAND, trace fine gravel.	68.0	65	D	18/29/33	18	DS	14				VISUAL					A-3a
431.0	Brown wet very dense fine to coarse SAND and GRAVEL with limestone cobbles and boulders.	73.0	70	D	8/14/20	19	DS	18				VISUAL					A-1-b
425.0	Brown wet very dense silty fine SAND.	79.0	75	I	17/25/38	20	DS	18				VISUAL					A-3
423.6	Gray wet very dense fine to coarse SAND and GRAVEL with limestone cobbles and boulders.	80.4	80	I	50/4"	21	DS	18				VISUAL					A-1-b
	Split spoon refusal and bottom of test boring at 80.4 feet. *Test boring caved to 21.0 feet upon completion and was dry above.		85														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 504.0
Date Started 2-14-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB/FG
Engineer ATS
Date Completed 2-15-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 19.5 ft
AT COMPLETION 43.3 ft
AFTER ____ hrs. * ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 213 PROJECT # 051008NE

PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio

LOCATION OF BORING Station 105+3, 2' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
523.1	GROUND SURFACE																
	Brown moist medium stiff FILL, elastic clay with brick and coal fragments.			I	2/3/5	1	DS	12	18	9	31	42		43	22	18.6	A-7-5 (5)
518.6		4.5		I	5/6/6	2	DS	18								18.4	
			5	I	2/3/3	3	DS	12						25	9	25.3	A-4b (8)
513.6	Mixed brown moist very loose FILL, clayey silt.	9.5		I	2/1/3	4	DS	18				VISUAL				20.4	A-4b
511.1	Mixed brown moist medium stiff FILL, silty clay with coal fragments.	12.0	10	I	3/3/2	5	DS	18				VISUAL				25.0	A-6a
				I	4/6/10	6	DS	18	0	1	2	37	60	52	29	22.0	A-7-6 (18)
506.1	Dark brown moist stiff CLAY.	17.0	15	I	5/6/11	7	DS	18				VISUAL				22.7	A-7-6
				I	4/4/6	8	DS	18	0	0	34	46	20	22	4	19.1	A-4b (6)
			20	I	3/3/4	9	DS	18				VISUAL				20.6	A-4b
496.1	Brown moist medium dense to loose clayey SILT.	27.0	25	U		10	PT	24"/24"									
				I	2/3/3	11	DS	18	0	1	15	73	11	24	6		A-4b (8)
			30	I	1/2/2	12	DS	8				VISUAL				6.5	A-4b
487.1	Brown wet very loose clayey SILT.	36.0	35	I	1/2/4	13	DS	18	1	1	34	39	25	30	13	20.8	A-6a (7)
485.1	Gray moist medium stiff very SILT and CLAY.	38.0															
			40	D	10/12/15	14	DS	18	35	28	15	17	6				A-1-b (0)
			45	D	10/9/9	15	DS	18	23	51	11	15					A-1-b (0)
470.1	Brown moist medium dense silty fine to coarse SAND and GRAVEL (SM).	53.0	50	D	10/8/8	16	DS	18	44	32	6	15					A-1-b (0)
465.1	Brown moist medium dense silty fine to coarse SAND and GRAVEL.	58.0	55	D	8/6/14	17	DS	18	7	19	24	34	16				A-4-b
460.1	Gray moist stiff SILTY CLAY with limestone fragments.	63.0	60	I	12/30/19	18	DS	18				VISUAL					A-6b
			65	D	15/9/9	19	DS	18	28	24	28	20				9.1	A-1-b
453.6	Brown wet medium dense silty fine SAND.	69.5	70	D	100/5"	20	DS	1									
450.1	LIMESTONE COBBLES	73.0															
445.1	Brown wet medium dense silty fine SAND.	78.0	75	D	14/13/7	21	DS	18	0	1	91	9				20.3	A-3 (0)
	Interbedded gray moist soft SHALE and gray hard LIMESTONE. Shale is soft. Limestone is gray, hard, crystalline, fossiliferous, randomly fractured and occurs in horizontal layers ranging from $\frac{1}{4}$ inch to $7\frac{1}{2}$ inches in thickness. Approximately 82 percent shale and 18 percent limestone (bedrock). Recovery Ratio = 1.0, RQD = 0.30.		80			22	RC	60"/60"									
438.1		85.0	85														
	Bottom of test boring at 85.0 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 523.1
Date Started 3-29-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman LW
Engineer ATS
Date Completed 3-29-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 65.0 ft
AT COMPLETION ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 217 PROJECT # 070583NE

PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio

LOCATION OF BORING Station 102+51.5, 55' Left

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
527.5	GROUND SURFACE																
526.5	ASPHALT PAVEMENT (12")	1.0		I	3/7/9	1	DS	10								2.0	
	Mixed brown some gray moist stiff to very stiff FILL, silty clay, trace organic matter (weeds) and cinders.	2.0		I	5/7/11	2	DS	12								1.0	
525.5			5	I	9/15/18	3	DS	15				VISUAL				16.1	A-7-6
				I	13/10/13	4	DS	09	7	3	1	-90-	42	21		15.8	A-7-6 (13)
			10	I	13/13/19	5	DS	09				VISUAL				12.6	A-7-6
				I	50/6"	6	DS	03				VISUAL				15.2	A-7-6
	Brown moist very stiff CLAY with shale and limestone fragments (colluvium).		15	I	20/15/16	7	DS	08				VISUAL				15.5	A-7-6
510.5		17.0		I	11/13/50/2"	8	DS	04	50	15	19	-16-	23	8		14.9	A-2-4 (0)
	Brown moist medium dense SHALE and limestone fragments with medium stiff clay semas (colluvium).	19.5	20	I	17/16/20	9	DS	09				VISUAL				13.6	A-6b
508.0																	
504.5	Brown moist medium stiff to stiff very SILTY CLAY with shale and limestone fragments (colluvium).	23.0	25	I	7/39/20	10	DS	12	1	0	2	48	49	35	17	18.8	A-6b (11)
499.5	Gray moist very stiff very SILTY CLAY with limestone floaters.	28.0															
			30	U		11	PT	00									
				I	12/13/20	12	DS	10	35	5	2	-58-	29	12		15.7	A-6a (5)
			35	I	40/35/36	13	DS	13				VISUAL				6.6	A-6a
484.5	Brown and gray moist very stiff SILT and CLAY with limestone and, shale fragments (colluvium).	43.0	40	I	12/13/18	14	DS	09				VISUAL				7.5	A-6a
			45	I	10/18/26	15	DS	13						35	17	15.3	A-6b (0)
474.5	Brown, trace gray moist very stiff SILTY CLAY with shale and limestone fragmentss.	53.0	50	I	8/16/36	16	DS	13				VISUAL				14.2	A-6b
	Brown moist very stiff SILTY CLAY with limestone floaters and shale fragments.	58.0	55	I	50/6"	17	DS	04				VISUAL				13.7	A-6b
469.5																	
464.5	Brown moist dense limestone fragments with SHALE and clay (colluvium).	63.0	60	I	21/32/50/6"	18	DS	12	51	6	18	-15-	24	9		13.0	A-2-4 (0)
	Brown moist stiff to very stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	68.0	65	I	50/1"	19	DS	14				VISUAL				0.6	A-6b
459.5																	
457.4	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	70.1	70	I	50/1"	20	DS	14								6.2	
	Bottom of test boring at 70.1 feet.		75														
			80														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 527.5
Date Started 6-21-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 6-21-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 17.0 - 30.0 ft
AT COMPLETION 69.0 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

9 / 13

73 / 136

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.

PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio

LOCATION OF BORING Station 100+87.8, 64' Left

BORING # 218 PROJECT # 070583NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (in)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
525.4	GROUND SURFACE		I	4/6/7	1	DS	18								16.4	
520.9	Brown moist stiff FILL, clay with sand and gravel.	4.5	I	7/9/6	2	DS	18	18	7	7	22	46	43	22	20.6	A-7-6 (12)
518.4	Brown moist medium stiff FILL, clay with fine gravel.	7.0	I	6/4/3	3	DS	06	11	15	23	-51-		47	26	27.1	A-7-6 (10)
			I	4/6/6	4	DS	18								10.4	
513.4	Brown most stiff SILTY CLAY with limestone and shale fragments.	12.0	I	4/10/9	5	DS	18	5	5	3	39	48	34	16	16.0	A-6b (10)
	Gray moist medium stiff to stiff SILT and CLAY with shale and		I	4/6/8	6	DS	18	21	6	3	43	27	28	12	18.5	A-6a (8)
508.4	limestone fragments (colluvium).	17.0	I	16/8/13	7	DS	18								19.0	
505.9	Gray moist dense SHALE fragments and limestone floaters (colluvium).	19.5	I	8/21/16	8	DS	06	80	9	3	-8-				8.8	A-2-7 (0)
			I	6/12/12	9	DS	18								15.9	
501.4	Olive brown moist stiff SILTY CLAY with shale and limestone fragments (colluvium).	24.0														
			I	6/7/7	10	DS	06	75	7	3	-15-				15.9	A-2-7 (0)
492.9	Gray moist to wet medium dense limestone fragments with SILT and CLAY (colluvium).	32.5	I	11/13/11	11	DS	18	59	5	5	-31-		26	13	12.6	A-2-6 (1)
			I	11/12/21	12	DS	18								12.9	
482.9	Gray, trace brown moist medium dense SILT with shale and limestone fragments (colluvium).	42.5	I	6/11/12	13	DS	18	16	14	8	42	20	22	9	12.2	A-4a (5)
			I	8/9/20	14	DS	18								12.6	
			I/L	9/11/10	15	DS	08									
467.4	Olive brown moist stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	58.0	I	50/1"	16	DS	0									
462.4	Brown wet very dense very SILTY fine to coarse SAND with limestone floaters.	63.0	D	30/50/6"	17	DS	08	61	11	12	-16-				8.2	A-1-b (1)
455.4	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	66.0	I	41//50/6"	18	DS	12									
	Bottom of test boring at 66.0 feet.															

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 525.4
Date Started 6-20-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 6-20-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 25.0 ft
AT COMPLETION 55.5 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

LOG OF BORING

DATE STARTED 02/16/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 139.61m

DATE COMPLETED 02/18/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION CAVED DRY @ 142.66m

BORING NUMBER WW-2 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET WW 30+560 2m LT. — SURFACE ELEVATION 151.8m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
151.80	0	0												
151.20	2	.6		BROWN COBBLES, SAND AND GRAVEL, (FILL) MOIST–MEDIUM DENSE										
150.43	4	1.2	8–50/3"	BLACK SAND AND GRAVEL, LITTLE RED BRICK FRAGMENTS, TRACE CINDERS, MOIST–DENSE	1		V	I	S	U	A	L		A–1–a
	6	1.8	6–11–9	ISOLATED CLAY POCKET BELOW 2.5'(0.7m) NOTED WOOD FROM 3.3 TO 4.5 FT (1.0m TO 1.4m)	2		V	I	S	U	A	L	12	A–4a
	8	2.4	7–8–10	BROWN SANDY SILT, TRACE WOOD FRAGMENTS, MOIST–MEDIUM DENSE	3		V	I	S	U	A	L		A–4a
148.90	10	3.0	3–5–7		4	1	0	17	47	35	31	13	20	A–6a(8)
	12	3.7												
	14	4.3	3–4–6	BROWN, LITTLE MOTTLED GRAY SILT AND CLAY, LITTLE FINE SAND, TRACE FINE GRAVEL, VERY MOIST–MEDIUM STIFF TO STIFF	5		V	I	S	U	A	L	21	A–6a
	16	4.9	3–3–5		6		V	I	S	U	A	L		A–6a
145.46	18	5.5	4–4–5		7		V	I	S	U	A	L	19	A–4a
	20	6.1												
	22	6.7	2–2–3	BROWN SANDY SILT, TRACE SAND PARTINGS, VERY MOIST TO WET–LOOSE	8		V	I	S	U	A	L	22	A–4a
	24	7.3												
143.57	26	7.9	SHELBY TUBE		ST		V	I	S	U	A	L		A–4a
	28	8.5	5–7–8	DARK GRANGISH BROWN COARSE AND FINE SAND, SOME SILT, SOME IRON STAINING, TRACE CLAY POCKETS, MOIST–MEDIUM DENSE	10		V	I	S	U	A	L		A–3a
142.70	30	9.1												
142.50	32	9.8	3–12–25	BROWN AND GRAY SILT AND CLAY, SOME FINE SAND, VERY MOIST–MEDIUM STIFF	11 11A		V V	I I	S S	U U	A A	L L		A–6a A–1–b
	34	10.4		BROWN GRAVEL AND LIMESTONE FRAGMENTS WITH SAND, MOIST–DENSE										
141.13	36	11.0	6–5–6		12		V	I	S	U	A	L	21	A–4a
	38	11.6												
	40	12.2	7–12–10	BROWN SANDY SILT, WET–MEDIUM DENSE	13		V	I	S	U	A	L		A–4a
138.09	44	13.4												
	46	14.0	7–13–13	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, TRACE SILT, TRACE CLAY, MOIST–MEDIUM DENSE	14		V	I	S	U	A	L		A–3a
	50	15.2	10–15–22		15	4	9	69	9	9	–	–	–	A–3a(0)
	54	16.4												
	56	17.0	12–23–22		16		V	I	S	U	A	L		A–3a
	58	17.7												
	60	18.3	11–14–18		17		V	I	S	U	A	L		A–3a
	62	18.9												
	64	19.5												
	66	20.1	10–14–17		18		V	I	S	U	A	L		A–3a
	68	20.7												
130.50	70	21.3												
	72	21.9	9–13–21		19	0	1	75	15	9	–	–	–	A–3a(0)
	74	22.5												
	76	23.1	3–8–19	GRAY COARSE AND FINE SAND, LITTLE SILT, TRACE CLAY, WET–DENSE	20		V	I	S	U	A	L		A–3a
	78	23.7												
	80	24.3		–TRACE FINE GRAVEL BELOW 80.0' (24.3m)	21		V	I	S	U	A	L		A–3a
126.96			11–13–30											

BORING COMPLETED @ 24.84m (81.5')

LOG OF BORING

DATE STARTED 5/11/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 138.79m

DATE COMPLETED 5/12/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 132.69m

BORING NUMBER WA-4 — CORE BARREL: TYPE NQ — SIZE 5.1cm I.D. — AFTER 0 HRS. BACKFILLED

STATION & OFFSET WW 30+438 2.5m RT. — SURFACE ELEVATION 158.6m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
158.60	0	0												
	2	.6	4–6–8	BROWN SILT AND CLAY, SOME GRAVEL, BRICK, COAL, & GLASS FRAGMENTS, NOTED ROOTS, (FILL) MOIST–MEDIUM STIFF	1		V	I	S	U	A	L	17	A–6a
157.10	5	1.2	5–4–3		2		V	I	S	U	A	L		A–6a
156.50	6	1.8	2–3–2	BROWN SILT AND CLAY, SOME GRAVEL, TRACE COAL AND LIMESTONE FRAGMENTS (FILL), VERY MOIST–SOFT	3		V	I	S	U	A	L	22	A–6a
	8	2.4	4–8–3	BROWN AND GRAY SAND, SILT AND GRAVEL, LITTLE SHALE AND BRICK FRAGMENTS (FILL), MOIST–MEDIUM DENSE	4		V	I	S	U	A	L		A–2–6
155.60	10	3.0	1–1–2		5		V	I	S	U	A	L	30	A–2–6
154.70	12	3.7		BROWN SILT AND CLAY, TRACE SAND, TRACE CINDERS (FILL), VERY MOIST–SOFT										
	14	4.3	5–8–8	BROWN SILTY CLAY, MOIST–VERY STIFF	6		V	I	S	U	A	L		A–2–6
154.00	16	4.9	4–5–7		7	0	0	22	45	33	28	12	19	A–6a(8)
	18	5.5		BROWN SILT AND CLAY, LITTLE SAND, VERY MOIST–STIFF										
152.50	20	6.1	4–4–4		8		V	I	S	U	A	L		A–6a
	22	6.7	5–5–7	BROWN SANDY SILT, LITTLE CLAY, MOIST–LOOSE TO MEDIUM DENSE	9		V	I	S	U	A	L	19	A–4a
	24	7.3												
	26	7.9	3–4–5		10		V	I	S	U	A	L		A–4a
149.50	30	9												
	32	9.8	3–3–4	BROWN SILT AND CLAY, NOTED CONCRETIONS, VERY MOIST–MEDIUM STIFF	11		V	I	S	U	A	L	23	A–6a
147.90	36	11.0	5–8–11	GRAY AND BROWN SILT AND CLAY, SOME SAND, SOME LIMESTONE AND SHALE FRAGMENTS, MOIST–STIFF	12		V	I	S	U	A	L		A–6a
146.40	40	12.2												
	42	12.8	11–15–14	BROWN SAND, GRAVEL, AND LIMESTONE FRAGMENTS, MOIST–DENSE	13	32	23	25	13	7	–	–	–	A–1–b(0)
	44	13.4												
	46	14.0	16–10–8		14		V	I	S	U	A	L		A–1–b
143.40	50	15.2												
	52	15.8	5–6–7	BROWN SAND, GRAVEL, AND LIMESTONE FRAGMENTS, SOME SILT, TRACE CLAY POCKETS, MOIST–MEDIUM TO DENSE	15		V	I	S	U	A	L		A–1–b
	54	16.4												
	56	17.0	9–12–15		16		V	I	S	U	A	L		A–1–b
	58	17.6												
	60	18.3	10–13–26		17		V	I	S	U	A	L		A–1–b
	62	18.9												
	64	19.5												
139.20	66	20.1												
138.50	68	20.7	10–14–17	BROWN COARSE AND FINE SAND, TRACE LIMESTONE FRAGMENTS, WET–DENSE	18		V	I	S	U	A	L		A–3a
	70	21.3		BROWN SILT AND CLAY, TRACE LIMESTONE FRAGMENTS WET–DENSE	18A		V	I	S	U	A	L		A–6a
137.20	72	21.9	12–19–30	BROWN COARSE AND FINE SAND, WET–DENSE	19		V	I	S	U	A	L		A–3a
	74	22.5												
	76	23.1	12–23–33		20		V	I	S	U	A	L		A–3a
135.19	78	23.7	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE–DARK GRAY,SOFT TO MEDIUM HARD, OCCUPIES 60% OF MATRIX LIMESTONE–LIGHT GRAY, HARD, OCCURS IN 1" TO 4" LAYERS, OCCUPIES 40% OF MATRIX	C1	NO	REC=90% 100% RQD							
	80	24.3												
133.00	84	25.6	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE–DARK GRAY, HARD, OCCUPIES 90% OF MATRIX LIMESTONE–LIGHT GRAY, HARD, OCCURS IN 1" TO 5" LAYERS, OCCUPIES 10% OF MATRIX –VERTICAL FRACTURE FROM 89.7' TO 90.0'	C2	NO	REC=90% 100% RQD						3	
	94	28.6	ROCK CORE		C3	NO	REC=90% 100% RQD						3	
	104	31.7	ROCK CORE		C4	NO	REC=90% 100% RQD						5	
	114	34.7	ROCK CORE		C5	NO	REC=90% 100% RQD							
121.41	122	37.2												

BORING COMPLETED @ 37.19m (122.0')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

11 / 13

75
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LOG OF BORING

DATE STARTED 02/18/99 | SAMPLER: TYPE SPLIT SPOON | DIA. 5.1cm O.D. | WATER ELEVATION: IMMEDIATE 149.83m
DATE COMPLETED 02/20/99 | CASING LENGTH: 1.5m HOLLOW STEM AUGER | DIA. 8.3cm I.D. | COMPLETION 152.80m
BORING NUMBER WA-5 | CORE BARREL: TYPE NA | SIZE NA | AFTER 0 HRS. BACKFILLED
STATION & OFFSET WW 30+426.1m RT | SURFACE ELEVATION 154.20m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL. CLASS
154.20	0	0		ASPHALTIC CONCRETE										
154.14			12-2-3	BROWN AND GRAY GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, TRACE ASPHALTIC CONCRETE FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		A-2-4
153.80	1.2		2-5-7		2		V	I	S	U	A	L	13	A-4a
	1.8		3-5-5	BROWN SANDY SILT, LITTLE CLAY, MOIST-TO LOOSE MEDIUM DENSE	3		V	I	S	U	A	L		A-4a
	2.4		3-4-4		4	0	0	32	49	19	NP	NP	-	A-4a(0)
	3.0		2-3-3		5		V	I	S	U	A	L		A-4a
150.50	3.7													
	4.3		2-3-3	BROWN SILT, SOME CLAY, TRACE SAND, MOIST-LOOSE TO VERY LOOSE	6		V	I	S	U	A	L		A-4b
	4.9		1-1-2		7		V	I	S	U	A	L	21	A-4b
	5.5		0-1-1		8		V	I	S	U	A	L		A-4b
	6.1		0-1-1		9	0	0	10	64	26	29	9	24	A-4b(8)
	6.7													
	7.3													
	7.9		SHELBY TUBE		ST		V	I	S	U	A	L		A-4b
149.70	8.5													
	9.1		1-2-2		11		V	I	S	U	A	L	27	A-4a
	9.8													
	10.4													
	11.0		SHELBY TUBE	GRAY SANDY SILT, SOME CLAY, LITTLE SAND LENSES TO PARTINGS, TRACE ORGANICS, VERY MOIST-SOFT	ST	0	0	24	46	30	27	9	28	A-4a(8)
	11.6													
	12.2		2-3-4		13		V	I	S	U	A	L	27	A-4a
	12.8													
	13.4													
140.20	14.0		3-8-13		14		V	I	S	U	A	L		A-6a
	14.6			BROWN COARSE AND FINE SAND, LITTLE FINE GRAVEL, TRACE SILT, TRACE ISOLATED CLAY POCKETS, WET-MEDIUM DENSE	14A		V	I	S	U	A	L		A-3a
139.60	15.2			GRAY COARSE AND FINE SAND, WET-MEDIUM DENSE	15		V	I	S	U	A	L		A-3a
138.70	15.6		9-10-8	GRAY SILTY CLAY, LITTLE SAND, TRACE BLACK ORGANICS, VERY MOIST-STIFF	15A		V	I	S	U	A	L		A-6b
138.10	16.4													
	17.0		8-11-15	DARK ORANGISH BROWN COARSE AND FINE SAND, LITTLE SILT, MOIST-MEDIUM DENSE TO DENSE,	16		V	I	S	U	A	L		A-3a
	17.6													
	18.2		31-21-23	-ISOLATED CLAY POCKET BELOW 60.0' (18.2m)	17		V	I	S	U	A	L		A-3a
	18.9													
135.40	19.5													
	20.1		4-8-11		18	0	7	80	9	4	-	-	-	A-3a(0)
	20.7													
	21.3		7-12-18	BROWN COARSE AND FINE SAND, WET-MEDIUM DENSE TO VERY DENSE	19		V	I	S	U	A	L		A-3a
	21.9													
	22.5													
	23.1		8-9-12		20		V	I	S	U	A	L		A-3a
	23.7													
	24.3													
129.35	25.0		41-18-39		21		V	I	S	U	A	L		
	25.6			(NOTE: DIFFICULT AUGURING, POSSIBLE BEDROCK, NO RECOVERY)										
128.30														
128.13			100/.4	GRAY SHALE, MODERATELY HARD, AND LIMESTONE FRAGMENTS	22		V	I	S	U	A	L		

BORING COMPLETED @ 28.0m (85.4')

LOG OF BORING

DATE STARTED 03/08/99 | SAMPLER: TYPE SPLIT SPOON | DIA. 5.1cm O.D. | WATER ELEVATION: IMMEDIATE 149.30m-141.82m
DATE COMPLETED 03/10/99 | CASING LENGTH: 1.5m HOLLOW STEM AUGER | DIA. 8.3cm I.D. | COMPLETION 144.05m
BORING NUMBER WA-6 | CORE BARREL: TYPE NA | SIZE NA | AFTER 0 HRS. BACKFILLED
STATION & OFFSET WW 30+511.4m LT | SURFACE ELEVATION 153.20m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL. CLASS
153.20	0	0		ASPHALTIC CONCRETE										
153.16														
			3-5-6	BROWN GRAVEL AND STONE FRAGMENTS, LITTLE CONCRETE FRAGMENTS, TRACE SAND (FILL), DRY-MEDIUM DENSE	1		V	I	S	U	A	L		A-1-a
151.70	1.2													
	1.8		3-3-5	BROWN SANDY SILT, LITTLE SAND PARTINGS, TRACE CLAY MOIST-LOOSE	2		V	I	S	U	A	L		A-4a
	2.4		5-4-3		3		V	I	S	U	A	L		A-4a
	3.0		4-3-3		4		V	I	S	U	A	L		A-4a
149.39	3.7													
	4.3		3-3-3		5									A-6a
	4.9		SHELBY TUBE	BROWN SILT AND CLAY, SOME SAND, LITTLE SAND LENSES AND PARTINGS, VERY MOIST-MEDIUM STIFF	ST		V	I	S	U	A	L		A-6a
	5.5		2-2-3		6		V	I	S	U	A	L		A-6a
	6.1		2-3-3		7		V	I	S	U	A	L		A-6a
	6.7													
	7.3													
	7.9		2-3-5		8		V	I	S	U	A	L		A-6a
	8.5													
144.10	9.1													
143.75	9.2		3-2-3	BROWNISH GRAY SILT AND CLAY, LITTLE SAND LENSES, MOIST-MEDIUM STIFF	8		V	I	S	U	A	L		A-6a
	9.8			BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, MOIST-LOOSE	8A		V	I	S	U	A	L		A-3a
142.53	10.1		3-5-6		9		V	I	S	U	A	L		A-6a
	10.8			GRAY SILT AND CLAY, LITTLE FINE SAND, MOIST-STIFF										
	11.4		SHELBY TUBE		ST		V	I	S	U	A	L		A-6a
	12.0		4-5-7	-TRACE ORGANICS BELOW 40.0' (12.1m)	10		V	I	S	U	A	L		A-6a
	12.6													
	13.2		3-5-3		11		V	I	S	U	A	L		A-6a
139.00	13.5													
	13.8		5-8-15	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, VERY MOIST-MEDIUM DENSE	12		V	I	S	U	A	L		A-1-b
136.45	14.5													
	14.7		14-15-17	BROWN COARSE AND FINE SAND, TRACE SILT VERY MOIST-MEDIUM DENSE TO DENSE	13		V	I	S	U	A	L		A-1-b
	15.3		8-11-22	-ISOLATED CLAY POCKET BELOW 60.0' (18.2m)	14		V	I	S	U	A	L		A-1-b
	15.9													
	16.5		12-11-13		15		V	I	S	U	A	L		A-1-b
	17.2													
	17.8		6-15-21		15		V	I	S	U	A	L		A-1-b
	18.4													
	19.0		7-14-22		17		V	I	S	U	A	L		A-1-b
	19.7													
128.92	20.3													
	20.6		7-15-31	BROWN FINE SAND, TRACE SILT, VERY MOIST-DENSE	18		V	I	S	U	A	L		A-3a
127.25	21.2													
126.52	21.5		22-31-40	GRAY COARSE AND FINE SAND, TRACE SILT, VERY MOIST-VERY DENSE	19		V	I	S	U	A	L		A-1-b
	22.1													
	22.7		54-70/.3		20		V	I	S	U	A	L		A-1-a
	23.3													
	23.9			GRAY SAND AND LIMESTONE FRAGMENTS TRACE SILT AND CLAY, MOIST TO DRY-VERY DENSE										
	24.5		31-71-34		21		V	I	S	U	A	L		A-1-a
	25.2													
122.90	25.5		100/.2		21		V	I	S	U	A	L		A-1-a

BORING COMPLETED @ 30.38m (99.7')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **213** SAMPLE NUMBER : **10B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown moist medium stiff sandy CLAY** DEPTH (FT.): **25.2** to **25.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/19/06**

NATURAL UNIT WEIGHT

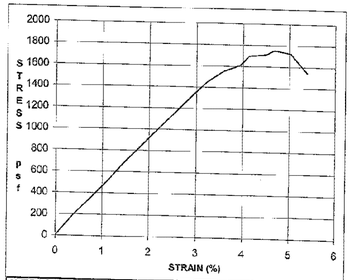
AVERAGE DIAMETER (in.)	2.84
HEIGHT (in.)	5.57
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0441
VOLUME (cu. ft.)	0.0205
WET WEIGHT (lbs.)	2.64
DRY WEIGHT (lbs.)	2.18
DRY DENSITY (pcf)	**106.5**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	ky-19
WET WEIGHT + CAN (lbs.)	3.13
DRY WEIGHT + CAN (lbs.)	2.67
WEIGHT WATER (lbs.)	0.46
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	2.17
MOISTURE (%)	**21.4**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0441	0
20	8.0	8.0	0.4	0.0443	181
40	15.0	15.0	0.7	0.0444	338
60	22.0	22.0	1.1	0.0446	494
80	30.0	30.0	1.4	0.0447	671
100	37.0	37.0	1.8	0.0449	824
160	59.0	59.0	2.9	0.0454	1299
180	66.0	66.0	3.2	0.0458	1448
200	71.0	71.0	3.6	0.0457	1552
220	74.0	74.0	4.0	0.0459	1612
230	78.0	78.0	4.1	0.0460	1696
250	79.0	79.0	4.5	0.0462	1711
260	81.0	81.0	4.7	0.0463	1751
280	80.0	80.0	5.0	0.0464	1723
300	72.0	72.0	5.4	0.0466	1545



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	4.7
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,750
SHEAR STRENGTH (psf)	875

REMARKS :

DRAWN KPR
CHECKED

SOIL PROFILE - SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-264-1448

HAM-50-18.79

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PROJECT DESCRIPTION

THE COMPLETE PROJECT CONSISTS OF THE REPLACEMENT OF THE EXISITING WALDVOGEL (6TH STREET) VIADUCT CONNECTING RIVER ROAD (US 50) TO THE ELBERON AND WARSAW AVENUES IN CININCINNATI, OHIO. THE NEW ALIGNMENT WILL ENDEAVOR TO RELOCATE A SUBSTANTIAL AMOUNT OF THE CURRENT ELEVATED ROADWAY ON-GRADE. BRIDGE HAM 264-1456 WILL REPLACE THE RAMP CONNECTING WESTBOUND US 50 WITH ELBERON AVENUE.

HISTORIC RECORDS

THE CURRENT WALDVOGEL VIADUCT WAS CONSTRUCTED IN 1949. SUBSEQUENT EXPLORATIONS WERE PERFORMED BY THE H.C. NUTTING COMPANY FOR THE CITY OF CINCINNATI IN REPORTS PREPARED IN 1951 AND 1989. ADDITIONAL REPORTS FOR PREVIOUS REPLACEMENT DESIGNS WERE PUBLISHED IN 1990, 1991, 1996, 1998, AND 1999. HISTORIC BORINGS FROM THE 1999 EXPLORATIONS ARE PRESENTED ON THE SOIL PROFILES. (SEE "AVAILABLE INFORMATION" BELOW)

GEOLOGY

THE PROJECT SITE IS LOCATED AT THE TRANSITION BETWEEN THE DEEP ALLUVIAL OHIO RIVER BASIN TO THE EAST AND THE COLLUVIAL AND BEDROCK SLOPES OF THE LOWER PRICE HILL TO THE WEST. THE UNDERLYING BEDROCK CONSISTS OF THE KOPE FORMATION OF INTERBEDDED SHALE AND LIMESTONE.

RECONNAISSANCE

THE SITE PROPOSED FOR THE ROADWAY AND BRIDGE REPLACEMENTS CURRENTLY CONSIST OF A STEEP WESTERN HILLSIDE (LOWER PRICE HILL) DESCENDING TO A BROAD ALLUVIAL PLAIN. ELEVATION DIFFERENTIAL ON THE HILLSIDE IS APPROXIMATELY 65 FEET, DESCENDING TO THE EASTERN PLANE. ACROSS THE ALLUVIAL PLAIN, THE GROUND SURFACE IS RELATIVELY LEVEL AT APPROXIMATELY EL. 490 (MSL). THE WESTERN PORTION OF THE SITE IS AN AREA OF LONG STANDING RESIDENTIAL DEVELOPMENT, TRANSITIONING TO COMMERCIAL / INDUSTRIAL USE OVER THE LEVEL PLAINS. SEVERAL RETAINING STRUCTURES ARE LOCATED ALONG STATE AVENUE TO ACCOMODATE THE STREETS. SIDEHILL CUTS AND FILLS WERE MADE TO ESTABLISH ROADWAYS ALONG THE WESTERN HILLSIDE.

SUBSURFACE EXPLORATION

THE TEST BORINGS WERE PERFORMED WITH TRACK AND TRUCK MOUNTED DRILL RIGS ADVANCING HOLLOW - STEM AUGERS. SAMPLING WAS PERFORMED WITH AN AUTOMATIC HAMMER ON CME MODEL 55 AND 450 RIGS. STANDARD SPLIT SPOON SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1586. SAMPLES WERE GENERALLY OBTAINED AT A 2.5 FT INTERVAL. AT SELECTED LOCATIONS, THIN WALLED SHELBY TUBE SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1587.

EXPLORATION FINDINGS

THE SHALLOW SUBSURFACE PROFILE CONSISTS OF A SURFICIAL LAYER OF RANDOM FILL. BELOW THE FILL IS A CRUST OF STIFF LEAN SILTY CLAY WHICH GENERALLY CLASSIFIES AS A-7-6 AND 6A (ODOT). THE CRUST TYPICALLY EXTENDS APPROXIMATELY 20 FEET FROM THE GROUND SURFACE. THE ALLUVIUM BECOMES SILTIER AND LESS STIFF WITH DEPTH, CLASSIFYING A-4-6 TO A-6B TO APPROXIMATELY 40 FEET. BELOW APPROXIMATELY 40 FEET, THE ALLUVIUM TRANSITIONS TO GRANULAR OUTWASH DEPOSITS, MEDIUM DENSE TO DENSE SAND AND SAND AND GRAVEL. GRANULAR SOILS ARE TYPICALLY WELL GRADED AND MEDIUM DENSE TO VERY DENSE. STATIC GROUNDWATER WAS TYPICALLY ENCOUNTERED AT THE CONTACT BETWEEN THE ALLUVIAL SOILS AND THE OUTWASH SOILS. NATIVE BEDROCK, INTERBEDDED SHALE AND LIMESTONE, WAS ENCOUNTERED BETWEEN 70 AND IN EXCESS OF 100 FEET FROM THE GROUND SURFACE. THE PROFILE AT THE WESTERN PORTION OF THE SITE ADJACENT TO THE WESTERN TERMINI OF THE ELBERON AND WARSAW AVENUE RAMPS, TRANSITIONS TO DEEP, RANDOMLY DEPOSITED COLLUVIAL SOILS WITH INTERBEDDED GRANULAR SEAMS OVERLYING GRANULAR SOILS AT THE TOE OF THE SLOPE. THE SOILS OVERLIE A SLOPING BEDROCK SURFACE OF INTERBEDDED SHALE AND LIMESTONE BEDROCK.

SPECIFICATIONS

ALL BORINGS WERE PERFORMED IN ACCORDANCE WITH ODOT SSI (1996). DRAWINGS WERE PREPARED IN ACCORDANCE WITH ODOT SGE (2007).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK DATA THAT CAN BE CONVENIENTLY SHOWN ON THE PROFILE SHEETS HAS BEEN REPORTED. PREVIOUS SUBSURFACE INVESTIGATIONS AND SOIL AND BEDROCK TESTS WERE PERFORMED IN 1952, 1989, 1990, 1991, 1996 AND 1999. COPIES OF THIS AND OTHER AVAIALABLE DATA MAY BE INSPECTED AT THE DEPUTY DIRECTOR'S OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OHIO, AT THE OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8 AND THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION & ENGINEERING. SOIL AND ROCK CORE SAMPLES MAY BE REVIEWED AT THELEN ASSOCIATES, INC., 1780 CARILLON BLVD., CINCINNATI, OHIO

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	2	0
GRAVEL AND/OR STONE FRAGMENTSWITH SAND	A-1-b	7	8
FINE SAND	A-3	3	8
COARSE AND FINE SAND	A-3a	3	8
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4	1	0
GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT AND CLAY	A-2-6	1	1
SANDY SILT	A-4a	2	1
SILT	A-4b	14	20
SILT AND CLAY	A-6a	5	22
SILTY CLAY	A-6b	7	13
CLAY	A-7-6	6	5
WEATHERED INTERBEDDED SHALE AND LIMESTONE			VISUAL
INTERBEDDED SHALE AND LIMESTONE			VISUAL
PAVEMENT OR BASE			VISUAL

EXPLORATION LOCATION-PLAN VIEW

HISTORIC BORING LOCATION-PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

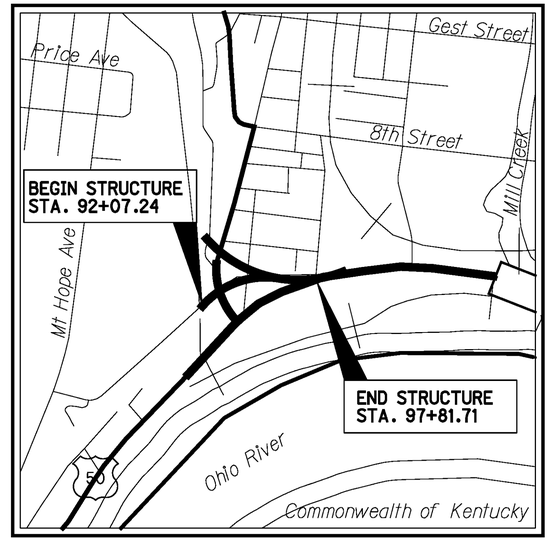
ST INDICATES A SHELBY TUBE SAMPLE

—W INDICATES FREE WATER ELEVATION

INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

INDICATES PLASTIC MATERIAL WITH A HIGH WATER CONTENT

WC INDICATES WATER CONTENT IN PERCENT



LOCATION MAP

SCALE IN MILES

0 1 2

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL

Boring No.	Sample No.	Sample Depth, ft.	Unconfined Compressive Strength, psf	Dry Density, pcf	Moisture Content, %	Shear Strength, psf
207	RC-1	85.0-85.5	61,600	141.7	5.0	30,800
207	RC-2	91.0-91.5	41,500	143.0	4.9	20,800
214	3A	5.4-5.9	1,900	105.1	21.7	950
215	11	35.0-36.0	15,760	125.5	13.2	7,880

RECON. - ATS 2/6 - 2/10/06
DRILLING - GB 2/13 - 4/21/06, 6/20 - 6/21/07
DRILLING - LW 3/22 - 4/25/06, 6/20-6/26/07
DRAWN - MS 5/20/06 - 7/31/07
DRAWN - KPR 10/4/07 - 6/11/10
REVIEWED - ATS 6/12/10

THELEN ASSOCIATES, INC. Geotechnical • Testing Engineers
1780 Carillon Blvd., Cincinnati, Ohio 45240 513-825-4100
1780 Carillon Blvd., Cincinnati, Ohio 45240 FAX 513-825-4101

PID NO. 20082

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

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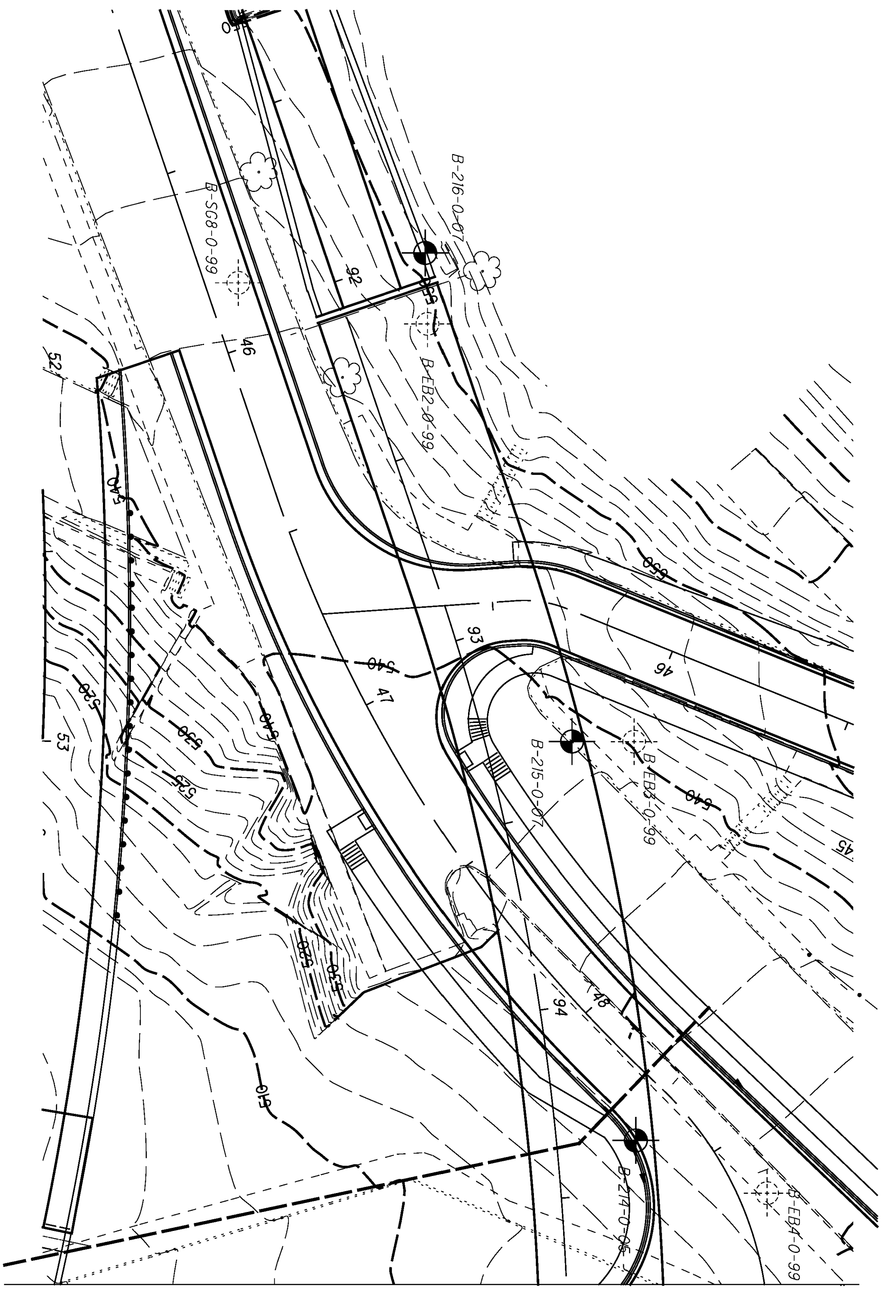
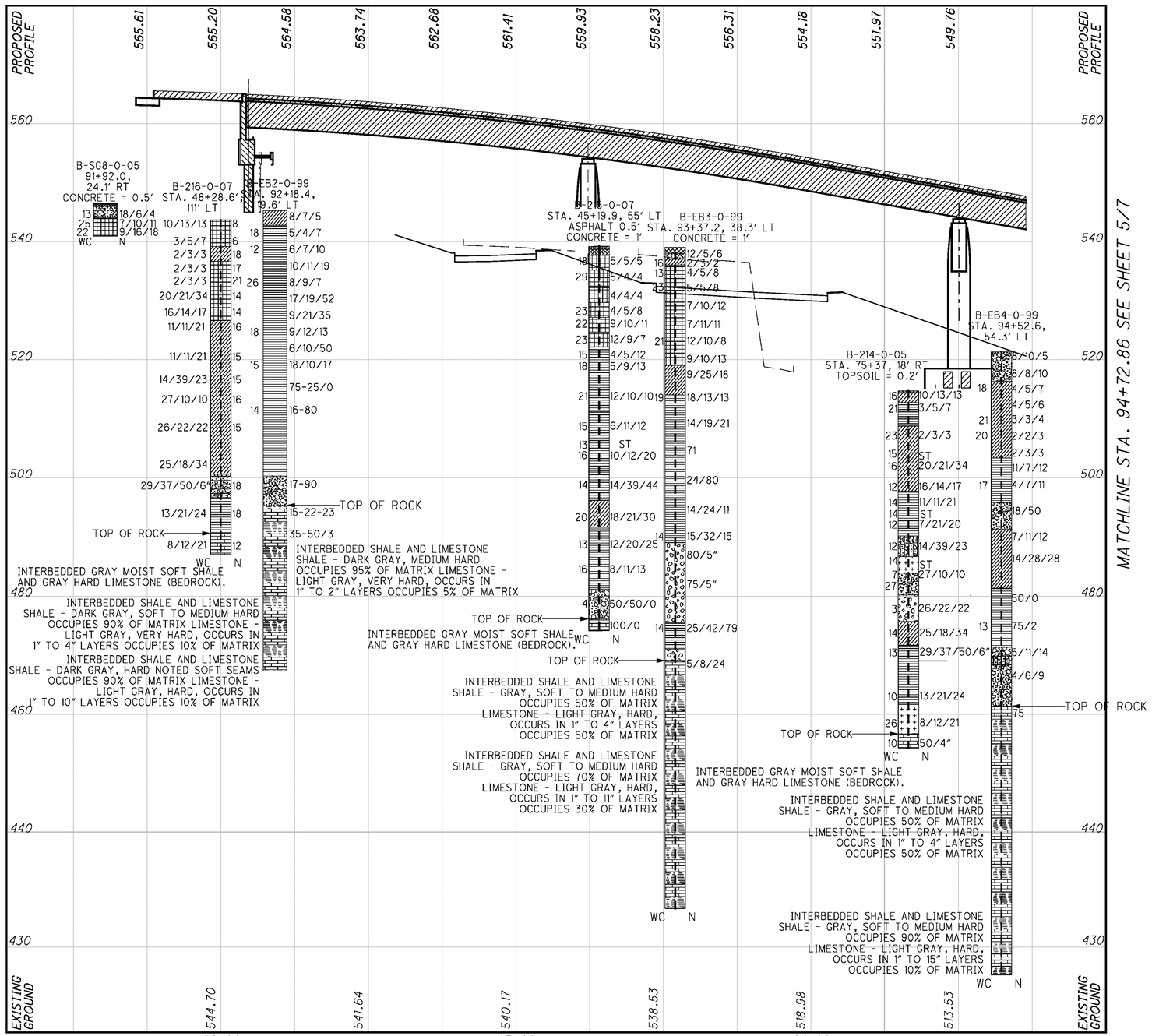


79 / 136	2 / 13	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-264-1457	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG ℄ W.B. ELBERON AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1457

HAM-50-18.79

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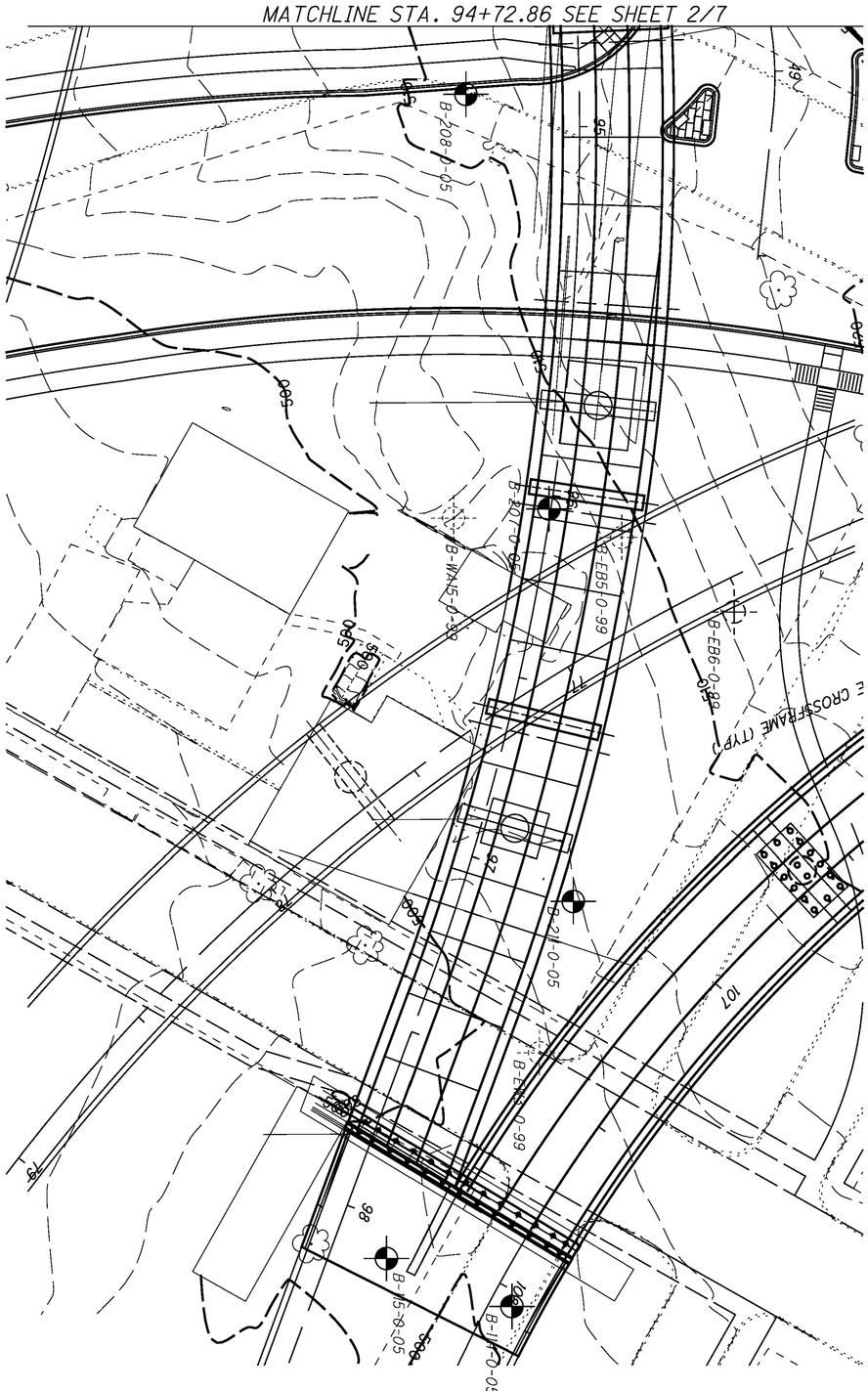
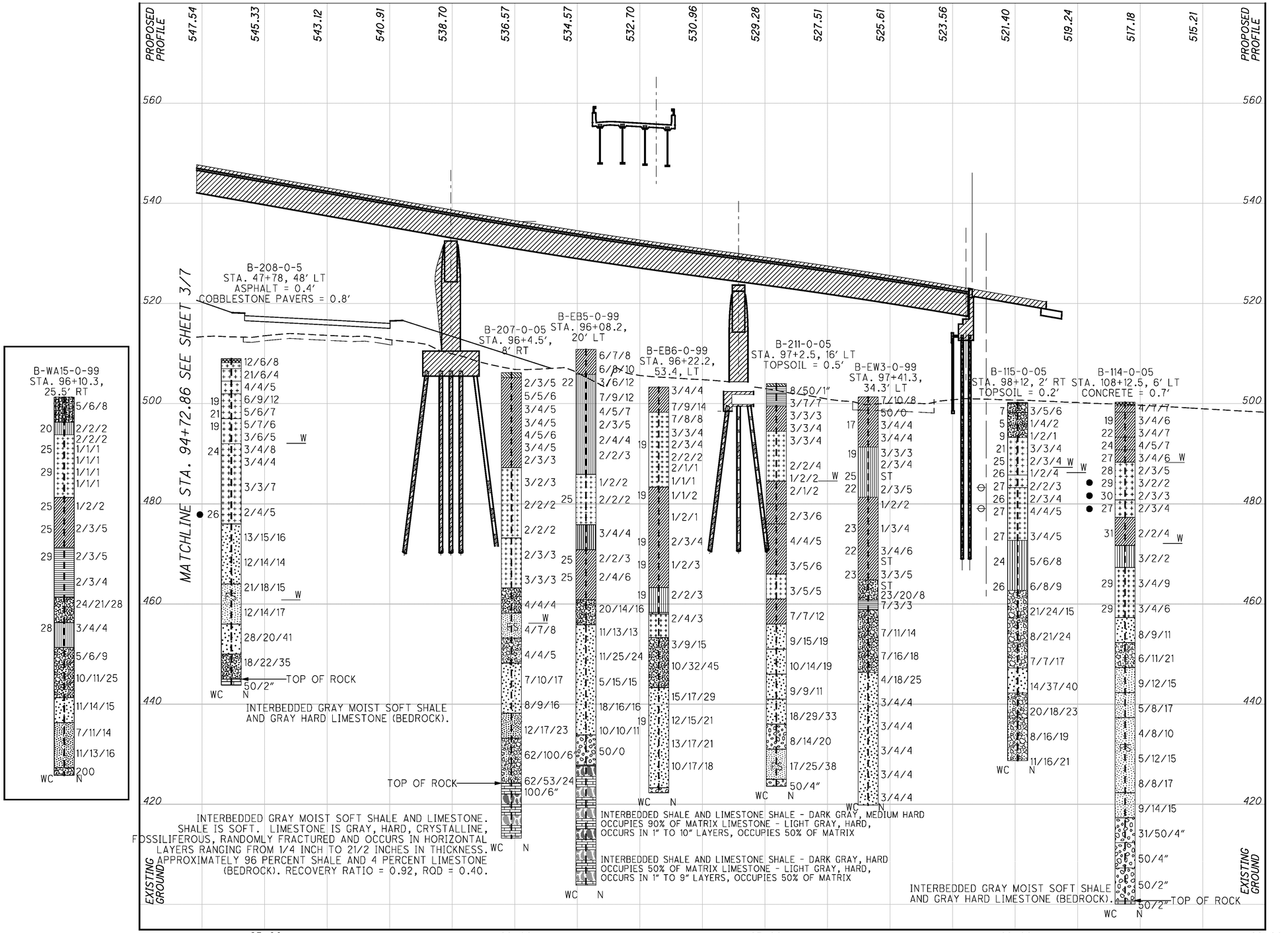
MATCHLINE STA. 94+72.86 SEE SHEET 2/7





PROFILE ALONG ℄ WB ELBERON RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-264-1457

