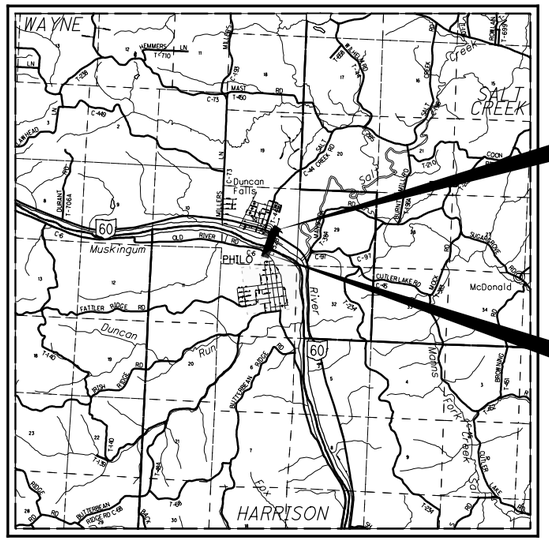


LOCATION MAP

LATITUDE: 39°52'09" N LONGITUDE: -81°54'33" W

SCALE IN MILES
0 1 2 3 4

N

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

	C.R. 32 (SOUTH OF S.R. 60)	C.R. 32 (NORTH OF S.R. 60)	WATER ST (E)	WATER ST (W)
CURRENT ADT (2020)	3010	800	NA	NA
DESIGN YEAR ADT (2040)	3010	800	NA	NA
DESIGN HOURLY VOLUME (2040)	390	130	NA	NA
DIRECTIONAL DISTRIBUTION	50%	62%	NA	NA
TRUCKS (24 HOUR B&C)	4%	4%	NA	NA
DESIGN SPEED	35 MPH	20 MPH	15 MPH	25 MPH
LEGAL SPEED	35 MPH	20 MPH	15 MPH	25 MPH

DESIGN FUNCTIONAL CLASSIFICATION:
ALL ROADS - RURAL LOCAL
NHS PROJECT NO

DESIGN EXCEPTIONS

NONE

PLAN PREPARED BY:

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

ENGINEERS SEAL: FOR SHEETS 76-96
STATE OF OHIO — SCOTT D. SEAMAN — E-68083 — REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 10/20/17

ENGINEERS SEAL: FOR SHEETS 1-75; 97-99
STATE OF OHIO — MATTHEW J. CORNETT — E-76213 — REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 10/20/17

ENGINEERS SEAL: FOR SHEETS 100-178
STATE OF OHIO — DAVID F. TRAINI — E-48751 — REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 10/20/17

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

MUS-C.R. 32-0.00 (BRIDGE ST.)

VILLAGE OF PHILO
HARRISON TOWNSHIP
WAYNE TOWNSHIP
MUSKINGUM COUNTY

INDEX OF SHEETS:

PROJECT DESCRIPTION

REMOVAL OF THE EXISTING BRIDGE ST. STRUCTURE OVER THE MUSKINGUM RIVER AND CONSTRUCTION OF A NEW CROSSING AND REALIGNMENT OF THE APPROACH ROADWAY.

PROJECT EARTH DISTURBED AREA: 2.64 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.0 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 4.9 ACRES

2016 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEET 12, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED
DATE 10/24/17 MUSKINGUM COUNTY COMMISSIONER

APPROVED
DATE 10/26/2017 MUSKINGUM COUNTY COMMISSIONER

APPROVED
DATE 10-26-2017 MUSKINGUM COUNTY COMMISSIONER

APPROVED
DATE 10/31/17 DISTRICT DEPUTY DIRECTOR

APPROVED
DATE 11-14-17 DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	7/18/14	DM-1.2	1/18/13	AS-2-15	7/17/15	HL-60.12	7/15/16	TC-52.10	10/18/13	800-2016	10/20/17
BP-4.1	7/19/13	DM-4.3	1/15/16	BR-2-15	7/17/15	HL-60.31	7/21/17	TC-52.20	7/21/17	809	7/21/17
BP-5.1	7/19/13			PSID-1-13	7/15/16			TC-61.30	1/20/17	813	10/21/16
BP-7.1	7/18/14	MGS-1.1	7/21/17	SBR-1-13	1/17/14	MT-95.31	7/21/17	TC-65.10	1/17/14	832	1/17/14
		MGS-2.1	7/19/13			MT-95.32	7/21/17	TC-65.11	7/21/17	913	4/21/17
CB-1.1	1/15/16	MGS-4.1	1/20/17	HL-10.11	7/21/17	MT-97.10	7/18/14	TC-71.10	1/20/17		
CB-2.1	1/15/16	MGS-4.2	7/19/13	HL-10.12	1/20/17	MT-98.30	7/21/17	TC-81.10	7/15/16		
CB-2.2	1/15/16	MGS-4.3	1/18/13	HL-10.13	1/20/17	MT-101.90	7/21/17	TC-83.20	7/21/17		
CB-2.3	1/15/16			HL-20.11	4/21/17	MT-102.20	7/18/14	TC-84.20	10/18/13		
		RM-1.1	7/18/14	HL-30.11	7/21/17	MT-105.10	7/19/13	TC-84.21	10/18/13		
HW-2.2	7/21/17	RM-2.1	7/19/13	HL-30.22	1/17/14			TC-85.10	7/21/17		
		RM-6.1	7/18/14	HL-30.31	1/17/14	TC-21.20	7/21/17	TC-85.21	1/20/17		
MH-1.2	1/15/16	RM-7.1	7/18/14	HL-30.32	1/17/14	TC-41.20	10/18/13	TC-85.22	7/15/16		
MH-3.1	1/18/13			HL-40.20	1/20/17	TC-41.30	10/18/13				
		A-1-69	7/19/02	HL-50.21	7/21/17	TC-41.40	10/18/13				
DM-1.1	7/21/17	AS-1-15	7/17/15	HL-60.11	7/21/17	TC-42.20	10/18/13				

SPECIAL PROVISIONS

CSL TESTING
FOR DRILLED SHAFTS (9/1/2017)
ASBESTOS TESTING REPORTS (10/31/2017)
WATERWAY PERMITS CONDITIONS (3/08/2018)

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

OHIO Utilities Protection SERVICE — Call Before You Dig 1-800-362-2764
(Non-members must be called directly)

OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
1-800-925-0988

FEDERAL PROJECT NO. E140164
PID NO. 97346
CONSTRUCTION PROJECT NO. MUS-CR32-0.00
RAILROAD INVOLVEMENT NONE

180082 CO 32 Conformed Set
Dist 5
P:\97346\roadway\sheets\97346GT001.dgn 10/30/2017 9:49:37 AM mcornett

NOTE:
THERE ARE NO EXISTING LANDSCAPED AREAS WITHIN THE WORK LIMITS.

DND - DO NOT DISTURB

HORIZONTAL SCALE IN FEET
0 25 50 100

SCHEMATIC PLAN

MUS-CR32-0.00

HARRISON TWP.
VILLAGE OF PHILO
C.R. 6 (OLD RIVER RD.)
WAYNE TWP.

POT Sta. 52+49.61
BEGIN PROJECT
STA. 10+14.30
S.L.M. 0.00
E140164
BEGIN WORK
STA. 9+86.44
POT Sta. 100+00.00
EX. INTAKE BRIDGE
HRS C0032 (NO. 6034330)
TO BE REMOVED
Philo Lock & Dam #9
lock chamber
EX. STRUCTURE NO. 6054129
TO BE REMOVED
℄ EX. C.R. 32 (BRIDGE ST.)
CONST. LIMITS
N 18° 54′ 01″ E
N48°54′18″W
POT Sta. 9+81.00
STA. 10+00.00 ℄ CONST. C.R. 32 =
STA. 50+80.00 ℄ C.R. 6 & FRONT ST.
POT Sta. 50+00.00
FRONT ST.
114″ TYPE A
INTAKE CHANNEL
N 18° 55′ 24″ E
℄ CONST. C.R. 32 (BRIDGE ST.)
STRUCTURE NO. 6054145
CONST. LIMITS
MUSKINGUM RIVER
WETLAND B (DND)
WETLAND C (DND)
WETLAND D (DND OUTSIDE CONST. LIMITS)
MATCH LINE 20+50
SEE BELOW

WETLAND E (DND)
MUSKINGUM RIVER
END WORK STA. 10+45
℄ CONST. WATER ST. (W)
POT Sta. 10+00.00
S69°07′05″E
℄ CONST. C.R. 32 (BRIDGE ST.)
PI Sta. 112+69.41
PC Sta. 10+50.17
PRC Sta. 11+40.85
PRC Sta. 22+81.82
N 21° 01′ 01″ E
PT Sta. 11+81.93
PC Sta. 21+33.10
S83°19′34″E
N 18° 55′ 24″ E
PC Sta. 10+12.00
S79°18′55″E
PRC Sta. 10+74.79
PT Sta. 11+20.02
EX. STRUCTURE NO. 6054129
TO BE REMOVED
℄ EX. C.R. 32 (BRIDGE ST.)
MATCH LINE 20+50
SEE ABOVE
STA. 22+05.00 ℄ CONST. C.R. 32 =
STA. 10+00.00 ℄ CONST. WATER ST. (E)
WETLAND D
℄ CONST. WATER ST. (E)
S56°57′40″E
END WORK STA. 11+90
POT Sta. 12+00.00
STA. 22+40.00 ℄ CONST. C.R. 32 =
STA. 12+00.00 ℄ CONST. WATER ST. (W)
CONST. LIMITS
PT Sta. 24+34.45
PC Sta. 494+93.65
BEGIN WORK STA. 494+00.00
END WORK STA. 497+26.58
POT Sta. 115+05.83
498
℄ CONST. S.R. 60 (MAIN ST.)
497
496
N 19° 22′ E
495
494
CONST. LIMITS
PC Sta. 25+91.33
POT Sta. 11+20.00
STA. 25+43.96 ℄ CONST. C.R. 32 =
STA. 496+06.43 ℄ S.R. 60
END WORK
STA. 28+00.00
END PROJECT
STA. 27+95.00
S.L.M. 0.34
E140164
END WORK STA. 10+55.00
T.R. 1094
POT Sta. 10+00.00
S56°54′59″E
PI Sta. 10+42.34
S52°57′28″E
PT Sta. 28+97.59
POT Sta. 29+99.50
N 9° 31′ 01″ E
PRC Sta. 27+34.23
STA. 26+93.11 ℄ CONST. C.R. 32 =
STA. 11+20.00 ℄ CONST. T.R. 1094

CURVE 5
WATER ST. (W) CURVE DATA
P.I. Sta. 10+96.30
Δ = 25° 58′ 34″ (LT)
Dc = 28° 38′ 52″
R = 200.00′
T = 46.13′
L = 90.67′
E = 5.25′
C = 89.90′
C.B. = S 82° 06′ 22″ E
emax = NC

CURVE 6
WATER ST. (W) CURVE DATA
P.I. Sta. 11+61.46
Δ = 11° 46′ 05″ (RT)
Dc = 28° 38′ 52″
R = 200.00′
T = 20.61′
L = 41.08′
E = 1.06′
C = 41.01′
C.B. = S 89° 12′ 36″ E
emax = NC

CURVE 7
WATER ST. (E) CURVE DATA
P.I. Sta. 10+49.72
Δ = 79° 56′ 35″ (RT)
Dc = 127° 19′ 26″
R = 45.00′
T = 37.72′
L = 62.79′
E = 13.72′
C = 57.82′
C.B. = S 39° 20′ 37″ E
emax = NC

CURVE 8
WATER ST. (E) CURVE DATA
P.I. Sta. 10+99.52
Δ = 57° 35′ 20″ (LT)
Dc = 127° 19′ 26″
R = 45.00′
T = 24.73′
L = 45.23′
E = 6.35′
C = 43.35′
C.B. = S 28° 10′ 00″ E
emax = NC

CURVE 1
C.R. 32 CURVE DATA
P.I. Sta. 22+08.02
Δ = 17° 02′ 32″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 74.91′
L = 148.72′
E = 5.58′
C = 148.17′
C.B. = N 10° 24′ 09″ E
emax = NC

CURVE 9
S.R. 60 CURVE DATA
P.I. Sta. 497+15.84
Δ = 14° 22′ 00″ (LT)
Dc = 3° 15′ 00″
R = 1,762.95′
T = 222.19′
L = 442.05′
E = 13.95′
C = 440.89′
C.B. = N 64° 26′ 07″ W

CURVE 2
C.R. 32 CURVE DATA
P.I. Sta. 23+58.74
Δ = 17° 29′ 24″ (RT)
Dc = 11° 27′ 33″
R = 500.00′
T = 76.91′
L = 152.63′
E = 5.88′
C = 152.04′
C.B. = N 10° 37′ 35″ E
emax = NC

CURVE 3
C.R. 32 CURVE DATA
P.I. Sta. 26+63.92
Δ = 24° 48′ 40″ (RT)
Dc = 17° 21′ 44″
R = 330.00′
T = 72.59′
L = 142.90′
E = 7.89′
C = 141.79′
C.B. = N 31° 46′ 37″ E
emax = NC

CURVE 4
C.R. 32 CURVE DATA
P.I. Sta. 28+18.50
Δ = 34° 39′ 56″ (LT)
Dc = 21° 13′ 14″
R = 270.00′
T = 84.26′
L = 163.36′
E = 12.84′
C = 160.88′
C.B. = N 26° 50′ 59″ E
emax = NC

PROPOSED REFERENCE POINTS

POINT NUMBER	GRID COORDINATES U.S. SURVEY FEET		GROUND COORDINATES U.S. SURVEY FEET		ALIGNMENT	STATION	OFFSET	DESCRIPTION
	NORTHING	EASTING	NORTHING	EASTING				
POT	680,565.5265	2,134,180.4043	680,603.8512	2,134,300.5864	PROP. BRIDGE ST.	9+81.00	C/L	C/L MONUMENT
P.C.	681,655.3007	2,134,554.0156	681,693.6868	2,134,674.2187	PROP. BRIDGE ST.	21+33.10	C/L	C/L MONUMENT
P.R.C.	681,801.0298	2,134,580.7682	681,839.4241	2,134,700.9728	PROP. BRIDGE ST.	22+81.82	C/L	C/L MONUMENT
P.T.	681,950.4515	2,134,608.8029	681,988.8542	2,134,729.0091	PROP. BRIDGE ST.	24+34.45	C/L	C/L MONUMENT
P.C.	682,098.4404	2,134,660.8349	682,136.8514	2,134,781.0441	PROP. BRIDGE ST.	25+91.33	C/L	C/L MONUMENT
P.R.C.	682,218.9681	2,134,735.4982	682,257.3859	2,134,855.7116	PROP. BRIDGE ST.	27+34.23	C/L	C/L MONUMENT
P.T.	682,362.4936	2,134,808.1547	682,400.9195	2,134,928.3722	PROP. BRIDGE ST.	28+97.59	C/L	C/L MONUMENT
POT	682,462.9995	2,134,825.0043	682,501.4310	2,134,945.2227	PROP. BRIDGE ST.	29+99.50	C/L	C/L MONUMENT
POT	681,792.2317	2,134,382.7810	681,830.6255	2,134,502.9745	PROP. WATER ST. (W)	10+00.00	C/L	C/L MONUMENT
P.C.	681,774.3486	2,134,429.6566	681,812.7414	2,134,549.8527	PROP. WATER ST. (W)	10+50.17	C/L	C/L MONUMENT
P.R.C.	681,762.0027	2,134,518.6984	681,800.3948	2,134,638.8996	PROP. WATER ST. (W)	11+40.85	C/L	C/L MONUMENT
P.T.	681,761.4375	2,134,559.6985	681,799.8295	2,134,679.9020	PROP. WATER ST. (W)	11+81.93	C/L	C/L MONUMENT
POT	681,759.3369	2,134,577.6495	681,797.7288	2,134,697.8540	PROP. WATER ST. (W)	12+00.00	C/L	C/L MONUMENT
POT	681,724.7467	2,134,572.3692	681,763.1367	2,134,692.5734	PROP. WATER ST. (E)	10+00.00	C/L	
P.C.	681,722.5221	2,134,584.1606	681,760.9119	2,134,704.3654	PROP. WATER ST. (E)	10+12.00	C/L	
P.R.C.	681,677.8117	2,134,620.8126	681,716.1990	2,134,741.0195	PROP. WATER ST. (E)	10+74.79	C/L	
P.T.	681,639.5972	2,134,641.2744	681,677.9824	2,134,761.4825	PROP. WATER ST. (E)	11+20.02	C/L	
POT	681,595.9926	2,134,708.3202	681,634.3753	2,134,828.5320	PROP. WATER ST. (E)	12+00.00	C/L	
POT	682,257.6611	2,134,611.2893	682,296.0811	2,134,731.4957	PROP. TR 1094	10+00.00	C/L	
POT	682,234.5507	2,134,646.7630	682,272.9694	2,134,766.9714	PROP. TR 1094	10+42.34	C/L	
POT	682,187.7708	2,134,708.7471	682,226.1868	2,134,828.9590	PROP. TR 1094	11+20.00	C/L	
POT	680,653.9451	2,134,108.8005	680,692.2748	2,134,228.9786	EX. BRIDGE ST.	100+00.00	C/L	
POT	681,854.8451	2,134,519.9691	681,893.2424	2,134,640.1703	EX. BRIDGE ST.	112+69.41	C/L	
POT	682,075.5223	2,134,604.7544	682,113.9320	2,134,724.9604	EX. BRIDGE ST.	115+05.83	C/L	
POT	680,530.9170	2,134,246.8521	680,569.2397	2,134,367.0379	EX. CR 6	50+00.00	C/L	
POT	680,694.9774	2,134,058.7521	680,733.3094	2,134,178.9274	EX. CR 6	52+49.61	C/L	
POT	681,067.9849	2,136,184.4573	681,106.3379	2,136,304.7523	EX. SR 60	477+78.33	C/L	
P.C.	681,995.8232	2,134,741.8567	682,034.2284	2,134,862.0704	EX. SR 60	494+93.65	C/L	
P.T.	682,186.0708	2,134,344.1490	682,224.4867	2,134,464.3403	EX. SR 60	499+35.70	C/L	
POT	682,476.4336	2,133,470.3327	682,514.8659	2,133,590.4748	EX. SR 60	508+56.55	C/L	

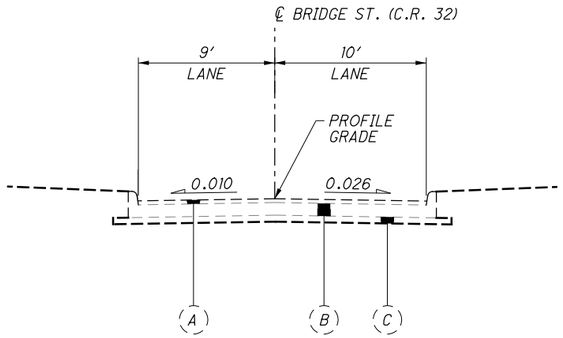
PRIMARY PROJECT CONTROL INFORMATION

POINT NUMBER	GRID COORDINATES U.S. SURVEY FEET		SCALED COORDINATES U.S. SURVEY FEET		ORTHOMETRIC HEIGHT (ELEVATION)	DESCRIPTION
	NORTHING	EASTING	NORTHING	EASTING		
CP11	680,684.3150	2,134,137.0673	680,722.6464	2,134,257.2470	686.95	REBAR
CP21	680,884.0130	2,134,113.4777	680,922.3556	2,134,233.6560	687.82	MAG NAIL SPIKE
CP22	680,931.2660	2,134,180.4409	680,969.6113	2,134,300.6230	688.89	MAG NAIL SPIKE
CP23	680,851.3130	2,134,145.2229	680,889.6538	2,134,265.4030	686.92	MAG NAIL SPIKE

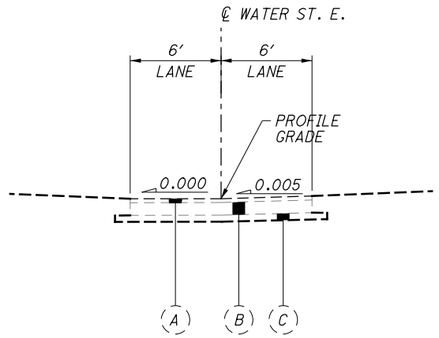
CALCULATED CDS CHECKED MJC

REFERENCES AND BENCHMARKS

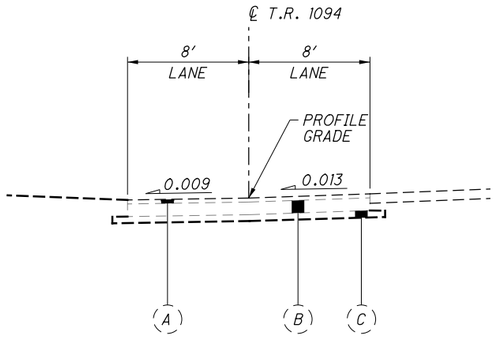
MUS-CR32-0.00



NORMAL CROWN



NORMAL CROWN



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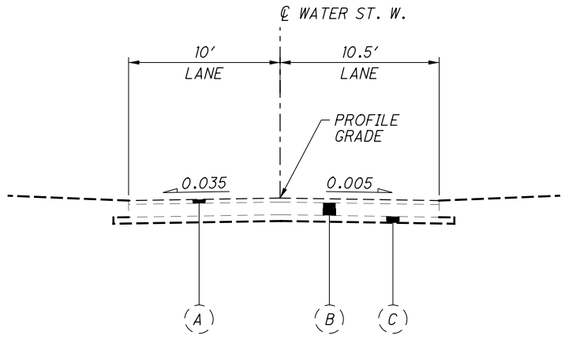


NORMAL CROWN

EXISTING LEGEND

(A) 2 ½"(±) EXISTING ASPHALT CONCRETE

(B) 8"(±) EXISTING REINFORCED CONCRETE BASE

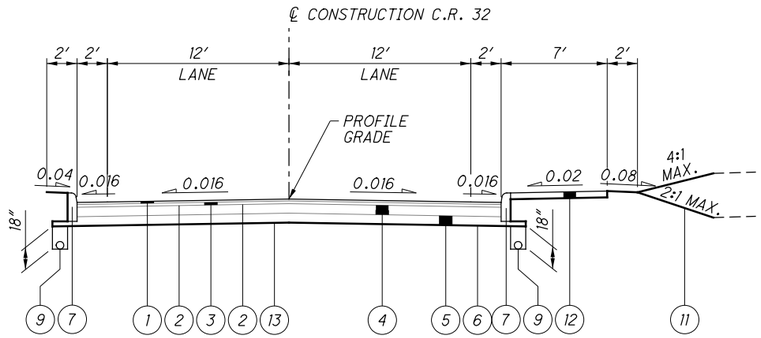
(C) 4"(±) EXISTING AGGREGATE BASE

P:\97346\roadway\sheets\97346GY003.dgn 10/19/2017 1:35:21 PM mcornett

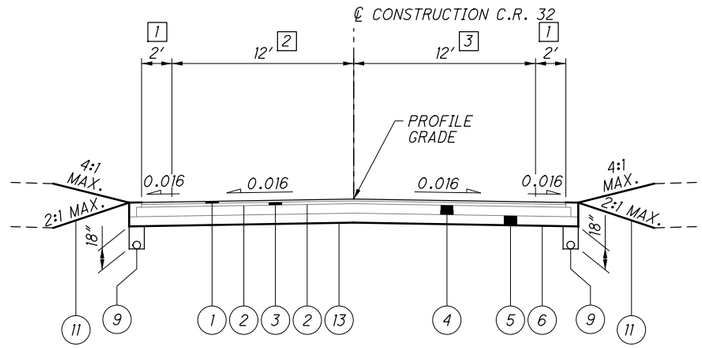
CALCULATED CDS
CHECKED MJC

EXISTING TYPICAL SECTIONS

MUS-CR32-0.00

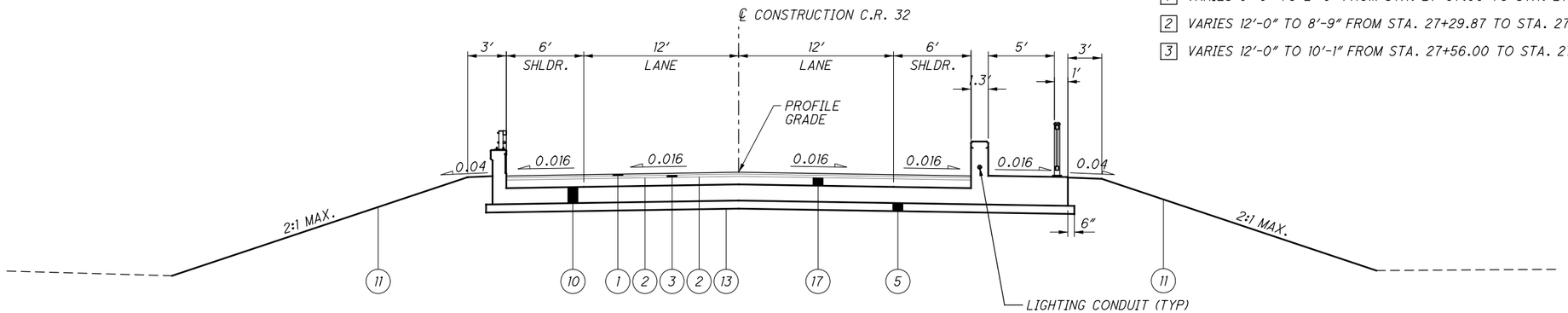


NORMAL CROWN
STA. 21+73.64 TO STA. 25+21.07
STA. 25+67.86 TO STA. 26+02.65 RT, STA. 26+06.36 LT



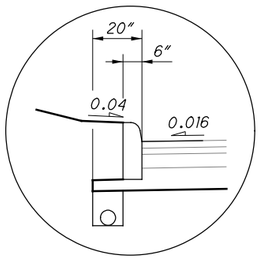
NORMAL CROWN
STA. 26+02.65 RT, 26+06.36 LT TO STA. 27+95.00

[1] VARIES 0′-0″ TO 2′-0″ FROM STA. 27+87.00 TO STA. 27+95.00 LT. & RT.
[2] VARIES 12′-0″ TO 8′-9″ FROM STA. 27+29.87 TO STA. 27+95.00
[3] VARIES 12′-0″ TO 10′-1″ FROM STA. 27+56.00 TO STA. 27+95.00

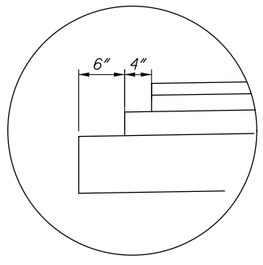


APPROACH SLABS
STA. 12+51.60 TO STA. 12+81.60
STA. 21+43.64 TO STA. 21+73.64

BRIDGE LIMITS
STA. 12+81.60 TO STA. 21+43.64



CURB DETAIL
(C.R. 32)



STEP DETAIL

[4] .04, STA. 10+14.31 TO STA. 12+07.00
VARIES .04 TO .016 FROM STA. 12+07.00 TO STA. 12+32.00
.016, STA. 12+32.00 TO STA. 12+51.60

NORMAL CROWN
STA. 10+14.30 TO STA. 12+51.60

[5] .02 TOWARDS ROADWAY, 4″ THICK, STA. 10+14.31 TO STA. 12+17.00
VARIES .02 TOWARDS TO .016 AWAY, 8″ THICK, STA. 12+17.00 TO STA. 12+25.00
.016 AWAY FROM ROADWAY, 8″ THICK, STA. 12+25.00 TO STA. 12+51.60

PROPOSED LEGEND

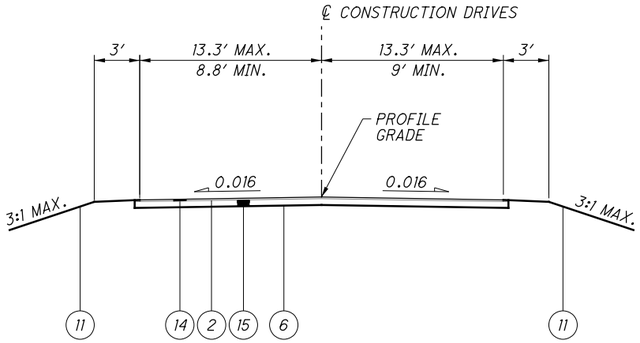
(1) ITEM 441 - 1 ¼″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22
(2) ITEM 407 - TACK COAT
(3) ITEM 441 - 1 ¾″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
(4) ITEM 301 - 6″ ASPHALT CONCRETE BASE, PG64-22
(5) ITEM 304 - 6″ AGGREGATE BASE
(6) ITEM 204 - SUBGRADE COMPACTION
(7) ITEM 609 - CURB, TYPE 6
(8) ITEM 606 - GUARDRAIL, TYPE MGS
(9) ITEM 605 - 6″ SHALLOW PIPE UNDERDRAINS
(10) ITEM 526 - REINFORCED CONCRETE APPROACH SLABS WITH QA/QC (T=17″), AS PER PLAN
(11) ITEM 659 - SEEDING AND MULCHING
(12) ITEM 608 - 4″ CONCRETE WALK (8″ WHERE SPECIFIED)
(13) ITEM 204 - PROOF ROLLING
(14) ITEM 441 - 1 ¼″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)
(15) ITEM 301 - 5″ ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)
(16) ITEM 254 - PAVEMENT PLANING, 1 ¼″
(17) ITEM 301 - 3″ ASPHALT CONCRETE BASE, PG64-22

CALCULATED CDS
CHECKED MJC

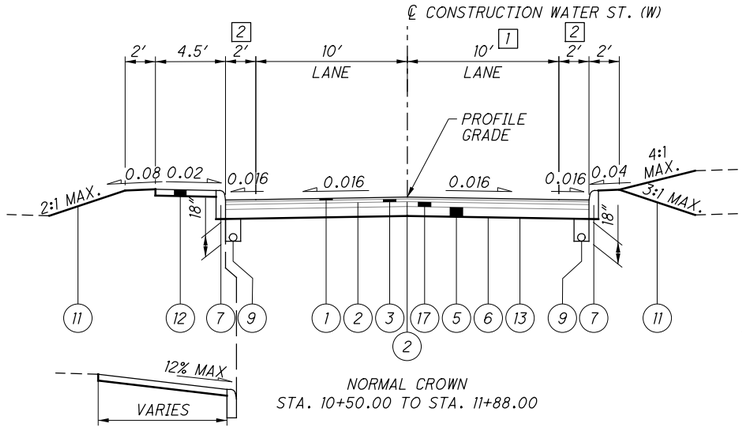
C.R. 32 TYPICAL SECTIONS

MUS-CR32-0.00

5
192



DRIVE NORMAL SECTION



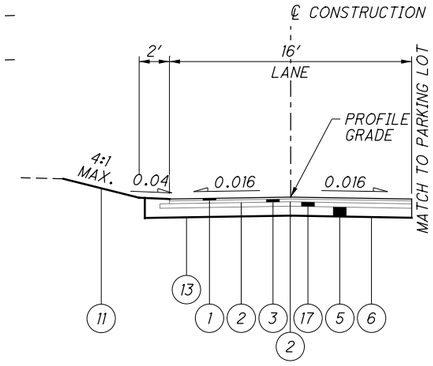
NORMAL CROWN
STA. 10+50.00 TO STA. 11+88.00

STA. 10+72.46 TO STA. 11+07.31

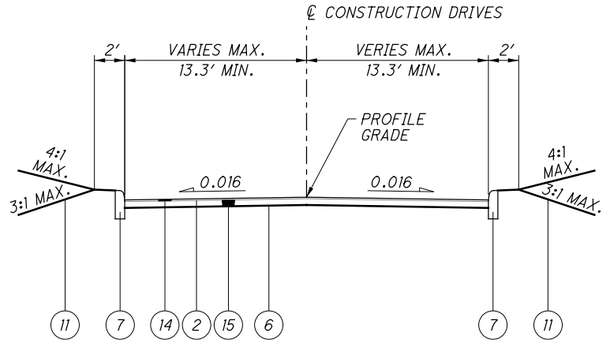
1 VARIES 10′-6″ TO 10′-0″ FROM STA. 10+50.00 TO STA. 10+58.00 LT.

2 VARIES 0′-0″ TO 2′-0″ FROM STA. 10+50.00 TO STA. 10+58.00 LT. & RT.

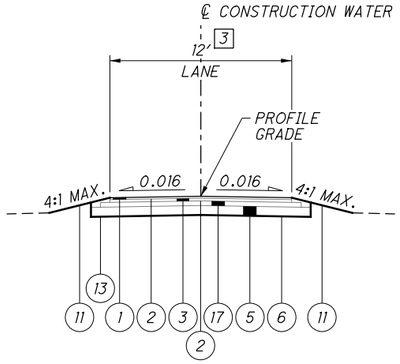
3 VARIES 43′-0″ TO 12′-0″ FROM STA. 10+12.00 TO STA. 10+40.89



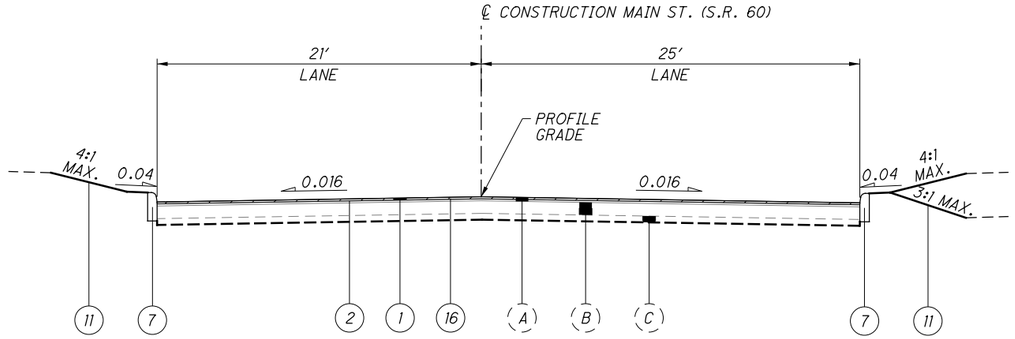
NORMAL CROWN
STA. 10+62.50 TO STA. 11+08.00



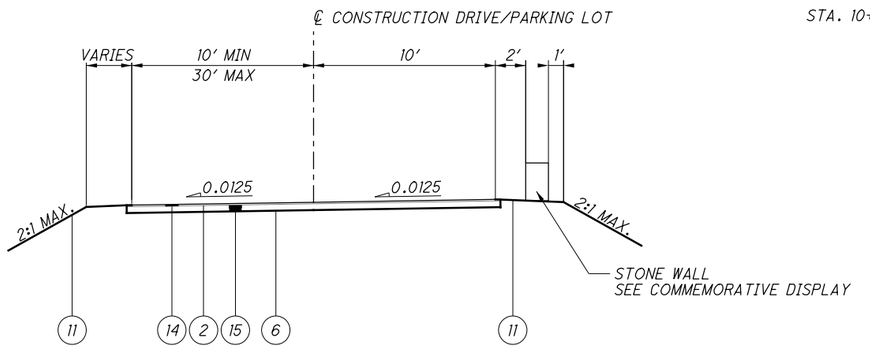
DRIVE NORMAL SECTION WITH CURB



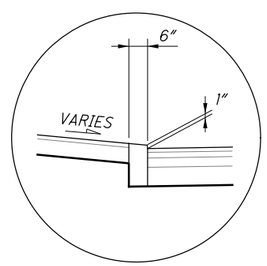
NORMAL CROWN
STA. 10+12.00 TO STA. 11+85.00



NORMAL CROWN
STA. 495+44.01 TO STA. 497+17.23

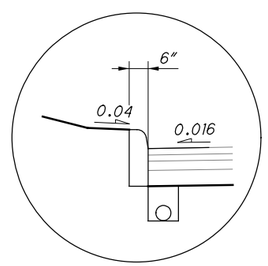


PARKING LOT NORMAL SECTION



DROP CURB DETAIL
SEE SCD BP-4.1 FOR ADDITIONAL DETAILS

STA. 12+17.00 TO 12+51.60 BRIDGE ST
STA. 10+85.46 TO STA. 11+52.79 WATER ST. W.



CURB DETAIL
(WATER ST.)

PROPOSED LEGEND

1. ITEM 441 - 1 1/4″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22
2. ITEM 407 - TACK COAT
3. ITEM 441 - 1 3/4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
4. ITEM 301 - 3″ ASPHALT CONCRETE BASE, PG64-22
5. ITEM 304 - 6″ AGGREGATE BASE
6. ITEM 204 - SUBGRADE COMPACTION
7. ITEM 609 - CURB, TYPE 6
8. ITEM 606 - GUARDRAIL, TYPE MGS
9. ITEM 605 - 6″ SHALLOW PIPE UNDERDRAINS
10. ITEM 526 - REINFORCED CONCRETE APPROACH SLABS WITH QA/QC (T=17″), AS PER PLAN
11. ITEM 659 - SEEDING AND MULCHING
12. ITEM 608 - 4″ CONCRETE WALK (8″ WHERE SPECIFIED)
13. ITEM 204 - PROOF ROLLING
14. ITEM 441 - 1 1/4″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)
15. ITEM 301 - 5″ ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)
16. ITEM 254 - PAVEMENT PLANING, 1 1/4″

CALCULATED CDS CHECKED MJC

SIDE ROAD TYPICAL SECTIONS

MUS-CR32-0.00

CALCULATED CDS CHECKED MJC

GENERAL NOTES

UTILITIES

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

MUSKINGUM COUNTY WATER DEPARTMENT
375 RICHARDS ROAD
ZANESVILLE, OH 43701
ATTN: DON MADDEN
740-453-0678

ODOT DISTRICT 5 TRAFFIC DEPARTMENT
9600 JACKSONTOWN ROAD
JACKSONTOWN, OH 43030
ATTN: RON MILLER
740-323-5286

AT&T OHIO
160 N. 6TH STREET
ZANESVILLE, OH 43701
ATTN: BARRETT TAMASOVICH
740-454-3552

AEP OHIO - DISTRIBUTION
850 TECH CENTER DRIVE
GAHANNA, OH 43230
ATTN: PAUL PAXTON
614-883-6831

AEP OHIO - TRANSMISSION
700 MORRISON ROAD
GAHANNA, OH 43230
ATTN: COURTNE BUZZARD
614-552-1893

NATIONAL GAS AND OIL COOPERATIVE
1500 GRANVILLE ROAD
P.O. BOX 4970
NEWARK, OH 43058
ATTN: GREG WILSON
740-348-1254

CHARTER COMMUNICATIONS
(SPECTRUM)
(TIME WARNER CABLE)
3760 INTERCHANGE ROAD
COLUMBUS, OH 43231
ATTN: BRADLEY ST. CLAIR
740-303-3100

DUNFALLS ASSOCIATION
355 MILL STREET
DUNCAN FALLS, OH 43734
ATTN: STEVE HAMBEL
740-624-0181

DIVERSIFIED RESOURCES INC. OHIO
707 TOWNSHIP ROAD 103
MILLERSBURG, OHIO 44654
ATTN: JODY JASPER
440-840-0478

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.

INTERIM COMPLETION DATE

NOVEMBER 29", 2019 WILL CONSTITUTE AN INTERIM COMPLETION DATE. AT A MINIMUM THE CONTRACTOR MUST HAVE THE NEW BRIDGE CONSTRUCTED AND OPEN TO TRAFFIC USING THE NEWLY CONSTRUCTED BRIDGE STREET. THE FINAL COMPLETION DATE WILL BE JULY 1ST, 2020.

IF THE CONTRACTOR FAILS TO HAVE THE NEW BRIDGE CONSTRUCTED AND OPEN TO TRAFFIC USING THE NEWLY CONSTRUCTED BRIDGE STREET AS DESCRIBED ABOVE, LIQUIDATED DAMAGES AS PER CMS 108.07 WILL BE ASSESSED TO THE CONTRACTOR.

ROUNDING

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

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 3 FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: GPS
MONUMENT TYPE: 5/8" REBAR

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: GEOID12A

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 83 (2011)
ELLIPSOID: GRS 80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, SOUTH ZONE
COMBINED SCALE FACTOR: 1.000056313
ORIGIN OF COORDINATE
SYSTEM: 0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR: 1 METER = 3.280833333 U.S. SURVEY FEET.

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.

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.

CLEARING AND GRUBBING

THE MUSKINGUM COUNTY ENGINEER'S OFFICE WILL PERFORM TREE CLEARING FOR THE PROJECT PRIOR TO MARCH 31, 2018. ADDITIONAL TREE CLEARING BY THE CONTRACTOR SHALL ONLY BE PERFORMED IN ACCORDANCE WITH THE NOTES HERE IN.

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL BY THE CONTRACTOR 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.

SEEDING AND MULCHING

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

659, SOIL ANALYSIS TEST 2 EACH

659, TOPSOIL 911 CU. YD.

659, SEEDING AND MULCHING 8201 SQ. YD.

659, REPAIR SEEDING AND MULCHING 411 SQ. YD

659, INTER-SEEDING 411 SQ. YD.

659, COMMERCIAL FERTILIZER 1.15 TON

659, LIME 1.70 ACRES

659, WATER 46 M. GAL.

659, MOWING 19 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.

ITEM 202, STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN - INTAKE BRIDGE HRS C0032 (SFN: 6034330)

THIS WORK SHALL CONSISTS OF THE REMOVAL OF THE EXISTING INTAKE BRIDGE HRS C0032 (SFN: 6034330) SUPERSTRUCTURE AND SUBSTRUCTURES TO 1 FOOT BELOW THE PROPOSED GRADE. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING REMOVAL OPERATIONS NEAR THE EXISTING ODNR RAMP STRUCTURE TO PROTECT THE HISTORIC STRUCTURE, WHICH SHALL REMAIN IN PLACE. SUBMIT WORKING DRAWINGS ACCORDING TO CMS 501.05.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS.

ITEM 202, STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN - LUMP SUM
ITEM 202, WEARING COURSE REMOVED - 174 SY
ITEM 202, APPROACH SLAB REMOVED - 103 SY

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 FEET OF THE PLAN SUBGRADE ELEVATION.

2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05.

   IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.

3. COMPACT THE SUBGRADE ACCORDING TO 204.03.

4. APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.

   PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06.

5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.

6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06 TO VERIFY STABILITY.

7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY AS PAYMENT FOR THE ABOVE DESCRIBED WORK:

ITEM 204 - EXCAVATION OF SUBGRADE 352 CY
ITEM 204 - GRANULAR MATERIAL, TYPE B 352 CY

ITEM 202 - REMOVAL, MISC.: ENCROACHMENTS

IN ADDITION TO THE REMOVAL ITEMS ITEMIZED IN THE PLANS, THE CONTRACTOR SHALL REMOVE ANY RIGHT OF WAY ENCROACHMENTS IDENTIFIED BY THE PROJECT ENGINEER.

THE CONTRACTOR SHALL PROVIDE A TOTAL LUMP SUM ALLOWANCE OF $5,000 TO PERFORM THE ABOVE DESCRIBED WORK. THE FOLLOWING CONTINGENCY QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE ONLY AS DIRECTED BY THE ENGINEER.

ITEM 202 - REMOVAL, MISC.: ENCROACHMENTS LUMP SUM

MUS-CR32-0.00

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 611 CONDUIT ITEM.

REVIEW OF DRAINAGE 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 LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT, INLET, CATCH BASIN, AND MANHOLE ITEMS.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A W-BEAM, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

HANDICAP SYMBOL MARKING

1. WORK SHALL CONSIST OF THE PLACEMENT OF A HANDICAP SYMBOL MARKING TO CONFORM WITH THE FOLLOWING:

2. THE SYMBOL OF ACCESSIBILITY PLACED ON THE PARKING SPACE SHALL BE AS SHOWN IN THE FIGURE 3B-22 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 2012 EDITION, WITH THE EXCEPTION THAT A BLUE BACK-GROUND/WHITE BORDER SHALL NOT BE USED.

3. THE HEIGHT OF THE SYMBOL SHALL BE 41 INCHES, THE WIDTH SHALL BE 36 INCHES, AND THE STROKE WIDTH SHALL BE 4 INCHES.

4. MATERIALS, EQUIPMENT, AND APPLICATION SHALL BE ACCORDING TO THE TYPE OF PAVEMENT MARKING MATERIAL (642 - TRAFFIC PAINT, 643 - POLYESTER, 644 - THERMO-PLASTIC, 645 - PREFORMED, 646 EPOXY OR 647 - HEAT-FUSED PERFORMED THERMOPLASTIC) USED.

5. PAYMENT SHALL BE ACCORDING TO THE PAVEMENT MARKING MATERIAL USED AS FOLLOW:

   ITEM 642, HANDICAP SYMBOL MARKING, EACH

   SEE PAVEMENT MARKING SUBSUMMARY FOR QUANTITIES.

ITEM 622 - BARRIER, MISC.: 42" BARRIER

IN ADDITION TO THE REQUIREMENTS OF ITEM 622, THIS ITEM SHALL CONSIST OF CONSTRUCTING THE 42" BARRIER AS DETAILED ON SHEETS 65 - 66. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS INCLUDING REBAR, SEALING, AND PEJF SHALL BE INCLUDED IN THE LINEAR FOOT BID FOR ITEM 622 - BARRIER, MISC.: 42" BARRIER.

ITEM 630 - REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION, AS PER PLAN

THE CONTRACTOR SHALL REMOVE THE EXISTING SUBWAY SIGN SUPPORT AND FOUNDATION AND BACKFILL THE CAVITY IN ORDER TO COMPLETE PAVING IN THE AREA. THE CONTRACTOR SHALL USE CARE WHEN REMOVING THE SAID SUPPORT TO AVOID DAMAGE. IF DAMAGED, THE CONTRACTOR SHALL REPLACE THE SUPPORT IN KIND AT NO ADDITIONAL COST TO THE PROJECT. AFTER PAVING IS COMPLETE, THE CONTRACTOR SHALL REERECT THE SUPPORT IN THE EXISTING LOCATION. THE CONTRACTOR SHALL SUPPLY A NEW FOUNDATION WHICH MATCHES THE EXISTING FOUNDATION OR MATCH THE EXISTING EMBEDMENT DEPTH IF NO EXISTING FOUNDATION IS PRESENT.

PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 630 - REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION, AS PER PLAN.

ITEM 630 - REMOVAL OF GROUND MOUNTED PIPE SUPPORT AND REERECTION, AS PER PLAN

THE CONTRACTOR SHALL REMOVE THE EXISTING PHILO SIGN SUPPORT AND FOUNDATION AND BACKFILL THE CAVITY. THE CONTRACTOR SHALL USE CARE WHEN REMOVING THE SAID SUPPORT TO AVOID DAMAGE. IF DAMAGED, THE CONTRACTOR SHALL REPLACE THE SUPPORT IN KIND AT NO ADDITIONAL COST TO THE PROJECT. THE CONTRACTOR SHALL REERECT THE SUPPORT IN THE PROPOSED LOCATION SHOWN IN THE PLANS. THE CONTRACTOR SHALL SUPPLY A NEW FOUNDATION WHICH MATCHES THE EXISTING FOUNDATION OR MATCH THE EXISTING EMBEDMENT DEPTH IF NO EXISTING FOUNDATION IS PRESENT.

PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 630 - REMOVAL OF GROUND MOUNTED PIPE SUPPORT AND REERECTION, AS PER PLAN.

ITEM 202 - REMOVAL, MISC.: LANDSCAPE ROCKS

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING ROCKS OR BOULDERS NOTED IN THE PLANS. THE EXISTING ROCKS VARY IN SIZE AND PORTIONS MAY EXTEND BELOW GROUND. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: LANDSCAPE ROCKS.

ITEM 202 - REMOVAL, MISC.: STEEL TOWER

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING STEEL ELECTRIC TOWER NOTED IN THE PLANS. THE EXISTING TOWER FOOTINGS MAY EXTEND BELOW GROUND. THE EXISTING FOOTINGS SHALL BE REMOVED TO A MINIMUM DEPTH OF 1' BELOW EXISTING OR PROPOSED GROUND. THE TOWER REMOVAL SHALL BE PERFORMED TO ELEVATION 689 ALONG THE NORTH SIDE, ELEVATION 685 AT THE SOUTHEAST CORNER, AND ELEVATION 682 AT THE SOUTHWEST CORNER. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: STEEL TOWER.

ITEM 202 - REMOVAL, MISC.: POST AND WIRE

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING STEEL POST AND WIRE FENCE NOTED IN THE PLANS. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: POST AND WIRE.

ITEM 202 - REMOVAL, MISC.: WALL AND RAILING

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING RETAINING WALLS AND RAILING NOTED IN THE PLANS. THE EXISTING WALL FOOTINGS MAY EXTEND BELOW GROUND. THE EXISTING FOOTINGS SHALL BE REMOVED TO A DEPTH OF 1' BELOW EXISTING GROUND. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: WALL AND RAILING.

ITEM 202 - REMOVAL, MISC.: CONCRETE PAD

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING CONCRETE PADS NOTED IN THE PLANS. THE EXISTING PAD MAY EXTEND BELOW GROUND. THE EXISTING CONCRETE SHALL BE REMOVED TO A DEPTH OF 1' BELOW EXISTING GROUND. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: CONCRETE PAD.

ITEM 202 - REMOVAL, MISC.: LIGHT POLE REMOVED

IN ADDITION TO THE REQUIREMENTS OF ITEM 202 AND 625, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING LIGHT POLES, LIGHTS, AND WIRING NOTED IN THE PLANS. THE EXISTING POLE FOOTINGS MAY EXTEND BELOW GROUND. THE EXISTING FOOTINGS SHALL BE REMOVED TO A DEPTH OF 1' BELOW EXISTING GROUND. THE CONTRACTOR SHALL DISCONNECT THE EXISTING LIGHTS MARKED FOR REMOVAL. EXISTING LIGHTS NOT MARKED FOR REMOVAL SHALL REMAIN IN OPPERATION BETWEEN THE HOURS OF 6PM AND 8AM. OUTSIDE THESE TIMES, THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE POWER COMPANY OR PROPERTY OWNER TO DISCONNECT THE LIGHTS TO BE REMOVED. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: LIGHT POLE REMOVED.

ITEM 202 - REMOVAL, MISC.: SIGN REMOVED

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING PORTABLE SIGN NOTED IN THE PLANS. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: SIGN REMOVED.

ITEM 202 - REMOVAL, MISC.: POST WITH ELECTRIC METER

IN ADDITION TO THE REQUIREMENTS OF ITEM 202, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF THE EXISTING POST AND ELECTRIC METER NOTED IN THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH AEP TO ENSURE POWER HAS BEEN DISCONNECTED. THE CONTRACTOR SHALL THEN REMOVE THE METER, WIRING, POLE, AND ASSOICATED MATERIALS. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - REMOVAL, MISC.: POST WITH ELECTRIC METER.

ITEM 202 - CATCH BASIN ABANDONED, AS PER PLAN

THE EXISTING CATCH BASIN SHALL NOT BE REMOVED TO 1' BELOW THE GROUND SURFACE AS SPECIFIED IN THE CMS IN ORDER TO AVOID DAMAGE TO THE EXISTING PAVEMENT TO REMAIN. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING CATCH BASIN GRATE, AND SEAL THE EXISTING PIPE TO BE ABANDONED PER ITEM 202. THE CONTRACTOR SHALL BACKFILL THE CAVITY WITH LOW STRENGTH MORTAR (LSM) BACKFILL PER ITEM 613. THE TOP SURFACE OF THE LSM SHALL BE LEVEL WITH THE ADJACENT PAVEMENT SURFACE. PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - CATCH BASIN ABANDONED, AS PER PLAN.

CALCULATED CDS CHECKED MJC

GENERAL NOTES

MUS-CR32-0.00

ENVIRONMENTAL COMMITMENTS

1. THE CONTRACTOR SHALL NOTIFY THE ODOT PROJECT ENGINEER OF RECORD A MINIMUM OF 21 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. UPON RECEIPT OF NOTICE FROM THE CONTRACTOR, THE PROJECT ENGINEER SHALL IMMEDIATELY NOTIFY THE ODOT DISTRICT 5 PUBLIC INFORMATION OFFICER (PIO) WHO SHALL NOTIFY LOCAL MEDIA OUTLETS, SCHOOLS, POLICE, FIRE, EMERGENCY SERVICES, TRANSIT/BUS TRANSPORTATION DEPARTMENTS, AND POST OFFICES 15 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

2. THE CONTRACTOR SHALL CLOSELY COORDINATE THE CONSTRUCTION SCHEDULE WITH ODOT, THE MUSKINGUM COUNTY ENGINEER'S OFFICE, AND THE ODNR DIVISION OF STATE PARKS AND WATERCRAFT TO ENSURE MAINTENANCE OF TRAFFIC IS PROPERLY IMPLEMENTED AND THAT RIVER NAVIGATION IS NOT ADVERSELY AFFECTED OUTSIDE OF PREVIOUSLY ESTABLISHED COMMITMENTS

3. FOR THE PROPERTY (SITE H - FORMERLY 102 BRIDGE STREET) LOCATED NORTHEAST OF THE BRIDGE STREET (CR 32)/WATER STREET INTERSECTION, THE CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF SLUDGE LOCATED IN THE BASEMENT SUMP PIT, REMOVE AND DISPOSE OF ALL UNDERGROUND STORAGE TANKS AND ASSOCIATED SYSTEMS, AND DISPOSE OF ANY EXCAVATED SOILS FROM THE UNDERGROUND STORAGE TANK CAVITY AT A SOLID WASTE FACILITY. PAYMENT FOR THE ABOVE DESCRIBED WORK SHALL BE AS PER ITEM 202 - REGULATED UNDERGROUND STORAGE TANK REMOVED, AS PER PLAN, 3 EACH.

4. TO MINIMIZE IMPACTS TO KNOWN OR IDENTIFIED AQUATIC SPECIES, THE CONTRACTOR SHALL NOT PERFORM IN-STREAM WORK OR PLACE OR REMOVE TEMPORARY OR PERMANENT FILL MATERIALS BELOW THE ORDINARY HIGH WATER MARK (OHWM) OF THE MUSKINGUM RIVER BETWEEN APRIL 15 AND JUNE 30. THIS REQUIREMENT WILL BE INCORPORATED INTO THE WATERWAY SPECIAL PROVISIONS THAT WILL BE ATTACHED TO THE PLANS.

5. ALL NECESSARY CLEARING OF TREES OVER 3" DIAMETER AT BREAST HEIGHT (DBH) SHALL ONLY OCCUR BETWEEN OCTOBER 1 AND MARCH 31. FURTHERMORE, NO CLEARING OF TREES SHALL OCCUR UNTIL THE APPROPRIATE WATERWAY PERMITS HAVE BEEN OBTAINED FROM THE APPROPRIATE RESOURCE AGENCIES.

   THE MUSKINGUM COUNTY ENGINEER'S OFFICE WILL PERFORM TREE CLEARING FOR THE PROJECT PRIOR TO MARCH 31, 2018. ADDITIONAL TREE CLEARING BY THE CONTRACTOR SHALL ONLY BE PERFORMED DURING THE ALLOWABLE TIME PERIOD ABOVE.

6. ONE DRINKING WATER WELL IS PRESENT ON SITE 5, JENNIFER YERIAN PROPERTY, BRIDGE STREET. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THE DRINKING WATER WELL IS ABANDONED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR) TECHNICAL GUIDELINES FOR SEALING UNUSED WELLS. PAYMENT FOR THIS WORK SHALL BE AS PER ITEM SPECIAL - DRILLED WATER WELL ABANDONED, 1 EA.

7. NAVIGATION ALONG THE MUSKINGUM RIVER WITHIN THE PROPOSED CONSTRUCTION LIMITS SHALL BE MAINTAINED DURING WEEKEND DAYS (FRIDAY, SATURDAY, AND SUNDAY) FROM MAY 15 THROUGH OCTOBER 15, INCLUDING MEMORIAL DAY, LABOR DAY AND THE WEEK OF JULY 4TH.

8. THE MUSKINGUM COUNTY ENGINEER'S OFFICE AND ODOT SHALL COORDINATE WITH ODNR DIVISION OF STATE PARKS AND WATERCRAFT PRIOR TO THE START OF CONSTRUCTION ACTIVITIES TO ENSURE THE APPROPRIATE SIGNAGE, BUOYS, AND MARKERS ARE PROPERLY PLACED IN THE UPSTREAM AND DOWNSTREAM RIVER PORTIONS WITHIN THE PROPOSED PROJECT AREA TO ALERT BOATERS AND OTHER RIVER USERS OF CONSTRUCTION ACTIVITY.

9. ACCESS TO LOCK #9 WILL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.

10. THE CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING ALONG PROPOSED CONSTRUCTION LIMITS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES TO PROTECT THE EXISTING 4(f) PROPERTY AND THE PUBLIC. FENCE SHALL BE LOCATED IN THE FOLLOWING AREAS UNLESS EXISTING FENCE OR RAILINGS ARE PROVIDED:

    FRONT ST. (NORTH SIDE)
    EX. BRIDGE ST. BETWEEN WATER ST. & S.R. 60 (EAST SIDE)
    S.R. 60 EAST OF EX. BRIDGE ST. (SOUTH SIDE)
    EX. WATER ST (E) (SOUTH SIDE)
    PROP. AEP/ODNR DRIVE (BOTH SIDES)
    PROP. BRIDGE ST. & WATER ST. (W)

    PAYMENT FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS TO ERECT, MAINTAIN, AND REMOVE THE TEMPORARY FENCE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 607 - FENCE, SNOW. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE ABOVE DESCRIBED WORK.

    ITEM 607 - FENCE, SNOW 1500 FT

11. STAGING AND/OR STORAGE OF CONSTRUCTION EQUIPMENT SHALL NOT TAKE PLACE WITHIN THE KNOWN BOUNDARIES OF MUSKINGUM RIVER PARKWAY STATE PARK THAT ARE OUTSIDE PROPOSED CONSTRUCTION LIMITS.

12. THE CONTRACTOR SHALL CLOSELY COORDINATE THE CONSTRUCTION SCHEDULE WITH ODOT, THE MUSKINGUM COUNTY ENGINEER'S OFFICE, AND THE ODNR DIVISIONS OF PARKS AND WATERCRAFT.

13. THE CONTRACTOR SHALL NOTIFY NATALIE PIRVU, 614-265-6466, AT ODNR DIVISION OF STATE PARKS AND WATERCRAFT AT LEAST 15 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES SO THAT A NOTICE CAN BE POSTED ON ODNR'S ONLINE BOATING AND PARK WEBPAGE.

14. THE ODNR PARK MANAGER, DAVE FINLEY, 740-506-5786, WILL BE INVITED TO ANY PRE-BID MEETINGS, THE PRE-CONSTRUCTION MEETING, AND ALL PROJECT PROGRESS MEETINGS.

15. AS DETERMINED BY THE CONTRACTOR OR ODOT THAT ON-THE-WATER LAW ENFORCEMENT ASSISTANCE IS NEEDED DURING ANY PORTION OF BRIDGE CONSTRUCTION OR DEMOLITION PHASES, THE CONTRACTOR SHALL NOTIFY THE ODNR DIVISION OF PARKS AND WATERCRAFT LAW ENFORCEMENT SUPERVISOR AT A MINIMUM OF 48 HOURS IN ADVANCE.

    ALL COSTS ASSOCIATED WITH THE ON-THE-WATER LAW ENORCEMENT ASSISTANCE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 614 - LAW ENFORCEMENT OFFICER FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE ABOVE DESCRIBED WORK.

    ITEM 614 - LAW ENFORCEMENT OFFICER FOR ASSISTANCE
    40 HR

16. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE ANY AREAS OF THE MUSKINGUM RIVER PARKWAY STATE PARK LOCATED WITHIN PROPOSED CONSTRUCTION LIMITS THAT ARE DISTURBED BY CONSTRUCTION ACTIVITIES WILL BE RESTORED TO A CONDITION AT LEAST AS GOOD AS OR BETTER THAN THAT WHICH EXISTED PRIOR TO THE PROPOSED PROJECT.

17. ODOT WILL OBTAIN ALL APPROPRIATE WATERWAY PERMITS PRIOR TO ANY WORK BELOW THE ORDINARY HIGH WATER MARK OF ANY WATERWAY AND ALL SPECIAL PROVISIONS FOR WATERWAY PERMITS WILL BE INCLUDED IN THE PROJECT PLANS.

18. A NOTICE OF INTENT (NOI) HAS BEEN COMPLETED BY ODOT DISTRICT 5 AND ISSUED BY THE OEPA REQUESTING COVERAGE UNDER THE NPDES GENERAL CONSTRUCTION PERMIT. THE PERMIT NUMBER IS OGC03030*AG. THE CONTRACTOR WILL NEED TO APPLY AS A CO-PERMITTEE AS DETAILED IN SUPPLEMENTAL SPECIFICATION 832.

COOPERATION WITH UTILITY RELOCATIONS

THE CONTRACTOR SHOULD BE AWARE THAT ALL UTILITIES WILL NOT BE CLEAR BY THE START OF CONSTRUCTION. AERIAL UTILITY RELOCATION CANNOT BEGIN UNTIL THE BUILDINGS MARKED FOR REMOVAL IN THESE PLANS HAVE BEEN DEMOLISHED. IN ORDER TO EXPEDITE RELOCATION, THE CONTRACTOR SHALL REMOVE THE EXISTING BUILDINGS AS SOON AS POSSIBLE. ALL BUILDING DEMOLITIONS SHALL BE COMPLETE BY MAY 31, 2018. FOLLOWING DEMOLITION, THE UTILITY RELOCATION SCHEDULE BELOW IS ANTICIPATED:

AEP RELOCATION - JUNE 1,2018 - JUNE 14, 2018
SPECTRUM RELOCATION - JUNE 15. 2018 - JUNE 30, 2018
AT&T RELOCATION - JULY 1, 2018 - JULY 31, 2018

THE CONTRACTOR MAY CONTINUE TO WORK ON THE PROJECT DURING UTILITY RELOCATION. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES ABOVE IN ORDER TO NOT INTERFERE WITH THE UTILITY RELOCATION TIME FRAME.

BORROW AREA

MUSKINGUM COUNTY OWNS 28.37 ACRES ALONG OLD RIVER ROAD AT THE INTERSECTION OF OLD RIVER ROAD AND BRIDGE STREET. THE SITE MAY BE SUITABLE FOR THE CONTRACTOR TO USE AS BORROW MATERIAL. THIS SITE IS OUTSIDE OF THE LIMITS AS SHOWN ON THE PLANS AND HAS NOT BEEN CLEARED ENVIRONEMENTALLY. SECTIONS 105 AND 107 IN THE 2016 C&MS BOOK SHALL APPLY. FOR FURTHER DETAILS ABOUT USING THE SITE PLEASE CONTACT THE MUSKINGUM COUNTY ENGINEER'S OFFICE AT 740-454-0155.

ASBESTOS ABATEMENT

AN INSPECTION FOR ASBESTOS CONTAINING MATERIALS WAS COMPLETED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST ON OCTOBER 5, 2017 FOR THE BUILDING LOCATED AT THE NORTH EAST CORNER OF BRIDGE ST. AND WATER ST. INDICATED AS PARCEL 5 IN THE RIGHT OF WAY PLANS.

THE RESULTS OF THE ASBESTOS INSPECTION AND POLARIZED LIGHT MICROSCOPY TESTING OF BULK SAMPLES INDICATE REGULATED ASBESTOS CONTAINING MATERIAL (RACM) IS PRESENT IN THE BUILDINGS STATED ABOVE AND THE LABORATORY TEST RESULTS HAVE BEEN PROVIDED AS A SPECIAL PROVISION TO THE PLANS AND CAN BE FOUND AT THE LINK BELOW

ftp://ftp.dot.state.oh.us/pub/districts/D05/Projects/MUS/97346%20(Philo%20Bridge)/

THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL PERTINENT ASBESTOS REMOVAL, HANDLING AND DISPOSAL REQUIREMENTS OF THE OHIO ADMINISTRATIVE CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS REGULATIONS. AS THE QUANTITY OF THE REGULATED ASBESTOS CONTAINING MATERIAL TO BE REMOVED ON THE PROJECT IS MORE THAN 50 SQ. FT., AN OHIO DEPARTMENT OF HEALTH NOTIFICATION WILL BE REQUIRED.

IN ACCORDANCE WITH SECTION XVII OF THE OHIO EPA NOTIFICATION OF DEMOLITION AND RENOVATION FORM THE CONTRACTOR SHALL ENSURE AN INDIVIDUAL TRAINED IN THE PROVISIONS OF NESHAP WILL BE ONSITE DURING THE DEMOLITION ACTIVITIES. IN ADDITION, THE CONTRACTOR MUST COMPLETE SECTIONS VIII, IX, X, XI, XII, XIII, XVI, XVII AND XVIII OF THE OHIO EPA NOTIFICATION OF DEMOLITION AND RENOVATION FORM AND SUBMIT IT TO:

ASBESTOS PROGRAM
OHIO EPA, DAPC
PO BOX 1049
COLUMBUS OH 43216-1049

THE FORM MUST BE SUBMITTED TO OEPA AT LEAST 10 DAYS PRIOR TO THE START OF DEMOLITION ACTIVITIES. THE CONTRACTOR SHALL ALSO PROVIDE A COPY OF THE COMPLETED FORM TO THE PROJECT ENGINEER AND THE DISTRICT 5 ENVIRONMENTAL COORDINATOR.

ATTACHED FOR THE CONTRACTORS USE IN COMPLETING THE ASBESTOS RELATED WORK ARE THE FOLLOWING ITEMS FOR BOTH THE BUILDINGS AND THE STRUCTURE:

- ASBESTOS INSPECTION REPORT
- PARTIALLY COMPLETED OEPA NOTIFICATION OF DEMOLITION AND RENOVATION FORM
- LABORATORY ANALYSIS OF THE ASBESTOS CONTAINING MATERIALS

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE, SUBMIT AND COMPLY WITH THE OEPA NOTIFICATION REQUIREMENTS AND TO REMOVE TRANSPORT AND DISPOSE OF ASBESTOS CONTAINING MATERIALS IN A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OEPA) SOLID WASTE FACILITY. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE.

ITEM 690 - SPECIAL, ASBESTOS ABATEMENT, PARCEL 5-WD
LUMP SUM

CALCULATED KRF | CHECKED MJC

GENERAL NOTES

MUS-CR32-0.00

ITEM 614, MAINTAINING TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATION AND THE FOLLOWING:

1. THIS PROJECT CONSISTS OF A BRIDGE REPLACEMENT, INTERSECTION RELOCATION, FULL DEPTH PAVEMENT REPLACEMENT, ROADSIDE GRADING, AND DRAINAGE IMPROVEMENTS. THE PROPOSED BRIDGE SHALL BE CONSTRUCTED FIRST, WHILE MAINTAINING TRAFFIC ON THE EXISTING STRUCTURE. THE APPROACHES SHALL BE CONSTRUCTED AND THE TRAFFIC SHALL BE MAINTAINED AS SHOWN IN THE PLANS. AT OTHER TIMES THE CONTRACTOR MAY CLOSE ONE LANE OF TRAFFIC IN ACCORDANCE WITH SCD MT-97.10 AT TIMES APPROVED BY THE ENGINEER.

2. A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON BRIDGE STREET, SOUTH OF STATE ROUTE 60, SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, ITEM 502 STRUCTURE FOR MAINTAINING TRAFFIC, ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC, ITEM 615 ROADS FOR MAINTAINING TRAFFIC, AND TEMPORARY SURFACES USING ITEMS 410, AND 614.

3. A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON BRIDGE STREET, NORTH OF STATE ROUTE 60, SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR TWO SEPERATE PERIODS WHICH SHALL NOT EXCEED 7 CONSECUTIVE CALENDAR DAYS EACH, WHEN TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 13-14. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF $1000 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

4. LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

5. 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.

6. NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	6:00 AM WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF $50 FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

7. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR WORK TO BE COMPLETED AS SHOWN IN THE MAINTENANCE OF TRAFFIC PLANS.

ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE A OR B	15 CU. YD.
ITEM 614, WORK ZONE CENTER LINE, CLASS 1	0.02 MI.
ITEM 614, WORK ZONE STOP LINE, CLASS 1	44 FT.
ITEM 615, PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	240 CU. YD.
ITEM 615, ROADS FOR MAINTAINING TRAFFIC	LUMP SUM

8. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

BRIDGE STREET JUST NORTH OF MAIN STREET
BRIDGE STREET JUST SOUTH OF HARLAN DRIVE
WATER STREET JUST EAST OF MILL STREET

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 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.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND 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.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 40 M. GAL

MAINTENANCE OF CANOE TRAFFIC

CANOE TRAFFIC SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION OF THE PROJECT EITHER THROUGH EXISTING RIVER CHANNEL OR THROUGH PORTAGE TRAIL APPROVED BY THE ENGINEER.

ADEQUATE SIGNING BOTH UPSTREAM AND DOWNSTREAM SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR. THE FOLLOWING TYPE SIGNS ARE CONSIDERED TO BE MINIMUM TREATMENT.

1. APPROXIMATELY ONE-QUARTER MILE UPSTREAM, ADVANCED WARNING TYPE SIGNS ON BOTH BANKS;

2. APPROXIMATELY 300 FEET UPSTREAM, SIGNS SPECIFYING ACTIONS REQUIRED OF CANOEIST ON BOTH BANKS;

3. APPROXIMATELY ONE-QUARTER MILE DOWNSTREAM, ADVANCE WARNING TYPE SIGNS ON BOTH BANKS; AND

4. APPROXIMATELY 300 FEET DOWNSTREAM, SIGNS SPECIFYING ACTIONS REQUIRED OF CANOEIST OF BOTH BANKS.

THE ABOVE SIGNING SHALL BE MOUNTED IN SUCH A WAY AS TO BE A MINIMUM OF 4 FEET ABOVE THE WATER LEVEL, UNOBSTRUCTED BY TREE BRANCHES, AND PROPERLY ANGLED FOR MAXIMUM VISIBILITY FROM THE MAIN CLEAR CHANNEL. THE METHOD OF SUPPORTING THE SIGNS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. UPON COMPLETION OF THE PROJECT, THE SIGNS AND SUPPORT SYSTEMS SHALL BE COMPLETELY REMOVED FROM THE RIVER CHANNEL. THE CONTRACTOR SHALL NOTIFY LOCAL CANOE LIVERIES USING THIS PORTION OF THE RIVER AT LEAST 10 DAYS PRIOR TO ANY CHANGES AFFECTING CANOE TRAFFIC.

PORTAGE TRAILS IF USED SHALL BE CONSTRUCTED AND MAINTAINED BY THE CONTRACTOR WITH THE LEAST POSSIBLE DISTURBANCE TO THE SURROUNDING AREA. THE TRAIL SHALL BE ADEQUATELY MARKED IN BOTH DIRECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE RIGHT-OF-WAY FOR THE PORTAGE TRAILS IF REQUIRED.

IN THE EVENT PIPES ARE USED TO DIVERT OR CARRY RIVER WATER, BOTH THE INLET AND OUTLET ENDS SHALL BE ADEQUATELY PROTECTED BY GRATES OR FENCE SO THAT PEOPLE OR CANOES ARE NOT DRAWN THROUGH OR HELD BY THEM.

AEP SUBSTATION ACCESS

AMERICAN ELECTRIC POWER (AEP) HAS TRANSMISSION FACILITIES LOCATED ON PARCEL 1, ON THE SOUTHEAST CORNER OF THE EXISTING MUSKINGUM RIVER BRIDGE. ACCESS TO THESE FACILITIES MAY BE REQUIRED DURING THE PROJECT. THE CONTRACTOR SHALL PROVIDE ACCESS TO AEP FACILITIES VIA THE EXISTING DRIVE, PROPOSED BRIDGE ST, OR TEMPORARY PAVEMENT AS SHOWN IN THE PLANS. ACCESS PROVIDED SHALL ACCOMMODATE INGRESS AND EGRESS OF A TRACTOR TRAILER. THE CONTRACTOR SHALL COORDINATE ANY CHANGES TO EXISTING ACCESS WITH BRADY BURKE (740-450-4828) SEVEN (7) CALENDAR DAYS PRIOR TO IMPLEMENTATION OF THE ACCESS CHANGE.

ITEM 614 - BUSINESS ENTRANCE (M4-H15) SIGN, AS PER PLAN

THE BUSINESS ENTRANCE (M4-H15) SIGN SHOULD BE PROVIDED AT EACH TEMPORARILY RELOCATED COMMERCIAL DRIVEWAY FOR WHICH THE RELOCATION IS NOT OBVIOUS TO THE MOTORIST. THE PROJECT ENGINEER SHALL DETERMINE WHETHER OR NOT THE DRIVEWAY RELOCATION IS, OR IS NOT, OBVIOUS AND WHETHER OR NOT A SIGN SHOULD BE PROVIDED. ONLY ONE SIGN PER BUSINESS SHALL BE PERMITTED. THE SIGN SHALL BE 36 INCH X 48 INCH IN SIZE WITH TYPE G OR TYPE H ORANGE RETROREFLECTIVE SHEETING. THE SIGN LEGEND SHALL BE PLACED ON BOTH SIDES OF THE SIGN (BACK TO BACK). THE SIGN SHALL HAVE THE STANDARD M4-H15 LEGEND WITH THE WORD "BUSINESS" ON THE TOP LINE, EXCEPT UNDER UNUSUAL CIRCUMSTANCES WHERE IT MAY NOT BE INTUITIVE THAT A DRIVEWAY SERVES A SPECIFIC BUSINESS. IN SUCH UNUSUAL CASES, THE ACTUAL BUSINESS NAME MAY BE SUBSTITUTED FOR THE WORD "BUSINESS".

THE SIGN SHALL BE MOUNTED ON TWO NO. 3 POSTS OR ON TEMPORARY POSTS IN ACCORDANCE WITH SCD MT-105.10 AND IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE SIGN SHALL BE CLEARLY VISIBLE AND SHALL CLEARLY IDENTIFY THE LOCATION OF THE DRIVEWAY. THE SIGN SHOULD BE POSITIONED AT 90 DEGREES TO THE DIRECTION(S) OF TRAFFIC. THE SIGN MAY NEED TO BE MOVED FOR EACH PHASE OF THE MAINTENANCE OF TRAFFIC OPERATIONS.

PAYMENT FOR ALL COSTS ASSOCIATED WITH MANUFACTURING, MOUNTING, RELOCATING, AND REMOVING THE SIGN, INCLUDING ALL LABOR, MATERIALS AND EQUIPMENT SHALL BE INCLUDED IN THE CONTRACT PRICE PER EACH FOR ITEM 614-BUSINESS ENTRANCE SIGN.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS ITEM.

ITEM 614 BUSINESS ENTRANCE SIGN, AS PER PLAN 1 EACH

EARTHWORK FOR MAINTAINING TRAFFIC

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE PLAN FOR INFORMATION ONLY:

EXCAVATION FOR MAINTAINING TRAFFIC	35 CU. YD.
EMBANKMENT FOR MAINTAINING TRAFFIC	20 CU. YD.

WHEN UNDERCUTS ARE NECESSARY FOR MAINLINE PAVEMENT OR EMBANKMENT CONSTRUCTION, EVALUATE THE NEED FOR TEMPORARY ROAD UNDERCUTS IF WITHIN A CLOSE PROXIMITY TO THE MAINLINE UNDERCUTS. A GEOTECHNICAL EVALUATION SHOULD BE CONSIDERED TO DETERMINE IF THE EXISTING SOIL CONDITIONS ARE ADEQUATE TO SUPPORT THE TEMPORARY ROAD. ADDITIONAL SOIL BORING'S ALONG THE TEMPORARY ROAD ARE NOT NORMALLY REQUIRED.

DETOUR SIGNING

THE CONTRACTOR SHALL INSTALL DETOUR SIGNING AS SHOWN IN THE PLANS. ALL LABOR, EQUIPMENT, AND MATERIALS TO IMPLEMENT AND REMOVE THE DETOURS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - DETOUR SIGNING.

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. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE (OFFICE OF MATERIALS MANAGEMENT WEB PAGE). THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, 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. The PCMS shall be delineated in accordance with C&MS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEETS) 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 AWAY FROM ALL 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.

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 UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 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 DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 4 SIGN MONTH

ASSUMING 2 PCMS SIGNS FOR 2 MONTH

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 C&MS 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:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- 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 C&MS 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 AS APPROVED BY THE ENGINEER:

- 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 IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

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 40 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.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL AND SHALL LLIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVEABLE PAVEMENT DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME FRAME TABLE

ITEM	DURATION OF CLOSURE	NOTIFICATION DUE TO PERMITS & PIO
RAMP & ROAD CLOSURES	>= 2 WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONST. & TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

CALCULATED MJT CHECKED MJC

NOTICE OF TRAFFIC GENERAL NOTES

MAINTENANCE

MUS-CR32-0.00

SEQUENCE OF CONSTRUCTION

CONSTRUCTION OF THE MUS-CR32-0000 STRUCTURE MAY BEGIN PRIOR TO OR MAY BE COMPLETED CONCURRENTLY WITH APPROACH ROADWAY PHASES PROVIDED THAT EXISTING TRAFFIC IS MAINTAINED ON THE EXISTING, PROPOSED, OR TEMPORARY PAVEMENT AS OUTLINED HEREIN.

PREPHASE - BUILDING DEMOLITION

PRIOR TO OR CONCURRENT WITH WORK ON THE PROPOSED STRUCTURE OR APPROACH ROADWAY, THE CONTRACTOR SHALL REMOVE THE EXISTING BUILDINGS. BUILDING DEMOLITION SHALL OCCUR AS SOON AS POSSIBLE AFTER PROJECT AWARD. ALL BUILDING DEMOLITIONS SHALL BE COMPLETE BY MAY 31, 2018. FOLLOWING DEMOLITION, THE UTILITY RELOCATION SCHEDULE BELOW IS ANTICIPATED:

AEP RELOCATION - JUNE 1,2018 - JUNE 14, 2018
SPECTRUM RELOCATION - JUNE 15. 2018 - JUNE 30, 2018
AT&T RELOCATION - JULY 1, 2018 - JULY 31, 2018

THE CONTRACTOR MAY CONTINUE TO WORK ON THE PROJECT DURING UTILITY RELOCATION. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES ABOVE IN ORDER TO NOT INTERFERE WITH THE UTILITY RELOCATION TIME FRAME.

PHASE 1A:

PRIOR TO THE START OF THIS PHASE, THE CONTRACTOR SHALL PLACE ITEM 410, CLASS B ALONG THE SOUTH SIDE OF WATER ST. (E) AS SHOWN IN THE PLANS.

MAINTAIN TRAFFIC IN EXISTING CONFIGURATION ON ALL ROADS EXCEPT DURING WORK HOURS IN WHICH FLAGGERS SHALL BE UTILIZED TO MAINTAIN ACCESS TO PROPERTIES ALONG WATER ST. (E). DURING NONWORK HOURS, WATER ST. (E) SHALL BE REOPENED TO NORMAL ACCESS. DROPOFFS ADJACENT TO TRAFFIC SHALL BE BACKFILLED WITH ITEM 304.

CONSTRUCT THE PORTION OF WATER ST (E) AND PROPOSED BRIDGE ST. AS SHOWN IN THE PLANS. CONSTRUCT A TEMPORARY CONNECTION TO THE EXISTING WATER ST (E) AND EXISTING BRIDGE ST. INTERSECTION USING ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B. PLACE ITEM 410 ALONG THE NORTH SIDE OF PROPOSED WATER ST. (E) AS SHOWN IN THE PLANS.

CONSTRUCT THE PROPOSED SANITARY SEWER RELOCATION AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL MAINTAIN ACCESS AND SANITARY SERVICE TO ALL PROPERTIES AT ALL TIMES. PAVEMENT CUTS NECESSARY TO CONSTRUCT THE PROPOSED SEWER SHALL BE SECURELY PLATED OVER DURING NONWORK HOURS.

TO COMPLETE THE ABOVE DESCRIBED WORK, WATER ST (E) SHALL BE RESTRICTED WITH FLAGGERS FOR NO MORE THAN 5 CONSECUTIVE CALENDAR DAYS.

PHASE 1B:

UTILIZE EXISTING ROADWAYS AND THE PREVIOUSLY CONSTRUCTED CONNECTION WITH EXISTING BRIDGE ST. TO MAINTAIN ACCESS TO WATER ST. (E). DURING WORK HOURS FLAGGERS SHALL BE UTILIZED TO MAINTAIN ACCESS TO PROPERTIES ALONG WATER ST. (E). DURING NONWORK HOURS, WATER ST. (E) SHALL BE REOPENED TO NORMAL ACCESS. DROPOFFS ADJACENT TO TRAFFIC SHALL BE BACKFILLED WITH ITEM 304.

CONSTRUCT THE REMAINING PORTION OF WATER ST (E) AS SHOWN IN THE PLANS.

TO COMPLETE THE ABOVE DESCRIBED WORK, WATER ST (E) SHALL BE RESTRICTED WITH FLAGGERS FOR NO MORE THAN 5 CONSECUTIVE CALENDAR DAYS.

WATER ST. (E) SHALL REMAIN OPEN FOR ACCESS TO RESIDENCES FOR THE DURATION OF THE PROJECT.

PHASE 2:

CONTINUE TO UTILIZE THE EXISTING ROADWAYS AND THE PREVIOUSLY CONSTRUCTED CONNECTION WITH EXISTING BRIDGE ST. TO MAINTAIN ACCESS TO WATER ST. (E).

CONSTRUCT THE PORTION OF PROPOSED BRIDGE ST. AND THE INTERSECTION OF PROPOSED BRIDGE ST. AND FRONT ST. AS SHOWN IN THE PLANS. CONSTRUCT TEMPORARY CONNECTION TO MAINTAIN ACCESS TO AEP PARCEL USING ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B. ACCESS TO AEP PARCEL MUST BE MAINTAINED AT ALL TIMES.

PHASE 3:

CONTINUE UTILIZING EXISTING ROADWAYS AND TEMPORARY ACCESS TO WATER ST. (E) AND AEP PARCEL FROM PREVIOUS PHASE.

CONSTRUCT PORTION OF PROPOSED BRIDGE ST. SOUTH OF S.R. 60 INCLUDING THE INTERSECTIONS OF BRIDGE ST. WITH S.R. 60 AND PROPOSED WATER ST. (W) AS SHOWN IN THE PLANS. CONSTRUCT TEMPORARY CONNECTION FROM EXISTING BRIDGE ST. TO PROPOSED BRIDGE ST. USING ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B. DELAY INSTALLATION OF PROPOSED CURB IN THE AREA OF THE TEMPORARY CONNECTION.

CONSTRUCTION OF THE MUS-CR32-0000 STRUCTURE SHALL BE COMPLETED PRIOR TO THE CONCLUSION OF PHASE 3. TEMPORARY SHEETING AT THE FORWARD ABUTMENT SHALL BE UTILIZED AS NEEDED IN ORDER TO MAINTAIN TRAFFIC ALONG WATER ST. (E) WHILE THE STRUCTURE IS BEING BUILT. THE CONTRACTOR SHALL UTILIZE PORTABLE BARRIER OR DRUMS AS NEEDED TO PROTECT DROP-OFFS DURING CONSTRUCTION. THE COST OF THIS BARRIER SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC.

PHASE 3A:

PRIOR TO THE START OF PHASE 3A, CLOSE THE INTERSECTION OF EXISTING BRIDGE ST. AND T.R. 1094 AND DETOUR AS SHOWN IN THE PLANS.

REROUTE EXISTING WATER LINE AND CONSTRUCT PORTION OF BRIDGE ST. NORTH OF S.R. 60 AND ADJACENT PARKING LOTS AS SHOWN. ACCESS TO PARKING LOTS SHALL BE MAINTAINED AT ALL TIMES.

TO COMPLETE THE ABOVE DESCRIBED WORK, BRIDGE ST. AND T.R. 1094 SHALL BE CLOSED NO LONGER THAN 7 DAYS.

PHASE 3B:

PRIOR TO THE START OF PHASE 3B, OPEN THE INTERSECTION OF PROPOSED BRIDGE ST. AND T.R. 1094 IN FINAL LANE CONFIGURATIONS. CLOSE THE RIGHT LANE OF S.R. 60 NORTHBOUND AS SHOWN. DETOUR BRIDGE ST. NORTH OF S.R. 60 TRAFFIC AS SHOWN IN THE PLANS.

THE START OF THIS PHASE AND CLOSING OF EXISTING BRIDGE ST. NORTH OF S.R. 60 TO TRAFFIC SHALL BE CONCURRENT WITH THE COMPLETION OF PHASE 3 AND THE OPENING OF PROPOSED BRIDGE ST. SOUTH OF S.R. 60 TO TRAFFIC AS DETAILED IN PHASE 4. SHIFT EXISTING SIGNAL HEADS AS NEEDED TO ALIGN WITH PROPOSED BRIDGE ST. TRAFFIC SOUTH OF S.R. 60.

CONSTRUCT REMAINING PORTION OF PROPOSED BRIDGE ST. NORTH OF S.R. 60 AND ADJACENT PARKING LOTS.

TO COMPLETE THE ABOVE DESCRIBED WORK, THE INTERSECTION OF BRIDGE ST. AND S.R. 60 SHALL BE CLOSED NO LONGER THAN 7 DAYS.

PORTIONS OF THE PROPOSED SIGNAL MAY BE CONSTRUCTED PRIOR TO THIS PHASE; HOWEVER, THE PROPOSED SOUTHWEST SIGNAL POLE SHALL BE INSTALLED DURING THIS PHASE. THE PROPOSED SIGNAL SHALL BE COMPLETED AND OPERATIONAL BY THE END OF PHASE 3B.

PHASE 4:

WITH TRAFFIC UTILIZING PROPOSED BRIDGE ST. AND THE COMPLETED MUS-CR32-0000 STRUCTURE, CLOSE EXISTING BRIDGE ST. AT FRONT ST. AND S.R. 60. MAINTAIN ACCESS TO THE PORTION OF EXISTING BRIDGE ST. TO REMAIN VIA THE TEMPORARY DRIVE CONNECTION CONSTRUCTED IN PHASE 3.

CLOSE WATER ST. (W) AND DETOUR AS SHOWN IN THE PLANS. RECONSTRUCT WATER ST. (W), THE DRIVE CONNECTION TO EXISTING BRIDGE ST. AND FINISH REMAINING WORK AT THE INTERSECTION OF BRIDGE ST. AND S.R. 60.

WITH EXISTING BRIDGE ST. CLOSED AND THE EXISTING STRUCTURE DEMOLISHED, CONSTRUCT THE PROPOSED ODNR LOCK PARKING LOT AND ACCESS DRIVE AS SHOWN IN THE PLANS.

REMOVE THE EXISTING PAVEMENT AND STRUCTURE THAT ARE NO LONGER IN USE.

CALCULATED SMB
CHECKED MJC

MAINTENANCE OF TRAFFIC SEQUENCE OF CONSTRUCTION

MUS-CR32-0.00

SIGN LEGEND

A

BRIDGE ST

D3-1 -48 B/O

DETOUR ↑

M4-9C-30

B

BRIDGE ST

D3-1 -48 B/O

DETOUR ←

M4-9L-30

C

BRIDGE ST

D3-1 -48 B/O

DETOUR →

M4-9R-30

D

ROAD CLOSED AHEAD

W20-3-36

500 FT

W16-2AP-24

E

PORTABLE CHANGABLE MESSAGE SIGNS

BRIDGE STREET CLOSES

XX/XX TO XX/XX

(SEE NOTICE OF CLOSURE NOTE ON SHEET 10)

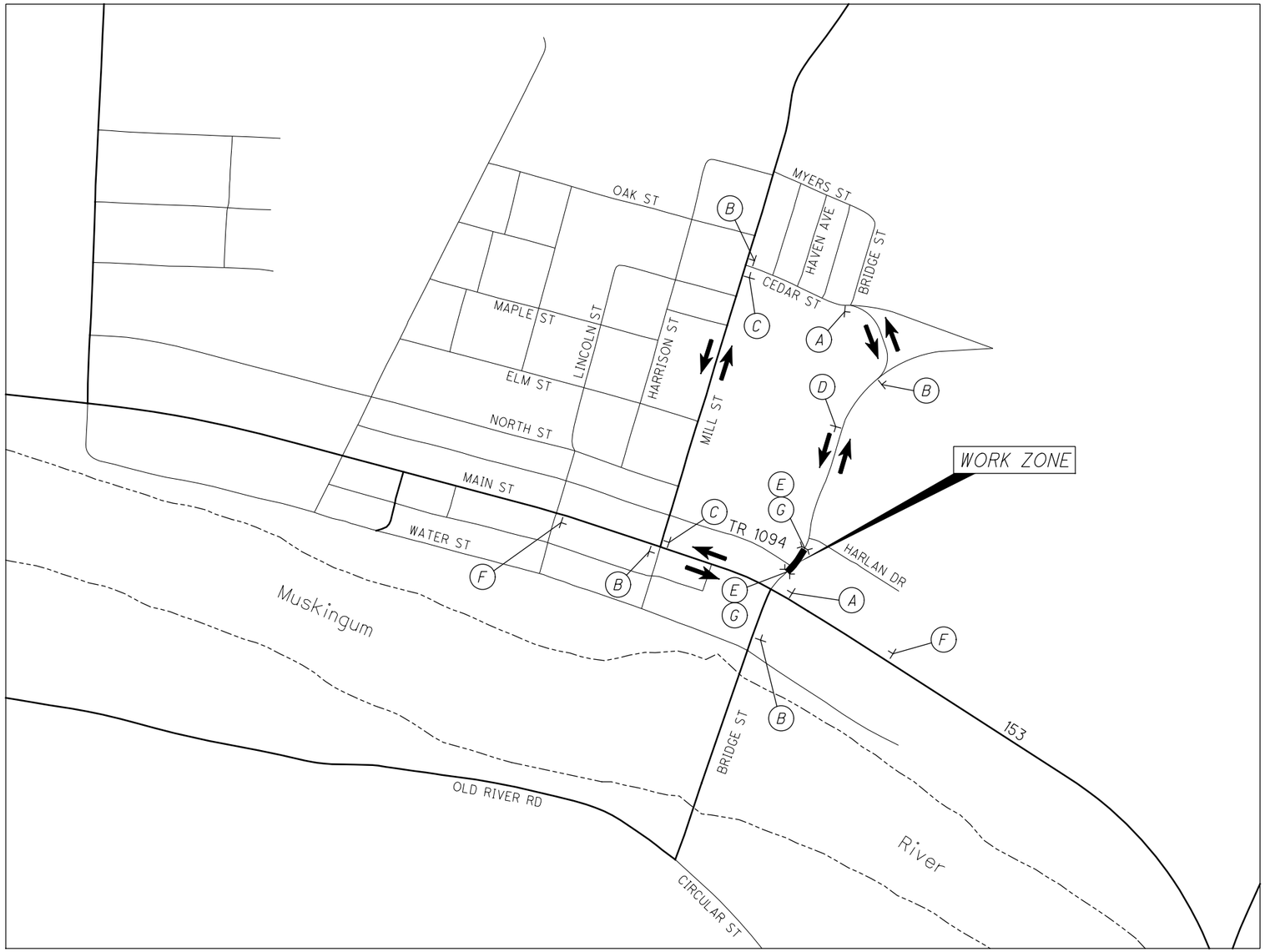
F

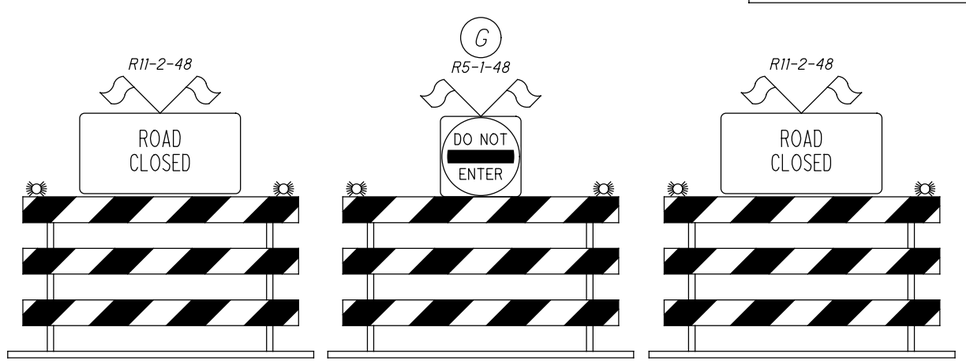
BRIDGE ST CLOSED NORTH OF MAIN ST

48"x48" B/O

SINGLE POST SIGN

TYPE III BARRICADE (PORTABLE)





10' TYPE III BARRICADES (SOLID ACROSS STREET)

CALCULATED MJT
CHECKED MJC

DETOUR PLAN C.R. 32 (BRIDGE ST.) - PHASE 3A

MUS-CR32-0.00

SIGN LEGEND

(A)

BRIDGE ST

D3-1 -48 B/O

DETOUR ↑

M4-9C-30

(B)

BRIDGE ST

D3-1 -48 B/O

DETOUR ←

M4-9L-30

(C)

BRIDGE ST

D3-1 -48 B/O

DETOUR →

M4-9R-30

(D)

ROAD CLOSED AHEAD

W20-3-36

500 FT

W16-2AP-24

(E)

PORTABLE CHANGABLE MESSAGE SIGNS

BRIDGE STREET CLOSES

XX/XX TO XX/XX

(SEE NOTICE OF CLOSURE NOTE ON SHEET 10)

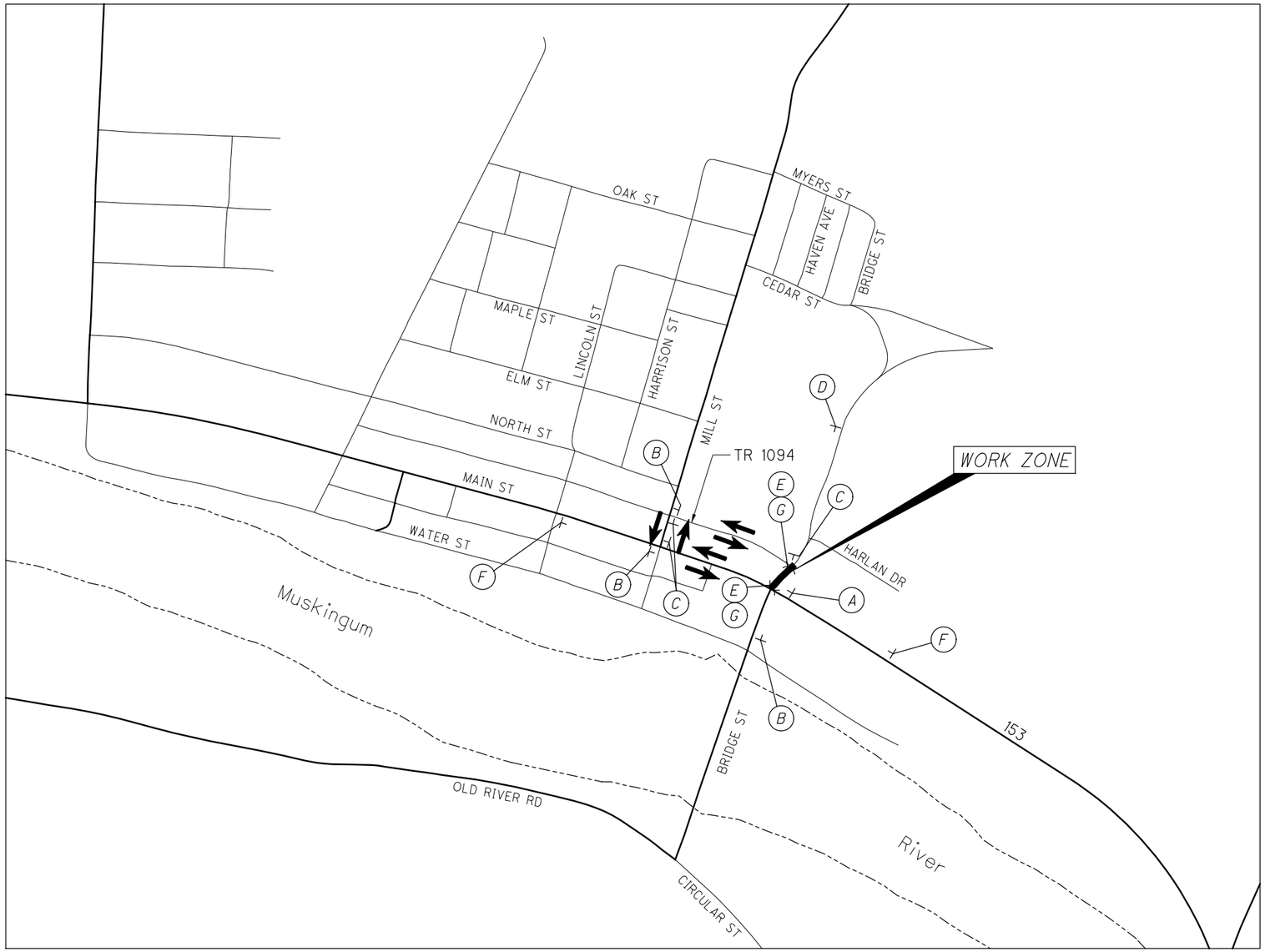
(F)

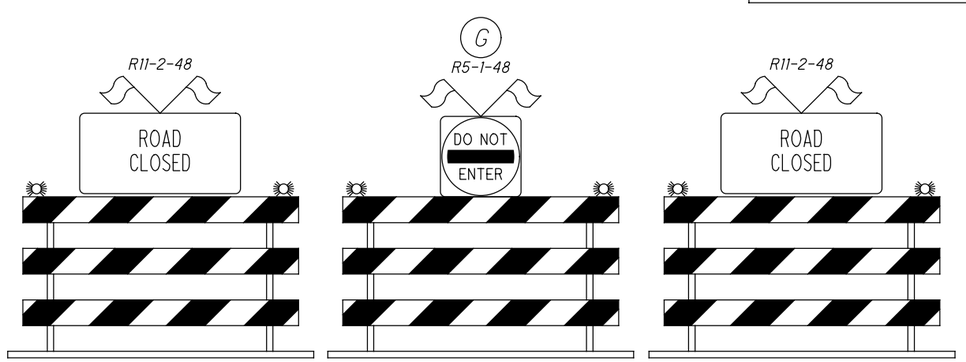
BRIDGE ST CLOSED NORTH OF MAIN ST

48"x48" B/O

SINGLE POST SIGN

TYPE III BARRICADE (PORTABLE)





10' TYPE III BARRICADES (SOLID ACROSS STREET)

CALCULATED MJT
CHECKED MJC

DETOUR PLAN C.R. 32 (BRIDGE ST.) - PHASE 3B

MUS-CR32-0.00

SIGN LEGEND

(A)

WATER ST

D3-1 -48 B/O

DETOUR

M4-9C-30

(B)

WATER ST

D3-1 -48 B/O

DETOUR

M4-9L-30

(C)

WATER ST

D3-1 -48 B/O

DETOUR

M4-9R-30

(D)

ROAD CLOSED AHEAD

W20-3-36

500 FT

W16-2AP-24

(E)

WATER ST
CLOSED
EAST OF
MILL ST

48"x48" B/O

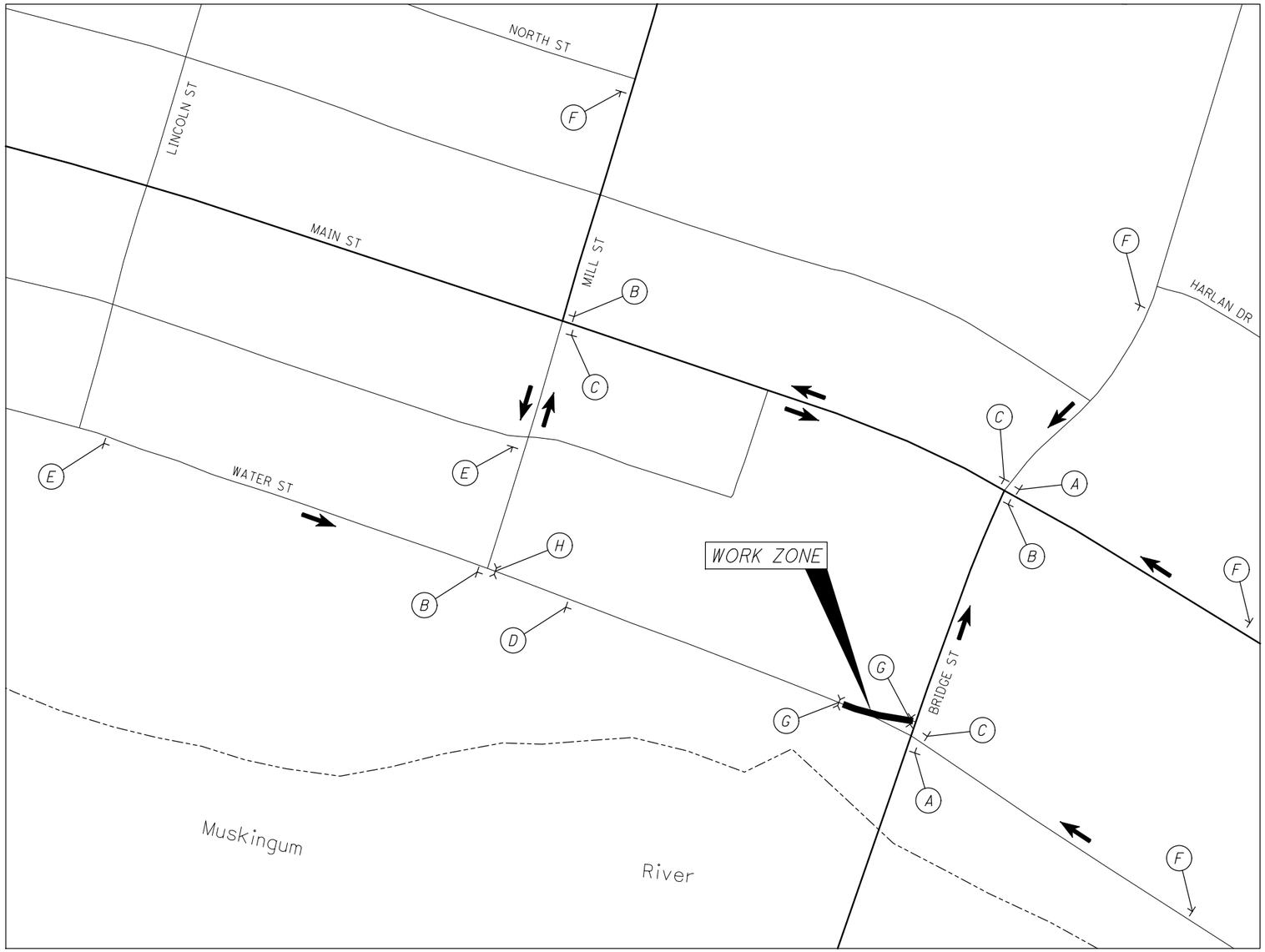
(F)

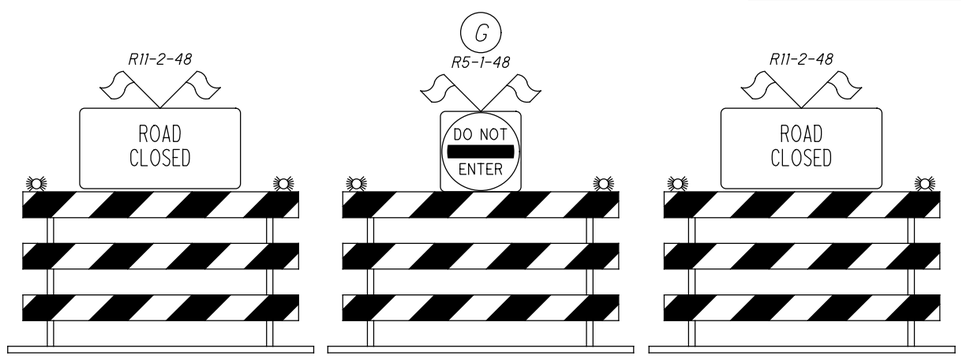
WATER ST
CLOSED
WEST OF
BRIDGE ST

48"x48" B/O

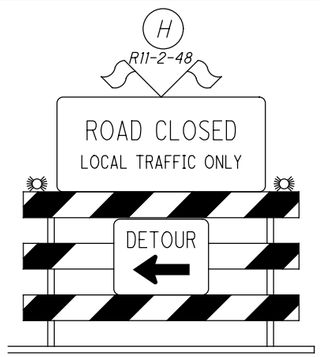
SINGLE POST SIGN

TYPE III BARRICADE (PORTABLE)





10' TYPE III BARRICADES
(SOLID ACROSS STREET)

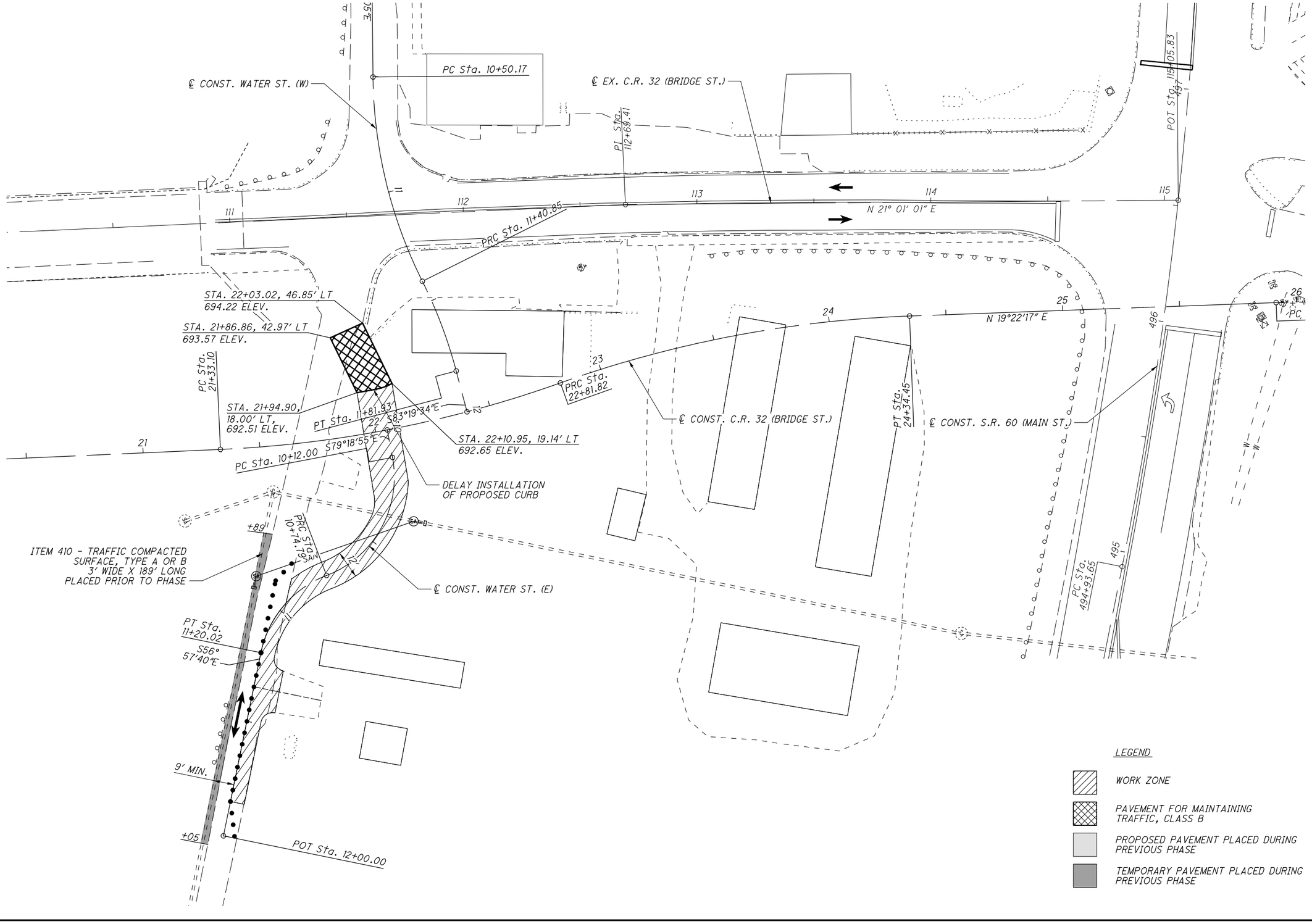


M4-9L-48

CALCULATED MJT
CHECKED MJC

DETOUR PLAN WATER ST. (W)

MUS-CR32-0.00



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

C.R. 32 (BRIDGE ST.) MAINTENANCE OF TRAFFIC INTERSECTION DETAIL PHASE I-A

MUS-CR32-0.00

16
192

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℄ CONST. WATER ST. (W)

PC Sta. 10+50.17

℄ EX. C.R. 32 (BRIDGE ST.)

PI Sta. 112+68.41

POT Sta. 115+05.83

N 21° 01' 01" E

PRC Sta. 11+40.85

PC Sta. 21+33.10

PT Sta. 11+81.93

S83°19'34"E

PRC Sta. 22+81.82

℄ CONST. C.R. 32 (BRIDGE ST.)

PT Sta. 24+34.45

℄ CONST. S.R. 60 (MAIN ST.)

N 19°22'17" E

PC Sta. 10+12.00

S79°18'55"E

PRC Sta. 10+74.19

PT Sta. 11+20.02

S56° 57'40"E

ITEM 410 - TRAFFIC COMPACTED SURFACE, TYPE A OR B
3' WIDE X 130' LONG
PLACED PRIOR TO PHASE

9' MIN.

POT Sta. 12+00.00

PC Sta. 494+93.65

LEGEND

WORK ZONE

PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B

PROPOSED PAVEMENT PLACED DURING PREVIOUS PHASE

TEMPORARY PAVEMENT PLACED DURING PREVIOUS PHASE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

C.R. 32 (BRIDGE ST.) MAINTENANCE OF TRAFFIC
INTERSECTION DETAIL PHASE I-B

MUS-CR32-0.00

17
192

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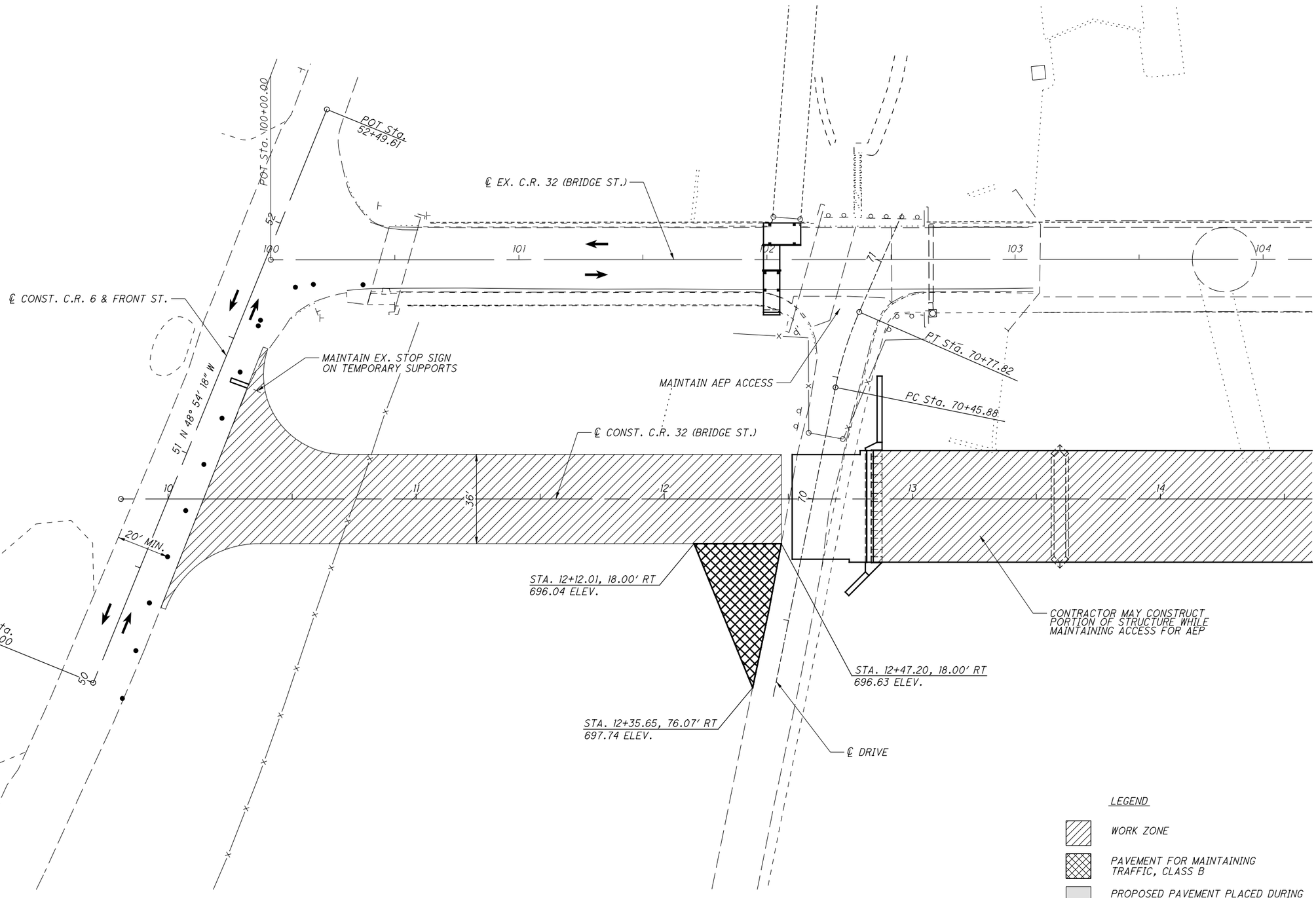

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

MAINTENANCE OF TRAFFIC
C.R. 32 (BRIDGE ST.) MAIN INTERSECTION DETAIL PHASE 2

MUS-CR32-0.00

18
192

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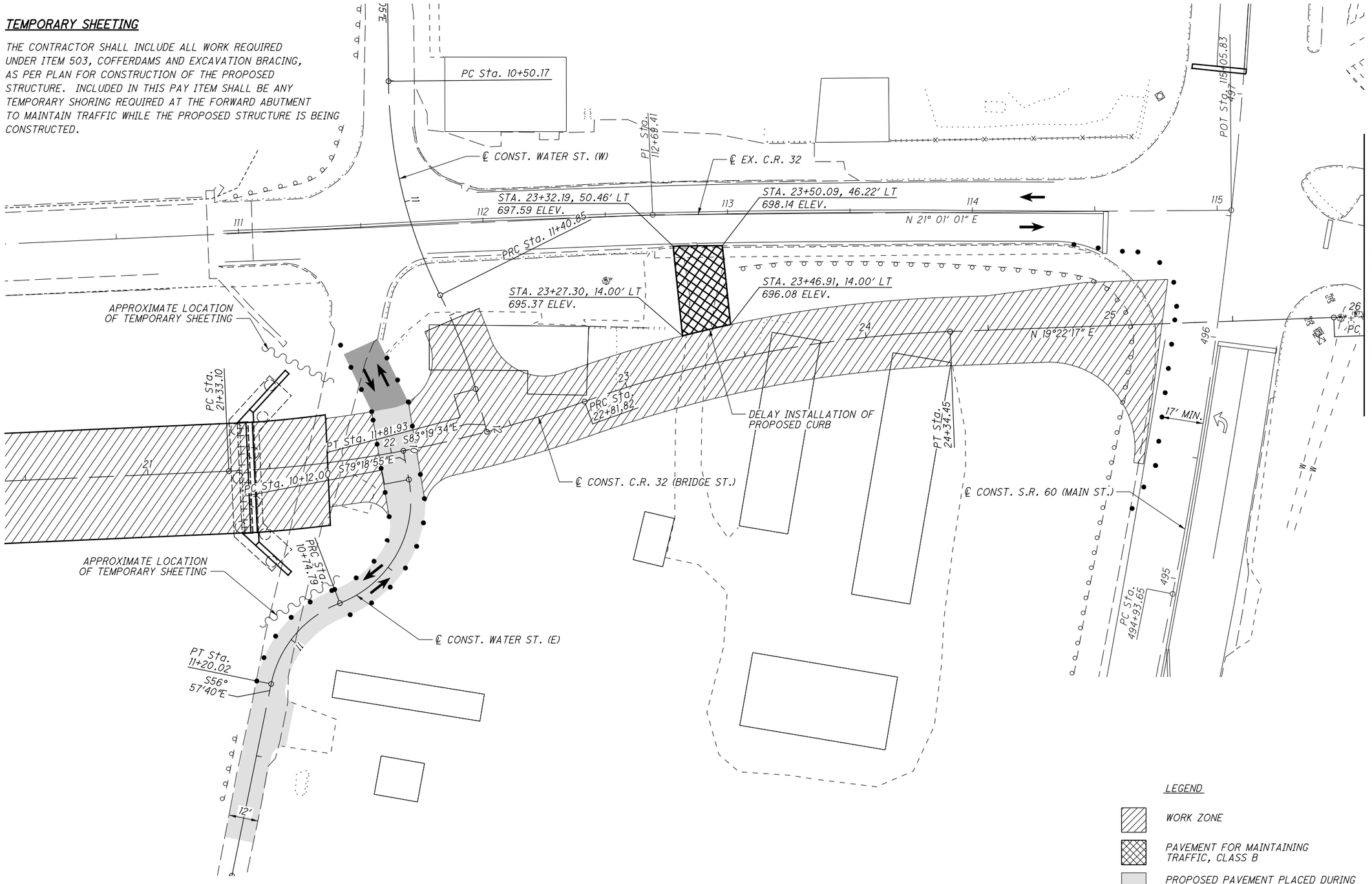
TEMPORARY SHEETING

THE CONTRACTOR SHALL INCLUDE ALL WORK REQUIRED UNDER ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN FOR CONSTRUCTION OF THE PROPOSED STRUCTURE. INCLUDED IN THIS PAY ITEM SHALL BE ANY TEMPORARY SHORING REQUIRED AT THE FORWARD ABUTMENT TO MAINTAIN TRAFFIC WHILE THE PROPOSED STRUCTURE IS BEING CONSTRUCTED.



LEGEND

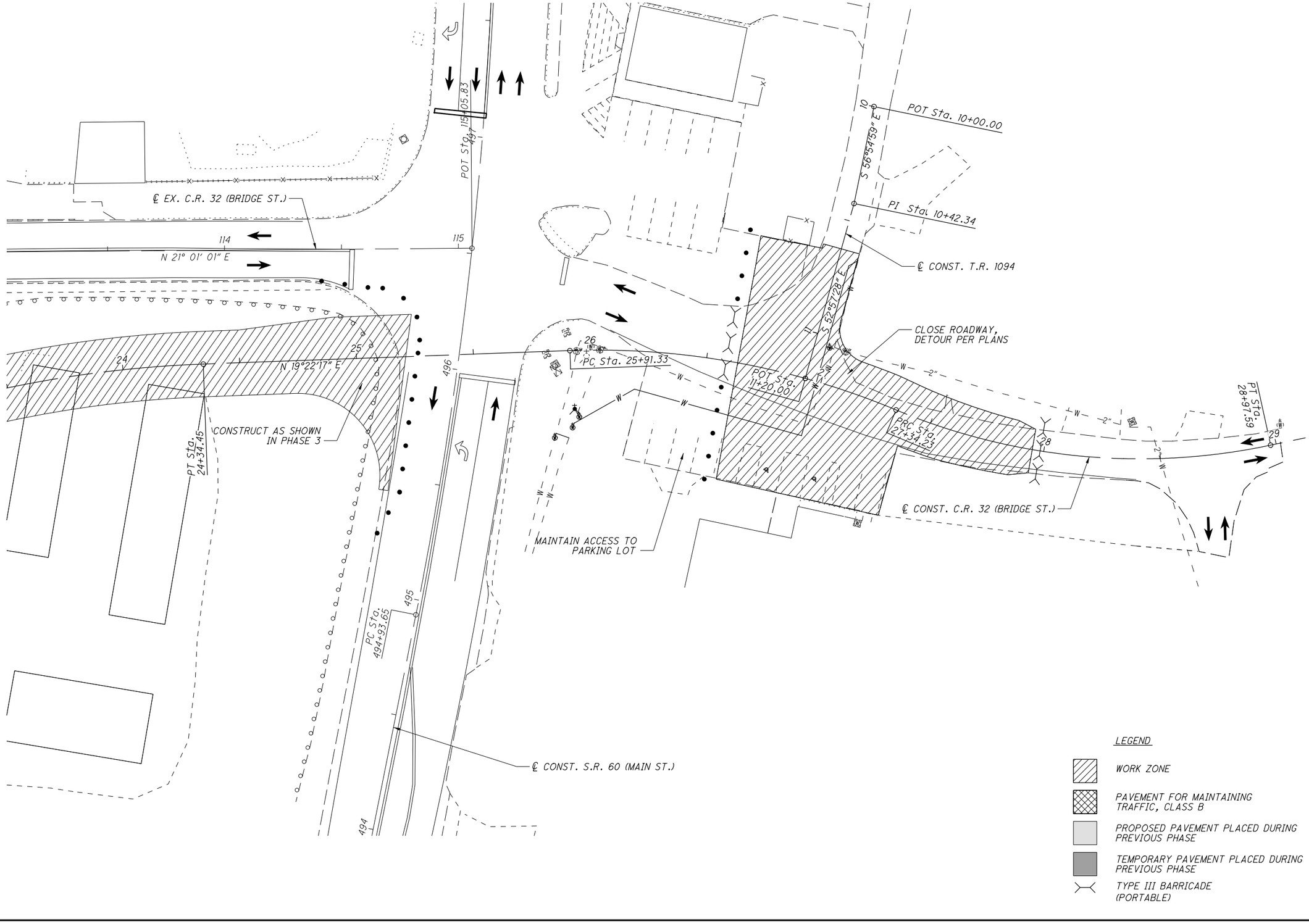
- WORK ZONE
- PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B
- PROPOSED PAVEMENT PLACED DURING PREVIOUS PHASE
- TEMPORARY PAVEMENT PLACED DURING PREVIOUS PHASE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

C.R. 32 (BRIDGE ST.) MAINTENANCE OF TRAFFIC INTERSECTION DETAIL PHASE 3

MUS-CR32-0.00



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

C.R. 32 (BRIDGE ST.) MAINTENANCE OF TRAFFIC INTERSECTION DETAIL PHASE 3A

MUS-CR32-0.00

20
192

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NOTE:
CLOSE S.R. 60 (MAIN ST.)
EASTBOUND PER SCD MT-95.31

END E.B. LANE CLOSURE
STA. 499+73

BEGIN E.B. LANE CLOSURE
STA. 498+19

WORK ZONE CENTERLINE

COVER PAVEMENT MARKING

WORK ZONE STOP LINE
+40

℄ EX. C.R. 32 (BRIDGE ST.)

POT Sta. 497+05.83

CLOSE ROADWAY,
DETOUR AS PER PLAN

POT Sta. 10+00.00

S 56°54'59" E

PI Sta. 10+42.34

℄ CONST. T.R. 1094

16.0'

S 52°57'28" E

114

N 21° 01' 01" E

115

MAINTAIN TRAFFIC AS
SHOWN IN PHASE 4

24

25

N 19°22'17" E

26

PC Sta. 25+91.33

POT Sta. 11+20.00

12.0'

12.0'

PRC Sta. 27+34.23

2.0'

PT Sta. 28+97.59

28

2.0'

℄ CONST. C.R. 32 (BRIDGE ST.)

PT Sta. 24+34.45

COVER PAVEMENT MARKING

WORK ZONE STOP LINE
+55

496

PC Sta. 494+93.65

495

END LANE CLOSURE
STA. 495+55.27

R3-6L-30
INSTALL
TEMPORARY SIGN

ONLY

R3-8-30
COVER SIGN
STA. 496+01.33

℄ CONST. S.R. 60 (MAIN ST.)

494

BEGIN LANE CLOSURE
STA. 494+16.49

LEGEND

- WORK ZONE
- PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B
- PROPOSED PAVEMENT PLACED DURING PREVIOUS PHASE
- TEMPORARY PAVEMENT PLACED DURING PREVIOUS PHASE
- TYPE III BARRICADE (PORTABLE)

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

C.R. 32 (BRIDGE ST.) MAINTENANCE OF TRAFFIC INTERSECTION DETAIL PHASE 3B

MUS-CR32-0.00

21
192

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NOTE:
CLOSE S.R. 60 (MAIN ST.)
EASTBOUND PER SCD MT-95.31

END E.B. LANE CLOSURE
STA. 499+73

BEGIN E.B. LANE CLOSURE
STA. 498+19

PC Sta. 10+50.17

℄ CONST. WATER ST. (W)

PI Sta. 112+69.41

℄ EX. C.R. 32 (BRIDGE ST.)

POT Sta. 115+05.83

PRC Sta. 11+40.85

N 21° 01' 01" E

TEMP. BUSINESS ENTRANCE SIGN

N 19°22'17" E

PC Sta. 21+33.10

PRC Sta. 22+81.82

PT Sta. 11+81.93

S83°19'34"E

PC Sta. 10+12.00

S79°18'55"E

PT Sta. 24+34.45

℄ CONST. C.R. 32 (BRIDGE ST.)

℄ CONST. S.R. 60 (MAIN ST.)

PRC Sta. 10+74.79

PT Sta. 11+20.02

S56° 57'40"E

PC Sta. 494+93.65

UTILIZE TEMPORARY STRIPING SHOWN IN PHASE 3B OR PERMANENT STRIPING

7.5'
12.0'
12.0'
13.5'
12.0'

LEGEND

- WORK ZONE
- PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B
- PROPOSED PAVEMENT PLACED DURING PREVIOUS PHASE
- TEMPORARY PAVEMENT PLACED DURING PREVIOUS PHASE
- TYPE III BARRICADE (PORTABLE)

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SMB
CHECKED MJC

C.R. 32 (BRIDGE ST.) MAINTENANCE OF TRAFFIC
INTERSECTION DETAIL PHASE 4

MUS-CR32-0.00

22
192

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SHEET NUM.												PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
OFFICE CALCS			7	9		29	30	32		181		01/BRF/BR/MCEO						
																	ROADWAY	
			LS									LS	201	11000	LS		CLEARING AND GRUBBING	
3,368												3,368	202	23000	3,368	SY	PAVEMENT REMOVED	
						1,691						1,691	202	30000	1,691	SF	WALK REMOVED	
						16						16	202	30200	16	FT	STEPS REMOVED	
666												666	202	32000	666	FT	CURB REMOVED	
						308						308	202	35100	308	FT	PIPE REMOVED, 24" AND UNDER	
						538						538	202	38000	538	FT	GUARDRAIL REMOVED	
						18						18	202	38800	18	EACH	GUARD POST REMOVED	
						2						2	202	58000	2	EACH	MANHOLE REMOVED	
						6						6	202	58100	6	EACH	CATCH BASIN REMOVED	
						1						1	202	58501	1	EACH	CATCH BASIN ABANDONED, AS PER PLAN	8
				1								1	SPECIAL	20266000	1	EACH	DRILLED WATER WELL ABANDONED	9
				3								3	202	67001	3	EACH	REGULATED UNDERGROUND STORAGE TANK REMOVED, AS PER PLAN	9
						343						343	202	75000	343	FT	FENCE REMOVED	
						1						1	202	75250	1	EACH	GATE REMOVED	
			LS									LS	202	98000	LS		REMOVAL MISC.:ENCROACHMENTS	7
						3						3	202	98100	3	EACH	REMOVAL MISC.:LANDSCAPE ROCKS	8
						4						4	202	98100	4	EACH	REMOVAL MISC.:LIGHT POLE REMOVED	8
						10						10	202	98100	10	EACH	REMOVAL MISC.:POST AND WIRE	8
						1						1	202	98100	1	EACH	REMOVAL MISC.:POST WITH ELECTRIC METER	8
						2						2	202	98100	2	EACH	REMOVAL MISC.:SIGN REMOVED	8
						1						1	202	98100	1	EACH	REMOVAL MISC.:STEEL TOWER	8
						78						78	202	98200	78	FT	REMOVAL MISC.:WALL AND RAILING	8
						203						203	202	98400	203	SF	REMOVAL MISC.:CONCRETE PAD	8
								5,518				5,518	203	10000	5,518	CY	EXCAVATION	
								10,577				10,577	203	20000	10,577	CY	EMBANKMENT	
								4,115				4,115	203	20001	4,115	CY	EMBANKMENT, AS PER PLAN	112
4,207												4,207	204	10000	4,207	SY	SUBGRADE COMPACTION	
			352									352	204	13000	352	CY	EXCAVATION OF SUBGRADE	
			352									352	204	30010	352	CY	GRANULAR MATERIAL, TYPE B	
2												2	204	45000	2	HOUR	PROOF ROLLING	
							762.5					762.5	606	15050	762.5	FT	GUARDRAIL, TYPE MGS	
							4					4	606	25550	4	EACH	ANCHOR ASSEMBLY, MGS TYPE A	
							4					4	606	26550	4	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
							1					1	606	35002	1	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
				1,500								1,500	607	30000	1,500	FT	FENCE, SNOW	
							4,470					4,470	608	10000	4,470	SF	4" CONCRETE WALK	
							225					225	608	15000	225	SF	8" CONCRETE WALK	
							643					643	608	52000	643	SF	CURB RAMP	
							63					63	622	90000	63	FT	BARRIER, MISC.:42" BARRIER	8
										11		11	623	40500	11	EACH	REFERENCE MONUMENT	
										17		17	623	40520	17	EACH	RIGHT-OF-WAY MONUMENT	
							4					4	SPECIAL	69050500	4	EACH	CONCRETE PARKING BLOCK	RM-6.1

CALCULATED MJC CHECKED BBD

GENERAL SUMMARY

MUS-CR32-0.00

SHEET NUM.											PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
OFFICE CALCS	7	30	31		32		58		64	85	01/BRF/BR/MCEO						
																EROSION CONTROL	
									1.8		1.8	601	21050	1.8	SY	TIED CONCRETE BLOCK MAT, TYPE 1	
			3								3	601	32200	3	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
	2										2	659	00100	2	EACH	SOIL ANALYSIS TEST	
	911										911	659	00300	911	CY	TOPSOIL	
					8,201						8,201	659	10000	8,201	SY	SEEDING AND MULCHING	
	411										411	659	14000	411	SY	REPAIR SEEDING AND MULCHING	
	411										411	659	15000	411	SY	INTER-SEEDING	
	1.15										1.15	659	20000	1.15	TON	COMMERCIAL FERTILIZER	
	1.7										1.7	659	31000	1.7	ACRE	LIME	
	46										46	659	35000	46	MGAL	WATER	
	19										19	659	40000	19	MSF	MOWING	
			236								236	670	00700	236	SY	DITCH EROSION PROTECTION	
											LS	832	15000	LS		STORM WATER POLLUTION PREVENTION PLAN	
											LS	832	15002	LS		STORM WATER POLLUTION PREVENTION INSPECTIONS	
											150,000	832	30000	150,000	EACH	EROSION CONTROL	
																DRAINAGE	
							1,700				1,700	503	21101	1,700	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	58
			1.3				15.6				16.9	602	20000	16.9	CY	CONCRETE MASONRY	
									1,495		1,495	605	11100	1,495	FT	6" SHALLOW PIPE UNDERDRAINS	
										120	120	611	00400	120	FT	4" CONDUIT, TYPE E	
									124		124	611	00510	124	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
			8								8	611	01100	8	FT	6" CONDUIT, TYPE C	
			173								173	611	04400	173	FT	12" CONDUIT, TYPE B	
			47								47	611	04600	47	FT	12" CONDUIT, TYPE C	
			65								65	611	05200	65	FT	12" CONDUIT, TYPE F, 707.05 TYPE C OR 707.21	
			8								8	611	07400	8	FT	18" CONDUIT, TYPE B	
			8								8	611	07600	8	FT	18" CONDUIT, TYPE C	
			205								205	611	08900	205	FT	21" CONDUIT, TYPE B	
			104								104	611	10400	104	FT	24" CONDUIT, TYPE B	
			73								73	611	11200	73	FT	24" CONDUIT, TYPE F, 707.05 TYPE C OR 707.21	
							153				153	611	33000	153	FT	114" CONDUIT, TYPE A, 707.02 METALLIC COATED (GALVANIZED) WITH CONCRETE INVERT PAVING (0.109 MM) or TYPE 707.02 METALLIC COATED (ALUMINIZED) or TYPE 707.03 METALLIC COATED (GALVANIZED) WITH CONCRETE INVERT PAVING (0.218 MM)	
			3								3	611	98150	3	EACH	CATCH BASIN, NO. 3	
			5								5	611	98180	5	EACH	CATCH BASIN, NO. 3A	
			1								1	611	98370	1	EACH	CATCH BASIN, NO. 6	
			2								2	611	98371	2	EACH	CATCH BASIN, NO. 6, AS PER PLAN	172&173
			3								3	611	98470	3	EACH	CATCH BASIN, NO. 2-2B	
			3								3	611	99574	3	EACH	MANHOLE, NO. 3	
									1		1	611	99710	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
																PAVEMENT	
903											903	254	01000	903	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 1.25"	
602											602	301	46000	602	CY	ASPHALT CONCRETE BASE, PG64-22	
182											182	301	48000	182	CY	ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)	
701											701	304	20000	701	CY	AGGREGATE BASE	
646											646	407	10000	646	GAL	TACK COAT	
172											172	441	50000	172	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	
197											197	441	50300	197	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	
45											45	441	50400	45	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)	
28											28	452	10010	28	SY	6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	
		1,365									1,365	609	26000	1,365	FT	CURB, TYPE 6	

CALCULATED MJC
CHECKED BBD

GENERAL SUMMARY

MUS-CR32-0.00

SHEET NUM.												PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
30		68	69		70	71		88	89	90		01/BRF/BR /MCEO						
																	WATER WORK	
		12										12	SPECIAL	63820414	12	FT	2" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS (MUSKINGUM)	67
		190										190	SPECIAL	63820418	190	FT	6" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS (MUSKINGUM)	67
		2										2	SPECIAL	63820420	2	FT	8" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS (MUSKINGUM)	67
		2										2	SPECIAL	63820506	2	EACH	2" GATE VALVE WITH VALVE BOX (MUSKINGUM)	67
		2										2	SPECIAL	63820538	2	EACH	6" GATE VALVE WITH VALVE BOX (MUSKINGUM)	67
		1										1	SPECIAL	63820554	1	EACH	8" GATE VALVE WITH VALVE BOX (MUSKINGUM)	67
		1										1	SPECIAL	63820750	1	EACH	6" FIRE HYDRANT (MUSKINGUM)	67
		1										1	SPECIAL	63820760	1	EACH	FIRE HYDRANT REMOVED AND DISPOSED OF (MUSKINGUM)	67
		1										1	SPECIAL	63820878	1	EACH	CUT AND PLUG EXISTING 6" WATER LINE (MUSKINGUM)	67
		1										1	SPECIAL	63820880	1	EACH	CUT AND PLUG EXISTING 8" WATER LINE (MUSKINGUM)	67
		1										1	638	98000	1	EACH	WATER WORK, MISC.: CUT AND PLUG EXISTING 2" WATER LINE (MUSKINGUM)	67
																	SANITARY SEWER	
			81									81	611	04400	81	FT	12" CONDUIT, TYPE B, 706.02	
			2									2	611	99570	2	EACH	MANHOLE, NO. 2	
																	LIGHTING	
								58	56	38		152	625	00450	152	EACH	CONNECTION, FUSED PULL APART	
								38	34	31		103	625	00480	103	EACH	CONNECTION, UNFUSED PERMANENT	
								2	1	1		4	625	10481	4	EACH	LIGHT POLE, DECORATIVE, AS PER PLAN (15')	85
								1	1			2	625	10491	2	EACH	LIGHT POLE, CONVENTIONAL, AS PER PLAN (35')	85
								2	1	1		4	625	14000	4	EACH	LIGHT POLE FOUNDATION, 24" X 6' DEEP	
								1	1			2	625	14200	2	EACH	LIGHT POLE FOUNDATION, 24" X 10' DEEP	
										654		654	625	22910	654	FT	NO. 2/0 AWG 2400 VOLT DISTRIBUTION CABLE	
								2,805	2,865	3,387		9,057	625	23200	9,057	FT	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE	
								285	210	75		570	625	23400	570	FT	NO. 10 AWG POLE AND BRACKET CABLE	
								487	431	865			625	25400	1,783	FT	CONDUIT, 2", 725.04	
								128	224	54		406	625	25408	406	FT	CONDUIT, 2", 725.051	
								44		235		279	625	25600	279	FT	CONDUIT, 4", 725.04	
								1	1			2	625	26253	2	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN (138 WATT)	85
								2	1	1		4	625	27403	4	EACH	LUMINAIRE, POST TOP, SOLID STATE (LED), AS PER PLAN (88 WATT)	85
								128	224	242		594	625	29002	594	FT	TRENCH, 24" DEEP	
								1	1	1		3	625	29930	3	EACH	MEDIAN JUNCTION BOX	
								26	26	18		70	625	29941	70	EACH	BARRIER JUNCTION BOX, AS PER PLAN	85
								2	1	3		6	625	30706	6	EACH	PULL BOX, 725.08, 24"	
								3	2	3		8	625	32000	8	EACH	GROUND ROD	
								1				1	625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM	
										1		1	625	34001	1	EACH	POWER SERVICE, AS PER PLAN	85
								128	224	242		594	625	36000	594	FT	PLASTIC CAUTION TAPE	
								26	26	18		70	625	98000	70	EACH	LIGHTING, MISC.:PEDESTRIAN WALKWAY & ROADWAY	85
																	TRAFFIC CONTROL	
						25						25	621	00100	25	EACH	RPM	
23												23	626	00110	23	EACH	BARRIER REFLECTOR, TYPE 2, BIDIRECTIONAL	
					186							186	630	03100	186	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
					75							75	630	08510	75	FT	STREET NAME SIGN SUPPORT, NO. 2 POST	
					5							5	630	08600	5	EACH	SIGN POST REFLECTOR	
					140.5							140.5	630	80100	140.5	SF	SIGN, FLAT SHEET	
					27							27	630	84900	27	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
					5							5	630	85100	5	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
					19							19	630	86002	19	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
					1							1	630	86011	1	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION, AS PER PLAN	8
					2							2	630	86275	2	EACH	REMOVAL OF GROUND MOUNTED PIPE SUPPORT AND REERECTION, AS PER PLAN	8

CALCULATED MJC
CHECKED BBD

GENERAL SUMMARY

MUS-CR32-0.00

SHEET NUM.												PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
9	70		71	76	79		97		101		184	01/BRF/BR/MCEO						
																	TRAFFIC CONTROL CONTINUED	
			0.75									0.75	642	00094	0.75	MILE	EDGE LINE, 6"	
			0.32									0.32	642	00290	0.32	MILE	CENTER LINE	
			79									79	642	00390	79	FT	CHANNELIZING LINE, 8"	
			125									125	642	00490	125	FT	STOP LINE	
			269									269	642	00590	269	FT	CROSSWALK LINE	
			552									552	642	01190	552	FT	PARKING LOT STALL MARKING	
			2									2	642	01290	2	EACH	LANE ARROW	
			1									1	642	01390	1	EACH	WORD ON PAVEMENT, 72"	
			3									3	642	01700	3	EACH	HANDICAP SYMBOL MARKING	
																	TRAFFIC SIGNALS	
					76							76	625	25408	76	FT	CONDUIT, 2", 725.051	
					62							62	625	25604	62	FT	CONDUIT, 4", 725.051	
					107							107	625	29000	107	FT	TRENCH	
					1							1	625	30706	1	EACH	PULL BOX, 725.08, 24"	
					9							9	625	32000	9	EACH	GROUND ROD	
					107							107	625	36000	107	FT	PLASTIC CAUTION TAPE	
					8							8	632	05007	8	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, BLACK	76
					4							4	632	20731	4	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN	77
					8							8	632	25000	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
					4							4	632	25010	4	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
					4							4	632	26001	4	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	77
					324							324	632	30200	324	FT	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES	
					324							324	632	30600	324	FT	TETHER WIRE, WITH ACCESSORIES	
					1,683							1,683	632	40700	1,683	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
					4							4	632	64000	4	EACH	STRAIN POLE FOUNDATION	
					4							4	632	64020	4	EACH	PEDESTAL FOUNDATION	
					1,020							1,020	632	65200	1,020	FT	LOOP DETECTOR LEAD-IN CABLE	
					1							1	632	70001	1	EACH	POWER SERVICE, AS PER PLAN	76
					4							4	632	83300	4	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 13	
					4							4	632	89900	4	EACH	PEDESTAL, 8', TRANSFORMER BASE	
					1							1	632	90101	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	76
				4								4	632	90400	4	EACH	SIGNALIZATION, MISC.:TEST HOLE PERFORMED	76
					1							1	633	67101	1	EACH	CABINET FOUNDATION, AS PER PLAN	78
					1							1	633	67201	1	EACH	CONTROLLER WORK PAD, AS PER PLAN	78
					1							1	633	67301	1	EACH	PREEMPTION, AS PER PLAN	78
					4							4	633	67311	4	EACH	PREEMPTION RECEIVING UNIT, AS PER PLAN	78
					586							586	633	67320	586	FT	PREEMPTION DETECTOR CABLE	
					1							1	633	67351	1	EACH	PREEMPTION PHASE SELECTOR, AS PER PLAN	78
					4							4	633	67401	4	EACH	PREEMPTION CONFIRMATION LIGHT, AS PER PLAN	78
					1							1	633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	78
					1							1	633	99000	1	EACH	CONTROLLER ITEM, MISC.:CONTROLLER UNIT, TYPE 2070E WITH ASC/3 SOFTWARE, WITH CABINET, TYPE 332	78
					4							4	809	69100	4	EACH	STOP-BAR RADAR DETECTION	
																	LANDSCAPING	
									LS			LS	SPECIAL	53000200	LS		STRUCTURES(TIMBER WALKWAY)	101
							LS					LS	SPECIAL	69098400	LS		COMMEMORATIVE DISPLAY	97
																	BUILDING DEMOLITION	
											LS	LS	202	56000	LS		BUILDING DEMOLISHED, PARCEL 5-WD, 2-STORY FRAME HOUSE, BASEMENT	
											LS	LS	202	56000	LS		BUILDING DEMOLISHED, PARCEL 6-WD, 2 METAL STORAGE BUILDINGS, SHED	
LS												LS	SPECIAL	69071000	LS		ASBESTOS ABATEMENT, PARCEL 5-WD	9

CALCULATED MJC CHECKED BBD

GENERAL SUMMARY

MUS-CR32-0.00

SHEET NUM.						PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	7		116			01/BRF/BR/MCEO						
											STRUCTURE OVER 20 FOOT SPAN (6034330)	
	LS					LS	202	11003	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	7
	103					103	202	22900	103	SY	APPROACH SLAB REMOVED	
	174					174	202	23500	174	SY	WEARING COURSE REMOVED	
											STRUCTURE OVER 20 FOOT SPAN (MUS-CR32-0000)	
			LS			LS	202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	112;117;118
			103			103	202	22900	103	SY	APPROACH SLAB REMOVED	
			2,485			2,485	202	23500	2,485	SY	WEARING COURSE REMOVED	
			LS			LS	503	11101	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	112
			LS			LS	503	21301	LS		UNCLASSIFIED EXCAVATION, AS PER PLAN	112
			677,179			677,179	509	10000	677,179	LB	EPOXY COATED REINFORCING STEEL	
			119			119	511	33418	119	CY	CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE	
			1,244			1,244	511	34446	1,244	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK	
			112			112	511	34451	112	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN	171-172
			191			191	511	44113	191	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	112
			1,821			1,821	511	45603	1,821	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA, AS PER PLAN	128
			565			565	511	46512	565	CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING	
			19			19	511	53014	19	CY	CLASS QC3 CONCRETE, MISC.: MODULAR EXPANSION JOINT	167
			6,565			6,565	512	10050	6,565	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	
			1,604			1,604	513	10201	1,604	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN	139
			76			76	513	17001	76	FT	STRUCTURAL STEEL MEMBERS, MODULAR EXPANSION JOINT, LEVEL UF, AS PER PLAN	112-113,167,169
			6			6	515	15120	6	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE WF66-49 (LENGTH = 73'-3")	
			36			36	515	15120	36	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE WF66-49 (LENGTH = 129'-6")	
			95			95	515	20001	95	EACH	INTERMEDIATE DIAPHRAGMS, AS PER PLAN	113
			12			12	516	12201	12	FT	STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN	168-170
			63			63	516	13600	63	SF	1" PREFORMED EXPANSION JOINT FILLER	
			195			195	516	13900	195	SF	2" PREFORMED EXPANSION JOINT FILLER	
			12			12	516	44201	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3979" WITH 21" x 39.5" x 1.625" LOAD PLATE)	113-114,134
			12			12	516	44201	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3979" WITH 21" x 39.5" x 1.5625" LOAD PLATE)	113-114,134
			60			60	516	44401	60	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (17" x 18" x 5.4848" WITH 19" x 39.5" x 1.625" LOAD PLATE)	136
			895			895	517	76300	895	FT	RAILING, MISC.: CONCRETE PARAPET CLASS QC2 CONCRETE WITH QC/QA AND STEEL RAILING	114,153-157
			898			898	517	76300	898	FT	RAILING, MISC.: STEEL HANDRAIL SYSTEMS INCLUDING CONCRETE PILASTERS CLASS QC2 CONCRETE	114,162-166
			201			201	518	21200	201	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	
			188			188	518	40000	188	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	
			115			115	518	40011	115	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	121&125
			147			147	524	94904	147	FT	DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK	
			289			289	524	94906	289	FT	DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK	
			288			288	524	94934	288	FT	DRILLED SHAFTS, 66" DIAMETER, INTO BEDROCK	
			29			29	524	94946	29	FT	DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK	
			17			17	524	95100	17	EACH	DRILLED SHAFTS, MISC.: CSL TESTING, 4'-0" DIAMETER SHAFT	SP
			24			24	524	95100	24	EACH	DRILLED SHAFTS, MISC.: CSL TESTING, 5'-6" DIAMETER SHAFT	SP
			LS			LS	524	95200	LS		DRILLED SHAFTS, MISC. SHAFT INSPECTION DEVICES	115
			292			292	526	30011	292	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN	171-173
			49			49	526	90020	49	SY	TYPE B INSTALLATION	
			LS			LS	SPECIAL	53014000	LS		STRUCTURAL SURVEY AND MONITORING OF VIBRATION	115
			242			242	601	32100	242	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
			LS			LS	SPECIAL	69098400	LS		PROJECT INSPECTION PHOTOS	115

CALCULATED MJC
CHECKED BBD

GENERAL SUMMARY

MUS-CR32-0.00

SHEET NUM.												PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	9		10		11							01/BRF/BR/MCEO						
																	MAINTENANCE OF TRAFFIC	
			15									15	410	12000	15	CY	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
					40							40	614	11110	40	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
	40											40	614	11130	40	HOUR	LAW ENFORCEMENT OFFICER FOR ASSISTANCE	
			LS									LS	614	12420	LS		DETOUR SIGNING	
					4							4	614	18601	4	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	11
			0.02									0.02	614	21000	0.02	MILE	WORK ZONE CENTER LINE, CLASS I	
			44									44	614	26000	44	FT	WORK ZONE STOP LINE, CLASS I	
			1									1	614	40051	1	EACH	BUSINESS ENTRANCE SIGN, AS PER PLAN	10
			LS									LS	615	10000	LS		ROADS FOR MAINTAINING TRAFFIC	
			240									240	615	25000	240	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	
			40									40	616	10000	40	MGAL	WATER	
																	INCIDENTALS	
												LS	108	10000	LS		CPM PROGRESS SCHEDULE	
			LS									LS	614	11000	LS		MAINTAINING TRAFFIC	
												26	619	16020	26	MNTH	FIELD OFFICE, TYPE C	
												LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LS	624	10000	LS		MOBILIZATION	

CALCULATED MJC
CHECKED BBD

GENERAL SUMMARY

MUS-CR32-0.00

REF. NO.	SHEET NO.	STATION TO STATION	SIDE	202																	
				WALK REMOVED	STEPS REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	GUARD POST REMOVED	MANHOLE REMOVED	CATCH BASIN REMOVED	CATCH BASIN ABANDONED, AS PER PLAN	FENCE REMOVED	GATE REMOVED	REMOVAL MISC.: LANDSCAPE ROCKS	REMOVAL MISC.: STEEL TOWER	REMOVAL MISC.: POST AND WIRE	REMOVAL MISC.: POST WITH ELECTRIC METER	REMOVAL MISC.: LIGHT POLE REMOVED	REMOVAL MISC.: SIGN REMOVED	REMOVAL MISC.: WALL AND RAILING	REMOVAL MISC.: CONCRETE PAD
				SF	FT	FT	FT	EACH	EACH	EACH	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	FT	SF
		C.R. 32 (BRIDGE ST.)																			
R1	34	10+35.00 11+00.00	LT/RT									200									
R2	34	10+88.00	LT			5				1											
R3	34	12+27.00	LT												1						
R4	34	12+28.00 13+21.00	LT									143	1								
R5	34	12+40.00	RT					1													
R6	34	12+51.00 12+56.00	LT				18														
R7																					
R8	34	12+57.00 13+06.00	LT/RT	658																	
R9	34	12+89.00 13+05.00	LT				20														
R10	34	12+64.00 12+75.00	LT				11														
R11	34	12+78.00	LT		16																
R12	34	12+81.00 13+04.00	LT				23														
R13	34	12+95.00	LT														1				
R14	34	12+86.00 12+95.00	LT					3													
R15	36	21+17.00 21+54.00	RT			40			1												
R16	36	21+45.00 22+13.00	RT			108			1												
R17	36	21+58.00 22+00.00	LT			42				1											
R18	36	22+39.00	LT/RT																		83
R19	36	22+42.00	RT																		120
R20	36	22+93.00 23+22.00	LT																	58	
R21	36	23+25.00	LT																1		
R22	36	21+83.00 23+27.00	LT/RT					5								5					
R23	36	22+75.00	RT															1			
R24	36	22+91.00	RT																1		
R25	36	23+30.00 23+52.00	LT/RT					5								5					
R26	36-37	23+24.00 24+93.00	LT	665																	
R27	36-37	23+54.00 24+67.00	LT/RT				365														
R28	36	23+56.00 23+70.00	LT																	20	
R29	36	23+76.00 24+35.00	RT					4													
R30	36	23+98.00	LT															1			
R31	36	24+46.00	RT															1			
R32	37	24+73.00	RT															1			
R33	37	25+35.00	LT			5				1											
R34	37	25+80.00 25+96.00	LT	75																	
R35	37	26+83.00	LT											2							
R36	37	27+11.00	LT											1							
R37	37	27+53.00	LT			10				1											
R38	37	27+85.00	RT			15				1											
		WATER ST. (W)																			
R39	38	10+45.00 11+01.00	LT/RT			83				1											
R40	38	10+66.00 10+86.00	RT				65														
R41	38	11+05.00 11+19.00	RT	293																	
R42	38	11+14.00 11+32.00	RT				36														
		EX. BRIDGE ST.																			
R43	36	112+85.00	RT								1										
TOTALS CARRIED TO GENERAL SUMMARY				1,691	16	308	538	18	2	6	1	343	1	3	1	10	1	4	2	78	203

CALCULATED MJT
CHECKED MJC

REMOVAL SUBSUMMARY

MUS-CR32-0.00

REF. NO.	SHEET NO.	STATION TO STATION		SIDE	606 GUARDRAIL, TYPE MGS FT	606 ANCHOR ASSEMBLY, MGS TYPE T EACH	606 ANCHOR ASSEMBLY, MGS TYPE A EACH	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	608 4" CONCRETE WALK SF	608 8" CONCRETE WALK SF	608 CURB RAMP SF	609 CURB, TYPE 6 FT	622 BARRIER MISC.: 42" BARRIER FT	626 BARRIER REFLECTOR, TYPE 2, BIDIRECTIONAL EA	690 SPECIAL - CONCRETE PARKING BLOCK EACH
		C.R. 32 (BRIDGE ST.)													
C1	34	9+99.10	12+51.60	RT								263			
S1	34	9+99.10	12+51.60	RT					1462	225					
GR1	34	10+08.12	12+35.35	RT	225	1	1							4	
GR2	34	10+41.84	12+54.94	LT	250	2	1							5	
S2	34	12+46.48	12+64.87	LT					127						
P1	34	12+50.82	12+69.18	LT											4
B1	34	12+62.63	12+74.52	RT									39	3	
B2	34	12+78.92	12+81.51	LT									24	3	
C2	36	21+72.24	21+79.39	RT								7			
S3	36	21+72.24	21+94.75	RT					50		109				
C3	36 & 38	21+75.17	10+50.00 WATER ST. (W)	LT/RT								175			
GR3	36 & 38	21+75.17	10+62.08 WATER ST. (W)	LT/RT	125		1	1						4	
S4	36 - 37	22+09.89	25+08.21	RT					1751		263				
C4	36 - 37	22+22.51	25+06.89	RT								278			
C5	36 - 37	10+50.00 WATER ST. (W)	497+17.30 SR 60	LT								454			
GR4	37	24+71.06	494+05.54 SR 60	RT/LT	162.5	1	1							4	
S5	37	25+61.56	26+22.89	RT					383		144				
C6	37	25+63.83	25+91.23	RT								43			
C7	37	25+80.26	25+96.60	LT								33			
S6	37	25+87.12	26+07.16	LT					122		127				
C8	37	26+07.16	26+07.90	LT								40			
		WATER ST. (W)													
C9	38	10+85.46	112+12.00 EX. BRIDGE ST.	LT								41			
C10	38	11+52.15	112+12.00 EX. BRIDGE ST.	LT/RT								31			
S7	38	10+72.46	11+07.31	LT					340						
S8	38	11+40.85	22+76.89 CR 32	LT					235						
TOTALS CARRIED TO GENERAL SUMMARY					762.5	4	4	1	4,470	225	643	1,365	63	23	4

CALCULATED MJC
CHECKED BAL

ROADWAY SUBSUMMARY

MUS-CR32-0.00

REF NO.	SHEET NO.	STATION TO STATION		SIDE	601 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER CY	602 CONCRETE MASONRY CY	611 6" CONDUIT, TYPE C LF	611 12" CONDUIT, TYPE B LF	611 12" CONDUIT, TYPE C LF	611 12" CONDUIT, TYPE F, 707.05 TYPE C OR 707.21 LF	611 18" CONDUIT, TYPE B LF	611 18" CONDUIT, TYPE C LF	611 21" CONDUIT, TYPE B LF	611 24" CONDUIT, TYPE B LF	611 24" CONDUIT, TYPE F, 707.05 TYPE C OR 707.21 LF	611 CATCH BASIN, NO. 3 EA	611 CATCH BASIN, NO. 3A EA	611 CATCH BASIN, NO. 6 EA	611 CATCH BASIN, NO. 6, AS PER PLAN EA	611 CATCH BASIN, NO. 2-2B EA	611 MANHOLE, NO. 3 EA	670 DITCH EROSION PROTECTION SY
		C.R. 32 (BRIDGE ST.)																				
D17	34	11+37.67	11+18.94	RT		0.21				65						1						
D16	36	21+52.27	21+52.27	RT				33											1			
D15	36	21+52.27	22+00.00	LT				46											1			
D14	36	22+25.00	22+00.00	RT										38		1						
D13	36	22+00.00	22+00.00	LT										20							1	
D12	36	22+00.00	21+25.83	LT	1.5	0.46									73						1	
EC2	36	22+45.00	24+50.00	RT																		212
EC1	36	22+70.75	23+22.00	LT																		24
D11	36	22+45.00	22+25.00	RT										46							1	
D10A	36	22+80.00	22+53.11	LT					31								1					
D10	36	22+53.11	22+00.00	LT				49								1						
D9	36	22+70.75	22+53.11	LT				17													1	
D8	36	23+22.00	23+22.00	LT		0.21			16								1					
D7	36	23+22.00	23+22.00	RT				28									1					
D6	37	25+20.00	24+50.00	LT	1.3	0.39							108								1	
D5	37	25+25.38	25+20.00	LT									43				1					
D4	37	25+32.76	25+25.38	LT									54				1					
D3	37	27+83.79	27+82.93	RT			8											1				
D2	37	27+48.89	27+55.28	LT							8	8								1		
TOTALS CARRIED TO GENERAL SUMMARY					3	1.3	8	173	47	65	8	8	205	104	73	3	5	1	2	3	3	236

CALCULATED AAW CHECKED ENB

DRAINAGE AND EROSION CONTROL SUBSUMMARY

MUS-CR32-0.00

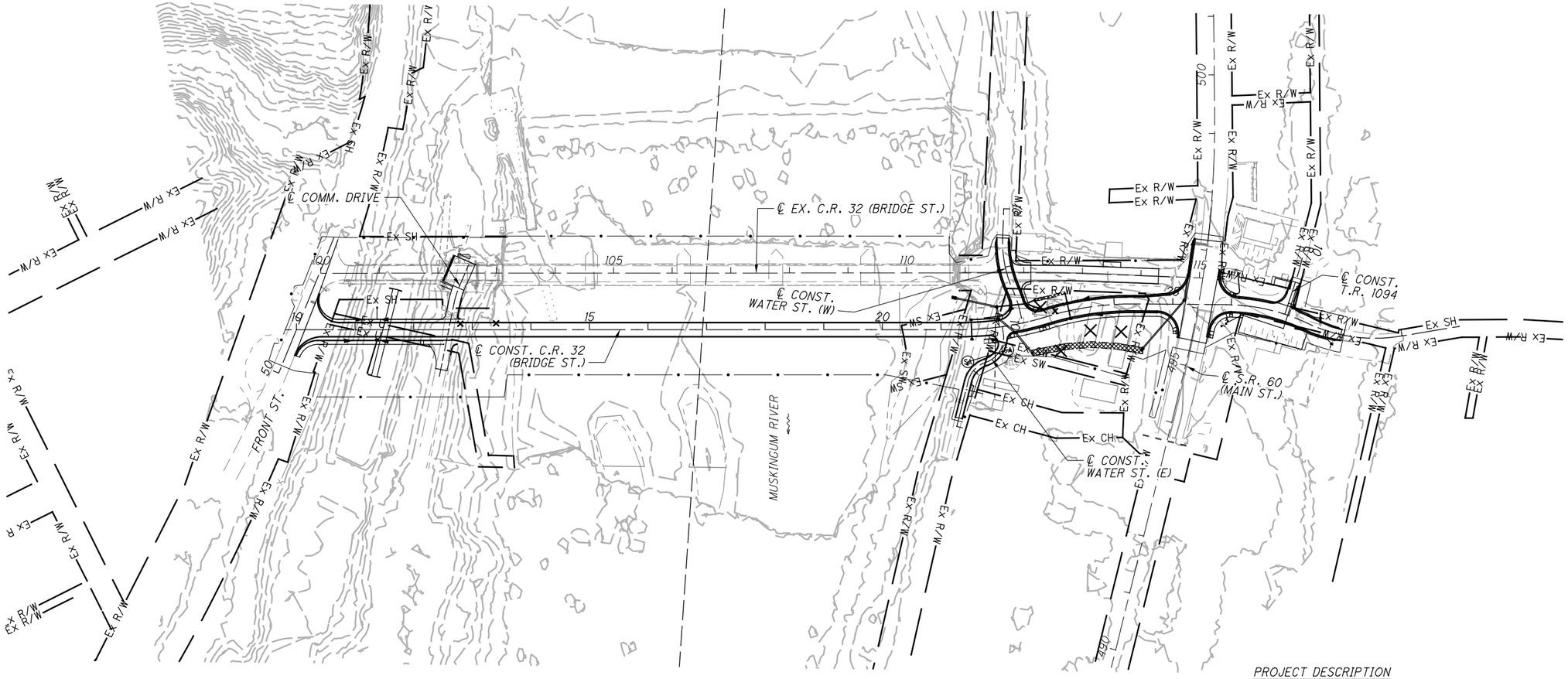
SHEET NO.	STATION FROM	STATION TO	203 EXCAVATION CU. YD.	203 EMBANKMENT CU. YD.	203 EMBANKMENT, AS PER PLAN CU. YD.	659 SEEDING AND MULCHING SQ. YD.
	C.R. 32 (BRIDGE ST.)					
39	10+00.00	11+00.00	61	1233	0	300
40	11+50.00	12+51.60	72	6348	3013	1565
41	12+60.00	21+43.64	1661	0	154	1179
42	21+73.64	22+00.00	1882	0	562	1013
43	22+50.00	23+50.00	888	684	386	1405
44	24+00.00	25+00.00	166	2141	0	1508
45	25+50.00	26+50.00	158	33	0	327
46	26+93.11	27+95.00	131	0	0	210
47	28+50.00		0	0	0	0
	WATER ST. (E)					
48	10+50.00	11+50.00	144	136	0	433
49	11+85.00	12+00.00	1	1	0	24
	WATER ST. (W)					
50	10+00.00	11+00.00	73	1	0	81
51	11+10.17	11+50.00	281	0	0	156
TOTALS CARRIED TO GENERAL SUMMARY			5518	10577	4115	8201

P:\97346\roadway\sheets\97346GS003.dgn 10/19/2017 1:35:39 PM mcornett

CALCULATED MJC CHECKED BBD

EARTHWORK SUBSUMMARY

MUS-CR32-0.00



PROJECT DATA					
TOTAL AREA (RIGHT OF WAY)	4.04	ACRES	RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE		0.54
PROJECT EARTH DISTURBED AREA	2.64	ACRES	RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE		0.56
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	1	ACRES	POST CONSTRUCTION BMPS: VEGETATED BIOFILTERS AND VEGETATED BIOSTRIPS WERE UTILIZED TO MEET NPDES POST CONSTRUCTION REQUIREMENTS. SEE DRAINAGE CALCS FOR ADDITIONAL DETAILS.		
NOTICE OF INTENT EARTH DISTURBED AREA	4.9	ACRES			
IMPERVIOUS (PAVED)AREA FOR PRE-CONSTRUCTION SITE	1.63	ACRES	IMMEDIATE RECEIVING WATERS		MUSKINGUM RIVER
IMPERVIOUS (PAVED) AREA FOR POST CONSTRUCTION SITE	1.51	ACRES	SUBSEQUENT RECEIVING WATERS		OHIO RIVER

PROJECT DESCRIPTION

REMOVAL OF EXISTING BRIDGE ST. STRUCTURE OVER THE MUSKINGUM RIVER AND CONSTRUCTION OF A NEW CROSSING AND REALIGNMENT OF THE APPROACH ROADWAY.

