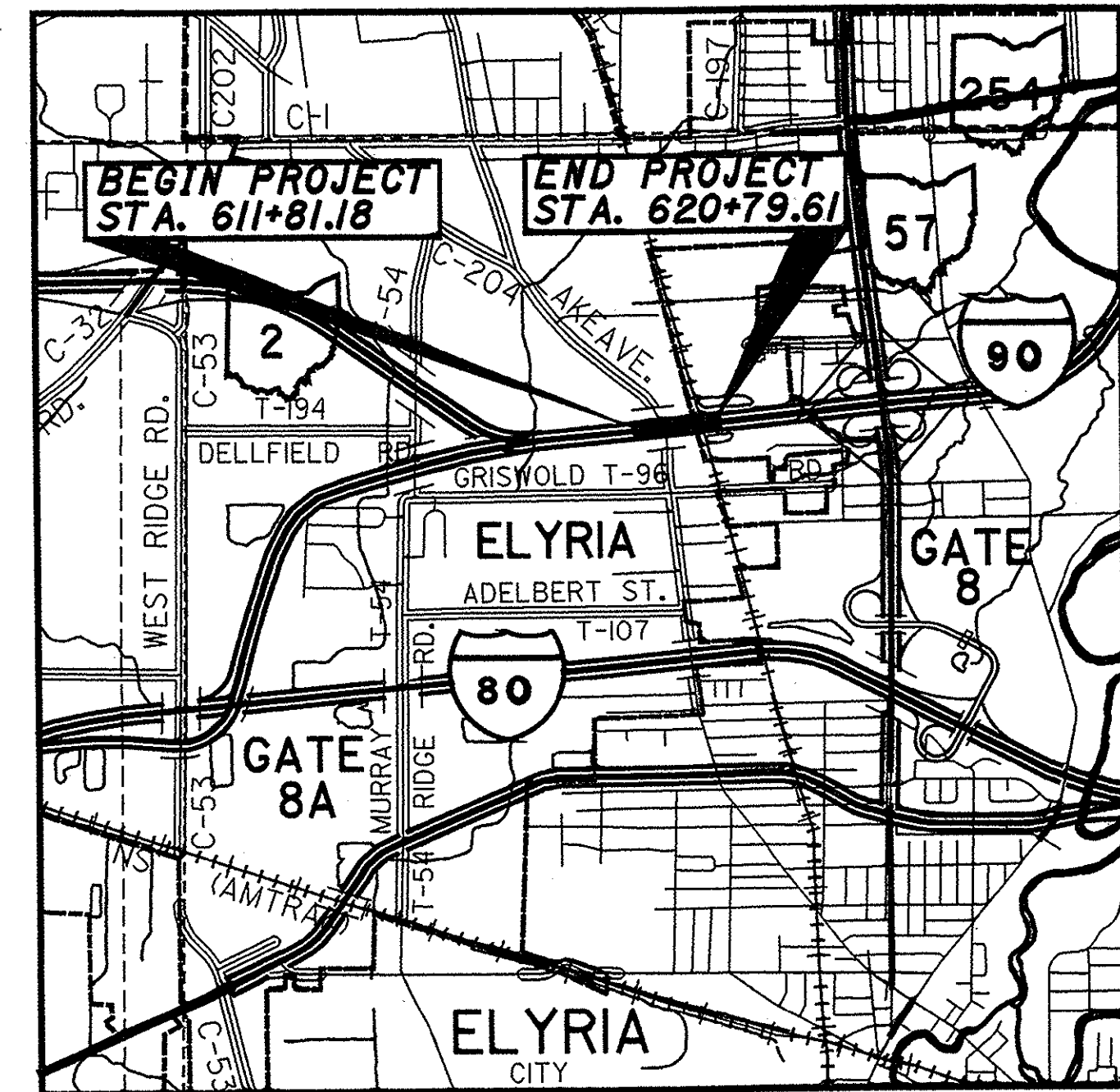


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
LOR-90-12.42
RECONSTRUCTION OF EXISTING
SEPARATED CROSSING WITH THE
CSX RAILROAD
CITY OF ELYRIA
TOWNSHIP OF ELYRIA
LORAIN COUNTY



LOCATION MAP

(LAKE AVE.)
LATITUDE: 41°24'11" LONGITUDE: 82°07'53"
(CSX RAILROAD)
LATITUDE: 41°24'12" LONGITUDE: 82°07'43"



PORTION TO BE IMPROVED	---
INTERSTATE & DIVIDED HIGHWAY	====
UNDIVIDED STATE & FEDERAL ROUTES	====
RAILROADS	++++
OTHER ROADS	----

DESIGN DESIGNATION

CURRENT ADT (2006)	67,530
DESIGN YEAR ADT (2026)	87,940
DESIGN HOURLY VOLUME	8,794
DIRECTIONAL DISTRIBUTION	60%
TRUCKS (24 HOUR B & C)	20%
DESIGN SPEED	70 MPH
LEGAL SPEED	65 MPH
DESIGN FUNCTIONAL CLASSIFICATION	- URBAN INTERSTATE

DESIGN EXCEPTIONS

NONE 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

PLAN PREPARED BY:

Baker
MICHAEL BAKER JR., INC.
1228 EUCLID AVENUE
SUITE 1050
CLEVELAND, OHIO 44115

ENGINEERS SEAL:



SIGNED: *Lawrence P. Ciborek*
DATE: 3/31/2008

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STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
BP-3.1	10-19-07			MT-101.70	10-18-02	TC-42.10	1-19-07	AS-1-81	7-19-02	800	4-18-08
BP-5.1	7-28-00	GR-1.1	7-16-04	MT-102.10	10-20-06	TC-42.20	7-16-04	GSD-1-96	7-19-02	832	4-25-06
BP-9.1	4-15-05	GR-2.1	1-16-04	MT-105.10	10-18-02	TC-52.10	1-19-07	ICD-1-82	7-19-02	843	4-18-03
		GR-3.1	1-19-07	MT-105.11	10-18-02	TC-52.20	1-19-07	PCB-91	7-19-02	873	10-30-03
CB-2.1	7-15-05	GR-4.2	1-19-07			TC-65.10	1-21-05	SBR-1-99	7-19-02	892	4-15-05
CB-2.2	7-15-05	GR-6.1	4-18-03	RM-4.2	10-19-07	TC-65.11	1-21-05			898	7-21-06
CB-3.1	7-15-05			RM-4.5	1-19-07	TC-72.20	1-21-05			1030	4-19-02
CB-4.1	7-19-02	HW-2.1	4-21-06	RM-4.6	1-16-04	TC-73.10	1-19-01			1085	10-30-03
										1087	7-20-07
DM-1.1	4-21-06	MH-1.1	7-19-02	TC-7.65	1-19-07						
DM-1.2	10-21-05	MH-1.2	1-20-06	TC-15.115	1-19-07						
DM-1.4	4-21-06			TC-21.10	1-19-07						
DM-4.1	7-19-02	MT-95.41	10-20-06	TC-21.20	1-19-07						
DM-4.3	7-19-02	MT-98.11	10-19-07	TC-22.20	1-19-01						
DM-4.4	7-19-02	MT-98.22	10-19-07	TC-41.10	10-19-07						
F-3.1	7-28-00			TC-41.20	1-19-01						

SPECIAL PROVISIONS

APPROVED: *John Hart, P.E.*
DATE: 3-31-08 DISTRICT DEPUTY DIRECTOR
APPROVED: *James A. Brasley, Jr.*
DATE: 4-4-08 DIRECTOR, DEPARTMENT OF TRANSPORTATION

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE REHABILITATION AND WIDENING OF TWIN BRIDGES ON I-90 OVER LAKE AVENUE AND THE RECONSTRUCTION OF TWIN BRIDGES ON I-90 OVER THE CSX RAILROAD, INCLUDING DECK REPLACEMENT AND WIDENING TO MAINTAIN TWO LANES OF TRAFFIC DURING CONSTRUCTION. LAKE AVE. TO BE RESURFACED INCLUDING PAVEMENT REPAIR.

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 SHEET II, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

EARTH DISTURBED AREA

1. PROJECT EARTH DISTURBED AREA 17.30 Ac
2. ESTIMATED CONTRACTOR EARTH DISTURBED AREA 1.13 Ac
3. NOTICE OF INTENT EARTH DISTURBED AREA 18.43 Ac

LOR-1R-90-12.42
080421 PID - 24868
Dist 3 6/18/2008

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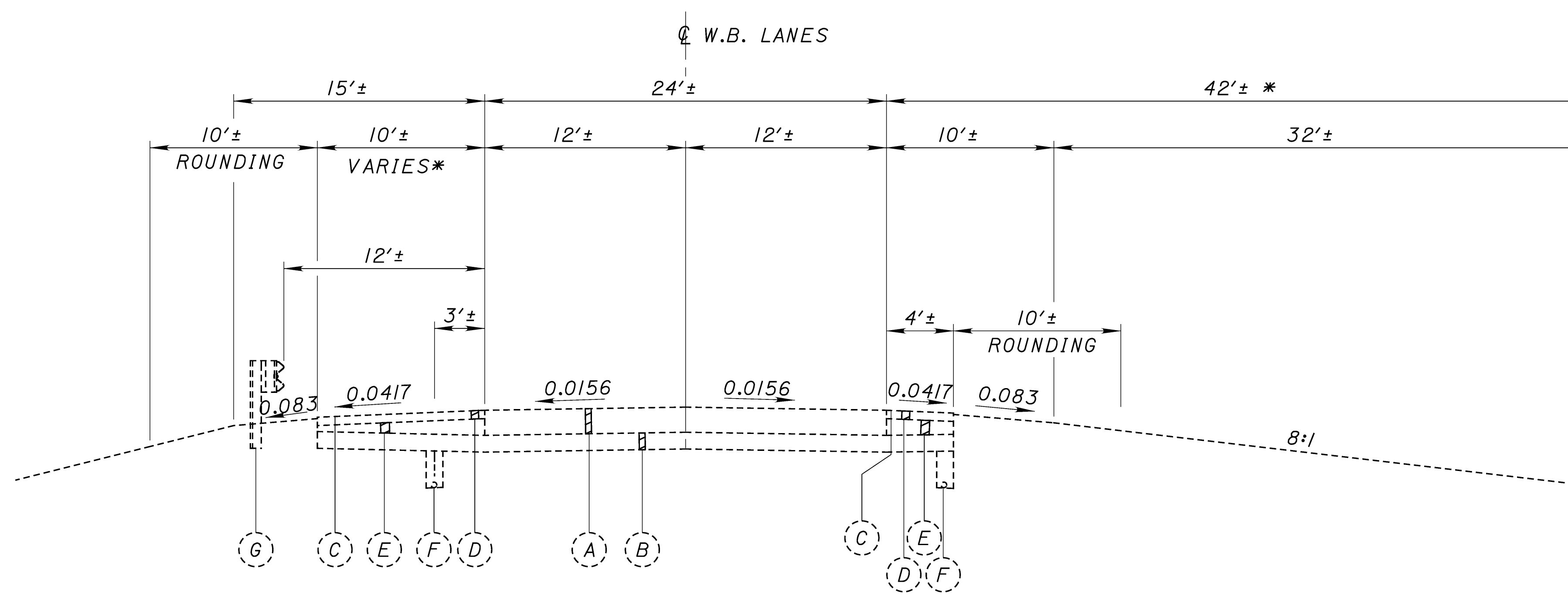
FEDERAL PROJECT NO. E034(828)

PID NO. 24868

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT CSX RAILROAD

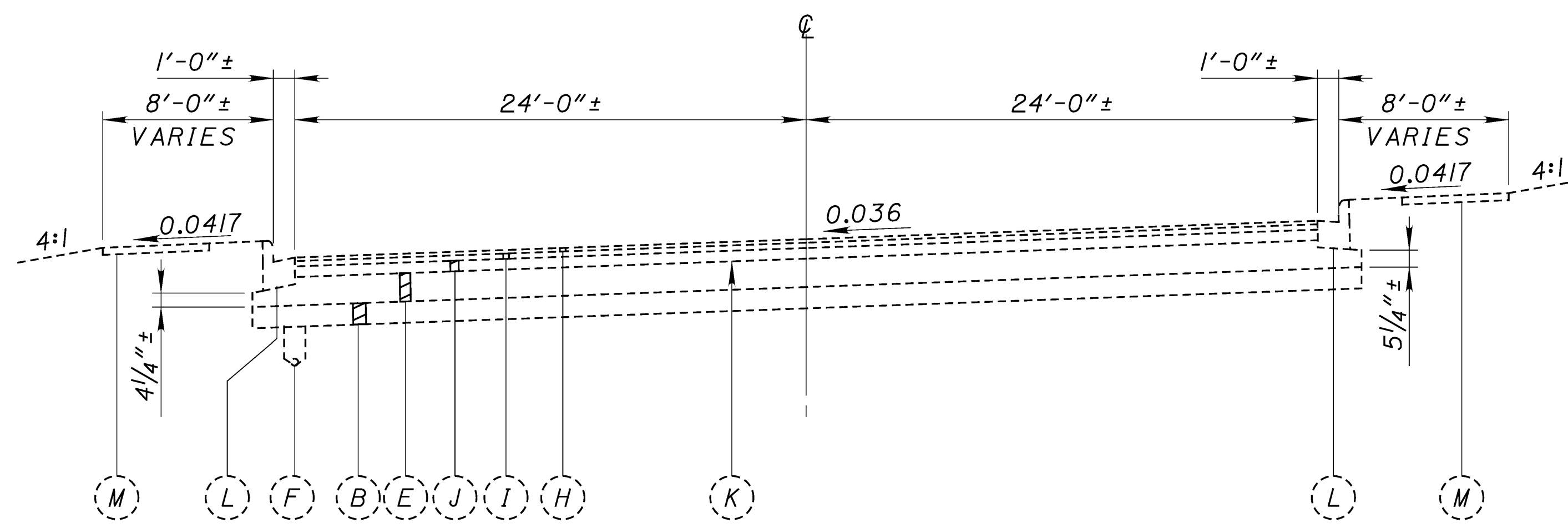
LOR-90-12.42



CONSTRUCTION

* VARIES 59.99' TO 42.00' W.B.
 STA. 597+79.75 TO STA. 602+37.98

NOTES:
 TYPICAL SECTION SYMMETRICAL
 ABOUT CENTERLINE CONSTRUCTION
 WESTBOUND LANES SHOWN
 STATION EQUATION:
 STA. 602+37.98 @ I-90 (54' LT. & RT)=
 STA. 601+75.17 W.B. LANES
 STA. 603+26.53 E.B. LANES



EXISTING LEGEND

(A) T-71 9"± REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

(B) I-22 6"± SUBBASE

(C) T-31 BITUMINOUS SURFACE TREATMENT

(D) B-21 AND 3"± WATERPROOFED AGGREGATE BASE COURSE

(E) B-19 8"± AGGREGATE BASE COURSE

(F) UNDERDRAIN I-1 6" PIPE CLASS I-3

(G) GUARDRAIL

(H) T-35 1"± ASPHALTIC CONCRETE SURFACE COURSE TYPE C (70-85)

(I) B-35 1 1/2"± ASPHALTIC CONCRETE LEVELING COURSE (70-85)

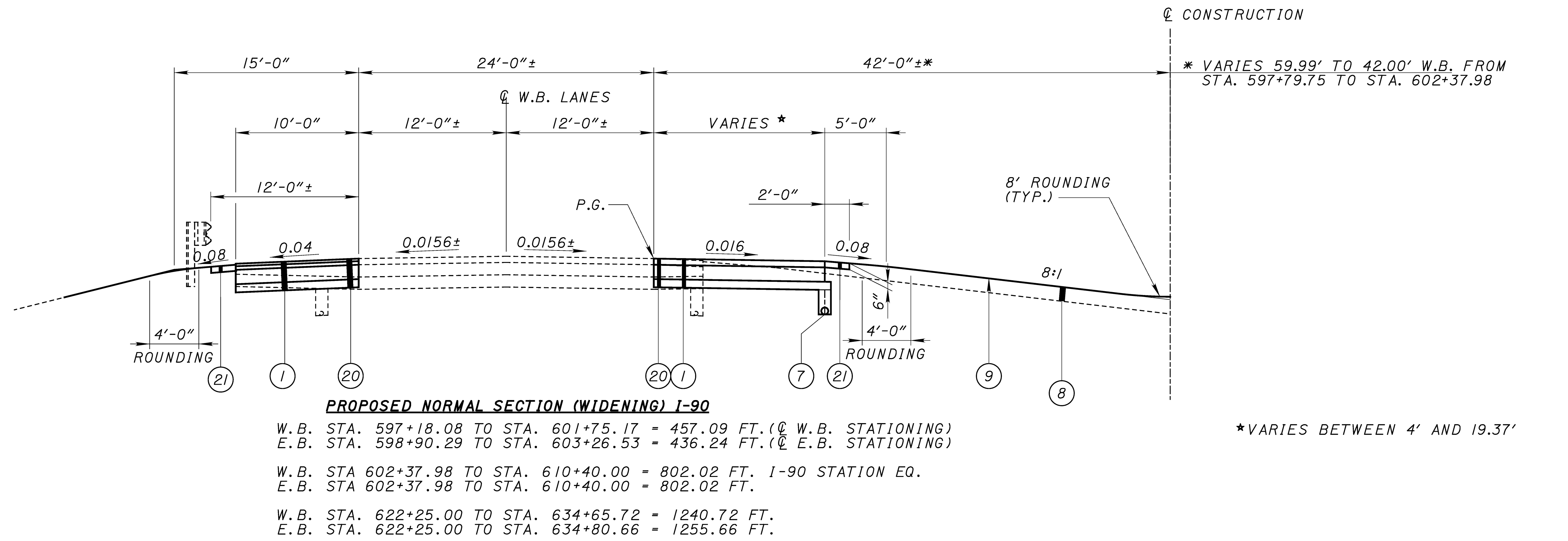
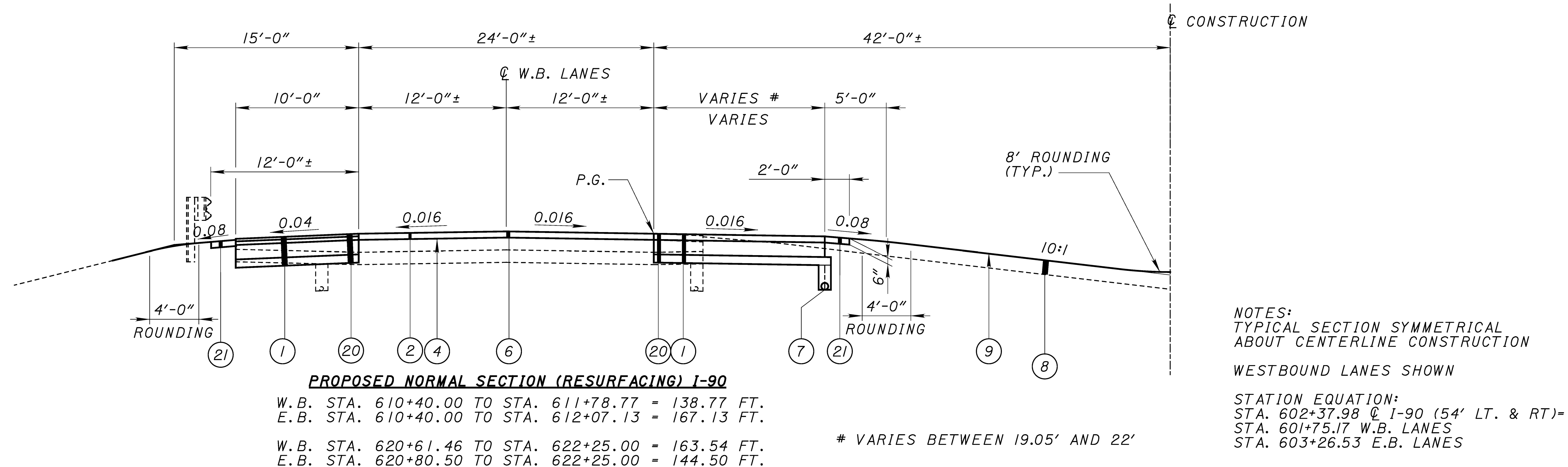
(J) B-35 3"± ASPHALTIC CONCRETE BASE COURSE (70-85)

(K) T-30 BITUMINOUS PRIME COAT

(L) I-12 STANDARD COMBINATION CURB AND GUTTER TYPE 2 (MODIFIED) AS PER PLAN

(M) SIDEWALK

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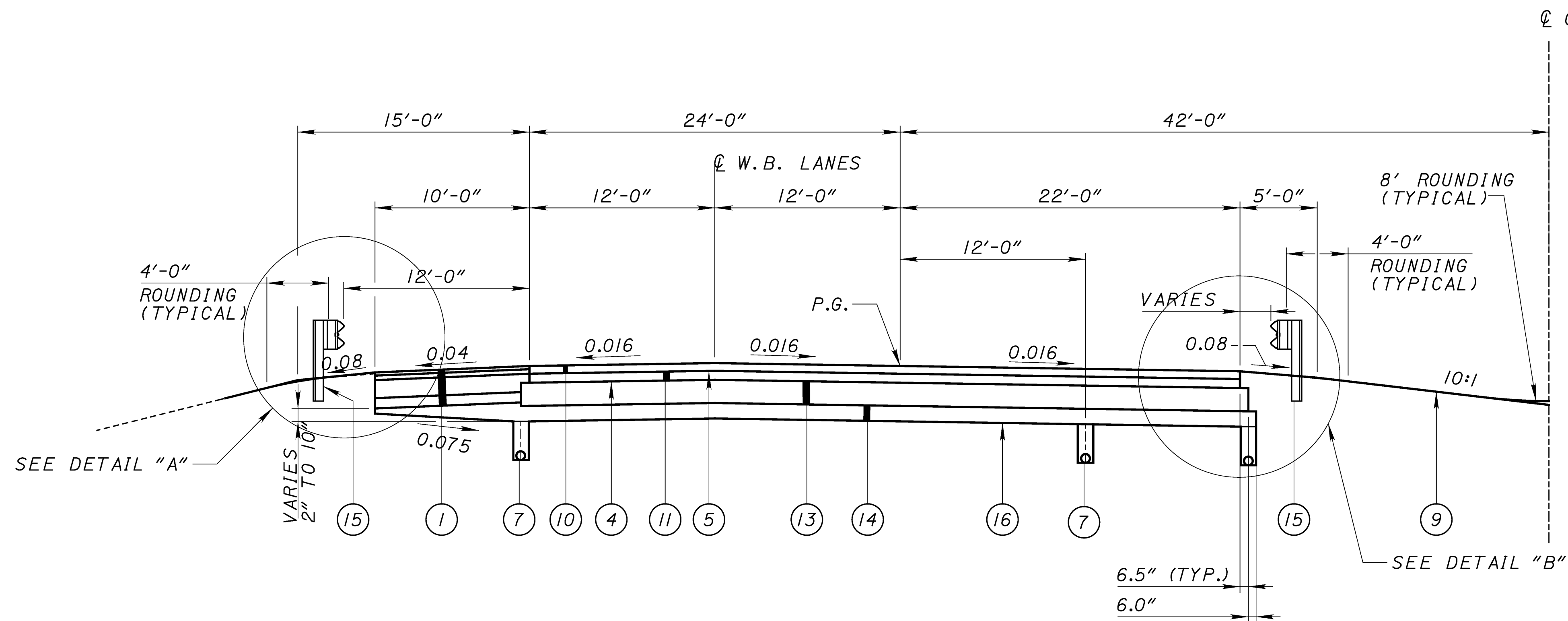


PROPOSED LEGEND

- | | | | |
|---|--|--|---|
| ① ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN | ⑥ ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (T=2"±) | ⑫ ITEM 304 - 12.5" AGGREGATE BASE | ⑱ ITEM 609 - CURB, TYPE 6 |
| ② ITEM 446 - ASPHALT CONCRETE SURFACE COURSE, TYPE IH (VAR. T= 2") | ⑦ ITEM 605 - 6" SHALLOW PIPE UNDERDRAIN | ⑬ ITEM 301 - 12" ASPHALT CONCRETE BASE | ⑲ ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN |
| ③ ITEM 609 -CURB, TYPE 6, AS PER PLAN | ⑧ ITEM 203 - EMBANKMENT | ⑭ ITEM 304 - 6" AGGREGATE BASE | ⑳ ITEM 203 - EXCAVATION |
| ④ ITEM 407 - TACK COAT | ⑨ ITEM 659 - SEEDING AND MULCHING, TYPE 2 | ⑮ ITEM 606 - GUARDRAIL, TYPE 5 | ㉑ ITEM 411 - STABILIZED CRUSHED AGGREGATE |
| ⑤ ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE | ⑩ ITEM 446 - ASPHALT CONCRETE SURFACE COURSE, TYPE IH (T=1.5") | ⑯ ITEM 204 - SUBGRADE COMPACTION | ㉒ ITEM 601 - 6" CONCRETE SLOPE PROTECTION |
| | ⑪ ITEM 446 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (T=2.5") | ⑰ ITEM 301 - 5" ASPHALT CONCRETE BASE | |
- NOTE: PER 2002 CMS, THE APPROACH SLAB IS NOW PAID FOR AS A STRUCTURAL QUANTITY AND ANY REQUIRED APPROACH SLAB DETAILS ARE CONTAINED ON SHEETS 151-153,188,189. OF THE STRUCTURAL PLANS.

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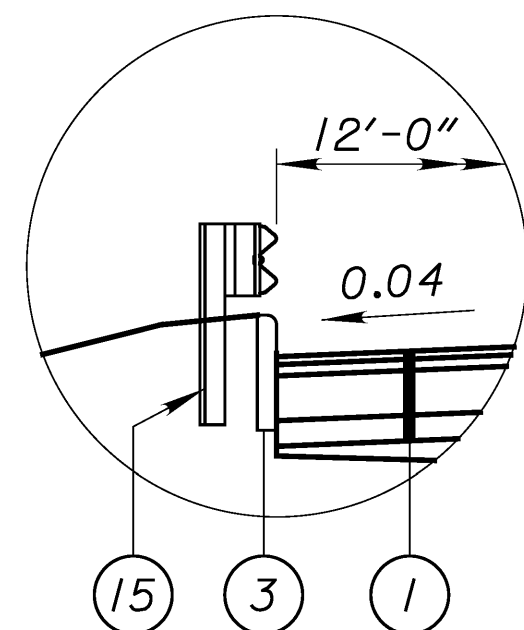
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NOTE:
TYPICAL SECTIONS SYMMETRICAL
ABOUT CENTERLINE CONSTRUCTION
WESTBOUND LANES SHOWN

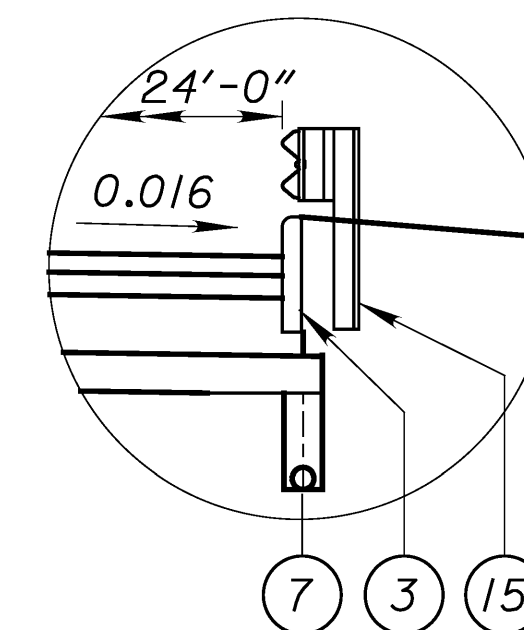
PROPOSED NORMAL SECTION I-90

W.B. STA. 614+23.76 TO STA. 618+39.53 = 415.77 FT.
E.B. STA. 614+47.18 TO STA. 618+58.58 = 411.40 FT.



DETAIL "A"

WESTBOUND (76' LT)	EASTBOUND (76' RT)
STA. 614+16.59 TO	STA. 614+51.65 TO
STA. 614+42.59	STA. 614+77.65
STA. 618+09.30 TO	STA. 618+36.81 TO
STA. 618+35.30	STA. 618+62.81



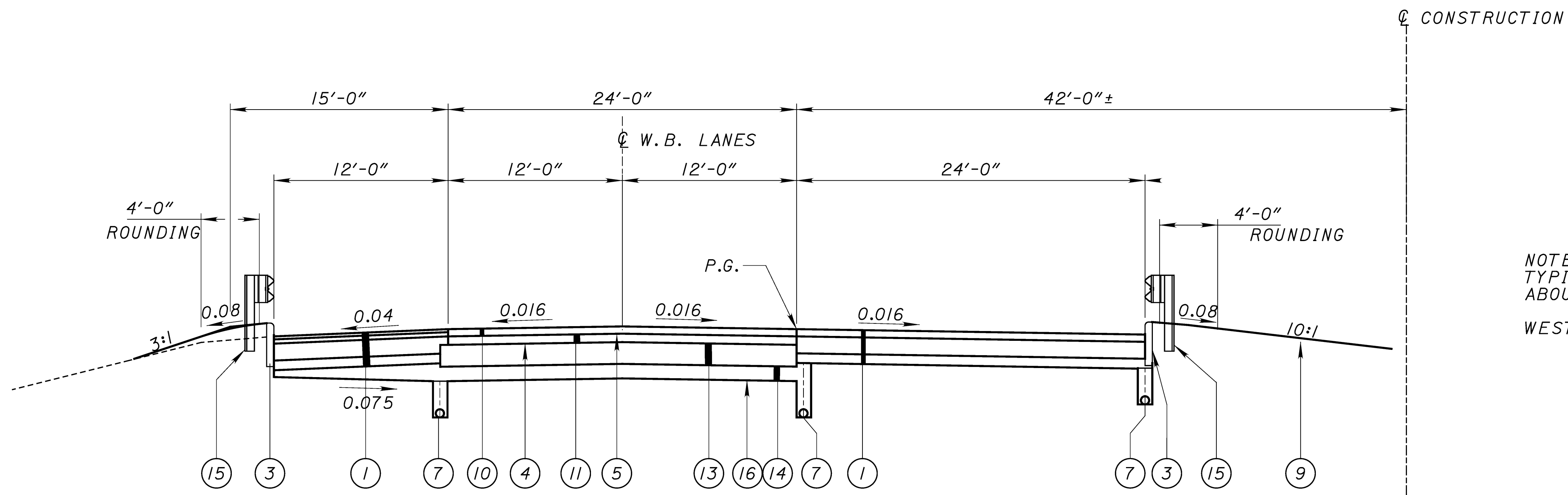
DETAIL "B"

WESTBOUND (20' LT)	EASTBOUND (20' RT)
STA. 614+34.53 TO	STA. 614+40.47 TO
STA. 614+60.53	STA. 614+66.47
STA. 618+19.88 TO	STA. 618+26.23 TO
STA. 618+45.88	STA. 618+52.23

PROPOSED LEGEND

- | | | | |
|---|--|--|---|
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NOTE:
TYPICAL SECTIONS SYMMETRICAL
ABOUT CENTERLINE CONSTRUCTION
WESTBOUND LANES SHOWN

PROPOSED NORMAL SECTION I-90

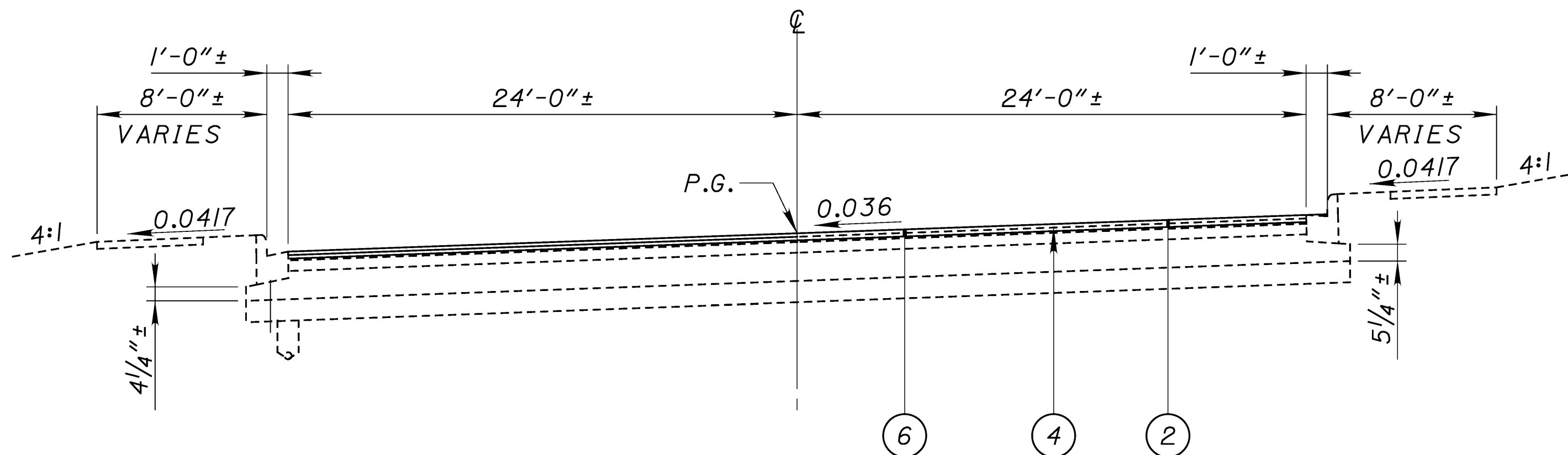
W.B. STA. 611+78.77 TO STA. 612+07.18 = 28.41 FT.
 E.B. STA. 612+07.13 TO STA. 612+34.14 = 27.01 FT.
 W.B. STA. 620+34.56 TO STA. 620+61.46 = 26.90 FT.
 E.B. STA. 620+53.61 TO STA. 620+80.50 = 26.89 FT.

PROPOSED LEGEND

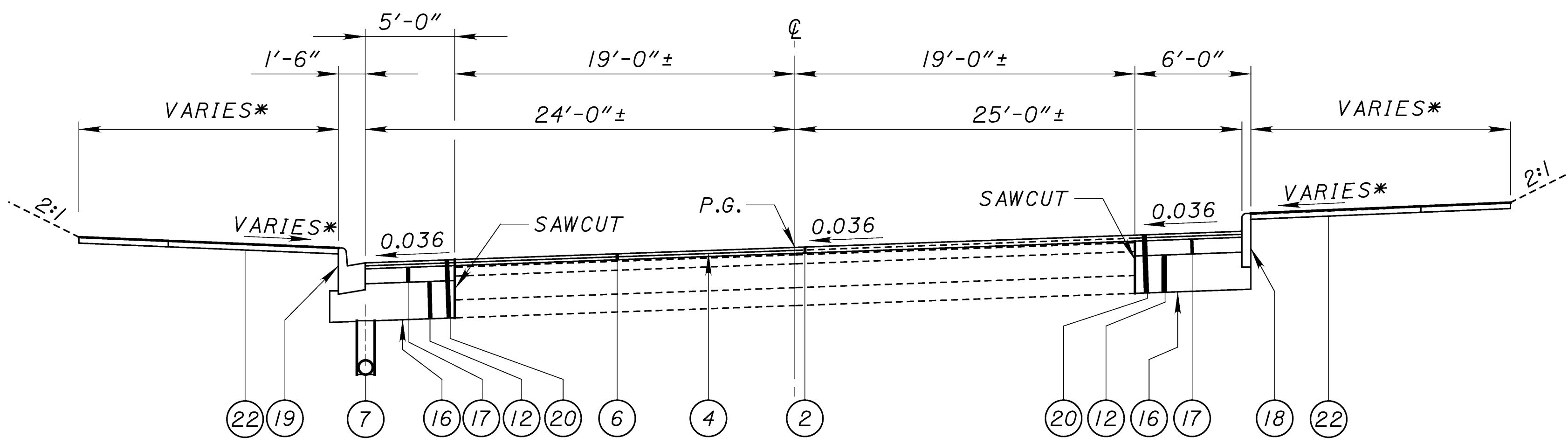
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|---|--|--|---|
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SUPERELEVATED SECTION - LAKE AVE.
 STA. 67+20.00 TO 70+20.00 = 300'



SUPERELEVATED SECTION - LAKE AVE.
 STA. 68+10.00 TO 69+15.00 = 105' LEFT
 STA. 68+30.00 TO 68+95.00 = 65' RIGHT

ITEM 601 - 6" CONCRETE SLOPE PROTECTION

* SEE CONCRETE SLOPE PROTECTION DETAILS

PROPOSED LEGEND

- | | | | |
|---|--|--|---|
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GENERAL NOTES

AT THE LIMITS OF THE FULL DEPTH PAVEMENT, THE EXISTING PAVEMENT SHALL BE SAWCUT.

ROUNDING

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

ITEM 209 - DITCH CLEANOUT

THIS WORK SHALL CONSIST OF REESTABLISHING THE EXISTING DITCH NORTH OF I-90 BETWEEN THE LAKE AVE. AND CSX BRIDGES, AS DIRECTED BY THE ENGINEER. SURPLUS OR UNSUITABLE MATERIAL, AS DETERMINED BY THE ENGINEER, SHALL BE DISPOSED OF PER 209.05. EMBANKMENT REQUIRED SHALL BE PER 209.07.

MEASUREMENT OF THE DITCH CLEANOUT SHALL BE THE ACTUAL LENGTH MEASURED ALONG THE CENTERLINE OF THE DITCH.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 209, DITCH CLEANOUT.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 209 - DITCH CLEANOUT 450 FEET

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING. SEE PLAN SHEET NO 28 FOR ADDITIONAL INFORMATION.

ITEM 204 - PROOF ROLLING 3 HOUR

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEET NO. 47, 49, 52.

ELEVATION DATUM

MONUMENTS (* DENOTES MONUMENT TO BE REMOVED)		PROJECT COORDINATES (FEET)		OHIO STATE PLANE COORDINATES NORTH ZONE NAD83 (1995) (METERS)		REFERENCE MONUMENT SET
STATION	OFFSET	NORTHING	EASTING	NORTHING	EASTING	
I-90						
598+30.02	ON \varnothing	33,003.466	68,120.615	10,058.686	20,761.573	
607+50.00	ON \varnothing	33,079.906	69,037.404	10,081.983	21,040.989	I
*607+98.11	ON \varnothing	33,083.925	69,085.358	10,083.208	21,055.604	
616+00.00	ON \varnothing	33,150.532	69,884.465	10,103.508	21,299.154	I
*616+98.05	0.24' LT.	33,158.917	69,982.167	10,106.064	21,328.931	
*626+99.69	0.24' RT.	33,241.662	70,980.383	10,131.283	21,633.164	
628+00.00	ON \varnothing	33,250.240	71,080.315	10,133.897	21,663.621	I
636+99.34	ON \varnothing	33,324.965	71,976.553	10,156.671	21,936.773	
646+98.87	ON \varnothing	33,408.017	72,972.630	10,181.984	22,240.354	
LAKE AVENUE						
65+00.05	1.04' RT.	32,763.174	69,677.941	9985.451	21,236.210	
66+42.91	12.52' RT.	32,907.168	69,678.160	10,029.337	21,236.277	
73+53.18	10.66' LT.	33,540.970	69,376.438	10,222.505	21,144.319	
74+41.95	15.22' RT.	33,624.622	69,336.723	10,248.000	21,132.215	
75+33.15	4.46' RT.	33,681.140	69,263.482	10,256.225	21,109.892	

PAF=3.2810911918

UTILITIES

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

ELECTRIC:
OHIO EDISON
6326 LAKE AVENUE
ELYRIA, OHIO 44035
440-326-3231

OHIO EDISON TRANSMISSION
76 SOUTH MAIN STREET
AKRON, OHIO 44308
330-384-5180

TELEPHONE:
WINDSTREAM
560 TERNES AVENUE
ELYRIA, OH 44035
440-329-4248

AT&T, CONSULTANT FOR AT&T
5980-G WILCOX PLACE
DUBLIN, OHIO 43016
614-760-8320

CABLE TV:
TIME WARNER CABLE (TWC NORTH DIVISION) (FORMERLY COMCAST)
576 TERNES STREET
ELYRIA, OH 44035
440-366-0417 EXT. 625

GAS:
COLUMBIA GAS OF OHIO
7080 FRY ROAD
MIDDLEBURG HEIGHTS, OHIO 44130
440-891-2428

WATER:
CITY OF ELYRIA, WATER DEPT.
851 GARDEN STREET
ELYRIA, OHIO 44035
440-322-8464

CITY OF LORAIN ENGINEERING
440-244-1300

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

WORK LIMITS

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

CONVERSION OF STANDARD CONSTRUCTION DRAWINGS

CONVERT THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.02 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

CONVERSIONS WILL BE APPROPRIATELY PRECISE AND REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

EXISTING PLANS

EXISTING PLANS ENTITLED LOR-254-4.08 B MAY BE INSPECTED IN THE ODOT DISTRICT 3 OFFICE IN ASHLAND.

OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 3 OFFICE
906 NORTH CLARK ST.
ASHLAND, OH 44805

PART-WIDTH CONSTRUCTION

BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXTREME CARE SHALL BE TAKEN TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LONGITUDINAL JOINTS SHALL BE LAPPED AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1.

PAVEMENT RESTORATION FOR DRAINAGE STRUCTURE INSTALLATIONS

THE FOLLOWING QUANTITY HAS BEEN PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION OF ITEM 604 DRAINAGE STRUCTURES.

ITEM 301 ASPHALT CONCRETE BASE, PG64-22: 0.25 CU. YDS.

THE ABOVE QUANTITY IS BASED ON A 301 THICKNESS OF 6 INCHES AND A WIDTH OF TWO FEET AROUND THE PERIMETER OF THE DRAINAGE STRUCTURE.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

CLEARING AND GRUBBING

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

ENVIRONMENTAL COMMITMENTS

THIS PROJECT IS WITHIN THE KNOWN SUMMER BREEDING RANGE OF THE FEDERAL ENDANGERED INDIANA BROWN BAT AND MAY IMPACT THAT SPECIES HABITAT. THE SUMMER ROOSTING AND BROOD REARING HABITAT OF THIS SPECIES IS IN LIVING OR STANDING DEAD TREES OR SNAGS WITH EXFOLIATING, PEELING, OR LOOSE BARK, SPLIT TRUNKS AND/OR BRANCHES, OR CAVITIES. UNAVOIDABLE TREE REMOVAL WILL ONLY BE DONE BETWEEN SEPTEMBER 16 AND APRIL 14 WHEN THIS SPECIES IS NOT USING SUCH HABITAT.

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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 M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ITEM 606 - ANCHOR ASSEMBLY, TYPE B-98

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS, OR AN APPROVED EQUAL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE AT WWW.DOT.STATE.OH.US/DRRC/ UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS:

1) THE SRT-350, GUARDRAIL END TERMINAL AS MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE SRT-350 SYSTEM IS CONSIDERED TO BE 37'-6", INCLUSIVE OF THREE 12'-6" LONG RAIL ELEMENTS. 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. NO.	DRAWING NAME	DWG. / REV. DATE	ODOT APPROVAL DATE
SS444	SLOTTED RAIL TERMINAL POST LAYOUT AND ERECTION DETAILS SRT-350 (12.5, 8 POST)	7/12/99 Rev. 1	8/27/99
SS425M	SLOTTED RAIL TERMINAL SRT-350 POST LAYOUT AND ERECTION DETAILS (12.5, 9 POST)	6/21/97 Rev. 1	3/6/98

2) THE FLEAT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224, (TELEPHONE: 330-346-0721).

THE LENGTH OF THE FLEAT-350 IS CONSIDERED TO BE 37'-6", INCLUSIVE OF THREE 12'-6" LONG RAIL ELEMENTS. 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. NO.	DRAWING NAME	DWG. / REV. DATE	ODOT APPROVAL DATE
FLT-M	FLARED ENERGY ABSORBING TERMINAL (FLEAT-350) ASSEMBLY	4/16/98	7/31/98

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4-INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27-3/4-INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

THE FACE OF THE TYPE B-98 IMPACT HEAD SHALL BE COVERED WITH TYPE G REFLECTIVE SHEETING, PER CMS 730.19: APPROXIMATELY 36" W X 12" H FOR THE SRT-350 AND 14" W X 20" H FOR THE FLEAT.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE B-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING REFLECTIVE SHEETING AND ALL RELATED HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 606 - ANCHOR ASSEMBLY, TYPE E-98

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS, OR AN APPROVED EQUAL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE AT WWW.DOT.STATE.OH.US/DRRC/ UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS:

1) THE ET-2000 (1997) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE ET-2000 (1997) SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF TWO 25'-0" LONG RAIL ELEMENTS. 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. NO.	DRAWING NAME	DWG. / REV. DATE	ODOT APPROVAL DATE
SS265M	ET-2000 (1997) PLAN, ELEVATION AND SECTIONS	6/20/97	3/6/98
SS142	ET2000 PLUS 50'-0" PLAN, ELEVATION AND SECTION 25'-0" RAIL, SLEEVE W/PL POSTS 1-4	4/12/00	7/31/00
SS141	ET2000 PLUS PLAN, ELEVATION AND SECTION 25'-0" RAIL, HBA POSTS 1-4	2/29/00	7/31/00
SS158	ET2000 PLUS 50'-0" WITH 12'-6" PANELS AND HBA POSTS 1-4 PLAN, ELEVATION AND SECTION	5/22/00	7/31/00

2) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224, (TELEPHONE: 330-346-0721).

THE LENGTH OF THE SKT-350 SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF FOUR 12'-6" LONG RAIL ELEMENTS. 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. NO.	DRAWING NAME	DWG. / REV. DATE	ODOT APPROVAL DATE
SKT-4M	SEQUENTIAL KINKING TERMINAL (SKT-350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98

THE FACE OF THE TYPE E-98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 18" X 18" OR 12" X 18" IF APPLIED TO A RECTANGULAR ET-2000 "PLUS" EXTRUDER HEAD.

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4-INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27-3/4-INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4-INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES SHALL BE MADE IN ACCORDANCE WITH ITEM 607.

ITEM 202 - POWER SERVICE REMOVED, AS PER PLAN

THE EXISTING 3" CONDUIT USED FOR THE OVERHEAD SIGN LIGHTING SHALL BE REMOVED. THE CONTRACTOR WILL PROVIDE THE NECESSARY LIGHTING TO MAINTAIN THE EXISTING SIGN VISIBILITY, WITHIN THE SUBMITTED WORK ZONE LIGHTING SYSTEM, AS APPROVED BY THE ENGINEER.

ITEM 202 - POWER SERVICE REMOVED, AS PER PLAN 1 EACH

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ITEM 606 - IMPACT ATTENUATOR, TYPE I-98 (BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY ONE OF THE FOLLOWING IMPACT ATTENUATORS, OR AN APPROVED EQUAL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE AT WWW.DOT.STATE.OH.US/DRRC/ UNDER ROADSIDE SAFETY DEVICES FOR APPROVED IMPACT ATTENUATORS:

1) THE C-A-T MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE C-A-T SYSTEM IS CONSIDERED TO BE 31'-3" LONG. 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. NO.	DRAWING NAME	DWG. / REV.	ODOT APPROVAL DATE
SS245M	CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS FOR USE AS A LONGITUDINAL MEDIAN BARRIER TERMINAL OR CRASH CUSHION ATTENUATOR	4/10/97 Rev. 4	3/6/98
SS224M	C-A-T TRANSITION TO MEDIAN BARRIER GUARDRAIL PLAN, ELEVATION & SECTIONS	4/26/96	3/6/98
SS226M	C-A-T TRANSITION TO VERTICAL WALL OR PIER PLAN, ELEVATION & SECTIONS	4/26/96	3/6/98

2) THE BRAKEMASTER MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., ONE EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE BRAKEMASTER SYSTEM IS CONSIDERED TO BE 32'-8" LONG. 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. NO.	DRAWING NAME	DWG. / REV.	ODOT APPROVAL DATE
92-00-01	BRAKEMASTER GENERAL ASSEMBLY (UNIDIRECTIONAL SYSTEM)	3/6/97 Rev. K	3/6/98
92-00-81	BRAKEMASTER (UNIDIRECTIONAL) WITH FOUNDATION TUBES	2/9/98	3/6/98
92-00-02	BRAKEMASTER GENERAL ASSEMBLY (BIDIRECTIONAL SYSTEM)	3/10/97 Rev. K	3/6/98
92-00-82	BRAKEMASTER (BIDIRECTIONAL) WITH FOUNDATION TUBES	2/9/98	3/6/98
9202024	ANCHOR ASSEMBLY, FOUNDATION TUBE, 6 1/2 FT., BRS	6/12/97 Rev. D	3/6/98

3) THE FLEAT-MT MANUFACTURED BY ROAD SYSTEMS, INC. (RSI), 3616 OLD HOWARD COUNTY AIRPORT ROAD, BIG SPRINGS, TX, 79720 (TELEPHONE 915-263-2435) AND AVAILABLE FROM RSI'S LIST OF APPROVED DISTRIBUTORS.

THE LENGTH OF THE FLEAT-MT SYSTEM IS CONSIDERED TO BE 37'-6" LONG. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS AND THE MANUFACTURERS INSTALLATION MANUAL.

ITEM 606 - IMPACT ATTENUATOR, TYPE I-98 (BIDIRECTIONAL) (CONT'D)

DWG. NO.	DRAWING NAME	DWG. / REV.	ODOT APPROVAL DATE
MEDFLT-W-US	FLARED ENERGY ABSORBING TERMINAL - FLEAT-MT ASSEMBLY FOR WOOD BREAKAWAY POST SYSTEM	4/10/02 Rev. 5	1/6/03
MEDFLT-S-US	FLARED ENERGY ABSORBING TERMINAL - FLEAT-MT ASSEMBLY FOR STEEL BREAKAWAY POST SYSTEM	4/10/02 Rev. 6	1/6/03

THE FACE OF THE TYPE I-98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 36" X 12". PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE I-98 (BIDIRECTIONAL), EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED TRANSITIONS, HARDWARE, REFLECTIVE SHEETING AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

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

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

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

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

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT: 393 FT.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

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

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

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES (CONT'D)

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

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

ITEM 603 - CONDUIT BORED AND JACKED

WHERE IT IS NECESSARY THAT A CONDUIT BE INSTALLED BY THE METHOD OF BORING OR JACKING, NO TRENCH EXCAVATION SHALL BE CLOSER THAN FIVE FEET FROM THE BACK OF GUARDRAIL. PROVIDE A 0.50 INCH UNGALVANIZED CASING PIPE COMFORMING TO 748.06 THAT HAS JOINTS WITH A CIRCUMFERENTIAL FULLY PENETRATING B-U4B WELD THAT IS PERFORMED BY AN ODOT APPROVED FIELD WELDER. THE INSTALLED CASING PIPE IS THE STORM WATER CONVEYANCE CARRIER UNLESS OTHERWISE SPECIFIED IN THE PLANS. HYDROSTATIC TESTING IS NOT REQUIRED FOR THE CASING PIPE.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

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

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

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

ITEM SPECIAL- MISCELLANEOUS METAL

EXISTING CASTINGS MAY PROVE TO BE UNSUITABLE FOR REUSE, AS DETERMINED BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE CASTINGS OF THE REQUIRED TYPE, SIZE AND STRENGTH (HEAVY OR LIGHT DUTY) FOR THE PARTICULAR STRUCTURE IN QUESTION. ALL MATERIAL SHALL MEET ITEM 604 OF THE SPECIFICATIONS AND SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

SPECIAL, MISCELLANEOUS METAL 2000 POUNDS

THE CONTRACTOR IS CAUTIONED TO USE EXTREME CARE IN THE REMOVAL, STORAGE AND REPLACEMENT OF ALL EXISTING CASTINGS. CASTINGS DAMAGED BY THE NEGLIGENCE OF THE CONTRACTOR, AS DETERMINED BY THE ENGINEER, SHALL BE REPLACED WITH THE PROPER NEW CASTINGS AT THE EXPENSE OF THE CONTRACTOR.

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ITEM SPECIAL - PIPE CLEANOUT

THIS WORK SHALL CONSIST OF REMOVING SEDIMENT AND DEBRIS FROM THE EXISTING DRAINAGE CONDUITS SPECIFIED IN THE PLANS. ALL MATERIAL REMOVED SHALL BE DISPOSED OF AS PER 105.16 AND 105.17. ALL SEWERS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

CLEANOUT OF THE PIPE SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM SPECIAL - PIPE CLEANOUT. THIS PRICE SHALL INCLUDE THE COST FOR MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CLEANOUT.

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

SPECIAL, PIPE CLEANOUT 229 FT.

SEEDING AND MULCHING

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

659, SOIL ANALYSIS TEST 2 EACH

659, TOPSOIL 2973 CU. YD.

659, SEEDING AND MULCHING 28,190 SQ. YD

659, REPAIR SEEDING AND MULCHING 1339 SQ. YD

659, INTER-SEEDING 1339 SQ. YD.

659, COMMERCIAL FERTILIZER 6.02 TON

659, LIME 5.53 ACRES

659, WATER 217 M. GAL.

659, MOWING 60 M. SQ. FT.

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

ITEM 609 - CURB, TYPE 6, AS PER PLAN

ITEM 609 - CURB, TYPE 6 AS PER PLAN, SHALL BE CONSTRUCTED WITH A 4" CURB REVEAL. AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM 606 - GUARDRAIL POST, 9 FEET

ITEM 606 - GUARDRAIL POST, 9 FEET, SHALL BE INSTALLED TO SUPPORT GUARDRAIL SPECIFIED ON THE PLANS BETWEEN STA. 614+00 AND STA. 619+00 OUTSIDE OF THE OUTSIDE EDGE OF SHOULDER IN BOTH THE EASTBOUND AND WESTBOUND DIRECTIONS OF I-90. THIS MODIFICATION IS PER DETAIL A ON SCD GR-1.1, AND IT DOES NOT APPLY TO GUARDRAIL IN THE MEDIAN.

ITEM 606 - GUARDRAIL POSTS, 9 FEET 143 EACH

ITEM 653 - TOPSOIL FURNISHED AND PLACED

THIS WORK SHALL CONSIST OF REESTABLISHING THE RESIDENTIAL LAWNS ALONG LAKE AVE. DISTURBED DURING THE PROJECT, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 653 - TOPSOIL FURNISHED AND PLACED 5 CU. YD.

ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN

AFTER COMPLETION OF MAJOR MODIFICATIONS ITEMS, EXISTING EMBANKMENT SHALL BE RESTORED TO THE UNIFORM PLAN SURFACE WITH REINFORCED CONCRETE SLOPE PROTECTION. NEW EMBANKMENT SURFACES SHALL BE PROTECTED AS SPECIFIED IN 601.04 D. PROTECTION SHALL EXTEND LONGITUDINALLY FROM THE FACE OF ABUTMENTS TO THE TOE OF SLOPE. PROTECTION Laterally SHALL BE PER THE PLANS. PROTECTION SHALL CONTINUE LONGITUDINALLY FROM THE TOE OF SLOPE TO THE BACK OF CURB, PER THE PLANS.

THE EXISTING SIDEWALK AND CHANNEL LOCATED BETWEEN THE BRIDGES WILL BE REPLACED. PORTIONS OF THE EXISTING SLOPE PROTECTION WILL BE REPLACED, PER THE PLANS, AS PART OF THIS WORK.

PAYMENT WILL BE FOR ALL WORK DESCRIBED ABOVE, AND ALL INCIDENTALS REQUIRED TO COMPLETE THIS WORK.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 202 - CONCRETE SLOPE PROTECTION REMOVED 263 SQ. YD.
ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN 651 SQ. YD.

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH FILTER

ROCK CHANNEL PROTECTION, TYPE C WITH FILTER SHALL BE PLACED AT STANDARD HW-2.1 HEADWALL OUTLET AT TOE OF SLOPE.

PAYMENT WILL BE FOR ALL WORK DESCRIBED ABOVE, AND ALL INCIDENTALS REQUIRED TO COMPLETE THIS WORK.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH FILTER 8 CU. YD.

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IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THROUGHOUT THE PROJECT AREA, EXCEPT AS NOTED HEREIN. THE PROJECT SHALL BE CONSTRUCTED IN PHASES IN ORDER TO MINIMIZE TRAFFIC DISRUPTION AND INCONVENIENCE TO MOTORISTS AND THE GENERAL PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL EQUIPMENT, MATERIALS AND MANPOWER NEEDED TO ADEQUATELY MAINTAIN TRAFFIC AS PROVIDED FOR IN THE PLANS AND SPECIFICATIONS.

THE CONTRACTOR IS REMINDED THAT, IN THE CONDUCT OF THIS PROJECT, THE SEQUENCE OF OPERATIONS SHALL BE PLANNED IN A FASHION WHICH MINIMIZES THE NUMBER OF LANE WIDTH REDUCTIONS REQUIRED TO MAINTAIN TRAFFIC THROUGH THE PROJECT.

MAINTAINING TRAFFIC AND SEQUENCE OF OPERATIONS

ALL BRIDGE RECONSTRUCTION AND SHOULDER WIDENING OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL ASSURE MINIMUM DANGER AND INCONVENIENCE TO THE HIGHWAY USERS AND RAIL TRAFFIC.

CONSTRUCTION SEQUENCE

PREPHASE I - PRIOR TO BRIDGE CONSTRUCTION, THE OUTSIDE SHOULDERS WILL BE REPLACED WITHIN THE WORK LIMITS, AS SHOWN ON PLANS. TRAFFIC WILL BE SHIFTED 2'-6" TOWARDS THE MEDIAN, AND THE LANES WILL BE REDUCED TO 11'-0". TWO LANES OF TRAFFIC WILL BE MAINTAINED AT ALL TIMES. P.C.B. WILL BE PLACED TO PROTECT THE WORK ZONE. NO TRUCKS WILL BE PERMITTED TO USE THE MEDIAN LANE.

PHASE I - UTILIZING PART WIDTH CONSTRUCTION, THE MEDIAN SIDE OF THE BRIDGE DECK OF ALL FOUR STRUCTURES WILL BE WIDENED.

1. TRAFFIC ON I-90 WILL BE SHIFTED TO THE OUTSIDE LANE AND SHOULDER. TWO 11'-0" LANES WILL BE MAINTAINED AT ALL TIMES.
2. LAKE AVENUE TRAFFIC WILL BE REDUCED TO ONE 11'-6" LANE IN EACH DIRECTION. THE TRAFFIC WILL BE ON THE INSIDE LANE.
3. THE NEW PIERS AND FOOTINGS ON LAKE AVENUE AND ON CSX WILL BE CONSTRUCTED.
4. LAKE AVENUE DRAINAGE WILL BE PERPETUATED DURING THE CONSTRUCTION OF THE LAKE AVENUE FOOTING AND PIER CONSTRUCTION.
5. THE EXISTING ABUTMENT WILL BE REMOVED AND REPLACED WITHIN THE WORK ZONE ON EACH OF THE FOUR STRUCTURES.
6. THE MEDIAN PAVEMENT REQUIRED FOR PHASE 2 MAINTENANCE OF TRAFFIC WILL BE CONSTRUCTED.
7. THE NEW STEEL WILL BE PLACED ON THE NEW PIERS AND RECONSTRUCTED ABUTMENTS. DECK POURED.
8. TRAFFIC ON LAKE AVENUE WILL RESUME NORMAL PATTERNS.

PHASE 2 - THE REMAINING LAKE AVENUE BRIDGE DECK WILL BE REMOVED AND REPLACED, THE REMAINING CSX BRIDGE WILL BE REMOVED AND REPLACED. THE EXISTING PAVEMENT BETWEEN THE BRIDGES WILL BE REMOVED AND REPLACED.

1. TRAFFIC WILL BE SHIFTED TO THE NEW MEDIAN PAVEMENT. TWO 11'-0" LANES WILL BE MAINTAINED AT ALL TIMES.
2. REMOVE AND REPLACE REMAINING LAKE AVENUE DECK. REMOVE REMAINING CSX BRIDGE, AND REPLACE.
3. EXISTING PAVEMENT BETWEEN BRIDGES WILL BE REMOVED AND REPLACED.
4. UPON COMPLETION, TRAFFIC ON I-90 WILL RESUME NORMAL PATTERNS

MAINTAINING TRAFFIC, GENERAL PROVISIONS

THE CONTRACTOR SHALL NOTIFY THE ENGINEER, THE RESPONSIBLE LAW ENFORCEMENT AGENCY, THE LORAIN COUNTY MANAGER ((440) 774-6681) AND THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 3 PUBLIC INFORMATION OFFICER ((419) 207-7182) NOT LESS THAN 72 HOURS PRIOR TO A SCHEDULED DISRUPTION OF TRAFFIC. THE CONTRACTOR SHALL SET UP AND OPERATE HIS EQUIPMENT IN SUCH A MANNER AS TO MINIMIZE ENCROACHMENT UPON THE TRAVELED WIDTH OF PAVEMENT.

NIGHTTIME WORK SHALL BE PERMITTED IN ACCORDANCE WITH THESE PLANS AND NOTES. THE CONTRACTOR SHALL PROVIDE FLOOD LIGHTING OF THE WORK AREA IN ORDER TO ASSURE THE SAFEST CONDITIONS DURING NIGHTTIME WORK. A LIGHTING PLAN FOR NIGHTTIME OPERATIONS SHALL BE PRESENTED TO AND APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL WARNING AND INFORMATION SIGNS NECESSARY FOR MAINTAINING TRAFFIC. THE CONTRACTOR SHALL DETERMINE WHAT SIGNS ARE NEEDED AND ADVISE THE ENGINEER IN WRITING TWO (2) WEEKS IN ADVANCE OF HIS DETAILED PLANS. SEE THE OMTCD AND STANDARD DRAWINGS FOR THE MINIMUM SIGNAGE REQUIRED.

TRAFFIC CONTROL DEVICES SHALL BE SET UP PRIOR TO THE START OF CONSTRUCTION, AND SHALL BE PROPERLY MAINTAINED. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND SHALL BE IMMEDIATELY REMOVED THEREAFTER. WHERE OPERATIONS ARE PERFORMED IN STAGES, THERE SHALL BE IN PLACE ONLY THOSE DEVICES THAT APPLY TO THE CONDITION PRESENT DURING STAGE IN PROGRESS. ALL SIGNS WITH MESSAGES WHICH DO NOT APPLY DURING A CERTAIN PERIOD SHALL BE COVERED OR SET ASIDE OUT OF THE VIEW OF TRAFFIC.

PLACEMENT OF FINAL ROADWAY PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE "SCHEDULE OF THROUGH LANES TO BE MAINTAINED." THE CONTRACTOR SHALL PROVIDE 2 TRAILING VEHICLES AS PER MT 99.20M FOLLOWING THE PAVEMENT MARKING EQUIPMENT. THE TRAILING VEHICLES SHALL TRAVEL 500' 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. EACH TRAILING VEHICLE SHALL HAVE A YELLOW FLASHING BEACON PLUS 48" CONSTRUCTION WARNING SIGNS MOUNTED ON THE BACK FACING TRAFFIC WITH STANDARD TYPE MESSAGES ADVISING MOTORISTS OF THE WORK AHEAD.

DURING NON WORKING PERIODS, OPEN EXCAVATIONS SHALL BE DELINEATED WITH WARNING FLASHERS AND/OR OTHER APPROVED DEVICES AS DEEMED APPROPRIATE BY THE ENGINEER.

EXISTING SIGNS LOCATED WITHIN THE ROAD WORK AREAS WHICH ARE NECESSARY FOR INTERIM OR PERMANENT TRAFFIC CONTROL SHALL BE REMOVED AND RE-ERECTED IN LOCATIONS AS APPROVED BY THE ENGINEER.

PROVIDE TEMPORARY PEDESTRIAN TRAFFIC ACCESS FOR PEDESTRIANS ALONG LAKE AVENUE THAT WILL SAFELY CONVEY PEDESTRIAN TRAFFIC UNDER I-90 DURING CONSTRUCTION. PROVIDE ACCESS FROM EXISTING SIDEWALK TO THE STREET LEVEL IN ACCORDANCE WITH THE CURRENT ADA REGULATIONS. ALL MATERIALS USED FOR THE TEMPORARY PEDESTRIAN ACCESS SHALL BE REMOVED WHEN NO LONGER NEEDED, AND THE AREA WILL BE RESTORED TO THE PRECONSTRUCTION CONDITION.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 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.

A MINIMUM OF 2 LANES OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, AND ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC.

ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC CLASS A, AS PER PLAN

PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, SHALL BE USED WHERE DESIGNATED ON THE PLANS. UPON COMPLETION OF THE PROJECT, THE PAVEMENT SHALL REMAIN IN PLACE.

THE EXCAVATION AND EMBANKMENT, ASSOCIATED WITH THE CONSTRUCTION OF THE PAVEMENT FOR MAINTAINING TRAFFIC WILL BE PAID FOR SEPERATELY UNDER THE APPROPRIATE ITEM.

ITEM 614. MAINTAINING TRAFFIC LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS

NO WORK SHALL BE PERFORMED AND ALL I-90 LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING

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

DAY OF 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 6:00AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH OR 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.

ITEM 614, LAKE AVENUE ALLOWABLE CLOSING SCHEDULE

THE COMPLETE CLOSING OF TRAFFIC IN ALL LANES ON LAKE AVENUE SHALL NOT BE MORE THAN 10 MINUTES IN ANY CONSECUTIVE ONE HOUR PERIOD. NO STOPPAGE OF TRAFFIC WILL OCCUR WITHOUT LAW ENFORCEMENT PERSONAL IN LOCATION TO DIRECT TRAFFIC. THE ALLOWABLE TIMES FOR WEEKDAY CLOSING OF LAKE AVENUE WILL BE BETWEEN 6:00 PM THRU 9:00PM. THE ALLOWABLE WEEKEND CLOSING WILL BE BETWEEN 9:00 AM THRU 9:00 PM.

ITEM 614, MAINTAINING TRAFFIC (TIME LIMITATION ON A DETOUR)

IN ADDITION TO THE REQUIREMENTS OF SECTION 108.02 OF THE OHIO DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND IN CONSIDERATION OF THE DEPARTMENT'S INTENTION TO PROVIDE THE AWARDED CONTRACTOR WITH A MORE FLEXIBLE TIME FRAME FOR PERFORMING REQUIRED CONSTRUCTION ACTIVITIES, THE AWARDED CONTRACTOR FOR THIS PROJECT SHALL BE GIVEN A DATE FOR PROJECT COMPLETION IN ACCORDANCE WITH THE FOLLOWING:

ALL CONSTRUCTION WORK ON THE PROJECT SHALL BE COMPLETED ON OR BEFORE THE DAY FOLLOWING THE DATE OF THE DISTRICT HIGHWAY MANAGEMENT ADMINISTRATOR'S WRITTEN AUTHORIZATION TO PROCEED WITH THE CONSTRUCTION ACTIVITIES, BUT NO LATER THAN THE COMPLETION DATE INDICATED IN THE PROPOSAL.

THEREFORE, THE AWARDED CONTRACTOR HAS A WINDOW OF TIME IN WHICH TO CONSTRUCT THIS PROJECT. FAILURE TO COMPLETE ALL CONSTRUCTION ACTIVITIES, ONCE INITIATED, EITHER WITHIN THIS WINDOW OF TIME OR BY THE DATE GIVEN FOR COMPLETION SHALL RESULT IN A BREACH OF CONTRACT BY THE AWARDED CONTRACTOR.

THE CONTRACTOR SHALL A HAVE MAXIMUM OF DAYS TO COMPLETE THE PRE-PHASE I WORK. (REPLACEMENT OF THE OUTSIDE SHOULDER)

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MAINTENANCE OF TRAFFIC GENERAL NOTES

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ITEM 614, MAINTAINING TRAFFIC LANE CLOSURE ON LAKE AVENUE.

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

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR)

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP-MOUNTED EMERGENCY FLASHING LIGHTS SHALL 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.

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

LAW ENFORCEMENT OFFICERS (LEOS) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEOS ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH:

ELYRIA POLICE DEPARTMENT 18 WEST AVENUE ELYRIA, OH 44035 440-326-1200	OHIO STATE HIGHWAY PATROL ELYRIA PATROL POST 38000 CLETUS DRIVE ELYRIA, OH 44035 440-365-5045
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LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A HOURLY BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR 200 HOURS

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

IF CONTRACTORS WISH TO UTILIZE LEOS FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614, MAINTAINING TRAFFIC.

ITEM 614, BARRIER REFLECTORS AND/OR OBJECT MARKERS

BARRIER REFLECTORS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET. AN ESTIMATED QUANTITY OF 443 EACH OF ITEM 614 BARRIER REFLECTOR, TYPE B HAS BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

DUST CONTROL

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

ITEM 616, WATER 31 M. GAL

ITEM 614, REPLACEMENT SIGN

FLATSHEET 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 WHEN ORDERED BY THE ENGINEER. 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 AT THE CONTRACT 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.

AN ESTIMATED QUANTITY OF 20 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

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 WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE MADE AT THE CONTRACT 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.

AN ESTIMATED QUANTITY OF 50 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

WORK ZONE INCREASED PENALTIES SIGN (R11-H5a)

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

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

THE SIGNS ON THE MAINLINE SHALL BE DUAL MOUNTED UNLESS NOT PHYSICALLY POSSIBLE. THE FIRST SIGN SHALL BE PLACED BETWEEN THE ROAD WORK AHEAD (W20-1) SIGN AND THE NEXT SIGN IN THE SEQUENCE. SIGNS SHALL BE ERECTED ON EACH ENTRANCE RAMP AND EVERY 2 MILS THROUGH THE CONSTRUCTION WORK LIMITS. SIGNS ON THE MAINLINE SHALL BE R11-H5A-48. SIGNS USED ON THE RAMPS SHALL BE R11-H5A-24. R11-H5A-24 SIGNS MAY BE USED IN THE MEDIAN IN LIEU OF R11-H5A-48 SIGNS IF IT IS NOT PHYSICALLY POSSIBLE TO PROVIDE R11-H5A-48 SIGNS IN THE MEDIAN.

THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED, BUT GOOD, CONDITION PROVIDED THE SIGNS MEET CURRENT ODOT SPECIFICATIONS. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF CMS 630.19.

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

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE, IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR FURNISHING, ERECTING, MAINTAINING, COVERING DURING SUSPENSION OF WORK AND REMOVAL OF THE SIGN AND SUPPORT.

ITEM 614, CONSTRUCTION ZONE/ FINES DOUBLED SIGN 5 EACH

ITEM 614, WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)

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

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

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9" . 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:

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MAINTENANCE OF TRAFFIC GENERAL NOTES

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ITEM 614, WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) (CON'TD)

DRAWING NUMBER: QSCZCVR-T4
DRAWING NAME : QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES
REVISION DATE : 5/13/99 REV. J
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-10
DRAWING NAME : QUADGUARD SYSTEM CONCRETE PAD, CZ, QG
REVISION DATE : 11/19/97 REV. D
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-16
DRAWING NAME : QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG
REVISION DATE : 7/30/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 354051Z
DRAWING NAME : QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36
REVISION DATE : 5/17/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-18
DRAWING NAME : TRANSITION ASSEMBLY, 4 OFFSET, QG
REVISION DATE : 6/25/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35400260
DRAWING NAME : QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY
REVISION DATE : 11/19/97 REV. C
ODOT APPROVAL DATE: 8/27/99

2. THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).
THE TRACC IS 21'-0" 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:

DRAWING NUMBER: SS450
DRAWING NAME : CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS
REVISION DATE : 3/12/99 REV. I
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS455
DRAWING NAME : TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE : 2/18/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS461
DRAWING NAME : TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE : 6/30/99 REV. I
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS462
DRAWING NAME : TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS
REVISION DATE : 6/30/99
ODOT APPROVAL DATE: 8/27/99

ITEM 614, WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) (CONT'D)

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

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

DRAWING NUMBER: A040416
DRAWING NAME : UNIVERSAL TAU-II PARTS LIST
REVISION DATE : 4/22/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040420
DRAWING NAME : UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP
REVISION DATE : 4/28/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040105
DRAWING NAME : UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A04020)
REVISION DATE : 1/07/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: B040239
DRAWING NAME : APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL 60 MPH UNIT)
REVISION DATE : 4/21/04
ODOT APPROVAL DATE: 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 ONE TO SIX UNITS INSTALLED ON THE PROJECT SITE. FOR EXAMPLE, FIVE INSTALLED UNITS REQUIRE ONE SPARE PARTS PACKAGE AND SEVEN INSTALLED UNITS REQUIRE TWO SPARE PARTS PACKAGES.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT TEH UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT, MAINTAIN AND REPAIR 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.

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME 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 OPERATIVE 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 ITEM 614, MAINTAINING TRAFFIC.

ITEM 614 - WORK ZONE LINE, CLASS I, AS PER PLAN

THE CONTRACTOR WILL FURNISH WORK ZONE PAVEMENT MARKING FOR PHASE 1 & PHASE 2 PER SUPPLEMENTAL SPECIFICATIONS 873 & 1085.

WORKSITE TRAFFIC SUPERVISOR

THE CONTRACTOR SHALL EMPLOY (OTHER THAN THE SUPERINTENDENT) AND SUBJECT TO THE APPROVAL OF THE ENGINEER, A CERTIFIED WORKSITE TRAFFIC SUPERVISOR (WTS). 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 WORKSITE TRAFFIC SUPERVISOR (WTS).
2. OHIO LABORER'S TRAINING CENTER, PHONE NUMBER 1-800-635-7570, TRAFFIC CONTROL SUPERVISORS CLASS.
3. NATIONAL HIGHWAY INSTITUTE, DESIGN AND OPERATION OF WORK ZONE TRAFFIC CONTROL, PHONE NUMBER 1-703-235-0528.
4. THE OCA/TCS WORK ZONE CLASS, ONLY IF TAKEN AFTER MAY 5, 2004.

THE WTS POSITION IS ESTABLISHED FOR THE PURPOSE OF MONITORING AND CORRECTING ANY TRAFFIC CONTROL DEFICIENCIES IN THE WORK ZONE. THE WTS MUST ALSO COORDINATE WITH ALL LAW ENFORCING AGENCIES RESPONSIBLE FOR THE ROADWAY UNDER CONSTRUCTION AND RETRIEVE ALL CRASH REPORTS (OH-1) THAT OCCUR DURING THE CONSTRUCTION SEASON. THE WTS SHALL OVERSEE ALL OPERATIONS THAT AFFECT THE MOVEMENT OF VEHICULAR AND PEDESTRIAN TRAFFIC THROUGH THE WORK ZONE. TRAFFIC CONTROL AND CRASH DATA EVALUATION WILL BE THE WTS'S MAIN DUTY WHILE THE WORK ZONE IS IN PLACE.

THE WTS SHALL BE PRESENT WHEN THE WORK ZONE IS BEING SET UP, AND SHALL ALSO BE PRESENT WHEN THE CONTRACTOR OR SUBCONTRACTOR INSTALLS A TRAFFIC RESTRICTION, LANE CLOSURE, ETC. IN LIEU OF THE WTS BEING PRESENT WHEN A SUBCONTRACTOR HAS A WORK ZONE IN PLACE, THE CONTRACTOR MAY USE HIS OWN PERSONNEL THAT IS A CERTIFIED WTS. THE CONTRACTOR OR SUBCONTRACTOR MUST PRESENT A COPY OF HIS WTS CERTIFICATE TO THE PROJECT ENGINEER.

DAILY, INCLUDING WEEKENDS AND HOLIDAYS THE WTS SHALL SPEND A MINIMUM OF ONE HOUR REVIEWING THE WORK ZONE AND/OR CRASH DATA FOR DEFICIENCIES AND MAINTAINING THE WORK ZONE. THE WTS MUST RECOMMEND SOLUTIONS TO ADDRESS ANY ISSUES THAT ARE POTENTIALLY CREATING CRASHES WITHIN THE WORK ZONE. THE WTS MUST PRESENT THESE RECOMMENDATIONS TO THE ENGINEER AND THE DISTRICT WORK ZONE TRAFFIC MANAGER (DWZTM) FOR APPROVAL AT ALL PROJECT PROGRESS MEETINGS. UPON APPROVAL BY THE ENGINEER AND THE DWZTM, THE CONTRACTOR MUST IMPLEMENT THE RECOMMENDED SOLUTIONS TO THE WORK ZONES WITHIN ONE WEEK. THESE HOURS MAY BE ADJUSTED BY THE ENGINEER BUT MUST BE PERFORMED ONCE A DAY DURING THE CONSTRUCTION SEASONS. THE WTS MUST INSPECT THE WORK ZONE AT THE BEGINNING AND THE END OF EACH WORK DAY AND ONE TIME PER WEEK DURING THE HOURS OF DARKNESS.

A RECORD OF EACH DAILY REVIEW SHALL BE GIVEN TO THE PROJECT ENGINEER THE FOLLOWING WORK DAY. ALSO IN WRITING, THE WTS'S REPORT SHALL INCLUDE: TRAFFIC CONTROL DEVICE CONDITION, PLACEMENT, VISIBILITY, TRAFFIC FLOW CONDITIONS, INCIDENTS, ACCIDENTS, CONGESTION POINTS, ADEQUACY OF ADVANCED WARNING SIGNS BEYOND PROJECT LIMITS, INTERACTION OF WORK VEHICLES AND TRAFFIC, PROPER STORAGE OF MATERIALS AND EQUIPMENT.

IF THE RESTRICTIONS ARE SHORT TERM, THE WTS SHALL MONITOR THE ZONE FOR COMPLIANCE. DURING LANE CLOSURES, THE WTS SHALL MAKE SURE ALL TRAFFIC CONTROL ITEMS ARE FUNCTIONING PROPERLY. TRAFFIC CONTROL AND CRASH DATA EVALUATION WILL BE THE WTS'S MAIN DUTY DURING IMPLEMENTATION OF ZONES OR SHORT-TERM ZONES. THE WTS SHALL HAVE THE AUTHORITY TO HAVE DEFICIENCIES CORRECTED AS SOON AS POSSIBLE. THE WTS SHALL PROVIDE THE DWZTM A SKETCH OF THE TRAFFIC CONTROL PLAN (TCP) EVERY DAY THERE IS TO BE SHORT-TERM TRAFFIC RESTRICTION, LANE CLOSURE, ETC. THIS TCP SHALL SHOW HOW THE WORK ZONES ARE TO BE IMPLEMENTED.