HAM-50-18.79

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 114 PROJECT # 051008NE

PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio

LOCATION OF BORING Station 108+12.5, 6' Left

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
500.3	GROUND SURFACE																
499.6	CONCRETE PAVEMENT	0.7		I	4/7/7	1	DS	22									
498.3	Brown moist very stiff SILTY CLAY.	2.0		I	3/4/6	2	DS	100				VISUAL				18.9	A-6a
493.3	Brown moist stiff very SILTY CLAY with iron oxide stains, trace fine sand.	7.0	5	I	3/4/7	3	DS	100				VISUAL				21.8	A-6a
490.8	Brown moist medium stiff very SILTY CLAY with silty fine sand seams and iron oxide stains.	9.5		I	4/5/7	4	DS	100				VISUAL				24.2	A-6a
488.3	Brown moist stiff SILTY CLAY, trace fine sand.	12.0	10	I	3/4/6	5	DS	100				VISUAL				26.7	A-6b
				I	2/3/5	6	DS	100				VISUAL				27.6	A-4b
			15	I	3/2/2	7	DS	100						28	10	29.4	A-4b (0)
480.8	Brown moist very loose to loose clayey SILT, trace fine sand.	19.5		I	2/3/3	8	DS	100						28	10	29.7	A-4b (0)
477.3	Brown moist loose clayey SILT with fine sand layers, partially varved.	23.0	20	I	2/3/4	9	DS	72	0	0	4	69	27			27.1	A-4b
471.7	Gray, trace brown moist soft to medium stiff SILTY CLAY, partially varved.	28.6	25	I	2/2/4	10	DS	100				VISUAL				30.8	A-6a
467.3	Gray, some brown moist very loose sandy SILT.	33.0	30	I	3/2/2	11	DS	100	1	1	8	90					A-4a
			35	I	3/4/9	12	DS	72				VISUAL				29.2	A-4b
457.3	Gray moist loose to medium dense clayey SILT with wet fine to coarse sand layers, partially varved.	43.0	40	D	3/4/6	13	DS	100				VISUAL				28.8	A-4b
452.3	Brown wet medium dense silty fine to coarse SAND, trace fine gravel and silty clay.	48.0	45	D	8/9/11	14	DS	100				VISUAL					A-3a
447.3	Brown wet dense fine to medium GRAVEL and SAND.	53.0	50	D	6/11/21	15	DS	72	4	62	30	4					A-1-b (0)
442.3	Brown wet medium dense silty fine SAND.	58.0	55	D	9/12/15	16	DS	67				VISUAL					A-3
437.3	Brown wet medium dense fine to medium, trace coarse SAND (SP-SM).	63.0	60	D	5/8/17	17	DS	100	1	20	71	8					A-3 (0)
			65	D	4/8/10	18	DS	72				VISUAL					A-3
			70	D	5/12/15	19	DS	100	0	2	89	9					A-3 (0)
422.3	Brown wet medium dense fine SAND.	78.0	75	D	8/8/17	20	DS	72				VISUAL					A-3
417.3	Brown, some grayish brown wet medium dense silty fine SAND.	83.0	80	D	9/14/15	21	DS	72				VISUAL					A-3
412.3	Gray, some brown wet very dense fine to coarses SAND and GRAVEL with limestone cobbles and boulders.	88.0	85	D	31/50/4"	22	DS	33	69	8	16	7					A-1-a (0)
407.3	Gray, brown wet very dense fine to coarse GRAVEL and SAND with limestone cobbles and boulders (boulder bed).	93.0	90	D	50/4"	23	DS	17									
400.8	Gray, brown wet and dense fine to coarse SAND and GRAVEL with limestone cobbles, boulders, trace shale (boulder bed).	99.5	95	D	50/2"	24	DS	11									
400.1	Interbedded gray moist very soft SHALE and gray hard LIMESTONE (bedrock).	100.2	100	D	50/2"	25	DS	11									
	Split spoon refusal and bottom of test boring at 100.2 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 500.3
Date Started 2-22-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB
Engineer ATS
Date Completed 2-23-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 12.0-28.0 ft
AT COMPLETION 45.3 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 115 PROJECT # 051008NE

PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio

LOCATION OF BORING Station 98+12, 2' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (in)	GRADATION PERCENTAGE AG	C$	$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
500.2	GROUND SURFACE																
500.0	TOPSOIL with fine to coarse sand.	0.2		I	3/5/6	1A 1B	DS	12								6.9	
498.2	Mixed brown moist medium stiff FILL, silty clay with fine to coarse sand, gravel, brick and cinders.	2.0		D	1/4/2	2	DS					VISUAL				5.2	A-1b
495.7	Mixed brown moist loose FILL, coarse sand and fine gravel.	4.5	5	D	1/2/1	3	DS	6				VISUAL				8.9	A-2-6
493.2	Mixed brown moist very loose FILL, fine to coarse sand and gravel, trace silty clay.	7.0		I	3/3/4	4	DS	18				VISUAL				21.4	A-4b
			10	I	2/3/4	5	DS	18	0	1	23	55	21			24.8	A-4b
485.7	Brown moist loose sandy SILT.	14.5		I	1/2/4	6	DS	18				VISUAL				25.8	A-4b
483.2	Brown moist loose clayey SILT.	17.0	15	I	2/2/3	7	DS	18	0	1	35	47	17			26.6	A-4b
				I	2/3/4	8	DS	18				VISUAL				26.4	A-4b
			20	I	4/4/5	9	DS	18	0	1	14	60	25	30	8	26.6	A-4b (0)
472.7	Brown moist medium dense clayey SILT.	27.5	25	I	3/4/5	10	DS	18				VISUAL				27.3	A-4b
			30	I	5/6/8	11	DS	18						29	8	23.6	A-4a (8)
462.7	Brown moist medium dense sandy SILT, partially varved with fine sand seams.	37.5	35	I	6/8/9	12	DS	18				VISUAL				26.3	A-4b
457.2	Brown moist dense silty GRAVEL and SAND.	43.0	40	D	21/24/15	13	DS	18	16	54	22	8					A-1-b (0)
452.2	Brown wet dense fine to coarse SAND and fine GRAVEL.	48.0	45	D	8/21/24	14	DS	18	42	36	11	11					A-1-b (0)
447.2	Brown wet medium dense fine to coarse SAND, trace fine gravel.	53.0	50	D	7/7/17	15	DS	18				VISUAL					A-1-b
442.2	Brown wet very dense silty fine to coarse SAND.	58.0	55	D	14/37/40	16	DS	18	0	29	59	12					A-3a (0)
437.2	Brown wet dense silty fine to medium, trace coarse SAND and fine GRAVEL.	63.0	60	D	20/18/23	17	DS	18	20	36	36	8					A-1-b (0)
			65	D	8/16/19	18	DS	18									
428.7	Gray wet very dense fine to coarse SAND and GRAVEL (boulder bed).	71.5	70	D	11/16/21	19	DS	18									
	Bottom of test boring at 71.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 500.2
Date Started 2-13-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB/FG
Engineer ATS
Date Completed 2-13-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 13.0, 14.0 ft
AT COMPLETION 37.8 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 96+4.5, 8' Right
BORING # 207 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
506.2	GROUND SURFACE																
505.1	Dark brown moist medium stiff FILL, silty clay, rock and brick (fill).	1.0		I	2/3/5	1A 1B	DS	100				VISUAL					A-6a
				I	5/5/6	2	DS	100				VISUAL					A-6a
			5	I	3/4/5	3	DS	100				VISUAL					A-6a
				I	3/4/5	4	DS	100				VISUAL					A-6a
			10	I	4/5/6	5	DS	100				VISUAL					A-6a
				I	3/4/5	6	DS	100				VISUAL					A-6a
			15	I	2/3/3	7	DS	100				VISUAL					A-6a
487.2	Brown moist medium stiff to stiff very SILT and CLAY.	19.0		I	2/3/3	8	DS	100				VISUAL					A-4b
			20	I	3/2/3	9	DS	100				VISUAL					A-4b
			25	I	2/2/2	10	DS	100				VISUAL					A-4b
			30	I	2/2/2	11	DS	100				VISUAL					A-4b
473.2	Mottled brown and gray moist to wet very loose clayey SILT, partially varved.	33.0															
			35	I	2/3/3	12	DS	100				VISUAL					A-4b
			40	D	3/3/3	13	DS	100				VISUAL					A-4b
463.2	Gray very moist to wet loose clayey SILT.	43.0															
458.2	Brown moist loose silty fine SAND and GRAVEL.	48.0	45	D	4/4/4	14	DS	100				VISUAL					A-3a
			50	D	4/7/8	15	DS	100				VISUAL					A-3
453.2	Brown wet medium dense silty fine SAND.	53.0															
			55	D	4/4/5	16	DS	100				VISUAL					A-1-b
448.2	Brown wet loose fine to coarse silty fine to coarse SAND and GRAVEL.	58.0															
			60	D	7/10/17	17	DS	100				VISUAL					A-3a
			65	D	8/9/16	18	DS	100				VISUAL					A-3a
438.2	Brown wet medium dense fine to coarse SAND.	68.0															
433.2	Brown wet medium dense silty fine SAND.	73.0	70	D	12/17/23	19	DS	100				VISUAL					A-3a
			75	D	62/100/6"	20	DS	33				VISUAL					A-1-b
	Gray moist very dense clayey fine to coarse SAND and GRAVEL with limestone and shale fragments (boulder beds).		80	D	62/53/24	21	DS	100				VISUAL					A-1-b
424.2		82.0		I	100/6"	22	DS	33									
	Interbedded gray moist soft SHALE and LIMESTONE. Shale is soft. Limestone is gray, hard, crystalline, fossiliferous, randomly fractured and occurs in horizontal layers ranging from ¼ inch to 2½ inches in thickness. Approximately 96 percent shale and 4 percent limestone (bedrock). Recovery Ratio = 0.92, RQD = 0.40.		85														
413.2		93.0	90			23	RC	100									
	Bottom of test boring at 93.0 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 506.2
Date Started 3-26-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman LW
Engineer ATS
Date Completed 3-27-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 50.0 ft
AT COMPLETION 45.0 ft
AFTER 24 hrs. ft
BACKFILLED 24 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 47+78, 48' Left
BORING # 208 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
509.4	GROUND SURFACE		0														
509.0	ASPHALT PAVEMENT (5")	0.8		D	12/6/8	1	DS	22									
508.6	COBBLES STONE PAVERS	2.0		I	21/6/4	2	DS	17									
507.4	Mixed brown moist medium dense FILL, silty fine to coarse sand and gravel (base).	4.5	5	I	4/4/5	3	DS	39				VISUAL					A-6b
504.9	Mixed brown moist stiff FILL, silty clay with limestone floaters.	7.0		I	6/9/12	4	DS	100	0	0	21	57	22	27	10	19.0	A-4b (8)
502.4	Brown moist stiff to very stiff SILTY CLAY.		10	D	5/6/7	5	DS	72						26	8	20.6	A-4b (8)
497.4	Brown moist medium dense clayey SILT, trace fine sand.	12.0		D	5/7/6	6	DS	72	0	0	53	35	12	NON-PLASTIC		19.0	A-4b (2)
492.4	Brown moist medium dense sandy SILT, trace silty clay.	17.0	15	I	3/6/5	7	DS	72				VISUAL					A-4b
				I	3/4/8	8	DS	100	0	0	13	63	24	30	10	23.6	A-4-b (8)
			20	I	3/4/4	9	DS	100									
			25	I	3/3/7	10	DS	100				VISUAL					A-4b
			30	I	2/4/5	11	DS	100	0	1	17	62	20	28	6	26.1	A-4b (8)
476.4	Mottled brown moist medium dense clayey SILT, trace fine sand.	33.0															
			35	D	13/15/16	12	DS	100	2	14	65	19					A-3a
			40	D	12/14/14	13	DS	100				VISUAL					A-3a
464.4	Brown wet medium dense fine to coarse SAND, trace medium gravel.	45.0															
			45	D	21/18/15	14	DS	100	18	28	45	9					A-3 (0)
			50	D	12/14/17	15	DS	100				VISUAL					A-3
456.4	Brown wet dense silty fine SAND.	53.0															
			55	D	28/20/41	16	DS	78	21	4	54	21					A-3a
450.4	Brown, trace gray wet very dense silty fine to medium SAND, some gravel, trace limestone cobbles.	59.0															
445.4	Brown moist very dense clayey fine to coarse SAND and GRAVEL with limestone cobbles.	64.0	60	D	18/22/35	17	DS	72				VISUAL					A-1-b
444.2	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	65.2	65	I	50/2"	18	DS	5									
	Split spoon refusal and bottom of test boring at 65.2 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 509.4
Date Started 4-6-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 4-6-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED Trace 17.0, 48.0 ft
AT COMPLETION 58.3 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 97+2.5, 16' Left
BORING # 211 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (in)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
504.0	GROUND SURFACE																
503.5	TOPSOIL	0.5	0	I	8/50/1"	1A 1B	DS	7									
	Mixed brown and gray moist medium stiff to stiff FILL, silty clay with brick and concrete fragments.	2.0		I	3/7/7	2	DS	2				VISUAL					A-6b
502.0	Mixed olive brown and gray moist stiff FILL, silty clay and clay, trace cinders.	4.5	5	I	3/3/3	3	DS	1.0				VISUAL					A-6b
499.5	Brown moist medium stiff to stiff SILTY CLAY, slightly varved, trace fine sand.	9.5		I	3/3/4	4	DS	18				VISUAL					A-6a
			10	I	3/3/4	5	DS	18				VISUAL					A-4b
				U		6	PT	20"/24"	0	1	33	53	13	NON-PLASTIC			A-4b (1)
			15	I	2/2/4	7	DS	18				VISUAL					A-4b
484.5	Brown moist loose to very loose clayey SILT, some fine to medium sand.	19.5		I	1/2/2	8	DS	18				VISUAL					A-4b
			20	I	2/1/2	9	DS	18				VISUAL					A-6a
480.0	Brown moist medium stiff SILT and CLAY, partially varved with thin sand seams.	24.0															
476.0	Brown and gray moist medium stiff SILT and CLAY, partially varved with thin fine sand seams.	28.0	25	I	2/3/6	10	DS	18				VISUAL					A-6a
			30	I	4/4/5	11	DS	18				VISUAL					A-6a
466.0	Gray moist medium stiff very SILT and CLAY, partially varved with fine sand seams.	38.0	35	I	3/5/6	12	DS	18				VISUAL					A-6a
461.0	Gray moist loose clayey SILT with fine sand seams.	43.0	40	I	3/5/5	13	DS	18				VISUAL					A-4b
456.0	Dark olive gray moist stiff SILT and CLAY, some fine sand and organic specks.	48.0	45	D	7/7/12	14	DS	18				VISUAL					A-6a
451.0	Brown wet dense fine to medium, some coarse SAND, trace fine gravel.	53.0	50	D	9/15/19	15	DS	18				VISUAL					A-3a
446.0	Brown wet dense silty fine, trace medium SAND, trace fine gravel.	58.0	55	D	10/14/19	16	DS	12				VISUAL					A-3a
441.0	Brown wet dense silty fine to coarse SAND, trace fine gravel.	63.0	60	D	9/9/11	17	DS	13				VISUAL					A-3a
436.0	Brown wet very dense silty fine, trace medium SAND, trace fine gravel.	68.0	65	D	18/29/33	18	DS	14				VISUAL					A-3a
431.0	Brown wet very dense fine to coarse SAND and GRAVEL with limestone cobbles and boulders.	73.0	70	D	8/14/20	19	DS	18				VISUAL					A-1-b
425.0	Brown wet very dense silty fine SAND.	79.0	75	I	17/25/38	20	DS	18				VISUAL					A-3
423.6	Gray wet very dense fine to coarse SAND and GRAVEL with limestone cobbles and boulders.	80.4	80	I	50/4"	21	DS	18				VISUAL					A-1-b
	Split spoon refusal and bottom of test boring at 80.4 feet.		85														
	*Test boring caved to 21.0 feet upon completion and was dry above.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 504.0
Date Started 2-14-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB/FG
Engineer ATS
Date Completed 2-15-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 19.5 ft
AT COMPLETION 43.3 ft
AFTER ____ hrs. * ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio
LOCATION OF BORING Station 75+37, 18' Right
BORING # 214 PROJECT # 070583NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
514.7	GROUND SURFACE																
514.5	TOPSOIL (2")	0.2	0	I	10/13/13	1A 1B	DS	78								15.5	
512.7	Mixed brown and gray moist very stiff FILL, silty clay and shale with limestone floaters, trace cinders and brick fragments.	2.0		I	3/5/7	2	DS	100				VISUAL				20.5	A-6b
508.7	Brown moist stiff SILTY CLAY.	6.0	5	U		3	DS	92									
				I	2/3/3	4	DS	100				VISUAL				22.7	A-6a
504.2	Mottled brown moist medium stiff very SILTY CLAY.	10.5	10	U		5	PT	46	1	10	19	42	28	30	13	14.6	A-6a (8)
				I	20/21/34	6	DS	72				VISUAL				16.2	A-6a
497.7	Brown moist stiff to very stiff SILT and CLAY with limestone floaters.	17.0	15	I	16/14/17	7	DS	11				VISUAL				11.9	A-6a
				I	11/11/21	8	DS	67				VISUAL				13.8	A-6b
			20	U		9	DS	29	0	2	7	38	53	36	18	13.5	A-6b (11)
490.2	Olive brown, trace gray moist very stiff SILTY CLAY with limestone floaters and shale fragments (colluvium).	24.5		I	7/21/20	10	DS	56				VISUAL				12.0	A-6b
486.7	Brown moist very dense GRAVEL and limestone floaters with medium stiff SILTY CLAY seams.	28.0	25	I	14/39/23	11	DS	72	40	11	40	-9-		24	9	12.1	A-2-4 (0)
				U		12	PT	28	4	3	28	-65-		21	4	14.4	A-4b (6)
483.9	Brown moist medium dense sandy SILT.	30.8	30	I/D	27/10/10	13A 13B	DS	78	35 0	8 0	26 1	-31- 47	52	35	16	6.7 27.0	A-1b (0) A-6b (10)
480.2	Brown moist stiff SILTY CLAY with limestone floaters.	34.5	35	D	26/22/22	14	DS	78	60	17	8	-15-				3.4	A-1-a (0)
475.7	Brown moist dense silty fine to coarse SAND and GRAVEL and limestone cobbles.	39.0															
471.7	Brown and gray moist medium dense clayey SILT with some fine sand and gravel, trace shale fragments.	43.0	40	I	25/18/34	15	DS	67	35	9	5	-51-		25	10	14.0	A-6a (3)
			45	I	29/37/50/6"	16	DS	100				VISUAL				13.0	A-6b
461.7	Brown moist very stiff SILTY CLAY with limestone floaters and shale fragments (colluvium).	53.0	50	I	13/21/24	17	DS	67	49	2	3	-46-		34	21	9.6	A-6b (6)
456.7	Brown moist dense SILT, little fine sand.	58.0	55	D	8/12/21	18	DS	67	0	1	12	79	8	23	3	25.7	A-4b (8)
454.3	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	60.4	60	I	50/4"	19	DS	22								9.9	
	Bottom of test boring at 60.4 feet.		65														
			70														
			75														
			80														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 514.7
Date Started 6-19-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 6-20-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 53 ft
AT COMPLETION Dry ft
AFTER 24 hrs. 53 ft
BACKFILLED 24 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
BORING # 215 PROJECT # 070583NE
PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio
LOCATION OF BORING Station 45+19.9, 55' Left

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
539.2	GROUND SURFACE																
538.7	ASPHALT PAVEMENT (6")	0.5															
535.2	CONCRETE PAVEMENT (12")	1.5		I	5/5/5	1	DS	100								17.6	
532.2	Mixed gray moist medium dense stiff to stiff FILL, clay with shale fragments.	4.0	5	I	5/4/4	2	DS	100						45	21	29.4	A-7-6 (0)
529.7	Mixed gray moist soft to medium stiff FILL, clay with shale fragments.	7.0		I	4/4/4	3	DS	100					VISUAL		25.8		A-7-6
527.2	Mixed gray and black moist stiff FILLL, clay with cinders.	9.5	10	I	4/5/8	4	DS	100	0	2	1	27	70	57	34	23.2	A-7-6 (19)
524.7	Mottled brown and gray moist stiff CLAY, with shale fragments and limestone floaters.	12.0		I	9/10/11	5	DS	100					50	27		22.0	A-7-6
522.2	Brown moist very stiff CLAY with shale fragments and limestone fragments (colluvium).	14.5	15	I	12/9/7	6	DS	100	0	0	3	39	58	48	25	23.2	A-7-6 (18)
516.2	Mottled brown moist very stiff CLAY.	17.0		I	4/5/12	7	DS	100					VISUAL			15.2	A-7-6
511.2	Brown moist very stiff SILTY CLAY with shale and limestone fragments.	23.0	20	I	5/9/13	8	DS	100					VISUAL			18.2	A-7-6
501.2	Olive brown and gray moist stiff SILTY CLAY and shale and limestone fragments (colluvium).	28.0	25	I	12/10/10	9	DS	72						34	16	21.3	A-6b (0)
			30	I	6/11/12	10	DS	100					VISUAL			14.8	A-6b
496.2	Olive brown and gray moist stiff SILTY CLAY with shale and limestone fragments (colluvium).	38.0	35	U		11	PT	67	13	7	4	30	46	37	21	13.2	A-6b (12)
				I	10/12/20	12	DS	100						37	18	16.2	A-6b
491.7	Olive brown and gray moist stiff SILTY CLAY with limestone and shale fragments (colluvium).	43.0	40	I	14/39/44	13	DS	100					VISUAL			14.1	A-6b
481.2	Olive brown and dark gray moist SILT and CLAY with shale and limestone fragments with fine to coarse sand seams.	47.5	45	I	18/21/30	14	DS	100	8	16	8	43	25	32	14	20.2	A-6a (8)
			50	I	12/20/25	15	DS	100					VISUAL			13.0	A-6b
481.2	Olive brown moist very stiff SILTY CLAY with shale and limestone fragments (colluvium).	58.0	55	I	8/11/13	16	DS	100					VISUAL			15.9	A-6b
476.2	Brown moist dense fine to medium SAND and GRAVEL with rock fragments.	63.0	60	D	50/50/0	17	DS	33	49	8	22	14	7			4.1	A-1-b (0)
475.2	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	65.0	65	I	100/0	18	DS	00									
	Bottom of test boring at 65.0 feet.		70														
			75														
			80														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 539.2
Date Started 6-26-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 6-26-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED Dry ft
AT COMPLETION Dry ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
BORING # 216 PROJECT # 070583NE
PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio
LOCATION OF BORING Station 48+28.6, 111' Left

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
543.7	GROUND SURFACE																
				I	10/13/13	1	DS	67								7.6	
539.2	Brown slightly moist very stiff FILL, clay with shale and limestone fragments (fill).	4.5		I	3/5/7	2	DS	100	40	4	9	-47-		41	20	6.1	A-7-6 (6)
536.7	Brown moist stiff FILL, sandy clay and shale with rock fragments.	7.0	5	I	2/3/3	3	DS	100	10	14	18	-58-		30	11	17.7	A-6a (5)
				I	2/3/3	4	DS	100					VISUAL			17.3	A-7-6
			10	I	2/3/3	5	DS	100	38	2	1	23	36	49	27	20.9	A-7-6 (13)
				I	20/21/34	6	DS	100					VISUAL			14.0	A-7-6
526.7	Brown and gray moist stiff SILTY CLAY with shale and limestone fragments, trace fine gravel (colluvium).	17.0	15	I	16/14/17	7	DS	22					VISUAL			13.5	A-7-6
				I	11/11/21	8	DS	100					VISUAL			15.5	A-6a
			20	I	11/11/21	9	DS	100	6	6	4	34	50	33	15	14.8	A-6a (10)
			25	I	14/39/23	10	DS	100					VISUAL			14.8	A-6a
			30	I	27/10/10	11	DS	44					VISUAL			16.0	A-6a
			35	I	26/22/22	12	DS	100	34	9	5	28	24	31	14	15.1	A-6a (5)
				I	25/18/34	13	DS	100					VISUAL				A-6a
500.7	Gray moist stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	43.0	40														
496.7	Brown, trace gray moist dense limestone fragments with SHALE and clay (colluvium).	47.0	45	I	29/37/50/6'	14	DS	100	48	8	10	17	17	29	14	17.8	A-2-6 (1)
			50	I	13/21/24	15	DS	100					VISUAL			18.1	A-6b
490.7	Brown, trace gray moist stiff to stiff SILTY CLAY with shale and limestone fragments and sand seams.	53.0															
487.2	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	56.5	55	I	8/12/21	16	DS	100								12.2	
	Bottom of test boring at 56.5 feet.		60														
			65														
			70														
			75														
			80														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 543.7
Date Started 6-21-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 6-21-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft
AT COMPLETION Dry ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

LOG OF BORING

DATE STARTED 02/17/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 02/17/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EW-3 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET EW 30+318.3m RT.

WATER ELEVATION:
IMMEDIATE 147.27m/139.49m
COMPLETION 148.50m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 152.60m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
152.60	0	0												
	2	.61	7-10-8	DARK BROWN SILT AND CLAY, LITTLE ASPHALTIC CONCRETE BRICK AND CONCRETE FRAGMENTS, TRACE ORGANICS (FILL), MOIST-MEDIUM STIFF	1			V	I	S	U	A	L		A-6a
151.40	4.5	1.37	50/0		2			V	I	S	U	A	L		A-6a
	8	2.43	3-4-4		3	0	1	23	42	34	29	12	17	A-6a(8)
	8	2.43		BROWN SILT AND CLAY, SOME SAND, MOIST-LOOSE	4			V	I	S	U	A	L		A-6a
149.50	10	3.05	3-4-4												
	12	3.71	3-3-3	BROWN SANDY SILT, LITTLE CLAY, TRACE SAND LENSES, TRACE CONCRETIONS, MOIST TO VERY MOIST-LOOSE	5			V	I	S	U	A	L	19	A-4a
	14	4.33	2-3-4		6			V	I	S	U	A	L		A-4a
	16	4.93	SHELBY TUBE		ST	0	3	31	48	20	NP	NP	28	A-4a(0)
	18	5.53	2-3-5		8			V	I	S	U	A	L	22	A-4a
146.50	20	6.11													
	22	6.7	1-2-2	BROWN SILT AND CLAY, SOME CONCRETIONS, VERY MOIST-MEDIUM STIFF	9			V	I	S	U	A	L		A-6a
	24	7.32													
	26	7.92	1-3-4		10			V	I	S	U	A	L	23	A-6a
144.22	28	8.53													
143.91				FLOATERS AND COBBLES											
	30	9.17													
	32	9.8	3-4-6		11			V	I	S	U	A	L	22	A-6a
	34	10.4	SHELBY TUBE	GRAY SILT AND CLAY, SOME SAND, TRACE SAND PARTINGS, MOIST-MEDIUM	ST			V	I	S	U	A	L		A-6a
	36	11.0	3-3-5		13	0	0	4	64	32	35	14	23	A-6a(10)
141.47	38	11.6	SHELBY TUBE		ST			V	I	S	U	A	L		A-6a
	38	11.6	23-20-8	BROWN SAND AND GRAVEL, TRACE LIMESTONE FRAGMENTS, MOIST-MEDIUM DENSE	15			V	I	S	U	A	L		A-1-b
140.25	40	12.2		-WET AND LOOSE BELOW 40.0' (12.1m)	15			V	I	S	U	A	L		A-1-b
	42	12.8	7-3-3	GRAY SILTY CLAY, SOME SAND, TRACE SAND PARTINGS, MOIST-MEDIUM STIFF	16A			V	I	S	U	A	L		A-6b
139.64	44	13.4													
	46	14.0	7-11-14	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, WET-MEDIUM DENSE	17			V	I	S	U	A	L		A-1-b
	48	14.6													
	50	15.2	7-15-18		18			V	I	S	U	A	L		A-1-b
	52	15.8													
135.83	54	16.5													
	56	17.0	4-18-28	BROWN COARSE AND FINE SAND, WET-MEDIUM DENSE TO DENSE	19			V	I	S	U	A	L		A-3a
	58	17.6													
	60	18.2	14-12-18	-LITTLE ISOLATED CLAY BELOW 60.0' (18.2m)	20			V	I	S	U	A	L		A-3a
	62	18.9													
	64	19.5													
	66	20.1	11-9-12		21	4	16	65	9	6	–	–	–		A-3a(0)
	68	20.7													
	70	21.3	10-12-16		22			V	I	S	U	A	L		A-3a
	72	21.9													
	74	22.5													
	76	23.1	25-23-31		23			V	I	S	U	A	L		A-3a
	78	23.7													
127.76	80	24.3	12-10-17		24			V	I	S	U	A	L		A-3a

BORING COMPLETED @ 24.84m (81.5')

LOG OF BORING

DATE STARTED 04/16/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 04/18/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-2 CORE BARREL: TYPE NQ SIZE 5.1cm I.D.
STATION & OFFSET EW 30+329 1.5 RT.

WATER ELEVATION:
IMMEDIATE 162.9m
COMPLETION 161.7m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 168.20m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
168.20	0	0												
	2	.61	8-7-5	DARK BROWN SILT AND CLAY, SOME LIMESTONE FRAGMENTS, LITTLE SAND, TRACE ROOTS, (FILL) MOIST-STIFF	1			V	I	S	U	A	L		A-6a
165.44	4.5	1.37	5-4-7	BROWN SILTY CLAY, LITTLE LIMESTONE FRAGMENTS, TRACE SAND, (FILL) MOIST-STIFF	2			V	I	S	U	A	L	18	A-6b
164.68	8	2.43	6-7-10	BROWN, TRACE GRAY, SILTY CLAY, LITTLE SHALE AND LIMESTONE FRAGMENTS, TRACE SAND, MOIST-VERY STIFF	3			V	I	S	U	A	L	12	A-6b
	10	3.05	10-11-16		4			V	I	S	U	A	L		A-6b
163.20	10	3.05													
	12	3.71	8-9-7	BROWN SILTY CLAY, SOME LIMESTONE FRAGMENTS, VERY MOIST-STIFF	5			V	I	S	U	A	L	26	A-6b
	14	4.33	17-19-52		6			V	I	S	U	A	L		A-6b
161.90	14	4.33													
	16	4.93	9-21-35	GRAY SILTY CLAY, SOME LIMESTONE FRAGMENTS, LITTLE SHALE FRAGMENTS, TRACE SAND, MOIST-VERY STIFF	7			V	I	S	U	A	L		A-6b
	18	5.53													
	20	6.1	9-12-13		8	12	6	4	33	45	33	16	18	A-6b(8)
	22	6.7													
	24	7.3	8-10-50		9			V	I	S	U	A	L		A-6b
	26	7.92													
	28	8.53	18-10-17		10			V	I	S	U	A	L	15	A-6b
	30	9.17													
	32	9.8	75-25/0		11			V	I	S	U	A	L		A-6b
	34	10.4													
	36	11.0	16-80		12			V	I	S	U	A	L	14	A-6b
	38	11.6													
	40	12.2	50/0		13			V	I	S	U	A	L		A-6b
152.48	42	12.8													
	44	13.4	17-90		14			V	I	S	U	A	L		A-1-b
	46	14.0		BROWN SAND AND LIMESTONE FRAGMENTS, SOME SILT, MOIST-VERY DENSE											
151.00	48	14.6													
	50	15.2	25-22-23		15			V	I	S	U	A	L	12	
	52	15.8		BROWN HIGHLY WEATHERED VERY SOFT SHALE, LITTLE LIMESTONE FRAGMENTS											
	54	16.4													
149.43	55	17.0													
	56	17.0	35-50/3	INTERBEDDED SHALE AND LIMESTONE SHALE-DARK GRAY, MEDIUM HARD, OCCUPIES 85% OF MATRIX LIMESTONE-LIGHT GRAY, VERY HARD, OCCURS IN 1" TO 2" LAYERS, OCCUPIES 5% OF MATRIX	18			V	I	S	U	A	L		
148.63	58	17.6													
	60	18.2													
	62	18.9	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-DARK GRAY, SOFT TO MEDIUM HARD, OCCUPIES 90% OF MATRIX LIMESTONE-LIGHT GRAY, VERY HARD. OCCURS IN 1" TO 4" LAYERS, OCCUPIES 10% OF MATRIX	C1	NQ		REC. 97%		RQD 45%			10	
	64	19.5													
	66	20.1												5	
145.93	68	20.7													
	70	21.3	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-DARK GRAY, HARD, NOTED SOFT SEAMS, OCCUPIES 90% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 10" LAYERS, OCCUPIES 10% OF MATRIX	C2	NQ		REC. 100%		RQD 50%			3	
	72	21.9													
	74	22.5													
	76	23.1													
142.5	78	23.7													

BORING COMPLETED @ 23.7m (78.0')

LOG OF BORING

DATE STARTED 03/04/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 03/05/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-5 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET EW 30+483 CENTERLINE

WATER ELEVATION:
IMMEDIATE 144.28m
COMPLETION 144.26m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 153.4m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
153.40	0	0												
	2	.61	3-4-4	DARK BROWN SILT AND CLAY, SOME LIMESTONE FRAGMENTS, SOME SAND, LITTLE BRICK FRAGMENTS, LITTLE CINDERS TRACE ROOTS, TRACE ORGANICS, (FILL) MOIST-LOOSE TO MEDIUM DENSE	1			V	I	S	U	A	L	14	A-6a
	4.5	1.37	7-9-14		2			V	I	S	U	A	L		A-6a
151.88	6	1.83	7-8-8		3			V	I	S	U	A	L		A-4b
	8	2.43	3-3-4		4			V	I	S	U	A	L		A-4b
	10	3.05	2-3-4	BROWN SANDY SILT, LITTLE SAND PARTINGS, SOME CLAY, MOIST TO WET-LOOSE TO MEDIUM DENSE	5	19	0	0	58	23	28	8	20	A-4b(8)
	12	3.7	2-2-2		6			V	I	S	U	A	L		A-4b
	14	4.33	2-1-1		7			V	I	S	U	A	L		A-4b
	16	4.93	1-1-1		8			V	I	S	U	A	L		A-4b
147.30	20	6.1													
	22	6.7	1-1-2		9			V	I	S	U	A	L	26	A-6a
	24	7.3		BROWN SILT AND CLAY, SOME SAND, TRACE SAND PARTINGS TO LENSES, WET-SOFT											
	26	7.92	1-2-1		10			V	I	S	U	A	L		A-6a
144.30	28	8.53													
	30	9.17													
	32	9.8	2-3-4	GRAY SILT AND CLAY, SOME SAND, TRACE SAND PARTINGS TO LENSES, VERY MOIST-MEDIUM STIFF	11			V	I	S	U	A	L	25	A-6a
	34	10.4													
	36	11.0	1-2-3		12			V	I	S	U	A	L	41	A-6a
	38	11.6													
141.20	40	12.2													
	42	12.8	2-2-3	DARK BROWN SANDY SILT, TRACE CLAY, VERY MOIST-LOOSE	13			V	I	S	U	A	L	27	A-4a
	44	13.4													
139.52	46	14.0													
139.22	46	14.0	2-4-5	BROWN SAND, TRACE FINE GRAVEL, TRACE IRON STAINING, MOIST-LOOSE	14			V	I	S	U	A	L		A-3a
	48	14.6			14A			V	I	S	U	A	L		A-4b
	50	15.2		GRAY AND BROWN SILT, SOME SAND, LITTLE CLAY, WET-LOOSE											
138.20	52	15.8	3-9-15	GRAY COARSE SAND, SOME FINE GRAVEL, LITTLE SILT, WET-MEDIUM DENSE	15			V	I	S	U	A	L		A-1-b
	54	16.4													
136.63	56	17.0													
	56	17.0	10-32-45	BROWN SAND AND GRAVEL, TRACE SILT, MOIST-VERY DENSE	16			V	I	S	U	A	L		A-1-b
	58	17.6													
135.20	60	18.2													
	62	18.9	15-17-29	BROWN COARSE AND FINE SAND, MOIST-VERY DENSE	17			V	I	S	U	A	L		A-3a
	64	19.5		-WET BELOW 65FT. (19.82m)											
	66	20.1	12-15-21		18	0	9	79	7	5	NP	NP	14	A-3a(0)
	68	20.7													
	70	21.3	13-17-21		19			V	I	S	U	A	L		A-3a
	72	21.9													
	74	22.5													
	76	23.1	10-17-18		20			V	I	S	U	A	L		A-3a
	78	23.7													
128.86	80	24.3													
128.85			10-76-100/2	BROWN GRAVEL AND LIMESTONE FRAGMENTS, LITTLE SAND, TRACE SILT, MOIST-VERY DENSE	21			V	I	S	U	A	L		A-3a
					21A			V	I	S	U	A	L		A-1-a

BORING COMPLETED @ 24.75m (81.2')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

10 / 13

87 / 136

DATE STARTED 05/28/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D. IMMEDIATE 158.83m
DATE COMPLETED 05/28/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D. COMPLETION 140.82m
BORING NUMBER EB-3 CORE BARREL: TYPE HQ SIZE 5.1cm I.D. AFTER 24 HRS. NONE
STATION & OFFSET EW 304+370 3m LT. SURFACE ELEVATION 164.30m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	%AGG	%CS	%FS	%SILT	%CLAY	%LL	%PI	%WC	SHTL CLASS
164.30	0	0		ASPHALTIC CONCRETE										
164.10	0.7	0.2		CONCRETE										
163.90	1.3	0.4	12-6-8	BROWN GRAVEL AND STONE FRAGMENTS WITH SAND (BASE) MOIST-MEDIUM DENSE	1A		V	I	S	U	A	L	15	A-1-b
162.86	2.0	0.6		GRAY SILT AND CLAY, SOME GRAVEL, SOME CERAMIC TILE FRAGMENTS, LITTLE SAND (FILL), MOIST-MEDIUM STIFF	1B		V	I	S	U	A	L		A-5a
161.50	2.8	0.9	2-3-2	TRACE ORGANICS BELOW 1.0'	2		V	I	S	U	A	L	35	A-7-6
	4.6	1.4	4-5-6		3		V	I	S	U	A	L		A-7-6
	5.4	1.6	5-5-6	BROWN WITH LITTLE GRAY CLAY, LITTLE WEATHERED SHALE FRAGMENTS, TRACE SAND; MOIST-STIFF TO VERY STIFF	4	0	0	1	41	58	43	23	23	A-7-6(13)
	6.2	1.9												
	7.0	2.1	5-5-6											
	8.0	2.4		-TRACE LIMESTONE FRAGMENTS AND CONCRETIONS BELOW 10.0'	5		V	I	S	U	A	L		A-7-6
	9.8	3.0	7-10-12		6		V	I	S	U	A	L		A-7-6
	11.3	3.4	7-11-11		7		V	I	S	U	A	L	21	A-7-6
	13.1	4.0	12-10-8		8		V	I	S	U	A	L		A-7-6
	14.8	4.5	9-10-13											
170.40	20	6	9-25-18	BROWN SILT AND CLAY, AND LIMESTONE FRAGMENTS TO FLOATERS, LITTLE SAND, MOIST-STIFF	9		V	I	S	U	A	L		A-6a
	21.7	6.7												
158.66	23.6	7.2	8-13-13	GRAY SILTY CLAY, LITTLE FINE GRAVEL, LITTLE SAND, TRACE ORGANICS, MOIST-VERY STIFF	10	1	3	2	43	51	34	17	19	A-6b(9)
	25.5	7.8												
	27.3	8.3												
	29.2	8.9	14-19-21		11		V	I	S	U	A	L		A-6b
	31.0	9.4												
	32.8	10.0												
153.63	34.5	10.5	71	GRAY SILTY CLAY AND LIMESTONE FRAGMENTS, SOME SHALE FRAGMENTS, SLIGHTLY MOIST-HARD	12		V	I	S	U	A	L		A-6b
	36.3	11.0												
	38.1	11.6												
	39.9	12.2	24-80		13		V	I	S	U	A	L	14	A-6b
	41.7	12.7												
	43.4	13.2												
	45.2	13.8	14-24-41		14		V	I	S	U	A	L		A-6b
149.10	47.0	14.3												
	48.8	14.9	25-32-45	GRAY SILTY CLAY, TRACE FINE GRAVEL AND SAND, MOIST-HARD	15		V	I	S	U	A	L	14	A-6b
	50.6	15.4												
147.63	52.4	16.0	80/6"	BROWN SAND AND LIMESTONE FRAGMENTS, LITTLE SILT MOIST-VERY DENSE	16		V	I	S	U	A	L		A-1-a
	54.2	16.5												
	55.9	17.0												
	57.7	17.6												
	59.5	18.1	75/6"		17		V	I	S	U	A	L		A-1-a
	61.3	18.7												
144.94	63.0	19.2	25-42-75	BROWN SILTY CLAY, SOME LIMESTONE FRAGMENTS, TRACE IRON-STAINING, DRY-HARD	18		V	I	S	U	A	L	2	A-6b
144.20	65.4	20.0	5-8-24	BROWN AND GRAY GRAVEL AND ROCK FRAGMENTS, LITTLE SAND AND SILT, MOIST-DENSE	19		V	I	S	U	A	L		A-1-a
143.11	68.8	21.0												
	70.6	21.5	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, SOFT TO MEDIUM HARD OCCUPIES 50% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 4" LAYERS, OCCUPIES 50% OF MATRIX	C1	NQ	REC 100%	RQD 0%						
	72.4	22.1	ROCK CORE		C2	NQ	REC 100%	RQD 0%						
141.20	74.2	22.6	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, HARD OCCUPIES 70% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 11" LAYERS, OCCUPIES 30% OF MATRIX	C3	NQ	REC 90%	RQD 20%						
	76.0	23.2	ROCK CORE		C4	NQ	REC 100%	RQD 78%					4	
	77.8	23.7	ROCK CORE	-DIAGONAL FRACTURE FROM 92.3' TO 92.7' (28.13m TO 28.25m) -VERTICAL FRACTURE FROM 93.5' TO 94.2' (28.59m TO 28.71m)	C5	NQ	REC 100%	RQD 64%					3	
	79.6	24.3	ROCK CORE										2	
	81.4	24.8	ROCK CORE		C6	NQ	REC 100%	RQD 74%						
	83.2	25.4	ROCK CORE		C7	NQ	REC 96%	RQD 85%						
130.15	84.9	25.9												

BORING COMPLETED @ 34.15m (112.0')

LOG OF BORING WATER ELEVATION:
DATE STARTED 05/03/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D. IMMEDIATE 151.6m
DATE COMPLETED 05/05/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D. COMPLETION NONE
BORING NUMBER EB-4 CORE BARREL: TYPE NQ SIZE 5.1cm I.D. AFTER 0 HRS. NONE
STATION & OFFSET EW 304+412.5m LT. SURFACE ELEVATION 156.9m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	%AGG	%CS	%FS	%SILT	%CLAY	%LL	%PI	%WC	SHTL CLASS
156.90	0	0												
156.32	2.0	0.6	8-10-5	DARK BROWN GRADING SAND AND BRICK FRAGMENTS, LITTLE SILT, TRACE ROOTS, (FILL), DRY-MEDIUM LOOSE	1		V	I	S	U	A	L		A-1-b
	3.8	1.2	8-8-10	BROWN SILTY CLAY, TRACE LIMESTONE FRAGMENTS, (FILL) MOIST-STIFF	2		V	I	S	U	A	L		A-1-b
155.22	5.6	1.7	4-6-7	BROWN SILT AND CLAY, SOME FINE SAND, MOIST-STIFF	3	0	1	19	45	35	27	11	18	A-6a(6)
	7.4	2.3	4-5-6		4		V	I	S	U	A	L		A-6a
	9.2	2.8	3-3-4		5		V	I	S	U	A	L	21	A-6a
	11.0	3.4	2-2-3		6		V	I	S	U	A	L	20	A-6a
	12.8	3.9	2-3-3		7		V	I	S	U	A	L		A-6a
151.10	14.6	4.5	11-7-12	BROWN SILTY CLAY, SOME SHALE AND LIMESTONE FRAGMENTS, LITTLE SAND, MOIST-VERY STIFF	8		V	I	S	U	A	L		A-6b
	16.4	5.0	4-7-11		9		V	I	S	U	A	L	17	A-6b
149.13	18.2	5.5	18-50	BROWN SAND AND LIMESTONE FRAGMENTS LITTLE SILT, MOIST-VERY DENSE	10		V	I	S	U	A	L		A-1-b
147.60	20.0	6.1	7-11-12	BROWN SILT AND CLAY, SOME LIMESTONE FRAGMENTS AND SAND, MOIST-VERY STIFF	11		V	I	S	U	A	L		A-6a
	21.8	6.6	14-28-28		12		V	I	S	U	A	L		A-6a
144.55	23.6	7.2	50/0	GRAY SILTY CLAY, SOME LIMESTONE FRAGMENTS, LITTLE SAND, DRY TO MOIST-VERY STIFF	13		V	I	S	U	A	L		A-6b
	25.4	7.7	75/2		14		V	I	S	U	A	L	13	A-6b
141.50	27.2	8.3	5-11-14	BROWN COARSE AND FINE SAND, SOME GRAVEL AND LIMESTONE FRAGMENTS, SOME SILT WITH SOLVED CLAY POCKETS, MOIST-MEDIUM DENSE	15		V	I	S	U	A	L		A-1-b
141.20	27.5	8.4		BROWN SAND AND LIMESTONE FRAGMENTS, LITTLE SILT AND CLAY, MOIST-MEDIUM DENSE	15A		V	I	S	U	A	L		A-2-5
140.13	29.0	8.8	4-6-9	BROWN SILT, SOME CLAY LENSES, LITTLE FINE SAND PARTINGS, MOIST-MEDIUM DENSE	16		V	I	S	U	A	L		A-4b
138.60	30.5	9.3	75	INTERBEDDED SHALE AND LIMESTONE SHALE-DARK GRAY, MEDIUM HARD OCCUPIES 50% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 4" LAYERS, OCCUPIES 50% OF MATRIX	17		V	I	S	U	A	L		
	32.3	9.8	ROCK CORE										7	
	34.1	10.4	ROCK CORE		C1	NQ	REC 100%	RQD 40%						
134.94	35.9	10.9	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-DARK GRAY, HARD OCCUPIES 90% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 15" LAYERS, OCCUPIES 10% OF MATRIX	C2	NQ	REC 100%	RQD 53%					1	
	37.7	11.5	ROCK CORE											
	39.5	12.0	ROCK CORE		C3	NQ	REC 100%	RQD 85%					2	
	41.3	12.6	ROCK CORE											
	43.1	13.1	ROCK CORE		C4	NQ	REC 100%	RQD 50%					3	
	44.9	13.7	ROCK CORE											
	46.7	14.2	ROCK CORE		C5	NQ	REC 100%	RQD 0%						
123.84	48.5	14.8												

BORING COMPLETED @ 32.45m (106.5')

LOG OF BORING WATER ELEVATION:
DATE STARTED 05/06/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D. IMMEDIATE 148.08m
DATE COMPLETED 05/08/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D. COMPLETION 148.08m
BORING NUMBER EB-5 CORE BARREL: TYPE HQ SIZE 5.1cm I.D. AFTER 0 HRS. BACKFILLED
STATION & OFFSET EW 304+454 3m LT. SURFACE ELEVATION 155.7m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	%AGG	%CS	%FS	%SILT	%CLAY	%LL	%PI	%WC	SHTL CLASS
155.70	0	0												
	1.8	0.5	6-7-8	BROWN SILT AND CLAY, SOME SAND, LITTLE FINE GRAVEL AND BRICK FRAGMENTS (FILL), MOIST-STIFF	1		V	I	S	U	A	L		A-6a
	3.6	1.1	8-8-10		2		V	I	S	U	A	L		A-6a
154.92	4.8	1.5	5-6-12	DARK BROWN SANDY SILT, TRACE ROOTS (FILL), MOIST-MEDIUM DENSE	3		V	I	S	U	A	L	22	A-4a
153.33	6.4	1.9	7-9-12	BROWN SANDY SILT, LITTLE CLAY, MOIST LOOSE TO-MEDIUM DENSE	4		V	I	S	U	A	L		A-4a
	8.2	2.5	7-8-9		5		V	I	S	U	A	L		A-4a
	9.9	3.0	4-5-7		6		V	I	S	U	A	L		A-4a
	11.7	3.6	2-3-5		7	0	0	30	50	20	24	6		A-4a(7)
	13.5	4.1	2-4-4		8		V	I	S	U	A	L		A-4a
	15.3	4.7	2-2-3		9		V	I	S	U	A	L		A-4a
147.93	17.1	5.2	1-2-2	BROWN SILT, SOME SAND, WET-VERY LOOSE	10		V	I	S	U	A	L		A-4b
	18.9	5.8	2-2-2	-SOME CLAY BELOW 30.0' (9.1m)	11		V	I	S	U	A	L	28	A-4b
144.88	20.7	6.3	3-4-4	BROWN SANDY SILT, LITTLE CLAY, WET-LOOSE	12		V	I	S	U	A	L		A-4a
143.55	22.2	6.8	2-2-3	GRAY SILT AND CLAY, SOME FINE SAND, VERY MOIST-MEDIUM STIFF	13		V	I	S	U	A	L	25	A-6a
	24.0	7.3	2-4-5		14		V	I	S	U	A	L	28	A-6a
140.29	25.8	7.9	20-14-16	BROWN SAND AND LIMESTONE FRAGMENTS, LITTLE CLAY AND SILT, MOIST-MEDIUM DENSE	15		V	I	S	U	A	L		A-1-b
138.78	27.3	8.3	11-13-13	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, WET-MEDIUM DENSE TO DENSE	16		V	I	S	U	A	L		A-3a
	29.1	8.9	31-26-24		17		V	I	S	U	A	L		A-3a
	30.9	9.4	15-15-15		18	0	7	72	14	7	--	--	--	A-3a(0)
	32.7	10.0	16-16-16		19		V	I	S	U	A	L		A-3a
	34.5	10.5	10-10-11		20		V	I	S	U	A	L		A-3a
132.10	35.9	10.9	50/0	GRAY GRAVEL AND LIMESTONE FRAGMENTS, SOME SAND, WET-VERY DENSE	21		V	I	S	U	A	L		A-1-a
130.40	37.7	11.5	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE DARK GRAY, MEDIUM HARD OCCUPIES 90% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 10" LAYERS, OCCUPIES 10% OF MATRIX	C1	NQ	REC 100%	RQD 30%					5	
	39.5	12.0	ROCK CORE											
	41.3	12.6	ROCK CORE											
128.50	43.1	13.1	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE DARK GRAY, HARD OCCUPIES 50% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 9" LAYERS, OCCUPIES 50% OF MATRIX	C2	NQ	REC 95%	RQD 69%					4	
	44.9	13.7	ROCK CORE											
	46.7	14.2	ROCK CORE											
	48.5	14.8	ROCK CORE		C3	NQ	REC 100%	RQD 94%					3	
123.63	50.3	15.3												

BORING COMPLETED @ 32.61m (107.0')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

W.O. 00093.914

LOG OF BORING

DATE STARTED 01/08/05 SAMPLER: TYPE SPLIT SPOON DIA. 2.0" O.D. WATER ELEVATION:

DATE COMPLETED 01/08/05 CASING LENGTH: 5' HOLLOW STEM AUGER DIA. 3.375" I.D. IMMEDIATE NONE

BORING NUMBER SG-8 CORE BARREL: TYPE NA SIZE NA COMPLETION NONE

STATION & OFFSET STA. 45+20, 15' LT.; LINE "ELBERON AVENUE" AFTER 0 HRS. BACKFILLED

SURFACE ELEVATION 546.5'

ELEV FEET	DEPTH FT	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
546.5	0												
546.0			CONCRETE (6 INCHES)	1A	21	55	12	1	11	NP	NP	13	A-1-b(0)
545.5	2	18-6-4	GRAY GRAVEL AND/OR STONE FRAGMENTS WITH SAND, LITTLE CLAY, TRACE SILT (FILL), MOIST-LOOSE	1B	—	—	—	—	—	—	—	—	VISUAL
544.0			BROWN AND GRAY SILTY CLAY, LITTLE SAND, TRACE GRAVEL (FILL), MOIST-STIFF	2	2	4	3	22	69	42	22	25	A-7-6(13)
	4	7-10-11											
541.0		9-16-18	BROWN AND TRACE GRAY CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL, MOIST-VERY STIFF TO HARD	3	—	—	—	—	—	—	—	22	VISUAL

BORING COMPLETED @ 5.5'

LOG OF BORING

DATE STARTED 05/18/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D. WATER ELEVATION:

DATE COMPLETED 05/19/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D. IMMEDIATE 145.2m

BORING NUMBER WA-15 CORE BARREL: TYPE NA SIZE NA COMPLETION 143.7m

STATION & OFFSET STA. WE 30+470, 12m RT AFTER 0 HRS. BACKFILLED

SURFACE ELEVATION 152.80m (501.18')

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
152.80	0	0												
	2	.6		DARK BROWN TO BLACK GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT, TRACE ROOTS, DECAYED WOOD, RED BRICK AND LIMESTONE FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1			V	I	S	U	A	L		A-2-4
	4	1.2	6-6-8											
151.28	6	1.8	2-2-2	BROWN SANDY SILT, MOIST-LOOSE	2			V	I	S	U	A	L	20	A-4a
150.51	8	2.4												
	8	2.4	2-2-2	BROWN SANDY SILT, SOME CLAY, TRACE ORGANICS, TRACE ROOTS, TRACE SAND LENSES, VERY MOIST-SOFT	3			V	I	S	U	A	L		A-4b
	10	3.0												
	10	3.0	1-1-1		4			V	I	S	U	A	L	25	A-4b
	12	3.7												
	12	3.7			5			V	I	S	U	A	L		A-4b
	14	4.3	1-1-1											
	14	4.3		-SOME THIN SAND PARTINGS BELOW 15.0 FT. (4.6m)	6	0	0	22	55	23	27	9	29	A-4b(8)
	16	4.9	1-1-1											
	16	4.9			7			V	I	S	U	A	L		A-4b
	18	5.5	1-1-1											
146.70	20	6.1			8			V	I	S	U	A	L	25	A-6a
	20	6.1		BROWN SILT AND CLAY, SOME SAND, TRACE CONCRETIONS, WET-SOFT										
	22	6.7	1-2-2											
	24	7.3												
145.18	26	7.9			9			V	I	S	U	A	L	25	A-6a
	26	7.9		GRAYISH BROWN SILT AND CLAY, MOIST-MEDIUM STIFF										
	28	8.5	2-3-5											
143.65	30	9.1												
	30	9.1			10			V	I	S	U	A	L	29	A-6b
	32	9.8	2-3-5	GRAY SILTY CLAY, SOME SAND, WET-SOFT										
	34	10.4												
	34	10.4		-THIN SAND PARTINGS BELOW 35.0 FT. (10.7m)	11			V	I	S	U	A	L		A-6b
	36	11.0	2-3-4											
	38	11.6												
140.60	40	12.2			12	17	34	25	16	8	—	—	—	A-1-b(0)
	40	12.2		BROWN FINE TO COARSE SAND AND GRAVEL, TRACE SILT, TRACE ISOLATED GRAY CLAY POCKETS, WET-DENSE										
	42	12.8	24-21-23											
	44	13.4												
139.08	46	14.0			13			V	I	S	U	A	L	28	A-4a
	46	14.0		GRAY SANDY SILT, TRACE BLACK ORGANICS, VERY MOIST-LOOSE										
	48	14.6	3-4-4											
137.54	50	15.3												
	50	15.3			14			V	I	S	U	A	L		A-1-b
	52	15.8	5-6-9	DARK GRAY GRAVEL AND STONE FRAGMENTS WITH SAND, WET-MEDIUM DENSE										
	54	16.4												
163.03	56	17.0			15			V	I	S	U	A	L		A-1-b
	56	17.0	10-11-25	BROWN AND GRAY SAND AND GRAVEL AND STONE FRAGMENTS, TRACE ISOLATED GRAY CLAY POCKETS, WET-DENSE										
	58	17.6												
134.15	60	18.2			16			V	I	S	U	A	L		A-3a
	60	18.2	11-14-15	BROWNISH GRAY COARSE AND FINE SAND, TRACE FINE GRAVEL, TRACE CLAY LENSES, VERY MOIST-MEDIUM DENSE										
	62	18.9												
132.98	64	19.5			17			V	I	S	U	A	L		A-3
	66	20.1	7-11-14	BROWN FINE SAND, WET-MEDIUM DENSE										
	68	20.7												
	70	21.3	11-13-16		18			V	I	S	U	A	L		A-3
	72	21.9												
130.24	74	22.5												
129.79			200	GRAY AND BROWN GRAVEL AND STONE FRAGMENTS WITH SAND, LITTLE LIMESTONE AND SHALE FRAGMENTS, VERY MOIST-VERY DENSE	19			V	I	S	U	A	L		A-1-b

