CUY-90-14.90

PID 77332/85531

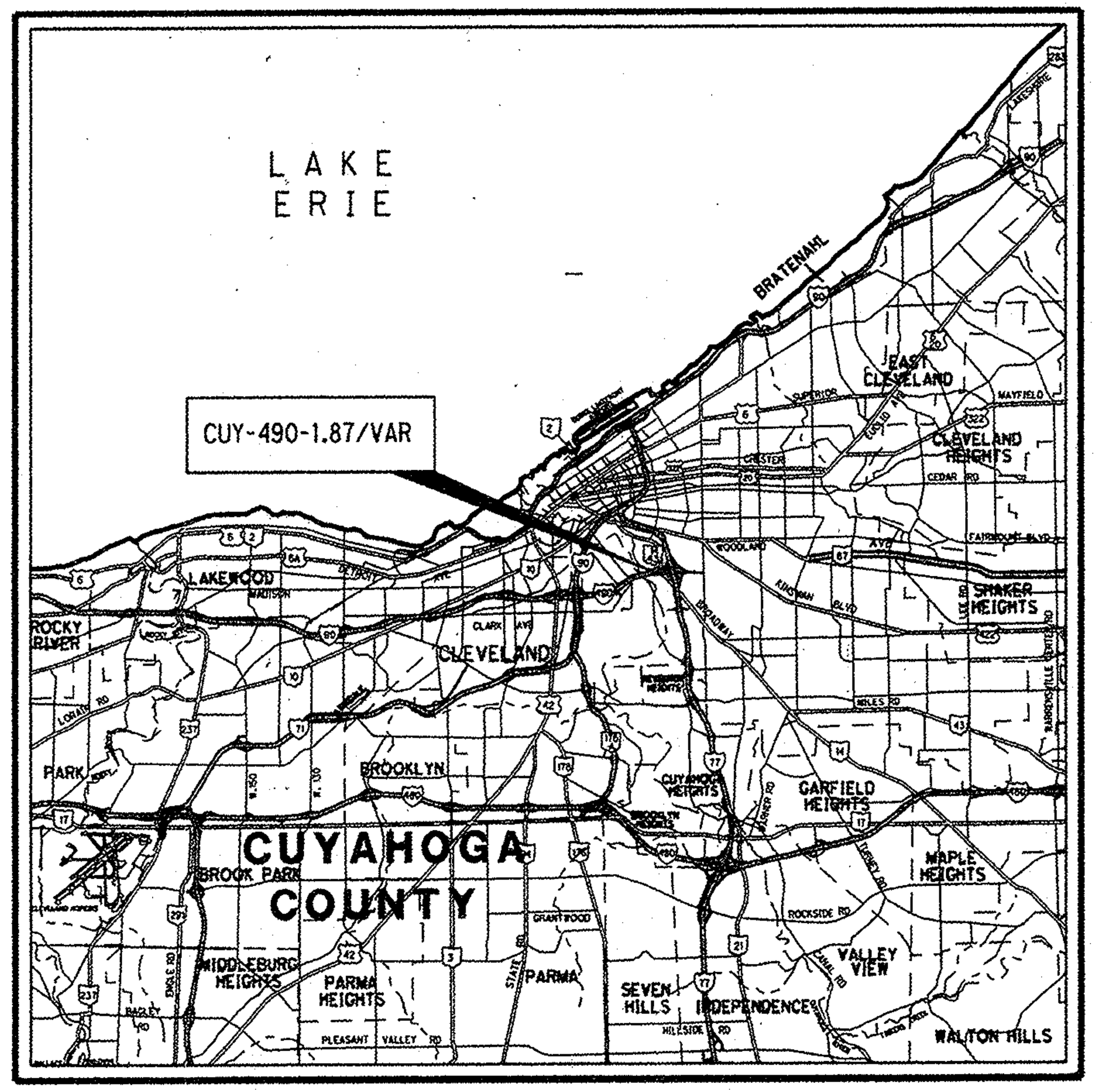
APPENDIX EX-43

CUY-490-1.87-VAR
(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: 2008



LOCATION MAP

LATITUDE: N 41°29'07" LONGITUDE: W 81°40'40"

SCALE IN MILES

0 1 2 4 6 8 10

N

PORTION TO BE IMPROVED

INTERSTATE & DIVIDED HIGHWAY

UNDIVIDED STATE & FEDERAL ROUTES

OTHER ROADS

DESIGN DESIGNATION	IR-77	IR-90	IR-490
CURRENT ADT (2009)	109300	104700	54950
DESIGN YEAR ADT (2029)	111560	106860	56090
DESIGN HOURLY VOLUME	11160	10690	5610
DIRECTIONAL DISTRIBUTION	55 %	55 %	55 %
TRUCKS (24 HOUR B&C)	8 %	7.5 %	9.0 %
DESIGN SPEED	50 MPH	60 MPH	65 MPH
LEGAL SPEED	50 MPH	50 MPH	60 MPH

DESIGN FUNCTIONAL CLASSIFICATION - URBAN INTERSTATE

DESIGN EXCEPTIONS : NONE

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-490-1.87/VAR

CITY OF CLEVELAND
CUYAHOGA COUNTY

INDEX OF SHEETS:

PROJECT DESCRIPTION

THIS PROJECT PROVIDES FOR THE ADVANCE WORK TO ALLOW FOR A LANE OF TRAFFIC ON IR 90 OVER THE CUYAHOGA RIVER TO BE DETOURED TO IR77 BY PROVIDING AN EXTRA LANE ON IR77 BETWEEN IR90 AND IR 490.
THIS PROJECT PROVIDES FOR THE WIDENING OF THE RAMP AND BRIDGE FROM EASTBOUND IR490 TO NORTHBOUND IR77. THE OUTSIDE PARAPETS OF THE IR77 STRUCTURE OVER ORANGE AVENUE AND EAST 30th STREET WILL BE REFACED. SEVERAL EXISTING ASPHALT SHOULDERS ON IR90 AND THE IR77/IR90 INTERCHANGE RAMPS WILL BE REPLACED WITH CONCRETE.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2008 SPECIFICATIONS

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

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 SHEETS 9 & 10 AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATES.

PROJECT EARTH DISTURBED AREA = 0.45 AC.
ESTIMATED CONTRACTOR EARTH DISTURBED AREA = 0.25 AC.
NOTICE OF INTENT EARTH DISTURBED AREA = N/A (NOI NOT REQUIRED)

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL **1-800-362-2764** (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
BP-1.1	07/28/00	DM-1.1	04/21/06	RM-4.2	10/19/07	MT-102.10	10/20/06	A-1-69	07/19/02		
BP-2.1	07/18/08	DM-1.2	10/21/05	RM-4.3	01/19/07	MT-102.20	09/05/06	AS-1-81	07/19/02	800	01/16/09
BP-2.2	07/18/08	DM-1.4	04/21/06	RM-4.4	01/19/07	MT-105.10	01/16/09	EXJ-2-81	07/19/02	832	4/25/06
BP-2.4	07/16/04	DM-4.1	07/19/02	RM-4.5	01/19/07			GSD-1-96	07/19/02	847	4/15/05
BP-3.1	10/19/07	DM-4.3	07/19/02	RM-4.6	01/16/04			PCB-91	07/19/02		
BP-5.1	07/28/00	DM-4.4	07/19/02			TC-22.20	01/19/01	RB-1-55	02/02/59		
BP-8.1	07/18/08			MT-35.10	04/20/01	TC-41.20	01/19/01	SBR-1-99	07/19/02	SPECIAL PROVISIONS	
BP-9.1	04/15/05	GR-1.1	07/16/04	MT-95.30	09/05/06	TC-41.41	01/19/01	TBR-91	07/19/02		
CB-2.2	07/15/05	GR-2.1	01/16/04	MT-95.40	10/20/06	TC-42.20	07/16/04				
CB-3.2	07/15/05	GR-3.1	01/19/07			TC-52.10	01/19/07			OEPA -	
		GR-3.2	01/19/07	MT-99.20	01/16/09	TC-52.20	01/19/07			NOTIFICATION OF	
I-2.3	07/15/05	GR-5.1	04/18/03							DEMOLITION AND	
MH-1.1	07/19/02	GR-6.1	04/18/03	MT-101.60	09/05/06					RENOVATION	
MH-1.2	01/20/06			MT-101.70	01/16/09	TC-72.20	01/21/05				3/9/09
MH-3.1	07/20/01										

PLAN PREPARED BY:
BURGESS & NIPLE
100 WEST ERIE STREET
PAINESVILLE, OHIO 44077

3-9-2009

3/9/09

STATE OF OHIO JEFFREY A. ACKERMAN E-67745 REGISTERED PROFESSIONAL ENGINEER

STATE OF OHIO ROBERT B. BRIGHT E-052190 REGISTERED PROFESSIONAL ENGINEER

APPROVED ______ PE
DATE 3/10/09 DISTRICT DEPUTY DIRECTOR

APPROVED ______
DATE 3-17-09 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. 100% STATE

PID NO. 85049

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

CUY-490-1.87/VAR

CUY - 490 - 1.87
09017 PID 85049
DIST 12 4/29/2009

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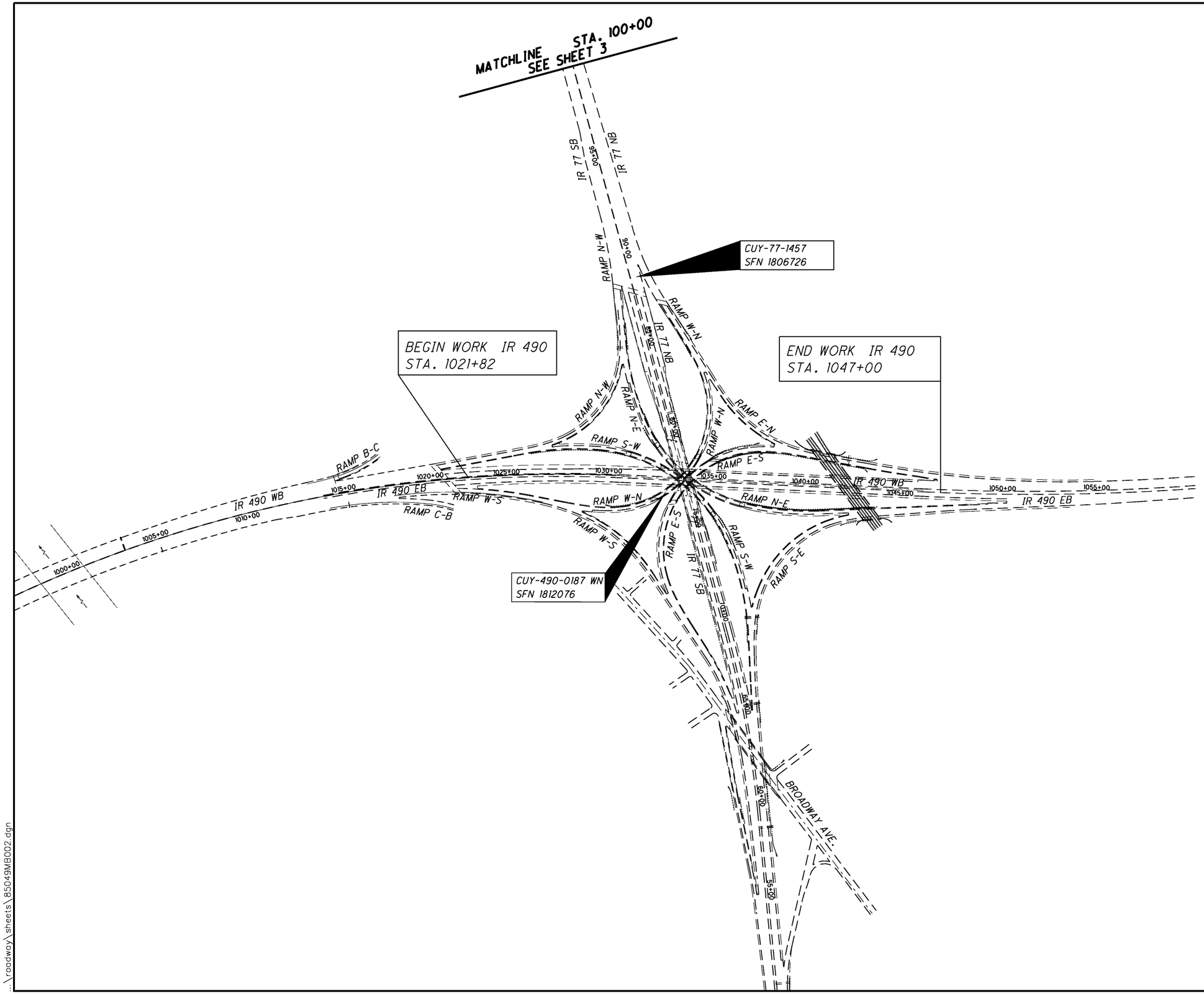

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HORIZONTAL SCALE IN FEET
0 125 250 500

SCHEMATIC PLAN

CUY-490-1.87 / VAR

BEGIN WORK IR 90
STA. 83+72

END WORK IR 90
STA. 93+00

CUY-90-1681
SFN 1807862

CUY-90-1651L
SFN 1807900

CUY-77-1575
SFN 1806904

CUY-77-1562
SFN 1806874

CUY-77-1546
SFN 1806815

CUY-77-1518
SFN 1806785

CUY-77-1457
SFN 1806726

END WORK IR 77
STA. 126+50

BEGIN WORK IR 77
STA. 116+50

MATCHLINE STA. 100+00
SEE SHEET

CEDAR

CENTRAL AVE.

CARNEGIE

COMMUNITY COLLEGE AVE.

E. 22nd St.

ONTARIO/BROADWAY

ORANGE

BROADWAY

WOODLAND AVE.

E. 30th ST.

ORANGE AVE.

IR 90 WB

IR 90 EB

IR 90 EB

IR 90 WB

IR 77 SB

IR 77 NB

RAMP E-1

RAMP E-2

RAMP E-3

RAMP E-4

RAMP E-5

RAMP E-6

RAMP E-7

RAMP E-8

RAMP E-9

RAMP E-10

RAMP E-11

RAMP E-12

RAMP E-13

RAMP E-14

RAMP E-15

RAMP E-16

RAMP E-17

RAMP E-18

RAMP F-1

RAMP F-2

RAMP F-3

RAMP F-4

RAMP 3

HORIZONTAL SCALE IN FEET
0 125 250 500

SCHEMATIC PLAN

CUY-490-1.87 / VAR

3
94

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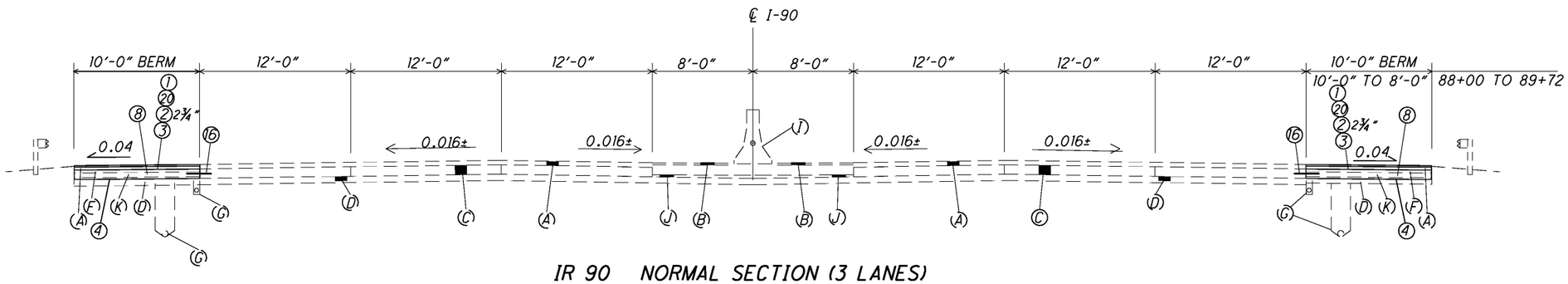
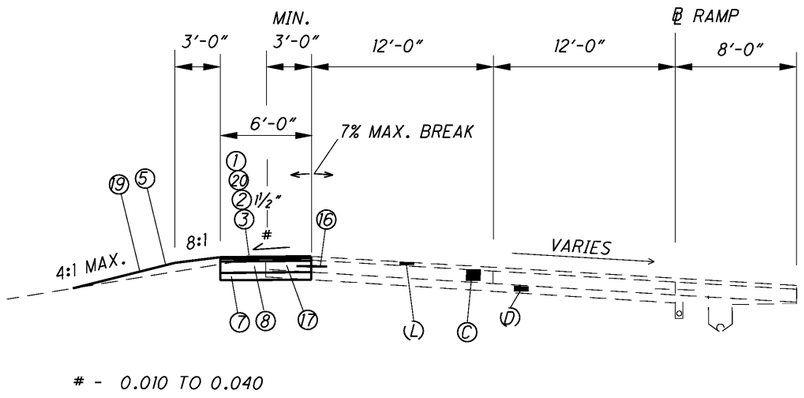


IR 90 NORMAL SECTION (3 LANES)

STA. 84+80± TO STA. 93+00 WESTBOUND

STA. 83+72± TO STA. 89+72 EASTBOUND

NOTE: SHOULDER REPLACEMENT LIMITS DENOTED WITH ± ARE TO EXTEND TO A POINT WHERE THE EXISTING SHOULDER COMPOSITION INCLUDES A CONCRETE BASE. BEGIN REMOVAL NEAR THE CENTER OF THE SHOULDER REPLACEMENT AND WORK IN BOTH DIRECTIONS TO DETERMINE THE CONCRETE BASE LOCATION(S).



- 0.010 TO 0.040

RAMP E-9

STA. 2+35± TO STA. 5+96±

EXISTING LEGEND

- (A) 4¼"± EXISTING ASPHALT
- (B) 1¾" EXISTING ASPHALT
- (C) 9" REINFORCED CONCRETE PAVEMENT
- (D) SUBBASE
- (E) CONCRETE BASE
- (F) BITUMINOUS AGGREGATE BASE
- (G) UNDERDRAIN
- (H) CURB (CONCRETE, OR ASPHALT)
- (I) CONCRETE BARRIER MEDIAN
- (J) GUARDRAIL, TYPE 5
- (K) AGGREGATE BASE
- (L) 3"± EXISTING ASPHALT

PROPOSED LEGEND

(1)	ITEM - 448	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 1H, AS PER PLAN
(2)	ITEM - 448	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-28 (THICKNESS AS SPECIFIED)
(3)	ITEM - 407	TACK COAT
(4)	ITEM - 203	EXCAVATION
(5)	ITEM - 203	EMBANKMENT
(6)	ITEM - 204	SUBGRADE COMPACTION
(7)	ITEM - 304	6" AGGREGATE BASE
(8)	ITEM - 305	9" CONCRETE BASE, AS PER PLAN
(9)	ITEM - 451	9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
(10)	ITEM - 452	9" NON-REINFORCED CONCRETE PAVEMENT, AS PER PLAN
(11)	ITEM - 605	4" BASE PIPE UNDERDRAIN
(12)	ITEM - 609	CURB, TYPE 4A
(13)	ITEM - 606	GUARDRAIL, TYPE 5
(14)	ITEM - 202	CONCRETE BARRIER REMOVED
(15)	ITEM - 622	CONCRETE BARRIER, TYPE B1, AS PER PLAN
(16)	TYPE D (DRILLED TIED LONGITUDINAL) JOINT AS PER BP-2.1	
(17)	ITEM - 202	PAVEMENT REMOVED
(18)	ITEM - 622	CONCRETE BARRIER, TYPE D
(19)	ITEM - 659	SEEDING AND MULCHING
(20)	ITEM - 407	TACK COAT FOR INTERMEDIATE COURSE

TYPICAL SECTIONS

CUY-490-1.87 / VAR

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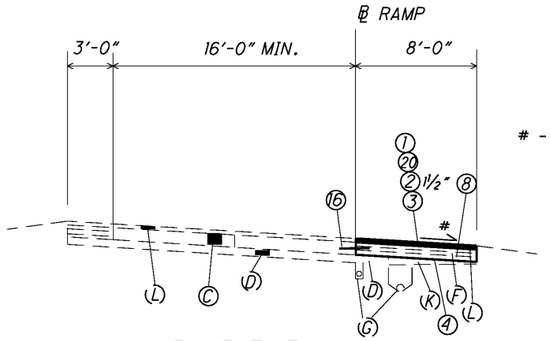
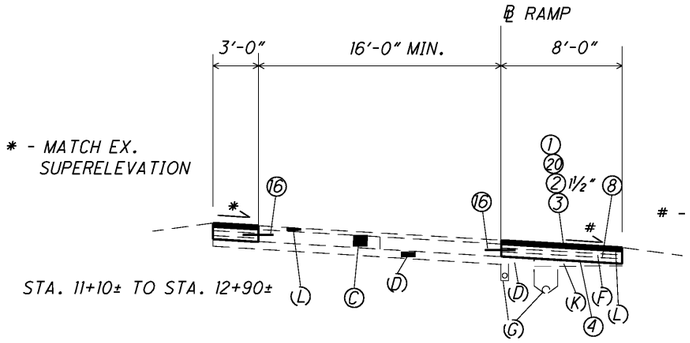


- 0.04 FT/FT OR RATE OF SUPERELEVATION WHICHEVER IS GREATER

RAMP E-17

STA. 5+85± TO STA. 7+68

NOTE: RAMP SHOULDER REPLACEMENT LIMITS DENOTED WITH ± ARE TO EXTEND TO A POINT WHERE THE EXISTING SHOULDER COMPOSITION INCLUDES A CONCRETE BASE. BEGIN REMOVAL NEAR THE CENTER OF THE SHOULDER REPLACEMENT AND WORK IN BOTH DIRECTIONS TO DETERMINE THE CONCRETE BASE LOCATION(S).

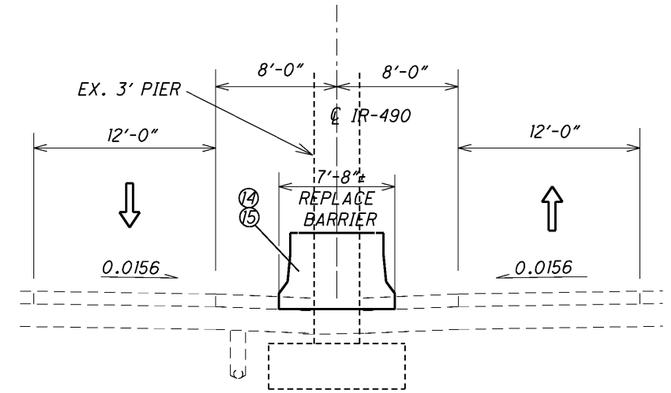


- 0.04 FT/FT OR RATE OF SUPERELEVATION WHICHEVER IS GREATER

STA. 11+10± TO STA. 12+90±

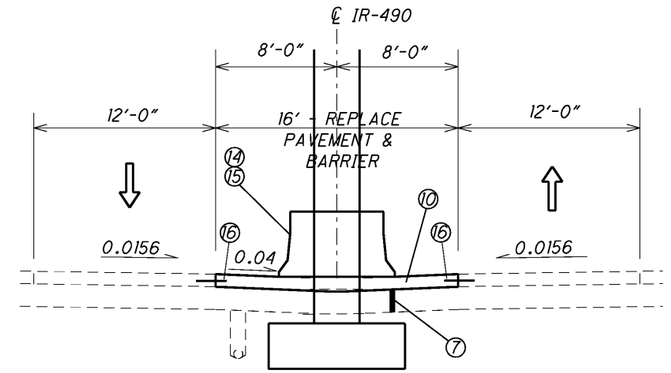
RAMP E-15

STA. 11+10± TO STA. 14+00±



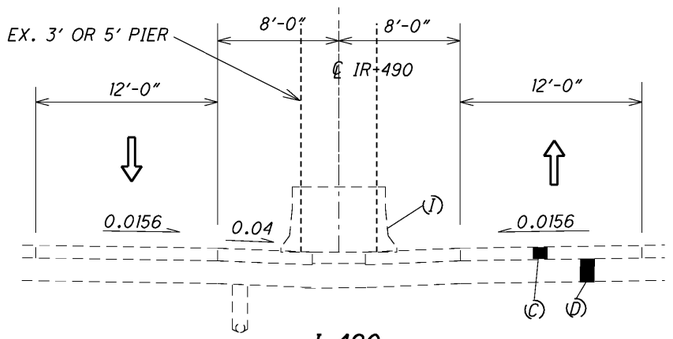
I-490

STA. 1034+30± TO STA. 1034+33±

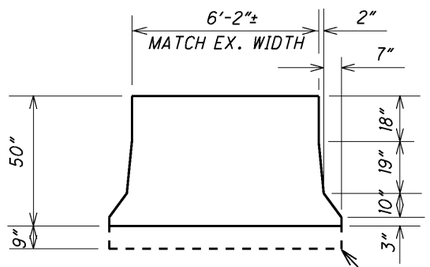


I-490

STA. 1033+83± TO STA. 1033+95±



I-490
EX. MEDIAN



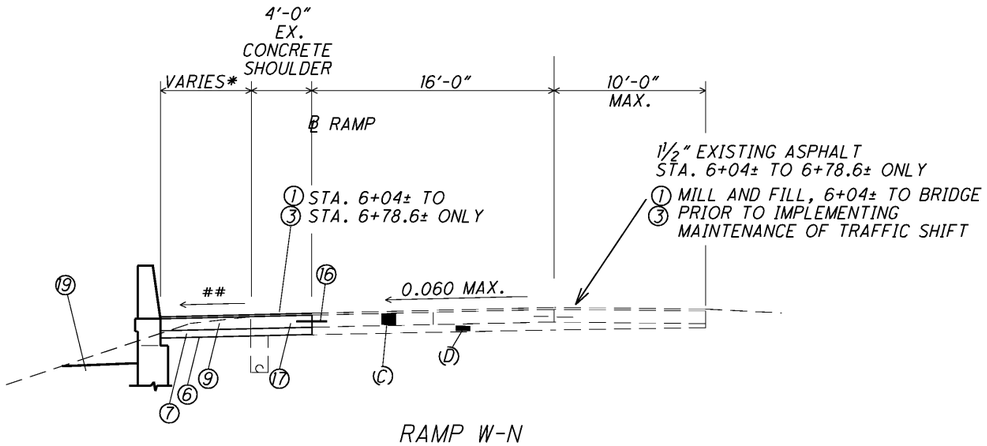
CONCRETE BARRIER TYPE B1, AS PER PLAN

PROVIDE EXTRA DEPTH TO FORM BASE, IF NOT PLACED ON CONCRETE PAVEMENT

FOR LEGEND SEE SHEET 4

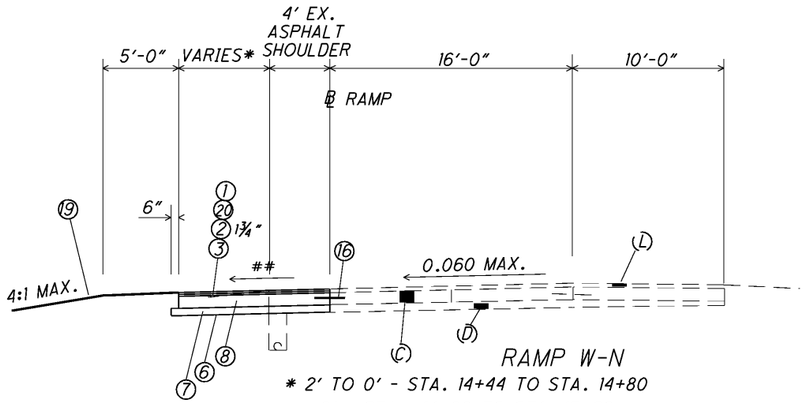
TYPICAL SECTIONS

CUY-490-1.87/VAR



RAMP W-N

* 6.67′ TO 9.83 - STA. 5+50 TO STA. 6+43.98±



RAMP W-N

* 2′ TO 0′ - STA. 14+44 TO STA. 14+80

0′ - STA. 14+80 TO STA. 15+60

- 0.040 OR RATE OF SUPERELEVATION, WHICHEVER IS GREATER

RAMP W-N

* 5.30′ TO 6.67′ - STA. 5+09 TO STA. 5+50

RAMP W-N

* 4.25′ TO 2′ - STA. 12+00 TO STA. 12+90

2′ - STA. 12+90 TO STA. 14+44

RAMP W-N

* 0′ TO 3.30′ - STA. 4+10 TO STA. 5+09

3"-448 ASPHALT CONC. INTERMEDIATE COURSE TYPE 1, PG64-22

RAMP W-N

* 10′ - STA. 10+03.17± TO STA. 10+50

10′ TO 6.25′ - STA. 10+50 TO STA. 12+00

FOR LEGEND SEE SHEET 4

TYPICAL SECTIONS

CUY-490-1.87 / VAR

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GENERAL NOTES

CALCULATED ENF
CHECKED KEH

GENERAL NOTES

CUY-490-1.87 / VAR

PROPOSED WORK

THE PROPOSED WORK CONSISTS OF WIDENING THE RAMP FROM IR490 EASTBOUND TO IR 77 NORTHBOUND, REFACING THE PARAPETS ON THE IR77 STRUCTURE OVER ORANGE AVENUE AND E. 30th STREET, AND REPLACING SEVERAL EXISTING ASPHALT SHOULDERS WITH CONCRETE IN THE IR77/IR90 INTERCHANGE AREA.

AT THE COMPLETION OF THIS PROJECT, TRAFFIC ON IR490 WILL BE RETURNED TO NORMAL AND RUMBLE STRIPS RECUT IN THE SHOULDER.

UTILITIES

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

OHIO DEPARTMENT OF TRANSPORTATION
5500 TRANSPORTATION BLVD.
GARFIELD HTS., OHIO, 44125
(216) 581-2100

PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

CALL OHIO UTILITIES PROTECTION SERVICE TWO (2) WORKING DAYS BEFORE YOU DIG. TOLL FREE TELEPHONE: 1-800-362-2764.

RIGHT OF WAY

ALL WORK WILL BE PERFORMED WITHIN THE EXISTING RIGHT OF WAY.

CONTINGENCY QUANTITIES

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

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN TAKEN FROM THE RECORDS AND ARE BELIEVED TO REPRESENT THE EXISTING PAVEMENT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THE SAME.

FOR FURTHER INFORMATION IN REGARD TO THE EXISTING TYPICAL SECTIONS, THE CONTRACTOR SHALL REFER TO THE PREVIOUS CONSTRUCTION PLANS:

CUY-21-14.12 (77 & 490)
1963

CUY-490-1.65
2002

CUY-77/90-13.79/16.21
1978

CUY-77-13.81
1992

CUY-77-13.75
2002

CUY-90-16.24
1992

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS OPERATIONS WITH THE CONTRACTORS ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THE CONTRACT. NO WAIVER OF ANY PROVISIONS OF 105.08 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS IS INTENDED.

RESTORATION AND CLEAN UP

RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO THAT EXISTING BEFORE THE WORK WAS STARTED PER CMS 104.04.

REMOVE ANY BROKEN GLASSWARE FOUND BY CREWS IN THE WORK AREA. DISPOSE OF ANY BROKEN GLASS IN REGULAR RUBBISH DISPOSAL UNITS. DISPOSE OF ALL REMOVED STEEL OFF THE RIGHT OF WAY. PAYMENT FOR RESTORATION WORK IS INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR, WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CONTRACTORS EQUIPMENT AND OPERATION

ALL VEHICLES AND EQUIPMENT MUST BE EQUIPPED WITH AT LEAST ONE FLASHING, ROTATING, OR OSCILLATING AMBER LIGHT THAT IS VISIBLE IN ALL DIRECTIONS OF TRAFFIC FOR AT LEAST ONE QUARTER MILE, DAY OR NIGHT.

UNLESS BEHIND CONCRETE BARRIER, THE CONTRACTOR'S EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAFFIC ONLY.

EQUIPMENT AND MATERIAL STORAGE

IN ORDER TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC THE CONTRACTOR'S ATTENTION IS DIRECTED TO 614.03. IN ADDITION THE FOLLOWING PROVISIONS SHALL APPLY:

1. ANY REMOVED ITEMS SHALL NOT BE STORED ON THE RIGHT OF WAY FOR MORE THAN THIRTY DAYS.
2. THE STORAGE OF EQUIPMENT, MATERIALS, AND VEHICLES WITHIN THE HIGHWAY RIGHT OF WAY WILL BE PERMITTED. THE NUMBER OF AREAS AND EXACT LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE STATE.

EQUIPMENT AND MATERIAL STORAGE ALONG RAMP WN

AFTER CONCRETE BARRIER IS PLACED ALONG RAMP WN, THE CONTRACTOR MAY USE THE AREA WITHIN THE INSIDE OF THE RAMP FOR HIS EQUIPMENT AND MATERIAL STORAGE IN ACCORDANCE WITH 614.03. ALL STORAGE MUST BE LOCATED AT LEAST 30 FEET BEYOND THE TRAVELED WAY OR BEHIND BARRIER.

ITEM 619 - FIELD OFFICE, TYPE C

A TYPE C FIELD OFFICE IS REQUIRED FOR THIS PROJECT.

DATUM

PROJECT COORDINATES AND ELEVATIONS ARE BASED UPON OHIO STATE PLANE NORTH ZONE (3401), NAD83(95) AND NAVD 88.

ROUNDING

A 4 FOOT ROUNDING SHALL BE PROVIDED AT ALL SLOPE BREAKPOINTS SHOWN ON THE CROSS SECTIONS.

STAGING AREAS

ONCE THE BARRIER IS IN PLACE ALONG WN THE AREA INSIDE IS AVAILABLE FOR THE CONTRACTOR TO USE AS A STAGING AND STORAGE AREA. IF THE CONTRACTOR WANTS TO US ANOTHER AREA(S) FOR STAGING, REGARDLESS IF IT FALLS WITHIN THE PROJECT LIMITS OR NOT, THE CONTRACTOR IS TO CONTACT JILL POWERS AT 216-584-2195 AT DISTRICT 12 IN ORDER TO APPLY FOR A PERMIT PER SECTION 107.02 OF THE C.M.S.

IF A PERMIT IS GRANTED, ALL CONDITIONS OF THE PERMIT SHALL BE MET IN ADDITION TO THE REQUIREMENTS OF 104.04 OF THE C.M.S., AT NO ADDITIONALCOST TO THE STATE. IF THE PROJECT ENGINEER DEEMS THAT ALL THE CONDITIONS OF THE PERMIT WERE NOT MET, THEN 100% OF THE CONTRACTBID AMOUNT FOR MOBILIZATION SHALL BE WITHHELD UNTIL ALL THECONDITIONS OF THE PERMIT ARE SATISFIED.

ROADWAY

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS SECTIONS DO NOT SPECIFICALLY SHOW BENCHING, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. ALL SLOPED EMBANKMENT AREAS SHALL BE BENCHED AS SET FORTH IN 203.05.

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 RAIL SPLICE" AS SHOWN IN AASHTO M180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

PRESSURE RELIEF JOINTS IN RAMP WN PAVEMENT

IF EXISTING PRESSURE RELIEF JOINTS ARE NOT FOUND IN RAMP WN, THE FOLLOWING SHALL APPLY:

STA. 5+50±, INSTALL TYPE C JOINT ACROSS EXISTING LANE AND 10' RT. SHOULDER.
STA. 11+00±, INSTALL TYPE C JOINT ACROSS EXISTING LANE AND RT. SHOULDERS.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM SPECIAL - PRESSURE RELIEF JOINT, TYPE C ..... 52 FT.

...\Broadway\Sheets\B85049GN001.dgn

PAVEMENT

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING

WHERE NEW CONCRETE IS PLACED ADJACENT TO AND TIED TO EXISTING CONCRETE, THE CONTRACTION JOINT SPACING REQUIRED IN STANDARD CONSTRUCTION DRAWING BP-2.2 WILL BE WAIVED. CONSTRUCT CONTRACTION JOINTS IN THE NEW CONCRETE PAVEMENT TO FORM A CONTINUOUS LINE WITH ALL CONTRACTION JOINTS IN THE EXISTING CONCRETE PAVEMENT. INSTALL EXPANSION JOINTS IN THE NEW CONCRETE PAVEMENT TO FORM A CONTINUOUS LINE WITH ALL EXPANSION JOINTS IN THE EXISTING CONCRETE PAVEMENT.

IN ORDER TO COMPLY WITH THE ABOVE NOTE, THE FOLLOWING ITEMS WILL BECOME "AS PER PLAN"

ITEM 305 - 9" CONCRETE BASE, AS PER PLAN
ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT, AS PER PLAN

ITEM 305 - 9" CONCRETE BASE, AS PER PLAN

DOWELS ARE REQUIRED FOR THE CONTRACTION JOINTS IN THE CONCRETE SHOULDERS.

ITEM 407 - TACK COAT
ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE

THE RATE OF APPLICATION OF THE TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION OF 0.10 GALLONS PER SQ. YD. OF TACK COAT AND 0.05 GALLONS PER SQ. YD. OF TACK COAT FOR INTERMEDIATE COURSE.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN PROVIDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER. IT SHALL BE USED PRIOR TO, DURING AND AT THE COMPLETION OF THIS PROJECT TO REPAIR BOTH SHOULDERS AND ROADWAYS.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR 100 S.Y.

ITEM 253 - PAVEMENT REPAIR, AS PER PLAN

THIS ITEM OF WORK SHALL BE USED TO FILL THE EXISTING RUMBLE STRIPS WITH ASPHALT PRIOR TO SHIFTING TRAFFIC ONTO THE SHOULDERS. THIS ITEM OF WORK ONLY APPLIES TO CUT RUMBLE STRIPS. IMPRESSSED RUMBLE STRIPS IN CONCRETE SHOULDERS WILL NOT BE FILLED IN OR MODIFIED IN ANY WAY.

NO REMOVAL (253.02) IS NECESSARY, HOWEVER THE CONTRACTOR SHALL CLEAN THE EXISTING GROOVES. PAYMENT SHALL BE BASED UPON A RATE OF 0.12 CUBIC YARDS PER 100 LINEAR FEET (MEASURED LONGITUDINALLY ALONG THE SHOULDER). NO ADJUSTMENT WILL BE MADE FOR USING MORE OR LESS MATERIAL.

ITEM 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1H, AS PER PLAN

THE GRADATION FOR THIS ITEM SHALL AS PER TABLE 441.02-1, TYPE 1 SURFACE MEDIUM. IN ADDITION, THE COARSE AGGREGATE FOR THIS ITEM SHALL BE LIMITED TO A BLEND OF AIR COOLED BLAST FURNACE SLAG (ACBFS) OR TRAP ROCK FROM ONTARIO AND LIMESTONE. THE CONTRACTOR SHALL USE A MINIMUM OF 50% OF ACBFS OR TRAP ROCK FROM ONTARIO WITH LIMESTONE COMPRISING THE REMAINING PERCENTAGE.

ITEM 617 - COMPACTED AGGREGATE, AS PER PLAN

THIS ITEM SHALL BE USED AS DIRECTED BY THE ENGINEER ALONG SHOULDERS TO ELIMINATE DROP-OFFS. MATERIAL FOR THIS ITEM SHALL BE LIMITED TO RECYCLED ASPHALT CONCRETE PAVEMENT (RACP). THE ACTUAL DEPTH USED WILL VARY DEPENDING UPON EXISTING CONDITIONS. FOR ESTIMATING PURPOSES, AN AVERAGE DEPTH OF 2 INCHES AND AN AVERAGE WIDTH OF 2 FEET WILL BE USED.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:

ITEM 617 - COMPACTED AGGREGATE, AS PER PLAN..... 25 CU YD

EROSION CONTROL

SEEDING AND MULCHING

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

659 TOPSOIL	659 SEEDING AND MULCHING
659 INTER-SEEDING	659 REPAIR SEEDING AND MULCHING
659 LIME	659 COMMERCIAL FERTILIZER
659 WATER	

SEE THE EARTHWORK SUB-SUMMARY SHEET FOR QUANTITITES.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL WITHIN THE CONSTRUCTION LIMITS. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

ITEM 832 - TEMPORARY SEDIMENT AND EROSION CONTROL

THIS SHALL APPLY TO THE WIDENING AREA OF RAMP W-N. ALTHOUGH THE N.O.I. AREA IS LESS THAN ONE ACRE, THE CONTRACTOR SHALL PROVIDE INLET PROTECTION, SILT FENCE, DITCH CHECKS, CONCRETE WASHOUT AREAS AND OTHER NECESSARY BMPS WHERE APPROPRIATE TO PROTECT THE EXISTING/PROPOSED DRAINAGE FACILITIES AND KEEP EROSION TO A MINIMUM.

ITEM 832 - TEMPORARY SEDIMENT AND EROSION CONTROL 3500 EACH

DRAINAGE

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. VIDEO TAPING THE 48" STORM SEWER, WHERE IT PASSES UNDER THE REAR ABUTMENT, BOTH BEFORE AND AFTER CONSTRUCTION IS INCLUDED UNDER THIS ITEM.

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

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY STATE FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

MANHOLE, NO 3, AS PER PLAN

PROVIDE A BOLT DOWN CASTING IN ADDITION TO THE REQUIREMENTS OF MH-1.2.

DAMAGED UNDERDRAIN

ADDITIONAL QUANTITY TO BE USED AT THE ENGINEER'S DISCRETION TO REPLACE EXISTING UNDERDRAINS THAT ARE DAMAGED OR THAT ARE UNAVOIDABLY DAMAGED BY THE WORK BEING PERFORMED AS DESCRIBED IN THESE PLANS.

ITEM 605 - 4" UNCLASSIFIED PIPE UNDERDRAIN 50 FEET

TRAFFIC CONTROL

ITEM 618 RUMBLE STRIPS (ASPHALT CONCRETE)

THIS ITEM SHALL BE USED TO RECUT THE RUMBLE STRIPS ON IR490 WHICH WERE FILLED IN PRIOR TO SHIFTING TRAFFIC ONTO THE SHOULDER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE:

ITEM 618 - RUMBLE STRIPS (ASPHALT CONCRETE) ..... 1020 FEET

CALCULATED ENF CHECKED KEH

GENERAL NOTES

CUY-490-1.87/VAR

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CALCULATED ENF
CHECKED KEH

GENERAL NOTES

CUY-490-1.87/VAR

8A
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MISCELLANEOUS

ITEM SPECIAL - ASBESTOS ABATEMENT

AN ASBESTOS SURVEY OF THE IR-490 EASTBOUND RAMP BRIDGE TO IR-77 NORTHBOUND AND THE IR-77 BRIDGE OVER ORANGE AVENUE AND EAST 30TH STREET COMPLETED IN FEBRUARY 2009 BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. 6,146 LINEAR FEET OF ASBESTOS MATERIAL CONDUITS ON THE BRIDGE AND 89 SQUARE FEET OF ASBESTOS EXPANSION MATERIAL WAS IDENTIFIED AS RACM TO BE REMOVED.

THE REMOVAL AND DISPOSAL OF ALL ASBESTOS CONTAINING MATERIAL WITHIN THE PROJECT WORK LIMITS DURING DEMOLITION OF THE BRIDGE MUST COMPLY WITH THE OHIO ADMINISTRATIVE CODE, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, AND THE NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) STANDARDS FOR ASBESTOS.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM WITH SECTIONS I-IV, VI, VII, AND XVI COMPLETED IS INCLUDED WITH THE BID PACKAGE. A COPY OF THIS FORM SIGNED BY THE BRIDGE OWNER WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE SECTIONS V, VIII-XIII OF THE SIGNED FORM AND SUBMIT THE COMPLETED FORM TO THE LOCAL AIR AUTHORITY AT LEAST TEN (10) DAYS PRIOR TO DEMOLITION OF THE BRIDGE. THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER. THE LOCAL AIR AUTHORITY IS:

THE DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENT
1925 ST. CLAIR AVENUE
CLEVELAND, OHIO 44114
PHONE: (216) 664-2300

THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL TRAINED IN THE PROVISIONS OF NESHAP THAT WILL BE ON-SITE DURING REMOVAL OF THE ASBESTOS CONTAINING MATERIALS. IN ADDITION TO THE ASBESTOS CONTAINING MATERIAL IDENTIFIED IN THE ASBESTOS SURVEY REPORT, ANY ADDITIONAL NON-VISIBLE ASBESTOS ENCOUNTERED WITHIN THE PROJECT WORK LIMITS SHALL ALSO BE MONITORED BY THIS INDIVIDUAL.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE, SUBMIT, AND COMPLY WITH THE OEPA NOTIFICATION FORM AND TO REMOVE, TRANSPORT, AND DISPOSE OF THE MATERIALS CONTAINING ASBESTOS FROM WITHIN THE PROJECT WORK LIMITS. PAYMENT OF THIS WORK SHALL BE INCLUDED IN THE BID LUMP SUM PRICE ITEM SPECIAL - ASBESTOS ABATEMENT.

ITEM SPECIAL - ASBESTOS ABATEMENT ..... LUMP SUM

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614 MAINTAINING TRAFFIC

THE PROPOSED WORK CONSISTS OF WIDENING THE RAMP FROM IR490 EASTBOUND TO IR 77 NORTHBOUND, REFACING THE PARAPETS ON THE IR77 STRUCTURE OVER ORANGE AVENUE AND E. 30th STREET, AND REPLACING SEVERAL EXISTING ASPHALT SHOULDERS WITH CONCRETE IN THE IR77/IR90 INTERCHANGE AREA.

LIGHTING USED TO ILLUMINATE THE WORK AREA SHALL BE AIMED AND SHIELDED TO PREVENT GLARE ENCROACHING INTO OPEN TRAFFIC LANES. FOR ADDITIONAL NOTES SEE THE "FLOODLIGHTING" NOTE.

ALL SIGNS, BARRICADES, SIGN SUPPORTS, CONES, DRUMS, FLAGGERS AND INCIDENTALS SHALL BE FURNISHED , ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE MOST RECENT REVISION, CURRENT EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), EXCEPT AS NOTED WITHIN. INTERFERENCE WITH VEHICULAR TRAFFIC SHALL BE KEPT TO A MINIMUM AT ALL TIMES.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES PER 108.07 OF THE CMS.

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

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

MAINTENANCE OF TRAFFIC OVERVIEW

THROUGHOUT THIS PROJECT, NO LONG TERM OR RUSH HOUR LANE CLOSURES WILL BE PERMITTED.

GENERAL

TRAFFIC ON IR77, IR90, IR 490, CROSSROADS AND THE RAMPS SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE LANE CLOSURE NOTES FOUND ON SHEET 10.

MAINTENANCE OF TRAFFIC SHIFTS

THE MAINTENANCE OF TRAFFIC SHIFTS USE STANDARD CONSTRUCTION DRAWING MT-102.10 AS A BASE, UNLESS SPECIFICALLY SHOWN OTHERWISE, ALL REQUIREMENTS OF THIS STANDARD CONSTRUCTION DRAWING SHALL BE INCORPORATED IN THE APPLICABLE CONSTRUCTION PHASES AS DETAILED IN THESE PLANS EXCEPT FOR THE FOLLOWING ITEMS:

1. NO LIGHTING IS REQUIRED.
2. OC-53-36 "MAINTAIN PRESENT LANE" SIGN IS NOT REQUIRED.
3. OW-138-36 (DIAGONAL ARROW) SIGN IS NOT REQUIRED.

TRUCK MOUNTED ATTENUATOR

WHEN THE CONTRACTOR IS SETTING LONG OR SHORT TERM WORK ZONES AND THE SHOULDERS (RIGHT OR LEFT SHOULDER) ARE LESS THAN 10 FEET IN WIDTH AND ARE ON A ROAD WITH SPEEDS 40 MPH OR HIGHER, A TRUCK MOUNTED ATTENUATOR (TMA) MUST TRAIL THE OPERATION OF SETTING THE ADVANCE WARNING SIGNS UP OR TAKING THEM DOWN. A TMA SHALL ALSO BE PROVIDED TO PROTECT THE WORKERS SETTING UP THE DRUMS OR PORTABLE CONCRETE BARRIERS. THIS SAME TRUCK MUST HAVE A TYPE B FLASHING ARROW PANEL MOUNTED ON IT FACING THE REAR OF THE TRUCK.

THE TMA MUST BRING A VEHICLE WEIGHING 1800 TO 4500 POUNDS AND TRAVELING AT 60 MPH TO A SAFE, CONTROLLED STOP, PER NCHRP 350 CRITERIA. THE MANUFACTURER'S SPECIFICATION MUST BE FOLLOWED CONCERNING THE SIZE OF THE TRUCK AND THE CONNECTIONS TO THE TMA.

TRAFFIC WIDTH REQUIREMENTS:

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

FULL CLOSURE OF RAMP WN OR IR490

A FULL CLOSURE OF RAMP WN WILL BE PERMITTED FOR THE FOLLOWING OPERATIONS:

- MILL AND FILL RESURFACING OF EX. APPROACHES (PERFORM BEFORE TRAFFIC SHIFTS)
- PLACING THE PORTABLE CONCRETE BARRIER
- REMOVING AND LIFTING THE CONCRETE PARAPET
- SETTING THE NEW GIRDER
- PLACING THE NEW DECK
- PLACING THE NEW PARAPET
- REMOVING THE PORTABLE CONCRETE BARRIER

IF A FULL CLOSURE OF RAMP WN IS IMPLEMENTED FOR THE ABOVE OPERATIONS, RAMP WN SHALL BE DETOURED. DETOUR SIGNING WILL BE PAID FOR ONCE, IRREGARDLESS OF HOW MANY TIMES IT IS USED. THE SIGNS SHALL BE COVERED WHEN NOT IN USE.

A FULL CLOSURE OF IR490 UNDER RAMP WN WILL BE REQUIRED WHEN SETTING THE NEW GIRDER. THE CLOSURE MAY BE ACCOMPLISHED BY EITHER IMPLEMENTING THE "FREEWAY CLOSURE" AS DETAILED ON SHEET 14 OR BY PROVIDING A DETOUR. THE DETOUR SIGNING REQUIRED FOR IR490 EASTBOUND AND IR490 WESTBOUND WILL BE PAID FOR SEPARATELY. NO PAYMENT WILL BE MADE IF THE "FREEWAY CLOSURE" IS USED INSTEAD OF THE DETOUR OPTION.

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC
GENERAL NOTES

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PLC=PERMITTED LANE CLOSURE

IMPLEMENTATION OF MAINTENANCE OF TRAFFIC ZONES

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

PERMITTED LANE CLOSURES (PLC):

ALL LANE CLOSURES ON THIS PROJECT MAY ONLY BE IMPLEMENTED AT THE TIMES PERMITTED BY THE "DISTRICT 12 PERMITTED LANE CLOSURE TIMES" (P.L.C.T.) LIST, WHICH IS LOCATED ON THE ODOT WEB SITE:

www.dot.state.oh.us/districts/d12/highwaymanagement/pages/permittedlaneclosures.aspx

THE LATEST REVISION, AT 14 DAYS PRIOR TO THE BID DATE, SHALL BE IN EFFECT FOR THIS PROJECT.

NO TEMPORARY LANE OR TEMPORARY SHOULDER CLOSURES SHALL BE IN PLACE WHEN NO WORK IS BEING PERFORMED.

IF LANE CLOSURES ARE IN PLACE OUTSIDE THE SPECIFIED TIME, A DISINCENTIVE FOR UNAUTHORIZED LANE USAGE IN THE AMOUNT OF $20.00 PER MINUTE FOR THE FIRST 30 MINUTES, THEN $50.00 PER MINUTE THEREAFTER, SHALL BE ASSESSED THE CONTRACTOR FOR EACH MINUTE THE LANE REMAINS CLOSED.

LANE CLOSURES ANALYSIS FOR ADDITIONAL LANE CLOSURE TIMES

IF THE CONTRACTOR WOULD LIKE TO CLOSE LANES OUTSIDE THE TIME PERMITTED THERE MUST FIRST BE A LANE CLOSURE ANALYSIS. A LANE CLOSURE ANALYSIS SHALL BE DONE AND DOCUMENTED IN THE FOLLOWING MANNER:

LANES MAY BE CLOSED IF THE HOURLY COUNTS (PER LANE TO REMAIN OPEN) ARE LESS THAN THE COUNTS GIVEN BELOW. IF THE ADDITIONAL HOURS ARE ON A WEEKDAY THE COUNT MUST BE DONE ON A WEEKDAY. SAME FOR A WEEKEND.

TWO HOURLY COUNTS SHALL BE DONE FOR THE ADDITIONAL TIMES THE CONTRACTOR WOULD LIKE TO CLOSE AN ADDITIONAL LANE. IF THE HOURLY COUNT (PER LANE TO REMAIN OPEN) IS UNDER 1100 VEHICLES PER HOUR (PER LANE TO REMAIN OPEN) FOR WEEKDAYS AND 1400 VEHICLES PER HOUR (PER LANE TO REMAIN OPEN) FOR WEEKENDS THEN THE CONTRACTOR MAY CLOSE A LANE FOR THE ADDITIONAL HOURS THAT MEET THIS CRITERIA.

THE TRAFFIC COUNTS SHALL BE TURNED INTO THE WORK ZONE TRAFFIC CONTROL ENGINEER FOR APPROVAL OF THE NEW TIMES. IF A BACK UP, (STOP AND GO TRAFFIC) OR DELAYS , (SPEEDS BELOW 40 MPH) OCCURS DURING THE NEW CLOSURE TIMES THE CONTRACTOR SHALL DO ANOTHER ANALYSIS. IF A TRAFFIC BACKUP OR DELAY OCCURS AFTER THE SECOND ANALYSIS, THE CONTRACTOR SHALL NOT CLOSE THE LANES FOR THE ADDITIONAL HOURS.

SUPPLEMENTAL PERMITTED LANE CLOSURES

FOR LANE CLOSURES NOT LISTED IN THE "DISTRICT 12 PERMITTED LANE CLOSURE TIMES" (P.L.C.T.) LIST, THE TABULATED CLOSURES LISTED IN THE ADJACENT TABLE SHALL APPLY. (THESE VALUES OVERRIDE THE PLCT)

PERMITTED LANE CLOSURE AND UNAUTHORIZED LANE USAGE TABLE

LOCATION	DIRECTION	EX. NO. LANES	WEEKDAYS		WEEKENDS		UNAUTHORIZED LANE USE		COMMENTS
			1 LANE CLOSED *	2 LANES CLOSED *	1 LANE CLOSED *	2 LANES CLOSED *	TIME UNIT	DISINCENTIVE PER TIME UNIT	
I.R. 490	EB	2	SEE PLC NOTE	10 AM-2 PM 9 PM-5 AM	SEE PLC NOTE	10 AM-2 PM 9 PM-5 AM	MINUTE	$20(FIRST 30) $50(AFTER 30)	CLOSE AND DETOUR OR IMPLEMENT "FREEWAY CLOSURE" DETAIL
I.R. 490	WB	2	SEE PLC NOTE	10 AM-2 PM 9 PM-5 AM	SEE PLC NOTE	10 AM-2 PM 9 PM-5 AM	MINUTE	$20(FIRST 30) $50(AFTER 30)	CLOSE AND DETOUR OR IMPLEMENT "FREEWAY CLOSURE" DETAIL
RAMP WN	NB	1	9 PM-5 AM	NOT APPLICABLE	10 AM-2 PM 9 PM-5 AM ##	NOT APPLICABLE	MINUTE	$20(FIRST 60) $50(AFTER 60)	IMPLEMENT DETOUR AND CLOSE RAMP
RAMP E-9	NB	2	10 AM-11:59AM 8 PM-5 AM	NOT APPLICABLE	10 AM-11:59AM 8 PM-5 AM	NOT APPLICABLE	MINUTE	$20(FIRST 30) $50(AFTER 30)	CLOSE IR77 RIGHT LANE. SPLIT TRAFFIC AT GORE 1 LANE EACH RAMP
RAMP E-15	SB	1	NARROW LANE 10 AM-11:59AM 8 PM-5 AM	NOT APPLICABLE	NARROW LANE 10 AM-11:59AM 8 PM-5 AM	NOT APPLICABLE	MINUTE	$20	NARROW THE EXISTING LANE USING CONES OR DRUMS. DO NOT CLOSE
RAMP E-17	NB	1	NARROW LANE 10 AM-11:59AM 8 PM-5 AM	NOT APPLICABLE	NARROW LANE 10 AM-11:59AM 8 PM-5 AM	NOT APPLICABLE	MINUTE	$20	NARROW THE EXISTING LANE USING CONES OR DRUMS. DO NOT CLOSE
ORANGE AVE.	EB	2	10 AM-2 PM 8 PM-6 AM	NOT APPLICABLE	8 PM FRI - -6 AM MON.	NOT APPLICABLE			
E. 30th ST.	NB SB	2 2	10 AM-2 PM 8 PM-6 AM	NOT APPLICABLE	8 PM FRI - -6 AM MON.	NOT APPLICABLE			

* - DO NOT IMPLEMENT LANE CLOSURES ON IR77, IR90 OR RAMPS IN THE INBOUND DIRECTION 2 HOURS BEFORE AND IN THE OUTBOUND DIRECTION 2 HOURS AFTER EVENTS WITH AN ANTICIPATED ATTENDANCE GREATER THAN 20,000 AT PROGRESSIVE FIELD, CLEVELAND BROWNS STADIUM OR THE QUICKEN LOANS ARENA.

- IMPLEMENT A FULL CLOSURE OF RAMP WN TO CONSTRUCT THE DECK POUR. AFTER COMPLETING THE DECK POUR, THE RAMP SHALL REMAIN CLOSED FOR A MINIMUM OF 48 HOURS DURING THE CONCRETE CURE. NO TRAFFIC, INCLUDING CONTRACTOR'S EQUIPMENT SHALL BE ALLOWED ON THE DECK DURING THE 48 HOUR CURE TIME. THE RAMP CLOSURE SHALL BE IMPLEMENTED BETWEEN 7:00 P.M. FRIDAY AND 5:00 A.M. MONDAY. THE 48 HOUR CURE TIME MUST OCCUR WITHIN THE ALLOWABLE FULL CLOSURE TIMES STATED. IF A SEPARATE CONCRETE OVERLAY IS PERFORMED IN A SEPARATE OPERATION, THE HOURS FOR THAT CLOSURE SHALL BE LIMITED TO 9:00 A.M. SATURDAY TO 5:00 A.M. MONDAY, WITH A MINIMUM 36 HOUR CURE TIME.

UNAUTHORIZED LANE USAGE

THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE AS DESIGNATED IN THE UNAUTHORIZED LANE USE TABLE LOCATED ON THIS PAGE FOR EACH UNIT OF TIME A CRITICAL LANE / RAMP IS CLOSED BY THE CONTRACTOR'S ACTION WHILE NOT OTHERWISE PERMITTED BY THE CONTRACT. THE DISINCENTIVE WILL BE FOR ANY LANE CLOSURES CAUSED BY THE CONTRATOR DURING TIMES AND LOCATIONS NOT SPECIFICALLY PERMITTED BY THIS CONTRACT.

RAMP OR ROADWAY DETOURED CLOSURES

ONE WEEK PRIOR TO IMPLEMENTING ANY DETOURED CLOSURE, SIGNS OR A PCMS ALERTING THE MOTORISTS OF THE IMPENDING CLOSURE SHALL BE ERECTED.

CALCULATED ENF CHECKED JTP

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-490-1.87/VAR

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ITEM 614, MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS)

NO SET UP OR TAKE DOWN OF MAINTENANCE OF TRAFFIC ITEMS SUCH AS PAVEMENT MARKINGS, DRUMS, PCB'S, ETC., SHALL BE DONE DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

FOURTH OF JULY
NEW YEARS LABOR DAY
MEMORIAL DAY THANKSGIVING
SPECIAL EVENTS WITH 20,000 SEATING
(OTHER HOLIDAY OR EVENT)

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 THE WEEK	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 MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE. SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN ACCORDANCE WITH CMS 108.07.

IN ADDITION TO THE ABOVE REQUIREMENTS, ALL LANES MUST BE OPEN 2 HOURS BEFORE A SPECIAL EVENT IN THE INBOUND DIRECTION AND ALL LANES MUST BE OPEN FOR 2 HOURS AFTER A SPECIAL EVENT.

MAINTAINING TRAFFIC - GENERAL

COORDINATION WITH ADJACENT PROJECTS

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

RESTORATION OF PAVEMENT MARKINGS / RAISED PAV'T MARKERS

PLACEMENT OF FINAL PAVEMENT MARKINGS AND RESTORATION OF THE RAISED PAVEMENT MARKERS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE "PERMITTED LANE CLOSURE" NOTE ON SHEET 10.

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

TRENCH FOR PAVEMENT CONSTRUCTION

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

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

DURING CONCRETE CURE, A MAXIMUM DROP OFF EQUAL TO THE PROPOSED ASPHALT THICKNESS MAY BE PROVIDED FOR UP TO TWO DAYS. KEEP THE SHOULDER CLOSED USING DRUMS DURING THIS TIME. AFTER TWO DAYS THE ASPHALT COURSES MUST BE PLACED OR A TEMPORARILY WEDGE PROVIDED, AS DIRECTED BY THE ENGINEER, AT NO COST TO THE STATE. IN ORDER FOR THE CONCRETE TO BE OF ADEQUATE STRENGTH TO ALLOW FOR THE ASPHALT PAVING WITHIN TWO DAYS, CLASS MS CONCRETE SHALL BE USED.

ANY AND ALL COSTS OF BACKFILLING AND/OR SUPPLYING CLASS MS CONCRETE SHALL BE PAID FOR UNDER ITEM 614 - MAINTAINING TRAFFIC.

ASPHALT CONCRETE FOR MAINTAINING TRAFFIC

THE FOLLOWING ITEM WILL BE USED FOR THE MAINTENANCE OF THE EXISTING PAVEMENT, SHOULDERS OR BRIDGES:

614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 100 CU. YARD

ITEM 614, WORK ZONE PAVEMENT MARKINGS

THE "TEMPORARY" PAVEMENT MARKING DESCRIPTIONS AND LEGENDS SHOWN THROUGHOUT THESE PLANS SHOULD BE CONSIDERED TO READ "WORK ZONE" PAVEMENT MARKINGS AS PER THE 2005 CMS.

ITEM 614, WORK ZONE SIGNING

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

ITEM 614 - REPLACEMENT SIGN

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

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

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

ITEM 614 - REPLACEMENT SIGN 10 EACH

CALCULATED ENF CHECKED JTP

MAINTENANCE OF TRAFFIC
GENERAL NOTES

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MAINTENANCE OF TRAFFIC
GENERAL NOTES

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

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PLACEMENT OF PAVEMENT MARKINGS AFTER REMOVING THE MAINTENANCE OF TRAFFIC ZONE.

ITEM 614 - WORK ZONE EDGE LINE, CLASS 1	1.12	MILE
ITEM 614 - WORK ZONE LANE LINE, CLASS 1	0.52	MILE

614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE WHEN NO LONGER NEEDED. A PORTABLE CHANGEABLE MESSAGE SIGN(S). THE PCMS SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS MAINTAINED BY THE DIRECTOR: HTTP://WWW.DOT.STATE.OH.US/TESTLAB/APPLISTS/MISC/PCMS%20_%20NTPEP-BASED.HTM

NO FLIP DISC (OR VARIATION OF FLIP DISC) UNITS WILL BE ALLOWED.

CLASS A PCMS UNITS SHALL HAVE A MINIMUM LEGIBILITY DISTANCE OF 1200 FEET.
CLASS B PCMS UNITS SHALL HAVE A MINIMUM LEGIBILITY DISTANCE OF 475 FEET.

THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE MOUNTED ON A TRAILER. THE LOCATION OF THE PCMS SHALL BE AS DIRECTED BY THE ENGINEEER. THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE LINK WHICH WILL ALLOW REMOTE SIGN ACTIVATION, DEACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER THE SOFTWARE NECESSARY TO CONTROL THE PCMS REMOTELY.

AT THE DIRECTION OF THE ENGINEER THE PCMS MAY BE REMOVED FOR PERIODS OF TIMES WHEN NOT IN USE. NO PAYMENT WILL BE MADE FOR THESE TIMES (EXAMPLE: WINTER MONTHS).

PAYMENT:
THERE SHALL BE 2 CLASS A PCMS UNITS AT 4 MONTHS EACH.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE BID PER SIGN-MONTH FOR ALL SIGNS FURNISHED UNDER ITEM 614 PORTABLE CHANGEABLE MESSAGE SIGN AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK, INCLUDING RELOCATION IF NECESSARY.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	8 SIGN MONTHS

BARRIER REFLECTORS AND OBJECT MARKERS

OBJECT MARKERS SHALL BE INSTALLED ON ALL CONCRETE BARRIER, PERMANENT AND/OR TEMPORARY, 42 INCHES (0.8 M) OR LESS IN HEIGHT, LOCATED WITHIN 5 FEET (1.5 M) OF THE EDGE OF THE ADJACENT TRAVEL LANE. OBJECT MARKER SPACING SHALL BE 50 FEET (15 METERS).

BARRIER REFLECTORS SHALL BE INSTALLED ON ALL CONCRETE BARRIER, PERMANENT AND/OR TEMPORARY, AND ALL EXISTING GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. BARRIER REFLECTOR SPACING SHALL BE 50 FEET.

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

THE FOLLOWING ESTIMATED QUANTITIY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS OUTLINED ABOVE.

ITEM 614 - OBJECT MARKER, ONE-WAY (CONC. BARRIER)	63 EACH
ITEM 614 - BARRIER REFLECTOR	72 EACH

ITEM 614 - REPLACEMENT DRUM

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

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

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

ITEM 614 - REPLACEMENT DRUM	20 EACH

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WORKSITE TRAFFIC SUPERVISOR

SUBJECT TO APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL EMPLOY AND IDENTIFY (SOMEONE OTHER THAN THE SUPERINTENDENT) A CERTIFIED WORKSITE TRAFFIC SUPERVISOR (WTS) BEFORE STARTING WORK IN THE FIELD. THE WTS MAY BE CERTIFIED FROM ONE OF THE FOLLOWING ORGANIZATIONS:

1. AMERICAN TRAFFIC SAFETY SERVICE ASSOCIATION (ATSSA), PHONE NUMBER 1-800-272-8772, CERTIFIED TRAFFIC CONTROL SUPERVISOR (TCS).

2. NATIONAL HIGHWAY INSTITUTE, DESIGN AND OPERATION OF WORK ZONE TRAFFIC CONTROL, PHONE NUMBER 1-703-235-0528.

3. THE OHIO CONTRACTORS ASSOCIATION, TRAFFIC CONTROL SUPERVISOR (OCA/TCS) WORK ZONE CLASS, ONLY IF TAKEN AFTER MAY 5, 2004, PHONE NUMBER 1-614-599-7915..

4. OHIO LABORERS TRAINING, TRAFFIC CONTROL SUPERVISORS CLASS, PHONE NUMBER 1-740-599-7915.

A COPY OF EACH WTSS CERTIFICATION AND 24-HOUR CONTACT INFORMATION SHALL BE PROVIDED TO THE ENGINEER AT THE PRECONSTRUCTION CONFERENCE. IF THE DESIGNATED WTS WILL NOT BE AVAILABLE FULL TIME (24/7) THE CONTRACTOR MAY DESIGNATE AN ALTERNATE WTS TO BE AVAILABLE WHEN THE PRIMARY IS OFF DUTY. EACH WTS SHALL HAVE A CURRENT WTS CERTIFICATION (WITH AN EXPIRATION DATE NO MORE THAN 5 YEARS FROM THE DATE OF ISSUE) FROM ANY OF THE APPROVED ORGANIZATIONS.
THE WTS POSITION HAS THE RESPONSIBILITY OF MONITORING AND CORRECTING TRAFFIC CONTROL DEFICIENCIES FOR THE ENTIRE WORK ZONE.

THE DUTIES OF THE WTS ARE AS FOLLOWS:

1. BE AVAILABLE ON A 24-HOUR PER DAY BASIS, AND BE ABLE TO BE ON SITE FOR ALL EMERGENCY TRAFFIC CONTROL NEEDS WITHIN ONE HOUR OF NOTIFICATION BY POLICE OR PROJECT STAFF AND BE PREPARED TO EFFECT CORRECTIVE MEASURES IMMEDIATELY ON EXISTING WORK ZONE TRAFFIC CONTROL DEVICES.
2. ATTEND PRECONSTRUCTION MEETING AND ALL PROJECT MEETINGS WHERE TRAFFIC CONTROL MANAGEMENT IS DISCUSSED.
3. BE AVAILABLE FOR MEETINGS OR DISCUSSIONS WITH THE ENGINEER UPON REQUEST OR WITHIN 36 HOURS.
4. BE AWARE OF, AND COORDINATE IF NECESSARY, ALL TRAFFIC CONTROL OPERATIONS, INCLUDING THOSE OF SUBCONTRACTORS AND SUPPLIERS.
5. COORDINATE PROJECT ACTIVITIES WITH ALL LAW ENFORCEMENT OFFICERS (LEOS). A WTS SHALL ALSO BE THE MAIN CONTACT PERSON WITH THE LEOS WHILE THEY ARE ON THE PROJECT.
6. COORDINATE MEETINGS WITH ODOT PERSONNEL, LEOS AND OTHER APPLICABLE ENTITIES BEFORE EACH PLAN PHASE SWITCH TO DISCUSS WORK ZONE TRAFFIC CONTROL.
7. ENSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS FOR SIGNS, BARRICADES, TEMPORARY CONCRETE BARRIER, PAVEMENT MARKINGS, PORTABLE MESSAGE SIGNS, AND OTHER TRAFFIC CONTROL DEVICES ON A DAILY BASIS; AND FACILITATE ANY CORRECTIVE ACTION NECESSARY.
8. NOTIFY THE CONTRACTOR OF THE NEED FOR CLEANING AND MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES, INCLUDING THE COVERING AND REMOVAL OF INAPPLICABLE SIGNS.
9. INSPECT, EVALUATE, PROPOSE NECESSARY MODIFICATIONS TO, AND DOCUMENT THE EFFECTIVENESS OF, THE TRAFFIC CONTROL DEVICES AND/OR TRAFFIC OPERATIONS ON A DAILY BASIS (7 DAYS A WEEK).IN ADDITION, A WEEKLY NIGHT INSPECTION OF THE WORK ZONE SETUP FOR DAYTIME WORK OPERATIONS; AND ONE DAYTIME INSPECTION PER WEEK FOR NIGHTTIME PROJECTS. THIS SHALL INCLUDE (BUT NOT BE LIMITED TO) DOCUMENTATION ON THE FOLLOWING PROJECT EVENTS:
   A. INITIAL TRAFFIC CONTROL SETUP (DAY AND NIGHT REVIEW).
   B. DAILY TRAFFIC CONTROL SETUP AND REMOVAL.
   C. WHEN CONSTRUCTION STAGING CAUSES A CHANGE IN THE TRAFFIC CONTROL SETUP.
   D. CRASH OCCURRENCES WITHIN THE CONSTRUCTION AREA.
   E. REMOVAL OF TRAFFIC CONTROL DEVICES AT THE END OF A PHASE OR PROJECT.
   F. ALL OTHER EMERGENCY TRAFFIC CONTROL NEEDS.
10. COMPLETE THE DEPARTMENT APPROVED LONG TERM INSPECTION FORM (CA-D-8) AFTER EACH INSPECTION AS REQUIRED IN # 9 AND SUBMIT IT TO THE ENGINEER THE FOLLOWING WORK DAY. THESE REPORTS SHALL INCLUDE A CHECKLIST OF ALL TRAFFIC CONTROL MAINTENANCE ITEMS TO BE REVIEWED. A COPY OF THE FORM WILL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING. ANY DEFICIENCIES OBSERVED SHALL BE NOTED, ALONG WITH RECOMMENDED CORRECTIVE ACTIONS AND THE DATES BY WHICH SUCH CORRECTIONS WERE, OR WILL BE, COMPLETED. A COPY OF THIS DOCUMENT CAN BE FOUND IN THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION INSPECTION FORMS MANUAL DATED 10/15/06 OR CURRENT REVISION.
11. VERIFY THAT ALL FLAGGING OPERATIONS ARE BEING CONDUCTED PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
12. HAVE COPIES OF THE ODOT TEMPORARY TRAFFIC CONTROL MANUAL AND APPLICABLE STANDARDS AND SPECIFICATIONS INCLUDED IN THE CONTRACT DOCUMENTS AVAILABLE AT ALL TIMES ON THE PROJECT.

(CONTINUED)

WORKSITE TRAFFIC SUPERVISOR (CONTINUED)

THE DEPARTMENT WILL NOT PAY THE UNIT PRICE BID FOR THE WTS FOR ANY DAY ON WHICH THE CONTRACTOR FAILS TO PERFORM THE DUTIES SET FORTH ABOVE. SHOULD THE CONTRACTOR'S FAILURE TO PERFORM ANY OF THE DUTIES DESCRIBED ABOVE RESULT IN A MAINTENANCE OF TRAFFIC SAFETY ISSUE, THE DEPARTMENT WILL DEDUCT THE PRORATED DAILY AMOUNT FOR ITEM 614 MAINTENANCE OF TRAFFIC FROM THE CONTRACTOR'S NEXT SCHEDULED ESTIMATE.

IF THREE OR MORE FAILURES TO PERFORM THE DUTIES SET FORTH ABOVE OCCUR, THE WTS SHALL BE IMMEDIATELY REMOVED FROM THE WORK IN ACCORDANCE WITH C&MS 108.05.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED FOR THE WORKSITE TRAFFIC SUPERVISOR:

ITEM 614 - WORKSITE TRAFFIC SUPERVISOR 4 MONTHS

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 IN THIS NOTE WILL NOT GENERALLY BE PERMITTED AT PROJECT COST UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE ENGINEER. LEO'S SHOULD NOT BE USED WHERE THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) INTENDS THAT FLAGGERS BE USED.

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

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. IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

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

DURING A TRAFFIC SIGNAL INSTALLATION 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).

ROUTINE PATROLLING THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) AS SPECIFIED IN THE PLANS. 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 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 CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A LIST OF THE APPROPRIATE LAW ENFORCEMENT AGENCY(S), INCLUDING ADDRESS AND TELEPHONE NUMBER.

THE LEO SHOULD REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING THE SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF THE SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHOULD 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 THE SHIFT.

LAW ENFORCEMENT OFFICERS (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).

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR 1000 HOURS

THE HOURS PAID SHALL INCLUDE 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.

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MAINTENANCE OF TRAFFIC
GENERAL NOTES

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FREEWAY CLOSURE

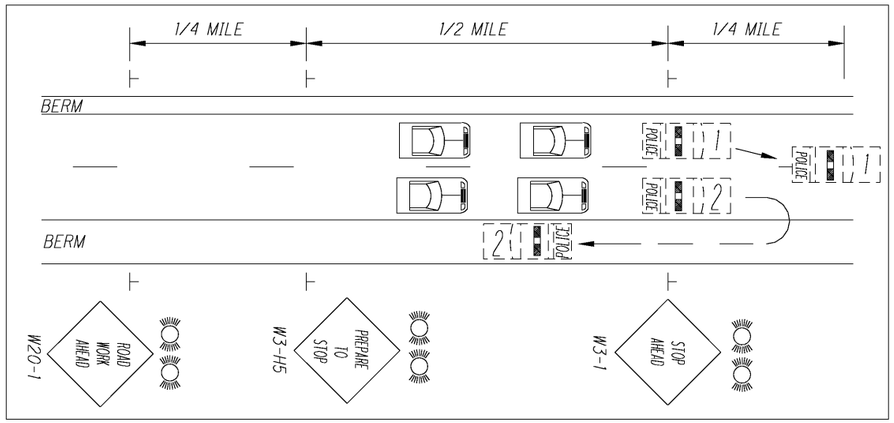
ANY TIME TRAFFIC MUST BE COMPLETELY STOPPED ON A FREEWAY, OR INTERSTATE IT SHALL BE DONE IN THE FOLLOWING MANNER: (THIS INCLUDES THE ERECTION OF OVERHEAD SIGN SUPPORTS OR BRIDGE BEAMS.) THE COMPLETE TRAFFIC STOPPAGE ON ALL LANES OF ANY DIRECTIONAL ROADWAY SHALL BE NO MORE THAN 10 MINUTES IN ANY ONE CONSECUTIVE 30 MINUTE PERIOD.

A MINIMUM OF TWO (2) LAW ENFORCEMENT OFFICERS (L.E.O.) WITH PATROL VEHICLES SHALL BE USED TO PACE MOTORISTS TO A STOP. THERE SHALL BE ONE L.E.O. FOR EACH LANE ON THE FREEWAY.

AFTER TRAFFIC HAS BEEN SLOWED, ONE (1) PATROL VEHICLE SHALL TRAVEL ALONG THE ROADWAY SHOULDER 500 FEET BEHIND THE BACK UP OF STOPPED VEHICLES. WHERE STOPPAGE OCCURS IN THE VICINITY OF FREEWAY ENTRANCES, THE CONTRACTOR SHALL PLACE FLAGMEN ON THE RAMPS TO STOP TRAFFIC. PATROL VEHICLES SHALL HAVE FLASHING BEACONS.

TO PROVIDE ADEQUATE VISIBILITY TO APPROACHING MOTORISTS THE CONTRACTOR SHALL ERECT AND MAINTAIN "ROADWORK AHEAD", "PREPARE TO STOP", AND "STOP AHEAD" SIGNS WITH TWO FLASHING TWELVE INCH (12) TRAFFIC SIGNAL HEADS IN ACCORDANCE WITH 632.05. THESE SIGNS SHALL BE ILLUMINATED DURING NIGHT OPERATIONS AND SHALL BE 48 INCH BY 48 INCH SIGNS. PATROL VEHICLES AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE SKETCH BELOW. FLARES MAY BE SUBSTITUTED FOR FLASHING LIGHTS.