USGS QUADRANT: PHILO, OHIO

LONGITUDE: -81°54′33″ W
LATITUDE: 39°52′09″ N

(LONGITUDE AND LATITUDE TO APPROX. CENTER OF PROJECT)

LEGEND

- ■ CATCH BASIN
- ⊙ MANHOLE
- ▩ VEGETATED BIOFILTER

BMP TYPE	LOCATION	REF. NO.	BEGIN				END				LENGTH (FEET)	WIDTH (FEET)	SLOPE	TOTAL CONTRIB. AREA (ACRES)	EDA TREATMENT CREDIT (ACRES)
			STATION	OFFSET	LATITUDE	LONGITUDE	STATION	OFFSET	LATITUDE	LONGITUDE					
VEG. BIOFILTER DITCH 1	C.R. 32	EC1	23+22	31.76 LT	39.870662	-81.907967	22+71	32.87′ LT	39.870517	-81.907985	51	4	VAR. 3:1 TO 21:1	0.90	0.54
VEG. BIOFILTER DITCH 2	C.R. 32	EC2	24+50	80.00′ RT	39.870916	-81.907476	22+50	54.00′ RT	39.870424	-81.907685	200	10	VAR. 2:1 TO 4:1	5.01	0.58
													TREATMENT PROVIDED		1.12
													TREATMENT REQUIRED		1.08

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED AAW
CHECKED ENB

PROJECT SITE PLAN

MUS-CR32-0.00

PLAN AND PROFILE
STA. 10+00 TO STA. 14+50

MUS-CR32-0.00

34
192

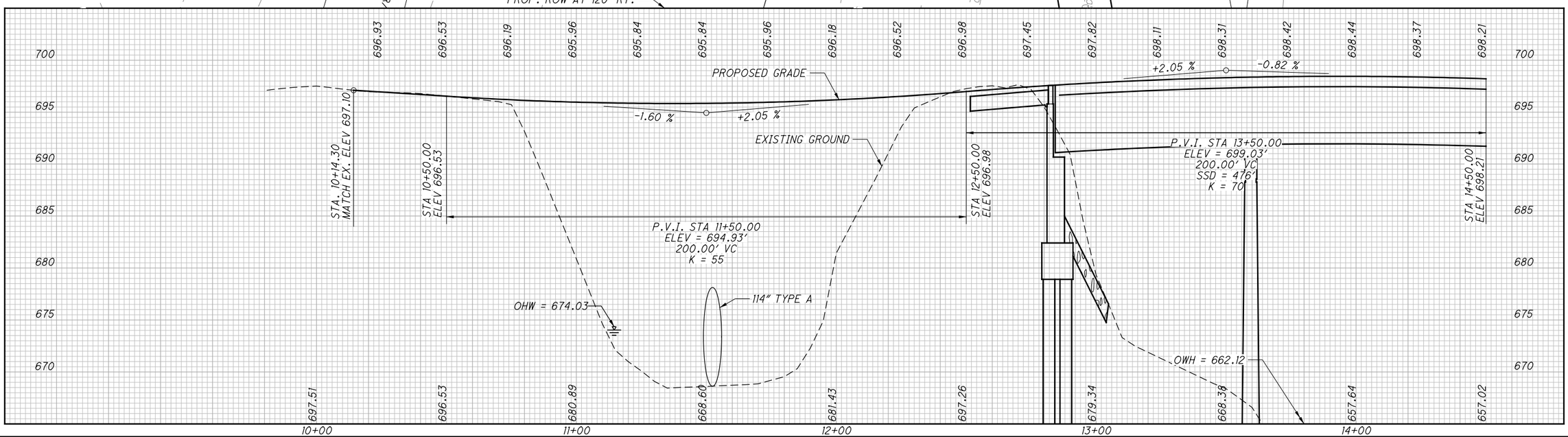
CALCULATED CDS
CHECKED MJC

HORIZONTAL SCALE IN FEET
0 10 20 40

CROSS REFERENCES:
℄ REFERENCES & BENCHMARKS, SEE SHEET 3
INTERSECTION DETAILS, SEE SHEET 52
DRIVE DETAILS, SEE SHEET 56
CULVERT DETAILS, SEE SHEET 58
COMMEMORATIVE DISPLAY DETAILS, SEE SHEETS 97-99

CONST. LIMITS
Ex R/W
℄ CONST. C.R. 6 & FRONT ST.
BEGIN PROJECT STA. 10+14.30 S.L.M. 0.00
BEGIN WORK STA. 9+86.44
51' N 48° 54' 18" W 65.8'
STA. 10+00.00 ℄ CONST. C.R. 32 = STA. 50+80.00 ℄ C.R. 6 & FRONT ST.
112°
47.0'
POT Sta. 50+00.00
FRONT ST.
TAPER CURB HEIGHT 6" TO 0" OVER 6'
CONST. LIMITS
REMOVE FENCE TO PROP. ROW LINE
CONST. LIMITS @ 115' RT.
PROP. ROW AT 120' RT.
POT Sta. 52+49.61
PAVEMENT TO BE REMOVED
℄ EX. C.R. 32 (BRIDGE ST.)
EX. INTAKE BRIDGE HRS C0032 (NO. 6034330) TO BE REMOVED
SAWCUT
POT Sta. 100+00
97.2'
EX. CB REMAIN
32' R
30' R
37' R
50' R
40' R
30' R
25' R
162' R
10' R
EX. GAS LINE - TBR
STA. 12+60.00 ℄ CONST. C.R. 32 = STA. 70+00.00 ℄ COMM. DRIVE
BEGIN APPROACH SLAB STA. 12+51.60
℄ CONST. C.R. 32 (BRIDGE ST.)
114" TYPE A
water intake channel
HARRISON TWP. VILLAGE OF PHILO
CONST. LIMITS
TBR
COMMEMORATIVE DISPLAY AREA
wall DND
DND gate
post w/ elec. meter
6' chain link fence w/ gate
N 47° 39' 48" W 71'
PT Sta. 70+17.82
PC Sta. 70+45.88
EX. STRUCTURE NO. 6054129 TO BE REMOVED
sandstone wall remains (delapidated)
clump of six 10" trees
EX. GUARD WALL TO BE REMOVED
MATCH LINE 14+50 SEE SHEET 35
STRUCTURE NO. 6054145
N 59° 41' 50" W
2" gas
4" gas
12" RCP
10" RCP
steel tower
pier
asphalt
gravel
grass
woods
conc. walk
6' chain link fence
TBR
MUSKINGUM RIVER
CONST. LIMITS

LEGEND
A ANCHOR ASSEMBLY, MGS TYPE A
T ANCHOR ASSEMBLY, MGS TYPE T
TBR = TO BE REMOVED OR RELOCATED BY OTHERS



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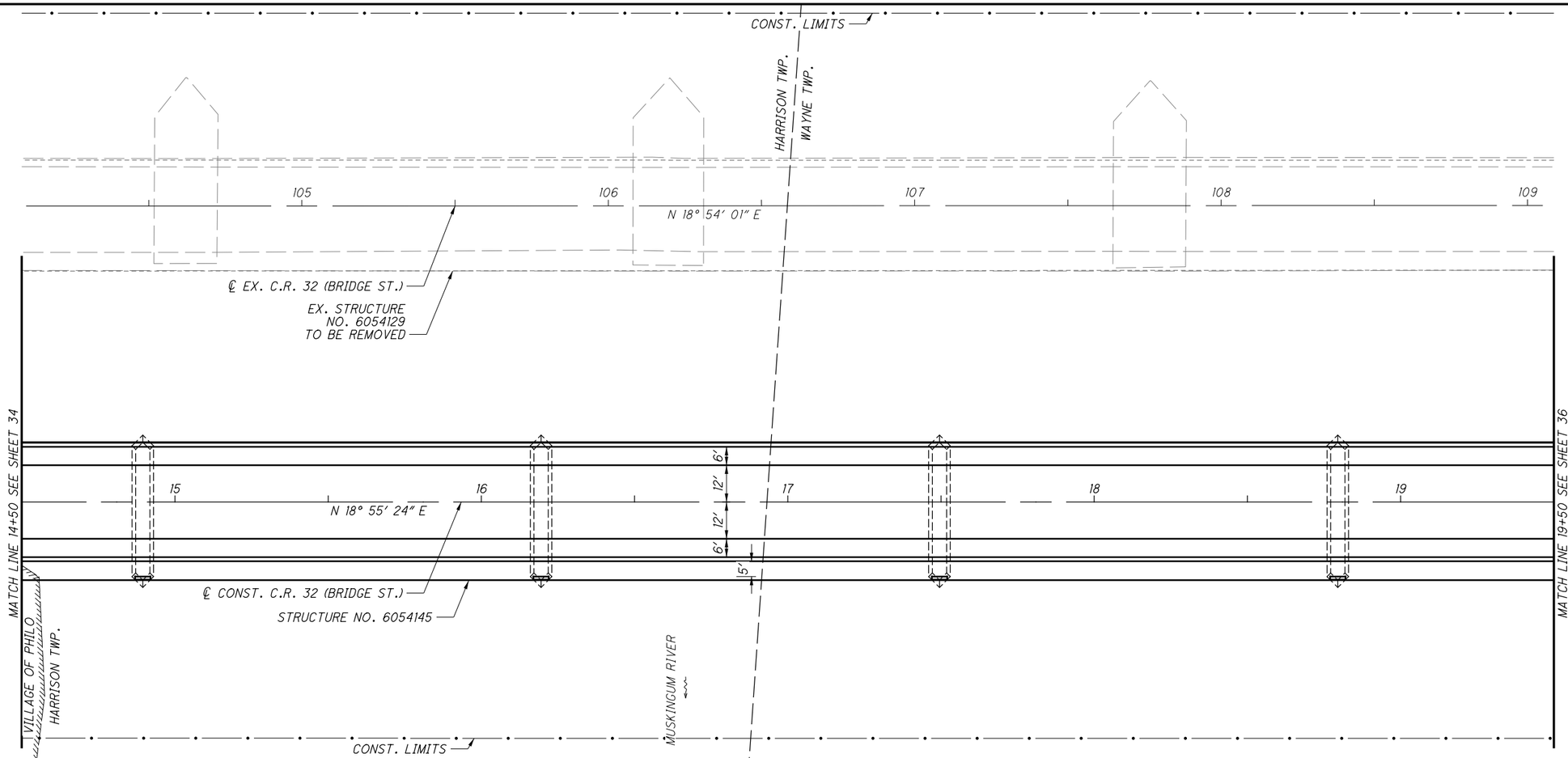

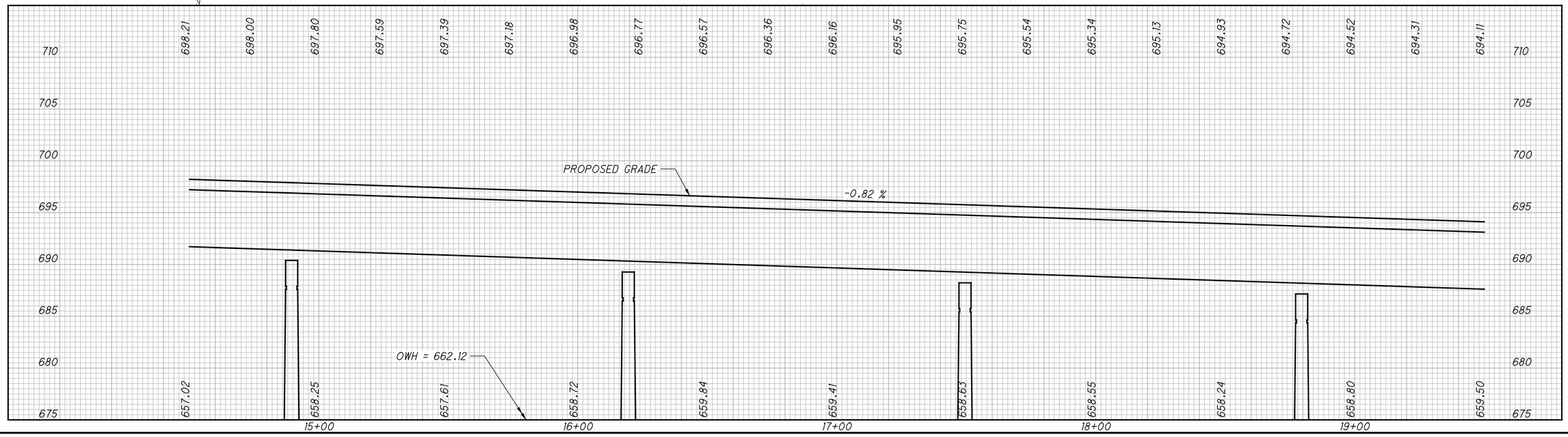

N

0 10 20 40
HORIZONTAL
SCALE IN FEET

CALCULATED CDS
CHECKED MJC

PLAN AND PROFILE
STA. 14+50 TO STA. 19+50

MUS-CR32-0.00

35
192

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CROSS REFERENCES:
℄ REFERENCES & BENCHMARKS, SEE SHEET 3
INTERSECTION DETAILS, SEE SHEET 38
DRIVE DETAILS, SEE SHEET 57
SANITARY SEWER DETAILS, SEE SHEET 69

LEGEND

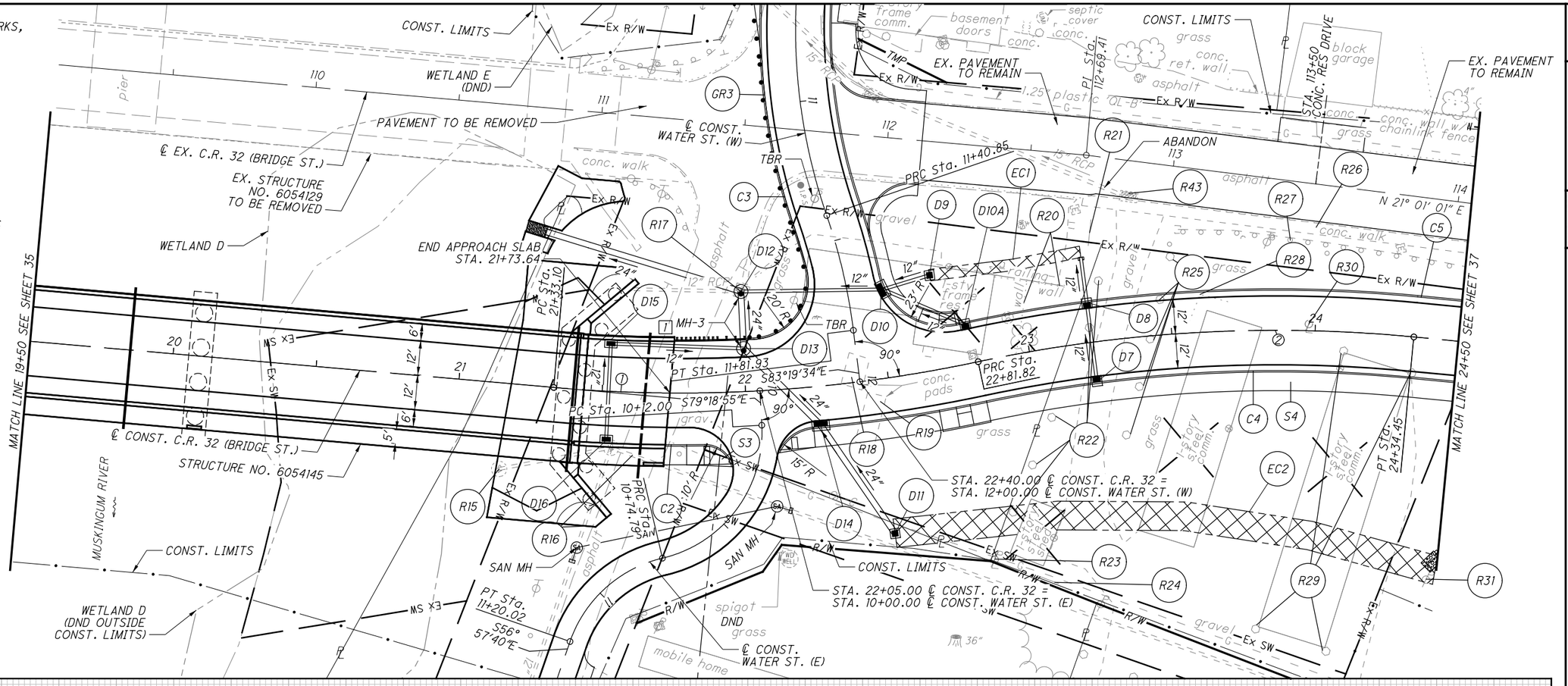
[7] BRIDGE TERMINAL ASSEMBLY, TYPE 1

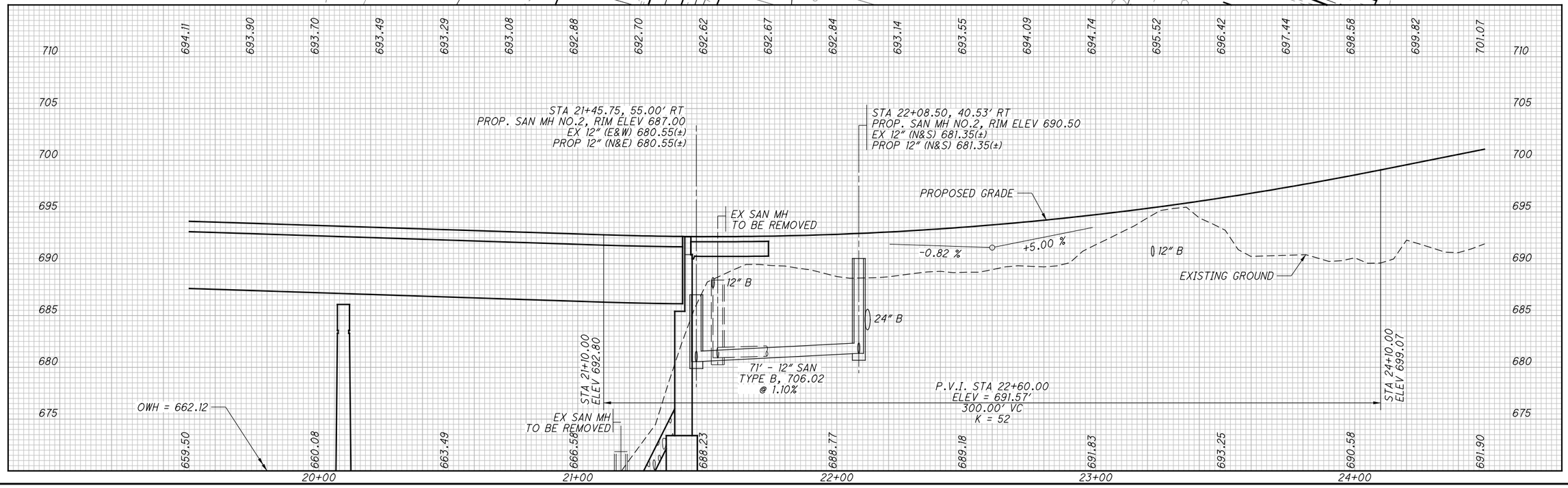
DITCH EROSION PROTECTION

TBR = TO BE REMOVED OR RELOCATED BY OTHERS

CURVE 1
C.R. 32 CURVE DATA
P.I. Sta. 22+08.02
Δ = 17° 02′ 32″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 74.91′
L = 148.72′
E = 5.58′
C = 148.17′
C.B. = N 10° 24′ 09″ E
emax = NC

CURVE 2
C.R. 32 CURVE DATA
P.I. Sta. 23+58.74
Δ = 17° 29′ 24″ (RT)
Dc = 11° 27′ 33″
R = 500.00′
T = 76.91′
L = 152.63′
E = 5.88′
C = 152.04′
C.B. = N 10° 37′ 35″ E
emax = NC





HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CDS
CHECKED MJC

PLAN AND PROFILE
STA. 19+50 TO STA. 24+50

MUS-CR32-0.00

36
192

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S.R. 60 CURVE DATA
P.I. Sta. 497+15.84
Δ = 14° 22′ 00″ (LT)
Dc = 3° 15′ 00″
R = 1,762.95′
T = 222.19′
L = 442.05′
E = 13.95′
C = 440.89′
C.B. = N 64° 26′ 07″ W

BEGIN PAVEMENT REMOVAL STA. 114+30.00

EX. PAVEMENT TO REMAIN

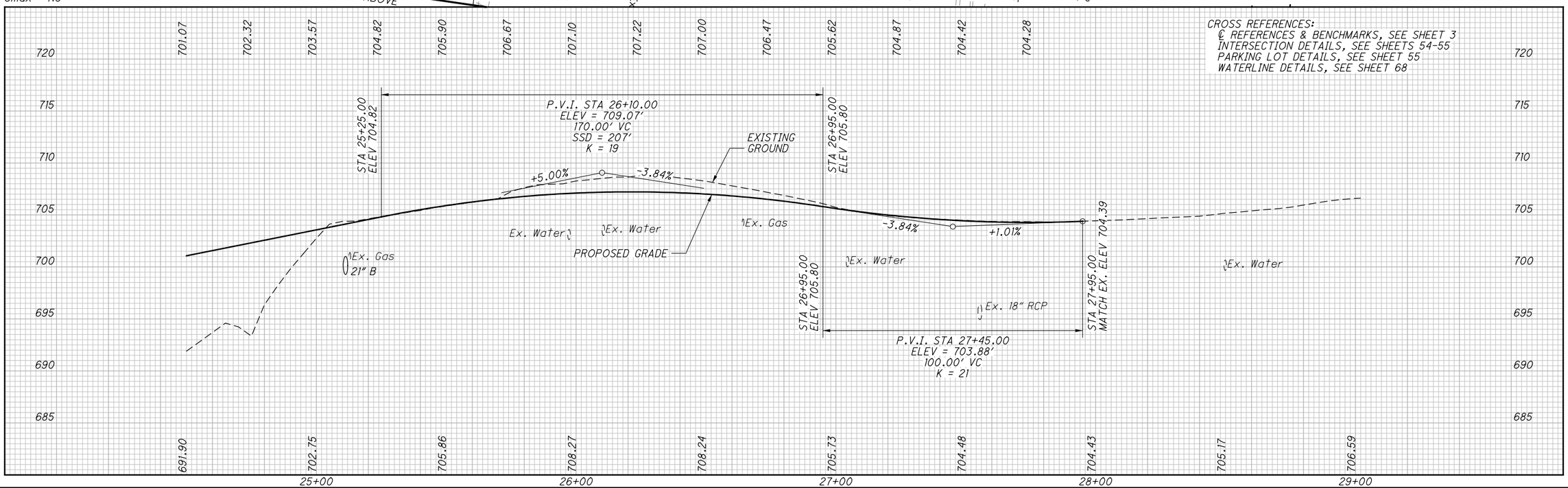
CURVE 3
C.R. 32 CURVE DATA
P.I. Sta. 26+63.92
Δ = 24° 48′ 40″ (RT)
Dc = 17° 21′ 44″
R = 330.00′
T = 72.59′
L = 142.90′
E = 7.89′
C = 141.79′
C.B. = N 31° 46′ 37″ E
emax = NC

CURVE 4
C.R. 32 CURVE DATA
P.I. Sta. 28+18.50
Δ = 34° 39′ 56″ (LT)
Dc = 21° 13′ 14″
R = 270.00′
T = 84.26′
L = 163.36′
E = 12.84′
C = 160.88′
C.B. = N 26° 50′ 59″ E
emax = NC

END RESURFACING AND CURB TAPER STA. 497+17.30, 23.24′ LT
BEGIN CURB TAPER STA. 497+12.30, 25.39′ LT
POT Sta. 115+05.83
END WORK STA. 497+26.58
CONST. LIMITS
STA. 25+43.96 ℄ CONST. C.R. 32 = STA. 496+06.43 ℄ S.R. 60
EX. PAVEMENT TO BE REMOVED
ABANDON
℄ EX. C.R. 32 (BRIDGE ST.)
MATCH LINE SEE SHEET 24+50
PC Sta. 25+91.33
POT Sta. 11+20.00
PROP. 6″ WATER
℄ CONST. C.R. 32 (BRIDGE ST.)
BEGIN RESURFACING STA. 495+44.00
4′ TYP
℄ S.R. 60 (MAIN ST.)
CONST. LIMITS
MATCHLINE SEE ABOVE
RECONSTRUCT PARKING LOT MATCH EXISTING LIMITS
POT Sta. 10+00.00
℄ CONST. T.R. 1094
PI Sta. 10+42.34
END WORK STA. 10+55.00
STA. 26+93.11 ℄ CONST. C.R. 32 = STA. 11+20.00 ℄ CONST. T.R. 1094
END WORK STA. 28+00.00
END PROJECT STA. 27+95.00 S.L.M. 0.34
PRC Sta. 27+34.23
BEGIN PAVEMENT TAPER STA. 27+56.00, 12′ RT
BEGIN SHOULDER TAPER STA. 27+87.00, 12.48′ RT
END PAVEMENT TAPER END SHOULDER TAPER STA. 27+95.00, 8.81′ LT & 10.09′ RT
BEGIN WORK STA. 494+00.00
PC Sta. 494+93.65
PT Sta. 28+97.59
MATCHLINE SEE BELOW
HARLAN DR.
CONST. LIMITS
TBR = TO BE REMOVED OR RELOCATED BY OTHERS

LEGEND
[#] BEGIN PAVEMENT TAPER STA. 24+50.23, 12′ LT
[##] END PAVEMENT TAPER STA. 24+90.33, 16′ LT
[*] BEGIN PAVEMENT TAPER STA. 27+29.87, 12′ LT
[**] BEGIN SHOULDER TAPER STA. 27+87.00, 11.21′ LT
[A] ANCHOR ASSEMBLY, MGS TYPE A
[T] ANCHOR ASSEMBLY, MGS TYPE T

CROSS REFERENCES:
℄ REFERENCES & BENCHMARKS, SEE SHEET 3
INTERSECTION DETAILS, SEE SHEETS 54-55
PARKING LOT DETAILS, SEE SHEET 55
WATERLINE DETAILS, SEE SHEET 68



CALCULATED CDS
CHECKED MJC

HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE
STA. 24+50 TO STA. 29+50

MUS-CR32-0.00

37
192

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BEGIN PAVEMENT TAPER
STA. 10+50.00, 10.5' LT
BEGIN CURB TAPER, 0"
STA. 10+50.00, 10.5' LT & 10.0' RT
MATCH EXISTING

END PAVEMENT TAPER
STA. 10+58.00, 10' LT
END CURB TAPER, 6"
STA. 10+58.00, 12' LT & RT

CROSS REFERENCES:
℄ REFERENCES & BENCHMARKS, SEE SHEET 3
INTERSECTION DETAILS, SEE SHEET 53
DRIVE DETAILS, SEE SHEET 57
STORM SEWER PROFILES, SEE SHEET 59

NOTE:
TBR = TO BE REMOVED OR RELOCATED BY OTHERS

ASPHALT RES. DRIVE STA. 11+34.89
ITEM 441 - 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)
ITEM 407 - TACK COAT
ITEM 301 - 3.5" ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)

LEGEND:
[A] ANCHOR ASSEMBLY, MGS TYPE A

CURVE 5
CURVE DATA - WATER ST. (W)
P.I. Sta. 10+96.30
Δ = 25° 58' 34" (LT)
Dc = 28° 38' 52"
R = 200.00'
T = 46.13'
L = 90.67'
E = 5.25'
C = 89.90'
C.B. = S 82° 06' 22" E
emax = NC

CURVE 6
CURVE DATA - WATER ST. (W)
P.I. Sta. 11+61.46
Δ = 11° 46' 05" (RT)
Dc = 28° 38' 52"
R = 200.00'
T = 20.61'
L = 41.08'
E = 1.06'
C = 41.01'
C.B. = S 89° 12' 36" E
emax = NC

CURVE 1
CURVE DATA - C.R. 32
P.I. Sta. 22+08.02
Δ = 17° 02' 32" (LT)
Dc = 11° 27' 33"
R = 500.00'
T = 74.91'
L = 148.72'
E = 5.58'
C = 148.17'
C.B. = N 10° 24' 09" E
emax = NC

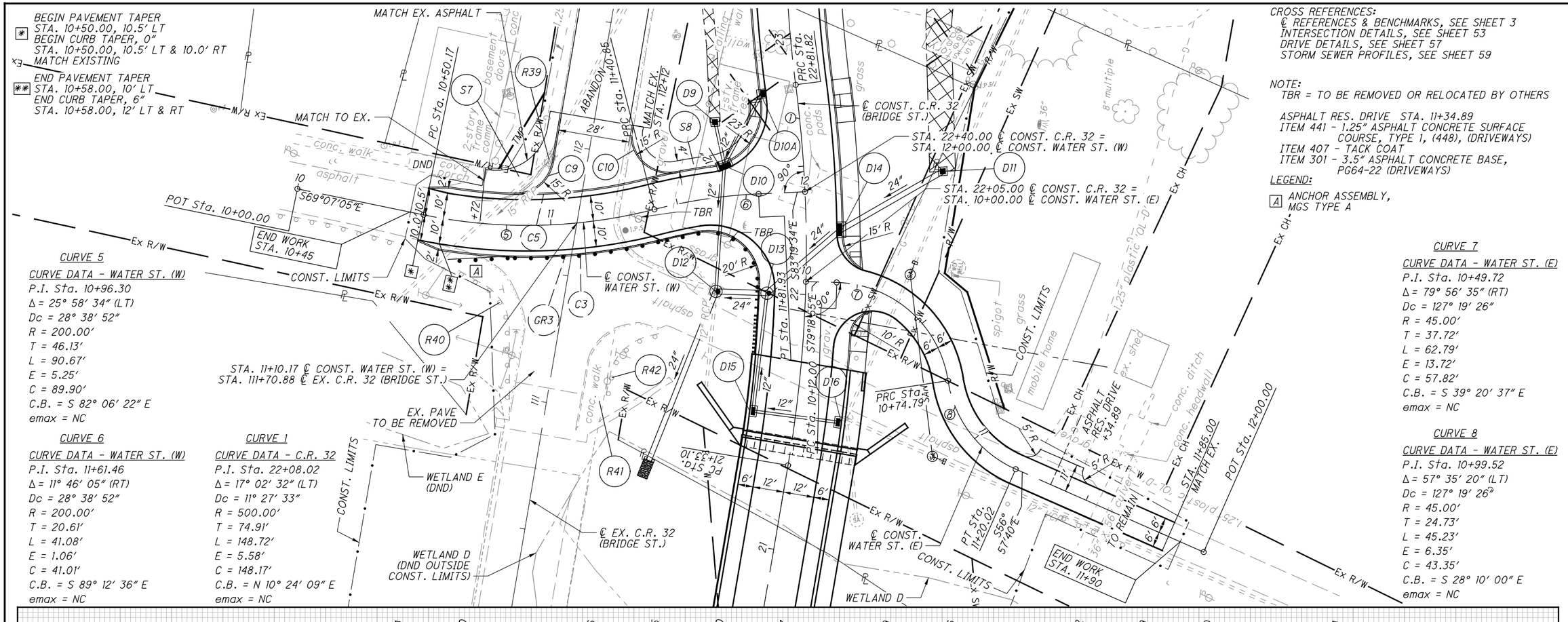
CURVE 7
CURVE DATA - WATER ST. (E)
P.I. Sta. 10+49.72
Δ = 79° 56' 35" (RT)
Dc = 127° 19' 26"
R = 45.00'
T = 37.72'
L = 62.79'
E = 13.72'
C = 57.82'
C.B. = S 39° 20' 37" E
emax = NC

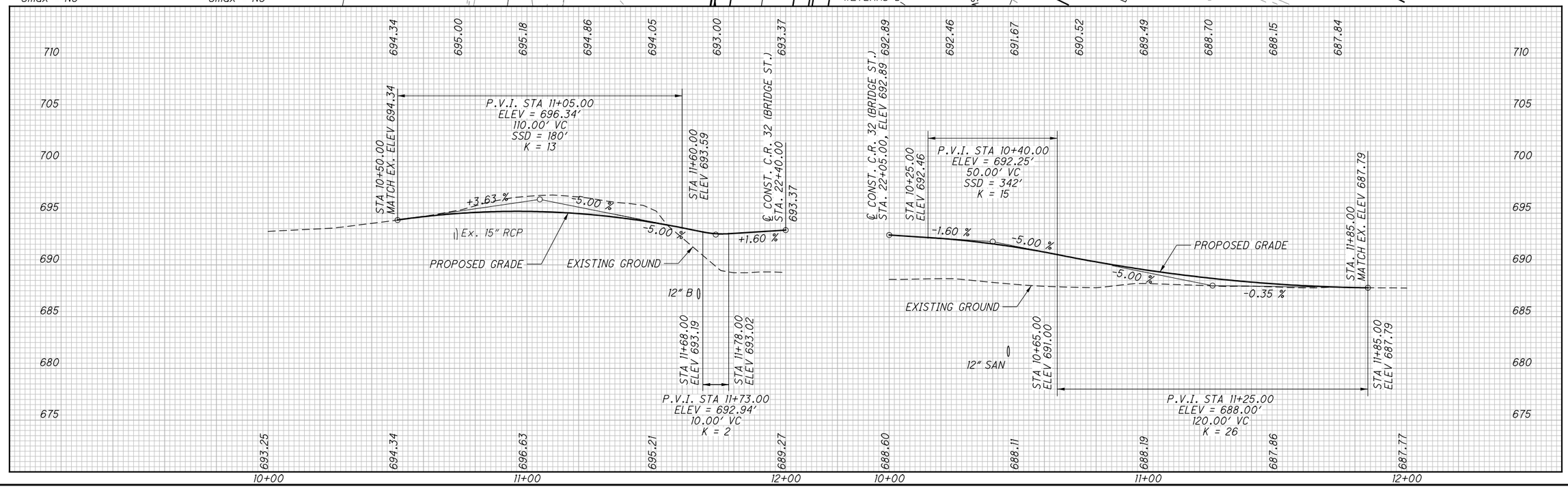
CURVE 8
CURVE DATA - WATER ST. (E)
P.I. Sta. 10+99.52
Δ = 57° 35' 20" (LT)
Dc = 127° 19' 26"
R = 45.00'
T = 24.73'
L = 45.23'
E = 6.35'
C = 43.35'
C.B. = S 28° 10' 00" E
emax = NC

STA. 11+10.17 ℄ CONST. WATER ST. (W) = STA. 111+70.88 ℄ EX. C.R. 32 (BRIDGE ST.)

STA. 22+40.00 ℄ CONST. C.R. 32 = STA. 12+00.00 ℄ CONST. WATER ST. (W)

STA. 22+05.00 ℄ CONST. C.R. 32 = STA. 10+00.00 ℄ CONST. WATER ST. (E)





HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED CDS
CHECKED MJC

PLAN AND PROFILE WATER ST. (W & E)

MUS-CR32-0.00

38
192

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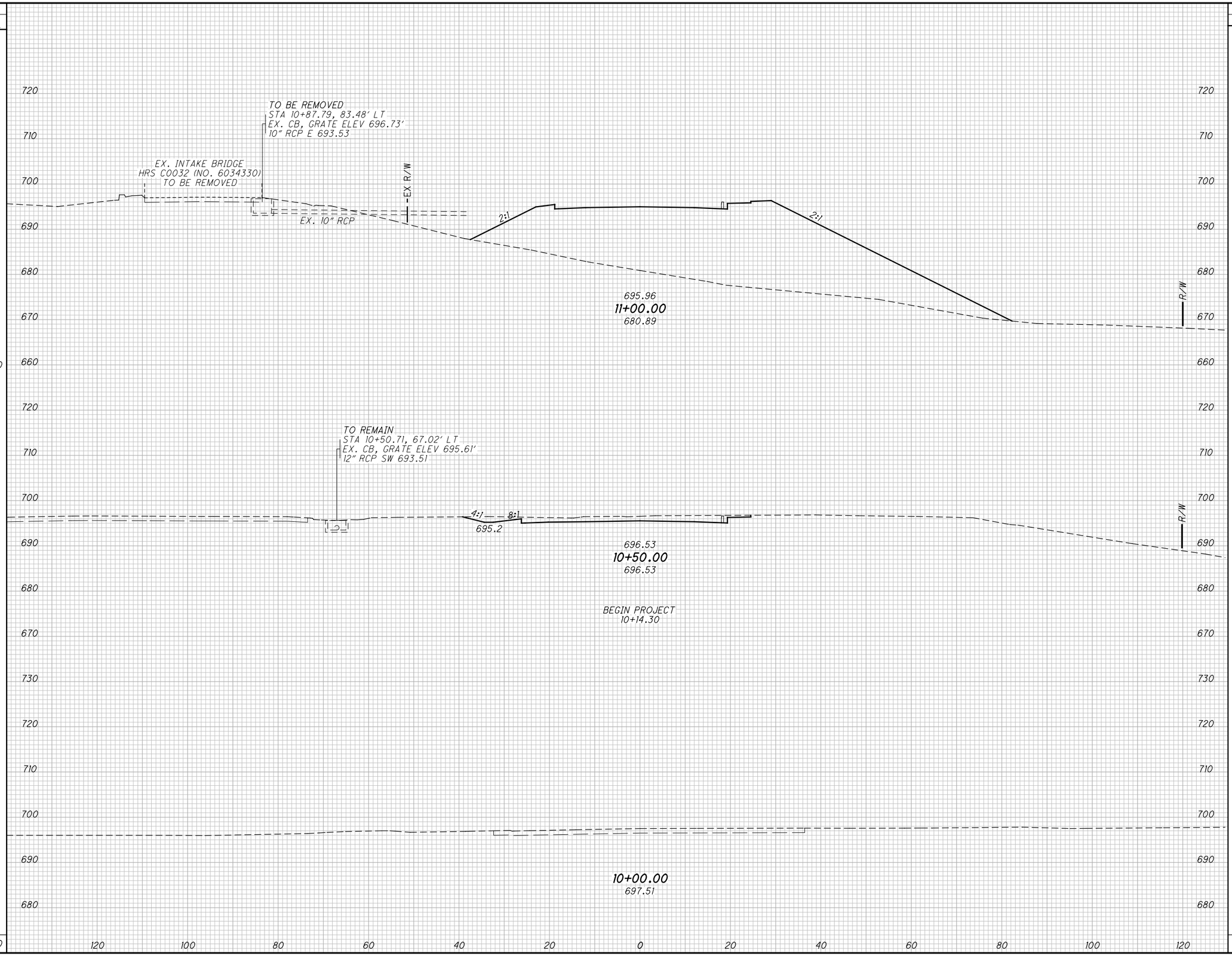
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
89	300	0	1332	61	1233
18	0	66	0	0	0
	300			61	1233



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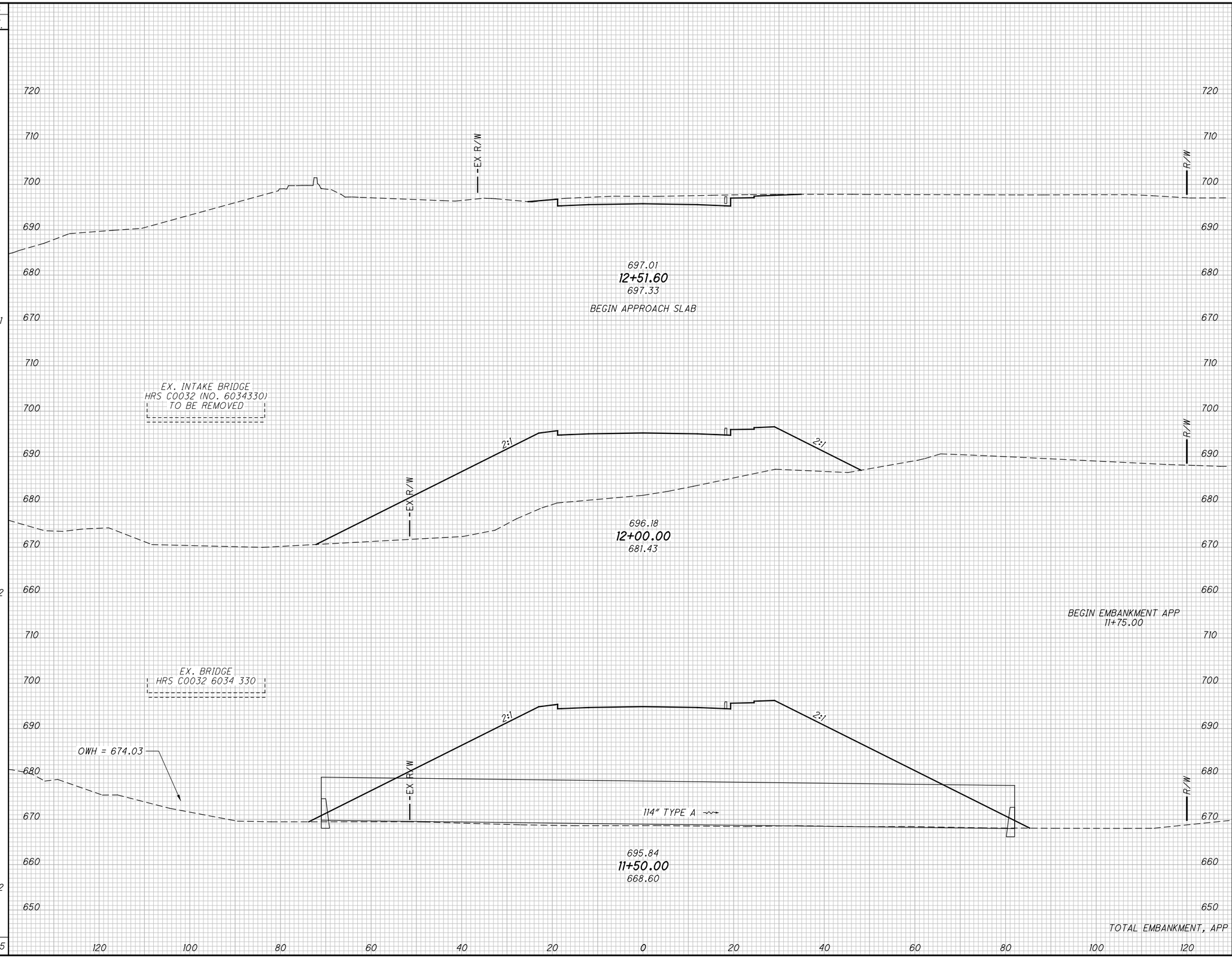
CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 10+00.00 TO STA. 11+00.00

MUS-CR32-0.00

SEEDING END WIDTH	SEEDING SQ. YDS.
21	321
90	622
133	622
	1565



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
75	0		
		72	1207 APP
0	1263		
		0	1806 APP
0	2638		
		0	2519
0	2803		
		0	3829
			3013
		72	6348

TOTAL EMBANKMENT, APP

CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 11+50.00 TO STA. 12+51.60

MUS-CR32-0.00

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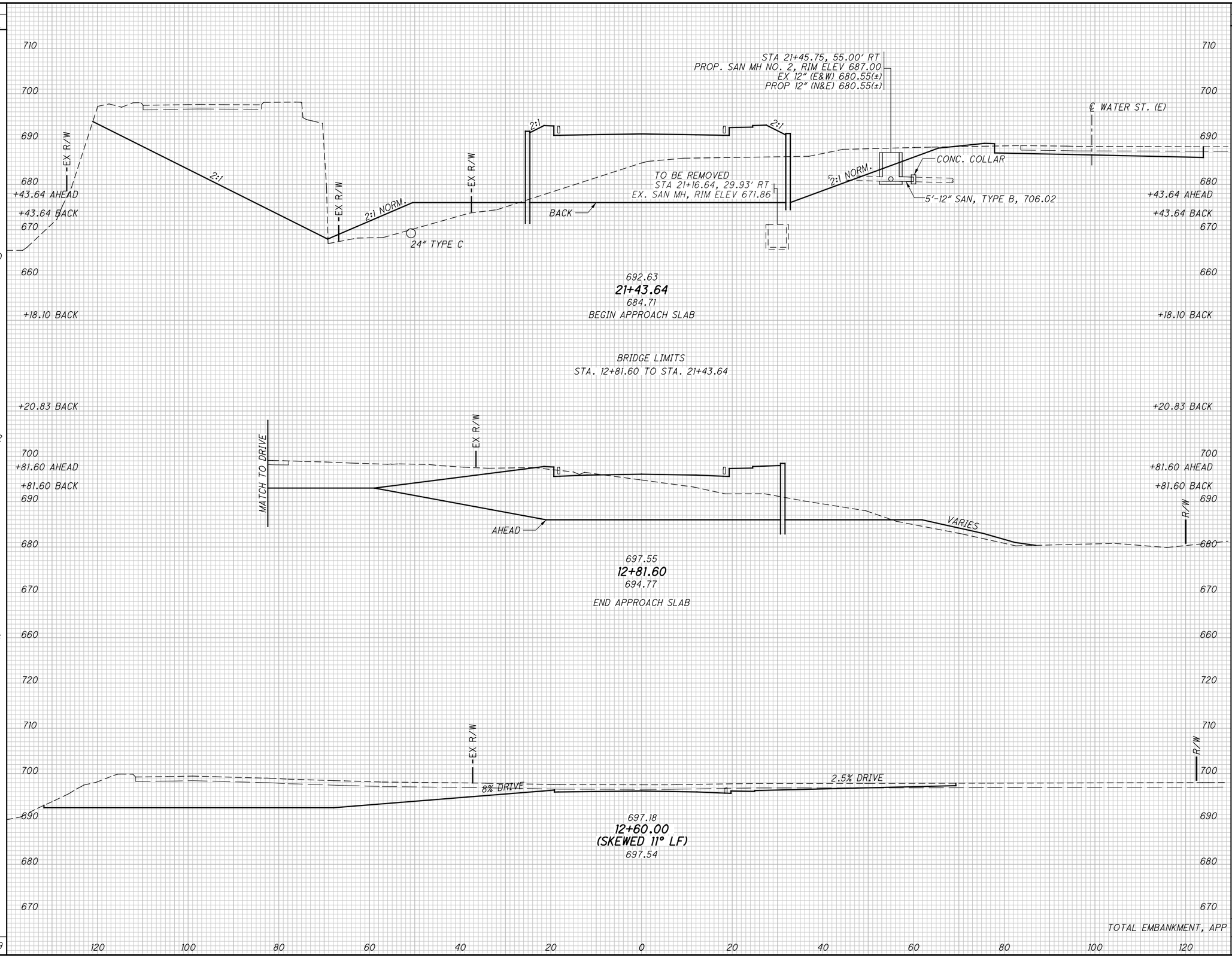
SEEDING END WIDTH	SEEDING SQ. YDS.
168	
168	380
100	
160	
130	632
130	
	156
0	
	11
	1179



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
855	594		
1282	135		
		606	64 APP
0	0		
0	0		
		668	22 APP
920	30		
245	171		
		298	68 APP
500	0		
		89	0 APP
			154
		1661	0

CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 12+60.00 TO STA. 21+43.64

MUS-CR32-0.00

41
192

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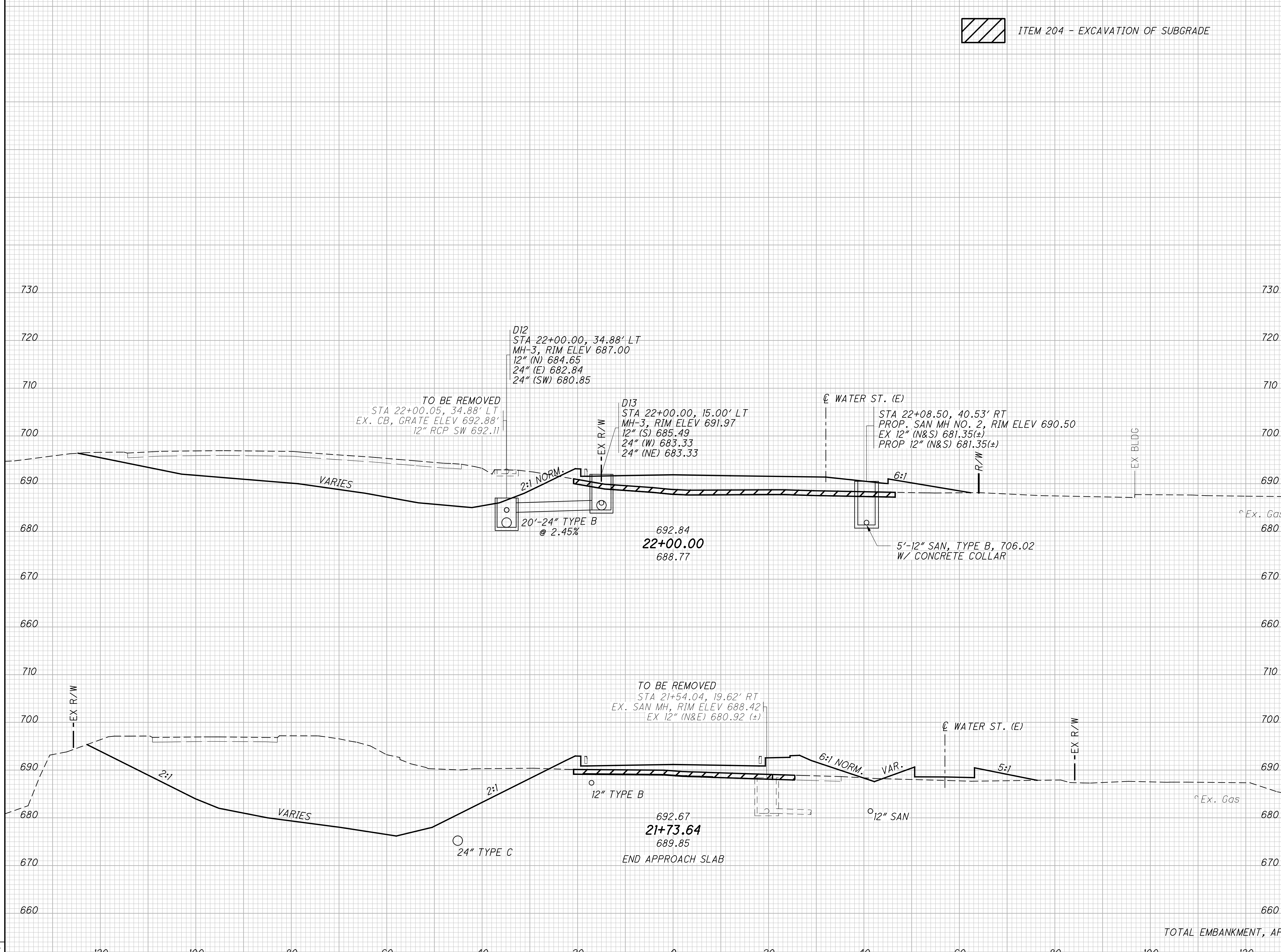
CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 21+73.64 TO STA. 22+00.00

MUS-CR32-0.00

CALCULATED MJC
CHECKED BBD

STATION	SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
22+00.00	130		507	196		
		560			790	168 APP
21+73.64	156		1110	114		
		453			1092	394 APP
TOTAL EMBANKMENT, APP						562
		1013			1882	0



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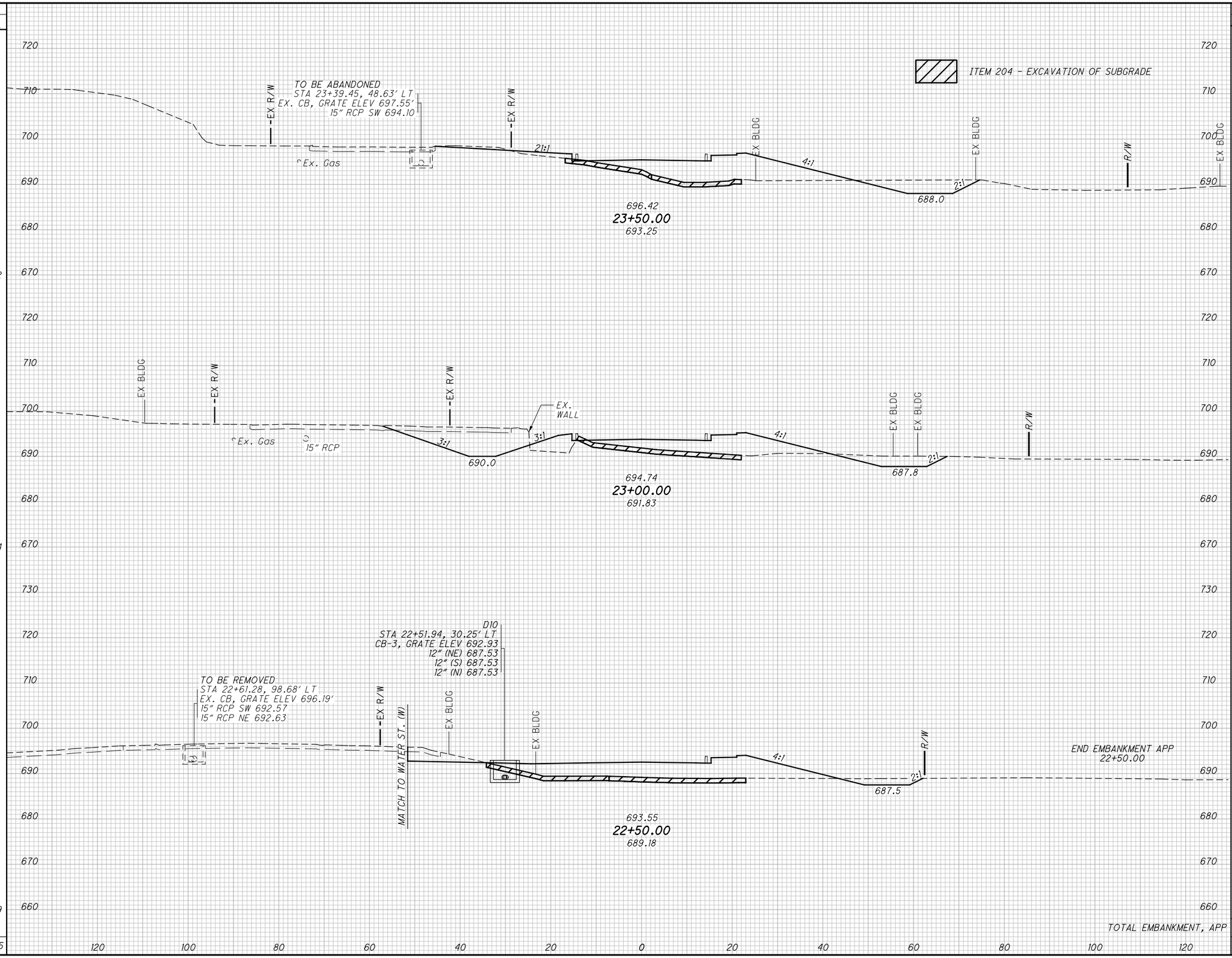
SEEDING END WIDTH	SEEDING SQ. YDS.
90	522
96	394
	489
	1405



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
62	204		
		197	334
151	157		
		181	350
44	221		
		510	386 APP
			386
		888	684

CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 22+50.00 TO STA. 23+50.00

MUS-CR32-0.00

43
192

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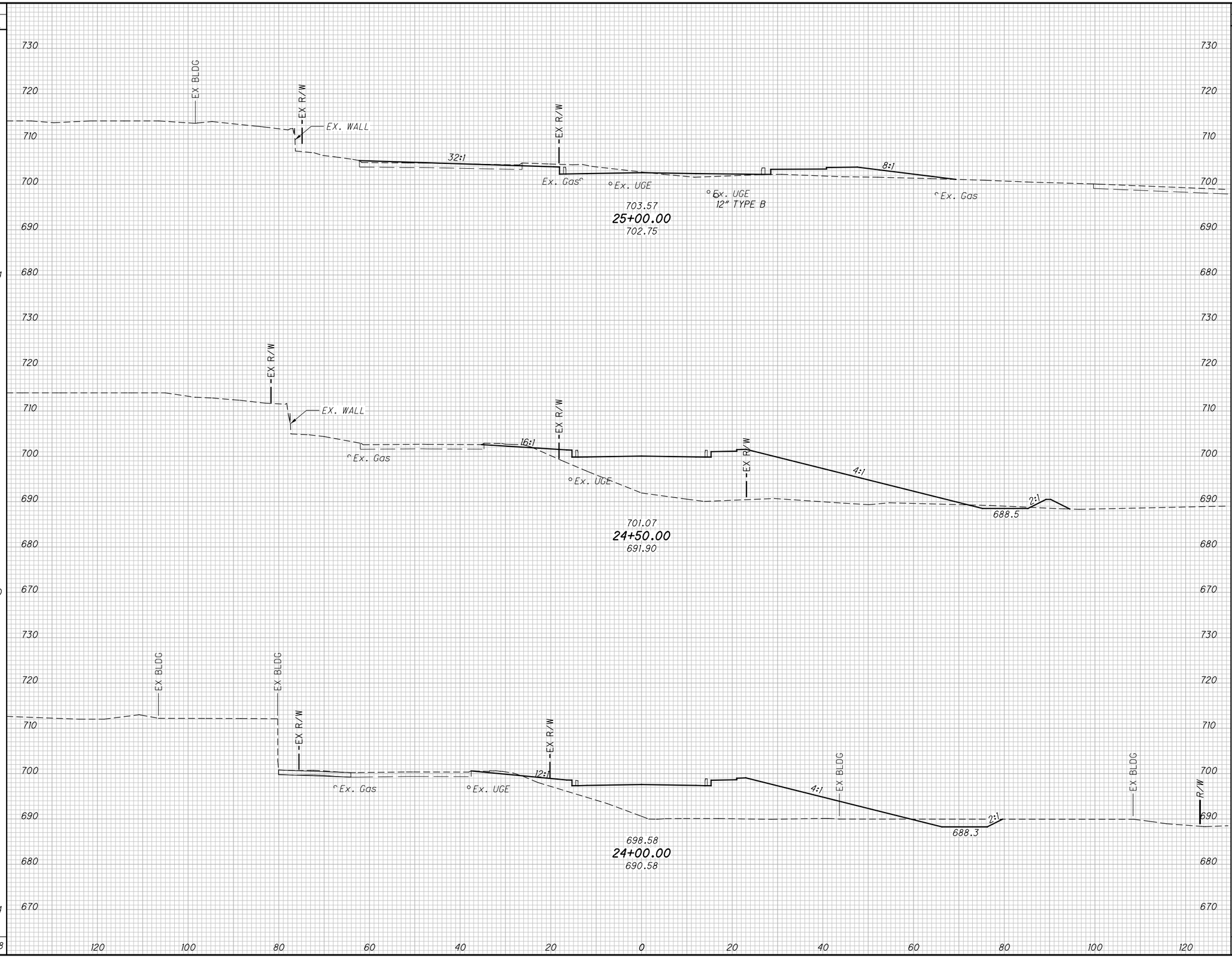
SEEDING	
END WIDTH	SQ. YDS.
78	494
100	520
87	494
	1508



END AREA	
CUT	FILL
29	67
15	596
29	425

VOLUME	
CUT	FILL
41	614
41	945
84	582
166	2141

CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 24+00.00 TO STA. 25+00.00

MUS-CR32-0.00

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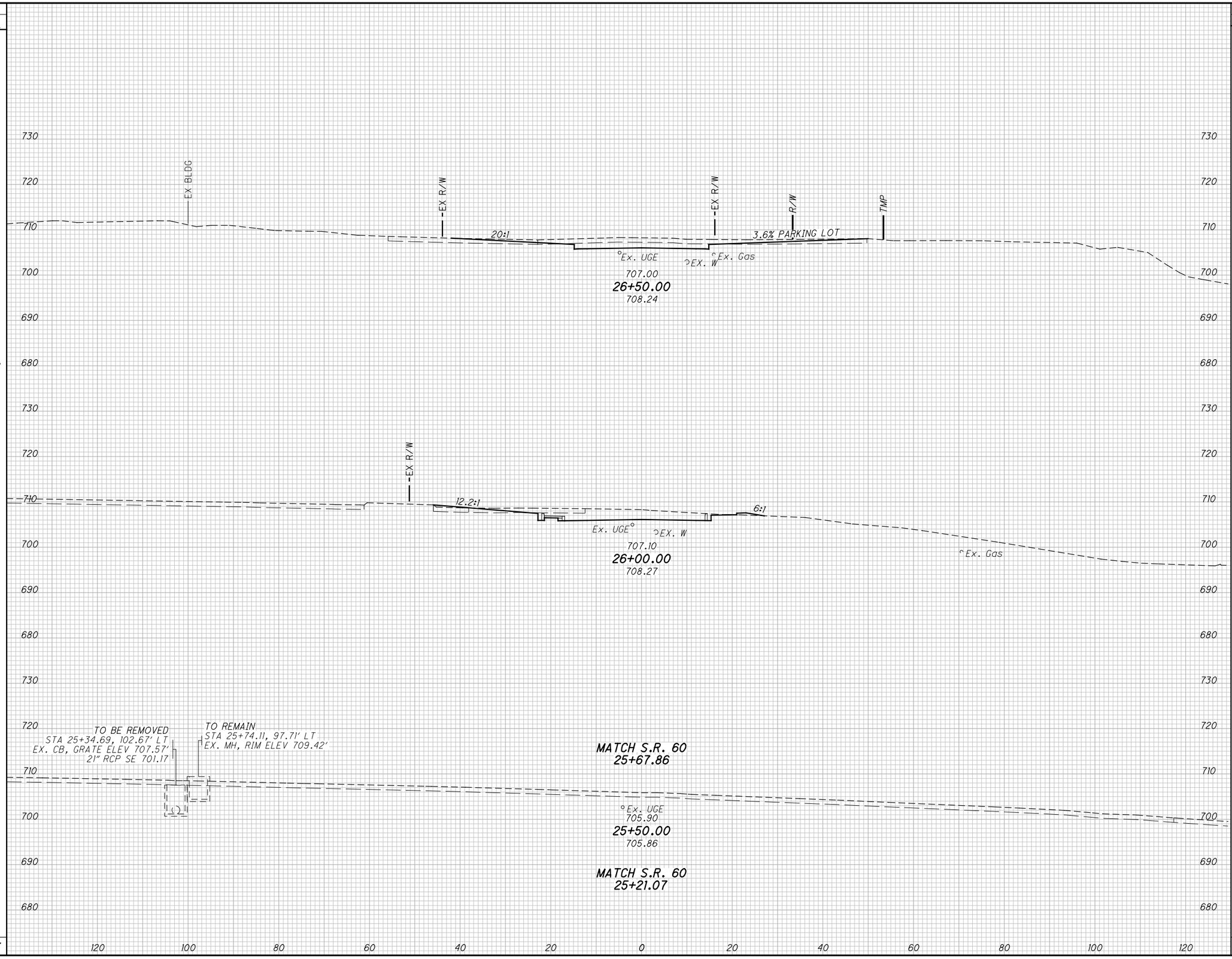
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
30	178	37	0	103	4
34	60	74	4	44	3
0	0	0	0	0	0
0	89	0	0	11	26
	327			158	33

CALCULATED MJC
CHECKED BBD



CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 25+50.00 TO STA. 26+50.00

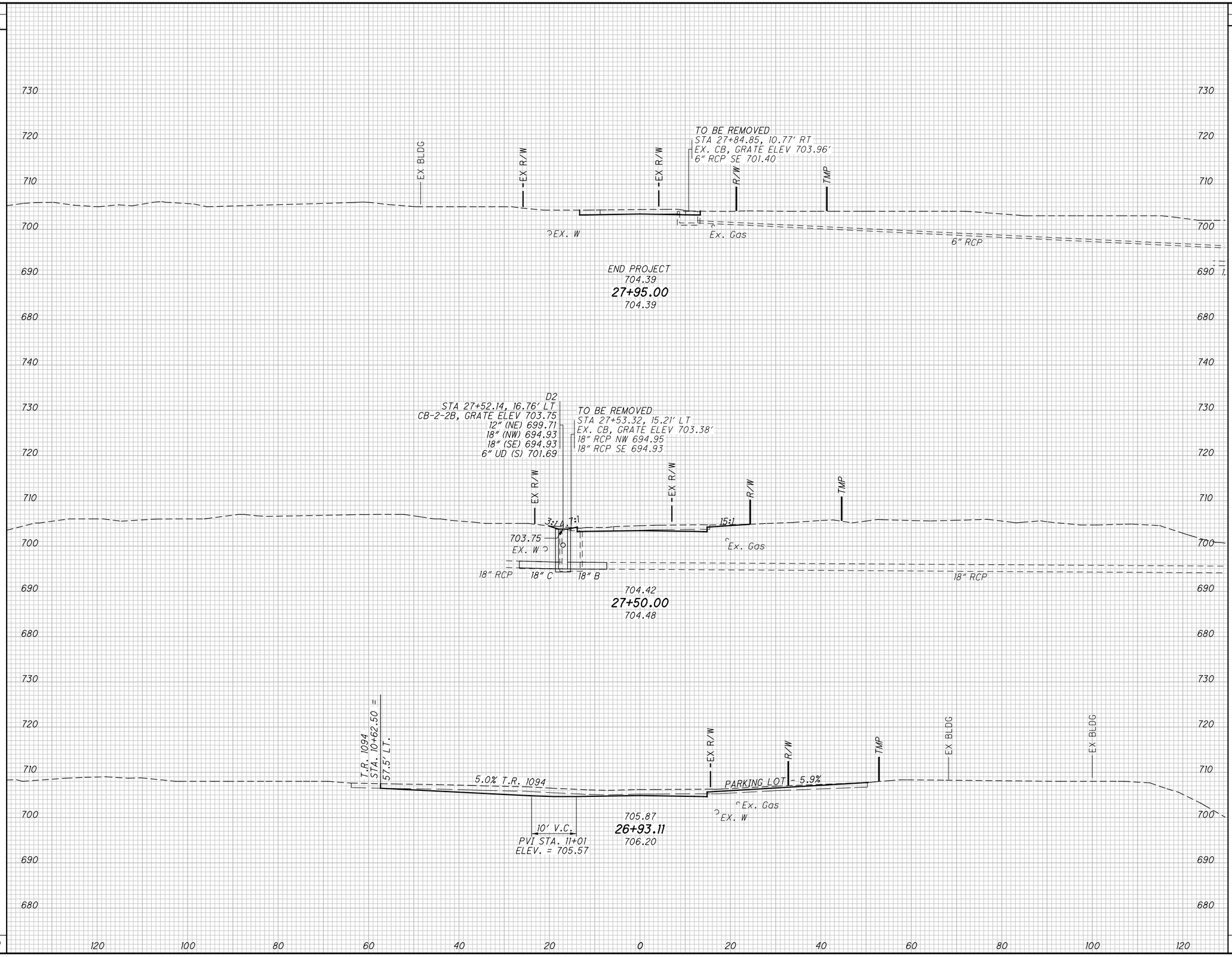
MUS-CR32-0.00

SEEDING	
END WIDTH	SQ. YDS.
6	70
	21
	68
	0
	72
	210

END AREA	
CUT	FILL
8	0
15	0
36	0

VOLUME	
CUT	FILL
19	0
54	0
58	0
131	0

CALCULATED MJC
CHECKED BBD



CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 26+93.11 TO STA. 27+95.00

MUS-CR32-0.00

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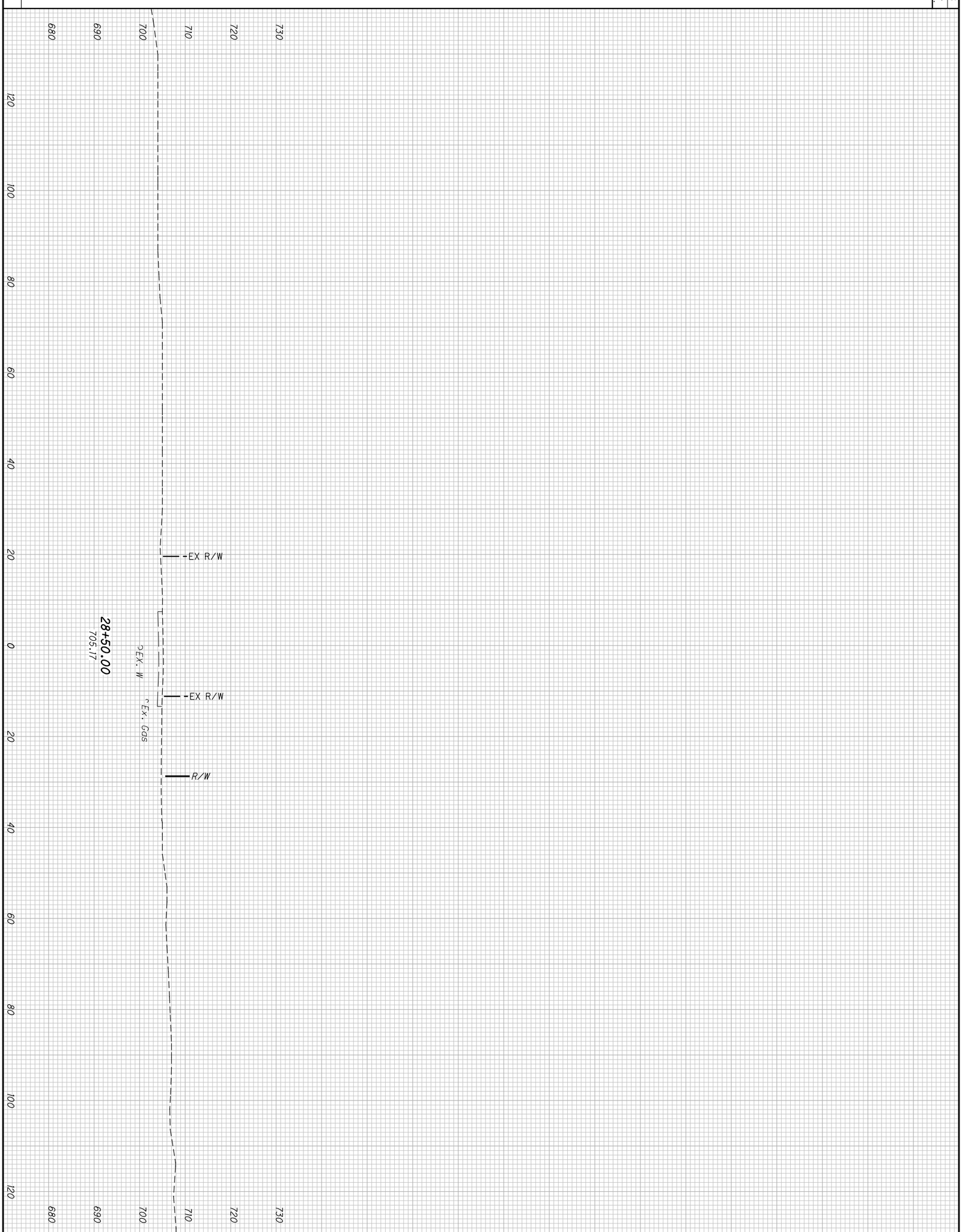
SEEDING	
END WIDTH	SQ. YDS.



END AREA	
CUT	FILL

VOLUME	
CUT	FILL

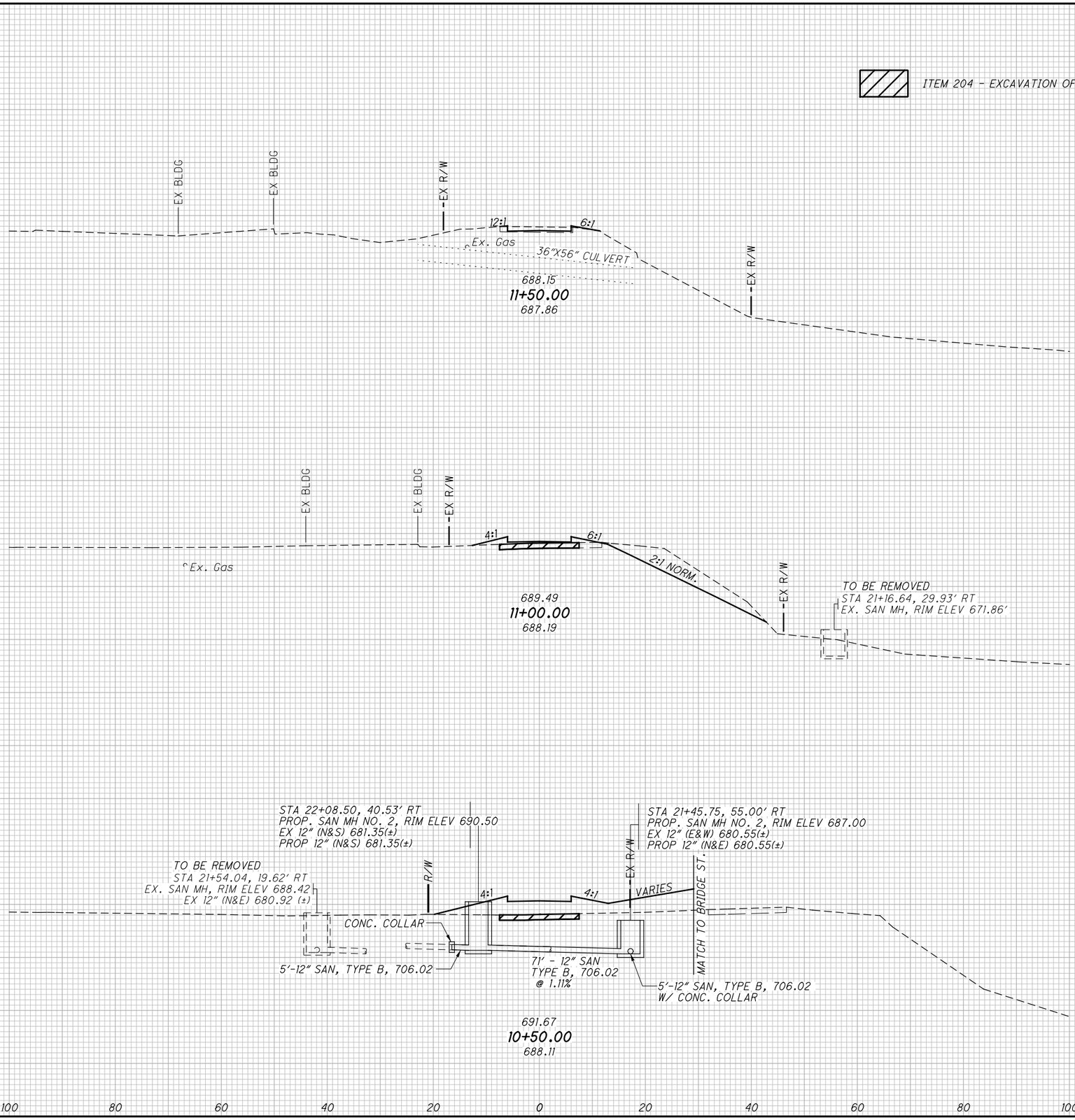
47
192

MUS-CR32-0.00

CROSS SECTIONS - C.R. 32 (BRIDGE ST.)
STA. 28+50.00

CALCULATED	
MJC	
CHECKED	
BBD	

SEEDING END WIDTH	SEEDING SQ. YDS.
10	172
51	261
41	0
	433



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	1	72	11
78	11	72	125
0	124	0	0
		144	136

CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - WATER ST (E) STA. 10+50.00 TO STA. 11+50.00

MUS-CR32-0.00

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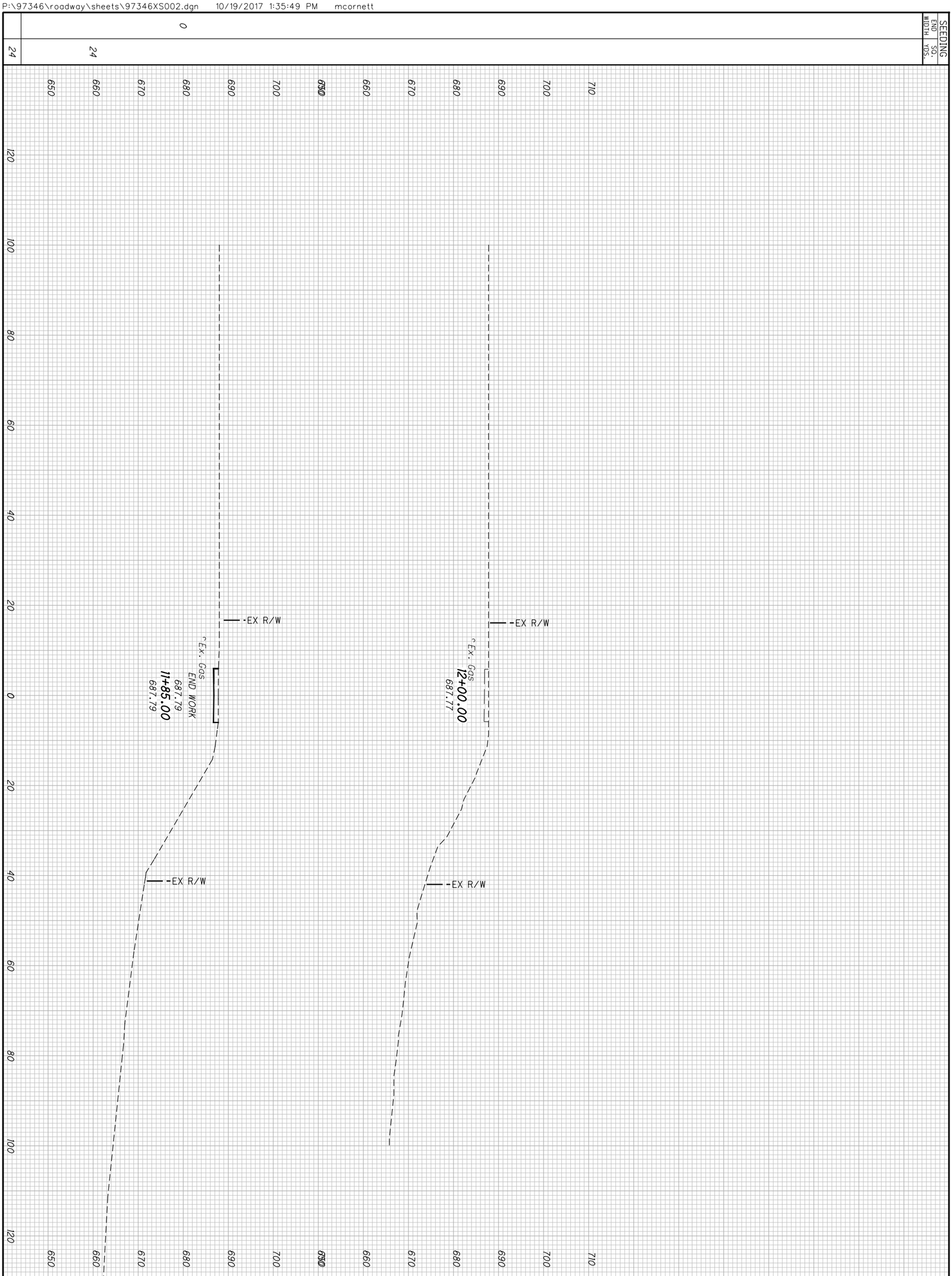

49 / 192	MUS-CR32-0.00	CROSS SECTIONS - WATER ST (E) STA. 11+85.00 TO STA. 12+00.00

CALCULATED MJC
CHECKED BBD

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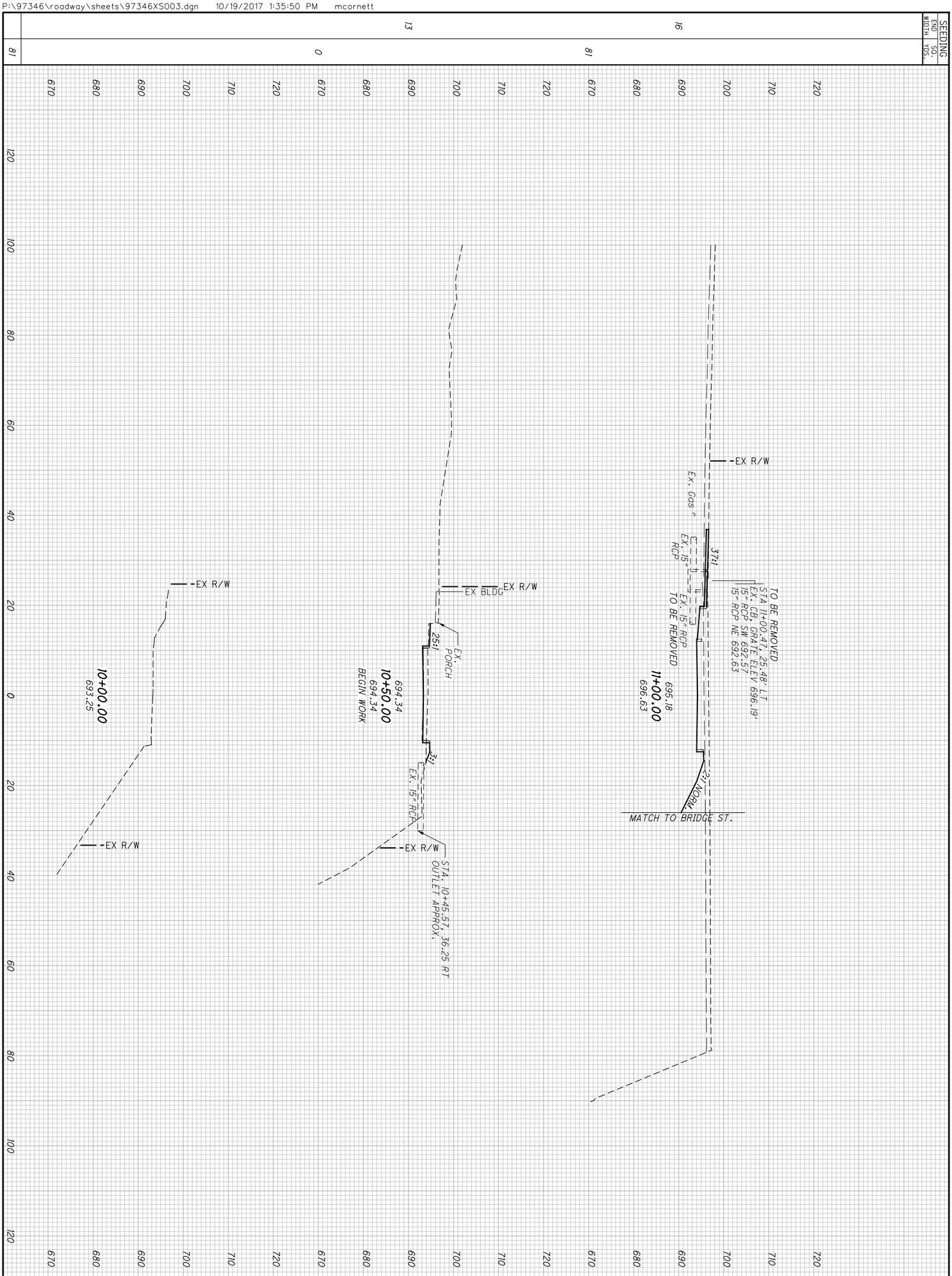
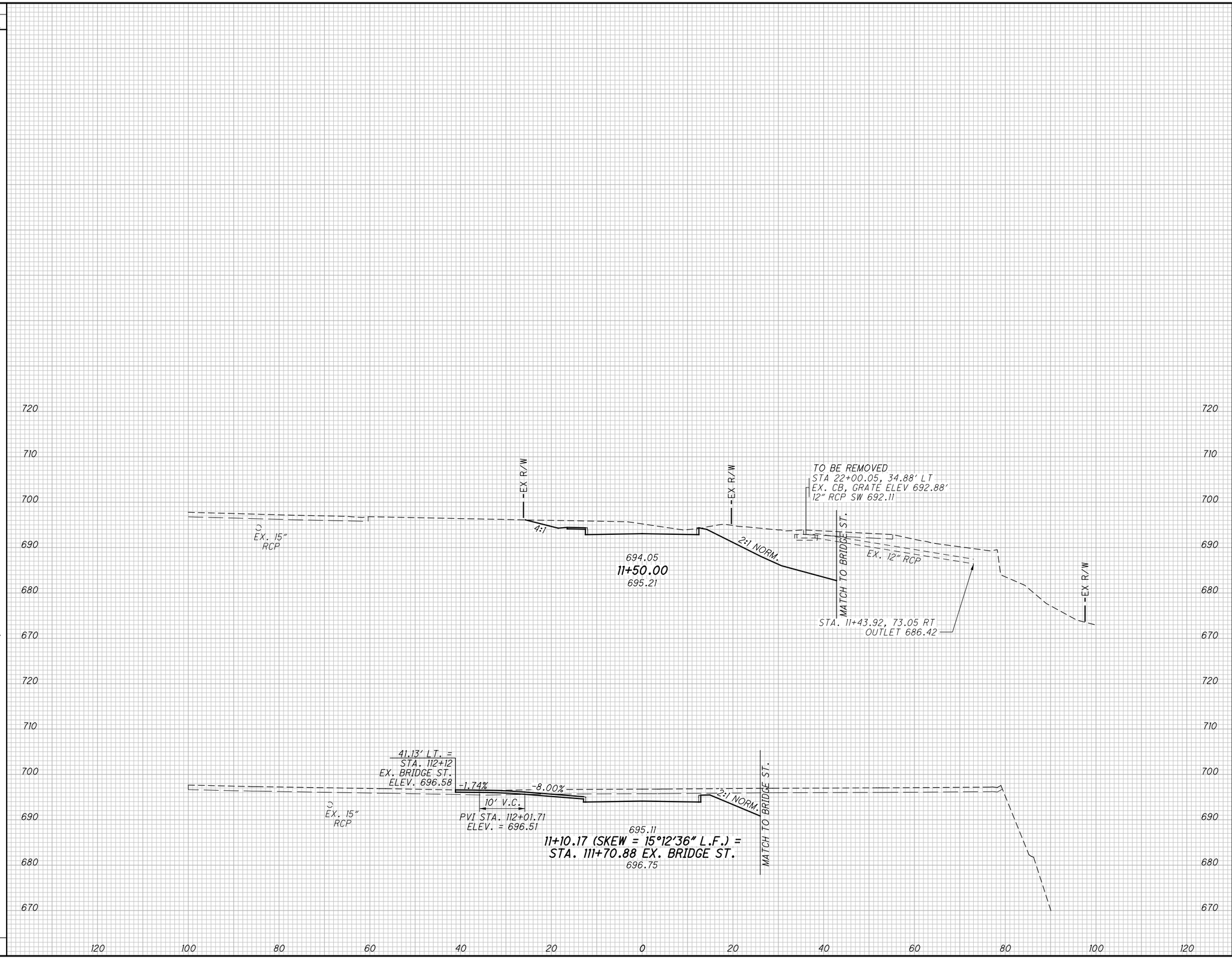


50 / 192	MUS-CR32-0.00

CROSS SECTIONS - WATER ST (W)
STA. 10+00.00 TO STA. 11+00.00

CALCULATED MJC
CHECKED BBD

SEEDING	
END WIDTH	SQ. YDS.
	44
	133
	16
	18
	151



END AREA	
CUT	FILL
243	0
237	0
78	0
30	0
267	0

VOLUME	
CUT	FILL

CALCULATED MJC
CHECKED BBD

CROSS SECTIONS - WATER ST (W)
STA. 11+10.17 TO STA. 11+50.00

MUS-CR32-0.00

CURVE DATA FOR RADIUS RETURNS		
LOCATION	C.R. 32	C.R. 6
A	Sta. 10+43.67, 62.00′ Rt.	Sta. 50+39.07, 63.84′ Rt.
B	Sta. 10+43.67, 12.00′ Rt.	Sta. 50+85.37, 44.97′ Rt.
C	Sta. 9+97.13, 43.73′ Rt.	Sta. 50+38.43, 13.84′ Rt.

NOTE:
ELEVATIONS ALONG THE CURB ARE AT THE FACE OF CURB, OR EDGE OF PAVEMENT IF NO CURB IS PRESENT.

Sta. 10+73.29, 49′ Lt. ℄ C.R. 32
Sta. 51+43.03, 49.38′ Lt. ℄ C.R. 6
Δ = 109° 18′ 47″
R = 37.00′
L = 70.59′

Sta. 10+36.65, 58′ Lt. ℄ C.R. 32
Sta. 50+40.12, 55.83′ Lt. ℄ C.R. 6
Δ = 68° 33′ 43″
R = 40.00′
L = 47.87′

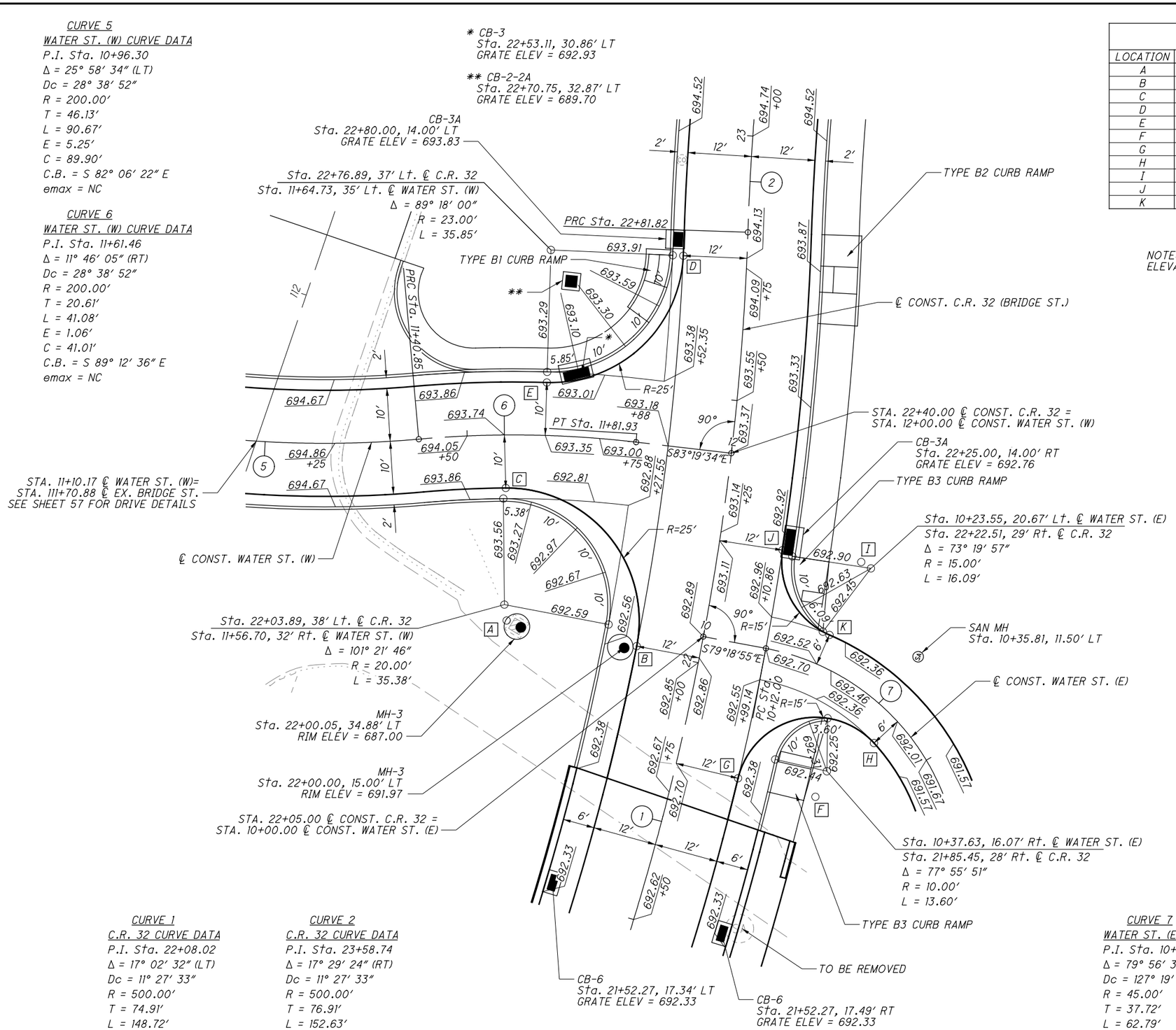
℄ EX. C.R. 32 (BRIDGE ST.)
℄ CONST. C.R. 32 (BRIDGE ST.)
N 18° 55′ 24″ E
EX. PAVEMENT TO BE REMOVED
SAWCUT LINE
℄ CONST. C.R. 6 & FRONT ST.
N 48° 54′ 18″ W
R=50′
68° 32′ 57″
67°49′43″
112°10′17″
TAPER CURB HEIGHT 6″ TO 0″ OVER 6′
1.16′
7.87′
EX. 696.16 +98.30-CR6
+51.19-CR6
EX. 696.56
EX. 696.94
EX. 697.10
EX. 697.34
EX. 698.06
EX. 696.38
EX. 697.69
7.6′
12.7′
97.2′
65.8′
12.4′
47.0′
13.8′
10.59′
POT Sta. 52+49.61
POT Sta. 100+00.00
POT Sta. 9+81.00
POT Sta. 50+00.00
STA. 10+00.00 ℄ CONST. C.R. 32 = STA. 50+80.00 ℄ C.R. 6 & FRONT ST.

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED MJT
CHECKED MJC

INTERSECTION DETAILS C.R. 32 & C.R. 6

MUS-CR32-0.00



CURVE DATA FOR RADIUS RETURNS		
LOCATION	C.R. 32	WATER ST.
A	Sta. 22+00.80, 37.00' Lt.	Sta. 11+57.20, 35.00' Rt.
B	Sta. 22+00.80, 12.00' Lt.	Sta. 11+86.51, 38.22' Rt.
C	Sta. 22+27.52, 41.36' Lt.	Sta. 11+57.02, 10.00' Rt.
D	Sta. 22+76.89, 12.00' Lt.	Sta. 11+86.68, 35.97' Lt.
E	Sta. 22+49.94, 36.02' Lt.	Sta. 11+64.73, 10.00' Lt.
F	Sta. 21+80.53, 27.00' Rt.	Sta. 10+40.89, 21.00' Rt.
G	Sta. 21+80.53, 12.00' Rt.	Sta. 10+11.38, 25.04' Rt.
H	Sta. 21+92.15, 35.53' Rt.	Sta. 10+40.89, 6.00' Rt.
I	Sta. 22+23.37, 27.00' Rt.	Sta. 10+22.07, 21.00' Lt.
J	Sta. 22+23.37, 12.00' Rt.	Sta. 10+11.65, 18.80' Lt.
K	Sta. 22+09.52, 23.34' Rt.	Sta. 10+22.07, 6.00' Lt.

NOTE:
ELEVATIONS ALONG THE CURB ARE AT THE FACE OF CURB.

CURVE 5
WATER ST. (W) CURVE DATA
P.I. Sta. 10+96.30
Δ = 25° 58' 34" (LT)
Dc = 28° 38' 52"
R = 200.00'
T = 46.13'
L = 90.67'
E = 5.25'
C = 89.90'
C.B. = S 82° 06' 22" E
emax = NC

CURVE 6
WATER ST. (W) CURVE DATA
P.I. Sta. 11+61.46
Δ = 11° 46' 05" (RT)
Dc = 28° 38' 52"
R = 200.00'
T = 20.61'
L = 41.08'
E = 1.06'
C = 41.01'
C.B. = S 89° 12' 36" E
emax = NC

CURVE 1
C.R. 32 CURVE DATA
P.I. Sta. 22+08.02
Δ = 17° 02' 32" (LT)
Dc = 11° 27' 33"
R = 500.00'
T = 74.91'
L = 148.72'
E = 5.58'
C = 148.17'
C.B. = N 10° 24' 09" E
emax = NC

CURVE 2
C.R. 32 CURVE DATA
P.I. Sta. 23+58.74
Δ = 17° 29' 24" (RT)
Dc = 11° 27' 33"
R = 500.00'
T = 76.91'
L = 152.63'
E = 5.88'
C = 152.04'
C.B. = N 10° 37' 35" E
emax = NC

CURVE 7
WATER ST. (E) CURVE DATA
P.I. Sta. 10+49.72
Δ = 79° 56' 35" (RT)
Dc = 127° 19' 26"
R = 45.00'
T = 37.72'
L = 62.79'
E = 13.72'
C = 57.82'
C.B. = S 39° 20' 37" E
emax = NC

HORIZONTAL SCALE IN FEET
0 5 10 20
CALCULATED MJT
CHECKED MJC

INTERSECTION DETAILS
C.R. 32 & WATER ST.

MUS-CR32-0.00

53
192

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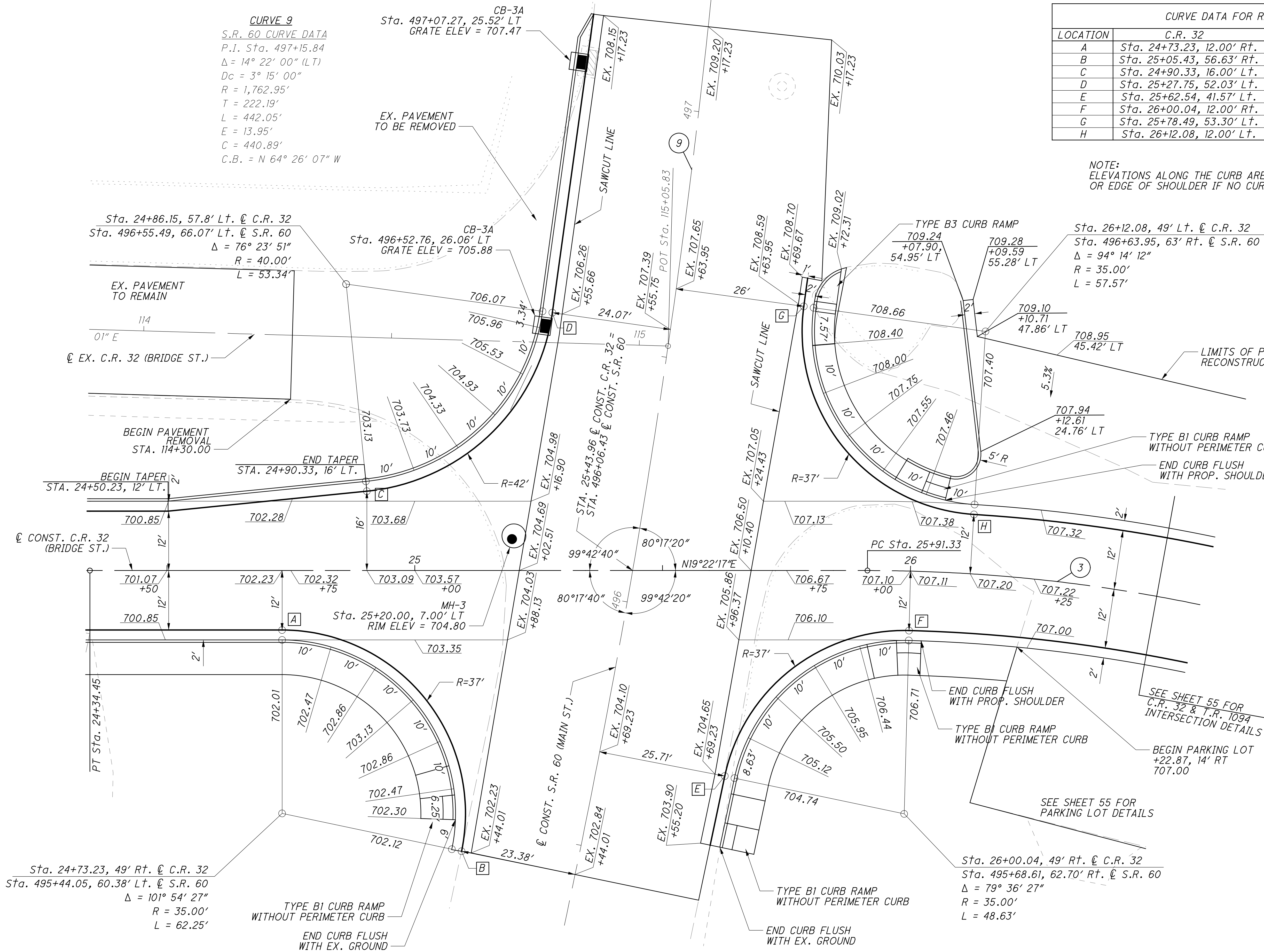
INTERSECTION DETAILS
C.R. 32 & S.R. 60

CURVE DATA FOR RADIUS RETURNS		
LOCATION	C.R. 32	S.R. 60
A	Sta. 24+73.23, 12.00′ Rt.	Sta. 495+81.72, 67.52′ Lt.
B	Sta. 25+05.43, 56.63′ Rt.	Sta. 495+43.94, 23.38′ Lt.
C	Sta. 24+90.33, 16.00′ Lt.	Sta. 496+13.38, 55.55′ Lt.
D	Sta. 25+27.75, 52.03′ Lt.	Sta. 496+55.66, 24.07′ Lt.
E	Sta. 25+62.54, 41.57′ Lt.	Sta. 495+69.23, 25.71′ Rt.
F	Sta. 26+00.04, 12.00′ Rt.	Sta. 496+03.97, 57.01′ Rt.
G	Sta. 25+78.49, 53.30′ Lt.	Sta. 496+63.95, 26.00′ Rt.
H	Sta. 26+12.08, 12.00′ Lt.	Sta. 496+28.38, 66.11′ Rt.

NOTE:
ELEVATIONS ALONG THE CURB ARE AT THE FACE OF CURB OR EDGE OF SHOULDER IF NO CURB IS PRESENT.



CURVE 3
C.R. 32 CURVE DATA
P.I. Sta. 26+63.92
Δ = 24° 48′ 40″ (RT)
Dc = 17° 21′ 44″
R = 330.00′
T = 72.59′
L = 142.90′
E = 7.89′
C = 141.79′
C.B. = N 31° 46′ 37″ E
emax = NC

HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED MJT CHECKED MJC

MUS-CR32-0.00

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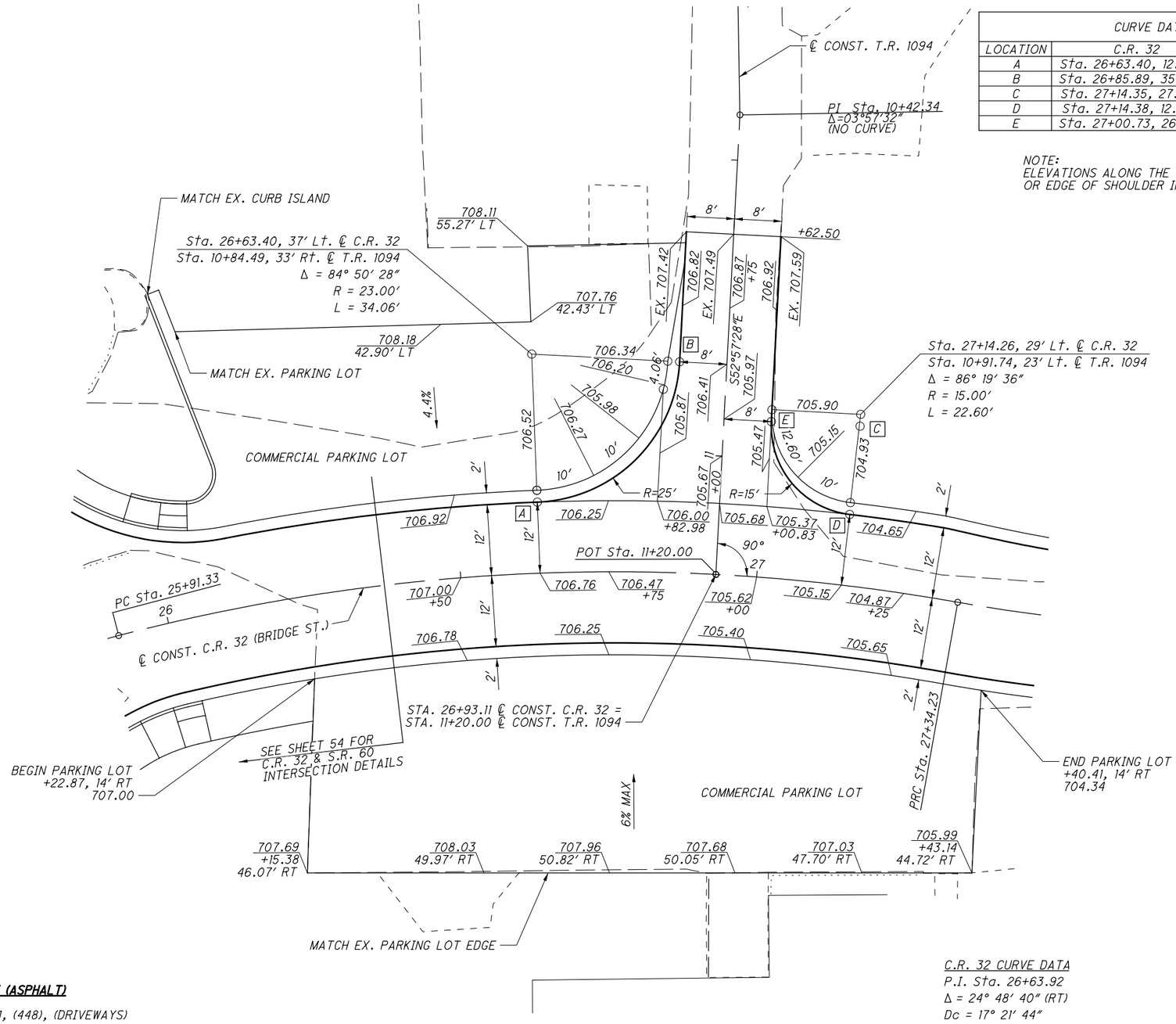


CURVE DATA FOR RADIUS RETURNS		
LOCATION	C.R. 32	T.R. 1094
A	Sta. 26+63.40, 12.00' Lt.	Sta. 11+09.39, 30.75' Rt.
B	Sta. 26+85.89, 35.60' Lt.	Sta. 10+84.49, 8.00' Rt.
C	Sta. 27+14.35, 27.00' Lt.	Sta. 10+93.74, 23.00' Lt.
D	Sta. 27+14.38, 12.00' Lt.	Sta. 11+08.71, 22.03' Lt.
E	Sta. 27+00.73, 26.35' Lt.	Sta. 10+93.74, 8.00' Lt.

NOTE:
ELEVATIONS ALONG THE CURB ARE AT THE FACE OF CURB OR EDGE OF SHOULDER IF NO CURB IS PRESENT.

COMMERCIAL PARKING LOT AND DRIVE PAVEMENT (ASPHALT)

ITEM 441 - 1.25" AC SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)

ITEM 407 - TACK COAT

ITEM 301 - 5" ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)

C.R. 32 CURVE DATA
P.I. Sta. 26+63.92
Δ = 24° 48' 40" (RT)
Dc = 17° 21' 44"
R = 330.00'
T = 72.59'
L = 142.90'
E = 7.89'
C = 141.79'
C.B. = N 31° 46' 37" E
emax = NC

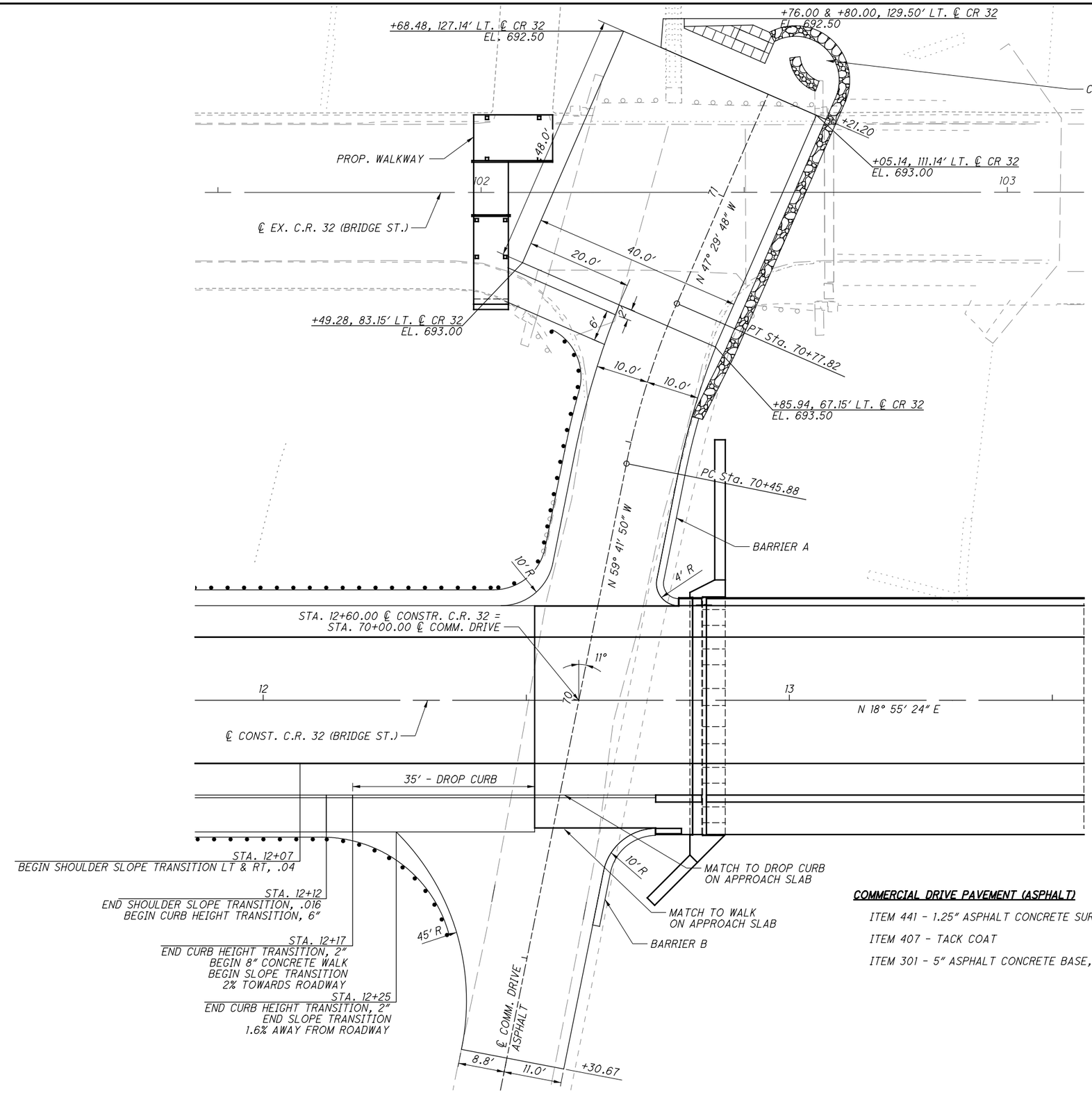
C.R. 32 CURVE DATA
P.I. Sta. 28+18.50
Δ = 34° 39' 56" (LT)
Dc = 21° 13' 14"
R = 270.00'
T = 84.26'
L = 163.36'
E = 12.84'
C = 160.88'
C.B. = N 26° 50' 59" E
emax = NC

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED MJT
CHECKED MJC

INTERSECTION & PARKING LOT DETAILS C.R. 32 & T.R. 1094

MUS-CR32-0.00



FOR COMMEMORATIVE DISPLAY AREA DETAILS, SEE SHEET 97-99.
FOR BARRIER DETAILS, SEE SHEET 65 & 66.

COMM. DRIVE CURVE DATA
P.I. Sta. 70+61.91
Δ = 12° 12' 02" (RT)
Dc = 38° 11' 50"
R = 150.00'
T = 16.03'
L = 31.94'
E = 0.85'
C = 31.88'
C.B. = N 53° 35' 49" W
emax = NC

COMMERCIAL DRIVE PAVEMENT (ASPHALT)

ITEM 441 - 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)

ITEM 407 - TACK COAT

ITEM 301 - 5" ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)

HORIZONTAL SCALE IN FEET
0 5 10 20
CALCULATED CDS
CHECKED MJC

DRIVE DETAILS
LOCK ACCESS DRIVE

MUS-CR32-0.00

56
192

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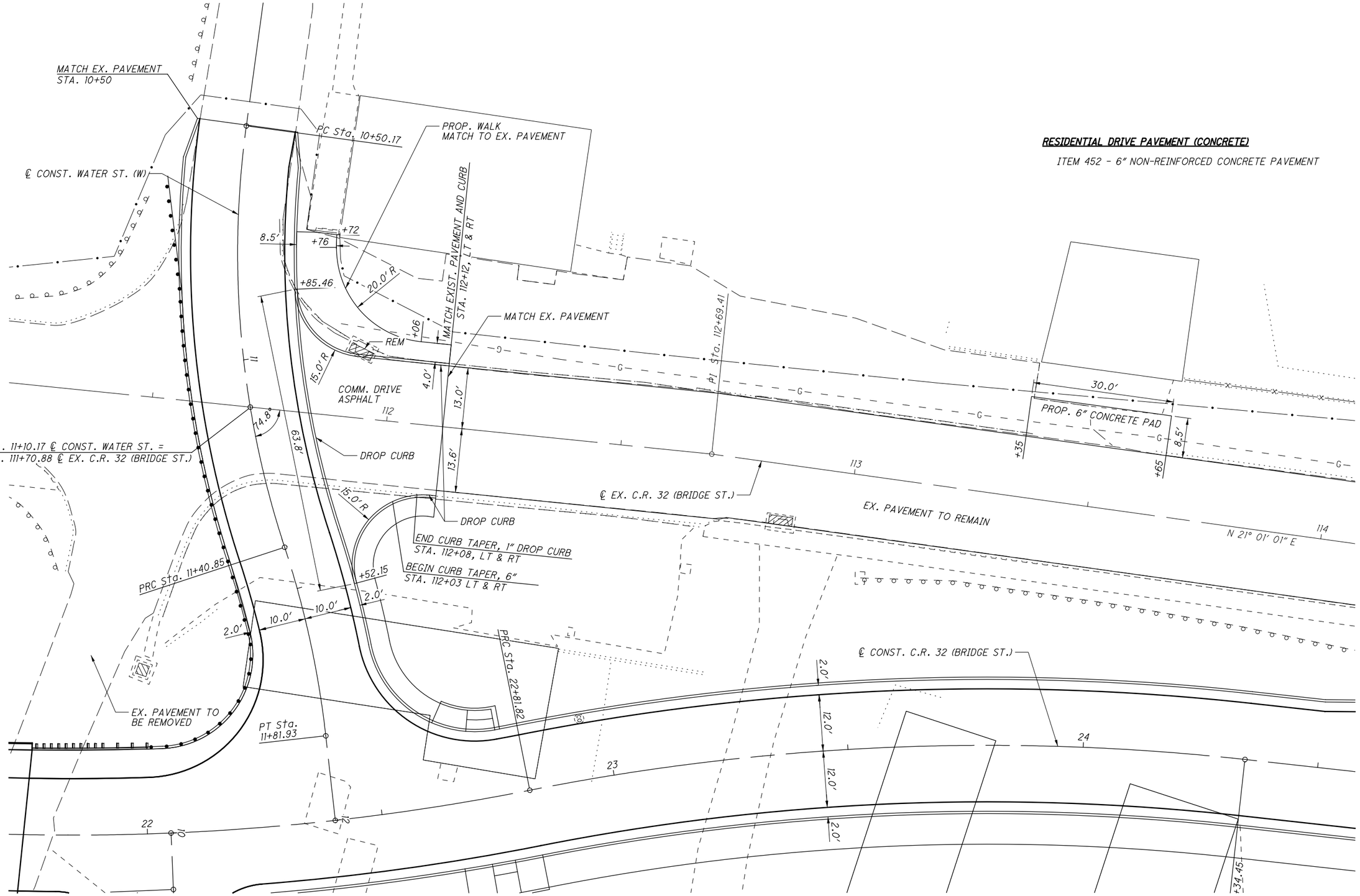

RESIDENTIAL DRIVE PAVEMENT (CONCRETE)

ITEM 452 - 6" NON-REINFORCED CONCRETE PAVEMENT

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED CDS
CHECKED MJC

DRIVE DETAILS
WATER ST. (W)

MUS-CR32-0.00

57
192

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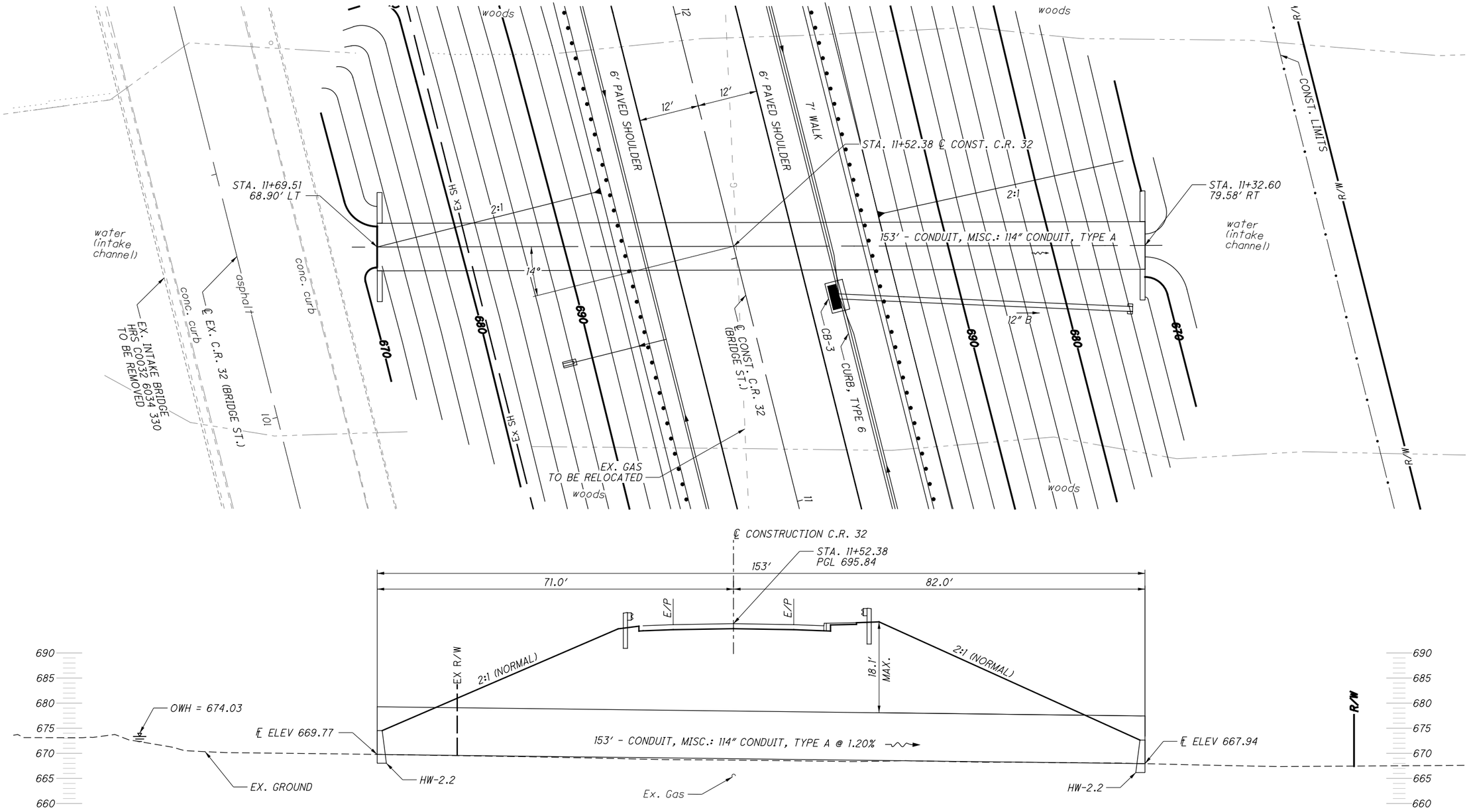


PROPOSED STRUCTURE	
TYPE:	114" CONDUIT
LENGTH:	153'
SKEW:	14° L.F.
WEARING SURFACE:	ASPHALT CONCRETE
pH:	7.2
SERVICE LIFE:	50 YEARS
NON-ABRASIVE	

ESTIMATED QUANTITIES CARRIED TO THE GENERAL SUMMARY

ITEM	QUANTITY	UNIT	DESCRIPTION
503	1,700	CU YD	UNCLASSIFIED EXCAVATION, AS PER PLAN
602	15.6	CU YD	CONCRETE MASONRY
611	153	FT	CONDUIT, MISC.: 114" CONDUIT, TYPE A, 707.02 METALLIC COATED (GALVANIZED) WITH CONCRETE INVERT PAVING (0.109 MM) or TYPE 707.02 METALLIC COATED (ALUMINIZED) or TYPE 707.03 METALLIC COATED (GALVANIZED) WITH CONCRETE INVERT PAVING (0.218 MM)

ITEM 503 UNCLASSIFIED EXCAVATION, AS PER PLAN

REMOVE ANY UNSUITABLE SOILS AS DIRECTED BY THE PROJECT ENGINEER. MAINTAIN A STABLE AND DRY CONDITION TO MAINTAIN THE BEDDING OF THE CONDUIT. INCLUDED IN THE **BID PRICE OF** ITEM 503 UNCLASSIFIED EXCAVATION, AS PER PLAN IS THE EXCAVATION AND BACKFILL AS PER 611.05, COFFERDAMS, LABOR, AND ANY EQUIPMENT NEEDED.

ITEM 611 CONDUIT, MISC.: 114" CONDUIT, TYPE A

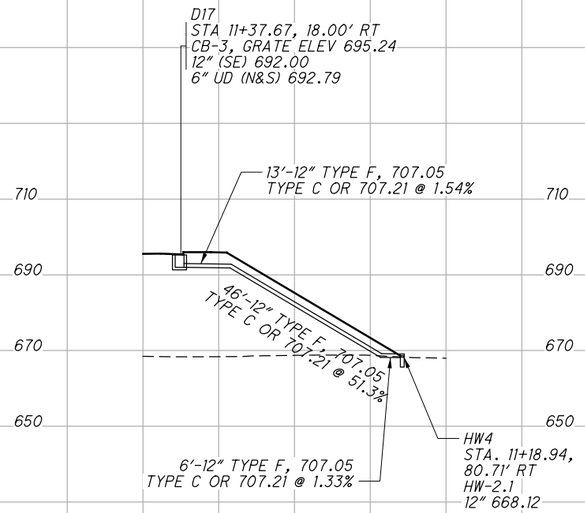
THE CONTRACTOR SHALL CONSTRUCT A 114" DIAMETER CONDUIT OF THE MATERIAL TYPE SPECIFIED. THE CONDUIT SIZE SHALL NOT BE INCREASED. ALL OTHER REQUIREMENTS OF ITEM 611 SHALL BE FOLLOWED.

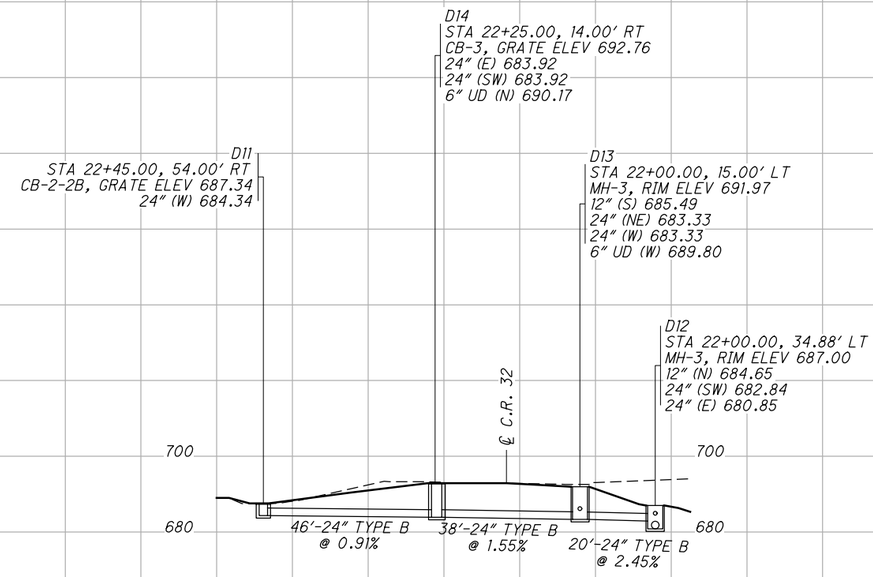
HORIZONTAL SCALE IN FEET
0 5 10 20

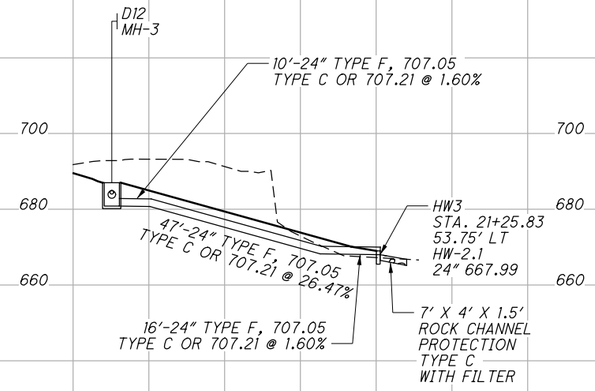
CALCULATED CDS
CHECKED MJC

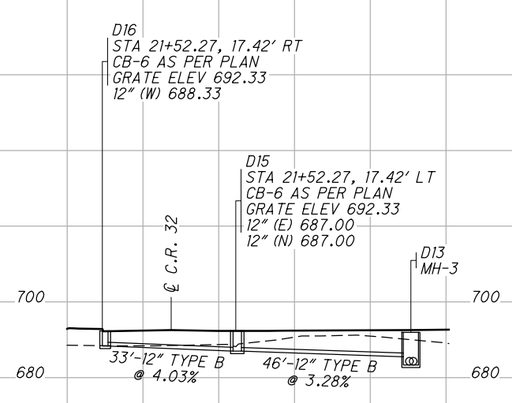
CULVERT DETAIL
C.R. 32 - STA. 11+52.38

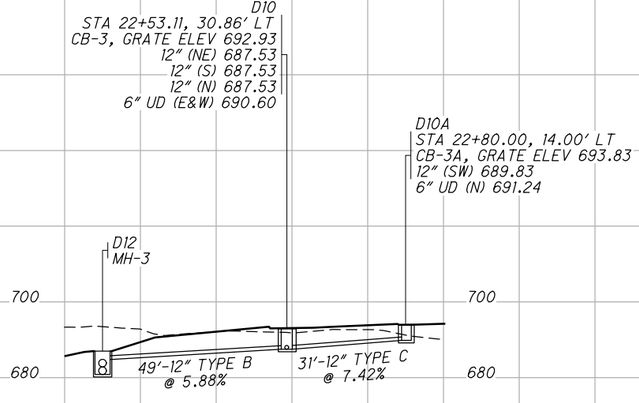
MUS-CR32-0.00

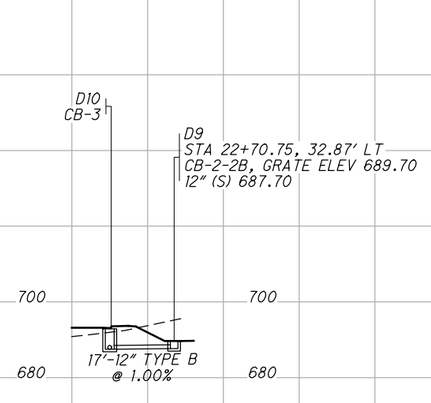








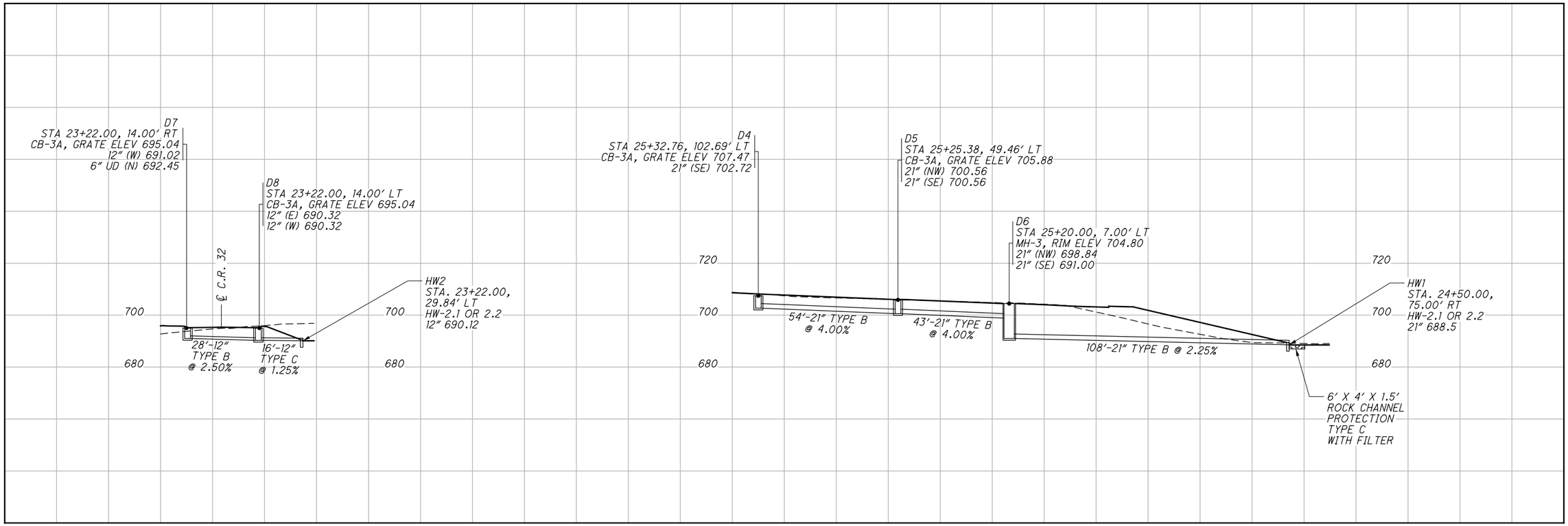


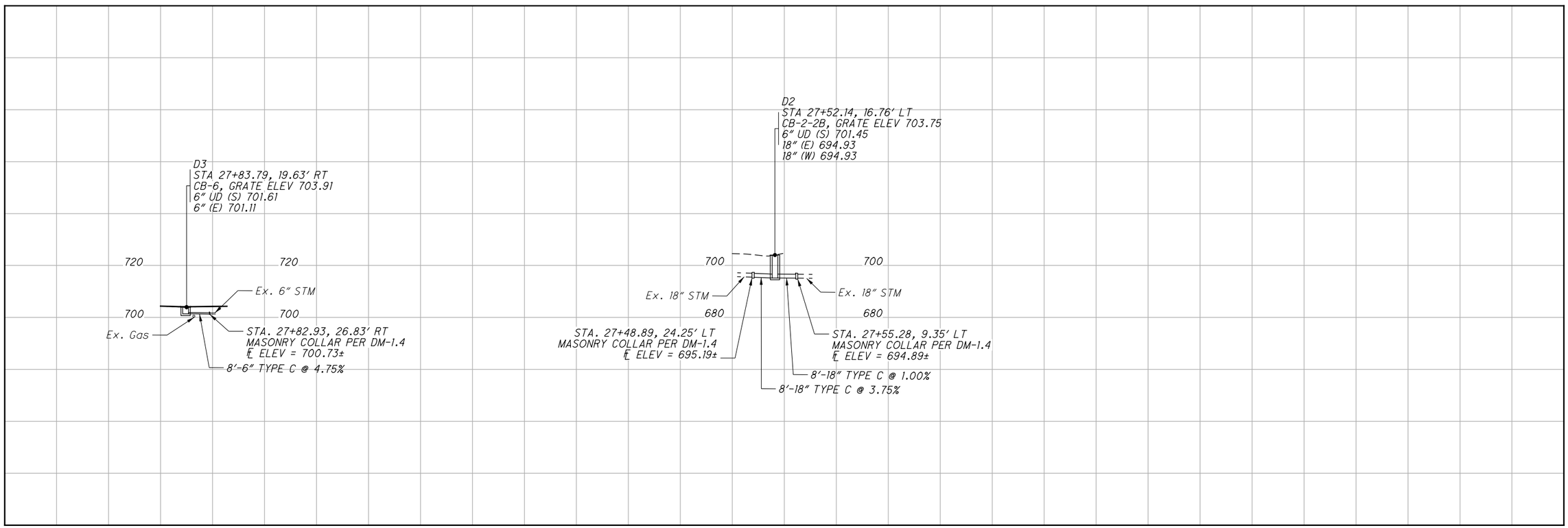


CALCULATED AAW
CHECKED ENB

STORM SEWER PROFILES

MUS-CR32-0.00

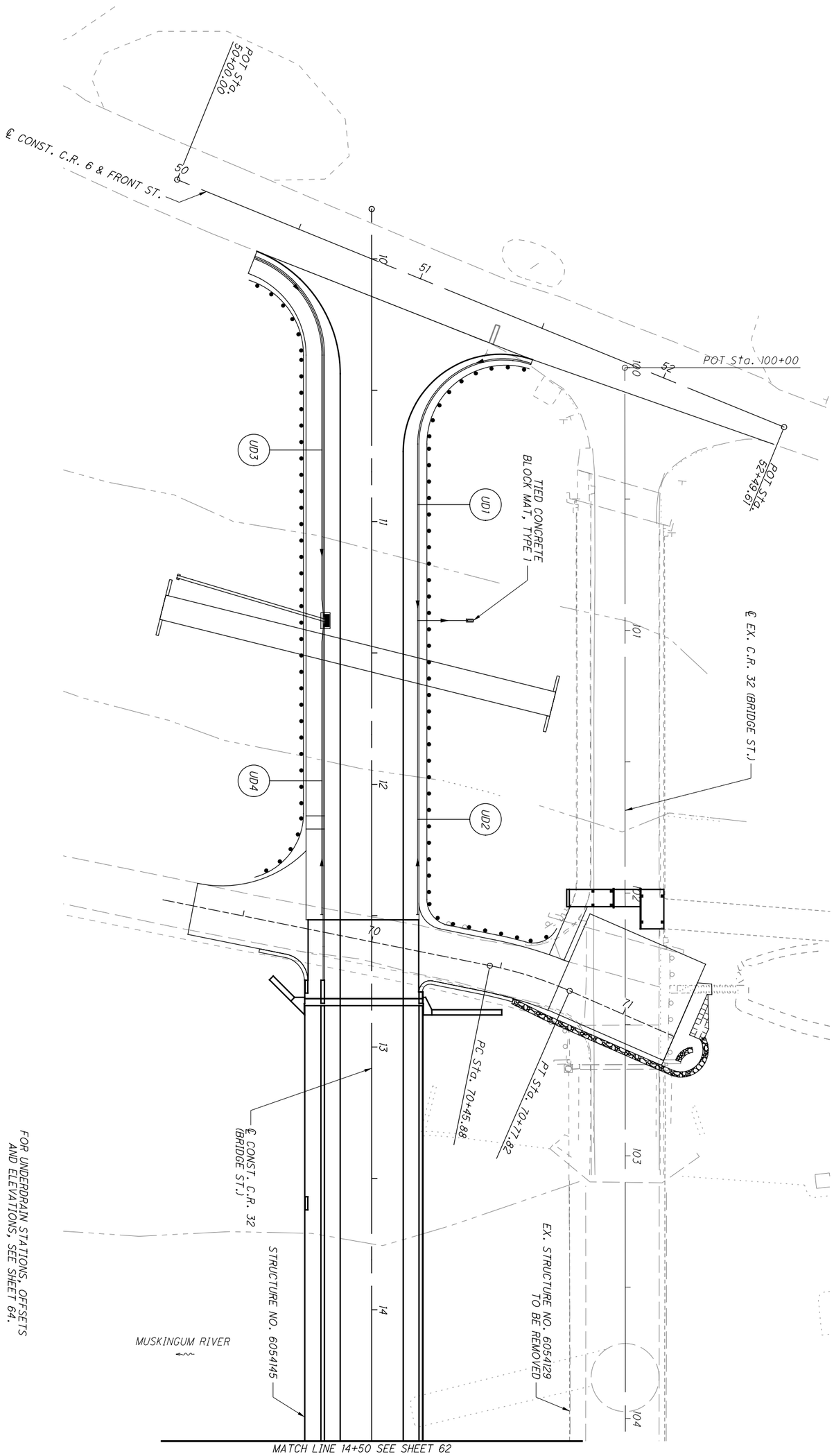




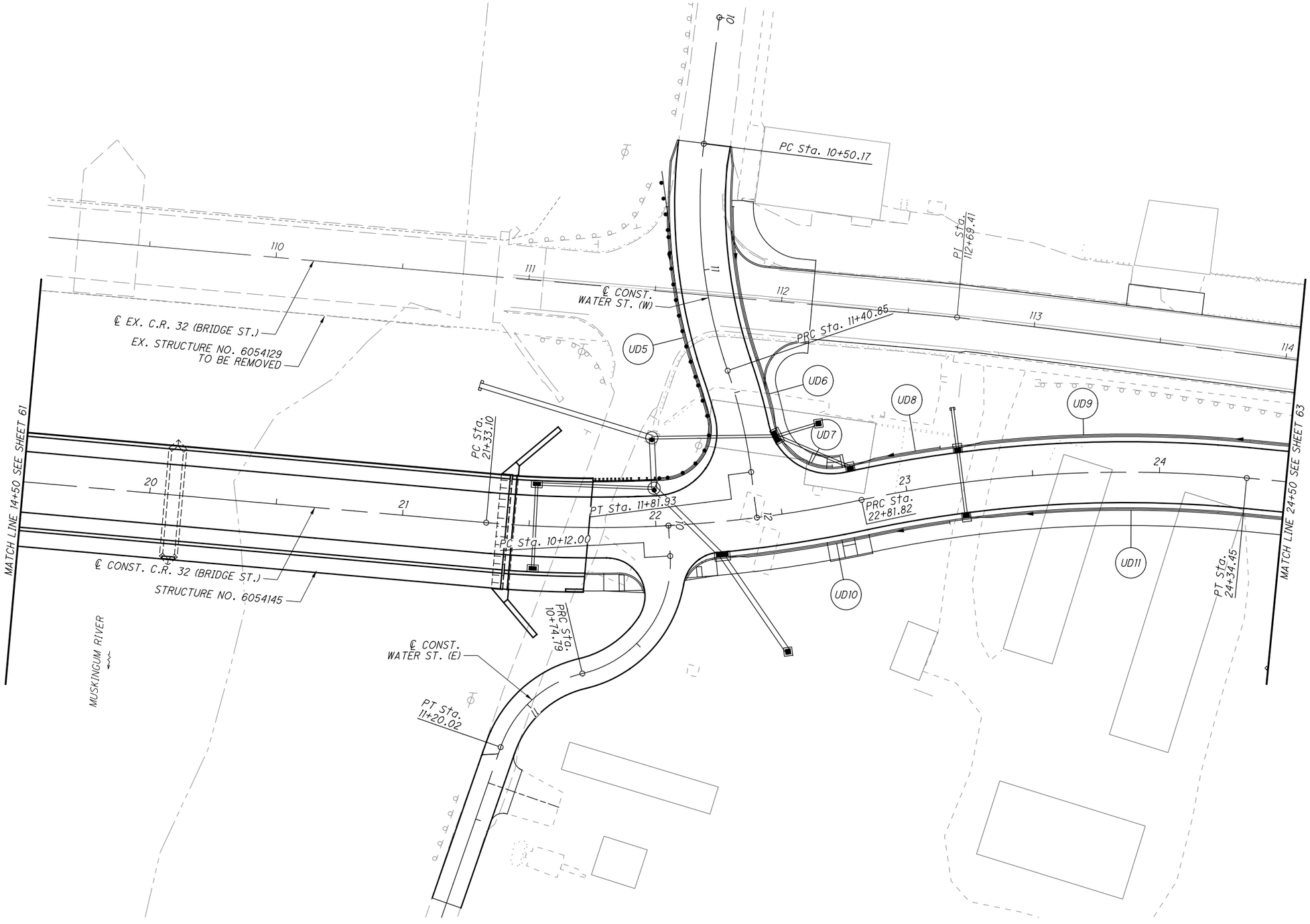
CALCULATED AAW
CHECKED ENB

STORM SEWER PROFILES

MUS-CR32-0.00



61 / 192	MUS-CR32-0.00	UNDERDRAIN DETAILS STA. 10+00 TO STA. 14+50	CALCULATED CDS / CHECKED MJC	0 10 20 40 HORIZONTAL SCALE IN FEET



FOR UNDERDRAIN STATIONS, OFFSETS AND ELEVATIONS, SEE SHEET 64.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CDS
CHECKED MJC

UNDERDRAIN DETAILS
STA. 19+50 TO STA. 24+50

MUS-CR32-0.00

62
192

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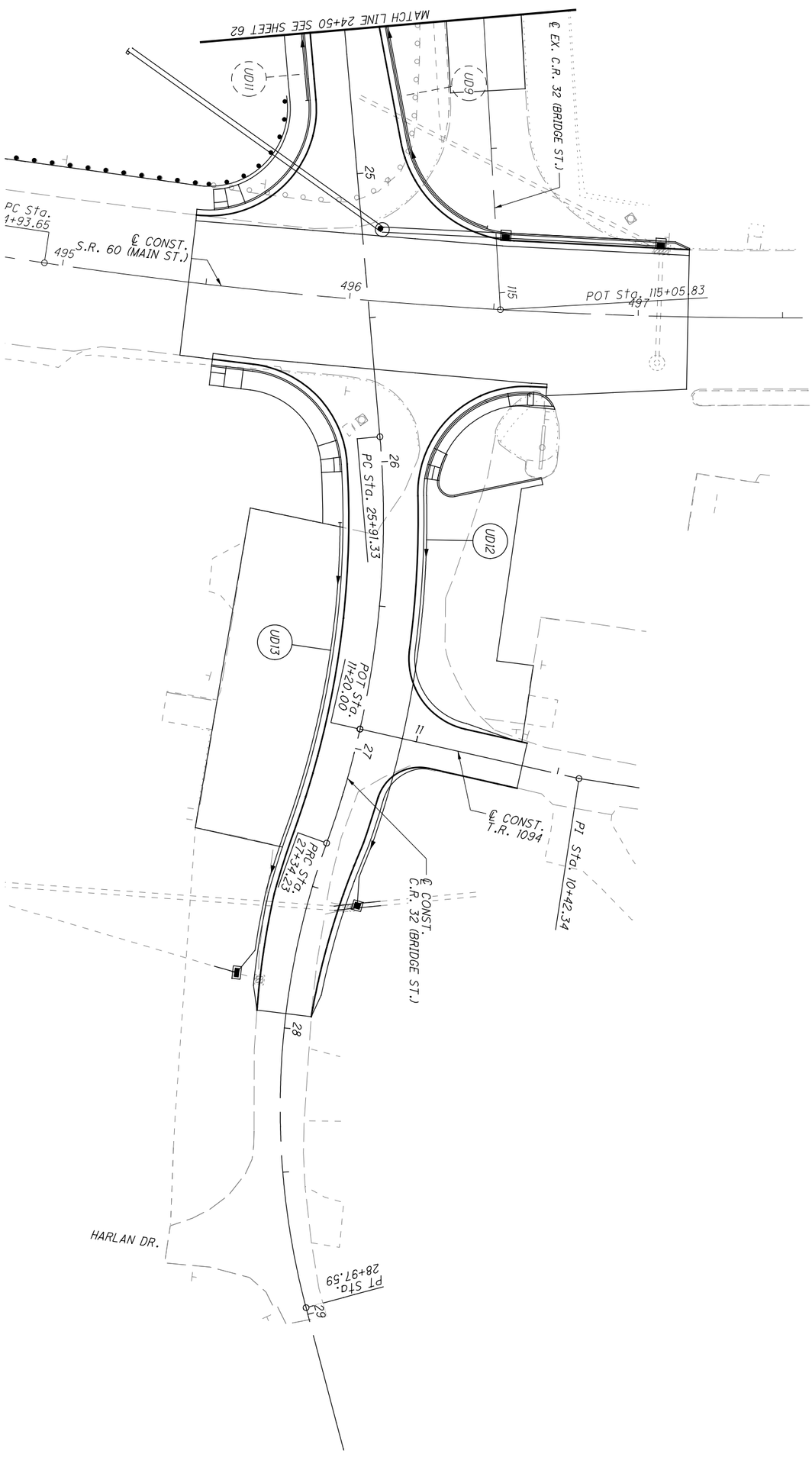

FOR UNDERDRAIN STATIONS, OFFSETS AND ELEVATIONS, SEE SHEET 64.

63 / 192	MUS-CR32-0.00	**UNDERDRAIN DETAILS** **STA. 24+50 TO STA. 27+95**	CALCULATED CDS CHECKED MJC	0 10 20 40 HORIZONTAL SCALE IN FEET

SHEET NO.	REFERENCE NO.	ROADWAY	FROM STATION	FROM SIDE	FROM OFFSET	FROM INVERT	TO STATION	TO SIDE	TO OFFSET	TO INVERT	OUTLET TYPE	601 TIED CONCRETE BLOCK MAT, TYPE 1		605 6" SHALLOW PIPE UNDERDRAINS		611 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS		611 PRECAST REINFORCED CONCRETE OUTLET	BENDS AND BRANCHES (FOR INFORMATION ONLY) PLUG	TEE	45° WYE	CROSS	90° BEND	30° BEND	15° BEND
			FROM	LT/RT	FT	FT	TO	LT/RT	FT	FT		SY		FT		FT		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
61	UD1	C.R.32	10+39.79	LT	60.74	693.60	11+37.67	LT	36.50	692.61	OUTLET	1.8		130		19		1	1	1					
61	UD2	C.R.32	11+37.67	LT	18.00	692.79	12+49.60	LT	18.00	693.93	UD1			112					1						
61	UD3	C.R.32	9+99.92	RT	44.82	694.94	11+37.67	RT	18.00	692.79	CB (D17)			139		10			1						
61	UD4	C.R.32	11+37.67	RT	18.00	692.79	12+49.60	RT	18.00	693.93	CB (D17)			102		10			1						
62	UD5	WATER ST (W)	10+50.00	RT	12.50	691.74	11+83.45	RT	38.76	689.80	MH (D13)			120		5			1					1	
62	UD6	WATER ST (W)	10+50.00	LT	12.50	692.04	11+69.84	LT	12.69	690.60	CB (D10)			83		10			1						
62	UD7	WATER ST (W)	11+69.84	LT	12.69	690.60	11+83.64	LT	32.02	691.31	CB (D10)			16		10			1						
62	UD8	C.R.32	22+80.00	LT	14.00	691.24	23+15.45	LT	14.00	692.24	CB (D10A)			27		10			1						
62-63	UD9	C.R.32	23+22.00	LT	14.00	692.45	25+22.33	LT	43.23	703.18	CB (D8)			205		10			1						
62	UD10	C.R.32	22+25.00	RT	14.00	690.17	23+15.04	RT	14.00	692.22	CB (D14)			81		10			1						
62-63	UD11	C.R.32	23+22.00	RT	14.00	692.45	24+73.23	RT	14.00	699.50	CB (D7)			138		10			1						
63	UD12	C.R.32	25+81.46	LT	52.89	705.91	27+52.14	LT	16.76	701.45	CB (D2)			190		10			1						1
63	UD13	C.R.32	26+21.15	RT	14.00	704.25	27+83.76	RT	18.88	701.61	CB (D3)			152		10			1					1	
TOTALS CARRIED TO GENERAL SUMMARY												1.8		1495		124		1	14	1				2	1

CALCULATED MJT CHECKED MJC

UNDERDRAIN SUBSUMMARY

MUS-CR32-0.00

64
192

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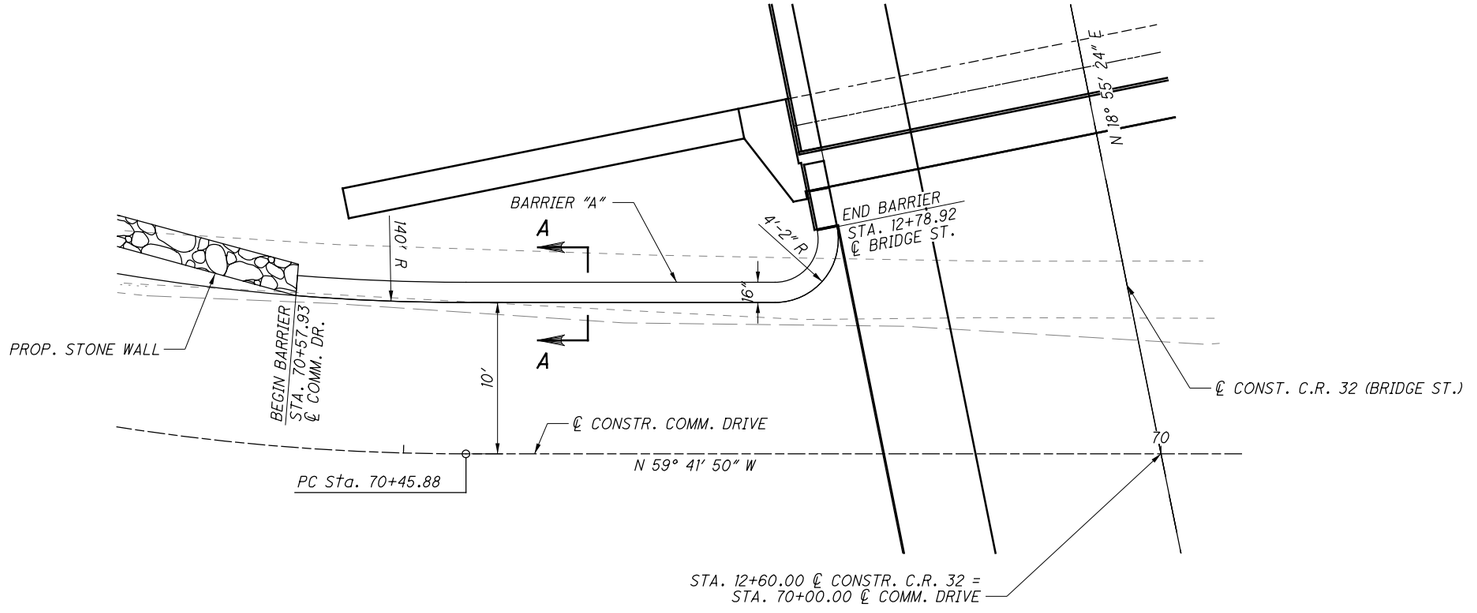
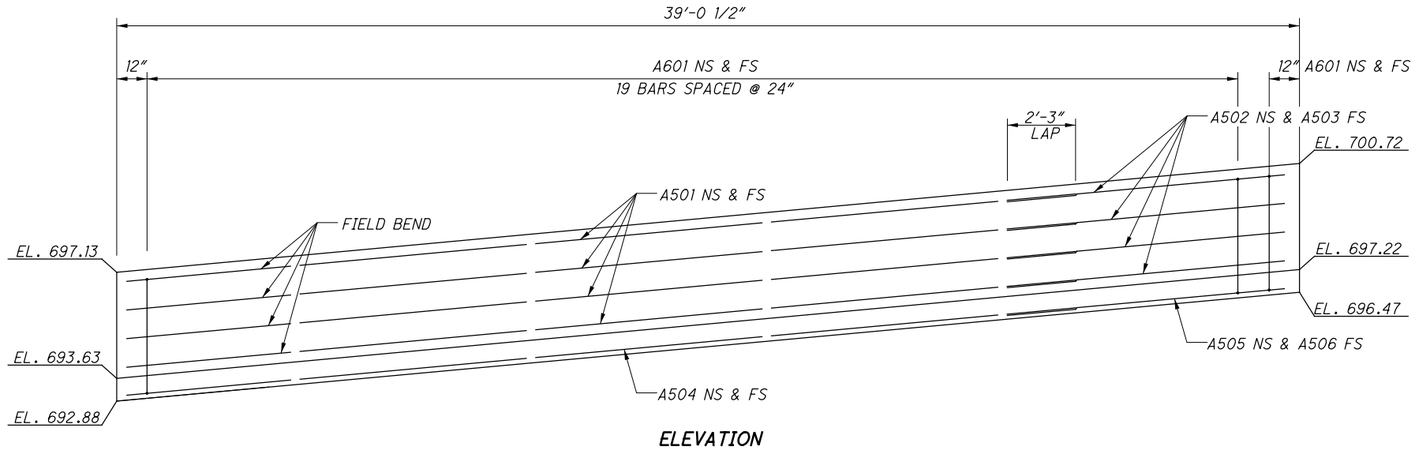


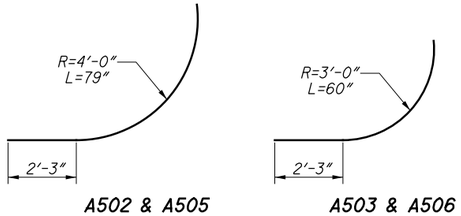
PLAN

REINFORCING STEEL LIST					
MARK	BAR	SHAPE	NO.	LENGTH	WEIGHT
A501	#5	STRAIGHT	8	31'-5 1/2"	263
A502	#5	BENT	4	8'-10"	37
A503	#5	BENT	4	7'-3"	31
A504	#5	STRAIGHT	2	31'-5 1/2"	66
A505	#5	BENT	1	8'-10"	10
A506	#5	BENT	1	7'-3"	8
A601	#6	BENT	40	4'-9"	285
TOTAL					700

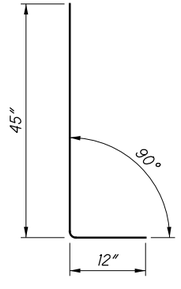


ELEVATION

NS = NEAR SIDE
FS = FAR SIDE



A502 & A505 **A503 & A506**



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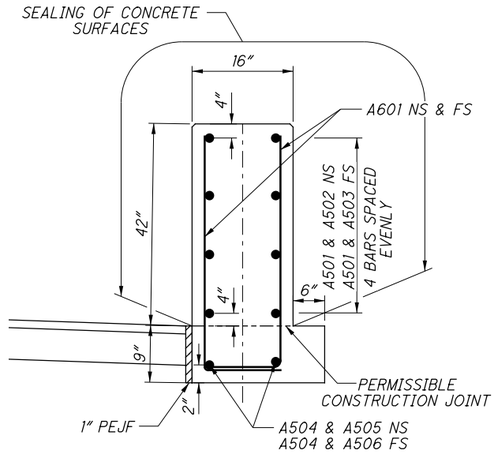


SECTION A-A

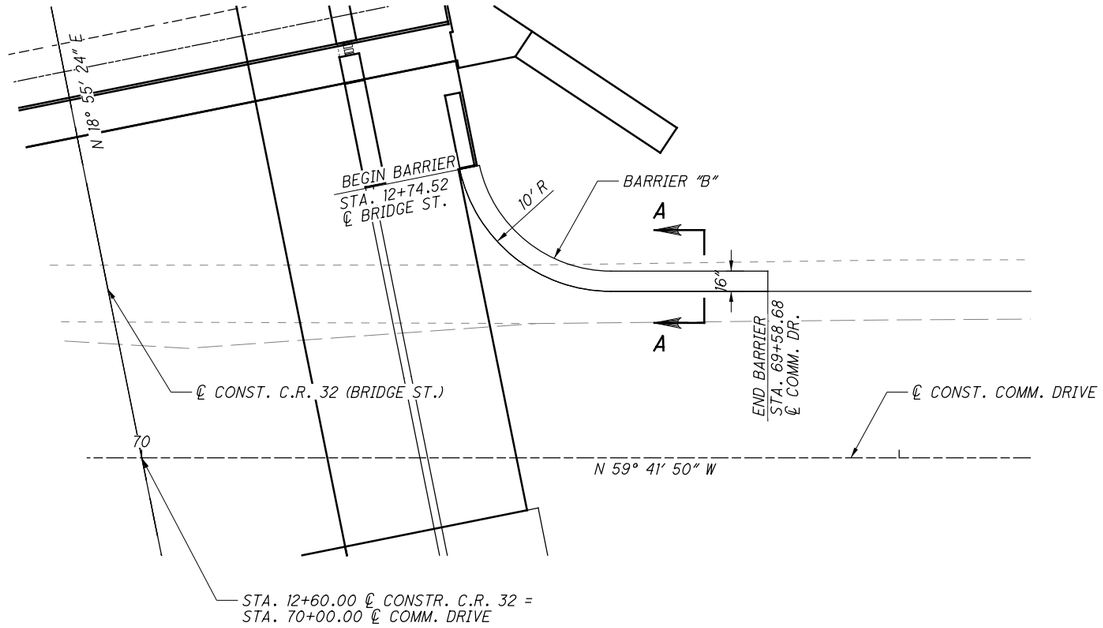
N

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MJT
CHECKED MJC

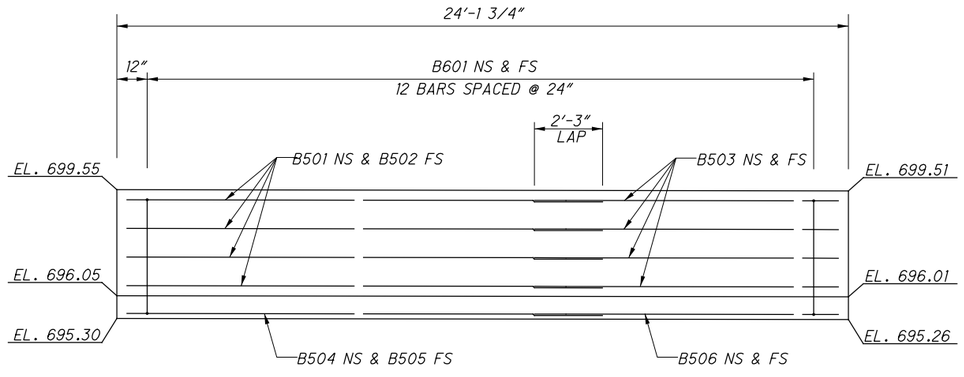
BARRIER "A" DETAILS
LOCK ACCESS DRIVE

MUS-CR32-0.00

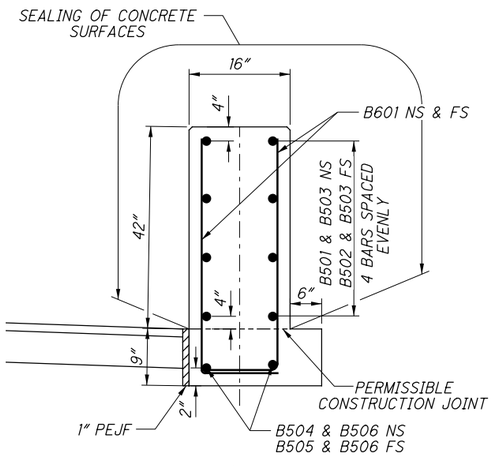


PLAN

REINFORCING STEEL LIST					
MARK	BAR	SHAPE	NO.	LENGTH	WEIGHT
B501	#5	BENT	4	15'-8"	66
B502	#5	BENT	4	14'-1"	59
B503	#5	STRAIGHT	8	9'-0"	75
B504	#5	BENT	1	15'-8"	17
B505	#5	BENT	1	14'-1"	15
B506	#5	STRAIGHT	2	9'-0"	19
B601	#6	BENT	24	4'-9"	171
TOTAL					422

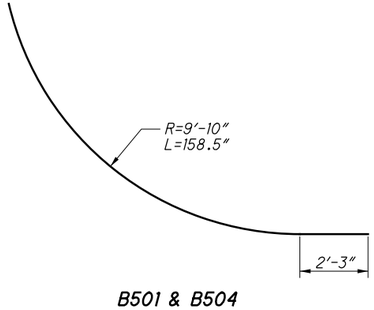


ELEVATION

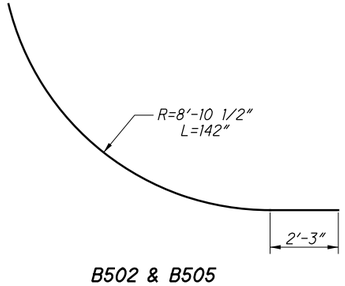


SECTION A-A

NS = NEAR SIDE
FS = FAR SIDE



B501 & B504



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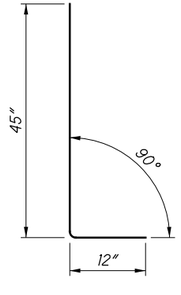


B601

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MJT
CHECKED MJC

BARRIER "B" DETAILS
LOCK ACCESS DRIVE

MUS-CR32-0.00

MUSKINGUM COUNTY WATER DEPARTMENT
MINIMUM REQUIRED SPECIFICATIONS AND INSTALLATION STANDARDS
NOVEMBER 2015 EDITION

IN THE CASE OF CONFLICTS BETWEEN WRITTEN SPECIFICATIONS AND DRAWINGS, THE WRITTEN SPECIFICATION SHALL APPLY.

WATER LINE PIPE MATERIAL
ALL MAIN LINE PIPE SHALL CARRY THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL FOR POTABLE WATER APPLICATIONS. PVC SDR SERIES PIPE (NORMALLY LIMITED TO 2"-3") SHALL CONFORM TO ASTM 2241 WITH JOINTS CONFORMING TO ASTM D3139 RATED CLASS 200 OR HIGHER. PVC MUNICIPAL MAINS (4"-12") SHALL CONFORM TO AWWA C-900 WITH BELL AND SPIGOT JOINTS CONFORMING TO ASTM F-477 RATED DR-14. PVC TRANSMISSION PIPE (14"-30") SHALL CONFORM TO AWWA C-905 WITH BELL AND SPIGOT JOINTS CONFORMING TO ASTM F-477 RATED DR 18. ALL HIGH-DENSITY POLYETHYLENE PIPE (HDPE) SHALL CONFORM TO AWWA C906 AND SHALL BE BUTT FUSED JOINTS. UNDER SPECIAL CONDITIONS, WATERLINE PIPE MATERIAL MAY BE DUCTILE IRON PIPE WITH PUSH-ON TYPE JOINTS, CEMENT LINED (AWWA C-104) AND SHALL MEET THE REQUIREMENTS OF AWWA C-150 AND AWWA C-151 WHERE APPROVED BY MUSKINGUM COUNTY.

TRACER WIRE AND WARNING TAPE
INSULATED, SOLID, COPPER CONDUCTOR, 12 GAGE TRACER WIRE SHALL BE BURIED WITH ALL PVC AND HPDE WATER MAINS LOCATED APPROXIMATELY 6 INCHES ABOVE THE PIPE. TRACER WIRE WILL BE TERMINATED OUTSIDE AND EXTENDED OVER THE TOP OF THE VALVE BOXES. ANY CONNECTIONS OF THE TRACER WIRE WILL BE MADE USING DRY-CON CONNECTORS. WARNING TAPE THAT IS THREE INCHES (3") WIDE, CONTINUOUS ALUMINUM FOIL CORE (0.00055 INCHES THICK), DETECTABLE BY INDUCTIVE AND CONDUCTIVE METHOD, AND PIGMENTED ON ONE PRINTED SIDE WITH 1 INCH LETTERS WILL BE INSTALLED OVER PIPE APPROXIMATELY TWELVE INCHES (12") BELOW FINISH GRADE. FOR WATER MAINS TAPE WILL BE AWWA APPROVED, BLUE IN COLOR, AND IMPRINTED "CAUTION: WATER LINE BURIED BELOW."

FITTINGS
FOR THREE INCH (3") THROUGH TWENTY-FOUR INCH (24") PIPE ALL FITTINGS SHALL BE CLASS 350 DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF ANSI A21.53/AWWA C153. END CONNECTIONS WILL BE MECHANICAL JOINT TYPE WITH RUBBER GASKETS IN ACCORDANCE WITH ANSI A21.11/AWWA C111. FITTINGS WILL BE COATED INSIDE AND OUTSIDE WITH FUSION-BONDED EPOXY, 6 TO 8 MILS THICKNESS PER AWWA C550 AND AWWA C116. USE OF PVC PRESSURE PIPE FITTINGS IS LIMITED TO PIPE LESS THAN 3 INCH DIAMETER. PVC FITTINGS SHALL BE PUSH-ON TYPE, GASKETED BELL JOINTS, CLASS 200 MANUFACTURED IN ONE PIECE CONFORMING TO ASTM 1784 AND REQUIREMENTS OF SDR 21. HDPE FITTINGS SHALL BE SAME MATERIAL, SIZE, DIMENSION RATIO, AND PRESSURE CLASS AS PIPE MATERIAL. ALL FITTINGS SHALL BE INSTALLED WITH ADEQUATE THRUST BLOCKS TO PREVENT MOVEMENT.

WATER LINE VALVES
WATER LINE VALVES TWO INCH THROUGH TWELVE INCH (2"-12") SHALL BE RESILIENT WEDGE GATE VALVE (RWGV) AND MEET THE REQUIREMENTS OF AWWA C509 OR C515, LATEST EDITION AS MANUFACTURED BY CLOW OR AMERICAN FLOW CONTROL, SERIES 2500. THE RWGV SHALL HAVE A 250 PSIG WORKING PRESSURE; DUCTILE IRON BODY, BONNET, AND WEDGE; ALL EXPOSED INTERNAL AND EXTERNAL IRON SURFACES TO BE FUSION BONDED EPOXY COATED IN COMPLIANCE WITH AWWA C550. RWGV SHALL HAVE STAINLESS STEEL BONNET BOLTS AND NUTS, NON-RISING BRONZE STEM, AND CONNECTIONS TO SUIT TYPE OF PIPE. THE RWGV SHALL OPEN "LEFT" OR "COUNTER-CLOCKWISE" AND SHALL BE SUPPLIED WITH A TWO INCH (2") SQUARE-BLACK WRENCH NUT. WATER LINE VALVES ON FOURTEEN INCH (14") AND LARGER DIAMETER PIPE WILL BE SPECIFIED BY THE WATER DEPARTMENT. VALVE MANHOLES WHEN REQUIRED BY WATER DEPARTMENT SHALL BE FOUR FEET (4') DIAMETER PRE-CAST CONCRETE AND DESIGNED FOR AN H-20 LOADING. VALVE BOXES SHALL BE 5-1/4 INCH I.D., CAST IRON, ADJUSTABLE, SLIP-TYPE BOX FITTED WITH A CAST IRON LID, MODEL 6855, AS MANUFACTURED BY TYLER PIPE, OR APPROVED EQUAL. BOX LID SHALL BE MARKED "W" OR "WATER." VALVE BOXES WILL BE SET TO FINISH GRADE. AIR RELEASE VALVES WILL BE REQUIRED AS DESIGNATED BY WATER DEPARTMENT.

FIRE HYDRANTS
HYDRANTS SHALL BE CLOW MEDALLION 5-1/4" OR AMERICAN DARLING, MODEL B-62-B. FIRE HYDRANTS SHALL COMPLY WITH AWWA C502 LATEST EDITION, AND BE DRY BARREL TYPE, MOISTUREPROOF, "O" RING TYPE, SEALED AUTOMATIC LUBRICANT CHAMBER ENCLOSED OPERATING THREADS, COMPRESSION TYPE, AND OPENING AGAINST LINE PRESSURE. HYDRANTS SHALL HAVE ONE 4-1/2 INCH I.D STEAMER NOZZLE AND TWO 2-1/2 INCH I.D. HOSE NOZZLES WITH STANDARD NATIONAL THREAD. THE HYDRANT SHOE SHALL BE SIX-INCH (6") M.J. CONNECTION WITH 5 1/4 INCH INTERNAL VALVE. THE VALVE SEAT RING SHALL BE BRONZE WITH BRONZE THREAD ENGAGEMENT. ALL HYDRANTS SHALL BE DRAINABLE INTO PIPE BEDDING MATERIAL CONSISTING OF NO. 8 LIMESTONE GRAVEL POCKET, UNLESS SPECIFIED DIFFERENTLY BY MUSKINGUM COUNTY. ALL HYDRANTS SHALL HAVE TYPE 316 STAINLESS STEEL BOLTS AND NUTS BELOW THE BURY LINE. UNLESS OTHERWISE SPECIFIED, HYDRANTS SHALL BE BURIED A MINIMUM OF FOUR FEET (4') DEEP. ALL HYDRANTS SHALL BE PAINTED USING ZINC CHROMATE (RUST-OLEUM #1573) PRIMER AND A FINISH COAT OF RUST-OLEUM #1548 SAFETY YELLOW. ANY DAMAGE TO PAINT WILL BE CLEANED WITH A WIRE BRUSH, PRIMED, AND A COMPLETE FINISH COAT APPLIED. ALL HYDRANT LEADS SHALL CONSIST OF AN ANCHOR COUPLING WITH APPROPRIATE THRUST BLOCKS. AS A MINIMUM THE ANCHOR COUPLING SHALL INCLUDE A TWO FOOT (2') OR LONGER SECTION OF PIPE BETWEEN THE VALVE AND THE HYDRANT. ANY SPACER PIPE REQUIRED BETWEEN THE TEE AND THE VALVE SHALL CONSIST OF ANCHORING PIPE OR RESTRAINED JOINT PIPE. HYDRANT PIPING SHALL INCLUDE SWIVEL FITTINGS. WATCH VALVES WITH BOX SHALL MEET WATER LINE VALVE REQUIREMENTS.

DISINFECTION
FLUSHING AND DISINFECTION OF THE WATER MAIN SHALL BE THE RESPONSIBILITY OF THE PARTY CONSTRUCTING SAME AND SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARD PROCEDURES AND REQUIREMENTS OF THE MUSKINGUM COUNTY WATER DEPARTMENT AT NO COST TO THE PROJECT. DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA C651. THE WATER DEPARTMENT WILL PROVIDE WATER FOR THE INITIAL FLUSHING AND DISINFECTION AT NO COST. ADDITIONAL WATER FOR FLUSHING AND TESTING WILL BE BILLED TO THE CONTRACTOR. THE MAIN LINE VALVE SHALL BE CLOSED AFTER DISINFECTION AND FLUSHING OF ALL LINES.

TESTING
SAMPLING AND TESTING OF WATER MAINS SHALL BE PERFORMED BY MUSKINGUM COUNTY WATER DEPARTMENT PERSONNEL UTILIZING COUNTY EQUIPMENT AND FACILITIES. THE WATER DEPARTMENT COST OF OBTAINING ALL SAMPLES AND TIME TO PERFORM TESTING WILL BE BORNE BY THE CONTRACTOR. ALL TESTING WILL FOLLOW E.P.A. RULES AND REGULATIONS WHICH CURRENTLY CONSISTS OF TWO CONSECUTIVE SAMPLES, TWENTY-FOUR HOURS APART FOR EVERY 1500 FEET AND/OR TWO SAMPLES PER STREET RUN. NO WATER MAIN SHALL BE ALLOWED INTO SERVICE UNTIL ALL SERVICE CHARGES FOR SAMPLING AND TESTING DUE AND OWED TO THE WATER DEPARTMENT HAVE BEEN PAID AND SATISFACTORY TEST RESULTS ARE BACK TO THE RESPONSIBLE PARTY.

SERVICE LINES
FROM MAIN TO METER PIT (LOCATED NEAR PROPERTY LINE) ALL SERVICE LINES, TWO INCH (2") DIAMETER AND SMALLER, SHALL BE CTS OR IPS POLYETHYLENE WITH COMPRESSION FITTINGS RATED FOR 200 PSI, OR 2" PVC SDR 17 PIPE. LARGER SERVICES SHALL MEET THE REQUIREMENTS OF WATER LINE PIPE MATERIAL. ALL SERVICES SHALL BE BURIED WITH A MINIMUM GROUND COVER OF FORTY-EIGHT INCHES (48") MEASURED FROM FINISH GRADE. FOR SERVICES WHERE THE METER WILL BE LOCATED INSIDE THE BUILDING, CUSTOMERS MUST CHECK WITH THE WATER DEPARTMENT ON SERVICE LINE SIZE AND MATERIAL REQUIRED. THE DEVELOPER SHALL BE RESPONSIBLE FOR INSTALLING CONTINUOUS CONDUIT CARRIER PIPES UNDER PAVEMENT FOR SERVICE LINE INSTALLATIONS TO EACH LOT, BUILDING, CONDOMINIUM, ETC. TO BE SERVED WHICH ARE LOCATED ACROSS THE STREET FROM THE WATER MAIN. CONTINUOUS CONDUIT CARRIER PIPES SHALL BE TWO INCH (2") IN DIAMETER SCHEDULE 40 RIGID PVC CONDUIT, AND SUNLIGHT RESISTANT GRAY. THE CARRIER PIPE SHALL BE INSTALLED FROM WITHIN TWO FEET (2') OF THE WATER MAIN TO THE EDGE OF RIGHT-OF-WAY BEYOND ANY UTILITIES, SUCH AS STORM SEWERS OR TILE ON THE OPPOSITE SIDE. MUSKINGUM COUNTY WATER DIVISION IS RESPONSIBLE FOR TAPPING THE MAIN AND INSTALLING THE SERVICE LATERAL IN PUBLIC RIGHT-OF-WAY OR IN UTILITY EASEMENT, PLUS INSTALLING THE WATER METER PIT, WHERE ONE-INCH (1") DIAMETER OR SMALLER SERVICE LINES ARE INSTALLED. LARGER THAN ONE INCH (1") DIAMETER, THE CONTRACTOR SHALL INSTALL THE METER PITS AS NEEDED.