THE WTS SHALL BE AVAILABLE ON A 24-HOUR BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. A 24-HOUR PHONE NUMBER SHALL BE MADE AVAILABLE TO THE PROJECT ENGINEER IN ORDER TO CONTACT THE WTS. THE WTS SHALL HAVE A PAGER AND THE PHONE NUMBER PROVIDED TO THE PROJECT ENGINEER.

FAILURE OF THE CONTRACTOR TO COMPLY WITH ANY OF THE ABOVE, SHALL CONSTITUTE CAUSE FOR THE PROJECT ENGINEER TO DEDUCT \$500.00 PER DAY FROM MONEY DUE TO THE CONTRACTOR, NOT AS A PENALTY, BUT AS A LIQUIDATION DAMAGE.

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

ITEM 614 WORKSITE TRAFFIC SUPERVISOR 24 MONTHS

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**ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS,
AS PER PLAN**

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN, ON SITE, FOR THE DURATION OF THE PROJECT. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS MAINTAINED BY THE OFFICE OF MATERIALS MANAGEMENT. THIS LIST IS AVAILABLE ON THE ODOT WEBSITE AT [HTTP://WWW.DOT.STATE.OH.US/TESTLAB/APPLISTS/MISC/PCMS.HTM](http://www.dot.state.oh.us/testlab/applists/misc/pcms.htm). THE LIST CURRENTLY CONTAINS CLASS I, II, AND III UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 1250 FT., 850 FT. AND 650 FT., RESPECTIVELY.

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

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET 15, 18, 19, & 22 OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC, AND SHALL DISPLAY ONE OR MORE HIGH-INTENSITY YELLOW REFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

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

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

**ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS,
AS PER PLAN (CONT'D)**

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

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

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

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

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN,
AS PER PLAN 72 SIGN-MONTH

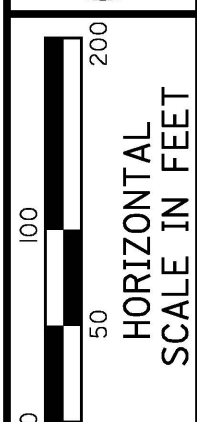
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MAINTENANCE OF TRAFFIC GENERAL NOTES

LOR -90-12.42

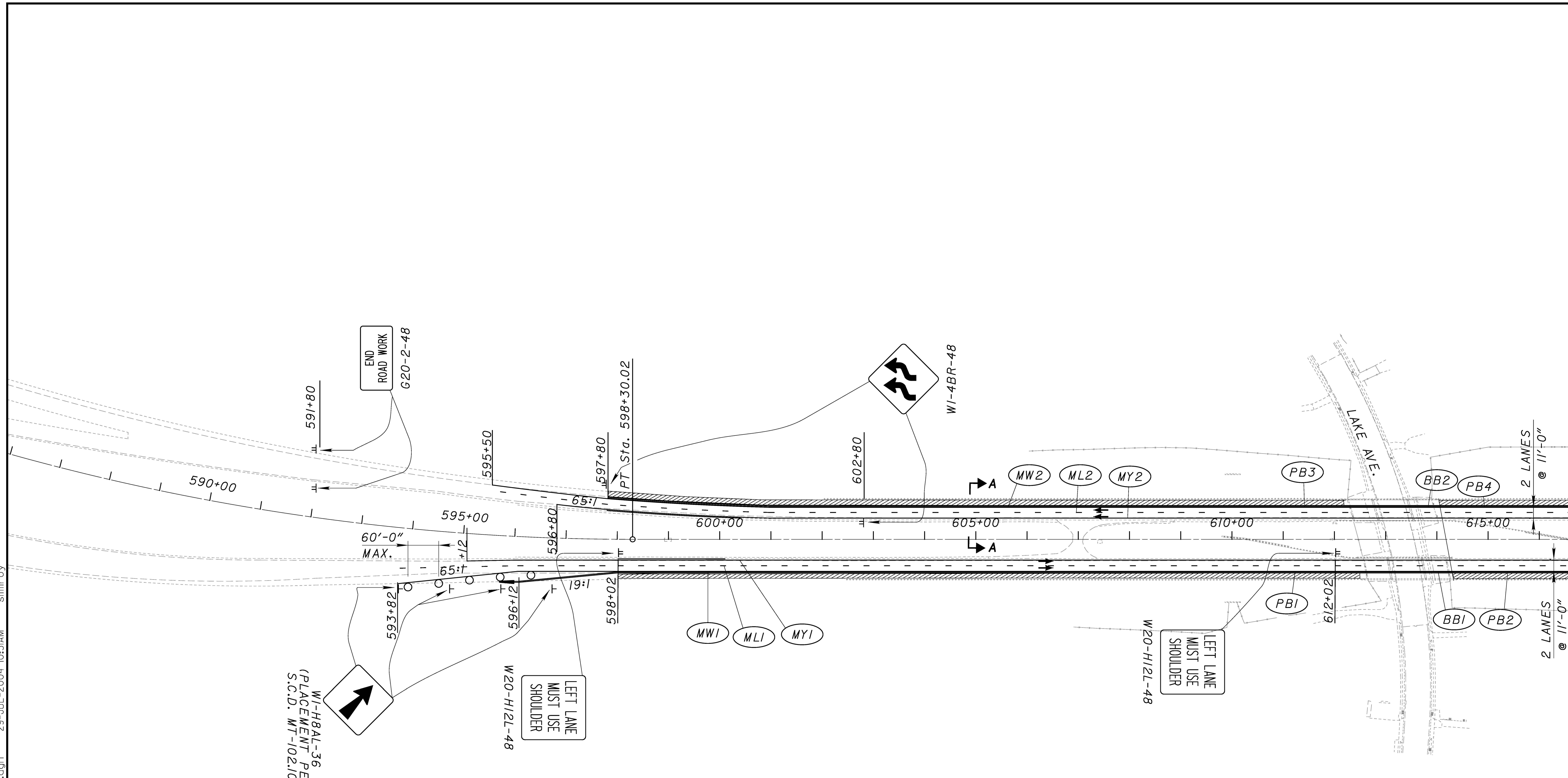
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**MAINTENANCE OF TRAFFIC
I-90 PRE-PHASE I**

LOR-90-12.42

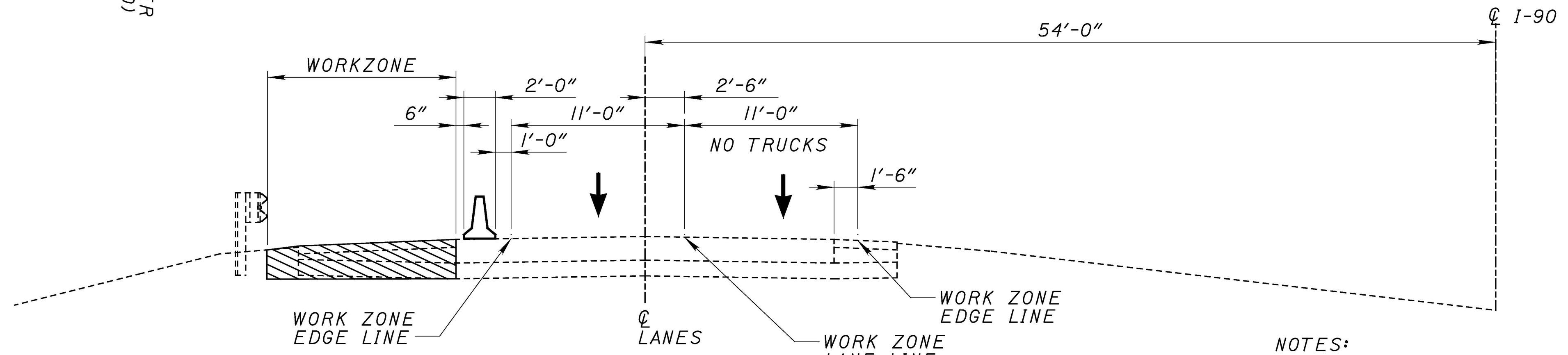
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W1-H8AL-36
(PLACEMENT PER
S.C.D. MT-102.10)

W20-H12L-48
LEFT LANE
MUST USE
SHOULDER

W20-H12L-48
LEFT LANE
MUST USE
SHOULDER

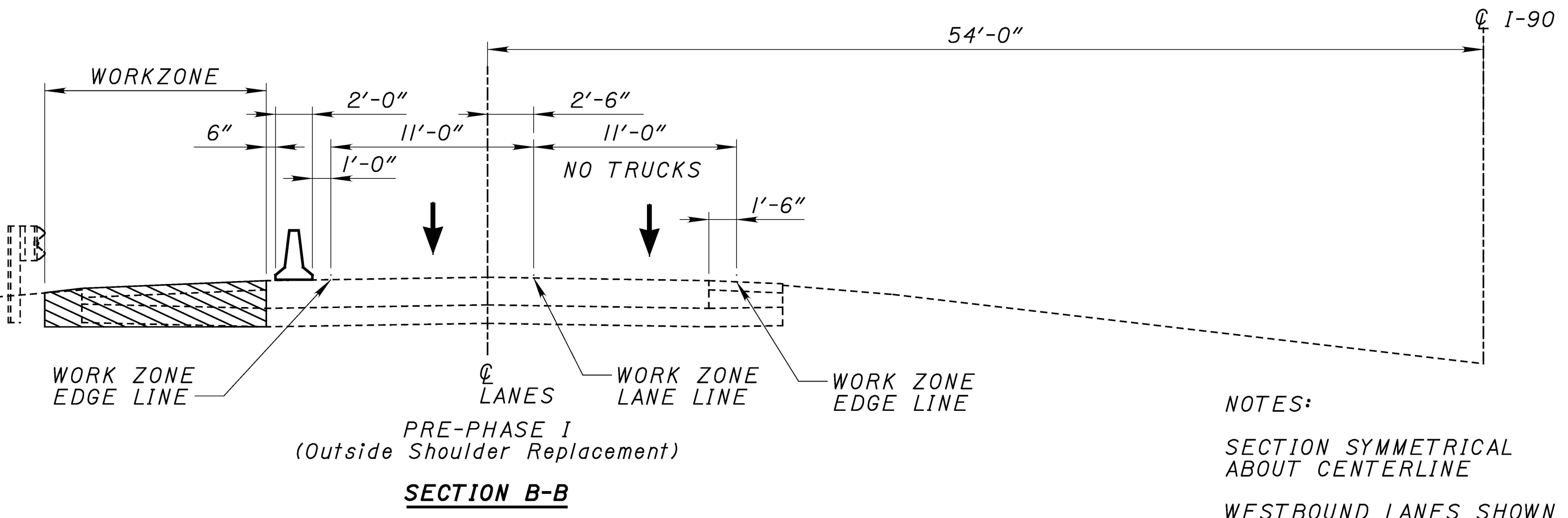
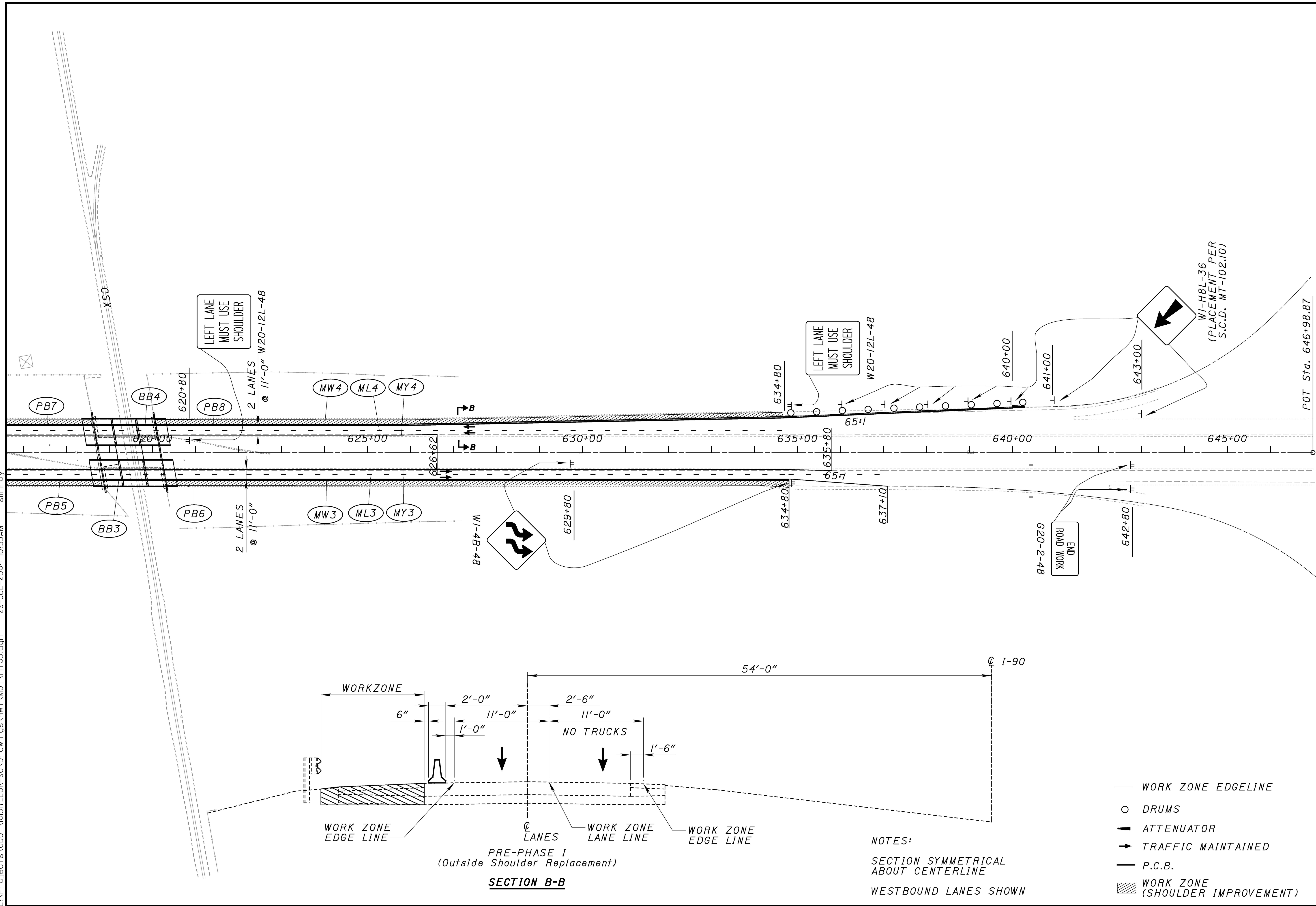


SECTION A-A
PRE-PHASE I
(Outside Shoulder Replacement)

NOTES:
SECTION SYMMETRICAL
ABOUT CENTERLINE
WESTBOUND LANES SHOWN

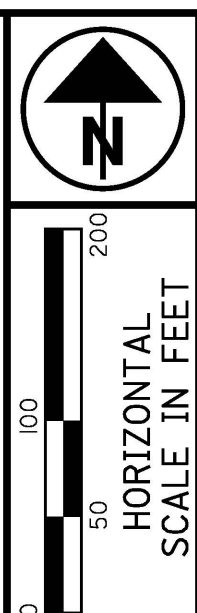
- WORK ZONE EDGELINE
- DRUMS
- ▬ ATTENUATOR
- TRAFFIC MAINTAINED
- P.C.B.
- ▨ WORK ZONE (SHOULDER IMPROVEMENT)

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NOTES:
 SECTION SYMMETRICAL ABOUT CENTERLINE
 WESTBOUND LANES SHOWN

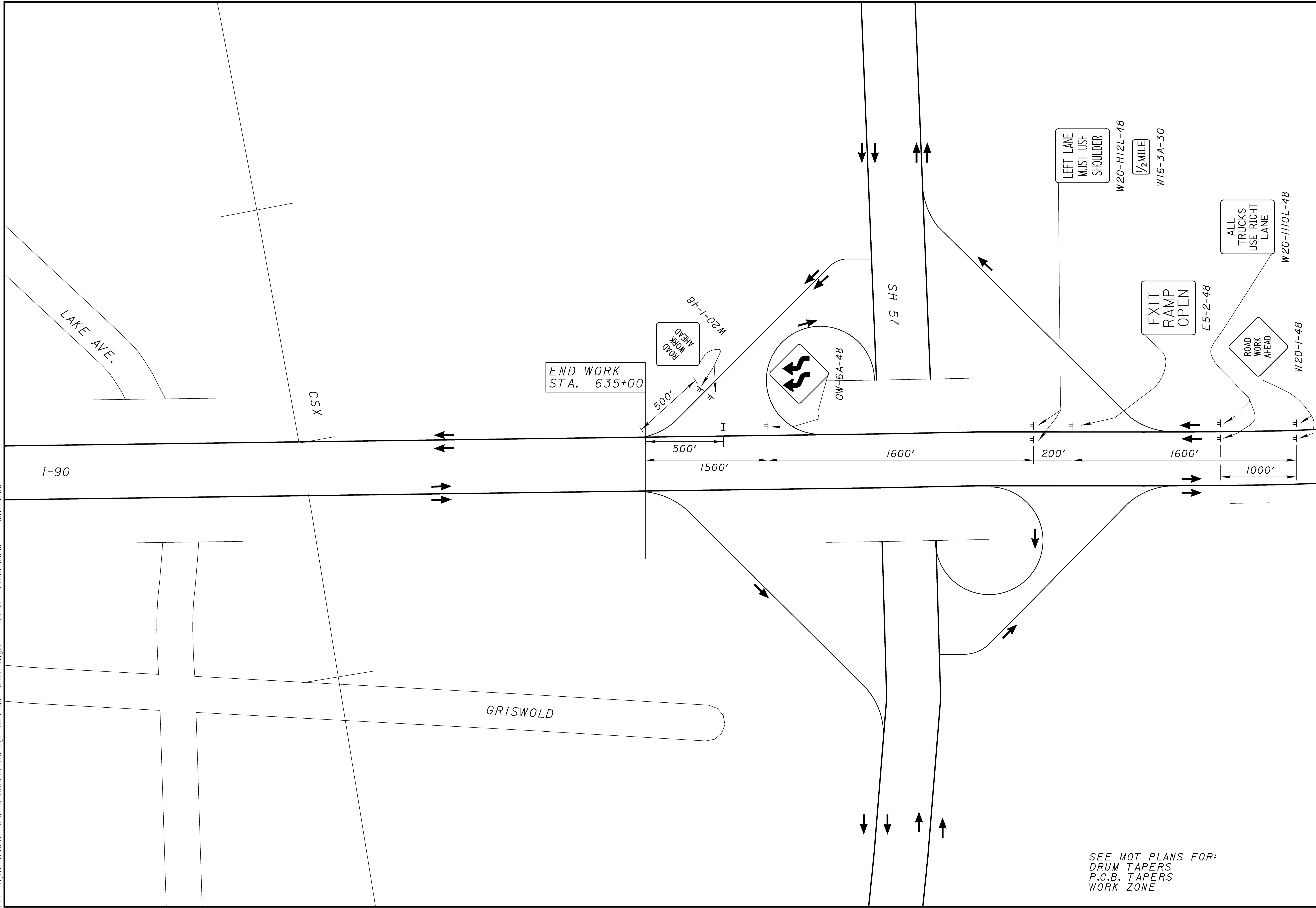
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- ▬ ATTENUATOR
- ↓ TRAFFIC MAINTAINED
- - - P.C.B.
- ▨ WORK ZONE (SHOULDER IMPROVEMENT)



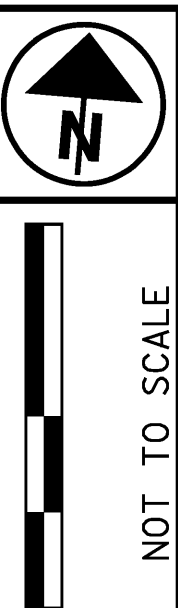
**MAINTENANCE OF TRAFFIC
 I-90 PRE-PHASE 1**

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SEE MOT PLANS FOR:
DRUM TAPERS
P.C.B. TAPERS
WORK ZONE

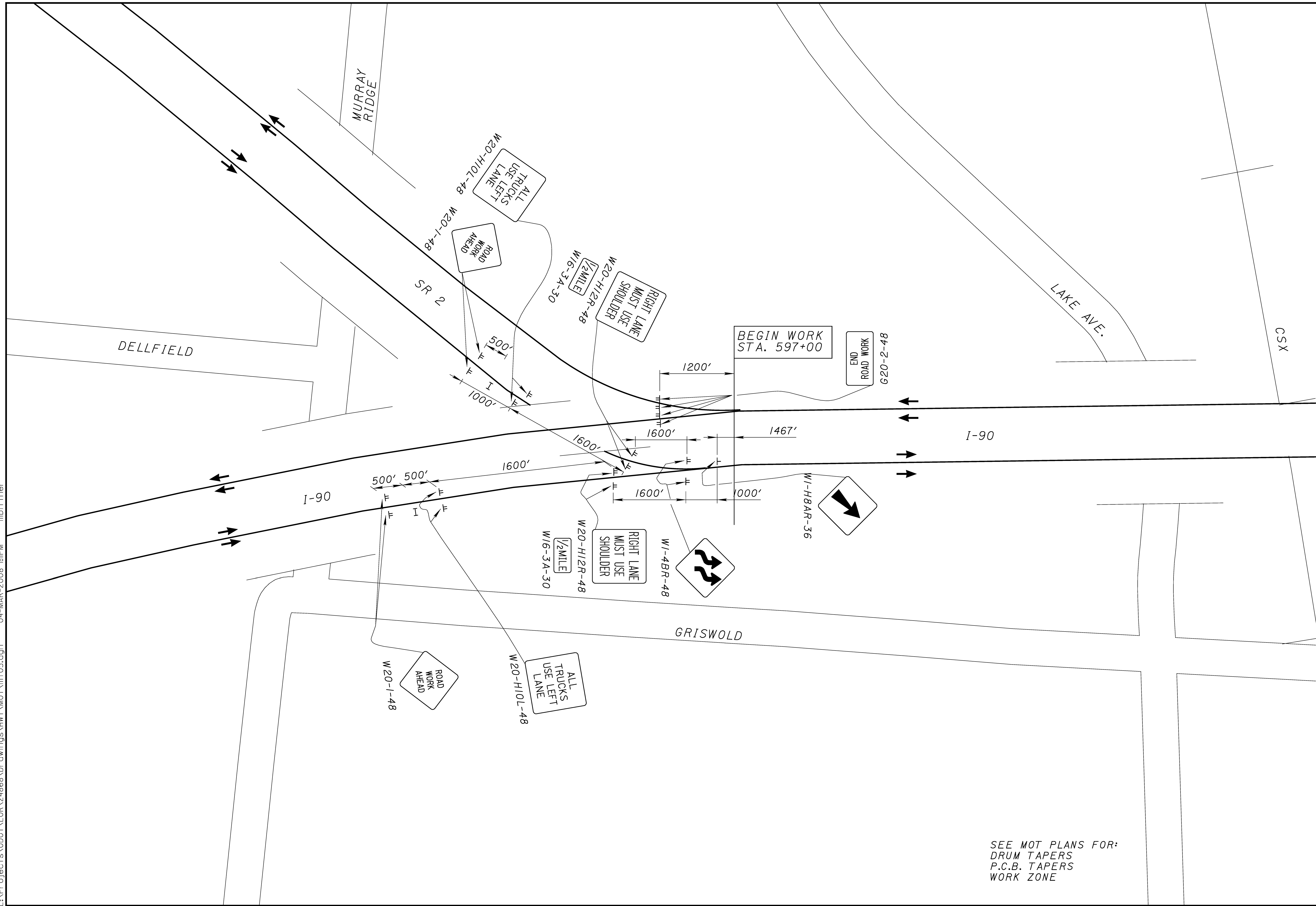


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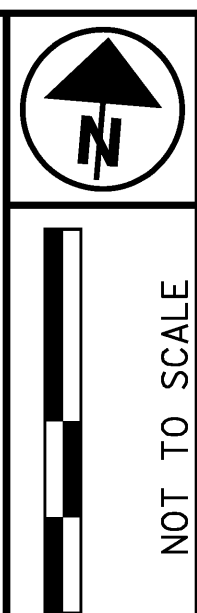
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I-90 PRE-PHASE 1 SIGNING DETAILS**

LOR-90-12.42

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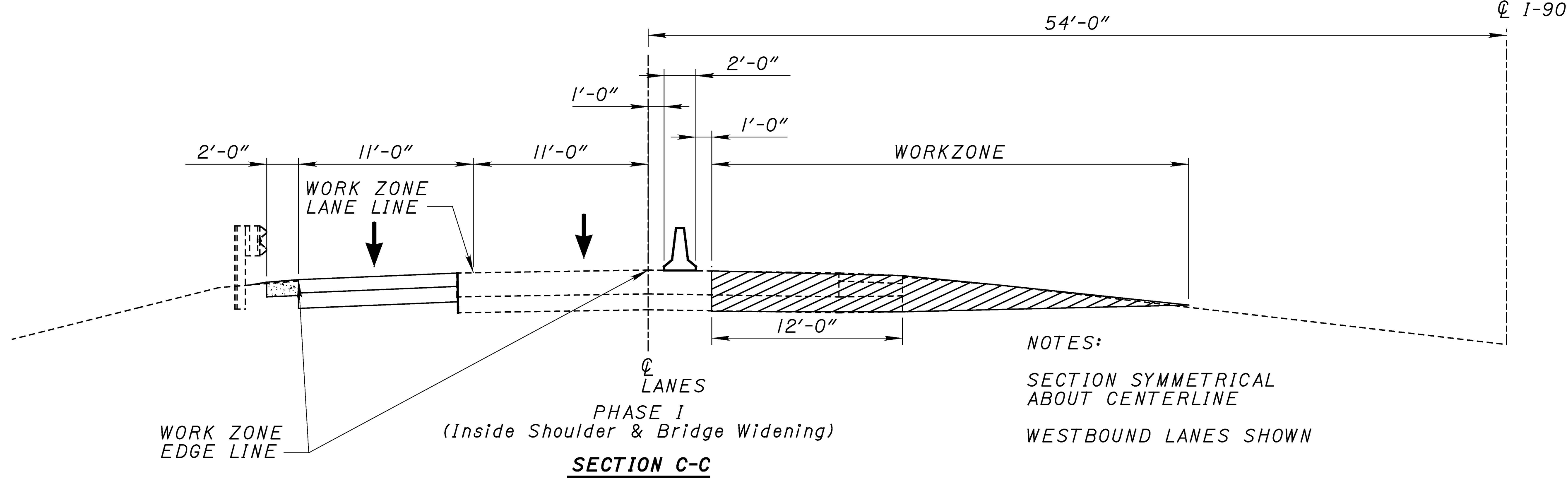
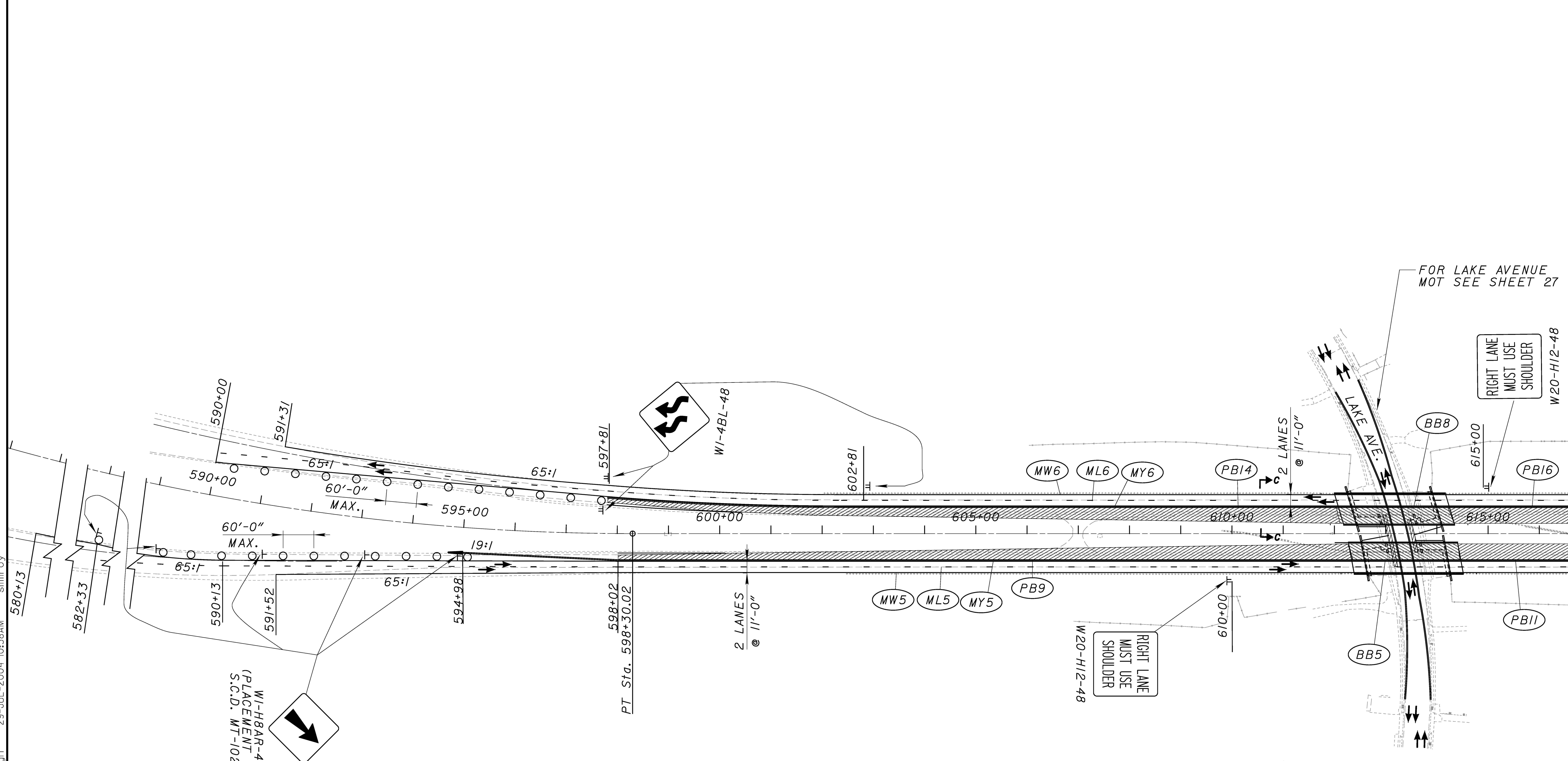


SEE MOT PLANS FOR:
DRUM TAPERS
P.C.B. TAPERS
WORK ZONE



**MAINTENANCE OF TRAFFIC
I-90 PHASE 1 SIGNING DETAILS**

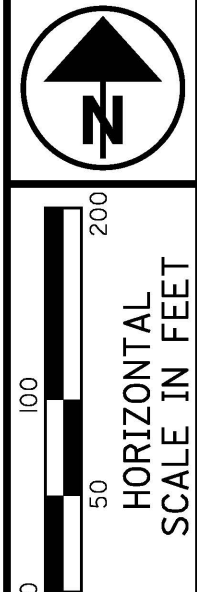
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NOTES:
SECTION SYMMETRICAL ABOUT CENTERLINE
WESTBOUND LANES SHOWN

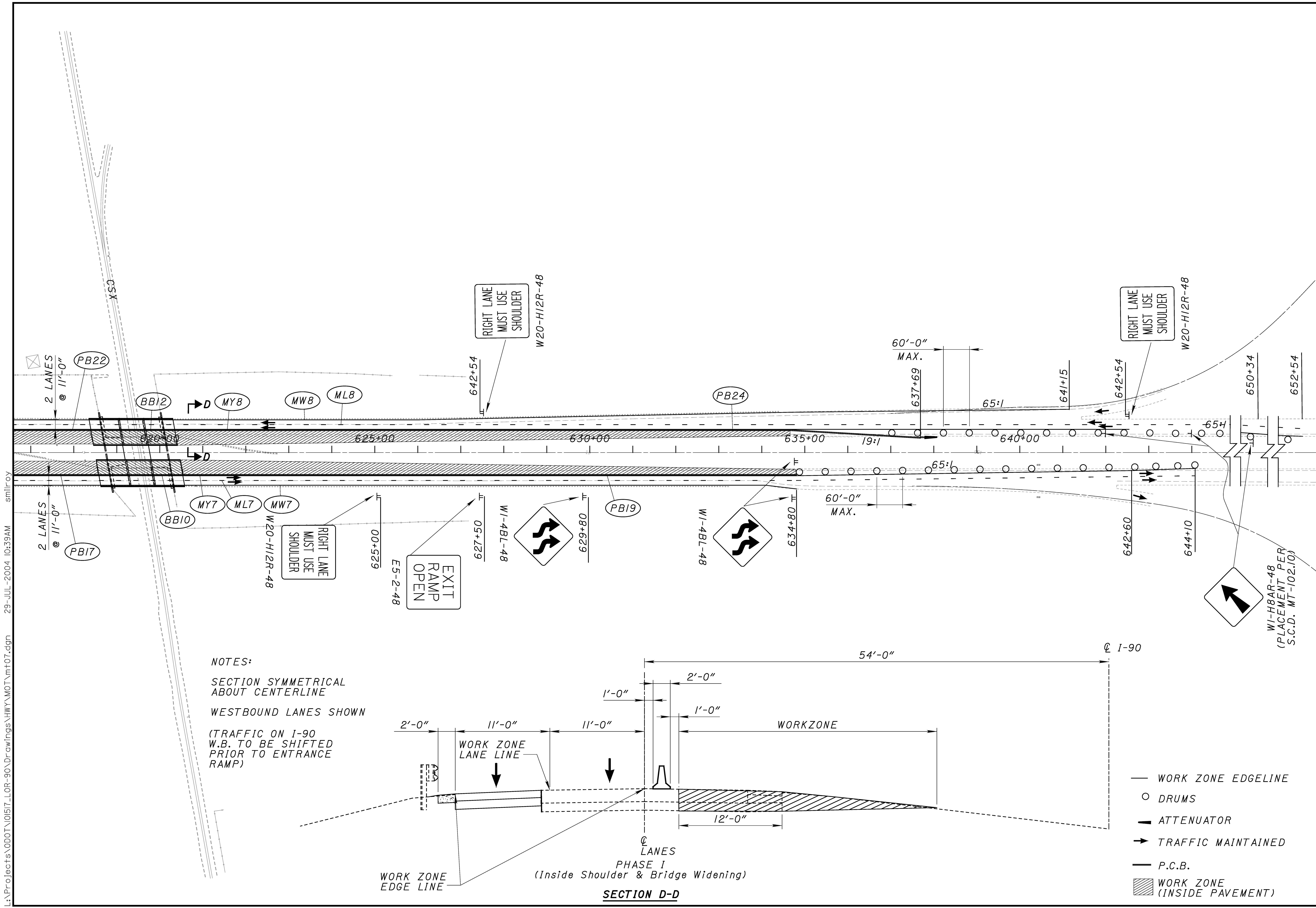
- WORK ZONE EDGE LINE
- DRUMS
- ▬ ATTENUATOR
- ➔ TRAFFIC MAINTAINED
- P.C.B.
- ▨ WORK ZONE (INSIDE PAVEMENT)

MAINTENANCE OF TRAFFIC I-90 MOT PHASE 1

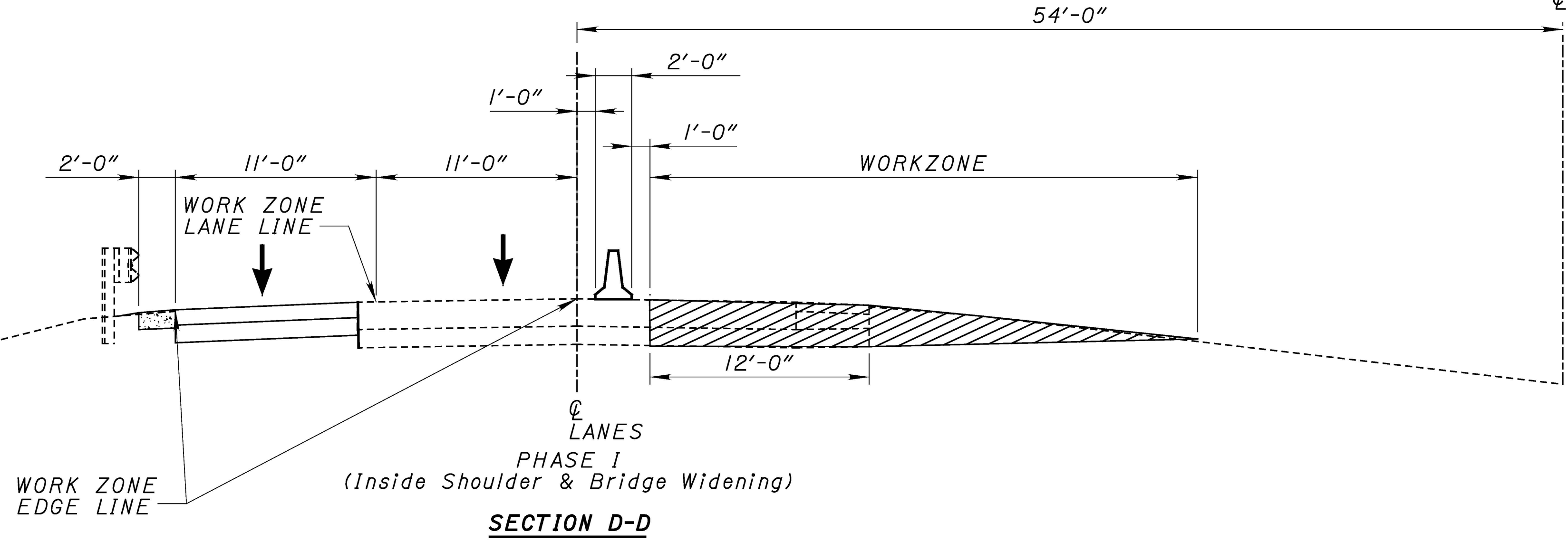


**MAINTENANCE OF TRAFFIC
I-90 PHASE 1**

LOR-90-12.42



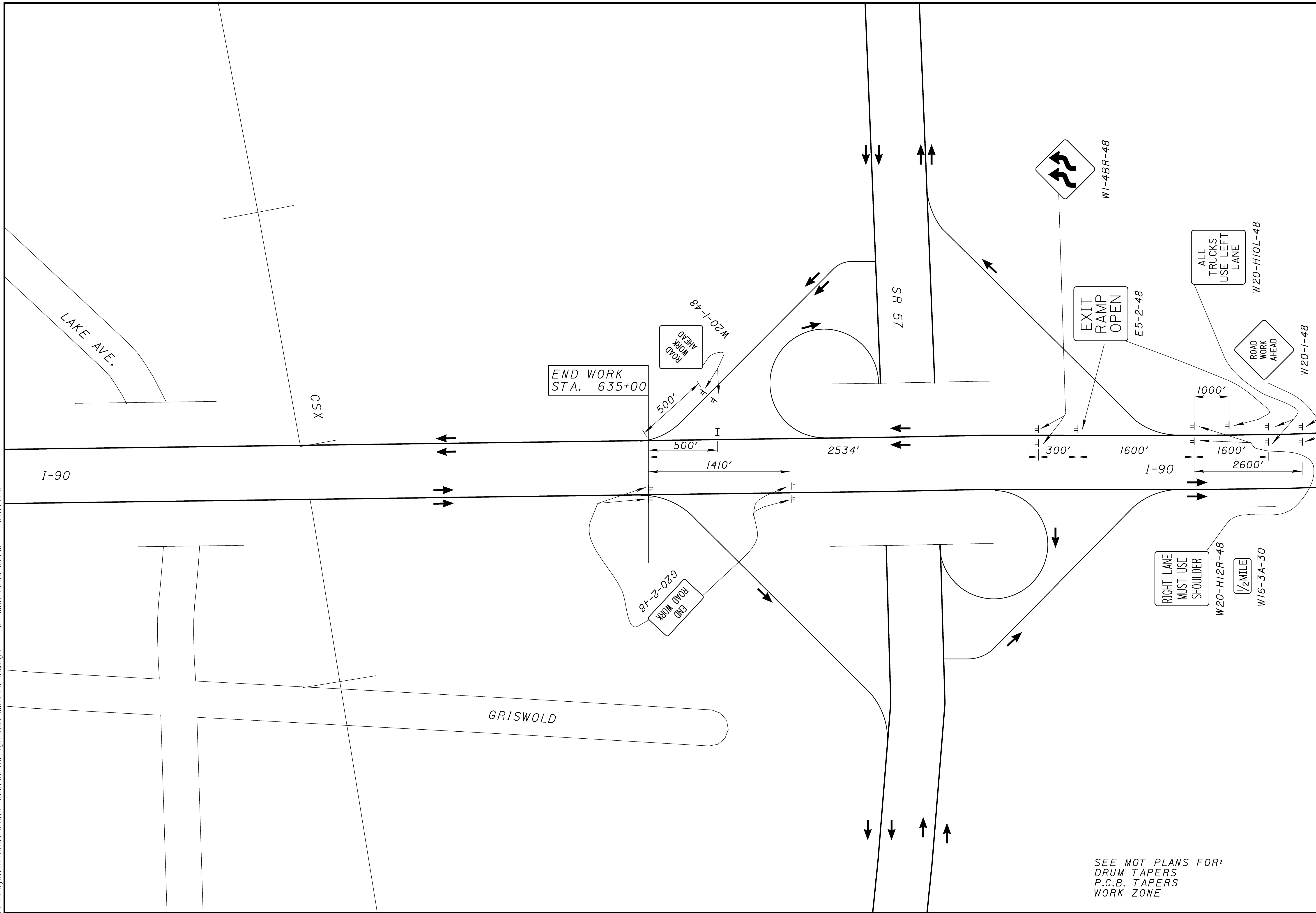
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WESTBOUND LANES SHOWN
(TRAFFIC ON I-90 W.B. TO BE SHIFTED PRIOR TO ENTRANCE RAMP)



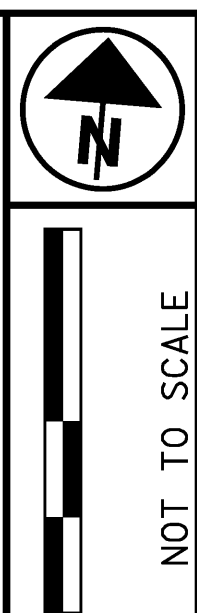
- WORK ZONE EDGE LINE
- DRUMS
- ▬ ATTENUATOR
- ➔ TRAFFIC MAINTAINED
- P.C.B.
- ▨ WORK ZONE (INSIDE PAVEMENT)

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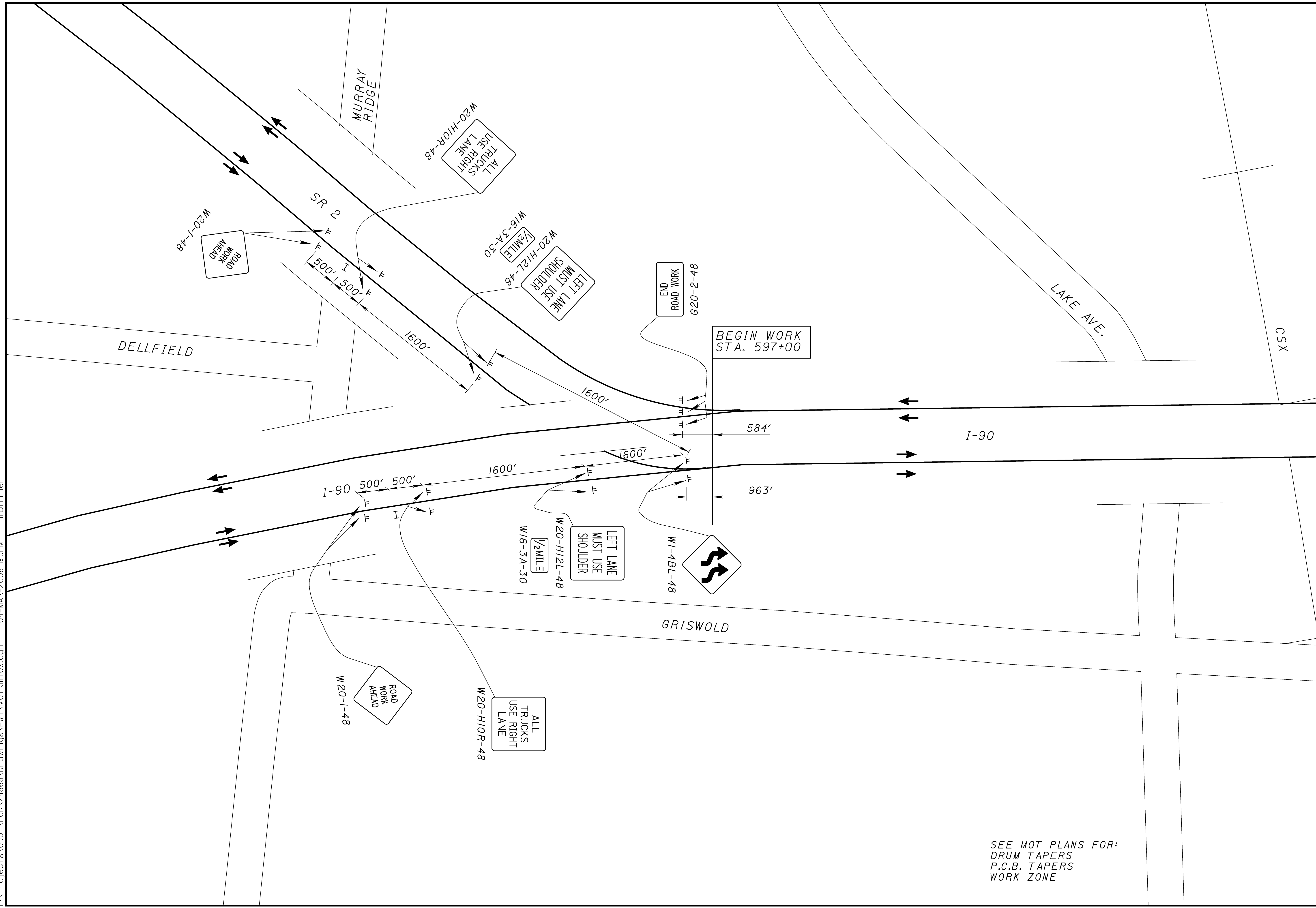
SEE MOT PLANS FOR:
DRUM TAPERS
P.C.B. TAPERS
WORK ZONE



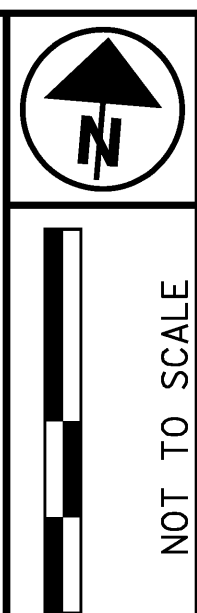
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I-90 PHASE 1 SIGNING DETAILS**

LOR-90-12.42

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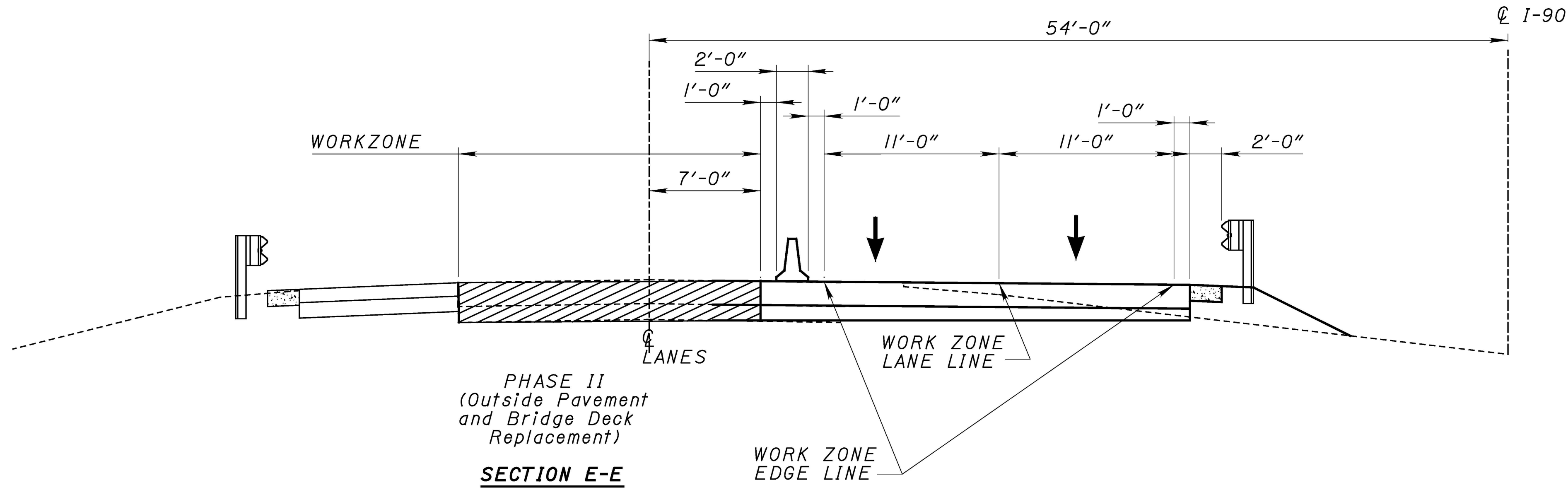
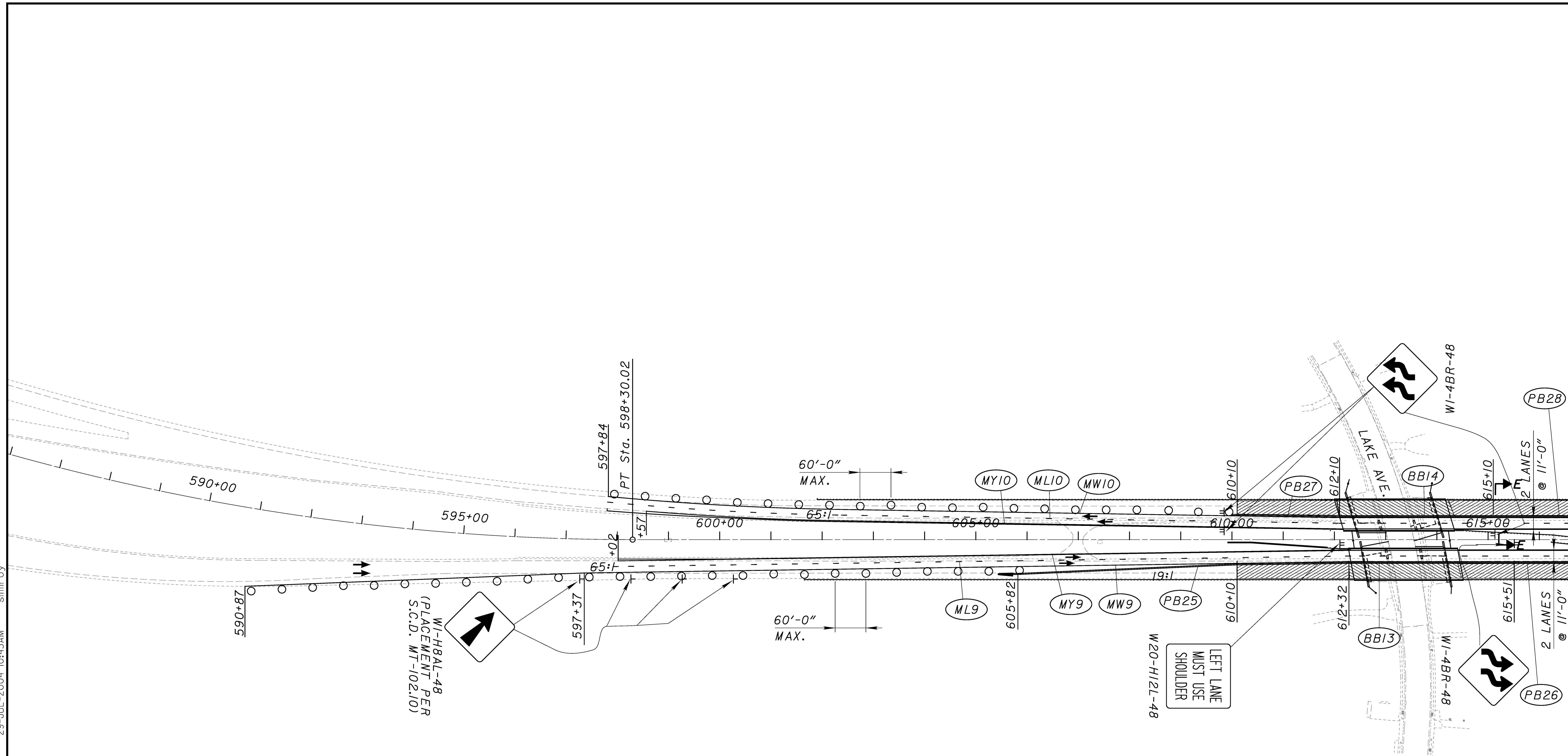
SEE MOT PLANS FOR:
DRUM TAPERS
P.C.B. TAPERS
WORK ZONE



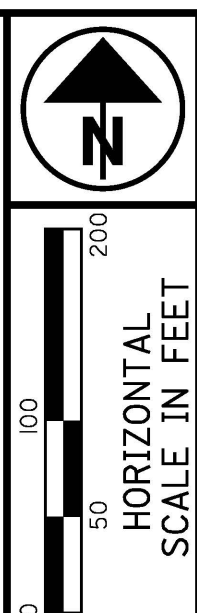
**MAINTENANCE OF TRAFFIC
I-90 PHASE 2 SIGNING DETAILS**

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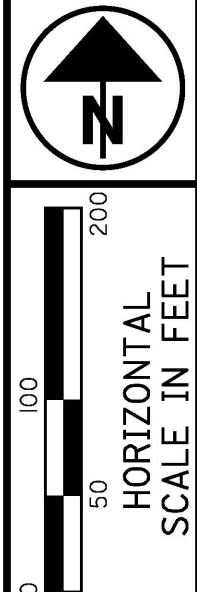


- NOTES:
- SECTION SYMMETRICAL ABOUT CENTERLINE
 - WESTBOUND LANES SHOWN
 - WORK ZONE EDGELINE
 - DRUMS
 - ATTENUATOR
 - TRAFFIC MAINTAINED
 - P.C.B.
 - ▨ WORK ZONE (OUTSIDE PAVMENT)



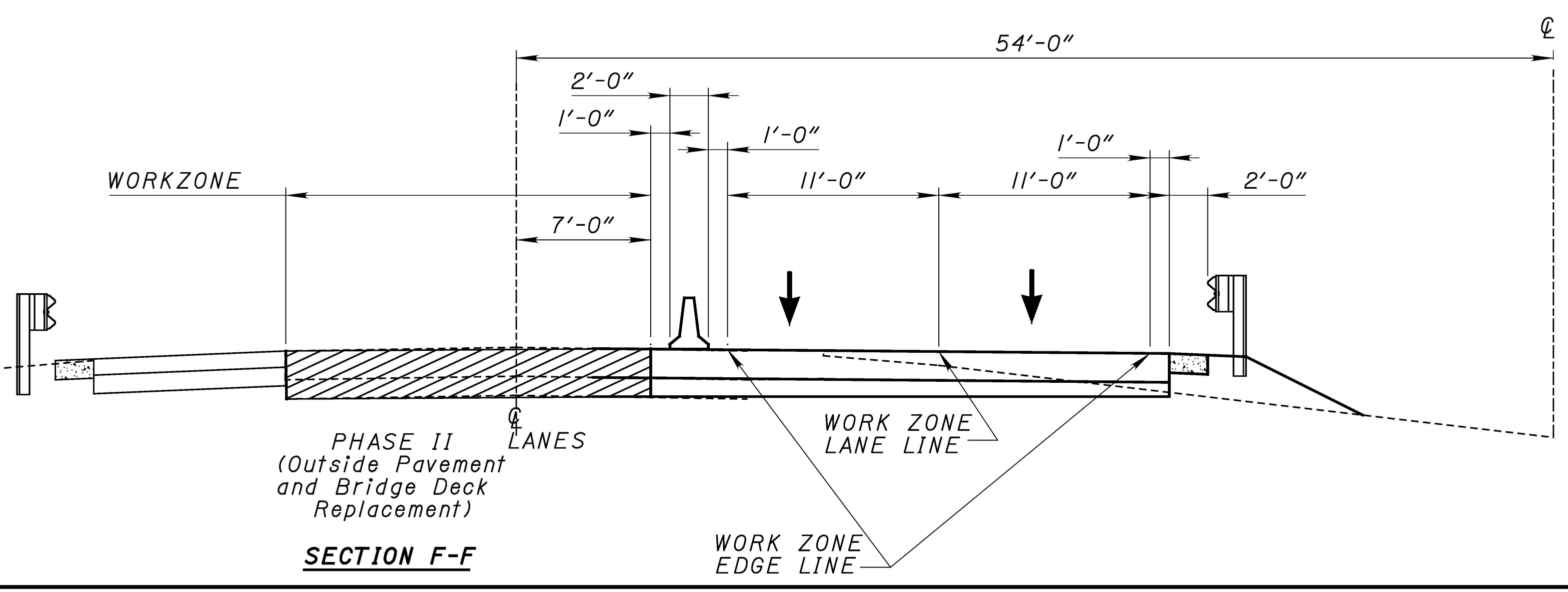
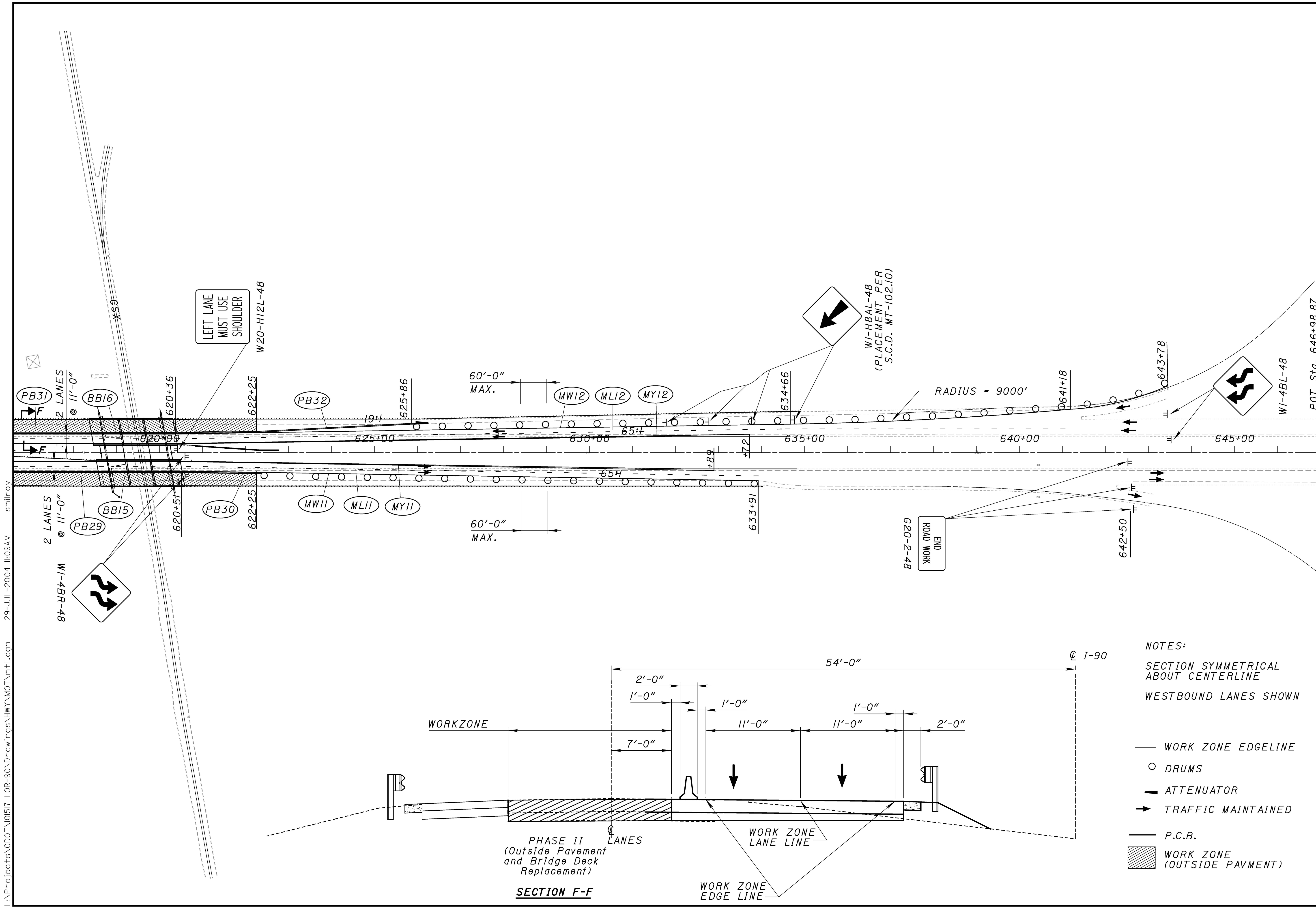
MAINTENANCE OF TRAFFIC
I-90 PHASE 2

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**MAINTENANCE OF TRAFFIC
I-90 PHASE 2**

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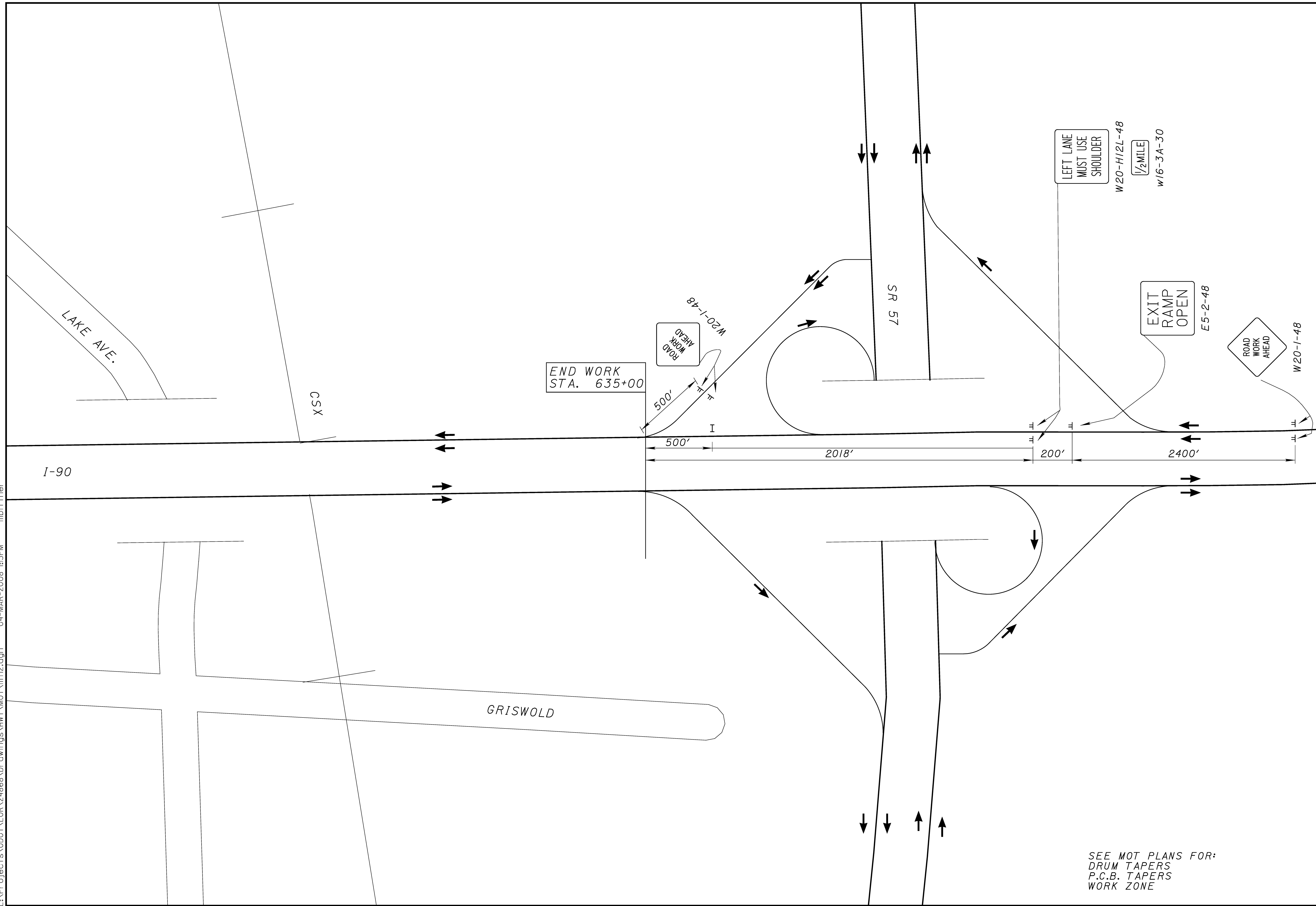


- NOTES:**
- SECTION SYMMETRICAL ABOUT CENTERLINE
 - WESTBOUND LANES SHOWN
 - WORK ZONE EDGELINE
 - DRUMS
 - ▬ ATTENUATOR
 - ➔ TRAFFIC MAINTAINED
 - P.C.B.
 - ▨ WORK ZONE (OUTSIDE PAVMENT)

SECTION F-F

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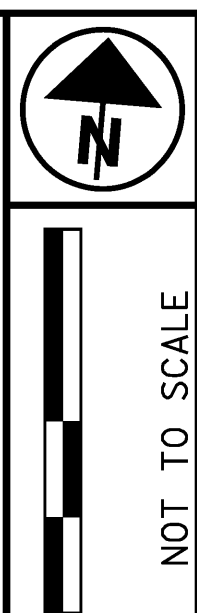
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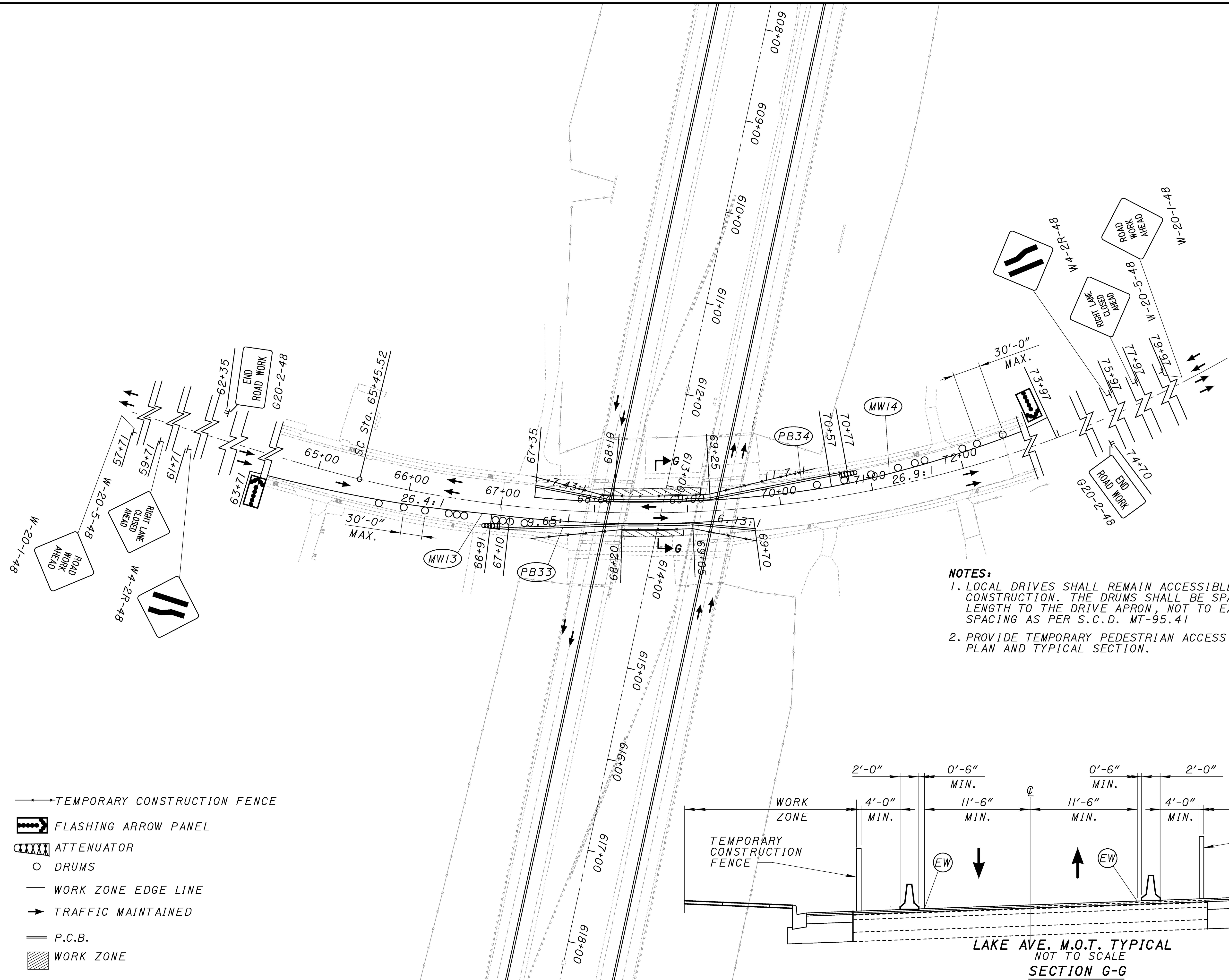
SEE MOT PLANS FOR:
DRUM TAPERS
P.C.B. TAPERS
WORK ZONE

LOR-90-12.42

MAINTENANCE OF TRAFFIC
I-90 PHASE 2 SIGNING DETAILS

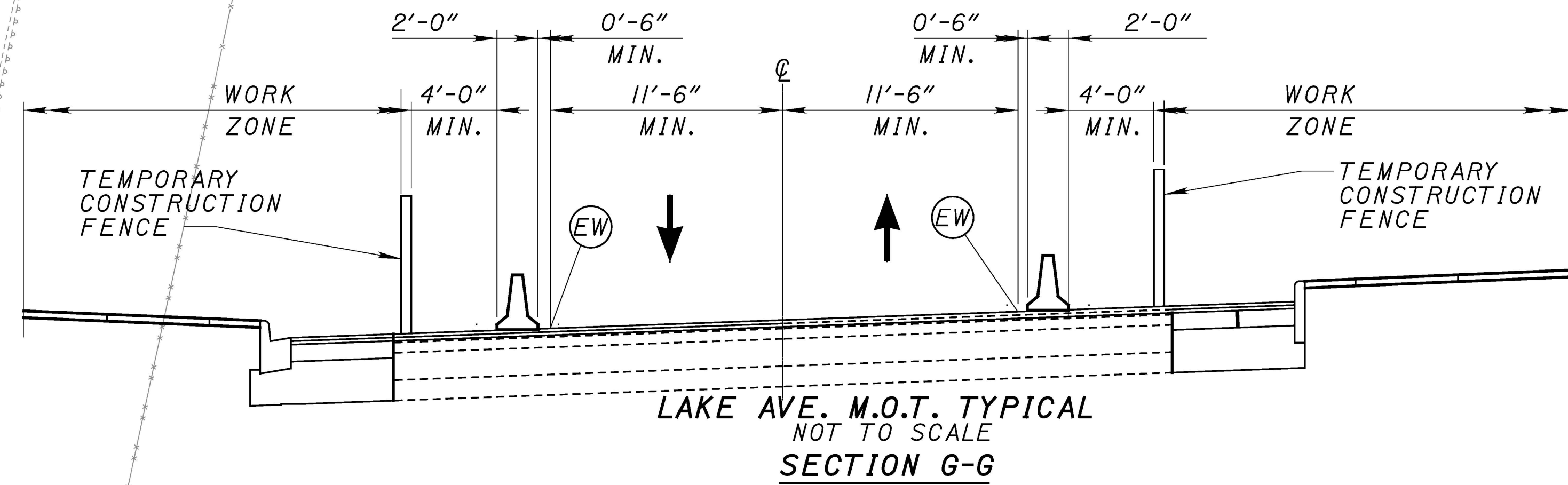


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- NOTES:**
1. LOCAL DRIVES SHALL REMAIN ACCESSIBLE THROUGHOUT CONSTRUCTION. THE DRUMS SHALL BE SPACED AN EQUIVALENT LENGTH TO THE DRIVE APRON, NOT TO EXCEED THE 30' MAXIMUM SPACING AS PER S.C.D. MT-95.41
 2. PROVIDE TEMPORARY PEDESTRIAN ACCESS AS INDICATED IN THE PLAN AND TYPICAL SECTION.