STOPPING TRAFFIC SHALL BE DONE WHEN THE GREATEST NUMBER OF LANES IS PERMITTED TO BE CLOSED BY THE PLANS. A PORTABLE CHANGEABLE MESSAGE SIGN, FROM ODOTS PRE- APPROVED LIST, SHALL BE PLACED 1.5 MILES TO 2 MILES IN ADVANCE OF THE CLOSURE OR AS DIRECTED BY THE ENGINEER.



WHENEVER A TOTAL CLOSURE IS IMPLEMENTED, THE CONTRACTOR SHALL PROVIDE A PORTABLE CHANGEABLE MESSAGE SIGN, TYPE FROM ODOT'S PRE-APPROVED LIST. IT SHALL BE PLACED 1.5 TO 2 MILES IN ADVANCE OF THE CLOSURE OR AS DIRECTED BY THE ENGINEER.

COMPLETE STOPPAGES OF HIGHWAY TRAFFIC SHALL BE USED WHEN REMOVING OR REPLACING OVERHEAD BOX TRUSSES.

FOR ANY OPERATION NOT SPECIFICALLY MENTIONED IN THESE PLANS, THE TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE OMUTCD.

ALL LABOR, MATERIALS, EQUIPMENT AND ANY INCIDENTALS REQUIRED TO COMPLETE THE WORK AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC.

MAINTENANCE OF TRAFFIC CONTROL ZONES

THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE SIGNS, DRUMS AND TEMPORARY PAVEMENT MARKINGS AT THE LOCATIONS DETAILED IN THE PLANS OR SPECIFIED IN THE STANDARD DRAWINGS. WHEN THE CONTRACTOR IS NOTIFIED OF DEFICIENCIES HE SHALL CORRECT THE DEFICIENCIES AS SOON AS POSSIBLE, PREFERABLY WITHIN 12 HOURS AND NO LATER THAN 24 HOURS. IF ANY NOTED DEFICIENCIES ARE NOT CORRECTED WITHIN 24 HOURS THE ENGINEER SHALL DEDUCT ONE DAY PAY FOR ITEM 614 - MAINTAINING TRAFFIC, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES. THE CONTRACTOR SHALL BE SUBJECT TO THESE LIQUIDATED DAMAGES FOR EACH AND EVERY DAY THAT THESE PROVISIONS ARE NOT MET. ALL COSTS FOR MAINTAINING THE WORK ZONES AS DESCRIBED ABOVE SHALL BE INCLUDED UNDER ITEM 614 - MAINTAINING TRAFFIC.

VERTICAL CLEARANCE DURING CONSTRUCTION

THE EXISTING VERTICAL CLEARANCES ON IR 490 UNDER RAMP WN ARE 15'-6" EASTBOUND AND 16'-4" WESTBOUND. THE VERTICAL CLEARANCE DURING CONSTRUCTION SHALL NOT BE REDUCED BY MORE THAN 1.33' IN EITHER DIRECTION. THE FINAL VERTICAL CLEARANCE WILL MATCH THE EXISTING.

ITEM 622, PORTABLE CONCRETE BARRIER, 32"
ITEM 622, PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED

THIS WORK SHALL CONSIST OF FURNISHING, MAINTAINING, AND SUBSEQUENTLY REMOVING EITHER A 32-INCH PORTABLE CONCRETE BARRIER (PCB) OR A 32-INCH BRIDGE MOUNTED PORTABLE CONCRETE BARRIER. 50" PORTABLE CONCRETE BARRIER SECTIONS WILL NOT BE PERMITTED TO BE USED.

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FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHT TIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR MAINTAINING TRAFFIC.

ITEM 614 - WORK ZONE IMPACT ATTENUATOR, (UNIDIRECTIONAL OR BIDIRECTIONAL)

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

1) THE QUADGUARD CZ, (24" WIDE 6-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE 6-BAY QUADGUARD CZ IS 20'-9". INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG.#	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
QSCZCVR-T4	QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES	5/13/99 Rev. J	8/27/99
35-40-10	QUADGUARD SYSTEM CONCRETE PAD, CZ, QG	11/19/97 Rev. D	8/27/99
35-40-16	QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG	7/30/99 Rev. F	8/27/99
354051Z	QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24,30,36	5/17/99	8/27/99
35-40-18	TRANSITION ASSEMBLY, 4 OFFSET, QG	6/25/99 Rev. F	8/27/99
3540260	QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY	11/19/97 Rev. C	8/27/99

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

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

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

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

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

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

THE CONTRACTOR SHALL PROVIDE A REPLACEMENT UNIT WHEN AN IMPACT IS SEVERE ENOUGH TO REQUIRE COMPLETE REPLACEMENT OF THE ATTENUATOR. THE CONTRACTOR SHALL HAVE A SPARE PARTS PACKAGE AVAILABLE ON THE PROJECT SITE AT ALL TIMES WHEN AN ATTENUATOR IS IN PLACE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE COMPLETE SPARE PARTS PACKAGE FOR EVERY 1 TO 6 UNITS INSTALLED ON THE PROJECT SITE. FOR EXAMPLE, 5 INSTALLED UNITS REQUIRE 1 SPARE PARTS PACKAGE AND 7 INSTALLED UNITS REQUIRE 2 SPARE PARTS PACKAGES. WHEN BI-DIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 614, WORK ZONE IMPACT ATTENUATOR, (UNIDIRECTIONAL OR BI-DIRECTIONAL), EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT, MAINTAIN, REPAIR, REPLACE OR RELOCATE A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

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MAINTENANCE OF TRAFFIC
GENERAL NOTES

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WORK ZONE ALERT AND INFORMATION RADIO

THE CONTRACTOR SHALL PROVIDE ONE (1) WORK ZONE ALERT AND INFORMATION RADIO ON A TRAILER FOR USE ON THE PROJECT. IT WILL BE USED TO ALERT TRUCKS AND BUSES THAT ARE FOLLOWING THE TRUCK AND BUS DETOUR FOR I-90 THE INNERBELT BRIDGE, WHEN THE DETOUR IS CLOSED DUE TO THE THIS PROJECT. IT WILL ALSO BE USED TO ALERT TRUCKS AND BUSES OF THE RESTRICTIONS ON THE I-90, INNERBELT BRIDGE. IT MAY HAVE OTHER USES AS DIRECTED BY THE ENGINEER. IT MAY BE USED OUTSIDE OF THE PROJECT LIMITS AS ADVANCE WARNING TO TRUCKS AND BUSES.

THE WORK ZONE ALERT AND INFORMATION RADIO WITH TRAILER WILL BECOME THE PROPERTY OF THE THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 AT THE COMPLETION OF THE PROJECT. THE RADIO MUST BE IN GOOD WORKING ORDER AND THE BATTERIES MUST BE ABLE TO STAY CHARGED FOR 1 WEEK.

THE CONTRACTOR WILL PROVIDE A LETTER TO ODOT DISTRICT 12 STATING THAT THE RADIO AND TRAILER WILL BECOME THE PROPERTY OF THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12.

THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE AND REPAIRS DURING THE PROJECT.

GENERAL SPECIFICATIONS:

A. INTENT:

THIS SPECIFICATION IS INTENDED TO DESCRIBE AND SET MINIMUM ACCEPTABLE STANDARDS FOR (NOT TO DESIGN) A PORTABLE TRAILER THAT ALERTS THE PUBLIC OF POTENTIAL HAZARDS VIA CB RADIO. THE UNIT SHALL BE MOUNTED ON A TWO WHEEL TYPE STEEL TRAILER AND SHALL BE CAPABLE OF BEING TOWED AS WELL AS BEING OPERATED IN A STATIONARY POSITION. THE UNIT SHALL BE USED ON PUBLIC STREETS AND HIGHWAYS TO REMIND THE PUBLIC OF THEIR SPEED. THIS IS A BRAND NAME OR EQUAL SPECIFICATION.

B. EQUIPMENT COMPONENTS:

1. TRAILER:

TRAILER SHALL BE SPECIFICALLY DESIGNED TO SUPPORT THE ENTIRE OPERATIONAL SYSTEM FOR THE TRANSMITTER, INCLUDING POWER SUPPLY UNIT, CONTROLS AND HOUSINGS. TRAILER IS TO BE WELDED STEEL CONSTRUCTION EQUIPPED WITH HIGH IMPACT PLASTIC FENDERS. TRAILER SHALL BE CONSTRUCTED IN A DOUBLE BOX CONFIGURATION OF 2" X 3" X 1/8" STEEL TUBING AND 3" X 4.1 LB. STRUCTURAL STEEL CHANNEL. THE UNIT IS TO HAVE HEAVY DUTY, 2,000-LB MINIMUM, AXLE, SPRINGS AND AUTOMOTIVE 14" WHEELS AND TIRES. THE REMOVABLE DRAWBAR IS TO EXTEND 48 INCHES FROM THE MOST FORWARD OBSTRUCTION ON THE TRAILER. THE HITCH SHALL BE OF CLASS I WITH APPROPRIATE SIZE BALL COUPLER. A 750-POUND CAPACITY SWING-AWAY SCREW TYPE JACK IS TO BE MOUNTED ON THE DRAWBAR. TWO (2) SAFETY CHAINS SHALL BE WELDED TO THE TONGUE. TRAILER SHALL BE EQUIPPED WITH FOUR LEVELING PADS, OR FEET, FOR MAINTAINING TRAILER IN A LEVEL STABILIZED POSITION. THESE FEET MUST HAVE PROVISION FOR LOCKING IN POSITION. THE TRAILER AND ALL ITS COMPONENTS ARE TO BE OF SUFFICIENT STRENGTH AND RATING TO OPERATE SAFELY UPON THE HIGHWAY AT LEGAL SPEEDS WITHOUT BENDING, CRACKING, BOTTOMING OR PREMATURE WEAR. THE TOTAL TRAILER OPERATING WEIGHT IS NOT TO EXCEED THE GROSS AXLE WEIGHT. TRAILER IS TO BE EQUIPPED WITH TAIL, STOP AND DIRECTIONAL LIGHTS AND WITH LICENSE PLATE LIGHT AND BRACKET ALL CONFORMING TO FEDERAL STANDARDS. FOUR-WIRE TRAILER CABLE, MADE TO SAE AND ATA SPECIFICATIONS, IS TO EXTEND 3' BEYOND THE TRAILER COUPLER. ALL CONNECTIONS ARE TO BE IN ACCORDANCE WITH A.T.A. COLOR AND LOCATION CODE.

2. POWER SUPPLY:

PRIMARY POWER SUPPLY SHALL BE BATTERY OPERATED WITH SOLAR ASSIST. THE UNIT SHALL BE DESIGNED TO OPERATE THROUGH THE USE OF HEAVY DUTY, DEEP CYCLE, LEAD ACID BATTERIES. THE BATTERY BANK SHALL BE OF SUFFICIENT CAPACITY TO POWER THE UNIT FOR A MINIMUM OF 14 DAYS. THE BATTERY BANK SHALL BE ASSISTED BY MEANS OF SOLAR GENERATOR INCORPORATING 2 (TWO) SOLAR PANELS. THE FIXED SOLAR PANEL ARRAY SHALL BE POSITIONED ON TOP OF THE SIGN TO PROVIDE SHADE FREE DEPLOYMENT. BATTERIES SHALL BE HOUSED IN A LOCKABLE, NON-METALLIC, HIGH IMPACT PLASTIC ENCLOSURE. THE DESIGN OF THE ENCLOSURE SHALL ALLOW BATTERIES TO BE EASILY REMOVED AND REPLACED. A TRICKLE CHARGER SHALL BE PROVIDED PER THE MANUFACTURES RECOMMENDATIONS. IT SHALL BE ATTACHED INSIDE OF THE BATTERY ENCLOSURE AND ATTACHED TO THE BATTERIES. THE TRICKLE CHARGER SHALL BE CAPABLE OF USING 110 VOLTS. IT SHALL BE CAPABLE OF MONITORING THE BATTERIES AS TO THE LEVEL OF CHARGE.

3. PAINT

THE UNIT SHALL BE CLEANED OF ALL RUST, GREASE AND SCALE. EXISTING TAG(S) SHALL BE LEFT READABLE.

THE UNIT AND ALL ITS COMPONENTS SHALL BE CLEANED AND PAINTED WITH ONE (1) COAT OF PRIMER, AND FINISHED WITH TWO (2) COATS OF PAINT. ALL PAINT SHALL BE THE SAME SHADE.

C. OPERATING CRITEIA

THE CITIZENS BAND TRAFFIC ALERT RADIO IS TO COMPLY WITH ALL APPLICABLE FEDERAL COMMUNICATIONS COMMISSION (FCC) REGULATIONS AND STANDARDS.
THE RADIO SHALL STORE A MINIMUM OF THREE MESSAGES WHICH MAY BE RECORDED ON SITE AND ALLOW THE OPERATOR TO SELECT ONE OF THE THREE RECORDED MESSAGES FOR TRANSMISSION.
THE RADIO SHALL BE CAPABLE OF SAMPLING TWO CHANNELS IN SEQUENCE AND DELAY THE REPEATING MESSAGE TRANSMISSION FORM 30 TO 90 SECONDS.

WARRANTY

UNITS PURCHASED UNDER THIS SPECIFICATION SHALL BE WARRANTED AGAINST DEFECTIVE MATERIAL AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN TWELVE (12) MONTHS.

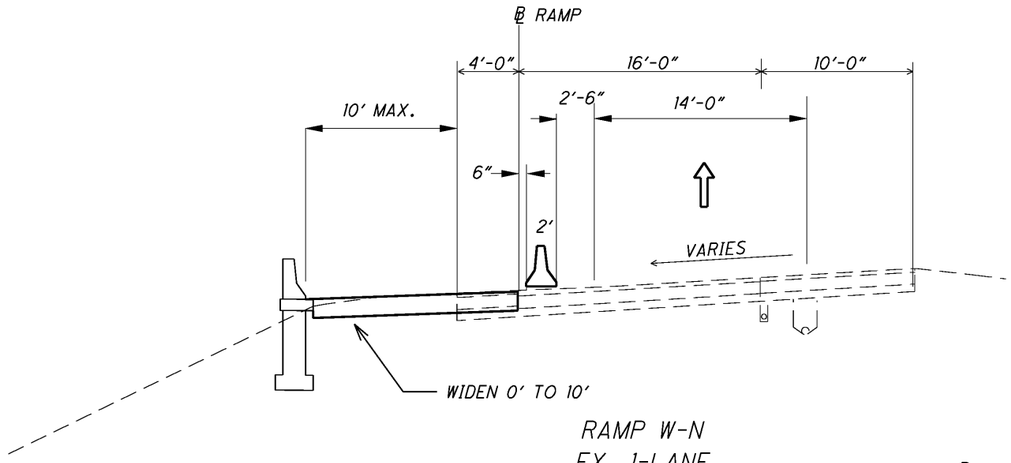
UNITS SHALL BE ASSEMBLED, ADJUSTED AND MADE READY FOR CONTINUOUS OPERATION AT TIME OF DELIVERY.

ALL NECESSARY EQUIPMENT AND ACCESSORIES AS REGULARLY FURNISHED BY THE MANUFACTURER FOR SATISFACTORY OPERATION SHALL BE FURNISHED WHETHER OR NOT THEY ARE SPECIFICALLY MENTIONED IN THIS SPECIFICATION.

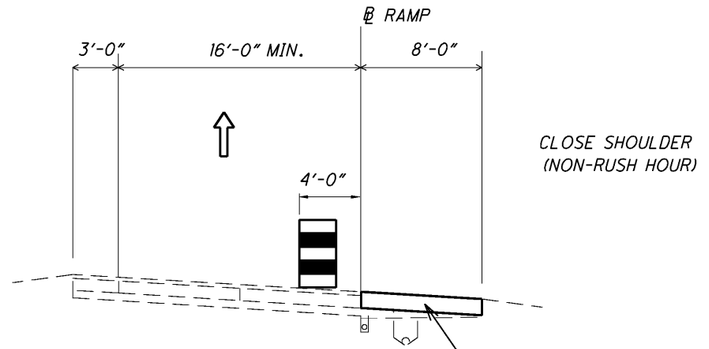
THE WORK ZONE ALERT AND INFORMATION RADIO ON A TRAILER MAY BE PURCHASED FROM: TRAFCON INDUSTRIES :

81 TEXACO ROAD
MECHANICSBURG, PA 17050
717-691-8007
HTTP://WWW.TRAFCON.COM/
OR AN APPROVED EQUAL.

PAYMENT: ITEM 614 MAINTAINING TRAFFIC, MISC: WORK ZONE ALERT AND INFORMATION RADIO ON A TRAILER. 1 EACH.

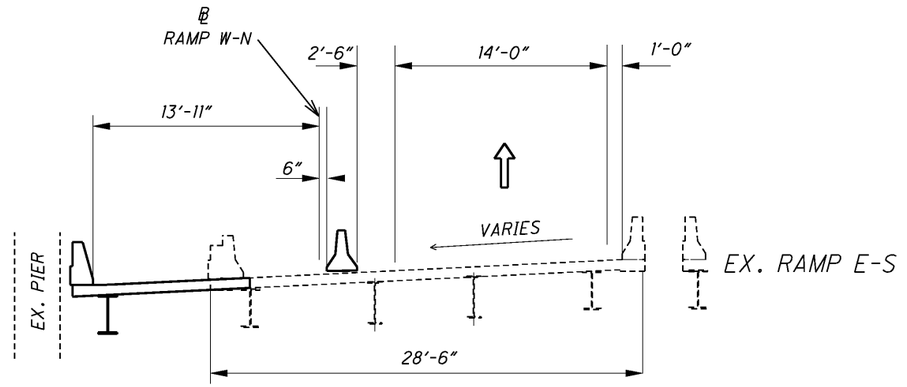


RAMP W-N
EX. 1-LANE



RAMP E-15
EX. 1-LANE

RAMP E-17
EX. 1-LANE



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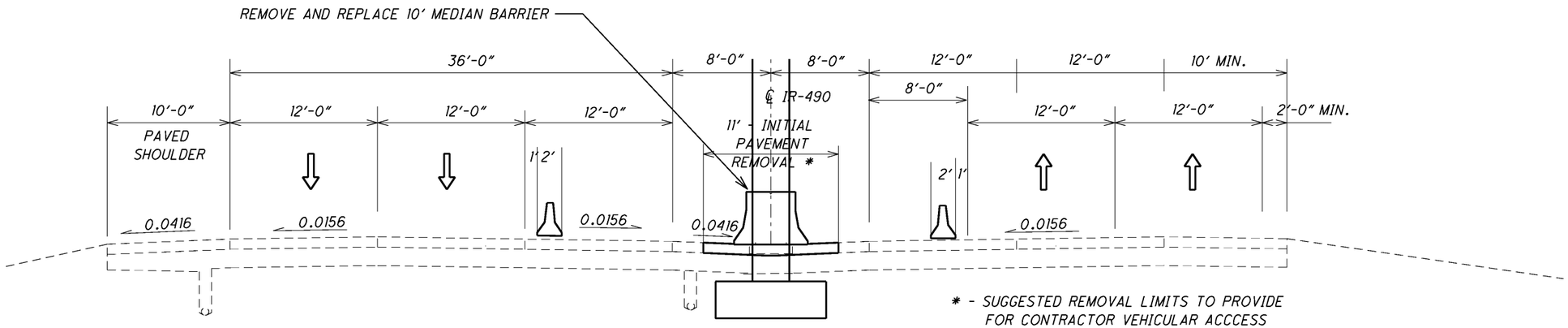
1-LANE EXISTING
CUY-490-0187 WN



I-490
EX. 2 & 3-LANE

* - SUGGESTED REMOVAL LIMITS TO PROVIDE FOR CONTRACTOR VEHICULAR ACCCESS TO BOTH SIDES OF THE WORK AREA. REMOVE REMAINDER PRIOR TO REPLACING MEDIAN SHOULDER.

MAINTENANCE OF TRAFFIC - TYPICAL SECTIONS

CUY-490-1.87/VAR

16
94

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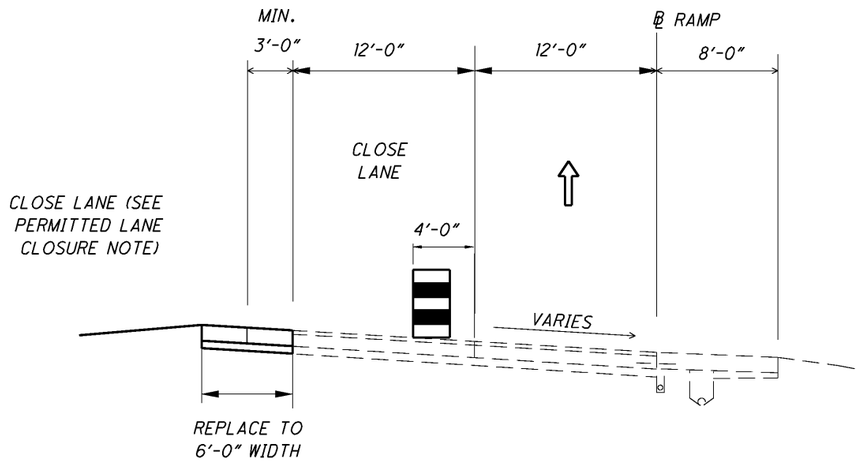

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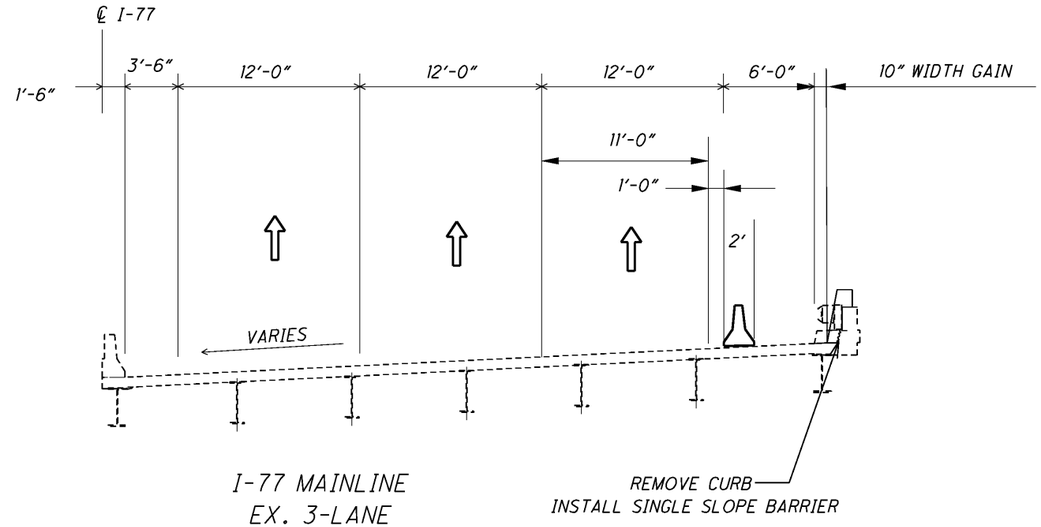
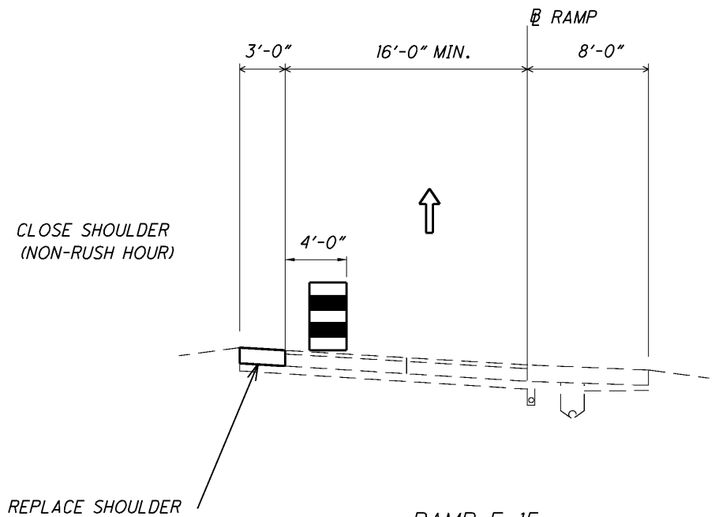
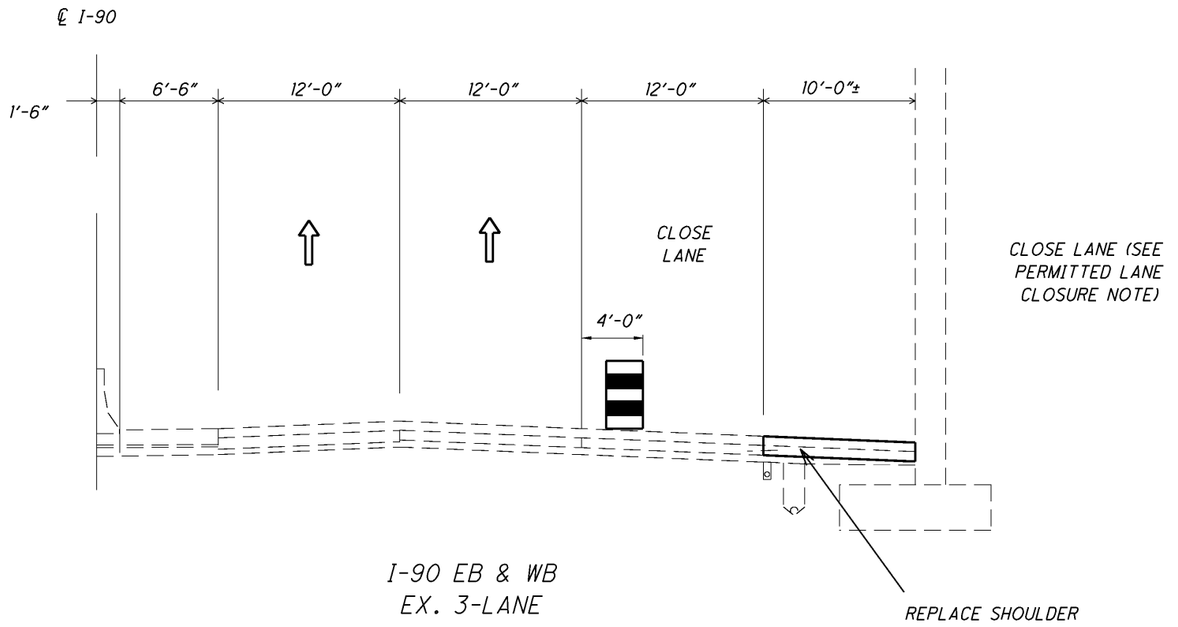
EX. 2-LANE



I-77 MAINLINE
EX. 3-LANE
CUY-77-1518
OVER E 30TH ST
(NB SHOWN, SB SIMILAR)



RAMP E-15
EX. 1-LANE



I-90 EB & WB
EX. 3-LANE

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MAINTENANCE OF TRAFFIC - TYPICAL SECTIONS

CUY-490-1.87/VAR

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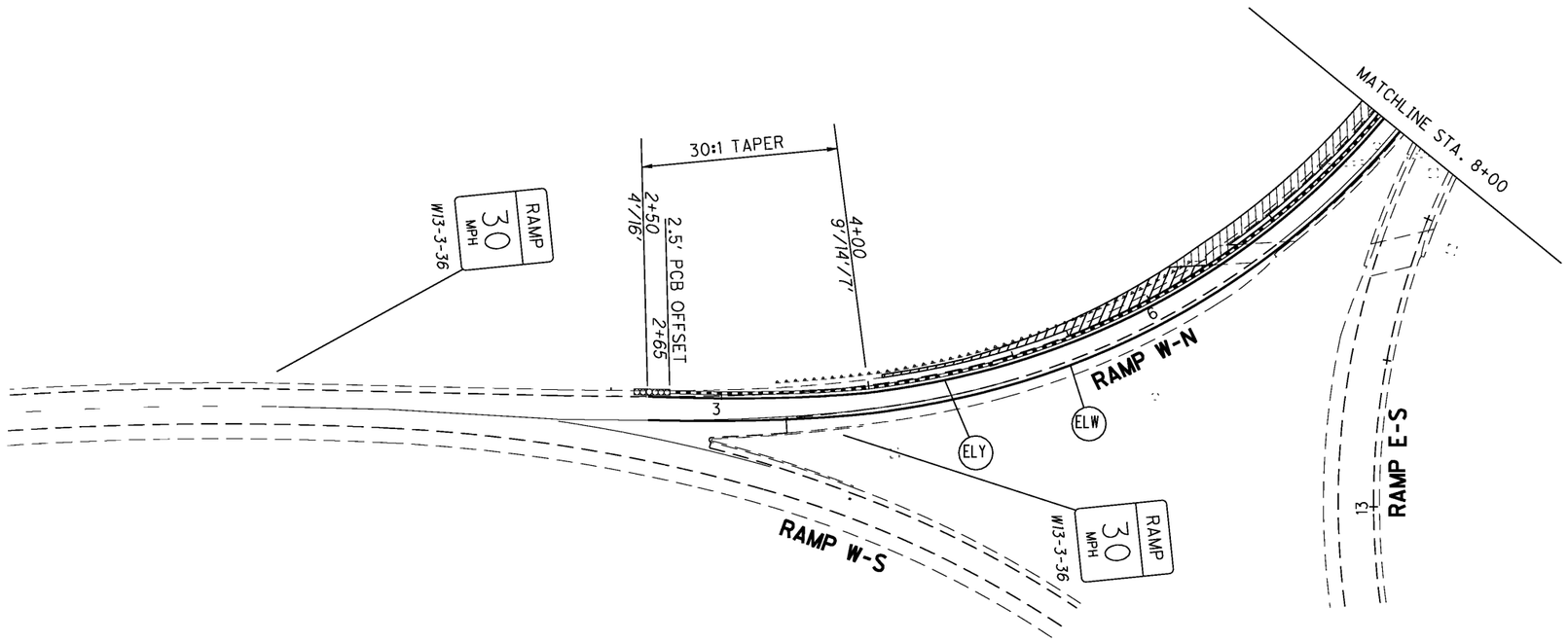

LEGEND

- 32" PORTABLE CONCRETE BARRIER, 1' OFFSET TO EDGE LINE (TYP.). UNLESS SHOWN OTHERWISE
- DRUMS SPACED AS PER MT-95.30, 1' MIN. OFFSET TO EDGE LINE, (PROVIDE LARGER OFFSET WHEN POSSIBLE)
- WORK ZONE IMPACT ATTENUATOR
- AREA OF CONSTRUCTION DURING THIS PHASE

2'/12'/12'/12'/8' - LANE WIDTHS OR OFFSET FROM TOE OF MEDIAN BARRIER, PARAPET, OR EDGE OF SHOULDER.

PAVEMENT MARKING LEGEND

- (LL) - LANE LINE
- (ELW) - EDGE LINE, WHITE
- (ELY) - EDGE LINE, YELLOW
- (CHW) - CHANNELIZING LINE, WHITE

WORK ZONE PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH CMS 614.11, WORK ZONE PAVEMENT MARKINGS, CLASS I, 740.06 TYPE 1.

HORIZONTAL SCALE IN FEET
0 25 50 100

DESIGNED BY BURGESS & NIPLE

MAINTENANCE OF TRAFFIC
RAMP WN

CUY-490-1.87/VAR

18
94

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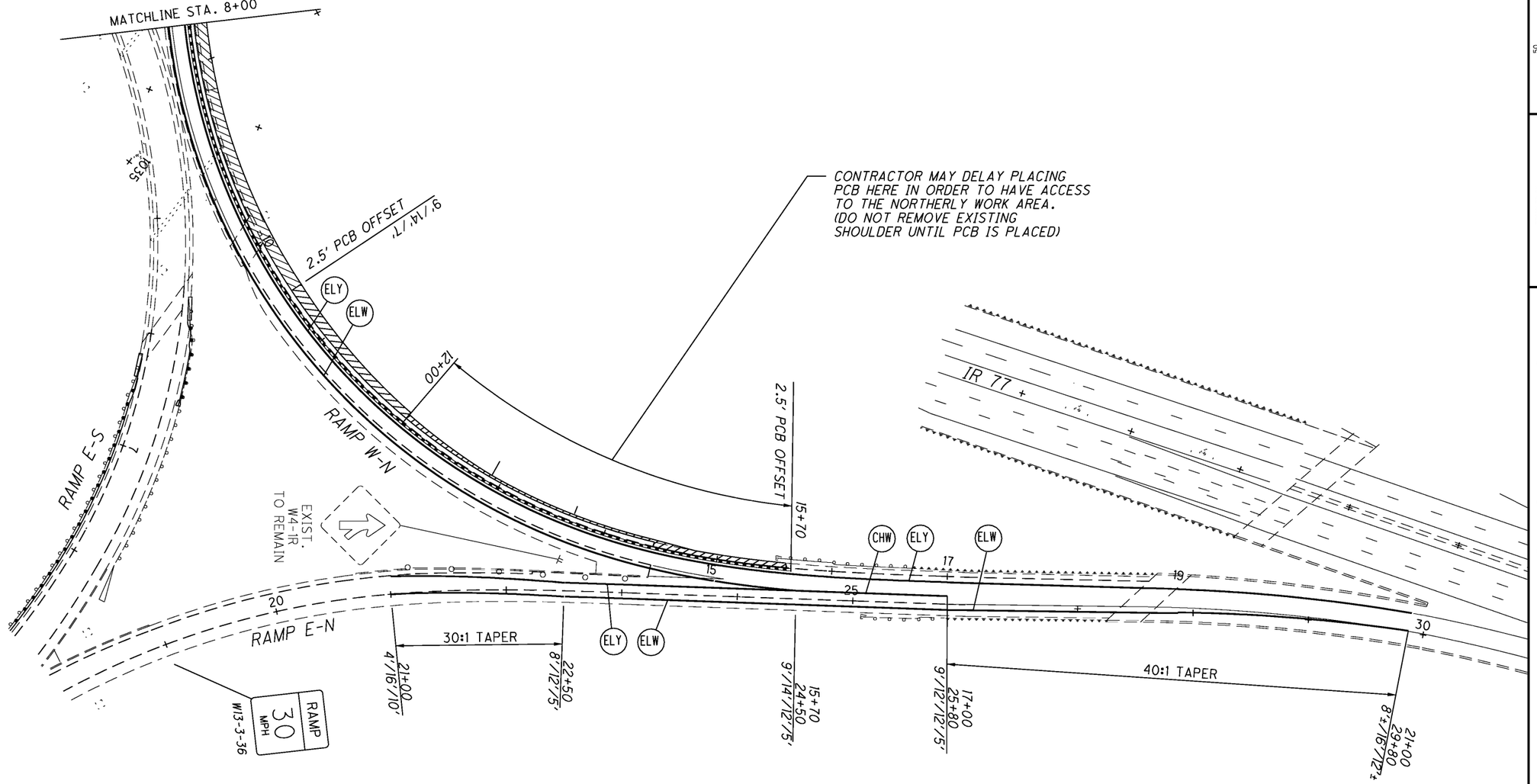

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HORIZONTAL SCALE IN FEET
0 25 50 100

DESIGNED BY BURGESS & NIPLE

MAINTENANCE OF TRAFFIC
RAMP WN

CUY-490-1.87/VAR

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94

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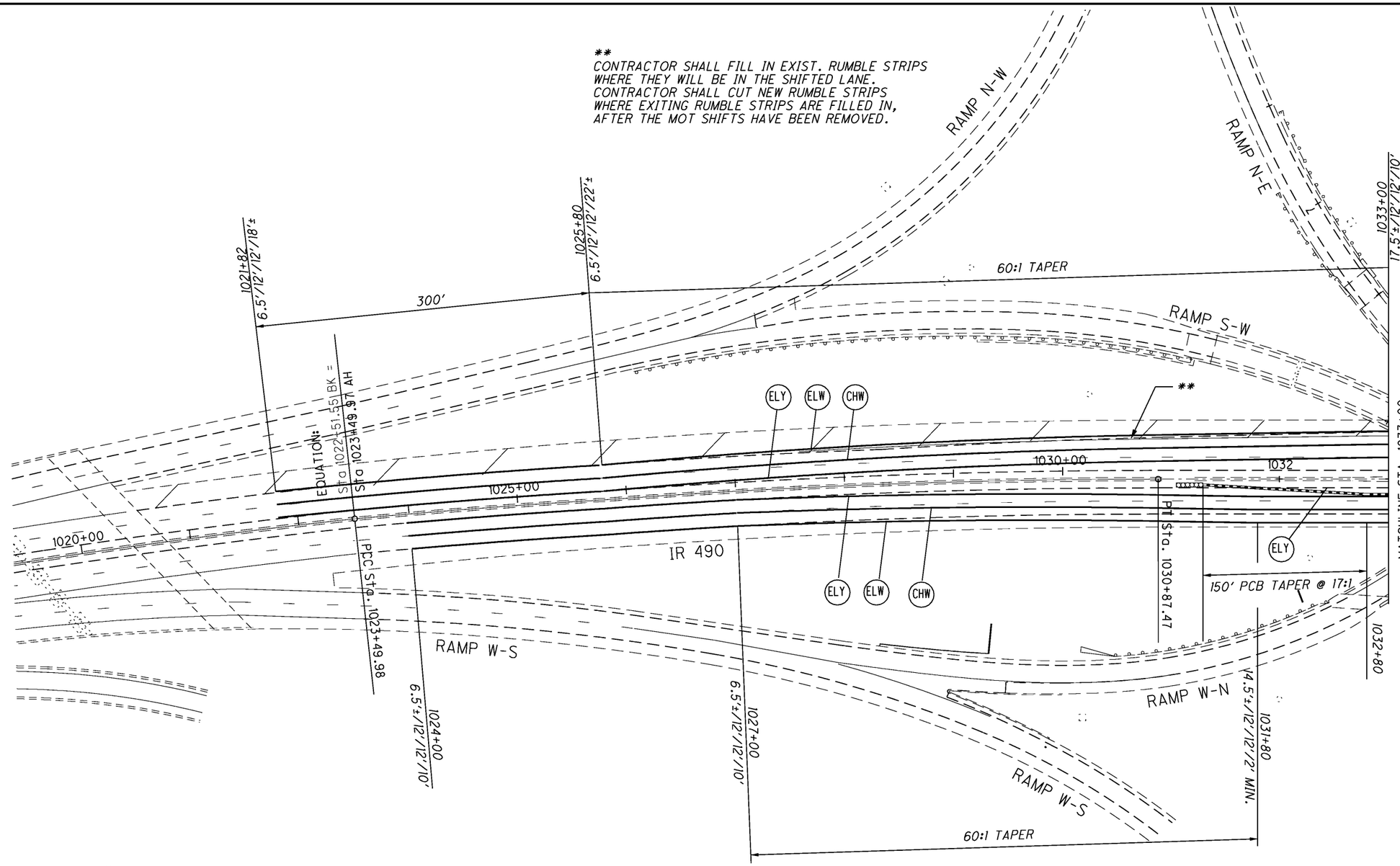

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SEE MT-102.10 FOR LANE SHIFT SIGNAGE, DETAILS, ETC.

HORIZONTAL SCALE IN FEET
0 25 50 100

DESIGNED BY BURGESS & NIPLE

MAINTENANCE OF TRAFFIC RAMP WN/I-490

CUY-490-1.87/VAR

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94

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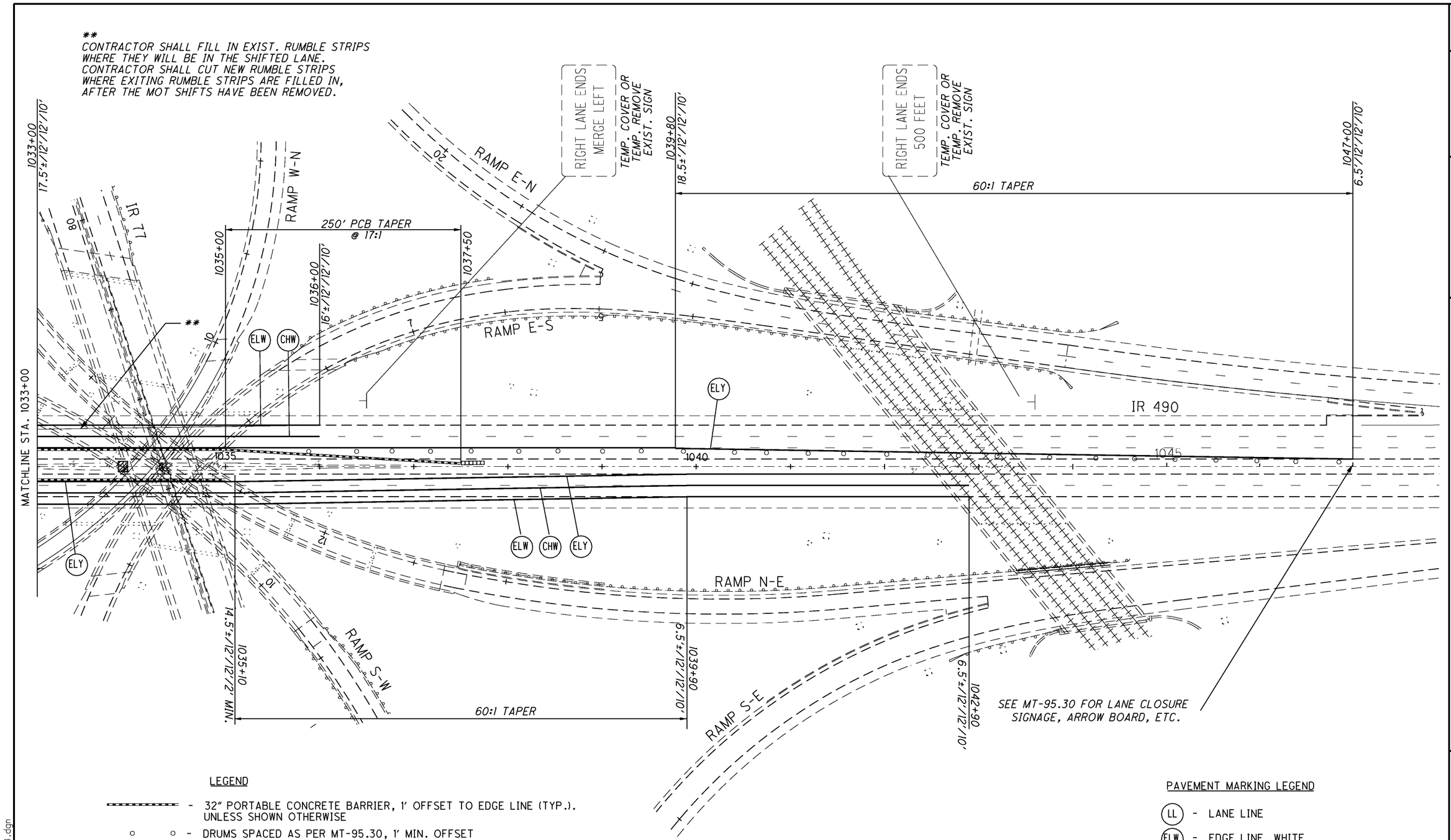

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SEE MT-102.10 FOR LANE SHIFT SIGNAGE, DETAILS, ETC.

HORIZONTAL SCALE IN FEET
0 25 50 100

DESIGNED BY BURGESS & NIPLE

MAINTENANCE OF TRAFFIC RAMP WN/I-490

CUY-490-1.87/VAR

21
94

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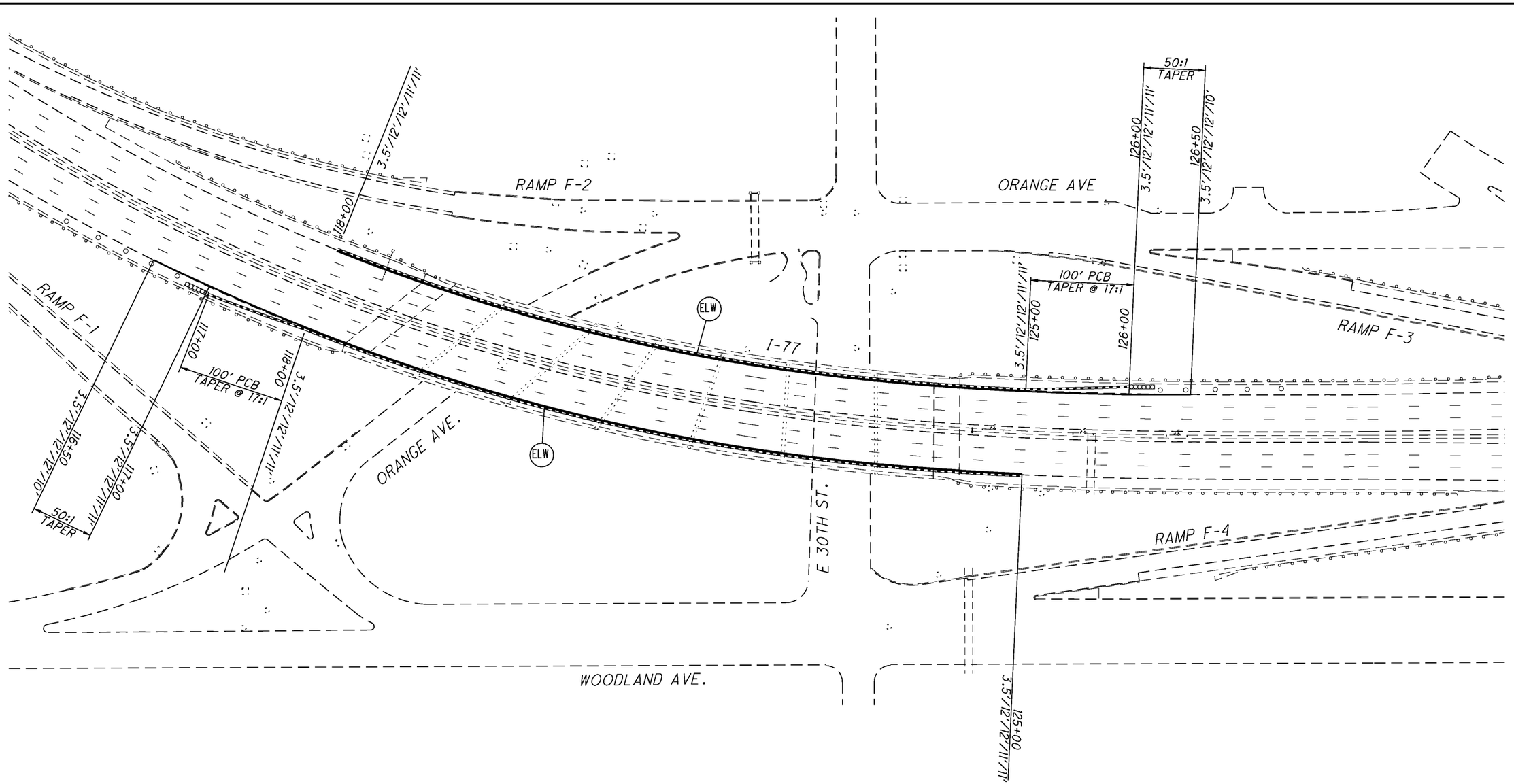

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HORIZONTAL SCALE IN FEET
0 25 50 100

DESIGNED BY BURGESS & NIPLE

MAINTENANCE OF TRAFFIC I-77

CUY-490-1.87/VAR

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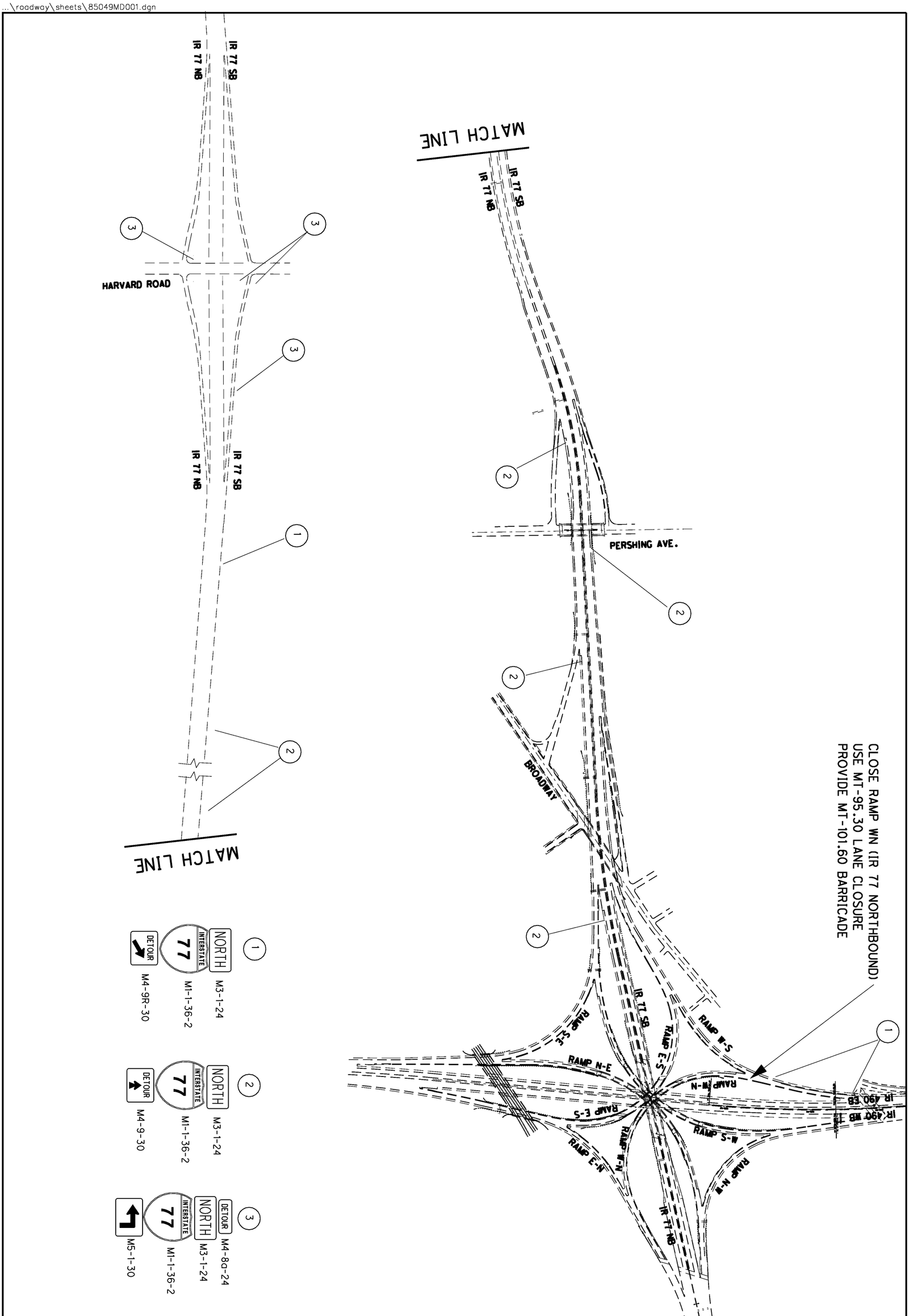
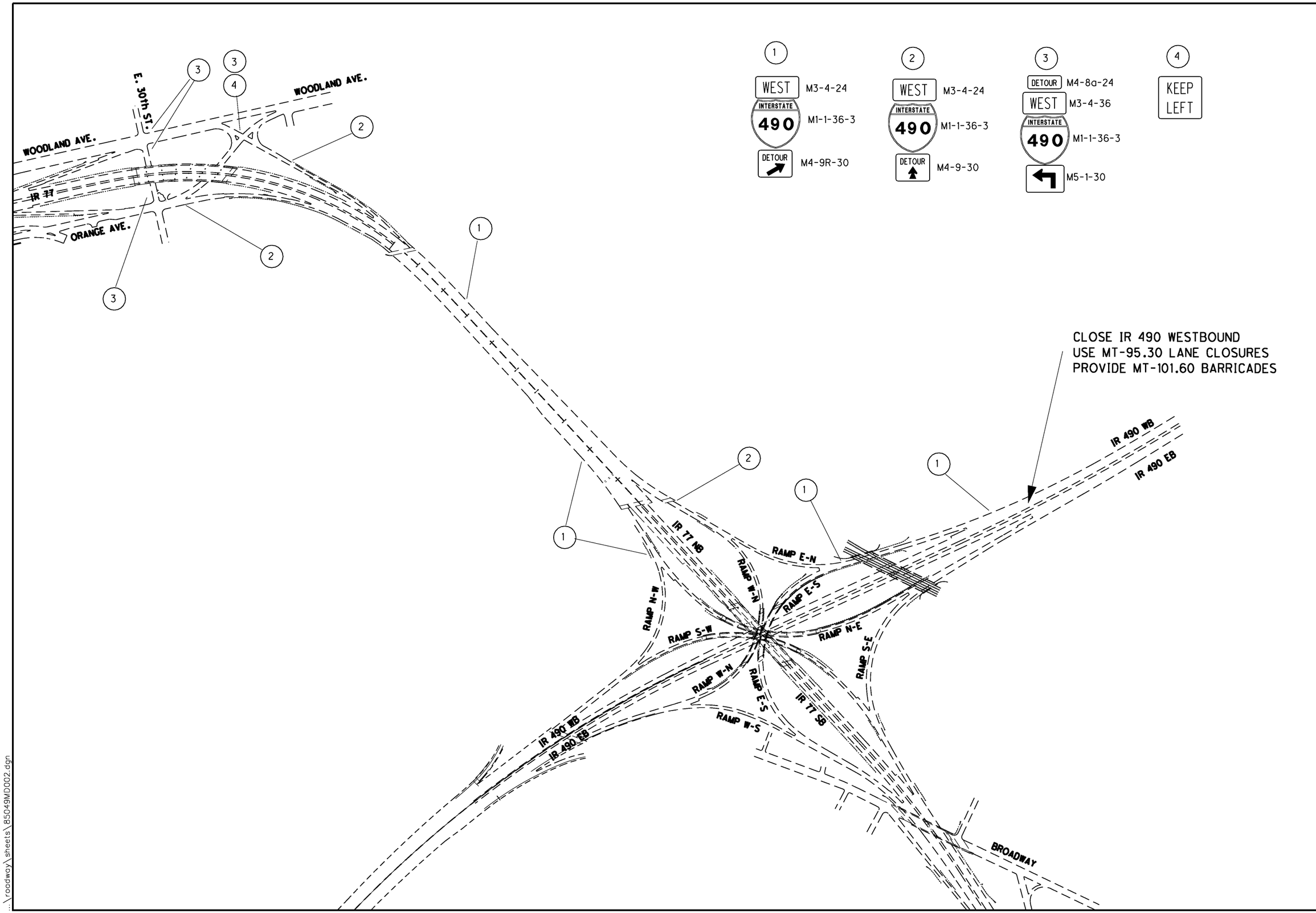


23/94	CUY-490-1.87/VAR	DETOUR PLAN - CLOSE RAMP WN	0 250 125 500 HORIZONTAL SCALE IN FEET	N



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CLOSE IR 490 WB UNDER IR 77

DETOUR PLAN - CLOSE IR 490 WB UNDER IR 77

CUY-490-1.87/VAR

CLOSE IR 490 EASTBOUND
USE MT-95.30 LANE CLOSURES
PROVIDE MT-101.60 BARRICADES

IR 490 EB
IR 490 WB
RAMP N-S
RAMP W-N
RAMP S-W
RAMP N-W
RAMP E-S
IR 77 SB
IR 77 NB
RAMP W-N
RAMP N-E
RAMP E-S
RAMP S-E
RAMP E-N
PERSHING AVE.
BROADWAY
MATCH LINE
IR 77 SB
IR 77 NB
IR 77 SB
IR 77 NB
HARVARD ROAD
MATCH LINE

1
EAST M3-2-24
INTERSTATE 490 M1-1-36-3
DETOUR M4-9R-30

2
EAST M3-2-24
INTERSTATE 490 M1-1-36-3
DETOUR M4-9-30

3
DETOUR M4-8a-24
EAST M3-2-24
INTERSTATE 490 M1-1-36-3
M5-1-30

N

0 125 250 500
HORIZONTAL SCALE IN FEET

- CLOSE IR 490 EB UNDER IR 77

DETOUR PLAN - C

CUY-490-1.87/VAR

25
94

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SHOULDER REPLACEMENT QUANTITIES

	LOCATION	SIDE	IR90, IR490 & RAMPS STATION TO STATION		LENGTH	AVG. PAVING WIDTH	AREA	202		203	304	305	407		448			452	622
								PAVEMENT REMOVED	CONCRETE BARRIER REMOVED	EXCAVATION	6" AGGREGATE BASE	9" CONCRETE BASE, AS PER PLAN	TACK COAT	TACK COAT FOR INTERMEDIATE COURSE	INTERMEDIATE COURSE THICKNESS	ASPHALT CONC. INTER. COURSE, TYPE 2, PG64-28	1½" ASPHALT CONC. SURFACE COURSE, TYPE IH, AS PER PLAN	9" NON-REINFORCED CONCRETE PAV'T, AS PER PLAN	CONC. BARRIER, TYPE B1
			FROM	TO	FT.	FT.	SQ. YARD	SQ. YARD	FEET	CU. YARD	CU. YARD	SQ. YARD	GALLONS	GALLONS	INCHES	CU. YARD	CU. YARD	SQ. YARD	FEET
32	IR90	EB	83+72	89+22	550	10.0	611			225		611	61	30	2.75	46.7	25.5		
		EB	89+22	89+72	50	9.0	50			18		50	5	2	2.75	3.8	2.1		
		WB	84+80	93+00	820	10.0	911			335		911	91	45	2.75	69.6	38.0		
33	RAMP E-9	LT.	2+35	5+96	361	6.0	241	137		74	40.2	241	24	12	1.50	10.0	10.0		
	RAMP E-15	LT.	11+10	12+90	180	3.0	60			20		60	6	3	1.50	2.5	2.5		
		RT.	11+10	14+00	290	8.0	258			86		258	26	13	1.50	10.8	10.8		
	RAMP E-17	RT.	5+85	7+68	183	8.0	163			54		163	16	8	1.50	6.8	6.8		
34	IR490	MED.	1033+83	1033+95	12	16.0	21	21	12		14.2							21	12
		MED.	1034+30	1034+33	3				3										3
TOTALS CARRIED TO GENERAL SUMMARY								158 *	15	812	54.4 *	2,294 *	229 *	113 *		150.2 *	95.7 *	21	15

* - QUANTITIES CARRIED TO TABLE BELOW

RAMP WN WIDENING QUANTITIES

RAMP WN STATION TO STATION			AVG. SUBBASE WIDTH	AVG. CONCRETE BASE WIDTH	AVG. ASPHALT PAVING WIDTH	202	204	254	304	305	407		448			451	609	622		SPECIAL
						PAVEMENT REMOVED	SUBGRADE COMPACTION	PAVEMENT PLANING, ASPHALT CONC.	6" AGGREGATE BASE	9" CONCRETE BASE, AS PER PLAN	TACK COAT	TACK COAT FOR INTERMEDIATE COURSE	INTERMEDIATE COURSE THICKNESS	ASPHALT CONC. INTER. COURSE, TYPE 1, PG64-22	ASPHALT CONC. INTER. COURSE, TYPE 2, PG64-28	1½" ASPHALT CONC. SURFACE COURSE, TYPE IH, AS PER PLAN	9" REINFORCED CONCRETE PAV'T, AS PER PLAN	CURB, TYPE 4A	CONC. BARRIER, END ANCHOR, REINFORCED, TYPE D	CONC. BARRIER, TYPE D	PRESSURE RELIEF JOINT, TYPE B
FROM	TO	LENGTH	FEET	FEET	FEET	SQ. YARD	SQ. YARD	SQ. YARD	CU. YARD	SQ. YARD	GALLONS	GALLONS	INCHES	CU. YARD	CU. YARD	CU. YARD	SQ. YARD	FEET	EACH	FEET	FEET
4+10	5+09	99	6.15	5.65		44	79		11.3					3.7			62				
5+09	5+50	41	10.99	10.49		18	54		8.3								48	41			
5+50	6+28	78	11.97	11.97		57	104		17.3								104				11
6+04	6+78	62 AVG.			13.20						9		0			3.8					
6+04	6+78	95 AVG.			26.00			274			27					11.4					
9+75	10+00	25 AVG.			20.00			56			6					2.3					
9+75	10+00	25			14.00						4					1.6					
9+98	10+50	52	16.50	14.00	14.00	21	101		15.9	81	8	4	1.75		3.9	3.4			1	18	
10+50	12+00	150	14.62	12.12	12.12	67	260		40.6	202	20	10	1.75		9.8	8.4			1	135	13
12+00	12+90	90	7.62	7.12	7.12	40	86		12.7	71	7	4	1.75		3.5	3.0					
12+90	14+44	154	6.50	6.00	6.00	68	128		18.5	103	10	5	1.75		5.0	4.3					
14+44	14+80	36	5.50	5.00	5.00		26		3.7	20	2	1	1.75		1.0	0.8					
14+80	15+60	80	4.50	4.00	4.00		49		6.7	36	4	2	1.75		1.7	1.5					
TOTALS - THIS TABLE						315	887	330	135.0	513	97	26		3.7	24.9	40.5	214	41	2	153	24
TOTALS - TABLE ABOVE						158			54.2	2,294	229	113			150.2	95.7					
TOTALS CARRIED TO GENERAL SUMMARY						473	887	330	187.4	2807	326	139		3.7	175.1	136.2	214	41	2	153	24

CALCULATED ENF
CHECKED JTP

ROADWAY AND PAVEMENT SUBSUMMARY

CUY-490-1.87/VAR

...Roadway Sheets 85049MQ0001.dgn

DRAINAGE QUANTITIES

SHEET	LOCATION	SIDE	RAMP WN STATION TO STATION		202			603			604						670	
			FROM	TO	PIPE REMOVED 24" & UNDER	CATCH BASIN REMOVED		15" CONDUIT TYPE B	15" CONDUIT TYPE C	15" CONDUIT TYPE F	CATCH BASIN NO. 3A	CATCH BASIN NO. 5	INLET NO. 3D	MANHOLE NO. 3, AS PER PLAN			DITCH EROSION PROTECTION	
					FEET	EACH		FEET	FEET	FEET	EACH	EACH	EACH	EACH			SQ. YD.	
35	RAMP WN	LT.	5+06±	5+17					81		1							
		LT.	5+02	5+11														
			5+30	5+17				13			1							
36	RAMP WN	LT.	9+91		8	1												
		LT.	9+90	10+25				36	6			1						
		LT.	9+90	12+00													175	
		LT.	10+25	11+25				98					1					
		LT.	11+25	12+00				74						1				
		LT.	12+00							25		1					125	
TOTALS CARRIED TO GENERAL SUMMARY					8	1		221	87	25	2	2	1	1			300	

UNDERDRAIN QUANTITIES

SHEET	LOCATION	SIDE	RAMP WN STATION TO STATION			603		605	
			FROM	TO		6" CONDUIT, TYPE F		4" BASE PIPE UNDERDRAIN	
						FEET		FEET	
35	RAMP WN	LT.	4+10	5+08		10		98	
36	RAMP WN	LT.	9+90	10+20		10		30	
		LT.	10+25	11+20		10		95	
		LT.	11+25	11+95		10		70	
		LT.	12+00	14+44		10		244	
TOTALS CARRIED TO GENERAL SUMMARY						50		537	

CALCULATED ENF
CHECKED JTP

MISCELLANEOUS QUANTITIES SUBSUMMARY

CUY-490-1.87/VAR

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GUARDRAIL QUANTITIES

SHEET	LOCATION	SIDE	RAMP WN STATION TO STATION FROM	TO		202 GUARDRAIL REMOVED EACH		606 GUARDRAIL TYPE 5 FEET	606 BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH		626 BARRIER REFLECTOR TYPE A EACH	626 BARRIER REFLECTOR TYPE B EACH
35	RAMP WN	LT.	4+10	5+50				140	1			4	
		LT.	4+10	6+35		225							
		LT.	5+50	12+00									14
SEE BRIDGE PLANS	IR77NB	RT.	118+18±	124+56±		50		50	1	1		1	7
	IR77SB	LT.	118+75±	124+54±		50		50	1	1		1	7
TOTALS CARRIED TO GENERAL SUMMARY						325		240	3	2		6	28
												34	

EARTHWORK RECAP

SHEET NUMBER	RAMP WN STATION TO STATION FROM	TO	203 EXCAVATION CU. YD.	EMBANKMENT	659 SEEDING AND MULCHING SQ. YD.
37	4+00	5+00	16	3	127
38	5+50	6+00	37	3	86
39	6+50	6+55	20	34	3
40	10+00	10+50	48	25	140
41	11+00	11+50	61	38	213
42	12+00	12+50	47	31	194
43	13+00	14+00	34	19	216
44	14+50	15+50	46	7	107
DEDUCTIONS FOR 660 & 670					
TOTALS TO GENERAL SUMMARY			309	160	1,086

SEEDING AND MULCHING GROWTH AND CARE CALCULATIONS

TOPSOIL (4" COMPACTED DEPTH)
111 C.Y. PER 1000 S.Y. x 1086 S.Y. = 120 C.Y.

INTERSEEDING
5% x 705 S.Y. = 35 S.Y., USE 35 S.Y.

REPAIR SEEDING AND MULCHING
5% x 705 S.Y. = 35 S.Y., USE 35 S.Y.

COMMERCIAL FERTILIZER
30 LBS / 1000 S.F. x 1086 S.Y. x 9 S.F./S.Y. = 293 LBS
20 LBS / 1000 S.F. x 35 S.Y. x 9 S.F./S.Y. = 6 LBS.
= 300 LBS. = 0.15 TONS

LIME
1086 S.Y. x 9 S.F./S.Y. ÷ 43560 S.F. PER ACRE
= 0.22 ACRES

WATER (381 S.Y. ITEMS 660 & 670)
2x300 GALS/1000 S.F. x (1086-381) S.Y.x 9 S.F./S.Y. = 3807 GALS
1x300 GALS/1000 S.F. x 35 S.Y. x 9 S.F./ S.Y = 95 GALS
1x300 GALS/1000 S.F.x 381 S.Y. x9 S.F./S.Y. x 8 WEEKS = 8230 GALS
= 12132 GALS = 12.1 M. GALS. USE 12 M. GALS.

CALCULATED ENF
CHECKED JTP

MISCELLANEOUS QUANTITIES SUBSUMMARY

CUY-490-1.87/VAR

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STATIONING FOR THE WORK ZONE IMPACT ATTENUATORS IS GIVEN AT THE END OF THE PCB

WORK ZONE PAVEMENT MARKINGS

SHEET	SIDE / LOCATION	STATION TO STATION FROM	STATION TO STATION TO	614 WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1 (WHITE)	614 WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE 1 (YELLOW)	614 WORK ZONE LANE LINE, CLASS 1, 740.06, TYPE 1	614 WORK ZONE CHANNELIZING LINE CLASS 1, 740.06, TYPE 1	614 WORK ZONE IMPACT ATTENUATOR, FOR 24" WIDE HAZARD, (UNIDIRECTIONAL)	614 WORK ZONE RAISED PAVEMENT MARKER	622 PORTABLE CONCRETE BARRIER, 32"	622 PORTABLE CONCRETE BARRIER, 32" BRIDGE MOUNTED	253 PAVEMENT REPAIR, AS PER PLAN	
		FROM	TO	FEET	FEET	FEET	FEET	EACH	EACH	FEET	FEET	CU. YD.	
18-19		2+50	15+70	1320	1320								
18-19	RAMP WN	2+65	15+70					1		960	350		
19		15+70	17+00	130	130		130						
19		17+00	21+00	400	400								
19	RAMP EN	21+00	24+50	350	350								
20	490WB	1021+82	1025+80	300	300		300						
20-21	490WB	1025+80	1036+00	1020	1020		1020					1.2	
21	490WB	1036+00	1047+00		1100								
20-21	490EB	1024+00	1042+90	1890	1890		1890	1	285	370			
21	490WB	1033+00	1037+50					1		450			
22	77NB	116+50	125+00		850								
22	77NB	117+00	125+00					1		200	600		
22	77SB	118+00	126+50		850								
22	77SB	118+00	126+00					1		270	530		
TOTALS CARRIED TO GENERAL SUMMARY				5410	8210		3340	5	285	2250	1,480	1.2	
				=2.58 mi.									

RESTORATION OF PAVEMENT MARKINGS

SHEET	SIDE / LOCATION	RAMP WN STATION TO STATION FROM	RAMP WN STATION TO STATION TO	642 EDGE LINE, TYPE 1 (WHITE)	642 EDGE LINE, TYPE 1 (YELLOW)	642 LANE LINE, TYPE 1 (DASHED)
		FROM	TO	FEET	FEET	FEET
18-19	RAMP WN	2+50	15+10	1260	1260	
19	RAMP WN	15+10	17+20		210	210
19	RAMP EN	21+00	23+20	220	220	
19	RAMP EN	23+20	23+90	140		
19	RAMP EN	23+90	25+80	190		
19	RAMP EN	25+80	29+80	400	400	
20	490WB	1021+82	1025+80	300	300	300
20-21	490WB	1025+80	1035+00	920		920
21	490WB	1035+00	1036+00	100		200
21	490WB	1036+00	1047+00			1100
21	490EB	1024+00	1042+90	1890	1890	1890
22	77NB	116+50	125+00	850		
22	77SB	118+00	126+50	850		
32	90EB	83+72	89+72	600		
32	90WB	84+80	93+00	820		
33	E-15 SB	11+10	14+00	290		
33	E-15 SB	11+10	12+90		180	
33	E-9 NB	2+35	5+96		361	
33	E-17 NB	5+85	7+68	183		
TOTALS CARRIED TO GENERAL SUMMARY				9013	4821	4620
				=2.62 mi.		=0.88 mi.

CALCULATED ENF CHECKED JTP

MAINTENANCE OF TRAFFIC SUBSUMMARY

CUY-490-1.87/VAR

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SHEET NUMBER														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
			8		26		27		28		46C								
																		ROADWAY	
														201	11000	LUMP		CLEARING AND GRUBBING	
					473									202	23000	473	SQ. YD.	PAVEMENT REMOVED	
					15									202	30700	15	FT.	CONCRETE BARRIER REMOVED	
							8							202	35100	8	FT.	PIPE REMOVED, 24" AND UNDER	
									325					202	38000	325	FT.	GUARDRAIL REMOVED	
							1							202	58100	1	EACH	CATCH BASIN REMOVED	
					812				309					203	10000	1121	CU. YD.	EXCAVATION	
									160					203	20000	160	CU. YD.	EMBANKMENT	
					887									204	10000	887	SQ. YD.	SUBGRADE COMPACTION	
									240					606	13000	240	FT.	GUARDRAIL, TYPE 5	
									3					606	35000	3	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
									2					606	35100	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2	
					15									622	10101	15	FT.	CONCRETE BARRIER, SINGLE SLOPE, TYPE B1, AS PER PLAN	5
					153									622	10160	153	FT.	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	
					2									622	25050	2	EACH	CONCRETE BARRIER, END ANCHOR, REINFORCED, TYPE D	
									34					626	00100	34	EACH	BARRIER REFLECTOR	
																		EROSION CONTROL	
									120					659	00300	120	CU. YD.	TOPSOIL	
									1086					659	10000	1086	SQ. YD.	SEEDING AND MULCHING	
									35					659	14000	35	SQ. YD.	REPAIR SEEDING AND MULCHING	
									35					659	15000	35	SQ. YD.	INTER-SEEDING	
									0.15					659	20000	0.15	TON	COMMERCIAL FERTILIZER	
									0.22					659	31000	0.22	ACRE	LIME	
									12					659	35000	12	M GAL	WATER	
							300							670	00700	300	SQ. YD.	DITCH EROSION PROTECTION	
			3500											832	30000	3500	EACH	EROSION CONTROL	
																		LIGHTING	
											8			625	01500	8	EACH	CABLE SPLICING KIT	
											2790			625	23200	2790	FT.	No. 4 AWG, 5000 VOLT, DISTRIBUTION CABLE	
											1084			625	25401	1084	FT.	CONDUIT, 2" 725.04, AS PER PLAN	46C
											251			625	25500	251	FT.	CONDUIT, 3" 725.04	
											231			625	29002	231	FT.	TRENCH, 24" DEEP	
											4			625	32000	4	EACH	GROUND ROD	
																		DRAINAGE	
							50							603	01500	50	FT.	6" CONDUIT, TYPE F	
							221							603	05900	221	FT.	15" CONDUIT, TYPE B	
							87							603	06100	87	FT.	15" CONDUIT, TYPE C	
							25							603	06700	25	FT.	15" CONDUIT, TYPE F	
							2							604	00800	2	EACH	CATCH BASIN, NO. 3A	
							2							604	01600	2	EACH	CATCH BASIN, NO. 5	
							1							604	15150	1	EACH	INLET, NO. 3D	
							1							604	31501	1	EACH	MANHOLE, NO. 3, AS PER PLAN	8
			50											605	05200	50	FT.	4" UNCLASSIFIED PIPE UNDERDRAINS	
							537							605	06000	537	FT.	4" BASE PIPE UNDERDRAINS	

CALCULATED ENF
CHECKED JTP

GENERAL SUMMARY

CUY-490-1.87 / VAR

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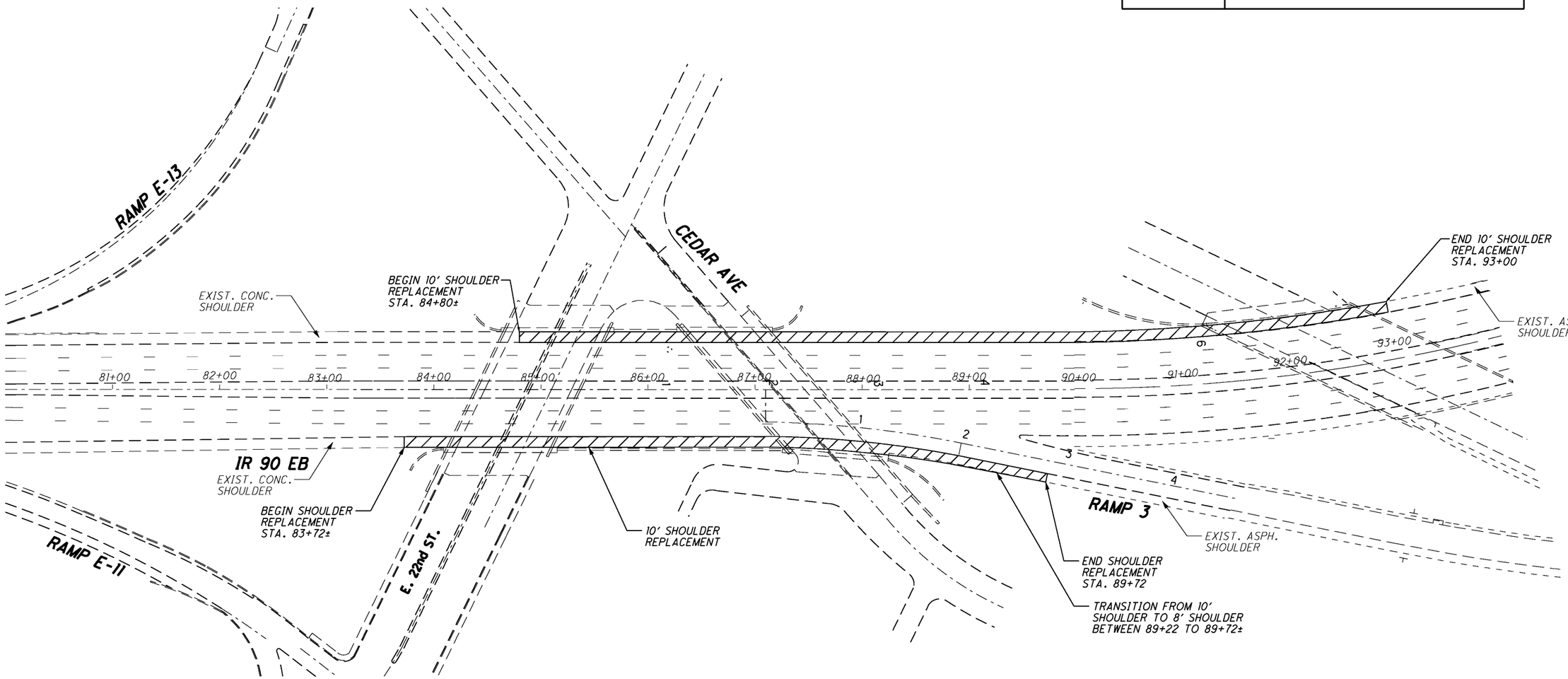
SHEET NUMBER														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
7	8	8A	11	12	13	15A	23	24	25	26		29							
																		PAVEMENT	
	100													251	01000	100	SQ. YD.	PARTIAL DEPTH PAVEMENT REPAIR	
												1.2		253	02001	1.2	CU. YD.	PAVEMENT REPAIR, AS PER PLAN	8
										330				254	01000	330	SQ. YD.	PAVEMENT PLANING, ASPHALT CONCRETE	
										187				304	20000	187	CU. YD.	AGGREGATE BASE	
										2807				305	13001	2807	SQ. YD.	9" CONCRETE BASE, AS PER PLAN	8
										326				407	10000	326	GAL	TACK COAT	
										139				407	14000	139	GAL	TACK COAT FOR INTERMEDIATE COURSE	
										4				448	46020	4	CU. YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22	
										175				448	46040	175	CU. YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-28	
										136				448	50001	136	CU. YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1H, AS PER PLAN	8
										214				451	14001	214	SQ. YD.	9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN	8
										24				SPECIAL	451E31000	24	FT.	PRESSURE RELIEF JOINT, TYPE B	
52														SPECIAL	451E32000	52	FT.	PRESSURE RELIEF JOINT, TYPE C	
										21				452	13001	21	SQ. YD.	9" NON-REINFORCED CONCRETE PAVEMENT, AS PER PLAN	8
										41				609	24000	41	FT.	CURB, TYPE 4-A	
	25													617	10101	25	CU. YD.	COMPACTED AGGREGATE, AS PER PLAN	8
																		TRAFFIC CONTROL	
	1020													618	40100	1020	FT.	RUMBLE STRIPS (ASPHALT CONCRETE)	
												2.62		642	00100	2.62	MILE	EDGE LINE, TYPE 1	
												0.88		642	00200	0.88	MILE	LANE LINE, TYPE 1	
																		MAINTENANCE OF TRAFFIC	
					1000									614	11100	1000	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
					4									614	11500	4	MONTH	WORKSITE TRAFFIC SUPERVISOR	
												5		614	12346	5	EACH	WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS, (UNIDIRECTIONAL)	
							LUMP							614	12420	LUMP		DETOUR SIGNING (RAMP WN)	
								LUMP						614	12420	LUMP		DETOUR SIGNING (IR490WB)	
									LUMP					614	12420	LUMP		DETOUR SIGNING (IR490EB)	
			10											614	12500	10	EACH	REPLACEMENT SIGN	
				20										614	12600	20	EACH	REPLACEMENT DRUM	
												285		614	12800	285	EACH	WORK ZONE RAISED PAVEMENT MARKER	
			100											614	13000	100	CU.YD.	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
				72										614	13100	72	EACH	BARRIER REFLECTOR	
				63										614	13350	63	EACH	OBJECT MARKER, ONE WAY	
						1								614	18000	1	EACH	MAINTAINING TRAFFIC, MISC: WORK ZONE ALERT AND INFORMATION RADIO ON A TRAILER	
				8										614	18601	8	SIGN MNTH	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	12
				0.52										614	20000	0.52	MILE	WORK ZONE LANE LINE, CLASS I	
				1.12										614	22000	1.12	MILE	WORK ZONE EDGE LINE, CLASS I	
												2.58		614	22200	2.58	MILE	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE 1	
												3340		614	23400	3340	FT.	WORK ZONE CHANNELIZING LINE, CLASS I, 740.06, TYPE 1	
												2250		622	40020	2250	FT.	PORTABLE CONCRETE BARRIER, 32"	
																		STRUCTURES (OVER 20')	
		LUMP																FOR CUY-490-0187 WN QUANTITIES, SEE SHEET 53	
																		FOR CUY-77-1518 QUANTITIES, SEE SHEET 90	
														SPECIAL	108E30000	LUMP		SPECIAL - CPM PROGRESS SCHEDULE SHORT DURATION PROJECTS (SEE NOTE IN PROPOSAL)	
														614	11000	LUMP		MAINTAINING TRAFFIC	
														619	16020	6	MONTH	FIELD OFFICE, TYPE C	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														624	10000	LUMP		MOBILIZATION	
														SPECIAL	690E71000	LUMP		SPECIAL - ASBESTOS ABATEMENT	

CALCULATED ENF
CHECKED JTP

GENERAL SUMMARY

CUY-490-1.87 / VAR

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
26	SHOULDER REPL. QUANTITIES



HORIZONTAL SCALE IN FEET
0 25 50 100

IR 90 SHOULDER REPLACEMENT PLAN

CUY-490-1.87/VAR.