THRUST BLOCKS
THRUST BLOCKS SHALL BE PROVIDED AT FITTINGS, VALVES OR CHANGES IN DIRECTION OF PIPE OR AS DETERMINED BY THE MUSKINGUM COUNTY WATER DEPARTMENT. THRUST BLOCKING WILL BE AN APPROVED MECHANICAL SYSTEM OF RESTRAINED JOINTS OR CONCRETE THRUST BLOCKING. JOINT RESTRAINT SYSTEMS NORMALLY USED ARE MEGALUG, FIELD-LOK 350, SUPER-LOCK, OR FAST-GRIP. WHERE MAKING A TIE-IN TO THE EXISTING SYSTEM A COMBINATION OF RESTRAINTS MAY BE REQUIRED. CONCRETE THRUST BLOCKING SHALL CONSIST OF CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND SHALL BE INSTALLED USING THE DIMENSIONS SHOWN IN THE STANDARD DRAWINGS. THE CONTRACTOR SHALL USE FORMS AND PLASTIC TO ENSURE ALL PIPE FITTING JOINTS AND BOLTS ARE FREE OF CONCRETE.

CONNECTION TO EXISTING
MAINS CONNECTION OF NEW MAINS TO EXISTING MUSKINGUM COUNTY WATER MAINS SHALL GENERALLY BE MADE WITH TAPPING VALVES AND SLEEVES, UNLESS APPROVAL IS OBTAINED FROM MUSKINGUM COUNTY TO SHUT-OFF THE EXISTING MAIN. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION AND PROVIDE AND INSTALL ALL MATERIALS, EXCEPT MUSKINGUM COUNTY WATER DEPARTMENT SHALL INSTALL THE TAP. TAPPING SLEEVES WILL BE STAINLESS STEEL. TAPPING VALVES WILL MEET ALL REQUIREMENTS OF WATER LINE VALVES.

ROAD AND RAILROAD CROSSINGS
STATE, COUNTY, TOWNSHIP, VILLAGE AND CITY ROADS: THESE ROADS MAY BE DIRECTIONAL DRILLED OR OPEN CUT UPON APPLICABLE POLITICAL SUBDIVISION APPROVAL, BACKFILLED AND ROAD REPAIRED TO THE LOCAL JURISDICTION'S SPECIFICATIONS. ALL CONSTRUCTION WILL BE COMPLETED IN ACCORDANCE WITH PERMIT OR APPROVAL. FINAL ACCEPTANCE BY THE WATER DEPARTMENT IS CONDITIONED UPON A SATISFACTORY FINAL INSPECTION BY THE PARTY THAT GRANTED PERMIT OR APPROVAL. DEVELOPER WILL BE RESPONSIBLE FOR PERMITS, PLANS, AND INSPECTION.

SANITARY SEWER REQUIREMENTS

PRIOR TO BEGINNING WORK ON THE EXISTING SANITARY SEWER SYSTEM, THE CONTRACTOR SHALL NOTIFY STEVE HAMBEL (740-624-0181) WITH THE DUNFALLS ASSOCIATION SEVEN (7) CALENDAR DAYS PRIOR TO PLANNED WORK. A REPRESENTATIVE OF THE DUNFALLS ASSOCIATION MAY BE ON SITE DURING WORK TO MONITOR AND ENSURE FLOW IS ADEQUATELY MAINTAINED DURING CONSTRUCTION OF THE PROPOSED SANITARY SYSTEM.

THE CONTRACTOR SHALL SUPPLY THE PUMPS, CONDUITS, PLUGS, AND OTHER EQUIPMENT TO DIVERT THE FLOW OF SEWAGE AROUND THE MANHOLE SECTION IN WHICH WORK IS TO BE PERFORMED. A SEWER LINE PLUG SHALL BE INSERTED INTO THE LINE AT THE UPSTREAM END OF THE SECTION TO BE REPLACED. THE BYPASS SYSTEM SHALL BE OF SUFFICIENT CAPACITY TO HANDLE EXISTING FLOW PLUS ADDITIONAL FLOW THAT MAY OCCUR DURING A RAINSTORM. THE CONTRACTOR WILL BE RESPONSIBLE FOR FURNISHING THE NECESSARY LABOR AND SUPERVISION TO SET UP AND OPERATE THE PUMPING AND BYPASSING SYSTEM. IF PUMPING IS REQUIRED ON A 24-HOUR BASIS, ENGINES SHALL BE EQUIPPED IN A MANNER TO KEEP NOISE TO A MINIMUM.

WHEN FLOW IN A SEWER LINE IS PLUGGED, BLOCKED, OR BYPASSED, SUFFICIENT PRECAUTIONS MUST BE TAKEN TO PROTECT THE SEWER LINE FROM DAMAGE THAT MIGHT RESULT FROM SEWER SURCHARGING. FURTHER, PRECAUTIONS MUST BE TAKEN TO INSURE THAT SEWER FLOW CONTROL OPERATIONS DO NOT CAUSE FLOODING OR DAMAGE TO PUBLIC OR PRIVATE PROPERTY BEING SERVED BY THE SEWERS INVOLVED.

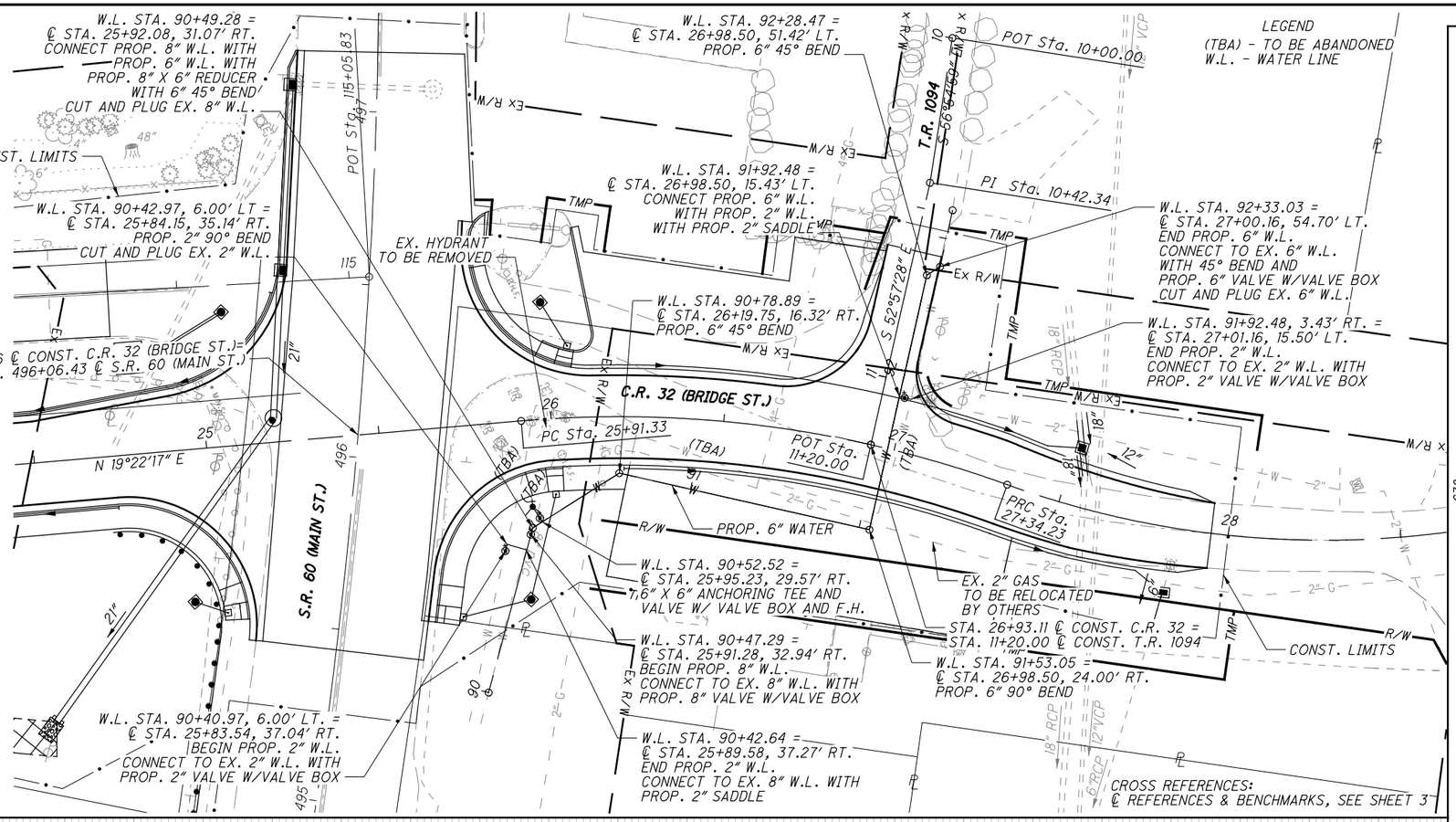
THE DISCHARGE OF ANY PUMPING AND BYPASSING OPERATION SHALL BE TO AN APPROVED OUTLET. AT NO TIME SHALL ANY DISCHARGE OF SANITARY SEWAGE BE ALLOWED TO FLOW INTO A STORM SEWER, ONTO THE STREET, INTO A SWALE OR DRAINAGE WAY, OR INTO ANY STREAM, RIVER OR CREEK OR ROADSIDE DITCH.

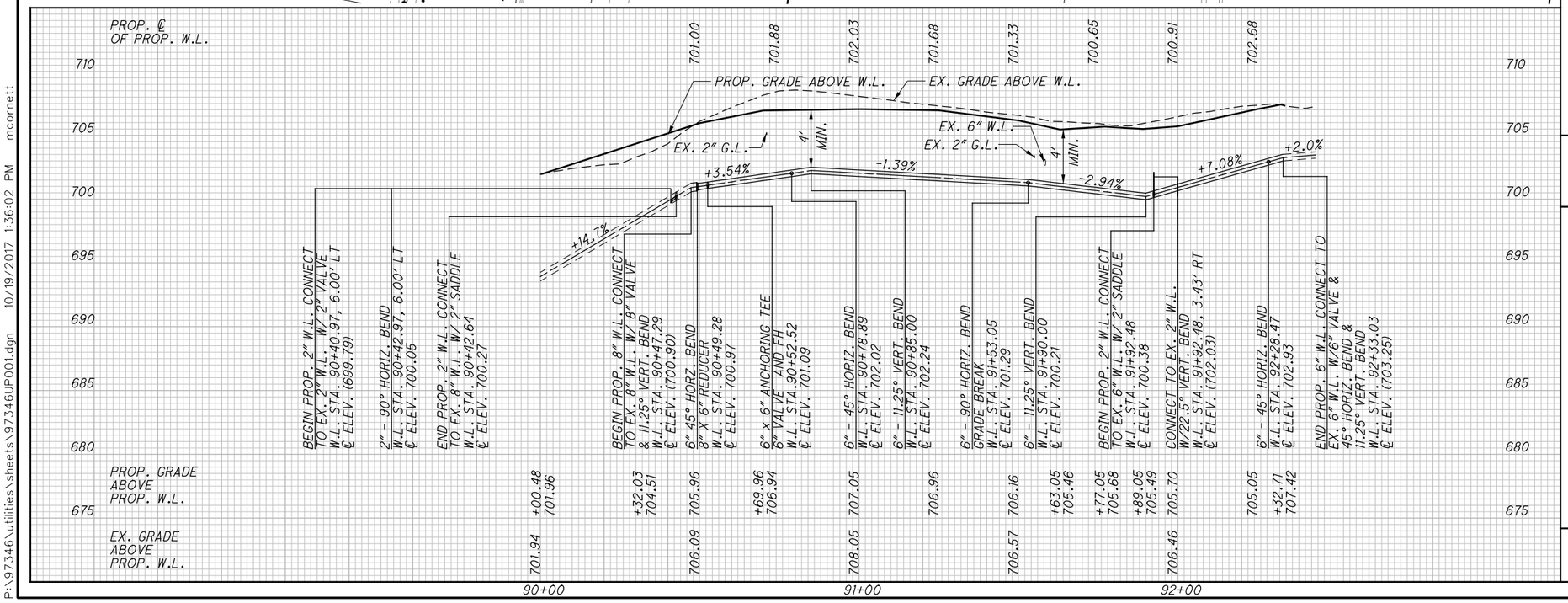
THE WORK REQUIRED TO MAINTAIN FLOWS AND TO BYPASS PUMP SEWAGE AROUND WORK AREAS, INCLUDING ALL MATERIALS, EQUIPMENT, LABOR, FUEL, AND PROTECTION, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE SANITARY SEWER CONDUIT.

CALCULATED CDS CHECKED MJC

WATER AND SANITARY SEWER GENERAL NOTES

MUS-CR32-0.00





REF. NO.	STATION FROM	STATION TO	SIDE								
	WATER WORK, MISC.: CUT AND PLUG EXISTING 2" WATER LINE (MUSKINGUM)		EA	1							1
	SPECIAL - CUT AND PLUG EXISTING 8" WATER LINE (MUSKINGUM)		EA		1						1
	SPECIAL - CUT AND PLUG EXISTING 6" WATER LINE (MUSKINGUM)		EA						1		1
	SPECIAL - FIRE HYDRANT REMOVED AND DISPOSED OF (MUSKINGUM)		EA				1				1
	SPECIAL - 6" FIRE HYDRANT (MUSKINGUM)		EA			1					1
	SPECIAL - 8" GATE VALVE WITH VALVE BOX (MUSKINGUM)		EA		1						1
	SPECIAL - 6" GATE VALVE WITH VALVE BOX (MUSKINGUM)		EA			1			1		2
	SPECIAL - 2" GATE VALVE WITH VALVE BOX (MUSKINGUM)		EA	1					1		2
	SPECIAL - 8" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS (MUSKINGUM)		FT		2						2
	SPECIAL - 6" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS (MUSKINGUM)		FT			9			140		190
	SPECIAL - 2" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS (MUSKINGUM)		FT	8					4	41	12
	TOTALS CARRIED TO GENERAL SUMMARY										

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJT CHECKED MJC

WATERLINE PLAN AND PROFILE

MUS-CR32-0.00

68
192

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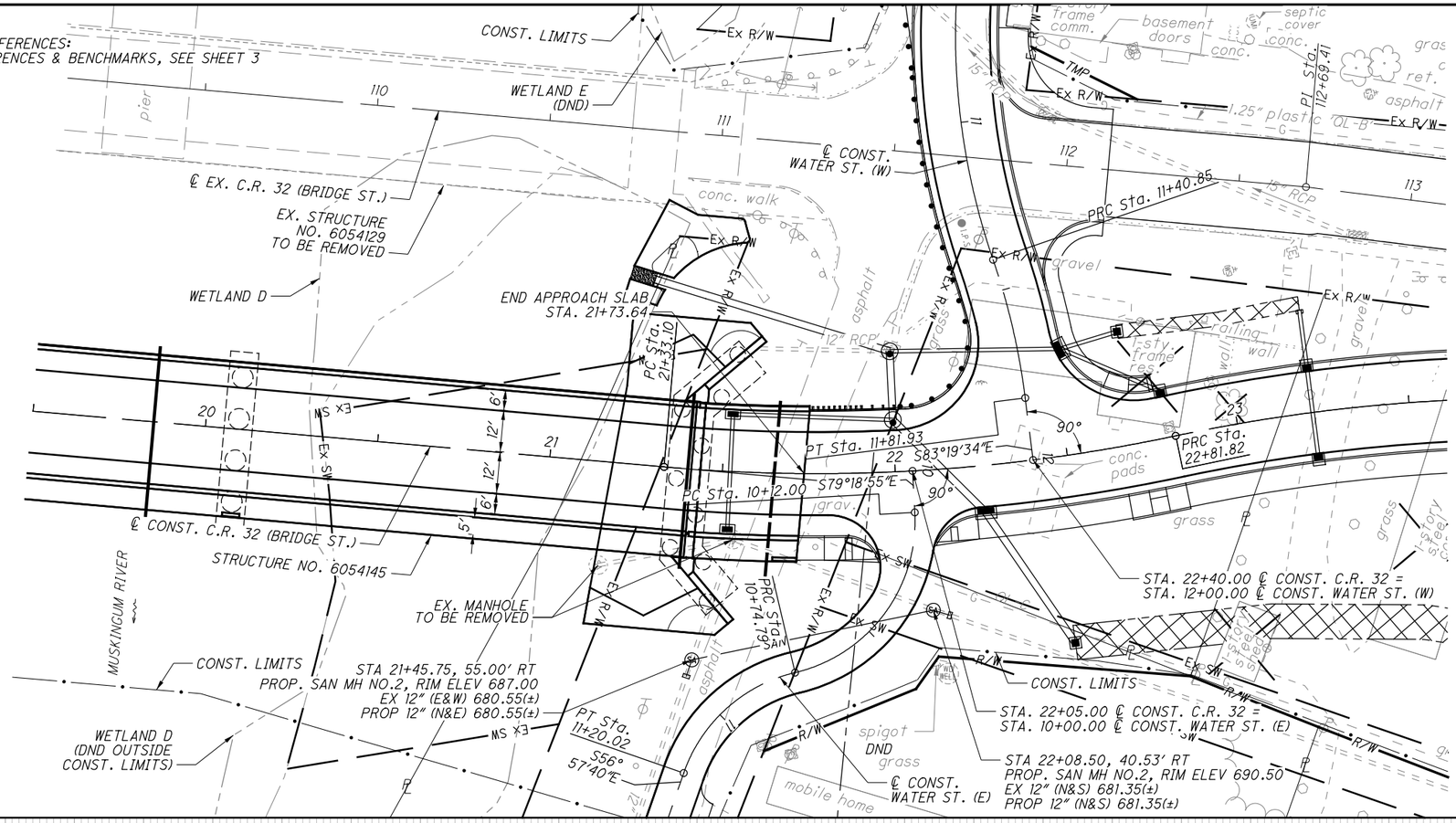
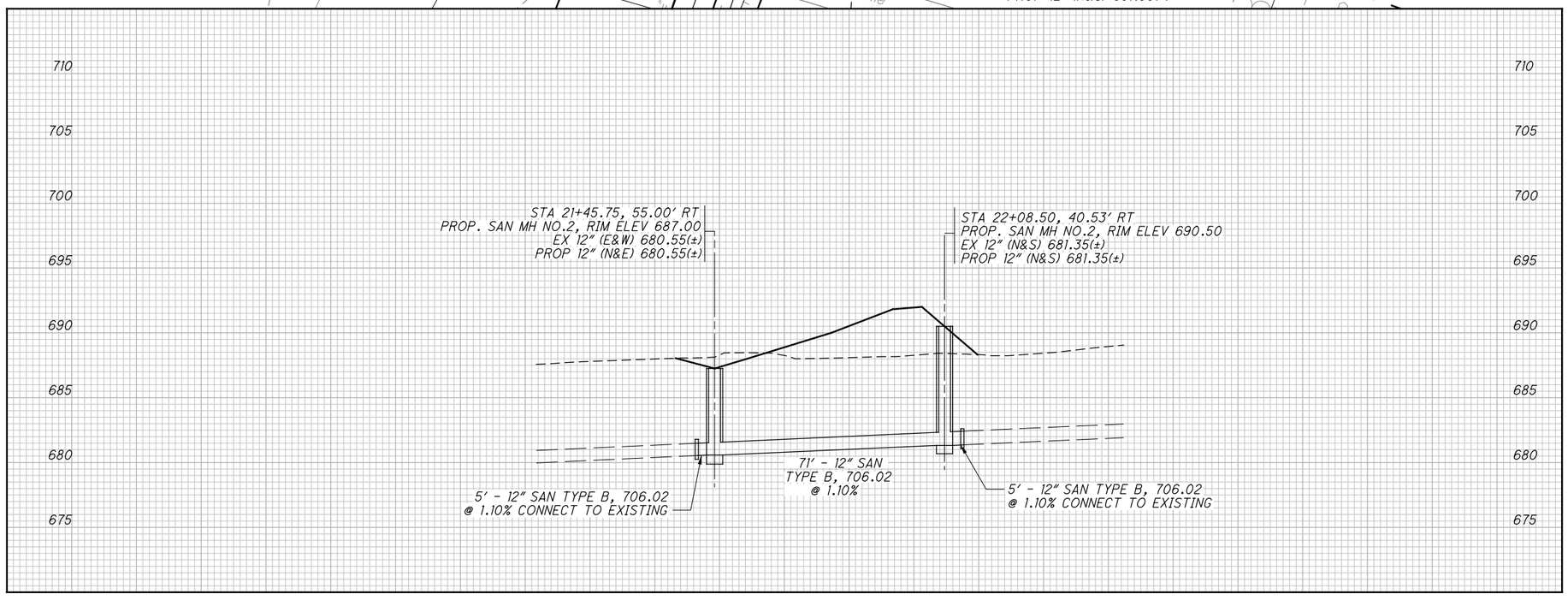
CROSS REFERENCES:
℄ REFERENCES & BENCHMARKS, SEE SHEET 3





REF. NO.	STATION FROM	TO	SIDE					
611	MANHOLE, NO. 2		EA			1	1	2
	12" CONDUIT, TYPE B, 706.02		FT			5	71	81
		21+45.75		RT				
		22+08.50		RT				
		21+45.75		RT				
		22+08.50				5	1	2
	TOTALS CARRIED TO GENERAL SUMMARY							

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MJT
CHECKED MJC

PLAN AND PROFILE
SANITARY SEWER

MUS-CR32-0.00

69
192

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SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EA	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EA	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION EA	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION, AS PER PLAN EA	630 REMOVAL OF GROUND MOUNTED PIPE SUPPORT AND REERECTION, AS PER PLAN EA		GROUND MOUNTED SUPPORT, NO. 3 POST FT	STREET NAME SIGN SUPPORT, NO. 2 POST FT	SIGN POST REFLECTOR EA		SIGN, FLAT SHEET SQ FT			
72	R21	FRONT ST.	50+25	LT					5		2									
72	R1	FRONT ST.	51+34	RT			1	1												
72	R2	FRONT ST.	52+61	LT			1	1												
72	R3	EX. BRIDGE ST.	100+18	RT			2	1												
72	R4	EX. BRIDGE ST.	100+20	RT			2	1												
72	R5	EX. BRIDGE ST.	100+43	LT			2	1												
72	R6	EX. BRIDGE ST.	100+50	RT			2	1												
72	R7	COMMERCIAL DRIVE	71+06	LT			1	1												
72	S1	FRONT ST.	50+35	RT	R1-1-30	30 x 30							13		1		6.25			
72	S2	FRONT ST.	51+50	LT	R1-1-30	30 x 30							13		1		6.25			
72	S3	BRIDGE ST.	10+25	RT	D3-1-36	8 x 36								12.5			3			
					D3-1-36	8 x 36											3			
72	S4	BRIDGE ST.	10+75	RT	R2-1-30	30 x 36							14				7.5			
72	S5	COMMERCIAL DRIVE	71+09	LT	R7-8-12	12 x 18								12.5			1.5			
					R7-8P-12	12 x 6											0.5			
74	R8	EX. BRIDGE ST.	111+27	RT			2	1												
74	R9	WATER ST. W.	10+56	RT			1	1												
74	R10	WATER ST. W.	10+80	RT			1	1												
74	R11	WATER ST. W.	10+82	RT			1	1												
74	R12	WATER ST. W.	10+87	RT			2	1												
74	R13	WATER ST. W.	11+47	RT			2	1												
74	R14	WATER ST. W.	11+52	RT			2	1												
74	S6	BRIDGE ST.	21+90	RT	D3-1-36	8 x 36								12.5			3			
					D3-1-36	8 x 36											3			
74	S7	BRIDGE ST.	22+70	LT	D3-1-36	8 x 36								12.5			3			
					D3-1-36	8 x 36											3			
74	S19	BRIDGE ST.	22+70	RT	W11-2-36	36 x 36							14				9			
					W16-7-PL	12 x 24											2			
74	S20	BRIDGE ST.	22+78	LT	W11-2-36	36 x 36							14				9			
					W16-7-PL	12 x 24											2			
74	S8	BRIDGE ST.	23+25	RT	R2-1-30	30 x 36							14				7.5			
74	S9	BRIDGE ST.	23+25	LT	R2-1-30	30 x 36							14				7.5			
74	S10	WATER ST. W.	11+70	RT	R1-1-30	30 x 30							13		1		6.25			
74	S11	WATER ST. E.	10+25	LT	R1-1-30	30 x 30							13		1		6.25			
74	S12	WATER ST. E.	10+45	RT	W14-1-30	30 x 30							13				6.25			
75	R15	MAIN ST.	495+67	LT			1	1												
75	R16	MAIN ST.	496+01	RT			1	1												
75	R17	MAIN ST.	496+10	LT			1	1												
75	R18	MAIN ST.	496+69	RT			1	1												
75	R19	T.R. 1094	10+63	RT			1	1												
75	R20	T.R. 1094	10+67	RT						1										
75	S13	BRIDGE ST.	24+90	RT	D3-H6B-48	12 x 48								12.5			4			
					D3-H6B-48	12 x 48											4			
75	S14	BRIDGE ST.	26+00	LT	D3-H6B-48	12 x 48								12.5			4			
					D3-H6B-48	12 x 48											4			
75	S15	MAIN ST.	495+30	LT	R2-1-30	30 x 36							12				7.5			
75	S16	MAIN ST.	495+45	RT	R3-H8BH-36	36 x 30							13				7.5			
75	S17	MAIN ST.	496+50	LT	R3-H8BH-36	36 x 30							13				7.5			
75	S18	T.R. 1094	11+00	RT	R1-1-30	30 x 30							13		1		6.25			
TOTALS CARRIED TO GENERAL SUMMARY							27	19	5	1	2		186.0	75.0	5		140.5			

CALCULATED MJT
CHECKED MJC

SIGNING SUBSUMMARY

MUS-CR32-0.00

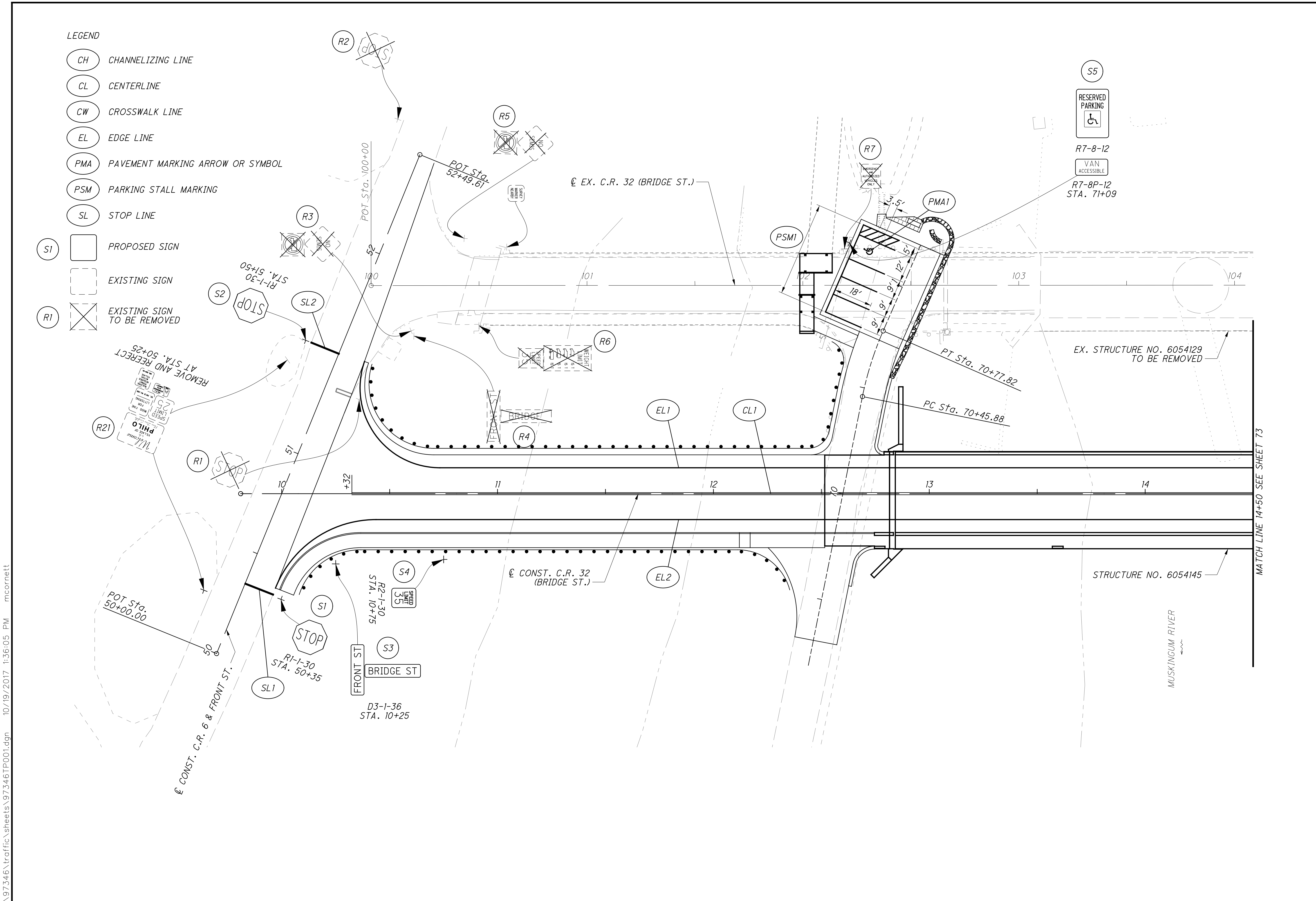
SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE		621 RPM, TWO-WAY, WHITE/RED	621 RPM, TWO-WAY, YELLOW/YELLOW			642 EDGE LINE, WHITE, 6"	642 CENTER LINE	642 CHANNELIZING LINE, 8"	642 STOP LINE	642 HANDICAP SYMBOL MARKING	642 PARKING LOT STALL MARKING	642 LANE ARROW	642 WORD ON PAVEMENT, 72"	642 CROSSWALK LINE			
							EA	EA			MILE	MILE	FT	FT	EA	FT	EA	EA	FT			
72	SL1	FRONT ST.	50+35		RT									14								
72	SL2	FRONT ST.	51+50		LT									14								
72-74	EL1	BRIDGE ST. / WATER ST. W.	10+38	10+50	LT						0.26											
72-74	CL1	BRIDGE ST.	10+32	21+94	CL			9				0.22										
72-74	EL2	BRIDGE ST.	9+97	21+92	RT						0.23											
72	PSM1	COMM. DRIVE/PARKING LOT	70+75	71+19	LT											186						
72	PMA1	COMM. DRIVE/PARKING LOT	71+09		LT										1							
74-75	EL3	BRIDGE ST.	22+17	25+09	RT						0.06											
74-75	EL4	WATER ST. W. / BRIDGE ST.	10+50	25+36	LT						0.09											
74-75	CL2	BRIDGE ST.	22+78	24+80	CL			4				0.04										
74	CW2	BRIDGE ST.	22+70	22+78	LT/RT														57			
74	CL3	WATER ST. W.	10+50	11+80	CL			3				0.02										
74	SL3	WATER ST. W.	11+80		RT									20								
74	CW1	WATER ST. E.	10+16	10+24	LT/RT														43			
75	SL4	BRIDGE ST.	24+80		RT									13								
75	CW3	BRIDGE ST.	25+98	26+06	LT/RT														60			
75	EL5	BRIDGE ST.	25+60	27+95	RT						0.05											
75	EL6	BRIDGE ST. / T.R. 1094	25+79	26+86	LT						0.03											
75	EL7	T.R. 1094 / BRIDGE ST.	27+00	27+95	LT						0.03											
75	SL5	BRIDGE ST.	26+12		LT									14								
75	CL4	BRIDGE ST.	26+12	26+63	CL			2				0.01										
75	CL5	BRIDGE ST.	27+15	27+95	CL			2				0.01										
75	PMA2	MAIN ST.	495+37		RT												1					
75	CL6	MAIN ST.	495+44	495+47	CL							0.01										
75	CH1	MAIN ST.	495+44	495+47	RT								3									
75	SL6	MAIN ST.	495+47		RT									24								
75	CW4	MAIN ST.	495+51	495+59	LT/RT														109			
75	SL7	MAIN ST.	496+41		LT									26								
75	CH2	MAIN ST.	496+41	497+17	LT		3						76									
75	CL7	MAIN ST.	496+41	497+17	CL			2				0.01										
75	PMA3	MAIN ST.	496+56		LT												1					
75	PMA4	MAIN ST.	496+97		LT													1				
75	PSM2	BRIDGE ST. / PARKING LOT	26+26	27+34	RT											366						
75	PMA5	BRIDGE ST. / PARKING LOT	26+88		RT										1							
75	PMA6	BRIDGE ST. / PARKING LOT	27+11		RT										1							
		SUBTOTAL					3	22														
TOTALS CARRIED TO GENERAL SUMMARY							25				0.75	0.32	79	125	3	552	2	1	269			

CALCULATED MJT
CHECKED MJC

PAVEMENT MARKING SUBSUMMARY

MUS-CR32-0.00

71
192



CALCULATED CDS
CHECKED MJC

SIGNING AND PAVEMENT MARKING PLAN STA. 10+00 TO STA. 14+50

MUS-CR32-0.00

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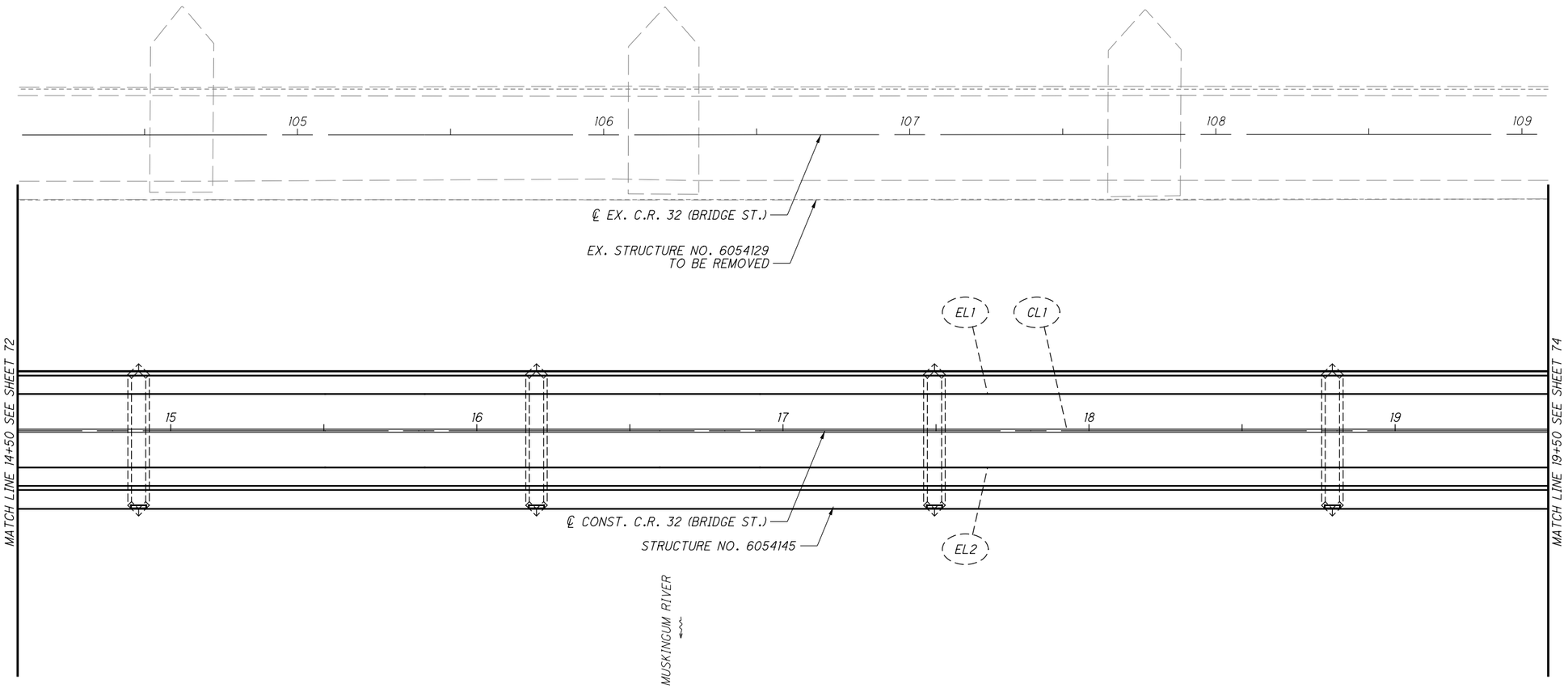

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CDS
CHECKED MJC

SIGNING & PAVEMENT MARKING PLAN
STA. 14+50 TO STA. 19+50

MUS-CR32-0.00

73
192

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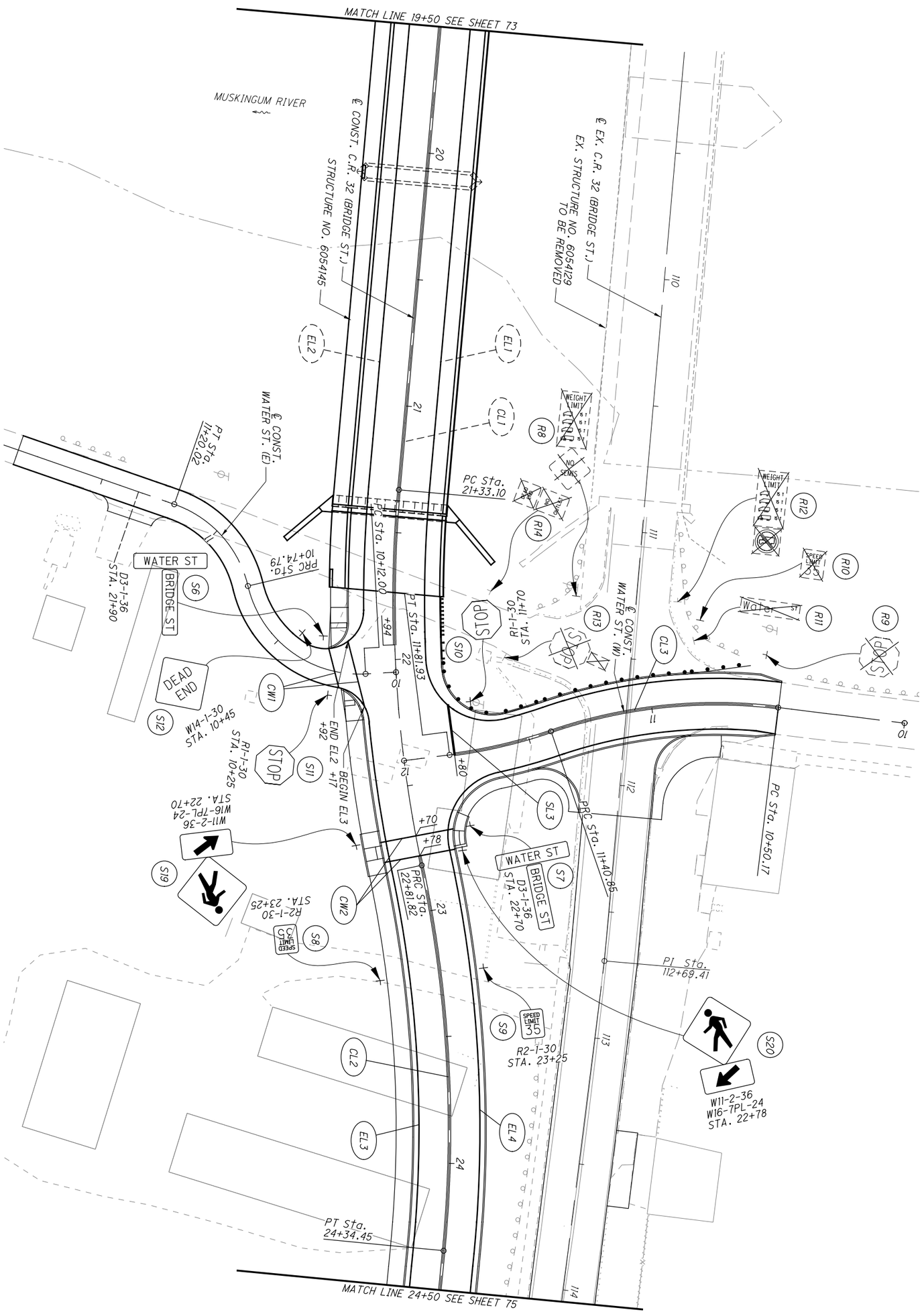
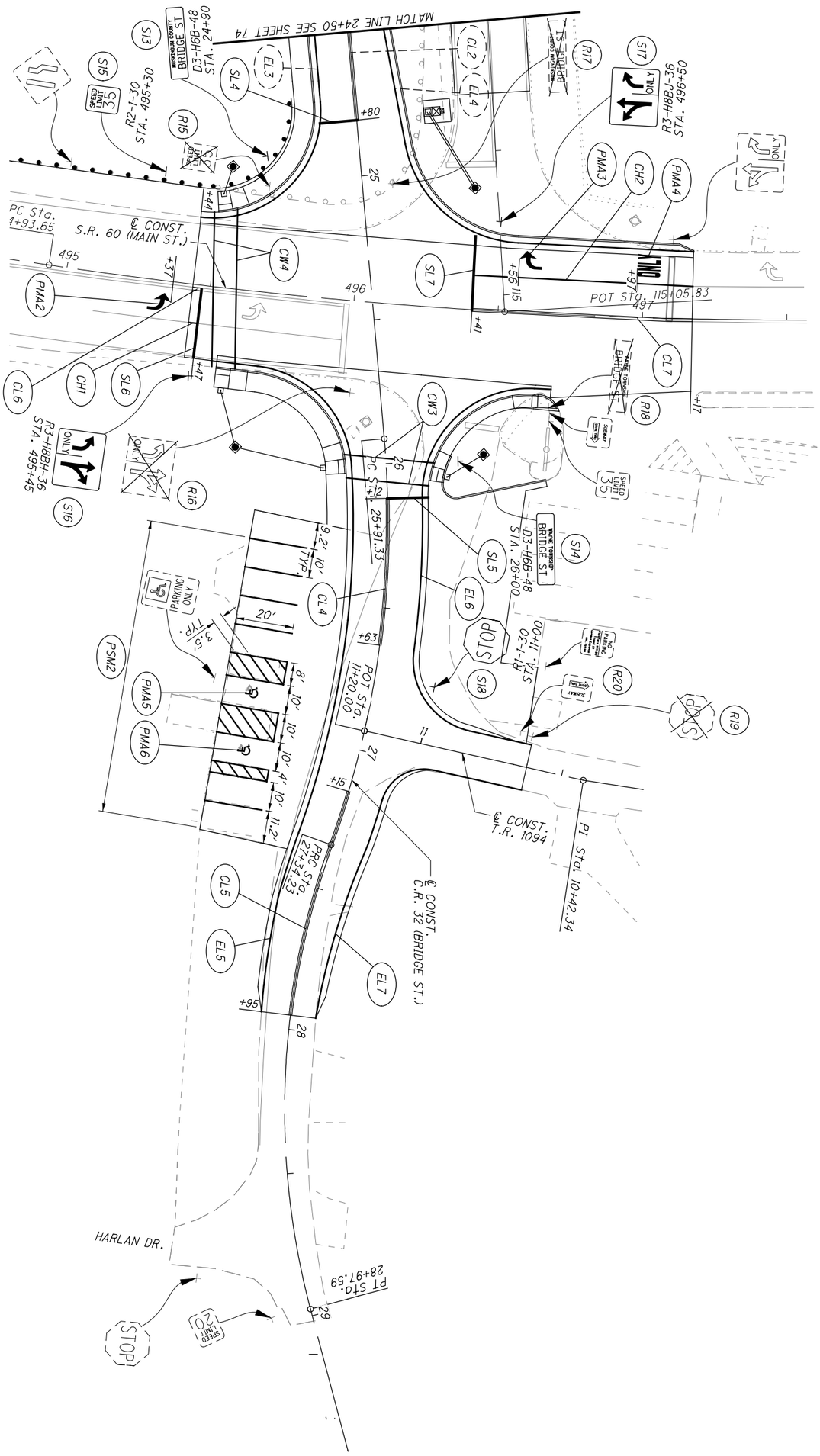


74 / 192	MUS-CR32-0.00	SIGNING & PAVEMENT MARKING PLAN STA. 19+50 TO STA. 24+50	CALCULATED CDS CHECKED MJC	0 20 10 40 HORIZONTAL SCALE IN FEET



75 / 182	MUS-CR32-0.00	SIGNING & PAVEMENT MARKING PLAN STA. 24+50 TO STA. 27+95	CALCULATED CDS CHECKED MJC	0 20 10 40 HORIZONTAL SCALE IN FEET

NOTIFICATION

THE CONTRACTOR SHALL GIVE THE DEPARTMENT, (740) 323-5182, 10 WORKING DAYS NOTICE PRIOR TO THE SIGNAL BEING PLACED IN OPERATION.

THE SIGNAL INSTALLATION SHALL BE INSPECTED BY ODOT PERSONNEL. ALL DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AND APPROVED BY THE DEPARTMENT.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER WITH 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INTERSECTION SITE SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY.

EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT AND DETECTOR UNITS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

DETECTION AND PREEMPTION MAINTENANCE

IF VEHICLE DETECTION AND/OR EMERGENCY PREEMPTION BECOMES UNEXPECTEDLY DISABLED, REQUIRES MODIFICATION, OR IS SCHEDULED TO BE TEMPORARILY REMOVED DURING THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER.

IF THE LOSS OF VEHICLE DETECTION AND/OR EMERGENCY PREEMPTION IS KNOWN PRIOR TO THE START OF CONSTRUCTION, IT SHALL BE DISCUSSED AT THE PRECONSTRUCTION MEETING. AT SUCH TIME, THE DISTRICT TRAFFIC ENGINEER SHALL ADVISE THE PROJECT ENGINEER AND CONTRACTOR ON THE APPROPRIATE ACTION TO RECTIFY ANY LOSS OF VEHICLE DETECTION AND/OR EMERGENCY PREEMPTION. THIS MAY INCLUDE PLACING THE TRAFFIC SIGNAL ON MINIMUM OR MAXIMUM RECALL, MODIFYING THE MINIMUM GREEN TIMES, AND REMOVING THE MALFUNCTIONING DEVICES FROM SERVICE. WHERE NON-INTRUSIVE DETECTION (I.E. VIDEO, RADAR) ALREADY EXISTS, THE CONTRACTOR SHALL ENSURE THAT DETECTION IS OPERATING AND MAINTAINED BY RECONFIGURING THE DETECTION UNITS ACCORDINGLY DURING ALL CONSTRUCTION PHASES. THIS IS TO AVOID THE SIGNAL FROM MAXING OUT THE AFFECTED SIGNAL PHASE AND CREATING UNNECESSARY DELAYS REMAINS ACTIVE. THE CONTRACTOR SHALL SHIFT SIGNAL HEADS AND DETECTION / PREEMPTION EQUIPMENT PER THE MAINTENANCE OF TRAFFIC PLANS TO MAINTAIN DETECTION AND EMERGENCY PREEMPTION FOR THE DURATION OF THE PROJECT.

LOCATIONS WHERE NON-INTRUSIVE DETECTION IS PROPOSED AND THE EXISTING VEHICLE DETECTION IS TO BE ABANDONED, THE NON-INTRUSIVE VEHICLE DETECTION SHALL BE INSTALLED, CONFIGURED AND MADE FULLY FUNCTIONAL PRIOR TO THE EXISTING DETECTION BEING DISABLED. THE CONTRACTOR SHALL CONTINUE TO MAINTAIN AND MODIFY THE VEHICLE DETECTION AND EMERGENCY PREEMPTION UNTIL FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL. THIS IS TO ENSURE VEHICLE DETECTION AND EMERGENCY PREEMPTION REMAINS FULLY FUNCTIONAL THROUGHOUT CONSTRUCTION.

SIGNAL ACTIVATION

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP-AND-GO MODE AND/OR REMOVING THE EXISTING TRAFFIC SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULLY COMPLETED, (I.E., VEHICLE DETECTION, PEDESTRIAN SIGNAL HEADS, ETC). IF THERE ARE CONSTRUCTABILITY ISSUES (I.E., ROADWAY WIDENING, ETC.) THAT PREVENT THE SIGNAL FROM BEING COMPLETED PRIOR TO ACTIVATION, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER. THE DISTRICT TRAFFIC ENGINEER WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL DESIGNATED DISTRICT TRAFFIC PERSONNEL INSPECT THE TRAFFIC SIGNAL AND ISSUE WRITTEN APPROVAL. IF ISSUES ARE FOUND DURING THE FINAL INSPECTION THAT EFFECT THE SAFETY OF THE TRAVELING PUBLIC AND/OR THE EFFICIENCY OF THE INTERSECTION, THE SIGNAL SHALL NOT BE ACTIVATED ON THE PROPOSED DATE. ANY PUNCH LIST ITEMS THAT ARE FOUND SHALL BE CORRECTED AND REINSPECTED BY DISTRICT TRAFFIC PERSONNEL PRIOR TO FINAL ACCEPTANCE. ODOT FORCES SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE REUSED AS PART OF A NEW INSTALLATION ON THE PROJECT OR STORED ON THE PROJECT FOR SALVAGE BY THE DEPARTMENT IN ACCORDANCE WITH THE LISTING GIVEN HEREIN. THE CONTRACTOR SHALL CONTACT BRIAN BOSCH, DISTRICT TRAFFIC ENGINEER AT (740) 323-5182 TO ARRANGE A MUTUALLY AGREEABLE TIME TO DELIVER THE SIGNAL MATERIALS TO DISTRICT 5 HEADQUARTERS, LOCATED AT 9600 JACKSONTOWN ROAD, JACKSONTOWN, OHIO 43030.

ITEMS TO BE REUSED:
NONE

ITEMS TO BE STORED:
ALL PREEMPTION EQUIPMENT FROM THE S.R. 60 / BRIDGE STREET INTERSECTION

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, BLACK

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC WITH VISORS AS SPECIFIED AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL.
4. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.

ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, BLACK (CONTINUED)

5. ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE MAST ARM WITH THE (COLOR) MODULE LOCATED IN FRONT OF THE MAST ARM.
6. ALUMINUM BACKPLATES SHALL BE IN ACCORDANCE WITH THE C&MS AND INCLUDE A FLUORESCENT YELLOW REFLECTIVE BORDER.
7. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
8. SIGNAL HEADS SHALL HAVE A MINIMUM WALL THICKNESS OF 0.117 INCHES.
9. SIGNAL HEADS SHALL INCLUDE CUTAWAY TYPE VISORS UNLESS OTHERWISE SPECIFIED IN THE PLANS.
10. APPLY A BEAD OF SILICONE TO THE SIGNAL HEAD, WASHER, AND ENTRANCE ADAPTER SERRATIONS TO PREVENT WATER INTRUSION. ALSO, FILL THE SPACE BETWEEN CONCENTRIC SERRATION RINGS ON THE TOP OF THE SIGNAL HEAD TO COMPLETELY EXCLUDE WATER FROM THE SPACE BETWEEN THE CONCENTRIC RINGS.
11. BALANCE ADJUSTERS SHALL NOT BE USED ON ONE-WAY HEADS OR TETHERED HEADS.

PAYMENT FOR ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, BLACK SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND NEW ATTACHMENT HARDWARE.

ITEM 632 - COVERING OF VEHICULAR SIGNAL HEAD

COVER VEHICULAR SIGNAL HEADS IF ERECTED AT INTERSECTIONS WHERE TRAFFIC IS MAINTAINED BEFORE ENERGIZING THE SIGNALS. USE A STURDY OPAQUE COVERING MATERIAL SPECIFICALLY MADE FOR USE WITH TRAFFIC SIGNALS, AND ENSURE THAT THE COLOR OF THE COVER IS DIFFERENT THAN THE SIGNAL HEAD, TAN OR BEIGE, SO THAT IT IS CLEAR TO DRIVERS THE HEADS ARE COVERED, NOT DARK. USE A METHOD OF COVERING TO COVER ATTACHMENT AND MATERIALS, INCLUDING BACKPLATES, AS APPROVED BY THE ENGINEER. COVERS ARE TO BE FREE OF TEXT, PICTURES, OR ANY TYPE OF ADVERTISING. MAINTAIN COVERS, AND REMOVE THEM WHEN DIRECTED BY THE ENGINEER.

ITEM 632 - POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632.24, THE CONTRACTOR SHALL PROVIDE THE METER, DISCONNECT SWITCH, POWER SERVICE CABLE #6 AWG, CONDUIT, CONDUIT RISER, WEATHERHEAD AND PULL BOXES AS NECESSARY TO PROVIDE POWER TO THE PROPOSED INSTALLATION. THE DISCONNECT SHALL BE LABELED "TRAFFIC" WITH ENGRAVED PLASTIC TABS. THE POWER SOURCE LOCATION SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL COORDINATE RELATED WORK WITH AEP OHIO WHO WILL MAKE THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE THE POWER CABLE INTO AEP OHIO CIRCUITRY. ANY FEES ASSOCIATED WITH OBTAINING POWER SHALL BE RESPONSIBILITY OF THE CONTRACTOR. POWER SUPPLIED SHALL BE 120 VOLTS.

THE COST FOR ALL NECESSARY ITEMS AND ASSOCIATED LABOR SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 632 - POWER SERVICE, AS PER PLAN.

ITEM 632 - SIGNALIZATION, MISC.: TEST HOLE PERFORMED

IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER UNDERGROUND UTILITIES WHILE EXCAVATING FOR SIGNAL SUPPORT FOUNDATIONS. IF, AFTER ACCURATELY IDENTIFYING THE PROPOSED LOCATION OF THE FOUNDATION, AS SHOWN IN THE PLAN, AND AFTER MODIFYING THAT LOCATION, IF NECESSARY, BASED ON THE FIELD MARKING OF UNDERGROUND UTILITY LOCATION, THE CONTRACTOR DISCOVERS A UTILITY CONFLICT DURING HIS EXCAVATION OPERATION, HE WILL BE COMPENSATED FOR THE LABOR AND EQUIPMENT COST ASSOCIATED FOR EACH PARTIAL FOUNDATION EXCAVATION ACCORDING TO HIS BID PRICE.

BEFORE THE CONTRACTOR BEGINS THE EXCAVATION AT THE MODIFIED LOCATION, HE SHALL VERIFY THAT THERE WILL BE NO OVERHEAD UTILITY CONFLICTS RESULTING FROM THE NEW SIGNAL SUPPORT LOCATION. NEW SUPPORT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

THE CONTRACTOR'S WORK UNDER THIS BID ITEM SHALL INCLUDE BACKFILLING, COMPACTING, AND RESTORATION OF THE EXCAVATION TO ITS ORIGINAL CONDITION.

EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH ITEM 632 - SIGNALIZATION - MISC.: TEST HOLE PERFORMED. A QUANTITY OF 4 HAS BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

CALCULATED LOB CHECKED KMG

TRAFFIC SIGNAL GENERAL NOTES

MUS-CR32-0.00

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

   A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

   B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

   C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

   D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

   E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

   F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS

   A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

   B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

   C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

   D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.

   A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

GROUNDING AND BONDING (CONTINUED)

   I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.

   II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

   III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

   IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

   B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD

   A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

   B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.

   A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.

   B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

      I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

      II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

ITEM 632 - PEDESTRIAN SIGNAL HEAD, (LED), (COUNTDOWN), TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732 THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
4. THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.
5. NEW ATTACHMENT HARDWARE AND FITTINGS SHALL BE USED.
6. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN SHALL BE MADE FOR THE NUMBER OF COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

ITEM 632 - STRAIN POLE FOUNDATION

PRIOR TO ORDERING THE STRAIN POLES, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD THEN MEET WITH THE PROJECT ENGINEER TO LOCATE THE PROPOSED POLE LOCATIONS TO ENSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORT POLES.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH POLE FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ORDER TO CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA), THE REQUIREMENTS OF CMS ITEMS 632.09 AND 732.06 ARE MODIFIED AS FOLLOWS:

1. THE MAXIMUM FORCE REQUIRED TO OPERATE THE PUSHBUTTON SHALL BE 5 POUNDS PER FOOT (22.2 NEWTONS).
2. THE PUSHBUTTON SHALL BE RAISED AND SHALL BE A MINIMUM OF 2 INCHES (50 MILLIMETERS) AT ITS SMALLEST DIMENSION.
3. THE PUSHBUTTON SHALL BE EQUIPPED TO EMIT AN AUDIBLE CHIRP AS THE BUTTON IS PUSHED TO CONFIRM THAT THE PEDESTRIAN CALL HAS BEEN PLACED.
4. THE PUSHBUTTON SHALL BE EQUIPPED WITH A RED INDICATOR LIGHT WHICH STAYS ILLUMINATED UNTIL THE PEDESTRIAN PHASE IS INITIATED.

THIS ITEM SHALL INCLUDE ALL LABOR AND MATERIAL COSTS ASSOCIATED WITH THE PROVISION AND INSTALLATION OF THE PUSHBUTTON AS OUTLINED ABOVE. PAYMENT FOR THIS WORK SHALL BE AT THE CONTRACT UNIT PRICE FOR ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN AND WILL BE MEASURED BY THE NUMBER OF COMPLETE UNITS FURNISHED, INSTALLED AND ACCEPTED BY THE DEPARTMENT.

ITEM 809 - STOP-BAR RADAR DETECTION

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR MATRIX DETECTION UNIT. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.

PAYMENT FOR ITEM 809 - STOP-BAR RADAR DETECTION SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT AND CONNECTIONS TESTED AND ACCEPTED.

CALCULATED LOB CHECKED KMG

TRAFFIC SIGNAL GENERAL NOTES

MUS-CR32-0.00

ITEM 633 - PREEMPTION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPTION EQUIPMENT IN THE LOCATIONS AND LOCAL CONTROLLERS AS SHOWN IN THE PLANS. THE PREEMPTION SHALL CONFORM TO ODOT SPECIFICATION 633 AND SHALL UTILIZE COMMUNICATIONS TO IDENTIFY THE PRESENCE OF AN EMERGENCY PRIORITY VEHICLE. IT SHALL CAUSE THE TRAFFIC SIGNAL CONTROLLER TO SELECT A PRE-PROGRAMMED PREEMPTION PLAN THAT WILL DISPLAY AND HOLD THE DESIRED SIGNAL PHASE FOR THE DIRECTION OF THE EMERGENCY VEHICLE.

THE COMMUNICATIONS MEDIUM SHALL EMPLOY LIGHT DETECTION TECHNIQUES TO DETERMINE AND LOG THE PRESENCE OF THE EMERGENCY VEHICLE. THE SYSTEM SHALL DETECT THE PRESENCE OF THE VEHICLE THROUGH AN EMITTING DEVICE LOCATED ON THE EMERGENCY VEHICLE. THE SYSTEM SHALL ACTIVATE THE PREEMPTION SEQUENCE BY APPLYING A SIGNAL TO ONE OF THE CONTROLLER'S PREEMPT DISCRETE INPUTS. THE SYSTEM SHALL BE COMPLETELY COMPATIBLE WITH THE CONTROLLER.

THE EQUIPMENT SHALL BE SHELF OR RACK MOUNTED AND EASILY REMOVABLE AND REPLACEABLE WITHIN THE CABINET. THE EQUIPMENT SHALL BE SUPPLIED COMPLETELY WIRED IN THE CONTROLLER CABINET AND TESTED. THE SYSTEM SHALL BE CAPABLE OF PREEMPTING AND RECEIVING PRIORITY FOR EACH APPROACH TO THE INTERSECTION. IT SHALL BE POSSIBLE TO DETECT THE EMERGENCY VEHICLE UP TO 1200 FEET FROM THE INTERSECTION.

EACH INTERSECTION SHOWN IN THE PLANS SHALL BE SUPPLIED WITH THE FOLLOWING COMPONENTS, EACH BID SEPARATELY:

1. PREEMPT RECEIVING UNIT.
2. PREEMPT DETECTOR CABLE.
3. PREEMPT PHASE SELECTOR ASSEMBLY AND INTERFACE WIRING PANEL.
4. CONFIRMATION LIGHT.

THE CONTRACTOR SHALL INVENTORY THE WAYNE TOWNSHIP DUNCAN FALLS AND HARRISON TOWNSHIP VOLUNTEER FIRE DEPARTMENT'S EXISTING EMITTERS TO DETERMINE COMPATIBILITY WITH THE PROPOSED SYSTEM. IF EXISTING EMITTERS ARE FOUND TO BE NOT COMPATIBLE, THEN THE LOCAL DEPARTMENTS SHALL BE SUPPLIED (AT COSTS INCIDENTAL TO THE SYSTEM) WITH THE EMITTERS, TRANSMITTERS, SWITCHES, WIRING AND ALL REQUIRED VEHICLE EQUIPMENT FOR THE FOLLOWING EMERGENCY VEHICLES. THE LOCAL DEPARTMENTS SHALL BE RESPONSIBLE FOR INSTALLING VEHICLE EQUIPMENT. THE MODEL SUPPLIED SHALL BE OPTICOM MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES LLC.

THE LOCAL DEPARTMENTS SHALL BE SUPPLIED WITH SOFTWARE REQUIRED TO CALIBRATE, LOG, AND OPERATE THE SYSTEM. THE SOFTWARE SHALL BE CAPABLE OF OPERATING UNDER WINDOWS 7, 32-BIT OPERATING SYSTEM. TWO (2) OPERATING AND INSTRUCTION MANUALS SHALL BE SUPPLIED WITH THE SOFTWARE.

THE CONTRACTOR SHALL THOROUGHLY TEST THE INSTALLED SYSTEM. AS A MINIMUM, THE CONTRACTOR SHALL VERIFY THAT ALL CONNECTIONS ARE PROPERLY MADE TO THE CONTROLLER CABINETS. THE CONTRACTOR SHALL CHECK THAT THE RANGE SETTING IS PROPER FOR EACH INTERSECTION. THE CONTRACTOR SHALL DETERMINE THAT ALL PHASE SELECTORS ARE SELECTING THE PROPER PHASE AND TIMING ACCURATELY. THE CONTRACTOR SHALL VERIFY THAT ALL VEHICLE EMITTERS ARE BEING PROPERLY DETECTED.

PAYMENT FOR ITEM 633 "PREEMPTION, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PREEMPTION IN PLACE AND FULLY OPERATIONAL AS SHOWN IN THE PLANS, EXCEPT FOR THOSE ITEMS BID SEPARATELY.

ITEM 633 - PREEMPTION RECEIVING UNIT, AS PER PLAN

RECEIVING UNITS SHALL CONSIST OF A LIGHTWEIGHT, WEATHERPROOF AND DIRECTIONAL ASSEMBLY. EACH RECEIVING UNIT SHALL BE 360 DEGREE ADJUSTABLE. THE RECEIVING UNIT SHALL BE CAPABLE OF SENDING THE PROPER ELECTRICAL SIGNAL TO THE TRAFFIC SIGNAL CONTROLLER VIA THE PREEMPTION DETECTOR CABLE. RECEIVING UNITS SHALL BE SUPPLIED WITH MOUNTING HARDWARE FOR A SPAN WIRE INSTALLATION.

THE MODEL SUPPLIED SHALL BE AN OPTICOM MODEL 711 DETECTOR MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES LLC.

FURNISH PREEMPTION RECEIVING UNITS WITH 60-MONTH WARRANTIES OR FOR THE MANUFACTURER'S STANDARD WARRANTY WHICHEVER IS GREATER. ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT. ENSURE THAT EACH UNIT HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT.

PAYMENT FOR ITEM 633 "PREEMPTION RECEIVING UNIT, AS PER PLAN" SHALL BE AT THE CONTRACT UNIT FOR EACH RECEIVING UNIT IN PLACE, COMPLETELY INSTALLED AT THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - PREEMPTION DETECTOR CABLE

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPTION DETECTOR HOME RUN CABLE IN THE LOCATIONS SHOWN IN THE PLANS. IT SHALL CONNECT THE PREEMPT RECEIVING UNITS TO THE PHASE SELECTORS IN THE LOCAL CONTROLLER CABINET.

PREEMPTION DETECTOR CABLE SHALL CONFORM TO ODOT SPECIFICATION 632. ONLY ONE EXTERNAL SPLICE SHALL BE PERMITTED BETWEEN PREEMPTION RECEIVER UNIT AND CONTROLLER CABINET. THIS SPLICE SHALL MEET THE REQUIREMENTS OF C&MS 632.23 USING A WATERPROOF EPOXY SPLICE KIT. THE CABLE SHALL BE APPROVED FOR BOTH OVERHEAD AND UNDERGROUND USE. THE JACKET SHALL WITHSTAND EXPOSURE TO SUNLIGHT AND ATMOSPHERIC TEMPERATURES AND STRESSES REASONABLY EXPECTED IN NORMAL INSTALLATIONS.

PAYMENT FOR ITEM 633 "PREEMPTION DETECTOR CABLE" SHALL BE MADE AT THE CONTRACT UNIT PRICE PER FOOT FOR THE CABLE FURNISHED, IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED AND ACCEPTED.

ITEM 633 - PREEMPTION PHASE SELECTOR, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPT PHASE SELECTORS INCLUDING WIRING INTERFACE PANELS IN THE LOCAL CONTROLLER CABINET AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT PHASE SELECTORS COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED IN THE PLANS.

THE MODEL SUPPLIED SHALL BE AN OPTICOM MODEL 764 MULTIMODE PHASE SELECTOR MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES LLC.

THE PHASE SELECTORS SHALL CONSIST OF A MODULE OR MODULES THAT WILL PROVIDE THE NECESSARY INPUTS TO THE CONTROLLER. PHASE SELECTORS SHALL BE SUPPLIED WITH SUFFICIENT QUANTITIES OF CHANNELS TO PROVIDE PREEMPTION FOR ALL APPROACHES TO THE INTERSECTION SEPARATELY. POWER SHALL BE OBTAINED FROM THE PHASE SELECTOR OR PHASE SELECTOR POWER SUPPLY AND NOT FROM THE LOCAL CONTROLLER TIMER.

THE PHASE SELECTORS SHALL HAVE FRONT PANEL INDICATORS FOR ACTIVE PREEMPT CHANNEL STATUS. IT SHALL HAVE TEST SWITCHES TO ACTIVATE ALL PREEMPT CHANNELS.

FURNISH PREEMPT PHASE SELECTORS WITH 60-MONTH WARRANTIES OR FOR THE MANUFACTURER'S STANDARD WARRANTY WHICHEVER IS GREATER. ENSURE THAT THE WARRANTY PERIOD BEGINS ON THE DATE OF SHIPMENT TO THE PROJECT. ENSURE THAT EACH UNIT HAS A PERMANENT LABEL OR STAMP INDICATING THE DATE OF SHIPMENT.

PAYMENT FOR ITEM 633 "PREEMPTION PHASE SELECTOR, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH PHASE SELECTOR IN PLACE, COMPLETELY INSTALLED IN THE LOCAL CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - PREEMPTION CONFIRMATION LIGHT, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING PREEMPT CONFIRMATION LIGHTS INCLUDING HARDWARE AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT CONFIRMATION LIGHT COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS.

A CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH DIRECTION TO INDICATE THAT THE EMERGENCY VEHICLE HAS ACHIEVED CONTROL OF THE TRAFFIC SIGNAL.

THE MODEL SUPPLIED SHALL BE AN OPTICOM MODEL 575 CONFIRMATION LIGHT KIT MANUFACTURED BY GLOBAL TRAFFIC TECHNOLOGIES LLC.

THE CONFIRMATION LIGHT SHALL BE A VAPOR TIGHT ALUMINUM LIGHTING FIXTURE. IT SHALL BE SUPPLIED WITH A CLEAR GLOBE, LED LAMP AND MOUNTING HARDWARE TO ATTACH TO THE TRAFFIC SIGNAL SPAN WIRE. THE CONFIRMATION LIGHT SHALL BE POWERED BY A LOAD SWITCH IN THE TRAFFIC SIGNAL CONTROLLER. SIGNAL CABLE CONFORMING TO 732.19 SHALL BE USED FOR CONFIRMATION LIGHTS. A MINIMUM OF 4-CONDUCTOR CABLE SHALL BE USED WITH THE GREEN WIRE SERVING AS THE SAFETY GROUND CONDUCTOR.

PAYMENT FOR ITEM 633 "PREEMPTION CONFIRMATION LIGHT, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH LIGHT IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 633 AND 733, POLE ATTACHMENT HARDWARE WILL BE INCLUDED FOR POLE-MOUNTED CABINETS, AND A CABINET RISER (8 INCH MINIMUM) AND ANCHOR BOLTS WILL BE PROVIDED FOR BASE-MOUNTED CABINETS. BEFORE PERFORMING THE WORK, THE CONTRACTOR, THE DISTRICT TRAFFIC ENGINEER AND THE PROJECT ENGINEER WILL PERFORM A SITE INSPECTION TO ESTABLISH THE LOCATION OF THE UPS CABINET AND FOUNDATION.

THE UPS CABINET SHALL INCLUDE A GENERATOR POWER PANEL WITH A HEAVY DUTY POWER RELAY VERSUS THE LINE VOLTAGE GENERATOR SWITCH. THE GENERATOR INLET SHALL BE A RECESSED PANEL WITH A DOOR THAT IS FLUSH WITH THE EXTERNAL SIDE OF THE UPS CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH AND A DOOR THAT SECURELY CLOSES OVER THE POWER CORD.

THE UPS OUTPUT NOTIFICATIONS FOR ON BATTERY, BATTERY 2-HOUR TIMER, AND LOW BATTERY SHALL BE WIRED INTO THE TRAFFIC SIGNAL CABINET BACK PANEL TO PROVIDE SPECIAL STATUS ALARMS FOR EACH OUTPUT INTO THE SIGNAL CONTROLLER.

THIS ITEM SHALL INCLUDE A RED LED STATUS INDICATOR LAMP TO ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. THE LED HOUSING SHALL BE NEMA 4X, IP65 OR IP66, RATED FOR OUTDOOR USE AND BE TAMPER/ SHATTER RESISTANT. IT SHALL BE A DOMED ENCLOSURE CONTAINING A RED LENS WITH LED THAT IS VISIBLE FROM 100 FOOT MINIMUM. THE ENCLOSURE AND LED MODULE SHOULD BE PLACED AND CENTERED ON THE TOP SURFACE OF THE UPS CABINET AND SEALED FROM WATER INTRUSION. IT SHOULD BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THE RED LED SHALL ONLY ILLUMINATE TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THESE STATUS DISPLAYS WILL BE SOLID 100% DUTY CYCLE (NOT FLASHING) DISPLAYS. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC UNLESS OTHERWISE INDICATED.

ITEM 633 - CONTROLLER ITEM MISC.: CONTROLLER UNIT, TYPE 2070E WITH ASC/3 SOFTWARE, WITH CABINET, TYPE 332

THE CONTROLLER UNIT SHALL BE EQUIPMENT MANUFACTURED IN CONFORMANCE TO THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) SPECIFICATIONS TITLES "TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATIONS (TEES)" THE CONTROLLER UNIT, MODEL 2070E, SHALL BE COMPLIANT WITH THE 2070E MANUFACTURER AND BUILD AS PER THE TRAFFIC AUTHORIZED PRODUCTS (TAP) LIST.

THE 2070E CONTROLLER UNIT SHALL INCLUDE THE FOLLOWING:

1. UNIT CHASSIS 2
2. 2070-1E CPU MODULE
3. 2070-2A FIELD I/O MODULE
4. 2070-3B FRONT PANEL
5. 2070-4A POWER SUPPLY
6. 2070-7A SERIAL COMMUNICATION MODULE

THE CONTROLLER SHALL BE SUPPLIED WITH THE FOLLOWING TRAFFIC SIGNAL INTERSECTION CONTROL SOFTWARE: ASC/3. THE CONTROLLER SHALL BE SUPPLIED WITH MICROWARE EMBEDDED OS-9 RELEASE 1.3 OR LATER WITH KERNEL EDITION #376 OR LATER, AS REQUIRED BY CALTRANS TEES. FOR WARRANTY PURPOSES, A VENDOR-SPECIFIC DECAL, AS PER ODOT C&MS 733.02 SHALL BE APPLIED TO EACH CONTROLLER UNIT AT TIME OF DELIVERY TO THE PROJECT.

THE CONTRACTOR SHALL NOT REASSIGN THE CABINET DETECTOR INPUTS IN ORDER TO REDUCE THE NUMBER OF 2-CHANNEL DETECTOR UNITS SUPPLIED, BUT SHALL USE THE STANDARD CALTRANS INPUT FILE DESIGNATIONS.

ITEM 633 - CABINET FOUNDATION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT C&MS 633 AND 733 AND SCD TC-83.20, THE CONTROLLER FOUNDATION SHALL BE CONSTRUCTED PER THE DETAIL ON SHEET 84 .

ITEM 633 - CONTROLLER WORK PAD, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT C&MS 633 AND 733 AND SCD TC-83.20, THE CONTROLLER WORK PAD SHALL BE CONSTRUCTED PER THE DETAILS ON SHEET 84 .

CALCULATED LOB
CHECKED KMG

TRAFFIC SIGNAL GENERAL NOTES

MUS-CR32-0.00

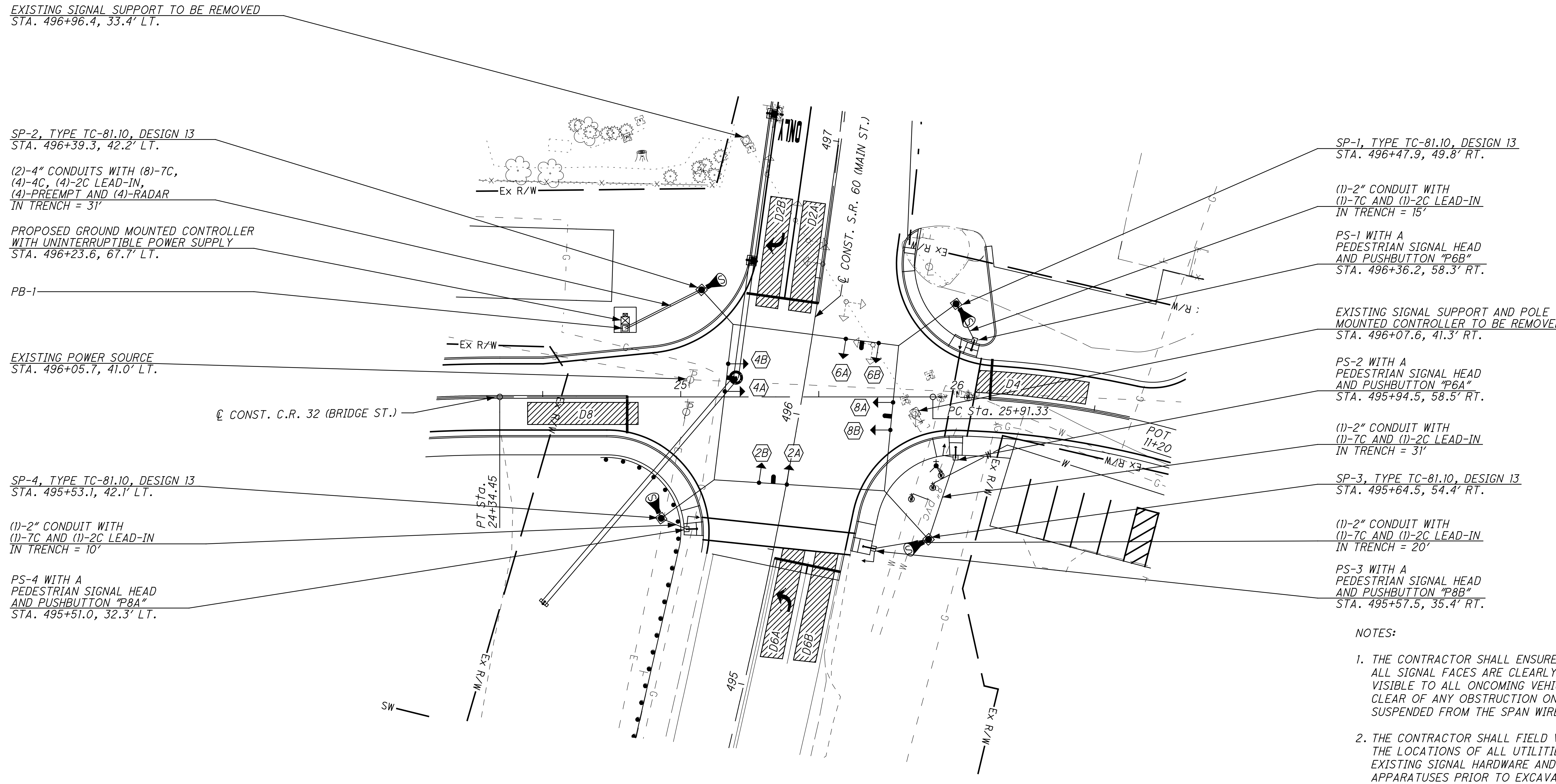
SHEET	LOCATION	625 CONDUIT, 2", 725.051 FT	625 CONDUIT, 4", 725.051 FT	625 TRENCH FT	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 PLASTIC CAUTION TAPE FT	632 VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, BLACK EACH	632 PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN EACH	632 COVERING OF VEHICULAR SIGNAL HEAD EACH	632 COVERING OF PEDESTRIAN SIGNAL HEAD EACH	632 PEDESTRIAN PUSHBUTTON, AS PER PLAN EACH	632 MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES FT	632 TETHER WIRE, WITH ACCESSORIES FT	632 SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG FT	632 STRAIN POLE FOUNDATION EACH	632 PEDESTAL FOUNDATION EACH	632 LOOP DETECTOR LEAD-IN CABLE FT	632 POWER SERVICE, AS PER PLAN EACH	632 STRAIN POLE, TYPE TC-81.10, DESIGN 13 EACH	632 PEDESTAL, 8', TRANSFORMER BASE EACH	632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN EACH	633 CABINET FOUNDATION, AS PER PLAN EACH	633 CONTROLLER WORK PAD, AS PER PLAN EACH
80	S.R 60 / BRIDGE ST.	76	62	107	1	9	107	8	4	8	4	4	324	324	1683	4	4	1020	1	4	4	1	1	1
	TOTALS CARRIED TO GENERAL SUMMARY	76	62	107	1	9	107	8	4	8	4	4	324	324	1683	4	4	1020	1	4	4	1	1	1

SHEET	LOCATION	633 PREEMPTION, AS PER PLAN EACH	633 PREEMPTION RECEIVING UNIT, AS PER PLAN EACH	633 PREEMPTION DETECTOR CABLE FT	633 PREEMPTION PHASE SELECTOR, AS PER PLAN EACH	633 PREEMPTION CONFIRMATION LIGHT, AS PER PLAN EACH	633 UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN EACH	633 CONTROLLER ITEM, MISC.: CONTROLLER UNIT, TYPE 2070E WITH ASC/3 SOFTWARE, WITH CABINET, TYPE 332 EACH	809 STOP-BAR RADAR DETECTION EACH
80	S.R 60 / BRIDGE ST.	1	4	586	1	4	1	1	4
	TOTALS CARRIED TO GENERAL SUMMARY	1	4	586	1	4	1	1	4

CALCULATED LOB
CHECKED KMG

TRAFFIC SIGNAL SUBSUMMARY

MUS-CR32-0.00



NOTES:

1. THE CONTRACTOR SHALL ENSURE THAT ALL SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ONCOMING VEHICLES; CLEAR OF ANY OBSTRUCTION ONCE SUSPENDED FROM THE SPAN WIRE.
2. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL UTILITIES AND EXISTING SIGNAL HARDWARE AND APPARATUSES PRIOR TO EXCAVATION.
3. UTILITY POLE RELOCATIONS WILL BE REQUIRED FOR THIS PROJECT. THE PROPOSED POWER SERVICE LOCATION SHALL BE VERIFIED IN THE FIELD AND APPROVED BY THE ENGINEER.

PULLBOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	496+20.7	LT.	67.3	24 x 24

SIGNAL TYPES

R Y G

2A, 2B, 6A, 6B
4A, 4B, 8A & 8B

PEDESTRIAN HEADS (LED, COUNTDOWN, TYPE D2)

1. ALL SIGNAL HEADS SHALL HAVE 12" LED LENSES.
2. ALL SIGNAL HEADS SHALL BE BLACK IN COLOR AND HAVE BACKPLATES.
3. ALL SIGNAL HEAD VISORS SHALL BE CUTAWAY TYPE.

PEDESTRIAN SIGNS

R10-3e-9-SPECIAL TO BE MOUNTED ON PS-1 & PS-2

R10-3e-9-SPECIAL TO BE MOUNTED ON PS-3 & PS-4

LEGEND

- TRAFFIC SIGNAL, 3 UNIT HEAD, 12"
- PREEMPTION CONFIRMATION LIGHT AND RECEIVING UNIT
- SIGNAL SUPPORT POLE
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PEDESTAL SUPPORT
- CONTROLLER CABINET WITH UNINTERRUPTIBLE POWER SUPPLY AND WORK PAD (332)
- TRAFFIC PULL BOX
- PROPOSED CONDUIT
- STOP BAR DETECTION UNIT
- DETECTION ZONE

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JWG CHECKED KMG

TRAFFIC SIGNAL PLAN
S.R. 60 / BRIDGE ST.

MUS-CR32-0.00

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SIGNAL TIMING CHART

INTERSECTION: S.R. 60 / BRIDGE ST.
MAINTAINING AGENCY: OHIO DEPARTMENT OF TRANSPORTATION

START UP
START IN: ALL RED
TIME FOR FLASH OR ALL RED: 5
FIRST PHASE(S): 2+6
COLOR DISPLAYED: GREEN

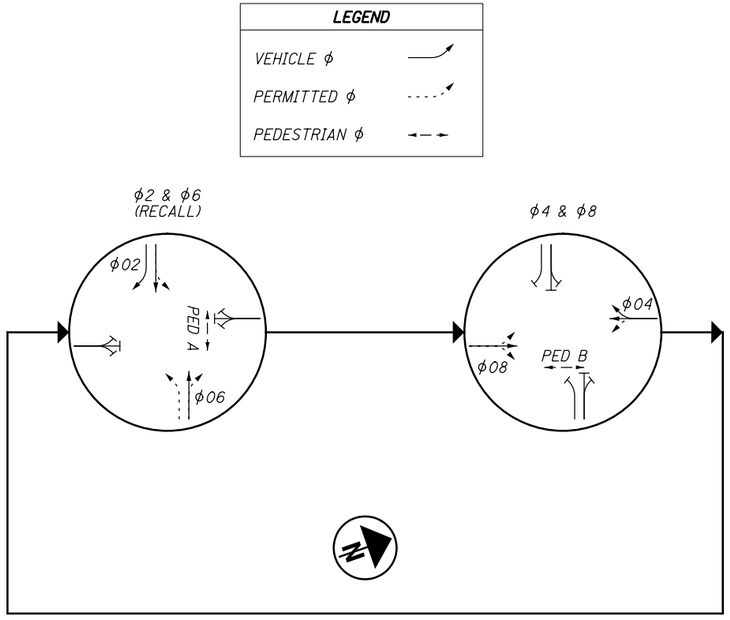
DUAL ENTRY: YES | PHASES: 2,4,6,8
REST IN RED: RING 1 - | RING 2 -

OVERLAP	A	B	C	D
PHASES	-	-	-	-

INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			WB LT	EB	NB LT	SB	EB LT	WB	SB LT	NB
MINIMUM GREEN (INITIAL)		(SEC.)	-	20	-	10	-	20	-	10
ADDED INITIAL		*(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL		(SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP)		(SEC.)	-	3.0	-	3.0	-	3.0	-	3.0
TIME BEFORE REDUCTION		*(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP		*(SEC.)	-	-	-	-	-	-	-	-
TIME TO REDUCE		*(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I		(SEC.)	-	60	-	30	-	60	-	30
MAXIMUM GREEN II		(SEC.)	-	-	-	-	-	-	-	-
YELLOW CHANGE		(SEC.)	-	3.5	-	3.5	-	3.5	-	3.5
ALL RED CLEARANCE		(SEC.)	-	2.0	-	2.0	-	2.0	-	2.0
WALK		(SEC.)	-	-	-	-	-	8	-	8
PEDESTRIAN CLEARANCE		(SEC.)	-	-	-	-	-	6	-	13
RECALL	MAXIMUM	(ON/OFF)	-	-	-	-	-	-	-	-
	MINIMUM	(ON/OFF)	-	ON	-	-	-	ON	-	-
	PEDESTRIAN	(ON/OFF)	-	-	-	-	-	-	-	-
MEMORY		(ON/OFF)	-	-	-	-	-	-	-	-

*VOLUME DENSITY CONTROLS

PHASING DIAGRAM



NOTES:

- ALL MOVEMENTS SHALL BE ACTUATED. THE PRIMARY THRU MOVEMENT SHOULD HAVE MIN RECALL ACTIVE TO REST IN GREEN.
- COUNTDOWN PEDESTRIAN SIGNALS SHALL GO TO ZERO ON YELLOW PER OMUTCD FIGURE 4E-2.
- ALL DETECTOR DELAYS SHALL BE PLACED IN THE CONTROLLER.

RADAR DETECTION CHART

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY IN CONTROLLER (SEC)	DELAY INHIBIT PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
D2A	EB RT	PRESENCE	ϕ2	10	ϕ2	CALL/EXTEND PHASE 2	40
D2B	EB	PRESENCE	ϕ2	0	ϕ2	CALL/EXTEND PHASE 2	40
D4	SB	PRESENCE	ϕ4	10	ϕ4	CALL/EXTEND PHASE 4	40
D6A	WB	PRESENCE	ϕ6	0	ϕ6	CALL/EXTEND PHASE 6	40
D6B	WB LT	PRESENCE	ϕ6	0	ϕ6	CALL/EXTEND PHASE 6	40
D8	NB	PRESENCE	ϕ8	10	ϕ8	CALL/EXTEND PHASE 8	40

PREEMPT CHANNELS

CHANNEL 1 = ϕ(2) (EASTBOUND ONLY)
CHANNEL 2 = ϕ(6) (WESTBOUND ONLY)
CHANNEL 3 = ϕ(4) (SOUTHBOUND ONLY)
CHANNEL 4 = ϕ(8) (NORTHBOUND ONLY)

PREEMPT NOTES:

1. ACTIVE WALK INDICATIONS SHALL IMMEDIATELY GO TO "DONT WALK" UPON RECEIVING PREEMPTION SIGNAL.
2. IF PHASE ACTIVE CONFLICTS WITH PREEMPT PHASE CALLED, IT SHALL IMMEDIATELY TIME ITS YELLOW AND ALL RED CLEARANCES.
3. IF ACTIVE PHASE = THE PREEMPT PHASE, THEN THE PHASE SHALL HOLD FOR DURATION OF THE PREEMPT SIGNAL.
4. AFTER RELEASE FROM PREEMPT, YELLOW AND ALL RED CLEARANCE SHALL BE DISPLAYED AND RETURN PHASE SHALL BE ϕ (2+6).
5. IF PREEMPT PHASE = RETURN PHASE ϕ (2+6) THEN YELLOW AND ALL RED CLEARANCE AFTER PREEMPT SHALL NOT BE DISPLAYED.

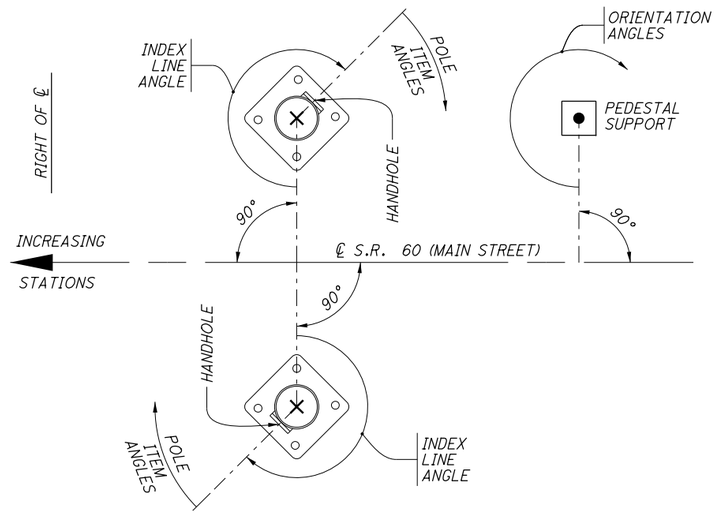
CALCULATED LOB | CHECKED KMG

TRAFFIC SIGNAL PLAN DETAILS
S.R. 60 / BRIDGE ST.

MUS-CR32-0.00

PLAN DETAILS FOR STRAIN POLES AND PEDESTALS

POLE NO.	DESIGN NO.	POLE HEIGHT (FT.)	FOUNDATION ELEV.	SPAN WIRE ATTACHED HEIGHT	CABLE ENTRANCE DISTANCE FROM TOP (IN.)	INDEX LINE ANGLE (DEG.)	ANGLES (DEG.) FROM INDEX LINE		
							PEDESTRIAN SIGNALS	PEDESTRIAN PUSHBUTTONS	CABLE ENTRANCE
SP-1	13	32	709.10	27.2′	70	135	-	-	180
SP-2	13	32	705.60	25.1′	95	220	-	-	180
SP-3	13	32	703.30	27.8′	63	220	-	-	180
SP-4	13	32	703.85	28.8′	51	135	-	-	180
PS-1	-	8	-	-	-	100	260	180	-
PS-2	-	8	-	-	-	260	100	180	-
PS-3	-	8	-	-	-	180	90	180	-
PS-4	-	8	-	-	-	165	95	180	-

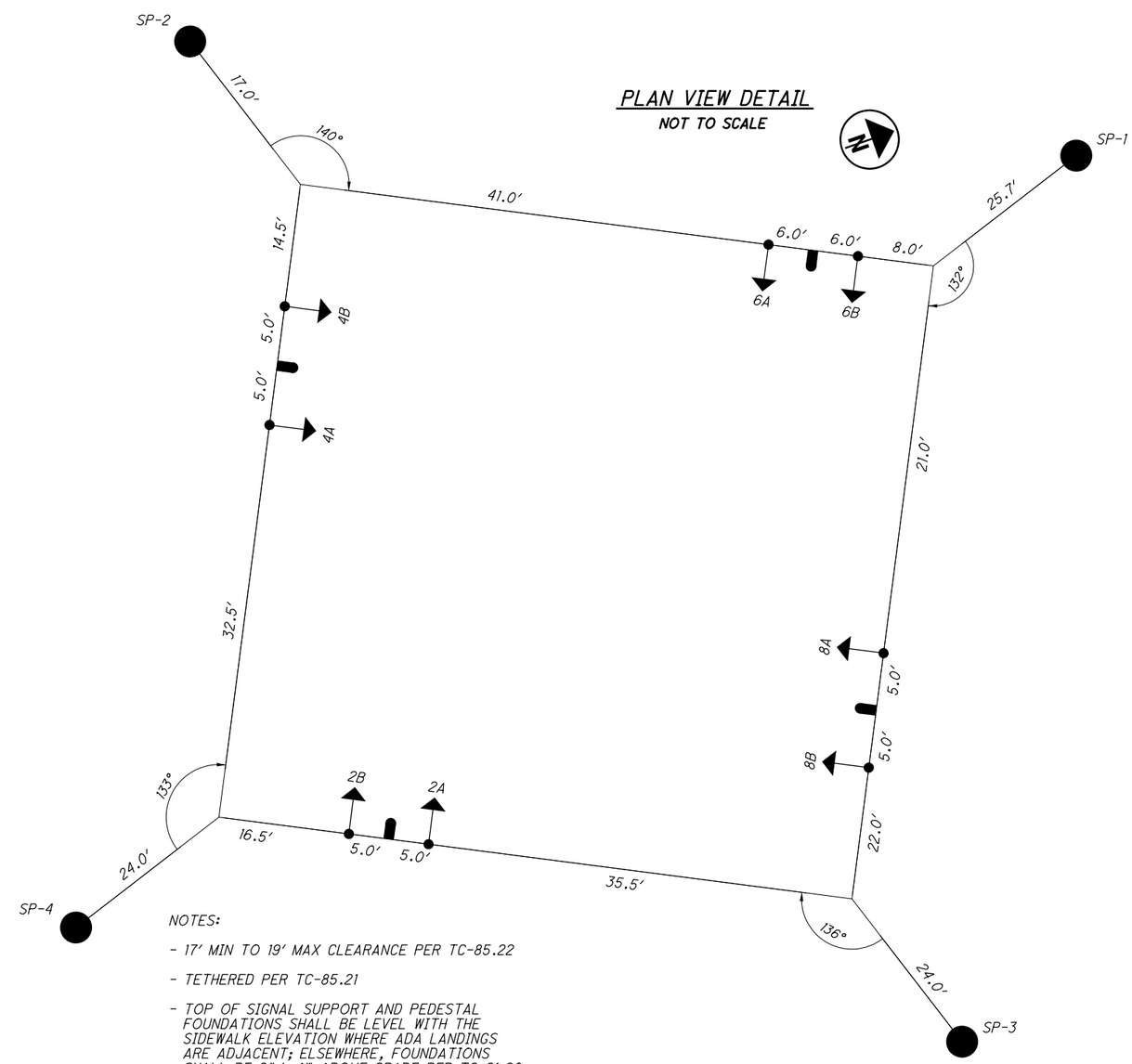


NOTES:

- ALL ANGLES ARE MEASURED CLOCKWISE.
- THE INDEX LINE GOES THROUGH THE CENTER OF THE HANDHOLE.

POLE DIAGRAM

PLAN VIEW DETAIL
NOT TO SCALE



NOTES:

- 17′ MIN TO 19′ MAX CLEARANCE PER TC-85.22
- TETHERED PER TC-85.21
- TOP OF SIGNAL SUPPORT AND PEDESTAL FOUNDATIONS SHALL BE LEVEL WITH THE SIDEWALK ELEVATION WHERE ADA LANDINGS ARE ADJACENT; ELSEWHERE, FOUNDATIONS SHALL BE 2″ (± 1″) ABOVE GRADE PER TC-21.20

CALCULATED LOB
CHECKED KMG

TRAFFIC SIGNAL PLAN DETAILS
S.R. 60 / BRIDGE ST.

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FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A,2B (EB)	R	ϕ 2 R	Y
	Y	ϕ 2 Y	
	G	ϕ 2 G	
4A,4B (SB)	R	ϕ 4 R	R
	Y	ϕ 4 Y	
	G	ϕ 4 G	
6A,6B (WB)	R	ϕ 6 R	Y
	Y	ϕ 6 Y	
	G	ϕ 6 G	
8A,8B (NB)	R	ϕ 8 R	R
	Y	ϕ 8 Y	
	G	ϕ 8 G	
PEDESTRIAN MOVEMENTS			
PED A	W	ϕ6 PED/ LS 6P G	OUT
	DW	ϕ6 PED/ LS 6P R	
PED B	W	ϕ8 PED/ LS 8P G	OUT
	DW	ϕ8 PED/ LS 8P R	
LS = LOAD SWITCH			

LEGEND

- 3 SECTION VEHICULAR SIGNAL HEAD, 1-WAY
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PREEMPTION CONFIRMATION LIGHT AND RECEIVING UNIT
- STOP BAR RADAR DETECTION UNIT
- (LIC) 2/C NO. 14 AWG (LEAD-IN CABLE)
- (4C) SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG
- (7C) SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
- (RC) RADAR DETECTION CABLE
- POWER SOURCE
- (SC) SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG
- (PC) POWER CABLE, 2 CONDUCTOR, NO. 6 AWG
- (MB) METER BASE
- (DS) SIGNAL DISCONNECT SWITCH
- (UPS) UNINTERRUPTIBLE POWER SUPPLY CABLE
- (D) PREEMPTION DETECTOR CABLE

CALCULATED LOB
CHECKED KMG

TRAFFIC SIGNAL PLAN DETAILS
S.R. 60 / BRIDGE ST.

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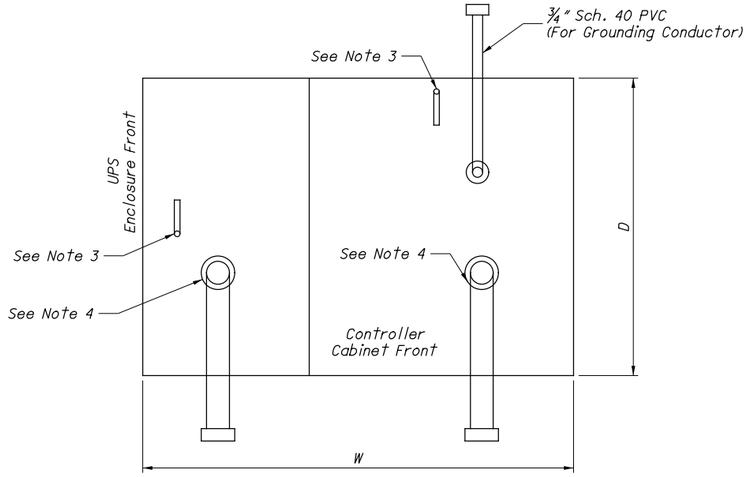

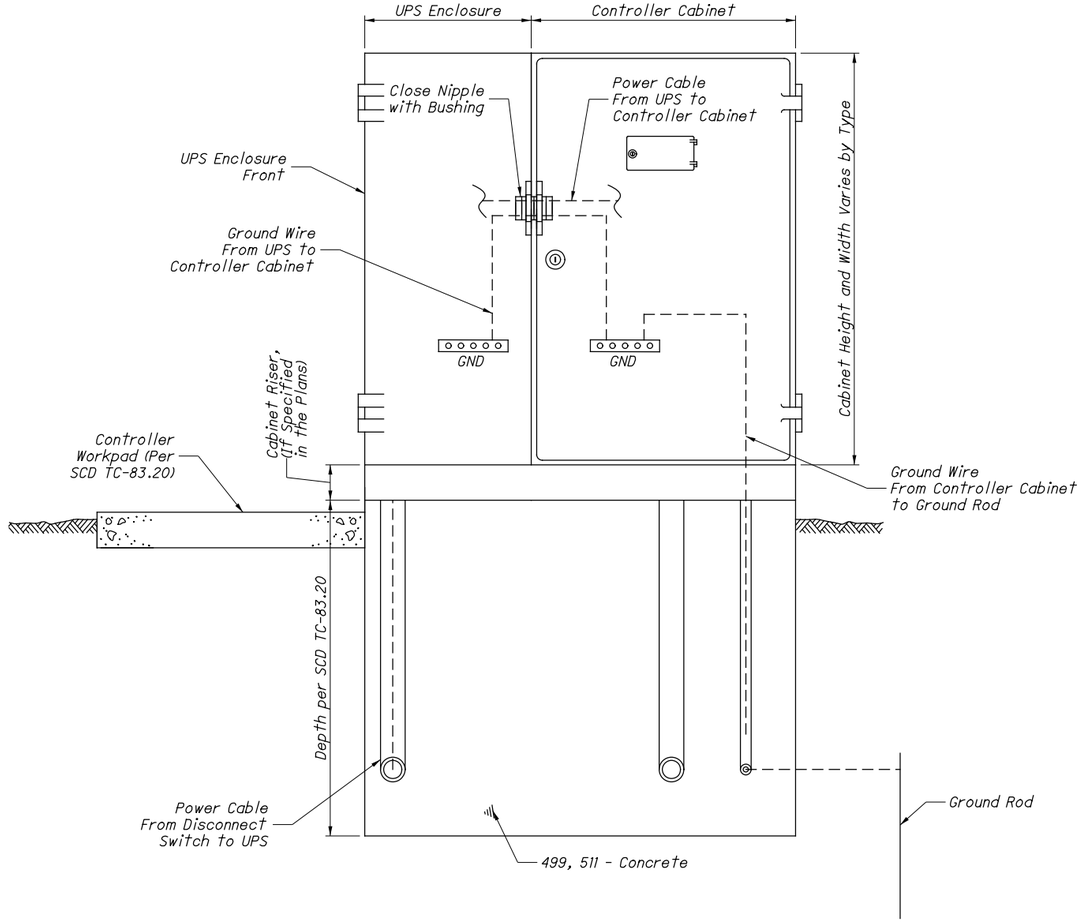

NOTES:

1. The Uninterruptible Power Supply (UPS) enclosure shall be mounted flush up against the traffic signal cabinet and sealed with silicone. The Contractor shall be responsible for providing the necessary power cable between the UPS unit and signal cabinet.
2. The UPS should be placed on the opposite side of the pull box on a 332/336 cabinet (per Standard Construction Drawing (SCD) TC-83.20). The UPS placement for a NEMA cabinet varies, placement should provide adequate access with respect to slope, guardrail spacing, etc.
3. The size, number, and location of anchor bolts shall be in accordance with the manufacturer's recommendations.
4. The size, number, and orientation of conduit ells shall be as shown in the plan, except that a ¾" schedule 40 PVC shall be installed in each foundation.
5. 1/2" preformed joint filler as per CMS 705.03 shall be used between foundations and adjacent paved areas.
6. See SCD TC-83.20 for further details.

TYPE	W (IN.)	D (IN.)	FOUNDATION CONCRETE (CU. YD.)
TS-1	60	24	1.23
TS-2	70	36	2.16
2070/170	50	36	1.54

THIS DRAWING REPLACES PIS 208320 DATED 04-20-2012.

PLAN INSERT SHEET
UNINTERRUPTIBLE POWER SUPPLY (UPS) AND CONTROLLER CABINET FOUNDATION

PIS 208320

1 / 1

0 / 0

OFFICE OF ROADWAY ENGINEERING

REVISION DATE	DESIGNED	DRAWN	CHECKED
07-18-2014	XXX	XXX	XXX
CHECKED	REVIEWED		
CHECKED	XXX		

CALCULATED LOB
CHECKED KMG

TRAFFIC SIGNAL PLAN INSERT SHEET

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ITEM 625 LIGHT POLE (15'), DECORATIVE AS PER PLAN

IN ADDITION TO CMS SPECIFICATIONS 625, DECORATIVE LIGHT POLES SHALL BE FIBERGLASS REINFORCED PLASTIC POLES WITH A BLACK FINISH. THE FIBERGLASS REINFORCED PLASTIC POLE SHALL BE THE MOST CURRENT MODEL OF THE MAIN STREET LIGHTING RTM-SERIES FF-803-BK, SHAKESPEAR AP17-13FS011 OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS "ITEM 625 LIGHT POLE (15'), DECORATIVE 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 (35'), CONVENTIONAL AS PER PLAN

IN ADDITION TO CMS SPECIFICATIONS 625, CONVENTIONAL LIGHT POLES SHALL BE ALUMINUM AND SHALL BE POWDER COATED BLACK. NO T-BASE IS REQUIRED FOR THIS INSTALLATION. THE POLE SHALL HAVE A MINIMUM WALL THICKNESS OF 0.156". THE POLE SHALL TAPER FROM 8" BASE O.D. TO 4 1/2" TOP O.D. POLES SHALL BE CURRENT MODEL OF HAPCO SERIES 52, VALMONT LEXINGTON OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS "ITEM 625 LIGHT POLE (35'), CONVENTIONAL 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.

625, POWER SERVICE AS PER PLAN

POWER SOURCE LOCATION ARE APPROXIMATE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL CONTACT THE POWER SERVICE COMPANY TO ARRANGE FOR NEW POWER SERVICE. THE POWER SERVICE SHALL BE RUN UNDERGROUND TO A GROUND MOUNTED LIGHTING CONTROL CENTER, IN CONFORMANCE WITH SCD HL-40.20. THE COST FOR ALL CONDUIT AND POWER CABLE FROM THE POWER SOURCE TO THE LIGHTING CABINET IS ACCOUNTED FOR IN THE PLANS. ANY ADDITIONAL CONDUIT AND POWER CABLE REQUIRED DUE TO A RELOCATION OF THE ELECTRIC UTILITY SHALL BE PAID FOR AT THE UNIT PRICE FOR CONDUIT AND POWER CABLE PAY ITEMS IN THE PLANS.

IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOLLOWING IS ADDED. THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

POWER COMPANY:	AEP OHIO - DISTRIBUTION
ADDRESS:	850 TECH CENTER DRIVE GAHANNA, OHIO 43230
PHONE NUMBER:	614-883-6831
CONTACT NAME:	PAUL PAXTON

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.

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.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD CONSTRUCTION DRAWINGS FOR DETAILS ON DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET. AN ESTIMATED QUANTITY OF 120 LINEAR FEET OF ITEM 611 4" CONDUIT, TYPE E, IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM 625 LUMINAIRE, MISC.: PEDESTRIAN WALKWAY & ROADWAY

IN ADDITION TO CMS SPECIFICATIONS 625, LUMINAIRES FOR PEDESTRIAN WALKWAY AND ROADWAY LIGHTING UNITS SHALL BE A BALLISTIC GRADE, LOW MOUNTED, FLAT BEAM STYLE LED TYPE LUMINAIRE. THE POLYCARBONATE LUMINAIRE CLEAR LENS COVER SHALL BE BULLETPROOF AND INCLUDE A FORMED SILICON GASKET MATERIAL AROUND THE JUNCTION BOX FRAME OPENING AS SHOWN ON THE DETAIL ON THIS SHEET. ALL MOUNTING HARDWARE (STAINLESS STEEL OR LUMINAIRE FRAME MATERIAL), CABLE WIRING HARNESS, STAINLESS STEEL FASTENERS SHALL BE INCLUDED AND CONSIDERED INCIDENTAL TO THIS PAY ITEM. THE LUMINAIRE ASSEMBLY SHALL BE THE MOST CURRENT VERSION OF THE NORTH STAR LIGHTING, NSL-BLX-28W SERIES OR EQUAL AS APPROVED BY THE ENGINEER. THE MANUFACTURER HAS THE OPTION TO SUPPLY THE JUNCTION BOX UNDER THE ITEM 625 BARRIER JUNCTION BOX, AS PER PLAN PAY ITEM TO ENSURE THE POLYCARBONATE LUMINAIRE CLEAR LENS COVER IS MANUFACTURED TO BE COMPATIBLE WITH THE JUNCTION BOX FRAME.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, MISC.: PEDESTRIAN WALKWAY & ROADWAY", WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND INCIDENTAL REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 LUMINAIRE, CONVENTIONAL SOLID STATE (138 WATT LED), AS PER PLAN

IN ADDITION TO CMS SPECIFICATIONS 625, LUMINAIRES FOR LED STREET LIGHTING UNITS SHALL PROVIDE APPROXIMATELY 15,000 LUMENS PER UNIT, BE BLACK IN COLOR, PROVIDE 3,000 DEGREE COLOR TEMPERATURE (PLUS OR MINUS 300 DEGREES KELVIN), BE 240V AND PROVIDE A TYPE 3 MEDIUM OPTICS DISTRIBUTION. THE 138 WATT LED LUMINAIRE SHALL BE A NVN NAVION BY EATON (STREETWORKS), AMERICAN ELECTRIC LIGHTING (AEL) AUTOBAHN SERIES CAT. #ATB2-60BLEDE10-MVOLT-R3-PCSS OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, CONVENTIONAL SOLID STATE (138 WATT LED), AS PER PLAN", WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND INCIDENTAL REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 LUMINAIRE, POST TOP, SOLID STATE (88 WATT LED), AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATION, LUMINAIRES SHALL PROVIDE A TYPE III DISTRIBUTION. 88 WATT LED'S SHALL BE U.S. POLES "GLR" SERIES (GLR-YD-LED VPA-III 80LED WW 240 PT RAL-9005-T), GENERAL ELECTRIC "EVOLVE LED POST TOP" (E-3-C3-C-30-A-1-X-BLCK), OR EQUAL AS APPROVED BY THE ENGINEER.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, POST TOP, SOLID STATE (88 WATT LED), AS PER PLAN", WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND INCIDENTAL REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

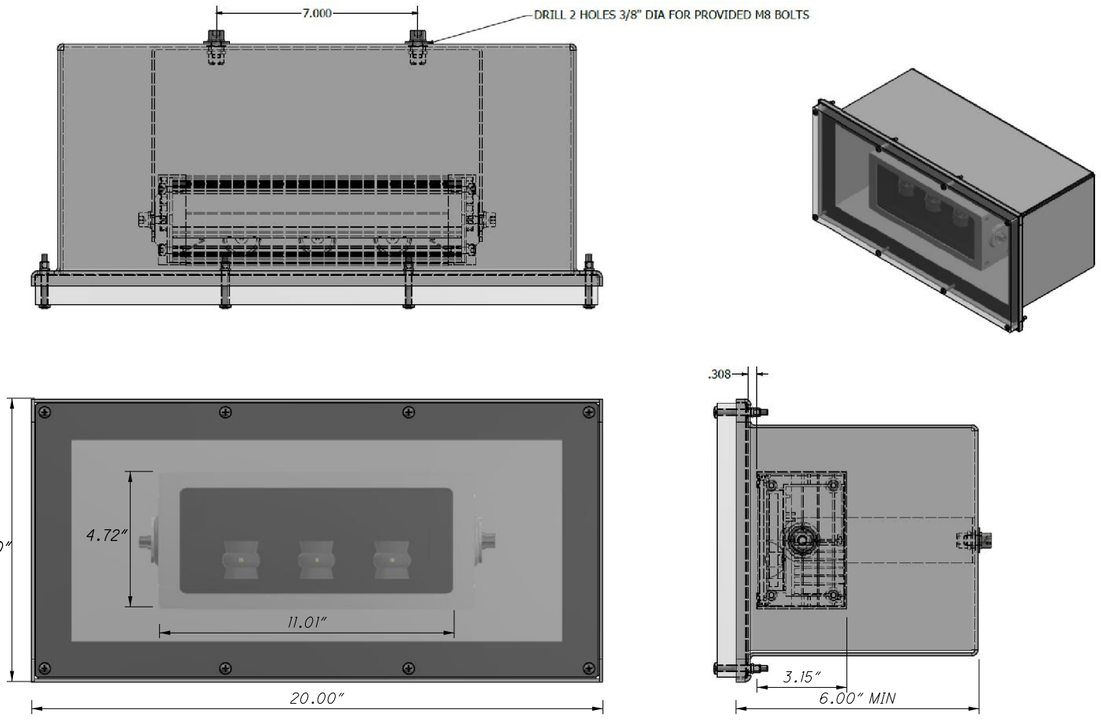
ITEM 625 BARRIER JUNCTION BOX, AS PER PLAN

IN ADDITION TO CMS SPECIFICATIONS 625, THE BARRIER JUNCTION BOX SHALL BE FABRICATED AND INSTALLED WITHOUT A FRONT COVER AND BE OPEN TO THE FACE OF THE BARRIER WALL. CONDUITS ENTERING AND EXITING THE BARRIER JUNCTION BOX SHALL BE INSTALLED AT THE TOP SIDE OR TOP PORTION OF THE BARRIER JUNCTION BOX UNIT AS NOT TO ALLOW WATER TO FREELY ENTER THE CONDUIT. JUNCTION BOX SHALL BE A MINIMUM SIZE OF 10" HIGH, 20" LONG AND 6" DEEP. CONTRACTOR TO COORDINATE LUMINAIRE AND JUNCTION BOX SHOP DRAWINGS TO ENSURE THE POLYCARBONATE LUMINAIRE CLEAR LENS COVER IS MANUFACTURED TO BE COMPATIBLE WITH THE JUNCTION BOX FRAME. SEE DETAIL ON THIS SHEET.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS "ITEM 625 BARRIER JUNCTION BOX, 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.

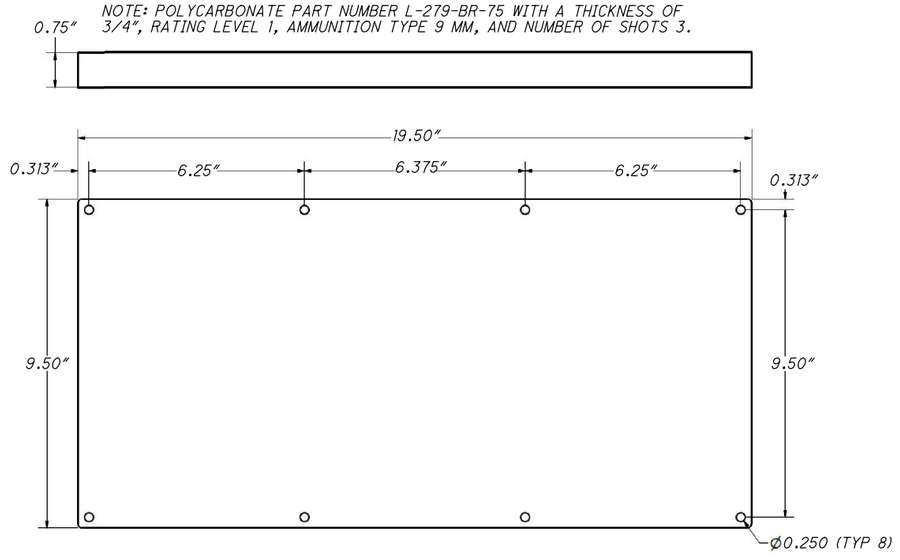
UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD CONSTRUCTION DRAWINGS FOR DETAILS ON DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET. AN ESTIMATED QUANTITY OF 120 LINEAR FEET OF ITEM 611 4" CONDUIT, TYPE E, IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.



NJZ-SLD 28W LUMINAIRE - J-BOX MOUNTED - BULLETPROOF POLYCARBONATE COVER

NOTE: POLYCARBONATE PART NUMBER L-279-BR-75 WITH A THICKNESS OF 3/4", RATING LEVEL 1, AMMUNITION TYPE 9 MM, AND NUMBER OF SHOTS 3.



J-BOX BULLETPROOF POLYCARBONATE LENS

CALCULATED KJM CHECKED SDS

LIGHTING NOTES SHEET 1 OF 3

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PROPOSED LIGHT BARRIER LIGHTING - RIGHT BARRIER (WALKWAY) LEGEND

BARRIER LUMINAIRE DESCRIPTIONS				REF NO.
12+98.25		19.8' RT	CIRCUIT A	11
LED	28 W	23"		
13+24.25		19.8' RT	CIRCUIT A	13
LED	28 W	23"		
13+50.25		19.8' RT	CIRCUIT A	17
LED	28 W	23"		
13+76.25		19.8' RT	CIRCUIT A	19
LED	28 W	23"		
14+02.25		19.8' RT	CIRCUIT A	23
LED	28 W	23"		
14+28.25		19.8' RT	CIRCUIT A	25
LED	28 W	23"		
14+54.25		19.8' RT	CIRCUIT A	29
LED	28 W	23"		
14+80.25		19.8' RT	CIRCUIT A	31
LED	28 W	23"		
15+06.25		19.8' RT	CIRCUIT A	35
LED	28 W	23"		
15+32.25		19.8' RT	CIRCUIT A	40
LED	28 W	23"		
15+58.25		19.8' RT	CIRCUIT A	44
LED	28 W	23"		
15+84.25		19.8' RT	CIRCUIT A	46
LED	28 W	23"		
16+10.25		19.8' RT	CIRCUIT A	50
LED	28 W	23"		
16+36.25		19.8' RT	CIRCUIT A	52
LED	28 W	23"		
16+62.25		19.8' RT	CIRCUIT A	56
LED	28 W	23"		
16+88.25		19.8' RT	CIRCUIT A	58
LED	28 W	23"		
17+14.25		19.8' RT	CIRCUIT A	62
LED	28 W	23"		
17+40.25		19.8' RT	CIRCUIT A	67
LED	28 W	23"		
17+66.25		19.8' RT	CIRCUIT A	71
LED	28 W	23"		

BARRIER LUMINAIRE DESCRIPTIONS			
STATION		OFFSET	CIRCUIT DESIGNATION
LUMINAIRE TYPE	LUMINAIRE POWER	MOUNTING HEIGHT*	

*MOUNTING HEIGHT TO TOP OF FIXTURE. REFER TO LIGHTING DETAIL SHEETS.

PROPOSED PULL BOX/JUNCTION BOX INSTALLATIONS

BOX NO.	STATION	OFFSET	REF. ALIGN.	DESCRIPTION	SUB-SUMMARY REF. NUMBER
MJ1	12+80.02	18.6' RT	C.R. 32	14"X14"X10"" MEDIAN JUNCTION BOX	5
MJ6	21+46.93	18.8' LT	C.R. 32	14"X14"X10"" MEDIAN JUNCTION BOX	150
MJ7	21+48.30	18.8' RT	C.R. 32	14"X14"X10"" MEDIAN JUNCTION BOX	119
P1	12+77.20	21.58' LT	C.R. 32	24" PULL BOX	3c
P2	12+77.20	22.35' RT	C.R. 33	24" PULL BOX	4b
P3	21+48.85	20.22' LT	C.R. 32	24" PULL BOX	146a
P4	21+47.96	25.80' RT	C.R. 32	24" PULL BOX	127
P5	23+83.36	17.5' LT	C.R. 32	24" PULL BOX	140
P6	23+83.36	24.0' RT	C.R. 32	24" PULL BOX	138

PROPOSED LIGHT BARRIER LIGHTING - RIGHT BARRIER (WALKWAY) LEGEND

BARRIER LUMINAIRE DESCRIPTIONS				REF NO.
17+92.25		19.8' RT	CIRCUIT A	73
LED	28 W	23"		
18+18.25		19.8' RT	CIRCUIT A	77
LED	28 W	23"		
18+44.25		19.8' RT	CIRCUIT A	79
LED	28 W	23"		
18+70.25		19.8' RT	CIRCUIT A	83
LED	28 W	23"		
18+96.25		19.8' RT	CIRCUIT A	85
LED	28 W	23"		
19+22.25		19.8' RT	CIRCUIT A	89
LED	28 W	23"		
19+48.25		19.8' RT	CIRCUIT A	94
LED	28 W	23"		
19+74.25		19.8' RT	CIRCUIT A	98
LED	28 W	23"		
20+00.25		19.8' RT	CIRCUIT A	100
LED	28 W	23"		
20+26.25		19.8' RT	CIRCUIT A	104
LED	28 W	23"		
20+52.25		19.8' RT	CIRCUIT A	106
LED	28 W	23"		
20+78.25		19.8' RT	CIRCUIT A	110
LED	28 W	23"		
21+04.25		19.8' RT	CIRCUIT A	112
LED	28 W	23"		
21+30.25		19.8' RT	CIRCUIT A	116
LED	28 W	23"		
21+59.05		19.6' RT	CIRCUIT A	124
LED	28 W	23"		

PROPOSED LIGHT POLE LEGEND

DESCRIPTION				REF NO.
13+00.68		9.4' RT	CIRCUIT A	1
LED	138 W	35'-0"		
12+79.46		23.6' LT	CIRCUIT A	3a
LED	88 W	15'-0"		
12+77.20		28.4' RT	CIRCUIT A	7
LED	88 W	15'-0"		
21+47.90		28.8' RT	CIRCUIT B	121
LED	88 W	15'-0"		
21+48.92		22.2' LT	CIRCUIT B	147
LED	88 W	15'-0"		
22+40.00		24.0' RT	CIRCUIT B	130
LED	138 W	26'-5"		

POLE & LUMINAIRE DESCRIPTIONS			
STATION		OFFSET	CIRCUIT AND POLE DESIGNATION
LUMINAIRE TYPE	LUMINAIRE POWER	MOUNTING HEIGHT	

CONTROL CENTER DATA

CONTROL CENTER	LINE VOLTS	TOTAL CONNECTED LOAD	CIRCUIT NO.	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE AMPS	CIRCUIT CABLE SIZE AWG	MAINTAINING AGENCY	VOLTAGE DROP
CC #1 22+49.11	240	2.59 (KVA)	A	7.38	20	#4	COUNTY	2.26%
		10.79 (AMPS)	B	3.41	20	#4	COUNTY	1.09%
NOTE: FOR ADDITIONAL CONTROL CENTER DETAILS, SEE STD. CONST. DWGS.								

*BRANCH CIRCUITS HAVE BEEN SIZED FOR VOLTAGE DROP CONDUCTORS. SIZE SHALL BE ADJUSTED BASED ON ACTUAL ROUTING NOT TO EXCEED 3%.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE HL AND TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

2. CONDUITS.

A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BOUNDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.
IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD.

A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. PAYMENT.

A. ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED.

PADLOCKS AND KEYS

PADLOCKS FURNISHED FOR ODOT CONTROL CENTERS SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH CMS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEMS BEING LOCKED.

CALCULATED K.JM CHECKED SDS

LIGHTING NOTES SHEET 2 OF 3

MUS-CR32-0.00

PROPOSED LIGHT BARRIER LIGHTING - LEFT BARRIER (ROADWAY) LEGEND				
BARRIER LUMINAIRE DESCRIPTIONS				REF NO.
12+95.00		17.6' LT	CIRCUIT B	184
LED	28 W	18"		
13+47.00		17.6' LT	CIRCUIT B	182
LED	28 W	18"		
13+99.00		17.6' LT	CIRCUIT B	180
LED	28 W	18"		
14+51.00		17.6' LT	CIRCUIT B	178
LED	28 W	18"		
15+03.00		17.6' LT	CIRCUIT B	176
LED	28 W	18"		
15+55.00		17.6' LT	CIRCUIT B	174
LED	28 W	18"		
16+07.00		17.6' LT	CIRCUIT B	172
LED	28 W	18"		
16+59.00		17.6' LT	CIRCUIT B	170
LED	28 W	18"		
17+11.00		17.6' LT	CIRCUIT B	168
LED	28 W	18"		
17+63.00		17.6' LT	CIRCUIT B	166
LED	28 W	18"		
18+15.00		17.6' LT	CIRCUIT B	164
LED	28 W	18"		
18+67.00		17.6' LT	CIRCUIT B	162
LED	28 W	18"		
19+19.00		17.6' LT	CIRCUIT B	160
LED	28 W	18"		
19+71.00		17.6' LT	CIRCUIT B	158
LED	28 W	18"		
20+23.00		17.6' LT	CIRCUIT B	156
LED	28 W	18"		
20+75.00		17.6' LT	CIRCUIT B	154
LED	28 W	18"		
21+27.00		17.6' LT	CIRCUIT B	152
LED	28 W	18"		
21+64.43		17.6' LT	CIRCUIT B	144
LED	28 W	18"		

PROPOSED LIGHT BARRIER LIGHTING - RIGHT BARRIER (ROADWAY) LEGEND				
BARRIER LUMINAIRE DESCRIPTIONS				REF NO.
12+95.00		17.6' RT	CIRCUIT A	9
LED	28 W	18"		
13+47.00		17.6' RT	CIRCUIT A	15
LED	28 W	18"		
13+99.00		17.6' RT	CIRCUIT A	21
LED	28 W	18"		
14+51.00		17.6' RT	CIRCUIT A	27
LED	28 W	18"		
15+03.00		17.6' RT	CIRCUIT A	33
LED	28 W	18"		
15+55.00		17.6' RT	CIRCUIT A	42
LED	28 W	18"		
16+07.00		17.6' RT	CIRCUIT A	48
LED	28 W	18"		
16+59.00		17.6' RT	CIRCUIT A	54
LED	28 W	18"		
17+11.00		17.6' RT	CIRCUIT A	60
LED	28 W	18"		
17+63.00		17.6' RT	CIRCUIT A	69
LED	28 W	18"		
18+15.00		17.6' RT	CIRCUIT A	75
LED	28 W	18"		
18+67.00		17.6' RT	CIRCUIT A	81
LED	28 W	18"		
19+19.00		17.6' RT	CIRCUIT A	87
LED	28 W	18"		
19+71.00		17.6' RT	CIRCUIT A	96
LED	28 W	18"		
20+23.00		17.6' RT	CIRCUIT A	102
LED	28 W	18"		
20+75.00		17.6' RT	CIRCUIT A	108
LED	28 W	18"		
21+27.00		17.6' RT	CIRCUIT A	114
LED	28 W	18"		
21+62.26		17.6' RT	CIRCUIT A	126
LED	28 W	18"		

BARRIER LUMINAIRE DESCRIPTIONS			
STATION		OFFSET	CIRCUIT AND POLE DESIGNATION
LUMINAIRE TYPE	LUMINAIRE POWER	MOUNTING HEIGHT*	

* MOUNTING HEIGHT TO TOP OF FIXTURE. REFER TO LIGHTING DETAIL SHEETS.

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CHECKED SDS

LIGHTING NOTES SHEET 3 OF 3

MUS-CR32-0.00

REF. NO.	SHT. NO.	STATION TO STATION	SIDE	ROADWAY	625 CONNECTION, FUSED PULL APART EACH	625 CONNECTION, UNFUSED PERMANENT EACH	625 LIGHT POLE (15'), DECORATIVE, AS PER PLAN EACH	625 LIGHT POLE (35'), CONVENTIONAL, AS PER PLAN EACH	625 LIGHT POLE FOUNDATION, 24" X 6' DEEP EACH	625 LIGHT POLE FOUNDATION, 24" X 10' DEEP EACH	625 NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 CONDUIT, 2", 725.04 FT	625 CONDUIT, 2", 725.051 FT	625 CONDUIT, 4", 725.04 FT	625 LUMINAIRE, CONVENTIONAL, SOLID STATE (138 WATT LED), AS PER PLAN EACH	625 LUMINAIRE, POST TOP, SOLID STATE (88 WATT LED), AS PER PLAN EACH	625 LUMINAIRE, MISC.: PEDESTRIAN WALKWAY & ROADWAY EACH	625 TRENCH, 24" DEEP FT	625 MEDIAN JUNCTION BOX EACH	625 BARRIER JUNCTION BOX, AS PER PLAN EACH	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 STRUCTURE GROUNDING SYSTEM EACH	625 PLASTIC CAUTION TAPE FT			
																										1			
1	94	13.00.68	LT	C.R. 32	2	1		1		1		135				1							1						
2	94	13+00.68 TO 12+79.46	LT	C.R. 32							240			70					70							70			
3a	94	12+79.46	LT	C.R. 32	2	1	1		1			75					1							1					
3b	94	12+79.46 TO 12+79.48	LT	C.R. 32							39			3					3							3			
3c	94	12+77.20	LT	C.R. 32		3																	1						
4a	94	12+77.20 TO 12+77.20	LT/RT	C.R. 32							162			44	44				44							44			
4b	94	12+77.20	RT	C.R. 32		3																	1						
5a	94	12+77.20 TO 12+80.02	RT	C.R. 32							45			5					5							5			
5b	94	12+80.00	RT	C.R. 32		3															1								
6	94	12+77.20 TO 12+77.20	RT	C.R. 32							48			6					6							6			
7	94	12+77.20	RT	C.R. 32	2	1	1		1			75					1							1					
8	94	12+80.02 TO 12+95.00	RT	C.R. 32							84		18																
9	94	12+95.00	RT	C.R. 32	2	1												1				1							
10	94	12+95.00 TO 12+98.25	RT	C.R. 32							39		3																
11	94	12+98.25	RT	C.R. 32	2	1												1				1							
12	94	12+98.25 TO 13+24.25	RT	C.R. 32							108		26																
13	94	13+24.25	RT	C.R. 32	2	1												1				1							
14	94	13+24.25 TO 13+50.25	RT	C.R. 32							108		26																
15	94	13+47.00	RT	C.R. 32	2	1												1				1							
16	94	13+47.00 TO 13+50.25	RT	C.R. 32							39		3																
17	94	13+50.25	RT	C.R. 32	2	1												1				1							
18	94	13+50.25 TO 13+76.25	RT	C.R. 32							108		26																
19	94	13+76.25	RT	C.R. 32	2	1												1				1							
20	94	13+76.25 TO 14+02.25	RT	C.R. 32							108		26																
21	94	13+99.00	RT	C.R. 32	2	1												1				1							
22	94	13+99.00 TO 14+02.25	RT	C.R. 32							39		3																
23	94	14+02.25	RT	C.R. 32	2	1												1				1							
24	94	14+02.25 TO 14+28.25	RT	C.R. 32							108		26																
25	94	14+28.25	RT	C.R. 32	2	1												1				1							
26	94/95	14+28.25 TO 14+51.00	RT	C.R. 32							108		26																
27	95	14+51.00	RT	C.R. 32	2	1												1				1							
28	95	14+51.00 TO 14+54.25	RT	C.R. 32							39		3																
29	95	14+54.25	RT	C.R. 32	2	1												1				1							
30	95	14+54.25 TO 14+80.25	RT	C.R. 32							108		26																
31	95	14+80.25	RT	C.R. 32	2	1												1				1							
32	95	14+80.25 TO 15+06.25	RT	C.R. 32							108		26																
33	95	15+03.00	RT	C.R. 32	2	1												1				1							
34	95	15+03.00 TO 15+06.25	RT	C.R. 32							39		3																
35	95	15+06.25	RT	C.R. 32	2	1												1				1							
39	95	15+06.25 TO 15+32.25	RT	C.R. 32							108		26																
40	95	15+32.25	RT	C.R. 32	2	1												1				1							
41	95	15+32.25 TO 15+58.25	RT	C.R. 32							108		26																
42	95	15+55.00	RT	C.R. 32	2	1												1				1							
43	95	15+55.00 TO 15+58.25	RT	C.R. 32							39		3																
44	95	15+58.25	RT	C.R. 32	2	1												1				1							
45	95	15+58.25 TO 15+84.25	RT	C.R. 32							108		26																
46	95	15+84.25	RT	C.R. 32	2	1												1				1							
47	95	15+84.25 TO 16+10.25	RT	C.R. 32							108		26																
48	95	16+07.00	RT	C.R. 32	2	1												1				1							
49	95	16+07.00 TO 16+10.25	RT	C.R. 32							39		3																
50	95	16+10.25	RT	C.R. 32	2	1												1				1							
51	95	16+10.25 TO 16+36.25	RT	C.R. 32							108		26																
52	95	16+36.25	RT	C.R. 32	2	1												1				1							
53	95	16+36.25 TO 16+62.25	RT	C.R. 32							108		26																
54	95	16+59.00	RT	C.R. 32	2	1												1				1							
55	95	16+59.00 to 16+62.25	RT	C.R. 32							39		3																
56	95	16+62.25	RT	C.R. 32	2	1												1				1							
57	95	16+62.25 TO 16+88.25	RT	C.R. 32							108		26																
58	95	16+88.25	RT	C.R. 32	2	1												1				1							
59	95	16+88.25 to 17+14.25	RT	C.R. 32							108		26																
60	95	17+11.00	RT	C.R. 32	2	1												1				1							
61	95	17+11.00 to 17+14.25	RT	C.R. 32							39		3																
62	95	17+14.25	RT	C.R. 32	2	1												1				1							
66	95	17+14.25 TO 17+40.25	RT	C.R. 32							108		26																
TOTALS CARRIED TO GENERAL SUMMARY					58	38	2	1	2	1	2805	285	487	128	44	1	2	26	128	1	26	2	3	1	128				

CALCULATED KJM
CHECKED SDS

LIGHTING SUBSUMMARY SHEET 1 OF 3

MUS-CR32-0.00

REF. NO.	SHT. NO.	STATION TO STATION	SIDE	ROADWAY	625 CONNECTION, FUSED PULL APART EACH	625 CONNECTION, UNFUSED PERMANENT EACH	625 LIGHT POLE (15'), DECORATIVE, AS PER PLAN EACH	625 LIGHT POLE (35'), CONVENTIONAL, AS PER PLAN EACH	625 LIGHT POLE FOUNDATION, 24" X 6' DEEP EACH	625 LIGHT POLE FOUNDATION, 24" X 10' DEEP EACH	625 NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 CONDUIT, 2", 725.04 FT	625 CONDUIT, 2", 725.051 FT	625 LUMINAIRE, CONVENTIONAL, SOLID STATE (138 WATT LED), AS PER PLAN EACH	625 LUMINAIRE, POST TOP, SOLID STATE (88 WATT LED), AS PER PLAN EACH	625 LUMINAIRE, MISC.: PEDESTRIAN WALKWAY & ROADWAY EACH	625 TRENCH, 24" DEEP FT	625 MEDIAN JUNCTION BOX EACH	625 BARRIER JUNCTION BOX, AS PER PLAN EACH	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 PLASTIC CAUTION TAPE FT
67	95	17+40.25	RT	C.R. 32	2	1											1			1			
68	95	17+40.25 TO 17+66.25	RT	C.R. 32							108		26										
69	95	17+63.00	RT	C.R. 32	2	1											1			1			
70	95	17+63.00 TO 17+66.25	RT	C.R. 32							39		3										
71	95	17+66.25	RT	C.R. 32	2	1											1			1			
72	95	17+66.25 TO 17+92.25	RT	C.R. 32							108		26										
73	95	17+92.25	RT	C.R. 32	2	1											1			1			
74	95	17+92.25 TO 18+18.25	RT	C.R. 32							108		26										
75	95	18+15.00	RT	C.R. 32	2	1											1			1			
76	95	18+15.00 TO 18+18.25	RT	C.R. 32							39		3										
77	95	18+18.25	RT	C.R. 32	2	1											1			1			
78	95	18+18.25 TO 18+44.25	RT	C.R. 32							108		26										
79	95	18+44.25	RT	C.R. 32	2	1											1			1			
80	95	18+44.25 TO 18+70.25	RT	C.R. 32							108		26										
81	95	18+67.00	RT	C.R. 32	2	1											1			1			
82	95	18+67.00 TO 18+70.25	RT	C.R. 32							39		3										
83	95	18+70.25	RT	C.R. 32	2	1											1			1			
84	95	18+70.25 TO 18+96.25	RT	C.R. 32							108		26										
85	95	18+96.25	RT	C.R. 32	2	1											1			1			
86	95	18+96.25 TO 19+22.25	RT	C.R. 32							108		26										
87	95	19+19.00	RT	C.R. 32	2	1											1			1			
88	95	19+19 TO 19+22.25	RT	C.R. 32							39		3										
89	95	19+22.25	RT	C.R. 32	2	1											1			1			
93	95	19+35.25 TO 19+48.25	RT	C.R. 32							69		13										
94	95	19+48.25	RT	C.R. 32	2	1											1			1			
95	96	19+48.25 TO 17+74.25	RT	C.R. 32							108		26										
96	96	19+71.00	RT	C.R. 32	2	1											1			1			
97	96	19+71.00 TO 19+74.25	RT	C.R. 32							39		3										
98	96	19+74.25	RT	C.R. 32	2	1											1			1			
99	96	19+74.25 TO 20+00.25	RT	C.R. 32							108		26										
100	96	20+00.25	RT	C.R. 32	2	1											1			1			
101	96	20+00.25 TO 20+26.25	RT	C.R. 32							108		26										
102	96	20+23.00	RT	C.R. 32	2	1											1			1			
103	96	20+23.00 TO 20+26.25	RT	C.R. 32							39		3										
104	96	20+26.25	RT	C.R. 32	2	1											1			1			
105	96	20+26.25 TO 20+52.25	RT	C.R. 32							108		26										
106	96	20+52.25	RT	C.R. 32	2	1											1			1			
107	96	20+52.25 TO 20+78.25	RT	C.R. 32							108		26										
108	96	20+75.00	RT	C.R. 32	2	1											1			1			
109	96	20+75.00 TO 20+78.25	RT	C.R. 32							39		3										
110	96	20+78.25	RT	C.R. 32	2	1											1			1			
111	96	20+78.25 TO 21+04.25	RT	C.R. 32							108		26										
112	96	21+04.25	RT	C.R. 32	2	1											1			1			
113	96	21+04.25 TO 21+30.25	RT	C.R. 32							108		26										
114	96	21+27.00	RT	C.R. 32	2	1											1			1			
115	96	21+27.00 TO 21+30.25	RT	C.R. 32							39		3										
116	96	21+30.25	RT	C.R. 32	2	1											1			1			
117	96	21+30.25 TO 21+46.38	RT	C.R. 32							81		17										
119	96	21+48.30	RT	C.R. 32		3													1				
120	96	21+47.96 to 41+47.90	RT	C.R. 32							39			3				3				3	
121	96	21+47.90	RT	C.R. 32	2	1	1		1			75				1					1		
122	96	21+47.90 TO 22+40.00	RT	C.R. 32							324			98				98				98	
123	96	21+48.30 TO 21+59.05	RT	C.R. 32							60		10										
124	96	21+59.05	RT	C.R. 32	2	1											1			1			
125	96	21+59.05 TO 21+60.18	RT	C.R. 32							39		3										
126	96	21+62.26	RT	C.R. 32	2	1											1			1			
127	96	21+47.96	RT	C.R. 32		3															1		
128	96	21+48.30 TO 22+49.11	RT	C.R. 32							366			112				112				112	
130	96	22+40.00	RT	C.R. 32	2	1		1		1		135			1						1		
132	96	22+40.00 TO 22+49.11	RT	C.R. 32							63			11				11				11	
TOTALS CARRIED TO GENERAL SUMMARY					56	34	1	1	1	1	2865	210	431	224	1	1	26	224	1	26	1	2	224

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LIGHTING SUBSUMMARY SHEET 2 OF 3

MUS-CR32-0.00

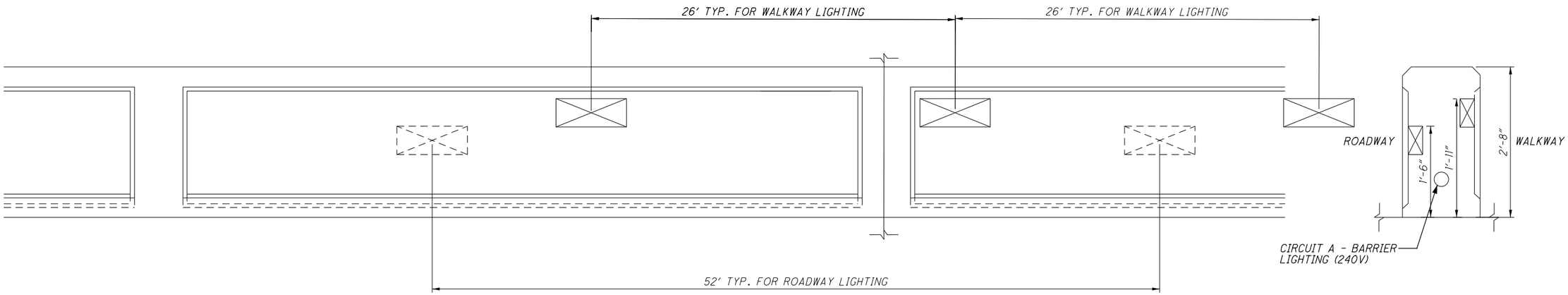
REF. NO.	SHT. NO.	STATION TO STATION	SIDE	ROADWAY	625 CONNECTION, FUSED PULL APART EACH	625 CONNECTION, UNFUSED PERMANENT EACH	625 LIGHT POLE (15'), DECORATIVE, AS PER PLAN EACH	625 LIGHT POLE FOUNDATION, 24" X 6' DEEP EACH	625 NO. 2/0 AWG 2400 VOLT DISTRIBUTION CABLE FT	625 NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 CONDUIT, 2", 725.04 FT	625 CONDUIT, 2", 725.051 FT	625 CONDUIT, 4", 725.04 FT	625 LUMINAIRE, POST TOP, SOLID STATE (88 WATT LED), AS PER PLAN EACH	625 LUMINAIRE, MISC.: PEDESTRIAN WALKWAY & ROADWAY EACH	625 TRENCH, 24" DEEP FT	625 MEDIAN JUNCTION BOX EACH	625 BARRIER JUNCTION BOX, AS PER PLAN EACH	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 POWER SERVICE, AS PER PLAN EACH	625 PLASTIC CAUTION TAPE FT
135	96	22+49.11	RT	C.R. 32																	2		
137	96	22+49.11 TO 23+83.36	RT	C.R. 32					426					132			132						132
138	96	233+83.36	RT	C.R. 32		3														1			
139	96	23+83.36 TO 23+83.36	LT/RT	C.R. 32					156					42			42						42
140	96	23+83.36	LT	C.R. 32		3														1			
141	96	23+83.36 TO 23+83.36	LT	C.R. 32					72					14			14						14
142	96	23+83.36	LT	C.R. 32																		1	
143	96	21+48.85 TO 21+47.96	LT/RT	C.R. 32						171			47	47			47						47
144	96	21+64.43	LT	C.R. 32	2	1										1			1				
145	96	21+46.93 TO 21+64.43	LT	C.R. 32						75		15											
146a	96	21+48.85	LT	C.R. 32		3														1			
146b	96	21+48.86 TO 21+48.92	LT	C.R. 33						36			2				2						2
147	96	21+48.92	LT	C.R. 32	2	1	1	1			75				1						1		
148	96	21+48.93 TO 21+46.93	LT	C.R. 32						45			5				5						5
150	96	21+46.93	LT	C.R. 32		3												1					
151	96	21+27.00 TO 21+46.93	LT	C.R. 32						84		18											
152	96	21+27.00	LT	C.R. 32	2	1										1			1				
153	96	20+75.00 TO 21+27.00	LT	C.R. 32						186		52											
154	96	20+75.00	LT	C.R. 32	2	1										1			1				
155	96	20+23.00 TO 20+75.00	LT	C.R. 32						186		52											
156	96	20+23.00	LT	C.R. 32	2	1										1			1				
157	96	17+71.00 TO 20+23.00	LT	C.R. 32						186		52											
158	96	19+71.00	LT	C.R. 32	2	1										1			1				
159	96	19+19.00 TO 19+71.00	LT	C.R. 32						186		52											
160	95	19+19.00	LT	C.R. 32	2	1										1			1				
161	95	18+67.00 TO 19+19.00	LT	C.R. 32						186		52											
162	95	18+67.00	LT	C.R. 32	2	1										1			1				
163	95	18+15.00 TO 18+67.00	LT	C.R. 32						186		52											
164	95	18+15.00	LT	C.R. 32	2	1										1			1				
165	95	17+63.00 TO 18+15.00	LT	C.R. 32						186		52											
166	95	17+63.00	LT	C.R. 32	2	1										1			1				
167	95	17+11.00 TO 17+63.00	LT	C.R. 32						186		52											
168	95	17+11.00	LT	C.R. 32	2	1										1			1				
169	95	16+59.00 TO 17+11.00	LT	C.R. 32						186		52											
170	95	16+59.00	LT	C.R. 32	2	1										1			1				
171	95	16+07 to 16+59.00	LT	C.R. 32						186		52											
172	95	16+07.00	LT	C.R. 32	2	1										1			1				
173	95	16+07.00 TO 15+55.00	LT	C.R. 32						186		52											
174	95	15+55.00	LT	C.R. 32	2	1										1			1				
175	95	15+03.00 TO 15+55.00	LT	C.R. 32						186		52											
176	95	15+03.00	LT	C.R. 32	2	1										1			1				
177	95	14+51.00 TO 15+03.00	LT	C.R. 32						186		52											
178	95	14+51.00	LT	C.R. 32	2	1										1			1				
179	94	13+99.00 TO 14+51.00	LT	C.R. 32						186		52											
180	94	13+99.00	LT	C.R. 32	2	1										1			1				
181	94	13+47.00 TO 13+99.00	LT	C.R. 32						186		52											
182	94	13+47.00	LT	C.R. 32	2	1										1			1				
183	94	12+95.00 TO 13+47.00	LT	C.R. 32						186		52											
184	94	12+95.00	LT	C.R. 32	2	1										1			1				
TOTALS CARRIED TO GENERAL SUMMARY					38	31	1	1	654	3387	75	865	54	235	1	18	242	1	18	3	3	1	242

CALCULATED KJM CHECKED SDS

LIGHTING SUBSUMMARY SHEET 3 OF 3

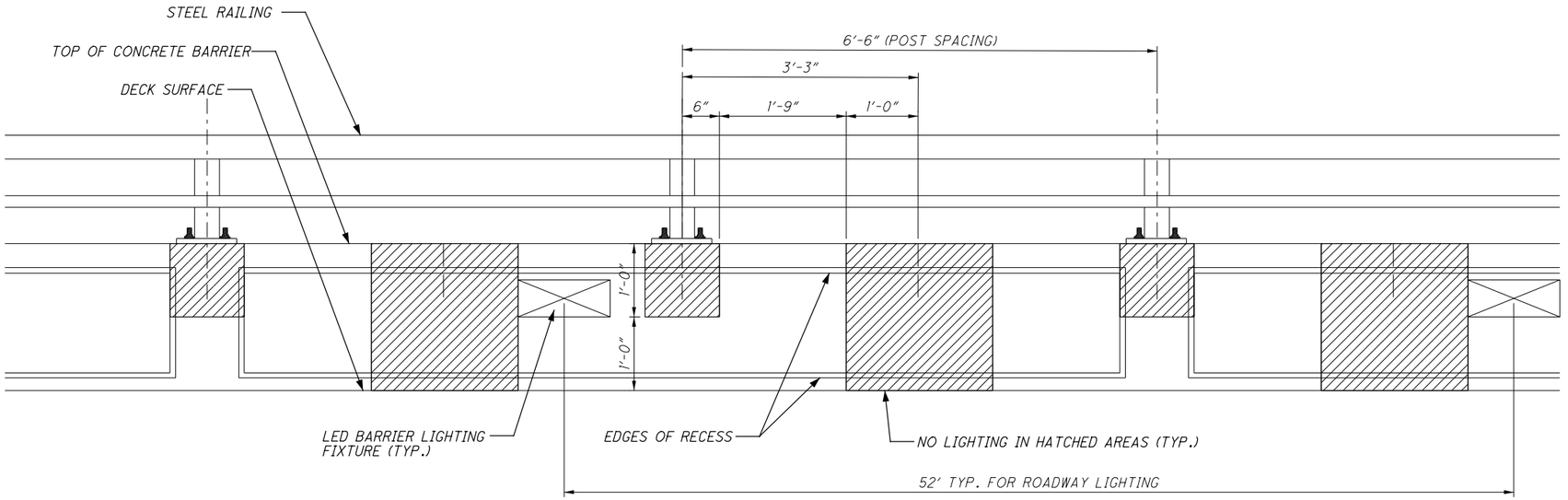
MUS-CR32-0.00

90
192

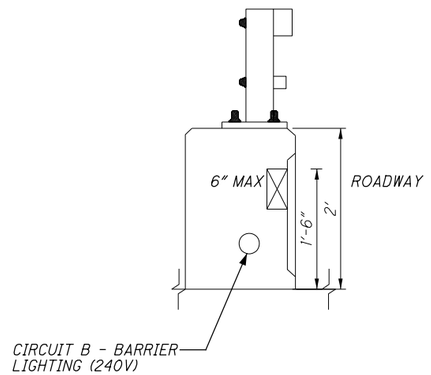


ELEVATION VIEW - RIGHT BARRIER
RECESSED LIGHTING DETAIL
N.T.S.

SECTION VIEW
TYPICAL MOUNTING HEIGHT
N.T.S.



ELEVATION VIEW - LEFT BARRIER W/ RAILING
RECESSED LIGHTING DETAIL
N.T.S.

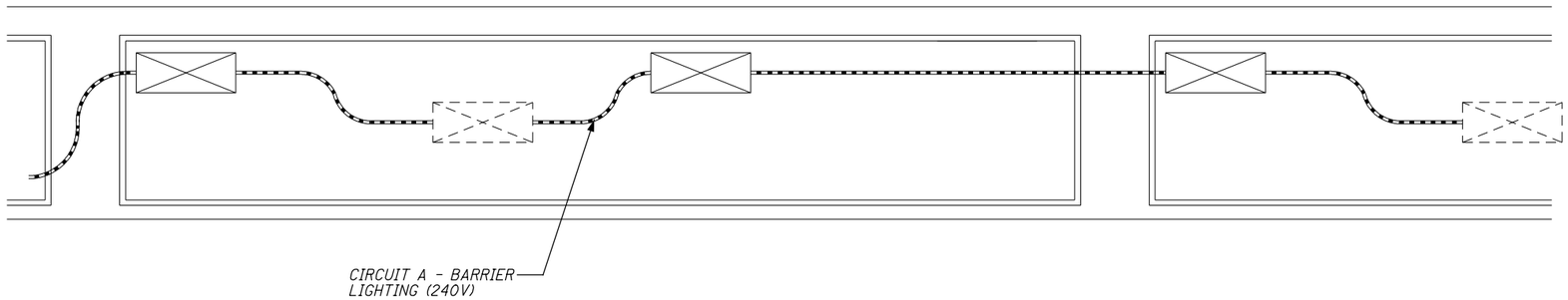


SECTION VIEW
TYPICAL MOUNTING HEIGHT
N.T.S.

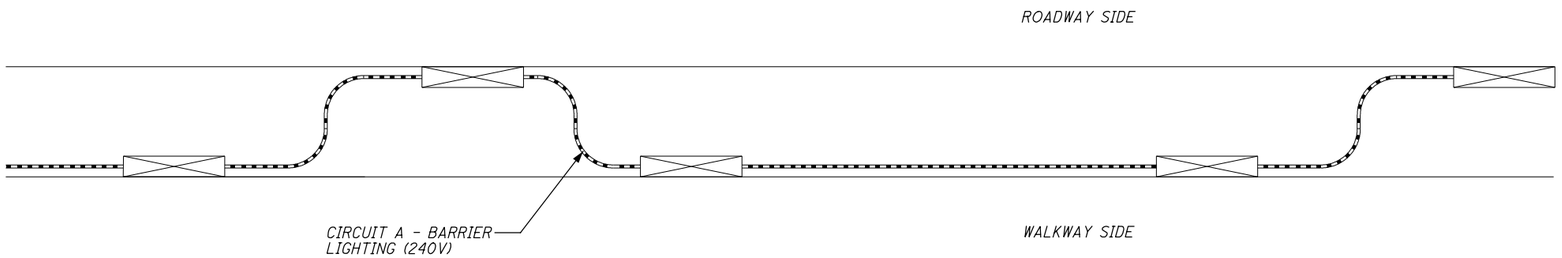
CALCULATED WCF
CHECKED SDS

LIGHTING DETAILS SHEET 1 OF 2

MUS-CR32-0.00



CONDUIT DETAILS
ELEVATION VIEW - RIGHT BARRIER
N.T.S.



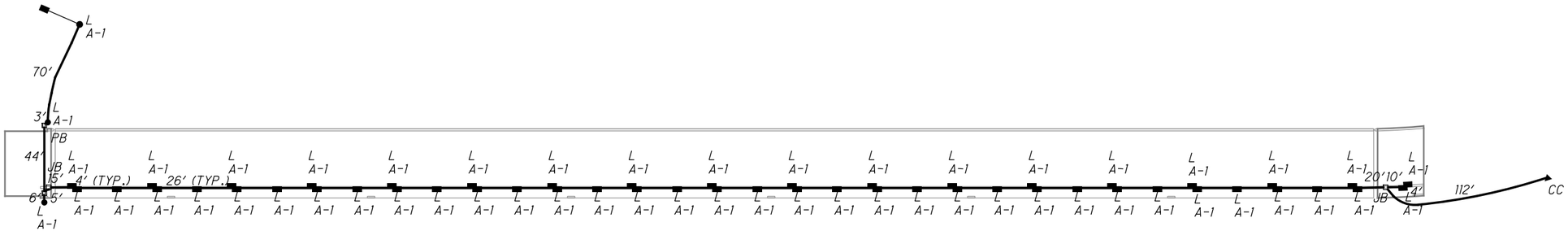
CONDUIT DETAILS
PLAN VIEW - RIGHT BARRIER
N.T.S.

CALCULATED WCF
CHECKED SDS

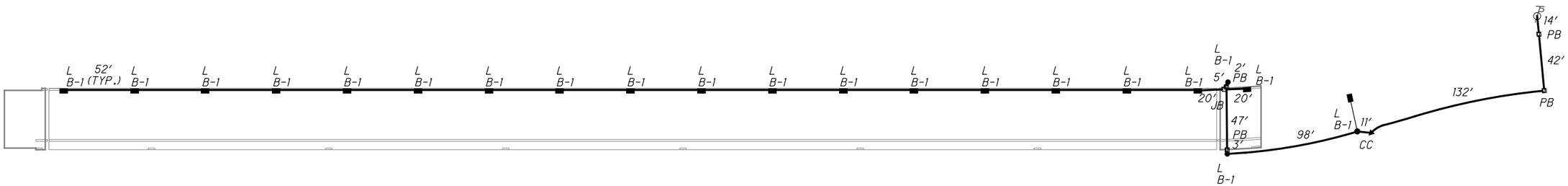
LIGHTING DETAILS SHEET 2 OF 2

MUS-CR32-0.00

92
192



CIRCUIT A



CIRCUIT B

LEGEND	
L	LUMINAIRE
PB	PULL BOX
JB	JUNCTION BOX
CC	CONTROL CENTER

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED WCF
CHECKED SDS

LIGHTING CIRCUIT DIAGRAM

MUS-CR32-0.00

NOTES: (-)

1. FOR ROADWAY LED BARRIER LIGHTING, PLACE FIRST FIXTURE AT 12+95.00, THEN SPACE EACH FIXTURE AT 52' ON CENTER. PLACE LAST FIXTURE ON BRIDGE AT 21+27.00. CONNECT WIRE TO LIGHTING FIXTURES AND GROUND PER MANUFACTURING RECOMMENDATIONS. WIRE EACH FIXTURE AT 240V. EACH FIXTURE SHALL BE FULLY RECESSED IN TO FACE OF BARRIER.

2. FOR WALKWAY LED BARRIER LIGHTING PLACE FIRST FIXTURE AT 12+98.25, THEN SPACE EACH FIXTURE AT 26' ON CENTER. PLACE LAST FIXTURE ON BRIDGE AT 21+30.25. CONNECT WIRE TO LIGHTING FIXTURES AND GROUND PER MANUFACTURING RECOMMENDATIONS. WIRE EACH FIXTURE AT 240V. EACH FIXTURE SHALL BE FULLY RECESSED IN TO FACE OF BARRIER.

3. SEE SHEETS 156 AND 159 FOR BARRIER END DETAILS WITH EXPANSION FITTING.

4. USE CORRUGATED CARDBOARD LINER WHEN DRILLING FOR LUMINAIRE, POST TOP, SOLID STATE (LED) FOUNDATION.

5. NO. 4 AWG DISTRIBUTION CABLE IN 2" SCHEDULE 40 (725.051) CONDUIT IN 4" SCHEDULE 80 (725.04) CONDUIT.

6. NO. 2/0 AWG DISTRIBUTION CABLE IN 4" SCHEDULE 80 (725.04) CONDUIT.

EXISTING AEP LUMINAIRE TO REMAIN

(1) LUMINAIRE, CONVENTIONAL, SOLID STATE (LED) STA. 13+00.68, 87.15' LT.

EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

(4)(3a) LUMINAIRE, POST TOP, SOLID STATE (LED) STA. 12+79.46, 23.58' LT.

(3c) PULL BOX, 24" STA. 12+77.20, 21.58' LT.

(4b) PULL BOX, 24" STA. 12+77.20, 22.35' RT.

(4)(7) LUMINAIRE, POST TOP, SOLID STATE (LED) STA. 12+77.20, 28.35' RT.

(5b) MEDIAN MOUNTED JUNCTION BOX (14" X 14" X 10") STA. 12+80.02

(1) BARRIER LIGHTING (ROADWAY) FIXTURE (TYP.)

(23) BARRIER LIGHTING (WALKWAY) FIXTURE (TYP.)

STRUCTURE GROUNDING SYSTEM

C.R. 32 (BRIDGE ST.)

PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

OLD RIVER RD.

MATCHLINE STA. 14+50 SEE SHEET 95.

LEGEND

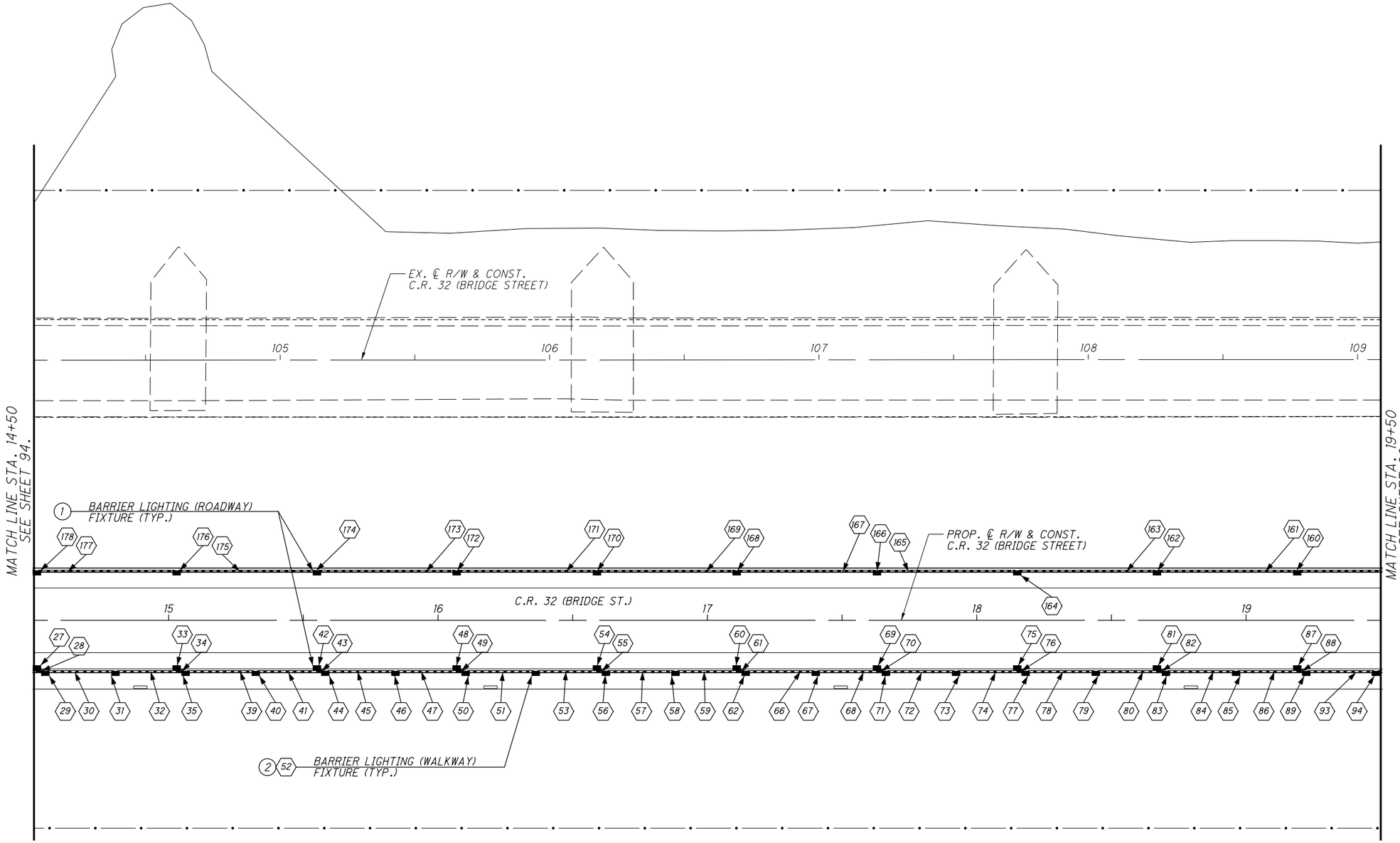
- LIGHTING CONDUCTORS IN CONDUIT, NO. 4 AWG IN 2" CONDUIT (UNLESS NOTED OTHERWISE)
- LUMINAIRE, POST TOP, SOLID STATE (LED)
- LUMINAIRE, CONVENTIONAL, SOLID STATE (LED)
- BARRIER LIGHTING
- BARRIER MOUNTED JUNCTION BOX
- PULL BOX
- LIGHTING CONTROL CENTER

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED WCF CHECKED SDS

LIGHTING PLAN
BEGIN TO STA. 14+50

MUS-CR32-0.00



SEE NOTES AND LEGEND ON SHEET 94.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED WCF
CHECKED SDS

LIGHTING PLAN
STA. 14+50 TO STA. 19+50

MUS-CR32-0.00

MATCH LINE STA. 19+50
SEE SHEET 95.

EX. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)

C.R. 32 (BRIDGE ST.)

WATER ST.

Ex R/W

Ex SW

Ex CH

SAN

TMP

PULL BOX, 24"
STA. 21+48.85, 20.22' LT.

4 (147) LUMINAIRE, POST TOP, SOLID STATE (LED)
STA. 21+48.92, 22.22' LT.

(150) MEDIAN MOUNTED
JUNCTION BOX
(14" X 14" X 10")
STA. 21+46.93

1 BARRIER LIGHTING (ROADWAY)
FIXTURE (TYP.)

2 (110) BARRIER LIGHTING (WALKWAY)
FIXTURE (TYP.)

(119) MEDIAN MOUNTED
JUNCTION BOX
(14" X 14" X 10")
STA. 21+48.30

(127) PULL BOX, 24"
STA. 21+47.96, 25.80' RT.

4 (121) LUMINAIRE, POST TOP,
SOLID STATE (LED)
STA. 21+47.90, 28.80' RT.

(124) BARRIER LIGHTING (WALKWAY)
FIXTURE.
STA. 21+59.05

(126) BARRIER LIGHTING (ROADWAY)
FIXTURE.
STA. 21+62.26

(130) LUMINAIRE, CONVENTIONAL,
SOLID STATE (LED)
STA. 22+40.00, 24.00' RT.

(135) LIGHTING CONTROL CENTER
CC#1
STA. 22+49.11, 27.25' RT.

(142) PROPOSED POWER SERVICE
(APPROXIMATE LOCATION, TO -
BE SET BY AEP WITH UTILITY
RELOCATION)
STA. 23+83.36, 30.78' LT.

(140) PULL BOX, 24"
STA. 23+83.36, 17.50' LT.

(138) PULL BOX, 24"
STA. 23+83.36, 24.00' RT.

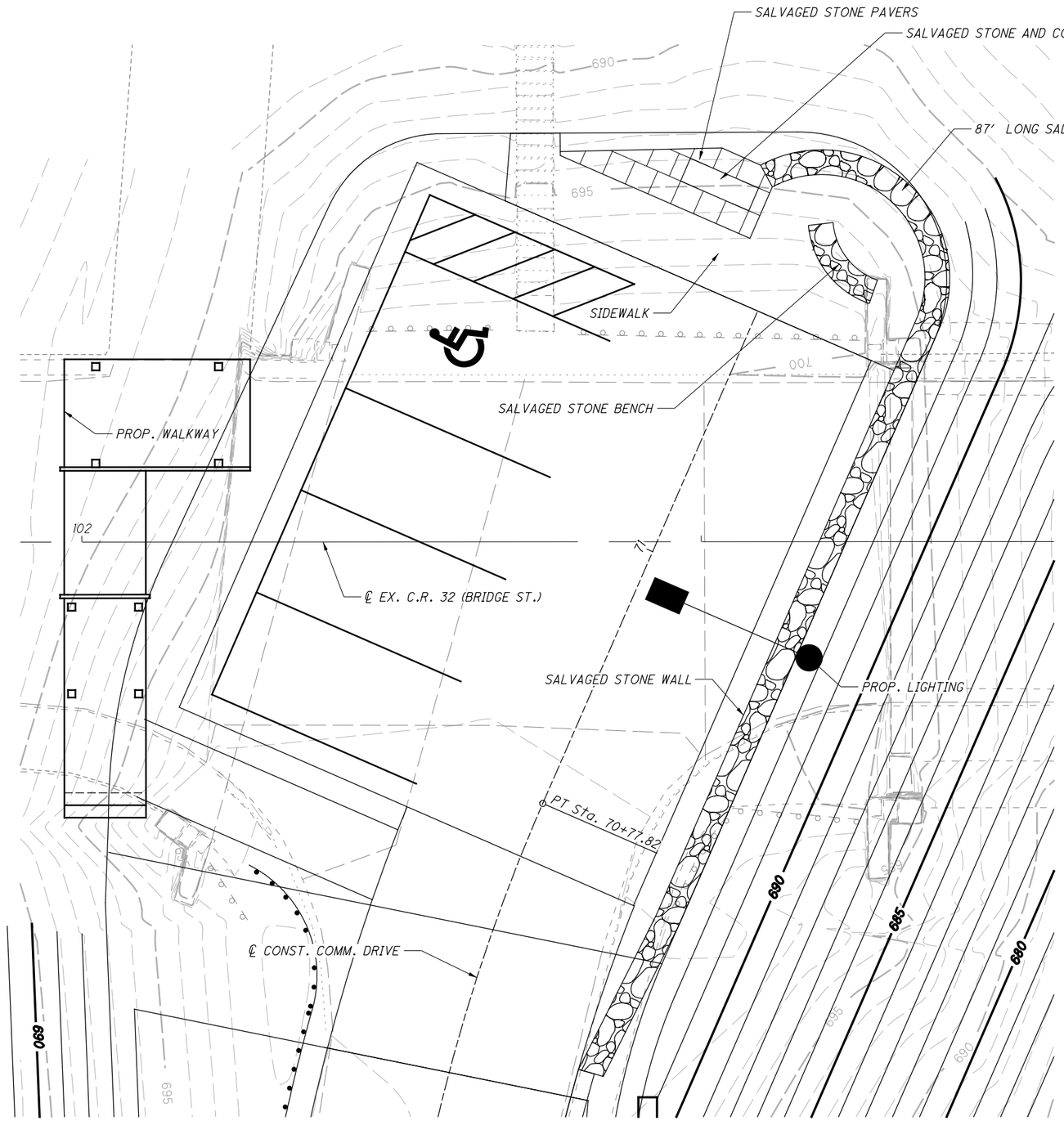
SEE NOTES AND LEGEND ON SHEET 94.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED WCF
CHECKED SDS

LIGHTING PLAN
STA. 19+50 TO END

MUS-CR32-0.00



ESTIMATED QUANTITIES - COMMEMORATIVE DISPLAY

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
SPECIAL	69098400	LUMP		SPECIAL - COMMEMORATIVE DISPLAY

GENERAL COMMEMORATIVE DISPLAY NOTES

THE CONTRACTOR SHALL CONSTRUCT A COMMEMORATIVE DISPLAY ACCORDING THE NOTES AND DETAILS HEREIN. THE COMMEMORATIVE DISPLAY SHALL INCLUDE SALVAGED STONE FROM THE EXISTING BRIDGE PIERS AND SANDSTONE WALLS WHICH ARE TO BE REMOVED. THE STONES SHALL BE USED TO CREATE A BENCH, A SEAT WALL, A DISPLAY, AND A PAVER AREA. IN ADDITION, A CONCRETE SIDEWALK SHALL BE PROVIDED ADJACENT TO THE PARKING LOT AND LEADING TO THE EXISTING STAIRS.

A PLAQUE AND CAPSTAN FROM THE EXISTING TRUSS BRIDGE SHALL BE SUPPLIED BY ODOT AND INCORPORATED INTO THE DISPLAY AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL SUPPLY NEW MOUNTING HARDWARE INCLUDING 1" DIAMETER BOLTS FOR THE PLAQUE AND 3.5" INSIDE DIAMETER U-BOLTS FOR THE CAPSTAN. BOLT EMBEDMENT SHALL BE PER THE MANUFACTURER SPECIFICATIONS.

THE COST FOR THE ABOVE DESCRIBED WORK INCLUDING ALL LABOR, EQUIPMENT, AND MATERIALS TO COMPLETE THE COMMEMORATIVE DISPLAY SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 690, SPECIAL - COMMEMORATIVE DISPLAY

SALVAGED STONE NOTES:

1. THE CONTRACTOR SHALL UTILIZE SIMILAR TECHNIQUES OF THE ORIGINAL CONSTRUCTION OF THE BRIDGE TO MIMIC THE APPEARANCE IN THE HEREIN DESCRIBED STONE AND MORTAR WORK.

2. THE CONTRACTOR SHALL SELECT EXISTING STONES THAT CLOSELY MATCH THE INTENDED SIZE AND SHAPE OF THE DISPLAY FEATURE. EXISTING STONES MAY BE CUT TO THE NECESSARY SIZE AS LONG AS THE EXISTING NATURAL APPEARANCE IS MAINTAINED.

3. IF SUFFICIENT STONES ARE NOT AVAILABLE ON SITE FROM THE EXISTING PIERS OR SANDSTONE WALLS TO BE REMOVED, THE CONTRACTOR SHALL OBTAIN STONES SIMILAR IN TYPE AND MATERIAL IN ORDER TO COMPLETE THE DISPLAY AREA AND PROVIDE THE REQUIRED STONES TO ODNR.