- TEMPORARY CONSTRUCTION FENCE
- FLASHING ARROW PANEL
- ATTENUATOR
- DRUMS
- WORK ZONE EDGE LINE
- TRAFFIC MAINTAINED
- P.C.B.
- WORK ZONE



7	8	9	10	12	13	14	32	34	36	38	40	41	42	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NUMBER
														201	11000	LUMP		CLEARING AND GRUBBING	
											2497			202	23000	2,497	SO YD	PAVEMENT REMOVED	
										771				202	30000	771	SO FT	WALK REMOVED	
											170			202	32500	170	FT	CURB AND GUTTER REMOVED	
			263											202	32800	263	SO YD	CONCRETE SLOPE PROTECTION REMOVED	
										93				202	35100	93	FT	PIPE REMOVED, 24" AND UNDER	
											1143			202	38000	1,143	FT	GUARDRAIL REMOVED	
											5509			202	38200	5,509	FT	GUARDRAIL REMOVED FOR REUSE	
											4			202	42206	4	EACH	ANCHOR ASSEMBLY REMOVED	
											12			202	47000	12	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED	
														202	58000	1	EACH	MANHOLE REMOVED	
														202	58100	4	EACH	CATCH BASIN REMOVED	
			393											SPECIAL	20270000	393	FT	FILL AND PLUG EXISTING CONDUIT	9
														SPECIAL	20270100	229	FT	PIPE CLEANOUT	10
											288			202	75000	288	FT	FENCE REMOVED	
														202	75511	1	EACH	POWER SERVICE REMOVED, AS PER PLAN	8
											6980			203	10000	6,980	CU YD	EXCAVATION	
											8865			203	20000	8,865	CU YD	EMBANKMENT	
													5347	204	10000	5,347	SO YD	SUBGRADE COMPACTION	
														204	45000	3	HOUR	PROOF ROLLING	
3														209	10000	450	FT	DITCH CLEANOUT	
450																			
											3			604	40500	3	EACH	REFERENCE MONUMENT	
											642			606	13000	642	FT	GUARDRAIL, TYPE 5	
											300			606	15500	300	FT	GUARDRAIL, BARRIER DESIGN, TYPE 5	
											5720			606	16500	5,720	FT	GUARDRAIL REBUILT, TYPE 5	
			143											606	18500	143	EACH	GUARDRAIL POST, 9 FEET	10
											2			606	22000	2	EACH	ANCHOR ASSEMBLY, TYPE B-98	
											2			606	22010	2	EACH	ANCHOR ASSEMBLY, TYPE E-98	
											2			606	26500	2	EACH	ANCHOR ASSEMBLY, TYPE T	
														606	35000	12	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
											2			606	60010	2	EACH	IMPACT ATTENUATOR, TYPE 1-98 (BIDIRECTIONAL)	
											274			607	23000	274	FT	FENCE, TYPE CLT	
											65			622	24000	65	FT	CONCRETE BARRIER, TYPE D	

CALCULATED
DAB
CHECKED
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GENERAL SUMMARY

LOR-90-12.42

CALCULATED
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CHECKED
SM

7	8	9	10	12	13	14	32	34	36	38	40	41	42	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NUMBER
																		EROSION CONTROL	
			651											601	21001	651	SO YD	CONCRETE SLOPE PROTECTION, AS PER PLAN	10
			8											601	32200	8	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
			5											653	10000	5	CU YD	TOPSOIL FURNISHED AND PLACED	
			2											659	00100	2	EACH	SOIL ANALYSIS TEST	
			2973											659	00300	2,973	CU YD	TOPSOIL	
								28190						659	10000	28,190	SO YD	SEEDING AND MULCHING	
			1339											659	14000	1,339	SO YD	REPAIR SEEDING AND MULCHING	
			1339											659	15000	1,339	SO YD	INTER-SEEDING	
			6.02											659	20000	6.02	TON	COMMERCIAL FERTILIZER	
			5.53											659	31000	5.53	ACRE	LIME	
			217											659	35000	217	M GAL	WATER	
			60											659	40000	60	M SO FT	MOWING	
														832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
														832	30000	240000	EACH	EROSION CONTROL	
																		DRAINAGE	
									1.3					602	20000	1.3	CU YD	CONCRETE MASONRY	
									78					603	00510	78	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
									491					603	05900	491	FT	15" CONDUIT, TYPE B	
									149					603	06100	149	FT	15" CONDUIT, TYPE C	
									391					603	06700	391	FT	15" CONDUIT, TYPE F	
									94					603	07400	94	FT	18" CONDUIT, TYPE B	
									15					604	00400	15	EACH	CATCH BASIN, NO. 3	
									1					604	01200	1	EACH	CATCH BASIN, NO. 4	
									2					604	09000	2	EACH	CATCH BASIN ADJUSTED TO GRADE	
									1					604	20300	1	EACH	INLET, NO. 2-A-20	
									1					604	20450	1	EACH	BARRIER INLET, SINGLE SLOPE, TYPE D	
									2					604	31500	2	EACH	MANHOLE, NO. 3	
									2					604	36600	2	EACH	PRECAST REINFORCED CONCRETE OUTLET	
		2000												SPECIAL	60450000	2,000	POUND	MISCELLANEOUS METAL	
									8121					605	11100	8,121	FT	6" SHALLOW PIPE UNDERDRAINS	
																		PAVEMENT	
									3459					254	01000	3,459	SO YD	PAVEMENT PLANING, ASPHALT CONCRETE	
									1531					301	46000	1,531	CU YD	ASPHALT CONCRETE BASE, PG64-22	
									800					304	20000	800	CU YD	AGGREGATE BASE	
									800					407	10000	800	GALLON	TACK COAT	
									350					407	14000	350	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
									415					411	10000	415	CU YD	STABILIZED CRUSHED AGGREGATE	
									324					446	46050	324	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
									381					446	50000	381	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1H	
									105					609	12000	105	FT	COMBINATION CURB AND GUTTER, TYPE 2	
									65					609	26000	65	FT	CURB, TYPE 6	
									416					609	26001	416	FT	CURB, TYPE 6, AS PER PLAN	10
													13075	618	40100	13,075	FT	RUMBLE STRIPS, (ASPHALT CONCRETE)	

GENERAL SUMMARY

LOR-90-12.42

7	8	9	10	12	13	14	32	34	36	38	40	41	42	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NUMBER
																		TRAFFIC CONTROL	
													264	621	00100	264	EACH	RPM	
													99	626	00100	99	EACH	BARRIER REFLECTOR	
												168	630	03100	168	FT	GROUND MOUNTED SUPPORT, NO. 3 POST		
												1	630	45500	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8		
												12	630	75000	12	EACH	SIGN ATTACHMENT ASSEMBLY		
												59	630	80100	59	SO FT	SIGN, FLAT SHEET		
												335	630	80224	335	SO FT	SIGN, OVERHEAD EXTRUSHEET		
												2	630	84510	2	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION		
												16	630	84900	16	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL		
												11	630	85100	11	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION		
												2	630	87400	2	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL		
												1	630	89702	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL		
												4	631	94200	4	EACH	REMOVAL OF LUMINAIRE AND DISPOSAL		
												2	631	94408	2	EACH	REMOVAL OF SIGN WIRING AND DISPOSAL		
												2	631	94412	2	EACH	REMOVAL OF SIGN SERVICE AND DISPOSAL		
													24000	642	30000	24,000	FT	REMOVAL OF PAVEMENT MARKING	
													1.56	646	10000	1.56	MILE	EDGE LINE, WHITE	
													1.44	646	10000	1.44	MILE	EDGE LINE, YELLOW	
													1.56	646	10100	1.56	MILE	LANE LINE	
													0.06	646	10200	0.06	MILE	CENTER LINE	
																		STRUCTURES (OVER 20')	
																		FOR STRUCTURES (OVER 20') GENERAL SUMMARY, SEE SHEETS 118, 119, 164, 165	
																		MAINTENANCE OF TRAFFIC	
				200										614	11100	200	HOURLY	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
					24									614	11500	24	MONTH	WORKSITE TRAFFIC SUPERVISOR	
						8								614	12350	8	EACH	WORK ZONE IMPACT ATTENUATOR	
				5										614	12484	5	EACH	WORK ZONE INCREASED PENALTIES SIGN	
				20										614	12500	20	EACH	REPLACEMENT SIGN	
				50										614	12600	50	EACH	REPLACEMENT DRUM	
														2			EACH	FLASHING ARROW PANEL	
														443			EACH	BARRIER REFLECTOR, TYPE B	
						72								614	18601	72	SIGN MNTH	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	14
														614	20001	5.53	MILE	WORK ZONE LANE LINE, CLASS I, AS PER PLAN	13
														614	22001	10.34	MILE	WORK ZONE EDGE LINE, CLASS I, AS PER PLAN	13
												16712		615	20000	16,712	SO YD	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	11
				31										616	10000	31	M GAL	WATER	
														622	40020	17,399	FT	PORTABLE CONCRETE BARRIER, 32"	
														622	40040	2,460	FT	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED	
														614	11000	LUMP		MAINTAINING TRAFFIC	
														619	16020	24	MONTH	FIELD OFFICE, TYPE C	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														624	10000	LUMP		MOBILIZATION	

GENERAL SUMMARY

LOR-90-12.42

PHASE	REFERENCE NO.	SHEET NO.	DIRECTION	STATION FROM	STATION TO	614	614	614	614	614	614	622	622
						WORK ZONE IMPACT ATTENUATOR	SPECIAL - FLASHING ARROW PANEL	BARRIER REFLECTOR, TYPE B	WORK ZONE LANE LINE, CLASS I, AS PER PLAN	WORK ZONE EDGE LINE, CLASS I, AS PER PLAN	WORK ZONE EDGE LINE, CLASS I, AS PER PLAN	PORTABLE CONCRETE BARRIER, 32"	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED
						EACH	EACH	EACH	MILE	MILE	MILE	FT	FT
										(YELLOW)	(WHITE)		
Pre-PI	ML1	16	E.B. I-90	593+82	616+75				0.43				
	MW1			593+82	616+75						0.43		
	MY1			595+12	616+75					0.41			
	PB1			596+12	612+34	1		34				1622	
	BB1			612+34	614+47			6					213
	PB2			614+47	616+75			6				228	
	ML2		W.B. I-90	595+50	616+75				0.40				
	MW2			595+50	616+75						0.40		
	MY2			598+80	616+75					0.34			
	PB3			597+80	612+07			30				1427	
	BB2			612+07	614+24			6					217
	PB4			614+24	616+75			6				251	
	ML3	17	E.B. I-90	616+75	637+10				0.39				
	MW3			616+75	637+10						0.39		
	MY3			616+75	635+80					0.36			
	PB5			616+75	618+59			5				184	
	BB3			618+59	620+54			5					195
	PB6			620+54	634+80			30				1426	
	ML4		W.B. I-90	616+75	640+00				0.44				
	MW4			616+75	640+00						0.44		
	MY4			616+75	626+62					0.19			
	PB7			616+75	618+40			5				165	
	BB4			618+40	620+35			5					195
	PB8			620+35	640+00	1		40				1965	
PHASE I	ML5	20	E.B. I-90	582+33	616+75				0.65				
	MY5			582+33	616+75					0.65			
	MW5			591+52	616+75						0.48		
	PB9			594+98	612+34	1		36				1736	
	BB5			612+34	614+47			6					213
	PB11			614+47	616+75			6				228	
	ML6		W.B. I-90	590+00	616+75				0.51				
	MY6			590+00	616+75					0.51			
	MW6			591+31	616+75						0.48		
	PB14			597+81	612+07			30				1426	
	BB8			612+07	614+24			6					217
	PB16			614+24	616+75			6				251	
TOTALS (THIS SHEET)						3	0	268	2.82	2.46	2.62	10909	1250

CALCULATED
DAB
CHECKED
SM

MAINTENANCE OF TRAFFIC SUB-SUMMARY

LOR-90-12.42

PHASE	REFERENCE NO.	SHEET NO.	DIRECTION	STATION FROM	STATION TO	614	614	614	614	614	614	622	622
						WORK ZONE IMPACT ATTENUATOR	SPECIAL - FLASHING ARROW PANEL	BARRIER REFLECTOR, TYPE B	WORK ZONE LANE LINE, CLASS I, AS PER PLAN	WORK ZONE EDGE LINE, CLASS I, AS PER PLAN	WORK ZONE EDGE LINE, CLASS I, AS PER PLAN	PORTABLE CONCRETE BARRIER, 32"	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED
						EACH	EACH	EACH	MILE	MILE	MILE	FT	FT
PHASE 1	MY7	21	E.B. I-90	616+75	644+10					(YELLOW)	(WHITE)		
	MW7			616+75	634+80						0.34		
	ML7			616+75	644+10				0.52				
	PB17			616+75	618+59			5				184	
	BB10			618+59	620+54			5					195
	PB19			620+54	634+80			30				1426	
	ML8		W.B. I-90	616+75	652+54				0.68				
	MY8			616+75	652+54					0.68			
	MW8			616+75	641+15						0.46		
	PB22			616+75	618+40			5				165	
	BB12			618+40	620+35			5					195
	PB24			620+35	637+69	1		30				1734	
PHASE 2	ML9	24	E.B. I-90	597+37	616+75				0.37				
	MW9			590+87	616+75						0.49		
	MY9			598+02	616+75					0.35			
	PB25			605+82	612+34	1		14				652	
	BB13			612+34	614+47			6					213
	PB26			614+47	616+75			6				228	
	ML10		W.B. I-90	597+84	616+75				0.36				
	MW10			597+84	616+75						0.36		
	MY10			598+57	616+75					0.34			
	PB27			610+10	612+07			5				197	
	BB14			612+07	614+24			6					217
	PB28			614+24	616+75			6				251	
	ML11	25	E.B. I-90	616+75	633+91				0.33				
	MY11			616+75	632+89					0.31			
	MW11			616+75	633+91						0.33		
	PB29			616+75	618+59			5				184	
	BB15			618+59	620+54			5					195
	PB30			620+54	622+25			5				171	
	ML12		W.B. I-90	616+75	641+18				0.46				
	MW12			616+75	643+78						0.51		
	MY12			616+75	634+72					0.34			
	PB31			616+75	618+40			5				165	
	BB16			618+40	620+35			5					195
	PB32			620+35	625+86	1		12				551	
LAKE	MW13	27	N.B. LAKE	63+71	69+70		1				0.11		
	PB33			67+10	69+70	1		7				260	
	MW14		S.B. LAKE	67+35	73+97		1				0.13		
	PB34			67+35	70+57	1		8				322	
TOTALS (THIS SHEET)						5	2	175	2.71	2.54	2.73	6490	1210
TOTALS (PREVIOUS SHEET)						3	0	268	2.82	2.46	2.62	10909	1250
TOTALS CARRIED TO GENERAL SUMMARY						8	2	443	5.53	10.34		17399	2460

MAINTENANCE OF TRAFFIC SUB-SUMMARY

SHEET NO.	LOCATION	203			659
		EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
54	W.B. I-90	60	0	42	
55	W.B. I-90	102	2	107	
56	W.B. I-90	70	18	312	
57	W.B. I-90	86	114	515	
TOTAL THIS COLUMN		318	134	976	

SHEET NO.	LOCATION	203			659
		EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
58	E.B. I-90	46	9	203	
59	E.B. I-90	93	35	417	
60	E.B. I-90	94	84	575	
61	E.B. I-90	51	103	316	
TOTAL THIS COLUMN		284	231	1511	

SHEET NO.	LOCATION	203			659
		EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
97	LAKE AVE.	18	0	0	
98	LAKE AVE.	20	0	0	
99	LAKE AVE.	14	0	0	
TOTAL THIS COLUMN		52	0	0	

SHEET NO.	LOCATION	203			659
		EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
62	I-90	111	213	642	
63	I-90	219	337	1132	
64	I-90	228	463	1265	
65	I-90	287	268	1127	
66	I-90	240	557	1582	
67	I-90	269	391	1469	
68	I-90	210	269	998	
69	I-90	144	133	336	
70	I-90	89	109	453	
71	I-90	33	83	109	
72	I-90	59	221	286	
TOTAL THIS COLUMN		1889	3044	9399	

SHEET NO.	LOCATION	203			659
		EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
73	I-90	25	16	43	
74	I-90	311	259	665	
75	I-90	664	375	1148	
76	I-90	631	478	1021	
77	I-90	290	385	839	
78	I-90	139	351	680	
79	I-90	47	37	112	
80	I-90	34	73	214	
81	I-90	108	115	343	
82	I-90	236	274	1197	
83	I-90	235	341	1000	
TOTAL THIS COLUMN		2720	2704	7262	

SHEET NO.	LOCATION	203			659
		EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
84	I-90	248	645	1737	
85	I-90	260	649	1779	
86	I-90	252	570	1447	
87	I-90	241	411	1190	
88	I-90	226	323	1270	
89	I-90	150	80	566	
90	I-90	109	27	311	
91	I-90	151	28	408	
92	I-90	75	18	302	
93	I-90	5	1	32	
TOTAL THIS COLUMN		1717	2752	9042	

	203			659
	EXCAVATION CU YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD	
TOTAL SHEETS 54-57	318	134	976	
TOTAL SHEETS 58-59	284	231	1511	
TOTAL SHEETS 62-72	1889	3044	9399	
TOTAL SHEETS 73-83	2720	2704	7262	
TOTAL SHEETS 84-93	1717	2752	9042	
TOTAL SHEETS 97-99	52	0	0	
TOTALS TO				
GENERAL SUMMARY	6980	8865	28190	

SHEET NO.	REF NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER FT	202 MANHOLE REMOVED EACH	202 CATCH BASIN REMOVED EACH	SPECIAL PIPE CLEANOUT FT	602 CONCRETE MASONRY CU YD	603 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS FT	603 15" CONDUIT, TYPE B FT	603 15" CONDUIT, TYPE C FT	603 15" CONDUIT, TYPE F FT	603 18" CONDUIT, TYPE B FT	604 CATCH BASIN, NO. 3 EACH	604 CATCH BASIN, NO. 4 EACH	604 CATCH BASIN ADJUSTED TO GRADE EACH	604 INLET, NO. 2-2A-20 EACH	604 BARRIER INLET, SINGLE SLOPE, TYPE D EACH	604 MANHOLE, NO. 3 EACH	604 PRECAST REINFORCED CONCRETE OUTLET EACH	605 6" SHALLOW PIPE UNDERDRAINS FT
45	UD1	599+00.00	601+50.00	LT.																		287.28
	UD2	599+00.00	601+50.00	RT.																		276.12
46	UD3	601+50.00	606+50.00	RT.																		500.00
	UD4	601+50.00	606+50.00	LT.																		500.00
47	UD5	606+50.00	606+66.94	LT.																		16.93
	UD6	606+50.00	606+55.28	RT.																		5.28
	DI	607+39.81						115									1					
	UD7	607+40.00	611+50.00	LT.																		441.11
	UD8	607+40.00	611+50.00	RT.																		432.44
48	UD9	611+50.00	611+94.00	LT.																		44.00
	UD10	611+76.75	612+03.72	LT.																		46.80
	UD11	611+80.66	612+10.76	LT.																		55.98
	D2	611+98.73					1															
	UD12	611+50.00	612+04.19	RT.																		54.19
	UD13	612+03.20	612+31.91	RT.																		45.80
	UD14	612+15.36	612+36.38	RT.																		30.34
	UD15	614+20.18	615+50.00	LT.																		129.82
	UD16	614+31.69	615+50.00	LT.																		118.31
	UD17	614+61.25	615+50.00	RT.																		88.75
	UD18	614+67.22	615+50.00	RT.																		82.78
	UD19	614+43.46	615+50.00	RT.																		106.54
	UD20	614+49.41	615+50.00	RT.																		100.59
	DS1	612+15.36	612+04.19	RT.							61.5				1							
	DS2	612+04.19	611+94.69	RT.								37.5			1							23.40
	DS3	611+94.69	611+76.75	LT.							62.5				1							23.40
	DS4	611+76.75	610+87.06	LT.					0.33				118		1							
	DS5	614+74.90	614+63.72	RT.							61.0				1							
	DS6	614+63.72	614+57.78	RT.								36.5			1							23.40
	DS7	614+57.78	614+39.84	LT.							62.5				1							23.40
	DS8	614+39.84	614+86.10	LT.					0.33				92		1							
	D3	614+57.49					1															
49	UD21	615+50.00	617+50.00	LT.																		200.00
	UD22	615+50.00	617+50.00	LT.																		200.00
	UD23	615+50.00	617+50.00	LT.																		200.00
	UD24	615+50.00	617+50.00	RT.																		200.00
	UD25	615+50.00	617+50.00	RT.																		200.00
	UD26	615+50.00	617+50.00	RT.																		200.00
TOTALS (THIS SHEET)					0	0	2	115	0.66	0	247.5	74	210	0	8	0	1	0	0	0	0	4656.66

SHEET NO.	REF NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER FT	202 MANHOLE REMOVED EACH	202 CATCH BASIN REMOVED EACH	SPECIAL PIPE CLEANOUT FT	602 CONCRETE MASONRY CU YD	603 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS FT	603 15" CONDUIT, TYPE B FT	603 15" CONDUIT, TYPE C FT	603 15" CONDUIT, TYPE F FT	603 18" CONDUIT, TYPE B FT	604 CATCH BASIN, NO. 3 EACH	604 CATCH BASIN, NO. 4 EACH	604 CATCH BASIN ADJUSTED TO GRADE EACH	604 INLET, NO. 2-2A-20 EACH	604 BARRIER INLET, SINGLE SLOPE, TYPE D EACH	604 MANHOLE, NO. 3 EACH	604 PRECAST REINFORCED CONCRETE OUTLET EACH	605 6" SHALLOW PIPE UNDERDRAINS FT	
50	UD27	617+50.00	618+36.82	LT.																		86.82	
	UD28	617+50.00	618+43.26	LT.																			93.26
	UD29	617+50.00	618+21.71	LT.																			71.71
	UD30	617+50.00	618+27.65	RT.																			77.65
	UD31	617+50.00	618+53.84	RT.																			103.84
	UD32	617+50.00	618+60.28	RT.																			110.28
	UD33	620+33.21	620+53.60	LT.																			31.90
	UD34	620+37.42	620+64.16	LT.																			60.24
	UD35	620+67.67	621+50.00	LT.																			82.33
	UD36	620+74.00	621+50.00	RT.																			76.00
	UD37	620+52.25	620+69.82	RT.																			54.43
	UD38	620+56.47	620+81.09	RT.																			36.13
	DS9	618+39.56	618+28.98	RT.							61.0				/								
	DS10	618+28.98	618+27.17	RT.								18.5			/								
	DS11	618+27.17	618+25.13	-			/					19.5				/							228.34
	DS12	618+25.13	618+12.05	LT.							60.0								/				
	DS13	618+12.05	618+28.41	LT.					0.33				72.5		/								
	DS14	620+81.09	620+70.53	RT.							61.0				/								
	DS15	620+70.53	620+64.14	RT.								36.5			/								23.40
	DS16	620+64.14	620+53.60	LT.							61.0				/								23.40
	DS17	620+53.60	621+10.54	LT.					0.33				108		/								
51	UD39	621+50.00	626+50.00	LT.																			500.00
	UD40	621+50.00	626+50.00	RT.																			500.00
52	UD41	626+50.00	630+00.00	LT.																			368.38
	UD42	626+50.00	630+00.00	RT.																			368.41
	D4	629+98.81						114									/						
	UD43	629+80.71	631+50.00	LT.																			169.29
	UD44	629+80.67	631+50.00	RT.																			169.33
53	UD45	631+50.00	632+27.16	LT.							39.20											/	55.73
	UD46	631+50.00	632+42.08	RT.							39.14											/	70.67
94	UD47	68+10.00	69+15.00	LT.																			102.93
	D5	69+00.54		LT.	12	/																	
	DS18	68+27.31	68+70.56	LT.	80.5		/							52.0			/						
	DS19	68+70.56	69+11.71	LT.										40.0					/				
	DS20	69+11.71		LT.										2.0					/				
TOTALS (THIS SHEET)					92.5	/	2	114	0.66	78.34	243	74.5	180.5	94	8	/	/	/	/	2	2		3464.47
TOTALS (PREVIOUS SHEET)					0	0	2	115	0.66	0	247.5	74	210	0	8	0	/	0	0	0	0	0	4656.66
TOTALS CARRIED TO GENERAL SUMMARY					93	/	4	229	1.3	78	491	149	391	94	16	/	2	/	/	2	2		8121

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DRAINAGE SUB-SUMMARY

LOR-90-12.42

SHEET NO.	REF NO.	STATION FROM	STATION TO	SIDE	202	202	202	202	202	202	604	606	606	606	606	606	606	606	607	622	
					WALK REMOVED SQ FT	GUARDRAIL REMOVED FT	GUARDRAIL REMOVED FOR REUSE FT	ANCHOR ASSEMBLY REMOVED EACH	BRIDGE TERMINAL ASSEMBLY REMOVED EACH	FENCE REMOVED FT	REFERENCE MONUMENT EACH	GUARDRAIL, TYPE 5 FT	GUARDRAIL, BARRIER DESIGN, TYPE 5 FT	GUARDRAIL REBUILT, TYPE 5 FT	ANCHOR ASSEMBLY, TYPE B-98 EACH	ANCHOR ASSEMBLY, TYPE E-98 EACH	ANCHOR ASSEMBLY, TYPE T EACH	BRIDGE TERMINAL ASSEMBLY, TYPE I EACH	IMPACT ATTENUATOR, TYPE I-98 (BIDIRECTIONAL) EACH	FENCE, TYPE CLT FT	CONCRETE BARRIER, TYPE D FT
46	R1	601+67.00	606+50.00	RT.			403.00	1				80.00		483.00		1					
	R2	601+91.00	606+50.00	LT.			446.50	1				12.50		459.00			1				
47	R3	606+50.00	611+50.00	LT.			500.00							500.00							
	R4	606+50.00	611+50.00	RT.			500.00							500.00							
	R5	609+80.21	611+50.00	-		172.60		1													
	R6	609+92.23	611+50.00	RT.									119.83						1		
	M1	607+50.00		-							1										
48	R7	611+50.00	611+83.48	LT.										52.11					1		
	R8	611+50.00	612+12.76	LT.		10.65	52.11		1												
	R9	611+50.00	612+10.78	RT.								43.45	36.08						1		
	R10	611+50.00	612+44.17	RT.		94.17			1												
	R11	611+50.00	612+40.71	RT.										90.71					1		
	R12	611+50.00	612+52.50	RT.		11.79	90.71		1												
	R13	614+03.32	615+50.00	LT.		11.17	135.51		1												
	R14	614+26.99	615+50.00	LT.										135.51					1		
	R15	614+04.55	615+50.00	LT.		145.45			1												
	R16	614+32.42	615+50.00	LT.								117.58								1	
	R17	614+38.41	615+50.00	RT.		11.14	100.45		1												
	R18	614+49.55	615+50.00	RT.										100.45					1		
	F1	612+21.74	612+29.00	LT.						38.5										27.0	
	F2	612+34.13	612+38.68	-						68.5										38.5	
	F3	612+66.99	612+81.53	RT.						29.5										19.5	
	F4	613+86.72	613+90.78	LT.						31.5										20.0	
	F5	614+19.32	614+23.87																	33.5	
	F6	614+22.62	614+27.16	RT.						25.5										13.5	
49	R19	615+50.00	617+50.00	LT.			200.00							200.00							
	R20	615+50.00	617+50.00	LT.		200.00															
	R21	615+50.00	616+63.36	RT.								113.36		1							
	R22	616+23.37	617+50.00	RT.								126.63		1							
	R23	615+50.00	617+50.00	RT.			200.00							200.00							
	M2	616+00.00		-							1										
TOTALS (THIS SHEET)					0.00	656.97	2628.28	3.00	6.00	193.50	2.00	493.52	155.91	2720.78	2.00	1.00	1.00	6.00	1.00	152.00	0.00
					202	202	202	202	202	202	604	606	606	606	606	606	606	606	606	607	622

ESTIMATED QUANTITIES

LOR - 90 - 12.42

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SHEET NO.	REF NO.	STATION FROM	STATION TO	SIDE	WALK REMOVED	GUARDRAIL REMOVED	GUARDRAIL REMOVED FOR REUSE	ANCHOR ASSEMBLY REMOVED	BRIDGE TERMINAL ASSEMBLY REMOVED	FENCE REMOVED	REFERENCE MONUMENT	GUARDRAIL, TYPE 5	GUARDRAIL, BARRIER DESIGN, TYPE 5	GUARDRAIL REBUILT, TYPE 5	ANCHOR ASSEMBLY, TYPE B-98	ANCHOR ASSEMBLY, TYPE E-98	ANCHOR ASSEMBLY, TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE I	IMPACT ATTENUATOR, TYPE I-98 (BIDIRECTIONAL)	FENCE, TYPE CLT	CONCRETE BARRIER, TYPE D
					SQ FT	FT	FT	EACH	EACH	FT	EACH	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	FT
50	R24	617+50.00	618+59.76	LT.		22.34	87.42		1					87.42				1			
	R25	617+60.88	618+45.88	LT.																	65.00
	R26	617+50.00	618+54.33	RT.								104.35						1			
	R27	617+50.00	618+79.63	RT.		129.63			1												
	R28	617+50.00	618+87.43	RT.		23.24	114.19		1					114.19				1			
	R29	620+04.38	621+50.00	LT.		26.02	119.65		1					119.65				1			
	R30	620+12.03	621+50.00	LT.		137.97			1												
	R31	620+38.81	621+50.00	LT.								44.29	66.90					1			
	R32	620+32.23	621+50.00	RT.		23.49	94.28		1					94.28				1			
	F7	618+55.37	618+58.50	LT.						22.5										12.5	
	F8	618+60.13	618+65.95	-																33.5	
	F9	618+91.15	609+07.08	RT.						28.0										20.0	
	F10	620+00.12	620+01.99	LT.						20.0										9.0	
	F11	620+24.02	620+29.84	-																33.5	
	F12	620+35.85	620+34.64	RT.						23.5										13.5	
51	R33	621+50.00	626+50.00	LT.			500.00							500.00							
	R34	621+50.00	626+50.00	RT.			500.00							500.00							
	R35	621+50.00	622+73.13	LT.		123.13															
	R36	621+50.00	622+78.18	LT.									77.16						1		
52	R37	626+50.00	631+50.00	LT.			500.00							500.00							
	R38	626+50.00	631+50.00	RT.			500.00							500.00							
	M3	628+00.00		-							1										
53	R39	631+50.00	634+39.27	RT.			175.62	1													
	R40	631+50.00	633+25.62	LT.			289.27														
	R41	631+50.00	634+84.31	LT.										334.31		1					
	R42	631+50.00	633+99.47	RT.										249.47			1				
94	R43	68+33.69	68+55.49	RT.	190.42																
	R44	68+72.98	68+92.72	RT.	253.75																
	R45	68+48.03	68+71.35	LT.	201.87																
	R46	68+89.08	69+14.80	LT.	125.25																
TOTALS (THIS SHEET)					771.29	485.82	2880.43	1.00	6.00	94.00	1.00	148.64	144.06	2999.32	0.00	1.00	1.00	6.00	1.00	122.00	65.00
TOTALS (PREVIOUS SHEET)					0	656.97	2628.28	3	6	193.5	2	493.52	155.91	2720.78	2	1	1	6	1	152.0	0.0
TOTALS CARRIED TO GENERAL SUMMARY					771	1143	5509	4	12	288	3	642	300	5720	2	2	2	12	2	274	65

STATION FROM	STATION TO	SIDE	DISTANCE (D) FT.	AVERAGE WIDTH (W) FT.	SURFACE AREA (A=D*W) SQ. FT.	SURFACE AREA (A=D*W)/9 SQ. YD.	202 PAVEMENT REMOVED SQ YD	202 CURB AND GUTTER REMOVED FT	204 SUBGRADE COMPACTION SQ YD	254 PAVEMENT PLANING, ASPHALT CONCRETE SQ YD	301 ASPHALT CONCRETE BASE, PG64-22 CU YD	304 AGGREGATE BASE CU YD	407 TACK COAT GAL	407 TACK COAT FOR INTERMEDIATE COURSE GAL	411 STABILIZED CRUSHED AGGREGATE CU YD	446 ASPHALT CONCRETE SURFACE COURSE, TYPE 1H CU YD	446 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 CU YD	609 COMBINATION CURB AND GUTTER, TYPE 2 FT	609 CURB, TYPE 6 FT	609 CURB, TYPE 6, AS PER PLAN FT	615 PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A SQ YD
<i>I-90 EB</i>																					
598+02.00	612+12.61	RT	1410.61	10.00	14106.10	1567.34									52.24						1567.34
612+12.61	612+34.14	RT			311.59	34.62														26.00	34.62
<i>LAKE AVE</i>																					
614+47.18	614+77.65	RT			338.41	37.60														26.00	37.60
614+77.65	618+36.81	RT	359.16	10.00	3591.60	399.07		399.07													399.07
618+36.81	618+58.58	RT			312.24	34.69														26.00	34.69
<i>CSX</i>																					
620+53.61	620+83.84	RT			337.76	37.53														26.00	37.53
620+83.82	634+80.66	RT	1396.84	10.00	13968.40	1552.04									51.73						1552.04
610+40.00	612+07.13		167.13	24.00	4011.12	445.68				445.68			44.57			24.76					
612+07.13	612+34.14		27.01	24.00	648.24	72.03	72.03		72.03		24.01	12.00	7.20	5.40		3.00	5.00				
<i>LAKE AVE</i>																					
614+47.18	618+58.58		411.40	24.00	9873.60	1097.07	1097.07		1097.07		365.69	182.84	109.71	82.28		45.71	76.19				
<i>CSX</i>																					
620+53.61	620+80.50		26.89	24.00	645.36	71.71	71.71		71.71		23.90	11.95	7.17	5.38		2.99	4.98				
620+80.50	622+25.00		144.50	24.00	3468.00	385.33			385.33				38.53			21.41					
598+02.00	600+62.00	LT	260.00	4.00	1040.00	115.56									9.63						115.56
600+62.00	612+01.44	LT	1139.44	13.00	14812.72	1645.86									42.20						1645.86
606+61.94	607+35.66	LT	73.72		1697.54	188.62				188.62			18.86			10.48					
612+01.44	612+34.14	LT			691.77	76.86														26.00	76.86
<i>LAKE AVE</i>																					
614+47.18	614+77.65	LT			583.34	64.82			64.82		21.61	10.80	6.48	4.86		2.70	4.50			26.00	64.82
614+77.65	618+36.81	LT	359.16	22.00	7901.52	877.95			877.95		292.65	146.32	87.79	65.85		36.58	60.97				877.95
618+36.81	618+58.58	LT			687.84	76.43			76.43		25.48	12.74	7.64	5.73		3.18	5.31			26.00	76.43
<i>CSX</i>																					
620+53.61	620+83.84	LT			586.15	65.13														26.00	65.13
620+83.84	632+20.66	LT	1136.82	13.00	14778.66	1642.07									42.10						1642.07
632+20.66	634+80.66	LT	260.00	4.00	1040.00	115.56									9.63						115.56
TOTALS (THIS SHEET)							1240.80	0.00	2659.06	1019.63	753.33	376.66	327.96	169.50	207.54	150.81	156.94	0.00	0.00	208.00	8343.12

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PAVEMENT CALCULATIONS

LOR-90-12.42

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STATION FROM	STATION TO	SIDE	DISTANCE (D) FT.	AVERAGE WIDTH (W) FT.	SURFACE AREA (A=D*W) SQ. FT.	SURFACE AREA (A=D*W)/9 SQ. YD.	202 PAVEMENT REMOVED SQ YD	202 CURB AND GUTTER REMOVED FT	204 SUBGRADE COMPACTION SQ YD	254 PAVEMENT PLANING, ASPHALT CONCRETE SQ YD	301 ASPHALT CONCRETE BASE, P664-22 CU YD	304 AGGREGATE BASE CU YD	407 TACK COAT GALLON	407 TACK COAT FOR INTERMEDIATE COURSE GALLON	411 STABILIZED CRUSHED AGGREGATE CU YD	446 ASPHALT CONCRETE SURFACE COURSE, TYPE 1H CU YD	446 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, P664-22 CU YD	609 COMBINATION CURB AND GUTTER, TYPE 2 FT	609 CURB, TYPE 6 FT	609 CURB, TYPE 6, AS PER PLAN FT	615 PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A SQ YD
I-90 WB																					
597+79.75	611+74.00	LT	1394.25	10.00	13942.50	1549.17									51.64					26.00	1549.17
611+74.00	612+07.18	LT			347.29	38.59														26.00	38.59
LAKE AVE																					
614+23.76	614+42.59	LT			303.48	33.72														26.00	33.72
614+42.59	618+09.30	LT	366.71	10.00	3667.10	407.46		407.46													407.46
618+09.30	618+39.53	LT			337.76	37.53														26.00	37.53
CSX																					
620+34.56	620+56.33	LT			312.24	34.69														26.00	34.69
620+56.33	634+65.72	LT	1409.39	10.00	14093.90	1565.99									52.20						1565.99
610+40.00	611+78.77		138.77	24.00	3330.48	370.05			370.05				37.01			20.56					
611+78.77	612+07.18		28.41	24.00	681.84	75.76	75.76	75.76		25.25	12.63	7.58	5.68			3.16	5.26				
LAKE AVE																					
614+23.76	618+39.53		415.77	24.00	9978.48	1108.72	1108.72	1108.72		369.57	184.79	110.87	83.15			46.20	76.99				
CSX																					
620+34.56	620+61.46		26.90	24.00	645.60	71.73	71.73	71.73		23.91	11.96	7.17	5.38			2.99	4.98				
620+61.46	622+25.00		163.54	24.00	3924.96	436.11			436.11			43.61				24.23					
597+79.75	600+39.75	RT	260.00	4.00	1040.00	115.56									9.63						115.56
600+39.75	611+91.94	RT	1152.19	13.00	14978.47	1664.27									42.67						1664.27
611+91.94	612+07.18	RT			550.91	61.21														26.00	61.21
LAKE AVE																					
614+23.76	614+60.53	RT			723.09	80.34		80.34		26.78	13.39	8.03	6.03			3.35	5.58			26.00	80.34
614+60.53	618+19.88	RT	359.35	22.00	7905.70	878.41		878.41		292.80	146.40	87.84	65.88			36.60	61.00				878.41
618+19.88	618+39.53	RT			586.16	65.13		65.13		21.71	10.85	6.51	4.88			2.71	4.52			26.00	65.13
CSX																					
620+34.56	620+66.91	RT			687.84	76.43														26.00	76.43
620+66.91	632+05.72	RT	1138.81	13.00	14804.53	1644.95									42.18						1644.95
632+05.72	634+65.72	RT	260.00	4.00	1040.00	115.56									9.63						115.56
Lake Ave.																					
67+20.00	70+20.00		300.00	49.00	14700.00	1633.33			1633.33				163.33			90.74					
68+10.00	69+15.00	LT	105.00	7.00	735.00	81.67		105.00		11.34	28.36		6.13			5.67	105.00				
68+30.00	68+95.00	RT	65.00	6.00	390.00	43.33		65.00		6.02	15.05		3.25			3.01		65.00			
TOTALS (THIS SHEET)							1256.21	170.00	2687.55	2439.49	777.39	423.42	471.96	180.38	207.95	230.53	167.02	105.00	65.00	208.00	8369.00
TOTALS PREVIOUS SHEET							1240.80	0.00	2659.06	1019.63	753.33	376.66	327.96	169.50	207.54	150.81	156.94	0.00	0.00	208.00	8343.12
TOTALS TO GENERAL SUMMARY							2497	170	5347	3459	1531	800	800	350	415	381	324	105	65	416	16712

PAVEMENT CALCULATIONS

LOR-90-12.42

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SHEET NO.	REF NO.	STATION	SIDE	CODE	SIZE (INCHES)	630	630	630	630	630	630	630	630	630	630	631	631	631
						GROUND MOUNTED SUPPORT, NO. 3 POST	SIGN ATTACHMENT ASSEMBLY	SIGN, FLAT SHEET	SIGN, OVERHEAD EXTRUSHEET	RIGID OVERHEAD SIGN SUPPORT FOUNDATION	REMOVAL OF GROUND MOUNTED SIGN & DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN & REERECTION	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL OF SIGN WIRING AND DISPOSAL	REMOVAL OF SIGN SERVICE AND DISPOSAL
						FT	EACH	SQ FT	SQ FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
110	1S	610+87.72	R81.06	D10-2-12	12x48							1						
110	2S	612+50.29	R78.50	OM-3R-12	12x36	14	1	3			1							
110	3S	612+37.83	R35.32	OM-3L-12	12x36	14	1	3			1							
110	4S	612+00	L										1	1		2	1	1
110	5S	612+00	L										1			2	1	1
110	6S	610+88.45	L-82.02	D10-2-12	12x48							1						
110	7S	614+05.02	L-78.86	OM-3R-12	12x36	14	1	3			1							
110	8S	614+17.72	L-35.10	OM-3L-12	12x36	14	1	3			1							
110	18S	68+51.08	R29.19	R-55-12	12x18	14	1	1.5			1							
110	19S	68+77.35	L-30.72	R-55-12	12x18	14	1	1.5			1							
110	21S	610+87.	L-1.00		6x36							2						
110	22S	608+59.37	L-85.61		48x96	28	2	32										
110	25S	606+75.83	L-0.90	R3-4-36	36x36							1						
				R3-H4a-24	24x36							1						
110	26S	607+22.7	R0.88	R3-4-36	36x36							1						
				R3-H4a-24	24x36							1						
III	9S	618+85.63	R78.58	OM-3R-12	12x36	14	1	3			1							
III	10S	618+76.37	R35.36	OM-3L-12	12x36	14	1	3			1							
III	11S	615+54.64	L-81.60	R2-H2b-48	48x108						1							
III	12S	618+66.08	L-5.59		84x48						1							
III	13S	620+07.58	L-78.30	OM-3R-12	12x36	14	1	3			1							
III	14S	620+27.44	L-86.36	M3-4-36	36x18						1							
				MI-5-36-2	36x36						1							
III	15S	620+15.28	L-35.49	OM-3L-12	12x36	14	1	3			1							
III	16S	620+27.95	L-82.71	M3-4-36	36x18						1							
				MI-1-36-2	36x36						1							
III	17S	620+31.66	L-19.47									1						
III	20S	621+43.00	L-1.00		6x36							2						
III	23S	618+03.45	L-14.67		15x13 ft				195.0	2				1				
III	24S	618+03.45	L-14.67		14x10 ft				140.0									
					TOTALS	168	12	59.0	335.0	2	16	11	2	1	1	4	2	2
					TOTALS CARRIED TO GENERAL SUMMARY	168	12	59.0	335.0	2	16	11	2	1	1	4	2	2

SIGNING SUB-SUMMARY

LOR-90-12.42

CALCULATED
DAB
CHECKED
SM

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SHEET NO.	REF NO.	LOCATION	STATION		SIDE	618	621	642	646	646	646	646
			FROM	TO		RUMBLE STRIPS, TYPE 2 (ASPHALT CONCRETE) FT	RPM EACH	REMOVAL OF PAVEMENT MARKING FT	EDGE LINE, WHITE MILE	EDGE LINE, YELLOW MILE	LANE LINE MILE	CENTER LINE MILE
109	PM1	LOR-90-Mainline	597+50	602+00	L	420	6	450	0.09			
	PM2	LOR-90-Mainline	597+50	602+00	L	420	6	450		0.09		
	PM3	LOR-90-Mainline	597+50	602+00	L		4	450			0.09	
	PM4	LOR-90-Mainline	597+50	602+00	R	400	6	450	0.09			
	PM5	LOR-90-Mainline	597+50	602+00	R	400	6	450		0.09		
	PM6	LOR-90-Mainline	597+50	602+00	R		4	450			0.09	
110	PM7	LOR-90-Mainline	602+00	615+00	L	1080	16	1300	0.25			
	PM8	LOR-90-Mainline	602+00	615+00	L	1080	16	1300		0.25		
	PM9	LOR-90-Mainline	602+00	615+00	L		11	1300			0.25	
	PM10	LOR-90-Mainline	602+00	615+00	R	1080	16	1300	0.25			
	PM11	LOR-90-Mainline	602+00	615+00	R	1080	16	1300		0.25		
	PM12	LOR-90-Mainline	602+00	615+00	R		11	1300			0.25	
	PM13	Lake Avenue	67+20	70+20	L			300			0.06	
	PM14	Lake Avenue	67+20	70+20	R			300			0.06	
	PM15	Lake Avenue	67+20	70+20				300				0.06
111	PM16	LOR-90-Mainline	615+00	628+00	L	1110	17	1300	0.25			
	PM17	LOR-90-Mainline	615+00	628+00	L	1110	17	1300		0.25		
	PM18	LOR-90-Mainline	615+00	628+00	L		11	1300			0.25	
	PM19	LOR-90-Mainline	615+00	628+00	R	1110	17	1300	0.25			
	PM20	LOR-90-Mainline	615+00	628+00	R	1110	17	1300		0.25		
	PM21	LOR-90-Mainline	615+00	628+00	R		11	1300			0.25	
112	PM22	LOR-90-Mainline	628+00	635+00	L	665	9	700	0.13			
	PM23	LOR-90-Ramp	632+00	635+00	L		4	300	0.06			
	PM24	LOR-90-Mainline	632+00	635+00	L		4	300	0.06			
	PM25	LOR-90-Mainline	628+00	635+00	L	665	9	700		0.13		
	PM26	LOR-90-Mainline	628+00	635+00	L		6	700			0.13	
	PM27	LOR-90-Mainline	628+00	635+00	R	665	9	700	0.13			
	PM28	LOR-90-Mainline	628+00	635+00	R	680	9	700		0.13		
	PM29	LOR-90-Mainline	628+00	635+00	R		6	700			0.13	
TOTALS (THIS SHEET)						13075	264	24000	1.56	1.44	1.56	0.06
TOTALS CARRIED TO GENERAL SUMMARY						13075	264	24000	1.56	1.44	1.56	0.06

STATION		SIDE	626	626
FROM	TO		BARRIER REFLECTOR, TYPE A EACH	BARRIER REFLECTOR, TYPE B EACH
601+67	612+39	RT	12	
601+91	612+00	LT	11	
609+92	612+27	RT	3	
612+00	614+17	LT		3
612+18	614+35	LT		3
612+27	614+40	RT		3
612+39	614+52	RT		3
614+17	618+35	LT	5	
614+35	616+63	LT	3	
614+52	618+63	RT	5	
616+23	618+54	RT	3	
617+91	620+93	LT		4
618+35	620+30	LT		3
618+54	620+47	RT		3
618+63	620+57	RT		3
620+30	634+34	LT	15	
620+39	622+78	LT	3	
620+57	633+87	RT	14	
TOTALS			74	25
TOTALS TO GENERAL SUMMARY			74	25

PROJECT SITE PLAN:

PROJECT DESCRIPTION:
BRIDGE REPLACEMENTS
90 OVER LAKE - 1244
90 OVER CSX - 1256

LORAIN COUNTY
SOIL AND WATER
CONSERVATION MAP
NO. 16

PROJECT AREA: 17.30 AC
PROJECT EARTH
DISTURBED AREA: 17.30 AC

IMMEDIATE RECEIVING
WATERS: UNNAMED INTERMITTENT
STREAM TO BLACK RIVER (TMDL)

CONTRACTOR EARTH
DISTURBED AREA: 1.13 AC

LAKE LATITUDE N 41° 24' 11"
LONGITUDE W 82° 07' 53"
CSX LATITUDE N 41° 24' 12"
LONGITUDE W 82° 07' 43"

NOI E.D.A. = 18.43 AC

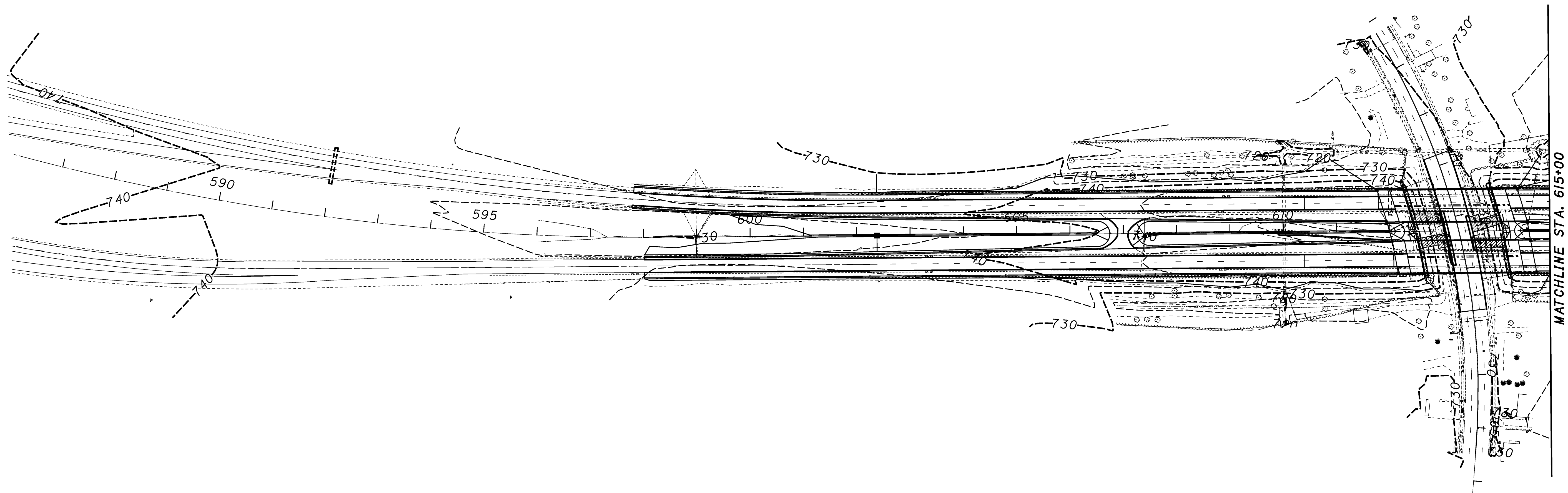
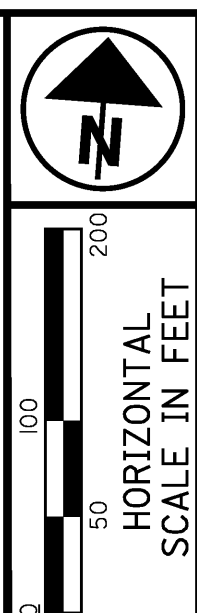
USGS MAPS:

COEFFICIENT OF RUNOFF
PRECONSTRUCTION = 0.54
POSTCONSTRUCTION = 0.57

AVON, OHIO
N4122.5 - W8200/7.5

IMPERVIOUS AREA
PRECONSTRUCTION = 6.46 AC
POSTCONSTRUCTION = 8.48 AC

LORAIN, OHIO
N4122.5 - W8207.5/7.5



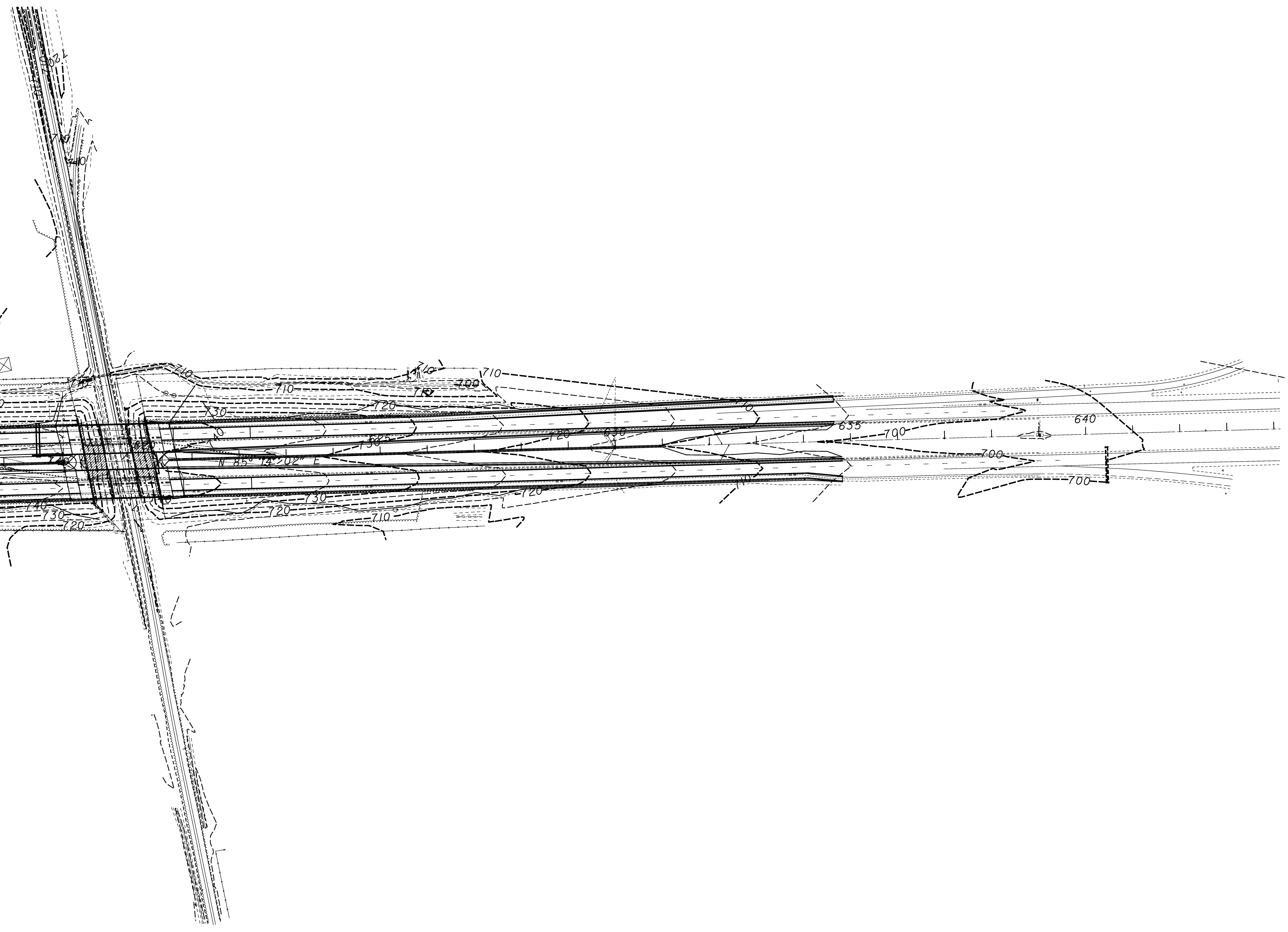
MATCHLINE STA. 615+00

PROJECT SITE PLAN
BEGIN PROJECT TO STA. 615+00

LOR-90-12.42

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MATCHLINE STA. 615+00





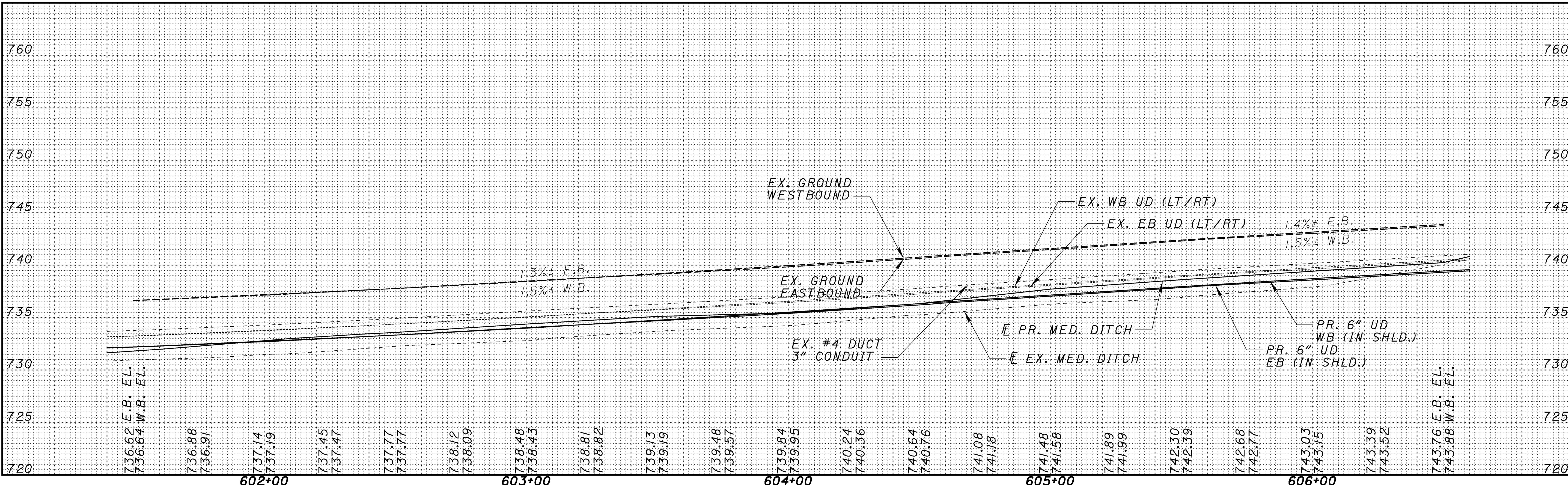
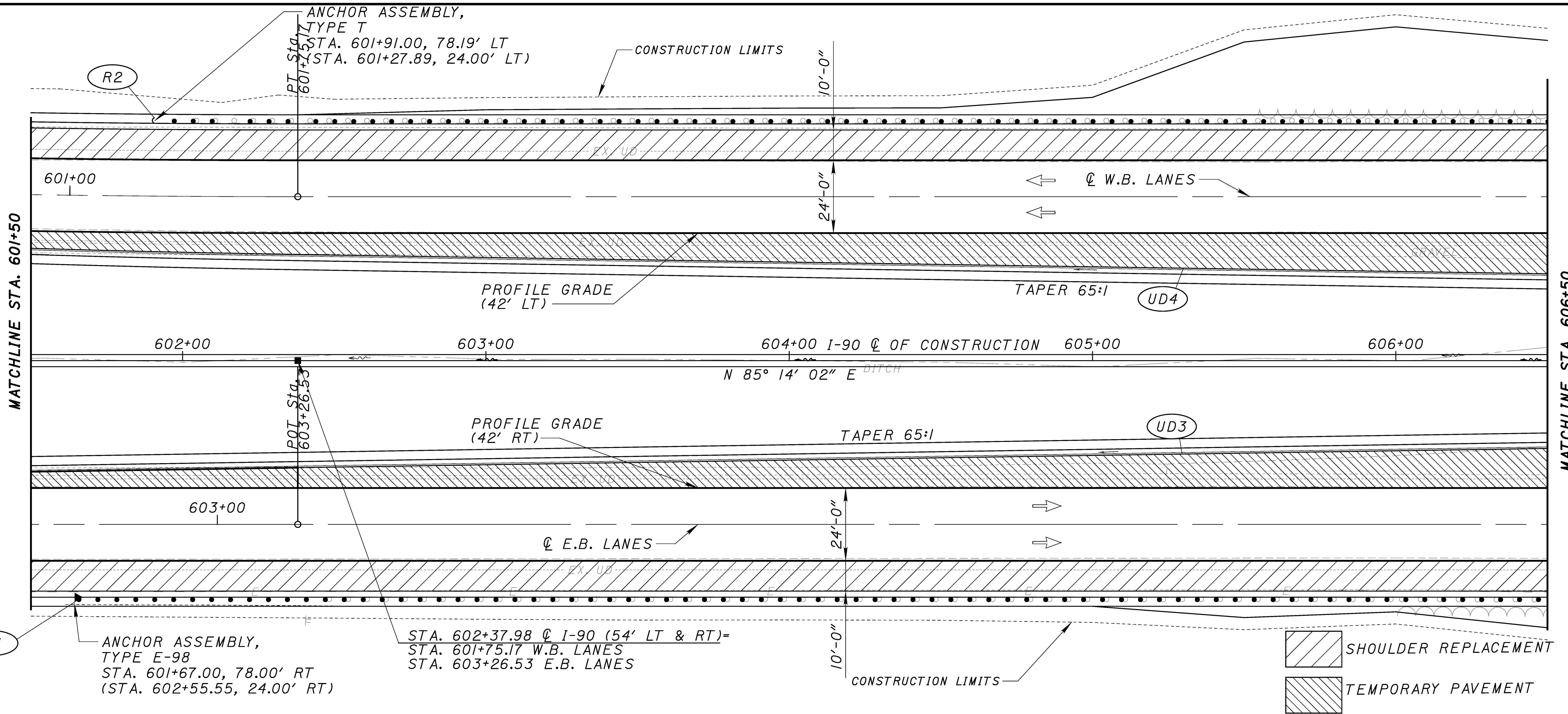
0 10 20 40
HORIZONTAL
SCALE IN FEET

CALCULATED
SM
CHECKED
KWB

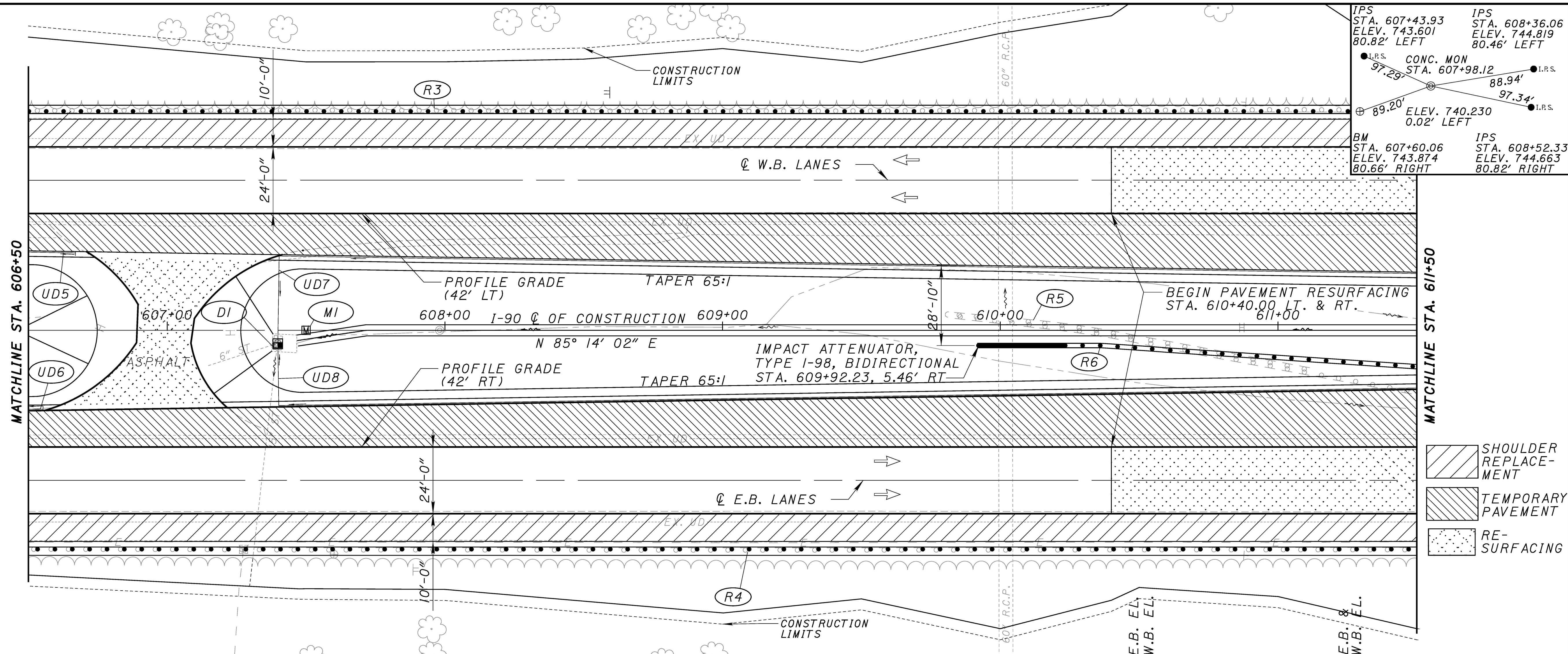
PLAN AND PROFILE
STA. 601+50 TO STA. 606+50

LOR-90-12.42

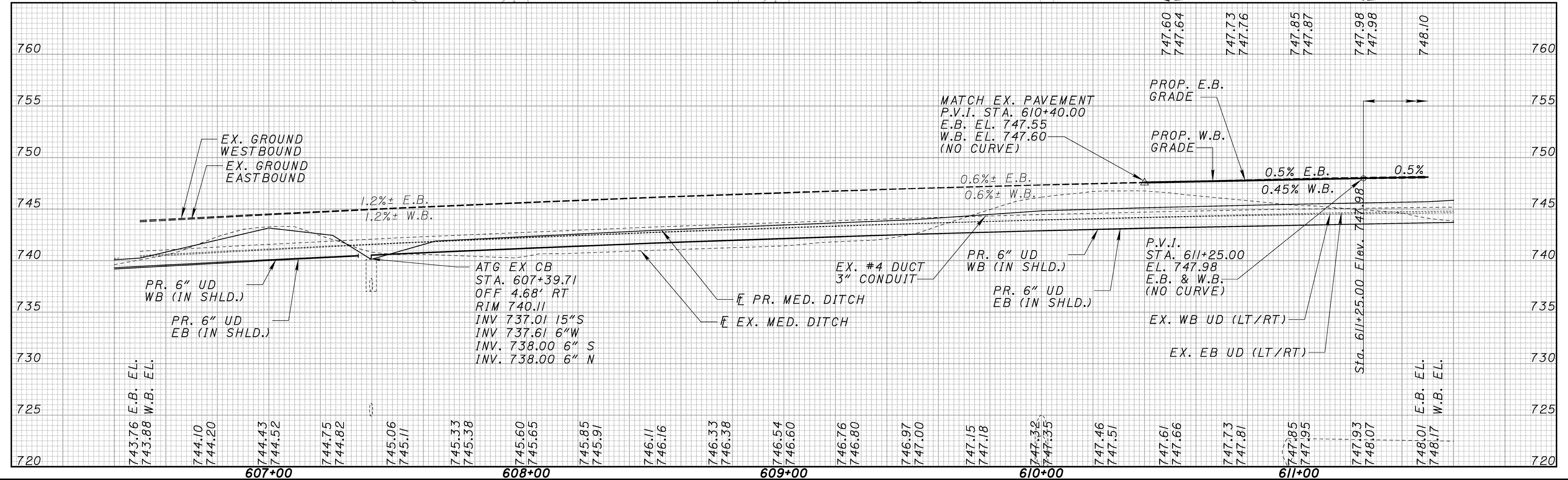
46
199



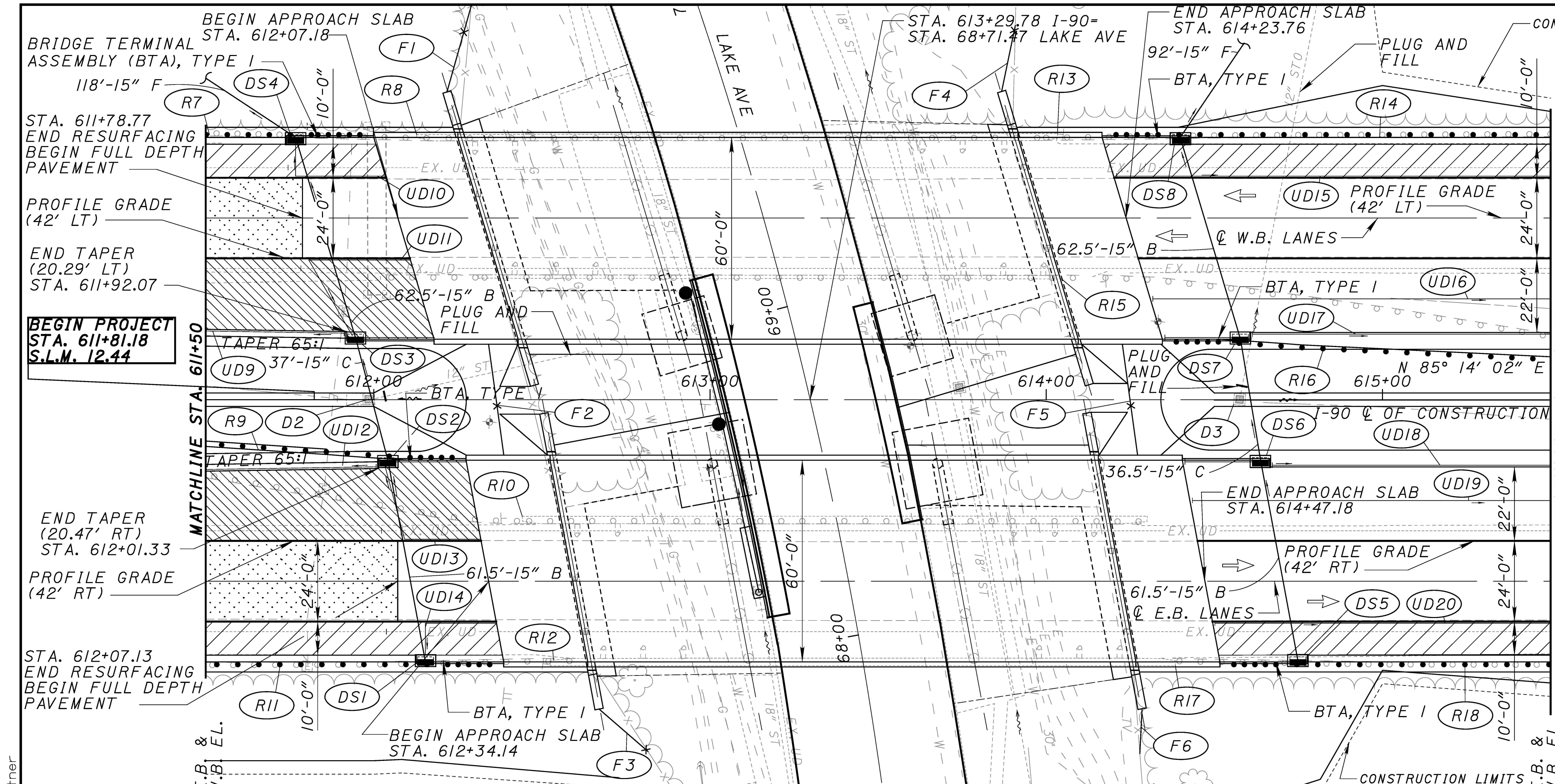
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IPS STA. 607+43.93 ELEV. 743.601 80.82' LEFT	IPS STA. 608+36.06 ELEV. 744.819 80.46' LEFT
CONC. MON STA. 607+98.12 ELEV. 740.230 0.02' LEFT	I.R.S. STA. 607+98.12 ELEV. 740.230 0.02' LEFT
BM STA. 607+60.06 ELEV. 743.874 80.66' RIGHT	IPS STA. 608+52.33 ELEV. 744.663 80.82' RIGHT



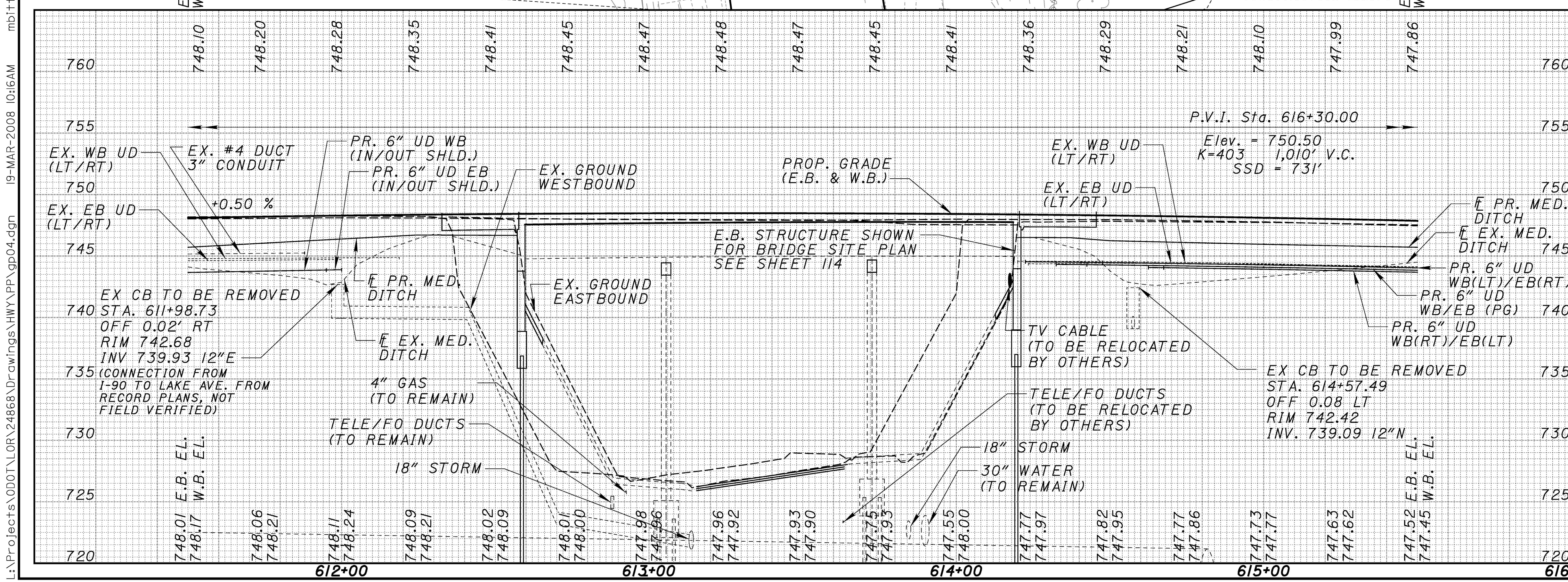
PLAN AND PROFILE
STA. 606+50 TO STA. 611+50



BRIDGE NO. LOR-90-1244 L/R I.R. 90 OVER LAKE AVENUE	
EXISTING STRUCTURE	
SFN: 4704355L/4704444R	
TYPE: 3-SPAN CONTINUOUS STEEL BEAM WITH CONCRETE DECK AND SUBSTRUCTURE	
SPANS: 48'±, 68.5'±, 48'± C/C BRGS. LEFT 47'±, 67'±, 47'± C/C BRGS. RIGHT	
ROADWAY: 42'-0" f/f PARAPETS	
LOADING: CF-2000(57)	
WEARING SURFACE: 1" MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 25'± LONG	
SKEW: 16°40' R.F. LEFT 10°40' R.F. RIGHT	DATE BUILT: 1967
PROPOSED STRUCTURE	
PROPOSED WORK: REPLACE STRUCTURE WITH WIDENED 8 BEAM STRUCTURE.	
TYPE: 3-SPAN CONTINUOUS STEEL BEAM WITH COMPOSITE REINFORCED CONCRETE DECK. SUBSTRUCTURES ARE INTEGRAL ABUTMENTS AND CAP AND COLUMN PIERS.	
SPANS: 48'-0", 68'-6", 48'-0" C/C BRGS. LEFT 47'-0", 67'-0", 47'-0" C/C BRGS. RIGHT	
ROADWAY: 60'-0" f/f PARAPETS	
LOADING: HS-25 CASE I & ALTERNATE MILITARY LOADING & 60 PSF FUTURE WEARING SURFACE	
WEARING SURFACE: 1" MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 25' LONG (AS-I-81)	
SKEW: 16°38'36" R.F. LEFT 10°33'14" R.F. RIGHT	
CROWN: 0.016	
LATITUDE: 41°24'11" LONGITUDE: 82°07'53"	



PLAN AND PROFILE
STA. 611+50 TO STA. 615+50

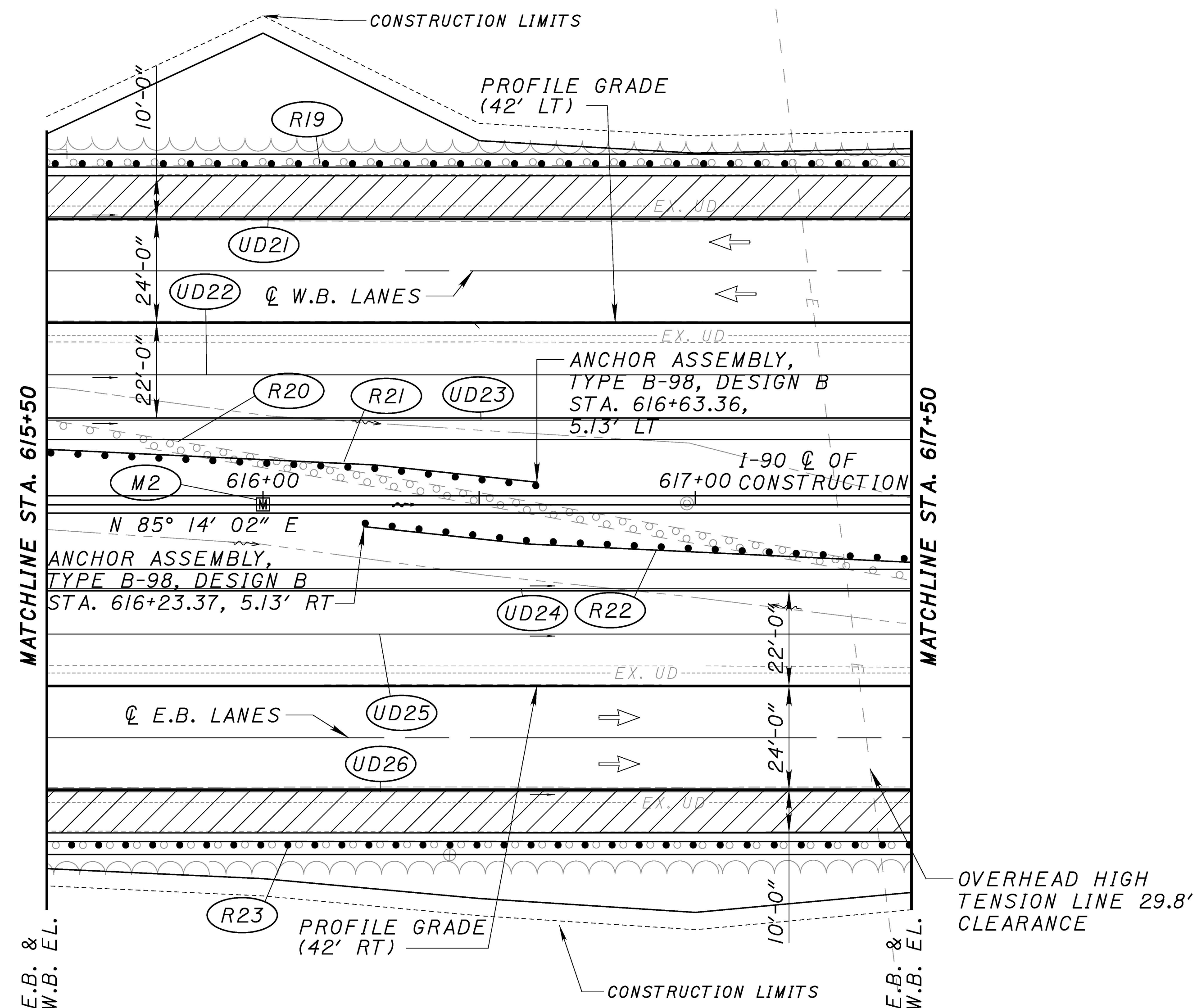


	SHOULDER REPLACEMENT
	TEMPORARY PAVEMENT
	RESURFACING
FOR PROPOSED DRAINAGE PROFILES, SEE SHEET 105.	
VERTICAL CLEARANCE	
E.B.	W.B.
EX. 15.52'	EX. 15.04'
REQ. 15.50'	REQ. 15.50'
PROP. 16.35'	PROP. 15.84'

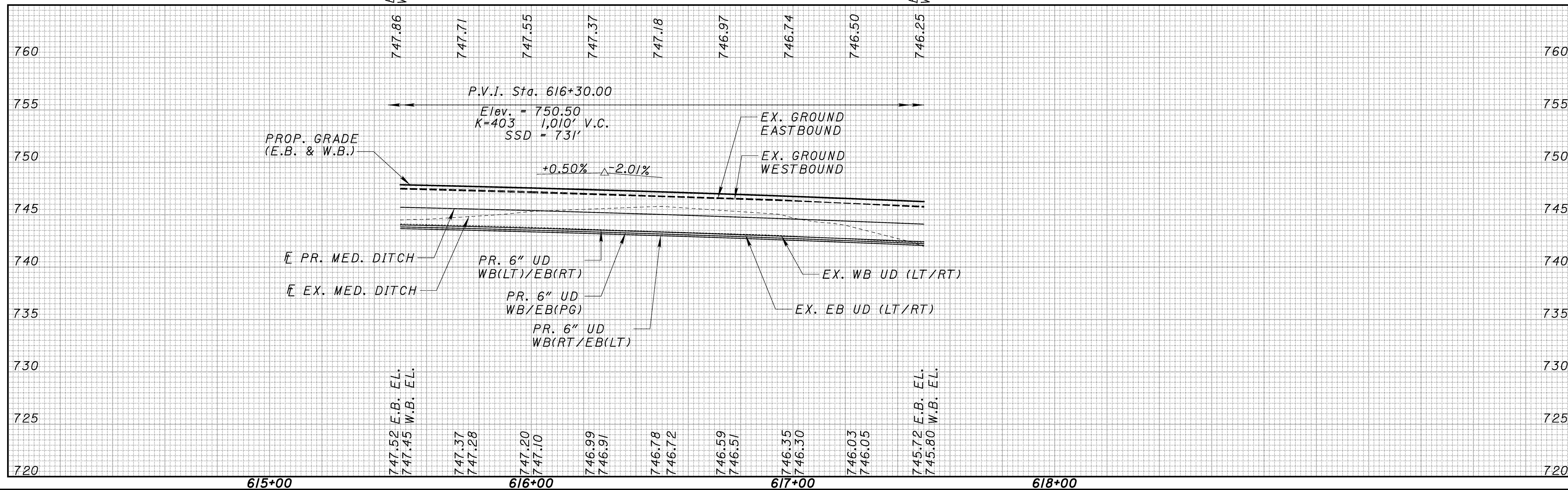
LOR-90-12.42
48
199

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- SHOULDER REPLACEMENT
- TEMPORARY PAVEMENT
- RESURFACING

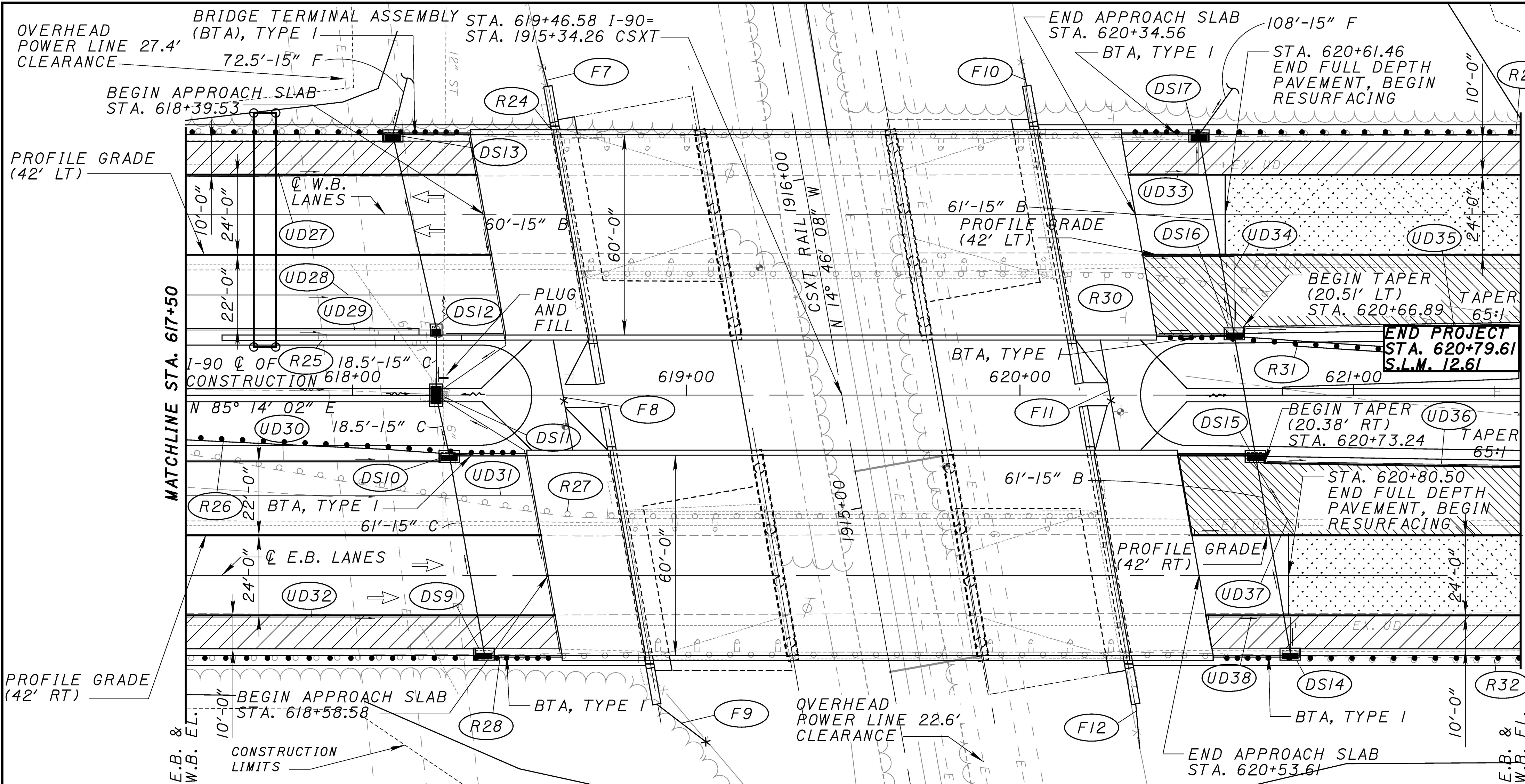


PLAN AND PROFILE
STA. 615+50 TO STA. 617+50

LOR-90-12.42

CALCULATED: SM
CHECKED: KWB

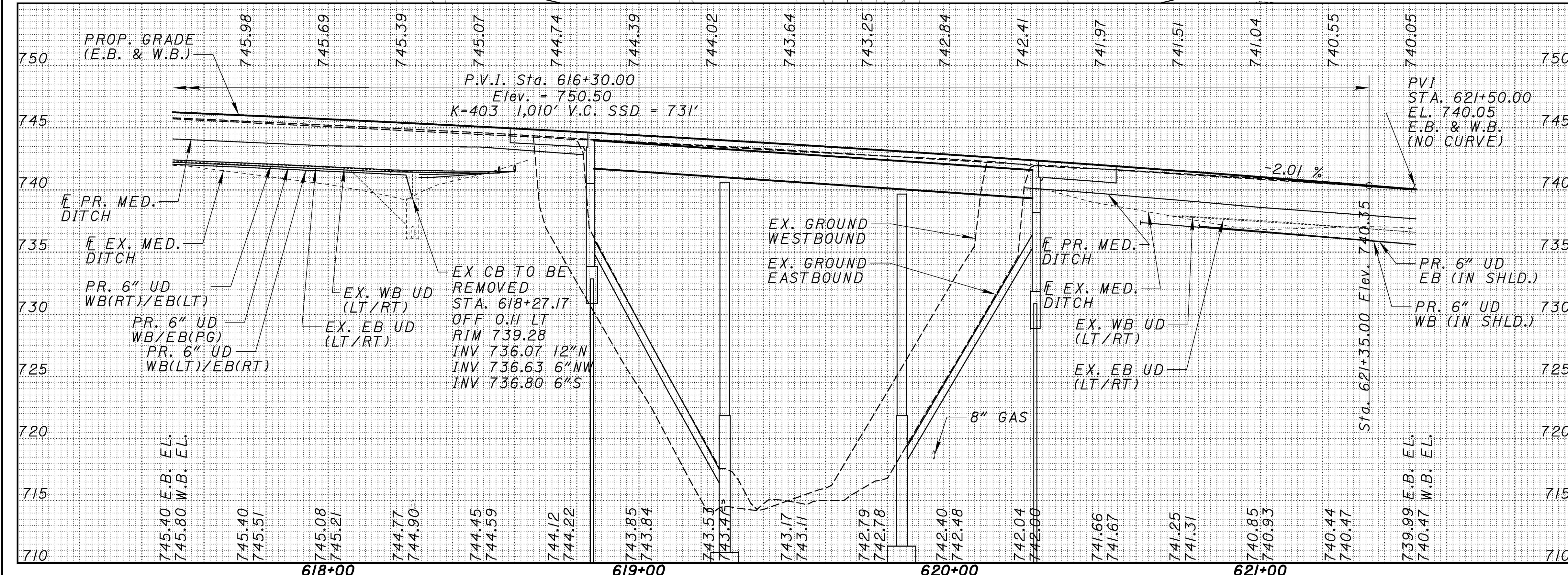
49
199



BRIDGE NO. LOR-90-1256 L/R I.R. 90 OVER CSX RAILROAD	
EXISTING STRUCTURE	
SFN: 4704479L/4704509R	
TYPE: TWIN 3-SPAN CONTINUOUS STEEL BEAM WITH CONCRETE DECK AND SUBSTRUCTURE	
SPANS: 44'±, 55'±, 44'± C/C BRGS.	
ROADWAY: 42'-0" f/f PARAPETS	
LOADING: CF-2000(57)	
WEARING SURFACE: 1" MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 25'± LONG	
SKEW: 10°00' R.F. DATE BUILT: 1967	
PROPOSED STRUCTURE	
TYPE: TWIN 3-SPAN CONTINUOUS COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK WITH INTEGRAL ABUTMENTS AND CAP AND COLUMN PIERS WITH CRASH WALLS.	
SPANS: 43'-0", 57'-0", 43'-0" C/C BRGS.	
ROADWAY: 60'-0" f/f PARAPETS	
LOADING: HS-25 CASE I & ALTERNATE MILITARY LOADING	
WEARING SURFACE: 1" MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 25' LONG (AS-I-81)	
SKEW: 10°00'10" R.F.	
CROWN: 0.016	
LATITUDE: 41°24'12" LONGITUDE: 82°07'43"	



PLAN AND PROFILE
STA. 617+50 TO STA. 621+50



VERTICAL CLEARANCE
E.B. W.B.
EX. 23.19' EX. 24.02'
REQ. 23.00' REQ. 23.00'
PROP. 23.94' PROP. 24.38'

E.B. STRUCTURE SHOWN FOR BRIDGE SITE PLAN, SEE SHEET 160.