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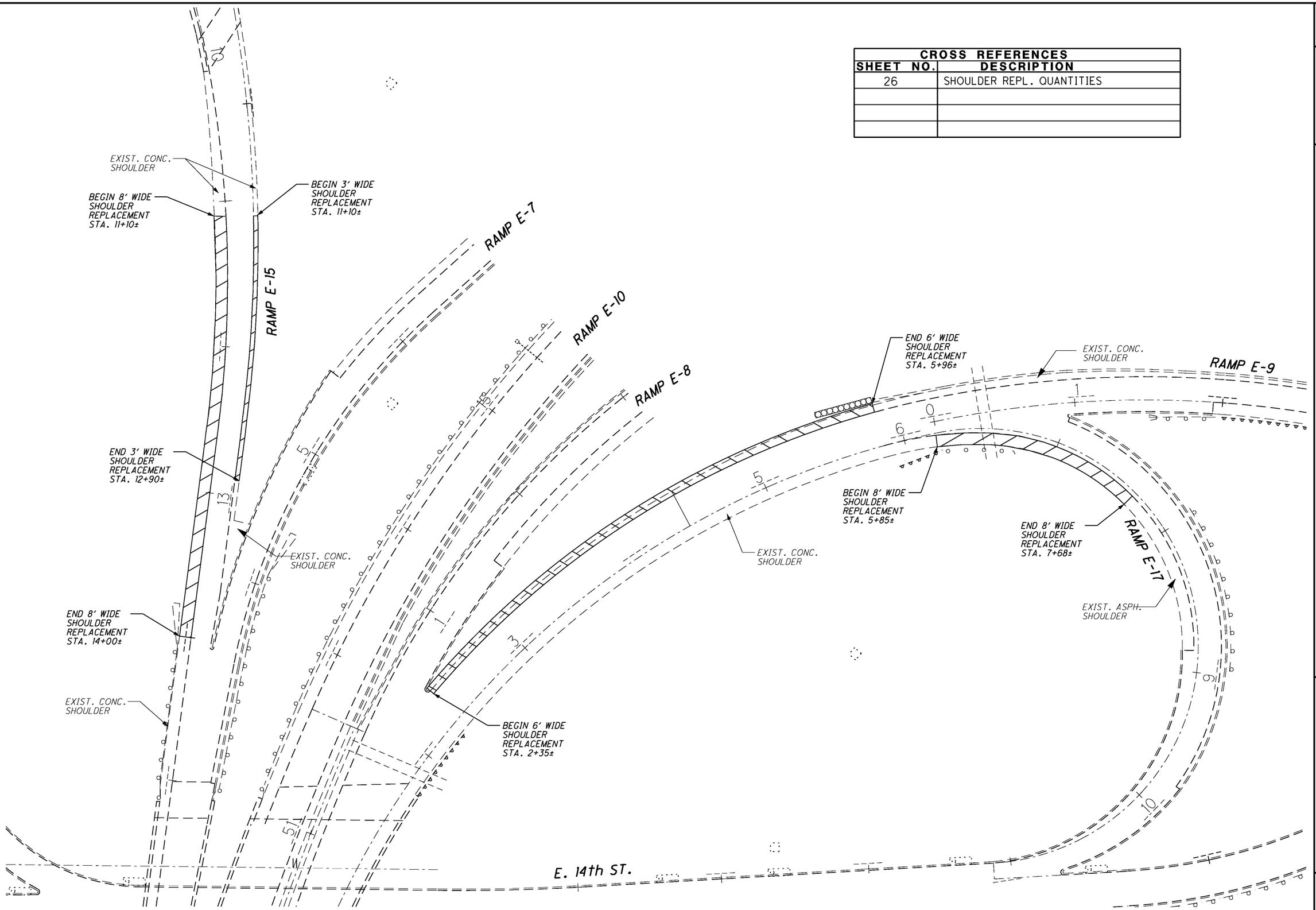
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
26	SHOULDER REPL. QUANTITIES



HORIZONTAL SCALE IN FEET
0 15 30 60

IR77/IR90 RAMP SHOULDER REPLACEMENT PLAN

CUY-490-1.87/VAR.

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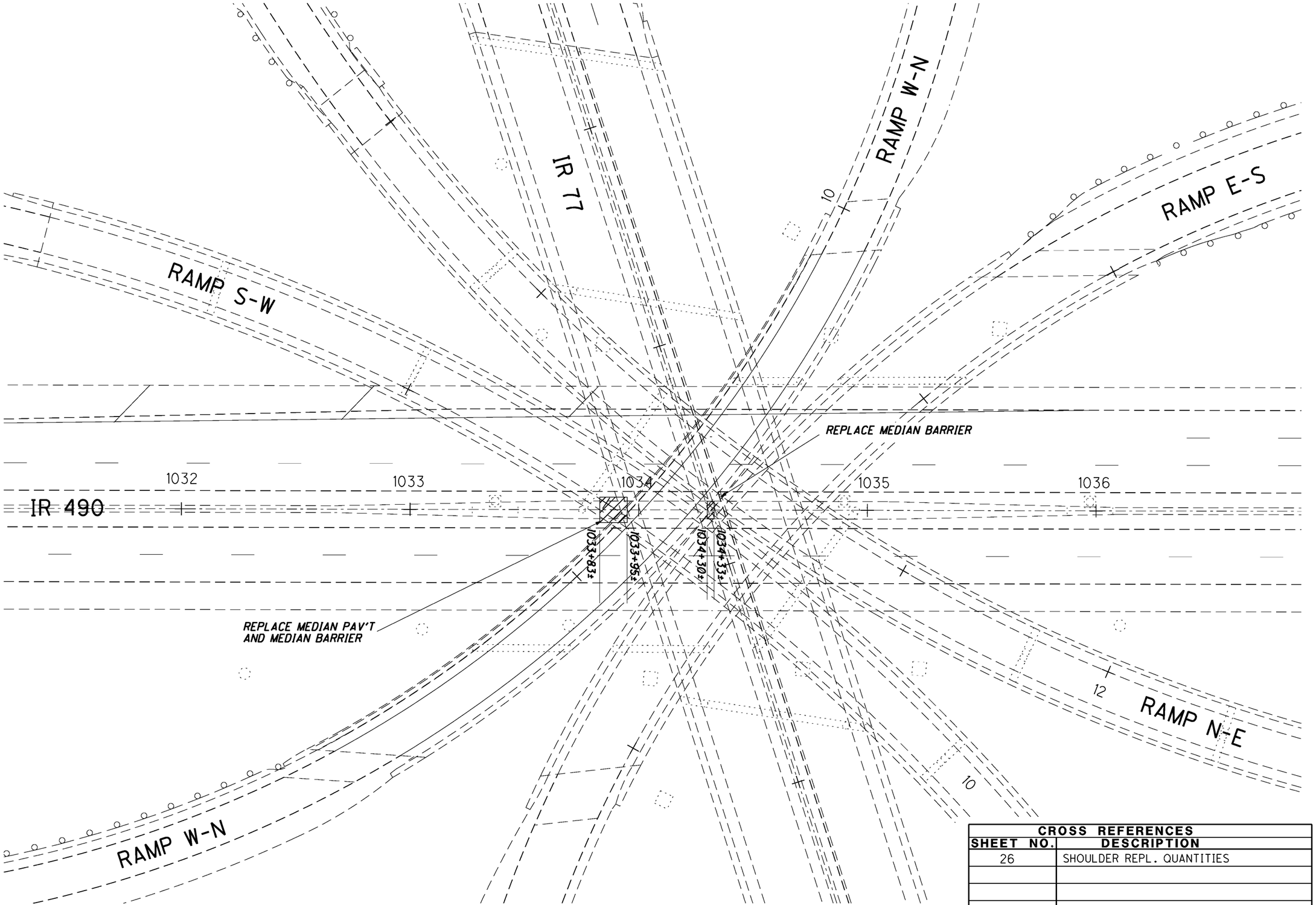

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
26	SHOULDER REPL. QUANTITIES

HORIZONTAL SCALE IN FEET
0 15 20 40

SHOULDER REPLACEMENT PLAN

IR490 MEDIAN SH

CUY-490-1.87 / VAR.

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BENCHMARK
BMS2 ELEV=644.82' TOP OF NW BOLT AT BASE OF ODOT LIGHT TOWER #BRO 26

P.S. = PIPE SET (3/4" X 30" IRON PIPE WITH PLASTIC CAP MARKED "B&N TRAVERSE")

I.P.S. - IRON PIN SET (#4 X 18" REBAR WITH PLASTIC CAP MARKED "B&N TRAVERSE")

CONTROL POINTS	
MNP6000, P.S. STA. 3+51.30, 33.92 RT N 661555.606 E 2198172.290 ELEV. = 641.18* NOT SHOWN	MNP6006, I.P.S. STA. 7+27.56, -31.58 LT N 661693.612 E 2198172.290 ELEV. = 623.52*
MNP6001, P.S. STA. 6+59.43, 28.78 RT N 661608.179 E 2198172.290 ELEV. = 643.60*	MNP6007, I.P.S. STA. 7+23.07, 59.59 RT N 661614.001 E 2198172.290 ELEV. = 646.27*
MNP6403, I.P.S. STA. 7+93.90, 30.39 RT N 661682.632 E 2198172.290 ELEV. = 623.01*	* CONTROL POINT ELEVATIONS SHALL BE VERIFIED RELATIVE TO PROJECT BENCHMARKS PRIOR TO USE.

SPIRAL DATA
P.I. STA. 3+88.09
Δ = 16°30'00"
R = 520.87'
Ls = 300.00'
θs = 16°30'00"
LT = 200.88'
ST = 100.80'
TS STA. 1+87.21

CURVE DATA
P.I. STA. 9+40.98
Δ = 99°49'46"
Dc = 11°
R = 520.87'
T = 618.88'
L = 907.54'
E = 288.03'
emax = 0.060

STA. 5+06±, 89' LT.±
EX. CATCH BASIN
T.C. = 623.40±
EX. 18" W = 619.701
EX. 24" E = 619.40±
15" S = 620.15± (MATCH CROWNS)

CONNECT PROPOSED U.D. TO EXIST.

BEGIN PAVEMENT WIDENING / BEGIN GUARDRAIL STA. 4+10.00

BEGIN 30:1 PAVEMENT WIDENING TAPER STA. 4+70.00

SC STA. 4+87.21

81'-15" CONDUIT, TYPE C

BRIDGE TERMINAL ASSEMBLY, TYPE 1

BEGIN CONCRETE BARRIER / END GUARDRAIL STA. 5+50.00

END 30:1 PAVEMENT WIDENING TAPER STA. 6+47.50

TEMP. SHORING

STA. 5+17, 9.53' LT.
No. 3A CATCH BASIN
T.C.641.18±
15" N = 637.08±

13'-15" CONDUIT, TYPE B

STA. 5+30, 10.00' LT.
No. 3A CATCH BASIN
T.C.641.22±
4.25' BELOW N. G.
15" N = 637.14±

BMS2

MNP6001

MNP6006

MNP6403

MNP6007

PER RECORD PLAN

623.86

622.9

IR-490 WB

IR-490 EB

1032+00

RAMP W-N

RAMP S-W

RAMP N-E

RAMP E-S

IR-77 SB

IR-77 NB

MATCHLINE STA. 9+75

1036+

EX. 21"
EX. 12"
EX. 18"
EX. 48"
EX. 33"
EX. 24"
EX. 60"

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
26	RAMP WIDENING QUANTITIES
27	DRAINAGE & UNDERDRAIN QUANTITIES
28	GUARDRAIL & EARTHWORK QUANTITIES

HORIZONTAL SCALE IN FEET
0 10 20 40

RAMP WN PLAN

CUY-490-1.87 / VAR

35
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BENCHMARK
BMS3 ELEV=649.775' TOP OF BOLT AT BASE OF ODOT LIGHT TOWER #BOW 28

P.S. = PIPE SET (3/4" X 30" IRON PIPE WITH PLASTIC CAP MARKED "B&N TRAVERSE")

I.P.S. - IRON PIN SET (#4 X 18" REBAR WITH PLASTIC CAP MARKED "B&N TRAVERSE")

CONTROL POINTS
MNP6002, I.P. STA. 10+41.42, 31.37 RT N 661890.448 E 2198172.290 ELEV. = 646.52
MNP6003, I.P. STA. 13+32.23, 33.77 RT N 662192.861 E 2198172.290 ELEV. = 654.05
MNP6010, I.P.S. STA. 9+73.24, -37.86 LT N 661861.142 E 2198172.290 ELEV. = 645.81
* CONTROL POINT ELEVATIONS SHALL BE VERIFIED RELATIVE TO PROJECT BENCHMARKS PRIOR TO USE.

CURVE DATA
P.I. STA. 9+40.98
Δ = 99°49'46"
Dc = 11°
R = 520.87'
T = 618.88'
L = 907.54'
E = 288.03'
emax = 0.060

SPIRAL DATA
P.I. STA. 14+95.55
Δ = 16°30'00"
R = 520.87'
Ls = 300.00'
θs = 16°30'00"
LT = 200.88'
ST = 100.80'
ST STA. 16+94.75

RAMP N-E

IR-77 SB

IR-77 NB

MNP6010

STA. 9+90, 20' LT.
No. 5 CATCH BASIN
T.C. = 645.75
15" W & E = 640.05
6" N = 640.80

STA. 9+91, 18' LT
NO. 5 CATCH BASIN
T.C. = 644.00
15" W = 640.11±
REMOVE

36'-15" CONDUIT
TYPE B
@ 0.58 %

MATCHLINE STA. 9+75

BEGIN 40:1 PAVEMENT WIDENING TAPER
STA. 10+50.00

TEMP. SHORING

CONNECT EX. U.D. INTO PROPOSED

MNP6002

STA. 10+25, 12.42' LT.
INLET No. 3D
T.C.=645.34
15" W & N = 640.26
6" N = 641.01±

98'-15" CONDUIT,
TYPE B
@ 2.17 %

STA. 11+92, 44' LT.

STA. 11+25, 7.00' LT.
MANHOLE No. 3, APP
RIM=646.86
MH CASTING ON WEST
SIDE, APPROX. 8.00' LT.
15" N & S = 642.38
6" N = 643.20±

74'-15" CONDUIT,
TYPE B
@ 2.13 %

25'-15" CONDUIT,
TYPE F

END CONCRETE BARRIER
STA. 12+00.00

STA. 12+00, 20' LT.
No. 5 CATCH BASIN
T.C. = 646.95
15" S&W = 643.95

END 40:1 PAVEMENT WIDENING TAPER
STA. 12+90.00

DITCH EROSION PROTECTION (TYP.)

CS Sta. 13+94.75

END EX. SHOULDER REPLACEMENT
STA. 15+60.00

BEGIN EX. 40:1 PAVEMENT WIDENING TAPER
SHOULDER REPLACEMENT
STA. 14+44±

RAMP W-N

RAMP E-N

RAMP E-S

MNP6003

BMS3

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
26	RAMP WIDENING QUANTITIES
27	DRAINAGE & UNDERDRAIN QUANTITIES
28	GUARDRAIL & EARTHWORK QUANTITIES

HORIZONTAL SCALE IN FEET
0 10 20 40

RAMP WN PLAN

CUY-490-1.87/VAR

36
94

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SEEDING END WIDTH	SEEDING SQ. YDS.
6	47
	50
12	30
2	
	127

FOR SEWER PROFILE
SEE SECTION 5+50

STA. 5+06±, 89'± LT.
EX. CATCH BASIN
T.C. = 623.40
EX. 18" W = 619.70±
EX. 24" E = 619.40±
15" S = 620.15± (MATCH CROWNS)

81' - 15" CONDUIT, TYPE C @ 21.2%±

13' - 15" CONDUIT,
TYPE B @ 0.44%+

STA. 5+17, 9.53' LT.
No. 3A CATCH BASIN
T.C. = 641.18±
15" N&E = 637.08±

STA. 5+30, 10.00' LT.
No. 3A CATCH BASIN
T.C. = 641.22±
4.25' DEEP, BELOW NORMAL GUTTER
15" N&E = 637.14±
(NOT SHOWN)

PAVEMENT REMOVED (TYP.)

BEGIN SEEDING, STA. 4+05

BEGIN EARTHWORK, STA. 4+10

	640	635	630	625	645	640	635	630
5+00								
4+50								
4+00								

	60	50	40	30	20	10	0	10	20	30	

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
6	1		
5	1	10	2
6	1	6	1
3	1		
		16	3

CALCULATED ENL
CHECKED ENF

CROSS SECTIONS
STA. 4+00.00 TO STA. 5+00.00

CUY-490-1.87/VAR

37
94

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SEEDING	
END WIDTH	SQ. YDS.
7	36
11	50
	86

END AREA	
CUT	FILL
14	0
10	1
15	2

VOLUME	
CUT	FILL
22	1
37	3

CALCULATED ENL
CHECKED ENF

645
640
635
630
625

6+00

EX. 48" CONDUIT

STA. 5+17, 9.53' LT.
No. 3A CATCH BASIN
T.C. = 641.18±
15" N&E = 637.08±

STA. 5+30, 10.00' LT.
No. 3A CATCH BASIN
T.C. = 641.22±
4.25' DEEP, BELOW NORMAL GUTTER
15" N&E = 637.14±

13' - 15" CONDUIT,
TYPE B @ 0.44%+

SEWER PROFILE

PAVEMENT REMOVED (TYP.)

5+50

60 50 40 30 20 10 0 10 20 30 40 50 60

CROSS SECTIONS
STA. 5+50.00 TO STA. 6+00.00

CUY-490-1.87/VAR

38
94

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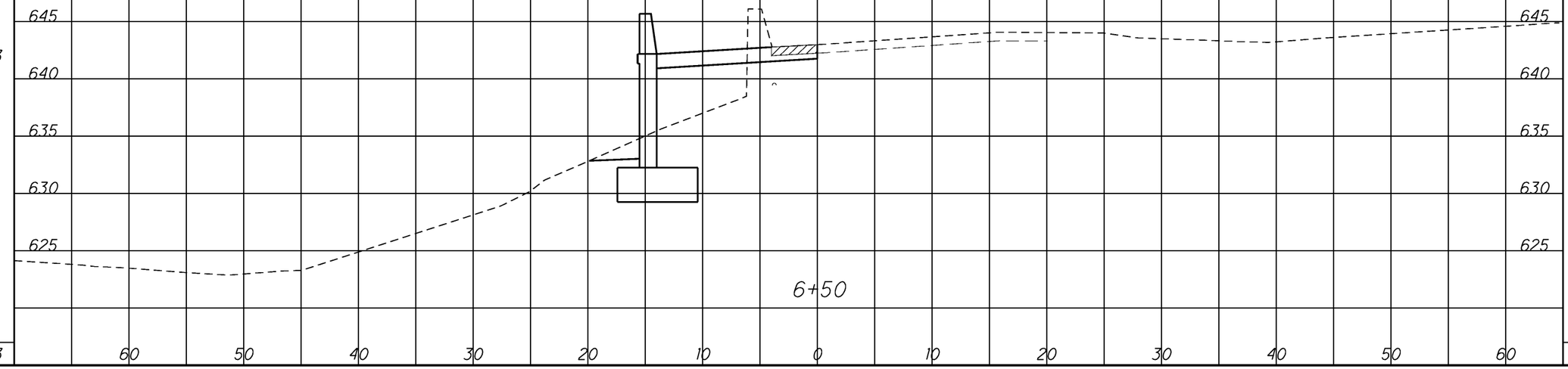
SEEDING	
END WIDTH	SQ. YDS.
6	
	3
6	
	3

END SEEDING, STA. 6+55

END EARTHWORK, STA. 6+55



END AREA		VOLUME	
CUT	FILL	CUT	FILL
6	30		
6	30		
		1	6
		19	28
		20	34

CALCULATED ENL

CHECKED ENF

CROSS SECTIONS STA. 6+50.00

CUY-490-1.87/VAR

39
94

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SEWER PROFILE

SEEDING	
END WIDTH	SQ. YDS.
6	50
12	40
12	50
12	40
	140

END AREA		VOLUME	
CUT	FILL	CUT	FILL
19	3		
		31	13
15	11		
15	11	17	12
15	11		
		48	25

CALCULATED ENL
CHECKED ENF

685 680 675 670 665 660 655 650 645 640

MATCHLINE - SEE BELOW

98'-15" CONDUIT, TYPE B @ 2.17%

STA. 11+25, 7.00' LT.
MANHOLE No. 3, APP
RIM = 646.86±
15" N & S = 642.38
6" N = 643.20±
CASTING ON WEST EDGE
OF MH

STA. 9+90, 20' LT.
No. 5 CATCH BASIN
T.C. = 645.75
15" W & E = 640.05
6" N = 640.80

STA. 10+25, 12.42' LT.
INLET No. 3D
T.C.=645.34
15" W & N = 640.26
6" N = 641.01±

MATCHLINE - SEE ABOVE

36'-15" CONDUIT, TYPE B @ 0.68%

647.3

STA. 10+25, 12.42' LT.
INLET No. 3D
T.C. = 645.34±
15" W & N = 640.26
6" N = 641.01±

10+50

PROVIDE GRANULAR BACKFILL TO WITHIN 6" OF TOP (TYP.)

6' - 15" CONDUIT, TYPE C @ 3.00%±
8' PIPE REMOVED

PAVEMENT REMOVED (TYP.)

MASONRY COLLAR AS NEED, PER DWT.1

15" CONDUIT @ 3.00 %

STA. 9+90, 20' LT.
No. 5 CATCH BASIN
T.C. = 645.75
15" W & E = 640.05
6" N = 640.80

STA. 9+91, 18' LT.
EX. No. 5 CATCH BASIN
T.C. = 644.00
15" W = 640.11±
REMOVE

10+00

BEGIN SEEDING, STA. 9+70

BEGIN EARTHWORK, STA. 9+70

60 50 40 30 20 10 0 10 20 30 40 50 60

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CROSS SECTIONS
STA. 10+00.00 TO STA. 10+50.00

CUY-490-1.87/VAR

40
94

SEEDING	
END WIDTH	SQ. YDS.
24	113
12	100
	213

END AREA	
CUT	FILL
13	22
17	8

VOLUME	
CUT	FILL
28	28
33	10
61	38

CALCULATED ENL
CHECKED ENF

SEWER PROFILE

STA. 11+25, 7.00' LT.
MANHOLE No. 3, APP
RIM = 646.86±
15" N & S = 642.38
6" N = 643.20±
CASTING ON WEST EDGE OF MH

STA. 12+00, 20' LT.
No. 5 CATCH BASIN
T.C. = 646.95
15" S&W = 643.95

74'-15" CONDUIT, TYPE B @ 2.13%

650
645
640
665
660
655
650
680
675
670
665
660
655
650
645

4:1
647.9
11+50

4:1
647.6
PAVEMENT REMOVED (TYP.)
11+00

STA. 11+25, 7.00' LT.
MANHOLE No. 3, APP
RIM = 646.86±
15" N & S = 642.38
6" N = 643.20±
CASTING ON WEST EDGE
OF MH AS SHOWN

60 50 40 30 20 10 0 10 20 30 40 50 60

CROSS SECTIONS
STA. 11+00.00 TO STA. 11+50.00

CUY-490-1.87 / VAR

41
94

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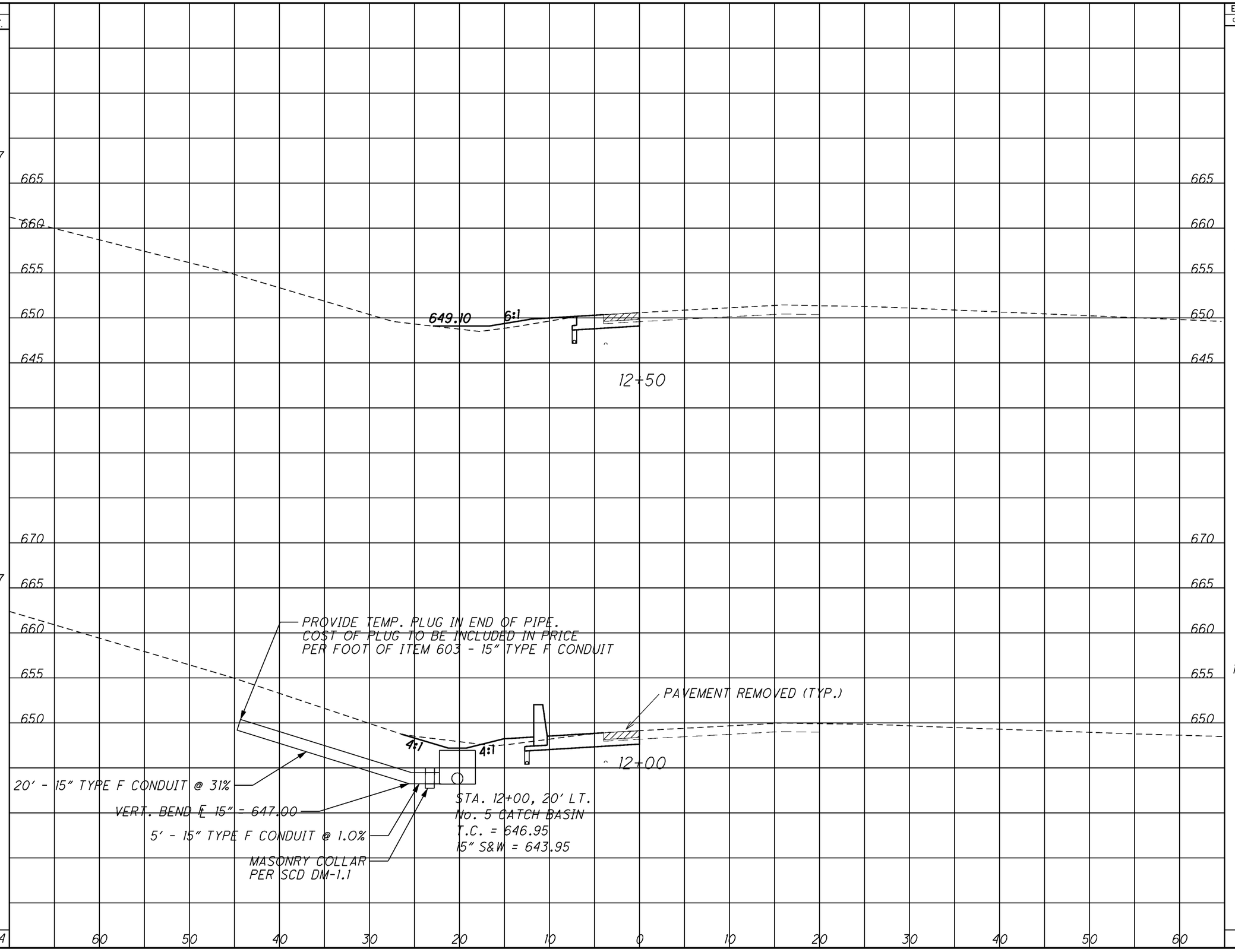
SEEDING	
END WIDTH	SQ. YDS.
18	97
	97
17	
	194



END AREA	
CUT	FILL
7	67
18	3
24	23
47	31

VOLUME	
CUT	FILL
23	8

CALCULATED	CHECKED
ENL	ENF

CROSS SECTIONS
STA. 12+00.00 TO STA.12+50.00

CUY-490-1.87/VAR

42
94

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SEEDING END WIDTH	SEEDING SQ. YDS.
11	61
14	69
17	86
	216

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
6	1		
		11	4
6	3		
		11	6
6	4		
		12	9
		34	19

CALCULATED ENL
CHECKED ENF

CROSS SECTIONS
STA. 13+00.00 TO STA. 14+00.00

CUY-490-1.87/VAR

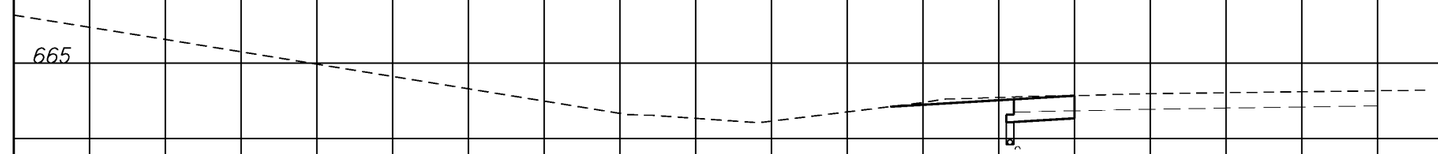
43
94

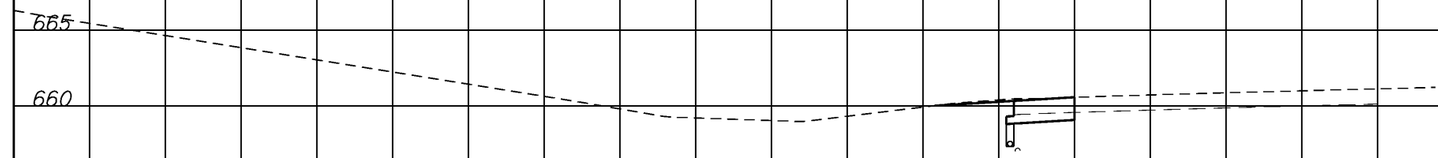
\roadway\sheets\85049XS001.dgn

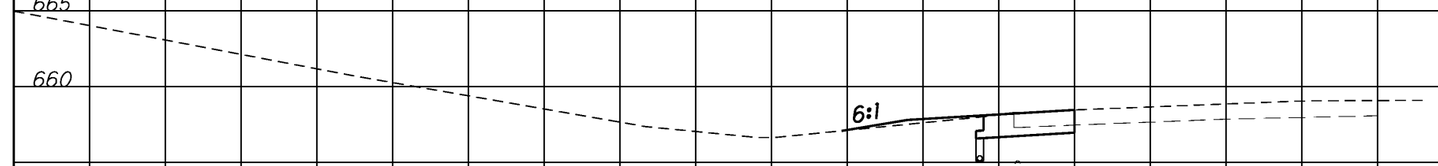
SEEDING	
END WIDTH	SQ. YDS.
2	
	10
10	
	47
7	
	50
11	
	107

END SEEDING, STA. 15+65

END EARTHWORK, STA. 15+60







	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	8	0		
			3	0
	8	0		
			14	1
	7	1		
			15	3
	9	2		
			14	3
			46	7

CALCULATED ENL
CHECKED ENF

CROSS SECTIONS
STA. 14+50.00 TO STA. 15+50.00

CUY-490-1.87/VAR

44
94

60 50 40 30 20 10 0 10 20 30 40 50 60

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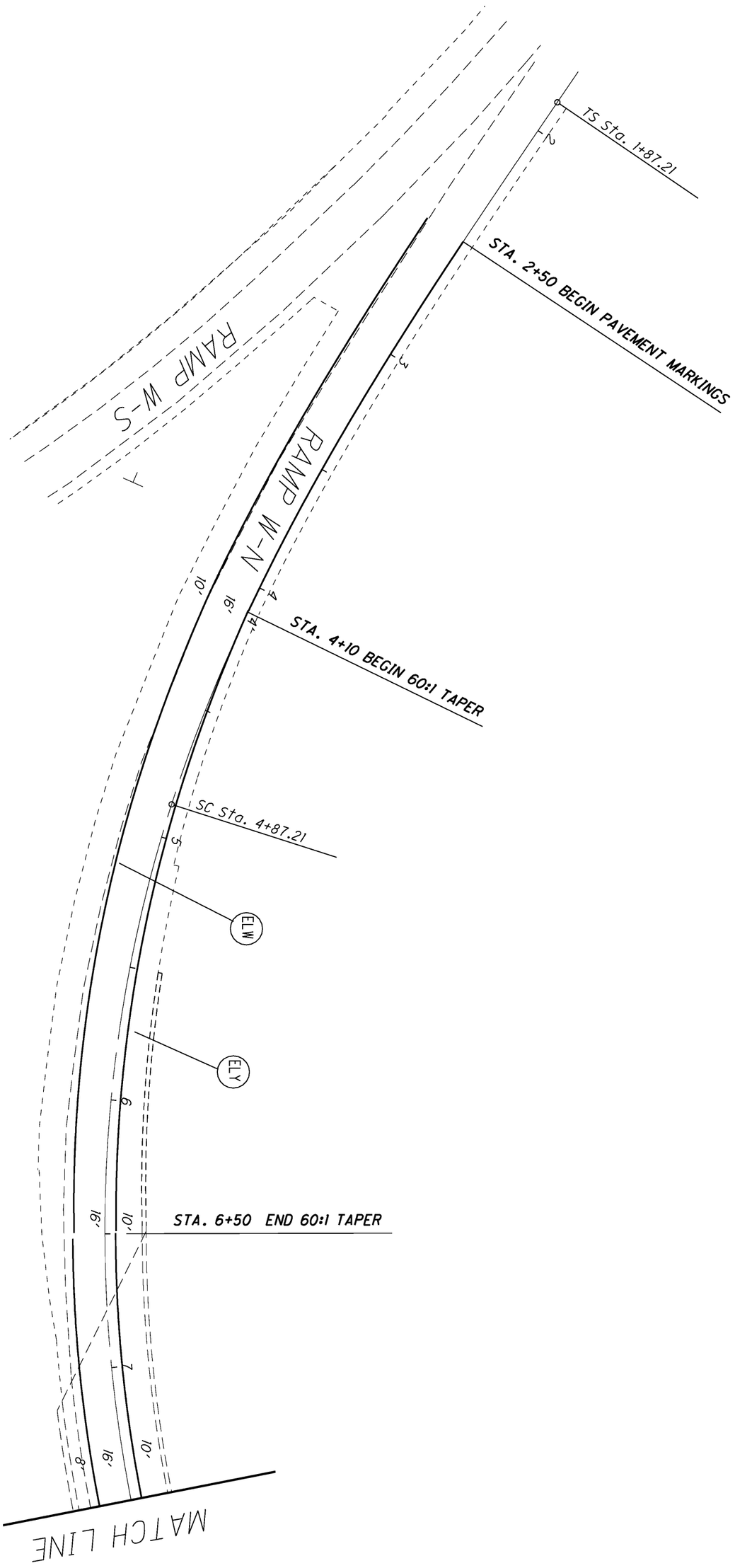

PAVEMENT MARKING LEGEND	
LL	ITEM 642, LANE LINE, WHITE
ELW	ITEM 642, EDGE LINE, WHITE
ELY	ITEM 642, EDGE LINE, YELLOW

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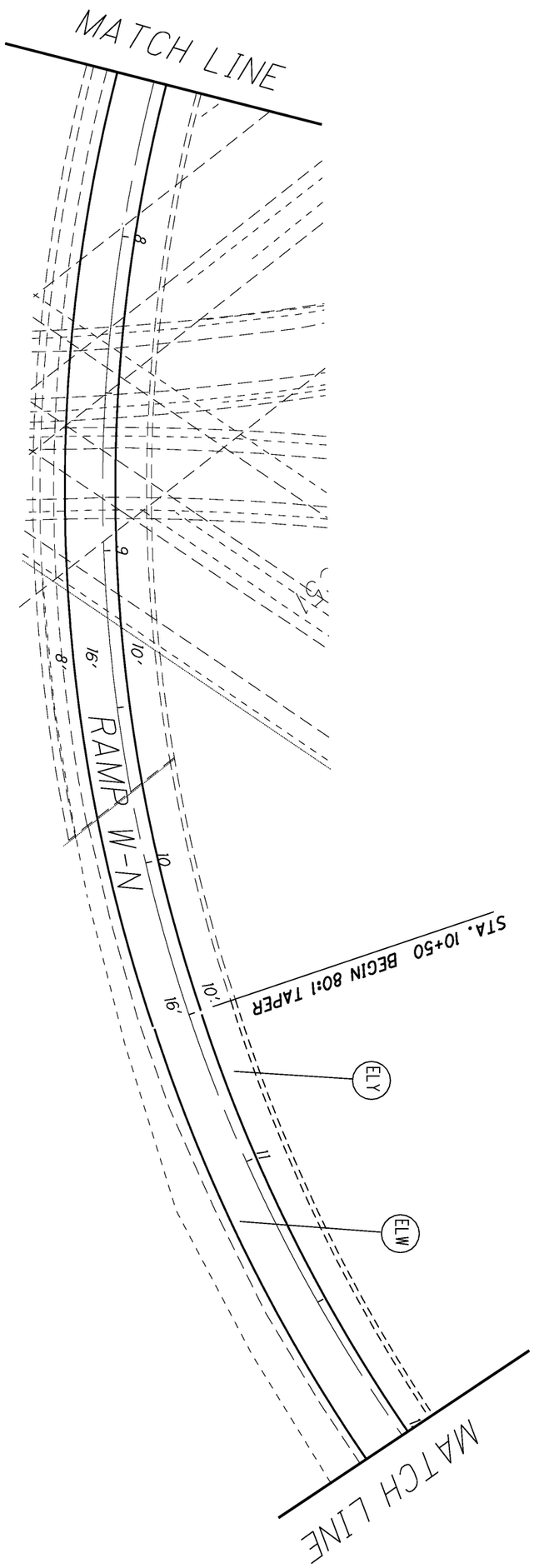


PAVEMENT MARKING LEGEND

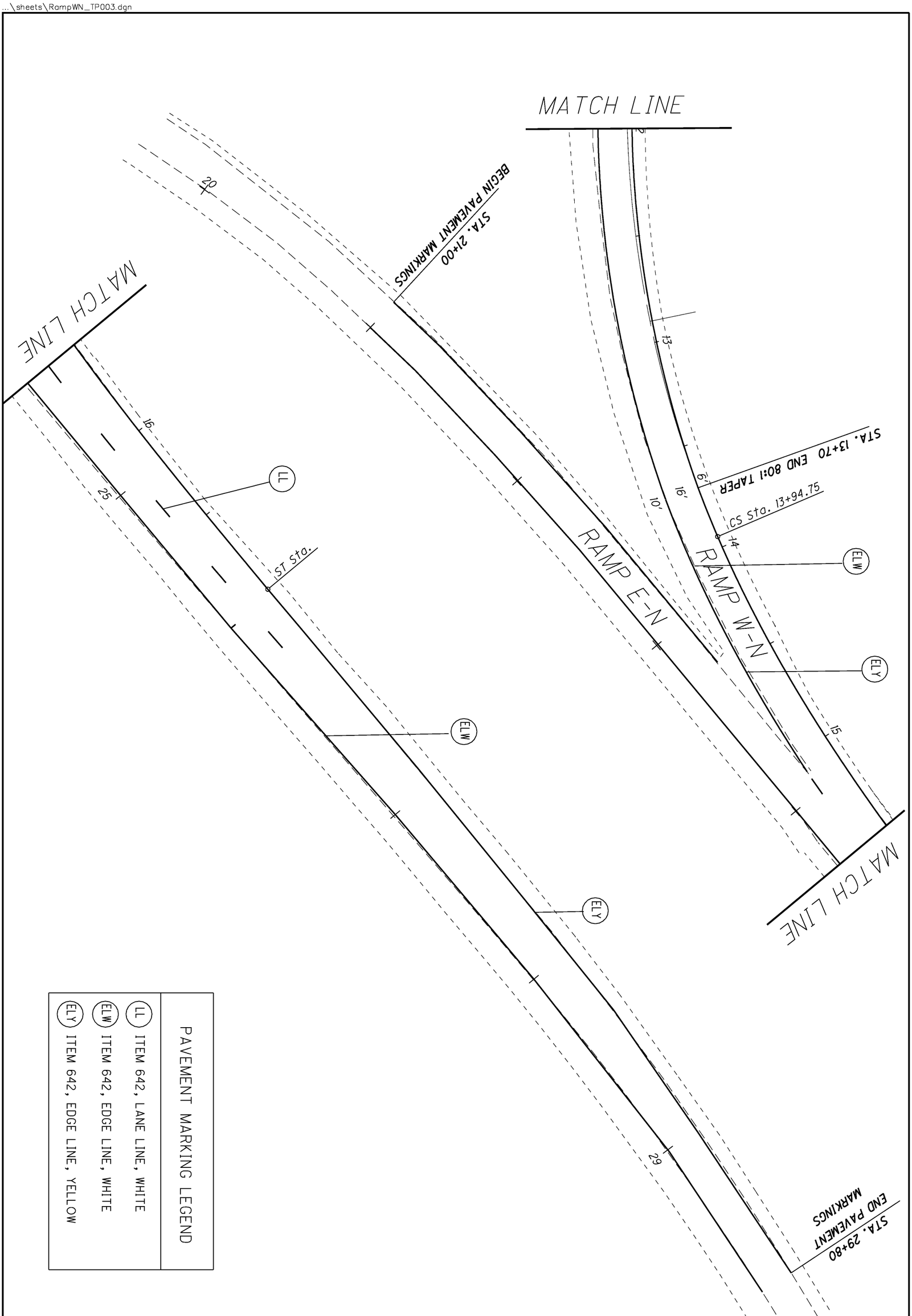
LL	ITEM 642, LANE LINE, WHITE
ELW	ITEM 642, EDGE LINE, WHITE
ELY	ITEM 642, EDGE LINE, YELLOW

CUY-490-1.87/VAR

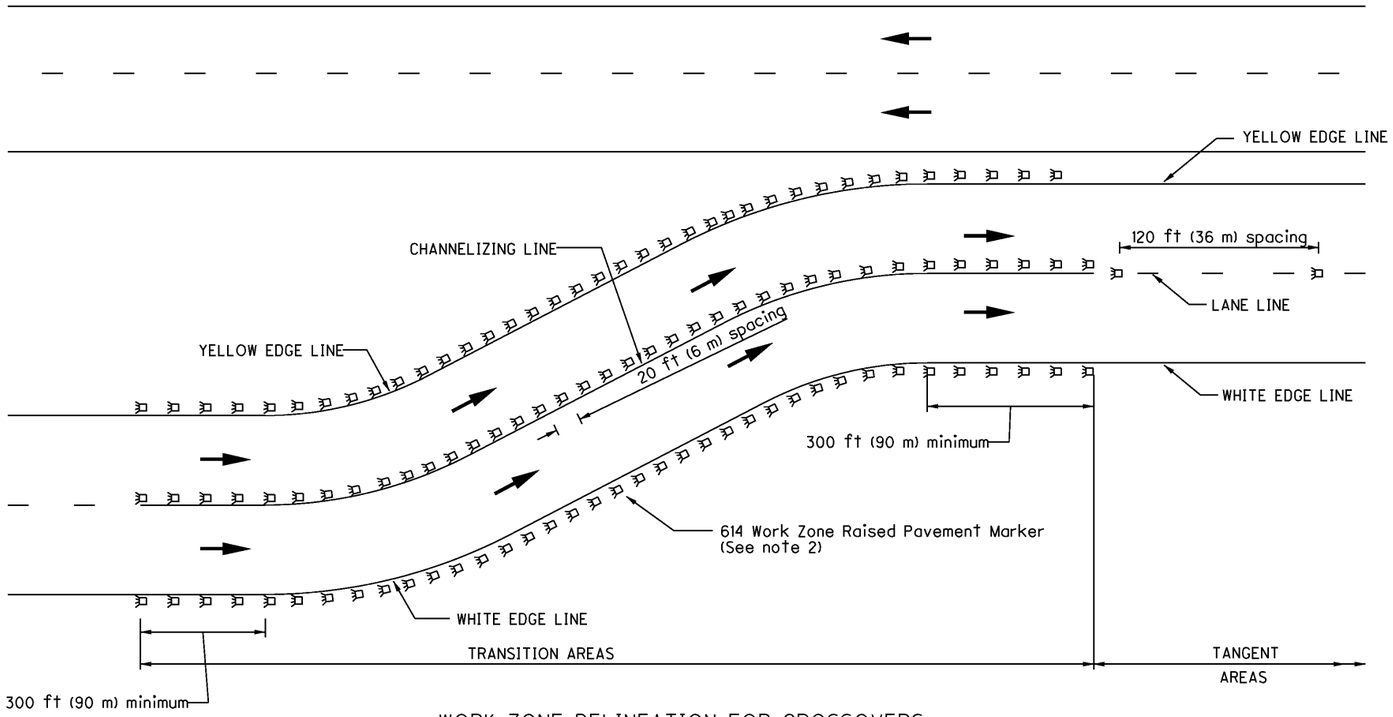
RAMP WN TRAFFIC CONTROL PLAN

0 20
10 40
HORIZONTAL SCALE IN FEET

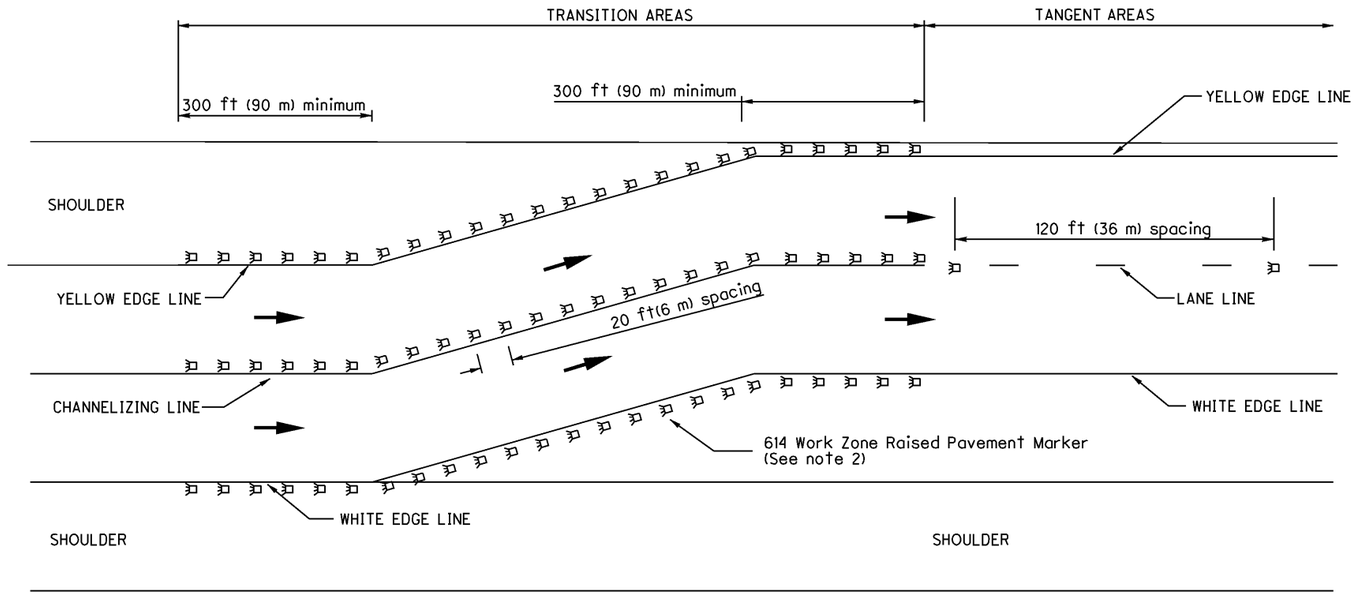
...\sheets\RampWN_TP003.dgn



46A / 94	CUY-490-1.87/VAR	RAMP WN TRAFFIC CONTROL PLAN



WORK ZONE DELINEATION FOR CROSSOVERS



WORK ZONE DELINEATION FOR LANE SHIFTS

NOTES

1. This drawing presents delineation procedures for freeways and expressways on concrete surfaces. Procedures are provided for transition areas and for tangent areas. The procedures for transition areas apply to crossovers and to lane shifts of 4 feet (1.2 m) or greater. Delineation of transition areas for shifts of less than 4 feet (1.2 m) shall be as per the tangent area delineation.
2. The Work Zone Raised Pavement Markers (WZRPMs) shown on this drawing are intended for use only during the non-snow-plowing season. WZRPMs shall not be provided during the snow-plowing season. The snow-plowing season shall be from October 16 through March 31 or as otherwise specified in the plans. Where a temporary alignment will remain in use through the winter, the WZRPMs shall be removed prior the beginning of snow-plowing season and replaced approximately April 1, or as otherwise determined by the Engineer
3. All material furnished shall be listed on the Department's Prequalified Lists.
4. The geometrics of the crossover shall be as shown in the plans. Additional details are provided in Standard Construction Drawing MT-95.70.
5. See Standard Construction Drawings MT-102.10 and MT-102.20 for more details concerning lane shifts.
6. Spacing of WZRPMs shall be at 20 feet (6 m) center-to-center for all long-line marking within transition areas. Within

   tangent areas WZRPMs shall be provided only along the lane lines, spaced at 120 feet (36 m) center-to-center.
7. The WZRPMs shall be 1-way, facing oncoming traffic, and shall be white or yellow to match the color of the associated line marking.
8. Along the edge lines, the WZRPMs shall be offset a maximum of 4 inches (100 mm) to the outside of the lines. Along the channelizing lines, the WZRPMs shall be offset to the left of the lines by no more than 1 inch (25 mm). Along the lane lines the WZRPMs shall be centered between dashes.
9. The WZRPMs shall be removed when they are no longer appropriate.

LEGEND

WORK ZONE RPM, TYPE A

DIRECTION OF TRAVEL

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED LAM

REVISION DATE 07/20/07 | CHECKED

PID NUMBER 209931

PLAN INSERT SHEET

WORK ZONE DELINEATION ON CONCRETE SURFACES

CUY-490-1.87/VAR

1 / 1

46B
94

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LIGHTING GENERAL NOTES

PROPOSED WORK

THE FOLLOWING MAJOR WORK ITEMS ARE PROPOSED:

1. REPLACE CONDUIT AND CONDUCTORS THAT ARE CURRENTLY ROUTED THROUGH THE BRIDGE PARAPET WITH NEW CONDUIT AND CONDUCTORS ROUTED THROUGH THE SUPERSTRUCTURE.

POWER AGENCY

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

FIRST ENERGY
THE ILLUMINATING COMPANY
6896 MILLER ROAD
BRECKSVILLE, OHIO 44141
PHONE: (440) 546-8748

CITY CIRCUITS (UNDERPASS LIGHTING, IR77 OVER ORANGE AVE. AND E. 30TH STREET)

THE MAINTAINING AGENCY FOR THE CITY CIRCUITS IS:

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC UTILITIES
1300 LAKESIDE AVE.
CLEVELAND, OHIO 44114
ATTN: JOSEPH RICCIARELLI
PHONE: (216) 664-3922

ODOT CIRCUITS

THE CONTACT FOR THE ODOT MAINTAINED CIRCUITS IS:

OHIO DEPARTMENT OF TRANSPORTATION
RIVEREDGE MAINTENANCE YARD
ATTN: BRYAN KRALL, DISTRICT LIGHTING SUPERVISOR
PHONE: (216) 312-0085
OR TRAVIS BONNETT: (216) 584-2220

EXISTING PLANS AND CONSTRUCTION PROJECT YEAR ARE:

CUY-21-13.77/14.94 1963
CUY-77-14.05/CUY-90-16.15 1977

LIGHTING OUTAGES

THE TIME THAT EACH EXISTING LIGHTING CIRCUIT WILL BE OUT OF SERVICE UNTIL THE NEW WIRING IS IN PLACE AND FUNCTIONING SHALL BE KEPT TO A MINIMUM AND IN ALL CASES, SHALL BE NOT MORE THAN 2 CALENDAR DAYS.

LIQUIDATED DAMAGES IN THE AMOUNT OF $400 PER DAY PER CIRCUIT SHALL BE ASSESSED FOR EACH DAY THE CIRCUIT IS OUT OF SERVICE BEYOND THE 2 CALENDAR DAYS.

SEQUENCE OF CONSTRUCTION

PRIOR TO REMOVING THE EXISTING CURB/PARAPET THE LIGHTING CONDUITS AND CIRCUITS SHALL BE REROUTED AS PROVIDED HEREIN AND MADE OPERATIONAL.

EXISTING LIGHTING ITEMS, SIGNS, DUCT CABLE AND CONDUIT

THE LOCATIONS OF EXISTING LIGHTING ITEMS, SIGNS, CONDUIT AND DUCT CABLE SHOWN ON THE PLANS HAVE BEEN OBTAINED BY SEARCHES OF AVAILABLE RECORDS AND FIELD CHECKS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, HOWEVER, THE STATE OF OHIO DOES NOT GUARATEE THEIR ACCURACY OR COMPLETENESS. SEVERAL LIGHT POLES AND SIGNS HAVE BEEN REWIRED OVERHEAD SINCE THE ORIGINAL CONSTRUCTION. FIELD VERIFY ALL CIRCUITS.

EXISTING CIRCUITS

EXISTING CIRCUITS ARE 2 WIRE 480 VOLT.
(1-480 VOLT HOT AND 1-NEUTRAL)

FLEXIBLE CONDUIT

WHEN FLEXIBLE CONDUIT IS CALLED OUT ON THE PLANS IT SHALL BE PAID FOR AS CONDUIT, 2" 725.04, AS PER PLAN.

JUCTION BOXES

JUNCTIONS BOXES MAY BE ADDED ALONG THE LENGHT OF THE CONDUIT RUNNING THROUGH SUPERSTRUCTURE AS NEEDED TO PULL THE NEW WIRE. JUNCTION BOXES SHALL BE A MINIMUM OF 6"X6"X4" OR LARGER AS NECESSARY TO MEET THE WIRING AND CONDUIT CONNECTION REQUIREMENTS. JUNCTION BOXES ARE CONSIDERED INCIDENTAL TO CONDUIT, 2" 725.04, AS PER PLAN.

JUCTION BOXES, HANGERS, HARDWARE & SPLICE CONNECTORS

ALL JUNCTIONS BOXES, HANGERS, HARDWARE, CABLE CONNECTIONS, AND OTHER MISCELLANIOUS INCIDENTALS REQUIRED TO COMPLETE THE REQUIRED WORK SHALL BE BE CONSIDERED INCIDENTAL TO CONDUIT, 2" 725.04, AS PER PLAN.

EXISTING CONTROL CENTERS

EXISTING CONTROL CENTER FOR CIRCUIT CRO2 IS LOCATED AT: STA. 4+65 LT (RAMP F-2)
EXISTING CONTROL CENTER FOR CIRCUIT ORG2 IS LOCATED AT: STA. 6+80 RT (RAMP F-1)

REMOVAL OF EXISTING BURRIED CONDUIT AND CONDUCTORS

REMOVAL OF EXISTING BURRIED CONDUIT AND CONDUCTORS SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE NEW CONDUIT AND CONDUCTORS.

LIGHTING QUANTITIES

REFERENCE	SIDE	LOCATION	ITEM 625 CABLE SPLICING KIT (EACH)	ITEM 625 CONDUIT, 2" 725.04, AS PER PLAN (FOOT)	ITEM 625 CONDUIT, 3" 725.04 (FOOT)	ITEM 625 TRENCH (FOOT)	ITEM 625 NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE (FOOT)	ITEM 625 GROUND ROD (EACH)
L1	RT	118+28 - 118+59	2		41	36	102	1
L2	RT	118+59 - 118+67		6			22	
L3	RT	118+67 - 118+67		5			10	
L4	RT	118+67 - 124+15		559			1118	
L5	RT	124+15 - 124+15		5			10	
L6	RT	124+15 - 124+16		6			22	
L7	RT	124+16 - 124+74	2		66	61	152	1
L8	LT	118+40 - 119+26	2		88	83	196	1
L9	LT	119+26 - 119+17		6			22	
L10	LT	119+17- 119+17		5			10	
L11	LT	119+17 - 124+09		481			962	
L12	LT	124+09 - 124+09		5			10	
L13	LT	124+09 - 124+08		6			22	
L14	LT	124+08 - 124+60	2		56	51	132	1
TOTALS CARRIED TO GENERAL SUMMARY			8	1,084	251	231	2,790	4

CALCULATED KEH
CHECKED ENF

GENERAL NOTES AND SUB-SUMMARY

LIGHTING GENERAL NOTES

CUY-490-1.87/VAR

46C
94

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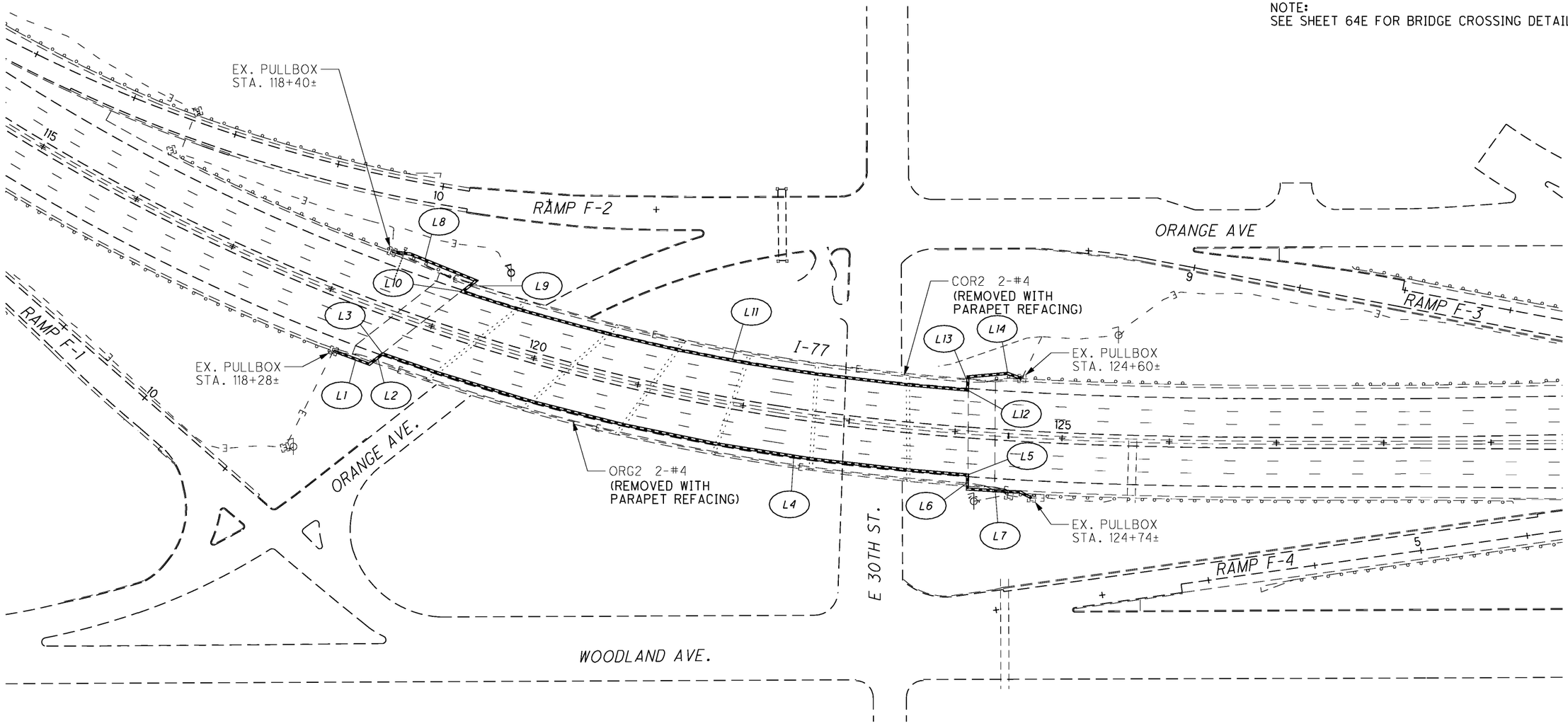
NOTE:
SEE SHEET 64E FOR BRIDGE CROSSING DETAILS.



LEGEND

- EXIST. LIGHT TOWER
- EXIST. LIGHTING CIRCUIT
- EXIST. LIGHTING PULL BOX

HORIZONTAL SCALE IN FEET
0 25 50 100

DESIGNED BY BURGESS & NIPLE

LIGHTING CIRCUIT RELOCATION PLAN I-77

CUY-490-1.87/VAR

46D
94

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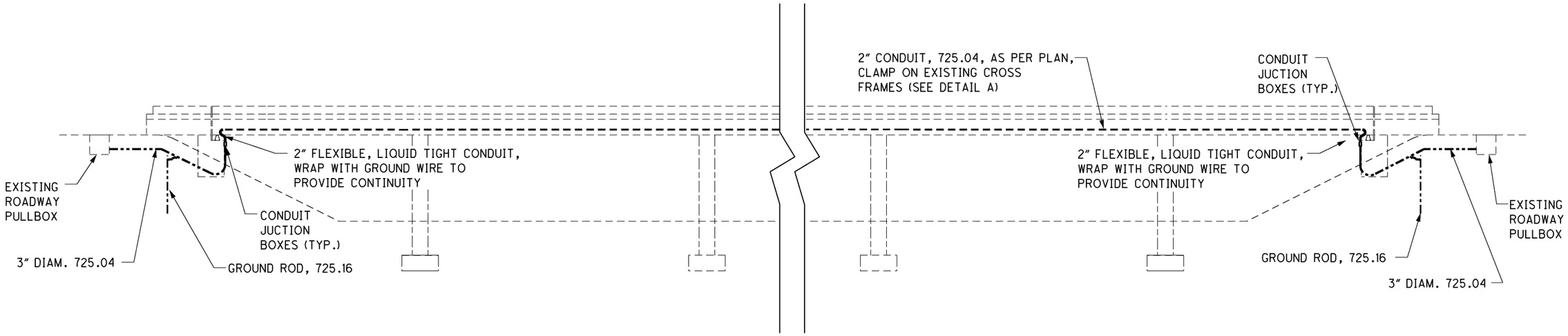
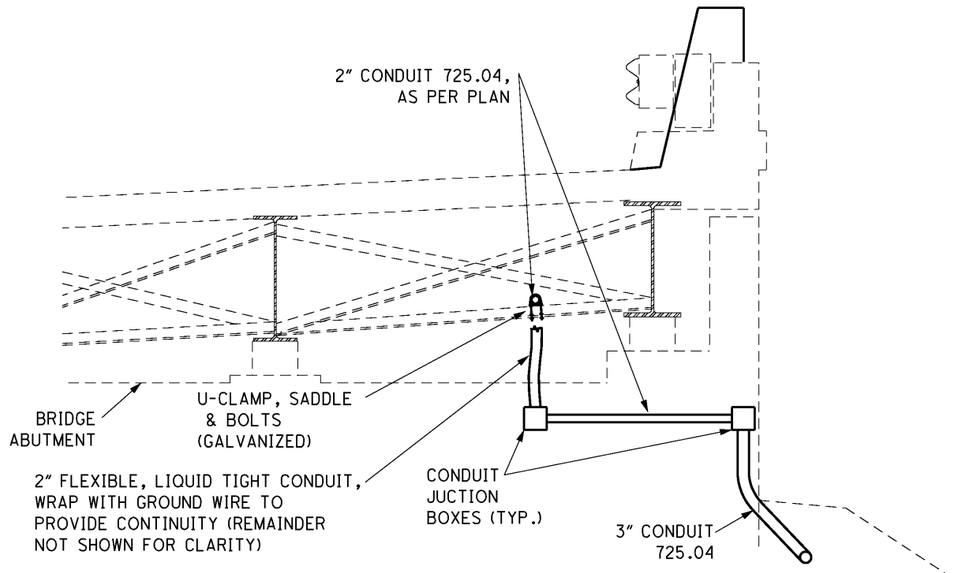


BEAM BRIDGE

ORANGE AVE. & E. 30th ST.
BRIDGE NO.
CUY-77-1518



DETAIL A

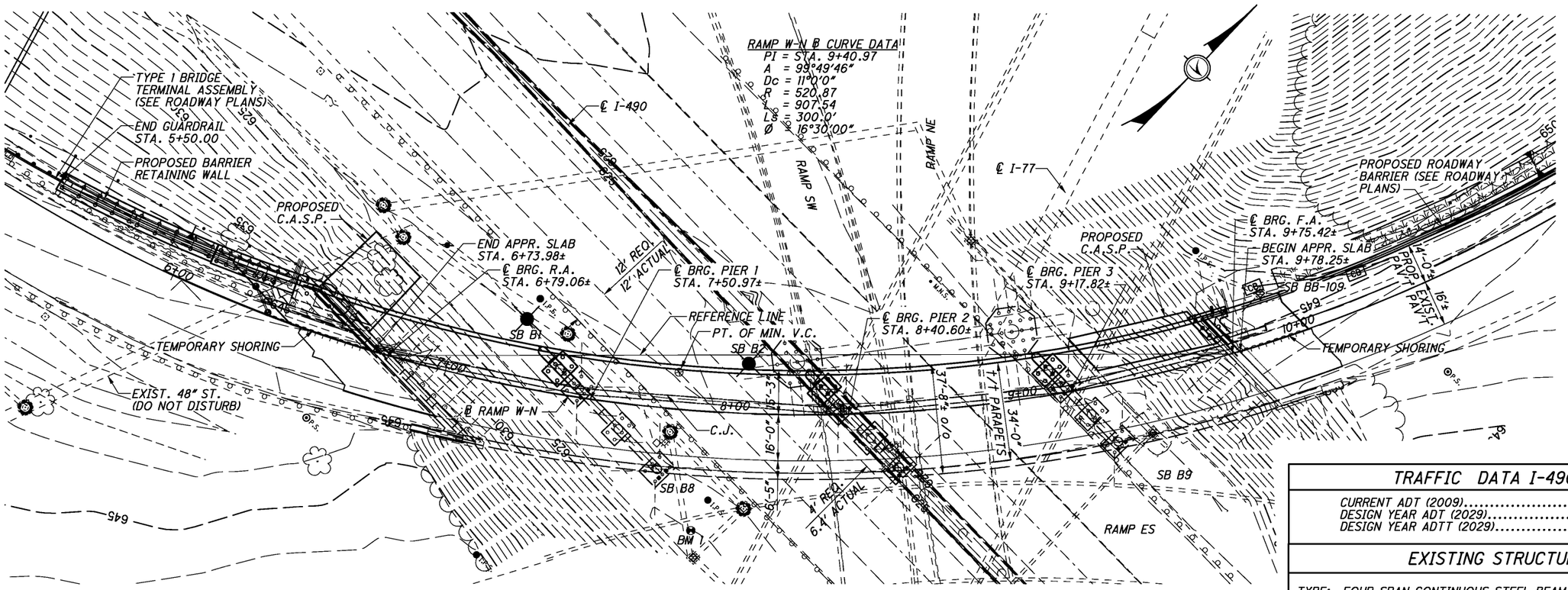
CALCULATED KEH
CHECKED ENF

LIGHTING DETAILS

CUY-490-1.87/VAR

46E
94

...Broadway\Sheets\850491M001.dgn



PLAN

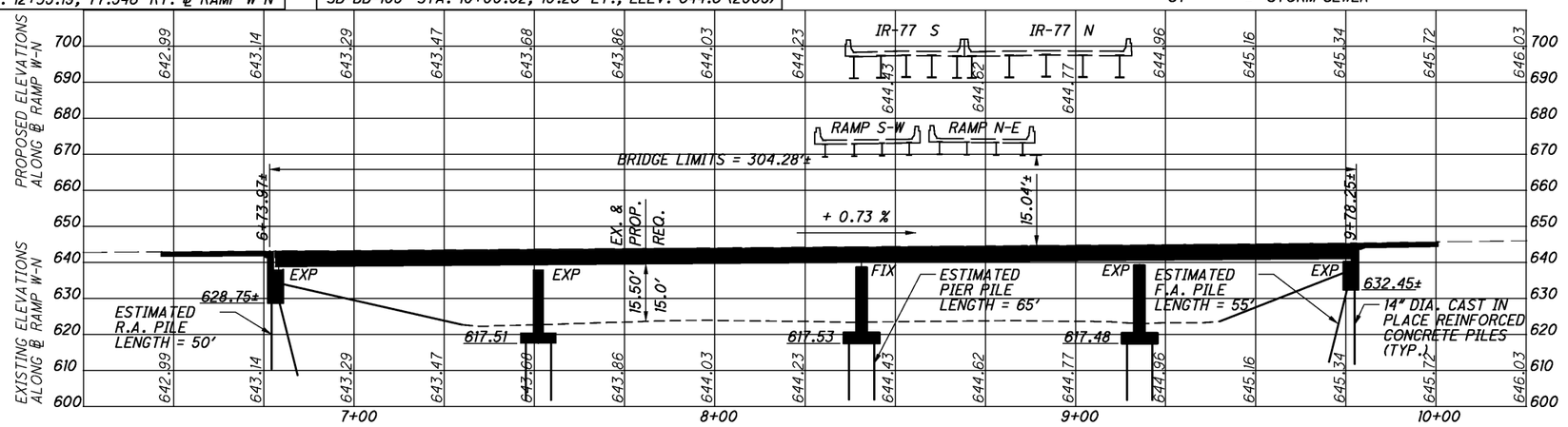
BENCH MARK #1 ELEV. = 622.474
NORTHWEST CORNER OF CONCRETE PAD AROUND CATCH BASIN STA. 7+89.05, 41.303' RT. ℄ RAMP W-N
BENCH MARK #2 ELEV. = 644.822
TOP OF NW BOLT AT BASE OF TOWER LIGHT #BRO 26 STA. 5+57.50, 67.777' RT. ℄ RAMP W-N
BENCH MARK # 3 ELEV. = 649.775
TOP OF TOP BOLT AT BASE OF TOWER LIGHT #BOW 28 STA. 12+35.19, 77.546' RT. ℄ RAMP W-N

BORING LOCATIONS
SB-B1 STA. 7+24.25, 23.83' LT., ELEV. 622.9 (2008)
SB-B2 STA. 8+05.52, 17.48' LT., ELEV. 623.9 (2008)
SB-B8 STA. 7+86.38, 31.58' RT., ELEV. 622.5 (1998)
SB-B9 STA. 9+40.41, 29.32' RT., ELEV. 622.3 (1998)
SB-BB-109 STA. 10+00.02, 10.26' LT., ELEV. 644.6 (2005)

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

LEGEND

APPR.	=	APPROACH SLAB
BRG.	=	BEARING
C.A.S.P.	=	CRUSHED AGGREGATE SLOPE PROTECTION
C.J.	=	CONSTRUCTION JOINT
DIA.	=	DIAMETER
ELEV.	=	ELEVATION
EX.	=	EXISTING
F.A.	=	FORWARD ABUTMENT
MIN.	=	MINIMUM
M.V.C.	=	MINIMUM VERTICAL CLEARANCE
PROP.	=	PROPOSED
PT.	=	POINT
R.A.	=	REAR ABUTMENT
REQ.	=	REQUIRED
SB	=	SOIL BORING
ST	=	STORM SEWER



PROFILE ALONG ℄ RAMP W-N

TRAFFIC DATA I-490

CURRENT ADT (2009).....54950
DESIGN YEAR ADT (2029).....56090
DESIGN YEAR ADTT (2029).....5048

EXISTING STRUCTURE

TYPE: FOUR SPAN CONTINUOUS STEEL BEAM WITH REINFORCED CONCETE SLAB DECK ON REINFORCED CONCRETE SUBSTRUCTURES

SPANS: 71'-10⅞"±, 89'-7⅝"±, 77'-2⅝"±, 57'-7¼"± c/c BEARINGS (MEASURED ALONG BASELINE)

ROADWAY: 24'-2"± T/T DEFLECTOR PARAPETS

LOADING: CF2000 (57) & ALTERNATE LOADING

SKEW: VARIES (SEE GENERAL PLAN)

WEARING SURFACE: 1½" DENSE CONCRETE OVERLAY

APPROACH SLABS: REAR 30'-0"±, FORWARD 25'-0"±

ALIGNMENT: 11°00'00" CURVE

SUPERELEVATION: 0.060'/FT

STRUCTURAL FILE NUMBER: 1812076

DATE BUILT: 1964

PROPOSED STRUCTURE

PROPOSED WORK: WIDEN BRIDGE BY INSTALLING 2 NEW GIRDERS WITH A REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES

SPANS: 71'-10⅞"±, 89'-7⅝"±, 77'-2⅝"±, 57'-7¼"± c/c BEARINGS (MEASURED ALONG BASELINE)

ROADWAY: 34'-0"± T/T DEFLECTOR PARAPETS

LOADING: HS20-44 CASE 1 AND ALTERNATE MILITARY LOADING (WIDENING) & HS19.3 (EXISTING)

SKEW: VARIES (SEE GENERAL PLAN)

WEARING SURFACE: 2" MONOLITHIC CONCRETE

APPROACH SLABS: REAR 30'-0", FORWARD 25'-0"

ALIGNMENT: 11°00'00" CURVE

SUPERELEVATION: 0.060'/FT

COORDINATES: LATITUDE 41°28'46.23" N
LONGITUDE 81°39'43.89" W

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

CUYAHOGA COUNTY
STA. 6+73.97±
STA. 9+78.25±

SITE PLAN
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

1 / 40

47 / 94

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PROP. BARRIER RETAINING WALL
PROP. C.A.S.P.
℄ I-490
PROP. ROADWAY BARRIER
3'
22'
55'-4"±
84'-3"±
84'-1"±
68'-8¾"±
44°1'53"
44°2'46"
43°53'21"
44°2'51"
44°5'52"
42'
26'
6+0
7+0
8+0
9+0
10+0
TOE OF EXIST. PARAPET
REFERENCE LINE N46°35'53"E (℄ BRG. TO ℄ BRG.)
BEGIN APPR. SLAB STA. 6+43.98±
END APPR. SLAB STA. 6+73.98±
℄ BRG. R.A. STA. 6+79.06±
CJ (DECK)
℄ BRG. PIER 1 STA. 7+50.97±
CJ (OVERLAY)
1'-6"
###
9'-10"
###
2'-0"
24'-2"
#
34'-0"
T/T PARAPETS
37'-8"±
O/O DECK
2'-2"±
##
℄ BRG. PIER 2 STA. 8+40.60±
℄ RAMP W-N
℄ BRG. PIER 3 STA. 9+17.82±
15'
3'
PROP. C.A.S.P.
℄ BRG. F.A. STA. 9+75.42±
END APPR. SLAB STA. 10+03.25±
BEGIN APPR. SLAB STA. 9+78.25
CB
CB

LEGEND

APPR.	=	APPROACH
BRG.	=	BEARING
EXIST.	=	EXISTING
F.A.	=	FORWARD ABUTMENT
O/O	=	OUT TO OUT
PROP.	=	PROPOSED
R.A.	=	REAR ABUTMENT
T/T	=	TOE TO TOE
#	=	EXISTING ROADWAY WIDTH
##	=	EXISTING PARAPET WIDTH
###	=	ROADWAY WIDENING
####	=	PROPOSED PARAPET WIDTH

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

GENERAL PLAN
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

2 / 40

48
94

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PROPOSED WORK:

1. REMOVE THE WEST (LEFT) PORTION OF EXISTING CONCRETE DECK, PARAPET, SCUPPERS, AND PORTIONS OF THE PIERS AND ABUTMENTS.
2. CONSTRUCT NEW DECK, PARAPET, GIRDERS, AND PIERS TO PROVIDE A 34'-0" WIDE ROADWAY.
3. WIDEN THE SUBSTRUCTURES TO ACCOMMODATE THE ADDITIONAL GIRDERS. CONSTRUCT THE WINGWALLS AND BARRIER RETAINING WALLS.
4. PROTECT AND MAINTAIN INTERSTATE 77, 490, AND RAMP TRAFFIC DURING ALL PHASES OF CONSTRUCTION USING LANE CLOSURES AND DETOURS.
5. SEAL THE NEW CONCRETE PARAPET, SUBSTRUCTURES, AND RETAINING WALLS WITH EPOXY-URETHANE.
6. WIDEN APPROACH SLABS.
7. EXTEND THE CRUSHED AGGREGATE SLOPE PROTECTION AND PAINT NEW STRUCTURAL STEEL.
8. FIBER WRAP PIER CAPS AND INSTALL PREBORED GROUTED ANCHOR RODS.

REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

A-1-69	REVISED 7-19-02
AS-1-81	REVISED 7-19-02
GSD-1-96	REVISED 7-19-02
PCB-91	REVISED 7-19-02
RB-1-55	REVISED 2-2-59
SBR-1-99	REVISED 7-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:

800 DATED 1-16-09
847 DATED 4-15-05

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

SPECIAL DESIGN SPECIFICATIONS: THIS BRIDGE REQUIRED THE USE OF A TWO-DIMENSIONAL MODEL USING THE GRILLAGE DESIGN METHOD TO ANALYZE THE STRUCTURE. THE COMPUTER PROGRAM USED FOR STRUCTURAL ANALYSIS WAS DESCUS. THE GIRDERS & CROSSFRAMES WERE DESIGNED BY THIS METHOD.

DEAD LOAD DISTRIBUTION:

PROPOSED GIRDER & CROSSFRAME SELF WEIGHT & TRIBUTARY CONCRETE DECK WIDTHS WERE PLACED ON THE TWO (2) PROPOSED GIRDERS IN A SEPARATE DESCUS RUN. THE EXISTING BEAMS WERE LOADED WITH SELF WEIGHT & THE REMAINING EXISTING DECK LOAD & THE TRIBUTARY PORTION OF THE PROPOSED DECK WIDTH IN ANOTHER DESCUS RUN. THE EXISTING RIGHT BARRIER WAS PLACED AS A LINE LOAD ON THE EXISTING EXTERIOR BEAM IN THE EXISTING BRIDGE DESCUS RUN, AND THE PROPOSED LEFT BARRIER WAS PLACED AS A LINE LOAD ON THE PROPOSED EXTERIOR GIRDER IN THE FULLY-WIDENED BRIDGE DESCUS RUN.

LIVE LOAD DISTRIBUTION FACTORS:

THE FOLLOWING TABLE INDICATES THE LANE LIVE LOAD DISTRIBUTION FACTORS USED FOR EACH GIRDER, BY SPAN:

		GIRDER 1	2	3	4	5	6
SPAN	1	0.64	0.68	0.68	0.59	0.48	0.45
	2	0.65	0.68	0.70	0.58	0.44	0.45
	3	0.62	0.65	0.67	0.60	0.47	0.45
	4	0.65	0.71	0.71	0.60	0.44	0.45

DESIGN DATA:

DESIGN LOADING: HS-20, CASE 1, AND ALTERNATE MILITARY LOADING

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615

STRUCTURAL STEEL - ASTM A709 GRADE 50 YIELD STRENGTH 50,000 PSI

HIGH STRENGTH BOLTS - TYPE I GALVANIZED ASTM A325 HIGH STRENGTH

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.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 42".

IF SCREED RAILS ARE USED, THE OUTSIDE SCREED RAIL WILL BE PLACED ON GIRDER A. SUPPORTING A SCREED RAIL ON THE EXTERIOR OVERHANG BRACKETS IS PROHIBITED.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL

MONOLITHIC WEARING SURFACE:

THE MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 2" THICK.

MAINTENANCE OF TRAFFIC:

SEE THE ROADWAY PLANS FOR MAINTENANCE OF TRAFFIC DETAILS.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

EXISTING STRUCTURE PLANS:

THE ORIGINAL DESIGN AND UPGRADING PLANS MAY BE EXAMINED BY PROSPECTIVE BIDDERS AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BOULEVARD, GARFIELD HEIGHTS, OHIO. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE DRAWINGS.

DECK CONSTRUCTION SEQUENCE:

1. INSTALL GIRDERS A & B, AND PLACE CROSSFRAMES IN BAY 1 AND TOP CHORDS IN BAY 2 AS SHOWN ON SHEET 23/40.
2. PLACE FORMWORK, REINFORCING, ETC.

WITH THE DECK CLOSED TO TRAFFIC:

3. POUR AND FINISH DECK.
4. AFTER ENTIRE DECK IS POURED, PLACE CROSSFRAMES IN BAY 2 AND ENSURE THAT THE CONCRETE IS 2 HOURS PAST ITS FINAL SET PRIOR TO OPENING RAMP TO TRAFFIC. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

LIMITATIONS OF OPERATIONS:

THE CONTRACTOR'S ACTIVITIES AND WORK SCHEDULE SHALL BE CONSTRAINED BY THE FOLLOWING SPECIAL LIMITATIONS:

1. MAINTENANCE OF TRAFFIC LIMITATIONS
2. NEW CONCRETE WILL BE IN PLACE AT LEAST 30 DAYS PRIOR TO SEALING CONCRETE AND JOINTS.
3. EXISTING BRIDGE RAIL AND APPROACH GUARDRAIL SHALL REMAIN IN PLACE UNTIL THE TEMPORARY BARRIER IS IN PLACE.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

THIS WORK CONSISTS OF THE REMOVAL OF THE CONCRETE DECK INCLUDING PARAPETS, RAILINGS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSS FRAMES, ETC.). THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE.

BEFORE DECK SLAB CUTTING IS PERMITTED, DRAW THE OUTLINE OF PRIMARY STEEL MEMBER BEAM 1 IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES.

THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS (STEEL BEAM), THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS. DUE TO THE POSSIBLE PRESENCE OF ATTACHMENTS (E.G., FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.) TO EXISTING STRUCTURAL MEMBERS, PERFORM WORK CAREFULLY DURING DECK REMOVAL TO AVOID DAMAGING STRUCTURAL MEMBERS THAT ARE TO REMAIN. REPLACE OR REPAIR STRUCTURAL MEMBERS DAMAGED BY THE REMOVAL OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVE EXISTING WELDED ATTACHMENTS (E.G. FINISHING MACHINE AND FORM SUPPORTS; AND SUPPORTS FOR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) LOCATED IN THE DESIGNATED TENSION PORTIONS OF THE TOP FLANGES OF EXISTING STEEL MEMBERS AND GRIND THE FLANGE SURFACES SMOOTH. CAREFULLY GRIND PARALLEL TO THE FLANGES.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

STRUCTURE NOTES 1 OF 4
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP OR AS SHOWN IN THE PLANS. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

THE DEPARTMENT 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, AS PER PLAN.

ITEM 503 - COFFERDAMS, CRIBS, AND SHEETING, AS PER PLAN

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH CMS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR ITEM 503 - COFFERDAMS, CRIBS, AND SHEETING, AS PER PLAN. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATE DESIGN.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN 1

UNCLASSIFIED EXCAVATION AT THE ABUTMENTS SHALL BE IN ACCORDANCE WITH CMS ITEM 503 EXCEPT THAT THE BACKFILL MATERIAL SHALL BE MATERIAL CONFORMING TO CMS 703.17 (CMS 304 MATERIAL) AND MEET THE COMPACTION REQUIREMENTS OF CMS 304.05. IN ADDITION, THE BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED IN 6" LIFTS.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN 2

THIS WORK SHALL BE PERFORMED PRIOR TO PREBORING AUGERED HOLES AND MOBILIZING PILE DRIVING EQUIPMENT FOR PIER CONSTRUCTION AND CONSISTS OF THE EXCAVATION AND BACKFILL NECESSARY TO LOCATE EXISTING PILES AND CONSTRUCT THE PROPOSED PIER FOUNDATIONS. EXCAVATE ALONG THE EAST FACES OF THE EXISTING FOOTINGS AT PIER B UNDER RAMPS NE & SW AND PIER 1 UNDER RAMP WN TO LOCATE THE EXISTING PILES. THE EXISTING BATTERED PILE AT EACH FOOTING CLOSEST TO PIERS 1 & 2 EXTENSIONS SHALL BE EXPOSED AND THE CENTERLINES SHALL BE LOCATED, RECORDED, AND STAKED IN THE FIELD. IF EXISTING PILE LOCATIONS DEVIATE BY MORE THAN 3 INCHES FROM LOCATIONS SHOWN ON THE PLANS, THE ENGINEER SHOULD BE NOTIFIED AND THE PROPOSED PILES MAY NEED TO BE REPOSITIONED TO CLEAR EXISTING PILES. SEE SHEET 12/40 FOR DETAILS.

ALL WORK SHALL BE ACCORDING TO CMS 503. BACKFILL MATERIAL SHALL BE LOW STRENGTH MORTAR BACKFILL PER CMS ITEM 613. PAYMENT FOR THIS ITEM SHALL INCLUDE ALL NECESSARY MATERIAL, LABOR, AND EQUIPMENT TO EXCAVATE, LOCATE EXISTING PILES, AND BACKFILL, AND SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN 2.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE):

THE ULTIMATE BEARING VALUE IS 78 TONS PER PILE FOR THE ABUTMENT AND RETAINING WALL PILES.
THE ULTIMATE BEARING VALUE IS 110 TONS FOR THE PIER PILES.

ABUTMENT AND RETAINING WALL:
42 PILES, 55 FEET LONG, ORDER LENGTH
6 PILES, 60 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

PIERS:
18 PILES, 70 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

PILE DRIVING CONSTRAINTS:

PRIOR TO DRIVING PILES, CONSTRUCT THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE REAR ABUTMENT UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 50 FEET BEHIND THE REAR ABUTMENT. DO NOT BEGIN THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

BATTERED PILES:

THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1 - UG}{\sqrt{(1 + G^2)}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.

G = RATE OF BATTER

ITEM 507 - PREBORED HOLES, AS PER PLAN

AFTER LOCATING EXISTING BATTERED PILES PER THE REQUIREMENTS OF UNCLASSIFIED EXCAVATION, AS PER PLAN 2, AND PRIOR TO MOBILIZING PILE DRIVING EQUIPMENT TO DRIVE PROPOSED PILES, 6 INCH DIAMETER PREBORED HOLES SHALL BE AUGERED TO VERIFY THAT THE PROPOSED PILES WILL CLEAR THE EXISTING PILES. AT PROPOSED PILES, 2 HOLES (MINIMUM) SHALL BE AUGERED AT EACH LOCATION AS SHOWN IN "PLAN - PREBORED HOLE DETAIL" ON SHEET 35/40. THE DEPTH OF EACH PREBORED HOLE SHALL BE 20 FEET. EXISTING PILE SPACING OBTAINED FROM UNCLASSIFIED EXCAVATION, AS PER PLAN 2 SHALL BE USED TO DETERMINE LOCATIONS OF EXISTING PILES (PROPOSED PILE LOCATION MAY NEED TO BE ADJUSTED BASED ON FINDINGS). PREBORED HOLES SHALL BE AUGERED INSIDE AND AT THE OUTSIDE EDGES OF THE PROPOSED PILE LOCATIONS AS SHOWN ON THE PLANS. IF BOTH PREBORED HOLES CLEAR EXISTING PILES AT PROPOSED PILE LOCATIONS, PROCEED TO THE NEXT SET OF PREBORED HOLES. IF ONE OF THE PAIR OF PREBORED HOLES AT A PROPOSED PILE LOCATION CONTACTS AN EXISTING PILE, STOP BORING AND WITHDRAW THE AUGER, SLIGHTLY BATTER THE AUGER (UP TO 1:4) TO CLEAR THE EXISTING PILE, AND AUGER 2 NEW HOLES. CONTINUE THE PROCESS UNTIL BOTH 20 FOOT DEEP HOLES CAN BE AUGERED WITHOUT CONTACTING EXISTING PILES. HOLES CAN ALSO BE SHIFTED UP TO 6 INCHES MAXIMUM PERPENDICULAR TO THE CENTERLINE OF THE PROPOSED PIER TO CLEAR AN EXISTING PILE. BACKFILL HOLES WITH GRANULAR MATERIAL (DRY SAND) SATISFACTORY TO THE ENGINEER. DOCUMENT PREBORED BORING HOLE LOCATIONS AND DEPTHS AND PROVIDE THEM TO THE ENGINEER. NEW PILES SHALL NOT BE DRIVEN UNTIL VERIFYING PROPOSED PILES CAN BE DRIVEN CLEAR OF EXISTING PILES.

PAYMENT FOR THIS ITEM SHALL INCLUDE ALL MATERIAL, LABOR, AND EQUIPMENT NECESSARY TO AUGER AND BACKFILL 6 INCH DIAMETER HOLES TO VERIFY PROPOSED PILES WILL CLEAR EXISTING PILES AND WILL BE INCLUDED IN THE UNIT PRICE BID PER FOOT FOR ITEM 507 - PREBORED HOLES, AS PER PLAN.

ITEM 509 - EPOXY COATED REINFORCING STEEL, AS PER PLAN

IN ADDITION TO THE PROVISIONS OF ITEM 509, FIELD BEND AND/ OR FIELD CUT THE REINFORCING STEEL DESIGNATED IN THE PLANS, AS NECESSARY, IN ORDER TO MAINTAIN THE REQUIRED CLEARANCES AND BAR SPACINGS. REPAIR ALL DAMAGE TO THE EPOXY COATING, AS A RESULT OF THIS WORK, ACCORDING TO 709.00.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE. REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 510 - DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN

THIS WORK INCLUDES THE DRILLING OF THE HOLES INTO THE CONCRETE AND FURNISHING AND PLACING EPOXY GROUT INTO THE HOLES. A CONTINGENCY QUANTITY HAS BEEN INCLUDED TO BE USED AS DIRECTED BY THE ENGINEER.

PRIOR TO DRILLING DOWEL HOLES, THE CONTRACTOR SHALL LOCATE ALL EXISTING REINFORCING STEEL BARS IN THE AREA OF THE HOLE WITH THE AID OF A REINFORCING STEEL BAR LOCATOR SUCH AS A PACHOMETER. IF AN EXISTING BAR IS ENCOUNTERED AT THE SAME LOCATION AS A PROPOSED DOWEL HOLE, MOVE THE DOWEL HOLE TO EITHER SIDE OF THE EXISTING BAR.

THE CONTRACTOR SHALL DEMONSTRATE HIS ABILITY TO DRILL THE DOWEL HOLES WITHOUT DAMAGING THE SURROUNDING CONCRETE. SHOULD SUCH DAMAGE OCCUR, THE CONTRACTOR IS DIRECTED TO REPAIR THE DAMAGE AT HIS EXPENSE AND TO CORE DRILL THE REMAINING DOWEL HOLES. DEPTH OF HOLES SHALL BE AT LEAST 16 TIMES THE DOWEL DIAMETER UNLESS OTHERWISE SHOWN IN THE PLANS.

PAYMENT FOR DRILLING HOLES AND FURNISHING AND PLACING MATERIALS SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
510E10001	EACH	DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN

MECHANICAL CONNECTORS FOR REINFORCING STEEL:

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED WHERE REQUIRED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. IF A DOWEL BAR SPLICE TYPE OF CONNECTOR IS FURNISHED, THE MINIMUM DOWEL BAR LENGTH TO BE FURNISHED WITH THE CONNECTOR SHALL BE AS SHOWN ON THE PLAN.

CONNECTORS AND DOWEL BARS SHALL BE EPOXY COATED. COATING FOR BOTH THE CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICATIONS. COATINGS WHICH HAVE BEEN DAMAGED OR WHICH OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY, AND UNIFORMITY, MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR THEY SHALL BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS.

CONNECTOR AND DOWEL BAR EXTENSIONS SHALL CONFORM WITH ITEM 509. THE COST OF FURNISHING THE CONNECTORS AND EXTENSIONS SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL, AS PER PLAN.

POURED POLYURETHANE JOINT SEAL:

THE EXPANSION JOINT EXTENSIONS SHALL BE SEALED WITH POURED POLYURETHANE JOINT SEAL IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS, AND AS DIRECTED BY THE ENGINEER.

THE MATERIAL SHALL BE A TWO-PART, COLD APPLIED, CHEMICALLY CURING, SELF-LEVELING, ELASTOMERIC, POLYURETHANE JOINT SEALANT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION TT-S-00227E AND ASTM C-920. ALL MATERIALS SHALL BE STORED AND INCORPORATED IN THE WORK AS SPECIFIED BY THE MANUFACTURER.

THE SURFACES TO WHICH THE SEALER IS TO ADHERE SHALL FIRST BE THOROUGHLY CLEANED BY ABRASIVE BLASTING. POLYURETHANE JOINT SEAL SHALL BE POURED OVER THE FULL LENGTH OF THE OPEN JOINT AND SHALL BE APPLIED ONLY WHEN THE SURFACES ARE DRY AND ABOVE 50° F. THE INSTALLED AND CURED MATERIAL SHALL BE THE DEPTH AS SHOWN IN THE PLANS AND SHALL BE BONDED TO THE SIDES OF THE JOINT. ANY UNBONDED SECTION SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. DAMS, AS REQUIRED TO CONTAIN THE POURED SEALER, SHALL BE CONSIDERED INCIDENTAL TO THIS WORK.

THE ACCEPTED QUANTITES OF POURED POLYURETHANE JOINT SEAL SHALL BE PAID FOR UNDER ITEM 516 - HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

STRUCTURE NOTES 2 OF 4
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
ITEM 511 - CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL SUPERSTRUCTURE, BRIDGE DECK, PARAPET, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (HP4, AS PER PLAN) AS MODIFIED AS BY TABLE A.
ALL OTHER STRUCTURE CONCRETE SHALL BE THIS MIX (HP2, AS PER PLAN) AS MODIFIED BY TABLE B.

THE FOLLOWING PROPORTIONS SHALL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGGRE. (LB)	* #8 COARSE AGGRE. (LB)	* #57 COARSE AGGRE. (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	GGBF SLAG (LB)	WATER TO CEMENTITIOUS RATIO ±0.01	AIR CONTENT ±2%
GRAVEL	1245	360	1315	2920	400	30	170	0.43	7
LIMESTONE	1245	360	1335	2940	400	30	170	0.43	7
SLAG	1245	315	1155	2715	400	30	170	0.43	7

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP2, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGGRE. (LB)	* #8 COARSE AGGRE. (LB)	* #57 COARSE AGGRE. (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	GGBF SLAG (LB)	WATER TO CEMENTITIOUS RATIO ±0.01	AIR CONTENT ±2%
GRAVEL	1245	360	1315	2920	430	0	170	0.43	7
LIMESTONE	1245	360	1335	2940	430	0	170	0.43	7
SLAG	1245	315	1155	2715	430	0	170	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127. THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN ±0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED):
FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED)
SLIP FORMING SHALL NOT BE PERFORMED.

THE CONTRACTOR IS NOT REQUIRED TO USE A FINISHING MACHINE TO PLACE THE DECK. SCREED RAILS, IF USED, SHALL NOT BE SUPPORTED ON FORMS OR FORM BRACKETS. THE CONTRACTOR, AT A MINIMUM, SHALL USE A VIBRATING SCREED WITH SIMILAR CAPABILITIES OF THE FINISHING MACHINE AS SPECIFIED UNDER CMS 511.19. THE ENGINEER MUST APPROVE THE FINISHING DEVICE AND METHOD FOR THE DECK. ALSO, CMS 511.20 WILL BE WAIVED. THE CONTRACTOR WILL BE ALLOWED TO PLACE THE GROOVES WITH A TINED RAKE.

BASIS OF PAYMENT
PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
511E50001	CU YD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CU YD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E50201	CU YD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

EPOXY-URETHANE SEALER SHALL BE APPLIED TO THE SURFACES OF THE PARAPET, DECK, AND SUBSTRUCTURE AS SHOWN IN THESE PLANS. THE COLOR OF THE URETHANE TOP COAT SHALL BE FEDERAL COLOR STANDARD NUMBER 595B-27778 (LIGHT-NEUTRAL, SEMI-GLOSS). PAYMENT SHALL BE INCLUDED IN ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).

ITEM SPECIAL - URETHANE TOP COAT SEALER

THIS ITEM SHALL CONSIST OF THE APPLICATION OF A URETHANE TOP COAT SEALER OVER CONCRETE AREAS PREVIOUSLY COATED WITH SEALER OR FIBER WRAP. THE COLOR SHALL BE FEDERAL COLOR STANDARD NUMBER 595B-27778 (LIGHT NEUTRAL, SEMI-GLOSS) AND THE MATERIAL SHALL CONFORM TO MBRACE TOPCOAT-ATX SPECIFICATIONS AND BE PROVIDED BY THE SAME MANUFACTURER AS THE EPOXY IN THE FIBER WRAP TO ENSURE COMPATIBILITY.

SURFACES TO WHICH THE URETHANE TOP COAT IS TO BE APPLIED SHALL BE DRY AND FREE FROM DUST, DIRT, OIL, WAX, CURING COMPOUNDS, EFFLORESCENCE, LAITANCE, AND OTHER FOREIGN MATERIALS.

THE REQUIRED CLEANING SHALL BE HIGH PRESSURE WATER BLASTING (1,000 PSI OR GREATER). MILDEW SHALL BE TREATED WITH A HYPOCHLORITE SOLUTION TO KILL SPORES.

THE URETHANE TOP COAT SHALL BE APPLIED ACCORDING TO CMS 512. THE URETHANE TOP COAT SHALL BE APPLIED WITHIN 48 HOURS AFTER SURFACE PREPARATION. APPLICATION SHALL BE BY BRUSH OR ROLLER AS DIRECTED BY THE ENGINEER.

THE COST OF ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO ACCOMPLISH THIS ITEM OF WORK SHALL BE PAID FOR UNDER:

ITEM	UNITS	DESCRIPTION
SPECIAL	SQ. YD.	URETHANE TOP COAT SEALER

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 5, AS PER PLAN

PROVIDING AND WELDING THE NEW INTERMEDIATE CROSSFRAME STIFFENERS TO THE EXISTING FASCIA BEAM, FURNISHING AND INSTALLING ALL THE END FRAMES, FURNISHING AND INSTALLING THE BOLSTER ANCHORAGES, AND FURNISHING AND INSTALLING THE CROSSFRAMES BETWEEN GIRDER B AND BEAM 1 AND STRUTS PRIOR TO THE DECK POUR SHALL BE INCLUDED FOR PAYMENT IN THE BID PRICE PER POUND FOR THIS ITEM.

ITEM 513 - STRUCTURAL STEEL MISC.: STORAGE AND ERECTION OF STEEL MEMBERS

THE GIRDERS, CROSSFRAMES BETWEEN THE GIRDERS, SPLICE PLATES, BOLTS, NUTS, AND WASHERS WILL BE PROVIDED BY ODOT'S FABRICATOR PURSUANT TO AN EARLIER PURCHASE ORDER. THE CONTRACTOR SHALL COORDINATE WITH ODOT'S FABRICATOR REGARDING THE SHIPPING SCHEDULE FOR THE PURCHASE ORDERED STEEL. UNLOADING AND STORING THESE STRUCTURAL STEEL MEMBERS AFTER AUGUST 14, 2009, IF NECESSARY, AND ERECTING THEM ACCORDING TO THE PLANS AND SPECIFICATIONS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR THIS ITEM.

ITEM 514 - FIELD PAINTING MISC.: REPAIR OF EXISTING DAMAGED STEEL COATING

THIS ITEM SHALL CONSIST OF PREPARING AND COATING THE FOLLOWING AREAS OF EXISTING STEEL WITH SYSTEM OZEU PER CMS 514.22.

1. ANY AREA WHERE DRILLING, GRINDING, ABRASIVE BLASTING, OR WELDING DAMAGED THE EXISTING COATING.

2. ANY OTHER AREA DAMAGED BY THE CONTRACTOR'S OPERATIONS.

THE FINAL OZEU SYSTEM COLOR SHALL BE FEDERAL COLOR STANDARD NUMBER 595B-16440 (LIGHT GREY, GLOSS).

PAYMENT FOR ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED TO SURFACE PREPARE AND PAINT ALL THREE COATS OF OZEU PAINT AS DESCRIBED ABOVE SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 514 - FIELD PAINTING MISC.: REPAIR OF EXISTING DAMAGED STEEL COATING.

ITEM 514 - FIELD PAINTING STRUCTURAL STEEL - FINISH COAT

THE COLOR SHALL BE FEDERAL COLOR STANDARD NUMBER 595B-16440 (LIGHT GREY, GLOSS).

ITEM 516 - RESET BEARING

THE FOLLOWING PROCEDURE SHOULD BE USED TO REMOVE AND RESET THE ROCKER BEARINGS ON PIERS 1 AND 3 UNDER BEAM 1 TO ALLOW CONNECTION OF THE PROPOSED PIER CAP TO EXISTING.

1. RAISE THE BEAM PER ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN UNTIL THERE IS NO CONTACT BETWEEN THE SOLE PLATE AND THE BEARINGS. MAXIMUM LIFT OF BEAM 1 SHALL BE 1/4".

2. REMOVE ROCKER, BASE PLATE, AND BEARING PAD AND STORE FOR REUSE.

3. AFTER THE PIER CAPS ARE CONSTRUCTED, RESET THE ROCKER, BASE PLATE, AND BEARING PAD IN THE FINAL POSITION BY ALIGNING THE ROCKER TO BE VERTICAL AT 60° F AFTER CAP CONCRETE HAS CURED.

4. LOWER BEAM AND REMOVE TEMPORARY SUPPORTS.

PAYMENT SHALL BE AT THE CONTRACT PRICE BID FOR EACH ITEM 516 - RESET BEARING, WHICH SHALL INCLUDE ALL MATERIAL, LABOR, TOLLS, AND INCIDENTALS NECESSARY TO REMOVE AND RESET THE ROCKER BEARINGS AND BEARING PADS.

ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

MINIMUM CAPACITY OF THE TEMPORARY SUPPORTS AT EACH PIER SHALL BE 140 TONS OF TOTAL DEAD AND LIVE LOAD. TEMPORARY SUPPORTS AT PIERS 1 AND 3 SHALL BE ABLE TO ACCOMMODATE THERMAL MOVEMENTS.

SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05.

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL GIRDERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL GIRDERS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS.

THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE BID FOR ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 526 - REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN

CONCRETE SHALL BE ITEM 511 - CLASS HP CONCRETE, MIX HP4, AS PER PLAN. PAYMENT FOR PARAPETS ON APPROACH SLABS SHALL BE INCLUDED IN THIS ITEM.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	CHECKED	DATE
ASK	JAA	01-09
DRAWN	REVISED	
ASK		
REVIEWED	STRUCTURE FILE NUMBER	
DWL	1812076	

STRUCTURE NOTES 3 OF 4
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

ITEM SPECIAL - STRUCTURE MISC.: PROTECTION OF FACILITIES

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO PROTECT EXISTING FACILITIES AS APPROVED AND DIRECTED BY THE ENGINEER DURING CONSTRUCTION.

THE CONTRACTOR IS REMINDED THAT ALL EXISTING COMPONENTS AND SYSTEMS ARE TO REMAIN IN USE DURING AND AFTER THIS PROJECT AND REQUIRE PROTECTION. THIS WORK INCLUDES, BUT IS NOT LIMITED TO:

1. CAREFUL MACHINE DIGGING, HAND DIGGING, OR OTHER SUBSURFACE UTILITY INVESTIGATION TO ACCURATELY LOCATE OR TO EXPOSE UNDERGROUND LINES SUCH AS THE 48" PIPE UNDER THE SOUTHWEST WINGWALL NEAR THE PROPOSED WORK.

2. AVOIDING OVERHEAD LINES.

3. PRESERVING THE CONDUIT ATTACHED TO BEAM B1.

4. OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT THESE SYSTEMS AND COMPONENTS FOR THE DURATION OF THE CONTRACT. THE CONTRACTOR IS DIRECTED TO SECTION 107 AND PARTICULARLY TO SECTION 107.12 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

PAYMENT SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM SPECIAL - STRUCTURE MISC.: PROTECTION OF UTILITIES. THIS SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO SUCCESSFULLY PERFORM THIS ITEM OF WORK.

ITEM SPECIAL - STRUCTURE MISC.: PREBORED GROUTED ANCHOR ROD ASSEMBLY

THIS WORK SHALL CONSIST OF DESIGNING, FURNISHING ALL EQUIPMENT AND MATERIALS, AND PERFORMING ALL WORK NECESSARY TO INSTALL THE PREBORED GROUTED ANCHOR ROD ASSEMBLIES AT THE LOCATIONS SHOWN IN THE PLANS. THE WORK SHALL INCLUDE ALL INCIDENTAL COSTS ASSOCIATED WITH INSTALLATION OF THE PREBORED GROUTED ANCHOR ROD ASSEMBLIES.

NO LESS THAN 30 DAYS PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND SHOP DRAWINGS SIGNED AND STAMPED BY A LICENSED OHIO PROFESSIONAL ENGINEER. APPROVAL BY THE FIELD ENGINEER IS REQUIRED PRIOR TO BEGINNING WORK.

THE FOLLOWING PARAMETERS SHALL BE USED IN THE DESIGN OF THE PREBORED GROUTED ANCHOR ROD ASSEMBLIES:

MAXIMUM ANCHOR WORKING LOAD = 30 KIPS
MINIMUM ANCHOR LENGTH = 15 FEET

THE CONTRACTOR SHALL LOAD TEST ONE IN-PLACE ANCHOR ROD ASSEMBLY AT EACH PIER, FOR A TOTAL OF 3 LOAD TESTS TO A TENSILE LOAD OF 60 KIPS. THE FIELD ENGINEER SHALL BE GIVEN NO LESS THAN 7 DAYS NOTICE PRIOR TO PERFORMING THE LOAD TEST, UPON SUCCESSFUL COMPLETION OF THE LOAD TESTS, SUBJECT TO APPROVAL OF THE FIELD ENGINEER, THE REMAINING PREBORED GROUTED ANCHOR ROD ASSEMBLIES SHALL BE INSTALLED. ANY RE-DESIGN OR REPLACEMENT ANCHOR ROD ASSEMBLIES DUE TO A LOAD TEST FAILURE SHALL BE AT THE CONTRACTOR'S EXPENSE.

ALL COSTS FOR THE PREBORED GROUTED ANCHOR ROD ASSEMBLIES SHALL BE AT THE UNIT PRICE BID FOR EACH ITEM SPECIAL - STRUCTURE MISC.: PREBORED GROUTED ANCHOR ROD ASSEMBLY.

ITEM 847 - MICRO SILICA MODIFIED CONCRETE OVERLAY, 2" THICK, AS PER PLAN

THIS ITEM SHALL INCLUDE PREPARATION OF THE DECK PRIOR TO OVERLAY PLACEMENT. ALL COSTS TO PREPARE AND PLACE THE OVERLAY SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 847 - MICRO SILICA MODIFIED CONCRETE OVERLAY, 2" THICK, AS PER PLAN.

ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL

CARBON FIBER COMPOSITE MATERIAL SHALL BE INSTALLED AT THE LOCATIONS SHOWN IN THE PLANS PER THE RECOMMENDATIONS OF THE MANUFACTURER. THE CARBON FIBER COMPOSITE MATERIAL SHALL BE THE MBRACE COMPOSITE STRENGTHENING SYSTEM, MANUFACTURED BY:

BASF THE CHEMICAL COMPANY
23700 CHAGRIN BLVD
CLEVELAND, OHIO 44122-5554
PHONE NO.: 216-839-7000

OR APPROVED EQUAL CARBON FIBER EPOXY RESIN COMPOSITE MATERIAL.

FIVE COMPONENTS COMPRISE THE MBRACE COMPOSITE STRENGTHENING SYSTEM:
1. MBRACE PRIMER
2. MBRACE PUTTY FILLER
3. MBRACE SATURANT RESIN
4. MBRACE FIBER REINFORCEMENT - MBRACE CF130 CARBON FIBER SYSTEM
5. MBRACE TOPCOAT - ATX

SURFACE PREPARATION:
THE SURFACE TO RECEIVE THE COMPOSITE WRAP SHALL BE FREE FROM FINS, SHARP EDGES, AND PROTRUSIONS THAT WILL CAUSE VOIDS BEHIND THE CASING OR THAT, IN THE OPINION OF THE ENGINEER, WILL DAMAGE THE FIBER. IF FIBERS ARE TO WRAP AROUND CORNERS OF RECTANGLE CROSS-SECTIONS, THE CORNERS SHALL BE ROUNDED TO A ½" RADIUS. THIS WILL HELP PREVENT STRESS CONCENTRATIONS IN THE FIBER WRAP AND VOIDS BETWEEN THE FIBER WRAP AND THE CONCRETE. IN ADDITION, THE SURFACE SHALL BE SMOOTH AND FREE OF VOIDS OR UNDULATIONS THAT WOULD PREVENT FULL CONTACT BETWEEN THE CONCRETE AND THE FIBER WRAP. THE SURFACE MUST ALSO BE CLEAN, DRY, AND FREE OF DUST, OILS, PAINTS, SEALERS, OR ANY OTHER BOND INHIBITING MATERIALS.

COMPOSITE APPLICATION:
THE AMBIENT TEMPERATURE AND THE TEMPERATURE OF THE EPOXY RESIN COMPONENTS SHALL BE BETWEEN 55° AND 95° F AT THE TIME OF MIXING. THE COMPOSITE SHALL BE APPLIED WHEN THE RELATIVE HUMIDITY IS LESS THAN 85% AND THE SURFACE TEMPERATURE IS MORE THAN 5° F ABOVE THE DEW POINT. APPLICATION SHALL BEGIN WITHIN ONE HOUR AFTER THE BATCH HAS BEEN MIXED.

THE COMPONENTS OF THE EPOXY RESIN SHALL BE MIXED WITH A MECHANICAL MIXER AND APPLIED UNIFORMLY TO THE FIBER AT A RATE THAT SHALL ENSURE COMPLETE SATURATION OF THE FABRIC.

APPLY THE FABRIC/EPOXY COMPOSITE TO THE CONCRETE SURFACE BY WRAPPING METHODS THAT PRODUCE A UNIFORM FORCE THAT IS DISTRIBUTED ACROSS THE ENTIRE WIDTH OF THE FABRIC.

ENTRAPPED AIR SHALL BE RELEASED OR ROLLED OUT BEFORE THE EPOXY SETS. SUCCESSIVE LAYERS OF COMPOSITE MATERIALS SHALL BE PLACED BEFORE POLYMERIZATION OF THE PREVIOUS LAYER OF EPOXY IS TOO DRY TO ACHIEVE ADEQUATE BOND BETWEEN LAYERS. IF POLYMERIZATION DOES OCCUR BETWEEN LAYERS, THE SURFACE MUST BE ROUGHENED USING A LIGHT ABRASIVE BLAST THAT WILL NOT DAMAGE THE FIBER.

THE FINAL LAYER OF EPOXY SHALL BE APPLIED TO THE FINAL LAYER OF FABRIC, WITH CARE TAKEN TO ENSURE COATING OF ALL EDGES AND SEAMS. SPACES BETWEEN THE BANDS OF FABRIC SHALL BE FILLED WITH EPOXY THICKENED AS DIRECTED BY THE MANUFACTURER.

A FINAL INSPECTION SHALL BE PREFORMED ON ALL FIBER WRAPPED COMPONENTS AFTER THE EPOXY SETS AND PRIOR TO THE APPLICATION OF THE TOP COAT. ALL DEFECTS (INCLUDING BUBBLES, DELAMINATIONS, AND FABRIC TEARS) MORE THAN 1 SQUARE INCH OF THE SURFACE AREA, OR AS SPECIFIED BY THE PROJECT ENGINEER, SHALL BE REPAIRED AS FOLLOWS:

1. SMALL DEFECTS (ON THE ORDER OF 6 INCHES IN DIAMETER) SHALL BE INJECTED OR BACKFILLED WITH EPOXY.

2. BUBBLES LESS THAN 12 INCHES IN DIAMETER SHALL BE REPAIRED BY INJECTING WITH EPOXY. TWO HOLES SHALL BE DRILLED INTO THE BUBBLE TO ALLOW INJECTION OF THE EPOXY AND ESCAPE OF ENTRAPPED AIR.

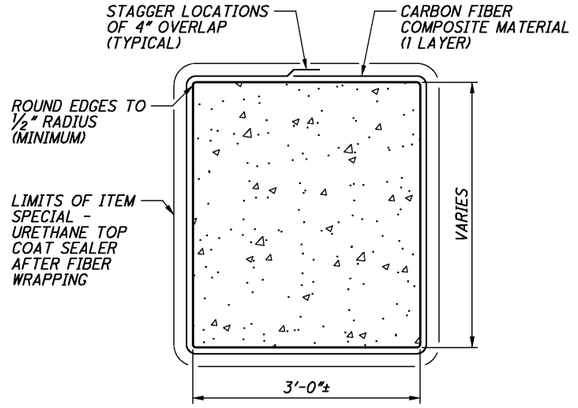
3. BUBBLES, DELAMINATIONS, AND FABRIC TEARS GREATER THAN 12 INCHES IN DIAMETER SHALL BE REPAIRED BY REMOVING AND RE-APPLYING THE REQUIRED NUMBER OF LAYERS OF THE COMPOSITE AND THE REQUIRED FINISH COATING. ALL REPAIRS SHALL BE APPROVED BY THE PROJECT ENGINEER.

COATING SYSTEM APPLICATION:
A FINAL TOP COATING IS REQUIRED TO PROTECT THE FIBERS FROM THE ELEMENTS, SPECIFICALLY UV RADIATION, AND TO GIVE THE FINAL AESTHETIC EFFECT. SEE ITEM SPECIAL - URETHANE TOP COAT SEALER NOTE ON SHEET 5/40 FOR DETAILS AND PAYMENT.

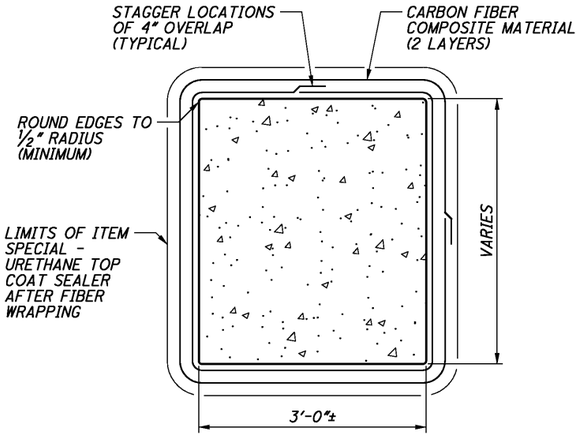
FOR MORE INFORMATION ON THE MBRACE COMPOSITE STRENGTHENING SYSTEM, REFER TO THE MANUFACTURER'S SPECIFICATIONS.

MEASUREMENT AND PAYMENT:
THE BID PRICE SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PROVIDE AND INSTALL THE CARBON FIBER COMPOSITE MATERIAL, PER THE PLANS AND THE MANUFACTURER'S RECOMMENDATIONS FIELD APPLIED TO THE CONCRETE SURFACES, INCLUDING ERECTION OF SCAFFOLDING, CLEANING, SURFACE PREPARATION, WRAPPING THE CONCRETE, AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION PER THE MANUFACTURER'S REQUIREMENTS. PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE FOOT OF CONCRETE WRAPPED FOR ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL.

ITEM	UNITS	DESCRIPTION
SPECIAL	SQ. FT.	STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL



SECTION P-P



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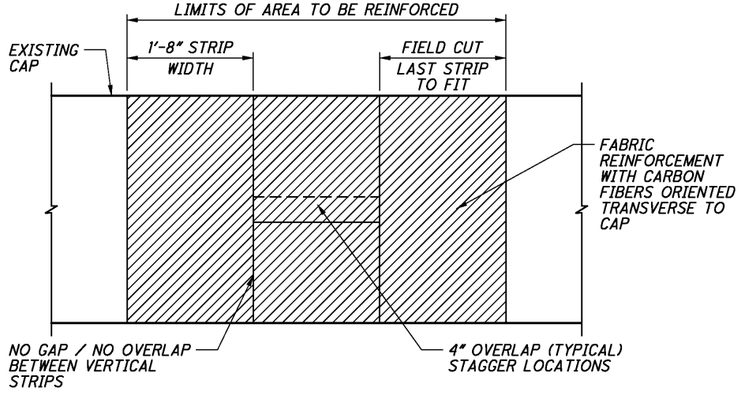

CAP ELEVATION

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED ASK | DRAWN ASK | REVIEWED DWL | DATE 01-09
CHECKED JAA | REVISED | STRUCTURE FILE NUMBER 1812076

STRUCTURE NOTES 4 OF 4
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

ESTIMATED QUANTITIES									
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIERS	GENERAL	REF. SHEET
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN				LUMP	3 / 40
503	11101	LUMP		COFFERDAMS, CRIBS & SHEETING, AS PER PLAN		LUMP			4 / 40
503	21101	397	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN 1		397			4 / 40
503	21101	112	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN 2			112		4 / 40
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00600	3600	FT.	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		2430	1170		
507	00650	3930	FT.	14" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED		2670	1260		
507	92200	100	FT.	PREBORED HOLES		100			11 / 40
507	92201	480	FT.	PREBORED HOLES, AS PER PLAN			480		4 / 40 *
507	98010	132	EACH	PILING, MISC.: STEEL PILE SPLICES		96	36		
509	10001	59366	POUND	EPOXY COATED REINFORCING STEEL, AS PER PLAN	30921	16604	11841		4 / 40
509	20001	100	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				100	4 / 40 *
510	10001	206	EACH	DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN		112	24	70	4 / 40 *
511	50001	134	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN	134				5 / 40
511	50101	49	CU. YD.	CLASS HP CONCRETE, BRIDGE DECK, (PARAPET), AS PER PLAN	49				5 / 40
511	50201	242	CU. YD.	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN		186	56		5 / 40
512	10100	647	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	370	112	98	67	5 / 40
512	10600	3	FT.	CONCRETE REPAIR BY EPOXY INJECTION			3		20 / 40
512	33000	21	SQ. YD.	TYPE 2 WATERPROOFING		21			
SPECIAL	512E71500	156	SQ. YD.	URETHANE TOP COAT SEALER			156		5 / 40
513	10301	4604	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 5, AS PER PLAN	4604				5 / 40
513	95020	LUMP		STRUCTURAL STEEL MISC.: STORAGE AND ERECTION OF STEEL MEMBERS	LUMP				5 / 40
514	00060	7500	SQ. FT.	FIELD PAINTING STRUCTURAL STEEL - INTERMEDIATE COAT	7500				
514	00066	7500	SQ. FT.	FIELD PAINTING STRUCTURAL STEEL - FINISH COAT	7500				
514	27800	LUMP		FIELD PAINTING MISC.: REPAIR OF DAMAGED EXISTING STEEL COATING	LUMP				
516	11901	37	FT.	HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN				37	33 & 34 / 40
516	13600	89	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER		56		33	
516	41100	10	EACH	1/8" PREFORMED BEARING PAD		4	6		
516	46700	2	EACH	RESET BEARING			2		5 / 40
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN				LUMP	5 / 40
518	21200	55	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC		55			
518	40000	136	FT.	6" PERFORATED CORRUGATED PLASTIC PIPE		136			
518	40010	27	FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		27			
523	20000	2	EACH	DYNAMIC LOAD TESTING		1	1		
526	25001	44	SQ. YD.	REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN				44	5 / 40
526	30001	51	SQ. YD.	REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN				51	5 / 40
SPECIAL	530E00200	LUMP		STRUCTURE MISC.: PROTECTION OF FACILITIES				LUMP	6 / 40
SPECIAL	530E00400	12	EACH	STRUCTURE, MISC.: PREBORED GROUTED ANCHOR ROD ASSEMBLY			12		6 / 40
SPECIAL	530E00600	837	SQ. FT.	STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL (1 LAYER)			837		6 / 40
SPECIAL	530E00600	56	SQ. FT.	STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL (2 LAYERS)			56		6 / 40
601	20000	144	SQ. YD.	CRUSHED AGGREGATE SLOPE PROTECTION		144			
847	10001	67	SQ. YD.	MICRO SILICA MODIFIED CONCRETE OVERLAY, 2" THICK, AS PER PLAN					6 / 40

* INCLUDES A CONTINGENCY QUANTITY TO BE USED "AS DIRECTED BY THE ENGINEER"

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED ASK | DRAWN DCF | REVIEWED DWL | DATE 02-09

CHECKED JAA | REVISED

STRUCTURE FILE NUMBER 1812076

ESTIMATED QUANTITIES
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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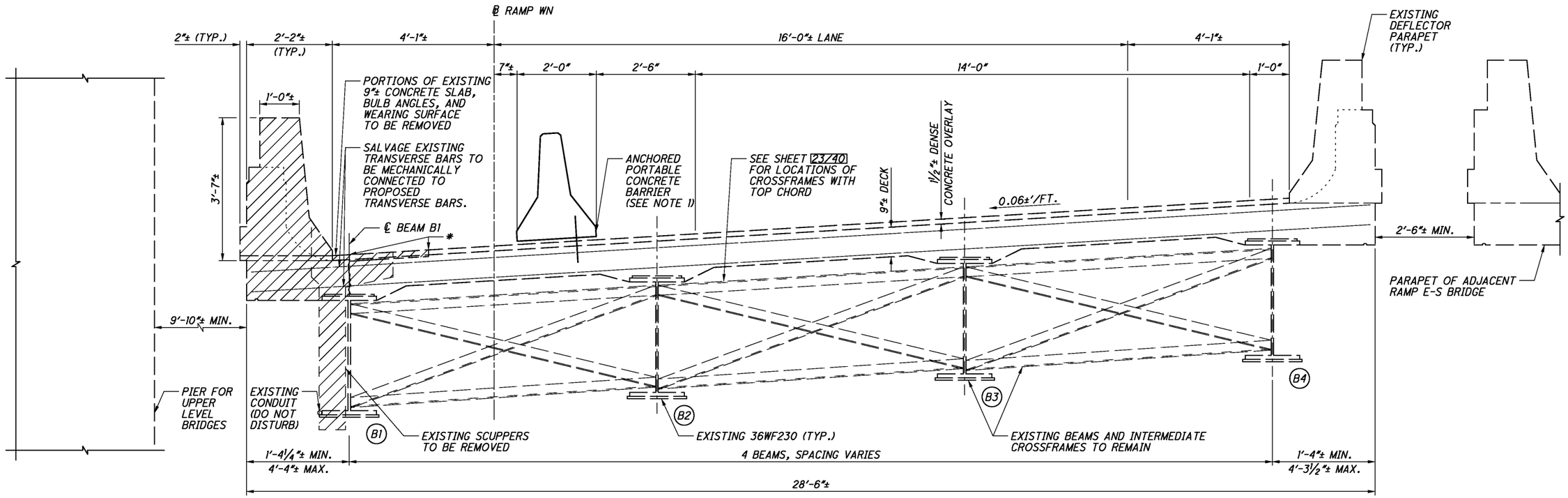
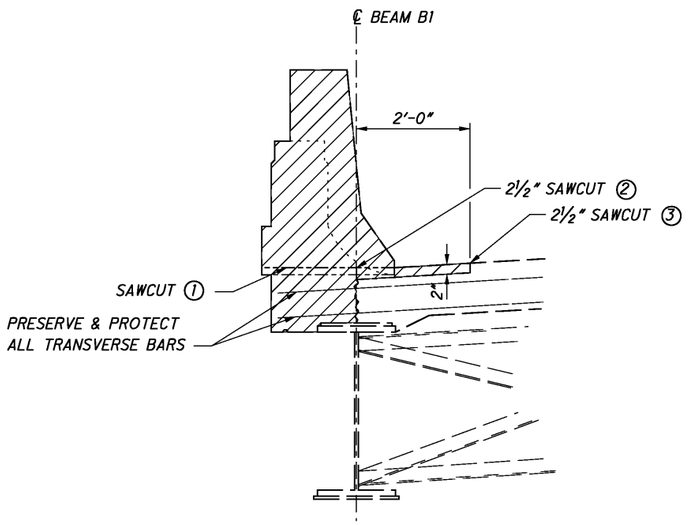


EXISTING TRANSVERSE SECTION



REMOVAL DETAIL AT MINIMUM OVERHANG

(℄ OF B1 UNDER PARAPET)

REMOVAL SEQUENCE:

1. MAKE HORIZONTAL SAWCUT ① AND REMOVE PARAPET
2. MAKE VERTICAL SAWCUT ② AND REMOVE DECK EDGE
3. MAKE VERTICAL SAWCUT ③ AND REMOVE TOP 2" OF DECK, WEARING SURFACE AND BULB ANGLE, IF PRESENT. REMOVE THE TOP OF DECK AND WEARING SURFACE ACCORDING TO THE REQUIREMENTS OF ITEM 847.

NOTES:

1. ANCHOR PORTABLE CONCRETE BARRIER WITH 2 ANCHORS PER SEGMENT. AFTER REMOVAL OF THE PORTABLE CONCRETE BARRIER, FILL ANCHOR HOLES IN DECK WITH NON-SHRINK, NON-METALLIC EPOXY GROUT PER CMS 705.20.

LEGEND:

MAX. = MAXIMUM
MIN. = MINIMUM
TYP. = TYPICAL
* = 2½" DEEP SAW CUT AT ℄ BEAM 1 & 2'-0" FROM ℄ BEAM 1
= AREA TO BE REMOVED PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		18120076	

SUPERSTRUCTURE REMOVAL DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

8 / 40

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94

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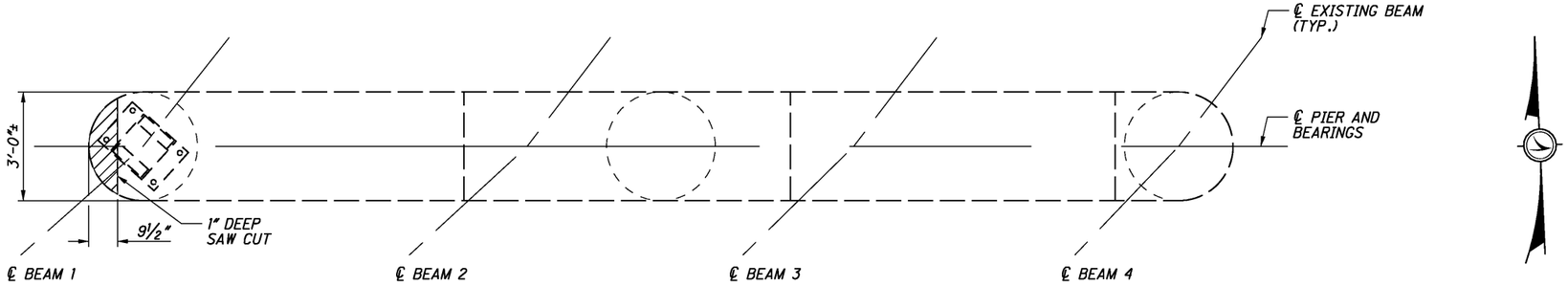
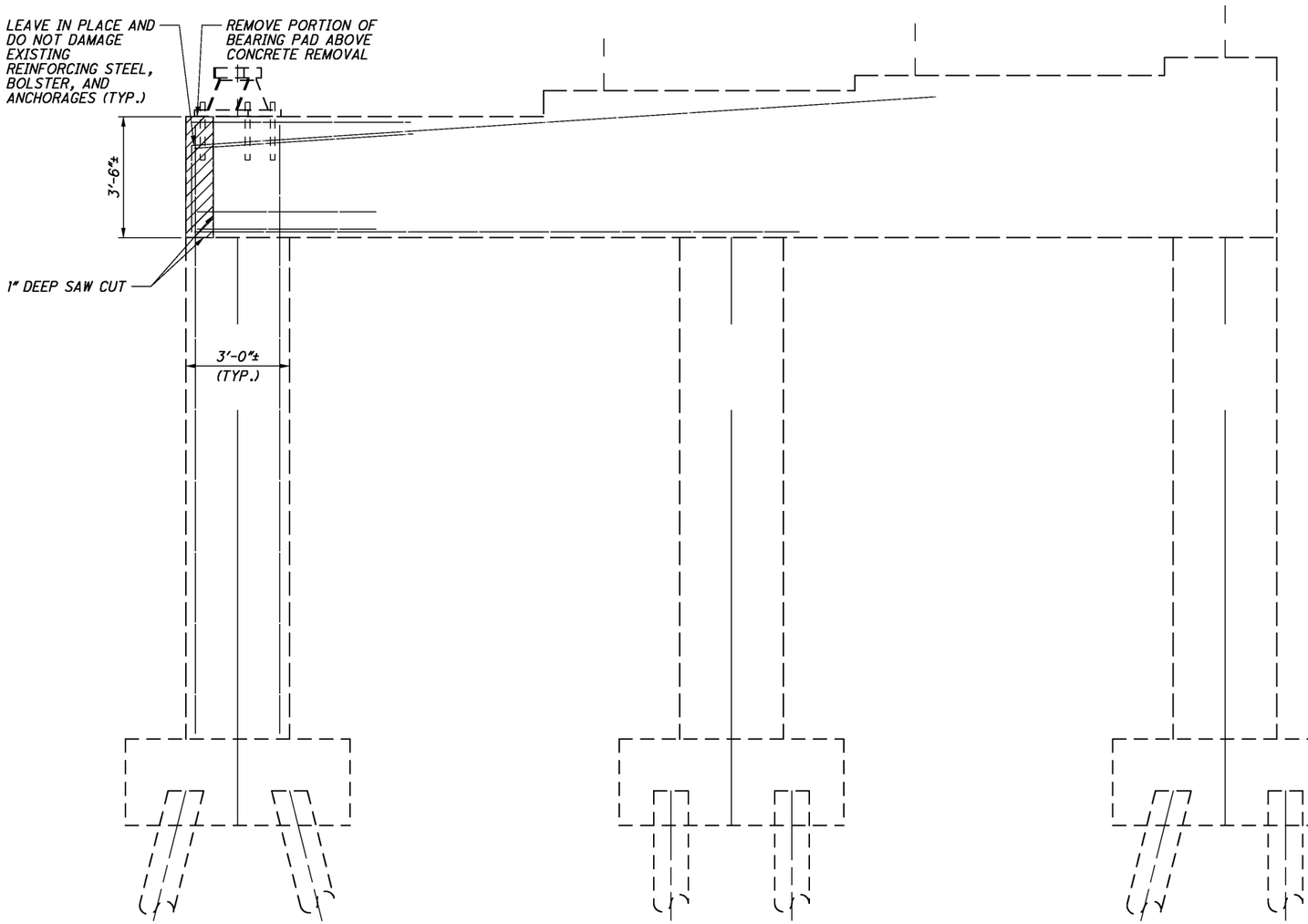


PLAN

(PIER 2 SHOWN, PIERS 1 AND 3 SIMILAR EXCEPT ROCKERS AND MASONRY PLATES ARE REMOVED DURING PIER WIDENING. SEE RESET BEARINGS NOTE ON SHEET 5/40).



ELEVATION

(PIER 2 SHOWN, PIERS 1 AND 3 SIMILAR EXCEPT ROCKERS AND MASONRY PLATES ARE REMOVED DURING PIER WIDENING. SEE RESET BEARINGS NOTE ON SHEET 5/40).

LEGEND:

TYP. = TYPICAL

= ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	02-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PIER REMOVAL DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

8A / 40

54A / 94

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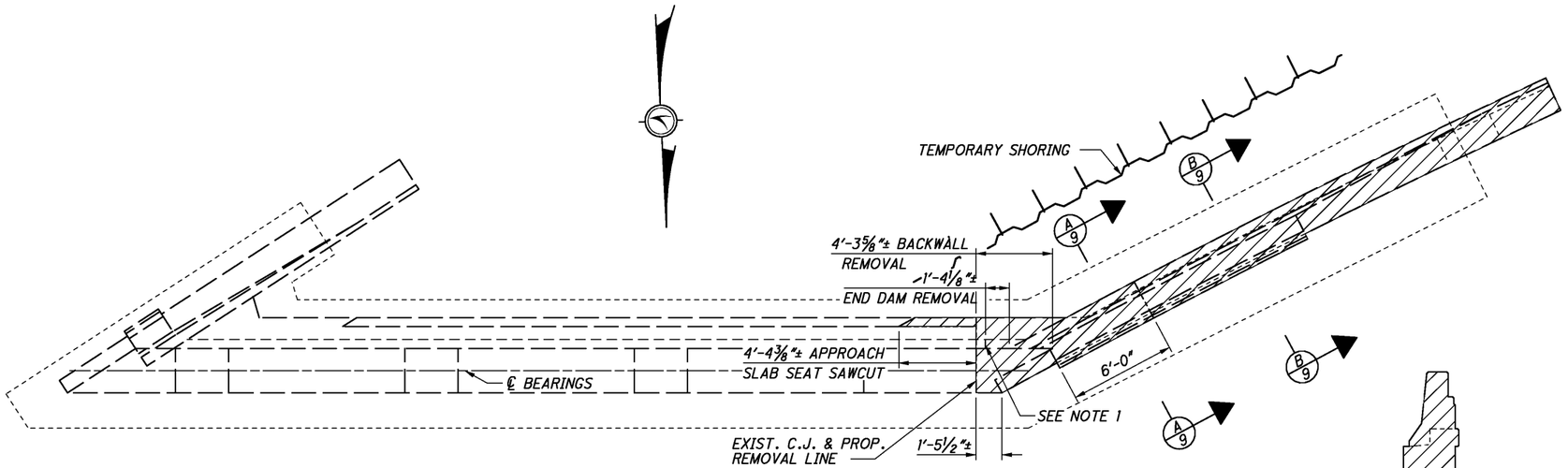
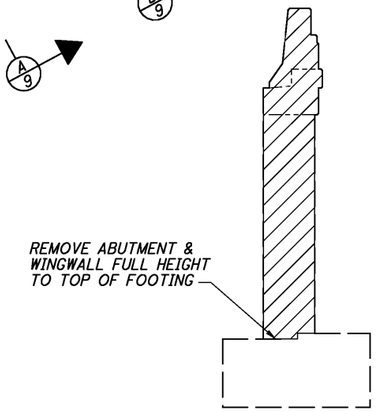
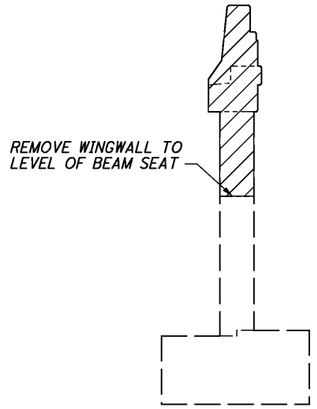


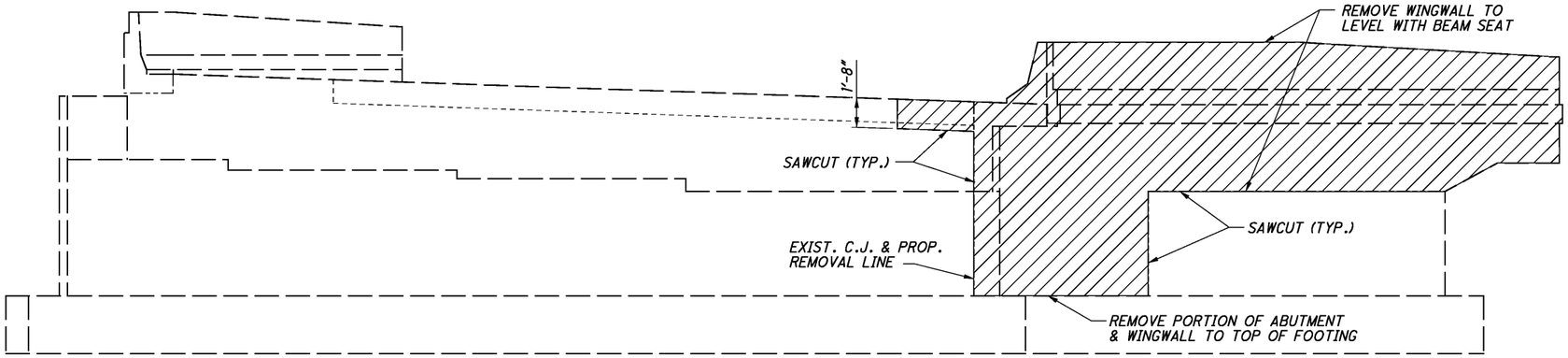
PLAN



SECTION A-A



SECTION B-B



ELEVATION

NOTES:

1. EXTEND BACKWALL END DAM ANGLE 6" BEYOND END OF BACKWALL REMOVAL.

LEGEND:

C.J.	=	CONSTRUCTION JOINT
EXIST.	=	EXISTING
PROP.	=	PROPOSED
TYP.	=	TYPICAL
▨	=	ITEM 202 PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

REAR ABUTMENT REMOVAL DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

9 / 40

55
94

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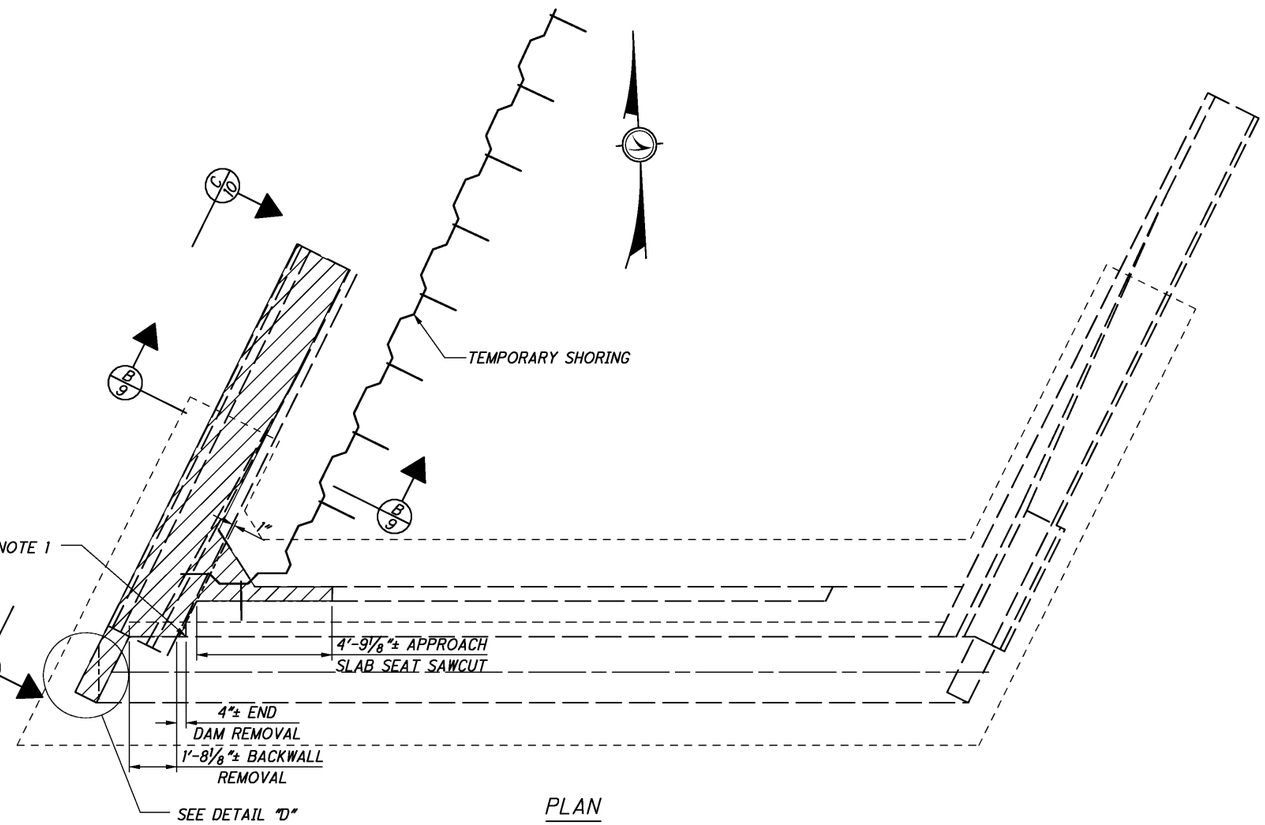
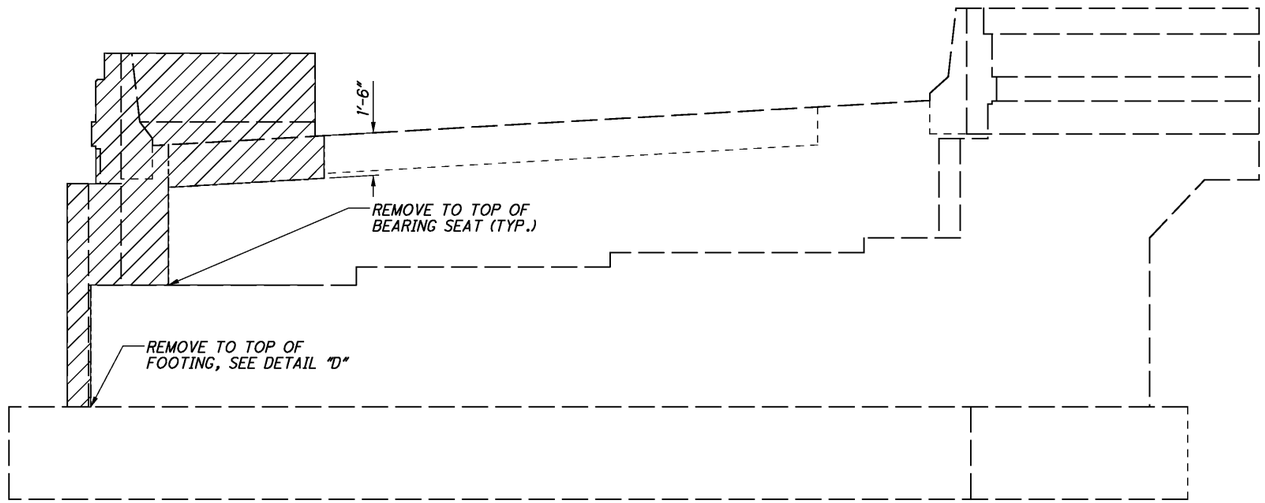
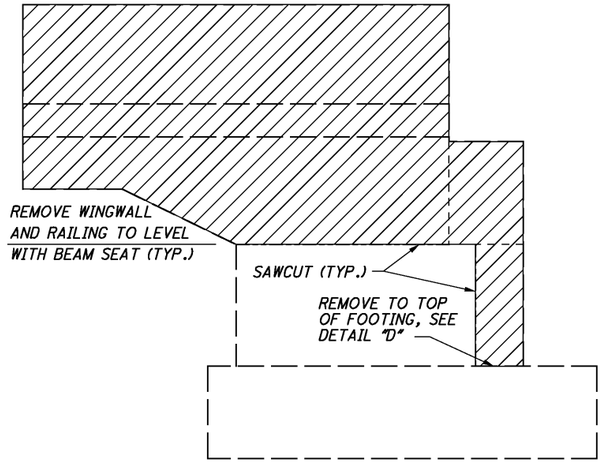


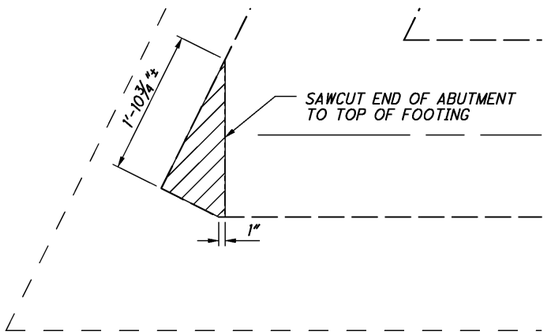
PLAN



ELEVATION



VIEW C-C



DETAIL "D"

NOTES:

1. REMOVE ENOUGH OF BACKWALL TO ALLOW CUTTING AND WELDING OF BACKWALL END DAM ANGLE.

LEGEND:

TYP. = TYPICAL

= ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

FORWARD ABUTMENT REMOVAL DETAILS

BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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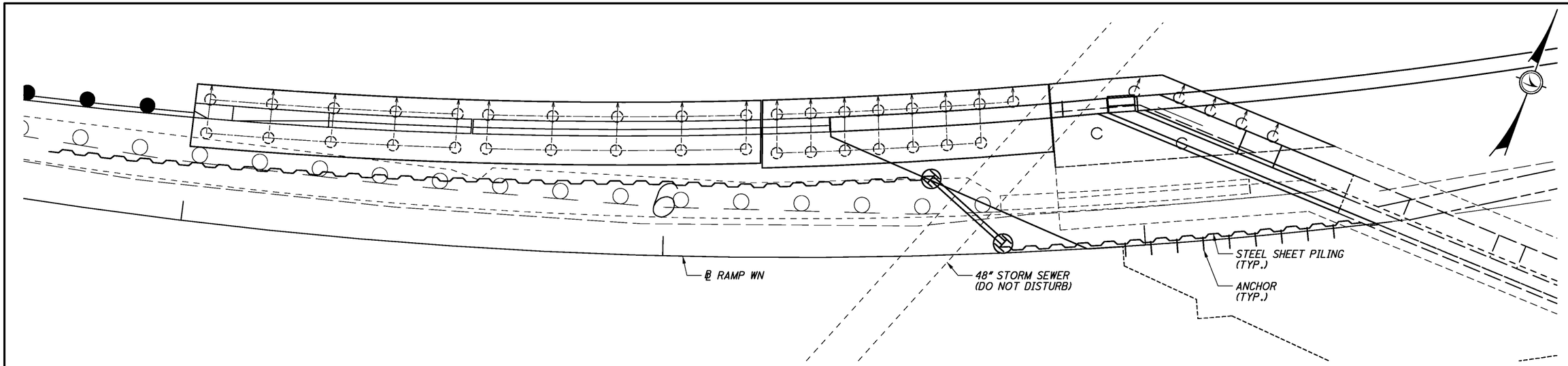

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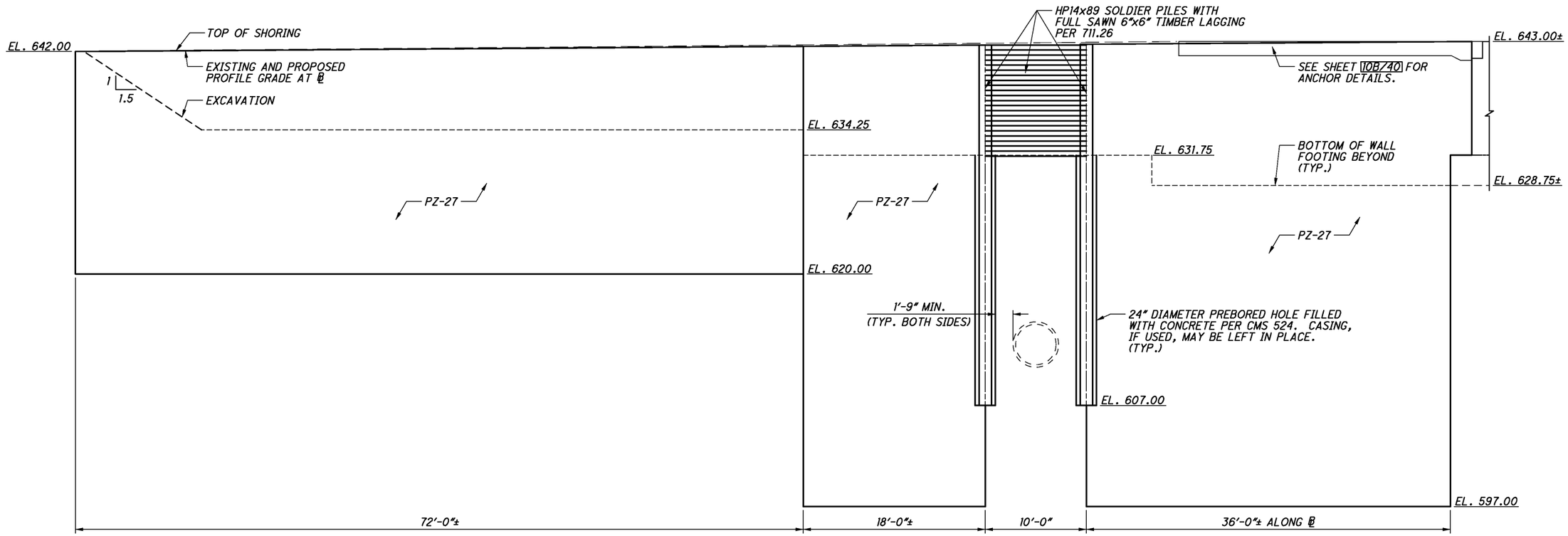

DEVELOPED ELEVATION

LEGEND:

EL. = ELEVATION
TYP. = TYPICAL

NOTES:

1. ABOVE THE CONCRETE FILLED PORTION OF THE PREBORED HOLE, ANY VOIDS AROUND THE PILE RESULTING FROM THE PREBORED HOLES SHALL BE FILLED WITH LOW STRENGTH MORTAR BACKFILL AFTER THE PILE IS PLACED.
2. PZ-27 SHEET PILING SHOWN. EQUIVALENT SHEET PILING WITH MINIMUM SECTION MODULUS OF 30.2 CU. IN. / FT. OF WALL CAN BE USED.
3. ALL COSTS OF TEMPORARY SHORING SHALL BE INCLUDED IN ITEM 503 - COFFERDAMS, CRIBS, AND SHEETING, AS PER PLAN. SHEETING AND SOLDIER PILES SHALL BE ASTM A572 GRADE 50 WITH A YIELD STRENGTH OF 50,000 PSI.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED ASK | DRAWN ASK | REVIEWED DWL | DATE 03-09
CHECKED JAA | REVISED | STRUCTURE FILE NUMBER 1812076

REAR SHORING
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

10A/40

56A/94

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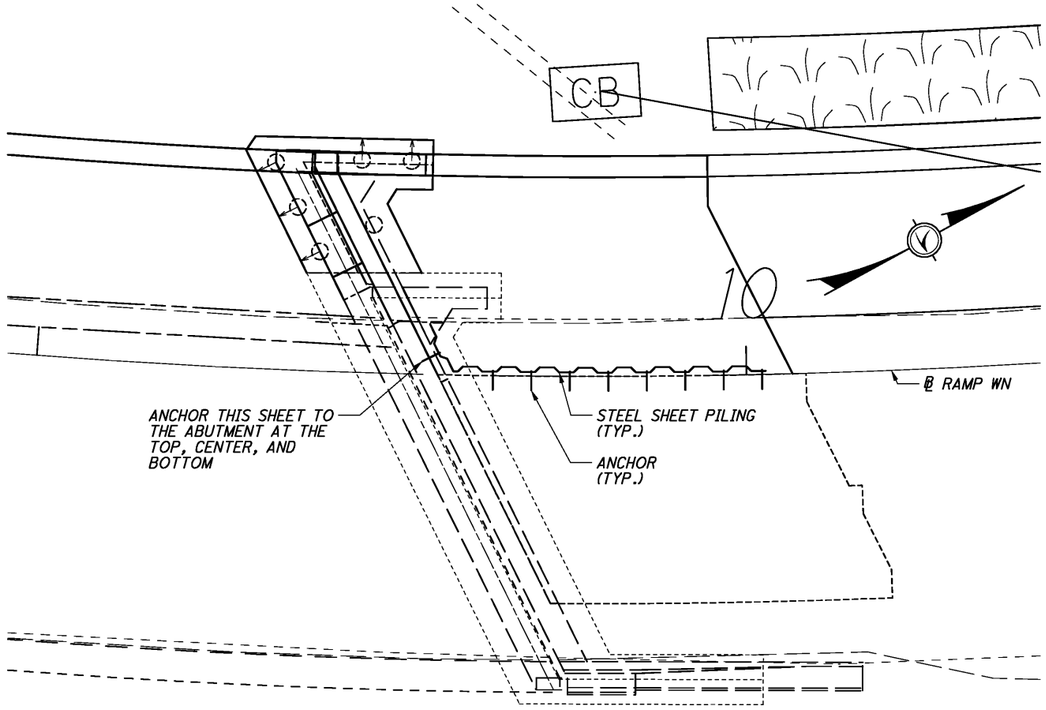
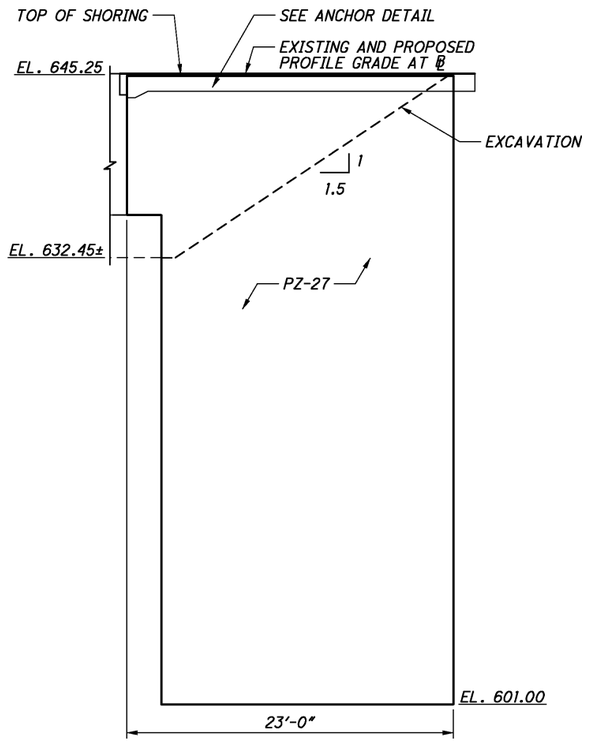
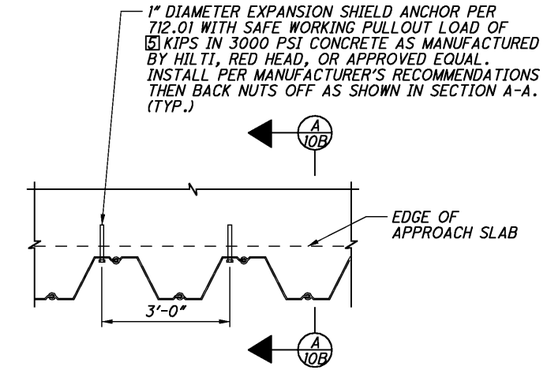


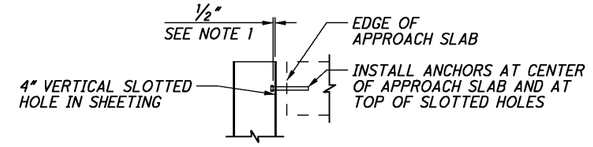
PLAN



ELEVATION



ANCHORAGE DETAIL



SECTION A-A

NOTES:

1. AFTER INSTALLATION AND TORQUING PER MANUFACTURER'S RECOMMENDATIONS, BACK NUT OFF ½" TO ALLOW ACTIVE PRESSURE TO DEVELOP.
2. PZ-27 SHEET PILING SHOWN. EQUIVALENT SHEET PILING WITH MINIMUM SECTION MODULUS OF 30.2 CU. IN. / FT. OF WALL CAN BE USED.
3. ALL COSTS OF TEMPORARY SHORING SHALL BE INCLUDED IN ITEM 503 - COFFERDAMS, CRIBS, AND SHEETING, AS PER PLAN.