BORING COMPLETED @ 23.0m (75.5')

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM 264-1457

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade**
PROJECT : **G.E., Supplemental Waldvogel Viaduct Replacement**
LOCATION : **Cincinnati, Ohio**

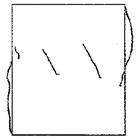
PROJECT NUMBER : **070583NE** LAB NUMBER :
BORING NUMBER : **214** SAMPLE NUMBER : **PT - 3A** DEPTH (FT.): **5.4** to **5.9**
SAMPLE DESCRIPTION : **Mottled brown moist medium stiff very SILTY CLAY**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION: **UNTRIMMED** DATE : **06/26/07**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0427
VOLUME (cu. ft.)	0.0199
WET WEIGHT (lbs.)	2.54
DRY WEIGHT (lbs.)	2.09
DRY DENSITY (pcf)	**105.1**

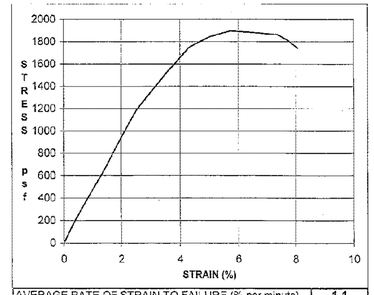
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	NP6
WET WEIGHT + CAN (lbs.)	1.77
DRY WEIGHT + CAN (lbs.)	1.53
WEIGHT WATER (lbs.)	0.24
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	1.10
MOISTURE (%)	**21.7**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0427	0
20	8.0	8.0	0.4	0.0429	186
40	15.0	15.0	0.7	0.0431	348
60	22.0	22.0	1.1	0.0432	509
80	29.0	29.0	1.4	0.0434	669
100	37.0	37.0	1.8	0.0435	850
140	52.0	52.0	2.5	0.0438	1186
200	68.0	68.0	3.6	0.0443	1534
240	78.0	78.0	4.3	0.0447	1746
280	83.0	83.0	5.0	0.0450	1844
320	86.0	86.0	5.7	0.0453	1897
380	86.0	86.0	6.8	0.0459	1875
410	86.0	86.0	7.4	0.0461	1864
430	84.0	84.0	7.7	0.0463	1814
450	81.0	81.0	8.1	0.0465	1742



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**5.7**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**1,900**
SHEAR STRENGTH (psf)	**950**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade**
PROJECT : **G.E., Supplemental Waldvogel Viaduct Replacement**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **070583NE** LAB NUMBER :
BORING NUMBER : **215** SAMPLE NUMBER : **PT - 11** DEPTH (FT.): **35.5** to **36.0**
SAMPLE DESCRIPTION : **Olive brown and gray moist very stiff SILTY CLAY with shale and limestone fragments (colluvium)**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION: **UNTRIMMED** DATE : **06/28/07**

NATURAL UNIT WEIGHT

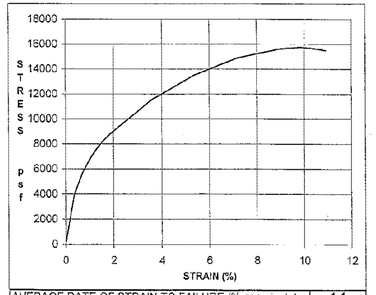
AVERAGE DIAMETER (in.)	2.86
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.95
AVERAGE AREA (sq. ft.)	0.0447
VOLUME (cu. ft.)	0.0208
WET WEIGHT (lbs.)	2.96
DRY WEIGHT (lbs.)	2.61
DRY DENSITY (pcf)	**125.5**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	X6
WET WEIGHT + CAN (lbs.)	3.19
DRY WEIGHT + CAN (lbs.)	2.85
WEIGHT WATER (lbs.)	0.34
WEIGHT CAN (lbs.)	0.24
WEIGHT SOLID (lbs.)	2.61
MOISTURE (%)	**13.2**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0447	0
20	176.0	176.0	0.4	0.0448	3924
40	259.0	259.0	0.7	0.0450	5754
60	317.0	317.0	1.1	0.0452	7017
80	361.0	361.0	1.4	0.0453	7962
100	396.0	396.0	1.8	0.0455	8703
200	535.0	535.0	3.6	0.0463	11543
300	638.0	638.0	5.4	0.0472	13510
400	716.0	716.0	7.2	0.0481	14875
500	767.0	767.0	8.9	0.0491	15628
550	781.0	781.0	9.8	0.0496	15757
580	781.0	781.0	10.4	0.0499	15663
590	780.0	780.0	10.6	0.0500	15612
600	779.0	779.0	10.7	0.0501	15561
610	777.0	777.0	10.9	0.0502	15490



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.1**
STRAIN AT FAILURE (%)	**9.8**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**15,760**
SHEAR STRENGTH (psf)	**7880**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **207** SAMPLE NUMBER : **RC-1** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **85.0** to **85.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

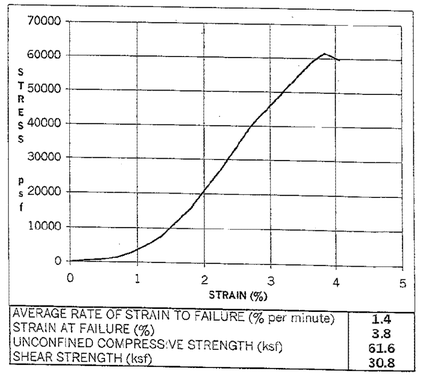
AVERAGE DIAMETER (in.)	1.96
HEIGHT (in.)	4.44
HEIGHT TO DIAMETER RATIO	2.26
AVERAGE AREA (sq. ft.)	0.0210
VOLUME (cu. ft.)	0.0078
WET WEIGHT (lbs.)	1.20
DRY WEIGHT (lbs.)	1.14
DRY DENSITY (pcf)	**146.7**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	e
WET WEIGHT + CAN (lbs.)	1.45
DRY WEIGHT + CAN (lbs.)	1.40
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.33
WEIGHT SOLID (lbs.)	1.07
MOISTURE (%)	**5.0**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0210	0
10	2	9.8	0.2	0.0211	463
20	3	14.6	0.5	0.0211	693
30	6	29.3	0.7	0.0212	1384
40	12	58.6	0.9	0.0212	2761
50	21	102.5	1.1	0.0213	4821
60	33	161.1	1.4	0.0213	7559
80	70	341.8	1.8	0.0214	15961
100	120	586.0	2.3	0.0215	27236
120	177	864.3	2.7	0.0216	39988
140	219	1069.4	3.2	0.0217	49247
150	240	1172.0	3.4	0.0218	53844
160	261	1274.5	3.6	0.0218	58419
170	276	1347.8	3.8	0.0219	61632
180	268	1308.7	4.1	0.0219	59705



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.4**
STRAIN AT FAILURE (%)	**3.8**
UNCONFINED COMPRESSIVE STRENGTH (ksf)	**61.6**
SHEAR STRENGTH (ksf)	**30.8**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

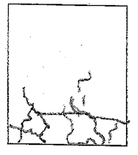
PROJECT NUMBER : **051008NE**
BORING NUMBER : **207** SAMPLE NUMBER : **RC-2** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **91.0** to **91.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	1.97
HEIGHT (in.)	4.44
HEIGHT TO DIAMETER RATIO	2.26
AVERAGE AREA (sq. ft.)	0.0211
VOLUME (cu. ft.)	0.0078
WET WEIGHT (lbs.)	1.17
DRY WEIGHT (lbs.)	1.12
DRY DENSITY (pcf)	**143.0**

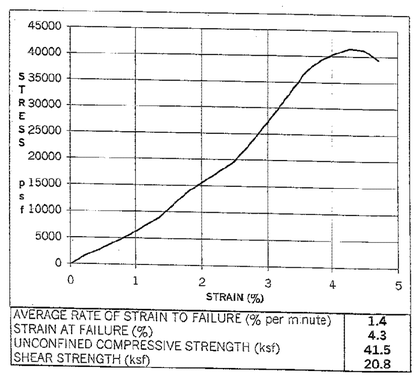
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	DF
WET WEIGHT + CAN (lbs.)	1.58
DRY WEIGHT + CAN (lbs.)	1.53
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	1.10
MOISTURE (%)	**4.9**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0211	0
10	7	34.2	0.2	0.0211	1620
20	12	58.6	0.5	0.0211	2771
40	24	117.2	0.9	0.0212	5517
60	39	190.4	1.4	0.0213	8925
80	61	297.9	1.8	0.0214	13895
110	86	420.0	2.5	0.0216	19455
120	100	488.3	2.7	0.0216	22570
140	132	644.6	3.2	0.0217	29655
160	166	810.6	3.6	0.0218	37120
170	176	859.4	3.8	0.0219	39264
180	182	888.7	4.1	0.0219	40508
190	187	913.2	4.3	0.0220	41523
200	186	908.3	4.5	0.0220	41204
210	178	869.2	4.7	0.0221	39339



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	**1.4**
STRAIN AT FAILURE (%)	**4.3**
UNCONFINED COMPRESSIVE STRENGTH (ksf)	**41.5**
SHEAR STRENGTH (ksf)	**20.8**

REMARKS :

DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM 264-1457

HAM-50-18.79

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PROJECT DESCRIPTION

THE COMPLETE PROJECT CONSISTS OF THE REPLACEMENT OF THE EXISITING WALDVOGEL (6TH STREET) VIADUCT CONNECTING RIVER ROAD (US 50) TO THE ELBERON AND WARSAW AVENUES IN CININCINNATI, OHIO. THE NEW ALIGNMENT WILL ENDEAVOR TO RELOCATE A SUBSTANTIAL AMOUNT OF THE CURRENT ELEVATED ROADWAY ON-GRADE. BRIDGE HAM-050-1875 WILL REPLACE THE RAMP CONNECTING EASTBOUND ELBERON AVENUE TO US 50.

HISTORIC RECORDS

THE CURRENT WALDVOGEL VIADUCT WAS CONSTRUCTED IN 1949. SUBSEQUENT EXPLORATIONS WERE PERFORMED BY THE H.C. NUTTING COMPANY FOR THE CITY OF CINCINNATI IN REPORTS PREPARED IN 1951 AND 1989. ADDITIONAL REPORTS FOR PREVIOUS REPLACEMENT DESIGNS WERE PUBLISHED IN 1990, 1991, 1996, 1998, AND 1999. HISTORIC BORINGS FROM THE 1999 EXPLORATIONS ARE PRESENTED ON THE SOIL PROFILES. (SEE "AVAILABLE INFORMATION" BELOW)

GEOLOGY

THE PROJECT SITE IS LOCATED AT THE TRANSITION BETWEEN THE DEEP ALLUVIAL OHIO RIVER BASIN TO THE EAST AND THE COLLUVIAL AND BEDROCK SLOPES OF THE LOWER PRICE HILL TO THE WEST. THE UNDERLYING BEDROCK CONSISTS OF THE KOPE FORMATION OF INTERBEDDED SHALE AND LIMESTONE.

RECONNAISSANCE

THE SITE PROPOSED FOR THE ROADWAY AND BRIDGE REPLACEMENTS CURRENTLY CONSIST OF A STEEP WESTERN HILLSIDE (LOWER PRICE HILL) DESCENDING TO A BROAD ALLUVIAL PLAIN. ELEVATION DIFFERENTIAL ON THE HILLSIDE IS APPROXIMATELY 65 FEET, DESCENDING TO THE EASTERN PLANE. ACROSS THE ALLUVIAL PLAIN, THE GROUND SURFACE IS RELATIVELY LEVEL AT APPROXIMATELY EL. 490 (MSL). THE WESTERN PORTION OF THE SITE IS AN AREA OF LONG STANDING RESIDENTIAL DEVELOPMENT, TRANSITIONING TO COMMERCIAL USE OVER THE LEVEL PLAINS. SEVERAL RETAINING STRUCTURES ARE LOCATED ALONG STATE AVENUE TO ACCOMODATE THE STREETS. SIDEHILL CUTS AND FILLS WERE MADE TO ESTABLISH ROADWAYS ALONG THE WESTERN HILLSIDE.

SUBSURFACE EXPLORATION

THE TEST BORINGS WERE PERFORMED WITH TRACK AND TRUCK MOUNTED DRILL RIGS ADVANCING HOLLOW - STEM AUGERS. SAMPLING WAS PERFORMED WITH AN AUTOMATIC HAMMER ON CME MODEL 55 AND 450 RIGS. STANDARD SPLIT SPOON SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1586. SAMPLES WERE GENERALLY OBTAINED AT A 2.5 FT INTERVAL. AT SELECTED LOCATIONS, THIN WALLED SHELBY TUBE SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1587.

EXPLORATION FINDINGS

THE SHALLOW SUBSURFACE PROFILE CONSISTS OF A SURFICIAL LAYER OF RANDOM FILL. BELOW THE FILL IS A CRUST OF STIFF LEAN SILTY CLAY WHICH GENERALLY CLASSIFIES AS A-7-6 AND 6A.
THE CRUST TYPICALLY EXTENDS APPROXIMATELY 20 FEET FROM THE GROUND SURFACE. THE ALLUVIUM BECOMES SILTIER AND LESS STIFF WITH DEPTH, CLASSIFYING A-4-6 TO A-6B TO APPROXIMATELY 40 FEET. BELOW APPROXIMATELY 40 FEET, THE ALLUVIUM TRANSITIONS TO GRANULAR OUTWASH DEPOSITS, MEDIUM DENSE TO DENSE SAND AND SAND AND GRAVEL. GRANULAR SOILS ARE TYPICALLY WELL GRADED AND MEDIUM DENSE TO VERY DENSE. STATIC GROUNDWATER WAS TYPICALLY ENCOUNTERED AT THE CONTACT BETWEEN THE ALLUVIAL SOILS AND THE OUTWASH SOILS. NATIVE BEDROCK, INTERBEDDED SHALE AND LIMESTONE, WAS ENCOUNTERED BETWEEN 70 AND IN EXCESS OF 100 FEET FROM THE GROUND SURFACE. THE PROFILE AT THE WESTERN PORTION OF THE SITE ADJACENT TO THE WESTERN TERMINI OF THE ELBERON AND WARSAW AVENUE RAMPS, TRANSITIONS TO DEEP, RANDOMLY DEPOSITED COLLUVIAL SOILS WITH INTERBEDDED GRANULAR SEAMS OVERLYING GRANULAR SOILS AT THE TOE OF THE SLOPE. THE SOILS OVERLIE A SLOPING BEDROCK SURFACE OF INTERBEDDED SHALE AND LIMESTONE BEDROCK.

SPECIFICATIONS

ALL BORINGS WERE PERFORMED IN ACCORDANCE WITH ODOT SSI (1996). DRAWINGS WERE PREPARED IN ACCORDANCE WITH ODOT SGE (2007).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK DATA THAT CAN BE CONVENIENTLY SHOWN ON THE PROFILE SHEETS HAS BEEN REPORTED. PREVIOUS SUBSURFACE INVESTIGATIONS AND SOIL AND BEDROCK TESTS WERE PERFORMED IN 1952, 1989, 1990, 1991, 1996 AND 1999. COPIES OF THIS AND OTHER AVAIALABLE DATA MAY BE INSPECTED AT THE DEPUTY DIRECTOR'S OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OHIO, AT THE OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8 AND AT THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION & ENGINEERING. SOIL AND ROCK CORE SAMPLES MAY BE REVIEWED AT THELEN ASSOCIATES, INC., 1780 CARILLON BLVD., CINCINNATI, OHIO

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	6	5
GRAVEL AND/OR STONE FRAGMENTSWITH SAND	A-1-b	13	3
FINE SAND	A-3	8	9
COARSE AND FINE SAND	A-3a	4	5
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4	2	1
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT AND CLAY	A-2-6	1	1
SILT	A-4b	2	1
SILT AND CLAY	A-6a	9	10
SILTY CLAY	A-6b	8	13
CLAY	A-7-6	4	5
WEATHERED INTERBEDDED SHALE AND LIMESTONE			VISUAL
INTERBEDDED SHALE AND LIMESTONE			VISUAL
PAVEMENT OR BASE			VISUAL

EXPLORATION LOCATION-PLAN VIEW

HISTORIC BORING LOCATION-PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

ST INDICATES A SHELBY TUBE SAMPLE

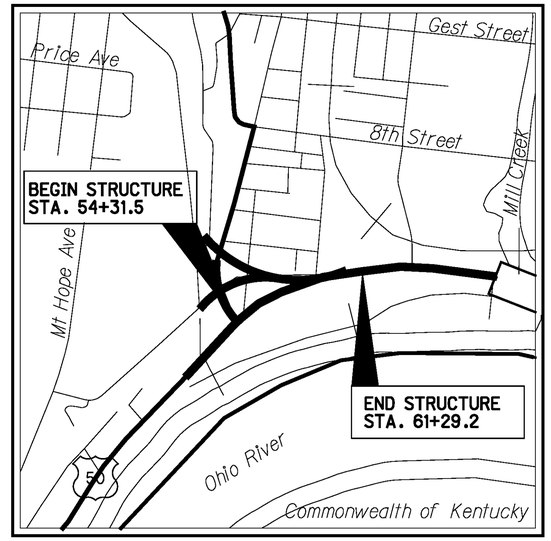
W INDICATES FREE WATER ELEVATION

INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

INDICATES PLASTIC MATERIAL WITH A HIGH WATER CONTENT

WC INDICATES WATER CONTENT IN PERCENT

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES



LOCATION MAP

SCALE IN MILES

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PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL

Boring No.	Sample No.	Sample Depth, ft.	Unconfined Compressive Strength, psf	Dry Density, pcf	Moisture Content, %	Shear Strength, psf
112	7B	15.4-15.9	3,890	107.3	20.8	1,945
123	RC1	72.0-72.5	2,198,846	167.9	0.2	1,099,423
204	5A	10.2-10.7	2,990	106.1	22.3	1,495
204	10A	25.2-25.7	2,470	104.9	22.8	1,235
205	7A	17.7-18.2	4,000	107.2	21.0	2,000
205	12A	40.2-40.7	2,630	102.0	24.4	1,315
206	5A	10.2-10.7	3,740	110.6	19.0	1,870
206	7A	15.2-15.7	3,820	108.2	20.0	1,910
206	9B	21.0-21.5	1,770	110.1	20.6	885
206	11A	25.4-25.9	1,480	115.4	17.6	740
206	13A	30.2-30.7	1,880	118.5	20.2	940
209	5B	13.2-13.7	1,740	99.6	26.1	870
209	8A	20.1-20.7	5,300	107.6	22.8	2,650

ONE-DIMENSIONAL CONCOLIDATION PROPERTIES

Sample Location			Pre-Consolidation Pressure P_c tsf	Overburden Pressure, P_o tsf	Initial Void Ratio, e_o	Compression Index, C_c	Recompression Index, C_r
Boring No.	Sample No.	Sample Depth ft.					
206	11C	26.2-26.5	1.00	1.50	0.4823	0.097	0.009

RECON. - ATS 2/6 - 2/10/06
DRILLING - GB 2/13 - 4/21/06, 6/20 - 6/21/07
DRILLING - LW 3/22 - 4/25/06, 6/20-6/26/07
DRAWN - MS 5/20/06 - 7/31/07
DRAWN - KPR 10/4/07 - 6/11/10
REVIEWED - ATS 6/12/10

THELEN ASSOCIATES, INC. Geotechnical • Testing Engineers
1780 Carillon Blvd. Cincinnati, Ohio 45240 (513) 825-4100 FAX (513) 825-4101
1099 Zeta Drive Lexington, Kentucky 40511 (859) 255-8439

PID NO. 20082

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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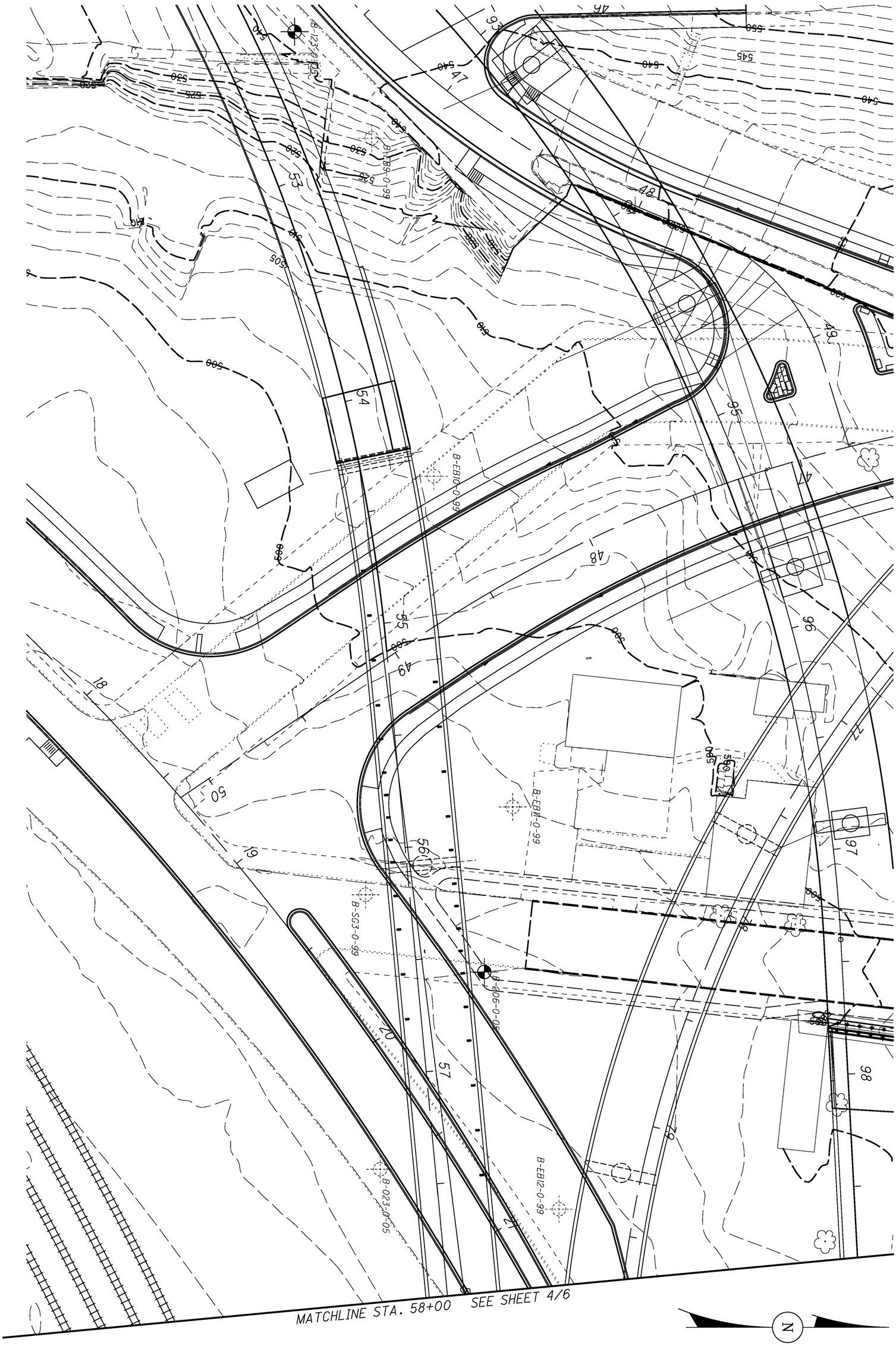
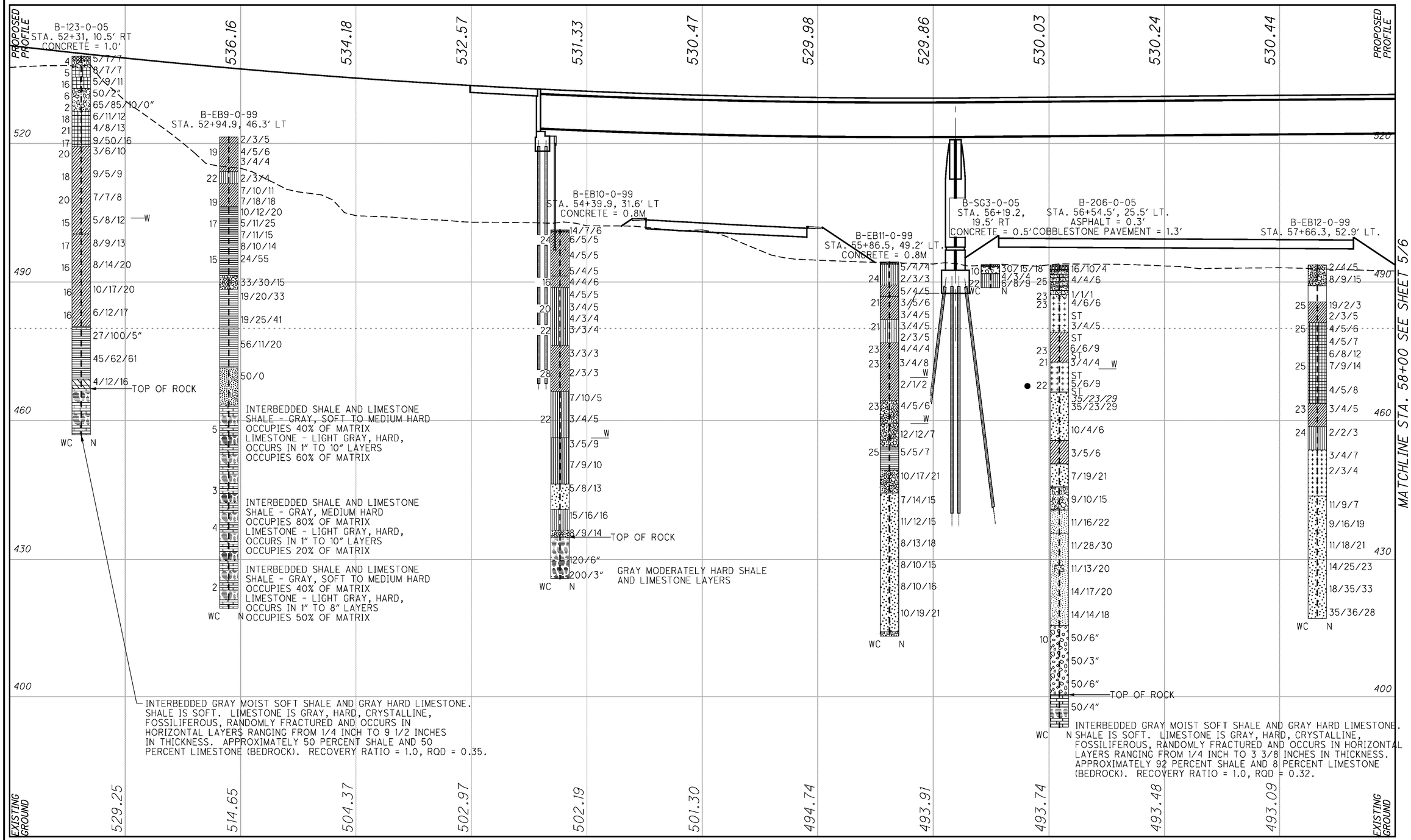


92 / 136	2 / 17	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-050-1875	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG ℄ EB. ELBERON AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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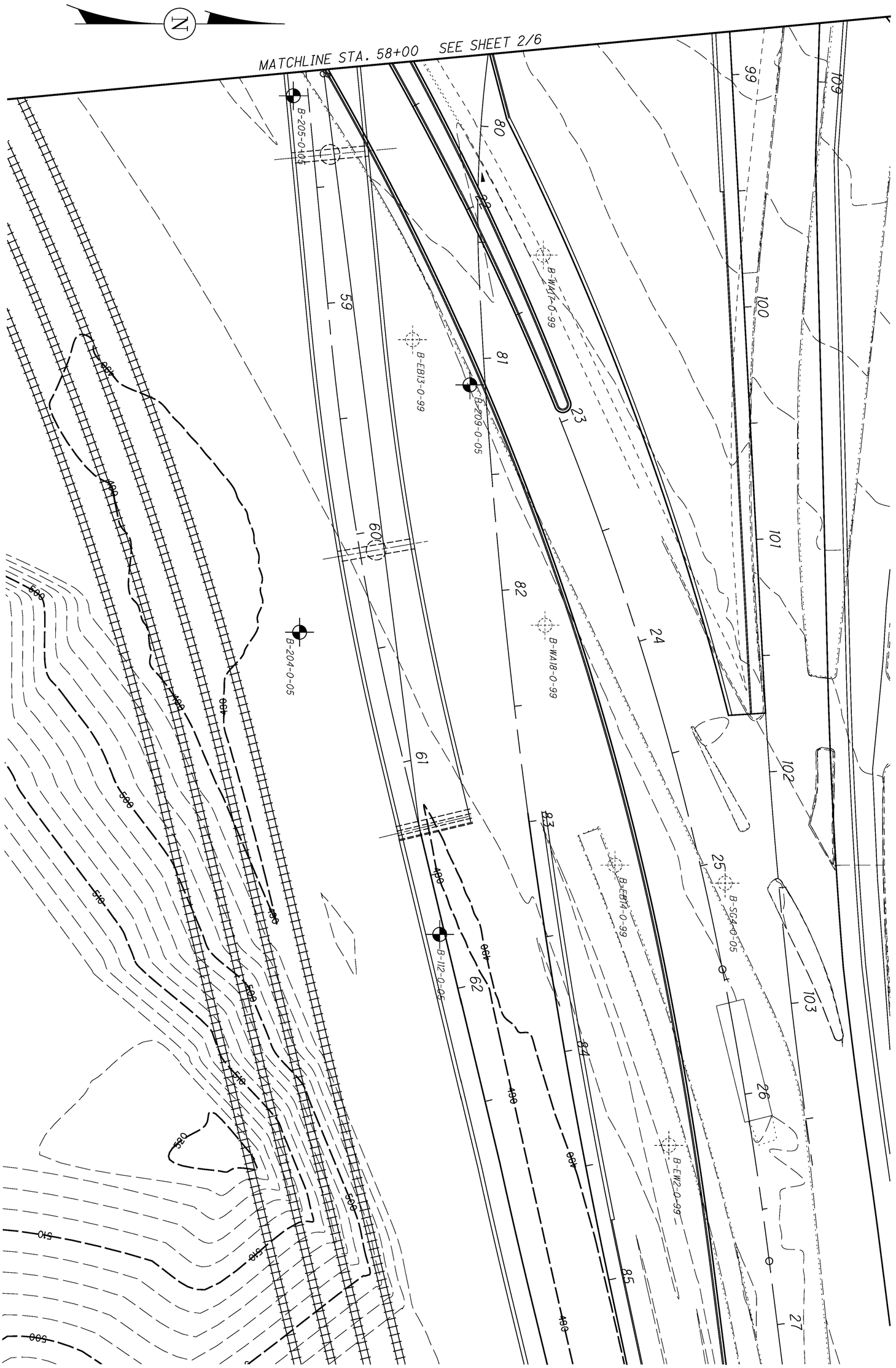
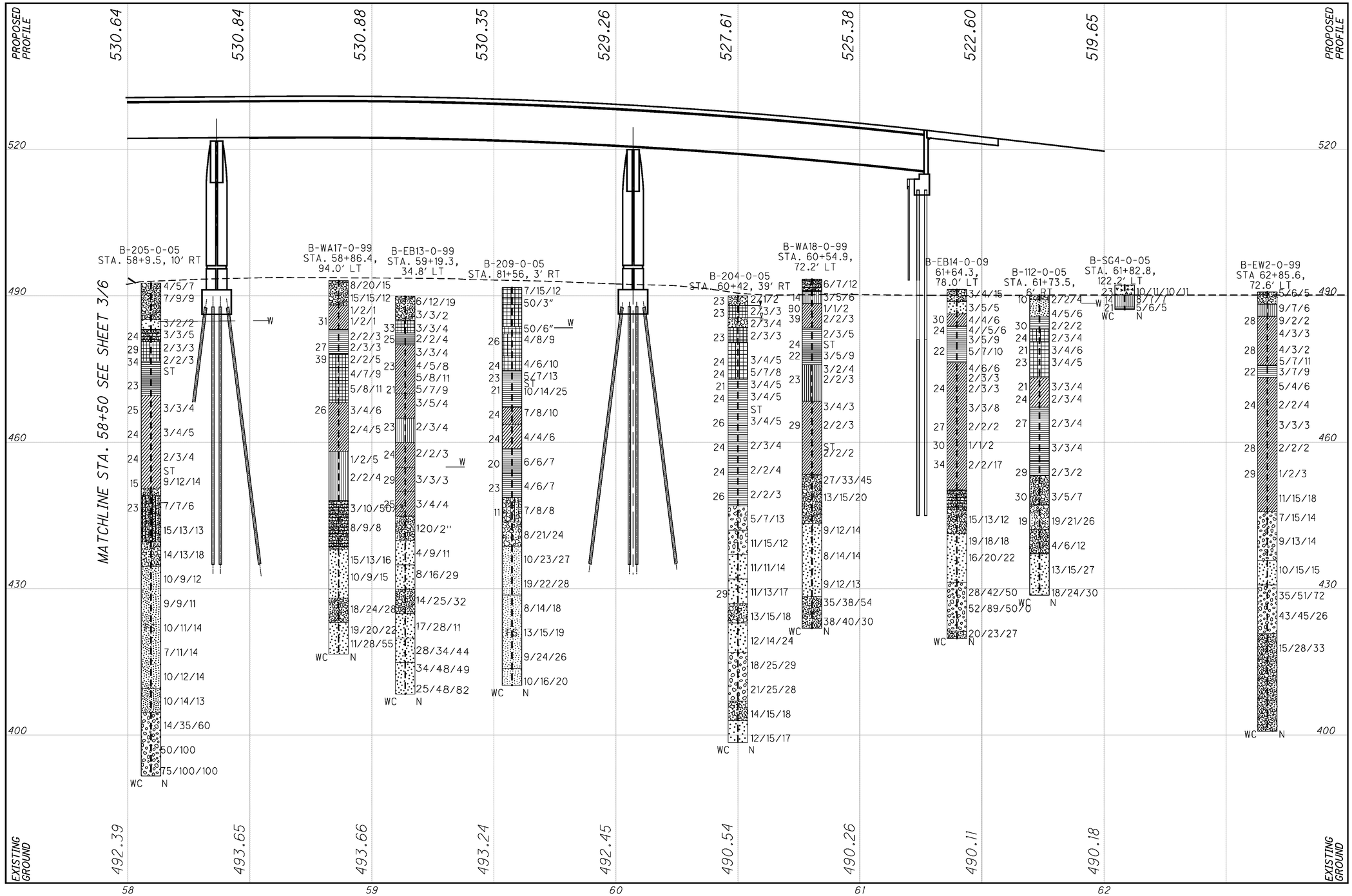


94 / 136	4 / 17	HAM-50-18.79	STRUCTURE FOUNDATION EXCAVATION BRIDGE NO. HAM-050-1875	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG ℄ EB ELBERON AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXCAVATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 112 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 61+73.5, 6' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
490.2	GROUND SURFACE																
489.2	Black moist loose FILL, sand and cinders.	1.0		D	2/2/4	1A 1B	DS	100	42	12	27	18				9.7	A-1-b
485.7	Brown moist to wet medium dense FILL, silty fine to coarse sand.	4.5		I	4/5/6	2	DS	100	37	11	30	21					A-3
483.2	Dark gray moist medium stiff FILL, silty clay with gravel.	7.0	5	I	2/2/2	3	DS	100	0	4	7	44	44	40	16	29.5	A-6b (10)
480.7	Mottled brown, trace gray moist stiff CLAY.	9.5		I	2/3/4	4	DS	100						43	21	23.7	A-7-6 (13)
			10	I	3/4/6	5	DS	100						43	21	21.4	A-7-6 (13)
				I	3/4/5	6	DS	100				VISUAL				23.1	A-7-6
473.2	Mottled brown, trace gray moist stiff CLAY.	17.0	15	U		7	PT	75	0	0	15	48	37	30	13	20.8	A-6a (9)
				I	3/3/4	8	DS	100						31	14	23.5	A-6a (10)
467.2	Mottled brown, trace gray moist medium stiff to stiff very SILT and CLAY.	23.0	20	I	2/3/4	9	DS	100				VISUAL					A-6a
			25	I	2/3/4	10	DS	100				VISUAL				27.0	A-6b
458.7	Gray moist medium stiff to soft SILTY CLAY.	31.5	30	I	3/3/4	11	DS	72				VISUAL					A-6b
456.2	Gray moist medium stiff SILTY CLAY with wood fragments.	34.0															
453.2	Gray moist medium stiff SILTY CLAY, varved.	37.0	35	I	2/3/2	12	DS	67				VISUAL				28.7	A-6b
447.2	Brown wet medium dense very silty SAND and GRAVEL.	43.0	40	I	3/5/7	13	DS	100				VISUAL				30.1	A-1b
442.2	Brown wet dense silty fine to coarse GRAVEL and SAND.	48.0	45	D	19/21/26	14	DS	56	54	14	13	11	7			18.5	A-1-b
437.2	Brown wet medium dense fine to coarse GRAVEL and SAND.	53.0	50	D	4/6/12	15	DS	100	36	18	31	15					A-1-b (0)
			55	D	13/15/27	16	DS	72				VISUAL					A-3a
428.7	Brown wet dense to very dense silty fine to medium SAND, trace fine gravel.	61.5	60	D	18/24/30	17	DS	72				VISUAL					A-3a
	Bottom of test boring at 61.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL | Hammer Wt. 140 lb | Hole Diameter 8 in. | Foreman GB
Surf. Elev. 490.2 | Hammer Drop 30 in. | Rock Core Dia. | Engineer ATS
Date Started 4-23-06 | Pipe Size 2 in. O.D. | Boring Method 3¼ HSA | Date Completed 4-23-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 3.0 ft
AT COMPLETION 1.5 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 123 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 52+31, 10.5' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
538.9	GROUND SURFACE																
537.9	CONCRETE PAVEMENT	1.0		D	5/7/7	1	DS	67								4.2	
536.4	Brown moist medium dense FILL, shale with fine to coarse sand and gravel.	2.5		D	8/7/7	2	DS	67	64	15	7	14				5.1	A-1-b (0)
534.4	Brown moist medium dense FILL, clayey sand and gravel with crushed limestone fragments.	4.5	5	I	5/9/11	3	DS	100						44	22	15.7	A-7-6 (14)
531.9	Brown moist stiff CLAY with shale fragments and limestone floaters.	7.0		D	50/2"	4	DS	11				VISUAL				5.8	A-1b
526.9	Gray dense LIMESTONE FLOATERS, trace silty clay (GP-GM).	12.0	10	D	65/85/100/0"	5	DS	33	83	5	3	9				2.3	A-1-b (0)
				I	6/11/12	6	DS	100						43	26	18.0	A-7-6 (12)
			15	I	4/8/13	7	DS	100	38	2	1	20	39			20.5	A-7-6 (12)
519.4	Brown and gray moist stiff SILTY CLAY with shale and limestone fragments (colluvium).	19.5		I	9/50/16	8	DS	100	37	6	2	55		40	20	16.6	A-7-6 (12)
			20	I	3/6/10	9	DS	100						39	14	19.5	A-6a (10)
			25	I	9/5/9	10	DS	67				VISUAL				18.4	A-6a
			30	I	7/7/8	11	DS	100				VISUAL				20.2	A-6a
500.4	Gray moist stiff SILT and CLAY with limestone floaters (colluvium).	38.5	35	I	5/8/12	12	DS	100				VISUAL				14.8	A-6a
			40	D	8/9/13	13	DS	100						37	14	16.7	A-6a (10)
			45	D	8/14/20	14	DS	100	3	9	5	30	53			16.2	A-6a (10)
			50	D	10/17/20	15	DS	100				VISUAL				15.5	A-6a
			55	D	6/12/17	16	DS	100				VISUAL				16.0	A-6a
480.4	Olive brown to gray moist stiff SILT and CLAY with shale fragments and limestone floaters (colluvium).	58.5	60	D	27/100/5"	17	DS	67	53	9	13	25					A-6b
475.9	Brown moist dense silty fine to coarse SAND and GRAVEL with limestone fragments.	63.0	65	D	45/62/61	18	DS	100	47	14	17	22					A-6b
466.9	Brown moist very dense clayey SAND with limestone and shale fragments.	72.0	70	D	4/12/16	19	DS	67	28	9	17	46					A-5
	Interbedded gray moist soft SHALE and gray hard LIMESTONE. Shale is soft. Limestone is gray, hard, crystalline, fossiliferous, randomly fractured and occurs in horizontal layers ranging from ¼ inch to 9½ inches in thickness. Approximately 50 percent shale and 50 percent limestone (bedrock). Recovery Ratio = 1.0, RQD = 0.35.		75			20	RC	100									
461.9		82.0	80			21	RC	100									
	Bottom of test boring at 82.0 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL | Hammer Wt. 140 lb | Hole Diameter 8 in. | Foreman LW
Surf. Elev. 538.9 | Hammer Drop 30 in. | Rock Core Dia. | Engineer ATS
Date Started 3-30-06 | Pipe Size 2 in. O.D. | Boring Method 2¼ HSA | Date Completed 3-30-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED Dry ft
AT COMPLETION 29.0 ft
AFTER 120 hrs. 35.0 ft
BACKFILLED 120 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 204 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Statoin 60+42, 39' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
490.9	GROUND SURFACE																
488.9	Black moist loose FILL, sand and cinders (SM).	2.0		D	2/1/2	1	DS	100	44	20	16	20				23.4	A-1-b
486.4	Brown moist soft FILL, silty clay with cinders, wood fragments and slag.	4.5		I	2/3/3	2	DS	100				VISUAL				23.4	A-7-6
484.4	Brown wet loose FILL, silty sand and gravel.	6.5	5	I	2/3/4	3	DS	100	41	13	21	25					A-1-b
481.4	Mottled gray, trace brown moist medium stiff to stiff SILTY CLAY.	9.5		I	2/3/3	4	DS	100				VISUAL				23.1	A-7-6
			10	U		5	PT	67									
				I	3/4/5	6	DS	100	0	1	4	42	53	51	25	23.7	A-7-6 (16)
473.9	Mottled brown, trace gray moist stiff CLAY.	17.0	15	I	5/7/8	7	DS	100				VISUAL				24.1	A-7-6
				I	3/4/5	8	DS	100				VISUAL				20.6	A-7-6
			20	I	3/4/5	9	DS	100						37	17	23.6	A-6b (11)
			25	U		10	PT	67									
				I	3/4/5	11	DS	100	0	0	12	52	36	32	16	26.1	A-6b (10)
457.9	Mottled brown, trace gray moist stiff SILTY CLAY.	33.0	30	I	2/3/4	12	DS	100				VISUAL				24.1	A-6b
			35	I	2/2/4	13	DS	100	0	2	7	56	35	35	16	23.8	A-6b (10)
447.9	Gray moist medium stiff very SILTY CLAY.	43.0	40	I	2/2/3	14	DS	100				VISUAL				25.8	A-6b
442.9	Brown moist medium dense clayey fine to coarse SAND and GRAVEL.	48.0	45	I	5/7/13	15	DS	100	71	4	10	15		24	6		A-1-a (6)
437.9	Brown wet medium dense fine to coarse SAND and GRAVEL .	53.0	50	D	11/15/12	16	DS	100	52	32	8	8					A-1-a (0)
432.9	Brown wet medium dense to dense fine to coarse SAND, trace gravel.	58.0	55	D	11/11/14	17	DS	100	1	11	76	12					A-3a (0)
427.9	Brown wet dense fine to coarse SAND.	63.0	60	D	11/13/17	18	DS	100	1	20	66	13				28.5	A-3a (0)
422.9	Brown wet dense fine to coarse SAND, some gravel.	67.0	65	D	13/15/18	19	DS	100	24	51	16	9					A-1-b (0)
417.9	Brown wet dense silty fine to coarse SAND.	73.0	70	D	12/14/24	20	DS	100	4	20	64	6	6	NON-PLASTIC			A-3a (0)
			75	D	18/25/29	21	DS	100	68	12	14	6					A-1-a (0)
407.9	Brown wet very dense fine to coarse SAND and GRAVEL.	83.0	80	D	21/25/28	22	DS	100	70	10	18	2					A-1-a (0)
402.9	Brown wet dense fine to coarse SAND, little fine gravel.	87.0	85	D	14/15/18	23	DS	100	22	37	39	1					A-1-b (0)
399.4	Brown wet dense silty fine to coarse SAND.	91.5	90	D	12/15/17	24	DS	100	2	62	22	13					A-3a (0)
	Bottom of test boring at 91.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 490.9
Date Started 4-22-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 4-22-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 4.5 ft
AT COMPLETION 2.0 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 205 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 58+9.5, 10' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
493.0	GROUND SURFACE																
				D	4/5/7	1	DS	67				VISUAL					A-1-b
488.5	Mixed brown and black moist loose stiff FILL, sand, cinders, rock and brick fragments.	4.5		D	7/9/9	2	DS	67				VISUAL					A-1-b
485.5	Void noted from 4.5 to 7.5 feet.	7.5	5														
483.5	Black wet loose FILL, fine to coarse sand and gravel with cinders.	9.5		D	3/2/2	3	DS	33				VISUAL					A-2-6
481.0	Gray moist medium stiff FILL, silty clay with limestone fragments.	12.0	10	I	3/3/5	4	DS	67				VISUAL				24.3	A-1-b
				I	2/3/3	5	DS	100						47	22	29.4	A-7-6 (14)
476.0	Mottled brown and gray moist medium stiff CLAY.	17.0	15	I	2/2/3	6	DS	72				VISUAL				33.6	A-7-6
				U		7	PT	58									
470.0	Mottled brown moist very stiff SILTY CLAY with iron oxide stains.	23.0	20	I		8	DS	100				VISUAL				22.8	A-6b
			25	I	3/3/4	9	DS	100				VISUAL				25.4	A-6a
			30	I	3/4/5	10	DS	100				VISUAL				23.6	A-6a
			35	I	2/3/4	11	DS	100						28	11	24.2	A-6a (8)
451.0	Brown and gray moist medium stiff to stiff SILT and CLAY.	42.0	40	U		12	PT	50									
				D	9/12/14	13	DS	100	53	12	17	12	6			14.9	A-1-b (0)
			45	D	7/7/6	14	DS	100						24	7	22.8	A-2-4 (0)
440.0	Brown very moist medium dense clayey fine to coarse SAND and GRAVEL.	53.0	50	D	15/13/13	15	DS	100				VISUAL					A-2-4
435.0	Brown wet dense silty fine to coarse SAND and GRAVEL.	58.0	55	D	14/13/18	16	DS	100	37	34	15	14					A-1-b (0)
			60	D	10/9/12	17	DS	100	2	25	65	10					A-3 (0)
			65	D	9/9/11	18	DS	100				VISUAL					A-3
			70	D	10/11/14	19	DS	100				VISUAL					A-3
			75	D	7/11/14	20	DS	100	9	7	76	8					A-3 (0)
			80	D	10/12/14	21	DS	100				VISUAL					A-3
405.0	Brown wet medium dense fine silty SAND.	88.0	85	D	10/14/13	22	DS	100	12	32	47	8					A-3 (0)
			90	D	14/35/60	23	DS	100				VISUAL					A-1-a
			95	D	50/100	24	DS	100	61	12	14	13					A-1-a (0)
392.0	Gray wet very dense fine to medium SAND and GRAVEL with large cobbles.	101.0	100	D	75/100/100	25	DS	33				VISUAL					A-1-a
	Bottom of test boring at 101.0 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 493.0
Date Started 4-10-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 4-10-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 45.0 ft
AT COMPLETION 22.0 ft
AFTER 24 hrs. 8.0 ft
BACKFILLED 24 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 56+54.5, 25.5' Left
BORING # 206 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
493.7	GROUND SURFACE																
493.4	ASPHALT PAVEMENT (4")	0.3		D/I	16/10/4	1A 1B	DS	50									
492.8	COBBLE STONE PAVEMENT	1.3 2.0	0.9														
492.4	Mixed brown moist medium dense FILL, fine sand with fine to coarse gravel.	4.5		I	4/4/6	2	DS	50	16	2	17	65				25.4	
491.7	Mixed brown moist stiff FILL, silty clay with medium gravel.	7.0	5	D	1/1/1	3	DS	55	1	8	57	34		32	10	23.4	A-2-6 (0)
489.2	Mixed brown and gray moist medium stiff to stiff FILL, silty clay, some fine sand.			I	4/6/6	4	DS	72	0	1	20	46	33			23.3	A-6a
486.7	Gray moist medium dense silty fine SAND.		10	U		5	PT	92									
				I	3/4/5	6	DS							33	10		A-4b (8)
479.2	Mottled brown to gray moist medium dense to loose SILT.	16.0	15	U		7	PT	71									
				I	6/6/9	8	DS	67						36	13	23.0	A-6a (9)
477.7	Brown moist very stiff SILT and CLAY.	21.0	20	U		9	PT	92									
				I	3/4/4	10	DS	72				VISUAL				20.7	A-6b
466.2	Brown slightly wet soft to medium stiff SILTY CLAY with fine to coarse sand and fine to medium gravel.	27.5	25	U		11	PT	96									
				I	5/6/9	12	DS	100						23	4	21.5	A-4b
462.2	Mottled brown moist dense clayey SILT.	31.5	30	U		13	PT	92									
				I	35/23/29	14	DS	72				VISUAL					A-3a
459.2	Brown moist very dense fine to coarse SAND, trace gravel.	34.5															
457.8	Brown wet medium dense to coarse SAND, trace fine gravel.	35.9	35	D/I	10/4/6	15A 15B	DS	100	18	52	20	10					
455.7	Brown moist medium dense clayey SILT with iron oxide stains.	38.0															
450.7	Gray moist medium stiff SILT and CLAY with fine sand seams and silt lenses.	43.0	40	I	3/5/6	16	DS	72	0	1	9	61	29	33	11		A-6a (8)
445.7	Brown wet dense fine to coarse SAND and fine to coarse GRAVEL.	48.0	45	D	7/19/21	17	DS	83				VISUAL					A-3a
440.7	Brown wet dense fine to medium, trace coarse SAND.	53.0	50	D	9/10/15	18	DS	100	2	87	8	3					A-1-b (0)
435.7	Brown wet dense silty fine SAND.	58.0	55	D	11/16/22	19	DS	67	2	38	52	8					A-3 (0)
			60	D	11/28/30	20	DS	100				VISUAL					A-3
			65	D	11/13/20	21	DS	100				VISUAL					A-3
			70	D	14/17/20	22	DS	72				VISUAL					A-3
415.7	Brown wet very dense to dense silty fine, trace medium SAND.	78.0	75	D	14/14/18	23	DS	72	0	10	83	7					A-3 (0)
			80	D	50/6"	24	DS	23	70	11	11	6	2			9.8	A-1-a (0)
			85	D	50/3"	25	DS	17				VISUAL					A-1-a
400.7	Gray wet very dense fine to coarse SAND and GRAVEL with limestone cobbles and boulders.	93.0	90	D	50/6"	26	DS	22				VISUAL					A-1-a
	Interbedded gray moist soft SHALE and gray hard LIMESTONE. Shale is soft. Limestone is gray, hard, crystalline, fossiliferous, randomly fractured and occurs in horizontal layers ranging from ¼ inch to 3⅜		95		50/4"	27	DS	22									
393.7	inches in thickness. Approximately 92 percent shale and 8 percent limestone (bedrock). Recovery Ratio = 1.0, RQD = 0.32.	100.0	100			28	RC	100									
	Bottom of test boring at 100.0 feet. *Poor water return, water at 34.5 feet after rock core.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 493.7
Date Started 4-4-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 4-4-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 22.3 ft
AT COMPLETION 34.5 ft
AFTER ____ hrs. * ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 81+56, 3' Right
BORING # 209 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
491.7	GROUND SURFACE																
489.7	Mixed black moist medium dense FILL, cinders with fine to coarse sand and gravel and crushed limestone.	2.0		D	7/15/12	1	DS	72									
488.2	Mixed black moist medium stiff FILL, silty clay with cinders, trace fine to medium sand.	3.5		D	50/3"	2	DS	11									
483.7	Void noted from 3.5 to 8.0 feet.		5														
482.2	Mottled olive brown, trace black moist soft FILL, silty clay with limestone fragments, trace cinders.	8.0 9.5		I	50/6"	3	DS	13									
			10	I	4/8/9	4	DS	100						43	20	25.8	A-7-6 (13)
477.7	Mottled gray and olive brown moist stiff to medium stiff CLAY.	14.0				5	PT	62									
			15	U													
474.7	Mottled brown, trace gray moist very stiff CLAY.	17.0		I	4/6/10	6	DS	72						52	21	24.3	A-7-6 (15)
				I	5/7/13	7	DS	78				VISUAL				22.5	A-6b
			20	U		8	PT	87									
467.2	Mottled brown moist very stiff very SILTY CLAY with iron oxide stains.	24.5		I	10/14/25	9	DS	100				VISUAL				20.8	A-6b
463.7	Brown, trace gray moist very stiff SILT and CLAY.	28.0	25	I	7/8/10	10	DS	100						39	14	23.3	A-6a (10)
458.7	Brown moist medium stiff to stiff SILTY CLAY with iron oxide stains.	33.0	30	I	4/4/6	11	DS	100				VISUAL				24.1	A-6a
453.7	Mottled brown, some gray moist stiff SILTY CLAY with iron oxide stains, trace fine sand and gravel.	38.0	35	I	6/6/7	12	DS	100				VISUAL				19.7	A-6b
448.7	Brown moist stiff very SILTY CLAY, trace fine sand and gravel.	43.0	40	I	4/6/7	13	DS	72				VISUAL				22.6	A-6b
443.7	Mottled brown moist stiff to very stiff clayey fine to coarse SAND and fine GRAVEL.	48.0	45	I	7/8/8	14	DS	61	46	11	19	24		25	7	11.4	A-2-4 (4)
	Brown moist dense silty fine to coarse SAND, trace fine gravel.		50	D	8/21/24	15	DS	50	32	25	32	10					A-1-b (0)
438.7		53.0	55	D	10/23/27	16	DS	72	1	22	71	7					A-3 (0)
			60	D	19/22/28	17	DS	67				VISUAL					A-3
428.7	Brown wet dense silty fine SAND.	63.0	65	D	8/14/18	18	DS	78				VISUAL					A-3
			70	D	13/15/19	19	DS	72				VISUAL					A-3
			75	D	9/24/26	20	DS	78	11	14	67	8					A-3 (0)
413.7	Grayish brown wet dense fine to coarse SAND .	78.0															
410.2	Grayish brown wet dense silty fine, trace medium SAND with fine to coarse gravel and limestone cobbles.	81.5	80	I	10/16/20	21	DS	50									
	Bottom of test boring at 81.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 491.7
Date Started 4-12-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 4-12-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 8.0 ft
AT COMPLETION 35.0 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

8 / 17

98
136

LOG OF BORING

DATE STARTED 05/09/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 05/10/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-9 CORE BARREL: TYPE NQ SIZE 5.1cm I.D.
STATION & OFFSET EE 30+381.3m LT.