4. PRIOR TO REUSE, THE CONTRACTOR SHALL REMOVE EXISTING MORTAR AND ACID WASH THE STONES IN ORDER TO CREATE CLEAN SURFACES FOR REUSE.

5. APPLY PENETRATING STONE SEALER, SURFBLOCK WB-75 OR APPROVED EQUAL TO SALVAGED STONE FOLLOWING CONSTRUCTION.

CONCRETE DISPLAY NOTES:

1. THE CONTRACTOR SHALL PROVIDE CONCRETE PER ITEM 511, CLASS QC1.

2. DOWEL HOLES SHALL BE PER ITEM 510.

3. REBAR SHALL BE #4 SIZE AND MEET THE REQUIREMENTS OF ITEM 509. MINIMUM EMBEDMENTS ARE SHOWN ON THE DETAIL SHEETS.

BRONZE PLAQUE NOTES:

1. THE TWO PLAQUES SHALL BE A 2'-0" x 3'-0" x 5/8" THICK CAST BRONZE PLAQUE.

2. THE BORDER AND LETTERS ARE 5/8" THICK. THE DEPTH OF THE IMAGE ELEMENTS SHALL BE AT THE DISCRETION OF THE MANUFACTURER TO PRODUCE THE DESIRED EFFECT.

3. THE BROWN LEATHERETTE BACKGROUND IS 1/2" THICK.

4. THE BORDERS ARE 1/2" WIDE.

5. IMAGES AND TEXT SHALL BE PROVIDED BY ODOT OFFICE OF ENVIRONMENTAL SERVICES PRIOR TO FABRICATION OF PLAQUES. MOCK-UPS SHALL BE APPROVED BY ODOT PRIOR TO FABRICATION.

7. BRONZE PLAQUES SHALL BE CAST DIRECTLY AND PERMANENTLY INTO DISPLAY CONCRETE USING ANCHOR STUDS PER THE MANUFACTURER'S RECOMMENDED METHODS. THE PLAQUE SHALL BE PLACED SUCH THAT THE BORDER OF THE PLAQUE IS LEVEL WITH THE SURFACE OF THE DISPLAY AND NO PORTION OF THE PLAQUE PROJECTS ABOVE THE SURFACE OF DISPLAY.

8. CARE SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT THE PLAQUES DURING CONCRETE PLACEMENT AROUND THE PLAQUES.

9. THE FABRICATION (INCLUDING ANY MOCK-UPS OR SHOP DRAWINGS) AND INSTALLATION OF THE PLAQUES SHALL BE INCLUDED IN THE LUMP SUM BID FOR THE DISPLAY AREA.

SIDEWALK NOTES:

1. ALL SIDEWALKS SHALL CONFORM TO ITEM 608.

2. ALL SLOPES SHALL BE PER ADA STANDARDS WITH A MAXIMUM CROSS SLOPE OF 2%.

3. THE SIDEWALK SHALL BE FLUSH WITH THE ADJACENT PARKING LOT AND PAVER AREA AND TIE INTO EXISTING STAIRS TO REMAIN.

STONE PAVER NOTES:

1. THE STONE PAVER AREA SHALL BE LAID OUT TO MATCH THE PATTERN SHOWN IN THE PLANS.

2. THE STONE PAVERS SHALL BE CUT FROM THE EXISTING STONE BLOCKS. PAVERS SHALL BE NO MORE THAN 12" WIDE X 24" LONG. THICKNESS TO BE DETERMINED BY THE CONTRACTOR BASED ON AVAILABLE STONE; HOWEVER, THE CONTRACTOR SHALL CUT STONES AS NEEDED TO PROVIDE A UNIFORM THICKNESS. THE FINAL PAVER SURFACE SHALL BE FLUSH WITH THE ADJOINING SIDEWALK SURFACE.

3. JOINTS SHALL BE SAND SWEPT WITH A MAXIMUM GAP OF 1/2".

HORIZONTAL SCALE IN FEET
0 2.5 5 10

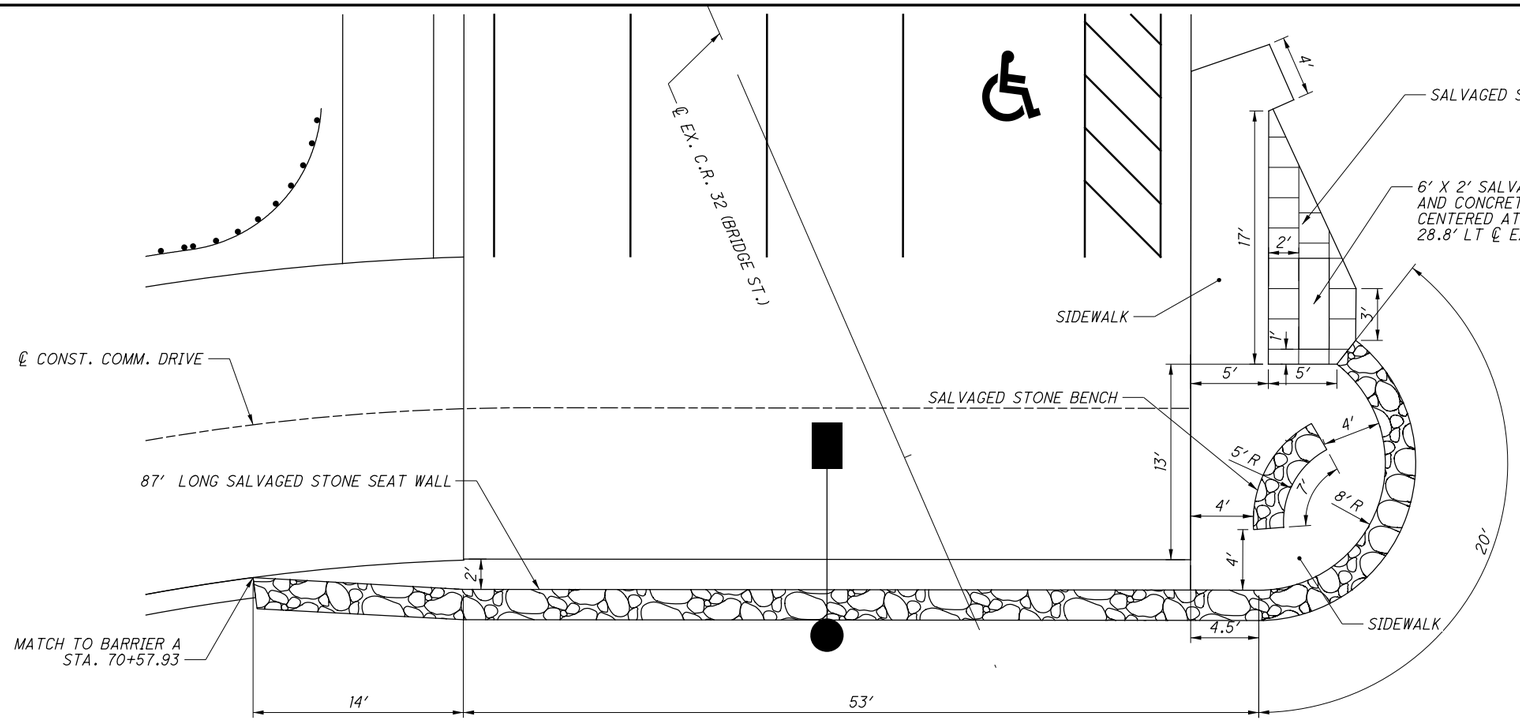
CALCULATED MJC
CHECKED BBD

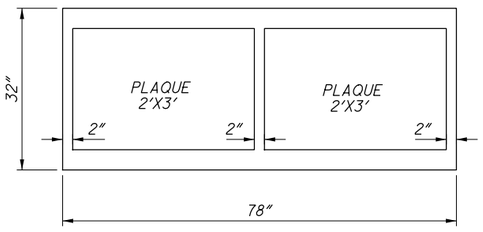
COMMEMORATIVE DISPLAY SITE LAYOUT AND GRADING

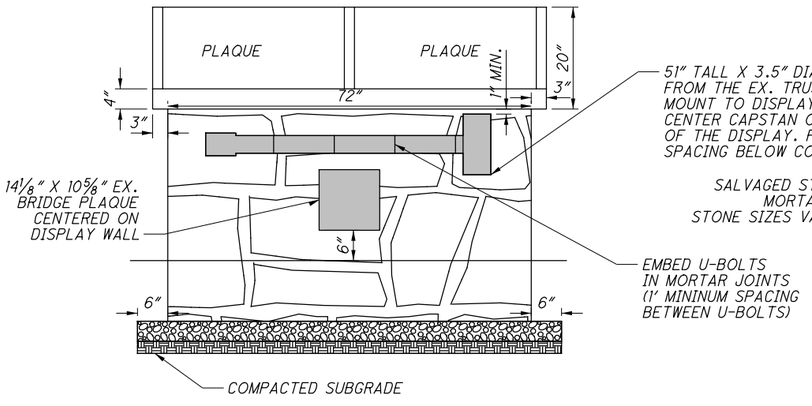
MUS-CR32-0.00

97
192

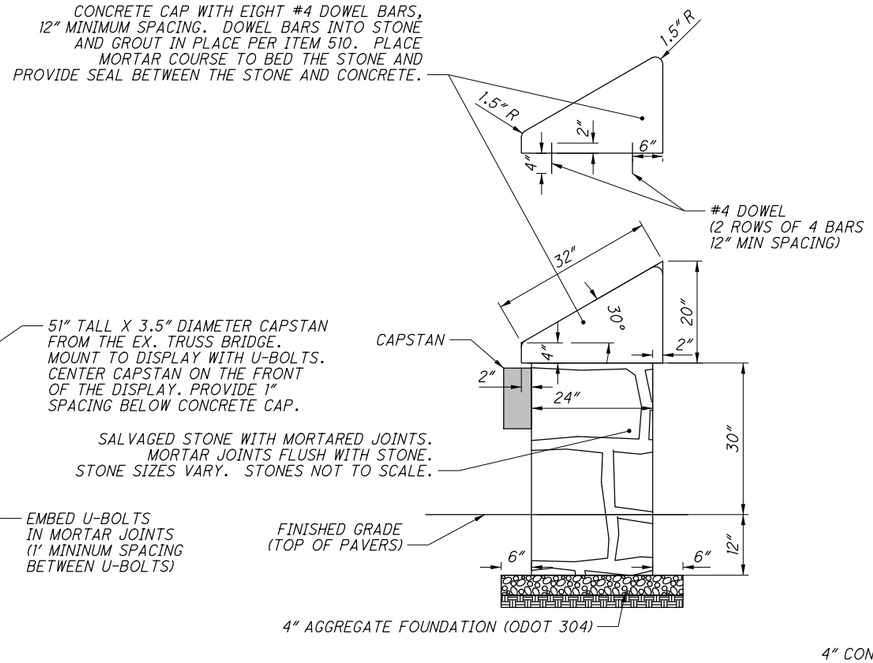
EXAMPLE IMAGE OF STONES





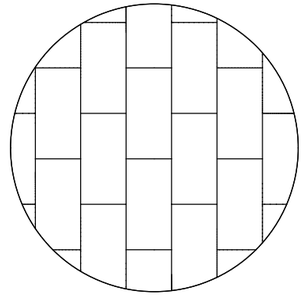


FRONT VIEW - SCALE: 1″ = 1′



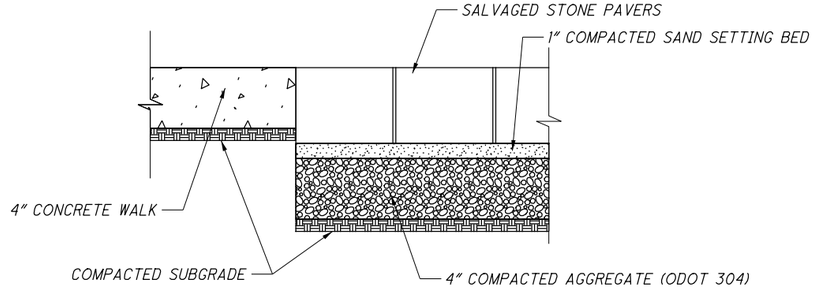
SIDE VIEW - SCALE: 1″ = 1′

SALVAGED STONE AND CONCRETE DISPLAY DETAILS



NOT TO SCALE

SALVAGED STONE PAVER PATTERN



SALVAGED STONE PAVER SECTION

HORIZONTAL SCALE IN FEET
0 2.5 5 10

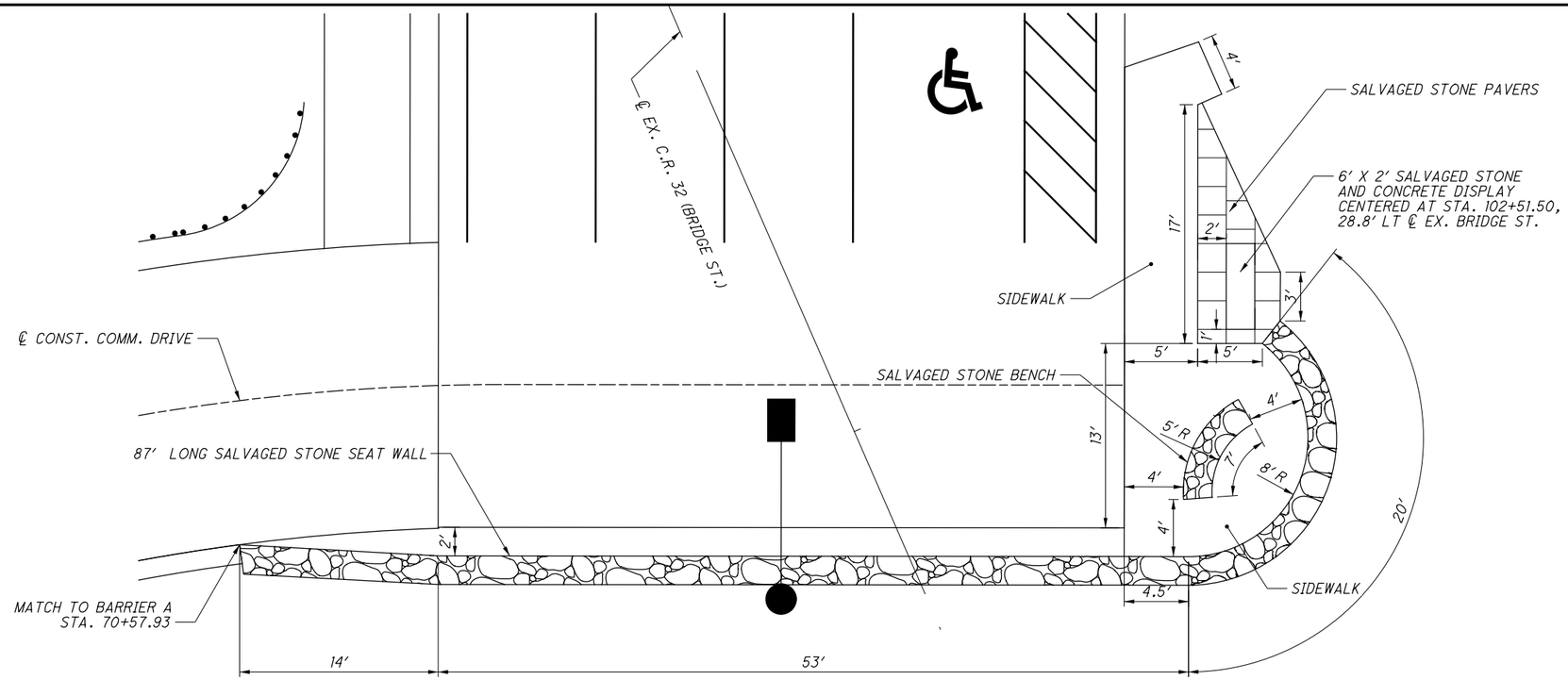
CALCULATED MJC
CHECKED BBD

COMMEMORATIVE DISPLAY PAVER AND PLAQUE DETAILS

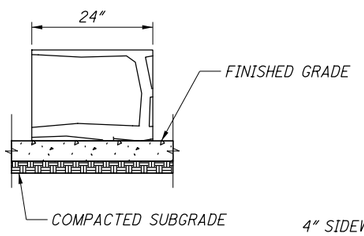
MUS-CR32-0.00

98
192

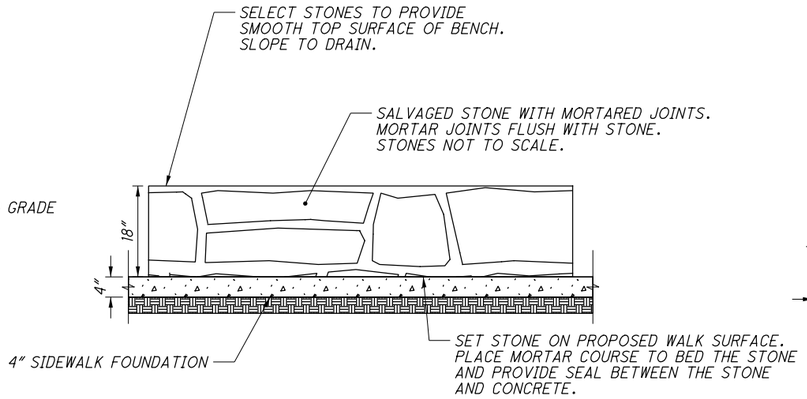
P:\97346\landscape\sheets\97346PD001.dgn 2/15/2018 5:33:42 PM mcornett



NOTE:
BLOCKS SHOWN ALONG A RADIUS SHALL BE HAND CUT TO CLOSELY MATCH THE RADIUS SHOWN. THE REMAINING SPACE LEFT BETWEEN BLOCKS SHALL BE FILLED WITH MORTAR.

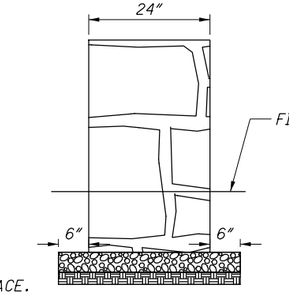


END VIEW - SCALE: 1″ = 1′

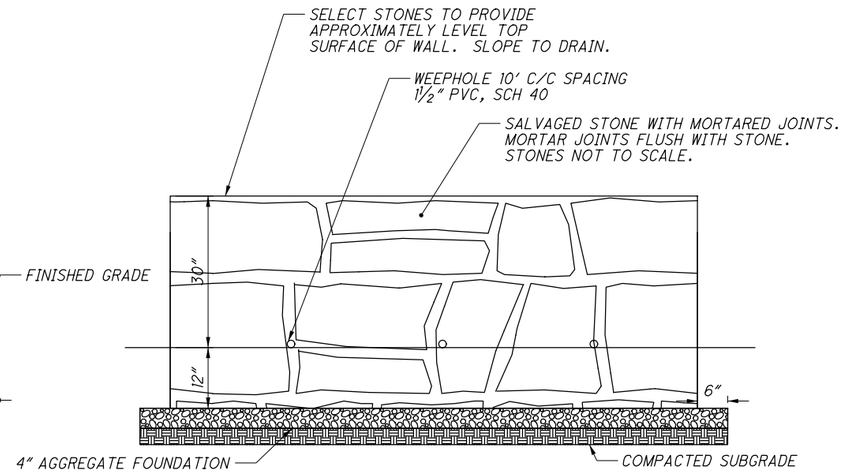


SIDE VIEW - SCALE: 1″ = 1′

SALVAGED STONE BENCH DETAILS



END VIEW - SCALE: 1″ = 1′



SIDE VIEW - SCALE: 1″ = 1′

87′ LONG SALVAGED STONE SEAT WALL DETAILS

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MJC
CHECKED BBD

COMMEMORATIVE DISPLAY
SEAT WALL AND BENCH DETAILS

MUS-CR32-0.00

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192

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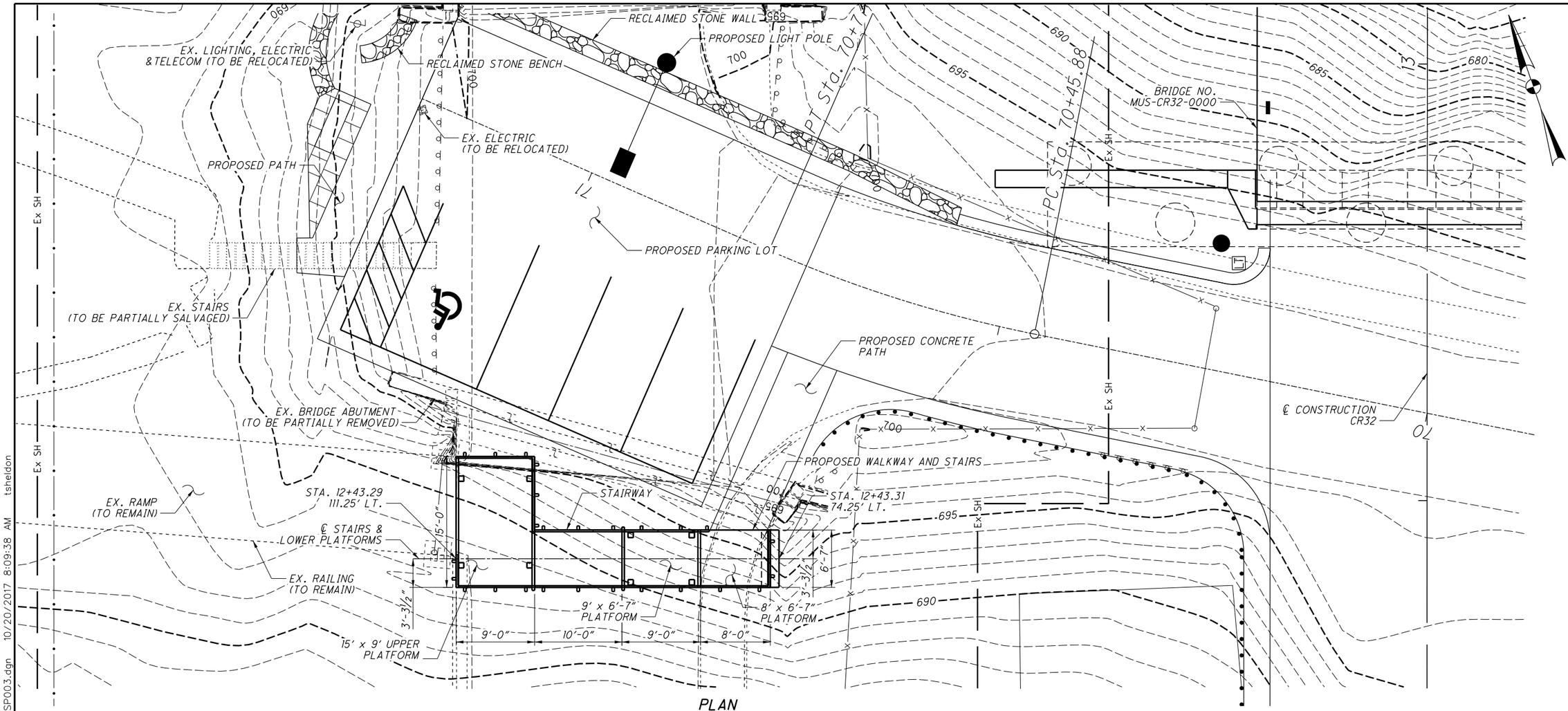
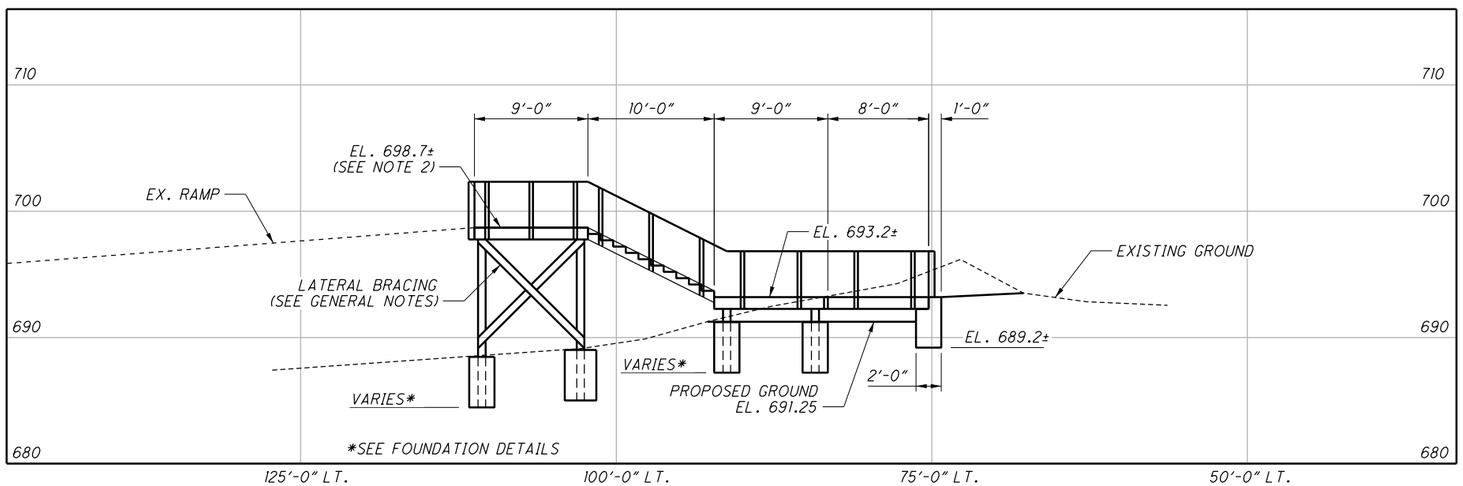


PLAN



PROFILE

NOTES:

1. STATIONS AND OFFSETS FOR THE PROPOSED WALKWAY AND STAIRS ARE BASED ON THE CENTERLINE OF CONSTRUCTION OF CR 32.
2. THE ELEVATION OF THE UPPER PLATFORM SHALL MATCH THE ELEVATION OF THE EXISTING RAMP. ADJUST PLATFORM AND FOUNDATION ELEVATIONS AS REQUIRED TO MATCH THE EXISTING RAMP.
3. THE CONTRACTOR SHALL SURVEY THE EXISTING RAMP TO ENSURE THE UPPER PLATFORM ABUTS THE EXISTING RAMP.

DESIGN AGENCY
E.L. ROBINSON ENGINEERING
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DESIGNED	DRAWN	REVIEWED	DATE
JOL	AEF	DFT	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AEF		N/A	

MUSKINGUM COUNTY
STA. 12+43.29

SITE PLAN
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

1 / 10

100
192

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2014 - 7th EDITION INCLUDING THE 2015 AND 2016 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING:

0.090 KIPS/SQ.FT.

DESIGN STRESSES:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (ABUTMENT)
CONCRETE CLASS QC5 - COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFTS)
STRUCTURAL STEEL - ASTM A709 GRADE 50 GALVANIZED
EPOXY COATED OR GALVANIZED REINFORCING STEEL - ASTM A615 MINIMUM YIELD STRENGTH 60 KSI

ITEM SPECIAL - STRUCTURES (TIMBER WALKWAY)

THIS WORK CONSISTS OF CONSTRUCTING A TIMBER WALKWAY, INCLUDING FOUNDATIONS, AS DETAILED IN THE PLANS. ALL MATERIAL AND WORK SHALL CONFORM TO THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS).

ALL LUMBER SHALL BE PRESSURE TREATED SOUTHERN PINE, NO. 1 GRADE. ALL LUMBER SIZES ARE NOMINAL. THE DESIGN ASSUMES NO INCISING WILL BE APPLIED TO THE WOOD.

PLAN DIMENSIONS ARE BASED ON DRESSED LUMBER SIZES.

FOUNDATION SHAFTS SHALL CONFORM TO CMS 524.
CONCRETE SHALL CONFORM TO CMS 511.
REBAR SHALL CONFORM TO CMS 509.
STRUCTURAL STEEL SHALL CONFORM TO CMS 513.

ALL BOLTS SHALL BE A307 GALVANIZED. ALL OTHER HARDWARE AND FASTENERS SHALL BE EXTERIOR GRADE COATED FOR PRESSURE TREATED LUMBER. NO HARDWARE SHALL PROTRUDE MORE THAN 1/4" FROM FACE OF SURFACE. COUNTERSINK ALL SCREW HEADS WITHIN PEDESTRIAN AREAS.

GALVANIZING SHALL CONFORM TO CMS 711.02.

ALTERNATIVE CONNECTIONS MAY BE USED FOR THE BRACES, INTERMEDIATE BEAMS, AND INTERMEDIATE STAIR STRINGERS PROVIDED THEY ARE CAPABLE OF SUPPORTING THE FOLLOWING FACTORED LOADS:

- BRACES - 0.4 KIPS
- INTERMEDIATE BEAMS - 1.2 KIPS
- INTERMEDIATE STAIR STRINGERS - 1.3 KIPS

INSTALL LATERAL BRACING BETWEEN COLUMNS 1 & 2, COLUMNS 2 & 4, COLUMNS 3 & 4, AND COLUMNS 3 & 1. THE BRACING SHALL CONSIST OF AN "X" BRACE WITH 2x4 MEMBERS ATTACHED TO THE COLUMNS WITH A 7/8" ϕ BOLT. PROVIDE SHIM BLOCKS WHERE REQUIRED TO ATTACH TO THE COLUMNS. ATTACH BRACING MEMBERS TO EACH OTHER AT THE CENTER OF THE "X".

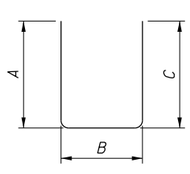
PAYMENT FOR ALL LABOR, MATERIALS, AND EQUIPMENT FOR CONSTRUCTING THE WALKWAY, FOUNDATIONS, AND CONNECTIONS SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM SPECIAL - STRUCTURES (TIMBER WALKWAY).

MADE BY: JOL DATE: 6/9/2017
CHECKED BY: AEF DATE: 6/10/2017

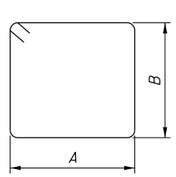
ESTIMATED QUANTITIES - PHILO WALKWAY

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
SPECIAL	53000200	LUMP		SPECIAL - STRUCTURES (TIMBER WALKWAY)

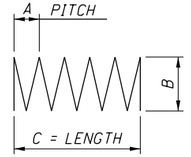
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
ABUTMENT											
A501	9	6'-3"	59	STR							
A502	8	6'-1"	51	2	2'-10"	8"	2'-10"				
A503	8	9'-1"	76	3	1'-8"	2'-7"					
A504	2	9"	2	STR							
A505	1	3'-3"	4	STR							
SUB-TOTAL			192	(FOR INFORMATION ONLY)							
CONCRETE SHAFTS											
P401	7	56'-6"	264	27	4 1/2"	1'-6"	3'-6"				
P402	1	75'-10"	51	27	4 1/2"	2'-0"	3'-6"				
P501	64	3'-6"	234	STR							
SUB-TOTAL			549	(FOR INFORMATION ONLY)							



TYPE-2



TYPE-3



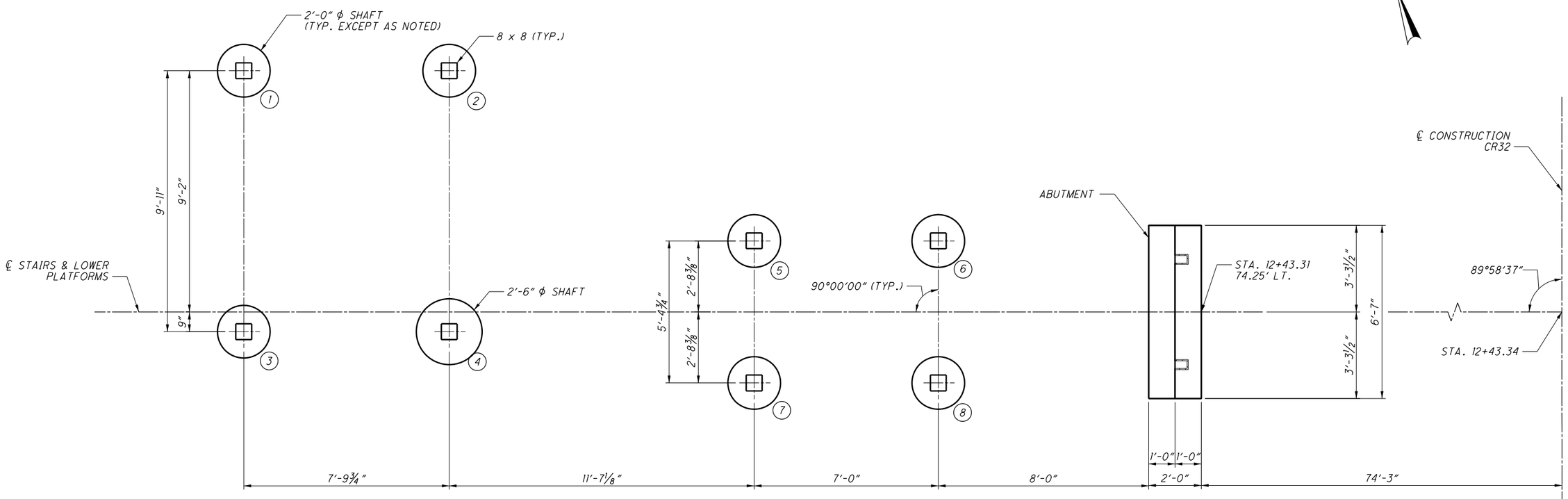
TYPE-27

DESIGN AGENCY
E.L. ROBINSON ENGINEERING
180 I Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
JOL	AEF	DFT	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AEF		N/A	

GENERAL NOTES, QUANTITIES, AND REINFORCEMENT SCHEDULE
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



FOUNDATION PLAN

COLUMN	STATION	OFFSET
1	12+52.46	110.66' LT.
2	12+52.46	102.84' LT.
3	12+42.54	110.65' LT.
4	12+42.55	102.84' LT.
5	12+46.00	91.25' LT.
6	12+46.00	84.25' LT.
7	12+40.60	91.24' LT.
8	12+40.60	84.24' LT.

LEGEND:

(#) - COLUMN NUMBER

NOTES:

1. FOR ABUTMENT DETAILS, SEE SHEET 4/10.
2. FOR ADDITIONAL FOUNDATION DETAILS, SEE SHEET 5/10.

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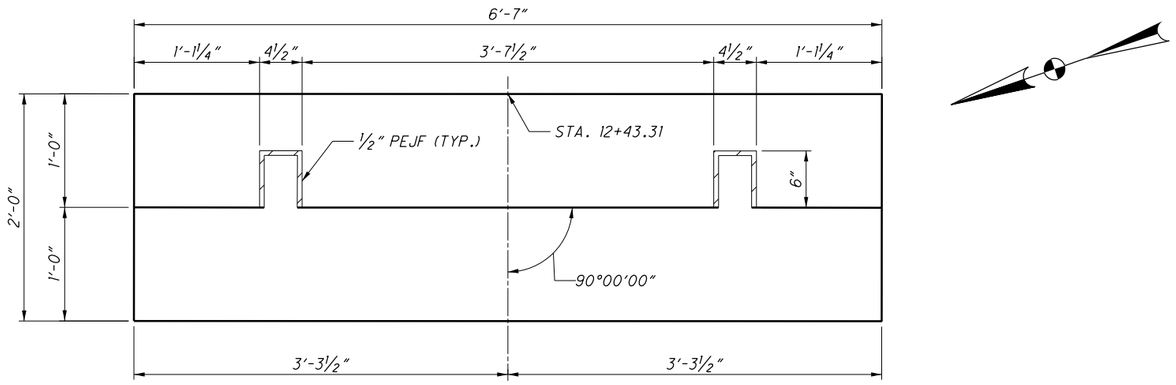
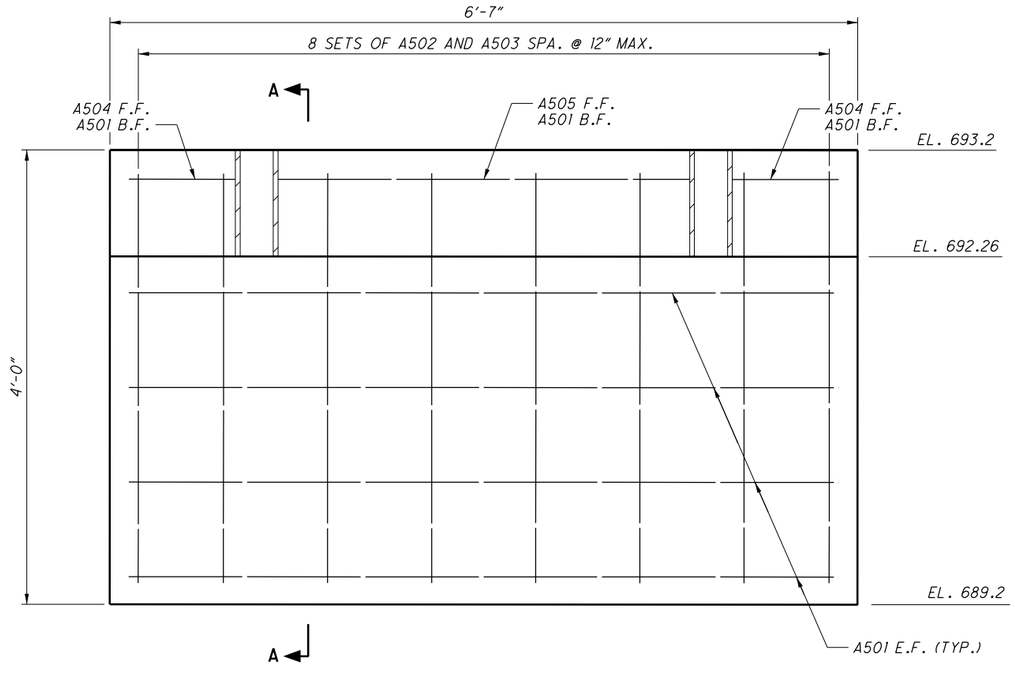
AEF		N/A	

FOUNDATION PLAN
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

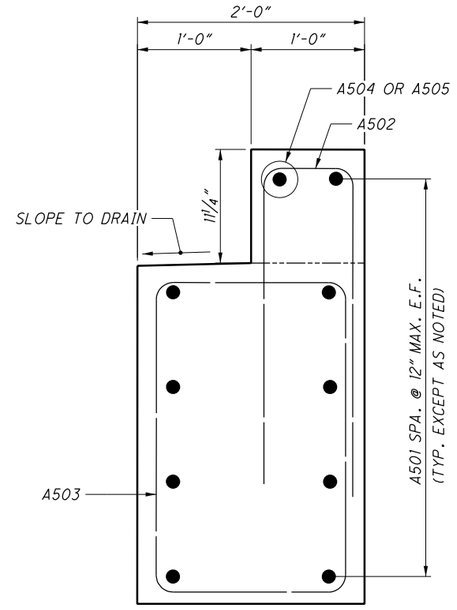
MUS-CR32-0.00
PID No. 97346



ABUTMENT PLAN



ABUTMENT ELEVATION



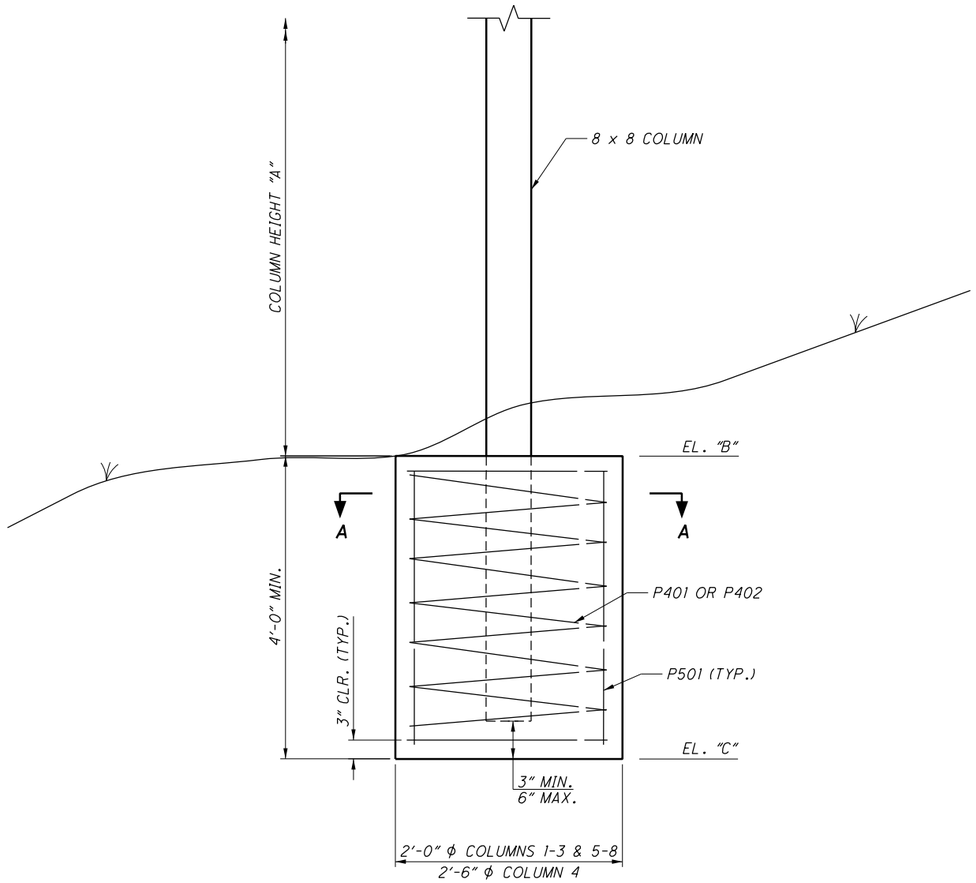
SECTION A-A

DESIGN AGENCY
E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

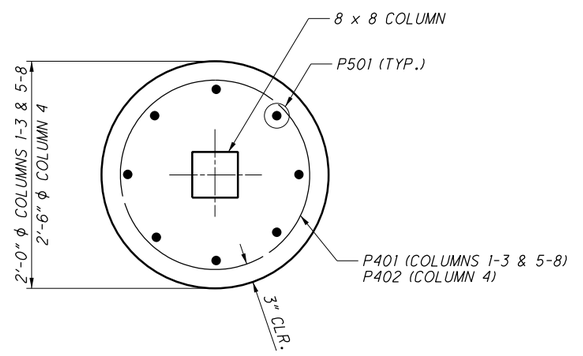
DESIGNED	DRAWN	REVIEWED	DATE
AEF	AEF	DFT	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		N/A	

ABUTMENT DETAILS
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



ELEVATION



SECTION A-A

COLUMN #	HEIGHT "A"	ELEVATION "B"	ELEVATION "C"
1	7'-8 3/8"	691.0	687.0
2	5'-8 3/8"	693.0	689.0
3	10'-2 3/8"	688.5	684.5
4	9'-8 3/8"	689.0	685.0
5	1'-2 3/8"	691.25	687.25
6	1'-2 3/8"	691.25	687.25
7	3'-2 3/8"	691.25	687.25
8	1'-8 3/8"	691.25	687.25

NOTES:

1. FOR COLUMN LOCATIONS, SEE SHEET 3/10.

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AEF		N/A	

COLUMN FOUNDATION DETAILS
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

5 / 10

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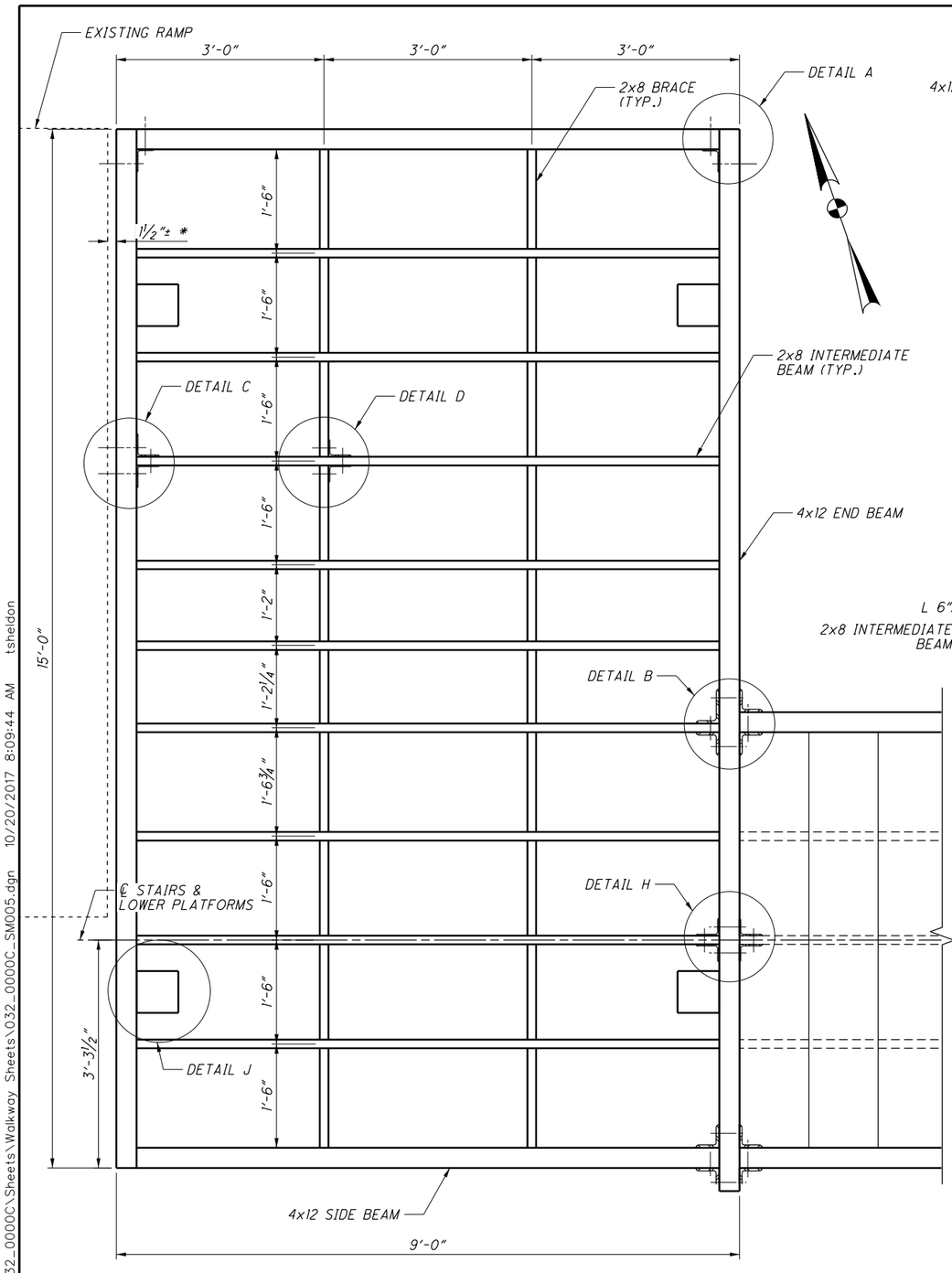
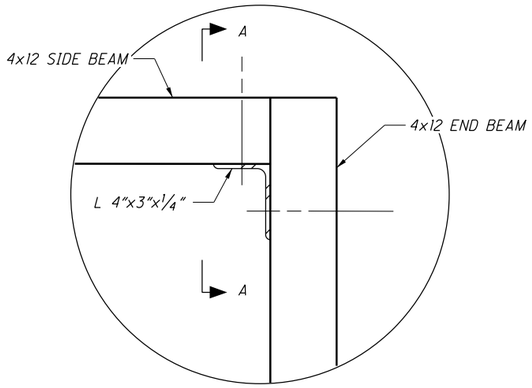
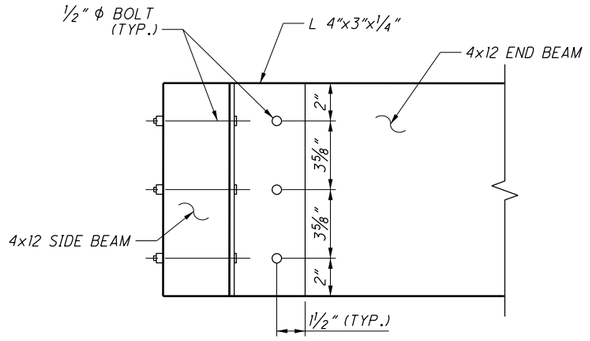


UPPER PLATFORM

*VERIFY LOCATION PRIOR TO STARTING CONSTRUCTION



DETAIL A



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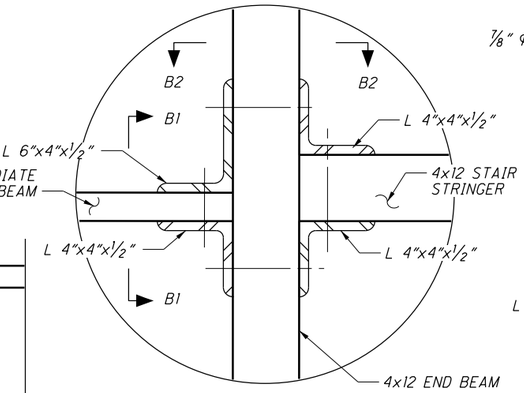

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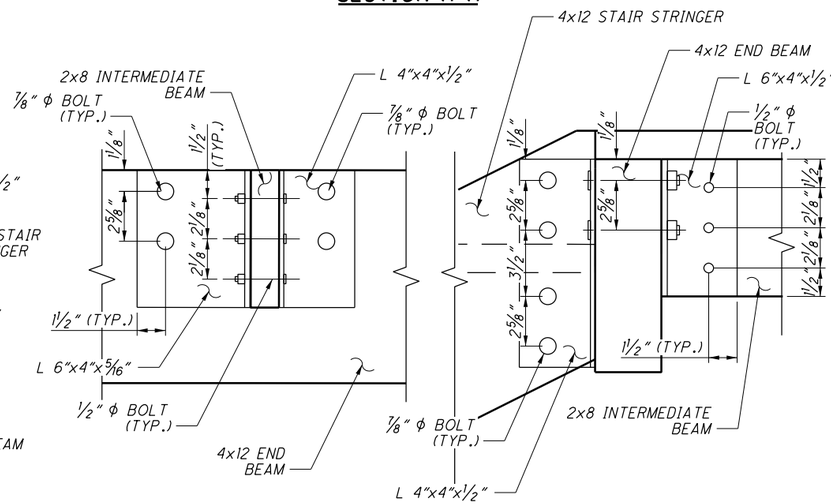
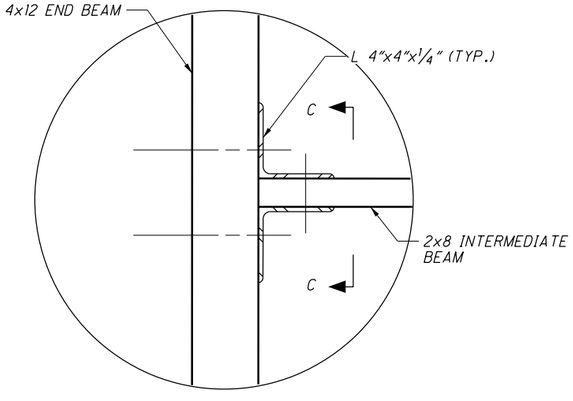
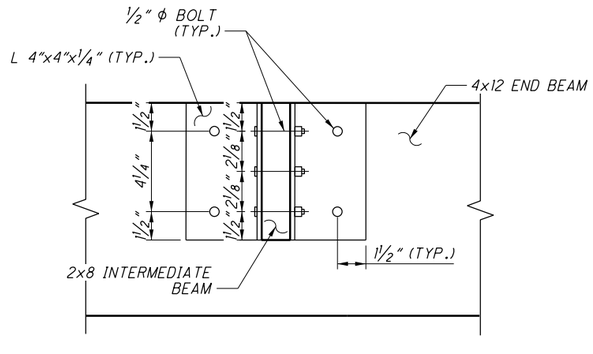


SECTION B1-B1

SECTION B2-B2



DETAIL C



SECTION C-C

NOTES:

1. ALL BOLTS ARE A307 GALVANIZED.
2. FLOORING NOT SHOWN FOR CLARITY.
3. FOR LOWER PLATFORM DETAILS, SEE SHEET 7/10.
4. FOR STAIR DETAILS, SEE SHEET 9/10.
5. FOR DETAILS D AND H, SEE SHEET 7/10.
6. FOR TYPICAL SECTION, SEE SHEET 8/10.
7. FOR DETAIL J, SEE SHEET 8/10.

DESIGN AGENCY
E.L. ROBINSON ENGINEERING
180 I Watermark Drive, Suite 310 • Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
JOL	AEF	DFT	10/2017

CHECKED AEF | REVISED | STRUCTURE FILE NUMBER N/A

UPPER PLATFORM
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

6 / 10

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192

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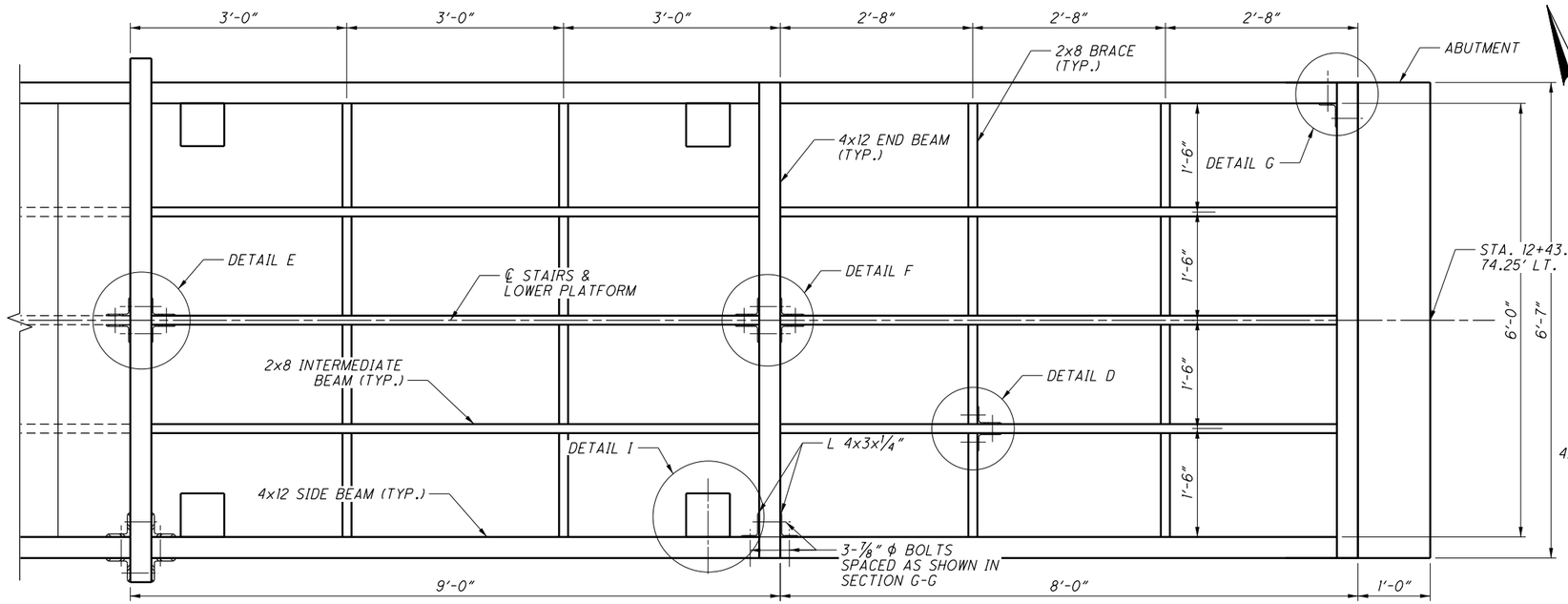
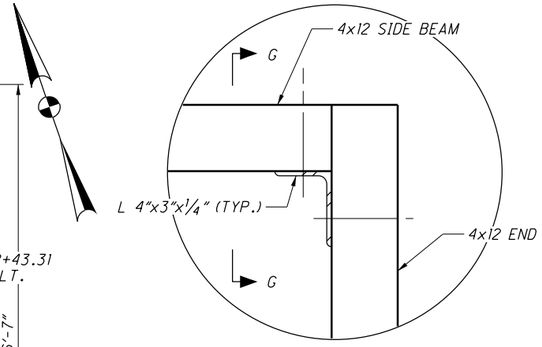
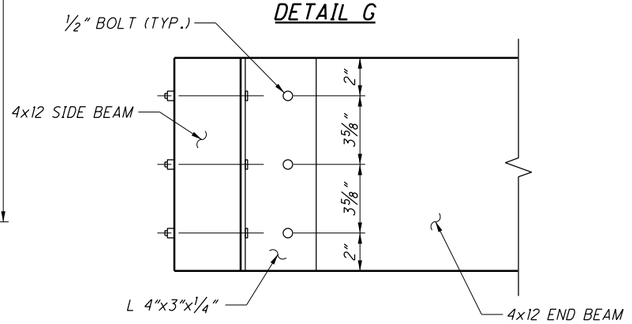


LOWER PLATFORMS



DETAIL G

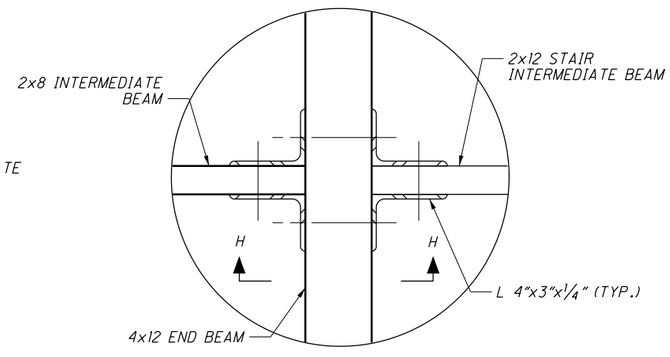


SECTION G-G

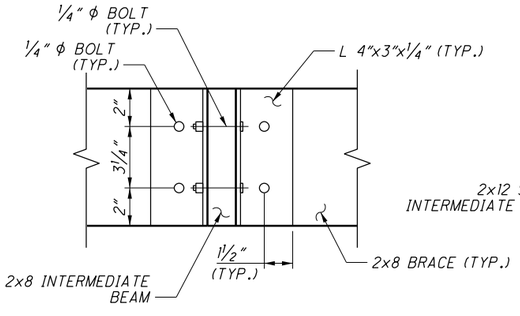
DETAIL D

DETAIL E

DETAIL F



DETAIL H



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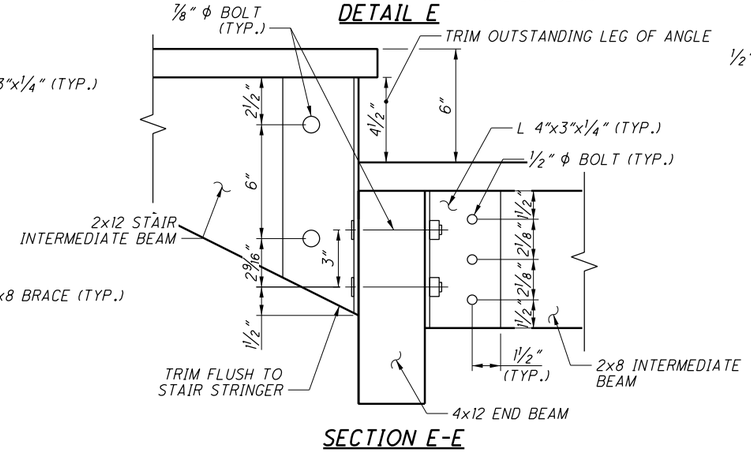

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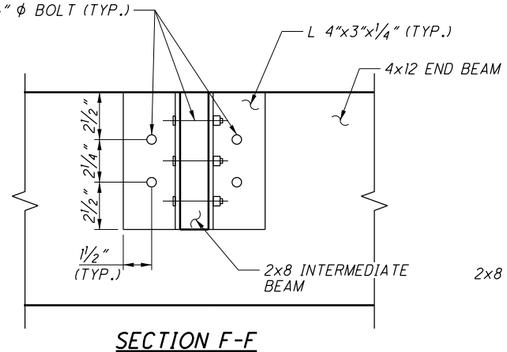

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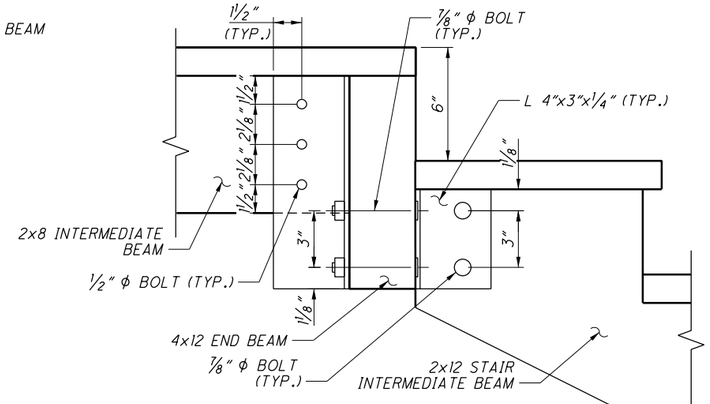

SECTION H-H

NOTES:

1. ALL BOLTS ARE A307 GALVANIZED.
2. FLOORING NOT SHOWN FOR CLARITY.
3. FOR UPPER PLATFORM DETAILS, SEE SHEET 6/10.
4. FOR STAIR DETAILS, SEE SHEET 9/10.
5. FOR TYPICAL SECTION AND DETAIL I, SEE SHEET 8/10.

DESIGN AGENCY
E.L. ROBINSON ENGINEERING
180 I Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
JOL	AEF	DFT	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AEF		N/A	

LOWER PLATFORMS
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

7 / 10

106 / 192

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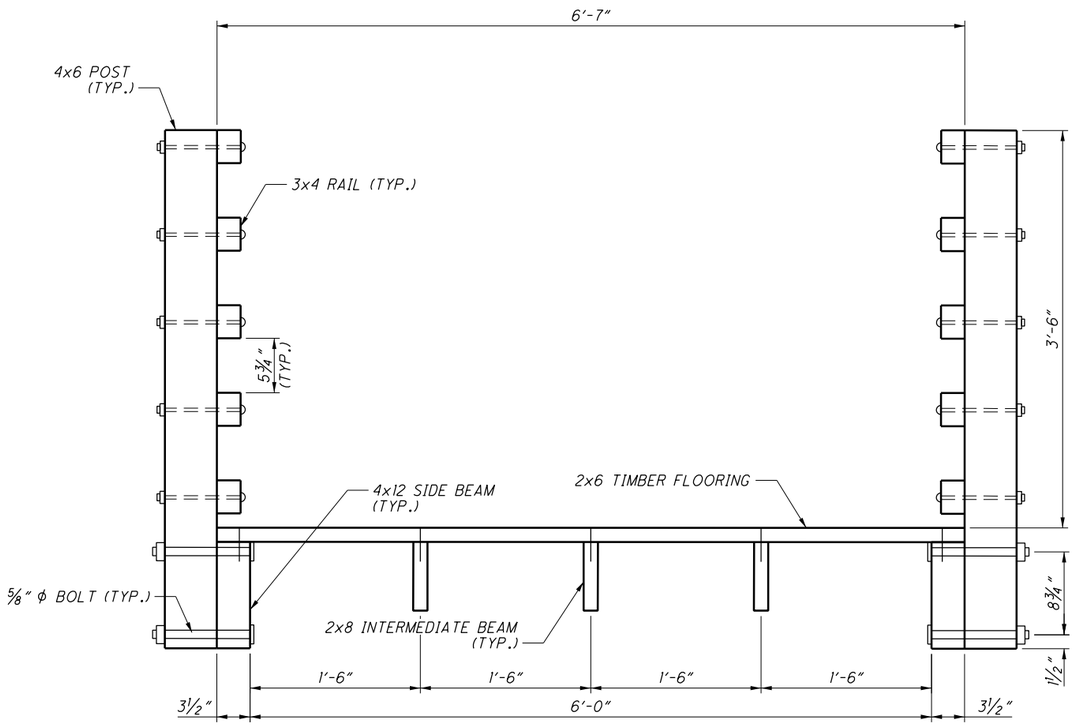
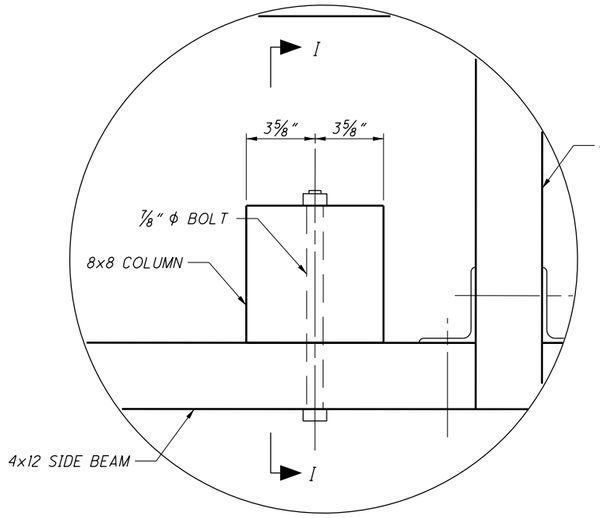
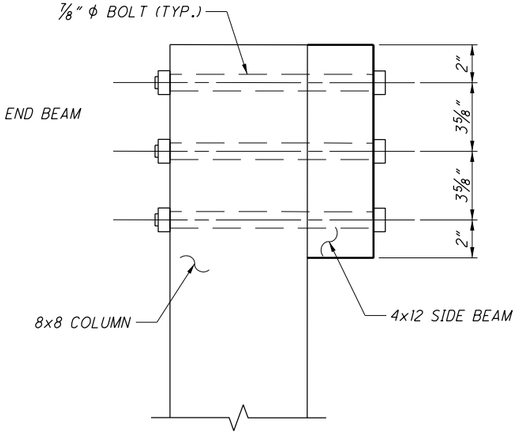


LOWER PLATFORM TYPICAL SECTION

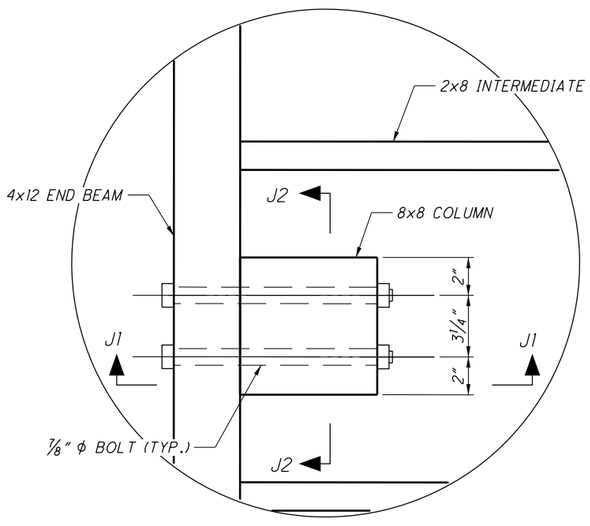


DETAIL I

(OTHER COLUMNS AT LOWER PLATFORM SIMILAR)

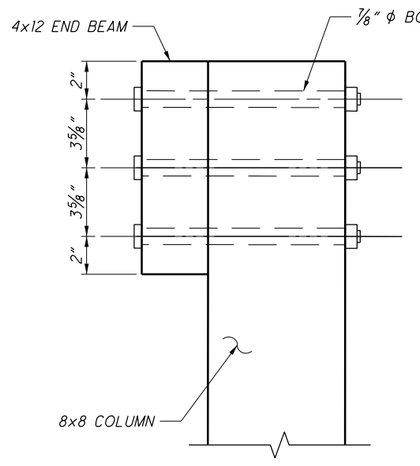


SECTION I-I

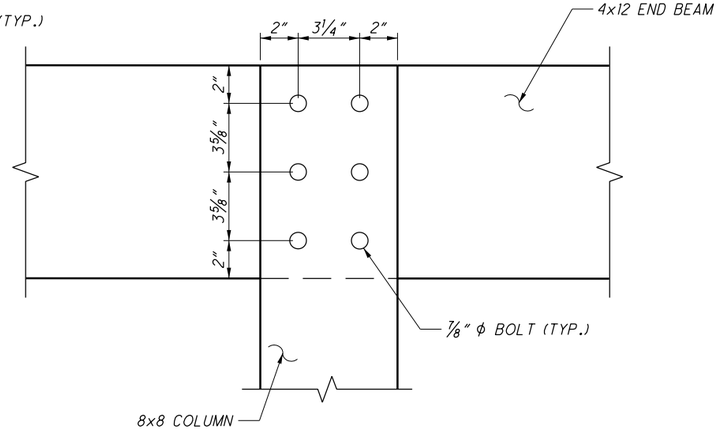


DETAIL J

(OTHER COLUMNS AT UPPER PLATFORM SIMILAR)



SECTION J1-J1



SECTION J2-J2

NOTES:

1. ALL BOLTS ARE A307 GALVANIZED.
2. FOR ADDITIONAL RAILING DETAILS, SEE SHEET 10/10.
3. FOR LOWER PLATFORM DETAILS AND CONNECTIONS, SEE SHEET 7/10.
4. FOR UPPER PLATFORM DETAILS AND CONNECTIONS, SEE SHEET 6/10.
5. FOR STAIR DETAILS, SEE SHEET 9/10.

DESIGN AGENCY
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DESIGNED	DRAWN	REVIEWED	DATE
JOL	AEF	DFT	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AEF		N/A	

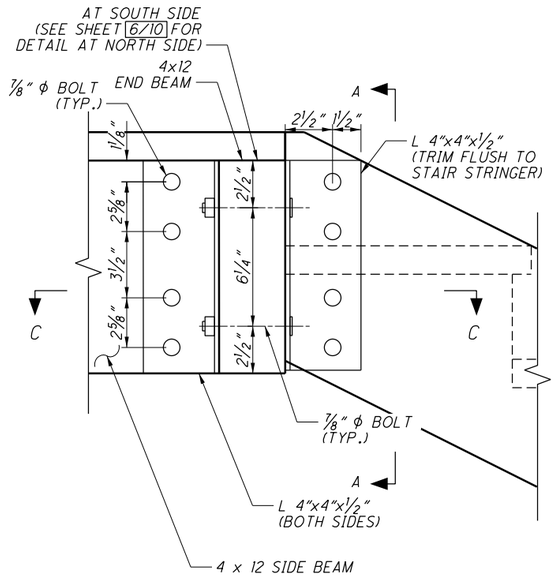
COLUMN CONNECTION DETAILS

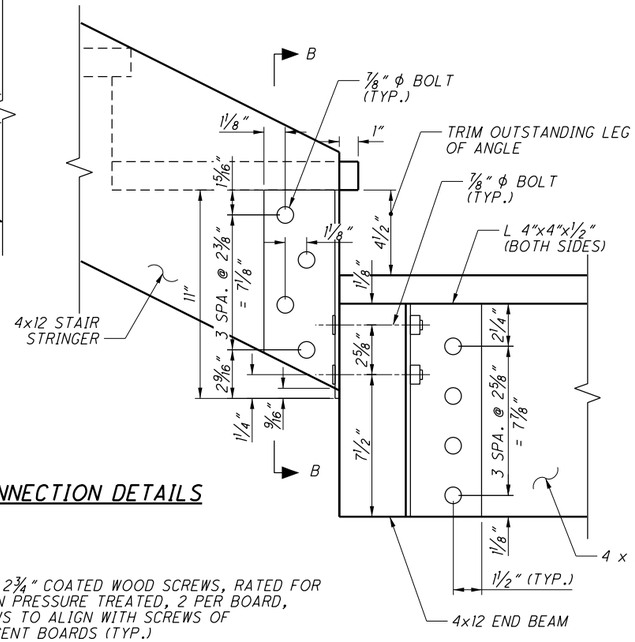
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

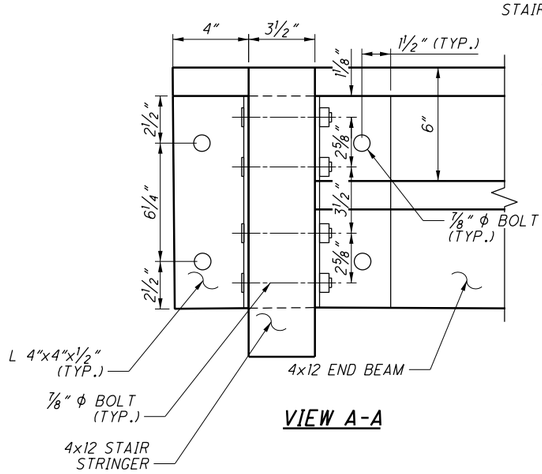
8 / 10

107 / 192

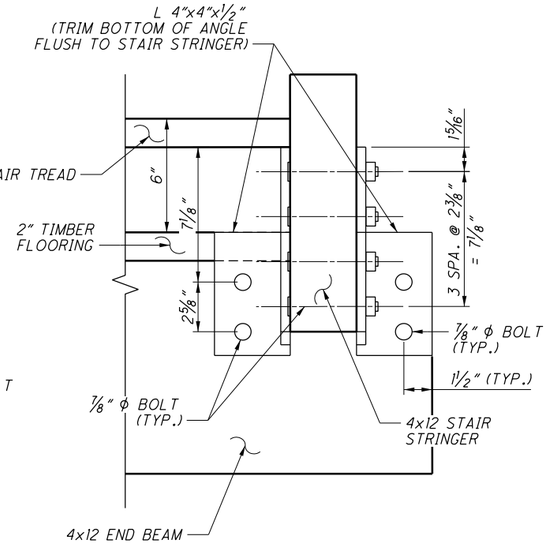




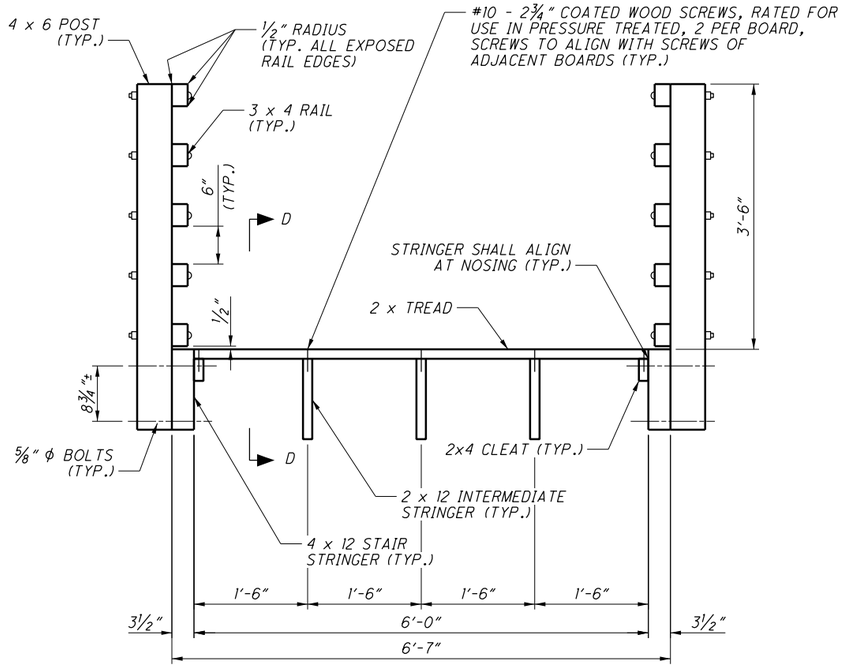
STAIR TO PLATFORM CONNECTION DETAILS



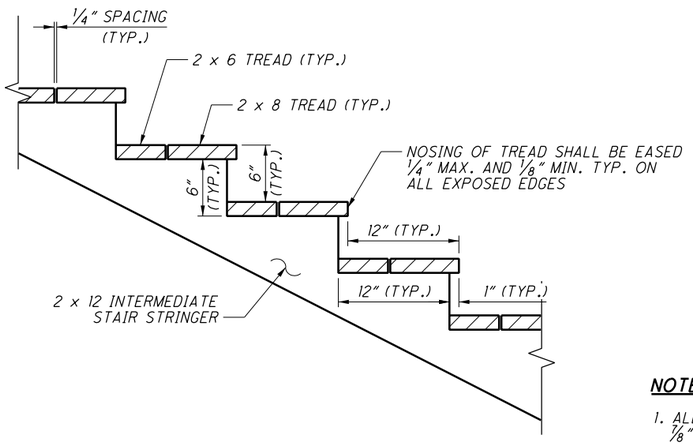
VIEW A-A



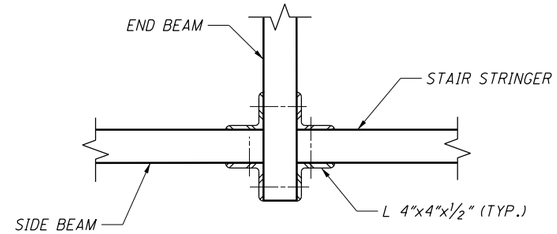
VIEW B-B



STAIRWAY TYPICAL SECTION



SECTION D-D



SECTION C-C

NOTES:

1. ALL STAIR TO PLATFORM CONNECTION BOLTS WITH 4x12 STAIR STRINGER ARE ⅞" ϕ A307 GALVANIZED.
2. FOR PLATFORM CONNECTION DETAILS, SEE SHEETS 6/10 AND 7/10.
3. FOR RAILING CONNECTION DETAILS AND LAYOUT, SEE SHEET 10/10.
4. ALL RAILING BOLTS ARE ½" ϕ A307 GALVANIZED CARRIAGE BOLTS.
5. POST CONNECTION BOLTS ARE ⅝" ϕ A307 GALVANIZED.

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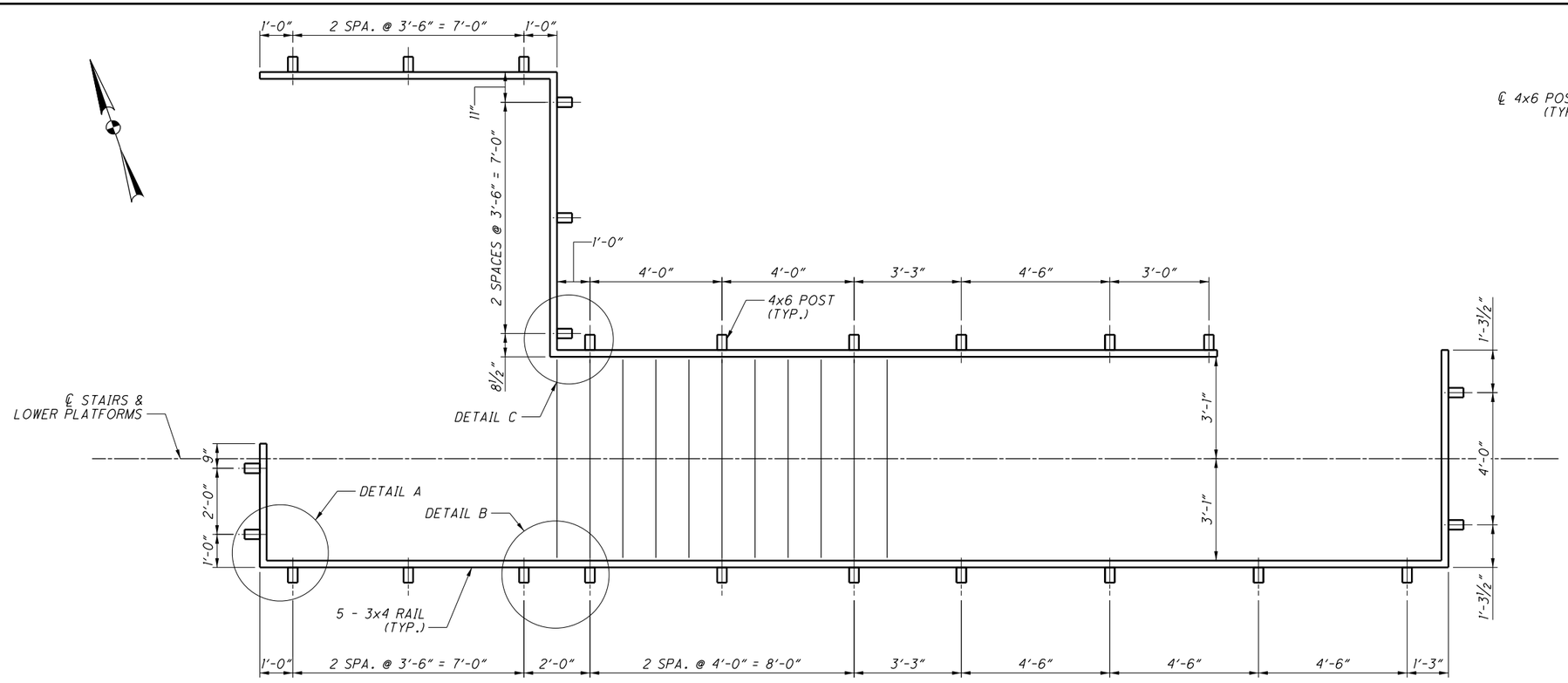
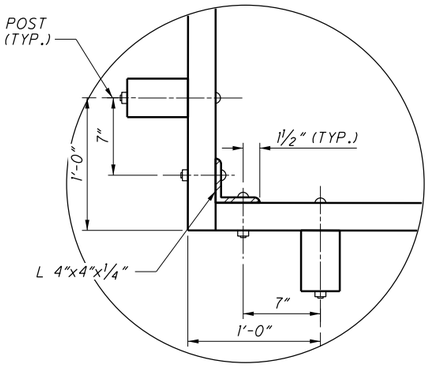
STAIR TO PLATFORM CONNECTION DETAILS

WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

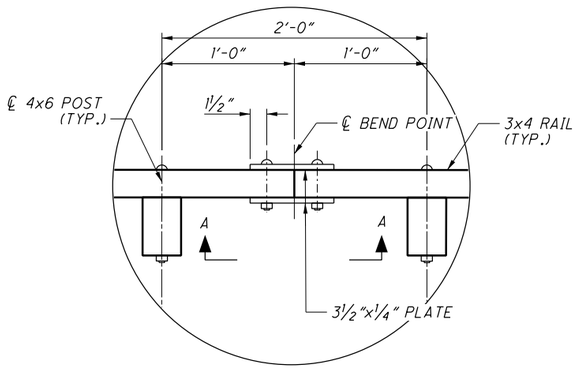


RAILING LAYOUT

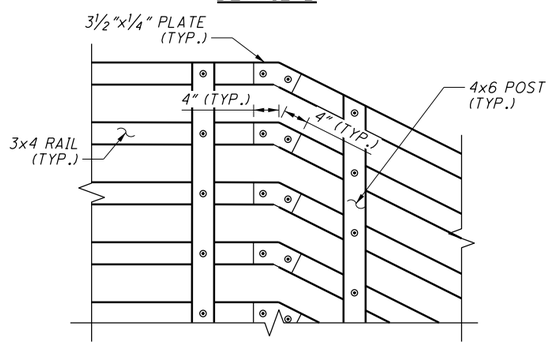


DETAIL A

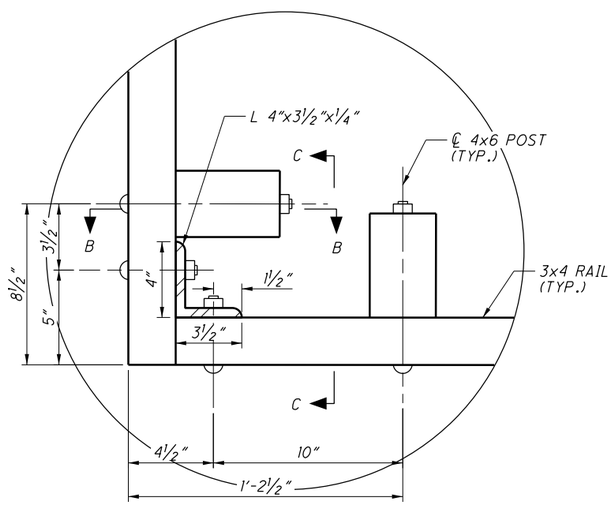
OTHER CORNER CONNECTIONS SIMILAR UNLESS NOTED OTHERWISE



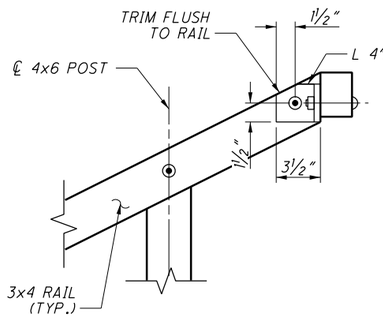
DETAIL B



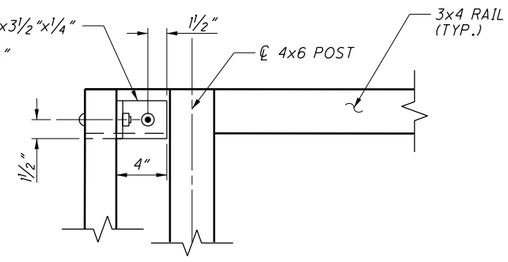
VIEW A-A



DETAIL C



VIEW B-B



VIEW C-C

NOTES:

1. ALL RAILING BOLTS ARE ½" ϕ A307 GALVANIZED CARRIAGE BOLTS.
2. FOR PLATFORM DETAILS, SEE SHEETS 6/10 AND 7/10.
3. FOR STAIR DETAILS, SEE SHEET 9/10.

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RAILING LAYOUT
WALKWAY
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

10 / 10

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192

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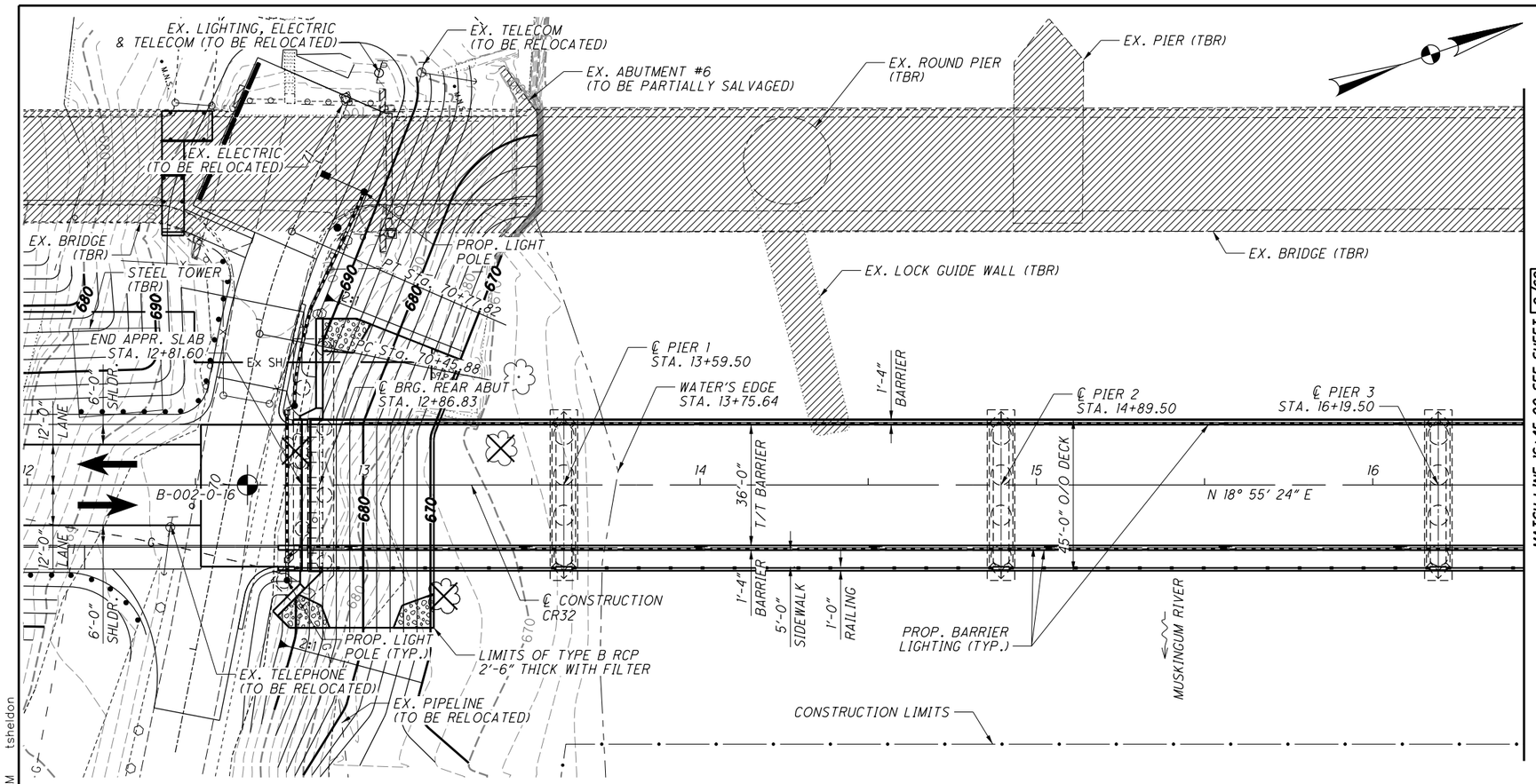
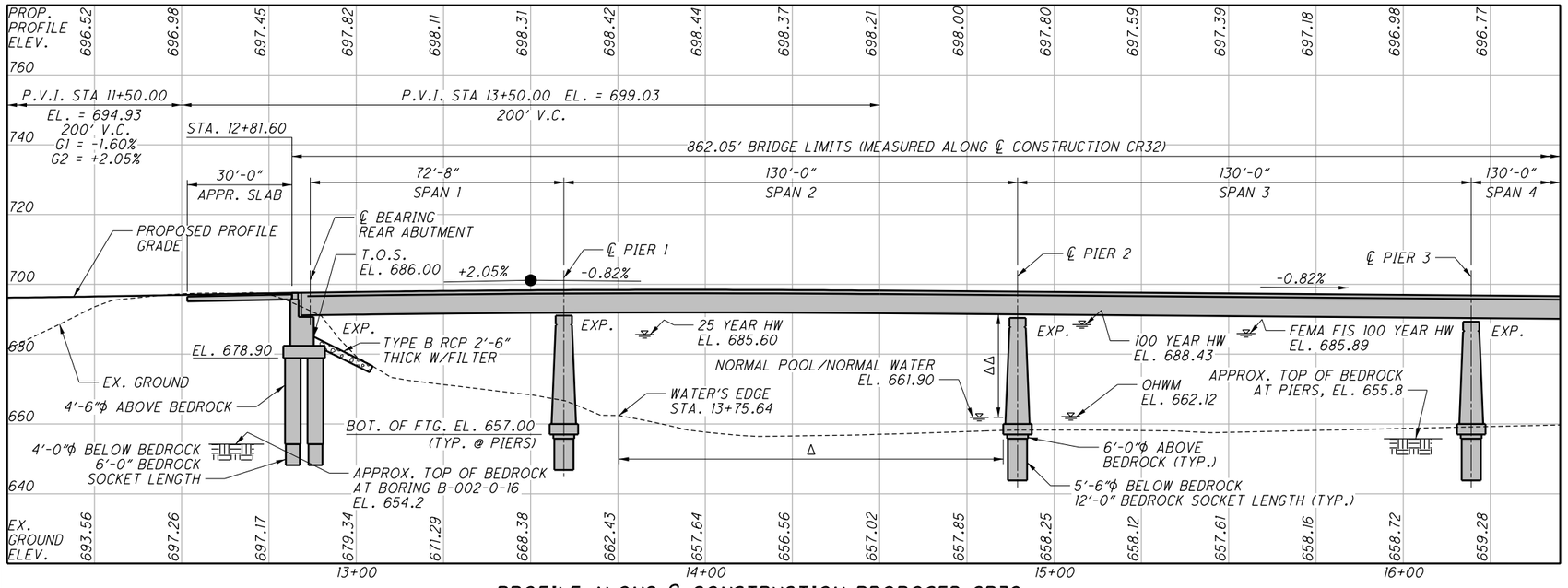


PLAN



PROFILE ALONG ℄ CONSTRUCTION PROPOSED CR32

BENCHMARK DATA

BM #1 STA. 11+02.95,	ELEV. 697.63,	OFFSET 113.59' LT.
BM #2 STA. 12+92.22,	ELEV. 699.66,	OFFSET 76.57' LT.
BM #3 STA. 22+26.19,	ELEV. 696.32,	OFFSET 70.33 LT.
BM #4 STA. 25+03.05,	ELEV. 704.52,	OFFSET 17.36 LT.

NOTES:

1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
2. DESIGN TRAFFIC:
   2020 ADT = 3010 2020 ADTT = 120
   2040 ADT = 3010 2040 ADTT = 120
   DIRECTIONAL DISTRIBUTION = 50%
3. HYRAULIC DATA:
   DRAINAGE AREA = 7190 SQ. MILES
   Q (25) = 66,000 CFS V (25) = 4.44 FT/S
   Q (100) = 80,000 CFS V (100) = 4.54 FT/S
   Q (100) FEMA FIS = 76,000 CFS
   STRUCTURE CLEARS THE 25 YEAR DESIGN HW BY 0.04 FEET.
4. FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLANS.
5. TOP OF ROCK AT PIERS IS TAKEN FROM THE EXISTING PLANS AND ADJUSTED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83).

LEGEND:

- ✕ - TO BE REMOVED (TBR)
- ⊕ - PROJECT BORING LOCATION
- Δ - REQUIRED HORIZONTAL CLEARANCE = 80'-0"
  PROVIDED HORIZONTAL CLEARANCE = 109'-8"
- ΔΔ - REQUIRED VERTICAL CLEARANCE = 28'-0"
  PROVIDED VERTICAL CLEARANCE = 29'-0"

EXISTING STRUCTURE

TYPE: STEEL BEAMS AND STEEL TRUSSES WITH REINFORCED CONCRETE DECK ON MODIFIED MASONRY PIERS AND ABUTMENTS

SPANS: 40'-0" (BEAMS), 151'-0", 4 SPANS @ 154'-6" C/C BRG. (TRUSSES)

ROADWAY: 26'-0" TOE/TOE CURB

LOADING: S-20-46

SKEW: 0°

APPROACH SLABS: 15'-0" LONG REINFORCED CONCRETE

ALIGNMENT: TANGENT

WEARING SURFACE: ASPHALT CONCRETE

STRUCTURAL FILE NUMBER: 6054129

DATE BUILT: 1953

DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: 7 SPAN PRESTRESSED CONCRETE I-BEAM SUPERSTRUCTURE WITH COMPOSITE REINFORCED CONCRETE DECK ON FULL HEIGHT ABUTMENTS AND WALL TYPE PIERS SUPPORTED BY DRILLED SHAFTS

SPANS: 71'-7", 6 SPANS @ 127'-3" C/C BEARINGS

ROADWAY: 36'-0" TOE/TOE BARRIER, WITH 5'-0" SIDWALK (RT. SIDE)

LOADING: HL-93 & 0.09 KSF SIDEWALK LOADING

FUTURE WEARING SURFACE: 60 PSF

SKEW: 0°

WEARING SURFACE: 1" MONOLITHIC

APPROACH SLABS: 30'-0" LONG (MODIFIED AS-1-15)

ALIGNMENT: SPANS 1-6 TANGENT, SPAN 7 TANGENT AND CURVED LEFT

CROWN: 0.016 FT/FT

COORDINATES: LATITUDE N 39°52'04.20", LONGITUDE W 81°54'33.83"

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		6054145	

MUSKINGUM COUNTY
STA. 12+81.60
STA. 21+43.65

SITE PLAN (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

1 / 69

110 / 192

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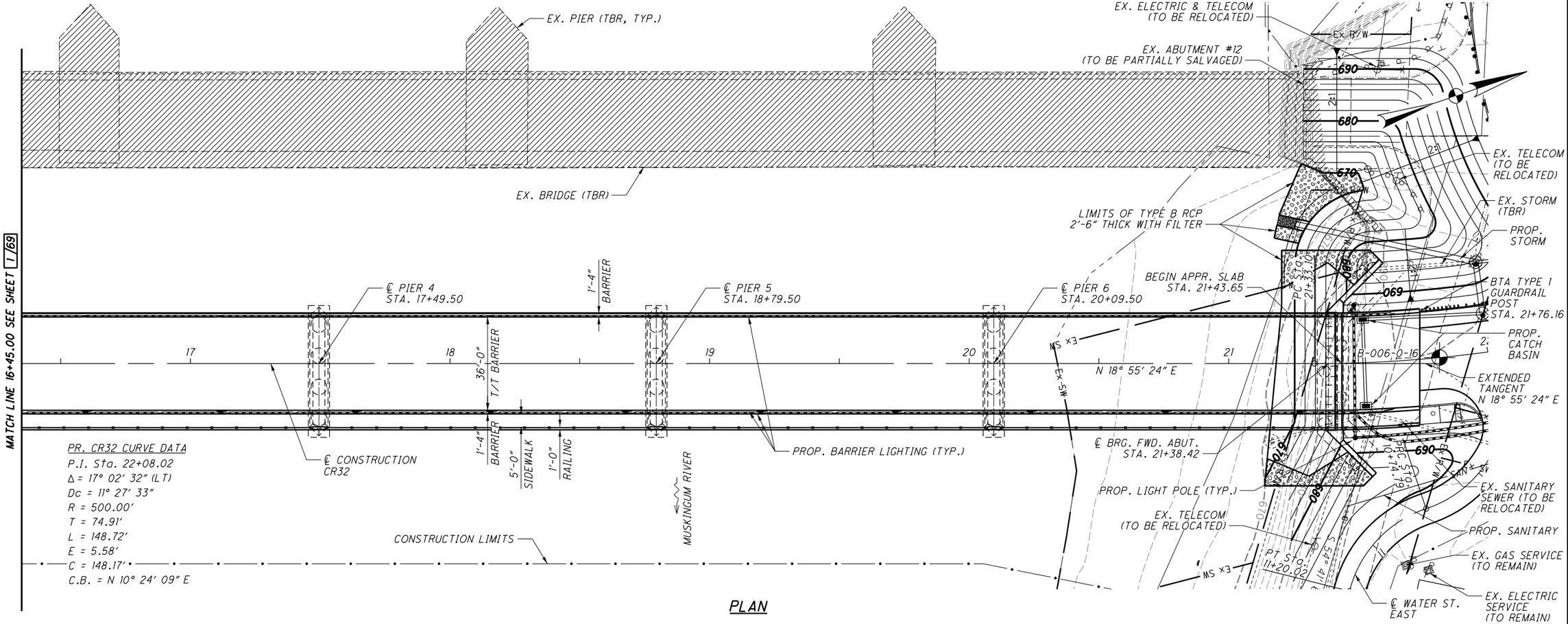

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MUSKINGUM COUNTY
STA. 12+81.60
STA. 21+43.65

SITE PLAN (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

2 / 69

111
192

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

A-1-69	REVISED 7-19-02
AS-1-15	REVISED 7-17-15
AS-2-15	REVISED 7-17-15
CB-2.3	REVISED 1-16-15
BR-2-15	REVISED 7-17-15
SBR-1-13	REVISED 1-17-14
HL-30.31	REVISED 1-17-14
HL-50.21	REVISED 7-21-17
PSID-1-13	REVISED 7-15-16

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:

800	REVISED 1-19-18

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2014 - 7th EDITION INCLUDING THE 2015 AND 2016 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

OPERATIONAL IMPORTANCE:

A LOAD MODIFIER OF 1.00 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING:

DESIGN LOADING:

HL-93
FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/SQ. FT.
SIDEWALK LOADING OF 0.090 KIPS/SQ. FT.

DESIGN STRESSES:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (ABUTMENT BACKWALLS, WINGWALLS, ABUTMENT CAPS, ABUTMENT AND PIER FOOTINGS)
CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4.5 KSI (BRIDGE DECK, DIAPHRAGMS, BARRIERS, RAILING)
CONCRETE CLASS QC3 - COMPRESSIVE STRENGTH 4.5 KSI (MODULAR EXPANSION JOINT)
CONCRETE CLASS QC4 - COMPRESSIVE STRENGTH 4.0 KSI (ABUTMENT BREASTWALLS, PIERS)
CONCRETE CLASS QC5 - COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFTS)
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

CONCRETE FOR 73'-3" PRESTRESSED BEAMS (SPAN 1):
COMPRESSIVE STRENGTH (FINAL) - 7 KSI
COMPRESSIVE STRENGTH (RELEASE) - 5 KSI

CONCRETE FOR 129'-6" PRESTRESSED BEAMS (SPANS 2-7):
COMPRESSIVE STRENGTH (FINAL) - 8.5 KSI
COMPRESSIVE STRENGTH (RELEASE) - 6.5 KSI

WELDED WIRE FABRIC:
YIELD STRENGTH - 70 KSI

PRESTRESSING STRAND:
AREA = 0.217 SQ. IN.
ULTIMATE STRENGTH = 270 KSI
INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL
2 ½" CONCRETE COVER

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

EXISTING BRIDGE PLANS:

EXISTING PLANS MAY BE INSPECTED IN THE MUSKINGUM COUNTY ENGINEER OFFICE AT 155 REHL ROAD, ZANESVILLE, OH.

MAINTENANCE OF TRAFFIC:

SEE ROADWAY PLANS FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS.
MAINTENANCE OF TRAFFIC INCLUDES MAINTENANCE OF BOAT TRAFFIC.

UTILITY LINES:

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES UNLESS DETERMINED OTHERWISE BY THE COUNTY UTILITY COORDINATOR. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

DECK PLACEMENT DESIGN ASSUMPTIONS:

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.31 KIPS FOR A TOTAL MACHINE LOAD OF 18.48 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48".

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF BRIDGE SUPERSTRUCTURE, SUBSTRUCTURES, AND A LOCK GUIDE WALL TO 1 FOOT BELOW THE PROPOSED GRADE OR STREAMBED EXCEPT WHERE SUBSTRUCTURE SALVAGE IS INDICATED. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING REMOVAL OPERATIONS NEAR THE EXISTING LOCK STRUCTURE TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND REMAIN IN PLACE. SUBMIT WORKING DRAWINGS ACCORDING TO CMS 501.05.

BLASTING WILL BE PERMITTED. HOWEVER, WRITTEN PERMISSION FROM THE OHIO DEPARTMENT OF NATURAL RESOURCES' CHIEF OF THE DIVISION OF WILDLIFE MUST BE OBTAINED IN ACCORDANCE WITH OHIO REVISED CODE SECTION 1533.58.

PIER STONE BLOCK REUSE: DURING REMOVAL OF THE PIERS, CONTRACTOR SHALL SALVAGE A TOTAL OF 21 OF THE FULL-SIZED (GREATER THAN 5'± IN LENGTH) STONE BLOCKS AND DELIVER THEM, UNDAMAGED, TO THE LOCK TENDER PROPERTY FOR REUSE BY THE OHIO DEPARTMENT OF NATURAL RESOURCES. ADDITIONALLY, CONTRACTOR SHALL SALVAGE ALL STONES NECESSARY FOR THE CONSTRUCTION OF THE COMMEMORATIVE DISPLAY AND STONE WALL AT THE PROPOSED PARKING LOT NEAR THE REAR ABUTMENT. REMOVE THE REMAINING PIER STONES PER THE PROVISIONS OF ITEM 202.

MEASUREMENT & PAYMENT: THE ENGINEER WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FT SPAN, AS PER PLAN.

ITEM 203, EMBANKMENT, AS PER PLAN:

PLACE AND COMPACT EMBANKMENT MATERIAL IN 6 INCH LIFTS FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT BETWEEN STATIONS 11+75 AND 12+81.60 AT THE REAR ABUTMENT AND BETWEEN STATIONS 21+43.65 AND 22+50 AT THE FORWARD ABUTMENT.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

THE CONTRACTOR SHALL INCLUDE ALL WORK REQUIRED UNDER THIS PAY ITEM FOR CONSTRUCTION OF THE PROPOSED STRUCTURE. INCLUDED IN THIS PAY ITEM SHALL BE ANY TEMPORARY SHORING REQUIRED AT THE REAR ABUTMENT TO MAINTAIN THE EXISTING STRUCTURE WHILE THE PROPOSED STRUCTURE IS BEING CONSTRUCTED.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL PLACED IN BEHIND THE ABUTMENTS SHALL BE 703.17 MATERIAL PLACED IN 6 INCH LIFTS AS PER 304.05.

ITEM 509, EPOXY COATED REINFORCING STEEL:

REINFORCING STEEL CORROSION PROTECTION

AT THE CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE COUNTY, THE CONTRACTOR MAY PROVIDE HOT-DIP GALVANIZED REINFORCING STEEL IN PLACE OF EPOXY-COATED REINFORCING STEEL IN ANY OR ALL BRIDGE COMPOMENTS. EACH STRUCTURE COMPOMENT (ABUTMENT, SUPERSTRUCTURE, PIER, APPROACH SLAB) SHALL BE CONSTRUCTED ENTIRELY WITH EITHER EPOXY-COATED OR GALVANIZED REINFORCING STEEL. GALVANIZED REINFORCING STEEL SHOULD CONFORM TO CMS 711.02 AND EITHER ASTM A1094 OR ASTM A767.

THE DEVELOPMENT AND LAP-SPLICE LENGTHS PROVIDED IN THIS PLAN SET ARE VALID FOR EITHER EPOXY-COATED OR GALVANIZED REINFORCING STEEL. IF THE CONTRACTOR CHOOSES TO PROVIDE GALVANIZED REINFORCING, IT IS ACCEPTABLE FOR THE CONTRACTOR TO RE-DESIGN THE DEVELOPMENT AND LAP-SPLICE LENGTHS PER THE DESIGN SPECIFICATIONS USED IN THIS PLAN SET. ANY RE-DESIGNED DEVELOPMENT AND LAP-SPLICE LENGTHS SHALL BE APPROVED BY THE ODOT OFFICE OF STRUCTURAL ENGINEERING.

ITEM 511, CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN:

THE CONTRACTOR SHALL INSTALL ONE METAL BENCHMARK DISK ON TOP OF THE FORWARD ABUTMENT EAST WINGWALL, AND ONE METAL BENCHMARK DISK ON TOP OF THE REAR ABUTMENT WEST WINGWALL. THE DISKS SHALL BE PLACED CAREFULLY ON A LEVELED SECTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE AN ELEVATION OF THE BENCHMARKS, WHICH SHALL BE VERIFIED BY A PROFESSIONAL SURVEYOR. THE ELEVATION MEASURED SHALL USE THE NAVD 88 DATUM. THE DISKS SHALL BE PROVIDED BY THE MUSKINGUM COUNTY ENGINEER. PAYMENT FOR ALL OTHER MATERIALS, LABOR AND INCIDENTALS NECESSARY TO INSTALL THE BENCHMARK DISKS SHALL BE INCLUDED IN THIS PAY ITEM. IF EITHER METAL BENCHMARK IS DISTURBED PRIOR TO THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUPPLY A NEW DISK TO REPLACE THE DISTURBED DISK, AND SHALL RESET AND VERIFY THE ELEVATION AT NO ADDITIONAL COST TO THE COUNTY.

ITEM 512, SEALING OF CONCRETE SURFACES (NON-EPOXY):

ALL EXPOSED CONCRETE SURFACES OF THE ABUTMENT, INCLUDING WINGWALLS, AND LIMITS OF THE CONCRETE SUPERSTRUCTURE AS PER PLAN DETAILS SHALL BE SEALED WITH A NON-EPOXY SEALER.

ITEM 513, STRUCTURAL STEEL MEMBERS, MODULAR EXPANSION JOINT, LEVEL UF, AS PER PLAN:

ABUTMENT JOINTS SHALL BE DS BROWN D-240-PV-S OR APPROVED ALTERNATE. THE MANUFACTURER SHALL SUBMIT DESIGN CALCULATIONS SHOWING THAT THE DEVICE CAN MEET THE IMPACT AND FATIGUE DESIGN REQUIREMENTS SET FORTH BY AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, SECTION 14.5.

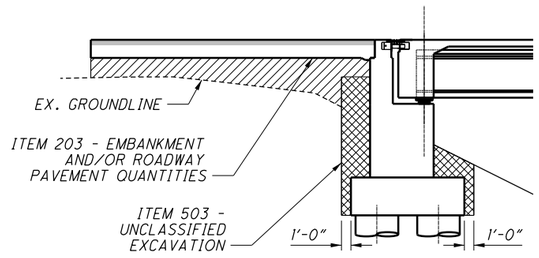
A. DESCRIPTION

FURNISH ALL MATERIALS, SERVICES, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO DESIGN, FABRICATE, INSPECT, TEST AND INSTALL MODULAR EXPANSION JOINTS IN ACCORDANCE WITH THE PLANS AND THESE NOTES. ALL REQUIREMENTS OF 513, UF LEVEL FABRICATION APPLY, UNLESS MODIFIED BY THESE NOTES.

B. DESIGN

1. PREPARE AND CHECK THE DESIGN UNDER THE AUTHORITY OF AN OHIO REGISTERED PROFESSIONAL ENGINEER. THE REGISTERED ENGINEER SHALL SEAL, SIGN AND DATE THE DESIGN CALCULATIONS AND SHOP DRAWINGS.

2. INCLUDE DESIGN CALCULATIONS WITH THE CONTRACTOR'S SUBMISSION OF SHOP DRAWINGS PER 513.06.



ITEM 503 PAY LIMITS DIAGRAM

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DESIGNED	DRAWN	REVIEWED	DATE
TAS	JLS	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		6054145	

GENERAL NOTES (1 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

ITEM 513, STRUCTURAL STEEL MEMBERS, MODULAR EXPANSION JOINT, LEVEL UF, AS PER PLAN (CONTINUED):

3. PROVIDE A DETAILED INSTALLATION PROCEDURE AND INCLUDE ANY SPECIFIC MANUFACTURER'S NOTES NECESSARY FOR COMPLETION OF THE WORK.

4. DESIGN AND TEST THE MODULAR JOINT COMPONENTS, JOINT ARMOR AND ANCHORAGES ACCORDING TO THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 402 "FATIGUE DESIGN OF MODULAR BRIDGE EXPANSION JOINTS" APPENDIX A AND B.

5. DESIGN TEMPORARY AND FIELD CONNECTIONS TO THE BRIDGE TO ACCOMMODATE ADJUSTMENTS FOR ROADWAY GEOMETRY AND VARYING TEMPERATURE.

6. DESIGN FOR THE PLAN SPECIFIED MOVEMENT PER AASHTO LRFD 3.12.2 FOR A COLD CLIMATE (TEMPERATE RANGE IS FROM -30°F TO +120°F WITH BASE TEMPERATURE SET TO 60°F).

7. SUPPLY SUPPORT BAR BEARINGS TO TRANSFER THE LOAD FROM THE SUPPORT BARS TO THE JOINT ARMOR.

8. FOR DESIGN OF THE DECK JOINT AT ALL LIMIT STATES, THE DYNAMIC LOAD ALLOWANCE (IM) SHALL BE TAKEN AS 125% OF THE STATIC EFFECT OF EITHER THE DESIGN TRUCK OR THE DESIGN TANDEM.

9. SUPPLY EQUALIZATION SPRINGS TO COUNTER THE COMPRESSION FORCES FROM THE SEALING ELEMENTS AND MAINTAIN EQUAL EXPANSION PROPERTIES FOR EACH SEALING ELEMENT ACROSS THE JOINT.

10. SUPPLY CONTROL SPRINGS WHICH WORK LONGITUDINALLY TO MAINTAIN EQUIDISTANT SPACING BETWEEN TRANSVERSE SEPARATION BEAMS.

11. SUPPLY SEPARATION BEAMS/TRANSVERSE DIVIDERS/CENTER BEAMS TO LIMIT TOTAL HORIZONTAL MOVEMENT IN ANY INDIVIDUAL STRIP SEAL.

12. SUPPLY A STRIP SEAL TYPE SEAL CONNECTED TO MATCHING RETAINERS CONNECTED TO THE JOINT ARMOR AND THE SEPARATION BEAMS. DO NOT EXCEED 3.15 INCHES OF TOTAL HORIZONTAL MOVEMENT IN ANY INDIVIDUAL STRIP SEAL.

13. SUPPLY REMOVABLE AND REPLACEABLE NEOPRENE SEALS, SUPPORT BAR BEARINGS AND EQUALIZATION SPRINGS.

14. SET SEALS AND RETAINERS 1/8" LOWER THAN THE ROADWAY SURFACE.

15. DESIGN AND FABRICATE THE MODULAR JOINT AS A CONTINUOUS FULL LENGTH MEMBER WITHOUT FIELD SPLICES.

C. MATERIALS

1. SUPPLY STRUCTURAL STEEL MEETING ASTM A709 GRADE 50. SUPPLY SEPARATION BEAMS/TRANSVERSE DIVIDERS/CENTER BEAMS, EDGE BEAMS AND JOINT ARMOR MEETING CHARPY V NOTCH IMPACT REQUIREMENTS PER ASTM A709 TABLE S1.2 ZONE 2 TEMPERATURE RANGE. SUPPLY TUBE SECTIONS MEETING ASTM A501 OR A500 GRADE B.

2. SUPPLY ASTM A240, TYPE 304 STAINLESS STEEL, 13 GAGE MINIMUM THICKNESSES WITH NO. 8 FINISH FOR SLIDING SURFACES IN CONTACT WITH PTFE.

3. SUPPLY TESTING AND REPORTS BY THE MANUFACTURER OR AN INDEPENDENT TESTING LABORATORY FOR ALL ELASTOMERIC, PTFE URETHANE AND PREFORMED FABRIC MATERIALS USED IN ALL BEARINGS AND SPRINGS. THE SUBMISSION OF MATERIAL CERTIFICATION AND TESTING DATA SHALL BE PER 513.08. THESE MATERIALS SHALL BE TESTED ACCORDING TO THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 402 APPENDIX A "A GUIDELINE FOR DURABILITY (NCHRP) REPORT 402 APPENDIX A "A GUIDELINE FOR DURABILITY TESTING OF SPRINGS AND BEARINGS FOR MBEJ."

4. SUPPLY STRIP SEALS CONFORMING TO ASTM D5973. SUBMIT CERTIFIED TEST DATA PER 513.08 FROM THE MANUFACTURER OR AN ACCREDITED LABORATORY. D5973 SECTION 8, LOT SIZE IS ONE SAMPLE PER JOINT. A SAMPLE IS A PIECE 4 FEET LONG WITH ALL MANUFACTURES' MARKINGS. THE SEAL AND RETAINER ARE AN INTEGRAL SYSTEM SUPPLIED BY ONE MANUFACTURER.

5. SEAL RETAINERS: EXTRUDE, HOT ROLL OR MACHINE, STEEL RETAINERS INTO A SOLID SHAPE. RETAINERS MANUFACTURED FROM BENT PLATE OR BUILT UP PIECES ARE NOT ACCEPTABLE. THE INTERNAL DIMENSIONS OF THE RETAINER SHALL BE SPECIFIED BY THE MANUFACTURER TO ACHIEVE POSITIVE SEAL ANCHORAGE.

6. SEPARATION BEAMS/TRANSVERSE DIVIDERS/CENTER BEAMS SHALL BE A SOLID, NON WELDED MACHINED OR EXTRUDED STEEL SECTION.

7. LUBRICANT - ADHESIVE. ONE PART MOISTURE CURING POLYURETHANE COMPOUND MEETING THE REQUIREMENTS OF ASTM D4070 AND AS SPECIFIED BY THE SEAL MANUFACTURER.

8. HARDWARE SHALL BE ASTM A325 TYPE 1, GALVANIZED, OR A449 GALVANIZED.

9. SUPPLY CLASS QC3 SELF CONSOLIDATING CONCRETE WITH A COMPRESSIVE STRENGTH OF 4.5 KSI.

D. FABRICATION

1. THE MODULAR JOINTS SHALL BE FABRICATED ACCORDING TO CMS 513.

2. SHOP ASSEMBLE THE MODULAR JOINT WITH ALL COMPONENTS EXCEPT, NEOPRENE SEALS, PER 513.24 EXCEPT THAT FULL ASSEMBLY IS REQUIRED WITH PHASED CONSTRUCTION.

3. JOINTS IN STRIP SEALS: NO JOINTS ARE ALLOWED.

4. JOINTS IN RETAINERS: WELDS ARE WATER TIGHT, PARTIAL PENETRATION WELDS AROUND THE OUTER PERIPHERY OF THE ABUTTING SURFACES. MAKE SPLICES ONLY IN COMPRESSION ZONES OF THE JOINT ARMOR. GRIND FLUSH ALL WELDS IN CONTACT WITH THE SEAL AND JOINT ARMOR. DO NOT USE SHORT PIECES OF RETAINERS LESS THAN 6'-0" LONG, UNLESS REQUIRED . AT CURBS OR SIDEWALKS. DO NOT PROVIDE ADDITIONAL SPLICES IN RETAINERS AT CURB OR SIDEWALK SECTIONS OTHER THAN REQUIRED FOR GEOMETRY.

5. SHOP OR FIELD WELDS OF CENTER BEAMS AND JOINT ARMOR, SHALL BE COMPLETE PENETRATION WELDS, GROUND TO PROVIDE SMOOTH TRANSITIONS AND BE 100% ULTRASONICALLY TESTED PER AASHTO/AWS BRIDGE WELDING CODE, WITH TENSION ACCEPTANCE CRITERIA, WITNESSED BY THE DEPARTMENT.

6. SUPPORT BAR CONNECTIONS SHALL BE COMPLETE PENETRATION WELDS GROUND TO PROVIDE SMOOTH TRANSITIONS AND BE 100% ULTRASONICALLY TESTED PER AASHTO/AWS BRIDGE WELDING CODE, WITH TENSION ACCEPTANCE CRITERIA, WITNESSED BY THE DEPARTMENT.

7. TEMPORARY SUPPORTS: FABRICATOR DESIGNED AND INSTALLED SUPPORTS ARE REQUIRED TO SUPPORT SHIPPING, ERECTION AND CONSTRUCTION FORCES WITHOUT DAMAGE TO THE STEEL ARMOR OR COATINGS. THESE SUPPORTS SHALL BE ADJUSTABLE FOR FIELD TEMPERATURE SETTING.

E. COATING

1. GALVANIZE OR METALIZE ALL STEEL SURFACES AND COMPONENTS, EXCEPT AT STAINLESS STEEL AND PTFE SLIDING SURFACES. THESE COATING MAY BE MIXED ON ONE ASSEMBLY, IF ALL SIMILAR COMPONENTS OF THE ASSEMBLY HAVE THE SAME COATING TYPE.

2. PROVIDE A GALVANIZED COATING PER ASTM A123, WITH A MINIMUM THICKNESS OF 4 MILS. CLEAN EXCESSIVE GALVANIZING AS NECESSARY TO ACHIEVE MECHANICAL MOVEMENT AND SEAL INSTALLATION.

3. PROVIDE A METALIZED COATING PER SOCIETY FOR PROTECTIVE COATINGS (SSPC) SPECIFICATION SSPC-CS23.00 (MARCH 17, 2003) FOR THERMAL SPRAY METALLIC COATINGS. THE COATING SHALL BE A MINIMUM OF 8 MILS THICK. THE METALIZING WIRE SHALL BE 100% ZINC. AREAS OF STRUCTURAL STEEL THAT ARE IN CONTACT WITH CAST-IN-PLACE CONCRETE SHALL HAVE AN ADDITIONAL COATING. THE COATING SHALL BE THE EPOXY INTERMEDIATE COAT SPECIFIED IN CMS 514. THE COATING THICKNESS WILL COVER ALL PEAKS, VALLEYS AND SURFACE ROUGHNESS ATTRIBUTED TO METALIZING.

4. COATING REPAIRS: DAMAGED COATINGS SHALL BE REPAIRED BY ASTM A780, ANNEX "A1. REPAIR USING ZINC BASED ALLOYS". THE PROCEDURE SHALL BE AS FOLLOWS: REMOVE SURFACE CONTAMINATES, PREHEAT TO 600 DEGREES F, AND APPLY ZINC COATING BY RUBBING WITH PURE WITH A PURE ZINC STICK OR SPRINKLING ZINC POWDER ON THE PREHEATED SURFACE, TO ACHIEVE A MINIMUM COATING. THICKNESS OF 6 MILS.

5. THE METALIZED OR GALVANIZED COATINGS SHOULD NOT BE FIELD PAINTED. DAMAGED AREAS SHALL BE METALIZED AS PER 516.03 AND SUPPLEMENTAL SPECIFICATION 845.

6. PRIOR TO SHIPPING, RETAINER GROOVES SHALL BE PROTECTED FROM CONSTRUCTION DEBRIS BY THE INSTALLATION OF BACKER RODS OR OTHER EFFECTIVE MASKING TECHNIQUES.

F. INSTALLATION

1. A JOINT MANUFACTURER'S TECHNICAL REPRESENTATIVE TO PHYSICALLY OVERSEE THE FABRICATION, INSTALLATION, ADJUSTMENT AND TESTING DURING ALL OPERATIONS. WHERE SPECIAL INSTRUCTIONS ARE NOT CONTAINED HEREIN OR ELSEWHERE IN THESE NOTES, DIRECTION FOR THE INSTALLATION SHALL BE ACCORDING TO THE RECOMMENDATIONS OF THE TECHNICAL REPRESENTATIVE.

2. COORDINATE AND SCHEDULE THE TECHNICAL REPRESENTATIVE.

3. INSTALL THE SUPERSTRUCTURE SUPPORTING UNITS BEFORE INSTALLING THE MODULAR JOINT. POSITION THE JOINT TO MATCH ROADWAY GEOMETRY SUPERSTRUCTURE CONNECTIONS AND TEMPERATURE OPENING. TAKE CARE TO MAINTAIN EXACT ALIGNMENT OF ADJACENT ENDS OF THE ARMOR AND SEPARATION BEAMS/TRANSVERSE DIVIDERS/CENTER BEAMS FOR FIELD WELDED UNITS. PROVIDE TEMPORARY SUPPORTS AS DIRECTED BY THE MANUFACTURER TO MAINTAIN THE PROPER POSITIONING. FOR PHASED CONSTRUCTION, THE CONTRACTOR'S METHODS FOR INSTALLATION AND TEMPORARY SUPPORTS SHALL ACHIEVE SEPARATION OF THE PHASES AND UNRESTRICTED TEMPERATURE MOVEMENT.

4. PERFORM CONCRETE PLACEMENT USING VIBRATION AND HAND WORK AS NECESSARY TO ACHIEVE CONSOLIDATION AND ELIMINATE AIR VOIDS. THE MAXIMUM AGGREGATE SIZE SHALL BE #8 FOR CONCRETE BLOCKOUT AREAS.

5. PLACE THE DECK CONCRETE FIRST. CHECK THE ABUTMENT OR ADJACENT SPAN SIDE OF THE MODULAR JOINT FOR ALIGNMENT AND TEMPERATURE ADJUSTMENT. TEMPERATURE SHALL BE MEASURED AT THE UNDERSIDE OF THE CONCRETE DECK AT EACH END AND MID-SPAN TO ACHIEVE THE AVERAGE SUPERSTRUCTURE TEMPERATURE. PLACE THE BACKWALL OR ADJACENT SPAN CONCRETE SECOND. THE MANUFACTURER'S REPRESENTATIVE SHALL CHECK THAT TEMPERATURE MOVEMENT HAS NOT CAUSED ANY DAMAGE TO THE BOND BETWEEN THE JOINT AND THE CONCRETE.

6. EXAMINE SEAL RETAINERS FOR SOIL OR DEFECTS THAT CAN DAMAGE THE SEAL. REPAIR ANY DEFECTS AS DIRECTED BY THE MANUFACTURER'S REPRESENTATIVE.

7. SOLVENT CLEAN THE NEOPRENE SEAL ELEMENTS AND THE RETAINER GROOVES TO REMOVE OIL, GREASE OR OTHER SOIL IMMEDIATELY PRIOR TO INSTALLING THE SEALS. INSTALL SEALS USING PROCEDURES AND ADHESIVE SPECIFIED BY THE JOINT MANUFACTURER. KEEP THE BONDING SURFACES CLEAN, DRY AND WARMER THAN 45°F.

8. TEST THE INSTALLED MODULAR JOINT FOR LEAKS. FLOOD THE TOTAL EXPANSION JOINT LENGTH WITH WATER FOR A PERIOD OF NOT LESS THAN ONE HOUR. COVER THE ENTIRE JOINT SYSTEM BY EITHER POUNDING OR FLOWING WATER. LOCATE ANY POINTS OF LEAKAGE AND TAKE ANY AND ALL MEASURES NECESSARY TO STOP THE LEAKAGE. PERFORM THIS WORK AT THE CONTRACTOR'S EXPENSE. PERFORM A SECOND WATER TEST AFTER ALL REPAIRS HAVE BEEN MADE.

ITEM 515, INTERMEDIATE DIAPHRAGM, AS PER PLAN:

THE GALVANIZED STEEL OPTION FOR INTERMEDIATE DIAPHRAGMS SHALL BE USED. THE CONCRETE OPTION SHALL NOT BE USED.

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3975" WITH 21" x 39.5" x 1.625" LOAD PLATE
ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3975" WITH 21" x 39.5" x 1.5625" LOAD PLATE:

FABRICATION

SELECT FABRICATORS THAT ARE LISTED BY THE DEPARTMENT BEFORE THE CONTRACT LETTING DATE AS EVALUATED BY THE OFFICE OF MATERIALS MANAGEMENT AND PRE-QUALIFIED ACCORDING TO CMS 513 AS A UF LEVEL FABRICATOR. PERFORM ALL WORK IN ACCORDANCE WITH CMS 513, LEVEL UF AND THESE SPECIFICATIONS.

ATTACHMENT OF PTFE

ATTACH SHEET OR FABRIC PTFE TO SUBSTRATE ACCORDING TO THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, ARTICLE 18.8.3.2. THE DEPARTMENT WILL NOT PERMIT MIGRATION OF EPOXY THROUGH THE PTFE FABRIC. FURNISH PTFE FABRIC FROM A SINGLE PIECE. OVER-SEW OR RECESS EDGES SO THAT NO CUT FABRIC EDGES ARE EXPOSED.

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GENERAL NOTES (2 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3975" WITH 21" x 39.5" x 1.625" LOAD PLATE
ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3975" WITH 21" x 39.5" x 1.5625" LOAD PLATE (CONTINUED):

ATTACHMENT OF STAINLESS STEEL

ATTACH STAINLESS STEEL TO ITS STEEL SUBSTRATE ACCORDING TO THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, ARTICLE 18.8.3.3. THE DEPARTMENT WILL NOT ACCEPT ANY SURFACE ROUGHNESS FROM WELD PROTRUDING ABOVE THE SURFACE OF THE STAINLESS STEEL.

WELD GUIDE BARS TO THE SOLE PLATE BEFORE WELDING THE STAINLESS STEEL TO THE SOLE PLATE OR GUIDE BARS.

CORROSION PROTECTION

SHOP METALLIZE AND SEAL ALL STEEL SURFACES PER PLAN DETAILS. REFER TO THE SSPC-CS 23.00/AWS C2.23M/NACE NO. 12, "SPECIFICATION FOR THE APPLICATION OF THERMAL SPRAY COATINGS (METALLIZING) OF ALUMINUM, ZINC, AND THEIR ALLOYS AND COMPOSITES FOR THE CORROSION PROTECTION OF STEEL", CMS 514 AND THE TABLE BELOW.

SHOP METALLIZING REQUIREMENTS:

REQUIREMENT	SPECIFICATION
SURFACE PREPARATION:	SSPC-SP10
BLAST MEDIUM:	CMS 514.13.C
SHARP ANGULAR BLAST ANCHOR PROFILE:	ASTM D4417, METHOD C, 3 MILS ± 1 MIL
MINIMUM METALLIZING THICKNESS:	12 MILS
MINIMUM METALLIZING ADHESION:	ASTM D-4541, 500 PSI

WELDING

PERFORM WELDING ACCORDING TO CMS 513. IF THE CONTRACTOR PROVIDES ACCEPTABLE WELDING PROCEDURES TO RESTRICT THE MAXIMUM TEMPERATURE IN THE PTFE BONDED AREA OR TO SURFACES TOUCHING THE ELASTOMERIC DISC TO LESS THAN 300°F, THE DEPARTMENT WILL PERMIT WELDING TO A STEEL PLATE WHICH HAS A BONDED PTFE SURFACE OR TOUCHES AN ELASTOMERIC DISC. REPAIR CORROSION PROTECTIVE COATINGS DAMAGED BY FIELD WELDS ACCORDING TO 869.19.

TOLERANCES

CHECK ALL BEARINGS FOR TOLERANCES ACCORDING TO AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, TABLE 18.1.4.2-1.

TO MEASURE FLATNESS, PLACE A STRAIGHTEDGE, LONGER THAN THE NOMINAL DIMENSION TO BE MEASURED, IN CONTACT WITH THE SURFACE TO BE MEASURED OR AS PARALLEL TO IT AS POSSIBLE. SELECT A FEELER GAUGE HAVING A TOLERANCE OF ±0.001 INCH AND ATTEMPT TO INSERT IT UNDER THE STRAIGHTEDGE (USING THE SMALLEST NUMBER OF BLADES). FLATNESS IS ACCEPTABLE IF THE FEELER DOES NOT PASS UNDER THE STRAIGHTEDGE. THE STRAIGHTEDGE MAY BE LOCATED AT ANY POSITION ON THE SURFACE AND NOT NECESSARILY AT 90 DEGREES TO THE EDGES. CLASS A = 0.001 X NOMINAL DIMENSION. CLASS B = 0.002 X NOMINAL DIMENSION. CLASS C = 0.005 X NOMINAL DIMENSION.

SHIPPING AND PACKING

SECURELY BAND BEARINGS TOGETHER AS UNITS SO THAT THEY MAY BE SHIPPED TO THE JOB SITE AND STORED WITHOUT RELATIVE MOVEMENT OF THE BEARING PARTS OR DISASSEMBLY AT ANY TIME. WRAP BEARINGS IN MOISTURE PROOF AND DUST PROOF MATERIAL TO PROTECT AGAINST SHIPPING AND JOB SITE CONDITIONS.

STORE BEARINGS AT THE JOB SITE IN A DRY, SHELTERED AREA FREE FROM DIRT OR DUST UNTIL INSTALLATION.

MARK THE CENTERLINES ON APPROPRIATE BEARING PARTS FOR CHECKING ALIGNMENT IN THE FIELD. SHOW LOCATIONS OF ALIGNMENT MARKS ON SHOP DRAWINGS.

PERMANENTLY MARK ALL COMPONENTS OF EACH BEARING WITH A NUMBER UNIQUE TO THAT BEARING. IDENTIFY THE MARK NUMBER AND PLACEMENT LOCATION ON THE SHOP DRAWINGS.

INSTALLATION

LEAVE WRAPPING, BEARING STRAPS OR RETAINING CLAMPS IN PLACE AS LONG AS POSSIBLE TO ENSURE PARTS OF BEARINGS ARE NOT INADVERTENTLY DISPLACED RELATIVE TO EACH OTHER.

EVENLY SUPPORT EACH BEARING OVER THEIR UPPER AND LOWER SURFACES UNDER ALL ERECTION AND SERVICE CONDITIONS. DO NOT DISASSEMBLE BEARINGS FOR ERECTION PURPOSES.

THE ENGINEER MAY REQUIRE THE BEARINGS BE SHIPPED BACK TO THE MANUFACTURER, IF THE BEARING HAS BEEN UNWRAPPED OR DISASSEMBLED PRIOR TO ERECTION.

PREPARE CONCRETE SEAT PER CMS 516.07 EXCEPT THAT SEATS SHALL BE LEVEL WITHIN 0.03125 IN/FT.

ALIGN THE CENTERLINES OF THE BEARING ASSEMBLY WITH THOSE OF THE SUBSTRUCTURE AND SUPERSTRUCTURE. ON EXPANSION BEARINGS ALIGN THE BEARINGS, TAKING INTO CONSIDERATION THE AMBIENT TEMPERATURE (TO ALLOW FOR THE DESIGN EXPANSION OR CONTRACTION OF THE STRUCTURE). OFFSET UPPER AND LOWER BEARING PARTS TO COMPENSATE FOR AMBIENT TEMPERATURE AND ADDITIONAL DEAD LOAD ROTATION.

FIELD WELD STEEL LOAD PLATE TO BEAM EMBEDDED SOLE PLATE. PERFORM PERMANENT FIELD WELDING AFTER ALL DEAD LOAD ROTATIONS ARE COMPLETE. TEMPORARY TACK WELDS (5/16" X 2" LONG MINIMUM); CLAMPING OR BLOCKING MAY BE REQUIRED TO ASSURE STRUCTURAL STABILITY DURING THE APPLICATION OF THE REMAINING DEAD LOAD. DEFINE TEMPORARY CONNECTIONS IN THE CONSTRUCTION PLAN. TEMPORARY CONNECTIONS DO NOT ELIMINATE THE CONTRACT REQUIREMENT TO CHECK AND RE-ALIGN BEARINGS AS NECESSARY TO ACHIEVE THE TEMPERATURE ADJUSTED NEUTRAL POSITION AFTER THE APPLICATION OF ALL DEAD LOAD.

REPAIR DAMAGED OR FIELD WELDED METALLIZED COATINGS BY METALLIZING AND SEALING IN ACCORDANCE TO THIS SPECIFICATION. FIELD WELDS THAT CONNECT PAINTED AND METALLIZED SURFACES CAN BE REPAIRED ACCORDING TO THE SPECIFIED PAINTING SYSTEM. PROTECT AND MASK NON-DAMAGED OR NON-FIELD WELDED METALLIZED SURFACES, ELASTOMERIC PARTS, PTFE AND STAINLESS SLIDING SURFACES DURING ALL REPAIRS TO PREVENT DAMAGE OR CONTAMINATION.

PROTECT BEARINGS FROM CONSTRUCTION SILAGE, PAINTING AND SEALERS BY WRAPPING WITH CLEAR PLASTIC SHEETING 6 MILS THICK SECURED BY STRAPS OR TAPE. PROVIDE THE PROTECTION UNTIL COMPLETION OF ALL CONSTRUCTION ACTIVITIES. DO NOT RESTRICT THE THERMAL OR ROTATIONAL MOVEMENTS OF THE BEARING WITH THE STRAPS OR TAPE.

ITEM 517, STEEL HANDRAIL SYSTEMS INCLUDING CONCRETE PILASTERS CLASS QC2 CONCRETE:

MATERIALS TO BE USED:

STEEL TUBES	ASTM A500 GRADE B, OR ASTM A1085
OTHER STRUCTURAL SHAPES & PLATES	ASTM 572 STEEL GRADE 50
WELD MATERIAL	70 KSI
BOLT MATERIAL	ASTM A449
REINFORCING STEEL	CMS 509
CONCRETE	CMS 511

ALL WELDINGS SHALL BE GROUND SMOOTH. ALL PARTS OF THE STEEL RAILING SYSTEM SHALL BE GALVANIZED UNLESS NOTED OTHERWISE ACCORDING TO CMS 711.02. PROPER SURFACE PREPARATION PRIOR TO GALVANIZING IS MANDATORY.

THE MATERIAL AND LABOR ASSOCIATED WITH FABRICATING AND INSTALLING STEEL RAILINGS, ANCHORAGE, CONCRETE PILASTERS, AND MISCELLANEOUS HARDWARE SHALL BE INCLUDED IN THE PAY ITEM 517, STEEL HANDRAIL SYSTEMS INCLUDING CONCRETE PILASTERS CLASS QC2 CONCRETE. REINFORCING STEEL HAS BEEN SEPARATELY ITEMIZED ON THE REINFORCING LIST.

FABRICATION

FABRICATE RAILING ACCORDING TO CMS 513 LEVEL UF AND 517. ALL PLAN DIMENSIONS ARE MEASURED ALONG THE HORIZONTAL. SEE SITE PLAN FOR VERTICAL PROFILE. SEE THE APPROACH SLAB DETAILS FOR TRANSITIONS IN SIDEWALK THICKNESS WHICH WILL AFFECT STEEL DETAILING. POSTS SHALL BE PERPENDICULAR TO THE VERTICAL PROFILE. RAILS SHALL BE PARALLEL TO THE VERTICAL PROFILE.

PRIOR TO GALVANIZING, ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES SHALL HAVE A 1/16 INCH RADIUS OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE. VENT HOLES MAY BE ADDED WHERE REQUIRED FOR GALVANIZING SHALL BE DETAILED BY THE FABRICATOR AND APPROVED BY THE COUNTY.

GALVANIZED COATINGS DAMAGED IN THE SHOP SHALL BE REPAIRED PER ASTM A780 METHOD A3. GALVANIZED COATINGS DAMAGED IN THE FIELD SHALL BE REPAIRED PER ASTM A780 METHOD A1.

POST BASE PLATES SHALL BE FLAT AFTER FABRICATION. ALL ROUGH EDGES ON POSTS AND RAILS SHALL BE GROUND SMOOTH BEFORE GALVANIZING.

ANCHOR BOLTS MAY BE TACK WELDED TO THE ANCHORAGE ASSEMBLY TO HOLD IN PLACE FOR FIELD INSTALLATION.

INSTALLATION

TO ENSURE PROPER PLACEMENT OF THE ANCHOR BOLTS, SURVEY THE BOLT LOCATIONS AND PLACE ALL ANCHOR BOLTS WITHIN 1/8 INCH OF THE PLAN LOCATIONS IN THE TRANSVERSE AND LONGITUDINAL DIRECTIONS. ENSURE THAT ANCHOR BOLTS DO NOT MOVE DURING DECK CONCRETE POURS.

ALL POST ANCHORAGE ASSEMBLIES SHALL BE CONNECTED TO THE STRUCTURE GROUNDING SYSTEM AND GROUNDED AS SHOWN ON THE LIGHTING PLANS.

ITEM 517, CONCRETE PARAPET CLASS QC2 CONCRETE WITH QC/QA AND STEEL RAILING

MATERIALS TO BE USED:

CRASH RAILS	ASTM A501 OR ASTM A500 GRADE B
OTHER STRUCTURAL SHAPES & PLATES	ASTM 709 STEEL GRADE 36 OR 50
WELD MATERIAL	70 KSI
ANCHOR BOLTS	ASTM A449
CRASH RAIL BOLTS	ASTM A325, TYPE 1
REINFORCING STEEL	CMS 509
CONCRETE	CMS 511

THE CONTRACTOR SHALL FURNISH AND INSTALL THE CONCRETE BARRIER WITH RECESSED FINISHES ON TRAFFIC SIDE AND STEEL RAILING ACCORDING TO THE DETAIL PLANS. THE STEEL RAILING AND ALL HARDWARE SHALL BE GALVANIZED ACCORDING TO CMS 711.02.

THE CONTRACTOR SHALL INCORPORATE ANY PROVISIONS DEEMED NECESSARY FOR INSTALLATION OF STEEL RAILING TO ACCOMMODATE CONSTRUCTION TOLERANCES, LENGTH OF RAILING AND VERTICAL PROFILE OF THE ROADWAY. ALL PLAN DIMENSIONS ARE MEASURED ALONG THE HORIZONTAL. SEE THE SITE PLAN FOR VERTICAL PROFILE.

THE MATERIAL AND LABOR ASSOCIATED WITH FABRICATING AND INSTALLING STEEL RAILINGS, ANCHORAGE, CONCRETE BARRIER, REINFORCING STEEL AND MISCELLANEOUS HARDWARE SHALL BE INCLUDED IN THE PAY ITEM 517, CONCRETE PARAPET CLASS QC2 CONCRETE WITH QC/QA AND STEEL RAILING.

FABRICATION

FABRICATE RAILING ACCORDING TO CMS 513 LEVEL SF AND 517. ALL PLAN DIMENSIONS ARE MEASURED ALONG THE HORIZONTAL. SEE SITE PLAN FOR VERTICAL PROFILE. POSTS SHALL BE PERPENDICULAR TO THE VERTICAL PROFILE. RAILS SHALL BE PARALLEL TO THE VERTICAL PROFILE.

PRIOR TO GALVANIZING, ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES SHALL HAVE A 1/16 INCH RADIUS OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE. VENT HOLES MAY BE ADDED WHERE REQUIRED FOR GALVANIZING SHALL BE DETAILED BY THE FABRICATOR AND APPROVED BY THE COUNTY.

GALVANIZED COATINGS DAMAGED IN THE SHOP SHALL BE REPAIRED PER ASTM A780 METHOD A3. GALVANIZED COATINGS DAMAGED IN THE FIELD SHALL BE REPAIRED PER ASTM A780 METHOD A1.

SHOW FIELD SPLICE LOCATIONS ON THE SHOP DRAWINGS AT LOCATIONS SHOWN ON THE PLANS. DO NOT SHOP-SPLICE RAILS. RAILS SHALL NOT BE SPLICED AT THE SAME LOCATION.

POST BASE PLATES SHALL BE FLAT AFTER FABRICATION. ALL ROUGH EDGES ON POSTS AND RAILS SHALL BE GROUND SMOOTH BEFORE GALVANIZING.

ANCHOR BOLTS MAY BE TACK WELDED TO THE ANCHORAGE ASSEMBLY TO HOLD IN PLACE FOR FIELD INSTALLATION.

INSTALLATION

TO ENSURE PROPER PLACEMENT OF THE ANCHOR BOLTS, SURVEY THE BOLT LOCATIONS AND PLACE ALL ANCHOR BOLTS WITHIN 1/8 INCH OF THE PLAN LOCATIONS IN THE TRANSVERSE AND LONGITUDINAL DIRECTIONS. ENSURE THAT ANCHOR BOLTS DO NOT MOVE DURING DECK CONCRETE POURS.

BRIDGE RAILING POSTS SHALL BE IN PLACE AND IN PROPER ALIGNMENT PRIOR TO PLACEMENT OF RAILING BASE CONCRETE. PROTECT ALL RAILING ELEMENTS FROM CONCRETE SPLATTER BY WRAPPING WITH PLASTIC SHEETING OR OTHER METHODS AS NECESSARY. OBTAIN APPROVAL OF THE POST ALIGNMENT PRIOR TO PLACEMENT OF THE RAILING BASE CONCRETE.

ALL POST ANCHORAGE ASSEMBLIES SHALL BE CONNECTED TO THE STRUCTURE GROUNDING SYSTEM AND GROUNDED AS SHOWN ON THE LIGHTING PLANS.

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
www.elrobinsonengineering.com

DESIGNED TAS | DRAWN JLS | REVIEWED RLE | DATE 10/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 6054145

GENERAL NOTES (3 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

ITEM 524, DRILLED SHAFTS, MISC.: SHAFT INSPECTION DEVICE:

SUPPLY ALL REQUIRED EQUIPMENT AND PERSONNEL NECESSARY TO PERFORM VIDEO INSPECTION OF THE DRILLED SHAFT EXCAVATION, INCLUDING INSPECTIONS PERFORMED UNDERWATER OR WITHIN SLURRY. PROVIDE EQUIPMENT CAPABLE OF THE FOLLOWING: MEASURING THE DEPTH OF LOOSE OR DISTURBED MATERIAL AT THE BOTTOM OF THE SHAFT, AND RECORDING COLOR VIDEO IMAGES OF THE INSPECTION TO A DVD OR DIGITAL VIDEO FILE. FURNISH ALL NECESSARY SUPPLIES, FUEL AND ELECTRIC SERVICE TO OPERATE THE EQUIPMENT. PERFORM THE VIDEO INSPECTION IMMEDIATELY BEFORE POURING THE CONCRETE, AND IN THE PRESENCE OF THE ENGINEER OR INSPECTOR. SUBMIT RECORDINGS OF ALL VIDEO INSPECTIONS TO THE ENGINEER AFTER COMPLETING ALL VIDEO INSPECTIONS, OR WHEN REQUESTED BY THE ENGINEER.

PAYMENT IS FULL COMPENSATION FOR SUPPLYING THE REQUIRED EQUIPMENT AND PERSONNEL, AND FOR PERFORMING THE VIDEO INSPECTION OF EACH DRILLED SHAFT EXCAVATION. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE LUMP SUM CONTRACT PRICE FOR ITEM 524, DRILLED SHAFT, MISC.: SHAFT INSPECTION DEVICE.

ITEM 524, DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK:
ITEM 524, DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK:

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 647 KIPS AT THE REAR ABUTMENT AND 1086 KIPS AT THE FORWARD ABUTMENT. THIS LOAD IS RESISTED BY SIDE RESISTANCE WITHIN A PORTION OF THE BEDROCK SOCKET AND ALSO BY TIP RESISTANCE. AT THE REAR ABUTMENT, THE FACTORED RESISTANCE DEVELOPED BY SIDE RESISTANCE IS 158 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 4 FEET OF THE BEDROCK SOCKET, AND THE FACTORED RESISTANCE PROVIDED BY THE DRILLED SHAFT TIP IS 543 KIPS. AT THE FORWARD ABUTMENT, THE FACTORED RESISTANCE DEVELOPED BY SIDE RESISTANCE IS 130 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 4 FEET OF THE BEDROCK SOCKET, AND THE FACTORED RESISTANCE PROVIDED BY THE DRILLED SHAFT TIP IS 1568 KIPS. THE FORWARD ABUTMENT DRILLED SHAFTS ARE SOCKETED 11 FEET INTO BEDROCK TO PENETRATE BELOW THE COAL SEAM AND PLACE THE TIP WITHIN THE SILTSTONE.

ITEM 524, DRILLED SHAFTS, 66" DIAMETER, INTO BEDROCK:
ITEM 524, DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK:

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 1517 KIPS AT THE PIERS. THIS LOAD IS RESISTED BY SIDE RESISTANCE WITHIN A PORTION OF THE BEDROCK SOCKET AND ALSO BY TIP RESISTANCE. THE FACTORED RESISTANCE DEVELOPED BY SIDE RESISTANCE IS 447 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 10 FEET OF THE BEDROCK SOCKET FOR THE PIERS. THE FACTORED RESISTANCE PROVIDED BY THE DRILLED SHAFT TIP IS 1525 KIPS. EACH DRILLED SHAFT IS SOCKETED 12 FEET INTO BEDROCK TO PROVIDE LATERAL STABILITY.

ITEM SPECIAL - PROJECT INSPECTION PHOTOS:

THE CONTRACTOR SHALL TAKE A MINIMUM OF 5 PHOTOS PER WEEK DURING CONSTRUCTION FOR EACH OF THE LISTED STAGES OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE DIGITAL IMAGES WITH A MINIMUM RESOLUTION OF 10 MEGAPIXELS WITHIN ONE CALENDAR WEEK AFTER THE COMPLETION OR SUBSTANTIAL COMPLETION OF THE LISTED STAGES OF CONSTRUCTION. PAYMENT SHALL INCLUDE ALL INCIDENTALS TO COMPLETE THE WORK AND SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 530 STRUCTURES (CONSTRUCTION PHOTOS). BELOW IS A LISTING OF THE VARIOUS STAGES OF CONSTRUCTION.

1. EXISTING STRUCTURE DEMOLITION
2. REAR ABUTMENT CONSTRUCTION
3. FORWARD ABUTMENT CONSTRUCTION
4. PIER CONSTRUCTION
5. ERECTION OF THE CONCRETE BEAMS
6. PLACEMENT OF THE CONCRETE DECK
7. CONSTRUCTION OF EACH RAILING/BARRIER
8. EMBANKMENT CONSTRUCTION
9. APPROACH ROADWAY CONSTRUCTION
10. COMPLETED BRIDGE

SEND PHOTOS TO PROJECT ENGINEER AND COPIES TO:
ATTN: BRIDGE DEPARTMENT
E.L. ROBINSON ENGINEERING
1801 WATERMARK DRIVE, SUITE 310
COLUMBUS, OH 43215

ITEM SPECIAL - STRUCTURAL SURVEY AND MONITORING OF VIBRATION:

DESCRIPTION

THIS WORK CONSISTS OF CONDUCTING A SURVEY OF THE CONDITION OF STRUCTURES AND THE MONITORING OF GROUND VIBRATIONS. THE SURVEY WORK IS TO BE CONDUCTED BEFORE AND AFTER ALL CONSTRUCTION WORK IS PERFORMED WHICH COULD CAUSE UNDESIRABLE GROUND VIBRATIONS. GROUND VIBRATIONS AND ACOUSTICS SHALL BE MONITORED AT THE APPROPRIATE TIMES DURING THE DURATION OF THIS PROJECT.

STRUCTURAL SURVEY

BEFORE CONSTRUCTION WORK BEGINS, CONDUCT A CONDITION SURVEY OF ANY EXISTING BUILDINGS, STRUCTURES, WALLS, OR UTILITIES WITHIN 400 FEET OF THE CONSTRUCTION ACTIVITIES. THE PURPOSE OF THE SURVEY IS TO DOCUMENT THE CONDITION OF THE BUILDINGS, STRUCTURES, OR UTILITIES PRIOR TO CONSTRUCTION, SO THAT ANY CLAIMS OF DAMAGE CAUSED BY THE CONSTRUCTION ACTIVITIES CAN BE VERIFIED.

RETAIN AN EXPERIENCED VIBRATION SPECIALIST TO PERFORM OR SUPERVISE THE CONDITION SURVEY. USE A VIBRATION SPECIALIST THAT MEETS THE QUALIFICATION REQUIREMENTS LISTED IN C&MS 208.15 FOR VIBRATION MONITORING.

RECORD THE CONDITION OF EXISTING STRUCTURES AND BUILDING MATERIALS, USING WRITTEN TEXT, PHOTOGRAPHS, AND VIDEO RECORDINGS. INSPECT INTERIOR WALLS, CEILINGS, AND FLOORS THAT ARE ACCESSIBLE. INSPECT THE EXTERIOR OF THE BUILDING THAT IS VISIBLE FROM GROUND LEVEL. ALSO RECORD THE LOCATION, SIZE, AND TYPE OF ALL CRACKS AND OTHER STRUCTURAL DEFICIENCIES.

IF OWNERS OR OCCUPANTS FAIL TO ALLOW ACCESS TO THE PROPERTY FOR THE PRECONSTRUCTION CONDITION SURVEY, SEND A CERTIFIED LETTER TO THE OWNER OR OCCUPANT. DOCUMENT THE NOTIFICATION EFFORT AND THE CERTIFIED LETTER IN THE REPORT.

SUBMIT A REPORT TO THE ENGINEER THAT SUMMARIZES THE PRECONSTRUCTION CONDITION OF THE BUILDINGS, STRUCTURES, AND UTILITIES, AND THAT IDENTIFIES AREAS OF CONCERN.

MONITORING OF VIBRATIONS AND ACOUSTICS

VIBRATION CONTROL AND MONITORING SHALL CONFORM TO C&MS 208.15, EXCEPT AS MODIFIED BELOW:

A. ALL REFERENCES TO BLASTING SHALL INSTEAD APPLY TO CONSTRUCTION ACTIVITIES.
B. THE VIBRATION SPECIALIST'S EXPERIENCE REQUIREMENT SHALL APPLY FOR VIBRATION MONITORING AND NEED NOT BE SPECIFIC TO ROCK BLASTING PROJECTS.

THE MONITORING OF VIBRATIONS AND ACOUSTICS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

A. DETERMINATION AND DOCUMENTATION OF EXISTING LEVELS OF VIBRATIONS AND NOISE;
B. MONITORING OF ALL CONSTRUCTION OPERATIONS THAT SIGNIFICANTLY CONTRIBUTE TO THE PRODUCTION OF VIBRATIONS AND NOISE WITH A SPECIAL EFFORT MADE TO DOCUMENT THE VIBRATION AND SOUND LEVELS ASSOCIATED WITH BLASTING, DEMOLITION, AND/OR TEMPORARY SHEET PILE INSTALLATION PROCEDURES;
C. THE DEVELOPMENT OF CRITERIA FOR CONTROLLING CONSTRUCTION ACTIVITIES SO THAT THE VIBRATION SPECIALIST'S ALLOWABLE PREDETERMINED VIBRATION LEVELS ARE NOT EXCEEDED DURING CONSTRUCTION.

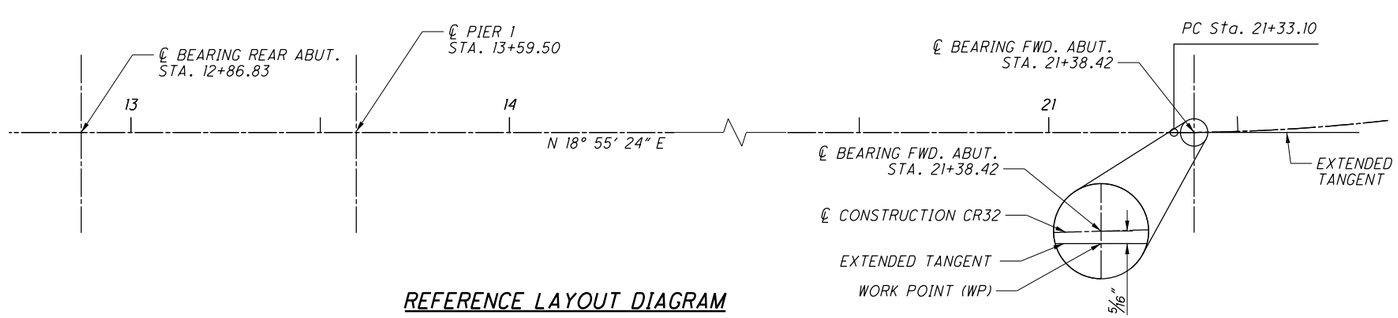
SUBMIT A FINAL REPORT WHICH CONTAINS ALL MEASUREMENTS, INTERPRETATIONS, AND RECOMMENDATIONS TO THE ENGINEER. SUBMIT THREE COPIES OF THE REPORT.

METHOD OF PAYMENT

PAYMENT FOR THIS ITEM WILL BE MADE AT THE CONTRACT LUMP SUM PRICE FOR ITEM SPECIAL - "STRUCTURAL SURVEY AND MONITORING OF VIBRATION".

ABBREVIATIONS:

ABUT. - ABUTMENT
ADT - AVERAGE DAILY TRAFFIC
ADTT - AVERAGE DAILY TRUCK TRAFFIC
APPR. - APPROACH
B - BOTTOM
℄ - BASELINE
B.F. - BACK FACE
BM - BENCHMARK
BOT. OR BTM. - BOTTOM
BRG. - BEARING
℄ - CENTERLINE
C/C - CENTER TO CENTER
C.I.P. - CAST-IN-PLACE
C.J. - CONSTRUCTION JOINT
CLR. - CLEAR
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONSTR. - CONSTRUCTION
CVN - CHARPY V-NOTCH
DIA. - DIAMETER
DIM. - DIMENSION
DWG. - DRAWING
E - EAST
E/D - EDGE OF DECK
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EOP - EDGE OF PAVEMENT
EQ. - EQUAL
EST. - ESTIMATED
EX. - EXISTING
EXP. - EXPANSION
F.A. - FORWARD ABUTMENT
F/F - FACE TO FACE
F.F. - FRONT FACE
FEMA FIS - FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE STUDY
FT. - FOOT OR FEET
FWD. - FORWARD
HMWM - HIGH MOLECULAR WEIGHT METHACRYLATE
HW - HIGH WATER
IN. - INCH
JT. - JOINT
L.F. - LEFT FORWARD
LT. - LEFT
MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
MSE - MECHANICALLY STABILIZED EARTH
N - NORTH
NB - NORTHBOUND
NO. - NUMBER
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
OHWM - ORDINARY HIGH WATER MARK
O/O - OUT TO OUT
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PROP. - PROPOSED
PSF - POUNDS PER SQUARE FOOT
P.V.I. - POINT OF VERTICAL INTERSECTION
Q - FLOW RATE
R - RADIUS
R.A. - REAR ABUTMENT
RCP - ROCK CHANNEL PROTECTION
REQD. - REQUIRED
R.F. - RIGHT FORWARD
R.R. - RAILROAD
RT. - RIGHT
R/W - RIGHT OF WAY
S - SOUTH
SB - SOUTHBOUND
SER. - SERIES
SHLDR - SHOULDER
SPA. - SPACE OR SPACES
STA. - STATION
STD. - STANDARD
STR - STRAIGHT
T - TOP
T&B - TOP & BOTTOM
TBR - TO BE REMOVED
TEMP. - TEMPORARY
T.O.S. OR T/S - TOP OF SLOPE
T/T - TOE TO TOE
TYP. - TYPICAL
U.N.O. - UNLESS NOTED OTHERWISE
VAR. - VARIES
V - VELOCITY
W - WEST
WB - WESTBOUND
WWR - WELDED WIRE REINFORCEMENT



REFERENCE LAYOUT DIAGRAM

E.L. ROBINSON ENGINEERING
1801 WATERMARK DRIVE, SUITE 310 · COLUMBUS, OHIO 43215
WWW.ELROBINSONENGINEERING.COM

DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
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GENERAL NOTES (4 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID NO. 97346

6 / 69

115
192

MADE BY: DTA DATE: 10/14/2017
CHECKED BY: TAS DATE: 10/17/2017

ESTIMATED QUANTITIES

STRUCTURAL FILE NUMBER: 6054145

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	PIER	SUPER.	GEN.	REFERENCE SHEET NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	3 , 8 AND 9 OF 69
202	22900	103	SY	APPROACH SLAB REMOVED				103	
202	23500	2,485	SY	WEARING COURSE REMOVED				2,485	
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	3 OF 69
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN				LUMP	3 OF 69
509	10000	677,179	LB	EPOXY COATED REINFORCING STEEL	68,600	206,254	402,325		
511	33418	119	CY	CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE			119		
511	34446	1,244	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			1,244		
511	34451	112	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN			112		62 AND 63 OF 69
511	44113	191	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	191				3 OF 69
511	45603	1,821	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA, AS PER PLAN	212	1,609			19 OF 69
511	46512	565	CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING	289	276			
511	53014	19	CY	CLASS QC3 CONCRETE, MISC.: MODULAR EXPANSION JOINT				19	58 OF 69
512	10050	6,565	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	308		6,257		
513	10201	1,604	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN		1,604			30 OF 69
513	17001	76	FT	STRUCTURAL STEEL MEMBERS, MODULAR EXPANSION JOINT, LEVEL UF, AS PER PLAN				76	3 , 4 , 58 AND 60 OF 69
515	15120	6	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE WF66-49 (LENGTH = 73'-3")				6	
515	15120	36	EACH	DRAPED STRAND PRESTRESSED CONCRETE BRIDGE I-BEAM MEMBERS, LEVEL 3, TYPE WF66-49 (LENGTH = 129'-6")				36	
515	20001	95	EACH	INTERMEDIATE DIAPHRAGMS, AS PER PLAN				95	4 OF 69
516	12201	12	FT	STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN			12		59 TO 61 OF 69
516	13600	63	SF	1" PREFORMED EXPANSION JOINT FILLER	63				
516	13900	195	SF	2" PREFORMED EXPANSION JOINT FILLER	139	56			
516	44201	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3979" WITH 21" x 39.5" x 1.625" LOAD PLATE)	12				4 , 5 AND 25 OF 69
516	44201	12	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (14" x 19" x 3.3979" WITH 21" x 39.5" x 1.5625" LOAD PLATE)		12			4 , 5 AND 26 OF 69
516	44401	60	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (17" x 18" x 5.4848" WITH 19" x 39.5" x 1.625" LOAD PLATE)		60			27 OF 69
517	76300	895	FT	RAILING, MISC.: CONCRETE PARAPET CLASS QC2 CONCRETE WITH QC/QA AND STEEL RAILING				895	5 AND 44 TO 48 OF 69
517	76300	898	FT	RAILING, MISC.: STEEL HANDRAIL SYSTEMS INCLUDING CONCRETE PILASTERS CLASS QC2 CONCRETE				898	5 AND 53 TO 57 OF 69
518	21200	201	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC				201	
518	40000	188	FT	6" PERFORATED CORRUGATED PLASTIC PIPE				188	
518	40011	115	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN				115	12 AND 16 OF 69
524	94904	147	FT	DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK	147				
524	94906	289	FT	DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK	289				
524	94934	288	FT	DRILLED SHAFTS, 66" DIAMETER, INTO BEDROCK		288			
524	94946	29	FT	DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK		29			
524	95100	17	EACH	DRILLED SHAFTS, MISC.: CSL TESTING, 4'-0" DIAMETER SHAFT*	17				*
524	95100	24	EACH	DRILLED SHAFTS, MISC.: CSL TESTING, 5'-6" DIAMETER SHAFT*		24			*
524	95200	LUMP		DRILLED SHAFTS, MISC.: SHAFT INSPECTION DEVICE				LUMP	6 OF 69
526	30011	292	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN				292	62 TO 64 OF 69
526	90020	49	SY	TYPE B INSTALLATION				49	
SPECIAL	53014000	LUMP		STRUCTURAL SURVEY AND MONITORING OF VIBRATION				LUMP	6 OF 69
601	32100	242	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER				242	
SPECIAL	69098400	LUMP		PROJECT INSPECTION PHOTOS				LUMP	6 OF 69

* SEE SPECIAL PROVISIONS

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ESTIMATED QUANTITIES
BRIDGE NO. MUS-CR32-0000
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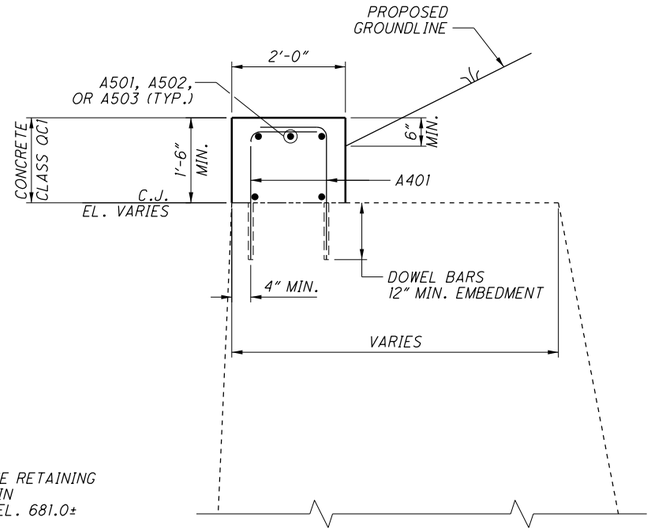
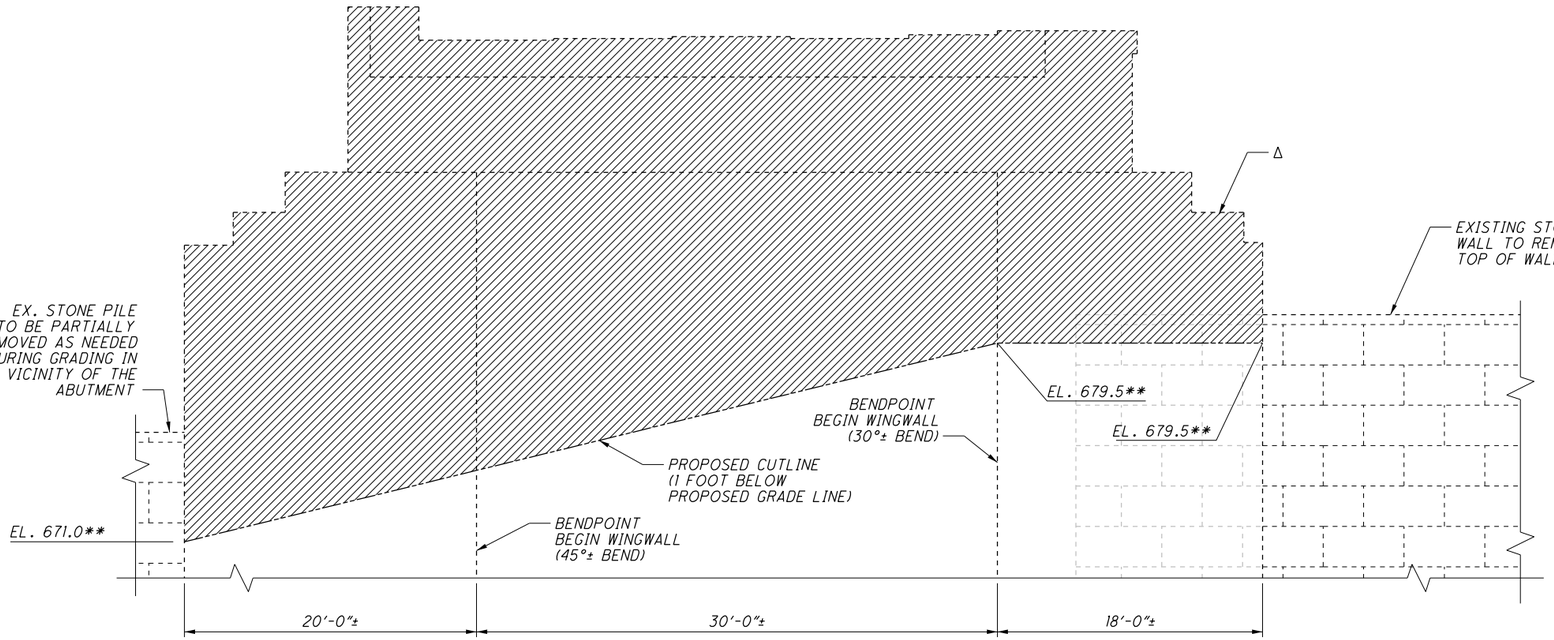
MUS-CR32-0.00
PID No. 97346

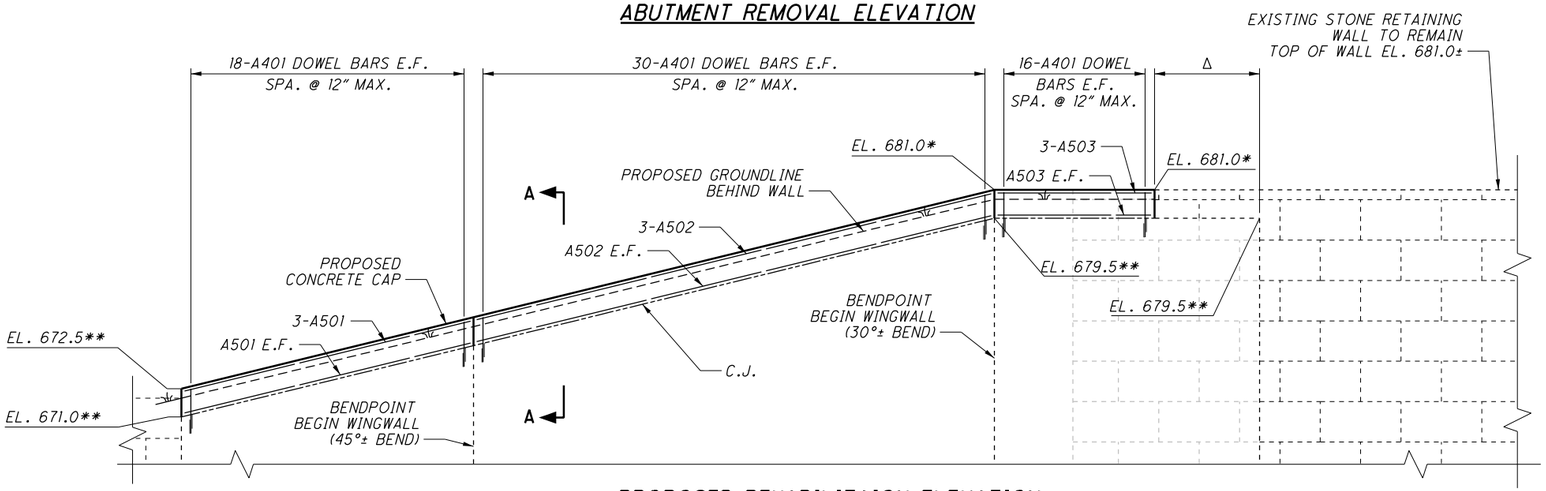
ABUTMENT REMOVAL PLAN



SECTION A-A



ABUTMENT REMOVAL ELEVATION



PROPOSED REHABILITAION ELEVATION

LEGEND:

▨ - INDICATES AREAS TO BE REMOVED AS PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

Δ - PORTION OF EXISTING LEFT WINGWALL IS BEHIND A SANDSTONE RETAINING WALL. THIS PORTION OF THE WALL SHALL BE CUT 1' BELOW GROUND.