LEGEND:

EL. = ELEVATION
TYP. = TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	03-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

FORWARD SHORING AND DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

10B / 40

56B / 94

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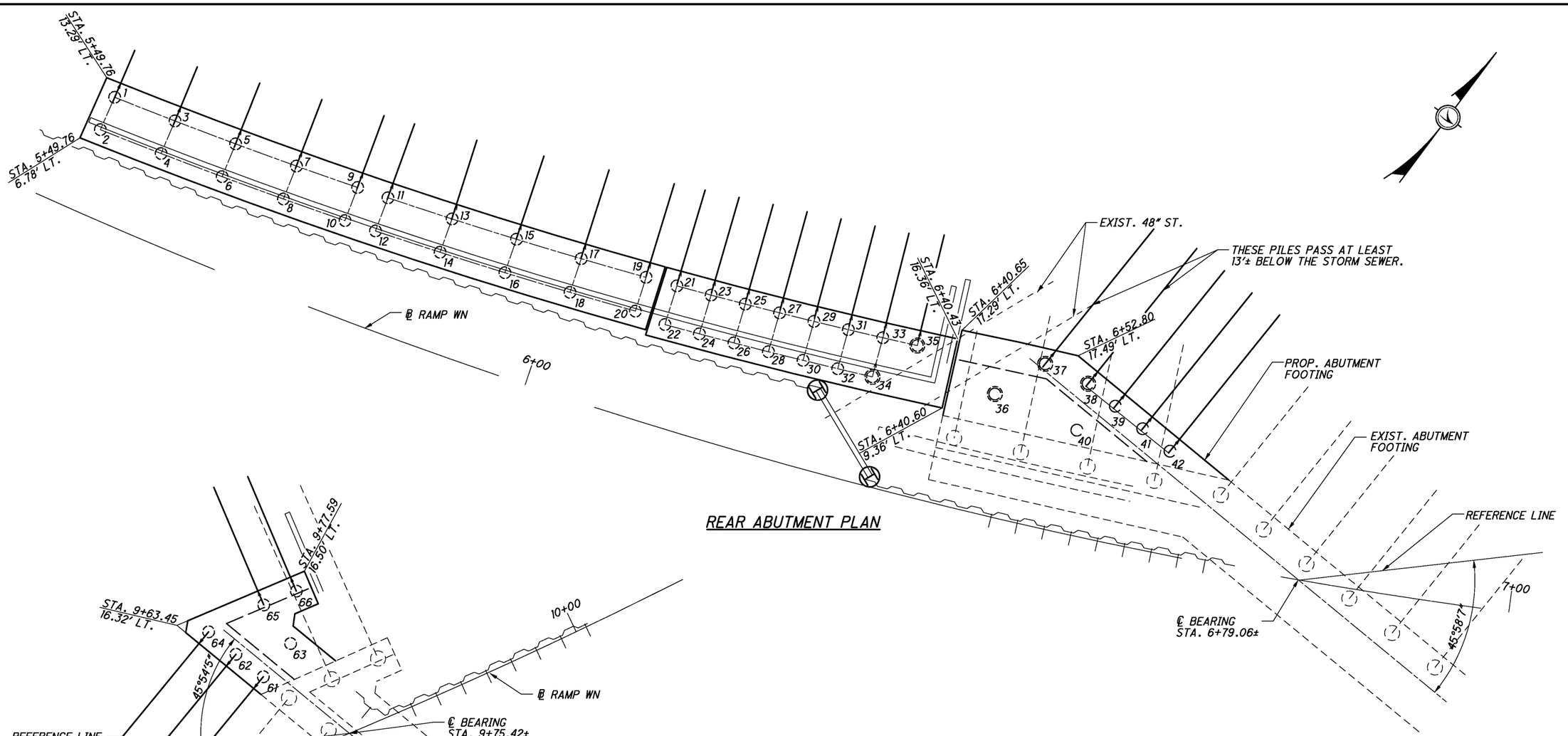
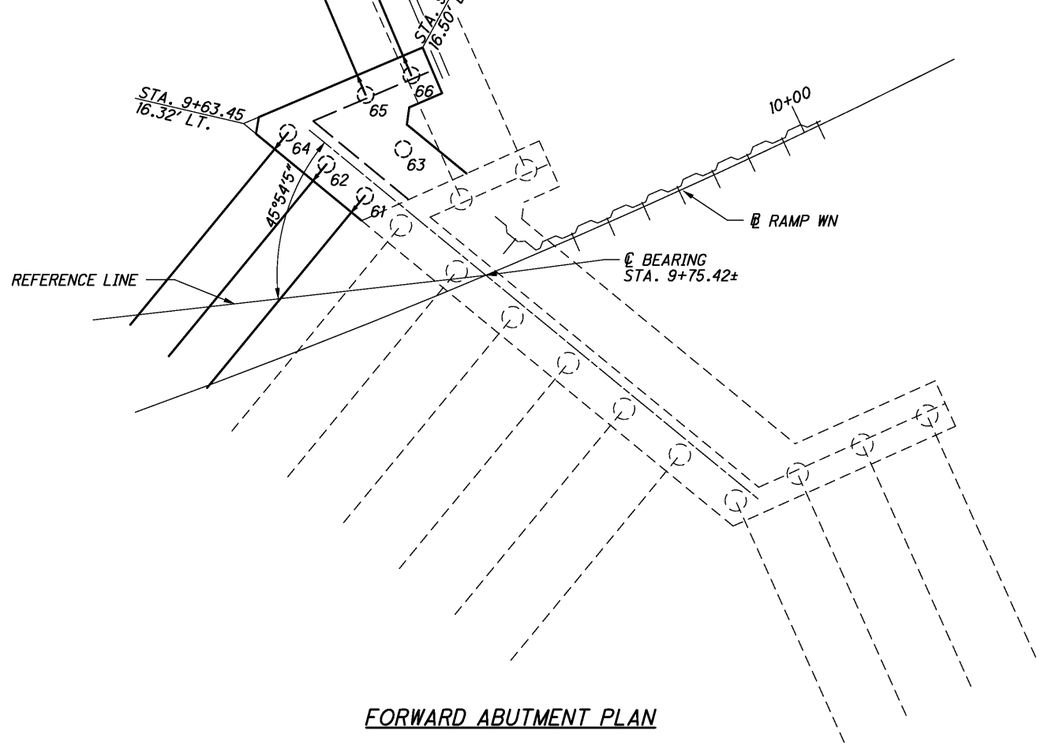


REAR ABUTMENT PLAN



FORWARD ABUTMENT PLAN

NOTES:

1. ALL PILING TO BE 14" CAST-IN-PLACE REINFORCED CONCRETE PILES.
2. SEE SHEET 15/40 FOR ABUTMENT PILE SPACINGS AND SHEET 17/40 FOR RETAINING WALL PILE SPACINGS.

LEGEND:

##	= PILE NUMBER
EXIST.	= EXISTING
PROP.	= PROPOSED
ST.	= STORM SEWER
○	= PROPOSED VERTICAL PILE
↑○	= PROPOSED 4:1 BATTERED PILE
◎	= PROPOSED PILE WITH 20' LONG FULL-SIZE PREBORED HOLE

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

ABUTMENT FOUNDATION PLAN
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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94

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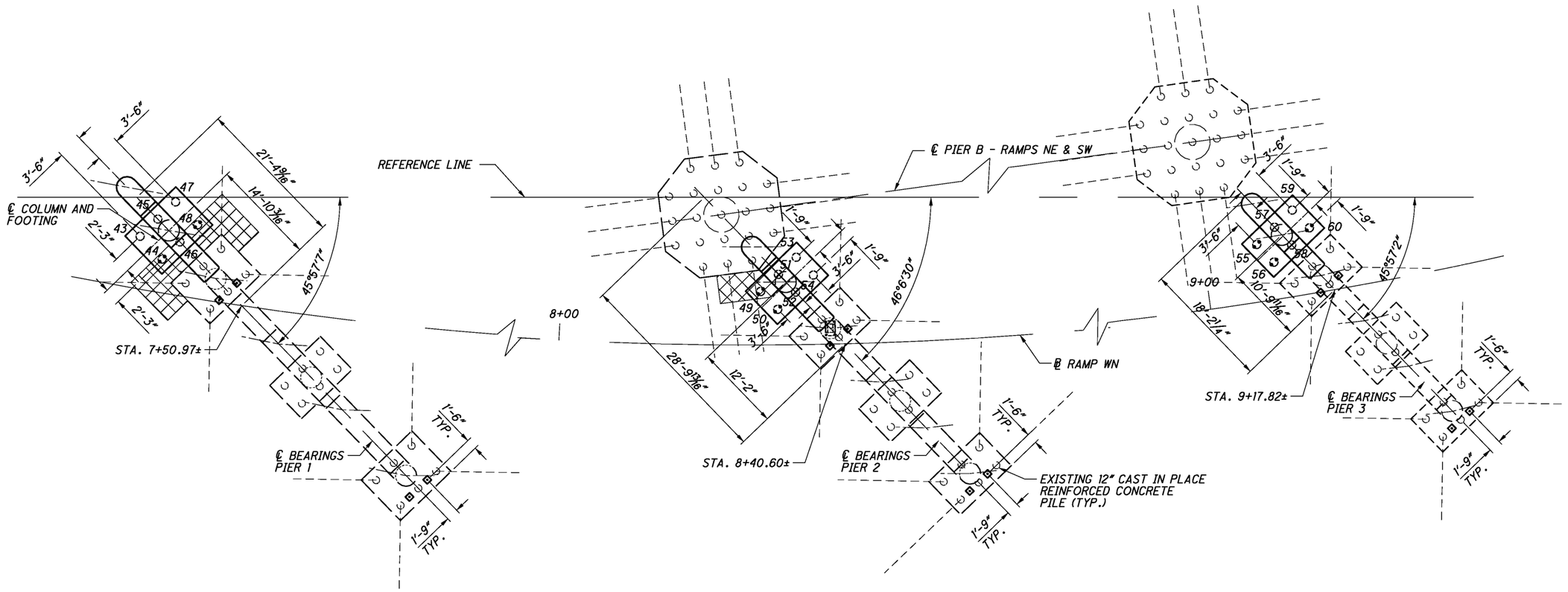

LEGEND:

- ## = PILE NUMBER
- TYP. = TYPICAL
- ○ = PROPOSED VERTICAL 14" DIAMETER CAST IN PLACE REINFORCED CONCRETE PILE
- ◐ = PROPOSED VERTICAL 14" DIAMETER CAST IN PLACE REINFORCED CONCRETE PILE WITH PREBORED HOLES. SEE SHEET 35/40 FOR DETAILS AND 4/40 FOR NOTES.
- ⊡ = PREBORED ANCHOR. SEE SHEET 22/40 FOR DETAIL AND SHEET 6/40 FOR NOTES.
- ⊠ = ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN 2. SEE SHEET 35/40 FOR DETAILS AND SHEET 4/40 FOR NOTES.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PIER FOUNDATION PLAN

BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-1.87WN/VAR
PID No. 85049

12 / 40

58 / 94

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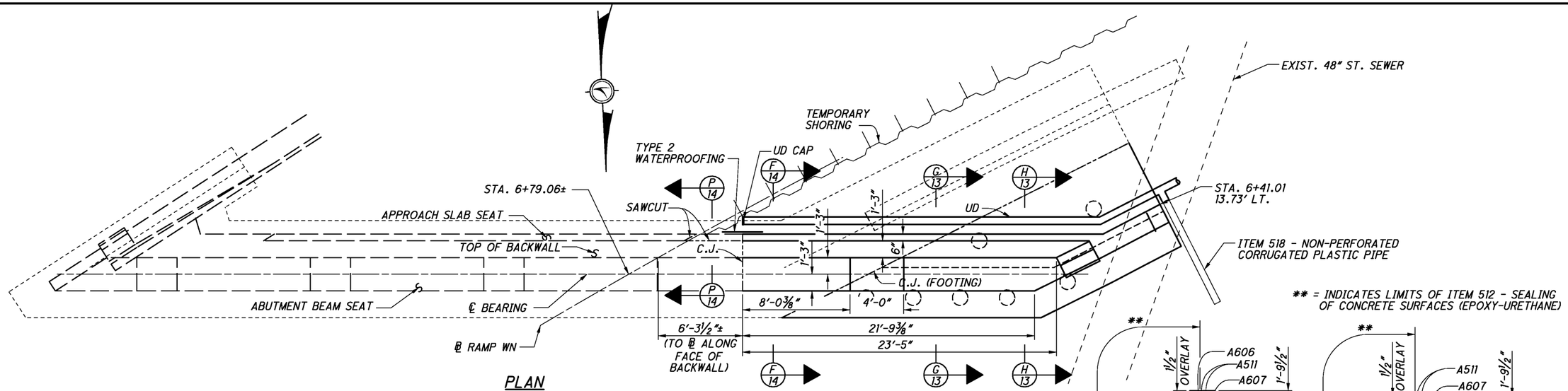

NOTES:

IN ADDITION TO 511.10, DO NOT PLACE BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.

SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED ABUTMENT EXTENSION PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).

DOWEL NO. 5 BARS 10" DEEP
DOWEL NO. 6 BARS 12" DEEP

LEGEND:

c/c	=	CENTER TO CENTER
C.J.	=	CONSTRUCTION JOINT
EQ.	=	EQUAL
EXIST.	=	EXISTING
FF	=	FAR FACE
MAX.	=	MAXIMUM
NF	=	NEAR FACE
SO	=	SERIES OF
SP.	=	SPACES
ST.	=	STORM SEWER
UD	=	ITEM 518 - 6" PERFORATED CORRUGATED PLASTIC PIPE
TYP.	=	TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST EDIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

REAR ABUTMENT PLAN & ELEVATION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

13 / 40

59
94

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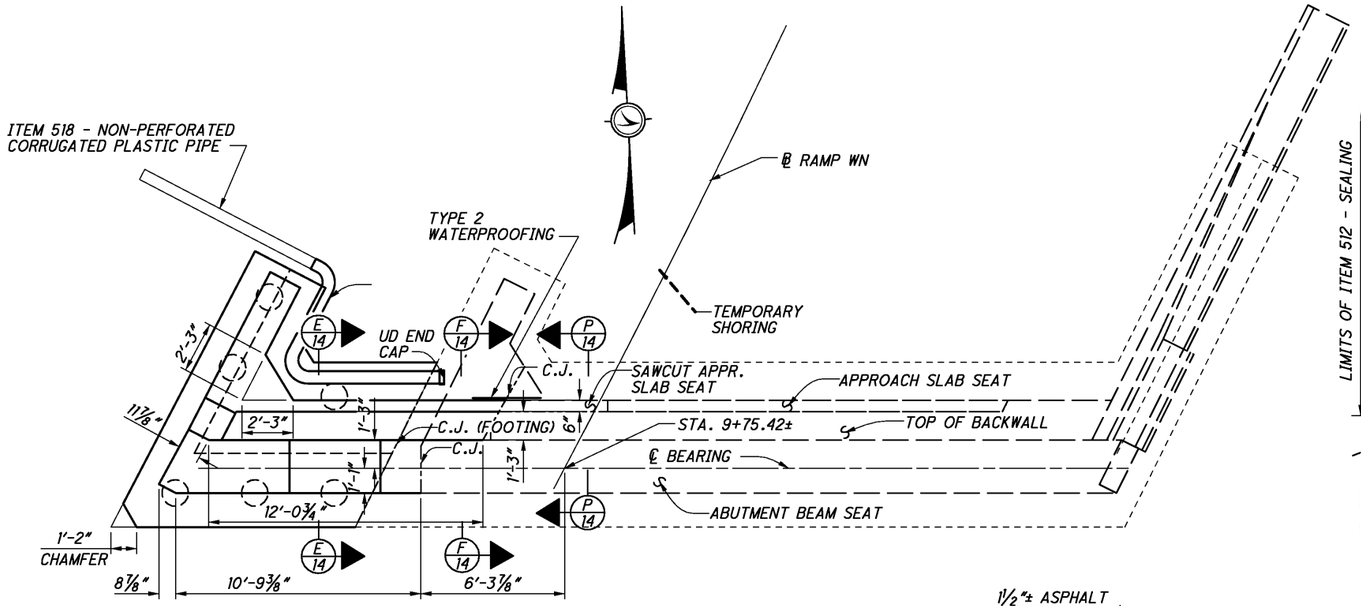
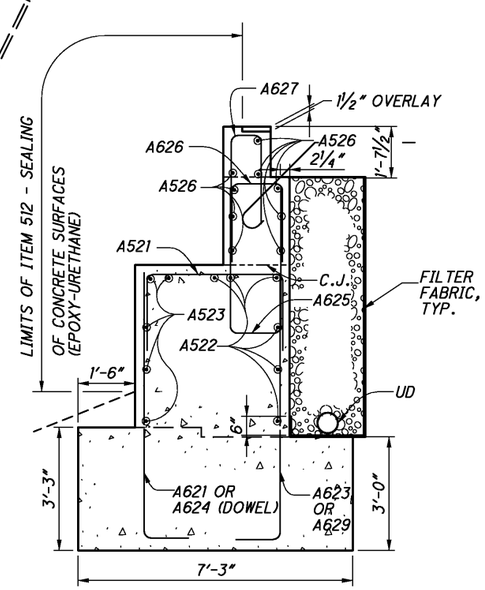
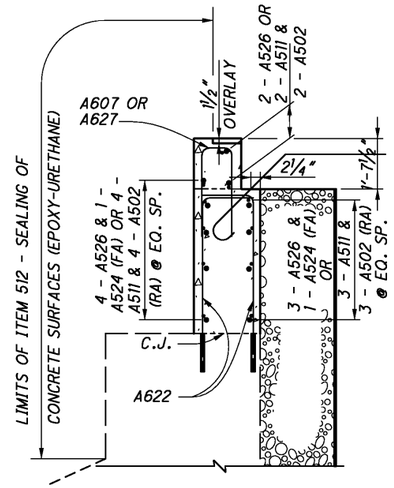


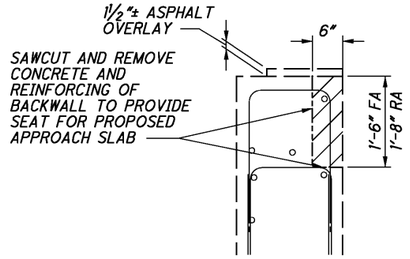
PLAN



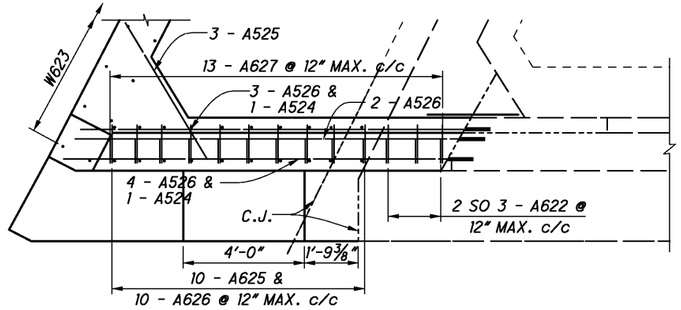
SECTION E-E



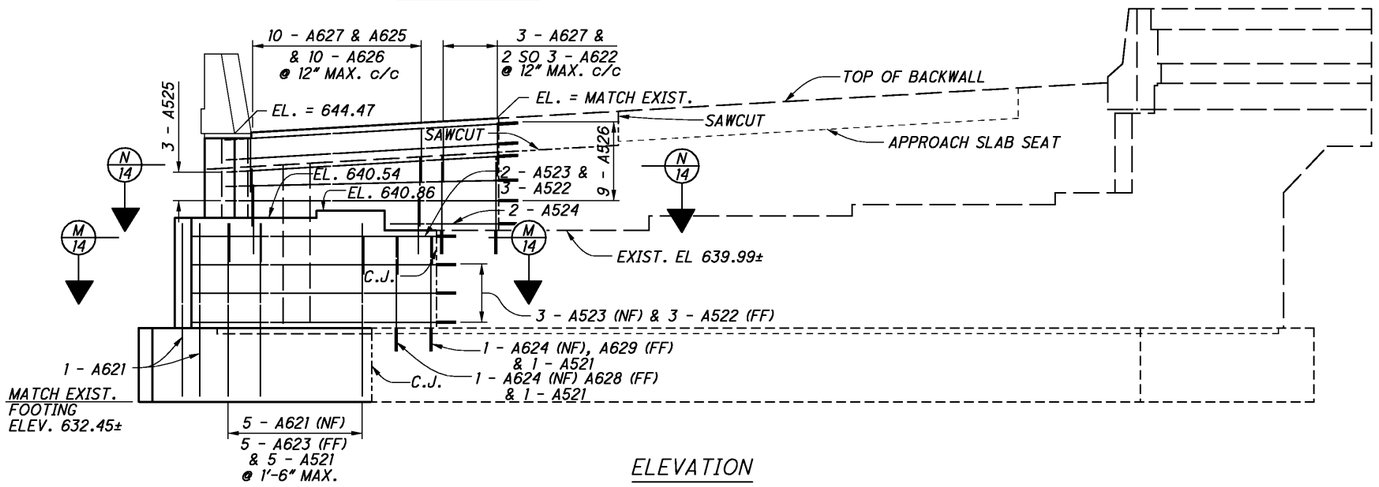
SECTION F-F



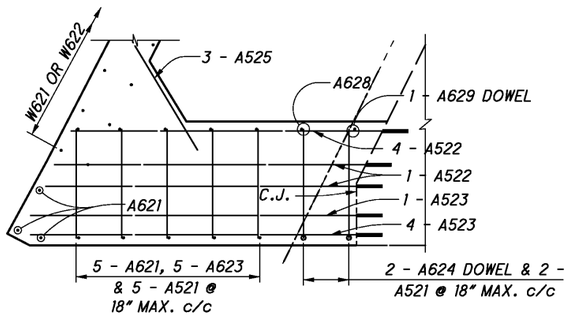
SECTION P-P



SECTION N-N



ELEVATION



SECTION M-M

NOTES

POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.

BACKWALL CONCRETE: IN ADDITION TO ITEM 511.10, DO NOT PLACE BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED ABUTMENT EXTENSION PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).

DOWEL NO. 5 BARS 10" DEEP, DOWEL NO. 6 BARS 12" DEEP

LEGEND

APPR.	=	APPROACH	MAX.	=	MAXIMUM
c/c	=	CENTER TO CENTER	NF	=	NEAR FACE
C.J.	=	CONSTRUCTION JOINT	RA	=	REAR ABUTMENT
EL.	=	ELEVATION	SO	=	SERIES OF
EQ.	=	EQUAL	SP.	=	SPACES
EXIST.	=	EXISTING	UD	=	ITEM 518 - 6" PERFORATED CORRUGATED PLASTIC PIPE
FA	=	FORWARD ABUTMENT			
FF	=	FAR FACE	TYP.	=	TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	1-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

FORWARD ABUTMENT PLAN & ELEVATION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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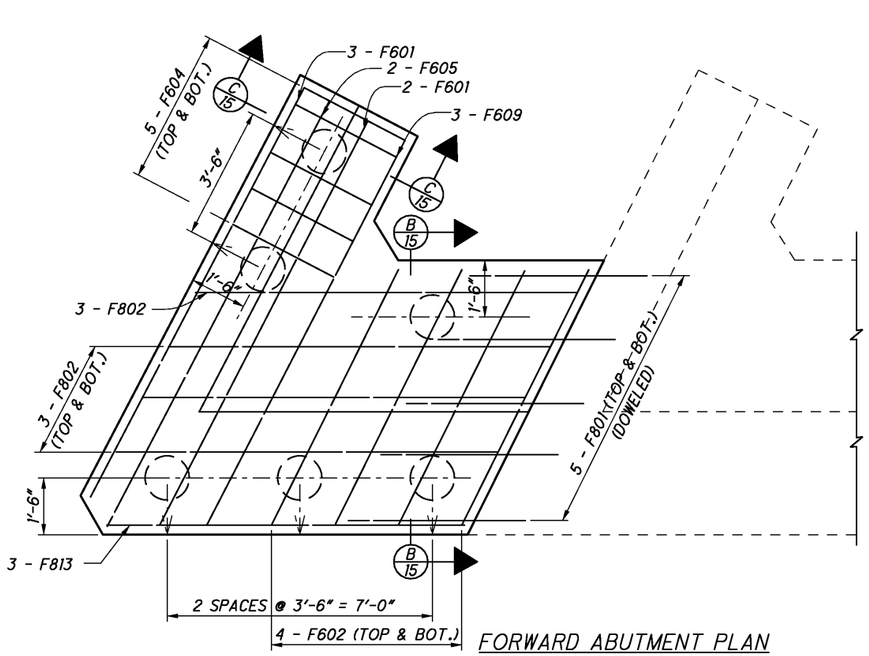
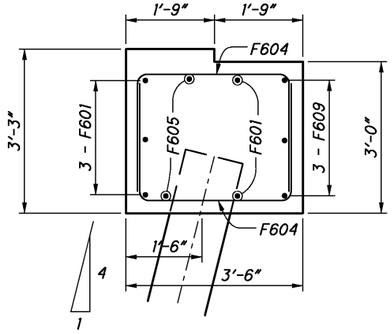
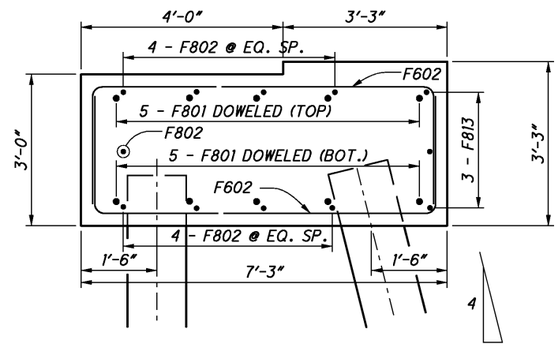


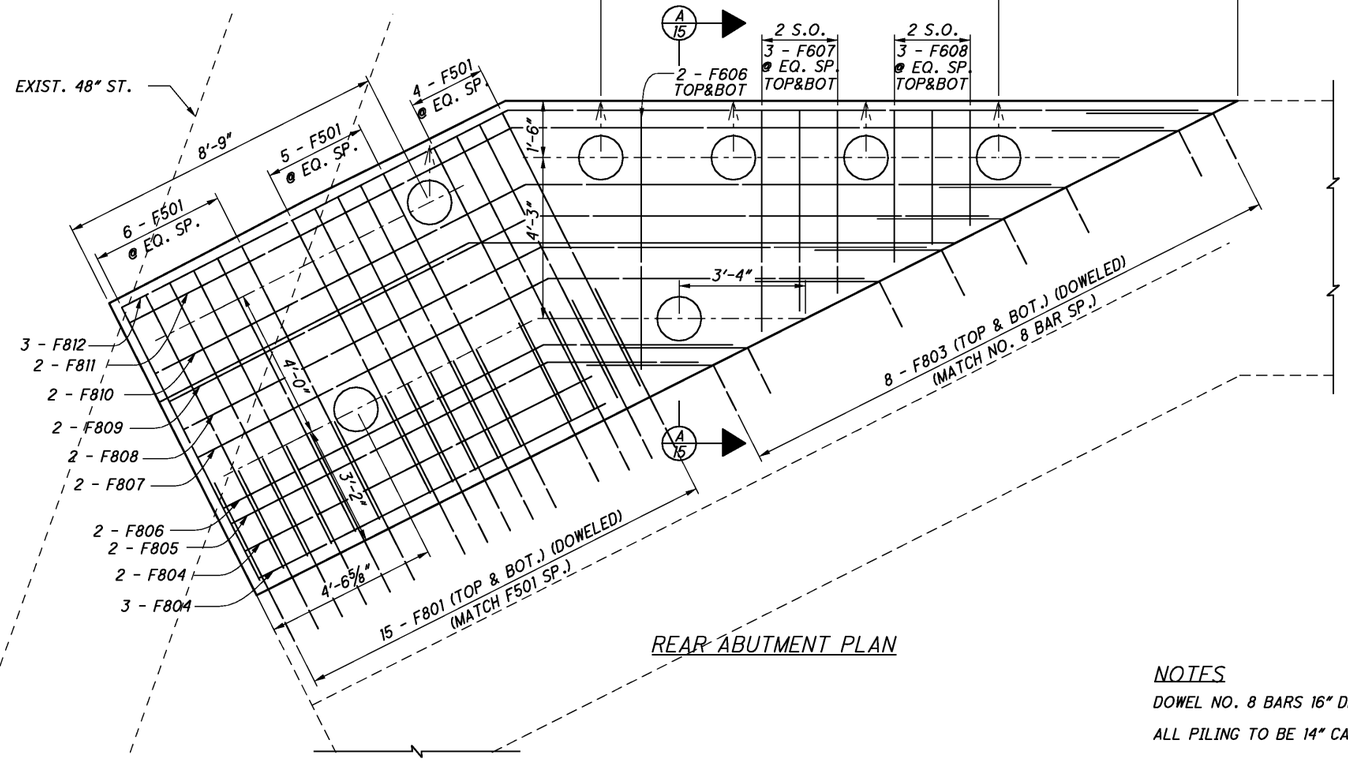
FORWARD ABUTMENT PLAN



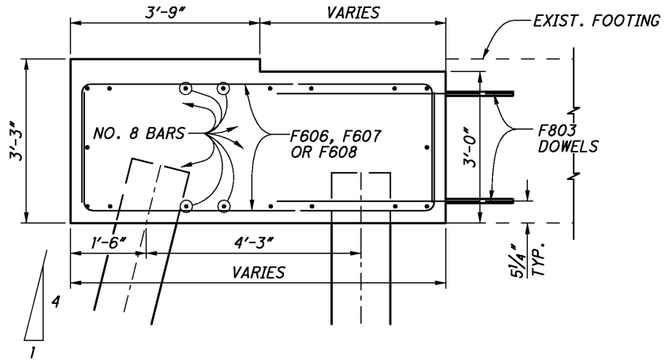
SECTION C-C



SECTION B-B



REAR ABUTMENT PLAN



SECTION A-A

NOTES

DOWEL NO. 8 BARS 16" DEEP

ALL PILING TO BE 14" CAST-IN-PLACE REINFORCED CONCRETE PILES

LEGEND

BOT.	=	BOTTOM
EQ.	=	EQUAL
EXIST.	=	EXISTING
S.O.	=	SERIES OF
SP.	=	SPACING
ST.	=	STORM SEWER

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

ABUTMENT FOUNDATION DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

15 / 40

61 / 94

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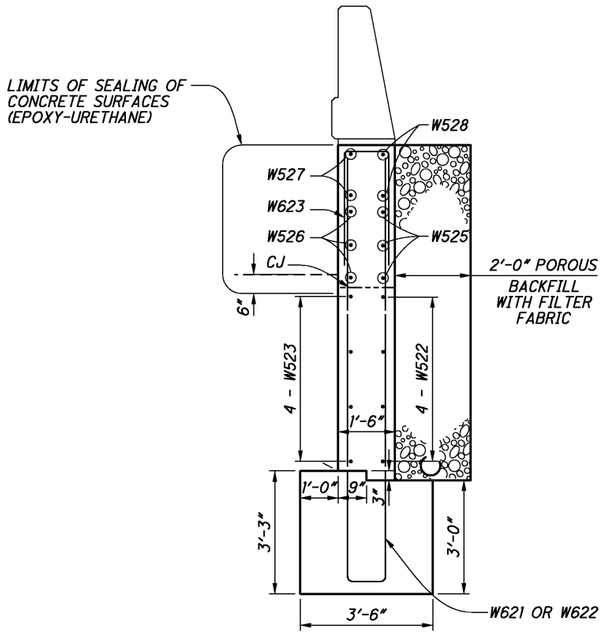
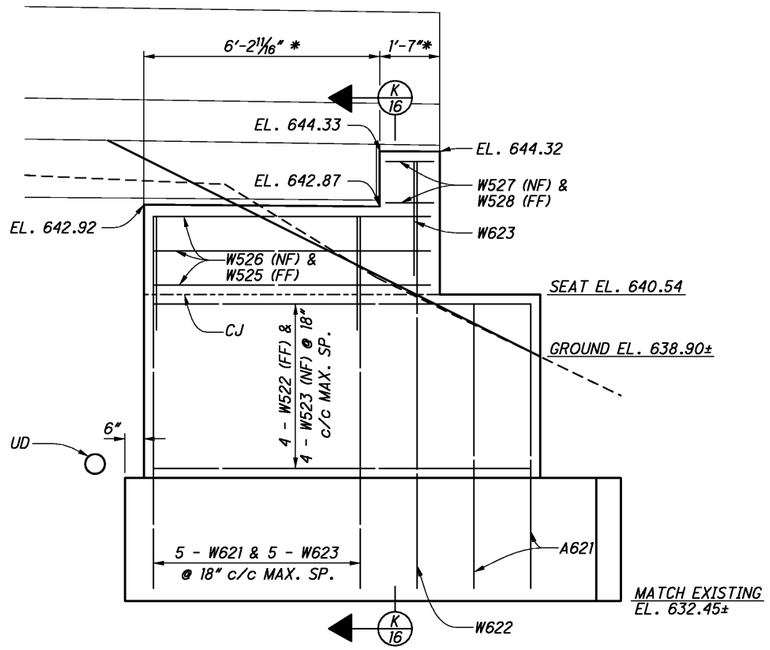
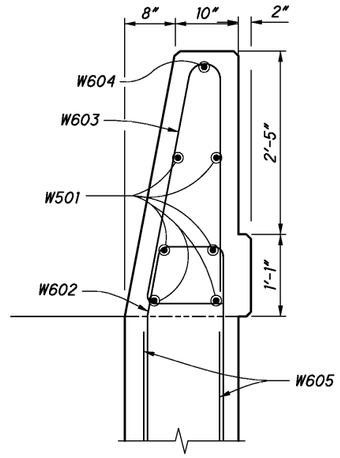


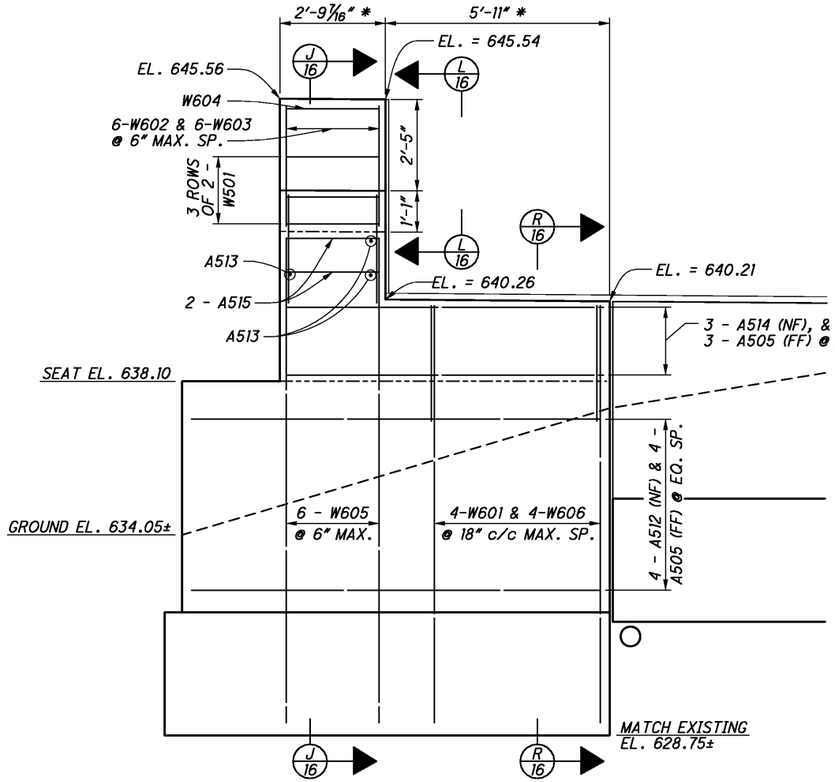
SECTION K-K



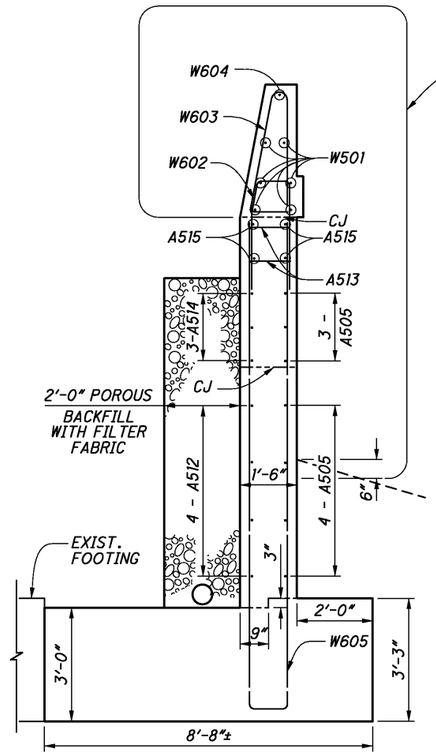
FORWARD ABUTMENT WINGWALL ELEVATION



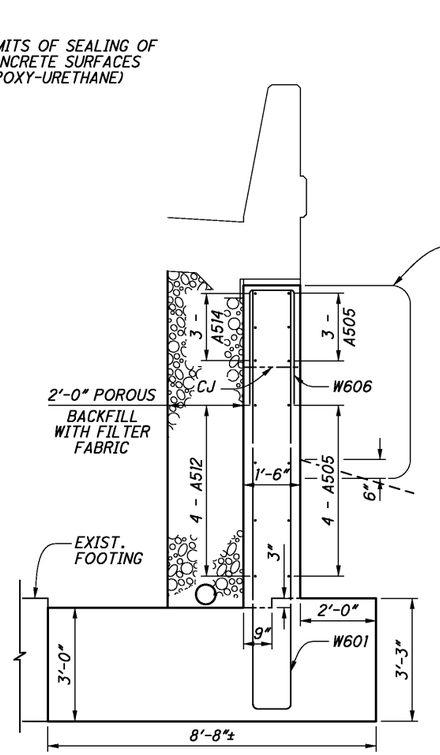
SECTION L-L



REAR ABUTMENT WINGWALL ELEVATION



SECTION J-J



SECTION R-R

NOTES:

POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.

SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED WINGWALLS PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).

LEGEND:

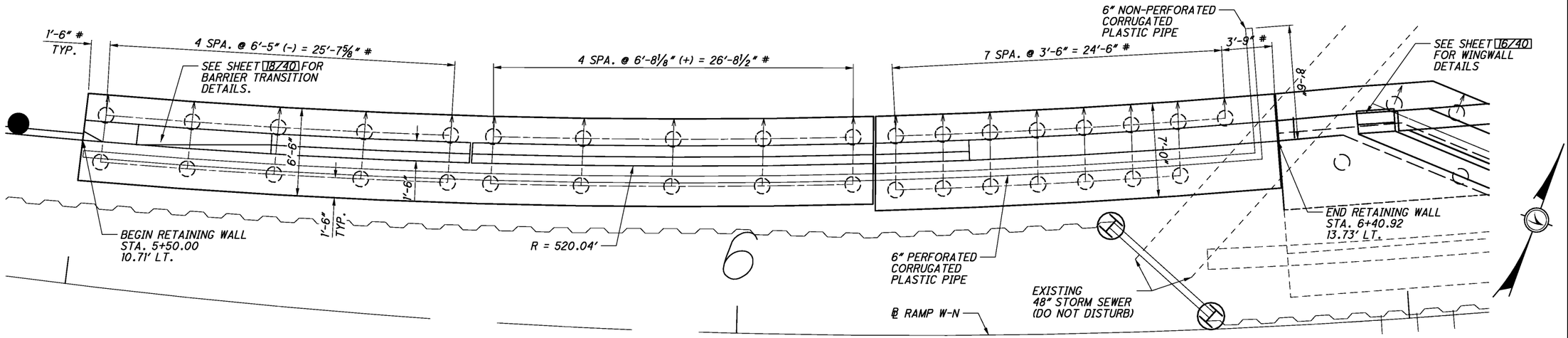
c/c	=	CENTER TO CENTER
CJ	=	CONSTRUCTION JOINT
EL.	=	ELEVATION
EQ.	=	EQUAL
EXIST.	=	EXISTING
FF	=	FAR FACE
MAX.	=	MAXIMUM
NF	=	NEAR FACE
SP.	=	SPACES
UD	=	6" PERFORATED CORRUGATED PLASTIC PIPE
TYP.	=	TYPICAL
*	=	ALONG FRONT FACE

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

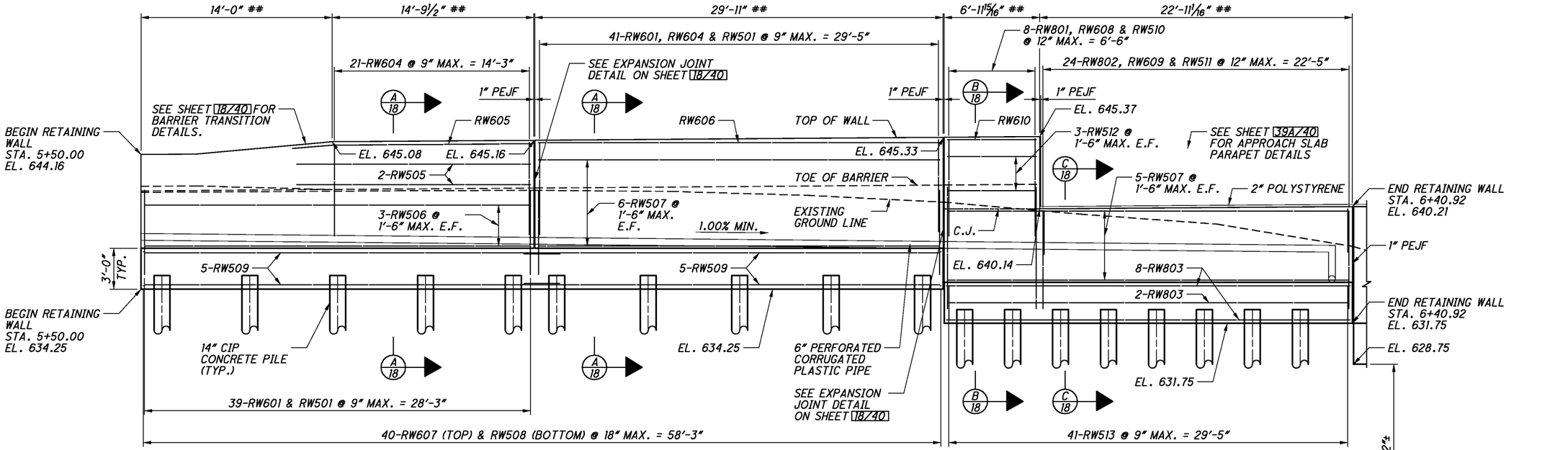
DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

WINGWALL DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049



PLAN



DEVELOPED ELEVATION
ROADWAY FACE OF WALL

LEGEND:

C.J. = CONSTRUCTION JOINT
E.F. = EACH FACE
EL. = ELEVATION
MAX. = MAXIMUM
PEJF = PREFORMED EXPANSION JOINT FILLER
SPA. = SPACES
TYP. = TYPICAL
# = MEASURED ALONG THE CENTERLINE OF THE FRONT PILES
= MEASURED ALONG THE TOE OF BARRIER
◌ = VERTICAL PILE
= PILE BATTERED 4:1

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	03-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

REAR RETAINING WALL PLAN AND ELEVATION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-1.87WN/VAR
PID No. 85049

17 / 40

63 / 94

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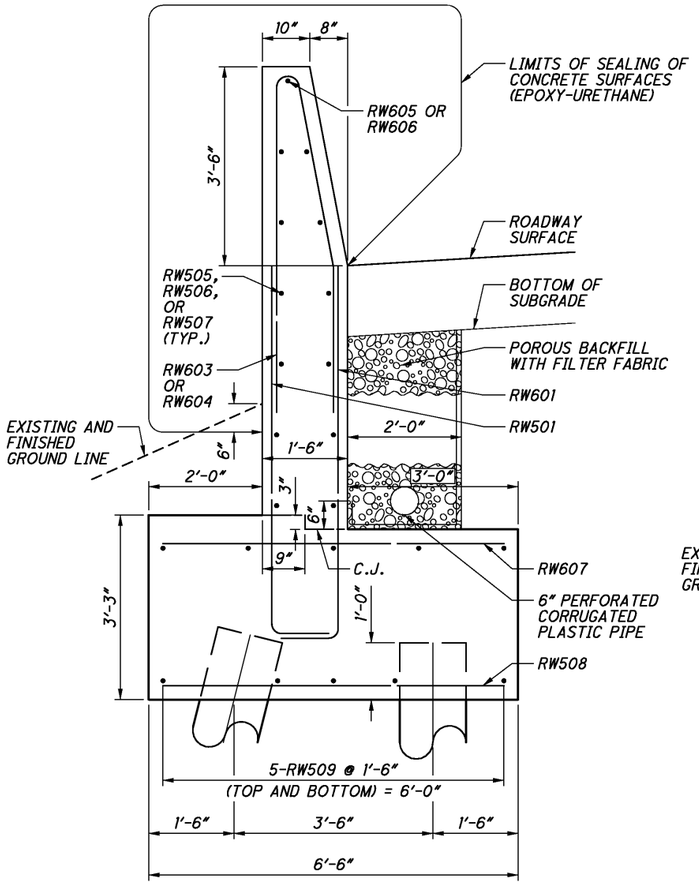
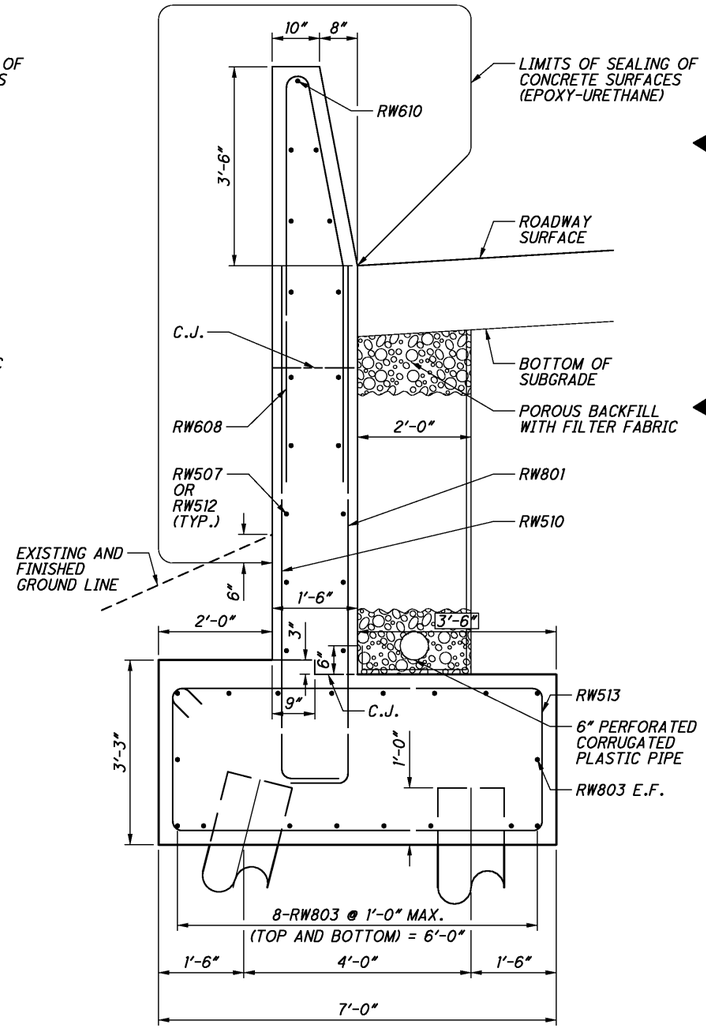
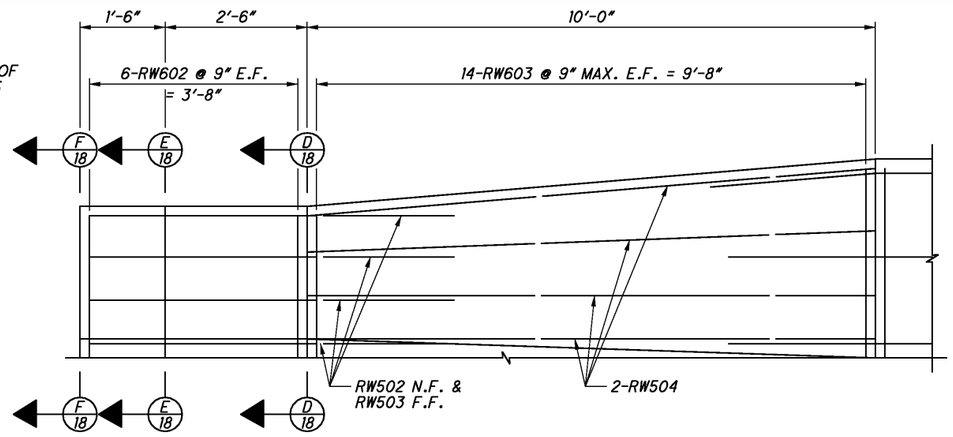


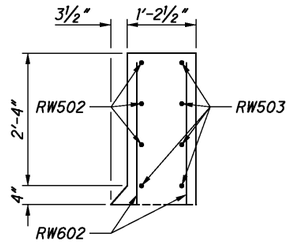
SECTION A-A



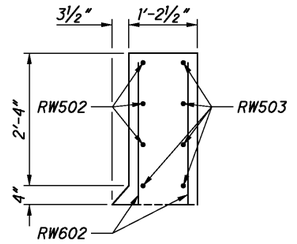
SECTION B-B



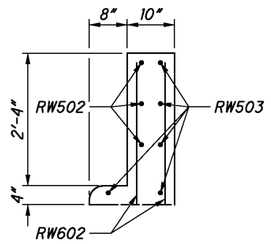
BARRIER TRANSITION ELEVATION



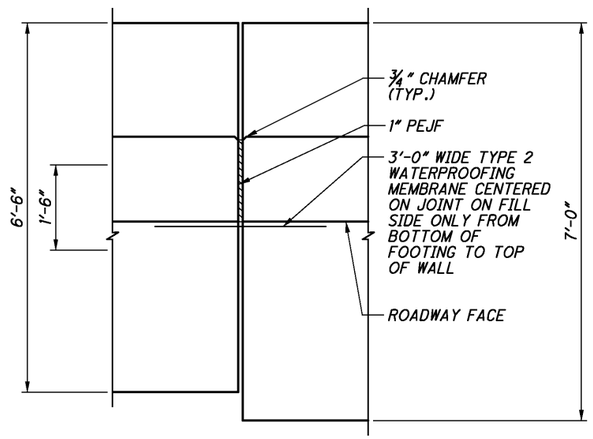
SECTION D-D



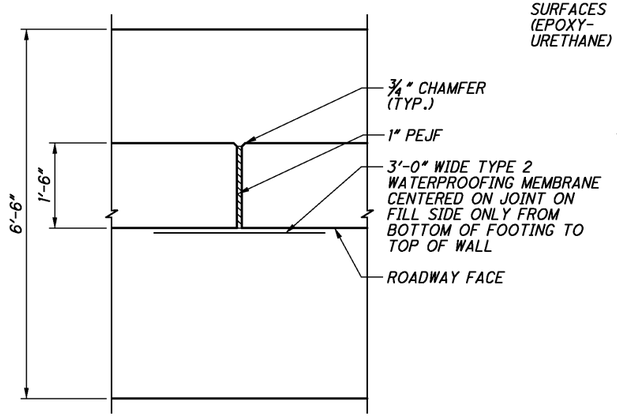
SECTION E-E



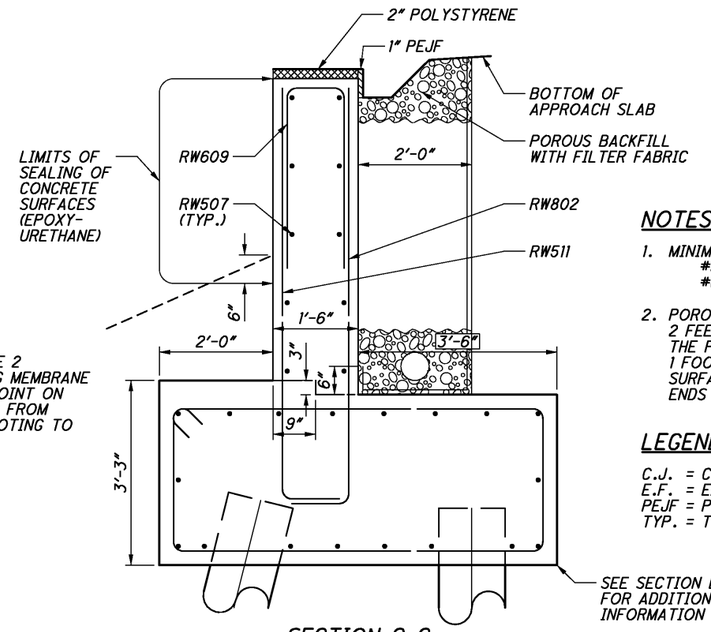
SECTION F-F



EXPANSION JOINT DETAIL
(WITH JOINT IN FOOTING)



EXPANSION JOINT DETAIL
(WITH JOINT ONLY IN WALL STEM)



SECTION C-C

NOTES:

1. MINIMUM REINFORCING LAP LENGTHS:
   #5 = 31"
   #6 = 35"
2. POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE RETAINING WALL.

LEGEND:

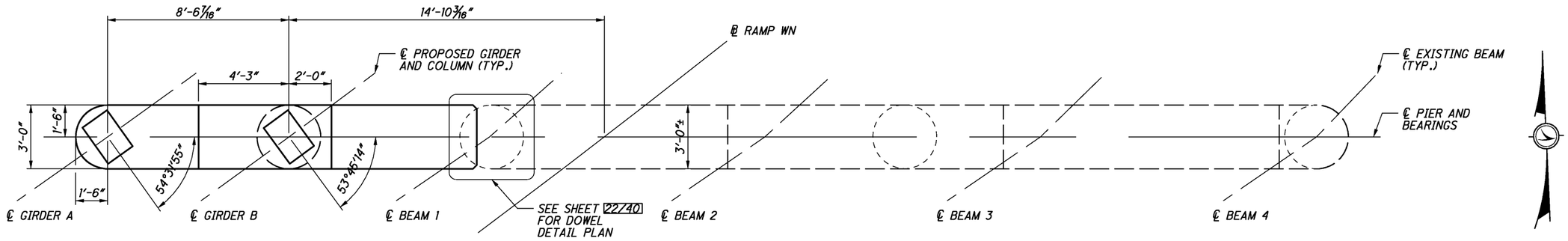
C.J. = CONSTRUCTION JOINT
E.F. = EACH FACE
PEJF = PREFORMED EXPANSION JOINT FILLER
TYP. = TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

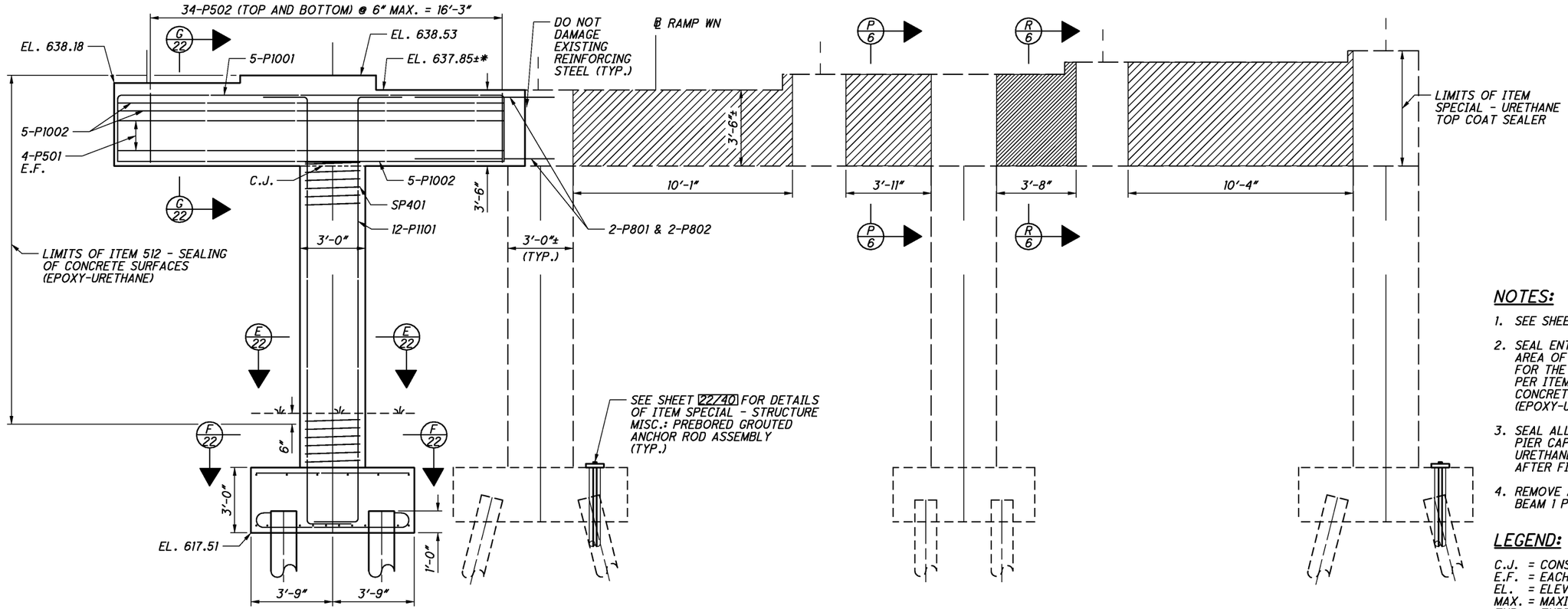
DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	03-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

REAR RETAINING WALL DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049



PLAN



ELEVATION

NOTES:

1. SEE SHEET 22/40 FOR SECTIONS.
2. SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED PIER EXCEPT FOR THE TOP HORIZONTAL SURFACE PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).
3. SEAL ALL SURFACES OF EXISTING PIER CAP WITH ITEM SPECIAL - URETHANE TOP COAT SEALER AFTER FIBER WRAPPING.
4. REMOVE AND RESET ROCKER UNDER BEAM 1 PER NOTE ON SHEET 5/40.

LEGEND:

C.J. = CONSTRUCTION JOINT
E.F. = EACH FACE
EL. = ELEVATION
MAX. = MAXIMUM
TYP. = TYPICAL
* = MATCH EXISTING PIER SEAT ELEVATION AT BEAM 1
= ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL (1 LAYER)
= ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL (2 LAYERS)

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PIER 1 PLAN AND ELEVATION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

19 / 40

65
94

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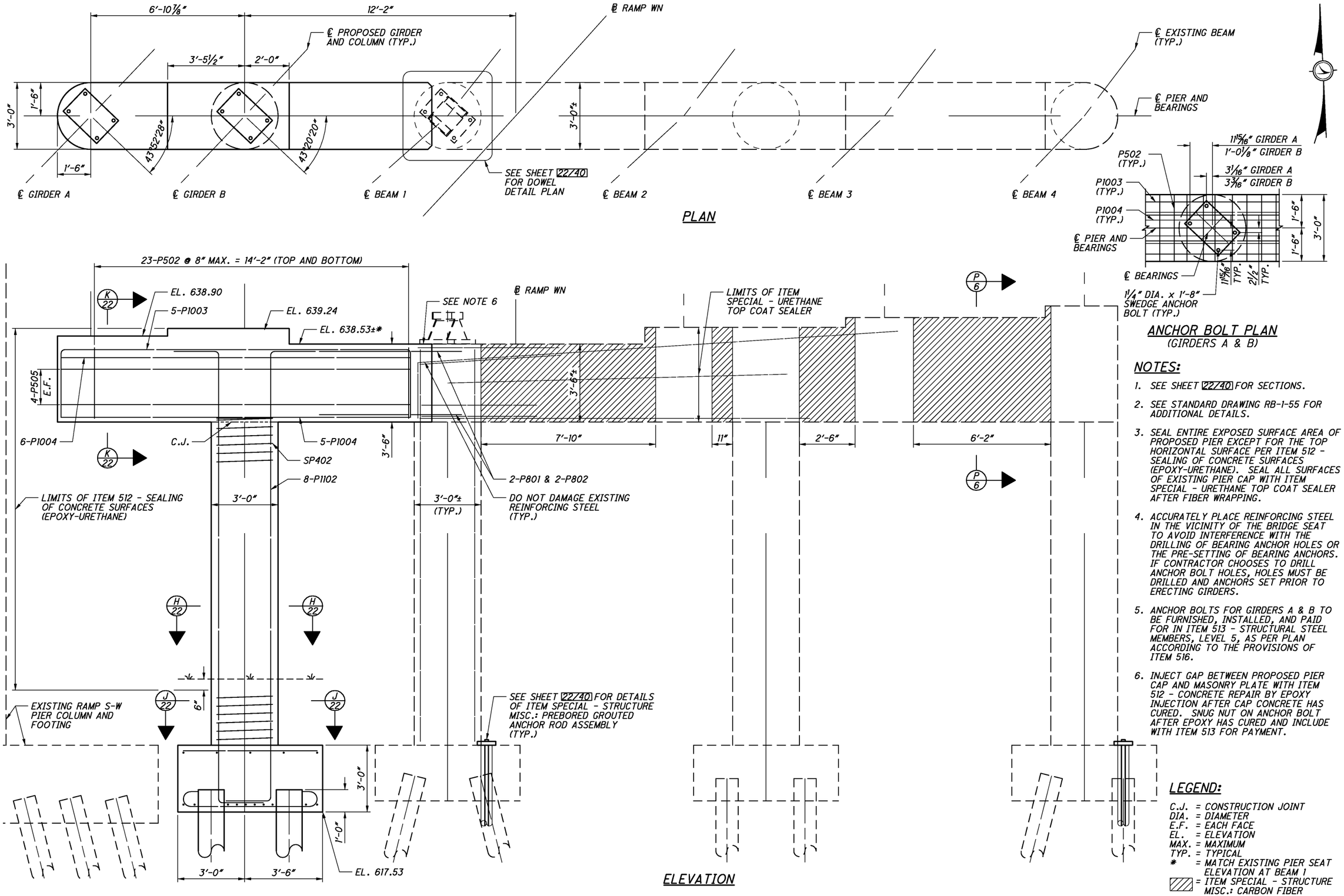

NOTES:

1. SEE SHEET 22740 FOR SECTIONS.
2. SEE STANDARD DRAWING RB-1-55 FOR ADDITIONAL DETAILS.
3. SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED PIER EXCEPT FOR THE TOP HORIZONTAL SURFACE PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE). SEAL ALL SURFACES OF EXISTING PIER CAP WITH ITEM SPECIAL - URETHANE TOP COAT SEALER AFTER FIBER WRAPPING.
4. ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS. IF CONTRACTOR CHOOSES TO DRILL ANCHOR BOLT HOLES, HOLES MUST BE DRILLED AND ANCHORS SET PRIOR TO ERECTING GIRDERS.
5. ANCHOR BOLTS FOR GIRDERS A & B TO BE FURNISHED, INSTALLED, AND PAID FOR IN ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 5, AS PER PLAN ACCORDING TO THE PROVISIONS OF ITEM 516.
6. INJECT GAP BETWEEN PROPOSED PIER CAP AND MASONRY PLATE WITH ITEM 512 - CONCRETE REPAIR BY EPOXY INJECTION AFTER CAP CONCRETE HAS CURED. SNUG NUT ON ANCHOR BOLT AFTER EPOXY HAS CURED AND INCLUDE WITH ITEM 513 FOR PAYMENT.

LEGEND:

C.J. = CONSTRUCTION JOINT
DIA. = DIAMETER
E.F. = EACH FACE
EL. = ELEVATION
MAX. = MAXIMUM
TYP. = TYPICAL
* = MATCH EXISTING PIER SEAT ELEVATION AT BEAM 1
▨ = ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL (1 LAYER)

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PIER 2 PLAN AND ELEVATION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

20/40

66/94

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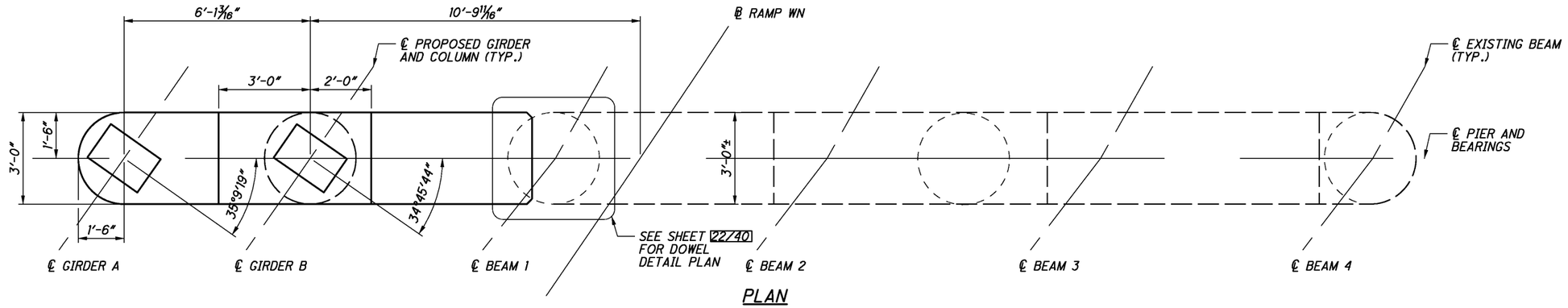
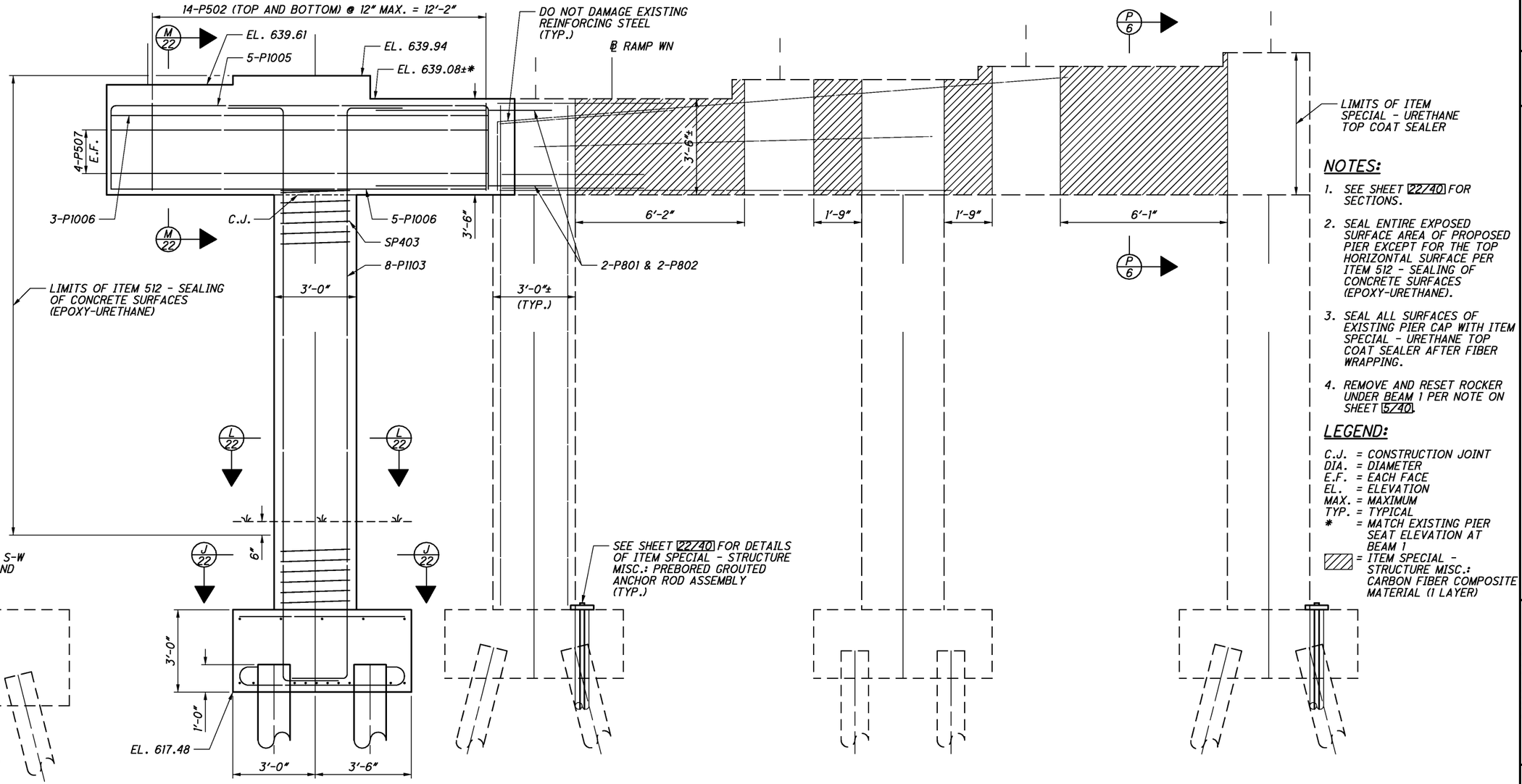


PLAN



ELEVATION

NOTES:

1. SEE SHEET 22740 FOR SECTIONS.
2. SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED PIER EXCEPT FOR THE TOP HORIZONTAL SURFACE PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).
3. SEAL ALL SURFACES OF EXISTING PIER CAP WITH ITEM SPECIAL - URETHANE TOP COAT SEALER AFTER FIBER WRAPPING.
4. REMOVE AND RESET ROCKER UNDER BEAM 1 PER NOTE ON SHEET 57/40.

LEGEND:

C.J. = CONSTRUCTION JOINT
DIA. = DIAMETER
E.F. = EACH FACE
EL. = ELEVATION
MAX. = MAXIMUM
TYP. = TYPICAL
* = MATCH EXISTING PIER SEAT ELEVATION AT BEAM 1
▨ = ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE MATERIAL (1 LAYER)

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PIER 3 PLAN AND ELEVATION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

21/40

67/94

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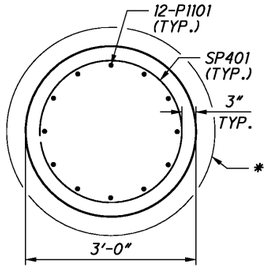
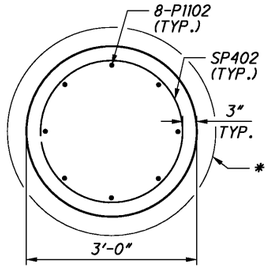
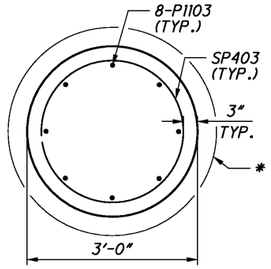


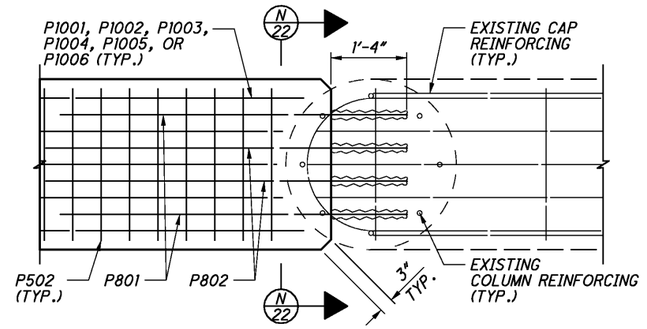
SECTION E-E



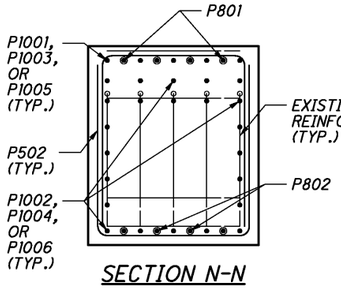
SECTION H-H



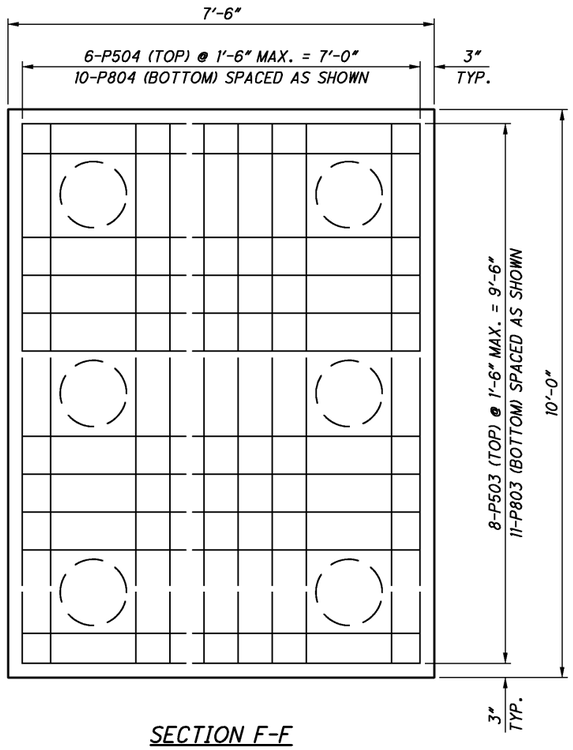
SECTION L-L



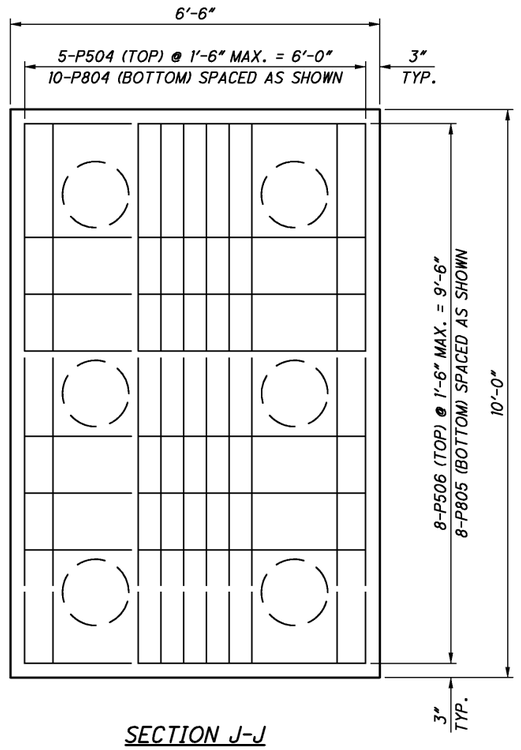
ITEM 510 - DOWEL DETAIL PLAN



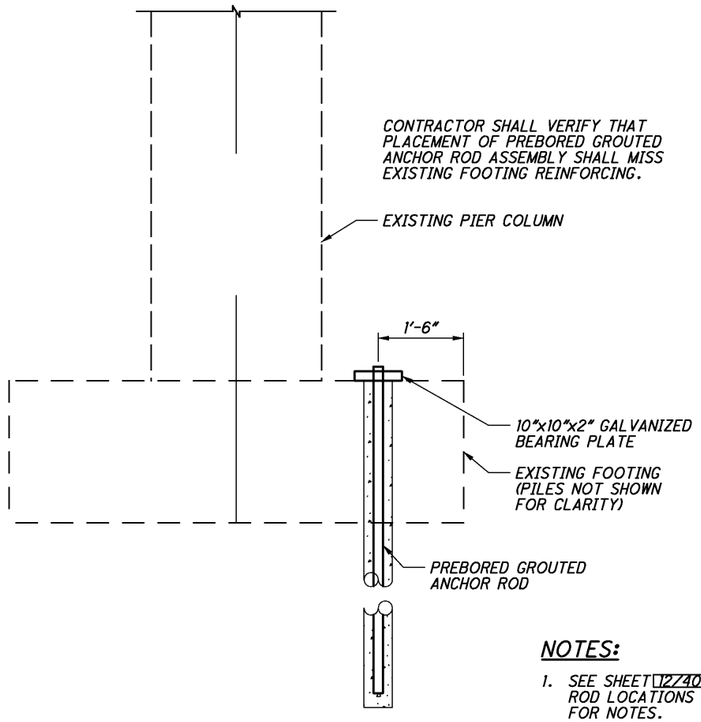
SECTION N-N

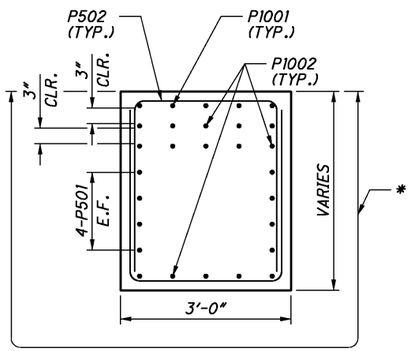


SECTION F-F

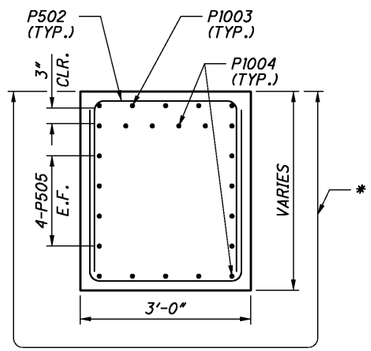


SECTION J-J

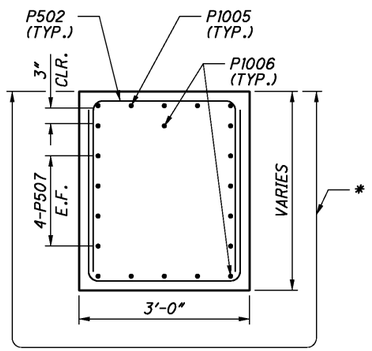




SECTION G-G



SECTION K-K



SECTION M-M

NOTES:

1. SEE SHEET 12Z40 FOR ANCHOR ROD LOCATIONS AND SHEET 6Z40 FOR NOTES.
2. SEAL ENTIRE EXPOSED SURFACE AREA OF PROPOSED PIER EXCEPT FOR THE TOP HORIZONTAL SURFACE PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE). SEAL ALL SURFACES OF EXISTING PIER CAPS WITH ITEM SPECIAL - URETHANE TOP COAT SEALER AFTER FIBER WRAPPING.