WATER ELEVATION:
IMMEDIATE 141.10m
COMPLETION 141.53m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 158.99m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	RUN	REC	ROD	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
158.99	0	0															
	2	0.6	2-3-5	BROWN SILT AND CLAY, TRACE SAND LENSES, TRACE ROOTS MOIST-MEDIUM STIFF	1					V	I	S	U	A	L		A-6a
	4	1.2	4-5-6		2					V	I	S	U	A	L	19	A-6a
	6	1.8	3-4-4		3					V	I	S	U	A	L		A-6a
156.61	8	2.4	2-3-4	BROWN SANDY SILT, TRACE SAND LENSES, TRACE CLAY, WET-LOOSE	4					V	I	S	U	A	L	22	A-4a
155.90	10	3.0	7-10-11	BROWN SILT AND CLAY, LITTLE LIMESTONE FRAGMENTS, LITTLE SAND, TRACE SHALE FRAGMENTS, MOIST-STIFF	5					V	I	S	U	A	L		A-6a
	12	3.6	7-18-18		6	14	7	5	37	37	21	13	19	A-6a(8)			
154.33	14	4.3	10-17-20	GRAY SILTY CLAY, LITTLE SAND, TRACE SHALE FRAGMENTS, TRACE LIMESTONE FRAGMENTS, MOIST-VERY STIFF	7					V	I	S	U	A	L		A-6b
	16	4.9	5-11-25		8					V	I	S	U	A	L	17	A-6b
	18	5.4	7-11-15		9					V	I	S	U	A	L		A-6b
	20	6.1	5-10-14														
	24	7.3	24-55		10					V	I	S	U	A	L	15	A-6b
149.84	28	8.5															
	30	9.0	33-30-16	GRAY SAND AND LIMESTONE FRAGMENTS, DRY-DENSE	11					V	I	S	U	A	L		A-1-b
145.84	32	9.8		GRAY SILTY CLAY, LITTLE SAND, LITTLE SHALE FRAGMENTS, LITTLE LIMESTONE FRAGMENTS, MOIST-VERY STIFF													
	34	10.4	9-20-33		12					V	I	S	U	A	L		A-6b
	36	11.0															
	38	11.6	19-28-41		13					V	I	S	U	A	L		A-6b
	40	12.2															
	46	14.0	28-11-20		14					V	I	S	U	A	L	13	A-6b
143.70	48	14.6															
	50	15.2	50/0	BROWN FINE SAND, TRACE SILT, MOIST-DENSE	15					V	I	S	U	A	L		A-3
141.68	52	15.8			16					V	I	S	U	A	L		A-3
	54	16.5	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, SOFT TO MEDIUM HARD OCCUPIES 40% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 9" LAYERS, OCCUPIES 60% OF MATRIX	C1	NQ	90%	0%									
	56	17.1	ROCK CORE														
	58	17.7															
139.14	60	18.3															
	62	18.9	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, MEDIUM HARD OCCUPIES 80% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 10" LAYERS, OCCUPIES 20% OF MATRIX													5
	64	19.5															
	66	20.1			C2	NQ	98%	50%									
	68	20.7	ROCK CORE	VERTICAL FRACTURE 73.9' TO 74.1' (22.52m TO 22.78m)													
	70	21.3															
	72	21.9			C3	NQ	98%	28%									3
	74	22.5	ROCK CORE														
133.90	76	23.1															
	78	23.7	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, SOFT TO MEDIUM HARD OCCUPIES 40% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 6" LAYERS, OCCUPIES 60% OF MATRIX													4
	80	24.4			C4	NQ	100%	70%									
	82	25.0	ROCK CORE	VERTICAL FRACTURE 80.2' TO 80.6' (20.57m TO 24.44m)													
	84	25.6															
	86	26.2	ROCK CORE														2
	88	26.8			C5	NQ	100%	97%									
127.81	102	31.0															

BORING COMPLETED @ 31.09m (102.0')

LOG OF BORING

DATE STARTED 05/21/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 05/21/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-10 CORE BARREL: TYPE NA SIZE 5.1cm I.D.
STATION & OFFSET EE 30+433.7m RT.

WATER ELEVATION:
IMMEDIATE 139.08m
COMPLETION NONE
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 152.8m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
152.80	0	0												
152.50				ASPHALTIC CONCRETE										
152.30	2	0.6	14-7-6	CONCRETE	1		V	I	S	U	A	L	.	A-6a
	4	1.2	8-5-5	BLUISH GRAY SILT AND CLAY, LITTLE SHALE AND LIMESTONE FRAGMENTS, TRACE FINE GRAVEL (FILL), MOIST-STIFF	2		V	I	S	U	A	L	24	A-6a
	6	1.8	4-5-5	-MOTTLED BROWN AND GRAY BELOW 5.5' (1.7m)	3		V	I	S	U	A	L		A-6a
	8	2.4	5-4-5		4		V	I	S	U	A	L		A-6a
149.80	10	3.0	4-4-6	BROWN SILT AND CLAY, LITTLE SAND, MOIST-MEDIUM STIFF	5		V	I	S	U	A	L	16	A-6a
149.99	12	3.7	4-5-5	BROWN SANDY SILT, SOME CLAY, TRACE FINE SAND LENSES, MOIST-MEDIUM DENSE	6		V	I	S	U	A	L		A-4a
	14	4.3	3-4-5		7	0	0	30	47	23	25	8	20	A-4a(7)
	16	4.9	4-3-4		8		V	I	S	U	A	L		A-4a
	18	5.5	3-3-4		9		V	I	S	U	A	L	22	A-4a
	20	6.1												
	22	6.7												
	24	7.3												
145.18	25	7.6	3-3-3	BROWN SILT AND CLAY, NOTED IRON OXIDE STAINS, VERY MOIST-MEDIUM STIFF	10		V	I	S	U	A	L		A-6a
	28	8.5	2-3-3		11		V	I	S	U	A	L	28	A-6a
	30	9.1												
	32	9.8												
	34	10.4												
142.13	36	11.0	7-10-5	GRAY SANDY SILT, LITTLE CLAY, TRACE SAND LENSES, VERY MOIST-MEDIUM STIFF	12		V	I	S	U	A	L		A-4a
	38	11.6												
	40	12.2	3-4-5		13		V	I	S	U	A	L	22	A-4a
	42	12.8												
139.08	44	13.4												
	46	14.0	3-5-9	BROWN SILT AND SAND, MOIST-MEDIUM DENSE	14		V	I	S	U	A	L		A-4a
	48	14.6												
	50	15.2	7-9-10		15		V	I	S	U	A	L		A-4a
	52	15.8												
136.03	54	16.4												
	56	17.0	5-8-13	BROWN COARSE AND FINE SAND, SOME FINE GRAVEL, TRACE SILT, MOIST-MEDIUM DENSE	16	0	24	67	5	4	-	-	-	A-3a(0)
	58	17.6												
134.35	60	18.2	15-16-16	BROWN SANDY SILT, TRACE SAND LENSES, MOIST-DENSE	17		V	I	S	U	A	L		A-4a
	62	18.9												
	64	19.5												
132.98	66	20.1	8-9-14	BROWN SAND AND GRAVEL, TRACE LIMESTONE FRAGMENTS, MOIST-MEDIUM DENSE	18		V	I	S	U	A	L		A-1-b
132.63	68	20.7		GRAY MODERATELY HARD SHALE, AND LIMESTONE LAYERS										
	70	21.3	120/5"		19		V	I	S	U	A	L		
	72	21.9												
129.73	74	22.5	200/3"		20		V	I	S	U	A	L		

BORING COMPLETED @ 23.01m. (75.5')

LOG OF BORING

DATE STARTED 5-14-99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 5-14-99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-11 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET EE 30+484.2m LT.

WATER ELEVATION:
IMMEDIATE 143.08m,140.03m
COMPLETION 140.03m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 150.7m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.70	0	0												
	2	0.6	5-4-4	CONCRETE	1		V	I	S	U	A	L		A-6a
	4	1.2	2-3-3	BASE (CRUSHED) BROWN SANDY SILT AND CLAY, TRACE RED BRICK FRAGMENTS, TRACE ORGANICS (FILL), MOIST-MEDIUM STIFF TO STIFF -GRAY BAND BELOW 3.0' (0.9m)	2		V	I	S	U	A	L	24	A-6a
149.18	6	1.8	5-4-5	BROWN SILT AND CLAY, TRACE FINE GRAVEL, TRACE SAND LENSES (FILL), MOIST-STIFF	3		V	I	S	U	A	L		A-6a
148.41	8	2.4	3-5-6	BROWN SILT AND CLAY, LITTLE SAND, MOIST-STIFF	4	0	0	13	40	47	34	15	21	A-6a(8)
	10	3.0	3-4-6		5		V	I	S	U	A	L		A-6a
146.89	12	3.7												
	14	4.3	3-4-5	BROWN SANDY SILT, LITTLE CLAY, NOTED CONCRETIONS, MOIST-STIFF	6		V	I	S	U	A	L	21	A-4a
	16	4.9	2-3-5		7		V	I	S	U	A	L		A-4a
145.36	18	5.5	4-4-4	BROWN SILT AND CLAY, TRACE SAND LENSES, MOIST-STIFF	8		V	I	S	U	A	L	23	A-6a
	20	6.1	3-4-5		9	0	2	13	48	39	32	14	23	A-6a(8)
	22	6.7												
	24	7.3												
	26	7.9	2-1-2											
	28	8.5												
141.60	30	9.1	4-5-6	BROWN SAND, LITTLE GRAVEL AND LIMESTONE FRAGMENTS, MOIST-MEDIUM DENSE	11		V	I	S	U	A	L	23	A-1-b
140.03	32	9.8												
	34	10.4												
	36	11.0	12-12-7	BROWN SAND AND GRAVEL, TRACE SILT, WET-MEDIUM DENSE	12		V	I	S	U	A	L		A-1-b
138.50	38	11.6												
	40	12.2	5-5-7	GRAY SILT AND CLAY, LITTLE SAND, VERY MOIST-MEDIUM DENSE	13		V	I	S	U	A	L	25	A-6a
136.98	42	12.8												
	44	13.4												
	46	14.0	10-17-21	BROWN SAND AND GRAVEL, TRACE SILT, TRACE ISOLATED CLAY POCKETS, WET-DENSE	14		V	I	S	U	A	L		A-1-b
	48	14.6												
135.50	50	15.2	7-14-15	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, WET-MEDIUM DENSE	15		V	I	S	U	A	L		A-3a
	52	15.8												
	54	16.4			16		V	I	S	U	A	L		A-3a
	56	17.0	11-12-15											
	58	17.6												
	60	18.2												
	62	18.9	8-13-18		17	0	18	71	6	8	--	--	--	A-3a(0)
	64	19.5												
	66	20.1	8-10-15		18		V	I	S	U	A	L		A-3a
	68	20.7												
	70	21.3												
	72	21.9	8-10-16		19		V	I	S	U	A	L		A-3a
	74	22.5												
	76	23.1	10-19-21		20		V	I	S	U	A	L		A-3a
	78	23.7												
126.40	80	24.4												
126.01				GRAY SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, WET-VERY DENSE	21		V	I	S	U	A	L		A-1-b

BORING COMPLETED @ 24.89m (81.0')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

LOG OF BORING

DATE STARTED 10/07/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 10/07/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-12 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET STA. EE 30+547, 2m LT.

WATER ELEVATION:
IMMEDIATE 136.78m
COMPLETION 138.92m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 150.50m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.50	0	0												
	2	0.6	2-4-5	BLACK SILTY CINDERS, SAND, COAL FRAGMENTS, BRICK FRAGMENTS, GRAVEL AND ROCK FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		A-1-b
	4	1.2												
	6	1.8	8-9-15		2		V	I	S	U	A	L		A-1-b
148.80	8	2.4		VOID										
148.10	8	2.4	18-2-3	GRAY SILT AND CLAY, TRACE SAND, TRACE ORGANICS (FILL), VERY MOIST-MEDIUM STIFF	3		V	I	S	U	A	L	25	A-6a
	10	3.0	2-3-5	-TRACE LIMESTONE FRAGMENTS BELOW 10.0 FT. (3.0m)	4		V	I	S	U	A	L		A-6a
146.89	12	3.7												
	14	4.3	4-5-6	GRAY CLAY, TRACE ORGANICS, MOIST-STIFF	5		V	I	S	U	A	L	26	A-7-6
145.80	16	4.9	4-5-7		6		V	I	S	U	A	L		A-7-6
	18	5.5												
	18	5.5	6-8-12		7		V	I	S	U	A	L		A-7-6
	20	6.1		BROWN CLAY, LITTLE CONCRETIONS, MOIST-VERY STIFF										
	22	6.7	7-9-14		8	0	1	5	35	58	49	26	25	A-7-6(16)
	24	7.3		-TRACE SAND LENSES AT 25.0 FT. (7.6m)										
	26	7.9	4-6-8		9		V	I	S	U	A	L		A-7-6
	28	8.5												
141.40	30	9.1												
	30	9.1	3-4-5	BROWN SILT AND CLAY, TRACE SAND LENSES, MOIST-STIFF	10		V	I	S	U	A	L	23	A-6a
139.80	32	9.8												
	34	10.4												
	36	11.0	2-2-3	GRAY SANDY SILT, TRACE CLAY, TRACE WET SAND LENSES, VERY MOIST-LOOSE	11		V	I	S	U	A	L	24	A-4a
138.30	38	11.6												
	40	12.2												
	42	12.8	3-4-7	GRAY SILT, TRACE CLAY, MOIST-MEDIUM DENSE	12		V	I	S	U	A	L		A-4b
136.90	44	13.4												
	46	14.0	2-3-4	GRAY AND BROWN SILT, LITTLE CLAY, TRACE WET CLAYEY SAND LENSES, VERY MOIST-LOOSE	13		V	I	S	U	A	L		A-4b
135.30	50	15.2												
	52	15.8	11-9-7	BROWN COARSE AND FINE SAND, SOME SILT AND CLAY, WET-MEDIUM DENSE	T4	1	4	2	29	23	–	–	–	A-3a(0)
133.80	54	16.5												
	56	17.1	9-16-19	BROWN COARSE SAND, LITTLE FINE GRAVEL, WET-DENSE	15		V	I	S	U	A	L		A-3a
	60	18.3	11-18-21		16		V	I	S	U	A	L		A-3a
130.70	64	19.5												
	66	20.1	14-25-23		17	3	12	60	16	16	9	–	–	A-3a(0)
	68	20.7												
	70	21.3												
	72	21.9	18-35-33	BROWN COARSE AND FINE SAND, LITTLE SILT, LITTLE CLAY, WET-VERY DENSE	18		V	I	S	U	A	L		A-3a
	74	22.5												
	78	23.7	18-36-28		19		V	I	S	U	A	L		A-3a
127.10														

BORING COMPLETED @ 23.3m (76.5')

LOG OF BORING

DATE STARTED 9/23/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 9/23/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-13 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET STA. EE 30+593, 6m RT.

WATER ELEVATION:
IMMEDIATE 139.73m
COMPLETION 140.65m
AFTER 24 HRS. 142.17m
SURFACE ELEVATION 150.40m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.40	0	0												
	2	0.6	8-12-19	BLACK CINDERS, SAND, GRAVEL AND COAL FRAGMENTS, (FILL), MOIST-LOOSE TO MEDIUM DENSE	1		V	I	S	U	A	L		A-1-b
	4	1.2												
	6	1.8	3-3-2		2		V	I	S	U	A	L		A-1-b
148.90	8	2.4												
	8	2.4	3-3-4	GRAY CLAY, LITTLE FINE GRAVEL AND CINDERS, (FILL), VERY MOIST-MEDIUM STIFF	3		V	I	S	U	A	L	33	A-7-6
148.11	8	2.4												
	10	3.0	2-2-4	BROWN AND GRAY SILTY CLAY, TRACE WET SILT LENSES, MOIST-MEDIUM STIFF	4		V	I	S	U	A	L	25	A-6b
147.40	10	3.0												
	12	3.7	3-3-4	BROWN SILTY CLAY, MOIST-STIFF TO VERY STIFF	5		V	I	S	U	A	L		A-6a
	14	4.3	4-5-8		6		V	I	S	U	A	L	23	A-6a
	16	4.9	6-8-11		7		V	I	S	U	A	L		A-6a
	18	5.5	5-7-9		8	0	0	15	45	40	35	18	21	A-6a(10)
144.30	20	6.1												
	22	6.7	3-3-4	BROWN SILT AND CLAY, VERY MOIST-MEDIUM STIFF	9		V	I	S	U	A	L		A-6a
142.80	24	7.3												
	26	7.9	2-3-4	BROWN SANDY SILT, TRACE SAND LENSES, TRACE CLAY, VERY MOIST-LOOSE	10		V	I	S	U	A	L	23	A-4a
141.30	30	9.1												
	32	9.8	2-2-3	BROWN SILT AND CLAY, TRACE SAND LENSES, VERY MOIST-MEDIUM STIFF	11		V	I	S	U	A	L	24	A-6a
139.70	34	10.4												
	38	11.6	3-3-3	GRAY SILT AND CLAY, TRACE SAND, WET-SOFT	12		V	I	S	U	A	L	29	A-6a
138.20	40	12.2												
	42	12.8	3-4-4	GRAY SILT AND CLAY, TRACE FINE GRAVEL, VERY MOIST-MEDIUM STIFF	13		V	I	S	U	A	L	25	A-6a
136.70	46	14.0	120/2"	BROWN SAND AND LIMESTONE FRAGMENTS, WET-DENSE	14		V	I	S	U	A	L		A-1-b
135.20	50	15.2	4-9-11	BROWN FINE TO MEDIUM SAND, TRACE SILT, TRACE CLAY, WET-MEDIUM DENSE	15	0	1	90	4	5	–	–	–	A-3a(0)
133.70	54	16.5	8-18-29	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, MOIST-DENSE	16		V	I	S	U	A	L		A-3a
132.20	60	18.3	14-25-32	BROWN FINE TO COARSE SAND AND GRAVEL, TRACE SILT, WET-VERY DENSE	17		V	I	S	U	A	L		A-1-b
130.60	68	20.7	17-28-11	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, WET-VERY DENSE	18		V	I	S	U	A	L		A-3a
129.10	72	21.9	28-34-44	BROWN MEDIUM TO COARSE SAND, TRACE FINE GRAVEL, MOIST-VERY DENSE	19	7	32	37	24	–	–	–	–	A-3a(0)
127.60	78	23.7	34-48-49	BROWN MEDIUM TO COARSE SAND, LITTLE FINE GRAVEL, TRACE SILT, WET-VERY DENSE	20		V	I	S	U	A	L		A-3a
	80	24.3												
125.60			25-48-62		21		V	I	S	U	A	L		A-3a

BORING COMPLETED @ 24.8m (81.5')

LOG OF BORING

DATE STARTED 9/28/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 9/28/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-14 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET STA. EE 30+681, 4m LT.

WATER ELEVATION:
IMMEDIATE 139.08m
COMPLETION 140.61m
AFTER 24 HRS. 142.43m
SURFACE ELEVATION 149.75m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
149.75	0	0												
	2	0.6	3-4-15	BLACK SILTY CINDERS, SAND AND SLAG, LITTLE COAL FRAGMENTS, (FILL) MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		A-1-b
148.69	4	1.2												
	4	1.2	3-5-5	BROWN AND GRAY COARSE AND FINE SAND, TRACE FINE GRAVEL, TRACE ASPHALTIC CONCRETE FRAGMENTS (FILL), MOIST-MEDIUM DENSE	2		V	I	S	U	A	L		A-3a
148.25	6	1.8	4-4-6	GRAY SILT AND CLAY, MOIST-STIFF	3		V	I	S	U	A	L	30	A-6a
147.46	8	2.4												
	10	3.0	4-5-6	BROWN AND GRAY SILTY CLAY, TRACE WET SALT LENSES, MOIST-VERY STIFF	4		V	I	S	U	A	L	24	A-6b
	12	3.7	3-5-9		5		V	I	S	U	A	L		A-6b
	14	4.3	5-7-10		6		V	I	S	U	A	L	22	A-6b
145.05	16	4.9	4-8-8	BROWN SILT AND CLAY, LITTLE SAND, VERY MOIST-MEDIUM STIFF	7		V	I	S	U	A	L		A-6a
	18	5.5			8		V	I	S	U	A	L		A-6a
	20	6.1	2-3-3											
	22	6.7	2-3-3		9	0	0	20	48	32	29	12	24	A-6a(8)
	24	7.3												
	26	7.9	3-3-8		10		V	I	S	U	A	L		A-6a
	28	8.5												
140.65	30	9.1												
	32	9.8	2-2-2	GRAY SILT AND CLAY, TRACE SAND, VERY MOIST-SOFT	11		V	I	S	U	A	L	27	A-6a
	34	10.4												
	36	11.0	1-1-2	-TRACE WET SAND LENSES AT 35' (10.7m)	12		V	I	S	U	A	L	30	A-6a
	38	11.6												
	40	12.2												
137.25	42	12.8	2-2-17		13		V	I	S	U	A	L	34	A-6a
	44	13.4		BROWN CLAYEY SAND AND GRAVEL, WET-MEDIUM DENSE	13A		V	I	S	U	A	L		A-2-6
136.05	46	14.0	35-13-12	BROWN SAND AND GRAVEL, LITTLE CLAY, WET-MEDIUM DENSE	14		V	I	S	U	A	L		A-1-b
134.55	50	15.2												
	52	15.8	9-18-18	BROWN COARSE AND FINE SAND, TRACE SILT, MOIST-DENSE	15	1	8	74	17	–				A-3a(0)
	54	16.4												
133.05	58	17.0	16-20-22	BROWNISH GRAY FINE TO COARSE GRAVEL, LITTLE FINE SAND, LITTLE SILT, TRACE CLAY LENSES, MOIST-DENSE	16		V	I	S	U	A	L		A-3a
	58	17.6												
131.55	60	18.2												
	62	18.9	28-42-50	BROWN SAND AND GRAVEL, SOME LIMESTONE FRAGMENTS, WET-VERY DENSE	17	51	20	20	9	–				A-1-a(0)
	64	19.5												
	68	20.7	52-89 50/0		18		V	I	S	U	A	L		A-1-a
	68	20.7												
128.45	70	21.3												
127.95			30-23-27	DARK BROWN SAND AND GRAVEL, TRACE SILT, WET-VERY DENSE	19		V	I	S	U	A	L		A-1-b

BORING COMPLETED @ 21.8m (71.5')

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BRIDGE NO. HAM-050-1875

HAM-50-18.79

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SINCE 1921
611 LUNKEN PARK DR. • P.O. BOX C • CINCINNATI, OH 45226-1675

W.O. 00093.914 — LOG OF BORING — WATER ELEVATION:

DATE STARTED 01/07/05 — SAMPLER: TYPE SPLIT SPOON — DIA. 2.0" O.D. — IMMEDIATE 2.0'

DATE COMPLETED 01/07/05 — CASING LENGTH: 5' HOLLOW STEM AUGER — DIA. 3.375" I.D. — COMPLETION 1.5'

BORING NUMBER SG-3 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET STA. 19+35, 5.0' LT.; LINE "US 50" — SURFACE ELEVATION 493.8'

ELEV FEET	DEPTH FT	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
493.8	0												
493.6			ASPHALT (2.5 INCHES)	1A	61	18	13	2	6	NP	NP	10	A-1-a(0)
493.3	2	30-15-8	CONCRETE (3.5 INCHES)	1B	–	–	–	–	–	–	–	–	VISUAL
492.1			DARK BROWN GRAVEL AND/OR STONE FRAGMENTS, SOME SAND, TRACE CLAY (FILL), MOIST-DENSE	2	6	8	15	24	47	27	8	22	A-4a(7)
491.8		4-3-4											
490.3	4		GRAY AND BROWN GRAVEL AND/OR STONE FRAGMENTS WITH SAND, LITTLE CLAY (FILL), MOIST-MEDIUM DENSE	3	–	–	–	–	–	–	–	–	VISUAL
488.8		6-8-9	BROWN AND GRAY SANDY SILT, AND CLAY, SOME SAND, TRACE GRAVEL (FILL), MOIST-MEDIUM STIFF										
			GRAY AND TRACE BROWN SILT AND CLAY, LITTLE SAND, MOIST-VERY STIFF										

BORING COMPLETED @ 5.0'

W.O. 00093.914 — LOG OF BORING — WATER ELEVATION:

DATE STARTED 01/10/05 — SAMPLER: TYPE SPLIT SPOON — DIA. 2.0" O.D. — IMMEDIATE NONE

DATE COMPLETED 01/10/05 — CASING LENGTH: 5' HOLLOW STEM AUGER — DIA. 3.375" I.D. — COMPLETION NONE

BORING NUMBER SG-4 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET STA. 25+20, 20' LT.; LINE "US 50" — SURFACE ELEVATION 492.2'

ELEV FEET	DEPTH FT	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
492.2	0												
490.2	2	10-11-10-11	DARK BROWN AND BLACK GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SOME SILT AND CLAY, LITTLE BRICK FRAGMENTS, TRACE ORGANICS (FILL), MOIST-MEDIUM DENSE	1	–	–	–	–	–	–	–	23	VISUAL
		8-7-7		2	5	10	23	26	36	22	5	14	A-4a(5)
487.7	4	5-6-5	BROWN SANDY SILT, AND CLAY, TRACE GRAVEL (FILL), MOIST-STIFF	3A	–	–	–	–	–	–	–	–	VISUAL
486.2			BROWN AND TRACE GRAY SILTY CLAY, TRACE SAND AND GRAVEL, MOIST-STIFF	3B	6	5	3	24	62	37	18	21	A-6b(11)

BORING COMPLETED @ 5.0'

LOG OF BORING — WATER ELEVATION:

DATE STARTED 10/05/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — IMMEDIATE 148.05m

DATE COMPLETED 10/06/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 144.25m

BORING NUMBER WA-17 — CORE BARREL: TYPE NA — SIZE NA — AFTER 24 HRS. 148.52m

STATION & OFFSET STA. WE 30+581, 2m RT. — SURFACE ELEVATION 150.35m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.35	0	0												
	2	.61	8-20-15	BLACK SILTY CINDERS, SLAG, COAL FRAGMENTS, SAND, GRAVEL AND BRICK FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1			V	I	S	U	A	L	A-1-b
	4	1.2	15-15-12	-TRACE CLAY AT 2.5 FT. (0.8m)	2			V	I	S	U	A	L	A-1-b
146.65	6	1.8	1-2-1	BROWN SILT AND CLAY, LITTLE FINE GRAVEL, LITTLE SAND (FILL), VERY MOIST-SOFT	3			V	I	S	U	A	L	A-6a
	8	2.4	1-2-1	-WET AT 7.5 FT. (2.3m)	4			V	I	S	U	A	L	31	A-6a
147.35	10	3.0	2-2-3		5			V	I	S	U	A	L		A-6b
	12	3.7	2-3-3	GRAY SILTY CLAY, TRACE SAND, MOIST-MEDIUM STIFF	6			V	I	S	U	A	L	27	A-6b
145.65	14	4.3													
145.45	18	4.6	2-2	GRAY AND BROWN CLAY, WET-VERY SOFT	7			V	I	S	U	A	L	39	A-7-6
	18	5.5	4-7-9		7A			V	I	S	U	A	L		A-7-6
	20	6.1			8			V	I	S	U	A	L		A-7-6
	22	6.7	5-8-11	BROWN AND GRAY CLAY, LITTLE IRON OXIDE STAINS, MOIST-STIFF	9			V	I	S	U	A	L		A-7-6
142.75	24	7.3													
	28	7.9	3-4-6		10			V	I	S	U	A	L	28	A-6a
	28	8.5													
	30	9.1		BROWN SILT AND CLAY, LITTLE IRON OXIDE STAINS, TRACE SAND, VERY MOIST-MEDIUM STIFF	11			V	I	S	U	A	L		A-6a
	32	9.8	2-4-5												
139.65	34	10.4													
	38	11.0	1-2-5		12			V	I	S	U	A	L		A-4a
	38	11.6													
	40	12.2		BROWN SANDY SILT, TRACE CLAY, TRACE WET SAND AND GRAVEL LENSES, WET-LOOSE											
	42	12.8	2-2-4		13			V	I	S	U	A	L		A-4a
	44	13.4													
136.65	46	14.0	5-10-50/.3		14			V	I	S	U	A	L		A-2-6
	48	14.6													
	50	15.2		BROWN CLAYEY SAND AND GRAVEL, WET-MEDIUM DENSE											
	52	15.9	8-9-8		15			V	I	S	U	A	L		A-2-6
133.65	54	16.5													
	56	17.0	15-13-16		16	6	20	56	-13-	–	–	–		A-3a(0)
	58	17.6													
	60	18.2		BROWN COARSE AND FINE SAND, LITTLE SILT AND CLAY, WET-MEDIUM DENSE											
	62	18.9	10-9-15		17			V	I	S	U	A	L		A-3a
130.55	64	19.5													
	66	20.1	16-24-28		18			V	I	S	U	A	L		A-1-b
	68	20.7		BROWN COARSE SAND, TRACE FINE GRAVEL, WET-DENSE											
129.05	70	21.3													
	72	21.9	19-20-22		19	0	8	84	8	4	–	–	–	A-3a(0)	
	74	22.5		BROWN COARSE AND FINE SAND, TRACE SILT AND CLAY, WET-DENSE											
127.55	76	23.1	11-28-55	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, WET-VERY DENSE	20			V	I	S	U	A	L		A-3a
127.05				BORING COMPLETED @ 23.3M (76.5')											

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BRIDGE NO. HAM-050-1875

HAM-50-18.79

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LOG OF BORING

DATE STARTED 9/23/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 144.35m

DATE COMPLETED 9/24/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 138.73m

BORING NUMBER WA-18 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET STA. WE 30+645 8m RT. — SURFACE ELEVATION 150.45m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.45	0	0												
	2	.6	5-7-12	BLACK CINDERS, SAND, SILT, GRAVEL, AND COAL FRAGMENTS (FILL), MOIST–MEDIUM DENSE	1		V	I	S	U	A	L		A-2-6
148.69	4	1.2	3-5-6	BROWN SANDY SILT, SOME CLAY, LITTLE FINE GRAVEL, TRACE CINDERS (FILL), MOIST–MEDIUM DENSE	2		V	I	S	U	A	L	14	A-4a
148.95	6	1.8	1-1-2	DARK GRAY SILT AND CLAY, TRACE CINDERS AND FINE GRAVEL (FILL), VERY MOIST–VERY SOFT	3		V	1	S	U	A	L	90	A-6a
	8	2.4	2-2-3		4		V	1	S	U	A	L	39	A-6a
147.45	10	3.0												
	12	3.7	2-3-5	BROWN AND SILTY CLAY, TRACE SAND, TRACE SILT LENSES, MOIST–STIFF	5		V	I	S	U	A	L		A-6b
	14	4.3	SHELBY TUBE		ST	0	1	5	47	47	39	19	24	A-6b(12)
	16	4.9	3-5-9		7		V	1	S	U	A	L	22	A-6b
145.17	18	5.5												
	20	6.1	3-2-4	BROWN SANDY SILT, LITTLE CLAY, WET–LOOSE	8		V	1	S	U	A	L		A-4a
	22	6.7	2-2-3		9		V	1	S	U	A	L	23	A-4a
142.85	24	7.3												
	26	7.9	3-4-3	BROWN SILT AND CLAY, NOTED ORGANICS, VERY MOIST–MEDIUM STIFF	10		V	1	S	U	A	L		A-6a
141.35	28	8.5												
	30	9.1	2-2-3	GRAY SILT AND CLAY, NOTED ORGANICS, VERY MOIST–SOFT	11	0	0	5	59	36	34	15	29	A-6a(8)
	32	9.8												
	34	10.4	SHELBY TUBE		ST		V	1	S	U	A	L		A-6a
	36	11.0	2-2-2		13		V	1	S	U	A	L		A-6a
138.25	38	11.6												
	40	12.2	27-33-45	BROWN SAND, GRAVEL AND LIMESTONE FRAGMENTS, LITTLE SILT, LITTLE CLAY, MOIST–VERY DENSE	14		V	1	S	U	A	L		A-1-b
136.75	42	12.8												
	44	13.4												
	46	14.0	13-15-20	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, WET–DENSE	15		V	1	S	U	A	L		A-1-b
135.25	48	14.6												
	50	15.2												
	52	15.8	9-12-14	BROWN COARSE AND FINE SAND, WET–MEDIUM DENSE	16	0	1	84	12	3	–	–	–	A-3a(0)
	54	16.4												
	56	17.0	8-14-14		17		V	1	S	U	A	L		A-3a
132.25	58	17.6												
	60	18.2												
	62	18.9	9-12-13	BROWN COARSE AND FINE SAND, WET–MEDIUM DENSE	18		V	1	S	U	A	L		A-3a
130.65	64	19.5												
	66	20.1	35-38-54	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, TRACE SILT, WET–VERY DENSE	19		V	1	S	U	A	L		A-1-b
	68	20.7												
	70	21.3												
128.65			38-40-30		20		V	1	S	U	A	L		A-1-b

BORING COMPLETED @ 21.8m (71.5')

LOG OF BORING

DATE STARTED 9/24/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 135.83m

DATE COMPLETED 9/24/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 138.68m

BORING NUMBER EW-2 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET STA. EE 30+720 2m RT. — SURFACE ELEVATION 149.65m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
149.65	0	0												
	2	.6	6-8-5	BROWN AND BLACK SILTY CINDERS AND SAND, TRACE ORGANICS (FILL), MOIST–MEDIUM DENSE	1		V	I	S	U	A	L		A-1-b
148.69	4	1.2	9-7-8	BROWN SANDY SILT, TRACE SILT LENSES (FILL), MOIST–MEDIUM DENSE	2		V	I	S	U	A	L		A-4a
148.15	6	1.8	9-2-2	GRAY SILT AND CLAY, TRACE ORGANICS (FILL), MOIST–SOFT	3		V	I	S	U	A	L	28	A-6a
147.36	8	2.4	4-3-3	BROWN AND GRAY SILT AND CLAY, TRACE WET SILT SEAMS MOIST–MEDIUM STIFF	4		V	I	S	U	A	L		A-6a
	10	3.0			5		V	I	S	U	A	L	28	A-6a
145.84	12	3.7	4-3-2											
	14	4.3	5-7-11	BROWN SILT AND CLAY, TRACE CONCRETIONS, MOIST–VERY STIFF	6		V	I	S	U	A	L		A-6a
144.95	16	4.9	3-7-9	BROWN SILTY CLAY, TRACE SILT SEAMS, MOIST–VERY STIFF	7		V	1	S	U	A	L	22	A-6b
144.31	18	5.5	5-4-5	BROWN SILT AND CLAY, TRACE SAND, VERY MOIST–MEDIUM STIFF	8		V	1	S	U	A	L		A-6a
	20	6.1			9		V	1	S	U	A	L	24	A-6a
	22	6.7	2-2-4											
	24	7.3												
	26	7.9	3-3-3		10		V	1	S	U	A	L		A-6a
	28	8.5												
	30	9.1												
	32	9.8	2-2-2		11		V	1	S	U	A	L	28	A-6a
139.55	34	10.4		GRAY SILT AND CLAY, TRACE SAND LENSES, VERY MOIST–MEDIUM STIFF										
	36	11.0	1-2-3		12		V	1	S	U	A	L	29	A-6a
	38	11.6												
137.45	40	12.2												
	42	12.8	11-15-18	BROWN SILT AND CLAY, SOME SAND, SOME GRAVEL, TRACE LIMESTONE FRAGMENTS, VERY MOIST–STIFF	13		V	1	S	U	A	L		A-6a
	44	13.4												
135.95	46	14.0	7-15-14	BROWN SAND AND GRAVEL, LITTLE SILT, WET–MEDIUM DENSE	14	56	25	8	11	–	–	–	–	A-1-a(0)
	48	14.6												
	50	15.2												
	52	15.8	9-13-14		15		V	1	S	U	A	L		A-1-a
	54	16.4												
132.95	56	17.0	10-15-15	BROWN COARSE AND FINE SAND, TRACE CLAY LENSES, WET–MEDIUM DENSE	18		V	1	S	U	A	L		A-3a
	58	17.6												
131.45	60	18.2												
	62	18.9	55-51-72	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, TRACE SILT, WET–VERY DENSE	17		V	1	S	U	A	L		A-1-a
	64	19.5												
	66	20.1	43-45-25		18	65	9	17	9	–	–	–	–	A-1-a(0)
	68	20.7												
128.35	70	21.3												
	72	21.9	15-25-33	BROWN SAND AND GRAVEL, TRACE SILT, WET–VERY DENSE	19		V	1	S	U	A	L		A-1-b
	74	22.5												
	76	23.1												
	78	23.7												
	80	24.3												
124.85														

BORING COMPLETED @ 24.8m (81.5')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **112** SAMPLE NUMBER : **7B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist stiff SILTY CLAY** DEPTH (FT.): **15.4** to **15.9**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **08/06/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0429
VOLUME (cu. ft.)	0.0200
WET WEIGHT (lbs.)	2.59
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**107.3**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	r2d2
WET WEIGHT + CAN (lbs.)	2.93
DRY WEIGHT + CAN (lbs.)	2.48
WEIGHT WATER (lbs.)	0.44
WEIGHT CAN (lbs.)	0.35
WEIGHT SOLID (lbs.)	2.14
MOISTURE (%)	**20.8**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0429	0
20	35.0	35.0	0.4	0.0430	814
40	58.0	58.0	0.7	0.0432	1343
60	71.0	71.0	1.1	0.0433	1639
80	88.0	88.0	1.4	0.0435	2024
100	97.0	97.0	1.8	0.0436	2222
200	126.0	126.0	3.6	0.0445	2834
300	146.0	146.0	5.4	0.0453	3223
400	160.0	160.0	7.2	0.0462	3466
500	170.0	170.0	8.9	0.0471	3611
600	180.0	180.0	10.7	0.0480	3749
700	187.0	187.0	12.5	0.0490	3816
720	190.0	190.0	12.9	0.0492	3862
765	193.0	193.0	13.7	0.0497	3886
840	195.0	195.0	15.0	0.0504	3866

AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	13.7
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,890
SHEAR STRENGTH (psf)	1945

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parson Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **123** SAMPLE NUMBER : **RC-1** DEPTH (FT.): **72.0** to **72.5**
SAMPLE DESCRIPTION :

SAMPLE OBTAINED BY : **ROCK CORE** CONDITION **UNDISTURBED** DATE : **07/07/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	1.98
HEIGHT (in.)	5.16
HEIGHT TO DIAMETER RATIO	2.61
AVERAGE AREA (sq. ft.)	0.0213
VOLUME (cu. ft.)	0.0091
WET WEIGHT (lbs.)	1.54
DRY WEIGHT (lbs.)	1.53
DRY DENSITY (pcf)	**167.9**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	Z-10
WET WEIGHT + CAN (lbs.)	1.72
DRY WEIGHT + CAN (lbs.)	1.72
WEIGHT WATER (lbs.)	0.00
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	1.29
MOISTURE (%)	**0.2**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0213	0
10	210.0	210.0	0.2	0.0213	9856
20	1913.0	1913.0	0.4	0.0213	89606
30	9180.0	9180.0	0.6	0.0214	429159
40	17750.0	17750.0	0.8	0.0214	828182
50	27160.0	27160.0	1.0	0.0215	1264758
60	36516.0	36516.0	1.2	0.0215	1697109
70	44700.0	44700.0	1.4	0.0216	2073391
77	47470.0	47470.0	1.5	0.0216	2198846
77	47470.0	47470.0	1.5	0.0216	2198846
77	47470.0	47470.0	1.5	0.0216	2198846
77	47470.0	47470.0	1.5	0.0216	2198846
77	47470.0	47470.0	1.5	0.0216	2198846
77	47470.0	47470.0	1.5	0.0216	2198846
77	47470.0	47470.0	1.5	0.0216	2198846

AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	1.5
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,198,846
SHEAR STRENGTH (psf)	1099423

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **204** SAMPLE NUMBER : **5A** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, some gray moist stiff SILTY CLAY** DEPTH (FT.): **10.2** to **10.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **08/12/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.84
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0439
VOLUME (cu. ft.)	0.0204
WET WEIGHT (lbs.)	2.65
DRY WEIGHT (lbs.)	2.17
DRY DENSITY (pcf)	**106.1**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	z13
WET WEIGHT + CAN (lbs.)	3.07
DRY WEIGHT + CAN (lbs.)	2.59
WEIGHT WATER (lbs.)	0.48
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	2.16
MOISTURE (%)	**22.3**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0439	0
20	27.0	27.0	0.4	0.0441	612
40	40.0	40.0	0.7	0.0443	904
60	58.0	58.0	1.1	0.0444	1306
80	68.0	68.0	1.4	0.0446	1525
100	77.0	77.0	1.8	0.0447	1721
200	104.0	104.0	3.6	0.0456	2282
300	122.0	122.0	5.4	0.0464	2627
400	135.0	135.0	7.2	0.0473	2852
440	139.0	139.0	7.9	0.0477	2914
470	140.0	140.0	8.4	0.0480	2918
520	145.0	145.0	9.3	0.0485	2992
650	144.0	144.0	11.6	0.0497	2895
690	143.0	143.0	12.4	0.0501	2852
720	142.0	142.0	12.9	0.0505	2815

AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	9.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,990
SHEAR STRENGTH (psf)	1495

REMARKS :

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT : Replacement of Waldvogel Viaduct
LOCATION : Cincinnati, Ohio

PROJECT NUMBER : 051008NE
BORING NUMBER : 204 SAMPLE NUMBER : 10A LAB NUMBER :
SAMPLE DESCRIPTION : Mottled brown, trace gray moist stiff SILTY CLAY DEPTH (FT.): 25.2 to 25.7

SAMPLE OBTAINED BY : SHELBY TUBE CONDITION UNTRIMMED DATE : 06/12/06

NATURAL UNIT WEIGHT

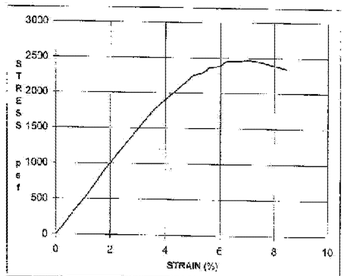
AVERAGE DIAMETER (in.)	2.78
HEIGHT (in.)	5.56
HEIGHT TO DIAMETER RATIO	2.00
AVERAGE AREA (sq. ft.)	0.0421
VOLUME (cu. ft.)	0.0195
WET WEIGHT (lbs.)	2.02
DRY WEIGHT (lbs.)	2.05
DRY DENSITY (pcf)	104.9

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	z2
WET WEIGHT + CAN (lbs.)	2.93
DRY WEIGHT + CAN (lbs.)	2.47
WEIGHT WATER (lbs.)	0.47
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.04
MOISTURE (%)	22.8
LOAD CELL NUMBER	CELL

DEFORM DIAL	LOAD DIAL	LOAD	STRAIN	CORR AREA	STRESS
0.001 IN.		LBS	%	SQ. FT.	PSF
0	0	0	0	0.0421	0
20	7.0	7.0	0.4	0.0423	166
40	15.0	15.0	0.7	0.0424	353
60	22.0	22.0	1.1	0.0426	516
80	30.0	30.0	1.4	0.0428	702
100	39.0	39.0	1.8	0.0429	909
200	77.0	77.0	3.6	0.0437	1762
260	100.0	100.0	5.0	0.0444	2254
300	102.0	102.0	5.4	0.0445	2290
310	105.0	105.0	5.6	0.0446	2353
335	107.0	107.0	6.0	0.0448	2388
345	110.0	110.0	6.2	0.0448	2448
395	112.0	112.0	7.1	0.0454	2468
420	111.0	111.0	7.6	0.0456	2435
470	108.0	108.0	8.5	0.0460	2347



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	7.1
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,470
SHEAR STRENGTH (psf)	1235

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT : Replacement of Waldvogel Viaduct
LOCATION : Cincinnati, Ohio

PROJECT NUMBER : 051008NE
BORING NUMBER : 205 SAMPLE NUMBER : 7A LAB NUMBER :
SAMPLE DESCRIPTION : Mottled brown, trace gray moist very stiff SILTY CLAY with iron oxide stains DEPTH (FT.): 17.7 to 18.2

SAMPLE OBTAINED BY : SHELBY TUBE CONDITION UNTRIMMED DATE : 06/14/06

NATURAL UNIT WEIGHT

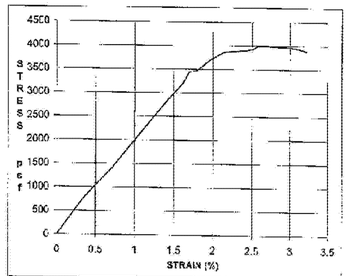
AVERAGE DIAMETER (in.)	2.86
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0445
VOLUME (cu. ft.)	0.0207
WET WEIGHT (lbs.)	2.89
DRY WEIGHT (lbs.)	2.22
DRY DENSITY (pcf)	107.2

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	z3
WET WEIGHT + CAN (lbs.)	3.11
DRY WEIGHT + CAN (lbs.)	2.65
WEIGHT WATER (lbs.)	0.47
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.22
MOISTURE (%)	21.0
LOAD CELL NUMBER	CELL

DEFORM DIAL	LOAD DIAL	LOAD	STRAIN	CORR AREA	STRESS
0.001 IN.		LBS	%	SQ. FT.	PSF
0	0	0	0	0.0445	0
20	35.0	35.0	0.4	0.0447	783
40	63.0	63.0	0.7	0.0449	1405
60	96.0	96.0	1.1	0.0450	2133
80	129.0	129.0	1.4	0.0452	2855
90	144.0	144.0	1.6	0.0453	3182
95	156.0	156.0	1.7	0.0453	3443
100	157.0	157.0	1.8	0.0453	3462
110	168.0	168.0	2.0	0.0454	3699
120	176.0	176.0	2.1	0.0455	3867
130	177.0	177.0	2.3	0.0456	3882
140	179.0	179.0	2.5	0.0457	3919
145	183.0	183.0	2.6	0.0457	4003
170	182.0	182.0	3.0	0.0459	3963
180	179.0	179.0	3.2	0.0460	3890



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	2.6
UNCONFINED COMPRESSIVE STRENGTH (psf)	4,000
SHEAR STRENGTH (psf)	2000

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT : Replacement of Waldvogel Viaduct
LOCATION : Cincinnati, Ohio

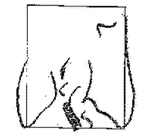
PROJECT NUMBER : 051008NE
BORING NUMBER : 205 SAMPLE NUMBER : 12A LAB NUMBER :
SAMPLE DESCRIPTION : Brown and gray moist stiff SILTY CLAY DEPTH (FT.): 40.2 to 40.7

SAMPLE OBTAINED BY : SHELBY TUBE CONDITION UNTRIMMED DATE : 06/14/06

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	5.56
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0436
VOLUME (cu. ft.)	0.0202
WET WEIGHT (lbs.)	2.56
DRY WEIGHT (lbs.)	2.06
DRY DENSITY (pcf)	102.0

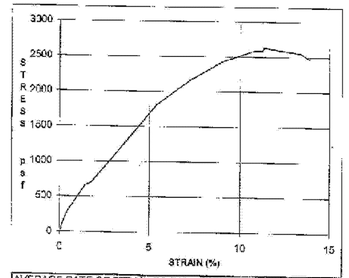
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	z10
WET WEIGHT + CAN (lbs.)	2.96
DRY WEIGHT + CAN (lbs.)	2.47
WEIGHT WATER (lbs.)	0.50
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	2.04
MOISTURE (%)	24.4
LOAD CELL NUMBER	CELL

DEFORM DIAL	LOAD CELL	LOAD	STRAIN	CORR AREA	STRESS
0.001 IN.		LBS	%	SQ. FT.	PSF
0	0	0	0	0.0435	0
20	11.0	11.0	0.4	0.0437	252
40	17.0	17.0	0.7	0.0438	388
60	23.0	23.0	1.1	0.0440	523
80	29.0	29.0	1.4	0.0441	657
100	31.0	31.0	1.8	0.0443	700
200	56.0	56.0	3.6	0.0451	1241
300	83.0	83.0	5.4	0.0460	1805
400	101.0	101.0	7.2	0.0469	2154
500	116.0	116.0	9.0	0.0478	2426
600	126.0	126.0	10.8	0.0488	2583
625	127.0	127.0	11.2	0.0490	2591
630	129.0	129.0	11.3	0.0491	2629
745	128.0	128.0	13.4	0.0502	2548
770	125.0	125.0	13.9	0.0506	2475



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	11.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,630
SHEAR STRENGTH (psf)	1315

REMARKS

SOIL PROFILE - SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1875

DRAWN KPR
CHECKED ATS

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

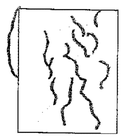
PROJECT NUMBER : **051008NE**
BORING NUMBER : **206** SAMPLE NUMBER : **7a** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown and gray moist stiff SILTY CLAY** DEPTH (FT.): **15.2** to **15.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.85
HEIGHT (in.)	5.62
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0443
VOLUME (cu. ft.)	0.0207
WET WEIGHT (lbs.)	2.69
DRY WEIGHT (lbs.)	2.24
DRY DENSITY (pcf)	**108.2**

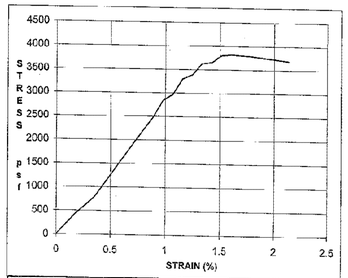
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	KY-18
WET WEIGHT + CAN (lbs.)	3.12
DRY WEIGHT + CAN (lbs.)	2.68
WEIGHT WATER (lbs.)	0.45
WEIGHT CAN (lbs.)	0.44
WEIGHT SOLID (lbs.)	2.24
MOISTURE (%)	**20.0**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0443	0
10	19.0	19.0	0.2	0.0444	428
20	35.0	35.0	0.4	0.0445	787
40	86.0	86.0	0.7	0.0446	1927
50	111.0	111.0	0.9	0.0447	2482
55	127.0	127.0	1.0	0.0448	2838
60	133.0	133.0	1.1	0.0448	2969
65	148.0	148.0	1.2	0.0448	3301
70	152.0	152.0	1.2	0.0449	3387
75	163.0	163.0	1.3	0.0449	3629
80	164.0	164.0	1.4	0.0450	3648
85	171.0	171.0	1.5	0.0450	3800
90	172.0	172.0	1.6	0.0450	3819
100	171.0	171.0	1.8	0.0451	3790
120	167.0	167.0	2.1	0.0453	3688



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	1.6
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,820
SHEAR STRENGTH (psf)	1910

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **206** SAMPLE NUMBER : **9B** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist medium stiff SILTY CLAY** DEPTH (FT.): **21.0** to **21.5**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

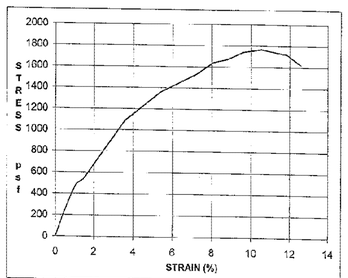
AVERAGE DIAMETER (in.)	2.79
HEIGHT (in.)	5.57
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0426
VOLUME (cu. ft.)	0.0197
WET WEIGHT (lbs.)	2.62
DRY WEIGHT (lbs.)	2.17
DRY DENSITY (pcf)	**110.1**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	b4
WET WEIGHT + CAN (lbs.)	3.03
DRY WEIGHT + CAN (lbs.)	2.59
WEIGHT WATER (lbs.)	0.44
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.16
MOISTURE (%)	**20.6**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0426	0
20	8.0	8.0	0.4	0.0427	187
40	15.0	15.0	0.7	0.0429	350
60	21.0	21.0	1.1	0.0430	488
80	23.0	23.0	1.4	0.0432	533
100	27.0	27.0	1.8	0.0433	623
200	48.0	48.0	3.6	0.0441	1087
300	61.0	61.0	5.4	0.0450	1356
400	70.0	70.0	7.2	0.0459	1527
450	76.0	76.0	8.1	0.0463	1641
490	78.0	78.0	8.8	0.0467	1671
535	82.0	82.0	9.6	0.0471	1741
585	84.0	84.0	10.5	0.0476	1766
660	83.0	83.0	11.9	0.0483	1719
700	79.0	79.0	12.6	0.0487	1623



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	10.5
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,770
SHEAR STRENGTH (psf)	885

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

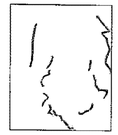
PROJECT NUMBER : **051008NE**
BORING NUMBER : **206** SAMPLE NUMBER : **5A** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown and gray moist stiff SILTY CLAY** DEPTH (FT.): **10.2** to **10.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/14/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.98
AVERAGE AREA (sq. ft.)	0.0436
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.67
DRY WEIGHT (lbs.)	2.24
DRY DENSITY (pcf)	**110.6**