* - ELEVATION TO MATCH THE TOP OF WALL ELEVATION AT THE ADJACENT RETAINING WALL TO REMAIN

** - GRADING IN THE VICINITY OF THE EXISTING ABUTMENT SHALL BE PERFORMED PRIOR TO ABUTMENT REMOVALS. AFTER GRADING IS COMPLETE, THE CONTRACTOR SHALL VERIFY ABUTMENT AND WINGWALL DIMENSIONS AND ELEVATIONS. THE REMOVAL PLAN MAY BE ADJUSTED WITH APPROVAL OF THE PROJECT ENGINEER TO BETTER ACCOMMODATE FIELD CONDITIONS AND FINAL GRADING. SAWCUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS ONE INCH DEEP ON THE FRONT SIDE WHERE CUTLINE WILL BE VISIBLE. CUTLINE NEAR THE EXISTING STONE RETAINING WALL IS TO BE 18" BELOW TOP OF EXISTING STONE WALL.

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS AND PROPOSED CUTLINE ELEVATIONS.
2. CONTRACTOR SHALL LOCATE EXISTING BARS AND AVOID THEM IN AREAS WHERE BARS ARE BEING DOWELED.
3. REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT IS INCIDENTAL TO ITEM 509.
4. ALL REBAR DIMENSIONS AND QUANTITIES SHALL BE VERIFIED PRIOR TO ORDERING AND PLACEMENT. REBAR QUANTITIES ARE PROVIDED FOR ESTIMATING PURPOSES AND MAY NOT BE EXACT.

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TAS	FIB	RLE	10/2017
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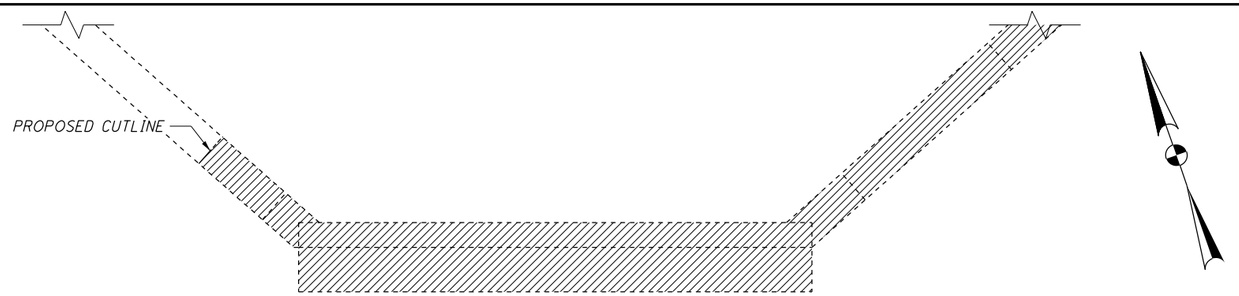
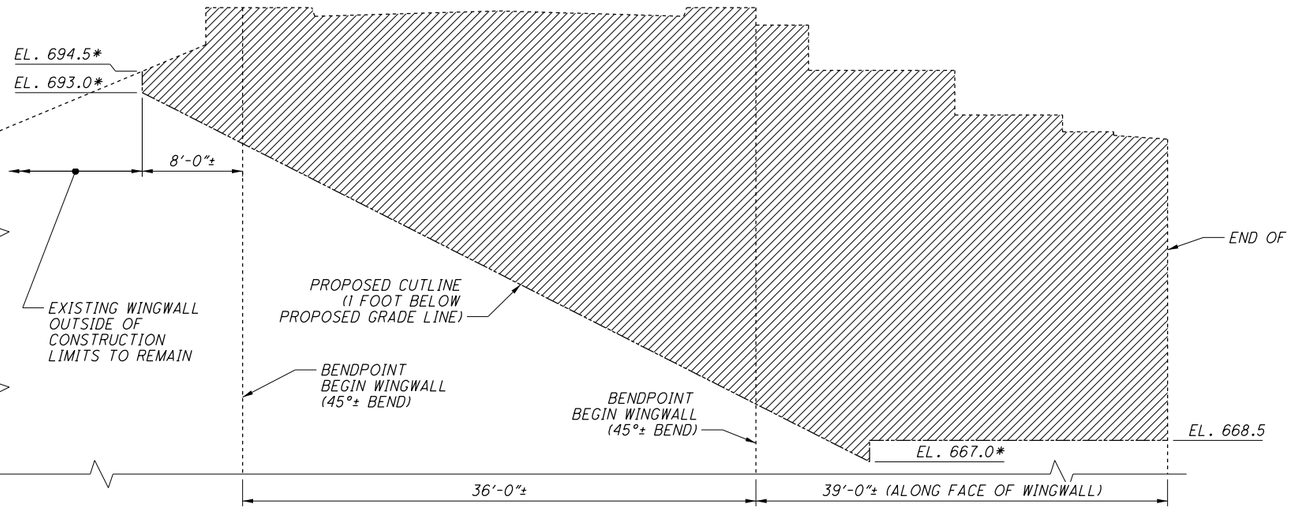
DFT/MRV		6054145	

EXISITNG ABUTMENT 6 REMOVAL DETAILS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

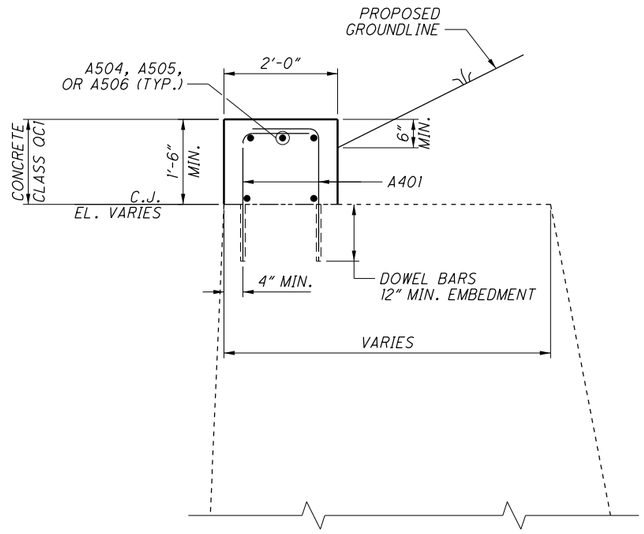
MUS-CR32-0.00
PID No. 97346



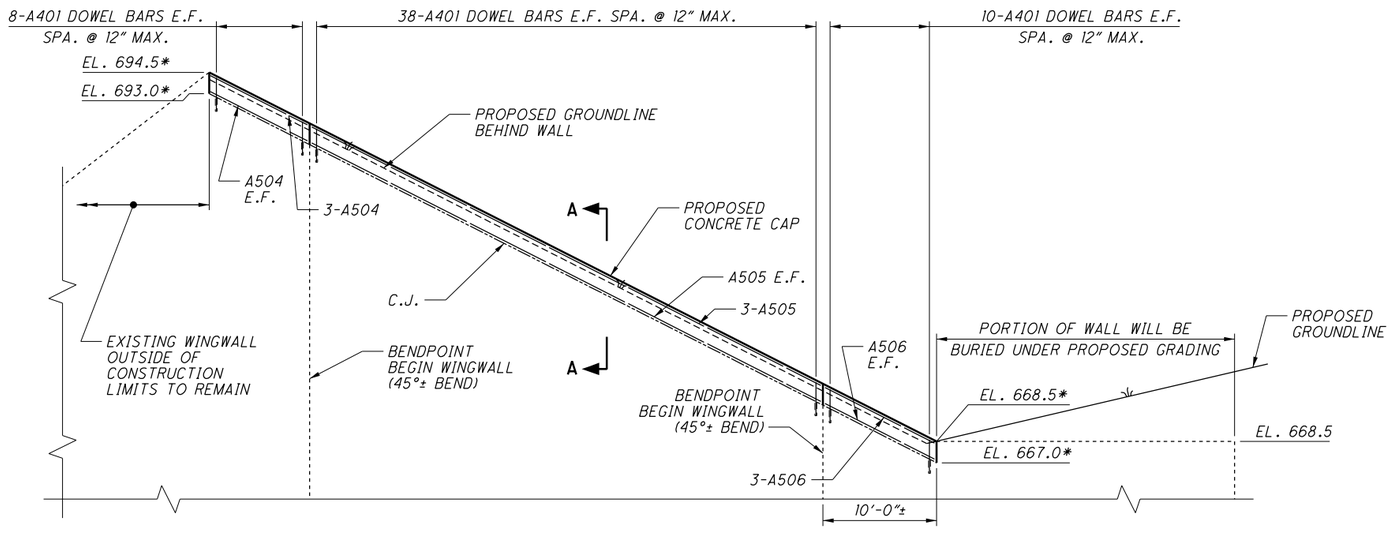
ABUTMENT REMOVAL PLAN



ABUTMENT REMOVAL ELEVATION



SECTION A-A



PROPOSED REHABILITAION ELEVATION

LEGEND:

▨ - INDICATES AREAS TO BE REMOVED AS PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

* - GRADING IN THE VICINITY OF THE EXISTING ABUTMENT SHALL BE PERFORMED PRIOR TO ABUTMENT REMOVALS. AFTER GRADING IS COMPLETE, THE CONTRACTOR SHALL VERIFY ABUTMENT AND WINGWALL DIMENSIONS AND ELEVATIONS. THE REMOVAL PLAN MAY BE ADJUSTED WITH APPROVAL OF THE PROJECT ENGINEER TO BETTER ACCOMMODATE FIELD CONDITIONS AND FINAL GRADING. SAWCUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS ONE INCH DEEP ON THE FRONT SIDE WHERE CUTLINE WILL BE VISIBLE.

NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS AND PROPOSED CUTLINE ELEVATIONS.
2. CONTRACTOR SHALL LOCATE EXISTING BARS AND AVOID THEM IN AREAS WHERE BARS ARE BEING DOWELED.
3. REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT IS INCIDENTAL TO ITEM 509.
4. ALL REBAR DIMENSIONS AND QUANTITIES SHALL BE VERIFIED PRIOR TO ORDERING AND PLACEMENT. REBAR QUANTITIES ARE PROVIDED FOR ESTIMATING PURPOSES AND MAY NOT BE EXACT.

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EXISTING ABUTMENT 12 REMOVAL DETAILS

BRIDGE NO. MUS-CR32-0.00
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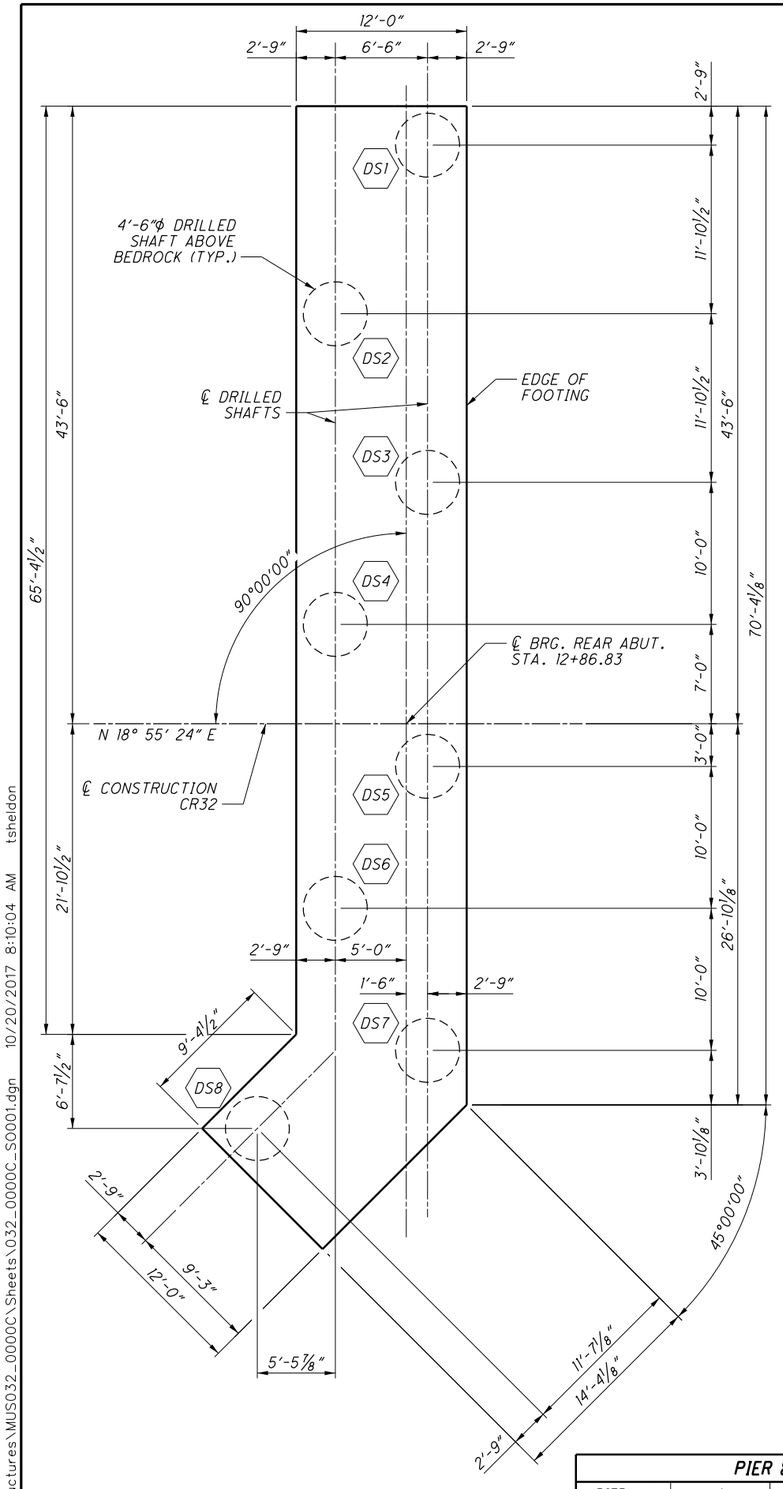
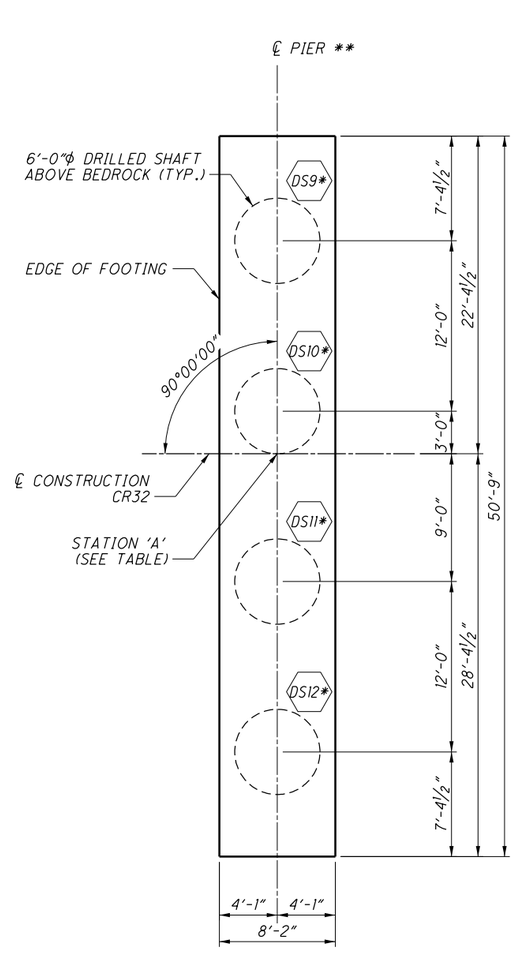
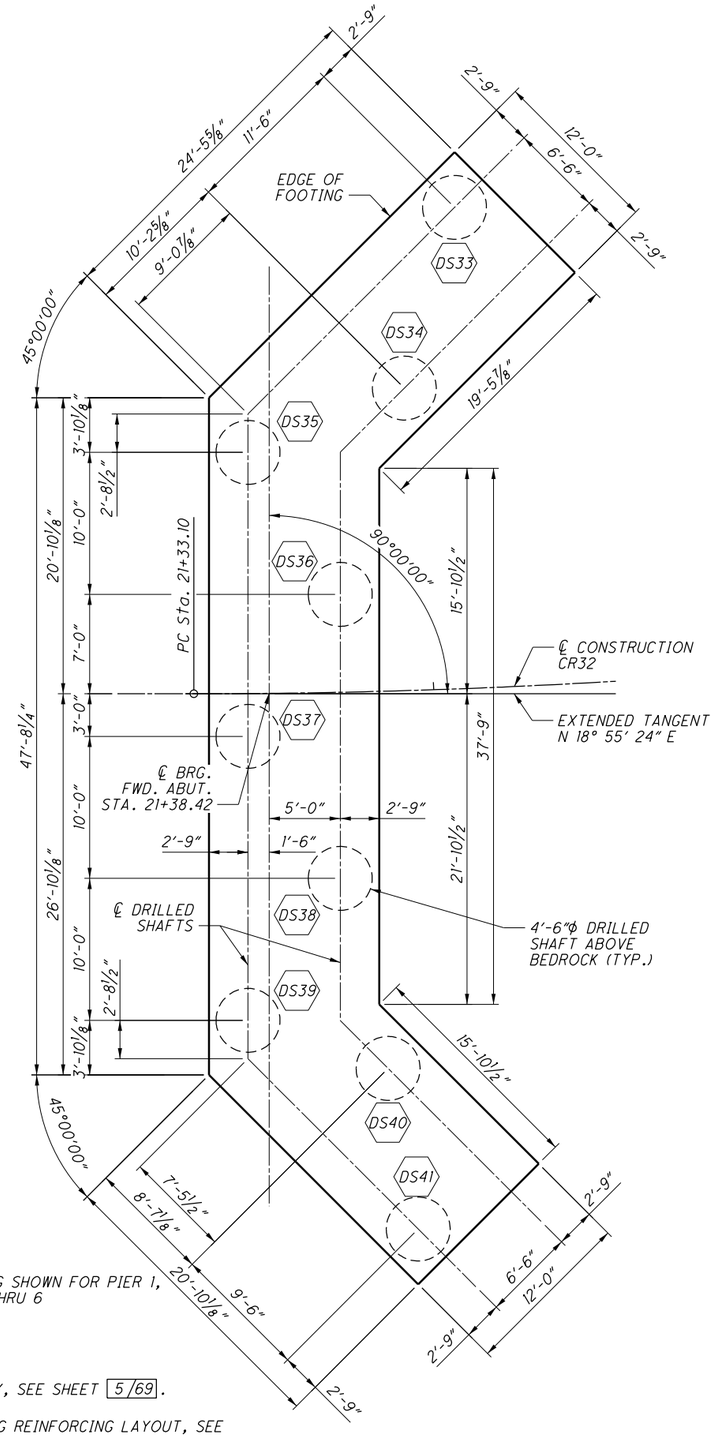
MUS-CR32-0.00
PID No. 97346







FOUNDATION PLAN

PIER & DRILLED SHAFT INFORMATION TABLE						
PIER **	1	2	3	4	5	6
STATION 'A'	13+59.50	14+89.50	16+19.50	17+49.50	18+79.50	20+09.50
DS#	9-12	13-16	17-20	21-24	25-28	29-32

LEGEND:

⟨DS#⟩ - DRILLED SHAFT NUMBER

* - DRILLED SHAFT NUMBERING SHOWN FOR PIER 1, SEE TABLE FOR PIERS 2 THRU 6

** - PIER NUMBER (SEE TABLE)

NOTES:

1. FOR DRILLED SHAFT CAPACITY, SEE SHEET 5/69.
2. FOR REAR ABUTMENT FOOTING REINFORCING LAYOUT, SEE SHEET 11/69.
3. FOR PIER FOOTING REINFORCING LAYOUT, SEE SHEET 18/69.
4. FOR FORWARD ABUTMENT FOOTING REINFORCING LAYOUT, SEE SHEET 14/69.

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FOUNDATION PLAN
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

10 / 69
119 / 192

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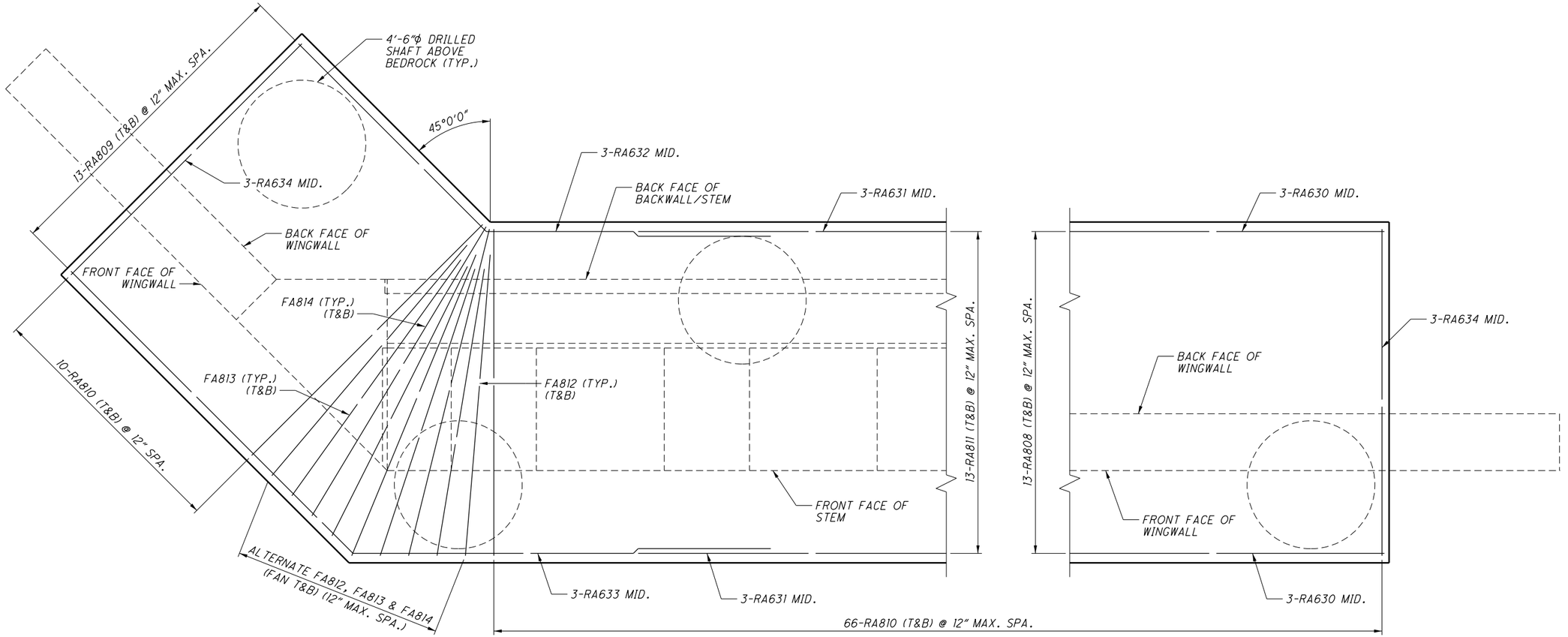

REAR ABUTMENT FOOTING REINFORCING PLAN

REQUIRED LAP LENGTHS	
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.

NOTES:

1. FOR ADDITIONAL DETAILS, SEE SECTIONS A-A AND B-B SHEET 13/69.
2. FOR FOOTING DIMENSIONS AND DRILLED SHAFT LAYOUT, SEE SHEET 10/69.

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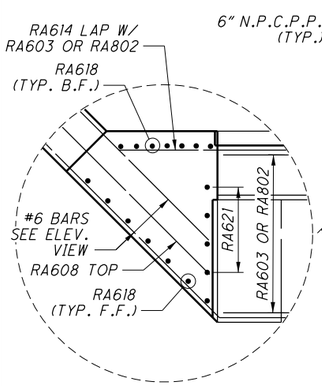
REAR ABUTMENT FOOTING PLAN DETAIL
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

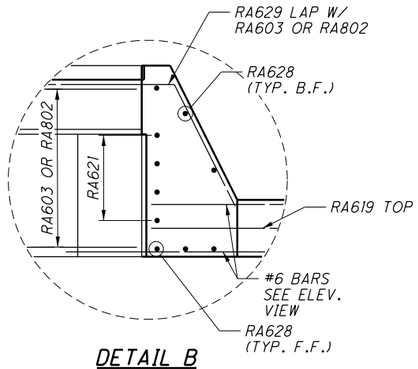
MUS-CR32-0.00
PID No. 97346

11 / 69

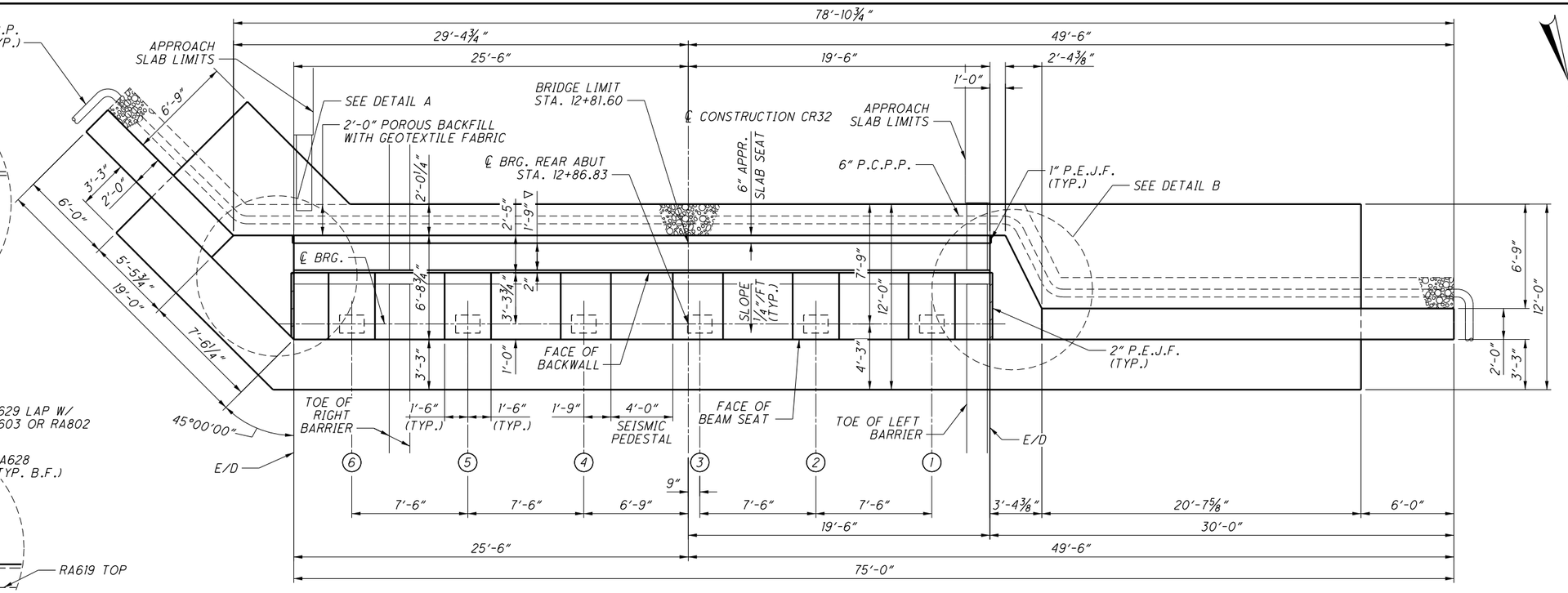
120
192



DETAIL A



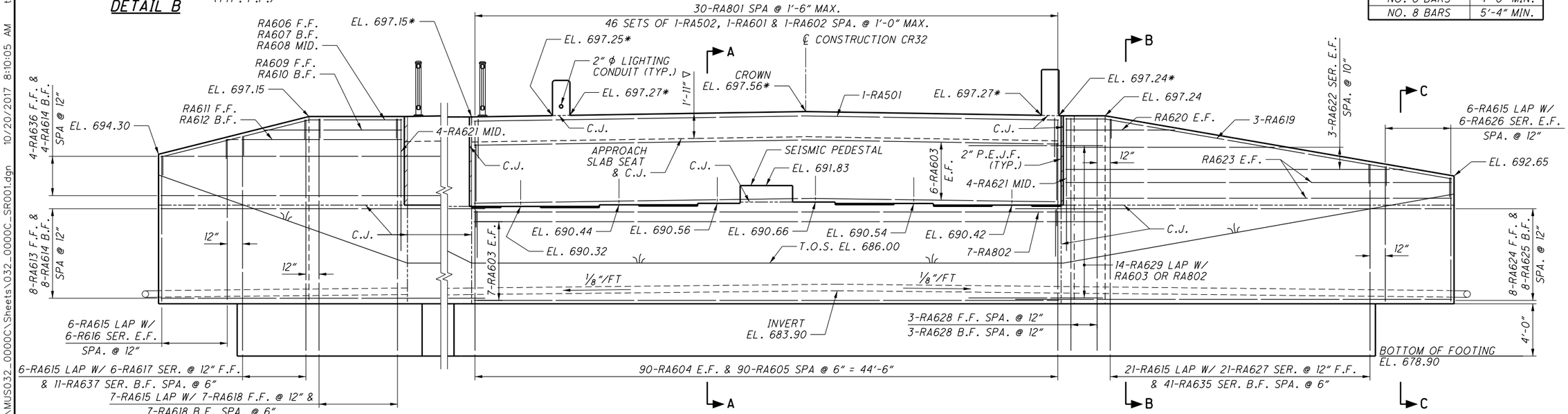
DETAIL B



REAR ABUTMENT PLAN

(DRILLED SHAFTS NOT SHOWN FOR CLARITY)

REQUIRED LAP LENGTHS	
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.



ELEVATION

(FOOTING REINFORCING & DRILLED SHAFTS NOT SHOWN FOR CLARITY)

LEGEND:

* - ELEVATION TAKEN AT BRIDGE LIMITS

▽ - MODULAR EXPANSION JOINT BLOCKOUT

(#) - BEAM LINE DESIGNATION

NOTES:

1. FOR FOUNDATION DETAILS, SEE SHEETS 10/69 THRU 11/69.
2. FOR SECTIONS A-A, B-B, C-C AND ADDITIONAL NOTES, SEE SHEET 13/69.
3. FOR TERMINATION OF 6" N.P.C.P.P. DETAIL, SEE SHEET 16/69.

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REAR ABUTMENT PLAN AND ELEVATION

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

12 / 69

121 / 192

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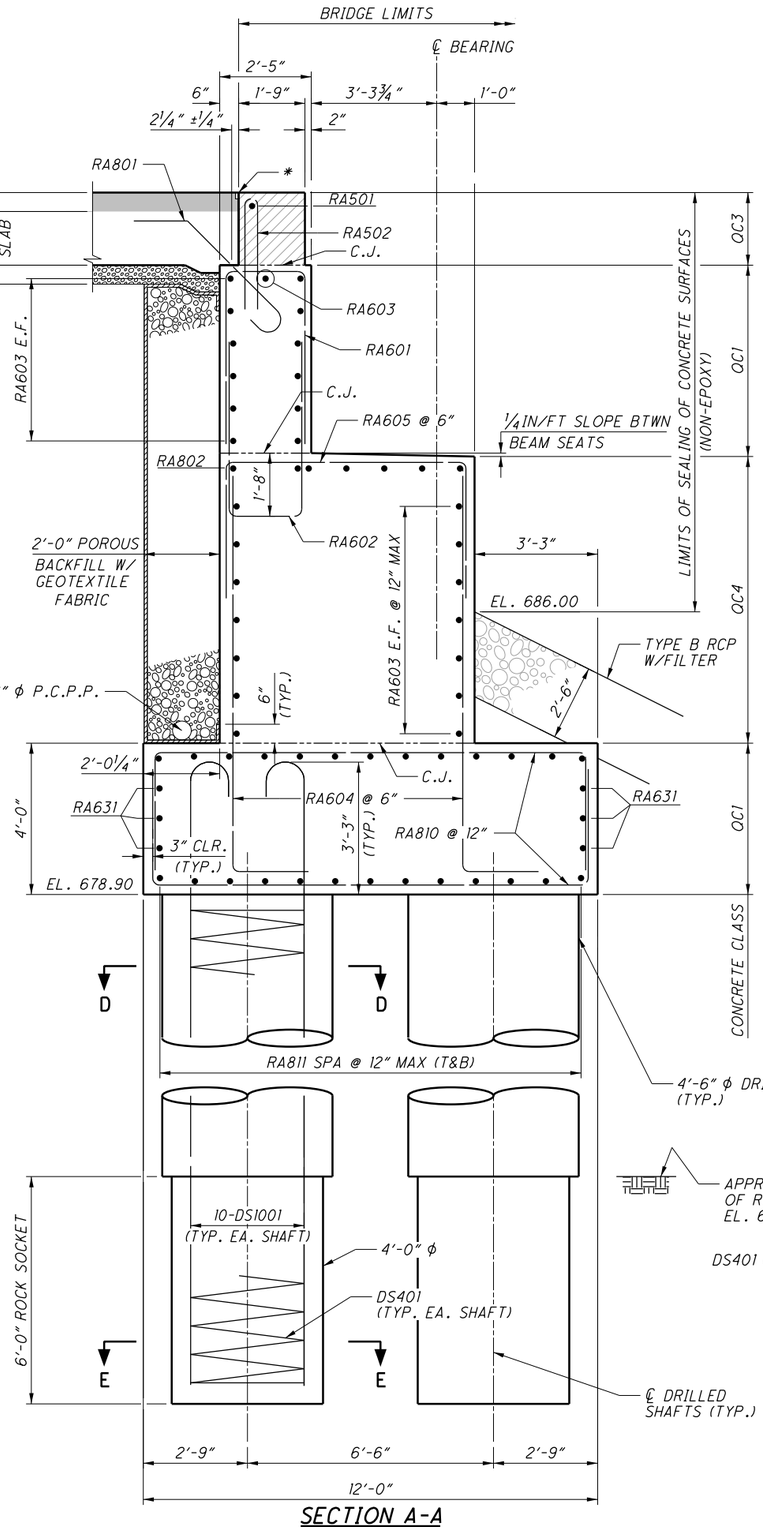
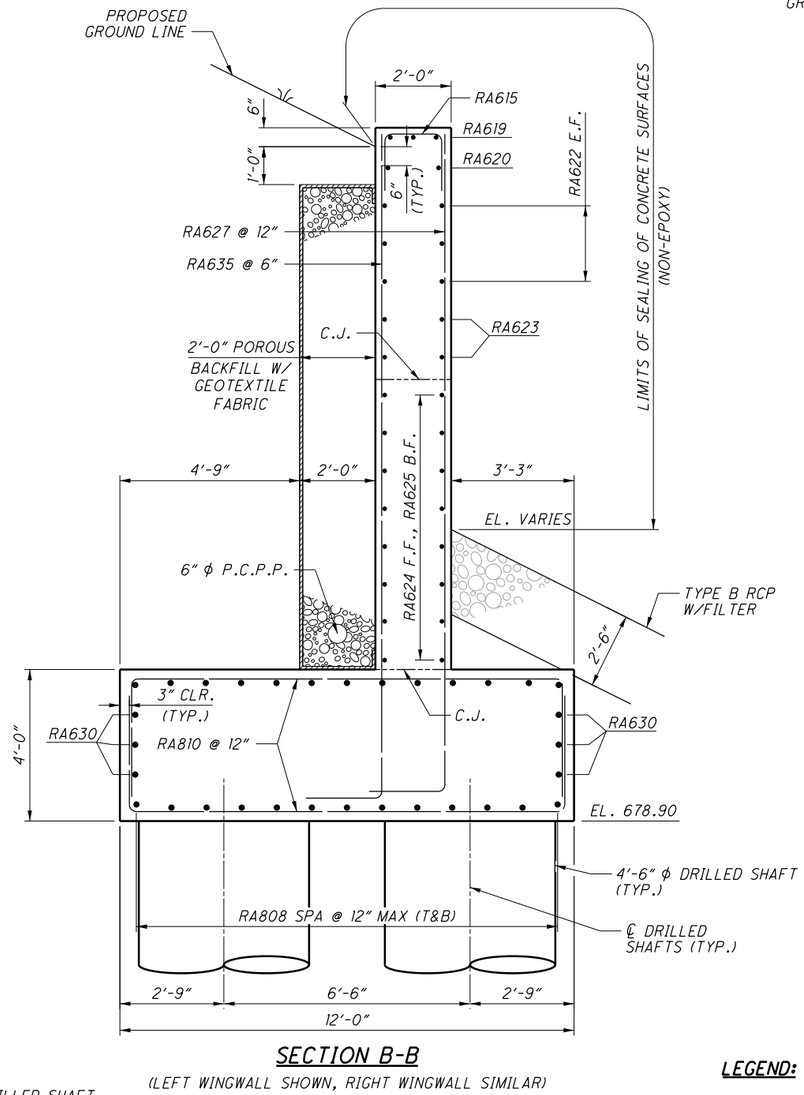
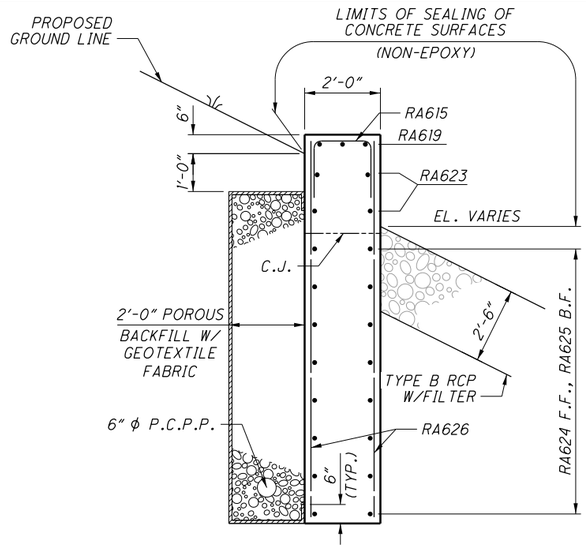


SECTION A-A



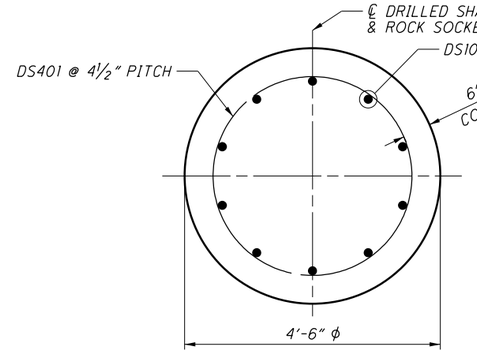
SECTION B-B

(LEFT WINGWALL SHOWN, RIGHT WINGWALL SIMILAR)



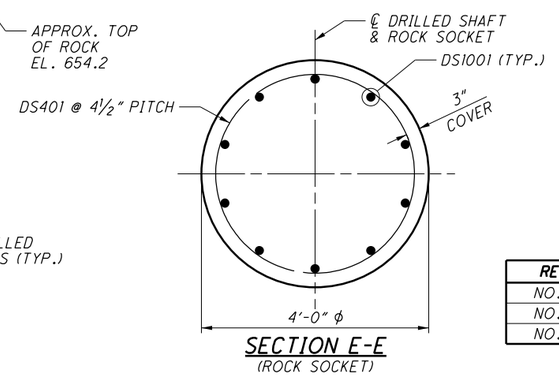
SECTION C-C

(LEFT WINGWALL SHOWN, RIGHT WINGWALL SIMILAR)



SECTION D-D

(DRILLED SHAFT)



SECTION E-E

(ROCK SOCKET)

REQUIRED LAP LENGTHS	
NO. 4 BARS	2'-6" MIN.
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.

LEGEND:

- MODULAR EXPANSION JOINT BLOCKOUT

* - 2" DEEP x 1" WIDE JOINT SEALER

NOTES:

1. FOR TERMINATION OF 6" N.P.C.P.P. DETAIL, SEE SHEET 16/69 .
2. FOR REAR ABUTMENT PLAN AND ELEVATION AND LOCATION OF SECTIONS A-A & B-B, SEE SHEET 12/69.
3. FOR FOUNDATION DETAILS, SEE SHEETS 10/69 THRU 11/69 .
4. FOR MODULAR EXPANSION JOINT DETAILS, SEE SHEETS 58/69 THRU 61/69 .
5. BACKWALL CONCRETE: IN ADDITION TO THE PROVISIONS OF 511.08, THE MODULAR EXPANSION JOINT BLOCKOUT CONCRETE BACKWALL CONCRETE SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED AND EXPANSION JOINTS HAVE BEEN INSTALLED.
6. FIELD CUT OR BEND REINFORCING AS NECESSARY.

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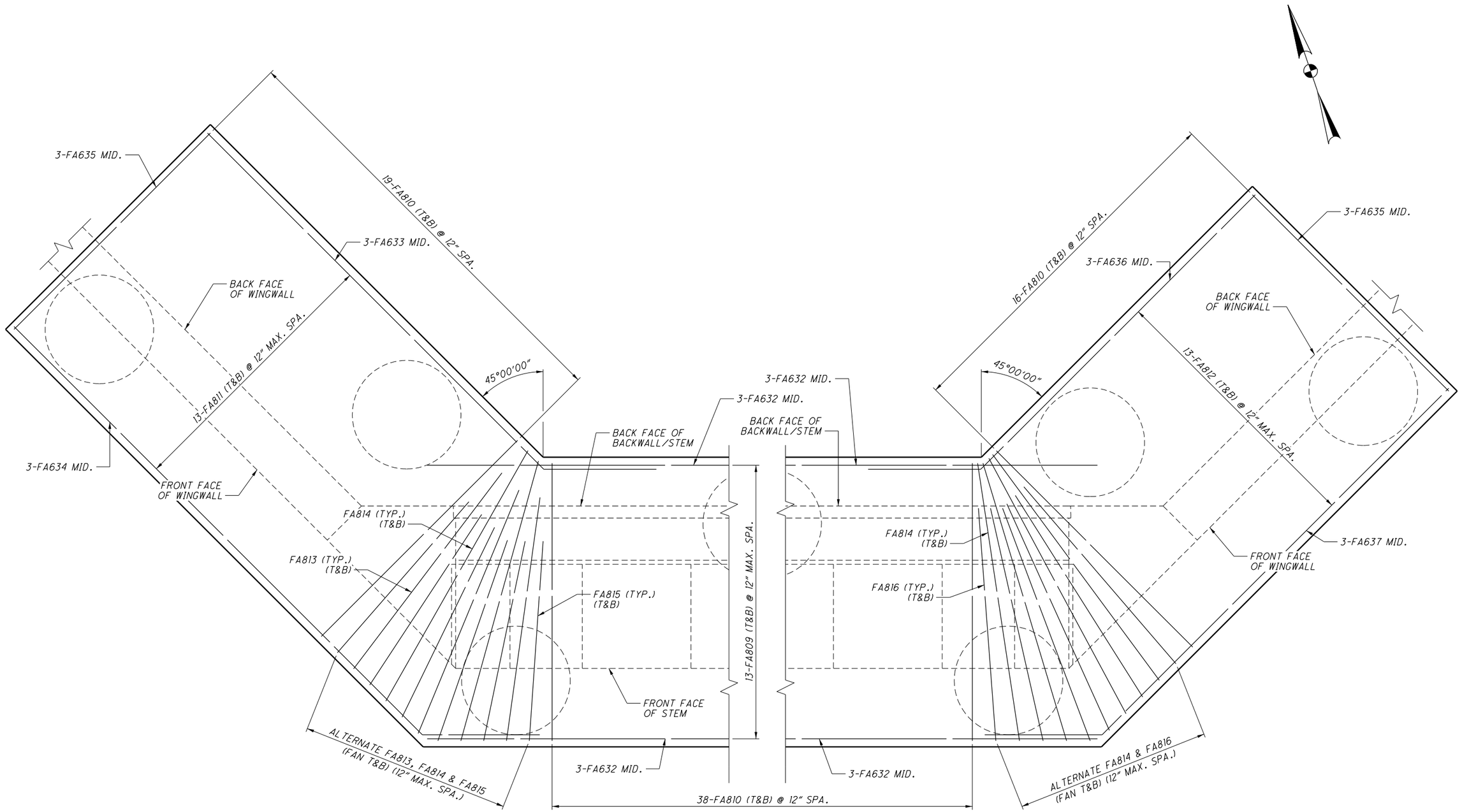
DFT		60541145	

REAR ABUTMENT SECTIONS AND DETAILS

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



REQUIRED LAP LENGTHS	
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.

FORWARD ABUTMENT FOOTING REINFORCING PLAN

NOTES:

1. FOR ADDITIONAL DETAILS, SEE SECTIONS A-A & B-B SHEET 17/69.
2. FOR FOOTING PLAN DIMENSIONS AND DRILLED SHAFT LAYOUT, SEE SHEET 10/69.

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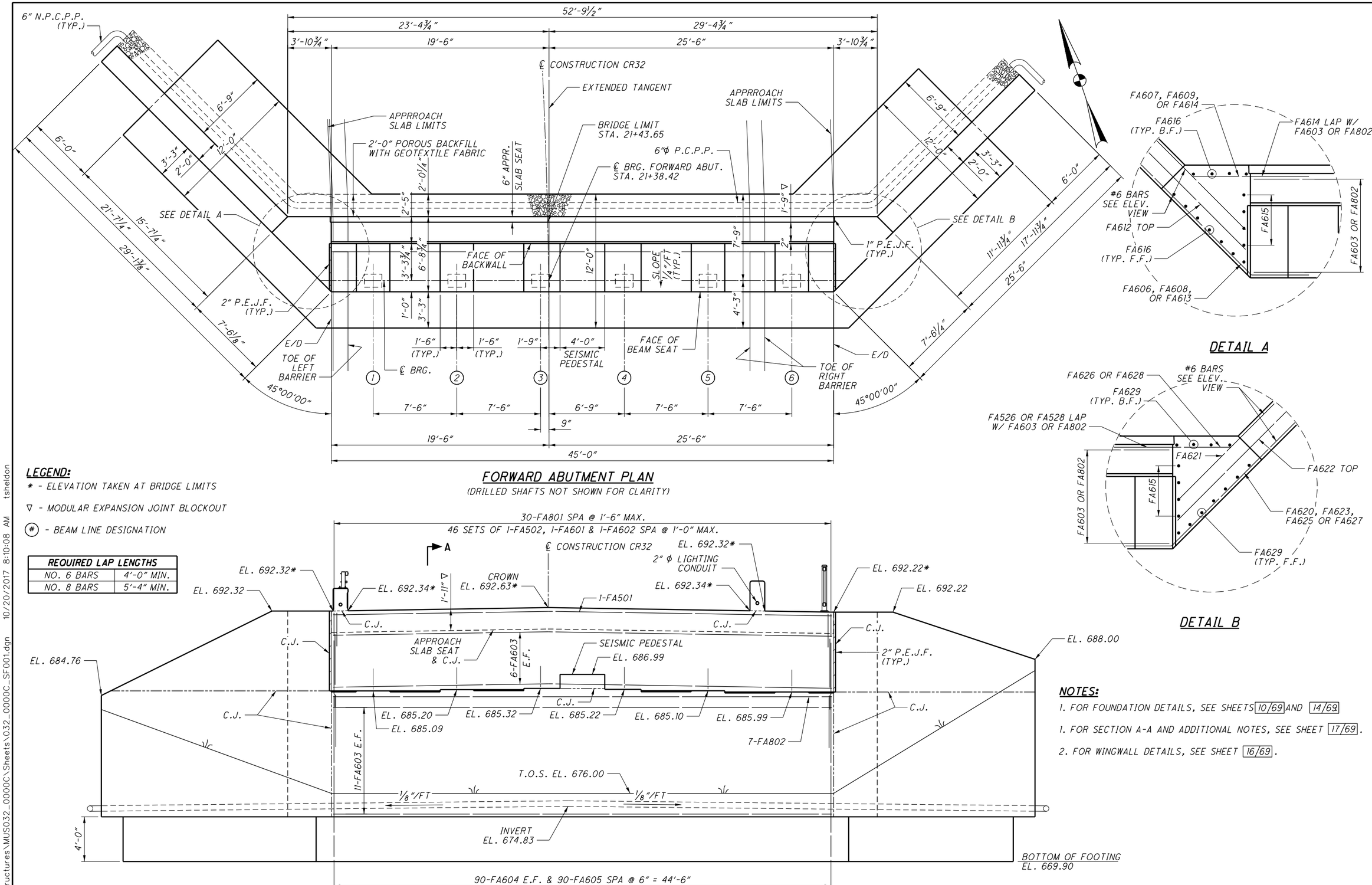
FORWARD ABUTMENT FOOTING PLAN DETAILS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



FORWARD ABUTMENT PLAN

(DRILLED SHAFTS NOT SHOWN FOR CLARITY)

LEGEND:

* - ELEVATION TAKEN AT BRIDGE LIMITS

▽ - MODULAR EXPANSION JOINT BLOCKOUT

(#) - BEAM LINE DESIGNATION

REQUIRED LAP LENGTHS	
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.

ELEVATION

(FOOTING REINFORCING & DRILLED SHAFTS NOT SHOWN FOR CLARITY)

NOTES:

1. FOR FOUNDATION DETAILS, SEE SHEETS 10/69 AND 14/69
1. FOR SECTION A-A AND ADDITIONAL NOTES, SEE SHEET 17/69.
2. FOR WINGWALL DETAILS, SEE SHEET 16/69.

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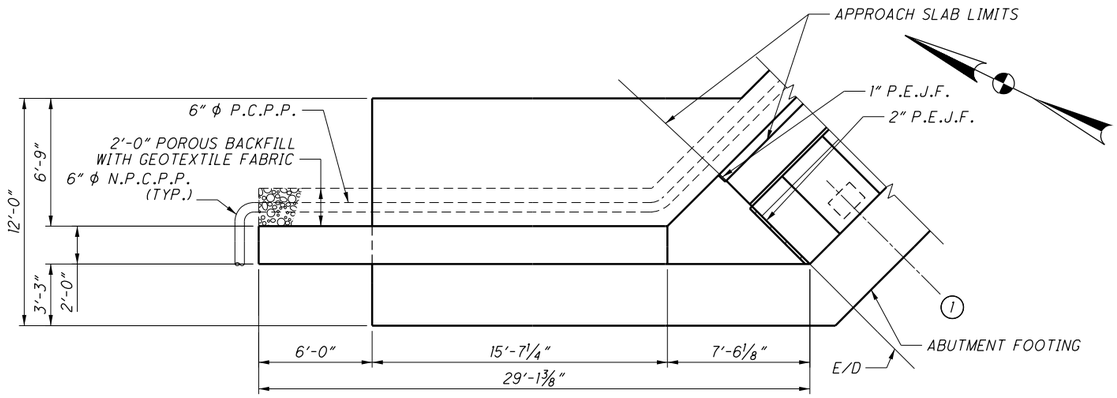
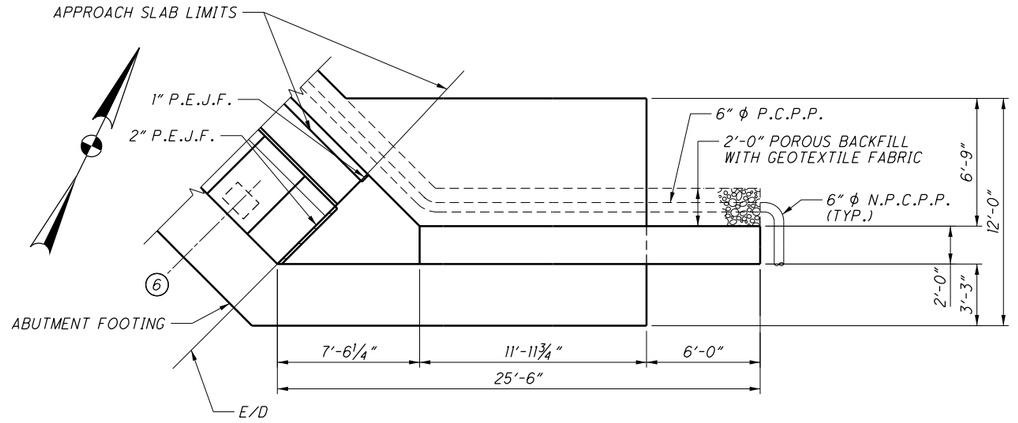
FORWARD ABUTMENT PLAN AND ELEVATION
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

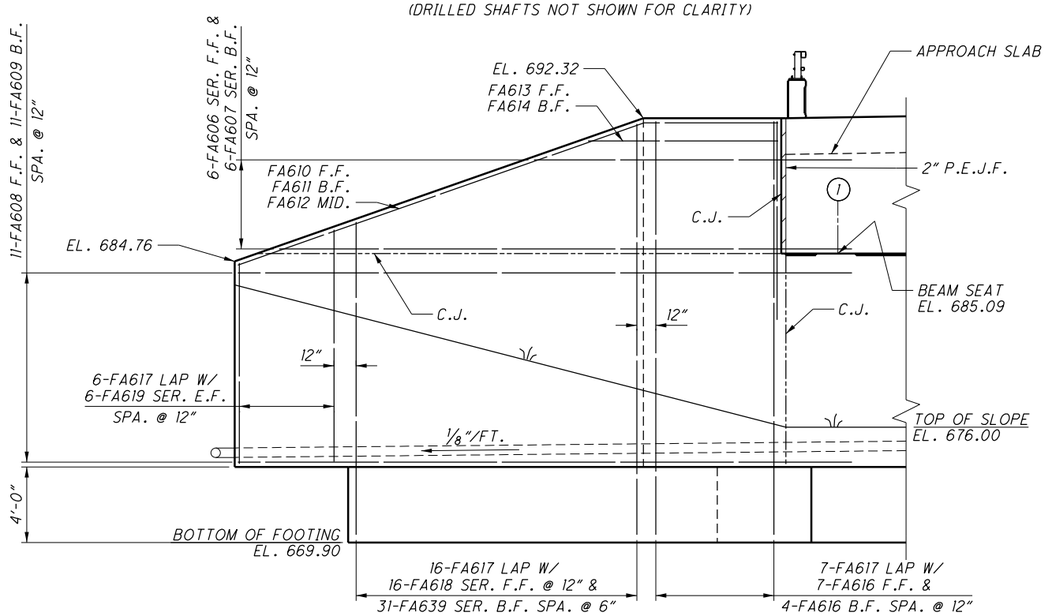
MUS-CR32-0.00
PID No. 97346





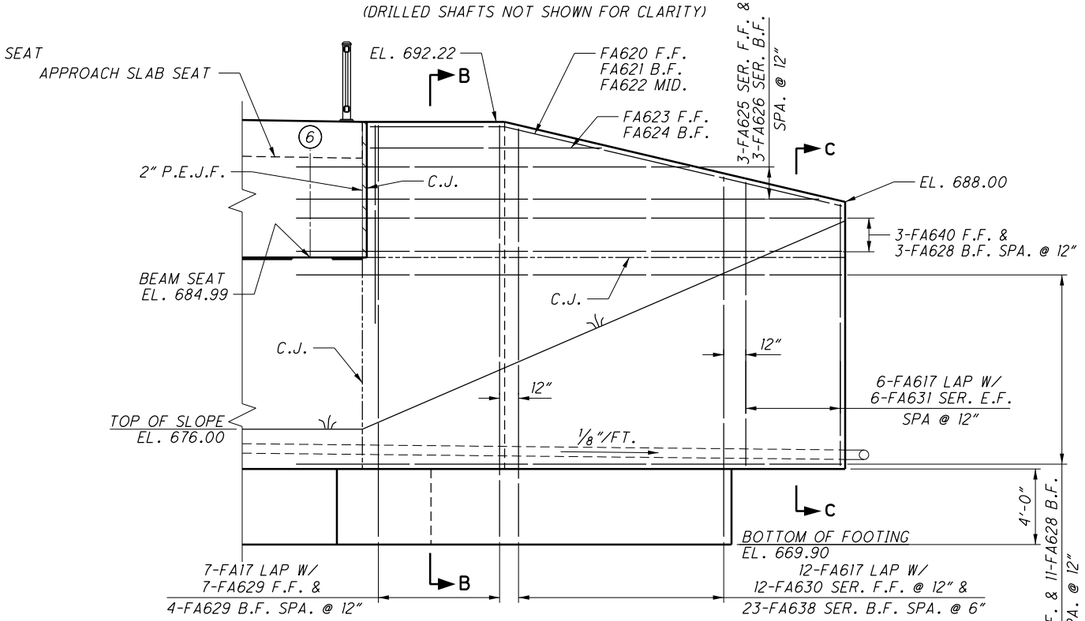
LEFT WINGWALL PLAN

(DRILLED SHAFTS NOT SHOWN FOR CLARITY)



RIGHT WINGWALL PLAN

(DRILLED SHAFTS NOT SHOWN FOR CLARITY)

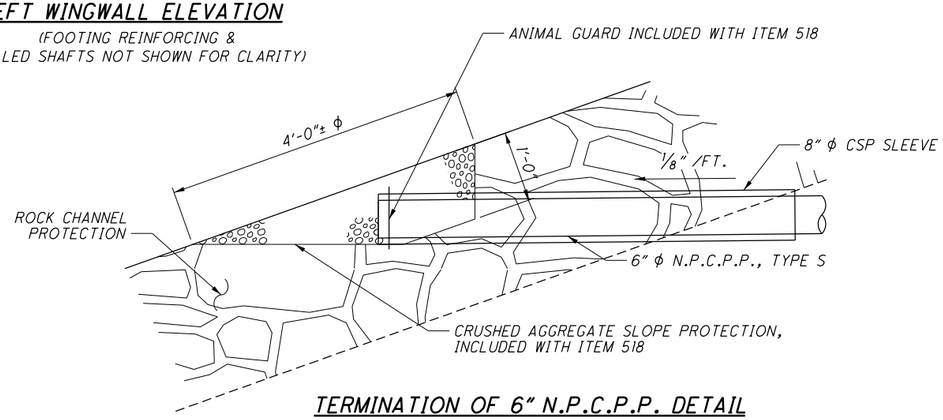


LEFT WINGWALL ELEVATION

(FOOTING REINFORCING & DRILLED SHAFTS NOT SHOWN FOR CLARITY)

RIGHT WINGWALL ELEVATION

(FOOTING REINFORCING & DRILLED SHAFTS NOT SHOWN FOR CLARITY)



TERMINATION OF 6" N.P.C.P.P. DETAIL

REQUIRED LAP LENGTHS	
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.

LEGEND:

(#) - BEAM LINE DESIGNATION

NOTES:

1. FOR FORWARD ABUTMENT PLAN, ELEVATION, AND ADDITIONAL SHEETS, SEE SHEET 15/69 .
2. FOR WINGWALL SECTIONS B-B & C-C AND ADDITIONAL NOTES, SEE SHEET 17/69 .
3. FOR FOUNDATION DETAILS, SEE SHEETS 10/69 AND 14/69 .

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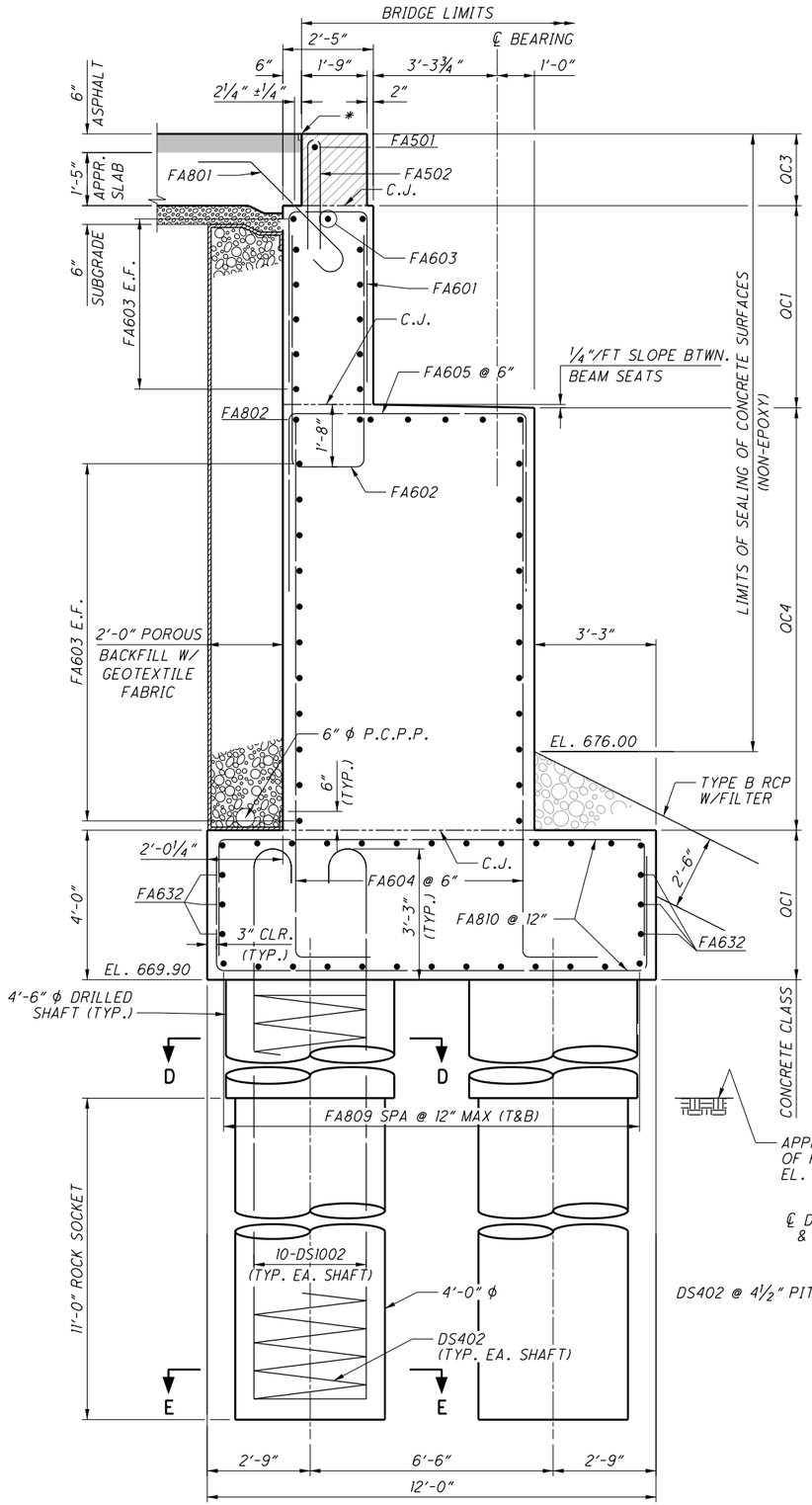
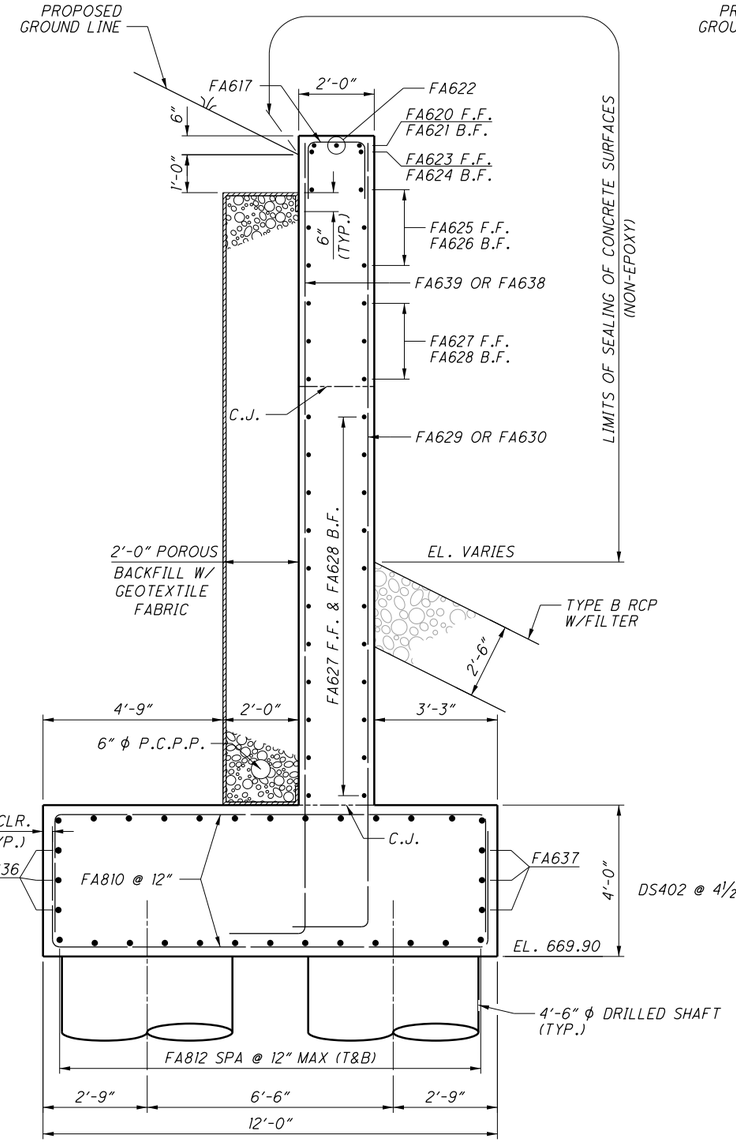
FORWARD ABUTMENT WINGWALL PLAN AND ELEVATION

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

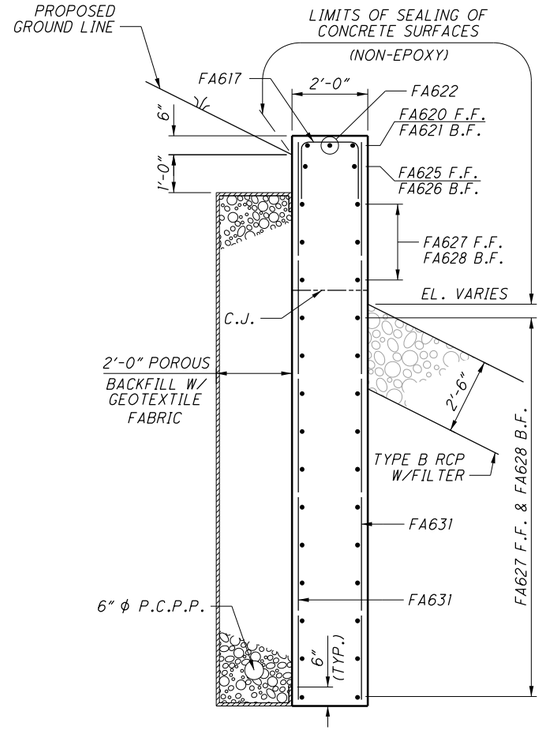


SECTION A-A



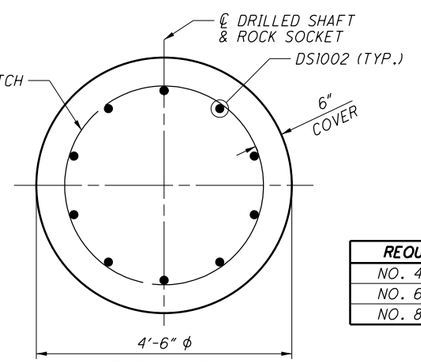
SECTION B-B

(RIGHT WINGWALL SHOWN, LEFT WINGWALL SIMILAR)



SECTION C-C

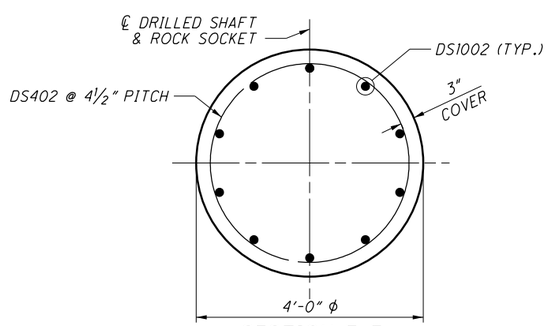
(RIGHT WINGWALL SHOWN, LEFT WINGWALL SIMILAR)



SECTION D-D

(DRILLED SHAFT)

REQUIRED LAP LENGTHS	
NO. 4 BARS	2'-6" MIN.
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.



SECTION E-E

(ROCK SOCKET)

LEGEND:

- MODULAR EXPANSION JOINT BLOCKOUT
- * - 2" DEEP x 1" WIDE JOINT SEALER

NOTES:

1. FOR TERMINATION OF 6" N.P.C.P.P. DETAIL, SEE SHEET 16/69 .
2. FOR FORWARD ABUTMENT PLAN AND ELEVATION AND LOCATION OF SECTIONS A-A & B-B, SEE SHEETS 15/69 THRU 16/69 .
3. FOR FOUNDATION DETAILS, SEE SHEET 10/69 AND 14/69 .
4. FOR MODULAR EXPANSION JOINT DETAILS, SEE SHEETS 58/69 THRU 61/69 .
5. BACKWALL CONCRETE: IN ADDITION TO THE PROVISIONS OF 511.08, THE MODULAR EXPANSION JOINT BLOCKOUT CONCRETE BACKWALL CONCRETE SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED AND EXPANSION JOINTS HAVE BEEN INSTALLED.
6. FIELD CUT OR BEND REINFORCING AS NECESSARY.

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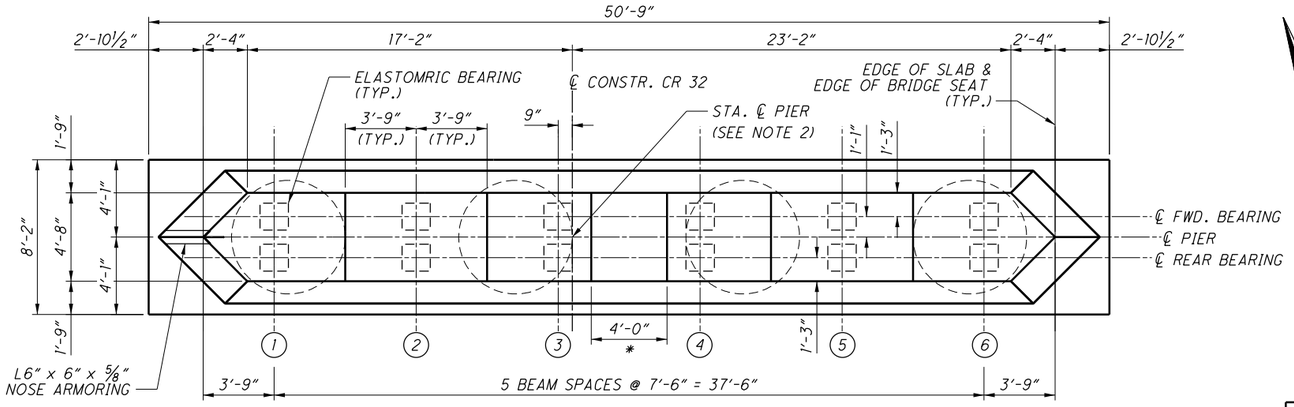
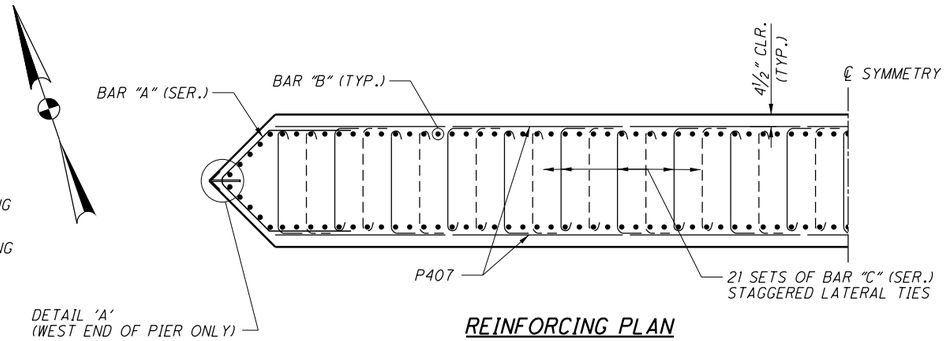
FORWARD ABUTMENT SECTIONS AND DETAILS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

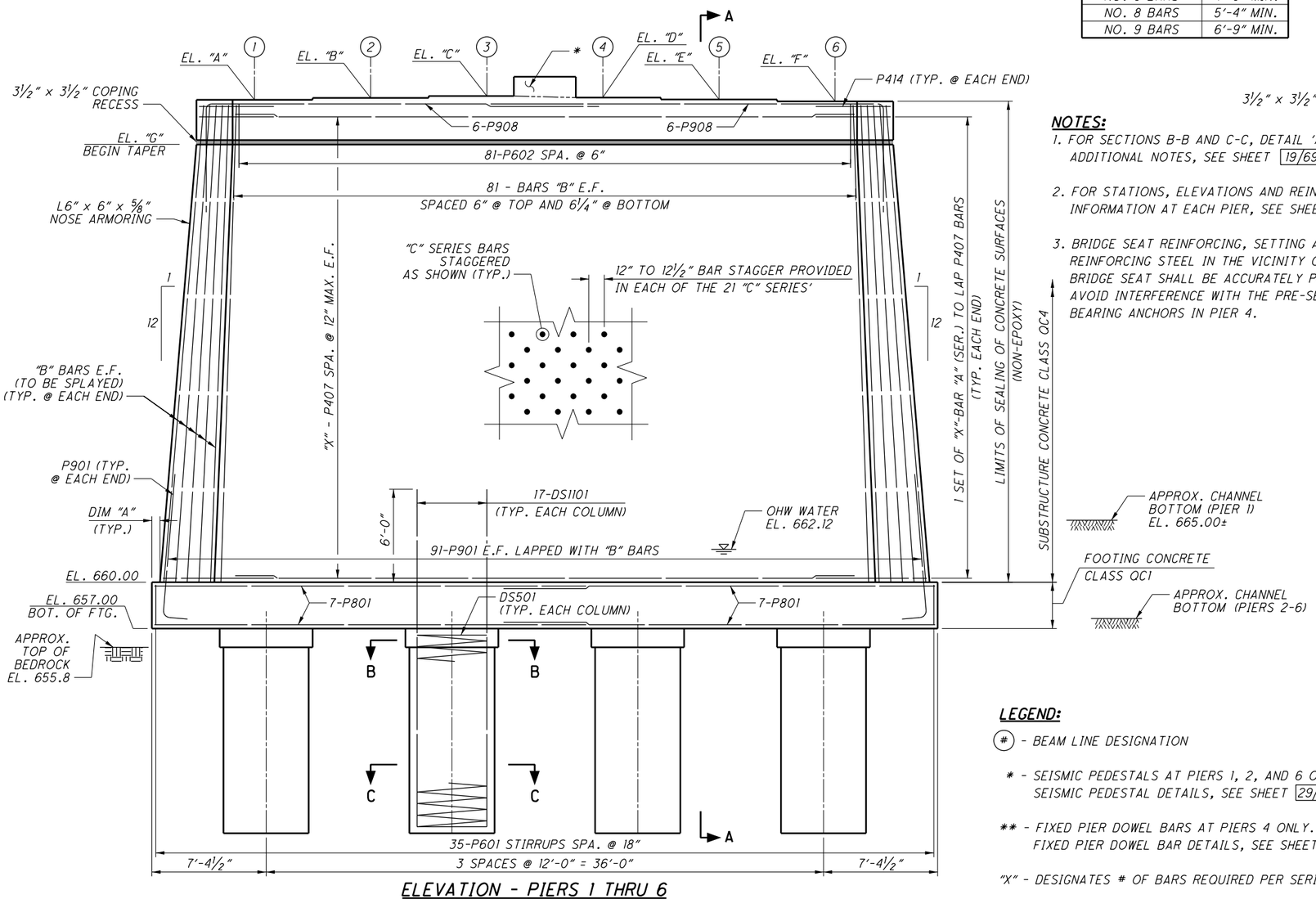


PLAN - PIERS 1 THRU 6



REINFORCING PLAN

REQUIRED LAP LENGTHS	
NO. 4 BARS	2'-6" MIN.
NO. 6 BARS	4'-0" MIN.
NO. 8 BARS	5'-4" MIN.
NO. 9 BARS	6'-9" MIN.



ELEVATION - PIERS 1 THRU 6

NOTES:

1. FOR SECTIONS B-B AND C-C, DETAIL 'A', AND ADDITIONAL NOTES, SEE SHEET 19/69.
2. FOR STATIONS, ELEVATIONS AND REINFORCING INFORMATION AT EACH PIER, SEE SHEET 19/69.
3. BRIDGE SEAT REINFORCING, SETTING ANCHORS: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS IN PIER 4.

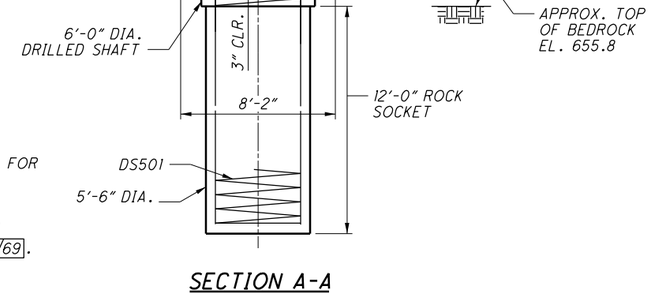
LEGEND:

(#) - BEAM LINE DESIGNATION

* - SEISMIC PEDESTALS AT PIERS 1, 2, AND 6 ONLY. FOR SEISMIC PEDESTAL DETAILS, SEE SHEET 29/69.

** - FIXED PIER DOWEL BARS AT PIERS 4 ONLY. FOR FIXED PIER DOWEL BAR DETAILS, SEE SHEET 30/69.

"X" - DESIGNATES # OF BARS REQUIRED PER SERIES



SECTION A-A

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PIER DETAILS (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

18 / 69

127 / 192

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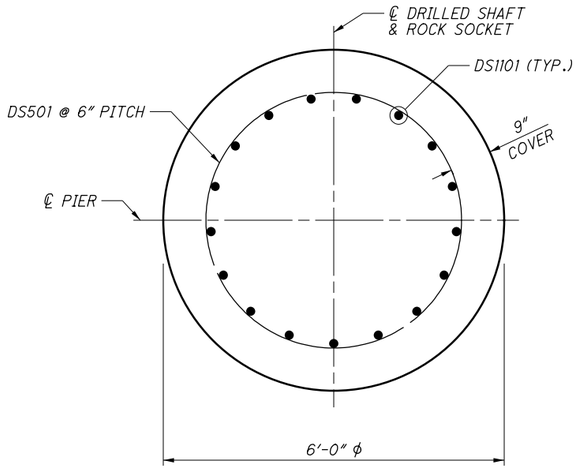
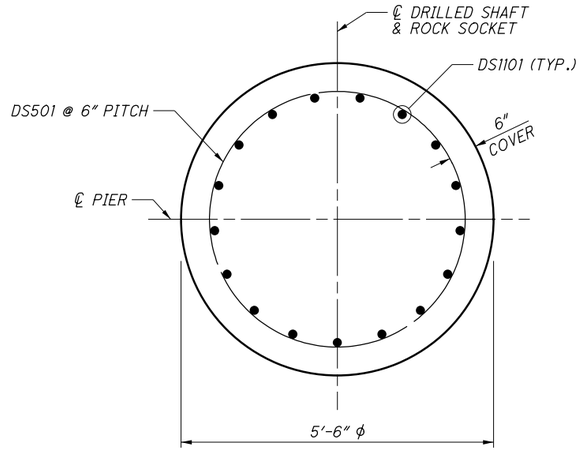
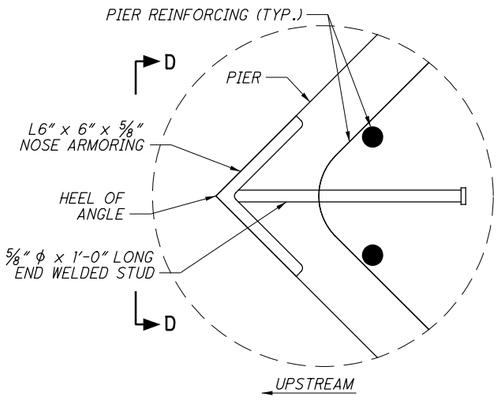


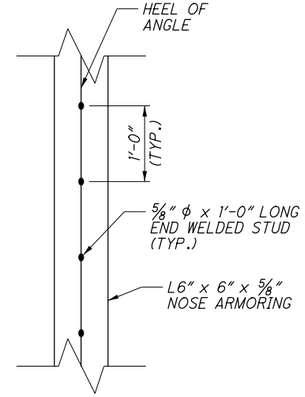
SECTION B-B
(DRILLED SHAFT)



SECTION C-C
(ROCK SOCKET)



DETAIL 'A'
(WEST END OF PIER ONLY)



VIEW D-D

PIER NO.	STATION @ ℄ PIER	DRILLED SHAFT ABOVE BEDROCK (FT)	ELEVATIONS							REINFORCING CALLOUT						DIMENSIONS		
										BAR "A"		BAR "B"	BAR "C"		P407			
			EL. A	EL. B	EL. C	EL. D	EL. E	EL. F	EL. G	"X"	BAR CALLOUT		"X"	BAR CALLOUT	"X"	DIM "A"	DIM "B"	DIM "C"
1	13+59.50	1.2	691.15	691.27	691.39	691.29	691.17	691.05	688.26	31	P401	P902	31	P408	31	6 1/4"	6 7/8"	7'-0 1/4"
2	14+89.50	1.2	690.45	690.56	690.68	690.59	690.47	690.36	687.56	30	P402	P903	30	P409	30	6 7/8"	7 1/4"	6'-11 5/8"
3	16+19.50	1.2	689.33	689.44	689.56	689.46	689.34	689.23	686.44	29	P403	P904	29	P410	29	8"	7 3/4"	6'-10 1/2"
4	17+49.50	1.2	688.32	688.43	688.55	688.45	688.33	688.22	685.43	28	P404	P905	28	P411	28	9 1/8"	8 1/4"	6'-9 3/8"
5	18+79.50	1.2	687.20	687.31	687.43	687.33	687.21	687.10	684.31	27	P405	P906	27	P412	27	10 1/4"	8 7/8"	6'-8 1/4"
6	20+09.50	1.2	686.19	686.30	686.42	686.32	686.20	686.09	683.30	26	P406	P907	26	P413	26	11 1/4"	9 3/8"	6'-7 1/4"

"X" - DESIGANATES # OF BARS PER SERIES. TOTAL # OF BARS MAY DIFFER

NOTES:

1. FOR ELASTOMERIC BEARING DETAILS AT PIERS, SEE SHEETS 26/69 & 27/69 .
2. TOP OF ROCK AT PIERS IS TAKEN FROM THE EXISTING PLANS AND ADJUSTED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. TOP OF BEDROCK SOCKET ELEVATION SHALL BE VERIFIED BY THE CONTRACTOR PER C&MS 524.01. REINFORCING STEEL LENGTH FOR THE DRILLED SHAFTS AND BEDROCK SOCKETS SHALL BE ADJUSTED BASED UPON THE ACTUAL ELEVATIONS.
4. FOR LOCATION OF SECTIONS B-B AND C-C, SEE SHEET 18/69 .
5. FOR SEISMIC PEDESTAL AND FIXED PIER DOWEL BAR DETAILS, SEE SHEETS 29/69 AND 30/69 .
6. ITEM 511 - CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA, AS PER PLAN. NOSE ARMORING DETAILED ABOVE SHALL BE PAID FOR UNDER THIS ITEM. THE STEEL NOSE ARMORING ANGLE SHALL BE A709 AND GALVANIZED PER 711.02. NOSE ARMOR SHALL EXTEND FROM BOTTOM OF PIER WALL TO ELEVATION "G".
7. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 1/8 INCH AT PIERS 2 THRU 6 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.

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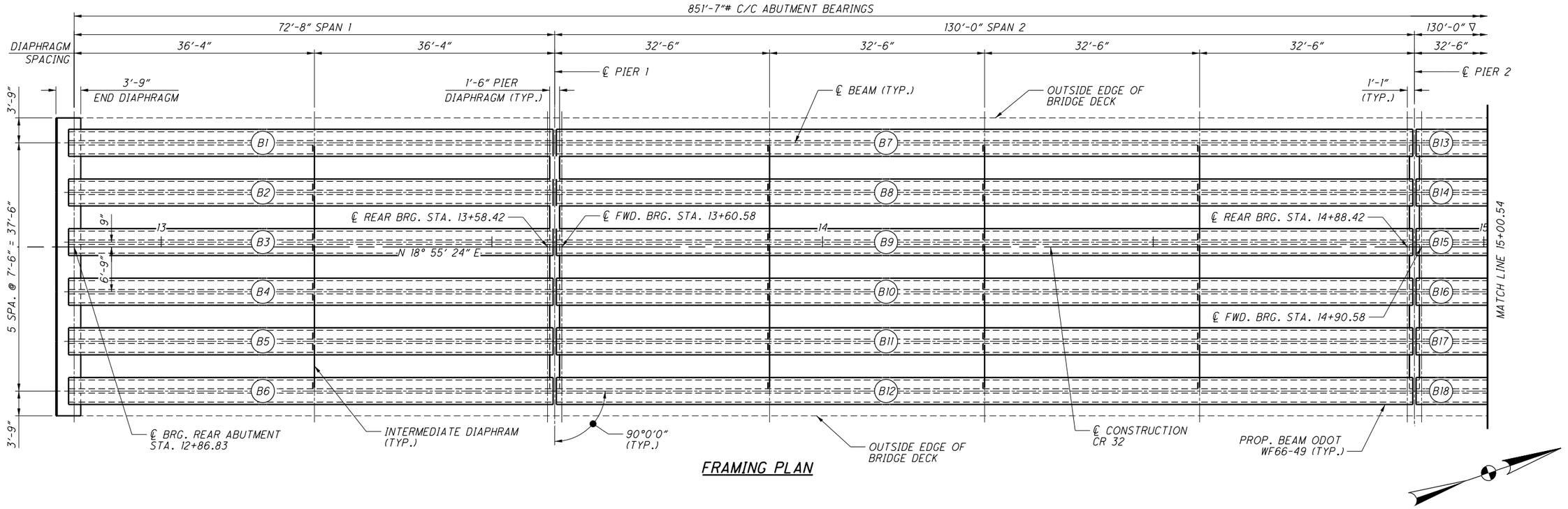
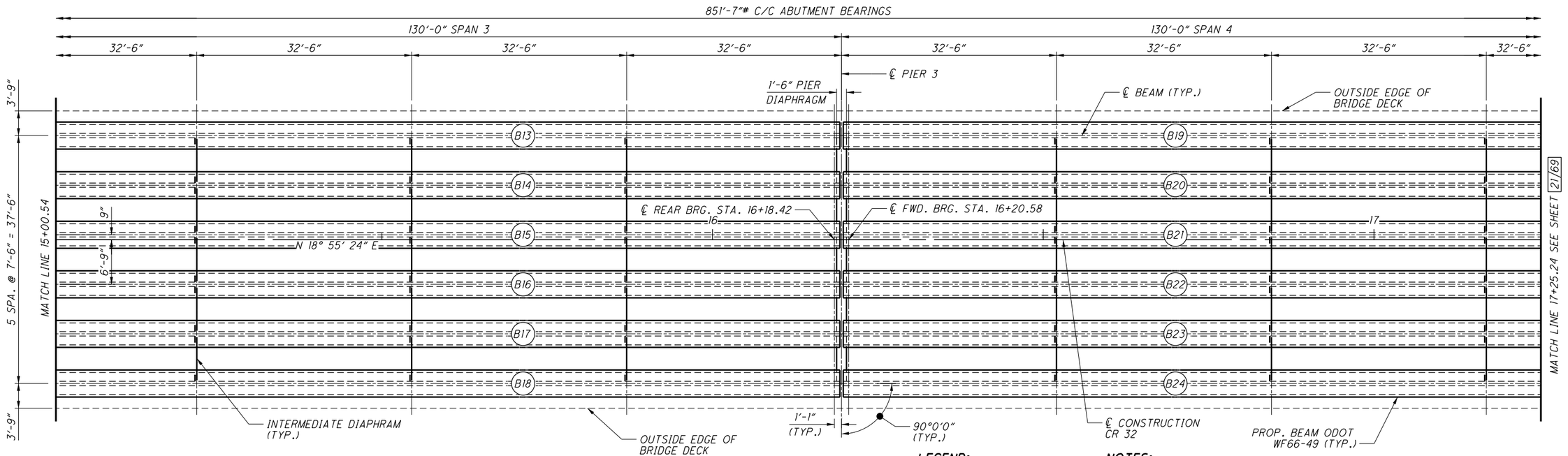
PIER DETAILS (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



FRAMING PLAN



FRAMING PLAN

LEGEND:

- (B#) - BEAM DESIGNATION
- ▽ - SPAN 3
- # - MEASURED ALONG EXTENDED TANGENT

NOTES:

1. FOR BEAM DETAILS, SEE SHEETS 22/69 AND 23/69.
2. FOR PIER AND ABUTMENT DIAPHRAGM DETAILS, SEE SHEET 28/69 THRU 30/69.
3. FOR STEEL INTERMEDIATE DIAPHRAGM DETAILS AND NOTES, SEE ODOT STANDARD DRAWING PSID-1-13.
4. FOR BEAM LINE INFORMATION, REFER TO SHEET 34/69.

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FRAMING PLAN (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

20 / 69

129 / 192

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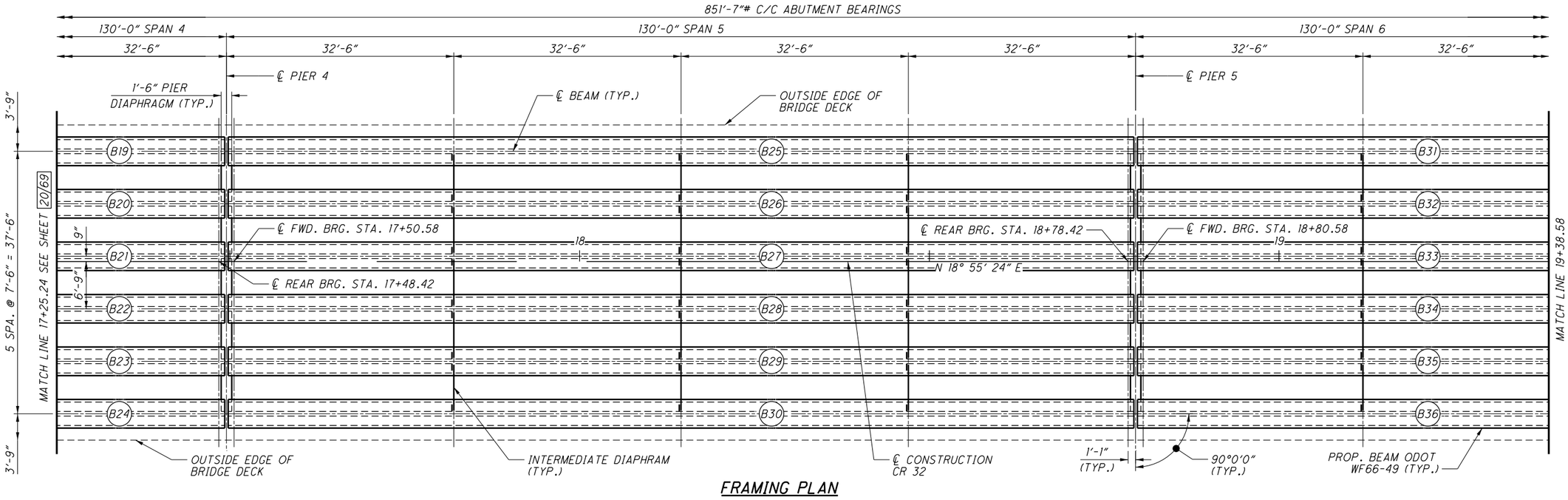
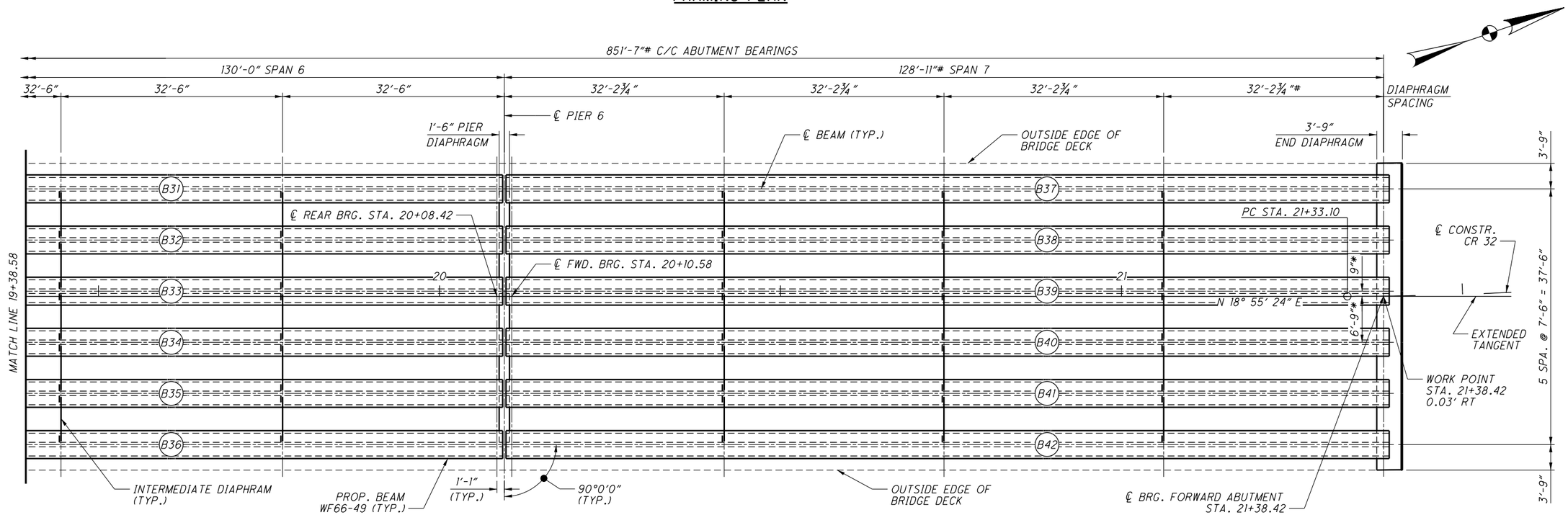


FRAMING PLAN



FRAMING PLAN

LEGEND:

(B#) - BEAM DESIGNATION

* - MEASURED TO EXTENDED TANGENT

\# - MEASURED ALONG EXTENDED TANGENT

NOTES:

1. FOR NOTES, SEE SHEET 20/69.

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TAS/MRV	MRV	DFT	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		6054145	

FRAMING PLAN (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

21 / 69

130
192

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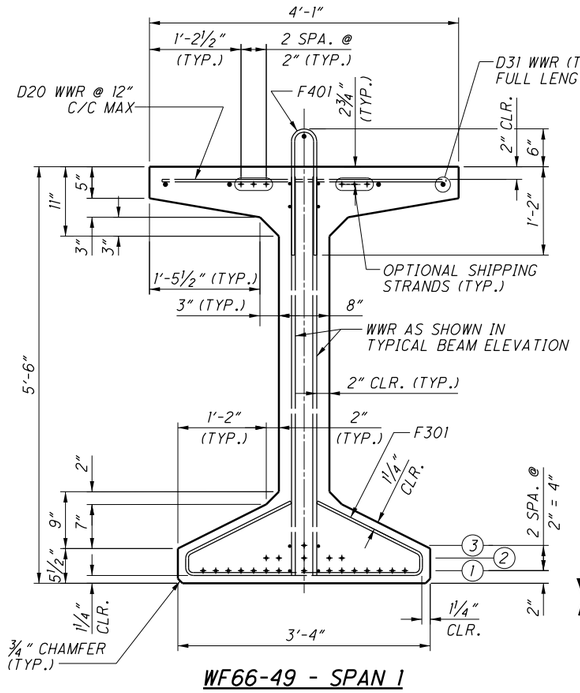
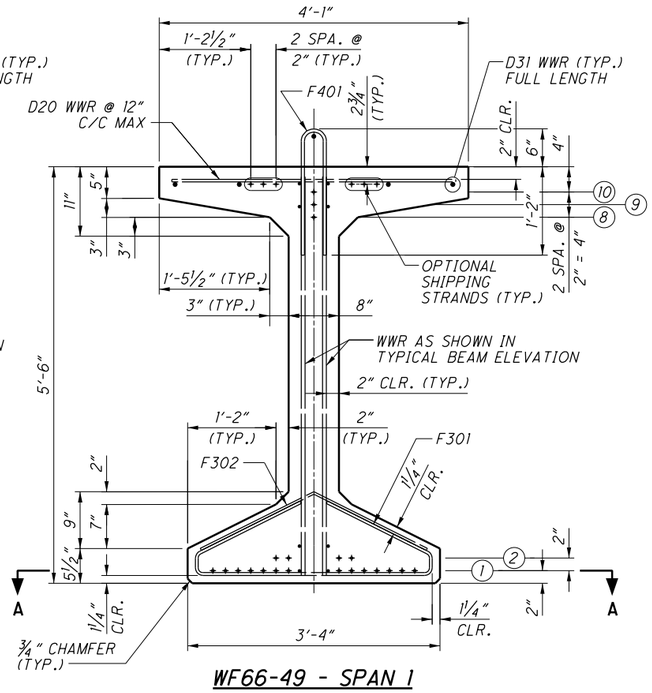


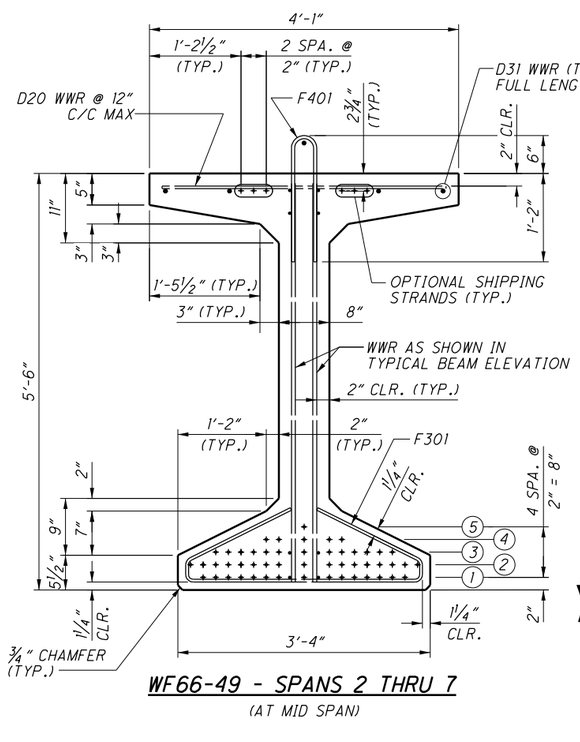
WF66-49 - SPAN 1

(AT MID SPAN)



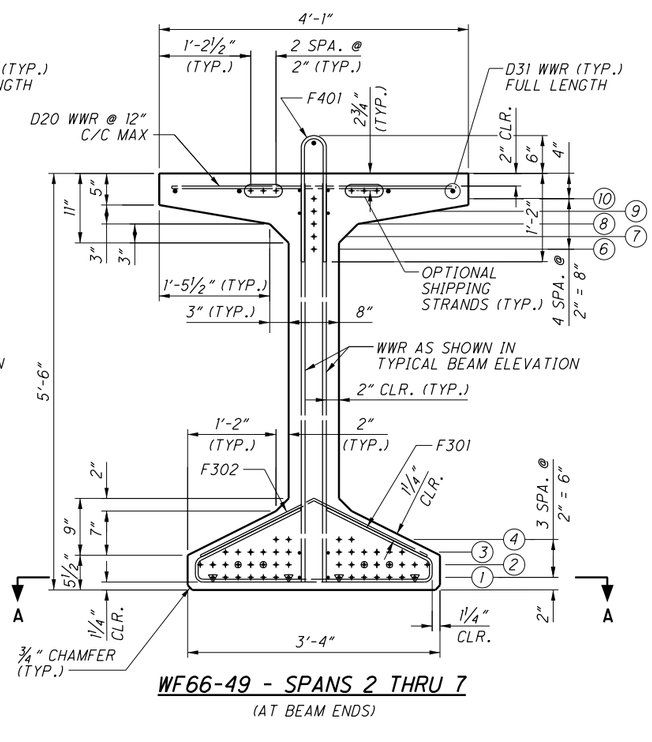
WF66-49 - SPAN 1

(AT BEAM ENDS)



WF66-49 - SPANS 2 THRU 7

(AT MID SPAN)



WF66-49 - SPANS 2 THRU 7

(AT BEAM ENDS)

BEAM PRESTRESSING STRANDS

SPANS	BEAM MARK	NUMBER OF STRANDS PER ROW															TOTAL STRANDS
		END SECTION										MID-SPAN SECTION					
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	①	②	③	④	⑤	
1	B1 THRU B6	14	4	0	0	0	0	0	1	1	1	15	5	1	0	0	21
2 THRU 7	B7 THRU B42	14	16	12	4	0	1	1	1	1	1	15	17	13	5	1	51

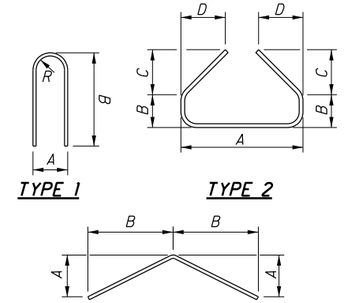
EST. BEAM PRESTRESSING MATERIALS AND REINFORCEMENT PER BEAM

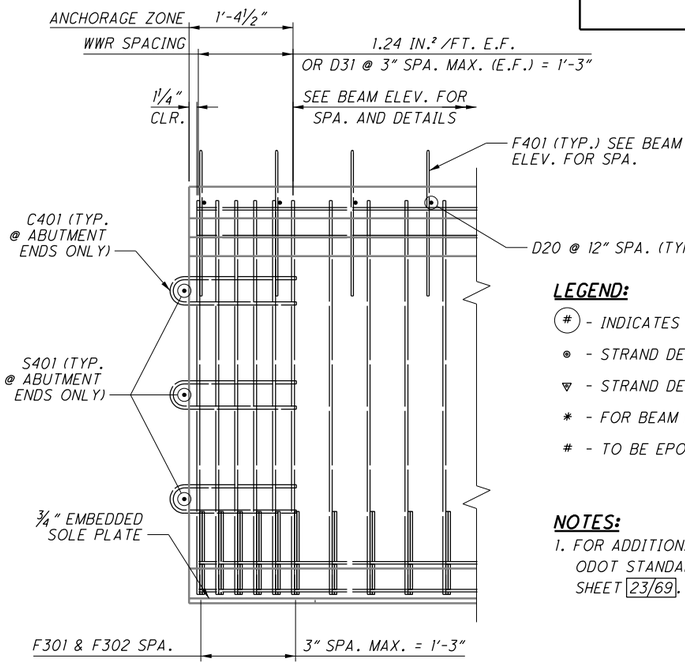
SPANS	BEAM MARK	CONCRETE STRENGTHS		F301 BARS REQ'D	F302 BARS REQ'D	#C401 BARS REQ'D	F401 BARS REQ'D	BEAM WEIGHT (lbs)
		f'ci	f'c					
1	B1 THRU B6	5000 psi	7000 psi	68	40	3	46	85,300
2 THRU 7	B7 THRU B42	6500 psi	8500 psi	120	72	3	82	150,804

REINFORCING STEEL

MARK	TYPE	A	B	C	D	R
F301	2	3'-1½"	3½"	7½"	1'-3"	
F302	5	9"	1'-6"			
#C401	1	4½"	1'-8"			1¾"
#F401	1	4"	1'-8"			1½"

BAR BENDING DIAGRAMS





ANCHORAGE ZONE REINFORCEMENT DETAIL

LEGEND:

- (#) - INDICATES STRAND ROW
- ◉ - STRAND DEBONDED 4'-0" EACH END
- ▽ - STRAND DEBONDED 8'-0" EACH END
- * - FOR BEAM ENDS AT ABUTMENTS ONLY
- # - TO BE EPOXY COATED

NOTES:

1. FOR ADDITIONAL DETAILS, SECTION A-A, AND NOTES, SEE ODOT STANDARD DRAWING PSID-1-13 AND BEAM ELEVATION SHEET 23/69.

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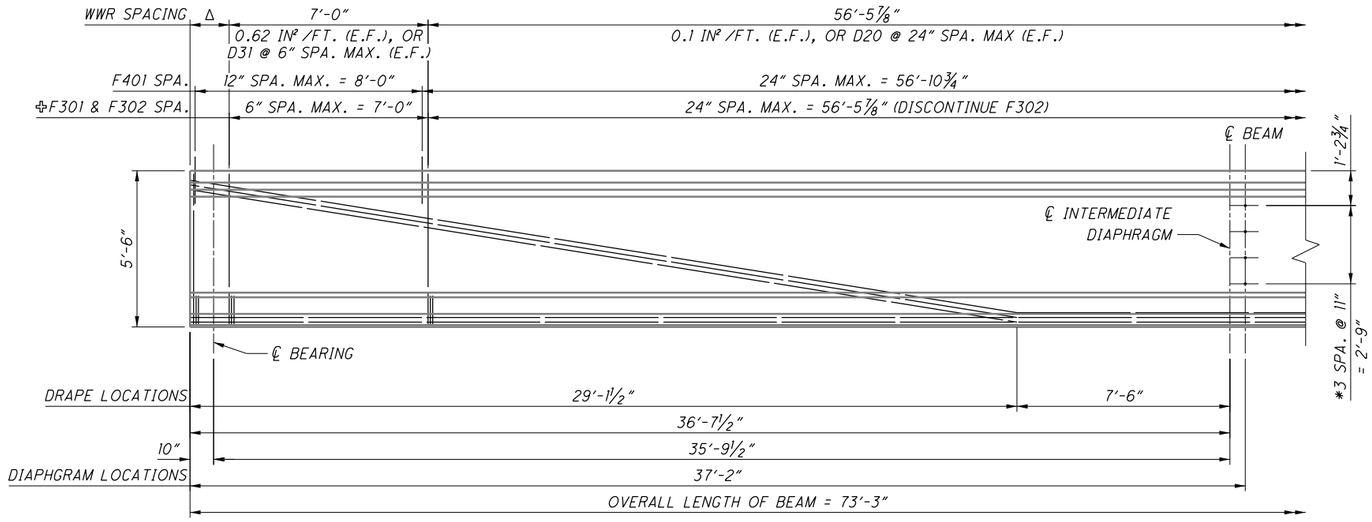
PRESTRESSED BEAM SECTION DETAILS

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

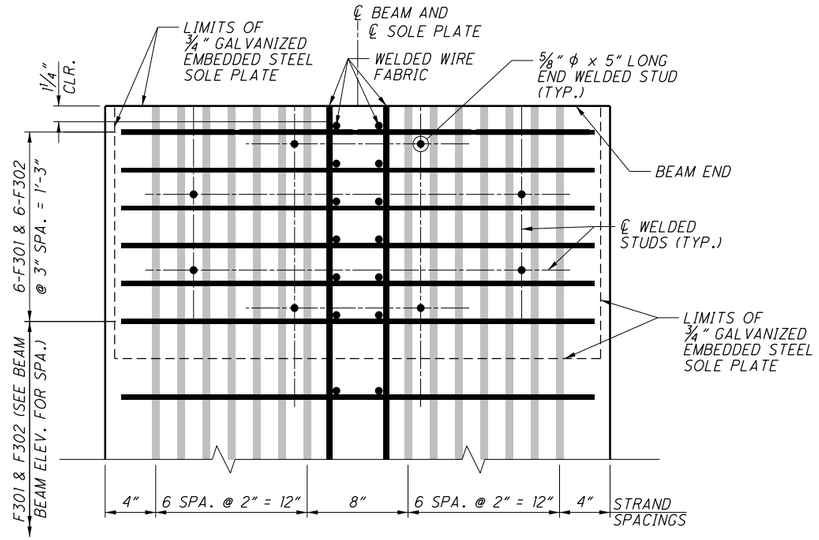
MUS-CR32-0.00
PID No. 97346

22 / 69

131 / 192

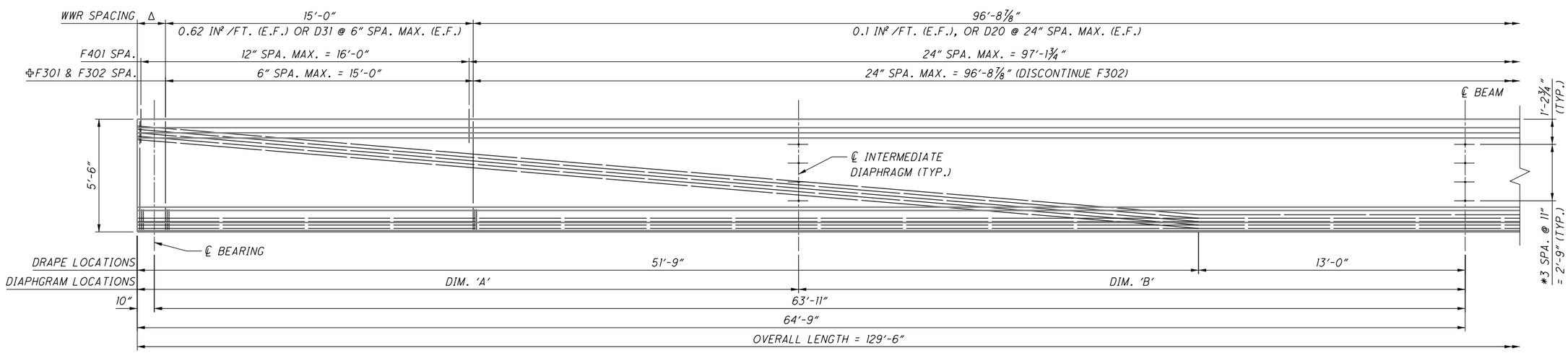


**WF66-49 - SPAN 1 BEAM ELEVATION



SECTION A-A

(FOR STUD SPACINGS, ODOT STD. DWG. PSID-1-13)



**WF66-49 - SPANS 2 THRU 7 BEAM ELEVATION

NOTES:

1. ONLY THE F401 & C401 BARS SHALL BE EPOXY COATED, GRADE 60.
2. ALL PRESTRESSING STRANDS SHALL BE GRADE 270 KIPS SEVEN WIRE, UNCOATED, LOW RELAXATION STRAND, WITH A DIAMETER OF 0.6 INCHES AND A NOMINAL AREA OF 0.217 SQUARE INCHES.
3. FOUR CONTINOUS D31 BARS SHALL BE PROVIDED IN THE TOP FLANGE AS SHOWN FOR THE FULL LENGTH OF THE BEAMS PER ODOT STD. DWG. PSID-1-13.
4. THE BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT INDICATES THE BAR SIZE AND THE REMAINING DIGITS, ITS SEQUENCE NUMBER. ALL REINFORCING STEEL SHALL BE BLACK UNLESS NOTED OTHERWISE.
5. ALL REINFORCING STEEL MAY BE REPLACED WITH EQUIVALENT WWR.
6. THE REQUIRED LAP LENGTHS ARE AS FOLLOWS:
   2'-0" MINIMUM LAP FOR D20 WELDED WIRE REINFORCEMENT.
   2'-6" MINIMUM LAP FOR D31 WELDED WIRE REINFORCEMENT.
7. FOR ADDITIONAL DETAILS AND NOTES, SEE ODOT STANDARD DRAWING PSID-1-13.
8. ADJUST SPACING OF STEEL REINFORCING AS REQUIRED TO CLEAR EMBEDDED STEEL PLATE END WELDED STUDS.
9. WF66-49 SPAN 1:
   INITIAL PRESTRESSING FORCE = 43,942 POUNDS/STRAND
   TOTAL HOLD-DOWN CAPACITY REQUIRED PER STRAND = 20,857 POUNDS/ANCHOR POINT

   WF66-49 SPANS 2 THRU 7:
   INITIAL PRESTRESSING FORCE = 43,942 POUNDS/STRAND
   TOTAL HOLD-DOWN CAPACITY REQUIRED PER STRAND = 18,333 POUNDS/ANCHOR POINT
10. FOR BEAM SECTIONS, SECTION A-A LOCATIONS, AND ANCHORAGE ZONE REINFORCEMENT DETAILS, SEE SHEET 22/69.

LEGEND:

* - ADJUST AS NECESSARY TO AVOID PRESTRESSING STRANDS

Δ - SEE ANCHORAGE ZONE DETAILS FOR WWR SPACING.

** - DOWNSTATION END OF BEAM SHOWN

SPANS 2 THRU 7 INT. DIAPHRAGM LOCATIONS

SPAN	DIM. 'A'		DIM. 'B'
	DOWNSTATION	UPSTATION	
2 THRU 6	32'-3"	32'-3"	32'-6"
7	31'-11¾"	33'-0¾"	32'-2¾"

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PRESTRESSED BEAM ELEVATIONS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

TOPPING THICKNESS

SPAN 1				SPAN 2				SPAN 3				SPAN 4				SPAN 5			
BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ BEARING REAR ABUTMENT	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ PIER 1	BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ PIER 1	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ PIER 2	BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ PIER 2	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ PIER 3	BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ PIER 3	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ PIER 4	BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ PIER 4	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ PIER 5
B1	10 7/8"	11 5/16"	10 7/8"	B7	10 7/8"	12 3/8"	13 3/16"	B13	13 3/16"	10 7/8"	13 7/8"	B19	13 7/8"	10 7/8"	13 3/16"	B25	13 3/16"	10 7/8"	13 7/8"
B2	10 7/8"	11 5/16"	10 7/8"	B8	10 7/8"	12 5/16"	13 5/16"	B14	13 5/16"	10 7/8"	14"	B20	14"	10 7/8"	13 5/16"	B26	13 5/16"	10 7/8"	14"
B3	10 7/8"	11 5/16"	10 7/8"	B9	10 7/8"	12 5/16"	13 5/16"	B15	13 5/16"	10 7/8"	14"	B21	14"	10 7/8"	13 5/16"	B27	13 5/16"	10 7/8"	14"
B4	10 7/8"	11 5/16"	10 7/8"	B10	10 7/8"	12 5/16"	13 5/16"	B16	13 5/16"	10 7/8"	14"	B22	14"	10 7/8"	13 5/16"	B28	13 5/16"	10 7/8"	14"
B5	10 7/8"	11 5/16"	10 7/8"	B11	10 7/8"	12 5/16"	13 5/16"	B17	13 5/16"	10 7/8"	14"	B23	14"	10 7/8"	13 5/16"	B29	13 5/16"	10 7/8"	14"
B6	10 7/8"	11 5/16"	10 7/8"	B12	10 7/8"	12 3/8"	13 3/16"	B18	13 3/16"	10 7/8"	13 7/8"	B24	13 7/8"	10 7/8"	13 3/16"	B30	13 3/16"	10 7/8"	13 7/8"

TOPPING THICKNESS (CONTINUED)

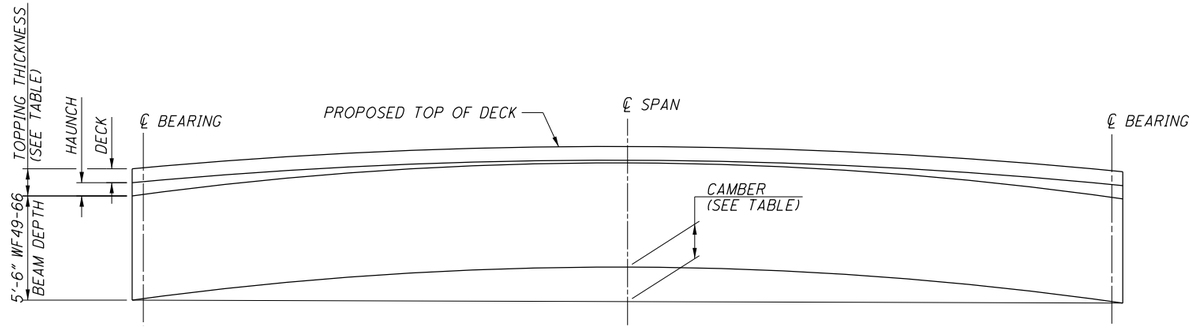
SPAN 6				SPAN 7			
BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ PIER 5	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ PIER 6	BEAM MARK	TOTAL TOPPING THICKNESS AT ℄ PIER 6	TOTAL TOPPING THICKNESS AT MID-SPAN	TOTAL TOPPING THICKNESS AT ℄ BEARING FWD. ABUTMENT
B31	13 7/8"	10 7/8"	13 3/16"	B37	13 3/16"	10 7/8"	14 13/16"
B32	14"	10 7/8"	13 5/16"	B38	13 5/16"	10 7/8"	14 15/16"
B33	14"	10 7/8"	13 5/16"	B39	13 5/16"	10 7/8"	14 15/16"
B34	14"	10 7/8"	13 5/16"	B40	13 5/16"	10 7/8"	14 15/16"
B35	14"	10 7/8"	13 5/16"	B41	13 5/16"	10 7/8"	14 15/16"
B36	13 7/8"	10 7/8"	13 3/16"	B42	13 3/16"	10 7/8"	14 13/16"

CAMBER

SPAN 1				SPAN 2				SPAN 3				SPAN 4				SPAN 5			
BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD	BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD	BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD	BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD	BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD
B1	0 9/16"	0 15/16"	0 1/4"	B7	2 15/16"	4 3/4"	2 1/8"	B13	2 15/16"	4 3/4"	2 1/8"	B19	2 15/16"	4 3/4"	2 1/8"	B25	2 15/16"	4 3/4"	2 1/8"
B2	0 9/16"	0 15/16"	0 3/16"	B8	2 15/16"	4 3/4"	2"	B14	2 15/16"	4 3/4"	2"	B20	2 15/16"	4 3/4"	2"	B26	2 15/16"	4 3/4"	2"
B3	0 9/16"	0 15/16"	0 3/16"	B9	2 15/16"	4 3/4"	2"	B15	2 15/16"	4 3/4"	2"	B21	2 15/16"	4 3/4"	2"	B27	2 15/16"	4 3/4"	2"
B4	0 9/16"	0 15/16"	0 3/16"	B10	2 15/16"	4 3/4"	2"	B16	2 15/16"	4 3/4"	2"	B22	2 15/16"	4 3/4"	2"	B28	2 15/16"	4 3/4"	2"
B5	0 9/16"	0 15/16"	0 3/16"	B11	2 15/16"	4 3/4"	2"	B17	2 15/16"	4 3/4"	2"	B23	2 15/16"	4 3/4"	2"	B29	2 15/16"	4 3/4"	2"
B6	0 9/16"	0 15/16"	0 1/4"	B12	2 15/16"	4 3/4"	2 1/8"	B18	2 15/16"	4 3/4"	2 1/8"	B24	2 15/16"	4 3/4"	2 1/8"	B30	2 15/16"	4 3/4"	2 1/8"

CAMBER (CONTINUED)

SPAN 6				SPAN 7			
BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD	BEAM MARK	CAMBER AT DAY 0 (D0)	CAMBER AT DAY 30 (D30)	DEFLECTION DUE TO REMAINING DEAD LOAD
B31	2 15/16"	4 3/4"	2 1/8"	B37	2 15/16"	4 3/4"	2 1/8"
B32	2 15/16"	4 3/4"	2"	B38	2 15/16"	4 3/4"	2"
B33	2 15/16"	4 3/4"	2"	B39	2 15/16"	4 3/4"	2"
B34	2 15/16"	4 3/4"	2"	B40	2 15/16"	4 3/4"	2"
B35	2 15/16"	4 3/4"	2"	B41	2 15/16"	4 3/4"	2"
B36	2 15/16"	4 3/4"	2 1/8"	B42	2 15/16"	4 3/4"	2 1/8"



BEAM CAMBER AND TOPPING THICKNESS DIAGRAM

NOTES:

1. FOR FRAMING PLAN, SEE SHEETS 20/69 AND 21/69.
2. FOR ADDITIONAL BEAM DETAILS, SEE SHEETS 22/69 AND 23/69.
3. DEFLECTIONS DUE TO REMAINING DEAD LOAD INCLUDES CONCRETE DECK, DIAPHRAGMS, AND BARRIERS.
4. ALL DEFLECTION AND CAMBER VALUES ARE PROVIDED AT ℄ SPAN.
5. THE BEAM SEAT ELEVATIONS ASSUME ESTIMATED CAMBER D30 WITH A SACRIFICIAL HAUNCH THICKNESS OF 2-INCHES.

E.L. ROBINSON ENGINEERING
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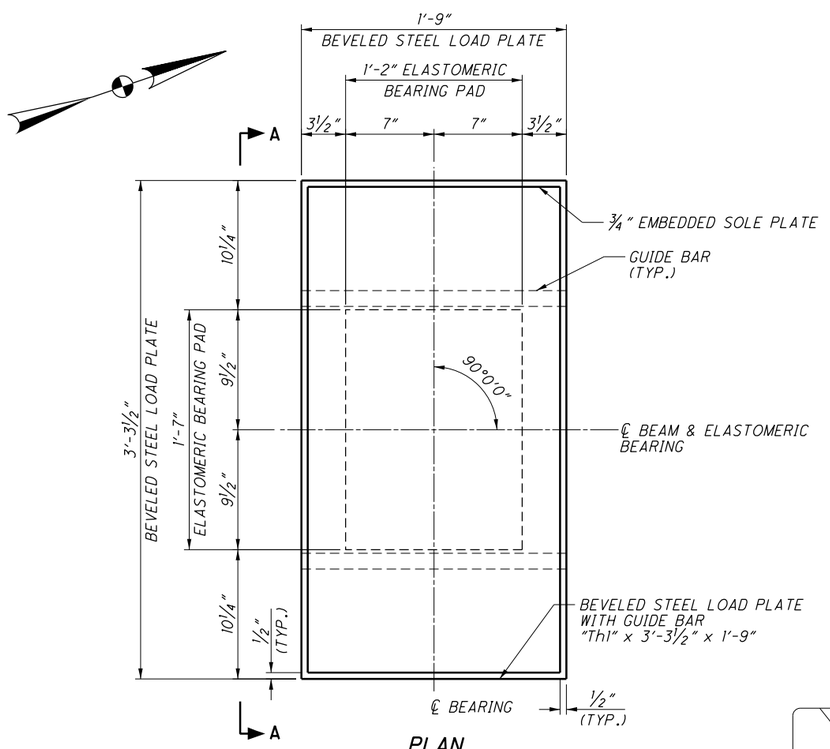
www.elrobinsonengineering.com

DESIGNED TAS | DRAWN TAS | REVIEWED DFT | DATE 10/2017
CHECKED CJW | REVISED | STRUCTURE FILE NUMBER 6054145

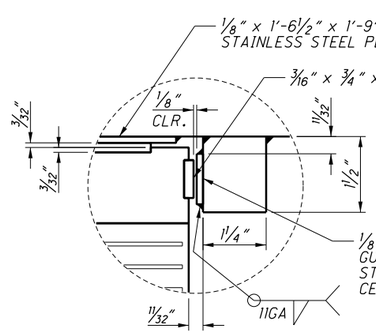
PRESTRESSED BEAM CAMBER
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

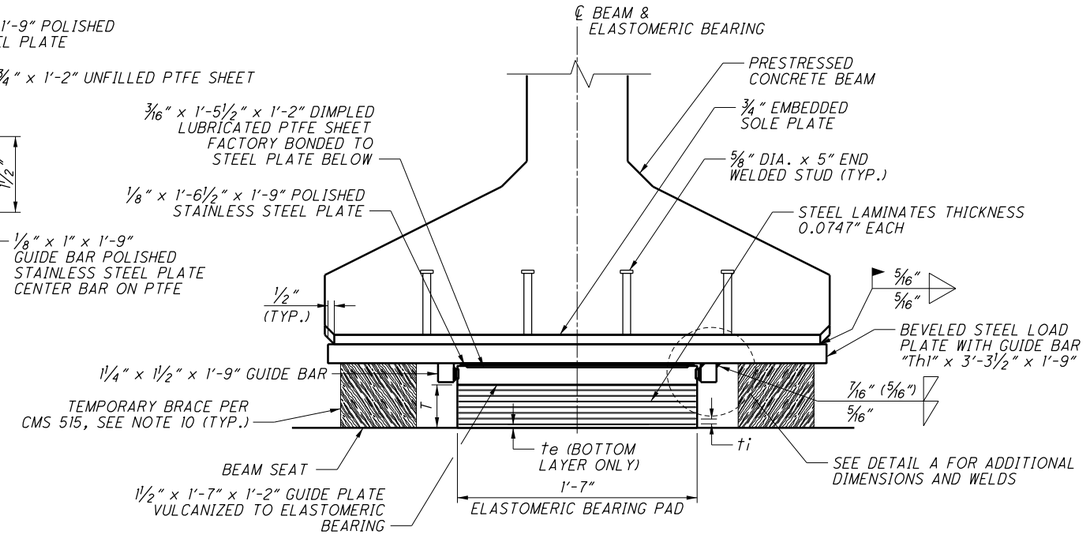


PLAN

(REAR ABUTMENT BEARING SHOWN, FORWARD ABUTMENT SIMILAR)



DETAIL A



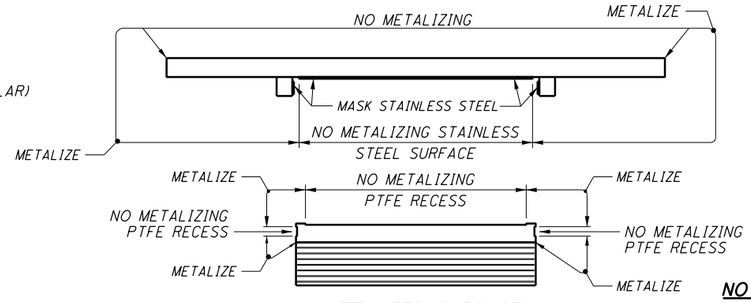
VIEW A-A

(REAR ABUTMENT BEARING SHOWN, FORWARD ABUTMENT SIMILAR)

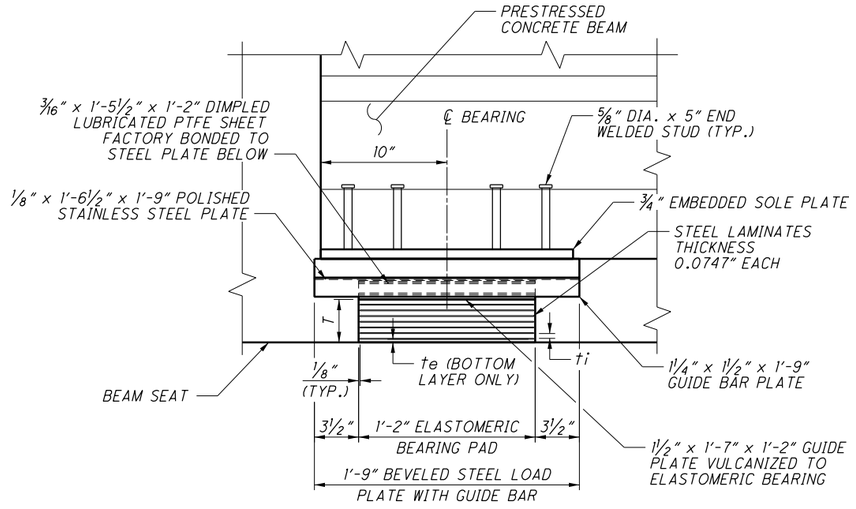
LAMINATED ELASTOMERIC BEARINGS AT ABUTMENTS

	BEARING DIMENSIONS					REACTIONS		MAXIMUM DESIGN LOAD
	ti	te	T	n	N	DL	LL W/O IMPACT	
REAR	0.375"	0.25"	3.3979"	7	7	129 K	86 K	215 K
FORWARD	0.375"	0.25"	3.3979"	7	7	208 K	106 K	314 K

ti = THICKNESS OF INTERNAL LAYER
te = THICKNESS OF EXTERNAL LAYER
T = TOTAL THICKNESS OF ELASTOMERIC BEARING
n = NUMBER OF INTERNAL ELASTOMER LAYERS
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.0747"
DUROMETER OF ELASTOMER = 60 DUROMETER

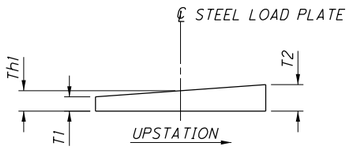


METALIZING DIAGRAM



ELEVATION

(REAR ABUTMENT BEARING SHOWN, FORWARD ABUTMENT SIMILAR)



BEVELED STEEL LOAD PLATE DETAIL

(SEE LOAD PLATE BEVEL TABLE)

BEVELED STEEL LOAD PLATE DATA

LOCATION	T1 (in.)	Th1 (in.)	T2 (in.)
REAR ABUTMENT	1.5	1.625	1.75
FORWARD ABUTMENT	1.75	1.625	1.5

NOTES:

1. THE STEEL LOAD PLATE, TOP PLATE AND GUIDE BAR SHALL BE METALIZED ASTM A709 GRADE 50 STEEL.
2. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE THE LOAD PLATE, STEEL PLATE, ALL COMPONENTS OF GUIDE BEARINGS AND ALL MATERIALS, METALIZING, LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. FOR THE ABUTMENTS, PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 - ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
3. FOR ADDITIONAL NOTES, SEE SHEET 27/69.
4. FOR PIER BEARING DETAILS, SEE SHEETS 26/69 & 27/69.
5. MANUFACTURE PTFE SHEET FROM PURE VIRGIN PTFE RESIN PER ASTM D4895. MAIN SLIDING SURFACE OF PTFE TO BE UNFILLED, DIMPLED AND LUBRICATED. DIMPLES MUST HAVE A MINIMUM EDGE DISTANCE OF 0.5 INCHES AND CONFORM TO AASHTO LRFD SECTION 14.7.2.1. GUIDE BAR PTFE MAYBE BE FILLED OR UNFILLED.
6. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONGTERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
7. FOR ADDITIONAL EMBEDDED LOAD PLATE NOTES AND DETAILS, REFER TO STD. DWG. PSID-1-13.
8. ATTACH STAINLESS STEEL BY WELDING ENTIRE PERIMETER PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATION 18.8.3.3. METALIZING OF THE GUIDE BARS AND LOAD PLATE MAY BE PERFORMED PRIOR TO ATTACHING THE STAINLESS STEEL PLATES. THE WELDS NEED TO BE METALLIZED. ANY METALLIZING WHICH IS DAMAGED DURING THE ATTACHMENT OF STAINLESS STEEL PLATES SHALL BE REPAIRED PER CMS 711.02.
9. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
10. SUPPLY TEMPORARY BRACING TO MAINTAIN STABILITY AND PREVENT LATERAL MOVEMENT UNTIL COMPLETION OF THE CONCRETE DECK.

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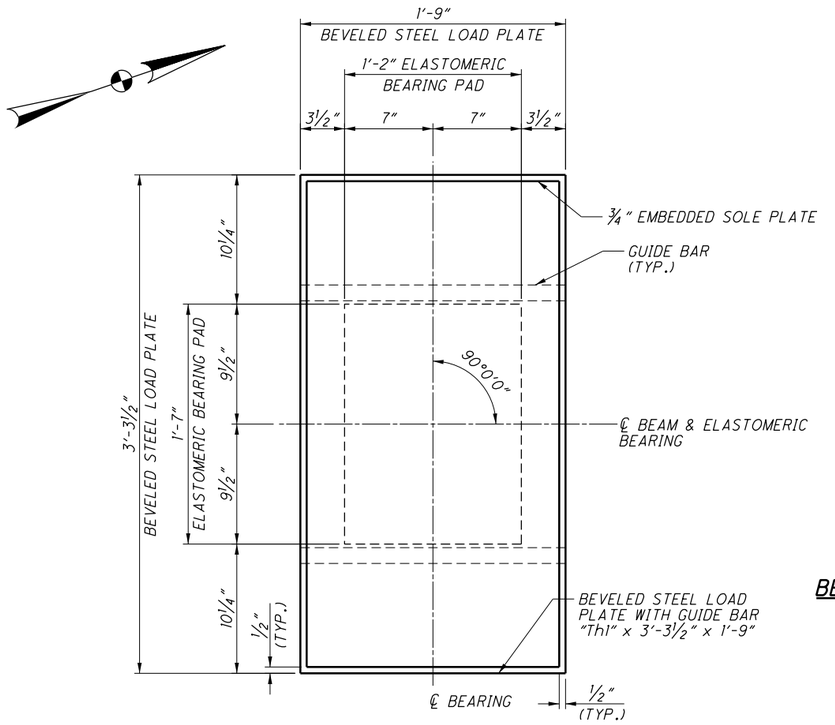
DESIGNED TAS | DRAWN FIB | REVIEWED RLE | DATE 10/2017
CHECKED CJW | REVISED | STRUCTURE FILE NUMBER 6054145

ABUTMENT BEARING DETAILS

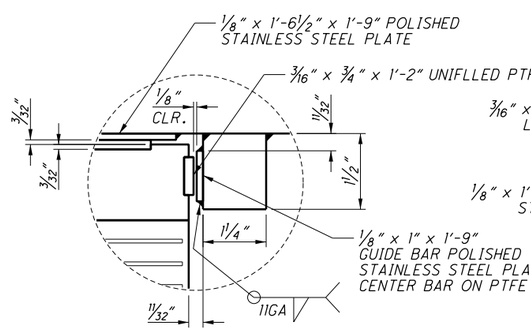
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

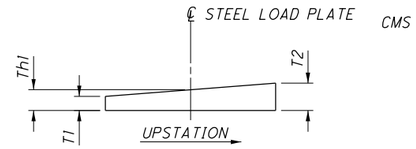


PLAN

(TYP. AT PIER 1)

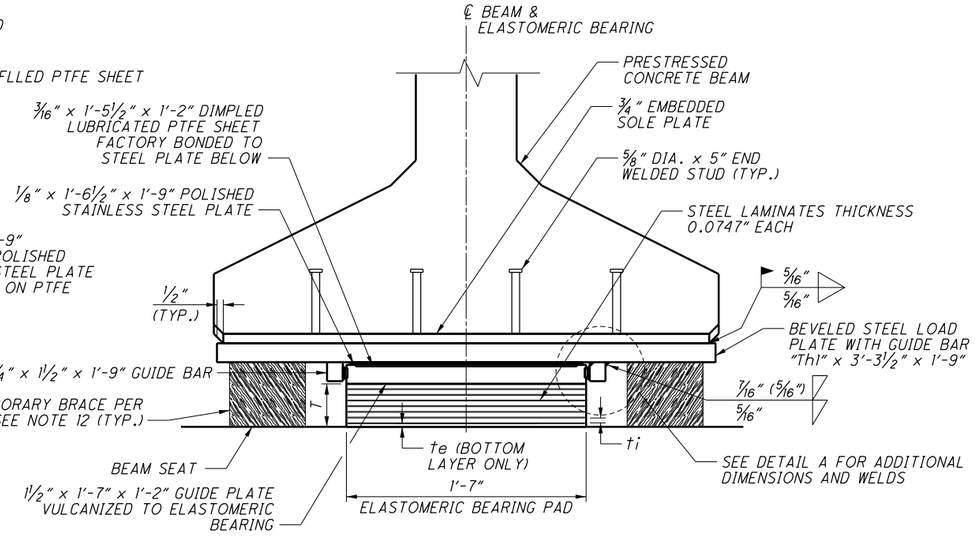


DETAIL A



BEVELED STEEL LOAD PLATE DETAIL

(SEE LOAD PLATE BEVEL TABLE)



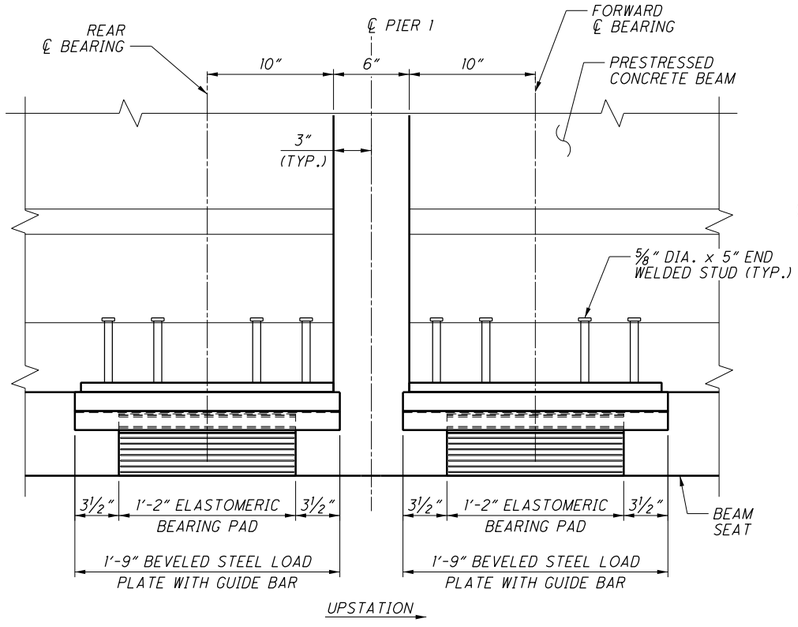
VIEW A-A

(TYP. AT PIER 1)

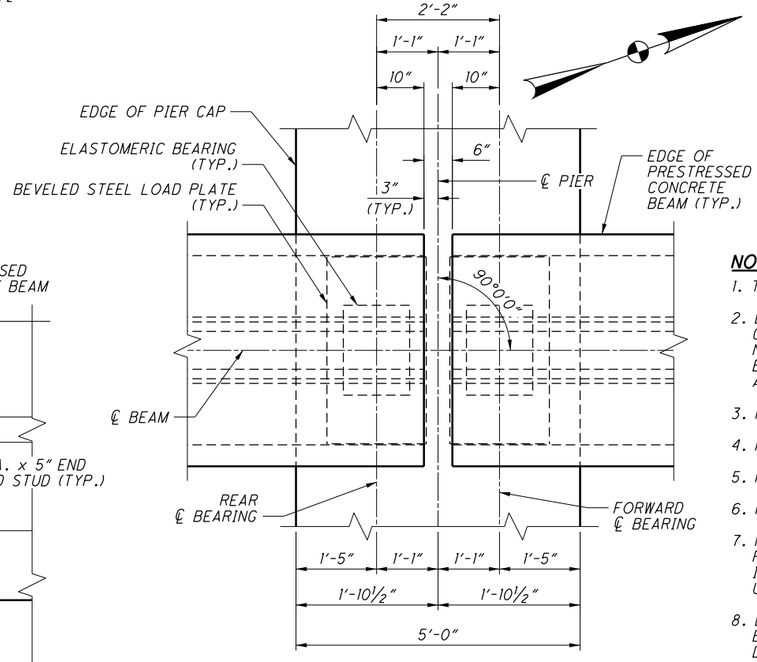
LAMINATED ELASTOMERIC BEARINGS AT PIER 1

	BEARING DIMENSIONS					REACTIONS		MAXIMUM DESIGN LOAD
SPAN	ti	te	T	n	N	DL	LL W/O IMPACT	
70 FT	0.375"	0.25"	3.3979"	7	7	115 K	99 K	214 K
130 FT	0.375"	0.25"	3.3979"	7	7	193 K	106 K	299 K

ti = THICKNESS OF INTERNAL LAYER
te = THICKNESS OF EXTERNAL LAYER
T = TOTAL THICKNESS OF ELASTOMERIC BEARING
n = NUMBER OF INTERNAL ELASTOMER LAYERS
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.0747"
DUROMETER OF ELASTOMER = 60 DUROMETER



LAMINATED ELASTOMERIC BEARINGS AT PIER 1



BEARING ORIENTATION PLAN AT PIERS

(TYPICAL ALL PIERS)

BEVELED STEEL LOAD PLATE DATA

LOCATION	BEARING LINE	T1	Th1	T2
		(in.)	(in.)	(in.)
PIER 1	REAR	1.5	1.5625	1.625
	FORWARD	1.5625	1.5625	1.5625

NOTES:

1. THE STEEL LOAD PLATE, TOP PLATE AND GUIDE BAR SHALL BE METALIZED ASTM A709 GRADE 50 STEEL.
2. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE THE LOAD PLATE, STEEL PLATE, ALL COMPONENTS OF GUIDE BEARINGS AND ALL MATERIALS, METALIZING, LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. FOR THE PIER, PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 - ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
3. FOR ADDITIONAL NOTES, SEE SHEET 27/69.
4. FOR ABUTMENT BEARING DETAILS, SEE SHEET 25/69 .
5. FOR METALIZING DIAGRAM, SEE SHEET 25/69 .
6. FOR BEARING DETAILS AT PIERS 2 THRU 6, SEE SHEET 27/69.
7. MANUFACTURE PTFE SHEET FROM PURE VIRGIN PTFE RESIN PER ASTM D4895. MAIN SLIDING SURFACE OF PTFE TO BE UNFILLED, DIMPLED AND LUBRICATED. DIMPLES MUST HAVE A MINIMUM EDGE DISTANCE OF 0.5 INCHES AND CONFORM TO AASHTO LRFD SECTION 14.7.2.1. GUIDE BAR PTFE MAYBE BE FILLED OR UNFILLED.
8. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER AT PIER 1. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONGTERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
9. FOR ADDITIONAL EMBEDDED LOAD PLATE NOTES AND DETAILS, REFER TO STD. DWG. PSID-1-13.
10. ATTACH STAINLESS STEEL BY WELDING ENTIRE PERIMETER PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATION 18.8.3.3. METALIZING OF THE GUIDE BARS AND LOAD PLATE MAY BE PERFORMED PRIOR TO ATTACHING THE STAINLESS STEEL PLATES. THE WELDS NEED TO BE METALLIZED. ANY METALLIZING WHICH IS DAMAGED DURING THE ATTACHMENT OF STAINLESS STEEL PLATES SHALL BE REPAIRED PER CMS 711.02.
11. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
12. SUPPLY TEMPORARY BRACING TO MAINTAIN STABILITY AND PREVENT LATERAL MOVEMENT UNTIL COMPLETION OF THE CONCRETE DECK.

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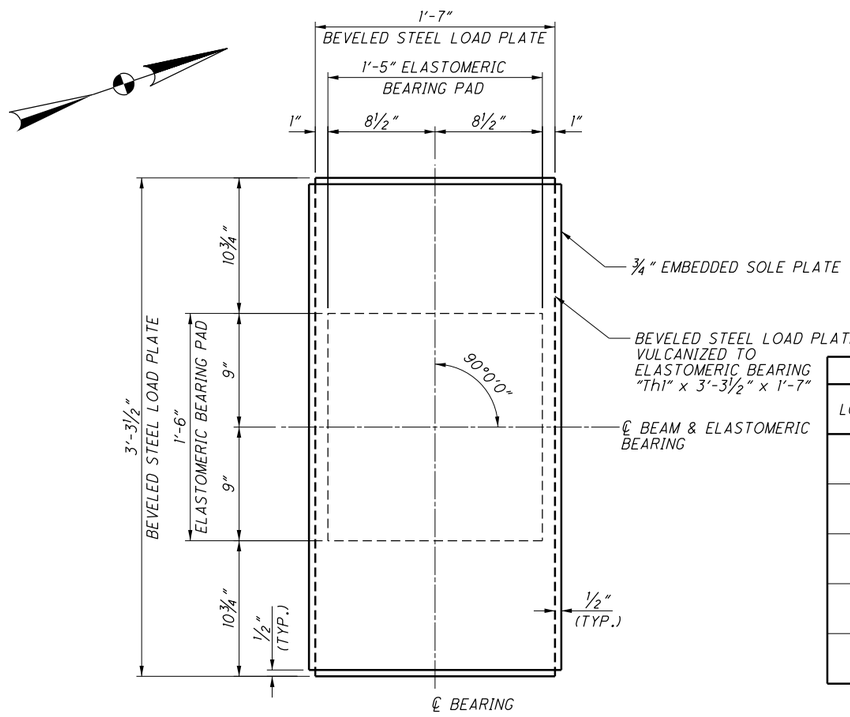
DESIGNED TAS | DRAWN FIB | REVIEWED RLE | DATE 10/2017
CHECKED CJW | REVISED | STRUCTURE FILE NUMBER 6054145

PIER BEARING DETAILS (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

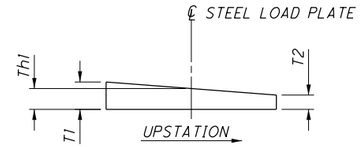
26 / 69

135 / 192



PLAN

(TYP. AT PIERS 2, 3, 4, 5 AND 6)

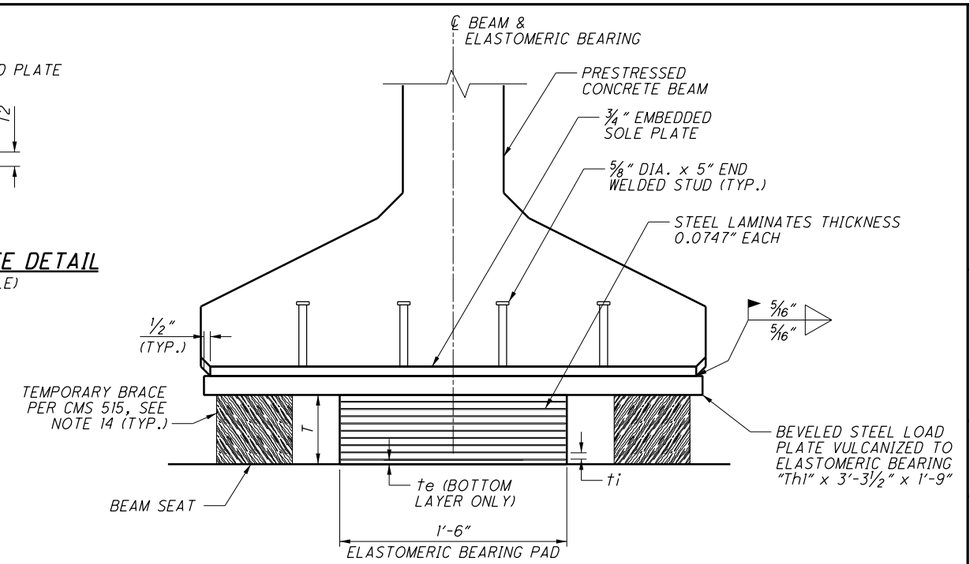


BEVELED STEEL LOAD PLATE DETAIL

(SEE LOAD PLATE BEVEL TABLE)

BEVELED STEEL LOAD PLATE DATA

LOCATION	BEARING LINE	T1 (in.)	Th1 (in.)	T2 (in.)
PIER 2	REAR	1.75	1.625	1.5
	FORWARD	1.625	1.625	1.625
PIER 3	REAR	1.75	1.625	1.5
	FORWARD	1.625	1.625	1.625
PIER 4	REAR	1.75	1.625	1.5
	FORWARD	1.625	1.625	1.625
PIER 5	REAR	1.75	1.625	1.5
	FORWARD	1.625	1.625	1.625
PIER 6	REAR	1.75	1.625	1.5
	FORWARD	1.625	1.625	1.625



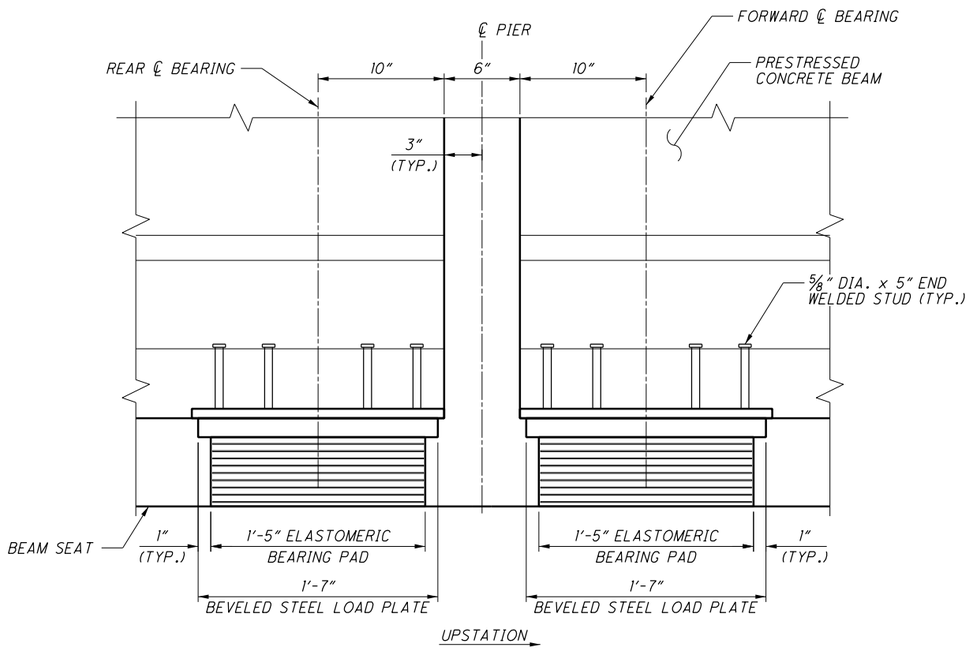
VIEW A-A

(TYP. AT PIERS 2, 3, 4, 5 AND 6)

LAMINATED ELASTOMERIC BEARINGS AT PIERS 2 - 6

BEARING DIMENSIONS					REACTIONS		MAXIMUM DESIGN LOAD
ti	te	T	n	N	DL	LL W/O IMPACT	
0.50"	0.3125"	5.4848"	9	9	193 K	106 K	299 K

ti = THICKNESS OF INTERNAL LAYER
te = THICKNESS OF EXTERNAL LAYER
T = TOTAL THICKNESS OF ELASTOMERIC BEARING
n = NUMBER OF INTERNAL ELASTOMER LAYERS
N = NO. OF STEEL LAMINATES
INTERNAL STEEL LAMINATE THICKNESS = 0.0747"
DUROMETER OF ELASTOMER = 50 DUROMETER



LAMINATED ELASTOMERIC BEARINGS AT PIER 2 THRU 6

(TYP. AT PIERS 2, 3, 4, 5 AND 6)

NOTES:

1. ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER AT PIERS 2 THRU 6. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
2. THE BEVELED STEEL LOAD PLATES SHALL MEET THE GRADE 50 REQUIREMENTS OF STRUCTURAL STEEL ASTM A709 AND SHALL BE METALIZED PER CMS 711.02.
3. THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
4. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
5. FOR ADDITIONAL EMBEDDED LOAD PLATE NOTES AND DETAILS, REFER TO STD. DWG. PSID-1-13.
6. TOTAL DESIGN LOAD FOR BEARINGS EQUALS THE SUM OF THE DEAD LOADS AND LIVE LOADS TABULATED IN THE BEARING TABLE. IMPACT IS NOT INCLUDED. LOADS ARE UNFACTORED.
7. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE THE LOAD PLATE, STEEL PLATE, AND ALL MATERIALS, METALIZING, LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. FOR THE PIERS, PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516 - ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN.
8. FOR ABUTMENT BEARING DETAILS, SEE SHEET 25/69.
9. FOR BEARING DETAILS AT PIER 1, SEE SHEET 26/69.
10. FOR BEARING ORIENTATION PLAN AT PIERS, SEE SHEET 26/69.
11. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD ⅛ INCH AT PIERS 2 THRU 6 TO COMPENSATE FOR THE VERTICAL DEFORMATION OF THE BEARINGS.
12. ATTACH STAINLESS STEEL BY WELDING ENTIRE PERIMETER PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATION 18.8.3.3.
13. BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F AND THE BEARING SHEAR DEFLECTION EXCEEDS ⅛ OF THE BEARING HEIGHT AT 60°F ± 10°F, RAISE THE BEAMS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ± 10°F.
14. SUPPLY TEMPORARY BRACING TO MAINTAIN STABILITY AND PREVENT LATERAL MOVEMENT UNTIL COMPLETION OF THE CONCRETE DECK.

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, Ohio 43215
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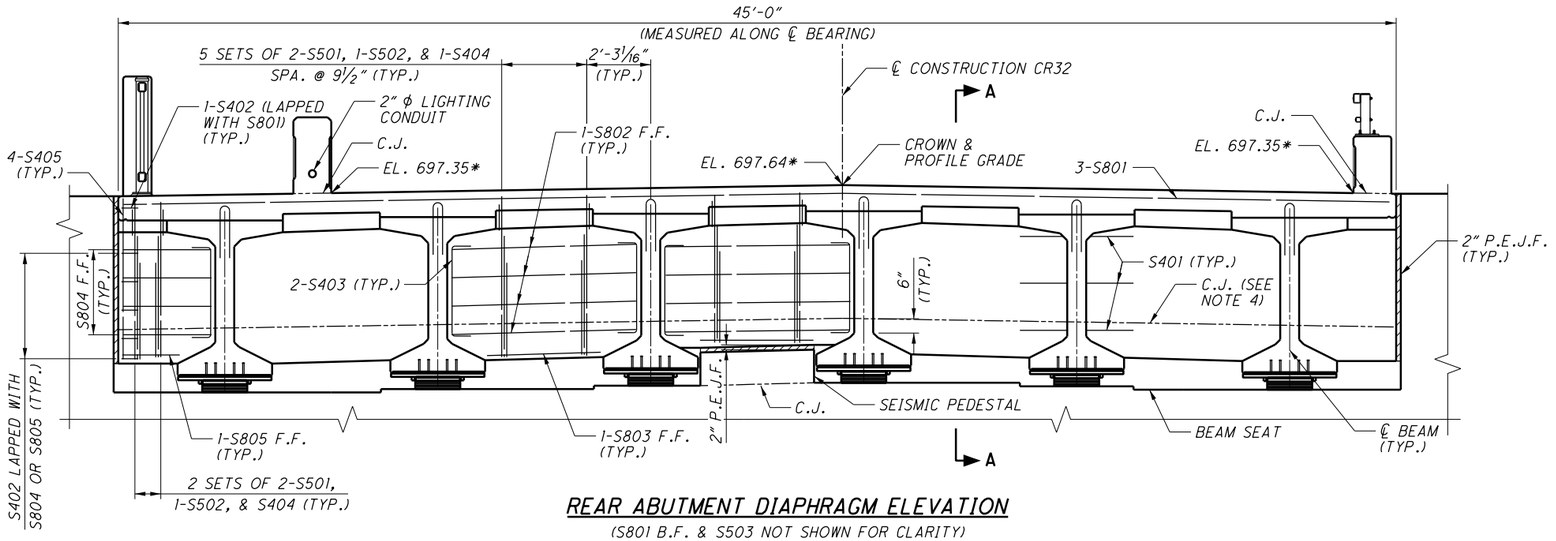
DESIGNED	DRAWN	REVIEWED	DATE
TAS	FIB	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		6054145	

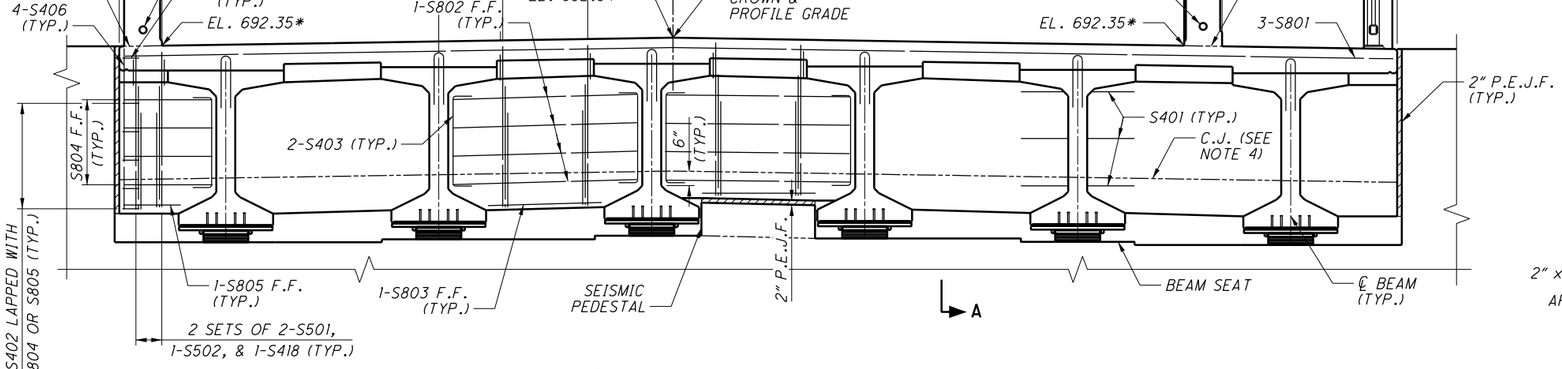
PIER BEARING DETAILS (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



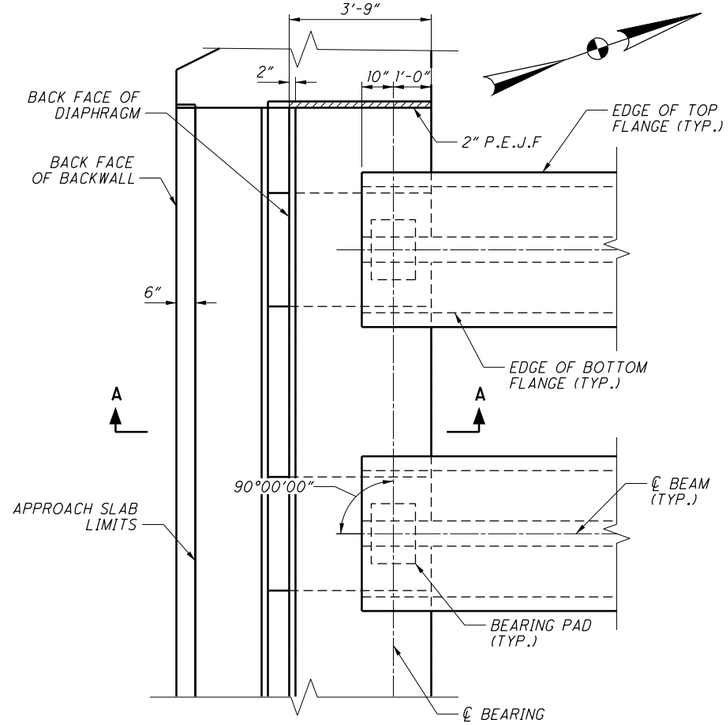
REAR ABUTMENT DIAPHRAGM ELEVATION

(S801 B.F. & S503 NOT SHOWN FOR CLARITY)



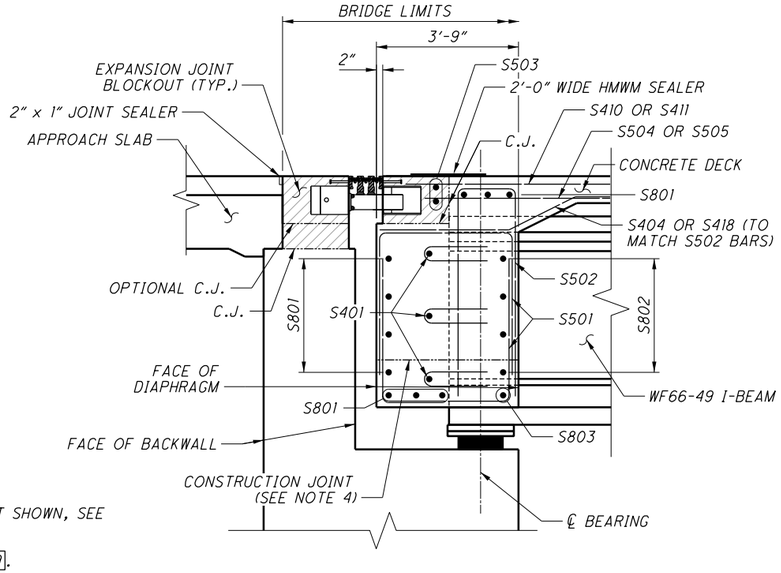
FORWARD ABUTMENT DIAPHRAGM ELEVATION

(S801 B.F. & S503 NOT SHOWN FOR CLARITY)

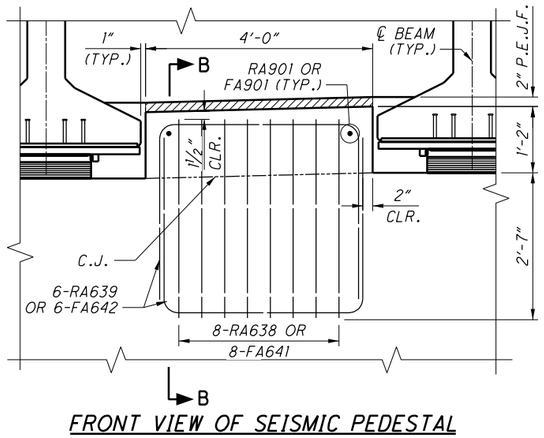


END DIAPHRAGM PARTIAL PLAN

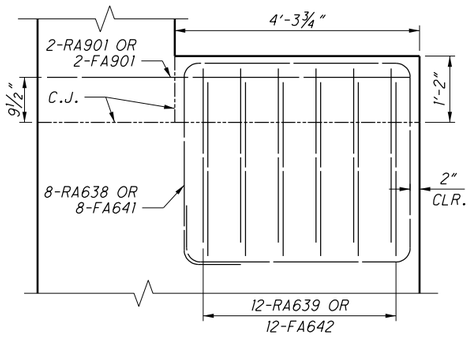
(REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR)
(MODULAR EXPANSION JOINT NOT SHOWN FOR CLARITY)



SECTION A-A



FRONT VIEW OF SEISMIC PEDESTAL



SECTION B-B

LEGEND:

* - ELEVATIONS GIVEN AT ℄ BEARING

NOTES:

1. FOR ADDITIONAL DETAILS AND NOTES NOT SHOWN, SEE ODOT STANDARD DRAWING PSID-1-13.
2. FOR BEARING DETAILS, SEE SHEET 25/69.
3. PLACE VERTICAL BARS PARALLEL TO BEAMS.
4. DIAPHRAGM CONCRETE: PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE. IF PLACED SEPARATELY, LOCATE A HORIZONTAL CONSTRUCTION JOINT IN THE DIAPHRAGM AS SHOWN IN SECTION A-A AND PLACE REMAINING DIAPHRAGM CONCRETE WITH THE DECK.

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1801 Watermark Drive, Suite 310 - Columbus, OHio 43215
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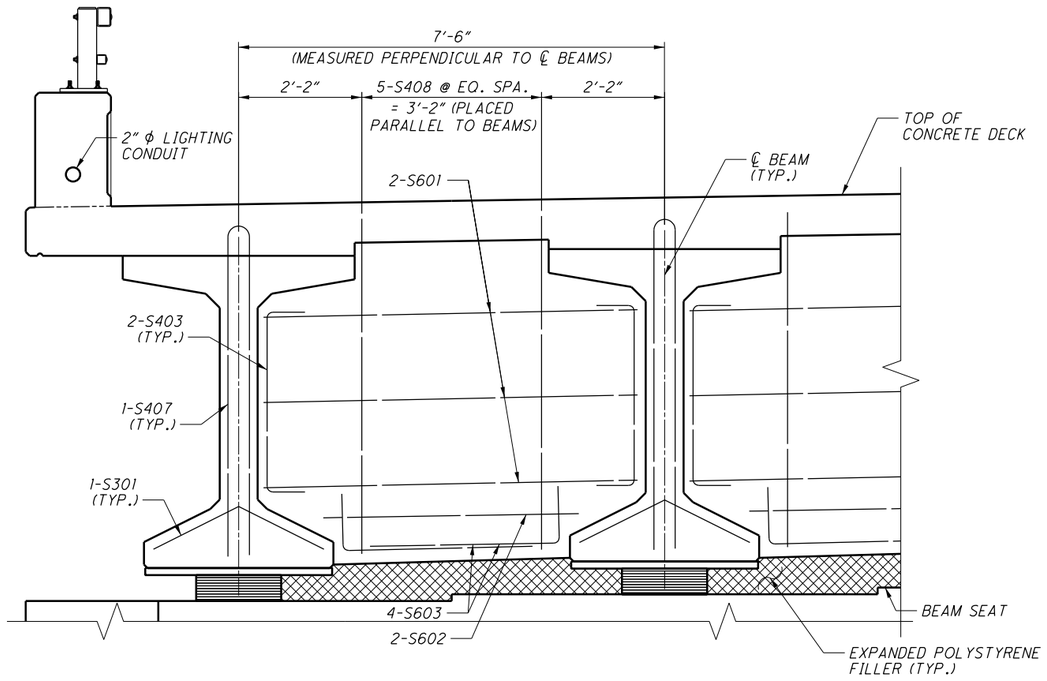
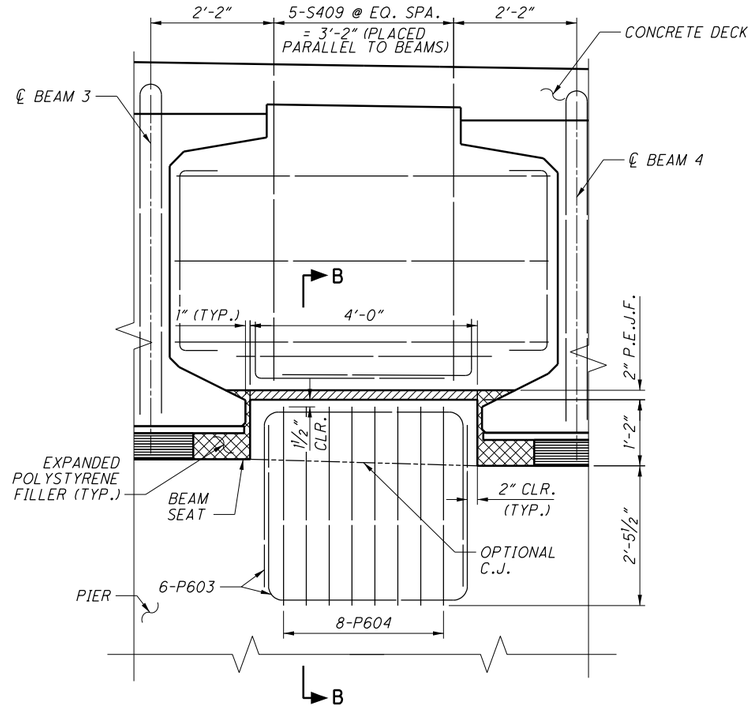
DESIGNED	DRAWN	REVIEWED	DATE
TAS	AEF	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJW		6054145	

END DIAPHRAGM DETAILS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

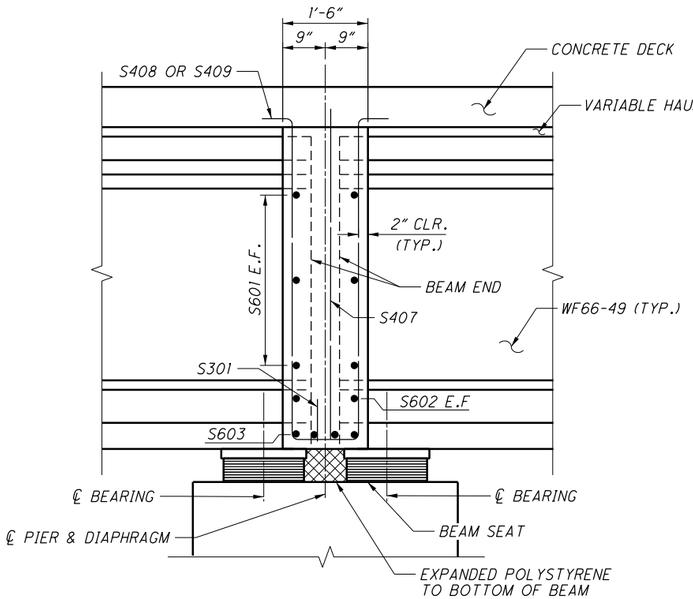
MUS-CR32-0.00
PID No. 97346



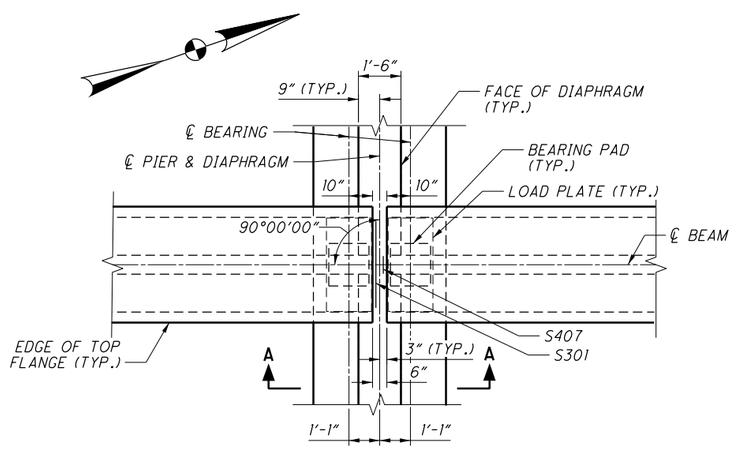
PIER DIAPHRAGM PART ELEVATION
(5 BAYS, LOOKING UPSTATION)



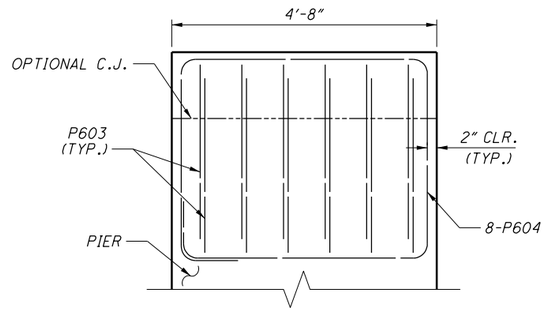
FRONT VIEW OF SEISMIC PEDESTAL
(PIERS 1, 2, & 6)



SECTION A-A
(PIERS 1, 2, 3, 5, & 6)



PIER PARTIAL PLAN



SECTION B-B

NOTES:

1. FOR ADDITIONAL DETAILS AND NOTES NOT SHOWN, SEE ODOT STANDARD DRAWING PSID-1-13.
2. SEISMIC PEDESTALS ARE TO BE INSTALLED ON PIERS 1, 2, AND 6 ONLY.