ITEM SPECIAL - STRUCTURE MISC.:
PREBORED GROUTED
ANCHOR ROD ASSEMBLY

LEGEND:

CLR. = CLEAR
E.F. = EACH FACE
MAX. = MAXIMUM
TYP. = TYPICAL
* = LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PIER DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

22 / 40

68
94

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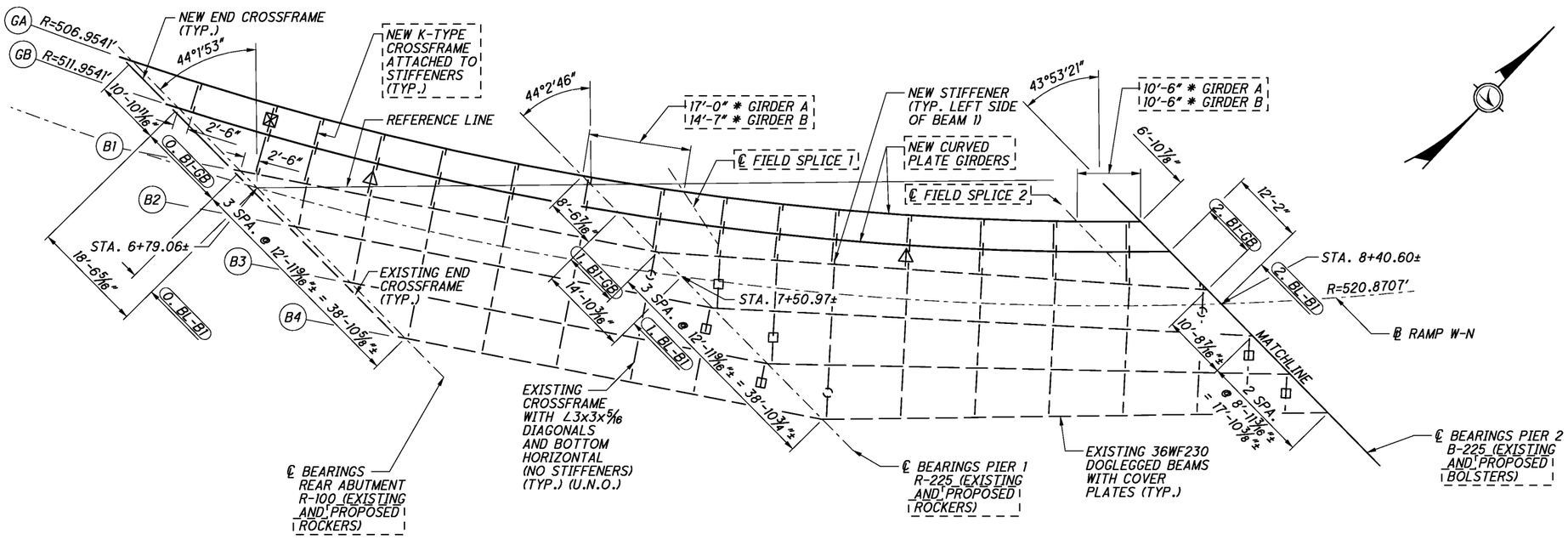

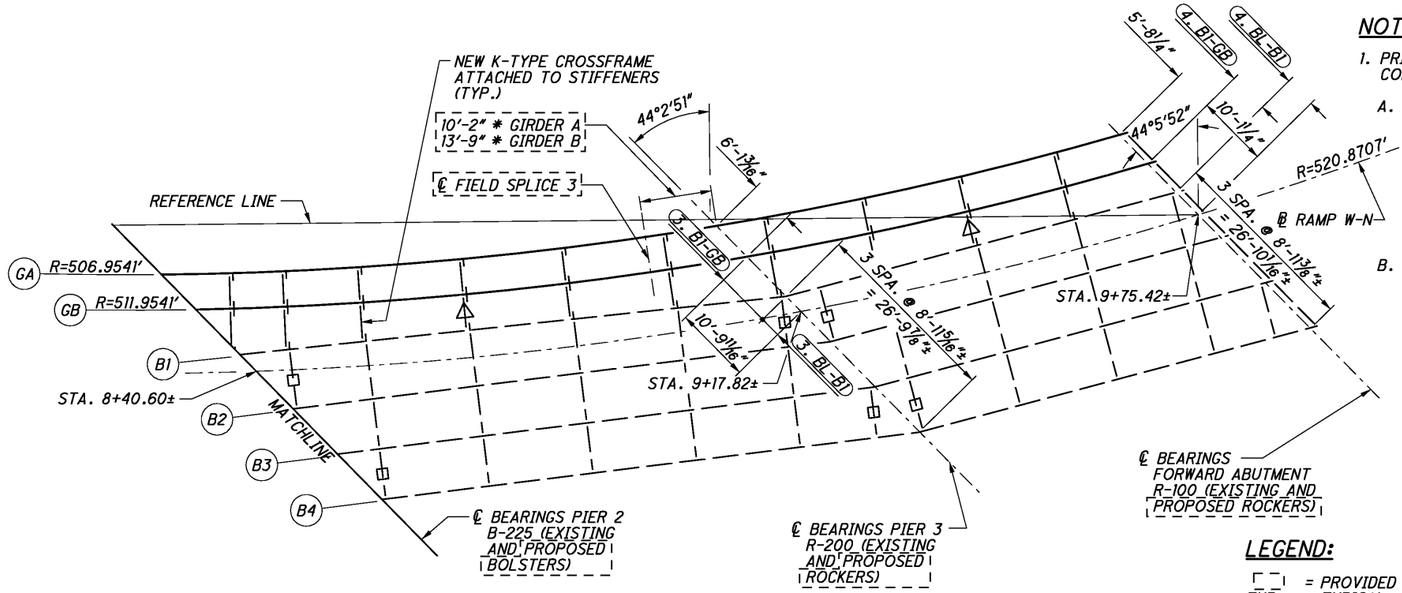

FRAMING PLAN

LOCATION OF BEAM 1 FROM BASELINE MEASURED ALONG CENTERLINE OF BEARINGS (SEE NOTE 1B)			
LOCATION	NOTE	APPROXIMATE DIMENSION	FIELD MEASURED/ CALCULATED DIMENSION
(0. B1-GB)	C	14'-7 1/4"±	
(0. BL-B1)	D	3'-11 1/16"±	
(1. B1-GB)	C	9'-2 3/8"±	
(1. BL-B1)	D	5'-7 13/16"±	
(2. B1-GB)	C	8'-10 9/16"±	
(2. BL-B1)	D	3'-3 1/16"±	
(3. B1-GB)	C	7'-9 13/16"±	
(3. BL-B1)	D	2'-11 7/8"±	
(4. B1-GB)	C	5'-8"±	
(4. BL-B1)	D	4'-5 1/4"±	

NOTE C - MEASURED FROM CENTERLINE GB TO CENTERLINE B1 ALONG CENTERLINE BEARINGS. SUBTRACT (X. BL-B1) FROM PROVIDED DIMENSION BETWEEN GB AND BASELINE TO OBTAIN CALCULATED DIMENSION.

NOTE D - MEASURED FROM BASELINE TO CENTERLINE B1 ALONG CENTERLINE OF BEARINGS.

NOTES:

1. PRIOR TO PREPARATION OF THE SHOP DRAWINGS, CONTRACTOR SHALL FIELD VERIFY THE FOLLOWING:
   - A. LOCATIONS OF THE CROSSFRAME STIFFENERS ALONG RIGHT SIDE OF GIRDER B. DIMENSIONS OBTAINED SHALL BE USED TO POSITION AND FIELD WELD NEW RADIAL STIFFENERS ALONG THE LEFT SIDE OF BEAM 1. ALL EQUIPMENT AND LABOR NECESSARY TO FIELD VERIFY AND RECORD STIFFENER LOCATIONS ALONG THE RIGHT SIDE OF GIRDER B SHALL BE INCLUDED IN ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 5, AS PER PLAN.
   - B. LOCATIONS OF BEAM 1 RELATIVE TO THE BASELINE OF RAMP W-N. DIMENSIONS OBTAINED SHALL BE PROVIDED TO THE FABRICATOR AND USED TO DETERMINE RADIAL DISTANCES AT CROSSFRAMES BETWEEN GIRDER B AND BEAM 1. EXISTING DIMENSIONS SHOWN ARE APPROXIMATE AND ARE FOR INFORMATION ONLY. ACTUAL DIMENSIONS MUST BE DETERMINED BY THE CONTRACTOR AND PROVIDED TO THE FABRICATOR. ALL EQUIPMENT AND LABOR NECESSARY TO FIELD MEASURE AND RECORD EXISTING BEAM 1 LOCATIONS ALONG THE CENTERLINE OF BEARINGS RELATIVE TO THE BASELINE SHALL BE INCLUDED IN ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 5, AS PER PLAN.

LEGEND:

- [- -] = PROVIDED BY OTHERS
- TYP. = TYPICAL
- U.N.O. = UNLESS NOTED OTHERWISE
- * = MEASURED ALONG CENTERLINE OF INDICATED GIRDER
- —⊟— = EXISTING CROSSFRAME WITH L3x3x5/16" DIAGONALS AND BOTTOM HORIZONTAL AND L3x3x3/8" TOP HORIZONTAL (NO STIFFENERS).
- —∂— = EXISTING CROSSFRAME WITH L3x3x5/16" DIAGONALS, L3x3x3/8" TOP HORIZONTAL AND 2-L3x3x5/16" BOTTOM HORIZONTALS ALL ATTACHED TO STIFFENERS.
- —△— = TOP HORIZONTAL ONLY TO BE CONNECTED WITH BOLTS DURING ERECTION. SEE SHEETS 26/40 & 27/40 FOR DETAILS. REMAINING MEMBERS TO BE INSTALLED AND TOP HORIZONTAL TO BE WELDED AFTER DECK POUR.
- —⊠— = BOTTOM HORIZONTAL ONLY TO BE L4x4x3/8" IN LIEU OF L3 1/2x3 1/2x5/16". UPSIZE WELDS TO 5/16" (FROM 1/4"), THIS MEMBER ONLY.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
EMC	EMC	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CAS		1812076	

FRAMING PLAN
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

23/40

69/94

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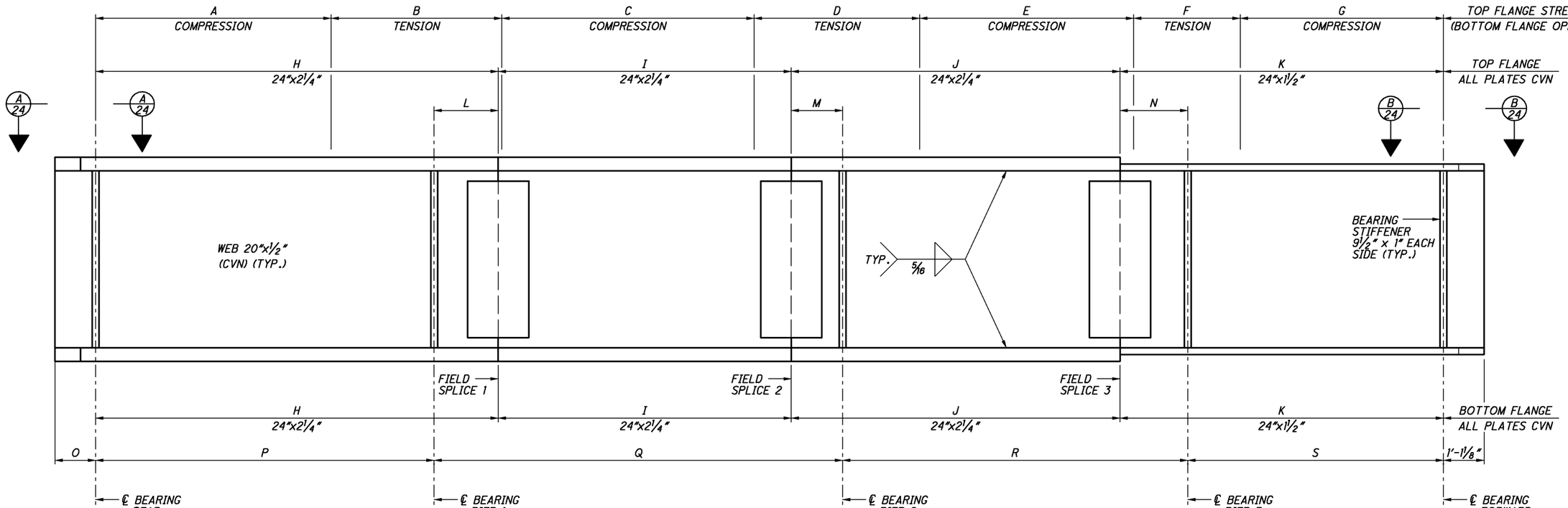
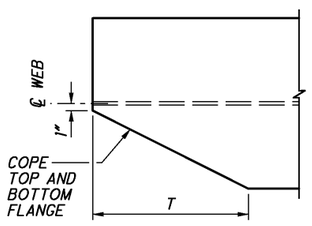
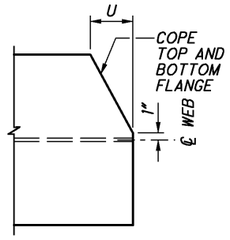


GIRDER ELEVATION
(CROSSFRAME STIFFENERS NOT SHOWN)

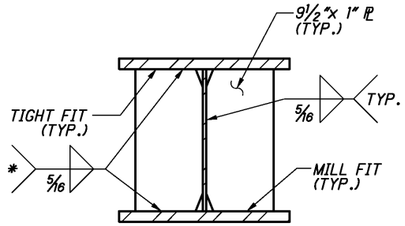
GIRDER	GIRDER DIMENSIONS (MEASURED ALONG CENTERLINE GIRDER)																				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
GA	60'-9¼"	36'-4¼"	55'-3¾"	38'-11"	43'-7¼"	27'-5¼"	44'-2¹⁵⁄₁₆"	94'-0³⁄₁₆"	65'-4⅞"	78'-10³⁄₁₆"	68'-4¹⁄₁₆"	17'-0"	10'-6"	10'-2"	2'-0¾"	77'-0³⁄₁₆"	92'-10⅛"	78'-6³⁄₁₆"	58'-2¹⁄₁₆"	1'-9¹⁵⁄₁₆"	6"
GB	52'-10½"	38'-4¼"	56'-7¾"	37'-2"	45'-11¾"	25'-11¾"	45'-8¹⁄₁₆"	89'-7¹⁄₁₆"	66'-6⅞"	74'-9⅝"	71'-8½"	14'-7"	10'-6"	13'-9"	1'-11⅞"	75'-0¹⁄₁₆"	91'-7⅞"	78'-0⅝"	57'-11½"	1'-8¹⁵⁄₁₆"	5⅞"



VIEW A-A

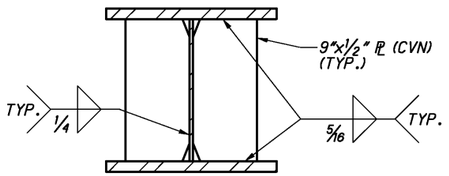


VIEW B-B

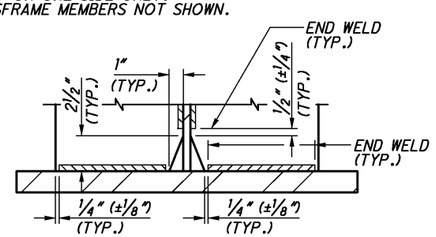


BEARING STIFFENER
TYPICAL GA & GB
END CROSSFRAME BENT GUSSETS
(AT R.A.) NOT SHOWN

* = TYPICAL. WELDS SHALL BE PERFORMED ONLY WHERE END CROSSFRAMES ATTACH TO STIFFENERS. (WELDS AT MILL FIT SHALL NOT BE MADE UNTIL FIT OF STIFFENER HAS BEEN INSPECTED AND APPROVED).



INTERMEDIATE CROSSFRAME STIFFENER
GB SHOWN - B1 & GA STIFFENERS ON ONE SIDE ONLY.
CROSSFRAME MEMBERS NOT SHOWN.



STIFFENER CLIP & WELD TERMINATION DETAILS

INCLUDED WITH THIS CONTRACT IS ONLY THE INSTALLATION OF THE GIRDERS. ALL ITEMS SHOWN ON THIS SHEET WILL BE PROVIDED BY OTHERS. REFER TO THE ITEM 513 - STRUCTURAL STEEL MISC.: STORAGE AND ERECTION OF STEEL MEMBERS NOTE ON SHEET 5/40.

LEGEND:

TYP. = TYPICAL
G_ OR B_ = GIRDER OR BEAM DESIGNATION
R.A. = REAR ABUTMENT

NOTES:

1. ALL MATERIAL SHALL BE ASTM-A709, GRADE 50.
2. WELDING OF ATTACHMENTS FOR SUPPORTS OF THE CONCRETE DECK FINISHING MACHINE TO THE TOP FLANGE IS NOT PERMITTED, EVEN IN COMPRESSION AREAS. THE CONTRACTOR MAY SHOOT SHEAR CONNECTORS AT LOCATIONS OF NECESSARY SUPPORT AT ANY LOCATION AT LEAST 4 INCHES FROM ADJACENT SHEAR STUDS ALONG THE CENTERLINE OF A FLANGE PLATE, INCLUDING TENSION AREAS. THE CONTRACTOR MAY THEN WELD ATTACHMENTS FOR SUPPORT OF THE CONCRETE FINISHING MACHINE TO THE SHEAR CONNECTORS.
3. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
4. SEE SHEET 27/40 FOR INTERMEDIATE CROSSFRAME DETAILS.
   SEE SHEET 25/40 FOR BOLTED FIELD SPLICE DETAILS.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED CAS | DRAWN AAA | REVIEWED DWL | DATE 01-09
CHECKED EMC | REVISED | STRUCTURE FILE NUMBER 18120076

GIRDER ELEVATION AND DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

24/40

70/94

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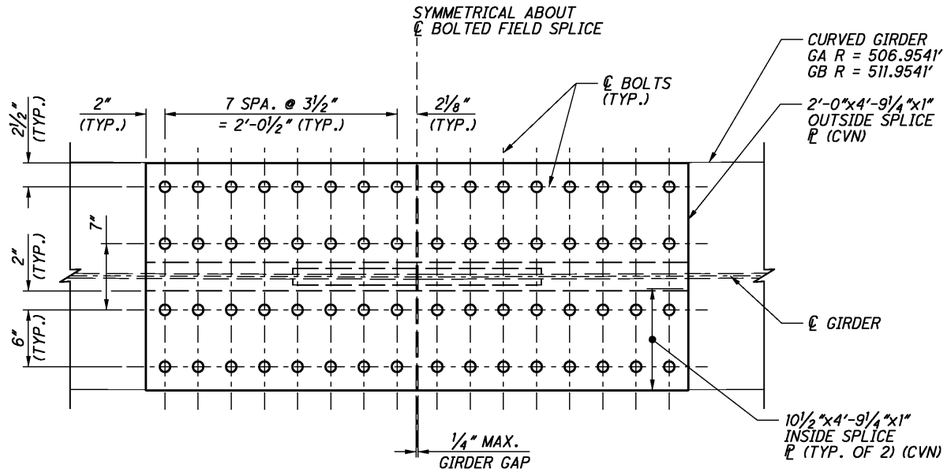
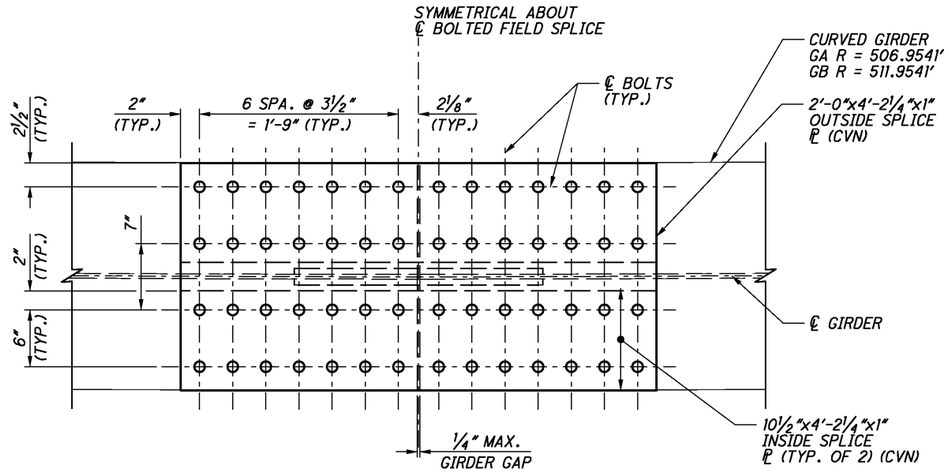


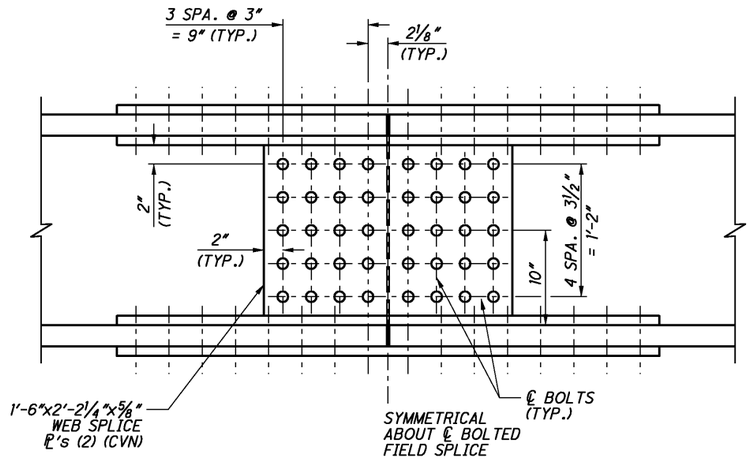
FLANGE SPLICE - F.S. 1 & 2

TOP AND BOTTOM
FLANGE SPLICES
IDENTICAL

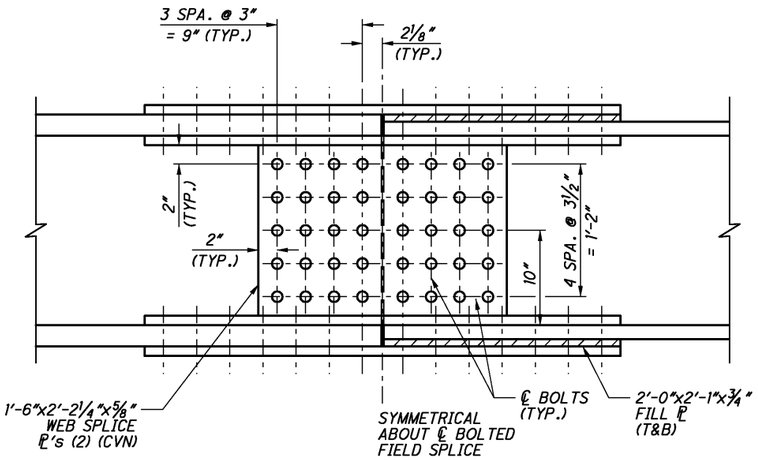


FLANGE SPLICE - F.S. 3

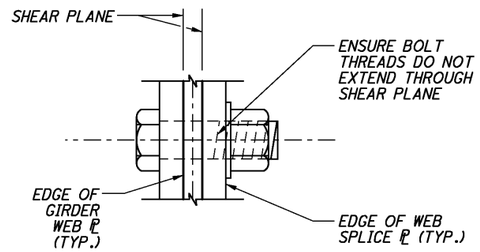
TOP AND BOTTOM
FLANGE SPLICES
IDENTICAL



SPLICE ELEVATION - F.S. 1 & 2



SPLICE ELEVATION - F.S. 3



BOLT DETAIL

WEB BOLTS SHOWN,
FLANGE BOLTS SIMILAR

INCLUDED WITH THIS CONTRACT IS ONLY THE INSTALLATION OF THE GIRDERS. ALL ITEMS SHOWN ON THIS SHEET WILL BE PROVIDED BY OTHERS. REFER TO THE ITEM 513 - STRUCTURAL STEEL MISC.: STORAGE AND ERECTION OF STEEL MEMBERS NOTE ON SHEET 5/40.

NOTES:

1. STRUCTURAL STEEL FOR SPLICE PLATES SHALL BE ASTM A709, GRADE 50.
2. ALL SPLICE PLATES ARE DESIGNATED (CVN), AND SHALL MEET THE SPECIFIED NOTCH REQUIREMENTS AS SPECIFIED IN CMS 711.01.
3. ALL BOLTS, NUTS, & WASHERS IN SPLICES SHALL BE 1" DIAMETER, HIGH STRENGTH ASTM A325, TYPE 1 GALVANIZED. BOLT THREADS SHALL BE EXCLUDED FROM SHEAR PLANES IN BOTH WEB & FLANGE BOLTS. SEE DETAIL, THIS SHEET.

LEGEND:

SPA. = SPACES
TYP. = TYPICAL
T&B = TOP & BOTTOM
F.S. = FIELD SPLICE
G_ = GIRDER DESIGNATION
R = RADIUS

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
EMC	EMC	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CAS		1812076	

BOLTED FIELD SPLICE DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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CAMBER TABLE

		℄ BRG R.A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ BRG PIER 1	℄ F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ F.S. 2	℄ BRG PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ F.S. 3	℄ BRG PIER 3	1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ BRG F.A.
GA	DEFLECTION DUE TO STEEL WEIGHT	0"	1/4"	5/16"	1/8"	0"	1/8"	3/16"	3/8"	1/4"	1/16"	0"	1/16"	3/16"	1/8"	1/16"	0"	1/16"	1/16"	1/16"	0"
	DEFLECTION DUE TO REMAINING DEAD LOADS	0"	5/8"	3/4"	3/8"	0"	5/16"	1/2"	15/16"	5/8"	1/4"	0"	3/16"	3/8"	1/4"	1/8"	0"	1/4"	7/16"	3/8"	0"
	REQUIRED CAMBER	0"	7/8"	1 1/16"	1/2"	0"	7/16"	11/16"	1 5/16"	7/8"	5/16"	0"	1/4"	9/16"	3/8"	3/16"	0"	5/16"	1/2"	7/16"	0"
GB	DEFLECTION DUE TO STEEL WEIGHT	0"	1/4"	1/4"	1/8"	0"	1/8"	1/4"	7/16"	1/4"	1/16"	0"	1/8"	3/16"	1/8"	1/8"	0"	1/16"	1/8"	1/16"	0"
	DEFLECTION DUE TO REMAINING DEAD LOADS	0"	9/16"	11/16"	1/4"	0"	3/8"	5/8"	1 1/16"	5/8"	3/16"	0"	3/16"	7/16"	1/4"	3/16"	0"	1/4"	7/16"	3/8"	0"
	REQUIRED CAMBER	0"	13/16"	15/16"	3/8"	0"	1/2"	7/8"	1 1/2"	7/8"	1/4"	0"	5/16"	5/8"	3/8"	5/16"	0"	5/16"	9/16"	7/16"	0"

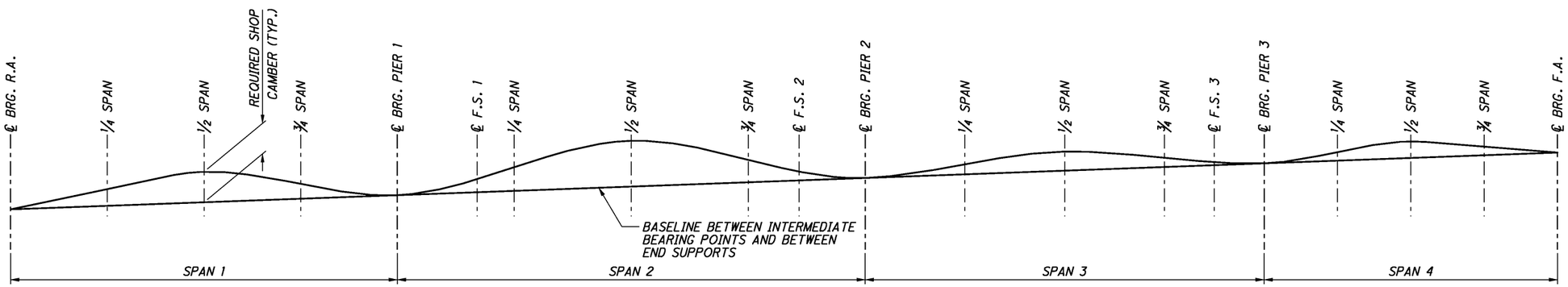
CAMBER NOTES:

1. POSITIVE (+) CAMBER VALUES INDICATE UPWARD CAMBER.
2. IF HEAT CURVING IS UTILIZED, THE FABRICATOR SHALL ADJUST GIRDER CAMBER IN THE AFFECTED AREAS AS PER AASHTO 10.15. ADDITIONALLY, THE CONTRACTOR SHALL ADJUST SCREED ELEVATIONS IN THE AFFECTED AREAS AS PER AASHTO 10.15.3.

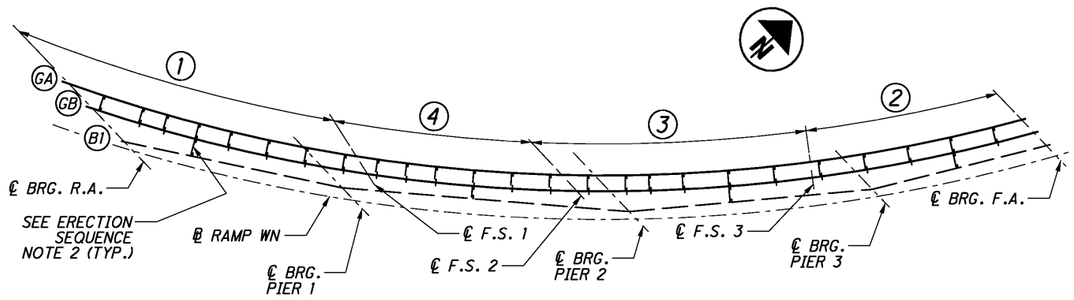
LEGEND:

(#) = GIRDER ERECTION SEQUENCE NUMBER

BRG. = BEARINGS
F.A. = FORWARD ABUTMENT
R.A. = REAR ABUTMENT
G_ = GIRDER DESIGNATION
F.S. = FIELD SPLICE



CAMBER DIAGRAM



PLAN - ERECTION SEQUENCE

ERECTION SEQUENCE NOTES:

THE SUGGESTED GIRDER ERECTION SEQUENCE SHOWN HERE DOES NOT RELIEVE THE CONTRACTOR OF THE REQUIREMENTS OF CMS 501 & 513.

THE FOLLOWING GIRDER ERECTION SEQUENCE IS SUGGESTED. THE CONTRACTOR MAY PROPOSE AN ERECTION SEQUENCE WHICH VARIES FROM THE SEQUENCE SHOWN HERE AND SHALL FOLLOW THE REQUIREMENTS OF CMS 501 & 513.

1. ERECT THE GIRDERS IN PAIRS (GA & GB) IN THE SEQUENCE SHOWN.
2. INSTALL ALL INTERMEDIATE CROSSFRAMES BETWEEN GA & GB WITH FULLY-TIGHTENED ERECTION BOLTS WITHIN EACH FIELD SECTION PRIOR TO LIFTING GIRDER PAIRS. AFTER A FIELD SECTION GIRDER PAIR IS PLACED, INSTALL TOP HORIZONTAL STRUT IN BAY GB-B1 WITH SNUG-TIGHT BOLTS AT LOCATIONS SHOWN ON FRAMING PLAN, SHEET 23/40. SEE SHEET 27/40 FOR ADDITIONAL DETAILS.
3. PLACE GIRDERS ON TEMPORARY BLOCKING AT BEARINGS OR LIMIT LONGITUDINAL MOVEMENT AT ROCKER BEARINGS TO MAINTAIN LONGITUDINAL STABILITY UNTIL ALL FIELD SPLICES ARE CONNECTED AND FIXED BOLSTER IS PLACED AND WELDED.
4. IF NECESSARY, THE GIRDERS IN THE DROP-IN FIELD SECTION IN SPAN 2 (SEQUENCE STEP #4) MAY BE INSTALLED INDIVIDUALLY. THE CONTRACTOR SHALL INSTALL TEMPORARY BRACING AS REQUIRED TO MAINTAIN STRUCTURAL STABILITY AS PER CMS 513.26.
5. AFTER ALL FIELD SPLICE BOLTS ARE TORQUED, WELD ALL INTERMEDIATE CROSSFRAME MEMBERS TO STIFFENERS & GUSSET PLATES IN BAY GA-GB, AS SHOWN ON SHEET 27/40.
6. AFTER THE DECK HAS BEEN CAST, INSTALL END CROSSFRAME DIAGONALS & BOTTOM HORIZONTALS. FULLY INSTALL REMAINING CROSSFRAME MEMBERS IN BAY GB-B1. SEE SHEETS 27/40 & 27A/40.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED EMC | DRAWN EMC | REVIEWED DWL | DATE 01-09
CHECKED CAS | REVISED | STRUCTURE FILE NUMBER 18120776

CAMBER DETAILS & ERECTION SEQUENCE
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

26/40

72/94

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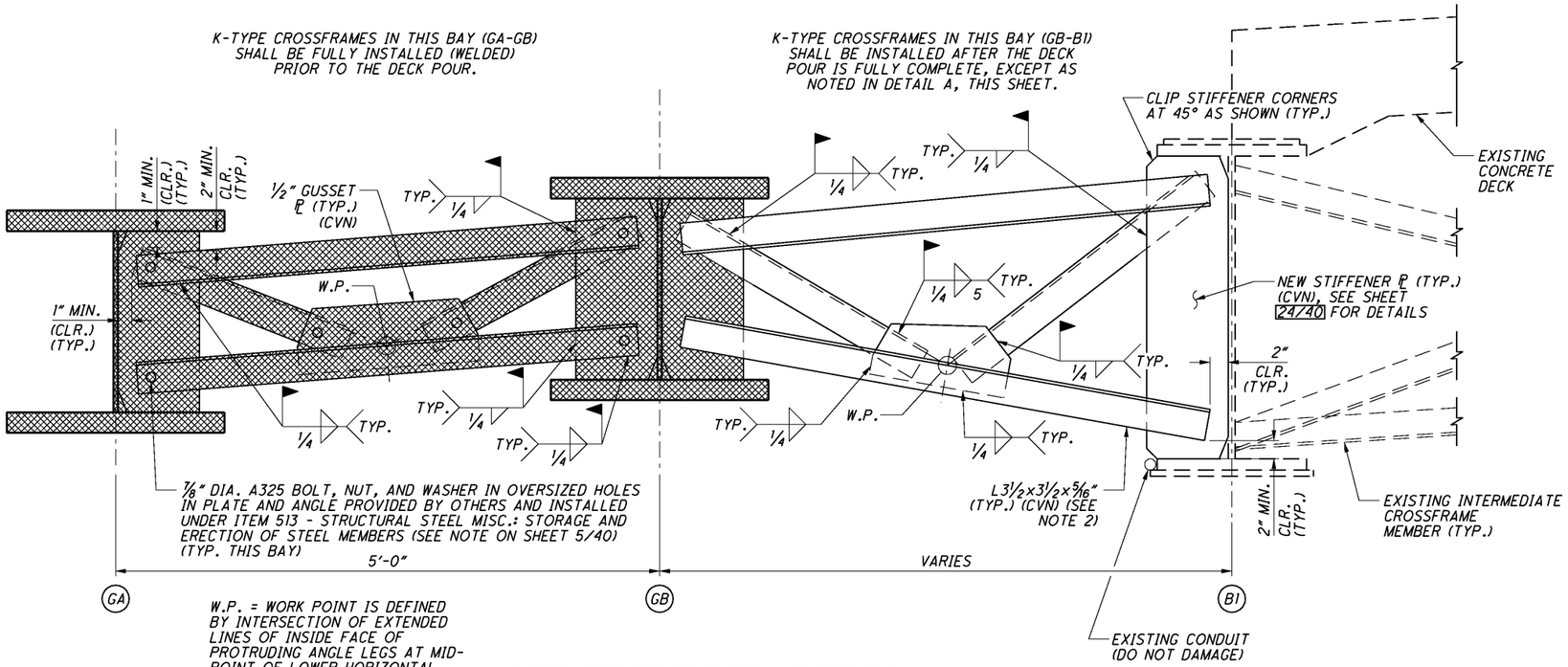
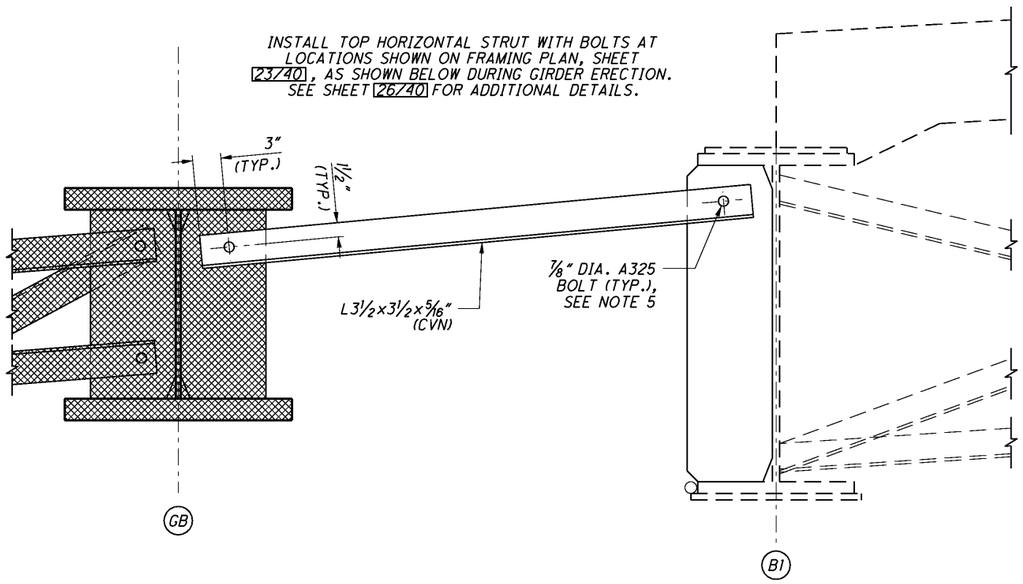


W.P. = WORK POINT IS DEFINED BY INTERSECTION OF EXTENDED LINES OF INSIDE FACE OF PROTRUDING ANGLE LEGS AT MID-POINT OF LOWER HORIZONTAL

INTERMEDIATE CROSSFRAME DETAILS

DETAILS SHOWN ARE TYPICAL FOR BOTH K-TYPE CROSSFRAME BAYS, EXCEPT ERECTION BOLTS IN BAY GA-GB



DETAIL A

LEGEND:

CLR. = CLEAR
DIA. = DIAMETER
MIN. = MINIMUM
TYP. = TYPICAL
▨ = PROVIDED BY OTHERS

NOTES:

1. ALL STEEL MATERIALS SHALL BE ASTM-A709, GRADE 50.
2. AT THE LOCATION SHOWN ON THE FRAMING PLAN, THE BOTTOM HORIZONTAL SHALL BE L4x4x⅜" (CVN) AND 5⁄16" WELDS SHALL BE USED IN LIEU OF L3½x3½x5⁄16" AND ¼" WELDS.
3. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
4. ALL BOLTS, NUTS, & WASHERS SHALL BE ⅞" DIA., HIGH-STRENGTH ASTM A325, TYPE 1 GALVANIZED AND SHALL BE INSTALLED AS PER 513.26 UNLESS NOTED OTHERWISE (SEE NOTE 5).
5. BOLTS IN TOP HORIZONTAL STRUT IN BAY GB-B1 SHALL BE INSTALLED SNUG TIGHT DURING GIRDER ERECTION (4 TOTAL LOCATIONS). THE BOLTS SHALL BE REMOVED WHEN REMAINING CROSSFRAME MEMBERS ARE INSTALLED (WELDED) AFTER DECK POUR IS FULLY COMPLETE.
6. SEE STANDARD DRAWING GSD-1-96 FOR DETAILS NOT SHOWN.
7. SEE NOTES ON SHEET 26/40 FOR ADDITIONAL DETAILS OF ERECTION SEQUENCE.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
EMC	EMC	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CAS		1812076	

SUPERSTRUCTURE DETAILS 1
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

27/40

73
94

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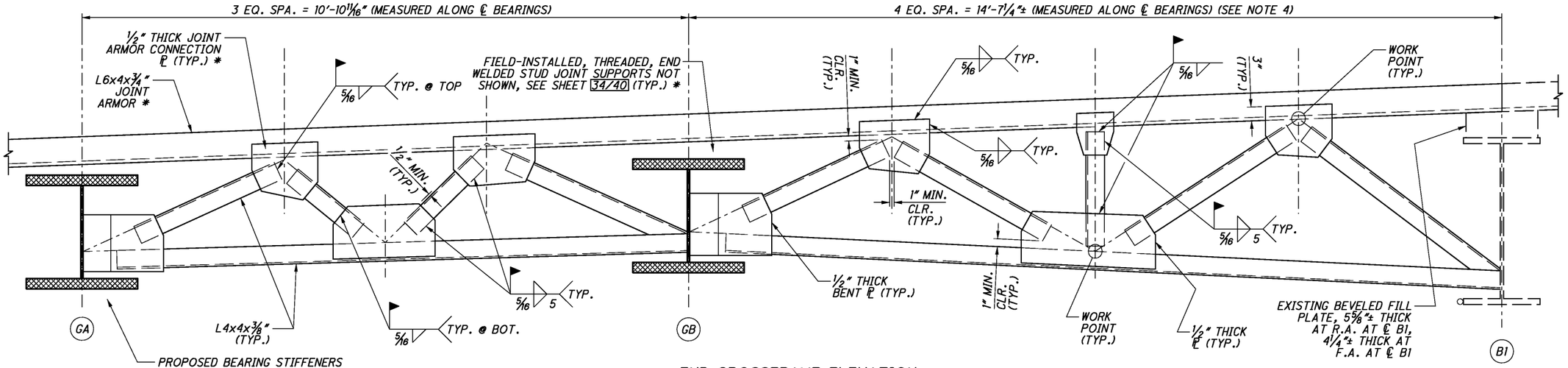
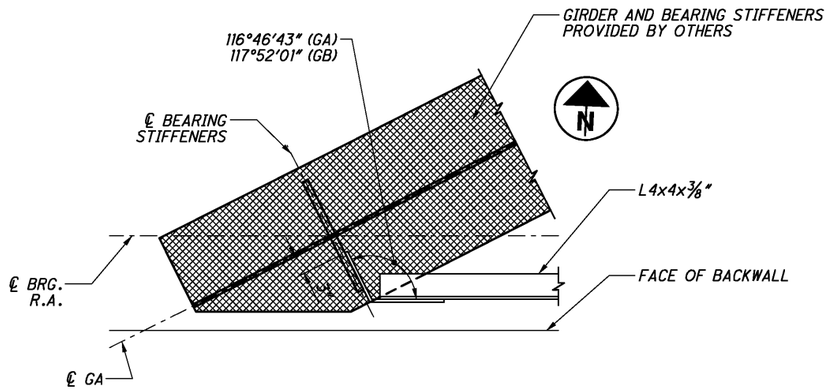


END CROSSFRAME ELEVATION

REAR ABUTMENT, LOOKING FORWARD.
GIRDERS AND BEAMS ARE SHOWN NORMAL TO TYPICAL SECTION (NOT ALONG SKEW).

* = INCLUDED WITH ITEM 516 - HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN.



BENT GUSSET PLATE - PLAN

GA AT REAR ABUTMENT SHOWN, GB SIMILAR.
GIRDER TOP FLANGE NOT SHOWN FOR CLARITY

NOTES:

1. SEE STANDARD DRAWING GSD-1-96 FOR DETAILS NOT SHOWN.
2. ALL END CROSSFRAME DIAGONALS & BOTTOM HORIZONTALS SHALL NOT BE INSTALLED UNTIL AFTER THE DECK POUR IS FULLY COMPLETE.
3. FORWARD ABUTMENT END CROSSFRAME DETAILS SHALL FOLLOW STANDARD DRAWING GSD-1-96 WITH ANGLES WELDED DIRECTLY TO GIRDER/BEAM WEBS. AT THE CONTRACTOR'S OPTION, THE DIAGONAL-TO-GUSSET PLATE WELD DETAILS AT THE F.A. MAY MATCH THOSE SHOWN HERE.
4. CONTRACTOR TO VERIFY THIS DIMENSION PRIOR TO FABRICATION AT BOTH ABUTMENTS. SEE DETAILS ON FRAMING PLAN, SHEET 23/40.
5. SEE NOTES ON SHEET 26/40 FOR ADDITIONAL DETAILS OF ERECTION SEQUENCE.

LEGEND:

B_	= EXISTING BEAM DESIGNATION
BOT.	= BOTTOM
BRG.	= BEARINGS
CLR.	= CLEAR
EQ.	= EQUAL
F.A.	= FORWARD ABUTMENT
G_	= GIRDER DESIGNATION
MIN.	= MINIMUM
R.A.	= REAR ABUTMENT
SPA.	= SPACES
▨	= PROVIDED BY OTHERS

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
EMC	EMC	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CAS		1812076	

SUPERSTRUCTURE DETAILS 2
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

27A 40

73A
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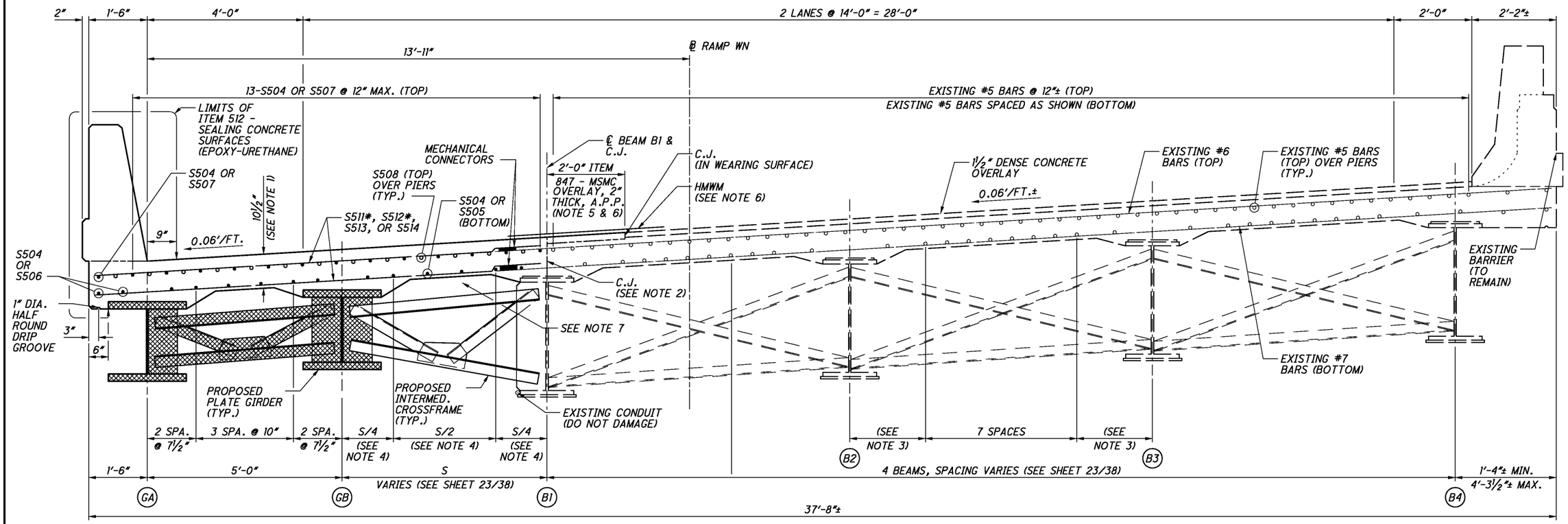
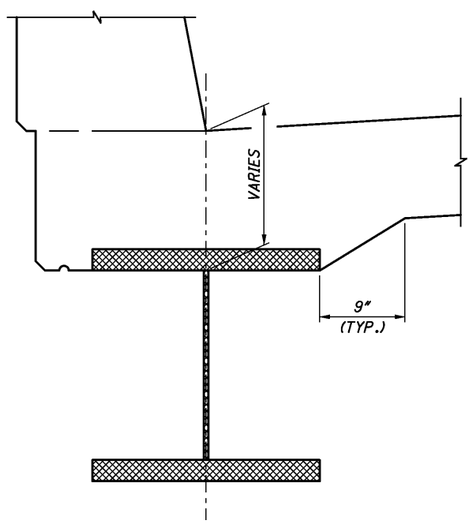


TRANSVERSE SECTION



HAUNCH DETAIL

LEGEND:

A.P.P.	= AS PER PLAN
C.J.	= CONSTRUCTION JOINT
DIA.	= DIAMETER
INTERMED.	= INTERMEDIATE
MAX.	= MAXIMUM
MIN.	= MINIMUM
MSMC	= MICROSILICA MODIFIED CONCRETE
T&B	= TOP AND BOTTOM
TYP.	= TYPICAL
VAR.	= VARIES
*	= BAR LENGTHS HAVE BEEN SIZED FOR SIDE BY SIDE MECHANICAL CONNECTORS. IF AN ALTERNATE SYSTEM IS CHOSEN, BAR LENGTHS SHOULD BE ADJUSTED.
▨	= PROVIDED BY OTHERS

NOTES:

1. THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 1½" AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER FLANGE OF 9". DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH GIRDER IS 3"±.

   THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

2. THE EXPOSED EXISTING VERTICAL CONCRETE SURFACE THAT IS TO BE COVERED WITH NEW CONCRETE SHALL BE ROUGH AND IRREGULAR WITH AN AMPLITUDE OF ¼" OR MORE.

3. EXISTING LONGITUDINAL REINFORCING BOTTOM BARS:
   3 SPACES FOR BEAM SPACING > 8'-0"
   2 SPACES FOR BEAM SPACING < 8'-0"

4. PROPOSED BOTTOM LONGITUDINAL REINFORCING STEEL SPACING:
   2 EQUAL SPACES IN S/4
   3 EQUAL SPACES IN S/2

5. PLACE THE MSMC OVERLAY AFTER THE DECK AND PARAPET ARE IN PLACE.

6. 2'-0" WIDE HIGH MOLECULAR WEIGHT METHACRYLATE OVER EACH CONSTRUCTION JOINT. INCLUDE WITH ITEM 511 - CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN FOR PAYMENT.

7. FORMS MUST BE EQUALLY SUPPORTED BY GB & B1 AND CONSTRUCTED TO ACCOMMODATE THE ROTATION CAUSED BY DIFFERENTIAL DEFLECTIONS DURING DECK PLACEMENT.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DATE 01-09
REVIEWED DWL
STRUCTURE FILE NUMBER 18120?6
DRAWN ASK
REVISED
DESIGNED ASK
CHECKED JAA

TRANSVERSE SECTION
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

28 / 40

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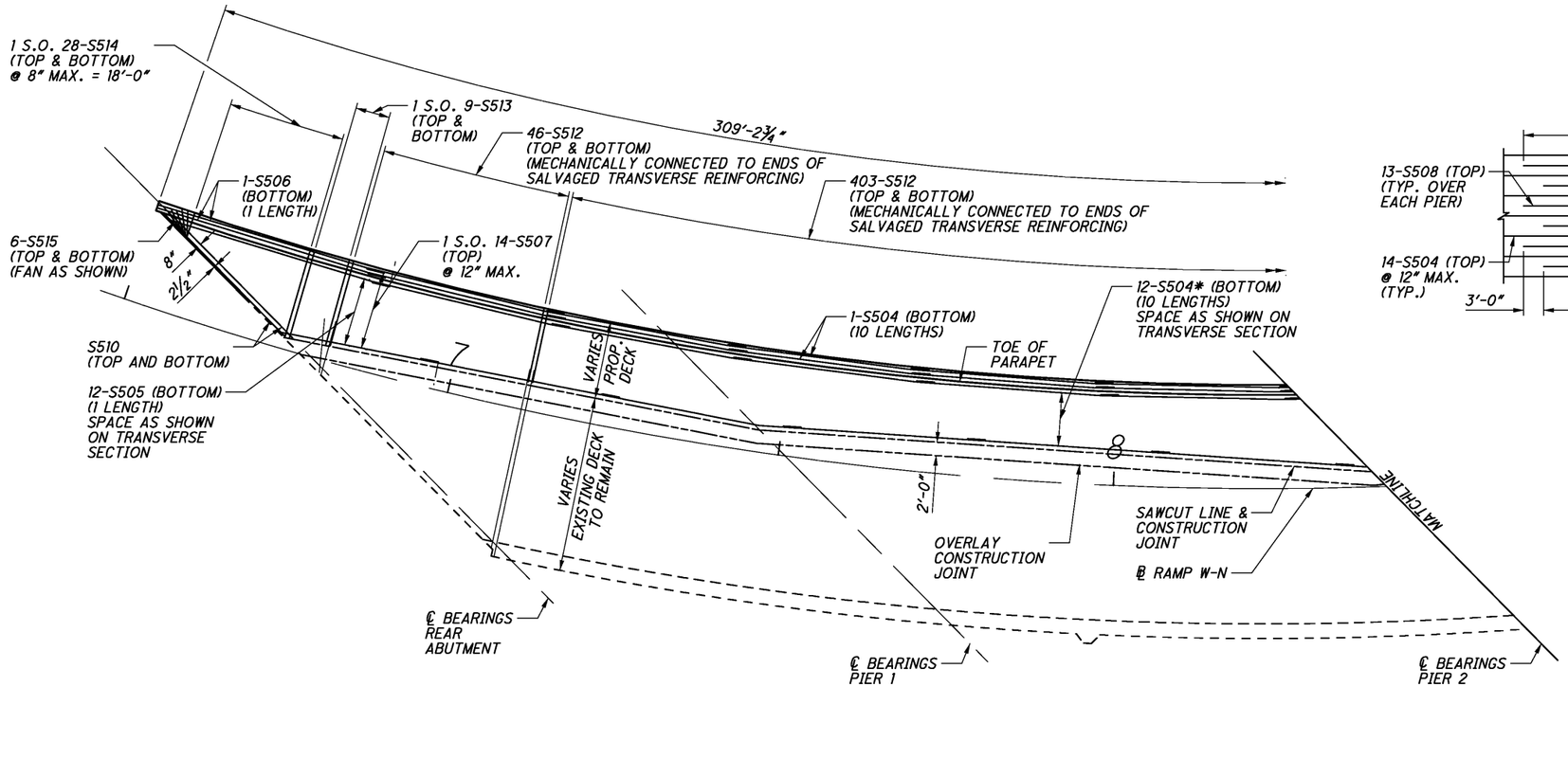
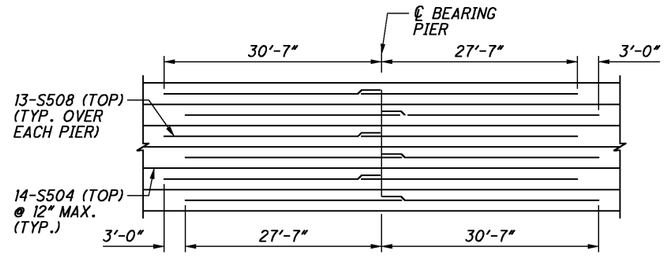
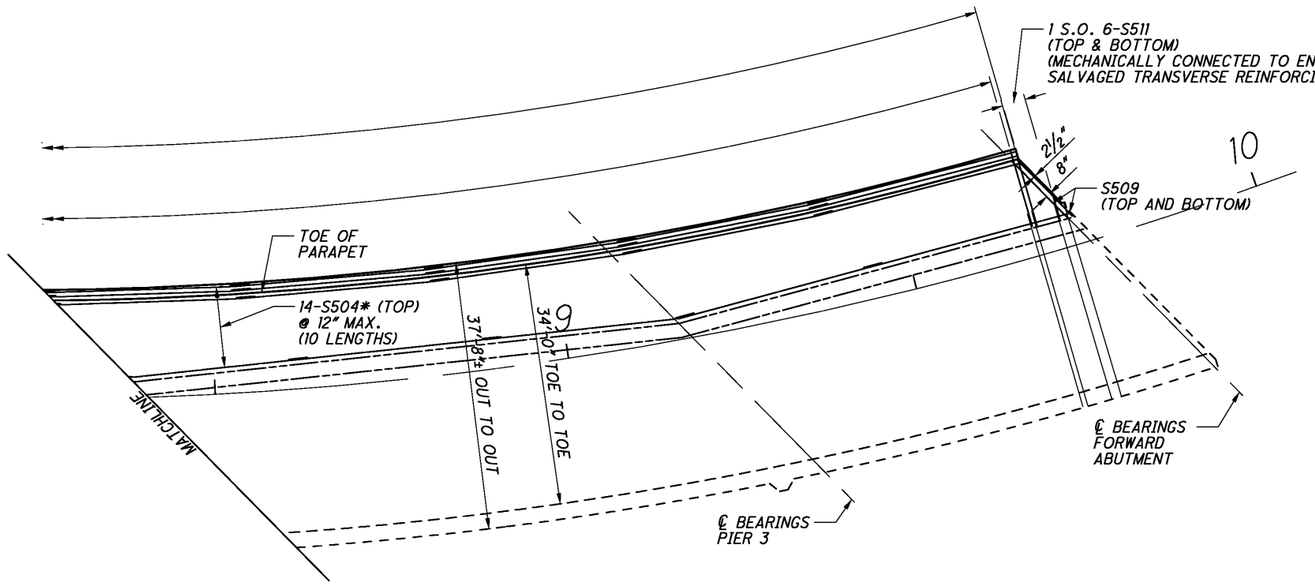




REINFORCEMENT OVER PIER DETAIL



DECK SLAB PLAN

NOTES:

1. MINIMUM REINFORCING LAP LENGTHS:
   #5 = 31"
2. THE CONTRACTOR'S ATTENTION IS DIRECTED TO CMS 511.10 CONCERNING LOADING AND FINISHING THE DECK CONCRETE ALONG THE SKEW. FURTHERMORE, THE CONTRACTOR SHALL REFINISH THE DECK AS NECESSARY TO STRIKE OFF ANY RAISING THAT MAY BE CAUSED BY PLACING THE DECK CONCRETE IN THE ADJACENT SPAN.

LEGEND:

BOT. = BOTTOM
PROP. = PROPOSED
S.O. = SERIES OF
TYP. = TYPICAL
* = FIELD BEND AS NECESSARY TO MAINTAIN SPACING AND CLEARANCE REQUIREMENTS.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

DECK SLAB PLAN
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

29/40

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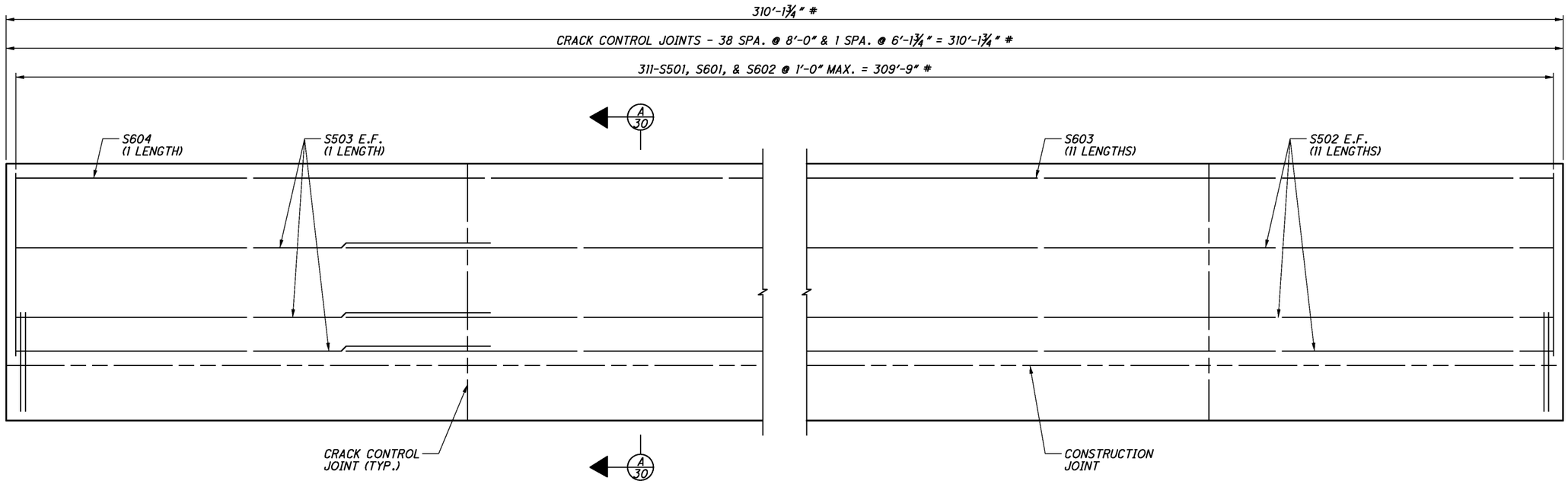
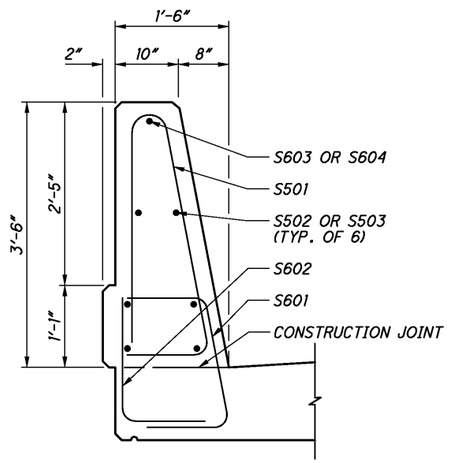


PARAPET ELEVATION



SECTION A-A

NOTES:

1. SEE STANDARD DRAWING SBR-1-99 FOR ADDITIONAL NOTES AND DETAILS.
2. MINIMUM REINFORCING LAP LENGTHS:
   #5 = 31"
   #6 = 50"

LEGEND:

E.F. = EACH FACE
MAX. = MAXIMUM
TYP. = TYPICAL
# = MEASURED ALONG TOE OF PARAPET

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

PARAPET DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

30/40

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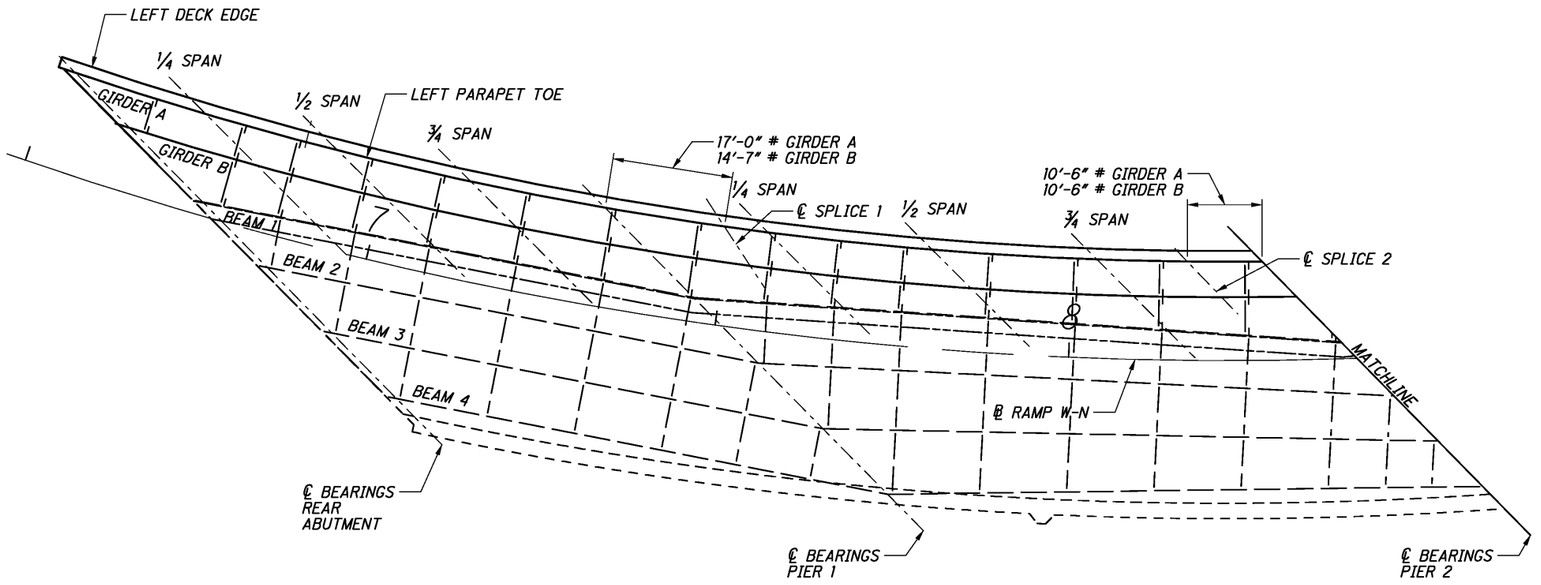

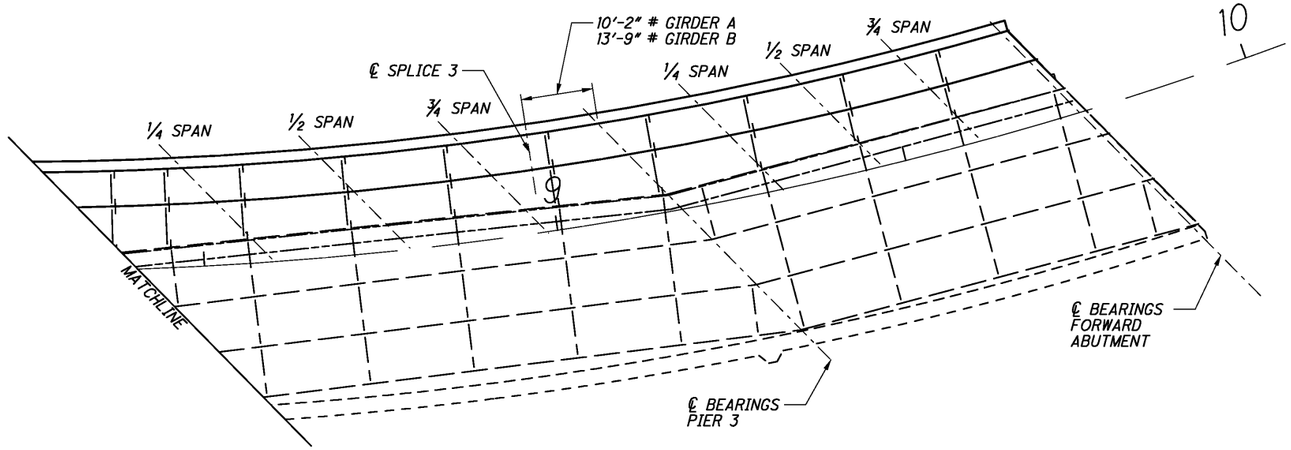

SCREED PLAN

LEGEND:

* = MEASURED ALONG CENTERLINE OF INDICATED GIRDER

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

SCREED PLAN
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

31/40

77/94

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DECK SCREED ELEVATION TABLE

ELEVATION LINE	℄ BEARINGS R.A.		¼ SPAN		½ SPAN		¾ SPAN		℄ BEARINGS PIER 1		℄ SPLICE 1		¼ SPAN		½ SPAN		¾ SPAN		℄ SPLICE 2	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
LEFT EDGE OF DECK	6+49.71	641.97	6+69.72	642.17	6+89.73	642.34	7+09.74	642.46	7+29.74	642.57	7+48.03	642.74	7+53.78	642.80	7+77.82	643.02	8+01.86	643.17	8+15.07	643.24
LEFT TOE OF PARAPET / GIRDER A	6+52.79	642.08	6+72.57	642.28	6+92.35	642.45	7+12.13	642.56	7+31.92	642.68	7+49.38	642.84	7+55.79	642.90	7+79.65	643.12	8+03.52	643.27	8+16.59	643.34
GIRDER B	6+62.68	642.46	6+81.76	642.65	7+00.84	642.80	7+19.91	642.91	7+38.99	643.03	7+53.83	643.18	7+62.31	643.26	7+85.62	643.47	8+08.94	643.61	8+21.56	643.68

DECK SCREED ELEVATION TABLE

ELEVATION LINE	℄ BEARINGS PIER 2		¼ SPAN		½ SPAN		¾ SPAN		℄ SPLICE 3		℄ BEARINGS PIER 3		¼ SPAN		½ SPAN		¾ SPAN		℄ BEARINGS F.A.	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
LEFT EDGE OF DECK	8+25.90	643.30	8+46.17	643.47	8+66.44	643.64	8+86.72	643.78	8+97.63	643.85	9+06.99	643.91	9+22.00	644.04	9+37.00	644.17	9+52.00	644.28	9+67.00	644.37
LEFT TOE OF PARAPET / GIRDER A	8+27.38	643.40	8+47.56	643.57	8+67.73	643.74	8+87.91	643.88	8+97.63	643.94	9+08.08	644.01	9+23.02	644.14	9+37.96	644.27	9+52.91	644.38	9+67.85	644.46
GIRDER B	8+32.25	643.74	8+52.10	643.90	8+71.95	644.07	8+91.80	644.21	8+97.66	644.25	9+11.65	644.34	9+26.40	644.47	9+41.14	644.60	9+55.88	644.70	9+70.62	644.78

TOP OF HAUNCH ELEVATION TABLE

ELEVATION LINE	℄ BEARINGS R.A.		¼ SPAN		½ SPAN		¾ SPAN		℄ BEARINGS PIER 1		℄ SPLICE 1		¼ SPAN		½ SPAN		¾ SPAN		℄ SPLICE 2	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
GIRDER A	6+52.79	641.21	6+72.57	641.41	6+92.35	641.57	7+12.13	641.69	7+31.92	641.81	7+49.38	641.97	7+55.79	642.03	7+79.65	642.25	8+03.52	642.40	8+16.59	642.46
GIRDER B	6+62.68	641.58	6+81.76	641.78	7+00.84	641.93	7+19.91	642.04	7+38.99	642.16	7+53.83	642.30	7+62.31	642.39	7+85.62	642.60	8+08.94	642.74	8+21.56	642.80

TOP OF HAUNCH ELEVATION TABLE

ELEVATION LINE	℄ BEARINGS PIER 2		¼ SPAN		½ SPAN		¾ SPAN		℄ SPLICE 3		℄ BEARINGS PIER 3		¼ SPAN		½ SPAN		¾ SPAN		℄ BEARINGS F.A.	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
GIRDER A	8+27.38	642.53	8+47.56	642.69	8+67.73	642.86	8+87.91	643.01	8+97.63	643.07	9+08.08	643.14	9+23.02	643.27	9+37.96	643.39	9+52.91	643.50	9+67.85	643.59
GIRDER B	8+32.25	642.86	8+52.10	643.03	8+71.95	643.20	8+91.80	643.33	8+97.66	643.37	9+11.65	643.46	9+26.40	643.59	9+41.14	643.72	9+55.88	643.83	9+70.62	643.91

FINAL TOP OF DECK ELEVATION TABLE

ELEVATION LINE	℄ BEARINGS R.A.		¼ SPAN		½ SPAN		¾ SPAN		℄ BEARINGS PIER 1		℄ SPLICE 1		¼ SPAN		½ SPAN		¾ SPAN		℄ SPLICE 2	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
LEFT EDGE OF DECK	6+49.71	641.97	6+69.72	642.12	6+89.73	642.27	7+09.74	642.42	7+29.74	642.57	7+48.03	642.71	7+53.78	642.76	7+77.82	642.94	8+01.86	643.12	8+15.07	643.22
LEFT TOE OF PARAPET / GIRDER A	6+52.79	642.08	6+72.57	642.23	6+92.35	642.38	7+12.13	642.53	7+31.92	642.68	7+49.38	642.81	7+55.79	642.86	7+79.65	643.04	8+03.52	643.22	8+16.59	643.32
GIRDER B	6+62.68	642.46	6+81.76	642.60	7+00.84	642.75	7+19.91	642.89	7+38.99	643.03	7+53.83	643.15	7+62.31	643.21	7+85.62	643.39	8+08.94	643.56	8+21.56	643.66

FINAL TOP OF DECK ELEVATION TABLE

ELEVATION LINE	℄ BEARINGS PIER 2		¼ SPAN		½ SPAN		¾ SPAN		℄ SPLICE 3		℄ BEARINGS PIER 3		¼ SPAN		½ SPAN		¾ SPAN		℄ BEARINGS F.A.	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
LEFT EDGE OF DECK	8+25.90	643.30	8+46.17	643.45	8+66.44	643.61	8+86.72	643.76	8+97.63	643.84	9+06.99	643.91	9+22.00	644.03	9+37.00	644.14	9+52.00	644.25	9+67.00	644.37
LEFT TOE OF PARAPET / GIRDER A	8+27.38	643.40	8+47.56	643.55	8+67.73	643.71	8+87.91	643.86	8+97.63	643.93	9+08.08	644.01	9+23.02	644.12	9+37.96	644.24	9+52.91	644.35	9+67.85	644.46
GIRDER B	8+32.25	643.74	8+52.10	643.89	8+71.95	644.04	8+91.80	644.19	8+97.66	644.23	9+11.65	644.34	9+26.40	644.45	9+41.14	644.56	9+55.88	644.67	9+70.62	644.78

LEGEND:

F.A. = FORWARD ABUTMENT
R.A. = REAR ABUTMENT

NOTES:

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE 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. THE CONTRACTOR'S ATTENTION IS DIRECTED TO CMS 511.10 CONCERNING LOADING AND FINISHING THE DECK CONCRETE ALONG THE SKEW. FURTHERMORE, THE CONTRACTOR SHALL REFINISH THE DECK AS NECESSARY TO STRIKE OFF ANY RAISING THAT MAY BE CAUSED BY PLACING THE DECK CONCRETE IN THE ADJACENT SPAN.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED ASK | CHECKED JAA
DRAWN ASK | REVISED
REVIEWED DWL | DATE 01-09
STRUCTURE FILE NUMBER 1812076

SCREED TABLE
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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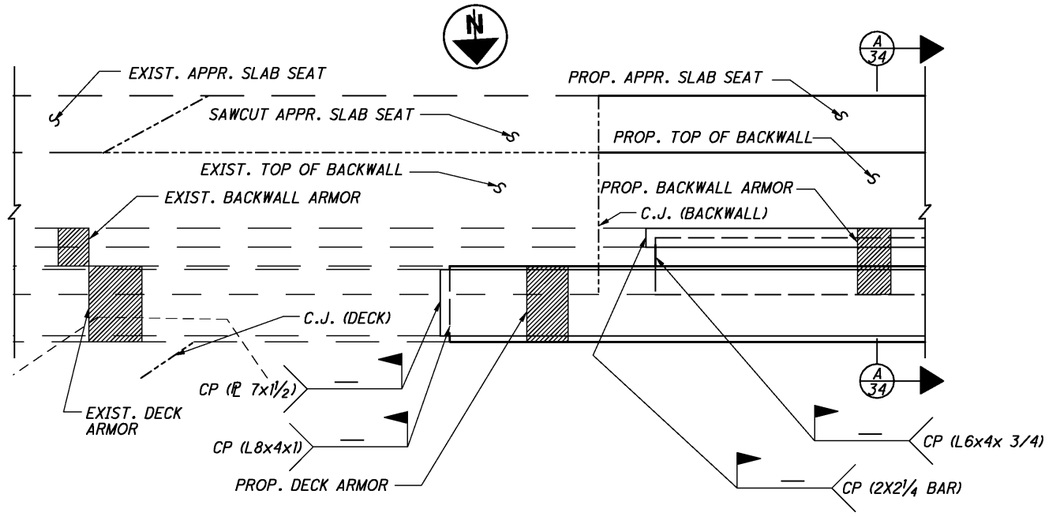
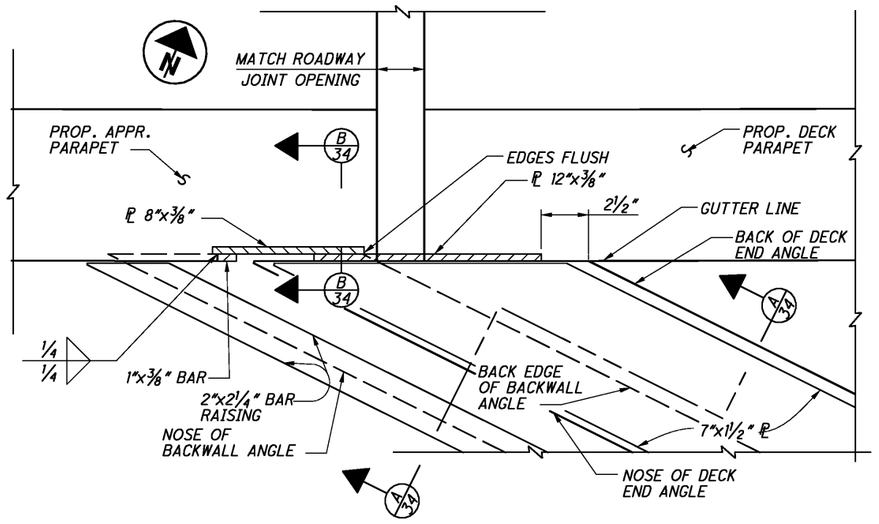
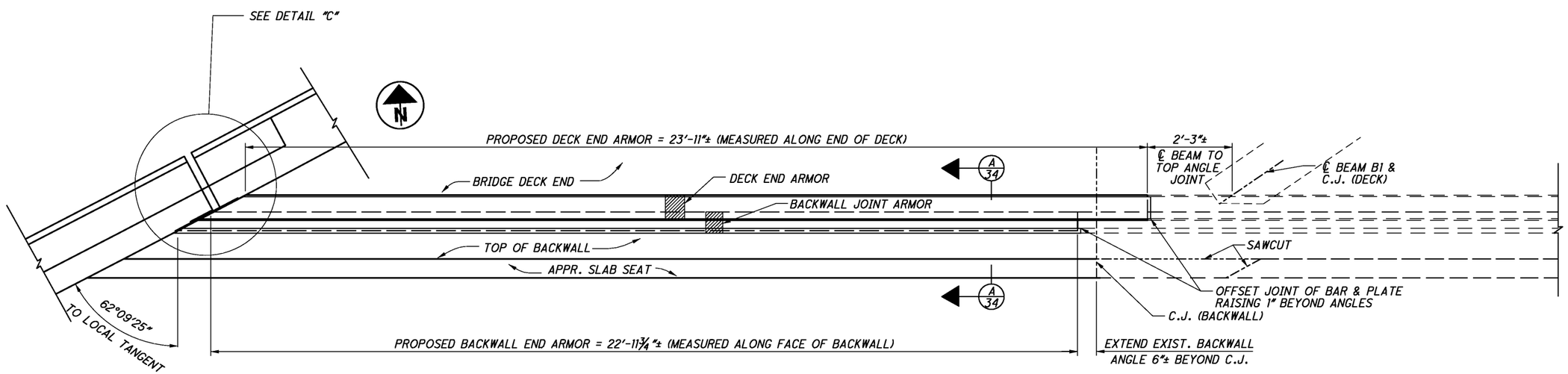


PARTIAL PLAN - REAR ABUTMENT



DETAIL "C"



REAR ABUTMENT PLAN

NOTES:

CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO ORDERING EXTENSIONS.