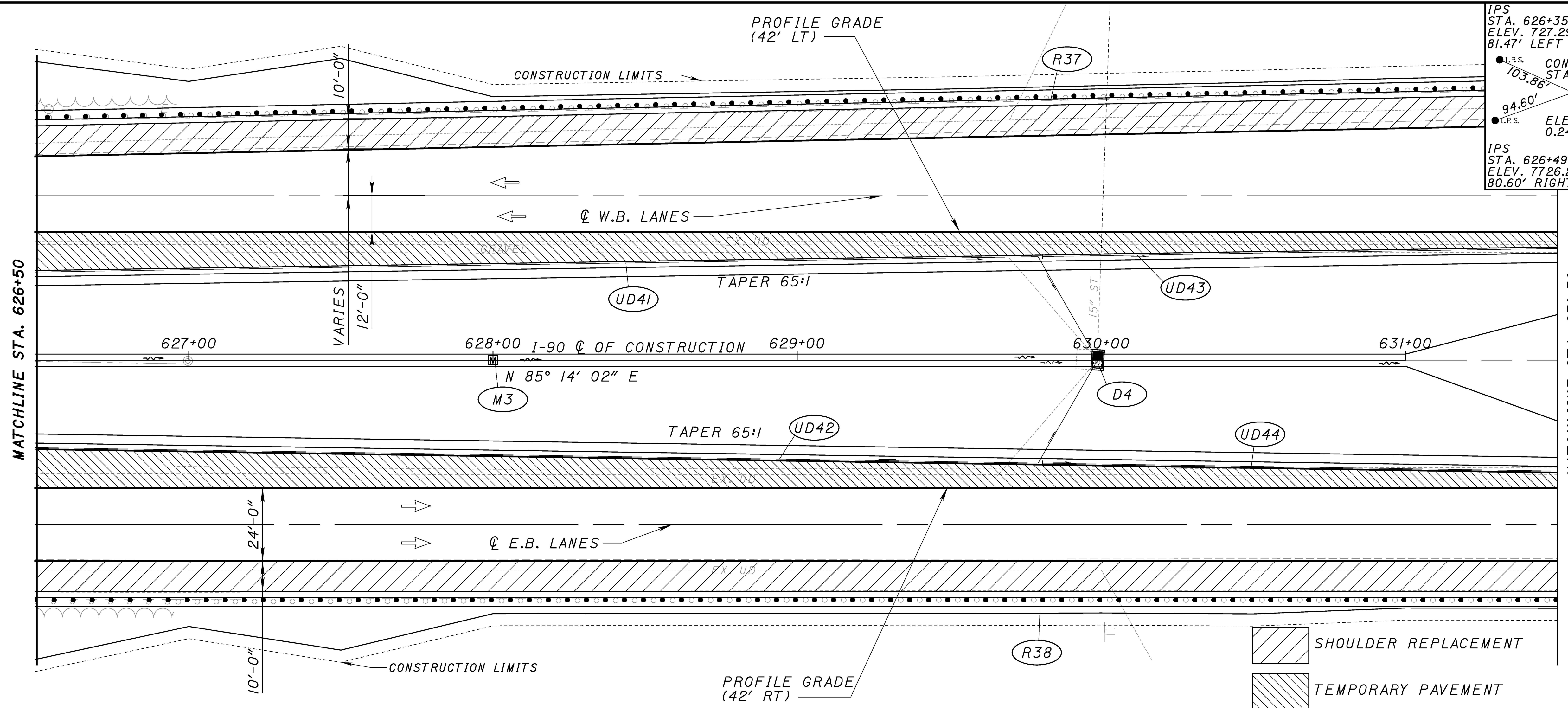
- SHOULDER REPLACEMENT
- TEMPORARY PAVEMENT
- RESURFACING

FOR PROPOSED DRAINAGE PROFILES, SEE SHEET 106

LOR-90-12.42
50
199

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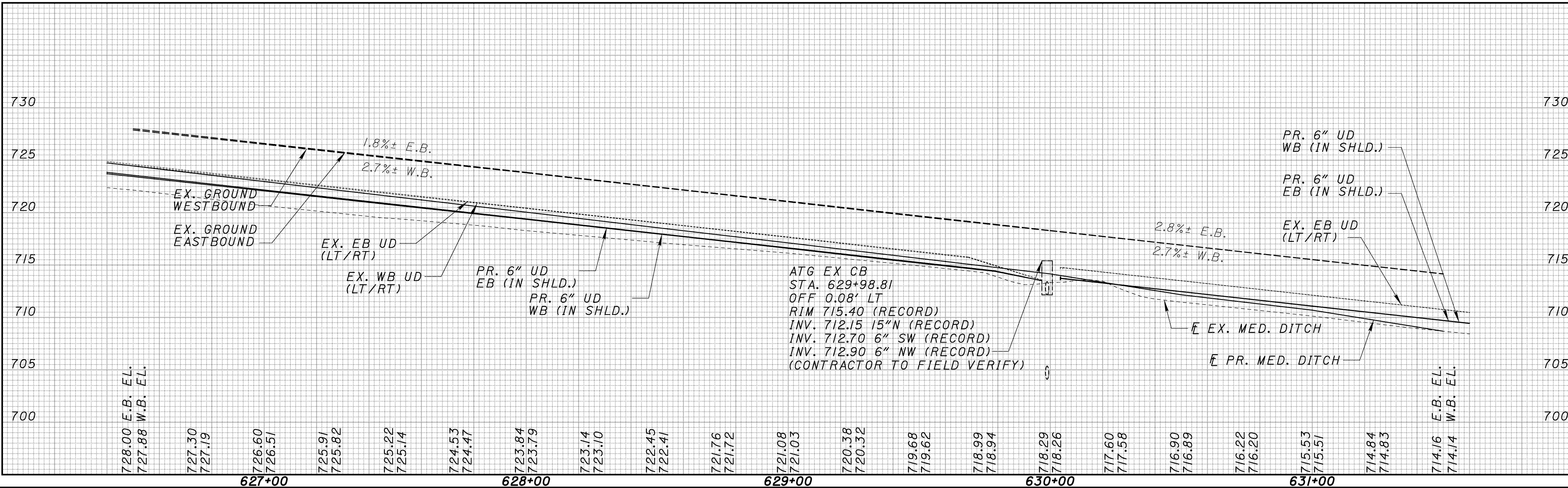


IPS STA. 626+35.59 ELEV. 727.298 81.47' LEFT	IPS STA. 627+51.79 ELEV. 723.755 83.62' LEFT
CONC. MON STA. 626+99.69 ELEV. 720.799 0.24' RIGHT	
IPS STA. 626+49.77 ELEV. 726.254 80.60' RIGHT	IPS STA. 627+62.80 ELEV. 723.388 80.68' RIGHT

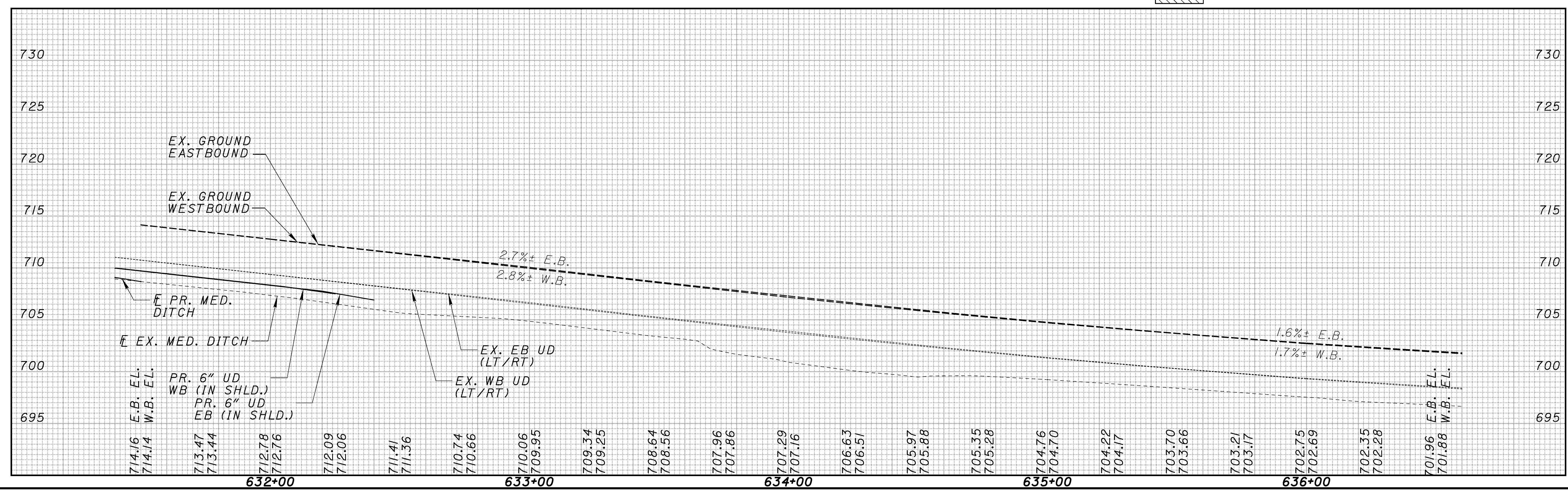
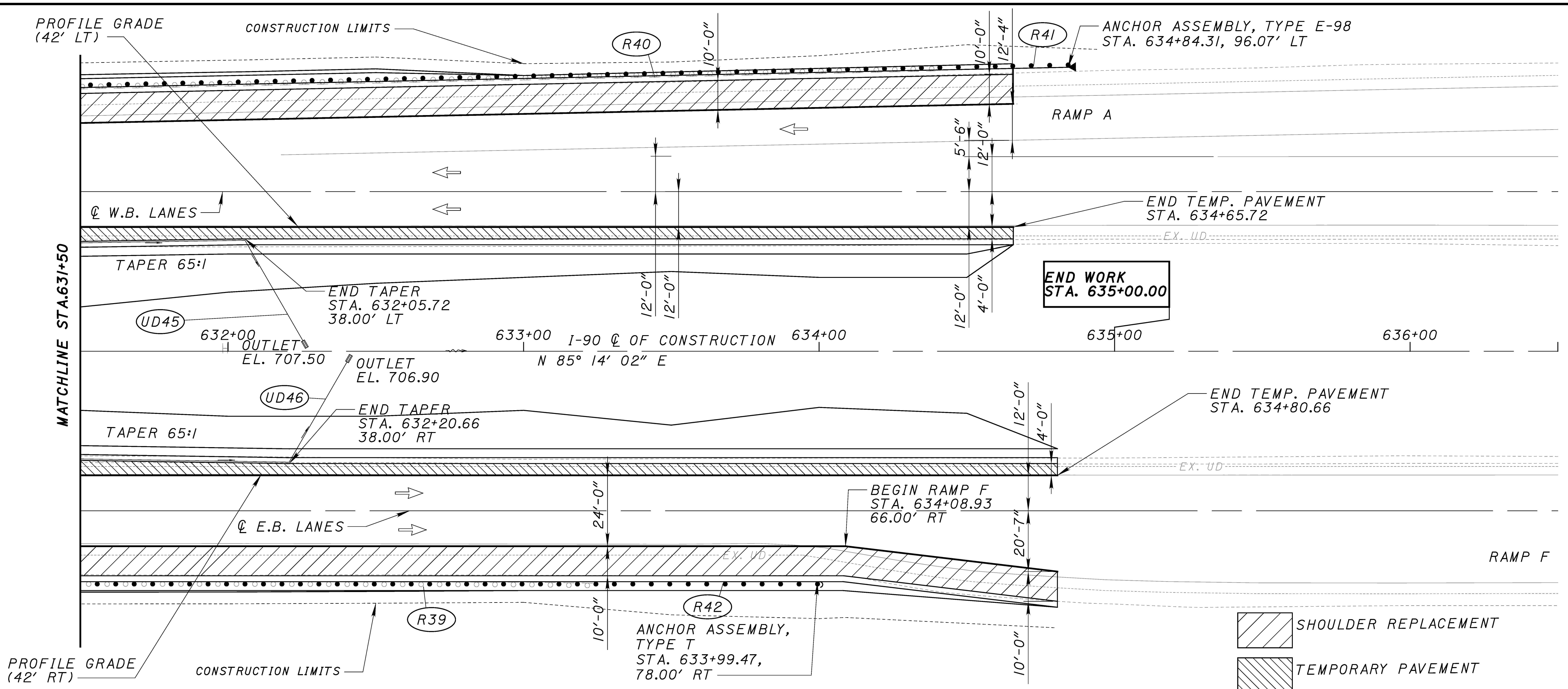


PLAN AND PROFILE
STA. 626+50 TO STA. 631+50

LOR-90-12.42



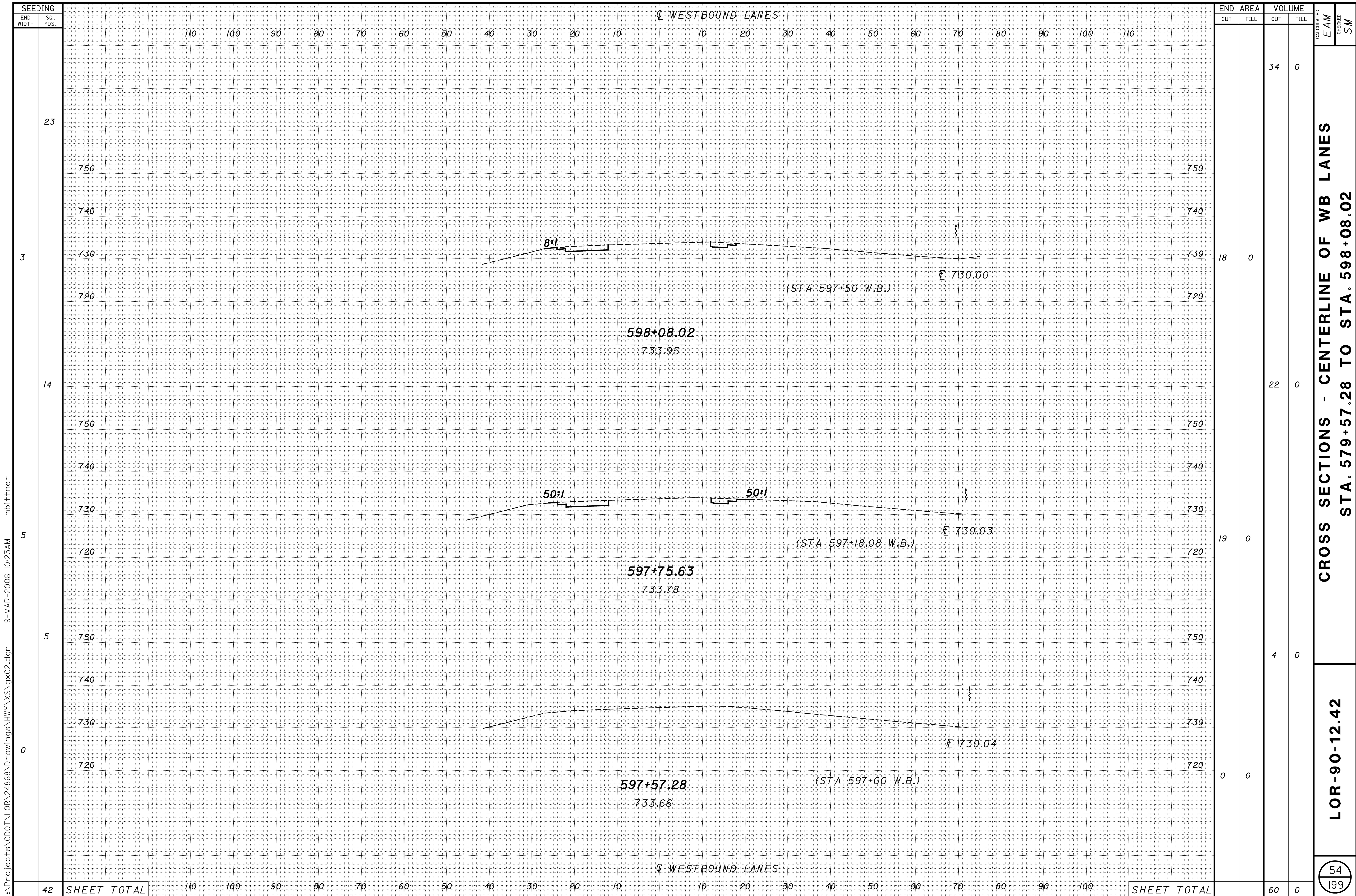
SHOULDER REPLACEMENT
 TEMPORARY PAVEMENT



CALCULATED SM
 CHECKED KMB
PLAN AND PROFILE
STA. 631+50 TO END WORK

LOR-90-12.42
 53
 199

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SEEDING	
END WIDTH	SQ. YDS.
23	
14	
5	
5	
0	
42	SHEET TOTAL

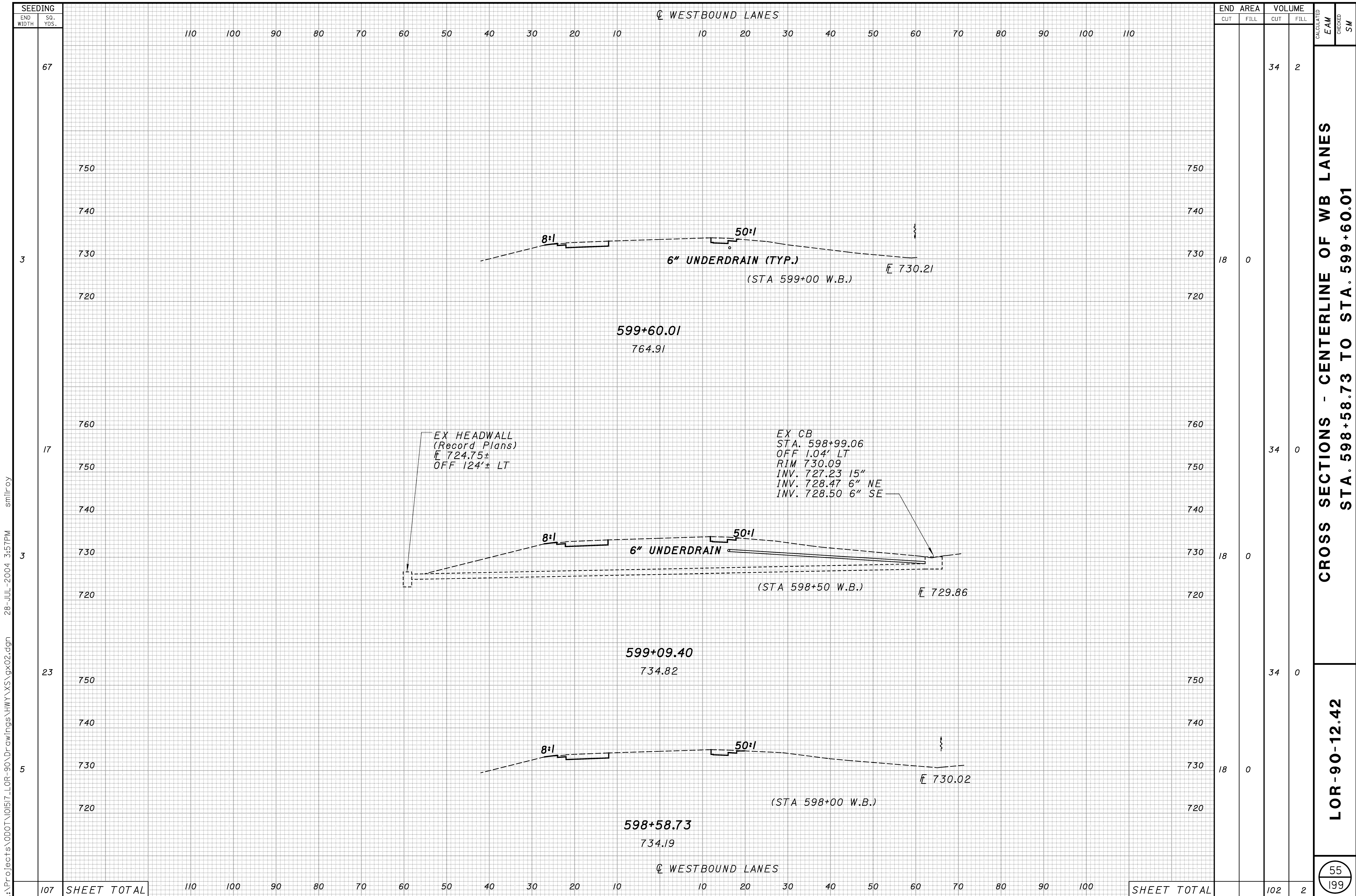
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		34	0		
18	0				
		22	0		
19	0				
		4	0		
0	0				
		60	0		

CROSS SECTIONS - CENTERLINE OF WB LANES
 STA. 579+57.28 TO STA. 598+08.02

LOR-90-12.42

54
199

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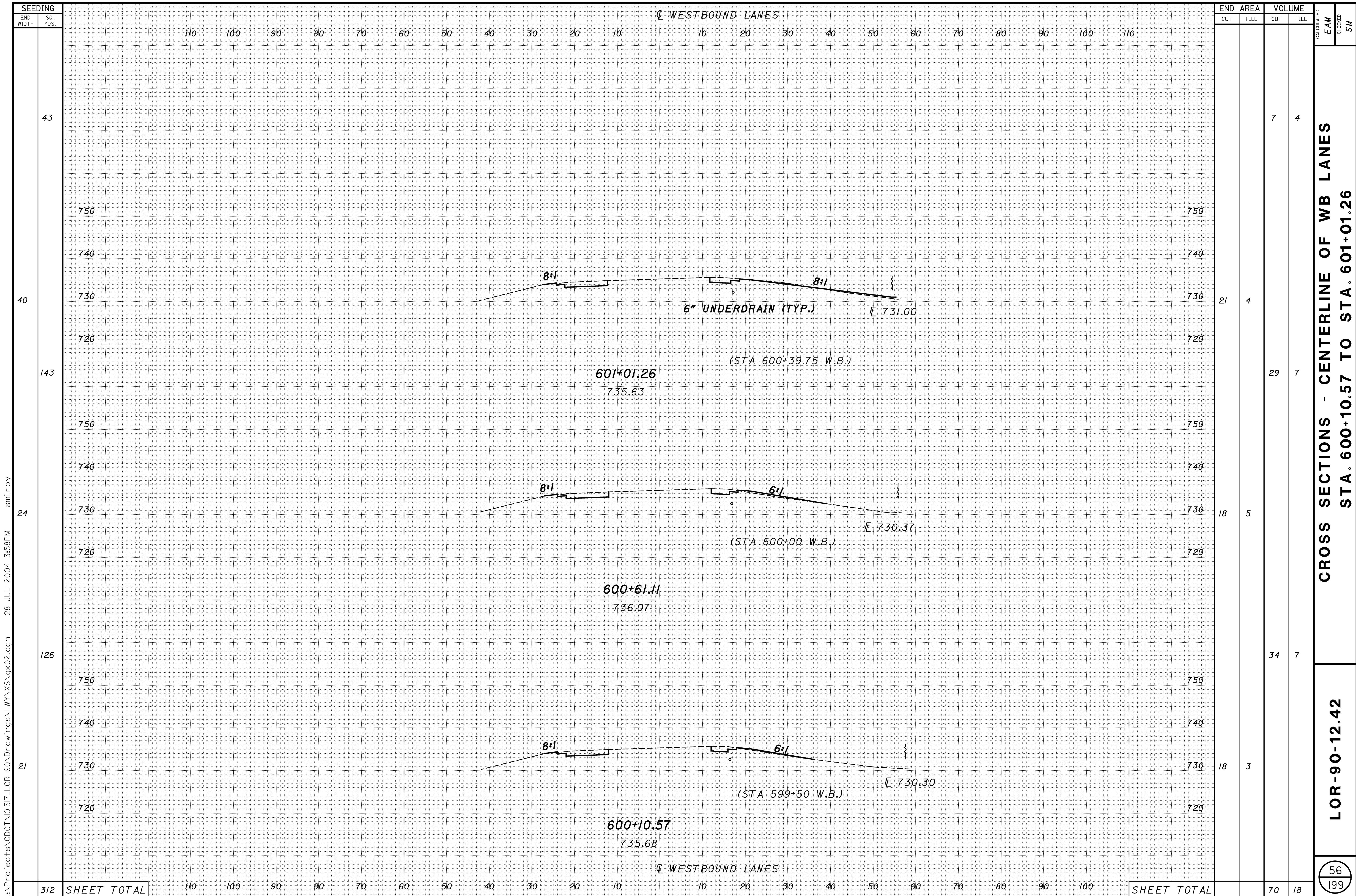
SEEDING	
END WIDTH	SQ. YDS.
67	
3	
17	
3	
23	
5	
107	SHEET TOTAL

END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
				34	2
18	0				
				34	0
18	0				
				34	0
18	0				
				102	2

CROSS SECTIONS - CENTERLINE OF WB LANES
 STA. 598+58.73 TO STA. 599+60.01

LOR-90-12.42

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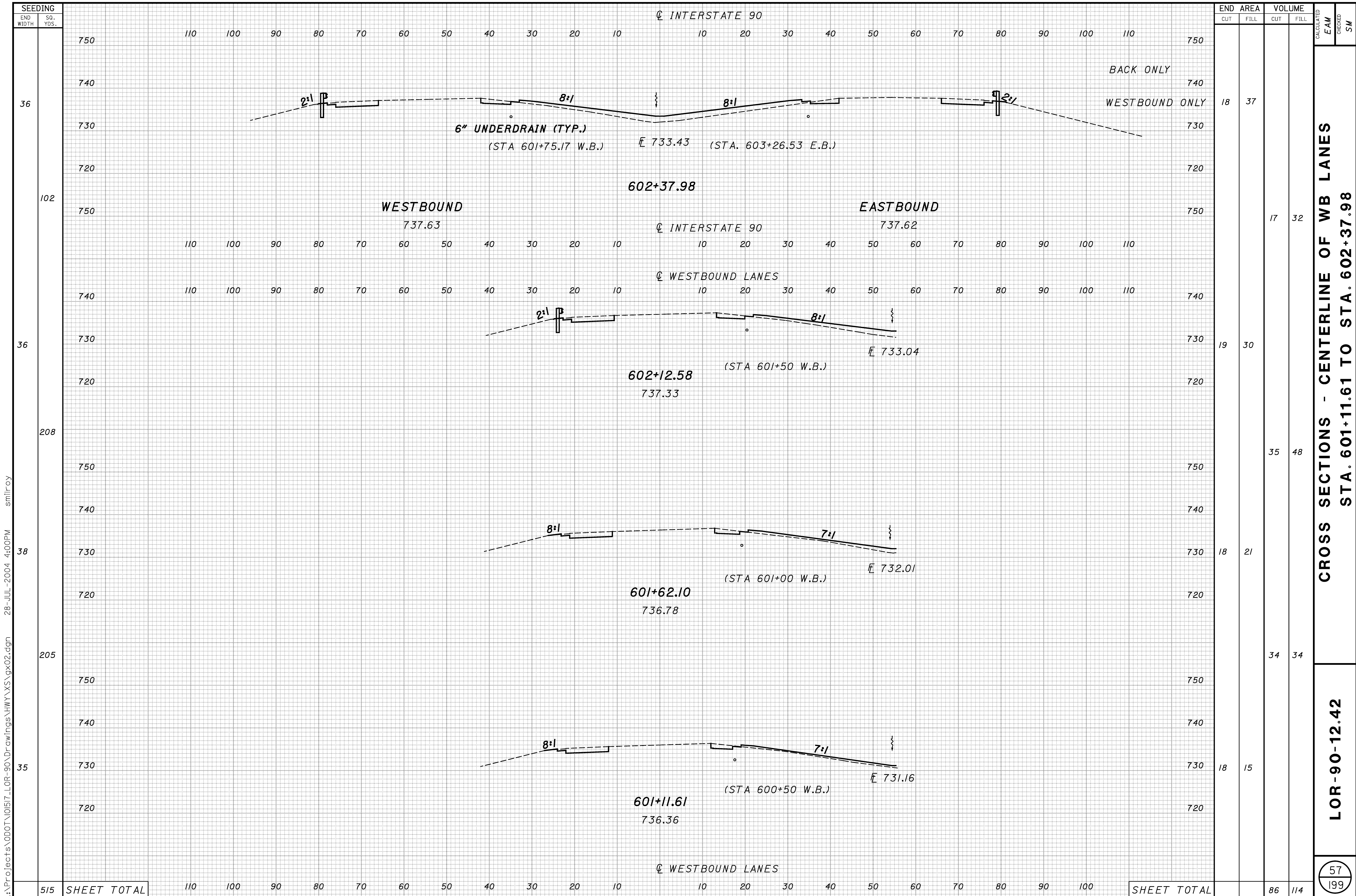
SEEDING	
END WIDTH	SQ. YDS.
43	
40	
143	
24	
126	
21	
312	SHEET TOTAL

END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
21	4				
		29	7		
18	5				
		34	7		
18	3				
		70	18		

CROSS SECTIONS - CENTERLINE OF WB LANES
STA. 600+10.57 TO STA. 601+01.26

LOR-90-12.42

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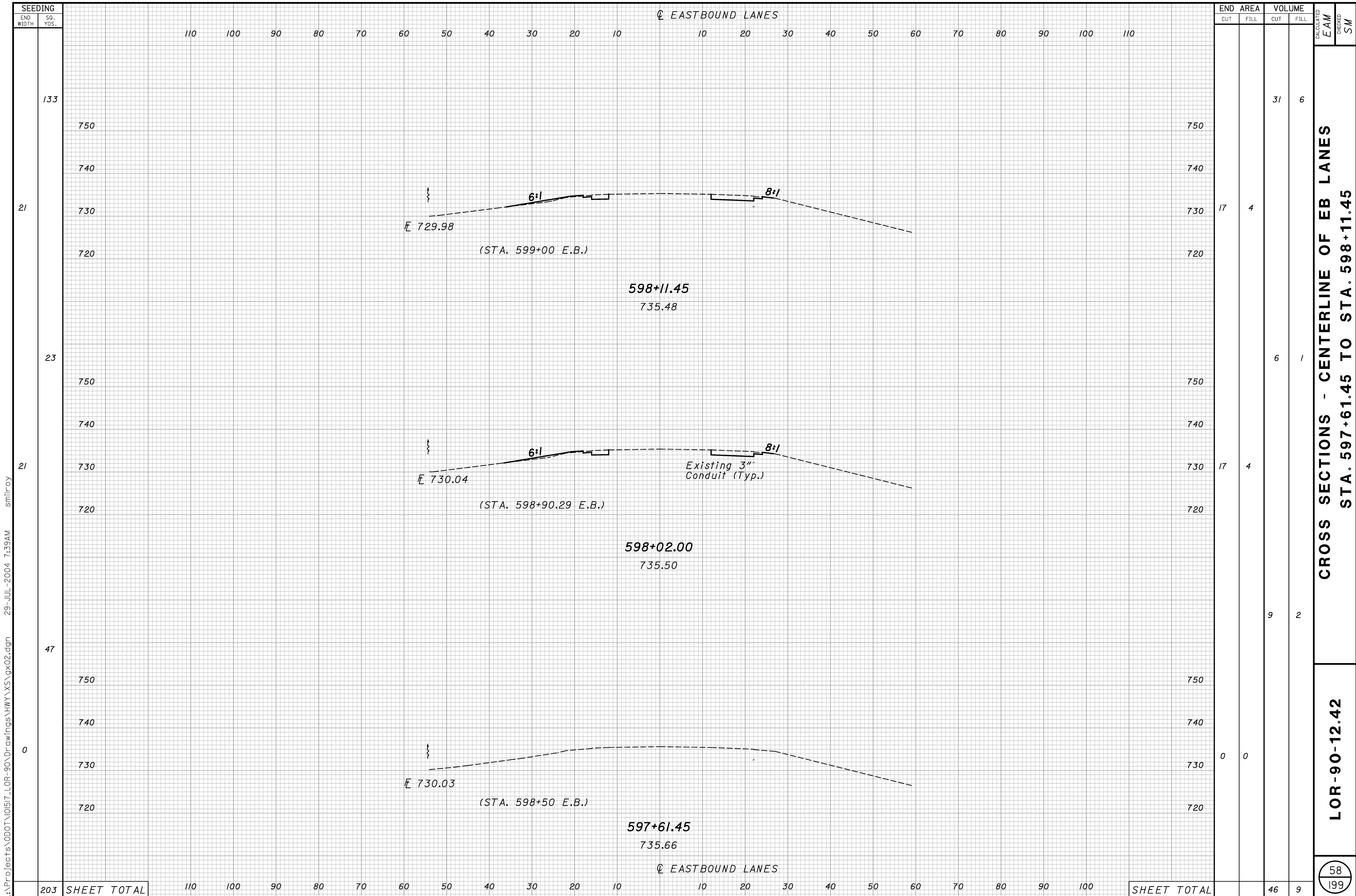


CROSS SECTIONS - CENTERLINE OF WB LANES
 STA. 601+11.61 TO STA. 602+37.98

LOR-90-12.42

57
 199

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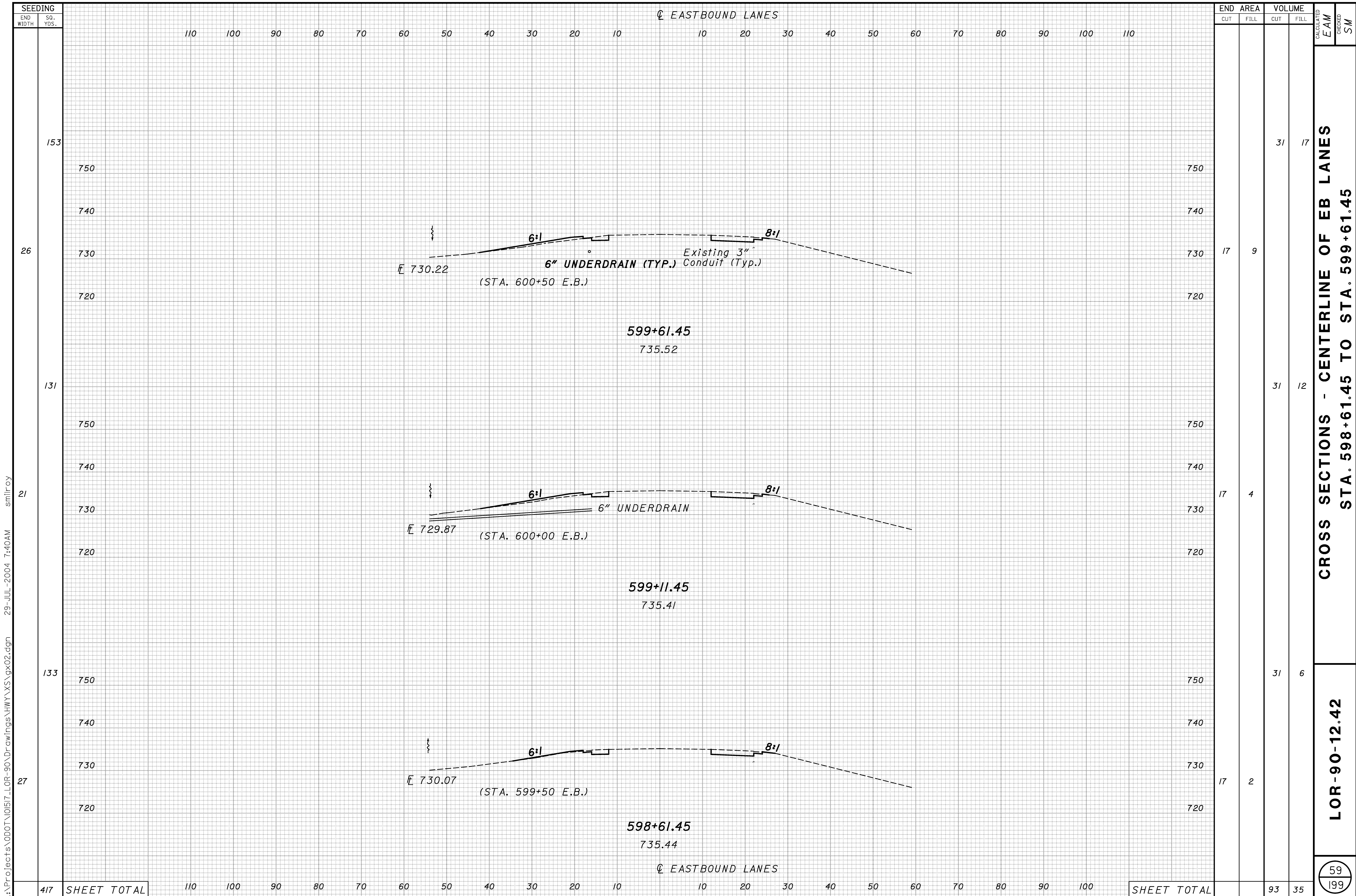
SEEDING	
END WIDTH	SQ. YDS.
133	
21	
23	
21	
47	
0	
203	SHEET TOTAL

END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
				31	6
17	4			6	1
17	4			9	2
0	0			46	9
SHEET TOTAL					

**CROSS SECTIONS - CENTERLINE OF EB LANES
 STA. 597+61.45 TO STA. 598+11.45**

LOR-90-12.42

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SEEDING	
END WIDTH	SQ. YDS.
153	
26	
131	
21	
133	
27	
417	SHEET TOTAL

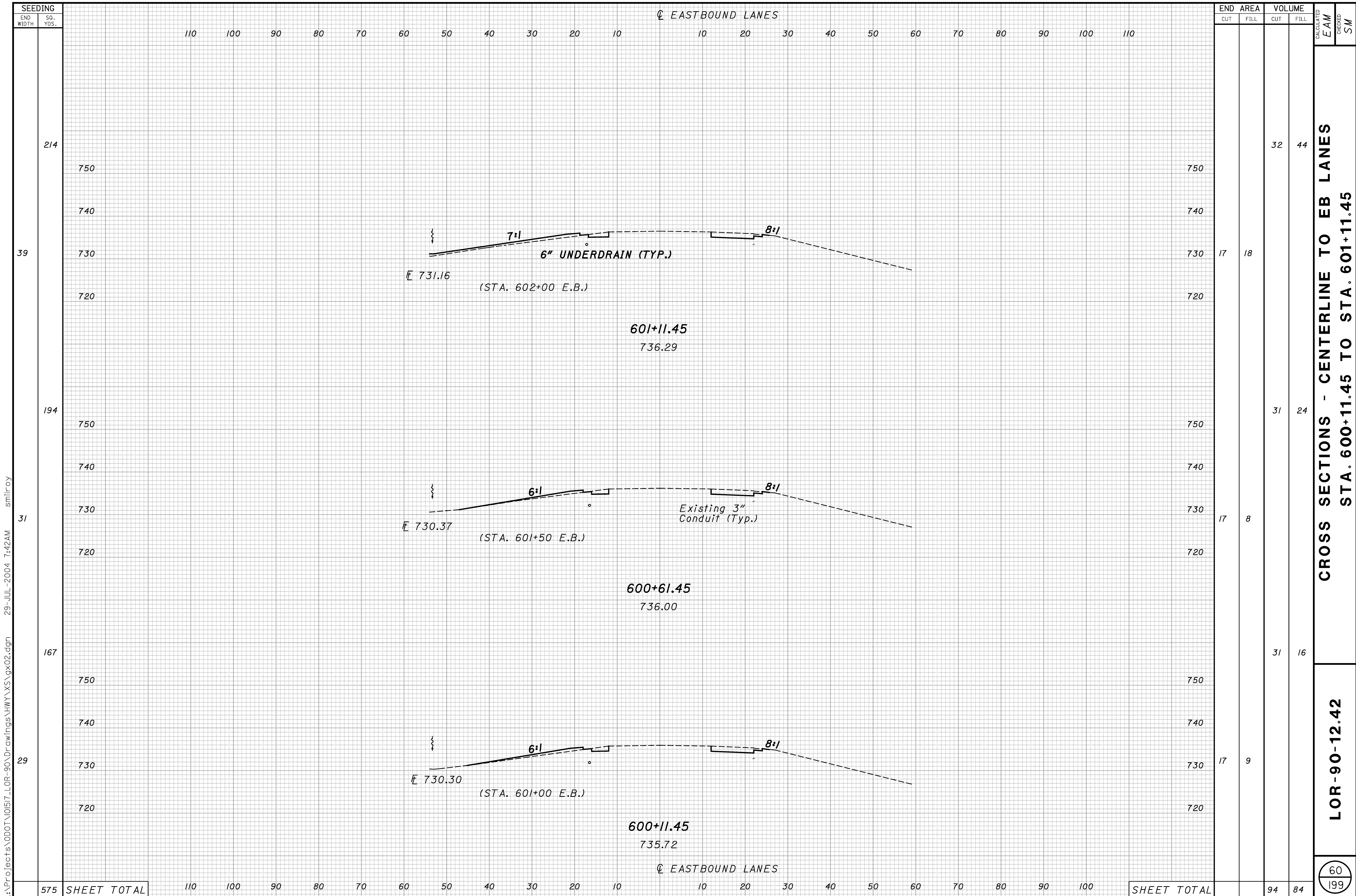
END AREA		VOLUME	
CUT	FILL	CUT	FILL
17	9	31	17
17	4	31	12
17	2	31	6
17	2	93	35

CALCULATED
 EAM
 CHECKED
 SM
**CROSS SECTIONS - CENTERLINE OF EB LANES
 STA. 598+61.45 TO STA. 599+61.45**

LOR-90-12.42

59
 199

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SEEDING	
END WIDTH	SQ. YDS.
214	
39	
194	
31	
167	
29	
575	SHEET TOTAL

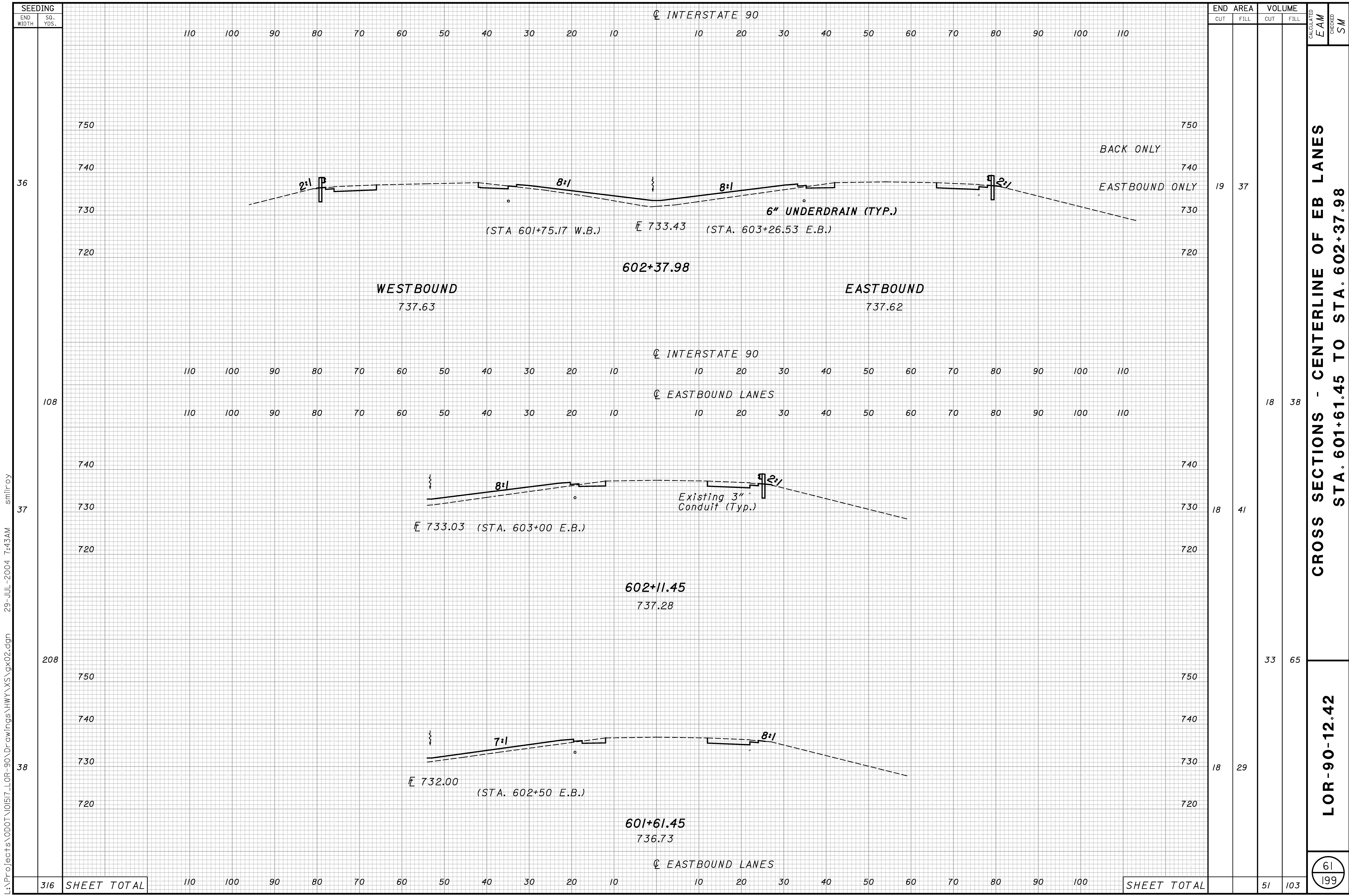
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
17	18	32	44		
17	8	31	24		
17	9	31	16		
		94	84		

**CROSS SECTIONS - CENTERLINE TO EB LANES
 STA. 600+11.45 TO STA. 601+11.45**

LOR-90-12.42

60
 199

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SEEDING	
END WIDTH	SQ. YDS.
36	
108	
37	
208	
38	
316	SHEET TOTAL

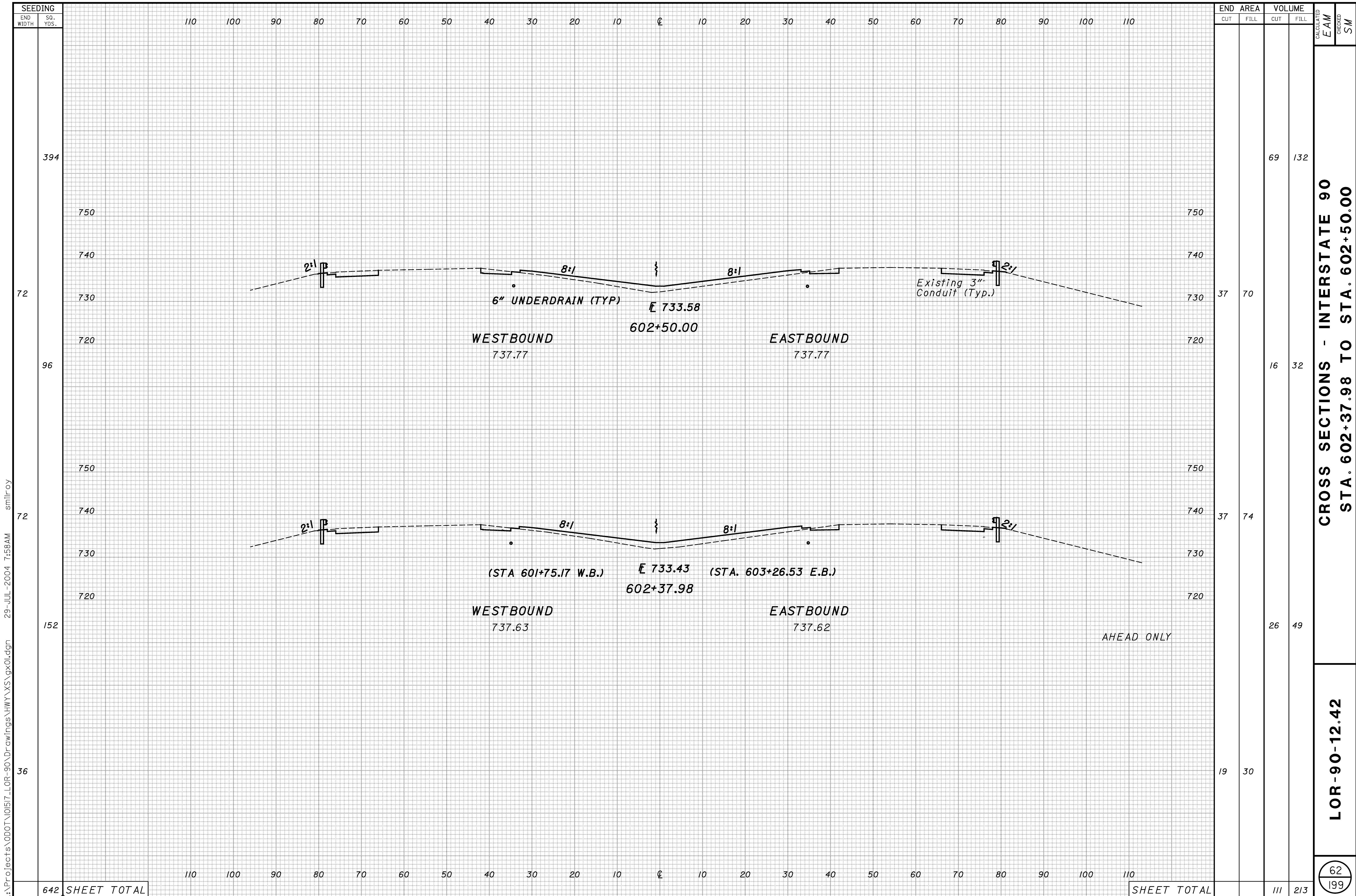
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
19	37				
18	41				
18	29	33	65		
		51	103		

CROSS SECTIONS - CENTERLINE OF EB LANES
 STA. 601+61.45 TO STA. 602+37.98

LOR-90-12.42

61
 199

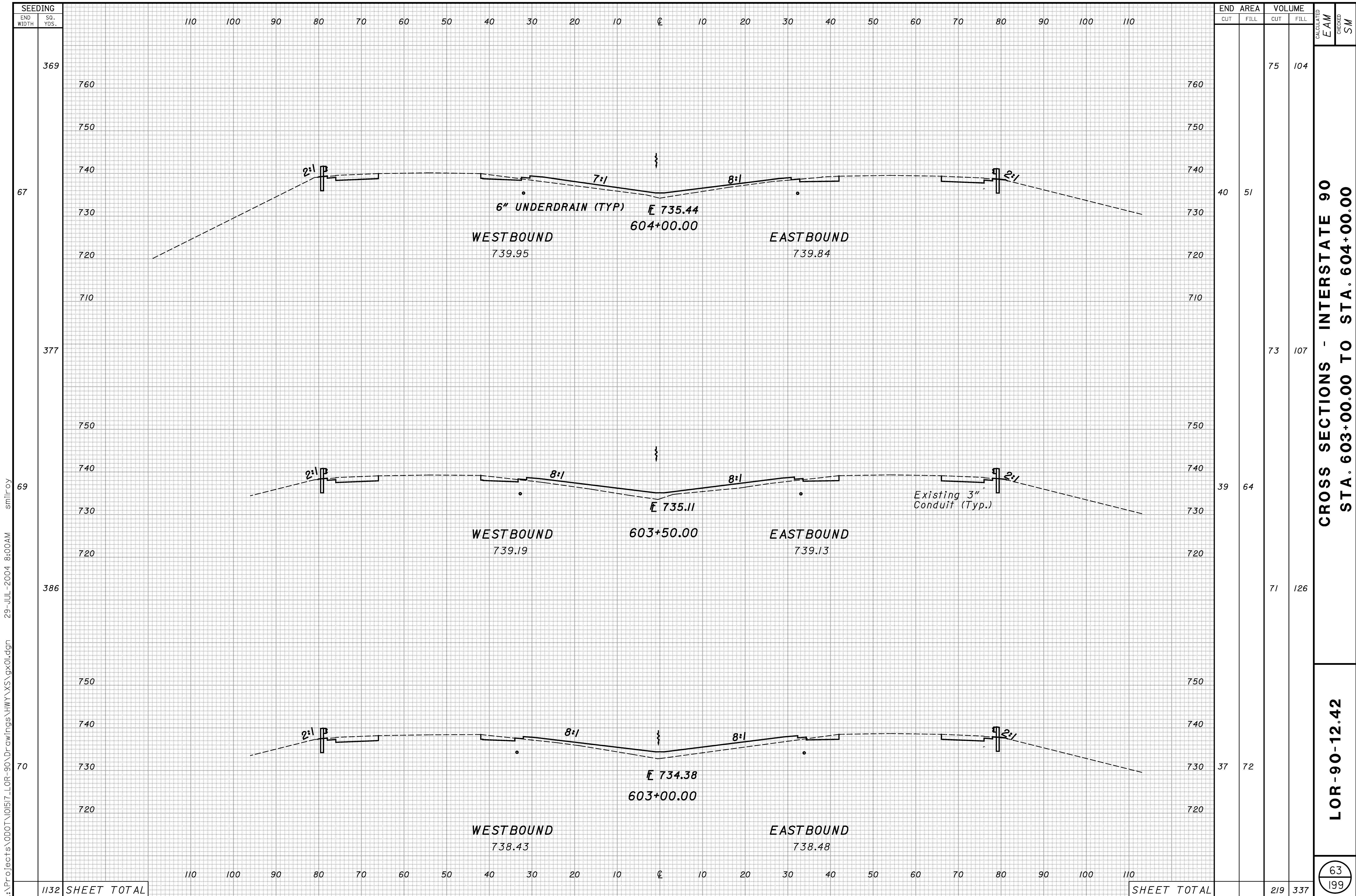
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CROSS SECTIONS - INTERSTATE 90
 STA. 602+37.98 TO STA. 602+50.00

LOR-90-12.42

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SEEDING	
END WIDTH	SQ. YDS.
369	67
377	69
386	70
1132	SHEET TOTAL

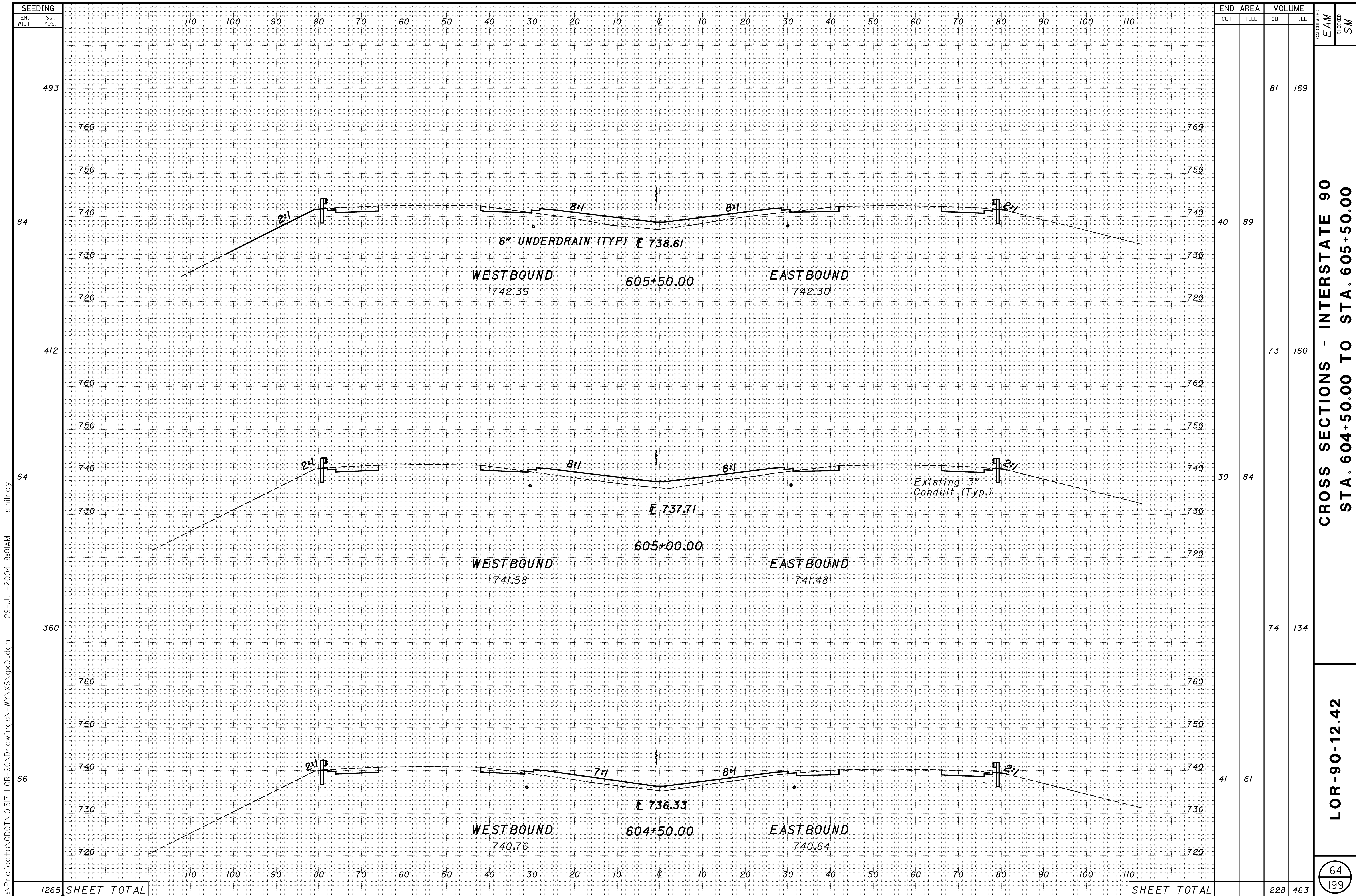
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
40	51	75	104		
39	64	73	107		
37	72	71	126		
		219	337		

CROSS SECTIONS - INTERSTATE 90
STA. 603+00.00 TO STA. 604+00.00

LOR-90-12.42

63
199

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SEEDING	
END WIDTH	SQ. YDS.
493	
84	
412	
64	
360	
66	
1265	SHEET TOTAL

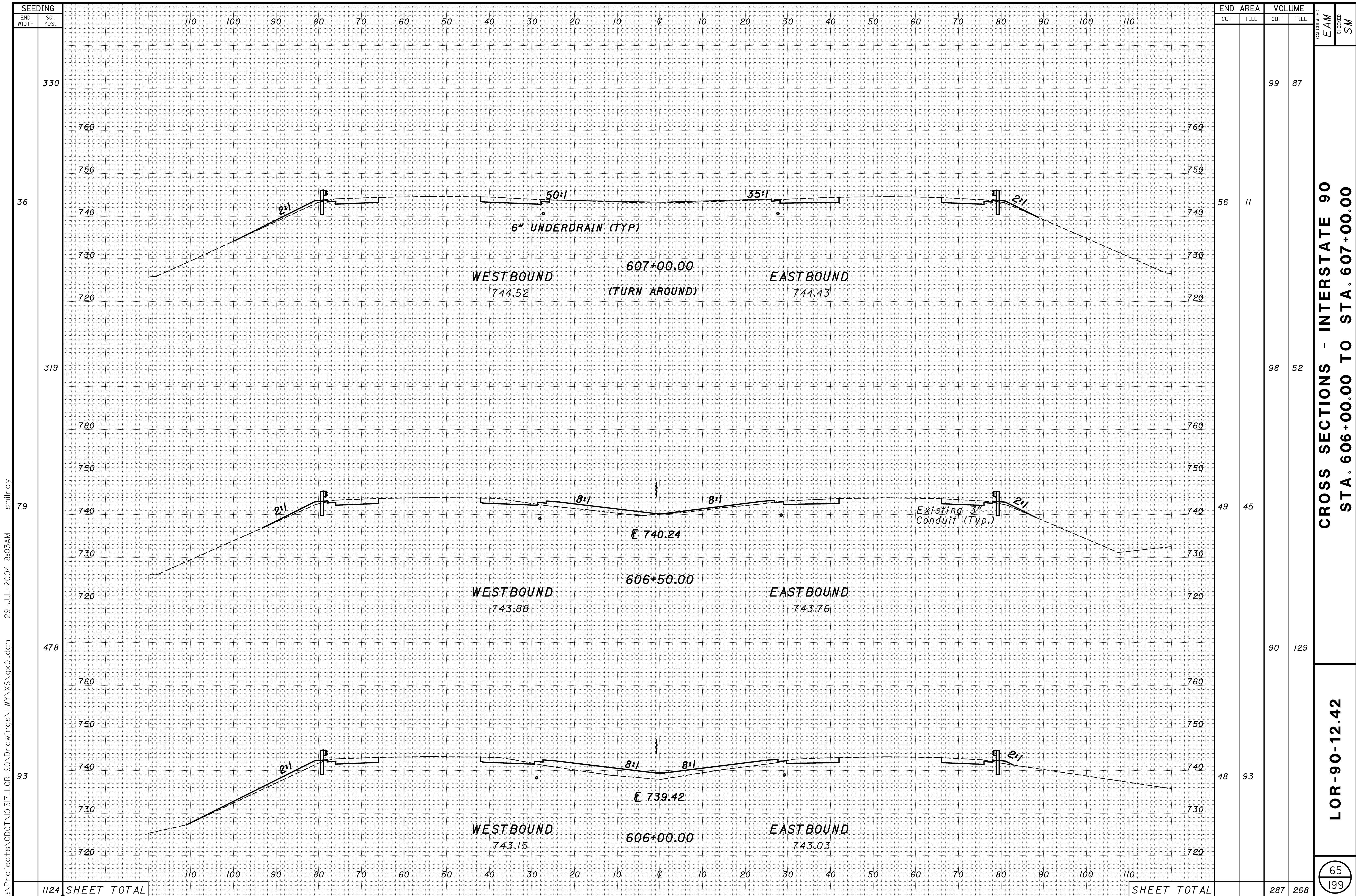
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		81	169		
40	89	73	160		
39	84	74	134		
41	61				
		228	463		

CROSS SECTIONS - INTERSTATE 90
STA. 604+50.00 TO STA. 605+50.00

LOR-90-12.42

64
 199

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SEEDING	
END WIDTH	SQ. YDS.
330	
36	
319	
79	
478	
93	
1124	SHEET TOTAL

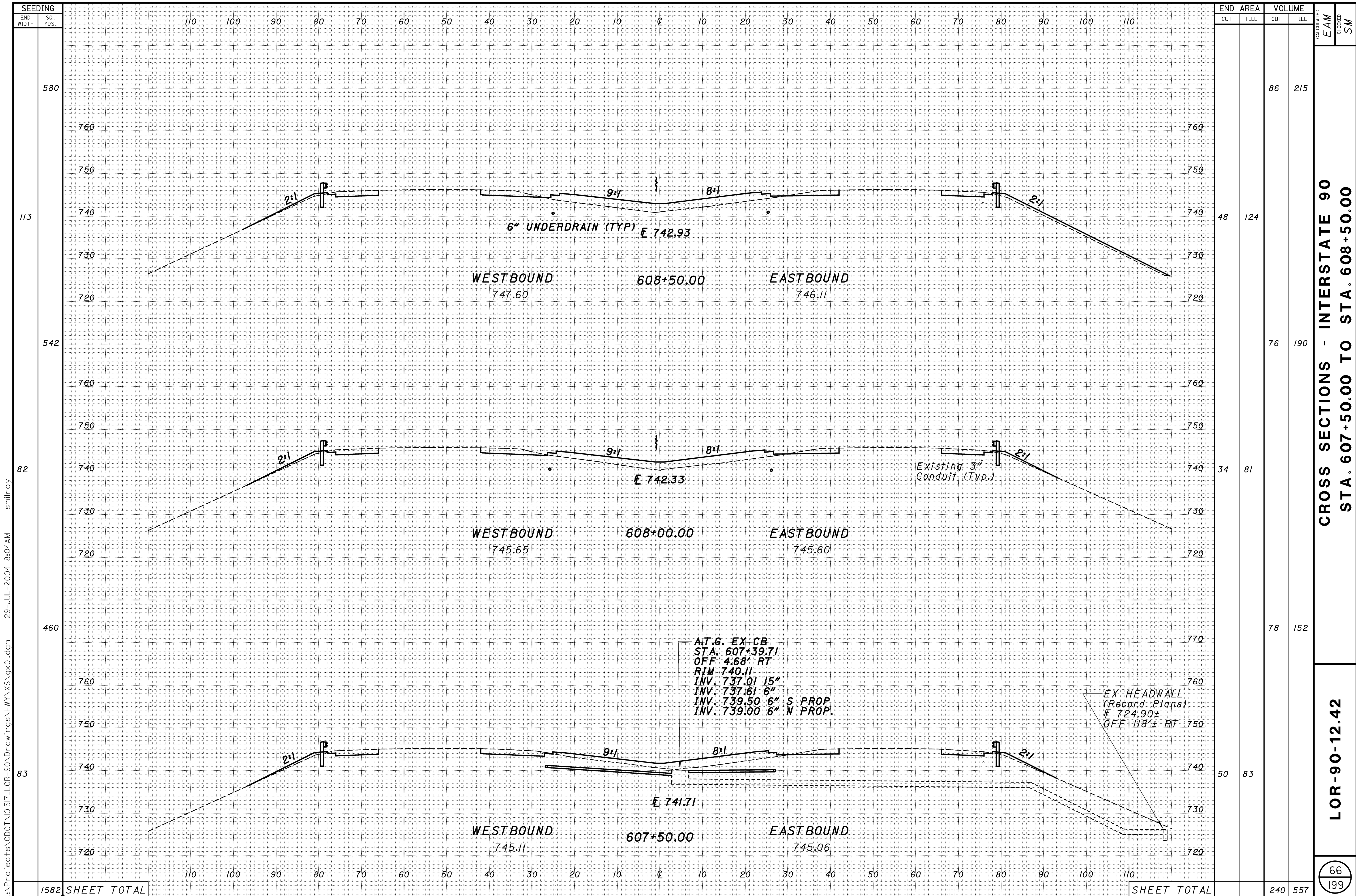
END AREA		VOLUME	
CUT	FILL	CUT	FILL
		99	87
56	11		
		98	52
49	45		
		90	129
48	93		
		287	268
SHEET TOTAL		SHEET TOTAL	

CROSS SECTIONS - INTERSTATE 90
 STA. 606+00.00 TO STA. 607+00.00

LOR-90-12.42

65
199

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SEEDING	
END WIDTH	SQ. YDS.
113	580
82	542
460	460
83	83
1582	SHEET TOTAL

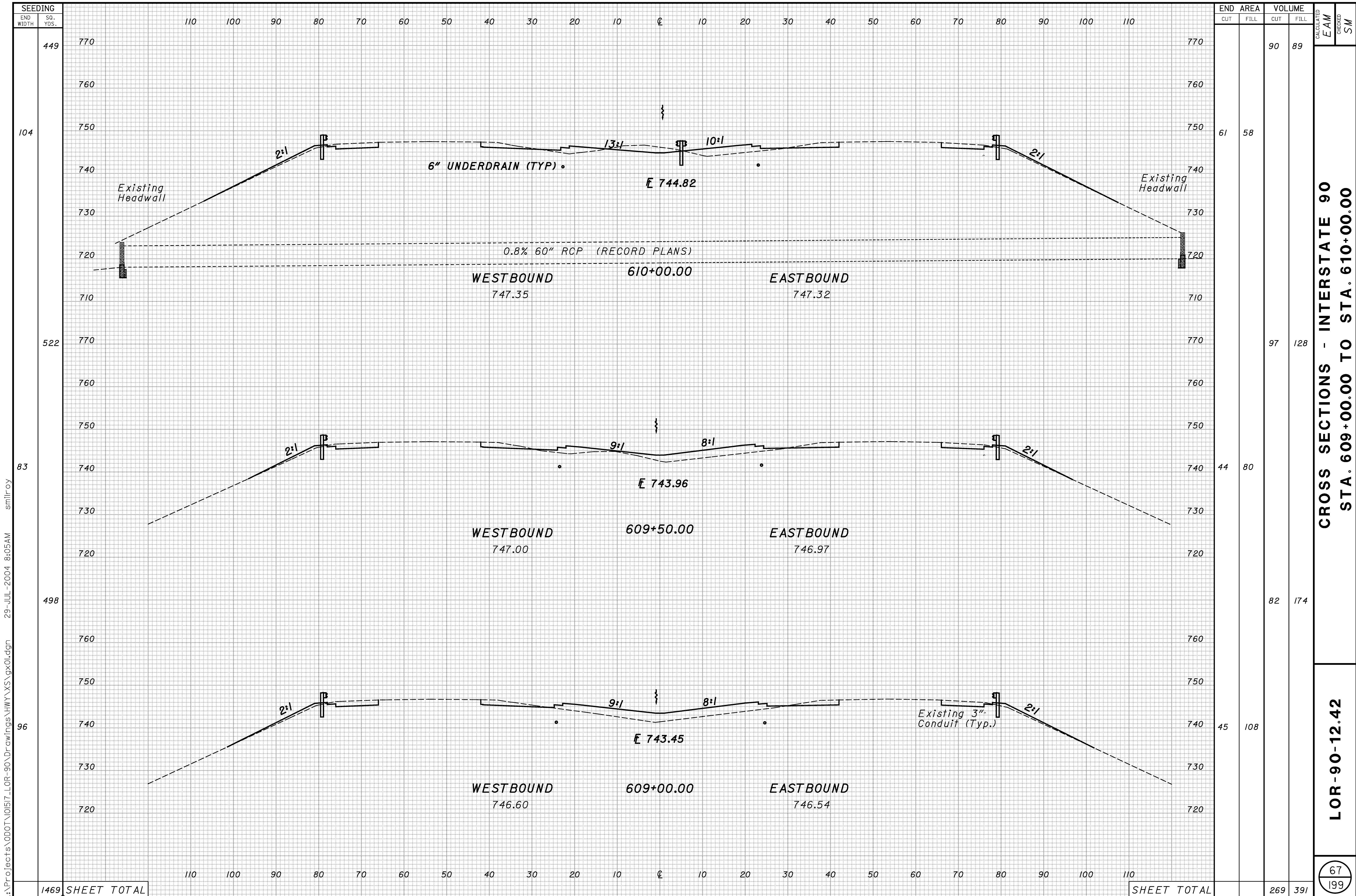
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
48	124	86	215		
34	81	76	190		
50	83	78	152		
		240	557		