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CJW		6054145	

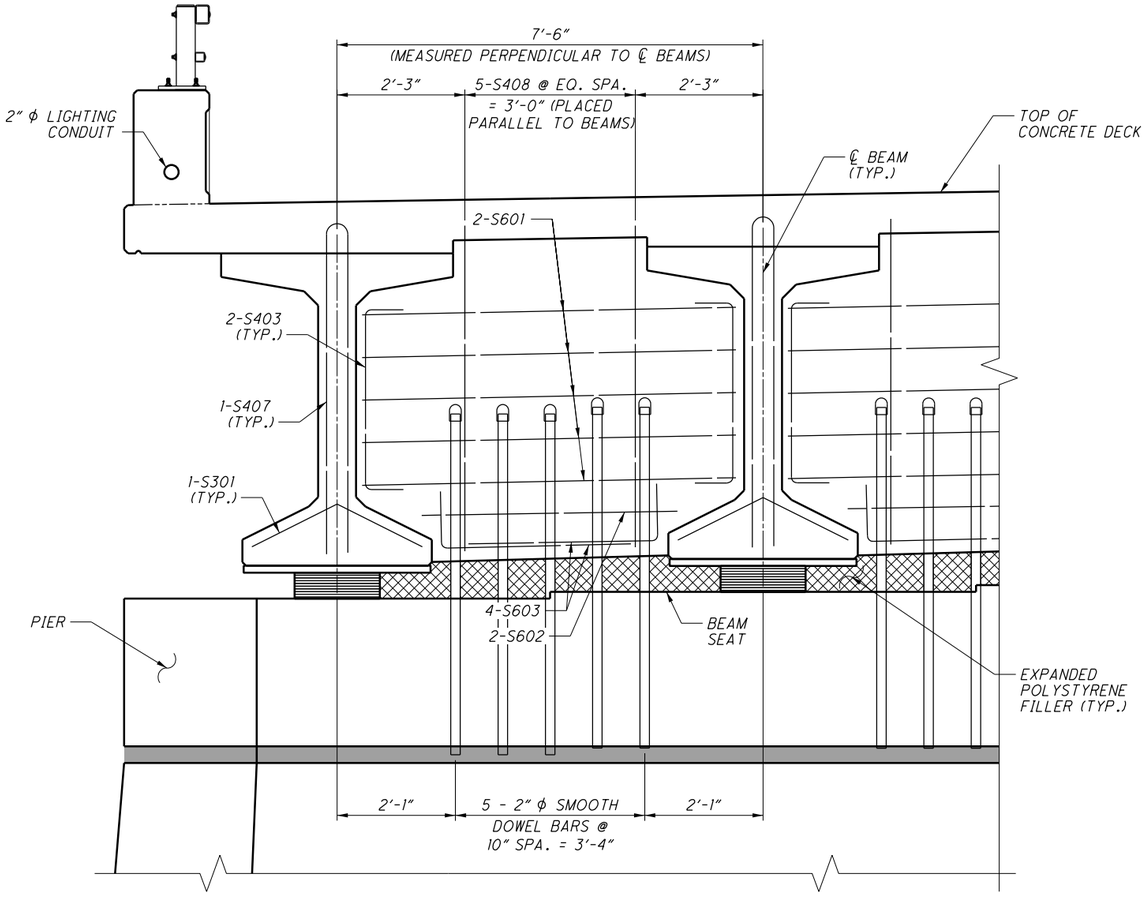
PIERS 1, 2, 3, 5 & 6 DIAPHRAGM DETAILS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

29 / 69

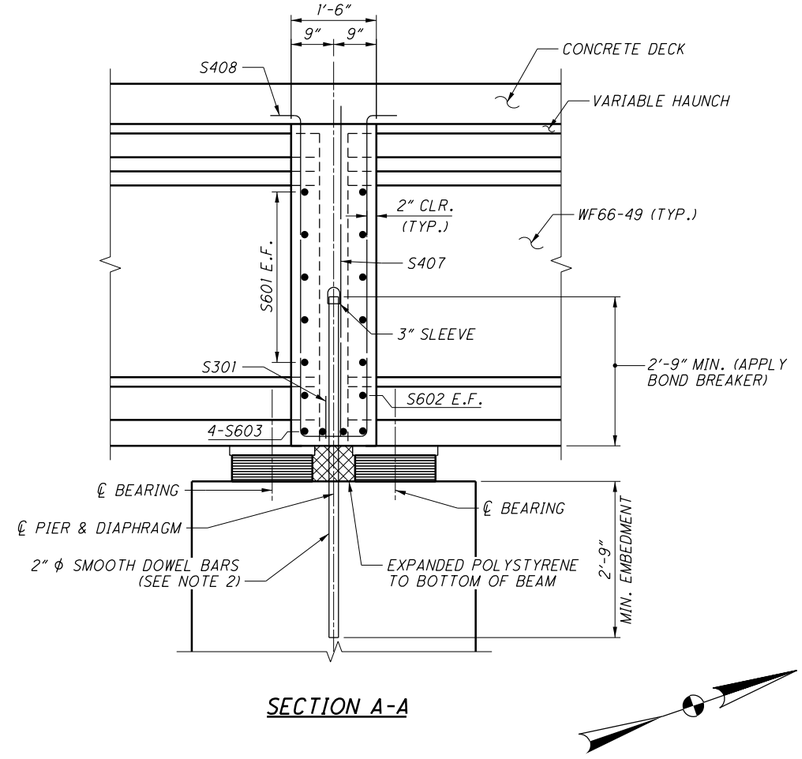
138
192

P:\97346\structures\MUS032_0000C\Sheets\032_0000C_SS011.dgn 10/20/2017 8:10:55 AM tsheldon

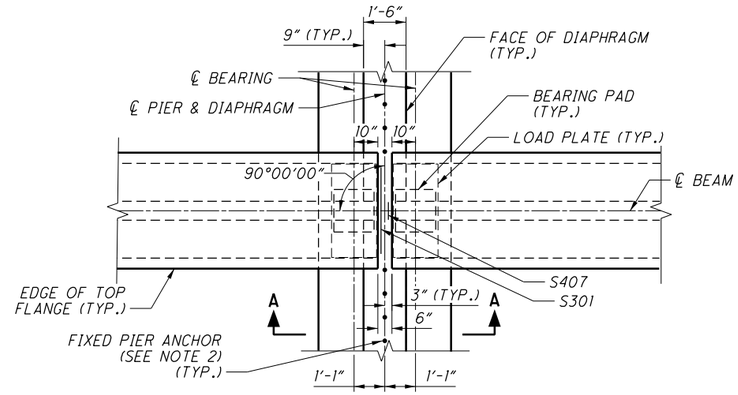


PIER 4 DIAPHRAGM PART ELEVATION

(5 BAYS, LOOKING UPSTATION)



SECTION A-A



PIER PARTIAL PLAN

NOTES:

1. FOR ADDITIONAL DETAILS AND NOTES NOT SHOWN, SEE ODOT STANDARD DRAWING PSID-1-13.
2. 2" ϕ SMOOTH DOWEL BARS ARE **ASTM A311 CLASS A, GRADE 1144,** WITH SLEEVE. DOWEL BARS INCLUDING BOND BREAKER AND SLEEVES SHALL BE PAID FOR UNDER ITEM 513 - STRUCTURAL STEEL MEMEBERS, LEVEL UF, AS PER PLAN.

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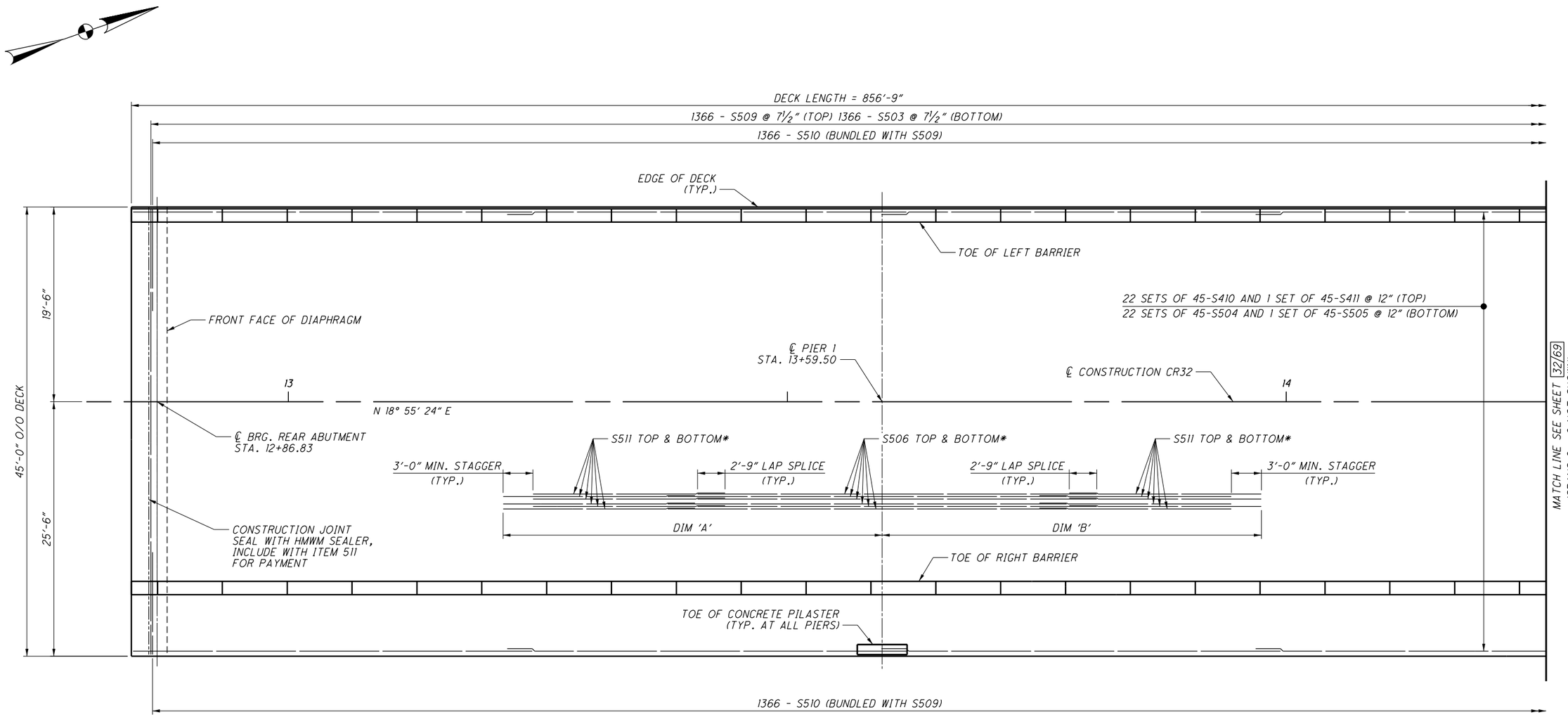
PIER 4 DIAPHRAGM DETAILS

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



DECK PLAN

REQUIRED LAP LENGTHS	
NO. 4 BARS	2'-0" MIN.
NO. 5 BARS	2'-9" MIN.

OVER THE PIER REINFORCING DIMENSIONS		
PIER	DIM 'A'	DIM 'B'
1	38'-0"	38'-0"
2	38'-0"	38'-0"
3	38'-0"	38'-0"
4	38'-0"	38'-0"
5	38'-0"	38'-0"
6	43'-0"	36'-0"

LEGEND:

* - 3 BARS TOP & BOTTOM ARE TO BE EQUALLY SPACED BETWEEN S410 & S504 LONGITUDINAL BARS. BARS ARE STAGGERED AS SHOWN (TYP. @ ALL PIERS)

NOTES:

1. FOR TRANSVERSE SECTION AND ADDITIONAL NOTES, SEE SHEET 33/69.
2. FOR ABUTMENT DETAILS, INCLUDING NO. 8 BARS IN DIAPHRAGM, SEE SHEETS 11/69 THRU 17/69, AND 28/69.
3. FOR SCREED AND TOP OF HAUNCH ELEVATIONS, SEE SHEETS 35/69 THRU 38/69.
4. FOR FINAL DECK SURFACE ELEVATIONS, SEE SHEETS 41/69 THRU 43/69.
5. FOR BARRIER CONTROL JOINT DETAILS AND ADDITIONAL BARRIER TRANSITION DETAILS NOT SHOWN, SEE ODOT STANDARD DRAWINGS BR-2-15 AND SBR-1-13.
6. FOR APPROACH SLAB PLAN, SEE SHEETS 62/69 AND 63/69.
7. DECK POUR SEQUENCE SHALL BE AS PER STANDARD DRAWING PSID-1-13.
8. FOR HAUNCH DETAILS, SEE SHEET 33/69.
9. FOR BARRIER AND RAILING DETAILS, INCLUDING BARRIER REINFORCING AND RAILING ANCHORAGE TO BE CAST WITH THE DECK, SEE SHEETS 44/69 THRU 57/69.

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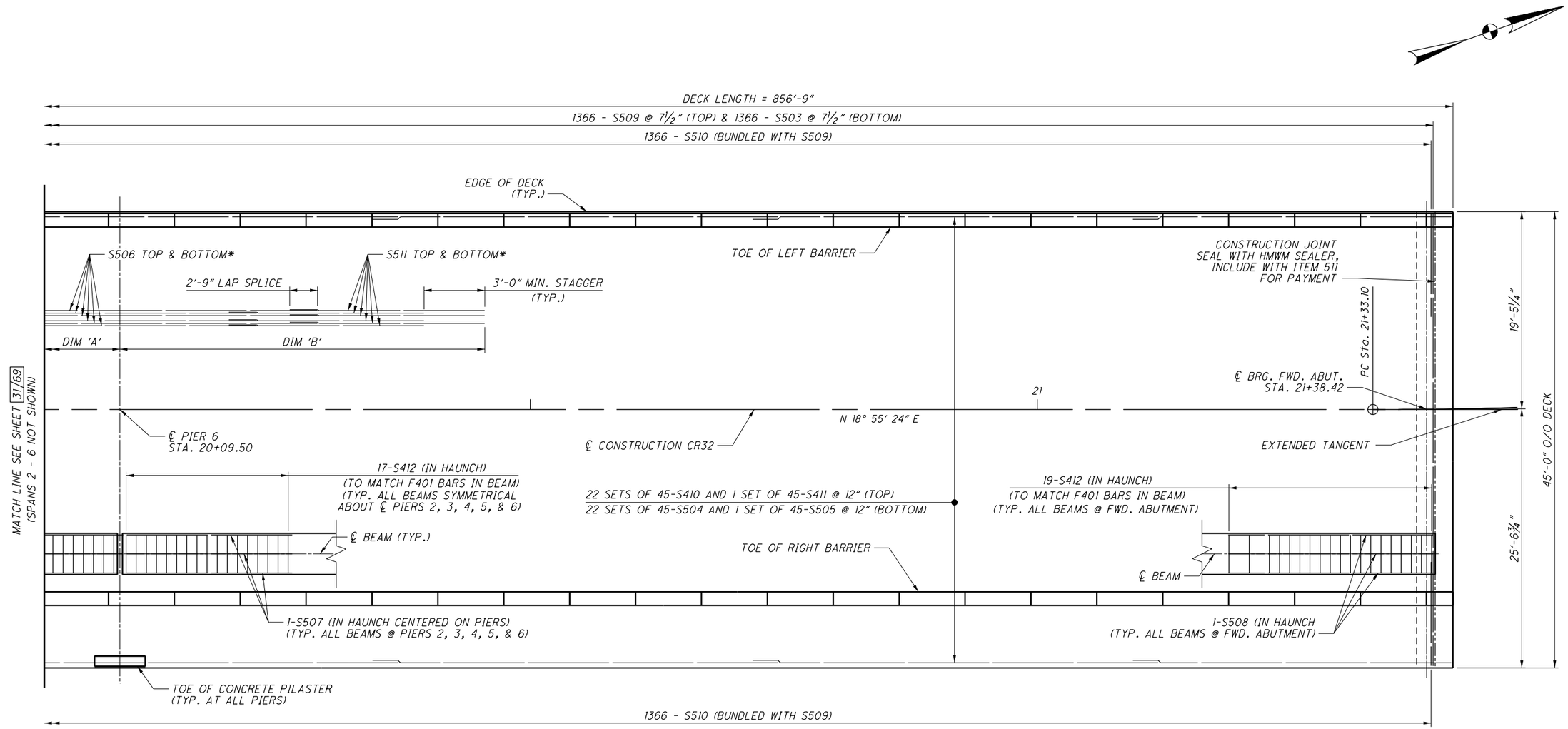
DECK PLAN (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



DECK PLAN

REQUIRED LAP LENGTHS	
NO. 4 BARS	2'-0" MIN.
NO. 5 BARS	2'-9" MIN.

LEGEND:

* - 3 BARS TOP & BOTTOM ARE TO BE EQUALLY SPACED BETWEEN S410 & S504 LONGITUDINAL BARS. BARS ARE STAGGERED AS SHOWN (TYP. @ ALL PIERS)

NOTES:

1. FOR NOTES, SEE SHEET 31/69.
2. FOR ADDITIONAL OVER-THE-PIER REINFORCING DETAILS AS WELL AS DIM 'A' AND DIM 'B', SEE SHEET 31/69.

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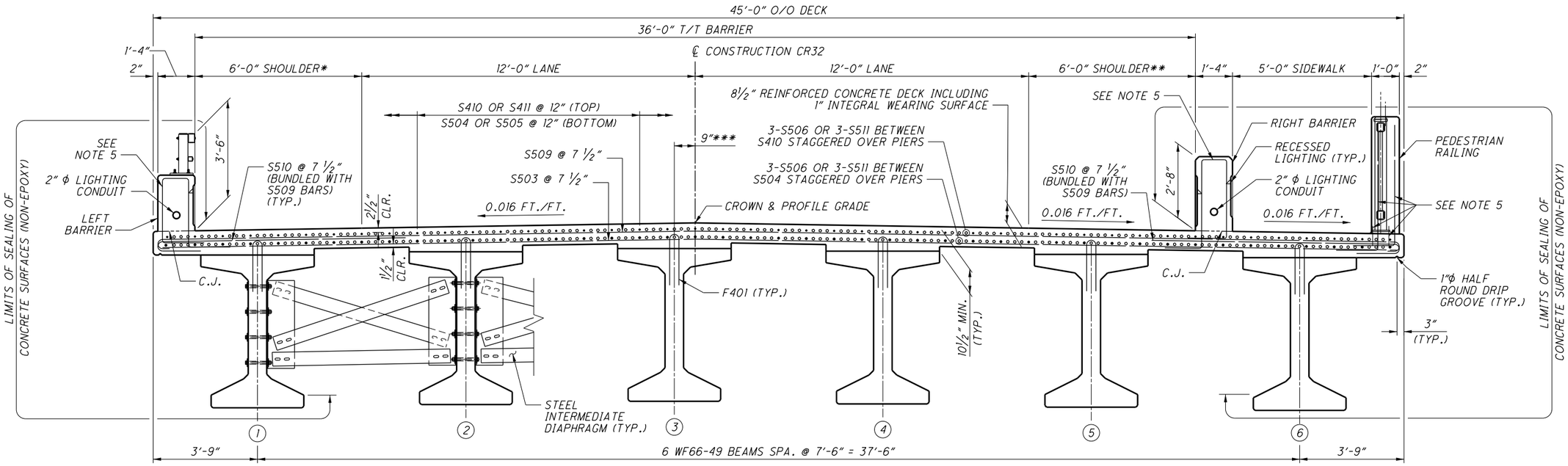
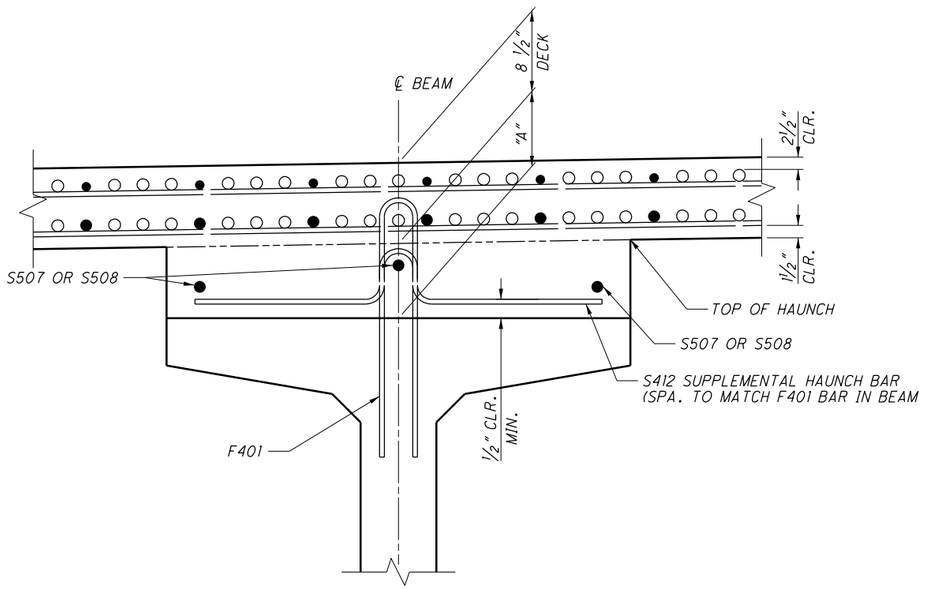
DECK PLAN (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



TRANSVERSE SECTION



HAUNCH REINFORCEMENT

(THE SUPPLEMENTAL HAUNCH BAR IS NOT REQUIRED WHERE "A" < 4")

LEGEND:

(#) - BEAM LINE DESIGNATION

* - VARIES BETWEEN 5'-10⅝" AND 6'-0" FROM STA. 21+33.10 TO STA. 21+75.16

** - VARIES BETWEEN 6'-0" AND 6'-1¼" FROM STA. 21+33.10 TO STA. 21+72.23

*** - VARIES FROM 0'-9" TO 0'-8½" FROM STA 21+33.10 TO STA. 21+39.26

'A' - HAUNCH DEPTH MEASURED AT THE BEAM CENTERLINE AT ANY POINT ALONG ITS LENGTH

NOTES:

1. FOR DECK PLAN AND HAUNCH REINFORCEMENT LOCATIONS, SEE SHEETS 31/69 AND 32/69.
2. FOR LOCATION OF BEAM LINES, SEE SHEETS 20/69 AND 21/69.
3. DECK SLAB THICKNESS FOR CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK CONCRETE IS MEASURED ACCORDING TO C&MS 511. IN ADDITION TO THE DESIGN SLAB THICKNESS, THE QUANTITY INCLUDES A VARIABLE HAUNCH THICKNESS THAT PROVIDES AN ALLOWANCE FOR: VERTICAL GRADE ADJUSTMENT, BEAM CAMBER AND ADDITIONAL SACRIFICIAL HAUNCH THICKNESS.
4. FOR STEEL INTERMEDIATE DIAPHRAGM DETAILS, SEE ODOT STANDARD DRAWING PSID-1-13.
5. FOR BARRIER AND RAILING DETAILS, INCLUDING BARRIER REINFORCING AND RAILING ANCHORAGE TO BE CAST WITH THE DECK, SEE SHEETS 44/69 THRU 57/69 .
6. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.

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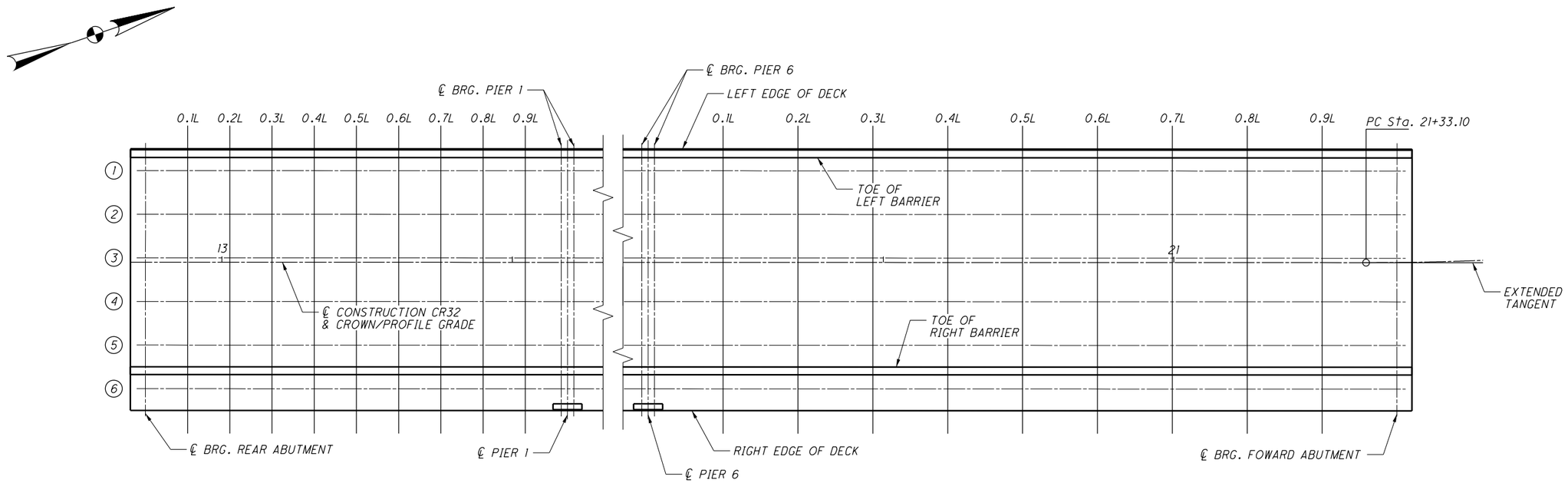
TRANSVERSE SECTION
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

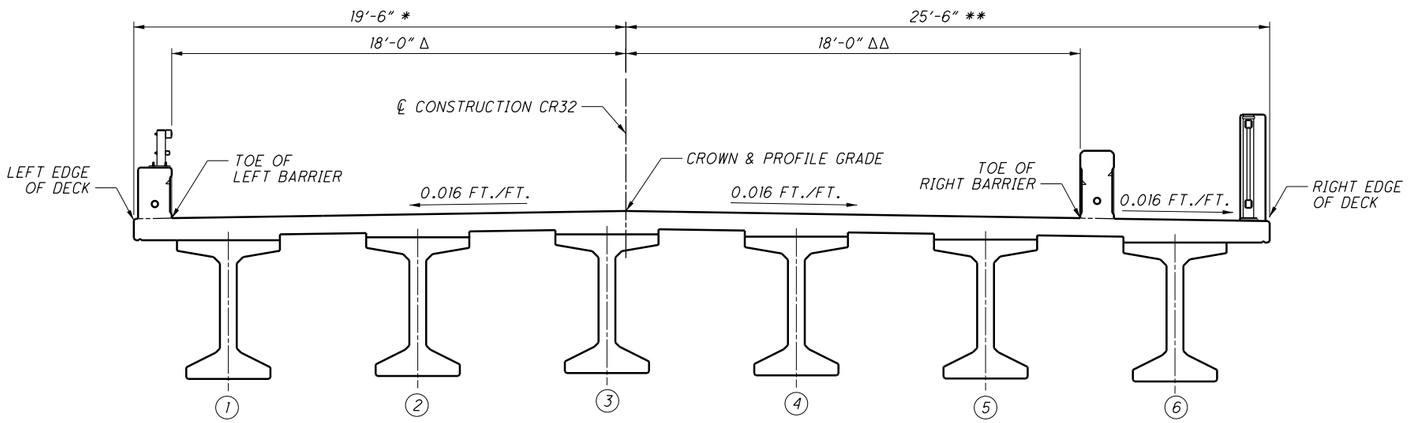
MUS-CR32-0.00
PID No. 97346

33 / 69

142 / 192



KEY PLAN



TRANSVERSE SECTION

LEGEND:

(#) - BEAM LINE DESIGNATION

* - VARIES FROM 19′-6″ TO 19′-5¼″ FROM STA. 21+33.10 TO STA. 21+41.32

** - VARIES FROM 25′-6″ TO 25′-6¾″ FROM STA. 21+33.10 TO STA. 21+40.62

Δ - VARIES FROM 18′-0″ TO 17′-11¼″ FROM STA 21+33.10 TO STA. 21+41.29

ΔΔ - VARIES FROM 18′-0″ TO 18′-0¾″ FROM STA 21+33.10 TO STA. 21+40.73

BEAM LINE 1 IS MADE UP OF BEAMS B1, B7, B13, B19, B25, B31 AND B37.
BEAM LINE 2 IS MADE UP OF BEAMS B2, B8, B14, B20, B26, B32 AND B38.
BEAM LINE 3 IS MADE UP OF BEAMS B3, B9, B15, B21, B27, B33 AND B39.
BEAM LINE 4 IS MADE UP OF BEAMS B4, B10, B16, B22, B28, B34 AND B40.
BEAM LINE 5 IS MADE UP OF BEAMS B5, B11, B17, B23, B29, B35 AND B41.
BEAM LINE 6 IS MADE UP OF BEAMS B6, B12, B18, B24, B30, B36 AND B42.

NOTES:

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
2. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM/GIRDER HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
3. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.
4. FOR SCREED, TOP OF HAUNCH AND FINAL DECK ELEVATIONS, SEE SHEETS 35/69 THRU 38/69 AND 41/69 THRU 43/69.

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KEY PLAN
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

SCREED ELEVATIONS

	LOCATION	LEFT EDGE OF DECK			TOE OF LEFT BARRIER			PROFILE GRADE		TOE OF RIGHT BARRIER			RIGHT EDGE OF DECK		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ BRG. R.A.	12+86.83	19.50 LT.	697.32	12+86.83	18.00 LT.	697.35	12+86.83	697.64	12+86.83	18.00 RT.	697.35	12+86.83	25.50 RT.	697.23
SPAN 1	0.1L	12+94.10	19.50 LT.	697.44	12+94.10	18.00 LT.	697.46	12+94.10	697.75	12+94.10	18.00 RT.	697.46	12+94.10	25.50 RT.	697.34
	0.2L	13+01.36	19.50 LT.	697.54	13+01.36	18.00 LT.	697.57	13+01.36	697.85	13+01.36	18.00 RT.	697.57	13+01.36	25.50 RT.	697.45
	0.3L	13+08.63	19.50 LT.	697.64	13+08.63	18.00 LT.	697.66	13+08.63	697.95	13+08.63	18.00 RT.	697.66	13+08.63	25.50 RT.	697.54
	0.4L	13+15.90	19.50 LT.	697.72	13+15.90	18.00 LT.	697.75	13+15.90	698.03	13+15.90	18.00 RT.	697.75	13+15.90	25.50 RT.	697.63
	0.5L	13+23.17	19.50 LT.	697.80	13+23.17	18.00 LT.	697.83	13+23.17	698.11	13+23.17	18.00 RT.	697.82	13+23.17	25.50 RT.	697.71
	0.6L	13+30.43	19.50 LT.	697.87	13+30.43	18.00 LT.	697.89	13+30.43	698.18	13+30.43	18.00 RT.	697.89	13+30.43	25.50 RT.	697.77
	0.7L	13+37.70	19.50 LT.	697.93	13+37.70	18.00 LT.	697.95	13+37.70	698.24	13+37.70	18.00 RT.	697.95	13+37.70	25.50 RT.	697.83
	0.8L	13+44.97	19.50 LT.	697.98	13+44.97	18.00 LT.	698.00	13+44.97	698.29	13+44.97	18.00 RT.	698.00	13+44.97	25.50 RT.	697.88
	0.9L	13+52.23	19.50 LT.	698.02	13+52.23	18.00 LT.	698.04	13+52.23	698.33	13+52.23	18.00 RT.	698.04	13+52.23	25.50 RT.	697.92
	℄ PIER 1	13+59.50	19.50 LT.	698.05	13+59.50	18.00 LT.	698.08	13+59.50	698.36	13+59.50	18.00 RT.	698.08	13+59.50	25.50 RT.	697.96
SPAN 2	0.1L	13+72.50	19.50 LT.	698.15	13+72.50	18.00 LT.	698.18	13+72.50	698.46	13+72.50	18.00 RT.	698.18	13+72.50	25.50 RT.	698.06
	0.2L	13+85.50	19.50 LT.	698.23	13+85.50	18.00 LT.	698.25	13+85.50	698.54	13+85.50	18.00 RT.	698.25	13+85.50	25.50 RT.	698.13
	0.3L	13+98.50	19.50 LT.	698.27	13+98.50	18.00 LT.	698.29	13+98.50	698.57	13+98.50	18.00 RT.	698.29	13+98.50	25.50 RT.	698.17
	0.4L	14+11.50	19.50 LT.	698.27	14+11.50	18.00 LT.	698.30	14+11.50	698.58	14+11.50	18.00 RT.	698.29	14+11.50	25.50 RT.	698.18
	0.5L	14+24.50	19.50 LT.	698.23	14+24.50	18.00 LT.	698.26	14+24.50	698.54	14+24.50	18.00 RT.	698.25	14+24.50	25.50 RT.	698.14
	0.6L	14+37.50	19.50 LT.	698.16	14+37.50	18.00 LT.	698.18	14+37.50	698.46	14+37.50	18.00 RT.	698.17	14+37.50	25.50 RT.	698.06
	0.7L	14+50.50	19.50 LT.	698.03	14+50.50	18.00 LT.	698.06	14+50.50	698.34	14+50.50	18.00 RT.	698.05	14+50.50	25.50 RT.	697.94
	0.8L	14+63.50	19.50 LT.	697.89	14+63.50	18.00 LT.	697.91	14+63.50	698.20	14+63.50	18.00 RT.	697.91	14+63.50	25.50 RT.	697.79
	0.9L	14+76.50	19.50 LT.	697.73	14+76.50	18.00 LT.	697.76	14+76.50	698.04	14+76.50	18.00 RT.	697.75	14+76.50	25.50 RT.	697.64
	℄ PIER 2	14+89.50	19.50 LT.	697.57	14+89.50	18.00 LT.	697.60	14+89.50	697.89	14+89.50	18.00 RT.	697.60	14+89.50	25.50 RT.	697.48
SPAN 3	0.1L	15+02.50	19.50 LT.	697.52	15+02.50	18.00 LT.	697.54	15+02.50	697.83	15+02.50	18.00 RT.	697.54	15+02.50	25.50 RT.	697.42
	0.2L	15+15.50	19.50 LT.	697.46	15+15.50	18.00 LT.	697.49	15+15.50	697.77	15+15.50	18.00 RT.	697.48	15+15.50	25.50 RT.	697.37
	0.3L	15+28.50	19.50 LT.	697.40	15+28.50	18.00 LT.	697.42	15+28.50	697.70	15+28.50	18.00 RT.	697.41	15+28.50	25.50 RT.	697.30
	0.4L	15+41.50	19.50 LT.	697.31	15+41.50	18.00 LT.	697.34	15+41.50	697.62	15+41.50	18.00 RT.	697.33	15+41.50	25.50 RT.	697.22
	0.5L	15+54.50	19.50 LT.	697.22	15+54.50	18.00 LT.	697.24	15+54.50	697.52	15+54.50	18.00 RT.	697.23	15+54.50	25.50 RT.	697.12
	0.6L	15+67.50	19.50 LT.	697.10	15+67.50	18.00 LT.	697.12	15+67.50	697.40	15+67.50	18.00 RT.	697.12	15+67.50	25.50 RT.	697.00
	0.7L	15+80.50	19.50 LT.	696.97	15+80.50	18.00 LT.	696.99	15+80.50	697.27	15+80.50	18.00 RT.	696.99	15+80.50	25.50 RT.	696.87
	0.8L	15+93.50	19.50 LT.	696.82	15+93.50	18.00 LT.	696.85	15+93.50	697.13	15+93.50	18.00 RT.	696.84	15+93.50	25.50 RT.	696.73
	0.9L	16+06.50	19.50 LT.	696.67	16+06.50	18.00 LT.	696.69	16+06.50	696.98	16+06.50	18.00 RT.	696.69	16+06.50	25.50 RT.	696.57
	℄ PIER 3	16+19.50	19.50 LT.	696.51	16+19.50	18.00 LT.	696.53	16+19.50	696.82	16+19.50	18.00 RT.	696.53	16+19.50	25.50 RT.	696.41
SPAN 4	0.1L	16+32.50	19.50 LT.	696.45	16+32.50	18.00 LT.	696.48	16+32.50	696.76	16+32.50	18.00 RT.	696.48	16+32.50	25.50 RT.	696.36
	0.2L	16+45.50	19.50 LT.	696.40	16+45.50	18.00 LT.	696.42	16+45.50	696.70	16+45.50	18.00 RT.	696.42	16+45.50	25.50 RT.	696.30
	0.3L	16+58.50	19.50 LT.	696.33	16+58.50	18.00 LT.	696.35	16+58.50	696.63	16+58.50	18.00 RT.	696.35	16+58.50	25.50 RT.	696.23
	0.4L	16+71.50	19.50 LT.	696.25	16+71.50	18.00 LT.	696.27	16+71.50	696.55	16+71.50	18.00 RT.	696.27	16+71.50	25.50 RT.	696.15
	0.5L	16+84.50	19.50 LT.	696.15	16+84.50	18.00 LT.	696.17	16+84.50	696.45	16+84.50	18.00 RT.	696.17	16+84.50	25.50 RT.	696.05
	0.6L	16+97.50	19.50 LT.	696.03	16+97.50	18.00 LT.	696.06	16+97.50	696.34	16+97.50	18.00 RT.	696.05	16+97.50	25.50 RT.	695.94
	0.7L	17+10.50	19.50 LT.	695.90	17+10.50	18.00 LT.	695.93	17+10.50	696.21	17+10.50	18.00 RT.	695.92	17+10.50	25.50 RT.	695.81
	0.8L	17+23.50	19.50 LT.	695.76	17+23.50	18.00 LT.	695.78	17+23.50	696.06	17+23.50	18.00 RT.	695.78	17+23.50	25.50 RT.	695.66
	0.9L	17+36.50	19.50 LT.	695.60	17+36.50	18.00 LT.	695.62	17+36.50	695.91	17+36.50	18.00 RT.	695.62	17+36.50	25.50 RT.	695.50
	℄ PIER 4	17+49.50	19.50 LT.	695.44	17+49.50	18.00 LT.	695.47	17+49.50	695.75	17+49.50	18.00 RT.	695.47	17+49.50	25.50 RT.	695.35
SPAN 5	0.1L	17+62.50	19.50 LT.	695.39	17+62.50	18.00 LT.	695.41	17+62.50	695.70	17+62.50	18.00 RT.	695.41	17+62.50	25.50 RT.	695.29
	0.2L	17+75.50	19.50 LT.	695.33	17+75.50	18.00 LT.	695.35	17+75.50	695.64	17+75.50	18.00 RT.	695.35	17+75.50	25.50 RT.	695.23
	0.3L	17+88.50	19.50 LT.	695.26	17+88.50	18.00 LT.	695.29	17+88.50	695.57	17+88.50	18.00 RT.	695.28	17+88.50	25.50 RT.	695.17
	0.4L	18+01.50	19.50 LT.	695.18	18+01.50	18.00 LT.	695.21	18+01.50	695.48	18+01.50	18.00 RT.	695.20	18+01.50	25.50 RT.	695.09
	0.5L	18+14.50	19.50 LT.	695.08	18+14.50	18.00 LT.	695.11	18+14.50	695.39	18+14.50	18.00 RT.	695.10	18+14.50	25.50 RT.	694.99
	0.6L	18+27.50	19.50 LT.	694.97	18+27.50	18.00 LT.	694.99	18+27.50	695.27	18+27.50	18.00 RT.	694.99	18+27.50	25.50 RT.	694.87
	0.7L	18+40.50	19.50 LT.	694.84	18+40.50	18.00 LT.	694.86	18+40.50	695.14	18+40.50	18.00 RT.	694.86	18+40.50	25.50 RT.	694.74
	0.8L	18+53.50	19.50 LT.	694.69	18+53.50	18.00 LT.	694.72	18+53.50	695.00	18+53.50	18.00 RT.	694.71	18+53.50	25.50 RT.	694.60
	0.9L	18+66.50	19.50 LT.	694.53	18+66.50	18.00 LT.	694.56	18+66.50	694.84	18+66.50	18.00 RT.	694.56	18+66.50	25.50 RT.	694.44
	℄ PIER 5	18+79.50	19.50 LT.	694.38	18+79.50	18.00 LT.	694.40	18+79.50	694.69	18+79.50	18.00 RT.	694.40	18+79.50	25.50 RT.	694.28

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR TOP OF HAUNCH AND FINAL DECK ELEVATIONS, SEE SHEETS 37/69, 38/69, AND 41/69 THRU 43/69.
3. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.
4. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

SCREED ELEVATIONS (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

SCREED ELEVATIONS (CONTINUED)

	LOCATION	LEFT EDGE OF DECK			TOE OF LEFT BARRIER			PROFILE GRADE		TOE OF RIGHT BARRIER			RIGHT EDGE OF DECK		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ PIER 5	18+79.50	19.50 LT.	694.38	18+79.50	18.00 LT.	694.40	18+79.50	694.69	18+79.50	18.00 RT.	694.40	18+79.50	25.50 RT.	694.28
SPAN 6	0.1L	18+92.50	19.50 LT.	694.32	18+92.50	18.00 LT.	694.35	18+92.50	694.63	18+92.50	18.00 RT.	694.34	18+92.50	25.50 RT.	694.23
SPAN 6	0.2L	19+05.50	19.50 LT.	694.26	19+05.50	18.00 LT.	694.29	19+05.50	694.57	19+05.50	18.00 RT.	694.29	19+05.50	25.50 RT.	694.17
SPAN 6	0.3L	19+18.50	19.50 LT.	694.20	19+18.50	18.00 LT.	694.22	19+18.50	694.50	19+18.50	18.00 RT.	694.22	19+18.50	25.50 RT.	694.10
SPAN 6	0.4L	19+31.50	19.50 LT.	694.12	19+31.50	18.00 LT.	694.14	19+31.50	694.42	19+31.50	18.00 RT.	694.13	19+31.50	25.50 RT.	694.02
SPAN 6	0.5L	19+44.50	19.50 LT.	694.02	19+44.50	18.00 LT.	694.04	19+44.50	694.32	19+44.50	18.00 RT.	694.04	19+44.50	25.50 RT.	693.92
SPAN 6	0.6L	19+57.50	19.50 LT.	693.90	19+57.50	18.00 LT.	693.93	19+57.50	694.20	19+57.50	18.00 RT.	693.92	19+57.50	25.50 RT.	693.81
SPAN 6	0.7L	19+70.50	19.50 LT.	693.77	19+70.50	18.00 LT.	693.79	19+70.50	694.07	19+70.50	18.00 RT.	693.79	19+70.50	25.50 RT.	693.67
SPAN 6	0.8L	19+83.50	19.50 LT.	693.63	19+83.50	18.00 LT.	693.65	19+83.50	693.93	19+83.50	18.00 RT.	693.65	19+83.50	25.50 RT.	693.53
SPAN 6	0.9L	19+96.50	19.50 LT.	693.47	19+96.50	18.00 LT.	693.49	19+96.50	693.78	19+96.50	18.00 RT.	693.49	19+96.50	25.50 RT.	693.37
	℄ PIER 6	20+09.50	19.50 LT.	693.31	20+09.50	18.00 LT.	693.33	20+09.50	693.62	20+09.50	18.00 RT.	693.33	20+09.50	25.50 RT.	693.21
SPAN 7	0.1L	20+22.39	19.50 LT.	693.26	20+22.39	18.00 LT.	693.28	20+22.39	693.57	20+22.39	18.00 RT.	693.28	20+22.39	25.50 RT.	693.16
SPAN 7	0.2L	20+35.28	19.50 LT.	693.20	20+35.28	18.00 LT.	693.22	20+35.28	693.51	20+35.28	18.00 RT.	693.22	20+35.28	25.50 RT.	693.10
SPAN 7	0.3L	20+48.18	19.50 LT.	693.13	20+48.18	18.00 LT.	693.16	20+48.18	693.44	20+48.18	18.00 RT.	693.15	20+48.18	25.50 RT.	693.04
SPAN 7	0.4L	20+61.07	19.50 LT.	693.05	20+61.07	18.00 LT.	693.08	20+61.07	693.36	20+61.07	18.00 RT.	693.07	20+61.07	25.50 RT.	692.96
SPAN 7	0.5L	20+73.96	19.50 LT.	692.96	20+73.96	18.00 LT.	692.98	20+73.96	693.26	20+73.96	18.00 RT.	692.97	20+73.96	25.50 RT.	692.86
SPAN 7	0.6L	20+86.85	19.50 LT.	692.84	20+86.85	18.00 LT.	692.87	20+86.85	693.14	20+86.85	18.00 RT.	692.86	20+86.85	25.50 RT.	692.75
SPAN 7	0.7L	20+99.74	19.50 LT.	692.71	20+99.74	18.00 LT.	692.74	20+99.74	693.01	20+99.74	18.00 RT.	692.73	20+99.74	25.50 RT.	692.62
SPAN 7	0.8L	21+12.63	19.50 LT.	692.57	21+12.63	18.00 LT.	692.59	21+12.63	692.87	21+12.63	18.00 RT.	692.59	21+12.63	25.50 RT.	692.47
SPAN 7	0.9L	21+25.53	19.50 LT.	692.43	21+25.53	18.00 LT.	692.46	21+25.53	692.74	21+25.53	18.00 RT.	692.46	21+25.53	25.50 RT.	692.34
	℄ BRG. F.A.	21+38.63	19.47 LT.	692.33	21+38.61	17.97 LT.	692.35	21+38.42	692.64	21+38.23	18.03 RT.	692.35	21+38.16	25.53 RT.	692.23

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR TOP OF HAUNCH AND FINAL DECK ELEVATIONS, SEE SHEETS 37/69, 38/69, AND 41/69 THRU 43/69.
3. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.
4. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

SCREED ELEVATIONS (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

TOP OF HAUNCH ELEVATIONS

	LOCATION	BEAM 1			BEAM 2			BEAM 3			BEAM 4			BEAM 5			BEAM 6		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ BRG. R.A.	12+86.83	15.75 LT.	696.68	12+86.83	8.25 LT.	696.80	12+86.83	0.75 LT.	696.92	12+86.83	6.75 RT.	696.82	12+86.83	14.25 RT.	696.70	12+86.83	21.75 RT.	696.58
SPAN 1	0.1L	12+94.10	15.75 LT.	696.79	12+94.10	8.25 LT.	696.91	12+94.10	0.75 LT.	697.03	12+94.10	6.75 RT.	696.93	12+94.10	14.25 RT.	696.81	12+94.10	21.75 RT.	696.69
	0.2L	13+01.36	15.75 LT.	696.89	13+01.36	8.25 LT.	697.01	13+01.36	0.75 LT.	697.13	13+01.36	6.75 RT.	697.04	13+01.36	14.25 RT.	696.92	13+01.36	21.75 RT.	696.80
	0.3L	13+08.63	15.75 LT.	696.99	13+08.63	8.25 LT.	697.11	13+08.63	0.75 LT.	697.23	13+08.63	6.75 RT.	697.13	13+08.63	14.25 RT.	697.01	13+08.63	21.75 RT.	696.89
	0.4L	13+15.90	15.75 LT.	697.08	13+15.90	8.25 LT.	697.19	13+15.90	0.75 LT.	697.31	13+15.90	6.75 RT.	697.22	13+15.90	14.25 RT.	697.10	13+15.90	21.75 RT.	696.98
	0.5L	13+23.17	15.75 LT.	697.15	13+23.17	8.25 LT.	697.27	13+23.17	0.75 LT.	697.39	13+23.17	6.75 RT.	697.30	13+23.17	14.25 RT.	697.18	13+23.17	21.75 RT.	697.06
	0.6L	13+30.43	15.75 LT.	697.22	13+30.43	8.25 LT.	697.34	13+30.43	0.75 LT.	697.46	13+30.43	6.75 RT.	697.36	13+30.43	14.25 RT.	697.24	13+30.43	21.75 RT.	697.13
	0.7L	13+37.70	15.75 LT.	697.28	13+37.70	8.25 LT.	697.40	13+37.70	0.75 LT.	697.52	13+37.70	6.75 RT.	697.42	13+37.70	14.25 RT.	697.30	13+37.70	21.75 RT.	697.18
	0.8L	13+44.97	15.75 LT.	697.33	13+44.97	8.25 LT.	697.45	13+44.97	0.75 LT.	697.57	13+44.97	6.75 RT.	697.47	13+44.97	14.25 RT.	697.35	13+44.97	21.75 RT.	697.23
	0.9L	13+52.23	15.75 LT.	697.37	13+52.23	8.25 LT.	697.49	13+52.23	0.75 LT.	697.61	13+52.23	6.75 RT.	697.51	13+52.23	14.25 RT.	697.39	13+52.23	21.75 RT.	697.27
	℄ PIER 1	13+59.50	15.75 LT.	697.40	13+59.50	8.25 LT.	697.52	13+59.50	0.75 LT.	697.64	13+59.50	6.75 RT.	697.55	13+59.50	14.25 RT.	697.43	13+59.50	21.75 RT.	697.31
SPAN 2	0.1L	13+72.50	15.75 LT.	697.51	13+72.50	8.25 LT.	697.62	13+72.50	0.75 LT.	697.74	13+72.50	6.75 RT.	697.65	13+72.50	14.25 RT.	697.53	13+72.50	21.75 RT.	697.41
	0.2L	13+85.50	15.75 LT.	697.58	13+85.50	8.25 LT.	697.70	13+85.50	0.75 LT.	697.82	13+85.50	6.75 RT.	697.72	13+85.50	14.25 RT.	697.60	13+85.50	21.75 RT.	697.49
	0.3L	13+98.50	15.75 LT.	697.62	13+98.50	8.25 LT.	697.73	13+98.50	0.75 LT.	697.85	13+98.50	6.75 RT.	697.76	13+98.50	14.25 RT.	697.64	13+98.50	21.75 RT.	697.53
	0.4L	14+11.50	15.75 LT.	697.62	14+11.50	8.25 LT.	697.73	14+11.50	0.75 LT.	697.85	14+11.50	6.75 RT.	697.76	14+11.50	14.25 RT.	697.64	14+11.50	21.75 RT.	697.53
	0.5L	14+24.50	15.75 LT.	697.59	14+24.50	8.25 LT.	697.70	14+24.50	0.75 LT.	697.82	14+24.50	6.75 RT.	697.72	14+24.50	14.25 RT.	697.60	14+24.50	21.75 RT.	697.49
	0.6L	14+37.50	15.75 LT.	697.51	14+37.50	8.25 LT.	697.62	14+37.50	0.75 LT.	697.74	14+37.50	6.75 RT.	697.64	14+37.50	14.25 RT.	697.52	14+37.50	21.75 RT.	697.41
	0.7L	14+50.50	15.75 LT.	697.39	14+50.50	8.25 LT.	697.50	14+50.50	0.75 LT.	697.62	14+50.50	6.75 RT.	697.52	14+50.50	14.25 RT.	697.40	14+50.50	21.75 RT.	697.29
	0.8L	14+63.50	15.75 LT.	697.24	14+63.50	8.25 LT.	697.35	14+63.50	0.75 LT.	697.47	14+63.50	6.75 RT.	697.38	14+63.50	14.25 RT.	697.26	14+63.50	21.75 RT.	697.14
	0.9L	14+76.50	15.75 LT.	697.08	14+76.50	8.25 LT.	697.20	14+76.50	0.75 LT.	697.32	14+76.50	6.75 RT.	697.23	14+76.50	14.25 RT.	697.11	14+76.50	21.75 RT.	696.99
	℄ PIER 2	14+89.50	15.75 LT.	696.93	14+89.50	8.25 LT.	697.05	14+89.50	0.75 LT.	697.17	14+89.50	6.75 RT.	697.07	14+89.50	14.25 RT.	696.95	14+89.50	21.75 RT.	696.83
SPAN 3	0.1L	15+02.50	15.75 LT.	696.87	15+02.50	8.25 LT.	696.99	15+02.50	0.75 LT.	697.11	15+02.50	6.75 RT.	697.01	15+02.50	14.25 RT.	696.89	15+02.50	21.75 RT.	696.77
	0.2L	15+15.50	15.75 LT.	696.81	15+15.50	8.25 LT.	696.93	15+15.50	0.75 LT.	697.05	15+15.50	6.75 RT.	696.95	15+15.50	14.25 RT.	696.83	15+15.50	21.75 RT.	696.72
	0.3L	15+28.50	15.75 LT.	696.75	15+28.50	8.25 LT.	696.86	15+28.50	0.75 LT.	696.98	15+28.50	6.75 RT.	696.88	15+28.50	14.25 RT.	696.76	15+28.50	21.75 RT.	696.65
	0.4L	15+41.50	15.75 LT.	696.67	15+41.50	8.25 LT.	696.78	15+41.50	0.75 LT.	696.90	15+41.50	6.75 RT.	696.80	15+41.50	14.25 RT.	696.68	15+41.50	21.75 RT.	696.57
	0.5L	15+54.50	15.75 LT.	696.57	15+54.50	8.25 LT.	696.68	15+54.50	0.75 LT.	696.80	15+54.50	6.75 RT.	696.70	15+54.50	14.25 RT.	696.58	15+54.50	21.75 RT.	696.47
	0.6L	15+67.50	15.75 LT.	696.45	15+67.50	8.25 LT.	696.56	15+67.50	0.75 LT.	696.68	15+67.50	6.75 RT.	696.59	15+67.50	14.25 RT.	696.47	15+67.50	21.75 RT.	696.36
	0.7L	15+80.50	15.75 LT.	696.32	15+80.50	8.25 LT.	696.43	15+80.50	0.75 LT.	696.55	15+80.50	6.75 RT.	696.46	15+80.50	14.25 RT.	696.34	15+80.50	21.75 RT.	696.22
	0.8L	15+93.50	15.75 LT.	696.17	15+93.50	8.25 LT.	696.29	15+93.50	0.75 LT.	696.41	15+93.50	6.75 RT.	696.31	15+93.50	14.25 RT.	696.19	15+93.50	21.75 RT.	696.08
	0.9L	16+06.50	15.75 LT.	696.02	16+06.50	8.25 LT.	696.14	16+06.50	0.75 LT.	696.26	16+06.50	6.75 RT.	696.16	16+06.50	14.25 RT.	696.04	16+06.50	21.75 RT.	695.92
	℄ PIER 3	16+19.50	15.75 LT.	695.86	16+19.50	8.25 LT.	695.98	16+19.50	0.75 LT.	696.10	16+19.50	6.75 RT.	696.00	16+19.50	14.25 RT.	695.88	16+19.50	21.75 RT.	695.76
SPAN 4	0.1L	16+32.50	15.75 LT.	695.80	16+32.50	8.25 LT.	695.92	16+32.50	0.75 LT.	696.04	16+32.50	6.75 RT.	695.95	16+32.50	14.25 RT.	695.83	16+32.50	21.75 RT.	695.71
	0.2L	16+45.50	15.75 LT.	695.75	16+45.50	8.25 LT.	695.86	16+45.50	0.75 LT.	695.98	16+45.50	6.75 RT.	695.89	16+45.50	14.25 RT.	695.77	16+45.50	21.75 RT.	695.65
	0.3L	16+58.50	15.75 LT.	695.68	16+58.50	8.25 LT.	695.79	16+58.50	0.75 LT.	695.91	16+58.50	6.75 RT.	695.82	16+58.50	14.25 RT.	695.70	16+58.50	21.75 RT.	695.58
	0.4L	16+71.50	15.75 LT.	695.60	16+71.50	8.25 LT.	695.71	16+71.50	0.75 LT.	695.83	16+71.50	6.75 RT.	695.73	16+71.50	14.25 RT.	695.61	16+71.50	21.75 RT.	695.50
	0.5L	16+84.50	15.75 LT.	695.50	16+84.50	8.25 LT.	695.61	16+84.50	0.75 LT.	695.73	16+84.50	6.75 RT.	695.63	16+84.50	14.25 RT.	695.51	16+84.50	21.75 RT.	695.41
	0.6L	16+97.50	15.75 LT.	695.39	16+97.50	8.25 LT.	695.50	16+97.50	0.75 LT.	695.62	16+97.50	6.75 RT.	695.52	16+97.50	14.25 RT.	695.40	16+97.50	21.75 RT.	695.29
	0.7L	17+10.50	15.75 LT.	695.25	17+10.50	8.25 LT.	695.37	17+10.50	0.75 LT.	695.49	17+10.50	6.75 RT.	695.39	17+10.50	14.25 RT.	695.27	17+10.50	21.75 RT.	695.16
	0.8L	17+23.50	15.75 LT.	695.11	17+23.50	8.25 LT.	695.22	17+23.50	0.75 LT.	695.34	17+23.50	6.75 RT.	695.25	17+23.50	14.25 RT.	695.13	17+23.50	21.75 RT.	695.01
	0.9L	17+36.50	15.75 LT.	694.95	17+36.50	8.25 LT.	695.07	17+36.50	0.75 LT.	695.19	17+36.50	6.75 RT.	695.09	17+36.50	14.25 RT.	694.97	17+36.50	21.75 RT.	694.86
	℄ PIER 4	17+49.50	15.75 LT.	694.79	17+49.50	8.25 LT.	694.91	17+49.50	0.75 LT.	695.03	17+49.50	6.75 RT.	694.94	17+49.50	14.25 RT.	694.82	17+49.50	21.75 RT.	694.70
SPAN 5	0.1L	17+62.50	15.75 LT.	694.74	17+62.50	8.25 LT.	694.86	17+62.50	0.75 LT.	694.98	17+62.50	6.75 RT.	694.88	17+62.50	14.25 RT.	694.76	17+62.50	21.75 RT.	694.64
	0.2L	17+75.50	15.75 LT.	694.68	17+75.50	8.25 LT.	694.80	17+75.50	0.75 LT.	694.92	17+75.50	6.75 RT.	694.82	17+75.50	14.25 RT.	694.70	17+75.50	21.75 RT.	694.59
	0.3L	17+88.50	15.75 LT.	694.61	17+88.50	8.25 LT.	694.73	17+88.50	0.75 LT.	694.85	17+88.50	6.75 RT.	694.75	17+88.50	14.25 RT.	694.63	17+88.50	21.75 RT.	694.52
	0.4L	18+01.50	15.75 LT.	694.53	18+01.50	8.25 LT.	694.64	18+01.50	0.75 LT.	694.76	18+01.50	6.75 RT.	694.67	18+01.50	14.25 RT.	694.55	18+01.50	21.75 RT.	694.44
	0.5L	18+14.50	15.75 LT.	694.44	18+14.50	8.25 LT.	694.54	18+14.50	0.75 LT.	694.66	18+14.50	6.75 RT.	694.57	18+14.50	14.25 RT.	694.45	18+14.50	21.75 RT.	694.34
	0.6L	18+27.50	15.75 LT.	694.32	18+27.50	8.25 LT.	694.43	18+27.50	0.75 LT.	694.55	18+27.50	6.75 RT.	694.45	18+27.50	14.25 RT.	694.33	18+27.50	21.75 RT.	694.22
	0.7L	18+40.50	15.75 LT.	694.19	18+40.50	8.25 LT.	694.30	18+40.50	0.75 LT.	694.42	18+40.50	6.75 RT.	694.32	18+40.50	14.25 RT.	694.20	18+40.50	21.75 RT.	694.09
	0.8L	18+53.50	15.75 LT.	694.04	18+53.50	8.25 LT.	694.16	18+53.50	0.75 LT.	694.28	18+53.50	6.75 RT.	694.18	18+53.50	14.25 RT.	694.06	18+53.50	21.75 RT.	693.95
	0.9L	18+66.50	15.75 LT.	693.89	18+66.50	8.25 LT.	694.00	18+66.50	0.75 LT.	694.12	18+66.50	6.75 RT.	694.03	18+66.50	14.25 RT.	693.91	18+66.50	21.75 RT.	693.79
	℄ PIER 5	18+79.50	15.75 LT.	693.73	18+79.50	8.25 LT.	693.85	18+79.50	0.75 LT.	693.97	18+79.50	6.75 RT.	693.87	18+79.50	14.25 RT.	693.75	18+79.50	21.75 RT.	693.63

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR SCREED AND FINAL DECK ELEVATIONS, SEE SHEETS 35/69, 36/69 AND 41/69 THRU 43/69.
3. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.
4. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM/GIRDER HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

TOP OF HAUNCH ELEVATIONS (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

TOP OF HAUNCH ELEVATIONS (CONTINUED)

	LOCATION	BEAM 1			BEAM 2			BEAM 3			BEAM 4			BEAM 5			BEAM 6		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ PIER 5	18+79.50	15.75 LT.	693.73	18+79.50	8.25 LT.	693.85	18+79.50	0.75 LT.	693.97	18+79.50	6.75 RT.	693.87	18+79.50	14.25 RT.	693.75	18+79.50	21.75 RT.	693.63
SPAN 6	0.1L	18+92.50	15.75 LT.	693.67	18+92.50	8.25 LT.	693.79	18+92.50	0.75 LT.	693.91	18+92.50	6.75 RT.	693.81	18+92.50	14.25 RT.	693.69	18+92.50	21.75 RT.	693.58
SPAN 6	0.2L	19+05.50	15.75 LT.	693.62	19+05.50	8.25 LT.	693.73	19+05.50	0.75 LT.	693.85	19+05.50	6.75 RT.	693.75	19+05.50	14.25 RT.	693.63	19+05.50	21.75 RT.	693.52
SPAN 6	0.3L	19+18.50	15.75 LT.	693.55	19+18.50	8.25 LT.	693.66	19+18.50	0.75 LT.	693.78	19+18.50	6.75 RT.	693.68	19+18.50	14.25 RT.	693.56	19+18.50	21.75 RT.	693.45
SPAN 6	0.4L	19+31.50	15.75 LT.	693.47	19+31.50	8.25 LT.	693.58	19+31.50	0.75 LT.	693.70	19+31.50	6.75 RT.	693.60	19+31.50	14.25 RT.	693.48	19+31.50	21.75 RT.	693.37
SPAN 6	0.5L	19+44.50	15.75 LT.	693.37	19+44.50	8.25 LT.	693.48	19+44.50	0.75 LT.	693.60	19+44.50	6.75 RT.	693.50	19+44.50	14.25 RT.	693.38	19+44.50	21.75 RT.	693.27
SPAN 6	0.6L	19+57.50	15.75 LT.	693.25	19+57.50	8.25 LT.	693.36	19+57.50	0.75 LT.	693.48	19+57.50	6.75 RT.	693.39	19+57.50	14.25 RT.	693.27	19+57.50	21.75 RT.	693.16
SPAN 6	0.7L	19+70.50	15.75 LT.	693.12	19+70.50	8.25 LT.	693.23	19+70.50	0.75 LT.	693.35	19+70.50	6.75 RT.	693.26	19+70.50	14.25 RT.	693.14	19+70.50	21.75 RT.	693.03
SPAN 6	0.8L	19+83.50	15.75 LT.	692.98	19+83.50	8.25 LT.	693.09	19+83.50	0.75 LT.	693.21	19+83.50	6.75 RT.	693.11	19+83.50	14.25 RT.	692.99	19+83.50	21.75 RT.	692.88
SPAN 6	0.9L	19+96.50	15.75 LT.	692.82	19+96.50	8.25 LT.	692.94	19+96.50	0.75 LT.	693.06	19+96.50	6.75 RT.	692.96	19+96.50	14.25 RT.	692.84	19+96.50	21.75 RT.	692.72
	℄ PIER 6	20+09.50	15.75 LT.	692.66	20+09.50	8.25 LT.	692.78	20+09.50	0.75 LT.	692.90	20+09.50	6.75 RT.	692.81	20+09.50	14.25 RT.	692.69	20+09.50	21.75 RT.	692.57
SPAN 7	0.1L	20+22.39	15.75 LT.	692.61	20+22.39	8.25 LT.	692.72	20+22.39	0.75 LT.	692.84	20+22.39	6.75 RT.	692.75	20+22.39	14.25 RT.	692.63	20+22.39	21.75 RT.	692.51
SPAN 7	0.2L	20+35.28	15.75 LT.	692.55	20+35.28	8.25 LT.	692.67	20+35.28	0.75 LT.	692.79	20+35.28	6.75 RT.	692.69	20+35.28	14.25 RT.	692.57	20+35.28	21.75 RT.	692.46
SPAN 7	0.3L	20+48.18	15.75 LT.	692.49	20+48.18	8.25 LT.	692.60	20+48.18	0.75 LT.	692.72	20+48.18	6.75 RT.	692.62	20+48.18	14.25 RT.	692.50	20+48.18	21.75 RT.	692.39
SPAN 7	0.4L	20+61.07	15.75 LT.	692.40	20+61.07	8.25 LT.	692.51	20+61.07	0.75 LT.	692.63	20+61.07	6.75 RT.	692.54	20+61.07	14.25 RT.	692.42	20+61.07	21.75 RT.	692.31
SPAN 7	0.5L	20+73.96	15.75 LT.	692.31	20+73.96	8.25 LT.	692.42	20+73.96	0.75 LT.	692.54	20+73.96	6.75 RT.	692.44	20+73.96	14.25 RT.	692.32	20+73.96	21.75 RT.	692.21
SPAN 7	0.6L	20+86.85	15.75 LT.	692.19	20+86.85	8.25 LT.	692.30	20+86.85	0.75 LT.	692.42	20+86.85	6.75 RT.	692.33	20+86.85	14.25 RT.	692.21	20+86.85	21.75 RT.	692.10
SPAN 7	0.7L	20+99.74	15.75 LT.	692.06	20+99.74	8.25 LT.	692.17	20+99.74	0.75 LT.	692.29	20+99.74	6.75 RT.	692.20	20+99.74	14.25 RT.	692.08	20+99.74	21.75 RT.	691.97
SPAN 7	0.8L	21+12.63	15.75 LT.	691.92	21+12.63	8.25 LT.	692.03	21+12.63	0.75 LT.	692.15	21+12.63	6.75 RT.	692.06	21+12.63	14.25 RT.	691.94	21+12.63	21.75 RT.	691.82
SPAN 7	0.9L	21+25.53	15.75 LT.	691.79	21+25.53	8.25 LT.	691.90	21+25.53	0.75 LT.	692.02	21+25.53	6.75 RT.	691.93	21+25.53	14.25 RT.	691.81	21+25.53	21.75 RT.	691.69
	℄ BRG. F.A.	21+38.59	15.72 LT.	691.68	21+38.51	8.22 LT.	691.80	21+38.42	0.72 LT.	691.92	21+38.35	6.78 RT.	691.83	21+38.27	14.28 RT.	691.71	21+38.20	21.78 RT.	691.59

NOTES:

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

TOP OF HAUNCH ELEVATIONS (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

HAUNCH THICKNESS TABLE

	LOCATION	BEAM 1			BEAM 2			BEAM 3			BEAM 4			BEAM 5			BEAM 6		
		STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS
	℄ BRG. R.A.	12+86.83	15.75 LT.	2.39"	12+86.83	8.25 LT.	2.39"	12+86.83	0.75 LT.	2.39"	12+86.83	6.75 RT.	2.39"	12+86.83	14.25 RT.	2.39"	12+86.83	21.75 RT.	2.39"
SPAN 1	0.1L	12+94.10	15.75 LT.	2.52"	12+94.10	8.25 LT.	2.51"	12+94.10	0.75 LT.	2.51"	12+94.10	6.75 RT.	2.51"	12+94.10	14.25 RT.	2.51"	12+94.10	21.75 RT.	2.52"
	0.2L	13+01.36	15.75 LT.	2.64"	13+01.36	8.25 LT.	2.64"	13+01.36	0.75 LT.	2.64"	13+01.36	6.75 RT.	2.64"	13+01.36	14.25 RT.	2.64"	13+01.36	21.75 RT.	2.64"
	0.3L	13+08.63	15.75 LT.	2.74"	13+08.63	8.25 LT.	2.73"	13+08.63	0.75 LT.	2.73"	13+08.63	6.75 RT.	2.73"	13+08.63	14.25 RT.	2.73"	13+08.63	21.75 RT.	2.74"
	0.4L	13+15.90	15.75 LT.	2.80"	13+15.90	8.25 LT.	2.78"	13+15.90	0.75 LT.	2.78"	13+15.90	6.75 RT.	2.78"	13+15.90	14.25 RT.	2.78"	13+15.90	21.75 RT.	2.80"
	0.5L	13+23.17	15.75 LT.	2.82"	13+23.17	8.25 LT.	2.80"	13+23.17	0.75 LT.	2.80"	13+23.17	6.75 RT.	2.80"	13+23.17	14.25 RT.	2.80"	13+23.17	21.75 RT.	2.82"
	0.6L	13+30.43	15.75 LT.	2.80"	13+30.43	8.25 LT.	2.78"	13+30.43	0.75 LT.	2.78"	13+30.43	6.75 RT.	2.78"	13+30.43	14.25 RT.	2.78"	13+30.43	21.75 RT.	2.80"
	0.7L	13+37.70	15.75 LT.	2.74"	13+37.70	8.25 LT.	2.73"	13+37.70	0.75 LT.	2.73"	13+37.70	6.75 RT.	2.73"	13+37.70	14.25 RT.	2.73"	13+37.70	21.75 RT.	2.74"
	0.8L	13+44.97	15.75 LT.	2.65"	13+44.97	8.25 LT.	2.64"	13+44.97	0.75 LT.	2.64"	13+44.97	6.75 RT.	2.64"	13+44.97	14.25 RT.	2.64"	13+44.97	21.75 RT.	2.65"
	0.9L	13+52.23	15.75 LT.	2.52"	13+52.23	8.25 LT.	2.51"	13+52.23	0.75 LT.	2.51"	13+52.23	6.75 RT.	2.51"	13+52.23	14.25 RT.	2.51"	13+52.23	21.75 RT.	2.52"
	℄ PIER 1	13+59.50	15.75 LT.	2.39"	13+59.50	8.25 LT.	2.39"	13+59.50	0.75 LT.	2.39"	13+59.50	6.75 RT.	2.39"	13+59.50	14.25 RT.	2.39"	13+59.50	21.75 RT.	2.39"
SPAN 2	0.1L	13+72.50	15.75 LT.	2.64"	13+72.50	8.25 LT.	2.62"	13+72.50	0.75 LT.	2.62"	13+72.50	6.75 RT.	2.62"	13+72.50	14.25 RT.	2.62"	13+72.50	21.75 RT.	2.64"
	0.2L	13+85.50	15.75 LT.	3.03"	13+85.50	8.25 LT.	2.98"	13+85.50	0.75 LT.	2.98"	13+85.50	6.75 RT.	2.98"	13+85.50	14.25 RT.	2.98"	13+85.50	21.75 RT.	3.03"
	0.3L	13+98.50	15.75 LT.	3.41"	13+98.50	8.25 LT.	3.34"	13+98.50	0.75 LT.	3.34"	13+98.50	6.75 RT.	3.34"	13+98.50	14.25 RT.	3.34"	13+98.50	21.75 RT.	3.41"
	0.4L	14+11.50	15.75 LT.	3.70"	14+11.50	8.25 LT.	3.63"	14+11.50	0.75 LT.	3.63"	14+11.50	6.75 RT.	3.63"	14+11.50	14.25 RT.	3.63"	14+11.50	21.75 RT.	3.70"
	0.5L	14+24.50	15.75 LT.	3.87"	14+24.50	8.25 LT.	3.81"	14+24.50	0.75 LT.	3.81"	14+24.50	6.75 RT.	3.81"	14+24.50	14.25 RT.	3.81"	14+24.50	21.75 RT.	3.87"
	0.6L	14+37.50	15.75 LT.	3.89"	14+37.50	8.25 LT.	3.85"	14+37.50	0.75 LT.	3.85"	14+37.50	6.75 RT.	3.85"	14+37.50	14.25 RT.	3.85"	14+37.50	21.75 RT.	3.89"
	0.7L	14+50.50	15.75 LT.	3.79"	14+50.50	8.25 LT.	3.77"	14+50.50	0.75 LT.	3.77"	14+50.50	6.75 RT.	3.77"	14+50.50	14.25 RT.	3.77"	14+50.50	21.75 RT.	3.79"
	0.8L	14+63.50	15.75 LT.	3.76"	14+63.50	8.25 LT.	3.78"	14+63.50	0.75 LT.	3.78"	14+63.50	6.75 RT.	3.78"	14+63.50	14.25 RT.	3.78"	14+63.50	21.75 RT.	3.76"
	0.9L	14+76.50	15.75 LT.	4.01"	14+76.50	8.25 LT.	4.08"	14+76.50	0.75 LT.	4.08"	14+76.50	6.75 RT.	4.08"	14+76.50	14.25 RT.	4.08"	14+76.50	21.75 RT.	4.01"
	℄ PIER 2	14+89.50	15.75 LT.	4.69"	14+89.50	8.25 LT.	4.81"	14+89.50	0.75 LT.	4.81"	14+89.50	6.75 RT.	4.81"	14+89.50	14.25 RT.	4.81"	14+89.50	21.75 RT.	4.69"
SPAN 3	0.1L	15+02.50	15.75 LT.	3.60"	15+02.50	8.25 LT.	3.69"	15+02.50	0.75 LT.	3.69"	15+02.50	6.75 RT.	3.69"	15+02.50	14.25 RT.	3.69"	15+02.50	21.75 RT.	3.60"
	0.2L	15+15.50	15.75 LT.	2.94"	15+15.50	8.25 LT.	2.99"	15+15.50	0.75 LT.	2.99"	15+15.50	6.75 RT.	2.99"	15+15.50	14.25 RT.	2.99"	15+15.50	21.75 RT.	2.94"
	0.3L	15+28.50	15.75 LT.	2.57"	15+28.50	8.25 LT.	2.59"	15+28.50	0.75 LT.	2.59"	15+28.50	6.75 RT.	2.59"	15+28.50	14.25 RT.	2.59"	15+28.50	21.75 RT.	2.57"
	0.4L	15+41.50	15.75 LT.	2.40"	15+41.50	8.25 LT.	2.40"	15+41.50	0.75 LT.	2.40"	15+41.50	6.75 RT.	2.40"	15+41.50	14.25 RT.	2.40"	15+41.50	21.75 RT.	2.40"
	0.5L	15+54.50	15.75 LT.	2.40"	15+54.50	8.25 LT.	2.39"	15+54.50	0.75 LT.	2.39"	15+54.50	6.75 RT.	2.39"	15+54.50	14.25 RT.	2.39"	15+54.50	21.75 RT.	2.40"
	0.6L	15+67.50	15.75 LT.	2.54"	15+67.50	8.25 LT.	2.54"	15+67.50	0.75 LT.	2.54"	15+67.50	6.75 RT.	2.54"	15+67.50	14.25 RT.	2.54"	15+67.50	21.75 RT.	2.54"
	0.7L	15+80.50	15.75 LT.	2.85"	15+80.50	8.25 LT.	2.86"	15+80.50	0.75 LT.	2.86"	15+80.50	6.75 RT.	2.86"	15+80.50	14.25 RT.	2.86"	15+80.50	21.75 RT.	2.85"
	0.8L	15+93.50	15.75 LT.	3.36"	15+93.50	8.25 LT.	3.41"	15+93.50	0.75 LT.	3.41"	15+93.50	6.75 RT.	3.41"	15+93.50	14.25 RT.	3.41"	15+93.50	21.75 RT.	3.36"
	0.9L	16+06.50	15.75 LT.	4.15"	16+06.50	8.25 LT.	4.24"	16+06.50	0.75 LT.	4.24"	16+06.50	6.75 RT.	4.24"	16+06.50	14.25 RT.	4.24"	16+06.50	21.75 RT.	4.15"
	℄ PIER 3	16+19.50	15.75 LT.	5.38"	16+19.50	8.25 LT.	5.50"	16+19.50	0.75 LT.	5.50"	16+19.50	6.75 RT.	5.50"	16+19.50	14.25 RT.	5.50"	16+19.50	21.75 RT.	5.38"
SPAN 4	0.1L	16+32.50	15.75 LT.	4.15"	16+32.50	8.25 LT.	4.24"	16+32.50	0.75 LT.	4.24"	16+32.50	6.75 RT.	4.24"	16+32.50	14.25 RT.	4.24"	16+32.50	21.75 RT.	4.15"
	0.2L	16+45.50	15.75 LT.	3.36"	16+45.50	8.25 LT.	3.41"	16+45.50	0.75 LT.	3.41"	16+45.50	6.75 RT.	3.41"	16+45.50	14.25 RT.	3.41"	16+45.50	21.75 RT.	3.36"
	0.3L	16+58.50	15.75 LT.	2.85"	16+58.50	8.25 LT.	2.86"	16+58.50	0.75 LT.	2.86"	16+58.50	6.75 RT.	2.86"	16+58.50	14.25 RT.	2.86"	16+58.50	21.75 RT.	2.85"
	0.4L	16+71.50	15.75 LT.	2.54"	16+71.50	8.25 LT.	2.54"	16+71.50	0.75 LT.	2.54"	16+71.50	6.75 RT.	2.54"	16+71.50	14.25 RT.	2.54"	16+71.50	21.75 RT.	2.54"
	0.5L	16+84.50	15.75 LT.	2.40"	16+84.50	8.25 LT.	2.39"	16+84.50	0.75 LT.	2.39"	16+84.50	6.75 RT.	2.39"	16+84.50	14.25 RT.	2.39"	16+84.50	21.75 RT.	2.40"
	0.6L	16+97.50	15.75 LT.	2.40"	16+97.50	8.25 LT.	2.40"	16+97.50	0.75 LT.	2.40"	16+97.50	6.75 RT.	2.40"	16+97.50	14.25 RT.	2.40"	16+97.50	21.75 RT.	2.40"
	0.7L	17+10.50	15.75 LT.	2.57"	17+10.50	8.25 LT.	2.59"	17+10.50	0.75 LT.	2.59"	17+10.50	6.75 RT.	2.59"	17+10.50	14.25 RT.	2.59"	17+10.50	21.75 RT.	2.57"
	0.8L	17+23.50	15.75 LT.	2.94"	17+23.50	8.25 LT.	2.99"	17+23.50	0.75 LT.	2.99"	17+23.50	6.75 RT.	2.99"	17+23.50	14.25 RT.	2.99"	17+23.50	21.75 RT.	2.94"
	0.9L	17+36.50	15.75 LT.	3.60"	17+36.50	8.25 LT.	3.69"	17+36.50	0.75 LT.	3.69"	17+36.50	6.75 RT.	3.69"	17+36.50	14.25 RT.	3.69"	17+36.50	21.75 RT.	3.60"
	℄ PIER 4	17+49.50	15.75 LT.	4.69"	17+49.50	8.25 LT.	4.81"	17+49.50	0.75 LT.	4.81"	17+49.50	6.75 RT.	4.81"	17+49.50	14.25 RT.	4.81"	17+49.50	21.75 RT.	4.69"

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR FINAL DECK ELEVATIONS, SCREED ELEVATIONS, AND TOP OF HAUNCH ELEVATIONS, SEE SHEETS 35/69 THRU 38/69 AND 41/69 THRU 43/69.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

HAUNCH THICKNESSES (1 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

HAUNCH THICKNESS TABLE (CONTINUED)

	LOCATION	BEAM 1			BEAM 2			BEAM 3			BEAM 4			BEAM 5			BEAM 6		
		STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS	STATION	OFFSET	THICKNESS
	℄ PIER 4	17+49.50	15.75 LT.	4.69"	17+49.50	8.25 LT.	4.81"	17+49.50	0.75 LT.	4.81"	17+49.50	6.75 RT.	4.81"	17+49.50	14.25 RT.	4.81"	17+49.50	21.75 RT.	4.69"
SPAN 5	0.1L	17+62.50	15.75 LT.	3.60"	17+62.50	8.25 LT.	3.69"	17+62.50	0.75 LT.	3.69"	17+62.50	6.75 RT.	3.69"	17+62.50	14.25 RT.	3.69"	17+62.50	21.75 RT.	3.60"
SPAN 5	0.2L	17+75.50	15.75 LT.	2.94"	17+75.50	8.25 LT.	2.99"	17+75.50	0.75 LT.	2.99"	17+75.50	6.75 RT.	2.99"	17+75.50	14.25 RT.	2.99"	17+75.50	21.75 RT.	2.94"
SPAN 5	0.3L	17+88.50	15.75 LT.	2.57"	17+88.50	8.25 LT.	2.59"	17+88.50	0.75 LT.	2.59"	17+88.50	6.75 RT.	2.59"	17+88.50	14.25 RT.	2.59"	17+88.50	21.75 RT.	2.57"
SPAN 5	0.4L	18+01.50	15.75 LT.	2.40"	18+01.50	8.25 LT.	2.40"	18+01.50	0.75 LT.	2.40"	18+01.50	6.75 RT.	2.40"	18+01.50	14.25 RT.	2.40"	18+01.50	21.75 RT.	2.40"
SPAN 5	0.5L	18+14.50	15.75 LT.	2.40"	18+14.50	8.25 LT.	2.39"	18+14.50	0.75 LT.	2.39"	18+14.50	6.75 RT.	2.39"	18+14.50	14.25 RT.	2.39"	18+14.50	21.75 RT.	2.40"
SPAN 5	0.6L	18+27.50	15.75 LT.	2.54"	18+27.50	8.25 LT.	2.54"	18+27.50	0.75 LT.	2.54"	18+27.50	6.75 RT.	2.54"	18+27.50	14.25 RT.	2.54"	18+27.50	21.75 RT.	2.54"
SPAN 5	0.7L	18+40.50	15.75 LT.	2.85"	18+40.50	8.25 LT.	2.86"	18+40.50	0.75 LT.	2.86"	18+40.50	6.75 RT.	2.86"	18+40.50	14.25 RT.	2.86"	18+40.50	21.75 RT.	2.85"
SPAN 5	0.8L	18+53.50	15.75 LT.	3.36"	18+53.50	8.25 LT.	3.41"	18+53.50	0.75 LT.	3.41"	18+53.50	6.75 RT.	3.41"	18+53.50	14.25 RT.	3.41"	18+53.50	21.75 RT.	3.36"
SPAN 5	0.9L	18+66.50	15.75 LT.	4.15"	18+66.50	8.25 LT.	4.24"	18+66.50	0.75 LT.	4.24"	18+66.50	6.75 RT.	4.24"	18+66.50	14.25 RT.	4.24"	18+66.50	21.75 RT.	4.15"
	℄ PIER 5	18+79.50	15.75 LT.	5.38"	18+79.50	8.25 LT.	5.50"	18+79.50	0.75 LT.	5.50"	18+79.50	6.75 RT.	5.50"	18+79.50	14.25 RT.	5.50"	18+79.50	21.75 RT.	5.38"
SPAN 6	0.1L	18+92.50	15.75 LT.	4.15"	18+92.50	8.25 LT.	4.24"	18+92.50	0.75 LT.	4.24"	18+92.50	6.75 RT.	4.24"	18+92.50	14.25 RT.	4.24"	18+92.50	21.75 RT.	4.15"
SPAN 6	0.2L	19+05.50	15.75 LT.	3.36"	19+05.50	8.25 LT.	3.41"	19+05.50	0.75 LT.	3.41"	19+05.50	6.75 RT.	3.41"	19+05.50	14.25 RT.	3.41"	19+05.50	21.75 RT.	3.36"
SPAN 6	0.3L	19+18.50	15.75 LT.	2.85"	19+18.50	8.25 LT.	2.86"	19+18.50	0.75 LT.	2.86"	19+18.50	6.75 RT.	2.86"	19+18.50	14.25 RT.	2.86"	19+18.50	21.75 RT.	2.85"
SPAN 6	0.4L	19+31.50	15.75 LT.	2.54"	19+31.50	8.25 LT.	2.54"	19+31.50	0.75 LT.	2.54"	19+31.50	6.75 RT.	2.54"	19+31.50	14.25 RT.	2.54"	19+31.50	21.75 RT.	2.54"
SPAN 6	0.5L	19+44.50	15.75 LT.	2.40"	19+44.50	8.25 LT.	2.39"	19+44.50	0.75 LT.	2.39"	19+44.50	6.75 RT.	2.39"	19+44.50	14.25 RT.	2.39"	19+44.50	21.75 RT.	2.40"
SPAN 6	0.6L	19+57.50	15.75 LT.	2.40"	19+57.50	8.25 LT.	2.40"	19+57.50	0.75 LT.	2.40"	19+57.50	6.75 RT.	2.40"	19+57.50	14.25 RT.	2.40"	19+57.50	21.75 RT.	2.40"
SPAN 6	0.7L	19+70.50	15.75 LT.	2.57"	19+70.50	8.25 LT.	2.59"	19+70.50	0.75 LT.	2.59"	19+70.50	6.75 RT.	2.59"	19+70.50	14.25 RT.	2.59"	19+70.50	21.75 RT.	2.57"
SPAN 6	0.8L	19+83.50	15.75 LT.	2.94"	19+83.50	8.25 LT.	2.99"	19+83.50	0.75 LT.	2.99"	19+83.50	6.75 RT.	2.99"	19+83.50	14.25 RT.	2.99"	19+83.50	21.75 RT.	2.94"
SPAN 6	0.9L	19+96.50	15.75 LT.	3.60"	19+96.50	8.25 LT.	3.69"	19+96.50	0.75 LT.	3.69"	19+96.50	6.75 RT.	3.69"	19+96.50	14.25 RT.	3.69"	19+96.50	21.75 RT.	3.60"
	℄ PIER 6	20+09.50	15.75 LT.	4.69"	20+09.50	8.25 LT.	4.81"	20+09.50	0.75 LT.	4.81"	20+09.50	6.75 RT.	4.81"	20+09.50	14.25 RT.	4.81"	20+09.50	21.75 RT.	4.69"
SPAN 7	0.1L	20+22.39	15.75 LT.	3.60"	20+22.39	8.25 LT.	3.69"	20+22.39	0.75 LT.	3.69"	20+22.39	6.75 RT.	3.69"	20+22.39	14.25 RT.	3.69"	20+22.39	21.75 RT.	3.60"
SPAN 7	0.2L	20+35.28	15.75 LT.	2.94"	20+35.28	8.25 LT.	2.99"	20+35.28	0.75 LT.	2.99"	20+35.28	6.75 RT.	2.99"	20+35.28	14.25 RT.	2.99"	20+35.28	21.75 RT.	2.94"
SPAN 7	0.3L	20+48.18	15.75 LT.	2.57"	20+48.18	8.25 LT.	2.59"	20+48.18	0.75 LT.	2.59"	20+48.18	6.75 RT.	2.59"	20+48.18	14.25 RT.	2.59"	20+48.18	21.75 RT.	2.57"
SPAN 7	0.4L	20+61.07	15.75 LT.	2.40"	20+61.07	8.25 LT.	2.41"	20+61.07	0.75 LT.	2.41"	20+61.07	6.75 RT.	2.41"	20+61.07	14.25 RT.	2.41"	20+61.07	21.75 RT.	2.40"
SPAN 7	0.5L	20+73.96	15.75 LT.	2.40"	20+73.96	8.25 LT.	2.40"	20+73.96	0.75 LT.	2.40"	20+73.96	6.75 RT.	2.40"	20+73.96	14.25 RT.	2.40"	20+73.96	21.75 RT.	2.40"
SPAN 7	0.6L	20+86.85	15.75 LT.	2.54"	20+86.85	8.25 LT.	2.55"	20+86.85	0.75 LT.	2.55"	20+86.85	6.75 RT.	2.55"	20+86.85	14.25 RT.	2.55"	20+86.85	21.75 RT.	2.54"
SPAN 7	0.7L	20+99.74	15.75 LT.	2.85"	20+99.74	8.25 LT.	2.87"	20+99.74	0.75 LT.	2.87"	20+99.74	6.75 RT.	2.87"	20+99.74	14.25 RT.	2.87"	20+99.74	21.75 RT.	2.84"
SPAN 7	0.8L	21+12.63	15.75 LT.	3.37"	21+12.63	8.25 LT.	3.42"	21+12.63	0.75 LT.	3.42"	21+12.63	6.75 RT.	3.42"	21+12.63	14.25 RT.	3.42"	21+12.63	21.75 RT.	3.36"
SPAN 7	0.9L	21+25.53	15.75 LT.	4.44"	21+25.53	8.25 LT.	4.52"	21+25.53	0.75 LT.	4.52"	21+25.53	6.75 RT.	4.53"	21+25.53	14.25 RT.	4.53"	21+25.53	21.75 RT.	4.43"
	℄ BRG. F.A.	21+38.59	15.72 LT.	6.32"	21+38.51	8.22 LT.	6.45"	21+38.42	0.72 LT.	6.45"	21+38.35	6.78 RT.	6.45"	21+38.27	14.28 RT.	6.45"	21+38.20	21.78 RT.	6.32"

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR FINAL DECK ELEVATIONS, SCREED ELEVATIONS, AND TOP OF HAUNCH ELEVATIONS, SEE SHEETS 35/69 THRU 38/69 AND 41/69 THRU 43/69.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED

STRUCTURE FILE NUMBER 6054145

HAUNCH THICKNESSES (2 OF 2)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

FINAL DECK SURFACE ELEVATIONS

	LOCATION	LEFT EDGE OF DECK			TOE OF LEFT BARRIER			BEAM 1			BEAM 2			BEAM 3			PROFILE GRADE		BEAM 4			BEAM 5		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ BRG. R.A.	12+86.83	19.50 LT.	697.32	12+86.83	18.00 LT.	697.35	12+86.83	15.75 LT.	697.38	12+86.83	8.25 LT.	697.50	12+86.83	0.75 LT.	697.62	12+86.83	697.64	12+86.83	6.75 RT.	697.53	12+86.83	14.25 RT.	697.41
SPAN 1	0.1L	12+94.10	19.50 LT.	697.43	12+94.10	18.00 LT.	697.46	12+94.10	15.75 LT.	697.49	12+94.10	8.25 LT.	697.61	12+94.10	0.75 LT.	697.73	12+94.10	697.74	12+94.10	6.75 RT.	697.64	12+94.10	14.25 RT.	697.52
	0.2L	13+01.36	19.50 LT.	697.53	13+01.36	18.00 LT.	697.55	13+01.36	15.75 LT.	697.59	13+01.36	8.25 LT.	697.71	13+01.36	0.75 LT.	697.83	13+01.36	697.84	13+01.36	6.75 RT.	697.73	13+01.36	14.25 RT.	697.61
	0.3L	13+08.63	19.50 LT.	697.62	13+08.63	18.00 LT.	697.65	13+08.63	15.75 LT.	697.68	13+08.63	8.25 LT.	697.80	13+08.63	0.75 LT.	697.92	13+08.63	697.93	13+08.63	6.75 RT.	697.83	13+08.63	14.25 RT.	697.71
	0.4L	13+15.90	19.50 LT.	697.71	13+15.90	18.00 LT.	697.73	13+15.90	15.75 LT.	697.77	13+15.90	8.25 LT.	697.89	13+15.90	0.75 LT.	698.01	13+15.90	698.02	13+15.90	6.75 RT.	697.91	13+15.90	14.25 RT.	697.79
	0.5L	13+23.17	19.50 LT.	697.78	13+23.17	18.00 LT.	697.81	13+23.17	15.75 LT.	697.84	13+23.17	8.25 LT.	697.96	13+23.17	0.75 LT.	698.08	13+23.17	698.10	13+23.17	6.75 RT.	697.99	13+23.17	14.25 RT.	697.87
	0.6L	13+30.43	19.50 LT.	697.85	13+30.43	18.00 LT.	697.88	13+30.43	15.75 LT.	697.91	13+30.43	8.25 LT.	698.03	13+30.43	0.75 LT.	698.15	13+30.43	698.16	13+30.43	6.75 RT.	698.06	13+30.43	14.25 RT.	697.94
	0.7L	13+37.70	19.50 LT.	697.91	13+37.70	18.00 LT.	697.94	13+37.70	15.75 LT.	697.97	13+37.70	8.25 LT.	698.09	13+37.70	0.75 LT.	698.21	13+37.70	698.23	13+37.70	6.75 RT.	698.12	13+37.70	14.25 RT.	698.00
	0.8L	13+44.97	19.50 LT.	697.97	13+44.97	18.00 LT.	697.99	13+44.97	15.75 LT.	698.03	13+44.97	8.25 LT.	698.15	13+44.97	0.75 LT.	698.27	13+44.97	698.28	13+44.97	6.75 RT.	698.17	13+44.97	14.25 RT.	698.05
	0.9L	13+52.23	19.50 LT.	698.01	13+52.23	18.00 LT.	698.04	13+52.23	15.75 LT.	698.07	13+52.23	8.25 LT.	698.19	13+52.23	0.75 LT.	698.31	13+52.23	698.33	13+52.23	6.75 RT.	698.22	13+52.23	14.25 RT.	698.10
	℄ PIER 1	13+59.50	19.50 LT.	698.05	13+59.50	18.00 LT.	698.08	13+59.50	15.75 LT.	698.11	13+59.50	8.25 LT.	698.23	13+59.50	0.75 LT.	698.35	13+59.50	698.36	13+59.50	6.75 RT.	698.26	13+59.50	14.25 RT.	698.14
SPAN 2	0.1L	13+72.50	19.50 LT.	698.10	13+72.50	18.00 LT.	698.13	13+72.50	15.75 LT.	698.16	13+72.50	8.25 LT.	698.28	13+72.50	0.75 LT.	698.40	13+72.50	698.41	13+72.50	6.75 RT.	698.31	13+72.50	14.25 RT.	698.19
	0.2L	13+85.50	19.50 LT.	698.13	13+85.50	18.00 LT.	698.15	13+85.50	15.75 LT.	698.19	13+85.50	8.25 LT.	698.31	13+85.50	0.75 LT.	698.43	13+85.50	698.44	13+85.50	6.75 RT.	698.33	13+85.50	14.25 RT.	698.21
	0.3L	13+98.50	19.50 LT.	698.13	13+98.50	18.00 LT.	698.15	13+98.50	15.75 LT.	698.19	13+98.50	8.25 LT.	698.31	13+98.50	0.75 LT.	698.43	13+98.50	698.44	13+98.50	6.75 RT.	698.33	13+98.50	14.25 RT.	698.21
	0.4L	14+11.50	19.50 LT.	698.11	14+11.50	18.00 LT.	698.13	14+11.50	15.75 LT.	698.17	14+11.50	8.25 LT.	698.29	14+11.50	0.75 LT.	698.41	14+11.50	698.42	14+11.50	6.75 RT.	698.31	14+11.50	14.25 RT.	698.19
	0.5L	14+24.50	19.50 LT.	698.06	14+24.50	18.00 LT.	698.08	14+24.50	15.75 LT.	698.12	14+24.50	8.25 LT.	698.24	14+24.50	0.75 LT.	698.36	14+24.50	698.37	14+24.50	6.75 RT.	698.26	14+24.50	14.25 RT.	698.14
	0.6L	14+37.50	19.50 LT.	697.99	14+37.50	18.00 LT.	698.01	14+37.50	15.75 LT.	698.05	14+37.50	8.25 LT.	698.17	14+37.50	0.75 LT.	698.29	14+37.50	698.30	14+37.50	6.75 RT.	698.19	14+37.50	14.25 RT.	698.07
	0.7L	14+50.50	19.50 LT.	697.89	14+50.50	18.00 LT.	697.92	14+50.50	15.75 LT.	697.95	14+50.50	8.25 LT.	698.07	14+50.50	0.75 LT.	698.19	14+50.50	698.21	14+50.50	6.75 RT.	698.10	14+50.50	14.25 RT.	697.98
	0.8L	14+63.50	19.50 LT.	697.79	14+63.50	18.00 LT.	697.81	14+63.50	15.75 LT.	697.85	14+63.50	8.25 LT.	697.97	14+63.50	0.75 LT.	698.09	14+63.50	698.10	14+63.50	6.75 RT.	697.99	14+63.50	14.25 RT.	697.87
	0.9L	14+76.50	19.50 LT.	697.68	14+76.50	18.00 LT.	697.70	14+76.50	15.75 LT.	697.74	14+76.50	8.25 LT.	697.86	14+76.50	0.75 LT.	697.98	14+76.50	697.99	14+76.50	6.75 RT.	697.88	14+76.50	14.25 RT.	697.76
	℄ PIER 2	14+89.50	19.50 LT.	697.57	14+89.50	18.00 LT.	697.60	14+89.50	15.75 LT.	697.63	14+89.50	8.25 LT.	697.75	14+89.50	0.75 LT.	697.87	14+89.50	697.89	14+89.50	6.75 RT.	697.78	14+89.50	14.25 RT.	697.66
SPAN 3	0.1L	15+02.50	19.50 LT.	697.47	15+02.50	18.00 LT.	697.49	15+02.50	15.75 LT.	697.53	15+02.50	8.25 LT.	697.65	15+02.50	0.75 LT.	697.77	15+02.50	697.78	15+02.50	6.75 RT.	697.67	15+02.50	14.25 RT.	697.55
	0.2L	15+15.50	19.50 LT.	697.36	15+15.50	18.00 LT.	697.38	15+15.50	15.75 LT.	697.42	15+15.50	8.25 LT.	697.54	15+15.50	0.75 LT.	697.66	15+15.50	697.67	15+15.50	6.75 RT.	697.56	15+15.50	14.25 RT.	697.44
	0.3L	15+28.50	19.50 LT.	697.25	15+28.50	18.00 LT.	697.28	15+28.50	15.75 LT.	697.31	15+28.50	8.25 LT.	697.43	15+28.50	0.75 LT.	697.55	15+28.50	697.57	15+28.50	6.75 RT.	697.46	15+28.50	14.25 RT.	697.34
	0.4L	15+41.50	19.50 LT.	697.15	15+41.50	18.00 LT.	697.17	15+41.50	15.75 LT.	697.21	15+41.50	8.25 LT.	697.33	15+41.50	0.75 LT.	697.45	15+41.50	697.46	15+41.50	6.75 RT.	697.35	15+41.50	14.25 RT.	697.23
	0.5L	15+54.50	19.50 LT.	697.04	15+54.50	18.00 LT.	697.06	15+54.50	15.75 LT.	697.10	15+54.50	8.25 LT.	697.22	15+54.50	0.75 LT.	697.34	15+54.50	697.35	15+54.50	6.75 RT.	697.24	15+54.50	14.25 RT.	697.12
	0.6L	15+67.50	19.50 LT.	696.93	15+67.50	18.00 LT.	696.96	15+67.50	15.75 LT.	696.99	15+67.50	8.25 LT.	697.11	15+67.50	0.75 LT.	697.23	15+67.50	697.25	15+67.50	6.75 RT.	697.14	15+67.50	14.25 RT.	697.02
	0.7L	15+80.50	19.50 LT.	696.83	15+80.50	18.00 LT.	696.85	15+80.50	15.75 LT.	696.89	15+80.50	8.25 LT.	697.01	15+80.50	0.75 LT.	697.13	15+80.50	697.14	15+80.50	6.75 RT.	697.03	15+80.50	14.25 RT.	696.91
	0.8L	15+93.50	19.50 LT.	696.72	15+93.50	18.00 LT.	696.74	15+93.50	15.75 LT.	696.78	15+93.50	8.25 LT.	696.90	15+93.50	0.75 LT.	697.02	15+93.50	697.03	15+93.50	6.75 RT.	696.92	15+93.50	14.25 RT.	696.80
	0.9L	16+06.50	19.50 LT.	696.61	16+06.50	18.00 LT.	696.64	16+06.50	15.75 LT.	696.67	16+06.50	8.25 LT.	696.79	16+06.50	0.75 LT.	696.91	16+06.50	696.93	16+06.50	6.75 RT.	696.82	16+06.50	14.25 RT.	696.70
	℄ PIER 3	16+19.50	19.50 LT.	696.51	16+19.50	18.00 LT.	696.53	16+19.50	15.75 LT.	696.57	16+19.50	8.25 LT.	696.69	16+19.50	0.75 LT.	696.81	16+19.50	696.82	16+19.50	6.75 RT.	696.71	16+19.50	14.25 RT.	696.59
SPAN 4	0.1L	16+32.50	19.50 LT.	696.40	16+32.50	18.00 LT.	696.42	16+32.50	15.75 LT.	696.46	16+32.50	8.25 LT.	696.58	16+32.50	0.75 LT.	696.70	16+32.50	696.71	16+32.50	6.75 RT.	696.60	16+32.50	14.25 RT.	696.48
	0.2L	16+45.50	19.50 LT.	696.29	16+45.50	18.00 LT.	696.32	16+45.50	15.75 LT.	696.35	16+45.50	8.25 LT.	696.47	16+45.50	0.75 LT.	696.59	16+45.50	696.61	16+45.50	6.75 RT.	696.50	16+45.50	14.25 RT.	696.38
	0.3L	16+58.50	19.50 LT.	696.19	16+58.50	18.00 LT.	696.21	16+58.50	15.75 LT.	696.25	16+58.50	8.25 LT.	696.37	16+58.50	0.75 LT.	696.49	16+58.50	696.50	16+58.50	6.75 RT.	696.39	16+58.50	14.25 RT.	696.27
	0.4L	16+71.50	19.50 LT.	696.08	16+71.50	18.00 LT.	696.11	16+71.50	15.75 LT.	696.14	16+71.50	8.25 LT.	696.26	16+71.50	0.75 LT.	696.38	16+71.50	696.39	16+71.50	6.75 RT.	696.29	16+71.50	14.25 RT.	696.17
	0.5L	16+84.50	19.50 LT.	695.97	16+84.50	18.00 LT.	696.00	16+84.50	15.75 LT.	696.03	16+84.50	8.25 LT.	696.15	16+84.50	0.75 LT.	696.27	16+84.50	696.29	16+84.50	6.75 RT.	696.18	16+84.50	14.25 RT.	696.06
	0.6L	16+97.50	19.50 LT.	695.87	16+97.50	18.00 LT.	695.89	16+97.50	15.75 LT.	695.93	16+97.50	8.25 LT.	696.05	16+97.50	0.75 LT.	696.17	16+97.50	696.18	16+97.50	6.75 RT.	696.07	16+97.50	14.25 RT.	695.95
	0.7L	17+10.50	19.50 LT.	695.76	17+10.50	18.00 LT.	695.79	17+10.50	15.75 LT.	695.82	17+10.50	8.25 LT.	695.94	17+10.50	0.75 LT.	696.06	17+10.50	696.07	17+10.50	6.75 RT.	695.97	17+10.50	14.25 RT.	695.85
	0.8L	17+23.50	19.50 LT.	695.65	17+23.50	18.00 LT.	695.68	17+23.50	15.75 LT.	695.71	17+23.50	8.25 LT.	695.83	17+23.50	0.75 LT.	695.95	17+23.50	695.97	17+23.50	6.75 RT.	695.86	17+23.50	14.25 RT.	695.74
	0.9L	17+36.50	19.50 LT.	695.55	17+36.50	18.00 LT.	695.57	17+36.50	15.75 LT.	695.61	17+36.50	8.25 LT.	695.73	17+36.50	0.75 LT.	695.85	17+36.50	695.86	17+36.50	6.75 RT.	695.75	17+36.50	14.25 RT.	695.63
	℄ PIER 4	17+49.50	19.50 LT.	695.44	17+49.50	18.00 LT.	695.47	17+49.50	15.75 LT.	695.50	17+49.50	8.25 LT.	695.62	17+49.50	0.75 LT.	695.74	17+49.50	695.75	17+49.50	6.75 RT.	695.65	17+49.50	14.25 RT.	695.53
SPAN 5	0.1L	17+62.50	19.50 LT.	695.33	17+62.50	18.00 LT.	695.36	17+62.50	15.75 LT.	695.39	17+62.50	8.25 LT.	695.51	17+62.50	0.75 LT.	695.63	17+62.50	695.65	17+62.50	6.75 RT.	695.54	17+62.50	14.25 RT.	695.42
	0.2L	17+75.50	19.50 LT.	695.23	17+75.50	18.00 LT.	695.25	17+75.50	15.75 LT.	695.29	17+75.50	8.25 LT.	695.41	17+75.50	0.75 LT.	695.53	17+75.50	695.54	17+75.50	6.75 RT.	695.43	17+75.50	14.25 RT.	695.31
	0.3L	17+88.50	19.50 LT.	695.12	17+88.50	18.00 LT.	695.15	17+88.50	15.75 LT.	695.18	17+88.50	8.25 LT.	695.30	17+88.50	0.75 LT.	695.42	17+88.50	695.43	17+88.50	6.75 RT.	695.33	17+88.50	14.25 RT.	695.21
	0.4L	18+01.50	19.50 LT.	695.02	18+01.50	18.00 LT.	695.04	18+01.50	15.75 LT.	695.08	18+01.50	8.25 LT.	695.20	18+01.50	0.75 LT.	695.32	18+01.50	695.33	18+01.50	6.75 RT.	695.22	18+01.50	14.25 RT.	695.10
	0.5L	18+14.50	19.50 LT.	694.91	18+14.50	18.00 LT.	694.93	18+14.50	15.75 LT.	694.97	18+14.50	8.25 LT.	695.09	18+14.50	0.75 LT.	695.21	18+14.50	695.22	18+14.50	6.75 RT.	695.11	18+14.50	14.25 RT.	694.99
	0.6L	18+27.50	19.50 LT.	694.80	18+27.50	18.00 LT.	694.83	18+27.50	15.75 LT.	694.86	18+27.50	8.25 LT.	694.98	18+27.50	0.75 LT.	695.10	18+27.50	695.11	18+27.50	6.75 RT.	695.01	18+27.50	14.25 RT.	694.89
	0.7L	18+40.50	19.50 LT.	694.70	18+40.50	18.00 LT.	694.72	18+40.50	15.75 LT.	694.76	18+40.50	8.25 LT.	694.88	18+40.50	0.75 LT.	695.00	18+40.50	695.01	18+40.50	6.75 RT.	694.90	18+40.50	14.25 RT.	694.78
	0.8L	18+53.50	19.50 LT.	694.59	18+53.50	18.00 LT.	694.61	18+53.50	15.75 LT.	694.65	18+53.50	8.25 LT.	694.77	18+53.50	0.75 LT.	694.89	18+53.50	694.90	18+53.50	6.75 RT.	694.79	18+53.50	14.25 RT.	694.67
	0.9L	18+66.50	19.50 LT.	694.48	18+66.50	18.00 LT.	694.51	18+66.50	15.75 LT.	694.54	18+66.50	8.25 LT.	694.66	18+66.50	0.75 LT.	694.78	18+66.50	694.79	18+66.50	6.75 RT.	694.69	18+66.50	14.25 RT.	694.57
	℄ PIER 5	18+79.50	19.50 LT.	694.38	18+79.50	18.00 LT.	694.40	18+79.50	15.75 LT.	694.44	18+79.50	8.25 LT.	694.56	18+79.50	0.75 LT.	694.68	18+79.50	694.69	18+79.50	6.75 RT.	694.58	18+79.50	14.25 RT.	694.46

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR TOP OF HAUNCH AND SCREED ELEVATIONS, SEE SHEETS 35/69 THRU 38/69.
3. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.
4. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

FINAL ELEVATIONS (1 OF 3)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

41 / 69

150 / 192

FINAL DECK SURFACE ELEVATIONS (CONTINUED)

	LOCATION	TOE OF RIGHT BARRIER			BEAM 6			RIGHT EDGE OF DECK		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ BRG. R.A	12+86.83	18.00 RT.	697.35	12+86.83	21.75 RT.	697.29	12+86.83	25.50 RT.	697.23
SPAN 1	0.1L	12+94.10	18.00 RT.	697.46	12+94.10	21.75 RT.	697.40	12+94.10	25.50 RT.	697.34
	0.2L	13+01.36	18.00 RT.	697.55	13+01.36	21.75 RT.	697.49	13+01.36	25.50 RT.	697.43
	0.3L	13+08.63	18.00 RT.	697.65	13+08.63	21.75 RT.	697.59	13+08.63	25.50 RT.	697.53
	0.4L	13+15.90	18.00 RT.	697.73	13+15.90	21.75 RT.	697.67	13+15.90	25.50 RT.	697.61
	0.5L	13+23.17	18.00 RT.	697.81	13+23.17	21.75 RT.	697.75	13+23.17	25.50 RT.	697.69
	0.6L	13+30.43	18.00 RT.	697.88	13+30.43	21.75 RT.	697.82	13+30.43	25.50 RT.	697.76
	0.7L	13+37.70	18.00 RT.	697.94	13+37.70	21.75 RT.	697.88	13+37.70	25.50 RT.	697.82
	0.8L	13+44.97	18.00 RT.	697.99	13+44.97	21.75 RT.	697.93	13+44.97	25.50 RT.	697.87
	0.9L	13+52.23	18.00 RT.	698.04	13+52.23	21.75 RT.	697.98	13+52.23	25.50 RT.	697.92
	℄ PIER 1	13+59.50	18.00 RT.	698.08	13+59.50	21.75 RT.	698.02	13+59.50	25.50 RT.	697.96
SPAN 2	0.1L	13+72.50	18.00 RT.	698.13	13+72.50	21.75 RT.	698.07	13+72.50	25.50 RT.	698.01
	0.2L	13+85.50	18.00 RT.	698.15	13+85.50	21.75 RT.	698.09	13+85.50	25.50 RT.	698.03
	0.3L	13+98.50	18.00 RT.	698.15	13+98.50	21.75 RT.	698.09	13+98.50	25.50 RT.	698.03
	0.4L	14+11.50	18.00 RT.	698.13	14+11.50	21.75 RT.	698.07	14+11.50	25.50 RT.	698.01
	0.5L	14+24.50	18.00 RT.	698.08	14+24.50	21.75 RT.	698.02	14+24.50	25.50 RT.	697.96
	0.6L	14+37.50	18.00 RT.	698.01	14+37.50	21.75 RT.	697.95	14+37.50	25.50 RT.	697.89
	0.7L	14+50.50	18.00 RT.	697.92	14+50.50	21.75 RT.	697.86	14+50.50	25.50 RT.	697.80
	0.8L	14+63.50	18.00 RT.	697.81	14+63.50	21.75 RT.	697.75	14+63.50	25.50 RT.	697.69
	0.9L	14+76.50	18.00 RT.	697.70	14+76.50	21.75 RT.	697.64	14+76.50	25.50 RT.	697.58
	℄ PIER 2	14+89.50	18.00 RT.	697.60	14+89.50	21.75 RT.	697.54	14+89.50	25.50 RT.	697.48
SPAN 3	0.1L	15+02.50	18.00 RT.	697.49	15+02.50	21.75 RT.	697.43	15+02.50	25.50 RT.	697.37
	0.2L	15+15.50	18.00 RT.	697.38	15+15.50	21.75 RT.	697.32	15+15.50	25.50 RT.	697.26
	0.3L	15+28.50	18.00 RT.	697.28	15+28.50	21.75 RT.	697.22	15+28.50	25.50 RT.	697.16
	0.4L	15+41.50	18.00 RT.	697.17	15+41.50	21.75 RT.	697.11	15+41.50	25.50 RT.	697.05
	0.5L	15+54.50	18.00 RT.	697.06	15+54.50	21.75 RT.	697.00	15+54.50	25.50 RT.	696.94
	0.6L	15+67.50	18.00 RT.	696.96	15+67.50	21.75 RT.	696.90	15+67.50	25.50 RT.	696.84
	0.7L	15+80.50	18.00 RT.	696.85	15+80.50	21.75 RT.	696.79	15+80.50	25.50 RT.	696.73
	0.8L	15+93.50	18.00 RT.	696.74	15+93.50	21.75 RT.	696.68	15+93.50	25.50 RT.	696.62
	0.9L	16+06.50	18.00 RT.	696.64	16+06.50	21.75 RT.	696.58	16+06.50	25.50 RT.	696.52
	℄ PIER 3	16+19.50	18.00 RT.	696.53	16+19.50	21.75 RT.	696.47	16+19.50	25.50 RT.	696.41
SPAN 4	0.1L	16+32.50	18.00 RT.	696.42	16+32.50	21.75 RT.	696.36	16+32.50	25.50 RT.	696.30
	0.2L	16+45.50	18.00 RT.	696.32	16+45.50	21.75 RT.	696.26	16+45.50	25.50 RT.	696.20
	0.3L	16+58.50	18.00 RT.	696.21	16+58.50	21.75 RT.	696.15	16+58.50	25.50 RT.	696.09
	0.4L	16+71.50	18.00 RT.	696.11	16+71.50	21.75 RT.	696.05	16+71.50	25.50 RT.	695.99
	0.5L	16+84.50	18.00 RT.	696.00	16+84.50	21.75 RT.	695.94	16+84.50	25.50 RT.	695.88
	0.6L	16+97.50	18.00 RT.	695.89	16+97.50	21.75 RT.	695.83	16+97.50	25.50 RT.	695.77
	0.7L	17+10.50	18.00 RT.	695.79	17+10.50	21.75 RT.	695.73	17+10.50	25.50 RT.	695.67
	0.8L	17+23.50	18.00 RT.	695.68	17+23.50	21.75 RT.	695.62	17+23.50	25.50 RT.	695.56
	0.9L	17+36.50	18.00 RT.	695.57	17+36.50	21.75 RT.	695.51	17+36.50	25.50 RT.	695.45
	℄ PIER 4	17+49.50	18.00 RT.	695.47	17+49.50	21.75 RT.	695.41	17+49.50	25.50 RT.	695.35
SPAN 5	0.1L	17+62.50	18.00 RT.	695.36	17+62.50	21.75 RT.	695.30	17+62.50	25.50 RT.	695.24
	0.2L	17+75.50	18.00 RT.	695.25	17+75.50	21.75 RT.	695.19	17+75.50	25.50 RT.	695.13
	0.3L	17+88.50	18.00 RT.	695.15	17+88.50	21.75 RT.	695.09	17+88.50	25.50 RT.	695.03
	0.4L	18+01.50	18.00 RT.	695.04	18+01.50	21.75 RT.	694.98	18+01.50	25.50 RT.	694.92
	0.5L	18+14.50	18.00 RT.	694.93	18+14.50	21.75 RT.	694.87	18+14.50	25.50 RT.	694.81
	0.6L	18+27.50	18.00 RT.	694.83	18+27.50	21.75 RT.	694.77	18+27.50	25.50 RT.	694.71
	0.7L	18+40.50	18.00 RT.	694.72	18+40.50	21.75 RT.	694.66	18+40.50	25.50 RT.	694.60
	0.8L	18+53.50	18.00 RT.	694.61	18+53.50	21.75 RT.	694.55	18+53.50	25.50 RT.	694.49
	0.9L	18+66.50	18.00 RT.	694.51	18+66.50	21.75 RT.	694.45	18+66.50	25.50 RT.	694.39
	℄ PIER 5	18+79.50	18.00 RT.	694.40	18+79.50	21.75 RT.	694.34	18+79.50	25.50 RT.	694.28

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR TOP OF HAUNCH AND SCREED ELEVATIONS, SEE SHEETS 35/69 THRU 38/69.
3. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.
4. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

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DESIGNED TAS | DRAWN TAS | REVIEWED RLE | DATE 10/2017
CHECKED LAH/CJW | REVISED | STRUCTURE FILE NUMBER 6054145

FINAL ELEVATIONS (2 OF 3)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

FINAL DECK SURFACE ELEVATIONS (CONTINUED)

	LOCATION	LEFT EDGE OF DECK			TOE OF LEFT BARRIER			BEAM 1			BEAM 2			BEAM 3			PROFILE GRADE		BEAM 4			BEAM 5		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ PIER 5	18+79.50	19.50 LT.	694.38	18+79.50	18.00 LT.	694.40	18+79.50	15.75 LT.	694.44	18+79.50	8.25 LT.	694.56	18+79.50	0.75 LT.	694.68	18+79.50	694.69	18+79.50	6.75 RT.	694.58	18+79.50	14.25 RT.	694.46
SPAN 6	0.1L	18+92.50	19.50 LT.	694.27	18+92.50	18.00 LT.	694.29	18+92.50	15.75 LT.	694.33	18+92.50	8.25 LT.	694.45	18+92.50	0.75 LT.	694.57	18+92.50	694.58	18+92.50	6.75 RT.	694.47	18+92.50	14.25 RT.	694.35
	0.2L	19+05.50	19.50 LT.	694.16	19+05.50	18.00 LT.	694.19	19+05.50	15.75 LT.	694.22	19+05.50	8.25 LT.	694.34	19+05.50	0.75 LT.	694.46	19+05.50	694.47	19+05.50	6.75 RT.	694.37	19+05.50	14.25 RT.	694.25
	0.3L	19+18.50	19.50 LT.	694.06	19+18.50	18.00 LT.	694.08	19+18.50	15.75 LT.	694.12	19+18.50	8.25 LT.	694.24	19+18.50	0.75 LT.	694.36	19+18.50	694.37	19+18.50	6.75 RT.	694.26	19+18.50	14.25 RT.	694.14
	0.4L	19+31.50	19.50 LT.	693.95	19+31.50	18.00 LT.	693.97	19+31.50	15.75 LT.	694.01	19+31.50	8.25 LT.	694.13	19+31.50	0.75 LT.	694.25	19+31.50	694.26	19+31.50	6.75 RT.	694.15	19+31.50	14.25 RT.	694.03
	0.5L	19+44.50	19.50 LT.	693.84	19+44.50	18.00 LT.	693.87	19+44.50	15.75 LT.	693.90	19+44.50	8.25 LT.	694.02	19+44.50	0.75 LT.	694.14	19+44.50	694.15	19+44.50	6.75 RT.	694.05	19+44.50	14.25 RT.	693.93
	0.6L	19+57.50	19.50 LT.	693.74	19+57.50	18.00 LT.	693.76	19+57.50	15.75 LT.	693.80	19+57.50	8.25 LT.	693.92	19+57.50	0.75 LT.	694.04	19+57.50	694.05	19+57.50	6.75 RT.	693.94	19+57.50	14.25 RT.	693.82
	0.7L	19+70.50	19.50 LT.	693.63	19+70.50	18.00 LT.	693.65	19+70.50	15.75 LT.	693.69	19+70.50	8.25 LT.	693.81	19+70.50	0.75 LT.	693.93	19+70.50	693.94	19+70.50	6.75 RT.	693.83	19+70.50	14.25 RT.	693.71
	0.8L	19+83.50	19.50 LT.	693.52	19+83.50	18.00 LT.	693.55	19+83.50	15.75 LT.	693.58	19+83.50	8.25 LT.	693.70	19+83.50	0.75 LT.	693.82	19+83.50	693.83	19+83.50	6.75 RT.	693.73	19+83.50	14.25 RT.	693.61
	0.9L	19+96.50	19.50 LT.	693.42	19+96.50	18.00 LT.	693.44	19+96.50	15.75 LT.	693.48	19+96.50	8.25 LT.	693.60	19+96.50	0.75 LT.	693.72	19+96.50	693.73	19+96.50	6.75 RT.	693.62	19+96.50	14.25 RT.	693.50
	℄ PIER 6	20+09.50	19.50 LT.	693.31	20+09.50	18.00 LT.	693.33	20+09.50	15.75 LT.	693.37	20+09.50	8.25 LT.	693.49	20+09.50	0.75 LT.	693.61	20+09.50	693.62	20+09.50	6.75 RT.	693.51	20+09.50	14.25 RT.	693.39
SPAN 7	0.1L	20+22.39	19.50 LT.	693.20	20+22.39	18.00 LT.	693.23	20+22.39	15.75 LT.	693.26	20+22.39	8.25 LT.	693.38	20+22.39	0.75 LT.	693.50	20+22.39	693.52	20+22.39	6.75 RT.	693.41	20+22.39	14.25 RT.	693.29
	0.2L	20+35.28	19.50 LT.	693.10	20+35.28	18.00 LT.	693.12	20+35.28	15.75 LT.	693.16	20+35.28	8.25 LT.	693.28	20+35.28	0.75 LT.	693.40	20+35.28	693.41	20+35.28	6.75 RT.	693.30	20+35.28	14.25 RT.	693.18
	0.3L	20+48.18	19.50 LT.	692.99	20+48.18	18.00 LT.	693.02	20+48.18	15.75 LT.	693.05	20+48.18	8.25 LT.	693.17	20+48.18	0.75 LT.	693.29	20+48.18	693.30	20+48.18	6.75 RT.	693.20	20+48.18	14.25 RT.	693.08
	0.4L	20+61.07	19.50 LT.	692.89	20+61.07	18.00 LT.	692.91	20+61.07	15.75 LT.	692.95	20+61.07	8.25 LT.	693.07	20+61.07	0.75 LT.	693.19	20+61.07	693.20	20+61.07	6.75 RT.	693.09	20+61.07	14.25 RT.	692.97
	0.5L	20+73.96	19.50 LT.	692.78	20+73.96	18.00 LT.	692.80	20+73.96	15.75 LT.	692.84	20+73.96	8.25 LT.	692.96	20+73.96	0.75 LT.	693.08	20+73.96	693.09	20+73.96	6.75 RT.	692.98	20+73.96	14.25 RT.	692.86
	0.6L	20+86.85	19.50 LT.	692.68	20+86.85	18.00 LT.	692.70	20+86.85	15.75 LT.	692.74	20+86.85	8.25 LT.	692.86	20+86.85	0.75 LT.	692.98	20+86.85	692.99	20+86.85	6.75 RT.	692.88	20+86.85	14.25 RT.	692.76
	0.7L	20+99.74	19.50 LT.	692.57	20+99.74	18.00 LT.	692.59	20+99.74	15.75 LT.	692.63	20+99.74	8.25 LT.	692.75	20+99.74	0.75 LT.	692.87	20+99.74	692.88	20+99.74	6.75 RT.	692.77	20+99.74	14.25 RT.	692.65
	0.8L	21+12.63	19.50 LT.	692.46	21+12.63	18.00 LT.	692.49	21+12.63	15.75 LT.	692.52	21+12.63	8.25 LT.	692.64	21+12.63	0.75 LT.	692.76	21+12.63	692.78	21+12.63	6.75 RT.	692.67	21+12.63	14.25 RT.	692.55
	0.9L	21+25.53	19.50 LT.	692.38	21+25.53	18.00 LT.	692.41	21+25.53	15.75 LT.	692.44	21+25.53	8.25 LT.	692.56	21+25.53	0.75 LT.	692.68	21+25.53	692.69	21+25.53	6.75 RT.	692.59	21+25.53	14.25 RT.	692.47
	℄ BRG. F.A.	21+38.63	19.47 LT.	692.33	21+38.61	17.97 LT.	692.35	21+38.59	15.72 LT.	692.39	21+38.51	8.22 LT.	692.51	21+38.42	0.72 LT.	692.63	21+38.42	692.64	21+38.35	6.78 RT.	692.53	21+38.27	14.28 RT.	692.41

FINAL DECK SURFACE ELEVATIONS (CONTINUED)

	LOCATION	TOE OF RIGHT BARRIER			BEAM 6			RIGHT EDGE OF DECK		
		STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
	℄ PIER 5	18+79.50	18.00 RT.	694.40	18+79.50	21.75 RT.	694.34	18+79.50	25.50 RT.	694.28
SPAN 6	0.1L	18+92.50	18.00 RT.	694.29	18+92.50	21.75 RT.	694.23	18+92.50	25.50 RT.	694.17
	0.2L	19+05.50	18.00 RT.	694.19	19+05.50	21.75 RT.	694.13	19+05.50	25.50 RT.	694.07
	0.3L	19+18.50	18.00 RT.	694.08	19+18.50	21.75 RT.	694.02	19+18.50	25.50 RT.	693.96
	0.4L	19+31.50	18.00 RT.	693.97	19+31.50	21.75 RT.	693.91	19+31.50	25.50 RT.	693.85
	0.5L	19+44.50	18.00 RT.	693.87	19+44.50	21.75 RT.	693.81	19+44.50	25.50 RT.	693.75
	0.6L	19+57.50	18.00 RT.	693.76	19+57.50	21.75 RT.	693.70	19+57.50	25.50 RT.	693.64
	0.7L	19+70.50	18.00 RT.	693.65	19+70.50	21.75 RT.	693.59	19+70.50	25.50 RT.	693.53
	0.8L	19+83.50	18.00 RT.	693.55	19+83.50	21.75 RT.	693.49	19+83.50	25.50 RT.	693.43
	0.9L	19+96.50	18.00 RT.	693.44	19+96.50	21.75 RT.	693.38	19+96.50	25.50 RT.	693.32
	℄ PIER 6	20+09.50	18.00 RT.	693.33	20+09.50	21.75 RT.	693.27	20+09.50	25.50 RT.	693.21
SPAN 7	0.1L	20+22.39	18.00 RT.	693.23	20+22.39	21.75 RT.	693.17	20+22.39	25.50 RT.	693.11
	0.2L	20+35.28	18.00 RT.	693.12	20+35.28	21.75 RT.	693.06	20+35.28	25.50 RT.	693.00
	0.3L	20+48.18	18.00 RT.	693.02	20+48.18	21.75 RT.	692.96	20+48.18	25.50 RT.	692.90
	0.4L	20+61.07	18.00 RT.	692.91	20+61.07	21.75 RT.	692.85	20+61.07	25.50 RT.	692.79
	0.5L	20+73.96	18.00 RT.	692.80	20+73.96	21.75 RT.	692.74	20+73.96	25.50 RT.	692.68
	0.6L	20+86.85	18.00 RT.	692.70	20+86.85	21.75 RT.	692.64	20+86.85	25.50 RT.	692.58
	0.7L	20+99.74	18.00 RT.	692.59	20+99.74	21.75 RT.	692.53	20+99.74	25.50 RT.	692.47
	0.8L	21+12.63	18.00 RT.	692.49	21+12.63	21.75 RT.	692.43	21+12.63	25.50 RT.	692.37
	0.9L	21+25.53	18.00 RT.	692.41	21+25.53	21.75 RT.	692.35	21+25.53	25.50 RT.	692.29
	℄ BRG. F.A.	21+38.23	18.03 RT.	692.35	21+38.20	21.78 RT.	692.29	21+38.16	25.53 RT.	692.23

NOTES:

1. FOR DECK KEY PLAN AND TYPICAL CROSS SECTION, SEE SHEET 34/69.
2. FOR TOP OF HAUNCH AND SCREED ELEVATIONS, SEE SHEETS 35/69 THRU 38/69.
3. FOR HAUNCH THICKNESSES, SEE SHEETS 39/69 AND 40/69.
4. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

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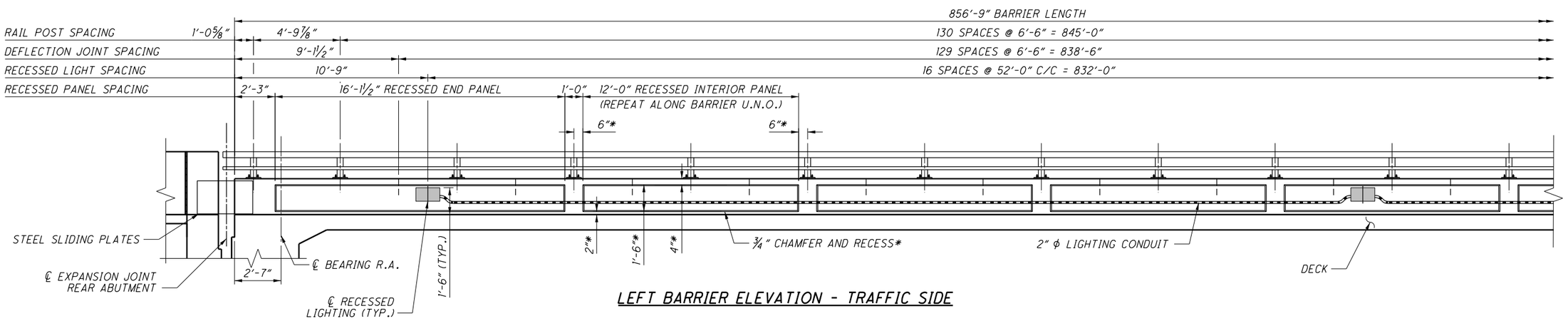
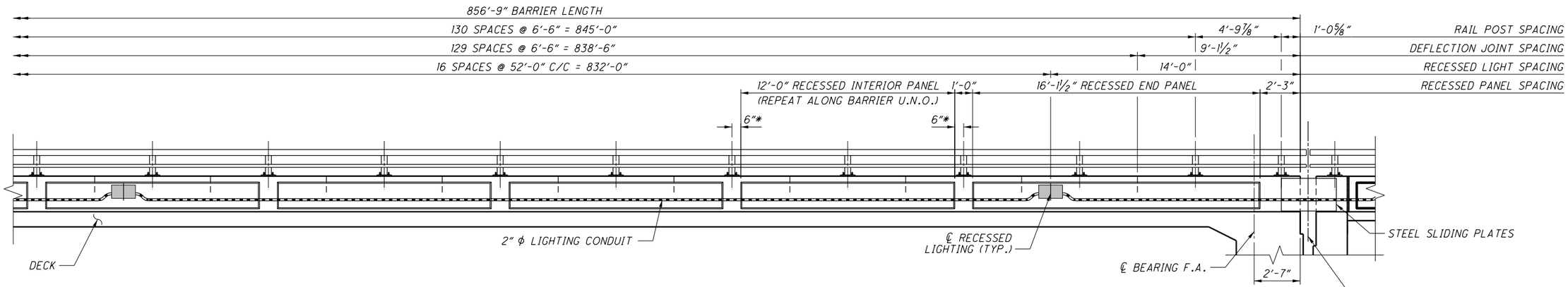
FINAL ELEVATIONS (3 OF 3)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



LEFT BARRIER ELEVATION - TRAFFIC SIDE



LEFT BARRIER ELEVATION - TRAFFIC SIDE

LEGEND:

* - TYPICAL AT ALL RECESSED PANELS ON THE LEFT BARRIER UNLESS NOTED OTHEWISE

▭ - RECESSED LIGHTING

NOTES:

1. FOR EXPANSION JOINT DETAILS AND STEEL SLIDING PLATE DETAILS, SEE SHEETS 58/69 AND 59/69.
2. FOR ADDITIONAL DETAILS AND NOTES, SEE ODOT STANDARD DRAWING BR-2-15.
3. SEE SHEET 47/69 FOR RAILING SPACING ON FORWARD ABUTMENT BARRIER TRANSITION.
4. FOR BARRIER SEALING LIMITS, SEE SHEETS 33/69, 62/69 AND 63/69.
5. THE ENTIRE LEFT BARRIER EXCLUDING LIGHTING EQUIPMENT SHALL BE PAID FOR UNDER ITEM 517 - RAILING, MISC.: CONCRETE PARAPET CLASS QC2 CONCRETE WITH QC/QA AND STEEL RAILING

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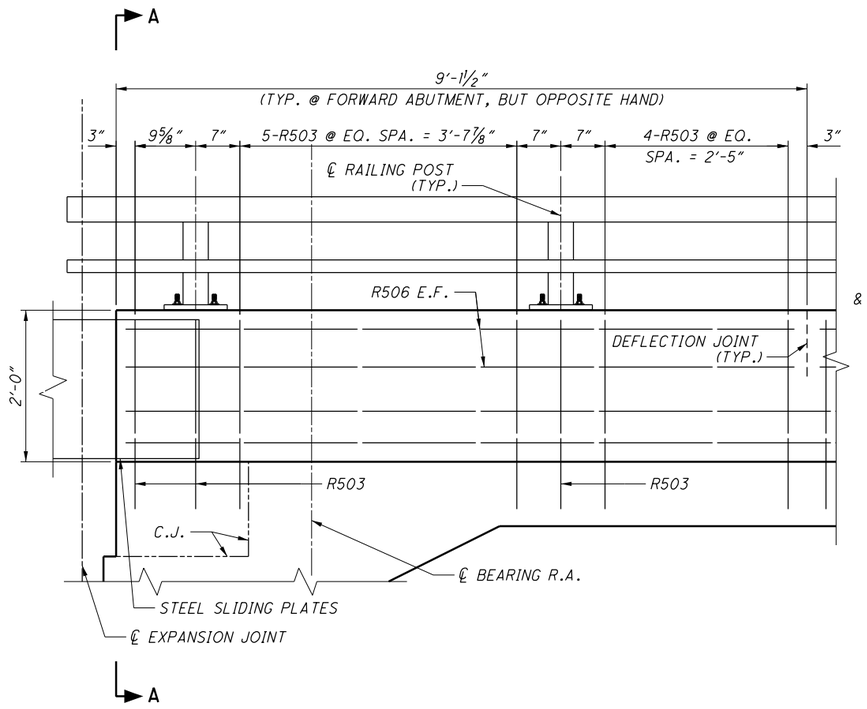
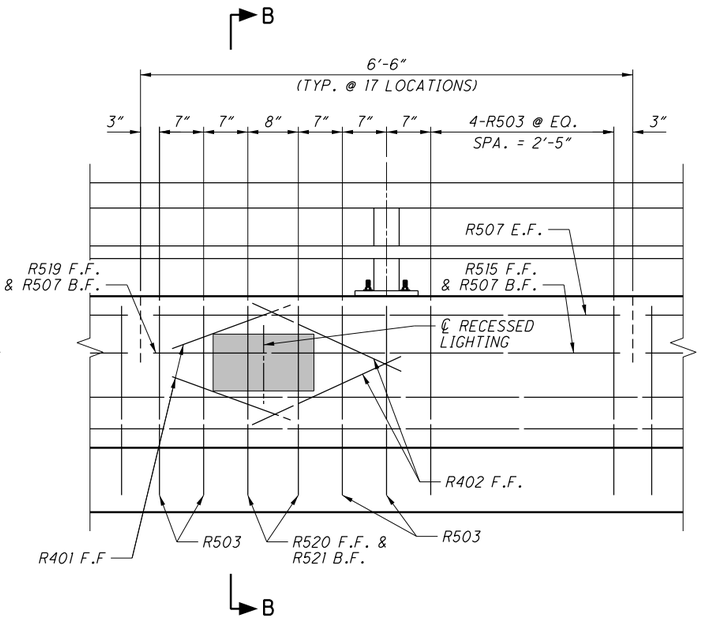
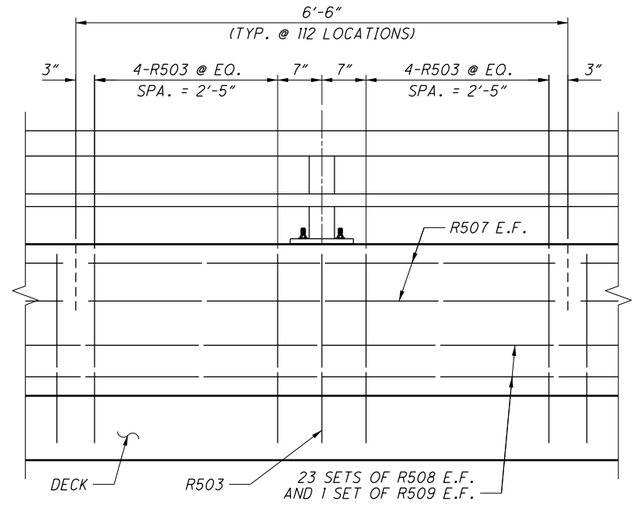
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		6054145	

LEFT BARRIER DETAILS (1 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

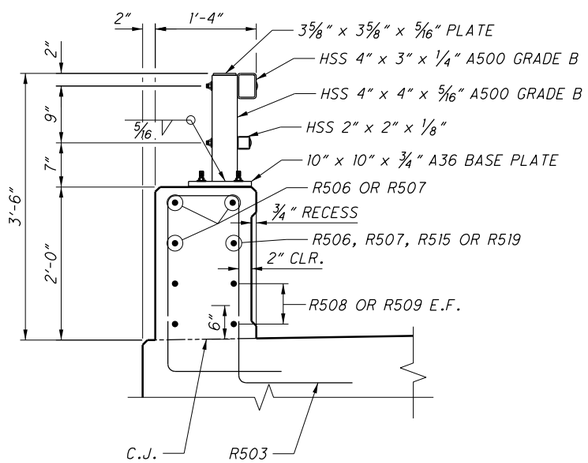






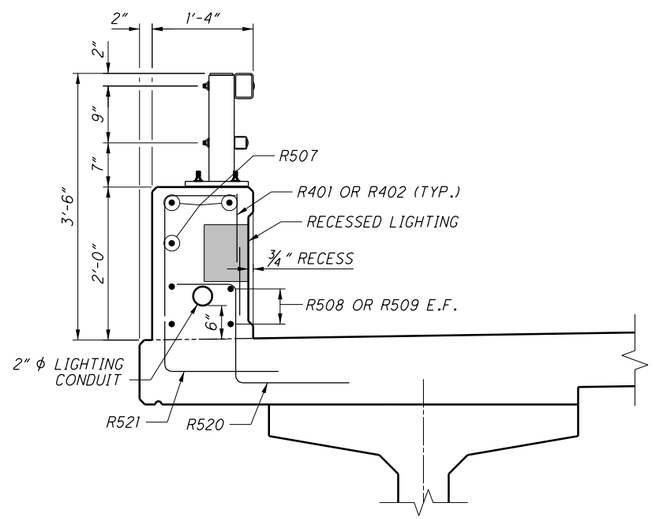
TYPICAL LEFT BARRIER ELEVATION - TRAFFIC SIDE

(RECESSED PANELS AND LIGHTING CONDUIT NOT SHOWN FOR CLARITY)



SECTION A-A

TOP RAIL - ¾" ϕ x 8½" SLOTTED ROUND HEAD A307 BOLTS, WITH 1 PLATE WASHER, 1 LOCK WASHER AND HEX. NUT (TYP.)
BOTTOM RAIL - ⅝" ϕ x 7½" SLOTTED ROUND HEAD BOLTS, WITH 1 FLAT WASHER, 1 LOCK WASHER AND HEX. NUT (TYP.)



SECTION B-B

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-3" MIN.

LEGEND:

- RECESSED LIGHTING

NOTES:

1. FOR NOTES, SEE SHEET 44/69.

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		6054145	

LEFT BARRIER DETAILS (2 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

45/69

154/192

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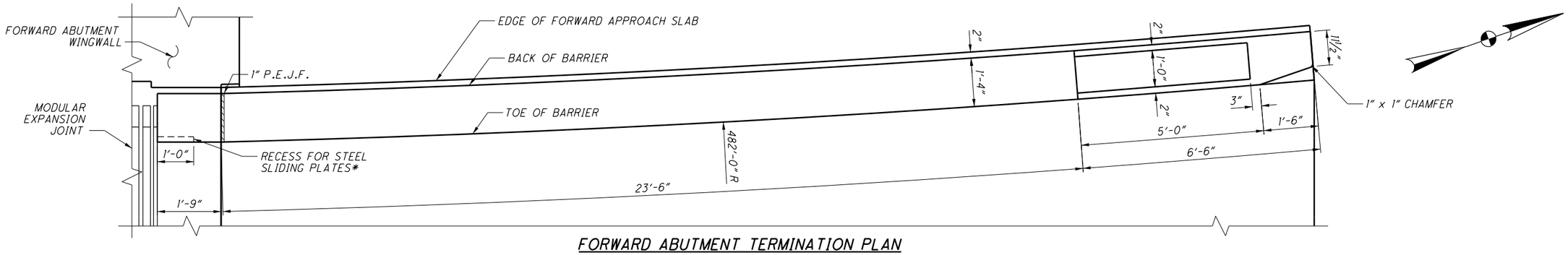
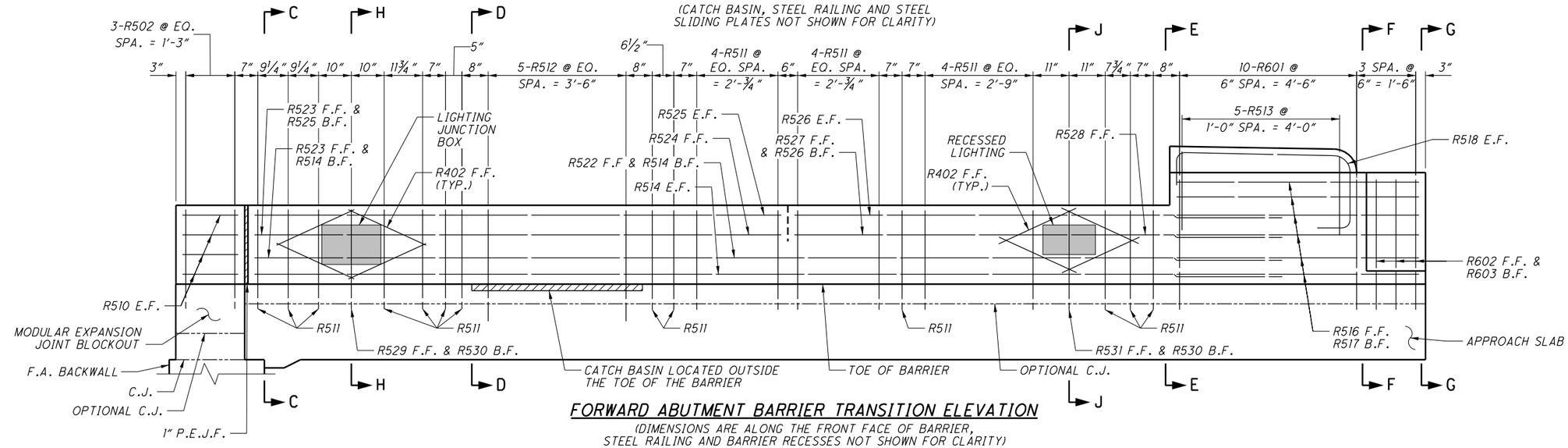


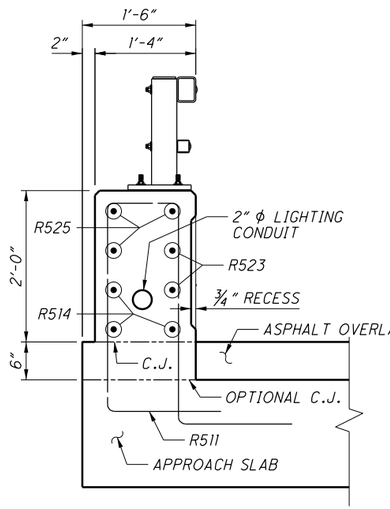
FORWARD ABUTMENT TERMINATION PLAN

(CATCH BASIN, STEEL RAILING AND STEEL SLIDING PLATES NOT SHOWN FOR CLARITY)

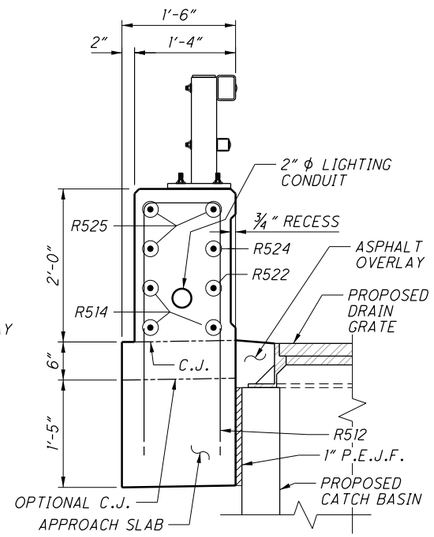


FORWARD ABUTMENT BARRIER TRANSITION ELEVATION

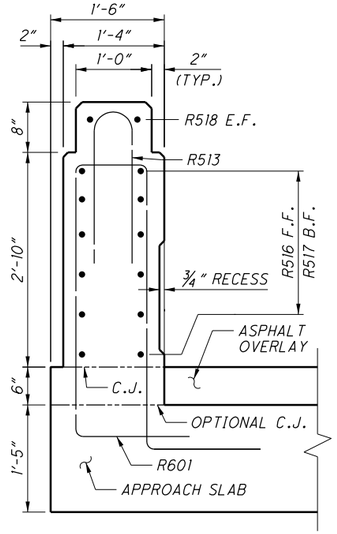
(DIMENSIONS ARE ALONG THE FRONT FACE OF BARRIER, STEEL RAILING AND BARRIER RECESSES NOT SHOWN FOR CLARITY)



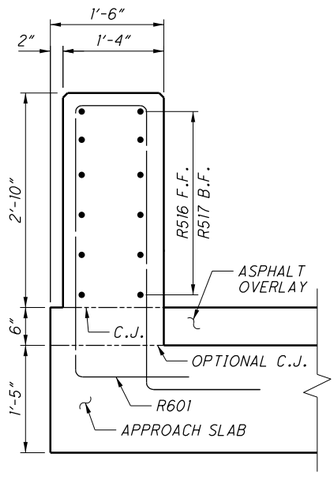
SECTION C-C



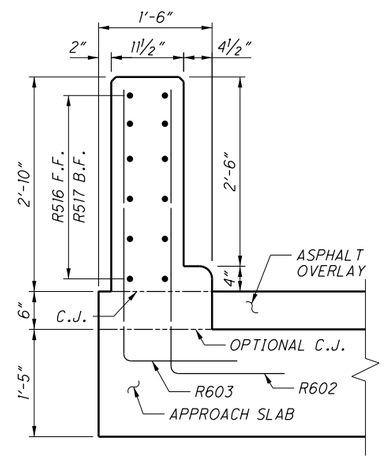
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-3" MIN.

LEGEND:

* - SLIDING PLATES NOT SHOWN FOR CLARITY, SEE SHEET 59/69 FOR SLIDING PLATE DETAILS

▭ - RECESSED LIGHTING OR JUNCTION BOX

NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEET 44/69.
2. FOR CATCH BASIN DETAILS, SEE SHEETS 63/69 AND 64/69.
3. FOR SECTIONS H-H AND J-J, SEE SHEET 47/69.

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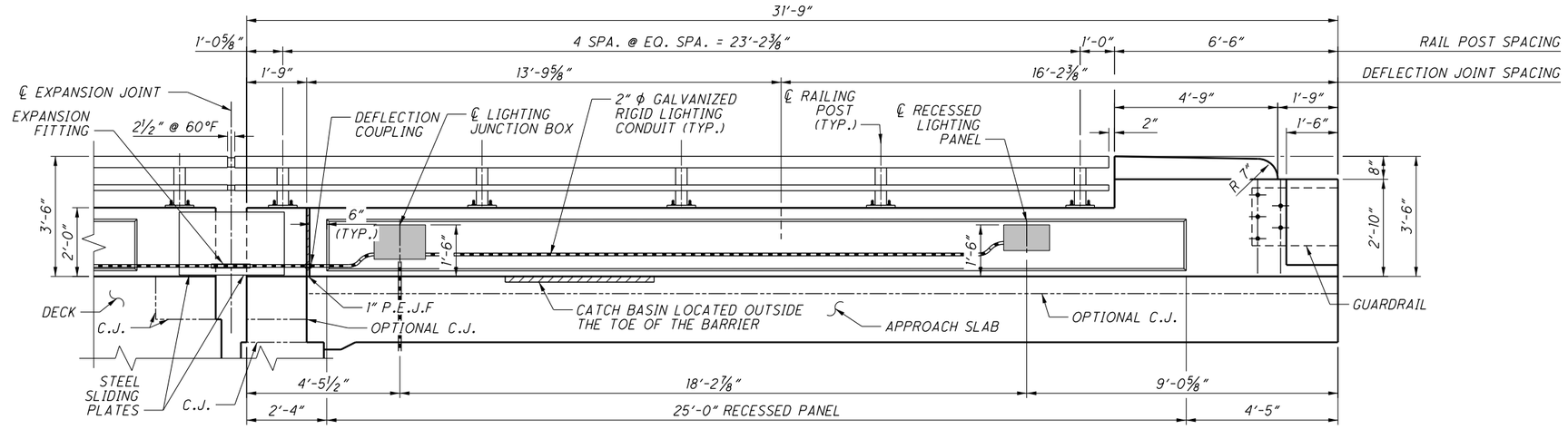
LEFT BARRIER DETAILS (3 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

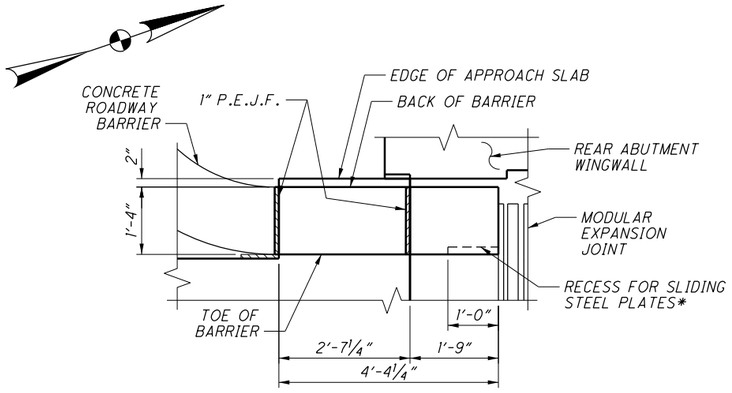
46 / 69

155 / 192

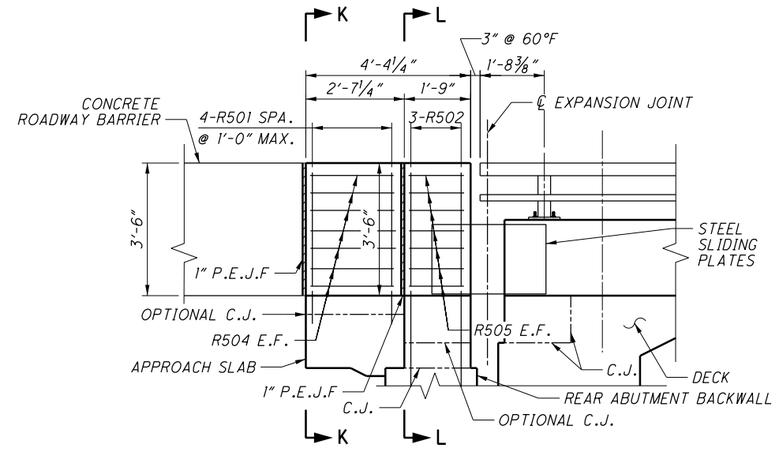


FORWARD ABUTMENT BARRIER TRANSITION ELEVATION

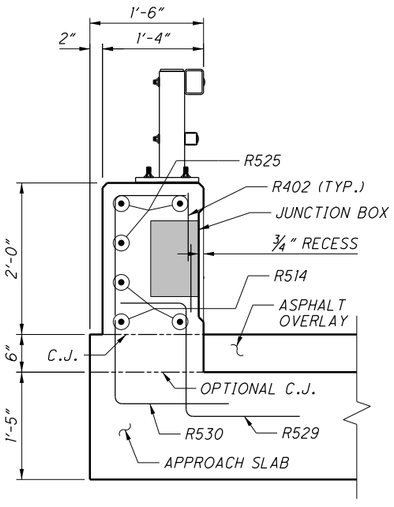
(DIMENSIONS ARE ALONG THE FRONT FACE OF BARRIER)



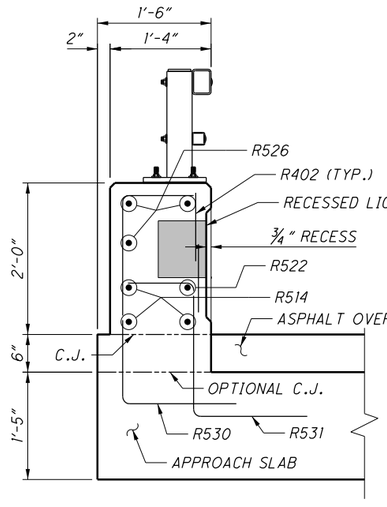
REAR ABUTMENT TERMINATION PLAN



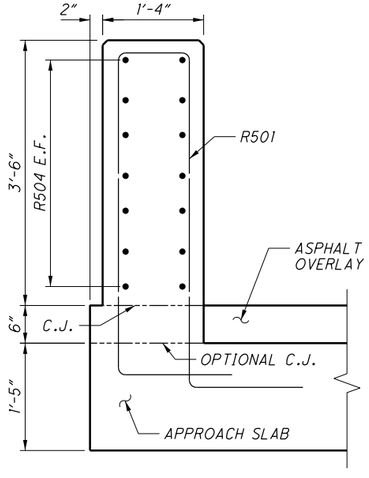
REAR ABUTMENT TERMINATION ELEVATION



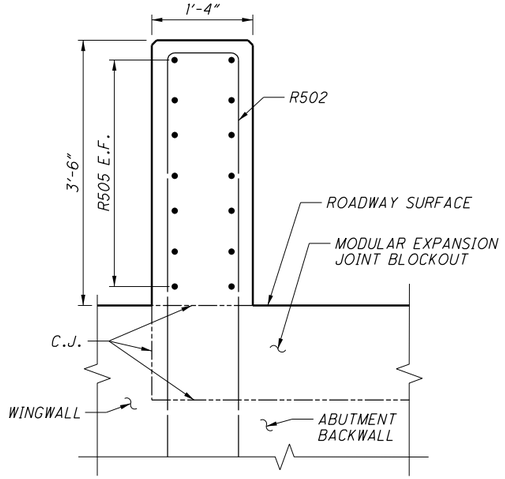
SECTION H-H



SECTION J-J



SECTION K-K



SECTION L-L

LEGEND:

* - SLIDING PLATES NOT SHOWN FOR CLARITY, SEE SHEET 59/69 FOR SLIDING PLATE DETAILS

▭ - RECESSED LIGHTING OR JUNCTION BOX

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-3" MIN.

NOTES:

1. FOR NOTES, SEE SHEET 44/69.

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JOL		6054145	

LEFT BARRIER DETAILS (4 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

47/69
156/192

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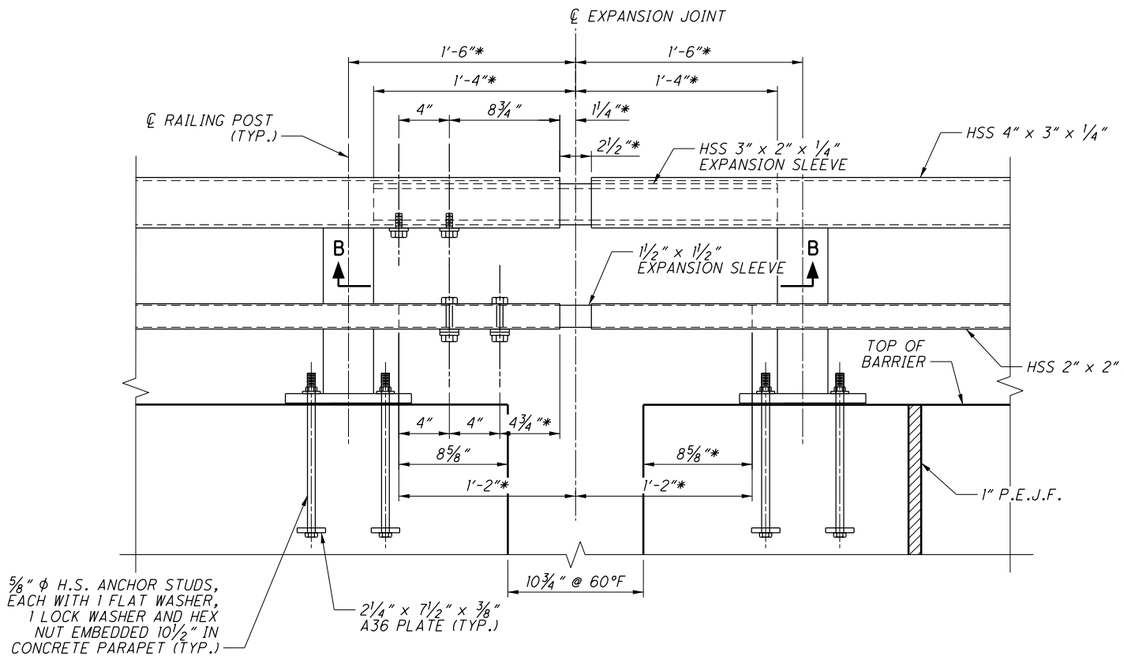
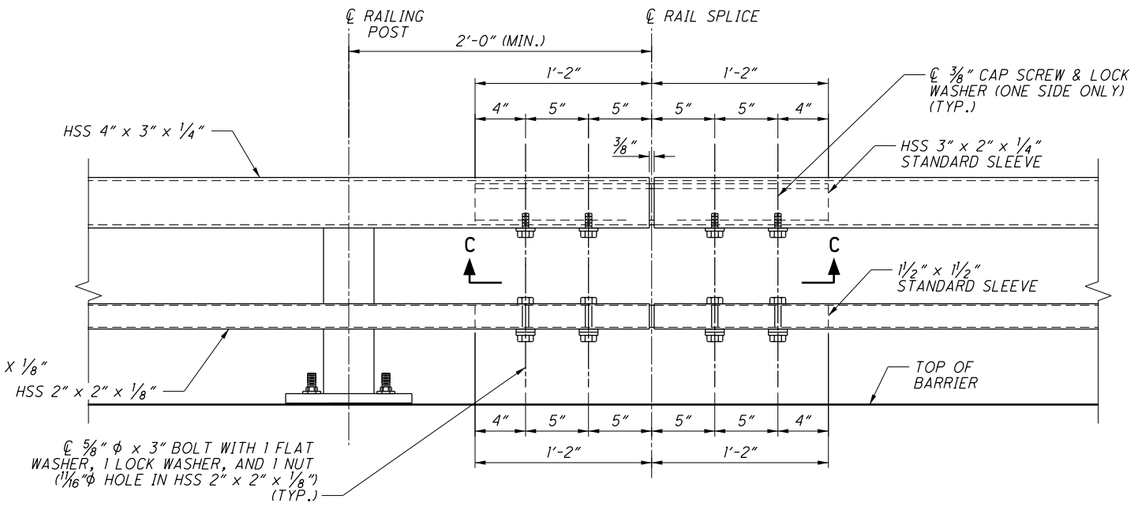
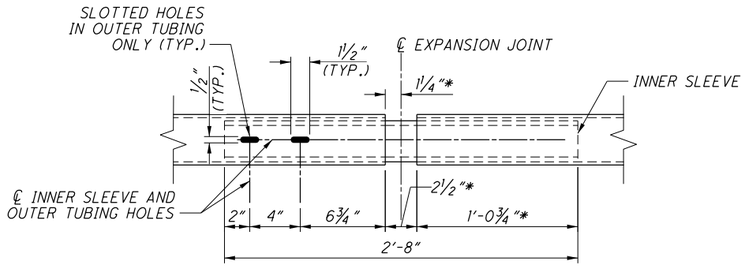


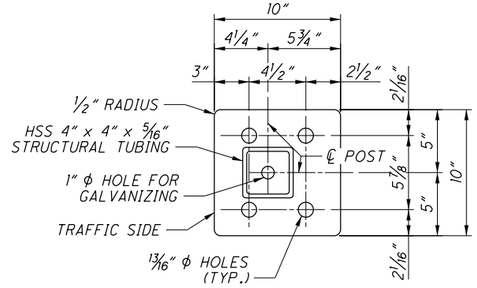
EXPANSION SPLICE
(FORWARD ABUTMENT ONLY)



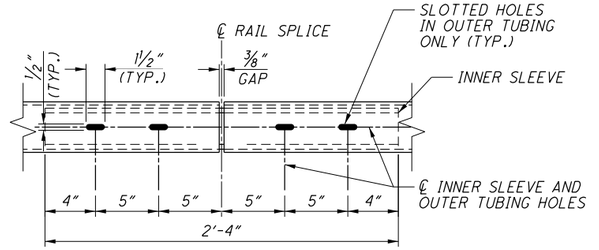
STANDARD SPLICE



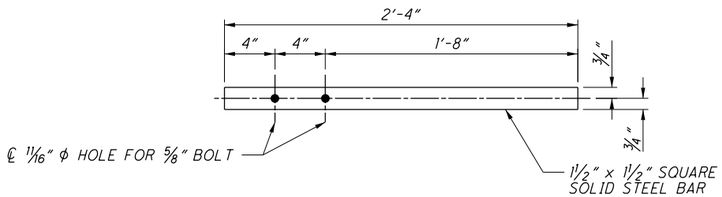
VIEW B-B
(TOP RAIL)



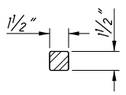
BASE PLATE DETAIL



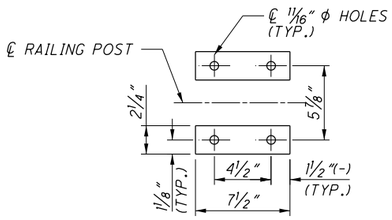
VIEW C-C
(TOP RAIL)



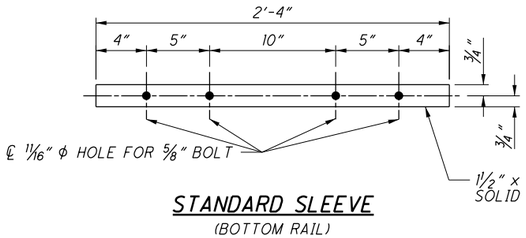
EXPANSION SLEEVE
(BOTTOM RAIL)



END VIEW
(GRIND EDGES AND CORNERS TO FIT INSIDE TUBE)



EMBEDDED ANCHOR STUD PLATES



STANDARD SLEEVE
(BOTTOM RAIL)

LEGEND:
* - DIMENSION GIVEN @ 60°F

NOTES:
1. FOR NOTES, SEE SHEET 44/69.

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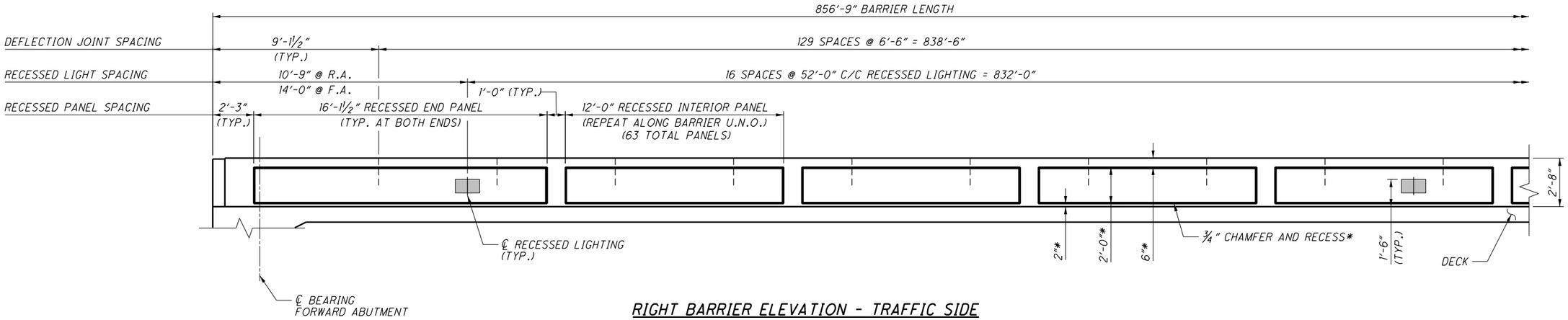
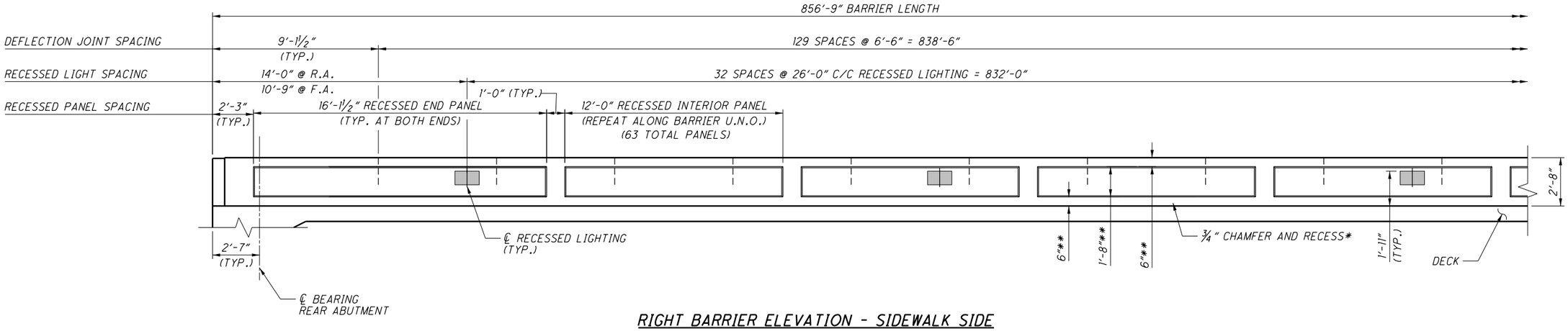
TAS	LAH	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JOL		6054145	

LEFT BARRIER DETAILS (5 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



RIGHT BARRIER ELEVATION - TRAFFIC SIDE



RIGHT BARRIER ELEVATION - SIDEWALK SIDE

LEGEND:

* - TYPICAL AT ALL RECESSED PANELS ON THE TRAFFIC SIDE OF THE RIGHT BARRIER

** - TYPICAL AT ALL RECESSED PANELS ON THE SIDEWALK SIDE OF THE RIGHT BARRIER

▭ - RECESSED LIGHTING

NOTES:

1. FOR EXPANSION JOINT DETAILS AND SLIDING COVER PLATE DETAILS, SEE SHEETS 58/69 THRU 61/69.
2. FOR ADDITIONAL DETAILS AND NOTES, SEE ODOT STANDARD DRAWING SBR-1-13.
3. FOR SIDEWALK TRANSITION DETAILS, SEE SHEETS 62/69 AND 63/69.
4. FOR BARRIER SLIDING PLATE DETAILS, SEE SHEET 61/69.
5. FOR BARRIER SEALING LIMITS, SEE SHEETS 33/69, 62/69 AND 63/69.