ALL PROPOSED EXPANSION JOINT EXTENSIONS AND SEALER SHALL BE INCLUDED IN THE PRICE BID PER FOOT FOR ITEM 516 - HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN.

FOR SECTION A-A, SEE SHEET 34/40

ALSO, SEE RETIRED STANDARD BRIDGE DRAWING SD-1-69 AT BACK OF BRIDGE PLANS.

LEGEND:

APPR.	=	APPROACH
C.J.	=	CONSTRUCTION JOINT
EXIST.	=	EXISTING
PROP.	=	PROPOSED
TYP.	=	TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

EXPANSION JOINT DETAILS, 1 OF 2
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

33/40

79
94

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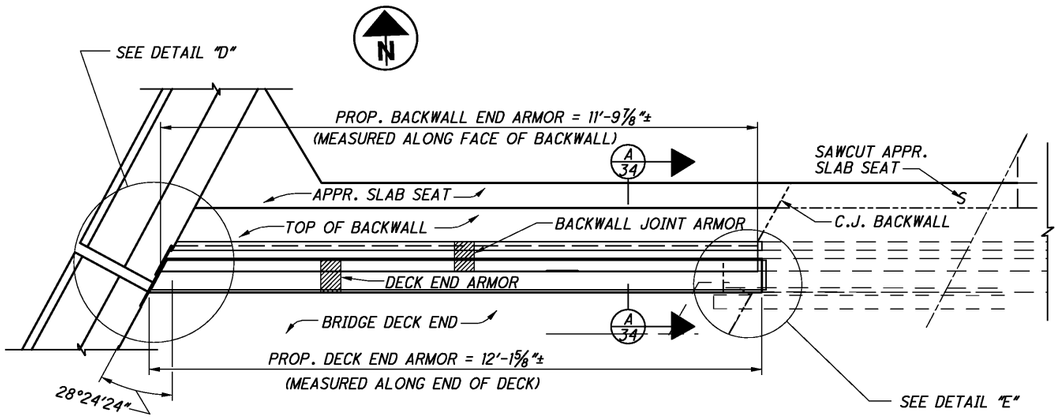
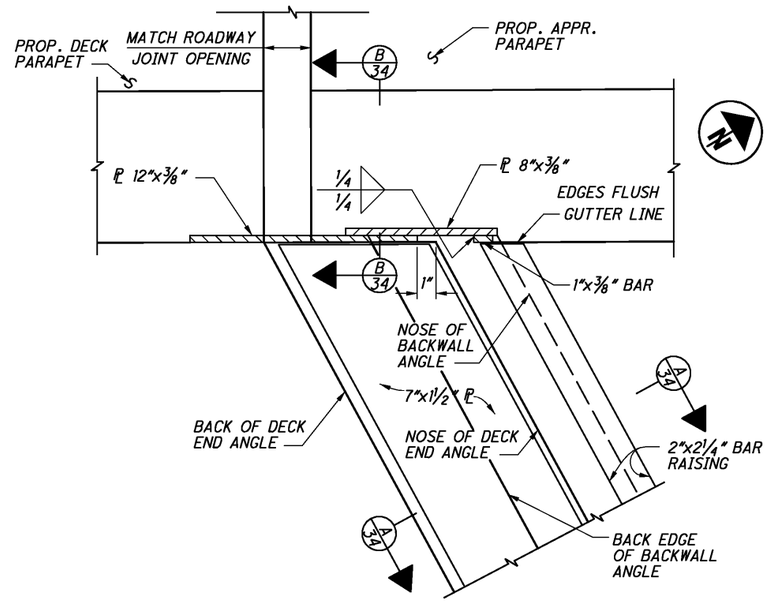
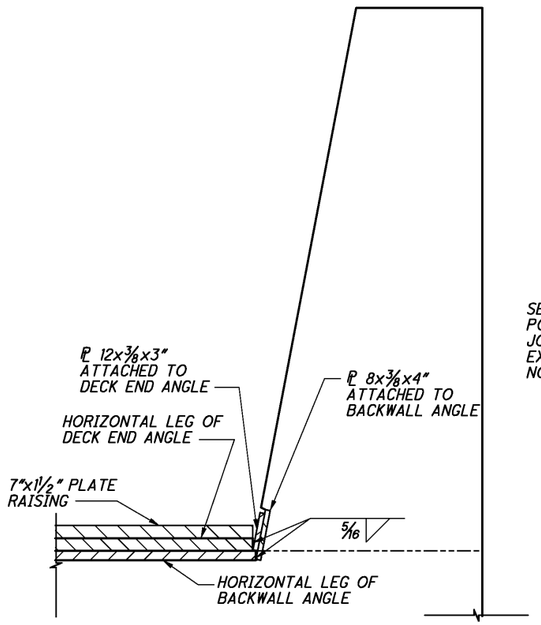


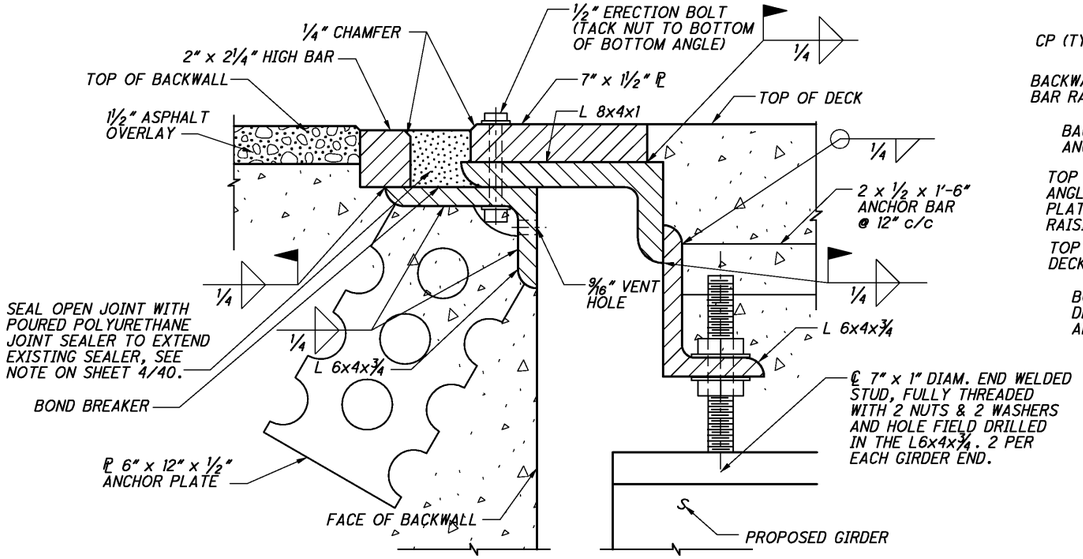
FORWARD ABUTMENT PLAN



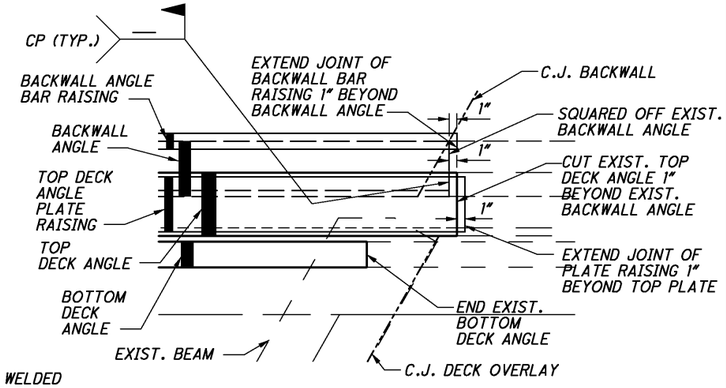
DETAIL D



SECTION B-B



SECTION A-A



DETAIL E

NOTES:

CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO ORDERING EXTENSIONS.

ALL PROPOSED EXPANSION JOINT EXTENSIONS AND SEALER SHALL BE INCLUDED IN THE PRICE BID PER FOOT FOR ITEM 516 - HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN.

SEE RETIRED STANDARD BRIDGE DRAWING SD-1-69 AT BACK OF BRIDGE PLANS.

LEGEND:

APPR.	=	APPROACH
C.J.	=	CONSTRUCTION JOINT
DIAM.	=	DIAMETER
EXIST.	=	EXISTING
PROP.	=	PROPOSED
TYP.	=	TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

EXPANSION JOINT DETAILS, 2 OF 2
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

34/40

80/94

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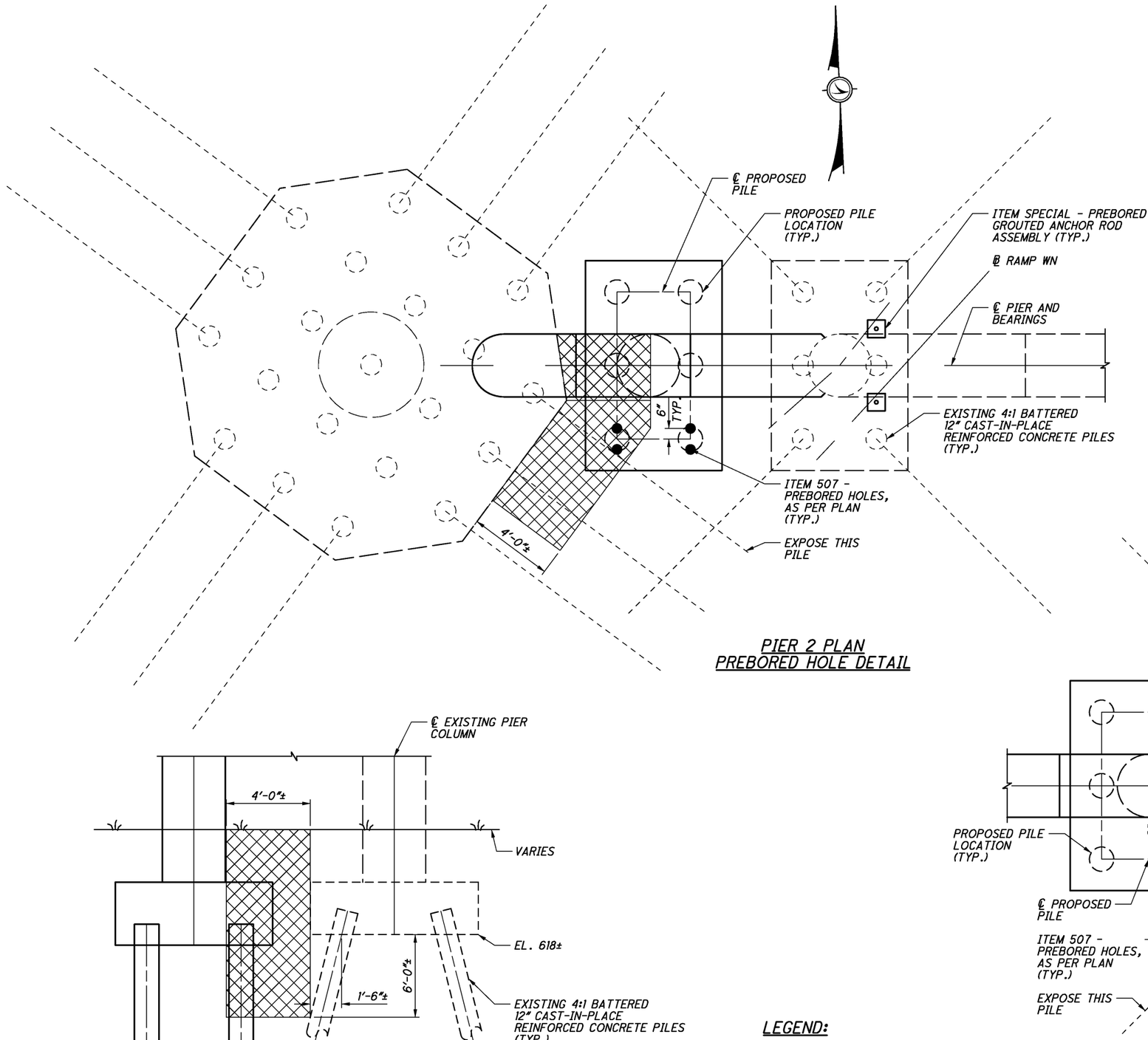
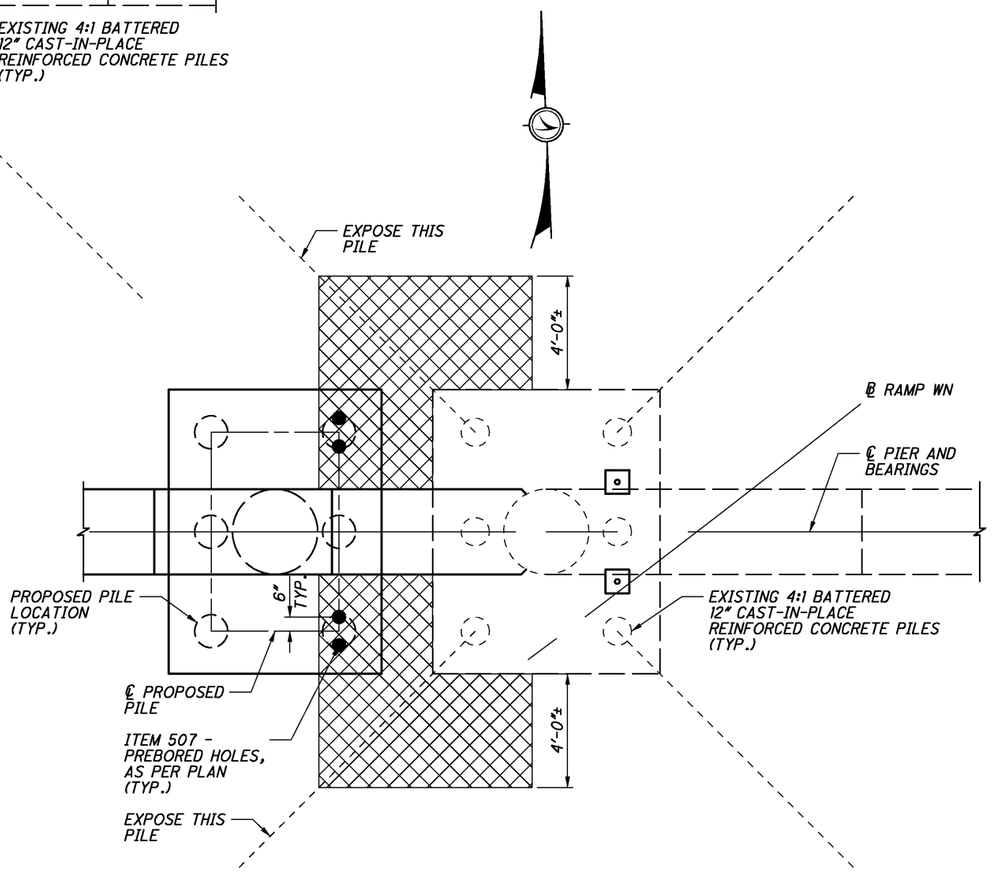


PIER 2 PLAN
PREBORED HOLE DETAIL

ELEVATION - PREBORED HOLE DETAIL

LEGEND:

EL. = ELEVATION
TYP. = TYPICAL
⊠ = LIMITS OF ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN 2 TO LOCATE EXISTING PILES



PIER 1 PLAN
PREBORED HOLE DETAIL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	01-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

MISCELLANEOUS DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

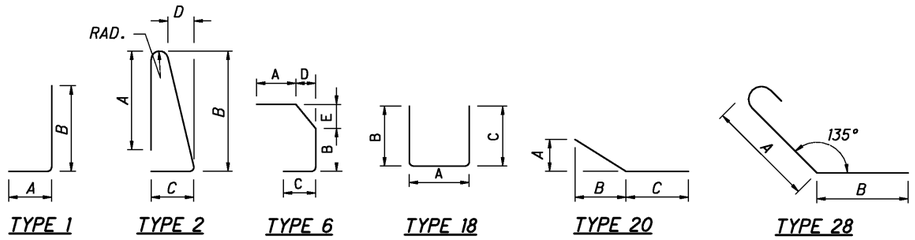
REINFORCING SCHEDULE

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
ABUTMENTS											
A501	15	6'-8"	104	18	3'-9"	1'-7"	1'-7"				
A502	20	4'-0"	83	STR							
	1	4'-6"			1'-7"						
A503	S.O.	TO	23	18	TO	1'-7"	1'-7"				9"
	4	6'-9"			3'-10"						
A505	7	8'-2"	60	20	2'-1"	4'-1"	3'-8"				
A506	4	21'-4"	89	STR							
A507	4	26'-9"	111	STR							
A508	1	23'-2"	24	STR							
A509	1	24'-11"	25	STR							
A510	1	25'-7"	26	STR							
A511	9	25'-7"	240	STR							
A512	4	14'-6"	60	20	4'-11 3/8"	9'-8 1/2"	3'-8"				
A513	3	4'-4"	13	20	1'-3 1/4"	0'-7 1/2"	3'-0"				
A514	3	8'-2"	25	STR							
A515	4	2'-4"	9	STR							
A521	7	6'-6"	47	18	3'-7"	1'-7"	1'-7"				
A522	6	11'-1"	69	STR							
A523	5	11'-7"	60	STR							
A524	2	5'-7"	11	STR							
A525	3	5'-3"	16	STR							
A526	9	13'-6"	126	STR							
A601	10	6'-10"	102	STR							
A602	14	9'-5"	198	1	1'-0"	8'-7"					
A603	5	9'-5"	70	1	1'-0"	8'-7"					
A604	5	6'-7"	49	STR							
A605	26	8'-5"	328	18	1'-3"	3'-9"	3'-9"				
A606	26	5'-1"	198	18	1'-3"	2'-1"	2'-1"				
A607	26	7'-5"	289	18	0'-9"	3'-6"	3'-6"				
A609	4	9'-5"	56	1	1'-0"	8'-7"					
A621	8	8'-5"	101	1	1'-0"	7'-7"					
	2	5'-1"				4'-0"					
A622	S.O.	TO	46	1	1'-3"	TO					1"
	3	5'-3"				4'-2"					
A623	5	8'-5"	63	1	1'-0"	7'-7"					
A624	2	5'-1"	15	STR							
A625	10	7'-9"	116	18	1'-3"	3'-5"	3'-5"				
A626	10	4'-5"	66	18	1'-3"	1'-9"	1'-9"				
A627	13	7'-7"	148	18	0'-9"	3'-7"	3'-7"				
A628	1	9'-6"	14	1	2'-7"	7'-1"					
A629	1	5'-4"	8	STR							
A801	9	6'-0"	144	28	3'-8"	1'-5"					
A802	6	5'-8"	90	28	3'-4"	1'-5"					
	SUBTOTAL	WEIGHT	3322 LBS								
A504, A516-A520, A608, A610-A620 NOT USED											

REINFORCING SCHEDULE

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
ABUTMENT FOOTINGS											
F501	15	21'-8"	338	16	8'-1 "	2'-6"					
F601	5	12'-0"	90	STR							
F602	8	11'-5"	137	18	6'-9"	2'-6"	2'-6"				
F604	10	7'-8"	115	18	3'-0"	2'-6"	2'-6"				
F605	2	12'-8"	38	STR							
F606	2	11'-7"	34	18	6'-11"	2'-6"	2'-6"				
	2	9'-5"			4'-9"						0'-6"
F607	S.O.	TO	89	18	TO	2'-6"	2'-6"				
	3	10'-5"			5'-9"						
	2	7'-8"			3'-0"						0'-6"
F608	S.O.	TO	73	18	TO	2'-6"	2'-6"				
	3	8'-8"			4'-0"						
F609	3	11'-5"	51	STR							
F801	40	4'-8"	498	STR							
F802	9	10'-1"	242	STR							
F803	16	4'-7"	199	20	1'-2 1/4"	0'-7 1/4"	3'-4"				
F804	5	10'-3"	136	STR							
F805	2	13'-4"	71	20	4'-3 1/8"	8'-4 1/4"	3'-11 5/8"				
F806	2	14'-5"	76	20	4'-3 3/4"	8'-5 3/8"	4'-11 1/8"				
F807	2	18'-8"	99	20	4'-8 3/4"	9'-3"	8'-4"				
F808	2	20'-9"	110	20	4'-9 3/4"	9'-5 1/8"	10'-2 1/8"				
F809	2	22'-9"	121	20	4'-10 7/8"	9'-7 1/4"	12'-0 1/4"				
F810	2	24'-10"	132	20	4'-11 1/8"	9'-9 1/4"	13'-10 3/8"				
F811	2	28'-7"	152	20	5'-1 1/8"	10'-1 1/8"	17'-2 3/8"				
F812	3	29'-7"	236	20	5'-2 3/8"	10'-2 1/4"	18'-2 5/8"				
F813	3	9'-4"	74	STR							
	SUBTOTAL	WEIGHT	3111 LBS								
F603 NOT USED											

WINGWALLS AND PARAPETS											
W501	6	2'-5"	15	STR							
W522	4	9'-8"	40	STR							
W523	4	10'-0"	41	STR							
W525	3	7'-0"	21	STR							
W526	3	7'-3"	22	STR							
W527	2	1'-1"	2	STR							
W528	2	0'-10"	1	STR							
W601	4	22'-8"	136	18	1'-2"	10'-11"	10'-11"				
W602	6	6'-0"	54	6	1'-10"	0'-11"	2'-8"	0'-10"	0'-2"		
W603	6	7'-3"	65	2	3'-0"	3'-2"	1'-1"	0'-6 3/4"	0'-2 3/4"		
W604	1	2'-5"	3	STR							
W605	6	33'-4"	300	18	1'-2"	16'-3"	16'-3"				
W606	4	6'-10"	41	18	1'-2"	3'-0"	3'-0"				
W621	5	20'-8"	155	18	1'-2"	9'-11"	9'-11"				
W622	1	23'-6"	35	18	1'-2"	11'-4"	11'-4"				
W623	6	6'-10"	61	18	1'-2"	3'-0"	3'-0"				
	SUBTOTAL	WEIGHT	992								
W502-W521, W524, W607-W620 NOT USED											



NOTES:

BAR SIZE: THE BAR SIZE IS INDICATED IN THE BAR MARK. THE MARK BEGINS WITH ONE OR TWO LETTERS THAT IDENTIFY THE BAR LOCATION. THE NEXT ONE OR TWO DIGITS INDICATE THE BAR SIZE, AND THE REMAINING TWO DIGITS ARE THE SEQUENCE NUMBER.

EXAMPLE: F501
F = FOOTING BAR
5 = #5 BAR
01 = BAR SEQUENCE NUMBER 1

BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED.

STD WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

STR IN THE BAR TYPE COLUMN INDICATES A STRAIGHT BAR.

S.O. INDICATES A SERIES BAR

R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.

INC INDICATES THE LENGTH INCREMENT FOR SERIES BARS.

ALL REINFORCING STEEL TO BE EPOXY COATED.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED ASK | DRAWN DCF | CHECKED JAA/KEH | REVIEWED DWL | DATE 02-09

STRUCTURE FILE NUMBER 1812076

REVISED

REINFORCING STEEL SCHEDULE 1 OF 3
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

36/40

82/94

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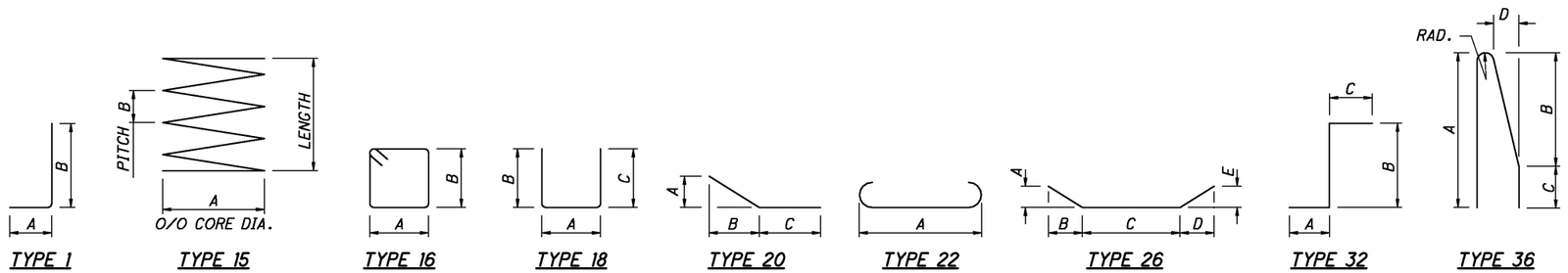
REINFORCING SCHEDULE

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
PIERS											
P501	8	17'-9"	148	STR							
P502	142	8'-9"	1295	18	2'-8"	3'-2"	3'-2"				
P503	8	7'-0"	58	STR							
P504	16	9'-6"	158	STR							
P505	8	15'-8"	130	STR							
P506	16	6'-0"	100	STR							
P507	8	13'-9"	114	STR							
P801	12	6'-2"	197	STR							
P802	12	6'-5"	205	STR							
P803	12	8'-10"	283	22	7'-0"						
P804	30	11'-4"	907	22	9'-6"						
P805	16	7'-10"	334	22	6'-0"						
P1001	5	23'-5"	503	18	17'-9"	3'-2"	3'-2"				
P1002	15	17'-9"	1145	STR							
P1003	5	21'-4"	458	18	15'-8"	3'-2"	3'-2"				
P1004	11	15'-8"	741	STR							
P1005	5	19'-5"	417	18	13'-9"	3'-2"	3'-2"				
P1006	8	13'-9"	473	STR							
P1101	12	23'-1"	1471	32	2'-0"	19'-10"	2'-0"				
P1102	8	23'-9"	1009	32	2'-0"	20'-6"	2'-0"				
P1103	8	24'-4"	1034	32	2'-0"	21'-1"	2'-0"				
SP401	1	14'-1"	211	15	2'-6"	4½"					
SP402	1	14'-9"	221	15	2'-6"	4½"					
SP403	1	15'-4"	229	15	2'-6"	4½"					
		TOTAL =	11841								

REINFORCING SCHEDULE

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
RETAINING WALL											
RW501	80	7'-0"	584	1	1'-0"	6'-2"					
RW502	3	5'-6"	17	26	1"	1'-8"	2'-5"	1'-4½"	4⅛"		
RW503	5	6'-5"	33	STR							
RW504	8	10'-0"	83	STR							
RW505	4	17'-2"	71	STR							
RW506	6	28'-3"	176	STR							
RW507	22	29'-5"	674	STR							
RW508	40	6'-0"	250	STR							
RW509	20	30'-6"	636	STR							
RW510	8	10'-3"	85	1	1'-4"	9'-1"					
RW511	24	8'-5"	210	1	1'-4"	7'-3"					
RW512	6	6'-8"	41	STR							
RW513	41	18'-6"	791	16	6'-6"	2'-6"					
RW601	80	7'-0"	841	1	1'-0"	6'-2"					
RW602	12	5'-6"	99	STR							
RW603	14	13'-0"	273	36	6'-5"	3'-4"	3'-1"	7⅝"		2¾"	
RW604	62	13'-8"	1272	36	6'-9"	3'-4"	3'-5"	7⅝"		2¾"	
RW605	1	17'-7"	26	20	3"	3'-0"	14'-7"				
RW606	1	29'-7"	44	STR							
RW607	40	6'-0"	360	STR							
RW608	8	14'-7"	175	36	7'-2"	3'-4"	3'-10"	7⅝"		2¾"	
RW609	24	7'-2"	258	18	1'-2"	3'-2"	3'-2"				
RW610	1	6'-8"	10	STR							
RW801	8	10'-3"	218	1	1'-4"	9'-1"					
RW802	24	8'-5"	539	1	1'-4"	7'-3"					
RW803	18	29'-5"	1413	STR							
		TOTAL =	9179								



NOTES:

BAR SIZE: THE BAR SIZE IS INDICATED IN THE BAR MARK. THE MARK BEGINS WITH ONE OR TWO LETTERS THAT IDENTIFY THE BAR LOCATION. THE NEXT ONE OR TWO DIGITS INDICATE THE BAR SIZE, AND THE REMAINING TWO DIGITS ARE THE SEQUENCE NUMBER.

EXAMPLE: F501
F = FOOTING BAR
5 = #5 BAR
01 = BAR SEQUENCE NUMBER 1

BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED.

STD WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

STR IN THE BAR TYPE COLUMN INDICATES A STRAIGHT BAR.

S.O. INDICATES A SERIES BAR.

R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.

INC INDICATES THE LENGTH INCREMENT FOR SERIES BARS.

ALL REINFORCING STEEL TO BE EPOXY COATED.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DATE 02-09
REVIEWED DWL
STRUCTURE FILE NUMBER 1812076
DRAWN ASK
REVISED
DESIGNED ASK
CHECKED JAA/KEH

REINFORCING STEEL SCHEDULE 2 OF 3
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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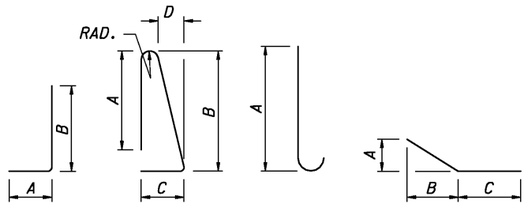
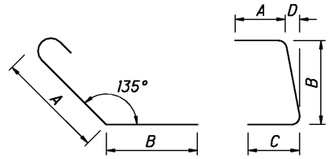
REINFORCING SCHEDULE

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
APPROACH SLABS											
	1	27'-10"									
AS501	S.O.	TO	295	STR							1½"
	10	28'-11"									
AS502	1	28'-3"	29	STR							
	1	31'-8"									
AS503	S.O.	TO	573	STR							1"
	17	33'-0"									
	1	30'-7"									
AS504	S.O.	TO	65	STR							1'-8"
	2	32'-3"									
	1	3'-0"									
AS505	S.O.	TO	11	STR							5'-0"
	2	8'-0"									
AS506	6	32'-0"	200	STR							
	1	31'-11"									
AS507	S.O.	TO	1052	STR							½"
	31	33'-2"									
	1	29'-9"									
AS508	S.O.	TO	162	STR							9"
	5	32'-9"									
	1	3'-0"									
AS509	S.O.	TO	14	STR							7'-8"
	2	10'-8"									
AS510	30	7'-4"	229	2	3'-0"	3'-2"	1'-1"	6¾"		2¾"	
AS511	6	28'-5"	177	STR							
AS512	8	24'-4"	203	STR							
	1	24'-7"									
AS513	S.O.	TO	78	STR							5"
	3	25'-5"									
AS514	17	16'-7"	294	STR							
AS515	1	15'-6"	16	STR							
AS516	33	16'-7"	570	STR							
AS517	4	16'-10"	70	STR							
	1	15'-6"									
AS518	S.O.	TO	33	STR							1'-2"
	2	16'-8"									
AS519	2	5'-0"	10	20	9"	1'-6"	3'-4"				
AS520	29	7'-4"	221	2	3'-0"	3'-2"	1'-1"	6¾"		2¾"	
AS521	6	27'-3"	170	STR							
AS601	30	3'-2"	142	1	1'-1"	2'-3"					
AS602	30	4'-3"	191	35	1'-1"	2'-3"	1'-1"	5⅛"			
AS603	1	28'-5"	42	STR							
AS604	27	3'-0"	121	1	1'-1"	2'-1"					
AS605	27	4'-1"	165	35	1'-1"	2'-1"	1'-1"	4¾"			
AS606	1	27'-3"	40	STR							
AS801	26	4'-7"	318	20	1'-2"	7"	3'-4"				
AS802	24	4'-7"	293	20	7"	1'-2"	3'-4"				
	1	29'-3"			27'-10½"						
AS1001	S.O.	TO	3333	19	TO						½"
	26	30'-4"			28'-11"						
AS1002	2	28'-3"	243	STR							
AS1003	1	16'-8"	71	STR							
AS1004	20	25'-9"	2216	19	24'-4"						
	1	25'-9"			24'-4½"						
AS1005	S.O.	TO	678	19	TO						2½"
	6	26'-10"			25'-5"						
AS1006	1	13'-5"	57	19	12'-0"						

REINFORCING SCHEDULE

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
DECK AND PARAPET											
S501	311	7'-4"	2378	2	3'-0"	3'-2"	1'-1"	6¾"		2¾"	
S502	66	30'-0"	2065	STR							
S503	6	8'-2"	51	STR							
S504	280	30'-0"	8761	STR							
	1	25'-0"									
S505	S.O.	TO	376	STR							11"
	12	35'-1"									
S506	2	36'-4"	75	STR							
	1	25'-0"									
S507	S.O.	TO	447	STR							10½"
	14	36'-4"									
S508	78	30'-5"	2474	STR							
S509	4	11'-0"	45	STR							
S510	4	25'-0"	104	STR							
	2	3'-4"									
S511	S.O.	TO	80	STR/MC							1'-3"
	6	9'-7"									
S512	898	10'-4"	9678	STR/MC							
	2	12'-10"									
S513	S.O.	TO	244	STR							½"
	9	13'-2"									
	2	3'-7"									
S514	S.O.	TO	489	STR							4¼"
	28	13'-2"									
S515	12	3'-10"	47	STR							
S601	311	3'-11"	1829	35	1'-1"	1'-9"	1'-1"	4"			
S602	311	2'-8"	1245	1	1'-1"	1'-9"					
S603	11	30'-0"	495	STR							
S604	1	25'-7"	38	STR							
		TOTAL =	30921								





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EXAMPLE: F501
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STD WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

STR IN THE BAR TYPE COLUMN INDICATES A STRAIGHT BAR.

STR/MC IN THE BAR TYPE COLUMN INDICATES A MECHANICALLY CONNECTED STRAIGHT BAR.

S.O. INDICATES A SERIES BAR

R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.

INC INDICATES THE LENGTH INCREMENT FOR SERIES BARS.

ALL REINFORCING STEEL TO BE EPOXY COATED.

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DATE 02-09
REVIEWED DWL
STRUCTURE FILE NUMBER 1812076
DRAWN ASK
REVISED
DESIGNED ASK
CHECKED JAA/KEH

REINFORCING STEEL SCHEDULE 3 OF 3
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

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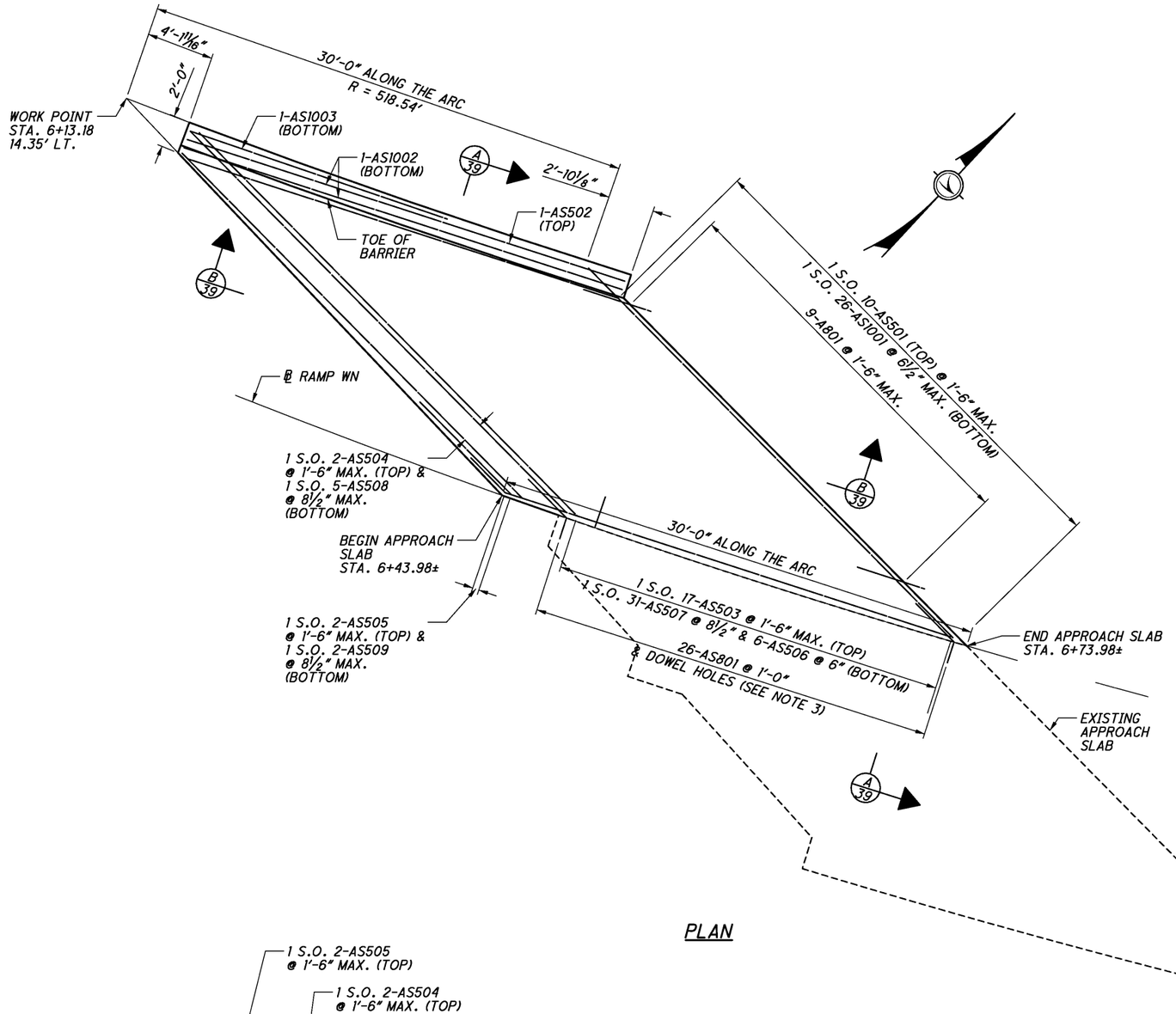
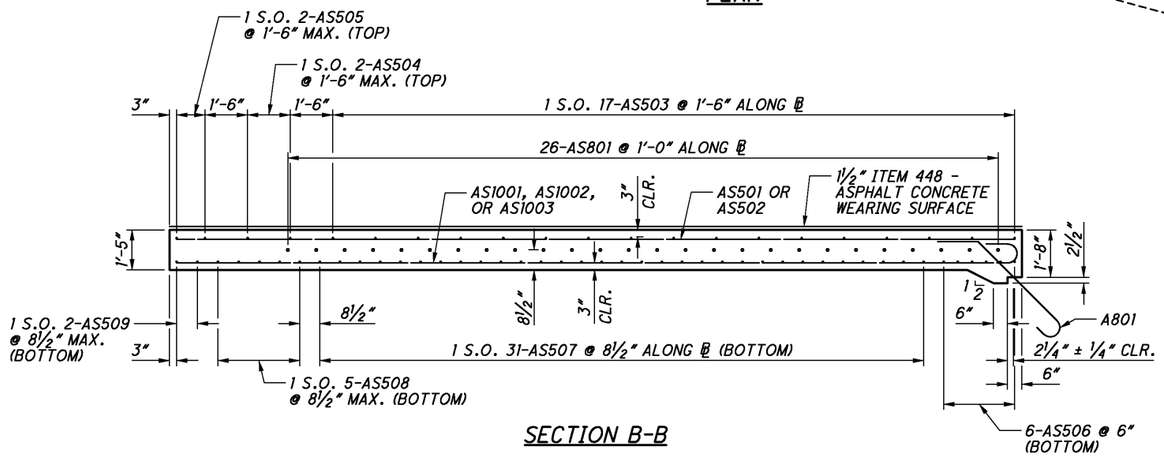
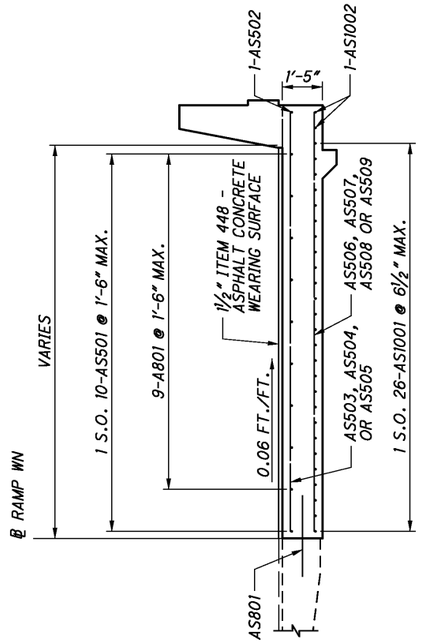


PLAN



SECTION B-B



SECTION A-A

NOTES:

1. SEE SHEET 39A/40 FOR PARAPET DETAILS.
2. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
3. DOWEL HOLES TO BE 16" DEEP INTO EXISTING PER ITEM 510 - DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN. SHIFT AS NECESSARY TO CLEAR SHORING ANCHORS.

LEGEND:

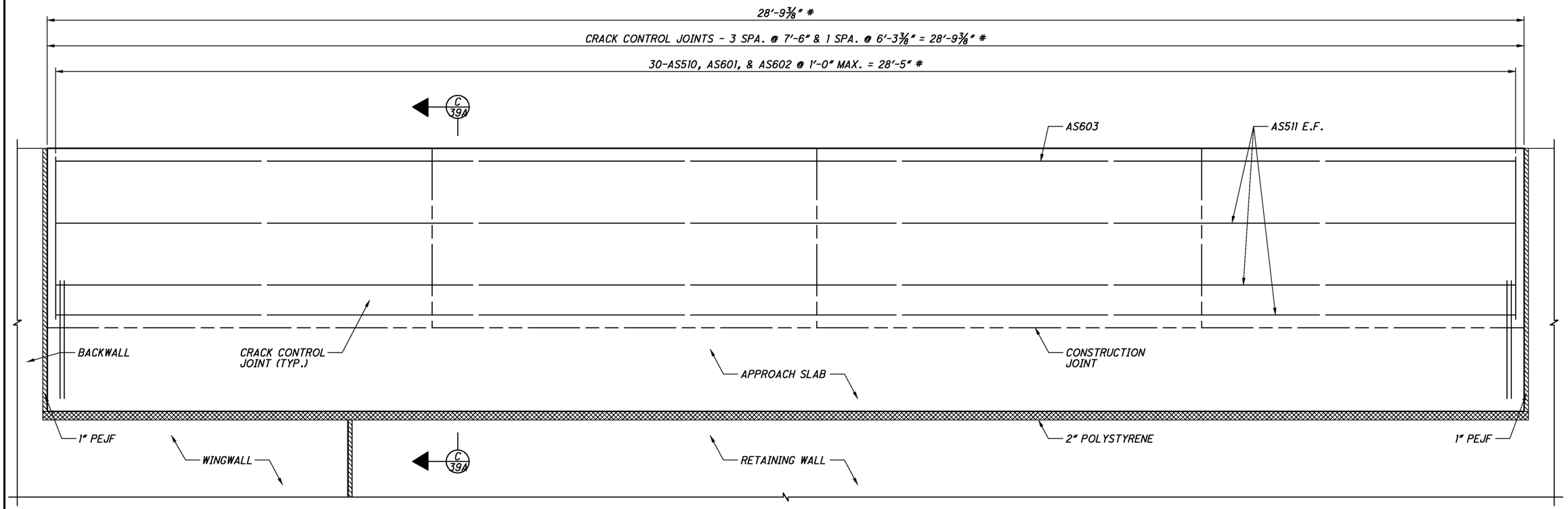
CLR. = CLEAR
PEJF = PREFORMED EXPANSION JOINT FILLER
S.O. = SERIES OF
TYP. = TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

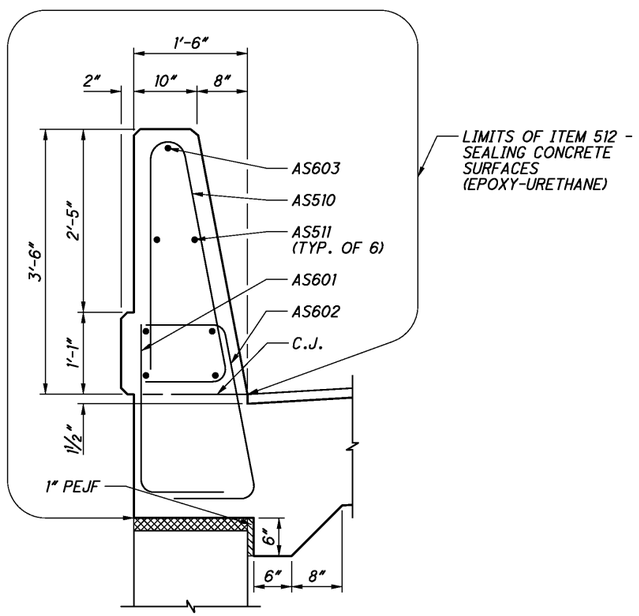
DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	03-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

REAR APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049



PARAPET ELEVATION
(OUTSIDE FACE)



SECTION C-C

LEGEND:

C.J. = CONSTRUCTION JOINT
E.F. = EACH FACE
MAX. = MAXIMUM
PEJF = PREFORMED EXPANSION JOINT FILLER
TYP. = TYPICAL
# = MEASURED ALONG TOE OF PARAPET

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	03-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

REAR APPROACH SLAB PARAPET DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

39A / 40

85A / 94

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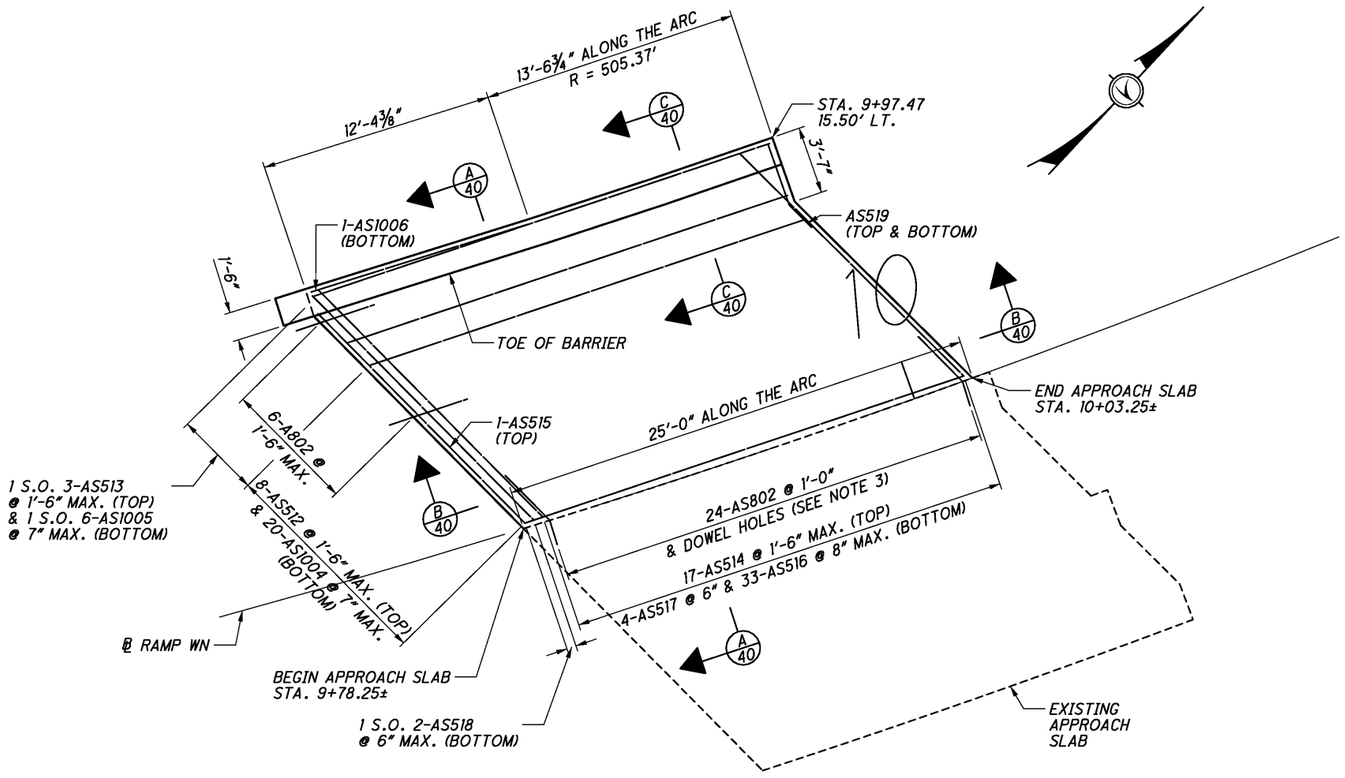
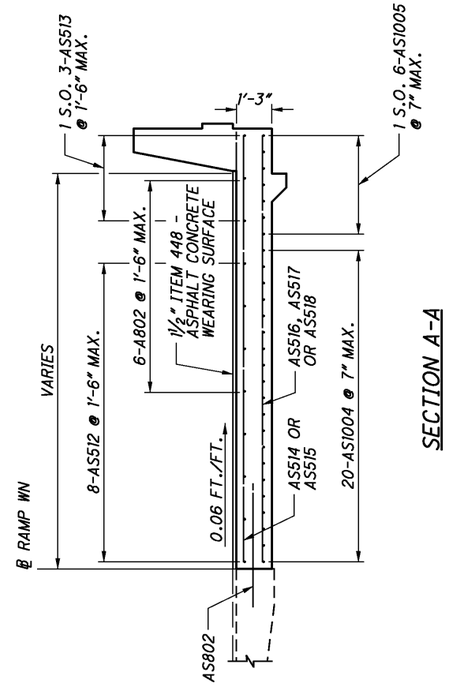
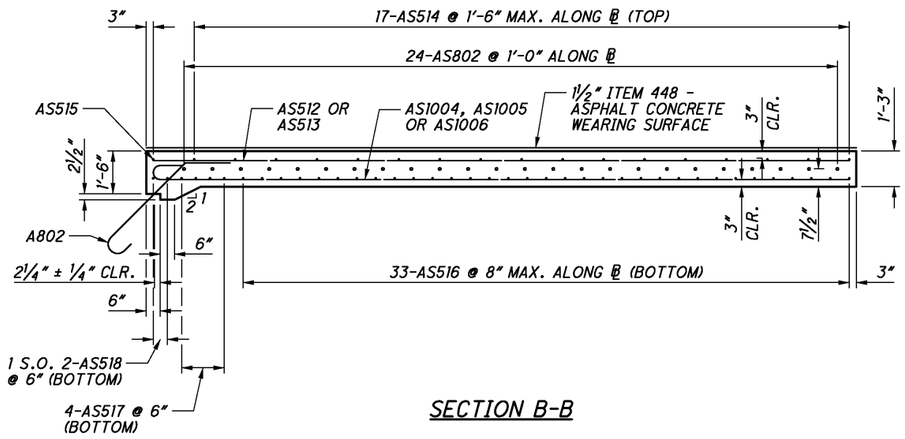


PLAN



SECTION A-A



SECTION B-B

NOTES:

1. SEE SHEET 40A/40 FOR PARAPET DETAILS.
2. SEE STANDARD DRAWING AS-1-81 FOR ADDITIONAL DETAILS.
3. DOWEL HOLES TO BE 16" DEEP INTO EXISTING PER ITEM 510 - DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN. SHIFT AS NECESSARY TO CLEAR SHORING ANCHORS.

LEGEND:

CLR. = CLEAR
PEJF = PREFORMED EXPANSION JOINT FILLER
S.O. = SERIES OF
TYP. = TYPICAL

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	DWL	03-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1812076	

FORWARD APPROACH SLAB PLAN AND DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

40/40

86
94

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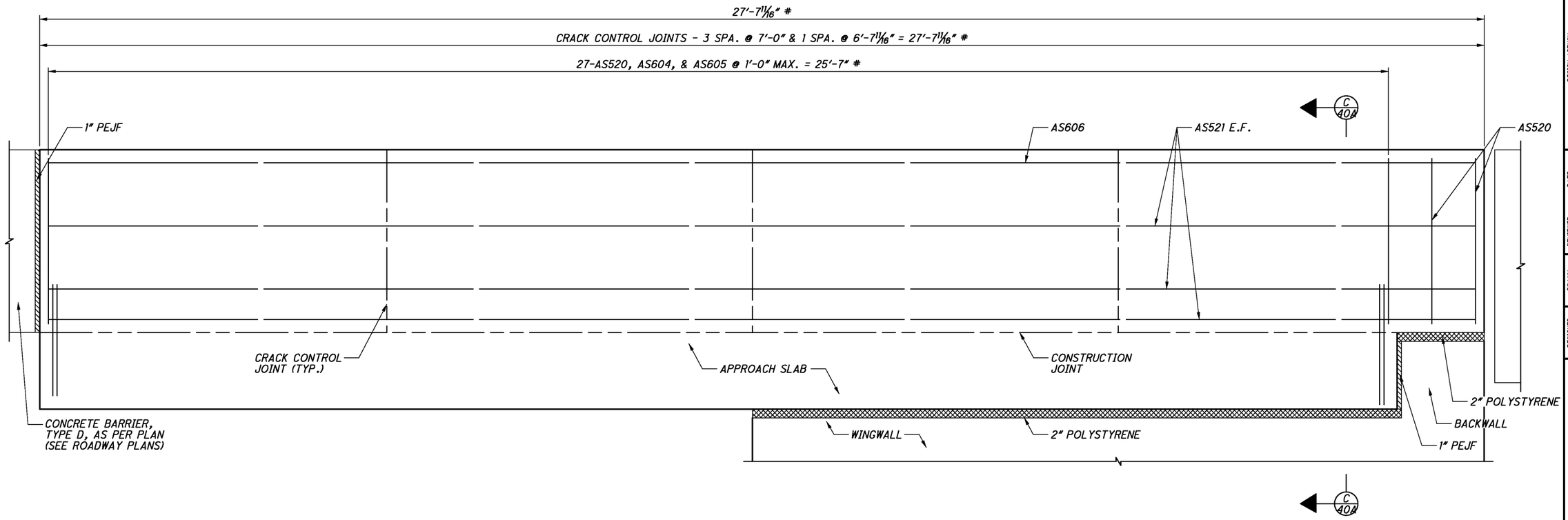
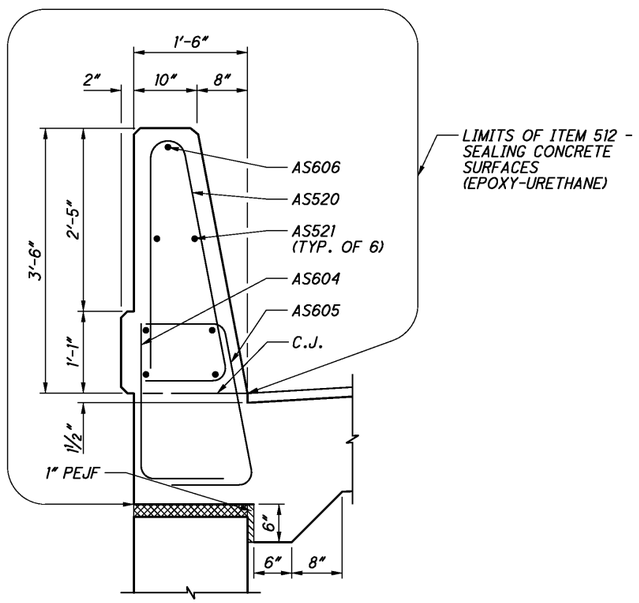


PARAPET ELEVATION
(OUTSIDE FACE)



SECTION C-C

LEGEND:

C.J. = CONSTRUCTION JOINT
E.F. = EACH FACE
MAX. = MAXIMUM
PEJF = PREFORMED EXPANSION JOINT FILLER
TYP. = TYPICAL
# = MEASURED ALONG TOE OF PARAPET

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

DESIGNED	CHECKED
ASK	JAA

DRAWN	REVISED
ASK	

REVIEWED	DATE
DWL	03-09

STRUCTURE FILE NUMBER
1812076

FORWARD APPROACH SLAB PARAPET DETAILS
BRIDGE NO. CUY-490-0187WN
RAMP WN OVER I-490

CUY-490-
1.87WN/VAR
PID No. 85049

40A / 40

86A
94

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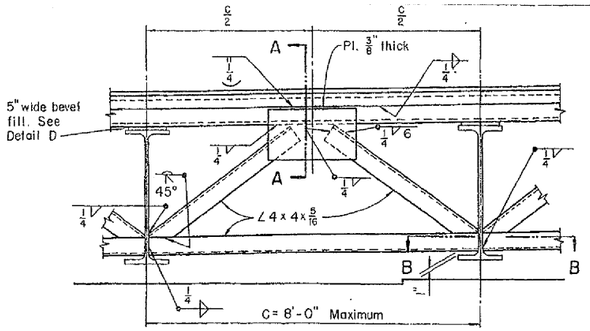
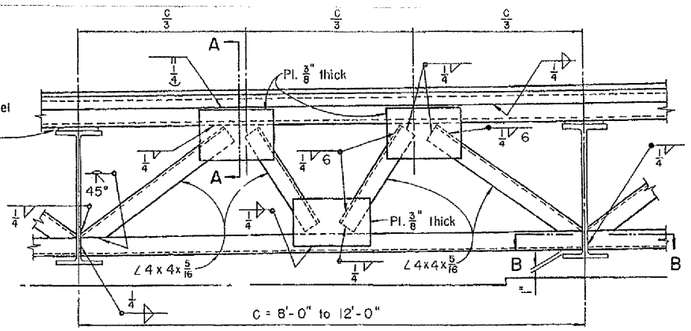


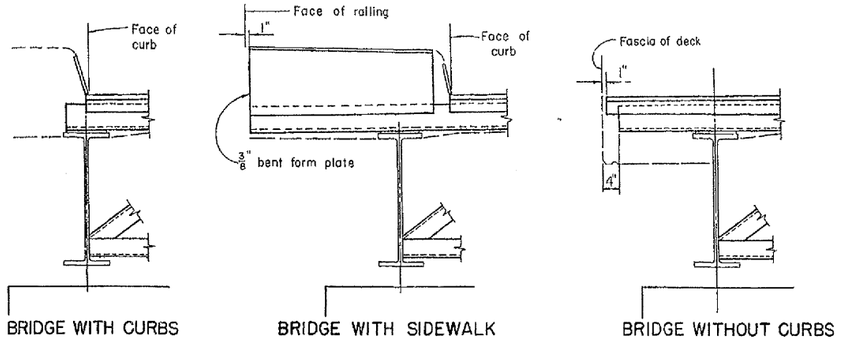
END CROSSFRAME

For beam spacing of 8'-0" or less measured parallel to end dam.



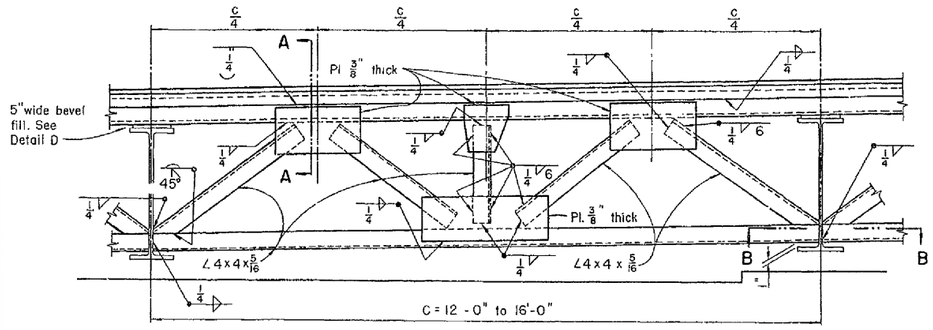
END CROSSFRAME

For beam spacing of 8'-0" to 12'-0" measured parallel to end dam.



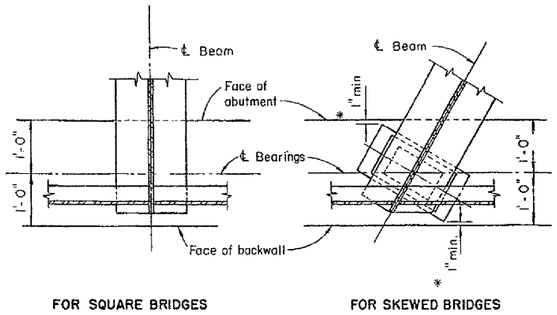
END DAM DETAILS AT FASCIA BEAM

(For additional details see Sheet No 2)



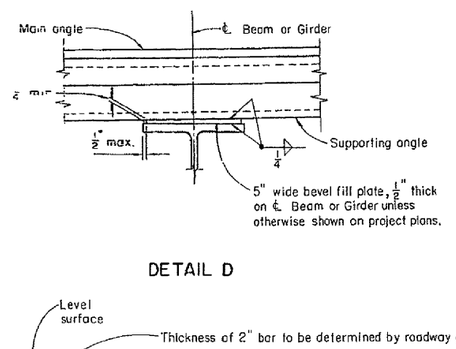
END CROSSFRAME

For beam spacing of 12' - 0" to 16'-0" measured parallel to end dam.

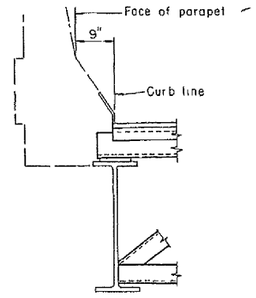


SECTION B - B

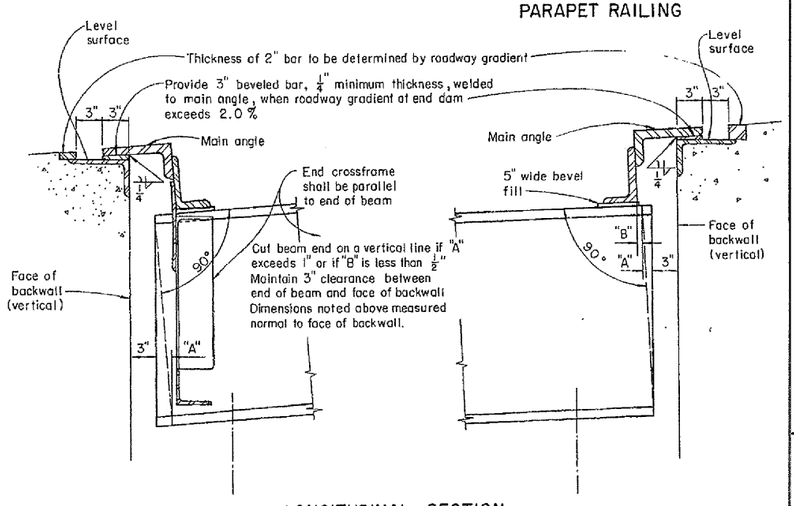
* Where necessary, cope corner of masonry plate in order to maintain 1" clearance.



DETAIL D

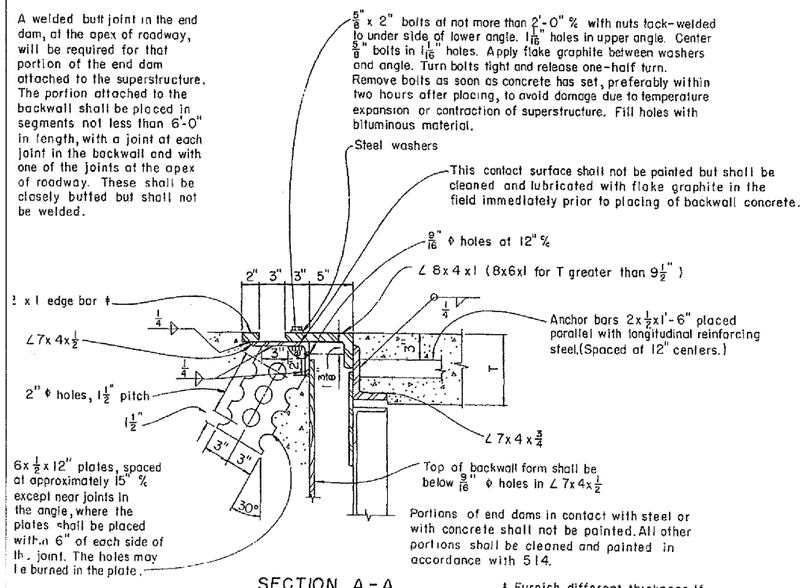


BRIDGE WITH ROADWAY PARAPET RAILING



LONGITUDINAL SECTION
BRIDGE ON GRADE

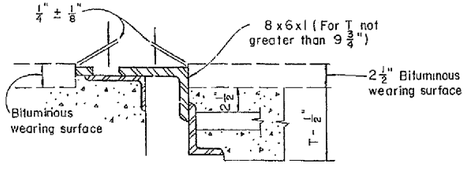
A welded butt joint in the end dam, at the apex of roadway, will be required for that portion of the end dam attached to the superstructure. The portion attached to the backwall shall be placed in segments not less than 6'-0" in length, with a joint at each joint in the backwall and with one of the joints at the apex of roadway. These shall be closely butted but shall not be welded.



SECTION A - A

SHOWING ROADWAY END DAM FOR MONOLITHIC WEARING SURFACE

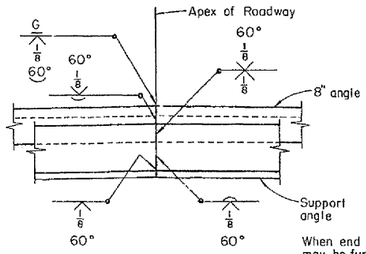
‡ Furnish different thickness if required to compensate for grades in excess of 2%.



SECTION A - A

SHOWING ROADWAY END DAM FOR BITUMINOUS WEARING SURFACE

Same as SECTION A-A for monolithic wearing surface except as shown.



WELDED BUTT JOINT IN SUPERSTRUCTURE END DAM

When end dam contains no apex, a butt joint may be furnished near the centerline of the deck, if necessary to facilitate handling and shipping.