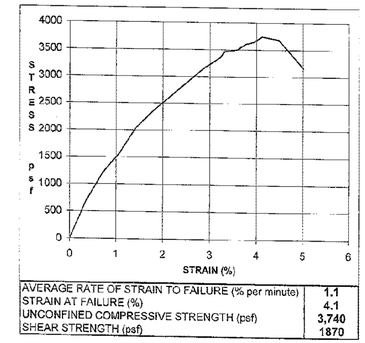
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	oh-7
WET WEIGHT + CAN (lbs.)	3.15
DRY WEIGHT + CAN (lbs.)	2.73
WEIGHT WATER (lbs.)	0.43
WEIGHT CAN (lbs.)	0.49
WEIGHT SOLID (lbs.)	2.24
MOISTURE (%)	**19.0**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0436	0
20	30.0	30.0	0.4	0.0437	686
40	53.0	53.0	0.7	0.0439	1208
60	69.0	69.0	1.1	0.0440	1567
80	90.0	90.0	1.4	0.0442	2036
100	104.0	104.0	1.8	0.0444	2344
160	141.0	141.0	2.9	0.0449	3143
180	151.0	151.0	3.2	0.0450	3354
185	156.0	156.0	3.3	0.0451	3462
200	158.0	158.0	3.6	0.0452	3496
210	163.0	163.0	3.8	0.0453	3600
220	165.0	165.0	3.9	0.0454	3638
230	170.0	170.0	4.1	0.0454	3741
250	168.0	168.0	4.5	0.0456	3683
280	145.0	145.0	5.0	0.0459	3161



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	4.1
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,740
SHEAR STRENGTH (psf)	1870

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

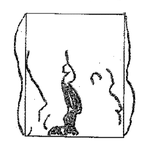
PROJECT NUMBER : **051008NE**
BORING NUMBER : **206** SAMPLE NUMBER : **11A** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist medium stiff SILTY CLAY with fine to coarse sand and gravel** DEPTH (FT.): **25.4** to **25.9**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.86
HEIGHT (in.)	5.54
HEIGHT TO DIAMETER RATIO	1.94
AVERAGE AREA (sq. ft.)	0.0447
VOLUME (cu. ft.)	0.0206
WET WEIGHT (lbs.)	2.80
DRY WEIGHT (lbs.)	2.38
DRY DENSITY (pcf)	**115.4**

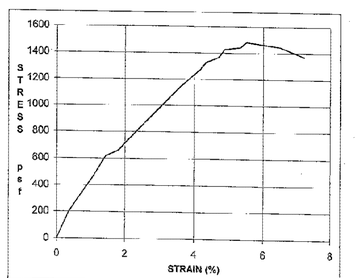
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	oh5
WET WEIGHT + CAN (lbs.)	3.27
DRY WEIGHT + CAN (lbs.)	2.85
WEIGHT WATER (lbs.)	0.42
WEIGHT CAN (lbs.)	0.48
WEIGHT SOLID (lbs.)	2.37
MOISTURE (%)	**17.6**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0447	0
20	9.0	9.0	0.4	0.0448	201
40	15.0	15.0	0.7	0.0450	333
60	21.0	21.0	1.1	0.0451	465
80	28.0	28.0	1.4	0.0453	618
100	30.0	30.0	1.8	0.0455	660
200	53.0	53.0	3.6	0.0463	1144
230	59.0	59.0	4.2	0.0466	1266
240	62.0	62.0	4.3	0.0467	1328
260	64.0	64.0	4.7	0.0469	1366
270	67.0	67.0	4.9	0.0469	1427
295	68.0	68.0	5.3	0.0472	1442
305	70.0	70.0	5.5	0.0473	1481
350	69.0	69.0	6.5	0.0478	1445
400	66.0	66.0	7.2	0.0481	1371



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	5.5
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,480
SHEAR STRENGTH (psf)	740

REMARKS :

DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

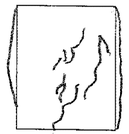
PROJECT NUMBER : **051008NE**
BORING NUMBER : **206** SAMPLE NUMBER : **13A** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist medium stiff very SILTY CLAY to clayey silt** DEPTH (FT.): **30.2** to **30.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.74
HEIGHT (in.)	5.55
HEIGHT TO DIAMETER RATIO	2.03
AVERAGE AREA (sq. ft.)	0.0408
VOLUME (cu. ft.)	0.0186
WET WEIGHT (lbs.)	2.69
DRY WEIGHT (lbs.)	2.23
DRY DENSITY (pcf)	**118.5**

FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	np-5
WET WEIGHT + CAN (lbs.)	3.05
DRY WEIGHT + CAN (lbs.)	2.61
WEIGHT WATER (lbs.)	0.44
WEIGHT CAN (lbs.)	0.44
WEIGHT SOLID (lbs.)	2.17
MOISTURE (%)	**20.2**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0408	0
20	6.0	6.0	0.4	0.0409	147
40	8.0	8.0	0.7	0.0411	195
60	14.0	14.0	1.1	0.0412	340
80	19.0	19.0	1.4	0.0414	459
100	25.0	25.0	1.8	0.0415	602
200	51.0	51.0	3.6	0.0423	1205
260	70.0	70.0	4.7	0.0428	1636
285	72.0	72.0	5.1	0.0430	1675
300	75.0	75.0	5.4	0.0431	1740
320	78.0	78.0	5.8	0.0433	1802
325	79.0	79.0	5.9	0.0433	1824
350	80.0	80.0	6.3	0.0435	1838
355	82.0	82.0	6.4	0.0436	1882
415	81.0	81.0	7.5	0.0441	1838

AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	6.4
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,880
SHEAR STRENGTH (psf)	940

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **209** SAMPLE NUMBER : **5B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled gray to olive brown moist medium stiff SIILTY CLAY** DEPTH (FT.): **13.2** to **13.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.85
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0442
VOLUME (cu. ft.)	0.0206
WET WEIGHT (lbs.)	2.58
DRY WEIGHT (lbs.)	2.05
DRY DENSITY (pcf)	**99.6**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	X2X
WET WEIGHT + CAN (lbs.)	3.06
DRY WEIGHT + CAN (lbs.)	2.53
WEIGHT WATER (lbs.)	0.53
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	2.03
MOISTURE (%)	**26.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0442	0
20	14.0	14.0	0.4	0.0444	315
40	21.0	21.0	0.7	0.0445	471
60	27.0	27.0	1.1	0.0447	604
80	33.0	33.0	1.4	0.0449	736
100	35.0	35.0	1.8	0.0450	777
200	48.0	48.0	3.6	0.0459	1047
300	53.0	53.0	5.4	0.0467	1134
400	68.0	68.0	7.2	0.0476	1427
500	74.0	74.0	9.0	0.0486	1523
600	79.0	79.0	10.8	0.0495	1594
700	85.0	85.0	12.5	0.0506	1681
740	87.0	87.0	13.3	0.0510	1706
800	90.0	90.0	14.3	0.0516	1745
837	90.0	90.0	15.0	0.0520	1730

AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	14.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,740
SHEAR STRENGTH (psf)	870

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

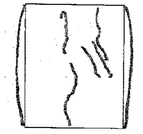
PROJECT NUMBER : **051008NE**
BORING NUMBER : **209** SAMPLE NUMBER : **8A** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist very stiff SILTY CLAY with iron oxide stains** DEPTH (FT.): **20.2** to **20.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0428
VOLUME (cu. ft.)	0.0199
WET WEIGHT (lbs.)	2.63
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**107.6**

FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	np-4
WET WEIGHT + CAN (lbs.)	3.05
DRY WEIGHT + CAN (lbs.)	2.57
WEIGHT WATER (lbs.)	0.48
WEIGHT CAN (lbs.)	0.44
WEIGHT SOLID (lbs.)	2.13
MOISTURE (%)	**22.8**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0428	0
20	45.0	45.0	0.4	0.0430	1048
40	79.0	79.0	0.7	0.0431	1832
60	98.0	98.0	1.1	0.0433	2265
80	108.0	108.0	1.4	0.0434	2487
100	117.0	117.0	1.8	0.0436	2684
200	152.0	152.0	3.6	0.0444	3424
300	179.0	179.0	5.4	0.0452	3957
400	203.0	203.0	7.2	0.0461	4403
500	224.0	224.0	9.0	0.0470	4764
600	239.0	239.0	10.7	0.0480	4983
700	252.0	252.0	12.5	0.0489	5149
800	263.0	263.0	14.3	0.0500	5264
820	265.0	265.0	14.7	0.0502	5282
837	267.0	267.0	15.0	0.0504	5302

AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	15.0
UNCONFINED COMPRESSIVE STRENGTH (psf)	5,300
SHEAR STRENGTH (psf)	2650

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1875

HAM-50-18.79

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106
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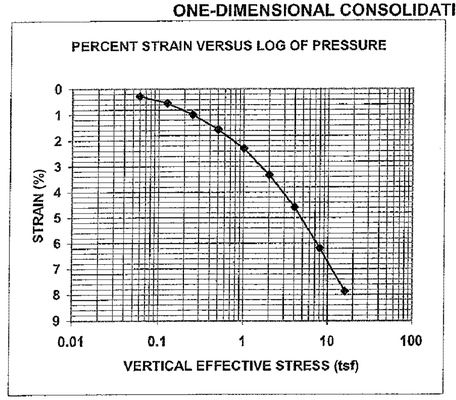
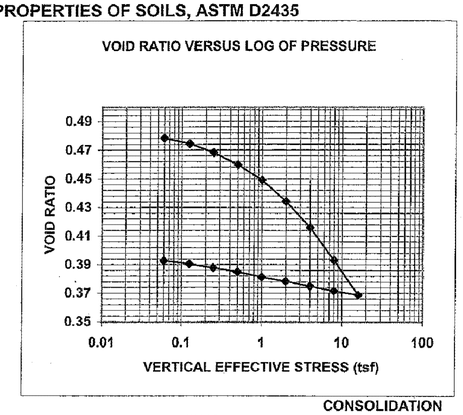
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

	INITIAL	FINAL
WATER CONTENT (%)	16.1	14.9
DRY UNIT WEIGHT (pcf)	112.1	118.3
VOID RATIO	0.4823	0.3952
SATURATION (%)	88.6	100.0

CONSOLIDATION PROPERTIES	
P_c (tsf)	1
P_o (tsf)	1.5
C_c	0.097
C_r	0.009

SAMPLE DESCRIPTION	Brown sliightly wet soft to medium stiff SILTY CLAY with fine to coarse sand and gravel							
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION	SPECIFIC GRAVITY
								2.66

CLIENT	Parsons Brinckerhoff Quade, Doglas, Inc.			BORING NUMBER	206
PROJECT	Replacement of Waldvogel Viaduct, Cincinnati, Ohio			SAMPLE NUMBER	11c
PROJECT NUMBER	051008NE	DATE	6/30/06	DEPTH (feet)	26.2-26.5

DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1875

HAM-50-18.79

PROJECT DESCRIPTION

THE COMPLETE PROJECT CONSISTS OF THE REPLACEMENT OF THE EXISITING WALDVOGEL (6TH STREET) VIADUCT CONNECTING RIVER ROAD (US 50) TO THE ELBERON AND WARSAW AVENUES IN CININCINNATI, OHIO. THE NEW ALIGNMENT WILL ENDEAVOR TO RELOCATE A SUBSTANTIAL AMOUNT OF THE CURRENT ELEVATED ROADWAY ON-GRADE. BRIDGE HAM-050-1881 WILL REPLACE THE RAMP CONNECTING EASTBOUND WARSAW AVENUE TO US. 50

HISTORIC RECORDS

THE CURRENT WALDVOGEL VIADUCT WAS CONSTRUCTED IN 1949. SUBSEQUENT EXPLORATIONS WERE PERFORMED BY THE H.C. NUTTING COMPANY FOR THE CITY OF CINCINNATI IN REPORTS PREPARED IN 1951 AND 1989. ADDITIONAL REPORTS FOR PREVIOUS REPLACEMENT DESIGNS WERE PUBLISHED IN 1990, 1991, 1996, 1998, AND 1999. HISTORIC BORINGS FROM THE 1999 EXPLORATIONS ARE PRESENTED ON THE SOIL PROFILES. (SEE "AVAILABLE INFORMATION" BELOW)

GEOLOGY

THE PROJECT SITE IS LOCATED AT THE TRANSITION BETWEEN THE DEEP ALLUVIAL OHIO RIVER BASIN TO THE EAST AND THE COLLUVIAL AND BEDROCK SLOPES OF THE LOWER PRICE HILL TO THE WEST. THE UNDERLYING BEDROCK CONSISTS OF THE KOPE FORMATION OF INTERBEDDED SHALE AND LIMESTONE.

RECONNAISSANCE

THE SITE PROPOSED FOR THE ROADWAY AND BRIDGE REPLACEMENTS CURRENTLY CONSIST OF A STEEP WESTERN HILLSIDE (LOWER PRICE HILL) DESCENDING TO A BROAD ALLUVIAL PLAIN. ELEVATION DIFFERENTIAL ON THE HILLSIDE IS APPROXIMATELY 65 FEET, DESCENDING TO THE EASTERN PLANE. ACROSS THE ALLUVIAL PLAIN, THE GROUND SURFACE IS RELATIVELY LEVEL AT APPROXIMATELY EL. 490 (MSL). THE WESTERN PORTION OF THE SITE IS AN AREA OF LONG STANDING RESIDENTIAL DEVELOPMENT, TRANSITIONING TO COMMERCIAL / INDUSTRIAL USE OVER THE LEVEL PLAINS. SEVERAL RETAINING STRUCTURES ARE LOCATED ALONG STATE AVENUE TO ACCOMODATE THE STREETS. SIDEHILL CUTS AND FILLS WERE MADE TO ESTABLISH ROADWAYS ALONG THE WESTERN HILLSIDE.

SUBSURFACE EXPLORATION

THE TEST BORINGS WERE PERFORMED WITH TRACK AND TRUCK MOUNTED DRILL RIGS ADVANCING HOLLOW - STEM AUGERS. SAMPLING WAS PERFORMED WITH AN AUTOMATIC HAMMER ON CME MODEL 55 ANND 450 RIGS. STANDARD SPLIT SPOON SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1586. SAMPLES WERE GENERALLY OBTAINED AT A 2.5 FT INTERVAL. AT SELECTED LOCATIONS, THIN WALLED SHELBY TUBE SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1587.

EXPLORATION FINDINGS

THE SHALLOW SUBSURFACE PROFILE CONSISTS OF A SURFICIAL LAYER OF RANDOM FILL. BELOW THE FILL IS A CRUST OF STIFF LEAN SILTY CLAY WHICH GENERALLY CLASSIFIES AS A-7-6 AND 6A. THE CRUST TYPICALLY EXTENDS APPROXIMATELY 20 FEET FROM THE GROUND SURFACE. THE ALLUVIUM BECOMES SILTIER AND LESS STIFF WITH DEPTH, CLASSIFYING A-4-6 TO A-6B TO APPROXIMATELY 40 FEET. BELOW APPROXIMATELY 40 FEET, THE ALLUVIUM TRANSITIONS TO GRANULAR OUTWASH DEPOSITS, MEDIUM DENSE TO DENSE SAND AND SAND AND GRAVEL. GRANULAR SOILS ARE TYPICALLY WELL GRADED AND MEDIUM DENSE TO VERY DENSE. STATIC GROUNDWATER WAS TYPICALLY ENCOUNTERED AT THE CONTACT BETWEEN THE ALLUVIAL SOILS AND THE OUTWASH SOILS. NATIVE BEDROCK, INTERBEDDED SHALE AND LIMESTONE, WAS ENCOUNTERED BETWEEN 70 AND IN EXCESS OF 100 FEET FROM THE GROUND SURFACE. THE PROFILE AT THE WESTERN PORTION OF THESITE ADJACENT TO THE WESTERN TERMINI OF THE ELBERON AND WARSAW AVENUE RAMPS, TRANSITIONS TO DEEP, RANDOMLY DEPOSITED COLLUVIAL SOILS WITH INTERBEDDED GRANULAR SEAMS OVERLYING GRANULAR SOILS AT THE TOE OF THE SLOPE. THE SOILS OVERLIE A SLOPING BEDROCK SURFACE OF INTERBEDDED SHALE AND LIMESTONE BEDROCK.

SPECIFICATIONS

ALLBORINGS WERE PERFORMED IN ACCORDANCE WITH ODOT SSI (1996). DRAWINGS WERE PREPARED IN ACCORDANCE WITH ODOT SGE (2007).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK DATA THAT CAN BE CONVENIENTLY SHOWN ON THE PROFILE SHEETS HAS BEEN REPORTED. PREVIOUS SUBSURFACE INVESTIGATIONS AND SOIL AND BEDROCK TESTS WERE PERFORMED IN 1952, 1989, 1990, 1991, 1996 AND 1999. COPIES OF THIS AND OTHER AVAIALABLE DATA MAY BE INSPECTED AT THE DEPUTY DIRECTOR'S OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OHIO, AT THE OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8 AND AT THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION & ENGINEERING. SOIL AND ROCK CORE SAMPLES MAY BE REVIEWED AT THELEN ASSOCIATES, INC., 1780 CARILLON BLVD., CINCINNATI, OHIO

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	4	0
GRAVEL AND/OR STONE FRAGMENTSWITH SAND	A-1-b	8	9
FINE SAND	A-3	9	8
COARSE AND FINE SAND	A-3a	4	9
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4 A-2-5	4	0
SILT	A-4b	13	15
SILT AND CLAY	A-6a	10	20
SILTY CLAY	A-6b	7	32
CLAY	A-7-6	7	5
UNCONTROLLED FILL			VISUAL
WEATHERED INTERBEDDED SHALE AND LIMESTONE			VISUAL
INTERBEDDED SHALE AND LIMESTONE			VISUAL
PAVEMENT OR BASE			VISUAL

EXPLORATION LOCATION-PLAN VIEW

HISTORIC BORING LOCATION-PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

ST INDICATES A SHELBY TUBE SAMPLE

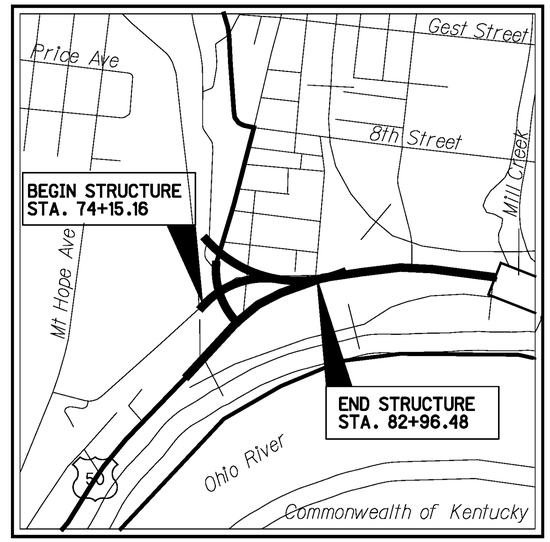
—W INDICATES FREE WATER ELEVATION

INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

INDICATES PLASTIC MATERIAL WITH A HIGH WATER CONTENT

WC INDICATES WATER CONTENT IN PERCENT

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES



LOCATION MAP
SCALE IN MILES

0 1 2

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL

Boring No.	Sample No.	Sample Depth, ft.	Unconfined Compressive Strength, psf	Dry Density, pcf	Moisture Content, %	Shear Strength, psf
112	7B	15.4-15.9	3,890	107.3	20.8	1,945
207	RC-1	85.0-85.5	61,600	146.7	5.0	30,800
207	RC-2	91.0-91.5	41,500	143.0	4.9	20,800
209	5B	13.2-13.7	1,740	99.6	26.1	870
209	8A	20.2-20.7	5,300	107.6	22.8	2,650
210	5	10.2-10.7	1,990	106.7	21.3	995
210	9	20.2-20.7	1,290	102.9	23.6	645
212	9A	20.2-20.7	1,380	106.4	20.1	690
219	5	10.0-10.5	910	100.6	22.3	955
219	7	15.5-15.8	980	96.5	27.3	490
219	10	23.5-24.0	1,450	95.9	29.0	725
219	12	28.0-28.5	1,020	95.6	28.7	510

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Sample Location			Confining		Drained	Angle of Internal
Boring No.	Sample No.	Sample Depth, Ft.	Pressure, Pc psi	Pressure, Pc psf	Cohesion, C psf	Friction ϕ degrees
112	11A	30.2-30.7	26.0	3,744	771	21.0

ONE-DIMENSIONAL CONCOLIDATION PROPERTIES

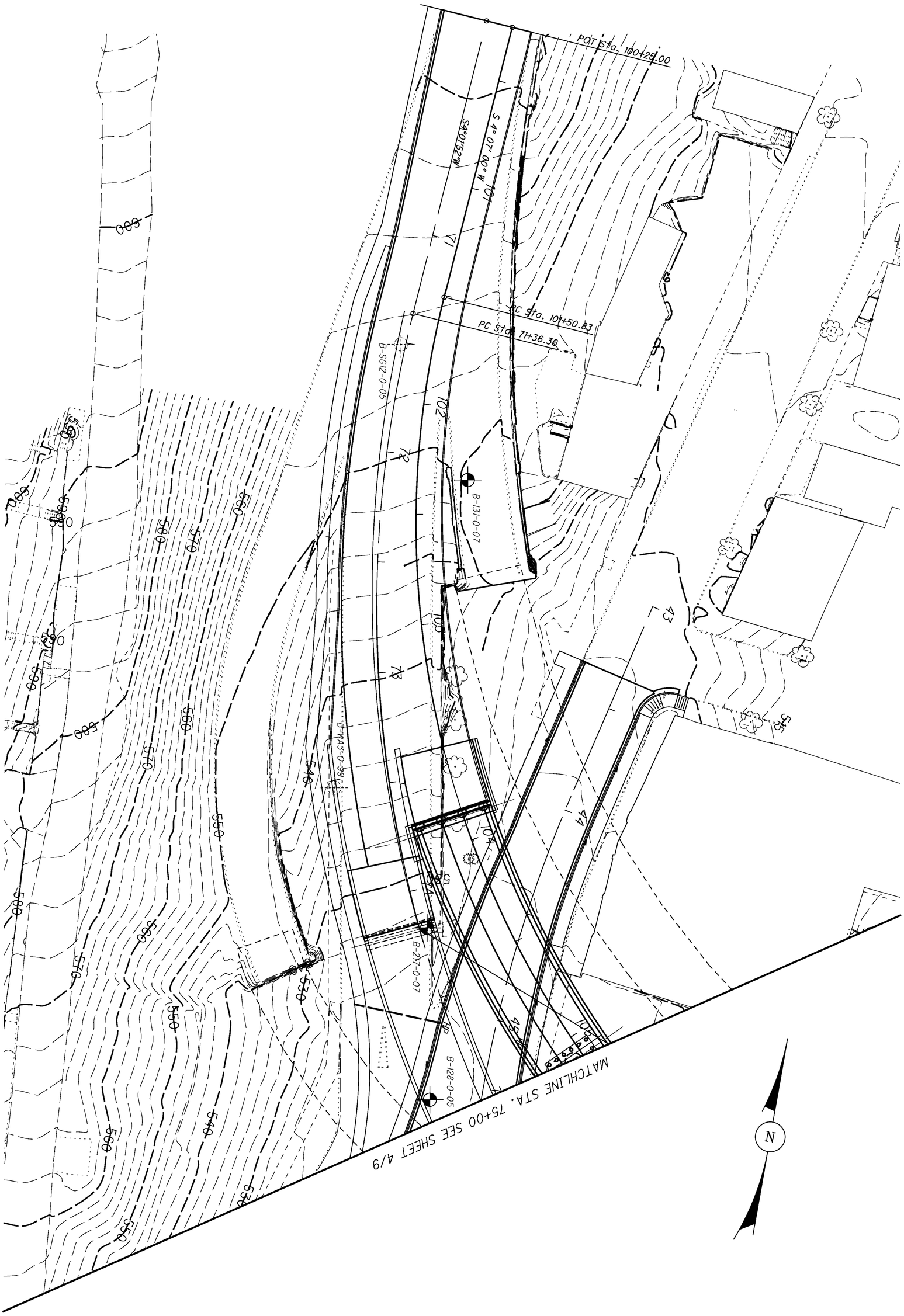
Sample Location			Pre-Consolidation Pressure P_c tsf	Overburden Pressure, P_o tsf	Initial Void Ratio, e_o	Compression Index, C_c	Recompression Index, C_r
Boring No.	Sample No.	Sample Depth ft.					
112	7A	15.2-15.4	1.20	0.90	0.6698	0.165	0.024
210	5	10.7-10.9	2.1	0.65	0.6895	0.158	0.021
210	9	20.7-21.2	1.5	1.4	0.7307	0.166	0.018
219	7	15.5-15.8	1.9	1.00	0.6883	0.151	0.011
219	12	28.5-28.8	2.0	1.70	0.7860	0.185	0.017

RECON. - ATS 2/6 - 2/10/06
DRILLING - GB 2/13 - 4/21/06, 6/20 - 6/21/07
DRILLING - LW 3/22 - 4/25/06, 6/20-6/26/07
DRAWN - MS 5/20/06 - 7/31/07
DRAWN - KPR 10/4/07 - 6/11/10
REVIEWED - ATS 6/12/10

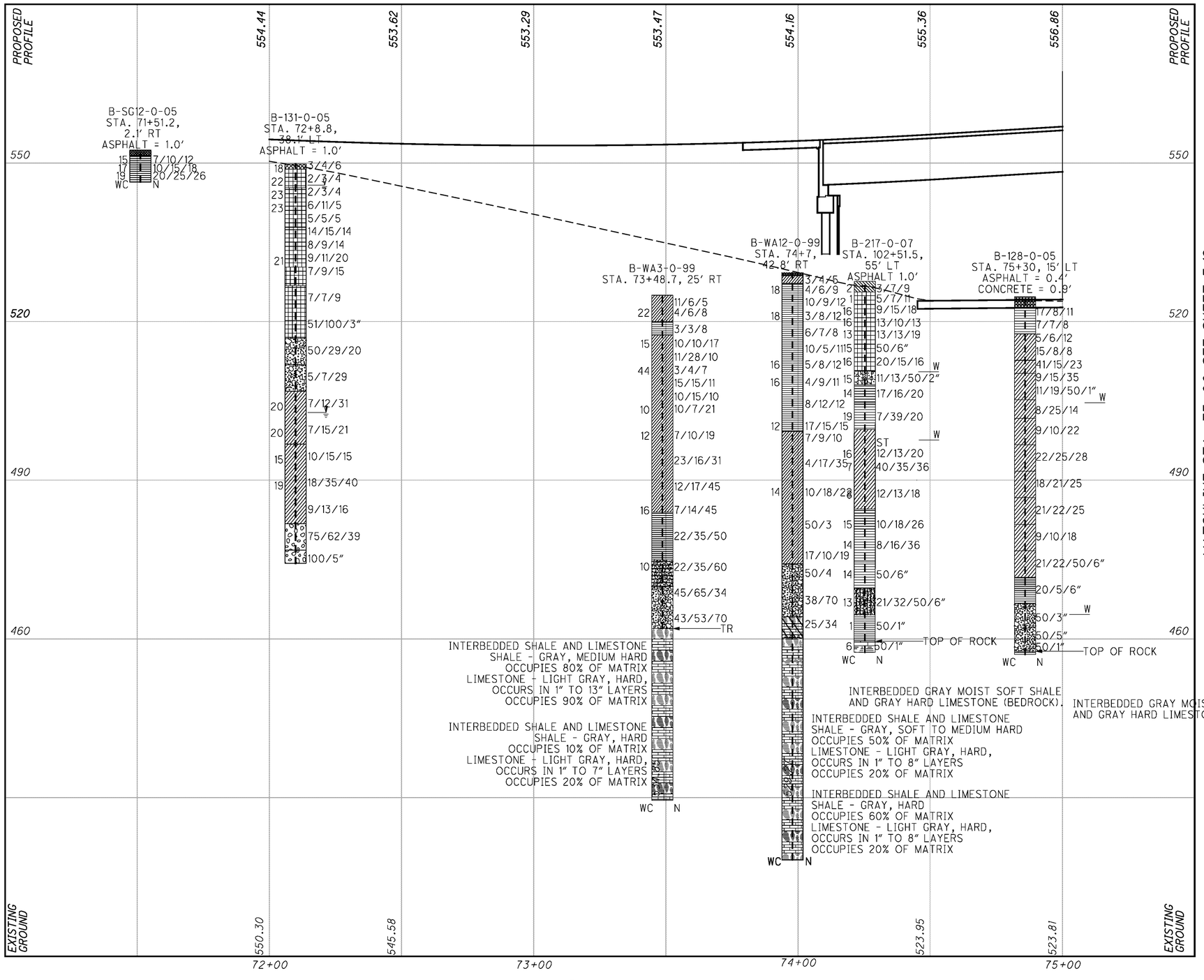
THELEN ASSOCIATES, INC.
Established • Testing Engineers
1780 Carillon Blvd / Cincinnati, Ohio 45240 / 513-562-2000
1199 Bethel Road / Columbus, Ohio 43220 / 614-451-2000

PID NO. 20082

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1881
HAM-50-18.79



109 / 136	2 / 21	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-050-1881	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG ℄ EB WARSAW AVE. RAMP

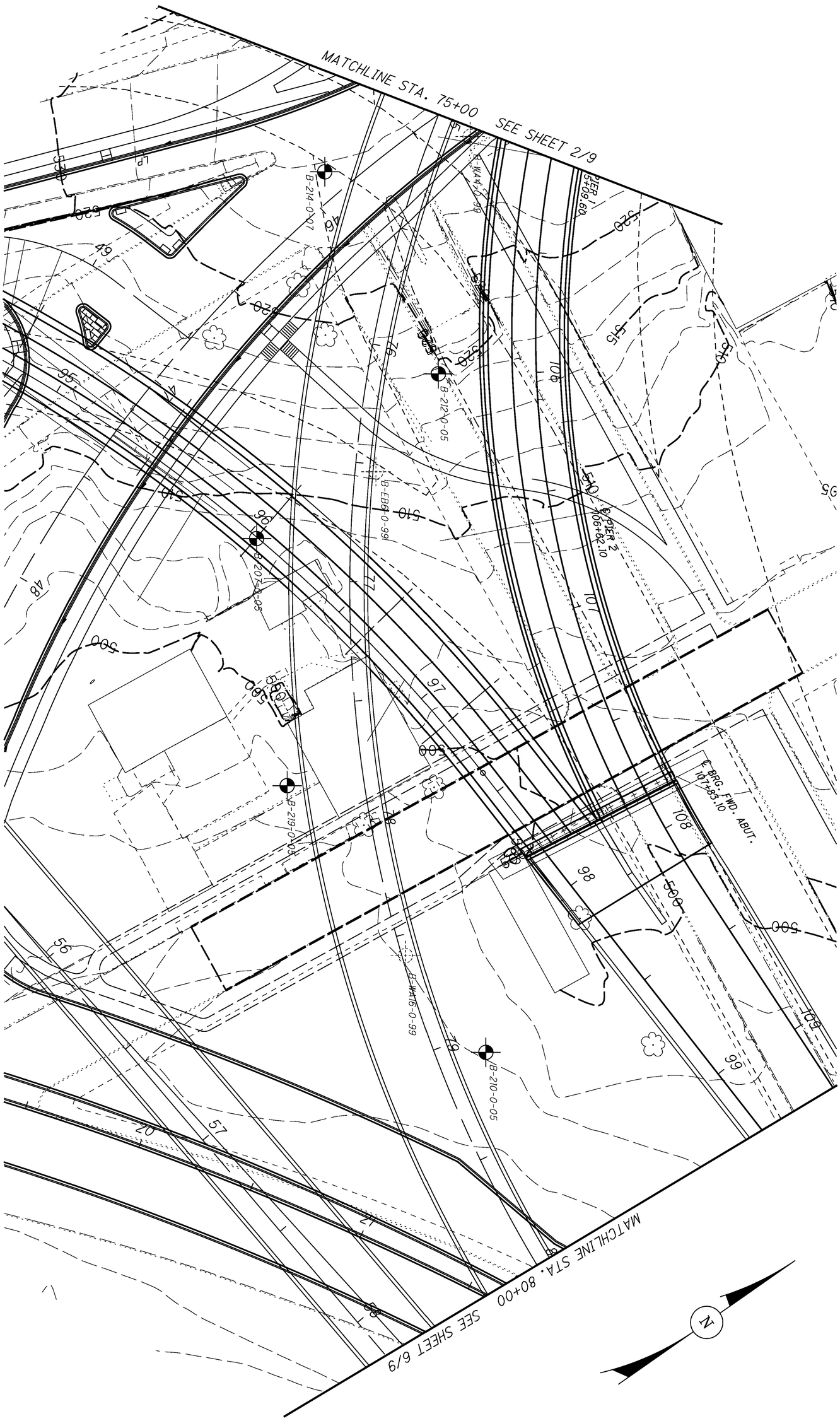
SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN KPR
CHECKED ATS

FOUNDATION EXPLORATION
STRUCTURE FOR BRIDGE NO. HAM-050-1881

HAM-50-18.79



111 / 136	4 / 21	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-050-0881	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET

PROPOSED PROFILE

556.86 | 558.37 | 559.87 | 560.95 | 561.17 | 560.53 | 559.03 | 556.66 | 553.43 | 549.40 | 545.18

580 / 550 / 520 / 490 / 460 / 430

B-WA4-0-99
STA. 75+3.9, 15.6' LT

B-214-0-07
STA. 75+37, 18' RT
TOPSOIL = 0.2'

B-212-0-05
STA. 106+7, 42.5' RT
CONCRETE = 1.0'

B-207-0-05
STA. 96+4.5, 8' RT

B-EB6-0-99
STA. 76+53.1,
8.7' LT

B-219-0-05
STA. 7+00, 58' LT
TOPSOIL = 0.3'

B-WA16-0-99
STA. 78+58.8,
1.4' LT

B-210-0-05
STA. 79+75, 24' LT
TOPSOIL 0.1'

MATCHLINE STA. 75+00 SEE SHEET 3/9

MATCHLINE STA. 80+00 SEE SHEET 7/9

TOP OF ROCK

INTERBEDDED SHALE AND LIMESTONE
SHALE - DARK GRAY, SOFT TO MEDIUM HARD OCCUPIES 60% OF MATRIX
LIMESTONE - LIGHT GRAY, HARD, OCCURS IN 1" TO 4" LAYERS OCCUPIES 40% OF MATRIX

INTERBEDDED SHALE AND LIMESTONE
SHALE - DARK GRAY, HARD OCCUPIES 90% OF MATRIX
LIMESTONE - LIGHT GRAY, HARD, OCCURS IN 1" TO 5" LAYERS OCCUPIES 10% OF MATRIX

INTERBEDDED GRAY MOIST SOFT WEATHERD SHALE AND GRAY HARD LIMESTONE (BEDROCK).

INTERBEDDED GRAY MOIST SOFT SHALE AND LIMESTONE. SHALE IS SOFT, LIMESTONE IS GRAY, HARD, CRYSTALLINE, FOSSILFEROUS, RANDOMLY FRACTURED AND OCCURS IN HORIZONTAL LAYERS RANGING FROM ½ INCH TO 2 ½ INCHES IN THICKNESS. APPROXIMATELY 96 PERCENT SHALE AND 4 PERCENT LIMESTONE (BEDROCK). RECOVERY RATIO = 0.92, RQD = 0.40

GRAY MOIST HARD LIMESTONE FLOATERS AND BOULDERS

EXISTING GROUND

523.81 | 517.54 | 512.58 | 497.11 | 496.29 | 493.67 | 492.49

75+00 | 76+00 | 77+00 | 78+00 | 79+00 | 80+00

PROFILE ALONG ℄ EB WARSAW AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

HORIZONTAL SCALE IN FEET
0 10 20 40

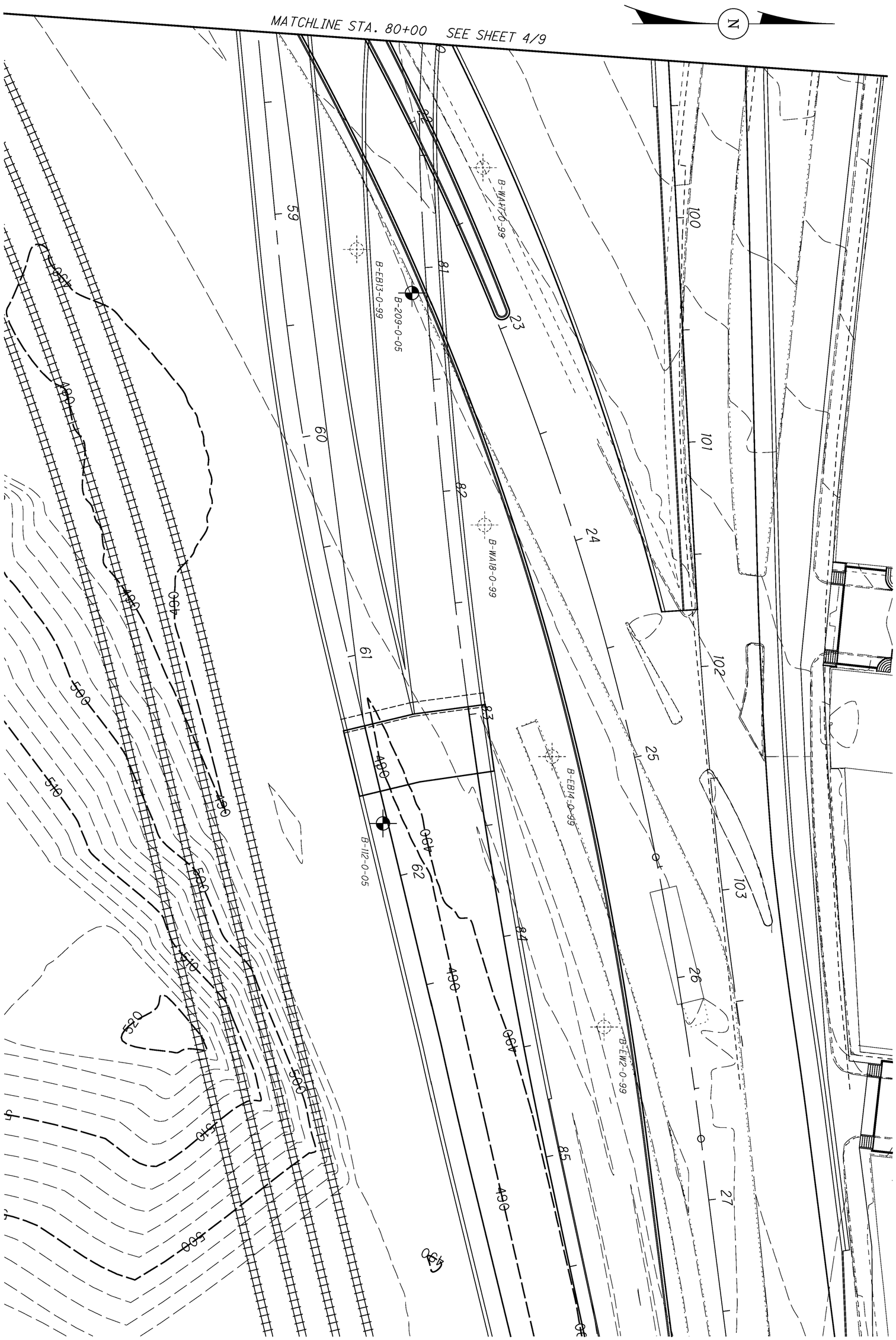
DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-0881

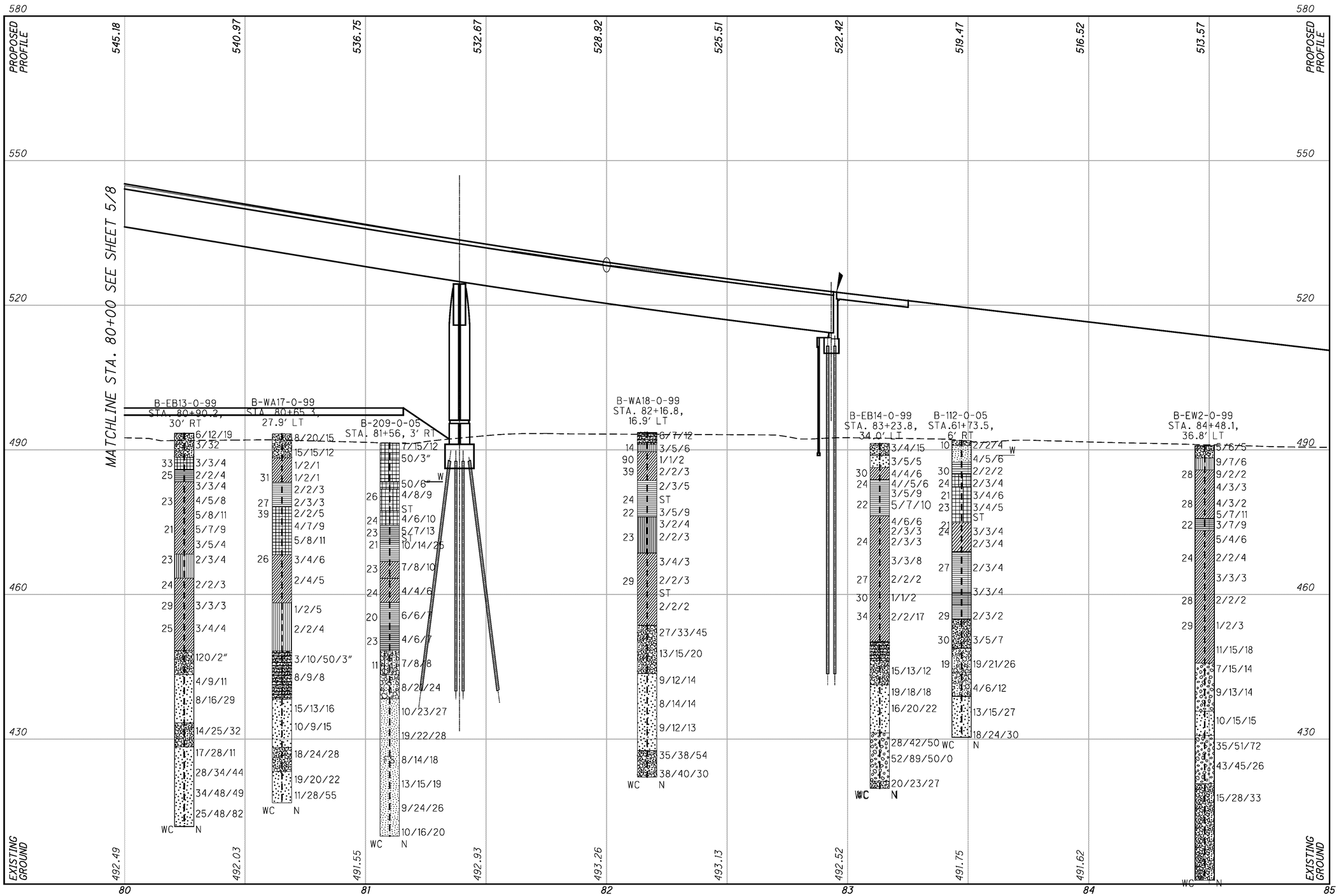
HAM-50-18.79

5 / 21

112 / 136



113 / 136	6 / 21	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-050-1881	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG ℄ EB WARSAW AVE. RAMP

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1881

HAM-50-18.79

7 / 21

114
136

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING: Station 61+73.5, 6' Right
BORING # 112 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
490.2	GROUND SURFACE																
489.2	Black moist loose FILL, sand and cinders.	1.0		D	2/2/4	1A 1B	DS	100	42	12	27	18				9.7	A-1-b
485.7	Brown moist to wet medium dense FILL, silty fine to coarse sand.	4.5		I	4/5/6	2	DS	100	37	11	30	21					A-3
483.2	Dark gray moist medium stiff FILL, silty clay with gravel.	7.0	5	I	2/2/2	3	DS	100	0	4	7	44	44	40	16	29.5	A-6b (10)
480.7	Mottled brown, trace gray moist stiff CLAY.	9.5		I	2/3/4	4	DS	100						43	21	23.7	A-7-6 (13)
			10	I	3/4/6	5	DS	100						43	21	21.4	A-7-6 (13)
				I	3/4/5	6	DS	100				VISUAL				23.1	A-7-6
473.2	Mottled brown, trace gray moist stiff CLAY.	17.0	15	U		7	PT	75	0	0	15	48	37	30	13	20.8	A-6a (9)
				I	3/3/4	8	DS	100						31	14	23.5	A-6a (10)
467.2	Mottled brown, trace gray moist medium stiff to stiff very SILT and CLAY.	23.0	20	I	2/3/4	9	DS	100				VISUAL					A-6a
			25	I	2/3/4	10	DS	100				VISUAL				27.0	A-6b
458.7	Gray moist medium stiff to soft SILTY CLAY.	31.5	30	I	3/3/4	11	DS	72				VISUAL					A-6b
456.2	Gray moist medium stiff SILTY CLAY with wood fragments.	34.0															
453.2	Gray moist medium stiff SILTY CLAY, varved.	37.0	35	I	2/3/2	12	DS	67				VISUAL				28.7	A-6b
			40	I	3/5/7	13	DS	100				VISUAL				30.1	A-1b
447.2	Brown wet medium dense very silty SAND and GRAVEL.	43.0															
442.2	Brown wet dense silty fine to coarse GRAVEL and SAND.	48.0	45	D	19/21/26	14	DS	56	54	14	13	11	7			18.5	A-1-b
437.2	Brown wet medium dense fine to coarse GRAVEL and SAND.	53.0	50	D	4/6/12	15	DS	100	36	18	31	15					A-1-b (0)
			55	D	13/15/27	16	DS	72				VISUAL					A-3a
428.7	Brown wet dense to very dense silty fine to medium SAND, trace fine gravel.	61.5	60	D	18/24/30	17	DS	72				VISUAL					A-3a
	Bottom of test boring at 61.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 490.2
Date Started 4-23-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 4-23-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 3.0 ft
AT COMPLETION 1.5 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING: Station 75+30, 15' Left
BORING # 128 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
524.3	GROUND SURFACE																
523.9	ASPHALT PAVEMENT	0.4															
523.4	CONCRETE PAVEMENT	0.9															
522.8	WOOD FRAGMENTS	1.5															
522.3	CONCRETE	2.0		I	17/8/11	1	DS	33									
517.3	Mixed brown moist very stiff FILL, silty clay with shale and limestone fragments.	7.0	5	I	7/7/8	2	DS	50									
				I	5/6/12	3	DS	5				VISUAL					A-6b
512.3	Brown moist medium stiff SILTY CLAY with shale fragments and limestone floaters.	12.0	10	I	15/8/8	4	DS	22				VISUAL					A-6b
509.8	Mottled brown, trace gray moist very stiff SILTY CLAY with limestone and shale fragments (colluvium).	14.5		I	41/15/23	5	DS	55				VISUAL					A-6b
			15	I	9/15/35	6	DS	55				VISUAL					A-6b
504.8	Olive brown, trace gray moist very stiff SILTY CLAY with shale fragments and limestone floaters.	19.5		I	11/19/50/1"	7	DS	22				VISUAL					A-6b
			20	I	18/25/14	8	DS	67				VISUAL					A-6b
501.3	Gray to olive brown moist stiff SILTY CLAY with medium stiff clay seams.	23.0															
496.3	Gray moist stiff to very stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	28.0	25	I	9/10/22	9	DS	100				VISUAL					A-6b
			30	I	22/25/28	10	DS	33				VISUAL					A-6b
491.3	Olive brown and gray moist very stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	33.0															
486.3	Brown, trace gray moist very stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	38.0	35	I	18/21/25	11	DS	78				VISUAL					A-6b
481.3	Gray, trace brown moist stiff to very stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	43.0	40	I	21/22/25	12	DS	67				VISUAL					A-6b
476.3	Gray and brown moist stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	48.0	45	D	9/10/18	13	DS	56				VISUAL					A-6b
471.3	Brown and gray moist very stiff SILTY CLAY with shale fragments and limestone floaters with inclined slickensides (colluvium).	53.0	50	D	21/22/50/6"	14	DS	72				VISUAL					A-2-4
466.3	Brown moist very stiff SILTY CLAY with shale fragments, limestone floaters and fine sand lenses, trace inclined slickensides (colluvium).	58.0	55	D	20/5/6"	15	DS	44				VISUAL					A-3a
			60	D	50/3"	16	DS	27				VISUAL					A-1b
457.3	Brown wet very dense very silty fine to coarse SAND with limestone floaters.			D	50/5"	17	DS	22				VISUAL					A-1b
456.7	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	67.0	65	I/L	50/1"	18	DS	0									
	Split spoon refusal and bottom of test boring at 67.6 feet.	67.6															

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 524.3
Date Started 4-19-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 4-21-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 20.0, 60.0 ft
AT COMPLETION 63.4 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BORING LOGS

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 209 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 81+56, 3' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
491.7	GROUND SURFACE																
489.7	Mixed black moist medium dense FILL, cinders with fine to coarse sand and gravel and crushed limestone.	2.0		D	7/15/12	1	DS	72									
488.2	Mixed black moist medium stiff FILL, silty clay with cinders, trace fine to medium sand.	3.5		D	50/3"	2	DS	11									
483.7	Void noted from 3.5 to 8.0 feet.		5														
482.2	Mottled olive brown, trace black moist soft FILL, silty clay with limestone fragments, trace cinders.	8.0 9.5		I	50/6"	3	DS	13									
477.7	Mottled gray and olive brown moist stiff to medium stiff CLAY.	14.0	10	I	4/8/9	4	DS	100						43	20	25.8	A-7-6 (13)
				U		5	PT	62									
474.7	Mottled brown, trace gray moist very stiff CLAY.	17.0	15	I	4/6/10	6	DS	72						52	21	24.3	A-7-6 (15)
				I	5/7/13	7	DS	78				VISUAL				22.5	A-6b
			20	U		8	PT	87									
467.2	Mottled brown moist very stiff very SILTY CLAY with iron oxide stains.	24.5		I	10/14/25	9	DS	100				VISUAL				20.8	A-6b
463.7	Brown, trace gray moist very stiff SILT and CLAY.	28.0	25	I	7/8/10	10	DS	100						39	14	23.3	A-6a (10)
458.7	Brown moist medium stiff to stiff SILTY CLAY with iron oxide stains.	33.0	30	I	4/4/6	11	DS	100				VISUAL				24.1	A-6a
453.7	Mottled brown, some gray moist stiff SILTY CLAY with iron oxide stains, trace fine sand and gravel.	38.0	35	I	6/6/7	12	DS	100				VISUAL				19.7	A-6b
448.7	Brown moist stiff very SILTY CLAY, trace fine sand and gravel.	43.0	40	I	4/6/7	13	DS	72				VISUAL				22.6	A-6b
443.7	Mottled brown moist stiff to very stiff clayey fine to coarse SAND and fine GRAVEL.	48.0	45	I	7/8/8	14	DS	61	46	11	19	24		25	7	11.4	A-2-4 (4)
438.7	Brown moist dense silty fine to coarse SAND, trace fine gravel.	53.0	50	D	8/21/24	15	DS	50	32	25	32	10					A-1-b (0)
			55	D	10/23/27	16	DS	72	1	22	71	7					A-3 (0)
428.7	Brown wet dense silty fine SAND.	63.0	60	D	19/22/28	17	DS	67				VISUAL					A-3
			65	D	8/14/18	18	DS	78				VISUAL					A-3
			70	D	13/15/19	19	DS	72				VISUAL					A-3
413.7	Grayish brown wet dense fine to coarse SAND .	78.0	75	D	9/24/26	20	DS	78	11	14	67	8					A-3 (0)
410.2	Grayish brown wet dense silty fine, trace medium SAND with fine to coarse gravel and limestone cobbles.	81.5	80	I	10/16/20	21	DS	50									
	Bottom of test boring at 81.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 491.7
Date Started 4-12-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 4-12-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 8.0 ft
AT COMPLETION 35.0 ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 210 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 79+75, 24' Left

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
496.3	GROUND SURFACE																
496.2	TOPSOIL.	0.1		I	8/6/8	1A 1B	DS	100								16.5	
494.3	Mixed brown and black moist very stiff FILL, silty clay with sand, gravel and brick fragments.	2.0 4.5		I	3/4/5	2	DS	11				VISUAL				13.7	A-1-b
491.8	Brown moist loose FILL, coarse sand and fine gravel.		5	I	25/24/7	3	DS	100				VISUAL				21.2	A-6a
489.3	Mixed brown moist medium stiff FILL, silt and clay, trace sand and gravel and brick fragments (CL).	7.0		I	3/4/5	4	DS	100						33	14	22.7	A-6a (10)
			10	U		5	PT	96				VISUAL				21.3	A-6a
				I	5/7/8	6	DS	100						35	14	21.5	A-6a (10)
479.3	Brown moist stiff SILTY CLAY (CL).	17.0	15	I	4/6/8	7	DS	100				VISUAL				22.4	A-6a
				I	4/6/8	8	DS	100						29	10	22.3	A-4b (8)
474.3	Brown moist medium dense clayey SILT.	22.0	20	U		9	PT	100				VISUAL				23.6	A-4b
472.3	Brown moist medium stiff to stiff SILTY CLAY, trace fine sand.	24.0		I	5/5/6	10	DS	100				VISUAL				25.9	A-6b
466.8	Brown moist loose clayey SILT, some fine sand.	29.5	25	I	3/3/5	11	DS	100	1	1	29	55	15	23	4	26.2	A-4b (7)
463.8	Brown moist soft to medium stiff SILTY CLAY, partially varved, trace fine sand.	32.5	30	I	1/2/3	12	DS	100				VISUAL				27.2	A-6b
456.8	Mottled brown, trace gray moist very stiff SILTY CLAY with fine to coarse sand layers.	39.5	35	D	3/3/6	13	DS	18				VISUAL				24.5	A-6b
453.3	Brown wet dense silty fine to coarse SAND, little fine gravel (SM).	43.0	40	D	16/22/20	14	DS	100	32	33	16	19					A-1-b
450.3	Gray moist medium dense clayey SILT, partially varved (CL).	46.0	45	D	7/15/15	15A 15B	DS	100	0 7	2 15	3 58	66 18	28	32	10	30.9	A-4b (8) A-3a
448.3	Brown wet medium dense silty fine to coarse SAND, trace fine gravel (SM).	48.0															
443.3	Brown wet medium dense fine to coarse SAND, trace fine gravel.	53.0	50	D	8/9/13	16	DS	100				VISUAL					A-3a
438.3	Brownish gray wet medium dense fine, trace medium SAND.	58.0	55	D	10/12/16	17	DS	100				VISUAL					A-3a
432.3	Brown wet dense fine to coarse SAND.	63.0	60	D	13/15/18	18	DS	100				19					A-3
428.3	Brown wet dense fine, trace medium SAND (SP-SM).	68.0	65	D	13/15/24	19	DS	100	0	0	90	10					A-3 (0)
422.3	Brown wet dense fine to coarse SAND, some gravel.	73.0	70	D	11/19/26	20	DS	100				VISUAL					A-3a
418.3	Brown wet dense fine SAND (SP-SM).	78.0	75	D	8/14/20	21	DS	100	0		93	7					A-3 (0)
412.3	Gray wet desne fine, trace medium SAND.	83.0	80	D	14/32/50/6"	22	DS	100				VISUAL					A-3
407.8	Brown and gray wet hard cemented fine to coarse SAND and GRAVEL with limestone cobbles and boulders.	88.5	85	I	50/3"	23	DS	17				VISUAL					A-1b
406.1	Gray wet very dense fine to coarse SAND and GRAVEL (boulder bed).	90.2	90	D	50/2"	24	DS	11				VISUAL					A-1b
	Split spoon refusal and bottom of test boring at 90.2 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 496.3
Date Started 2-14-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman GB/GF
Engineer ATS
Date Completed 2-14-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 25.5 ft
AT COMPLETION 39.0 ft
AFTER 24 hrs. 21.3 ft
BACKFILLED 24 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BORING LOGS