**CROSS SECTIONS - INTERSTATE 90
STA. 607+50.00 TO STA. 608+50.00**

LOR-90-12.42

66
199

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SEEDING	
END WIDTH	SQ. YDS.
449	770
104	750
522	770
83	740
498	760
96	740
1469	SHEET TOTAL

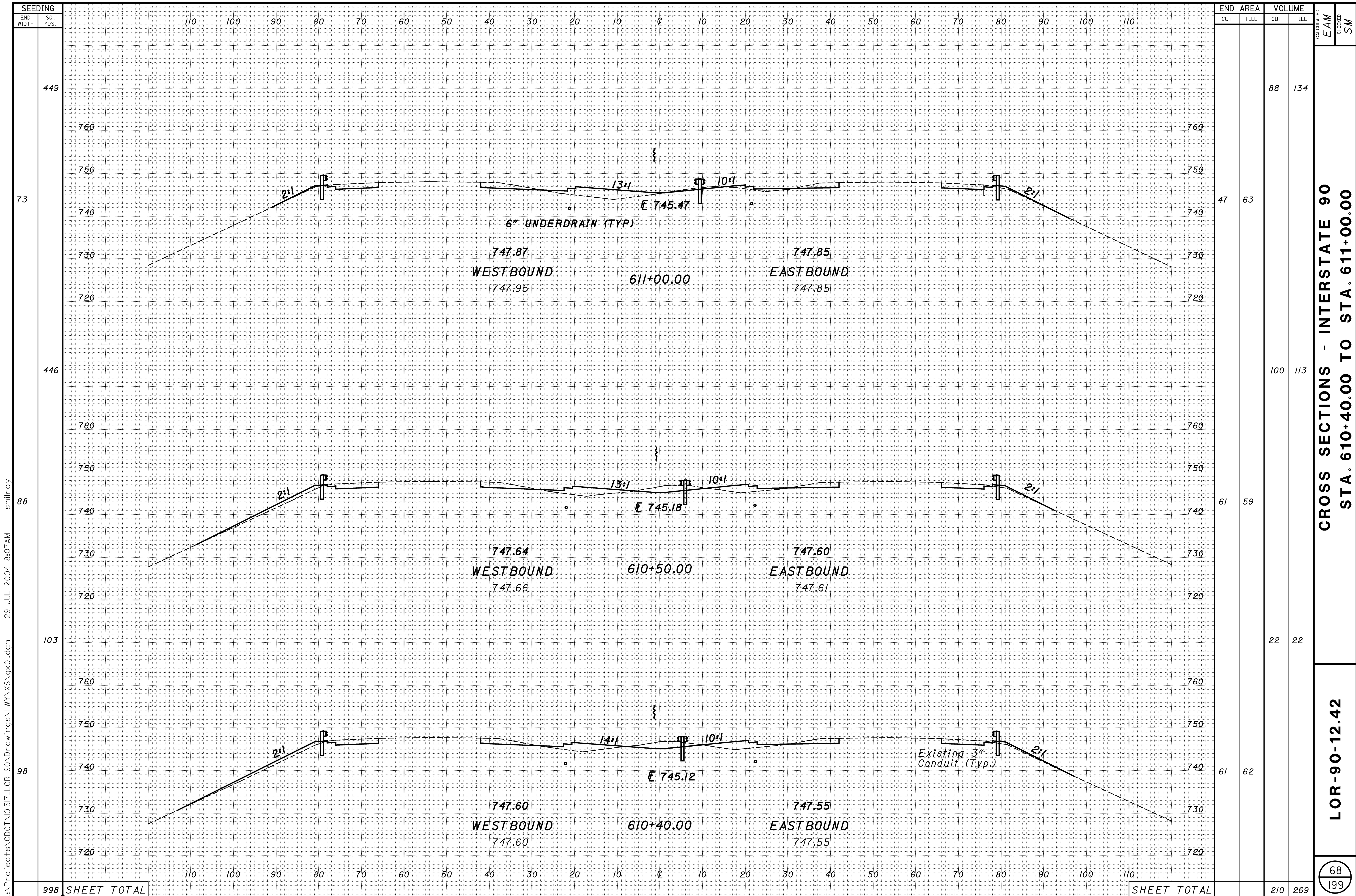
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
61	58	90	89		
44	80	97	128		
82	174				
45	108				
		269	391		

CROSS SECTIONS - INTERSTATE 90
STA. 609+00.00 TO STA. 610+00.00

LOR-90-12.42

67
 199

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SEEDING	
END WIDTH	SQ. YDS.
73	449
88	446
103	98
998	SHEET TOTAL

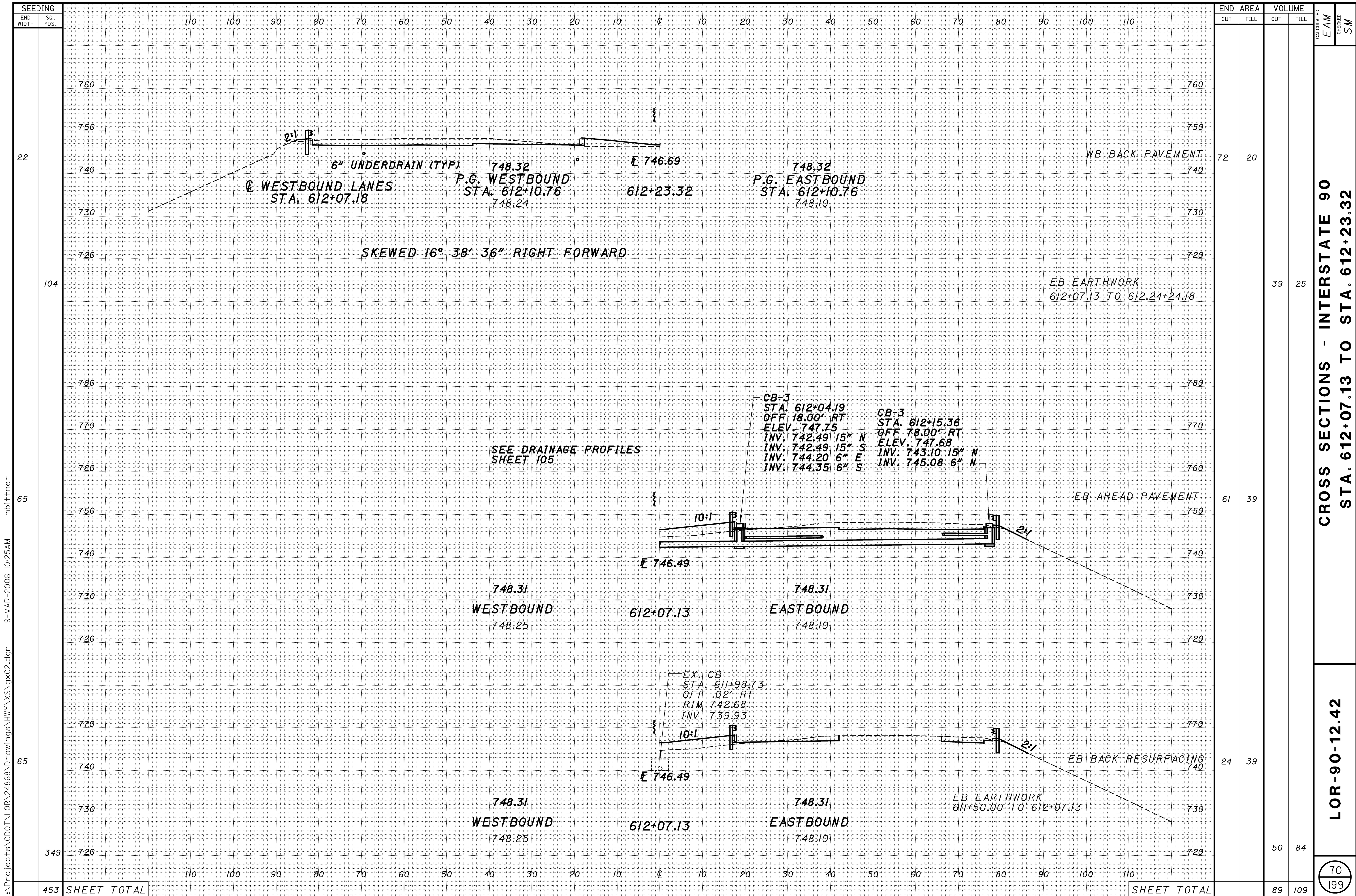
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
47	63	88	134		
61	59	100	113		
61	62	22	22		
		210	269		

CROSS SECTIONS - INTERSTATE 90
STA. 610+40.00 TO STA. 611+00.00

LOR-90-12.42

68
 199

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SEEDING	
END WIDTH	SQ. YDS.
22	
104	
65	
65	
349	
453	SHEET TOTAL

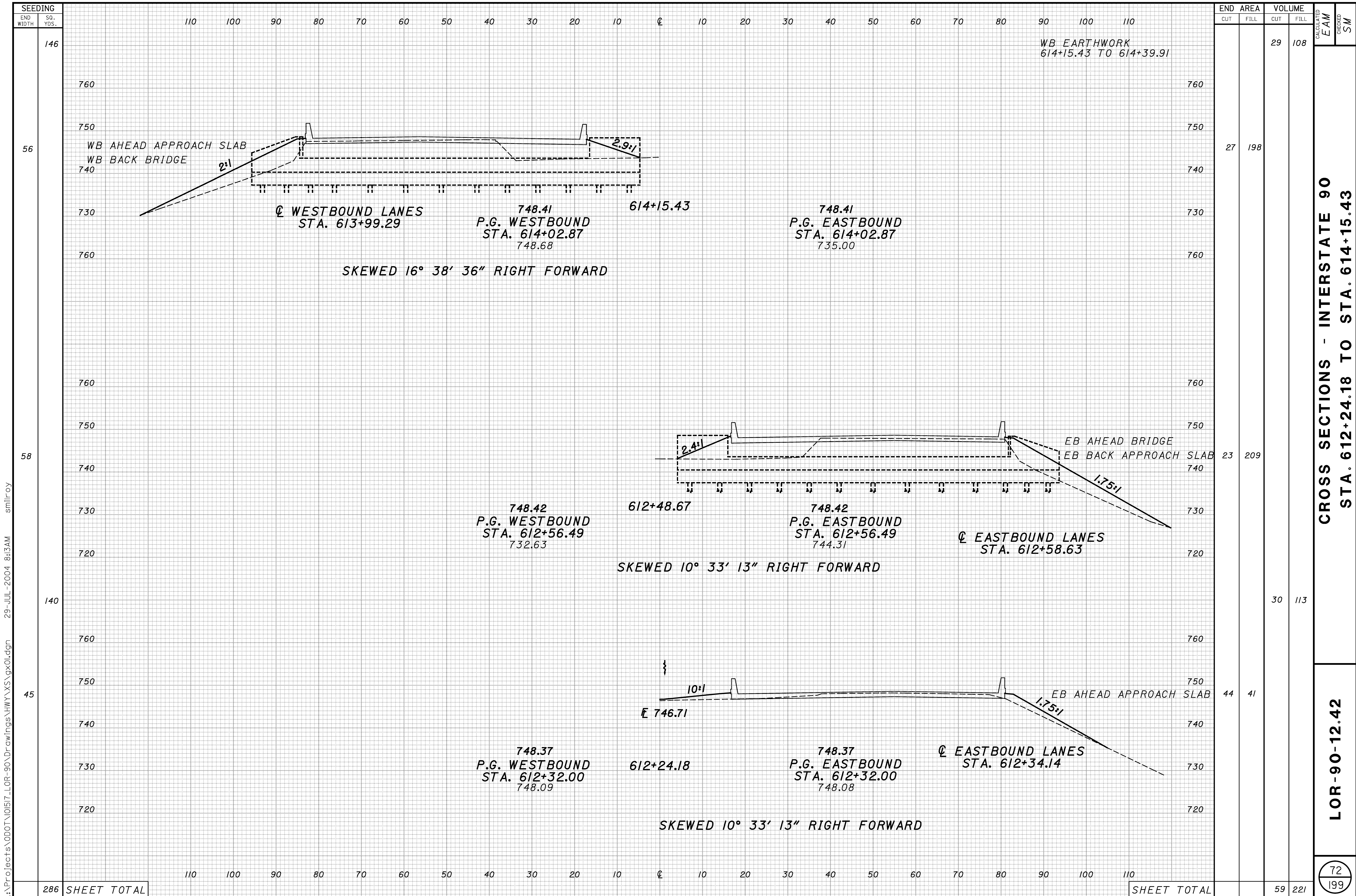
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
72	20				
		39	25		
61	39				
		24	39		
		50	84		
		89	109		

CROSS SECTIONS - INTERSTATE 90
 STA. 612+07.13 TO STA. 612+23.32

LOR-90-12.42

70
 199

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SEEDING	
END WIDTH	SQ. YDS.
146	
56	
58	
140	
45	
286	SHEET TOTAL

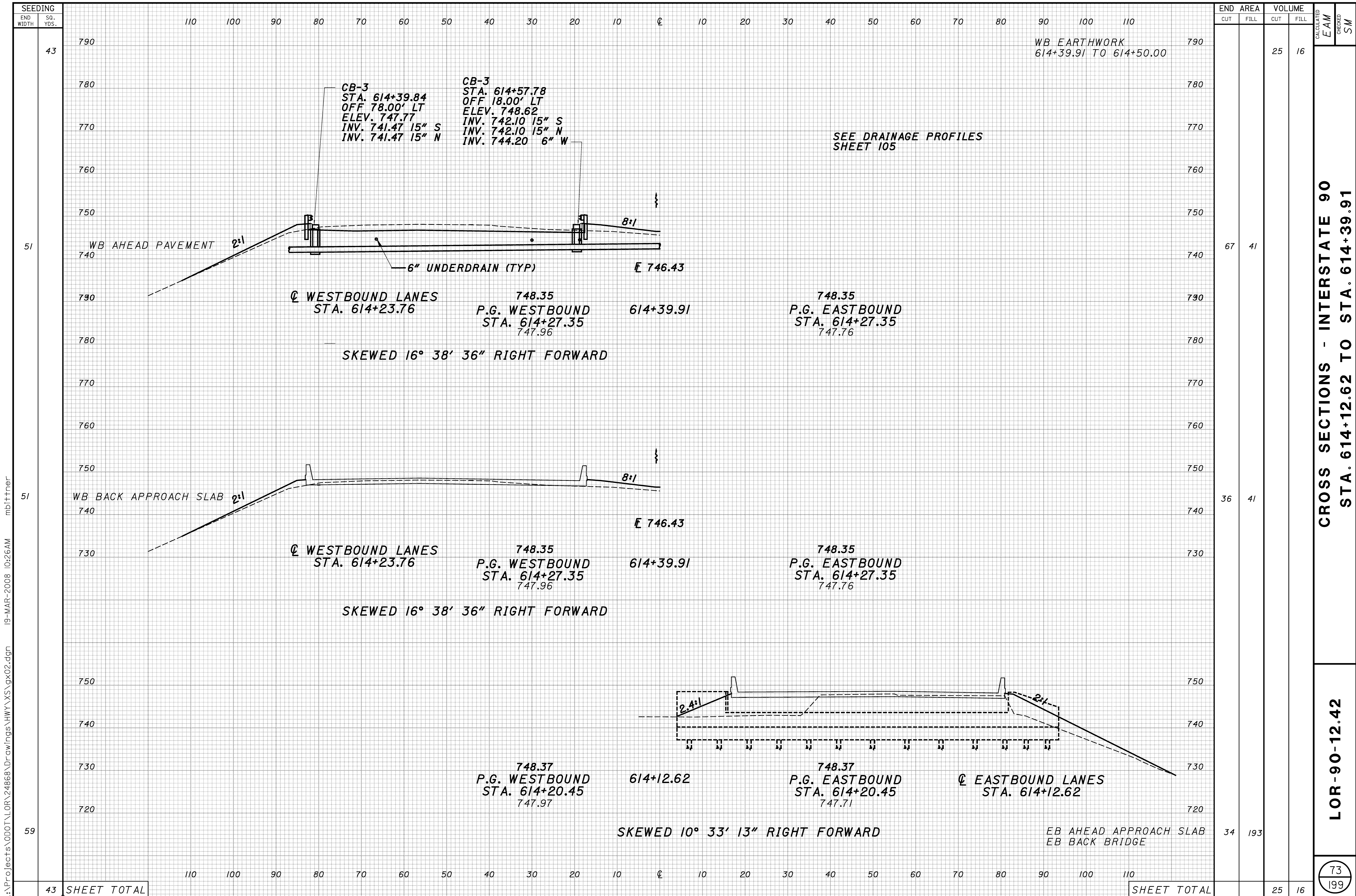
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		29	108		
27	198				
23	209				
30	113				
44	41				
		59	221		

CROSS SECTIONS - INTERSTATE 90
STA. 612+24.18 TO STA. 614+15.43

LOR-90-12.42

72
199

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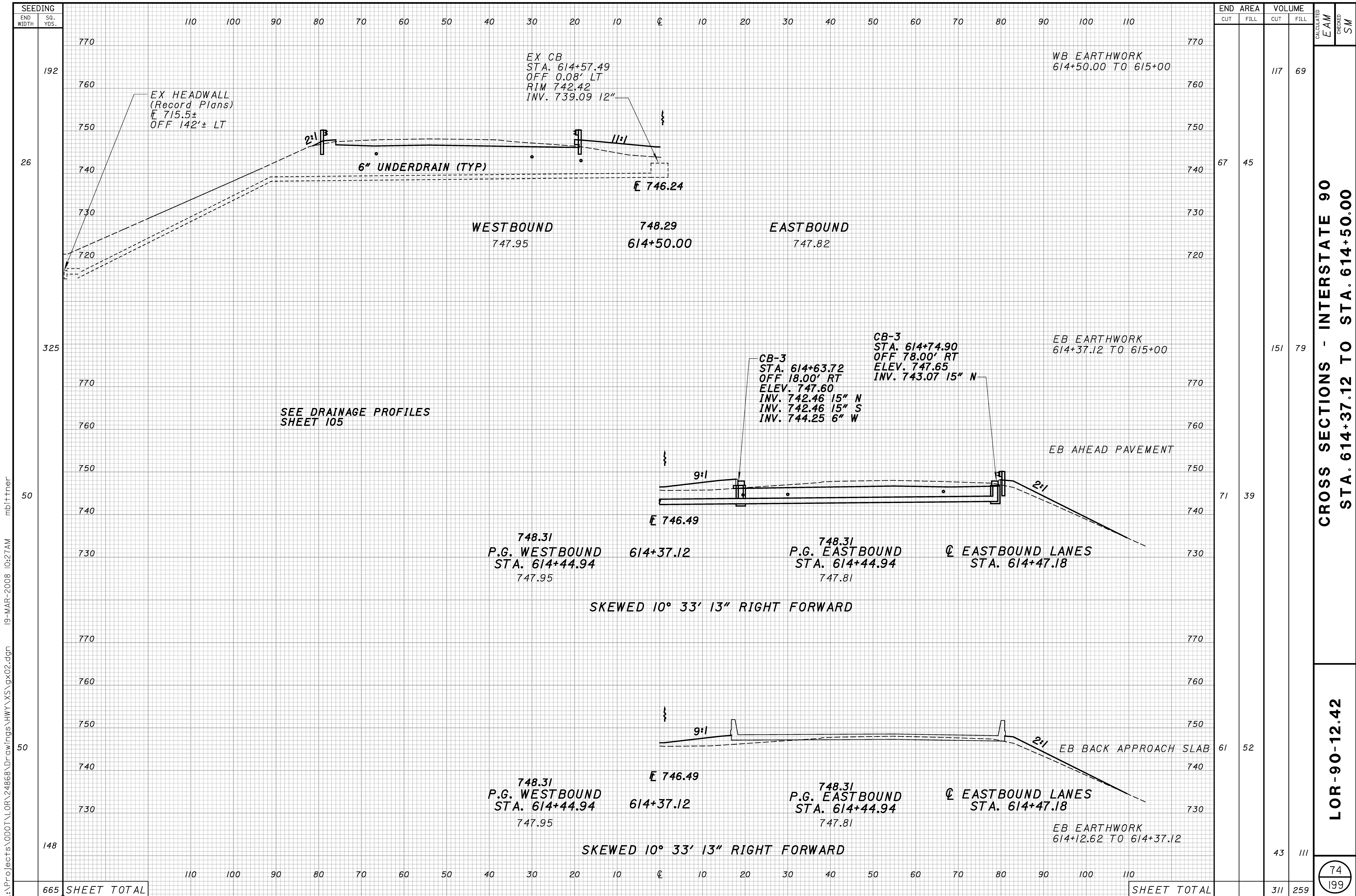
END	AREA		VOLUME		CALCULATED	EAM	CHECKED	SM
	CUT	FILL	CUT	FILL				
790								
780								
770								
760								
750								
740	67	41						
730								
720								
710								
700								
690								
680								
670								
660								
650								
640								
630								
620								
610								
600								
590								
580								
570								
560								
550								
540								
530								
520								
510								
500								
490								
480								
470								
460								
450								
440								
430								
420								
410								
400								
390								
380								
370								
360								
350								
340								
330								
320								
310								
300								
290								
280								
270								
260								
250								
240								
230								
220								
210								
200								
190								
180								
170								
160								
150								
140								
130								
120								
110								
100								
90								
80								
70								
60								
50								
40								
30								
20								
10								
0								
SEEDING								
END WIDTH								
SQ. YDS.								
43								
51								
59								
43								

CROSS SECTIONS - INTERSTATE 90
 STA. 614+12.62 TO STA. 614+39.91

LOR-90-12.42

73
 199

L:\Projects\0001\LOR\24868\Drawings\HWY\XS\gx02.dgn 19-MAR-2008 10:26AM mbitner



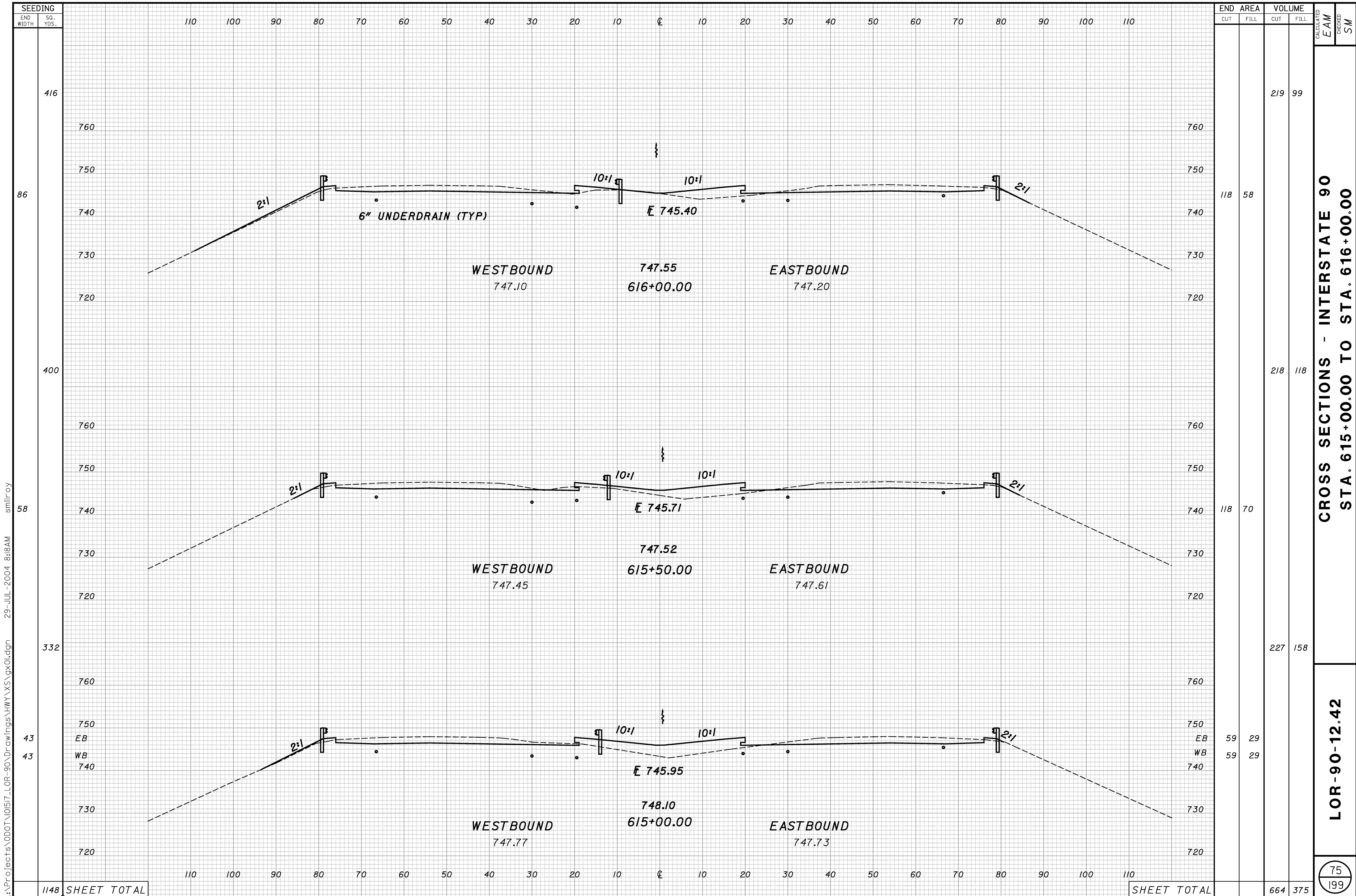
END	AREA		VOLUME		CALCULATED	EAM	CHECKED	SM
	CUT	FILL	CUT	FILL				
770								
192								
760								
750								
26								
740								
730								
720								
325								
770								
760								
750								
50								
740								
730								
770								
760								
750								
50								
740								
730								
770								
760								
750								
50								
740								
730								
770								
760								
750								
50								
740								
730								
770								
760								
750								
50								
740								
730								
148								
770								
760								
750								
50								
740								
730								
665	SHEET TOTAL		SHEET TOTAL					

CROSS SECTIONS - INTERSTATE 90
 STA. 614+37.12 TO STA. 614+50.00

LOR-90-12.42

74
 199

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SEEDING	
END WIDTH	SQ. YDS.
416	
86	
400	
58	
332	
43	
43	
1148	SHEET TOTAL

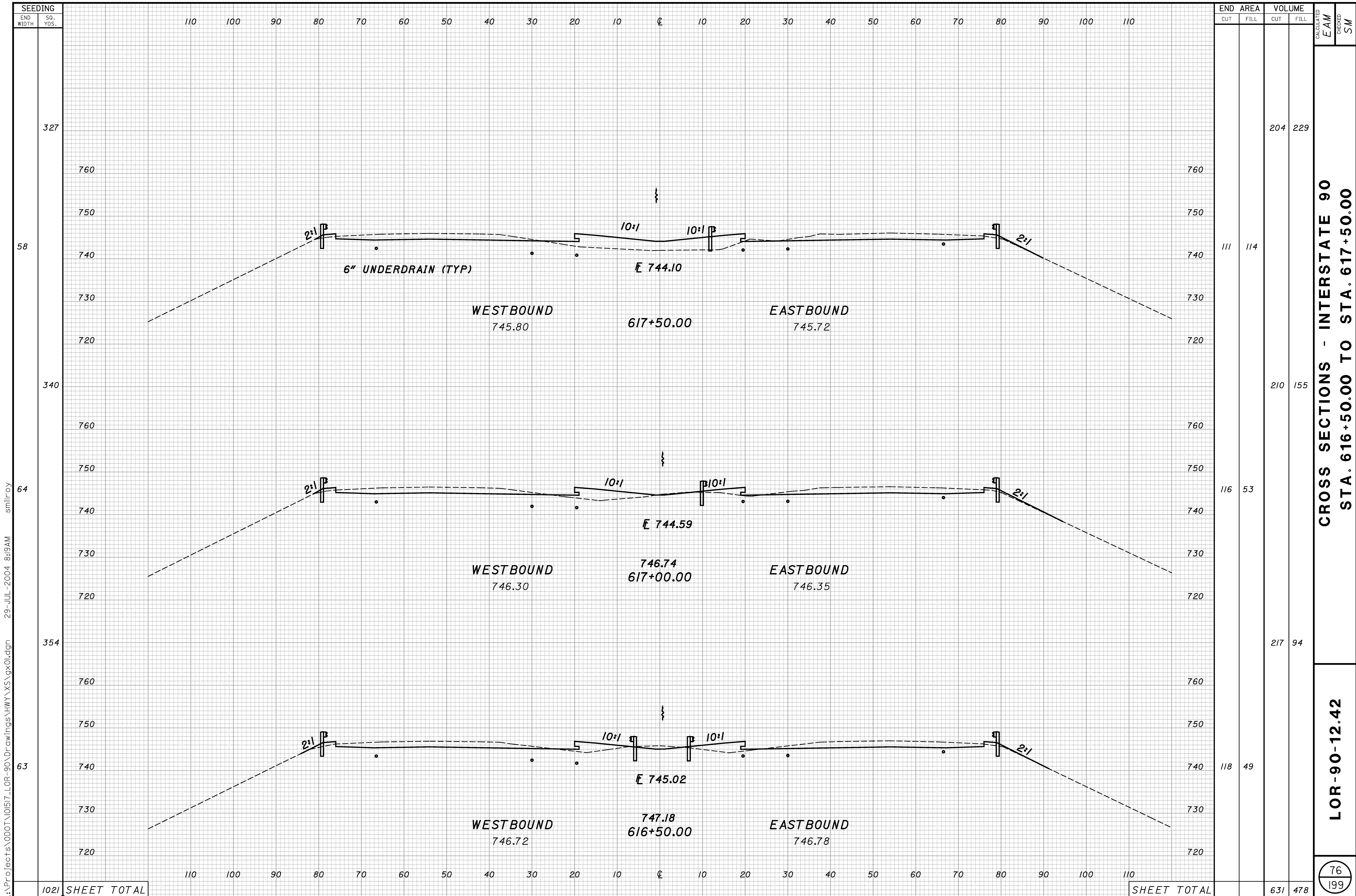
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		219	99		
118	58				
		218	118		
118	70				
		227	158		
59	29				
59	29				
		664	375		

CROSS SECTIONS - INTERSTATE 90
STA. 615+00.00 TO STA. 616+00.00

LOR-90-12.42

75
 199

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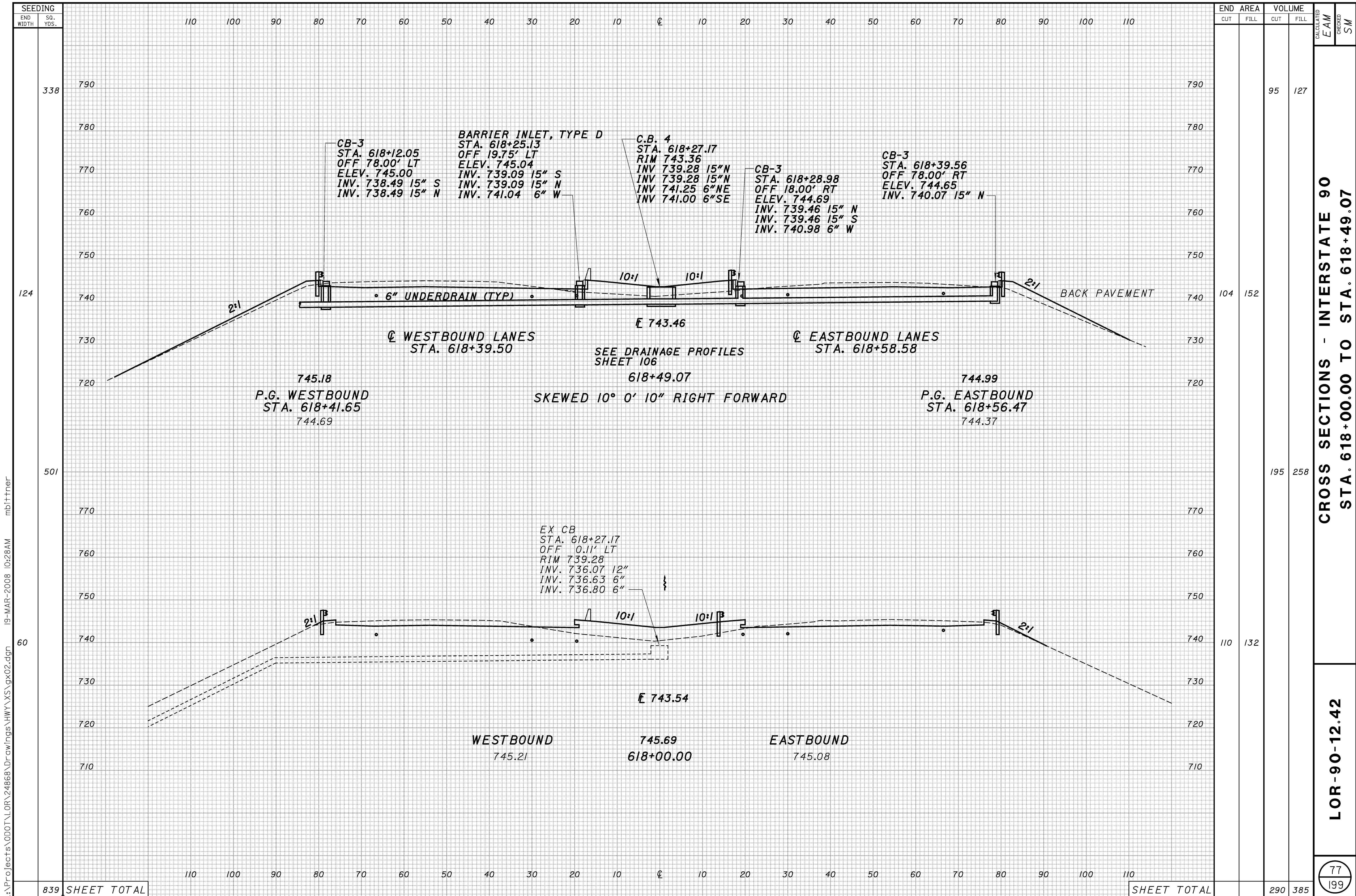


SEEDING	
END WIDTH	SQ. YDS.
327	
58	
340	
64	
354	
63	
1021	SHEET TOTAL

END AREA		VOLUME		CALCULATED	EAM	CHECKED	SM
CUT	FILL	CUT	FILL				
111	114	204	229				
210	155						
217	94						
118	49						
		631	478				

CROSS SECTIONS - INTERSTATE 90
STA. 616+50.00 TO STA. 617+50.00
LOR-90-12.42

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SEEDING	
END WIDTH	SQ. YDS.
338	790
124	780
501	770
60	760
839	750
	740
	730
	720
	710
SHEET TOTAL	

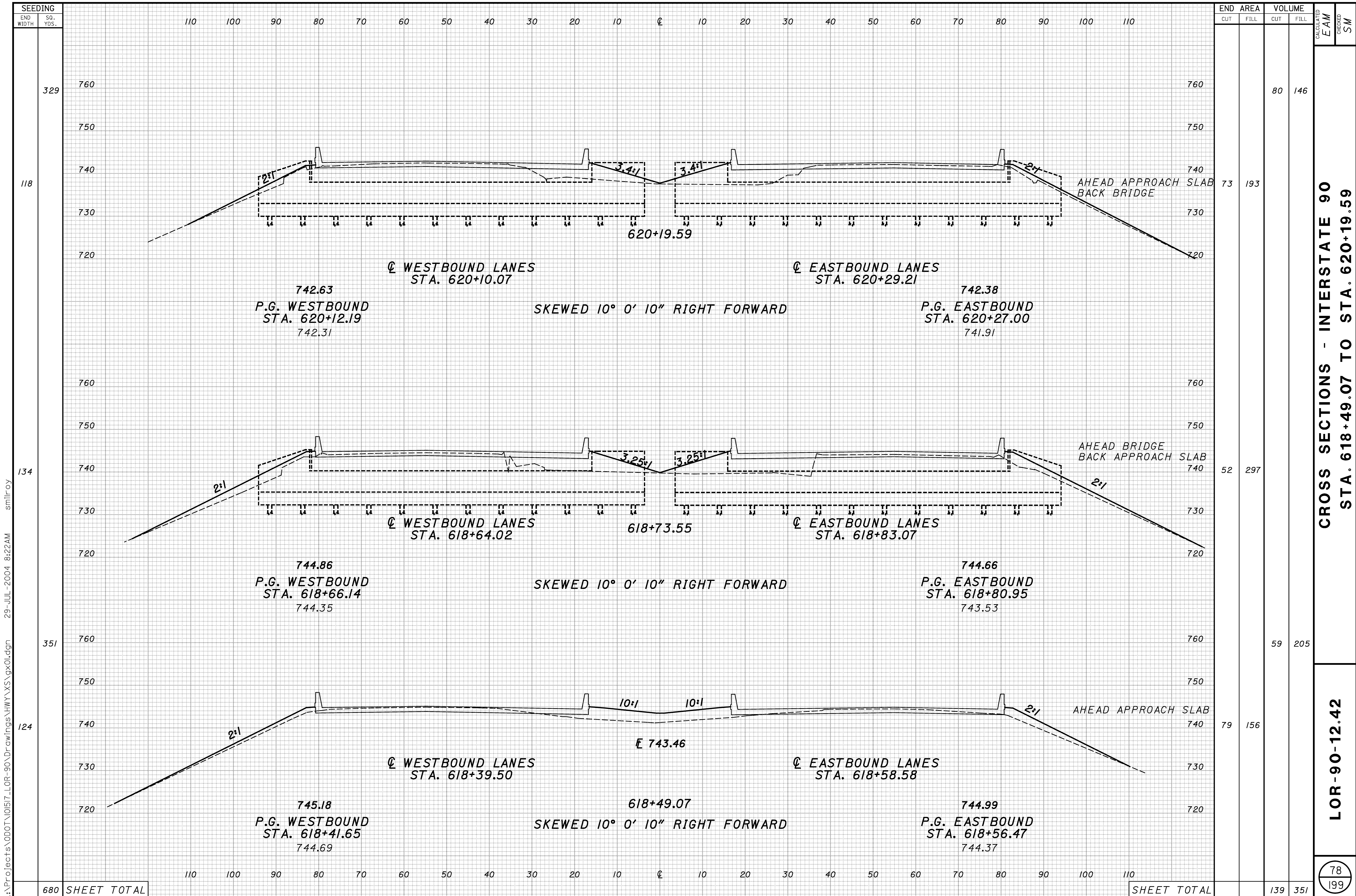
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		95	127		
104	152	195	258		
110	132	290	385		
SHEET TOTAL		290	385		

CROSS SECTIONS - INTERSTATE 90
 STA. 618+00.00 TO STA. 618+49.07

LOR-90-12.42

77
 199

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SEEDING	
END WIDTH	SQ. YDS.
329	
118	
134	
351	
124	
680	SHEET TOTAL

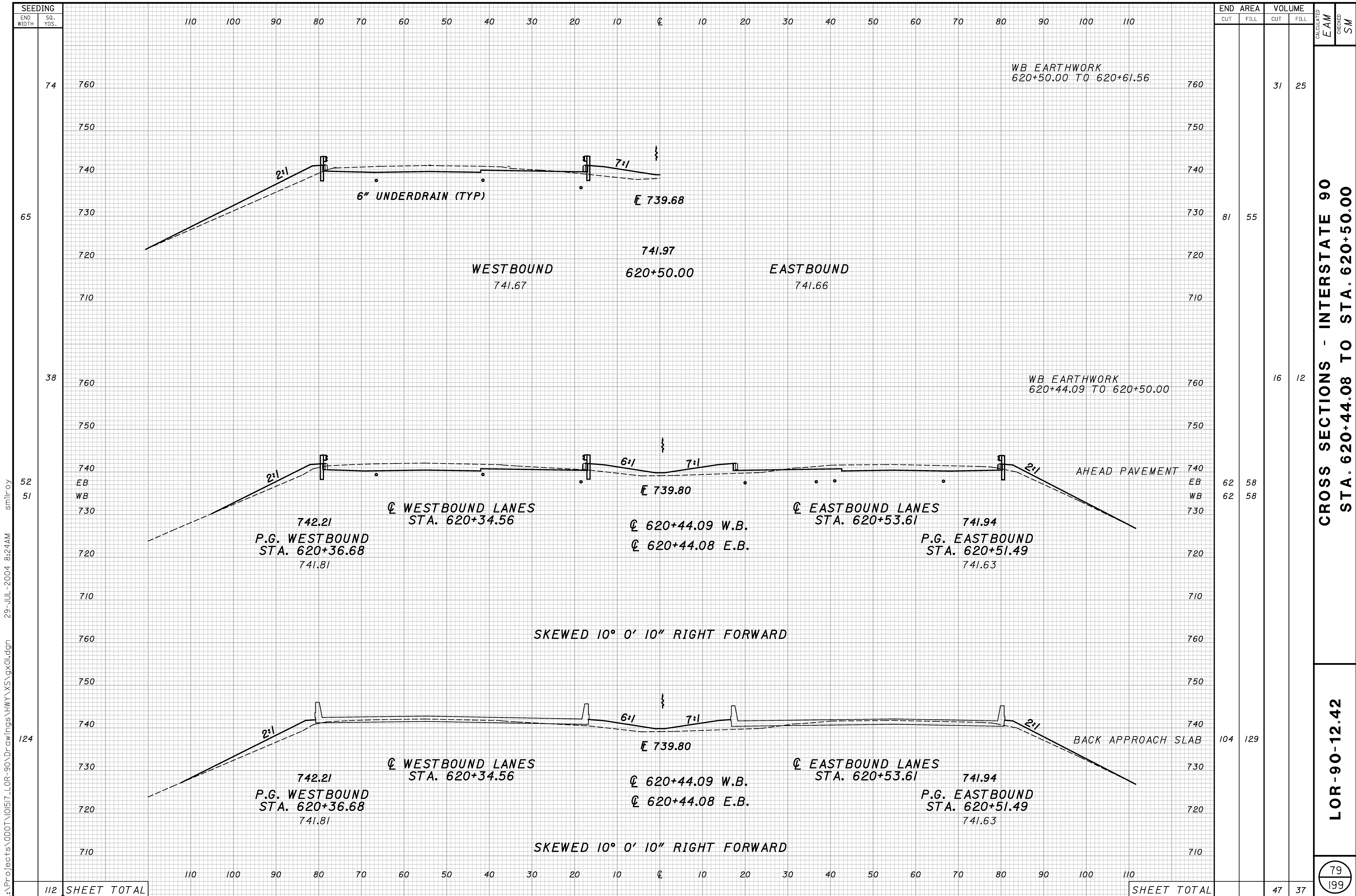
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		80	146		
73	193				
52	297				
59	205				
79	156				
		139	351		

CROSS SECTIONS - INTERSTATE 90
 STA. 618+49.07 TO STA. 620+19.59

LOR-90-12.42

78
 199

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END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
81	55	31	25		
62	58	16	12		
62	58				
104	129				
		47	37		

CROSS SECTIONS - INTERSTATE 90
STA. 620+44.08 TO STA. 620+50.00

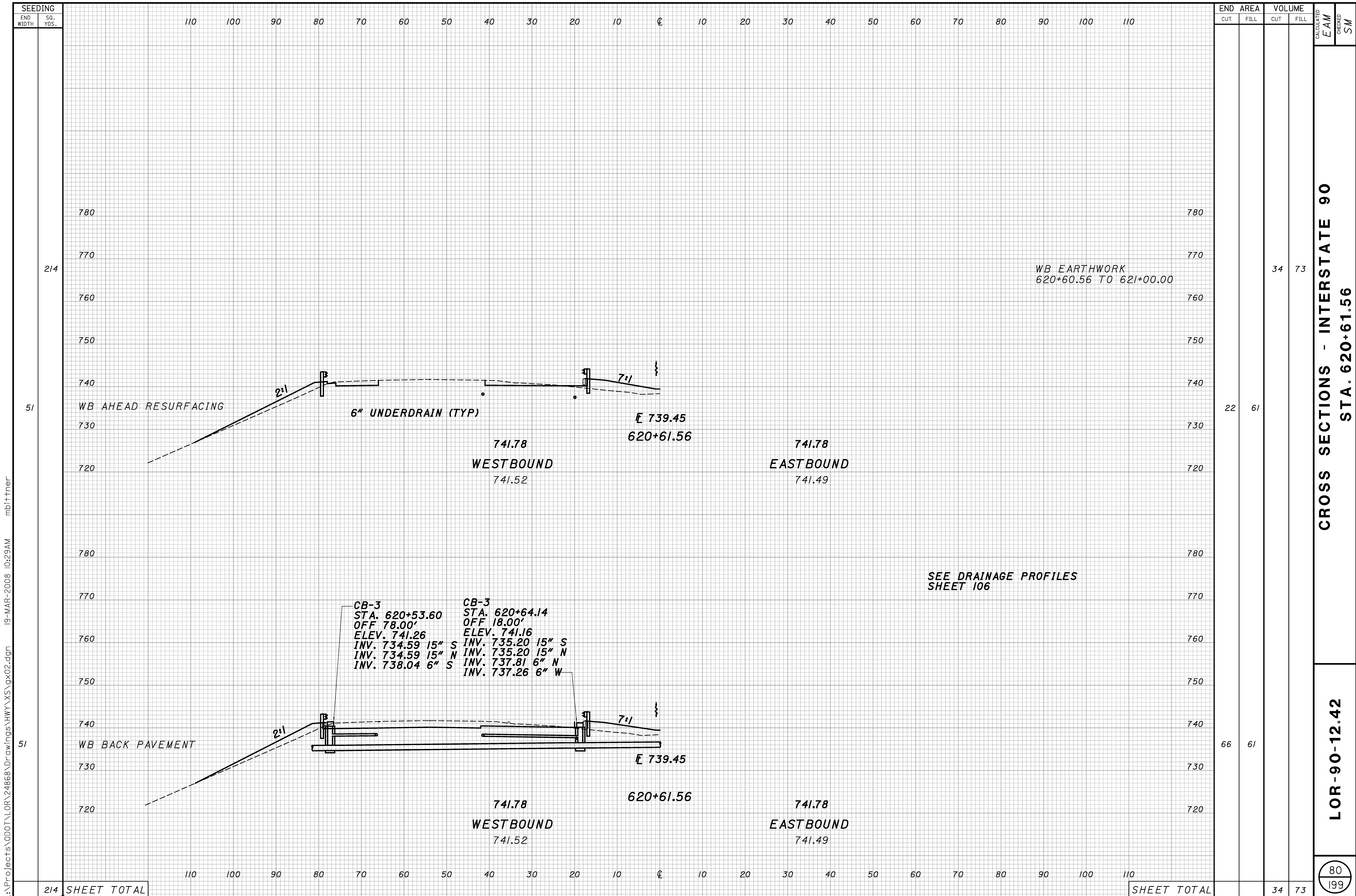
LOR-90-12.42

79
199

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112 SHEET TOTAL

SHEET TOTAL



SEEDING	
END WIDTH	SQ. YDS.
214	
51	
51	
214	

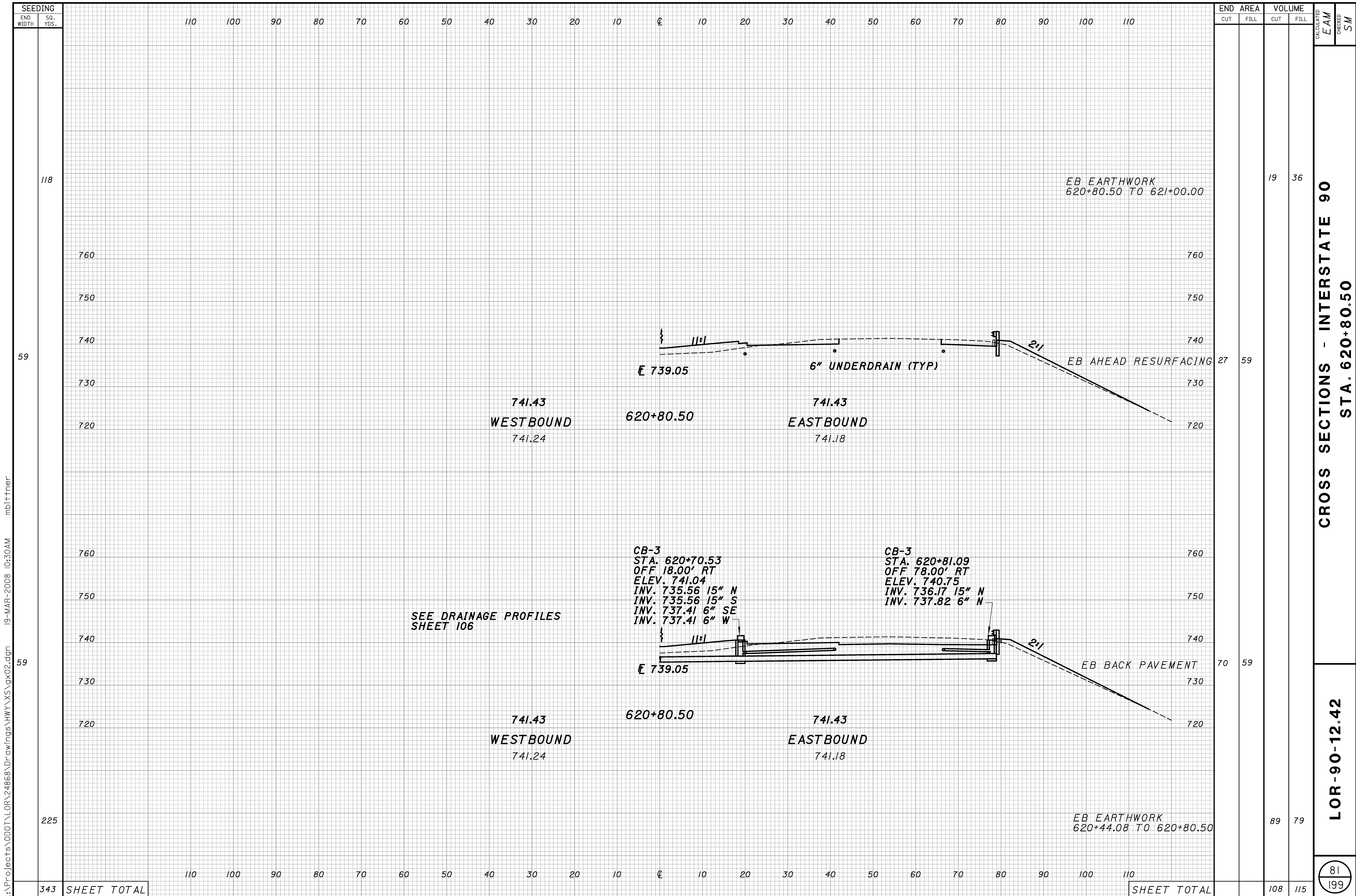
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
22	61	34	73		
66	61				
SHEET TOTAL		34	73		

CROSS SECTIONS - INTERSTATE 90
STA. 620+61.56

LOR-90-12.42

80
199

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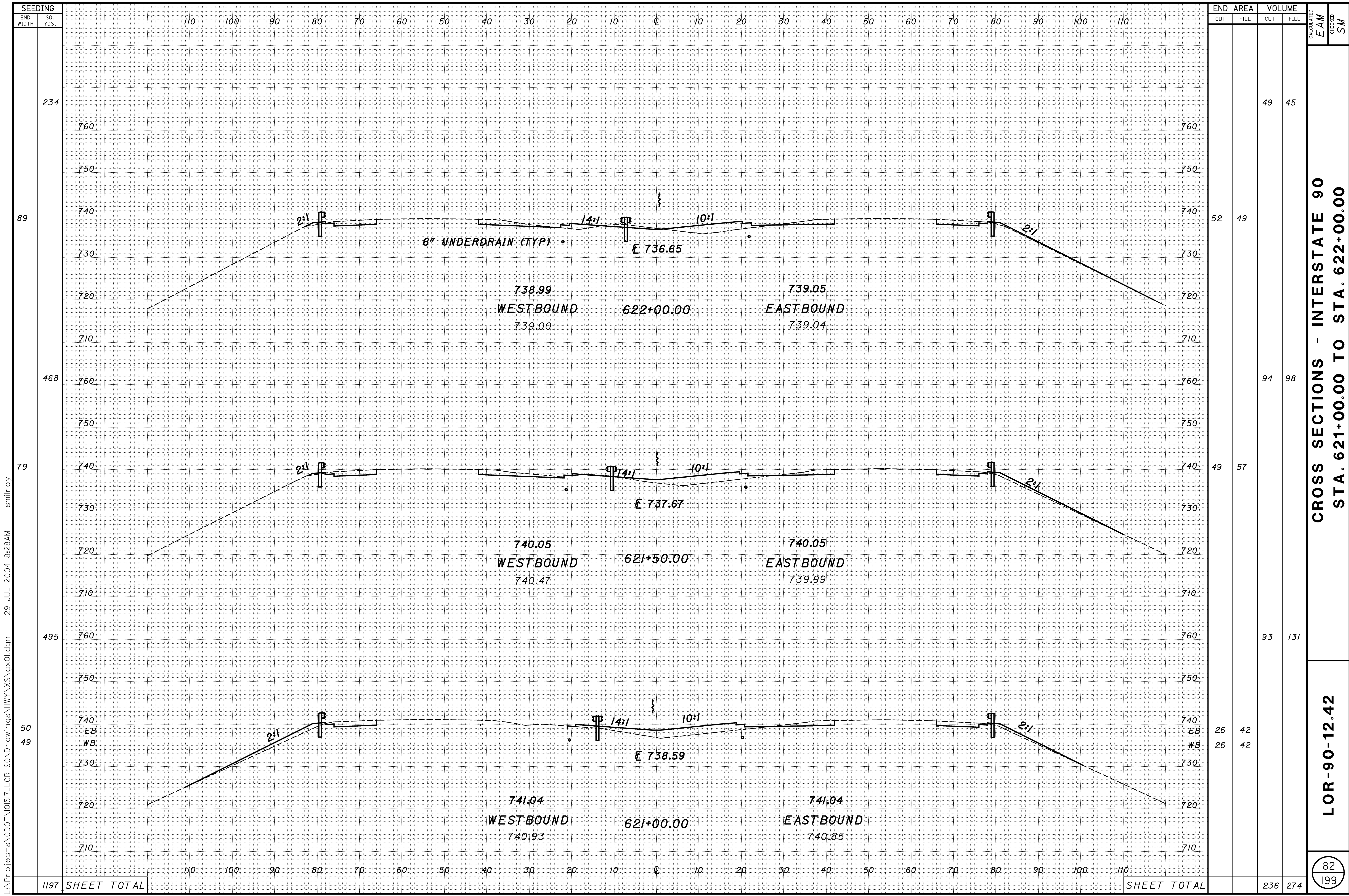


SEEDING	
END WIDTH	SQ. YDS.
118	
59	
59	
225	
343	SHEET TOTAL

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		19	36
27	59		
70	59		
		89	79
		108	115

CALCULATED EAM CHECKED SM
CROSS SECTIONS - INTERSTATE 90
STA. 620+80.50
LOR-90-12.42
 81
 199

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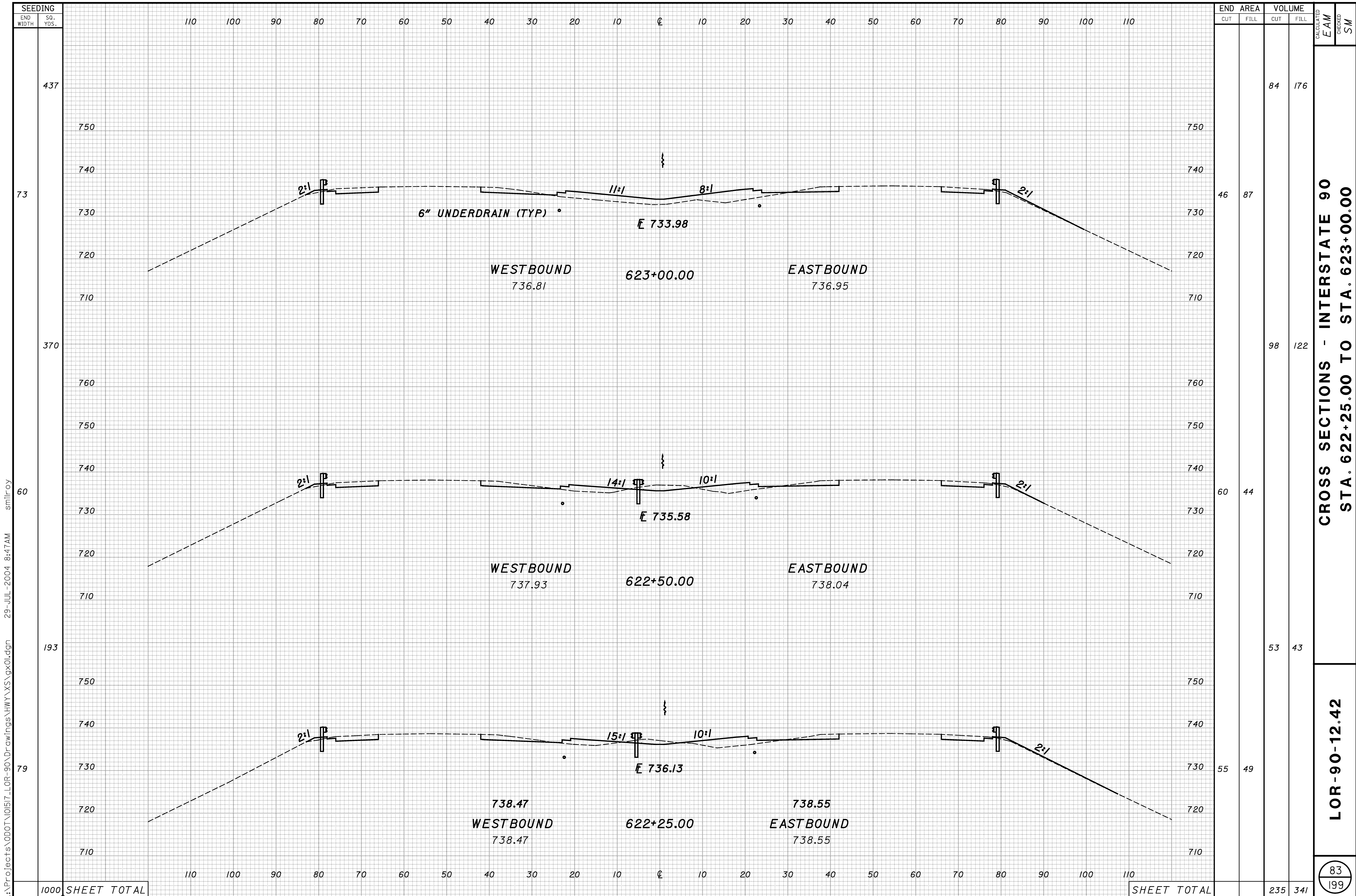


SEEDING	
END WIDTH	SQ. YDS.
234	
89	
468	
79	
495	
50	
49	
1197	SHEET TOTAL

END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		49	45		
52	49				
		94	98		
49	57				
		93	131		
26	42				
26	42				
		236	274		
SHEET TOTAL		SHEET TOTAL			

CROSS SECTIONS - INTERSTATE 90
STA. 621+00.00 TO STA. 622+00.00
LOR-90-12.42

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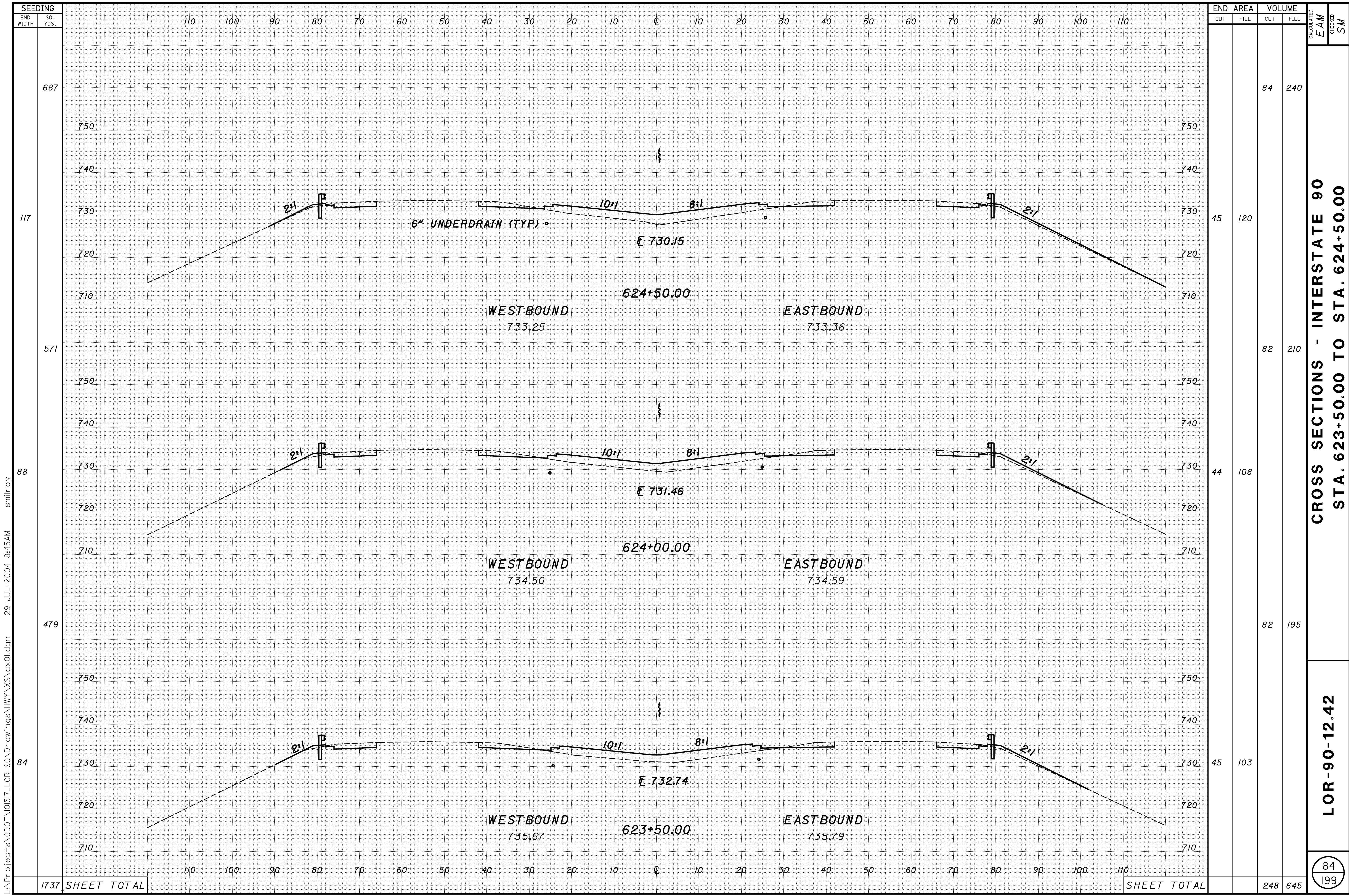


CROSS SECTIONS - INTERSTATE 90
 STA. 622+25.00 TO STA. 623+00.00

LOR-90-12.42

83
199

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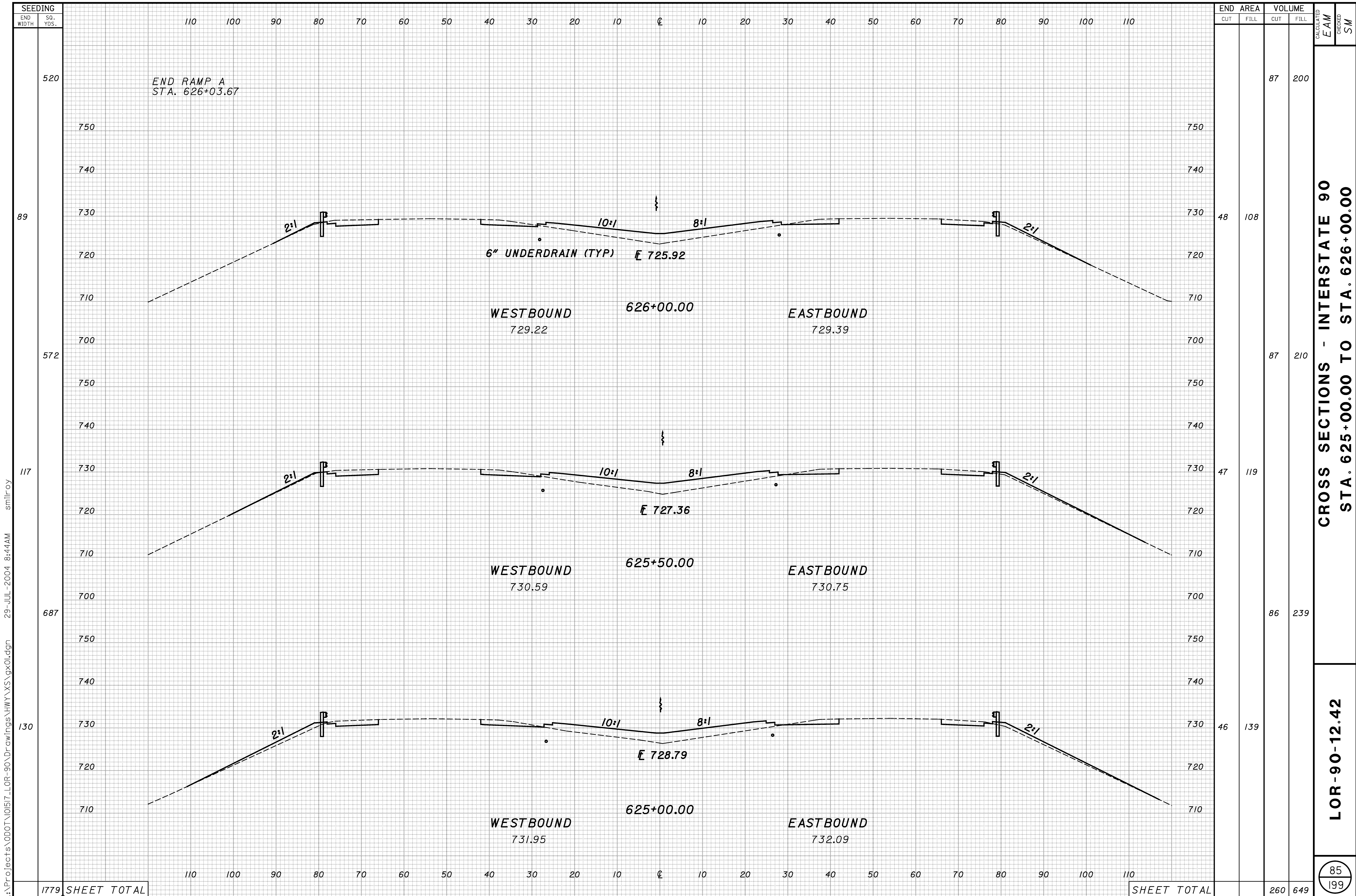


SEEDING
 END WIDTH SQ. YDS.
 687
 117
 571
 88
 479
 84
 1737 SHEET TOTAL

END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		84	240		
45	120				
		82	210		
44	108				
		82	195		
45	103				
		248	645		
SHEET TOTAL		SHEET TOTAL			

CROSS SECTIONS - INTERSTATE 90
 STA. 623+50.00 TO STA. 624+50.00
 LOR-90-12.42
 84
 199

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END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		87	200		
48	108				
		87	210		
47	119				
		86	239		
46	139				
		260	649		

CROSS SECTIONS - INTERSTATE 90
STA. 625+00.00 TO STA. 626+00.00

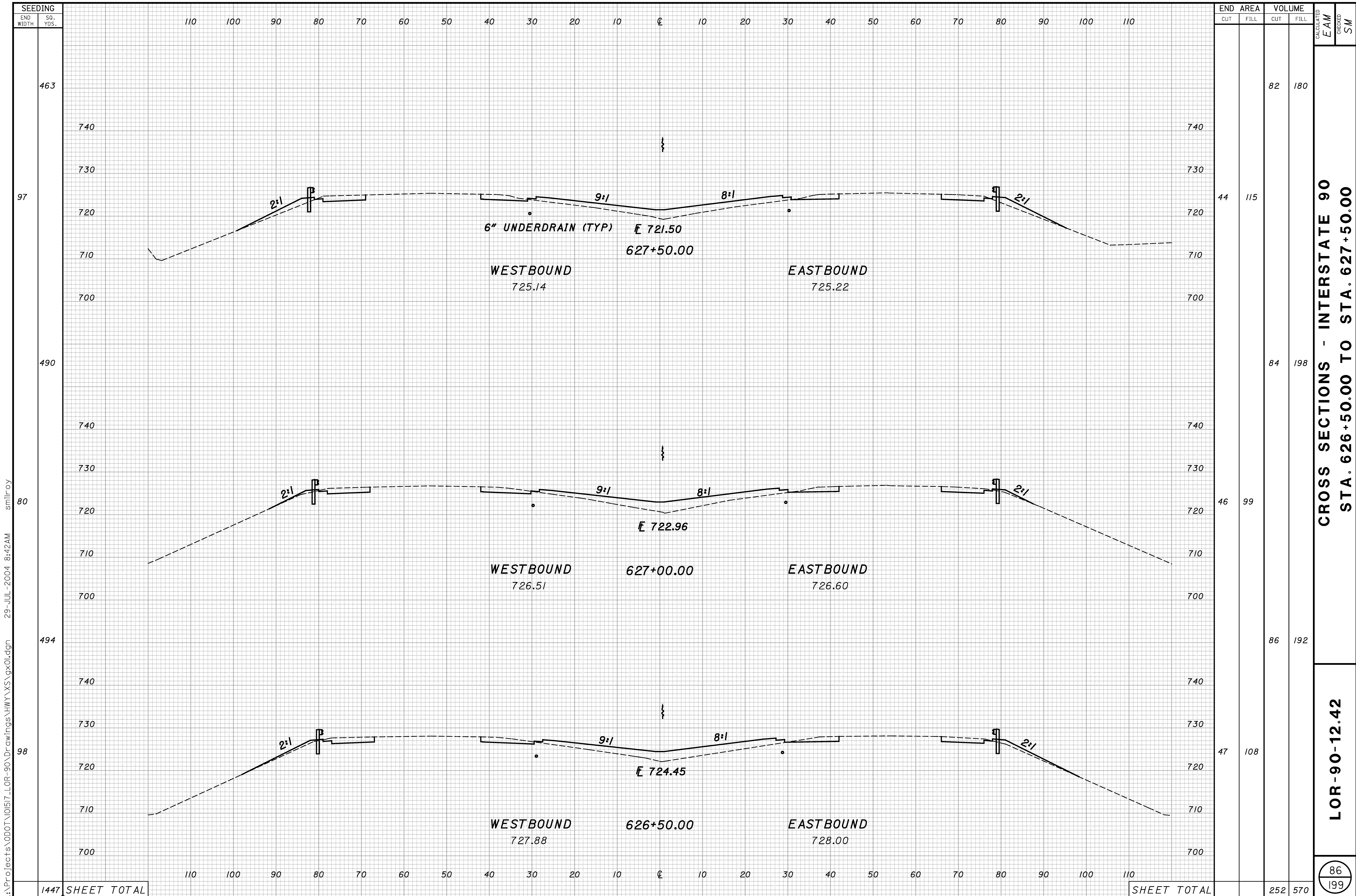
LOR-90-12.42

85
199

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1779 SHEET TOTAL

SHEET TOTAL



SEEDING	
END WIDTH	SQ. YDS.
463	
97	
490	
80	
494	
98	
1447	SHEET TOTAL

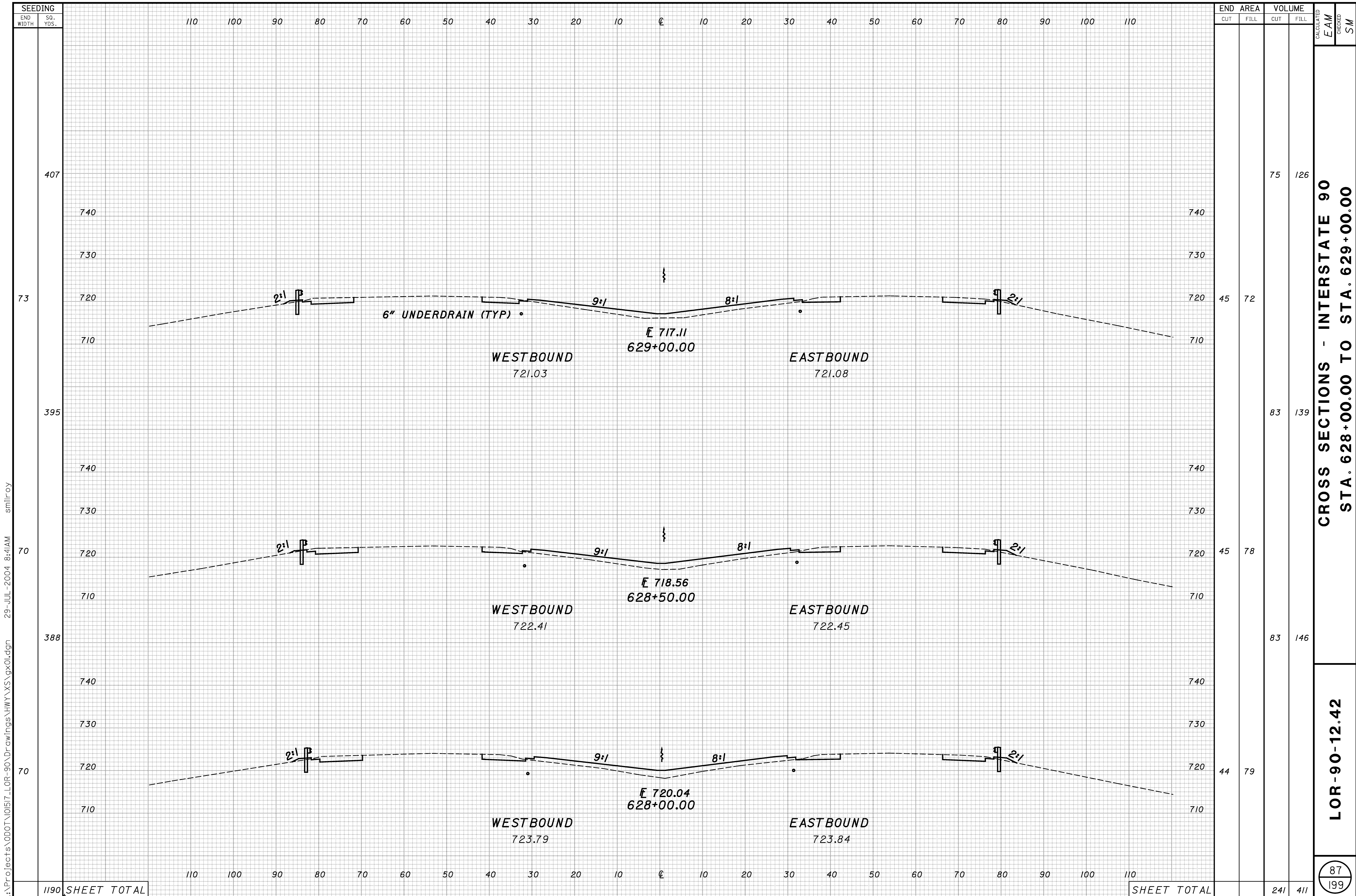
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
44	115	82	180		
46	99	84	198		
47	108	86	192		
		252	570		

CROSS SECTIONS - INTERSTATE 90
STA. 626+50.00 TO STA. 627+50.00

LOR-90-12.42

86
199

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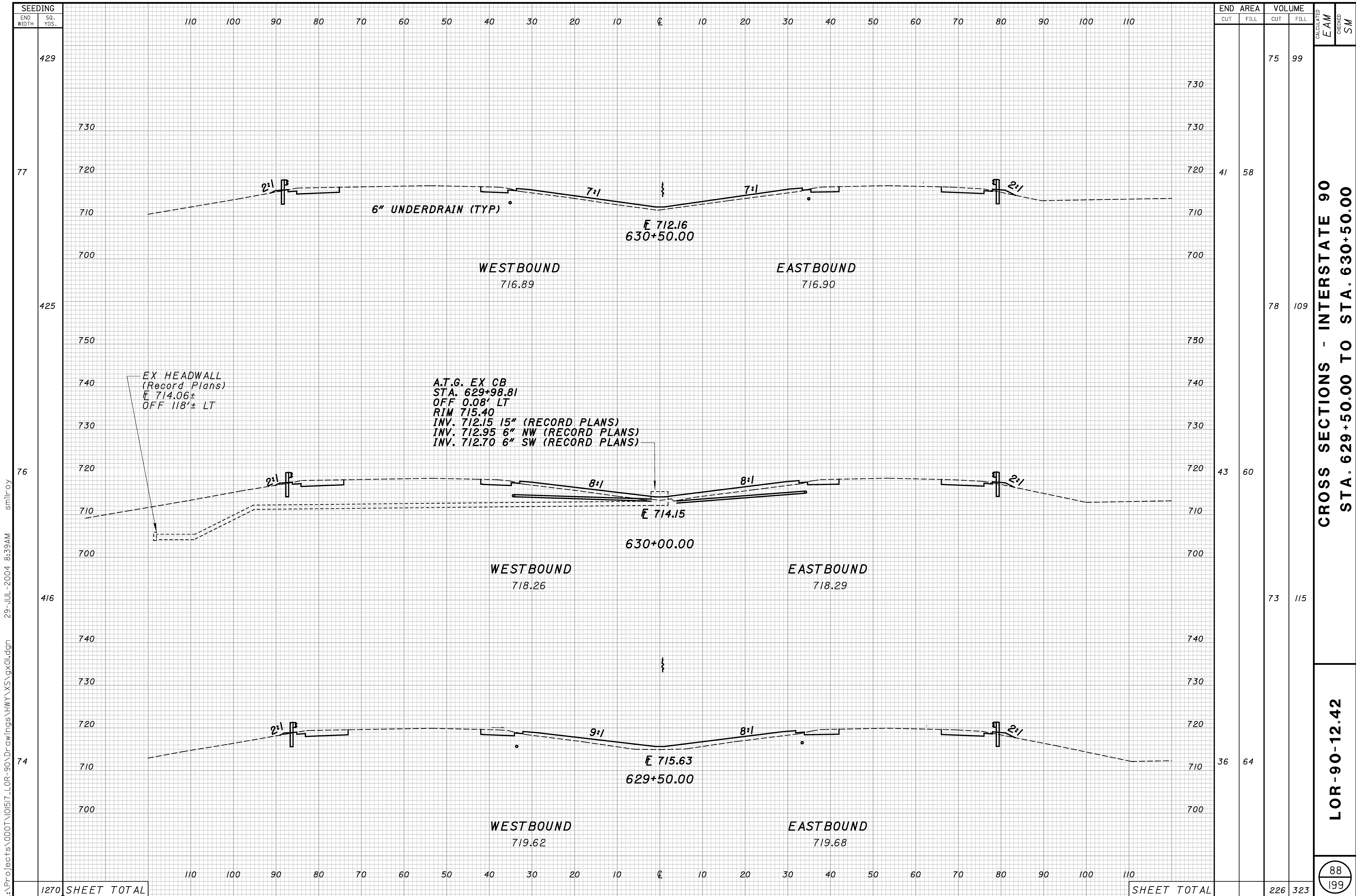