REVISIONS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

STANDARD

SUPERSTRUCTURE DETAILS

FOR STEEL BEAM AND GIRDER BRIDGES

APPROVED: C. H. Abbott
DATE 6-12-69 ENGINEER OF BRIDGES

DRAWING NUMBER SD-1-69

PREPARED	TRACED	CHECKED	REVIEWED	SHEET NO. 1 OF 4 SHEETS
PFE	NRD	WJJ PFE	CDB RVH BPG	

CALCULATED | CHECKED

DESIGN AGENCY
BURGESS & NIPLE
100 WEST ERIE STREET PAINESVILLE, OHIO 44077

PLAN INSERT SHEET - SD-1-69 SHEET 1

CUY-490-1.87WN/VAR
PID No. 85049

86B
94

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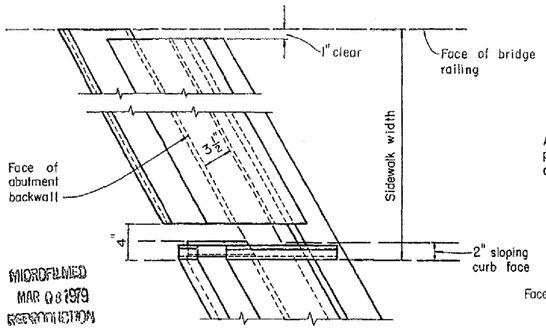
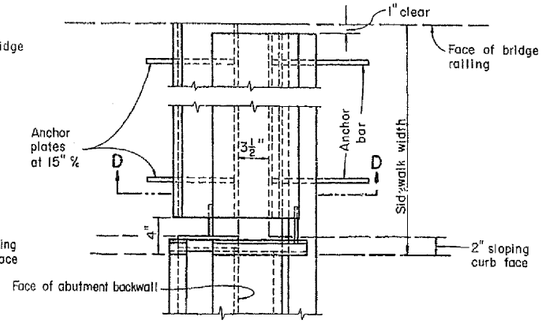
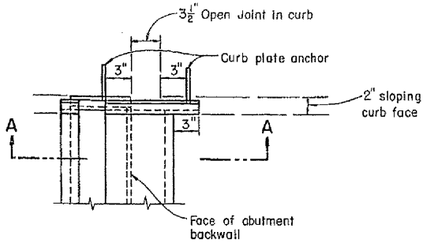


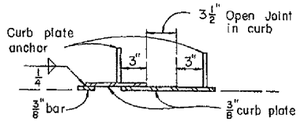
PART DECK PLAN
SKEWED BRIDGES



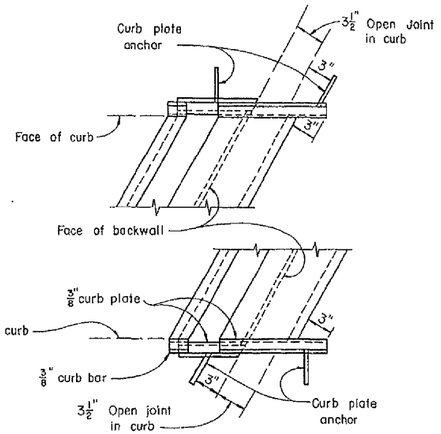
PART DECK PLAN
SQUARE BRIDGES



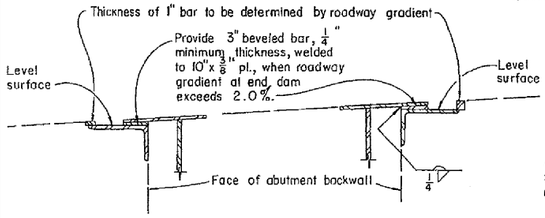
PART DECK PLAN
SQUARE BRIDGES



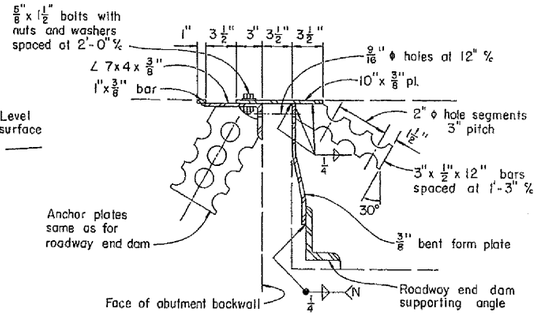
SECTION C-C



PART DECK PLAN
SKEWED BRIDGES

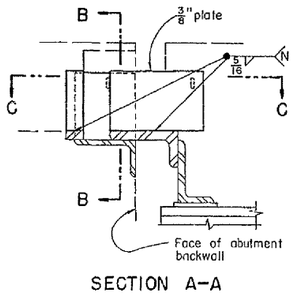


SIDEWALK END DAMS
FOR BRIDGE ON GRADE
For additional details see Section D-D

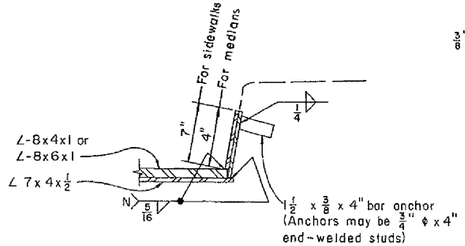


SECTION D-D
For additional notes and details see Section A-A on Sheet No. 1

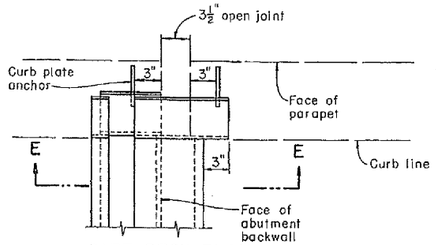
SIDEWALK END DAM DETAILS



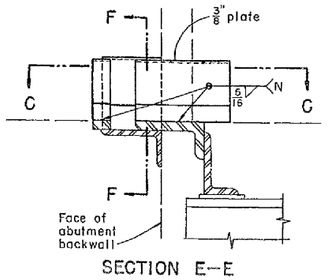
SECTION A-A



SECTION B-B



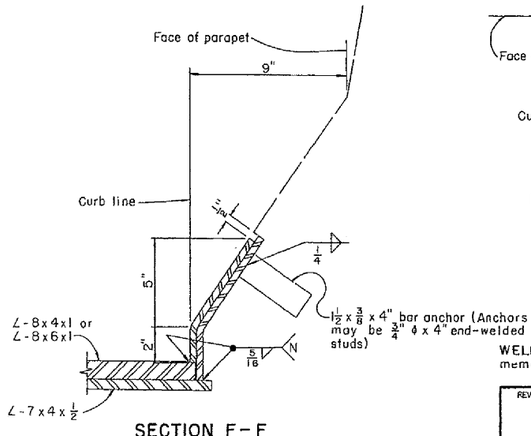
PART DECK PLAN
SQUARE BRIDGES



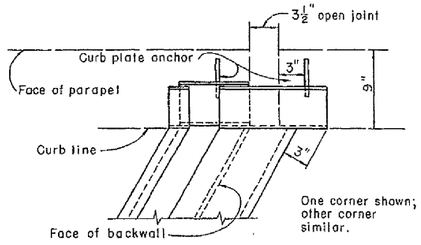
SECTION E-E

CURB PLATE DETAILS
ROADWAY PARAPET
RAILINGS AND BARRIER MEDIANS

CURB PLATE DETAILS
SIDEWALKS, SAFETY CURBS
AND RAISED MEDIANS



SECTION F-F



PART DECK PLAN
SKEWED BRIDGES

WELDS on non-stress-carrying members are shown thus: N 5/16

REVISIONS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

STANDARD
SUPERSTRUCTURE DETAILS
FOR STEEL BEAM AND GIRDER BRIDGES

APPROVED: DATE: 6-12-69 C. H. Gibbs ENGINEER OF BRIDGES				DRAWING NUMBER SD-1-69
PREPARED	TRACED	CHECKED	REVIEWED	SHEET NO. 2
FFE JFS	NRB	MPB CDB	CDB RVH BFG	OF 4 SHEETS

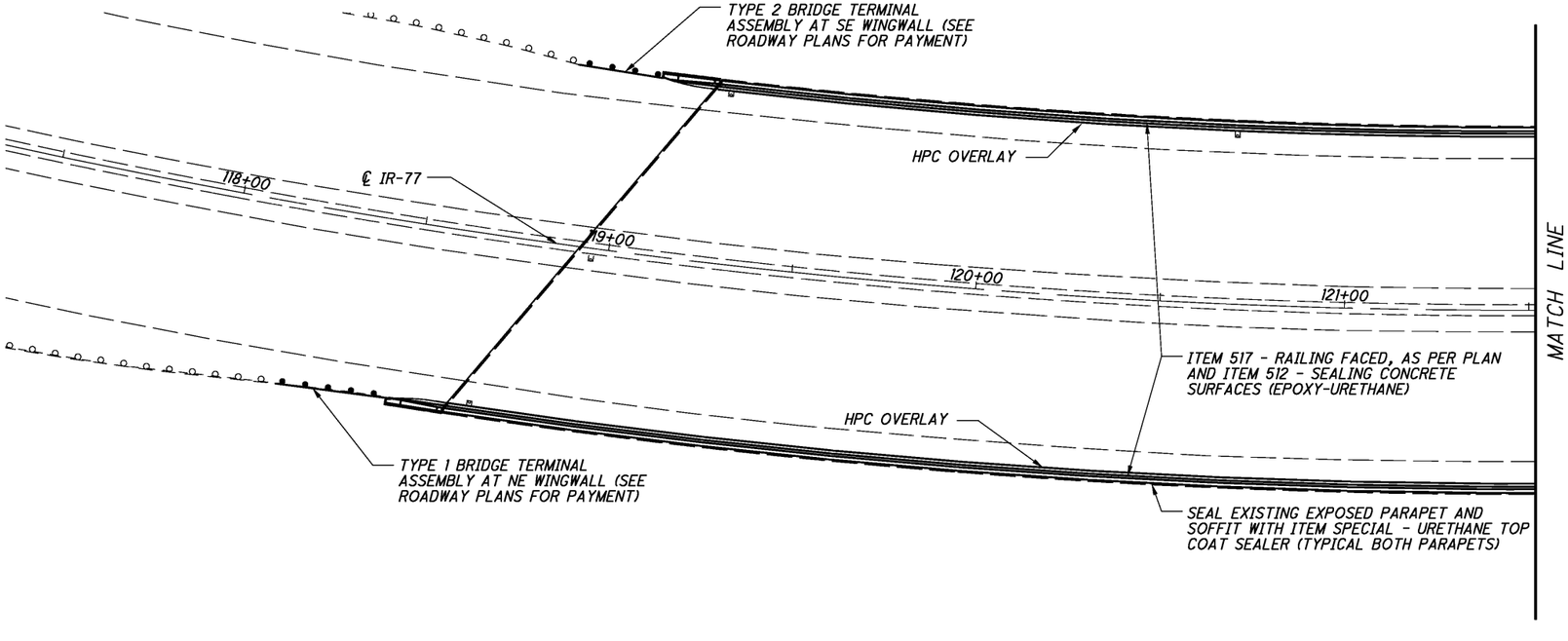
CALCULATED | CHECKED

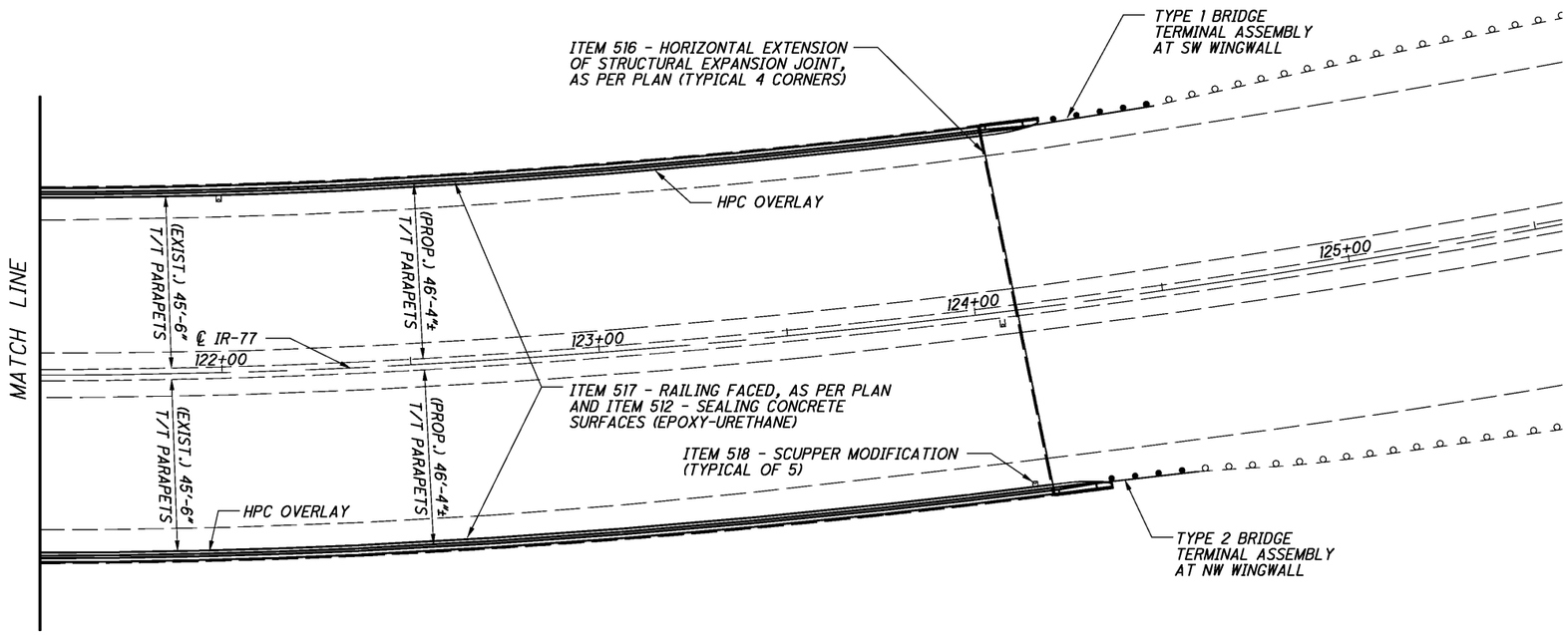
DESIGN AGENCY
BURGESS & NIPLE
100 WEST EDIE STREET PARKSVILLE, OHIO 44077

PLAN INSERT SHEET SD-1-69 SHEET 2

CUY-490-
1.87WN/VAR
PID No. 85049

86C
94





TRAFFIC DATA I-77

CURRENT ADT (2009).....109300
DESIGN YEAR ADT (2029).....111560
DESIGN YEAR ADTT (2029).....8925

EXISTING STRUCTURE

TYPE: SEVEN SPAN CONTINUOUS STEEL GIRDER WITH REINFORCED CONCETE SLAB DECK ON REINFORCED CONCRETE SUBSTRUCTURES
SPANS: 53.3'±, 88.8'±, 77.6'±, 2 @ 77.5'±, 88.8'±,53.3'± c/c BEARINGS
ROADWAY: DUAL ROADWAY 45'-6"± T/T PARAPETS
LOADING: HS20-44 & ALTERNATE LOADING
SKEW: VARIES
WEARING SURFACE: 1½" DENSE CONCRETE OVERLAY
APPROACH SLABS: 25'-0"±
ALIGNMENT: 3°00'00" CURVE LEFT
SUPERELEVATION: 0.042' FT/FT
STRUCTURAL FILE NUMBER: 1806785
DATE BUILT: 1964

PROPOSED STRUCTURE

PROPOSED WORK: WIDEN BRIDGE BY REMOVING THE THRIE-BEAM RAILING AND SAFETY CURB AND REFACING THE CONCRETE PARAPETS

SPANS: 53.3'±, 88.8'±, 77.6'±, 2 @ 77.5'±, 88.8'±,53.3'± c/c BEARINGS
ROADWAY: DUAL ROADWAY 46'-4"± T/T PARAPETS
LOADING: HS20-44 & ALTERNATE LOADING
SKEW: VARIES
WEARING SURFACE: 1½" DENSE CONCRETE OVERLAY
APPROACH SLABS: 25'-0"±
ALIGNMENT: 3°00'00" CURVE LEFT
SUPERELEVATION: 0.042' FT/FT

COORDINATES: LATITUDE 41°29'25" N
LONGITUDE 81°40'01" W

DESIGN AGENCY: BURGESS & NIPLE

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	JAA	1-07-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DWL		1806785	

STRUCTURE PLAN

BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-1.87WN/VAR
PID No. 85049

1 / 8

87 / 94

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PROPOSED WORK:

1. WIDEN THE BRIDGE ROADWAY BY REMOVING THE THRIE-BEAM RAILING AND SAFETY CURB AND REFACING THE PARAPETS.
2. PROTECT AND MAINTAIN INTERSTATE 77 AND CITY STREET TRAFFIC DURING ALL PHASES OF CONSTRUCTION USING LANE CLOSURES.
3. SEAL THE NEW CONCRETE REFACING WITH EPOXY-URETHANE AND THE EXISTING PARAPET WITH URETHANE.

REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS:

PCB-91 REVISED 7-19-02
SBR-1-99 REVISED 7-19-02
TBR-91 REVISED 7-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:

800 DATED 1-16-09
847 DATED 4-15-05

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO), 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA:

CONCRETE CLASS HP - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

STRUCTURAL STEEL - ASTM A709 GRADE 36, YIELD STRENGTH 36,000 PSI, OR, ASTM A709 GRADE 50 YIELD STRENGTH 50,000 PSI

MAINTENANCE OF TRAFFIC:

SEE THE ROADWAY PLANS FOR MAINTENANCE OF TRAFFIC DETAILS.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

EXISTING STRUCTURE PLANS:

THE ORIGINAL DESIGN AND UPGRADING PLANS MAY BE EXAMINED BY PROSPECTIVE BIDDERS AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BOULEVARD, GARFIELD HEIGHTS, OHIO. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE DRAWINGS.

LIMITATIONS OF OPERATIONS:

THE CONTRACTOR'S ACTIVITIES AND WORK SCHEDULE SHALL BE CONSTRAINED BY THE FOLLOWING SPECIAL LIMITATIONS:

1. MAINTENANCE OF TRAFFIC LIMITATIONS
2. NO WORK WILL BE ALLOWED DURING THE MONTHS OF NOVEMBER, DECEMBER, JANUARY, FEBRUARY AND MARCH.
3. NEW CONCRETE WILL BE IN PLACE AT LEAST 30 DAYS PRIOR TO SEALING CONCRETE AND JOINTS.
4. EXISTING BRIDGE RAIL AND APPROACH GUARDRAIL SHALL REMAIN IN PLACE UNTIL THE TEMPORARY BARRIER IS IN PLACE.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP OR AS SHOWN IN THE PLANS. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

THE DEPARTMENT 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, AS PER PLAN.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE. REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 510 - DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN

THIS WORK INCLUDES THE DRILLING OF THE HOLES INTO THE CONCRETE AND FURNISHING AND PLACING EPOXY GROUT INTO THE HOLES. A CONTINGENCY QUANTITY HAS BEEN INCLUDED TO BE USED AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DEMONSTRATE HIS ABILITY TO DRILL THE DOWEL HOLES WITHOUT DAMAGING THE SURROUNDING CONCRETE. SHOULD SUCH DAMAGE OCCUR, THE CONTRACTOR IS DIRECTED TO REPAIR THE DAMAGE AT HIS EXPENSE AND TO CORE DRILL THE REMAINING DOWEL HOLES. DEPTH OF HOLES SHALL BE AT LEAST 16 TIMES THE DOWEL DIAMETER UNLESS OTHERWISE SHOWN IN THE PLANS.

PAYMENT FOR DRILLING HOLES AND FURNISHING AND PLACING MATERIALS SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR:

ITEM	UNITS	DESCRIPTION
510E10001	EACH	DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN

POURED POLYURETHANE JOINT SEAL:

THE EXPANSION JOINT EXTENSIONS SHALL BE SEALED WITH POURED POLYURETHANE JOINT SEAL IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS, AND AS DIRECTED BY THE ENGINEER.

THE SEALER MATERIAL SHALL BE A TWO-PART, COLD APPLIED, CHEMICALLY CURING, SELF-LEVELING, ELASTOMERIC, POLYURETHANE JOINT SEALANT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION TT-S-00227E AND ASTM C-920. ALL MATERIALS SHALL BE STORED AND INCORPORATED IN THE WORK AS SPECIFIED BY THE MANUFACTURER.

THE SURFACES TO WHICH THE SEALER IS TO ADHERE SHALL FIRST BE THOROUGHLY CLEANED BY ABRASIVE BLASTING. POLYURETHANE JOINT SEAL SHALL BE POURED OVER THE FULL LENGTH OF THE OPEN JOINT AND SHALL BE APPLIED ONLY WHEN THE SURFACES ARE DRY AND ABOVE 50° F. THE INSTALLED AND CURED MATERIAL SHALL BE THE DEPTH AS SHOWN IN THE PLANS AND SHALL BE BONDED TO THE SIDES OF THE JOINT. ANY UNBONDED SECTION SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. DAMS, AS REQUIRED TO CONTAIN THE POURED SEALER, SHALL BE CONSIDERED INCIDENTAL TO THIS WORK.

THE ACCEPTED QUANTITES OF POURED POLYURETHANE JOINT SEAL SHALL BE PAID FOR UNDER ITEM 516 - HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN.

DESIGN AGENCY BURGESS & NIPLE

DESIGNED	DRAWN	REVIEWED	DATE
ASK	ASK	JAA	1-7-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DWL		1806785	

STRUCTURE NOTES 1 OF 2
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-
1.87WN/VAR
PID No. 85049

2 / 8

88
94

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CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN

GENERAL REQUIREMENTS:
THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:
ALL SUPERSTRUCTURE, BRIDGE DECK, SIDEWALK, PARAPET, MEDIAN BARRIER AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (HP4, AS PER PLAN) AS MODIFIED AS BY TABLE A.
ALL OTHER STRUCTURE CONCRETE SHALL BE THIS MIX (HP2, AS PER PLAN) AS MODIFIED BY TABLE B.

THE FOLLOWING PROPORTIONS SHALL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGGRE. (LB)	* #8 COARSE AGGRE. (LB)	* #57 COARSE AGGRE. (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	GGBF SLAG (LB)	WATER TO CEMENTITIOUS RATIO ±0.01	AIR CONTENT ±2%
GRAVEL	1245	360	1315	2920	400	30	170	0.43	7
LIMESTONE	1245	360	1335	2940	400	30	170	0.43	7
SLAG	1245	315	1155	2715	400	30	170	0.43	7

CONCRETE TABLE
QUANTITIES PER CUBIC YARD
AGGREGATES (SSD)

HP2, AS PER PLAN (GGBF SLAG + MICROSILICA)

AGGREGATE TYPE	FINE AGGRE. (LB)	* #8 COARSE AGGRE. (LB)	* #57 COARSE AGGRE. (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	MICRO-SILICA (LB)	GGBF SLAG (LB)	WATER TO CEMENTITIOUS RATIO ±0.01	AIR CONTENT ±2%
GRAVEL	1245	360	1315	2920	430	0	170	0.43	7
LIMESTONE	1245	360	1335	2940	430	0	170	0.43	7
SLAG	1245	315	1155	2715	430	0	170	0.43	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127. THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIC GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIC GRAVITIES DIFFERING MORE THAN ±0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED):
FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

PARAPET CONSTRUCTION (SLIP FORMED)
SLIP FORMING SHALL NOT BE PERFORMED.

BASIS OF PAYMENT
PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR ITEM 517 - RAILING FACED, AS PER PLAN.

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

EPOXY-URETHANE SEALER SHALL BE APPLIED TO THE SURFACES OF THE PARAPETS AND OVERLAY AS SHOWN IN THESE PLANS. THE COLOR OF THE URETHANE TOP COAT SHALL BE FEDERAL COLOR STANDARD NUMBER 595b-25630 (LIGHT GREY, SEMI-GLOSS).

PAYMENT SHALL BE INCLUDED IN ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).

ITEM SPECIAL - URETHANE TOP COAT SEALER

THIS ITEM SHALL CONSIST OF THE APPLICATION OF A URETHANE TOP COAT SEALER OVER CONCRETE AREAS PREVIOUSLY COATED WITH SEALER. THE COLOR SHALL BE FEDERAL COLOR STANDARD NUMBER 595B27778 (LIGHT NEUTRAL, SEMI-GLOSS).

SURFACES TO WHICH THE URETHANE TOP COAT IS TO BE APPLIED SHALL BE DRY AND FREE FROM DUST, DIRT, OIL, WAX, CURING COMPOUNDS, EFFLORESCENCE, LAITANCE, AND OTHER FOREIGN MATERIALS.

THE REQUIRED CLEANING SHALL BE WITH HIGH PRESSURE WATER BLASTING (1,000 PSI OR GREATER). MILDEW SHALL BE TREATED WITH A HYPOCHLORITE SOLUTION TO KILL SPORES.

THE URETHANE TOP COAT SHALL BE APPLIED ACCORDING TO CMS 512. THE URETHANE TOP COAT SHALL BE APPLIED WITH 48 HOURS AFTER SURFACE PREPARATION. APPLICATION SHALL BE BY BRUSH OR ROLLER AS DIRECTED BY THE ENGINEER.

THE COST OF ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO ACCOMPLISH THIS ITEM OF WORK SHALL BE PAID FOR UNDER:

ITEM	UNITS	DESCRIPTION
SPECIAL	SQ. YD.	URETHANE TOP COAT SEALER

ITEM 517 - RAILING FACED, AS PER PLAN

THIS WORK CONSISTS OF FACING CURB STYLE PARAPETS, USING CAST IN PLACE CONCRETE, TO OBTAIN THE DEFLECTOR SHAPE AS SHOWN IN THE PLANS.

CAREFULLY REMOVE THE EXISTING THRIE-BEAM RAILING, BLOCKOUTS, BRACKETS, CURB PLATES, EXISTING CONCRETE CURB, WINGWALL PARAPETS, CONDUITS, PULL BOXES AND BULB ANGLE GUTTER, IF PRESENT. REMOVE ALL LOOSE OR UNSOUND CONCRETE. REMOVE SOUND CONCRETE, AS NECESSARY, TO OBTAIN A MINIMUM 4 INCH THICKNESS OF NEW CONCRETE. ALL REMOVALS WILL BE ACCORDING TO AND PAID FOR UNDER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

DRILL DOWEL HOLES WHERE SHOWN IN THE PLANS. INSTALL REINFORCING STEEL ACCORDING TO ITEM 510 705.20, USING EPOXY GROUT. PRIOR TO DRILLING DOWEL HOLES, LOCATE ALL EXISTING REINFORCING STEEL BARS IN THE AREA OF THE HOLE WITH THE AID OF A REINFORCING STEEL BAR LOCATOR, SUCH AS A PACHOMETER. IF AN EXISTING BAR IS ENCOUNTERED AT THE SAME LOCATION AS A PROPOSED DOWEL HOLE, MOVE THE DOWEL HOLE TO EITHER SIDE OF THE EXISTING BAR. IN ADDITION TO THE PROVISIONS OF ITEM 509, FIELD BEND AND/ OR FIELD CUT THE REINFORCING STEEL DESIGNATED IN THE PLANS, AS NECESSARY, IN ORDER TO MAINTAIN THE REQUIRED CLEARANCES AND BAR SPACINGS. REPAIR ALL DAMAGE TO THE EPOXY COATING, AS A RESULT OF THIS WORK, ACCORDING TO 709.00. THE DEPARTMENT WILL PAY FOR ALL REINFORCING STEEL, DOWEL HOLES AND GROUTING WITH ITEM 517. THOROUGHLY CLEAN THE PARAPET SURFACE IN CONTACT WITH THE REFACING WITH DETERGENT TO REMOVE SURFACE CONTAMINANTS. AFTER DETERGENT CLEANING AND WITHIN 24 HOURS OF PLACING CONCRETE, BLAST CLEAN AND AIR BROOM OR POWER SWEEP ALL SURFACES IN CONTACT WITH THE REFACING TO REMOVE ALL SPALLS, LAITANCE, CURING COMPOUNDS, CONCRETE SEALERS AND OTHER CONTAMINANTS DETRIMENTAL TO THE ACHIEVEMENT OF AN ADEQUATE BOND. ACCEPTABLE BLAST CLEANING METHODS ARE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN WATER, ABRASIVE BLASTING WITH CONTAINMENT OR VACUUM ABRASIVE BLASTING. USE HAND TOOLS AS NECESSARY TO REMOVE SCALE FROM ANY EXPOSED REINFORCING STEEL. MATERIALS: CONCRETE SHALL BE CLASS HP WITH A COMPRESSIVE STRENGTH OF 4500 PSI CONFORMING TO THE "CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN" NOTE. FURNISH REINFORCING STEEL ACCORDING TO 709.00, GRADE 60, WITH A MINIMUM YIELD STRENGTH OF 60,000 PSI.

SAWCUT 1¼ INCH DEEP CONTROL JOINTS ALONG THE PERIMETER OF THE REFACING AS SOON AS THE SAW CAN BE OPERATED WITHOUT DAMAGING THE CONCRETE. PLACE THE JOINT SAW CUTS AT THE SAME LOCATION AS THE EXISTING DEFLECTION JOINTS AS WELL AS AT INTERMEDIATE LOCATIONS AS SHOWN IN THE PLANS. USE AN EDGE GUIDE, FENCE OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF ¼ INCH. SEAL THE PERIMETER OF THE CONTROL JOINT TO A MINIMUM DEPTH OF ONE INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM ONE-HALF INCH OF BOTH THE INSIDE AND OUTSIDE FACES OF THE PARAPET UNSEALED TO ALLOW ANY WATER WHICH MAY ENTER THE JOINT TO ESCAPE.

THE DEPARTMENT WILL MEASURE THIS ITEM IN FEET BY THE ACTUAL LENGTH OF RAILING FACED BETWEEN THE ENDS OF THE EXISTING CONCRETE PARAPET, INCLUDING THE WINGWALL PARAPETS.

PAYMENT FOR THIS ITEM INCLUDES ALL COSTS OF DOWEL HOLES, REINFORCING STEEL, CONCRETE, HPC OVERLAY, SHRINKAGE CONTROL JOINTS, HMWM RESIN TREATMENT, EPOXY GROUT, AND ALL OTHER LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE REFACING OF THE PARAPETS. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT BID PRICE PER FOOT FOR ITEM 517 - RAILING FACED, AS PER PLAN.

DESIGN AGENCY: BURGESS & NIPLE
DESIGNED: ASK | CHECKED: DWL
DRAWN: ASK | REVISED:
REVIEWED: JAA | DATE: 1-7-09
STRUCTURE FILE NUMBER: 1806785

STRUCTURE NOTES 2 OF 2
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-
1.87WN/VAR
PID No. 85049

3 / 8

89
94

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ESTIMATED QUANTITIES					AS PER PLAN REFERENCE SHEET	
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION		
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN		
509	20001	100	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	2 / 8	*
510	10001	10	EACH	DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT, AS PER PLAN	2 / 8	*
512	10100	731	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	3 / 8	
SPECIAL	512E71500	629	SQ. YD.	URETHANE TOP COAT SEALER	3 / 8	
516	11901	4	FT.	HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN	6A / 8	
517	76201	1104	FT.	RAILING FACED, AS PER PLAN	3 / 8	
518	12800	5	EACH	SCUPPER MODIFICATION	7 / 8	

* CONTINGENCY QUANTITY TO BE USED "AS DIRECTED BY THE ENGINEER"

DESIGN AGENCY BURGESS & NIPLE

DESIGNED DWL | DRAWN DCF | CHECKED ASK | REVIEWED JAA | DATE 2-09 | REVISED | STRUCTURE FILE NUMBER 1806785

ESTIMATED QUANTITES
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-
1.87WN/VAR
PID No. 85049

4 / 8

90
94

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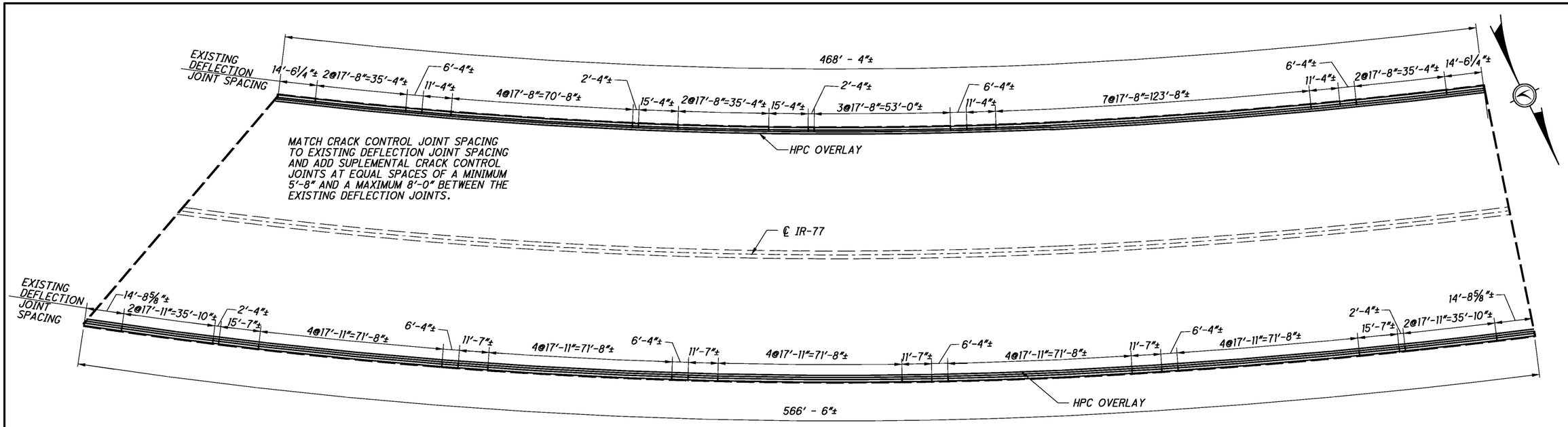
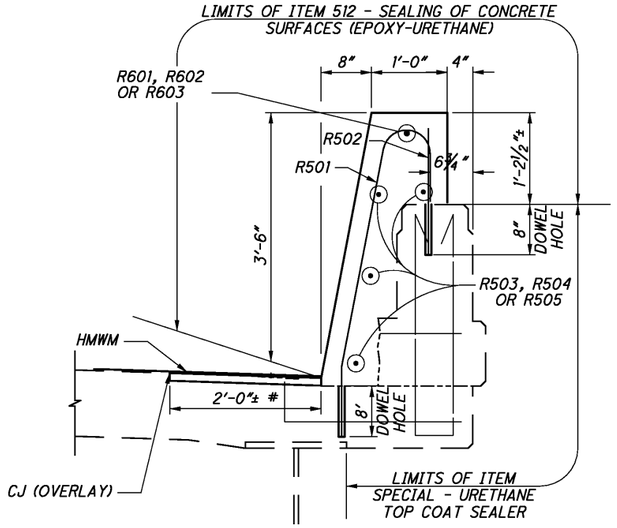
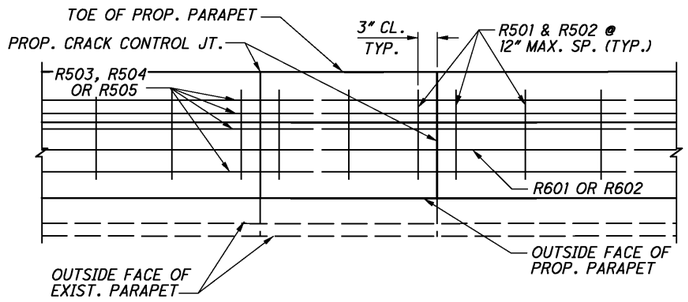


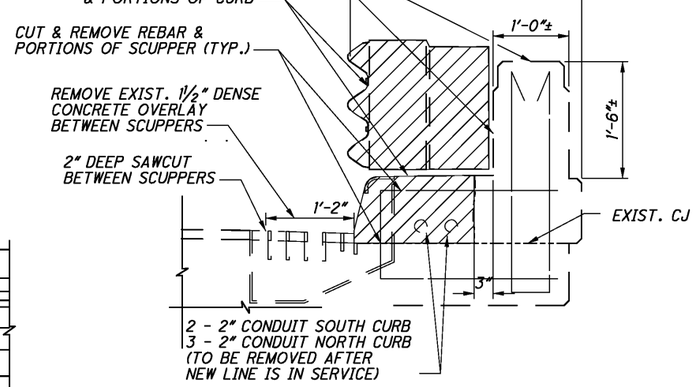
PLAN



PARAPET REFACING SECTION



PARTIAL PLAN DETAIL



REMOVAL SECTION

NOTES:

MINIMUM LAP LENGTHS FOR #5 BAR = 25"
MINIMUM LAP LENGTHS FOR #6 TOP BAR = 40"

HMWM: 3'-0" WIDE HIGH MOLECULAR WEIGHT METHACRYLATE. INCLUDE WITH ITEM 517 - RAILING FACED, AS PER PLAN FOR PAYMENT.

1½" HPC OVERLAY PER SS847, INCLUDE WITH ITEM 517 - RAILING FACED, AS PER PLAN FOR PAYMENT.

FOR THRIE-BEAM DETAILS NOT SHOWN SEE STANDARD DRAWING TBR-91

LEGEND

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

CJ	=	CONSTRUCTION JOINT
CL.	=	CLEARANCE
EXIST.	=	EXISTING
HMWM	=	HIGH MOLECULAR WEIGHT METHACRYLATE
HPC	=	HIGH PERFORMANCE CONCRETE
JT.	=	JOINT
MAX.	=	MAXIMUM
PROP.	=	PROPOSED
SP.	=	SPACING
TYP.	=	TYPICAL

DESIGN AGENCY: BURGESS & NIPLE

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	JAA	1-07-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DWL		1806785	

PARAPET DETAILS
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-
1.87WN/VAR
PID No. 85049

5 / 8

91
94

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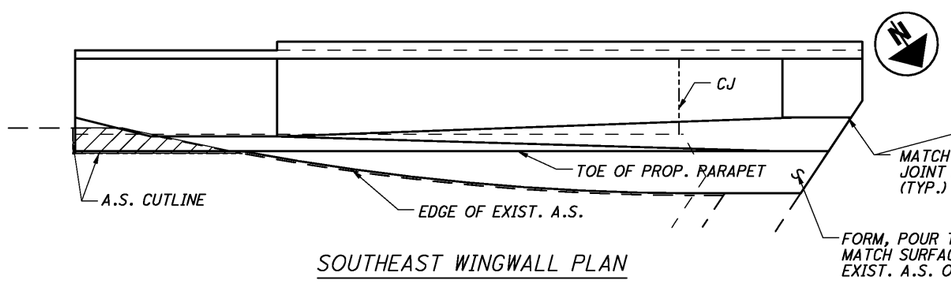
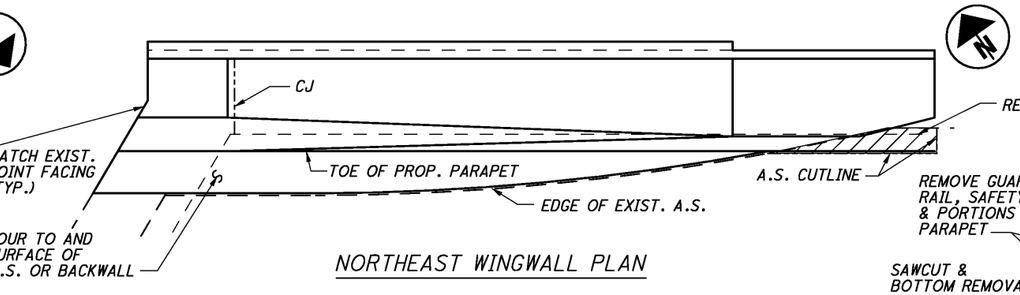
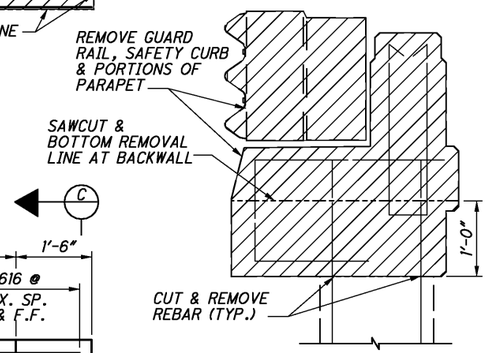


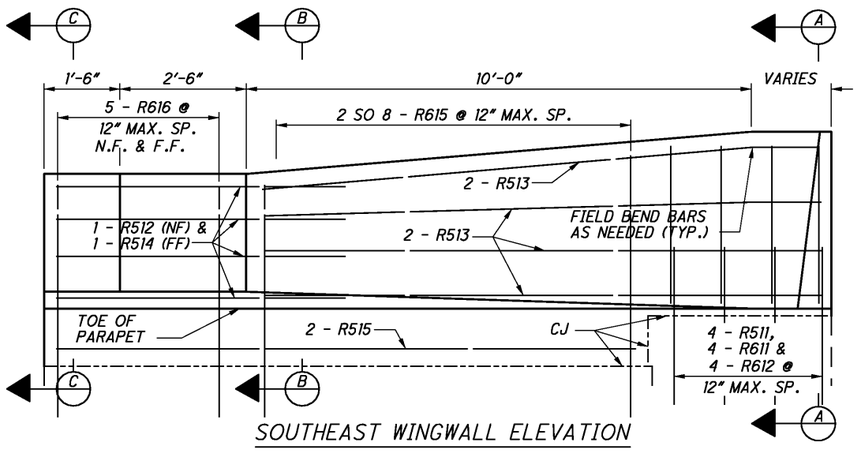
SOUTHEAST WINGWALL PLAN



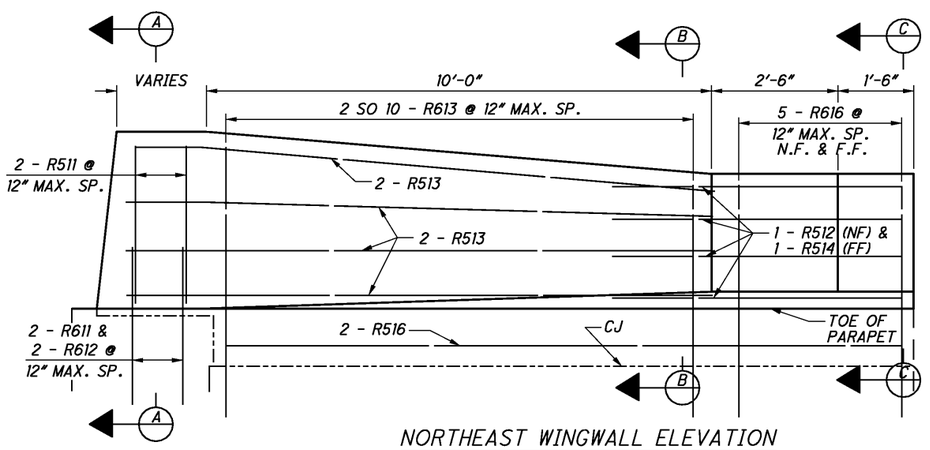
NORTHEAST WINGWALL PLAN



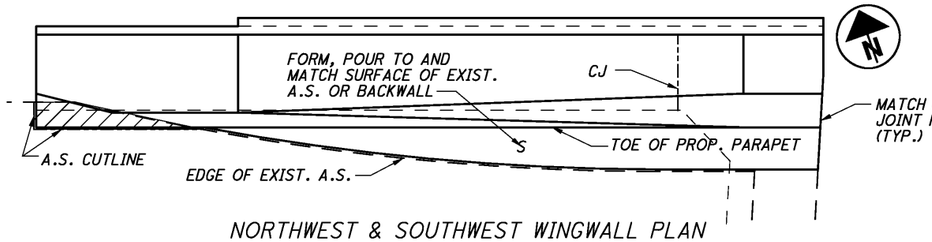
TYPICAL WINGWALL REMOVAL SECTION



SOUTHEAST WINGWALL ELEVATION

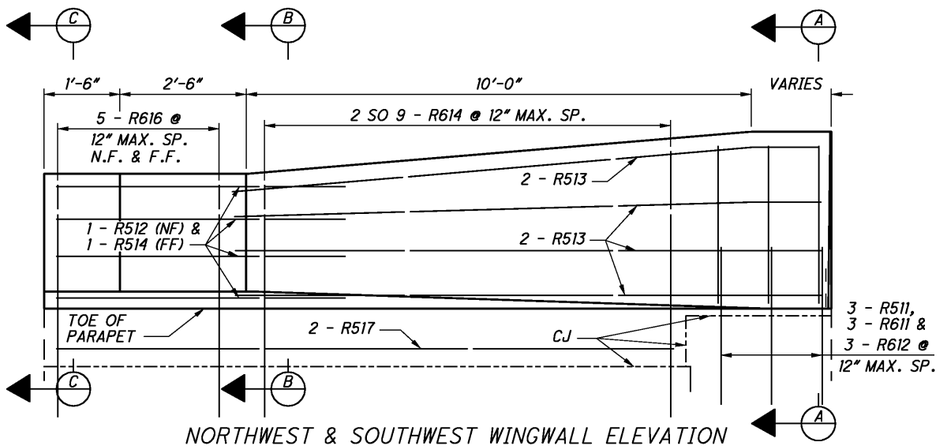


NORTHEAST WINGWALL ELEVATION



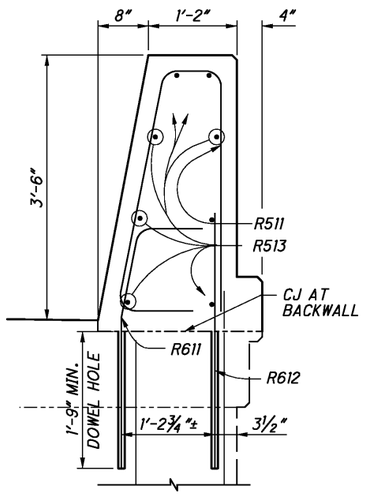
NORTHWEST & SOUTHWEST WINGWALL PLAN

(NORTH SHOWN, SOUTH SIMILAR)

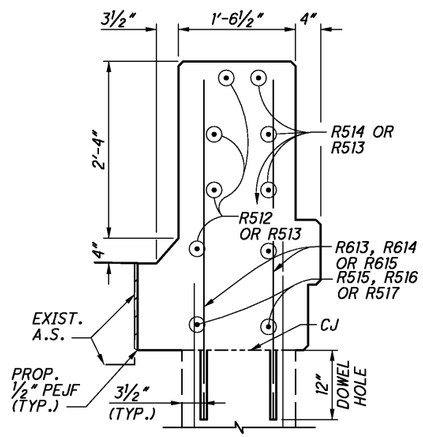


NORTHWEST & SOUTHWEST WINGWALL ELEVATION

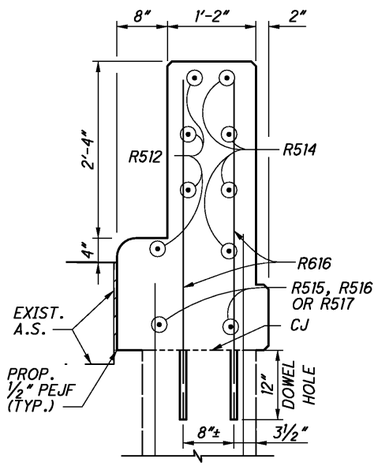
(NORTH SHOWN, SOUTH SIMILAR)



SECTION A-A



SECTION B-B



SECTION C-C

NOTES

FOR ADDITIONAL DETAILS SEE ODOT STANDARD BRIDGE DRAWING SBR-1-99

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

LEGEND

A.S.	=	APPROACH SLAB
CJ	=	CONSTRUCTION JOINT
EXIST.	=	EXISTING
FF	=	FAR FACE
MAX.	=	MAXIMUM
MIN.	=	MINIMUM
NF	=	NEAR FACE
PROP.	=	PROPOSED
SO	=	SERIES OF
SP.	=	SPACING
TYP.	=	TYPICAL

DESIGN AGENCY: BURGESS & NIPLE

DESIGNED: ASK | DRAWN: DCF | REVIEWED: JAA | DATE: 1-07-09

CHECKED: DWL | REVISED: | STRUCTURE FILE NUMBER: 1806785

WINGWALL PARAPET DETAILS

BRIDGE NO. CUY-77-1518

OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-1.87WN/VAR

PID No. 85049

6 / 8

92 / 94

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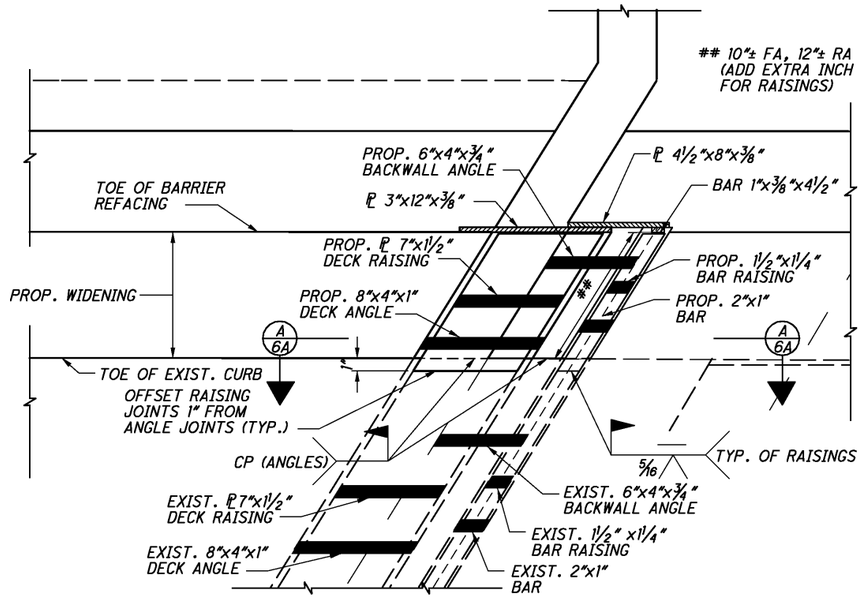
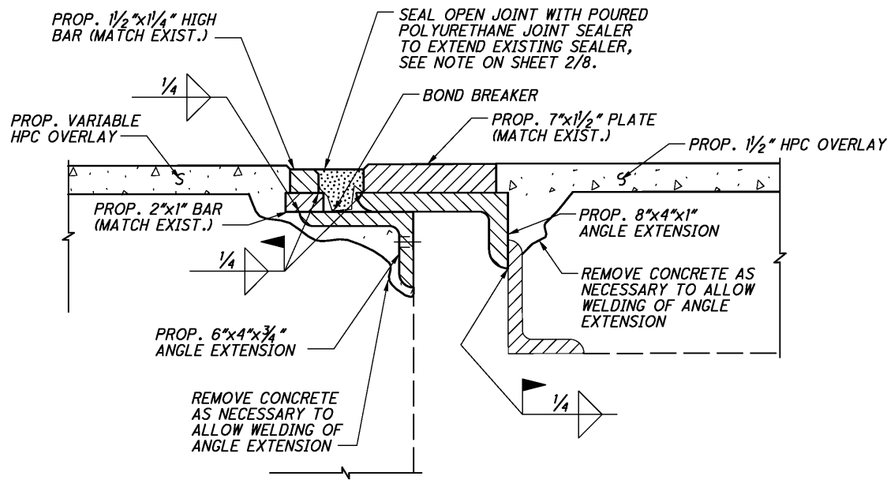
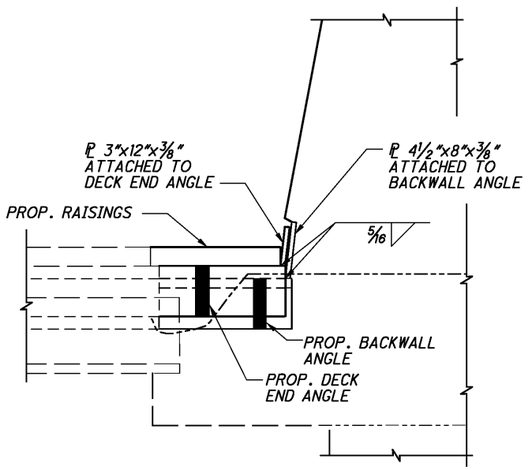


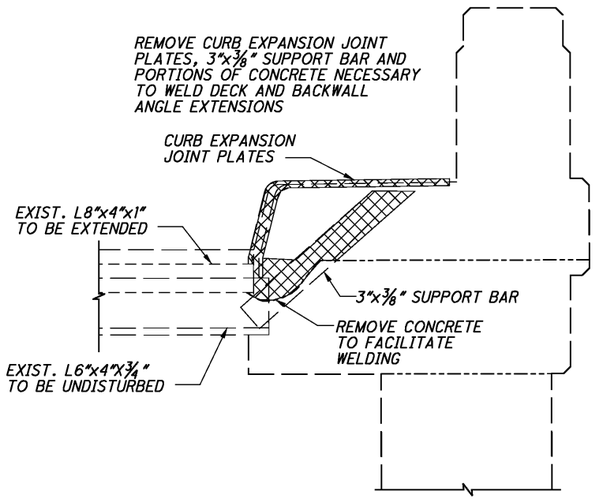
PARTIAL PLAN



SECTION A-A



TYPICAL SECTION AT EXPANSION JOINT



PARTIAL REMOVAL PLAN

NOTES

CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO ORDERING EXTENSIONS.

ALL PROPOSED EXPANSION JOINT EXTENSIONS AND SEALER SHALL BE INCLUDED IN THE PRICE BID PER FOOT FOR ITEM 516 - HORIZONTAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN.

ALSO, SEE RETIRED STANDARD BRIDGE DRAWING SD-1-69 AT THE BACK OF THE BRIDGE PLANS.

LEGEND

CP	=	COMPLETE PENETRATION
EXIST.	=	EXISTING
FA	=	FORWARD ABUTMENT
HPC	=	HIGH PERFORMANCE CONCRETE
PROP.	=	PROPOSED
RA	=	REAR ABUTMENT
TYP.	=	TYPICAL
▨	=	INDICATES ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESIGN AGENCY
BURGESS & NIPLE

DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	DWL	3-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JAA		1806785	

EXPANSION JOINT DETAILS
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-
1.87WN/VAR
PID No. 85049

6A / 8

92A
94

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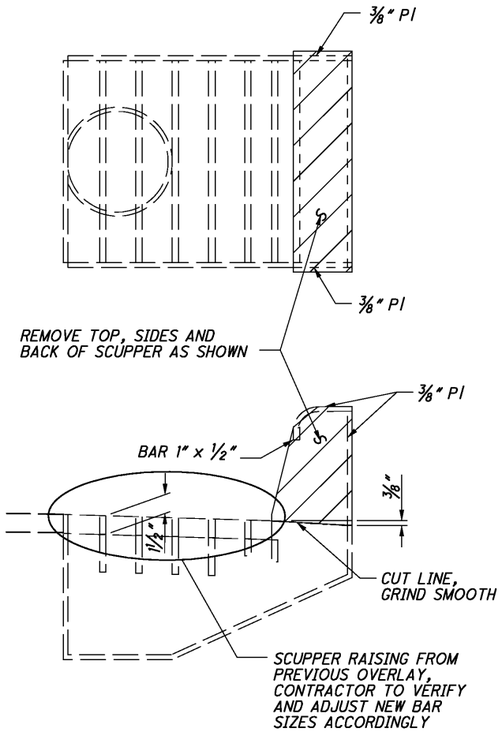
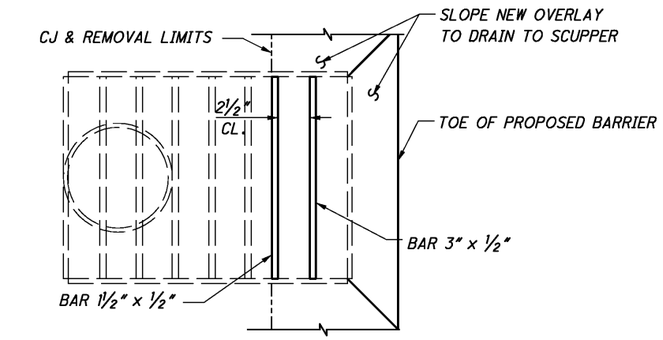
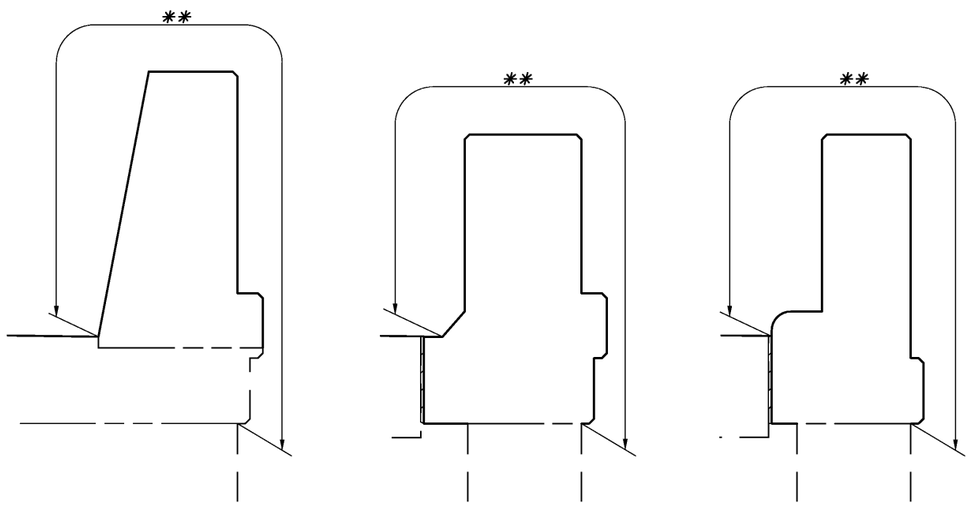


EXISTING SCUPPER DETAILS



PROPOSED SCUPPER DETAILS

ITEM 518 - SCUPPER MODIFICATION



WINGWALL SEALING SECTIONS

LEGEND

CJ = CONSTRUCTION JOINT
CL. = CLEARANCE
** = LIMITS OF ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)

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DESIGN AGENCY
BURGESS & NIPLE

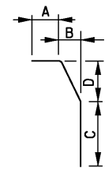
DESIGNED	DRAWN	REVIEWED	DATE
ASK	DCF	JAA	1-07-09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DWL		1806785	

MISCELLANEOUS DETAILS
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

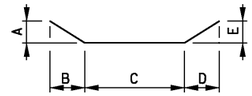
CUY-490-
1.87WN/VAR
PID No. 85049

REINFORCING SCHEDULE

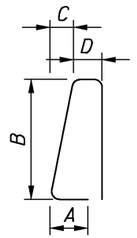
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
PARAPETS											
R501	1211	5'-6"	6946	35	3'-1"	1'-2"	11"	11"		3¾"	
R502	1211	1'-8"	2105	STR							
R503	144	30'-0"	4505	STR							
R504	4	10'-3"	42	STR							
R505	4	25'-4"	105	STR							
R511	12	8'-3"	103	36	1'-0"	3'-2"	7¼"	10"			
R512	16	5'-6"	91	26	1⅛"	1'-8"	2'-5"	1'-4½"	4⅛"		
R513	32	11'-4"	378	STR							
R514	16	5'-6"	91	STR							
R515	2	11'-6"	23	STR							
R516	2	13'-5"	27	STR							
R517	4	12'-3"	51	STR							
R601	38	30'-0"	1712	STR							
R602	1	8'-8"	13	STR							
R603	1	18'-9"	28	STR							
R611	12	3'-11"	70	9	1'-1"	2⅛"	2'-0"	11"			
R612	12	4'-1"	73	STR							
	2	4'-7"									
R613	S.O.	TO	148	STR							1"
	10	5'-4"									
	4	4'-7"									
R614	S.O.	TO	265	STR							1"
	9	5'-3"									
	2	4'-7"									
R615	S.O.	TO	117	STR							1"
	8	5'-2"									
R616	40	4'-8"	280	STR							
R506 - R510		NOT USED									
R604 - R610		NOT USED									



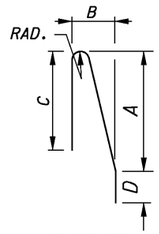
TYPE 9



TYPE 26



TYPE 36



TYPE 35

NOTES:

BAR SIZE: THE BAR SIZE IS INDICATED IN THE BAR MARK. THE MARK BEGINS WITH ONE OR TWO LETTERS THAT IDENTIFY THE BAR LOCATION. THE NEXT ONE OR TWO DIGITS INDICATE THE BAR SIZE, AND THE REMAINING TWO DIGITS ARE THE SEQUENCE NUMBER.

EXAMPLE: F501
F = FOOTING BAR
5 = #5 BAR
01 = BAR SEQUENCE NUMBER 1

BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED.

STD WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

STR IN THE BAR TYPE COLUMN INDICATES A STRAIGHT BAR.

S.O. INDICATES A SERIES BAR

R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.

INC INDICATES THE LENGTH INCREMENT FOR SERIES BARS.

ALL REINFORCING STEEL TO BE EPOXY COATED.

LIST IS FOR INFORMATION ONLY. REINFORCING STEEL TO BE INCLUDED WITH ITEM 517 - RAILING FACED, AS PER PLAN.

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DESIGN AGENCY BURGESS & NIPLE

DATE 1-09
REVIEWED JAA
STRUCTURE FILE NUMBER 1806785
DRAWN DCF
REVISED
DESIGNED ASK
CHECKED DWL

REINFORCEMENT STEEL SCHEDULE
BRIDGE NO. CUY-77-1518
OVER ORANGE AVE. (US-422) & EAST 30TH STREET

CUY-490-
1.87WN/VAR
PID No. 85049

8 / 8

94
94

PROJECT DESCRIPTION

THE PROPOSED PROJECT WILL INCLUDE RECONSTRUCTION AND WIDENING OF EXISTING BRIDGE AT THE RAMP OF I-490 (CUY-490-1.87WN), IN THE CITY OF CLEVELAND, CUYAHOGA COUNTY, OHIO.

GEOLOGY

BASED UPON A PUBLISHED OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR) MAP REFERENCE, THE PROJECT SITE LIES WITHIN THE GLACIATED PORTION OF NORTHEAST OHIO (WHITE, 1982, BULLETIN 68). THE SOILS IN THE VALLEY AREA AT THE TOE OF THE SLOPE ARE MAPPED AS ALLUVIUM, WHEREAS THE SOILS AT THE CREST OF THE SLOPE ARE MAPPED AS GLACIAL LACUSTRINE SOILS UNDERLAIN BY GLACIAL TILL.

BASED UPON A PUBLISHED ODNR GEOLOGIC MAP, THE UPPER BEDROCK FORMATIONS CONSIST OF MISSISSIPPIAN AGED WAVERLY AND MAXVILLE SHALE AT THE CREST OF THE SLOPE, TRANSITIONING TO OLDER DEVONIAN AGED OLENTANGY AND OHIO SHALE AT LOWER ELEVATIONS TOWARDS THE VALLEY.

SUBSURFACE EXPLORATION

THE PURPOSE OF THIS EXPLORATION WAS TO EVALUATE THE SOIL AND GROUNDWATER CONDITIONS AT THE SITE TO PROVIDE SOIL PROFILE FOR PROPOSED BRIDGE DESIGN AND CONSTRUCTION, SITE PREPARATION AND OTHER CONSTRUCTION CONSIDERATIONS. THE SCOPE OF THE EXPLORATION AND ANALYSIS INCLUDED A RECONNAISSANCE OF THE PROJECT SITE, DRILLING A TOTAL OF TWO (2) TEST BORINGS WITHIN THE PROPOSED BRIDGE RECONSTRUCTION AREAS. THE TEST BORINGS WERE DRILLED TO DEPTHS RANGING FROM APPROXIMATELY 95 TO 100 FEET BELOW THE EXISTING SURFACE GRADES AT THE APPROXIMATE LOCATIONS SHOWN ON THE BORING LOCATION PLAN. THE NUMBER AND LOCATION OF THE TEST BORINGS WERE SELECTED BY THE REPRESENTATIVES OF OHIO DEPARTMENT OF TRANSPORTATION AT DISTRICT 12 AND FIELD LOCATED BY THE REPRESENTATIVES OF PSI, INC. PRIOR TO THE FIELD DRILLING OPERATIONS.

EXPLORATION FINDINGS

THE SURFACE OF THE SITE, AT THE TEST BORING LOCATION B-2 WAS COVERED WITH A LAYER OF CONCRETE ABOUT 10.75 INCHES IN THICKNESS. THE CONCRETE AT THE TEST BORING LOCATION B-2 WAS UNDERLAIN BY SAND AND GRAVEL BASE MATERIALS ABOUT 14 INCHES IN THICKNESS. THE THICKNESS OF THE CONCRETE AND BASE MATERIALS SHOULD BE EXPECTED TO VARY THROUGHOUT THE CONSTRUCTION AREA.

THE SURFACE GRADES AND BASE MATERIALS WERE UNDERLAIN BY MISCELLANEOUS FILL SOILS TO THE DEPTHS OF ABOUT 9.5 TO 14 FEET BELOW THE EXISTING SURFACE GRADES. THE FILL MATERIALS CONSISTED OF FINE SAND (A-3) AND SILT (A-4B), CONTAINING VARYING DEGREES OF ROCK FRAGMENTS AND ORGANICS. THE FILL SOILS EXHIBITED A MOISTURE CONTENT RANGING FROM ABOUT 9 TO 24 PERCENT. THE DEPTH AND ENGINEERING CHARACTERISTICS OF THE FILL MATERIALS, SUCH AS STRENGTH, COMPOSITION AND COMPRESSIBILITY, WILL LIKELY BE VARIABLE.

UNDERLYING THE FILL MATERIALS, NATURAL SOILS WERE ENCOUNTERED TO THE TERMINAL DEPTHS AT ALL THE TEST BORING LOCATIONS B-1 AND B-2. THE NATURAL SOILS CONSISTED OF FINE SAND (A-3), FINE TO COARSE SAND (A-3A), SANDY SILT (A-4A), SILT (A-4B), SILT AND CLAY (A-6A), SILTY CLAY (A-6B) WITH VARYING DEGREES OF ROCK FRAGMENTS. THE NATURAL SOILS EXHIBITED A MOISTURE CONTENT RANGING FROM ABOUT 15 TO 28 PERCENT. THE GRANULAR NATURAL SOILS EXHIBITED A LOOSE TO MEDIUM DENSE RELATIVE DENSITY AND THE COHESIVE SOILS EXHIBITED A VERY SOFT TO VERY STIFF CONSISTENCY, BASED ON THE STANDARD PENETRATION TESTS.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
FINE SAND	*A-3*	*0*	*6*
COARSE AND FINE SAND	*A-3a (0)*	*1*	*0*
SANDY SILT	*A-4a (2)*	*1*	*2*
SILT	*A-4b*	*4*	*7*
SILT AND CLAY	*A-6a (4)*	*3*	*13*
SILTY CLAY	*A-6b (7)*	*3*	*11*
	TOTAL	*12*	*39*
UNCONTROLLED FILL	*VISUAL*		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

W— INDICATES FREE WATER ELEVATION.

INDICATES STATIC WATER ELEVATION

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

● 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.

ST INDICATES A SHELBY TUBE SAMPLE.

HA INDICATES A HAND AUGER SAMPLE.

NP INDICATES A NON-PLASTIC SAMPLE.

TR INDICATES THE TOP OF ROCK.

LOCATION MAP

SCALE IN MILES

0 1 2 3 4

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	

DRILLING - PSI 11/26/08-12/02/08
DRAWN - POLYTECH 01/09
REVIEWED - ??? XX/XX

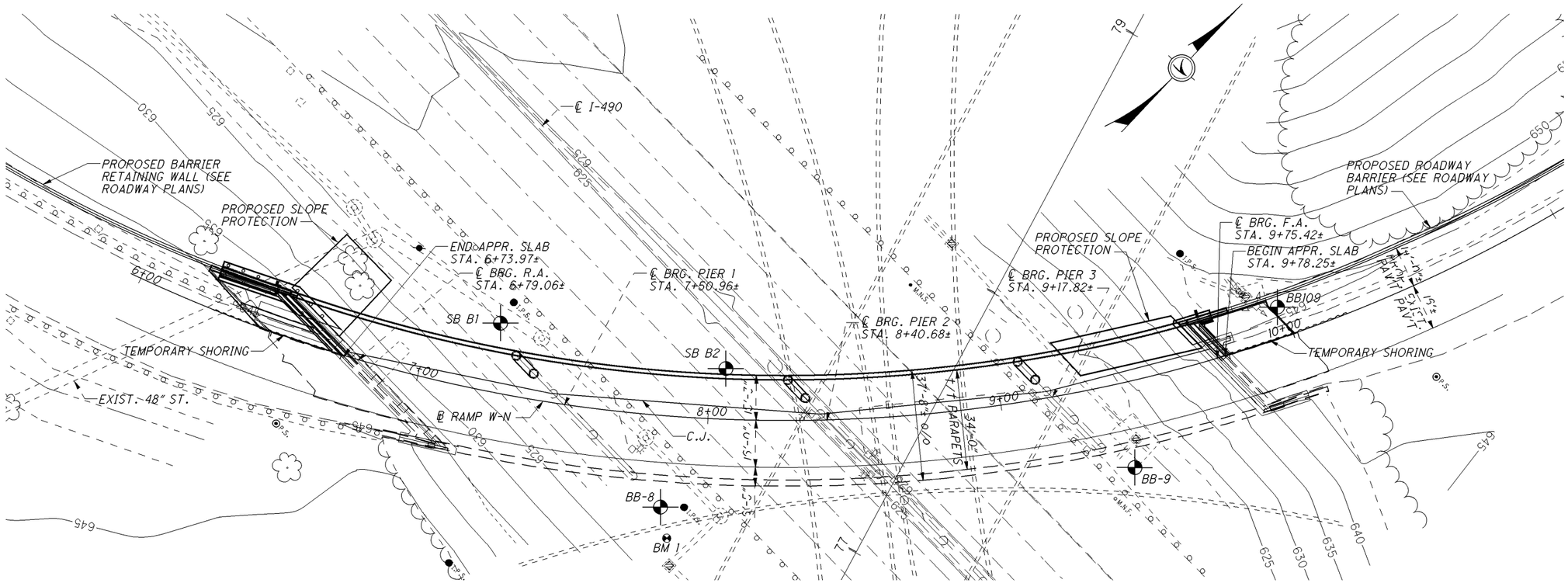
DESIGN AGENCY
Geotechnical ● Environmental Services ● Engineering
Professional Service Industries, Inc. (PSI)
5555 Canal Road, Cleveland, OH 44125 (216) 447-1335

PID NO. 85049

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. CUY-490-0187WN

CUY-490-1.87
WN/VAR

1 / 4



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED * CHECKED

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. CUY-490-0187WN

CUY-490-1.87
WN/VAR

2/4

psi
Professional Service Industries, Inc.

LOG OF BORING

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

1/4

Date Started 11/26/08 | Sampler: Type 2" | Dia. 2.0" | Water Elev. 86.0 | Project Identification: 142-85142 Ohio Department of Transportation
Date Completed 11/26/08 | Casing: Length 2" | Dia. | ER 92% | Cal. Date 6/18/2008 | Proposed Bridge Widening CUY-490-1.87WN
Northing 41° 28' 47.2" N | Easting -81° 39' 43.4" N | Rig Type CME-850 | Cuyahoga County, Ohio
Boring No. B-1 | Station & Offset | Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	N60	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
	0															
	2	5-8-7	23	18.0		SS-1	Very Loose to Medium Dense, Brown, Moist to Wet, Fine SAND, Little to some silt, Trace Gravel/Rock Fragments, Trace to Little Organics								12	A-3 (Possible Fill)
	4	1-12"-1	2	6.0		SS-2	** Brown and Gray @ 2.0'								23	
	6	3-3-4	11	18.0		SS-3	** Gray @ 5.0'								22	
	8															
	10	4-5-6	17	18.0		SS-4									16	
	12						Stiff to Very Stiff, Gray, Wet, Sandy SILT, Trace Clay, Occasional Silty Sand Laminations								22	A-4a
	14						** Layer of Fine to Coarse Sand @ 12.0'-14.5'	23.0	24.0	40.0	10.0	3.0	NP	NP	15	A-3a
	16	5-13-12	38	18.0		SS-5	Stiff to Very Stiff, Gray, Wet, Sandy SILT, Trace Clay, Occasional Silty Sand Laminations								20	A-4a
	18															
	20	2-3-5	12	18.0		SS-6	Medium Stiff, Gray, Wet, SILT, With Clay, Trace Sand, Occasional Silty CLay Laminations/Layers	0.0	2.0	3.0	59.0	36.0	22	3	26	A-4b
	22															
	24	2-3-4	11	18.0		SS-7									27	
	26															
	28															
	30	2-2-4	9	18.0		SS-8									19	
	32						Loose, Gray, Wet, Fine SAND, Little to Some Silt									A-3
	34	1-12"-3	5	18.0	0.5	SS-9	Soft to Medium Stiff, Gray, Wet, SILT and CLAY, Trace to Little Sand, Trace Rock Fragments	3.0	5.0	6.0	40.0	46.0	30	11	22	A-6a
	36						** Same as Above									
	38															
	40	W/T6"-3-3	9	18.0	0.75	SS-10									23	
	42															
	44	W/T6"-3-5	12	18.0	2.0	SS-11	Medium Stiff, Gray, Wet, SILT and CLAY, Trace Sand								20	A-6a
	46															
	48															
	50	3-5-5	15	18.0	1.0	SS-12	Stiff to Very Stiff, Gray, Wet, Silty CLAY, Trace Sand, Occasional Silt Laminations								23	A-6b
	52															
	54	8-9-14	35	18.0	3.0	SS-13									22	
	56															
	58															
	60	9-11-13	37	18.0		SS-14	Very Stiff, Gray, Wet, SILT, With Clay, Trace Sand, Occasional Silty Clay Laminations	0.0	0.0	1.0	54.0	45.0	25	5	20	A-4b
	62															
	64	7-9-12	32	18.0		SS-15	Very Stiff, Gray, Wet, SILT and CLAY, Trace Sand, Occasional Silt and Silty Sand Laminations								22	A-6a
	66															
	68															
	70	7-9-13	34	18.0	2.5	SS-16									22	
	72															
	74	7-9-13	34	18.0	2.75	SS-17	** Same as Above	0.0	0.0	0.0	36.0	64.0	31	11	23	
	76															
	78															
	80	7-8-11	29	18.0	2.25	SS-18									24	
	82															
	84	7-9-13	34	18.0	2.25	SS-19									22	
▼	86															
	88						Very Stiff to Stiff, Gray, Wet, Silty CLAY, Trace Sand									A-6b
	90	7-8-11	29	18.0	2.5	SS-20									22	
	92															
	94	3-4-6	15	18.0	0.75	SS-21		0.0	1.0	2.0	19.0	78.0	37	16	28	
	96															
	98															
	100	3-4-6	15	18.0	1.25	SS-22									23	

End of Boring - 100.0'
* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

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Professional Service Industries, Inc.

LOG OF BORING

State of Ohio
Department of Transportation
Division of Highways
Testing Laboratory

1/4

Date Started 12/2/08 | Sampler: Type 2" | Dia. 2.0" | Water Elev. 23.5 | Project Identification: 142-85142 Ohio Department of Transportation
Date Completed 12/2/08 | Casing: Length 2" | Dia. | ER 92% | Cal. Date 6/18/2008 | Proposed Bridge Widening CUY-490-1.87WN
Northing 41° 28' 47.4" N | Easting -81° 39' 43.0" N | Rig Type CME-850 | Cuyahoga County, Ohio
Boring No. B-2 | Station & Offset | Surface Elev.

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	N60	Rec. (in)	Qp (tsf)	Sample No.	Description	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
	0	--		6.0		AU-1	10 3/4" CONCRETE									
	2						14" SAND and Gravel Base								9	
	4	35-46-33	121	18.0		SS-2	Very Dense, Brown, Moist, Fine SAND, Some Silt, Trace Clay, Trace Gravel								18	A-3(Fill)
	6	8-8-7	23	18.0		SS-3	Stiff, Brown, Moist, SILT, Little Clay, Trace Sand, Trace Organics								19	A-4b(Fill)
	8															
	10	9-7-9	25	18.0		SS-4		0.0	0.0	6.0	73.0	21.0	23	2	21	
	12															
	14	7-9-15	37	18.0		SS-5	Medium Dense, Brown, Moist, Sandy SILT, Trace Clay	0.0	0.0	46.0	45.0	9.0	NP	NP	24	A-4a
	16						Medium Stiff to Stiff, Gray, Moist, to Wet, SILT, Occasional Layers of Silty Clay, Little Sand, Trace Rock Fragments								21	A-4b
	18															
	20	6-6-8	21	18.0		SS-6									22	
	22	--		24.0		ST-7	Qu = 1.15 tsf								25	
▼	24	4-5-4	14	18.0		SS-8									24	
	26															
	28															
	30	4-4-4	12	18.0		SS-9		4.0	5.0	12.0	51.0	28.0	22	4	19	
	30						Medium Stiff to Stiff, Gray, Moist to Wet, Silty CLAY, Trace Sand, Trace Rock Fragments									A-6b
	32															
	34	3-3-4	11	18.0		SS-10									22	
	36	--		24.0		ST-11	** Same as Above Qu = 0.15 tsf								25	
	38															
	40	2-6-4	15	18.0		SS-12		1.0	2.0	2.0	38.0	57.0	38	17	24	
	42															
	44	2-5-6	17	18.0		SS-13									23	
	46															
	48															
	50	7-12-17	44	18.0		SS-14	Very Stiff, Gray, Moist, SILT and CLAY, Occasional Layers of Silt and Sandy Silt								25	A-6a
	52														20	
	54	16-12-13	38	18.0		SS-15									20	
	56															
	58															
	60	12-12-21	51	18.0	3.0	SS-16									20	
	62															
	64	12-12-15	41	18.0	2.0	SS-17									23	
	66	--		24.0		ST-18	Qu = 0.65 tsf								23	
	68															
	70	9-9-14	35	18.0	2.0	SS-19		0.0	0.0	1.0	40.0	59.0	33	12	24	
	72															
	74	9-12-16	43	18.0	1.25	SS-20	** Same as Above								24	
	76															
	78															
	80	2-9-11	31	18.0	1.25	SS-21									23	
	82						Very Soft to Very Stiff, Gray, Wet, Silty CLAY, Little to Trace Sand, Trace Rock Fragments									A-6b
	84	6-6-8	21	18.0	1.0	SS-22									20	
	86	--		24.0		ST-23	Qu = 0.40 tsf								24	
	88															
	90	W-For 12"-1	2	18.0	0.25	SS-24									24	
	92															
	94	4-9-9	28	18.0	0.75	SS-25		4.0	0.0	1.0	34.0	61.0	38	17	22	

End of Boring - 95.0'
* ODOT Classification based on Visual Description

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

Form TE-151 Revised 9/94

4/4	CUY-490-1.87 WN/ VAR	STRUCTURE FOUNDATION EXPLORATION BRIDGE NO. CUY-490-0187WN	DRAWN JEC CHECKED

SPECIAL PROVISIONS

OEPA Notification of Demolition & Renovation

FOR

CUY-490-1.87
PID: 85049

DATE: 3-9-09

OHIO ENVIRONMENTAL PROTECTION AGENCY
NOTIFICATION OF DEMOLITION AND RENOVATION

Operator Project #	Postmark	Date Received	Notification #

I. Type of Notification (check one): ☒ Original ☐ Revised ☐ Canceled

II. Facility Description (include building name, number and floor or room number)

Building Name: *Interstate 490 Eastbound Ramp to Interstate 77 Northbound over IR-490 (CUY-490-1.87 WN)*

Address: *Interstate 490 Eastbound Ramp to Interstate 77 Northbound over IR-490 (CUY-490-1.87 WN)*

City: *Cleveland* State: *OHIO* Zip Code: _____ County: *Cuyahoga*

Site Location (specific): *Interstate 490 Eastbound Ramp to Interstate 77 Northbound over IR-490 (CUY-490-1.87 WN)*

Building Size (square feet): *NA* # of Floors: *NA* Age in Years: *~50*

Present Use: *Bridge* Prior Use: *Bridge*

III. Type of Operation (check one): ☐ Demo ☐ Ordered Demo ☒ Renovation ☐ Emergency Renovation ☐ Fire Training

IV. Is Asbestos Present? (check one): ☒ Yes ☐ No

V. Facility Information

Owner Name: *Ohio Department of Transportation, District 12*

Address: *5500 Transportation Boulevard*

City: *Garfield Heights* State: *Ohio* Zip Code: *44125*

Contact: *Mr. Mark Carpenter* Telephone: *216-584-2089* Fax: *216-584-2279*

Removal Contractor Name: _____ License # _____

Address: _____

City: _____ State: _____ Zip Code: _____

Contact: _____ Telephone: _____ Fax: _____

Other Operator (demolition/general): _____ License # _____

Address: _____

City: _____ State: _____ Zip Code: _____

Contact: _____ Telephone: _____ Fax: _____

VI. Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of RACM and Category I and Category II nonfriable ACM:

NESHAP Inspection Procedure

Ohio Asbestos Hazard Evaluation Specialist: *Matthew P. Fergus* (Name) *33228* (Certification #)

VII. Approximate Amount of Asbestos Materials:

		Nonfriable Asbestos Material to be Removed		Nonfriable Asbestos Material NOT to be Removed	
	RACM to Be Removed	Category I	Category II	Category I	Category II
Pipes (linear feet)	*666*				
Surface Area (square feet)		*25*			
Facility Components (cubic feet)					

VIII. Scheduled Dates Demolition or Renovation: Start: _____ Complete: _____

IX. Dates for Asbestos Removal (MM/DD/YY) Start: _____ Complete: _____

Days of the Week:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Hours of Operation:							

Complete all unshaded spaces, except, demolitions which involve less than 260 linear feet, 160 square feet or 35 cubic feet of RACM, need not complete spaces VII, XI, XII, XIII, XIV, and XV. Notifications for Emergency Demolitions or Emergency Renovations must supply attachments.

OHIO ENVIRONMENTAL PROTECTION AGENCY
NOTIFICATION OF DEMOLITION AND RENOVATION

X. Description of planned Demolition or Renovation work to be performed and method(s) to be employed, including demolition or renovation techniques to be used and description of affected facility components:

XI. Description of work practices and engineering controls to be used to comply with the requirements, including asbestos removal and waste handling emission control procedures:

XII. Waste Transporter #1

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Contact Person: _____ Telephone: _____ Fax: _____

Waste Transporter #2

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Contact Person: _____ Telephone: _____ Fax: _____

XIII. Waste Disposal

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Contact Person: _____ Telephone: _____ Fax: _____

XIV. Emergency Demolition: (complete Item XIV and all other sections, only if this project is an Emergency Demolition)

1. Attach a copy of the Order to this notice.
2. Name of the Authority Issuing Order: _____ Title: _____
3. Authority of Order (Citation of Code): _____
4. Date of Order (MM/DD/YY): _____ Date Ordered to Begin: _____

XV. Emergency Renovation: (Attach separate sheet with the following information if project is Emergency Renovation)

1. Date and Hour of the Emergency
2. Description of the Sudden, Unexpected Event.
3. Explanation of how event caused unsafe conditions or equipment damage or an unreasonable financial burden.

XVI. Description of procedures to be followed in the event that unexpected RACM is found or nonfriable ACM becomes crumbled, pulverized or reduced to powder.

Determine if it is regulated under NESHAP, make proper notification if required, and take the appropriate actions. Contain the material and saturate with surfactant then take the appropriate actions.

XVII. I certify that an individual trained in the provisions of NESHAPS (40 CFR PART 61, SUBPART M) will be on-site during the Demolition or Renovation and evidence that the required training has been accomplished by this person will be available during normal business hours.

Bonita G. Teeuwen, P.E. (MAC) (Signature of Owner/Operator) March 9, 2009 (Date) Bonita G. Teeuwen, P.E. Deputy Director (Type or Print Name and Title)

XVIII. I acknowledge the existance of laws prohibiting the submission of false or misleading statements and I certify that facts contained in this notification are true, accurate and complete.

Bonita G. Teeuwen, P.E. (MAC) (Signature of Owner/Operator) March 9, 2009 (Date) Bonita G. Teeuwen, Deputy Director (Type or Print Name and Title)

Original Notification must be mailed or hand delivered at least ten working days (Monday-Friday excluding weekends) before demolition or renovation begins, except emergency demolitions and emergency renovations (see regulation) which must be submitted as soon as possible before operations begin. (Form Revised 11/12/97)