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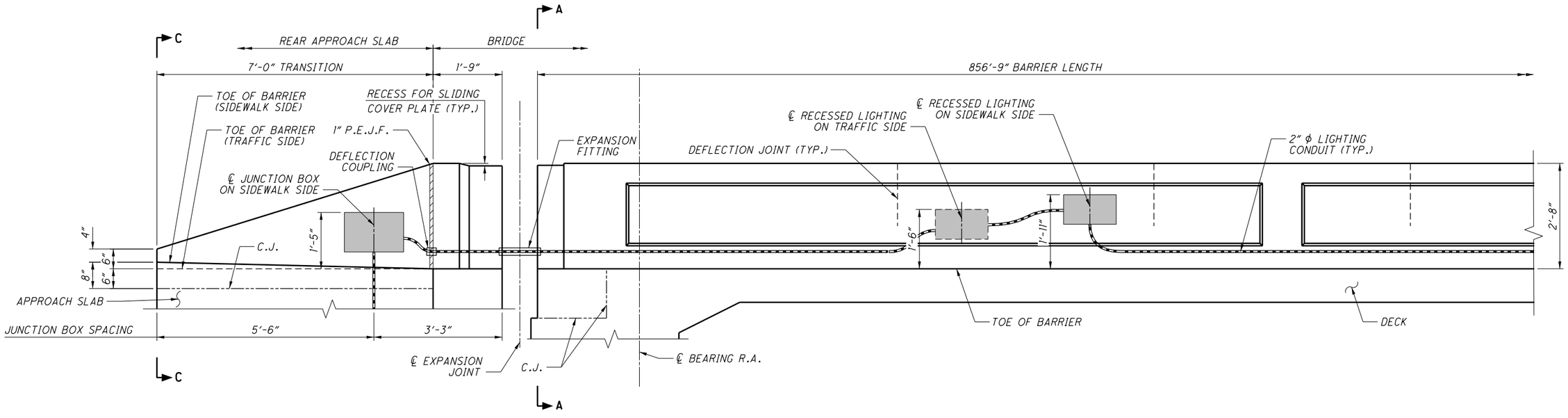
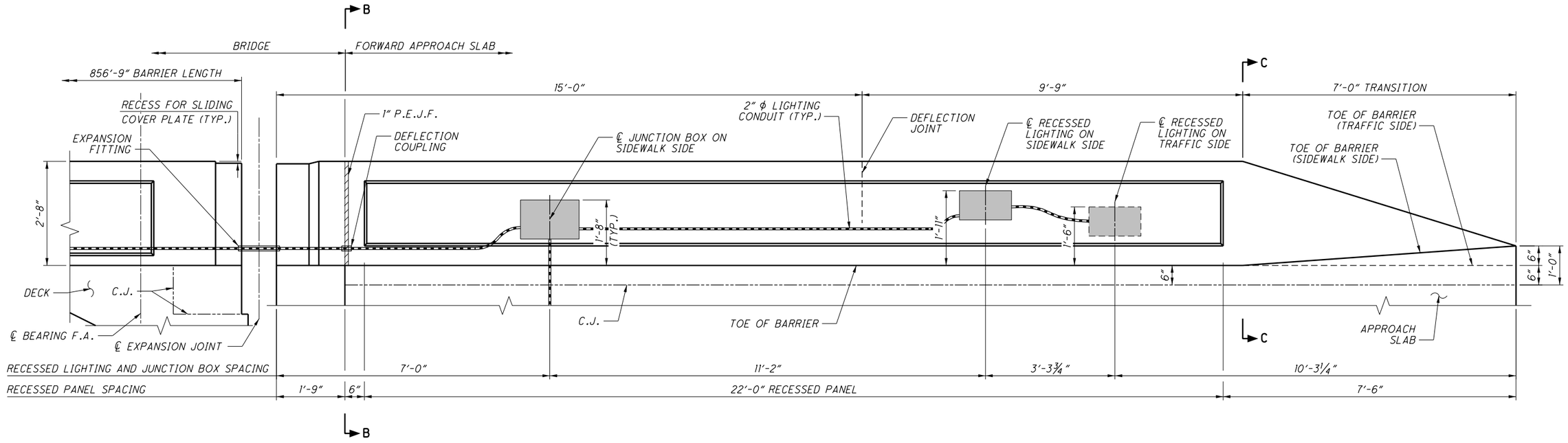
RIGHT BARRIER DETAILS (1 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



REAR ABUTMENT TERMINATION ELEVATION



FORWARD ABUTMENT TERMINATION ELEVATION

(CATCH BASIN NOT SHOWN FOR CLARITY, DIMENSIONS MEASURED ALONG SIDEWALK FACE OF BARRIER)

LEGEND:

▭ - RECESSED LIGHTING OR JUNCTION BOX

NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEET 49/69.
2. FOR SECTIONS A-A, B-B, AND C-C, SEE SHEET 51/69.
3. FOR LIGHTING DETAILS IN THE SUPERSTRUCTURE, SEE SHEET 49/69.

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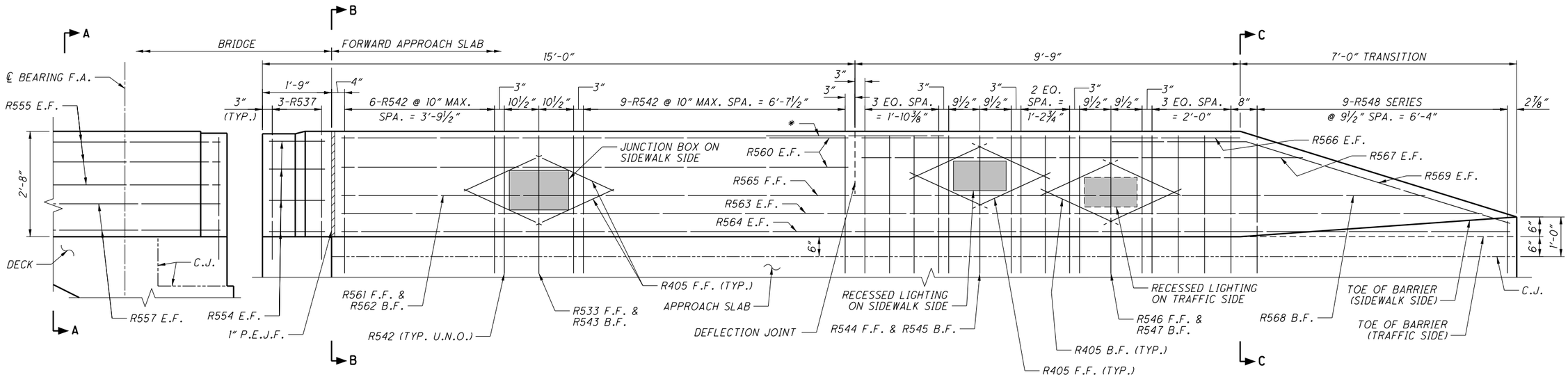
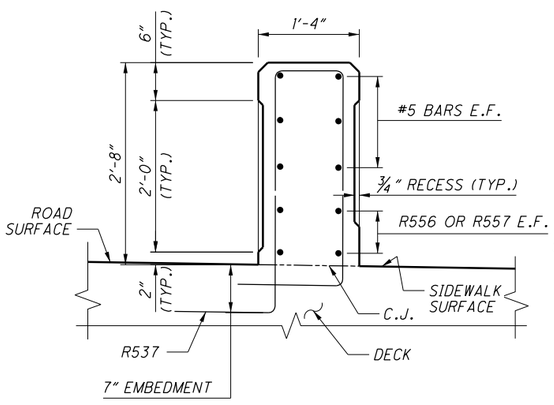
RIGHT BARRIER DETAILS (2 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



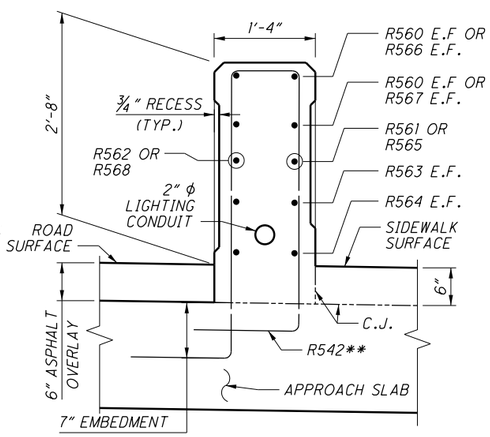
FORWARD ABUTMENT TERMINATION ELEVATION

(SIDEWALK SIDE SHOWN, DIMENSIONS MEASURED ALONG SIDEWALK FACE)

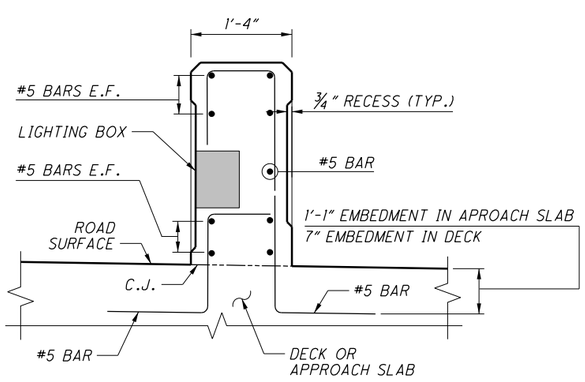


SECTION A-A

(2" ϕ LIGHTING CONDUIT NOT SHOWN)

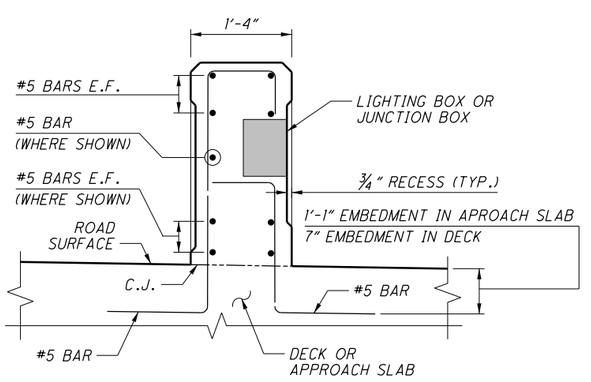


SECTION B-B



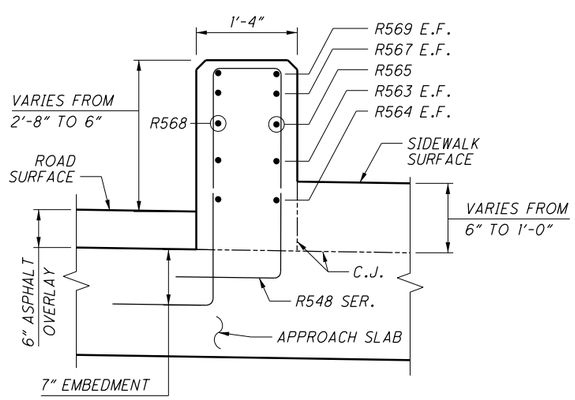
TYPICAL BARRIER SECTION @ LIGHTING BOX ON TRAFFIC SIDE

(R403 THROUGH R405 NOT SHOWN, SEE ELEVATION VIEW)



TYPICAL BARRIER SECTION @ LIGHTING OR JUNCTION BOX ON SIDEWALK SIDE

(R403 THROUGH R405 NOT SHOWN, SEE ELEVATION VIEW)



SECTION C-C

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-3" MIN.

NOTES:

1. FOR NOTES, SEE SHEET 49/69.

LEGEND:

* - ½" ϕ GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENTS, 4'-6" LONG, CENTERED ON DEFLECTION JOINT (TYP. @ ALL DEFLECTION JOINTS IN BARRIER)

** - BETWEEN LIGHTING AND JUNCTION BOXES

- JUNCTION BOX OR RECESSED LIGHTING

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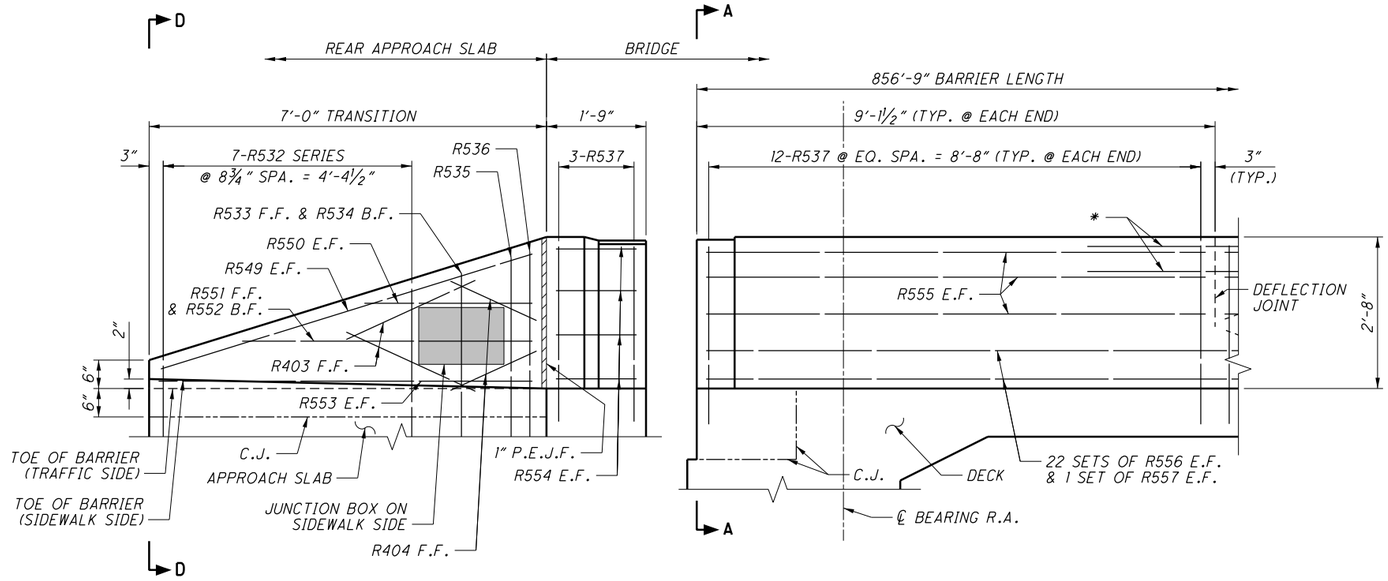
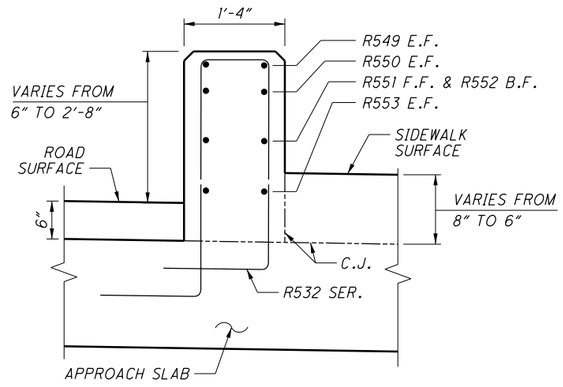
RIGHT BARRIER DETAILS (3 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

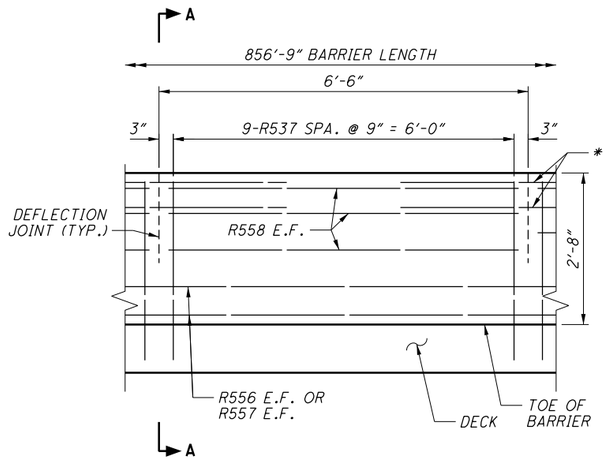
MUS-CR32-0.00
PID No. 97346



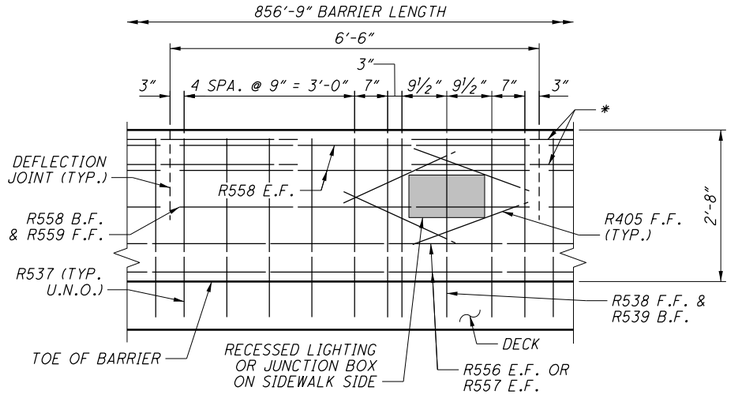
REAR ABUTMENT TERMINATION ELEVATION
(SIDEWALK SIDE SHOWN)



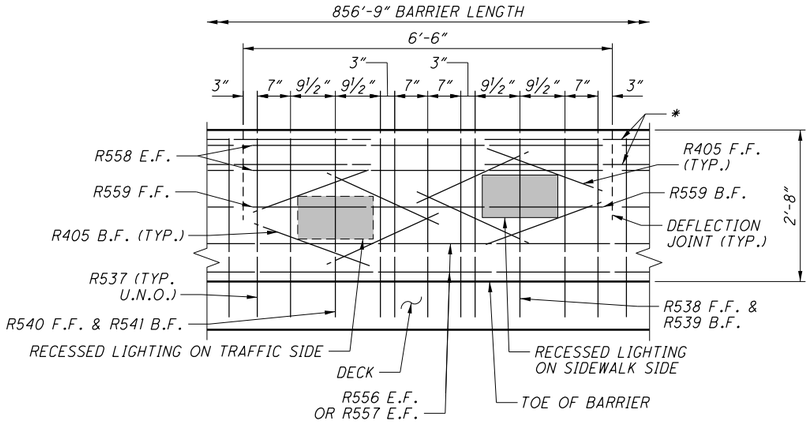
SECTION D-D



SUPERSTRUCTURE BARRIER ELEVATION - 6'-6" SECTION WITH NO LIGHTING BOXES
(TYPICAL @ 96 LOCATIONS)
(SIDEWALK SIDE SHOWN)



SUPERSTRUCTURE BARRIER ELEVATION - 6'-6" SECTION WITH ONE LIGHTING/JUNCTION BOX
(TYPICAL @ 16 LOCATIONS)
(SIDEWALK SIDE SHOWN)



SUPERSTRUCTURE BARRIER ELEVATION - 6'-6" SECTION WITH DUAL LIGHTING BOXES
(TYPICAL @ 17 LOCATIONS)
(SIDEWALK SIDE SHOWN)

LEGEND:

* - ½" ϕ GLASS FIBER REINFORCED POLYMER (GFRP) STIFFENING REINFORCEMENTS, 4'-6" LONG, CENTERED ON DEFLECTION JOINT (TYP. @ ALL DEFLECTION JOINTS IN BARRIER)

▭ - RECESSED LIGHTING OR JUNCTION BOX

REQUIRED LAP LENGTHS	
NO. 5 BARS	2'-3" MIN.

NOTES:

1. FOR NOTES, SEE SHEET 49/69.
2. FOR SECTIONS A-A, SEE SHEET 51/69.

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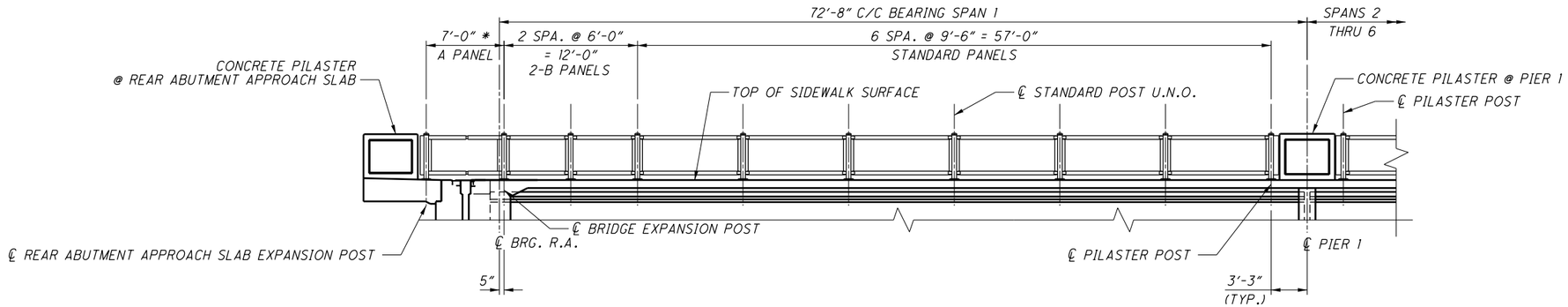
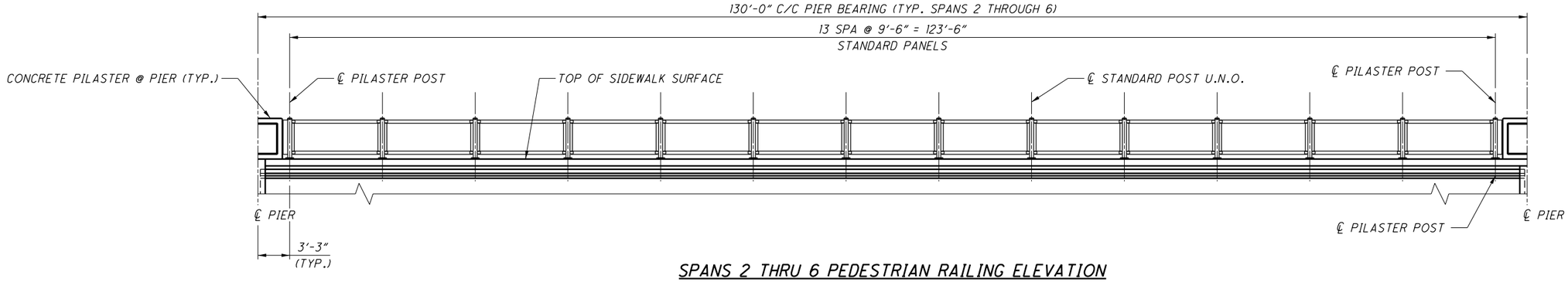
MRV		6054145	

RIGHT BARRIER DETAILS (4 OF 4)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

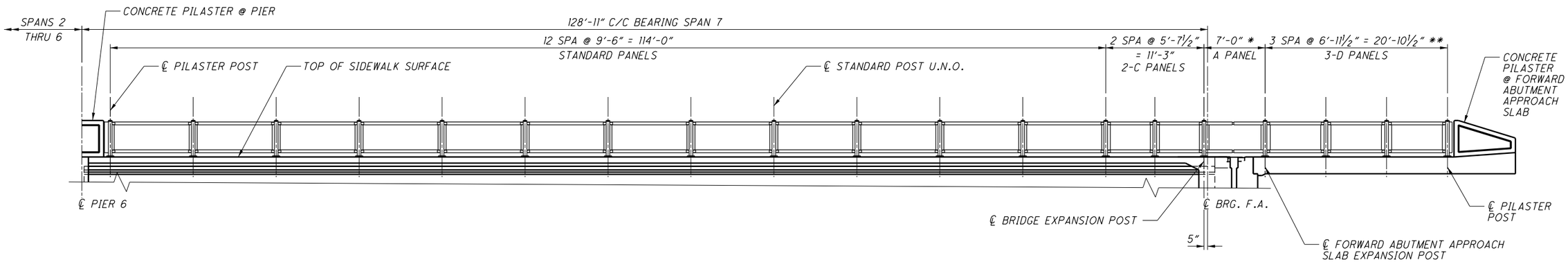
MUS-CR32-0.00
PID No. 97346



REAR ABUTMENT APPROACH AND SPAN 1 PEDESTRIAN RAILING ELEVATION



SPANS 2 THRU 6 PEDESTRIAN RAILING ELEVATION



SPAN 7 AND FORWARD ABUTMENT APPROACH PEDESTRIAN RAILING ELEVATION

LEGEND:

* - DIMENSIONS AT 60°F

** - MEASURED ALONG ℄ RAILING. SEE SHEET 57/69 FOR PLAN VIEW LAYOUT.

NOTES:

1. FOR DETAILS OF THE STANDARD PANEL, A, B, C AND D PANELS, AND THE CONCRETE PILASTER @ PIER, SEE SHEETS 54/69 AND 56/69.
2. FOR DETAILS OF THE POSTS, SEE SHEET 55/69.
3. PEDESTRIAN RAILING INCLUDING STEEL HANDRAILS AND CONCRETE PILASTERS SHALL BE PAID FOR UNDER ITEM 517, RAILING, MISC.: STEEL HANDRAIL SYSTEMS INCLUDING CONRETE PILASTERS CLASS QC2 CONCRETE.

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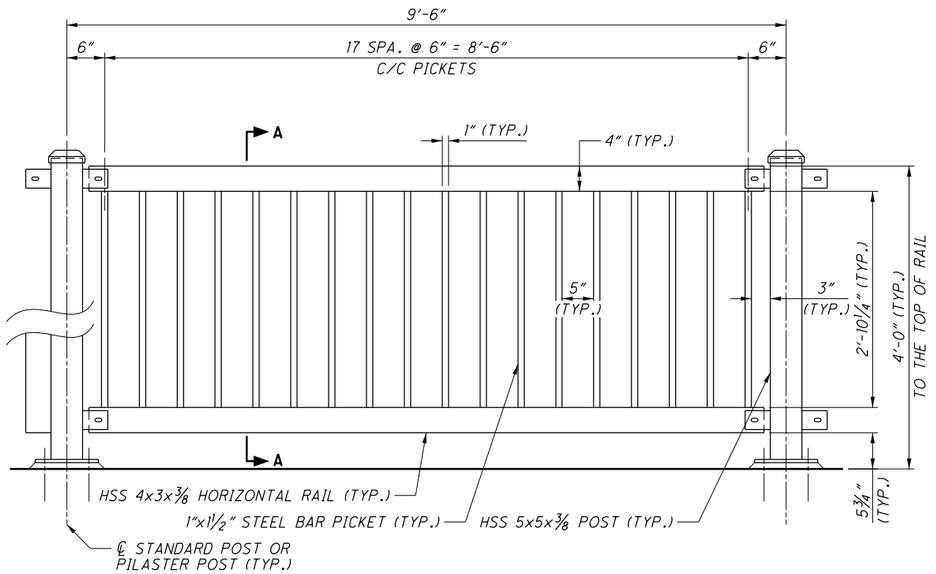
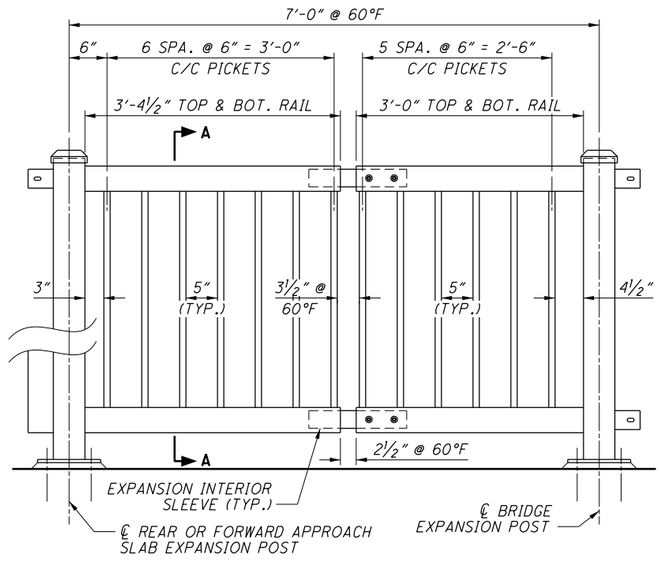
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NBR/JOL		6054145	

PEDESTRIAN RAILING DETAILS (1 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

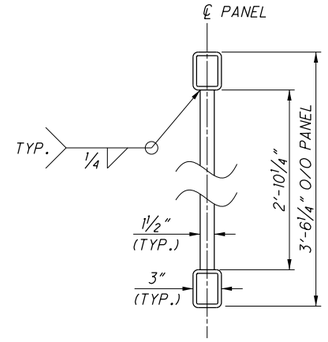


STANDARD PANEL

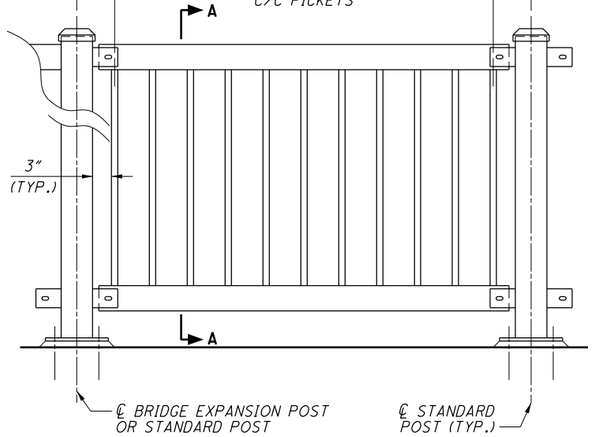


A PANEL (EXPANSION PANEL)

DIMENSIONS AND DETAILS NOT SHOWN ARE SAME AS STANDARD PANEL
(REAR ABUTMENT EAST ELEV. SHOWN, FORWARD ABUTMENT OPPOSITE HAND)

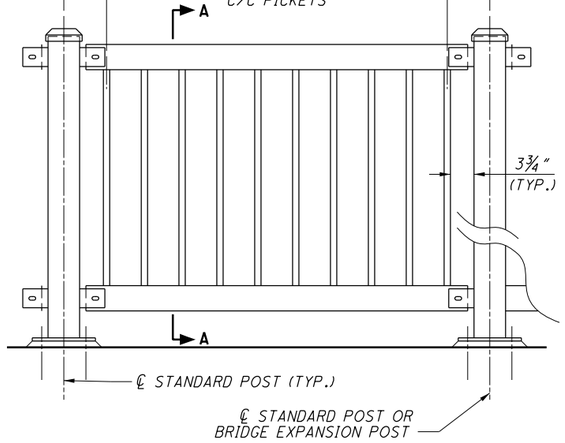


SECTION A-A



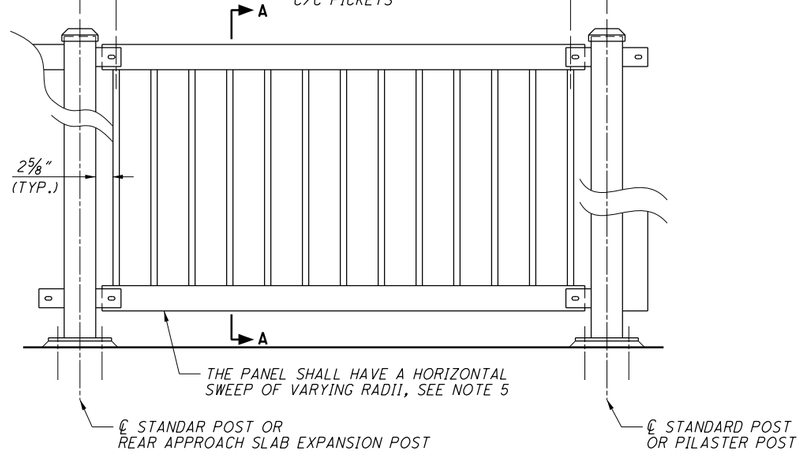
B PANEL

DIMENSIONS AND DETAILS NOT SHOWN ARE SAME AS STANDARD PANEL



C PANEL

DIMENSIONS AND DETAILS NOT SHOWN
ARE SAME AS STANDARD PANEL



D PANEL (CURVED PANEL)

DIMENSIONS AND DETAILS NOT SHOWN ARE SAME AS STANDARD PANEL
(ALL HORIZONTAL DISTANCES ARE DEVELOPED DISTANCES)

LEGEND:

* - 4" @ 60°F

** - MEASURED ALONG ℄ RAILING. SEE SHEET 57/69 FOR PLAN VIEW LAYOUT.

NOTES:

1. FOR LOCATIONS OF THE PANELS, SEE SHEET 53/69.
2. FOR DETAILS OF THE PILASTERS, SEE SHEETS 56/69 AND 57/69. FOR DETAILS OF THE POSTS, SEE SHEET 55/69.
3. FOR DETAILS OF THE EXPANSION INTERIOR SLEEVES, SEE SHEET 55/69.
4. THE HSS HORIZONTAL RAILS AND HSS POSTS SHALL BE ASTM A500 (GRADE B MIN) OR A1085 HSS TUBES. THE PICKETS SHALL BE A572 GRADE 50 STEEL. ALL RAILING STEEL AND HARDWARE SHALL BE GALVANIZED PER CMS 711.02.
5. FOR ADDITIONAL DETAILS AND PLAN LAYOUT OF D PANELS, SEE SHEET 57/69.

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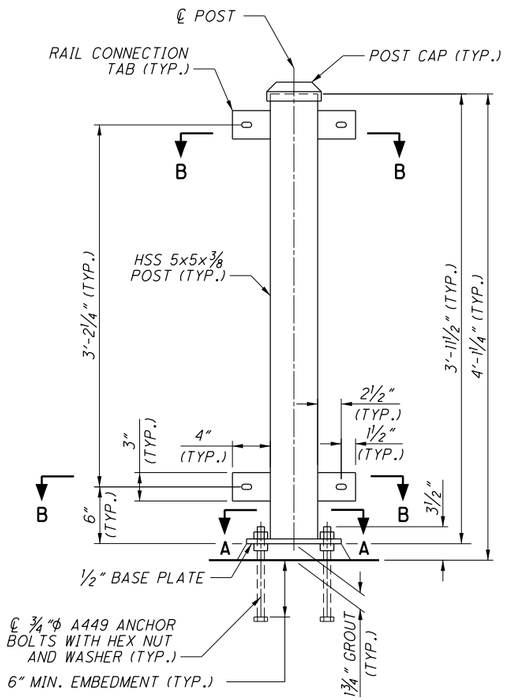
PEDESTRIAN RAILING DETAILS (2 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

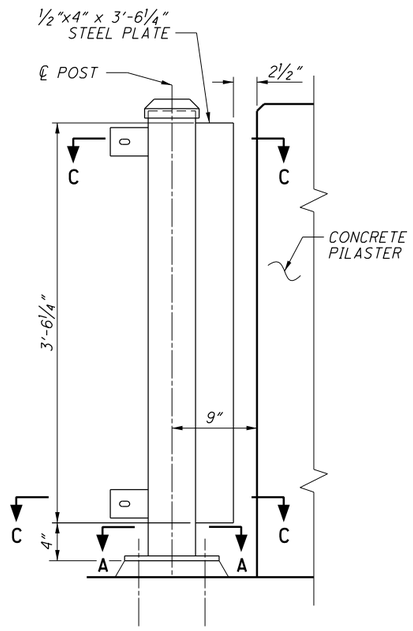
54 / 69

163
192

P:\97346\structures\MUS032_0000C\Sheets\032_0000C_SA006.dgn 10/20/2017 8:11:23 AM tsheldon

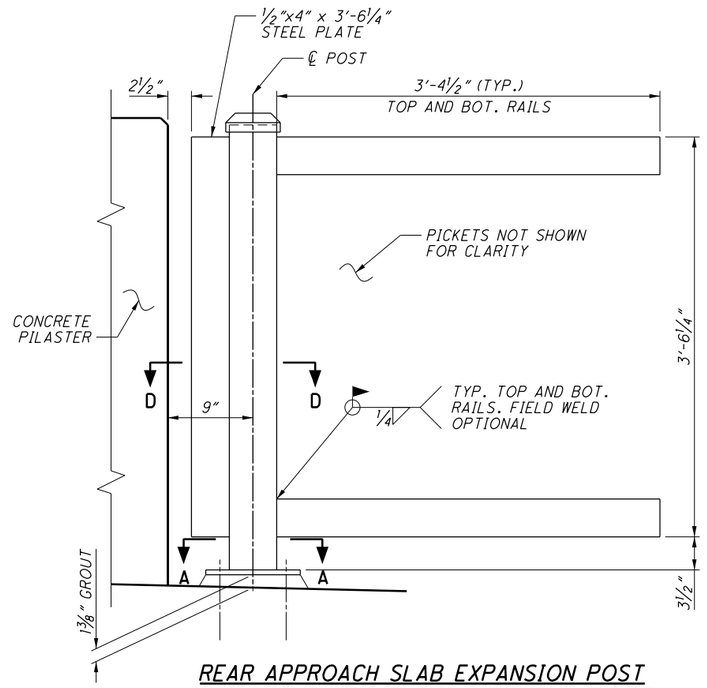


STANDARD POST



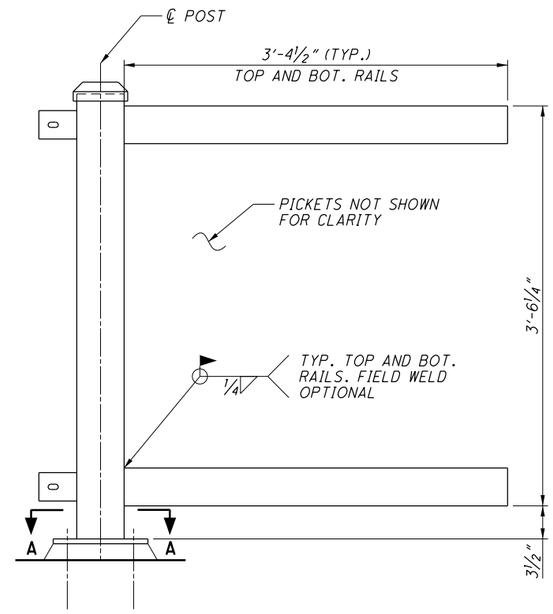
PILASTER POST

ALL DIMENSIONS NOT GIVEN ARE SAME AS STANDARD POST



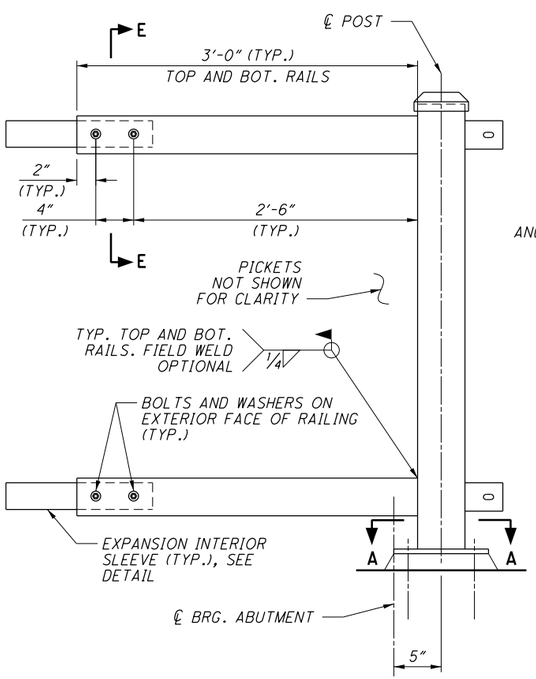
REAR APPROACH SLAB EXPANSION POST

ALL DIMENSIONS NOT GIVEN ARE SAME AS STANDARD POST



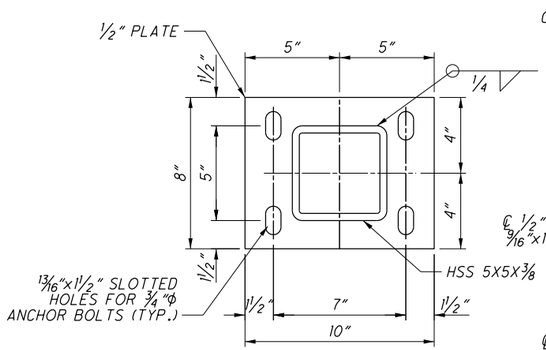
FORWARD APPROACH SLAB EXPANSION POST

ALL DIMENSIONS NOT GIVEN ARE SAME AS STANDARD POST

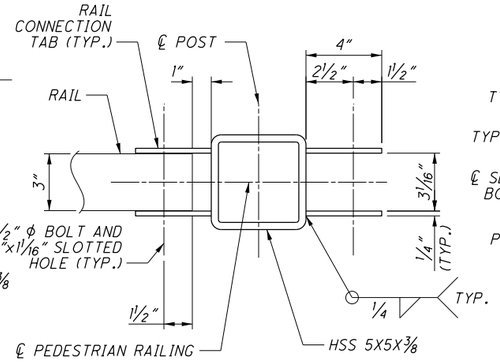


BRIDGE EXPANSION POST

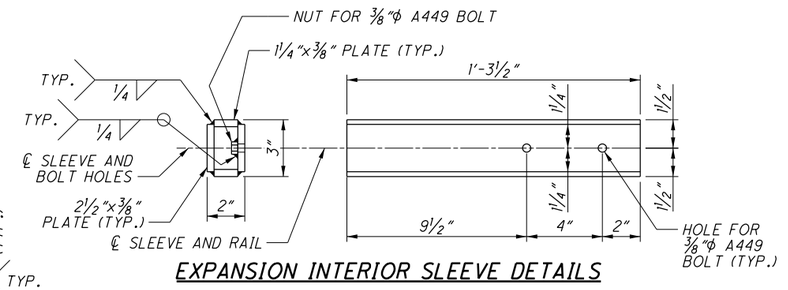
ALL DIMENSIONS NOT GIVEN ARE SAME AS STANDARD POST



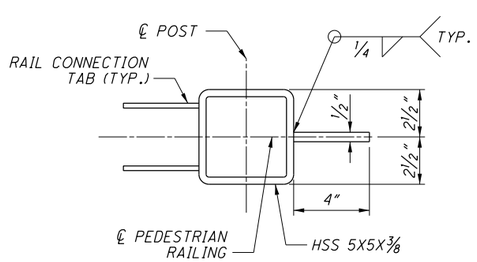
VIEW A-A



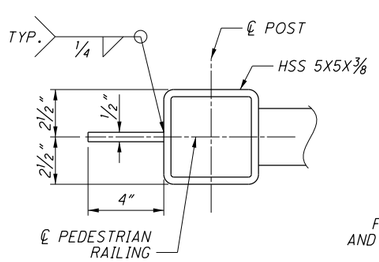
SECTION B-B



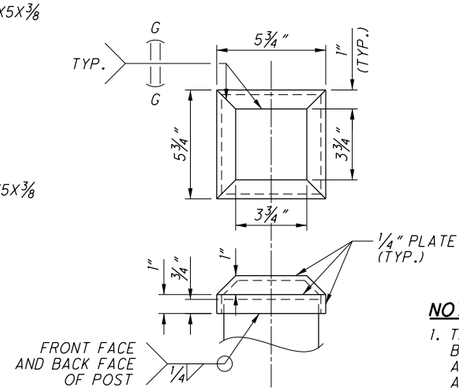
EXPANSION INTERIOR SLEEVE DETAILS



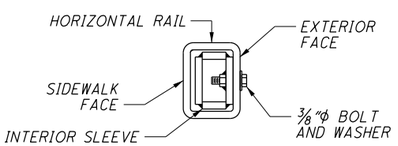
SECTION C-C



SECTION D-D



POST CAP DETAILS



SECTION E-E

NOTES:

1. THE HSS HORIZONTAL RAILS AND HSS POSTS SHALL BE ASTM A500 (GRADE B MIN) OR A1085 HSS TUBES. ALL OTHER STEEL SHALL BE A572 GRADE 50 STEEL. ALL RAILING STEEL AND HARDWARE SHALL BE GALVANIZED PER CMS 711.02.
2. GROUT TO BE NON-SHRINK NON-METALLIC GROUP PER CMS 705.20. GROUT TO BE PAID FOR UNDER ITEM 517 - RAILING, MISC.: STEEL HANDRAIL SYSTEMS INCLUDING CONCRETE PILASTERS CLASS QC2 CONCRETE.

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DESIGNED	DRAWN	REVIEWED	DATE
JOL/NBR	NBR	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NBR/JOL		60541l45	

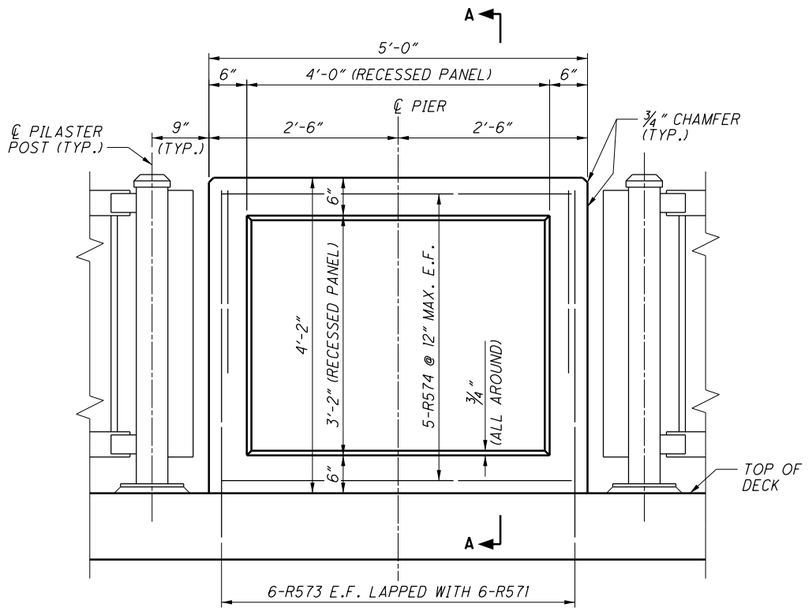
PEDESTRIAN RAILING DETAILS (3 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

55 / 69

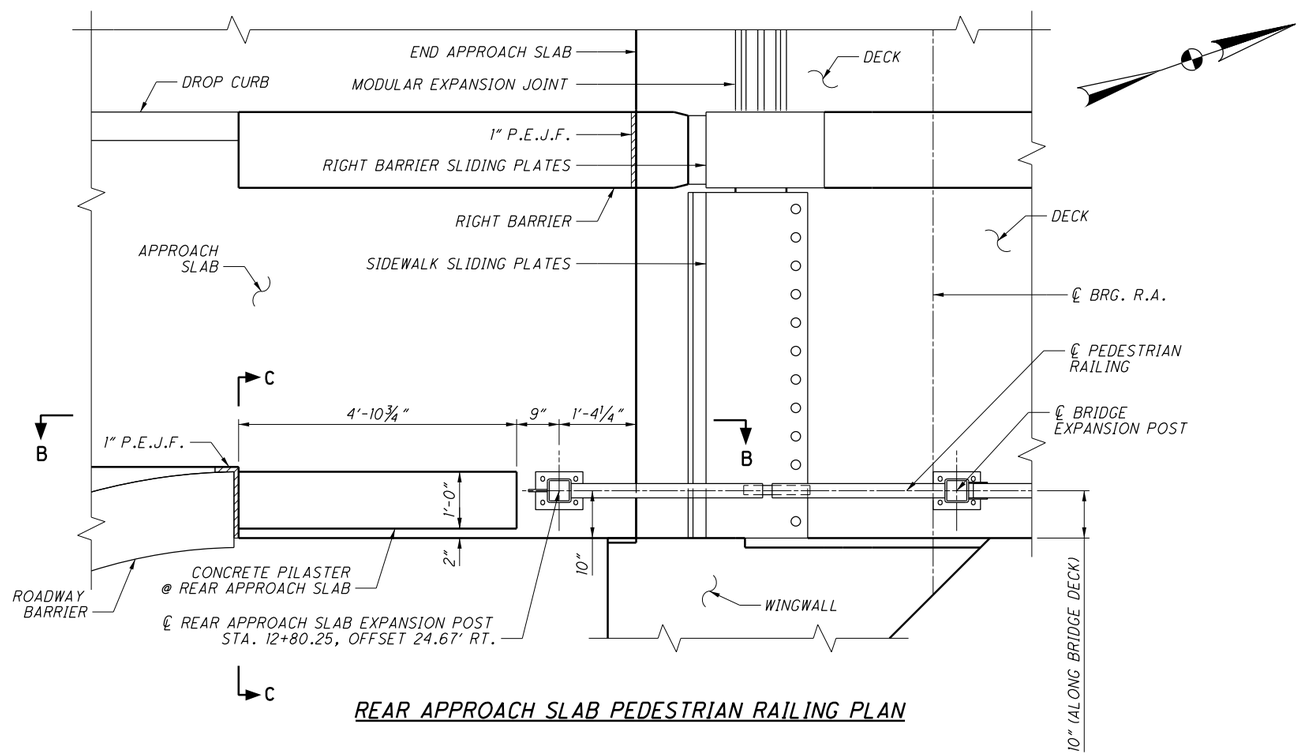
164 / 192

P:\97346\structures\MUS032_0000C\Sheets\032_0000C_SA007.dgn 10/20/2017 8:11:25 AM tsheldon

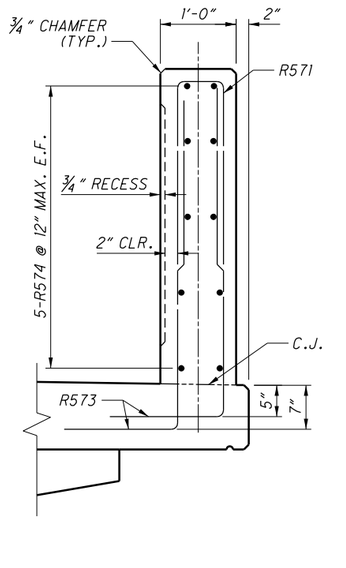


PILASTER @ PIER ELEVATION

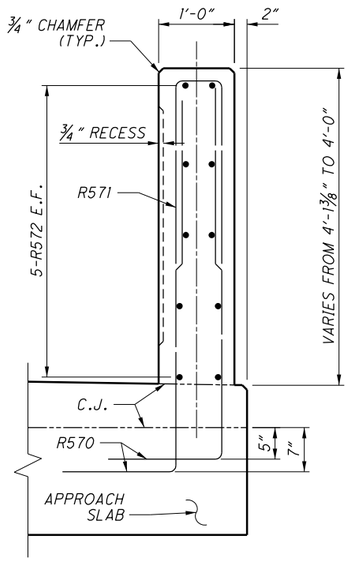
(SIDEWALK FACE SHOWN)



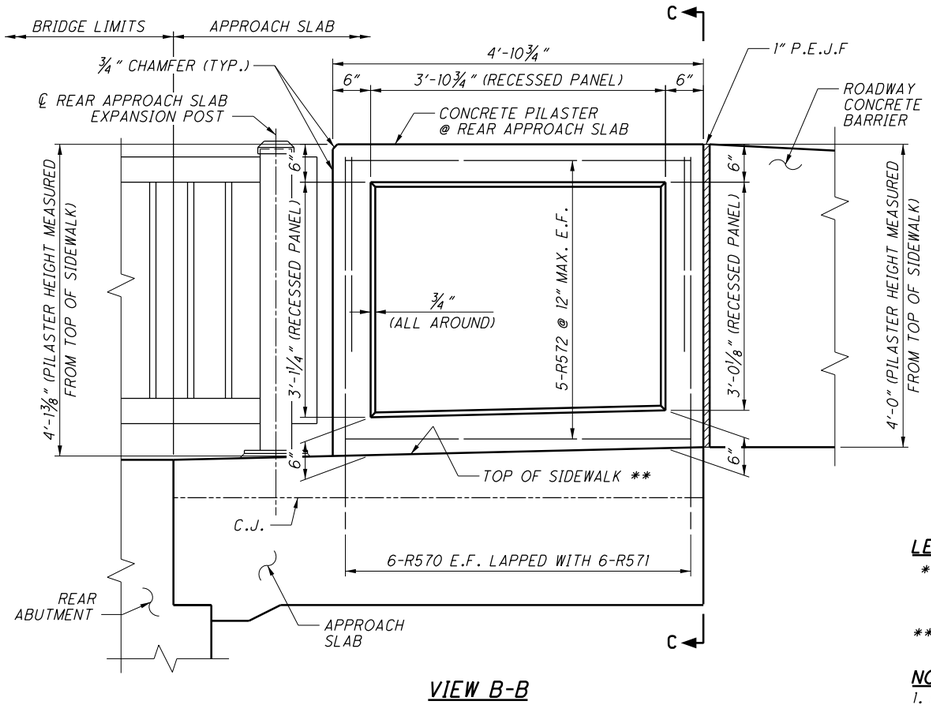
REAR APPROACH SLAB PEDESTRIAN RAILING PLAN



SECTION A-A



SECTION C-C



VIEW B-B

LEGEND:

* - ALIGN THE FORWARD APPROACH SLAB EXPANSION POST WITH THE BRIDGE EXPANSION POST TO ALLOW FOR SMOOTH OPERATION OF THE EXPANSION SLEEVE.

** - SEE SHEET 62/69 FOR DETAILS OF THE SIDEWALK GRADE.

NOTES:

1. FOR LOCATIONS OF THE PILASTERS SEE SHEET 53/69.
2. FOR DETAILS OF THE STEEL RAILING PANELS, SEE 54/69.
3. FOR DETAILS OF THE STEEL RAILING POSTS, SEE 55/69.

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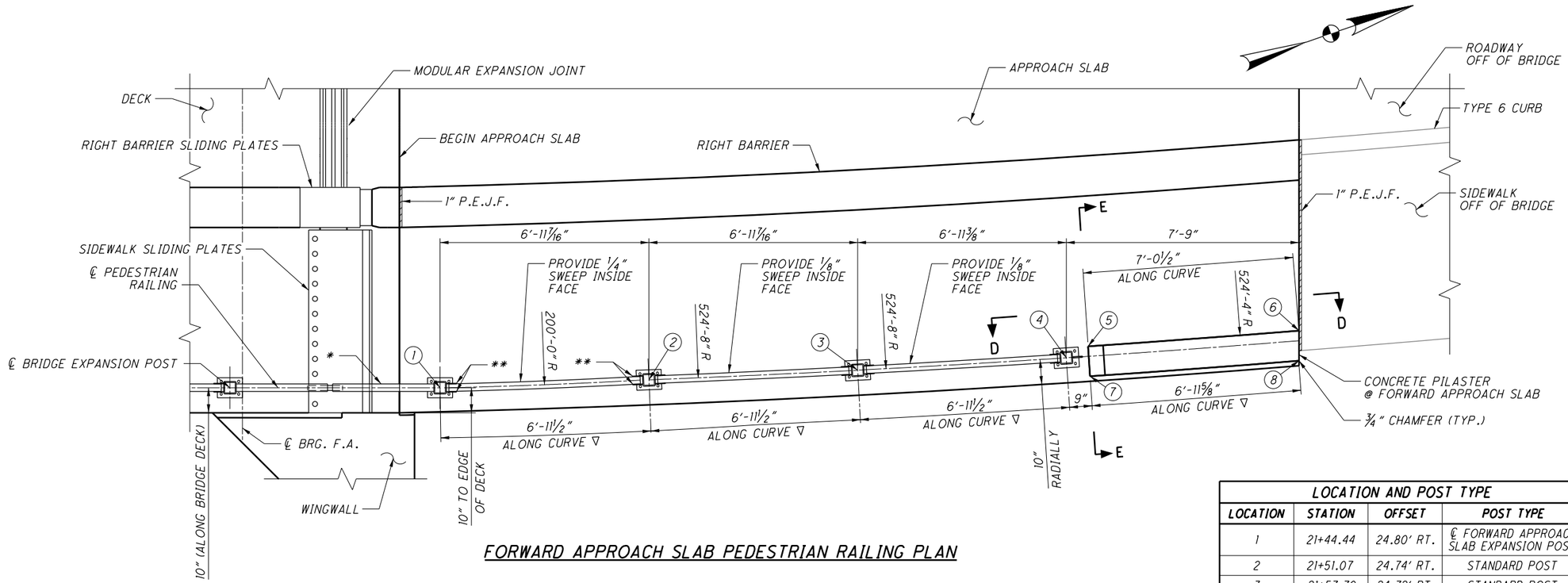
CHECKED	REVISED	STRUCTURE FILE NUMBER	
NBR/JOL		6054145	

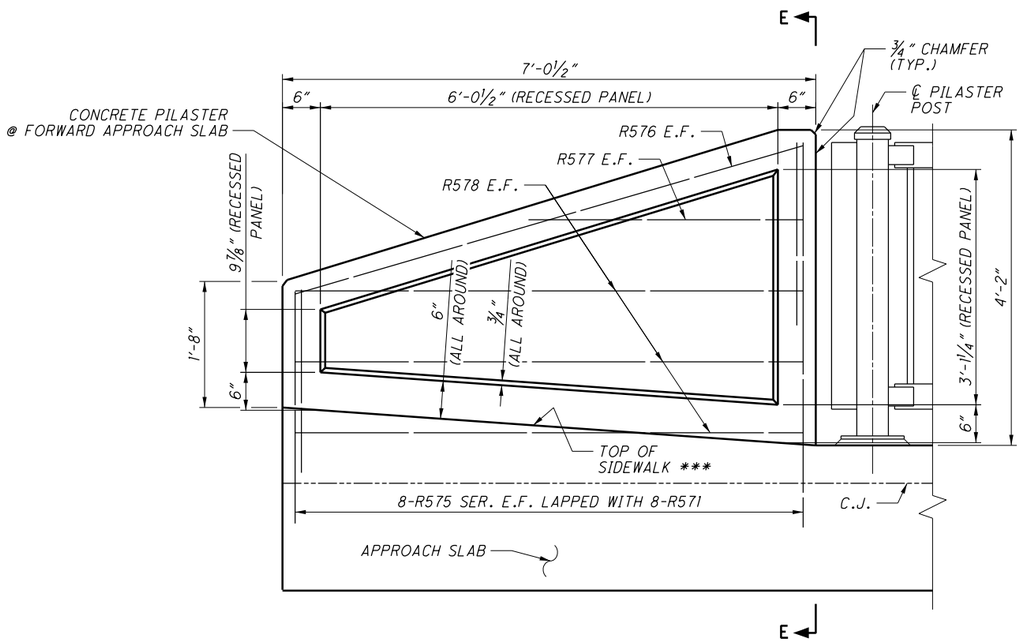
PEDESTRIAN RAILING DETAILS (4 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



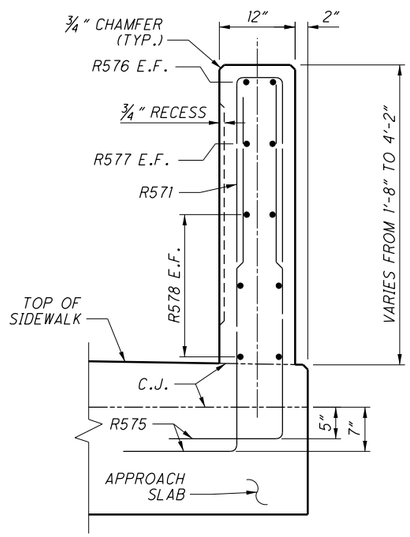
FORWARD APPROACH SLAB PEDESTRIAN RAILING PLAN

LOCATION AND POST TYPE			
LOCATION	STATION	OFFSET	POST TYPE
1	21+44.44	24.80' RT.	℄ FORWARD APPROACH SLAB EXPANSION POST
2	21+51.07	24.74' RT.	STANDARD POST
3	21+57.70	24.72' RT.	STANDARD POST
4	21+64.33	24.69' RT.	PILASTER POST
5	21+65.05	24.36' RT.	-
6	21+71.76	24.33' RT.	-
7	21+65.05	25.36' RT.	-
8	21+71.69	25.33' RT.	-



VIEW D-D

(HORIZONTAL DIMENSIONS ARE ALONG THE SIDEWALK FACE)



SECTION E-E

LEGEND:

(#) - RAILING LOCATION

* - ALIGN THE FORWARD APPROACH SLAB EXPANSION POST WITH THE BRIDGE EXPANSION POST TO ALLOW FOR SMOOTH OPERATION OF THE EXPANSION SLEEVE.

** - FIELD WELD AND/OR FIELD BEND RAIL CONNECTION TABS AS NECESSARY FOR RAIL PANEL FIT-UP. REPAIR DAMAGED GALVANIZING PER CMS 722.02.

*** - SEE SHEET 63/69 FOR DETAILS OF THE SIDEWALK GRADE.

▽ - AT THE CONTRACTOR'S DISCRETION, CURVED PANELS MAY BE DETAILED AND FABRICATED STRAIGHT ALONG THE TANGENT. RECALCULATION OF PANEL DIMENSIONS AND GEOMETRY IS THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:

1. FOR LOCATIONS OF THE PILASTER SEE SHEET 53/69.
2. FOR DETAILS OF THE STEEL RAILING PANELS, SEE 54/69.
3. FOR DETAILS OF THE STEEL RAILING POSTS, SEE 55/69.

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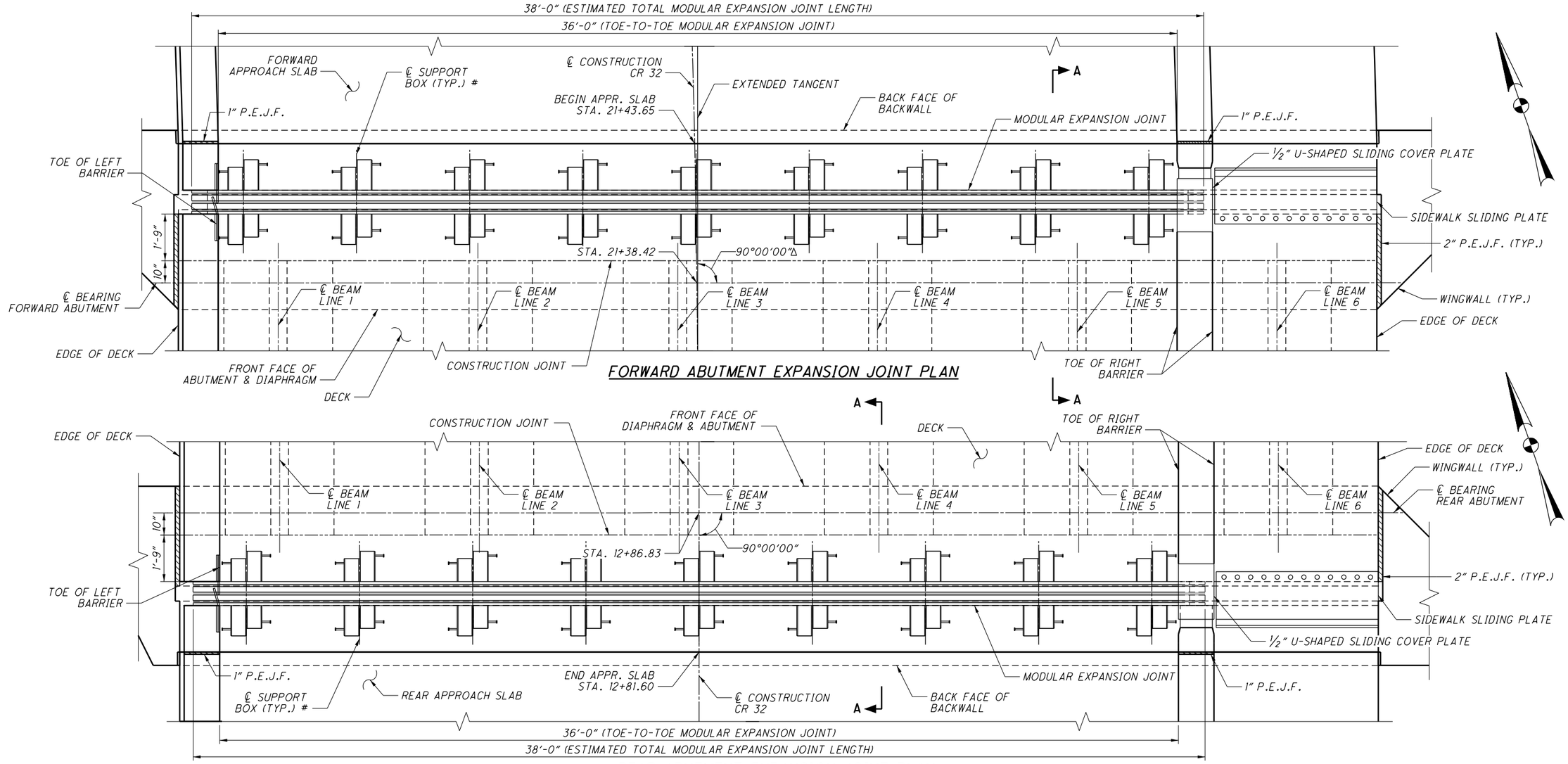
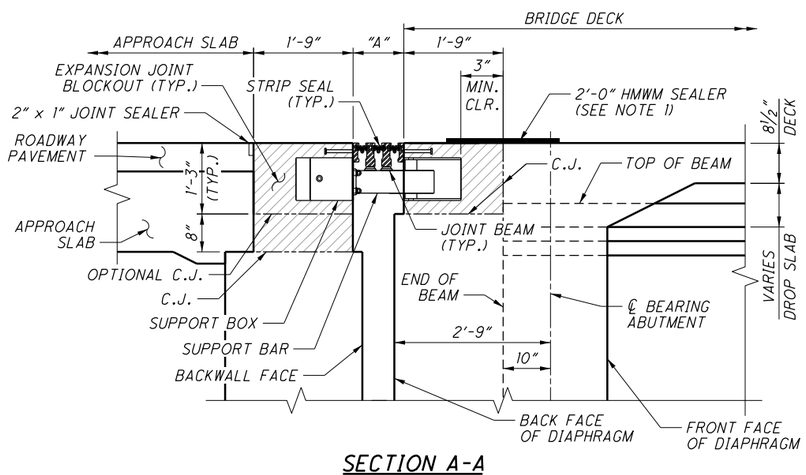
DESIGNED JOL/NBR | DRAWN NBR | REVIEWED RLE | DATE 10/2017
CHECKED NBR/JOL | REVISED | STRUCTURE FILE NUMBER 6054145

PEDESTRIAN RAILING DETAILS (5 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346





SECTION A-A

MODULAR EXPANSION JOINT OPENINGS		
TEMP. (°F)	DIMENSION "A" (INCHES)	
	REAR ABUT	FWD ABUT
15	12 1/4"	12"
20	12 1/16"	11 7/8"
30	11 3/4"	11 5/8"
40	11 7/16"	11 5/16"
50	11 1/16"	11 1/16"
60	10 3/4"	10 3/4"
70	10 7/16"	10 7/16"
80	10 1/16"	10 3/16"
90	9 3/4"	9 7/8"
95	9 9/16"	9 3/4"

LEGEND:

- THE LOCATION OF THE SUPPORT BOXES AS DETAILED IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SUPPORT BOX SIZE AND SPACING TO BE DESIGNED BY THE MANUFACTURER.

▨ - CONCRETE PLACED IN THE EXPANSION JOINT BLOCKOUT SHALL BE A SELF-CONSOLIDATING CONCRETE (SCC) MIX. ADDITIONAL REBAR REQUIRED IN THE MODULAR EXPANSION JOINT BLOCKOUT SHALL BE DESIGNED BY CONTRACTOR. ALL THE MATERIALS, LABOR AND INCIDENTALS NECESSARY OT PROVIDE THE MODULAR EXPANSION JOINT BLOCKOUT SHALL BE PAID FOR UNDER ITEM 511 - CLASS QC3 CONCRETE, MISC.: MODULAR EXPANSION JOINT, AS PER PLAN

Δ - MEASURED TO EXTENDED TANGENT

NOTES:

1. SEAL TRANSVERSE DECK CONSTRUCTION JOINT WITH 2'-0" HMWM, CENTERED ABOUT JOINT.
2. THE MODULAR JOINT SPECIFIED SHALL BE A D.S. BROWN "D240-PV-S" STEELFLEX MODULAR EXPANSION JOINT SYSTEM OR EQUIVALENT. IF AN ALTERNATE JOINT IS USED, THE PLANS SHALL BE MODIFIED TO ACCOMMODATE THE NEW JOINT SYSTEM.
3. FOR DECK PLANS, SEE SHEETS 31/69 AND 32/69.
4. FOR END DIAPHRAGM DETAILS, SEE SHEET 28/69.
5. CONCRETE PARAPETS TO BE INSTALLED AFTER INSTALLATION OF THE MODULAR EXPANSION JOINT.

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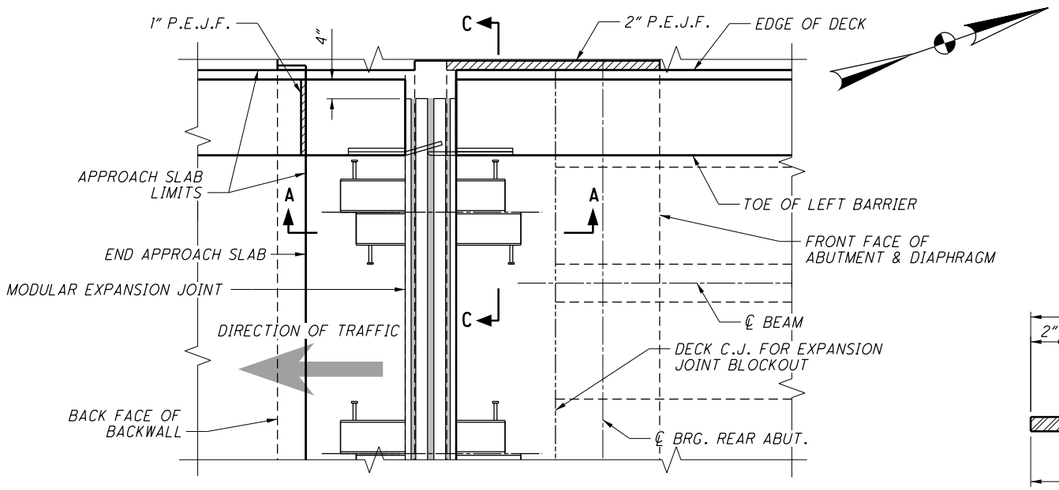
MODULAR EXPANSION JOINT DETAILS
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

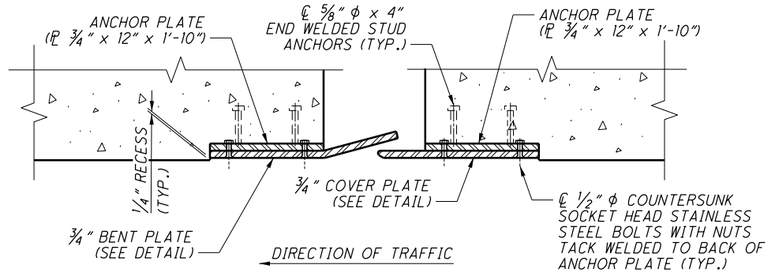
MUS-CR32-0.00
PID No. 97346

58/69
167/192

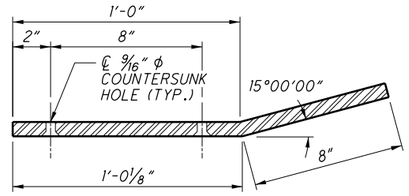


REAR ABUTMENT LEFT BARRIER PARTIAL PLAN

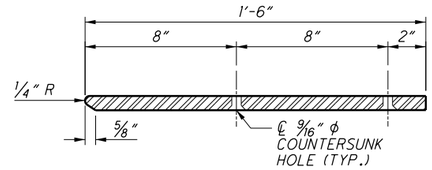
(FORWARD ABUTMENT LEFT BARRIER SIMILAR, BUT OPPOSITE HAND)



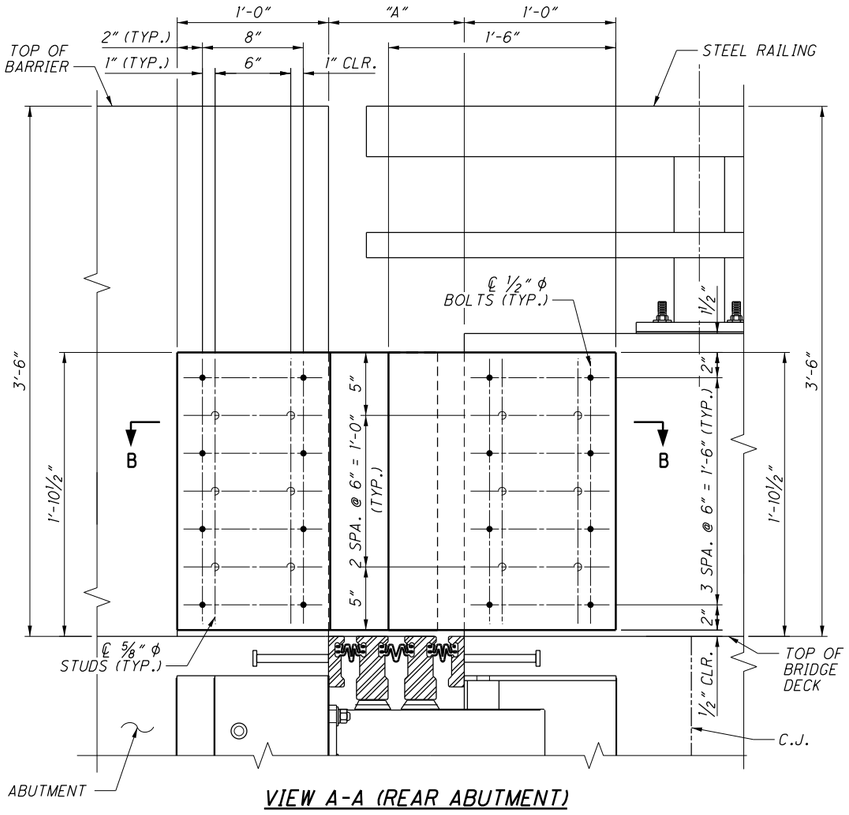
SECTION B-B



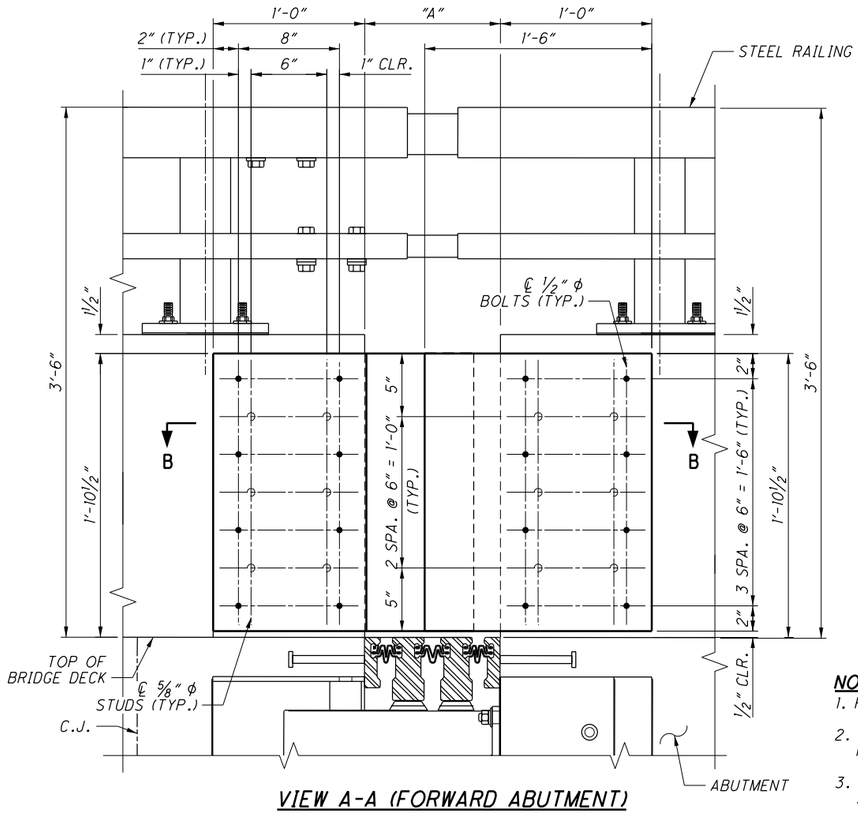
¾" BENT PLATE



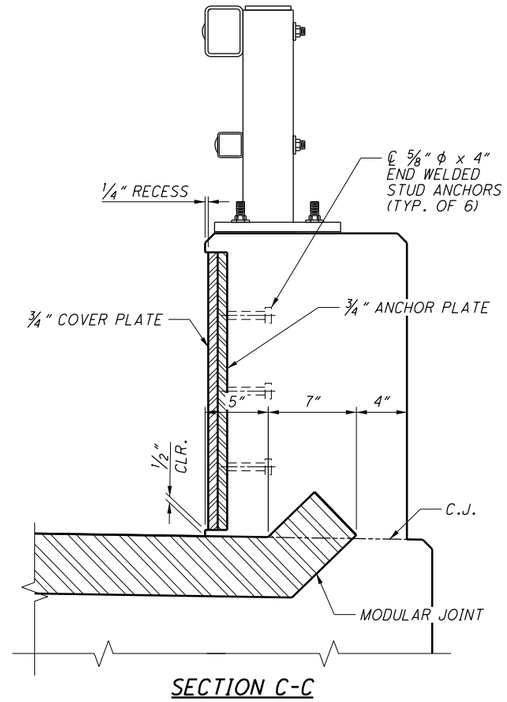
¾" COVER PLATE



VIEW A-A (REAR ABUTMENT)



VIEW A-A (FORWARD ABUTMENT)



SECTION C-C

NOTES:

1. FOR DIMENSION "A", SEE SHEET 58/69.
2. CONCRETE PARAPETS TO BE INSTALLED AFTER INSTALLATION OF MODULAR EXPANSION JOINTS.
3. ALL BOLTS AND HARDWARE SHALL BE ASTM A307. ALL PLATES AND SHEAR STUDS SHALL BE ASTM A709 GRADE 50.
4. ALL PLATES, HARDWARE, LABOR, AND INCIDENTALS REQUIRED TO INSTALL THE LEFT BARRIER SLIDING PLATES SHALL BE PAID FOR UNDER ITEM 516, STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN.

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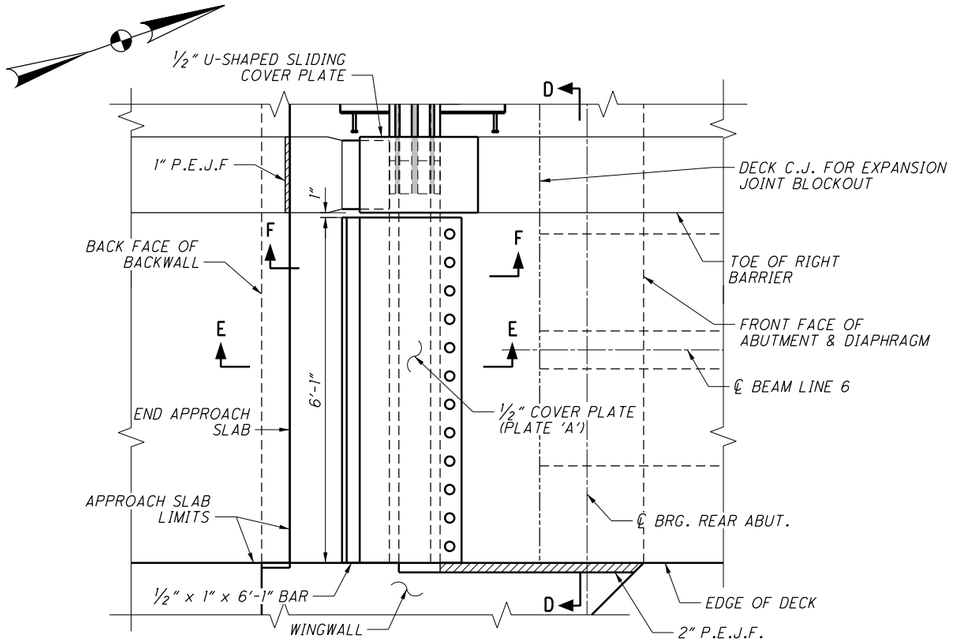
LEFT BARRIER SLIDING PLATE DETAILS

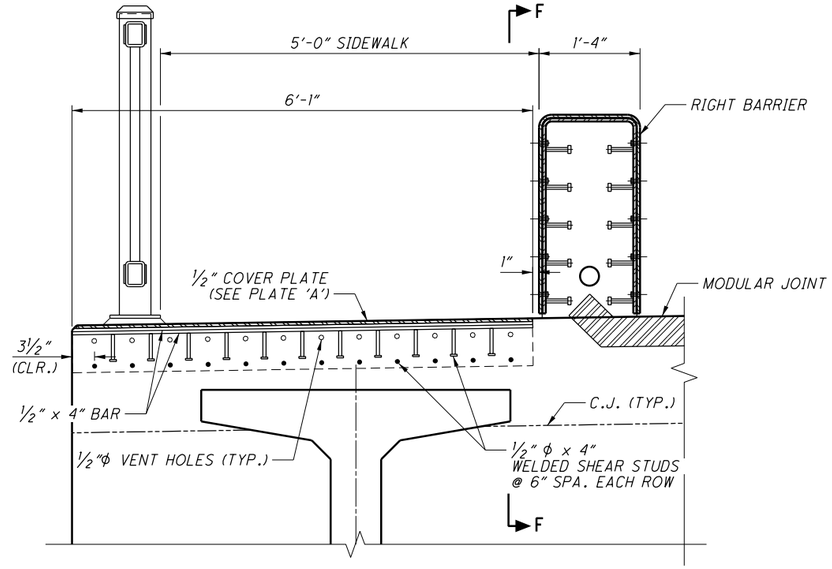
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



REAR ABUTMENT RIGHT BARRIER AND SIDEWALK PARTIAL PLAN

(FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND)
(PEDESTRIAN RAIL NOT SHOWN FOR CLARITY)



SECTION D-D

(WINGWALL NOT SHOWN FOR CLARITY)

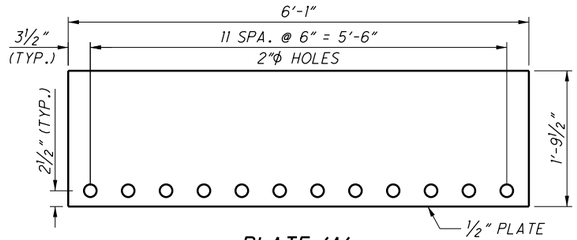


PLATE 'A'

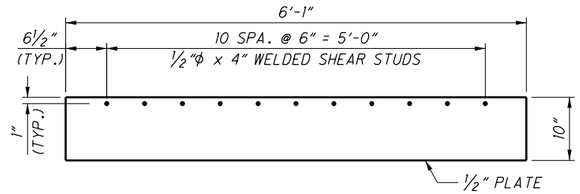
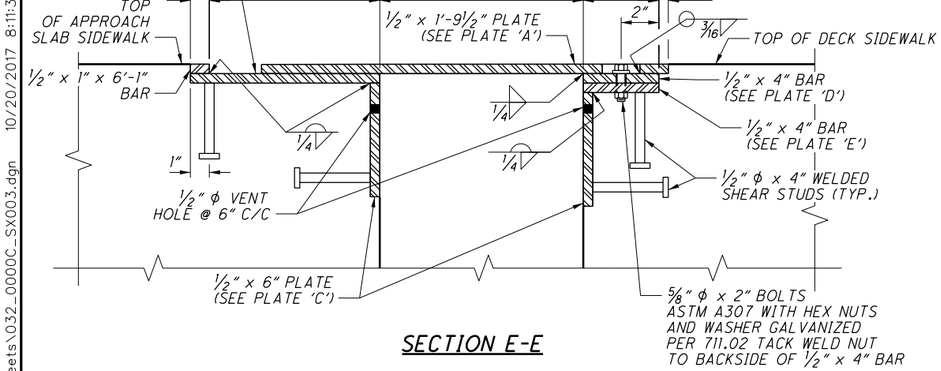


PLATE 'B'



SECTION E-E

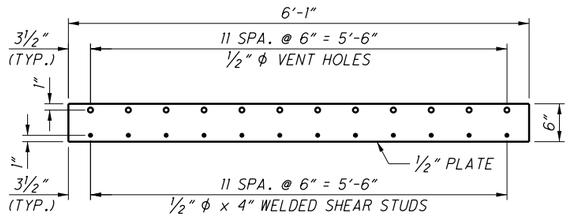


PLATE 'C'

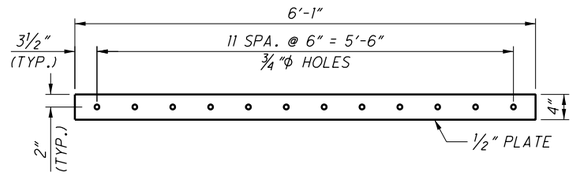


PLATE 'D'

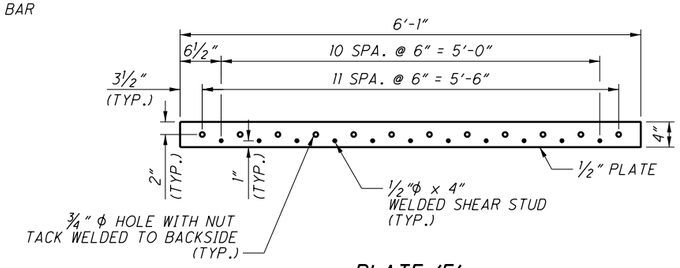


PLATE 'E'

NOTES:

1. FOR DIMENSION "A", SEE SHEET 58/69.
2. FOR VIEW F-F, SEE SHEET 61/69.
3. CONCRETE BARRIERS TO BE INSTALLED AFTER INSTALLATION OF MODULAR EXPANSION JOINTS.
4. ALL BOLTS AND HARDWARE SHALL BE ASTM A307. ALL PLATES AND SHEAR STUDS SHALL BE ASTM A709 GRADE 50.
5. ALL PLATES AND HARDWARE FOR INSTALLATION SIDEWALK SLIDING PLATES SHALL BE HOT-DIP GALVANIZED PER CMS 711.02.
6. ALL PLATES, HARDWARE, LABOR, AND INCIDENTALS REQUIRED TO INSTALL THE SIDEWALK SLIDING PLATES SHALL BE PAID FOR UNDER ITEM 516, STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN.

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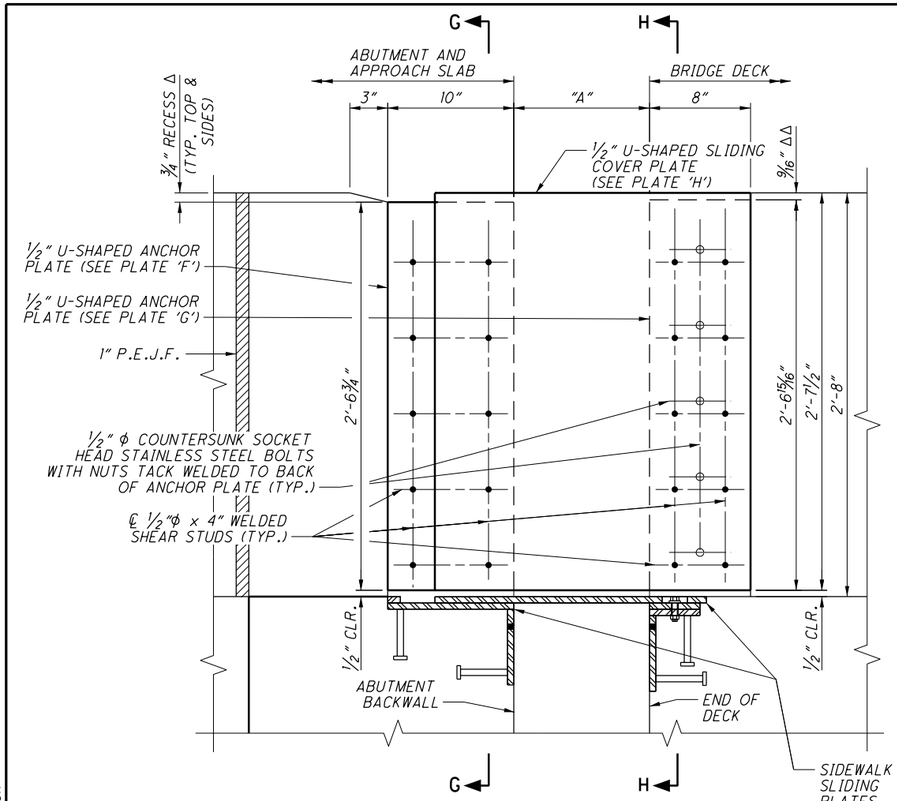
SIDEWALK SLIDING PLATE DETAILS

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

60 / 69

169
192



VIEW F-F

(REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR BUT OPPOSITE HAND)

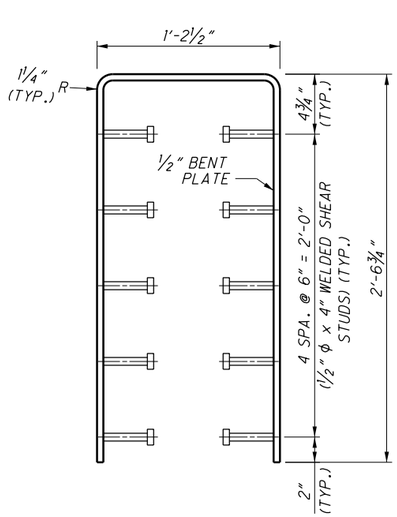


PLATE 'F' - END VIEW

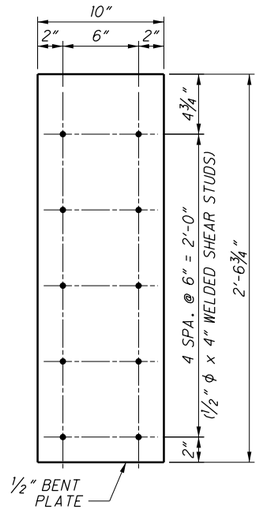


PLATE 'F' - SIDE VIEW

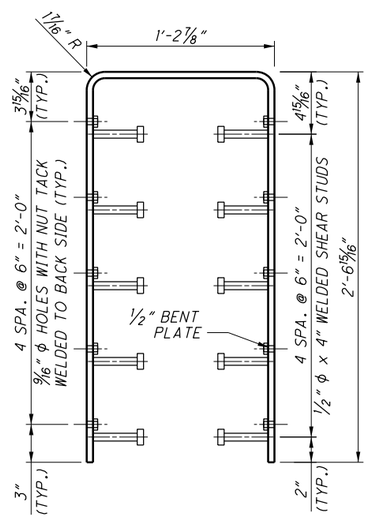


PLATE 'G' - END VIEW

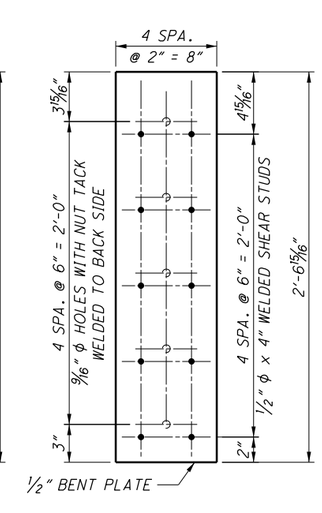


PLATE 'G' - SIDE VIEW

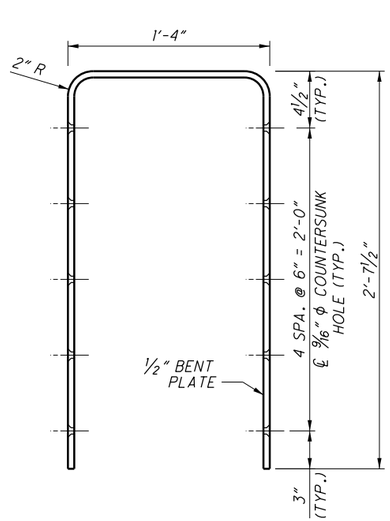


PLATE 'H' - END VIEW

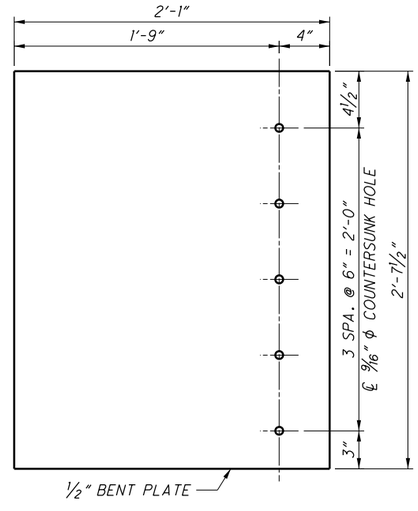
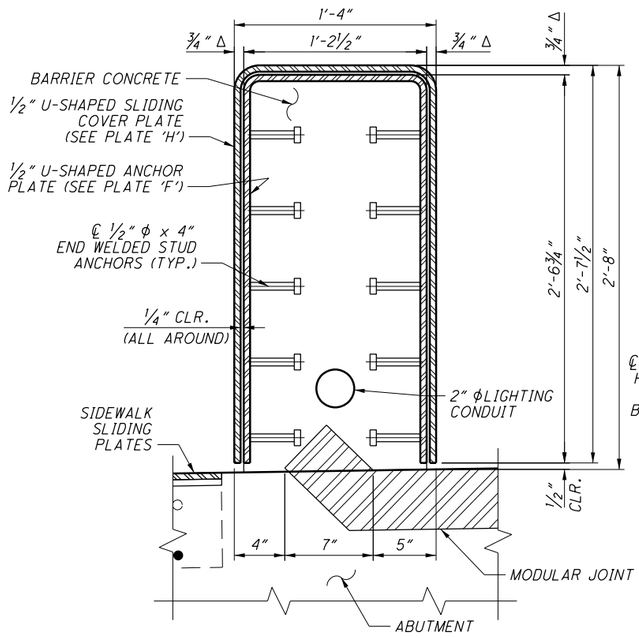
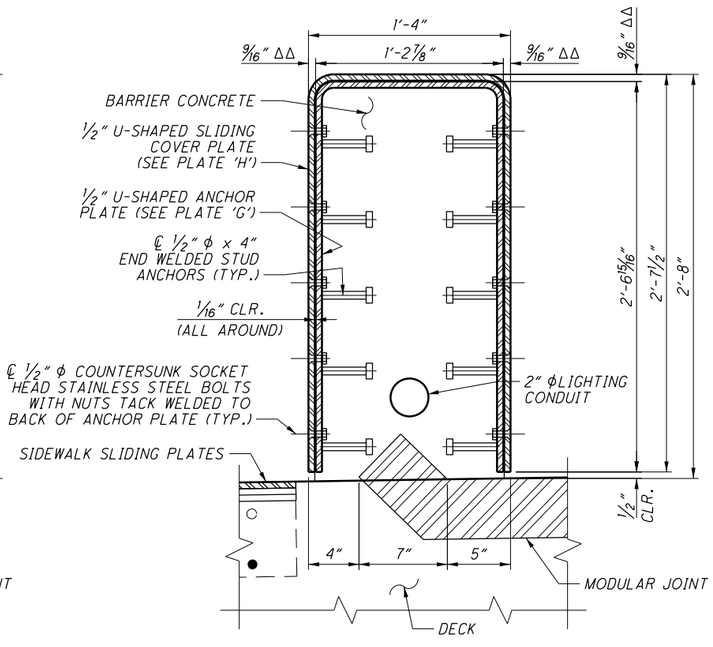


PLATE 'H' - SIDE VIEW



SECTION G-G



SECTION H-H

LEGEND:

Δ - INCLUDES ½" PLATE & ¼" CLEARANCE

ΔΔ - INCLUDES ½" PLATE & 1/16" CLEARANCE

NOTES:

1. FOR DIMENSION "A", SEE SHEET 58/69.
2. FOR THE LOCATION OF VIEW F-F, SEE SHEET 60/69.
2. CONCRETE BARRIERS ARE TO BE INSTALLED AFTER INSTALLATION OF MODULAR EXPANSION JOINTS.
3. ALL BOLTS AND HARDWARE SHALL BE ASTM A307. ALL PLATES AND SHEAR STUDS SHALL BE ASTM A709 GRADE 50.
4. ALL PLATE BENDS ARE 90°. ALL RADIUS DIMENSION ARE MARKED TO THE OUTSIDE RADIUS.
5. ALL PLATES AND HARDWARE FOR INSTALLATION OF COVER PLATES SHALL BE HOT-DIP GALVANIZED PER CMS 711.02.
6. ALL PLATES, HARDWARE, LABOR, AND INCIDENTALS REQUIRED TO INSTALL THE RIGHT BARRIER SLIDING PLATES SHALL BE PAID FOR UNDER ITEM 516, STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN.

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DESIGNED	DRAWN	REVIEWED	DATE
TAS	TAS	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRV		6054145	

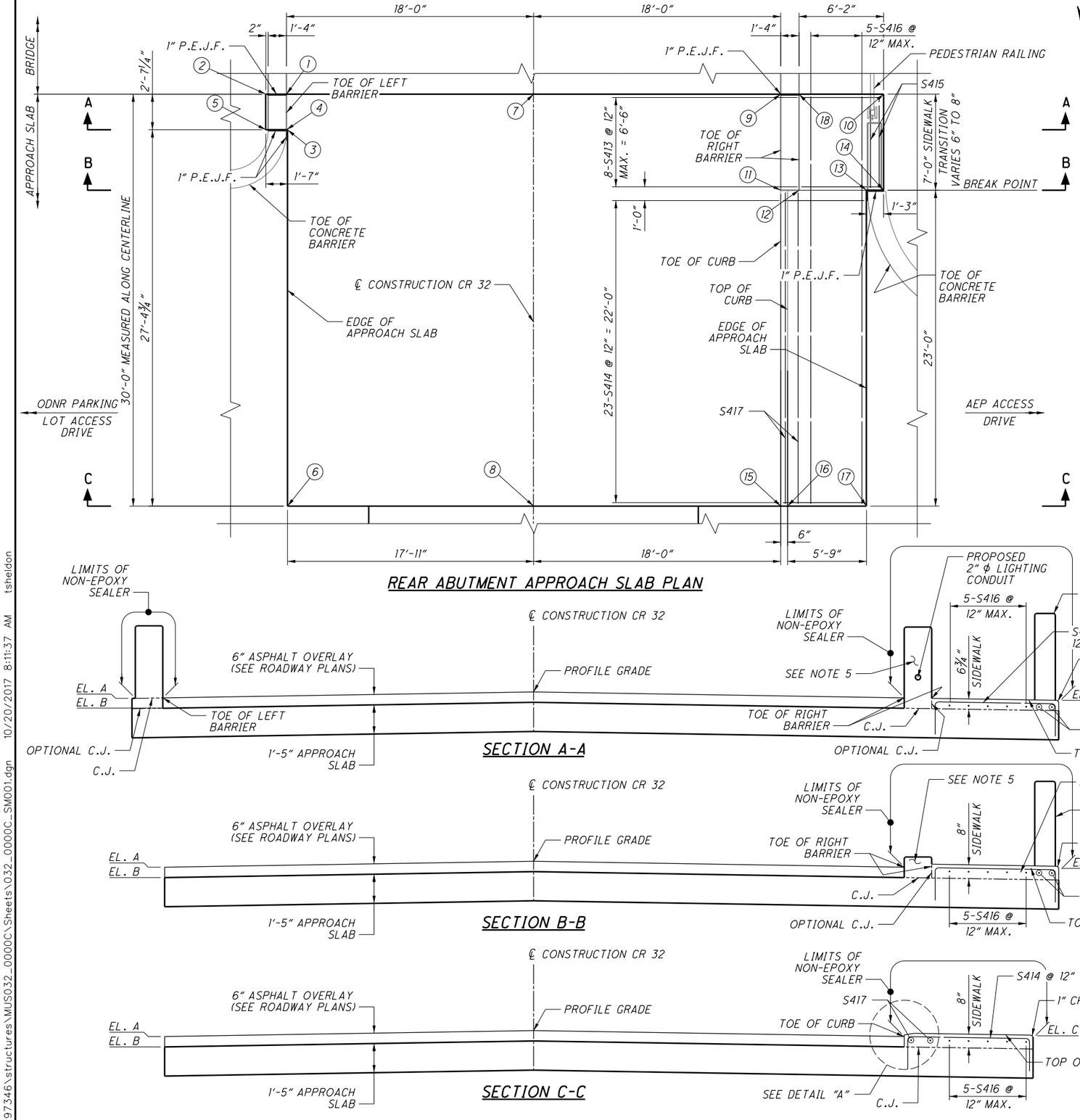
RIGHT BARRIER SLIDING PLATE DETAILS

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

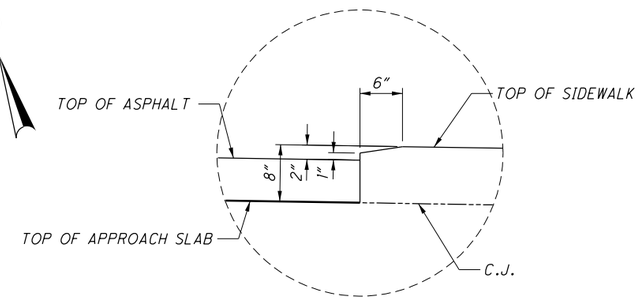
MUS-CR32-0.00
PID No. 97346

61/69

170/192



REAR ABUTMENT APPROACH SLAB PLAN



DETAIL "A"

REAR ABUTMENT APPROACH SLAB ELEVATIONS					
LOCATION	STATION	OFFSET	EL. A	EL. B	EL. C
1	12+81.60	18.00' LT.	697.27	696.77	-
2	12+81.60	19.50' LT.	697.24	-	-
3	12+79.01	17.92' LT.	697.23	696.73	-
4	12+79.01	18.00' LT.	697.23	696.73	-
5	12+79.01	19.50' LT.	697.20	-	-
6	12+51.60	17.92' LT.	696.73	696.23	-
7	12+81.60	0.00'	697.56	697.06	-
8	12+51.60	0.00'	697.01	696.51	-
9	12+81.60	18.00' RT.	697.27	696.77	-
10	12+81.60	25.50' RT.	-	-	697.15
11	12+74.60	18.00' RT.	697.15	696.65	-
12	12+74.60	19.33' RT.	-	-	697.31
13	12+74.60	24.25' RT.	-	-	697.22
14	12+74.60	25.50' RT.	-	-	697.20
15	12+51.60	18.00' RT.	696.72	696.22	-
16	12+51.60	18.50' RT.	-	-	696.88
17	12+51.60	24.25' RT.	-	-	696.79
18	12+81.60	19.33' RT.		-	697.26

LEGEND:

(#) - ELEVATION LOCATION

NOTES:

1. FOR ADDITIONAL APPROACH SLAB DETAILS, SEE ODOT STANDARD DRAWINGS AS-1-15 AND AS-2-15 TYPE B INSTALLATION.
2. FOR BARRIER AND RAILING DETAILS, SEE SHEETS 44/69 THRU 57/69 .
3. FOR ADDITIONAL BARRIER TRANSITION DETAILS, SEE ODOT STANDARD DRAWING SBR-1-13.
4. FOR PAYMENT OF ITEMS RELATED TO ASPHALT OVERLAY, SEE ROADWAY PLANS.
5. CONCRETE IN RIGHT BARRIER IS TO BE PAID FOR UNDER ITEM 511, CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN.
6. CONCRETE FOR APPROACH SLAB, CONCRETE FOR VARIABLE THICKNESS SIDEWALK, AND REINFORCING FOR VARIABLE THICKNESS SIDEWALK TO BE PAID FOR UNDER ITEM 526, REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN.
7. FOR ADDITIONAL DRIVEWAY CURB DETAILS, SEE ODOT STANDARD DRAWING BP-4.1.
8. EL. A IS TAKEN AT THE TOP OF ASPHALT OVERLAY. EL. B IS TAKEN AT THE TOP OF THE CONCRETE APPROACH SLAB AND THE TOP OF THE SIDEWALK CONSTRUCTION JOINT. EL. C IS TAKEN AT TOP OF THE VARIBLE THICKNESS AND 8" THICK SIDEWALK SECTION.
9. LIGHTING DETAILS NOT SHOWN. SEE LIGHTING PLANS FOR DETAILS.

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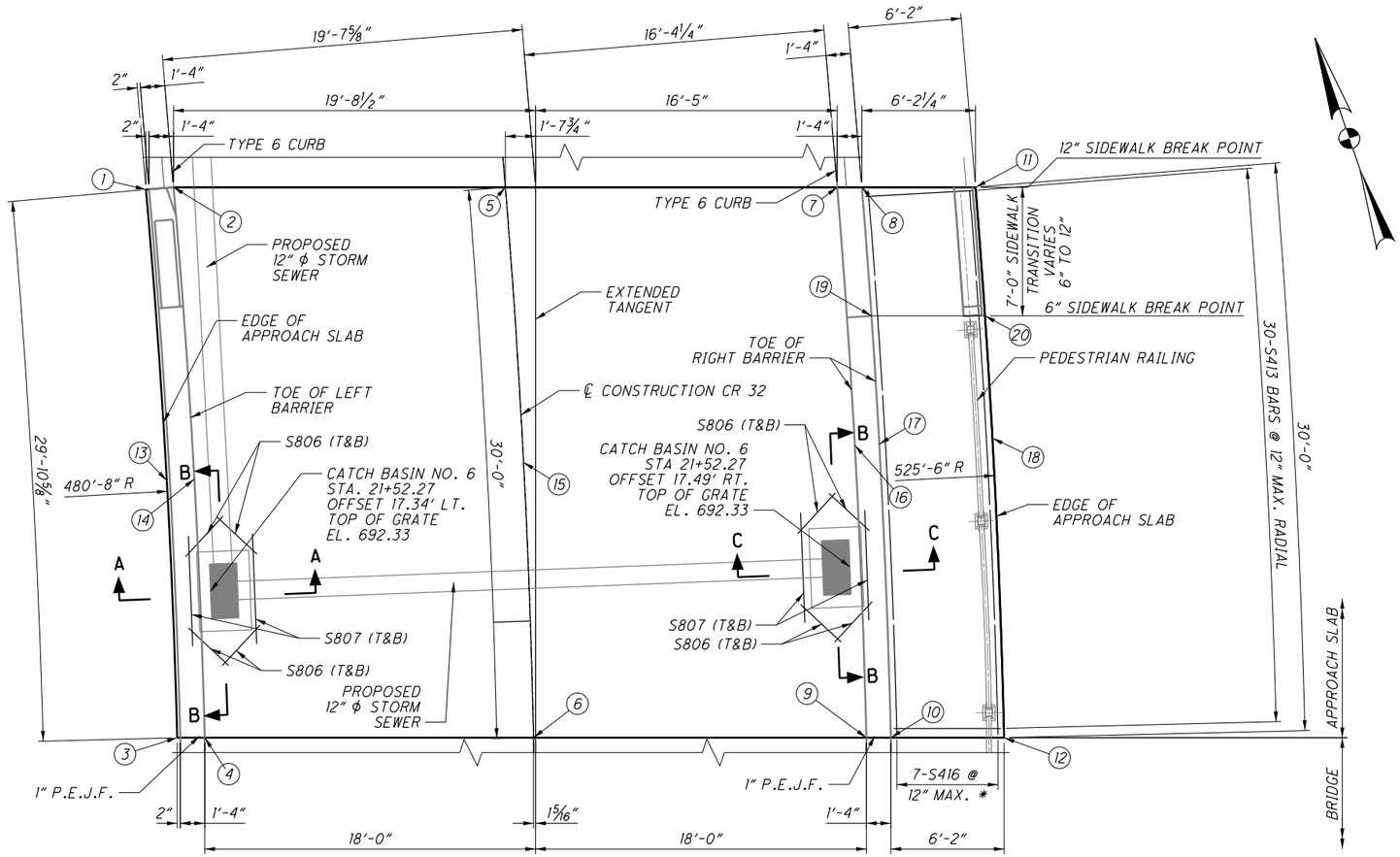
APPROACH SLAB DETAILS (1 OF 3)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

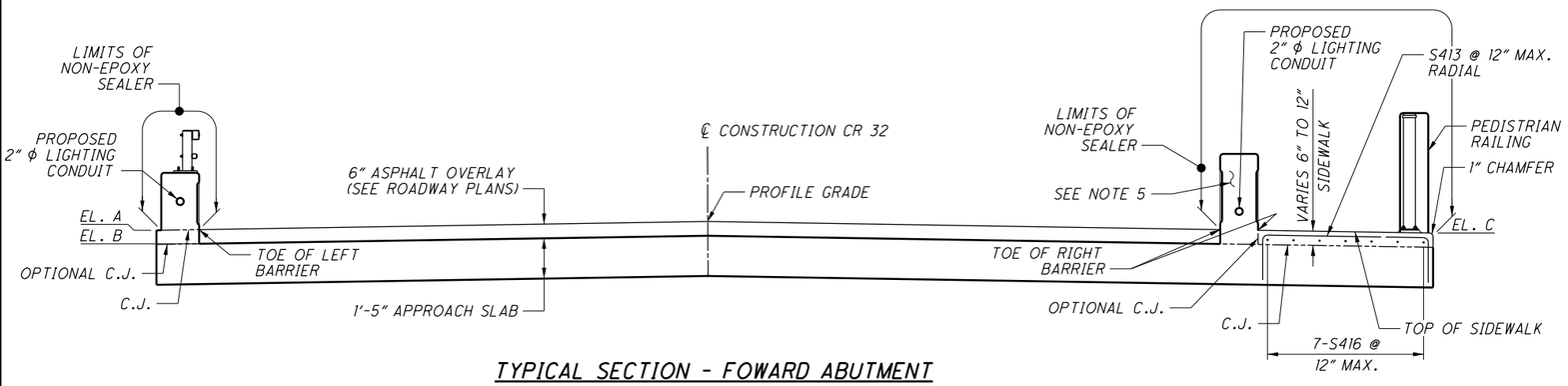
62 / 69

171 / 192



FORWARD ABUTMENT APPROACH SLAB PLAN

FORWARD ABUTMENT APPROACH SLAB ELEVATIONS					
LOCATION	STATION	OFFSET	EL. A	EL. B	EL. C
1	21+75.16	19.50' LT.	692.36	-	-
2	21+75.16	18.00' LT.	692.39	691.89	-
3	21+44.07	19.38' LT.	692.32	-	-
4	21+44.04	17.88' LT.	692.34	691.84	-
5	21+73.65	0.00'	692.67	692.17	-
6	21+43.65	0.00'	692.63	692.13	-
7	21+72.23	18.00' RT.	692.37	691.87	-
8	21+72.13	19.33' RT.	-	-	692.85
9	21+43.28	18.11' RT.	692.34	691.84	-
10	21+43.25	19.44' RT.	-	-	692.32
11	21+71.68	25.50' RT.	-	-	692.75
12	21+43.13	25.61' RT.	-	-	692.22
13	21+58.65	19.44' LT.	692.32	-	-
14	21+58.65	17.94' LT.	692.34	691.84	-
15	21+58.65	0.00'	692.63	692.13	-
16	21+58.65	18.05' RT.	692.34	691.84	-
17	21+58.65	19.38' RT.	-	-	692.32
18	21+58.65	25.55' RT.	-	-	692.22
19	21+65.38	19.36' RT.	-	-	692.33
20	21+65.00	25.52' RT.	-	-	692.23



TYPICAL SECTION - FOWARD ABUTMENT

LEGEND:

(#) - ELEVATION LOCATION

* - CUT TO FIT

NOTES:

1. FOR ADDITIONAL APPROACH SLAB DETAILS, SEE ODOT STANDARD DRAWINGS AS-1-15 AND AS-2-15 TYPE B INSTALLATION.
2. FOR BARRIER AND RAILING DETAILS, SEE SHEETS 44/69 THRU 57/69 .
3. FOR ADDITIONAL BARRIER TRANSITION DETAILS, SEE ODOT STANDARD DRAWING SBR-1-13.
4. FOR PAYMENT OF ITEMS RELATED TO ASPHALT OVERLAY, SEE ROADWAY PLANS.
5. CONCRETE IN RIGHT BARRIER IS TO BE PAID FOR UNDER ITEM 511, CLASS QC2 CONCRETE WITH QC/OA, BRIDGE DECK (PARAPET), AS PER PLAN.
6. CONCRETE FOR APPROACH SLAB, CONCRETE FOR VARIABLE THICKNESS SIDEWALK, AND REINFORCING FOR VARIABLE THICKNESS SIDEWALK TO BE PAID FOR UNDER ITEM 526, REINFORCED CONCRETE APPROACH SLABS WITH QC/OA (T=17"), AS PER PLAN.
7. FOR SECTIONS A-A, B-B, AND C-C, SEE SHEET 64/69.
8. EL. A IS TAKEN AT THE TOP OF ASPHALT OVERLAY. EL. B IS TAKEN AT THE TOP OF THE CONCRETE APPROACH SLAB AND THE TOP OF THE SIDEWALK CONSTRUCTION JOINT. EL. C IS TAKEN AT TOP OF THE VARIBLE THICKNESS AND 12" THICK SIDEWALK SECTION.
9. FOR ADDITIONAL PRECAST BASIN DETAILS, SEE ROADWAY PLANS.
10. LIGHTING DETAILS NOT SHOWN. SEE LIGHTING PLANS FOR DETAILS.

E.L. ROBINSON ENGINEERING
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CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 6054145

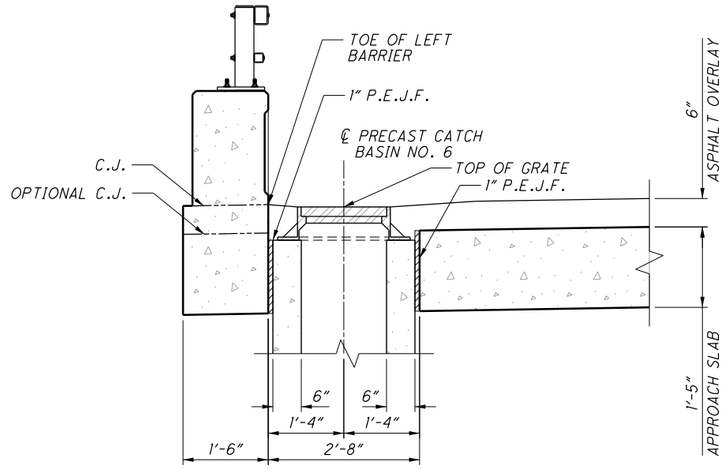
APPROACH SLAB DETAILS (2 OF 3)

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

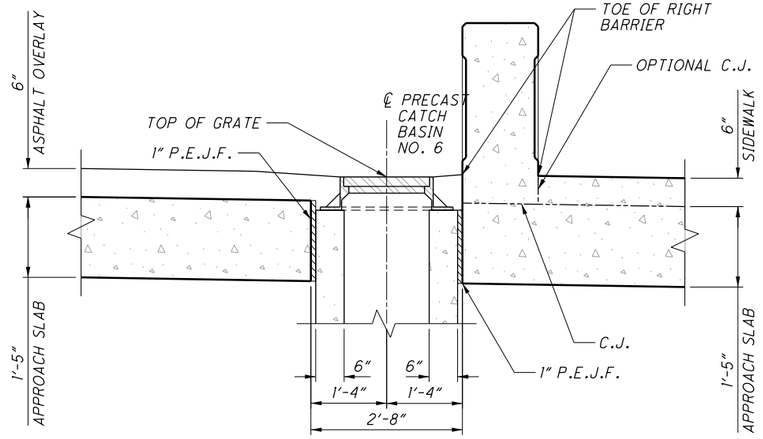
MUS-CR32-0.00
PID No. 97346

63/69

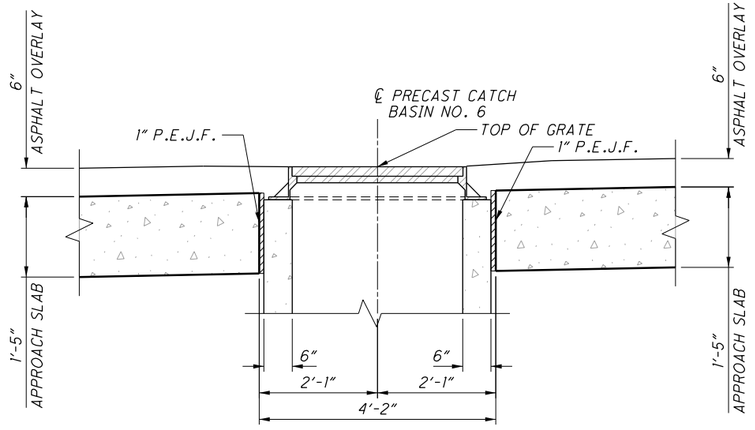
172/192



SECTION A-A



SECTION C-C



SECTION B-B

NOTES:

1. FOR THE LOCATIONS OF SECTIONS A-A, B-B, AND C-C, SEE SHEET 63/69.
2. FOR ADDITIONAL NOTES, SEE SHEET 63/69 AND ODOT STD. DWG. CB-2.3.
3. THE REINFORCED PRECAST CONCRETE OPTION SHALL BE USED FOR THE FABRICATION OF CATCH BASIN NO. 6, AS PER PLAN.

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DESIGNED	DRAWN	REVIEWED	DATE
MRV	MRV/JLS	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		6054145	

APPROACH SLAB DETAILS (3 OF 3)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

64 / 69

173
192

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
EXISTING ABUTMENT											
A401**	240	3'-7"	574	1	1'-4"	2'-4"					
A501**	5	19'-11"	104	STR							
A502**	5	27'-11"	146	STR							
A503**	5	17'-1"	89	STR							
A504**	5	9'-7"	50	STR							
A505**	5	40'-2"	209	STR							
A506**	5	11'-5"	60	STR							
		SUBTOTAL	1,232								
REAR ABUTMENT											
RA501	1	44'-8"	47	STR							
RA502	46	6'-2"	296	24	5"	2'-9"				2"	
RA601	46	10'-5"	720	2	4'-4"	2'-1"	4'-4"				
RA602	46	13'-11"	962	2	6'-1"	2'-1"	6'-1"				
RA603	27	44'-6"	1,805	STR							
RA604	180	12'-7"	3,402	1	2'-0"	10'-9"					
RA605	90	15'-6"	2,095	2	4'-9"	6'-4"	4'-9"				
RA606	1	18'-9"	28	19	11'-8"	6'-11"	1'-9"				
RA607	1	16'-10"	25	19	11'-8"	5'-0"	1'-4"				
RA608	1	17'-9"	27	19	11'-8"	5'-11"	1'-6"				
RA609	1	10'-6"	16	STR							
RA610	1	8'-4"	13	STR							
RA611	1	13'-5"	20	STR							
RA612	1	11'-3"	17	STR							
RA613	8	25'-7"	307	19	18'-8"	4'-11"	4'-11"				
RA614	12	18'-11"	341	19	12'-0"	4'-11"	4'-11"				
RA615	46	4'-4"	299	2	1'-6"	1'-8"	1'-6"				
RA616	2 SR OF 6	10'-11" TO 12'-2"	208	STR							3"
RA617	1 SR OF 6	18'-3" TO 19'-5"	170	1	2'-0"	16'-5" TO 17'-7"					2 3/4"
RA618	14	19'-6"	410	1	2'-0"	17'-8"					
RA619	3	29'-11"	135	19	26'-11"	3'-0"	6"				
RA620	2	8'-5"	25	STR							
RA621	8	10'-6"	126	STR							
RA622	2 SR OF 3	16'-0" TO 25'-10"	189	STR							4'-11"
RA623	4	29'-6"	177	STR							
RA624	8	33'-5"	402	STR							
RA625	8	29'-5"	353	STR							
RA626	2 SR OF 6	9'-3" TO 10'-1"	174	STR							2"
RA627	1 SR OF 21	16'-1" TO 19'-6"	561	1	2'-0"	14'-3" TO 17'-8"					2"
RA628	6	19'-7"	176	STR							
RA629	14	10'-1"	212	19	5'-0"	2'-4"	4'-7"				
RA630	6	24'-8"	222	STR							
RA631	6	40'-0"	360	STR							
RA632	3	19'-4"	87	19	9'-4"	7'-2"	7'-0"				
RA633	3	28'-9"	130	19	14'-1"	10'-3"	10'-7"				
RA634	6	11'-6"	104	STR							

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
REAR ABUTMENT (CONTINUED)											
RA635	1 SR OF 41	16'-1" TO 19'-6"	1,096	1	2'-0"	14'-3" TO 17'-8"					1"
RA636	4	18'-8"	112	STR							
RA637	1 SR OF 11	18'-3" TO 19'-5"	311	1	2'-0"	16'-5" TO 17'-7"					1 3/8"
RA638	8	16'-2"	194	33	3'-11"	3'-7"					
RA639	12	9'-4"	168	2	3'-0"	3'-8"	3'-0"				
RA801	30	5'-0"	401	18	2'-10"	1'-0"	1'-0"				
RA802	7	44'-6"	832	STR							
RA803	NOT USED										
RA804	NOT USED										
RA805	NOT USED										
RA806	NOT USED										
RA807	NOT USED										
RA808	26	26'-0"	1,805	STR							
RA809	2 SR OF 13	19'-4" TO 28'-9"	1,669	19	9'-4" TO 14'-1"	7'-2" TO 10'-3"	7'-0" TO 10'-7"				Incr A = 4 3/4" Incr B = 3 1/8" Incr C = 3 5/8"
RA810	152	17'-7"	7,136	2	3'-3"	11'-6"	3'-3"				
RA811	26	40'-0"	2,777	STR							
RA812	6	10'-8"	171	STR							
RA813	8	10'-3"	219	STR							
RA814	4	11'-10"	126	STR							
RA901	2	6'-4"	43	STR							
DS401*	8	822'-10"	4,397	27	5"	3'-6"	30'-3"				
DS1001*	80	35'-5"	12,192	16	34'-0"						
		SUBTOTAL	31,701								

LEGEND:

* - FOR INFORMATION ONLY. REBAR WEIGHT IS NOT INCLUDED IN THE SUBTOTAL

** - BAR SIZE AND WEIGHT IS TO BE FIELD VERIFIED.

NOTES:

1. FOR NOTES AND BAR TYPE DESIGNATIONS, SEE SHEET 69/69 .

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DESIGNED TAS | DRAWN LAH | REVIEWED RLE | DATE 10/2017
CHECKED JOL | REVISED | STRUCTURE FILE NUMBER 6054145

REINFORCING LIST (1 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

65/69

174/192

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
FORWARD ABUTMENT											
FA501	1	44'-6"	46	STR							
FA502	46	6'-0"	288	24	4"	2'-9"				2"	
FA601	46	10'-11"	754	2	4'-7"	2'-1"	4'-7"				
FA602	46	14'-1"	973	2	6'-2"	2'-1"	6'-2"				
FA603	35	44'-6"	2,339	STR							
FA604	180	16'-2"	4,371	1	2'-0"	14'-4"					
FA605	90	15'-6"	2,095	2	4'-9"	6'-4"	4'-9"				
FA606	1 SR OF 6	12'-11" TO 26'-3"	176	STR							2'-8"
FA607	1 SR OF 6	14'-0" TO 27'-6"	187	19	6'-6" TO 20'-0"	5'-4"	5'-4"				2'-8 3/8"
FA608	11	32'-10"	542	19	28'-10"	2'-10"	2'-10"				
FA609	11	29'-8"	490	19	22'-2"	5'-4"	5'-4"				
FA610	1	29'-10"	45	19	22'-9"	6'-8"	2'-4"				
FA611	1	28'-8"	43	19	22'-9"	5'-7"	1'-11"				
FA612	1	29'-6"	44	19	22'-9"	6'-5"	2'-3"				
FA613	1	10'-0"	15	STR							
FA614	1	8'-3"	12	STR							
FA615	8	10'-6"	126	STR							
FA616	11	23'-6"	388	1	2'-0"	21'-8"					
FA617	54	4'-4"	351	2	1'-6"	1'-8"	1'-6"				
FA618	1 SR OF 16	18'-4" TO 23'-5"	502	1	2'-0"	16'-6" TO 21'-7"					4 1/8"
FA619	2 SR OF 6	10'-4" TO 12'-4"	204	STR							4 3/4"
FA620	1	25'-5"	38	19	18'-4"	6'-11"	1'-8"				
FA621	1	23'-6"	35	19	18'-4"	5'-1"	1'-2"				
FA622	1	24'-5"	37	19	18'-4"	5'-11"	1'-5"				
FA623	1	12'-6"	19	STR							
FA624	1	10'-8"	16	STR							
FA625	1 SR OF 3	16'-6" TO 23'-9"	91	STR							3'-7 1/2"
FA626	1 SR OF 3	17'-10" TO 24'-11"	96	19	10'-4" TO 17'-5"	5'-4"	5'-4"				3'-6 1/2"
FA627	11	29'-3"	483	19	25'-3"	2'-10"	2'-10"				
FA628	14	26'-1"	548	19	18'-7"	5'-4"	5'-4"				
FA629	11	23'-5"	387	1	2'-0"	21'-7"					
FA630	1 SR OF 12	20'-10" TO 23'-4"	398	1	2'-0"	19'-0" TO 21'-6"					2 3/4"
FA631	2 SR OF 6	13'-7" TO 14'-11"	257	STR							3 1/4"
FA632	6	47'-4"	427	STR							
FA633	3	24'-5"	110	19	19'-9"	3'-4"	3'-4"				
FA634	3	28'-9"	130	19	23'-11"	3'-5"	3'-5"				
FA635	6	11'-6"	104	STR							
FA636	3	20'-9"	93	19	16'-1"	3'-4"	3'-4"				
FA637	3	25'-2"	113	19	20'-4"	3'-5"	3'-5"				

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC
FORWARD ABUTMENT (CONTINUED)											
FA638	1 SR OF 23	20'-10" TO 23'-4"	763	1	2'-0"	19'-0" TO 21'-6"					1 3/8"
FA639	1 SR OF 31	18'-4" TO 23'-5"	972	1	2'-0"	16'-6" TO 21'-7"					2"
FA640	3	24'-10"	112	STR							
FA641	8	16'-2"	194	33	3'-11"	3'-7"					
FA642	12	9'-4"	168	2	3'-0"	3'-8"	3'-0"				
FA801	30	5'-0"	401	18	2'-10"	1'-0"	1'-0"				
FA802	7	44'-6"	832	STR							
FA803	NOT USED										
FA804	NOT USED										
FA805	NOT USED										
FA806	NOT USED										
FA807	NOT USED										
FA808	NOT USED										
FA809	26	47'-4"	3,286	STR							
FA810	146	17'-7"	6,854	2	3'-3"	11'-6"	3'-3"				
FA811	2 SR OF 13	25'-4" TO 29'-6"	1,903	19	19'-9" TO 23'-11"	4'-0"	4'-0"				4 1/8"
FA812	2 SR OF 13	21'-8" TO 25'-11"	1,652	19	16'-1" TO 20'-4"	4'-0"	4'-0"				4 1/4"
FA813	6	10'-2"	163	STR							
FA814	12	11'-8"	374	STR							
FA815	12	8'-4"	267	STR							
FA816	12	9'-8"	310	STR							
FA901	2	6'-4"	43	STR							
DS402*	9	581'-2"	3,494	27	5"	3'-6"	21'-0"				
DS1002*	90	25'-10"	10,004	16	24'-5"						
		SUBTOTAL	35,667								

LEGEND:

* - FOR INFORMATION ONLY. REBAR WEIGHT IS NOT INCLUDED IN THE SUBTOTAL.

NOTES:

1. FOR NOTES AND BAR TYPE DESIGNATIONS, SEE SHEET 69/69 .

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, OHio 43215
www.elrobinsonengineering.com

DESIGNED TAS | DRAWN LAH | REVIEWED RLE | DATE 10/2017
CHECKED JOL | REVISED | STRUCTURE FILE NUMBER 6054145

REINFORCING LIST (2 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
PIERS											
P401	1 SR OF 31	15'-11" TO 10'-1"	269	43	3'-8" TO 2'-6"	3'-1" TO 1'-10"					Incr A = 0 1/2" Incr B = 0 1/2"
P402	1 SR OF 30	15'-11" TO 10'-1"	261	43	3'-8" TO 2'-6"	3'-1" TO 1'-10"					Incr A = 0 1/2" Incr B = 0 1/2"
P403	1 SR OF 29	15'-11" TO 10'-1"	252	43	3'-8" TO 2'-6"	3'-1" TO 1'-10"					Incr A = 0 1/2" Incr B = 0 1/2"
P404	1 SR OF 28	15'-8" TO 10'-1"	241	43	3'-8" TO 2'-6"	3'-0" TO 1'-10"					Incr A = 0 1/2" Incr B = 0 1/2"
P405	1 SR OF 27	15'-5" TO 10'-1"	230	43	3'-8" TO 2'-6"	2'-11" TO 1'-10"					Incr A = 0 1/2" Incr B = 0 1/2"
P406	1 SR OF 26	15'-5" TO 10'-1"	221	43	3'-8" TO 2'-6"	2'-11" TO 1'-10"					Incr A = 0 1/2" Incr B = 0 1/2"
P407	342	40'-0"	9,138	STR							
P408	21 SR OF 31	6'-11" TO 4'-4"	2,446	44	6'-3" TO 3'-8"						1"
P409	21 SR OF 30	6'-10" TO 4'-4"	2,350	44	6'-2" TO 3'-8"						1"
P410	21 SR OF 29	6'-9" TO 4'-4"	2,254	44	6'-1" TO 3'-8"						1"
P411	21 SR OF 28	6'-8" TO 4'-4"	2,160	44	6'-0" TO 3'-8"						1"
P412	21 SR OF 27	6'-7" TO 4'-4"	2,067	44	5'-11" TO 3'-8"						1"
P413	21 SR OF 26	6'-6" TO 4'-4"	1,976	44	5'-10" TO 3'-8"						1"
P414	12	2'-0"	16	43	2'-6"	1'-10"					
P601	210	21'-8"	6,834	3	7'-10"	2'-7"					
P602	486	12'-1"	8,820	2	4'-4"	3'-9"	4'-4"				
P603	36	9'-4"	505	2	3'-0"	3'-8"	3'-0"				
P604	24	16'-10"	607	33	4'-4"	3'-6"					
P801	168	27'-11"	12,522	STR							
P901	1092	10'-8"	39,603	1	1'-7"	9'-4"					
P902	182	30'-10"	19,080	STR							
P903	182	30'-2"	18,667	STR							
P904	182	29'-0"	17,945	STR							
P905	182	28'-0"	17,326	STR							
P906	182	26'-10"	16,604	STR							
P907	182	25'-10"	15,986	STR							
P908	72	32'-2"	7,874	1	25'-5"	7'-0"					
DS501*	24	391'-10"	9,808	27	6"	4'-6"	12'-6"				
DS1101*	408	22'-0"	47,689	STR							
		SUBTOTAL	206,254								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
SUPERSTRUCTURE											
S301	36	3'-4"	45	19	1'-8"	1'-0"	1'-4"				
S401	36	4'-0"	96	STR							
S402	24	5'-3"	84	2	1'-0"	3'-5"	1'-0"				
S403	168	4'-4"	486	2	8"	3'-2"	8"				
S404	29	7'-8"	149	40	3'-0"	1'-9"	2'-9"	11"			
S405	8	5'-6"	29	STR							
S406	8	5'-10"	31	STR							
S407	36	12'-2"	293	24	4"	5'-10"				2"	
S408	135	13'-7"	1,225	6	1'-2"	5'-11"	6"				
S409	15	12'-3"	123	6	1'-2"	5'-3"	6"				
S410	990	40'-0"	26,453	STR							
S411	45	21'-0"	631	STR							
S412	1134	4'-10"	3,661	41	1'-8"	4"	9"			2"	
S413*	38	8'-10"	224	2	1'-7"	5'-10"	1'-7"				
S414*	23	9'-3"	142	2	1'-9"	5'-11"	1'-9"				
S415*	2	6'-8"	9	STR							
S416*	12	29'-8"	238	STR							
S417*	2	22'-8"	30	STR							
S418	29	8'-1"	157	40	3'-5"	1'-9"	2'-9"	11"			
S501	116	10'-8"	1,291	2	3'-9"	3'-5"	3'-9"				
S502	58	12'-1"	731	2	5'-5"	1'-6"	5'-5"				
S503	1370	44'-8"	63,825	STR							
S504	990	40'-0"	41,303	STR							
S505	45	37'-0"	1,737	STR							
S506	1584	40'-0"	66,084	STR							
S507	90	34'-0"	3,192	STR							
S508	18	20'-3"	380	STR							
S509	1366	45'-10"	65,300	17	44'-8"						
S510	2732	10'-9"	30,632	42	6"	1'-4"	8'-9"			3"	
S511	3168	19'-3"	63,606	STR							
S601	200	6'-7"	1,978	STR							
S602	60	4'-6"	406	STR							
S603	240	4'-2"	1,502	1	1'-0"	3'-4"					
S801	20	44'-8"	2,385	STR							
S802	40	6'-6"	694	STR							
S803	10	4'-0"	107	STR							
S804	16	3'-1"	132	STR							
S805	4	2'-0"	21	STR							
S806	16	3'-0"	128	STR							
S807	8	6'-0"	128	STR							
		SUBTOTAL	379,025								

LEGEND:

* - FOR INFORMATION ONLY. REBAR WEIGHT IS NOT INCLUDED IN THE SUBTOTAL.

NOTES:

1. FOR NOTES AND BAR TYPE DESIGNATIONS, SEE SHEET 69/69 .

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DESIGNED TAS | DRAWN FIB | REVIEWED RLE | DATE 10/2017
CHECKED DFT | REVISED | STRUCTURE FILE NUMBER 6054145

REINFORCING LIST (3 OF 5)

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RAILING											
R401*	34	1'-8"	38	STR							
R402*	42	2'-2"	61	STR							
R403	2	2'-6"	3	STR							
R404	2	1'-8"	2	STR							
R405	212	2'-2"	307	STR							
R501*	4	12'-2"	51	30	1'-6"	1'-0"	4'-5"	4'-3"			
R502*	6	12'-1"	76	2	5'-8"	1'-0"	5'-8"				
R503*	1168	8'-1"	9,847	30	1'-6"	11"	2'-5"	2'-3"			
R504*	14	2'-2"	32	STR							
R505*	14	1'-5"	21	STR							
R506*	8	8'-9"	73	STR							
R507*	499	6'-2"	3,209	STR							
R508*	92	40'-0"	3,838	STR							
R509*	4	12'-0"	50	STR							
R510*	8	1'-6"	13	STR							
R511*	25	9'-2"	239	30	1'-6"	1'-0"	2'-11"	2'-9"			
R512*	5	7'-5"	39	2	3'-4"	1'-0"	3'-4"				
R513*	5	3'-7"	19	24	6"	1'-5"				3"	
R514*	3	26'-2"	82	STR							
R515*	17	3'-11"	69	STR							
R516*	6	6'-2"	39	19	4'-10"	1'-4"	4"				
R517*	6	6'-2"	39	STR							
R518*	2	7'-7"	16	31	1'-11"	1"	4'-5"			5"	
R519*	17	8"	12	STR							
R520*	34	3'-3"	115	8	1'-6"	1'-3"	9"				
R521*	34	4'-5"	157	2	1'-6"	2'-3"	11"				
R522*	1	22'-10"	24	STR							
R523*	2	1'-7"	3	STR							
R524*	1	10'-0"	10	STR							
R525*	3	13'-4"	42	STR							
R526*	3	12'-5"	39	STR							
R527*	1	6'-3"	7	STR							
R528*	1	4'-8"	5	STR							
R529*	1	3'-8"	4	8	1'-6"	1'-6"	11"				
R530*	2	5'-0"	10	2	1'-6"	2'-9"	1'-0"				
R531*	1	3'-11"	4	8	1'-6"	1'-9"	11"				
R532	1 SR OF 7	6'-0" TO 8'-10"	54	30	1'-6"	10"	1'-5" TO 2'-10"	1'-3" TO 2'-8"			Incr C = 2 7/8" Incr D = 2 7/8"
R533	2	3'-6"	7	8	1'-6"	1'-5"	10"				
R534	1	5'-6"	6	45	1'-6"	10"	3'-1"	6"			
R535	1	9'-10"	10	30	1'-6"	10"	3'-4"	3'-2"			
R536	1	10'-0"	10	30	1'-6"	10"	3'-5"	3'-3"			
R537	1191	9'-4"	11,594	30	1'-6"	10"	3'-1"	2'-11"			
R538	33	3'-6"	120	8	1'-6"	1'-5"	10"				
R539	33	5'-7"	192	45	1'-6"	10"	3'-1"	7"			
R540	17	5'-11"	105	45	1'-6"	10"	3'-1"	11"			
R541	17	3'-4"	59	8	1'-6"	1'-3"	10"				
R542	32	10'-4"	345	30	1'-6"	10"	3'-7"	3'-5"			
R543	1	6'-3"	7	45	1'-6"	10"	3'-7"	9"			
R544	1	4'-3"	4	8	1'-6"	2'-2"	10"				
R545	1	6'-0"	6	45	1'-6"	10"	3'-7"	6"			
R546	1	6'-5"	7	45	1'-6"	10"	3'-7"	11"			
R547	1	3'-10"	4	8	1'-6"	1'-9"	10"				
R548	1 SR OF 9	6'-0" TO 10'-0"	75	30	1'-6"	10"	1'-5" TO 3'-5"	1'-3" TO 3'-3"			Incr C = 3" Incr D = 3"
R549	2	6'-10"	14	STR							

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RAILING (CONTINUED)											
R550	2	2'-11"	6	STR							
R551	1	3'-0"	3	STR							
R552	1	5'-1"	5	STR							
R553	2	6'-7"	14	STR							
R554	16	1'-5"	24	STR							
R555	12	8'-9"	110	STR							
R556	88	40'-0"	3,671	STR							
R557	4	25'-11"	108	STR							
R558	724	6'-2"	4,657	STR							
R559	50	3'-11"	204	STR							
R560	4	12'-10"	54	STR							
R561	1	4'-1"	4	STR							
R562	1	18'-7"	19	STR							
R563	2	28'-10"	60	STR							
R564	2	29'-7"	62	STR							
R565	1	21'-6"	22	STR							
R566	2	9'-7"	20	STR							
R567	2	11'-2"	23	STR							
R568	1	7'-2"	7	STR							
R569	2	10'-5"	22	19	3'-5"	6'-8"	2'-1"				
R570	12	6'-3"	78	1	4'-11"	1'-6"					
R571	50	5'-3"	274	2	2'-5"	8"	2'-5"				
R572	10	4'-6"	47	STR							
R573	72	5'-9"	432	1	4'-5"	1'-6"					
R574	60	4'-8"	292	STR							
R575	2 SR OF 8	4'-3" TO 6'-3"	88	1	1'-6"	2'-11" TO 4'-11"					3 3/8"
R576	2	6'-11"	14	STR							
R577	2	3'-7"	7	STR							
R578	6	6'-8"	42	STR							
R601*	10	10'-9"	161	30	1'-6"	1'-0"	3'-9"	3'-7"			
R602*	3	5'-5"	24	1	1'-10"	3'-9"					
R603*	3	5'-3"	24	1	1'-10"	3'-7"					
		SUBTOTAL	23,300								

LEGEND:

* - FOR INFORMATION ONLY. REBAR WEIGHT IS NOT INCLUDED IN THE SUBTOTAL. REBAR IS TO BE PAID FOR UNDER ITEM 517.

NOTES:

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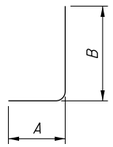
REINFORCING LIST (4 OF 5)
BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346



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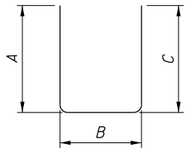

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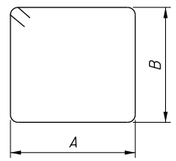

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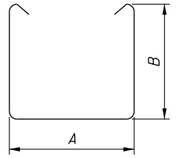

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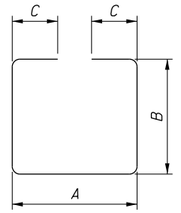

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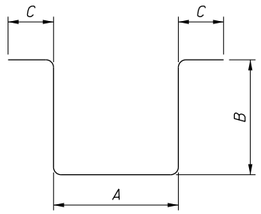

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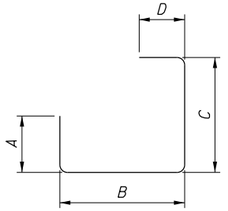

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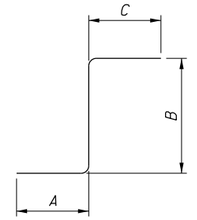

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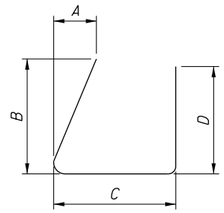

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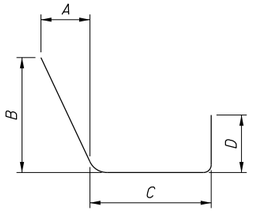

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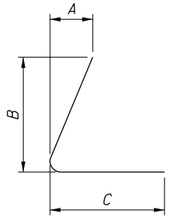

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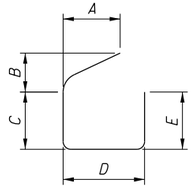

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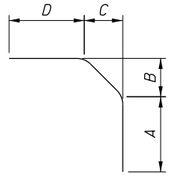

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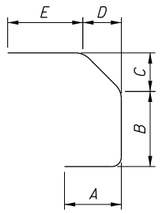

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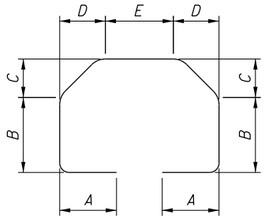

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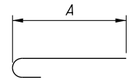

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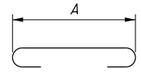

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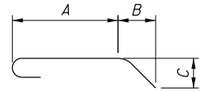

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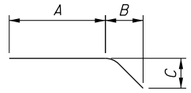

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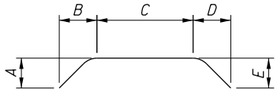

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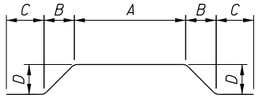
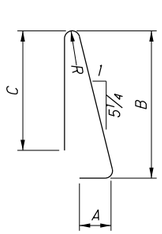


TYPE-21

TYPE-22



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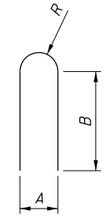

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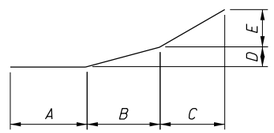
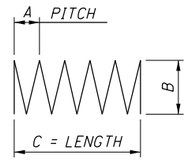


TYPE-25

TYPE-26



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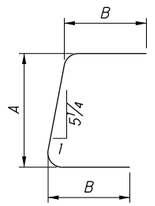

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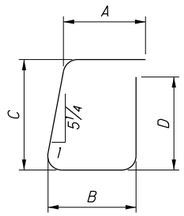

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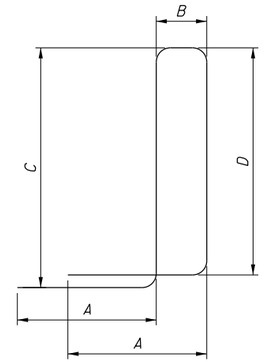

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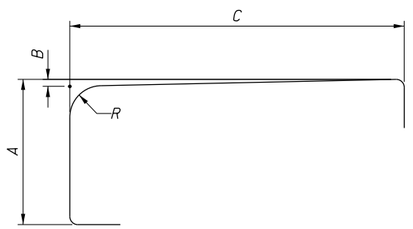

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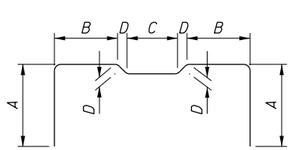

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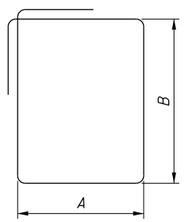

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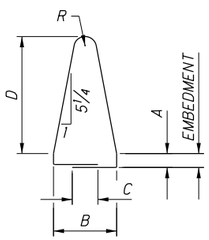

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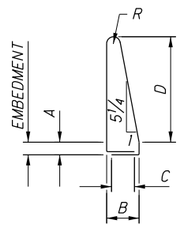

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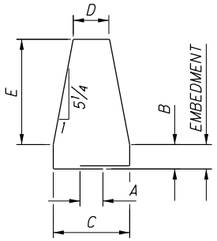

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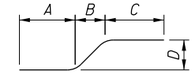

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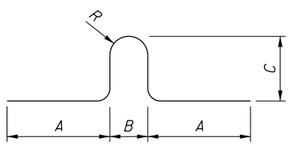

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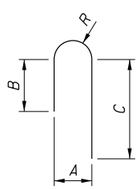

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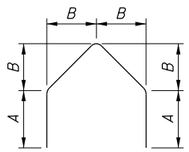

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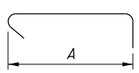

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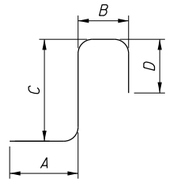


TYPE-45

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, P601 IS A NO. 6 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OFA DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.*

2. *ALL REINFORCING STEEL IS TO BE EPOXY COATED.*

E.L. ROBINSON ENGINEERING
1801 Watermark Drive, Suite 310 - Columbus, OHio 43215
www.elrobinsonengineering.com

DESIGNED	DRAWN	REVIEWED	DATE
TAS	MRV	RLE	10/2017
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DFT		6054145	

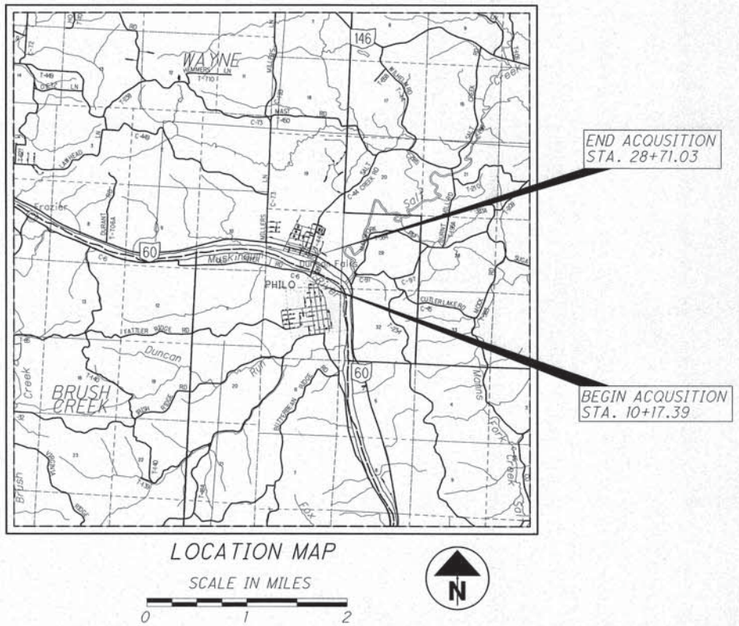
REINFORCING LIST (5 OF 5)

BRIDGE NO. MUS-CR32-0000
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00
PID No. 97346

RIGHT OF WAY LEGEND SHEET MUS-C.R. 32-0.00 (BRIDGE ST.)

MUSKINGUM COUNTY
HARRISON TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF PHILO



LOCATION MAP

SCALE IN MILES

0 1 2

N

INDEX OF SHEETS:

PROJECT DESCRIPTION

REMOVAL OF THE EXISTING BRIDGE ST. STRUCTURE OVER THE MUSKINGUM RIVER AND CONSTRUCTION OF A NEW CROSSING AND REALIGNMENT OF THE APPROACH ROADWAY.

PLANS PREPARED BY:

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
1801 Watermark Drive, Suite 210
Columbus, Ohio 43215
614-210-0751 Fax 614-210-0752

R/W DESIGNER: NATHAN L. CONNER
R/W REVIEWER: TRAVIS D. McCARTY, P.S.
FIELD REVIEWER: NATHAN CONNER
PRELIMINARY FIELD REVIEW DATE: 10/25/2016
TRACINGS FIELD REVIEW DATE: 01/13/2017
OWNERSHIP UPDATED BY: NATHAN L. CONNER
DATE COMPLETED: 01/12/2017
PLAN COMPLETION DATE: 01/16/2017

STRUCTURE KEY

- RESIDENTIAL
- COMMERCIAL
- OUT-BUILDING

UTILITIES

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

MUSKINGUM COUNTY
WATER DEPARTMENT
375 RICHARDS ROAD
ZANESVILLE, OH 43701
ATTN: DON MADDEN
740-453-0678

ODOT DISTRICT 5
TRAFFIC DEPARTMENT
9600 JACKSONTOWN ROAD
JACKSONTOWN, OH 43030
ATTN: RON MILLER
740-323-5286

AT&T OHIO
160 N. 6TH STREET
ZANESVILLE, OH 43701
ATTN: BARRETT TAMASOVICH
740-454-3552

AEP DISTRIBUTION
850 TECH CENTER DRIVE
GAHANNA, OH 43230
ATTN: PAUL PAXTON
614-883-6831

NATIONAL GAS AND OIL COOPERATION
120 O'NEIL DRIVE
HEBRON, OH 43025
ATTN: GREG WILSON
740-348-1254

CHARTER COMMUNICATIONS
(TIME WARNER CABLE)
4547 N. LEEDOM ROAD
CHANDLERSVILLE, OH 43727
ATTN: BRAD ST. CLAIR
740-303-3100

AMERICAN ELECTRIC POWER
TRANSMISSION LINE ENGINEERING
700 MORRISON ROAD
GAHANNA, OH 43230-6642
ATTN: BARB DUNLAP
614-552-1893

DUNFALLS ASSOCIATION
355 MILL STREET
DUNCAN FALLS, OH 43734
ATTN: STEVE HAMBEL
740-624-0181

CONVENTIONAL SYMBOLS

County Line
Township Line
Section Line
Corporation Line
Fence Line (Ex)
Fence Line (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
Guardrail (Ex)
Guardrail (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) MB , Mailbox (Pr) MB
Light (Ex) , Telephone Marker (Ex) TEL
Fire Hydrant (Ex) , Water Meter (Ex) WM
Water Valve (Ex) , Utility Valve Unknown (Ex.)
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

TYPES OF TITLE LEGEND:
WD = WARRANTY DEED
T = TEMPORARY EASEMENT

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.

STATE OF OHIO
STEVEN L. MULLANEY
7900
REGISTERED
SURVEYOR

I, Steven L. Mullaney, P. S. have conducted a survey of the existing conditions for the Muskingum County Engineer's Office in August, 2015. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System South Zone on NAD 83 (2011) datum. The Project Coordinates (US Survey Feet) are relative to State Plane Grid Coordinates (US Survey Feet) by a Project Adjustment Factor of 0.99994369. As a part of this project I have reestablished the locations of the existing property lines and the existing centerline of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Steven L. Mullaney, Professional Land Surveyor 7900

2/28/2017
Date

FEDERAL PROJECT NO. E140(164)
PID NO. 97346
CALCULATED NLC
CHECKED TDM

RIGHT OF WAY LEGEND SHEET

MUS-CR32-0.00

2/27/2017
2:28:57 PM
ODOTCADD
D:\2015\2015069\MUS\97346\ROW\SHEETS\97346RL001.DGN

MUS-CR32-0.00

MUSKINGUM COUNTY
HARRISON TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF PHILO

RECEIVED: JANUARY 13, 2017
RECORDED: JANUARY 13, 2017
BOOK 20, PAGES 103 & 104

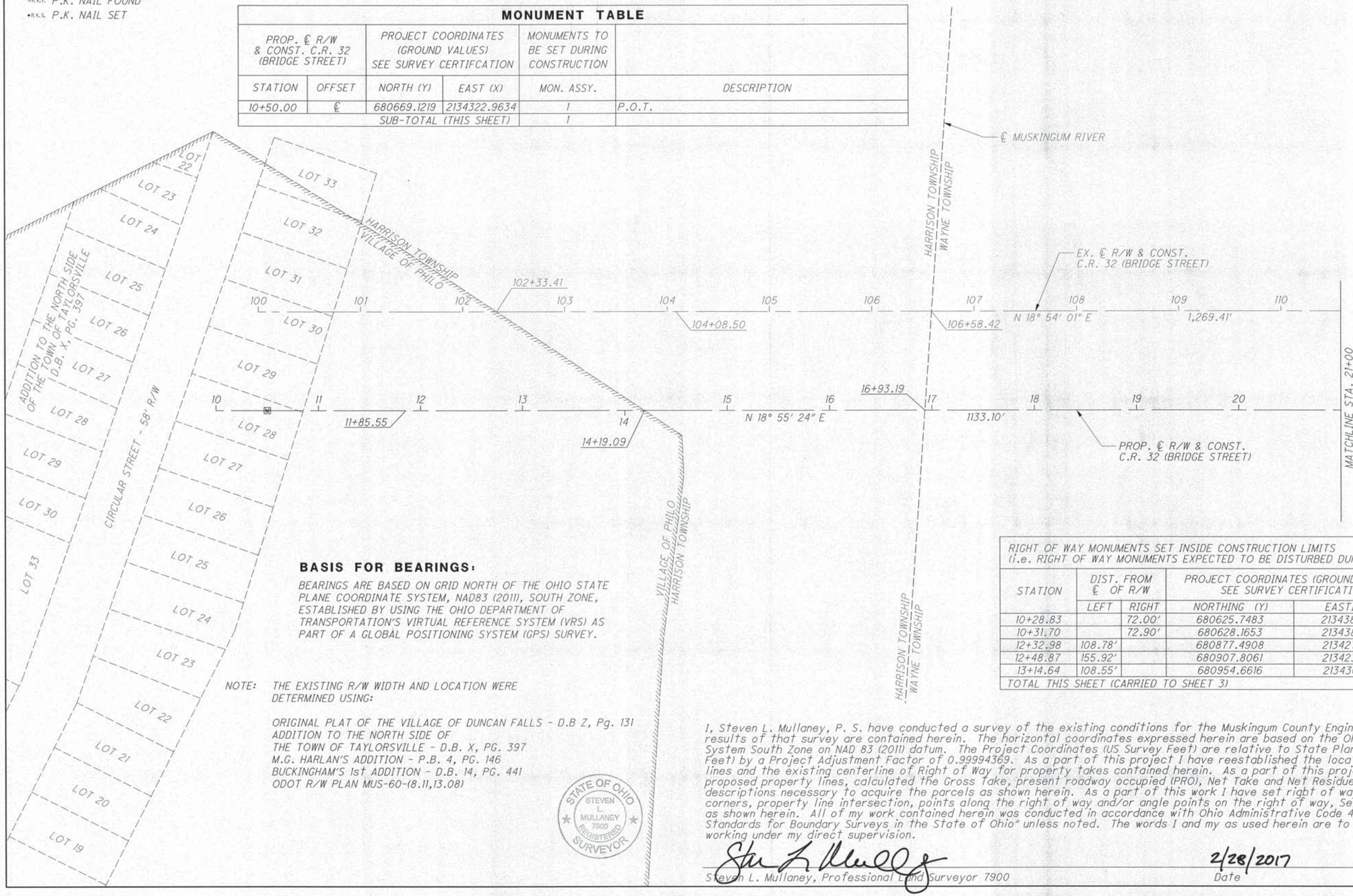
MUSKINGUM COUNTY RECORDER

MONUMENT LEGEND

- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- 5/8" REBAR FOUND
- 5/8" REBAR FOUND W/ID CAP
- 5/8" REBAR SET W/CAP STAMPED "GPD"
- IRON PIPE FOUND
- P.K. NAIL FOUND
- P.K. NAIL SET

MONUMENT TABLE

PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)		PROJECT COORDINATES (GROUND VALUES) SEE SURVEY CERTIFCATION		MONUMENTS TO BE SET DURING CONSTRUCTION	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	DESCRIPTION
10+50.00	℄	680669.1219	2134322.9634	1	P.O.T.
SUB-TOTAL (THIS SHEET)				1	



BASIS FOR BEARINGS:

BEARINGS ARE BASED ON GRID NORTH OF THE OHIO STATE PLANE COORDINATE SYSTEM, NAD83 (2011), SOUTH ZONE, ESTABLISHED BY USING THE OHIO DEPARTMENT OF TRANSPORTATION'S VIRTUAL REFERENCE SYSTEM (VRS) AS PART OF A GLOBAL POSITIONING SYSTEM (GPS) SURVEY.

NOTE: THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED USING:

ORIGINAL PLAT OF THE VILLAGE OF DUNCAN FALLS - D.B Z, Pg. 131
ADDITION TO THE NORTH SIDE OF
THE TOWN OF TAYLORSVILLE - D.B. X, PG. 397
M.G. HARLAN'S ADDITION - P.B. 4, PG. 146
BUCKINGHAM'S 1st ADDITION - D.B. 14, PG. 441
ODOT R/W PLAN MUS-60-(8.11,13.08)

STATE OF OHIO
STEVEN L MULLANEY 7900 REGISTERED SURVEYOR

RIGHT OF WAY MONUMENTS SET INSIDE CONSTRUCTION LIMITS
(i.e. RIGHT OF WAY MONUMENTS EXPECTED TO BE DISTURBED DURING CONSTRUCTION)

STATION	DIST. FROM ℄ OF R/W		PROJECT COORDINATES (GROUND VALUES) SEE SURVEY CERTIFICATION		R/W MONUMENTS
	LEFT	RIGHT	NORTHING (Y)	EASTING (X)	
10+28.83		72.00'	680625.7483	2134384.2057	1
10+31.70		72.90'	680628.1653	2134385.9906	1
12+32.98	108.78'		680877.4908	2134279.4032	1
12+48.87	155.92'		680907.8061	2134239.9689	1
13+14.64	108.55'		680954.6616	2134306.1039	1
TOTAL THIS SHEET (CARRIED TO SHEET 3)					5

I, Steven L. Mullaney, P. S. have conducted a survey of the existing conditions for the Muskingum County Engineer's Office in August, 2015. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System South Zone on NAD 83 (2011) datum. The Project Coordinates (US Survey Feet) are relative to State Plane Grid Coordinates (US Survey Feet) by a Project Adjustment Factor of 0.99994369. As a part of this project I have reestablished the locations of the existing property lines and the existing centerline of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Steven L. Mullaney, Professional Land Surveyor 7900 — Date 2/28/2017

2/27/2017
2:29:02 PM
ODOTCADD
D:\2015\20150691\MUS\97346\ROW\SHEETS\97346RC001.DGN

HORIZONTAL SCALE IN FEET: 0, 25, 50, 100

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

CENTERLINE PLAT
1 OF 2

MUS-CR32-0.00

2 / 14

180 / 192

RECEIVED: JANUARY 13, 2017
RECORDED: JANUARY 13, 2017
BOOK 20, PAGES 103 & 104

MUSKINGUM COUNTY RECORDER

MUS-CR32-0.00

MUSKINGUM COUNTY
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 83°19'34" E	18.07'
L2	S 79°18'55" E	12.00'
L3	N 18°55'24" E	1133.10'

RIGHT OF WAY MONUMENTS SET INSIDE CONSTRUCTION LIMITS
(i.e. RIGHT OF WAY MONUMENTS EXPECTED TO BE DISTURBED DURING CONSTRUCTION)

STATION	DIST. FROM ℄ OF R/W		STATE PLANE GRID COORDINATES		R/W MONUMENTS
	LEFT	RIGHT	NORTHING (Y)	EASTING (X)	
21+31.82	66.85'		681714.1533	2134610.5628	1
21+54.44	66.47'		681732.8668	2134616.9700	1
21+85.50		19.64'	681739.6558	2134707.7282	1
22+25.19	63.09'		681792.2342	2134633.0494	1
23+29.34	33.59'		681891.0494	2134671.4658	1
24+52.64	18.12'		682012.0185	2134717.9427	1
24+59.12	8.24'		682014.8563	2134729.4155	1
25+82.82	55.39'		682147.1884	2134725.9691	1
25+92.39	53.12'		682155.6242	2134731.3391	1
26+14.39	29.94'		682146.4401	2134816.9256	1
26+17.68		13.08'	682156.0284	2134802.7219	1
27+04.87	15.71'		682245.3512	2134824.0202	1
TOTAL THIS SHEET					12
TOTAL FROM SHEET 2					5
TOTAL CARRIED TO GENERAL SUMMARY					17

℄ R/W WEST WATER STREET

PROP. ℄ CONST.
WEST WATER STREET
P.I. Sta. 10+96.30
Δ = 25° 58' 34" (LT)
Dc = 28° 38' 52"
R = 200.00'
T = 46.13'
L = 90.67'
E = 5.25'
C = 89.90'
C.B. = S 82° 06' 22" E

PROP. ℄ CONST.
WEST WATER STREET
P.I. Sta. 11+61.46
Δ = 11° 46' 05" (RT)
Dc = 28° 38' 52"
R = 200.00'
T = 20.61'
L = 41.08'
E = 1.06'
C = 41.01'
C.B. = S 89° 12' 36" E

℄ R/W & CONST.
S.R. 60 (MAIN STREET)
P.I. Sta. 497+15.84
Δ = 14° 22' 00" (RT)
Dc = 3° 15' 00"
R = 1,762.95'
T = 222.19'
L = 442.05'
E = 13.95'
C = 440.89'
C.B. = N 64° 26' 07" W

PROP. ℄ CONST.
WEST WATER STREET
S 69°07'05" E
50.17'
LOT 12 - SQUARE 1
PC Sta. 10+50.17

EX. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
N 18°54'01" E

PROP. ℄ CONST.
EAST WATER STREET
P.I. Sta. 10+49.72
Δ = 79° 56' 35" (RT)
Dc = 127° 19' 26"
R = 45.00'
T = 37.72'
L = 62.79'
E = 13.72'
C = 57.82'
C.B. = S 39° 20' 37" E

PI Sta. 112+69.41
Δ = 02°07'00" RT.

N 18° 41' 10" E
301.58'

PRC Sta. 11+40.85

PT Sta. 11+81.93

PC Sta. 21+33.10

PRC Sta. 22+81.82

MATCHLINE STA. 21+00
SEE SHEET 2

PROP. ℄ CONST.
EAST WATER STREET
P.I. Sta. 10+99.52
Δ = 57° 35' 20" (LT)
Dc = 127° 19' 26"
R = 45.00'
T = 24.73'
L = 45.23'
E = 6.35'
C = 43.35'
C.B. = S 28° 10' 00" E

PC Sta. 10+12.00

PROP. ℄ CONST.
EAST WATER STREET

PRC Sta. 10+74.79

PT Sta. 11+20.02

S 56°57'40" E
29.98'

S 54° 41' 19" E
352.10'

PT Sta. 13+52.10
Δ = 03°35'49" LT.

℄ R/W EAST WATER STREET

S 58° 17' 08" E
625.22'

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 22+08.02
Δ = 17° 02' 32" (LT)
Dc = 11° 27' 33"
R = 500.00'
T = 74.91'
L = 148.72'
E = 5.58'
C = 148.17'
C.B. = N 10° 24' 09" E

PI Sta. 12+92.08
Δ = 13°47'38" RT.