SEEDING	
END WIDTH	SQ. YDS.
1190	SHEET TOTAL

END AREA		VOLUME	
CUT	FILL	CUT	FILL
45	72	75	126
45	78	83	139
44	79	83	146
		241	411

CALCULATED EAM CHECKED SM
CROSS SECTIONS - INTERSTATE 90
STA. 628+00.00 TO STA. 629+00.00
LOR-90-12.42
 87
 199

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SEEDING	
END WIDTH	SQ. YDS.
429	
425	
416	
41270	SHEET TOTAL

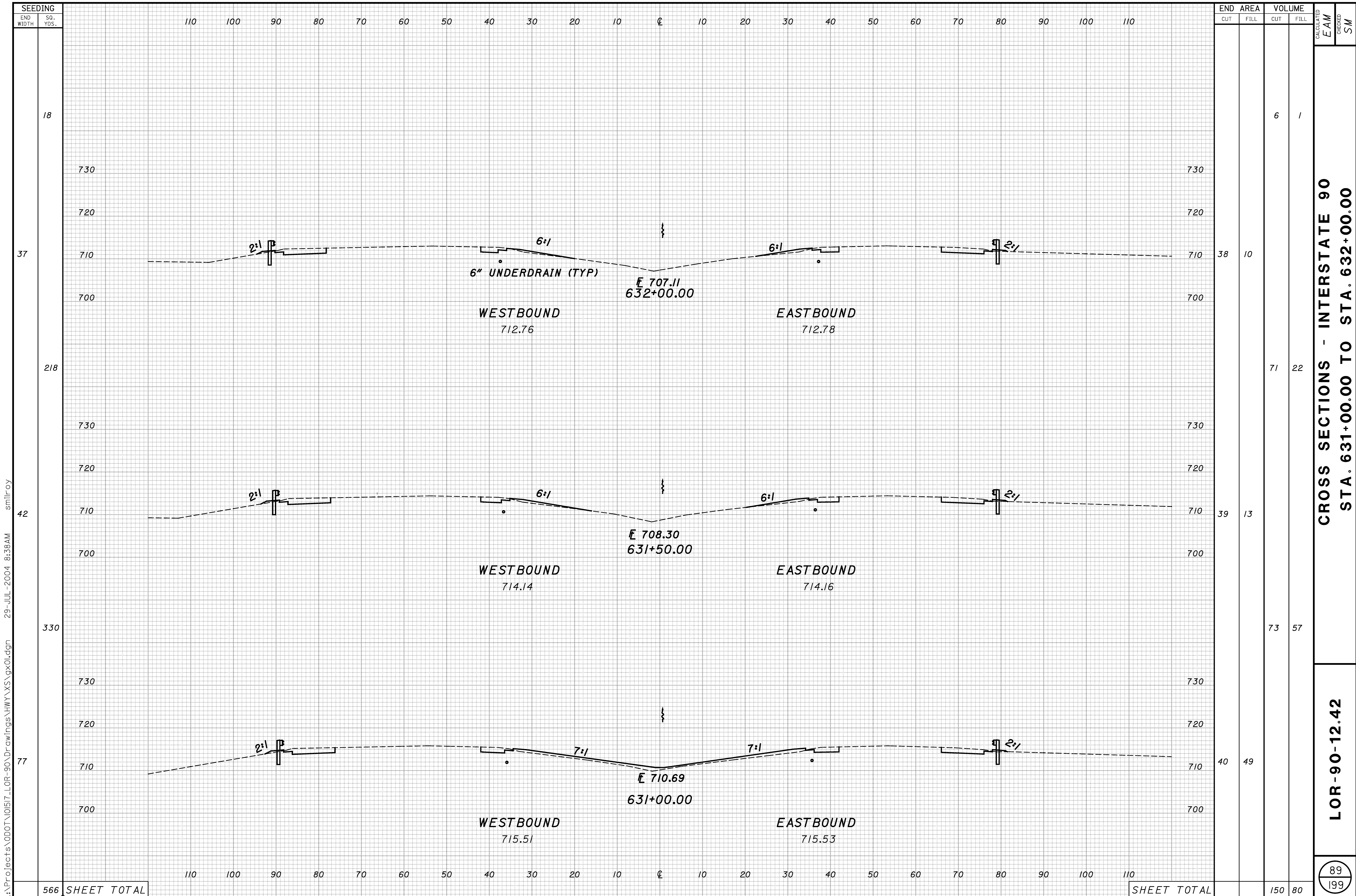
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
41	58	75	99		
43	60	78	109		
36	64	73	115		
		226	323		

CROSS SECTIONS - INTERSTATE 90
STA. 629+50.00 TO STA. 630+50.00

LOR-90-12.42

88
 199

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SEEDING	
END WIDTH	SQ. YDS.
18	
37	
218	
42	
330	
77	
566	SHEET TOTAL

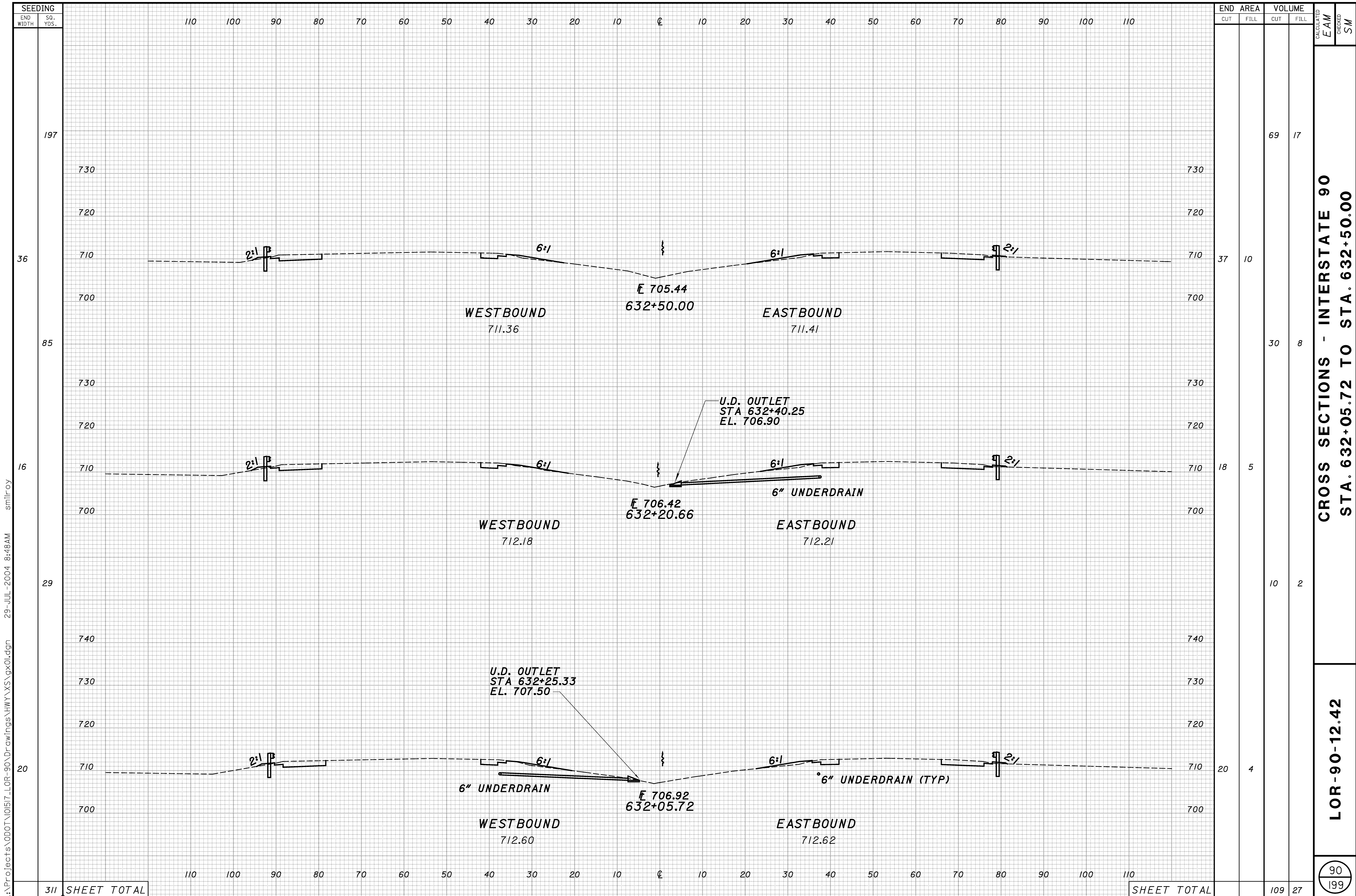
END AREA		VOLUME		CALCULATED	EAM	CHECKED	SM
CUT	FILL	CUT	FILL				
		6	1				
38	10	71	22				
39	13	73	57				
40	49						
		150	80				

CROSS SECTIONS - INTERSTATE 90
 STA. 631+00.00 TO STA. 632+00.00

LOR-90-12.42

89
199

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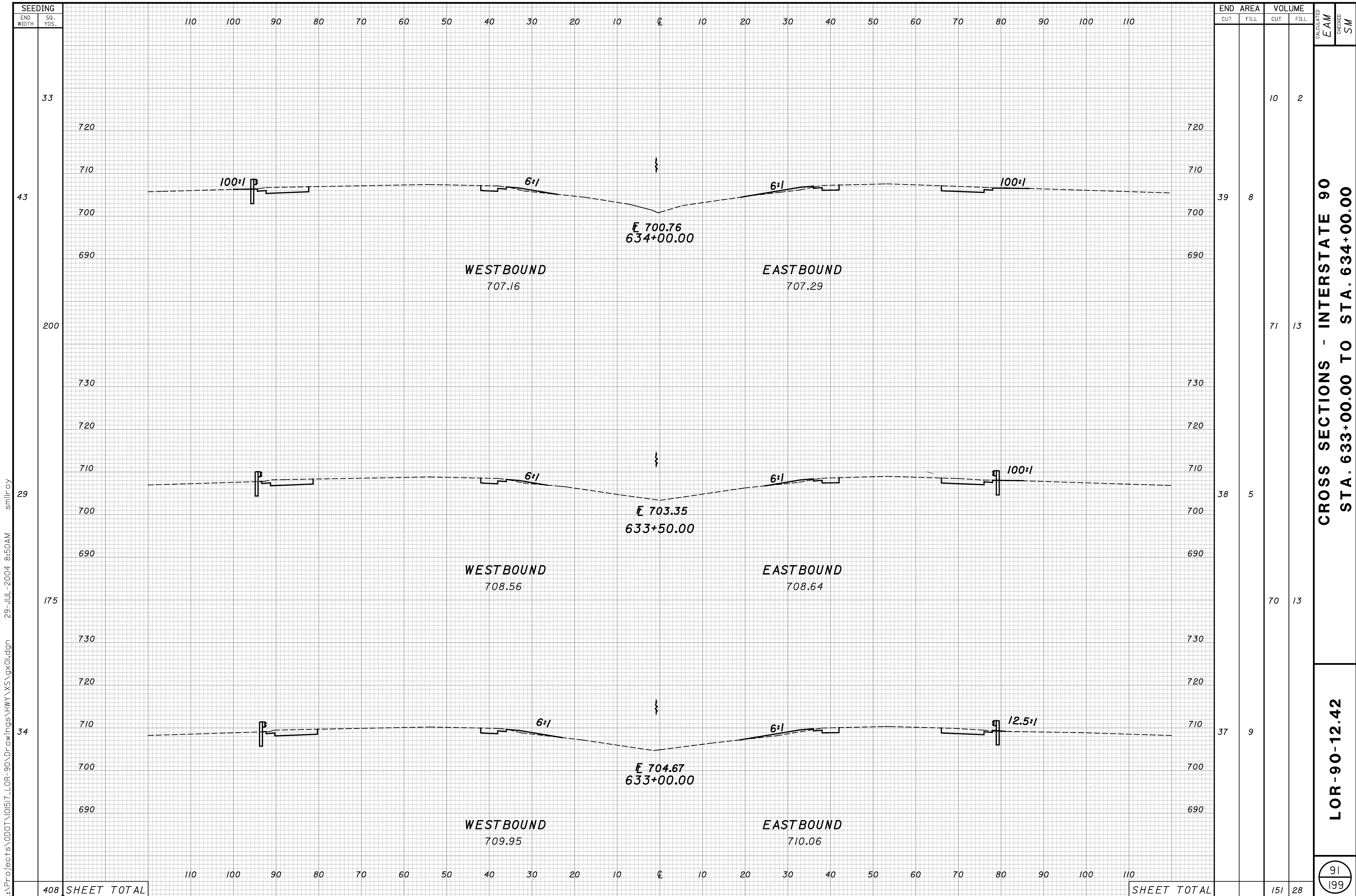
SEEDING		END AREA		VOLUME		CALCULATED		CHECKED	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	EAM	SM		
110									
100									
90									
80									
70									
60									
50									
40									
30									
20									
10									
0									
10									
20									
30									
40									
50									
60									
70									
80									
90									
100									
110									
37		10		69				17	
18		5		30				8	
10		2		10				2	
20		4		20				4	
311	SHEET TOTAL			109				27	

CROSS SECTIONS - INTERSTATE 90
 STA. 632+05.72 TO STA. 632+50.00

LOR-90-12.42

90
199

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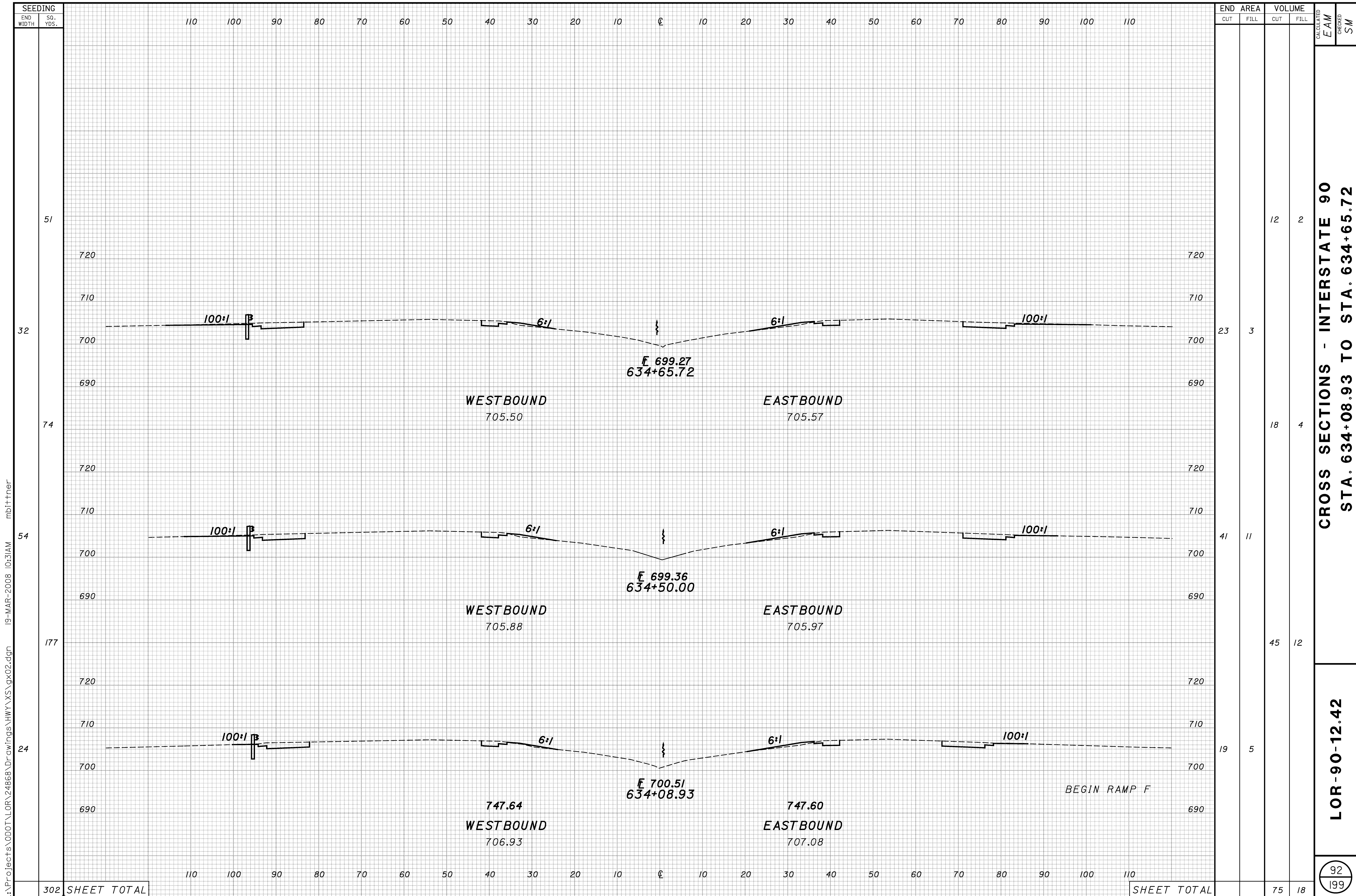


**CROSS SECTIONS - INTERSTATE 90
 STA. 633+00.00 TO STA. 634+00.00**

LOR-90-12.42

91
199

L:\Projects\000T\01517_LOR-90\Drawings\HWY\XS\gx01.dgn 29-JUL-2004 8:50AM smtrov



SEEDING	
END WIDTH	SO. YDS.
51	
32	
74	
54	
177	
24	
302	SHEET TOTAL

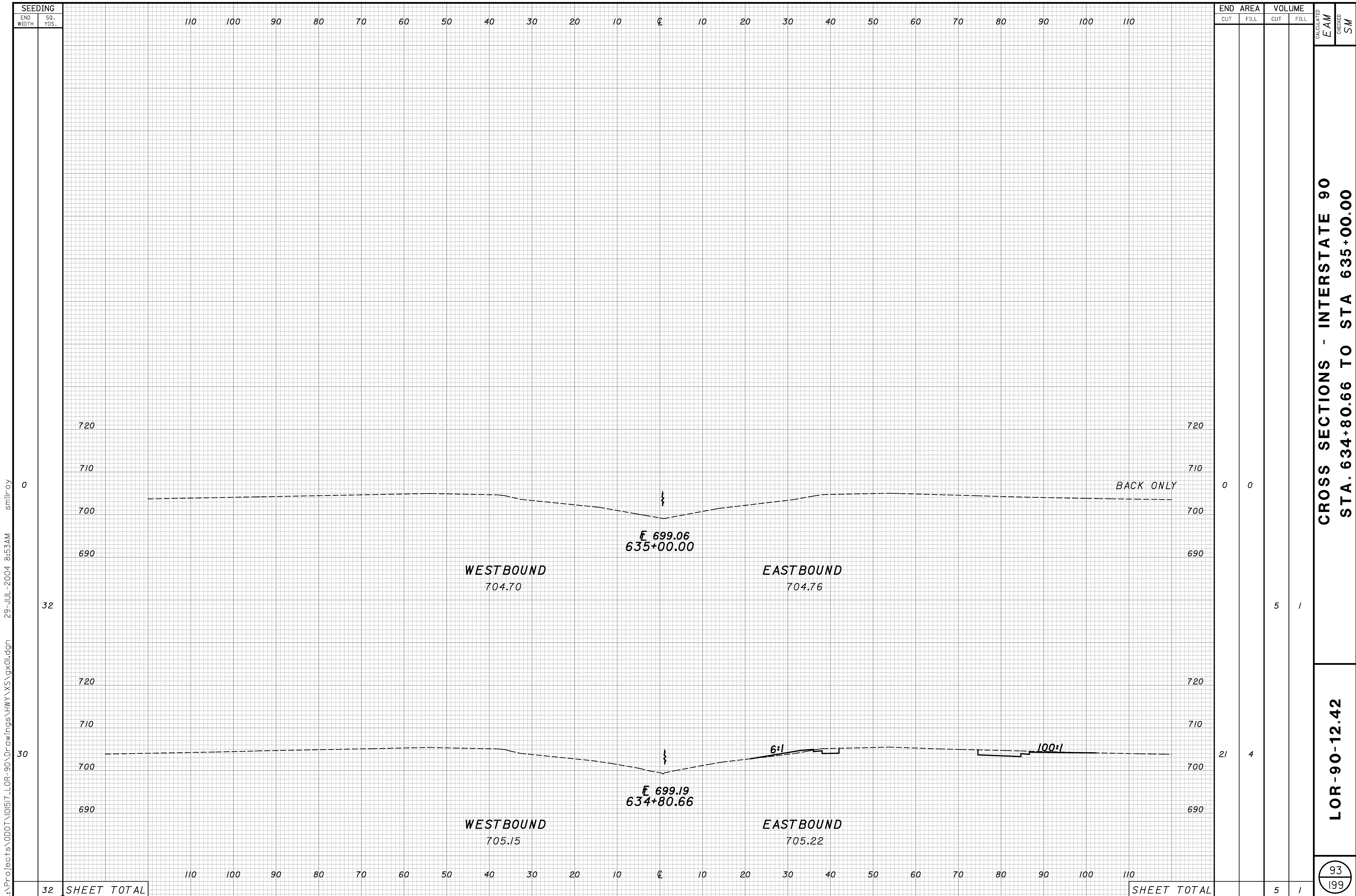
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
23	3	12	2		
41	11	18	4		
19	5	45	12		
		75	18		

CROSS SECTIONS - INTERSTATE 90
STA. 634+08.93 TO STA. 634+65.72

LOR-90-12.42

92
199

L:\Projects\000T\LOR\24868\Drawings\HWY\XS\gx02.dgn 19-MAR-2008 10:31AM mbjttner

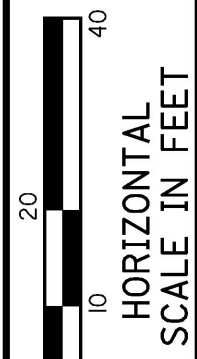


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CROSS SECTIONS - INTERSTATE 90
STA. 634+80.66 TO STA 635+00.00

LOR-90-12.42

93
199

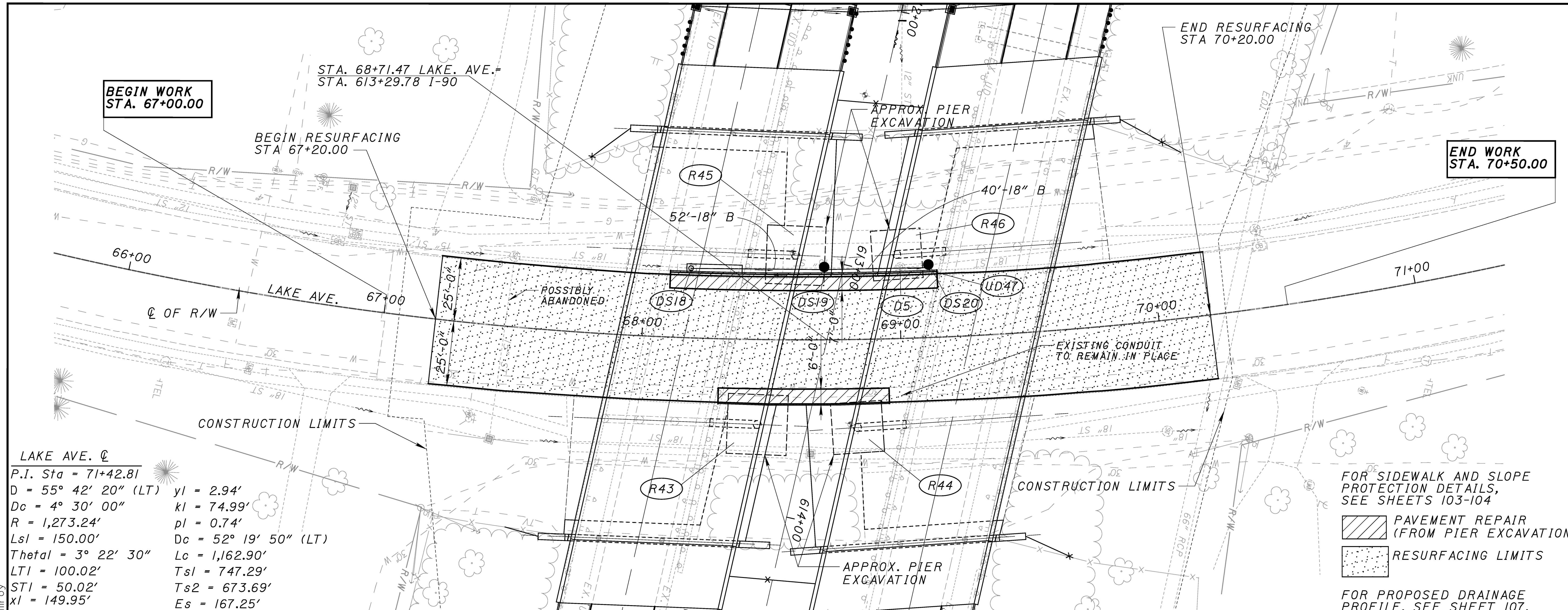


CALCULATED SM
CHECKED KWB

PLAN AND PROFILE
LAKE AVE. BEGIN WORK TO END WORK

LOR-90-12.42

94
199



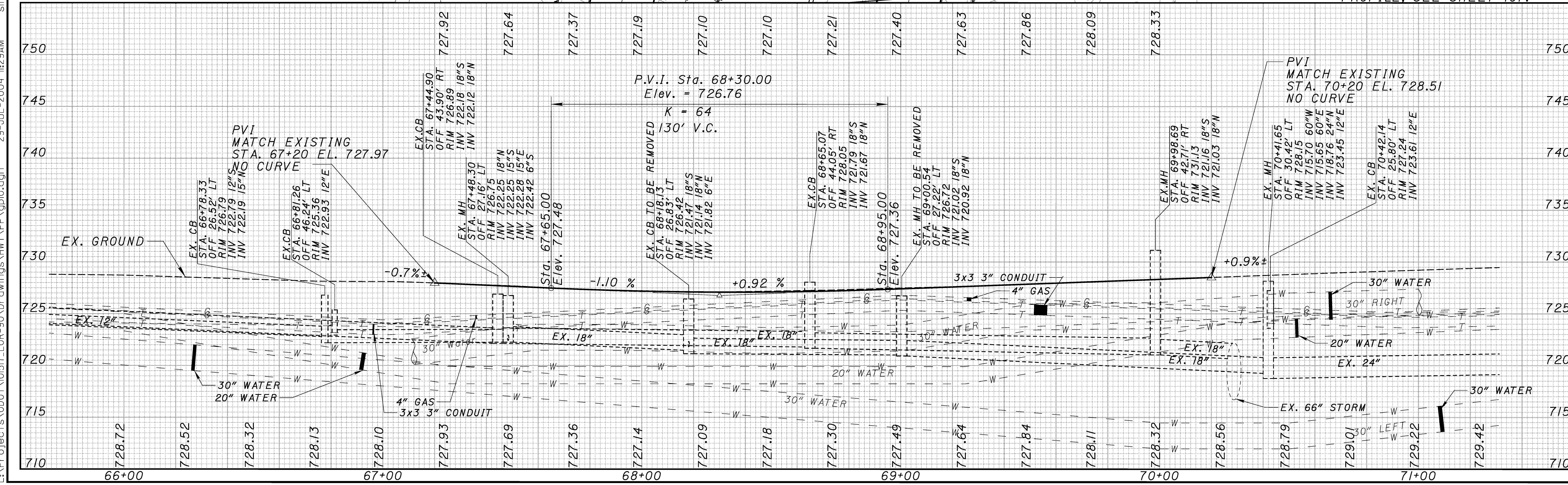
LAKE AVE. Q
 P.I. Sta = 71+42.81
 D = 55° 42' 20" (LT) y1 = 2.94'
 Dc = 4° 30' 00" k1 = 74.99'
 R = 1,273.24' p1 = 0.74'
 Ls1 = 150.00' Dc = 52° 19' 50" (LT)
 Thetal = 3° 22' 30" Lc = 1,162.90'
 LTI = 100.02' Ts1 = 747.29'
 STI = 50.02' Ts2 = 673.69'
 xl = 149.95' Es = 167.25'

FOR SIDEWALK AND SLOPE PROTECTION DETAILS, SEE SHEETS 103-104

PAVEMENT REPAIR (FROM PIER EXCAVATION)

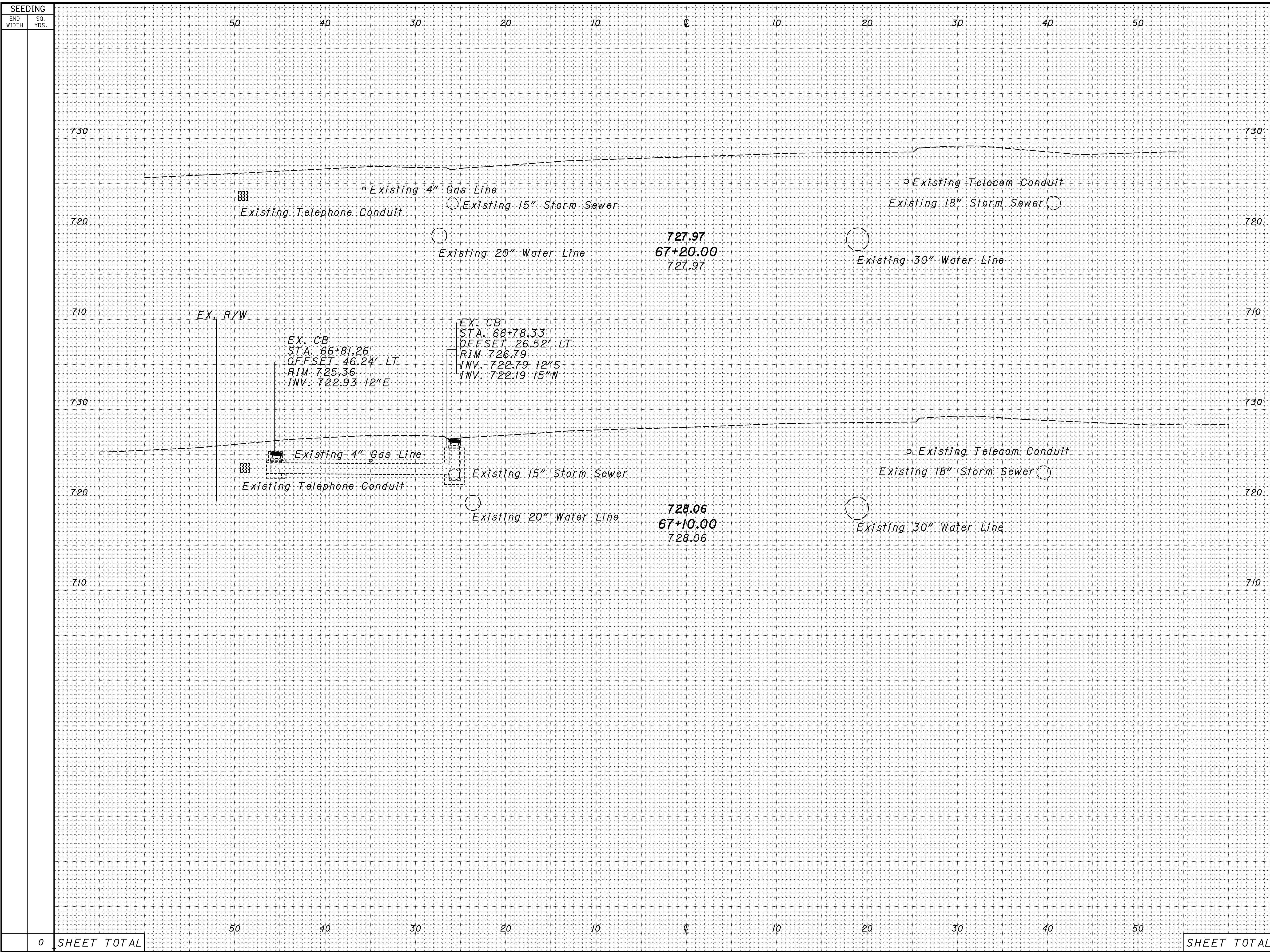
RESURFACING LIMITS

FOR PROPOSED DRAINAGE PROFILE, SEE SHEET 107.



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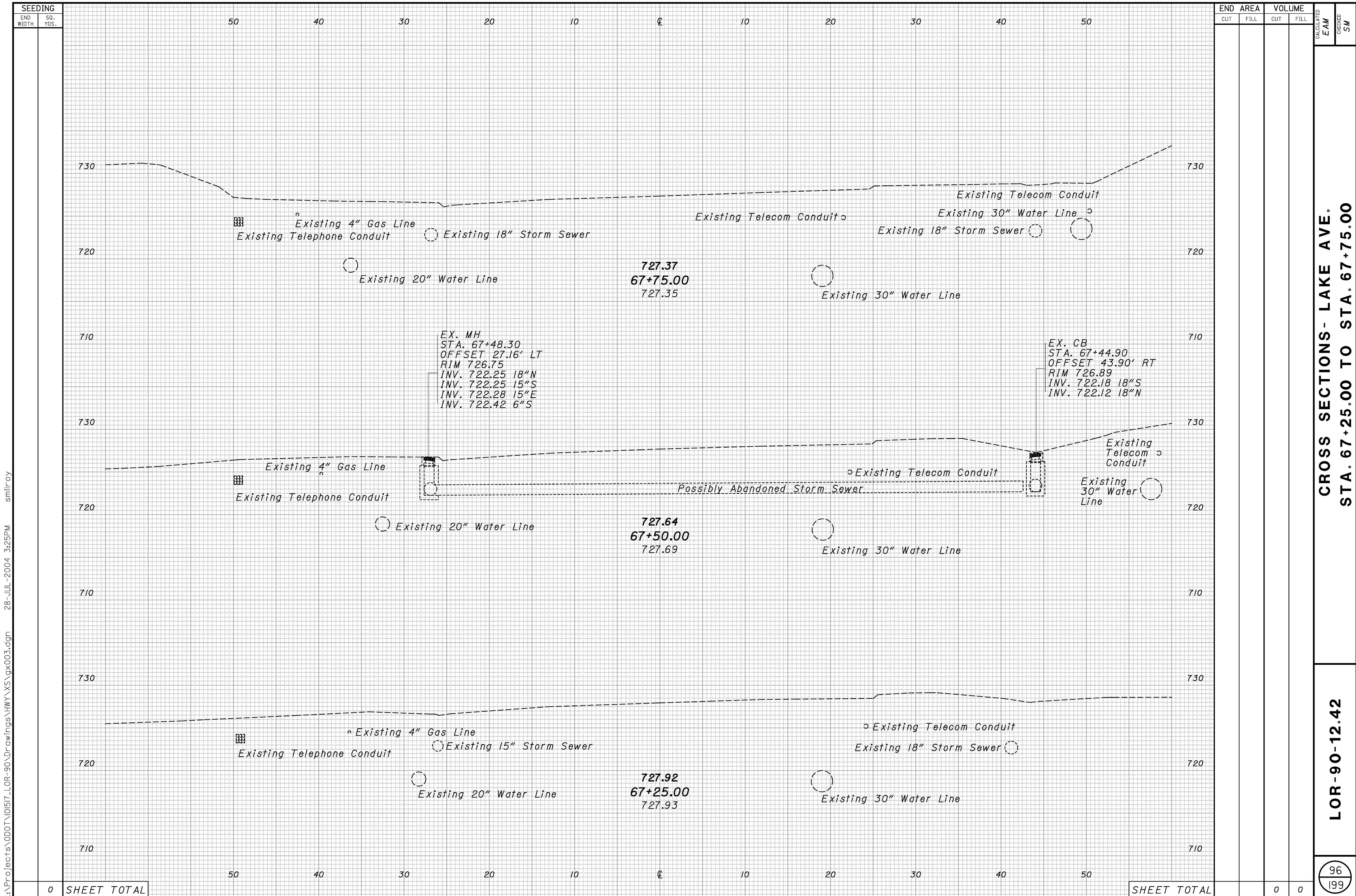


SEEDING		END AREA		VOLUME		CALCULATED EAM	CHECKED SM
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL		
0	SHEET TOTAL			0	0		

CROSS SECTIONS - LAKE AVE.
STA. 67+10.00 TO STA. 67+20.00

LOR-90-12.42

95
199



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**CROSS SECTIONS - LAKE AVE.
 STA. 67+25.00 TO STA. 67+75.00**

LOR-90-12.42

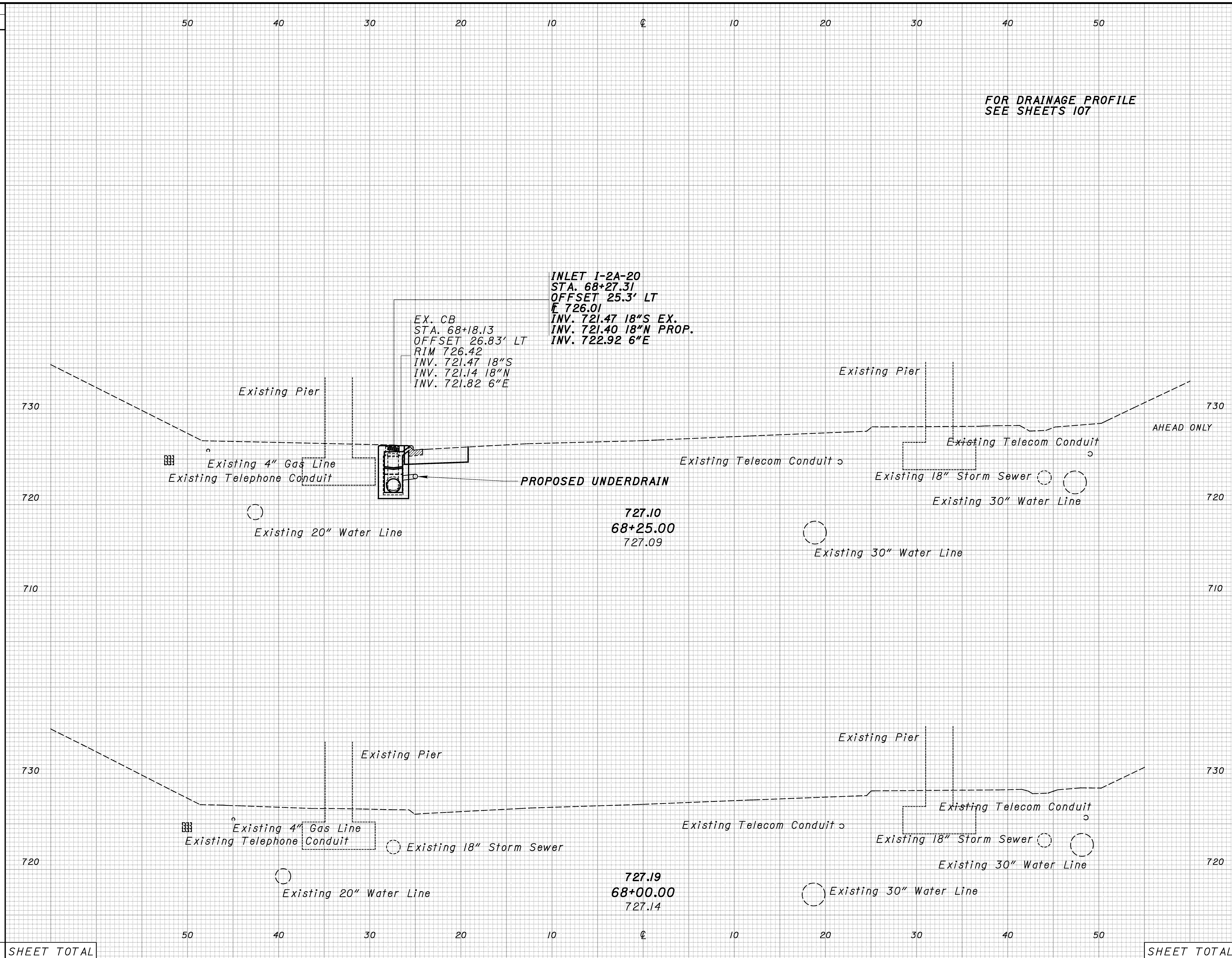
96
199

0 SHEET TOTAL

SHEET TOTAL

0 0

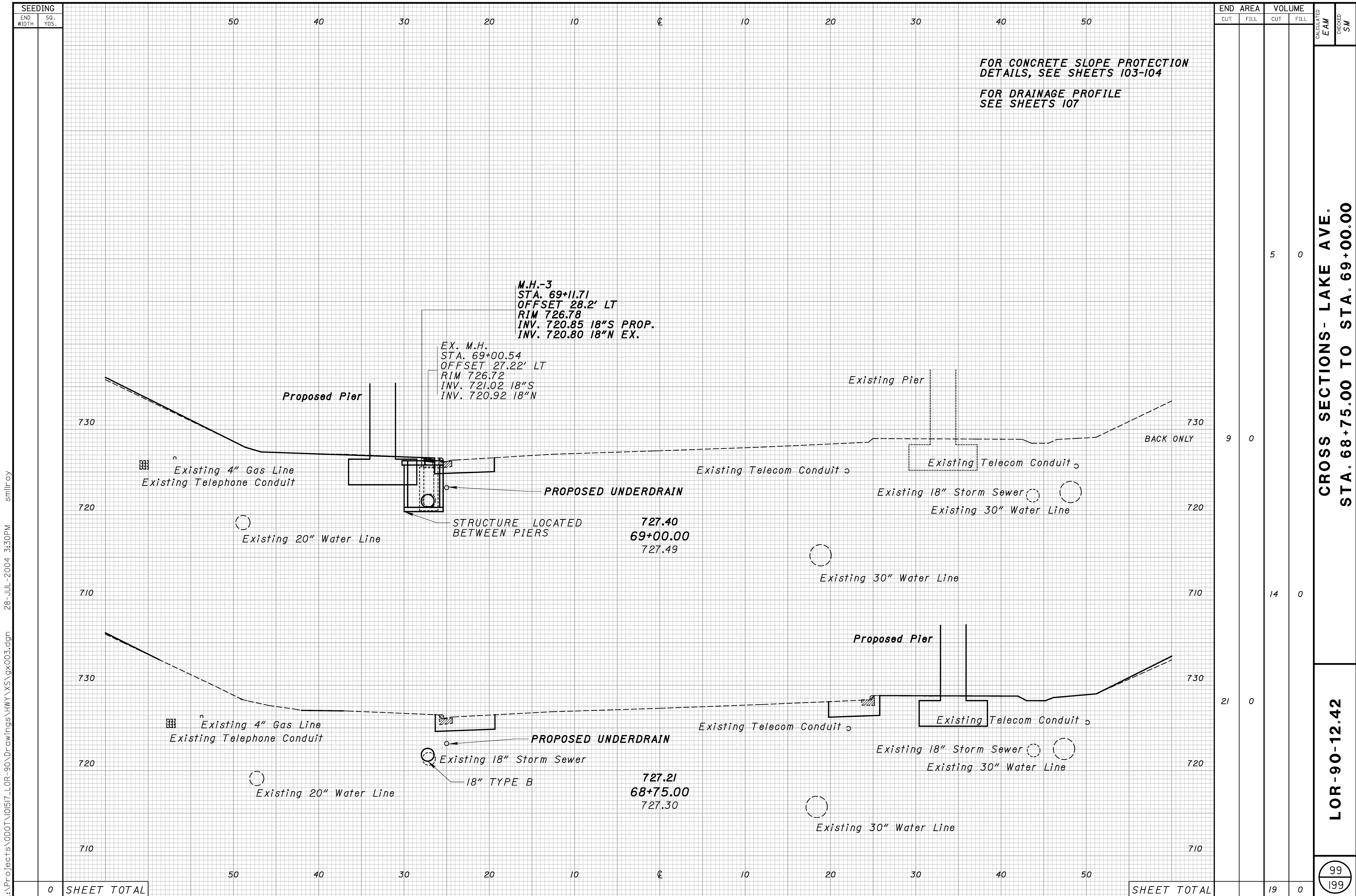
SEEDING
 END WIDTH SQ. YDS.
 0 SHEET TOTAL



END AREA		VOLUME	
CUT	FILL	CUT	FILL
15	0	15	0
10	0	10	0
3	0	3	0
0	0	0	0
0	0	18	0

CROSS SECTIONS - LAKE AVE.
 STA. 68+00.00 TO STA. 68+25.00
 LOR-90-12.42
 97
 199

L:\Projects\000T\01517_LOR-90\Drawings\HWY\XS\gx003.dgn 28-JUL-2004 3:27PM smilroy



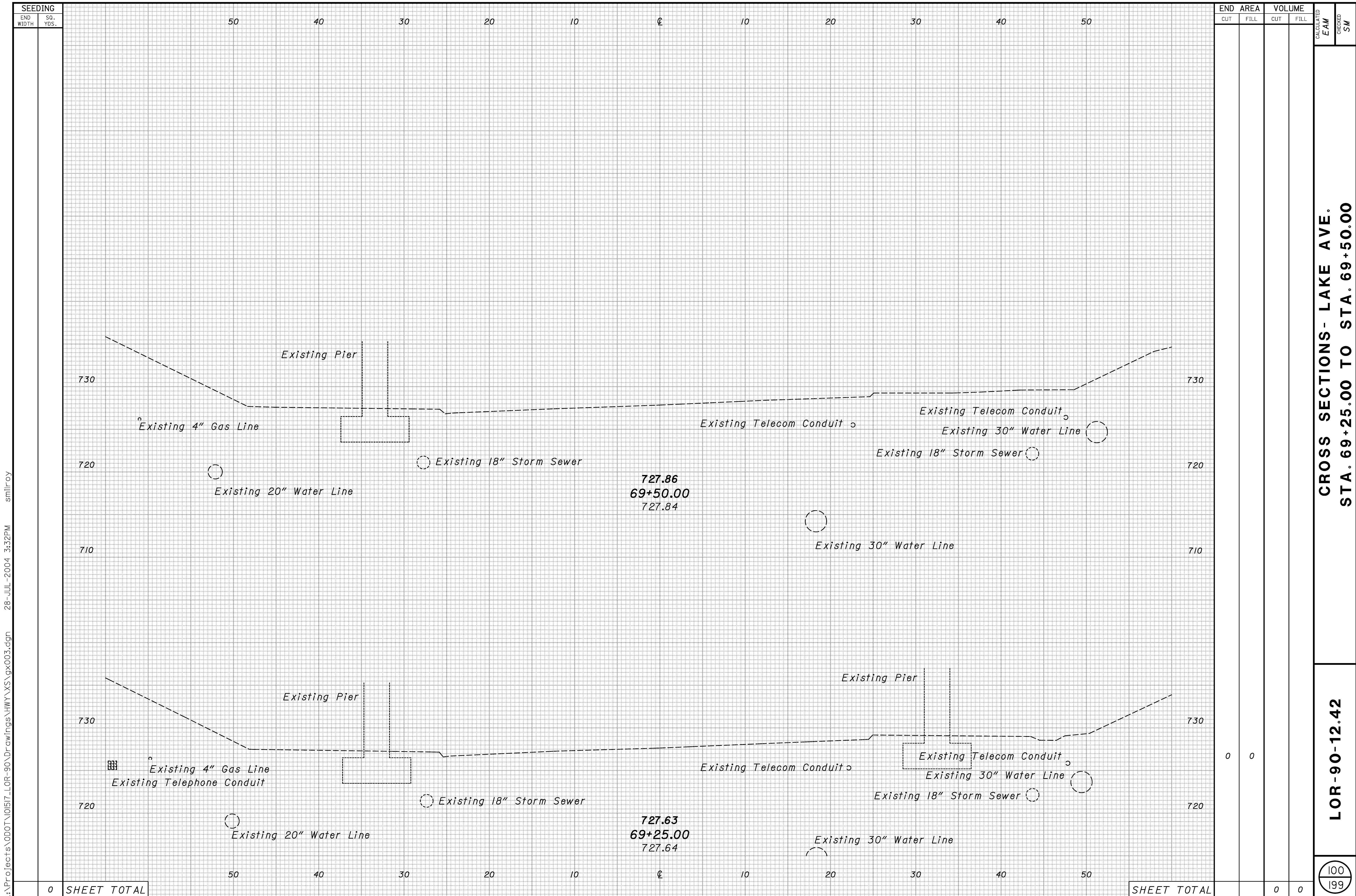
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
		5	0		
9	0				
		14	0		
21	0				
		19	0		

CROSS SECTIONS - LAKE AVE.
STA. 68+75.00 TO STA. 69+00.00

LOR-90-12.42

99
199

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SEEDING	
END WIDTH	SQ. YDS.
0	
SHEET TOTAL	

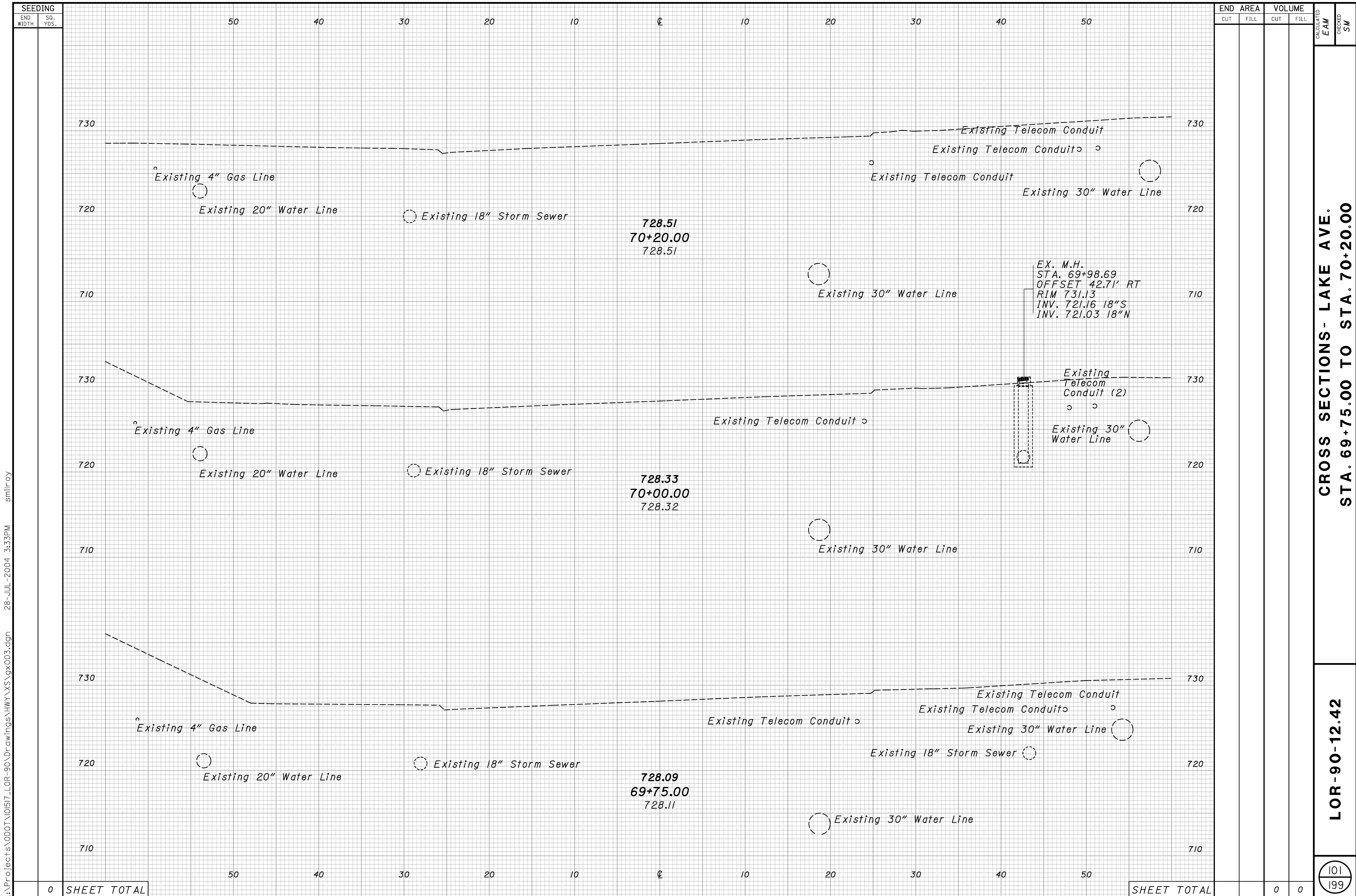
END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
SHEET TOTAL			

CROSS SECTIONS - LAKE AVE.
STA. 69+25.00 TO STA. 69+50.00

LOR-90-12.42

100
 199

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SEEDING	
END WIDTH	SQ. YDS.
0	SHEET TOTAL

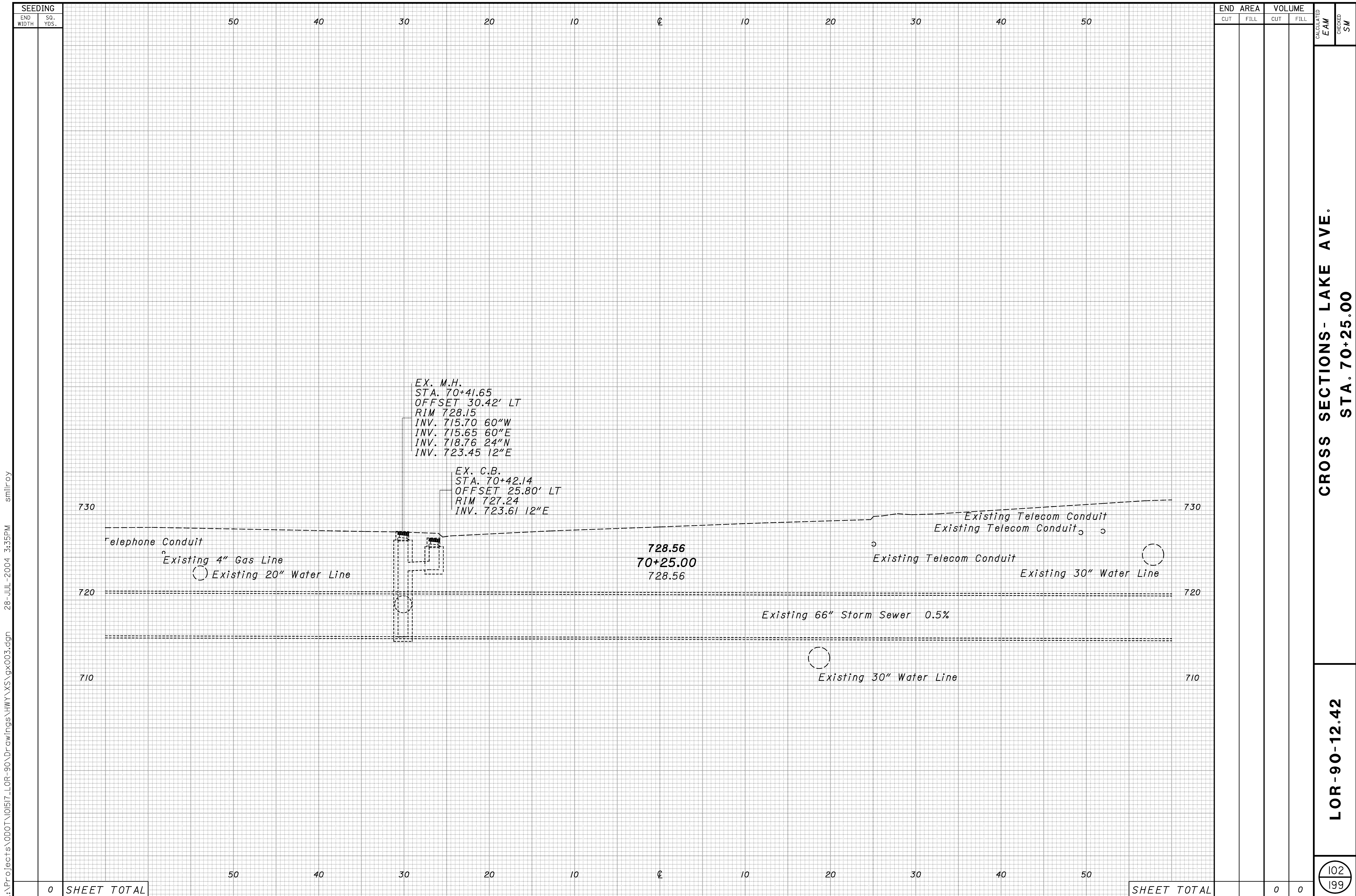
END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0

CALCULATED EAM CHECKED SM

CROSS SECTIONS - LAKE AVE.
STA. 69+75.00 TO STA. 70+20.00

LOR-90-12.42

101
199



SEEDING	
END WIDTH	SQ. YDS.
0	
SHEET TOTAL	

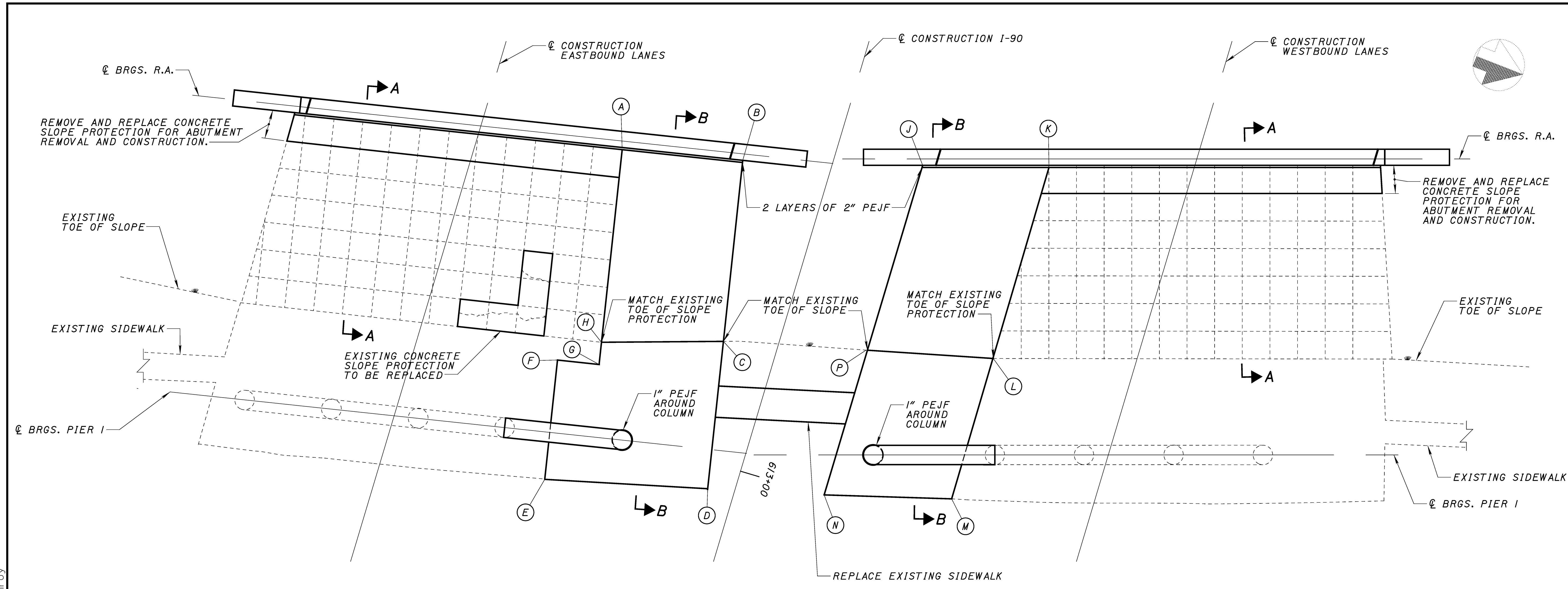
END AREA		VOLUME		CALCULATED EAM	CHECKED SM
CUT	FILL	CUT	FILL		
SHEET TOTAL				0	0

CROSS SECTIONS - LAKE AVE.
STA. 70+25.00

LOR-90-12.42

102
199

L:\Projects\000T\101517_LOR-90\Drawings\HWY\XS\gx003.dgn 28-JUL-2004 3:35PM smilroy

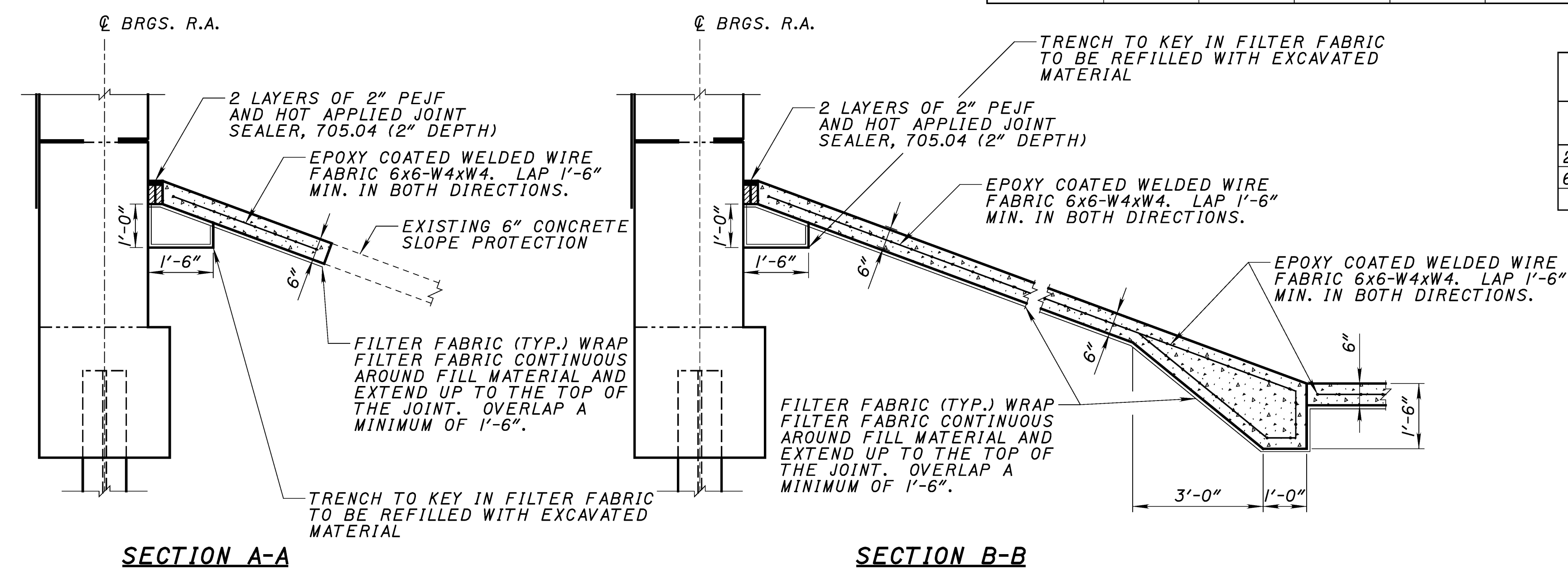


RIGHT BRIDGE REAR CONCRETE SLOPE PROTECTION

LEFT BRIDGE REAR CONCRETE SLOPE PROTECTION

STATIONS AND OFFSETS ALONG ϕ CONSTRUCTION I-90

LOCATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)	(L)	(M)	(N)	(P)
STATION	612+57.07	612+53.63	612+81.43	613+04.04	613+09.92	612+91.59	612+90.40	612+86.99	612+46.37	612+40.73	612+71.99	612+94.73	612+99.81	612+76.34
OFFSET	31.97 R	13.50 R	8.32 R	4.10 R	28.76 R	32.18 R	25.79 R	26.44 R	13.50 L	32.38 L	32.53 L	32.65 L	13.50 L	13.50 L



SECTION A-A

SECTION B-B

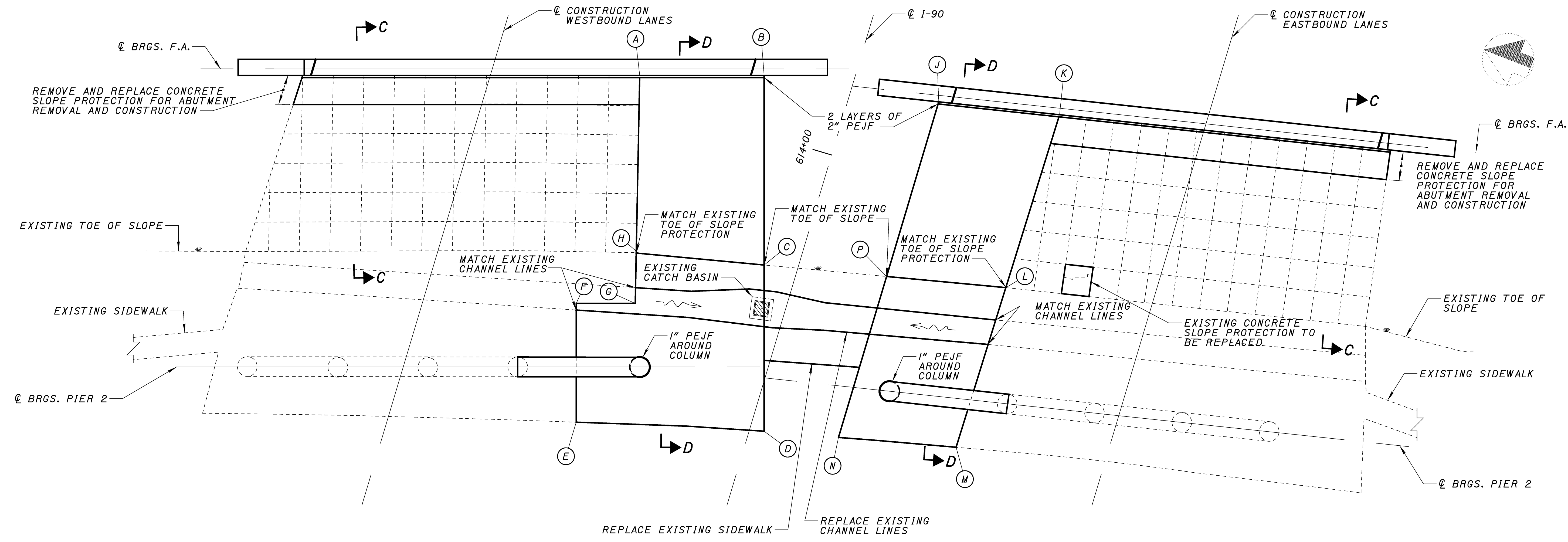
CONCRETE SLOPE PROTECTION QUANTITY*

ITEM	R.A. LEFT	R.A. RIGHT
202-32800, CONCRETE SLOPE PROTECTION REMOVED	47 SQ.YD.	69 SQ.YD.
601-21001, CONCRETE SLOPE PROTECTION, AS PER PLAN	146 SQ.YD.	171 SQ.YD.

*QUANTITIES SUMMARIZED IN THE GENERAL NOTES

NOTES:
1. MATCH EXISTING CONCRETE SLOPE PROTECTION GRID LINES.

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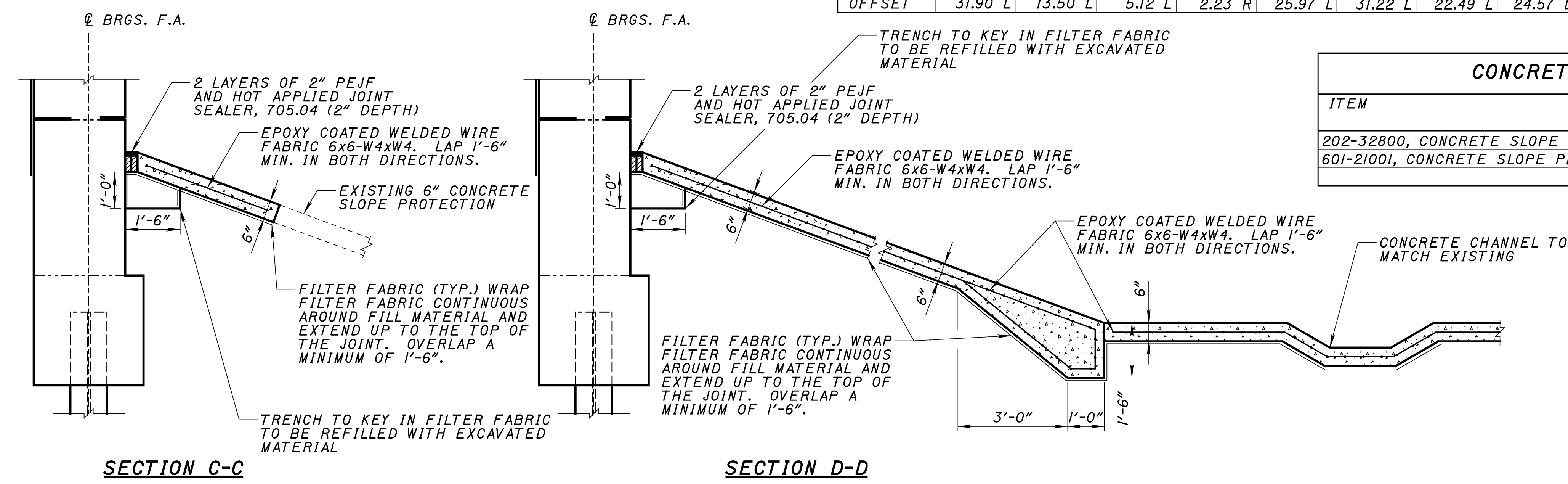
LEFT BRIDGE FORWARD CONCRETE SLOPE PROTECTION

RIGHT BRIDGE FORWARD CONCRETE SLOPE PROTECTION

STATIONS AND OFFSETS ALONG \varnothing CONSTRUCTION I-90														
LOCATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)	(L)	(M)	(N)	(P)
STATION	614+03.28	614+08.78	613+80.76	613+56.18	613+49.20	613+66.77	613+69.38	613+76.87	614+12.60	614+16.03	613+88.11	613+62.30	613+58.55	613+84.48
OFFSET	31.90 L	13.50 L	5.12 L	2.23 R	25.97 L	31.22 L	22.49 L	24.57 L	13.50 R	31.94 R	31.63 R	31.33 R	13.50 R	13.50 R

CONCRETE SLOPE PROTECTION QUANTITY*		
ITEM	F.A. LEFT	F.A. RIGHT
202-32800, CONCRETE SLOPE PROTECTION REMOVED	78 SQ.YD.	69 SQ.YD.
601-21001, CONCRETE SLOPE PROTECTION, AS PER PLAN	182 SQ.YD.	152 SQ.YD.

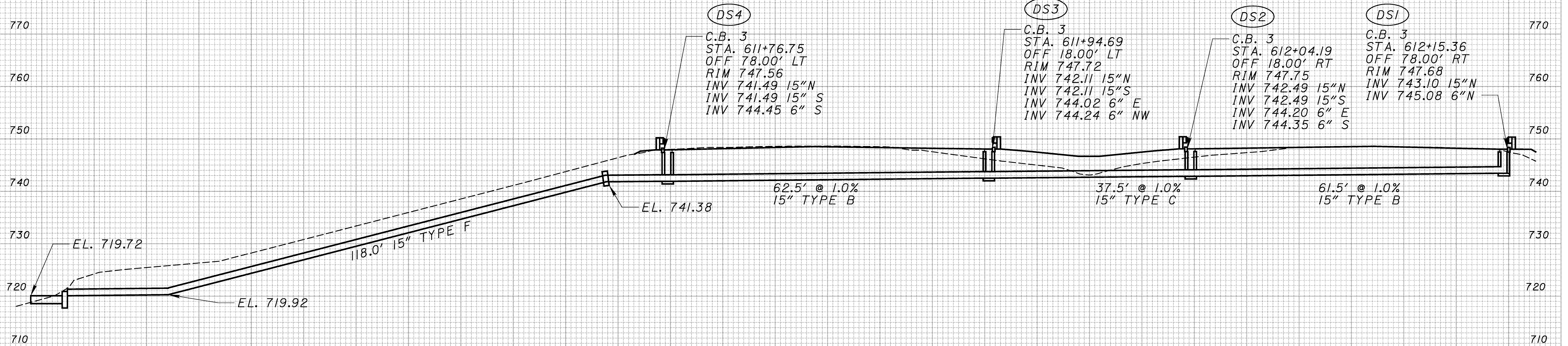
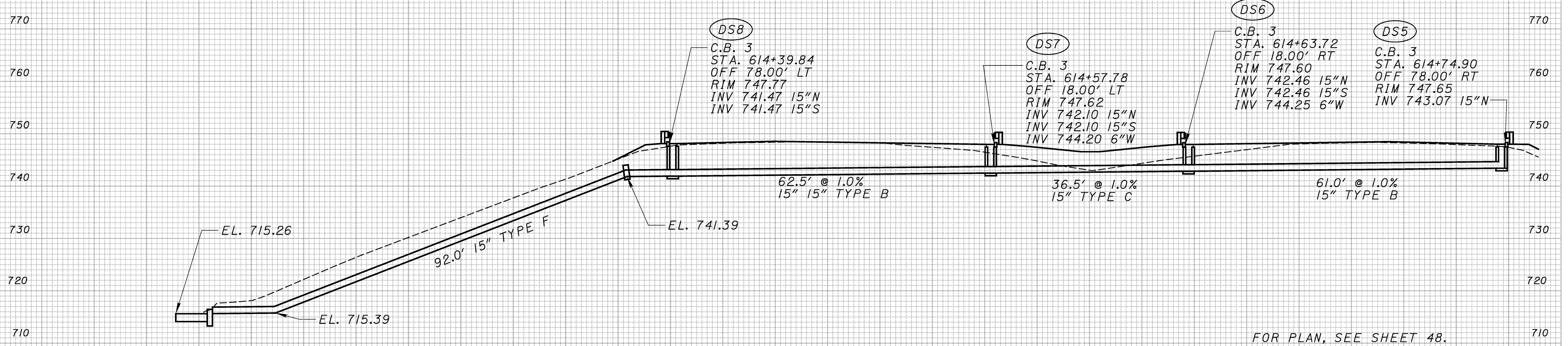
*QUANTITIES SUMMARIZED IN THE GENERAL NOTES



NOTES:
1. MATCH EXISTING CONCRETE SLOPE PROTECTION GRID LINES.