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 212 PROJECT # 051008NE
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 106+7, 42.5' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
516.3	GROUND SURFACE																
515.3	CONCRETE PAVEMENT (roadway) (12")	1.0		I	4/5/4	1	DS	100								17.3	
				I	3/3/2	2	DS	100	6	7	25	40	22	30	8	17.1	A-4b (5)
509.3	Brown moist medium dense clayey SILT, trace fine gravel (possible fill).	7.0	5	I	2/2/10	3	DS	100				VISUAL				19.6	A-4b
506.8	Mottled brown and gray moist medium stiff to stiff CLAY, trace fine gravel (possible fill).	9.5		I	3/4/7	4	DS	100	14	2	4	40	40	42	14	19.7	A-7-6 (10)
504.3	Dark brown moist stiff CLAY, trace fine gravel.	12.0	10	I	4/5/9	5	DS	100						49	25	21.2	A-7-6 (16)
				I	5/6/7	6	DS	100						27	8	17.1	A-4b (8)
499.3	Reddish brown medium dense clayey SILT.	17.0	15	I	3/5/6	7	DS	100	0	0	32	46	22			17.4	A-4b (7)
				I	2/3/4	8	DS	100	0	0	30	51	19	24	3	19.7	A-4b (7)
			20	U		9	PT	100									
491.8	Brown moist loose clayey SILT.	24.5		I	2/3/3	10	DS	100				VISUAL				23.0	A-4b
			25	I	1/1/1	11	DS	100	0	0	23	58	19	27	6	23.6	A-4b (8)
			30	I	1/1/2	12	DS	100				VISUAL				25.8	A-4b
			35	I	1/1/1	13	DS	100				VISUAL				28.8	A-4b
			40	I	1/2/3	14	DS	100				VISUAL				26.7	A-4b
471.3	Brown moist to wet very loose clayey SILT.	45.0															
468.3	Brown moist medium dense clayey SILT with limestone floaters and strong camphor odor.	48.0	45	I	4/5/6	15	DS	100				VISUAL				16.8	A-4b
463.3	Brown moist loose SILT.	53.0	50	I	4/4/4	16	DS	100	0	0	24	66	10	NON-PLASTIC		25.4	A-4b (8)
			55	D	5/13/14	17	DS	100	48	24	9	19					A-1-b
458.3	Brown moist medium dense fine to coarse SAND and GRAVEL.	58.0	60	D	9/10/14	18	DS	100	0	0	86	14					A-3
			65	D	6/7/8	19	DS	100				VISUAL					A-3
448.3	Brown wet medium dense fine SAND.	68.0															
443.3	Brown wet very dense fine to coarse SAND and GRAVEL.	73.0	70	D	12/24/24	20	DS	100	60	12	14	9	5			13.6	A-3a (0)
			75	D	5/6/9	21	DS	100	0	1	86	13					A-3
438.3	Brown wet medium dense fine SAND.	78.0															
433.3	Brown moist very stiff sandy CLAY with limestone boulders.		80	I	65/100/5"	22	DS	61				VISUAL					A-2-6
432.3	Interbedded gray moist soft weathered SHALE and gray hard LIMESTONE (bedrock).	83.0 84.0		I	100/2"	23	DS	11									
	Split spoon refusal and bottom of test boring at 84.0 feet.		85														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 516.3
Date Started 4-5-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 4-5-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 58.0 ft
AT COMPLETION Caved to 65.0 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc. BORING # 214 PROJECT # 070583NE
PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio
LOCATION OF BORING Station 75+37, 18' Right

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
514.7	GROUND SURFACE																
514.5	TOPSOIL (2")	0.2		I	10/13/13	1A 1B	DS	78								15.5	
512.7	Mixed brown and gray moist very stiff FILL, silty clay and shale with limestone floaters, trace cinders and brick fragments.	2.0		I	3/5/7	2	DS	100				VISUAL				20.5	A-6b
508.7	Brown moist stiff SILTY CLAY.	6.0	5	U		3	DS	92									
				I	2/3/3	4	DS	100				VISUAL				22.7	A-6a
504.2	Mottled brown moist medium stiff very SILTY CLAY.	10.5	10	U		5	PT	46	1	10	19	42	28	30	13	14.6	A-6a (8)
				I	20/21/34	6	DS	72				VISUAL				16.2	A-6a
497.7	Brown moist stiff to very stiff SILT and CLAY with limestone floaters.	17.0	15	I	16/14/17	7	DS	11				VISUAL				11.9	A-6a
				I	11/11/21	8	DS	67				VISUAL				13.8	A-6b
			20	U		9	DS	29	0	2	7	38	53	36	18	13.5	A-6b (11)
490.2	Olive brown, trace gray moist very stiff SILTY CLAY with limestone floaters and shale fragments (colluvium).	24.5		I	7/21/20	10	DS	56				VISUAL				12.0	A-6b
486.7	Brown moist very dense GRAVEL and limestone floaters with medium stiff SILTY CLAY seams.	28.0	25	I	14/39/23	11	DS	72	40	11	40	-9-		24	9	12.1	A-2-4 (0)
				U		12	PT	28	4	3	28	-65-		21	4	14.4	A-4b (6)
483.9	Brown moist medium dense sandy SILT.	30.8	30	I/D	27/10/10	13A 13B	DS	78	35 0	8 0	26 1	-31- 47	52	35	16	6.7 27.0	A-1b (0) A-6b (10)
480.2	Brown moist stiff SILTY CLAY with limestone floaters.	34.5															
475.7	Brown moist dense silty fine to coarse SAND and GRAVEL and limestone cobbles.	39.0	35	D	26/22/22	14	DS	78	60	17	8	-15-				3.4	A-1-a (0)
471.7	Brown and gray moist medium dense clayey SILT with some fine sand and gravel, trace shale fragments.	43.0	40	I	25/18/34	15	DS	67	35	9	5	-51-		25	10	14.0	A-6a (3)
			45	I	29/37/50/6"	16	DS	100				VISUAL				13.0	A-6b
461.7	Brown moist very stiff SILTY CLAY with limestone floaters and shale fragments (colluvium).	53.0	50	I	13/21/24	17	DS	67	49	2	3	-46-		34	21	9.6	A-6b (6)
456.7	Brown moist dense SILT, little fine sand.	58.0	55	D	8/12/21	18	DS	67	0	1	12	79	8	23	3	25.7	A-4b (8)
454.3	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	60.4	60	I	50/4"	19	DS	22								9.9	
	Bottom of test boring at 60.4 feet.		65														
			70														
			75														
			80														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 514.7
Date Started 6-19-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 6-20-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 53 ft
AT COMPLETION Dry ft
AFTER 24 hrs. 53 ft
BACKFILLED 24 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BORING LOGS

HAM-50-18.79

10 / 21

117 / 136

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio
LOCATION OF BORING Station 102+51.5, 55' Left
BORING # 217 PROJECT # 070583NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
527.5	GROUND SURFACE																
526.5	ASPHALT PAVEMENT (12")	1.0		I	3/7/9	1	DS	55								2.0	
525.5	Mixed brown some gray moist stiff to very stiff FILL, silty clay, trace organic matter (weeds) and cinders.	2.0		I	5/7/11	2	DS	67								1.0	
			5	I	9/15/18	3	DS	83					VISUAL			16.1	A-7-6
				I	13/10/13	4	DS	50	7	3	1	-90-	42	21		15.8	A-7-6 (13)
			10	I	13/13/19	5	DS	50					VISUAL			12.6	A-7-6
				I	50/6"	6	DS	17					VISUAL			15.2	A-7-6
510.5	Brown moist very stiff CLAY with shale and limestone fragments (colluvium).	17.0	15	I	20/15/16	7	DS	44					VISUAL			15.5	A-7-6
508.0	Brown moist medium dense SHALE and limestone fragments with medium stiff clay semas (colluvium).	19.5		I	11/13/50/2"	8	DS	22	50	15	19	-16-	23	8		14.9	A-2-4 (0)
504.5	Brown moist medium stiff to stiff very SILTY CLAY with shale and limestone fragments (colluvium).	23.0	20	I	17/16/20	9	DS	50					VISUAL			13.6	A-6b
499.5	Gray moist very stiff very SILTY CLAY with limestone floaters.	28.0	25	I	7/39/20	10	DS	67	1	0	2	48	49	35	17	18.8	A-6b (11)
			30	U		11	PT	00									
				I	12/13/20	12	DS	55	35	5	2	-58-	29	12		15.7	A-6a (5)
			35	I	40/35/36	13	DS	72					VISUAL			6.6	A-6a
484.5	Brown and gray moist very stiff SILT and CLAY with limestone and, shale fragments (colluvium).	43.0	40	I	12/13/18	14	DS	50					VISUAL			7.5	A-6a
			45	I	10/18/26	15	DS	72						35	17	15.3	A-6b (0)
474.5	Brown, trace gray moist very stiff SILTY CLAY with shale and limestone fragmentss.	53.0	50	I	8/16/36	16	DS	72					VISUAL			14.2	A-6b
469.5	Brown moist very stiff SILTY CLAY with limestone floaters and shale fragments.	58.0	55	I	50/6"	17	DS	22					VISUAL			13.7	A-6b
464.5	Brown moist dense limestone fragments with SHALE and clay (colluvium).	63.0	60	I	21/32/50/6"	18	DS	67	51	6	18	-15-	24	9		13.0	A-2-4 (0)
459.5	Brown moist stiff to very stiff SILTY CLAY with shale fragments and limestone floaters (colluvium).	68.0	65	I	50/1"	19	DS	78					VISUAL			0.6	A-6b
457.4	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	70.1	70	I	50/1"	20	DS	78								6.2	
	Bottom of test boring at 70.1 feet.		75														
			80														

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 527.5
Date Started 6-21-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 6-21-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 17.0 - 30.0 ft
AT COMPLETION 69.0 ft
AFTER hrs ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Supplemental Waldvogel Viaduct Replacement, Cincinnati, Ohio
LOCATION OF BORING Station 07+00, 58' Left
BORING # 219 PROJECT # 070583NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
497.2	GROUND SURFACE																
496.9	TOPSOIL (3")	0.3		D	4/10/9	1A 1B	DS	78									
495.2	Brown moist medium dense FILL, sand and gravel base (fill).	2.0		D	4/5/5	2	DS	100	50	25	59	6				7.9	A-1-a
492.7	Brown and black moist loose FILL, sand and cinders.	4.5	5	D	1/2/2	3	DS	82	70	12	9	-9-				9.7	A-1-a
488.7	Brown and black moist very loose FILL, fine sand with brick fragments.	8.5		I/D	1/1/2	4A 4B	DS	100	44	32	24	0	VISUAL			38.3 22.3	A-1-a A-6a
485.7	Brown moist stiff sandy SILTY CLAY.	11.5	10	U		5	PT	46					VISUAL			21.6	A-6a
				I	1/2/2	6	DS	72	0	1	27	55	17	23	7	26.5	A-4b
			15	U		7	DS	11					VISUAL			27.3	A-4b
478.2	Brown moist very loose clayey SILT.	19.0		I	1/1/1	8	DS	67					VISUAL			28.4	A-4b
474.7	Brown very moist to wet soft very sandy SILTY CLAY.	22.5	20	I	1/1/1	9	DS	29	0	0	16	61	23	29	12	27.1	A-6b
				U		10	PT	100					VISUAL			29.0	A-6a
			25	I	1/2/2	11	DS	17	45	0	9	33	13	30	11	25.1	A-6a
			30	U		12	PT	100					VISUAL			28.7	A-6a
				I	1/2/2	13	DS	100	0	1	19	58	22	28	11	26.8	A-6a
459.2	Gray moist medium stiff very sandy SILT and CLAY.	38.0	35	I	1/2/2	14	DS	100					VISUAL			28.9	A-6a
454.2	Gray wet loosee fine to medium silty SAND, trace fine gravel.	43.0	40	D	3/4/3	15	DS	100	2	39	52	-7-				21.2	A-3
			45	I	1/2/2	16	DS	100					VISUAL			23.3	A-4b
444.2	Gray moist to wet loose clayey SILT with wet silty sand seams.	53.0	50	I	2/2/2	17	DS	100	0	1	41	-58-	24	5		28.2	A-4b
439.2	Brown wet medium dense fine to coarse silty SAND and fine GRAVEL.	58.0	55	D	2/2/2	18	DS	100	36	31	13	-20-	21	3		14.6	A-1-b
429.2	Brown wet loose fine SAND.	68.0	60	D	4/11/12	19	DS	100	1	37	39	-23-				18.5	A-3a
			65	D	3/4/8	20	DS	100	0	7	88	-5-				22.9	A-3
420.7	Brown wet medium dense to dense fine to coarse SILTY CLAY.	76.5	70	D	4/11/13	21	DS	100					VISUAL				A-3a
416.7	Gray moist hard limestone floaters and boulders.	80.5	75	D	10/11/12	22	DS	100	0	20	68	-12-				16.4	A-3a
	Auger refusal at 80.5 feet. Split spoon refusal and bottom of test boring at 80.5 feet.		80	I	100/5	23	DS	17									

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 497.2
Date Started 6-19-07

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 6-19-07

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 20.0 ft
AT COMPLETION 24.9 ft
AFTER 17.5 hrs. 21.6 ft
BACKFILLED 17.5 hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1881

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 102+38.5, 21' Left

BORING # 131 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (in)	TEST RESULTS: GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
549.8	GROUND SURFACE																
548.8	ASPHALT PAVEMENT (12")	1.0		I	3/4/6	1	DS	12								18.2	
545.3	Mixed brown and gray moist stiff FILL, clay with shale, limestone and rock fragments (CL).	4.5		I	2/3/4	2	DS	18						46	24	22.3	A-7-6 (15)
			5	I	2/3/4	3	DS	4								22.9	
				I	6/11/5	4	DS	12						48	27	23.1	A-7-6 (16)
537.8	Mixed brown and gray moist medium stiff to stiff FILL, clay with limestone fragments.	12.0	10	I	5/5/5	5	DS	12									
				I	14/15/14	6	DS	18									
			15	I	8/9/14	7	DS	18									
530.3	Brown moist stiff CLAY with shale and limestone fragments (colluvium).	19.5		I	9/11/20	8	DS	18						49	25	20.7	A-7-6 (16)
526.8	Brown moist very stiff SILTY CLAY with shale fragments and limestone floaters.	23.0	20	I	7/9/15	9	DS	18									
			25	I	7/7/9	10	DS	18									
516.8	Gray moist stiff SILTY CLAY with shale and limestone fragments with wet soft clay seams.	33.0	30	I	51/100/3"	11	DS	3									
511.8	Gray moist very dense clayey SAND with limestone fragments (GM).	38.0	35	D	50/29/20	12	DS	18	57	13	9	16	5				A-1-b
			40	I	5/7/29	13	DS	18									
506.8	Gray wet medium dense clayey SAND with limestone fragments.	43.0	45	I	7/12/31	14	DS	18						33	15	19.5	A-6a (10)
			50	I	7/15/21	15	DS	18						28	14	20.2	A-6a (10)
496.8	Gray moist medium stiff SILT and CLAY with shale and limestone fragments (colluvium) (CL).	53.0	55	I	10/15/15	16	DS	18								15.3	
			60	I	18/35/40	17	DS	18								19.3	
481.8	Olive brown moist stiff SILTY CLAY with shale and limestone fragments (colluvium).	68.0	65	I	9/13/16	18	DS	18									
476.8	Brown moist very dense clayey SAND with gravel and rock fragments.	73.0	70	I	75/62/39	19	DS	18	74	7	7	12					A-1-a (0)
474.3	Interbedded gray moist soft SHALE and gray hard LIMESTONE (bedrock).	75.5	75	I	100/5"	20	DS	3									
	Split spoon refusal and bottom of test boring at 75.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 549.8
Date Started 4-9-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman LW
Engineer ATS
Date Completed 4-9-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 4.0 ft
AT COMPLETION 47.0 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-50-1881

HAM-50-18.79

LOG OF BORING

DATE STARTED 03/04/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 03/05/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-8 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET FW 30+483 CENTERLINE

WATER ELEVATION:
IMMEDIATE 144.26m
COMPLETION 144.26m
AFTER 0 HRS. BACKFILLED
SURFACE ELEVATION 153.4m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	%AGG	%CS	%FS	%SILT	%CLAY	%LL	%PI	%WC	SHTL CLASS
				PHYSICAL CHARACTERISTICS										
153.40	0	0												
	2	.5	3-4-4	DARK BROWN SILT AND CLAY, SOME LIMESTONE FRAGMENTS, SOME SAND, LITTLE BRICK FRAGMENTS, LITTLE CINDERS TRACE ROOTS, TRACE ORGANICS, (FILL) MOIST-LOOSE TO MEDIUM DENSE	1		V	I	S	U	A	L	14	A-6a
	4	1.2	7-9-14		2		V	I	S	U	A	L		A-6a
151.88														
	6	1.8	7-8-8	BROWN SANDY SILT, LITTLE SAND PARTINGS, SOME CLAY, MOIST TO WET-LOOSE TO MEDIUM DENSE	3		V	I	S	U	A	L		A-4b
	8	2.4	3-3-4		4		V	I	S	U	A	L		A-4b
	10	3.0			5	19	0	0	58	23	25	8	20	A-4b(8)
	12	3.7	2-3-4		6		V	I	S	U	A	L		A-4b
	14	4.3	2-2-2		7		V	I	S	U	A	L		A-4b
	16	4.9	2-1-1		8		V	I	S	U	A	L		A-4b
	18	5.5	1-1-1											
147.30	20	6.1	1-1-2		9		V	I	S	U	A	L	26	A-6a
	22	6.7		BROWN SILT AND CLAY, SOME SAND, TRACE SAND PARTINGS TO LENSES, WET-SOFT										
	24	7.3			10		V	I	S	U	A	L		A-6a
	26	7.9	1-2-1											
	28	8.5												
144.30	30	9.1	2-3-4	GRAY SILT AND CLAY, SOME SAND, TRACE SAND PARTINGS TO LENSES, VERY MOIST-MEDIUM STIFF	11		V	I	S	U	A	L	25	A-6a
	32	9.8												
	34	10.4			12		V	I	S	U	A	L	41	A-6a
	36	11.0	1-2-3											
	38	11.6												
141.20	40	12.2												
	42	12.8	2-2-3	DARK BROWN SANDY SILT, TRACE CLAY, VERY MOIST-LOOSE	13		V	I	S	U	A	L	27	A-4a
	44	13.4												
139.52					14		V	I	S	U	A	L		A-3a
139.22	46	14.0	2-4-5	BROWN SAND, TRACE FINE GRAVEL, TRACE IRON STAINING, MOIST-LOOSE	14A		V	I	S	U	A	L		A-4b
	48	14.6		GRAY AND BROWN SILT, SOME SAND, LITTLE CLAY, WET-LOOSE										
138.20	50	15.2												
	52	15.8	3-9-15	GRAY COARSE SAND, SOME FINE GRAVEL, LITTLE SILT, WET-MEDIUM DENSE	15		V	I	S	U	A	L		A-1-b
	54	16.4												
136.83														
	56	17.0	10-32-45	BROWN SAND AND GRAVEL, TRACE SILT, MOIST-VERY DENSE	16		V	I	S	U	A	L		A-1-b
	58	17.6												
135.20	60	18.2												
	62	18.9	15-17-29	BROWN COARSE AND FINE SAND, MOIST-VERY DENSE	17		V	I	S	U	A	L		A-3a
	64	19.5		-WET BELOW 65FT. (19.82m)										
	66	20.1	12-15-21		18	0	9	79	7	5	NP	NP	14	A-3a(0)
	68	20.7												
	70	21.3			19		V	I	S	U	A	L		A-3a
	72	21.9	13-17-21											
	74	22.5												
	76	23.1	10-17-18		20		V	I	S	U	A	L		A-3a
	78	23.7												
128.86	80	24.3			21		V	I	S	U	A	L		A-3a
128.85			10-70-100/2	BROWN GRAVEL AND LIMESTONE FRAGMENTS, LITTLE SAND, TRACE SILT, MOIST-VERY DENSE	21A		V	I	S	U	A	L		A-1-a

BORING COMPLETED @ 24.75m (81.2')

LOG OF BORING

DATE STARTED 9/23/99 SAMPLER: TYPE SPLIT SPOON DIA. 5.1cm O.D.
DATE COMPLETED 9/23/99 CASING LENGTH: 1.5m HOLLOW STEM AUGER DIA. 8.3cm I.D.
BORING NUMBER EB-13 CORE BARREL: TYPE NA SIZE NA
STATION & OFFSET STA. FF 30+599. 6m RT.

WATER ELEVATION:
IMMEDIATE 139.73m
COMPLETION 140.65m
AFTER 24 HRS. 142.17m
SURFACE ELEVATION 150.40m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	%AGG	%CS	%FS	%SILT	%CLAY	%LL	%PI	%WC	SHTL CLASS
				PHYSICAL CHARACTERISTICS										
150.40	0	0												
	2	.5	6-12-19	BLACK CINDERS, SAND, GRAVEL AND COAL FRAGMENTS, (FILL), MOIST-LOOSE TO MEDIUM DENSE	1		V	I	S	U	A	L		A-1-b
	4	1.2	3-3-2		2		V	I	S	U	A	L		A-1-b
148.90														
	6	1.8	3-3-4	GRAY CLAY, LITTLE FINE GRAVEL AND CINDERS, (FILL), VERY MOIST-MEDIUM STIFF	3		V	I	S	U	A	L	33	A-7-6
148.11	8	2.4	2-2-4	BROWN AND GRAY SILTY CLAY, TRACE WET SILT LENSES, MOIST-MEDIUM STIFF	4		V	I	S	U	A	L	25	A-6b
147.40	10	3.0	3-3-4	BROWN SILTY CLAY, MOIST-STIFF TO VERY STIFF	5		V	I	S	U	A	L		A-6a
	12	3.7												
	14	4.3	4-5-6		6		V	I	S	U	A	L	23	A-6a
	16	4.9	6-8-11		7		V	I	S	U	A	L		A-6a
	18	5.5	5-7-9		8	0	0	15	45	40	35	18	21	A-6a(10)
144.30	20	6.1												
	22	6.7	3-3-4	BROWN SILT AND CLAY, VERY MOIST-MEDIUM STIFF	9		V	I	S	U	A	L		A-6a
	24	7.3												
142.80														
	26	7.9	2-3-4	BROWN SANDY SILT, TRACE SAND LENSES, TRACE CLAY, VERY MOIST-LOOSE	10		V	I	S	U	A	L	23	A-4a
	28	8.5												
141.30	30	9.1												
	32	9.8	2-2-3	BROWN SILT AND CLAY, TRACE SAND LENSES, VERY MOIST-MEDIUM STIFF	11		V	I	S	U	A	L	24	A-6a
	34	10.4												
139.70														
	36	11.0	3-3-3	GRAY SILT AND CLAY, TRACE SAND, WET-SOFT	12		V	I	S	U	A	L	29	A-6a
	38	11.6												
138.20	40	12.2												
	42	12.8	3-4-4	GRAY SILT AND CLAY, TRACE FINE GRAVEL, VERY MOIST-MEDIUM STIFF	13		V	I	S	U	A	L	25	A-6a
	44	13.4												
136.70														
	46	14.0	120/2"	BROWN SAND AND LIMESTONE FRAGMENTS, WET-DENSE	14		V	I	S	U	A	L		A-1-b
	48	14.6												
135.20	50	15.2												
	52	15.8	4-9-11	BROWN FINE TO MEDIUM SAND, TRACE SILT, TRACE CLAY, WET-MEDIUM DENSE	15	0	1	90	4	5	–	–	–	A-3a(0)
	54	16.4												
133.79														
	56	17.0	8-16-29	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, MOIST-DENSE	16		V	I	S	U	A	L		A-3a
	58	17.6												
132.20	60	18.2												
	62	18.9	14-25-32	BROWN FINE TO COARSE SAND AND GRAVEL, TRACE SILT, WET-VERY DENSE	17		V	I	S	U	A	L		A-1-b
	64	19.5												
130.60														
	66	20.1	17-28-11	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, WET-VERY DENSE	18		V	I	S	U	A	L		A-3a
	68	20.7												
129.10	70	21.3												
	72	21.9	28-34-44	BROWN MEDIUM TO COARSE SAND, TRACE FINE GRAVEL, MOIST-VERY DENSE	19	7	32	37	-24-	–	–	–	–	A-3a(0)
	74	22.5												
127.60														
	76	23.1	34-43-49	BROWN MEDIUM TO COARSE SAND, LITTLE FINE GRAVEL, TRACE SILT, WET-VERY DENSE	20		V	I	S	U	A	L		A-3a
	78	23.7												
	80	24.3			21		V	I	S	U	A	L		A-3a
125.60			25-48-62											

BORING COMPLETED @ 24.8m (81.5')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1881

HAM-50-18.79

13 / 21

120 / 136

LOG OF BORING

DATE STARTED 9/26/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 139.03m
DATE COMPLETED 9/28/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 140.61m
BORING NUMBER EB-14 — CORE BARREL: TYPE NA — SIZE NA — AFTER 24 HRS. 142.43m
STATION & OFFSET STA. EE 30+681 4m LT. — SURFACE ELEVATION 149.75m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
149.75	0	0												
	2	.6	3-4-15	BLACK SILTY CINDERS, SAND AND SLAG, LITTLE COAL FRAGMENTS, (FILL) MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		A-1-b
148.99	4	1.2	3-5-8	BROWN AND GRAY COARSE AND FINE SAND, TRACE FINE GRAVEL, TRACE ASPHALTIC CONCRETE FRAGMENTS (FILL), MOIST-MEDIUM DENSE	2		V	I	S	U	A	L		A-3a
148.25	6	1.8	4-4-6	GRAY SILT AND CLAY, MOIST-STIFF	3		V	I	S	U	A	L	30	A-6a
147.46	8	2.4												
	10	3.0	4-5-6	BROWN AND GRAY SILTY CLAY, TRACE WET SILT LENSES, MOIST-VERY STIFF	4		V	I	S	U	A	L	24	A-6b
	12	3.7	3-5-9		5		V	I	S	U	A	L		A-6b
	14	4.3	5-7-10		6		V	I	S	U	A	L	22	A-6b
145.05	16	4.9	4-6-6	BROWN SILT AND CLAY, LITTLE SAND, VERY MOIST-MEDIUM STIFF	7		V	I	S	U	A	L		A-6a
	18	5.5	2-3-3		8		V	I	S	U	A	L		A-6a
	20	6.1	2-3-3		9	0	0	20	48	32	29	12	24	A-6a(8)
	22	6.7												
	24	7.3												
	26	7.9	3-3-6		10		V	I	S	U	A	L		A-6a
140.05	28	8.5												
	30	9.1	2-2-2	GRAY SILT AND CLAY, TRACE SAND, VERY MOIST-SOFT	11		V	I	S	U	A	L	27	A-6a
	32	9.8												
	34	10.4												
	36	11.0	1-1-2	-TRACE WET SAND LENSES AT 35' (10.7m)	12		V	I	S	U	A	L	30	A-6a
	38	11.6												
137.25	40	12.2	2-2-17		13		V	I	S	U	A	L	34	A-6a
	42	12.8		BROWN CLAYEY SAND AND GRAVEL, WET-MEDIUM DENSE	13A		V	F	S	U	A	L		A-2-6
	44	13.4												
136.05	46	14.0	15-13-12	BROWN SAND AND GRAVEL, LITTLE CLAY, WET-MEDIUM DENSE	14		V	I	S	U	A	L		A-1-b
134.55	50	15.2												
	52	15.8	19-18-18	BROWN COARSE AND FINE SAND, TRACE SILT, MOIST-DENSE	15	1	8	74	-17-					A-3a(0)
	54	16.4												
133.05	56	17.0	18-20-22	BROWNISH GRAY FINE TO COARSE GRAVEL, LITTLE FINE SAND, LITTLE SILT, TRACE CLAY LENSES, MOIST-DENSE	16		V	I	S	U	A	L		A-3a
	58	17.8												
131.55	60	18.2	28-42-50	BROWN SAND AND GRAVEL, SOME LIMESTONE FRAGMENTS, WET-VERY DENSE	17	51	20	20	-9-					A-1-a(0)
	62	18.9												
	64	19.5												
	66	20.1	50/.08		18		V	I	S	U	A	L		A-1-a
	68	20.7	50/0											
128.45	70	21.3												
127.95			20-23-27	DARK BROWN SAND AND GRAVEL, TRACE SILT, WET-VERY DENSE	19		V	I	S	U	A	L		A-1-b

BORING COMPLETED @ 21.8m (71.5')

LOG OF BORING

DATE STARTED 9/24/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 135.93m
DATE COMPLETED 9/24/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 138.68m
BORING NUMBER EW-2 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED
STATION & OFFSET STA. EE 30+720 2m RT. — SURFACE ELEVATION 149.65m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
149.65	0	0												
	2	.6	8-8-5	BROWN AND BLACK SILTY CINDERS AND SAND, TRACE ORGANICS (FILL), MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		A-1-b
148.89	4	1.2	9-7-8	BROWN SANDY SILT, TRACE SILT LENSES (FILL), MOIST-MEDIUM DENSE	2		V	I	S	U	A	L		A-4a
148.15	6	1.8	9-2-2	GRAY SILT AND CLAY, TRACE ORGANICS (FILL), MOIST-SOFT	3		V	I	S	U	A	L	28	A-6a
147.36	8	2.4	4-3-3	BROWN AND GRAY SILT AND CLAY, TRACE WET SILT SEAMS MOIST-MEDIUM STIFF	4		V	I	S	U	A	L		A-6a
	10	3.0			5		V	I	S	U	A	L	26	A-6a
	12	3.7	4-3-2											
145.84	14	4.3	5-7-11	BROWN SILT AND CLAY, TRACE CONCRETIONS, MOIST-VERY STIFF	6		V	I	S	U	A	L		A-6a
144.95	16	4.93	3-7-9	BROWN SILTY CLAY, TRACE SILT SEAMS, MOIST-VERY STIFF	7		V	I	S	U	A	L	22	A-6b
144.31	18	5.5	5-4-5	BROWN SILT AND CLAY, TRACE SAND, VERY MOIST-MEDIUM STIFF	8		V	I	S	U	A	L		A-6a
	20	6.1	2-2-4		9		V	I	S	U	A	L	24	A-6a
	22	6.7												
	24	7.3												
	26	7.9	3-3-3		10		V	I	S	U	A	L		A-6a
	28	8.5												
139.55	30	9.1	2-2-2		11		V	I	S	U	A	L	28	A-6a
	32	9.8		GRAY SILT AND CLAY, TRACE SAND LENSES, VERY MOIST-MEDIUM STIFF										
	34	10.4												
	36	11.0	1-2-3		12		V	I	S	U	A	L	29	A-6a
	38	11.6												
137.45	40	12.2	11-15-16	BROWN SILT AND CLAY, SOME SAND, SOME GRAVEL, TRACE LIMESTONE FRAGMENTS, VERY MOIST-STIFF	13		V	I	S	U	A	L		A-6a
	42	12.8												
	44	13.4												
135.95	46	14.0	7-15-14	BROWN SAND AND GRAVEL, LITTLE SILT, WET-MEDIUM DENSE	14	56	25	8	-17-					A-1-a(0)
	48	14.6												
	50	15.2	9-13-14		15		V	I	S	U	A	L		A-1-a
	52	15.8												
	54	16.4												
132.95	56	17.0	10-15-15	BROWN COARSE AND FINE SAND, TRACE CLAY LENSES, WET-MEDIUM DENSE	16		V	I	S	U	A	L		A-3a
	58	17.8												
131.45	60	18.2	55-51-72	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, TRACE SILT, WET-VERY DENSE	17		V	I	S	U	A	L		A-1-a
	62	18.9												
	64	19.5												
	66	20.1	43-45-25		18	63	9	17	-9-					A-1-a(0)
	68	20.7												
128.35	70	21.3												
	72	21.9	15-28-33	BROWN SAND AND GRAVEL, TRACE SILT, WET-VERY DENSE	19		V	I	S	U	A	L		A-1-b
	74	22.5												
	76	23.1												
	78	23.7												
124.85	80	24.3												

BORING COMPLETED @ 24.0m (78.5')

LOG OF BORING

DATE STARTED 2/20/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — WATER ELEVATION: IMMEDIATE 165.85m,163.55m,143.24m
DATE COMPLETED 2/21/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 143.24m
BORING NUMBER BH-3 — CORE BARREL: TYPE NQ — SIZE 5.1cm I.D. — AFTER 0 HRS. BACKFILLED
STATION & OFFSET 9M 30+384 3m RT. — SURFACE ELEVATION 160.0m

ELEV METERS	DEPTH FT	DEPTH M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
160.00	0	0												
159.36	2	.6	11-6-5	DARK BROWN SILT AND CLAY, SOME SAND, TRACE ROOTS (FILL), MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		A-6a
	4	1.2	4-6-3	BROWN SILT AND CLAY, SOME FINE SAND, MOIST-STIFF	2		V	I	S	U	A	L	22	A-6a
158.48	6	1.8	3-3-3	BROWN SILTY CLAY, LITTLE SAND, TRACE SHALE FRAGMENTS, MOIST-STIFF	3		V	I	S	U	A	L		A-6b
157.71	8	2.4												
	10	3.0	10-10-17		4	12	8	5	35	42	34	16	15	A-6a(8)
	12	3.7	11-28-10		5		V	I	S	U	A	L		A-6a
	14	4.3	3-4-7	BROWN SILT AND CLAY, LITTLE LIMESTONE FRAGMENTS, TRACE SHALE FRAGMENTS, MOIST-STIFF TO VERY STIFF	6		V	I	S	U	A	L	44	A-6a
	16	4.9	19-15-11		7		V	I	S	U	A	L		A-6a
	18	5.5	20-15-16		8		V	I	S	U	A	L		A-6a
153.75	20	6.1			9		V	I	S	U	A	L	10	A-6a
	22	6.7	10-7-21		9A		V	I	S	U	A	L		A-6a
	24	7.3												
	26	7.9	7-10-19	GRAY SILT AND CLAY, SOME LIMESTONE FRAGMENTS, TRACE SAND, TRACE SHALE FRAGMENTS, MOIST-VERY STIFF	10	26	6	3	28	37	32	15	12	A-6a(8)
	28	8.5												
	30	9.1	25-18-31		11		V	I	S	U	A	L		A-6a
	32	9.8												
	34	10.4												
	36	11.0	12-17-45		12		V	I	S	U	A	L		A-6a
	38	11.6												
147.50	40	12.2	7-14-45	~ LITTLE SAND AT 40 FT. (12.2m)	13		V	I	S	U	A	L	16	A-6a
	42	12.8			13A		V	I	S	U	A	L		A-6b
	44	13.4												
	46	14.0	22-35-50	GRAY SILTY CLAY, AND LIMESTONE FRAGMENTS TO FLOATERS, LITTLE SHALE FRAGMENTS, TRACE SAND, MOIST-VERY STIFF	14		V	I	S	U	A	L		A-6b
	48	14.6												
144.78	50	15.2												
	52	15.8	32-33-60		15		V	F	S	U	A	L	10	A-2-6
	54	16.4		GRAY GRAVEL AND LIMESTONE FRAGMENTS WITH SAND, SILT AND CLAY, MOIST-VERY DENSE										
143.23	56	17.0	45-65-34	BROWN SAND AND LIMESTONE FRAGMENTS LITTLE SILT, WET-VERY DENSE	16		V	I	S	U	A	L		A-1-b
	58	17.8												
	60	18.3	43-53-70	-SOME SHALE AND TRACE OF CLAY BELOW 60.0 FT. (18.3m)	17		V	I	S	U	A	L		A-1-b
140.73	62	19.0	150		18		V	I	S	U	A	L		
	64	19.5	ROCK CORE	INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, MEDIUM HARD, OCCUPIES 80% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 15" LAYERS, OCCUPIES 90% OF MATRIX	C1	NQ	REC.	RQD.						
	66	20.1					97%	47%						
	68	20.7	ROCK CORE		C2	NQ	REC.	RQD.						
	70	21.3					83%	0%						
138.21	72	21.9	ROCK CORE		C3	NQ	REC.	RQD.					4	
	74	22.5					98%	88%						
	76	23.1					84%	21%						
	78	23.7		INTERBEDDED SHALE AND LIMESTONE SHALE-GRAY, HARD, OCCUPIES 10% OF MATRIX LIMESTONE-LIGHT GRAY, HARD, OCCURS IN 1" TO 7" LAYERS, OCCUPIES 20% OF MATRIX	C4	NQ	REC.	RQD.						
	80	24.3	ROCK CORE				97%	69%						
	82	24.8												
	84	25.4	ROCK CORE		C5	NQ	REC.	RQD.					3	
	86	26.0					97%	95%						
	88	26.6	ROCK CORE											
	90	27.4												
	92	28.0												
129.97	94	28.6											3	

BORING COMPLETED @ 30.0m (98.5')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1881

HAM-50-18.79

W.O. 00093.914 — LOG OF BORING — WATER ELEVATION:

DATE STARTED 01/08/05 — SAMPLER: TYPE SPLIT SPOON — DIA. 2.0" O.D. — IMMEDIATE NONE

DATE COMPLETED 01/08/05 — CASING LENGTH: 5' HOLLOW STEM AUGER — DIA. 3.375" I.D. — COMPLETION NONE

BORING NUMBER SG-12 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET STA. 72+05, 12' LT.; LINE "WARSAW EB RAMP" — SURFACE ELEVATION 552.4'

ELEV FEET	DEPTH FT	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
552.4	0												
551.4	1		ASPHALT (12 INCHES)	1	28	6	4	20	42	35	17	15	A-6b(8)
549.4	2	7-10-12	BROWN SILTY CLAY, SOME GRAVEL AND ROCK FRAGMENTS, LITTLE SAND (FILL), MOIST-VERY STIFF										
	4	10-15-18	BROWN SILTY CLAY, TRACE SAND, GRAVEL, ROCK FRAGMENTS, AND CINDERS (FILL), MOIST-HARD	2	3	3	3	28	63	36	18	17	A-6b(11)
546.4	6	20-25-26		3	--	--	--	--	--	--	--	19	VISUAL

BORING COMPLETED @ 6.0'

LOG OF BORING — BASE ELEVATION

DATE STARTED 03/11/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — IMMEDIATE 145.33m 142.13m

DATE COMPLETED 03/16/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 142.13m

BORING NUMBER WA-18 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET AT 30+525. 7m RT. — SURFACE ELEVATION 150.80m

ELEV METERS	DEPTH FT	M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.80	0	0												
150.04	2.5	0.8	3-4-7	BROWN GRAVEL AND LIMESTONE FRAGMENTS WITH SAND, SOME CLAY, TRACE ROOTS AND ORGANIC ODOR. (FILL) MOIST-MEDIUM DENSE	1		V	F	S	U	A	L		A-1-b
	5	1.5	4-5-6	BROWN SILT AND CLAY, SOME FINE SAND, TRACE ORGANICS, LITTLE IRON STAINING, MOIST-STIFF	2		V	F	S	U	A	L	19	A-6a
149.30	8	2.5	4-5-5	BROWN SILT AND CLAY, TRACE ROOTS MOIST-STIFF	3		V	F	S	U	A	L		A-6a
	10	3.0	4-4-7		4		V	F	S	U	A	L	22	A-6a
147.80	10	3.05												
	12	3.7	3-5-6	BROWN WITH LITTLE GRAY, SILTY CLAY, SOME FINE SAND, MOIST-STIFF	5		V	F	S	U	A	L		A-6b
	14	4.3	3-4-4		6	0	0	21	41	35	31	14	28	A-6b(8)
	16	4.9	2-2-4		7		V	F	S	U	A	L		A-6b
	18	5.5	3-5-8		8		V	F	S	U	A	L	19	A-6b
	20	6.1	3-4-5		9		V	F	S	U	A	L		A-6b
142.33	24	7.3												
	28	7.9	2-4-7	GRAY GRAVEL AND LIMESTONE FRAGMENTS WITH SAND, SILT, AND CLAY, WET-MEDIUM DENSE	10		V	F	S	U	A	L		A-2-5
	30	8.5												
	34	10.4	6-14-7		11		V	F	S	U	A	L		A-2-6
140.10	36	11.0												
	38	11.6	2-14-16	BROWN SAND AND GRAVEL, SOME SILT, WET-MEDIUM DENSE	12	18	43	17	15	7	--	--	--	A-1-b
	40	12.2	3-5-7		13		V	F	S	U	A	L		A-1-b
137.10	44	13.4												
	48	14.6	11-22-24	BROWN COARSE AND FINE SAND, LITTLE SILT, WET-DENSE	14		V	F	S	U	A	L		A-3a
135.41	50	15.2			15		V	F	S	U	A	L		A-3a
	52	15.8	7-8-11	BROWN AND GRAY SANDY SILT, SOME IRON STAINING, MOIST-MEDIUM DENSE	15A		V	F	S	U	A	L		A-4a
	54	16.4	6-5-14		16		V	F	S	U	A	L	20	A-4a
132.90	60	18.3												
	62	18.9	9-16-20	BROWN COARSE AND FINE SAND, TRACE SILT, WET-MEDIUM DENSE TO DENSE	17		V	F	S	U	A	L		A-3a
	64	19.5	7-11-16		18		V	F	S	U	A	L		A-3a
	68	20.7	8-10-16		19		20	67	S	4	--	--	--	A-3a(0)
	72	21.9	10-16-15	-ISOLATED CLAY POCKET BELOW 75.0' (22.9m)	20		V	F	S	U	A	L		A-3a
128.50	74	22.5												
	76	23.1	9-12-13	GRAY COARSE AND FINE SAND, TRACE SILT, WET-DENSE	21		V	F	S	U	A	L		A-3a
	80	24.4	10-12-20		22		V	F	S	U	A	L		A-3a
124.60	90	27.4												
123.35	91	27.7	100	GRAY GRAVEL AND LIMESTONE FRAGMENTS, WET-VERY DENSE	23		V	F	S	U	A	L		A-1-a

BORING COMPLETED @ 27.59m (90.5')

LOG OF BORING — WATER ELEVATION:

DATE STARTED 10/06/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — IMMEDIATE 148.06m

DATE COMPLETED 10/06/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 144.23m

BORING NUMBER WA-17 — CORE BARREL: TYPE NA — SIZE NA — AFTER 24 HRS. 148.52m

STATION & OFFSET STA. WE 30+521. 2m RT. — SURFACE ELEVATION 150.35m

ELEV METERS	DEPTH FT	M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.35	0	0												
	2	0.6	8-20-15	BLACK SILTY CINDERS, SLAG, COAL FRAGMENTS, SAND, GRAVEL AND BRICK FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1		V	F	S	U	A	L		A-1-b
	4	1.2	15-13-12	-TRACE CLAY AT 2.5 FT. (0.8m)	2		V	F	S	U	A	L		A-1-b
148.85	6	1.8	1-2-1	BROWN SILT AND CLAY, LITTLE FINE GRAVEL, LITTLE SAND (FILL), VERY MOIST-SOFT -WET AT 7.5 FT. (2.3m)	3		V	F	S	U	A	L		A-6a
	8	2.4	1-2-1		4		V	F	S	U	A	L	31	A-6a
147.35	10	3.0												
	12	3.7	2-2-3	GRAY SILTY CLAY, TRACE SAND, MOIST-MEDIUM STIFF	5		V	F	S	U	A	L		A-6b
	14	4.3	2-3-3		6		V	F	S	U	A	L	27	A-6b
145.85	18	4.6	2-2	GRAY AND BROWN CLAY, WET-VERY SOFT	7		V	F	S	U	A	L	39	A-7-6
					7A		V	F	S	U	A	L		A-7-6
	20	6.1	4-7-9	BROWN AND GRAY CLAY, LITTLE IRON OXIDE STAINS, MOIST-STIFF	8		V	F	S	U	A	L		A-7-6
	22	6.7	5-8-11		9		V	F	S	U	A	L		A-7-6
142.75	26	7.9	3-4-5		10		V	F	S	U	A	L	28	A-6a
	30	9.1	2-4-5	BROWN SILT AND CLAY, LITTLE IRON OXIDE STAINS, TRACE SAND, VERY MOIST-MEDIUM STIFF	11		V	F	S	U	A	L		A-6a
139.65	36	11.0	1-2-5		12		V	F	S	U	A	L		A-6a
	40	12.2	2-2-4	BROWN SANDY SILT, TRACE CLAY, TRACE WET SAND AND GRAVEL LENSES, WET-LOOSE	13		V	F	S	U	A	L		A-4a
139.65	44	13.4												
	46	14.0	5-10-50/.3		14		V	F	S	U	A	L		A-2-6
	50	15.2	8-9-8	BROWN CLAYEY SAND AND GRAVEL, WET-MEDIUM DENSE	15		V	F	S	U	A	L		A-2-6
133.85	56	17.0	15-13-16		16	6	20	66	-13-	--	--	--		A-3a(0)
	60	18.3	10-9-15	BROWN COARSE AND FINE SAND, LITTLE SILT AND CLAY, WET-MEDIUM DENSE	17		V	F	S	U	A	L		A-3a
130.55	66	20.1	18-24-28	BROWN COARSE SAND, TRACE FINE GRAVEL, WET-DENSE	18		V	F	S	U	A	L		A-1-b
129.05	70	21.4	19-20-22	BROWN COARSE AND FINE SAND, TRACE SILT AND CLAY, WET-DENSE	19	0	8	84	8	4	--	--	--	A-3a(0)
127.55	74	22.9	11-28-55	BROWN COARSE AND FINE SAND, TRACE FINE GRAVEL, WET-VERY DENSE	20		V	F	S	U	A	L		A-3a

BORING COMPLETED @ 23.3m (76.5')

LOG OF BORING — WATER ELEVATION:

DATE STARTED 9/23/99 — SAMPLER: TYPE SPLIT SPOON — DIA. 5.1cm O.D. — IMMEDIATE 144.35m

DATE COMPLETED 9/24/99 — CASING LENGTH: 1.5m HOLLOW STEM AUGER — DIA. 8.3cm I.D. — COMPLETION 138.73m

BORING NUMBER WA-18 — CORE BARREL: TYPE NA — SIZE NA — AFTER 0 HRS. BACKFILLED

STATION & OFFSET STA. WE 30+845. 8m RT. — SURFACE ELEVATION 150.45m

ELEV METERS	DEPTH FT	M	STD.PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS: % AGG	% CS	% FS	% SILT	% CLAY	% LL	% PI	% WC	SHTL CLASS
150.45	0	0												
148.88	5	1.5	6-7-12	BLACK CINDERS, SAND, SILT, GRAVEL, AND COAL FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1		V	F	S	U	A	L		A-2-6
	8	2.4	3-5-6	BROWN SANDY SILT, SOME CLAY, LITTLE FINE GRAVEL, TRACE CINDERS (FILL), MOIST-MEDIUM DENSE	2		V	F	S	U	A	L	14	A-4a
148.95	10	3.0	1-1-2	DARK GRAY SILT AND CLAY, TRACE CINDERS AND FINE GRAVEL (FILL), VERY MOIST-VERY SOFT	3		V	F	S	U	A	L	90	A-6a
	12	3.7	2-2-3		4		V	F	S	U	A	L	39	A-6a
147.45	15	4.6	2-3-5	BROWN AND SILTY CLAY, TRACE SAND, TRACE SILT LENSES, MOIST-STIFF	5		V	F	S	U	A	L		A-6b
	16	4.9	SHELBY TUBE		ST	0	1	5	47	47	39	19	24	A-6b(12)
	18	5.5	3-5-9		7		V	F	S	U	A	L	22	A-6b
145.11	20	6.1	3-2-4	BROWN SANDY SILT, LITTLE CLAY, WET-LOOSE	8		V	F	S	U	A	L		A-4a
	22	6.7	2-2-3		9		V	F	S	U	A	L	23	A-4a
142.85	26	7.9	3-4-3	BROWN SILT AND CLAY, NOTED ORGANICS, VERY MOIST-MEDIUM STIFF	10		V	F	S	U	A	L		A-6a
141.35	30	9.1	2-2-3	GRAY SILT AND CLAY, NOTED ORGANICS, VERY MOIST-SOFT	11	0	0	5	59	36	34	15	29	A-6a(8)
	34	10.4	SHELBY TUBE		ST		V	F	5	U	A	L		A-6a
	38	11.6	2-2-2		13		V	F	S	U	A	L		A-6a
138.25	40	12.2												
	42	12.8	27-35-45	BROWN SAND, GRAVEL AND LIMESTONE FRAGMENTS, LITTLE SILT, LITTLE CLAY, MOIST-VERY DENSE	14		V	F	S	U	A	L		A-1-b
136.75	48	14.6	13-15-20	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, WET-DENSE	15		V	F	S	U	A	L		A-1-b
135.25	50	15.2												
	52	15.8	9-12-14	BROWN COARSE AND FINE SAND, WET-MEDIUM DENSE	16	0	1	84	12	3	--	--	--	A-3a(0)
	54	16.4			17		V	F	S	U	A	L		A-3a
	56	17.0	8-14-14											
	58	17.6												
132.25	60	18.3												
	62	18.9	9-12-13	BROWN COARSE AND FINE SAND, WET-MEDIUM DENSE	18		V	F	S	U	A	L		A-3a
	64	19.5												
130.65	66	20.1	35-38-54	BROWN SAND AND GRAVEL, LITTLE LIMESTONE FRAGMENTS, TRACE SILT, WET-VERY DENSE	19		V	F	S	U	A	L		A-1-b
	70	21.3												
128.65			58-40-30		20		V	F	S	U	A	L		A-1-b

BORING COMPLETED @ 21.8m (71.5')

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1881

HAM-50-18.79

15 / 21

122
136

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **112** SAMPLE NUMBER : **7B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled brown, trace gray moist stiff SILTY CLAY** DEPTH (FT.): **15.4** to **15.9**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

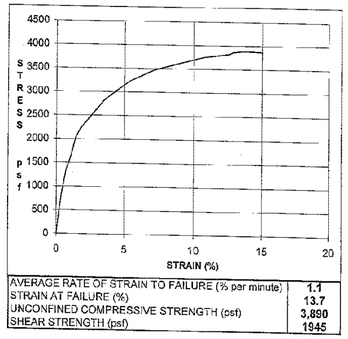
AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0429
VOLUME (cu. ft.)	0.0200
WET WEIGHT (lbs.)	2.59
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**107.3**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	r2d2
WET WEIGHT + CAN (lbs.)	2.93
DRY WEIGHT + CAN (lbs.)	2.48
WEIGHT WATER (lbs.)	0.44
WEIGHT CAN (lbs.)	0.35
WEIGHT SOLID (lbs.)	2.14
MOISTURE (%)	**20.8**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0429	0
20	35.0	35.0	0.4	0.0430	814
40	58.0	56.0	0.7	0.0432	1343
60	71.0	71.0	1.1	0.0433	1639
80	88.0	86.0	1.4	0.0435	2024
100	97.0	97.0	1.8	0.0436	2222
200	126.0	126.0	3.6	0.0445	2834
300	146.0	146.0	5.4	0.0453	3223
400	160.0	160.0	7.2	0.0462	3466
500	170.0	170.0	8.9	0.0471	3611
600	180.0	180.0	10.7	0.0480	3749
700	187.0	187.0	12.5	0.0490	3816
720	190.0	190.0	12.9	0.0492	3862
765	193.0	193.0	13.7	0.0497	3886
840	195.0	195.0	15.0	0.0504	3866



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	13.7
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,890
SHEAR STRENGTH (psf)	1945

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE**
BORING NUMBER : **207** SAMPLE NUMBER : **RC-1** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **85.0** to **85.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

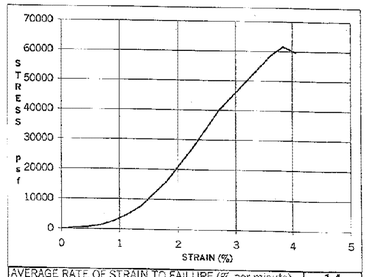
AVERAGE DIAMETER (in.)	1.96
HEIGHT (in.)	4.44
HEIGHT TO DIAMETER RATIO	2.26
AVERAGE AREA (sq. ft.)	0.0210
VOLUME (cu. ft.)	0.0078
WET WEIGHT (lbs.)	1.20
DRY WEIGHT (lbs.)	1.14
DRY DENSITY (pcf)	**146.7**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	e
WET WEIGHT + CAN (lbs.)	1.45
DRY WEIGHT + CAN (lbs.)	1.40
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.33
WEIGHT SOLID (lbs.)	1.07
MOISTURE (%)	**5.0**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0210	0
10	2	9.8	0.2	0.0211	463
20	3	14.6	0.5	0.0211	693
30	6	29.3	0.7	0.0212	1384
40	12	58.6	0.9	0.0212	2761
50	21	102.5	1.1	0.0213	4821
60	33	161.1	1.4	0.0213	7559
80	70	341.8	1.8	0.0214	15961
100	120	586.0	2.3	0.0215	27236
120	177	864.3	2.7	0.0215	39988
140	219	1069.4	3.2	0.0217	49247
150	240	1172.0	3.4	0.0218	53844
160	261	1274.5	3.6	0.0218	58415
170	275	1347.8	3.8	0.0219	61632
180	268	1308.7	4.1	0.0219	59705



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.4
STRAIN AT FAILURE (%)	3.8
UNCONFINED COMPRESSIVE STRENGTH (ksf)	61.6
SHEAR STRENGTH (ksf)	30.8

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF INTACT ROCK CORE, ASTM - D2938
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons, Brinckerhoff, Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

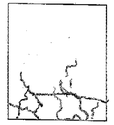
PROJECT NUMBER : **051008NE**
BORING NUMBER : **207** SAMPLE NUMBER : **RC-2** LAB NUMBER :
SAMPLE DESCRIPTION : DEPTH (FT.): **91.0** to **91.5**

SAMPLE OBTAINED BY : **Rock Core** CONDITION: **Undisturbed** DATE : **07/05/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	1.97
HEIGHT (in.)	4.44
HEIGHT TO DIAMETER RATIO	2.26
AVERAGE AREA (sq. ft.)	0.0211
VOLUME (cu. ft.)	0.0078
WET WEIGHT (lbs.)	1.17
DRY WEIGHT (lbs.)	1.12
DRY DENSITY (pcf)	**143.0**

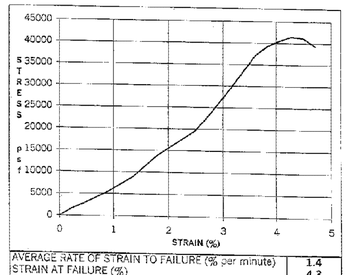
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	CF
WET WEIGHT + CAN (lbs.)	1.58
DRY WEIGHT + CAN (lbs.)	1.53
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.42
WEIGHT SOLID (lbs.)	1.10
MOISTURE (%)	**4.9**
PROVING RING NUMBER	675

DEFORM DIAL .001 IN.	LOAD DIAL .0001 IN.	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0211	0
10	7	34.2	0.2	0.0211	1620
20	12	58.6	0.5	0.0211	2771
40	25	117.2	0.9	0.0212	5517
60	39	190.4	1.4	0.0213	8925
80	61	297.9	1.8	0.0214	13895
110	86	420.0	2.5	0.0216	19455
120	100	488.3	2.7	0.0216	22570
140	132	644.6	3.2	0.0217	29655
160	166	810.6	3.6	0.0218	37120
170	176	859.4	3.8	0.0219	39264
180	182	888.7	4.1	0.0219	40508
190	187	913.2	4.3	0.0220	41523
200	186	908.3	4.5	0.0220	41264
210	178	869.2	4.7	0.0221	39339



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.4
STRAIN AT FAILURE (%)	4.3
UNCONFINED COMPRESSIVE STRENGTH (ksf)	41.5
SHEAR STRENGTH (ksf)	20.8

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

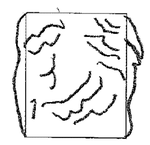
PROJECT NUMBER : **051008NE**
BORING NUMBER : **209** SAMPLE NUMBER : **5B** LAB NUMBER :
SAMPLE DESCRIPTION : **Mottled gray to olive brown moist medium stiff SILTY CLAY** DEPTH (FT.): **13.2** to **13.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.85
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.96
AVERAGE AREA (sq. ft.)	0.0442
VOLUME (cu. ft.)	0.0206
WET WEIGHT (lbs.)	2.58
DRY WEIGHT (lbs.)	2.05
DRY DENSITY (pcf)	**99.6**

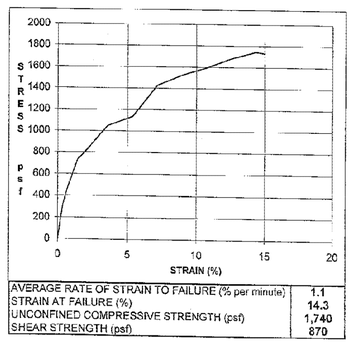
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	X2X
WET WEIGHT + CAN (lbs.)	3.06
DRY WEIGHT + CAN (lbs.)	2.53
WEIGHT WATER (lbs.)	0.53
WEIGHT CAN (lbs.)	0.50
WEIGHT SOLID (lbs.)	2.03
MOISTURE (%)	**26.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0442	0
20	14.0	14.0	0.4	0.0444	315
40	21.0	21.0	0.7	0.0445	471
60	27.0	27.0	1.1	0.0447	604
80	33.0	33.0	1.4	0.0449	736
100	35.0	35.0	1.8	0.0450	777
200	48.0	48.0	3.6	0.0459	1047
300	53.0	53.0	5.4	0.0467	1134
400	68.0	68.0	7.2	0.0476	1427
500	74.0	74.0	9.0	0.0486	1523
600	79.0	79.0	10.8	0.0495	1594
700	85.0	85.0	12.5	0.0506	1681
740	87.0	87.0	13.3	0.0510	1706
800	90.0	90.0	14.3	0.0516	1743
837	90.0	90.0	15.0	0.0520	1730



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	14.3
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,740
SHEAR STRENGTH (psf)	870

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

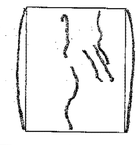
PROJECT NUMBER : **051008NE**
BORING NUMBER : **209** SAMPLE NUMBER : **8A** LAB NUMBER :
SAMPLE DESCRIPTION : **Brown moist very stiff SILTY CLAY with iron oxide stains** DEPTH (FT.): **20.2** to **20.7**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/16/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.80
HEIGHT (in.)	5.58
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0428
VOLUME (cu. ft.)	0.0199
WET WEIGHT (lbs.)	2.63
DRY WEIGHT (lbs.)	2.14
DRY DENSITY (pcf)	**107.6**

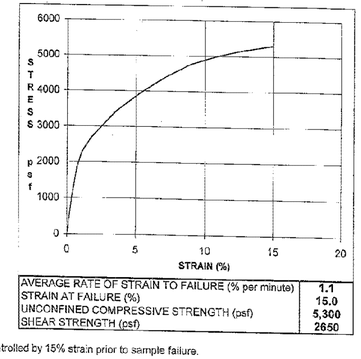
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	np-4
WET WEIGHT + CAN (lbs.)	3.05
DRY WEIGHT + CAN (lbs.)	2.57
WEIGHT WATER (lbs.)	0.48
WEIGHT CAN (lbs.)	0.44
WEIGHT SOLID (lbs.)	2.13
MOISTURE (%)	**22.8**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0428	0
20	45.0	45.0	0.4	0.0430	1048
40	79.0	79.0	0.7	0.0431	1832
60	98.0	98.0	1.1	0.0433	2265
80	108.0	108.0	1.4	0.0434	2487
100	117.0	117.0	1.8	0.0436	2684
200	152.0	152.0	3.6	0.0444	3424
300	178.0	179.0	5.4	0.0452	3957
400	203.0	203.0	7.2	0.0461	4403
500	224.0	224.0	9.0	0.0470	4764
600	239.0	239.0	10.7	0.0480	4983
700	252.0	252.0	12.5	0.0489	5149
800	263.0	263.0	14.3	0.0500	5264
820	265.0	265.0	14.7	0.0502	5282
837	267.0	267.0	15.0	0.0504	5302



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	15.0
UNCONFINED COMPRESSIVE STRENGTH (psf)	5,300
SHEAR STRENGTH (psf)	2650

REMARKS : Unconfined compressive strength controlled by 15% strain prior to sample failure.

DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1881

HAM-50-18.79

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE** LAB NUMBER : **0315N**
BORING NUMBER : **210** SAMPLE NUMBER : **5** DEPTH (FT.): **10.2** to **10.7**
SAMPLE DESCRIPTION : **Brown, trace gray moist medium stiff SILTY CLAY**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **03/01/06**

NATURAL UNIT WEIGHT

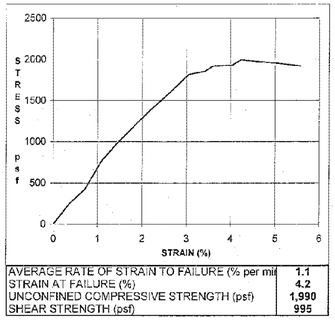
AVERAGE DIAMETER (in.)	2.85
HEIGHT (in.)	5.57
HEIGHT TO DIAMETER RAT	1.95
AVERAGE AREA (sq. ft.)	0.0443
VOLUME (cu. ft.)	0.0206
WET WEIGHT (lbs.)	2.66
DRY WEIGHT (lbs.)	2.19
DRY DENSITY (pcf)	**106.7**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	oh-8
WET WEIGHT + CAN (lbs.)	3.14
DRY WEIGHT + CAN (lbs.)	2.68
WEIGHT WATER (lbs.)	0.47
WEIGHT CAN (lbs.)	0.49
WEIGHT SOLID (lbs.)	2.19
MOISTURE (%)	**21.3**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0443	0
20	11.0	11.0	0.4	0.0444	248
40	19.0	19.0	0.7	0.0445	426
60	34.0	34.0	1.1	0.0448	760
80	44.0	44.0	1.4	0.0449	980
100	53.0	53.0	1.8	0.0451	1176
120	62.0	62.0	2.2	0.0452	1370
140	70.0	70.0	2.5	0.0454	1541
170	83.0	83.0	3.1	0.0457	1817
190	85.0	85.0	3.4	0.0458	1854
200	88.0	88.0	3.6	0.0459	1916
225	89.0	89.0	4.0	0.0461	1929
235	92.0	92.0	4.2	0.0462	1990
260	91.0	91.0	5.0	0.0466	1952
310	90.0	90.0	5.8	0.0469	1920



AVERAGE RATE OF STRAIN TO FAILURE (% per mit	1.1
STRAIN AT FAILURE (%)	**4.2**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**1,990**
SHEAR STRENGTH (psf)	**995**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE** LAB NUMBER : **0319N**
BORING NUMBER : **210** SAMPLE NUMBER : **9** DEPTH (FT.): **20.2** to **20.7**
SAMPLE DESCRIPTION : **Brown moist medium stiff lean SILTY CLAY**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **03/01/06**

NATURAL UNIT WEIGHT

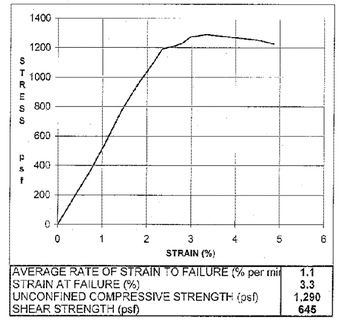
AVERAGE DIAMETER (in.)	2.85
HEIGHT (in.)	5.56
HEIGHT TO DIAMETER RAT	1.95
AVERAGE AREA (sq. ft.)	0.0442
VOLUME (cu. ft.)	0.0205
WET WEIGHT (lbs.)	2.61
DRY WEIGHT (lbs.)	2.11
DRY DENSITY (pcf)	**102.9**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	T2
WET WEIGHT + CAN (lbs.)	3.03
DRY WEIGHT + CAN (lbs.)	2.54
WEIGHT WATER (lbs.)	0.50
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.11
MOISTURE (%)	**23.6**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0442	0
20	8.0	8.0	0.4	0.0444	180
40	16.0	16.0	0.7	0.0445	359
60	25.0	25.0	1.1	0.0447	559
80	35.0	35.0	1.4	0.0449	780
100	43.0	43.0	1.8	0.0451	954
120	50.0	50.0	2.2	0.0452	1106
130	54.0	54.0	2.3	0.0453	1192
145	55.0	55.0	2.6	0.0454	1211
155	56.0	56.0	2.8	0.0455	1230
160	57.0	57.0	2.9	0.0456	1251
165	58.0	58.0	3.0	0.0456	1272
185	59.0	59.0	3.3	0.0458	1289
250	58.0	58.0	4.5	0.0463	1252
270	57.0	57.0	4.9	0.0465	1226



AVERAGE RATE OF STRAIN TO FAILURE (% per mit	1.1
STRAIN AT FAILURE (%)	**3.3**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**1,290**
SHEAR STRENGTH (psf)	**645**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

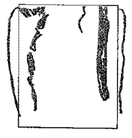
PROJECT NUMBER : **051008NE** LAB NUMBER :
BORING NUMBER : **212** SAMPLE NUMBER : **9A** DEPTH (FT.): **20.2** to **20.7**
SAMPLE DESCRIPTION : **Brown moist medium stiff SILTY CLAY to loose clayey silt**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/19/06**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	3.98
HEIGHT TO DIAMETER RATIO	1.41
AVERAGE AREA (sq. ft.)	0.0436
VOLUME (cu. ft.)	0.0145
WET WEIGHT (lbs.)	1.85
DRY WEIGHT (lbs.)	1.54
DRY DENSITY (pcf)	**106.4**

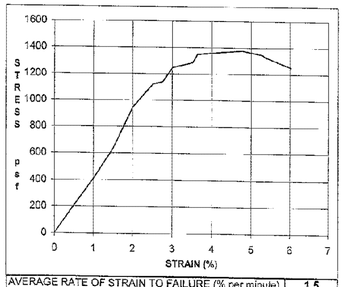
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	x3
WET WEIGHT + CAN (lbs.)	2.34
DRY WEIGHT + CAN (lbs.)	2.03
WEIGHT WATER (lbs.)	0.31
WEIGHT CAN (lbs.)	0.49
WEIGHT SOLID (lbs.)	1.54
MOISTURE (%)	**20.1**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0436	0
20	9.0	9.0	0.5	0.0438	206
40	18.0	18.0	1.0	0.0440	409
60	28.0	28.0	1.5	0.0442	633
80	42.0	42.0	2.0	0.0445	945
100	50.0	50.0	2.5	0.0447	1119
110	51.0	51.0	2.8	0.0448	1138
120	56.0	56.0	3.0	0.0449	1247
130	57.0	57.0	3.3	0.0450	1265
140	58.0	58.0	3.5	0.0452	1284
145	61.0	61.0	3.6	0.0452	1349
190	63.0	63.0	4.8	0.0458	1377
210	62.0	62.0	5.3	0.0460	1348
215	61.0	61.0	5.4	0.0461	1324
240	58.0	58.0	6.0	0.0464	1251



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.5
STRAIN AT FAILURE (%)	**4.8**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**1,380**
SHEAR STRENGTH (psf)	**690**

REMARKS : The sample did not meet the height-to-diameter ratio between 2 and 2.5.

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade**
PROJECT : **G.E., Supplemental Waldvogel Viaduct Replacement**
LOCATION : **Cincinnati, Ohio**

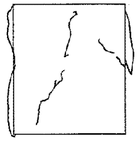
PROJECT NUMBER : **070583NE** LAB NUMBER :
BORING NUMBER : **219** SAMPLE NUMBER : **PT - 5** DEPTH (FT.): **10.0** to **10.5**
SAMPLE DESCRIPTION : **Brown moist stiff sandy Clay**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION: **UNTRIMMED** DATE : **06/22/07**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.81
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.99
AVERAGE AREA (sq. ft.)	0.0431
VOLUME (cu. ft.)	0.0201
WET WEIGHT (lbs.)	2.46
DRY WEIGHT (lbs.)	2.02
DRY DENSITY (pcf)	**100.6**

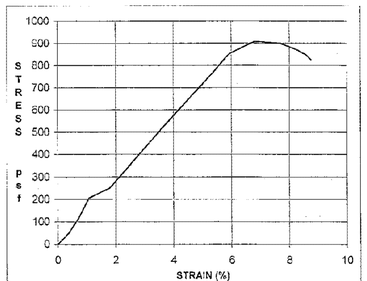
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	D-5
WET WEIGHT + CAN (lbs.)	2.85
DRY WEIGHT + CAN (lbs.)	2.41
WEIGHT WATER (lbs.)	0.43
WEIGHT CAN (lbs.)	0.40
WEIGHT SOLID (lbs.)	2.01
MOISTURE (%)	**21.5**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0431	0
20	2.0	2.0	0.4	0.0433	46
40	5.0	5.0	0.7	0.0434	115
60	9.0	9.0	1.1	0.0436	207
80	10.0	10.0	1.4	0.0437	229
100	11.0	11.0	1.8	0.0439	251
200	23.0	23.0	3.6	0.0447	514
300	35.0	35.0	5.4	0.0456	768
330	39.0	39.0	5.9	0.0458	851
380	42.0	42.0	6.8	0.0463	908
430	42.0	42.0	7.7	0.0467	899
460	41.0	41.0	8.2	0.0470	873
480	40.0	40.0	8.6	0.0472	848
490	39.0	39.0	8.6	0.0473	825
490	39.0	39.0	8.6	0.0473	825



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	**6.8**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**910**
SHEAR STRENGTH (psf)	**455**

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade**
PROJECT : **G.E., Supplemental Waldvogel Viaduct Replacement**
LOCATION : **Cincinnati, Ohio**

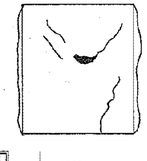
PROJECT NUMBER : **070583NE** LAB NUMBER :
BORING NUMBER : **219** SAMPLE NUMBER : **PT - 7** DEPTH (FT.): **16.2** to **16.7**
SAMPLE DESCRIPTION : **Brown moist very loose clayey SILT**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION: **UNTRIMMED** DATE : **06/22/07**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.98
AVERAGE AREA (sq. ft.)	0.0435
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.49
DRY WEIGHT (lbs.)	1.96
DRY DENSITY (pcf)	**96.5**

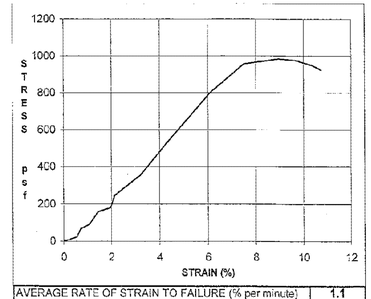
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	A - 2
WET WEIGHT + CAN (lbs.)	2.83
DRY WEIGHT + CAN (lbs.)	2.30
WEIGHT WATER (lbs.)	0.53
WEIGHT CAN (lbs.)	0.34
WEIGHT SOLID (lbs.)	1.95
MOISTURE (%)	**27.3**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0435	0
30	1.0	1.0	0.5	0.0437	23
40	3.0	3.0	0.7	0.0438	68
60	4.0	4.0	1.1	0.0440	91
80	7.0	7.0	1.4	0.0441	159
110	8.0	8.0	2.0	0.0444	180
120	11.0	11.0	2.1	0.0445	247
180	16.0	16.0	3.2	0.0450	356
240	24.0	24.0	4.3	0.0455	528
340	37.0	37.0	6.1	0.0463	799
420	45.0	45.0	7.5	0.0470	957
500	47.0	47.0	8.9	0.0478	984
540	47.0	47.0	9.7	0.0482	976
580	46.0	46.0	10.4	0.0485	948
600	45.0	45.0	10.7	0.0487	923



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	**8.9**
UNCONFINED COMPRESSIVE STRENGTH (psf)	**980**
SHEAR STRENGTH (psf)	**490**

REMARKS :

DRAWN KPR
CHECKED ATS

SOIL PROFILE - SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1881

HAM-50-18.79

17 / 21

124
136

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade**
PROJECT : **G.E., Supplemental Waldvogel Viaduct Replacement**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **070583NE** LAB NUMBER :
BORING NUMBER : **219** SAMPLE NUMBER : **PT - 10** DEPTH (FT.): **23.5** to **24.0**
SAMPLE DESCRIPTION : **Gray moist medium stiff SILT and CLAY**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION: **UNTRIMMED** DATE : **06/22/07**

NATURAL UNIT WEIGHT

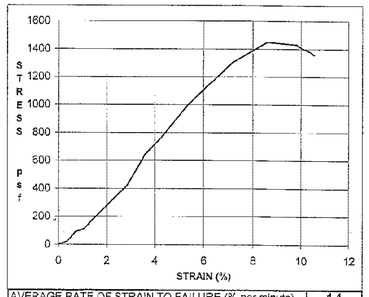
AVERAGE DIAMETER (in.)	2.83
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.98
AVERAGE AREA (sq. ft.)	0.0435
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.51
DRY WEIGHT (lbs.)	1.94
DRY DENSITY (pcf)	**95.9**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	A - 3
WET WEIGHT + CAN (lbs.)	2.86
DRY WEIGHT + CAN (lbs.)	2.29
WEIGHT WATER (lbs.)	0.56
WEIGHT CAN (lbs.)	0.35
WEIGHT SOLID (lbs.)	1.94
MOISTURE (%)	**29.0**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0435	0
20	1.0	1.0	0.4	0.0437	23
40	4.0	4.0	0.7	0.0438	91
60	5.0	5.0	1.1	0.0440	114
80	8.0	8.0	1.4	0.0441	181
160	19.0	19.0	2.9	0.0448	424
200	29.0	29.0	3.6	0.0451	643
240	35.0	35.0	4.3	0.0455	770
300	46.0	46.0	5.4	0.0460	1000
400	61.0	61.0	7.2	0.0469	1302
480	69.0	69.0	8.6	0.0476	1450
550	69.0	69.0	9.8	0.0483	1430
560	68.0	68.0	10.0	0.0484	1406
580	67.0	67.0	10.4	0.0485	1380
590	66.0	66.0	10.6	0.0486	1357



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	8.6
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,450
SHEAR STRENGTH (psf)	725

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade**
PROJECT : **G.E., Supplemental Waldvogel Viaduct Replacement**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **070583NE** LAB NUMBER :
BORING NUMBER : **219** SAMPLE NUMBER : **PT - 12** DEPTH (FT.): **29.3** to **29.8**
SAMPLE DESCRIPTION : **Gray moist medium silt very sandy SILT and CLAY**
0

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION: **UNTRIMMED** DATE : **06/22/07**

NATURAL UNIT WEIGHT

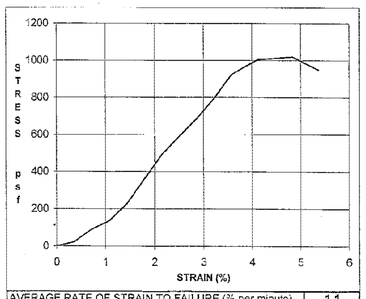
AVERAGE DIAMETER (in.)	2.84
HEIGHT (in.)	5.59
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0439
VOLUME (cu. ft.)	0.0204
WET WEIGHT (lbs.)	2.52
DRY WEIGHT (lbs.)	1.86
DRY DENSITY (pcf)	**95.6**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	D - 4
WET WEIGHT + CAN (lbs.)	2.86
DRY WEIGHT + CAN (lbs.)	2.30
WEIGHT WATER (lbs.)	0.56
WEIGHT CAN (lbs.)	0.35
WEIGHT SOLID (lbs.)	1.95
MOISTURE (%)	**28.7**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0439	0
20	1.0	1.0	0.4	0.0440	23
40	4.0	4.0	0.7	0.0442	91
60	6.0	6.0	1.1	0.0444	135
80	10.0	10.0	1.4	0.0445	225
100	16.0	16.0	1.8	0.0447	358
120	22.0	22.0	2.1	0.0448	491
160	31.0	31.0	2.9	0.0452	686
180	36.0	36.0	3.2	0.0453	794
200	42.0	42.0	3.6	0.0455	923
230	46.0	46.0	4.1	0.0458	1005
270	47.0	47.0	4.8	0.0461	1019
280	46.0	46.0	5.0	0.0462	996
290	45.0	45.0	5.2	0.0463	972
300	44.0	44.0	5.4	0.0464	949



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	4.8
UNCONFINED COMPRESSIVE STRENGTH (psf)	1,020
SHEAR STRENGTH (psf)	510

REMARKS :

DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1881

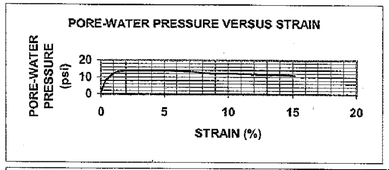
HAM-50-18.79

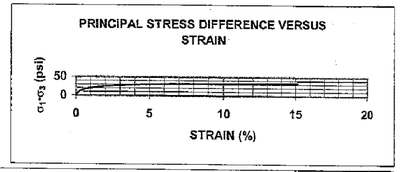
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

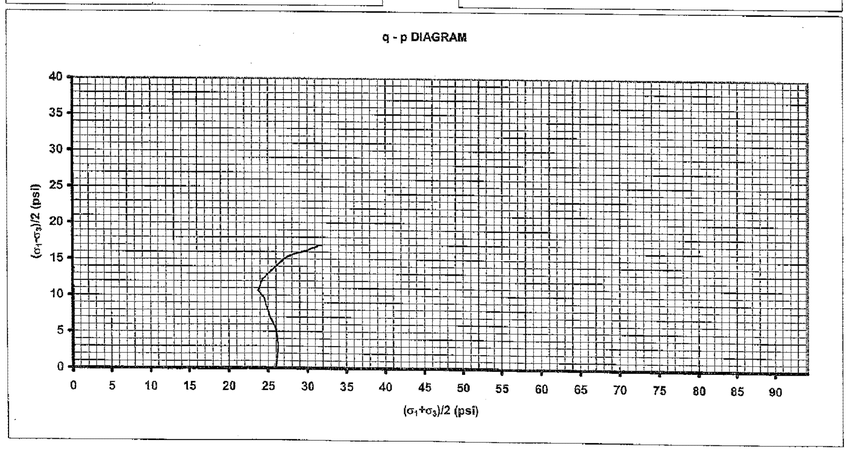
Client: Parsons, Brinckerhoff, Quade Douglas, Inc. **Project #:** 051008NE
Project: Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnti, Ohio **Date:** 7/13/06
Boring: 112 **Sample:** 11A **Depth (feet):** 30.2-30.7 **Sample Type:** Undisturbed
Sample Description: Gray moist medium stiff SILTY CLAY
Liquid Limit: **Plastic Limit:** **Plastic Index:** **USCS:**
Gravel(%): **Sand(%):** **Silt(%):** **Clay(%):** **Specific Gravity:** 2.75

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	102.2	105.5
Water Content (%)	20.4	25.4
Void Ratio	0.68	0.63
Saturation (%)	83	100
Diameter (in.)	2.805	2.775
Height (in.)	5.577	5.518
Saturation Data		
Pore Pressure Parameter B		0.97
Total Back Pressure (psi)		50

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.05
Effective Consolidation Stress (psi)	26
Strain Data	
Axial Strain at Failure (%)	3.9
Strain Rate (% per minute)	0.04
Soil Strength Parameters	
α (degrees)	20
ϕ (degrees)	21
y - intercept (psi)	5
cohesion (psf)	771





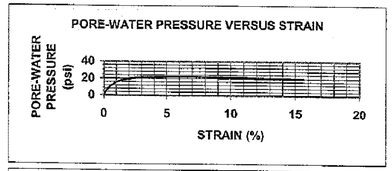


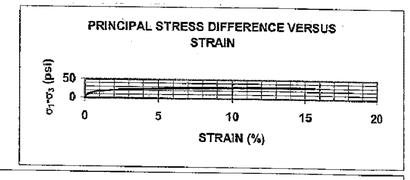
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

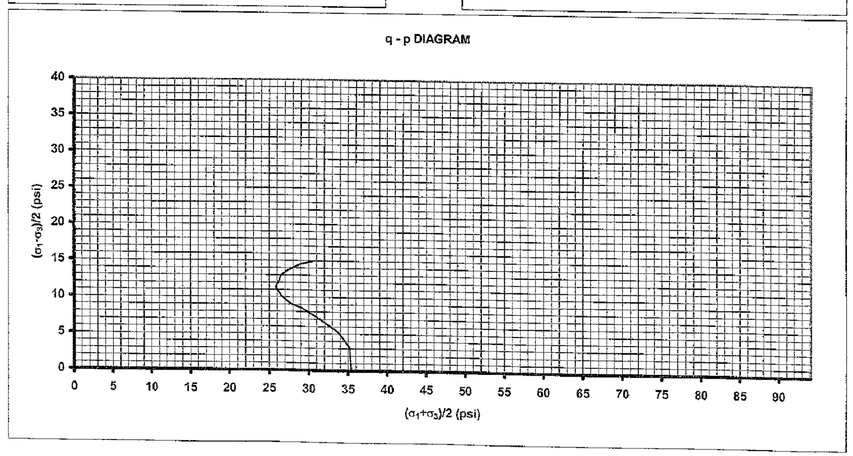
Client: Parsons, Brinckerhoff, Quade Douglas, Inc. **Project #:** 051008NE
Project: Geotechnical Exploration, Replacement of Waldvogel Viaduct, Cincinnti, Ohio **Date:** 7/18/06
Boring: 112 **Sample:** 11A **Depth (feet):** 31.0-31.5 **Sample Type:** Undisturbed
Sample Description: Gray moist medium stiff SILTY CLAY
Liquid Limit: **Plastic Limit:** **Plastic Index:** **USCS:**
Gravel(%): **Sand(%):** **Silt(%):** **Clay(%):** **Specific Gravity:** 2.75

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	100.8	105.9
Water Content (%)	24.1	23.7
Void Ratio	0.70	0.62
Saturation (%)	94	100
Diameter (in.)	2.802	2.756
Height (in.)	5.593	5.504
Saturation Data		
Pore Pressure Parameter B		0.95
Total Back Pressure (psi)		40.6

Consolidation Data	
Area Method B, after Consolidation (in^2)	5.97
Effective Consolidation Stress (psi)	35.4
Strain Data	
Axial Strain at Failure (%)	5.4
Strain Rate (% per minute)	0.05
Soil Strength Parameters	
α (degrees)	26.5
ϕ (degrees)	30
y - intercept (psi)	0
cohesion (psf)	0





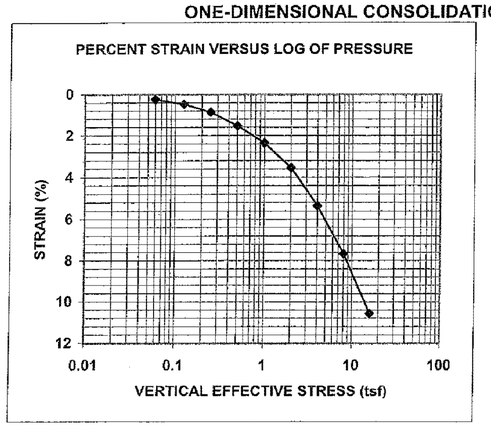


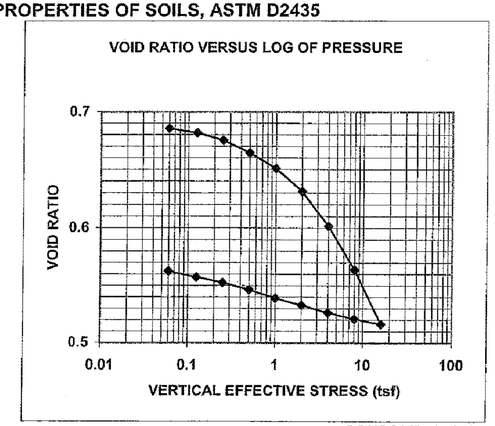
DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
TRIAXIAL TEST DATA

HAM-50-18.79

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

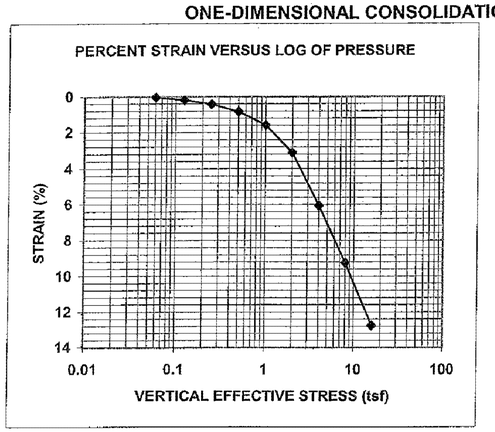
	INITIAL	FINAL
WATER CONTENT (%)	20.7	20.9
DRY UNIT WEIGHT (pcf)	100.2	107.6
VOID RATIO	0.6895	0.5661
SATURATION (%)	81.5	100.0

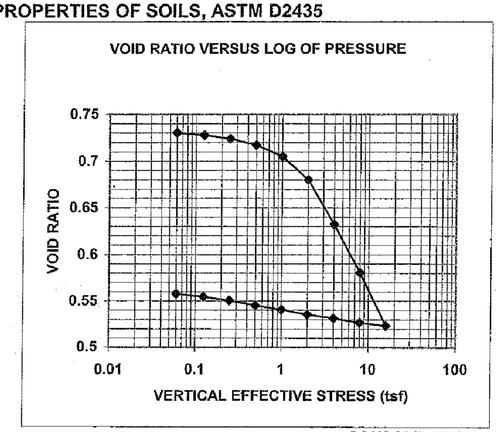
CONSOLIDATION PROPERTIES	
P_c (tsf)	2.1
P_o (tsf)	0.65
C_c	0.158
C_r	0.021

SAMPLE DESCRIPTION			Brown moist stiff SILTY CLAY					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION IS: CL	SPECIFIC GRAVITY
				35	21	14	ODOT CLASSIFICATION IS: A-6a (10)	2.71

CLIENT	Parsons Brinckerhoff Quade Douglas, Inc.			BORING NUMBER	210
PROJECT	Replacement of Waldvogel Viaduct			SAMPLE NUMBER	5
PROJECT NUMBER	051008NE	DATE	3/16/06	DEPTH (feet)	10.7-10.9

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

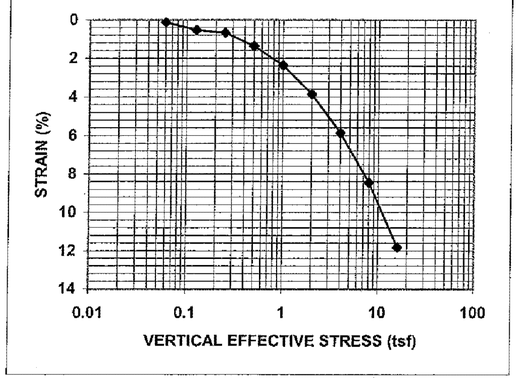
	INITIAL	FINAL
WATER CONTENT (%)	19.7	21.1
DRY UNIT WEIGHT (pcf)	96.7	105.0
VOID RATIO	0.7307	0.5646
SATURATION (%)	72.1	100.0

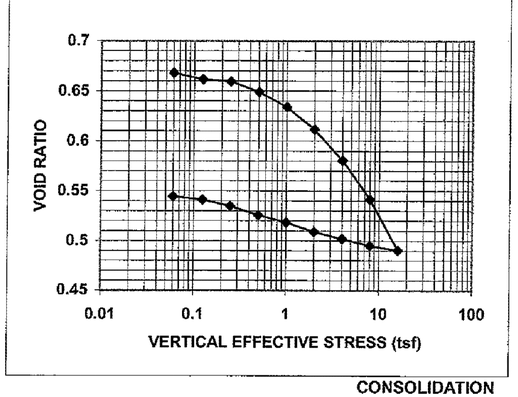
CONSOLIDATION PROPERTIES	
P_c (tsf)	1.5
P_o (tsf)	1.4
C_c	0.166
C_r	0.018

SAMPLE DESCRIPTION			Brown moist stiff SILTY CLAY					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION IS: CL	SPECIFIC GRAVITY
				29	19	10	ODOT CLASSIFICATION IS: A-4-b	2.68

CLIENT	Parsons Brinckerhoff Quade Douglas, Inc.			BORING NUMBER	210
PROJECT	Replacement of Waldvogel Viaduct			SAMPLE NUMBER	9
PROJECT NUMBER	051008NE	DATE	3/16/06	DEPTH (feet)	20.7-21.2

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





TRIM METHOD	Cutting Shoe
TEST CONDITION	Inundated
SEAT LOAD (tsf)	0.05
TEST METHOD	B

	INITIAL	FINAL
WATER CONTENT (%)	17.0	20.8
DRY UNIT WEIGHT (pcf)	99.5	102.2
VOID RATIO	0.6698	0.5522
SATURATION (%)	67.5	100.0

CONSOLIDATION PROPERTIES	
P_c (tsf)	1.2
P_o (tsf)	0.9
C_c	0.165
C_r	0.024

SAMPLE DESCRIPTION			Mottled brown, trace gray moist very stiff SILTY CLAY					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	USCS CLASSIFICATION IS: CL	SPECIFIC GRAVITY
	15	48	37	30	20	13	ODOT CLASSIFICATION IS: A-6a (9)	2.66

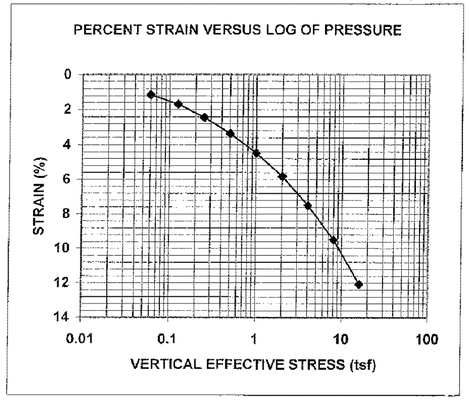
CLIENT	Parsons Brinckerhoff Quade, Doglas, Inc.			BORING NUMBER	112
PROJECT	Replacement of Waldvogel Viaduct, Cincinnati, Ohio			SAMPLE NUMBER	7A
PROJECT NUMBER	051008NE	DATE	6/13/06	DEPTH (feet)	15.2'-15.4'

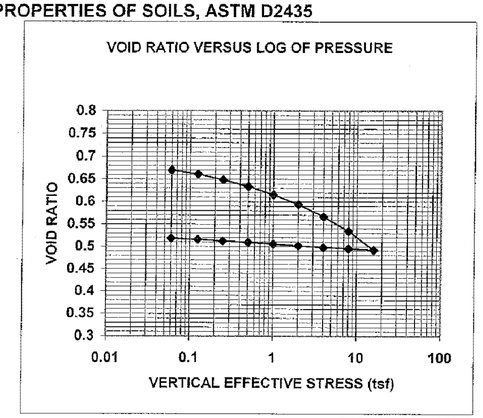
DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1881

HAM-50-18.79

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435



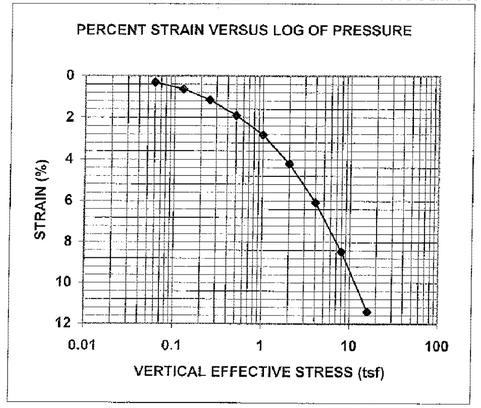


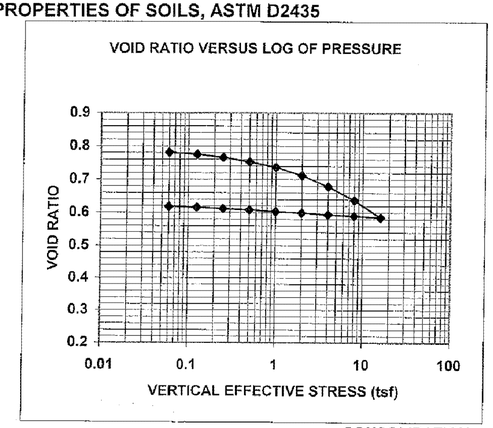
		INITIAL	FINAL	CONSOLIDATION PROPERTIES	
TRIM METHOD	Cutting Shoe	WATER CONTENT (%)	24.9	19.6	P_c (tsf)	1.9
TEST CONDITION	Inundated	DRY UNIT WEIGHT (pcf)	99.2	108.8	P_o (tsf)	1
SEAT LOAD (tsf)	0.05	VOID RATIO	0.6883	0.5253	C_c	0.151
TEST METHOD	B	SATURATION (%)	97.2	100.0	C_r	0.011

SAMPLE DESCRIPTION			Brown moist very loose sandy SILT (Horizontal Sample)					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	ODOT CLASSIFICATION	SPECIFIC GRAVITY
	28	55	17	23	16	7	A - 4b	2.683

CLIENT	Parsons Brinckerhoff Quade			BORING NUMBER	219
PROJECT	G.E., Waldvogel Viaduct Replacement Supplemental			SAMPLE NUMBER	PT - 7
PROJECT NUMBER	070583NE	DATE	7/10/2007	DEPTH (feet)	15.5 - 15.8

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES OF SOILS, ASTM D2435





		INITIAL	FINAL	CONSOLIDATION PROPERTIES	
TRIM METHOD	Cutting Shoe	WATER CONTENT (%)	26.5	23.1	P_c (tsf)	2
TEST CONDITION	Inundated	DRY UNIT WEIGHT (pcf)	94.2	102.3	P_o (tsf)	1.7
SEAT LOAD (tsf)	0.05	VOID RATIO	0.7860	0.6224	C_c	0.185
TEST METHOD	B	SATURATION (%)	90.7	100.0	C_r	0.017

SAMPLE DESCRIPTION			Gray moist medium stiff very sandy SILT and CLAY (Horizontal Sample)					
GRAVEL	SAND	SILT	CLAY	LL	PL	PI	ODOT CLASSIFICATION	SPECIFIC GRAVITY
0	20	58	22	28	17	11	A - 6a	2.695

CLIENT	Parsons Brinckerhoff Quade			BORING NUMBER	219
PROJECT	G.E., Waldvogel Viaduct Replacement Supplemental			SAMPLE NUMBER	PT - 12
PROJECT NUMBER	070583NE	DATE	7/13/2007	DEPTH (feet)	28.5 - 28.8

DRAWN KPR CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1881

HAM-50-18.79

PROJECT DESCRIPTION

THE COMPLETE PROJECT CONSISTS OF THE REPLACEMENT OF THE EXISITING WALDVOGEL (6TH STREET) VIADUCT CONNECTING RIVER ROAD (US 50) TO THE ELBERON AND WARSAW AVENUES IN CININCINNATI, OHIO. THE NEW ALIGNMENT WILL ENDEAVOR TO RELOCATE A SUBSTANTIAL AMOUNT OF THE CURRENT ELEVATED ROADWAY ON-GRADE. BRIDGE HAM-050-1903 WILL SPAN THE MILL CREEK AT THE EAST END OF THE PROJECT.

HISTORIC RECORDS

THE CURRENT WALDVOGEL VIADUCT WAS CONSTRUCTED IN 1949. SUBSEQUENT EXPLORATIONS WERE PERFORMED BY THE H.C. NUTTING COMPANY FOR THE CITY OF CINCINNATI IN REPORTS PREPARED IN 1951 AND 1989. ADDITIONAL REPORTS FOR PREVIOUS REPLACEMENT DESIGNS WERE PUBLISHED IN 1990, 1991, 1996, 1998, AND 1999. HISTORIC BORINGS FROM THE 1999 EXPLORATIONS ARE PRESENTED ON THE SOIL PROFILES. (SEE "AVAILABLE INFORMATION" BELOW).

GEOLOGY

THE PROJECT SITE IS LOCATED AT THE TRANSITION BETWEEN THE DEEP ALLUVIAL OHIO RIVER BASIN TO THE EAST AND THE COLLUVIAL AND BEDROCK SLOPES OF THE LOWER PRICE HILL TO THE WEST. THE UNDERLYING BEDROCK CONSISTS OF THE KOPE FORMATION OF INTERBEDDED SHALE AND LIMESTONE.

RECONNAISSANCE

THE SITE PROPOSED FOR THE AND BRIDGE REPLACEMENT CURRENTLY CONSISTS OF A BROAD ALLUVIAL PLAIN. THE GROUND SURFACE IS RELATIVELY LEVEL AT APPROXIMATELY EL. 490 (MSL). THE EASTERN PORTION OF THE SITE IS AN AREA OF LONG STANDING INDUSTRIAL DEVELOPMENT.

SUBSURFACE EXPLORATION

THE TEST BORINGS WERE PERFORMED WITH TRACK AND TRUCK MOUNTED DRILL RIGS ADVANCING HOLLOW - STEM AUGERS. SAMPLING WAS PERFORMED WITH AN AUTOMATIC HAMMER ON CME MODEL 55 ANND 450 RIGS. STANDARD SPLIT SPOON SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1586. SAMPLES WERE GENERALLY OBTAINED AT A 2.5 FT INTERVAL. AT SELECTED LOCATIONS, THIN WALLED SHELBY TUBE SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE PROCEDURES OF ASTM D-1587.

EXPLORATION FINDINGS

THE SHALLOW SUBSURFACE PROFILE CONSISTS OF A SURFICIAL LAYER OF RANDOM FILL. BELOW THE FILL IS A CRUST OF STIFF LEAN SILTY CLAY WHICH GENERALLY CLASSIFIES AS A-7-6 AND 6A.
THE CRUST TYPICALLY EXTENDS APPROXIMATELY 20 FEET FROM THE GROUND SURFACE. THE ALLUVIUM BECOMES SILTIER AND LESS STIFF WITH DEPTH, CLASSIFYING A-4-6 TO A-6B TO APPROXIMATELY 40 FEET. BELOW APPROXIMATELY 40 FEET, THE ALLUVIUM TRANSITIONS TO GRANULAR OUTWASH DEPOSITS, MEDIUM DENSE TO DENSE SAND AND SAND AND GRAVEL. GRANULAR SOILS ARE TYPICALLY WELL GRADED AND MEDIUM DENSE TO VERY DENSE. STATIC GROUNDWATER WAS TYPICALLY ENCOUNTERED AT THE CONTACT BETWEEN THE ALLUVIAL SOILS AND THE OUTWASH SOILS. NATIVE BEDROCK, INTERBEDDED SHALE AND LIMESTONE, WAS ENCOUNTERED BETWEEN 70 AND IN EXCESS OF 100 FEET FROM THE GROUND SURFACE.

SPECIFICATIONS

ALL BORINGS WERE PERFORMED IN ACCORDANCE WITH ODOT SSI (1996). DRAWINGS WERE PREPARED IN ACCORDANCE WITH ODOT SGE (2007).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK DATA THAT CAN BE CONVENIENTLY SHOWN ON THE PROFILE SHEETS HAS BEEN REPORTED. PREVIOUS SUBSURFACE INVESTIGATIONS AND SOIL AND BEDROCK TESTS WERE PERFORMED IN 1952, 1989, 1990, 1991, 1996 AND 1999. COPIES OF THIS AND OTHER AVAIALABLE DATA MAY BE INSPECTED AT THE DEPUTY DIRECTOR'S OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, COLUMBUS, OHIO, AT THE OFFICE OF STRUCTURAL ENGINEERING, DISTRICT 8 AND AT THE CITY OF CINCINNATI, DEPARTMENT OF TRANSPORTATION & ENGINEERING. SOIL AND ROCK CORE SAMPLES MAY BE REVIEWED AT THELEN ASSOCIATES, INC., 1780 CARILLON BLVD., CINCINNATI, OHIO

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	1	0
GRAVEL AND/OR STONE FRAGMENTSWITH SAND	A-1-b	4	8
FINE SAND	A-3	0	18
COARSE AND FINE SAND	A-3a	1	11
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT AND CLAY	A-2-4 A-2-5	1	0
SILT	A-4b	5	5
SILT AND CLAY	A-6a	6	13
SILTY CLAY	A-6b	0	16
SILTY CLAY	A-7-5	1	0
WEATHERED INTERBEDDED SHALE AND LIMESTONE			VISUAL
INTERBEDDED SHALE AND LIMESTONE			VISUAL
PAVEMENT OR BASE			VISUAL

EXPLORATION LOCATION-PLAN VIEW

HISTORIC BORING LOCATION-PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

ST INDICATES A SHELBY TUBE SAMPLE

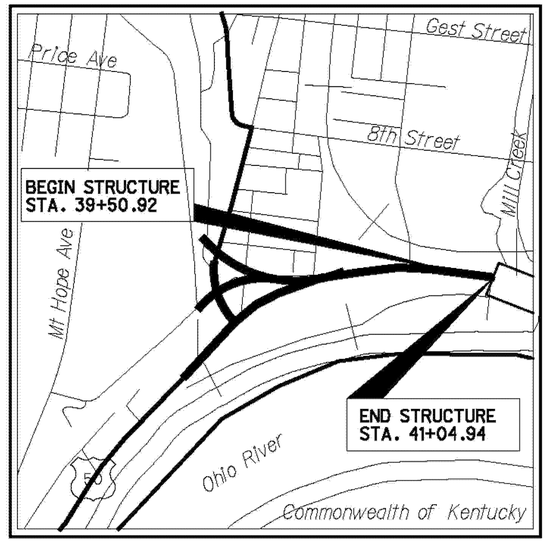
W INDICATES FREE WATER ELEVATION

INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

INDICATES PLASTIC MATERIAL WITH A HIGH WATER CONTENT

WC INDICATES WATER CONTENT IN PERCENT

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES



LOCATION MAP

SCALE IN MILES

0 1 2

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS

Sample Location			Confining		Drained	Angle of Internal
Boring	Sample	Sample	Pressure, Pc		Cohesion, C	Friction ϕ
No.	No.	Depth, Ft.	psi	psf	psf	degrees
202	6B	13.5-14.0	15.0	2,160	374	32.1
202	6A	13.0-13.5	10.6	1,526	311	33.7

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL

Boring No.	Sample No.	Sample Depth, ft.	Unconfined Compressive Strength, psf	Dry Density, pcf	Moisture Content, %	Shear Strength, psf
102	7A	15.2-15.7	2,840	107.9	20.4	1,420
202	10	25.4-26.0	3,090	112.7	21.0	1,545

RECON. - ATS 2/6 - 2/10/06
DRILLING - GB 2/13 - 4/21/06, 6/20 - 6/21/07
DRILLING - LW 3/22 - 4/25/06, 6/20-6/26/07
DRAWN - MS 5/20/06 - 7/31/07
DRAWN - KPR 10/4/07 - 6/11/10
REVIEWED - ATS 6/12/10

THELEN ASSOCIATES, INC. Geotechnical • Testing Engineers

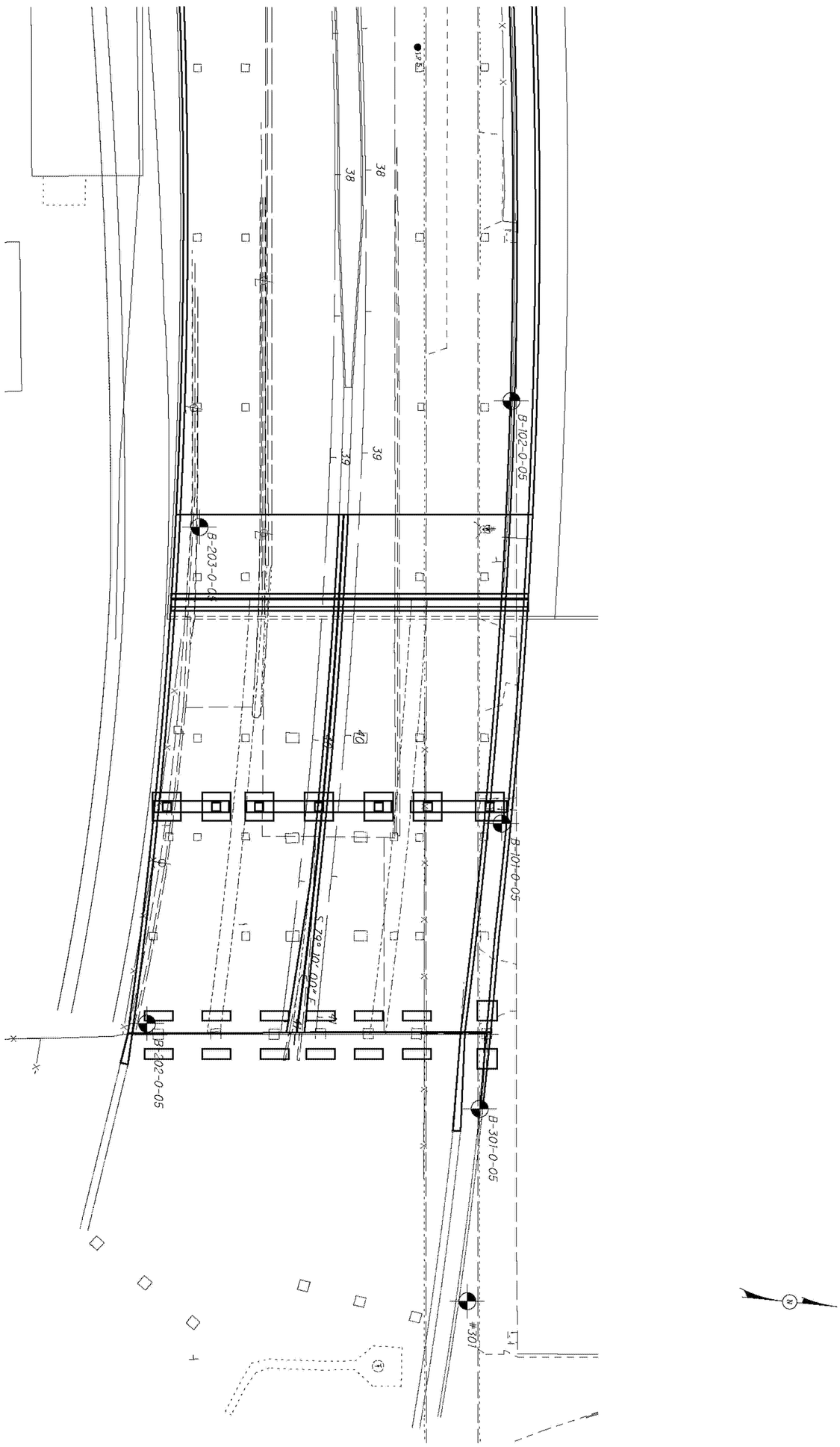
PID NO. 20082

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1903

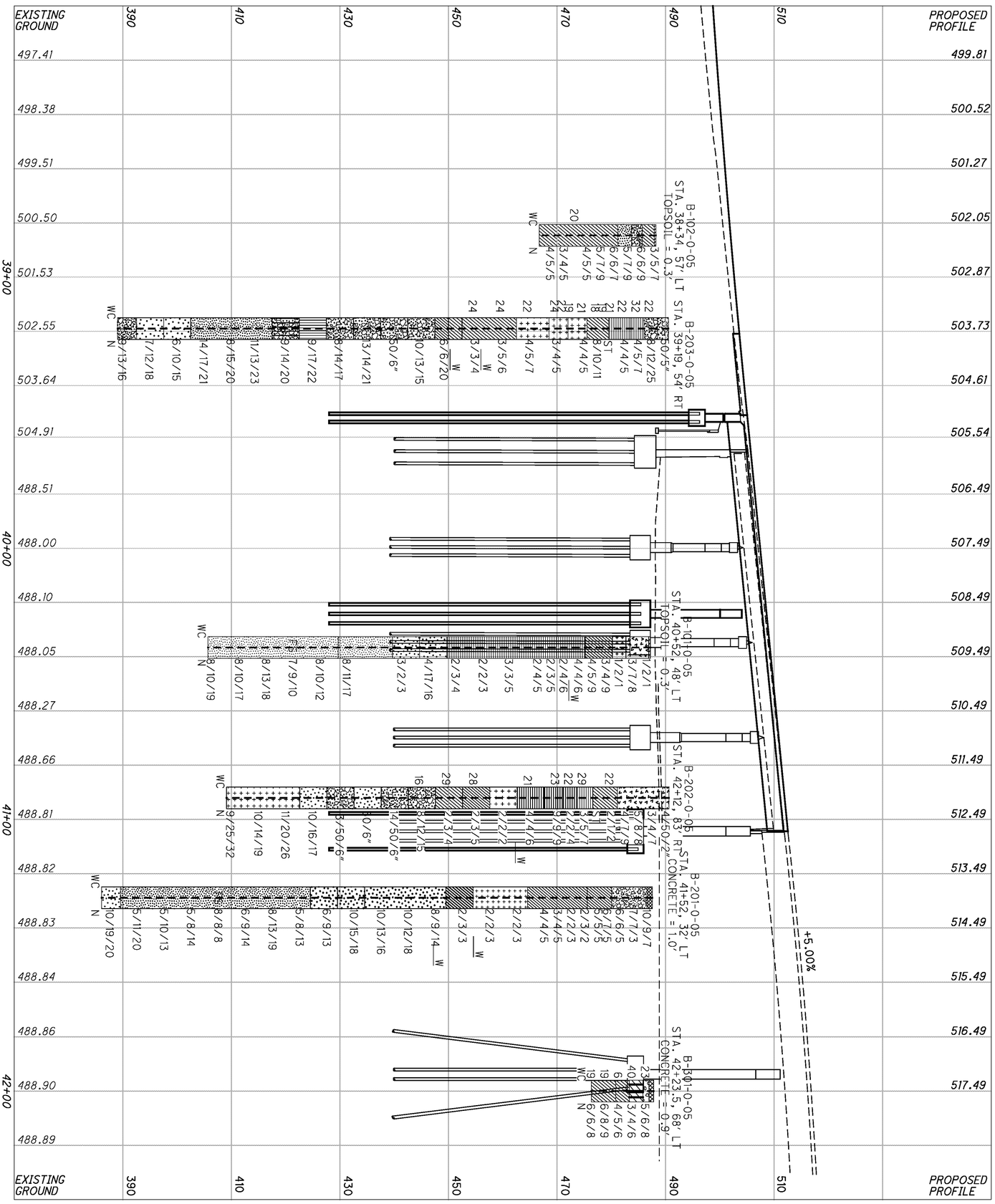
HAM-50-18.79

1 / 8

129 / 136



130 / 136	2 / 8	**HAM-50-18.79**	**STRUCTURE FOUNDATION EXPLORATION** **BRIDGE NO. HAM-050-1903**	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET



PROFILE ALONG ℄ WESTBOUND U.S.R. 50

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL

131/136	3/8	HAM-50-18.79	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. HAM-050-1903	DRAWN KPR CHECKED ATS	0 20 10 40 HORIZONTAL SCALE IN FEET

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 40+52, 48' Left
BORING # 101 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
488.6	GROUND SURFACE																
488.3	TOPSOIL	0.3		I	1/2/1	1A 1B	DS	67									
484.1	Mixed brown moist stiff FILL, silty clay with rock and brick fragments.	4.5		I	3/7/8	2	DS	100									
481.6	Brown moist to wet loose FILL, clayey fine silt, trace rock fragments and gravel.	7.0	5	D	1/2/1	3	DS	100					VISUAL				A-4b
				I	3/4/9	4	DS	100					VISUAL				A-6a
476.6	Mottled brown, trace gray moist stiff SILTY CLAY.	12.0	10	I	4/5/9	5	DS	100					VISUAL				A-6a
				I	4/4/6	6	DS	100					VISUAL				A-6a
			15	I	2/4/6	7	DS	67					VISUAL				A-6b
				I	2/3/5	8	DS	100					VISUAL				A-6b
			20	I	2/4/5	9	DS	100					VISUAL				A-6b
			25	I	3/3/5	10	DS	100					VISUAL				A-6b
			30	I	3/2/3	11	DS	100					VISUAL				A-6b
451.1	Brown moist medium stiff to stiff very SILT and CLAY, trace fine sand.	37.5	35	I	2/3/4	12	DS	100					VISUAL				A-6b
446.1	Brown wet medium dense to dense fine to coarse SAND, trace gravel with rock fragments.	42.5	40	D	4/17/16	13	DS	100					VISUAL				A-3a
441.1	Brown wet loose fine to medium SAND.	47.5	45	D	3/2/3	14	DS	100					VISUAL				A-3a
			50	D	7/25/16	15	DS	100					VISUAL				A-3
431.1	Gray wet medium dense silty fine SAND.	57.5	55	D	8/11/17	16	DS	100					VISUAL				A-3
			60	D	8/10/12	17	DS	100					VISUAL				A-3
			65	D	7/9/10	18	DS	100					VISUAL				A-3
			70	D	8/13/18	19	DS	100					VISUAL				A-3
			75	D	8/10/17	20	DS	100					VISUAL				A-3
407.1	Gray wet medium dense silty fine SAND.	81.5	80	D	8/10/19	21	DS	100					VISUAL				A-3
	Bottom of test boring at 81.5 feet.																