156.88'
N 19° 22' 17" E

PT Sta. 24+34.45

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 23+58.74
Δ = 17° 29' 24" (RT)
Dc = 11° 27' 33"
R = 500.00'
T = 76.91'
L = 152.63'
E = 5.88'
C = 152.04'
C.B. = N 10° 37' 35" E

PC Sta. 25+91.33

PC Sta. 494+93.65

N 57° 15' 07" W
293.65'

LOT 5
PLAT OF THE VILLAGE OF DUNCAN FALLS
LOT 7
LOT 1
LOT 2
ALLEY
ALLEY
BUCKINGHAM'S 1ST ADDITION D.B. 14, PG, 441
LOT 7
℄ R/W & CONST.
S.R. 60 (MAIN STREET)
LOT 8
LOT 9
ALLEY
PLATTED ℄ R/W
C.R. 32
(BRIDGE STREET)
LOT 10
S 56°54'59" E
42.34'
PI Sta. 10+42.34
Δ = 03°57'32" RT.
℄ CONST. T.R. 1094
S 52°57'28" E
77.60'
N 32°28'48" E
220.17'
PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
N 9° 31' 01" E
101.91'
PT Sta. 28+97.59
PRC Sta. 27+34.23

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 28+18.50
Δ = 34° 39' 56" (LT)
Dc = 21° 13' 14"
R = 270.00'
T = 84.26'
L = 163.36'
E = 12.84'
C = 160.88'
C.B. = N 26° 50' 59" E

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 26+63.92
Δ = 24° 48' 40" (RT)
Dc = 17° 21' 44"
R = 330.00'
T = 72.59'
L = 142.90'
E = 7.89'
C = 141.79'
C.B. = N 31° 46' 37" E

Ⓐ 111+56.42 EX. ℄ R/W C.R. 32 (BRIDGE STREET)=
111+56.42 EX. ℄ CONST. C.R. 32 (BRIDGE STREET)=
9+90.71 ℄ R/W WEST WATER STREET

Ⓑ 10+00.00 ℄ R/W WEST WATER STREET=
10+00.00 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

Ⓒ 10+00.00 ℄ R/W EAST WATER STREET=
9+90.50 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

Ⓓ 111+70.88 EX. ℄ R/W C.R. 32 (BRIDGE STREET)=
111+70.88 EX. ℄ CONST. C.R. 32 (BRIDGE STREET)=
11+10.17 ℄ CONST. WEST WATER STREET

Ⓔ 10+17.63 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)=
11+19.78 ℄ CONST. WEST WATER STREET

Ⓕ 22+40.00 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)=
12+00.00 ℄ CONST. WEST WATER STREET

Ⓖ 22+05.00 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)=
10+00.00 ℄ CONST. EAST WATER STREET

Ⓗ 21+62.43 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)=
10+90.37 ℄ R/W EAST WATER STREET

Ⓘ 496+52.29 ℄ R/W & CONST. S.R. 60 (MAIN STREET)=
115+05.82 EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

Ⓙ 496+39.26 ℄ R/W & CONST. S.R. 60 (MAIN STREET)=
13+49.26 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

Ⓚ 496+06.43 ℄ R/W & CONST. S.R. 60 (MAIN STREET)=
25+43.96 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

Ⓛ 26+93.11 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)=
11+20.00 ℄ CONST. T.R. 1094

NOTE:
SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTSWILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE MUSKINGUM COUNTY ENGINEER'S OFFICE AND THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE RECORDS OF MUSKINGUM COUNTY AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

MONUMENT TABLE

			PROJECT COORDINATES (GROUND VALUES) SEE SURVEY CERTIFCATION		MONUMENTS TO BE SET DURING CONSTRUCTION	
CENTERLINE	STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	DESCRIPTION
PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)	21+33.10	℄	681693.6898	2134674.2187	1	P.C.
	22+81.82	℄	681839.4241	2134700.9728	1	P.R.C.
	24+34.45	℄	681988.8542	2134729.0091	1	P.T.
	25+91.33	℄	682136.8514	2134781.0441	1	P.C.
	27+34.23	℄	682257.3859	2134855.7116	1	P.R.C.
	28+97.59	℄	682400.9195	2134928.3722	1	P.T.
PROP. ℄ CONST. WATER STREET	10+50.17	℄	681812.7414	2134549.8527	1	P.C.
	11+40.85	℄	681800.3948	2134638.8996	1	P.R.C.
	11+81.93	℄	681799.8295	2134679.9020	1	P.T.
	12+00.00	℄	681797.7288	2134697.8540	1	= P.O.C. 22+40.00 PROP. C.R. 32 (BRIDGE STREET)
			SUB-TOTAL (THIS SHEET)		10	
			SUB-TOTAL (OTHER SHEET)		1	
			TOTAL CARRIED TO GENERAL SUMMARY		11	

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

CENTERLINE PLAT
2 OF 2

MUS-CR32-0.00

3 / 14

181 / 192

$DATE$
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$USER$
$FILE$

MUSKINGUM COUNTY
HARRISON TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF PHILO

(2) THE UNITED STATES (NO AUDITOR'S PARCEL NUMBER)

(1) OHIO POWER COMPANY 20-20-01-01-000

Ex R/W

Ex SH

LOT 22
LOT 23
LOT 24
LOT 25
LOT 26
LOT 27
LOT 28
LOT 29
LOT 30
LOT 33
LOT 32
LOT 31

ADDITION TO THE NORTH SIDE OF THE TOWN OF TAYLORSVILLE D.B. X, Pg. 397

CIRCULAR STREET - 58' R/W

HARRISON TOWNSHIP

VILLAGE OF PHILO

MUSKINGUM RIVER

HARRISON TOWNSHIP
WAYNE TOWNSHIP

EX. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)

N 18° 54' 01" E
1,269.41'
106+58.42

16+93.19
N 18° 55' 24" E
1133.10'

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)

MATCHLINE STA. 21+00.00
SEE SHEET 5

BEGIN ACQUISTION
STA. 10+17.39

BEGIN PROJECT
STA. 10+14.30

BEGIN WORK
STA. 9+81.08

11+85.55

R/W

Ex U

Electrical Tower is covered by a blanket easement D.V. 693, Pg. 326

20' pipeline easement D.V. 958, Pg. 111

Sewer Easement D.V. 529, Pg. 131

Ex SW

(3) OHIO POWER COMPANY 73-90-01-40-000

(1) OHIO POWER COMPANY 20-20-01-01-000

(1) OHIO POWER COMPANY 20-20-01-01-000

VILLAGE OF PHILO
HARRISON TOWNSHIP

HARRISON TOWNSHIP
WAYNE TOWNSHIP

REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 01/16/2017

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

PROPERTY MAP
1 OF 2

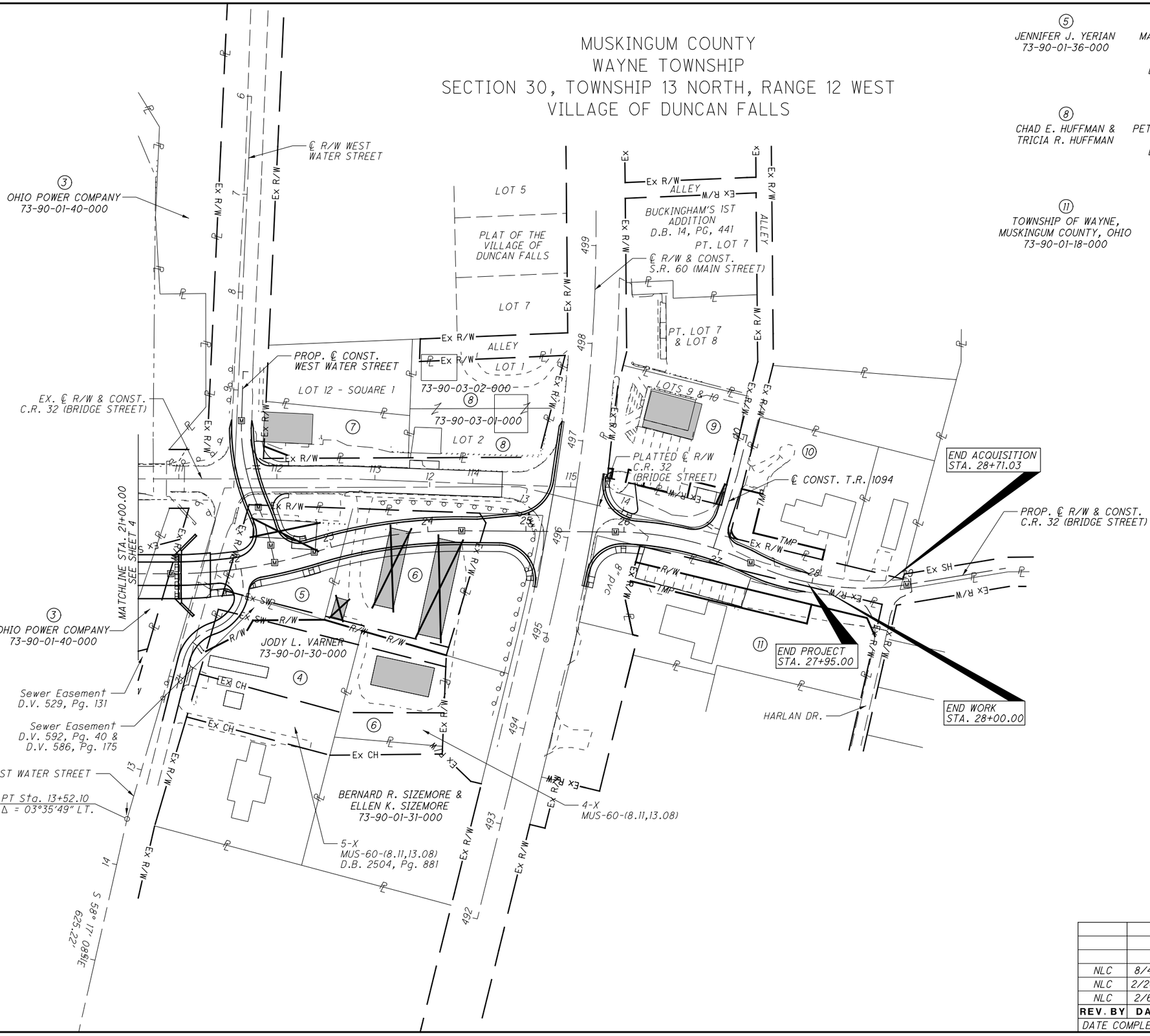
MUS-CR32-0.00

4 / 14

182 / 192

$DATE$
$TIME$
$USER$
$FILE$

MUSKINGUM COUNTY
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS



⑤ JENNIFER J. YERIAN 73-90-01-36-000

⑥ MATTHEWS & SCHILLING COMMERCIAL, LLC, AN OHIO LIMITED LIABILITY COMPANY 73-90-01-32-000

⑦ VICKY M. CAPLINGER & LONNIE M. WARNE 73-90-03-20-001

⑧ CHAD E. HUFFMAN & TRICIA R. HUFFMAN

⑨ PETER ENTERPRISES, LLC, AN OHIO LIMITED LIABILITY COMPANY 73-90-02-13-000

⑩ LU ANNE HATFIELD & LORALEI DUNN 73-90-02-12-000

⑪ TOWNSHIP OF WAYNE, MUSKINGUM COUNTY, OHIO 73-90-01-18-000

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

PROPERTY MAP
2 OF 2

MUS-CR32-0.00

REV. BY	DATE	DESCRIPTION
NLC	8/4/17	UPDATED OWNER OF PARCEL 7
NLC	2/20/17	UPDATED TAKES ON PARCEL 9
NLC	2/6/17	UPDATED STATIONING ON S.R. 60

DATE COMPLETED: 01/16/2017

$DATE$
$TIME$
$USER$
$FILE$

TOTAL NUMBER OF :

9 OWNERSHIPS
15 PARCELS
1 TOTAL TAKE
1 OWNERSHIP W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

ALL AREAS IN ACRES

① = AS SURVEYED AREA

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF THE MUSKINGUM COUNTY COMMISSIONERS UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD	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 INSTRUMENT NO.
1-WD	OHIO POWER COMPANY	4, 8-9	D.B. 198, PG. 497	20-20-01-01-000	31.9500	0.5022	1.6467	0.5022	1.1445	NO	30.3033		80% FEDERAL	304' FENCE(110' ENCROACHING), 2 TREES, 1 POST, GATE	
			D.B. 203, PG. 73										20% LOCAL	*5 POSTS, *GATE, *WALL, ELEC. TOWER, STEPS, VENT,	
														85' OF EXPOSED 4" SPP, 0.1465 AC. OVERLAP WITH	
														20' PIPELINE EASEMENT, D.V. 958, PG. 111	
2	THE UNITED STATES	4, 8-9	D.B. 85, PG. 267	NONE	1.0960	0.2790	-	-	-					NO TAKE FROM THIS PARCEL	
3-WD	OHIO POWER COMPANY	4-5, 11-12	D.B. 203, PG. 14	73-90-01-40-000	13.0800	0.0000	0.1153	0.0000	0.1153		12.9647			0.0669 AC. OVERLAP W/SEWER ESMT. D.V. 529,PG. 131	
4-WD	JODY L. VARNER	5, 11-12	D.B. 2456, PG. 410	73-90-01-30-000	0.8600	0.0000	0.0571	0.0000	0.0571	NO		0.8029		0.0333 AC. OVERLAP W/SEWER ESMT. D.V. 592, PG. 40	
5-WD	JENNIFER J. YERIAN	5, 11-12	D.B. 2639, PG. 525	73-90-01-36-000	0.2508①	0.0000	0.2508	0.0000	0.2508	YES		0.0000		TOTAL TAKE	
6-WD	MATTHEWS & SCHILLING COMMERCIAL, LLC,	5, 11-14	D.B. 2442, PG. 33	73-90-01-32-000	0.6600	0.0000	0.4064	0.0000	0.4064	YES		0.2536		2 STORAGE BLDS., 14 POSTS, LIGHT POLE, SHED, SIGN	
	AN OHIO LIMITED LIABILITY COMPANY														
6-E		5,11-12					0.2334	0.0000	0.2334	NO					
7-T	VICKY M. CAPLINGER & LONNIE M. WARNE	5, 11-12	D.B. 2725, PG. 670	73-90-03-20-001	0.1700	0.0000	0.0046	0.0000	0.0046	NO				GRADING & DRIVE CONSTRUCTION	
8	CHAD E. HUFFMAN & TRICIA R. HUFFMAN	5, 11-14	D.B. 2548, PG. 254	73-90-03-01-000	0.1730	0.0000	-	-	-					NO TAKE FROM THIS PARCEL	
				73-90-03-02-000	0.1520	0.0000	-	-	-					NO TAKE FROM THIS PARCEL	
	TOTAL				0.3250	0.0000	-	-	-						
9-WD1	PETER ENTERPRISES, LLC,	5, 13-14	D.B. 2272, PG. 796	73-90-02-13-000	0.3450	0.0000	0.0010	0.0000	0.0010	NO					
9-WD2	AN OHIO LIMITED LIABILITY COMPANY	5, 13-14					0.0019	0.0000	0.0019	S(2)					
	TOTAL				0.3450	0.0000	0.0029	0.0000	0.0029		0.3421				
9-T1		5, 13-14					0.0055	0.0000	0.0055					GRADING & DRIVE CONSTRUCTION	
9-T2		5, 13-14					0.0123	0.0000	0.0123	S(2)				2 ROCKS, 2 SIGNS, GRADING AND DRIVE CONST.	
	TOTAL						0.0178	0.0000	0.0178						
10-WD	LU ANNE HATFIELD & LORALEI DUNN	5, 13-14	D.B. 1620, PG. 230	73-90-02-12-000	0.3600	0.0000	0.0005	0.0000	0.0005	NO	0.3595			*ROCK	
10-T							0.0426	0.0000	0.0426					GRADING, 1 BUSH	
11-WD	TOWNSHIP OF WAYNE,	5, 13-14	D.B. 2236, PG. 383	73-90-01-18-000	0.9300	0.0000	0.1024	0.0000	0.1024			0.8276			
11-T	MUSKINGUM COUNTY, OHIO						0.0849	0.0000	0.0849	NO			80% FEDERAL	PARKING LOT CONSTRUCTION	
													20% LOCAL		

NOTES: ALL TEMPORARY PARCELS TO BE OF 18 MONTHS DURATION.

UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

TYPES OF TITLE LEGEND:
WD = WARRANTY DEED
T = TEMPORARY EASEMENT

* DENOTES ENCROACHMENT

REV. BY	DATE	DESCRIPTION
NLC	8/4/17	UPDATED OWNER OF PARCEL 7
NLC	2/20/17	REMOVED 9-T, ADDED 9-T1 & 9-T2

FIELD REVIEW BY: NLC DATE: 01/13/2017
OWNERSHIP VERIFIED BY: NLC DATE: 01/12/2017
DATE COMPLETED: 01/16/2017

$DATE$
$TIME$
$USER$
$FILE$

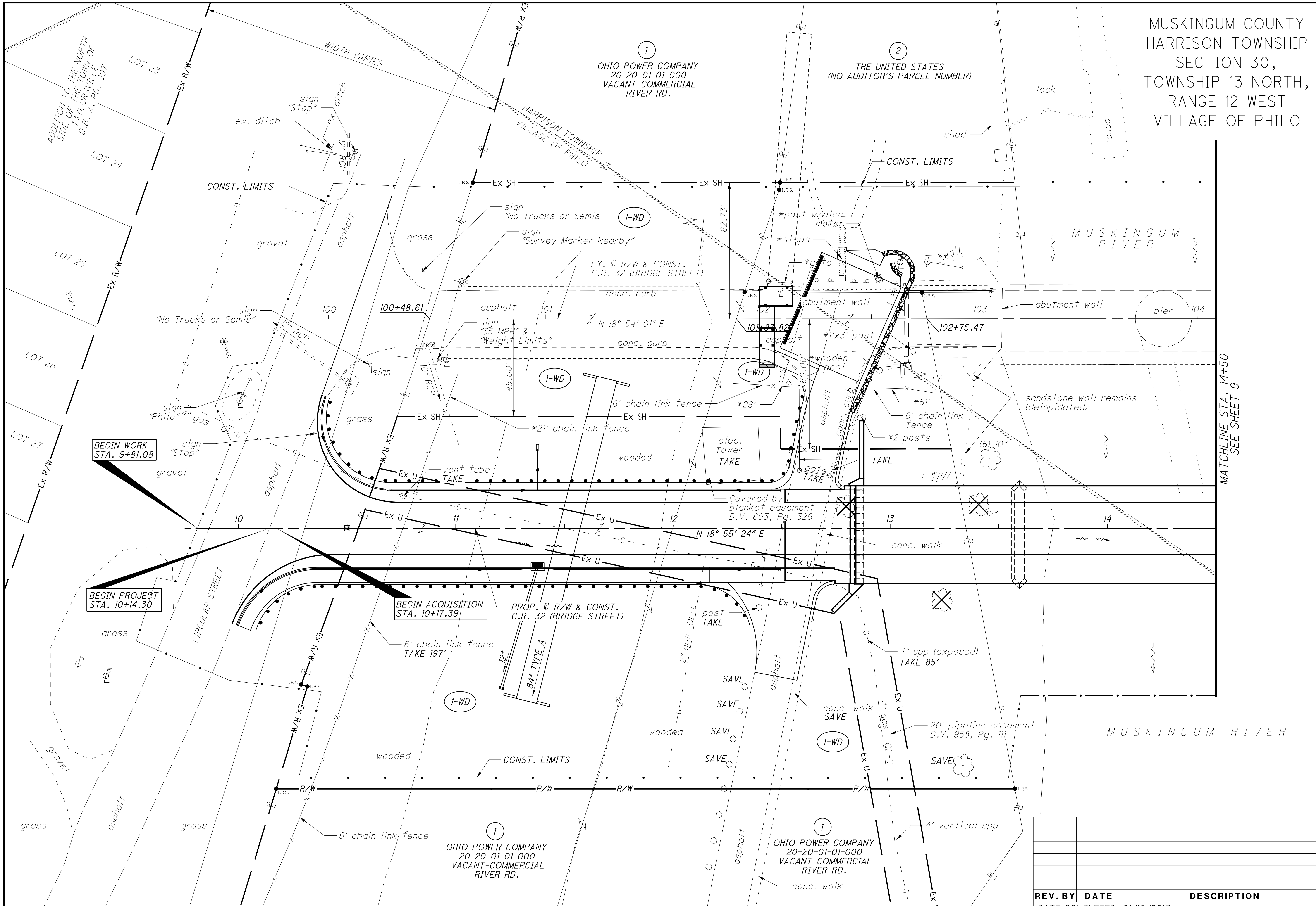
FEDERAL PROJECT NO. E140(164)
PID NO. 97346
STATE JOB NO. 458066
R/W DESIGNER NLC
R/W REVIEWER TDM

SUMMARY OF ADDITIONAL RIGHT OF WAY

MUS-CR32-0.00

6 / 14

184 / 192



REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 01/16/2017

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY TOPOGRAPHY SHEET
STA. 10+00 TO STA. 14+50

MUS-CR32-0.00

MUSKINGUM COUNTY
HARRISON TOWNSHIP
SECTION 30,
TOWNSHIP 13 NORTH,
RANGE 12 WEST
VILLAGE OF PHILO

LOT 23 | LOT 24 | LOT 25 | LOT 26 | LOT 27 | LOT 28 | LOT 29 | LOT 30 | LOT 31 | LOT 32 | LOT 33

ADDITION TO THE NORTH SIDE OF THE TOWN OF TAYLORSVILLE D.B. X, PG. 397

Ex R/W | WIDTH VARIES | Ex R/W | CIRCULAR STREET

(1) OHIO POWER COMPANY
20-20-01-01-000
D.B. 198, PG. 497

(2) THE UNITED STATES
(NO AUDITOR'S PARCEL NUMBER)
D.B. 85, PG. 267

11+07.86
159.17' LT.
I.R.S.
Ex SH
N 18° 54' 01" E
141.45'
Ex SH
I.R.S.
12+49.31
159.22' LT.
S 63°26'58" E
3.34'
Ex SH

12+48.87
155.92' LT.
S 63° 26' 58" E
S 52° 26' 55" E
49.74'
62.73'

1-WD

12+32.98
108.78' LT.
I.R.S.
N 19° 05' 07" E
81.66'
I.R.S.
13+14.64
108.55' LT.

EX. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)

100 | 100+48.61 | 101 | 102 | 103 | 104
N 18° 54' 01" E
101+87.82
102+75.47

9+93.29
86.00' LT.
9+92.58
82.58' LT.
R/W EASEMENT TO COUNTY

45.00'
60.00'

1-WD

Ex SH | Ex SH | Ex SH

BEGIN ACQUISITION
STA. 10+17.39
BEGIN WORK
STA. 9+81.08
182.97'

Cl Ex R/W
Ex U
PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)

10 | 11 | 12 | 13 | 14
N 18° 55' 24" E
Ex U

HARRISON TOWNSHIP
VILLAGE OF PHILO

MATCHLINE STA. 14+50
SEE SHEET 10

S 81° 40' 36" E
232.52'

20' pipeline easement
D.V. 958, Pg. 111

BEGIN PROJECT
STA. 10+14.30

S 51° 45' 36" E

10+28.83
72.00' RT.
I.R.S.
S 36°26'39" W
3.00'
I.R.S.
10+31.70
72.90' RT.

9+32.06
90.09' RT.
N 38° 14' 24" E
90.42'

N 54°10'41" W
49.22'

10+17.39
120.00' RT.
I.R.S.
R/W | S 18° 55' 24" W | R/W | R/W | 340.02' | R/W
13+57.41
120.00' RT.
I.R.S.

(1) OHIO POWER COMPANY
20-20-01-01-000
D.B. 198, PG. 497

(1) OHIO POWER COMPANY
20-20-01-01-000
D.B. 203, PG. 73

RIGHT OF WAY CURVE DATA

CURVE	CENTRAL ANGLE	RADIUS	CURVE LENGTH	CHORD LENGTH	CHORD BEARING
C1	03°39'31"	3826.45'	244.34'	244.30'	N 52°12'12" W

REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 01/16/2017

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY BOUNDARY SHEET
STA. 10+00 TO STA. 14+50

MUS-CR32-0.00

8 / 14

186 / 192

$DATE$
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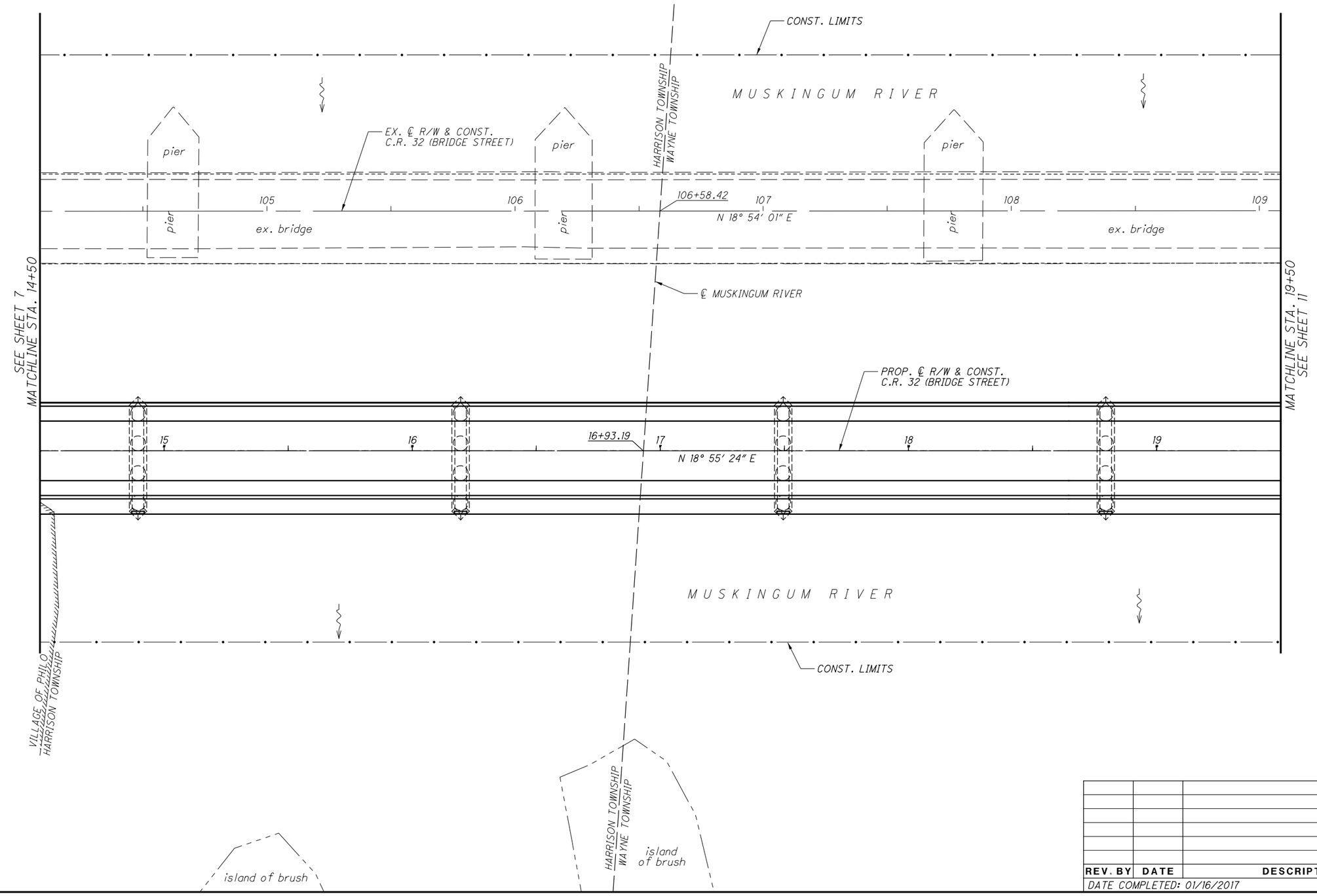
MUSKINGUM COUNTY
HARRISON TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF PHILO



REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 01/16/2017

$DATE$
$TIME$
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HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

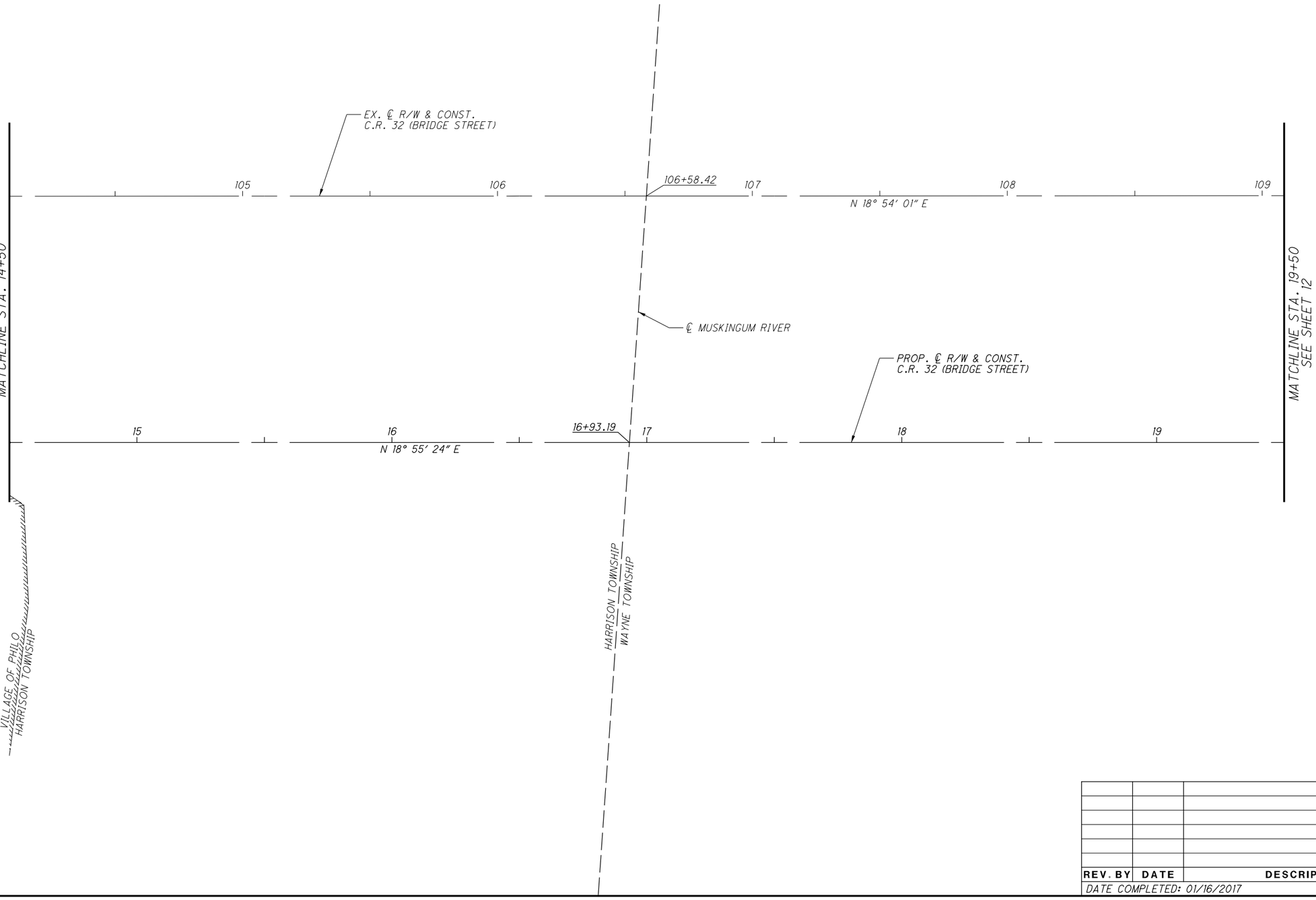
RIGHT OF WAY TOPOGRAPHY SHEET
STA. 14+50 TO STA. 19+50

MUS-CR32-0.00

9 / 14

187 / 192

MUSKINGUM COUNTY
HARRISON TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF PHILO



REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 01/16/2017

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY BOUNDARY SHEET
STA. 14+50 TO STA. 19+50

MUS-CR32-0.00

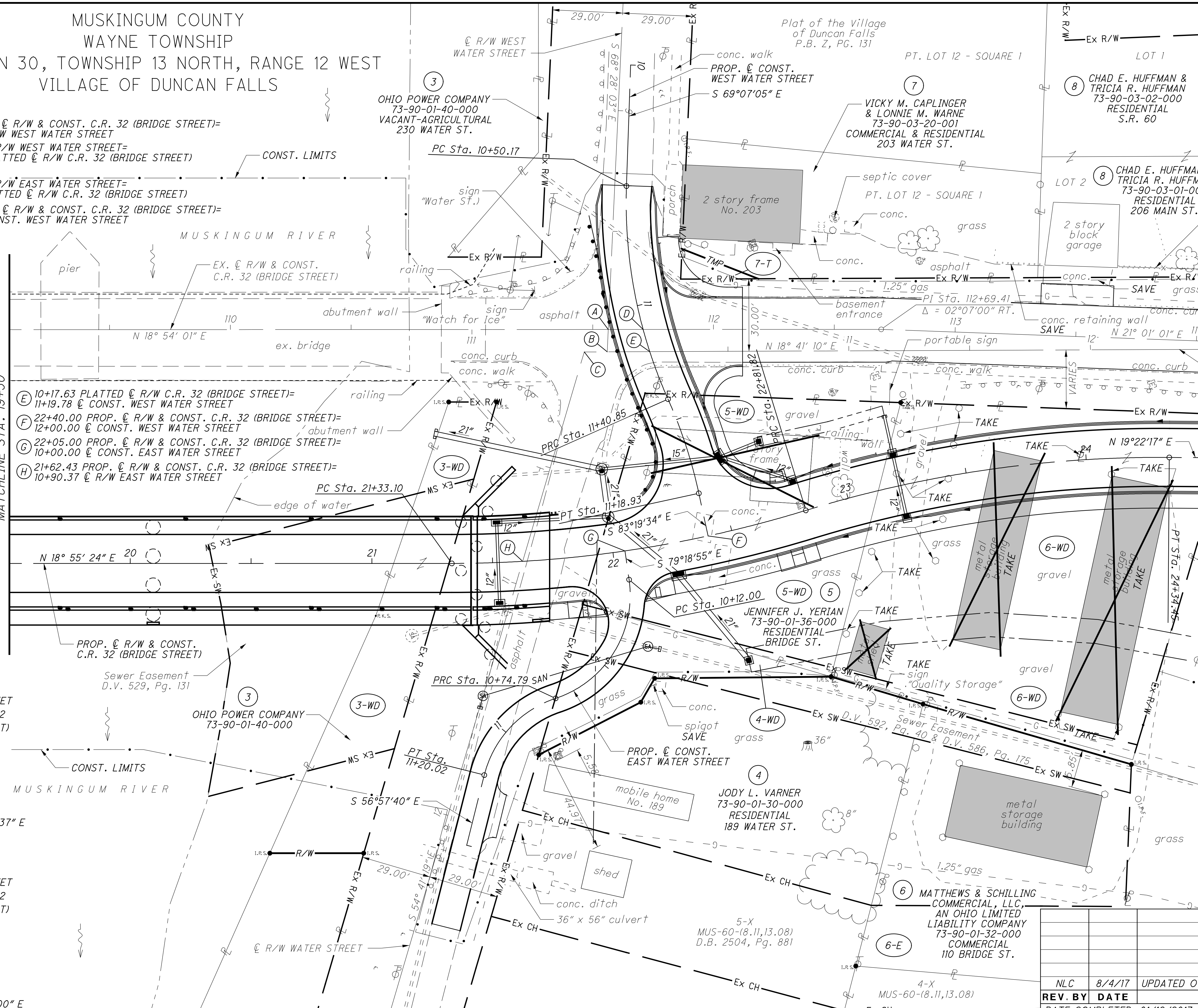
10 / 14

188
192

$DATE$
$TIME$
$USER$
$FILE$

MUSKINGUM COUNTY
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS

(A) 111+56.42 EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 9+90.71 ℄ R/W WEST WATER STREET
(B) 10+00.00 ℄ R/W WEST WATER STREET= 10+00.00 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)
(C) 10+00.00 ℄ R/W EAST WATER STREET= 9+90.50 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)
(D) 111+70.88 EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 11+10.17 ℄ CONST. WEST WATER STREET
(E) 10+17.63 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)= 11+19.78 ℄ CONST. WEST WATER STREET
(F) 22+40.00 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 12+00.00 ℄ CONST. WEST WATER STREET
(G) 22+05.00 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 10+00.00 ℄ CONST. EAST WATER STREET
(H) 21+62.43 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 10+90.37 ℄ R/W EAST WATER STREET



PROP. ℄ CONST.
WEST WATER STREET
P.I. Sta. 10+96.30
Δ = 25° 58' 34" (LT)
Dc = 28° 38' 52"
R = 200.00'
T = 46.13'
L = 90.67'
E = 5.25'
C = 89.90'
C.B. = S 82° 06' 22" E

PROP. ℄ CONST.
WEST WATER STREET
P.I. Sta. 11+61.46
Δ = 11° 46' 05" (RT)
Dc = 28° 38' 52"
R = 200.00'
T = 20.61'
L = 41.08'
E = 1.06'
C = 41.01'
C.B. = S 89° 12' 36" E

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 22+08.02
Δ = 17° 02' 32" (LT)
Dc = 11° 27' 33"
R = 500.00'
T = 74.91'
L = 148.72'
E = 5.58'
C = 148.17'
C.B. = N 10° 24' 09" E

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 23+58.74
Δ = 17° 29' 24" (RT)
Dc = 11° 27' 33"
R = 500.00'
T = 76.91'
L = 152.63'
E = 5.88'
C = 152.04'
C.B. = N 10° 37' 35" E

PROP. ℄ CONST.
EAST WATER STREET
P.I. Sta. 10+49.72
Δ = 79° 56' 35" (RT)
Dc = 127° 19' 26"
R = 45.00'
T = 37.72'
L = 62.79'
E = 13.72'
C = 57.82'
C.B. = S 39° 20' 37" E

PROP. ℄ CONST.
EAST WATER STREET
P.I. Sta. 10+99.52
Δ = 57° 35' 20" (LT)
Dc = 127° 19' 26"
R = 45.00'
T = 24.73'
L = 45.23'
E = 6.35'
C = 43.35'
C.B. = S 28° 10' 00" E

HORIZONTAL SCALE IN FEET: 0 10 20 40

REV. BY	DATE	DESCRIPTION
NLC	8/4/17	UPDATED OWNER OF PARCEL 7

DATE COMPLETED: 01/16/2017

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY TOPOGRAPHY SHEET
STA. 19+50 TO STA. 24+50

MUS-CR32-0.00

MUSKINGUM COUNTY
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS

(A) 111+56.42 EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 9+90.71 ℄ R/W WEST WATER STREET

(B) 10+00.00 ℄ R/W WEST WATER STREET= 10+00.00 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

(C) 10+00.00 ℄ R/W EAST WATER STREET= 9+90.50 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

(D) 111+70.88 EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 11+10.17 ℄ CONST. WEST WATER STREET

(E) 10+17.63 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)= 11+19.78 ℄ CONST. WEST WATER STREET

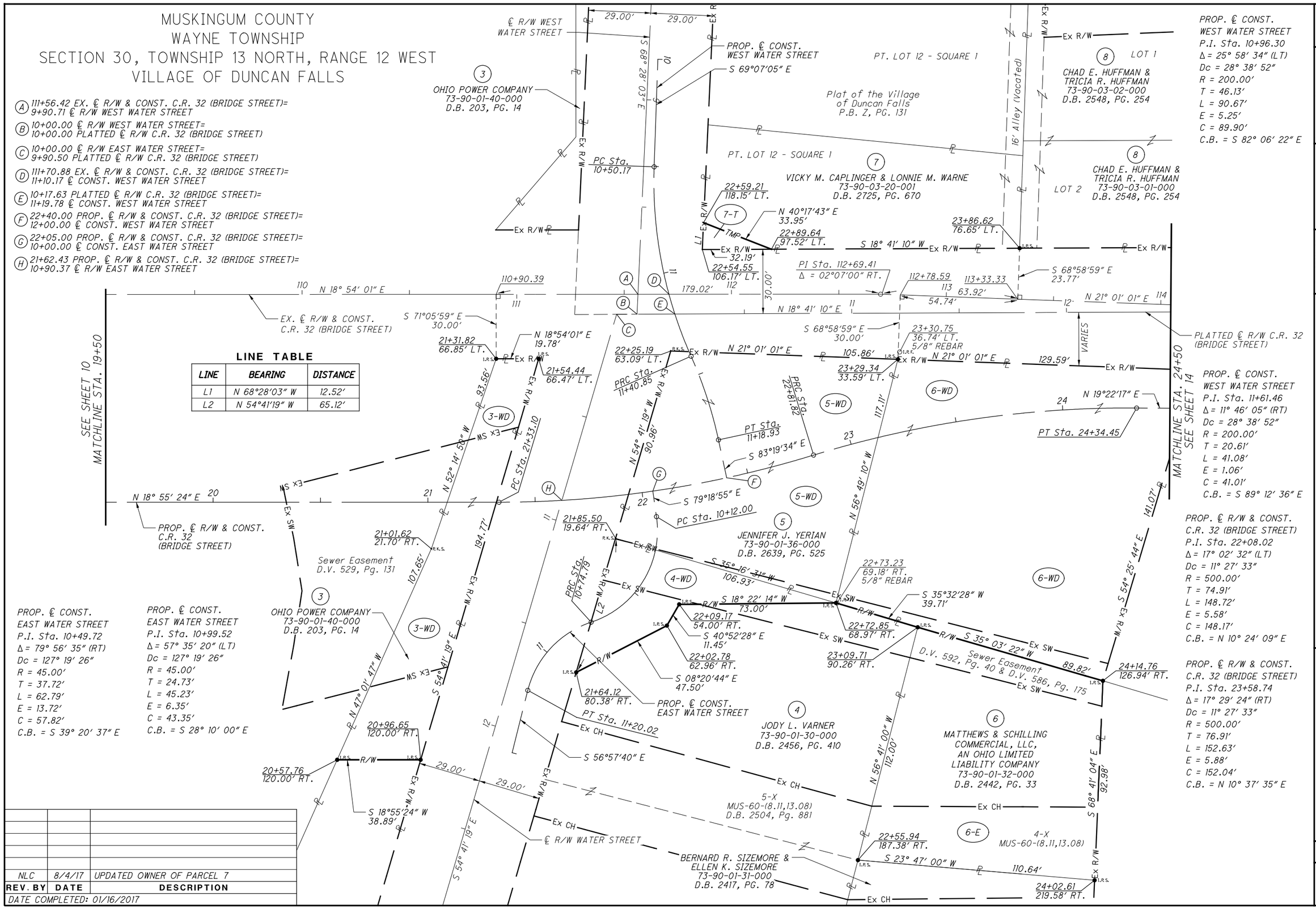
(F) 22+40.00 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 12+00.00 ℄ CONST. WEST WATER STREET

(G) 22+05.00 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 10+00.00 ℄ CONST. EAST WATER STREET

(H) 21+62.43 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 10+90.37 ℄ R/W EAST WATER STREET

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 68°28'03" W	12.52'
L2	N 54°41'19" W	65.12'



REV. BY	DATE	DESCRIPTION
NLC	8/4/17	UPDATED OWNER OF PARCEL 7
DATE COMPLETED: 01/16/2017		

$DATE$
$TIME$
$USER$
$FILE$

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY BOUNDARY SHEET
STA. 19+50 TO STA. 24+50

MUS-CR32-0.00

12 / 14

190
192

MUSKINGUM COUNTY
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS

℄ R/W & CONST. S.R. 60 (MAIN STREET)
Ex R/W
BUCKINGHAMS IST ADDITION D.B. 14, PG. 441
PT. LOT 9
PLATTED ℄ R/W S.R. 60 (MAIN STREET)
LOT 1
PLAT OF THE VILLAGE OF DUNCAN FALLS D.B. Z, Pg. 131
8 CHAD E. HUFFMAN & TRICIA R. HUFFMAN 73-90-03-02-000 RESIDENTIAL S.R. 60 steps
8 CHAD E. HUFFMAN & TRICIA R. HUFFMAN 73-90-03-01-000 RESIDENTIAL 206 MAIN ST.
2 story brick No. 206
LOT 2
flower bed
conc. wall w/chain link fence
landscaping
grass
EX. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)
SEE SHEET 11 MATCHLINE STA. 24+50
1 story block No. 205 "Subway"
9 PETER ENTERPRISES, LLC, AN OHIO LIMITED LIABILITY COMPANY 73-90-02-13-000 COMMERCIAL 205 MAIN ST.
TOWNSHIP ROAD NO. 1094 - 16' R/W
LOT 10 & PT. LOT 9
sign "Bridge St." SAVE
sign "DRIVE THRU" SAVE
sign "35 mph" SAVE
sign "Subway" SAVE
sign SAVE
privacy fence SAVE
rocks SAVE
rocks TAKE
2 rocks TAKE
4" G conc. pad SAVE
sign TAKE
9-WD1
9-T2
9-T1
9-WD2
CONST. LIMITS
PI Sta. 12+92.08
Δ=13°47'38" RT.
PI Sta. 10+42.34
℄ CONST. T.R. 1094
10 LU ANNE HATFIELD & LORALEI DUNN 73-90-02-12-000 RESIDENTIAL 219 BRIDGE ST.
10-T
10-WD
2 story frame No. 219
PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)
END ACQUISITION STA. 28+71.03
6-WD
PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)
PC Sta. 494+93.65
℄ R/W & CONST. S.R. 60 (MAIN STREET)
P.I. Sta. 497+15.84
Δ = 14° 22' 00" (RT)
Dc = 3° 15' 00"
R = 1,762.95'
T = 222.19'
L = 442.05'
E = 13.95'
C = 440.89'
C.B. = N 64° 26' 07" W
PC Sta. 26+91.33
PRC Sta. 27+34.23
11-WD
11-T
railing
CONST. LIMITS
1 story frame No. 216
END PROJECT STA. 27+95.00
END WORK STA. 28+00.00
PT Sta. 28+97.59
M.G. HARLAN'S ADDITION P.B. 4, PG. 146
11 TOWNSHIP OF WAYNE, MUSKINGUM COUNTY, OHIO 73-90-01-18-000 MUNICPAL 216 BRIDGE ST.
ALLEY
LOT 4
LOT 5
LOT 6
gravel
asphalt
conc.
12" VCP
20" PVC
18" RCP
6" RCP
2" gas
1.25" gas
Ex SH
Ex R/W
PROP. R/W
TMP

(A) 493+48.07 PLATTED ℄ R/W S.R. 60 (MAIN STREET)= 13+33.28 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

(B) 493+38.07 PLATTED ℄ R/W S.R. 60 (MAIN STREET)= 114+90.77 EX ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

(C) 496+52.29 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 115+05.82 EX ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

(D) 496+39.26 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 13+49.26 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

(E) 496+06.43 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 25+43.96 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

(F) 497+63.56 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 492+24.57 PLATTED ℄ R/W S.R. 60 (MAIN STREET)

(G) 26+93.11 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 11+20.00 ℄ CONST. T.R. 1094

PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)	PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)
P.I. Sta. 26+63.92	P.I. Sta. 28+18.50
Δ = 24° 48' 40" (RT)	Δ = 34° 39' 56" (LT)
Dc = 17° 21' 44"	Dc = 21° 13' 14"
R = 330.00'	R = 270.00'
T = 72.59'	T = 84.26'
L = 142.90'	L = 163.36'
E = 7.89'	E = 12.84'
C = 141.79'	C = 160.88'
C.B. = N 31° 46' 37" E	C.B. = N 26° 50' 59" E

REV. BY	DATE	DESCRIPTION
NLC	2/20/17	REMOVED 9-T, ADDED 9-T1 & 9-T2

DATE COMPLETED: 01/16/2017

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY TOPOGRAPHY SHEET
STA. 24+50 TO STA. 29+50

MUS-CR32-0.00

13 / 14
191 / 192

$DATE$ $TIME$ $USER$ $FILE$

MUSKINGUM COUNTY
WAYNE TOWNSHIP
SECTION 30, TOWNSHIP 13 NORTH, RANGE 12 WEST
VILLAGE OF DUNCAN FALLS

RIGHT OF WAY CURVE DATA

CURVE	CENTRAL ANGLE	RADIUS	CURVE LENGTH	CHORD LENGTH	CHORD BEARING
C1	49°54'18"	12.50'	10.89'	10.55'	N 75°28'03" E

(A) 493+48.07 PLATTED ℄ R/W S.R. 60 (MAIN STREET)= 13+33.28 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

(B) 493+38.07 PLATTED ℄ R/W S.R. 60 (MAIN STREET)= 114+90.77 EX ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

(C) 496+52.29 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 115+05.82 EX ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

(D) 496+39.26 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 13+49.26 PLATTED ℄ R/W C.R. 32 (BRIDGE STREET)

(E) 496+06.43 ℄ R/W & CONST. S.R. 60 (MAIN STREET)= 25+43.96 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)

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(G) 26+93.11 PROP. ℄ R/W & CONST. C.R. 32 (BRIDGE STREET)= 11+20.00 ℄ CONST. T.R. 1094

℄ R/W & CONST.
S.R. 60 (MAIN STREET)
P.I. Sta. 497+15.84
Δ = 14° 22' 00" (RT)
Dc = 3° 15' 00"
R = 1,762.95'
T = 222.19'
L = 442.05'
E = 13.95'
C = 440.89'
C.B. = N 64° 26' 07" W

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 26+63.92
Δ = 24° 48' 40" (RT)
Dc = 17° 21' 44"
R = 330.00'
T = 72.59'
L = 142.90'
E = 7.89'
C = 141.79'
C.B. = N 31° 46' 37" E

PROP. ℄ R/W & CONST.
C.R. 32 (BRIDGE STREET)
P.I. Sta. 28+18.50
Δ = 34° 39' 56" (LT)
Dc = 21° 13' 14"
R = 270.00'
T = 84.26'
L = 163.36'
E = 12.84'
C = 160.88'
C.B. = N 26° 50' 59" E

LINE TABLE

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	N 65°03'20" W	9.47'	L10	S 32°28'48" W	4.25'	L19	S 32°28'48" W	18.42'
L2	S 32°28'48" W	7.79'	L11	N 57°31'12" W	13.00'	L20	N 58°22'09" W	16.90'
L3	N 32°28'48" E	28.86'	L12	N 32°28'48" E	13.03'	L21	N 32°56'09" E	33.61'
L4	N 56°54'59" W	7.19'	L13	S 32°28'48" W	5.87'	L22	S 46°14'50" E	16.96'
L5	N 24°56'40" E	4.75'	L14	N 46°14'50" W	21.92'	L23	S 32°28'48" W	30.04'
L6	N 55°58'43" W	17.14'	L15	N 33°05'01" E	1.81'	L24	N 32°28'48" E	14.90'
L7	N 76°06'24" E	11.82'	L16	S 56°54'59" E	21.48'			
L8	S 57°31'12" E	30.00'	L17	N 32°28'48" E	18.42'			
L9	S 61°59'31" E	10.04'	L18	S 57°31'12" E	13.00'			

REV. BY	DATE	DESCRIPTION
NLC	2/20/17	REMOVED 9-T, ADDED 9-T1 & 9-T2

DATE COMPLETED: 01/16/2017

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

PID NO. 97346

R/W DESIGNER NLC
R/W REVIEWER TDM

RIGHT OF WAY BOUNDARY SHEET
STA. 24+50 TO STA. 29+50

MUS-CR32-0.00

14 / 14

192
192

$DATE$
$TIME$
$USER$
$FILE$

PROJECT DESCRIPTION

REMOVAL OF THE EXISTING BRIDGE ST. STRUCTURE OVER THE MUSKINGUM RIVER AND CONSTRUCTION OF A NEW CROSSING AND REALIGNMENT OF THE APPROACH ROADWAY.

GEOLOGY

THE PROJECT AREA IS LOCATED IN THE MUSKINGUM-PITTSBURGH PLATEAU PHYSIOGRAPHIC REGION. THE AREA IS A DISSECTED PLATEAU WITH MODERATELY HIGH TO HIGH RELIEF (300' TO 600'). THIS AREA WAS NOT GLACIATED. THE SOIL IN THE AREA CONSISTS OF GLACIAL OUTWASH DEPOSITS, FLUVIAL AND ALLUVIAL DEPOSITS IN THE FLOOD PLAINS AND STREAM VALLEYS WITH COLLUVIUM DEPOSITS ON THE HILLSIDES. THE GROUND SURFACE WITHIN THE MUSKINGUM RIVER FLOOD PLAIN IS GENERALLY AT ELEVATION 660'-700', WHILE THE HILLS TO THE SOUTH OF THE RIVER EXTEND TO ELEVATION 920'.

BASED ON THE ODNR BEDROCK GEOLOGY AND TOPOGRAPHY MAPS OF THE AREA, THE UNDERLYING BEDROCK CONSISTS OF THE ALLEGHENY AND POTTSVILLE GROUPS, WHICH INCLUDE SHALE SILTSTONE, SANDSTONE, LIMESTONE, AND SOME COAL. THE HILLS TO THE SOUTHWEST OF THE PROJECT AREA MAY ALSO INCLUDE ROCKS FROM THE CONEMAUGH GROUP, WHICH INCLUDE SHALE SILTSTONE, CLAYSTONE, SANDSTONE, LIMESTONE, AND COAL. WHEN SUBJECT TO WEATHERING, THE CLAYSTONE IN THE CONEMAUGH GROUP CAN WEAKEN AND CAUSE LANDSLIDES. THE TOP OF BEDROCK IN THE AREA IS GENERALLY BETWEEN ELEVATIONS 650' AND 700', AND INCREASING IN ELEVATION AWAY FROM THE MUSKINGUM RIVER. THE DEPTH TO BEDROCK IS ANTICIPATED TO BE 20' TO 80' IN THE FLOODPLAIN AND DECREASING IN DEPTH ALONG THE HILLSIDE SLOPES AWAY FROM THE RIVER. THE PROJECT IS NOT IN AN AREA WHERE KARST WOULD NORMALLY BE ENCOUNTERED. THERE ARE TWO ABANDONED UNDERGROUND COAL MINES IN THE AREA SOUTH OF THE RIVER, BUT NO MINE MAPS FOR THOSE PARTICULAR MINES WERE FOUND.

HISTORIC RECORDS

NO HISTORICAL RECORDS COULD BE FOUND FOR THE EXISTING BRIDGE. EXISTING GEOLOGICAL AND GEOTECHNICAL DATA WAS OBTAINED FROM A SEARCH OF GENERALIZED GEOLOGICAL REFERENCES AVAILABLE FROM ODNR AND AVAILABLE GEOTECHNICAL DATA FROM ODOT RECORDS. THE SEARCH OF ODOT RECORDS RESULTED IN THE ORIGINAL SUBSURFACE INVESTIGATION RECORDS FROM 1963 FOR THE CONSTRUCTION OF SR 60 ON ITS CURRENT ALIGNMENT THROUGH DUNCAN FALLS, ALONG WITH ANOTHER SUBSURFACE INVESTIGATION IN 1968 FOR A REPORTED LANDSLIDE ALONG MAIN STREET IN DUNCAN FALLS. A SUBSURFACE INVESTIGATION FOR THE SR 60 BRIDGE OVER SALT CREEK WAS ALSO FOUND.

THE SUBSURFACE INVESTIGATION FROM 1963 FOR THE CONSTRUCTION OF SR 60 ON ITS CURRENT ALIGNMENT INDICATED THAT THE SOIL NORTH OF THE RIVER GENERALLY CONSISTS OF FIVE TO TEN FEET OF FINE-GRAINED SOIL (SUCH AS SILTY CLAY, SILT AND CLAY, AND SILT) OVERLYING SAND AND GRAVEL.

THE SUBSURFACE INVESTIGATION FROM 1968 INCLUDES SIX BORING LOGS FOR TWO REPORTED LANDSLIDES. ONLY THE BORING LOGS ARE AVAILABLE, THERE ARE NO REPORTS OR OTHER DOCUMENTATION THAT DESCRIBE THE LANDSLIDES FURTHER. THE BORING LOGS DO NOT RECORD ANY CONDITIONS THAT ARE TYPICALLY ASSOCIATED WITH LANDSLIDES (E.G. SOFT CLAY OR WATER) BUT DO SHOW LOOSE CINDERS AND SAND IN SOME BORINGS AND OPEN VOIDS IN THE ROCK.

ALTHOUGH IT IS EAST OF THE PROJECT AREA, THE SUBSURFACE CONDITIONS ENCOUNTERED BY THE 1983 INVESTIGATION FOR THE BRIDGE CARRYING SR 60 OVER SALT CREEK SHOULD BE SIMILAR TO THE SOIL AND ROCK CONDITIONS AT THE BRIDGE OVER THE MUSKINGUM RIVER. THESE BORINGS ENCOUNTERED MEDIUM STIFF TO STIFF CLAY AND SILT TO A DEPTH OF ABOUT 30', UNDERLAIN BY MEDIUM DENSE TO DENSE SAND AND GRAVEL. ONE BORING ENCOUNTERED SHALE BEDROCK AT A DEPTH OF 50', WHILE THE OTHER BORING EXTENDED TO 60' WITHOUT ENCOUNTERING BEDROCK.

RECONNAISSANCE

FIELD RECONNAISSANCE WAS COMPLETE ON MAY 25, 2016, BY E.L. ROBINSON STAFF. DURING THE VISIT THE STAFF NOTED THAT THE EXISITNG BRIDGE WAS IN POOR CONDITION. THE STAFF ALSO NOTED THAT THE DRILLING RESTRICTIONS ON LAND WOULD BE LIMITED, SINCE THE PROPOSED STRUCTURE IS LOCATED DOWNSTREAM FROM THE EXISTING STRUCTURE. THE SURROUNDING AREA IS NOTED AS BEING A RURAL RESIDENTIAL AREA.

FIELD RECONNAISSANCE WAS ALSO PERFORMED BY THE S&ME STAFF ON JULY 15, 2016. PRIOR TO AND DURING DRILLING, S&ME ATTEMPTED TO SCHEDULE A BARGE TO DRILL THE BORINGS LOCATED IN THE RIVER. THE LOW WATER LEVEL OF THE RIVER AND THE AVAILABILTY OF THE LOCKS PREVENTED THE DRILLING OF BORINGS B-003-0-16, B-004-0-16, B-005-0-16, AND B-006-0-16. THESE BORINGS ARE NOTED ON THE PLANS AS BEING "PROPOSED" AND WILL BE ATTEMPTED PRIOR TO CONSTRUCTION.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	0	0
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	14	6
GRAVEL AND/OR STONE FRAG. WITH SAND AND SILT	A-2-4	2	2
COARSE AND FINE SAND	A-3a	3	4
SANDY SILT	A-4a	9	4
SILT	A-4b	4	2
SILT AND CLAY	A-6a	4	4
SILTY CLAY	A-6b	2	0
	TOTAL	38	22
COAL	VISUAL		
SANDSTONE	VISUAL		
SILTSTONE	VISUAL		
WEATHERED SHALE	VISUAL		
WEATHERED SILTSTONE	VISUAL		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	VISUAL		
SOD AND 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.

WC INDICATES WATER CONTENT IN PERCENT.

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT):
X= NUMBER OF BLOWS FOR FIRST 6 INCHES.
Y= NUMBER OF BLOWS FOR SECOND 6 INCHES.
Z= NUMBER OF BLOWS FOR THIRD 6 INCHES.

W— INDICATES FREE WATER ELEVATION.

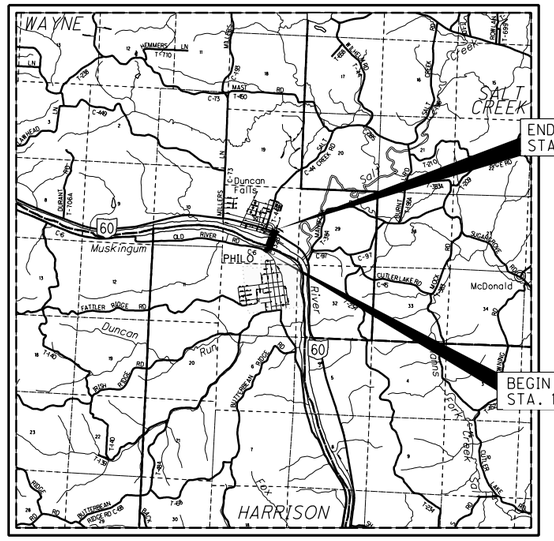
● INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.

⊖ INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.

* INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.

SS INDICATES A SPLIT SPOON SAMPLE.

NP INDICATES A NON-PLASTIC SAMPLE.



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		

INDEX OF SHEETS

SUMMARY OF SOIL TEST DATA, SHEET 2.

LOCATION FROM STA.	TO STA.	PLAN VIEW SHEET	PROFILE SHEET	CUT MAX.	FILL EMB. MAX.	STRUCTURES INCLUDED BRIDGE NO.	STRUCTURES INCLUDED SFN
C.R. 32							
10+14	13+00	3	3	<1 FT	13 FT	MUS-CR32-0000	6054145
13+00	15+75	4	4	-	-	MUS-CR32-0000	6054145
15+75	18+50	5	5	-	-	MUS-CR32-0000	6054145
18+50	21+25	6	6	-	-	MUS-CR32-0000	6054145
21+25	24+00	7	7	-	8 FT	MUS-CR32-0000	6054145
24+00	26+75	8	8	1 FT	9 FT		
26+75	27+95	9	9	<1 FT	-		

BORING LOGS, SHEETS 10 - 13.

RECON. - GMW 05//25/16
DRILLING - CB 8/8/16 - 8/12/16
DRAWN - LJS 8/29/17
REVIEWED - PAN 8/30/17

DESIGN AGENCY
E.L. ROBINSON ENGINEERING
1001 Watson Blvd. Suite 310 - Columbus, Ohio 43215
www.elrobinsongreeting.com

PID NO. 97346

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00

SUBSURFACE EXPLORATION

EIGHT (8) BORINGS, B-001-0-16 THROUGH B-008-0-16, WERE SCHEDULED TO BE DRILLED FOR THIS EXPLORATION. FIVE OF THE BORINGS WERE COMPLETE FROM AUGUST 8, 2016 TO AUGUST 12, 2016, BY S&ME. S&ME MOBILIZED A BARGE TO THE SITE BUT WAS UNABLE TO PERFORM THREE OF THE BORINGS LOCATED IN THE RIVER (B-003-0-16, B-004-0-16, AND B-005-0-16) DUE TO SHALLOW WATER PREVENTING ACCESS BY BARGE.

THE BORINGS THAT WERE COMPLETED WERE COMPLETED BY TWO ATV RIGS UTILIZING 3.25" HOLLOW STEM AUGERS TO ADVANCE THROUGH THE SOIL. DISTURBED SAMPLES WERE COLLECTED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT CONTINUOUS AND 2.5 FOOT INTERVALS FOR THE FULL DEPTH OF THE BO RINGS. THE HAMMER SYSTEMS USED WERE LAST CALIBRATED ON OCTOBER 1, 2014, AND FEBRUARY 20, 2013, AND THE AVERAGE DRILL ROD ENERGY RATIO (ER) WAS 80% AND 75%, RESPECTIVELY.

EXPLORATION FINDINGS

UNDER THE 12.0 INCHES OF TOP SOIL, THE STRUCTURE BORING (B-001-0-16) INITIALLY EXHIBITED GRANULAR SOILS COMPOSED OF LOOSE TO MEDIUM DENSE (A-1-b) AND LOOSE TO MEDIUM DENSE FINE TO COARSE SAND (A-3a) WITH TWO 2.5-FOOT BANDS OF SILT AND CLAY (A-6a) AND SILT (A-4b) DOWN TO ELEVATION 665.0. THE BORING THEN EXHIBITED 16.0 FEET OF STIFF TO VERY STIFF, BECOMING HARD SILT AND CLAY (A-6a). BEDROCK WAS THEN ENCOUNTERED AT 49.0 FEET, WHICH CORRESPONDS TO AN ELEVATION OF 649.0 FEET. THE BEDROCK IS COMPOSED OF ABOUT 1.0 FOOT OF SEVERALY WEATHERED SHALE, UNDERLAIN BY 4.9 FEET OF DARK WEAK SILTSTONE FOLLOWED BY LIGHT GRAY MODERATELY STRONG TO STRONG SANDSTONE. THE AVERAGE RQD FOR THE ENCOUNTERED ROCK RANGED FROM 50 TO 60%.

BORING B-002-0-16, WHICH WAS DRILLED AT THE REAR ABUTMENT EXHIBITED 12.0 INCH OF TOPSOIL UNDERLAIN BY 4.5 FEET OF FILL, COMPOSED OF GRAVEL WITH SAND AND SILT (A-2-4) AND GRAVEL WITH SAND (A-1-b). THE BORING THEN EXHIBITED 29.5 FEET OF FINE SOILS, PREDOMINANTLY SANDY SILT (A-4a), OCCASIONALLY DESCRIBED AS MEDIUM STIFF TO STIFF AND COHESIONLESS (A-4a) DESCRIBED AS VERY LOOSE TO LOOSE. MEDIUM STIFF SILT (A-4b) WAS ENCOUNTERED WITHIN THESE DEPTHS BETWEEN APPROXIMATE ELEVATIONS FROM 689.0 TO 682.8. THE BORING THEN EXHIBITED 7.8 FEET OF LOOSE TO MEDIUM DENSE GRANULAR SOILS OF A-2-4 AND A-1-b, DOWN TO ELEVATION 654.2 WHICH DEFINES THE TOP OF ROCK ELEVATION. THE UPPER 2.5 FEET OF THE ROCK IS SEVERLY WEATHERED WEAK SILTSTONE, UNDELAIN BY 5.5 FEET OF SLIGHTLY WEATHERED, WEAAK TO SLIGHTLY STRONG SILTSTONE FOLLOWED BY SEVERLY WEATHERED TO WEATHERED, THICKLY BEDDED SHALE, EXTENDING TO THER TERMINATION DEPTH OF THE BORING.

BORING B-006-0-016 WHICH WAS DRILLED AT THE FORWARD ABUTMENT INITIALLY EXHIBITED 12.0 INCHES OF TOP SOIL UNDERLAIN 14.5 FEET OF FINE SOIL (A-4a, A-6a, A-6b AND A-4b) DESCRIBED AS VERY STIF BECOMING SOFT TO STIFF. THE BORING THEN EXHIBITED 13.5 FEET OF LOOSE MEDIUM DESNE GRAVEL WITH SAND (A-1-b) FOLLOWED BY 1.3 FEET OF HIGHLY WEATHERED SHALE FORLLWED BY A 1.0 FOOT BAND OF STIFF SILTY CLAY. THE BORING THEN ENCOUNTERED HIGHLY TO SEVERLY WEATHERED SHALE DOWN TO ELEVATION 650.1 FOLLOWED BY SILT.

STEADY STATE GROUNDWATER WAS NOT REPORTED IN ANY OF THE DRILLED BORINGS. SEEPAGE WAS NOTED IN THE THREE BORINGS AT ELEVATIONS RANGING FROM 660.5 TO 677.5.

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 AUGUST 2013.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL 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 OR THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1980 WEST BROAD STREET.

SUMMARY OF SOIL TEST DATA
C.R. 32

FOR BORINGS B-001-0-16, B-002-0-16, AND B-006-0-16 SEE THE BORING LOGS ON SHEETS 9-14.

EXPLORATION ID STATION AND OFFSET	FROM - TO	SAMPLE ID	N60	% REC	†sf HP	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-007-0-16	1.0 - 2.5	SS-1	34	100	-	19	13	40	19	9	NP	NP	NP	4	A-3a (0)*
STA. 25+62, 32' RT	3.5 - 5.0	SS-2	14	100	-	16	37	38	6	3	NP	NP	NP	5	A-1-b (0)
LATITUDE = 39.871147	6.0 - 7.5	SS-3	6	100	-	21	22	36	15	6	NP	NP	NP	18	A-3a (0)
LONGITUDE = -81.907930	8.5 - 10.0	SS-4	6	100	-	2	2	46	30	20	21	18	3	18	A-4a (3)
B-008-0-16	1.0 - 2.5	SS-1	12	100	-	43	35	14	7	1	NP	NP	NP	11	A-1-b (0)*
STA. 25+62, 32' RT	3.5 - 5.0	SS-2	14	100	-	46	29	16	8	1	NP	NP	NP	15	A-1-b (0)*
LATITUDE = 39.871147	6.0 - 7.5	SS-3	8	100	-	1	2	39	40	18	NP	NP	NP	19	A-4a (5)
LONGITUDE = -81.907930	8.5 - 10.0	SS-4	4	100	-	1	2	34	49	14	NP	NP	NP	26	A-4a (6)

DRAWN LJS | CHECKED PAN

STRUCTURE FOUNDATION EXPLORATION
EXPLORATION NOTES AND SUMMARY OF SOIL TEST DATA

MUS-CR32-0.00

2 / 13

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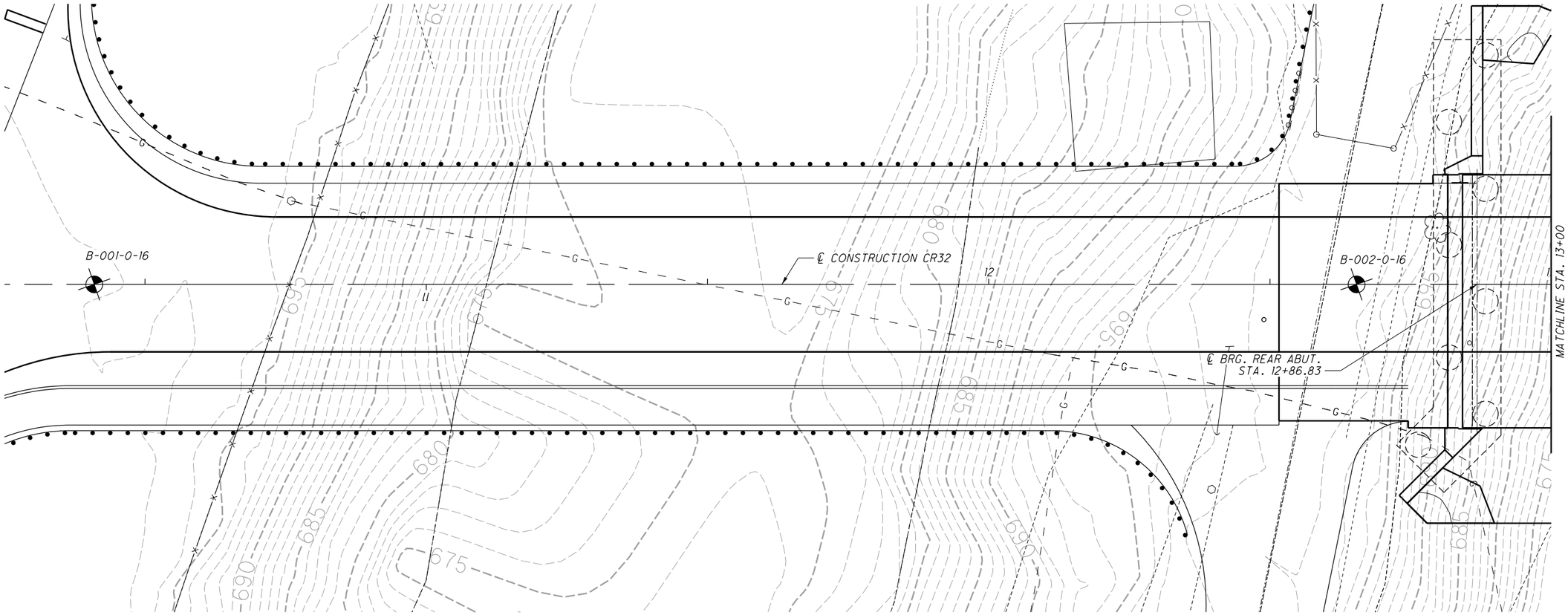

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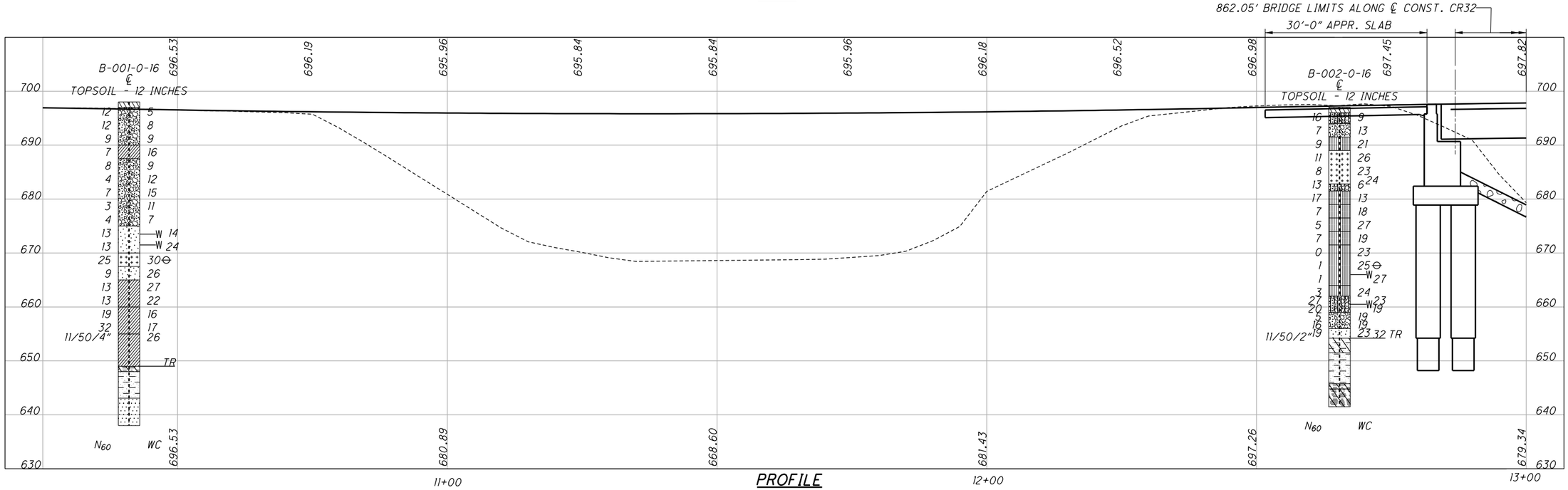

PROFILE

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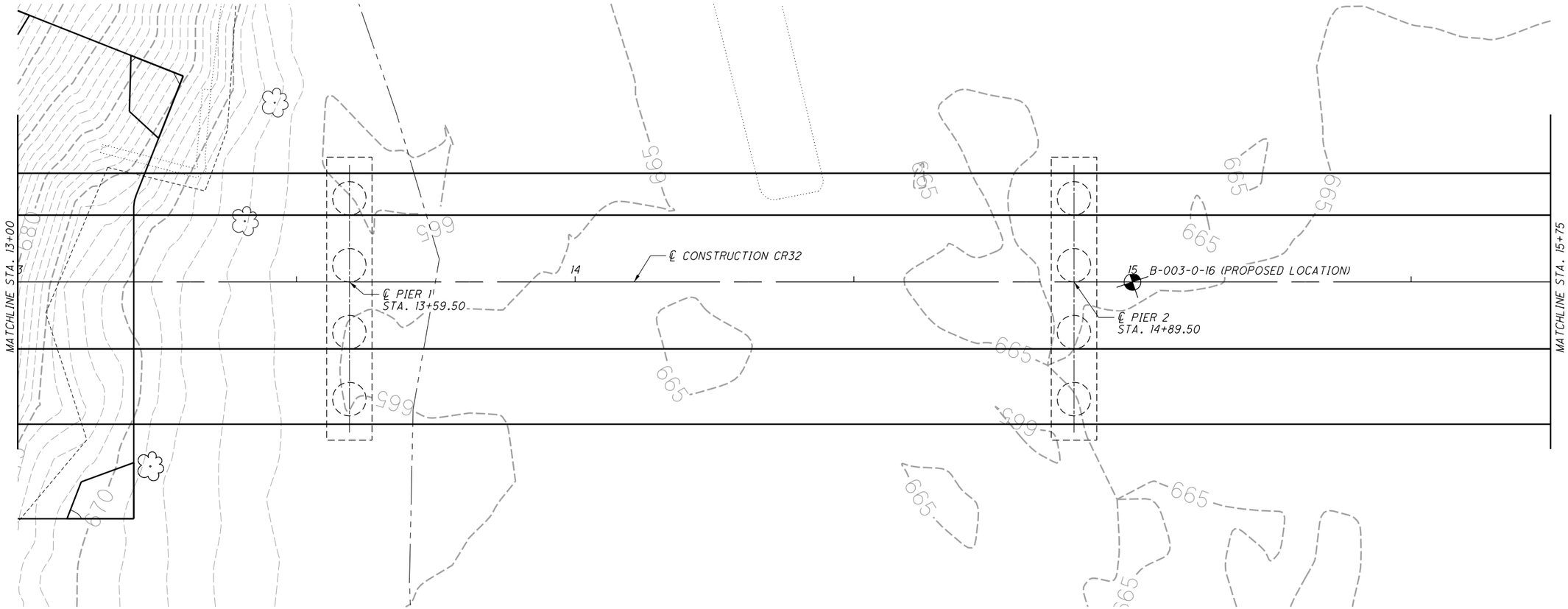
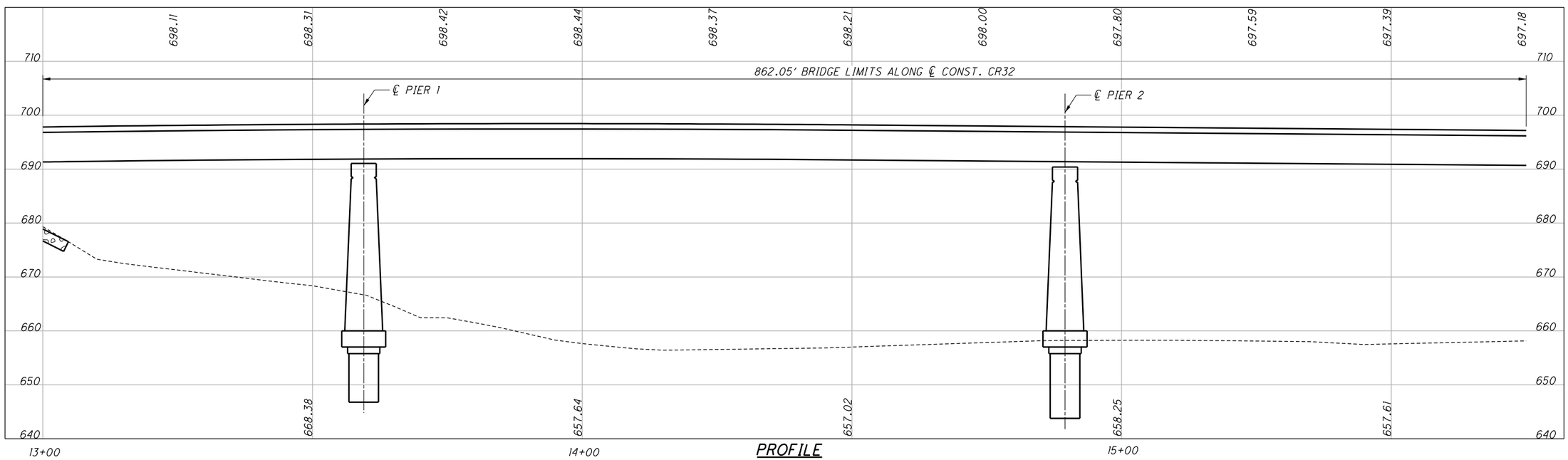
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LJS
CHECKED PAN

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00





HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LJS
CHECKED PAN

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00

4 / 13

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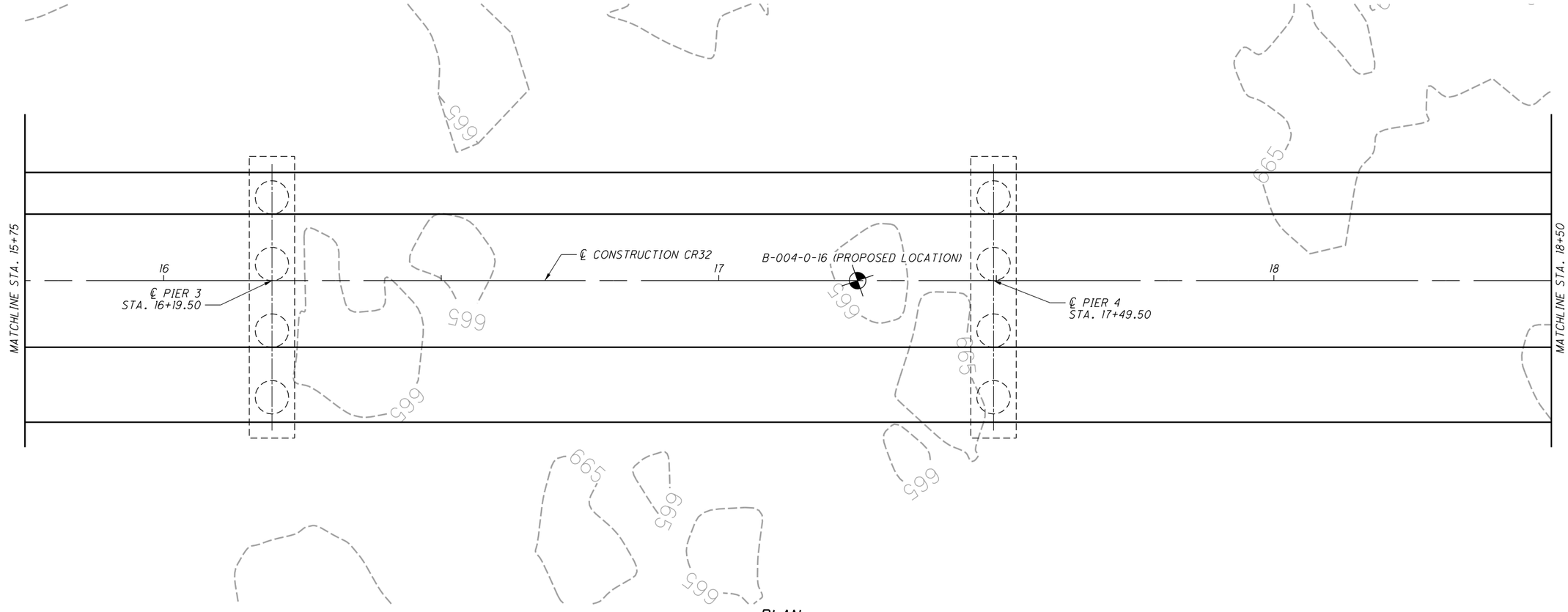

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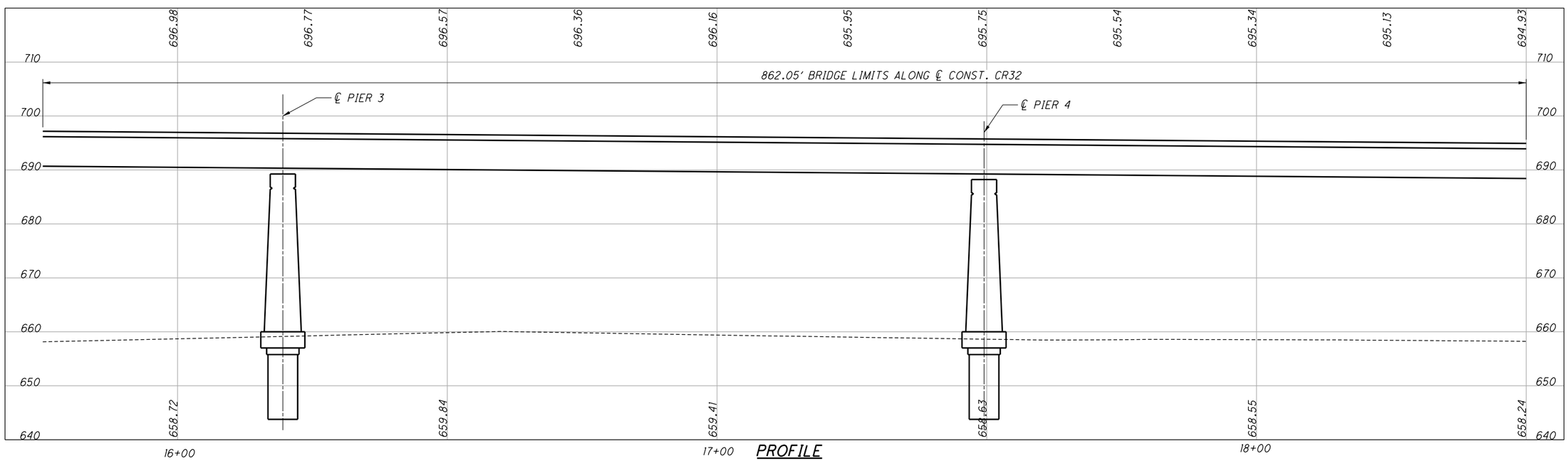

PROFILE

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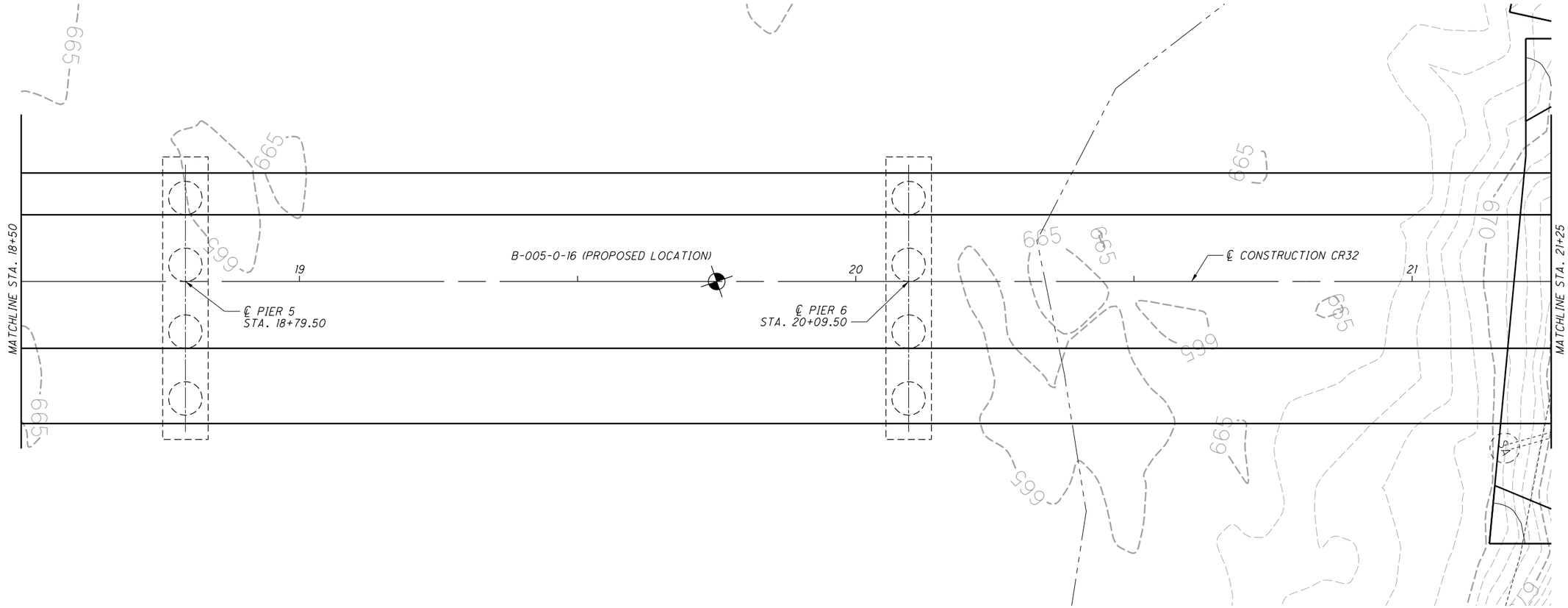
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LJS
CHECKED PAN

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00

5 / 13



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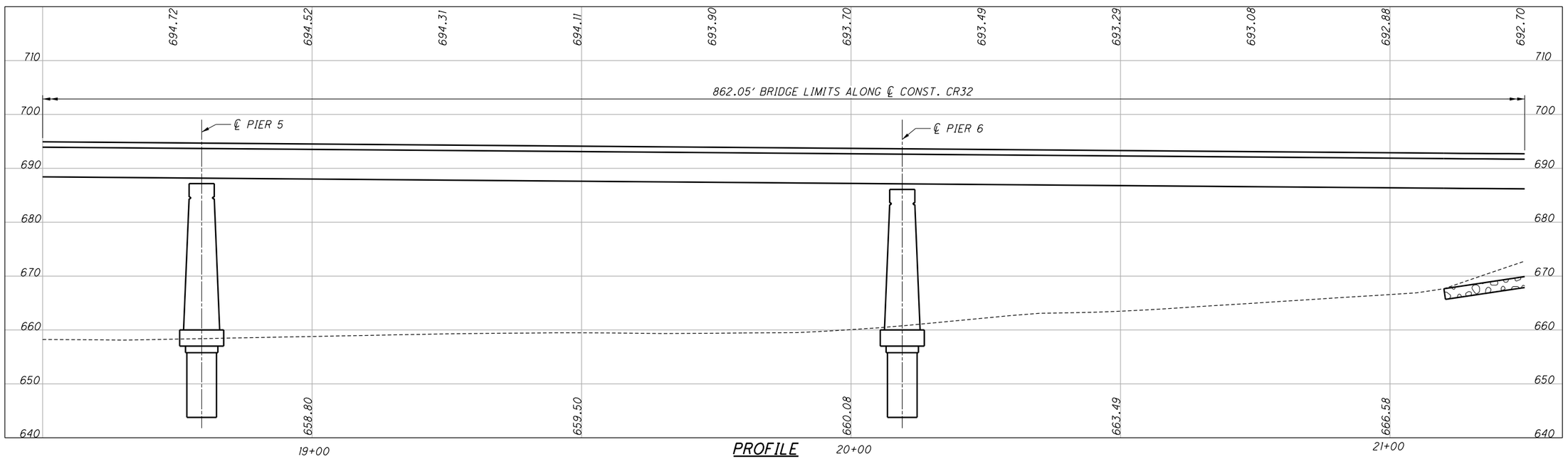

PROFILE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LJS
CHECKED PAN

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00

6 / 13

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PLAN

PROFILE

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LJS
CHECKED PAN

MUS-CR32-0.00

7 / 13

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PLAN

PROFILE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LJS
CHECKED PAN

STRUCTURE FOUNDATION EXPLORATION
COUNTY ROAD 32 OVER THE MUSKINGUM RIVER

MUS-CR32-0.00

8 / 13

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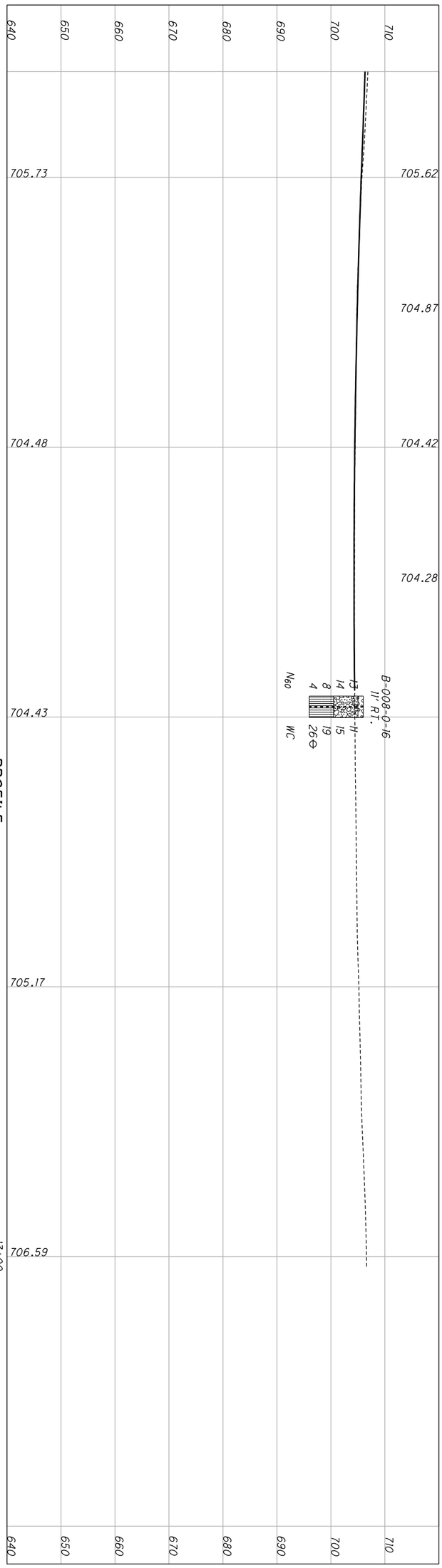


	9/13	MUS-CR32-0.00	STRUCTURE FOUNDATION EXPLORATION COUNTY ROAD 32 OVER THE MUSKINGUM RIVER	CALCULATED LJS CHECKED PAN	0 20 10 40 HORIZONTAL SCALE IN FEET

PROJECT: MUS--	DRILLING FIRM / OPERATOR: S&ME / C. BRUMMAGE	DRILL RIG: S&ME ATV D50	STATION / OFFSET: 10+41, CL	EXPLORATION ID B-001-0-16
TYPE: BRIDGE REPLACEMENT	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: CR-32	
PID: 97346 SFN: SFN# 6054129	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 10/1/14	ELEVATION: 698.0 (MSL) EOB: 60.0 ft.	PAGE 1 OF 2
START: 8/8/16 END: 8/9/16	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 80	LAT / LONG: 39.867209, 81.909680	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 12 INCHES	698.0 697.0																	
Loose to medium-dense brown **GRAVEL WITH SAND**, trace silt, trace clay, contains few roots, has weak chemical odor, damp.		1 2	5 5 4	12	78	SS-1	-	32	35	22	8	3	NP	NP	NP	5	A-1-b (0)	
		3 4	4 4 5	12	100	SS-2	-	33	29	24	9	5	NP	NP	NP	8	A-1-b (0)	
		5 6 7	3 3 4	9	72	SS-3	-	32	26	22	13	7	19	16	3	9	A-1-b (0)	
	690.0	8																
Medium-stiff brown **SILT AND CLAY**, "and" fine to coarse sand, little fine to coarse gravel, damp.		9 10	1 2 3	7	100	SS-4	0.5-1.0	14	16	22	28	20	28	16	12	16	A-6a (3)	
	687.5																	
Very-loose to loose brown **GRAVEL WITH SAND**, trace silt, trace clay, contains few coal cinders, damp to moist.		11 12	1 3 3	8	61	SS-5	-	24	39	24	7	6	NP	NP	NP	9	A-1-b (0)	
		13 14	1 1 2	4	61	SS-6	-	-	-	-	-	-	-	-	-	12	A-1-b (V)	
		15 16 17	1 2 3	7	72	SS-7	-	-	-	-	-	-	-	-	-	15	A-1-b (V)	
		18 19 20	1 1 1	3	67	SS-8	-	15	47	31	4	3	NP	NP	NP	11	A-1-b (0)	
		21 22	1 1 2	4	78	SS-9	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	
	675.0	23																
Medium-dense brown **COARSE AND FINE SAND**, damp to moist.		W 673.5 24	3 3 7	13	89	SS-10	-	-	-	-	-	-	-	-	-	14	A-3a (V)	
		W 671.5 26 27	2 4 6	13	100	SS-11	-	-	-	-	-	-	-	-	-	24	A-3a (V)	
	670.0	28																
Medium-dense brown **SILT**, little clay, trace fine sand, moist.		29 30	4 8 11	25	100	SS-12	-	0	0	5	80	15	NP	NP	NP	30	A-4b (8)	
	667.5																	
Loose brown **COARSE AND FINE SAND**, trace silt, moist.		31 32	2 3 4	9	67	SS-13	-	-	-	-	-	-	-	-	-	26	A-3a (V)	
	665.0	33																
Stiff to very-stiff gray **SILT AND CLAY**, trace to little fine to coarse sand, contains few organic pockets, moist.		34 35	2 4 6	13	100	SS-14	1.0-2.0	0	2	14	56	28	34	21	13	27	A-6a (9)	
		36 37	3 4 6	13	100	SS-15	2.5-3.5	0	1	6	58	35	32	18	14	22	A-6a (10)	
	660.0	38																
Very-stiff gray **SILT AND CLAY**, trace fine to coarse sand, trace fine to coarse gravel, contains few shale fragments, damp.		39 40	3 7 7	19	100	SS-16	3.5-4.0	-	-	-	-	-	-	-	-	16	A-6a (V)	
		41 42	7 11 13	32	100	SS-17	3.0-4.0	-	-	-	-	-	-	-	-	17	A-6a (V)	
	655.0	43																
Hard gray **SILT AND CLAY**, trace fine to coarse sand, trace fine to coarse gravel, contains many shale fragments, damp.		44	11 50/4"	-	100	SS-18	4.5+	-	-	-	-	-	-	-	-	26	A-6a (V)	
		45 46 47	0		38	19A NQ-19A											A-6a (V) CORE	
	649.0	48 TR 49																
SHALE, highly weathered.	648.0		0		67	19B NQ-19B											CORE	
SILTSTONE, dark-gray, slightly weathered, weak, very thick bedding, micaceous, clay filled seam from 52.4' to 52.6', fractured to moderately fractured; REC = 100%, RQD = 50%.		50 51 52 53 54	67		100	NQ-20											CORE	
	643.1	55																
SANDSTONE, light-gray, slightly weathered to unweathered, moderately strong to strong, very thick bedding, many clay filled seams less than 1/4" in thickness; REC = 97%. RQD = 60%.		56 57 58 59	88		100	NQ-21											CORE	
	638.0	EOB																

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 8/28/17 07:54 - P:\97346\GEOTECHNICAL\ENGAPPS\GINT\1179-16-003.GPJ

PID: 97346	SFN: SFN# 6054129	PROJECT: MUS--	STATION / OFFSET: 10+41, CL	START: 8/8/16	END: 8/9/16	PG 2 OF 2	B-001-0-16

MATERIAL DESCRIPTION AND NOTES	ELEV. 638.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED

NOTES:
- Seepage encountered at 24.5' during drilling.
- Groundwater encountered at 26.5' during drilling.
- Borehole was observed to be dry at completion.
- Sample #19A was an NQ rock core run that yielded hard silt and clay.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE AND CEMENT GROUT MIXTURE; PLACED 1 PLASTIC HOLE PLUG DEVICE; WATER

PROJECT: MUS--	DRILLING FIRM / OPERATOR: S&ME / C. BRUMMAGE	DRILL RIG: S&ME ATV D50	STATION / OFFSET: 12+65, CL
TYPE: BRIDGE REPLACEMENT	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: CR-32
PID: 97346 SFN: SFN# 6054129	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 10/1/14	ELEVATION: 697.0 (MSL) EOB: 55.5 ft.
START: 8/9/16 END: 8/9/16	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 80	LAT / LONG: 39.867791, 81.909416

EXPLORATION ID: B-002-0-16 | PAGE: 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 12 INCHES	697.0																	
FILL: Medium-dense brown **GRAVEL WITH SAND AND SILT**, trace clay, contains few silt pockets, few roots, and few coal fragments, dry.	696.0		3 6 6	16	61	SS-1	-	33	17	21	22	7	NP	NP	NP	9	A-2-4 (0)	
FILL: Loose brown **GRAVEL WITH SAND**, little silt, trace clay, contains few silt pockets, few roots, and few coal fragments, dry.	694.0		4 3 2	7	44	SS-2	-	51	18	12	14	5	NP	NP	NP	13	A-1-b (0)	
Stiff to very-stiff gray **SANDY SILT**, some clay, trace fine to coarse gravel, contains many iron-stained pockets, damp.	691.5		5 3 4	9	67	SS-3	1.5-2.5	5	4	25	45	21	29	20	9	21	A-4a (6)	
Medium-stiff gray **SILT**, some clay, some fine to coarse sand, contains few shale fragments, and few decayed organic pockets, damp.	689.0		4 4 4	11	100	SS-4	1.00	0	1	20	58	21	30	21	9	26	A-4b (8)	
			4 3 3	8	100	SS-5	1.00	-	-	-	-	-	-	-	-	23	A-4b (V)	
	682.8		5 6 4	13	100	6A	0.50	-	-	-	-	-	-	-	-	24	A-4b (V)	
Medium-dense brown **GRAVEL WITH SAND AND SILT**, damp.	681.5					6B	-	-	-	-	-	-	-	-	-	6	A-2-4 (V)	
Medium-stiff brown **SANDY SILT**, trace fine to coarse gravel, trace clay, contains few coal fragments, damp.	679.0		4 7 6	17	44	SS-7	0.50	-	-	-	-	-	-	-	-	13	A-4a (V)	
Loose brown **SANDY SILT**, little clay, trace fine to coarse gravel, contains many fine sand pockets, few silty clay pockets, and few wood fragments, damp.	676.5		2 3 2	7	100	SS-8	-	6	8	41	34	11	NP	NP	NP	18	A-4a (2)	
Stiff gray **SANDY SILT**, trace clay, contains few decayed wood fragments, damp.	674.0		0 1 3	5	100	SS-9	1.0-1.5	-	-	-	-	-	-	-	-	27	A-4a (V)	
Loose brown and gray **SANDY SILT**, little clay, contains few decayed wood fragments, damp.	671.5		1 2 3	7	100	SS-10	-	0	0	39	44	17	NP	NP	NP	19	A-4a (5)	
Very-loose brown **SANDY SILT**, little clay, contains few roots, few iron-stained seams, few decayed wood fragments, damp to moist.		W 666.0	0 0 0	0	100	SS-11	-	-	-	-	-	-	-	-	-	23	A-4a (V)	
			0 1 0	1	100	SS-12	-	0	0	37	46	17	NP	NP	NP	25	A-4a (6)	
	664.0		0 1 0	1	100	SS-13	-	-	-	-	-	-	-	-	-	27	A-4a (V)	
Very-loose gray mottled with brown **SANDY SILT**, little clay, moist.	662.0		0 1 1	3	100	SS-14	-	0	1	41	42	16	NP	NP	NP	24	A-4a (5)	
Medium-dense gray **GRAVEL WITH SAND AND SILT**, trace to little clay, contains few iron-stained pockets, and few silty clay seams, moist.		W 660.5	3 11 9	27	100	SS-15	-	-	-	-	-	-	-	-	-	23	A-2-4 (V)	
	659.0		3 6 9	20	61	SS-16	-	29	7	32	22	10	NP	NP	NP	19	A-2-4 (0)	
Loose to medium-dense brown **GRAVEL WITH SAND**, trace to little silt, trace clay, moist to wet.	656.0		3 2 2	5	28	SS-17	-	44	15	19	16	6	NP	NP	NP	19	A-1-b (0)	
			5 6 6	16	72	SS-18	-	46	20	22	8	4	NP	NP	NP	19	A-1-b (0)	
Medium-dense brown **COARSE AND FINE SAND**, little fine to coarse gravel, trace silt, trace clay, moist to wet.	654.2		4 5 9	19	78	SS-19	-	19	25	44	8	4	NP	NP	NP	23	A-3a (0)	
SILTSTONE, gray, severely weathered, very weak.	651.5	TR	11 50/2"	-	100	20A 20B	- -	-	-	-	-	-	-	-	-	32 -	A-3a (V) Rock (V)	
SILTSTONE, gray, slightly weathered, weak to slightly strong, medium bedding, micaceous, arenaceous, fractured to moderately fractured, contains many 30-degree to 50-degree fractures, few fine-grained sandstone seams, less than 1" in thickness; REC = 100%, RQD = 47%.	645.8		83		100	NQ-21											CORE	
SHALE, black, severely weathered, very weak, thin bedding, fractured; REC = 88%, RQD = 66%.	644.8																	
SHALE, black, highly weathered from 52.2' to 52.9', slightly weathered from 52.9' to 55.5', very weak from 52.2' to 52.9', slightly strong to weak from 52.9' to 55.5', thick bedding, micaceous, slightly fractured; REC = 96%, RQD = 100%.	641.5	EOB	90		100	NQ-22											CORE	

NOTES:
- Seepage encountered at 31.0' during drilling.
- Groundwater encountered at 36.5' during drilling.
- Borehole was observed to be dry at completion.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE AND CEMENT GROUT MIXTURE; PLACED 1 PLASTIC HOLE PLUG DEVICE; WATER

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 8/28/17 07:55 - P:\97346\GEOTECHNICAL\ENGAPPS\GINT\1179-16-003.GPJ

PROJECT: MUS--	DRILLING FIRM / OPERATOR: S&ME / C. BRUMMAGE	DRILL RIG: S&ME ATV 550	STATION / OFFSET: 21+81, CL
TYPE: BRIDGE REPLACEMENT	SAMPLING FIRM / LOGGER: S&ME / K. HARPER	HAMMER: CME AUTOMATIC	ALIGNMENT: CR-32
PID: 97346 SFN: SFN# 6054129	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/20/13	ELEVATION: 691.0 (MSL) EOB: 45.3 ft.
START: 8/11/16 END: 8/12/16	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 75	LAT / LONG: 39.870166, 81.908345

EXPLORATION ID B-006-0-16

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL - 12 INCHES	690.0																	
FILL: Loose brown **SANDY SILT**, little to some clay, trace fine to coarse gravel, contains few roots and few decayed organic fragments, dry.	688.0		5 3 2	6	100	SS-1	-	4	7	34	35	20	NP	NP	NP	18	A-4a (4)	
Very-stiff brown **SILT AND CLAY**, some fine to coarse sand, trace fine to coarse gravel, contains few fine sand pockets, damp.	685.5		3 3 4	9	100	SS-2	2.5-3.0	1	2	26	37	34	34	21	13	26	A-6a (8)	
Very-stiff brown **SILTY CLAY**, trace to little fine to coarse sand, trace fine to coarse gravel, damp.	680.5		1 3 5	10	100	SS-3	2.0-2.5	1	0	12	49	38	37	20	17	23	A-6b (11)	
			1 3 5	10	100	SS-4	3.00	0	0	5	61	34	36	20	16	21	A-6b (10)	
Soft to stiff brown **SILT**, some fine to coarse sand, little clay, contains few fine sand pockets, damp to moist.	675.5	W 677.5	0 2 3	6	100	SS-5	0.75-1.5	0	0	20	61	19	25	21	4	24	A-4b (8)	
			0 1 2	4	100	SS-6	0.25	0	1	28	54	17	23	21	2	26	A-4b (7)	
Loose to medium-dense brown **GRAVEL WITH SAND**, trace silt, trace clay, damp to moist.			1 8 7	19	78	SS-7	-	-	-	-	-	-	-	-	-	8	A-1-b (V)	
			2 2 3	6	72	SS-8	-	36	45	15	3	1	NP	NP	NP	7	A-1-b (0)	
			0 1 3	5	78	SS-9	-	-	-	-	-	-	-	-	-	11	A-1-b (V)	
			1 3 3	8	61	SS-10	-	38	39	17	4	2	NP	NP	NP	13	A-1-b (0)	
		W 665.0	4 7 8	19	39	SS-11	-	30	45	21	3	1	-	-	-	18	A-1-b (V)	
	662.0	TR	7 13 32	56	100	12A	-	30	48	18	3	1	NP	NP	NP	13	A-1-b (0)	
SHALE, gray, highly weathered.	660.7					12B	4.5+	-	-	-	-	-	-	-	-	16	Rock (V)	
Stiff gray **SILTY CLAY**, little fine to coarse sand, little fine to coarse gravel, moist.	659.7																	
SHALE, dark-gray, highly to severely weathered, very weak, thick bedding, slightly fractured; REC = 100%, RQD = 91%.	656.0		68		100	NQ-13											CORE	
COAL, black, highly fractured.	655.0																	
SHALE, gray, severely weathered, very weak, thick, fractured, similar in structure to very soft gray silty clay; REC = 100%, RQD = 46%.	651.7		67		88	NQ-14											CORE	
SILTSTONE, light-gray, severely weathered, very weak, thick bedding, highly fractured; REC = 100%, RQD = 0%.	650.1																	
SILTSTONE, gray, unweathered, weak, slightly strong, very thick bedding, arenaceous, moderately fractured to slightly fractured; REC = 100%, RQD = 85%.	645.7	EOB	83		100	NQ-15											CORE	

NOTES:
- Seepage encountered at 13.5' during drilling.
- Groundwater encountered at 26.0' during drilling.
- Borehole was observed to be dry at completion.

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE AND CEMENT GROUT MIXTURE; PLACED 1 PLASTIC HOLE PLUG DEVICE; WATER

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 8/28/17 07:55 - P:\97346\GEOTECHNICAL\ENGAPPS\GINT\1179-16-003.GPJ

SPECIAL PROVISIONS

MUS-CR32-0.00

PID: 97346

CROSSHOLE SONIC LOGGING (CSL) TESTING FOR DRILLED SHAFTS

Date: September 1, 2017

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
CROSSHOLE SONIC LOGGING (CSL) TESTING FOR DRILLED SHAFTS
MUS-CR32-0.00 (PID 97346)

September 2017

01 Description. This work consists of evaluating the structural integrity of drilled shafts using the crosshole sonic logging (CSL) test method. The work also consists of furnishing and installing access tubes required to conduct the testing, and core drilling of concrete to confirm possible defects.

CSL testing measures the time it takes for an ultrasonic pulse to travel from a signal source in one access tube to a receiver in another access tube. In uniform, good quality concrete, the travel time between parallel tubes will be relatively constant and correspond to a reasonable signal velocity from the bottom to the top of the drilled shaft. In uniform, good quality concrete, CSL testing will also measure strong signal amplitude and energy readings. Long travel times, low signal amplitude, or low energy readings indicate the presence of anomalies that may consist of poor quality concrete, voids, honeycombs or soil intrusions. The signal may be completely lost by the receiver and CSL recording system for severe defects such as voids and soil intrusions.

02 Materials. Furnish materials conforming to:

Portland cement 701.02
Chemical admixture..... 705.12

Cement grout consists of a mixture of cement and water that provides a minimum 28-day compressive strength equal to, or greater than, the drilled shaft concrete. Determine the compressive strength of the cement grout according to ASTM C 39 or ASTM C 942. Admixtures which control bleed, improve flowability, reduce water content, and retard set may be used in the grout if approved by the Engineer. For grout, use water free from sewage, oil, acid, strong alkalis, vegetable matter, clay, and loam. Potable water is satisfactory for use in grout.

Furnish access tubes consisting of Schedule 40 steel pipe with an inside diameter between 1.5 and 2.0 inches (35 and 50 mm). Access tubes shall have round, regular inside surfaces free from defects and obstructions, including all pipe joints, in order to permit the free, unobstructed passage of the probes. Access tubes shall be free from corrosion to ensure a good bond to the concrete.

Submit the grout mix and the selected pipe for the access tubes with the Drilled Shaft Installation Plan for the Engineer's acceptance. Also include for the Engineer's acceptance the proposed method for joining the pipe and for attaching the pipe to the reinforcing steel cage.

03 NDT Consultant. Retain an experienced Nondestructive Testing (NDT) consultant to perform or supervise the CSL testing. The NDT consultant shall have at least two years experience in CSL testing. Submit to the Engineer for approval a resume of the credentials of the proposed NDT consultant at least 14 Calendar Days before constructing the drilled shafts.

04 Installation of Access Tubes. Install access tubes in all drilled shafts to permit access for the CSL test equipment. Use Table No. 04-1 to determine the number of access tubes per shaft and the tube spacing. If the shaft diameter varies along the length of the shaft, use the largest diameter to determine the number of access tubes.

TABLE 04-1

Shaft Diameter (feet)	Shaft Diameter (mm)	Number of Tubes	Tube Spacing (degrees)
4.0 to 5.0	1200 to 1530	4	90
5.5 to 7.5	1670 to 2280	6	60
8.0 to 9.5	2440 to 2900	8	45
10.0 to 12.0	3050 to 3660	10	36

Provide watertight joints, a watertight cap on the bottom, and a removable cap at the top of the access tubes. Use threaded joints or mechanical couplings. If mechanical couplings are used, record the location of each coupler. Do not weld joints. Do not cover joints with tape or other wrapping material. Attach the tubes to the interior of the reinforcing steel cage so that the tubes are parallel and evenly spaced around the perimeter of the reinforcing steel cage. Provide a minimum concrete cover of 3 inches (75 mm). Install the access tubes so that the bottom of the tube is 6 inches (150 mm) or less from the bottom of the drilled shaft but does not touch the bottom of the shaft. Wire-tie or secure the access tubes to the reinforcing steel cage every 3 feet (1 meter). Extend the top of the access tubes at least 3 feet (1meter) above the top of the drilled shaft. If the top of the drilled shaft is below the surface, extend the top of the access tubes at least 2 feet (0.6 meter) above the ground surface. Ensure that the access tubes do not move during placement of the cage and concrete.

Within 4 hours of placing the reinforcing steel cage but before placing the concrete, fill the access tubes with clean water and recap the tubes. After placing the concrete, exercise care when removing the caps from the access tubes so as not to apply excess torque, hammering, or other stresses which could break the bond between the tubes and the concrete. Label each access tube with a unique identifier at the top of the tube.

05 Test Procedure. Before CSL testing, supply the Engineer and NDT Consultant with a record of the length, top elevation, bottom elevation, and date of concrete placement for all drilled shafts. Perform CSL tests in accordance with ASTM D 6760 except as modified by this specification. Perform CSL tests on all drilled shafts. Perform the CSL test at least 72 hours after concrete placement in a shaft, but no more than 30 Calendar Days after concrete placement. The Engineer may direct a longer minimum time if the drilled shaft concrete contains a retarding admixture or uses a mix design that results in a longer setting time for the drilled shaft concrete.

For shafts with 4 or 6 access tubes, obtain readings between all pairs of tubes. For shafts with 8 or 10 access tubes, obtain readings between adjacent pairs of access tube around the perimeter, between pairs of access tubes across the diameter of the shaft, and between pairs of access tubes that are spaced at two times the spacing shown in Table 04-1 (See Figure 05-1 for a diagram). Obtain readings at depth

intervals of 0.2 feet (50 mm) or less. If possible defects are detected, obtain additional readings to confirm the initial readings at no additional cost to the County. Notify the Engineer of possible defects within 24 hours of testing.

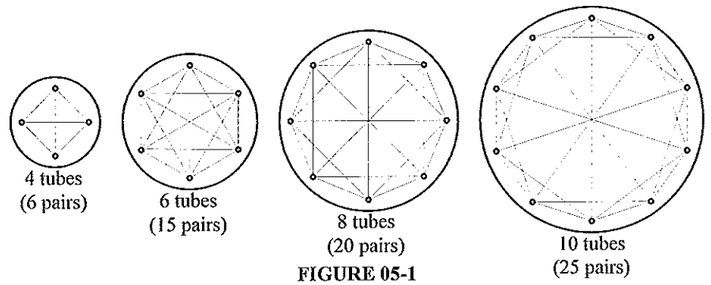


FIGURE 05-1

06 Test Report. Present the CSL test results in a written report. Supply the Engineer with two copies of the report within seven Calendar Days after completion of the CSL testing. The Engineer may require separate reports for each substructure depending on the number of drilled shafts or the length of the drilled shaft construction schedule. If separate reports for each substructure are required by the Engineer, supply the report within seven Calendar Days after completion of testing at that given substructure.

In addition to the report requirements in ASTM D 6760, indicate all possible defects on the CSL logs and include a summary of all possible defects detected during the CSL testing. The summary shall indicate for each possible defect:

A. the drilled shaft identification,

B. test date,

C. number of days between concrete placement and CSL testing,

D. access tube pairs tested,

E. depth below top of shaft,

F. percent wave speed reduction, and

G. an evaluation of the defect.

07 Evaluation of Test Results. The Engineer will evaluate the CSL test results and determine if the drilled shaft construction is acceptable. If the CSL test results indicate possible defects in the drilled shaft, the Engineer may require coring of the drilled shaft to obtain samples in the area of the possible defect, or excavation of the drilled shaft to examine the condition of the concrete. The Engineer may require testing of the core samples. The Engineer will consider the CSL test results, the condition of the concrete as shown by core samples, results of testing on the core samples, and other information when determining the acceptability of the drilled shaft. Do not proceed with construction of substructures or structures above a drilled shaft until the Engineer has accepted the drilled shaft.

If examination of the drilled shaft concrete confirms the presence of a defect in the drilled shaft, then the County will not pay for coring, testing on the core samples, or excavation costs, even if the Engineer accepts the drilled shaft. If a defect cannot be confirmed by coring, then the County will pay for coring, testing on the core samples, and excavation costs as Extra Work according to 109.05.

If the Engineer determines a drilled shaft is not acceptable, submit a plan for remedial action to the Engineer for approval. Have an Ohio Registered Engineer prepare, sign, seal, and date calculations and working drawings for all foundation elements affected by the plan. Have a second Ohio Registered Engineer check, sign, seal and date the calculations and working drawings. The preparer and checker are two different Engineers.

08 Coring of Drilled Shaft Concrete. If the CSL test results indicate possible defects in the drilled shaft, the Engineer may require coring of the drilled shaft concrete to obtain samples in the area of the possible defect. If directed by the Engineer, obtain core samples in accordance with ASTM D 2113 for the full length of the possible defect plus 3 feet (1 meter) above and below the possible defect, or as directed by the Engineer. Obtain core samples with a minimum diameter of 3.0 inches (75 mm).

Use either a conventional double-tube, swivel-type core barrel with split liners or a wireline core barrel with split inner liners. Use a new diamond coring bit. Replace the coring bit and core barrel as necessary to achieve a high percentage of core recovery.

Record an accurate log of the coring. Place the core samples in a crate and properly mark showing the depth below the top of the drilled shaft for each core sample. Submit the core samples and two copies of the coring logs to the Engineer.

09 Grouting Tubes and Holes. After CSL testing and coring of the drilled shaft concrete is complete, remove all water from the access tubes and any cored holes. If the tubes extend above the top of the drilled shaft reinforcing, cutoff the tubes below the top of the drilled shaft reinforcing. Fill the tubes and holes with grout.

10 Method of Measurement. The County will measure CSL testing by the number of drilled shafts on which CSL testing is performed.

11 Basis of Payment. The County will pay for Crosshole Sonic Logging (CSL) testing after being provided the written test report at the contract price as follows.

Item	Unit	Description
524	Each	Drilled Shafts, Misc.: CSL Testing, 5'-6" (1678 mm) Diameter Shaft
524	Each	Drilled Shafts, Misc.: CSL Testing, 4'-0" (1219 mm) Diameter Shaft

SPECIAL PROVISIONS

MUS-CR32-0.00

PID: 97346

ASBESTOS TESTING REPORTS

Date: October 31, 2017

ASBESTOS CONTAINING MATERIALS INSPECTION REPORT

Residential Structure and Storage Facility
102 & 110 Bridge Street
Duncan Falls, Ohio 43734

(L&A Project 17-0453)

Prepared for:

Mr. David Stentz
O.R. Colan Associates
255 Taylor Station Road, Suite 100
Columbus, Ohio 43213
(614) 340-8233

Prepared by:

Lawhon & Associates, Inc.
1441 King Ave
Columbus, Ohio 43212
(614) 481-8600

October 5, 2017

Table of Contents

Schedule of Appendices

Asbestos Containing Materials Inspection Report
Residential Structure and Storage Facility
102 & 110 Bridge Street, Duncan Falls, Ohio, 43734

1.0 Introduction

Lawhon & Associates, Inc. (L&A) conducted an asbestos containing materials inspection of the residential structure located at 102 Bridge Street and the four(4) storage units structures located at 110 Bridge Street, Duncan Falls, Ohio 43734. The inspection was conducted on September 22, 2017 by Mr. Jordan Mederer Ohio Department of Health (ODH) Certified Asbestos Hazard Evaluation Specialist (CAHES) [AHES #ES35005] of L&A. The consultant's certifications are attached in **Appendix A**.

L&A surveyed all functional spaces throughout the structures for asbestos containing materials (ACMs). The structures are scheduled for demolition. This report conforms to the EPA NESHAPs standards for this project.

2.0 Asbestos Containing Material Summaries

Asbestos containing materials are governed by the Environmental Protection Agency's (EPA) National Emission Standards of Hazardous Air Pollutants (NESHAP) during a demolition. These materials are defined as containing greater than one percent asbestos. The Occupational Safety and Health Administration (OSHA) govern building materials containing any amount of asbestos.

The Clean Air Act (CAA) of 1970 required the EPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health; therefore, EPA promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) (Title 40, CFR Part 61) on April 6, 1973. NESHAP is intended to minimize the release of asbestos fibers during certain activities (i.e., renovations, demolition, and installations). It specifies work practices to be followed during renovations of buildings (except apartment buildings that have no more than four dwelling units), which contain a specific amount of friable asbestos. NESHAP requires that buildings be inspected for asbestos containing building materials (ACBM) prior to renovation/demolition projects regardless of the age of the structure.

NESHAP also requires owners and operators subject to the asbestos rules to notify delegated state and local agencies and/or the regional EPA offices before demolition or renovation activities begin. In addition, NESHAP requires the removal of all regulated asbestos containing materials (RACM) prior to demolition. Regulated Asbestos-Containing Materials (RACM) are (a) friable asbestos material, which are materials easily reduced to powder with hand pressure (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations. (Category I non-friable materials consist of materials such as resilient floor covering products, roofing products, gaskets, and packing. Category II non-friable materials consist of all other non-friable materials such as transite.). NESHAP also requires all ACM (including Category I and II) be removed prior to intentional burning, such as for a fire department training exercise.

The State of Ohio Department of Health (ODH) regulates asbestos activities within the state. Professionals performing asbestos related activities must be certified/ licensed by ODH. Much like the EPA – NESHAP, ODH must be notified prior to asbestos removal activities.

2.1 Methodology

A list of suspect ACMs was compiled from the investigation of the building. Materials were categorized into RACM, Category I, and Category II materials. L&A inventoried and procured confirmatory samples of suspect asbestos containing materials.

Materials suspected of containing asbestos were grouped into homogeneous areas for bulk sampling purposes. A homogeneous area is composed of specific material that appears to be the same in color, texture, date of installation or location (e.g., grey spray-applied fireproofing in a specific construction unit).

The number of bulk samples to be procured for each identified homogeneous area of suspected Surfacing Materials, Thermal System Insulations, and Miscellaneous Materials were determined in accordance with 40 CFR 763.

Specifically, Friable and Nonfriable Surfacing Materials (i.e., fireproofing, acoustical plaster, decorative plaster, hard plaster, and textured coatings) were sampled following the guidelines set forth by the USEPA in the document "Asbestos in Buildings - Simplified Sampling Scheme Friable Surfacing Materials." Based upon the square footage of the homogenous surfacing materials, either a minimum of 3, 5, or 7 bulk samples were randomly procured and analyzed. For Thermal System Insulation (TSI), at least 3 random samples of each homogeneous area of TSI were procured and analyzed and 1 sample of patched TSI if it was <6 linear or square feet. For Miscellaneous Materials (MM), at least 2 random samples of each homogeneous area of MM were procured and analyzed.

Bulk sample locations for suspect materials sampled by L&A, and the name and signature and asbestos hazard evaluation specialist number of each person who collected samples are shown on the Asbestos Bulk Sample Diagram found in **Appendix B.**

Samples were placed into clean sealed containers and identified with a unique sample number. Sampling tools were decontaminated between each sampling episode.

All bulk samples were sent to a laboratory certified under the National Voluntary Lab Accreditation Program (NVLAP). The lab used for sample analysis of asbestos on this project was IATL (NVLAP #101165-0) located at 9000 Commerce Parkway, Mt. Laurel, NJ 08054. Laboratory Accreditation Certificates can be found in **Appendix A.** Samples were analyzed by the EPA Polarized Light Microscopy (PLM) 600 Method. Samples reported with low concentrations of asbestos, <10% asbestos content, were reanalyzed using the EPA Point Count Method to determine a more accurate content.

3.0 Asbestos Containing Materials Summaries

The following tables present ACM summaries. A site diagram depicting bulk sample locations can be found in **Appendix B.** An inventory of ACM can be found in **Appendix C.** A bulk sample summary form summarizing the asbestos bulk samples collected and analyzed is attached in **Appendix D.** Laboratory analysis certificates and chain of custody information can be found in **Appendix E.**

3.1 Confirmed Asbestos Containing Materials

The following is a list of materials confirmed by laboratory analysis to contain asbestos:

Confirmed Asbestos Containing Material	
Residential Structure	
12" Tan Floor Tile (3)	Duct Tape (1)
Drywall/ Joint Compound/ Wall Texture (2) (Unit 3 only)	
Storage Facility	
None	

Notes: (1) RACM
(2) Category II Non-Friable
(3) Category I Non-Friable

3.2 Assumed Asbestos Containing Materials

All suspect materials were bulk sampled as part of this effort; therefore there are no assumed ACMs.

3.3 Non Asbestos Containing Materials

The following table lists materials sampled with laboratory analysis revealing no asbestos detected. If any additional suspect materials not listed in this table or already confirmed or assumed to contain asbestos, that material must be assumed to contain asbestos until further sampling proves otherwise.

Non Asbestos Containing Material	
Residential Structure	
Hard Plaster- Both Layers	Brown Floor Mastic
Black Floor Mastic	Electric Cloth Wrap- Black
Window Glazing Compound	Electric Cloth Wrap- White
Brown Gypsum Board (No Compound)(Associated with Bathroom)	Roof Felt
Roof Shingle-Top Layer	Roof Shingle-Bottom Layer

There were no suspect asbestos containing materials identified throughout the Storage Facility.

4.0 Conclusions

L&A conducted an ACM inspection of the residential structure located at 102 Bridge Street and the storage facility located at 110 Bridge Street, Duncan Falls, Ohio 43734. The inspection was conducted on September 22, 2017 by Mr. Jordan Mederer of L&A.

L&A surveyed all functional spaces throughout the structures for ACMs. These structures are scheduled for demolition.

4.1 Summary of Results

Asbestos

As a result of the asbestos containing materials survey conducted of the residential structure, the following asbestos containing materials are present, and projected to be impacted by the planned demolition. These materials must be removed by an ODH licensed asbestos abatement contractor.

- 12" Tan Floor Tile (Category I)
- Duct Tape (RACM)
- Wall Compound on Gypsum (Unit 3/East Unit) (Category II Non-Friable, will become RACM)

This report conforms to the EPA NESHAPs standards for this project. If you have any questions please contact Jordan Mederer or Chuck Wilson at (614) 481-8600.

Sincerely,

Jordan Mederer, AHES 35005
Department Manager

Chuck Wilson
Vice President

APPENDIX A

Inspector's Certifications

OHIO DEPARTMENT OF HEALTH

246 North High Street
Columbus, Ohio 43215

614/466-3543
www.odh.ohio.gov

John R. Kasich/Governor

Lance Himes/Interim Director of Health

June 28, 2017

Jordan R Mederer
Lawhon & Associates Inc
1441 King Avenue
Columbus OH 43212

RE: Asbestos Hazard Evaluation Specialist
Certification Number: ES35005
Expiration Date: 08/08/2018

Dear Jordan R Mederer:

This letter and enclosed certification card approves your request to be certified as an Asbestos Hazard Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Adminstrative Code.

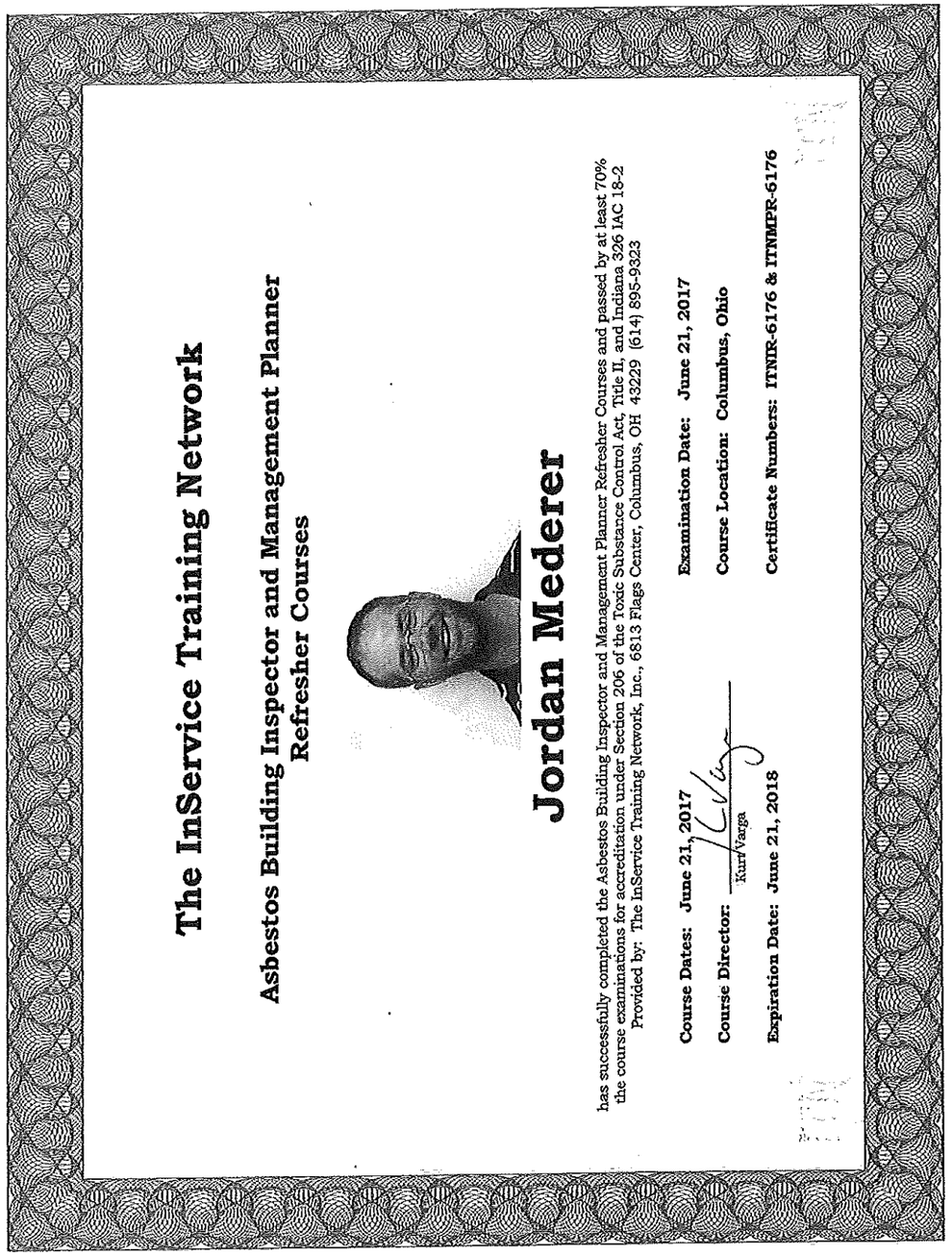
If you have any questions, please call Eleanor Black, Licensure Specialist, at 614-644-0226.

Sincerely,

Bill Robbins

Bill Robbins, Section Chief
Bureau of Licensure Operations
Office of Health Assurance and Licensing

An Equi



United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101165-0

International Asbestos Testing Laboratories

Mt. Laurel, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2017-07-01 through 2018-06-30
Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

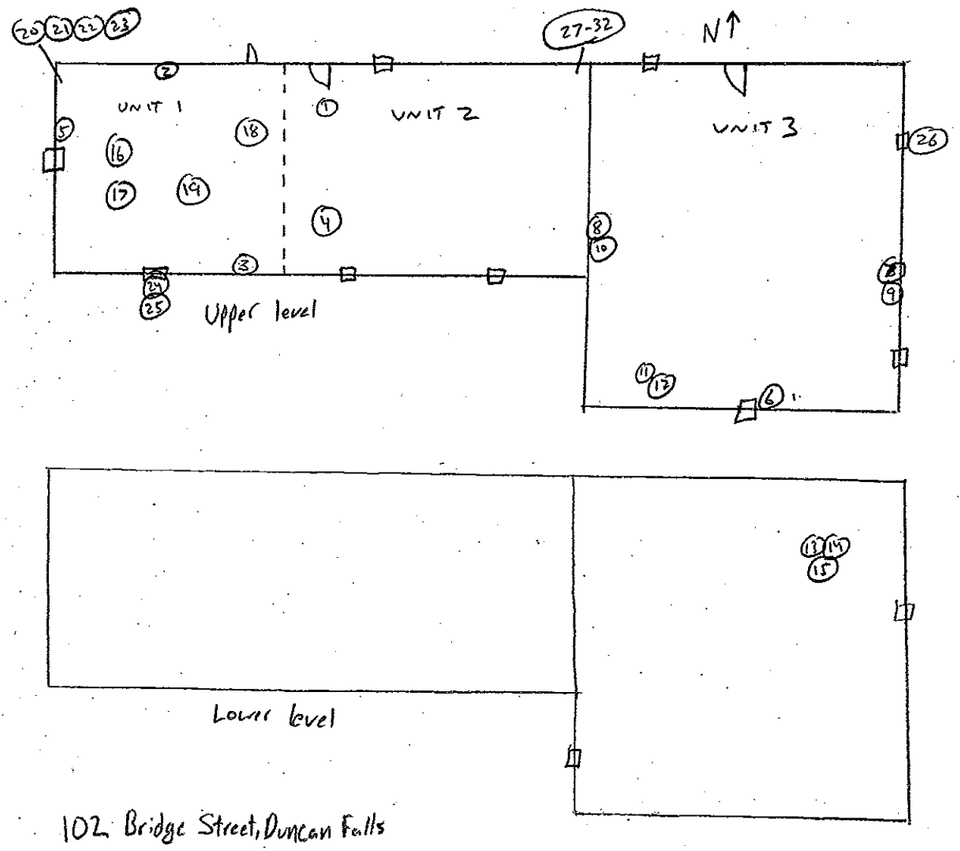
For the National Voluntary Laboratory Accreditation Program

APPENDIX B

Asbestos Bulk Sample Location Diagram

Lawhon & Associates, Inc.
ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus
Cleveland
Dayton



102 Bridge Street, Duncan Falls
Asbestos Sample Locations
Samples Collected by:
JORDAN MEEKER
AHERA #35005

1441 King Avenue | Columbus, Ohio 43212 | P: 614.481.8600 | F: 614.481.8610 | www.lawhon-assoc.com

APPENDIX C

Inventory of Asbestos Containing Materials

INVENTORY OF ASBESTOS CONTAINING MATERIALS
Residential Structure
102 Bridge Street, Duncan Falls, Ohio

ACM	Locations	Approximate Quantity	EPA NESHAP Classification & Comments
Drywall/ Joint Compound/ Wall Texture	Unit 3 (East Unit)	1460 square feet	Category II (Will become RACM during demolition)
Duct Tape	Basement	15 square feet	RACM
12" Tan Floor Tile	Unit 1 (West Unit)	80 square feet	Category I

APPENDIX D

Asbestos Bulk Sample Summary

BULK SAMPLE SUMMARY
Residential Structure
102 Bridge Street, Duncan Falls, Ohio

Sample Number	Hom. Area #	Material Sampled	Sample Location	Percent Asbestos
1a 1b	1 2	Hard Plaster- White Finish Hard Plaster- Grey Base	Unit 2 Ceiling	NAD NAD
2a 2b	1 2	Hard Plaster- White Finish Hard Plaster- Grey Base	Unit 1 N. Wall	NAD NAD
3a 3b	1 2	Hard Plaster- White Finish Hard Plaster- Grey Base	Unit 1 S. Wall	NAD NAD
4a 4b	1 2	Hard Plaster- White Finish Hard Plaster- Grey Base	Unit 2 Ceiling	NAD NAD
5a 5b	1 2	Hard Plaster- White Finish Hard Plaster- Grey Base	Unit 1 W. Wall	NAD NAD
6	**3**	**Wall Compound on Gypsum**	**Unit 3 E. Wall**	**2.2% Chrysotile (PC)**
7	3	Wall Compound on Gypsum	Unit 3 E. Wall	NAD
8	3	Wall Compound on Gypsum	Unit 3 W. Wall	NAD
9	4	White Gypsum Board	Unit 3	NAD
10	4	White Gypsum Board	Unit 3	NAD
11	5	Brown Gypsum Board	Unit 3 Bath	NAD
12	5	Brown Gypsum Board	Unit 3 Bath	NAD
13	**6**	**Duct Tape**	**Unit 3 Basement**	**70% Chrysotile**
14	**6**	**Duct Tape**	**Unit 3 Basement**	**90% Chrysotile**
15	**6**	**Duct Tape**	**Unit 3 Basement**	**85% Chrysotile**
16a 16b	**7** 8	**12" Tan Floor Tile** Brown Mastic	**Unit 1**	**1.1% Chrysotile (PC)** NAD

Bold text denotes an Asbestos Containing Material; as defined by EPA and ODH

Italic Text denotes an Material Containing Less than 1% Asbestos; for OSHA

Legend

Abbreviation:	**Definition:**
PC	Point Count Method Utilized

BULK SAMPLE SUMMARY
Residential Structure
102 Bridge Street, Duncan Falls, Ohio

Sample Number	Hom. Area #	Material Sampled	Sample Location	Percent Asbestos
17a 17b	**7** 8	**12" Tan Floor Tile** Brown Mastic	**Unit 1**	**1.2% Chrysotile (PC)** NAD
18	9	Black Floor Mastic	Unit 1	NAD
19	9	Black Floor Mastic	Unit 1	NAD
20	10	Electric Cloth Wrap-Black	Unit 1	NAD
21	10	Electric Cloth Wrap-Black	Unit 1	NAD
22	11	Electric Cloth Wrap-White	Unit 1	NAD
23	11	Electric Cloth Wrap-White	Unit 1	NAD
24	12	Window Glazing Compound	Unit 1	NAD
25	12	Window Glazing Compound	Unit 1	NAD
26	12	Window Glazing Compound	Unit 3	NAD
27	13	Roof Shingle-Top	Exterior	NAD
28	13	Roof Shingle-Top	Exterior	NAD
29	14	Roof Shingle-Bottom	Exterior	NAD
30	14	Roof Shingle-Bottom	Exterior	NAD
31	15	Roof Felt	Exterior	NAD
32	15	Roof Felt	Exterior	NAD

Bold text denotes an Asbestos Containing Material; as defined by EPA and ODH

Italic Text denotes an Material Containing Less than 1% Asbestos; for OSHA

Legend

Abbreviation:	**Definition:**
PC	Point Count Method Utilized

Bulk Sample Summary
Residential Structure
102 Bridge Street, Duncan Falls, Ohio

APPENDIX E

Asbestos Laboratory Analysis Certificates

&

Chain of Custody

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6351995
Client No.: 1
Percent Asbestos:
None Detected

Analyst Observation: White Plaster
Client Description: Hard Plaster-White Finish/Grey Base
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Unit 2 Ceiling
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6351995(L2)
Client No.: 1
Percent Asbestos:
None Detected

Analyst Observation: Brown Plaster
Client Description: Hard Plaster-White Finish/Grey Base
Percent Non-Asbestos Fibrous Material:
2 Hair
Trace Cellulose

Location: Unit 2 Ceiling
Facility:
Percent Non-Fibrous Material:
98

Lab No.: 6351996
Client No.: 2
Percent Asbestos:
None Detected

Analyst Observation: White Plaster
Client Description: Hard Plaster-White Finish/Grey Base
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Unit 1 N. Wall
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6351996(L2)
Client No.: 2
Percent Asbestos:
None Detected

Analyst Observation: Brown Plaster
Client Description: Hard Plaster-White Finish/Grey Base
Percent Non-Asbestos Fibrous Material:
1 Hair

Location: Unit 1 N. Wall
Facility:
Percent Non-Fibrous Material:
99

Lab No.: 6351997
Client No.: 3
Percent Asbestos:
None Detected

Analyst Observation: White Plaster
Client Description: Hard Plaster-White Finish/Grey Base
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Unit 1 S. Wall
Facility:
Percent Non-Fibrous Material:
100

Lab No.: 6351997(L2)
Client No.: 3
Percent Asbestos:
None Detected

Analyst Observation: Brown Plaster
Client Description: Hard Plaster-White Finish/Grey Base
Percent Non-Asbestos Fibrous Material:
1 Hair
Trace Fibrous Glass

Location: Unit 1 S. Wall
Facility:
Percent Non-Fibrous Material:
99

Analytical Method - **US EPA 600, R93-116.** Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017
Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/4/2017 7:59:54

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Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6351998 **Client No.:** 4	**Analyst Observation:** White Plaster **Client Description:** Hard Plaster-White Finish/Grey Base	**Location:** Unit 2 Ceiling **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6351998(L2) **Client No.:** 4	**Analyst Observation:** Brown Plaster **Client Description:** Hard Plaster-White Finish/Grey Base	**Location:** Unit 2 Ceiling **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Hair	Percent Non-Fibrous Material: 99
Lab No.: 6351999 **Client No.:** 5	**Analyst Observation:** White Plaster **Client Description:** Hard Plaster-White Finish/Grey Base	**Location:** Unit 1 W. Wall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6351999(L2) **Client No.:** 5	**Analyst Observation:** Brown Plaster **Client Description:** Hard Plaster-White Finish/Grey Base	**Location:** Unit 1 W. Wall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Hair Trace Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 6352000 **Client No.:** 6	**Analyst Observation:** Tan Texture **Client Description:** Wall Compound On Gypsum	**Location:** Unit 3 E. Wall **Facility:**
Percent Asbestos: *PC 2.2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 97.8
Lab No.: 6352001 **Client No.:** 7	**Analyst Observation:** White Texture **Client Description:** Wall Compound On Gypsum	**Location:** Unit 3 E. Wall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017

Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6352002 **Client No.:** 8	**Analyst Observation:** White Texture **Client Description:** Wall Compound On Gypsum	**Location:** Unit 3 W. Wall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6352003 **Client No.:** 9	**Analyst Observation:** White/Tan Sheetrock **Client Description:** White Gypsum	**Location:** Unit 3 **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85
Lab No.: 6352004 **Client No.:** 10	**Analyst Observation:** White/Tan Sheetrock **Client Description:** White Gypsum	**Location:** Unit 3 **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85
Lab No.: 6352005 **Client No.:** 11	**Analyst Observation:** Brown Sheetrock **Client Description:** Brown Gypsum	**Location:** Unit 3 Bath **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose	Percent Non-Fibrous Material: 90
Lab No.: 6352006 **Client No.:** 12	**Analyst Observation:** Brown Sheetrock **Client Description:** Brown Gypsum	**Location:** Unit 3 Bath **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose	Percent Non-Fibrous Material: 90
Lab No.: 6352007 **Client No.:** 13	**Analyst Observation:** Off-White Wrap **Client Description:** Duct Tape	**Location:** Unit 3 Basement **Facility:**
Percent Asbestos: *70 Chrysotile*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 25

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017

Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6352008 **Client No.:** 14
Analyst Observation: Off-White Wrap **Client Description:** Duct Tape
Location: Unit 3 Basement **Facility:**
Percent Asbestos: *90 Chrysotile*
Percent Non-Asbestos Fibrous Material: 5 Cellulose
Percent Non-Fibrous Material: 5

Lab No.: 6352009 **Client No.:** 15
Analyst Observation: Off-White Wrap **Client Description:** Duct Tape
Location: Unit 3 Basement **Facility:**
Percent Asbestos: *85 Chrysotile*
Percent Non-Asbestos Fibrous Material: 5 Cellulose
Percent Non-Fibrous Material: 10

Lab No.: 6352010 **Client No.:** 16
Analyst Observation: Tan Floor Tile; 12" **Client Description:** 12" Tan FT/Brown Mastic
Location: Unit 1 **Facility:**
Percent Asbestos: *PC 1.1 Chrysotile*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 98.9

Lab No.: 6352010(L2) **Client No.:** 16
Analyst Observation: Brown Mastic **Client Description:** 12" Tan FT/Brown Mastic
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6352011 **Client No.:** 17
Analyst Observation: Tan Floor Tile; 12" **Client Description:** 12" Tan FT/Brown Mastic
Location: Unit 1 **Facility:**
Percent Asbestos: *PC 1.2 Chrysotile*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 98.8

Lab No.: 6352011(L2) **Client No.:** 17
Analyst Observation: Brown Mastic **Client Description:** 12" Tan FT/Brown Mastic
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116.** Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017
Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6352012 **Client No.:** 18
Analyst Observation: Black Mastic **Client Description:** Black Floor Mastic
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: Trace Fibrous Glass
Percent Non-Fibrous Material: 100

Lab No.: 6352013 **Client No.:** 19
Analyst Observation: Black Mastic **Client Description:** Black Floor Mastic
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: Trace Fibrous Glass
Percent Non-Fibrous Material: 100

Lab No.: 6352014 **Client No.:** 20
Analyst Observation: Black Wrap **Client Description:** Electric Cloth Wrap-Black
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 80 Cellulose
Percent Non-Fibrous Material: 20

Lab No.: 6352015 **Client No.:** 21
Analyst Observation: Black Wrap **Client Description:** Electric Cloth Wrap-Black
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 80 Cellulose
Percent Non-Fibrous Material: 20

Lab No.: 6352016 **Client No.:** 22
Analyst Observation: Tan Wrap **Client Description:** Electric Cloth Wrap-White
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 40 Cellulose
Percent Non-Fibrous Material: 60

Lab No.: 6352017 **Client No.:** 23
Analyst Observation: Tan Wrap **Client Description:** Electric Cloth Wrap-White
Location: Unit 1 **Facility:**
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 40 Cellulose
Percent Non-Fibrous Material: 60

Analytical Method -**US EPA 600, R93-116.** Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017
Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6352018 **Client No.:** 24	**Analyst Observation:** White Glazing **Client Description:** Window Glazing Compound	**Location:** Unit 1 **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Fibrous Glass	Percent Non-Fibrous Material: 100
Lab No.: 6352019 **Client No.:** 25	**Analyst Observation:** Off-White Glazing **Client Description:** Window Glazing Compound	**Location:** Unit 1 **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6352020 **Client No.:** 26	**Analyst Observation:** Off-White Glazing **Client Description:** Window Glazing Compound	**Location:** Unit 3 **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 6352021 **Client No.:** 27	**Analyst Observation:** Black/Brown Shingle **Client Description:** Roof Shingle-Top	**Location:** Exterior **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Fibrous Glass	Percent Non-Fibrous Material: 80
Lab No.: 6352022 **Client No.:** 28	**Analyst Observation:** Black/Brown Shingle **Client Description:** Roof Shingle-Top	**Location:** Exterior **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Fibrous Glass	Percent Non-Fibrous Material: 80
Lab No.: 6352023 **Client No.:** 29	**Analyst Observation:** Black/Tan Shingle **Client Description:** Roof Shingle-Bottom	**Location:** Exterior **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Fibrous Glass	Percent Non-Fibrous Material: 80

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017

Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
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CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6352024 **Client No.:** 30	**Analyst Observation:** Black/Tan Shingle **Client Description:** Roof Shingle-Bottom	**Location:** Exterior **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Fibrous Glass	Percent Non-Fibrous Material: 80
Lab No.: 6352025 **Client No.:** 31	**Analyst Observation:** Black Tar Paper **Client Description:** Roof Felt	**Location:** Exterior **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 6352026 **Client No.:** 32	**Analyst Observation:** Black Tar Paper **Client Description:** Roof Felt	**Location:** Exterior **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/27/2017
Date Analyzed: 10/03/2017

Signature:
Analyst: Mark Stewart

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

Appendix to Analytical Report

Customer Contact:
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

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Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004

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1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/3/2017
Report No.: 548404 - PLM
Project: Duncan Falls Bridge St.
Project No.: 17-0453

Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

LA Lawhon & Associates, Inc.
1441 King Avenue
Columbus, OH 43212
Phone: (614) 481-8600
Fax: (614) 481-8610

Sent To: IATL
VIA: FedEx
Date: 9/22/17

№ 10970
Page 1 of 2
Turn around: 3-day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name: Duncan Falls Bridge St
Project No.: 17-0453
Project Contact: Jordan Meredith
Sampler (print):
Signature:

Sample I.D. No.	Homog. Area No.	Sample/Homogeneous Area Description	Sample Location	Remarks
1	1/2	Hard plaster-white finish/grey base	Unit 2 ceiling	6351995
2			Unit 1 N. wall	6351996
3			Unit 1 S. wall	6351997
4			Unit 2 ceiling	6351998
5			Unit 1 W. wall	6351999
6	3	Wall compound on gypsum	Unit 3 E. wall	6352000
7				
8			Unit 3 W. wall	6352001
9	4	White gypsum board	Unit 3	6352002
10				6352003
11	5	Brown gypsum board	Unit 3 bath	6352004
12				6352005
13	6	Duct tape	Unit 3 basement	6352006
14				6352007
15				6352008
16	7/8	12" tan fr/brown mastic	Unit 1	6352009
17				6352010
				6352011

☐ Stop 1st Positive ☑ Analyze All Samples

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
AMS 10/3/17	SEP 27 2017						

IATL - By 10/4

Distributor: White - Lab: Yellow - File

Lawhon & Associates, Inc.

1441 King Avenue
Columbus, OH 43212
Phone: (614) 481-8600
Fax: (614) 481-8610

Sent To: ATC

VIA: Fed Ex

Date: 9/22/17

№ 10971

Page 2 of 2

Turn around: 3-day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name:	Project No.:	Project Contact:	Sampler (print):	Signature
DUNCAN FALLS BRIDGE ST	17-0453	J MEGENER		

Sample I.D. No.	Homog. Area No.	Sample /Homogeneous Area Description	Sample Location	Remarks
18	9	BLACK FLOOR MASTIC	@ UNIT 1	6352012
19	1	1	1	6352013
20	10	ELECTRICAL CLOTH WRAP - BLACK	@	6352014
21	1	1	1	6352015
22	11	ELECTRAL CLOTH WRAP-WHITE		6352016
23	1	1	1	6352017
24	12	WINDOW GLAZING COMPOUND	UNIT 1	6352018
25	1	1	1	6352019
26	1	1	UNIT 3	6352020
27	13	ROOF SHINGLE - TOP	EXTERIOR	6352021
28	1	1	1	6352022
29	14	ROOF SHINGLE - BOTTOM	1	6352023
30	1	1	1	6352024
31	15	ROOF FELT	1	6352025
32	1	1	1	6352026

RECEIVED
SEP 27 2017
ATL-BY

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.

☐ Stop 1st Positive ☑ Analyze All Samples

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
	9/26/17 1412						

Distributor: White - Lab; Yellow - File

APPENDIX F
EPA Notification

OHIO ENVIRONMENTAL PROTECTION AGENCY
INSTRUCTIONS FOR COMPLETING
NOTIFICATION OF DEMOLITION AND RENOVATION FORM

General Information

Who must submit this notification? *[OAC 3745-20-03 and 40 CFR 61.145(b)]*

- The owner or operator means any person who leases, operates, controls, or supervises the facility being demolished or renovated, or any person who owns, leases, operates, controls or supervises the demolition or renovation (activity), or both.

The Ohio EPA notification of demolition and renovation form is required for:

- Every demolition of a facility, regardless of whether asbestos is involved. This includes all structures that will be intentionally burned for fire training purposes.
- A renovation when the amount of regulated asbestos-containing material (RACM) stripped, removed, dislodged, cut, drilled, or similarly disturbed exceeds 260 linear feet on pipes or 160 square feet on other facility components or 35 cubic feet off facility components.

When must I submit this notification?

ORIGINAL: The original notification must be **postmarked** or **hand delivered** to the Ohio EPA district office or local air agency with jurisdiction in the county where the operations will occur at least 10 working days (Monday-Friday excluding weekends) before operations begin. Please see example table below to help determine when to submit the original notification.
E-mail or FAX notification is not acceptable for original notification.

July

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3 day 1	4 day 2	5 day 3	6
7	8 day 4	9 day 5	10 day 6	11 day 7	12 day 8	13
14	15 day 9	16 day 10	17 *	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Post mark date (and Day 1 of 10-day clock): July 3rd.
Note: Holidays are counted when they fall on a working day.
Completion of 10-day prior notification period: July 16th.
* First day work can commence (day following the 10th working day): July 17th.

REVISIONS: The notification must be updated if the amount of RACM changes by at least 20 percent, any changes in work schedules (dates or hours), any change in owner or operator, or any change in the name or location of selected waste disposal site. A revised notification may be provided by phone, email, or fax, followed in writing.

EMERGENCY DEMOLITION OR RENOVATIONS: The notification must be submitted as early as possible before, but not later than, the following working day from start of renovation or demolition activities. The notification must include the supplemental information required in Sections 14 or 15.

Where do I send my notification?

Send the notification directly to the Ohio EPA district office or local air agency with jurisdiction in the county where the operations will occur. A list of the counties and a jurisdiction map is available online at www.epa.ohio.gov/dapc/atu/asbestos.aspx

How does Ohio EPA assess fees? *[ORC 3745.11(G)]*

An owner or operator who is responsible for an asbestos demolition or renovation project shall pay the fees set forth in the following schedule. This applies when thresholds are greater than or equal to: 260 linear feet; 160 square feet; or 35 cubic feet.

- Each notification $75 plus,
- Asbestos removal $3/unit (1 unit = any combination of linear feet or square feet equal to fifty) and/or
- Asbestos cleanup $4/cubic yard

The Ohio EPA will bill the facility owner or operator on a quarterly basis. Please be aware that some local air agencies may have additional fees.

Who can help answer questions about completing this notification?

Contact the Ohio EPA district office or local air agency with jurisdiction in the county where the operations will occur. A list of these jurisdictions and the appropriate contacts is available at www.epa.ohio.gov/dapc/atu/asbestos.aspx

Line-by-line Instructions

Operator Project # -- this is an optional space provided for the person submitting the notice to indicate their project or job number.

1. Check the type of notification:

- "Original" is the first notification submitted for a project; hard copy is required to be post-marked or hand-delivered 10 working-days prior to start of work.
- "Revision" is any notification submitted after the original due to any change in the information on the form; required if the amount of RACM changes by at least 20 percent, any changes in work schedules (dates or hours), any change in owner or operator, or any change in the name or location of selected waste disposal site. Revisions shall be numbered chronologically with Revision #1 being the first time any items on the notification form were changed. If revision is marked, please include the Revision # and specify the Sections of the form in which items were revised.
- "Cancellation" is submitted to indicate a project has been cancelled and work will not be completed.

2. Describe the building(s) or structure(s) affected by the operations. If the project includes more than one structure, be sure to complete and include the Multi-Structure Attachment Form with your Ohio EPA notification form. Include building size in square feet, specific site location, number of floors, and age in years. Also include the present and prior use (i.e., industrial, commercial, institutional, residential, vacant, etc.) of the building(s).

3. Identify the type of operation. Definitions of these terms can be found in OAC 3745-20-01. Please note emergency demolitions and renovations require additional information, see Sections 14 and 15.

- "Demolition" means the wrecking, or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.
- "Emergency demolition" means any demolition operation conducted under a written order issued by a state or local governmental agency because a facility is structurally unsound and in danger of imminent collapse.
- "Renovation" means altering a facility or one or more facility components in any way, including the stripping or removal of regulated asbestos-containing material from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.
- "Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by non-routine failures of equipment.
- "Fire Training" refers to the demolition of a facility by intentional burning. All asbestos containing material, including Category I and Category II nonfriable ACM, must be removed in accordance with OAC 3745-20 before burning. Additional requirements also apply; please contact the DO/LAA with jurisdiction for additional information. **http://epa.ohio.gov/portals/41/sb/publications/BurningHouse.pdf**
- "Courtesy" means you are submitting the notification of a demolition/renovation of a non-facility or abatement project below regulatory thresholds.

- "Annual" refers to planned renovation operations over a calendar year involving a series of non-scheduled operations that are collectively greater than the threshold limits; these notifications must be submitted in the month prior to the beginning of the calendar year.

4. Declare whether or not asbestos is present in any quantity. This includes assumed asbestos containing materials such as roofing and flooring. Also specify if the facility was previously abated and year when previous asbestos abatement occurred (if applicable).

5. Provide all owner/operator contact information.
   - Specify if this project is part of a larger project or urban demolition (installation).
     - If Yes, list contact information for Entity Coordinating Larger Project in next line (Owner/Coordinating Entity).
     - If No, list the property owner information in next line (Owner/Entity Coordinator)
   - Specify if this notification include more than one structure.
     - If Yes, ensure the Multi-Structure Attachment Form has been completed per Section 2; attach this to your notification form.
   - In the "Owner/Coordinating Entity" line, list the property owner [individual(s) who own(s) the property at the time of demolition/renovation (Note, this may be a government or private entity)] if answered No above; or list the Coordinating Entity (i.e., land bank, municipality, etc.) for the larger project if answered Yes above. Include address, contact name, phone, fax, and email for the listed Owner/Coordinating Entity.
   - Specify the name, address, contact name, phone, fax, email, and Ohio Department of Health license number (ACXXXX) for the "Asbestos Abatement Contractor" (if regulated asbestos containing material(s) is being abated).
   - Specify the name, address, contact name, phone, fax, email, for the "Onsite Demolition Contactor" (if demolition is taking place) or "Fire Department" (if demolition of a facility is by intentional burning).

6. Include the Asbestos Hazard "Evaluation Specialist Name", "License # (ESXXXX)", and "procedure used to detect and analyze asbestos". Analytical methods could include the collection of samples and sample analyses by polarized light microscopy (PLM) with dispersion staining. For samples that test under 10% asbestos content: An owner or operator may (a) elect to assume material to be greater than 1% asbestos, or, (b) require verification by point counting in which the point counting result will supercede the PLM estimation; Both choice and result should be stated on the notification. Explain any other method(s) used. All owners/operators should have the records of the asbestos assessment and analyses (inspection/survey report) on-site during active operations for reference and inspection. Such records would include a list of materials assessed, locations sampled and the sample results; this information can be found within the asbestos inspection report.

7. Specify the amount of regulated asbestos-containing material (RACM) to be removed as follows: linear feet on pipes, square feet (surface area) on facility components, and total cubic feet or cubic yards (volume) on or off all facility components. Asbestos containing demolition debris and related materials shall be quantified in cubic feet/yards (volume). Estimate the approximate amount of Category I and Category II non-friable asbestos-containing material in the affected part of the facility that will be removed before demolition. Estimate the approximate amount of Category I and Category II non-friable asbestos-containing material in good condition in the affected part of the facility that will not be removed before demolition. If multiple addresses per notification, the combined total of all sites shall be listed in this table and individual quantities for each site shall be provided in the Multi-Structure Attachment Form.

8. Specify the starting and ending dates for demolition or renovation even when no asbestos containing materials are present. Should the demolition or renovation not begin on the start date listed, a revised notification form shall be submitted prior to the listed start date. Please note, start date must be at least 10 working-days after postmark or hand-deliver date.

9. Specify the scheduled dates for asbestos removal, the hours of operation, and the days of the week that asbestos removal operations will be active onsite. Please note, start date must be at least 10 working-days after postmark or hand-deliver date.

10. Describe the demolition or renovation which will occur and the methods or operations that will be employed. Briefly describe the methods to be used to conduct the demolition or renovation. For renovations, these methods may include glove bag removal, hand stripping or scraping of asbestos containing materials. For demolitions, methods may include a wrecking ball, bulldozer, implosion, or unbolting panels or sections and carefully lowering to the ground. Examples of affected facility components may include pipe wrap, floor tile, sprayed-on insulation, transite, etc.

11. Describe the work practices and engineering controls to be used for abating (removing) each type of material listed in Section 7. Examples of work practices and engineering controls to prevent asbestos emissions at the site could include: the use of water or wetting agents, negative pressure enclosure, glove bag removal; placing into leak-tight containers or wrapping with twelve (12) mil thick polyethylene plastic sheeting which is properly labeled prior to disposal, etc. Examples of removal and waste handling procedures to prevent non-friable material from becoming friable would include: removing by sections or units taking care not to crumble, pulverize, or reduce to power, using water to prevent any emissions, placing into leak-tight containers or wrapping with twelve (12) mil thick plastic which is properly labeled prior to disposal (including name or waste generator and location at which the waste was generated), etc.

   Examples:
   A. *Wet methods to be used before, during and after removal of 2500 sq. ft. of acoustical plaster. Material will be placed into double 6-mil poly bags, properly labeled, and taken to an approved landfill.*
   B. *Full containment, negative air, adequately wet, proper PPE, double bagging when removing 600 sq. ft. of boiler breeching, 4 boiler door gaskets, and 35 flange gaskets. Bagged material will be properly labeled and taken to an EPA-approved landfill.*

12. Provide the names, addresses, and contact information of any asbestos waste transporters. Note you must also complete a Waste Shipment Record prior to consigning any asbestos containing waste materials (ACWM).

13. Provide the name, physical address, and contact information for the asbestos waste disposal site. Note it may be different from the mailing address. Check Ohio EPA website listed below for an updated list of approved asbestos accepting waste disposal sites. www.epa.ohio.gov/dapc/atu/asbestos.aspx

14. This section must be completed for emergency demolitions that meet the definitions and requirements of the regulation. **If a facility is not in imminent danger of collapse, it is not an emergency demolition even though it may be ordered to be demolished due to hazardous conditions.** Provide the name, title and agency of the state or local governmental representative who has ordered the demolition. The Authority of Order is the applicable state or local regulation under which the demolition order has been issued. You **MUST ATTACH** a **copy of the demolition order** to the notification.

15. This section shall be completed for emergency renovations that meet criteria described at 40 CFR 61.141 and OAC 3745-20-01. You **MUST ATTACH** a **separate sheet** including the four items listed on the notification form.

16. Describe the procedures to be followed in the event unexpected regulated asbestos containing (RACM) is found or nonfriable asbestos becomes material (RACM).
   Examples:
   A. *Stop work, evacuate area, and demarcate the area.*
   B. *Wetting of ACM with amended water and using wet cleaning methods.*

   Should the discovery of unexpected RACM change the original amount of asbestos to be abated by 20 percent or more, you must submit a revised notification pursuant to OAC 3745-20-03. A revised demolition/renovation notification must reflect the change in the amount of affected asbestos-containing material. The revised notification must also reflect the new asbestos removal start date, if applicable.

17. If asbestos is being removed or abated, you must certify a NESHAP trained person will be available during normal business hours at the demolition or renovation site. Signature must be by an authorized representative of the owner or operator.

18. In accordance with OAC 3745-20-03(E), all notifications (original and revised) shall identify the name, title, and organization of the person submitting the notification, and shall be signed and dated by the person submitting the notification.

The asbestos regulations, notification forms, guidance, local contacts, and other information can be found on Ohio EPA's asbestos program web site at www.epa.ohio.gov/dapc/atu/asbestos.aspx

Ohio Environmental Protection Agency

Notification of Demolition and Renovation Form

Single & Multi-Structure

Division of Air Pollution Control

Operator Project # :	*For Official Use Only*			
	☐ Hand-Delivered	Postmark : / /	Received by Office : / /	Notification # :

1 Notification Type (check one)

☒ Original	☐ Revision # :	Section #s Revised:	Offsite/Hold : ☐ Yes ☐ No	☐ Cancellation

2 Facility Description (include building name, number and floor or room number). If more than one structure, use Multi-Structure Attachment form

Building Name (if applicable) : Residence		Site Location : Residence Structure	
Address : 102 Bridge Street		County : Muskingum	
City : Duncan Falls		State : OH	Zip : 43734
Building Size (ft²) : 1,496		No. of Floors : 2	Age (years) :
Present Use : Vacant		Prior Use : Residence	

3 Type of Operation (check one)

☒ Demolition ☐ Emergency Demolition ☐ Renovation ☐ Emergency Renovation ☐ Fire Training ☐ Annual ☐ Courtesy

4 Is Asbestos Present? (check one)

☒ Yes ☐ No ☐ No, previously abated Year Abated (if applicable) :

5 Owner/Coordinating Entity, Asbestos Abatement Contractor and Onsite Demolition Contractor Information

Is this project part of a larger project or urban demolition (installation)? ☐ Yes (list contact information for coordinating entity below) ☒ No (list contact information for property owner below)		Does this notification include more than one structure? ☐ Yes (complete the Multi-Structure Attachment Form) ☒ No	
Owner/Coordinating Entity :			
Address :		Email :	
City :		State : OH	Zip :
Contact :		Phone : ( ) -	Fax : ( ) -
Asbestos Abatement Contractor (if applicable)		**On-site Demolition Contractor or Fire Department (if applicable)**	
Name :		Name :	
Address :		Address :	
City :	State : Zip :	City :	State : Zip :
Contact :	License # : AC	Contact :	
Phone : ( ) -	Fax : ( ) -	Phone : ( ) -	Fax : ( ) -
Email :		Email :	

6 Ohio Asbestos Hazard Evaluation Specialist and Evaluation Procedure

Evaluation Specialist : Jordan Mederer	License # : ES 35005	Expiration Date : 8 / 8 / 2018

Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of regulated asbestos-containing material (RACM) and Category I and Category II nonfriable asbestos-containing material: ☒ PLM ☒ Point Count ☐ TEM ☐ Other Method (Explain Below) :

7 Approximate Amount of Asbestos-Containing Materials (complete table below and Section 11 if asbestos is present)

	Material to be Removed			Material NOT to be Removed	
	RACM	Nonfriable Asbestos-Containing Material		Nonfriable Asbestos-Containing Material	
		Category I	Category II	Category I	Category II
Pipes (linear feet)					
Surface Area (ft²)	15	80	1,460		
Facility Components ☐ ft³ ☐ yd³					

8 Scheduled Dates of Demolition or Renovation (original notification is required 10 working days prior to the start of work)

Start : / / Complete : / /

9 Asbestos Removal Dates and Work Hours (if applicable, for asbestos removal only)

Start : / / Complete : / /

Hours Onsite	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	—	—	—	—	—	—	—

10 Planned Demolition or Renovation Work (check all that apply)

Description of planned demolition or renovation work to be performed and method(s) to be employed, including demolition or renovation techniques to be used :

☐ Implosion ☐ Fire Training ☐ Wet Methods ☐ Manual Demolition ☐ Mechanical Demolition ☐ Other (Explain Below) :

Description of affected facility components (include attachment if necessary) :

11 Asbestos Description and Engineering Controls (if asbestos is being abated)

For the amount of each material listed in Section 7, describe the type(s) of ACM to be abated as well as engineering controls and work practices to be used to minimize emissions and ensure proper waste handling :

12 Asbestos Waste Transporters (if applicable)

Asbestos Waste Transporter #1			Asbestos Waste Transporter #2		
Name :			Name :		
Address :			Address :		
City :	State :	Zip :	City :	State :	Zip :
Contact :			Contact :		
Phone : ( ) -	Fax : ( ) -		Phone : ( ) -	Fax : ( ) -	
Email :			Email :		

13 Asbestos Waste Disposal (if applicable)

Asbestos Waste Disposal Site :			Contact :		
Address :			Email :		
City :	State :	Zip :	Phone : ( ) -	Fax : ( ) -	

14 Emergency Demolition (complete this section if you checked Emergency Demolition in Section 3)

A copy of the issued order, including the following information, must be attached to this notification

Government Official Issuing Order :	Title :
Agency :	Authority of Order (Citation of Code) :
Date of Order : / /	Demolition Date : / /

15 Emergency Renovation (complete this section if you checked Emergency Renovation in Section 3)

A separate sheet with the following information must be attached to this notification

Date of Emergency : / /	Time of Emergency :

Description of Sudden, Unexpected Event :

Explanation of how the event caused unsafe conditions or equipment damage :

16 Procedures to be followed should unexpected RACM be discovered (check all that apply)

☐ Stop work and keep wet	☐ Evacuate area	☐ Contact licensed abatement contractor
☐ Contact district office/local air authority	☐ Demarcate area	☐ Other (Explain Below) :

17 Asbestos Abatement Signature (only sign below if asbestos is being removed)

In accordance with Ohio Administrative Code rule 3745-20-03(A)(4)(p), I certify that at least one person trained as required by paragraph (B) of rule 3745-20-04 of the Administrative Code will supervise the stripping and removal described by this notification.

Signature :		Date : / /

Name, Title and Organization (please print)

18 Demolition and Renovation Signature (required for all original and revised notifications)

I acknowledge the existence of laws prohibiting the submission of false or misleading statements and I certify that facts contained in this notification are true, accurate, and complete.

Signature :		Date : / /

Name, Title and Organization (please print)

Original notification must be mailed or hand-delivered at least 10 working days (Monday – Friday excluding weekends) before demolition or renovation begins, except emergency demolitions and emergency renovations which must be submitted as soon as possible before operations begin, but no later than the following work day.

Ohio Environmental Protection Agency

Notification of Demolition and Renovation
Multi-Structure Attachment Form

Division of Air Pollution Control

Note: This form to be completed and attached to Notification Form when project involves more than one structure

Project Name: **Date Submitted:** **Revision #:**

	Project Details	Structure 1	Structure 2	Structure 3	Structure 4	Structure 5
Structure Details	Site Address (include street, city, and zip)					
	Building Name					
	Present Use					
	Past Use					
Asbestos Quantities	RACM	Sf	Sf	Sf	Sf	Sf
		Lf	Lf	Lf	Lf	Lf
		Cf	Cf	Cf	Cf	Cf
	Cat. I NF to be Removed	Sf	Sf	Sf	Sf	Sf
	Cat. II NF to be Removed	Sf	Sf	Sf	Sf	Sf
	Cat. I NF to Remain	Sf	Sf	Sf	Sf	Sf
	Cat. II NF to Remain	Sf	Sf	Sf	Sf	Sf
Work Schedule	Asbestos Removal Start Date	/ /	/ /	/ /	/ /	/ /
	Asbestos Removal Complete Date	/ /	/ /	/ /	/ /	/ /
	Demolition/Renovation Start Date	/ /	/ /	/ /	/ /	/ /
	Demolition/Renovation Complete Date	/ /	/ /	/ /	/ /	/ /
Revised	Check box if details were revised	☐	☐	☐	☐	☐

Asbestos Survey Report
PID 97346 – MUS-CR32-0.02 – SFN 6034330

A survey for asbestos on bridge structure file number 6043330 which spans Intake Canal from Muskingum River and carries County Road 32B in Muskingum County, Oho was conducted on May 8, 2017. The survey was conducted to identify the presence of asbestos-containing building material (ACBM) on the structure, and was conducted in anticipation of the planned removal and replacement of the structure. The inspection was conducted in accordance with NESHAP Guidelines, EPA Regulation 40 CFR, Subpart M, part 61. All accessible areas of the MUS-CR32B-0.02 bridge structure was inspected for the presence of suspected ACM's. A site location map and bridge information summary are attached.

Asbestos Survey

As a result of the survey no ACBM were identified on the structure. Demolition was approved to proceed without any need for abatement. The required Ohio Environmental Protection Agency notification form for demolition with the pertinent information has been completed.

The purpose of this survey was to conduct a National Emissions Standard for Hazardous Air Pollutants asbestos survey of a 162' long 32.9' wide steel beam bridge with an asphalt surface prior to demolition. The asbestos inspection consisted of a visual inspection of the structure.

This survey was limited to observation, sampling, and analysis of potentially suspect ACBM building material in accessible portions of the structure; however, common construction techniques render portions of any structure inaccessible. As a result, additional ACBM may be present in inaccessible areas of the structure that were not observed during the survey, therefore, while this Asbestos Survey was deemed thorough and conducted in accordance with industry standards; it is possible hidden ACBM may be present.

Asbestos Survey Summary

As a result of this survey no ACBM were identified on the structure. The entire structure was inspected and no utility access points were observed.

The asbestos inspection was completed by Randy Comisford certification number ES33298 expiration date 05/09/2018.

Asbestos Survey Report
PID 97346 – MUS-CR32-0.13 – SFN 6054129

A survey for asbestos on bridge structure file number 6054129 which spans the Muskingum River and carries County Road 32B in Muskingum County, Oho was conducted on May 8, 2017. The survey was conducted to identify the presence of asbestos-containing building material (ACBM) on the structure, and was conducted in anticipation of the planned removal and replacement of the structure. The inspection was conducted in accordance with NESHAP Guidelines, EPA Regulation 40 CFR, Subpart M, part 61. All accessible areas of the MUS-CR32B-0.13 bridge structure was inspected for the presence of suspected ACM's. A site location map and bridge information summary are attached.

Asbestos Survey

As a result of the survey no ACBM were identified on the structure. Demolition was approved to proceed without any need for abatement. The required Ohio Environmental Protection Agency notification form for demolition with the pertinent information has been completed.

The purpose of this survey was to conduct a National Emissions Standard for Hazardous Air Pollutants asbestos survey of a 828' long 28' wide steel Thru Truss with an asphalt/concrete surface prior to demolition. The asbestos inspection consisted of a visual inspection of the structure.

This survey was limited to observation, sampling, and analysis of potentially suspect ACBM building material in accessible portions of the structure; however, common construction techniques render portions of any structure inaccessible. As a result, additional ACBM may be present in inaccessible areas of the structure that were not observed during the survey, therefore, while this Asbestos Survey was deemed thorough and conducted in accordance with industry standards; it is possible hidden ACBM may be present.

Asbestos Survey Summary

As a result of this survey no ACBM were identified on the structure. The entire structure was inspected and no utility access points were observed.

The asbestos inspection was completed by Randy Comisford certification number ES33298 expiration date 05/09/2018.