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200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80



200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

CALCULATED
SM
CHECKED
DAB

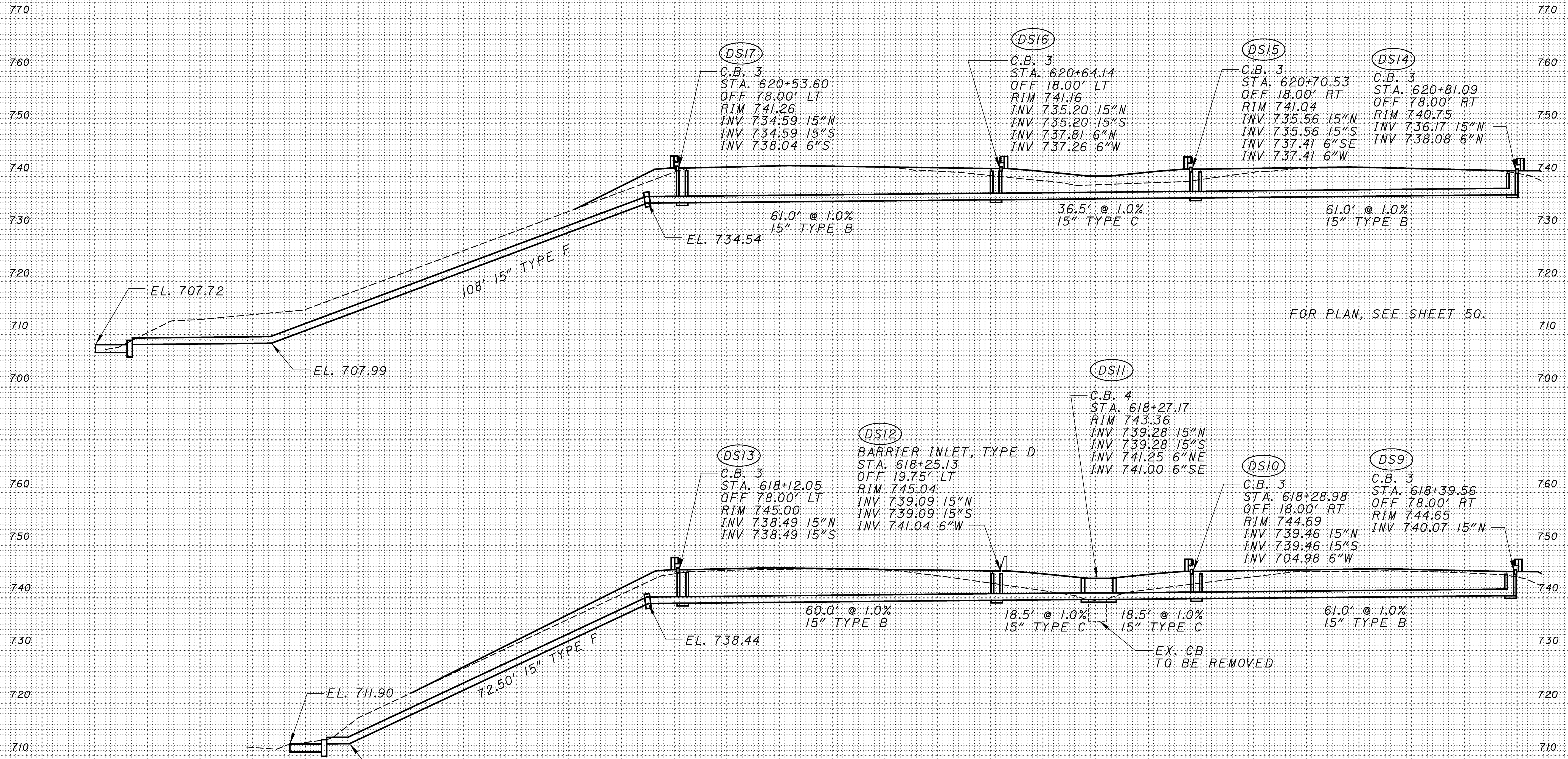
DRAINAGE PROFILES - INTERSTATE 90

LOR-90-12.42

105
199

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200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80



DS17
 C.B. 3
 STA. 620+53.60
 OFF 78.00' LT
 RIM 741.26
 INV 734.59 15"N
 INV 734.59 15"S
 INV 738.04 6"S

DS16
 C.B. 3
 STA. 620+64.14
 OFF 18.00' LT
 RIM 741.16
 INV 735.20 15"N
 INV 735.20 15"S
 INV 737.81 6"N
 INV 737.26 6"W

DS15
 C.B. 3
 STA. 620+70.53
 OFF 18.00' RT
 RIM 741.04
 INV 735.56 15"N
 INV 735.56 15"S
 INV 737.41 6"SE
 INV 737.41 6"W

DS14
 C.B. 3
 STA. 620+81.09
 OFF 78.00' RT
 RIM 740.75
 INV 736.17 15"N
 INV 738.08 6"N

DS13
 C.B. 3
 STA. 618+12.05
 OFF 78.00' LT
 RIM 745.00
 INV 738.49 15"N
 INV 738.49 15"S

DS12
 BARRIER INLET, TYPE D
 STA. 618+25.13
 OFF 19.75' LT
 RIM 745.04
 INV 739.09 15"N
 INV 739.09 15"S
 INV 741.04 6"W

DS11
 C.B. 4
 STA. 618+27.17
 RIM 743.36
 INV 739.28 15"N
 INV 739.28 15"S
 INV 741.25 6"NE
 INV 741.00 6"SE

DS10
 C.B. 3
 STA. 618+28.98
 OFF 18.00' RT
 RIM 744.69
 INV 739.46 15"N
 INV 739.46 15"S
 INV 704.98 6"W

DS9
 C.B. 3
 STA. 618+39.56
 OFF 78.00' RT
 RIM 744.65
 INV 740.07 15"N

FOR PLAN, SEE SHEET 50.

EX. CB TO BE REMOVED

L:\Projects\0001\LOR\24868\Drawings\HWY\XS\df001.dgn 19-MAR-2008 10:22AM mbf:trn

CALCULATED
SM

CHECKED
DAB

DRAINAGE PROFILES - INTERSTATE 90

LOR-90-12.42

106
199

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

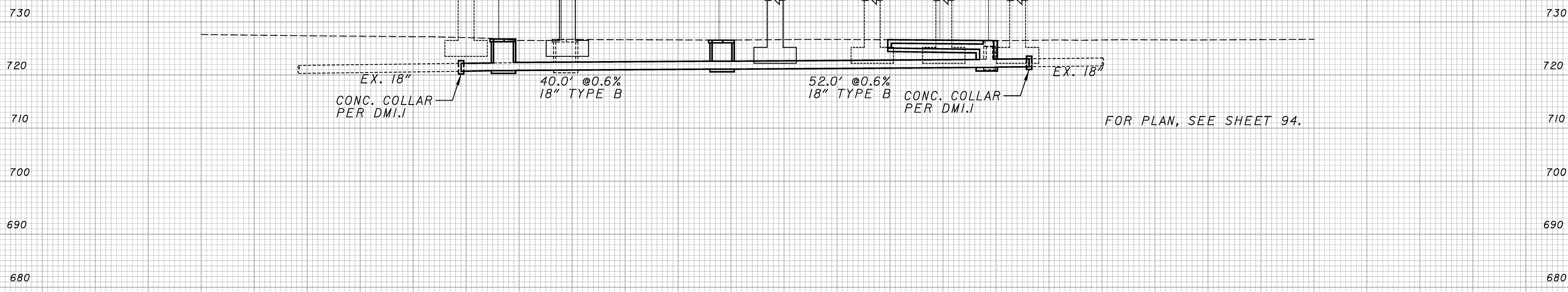
CALCULATED
SM
CHECKED
DAB

DRAINAGE PROFILES - LAKE AVENUE

LOR-90-12.42

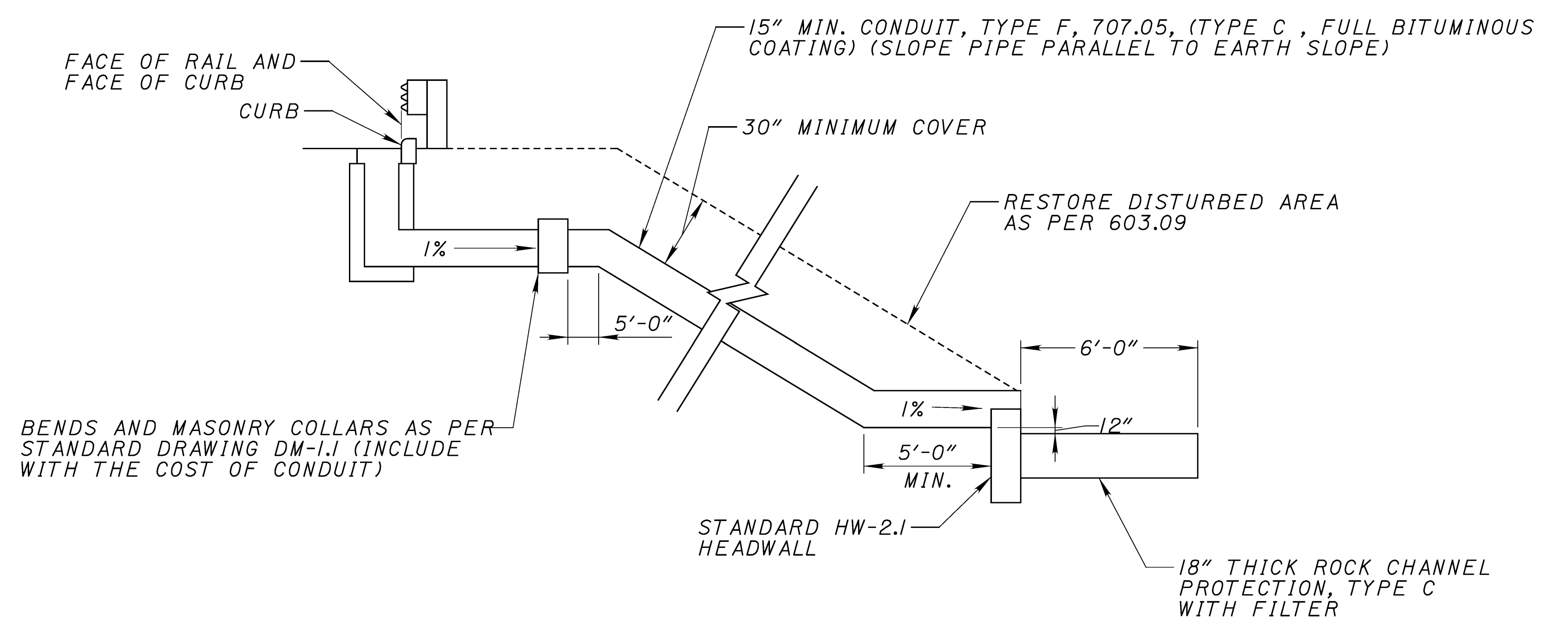
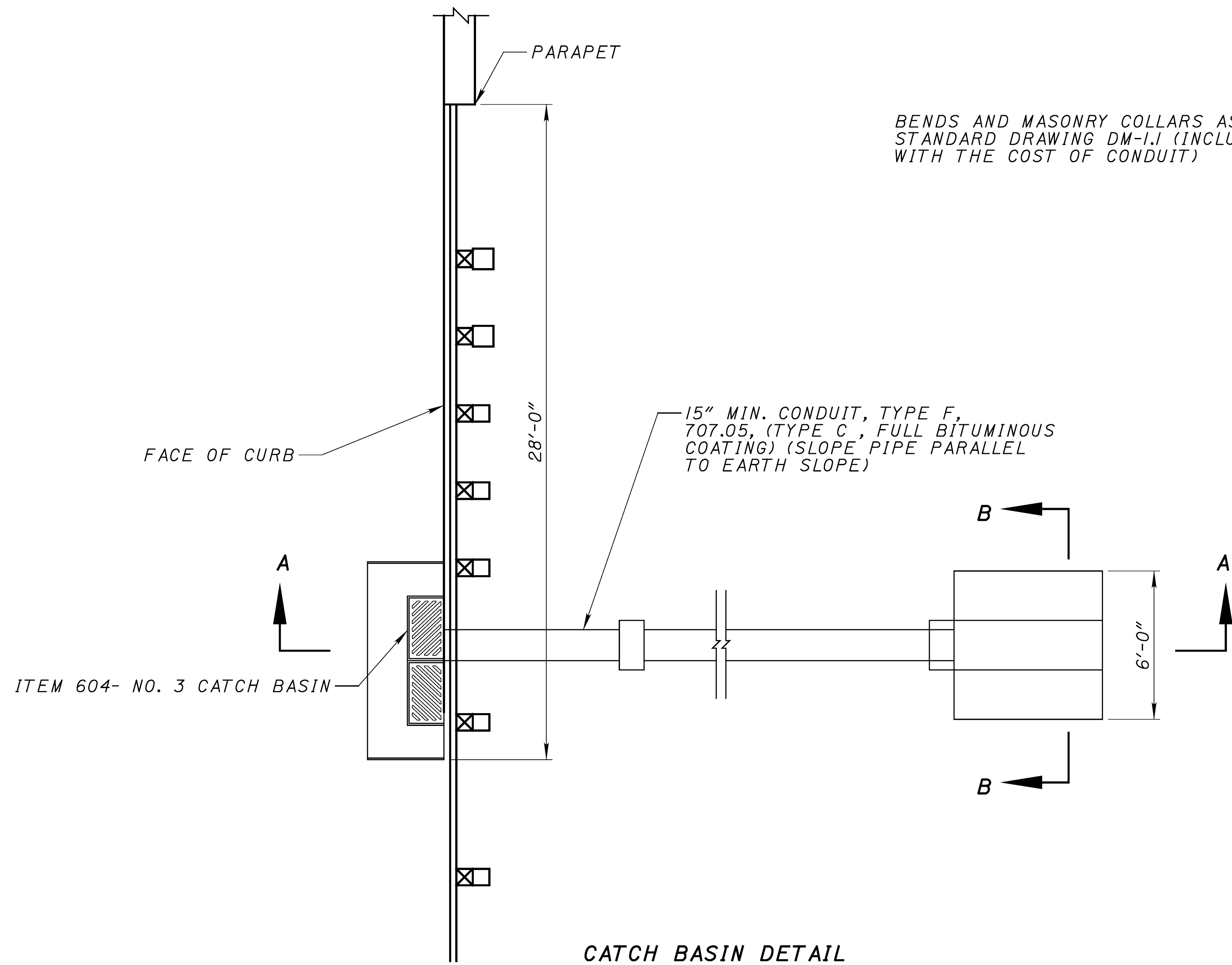
107
199

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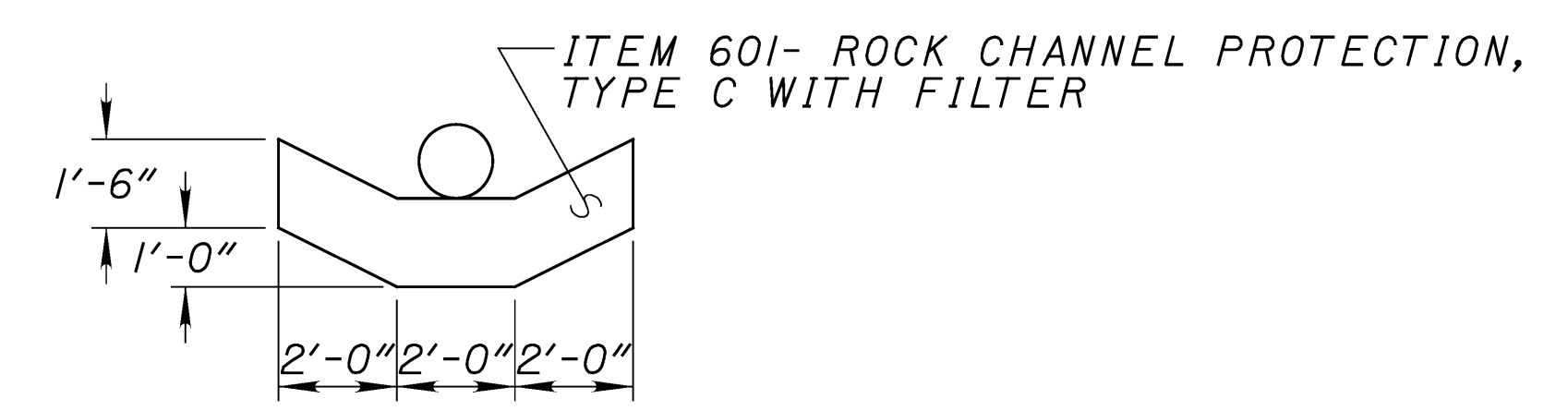


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SECTION A-A

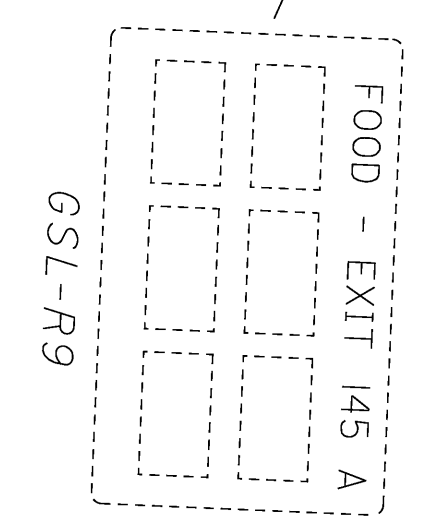
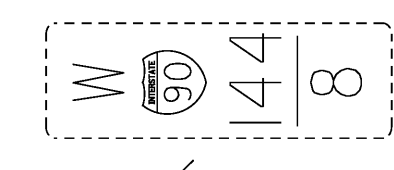
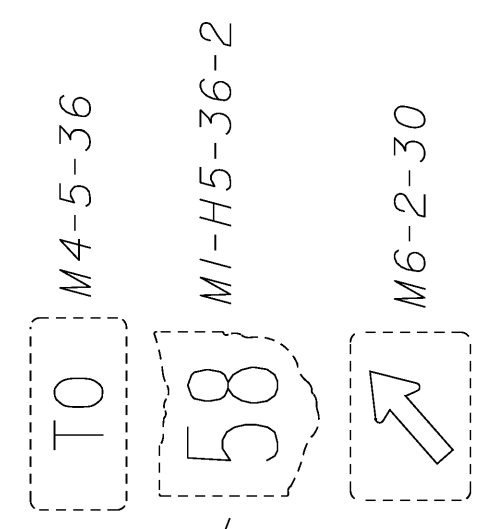
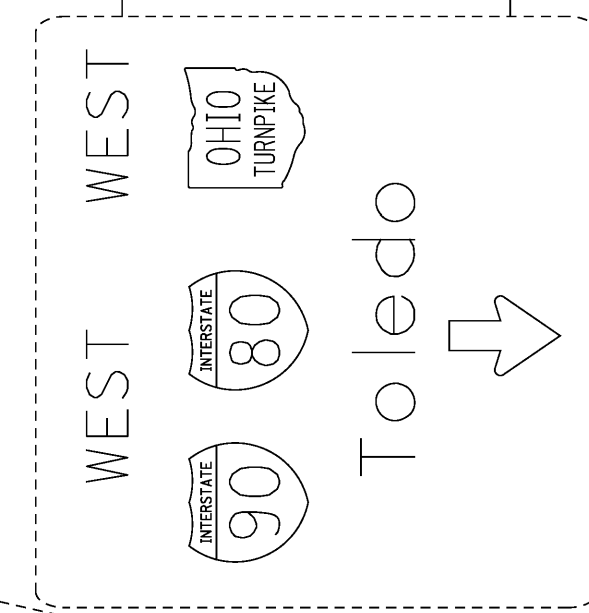
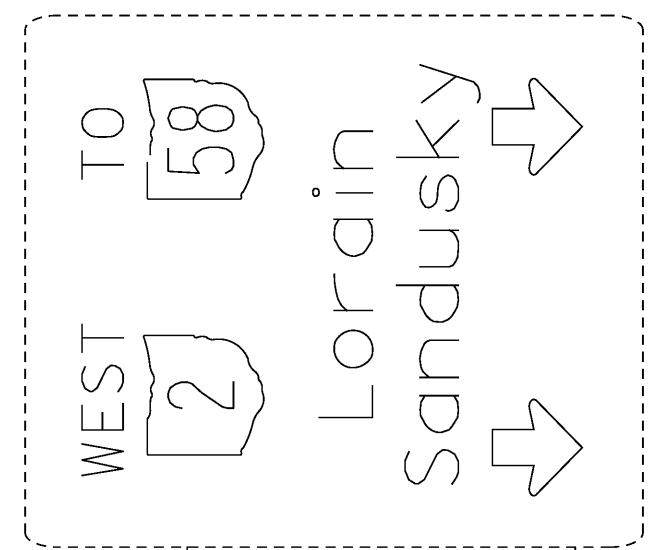
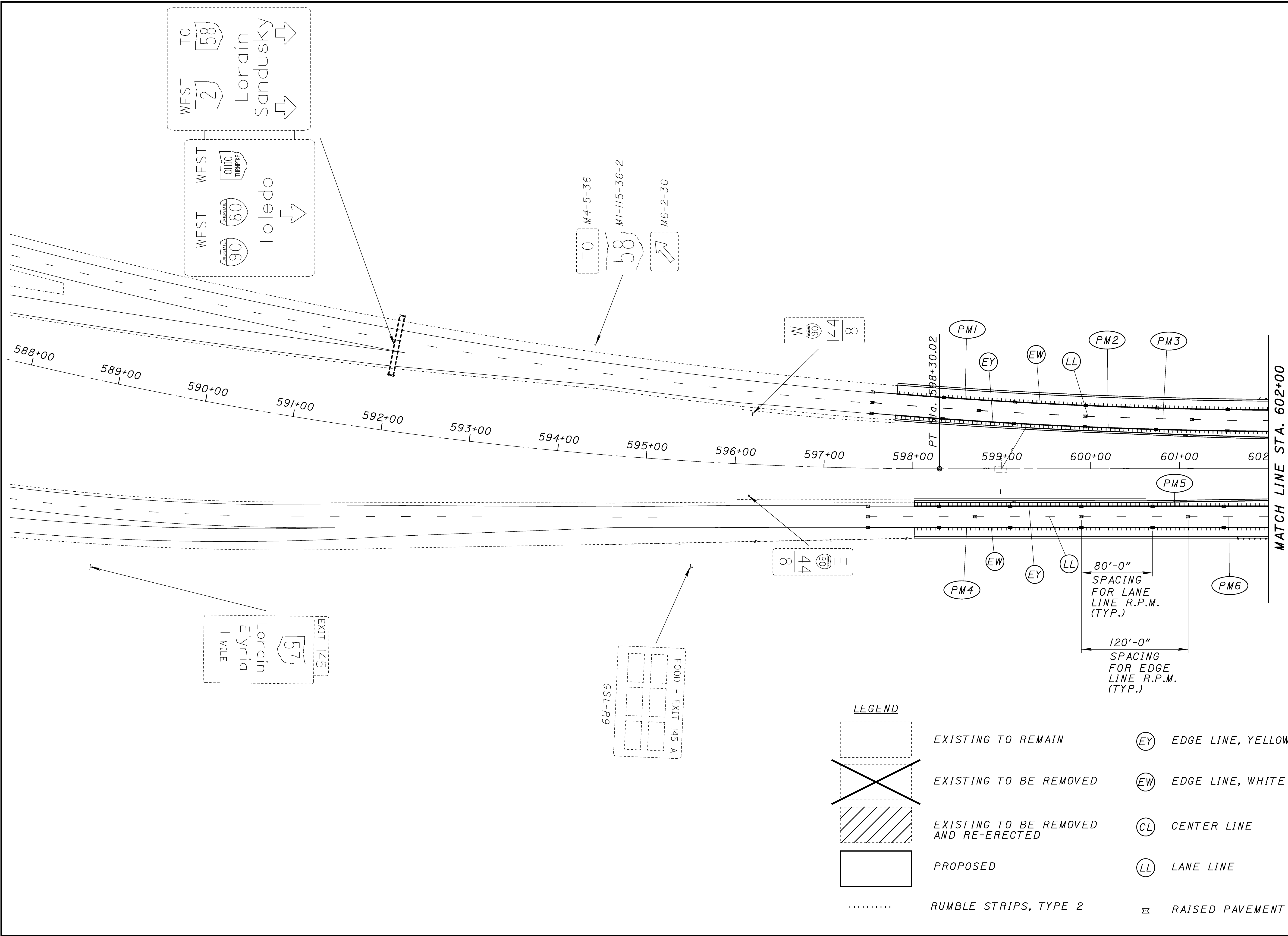


SECTION B-B

CALCULATED
EAM
CHECKED
SM

DRAINAGE DETAILS

LOR-90-12.42



LEGEND

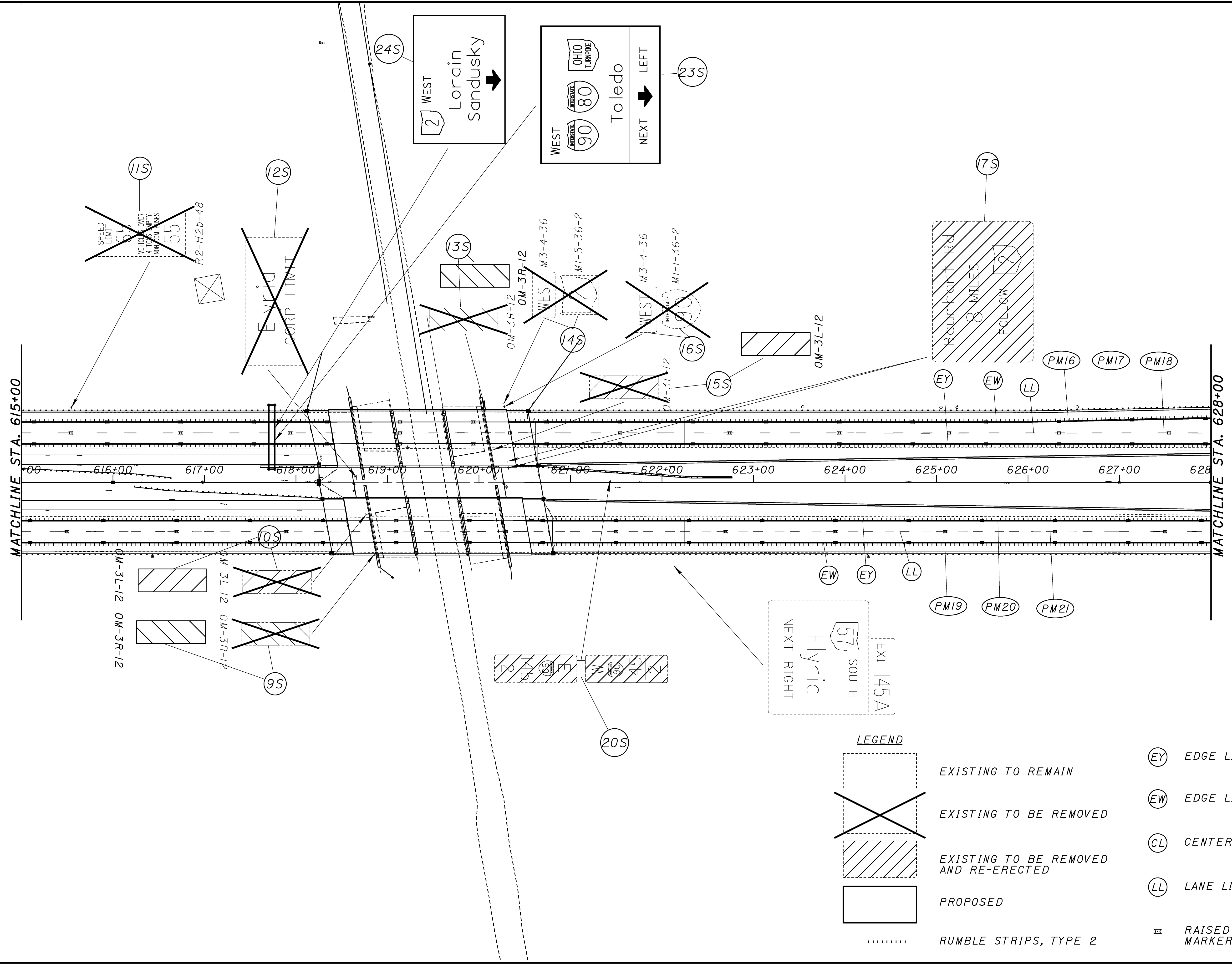
- | | | | |
|--|---------------------------------------|--|------------------------|
| | EXISTING TO REMAIN | | EDGE LINE, YELLOW |
| | EXISTING TO BE REMOVED | | EDGE LINE, WHITE |
| | EXISTING TO BE REMOVED AND RE-ERECTED | | CENTER LINE |
| | PROPOSED | | LANE LINE |
| | RUMBLE STRIPS, TYPE 2 | | RAISED PAVEMENT MARKER |

CALCULATED EAM
CHECKED SM

HORIZONTAL SCALE IN FEET

SIGNING AND PAVEMENT MARKING PLAN
BEGIN WORK TO STA. 602+00

LOR-90-12.42



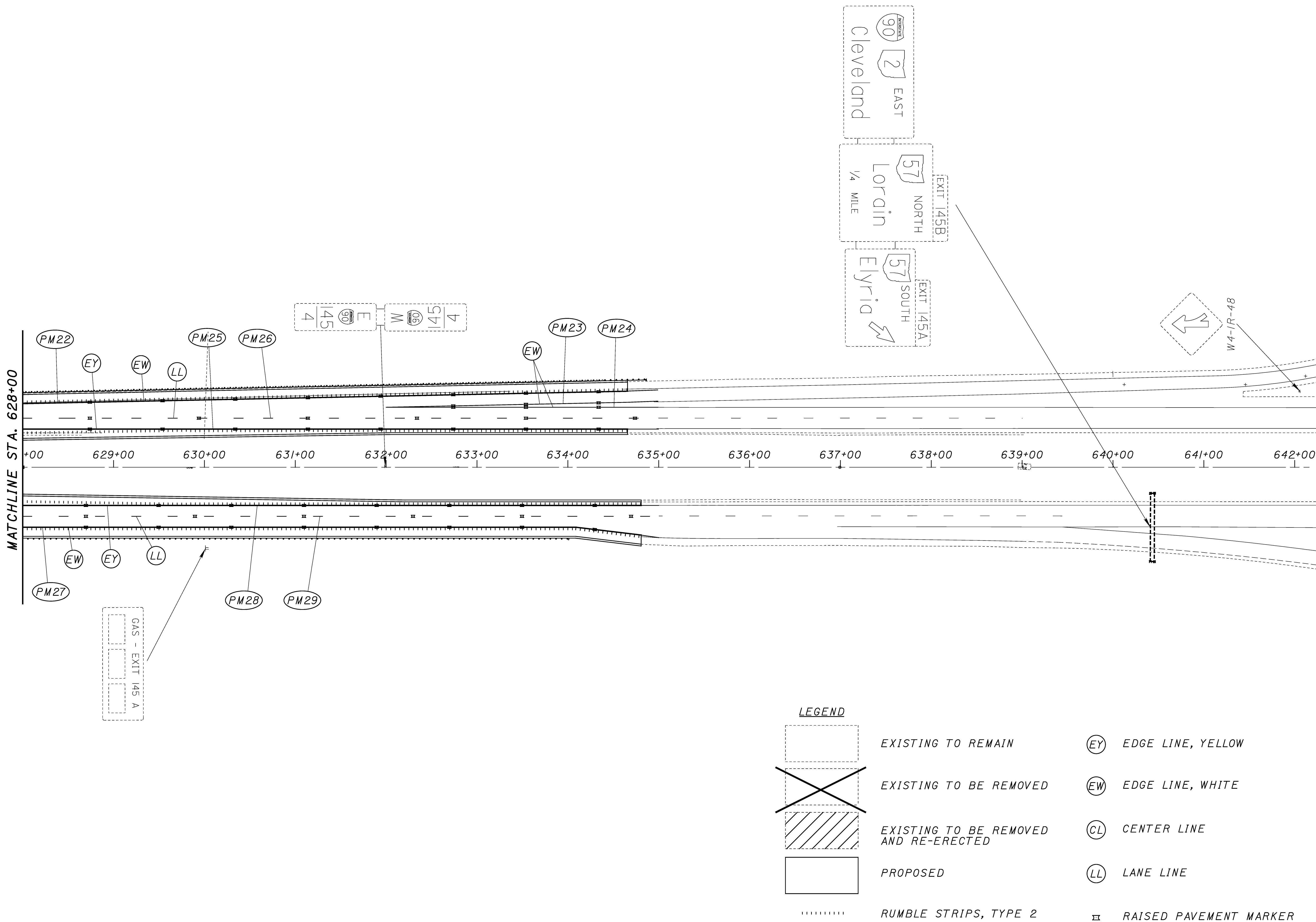
CALCULATED
EAM
CHECKED
SM

0 25 50 100
HORIZONTAL
SCALE IN FEET

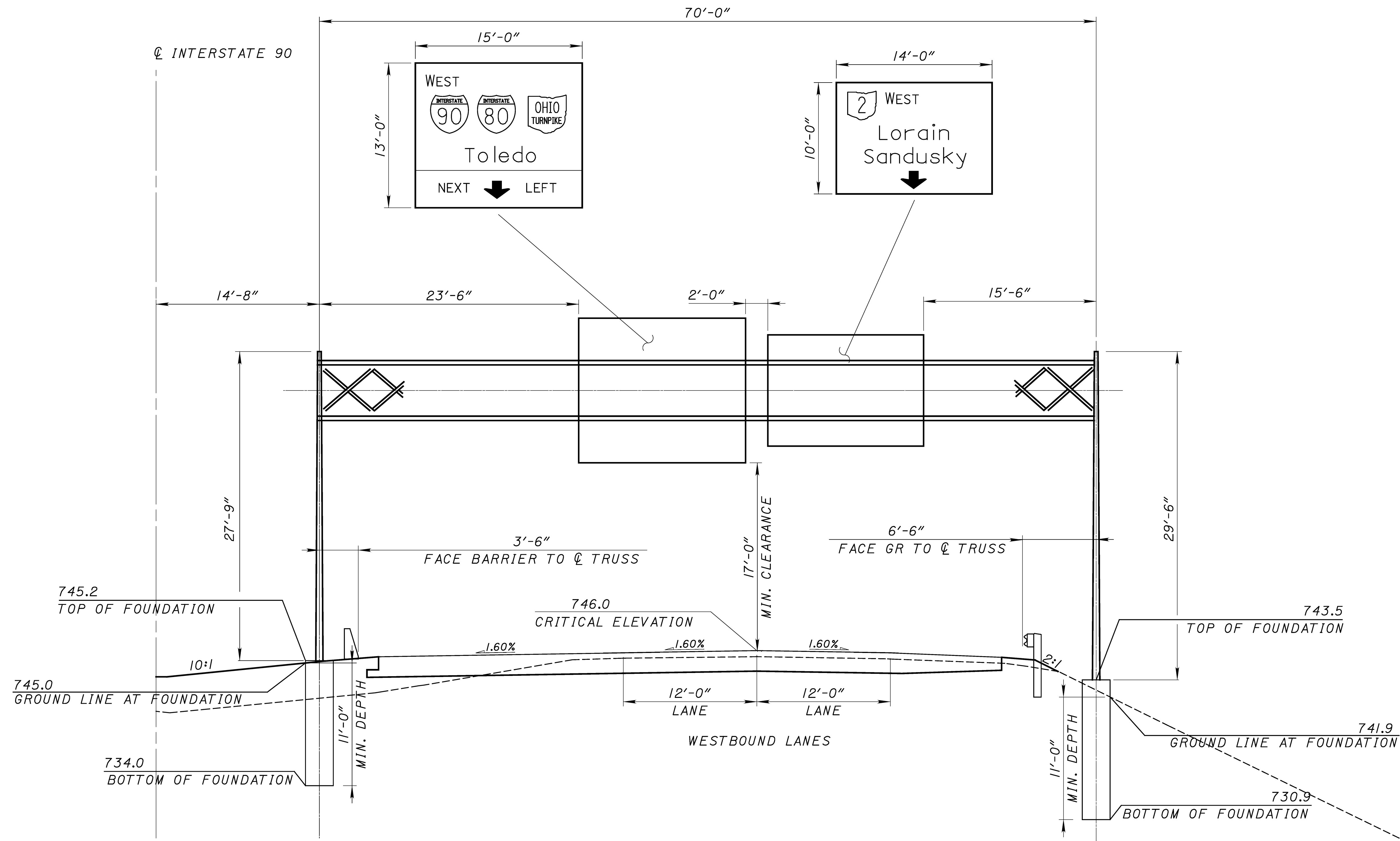
SIGNING AND PAVEMENT MARKING PLAN
STA. 615+00 TO STA. 628+00

LEGEND

	EXISTING TO REMAIN		EDGE LINE, YELLOW
	EXISTING TO BE REMOVED		EDGE LINE, WHITE
	EXISTING TO BE REMOVED AND RE-ERECTED		CENTER LINE
	PROPOSED		LANE LINE
	RUMBLE STRIPS, TYPE 2		RAISED PAVEMENT MARKER

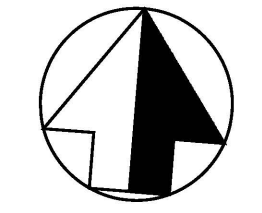
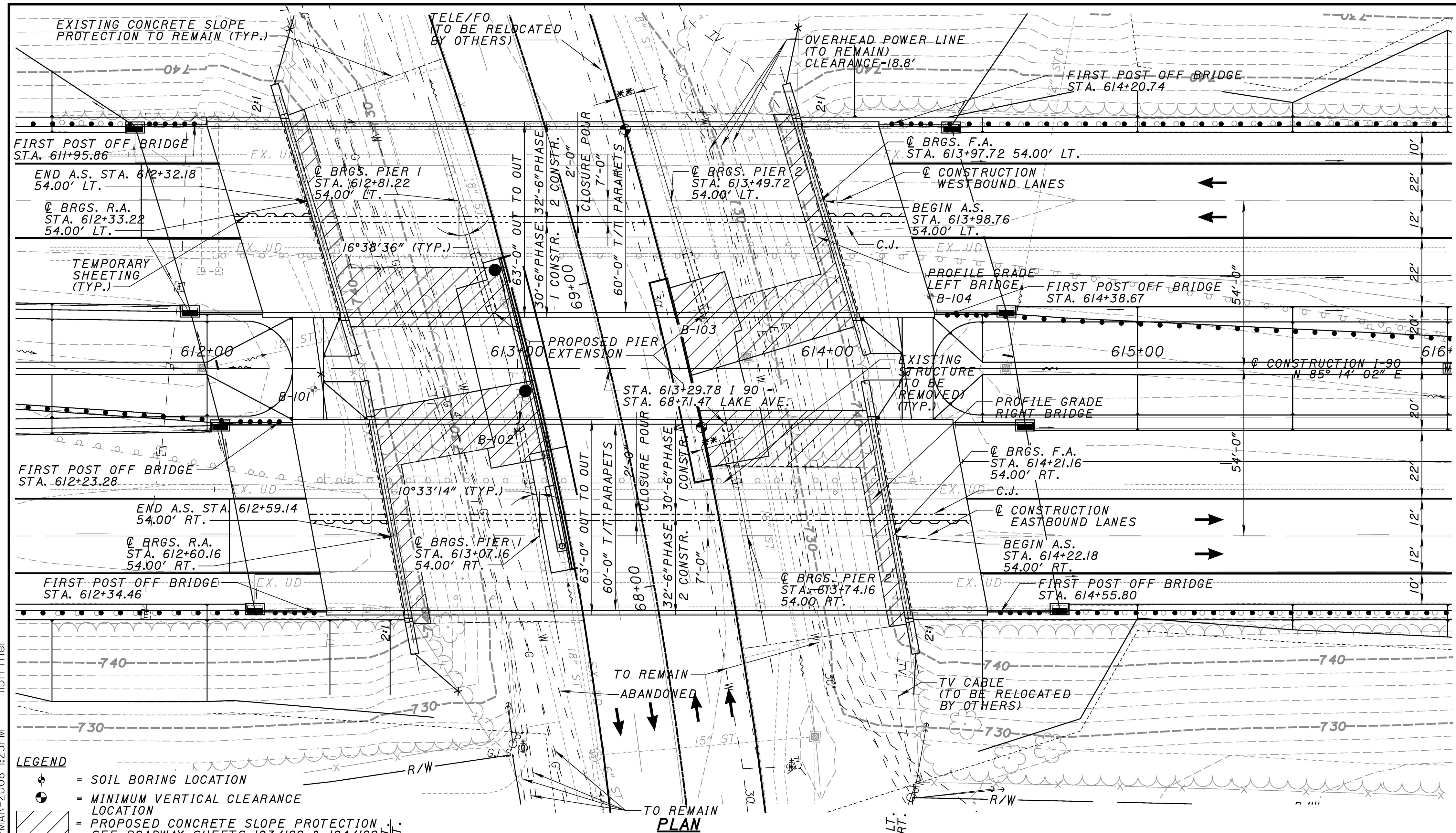


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SIGN 23S & 24S
 WB I-90 STA. 617+73.45
 PROPOSED OVERHEAD SIGNS
 ON PROPOSED SUPPORT TYPE TC-7.65 DESIGN #8
 WITH NEW FOUNDATION PER SCD TC-21.10,
 TC-7.65 DESIGN #8.

NOTE: VIEW IS LOOKING WEST

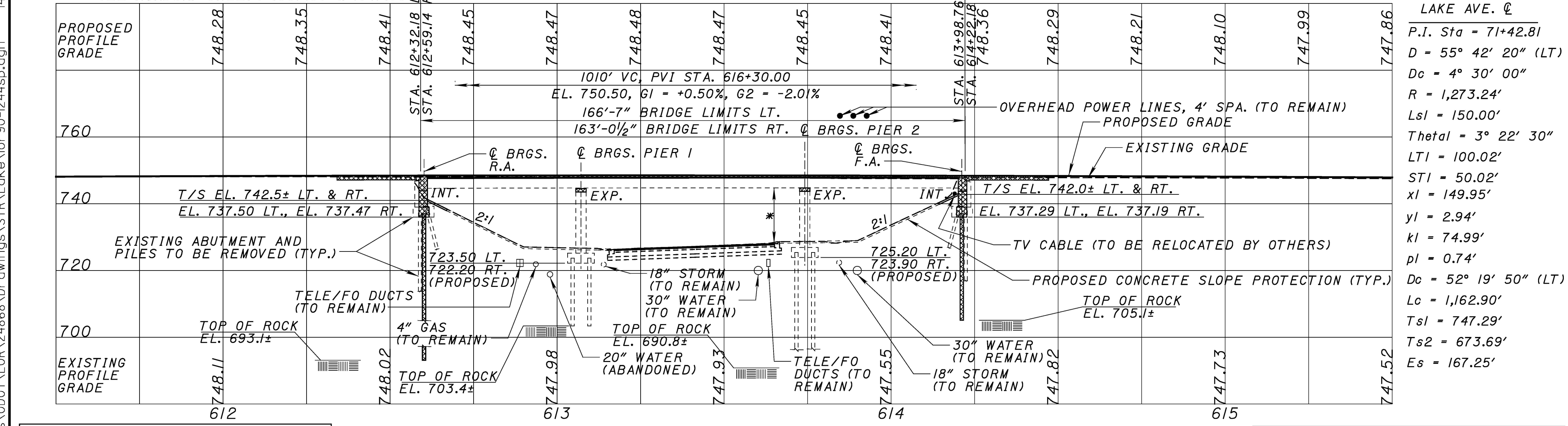


NOTE:
 EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
 FOR ABBREVIATIONS, SEE STRUCTURE NOTES SHEET 4/46

BENCHMARK DATA	
BENCHMARK 1:	DISK IN CONCRETE MONUMENT STA. 624+25.61 OFFSET 81.34 RT. EL. 732.118
BENCHMARK 2:	DISK IN CONCRETE MONUMENT STA. 616+43.18 OFFSET 81.06 RT. EL. 745.468
BENCHMARK 3:	DISK IN CONCRETE MONUMENT STA. 607+60.06 OFFSET 80.66 RT. EL. 743.874
FOUNDATION DATA	
ESTIMATED PILE LENGTH FOR HP 12x53 PILES -	
REAR ABUTMENT: 50' LT. 50' RT. PIER 1: 30' LT. 25' RT. PIER 2: 40' LT. 35' RT. FORWARD ABUTMENT: 35' LT. 55' RT.	
TRAFFIC DATA	
CURRENT ADT (2008)67530 DESIGN YEAR ADT (2028)87940 DESIGN YEAR ADTT (2028)17588	
EXISTING STRUCTURE	
SFN: 4704355L/4704444R	
TYPE: 3-SPAN CONTINUOUS STEEL BEAM WITH CONCRETE DECK AND SUBSTRUCTURE	
SPANS: 48'±, 68.5'±, 48'± C/C BRGS. LEFT 47'±, 67'±, 47'± C/C BRGS. RIGHT	
ROADWAY: 42'-0" f/f PARAPETS	
LOADING: CF-2000(57)	
WEARING SURFACE: 1" MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 25'± LONG	
SKEW: 16°40' R.F. LEFT DATE BUILT: 1967 10°40' R.F. RIGHT	
PROPOSED STRUCTURE	
PROPOSED WORK: REPLACE STRUCTURE WITH WIDENED 8 BEAM STRUCTURE.	
TYPE: 3-SPAN CONTINUOUS STEEL BEAM WITH COMPOSITE REINFORCED CONCRETE DECK. SUBSTRUCTURES ARE INTEGRAL ABUTMENTS AND CAP AND COLUMN PIERS.	
SPANS: 48'-0", 68'-6", 48'-0" C/C BRGS. LEFT 47'-0", 67'-0", 47'-0" C/C BRGS. RIGHT	
ROADWAY: 60'-0" f/f PARAPETS	
LOADING: HS-25 CASE I, ALTERNATE MILITARY LOADING, & 60 PSF FUTURE WEARING SURFACE	
WEARING SURFACE: 1" MONOLITHIC CONCRETE	
ALIGNMENT: TANGENT	
APPROACH SLABS: 25' LONG (AS-I-81)	
SKEW: 16°38'36" R.F. LEFT 10°33'14" R.F. RIGHT	
CROWN: 0.016	
LATITUDE: 41°24'11" LONGITUDE: 82°07'53"	

LEGEND

- ◆ - SOIL BORING LOCATION
- - MINIMUM VERTICAL CLEARANCE LOCATION
- ▨ - PROPOSED CONCRETE SLOPE PROTECTION SEE ROADWAY SHEETS 103/199 & 104/199



*** MINIMUM VERTICAL CLEARANCES**

	EASTBOUND	WESTBOUND
EXISTING	15.52	15.04
REQUIRED	15.50	15.50
PROPOSED	16.35	15.84

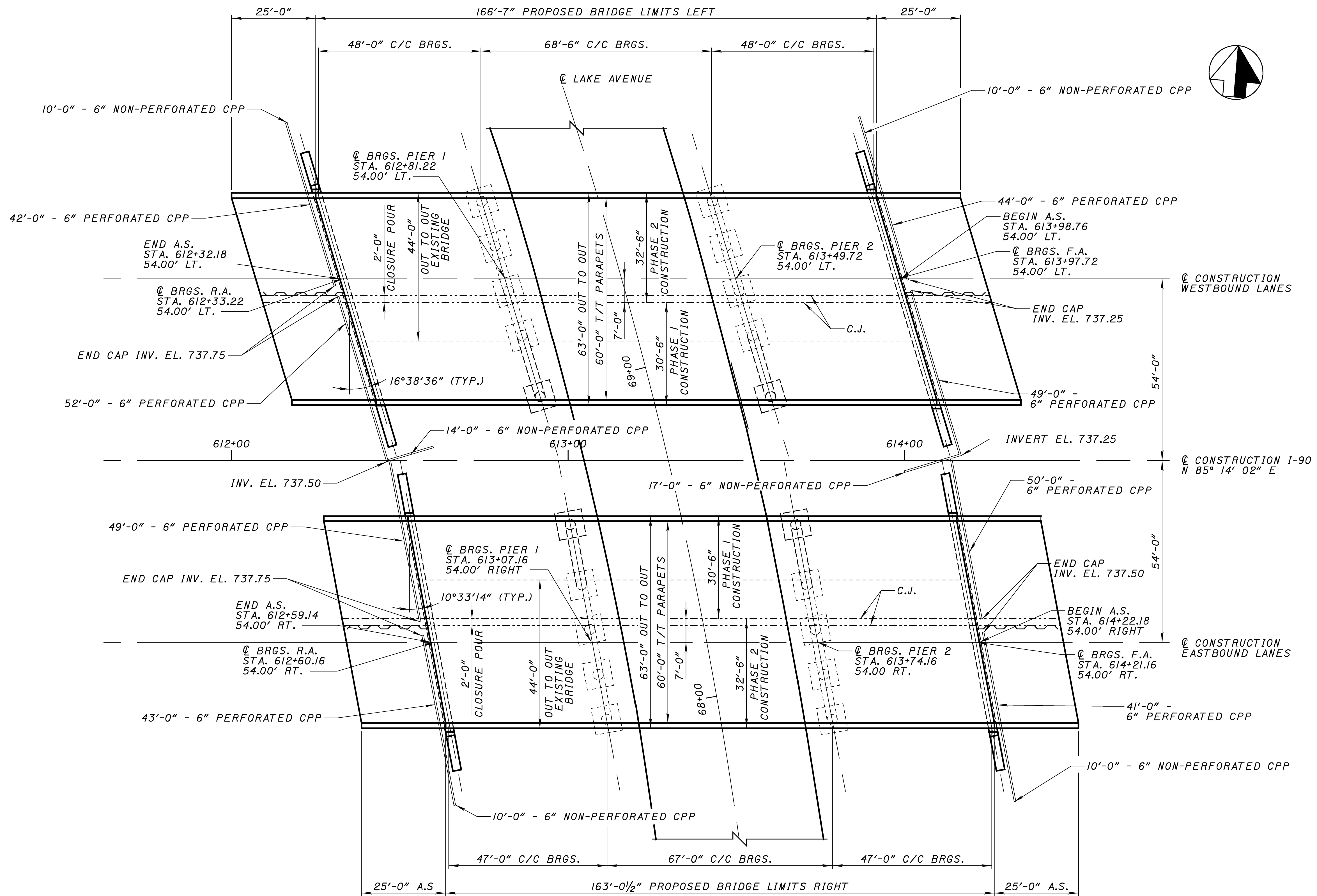
ELEVATION VIEW EASTBOUND STRUCTURE ALONG PROFILE GRADE LINE

**** MINIMUM HORIZONTAL CLEARANCES**

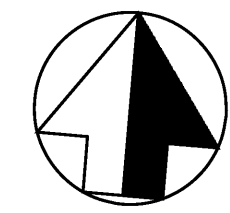
	LEFT BRIDGE	RIGHT BRIDGE
EXISTING	6.2'±	6.4'±
REQUIRED	1.5'	1.5'
PROPOSED	6.2'±	6.4'±

L:\Projects\000\T\LOR\24868\Drawings\STR\Lake\lor-90-1244sp.dgn 14-MAR-2008 1:23PM mbttnr

Baker
 1238 BUCKLAND AVENUE, SUITE 1050
 CLEVELAND, OHIO 44115
 DESIGN AGENCY
 DATE: 01-08-08
 REVIEWED: LPC
 DRAWN: MKB
 CHECKED: MKB
 DESIGNED: MKB
 FILE NUMBER: 4704355L/4704444R
 REVISED: MKB
 CHECKED: KAS
 DESIGNED: KAS
 LORAIN CO. STA. 612+32.18 LT. STA. 613+98.76 LT. STA. 612+59.14 RT. STA. 614+22.18 RT.
S I T E P L A N
 BRIDGE NO. LOR-90-1244 L/R
 I. R. 90 OVER LAKE AVENUE
LOR-90-12.42
PID 24868
 1/46
 114
 199



GENERAL PLAN



DESIGNED	DJB	CHECKED	SCT
DRAWN	DJB	REVISED	
REVIEWED	LPC	STRUCTURE FILE NUMBER	47043551/4704444R
DATE	01-07-08		

GENERAL PLAN
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-81 REVISED 7-19-02
GSD-1-96 REVISED 7-19-02
ICD-1-82 REVISED 7-19-02
PCB-91 REVISED 7-19-02
SBR-1-99 REVISED 7-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

800 DATED 1-18-08
843 DATED 4-18-03
892 DATED 4-15-05
898 DATED 7-21-06

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17TH ED. 2002, AND THE ODOT BRIDGE DESIGN MANUAL WITH REVISIONS THROUGH JULY 21, 2006.

DESIGN LOADING

HS25, CASE II AND THE ALTERNATE MILITARY LOADING
FUTURE WEARING SURFACE (FWS) OF 60 PSF.

DESIGN DATA

QC/QA CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4500 PSI
(SUPERSTRUCTURE)

QC/QA CONCRETE CLASS QSCI - COMPRESSIVE STRENGTH 4000 PSI
(SUBSTRUCTURE)

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

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

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2-1/2" CONCRETE COVER

MONOLITHIC WEARING SURFACE

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

UTILITY LINES

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

MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC FOR THE STRUCTURE WORK SHALL BE COORDINATED
WITH THE OVERALL PROJECT. REFER TO THE MAINTENANCE OF TRAFFIC NOTES
IN THE ROADWAY PLANS.

EXISTING STRUCTURE VERIFICATION

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

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

**ITEM 509 REINFORCING STEEL, REPLACEMENT OF EXISTING
REINFORCING STEEL, 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 OPERA-
TIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME
SIZE AT NO COST TO THE DEPARTMENT.

PROPOSED WORK

PHASE I

1. MOVE EASTBOUND I-90 TRAFFIC TO SOUTH SIDE OF RIGHT BRIDGE AND WESTBOUND I-90 TRAFFIC TO NORTH SIDE OF LEFT BRIDGE.
2. INSTALL TEMPORARY SHORING
3. REMOVE PORTIONS OF SUPERSTRUCTURE AND APPROACH SLABS ADJACENT TO I-90 MEDIAN.
4. REMOVE PORTIONS OF PIERS AS DETAILED IN THE PLANS.
5. REMOVE PORTIONS OF ABUTMENTS AS DETAILED IN THE PLANS.
6. CONSTRUCT PORTIONS OF PROPOSED ABUTMENTS AND PIERS ADJACENT TO I-90 MEDIAN.
7. CONSTRUCT PORTIONS OF PROPOSED SUPERSTRUCTURE ADJACENT TO I-90 MEDIAN.
8. BACKFILL, REMOVE UNNECESSARY SHORING CONSTRUCT PORTIONS OF PROPOSED APPROACH SLABS AND ROADWAY.

PHASE 2

1. MOVE EASTBOUND I-90 TRAFFIC TO NORTH SIDE OF RIGHT BRIDGE AND WESTBOUND I-90 TRAFFIC TO SOUTH SIDE OF LEFT BRIDGE.
2. INSTALL TEMPORARY SHORING.
3. REMOVE REMAINING PORTIONS OF EXISTING SUPERSTRUCTURE AND APPROACH SLABS.
4. REMOVE REMAINING PORTIONS OF EXISTING PIERS AND ABUTMENTS.
5. CONSTRUCT REMAINING PORTIONS OF ABUTMENTS.
6. CONSTRUCT REMAINING PORTIONS OF THE SUPERSTRUCTURE.
7. ATTACH CROSSFRAMES BETWEEN TWO HALVES OF STRUCTURE.
8. BACKFILL AND REMOVE SHORING.
9. CONSTRUCT REMAINING PORTIONS OF PROPOSED APPROACH SLABS.

OTHER WORK TO BE COORDINATED WITH CONSTRUCTION SEQUENCE:

1. SEALING OF CLOSURE POURS, PARAPETS, WINGWALLS, PIERS AND ABUTMENTS.

THE ABOVE IS A SUGGESTED CONSTRUCTION PROCEDURE. THE CONTRACTOR SHALL SUBMIT HIS PROPOSED CONSTRUCTION PROCEDURE AND SCHEDULE TO THE DIRECTOR FOR APPROVAL BEFORE BEGINNING CONSTRUCTION. NO CONSTRUCTION OPERATIONS WILL BE PERMITTED WITHOUT PRIOR APPROVAL.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF CONCRETE DECKS INCLUDING SIDEWALKS, PARAPETS, RAILINGS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSS FRAMES, ETC.). REMOVE STEEL SUPPORTING SYSTEM CONSISTING OF BEAMS, CROSSFRAMES, BEARINGS, AND OTHER MISCELLANEOUS ITEMS. REMOVE EXISTING ABUTMENTS COMPLETELY. REMOVE PORTION OF EXISTING PIER CAP. 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. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, PEDESTRIAN, BOAT, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE DIRECTOR AT LEAST 30 DAYS BEFORE CONSTRUCTION BEGINS. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. MAINTAIN TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

MEASUREMENT & PAYMENT: 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.

CUT LINE CONSTRUCTION JOINT PREPARATION (PIER CAPS ONLY)

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. 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.

SUBSTRUCTURE CONCRETE REMOVAL (PIER CAPS ONLY)

SUBSTRUCTURE CONCRETE REMOVAL: 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.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN: THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE TYPE B GRANULAR MATERIAL, 703.16.C, PLACED AND COMPACTED IN 6 INCH LIFTS. THIS MATERIAL SHALL ALSO BE USED FOR FILLING THE EXCAVATION VOID CREATED BY REMOVAL OF THE EXISTING ABUTMENTS.

PILE DRIVING CONSTRAINTS

PILE DRIVING CONSTRAINTS: PRIOR TO DRIVING PILES, CONSTRUCT THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 200' BEHIND EACH 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.

ITEM 898 QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898 - QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE APPROACH SLAB INCLUDING PARAPETS, REINFORCING STEEL, AND MECHANICAL CONNECTORS. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS.

\$DATE\$
\$FILE\$



DESIGNED	CDC	CHECKED	MKB
DRAWN	VLL	REVISED	
REVIEWED	LPC	STRUCTURE FILE NUMBER	4704355L/4704444R
DATE	01-07-08		

GENERAL NOTES SHEET 1 OF 8
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

ITEM 516 INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS

INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1-1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094 +/- 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D751	700 X 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D751	9
BURST STRENGTH, PSI MINIMUM	D751	1400
HEAT AGING, 70 HR, 212 DEGREES F, 180 DEGREES BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLINESS, 1 HR, 40 DEGREES F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

PILES TO BEDROCK

PILES TO BEDROCK: DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING HARD BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE ULTIMATE BEARING VALUE IS 96 TONS PER PILE FOR THE 52 ABUTMENT PILES. THE ULTIMATE BEARING VALUE IS 138 TONS PER PILE FOR THE 16 PIER PILES.

HPI2x53 PILES 55 FEET LONG, ORDER LENGTH LT. REAR ABUT.
 HPI2x53 PILES 55 FEET LONG, ORDER LENGTH RT. REAR ABUT.
 HPI2x53 PILES 40 FEET LONG, ORDER LENGTH LT. FWD. ABUT.
 HPI2x53 PILES 60 FEET LONG, ORDER LENGTH RT. FWD. ABUT.

HPI2x53 PILES 35 FEET LONG, ORDER LENGTH LT. REAR PIER.
 HPI2x53 PILES 30 FEET LONG, ORDER LENGTH RT. REAR PIER.
 HPI2x53 PILES 45 FEET LONG, ORDER LENGTH LT. FWD. PIER.
 HPI2x53 PILES 40 FEET LONG, ORDER LENGTH RT. FWD. PIER.

LEGEND:

- A.S. - APPROACH SLAB
- B.F.S. - BOLTED FIELD SPLICE
- BRGS. - BEARINGS
- BTM. - BOTTOM
- C/C - CENTER TO CENTER
- C.J. - CONSTRUCTION JOINT
- CLR. - CLEARANCE
- DIA. - DIAMETER
- E.F. - EACH FACE
- ELEV. - ELEVATION
- EQ. - EQUAL
- F.A. - FORWARD ABUTMENT
- F.F. - FAR FACE
- F/F - FACE TO FACE
- HMWM - HIGH MOLECULAR WEIGHT METHACRYLATE
- LT. - LEFT
- MAX. - MAXIMUM
- MIN. - MINIMUM
- N.F. - NEAR FACE
- NCPP - NON-PERFORATED CORRUGATED PLASTIC PIPE
- PCPP - PERFORATED CORRUGATED PLASTIC PIPE
- PEJF - PREFORMED EXPANSION JOINT FILLER
- R.A. - REAR ABUTMENT
- R.F. - RIGHT FORWARD
- RT. - RIGHT
- SPA. - SPACES
- STA. - STATION
- T/T - TOE TO TOE
- TYP. - TYPICAL
- W.P. - WORK POINT

ASBESTOS NOTIFICATION

AN ASBESTOS SURVEY OF THE BRIDGE SCHEDULED FOR REHABILITATION WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF THE DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO:

OHIO ENVIRONMENTAL PROTECTION AGENCY

AT LEAST TEN (10) WORKING DAYS PRIOR TO START OF THE BRIDGE DEMOLITION WORK. THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER.

INFORMATION REQUIRED ON THE FORM WILL INCLUDE: THE CONTRACTOR'S NAME AND ADDRESS, THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL OR RENOVATION AND A DESCRIPTION OF THE PLANNED DEMOLITION OR RENOVATION WORK AND THE METHOD(S) TO BE USED. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 3 OFFICE, 906 NORTH CLARK STREET, ASHLAND, OHIO 44805.

BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20' SPAN, AS PER PLAN.

ITEM SPECIAL - STRUCTURE MISC: CARBON FIBER COMPOSITE PIER CAP STRENGTHENING SYSTEM

THE WORK SHALL CONSIST OF THE REPAIR OF REINFORCED CONCRETE STRUCTURES AS DETAILED IN THE PLANS AND HEREIN SPECIFIED. SPECIFICALLY, THE WORK INCLUDES PROVIDING A PIER CAP SHEAR STRENGTHENING SYSTEM USING HIGH STRENGTH, HYBRID FIBER/EPOXY COMPOSITE FIELD MANUFACTURED AND APPLIED TO THE PIER CAPS. INCLUDED SHALL BE ALL NECESSARY ERECTION OF SCAFFOLDING AND OTHER ACCESS REQUIRED.

LOCATIONS IDENTIFIED IN THE PLANS ARE BASED ON THE SHEAR STRENGTHENING REQUIREMENTS AT THE TIME THE PLANS WERE PREPARED. THE CONTRACTOR AND ENGINEER SHALL REVIEW THE CONDITION OF THE STRUCTURE PRIOR TO THE START OF THE CONTRACT TO DETERMINE IF CHANGES IN THE LISTED SHEAR STRENGTHENING SHOULD BE MADE.

MATERIAL USED FOR THE CARBON COMPOSITE SHEAR STRENGTHENING SYSTEM SHALL BE POLYMER MATRIX COMPOSITE MATERIAL REINFORCED BY HIGH-MODULUS CARBON FIBERS. THE FABRIC FOR THE COMPOSITE SHEAR STRENGTHENING SYSTEM SHALL BE CONTINUOUS FILAMENT UNI-DIRECTIONAL MATERIAL. THE EPOXY SHALL BE SUPPLIED BY THE MANUFACTURER TO MEET THE MINIMUM COMPOSITE STRENGTH GIVEN BELOW. POLYESTER OR OTHER RESINS SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR EPOXY RESIN.

THE COMPOSITE OF THE PIER CAP SHEAR STRENGTHENING SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS:

PROPERTY	REQUIREMENT	ASTM TEST
ULTIMATE TENSILE STRENGTH IN PRIMARY DIRECTION BASED ON DESIGN THICKNESS	108,000 PSI	D3039
MINIMUM TENSILE STRENGTH AFTER 3000 HOURS OF EXPOSURE:		
100% HUMIDITY	97,200 PSI	C581
OZONE	97,200 PSI	D1149
SALT WATER	97,200 PSI	C581 & D1141
140 DEG F	97,200 PSI	D3045
ULTRA VIOLET (UV)	97,200 PSI	G53
ALKALI	97,200 PSI	C581
ELONGATION		
MIN	0.8%	D3039
MAX	1.4%	D3039

PROPERTY	REQUIREMENT	ASTM TEST
TENSILE MODULUS IN THE STRONG FIBER DIRECTION	9,300 KSI	D3039
VISUAL DEFECTS	ACCEPTANCE LEVEL III	D2563
FLAMMABILITY	5 SECONDS MAX.	D3801, PER TEST 10.5
COEFFICIENT OF THERMAL EXPANSION IN PRIMARY FIBER DIRECTION	3.6x10E6 PPM/DEG F (15%)	E1142

THE SUPPLIER SHALL BE APPROVED IN WRITING PRIOR TO THE BID DATE. SUPPLIERS NOT APPROVED PRIOR TO THE BID DATE WILL NOT BE CONSIDERED.

COMPOSITE PIER CAP SHEAR STRENGTHENING SUBMITTALS SHALL INCLUDE AT LEAST THE FOLLOWING:

THE SUPPLIER SHALL SUBMIT A MINIMUM OF 10 BEAM SHEAR STRENGTHENING INSTALLATIONS. THE SUPPLIER SHALL SUBMIT INDEPENDENT DURABILITY TESTING OF THE APPROVED COMPOSITE SYSTEM FOR 3000 HOURS AS SITED IN THE ABOVE TABLE. THE SUPPLIER SHALL FURNISH AN INTERNATIONAL CODE COMMITTEE/INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICC/ICBO) EVALUATION REPORT REFERENCING THE APPROVED MATERIAL AND THE APPLICATION TYPE.

THE INSTALLER OF THE COMPOSITE PIER CAP SYSTEM SHALL HAVE A MINIMUM OF 10 REFERENCES OF BEAMS STRENGTHENED WITHIN THE LAST TWO YEARS. REFERENCES SHALL INCLUDE SCOPE OF WORK, DATE OF COMPLETION AND CONTACT INFORMATION AT A MINIMUM. THE COMPOSITE SYSTEM INSTALLER SHALL BE CERTIFIED IN WRITING BY THE MATERIAL SUPPLIER TO COMPLETE THE WORK PER THE DETAILS AND PROJECT DRAWINGS.

THE PIER CAP SHEAR STRENGTHENING SYSTEM SHALL BE DESIGNED WITH A MAXIMUM STRAIN OF 0.004 TO PROVIDE A FACTORED ULTIMATE ADDITIONAL SHEAR STRENGTH OF 152 KIPS USING 0.85 AS THE SHEAR REDUCTION FACTOR.

THE CERTIFIED AND EXPERIENCED COMPOSITE INSTALLATION CONTRACTOR SHALL PROVIDE DETAILED DRAWINGS AND CALCULATIONS FOR THE COMPOSITE STRENGTHENING SYSTEM. CALCULATIONS SHALL BE PER ICC/ICBO ACI25 GUIDELINES AND SHALL BE STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF OHIO.

SURFACE PREPARATION SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

DELAMINATIONS AND SPALLS SHALL BE REPAIRED PRIOR TO THE APPLICATION OF THE COMPOSITE STRENGTHENING TO THE PIER CAPS. ANY EXISTING SHEAR CRACKS IN THE PIER SHALL BE EPOXY INJECTED AS REQUIRED PRIOR TO THE APPLICATION OF THE COMPOSITE SYSTEM. REPAIRS TO LAMINATIONS AND SPALLS SHALL BE MADE PER SP 519 - PATCHING OF CONCRETE STRUCTURES.

THE SURFACE SHALL BE PREPARED FOR BONDING BY SAND BLASTING, GRINDING, WATER BLASTING OR SIMILAR MECHANICAL METHOD SUGGESTED BY THE INSTALLATION CONTRACTOR. THE PROPOSED METHOD OF SURFACE PREPARATION SHALL BE CONDUCTED IN A 12" SQUARE AREA ON THE SURFACE OF THE PIER CAP, WITH A PRIMER LAYER OF EPOXY APPLIED OVER THE PREPARED AREA. THIS REPRESENTATIVE AREA WILL THEN BE TESTED USING ASTM D4541-98 TO VERIFY PROPER BOND STRENGTH (200 PSI MIN) OF THE EPOXY PRIMER TO THE PREPARED SUBSTRATE. WHEN REQUIRED STRENGTHS ARE VERIFIED, THE CONTRACTOR MAY CONTINUE THE APPLICATION OF THE COMPOSITE SYSTEM.

ALL EDGES OF THE PIER CAP THAT ARE TO RECEIVE THE CARBON COMPOSITE SYSTEM THAT ARE PERPENDICULAR TO THE STRONG FIBER DIRECTION SHALL BE ROUNDED BY GRINDING OR OTHER APPROVED METHOD TO A MINIMUM RADIUS OF 1/4" .

THE PIER CAP SHALL BE FREE OF FINS, SHARP EDGES OR PROTRUSIONS THAT WILL CAUSE VOIDS BEHIND THE CASING OR THAT, IN THE OPINION OF THE ENGINEER, WILL DAMAGE THE FIBER. SURFACES OF THE PIER CAP SHALL BE COMPLETELY DRY AT THE TIME OF COMPOSITE INSTALLATION. NEWLY REPAIRED OR PATCHED SURFACES THAT HAVE SET BUT NOT CURED A MINIMUM OF 7 DAYS SHALL BE COATED WITH A WATER-BASED EPOXY PAINT OR OTHER APPROVED SEALER. AFTER THE REPAIRS ARE COMPLETE AND CURED, THE CARBON COMPOSITE SYSTEM IS TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION AND PER THE DETAILS SHOWN IN THE PLANS.

APPLICATION OF THE FABRIC/EPOXY COMPOSITE SHALL CONFORM TO THE MANUFACTURER'S DIRECTIONS AND THE FOLLOWING REQUIREMENTS: THE AMBIENT TEMPERATURE AND THE TEMPERATURE OF THE EPOXY RESIN COMPONENTS SHALL BE BETWEEN 55 DEG F AND 95 DEG 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 DEG 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 INSURE COMPLETE SATURATION OF THE FABRIC.

A PRIMER OF EPOXY SHALL BE APPLIED TO THE PREPARED AND APPROVED CONCRETE SURFACE. THE FABRIC/EPOXY SHALL BE APPLIED TO THE PIER CAP BY METHODS THAT PRODUCE A UNIFORM TENSION IN THE FULL WIDTH OF THE COMPOSITE. THE PRIMARY FIBERS SHALL NOT DEVIATE FROM THE FIBER DIRECTION PER THE DETAILS SHOWN IN THE PLANS BY MORE THAN ONE-HALF INCH PER FOOT LENGTH OF COMPOSITE. ENTRAPPED AIR, EDGE DEFECTS, AND ANY OTHER ANOMALY THAT MAY AFFECT THE INTENDED PERFORMANCE OF THE INSTALLED COMPOSITE SYSTEM SHALL BE SMOOTHED PRIOR TO THE CURING OF THE EPOXY.

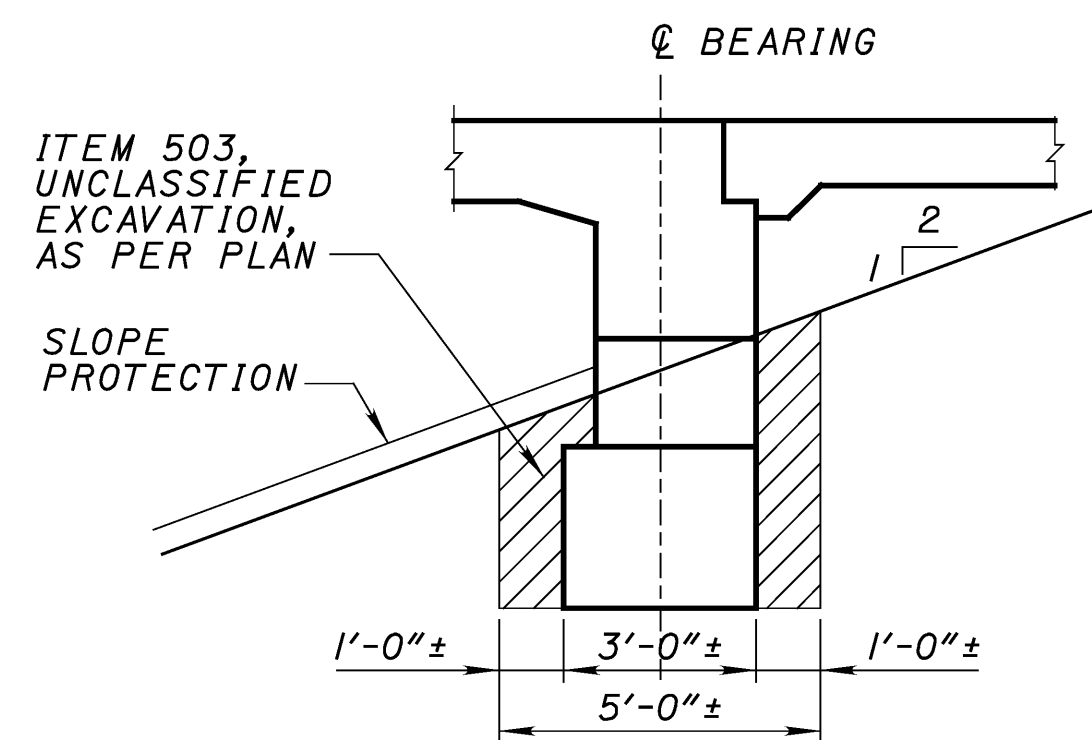
ANY OVERLAPS IN THE STRONG FIBER DIRECTION AS DESIGNATED BY THE DETAILS IN THE PLANS SHALL BE A MINIMUM OF TWELVE INCHES.

SUCCESSIVE LAYERS OF COMPOSITE MATERIALS SHALL BE PLACED BEFORE POLYMERIZATION OF THE PREVIOUS LAYER OF EPOXY IS TOO COMPLETE TO ACHIEVE BOND BETWEEN LAYERS. IF POLYMERIZATION CAN NOT BE AVOIDED, A LIGHT ABRASIVE MUST BE USED THAT WILL NOT DAMAGE THE INSTALLED FIBER TO PROVIDE ADEQUATE BONDING OF SUCCESSIVE LAYERS.

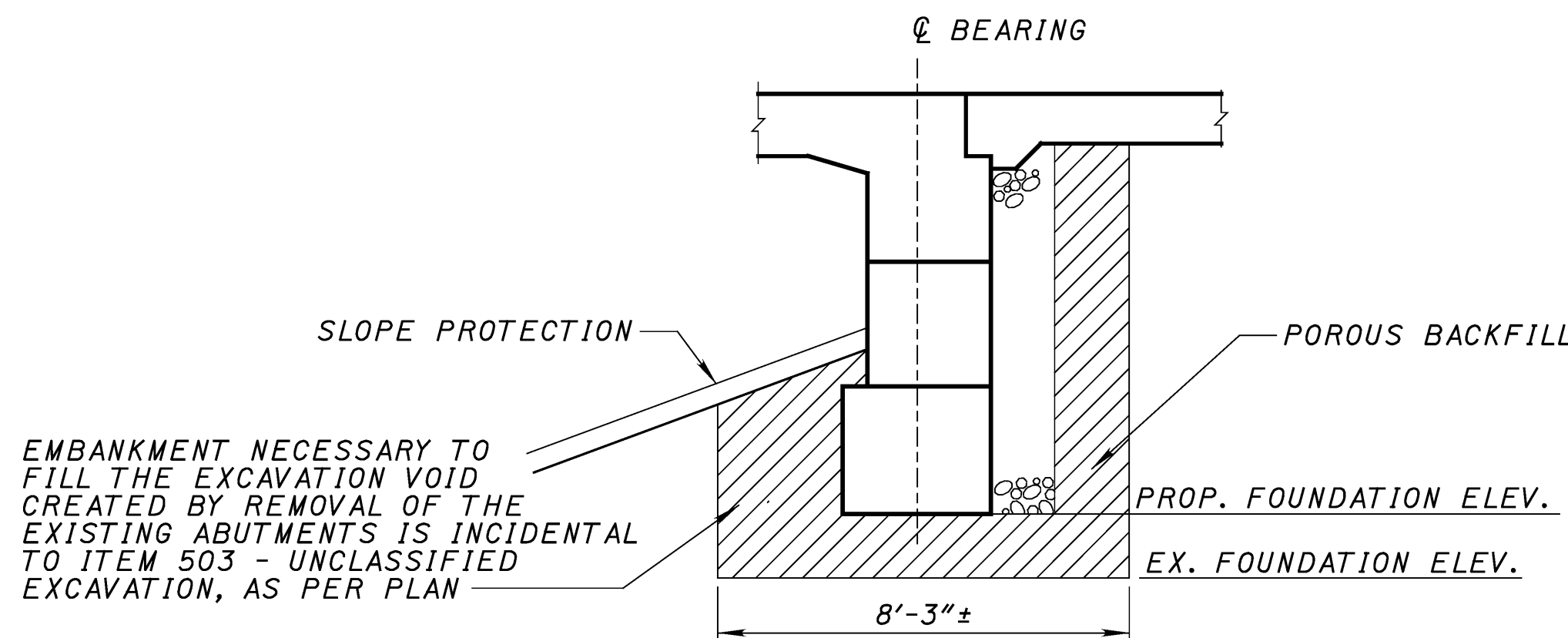
A FINAL LAYER OF EPOXY SHALL BE APPLIED TO THE FINAL LAYER OF INSTALLED COMPOSITE WITH CARE TAKEN TO ENSURE COATING OF ALL EDGES AND SEAMS. SPACES BETWEEN THE BANDS OF FABRIC SHALL BE FILLED WITH EPOXY THICKENED AS DIRECTED BY THE ENGINEER.

A FINAL COATING IS REQUIRED TO PROTECT THE INSTALLED COMPOSITE FROM THE ELEMENTS, SPECIFICALLY ULTRA VIOLET (UV) RADIATION AND TO GIVE THE FINAL AESTHETIC EFFECT. IF THE FINAL EPOXY COAT IS COMPLETELY POLYMERIZED THE EXTERIOR SURFACES OF THE INSTALLED COMPOSITE SYSTEM SHALL BE PAINTED WITH A SYSTEM COMPATIBLE URETHANE TOP COAT.

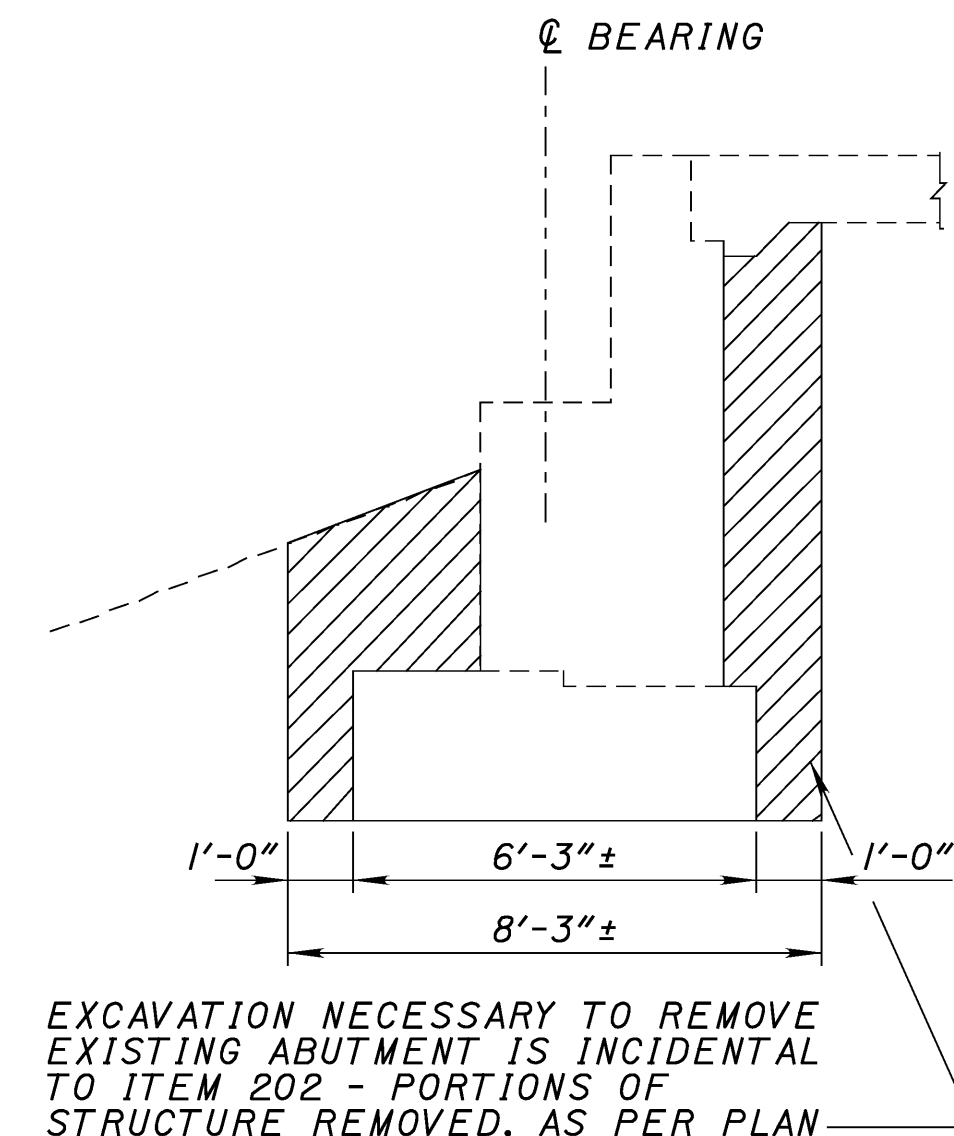
PAYMENT FOR ALL LABOR, EQUIPMENT, TOOLS, MATERIALS, INCLUDING ALL NECESSARY CARBON FIBER LAYERS, AND SERVICES REQUIRED FOR THIS WORK AS DETAILED ON THE PLANS AND HEREIN DESCRIBED SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE FOOT OF PIER SURFACE TO BE WRAPPED FOR ITEM SPECIAL - STRUCTURE MISC: CARBON FIBER COMPOSITE PIER CAP STRENGTHENING SYSTEM.