R – RECOVERY AG – AGGREGATE C$ – COARSE SAND F$ – FINE SAND S – SILT C – CLAY WC – WATER CONTENT

Datum MSL
Surf. Elev. 488.6
Date Started 3–20–06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman LW
Engineer ATS
Date Completed 3–22–06

SAMPLE CONDITIONS (COND.)
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 15.0 ft
AT COMPLETION 25.0 ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 38+34, 57' Left
BORING # 102 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
488.2	GROUND SURFACE																
487.9	TOPSOIL	0.3		I	3/5/7	1A 1B	DS	72					VISUAL				A-6a
485.7	Brown and gray moist stiff FILL, silty clay, with gravel and brick fragments.	2.5															
481.2	Brown moist medium dense FILL, silty sand and gravel, rock fragments.	4.5		D	6/6/9	2	DS	100					VISUAL				A-1-b
			5	D/I	5/7/9	3	DS	100					VISUAL				A-3
481.2	Brown moist loose silty SAND (possible fill).	7.0															
				I	6/6/7	4	DS	100					VISUAL				A-6a
			10	I	5/7/9	5	DS	100					VISUAL				A-6a
				I	4/5/5	6	DS	100					VISUAL				A-6a
			15	U		7A 7B	PT	75	0	0	22	46	32	31	11	20.4	A-6a (8)
				I	3/4/5	8	DS	100					VISUAL				A-6a
466.7	Mottled brown and gray moist stiff to very stiff SILT and CLAY.	21.5	20	I	4/5/5	9	DS	100					VISUAL				A-6a
	Bottom of test boring at 21.5 feet.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 488.2
Date Started 3-22-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman LW
Engineer ATS
Date Completed 3-22-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft
AT COMPLETION Dry ft
AFTER ____ hrs. ____ ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1903

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 41+52, 32' Left
BORING # 201 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
487.5	GROUND SURFACE																
486.5	CONCRETE PAVEMENT	1.0		D	10/9/7	1	DS	67					VISUAL				A-1-b
				D	7/7/3	2	DS	17					VISUAL				A-1-b
480.0	Mixed brown moist loose FILL, fine to coarse sand and brick fragments.	7.5	5	D	6/6/5	3	DS	67					VISUAL				A-1b
				I	6/7/5	4	DS	67					VISUAL				A-6b
475.5	Brown moist stiff very SILTY CLAY.	12.0	10	I	5/5/5	5	DS	33					VISUAL				A-6a
				I	2/3/2	6	DS	100					VISUAL				A-6b
			15	I	2/2/3	7	DS	100					VISUAL				A-6b
				I	3/4/5	8	DS	100					VISUAL				A-6b
464.5	Brownish gray moist medium stiff SILT and CLAY, trace sand.	23.0	20	I	4/4/5	9	DS	100					VISUAL				A-6b
			25	I	2/2/3	10	DS	100					VISUAL				A-4b
454.5	Brown very moist to wet loose clayey SILT, trace fine sand.	33.0	30	I	2/2/3	11	DS	100					VISUAL				A-4b
449.5	Gray moist medium stiff SILT and CLAY, partially varved.	38.0	35	I	2/3/3	12	DS	100					VISUAL				A-6b
			40	D	8/9/14	13	DS	100					VISUAL				A-3a
			45	D	10/12/18	14	DS	100					VISUAL				A-3a
434.5	Brown wet medium dense to dense fine to medium SAND, trace gravel.	53.0	50	D	10/13/16	15	DS	100					VISUAL				A-3a
429.5	Gray wet dense silty fine SAND, trace gravel with silty clay layers.	58.0	55	D	10/15/18	16	DS	100					VISUAL				A-3a
424.5	Gray wet medium dense silty SAND with gravel and clay layers.	63.0	60	D	6/9/13	17	DS	100					VISUAL				A-3a
			65	D	5/8/13	18	DS	100					VISUAL				A-3a
			70	D	6/9/14	19	DS	100					VISUAL				A-3
			75	D	8/8/8	20	DS	100					VISUAL				A-3
			80	D	8/13/19	21	DS	100					VISUAL				A-3
			85	D	5/8/14	22	DS	100					VISUAL				A-3
			90	D	5/10/13	23	DS	100					VISUAL				A-3
389.5	Gray wet medium dense to dense silty fine SAND.	98.0	95	D	5/11/20	24	DS	100					VISUAL				A-3
386.0	Brown wet dense silty fine SAND, trace gravel and rock fragments.	101.5	100	D	10/19/20	25	DS	100					VISUAL				A-3a
	Bottom of test boring at 101.5 feet.																

R – RECOVERY AG – AGGREGATE C$ – COARSE SAND F$ – FINE SAND S – SILT C – CLAY WC – WATER CONTENT

Datum MSL
Surf. Elev. 487.5
Date Started 3-23-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 2¼ HSA

Foreman LW
Engineer ATS
Date Completed 3-23-06

SAMPLE CONDITIONS (COND.)
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 40.0 ft
AT COMPLETION 33.0 ft
AFTER 24 hrs. 33.0 ft
BACKFILLED 24 hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 42+12, 83' Right
BORING # 202 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	TEST RESULTS GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
490.6	GROUND SURFACE																
				I	4/50/2"	1	DS	27									
				I	3/4/7	2	DS	33									
			5	I	5/8/8	3	DS	33									
481.1	Mixed black, trace brown moist medium stiff to stiff FILL, silty clay with cinders, glass, fine to coarse sand and gravel, brick, concrete and limestone fragments.	9.5		I	4/7/9	4	DS	33									
			10	I	2/1/2	5	DS	72						28	13	22.3	A-6a (9)
476.6	Brown to olive gray moist soft to medium stiff very SILT and CLAY.	14.0		U		6	PT	54									
473.6	Mottled grayish brown moist stiff SILTY CLAY.	17.0	15	I	3/5/7	7	DS	78				VISUAL				29.4	A-6b
471.1	Grayish brown moist medium stiff to stiff SILTY CLAY.	19.5		I	2/2/4	8	DS	100				VISUAL				21.5	A-6b
467.6	Brown, trace gray moist stiff SILTY CLAY.	23.0	20	I	9/9/9	9	DS	100				VISUAL				22.9	A-6b
462.6	Brown moist very stiff SILTY CLAY.	28.0	25	I	4/4/6	10	DS	67				VISUAL				21.0	A-6b
457.6	Brown moist loose clayey SILT with wet silty fine sand layers.	33.0	30	I	2/2/2	11	DS	67	0	0	12	88					A-4b
452.6	Brown, trace gray moist medium stiff to stiff SILTY CLAY to clayey SILT with fine sand seams.	38.0	35	I	2/3/5	12	DS	67				VISUAL				28.4	A-6a
447.6	Gray moist medium stiff to stiff SILT and CLAY, trace fine sand and gravel.	43.0	40	D	2/3/4	13	DS	100						38	14	28.6	A-6a (10)
442.6	Brown wet medium dense fine to coarse SAND and GRAVEL with limestone floaters.	48.0	45	D	8/12/15	14	DS	72								16.0	A-1b
437.6	Dark brown to black wet very dense fine to coarse SAND and GRAVEL.	53.0	50	D	14/50/6"	15	DS	67	51	35	9	5					A-1-b (0)
432.6	Brown wet very dense fine to coarse SAND, trace fine gravel.	58.0	55	D	50/6"	16	DS	67				VISUAL					A-3a
427.6	Brown wet very dense fine to coarse SAND and GRAVEL.	63.0	60	D	13/50/6"	17	DS	72				VISUAL					A-1b
422.6	Brown wet very dense fine to coarse SAND.	68.0	65	D	10/16/17	18	DS	72				VISUAL					A-3a
			70	D	11/20/26	19	DS	78	1	2	19	78					A-4-b
			75	D	10/14/19	20	DS	50				VISUAL					A-4b
409.1	Gray moist dense clayey SILT with fine sand layers.	81.5	80	D	9/25/32	21	DS	61				VISUAL					A-4b
	Bottom of test boring at 81.5 feet.		85														
	* Test boring caved to 8.7 feet upon completion.																

R - RECOVERY AG - AGGREGATE C$ - COARSE SAND F$ - FINE SAND S - SILT C - CLAY WC - WATER CONTENT

Datum MSL
Surf. Elev. 490.6
Date Started 3-3-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 3-3-06

SAMPLE CONDITIONS (COND.)
D - DISINTEGRATED
I - INTACT
U - UNDISTURBED
L - LOST

SAMPLE TYPE
DS - DRIVEN SPLIT SPOON
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 10.0, 28.0 ft
AT COMPLETION 35.0 ft
AFTER hrs. ft
BACKFILLED * hrs.

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

DRAWN KPR
CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1903

HAM-50-18.79

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 39+19, 54' Right

BORING # 203 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTION	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
490.5	GROUND SURFACE																
488.5	Mixed brown dense FILL, crushed limestone, cinders and limestone floaters.	2.0		I	50/5"	1	DS	22									
486.0	Mixed reddish brown moist dense FILL, brick fragments.	4.5		D	8/12/25	2	DS	72	86	6	4	4				21.7	A-1-b (0)
483.5	Gray moist stiff SILTY CLAY with organic specks.	7.0	5	I	4/5/7	3	DS	50				VISUAL				32.3	A-6b
				I	4/4/5	4	DS	100				VISUAL				22.2	A-6b
479.0	Mottled brown and gray moist stiff SILTY CLAY.	11.0	10	U		5A 5B	PT	92				VISUAL				20.5 19.0	A-6b
476.0	Brown moist stiff SILT and CLAY, trace fine sand.	14.5		I	8/10/11	6	DS	100						32	13	18.0	A-6a (9)
			15	I	4/4/5	7	DS	100						28	10	21.2	A-4b (8)
472.0	Brown, brownish gray moist loose SILT, trace fine sand.	18.5		U		8A 8B	PT	100								19.2 21.5	A-4b
468.5	Grayish brown and brown moist loose sandy SILT.	22.0	20	I	3/4/5	9	DS	100	0	0	42	40	18	NON-PLASTIC		23.9	A-4b (5)
462.5	Brown moist medium dense clayey SILT .	28.0	25	I	4/5/7	10	DS	100	0	0	25	52	23	28	8	21.8	A-4b (8)
			30	I	3/5/6	11	DS	100	0	0	11	60	29	34	13	23.9	A-6a (9)
452.5	Brown moist stiff to very stiff SILT and CLAY with wet sandy silt layers.	38.0	35	I	3/3/4	12	DS	100				VISUAL				24.3	A-6a
450.0	Mottled brown and gray wet very stiff SILTY CLAY with fine to coarse sand and fine gravel.	40.5	40	I/6	6/6/20	13A 13B	DS	50				VISUAL					A-6a
447.5	Brown wet medium dense fine to coarse SAND and GRAVEL.	43.0															
442.5	Brown wet medium dense fine to coarse SAND and GRAVEL (SW-SM).	48.0	45	D	10/13/15	14	DS	67	48	38	7	7					A-1-b (0)
437.5	Brown wet very dense silty fine to coarse SAND and GRAVEL with limestone cobbles.	53.0	50	D	50/6"	15	DS	27				VISUAL					A-1-b
432.5	Brown wet dense silty fine to coarse SAND, some fine gravel.	58.0	55	D	13/14/21	16	DS	33				VISUAL					A-1-b
427.5	Brown wet dense silty fine to coarse SAND, trace fine gravel.	63.0	60	D	8/14/17	17	DS	72	10	60	24	6					A-1-b (0)
422.5	Brownish gray wet dense sandy SILT.	68.0	65	D	9/17/22	18	DS	72	2	9	47	42					A-4a
417.5	Brown and gray wet dense very silty fine to medium, some coarse SAND, trace fine gravel, limestone cobbles and clay seams.	73.0	70	D	9/14/20	19	DS	33	13	30	43	27					A-2-4
			75	D	11/13/23	20	DS	67				VISUAL					A-3
			80	D	8/15/20	21	DS	67				VISUAL					A-3
402.5	Brown and gray wet dense silty fine to medium SAND.	88.0	85	D	14/17/21	22	DS	67				VISUAL					A-3
397.5	Brown wet medium dense silty fine to coarse SAND.	93.0	90	D	6/10/15	23	DS	72	1	17	75	7					A-3a (0)
392.5	Brown wet medium dense fine to medium, some coarse SAND, some fine gravel.	98.0	95	D	7/12/18	24	DS	67				VISUAL					A-3
309.5	Brown wet medium dense fine to medium, trace coarse SAND and fine GRAVEL.	101.5	100	D	9/13/16	25	DS	44				VISUAL					A-1-b
	Bottom of test boring at 101.5 feet.																

R – RECOVERY AG – AGGREGATE C$ – COARSE SAND F$ – FINE SAND S – SILT W – WATER CONTENT

Datum MSL
Surf. Elev. 490.5
Date Started 3-7-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 7 in.
Rock Core Dia.
Boring Method 3¼ HSA

Foreman GB
Engineer ATS
Date Completed 3-7-06

SAMPLE CONDITIONS (COND.)
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTE Trace 19.5, 40.0 ft
AT COMPLETION 33.2 ft
AFTER 24 hrs. 35.0 ft
BACKFILLED 35.0 hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

LOG OF TEST BORING

CLIENT: Parsons Brinckerhoff Quade Douglas, Inc.
PROJECT: Geotechnical Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio
LOCATION OF BORING Station 42+23.5, 68' Left

BORING # 301 PROJECT # 051008NE

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTION	STRATA DEPTH (ft)	DEPTH SCALE (ft)	SAMPLE Cond.	Standard Penetration	No.	Type	R (%)	GRADATION PERCENTAGE AG	C$	F$	S	C	ATTERBERG LIMITS LL	PI	WC	ODOT Class.
487.8	GROUND SURFACE																
486.9	CONCRETE PAVEMENT	0.9															
485.8	Mixed black, brown moist medium dense FILL, cinders, ash and brick fragments.	2.0		D	5/6/8	1	DS	67	53	20	12	14				23.0	A-1-a (0)
483.3	Brown moist medium stiff to stiff elastic CLAY with iron oxide stains.	4.5	5	I	3/4/6	2	DS	67	0	1	3	44	52	58	22	39.7	A-7-5 (16)
480.8	Mottled brown and gray moist stiff to very stiff SILT and CLAY.	7.0		I	4/5/6	3	DS	67						39	14	6.3	A-6a (10)
				I	6/8/9	4	DS	100				VISUAL				19.3	A-6b
476.3	Mottled brown moist stiff SILTY CLAY.	11.5	10	I	6/6/8	5	DS	100				VISUAL				19.0	A-6b
	Bottom of test boring at 11.5 feet.		15														
	Note: A bag sample was taken from 2.0 feet to 10.0 feet.		20														

R – RECOVERY AG – AGGREGATE C$ – COARSE SAND F$ – FINE SAND S – SILT W – WATER CONTENT

Datum MSL
Surf. Elev. 487.8
Date Started 3-6-06

Hammer Wt. 140 lb
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 5 in.
Rock Core Dia.
Boring Method CFA

Foreman GB
Engineer ATS
Date Completed 3-6-06

SAMPLE CONDITIONS (COND.)
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft
AT COMPLETION Dry ft
AFTER hrs. ft
BACKFILLED Immed. hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

DRAWN KPR CHECKED ATS

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. HAM-050-1903

HAM-50-18.79

6 / 8

134 / 136

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

PROJECT NUMBER : **051008NE** LAB NUMBER :
BORING NUMBER : **102** SAMPLE NUMBER : **7A** DEPTH (FT.): **15.2** to **15.7**
SAMPLE DESCRIPTION : **Mottled brown and gray moist stiff SILTY CLAY**

SAMPLE OBTAINED BY : **SHELBY TUBE** CONDITION **UNTRIMMED** DATE : **06/06/06**

NATURAL UNIT WEIGHT

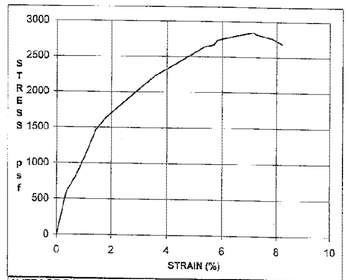
AVERAGE DIAMETER (in.)	2.82
HEIGHT (in.)	5.60
HEIGHT TO DIAMETER RATIO	1.98
AVERAGE AREA (sq. ft.)	0.0434
VOLUME (cu. ft.)	0.0203
WET WEIGHT (lbs.)	2.63
DRY WEIGHT (lbs.)	2.19
DRY DENSITY (pcf)	**107.9**

FAILURE SHAPE

WATER CONTENT AFTER SHEAR

CAN NUMBER	B8
WET WEIGHT + CAN (lbs.)	3.05
DRY WEIGHT + CAN (lbs.)	2.61
WEIGHT WATER (lbs.)	0.45
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	2.18
MOISTURE (%)	**20.4**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0434	0
20	26.0	26.0	0.4	0.0436	597
40	36.0	36.0	0.7	0.0437	823
60	49.0	49.0	1.1	0.0439	1116
80	64.0	64.0	1.4	0.0440	1453
100	72.0	72.0	1.8	0.0442	1629
200	100.0	100.0	3.6	0.0450	2221
300	121.0	121.0	5.4	0.0459	2637
320	123.0	123.0	5.7	0.0461	2671
325	126.0	126.0	5.8	0.0461	2733
365	130.0	130.0	6.5	0.0464	2799
400	133.0	133.0	7.1	0.0468	2844
405	132.0	132.0	7.2	0.0468	2820
440	130.0	130.0	7.9	0.0471	2759
460	127.0	127.0	8.2	0.0473	2685



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	1.1
STRAIN AT FAILURE (%)	7.1
UNCONFINED COMPRESSIVE STRENGTH (psf)	2,840
SHEAR STRENGTH (psf)	1420

REMARKS :

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOIL, ASTM - D2166
UNIT WEIGHT AND NATURAL MOISTURE

CLIENT : **Parsons Brinckerhoff Quade Douglas, Inc.**
PROJECT : **Replacement of Waldvogel Viaduct**
LOCATION : **Cincinnati, Ohio**

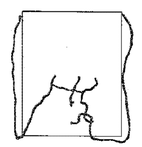
PROJECT NUMBER : **051008NE** LAB NUMBER :
BORING NUMBER : **202** SAMPLE NUMBER : **10** DEPTH (FT.): **25.4** to **26.0**
SAMPLE DESCRIPTION : **Brown moist stiff SILTY CLAY**

SAMPLE OBTAINED BY : **SPLIT SPOON** CONDITION **UNTRIMMED** DATE : **03/09/05**

NATURAL UNIT WEIGHT

AVERAGE DIAMETER (in.)	1.37
HEIGHT (in.)	2.71
HEIGHT TO DIAMETER RATIO	1.97
AVERAGE AREA (sq. ft.)	0.0103
VOLUME (cu. ft.)	0.0023
WET WEIGHT (lbs.)	0.32
DRY WEIGHT (lbs.)	0.26
DRY DENSITY (pcf)	**112.7**

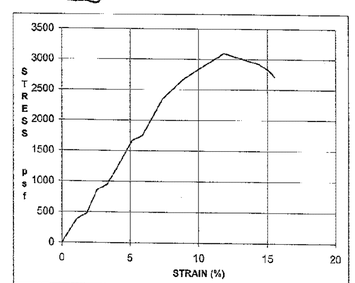
FAILURE SHAPE



WATER CONTENT AFTER SHEAR

CAN NUMBER	t4
WET WEIGHT + CAN (lbs.)	0.74
DRY WEIGHT + CAN (lbs.)	0.69
WEIGHT WATER (lbs.)	0.05
WEIGHT CAN (lbs.)	0.43
WEIGHT SOLID (lbs.)	0.26
MOISTURE (%)	**21.0**
LOAD CELL NUMBER	CELL

DEFORM DIAL .001 IN.	LOAD CELL	LOAD LBS.	STRAIN %	CORR. AREA SQ. FT.	STRESS PSF
0	0	0	0	0.0103	0
30	4.0	4.0	1.1	0.0104	385
50	5.0	5.0	1.8	0.0105	478
70	9.0	9.0	2.6	0.0105	854
90	10.0	10.0	3.3	0.0106	942
110	13.0	13.0	4.1	0.0107	1215
140	18.0	18.0	5.2	0.0108	1663
160	19.0	19.0	5.9	0.0109	1742
200	26.0	26.0	7.4	0.0111	2346
240	30.0	30.0	8.9	0.0113	2664
280	33.0	33.0	10.4	0.0114	2883
320	36.0	36.0	11.8	0.0116	3093
390	35.0	35.0	14.4	0.0120	2919
410	34.0	34.0	15.2	0.0121	2811
420	33.0	33.0	15.5	0.0121	2716



AVERAGE RATE OF STRAIN TO FAILURE (% per minute)	2.2
STRAIN AT FAILURE (%)	11.8
UNCONFINED COMPRESSIVE STRENGTH (psf)	3,090
SHEAR STRENGTH (psf)	1545

REMARKS :

DRAWN KPR CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1903

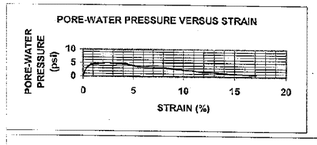
HAM-50-18.79

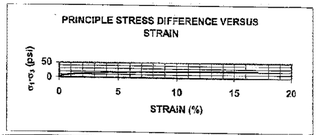
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

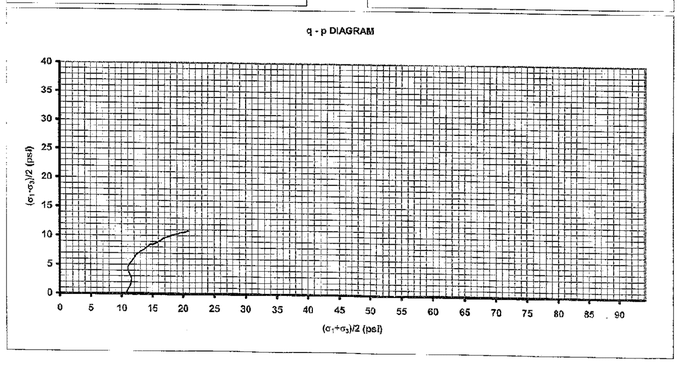
Client: Parsons Brinckerhoff Quade Douglas, Inc. **Project #:** 051008NE
Project: Consulting Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio **Date:** 3/20/06
Boring: 202 **Sample:** 6A **Depth (feet):** 13.0 - 13.5 **Sample Type:** Undisturbed
Sample Description: Brown moist soft to medium stiff very SILTY CLAY
Liquid Limit: 28 **Plastic Limit:** 15 **Plastic Index:** 13 **USCS:** CL/A-6a
Gravel(%): **Sand(%):** **Silt(%):** **Clay(%):** **Specific Gravity:**

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	91.2	93.8
Water Content (%)	32.7	28.0
Void Ratio	0.88	0.83
Saturation (%)	100	100
Diameter (in.)	2.848	2.821
Height (in.)	5.599	5.547
Saturation Data		
Pore Pressure Parameter B		0.98
Total Back Pressure (psi)		57.4

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.25
Effective Consolidation Stress (psi)	10.6
Strain Data	
Axial Strain at Failure (%)	2.4
Strain Rate (% per minute)	0.03
Soil Strength Parameters	
α (degrees)	29
ϕ (degrees)	33.7
y - intercept (psi)	1.8
cohesion (psf)	311





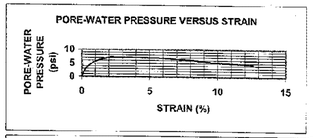


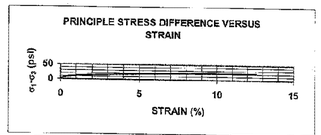
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST, ASTM D-4767

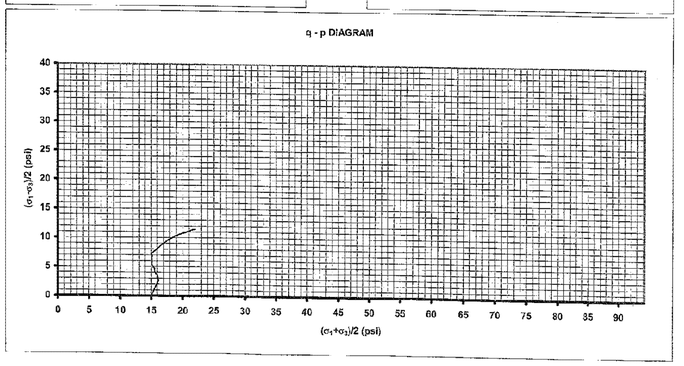
Client: Parsons Brinckerhoff Quade Douglas, Inc. **Project #:** 051008NE
Project: Consulting Services, Replacement of Waldvogel Viaduct, Cincinnati, Ohio **Date:** 3/20/06
Boring: 202 **Sample:** 6B **Depth (feet):** 13.5 - 14.0 **Sample Type:** Undisturbed
Sample Description:
Liquid Limit: 28 **Plastic Limit:** 15 **Plastic Index:** 13 **USCS:** CL/A-6a
Gravel(%): **Sand(%):** **Silt(%):** **Clay(%):** **Specific Gravity:**

Sample Data Before/After Consolidation	Before	After
Dry Density (pcf)	90.7	94.9
Water Content (%)	31.7	29.2
Void Ratio	0.89	0.81
Saturation (%)	98	100
Diameter (in.)	2.844	2.801
Height (in.)	5.578	5.496
Saturation Data		
Pore Pressure Parameter B		0.99
Total Back Pressure (psi)		58

Consolidation Data	
Area Method B, after Consolidation (in^2)	6.16
Effective Consolidation Stress (psi)	15
Strain Data	
Axial Strain at Failure (%)	2.2
Strain Rate (% per minute)	0.03
Soil Strength Parameters	
α (degrees)	30.5
ϕ (degrees)	36
y - intercept (psi)	1.7
cohesion (psf)	302







DRAWN KPR
CHECKED ATS

SUMMARY OF SOIL TEST DATA
BRIDGE NO. HAM-050-1903

HAM-50-18.79

PROJECT DESCRIPTION

THE DESIGN AND CONSTRUCTION OF THE RETAINING WALL RELOCATION AS PART OF THE WALDVOGEL VIADUCT PROJECT IN CINCINNATI, OHIO. THE RETAINING WALL IS BEING RELOCATED IN ORDER TO IMPROVE THE SIGHT DISTANCE THROUGH THE INTERSECTION OF GLENWAY AVENUE AND WILDER AVENUE.

HISTORIC RECORDS

NO HISTORIC RECORDS WERE OBTAINED.

GEOLOGY

THE STUDY AREA LIES WITHIN THE PRE-ILLINOIAN DEPOSITED CINCINNATI TILL, WHICH IS COMPRISED OF STRONGLY WEATHERED SILTY CLAY TO CLAY TILL COVERED BY LOESS. THIS AREA IS CHARACTERIZED BY DISSECTED GROUND MORAINE DEPOSITS MIXED WITH WEATHERED BEDROCK DEPOSITED AS COLLUVIUM.

BASED ON THE ODNR BEDROCK GEOLOGY AND TOPOGRAPHY MAPS OF THE COVINGTON, KY QUADRANGLE, THE UNDERLYING BEDROCK CONSISTS OF THE ORDOVICIAN-AGED KOPE FORMATION. THE KOPE FORMATION IS COMPRISED OF INTERBEDDED SHALE AND LIMESTONE, AVERAGING 75% SHALE AND 25% LIMESTONE, AND RANGES BETWEEN 200 AND 260 FEET THICK. THE BEDROCK ELEVATION IN THE VICINITY OF THE SITE LIES AT AN APPROXIMATE ELEVATION OF 550+ FEET MEAN SEA LEVEL (MSL). THE OVERBURDEN SOIL IN THE VICINITY OF THE SITE, ACCORDING TO BORING LOGS, RANGES BETWEEN 18.0 AND 23.5 FEET THICK.

RECONNAISSANCE

ON JUNE 18, 2008 A SITE RECONNAISSANCE VISIT WAS MADE. THE SITE CURRENTLY CONTAINS AN EXISTING CONCRETE RETAINING WALL LOCATED ALONG THE WEST SIDE OF THE INTERSECTION OF GLENWAY AVENUE AND WILDER AVENUE. THE WALL EXTENDS ALL ALONG WILDER AVENUE UNTIL INTERSECTING WITH GLENWAY AVENUE, AND THEN EXTENDS ALONG GLENWAY AVENUE NORTHWARD FOR APPROXIMATELY 400 FEET. THE PROPOSED WALL WILL BE RELOCATED BEHIND THE EXISTING LOCATION, CUTTING BACK THE EXISTING CURVATURE OF THE INTERSECTION AND THEREFORE INCREASING VISIBILITY. HEAVY VEGETATION AND MATURE TREES DENSELY COVER THE STEEP HILLSIDE AREA ABOVE AND BEHIND THE EXISTING RETAINING WALL. A STAIRWAY CUTS MIDWAY THROUGH THE AREA AND EXTENDS FROM GLENWAY AVENUE WESTWARD, UP THE EXISTING HILLSIDE, TO WARSAW AVENUE. AN OVERHEAD POWER TRANSMISSION LINE ALSO EXTENDS FROM THE INTERSECTION OF WILDER AND GLENWAY AVENUES WESTWARD ACROSS WARSAW AVENUE. A SIDEWALK AND CURB RUN ALONG THE BOTTOM OF THE WALL, WITH SOME PARKING AREAS ALONG WILDER AVENUE. SEVERAL RESIDENTIAL HOMES ARE BUILT INTO THE HILLSIDE AND LIE ALONG EACH END OF THE EXISTING RETAINING WALL WITH SEVERAL STAIRWAYS LEADING FROM THE HOMES DOWNWARD TOWARD THE STREETS. THE EXISTING TERRAIN ACROSS THE SITE SLOPES STEEPLY DOWN EASTWARD AND SOUTHWARD TOWARD THE INTERSECTION AND CONTINUES FARTHER EASTWARD.

SUBSURFACE EXPLORATION

ON SEPTEMBER 18TH AND 19TH, 2008, A TOTAL OF THREE (3) STRUCTURE BORINGS, IDENTIFIED AS B-1 THROUGH B-3, WERE DRILLED TO DEPTHS BETWEEN 25.0 TO 31.0 FEET BELOW THE EXISTING GROUND SURFACE. THE BORING LOCATIONS WERE DETERMINED AND FIELD LOCATED BY RII REPRESENTATIVES. ALL BORINGS WERE TERMINATED AFTER OBTAINING AT LEAST FIVE (5) FEET OF CORE FROM COMPETENT BEDROCK. THE BORINGS WERE SAMPLED WITH AN ALL TERRAIN VEHICLE (ATV)-MOUNTED ROTARY DRILLING MACHINE, UTILIZING 3.75-INCH CONTINUOUS, HOLLOW-STEM AUGERS TO ADVANCE THE HOLES. RII UTILIZED A CALIBRATED AUTOMATIC DROP HAMMER TO GENERATE CONSISTENT ENERGY TRANSFER TO THE SAMPLER. THE HAMMER WAS CALIBRATED ON JUNE 11, 2007, WITH AN ENERGY RATIO (ER) OF 79.3%. UPON COMPLETION OF DRILLING, THE BORINGS WERE BACKFILLED WITH SOIL CUTTINGS. THE CONCRETE PAVEMENT ENCOUNTERED IN BORING B-3 WAS REPAIRED USING A QUICKSET CONCRETE PATCH.

EXPLORATION FINDINGS

BORING B-3 WAS DRILLED THROUGH THE EXISTING PAVEMENT OF WILDER AVENUE, AND ENCOUNTERED 6.0 INCHES OF ASPHALT OVERLYING 13.0 INCHES OF CONCRETE. THE REMAINING TWO BORINGS, B-1 AND B-2, WERE DRILLED BEHIND THE EXISTING RETAINING WALL AND ENCOUNTERED 6.0 AND 5.0 INCHES OF TOPSOIL AT THE GROUND SURFACE, RESPECTIVELY, AS IDENTIFIED BY THE SIGNIFICANT PRESENCE OF VEGETATION AND ORGANIC MATERIAL.

BENEATH THE SURFACE MATERIALS, NATURAL SOILS WERE ENCOUNTERED CONSISTING OF COHESIVE SOILS. THE COHESIVE SOIL WAS DESCRIBED AS BROWN, BROWNISH GRAY, BROWN CHANGING TO GRAY OR GRAY SILTY CLAY (USCS CL) OR CLAY (USCS CH).

BASED ON THE SPT BLOW COUNTS OBTAINED, THE COHESIVE SOIL ENCOUNTERED RANGED FROM STIFF ($9 \leq N60 \leq 15$ BLOWS PER FOOT [BPF]) TO HARD ($N60 \geq 31$ BPF). BLOW COUNTS (N60) RANGED FROM 5 TO 40 BPF, GENERALLY INCREASING WITH DEPTH. THE UNCONFINED COMPRESSIVE STRENGTH OF THE COHESIVE SOIL SAMPLES TESTED, AS OBTAINED FROM THE HAND PENETROMETER, RANGED FROM 3.75 TSF TO OVER 4.5 TSF (LIMIT OF THE INSTRUMENT).

NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED RANGED FROM 8 TO 21 PERCENT. THE NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED FOR PLASTICITY INDEX RANGED FROM 1 TO 13 PERCENT BELOW THEIR CORRESPONDING PLASTIC LIMITS. IN GENERAL, THE SOIL EXHIBITED NATURAL MOISTURE CONTENTS TO BE SIGNIFICANTLY BELOW TO BE AT OPTIMUM MOISTURE LEVELS (BASED ON CORRELATION TABLES).

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
SILTY CLAY	*A-6b*	*8*	*13*
CLAY	*A-7-6*	*1*	*1*
	TOTAL	*9*	*14*
WEATHERED SHALE	*VISUAL*		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		
BORING LOCATION - PLAN VIEW			
DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
N_{60} INDICATES STANDARDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
WC INDICATES WATER CONTENT IN PERCENT.			
SS INDICATES A SPLIT SPOON SAMPLE, STANDARD PENETRATION TEST.			
TR INDICATES TOP OF ROCK.			

EXPLORATION FINDINGS (CONTINUED)

THE TOP OF BEDROCK ACROSS THE SITE RANGES IN DEPTHS FROM 18.0 TO 23.5 FEET. THE SURFICIAL BEDROCK IS GENERALLY DESCRIBED AS WEATHERED, AUGERABLE SHALE. THE UNDERLYING CORED BEDROCK OBTAINED CONSISTS OF SHALE GENERALLY DESCRIBED AS GRAY, MODERATELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, JOINTED AND HIGHLY FRACTURED.

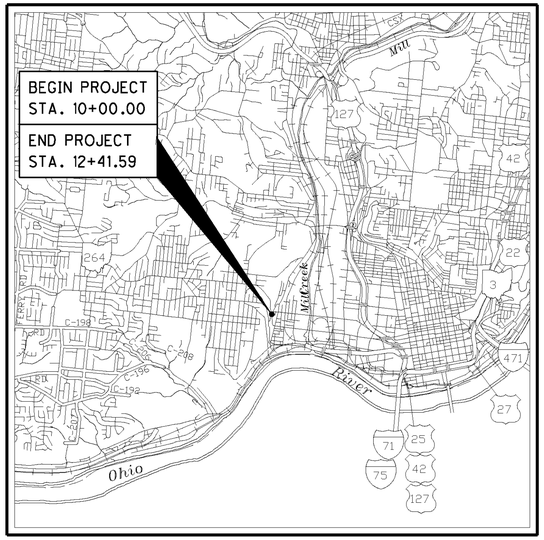
GROUNDWATER WAS NOT ENCOUNTERED INITIALLY IN ANY OF THE TEST BORINGS. UPON COMPLETION OF DRILLING AND AFTER REMOVING THE AUGERS GROUNDWATER WAS OBSERVED TO HAVE ACCUMULATED IN THE BOREHOLE TO DEPTHS BETWEEN 4.2 FEET AND 9.7 FEET. IT SHOULD BE NOTED THAT WATER WAS INTRODUCED INTO THE BOREHOLE AS A CIRCULATING FLUID FOR ROCK CORING IN ALL BORINGS. THEREFORE, THE GROUNDWATER READINGS UPON COMPLETION MAY NOT BE REPRESENTATIVE OF THE STATIC GROUNDWATER LEVEL AT THIS SITE. ALSO, PLEASE NOTE THAT CAVE-IN OCCURRED IN BORINGS B-1 AND B-3 AFTER REMOVING THE AUGERS.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JULY 2008.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

RECON. - IC 6/18/08
DRILLING - CM 9/18-19/08
DRAWN - RRM 10/26/10
REVIEWED - JPS 10/26/10

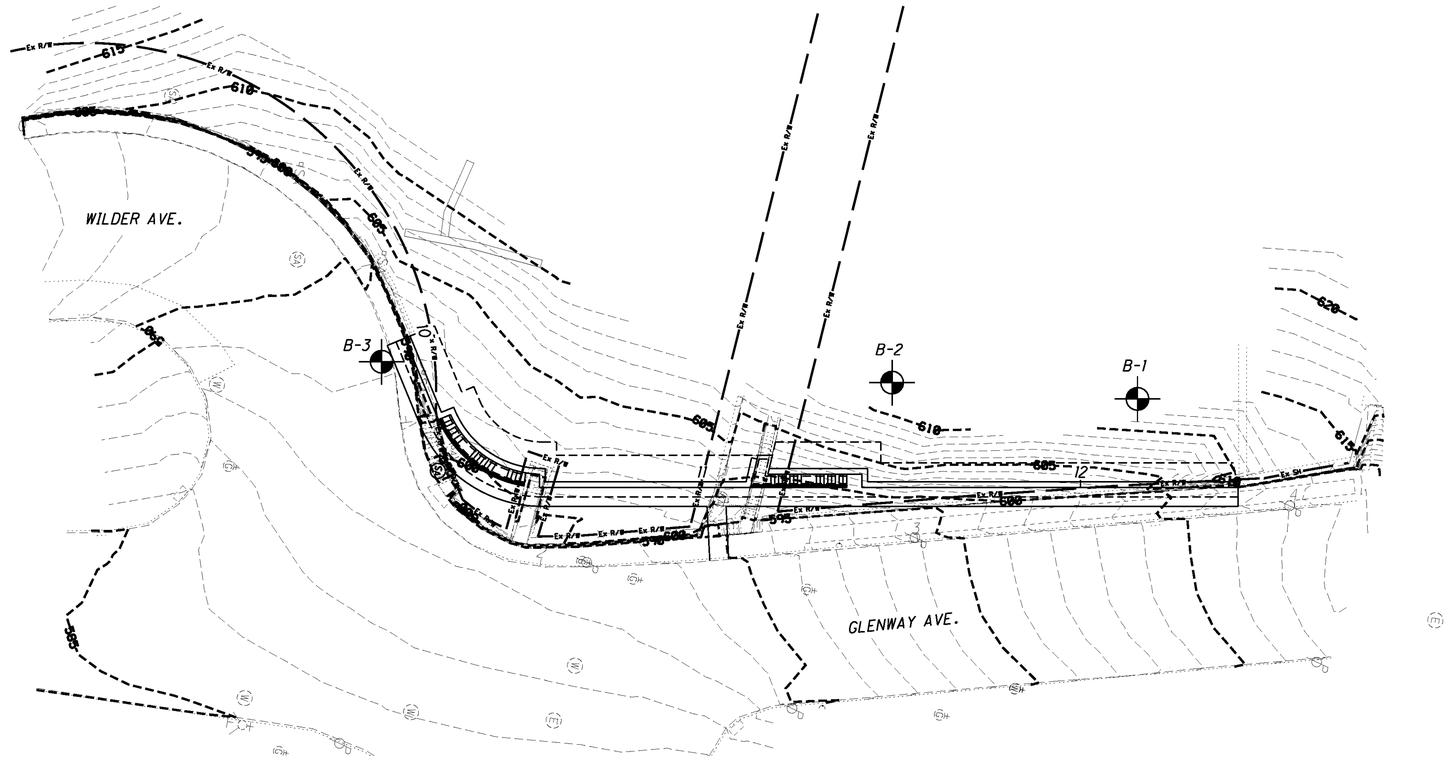
DESIGN AGENCY
RESOURCE INTERNATIONAL
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OH 43231 614-823-4949

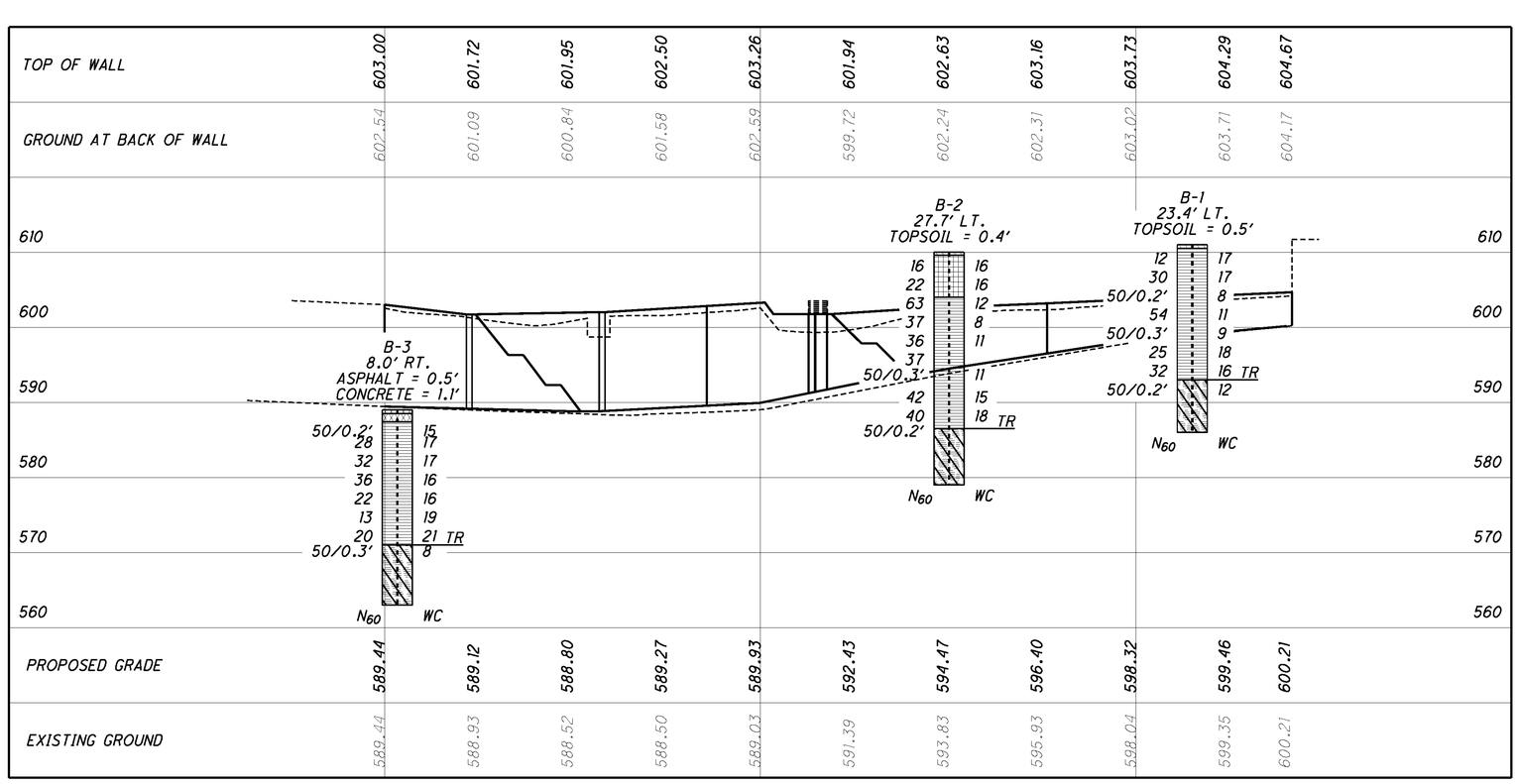
PID NO. 20082

STRUCTURE FOUNDATION EXPLORATION
WALDVOGEL RETAINING WALL

HAM-50-18.79

RII PROJECT: B-05-036





HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN RRM
CHECKED JPS

STRUCTURE FOUNDATION EXPLORATION
WALDVOGEL RETAINING WALL

HAM-50-18.79

2 / 5

64b
136

RU PROJECT: B-05-036

LOG OF BORING

BORING NO: B-1 BASELINE, STATION & OFFSET: STA 12+15.04, 23.4' LT. SURFACE ELEV.: 611.0
DATE STARTED: 9/19/08 DATE COMPLETED: 9/19/08 METHOD: 3.75" HSA WATER ELEV.: DRY
NORTHING: EASTING: SEALING/BACKFILLING TYPE: AC

PROJECT IDENTIFICATION: HAM-50-18.79, PID 20082
HAMILTON COUNTY, OHIO
HAMMER SYSTEM TYPE: CME AUTOMATIC
CALIBRATION DATE: 6-11-07 ER: 79.3%

Elev. (ft)	Depth (ft)	Std. Pen.	N_{60}	Rec. (%)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L.	L.L.	P.I.	W.C.	ODOT Class
611±	0															
610.5±					6.0" – Topsoil											
		3/4/5	12	44	Stiff to very stiff, brown SILTY CLAY, trace fine to coarse sand, damp. –SS-1: USCS CL; qh = 4.5 tsf	SS-1	0	4	3	32	61	24	47	23	17	A-6b
		8/10/13	30	89	–SS-2: *Visual USCS CL; qh = 4.5 tsf	SS-2	same as SS-1								17	A-6b Visual
	5															
605±		12/17/50/2"	50/2"	57	Hard to very stiff, brownish gray SILTY CLAY, little coarse to fine sand, some to little fine gravel (cobble and boulders fragments), damp. –SS-3: USCS CL; qh = 4.5 tsf	SS-3	23	19	4	18	36	21	41	20	8	A-6b
		13/18/23	54	56	–SS-4: *Visual USCS CL; qh = 4.5 tsf	SS-4	same as SS-3								11	A-6b Visual
	10															
		18/26/50/3"	50/3"	87	–SS-5: USCS CL; qh = 4.5 tsf	SS-5	11	15	4	31	39	20	37	17	9	A-6b
		15/10/9	25	78	–SS-6: *Visual USCS CL; qh = 4.5 tsf	SS-6	same as SS-5								18	A-6b Visual
	15															
		8/11/13	32	83	–SS-7: *Visual USCS CL; qh = 4.5 tsf	SS-7	same as SS-5									A-6b Visual
593±																
		15/18/50/2"	50/2"	93	Hard, brownish gray WEATHERED SHALE, damp.	SS-8									16	
591±	20															
				65	SHALE: gray, highly weathered, very weak, thin bedded to laminated, jointed, highly fractured, narrow, slightly rough. –limestone laminations @ 21.6' to 22.0' –RC-1: 5.0' (20.0'–25.0') –RQD = 0% –Loss = 35%	RC-1									12	
	25															

BOTTOM OF BORING = 25.0 FEET

LOG OF BORING

BORING NO: B-2 BASELINE, STATION & OFFSET: STA 11+50.27, 27.7' LT. SURFACE ELEV.: 610.0 PROJECT IDENTIFICATION: HAM-50-18.79, PID 20082
DATE STARTED: 9/19/08 DATE COMPLETED: 9/20/08 METHOD: 3.75" HSA WATER ELEV.: DRY HAMILTON COUNTY, OHIO
NORTHING: _____ EASTING: _____ SEALING/BACKFILLING TYPE: AC HAMMER SYSTEM TYPE: CME AUTOMATIC
CALIBRATION DATE: 6-11-07 ER: 79.3%

Elev. (ft)	Depth (ft)	Std. Pen.	N_{60}	Rec. (%)	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	P.L.	L.L.	P.I.	W.C.	ODOT Class
610±	0															
609.6±					5.0" – Topsoil											
		4/5/7	16	78	Very stiff, brown CLAY, little coarse to fine sand, damp. -SS-1: *Visual USCS CH; qh = 4.5+ tsf -contains organics	SS-1									16	A-7-6 Visual
		8/9/8	22	89	-SS-2: USCS CH; qh = 4.5+ tsf	SS-2	0	8	5	28	60	25	51	26	16	A-7-6
	5															
604±		15/16/32	63	72	Hard, brown changing to gray SILTY CLAY, some to little coarse to fine sand, little to trace fine gravel (cobble and boulder fragments), damp. -SS-3: *Visual USCS CL; qh = 4.5+ tsf	SS-3									12	A-6b Visual
		8/13/15	37	78	-SS-4: USCS CL; qh = 4.5+ tsf	SS-4	10	31	6	26	27	19	34	15	8	A-6b
	10															
		9/15/12	36	89	-SS-5: *Visual USCS CL; qh = 4.5+ tsf	SS-5				same as SS-4					11	A-6b Visual
		10/13/15	37	72	-SS-6: *Visual USCS CL; qh = 4.5+ tsf	SS-6				same as SS-4						A-6b Visual
	15															
		28/50/3"	50/3"	78	-SS-7: USCS CL; qh = 4.5+ tsf	SS-7	4	11	4	31	50	19	41	22	11	A-6b
		9/15/17	42	89	-SS-8: *Visual USCS CL; qh = 4.5 tsf	SS-8				same as SS-7					15	A-6b Visual
	20															
		9/13/17	40	83		SS-9				same as SS-7					18	A-6b Visual
586.5±																
		27/50/2"	50/2"	88	Hard, gray WEATHERED SHALE, damp.	SS-10										
	25															
584±				70	SHALE: gray, highly to moderately weathered, very weak to weak, thin bedded to laminated, jointed, highly fractured, narrow, slightly rough, limestone laminations. -RC-1: 5.0' (26.0'-31.0') -RQD = 33% -Loss = 30%	RC-1										
	30															

BOTTOM OF BORING = 31.0 FEET