EXCAVATION DIAGRAM
PROPOSED CONSTRUCTION



EXCAVATION DIAGRAM
PROPOSED CONSTRUCTION AT REMOVAL LOCATIONS



EXCAVATION DIAGRAM
REMOVAL OF EXISTING ABUTMENT

ITEM 898 - QC/QA CONCRETE, CLASS QSC2 SUPERSTRUCTURE (PARAPET), AS PER PLAN

GENERAL REQUIREMENTS

THE PROVISIONS OF ITEM 598 SHALL APPLY EXCEPT AS NOTED BELOW.

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.

ANCHOR BOLTS FOR FENCE POSTS SHALL BE CAST IN PLACE.

PARAPET CONSTRUCTION (SLIP FORMED)

SLIP FORMING SHALL NOT BE PERFORMED DIRECTLY OVER AREAS WHERE THERE IS OR WILL BE VEHICULAR OR PEDESTRIAN TRAFFIC (WHICH INCLUDES RAILROADS AND WATER CRAFTS). AT THESE LOCATIONS, THE PARAPETS SHALL BE FORMED AND POURED.

THE CONTRACTOR IS ONLY ALLOWED THE OPTION OF SLIP FORMING BRIDGE PARAPETS OVER NON TRAVELED WAYS, AND ONLY AFTER THE SUCCESSFUL COMPLETION OF A TEST SECTION TWENTY FEET LONG. A MINIMUM OF 3 DAYS AFTER PLACING THE TEST SECTION, THE CONTRACTOR SHALL CORE THE TEST SECTION (A MINIMUM OF 3 CORES) AT LOCATIONS AS DIRECTED BY THE ENGINEER. APPROVAL TO SLIP FORM SHALL NOT BE GRANTED UNTIL AFTER THE CORING AND AFTER A SUCCESSFUL SLIP FORMING RESULT IS OBTAINED.

IN ADDITION TO THE REQUIREMENTS OF THE LAST PARAGRAPH OF 511.11 THE ENGINEER WILL INSPECT THE SLIP FORMED SURFACE FOR HORIZONTAL CRACKING 6 MONTHS AFTER COMPLETION OF THE SLIP FORMING OPERATION. ANY ADDITIONAL CRACKS FOUND SHALL BE REPAIRED AS PER THE SPECIFICATIONS AT NO ADDITIONAL COST TO THE STATE.

ALL ANCHOR BOLTS FOR FENCE POSTS SHALL BE CAST IN PLACE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF SLIP FORMED CONCRETE PARAPETS SHALL BE 1 INCH, WITH A MAXIMUM SLUMP OF 1/2 INCHES.

THE WATER CEMENT RATIO FOR SLIP FORMED PARAPETS SHALL NOT BE LESS THAN THE WATER CEMENT RATIO USED FOR THE DECK CONCRETE. REDUCE SLUMP BY LIMITING THE USE OF SUPERPLASTICIZERS.

CONCRETE PARAPETS

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1-1/4" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AT A MINIMUM OF 6 FEET AND A MAXIMUM OF 10 FEET CENTERS. USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH. SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

BASIS OF PAYMENT

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

ITEM	UNITS	DESCRIPTION
892E10200	CUBIC YARD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY
898E11001	CUBIC YARD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPETS), AS PER PLAN

VALUE ENGINEERING CHANGE PROPOSALS (VECP)

VECP THAT CHANGE THE STEEL SUPERSTRUCTURE TO A PRESTRESSED CONCRETE / CONCRETE SUPERSTRUCTURE WILL NOT BE ACCEPTED.

\$DATE\$
\$FILE\$



DESIGNED	CDC	CHECKED	MKB
DRAWN	VLL	REVISED	
REVIEWED	LPC	STRUCTURE FILE NUMBER	47043551/4704444R
DATE	01-07-08		

GENERAL NOTES SHEET 4 OF 8
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

4B/46

117B
199

ITEM SPECIAL - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL

DESCRIPTION

THIS SPECIFICATION COVERS SHOP CLEANING AND SHOPAPPLICATION OF A 3 COAT PAINT SYSTEM ON ITEM 513 -STRUCTURAL STEEL, AND THE FIELD CLEANING AND REPAIR OF SURFACES DAMAGED IN SHIPPING, HANDLING, AND ERECTING THE STRUCTURAL STEEL AND ANY OTHER DAMAGES DURING CONSTRUCTION.

THIS SPECIFICATION SHALL ALSO INCLUDE THE GALVANIZING AS PER CMS 711.02 OF ALL NUTS, WASHERS, BOLTS, ANCHOR BOLTS, AND ALL OTHER STRUCTURAL MEMBERS DESIGNATED IN THE PLANS.

MATERIAL

A. A THREE COAT PAINT SYSTEM CONSISTING OF AN

ORGANIC ZINC PRIME COAT

EPOXY INTERMEDIATE COAT

URETHANE FINISH COAT

AND MEETING THE REQUIREMENTS OF CMS 708.02 ENTITLED "OZEU STRUCTURAL STEEL PAINT".

B. INORGANIC ZINC SILICATE PRIMER PAINT, FOR THE BOLTED FAYING SURFACES, MEETING THE REQUIREMENTS OF CMS 708.01. (SEE "TREATMENT OF FAYING SURFACES", UNDER COATING APPLICATIONS FOR USE)

C. A TIE COAT CONSISTING OF AN EPOXY INTERMEDIATE COAT, MEETING THE REQUIREMENTS CMS 708.02 - C "EPOXY INTERMEDIATE COAT" AND THINNED 50% BY VOLUME, WITH A THINNER AS RECOMMENDED BY THE PAINT MANUFACTURER.

APPROVED PAINT, ITEMS A AND C, SHALL BE FROM ONE MANUFACTURER, REGARDLESS OF SHOP OR FIELD APPLICATION.

APPROVED PAINT, ITEM B, MAY BE FROM A DIFFERENT MANUFACTURER THAN ITEMS A AND C. ITEM B PAINT USED SHALL BE FROM THE SAME MANUFACTURER FOR BOTH SHOP APPLICATION AND FIELD TOUCH-UP.

PRE-PAINT CONFERENCE

IF DESIGNATED ON THE PLAN A PRE-PAINT CONFERENCE SHALL BE HELD SEPARATELY FROM THE PRE-CONSTRUCTION MEETING. ATTENDEES TO THIS MEETING SHALL INCLUDE THE GENERAL CONTRACTOR, PAINT CONTRACTOR, STRUCTURAL STEEL ERECTOR, FABRICATOR, QUALITY CONTROL SPECIALIST, ENGINEER, STRUCTURAL STEEL ENGINEER, AND OTHERS IF REQUIRED IN THE PLAN.

THE MEETING SHALL TAKE PLACE BEFORE THE STEEL IS FABRICATED OR PAINTED.

QUALITY CONTROL SPECIALISTS

THIS PERSON WILL NOT BE A FOREMAN OR MEMBER OF THE CONTRACTOR'S OR FABRICATOR'S PRODUCTION STAFF (I.E. HE WILL NOT ABRASIVE BLAST, PAINT, RECOVER SPENT ABRASIVES, ETC.). HE WILL NOT BE INVOLVED IN ANY OTHER MISCELLANEOUS TASK (I.E. MIXING PAINT, RUNNING ERRANDS, RUNNING OR WORKING ON EQUIPMENT, ETC.). DOCUMENTATION THAT PERSONNEL PERFORMING QUALITY CONTROL RELATED FUNCTIONS ARE QUALIFIED SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO ALLOWING THE QUALITY CONTROL SPECIALIST (QCS) TO BEGIN WORK. DOCUMENTATION/VERIFICATION SHALL BE PROVIDED TO THE ENGINEER THAT THE QCS HAS RECEIVED FORMAL TRAINING FROM ONE OF THE FOLLOWING: KTA TATOR, S.G. PINNEY, OR CORROSION CONTROL CONSULTANTS. HE SHALL BE EQUIPPED WITH MATERIAL SAFETY DATA SHEETS, TOOLS AND EQUIPMENT TO PROVIDE QUALITY CONTROL ON ALL FACETS OF THE WORK AND SHALL HAVE A THOROUGH UNDERSTANDING OF THE PLANS AND SPECIFICATIONS PERTAINING TO THIS PROJECT. HE SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL WORK IS DONE WITHIN THE SPECIFIED WORK LIMITATION. HE SHALL COOPERATE WITH THE INSPECTOR AND COMPARE AND DOCUMENT QUALITY CONTROL READINGS. HE SHALL HAVE THE AUTHORITY TO STOP WORK AND THE RESPONSIBILITY TO INFORM THE CONTRACTOR'S OR FABRICATOR'S FOREMAN OF NON-CONFORMING WORK.

QUALITY CONTROL SPECIALISTS WILL BE REQUIRED IN THE SHOP AND IN THE FIELD. BEFORE FABRICATION THE FABRICATOR SHALL DESIGNATE ONE INDIVIDUAL FOR EACH SHOP AS A QUALITY CONTROL SPECIALIST. AT THE PRE-CONSTRUCTION OR PRE-PAINT MEETING, THE CONTRACTOR SHALL ALSO DESIGNATE ONE INDIVIDUAL ON EACH PROJECT AS A QUALITY CONTROL SPECIALIST (ONLY ONE PERSON PER PROJECT WILL BE NECESSARY UNLESS THE CONTRACTOR IS WORKING AT MORE THAN THREE (3) SITES SIMULTANEOUSLY). IT WILL THEN BE NECESSARY TO PROVIDE AN ADDITIONAL QUALITY CONTROL SPECIALIST AND A SET OF TESTING EQUIPMENT AS DESCRIBED IN THE EQUIPMENT SECTION FOR EACH ADDITIONAL THREE (3) SITES BEING PAINTED SIMULTANEOUSLY.

QUALITY CONTROL POINTS

QUALITY CONTROL POINTS (QCP) ARE POINTS IN TIME WHEN ONE PHASE OF THE WORK IS COMPLETE AND READY FOR INSPECTION BY THE CONTRACTOR OR FABRICATOR AND THE STRUCTURAL STEEL ENGINEER OR THE ENGINEER PRIOR TO CONTINUING WITH THE NEXT OPERATIONAL STEP. AT THESE POINTS: THE CONTRACTOR OR FABRICATOR SHALL AFFORD ACCESS TO INSPECT ALL AFFECTED SURFACES. IF INSPECTION INDICATES A DEFICIENCY, THAT PHASE OF THE WORK SHALL BE CORRECTED IN ACCORDANCE WITH THESE SPECIFICATIONS PRIOR TO BEGINNING THE NEXT PHASE OF WORK. DISCOVERY OF DEFECTIVE WORK OR MATERIAL AFTER A QUALITY CONTROL POINT IS PAST OR FAILURE OF THE FINAL PRODUCT BEFORE FINAL ACCEPTANCE, SHALL NOT IN ANY WAY PREVENT REJECTION OR OBLIGATE THE STATE OF OHIO TO FINAL ACCEPTANCE.

QUALITY CONTROL POINTS (QCP)(PURPOSE)

1.) WASHING - REMOVE WATER SOLUBLE OIL, GREASE, SALT, DIRT, ETC.

2.) SOLVENT CLEANING - REMOVE ASPHALTIC CEMENT, OIL, GREASE, SALT, DIRT, ETC., NOT REMOVED DURING WASHING

3.) GRINDING EDGES - GRINDING EDGES REQUIRED.

4.) ABRASIVE BLASTING - BLAST SURFACE TO RECEIVE PAINT

5.) PRIME COAT APPLICATION - CHECK SURFACE CLEANLINESS, APPLY PRIME COAT, CHECK COATING THICKNESS

6.) INTERMEDIATE COAT - CHECK SURFACE CLEANLINESS, APPLY INTERMEDIATE COAT, CHECK COATING THICKNESS

7.) FINISH COAT APPLICATION - CHECK SURFACE CLEANLINESS, APPLY FINISH COAT, CHECK COATING THICKNESS

8.) VISUAL INSPECTION - VISUALLY INSPECT PAINT BEFORE SHIPMENT OF STEEL AND CHECK TOTAL SYSTEM THICKNESS

9.) REPAIR OF DAMAGED AREAS - CHECK FOR DAMAGED AREAS AFTER COMPLETION OF STRUCTURE AND REPEAT QCP 1-7 FOR DAMAGED AREAS

10.) FINAL REVIEW - WASH STRUCTURE AS PER QCP #1. VISUALLY INSPECT SYSTEM FOR ACCEPTANCE AND CHECK TOTAL SYSTEM THICKNESS

SURFACE PREPARATION

THIS ITEM SHALL CONSIST OF WASHING, SOLVENT CLEANING, AND ABRASIVE CLEANING OF STRUCTURAL STEEL MEMBERS.

WASHING (QCP #1)

PRIOR TO ABRASIVE BLASTING, ALL SURFACES TO BE PAINTED SHALL BE WASHED WITH POTABLE WATER HAVING A NOZZLE PRESSURE OF AT LEAST 1000 PSI AND A DELIVERY RATE OF NOT LESS THAN 4 GALLONS PER MINUTE. (QCP #1) THE CONTRACTOR OR FABRICATOR SHALL PROVIDE EQUIPMENT SPECIFICATIONS TO VERIFY THE ABOVE. THE EQUIPMENT SHALL ALSO BE EQUIPPED WITH GAUGES TO VERIFY THE PRESSURE. THE WATER SHALL CONTAIN TRI-SODIUM PHOSPHATE DETERGENT AT A RATE OF 2 OUNCES (BY WEIGHT) PER GALLON OF TECHNICAL GRADE, HYDRATED WATER (MINIMUM) TO REMOVE WATER SOLUBLE OIL, GREASE, SALT AND DIRT. BEFORE THE SURFACES DRY, THE BRIDGE OR STRUCTURAL STEEL MEMBER SHALL BE RINSED TO REMOVE ALL REMAINING DETERGENT. THE NOZZLE SHALL BE HELD AT A MAXIMUM OF TWELVE (12) INCHES FROM THE SURFACE BEING WASHED OR RINSED. SURFACES SHALL NOT BE CONSIDERED AS CLEAN UNTIL CLEAR RINSE WATER RUNS OFF THE STRUCTURE. AFTER THE SURFACE IS RINSED AND ALLOWED TO DRY, IT SHALL BE CHECKED FOR REMAINING VISIBLE DIRT. SURFACES SHALL BE REWASHED AND RINSED AS NECESSARY TO REMOVE ALL REMAINING DIRT. THE FINISH COAT SHALL BE APPLIED WITHIN THREE (3) MONTHS OF WASHING THE STRUCTURE OR STRUCTURAL STEEL MEMBER.

SOLVENT CLEANING (QCP #2)

AFTER WASHING, ALL TRACES OF ASPHALTIC CEMENT, OIL, GREASE, DIESEL FUEL DEPOSITS, AND OTHER SOLUBLE CONTAMINANTS WHICH REMAIN, SHALL BE REMOVED BY SOLVENT CLEANING (QCP #2) (SEE SSPC-SP 1 SOLVENT CLEANING FOR RECOMMENDED PRACTICES). UNDER NO CIRCUMSTANCES SHALL ANY ABRASIVE BLASTING BE DONE TO AREAS WITH ASPHALTIC CEMENT, OIL, GREASE, OR DIESEL FUEL DEPOSITS. ALL SOLVENT CLEANED AREAS SHALL BE REWASHED AS PREVIOUSLY NOTED.

GRINDING EDGES (QCP #3)

THE EDGES OF ALL STEEL SHALL BE ROUNDED IN ACCORDANCE WITH AWS D1.5 SECTION 3.2.9 BEFORE ABRASIVE BLASTING.

ABRASIVE BLASTING (QCP #4)

ALL STEEL TO BE PAINTED SHALL BE BLAST CLEANED ACCORDING TO SSPC-SPI0 (NEAR-WHITE BLAST) AS SHOWN IN SSPC-VIS 1-89 (PICTORIAL SURFACE PREPARATION STANDARDS FOR PAINTING STEEL SURFACES). STEEL SHALL BE MAINTAINED IN A BLAST CLEANED CONDITION UNTIL IT HAS RECEIVED A PRIME COAT OF PAINT.

DURING SHOP APPLICATION AND FIELD TOUCH-UP, GALVANIZED STEEL (INCLUDING CORRUGATED STEEL BRIDGE FLOORING), ADJACENT CONCRETE, EXISTING PAINTED SURFACE AND OTHER SURFACES NOT INTENDED TO BE PAINTED, SHALL BE MASKED TO PREVENT DAMAGE FROM ABRASIVE BLASTING AND PAINTING OPERATIONS.

THE ABRASIVE SHALL BE A RECYCLABLE STEEL GRIT. AFTER EACH USE AND PRIOR TO EACH REUSE, THE STEEL GRIT SHALL BE CLEANED OF PAINT CHIPS, RUST, MILL SCALE AND OTHER FOREIGN MATERIAL BY EQUIPMENT SPECIFICALLY DESIGNED FOR SUCH CLEANING.

THE SURFACE PROFILE SHALL BE A MINIMUM OF ONE (1) MILS AND A MAXIMUM OF THREE AND ONE-HALF (3.5) MILS. ABRASIVES OF A SIZE SUITABLE TO DEVELOP THE REQUIRED SURFACE PROFILE SHALL BE USED. ANY ABRASIVE BLASTING WHICH IS DONE WHEN THE STEEL TEMPERATURE IS LESS THAN FIVE (5) DEGREES ABOVE THE DEW POINT SHALL BE REBLASTED WHEN THE STEEL TEMPERATURE IS FIVE (5) DEGREES ABOVE THE DEW POINT. DEW POINT SHALL BE DEFINED AS THE TEMPERATURE AT WHICH MOISTURE CONDENSES ON THE STEEL SURFACES.

ALL FINS, TEARS, SLIVERS, AND BURRED OR SHARP EDGES THAT ARE PRESENT ON ANY STEEL MEMBER AFTER BLASTING SHALL BE REMOVED BY GRINDING AND THE AREA REBLASTED.

ALL ABRASIVES AND RESIDUE SHALL BE REMOVED FROM SURFACES TO BE PAINTED WITH A VACUUM SYSTEM EQUIPPED WITH A BRUSH-TYPE CLEANING TOOL. ALL STEEL BLAST CLEANED IN ANY ONE DAY SHALL BE KEPT DUST FREE AND PRIME COATED THE SAME DAY. FAILURE TO PRIME COAT THE SAME DAY WILL REQUIRE REBLASTING BEFORE PRIME COATING. NO DUST OR ABRASIVES FROM ADJACENT WORK SHALL BE LEFT ON THE FINISH COAT.

THE QUALITY CONTROL SPECIALIST SHALL PERFORM THE FOLLOWING TEST (AND THE INSPECTOR WILL VERIFY) TO ENSURE THAT THE AIR IS NOT CONTAMINATED: BLOW AIR FROM THE NOZZLE OR THIRTY (30) SECONDS ONTO A WHITE CLOTH OR BLOTTER HELD IN A RIGID FRAME. IF ANY OIL OR OTHER CONTAMINANTS ARE PRESENT ON THE CLOTH OR BLOTTER, ABRASIVE BLASTING SHALL BE SUSPENDED UNTIL THE PROBLEM IS CORRECTED AND VERIFIED BY ANOTHER TEST. THIS TEST SHALL BE DONE AT THE START OF EACH SHIFT AND AT FOUR (4) HOUR INTERVALS.

ABRASIVE BLASTING AND PAINTING MAY TAKE PLACE SIMULTANEOUSLY ON ANY ONE BRIDGE AS LONG AS ABRASIVE BLASTING DEBRIS AND/OR DUST CREATED BY THE BLOWING OPERATION DOES NOT COME IN CONTACT WITH FRESHLY PAINTED SURFACES.

THE CONTRACTOR SHALL REMOVE ALL BLASTING RESIDUES FROM THE ROADWAY, PEDESTRIAN WALKWAYS, GUTTERS AND OTHER DRAINAGE FACILITIES AT THE END OF EACH DAY'S WORK. CARE SHALL BE TAKEN TO KEEP ALL BLASTING RESIDUES OUT OF DRAINS OR CATCH BASINS. NEARBY DRAINS AND CATCH BASINS SHALL BE COVERED DURING BLASTING OPERATIONS. BLASTING RESIDUE SHALL NOT BE PERMITTED ON SURFACES WHICH ARE BEING USED BY VEHICLES OR PEDESTRIANS. THE BLASTING RESIDUES SHALL BE DISPOSED OF OUTSIDE THE HIGHWAY RIGHT-OF-WAY.

TESTING EQUIPMENT

BOTH THE CONTRACTOR FOR THE FIELD APPLICATION AND THE FABRICATOR FOR SHOP APPLICATION, SHALL PROVIDE AND ASSIGN TO THE ENGINEER THE FOLLOWING TESTING EQUIPMENT IN GOOD WORKING ORDER, FOR THE DURATION OF THE PROJECT, ONE (1) SET OF TESTING EQUIPMENT FOR EACH QUALITY CONTROL SPECIALIST. THESE SHALL BE SEPARATE SETS FROM THOSE THE CONTRACTOR OR FABRICATOR PROVIDES FOR THE QUALITY CONTROL SPECIALIST.

EACH QUALITY CONTROL SPECIALIST SHALL HAVE HIS OWN TESTING EQUIPMENT. WHEN NO TEST EQUIPMENT IS AVAILABLE, NO WORK SHALL BE PERFORMED.

- ONE (1) SPRING MICROMETER AND 1 ROLL OF COARSE AND 3 (UNLESS OTHERWISE SPECIFIED ON THE PLANS) ROLLS OF EXTRA-COARSE REPLICA TAPE.
- ONE (1) POSITECTOR 2000-6000, QUANIX 2200, OR ELCOMETER (A345FB11) AND THECALIBRATION PLATES AS PER THE NBS CALIBRATION STANDARDS IN ACCORDANCE WITH ASTM D-1186.
- ONE (1) SLING PSYCHROMETER INCLUDING PSYCHOMETRIC TABLES USED TO CALCULATE RELATIVE HUMIDITY AND DEW POINT TEMPERATURES.
- TWO (2) STEEL SURFACE THERMOMETERS ACCURATE WITHIN 2 DEGREES.
- FLASHLIGHT 2-D CELL.
- SSPC VISUAL STANDARD FOR ABRASIVE BLAST CLEANED STEEL SSPC-VIS 1-89.
- ONE (1) RECORDER THERMOMETER CAPABLE OF RECORDING THE DATE, TIME, AND TEMPERATURE OVER A PERIOD OF AT LEAST 12 HOURS.

HANDLING

ALL PAINT AND THINNER SHALL BE DELIVERED TO THE PROJECT SITE OR FABRICATOR'S SHOP IN ORIGINAL, UNOPENED CONTAINERS WITH LABELS INTACT. MINOR DAMAGE TO CONTAINERS IS ACCEPTABLE PROVIDED THE CONTAINER HAS NOT BEEN PUNCTURED. THINNER CONTAINERS SHALL BE A MAXIMUM OF FIVE (5) GALLONS.

PAINT SHALL BE STORED AT THE TEMPERATURE RECOMMENDED BY THE MANUFACTURER TO PREVENT PAINT DETERIORATION.

EACH CONTAINER OF PAINT AND THINNER SHALL BE CLEARLY MARKED OR LABELED TO SHOW PAINT IDENTIFICATION, COMPONENT, COLOR, LOT NUMBER, STOCK NUMBER, DATE OF MANUFACTURE, AND INFORMATION AND WARNINGS AS MAY BE REQUIRED BY FEDERAL AND STATE LAWS. ALL CONTAINERS OF PAINT AND THINNER SHALL REMAIN UNOPENED UNTIL REQUIRED FOR USE. THE LABEL INFORMATION SHALL BE LEGIBLE AND SHALL BE CHECKED AT TIME OF USE.

SOLVENT USED FOR CLEANING EQUIPMENT IS EXEMPT FROM THE ABOVE REQUIREMENTS.

PAINT WHICH HAS LIVERED, GELLED OR OTHERWISE DETERIORATED DURING STORAGE SHALL NOT BE USED. HOWEVER, THIXOTROPIC MATERIALS WHICH CAN BE STIRRED TO ATTAIN NORMAL CONSISTENCY MAY BE USED.

THE OLDEST PAINT OF EACH KIND SHALL BE USED FIRST. NO PAINT SHALL BE USED WHICH HAS SURPASSED ITS SHELF LIFE.

PAINT MAY BE CONSIDERED AS ELIGIBLE FOR PAYMENT FOR MATERIAL ON HAND AS SPECIFIED IN CMS 109.10. HOWEVER, ONLY PAINT WHICH THE CONTRACTOR CAN PROVE TO THE ENGINEER WILL BE USED DURING THE CONSTRUCTION SEASON SHALL BE ELIGIBLE FOR PAYMENT. THE CONTRACTOR SHALL PROVIDE THE ENGINEER CALCULATIONS INDICATING THE TOTAL SQUARE FEET OF STEEL TO BE PAINTED DURING THE CONSTRUCTION SEASON. HE SHALL ALSO PROVIDE CALCULATIONS SHOWING THE TOTAL NUMBER OF GALLONS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE TO STORE THE PAINT ON THE PROJECT IN SUCH MANNER TO PREVENT THEFT AND ADVERSE TEMPERATURES. HE SHALL PROVIDE THERMOMETERS CAPABLE OF MONITORING THE MAXIMUM HIGH AND LOW TEMPERATURES WITHIN THE STORAGE FACILITY. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL UNUSED PAINT AND PAINT CONTAINERS.

THE CONTRACTOR SHALL FURNISH SHIPPING INVOICES FOR ALL MATERIALS USED ON THE PROJECT TO THE ENGINEER PRIOR TO USE.

MIXING AND THINNING

ALL INGREDIENTS IN ANY CONTAINER OF PAINT SHALL BE THOROUGHLY MIXED IMMEDIATELY BEFORE USE AND SHALL BE AGITATED OFTEN ENOUGH DURING APPLICATION TO MAINTAIN A UNIFORM COMPOSITION; HOWEVER, THE PRIMER SHALL BE CONTINUOUSLY MIXED BY AN AUTOMATED AGITATION SYSTEM (HAND HELD MIXERS ARE NOT ALLOWED). PAINT SHALL BE CAREFULLY EXAMINED AFTER MIXING FOR UNIFORMITY AND TO VERIFY THAT NO UNMIXED PIGMENT REMAINS ON THE BOTTOM OF THE CONTAINER. THE PAINT SHALL BE MIXED WITH A HIGH SHEAR MIXER (SUCH AS A JIFFY MIXER). PADDLE MIXERS OR PAINT SHAKERS ARE NOT ALLOWED. PAINT SHALL NOT BE MIXED OR KEPT IN SUSPENSION BY MEANS OF AN AIR STREAM BUBBLING UNDER THE PAINT SURFACE.

ALL PAINT SHALL BE STRAINED AFTER MIXING. STRAINERS SHALL BE OF A TYPE TO REMOVE ONLY SKINS AND UNDESIRABLE MATTER, BUT NOT THE PIGMENT.

NO THINNER SHALL BE ADDED TO THE PAINT WITHOUT THE ENGINEER'S APPROVAL, AND ONLY IF NECESSARY FOR PROPER APPLICATION AS RECOMMENDED BY THE MANUFACTURER. WHEN THE USE OF THINNER IS PERMISSIBLE, THINNER SHALL BE ADDED SLOWLY TO THE PAINT DURING THE MIXING PROCESS. ALL THINNING SHALL BE DONE UNDER SUPERVISION OF THE ENGINEER. IN NO CASE SHALL MORE THINNER BE ADDED THAN THAT RECOMMENDED BY THE MANUFACTURER'S PRINTED INSTRUCTIONS. ONLY THINNERS RECOMMENDED AND SUPPLIED BY THE PAINT MANUFACTURER MAY BE ADDED TO THE PAINT. NO OTHER ADDITIVES SHALL BE ADDED TO THE PAINT.

CATALYSTS, CURING AGENTS, OR HARDENERS WHICH ARE IN SEPARATE PACKAGES SHALL BE ADDED TO THE BASE PAINT ONLY AFTER THE BASE PAINT HAS BEEN THOROUGHLY MIXED. THE PROPER VOLUME OF THE CATALYST SHALL THEN BE SLOWLY POURED INTO THE REQUIRED VOLUME OF BASE WITH CONSTANT AGITATION. LIQUID WHICH HAS SEPARATED FROM THE PIGMENT SHALL NOT BE POURED OFF PRIOR TO THE MIXING. THE MIXTURE SHALL BE USED WITHIN THE POT LIFE SPECIFIED BY THE MANUFACTURER. THEREFORE ONLY ENOUGH PAINT SHALL BE CATALYZED FOR PROMPT USE. MOST MIXED, CATALYZED PAINTS CANNOT BE STORED, AND UNUSED PORTIONS OF THESE SHALL BE DISCARDED AT THE END OF EACH WORKING DAY.

COATING APPLICATION

GENERAL

ALL STRUCTURAL STEEL, BEARING LOAD PLATES, WELDS, SCUPPERS, BULB ANGLES, EXPANSION JOINTS, STEEL RAILING, EXPOSED STEEL PILING, DRAIN TROUGHS, GALVANIZED SURFACES AND OTHER AREAS INDICATED ON THE PLANS SHALL BE PAINTED UNLESS OTHERWISE NOTED IN THE PLANS.

GALVANIZED SURFACES TO BE EMBEDDED IN CONCRETE AND SURFACES IN CONTACT WITH SEALS, SHALL BE MASKED AND RECEIVED NO PAINT.

ALL AREAS WHERE FIELD WELDING IS REQUIRED SHALL BE MASKED PRIOR TO SHOP COATING AND RECEIVE NO PAINT.

THE TOP OF FLANGES SHALL RECEIVE THE PRIME COAT ONLY.

AREAS TO RECEIVE STUDS SHALL NOT BE MASKED BUT PAINT SHALL BE REMOVED BEFORE STUDS ARE APPLIED.

TREATMENT OF FAYING SURFACES

SURFACES INDICATED BELOW SHALL BE TREATED ACCORDING TO METHOD A OR METHOD B AS DESCRIBED IN THIS SPECIFICATION:

1. FAYING SURFACES OF MAIN BEAM OR GIRDER BOLTED FIELD SPLICES.
2. ALL INTERNAL CONTACT SURFACES OF FILLER AND SPLICE PLATES.
3. OTHER SURFACES INDICATED IN THE PLANS.

BOLTED CROSSFRAMES ON STRAIGHT BEAMS OR GIRDERS DO NOT NEED TO MEET THE REQUIREMENTS OF METHOD A OR METHOD B UNLESS INDICATED OTHERWISE IN THE PLANS.

METHOD A

THE FAYING SURFACES SHALL BE COATED WITH INORGANIC ZINC PRIMER.

THE COATING OF THESE FAYING SURFACES WITH THE INORGANIC ZINC-RICH PRIMER SHALL BE DONE BY USING A DOUBLE MASKING TECHNIQUE. FIRST, THE AREAS ADJACENT TO THE FAYING SURFACES SHALL BE TIGHTLY MASKED AND THE INORGANIC ZINC PRIMER APPLIED. AFTER THIS PRIMER HAS DRIED SUFFICIENTLY ENOUGH TO AVOID DAMAGE, THE FAYING SURFACES SHALL BE MASKED AND THE REMAINDER OF THE GIRDER SHALL BE COATED WITH THE ORGANIC ZINC-RICH PRIMER AND SUBSEQUENT COATS.

ALL BOLTED SHOP CONNECTIONS AND BOLTED CROSS FRAMES SHALL BE REMOVED AND DISASSEMBLED PRIOR TO THE BLASTING AND COATING OF THE GIRDERS OR BEAMS. THE PARTS SHALL BE BLASTED SEPARATELY AND PRIMED, THEN REASSEMBLED AND THE BOLTS FULLY TIGHTENED USING THE TURN OF THE NUT METHOD.

METHOD B

THE FAYING SURFACES SHALL BE COATED WITH ORGANIC ZINC PRIMER ONLY PER THIS SPECIFICATION. IN ORDER TO USE METHOD B, THE PRIMER SHALL BE TESTED IN ACCORDANCE WITH THE METHODS DESCRIBED IN "ALLOWABLE STRESS DESIGN SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". TESTING SHALL INCLUDE SLIP TESTS AND TENSION CREEP TESTS. A MINIMUM SLIP COEFFICIENT OF 0.33 SHALL BE ATTAINED.

TESTING SHALL BE PERFORMED BY AN ACCREDITED LABORATORY AT THE CONTRACTOR'S EXPENSE. CERTIFIED TEST RESULTS SHALL BE FURNISHED TO THE ENGINEER. DOCUMENTATION SHALL ALSO INCLUDE CERTIFICATION THAT THE ESSENTIAL VARIABLES (DEFINED IN SECTION I.2, APPENDIX A, OF THE STRUCTURAL JOINTS SPECIFICATION) USED IN THE TESTING ARE THE SAME AS THOSE USED IN THE PAINT PROVIDED FOR THE STRUCTURE.

ALL GALVANIZED COMPONENTS, INCLUDING GALVANIZED NUTS, BOLTS, AND WASHERS, SHALL BE SOLVENT CLEANED AFTER INSTALLATION. THE EPOXY TIE-COAT, EPOXY COAT AND THE URETHANE PROTECTIVE COAT SHALL THEN BE APPLIED.

TEMPORARY ERECTION MARKS ADDED BY THE FABRICATOR TO HIGHLIGHT OR ENHANCE THE REQUIRED STEEL STAMPED ERECTION MARKS SHALL BE MADE WITHOUT DAMAGING THE PAINT SYSTEM. TEMPORARY ERECTION MARKS SHALL BE APPLIED ONLY AFTER THE FINISH COAT IS CURED AND SHALL BE REMOVED AT THE END OF THE PROJECT.

UNLESS OTHERWISE SPECIFIED, ALL COATS SHALL BE APPLIED BY SPRAY.

THE CONTRACTOR FOR FIELD APPLICATION AND THE FABRICATOR FOR SHOP APPLICATION, SHALL SUPPLY THE ENGINEER WITH THE PRODUCT DATA SHEETS BEFORE ANY COATING IS DONE. THE PRODUCT DATA SHEETS SHALL INDICATE THE MIXING AND THINNING DIRECTIONS, THE RECOMMENDED SPRAY NOZZLES AND PRESSURES AND THE MINIMUM DRYING TIME FOR SHOP APPLIED COATS. THESE PRODUCT DATA SHEETS SHALL BE FOLLOWED EXCEPT WHEN THEY CONFLICT WITH THESE SPECIFICATIONS, IN WHICH CASE THE SPECIFICATIONS SHALL GOVERN.

IF THE SURFACE IS DEGRADED OR CONTAMINATED AFTER SURFACE PREPARATION AND BEFORE PAINTING, THE SURFACE SHALL BE RESTORED BEFORE PAINTING APPLICATION. IN ORDER TO PREVENT DEGRADATION OR CONTAMINATION OF CLEANED SURFACE, THE PRIME COAT OF PAINT SHALL BE APPLIED WITHIN TWENTY-FOUR (24) HOURS AFTER BLAST CLEANING WITH METHOD A, AND WITHIN EIGHT (8) HOURS AFTER BLAST CLEANING WITH METHOD B, AS REQUIRED IN SURFACE PREPARATION ABOVE.

CLEANING AND PAINTING SHALL BE SCHEDULED SO THAT DUST OR OTHER CONTAMINANTS DO NOT FALL ON WET, NEWLY-PAINTED SURFACES. SURFACES NOT INTENDED TO BE PAINTED SHALL BE SUITABLY PROTECTED FROM THE EFFECTS OF CLEANING AND PAINTING OPERATIONS. OVERSPRAY SHALL BE REMOVED WITH A STIFF BRISTLE BRUSH, WIRE SCREEN, OR A WATER WASH WITH SUFFICIENT PRESSURE TO REMOVE OVERSPRAY WITHOUT DAMAGING THE PAINT. THE OVERSPRAY MUST BE REMOVED BEFORE APPLYING THE NEXT COAT. ALL ABRASIVES AND RESIDUE SHALL BE REMOVED FROM PAINTED SURFACES BEFORE RECOATING, WITH A VACUUM SYSTEM EQUIPPED WITH A BRUSH-TYPE CLEANING TOOL.

NO VISIBLE ABRASIVES FROM ADJACENT WORK SHALL BE LEFT ON ANY COAT. ABRASIVES SHALL BE REMOVED.

SPRAY APPLICATION FOR THE INTERMEDIATE COAT (EPOXY) SHALL NOT BE USED WHERE TRAFFIC (INCLUDING RAILROAD, HIGHWAY AND RIVER TRAFFIC, PUBLIC AND PRIVATE PROPERTY) IS AFFECTED UNLESS THE OPERATION IS TOTALLY CONTAINED TO PREVENT OVERSPRAY. IF BRUSHED, MORE THAN ONE COAT MAY BE NECESSARY TO PRODUCE THE REQUIRED MILLAGE.

SPRAY APPLICATION (GENERAL)

ALL SPRAY APPLICATION OF PAINT SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

PRIMER INGREDIENTS SHALL BE KEPT UNIFORMLY MIXED IN THE SPRAY EQUIPMENT SHALL BE KEPT CLEAN SO THAT DIRT, DRIED PAINT AND OTHER FOREIGN MATERIALS ARE NOT DEPOSITED IN THE PAINT FILM. ANY SOLVENT LEFT IN THE EQUIPMENT SHALL BE COMPLETELY REMOVED BEFORE USING.

PAINT SHALL BE APPLIED IN A UNIFORM LAYER WITH OVERLAPPING AT THE EDGES OF THE SPRAY PATTERN. THE BORDER OF THE SPRAY PATTERN SHALL BE PAINTED FIRST; WITH THE PAINTING OF THE INTERIOR OF THE SPRAY PATTERN TO FOLLOW, BEFORE MOVING TO THE NEXT SPRAY PATTERN AREA. A SPRAY PATTERN AREA IS SUCH THAT THE GUN SHALL BE HELD PERPENDICULAR TO THE SURFACE AND AT A DISTANCE WHICH WILL ENSURE THAT A WET LAYER OF PAINT IS DEPOSITED ON THE SURFACE. THE TRIGGER OF THE GUN SHOULD BE RELEASED AT THE END OF EACH STROKE. ALL BOLTS AND RIVET HEADS SHALL BE SPRAYED FROM AT LEAST TWO (2) DIRECTIONS OR BRUSHED TO INSURE COVERAGE.

EACH SPRAY OPERATOR SHALL DEMONSTRATE TO THE ENGINEER HIS ABILITY TO APPLY THE PAINT AS SPECIFIED. ANY OPERATOR WHO DOES NOT DEMONSTRATE THIS ABILITY SHALL NOT SPRAY.

IF MUD CRACKING OCCURS, THE AFFECTED AREA SHALL BE CLEANED TO BARE METAL IN ACCORDANCE WITH SURFACE PREPARATION ABOVE AND REPAINTED.

ALL SPRAY EQUIPMENT USED SHALL BE SUITABLE FOR USE WITH THE SPECIFIED PAINT. PAINT MANUFACTURER'S EQUIPMENT RECOMMENDATIONS SHALL BE CONSULTED IN THE EVENT OF PAINT APPLICATION PROBLEMS.

IF AIR SPRAY IS USED, TRAPS OR SEPARATORS SHALL BE PROVIDED TO REMOVE OIL AND CONDENSED WATER FROM THE AIR. THE TRAPS OR SEPARATORS MUST BE OF ADEQUATE SIZE AND MUST BE DRAINED PERIODICALLY DURING OPERATIONS. THE FOLLOWING TEST SHALL BE DONE BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER TO INSURE THAT THE TRAPS OR SEPARATORS ARE WORKING PROPERLY. BLOW AIR FROM THE SPRAY GUN FOR THIRTY (30) SECONDS ONTO A WHITE CLOTH OR BLOTTER HELD IN A RIGID FRAME. IF ANY OIL, WATER OR OTHER CONTAMINANTS ARE PRESENT ON THE CLOTH OR BLOTTER, PAINTING SHALL BE SUSPENDED UNTIL THE PROBLEM IS CORRECTED AND VERIFIED BY ANOTHER TEST. THIS TEST SHALL BE DONE AT THE START OF EACH SHIFT AND AT FOUR (4) HOUR INTERVALS. THIS IS NOT REQUIRED FOR AND AIRLESS SPRAYER.

APPLICATION APPROVAL

THE BEGINNING OF THE APPLICATION OF EACH OF THE THREE DIFFERENT COATS SHALL BE SUBJECT TO INSPECTION AND APPROVAL. THE PURPOSE OF THIS INSPECTION IS TO DETECT ANY DEFECTS WHICH MIGHT RESULT FROM THE CONTRACTOR'S METHOD OF APPLICATION. IF ANY DEFECTS ARE DISCOVERED, THE CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS TO HIS METHOD OF APPLICATION TO ELIMINATE THESE DEFECTS BEFORE PROCEEDING WITH APPLICATION.

TEMPERATURE

PAINT SHALL NOT BE APPLIED WHEN THE TEMPERATURE OF THE AIR, STEEL, OR PAINT IS BELOW 50 DEGREES F. PAINT SHALL NOT BE APPLIED WHEN THE STEEL SURFACE TEMPERATURE IS EXPECTED TO DROP BELOW 50 DEGREES F BEFORE THE PAINT HAS CURED FOR THE MINIMUM TIMES SPECIFIED BELOW:

	50°F	60°F	70°F
PRIMER	4 HRS.	3 HRS.	2 HRS.
INTERMEDIATE	6 HRS.	5 HRS.	4 HRS.
FINISH	8 HRS.	6 HRS.	4 HRS.

THE ABOVE TEMPERATURES AND TIMES SHALL BE MONITORED WITH THE RECORDING THERMOMETER.

MOISTURE

PAINT SHALL NOT BE APPLIED WHEN THE STEEL SURFACE TEMPERATURE IS LESS THAN 5 DEGREES F ABOVE THE DEW POINT. PAINT SHALL NOT BE APPLIED TO WET OR DAMP SURFACES OR ON FROSTED OR ICE-COATED SURFACES. PAINT SHALL NOT BE APPLIED WHEN THE RELATIVE HUMIDITY IS GREATER THAN 85%. PAINT SHALL NOT BE APPLIED DURING RAIN, FOG OR MIST UNLESS THE ABOVE MOISTURE CRITERIA IS MET.

CONTINUITY

EACH COAT OF PAINT SHALL BE APPLIED AS A CONTINUOUS FILM OF UNIFORM THICKNESS FREE OF ALL DEFECTS SUCH AS HOLIDAYS, RUNS, SAGS, ETC. ALL THIN SPOTS OR AREAS MISSED SHALL BE REPAINTED AND PERMITTED TO DRY BEFORE THE NEXT COAT OF PAINT IS APPLIED.

DRY FILM THICKNESS

PRIME THICKNESS, CUMULATIVE PRIME AND INTERMEDIATE THICKNESS AND CUMULATIVE PRIME, INTERMEDIATE AND FINISH THICKNESS SHALL BE DETERMINED BY USE OF A TYPE 2 MAGNETIC GAGE IN ACCORDANCE WITH THE FOLLOWING:

FIVE (5) SEPARATE SPOT MEASUREMENT SPACED EVENLY OVER EACH 100 SQUARE FEET OF AREA TO BE MEASURED. FOR FIELD MEASUREMENTS THESE MEASUREMENTS SHALL BE TAKEN ON FLANGES, WEBS, CROSS BRACING, STIFFENERS, ETC. THREE (3) GAGE READINGS SHALL BE MADE FOR EACH SPOT MEASUREMENT OF EITHER THE SUBSTRATE OR THE PAINT. MOVE THE PROBE A DISTANCE OF ONE TO THREE INCHES FOR EACH NEW GAGE READING. DISCARD ANY UNUSUALLY HIGH OR LOW GAGE READING THAT CANNOT BE REPEATED CONSISTENTLY. TAKE THE AVERAGE (MEAN) OF THE THREE GAGE READINGS AS THE SPOT MEASUREMENT. THE AVERAGE OF FIVE SPOT MEASUREMENTS FOR EACH SUCH 100 SQUARE FOOT AREA SHALL NOT BE LESS THAN THE SPECIFIED THICKNESS. NO SINGLE SPOT MEASUREMENT IN ANY 100 SQUARE FOOT AREA SHALL BE LESS THAN 80% OF THE SPECIFIED THICKNESS. ANY ONE OF THREE READINGS WHICH ARE AVERAGE TO PRODUCE EACH SPOT MEASUREMENT, MAY UNDER-RUN BY A GREATER AMOUNT. THE FIVE SPOT MEASUREMENTS SHALL BE MADE FOR EACH 100 SQUARE FEET OF AREA AS FOLLOWS

- FOR STRUCTURES OR BATCH OF STRUCTURAL STEEL NOT EXCEEDING 300 SQUARE FEET IN AREA, EACH 100 SQUARE FOOT AREA SHALL BE MEASURED.
- FOR STRUCTURES OR BATCH OF STRUCTURAL STEEL NOT EXCEEDING 1000 SQUARE FEET IN AREA, THREE 100 SQUARE FOOT AREAS SHALL BE RANDOMLY SELECTED AND MEASURED.
- FOR STRUCTURES OR BATCH OF STRUCTURAL STEEL EXCEEDING 1000 SQUARE FEET IN AREA, THE FIRST 1000 SQUARE FEET SHALL BE MEASURED AS STATED IN SECTION 2 AND FOR EACH ADDITIONAL 1000 SQUARE FEET, OR INCREMENT THEREOF, ONE 100 SQUARE FOOT AREA SHALL BE RANDOMLY SELECTED AND MEASURED.
- IF THE DRY FILM THICKNESS FOR ANY 100 SQUARE FOOT AREA (SECTIONS 2 & 3 IS NOT IN COMPLIANCE WITH THE REQUIREMENTS OF PARAGRAPH 1 ON THIS SECTION, THEN EACH 100 SQUARE FOOT AREA SHALL BE MEASURED.
- OTHER SIZE AREAS OR NUMBER OF SPOT MEASUREMENTS MAY BE SPECIFIED IN THE CONTRACT PLANS AS APPROPRIATE FOR THE SIZE AND SHAPE OF THE STRUCTURE TO BE MEASURED.

EACH COAT OF PAINT SHALL HAVE THE FOLLOWING MIL THICKNESS MEASURED ABOVE THE PEAKS:

	MIN. SPEC. THICKNESS	MAX. SPEC. THICKNESS	MIN. SPOT	MAX. SPOT
PRIME	3.0	5.0	2.5	7.5
INTERMEDIATE	5.0	7.0	4.0	10.5
SUB TOTAL	8.0	12.0	6.4	18.0
FINISH	2.0	4.0	1.6	6.0
TOTAL	10.0	16.0	8.0	24.0

FILM THICKNESSES GREATER THAN THE MAXIMUM SPECIFIED THICKNESSES THAT DO NOT EXHIBIT DEFECTS (SUCH AS RUNS, SAGS, BUBBLES, MUDCRACKING, ETC.) AND FOR WHICH THE CONTRACTOR HAS RECEIVED A WRITTEN STATEMENT FROM THE COATING MANUFACTURER STATING THAT THIS EXCESSIVE THICKNESS IS NOT DETRIMENTAL, MAY REMAIN IN PLACE AT THE DISCRETION OF THE DIRECTOR.

FOR ANY SPOT OR MAXIMUM AVERAGE THICKNESS OVER 24 MILS, IT WILL BE NECESSARY FOR THE CONTRACTOR TO PROVE TO THE DEPARTMENT THAT THE EXCESS THICKNESS WILL NOT BE DETRIMENTAL TO THE COATING SYSTEM. THIS SHALL BE ACCOMPLISHED BY PROVIDING THE DIRECTOR, FOR APPROVAL, CERTIFIED TEST DATA PROVING THAT THE EXCESSIVE THICKNESS WILL ADEQUATELY BOND TO THE STEEL WHEN SUBJECT TO THERMAL EXPANSION AND CONTRACTION. THIS THERMAL EXPANSION AND CONTRACTION AND EXPANSION CYCLES HAVE TAKEN PLACE, THE TESTED SYSTEM SHALL BE SUBJECT TO PULL OFF TESTS WHICH HAVE BEEN PERFORMED ON A PAINT SYSTEM WITH THE PROPER THICKNESSES. IN ADDITION TO THE CERTIFIED TEST RESULTS, IT WILL ALSO BE NECESSARY FOR THE CONTRACTOR TO PROVIDE THE DIRECTOR A WRITTEN STATEMENT FROM THE PAINT MANUFACTURER STATING THAT THIS EXCESSIVE THICKNESS IS NOT DETRIMENTAL.

IF THE DIRECTOR DOES NOT APPROVE THE EXCESSIVE COATING THICKNESSES OR THE CONTRACTOR ELECTS NOT TO PROVIDE THE REQUIRED WRITTEN STATEMENT FROM THE PLANT MANUFACTURER AND THE CERTIFIED TEST RESULTS WHEN REQUIRED, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL REMOVE AND REPLACE THE COATING. THE REMOVAL AND REPLACEMENT OF THE COATING SHALL BE DONE AS SPECIFIED IN THE SECTION OF THIS SPECIFICATION TITLED REPAIR PROCEDURES.

PRIME, INTERMEDIATE AND FINISH COAT APPLICATION (QCP #5, #6 & #7)

EACH COAT OF PAINT SHALL BE IN A PROPER STATE OF CURE OR DRYNESS BEFORE THE APPLICATION OF THE SUCCEEDING COAT. PAINT SHALL BE CONSIDERED READY FOR RECOATING WHEN AN ADDITIONAL COAT CAN BE APPLIED WITHOUT THE DEVELOPMENT OF ANY DETRIMENTAL FILM IRREGULARITIES, SUCH AS LIFTING, WRINKLING OR LOSS OF ADHESION OF THE UNDERCOAT. THE TIME INTERVAL BETWEEN COATING APPLICATIONS SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND NO MORE THAN THIRTY (30) DAYS BETWEEN THE PRIME AND INTERMEDIATE COATS AND THIRTEEN (13) DAYS BETWEEN THE INTERMEDIATE AND FINISH COATS. THESE MAXIMUM RECOAT TIMES INCLUDE WEATHER RELATED DAYS.

NO ADDITIONAL TIME FOR WEATHER DELAYS WILL BE ALLOWED. ANY COAT WHICH HAS CURED MORE THAN THE ABOVE ALLOTTED TIME WITHOUT RECOATING SHALL BE REMOVED AND THE STEEL REBLASTED TO SSPC-SPIO.

THE COMPLETION DATE (MONTH AND YEAR) OF THE FINISH COAT AND THE LETTERS OZEU SHALL BE STENCILED ON THE STEEL IN 4" LETTERS WITH A BLACK URETHANE PAINT. THIS DATE SHALL BE APPLIED AT FOUR (4) LOCATIONS NEAR THE END OF EACH OUTSIDE BEAM ON THE OUTSIDE WEB VISIBLE FROM THE ROAD OR AS DIRECTED BY THE ENGINEER.

HANDLING AND SHIPPING

EXTREME CARE SHALL BE EXERCISED IN HANDLING THE STEEL IN THE SHOP, DURING SHIPPING, DURING ERECTION, AND DURING SUBSEQUENT CONSTRUCTION OF THE BRIDGE. PAINTED STEEL SHALL NOT BE MOVED OR HANDLED UNTIL SUFFICIENT CURE TIME HAS ELAPSED AND APPROVAL HAS BEEN OBTAINED FROM THE INSPECTOR. THE STEEL SHALL BE INSULATED FROM THE BINDING CHAINS BY SOFTENERS APPROVED BY THE ENGINEER. HOOKS AND SLINGS USED TO HOIST STEEL SHALL BE PADDED. DIAPHRAGMS AND SIMILAR PIECES SHALL BE SPACED IN SUCH A WAY THAT NO RUBBING WILL OCCUR DURING SHIPMENT THAT MAY DAMAGE THE COATINGS. THE STEEL SHALL BE STORED ON PALLETS AT THE JOB SITE, OR BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT IT DOES NOT REST ON THE GROUND OR SO THAT IT DOES NOT REST ON THE GROUND OR SO THAT COMPONENTS DO NOT FALL OR REST ON EACH OTHER. ALL SHIPPING AND JOB SITE STORAGE DETAILS SHALL BE PRESENTED TO THE ENGINEER PRIOR TO FABRICATION IN WRITING AN BE APPROVED PRIOR TO SHIPPING THE STEEL. APPROVAL OF THE ABOVE DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF SHIPPING OR STORAGE DAMAGE.

REPAIR OF DAMAGED AREAS (QCP #9)

DAMAGED AREAS OF PAINT AND AREAS WHICH DO NOT COMPLY WITH THE REQUIREMENTS OF THIS SPECIFICATION, SHALL HAVE THE PAINT REMOVED AND ALL DEFECTS CORRECTED. THE STEEL SHALL THEN BE RETEXTURED TO A NEAR WHITE CONDITION TO PRODUCE A PROFILE BETWEEN 1 TO 3/2 MILS. THIS PROFILE SHALL BE MEASURED IMMEDIATELY PRIOR TO THE APPLICATION OF THE PRIME COAT TO INSURE THAT THE PROFILE IS NOT DESTROYED DURING THE FEATHERING PROCEDURE.

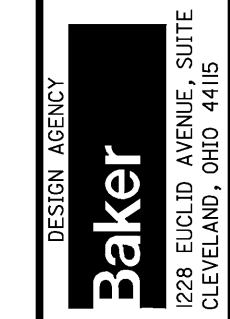
THE EXISTING PAINT SHALL BE FEATHERED TO EXPOSE A MINIMUM OF 1/2 INCH OF EACH COAT.

DURING THE REAPPLICATION OF THE PAINT, CARE SHALL BE USED TO INSURE THAT EACH COAT OF PAINT IS ONLY APPLIED WITHIN THE FOLLOWING AREAS. THE PRIME COAT SHALL ONLY BE APPLIED TO THE SURFACE OF THE BARE STEEL AND THE EXISTING PRIME COAT, WHICH HAS BEEN EXPOSED BY FEATHERING. THE PRIME COAT SHALL NOT BE APPLIED TO THE ADJACENT INTERMEDIATE COAT. THE INTERMEDIATE COAT SHALL ONLY BE APPLIED TO THE NEW PRIME COAT AND THE EXISTING FEATHERED INTERMEDIATE COAT. THE INTERMEDIATE COAT AND THE EXISTING FINISH COAT WHICH HAS BEEN FEATHERED OR LIGHTLY SANDED. THE FINISH COAT SHALL NOT EXTEND BEYOND THE AREAS WHICH HAS BEEN FEATHERED OR LIGHTLY SANDED.

THE FIRST TWO COATS SHALL BE APPLIED BY BRUSH. THE FINISH COAT SHALL BE APPLIED BY EITHER BRUSH OR SPRAY.

IT MAY BE NECESSARY TO MAKE SEVERAL APPLICATIONS IN ORDER TO ACHIEVE THE PROPER THICKNESS FOR EACH COAT.

DESIGNED	CDC	CHECKED	SCT
DRAWN	VLL	REVISOR	
REVIEWED	LPC	STRUCTURE FILE NUMBER	4704355L/470444R
DATE	01-07-08		
GENERAL NOTES SHEET 7 OF 8			
BRIDGE NO. LOR-90-1244 L/R I.R. 90 OVER LAKE AVENUE			
LOR-90-12.42 PID 24868			
4E/46			
117E 199			



DURING THE APPLICATION OF THE PRIME COAT, THE PAINT SHOULD BE CONTINUOUSLY MIXED.

ALL ABRASIVE BLASTING AND PAINTING SHALL STILL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS.

ALL REPAIRS SHOULD BE MADE IN A MANNER TO BLEND THE PATCHED ARE WITH THE ADJACENT COATING. THE FINISHED SURFACE OF THE PATCHED AREA SHALL HAVE A SMOOTH EVEN PROFILE WITH THE ADJACENT SURFACE.

THE FIRST REPAIR AREA SHALL BE USED AS A TEST SECTION AND NO MORE REPAIRS MADE UNTIL THE METHODS ARE APPROVED BY THE ENGINEER.

THE CONTRACTOR OR FABRICATOR SHALL SUBMIT HIS METHOD OF CORRECTING RUNS IN WRITING TO THE DIRECTOR FOR APPROVAL.

DAMAGED PAINT WHICH WILL BE INACCESSIBLE FOR COATING AFTER ERECTION SHALL BE REPAIRED AND RECOATED PRIOR TO ERECTION.

IN ORDER TO MINIMIZE DAMAGE TO THE PAINTED STEEL, CONCRETE SPLATTER AND FORM LEAKAGE SHALL BE WASHED FROM THE SURFACE OF THE STEEL SHORTLY AFTER THE CONCRETE IS PLACED AND BEFORE IT IS DRY. IF CONCRETE DRIES IT SHALL BE REMOVED AND PAINT REPAIRED.

TEMPORARY ATTACHMENTS, SUPPORTS FOR SCAFFOLDING AND FINISHING MACHINE OR FORMS SHALL NOT DAMAGE THE COATING SYSTEM. (IN PARTICULAR, ON THE FASCIA WHERE BRACING IS USED, SUFFICIENT SIZE SUPPORT PADS SHALL BE USED.)

AFTER THE ERECTION WORK HAS BEEN COMPLETED, INCLUDING ALL CONNECTIONS AND THE APPROVED REPAIR OF ANY DAMAGED BEAMS, GIRDERS OR OTHER STEEL MEMBERS, AND THE DECK HAS BEEN PLACED, THE CONTRACTOR AND ENGINEER SHALL INSPECT THE STRUCTURE FOR DAMAGED PAINT. (QCP #10). DAMAGED AREAS SHALL BE REPAIRED BY REPEATING QCP #1 TO #8. THE CONTRACTOR SHALL WASH THE STRUCTURE AS PER QCP #1 AFTER ALL WORK TO THE STRUCTURE IS COMPLETED.

SAFETY REQUIREMENTS AND PRECAUTIONS

THE CONTRACTOR SHALL MEET THE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), IN ADDITION TO THE SCAFFOLDING REQUIREMENTS BELOW.

THE CONTRACTOR IS REQUIRED TO MEET THE APPLICABLE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION IN ADDITION TO THE SCAFFOLDING REQUIREMENTS BELOW.

THE MATERIAL SAFETY DATA SHEETS (MSDS) SHALL BE PROVIDED AT THE PRECONSTRUCTION MEETING FOR ALL PAINT, THINNERS AND ABRASIVES USED ON THIS PROJECT. NO WORK SHALL START UNTIL THE MSDS HAS BEEN SUBMITTED.

THE FABRICATOR SHALL ALSO PROVIDE MSDS FOR ALL ABRASIVES TO BE USED ON THIS PROJECT TO THE SHOP INSPECTOR. NO WORK SHALL START UNTIL MSDS HAS BEEN SUBMITTED.

SCAFFOLDING

RUBBER ROLLERS, OR OTHER PROTECTIVE DEVICES MEETING THE APPROVAL OF THE ENGINEER, SHALL BE USED ON SCAFFOLD FASTENINGS. METAL ROLLERS OR CLAMPS AND OTHER TYPES OF FASTENINGS WHICH WILL MAR OR DAMAGE COATED SURFACES SHALL NOT BE USED.

INSPECTION ACCESS FOR FIELD TOUCH-UP

IN ADDITION TO THE REQUIREMENT OF CMS 105.10, THE CONTRACTOR SHALL FURNISH, ERECT, AND MOVE SCAFFOLDING AND OTHER APPROPRIATE EQUIPMENT, TO PERMIT THE INSPECTOR THE OPPORTUNITY TO INSPECT (CLOSELY OBSERVE), ALL AFFECTED SURFACES. THIS OPPORTUNITY SHALL BE PROVIDED TO THE INSPECTOR DURING ALL PHASES OF THE WORK AND CONTINUE FOR A PERIOD OF AT LEAST TEN (10) WORKING DAYS AFTER THE TOUCH-UP WORK HAS BEEN COMPLETED.

WHEN SCAFFOLDING IS USED, IT SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS. WHEN SCAFFOLDING, OR THE HANGERS ATTACHED TO THE SCAFFOLDING ARE SUPPORTED BY HORIZONTAL WIRE ROPES, OR WHEN SCAFFOLDING IS PLACED DIRECTLY UNDER THE SURFACE TO BE PAINTED, THE FOLLOWING REQUIREMENTS SHALL BE COMPLIED WITH:

WHEN SCAFFOLDING IS SUSPENDED FORTY THREE (43) INCHES OR MORE BELOW THE SURFACE TO BE PAINTED, TWO ROWS OF GUARDRAIL SHALL BE PLACED ON ALL SIDES OF THE SCAFFOLDING. ONE ROW OF GUARDRAIL SHALL BE PLACED AT FORTY-TWO (42) INCHES ABOVE THE SCAFFOLDING AND THE OTHER ROW AT TWENTY-TWO (22) INCHES ABOVE THE SCAFFOLDING.

WHEN THE SCAFFOLDING IS SUSPENDED AT LEAST TWENTY-ONE (21) INCHES, BUT LESS THAN FORTY-THREE (43) INCHES BELOW THE SURFACE TO BE PAINTED, A ROW OF GUARDRAIL SHALL BE PLACED ON ALL SIDES OF THE SCAFFOLDING AT TWENTY (20) INCHES ABOVE THE SCAFFOLDING.

TWO ROWS OF GUARDRAIL SHALL BE PLACED ON ALL SIDES OF SCAFFOLDING NOT PREVIOUSLY MENTIONED. THE ROWS OF GUARDRAIL SHALL BE PLACED AT FORTY-TWO (42) AND TWENTY (20) INCHES ABOVE SCAFFOLDING, AS PREVIOUSLY MENTIONED.

ALL SCAFFOLDING MUST BE AT LEAST TWENTY-FOUR (24) INCHES WIDE WHEN GUARDRAIL IS USED AND TWENTY-EIGHT (28) INCHES WIDE WHEN THE SCAFFOLDING IS SUSPENDED LESS THAN TWENTY-ONE (21) INCHES BELOW THE SURFACE TO BE PAINTED AN GUARDRAIL IS NOT USED. IF TWO OR MORE SCAFFOLDING ARE LAID PARALLEL TO ACHIEVE PROPER WIDTH, THEY MUST BE RIGIDLY ATTACHED TO EACH OTHER TO PRECLUDE ANY DIFFERENTIAL MOVEMENT.

ALL GUARDRAIL SHALL BE CONSTRUCTED AS A SUBSTANTIAL BARRIER WHICH IS SECURELY FASTENED IN PLACE AND IS FREE FROM PROTRUDING OBJECTS SUCH AS NAILS, SCREWS AND BOLTS. THERE SHALL BE AN OPENING IN THE GUARDRAIL, PROPERLY LOCATED, TO ALLOW THE INSPECTOR ACCESS ONTO THE SCAFFOLDING.

THE RAILS AND UPRIGHTS SHALL BE EITHER METAL OR WOOD. IF PIPE RAILING IS USED, THE RAILING SHALL HAVE A NOMINAL DIAMETER OF NO LESS THAN ONE AND ONE-HALF (1 1/2) INCHES. IF STRUCTURAL STEEL RAILING IS USED, THE RAILS SHALL BE 2 X 2 X 3/8 INCH STEEL ANGLES OR OTHER METAL SHAPES OF EQUAL OR GREATER STRENGTH. IF WOOD RAILING IS USED, THE RAILING SHALL BE 2 X 4 INCH (NOMINAL) STOCK. ALL UPRIGHTS SHALL BE SPACED AT NO MORE THAN EIGHT (8) FEET ON CENTER. IF WOOD UPRIGHTS ARE USED, THE UPRIGHTS SHALL BE 2 X 4 INCHES (NOMINAL) STOCK.

WHEN THE SURFACE TO BE INSPECTED IS MORE THAN FIFTEEN (15) FEET ABOVE THE GROUND OR WATER, AND THE SCAFFOLDING IS SUPPORTED FROM THE STRUCTURE BEING PAINTED, THE CONTRACTOR SHALL PROVIDE THE INSPECTOR WITH A SAFETY BELT AND LIFELINE. THE LIFELINE SHALL NOT ALLOW A FALL GREATER THAN SIX (6) FEET. THE CONTRACTOR SHALL PROVIDE A METHOD OF ATTACHING A LIFELINE TO THE STRUCTURE INDEPENDENT OF THE SCAFFOLDING, CABLES OR BRACKETS SUPPORTING THE SCAFFOLDING.

WHEN SCAFFOLDING IS MORE THAN TWO AND ONE-HALF (2 1/2) FEET ABOVE THE GROUND, THE CONTRACTOR SHALL PROVIDE A LADDER FOR ACCESS ONTO THE SCAFFOLDING. THE LADDER AND ANY EQUIPMENT USED TO ATTACH THE LADDER TO THE STRUCTURE SHALL BE CAPABLE OF SUPPORTING 250 POUNDS WITH A SAFETY FACTOR OF AT LEAST FOUR (4). ALL RUNGS, STEPS, CLEATS, OR TREADS SHALL HAVE UNIFORM SPACING AND SHALL NOT EXCEED TWELVE INCHES ON CENTER. AT LEAST ONE SIDE RAIL SHALL EXTEND AT LEAST THIRTY-SIX (36) INCHES ABOVE THE LANDING NEAR THE TOP OF THE LADDER.

AN ADDITIONAL LANDING SHALL BE REQUIRED WHEN THE DISTANCE FROM THE LADDER TO THE POINT WHERE THE SCAFFOLDING MAY BE ACCESSED, EXCEEDS TWELVE (12) INCHES. THE LANDING SHALL BE A MINIMUM OF AT LEAST TWENTY-FOUR (24) INCHES WIDE AND TWENTY-FOUR (24) INCHES LONG. IT SHALL ALSO BE OF ADEQUATE SIZE AND SHAPE SO THAT THE DISTANCE FROM THE LANDING TO THE POINT WHERE THE SCAFFOLDING IS ACCESSED DOES NOT EXCEED TWELVE (12) INCHES. THE LANDING SHALL BE RIGID AND FIRMLY ATTACHED TO THE LADDER; HOWEVER, IT SHALL NOT BE SUPPORTED BY THE LADDER. THE SCAFFOLDING SHALL BE CAPABLE OF SUPPORTING A MINIMUM OF ONE THOUSAND (1000) POUNDS.

IN ADDITION TO THE AFOREMENTIONED REQUIREMENTS, THE CONTRACTOR IS STILL RESPONSIBLE TO OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS, ORDERS AND DECREES.

THE CONTRACTOR SHALL FURNISH ALL NECESSARY TRAFFIC CONTROL TO PERMIT INSPECTION DURING AND AFTER ALL PHASES OF THE PROJECT.

PROTECTION OF PERSONS AND PROPERTY

THE CONTRACTOR SHALL COLLECT, REMOVE AND DISPOSE OF ALL BUCKETS, RAGS OR OTHER DISCARDED MATERIALS AND SHALL LEAVE THE JOB SITE IN A CLEAN CONDITION.

THE CONTRACTOR SHALL PROTECT ALL PORTIONS OF THE STRUCTURE WHICH ARE NOT TO BE PAINTED, AGAINST DAMAGE OR DISFIGUREMENT BY SPLASHES, SPLATTERS, AND SMIRCHES OF PAINT.

THE CONTRACTOR SHALL INSTALL AND MAINTAIN SUITABLE SHIELDS OR ENCLOSURES TO PREVENT DAMAGE TO ADJACENT BUILDINGS, PARKED CARS, TRUCKS, BOATS, OR OTHER VEHICLES TRAVELING ON, OVER, OR UNDER STRUCTURES BEING PAINTED. THEY SHALL BE SUITABLY ANCHORED AND REINFORCED TO PREVENT INTERFERING WITH NORMAL TRAFFIC OPERATIONS IN THE OPEN LANES. PAYMENT FOR THE SHIELDS SHALL BE INCLUDED AS INCIDENTAL TO THE APPLICABLE FIELD COATING OPERATION. WORK SHALL BE SUSPENDED WHEN DAMAGE TO ADJACENT BUILDINGS, MOTOR VEHICLES, BOATS OR OTHER PROPERTY IS OCCURRING.

WHEN OR WHERE ANY DIRECT OR INDIRECT DAMAGE OR INJURY IS DONE TO PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR SHALL RESTORE, AT HIS OWN EXPENSE, SUCH PROPERTY, TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE.

POLLUTION CONTROL

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION CONTROL LAWS, RULES OR REGULATIONS OF FEDERAL, STATE OR LOCAL AGENCIES.

WORK LIMITATIONS

ABRASIVE BLASTING AND PAINTING DONE IN THE FIELD SHALL BE PERFORMED BETWEEN APRIL 15TH AND OCTOBER 15TH. EVEN THOUGH THE CONTRACTOR IS PERMITTED TO WORK PRIOR TO MAY 1ST, APRIL IS CONSIDERED A WINTER MONTH AND NO EXTENSION DUE TO ADVERSE WEATHER CONDITIONS WILL BE GRANTED FOR THIS PERIOD. ADDITIONAL WORK LIMITATIONS ON SPECIFIC BRIDGES/PROJECTS MAY BE REQUIRED BY PLAN NOTE.

METHOD OF MEASUREMENT

THE METHOD OF MEASUREMENTS SHALL BE ACCORDING TO THE PERTINENT OF 513, 514 AND 516 OF THE CURRENT CONSTRUCTION AND MATERIALS SPECIFICATIONS.

COLOR OF FINISH COAT

FINISH COAT COLOR SHALL MATCH FEDERAL COLOR STANDARD NUMBER 17778 - LIGHT NEUTRAL.

METHOD OF PAYMENT

THE AREA OF THE TOP OF THE TOP FLANGE WHICH SHALL RECEIVE THE PRIME COAT ONLY SHALL NOT BE INCLUDED IN THE MEASUREMENT FOR THE PAY ITEM. THE COST OF THE ABOVE INCLUDING LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH ITEM AS LISTED BELOW.

PAYMENT FOR THIS ITEM SHALL INCLUDE ALL LABOR, SURFACE PREPARATION, MATERIALS, INSPECTION AND EQUIPMENT TO SHOP APPLY A PRIME, INTERMEDIATE AND FINISH PAINT COAT AT THE ITEM 513 STRUCTURAL STEEL FABRICATOR'S SHOP FACILITIES. ALSO INCLUDED IN THIS ITEM IS ALL REQUIRED FIELD SITE SURFACE PREPARATION, CLEANING, PAINTING AND/OR REPAIR OF DAMAGED SHOP PAINT CAUSED DURING SHIPPING, ERECTION OR CONSTRUCTION PROCEDURES.

THE COST OF THE SURFACE PREPARATION AND PRIME COAT TO THE TOP OF THE TOP FLANGE SHALL BE INCLUDED AS AN INCIDENTAL FOR PAYMENT UNDER SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL.

SHOP PAINTING PER CMS 513.27 SHALL NOT BE INCLUDED WITH THE PRICE BID FOR STRUCTURAL STEEL, BUT SHALL BE INCLUDED WITH ITEM SPECIAL - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL FOR PAYMENT.

ITEM	EXT.	UNIT	DESCRIPTION
SPECIAL	51480010	LB	SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL

\$DATE\$
\$FILES\$



DESIGNED	CDC	CHECKED	SCT
DRAWN	VLL	REVISED	
REVIEWED	LPC	DATE	01-07-08
STRUCTURE FILE NUMBER		47043551/4704444R	

GENERAL NOTES SHEET 8 OF 8
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

ESTIMATED QUANTITIES										AS PER PLAN REFERENCE SHEET
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GENERAL		
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN						3/46
202	22900	136	SQ. YD.	APPROACH SLAB REMOVED						136
SPECIAL	451E30000	132	FEET	PRESSURE RELIEF JOINT, TYPE A						132
503	11101	LUMP		COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN						9/46
503	21101	165	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	128	37				3/46, 4A/46
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION						
507	00200	1555	FEET	STEEL PILES HP 12x53, FURNISHED	1235	320				
507	00250	1385	FEET	STEEL PILES HP 12x53, DRIVEN	1105	280				
509	10000	129209	POUND	EPOXY COATED REINFORCING STEEL	13343	8916	106950			
509	20001	100	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				100		3/46
510	10000	96	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		96				
512	10100	1000	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	207	259	437	97		
513	10260	198000	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 3			198000			
513	20000	4872	EACH	WELDED STUD SHEAR CONNECTORS			4872			
SPECIAL	514E80010	198000	POUND	SPECIAL - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL			198000			
516	13200	136	SQ. FT.	1/2" PREFORMED EXPANSION JOINT FILLER				136		
516	13600	143	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER				143		
516	14015	170	FEET	INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	170					4/46
516	44101	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE 2 3/8" x 1 1/2" x 1'-6") (LOAD PLATE 2 3/8" x 1'-0 1/2" x 1'-7"), AS PER PLAN		16				37/46
518	21200	134	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC	134					
518	40000	187	FEET	6" PERFORATED CORRUGATED PLASTIC PIPE	187					
518	40010	51	FEET	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	51					
SPECIAL	530E00600	1253	SQ. FT.	SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE PIER CAP STRENGTHENING SYSTEM		1253				
603	01500	12	FEET	6" CONDUIT, TYPE F				12		
604	36600	2	EACH	PRECAST REINFORCED CONCRETE OUTLET				2		
605	11100	132	FEET	6" SHALLOW PIPE UNDERDRAINS				132		
843	50000	25	SQ. FT.	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR		25				
892	10200	357	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY			357			
898	10705	350	SQ. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN				350		3/46
898	11001	53	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN						4B/46
898	20100	32	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		32	53			
898	20160	132	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	132					
898	20300	15	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		15				

ESTIMATED QUANTITIES - LEFT BRIDGE

LOR-90-12.42
PID 24868

5 / 46

118
199

DESIGNED: VLL
CHECKED: MKB

DRAWN: VLL
REVISED:

REVIEWED: LPC
STRUCTURE FILE NUMBER: 4704355L/4704444R

DATE: 01-07-08

DESIGN AGENCY
Baker
228 EUCLID AVENUE, SUITE 1050
CLEVELAND, OHIO 44115

ESTIMATED QUANTITIES										AS PER PLAN REFERENCE SHEET
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GENERAL		
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN						3/46
202	22900	140	SQ. YD.	APPROACH SLAB REMOVED				140		
SPECIAL	451E30000	128	FEET	PRESSURE RELIEF JOINT, TYPE A				128		
503	11101	LUMP		COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN						9/46
503	21101	165	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	128	37				3/46
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION						
507	00200	1775	FEET	STEEL PILES HP 12x53, FURNISHED	1495	280				
507	00250	1605	FEET	STEEL PILES HP 12x53, DRIVEN	1365	240				
509	10000	127173	POUND	EPOXY COATED REINFORCING STEEL	13277	8969	104927			
509	20001	100	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				100		4/46
510	10000	96	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT		96				
512	10100	975	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	146	304	428	97		
513	10260	195000	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 3			195000			
513	20000	4680	EACH	WELDED STUD SHEAR CONNECTORS			4680			
SPECIAL	514E80010	195000	POUND	SPECIAL - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL			195000			
516	13200	133	SQ. FT.	1/2" PREFORMED EXPANSION JOINT FILLER				133		
516	13600	139	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER				139		
516	14015	168	FEET	INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	168					4/46
516	44101	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE 2 3/8" x 1 1/2" x 1'-6") (LOAD PLATE 2 3/8" x 1'-0 1/2" x 1'-7"), AS PER PLAN		16				37/46
518	21200	132	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC	132					
518	40000	185	FEET	6" PERFORATED CORRUGATED PLASTIC PIPE	185					
518	40010	20	FEET	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	20					
SPECIAL	530E00600	1235	SQ. FT.	SPECIAL - STRUCTURE, MISC.: CARBON FIBER COMPOSITE PIER CAP STRENGTHENING SYSTEM		1235				
603	01500	11	FEET	6" CONDUIT, TYPE F				11		
604	36600	2	EACH	PRECAST REINFORCED CONCRETE OUTLET				2		
605	11100	128	FEET	6" SHALLOW PIPE UNDERDRAINS				2		
843	50000	2	SQ. FT.	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR		2				
892	10200	349	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY			349			
898	10705	350	SQ. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN				350		3/46
898	11001	52	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			52			4B/46
898	20100	33	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		33				
898	20160	131	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	131					
898	20300	15	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)		15				

ESTIMATED QUANTITIES - RIGHT BRIDGE

BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

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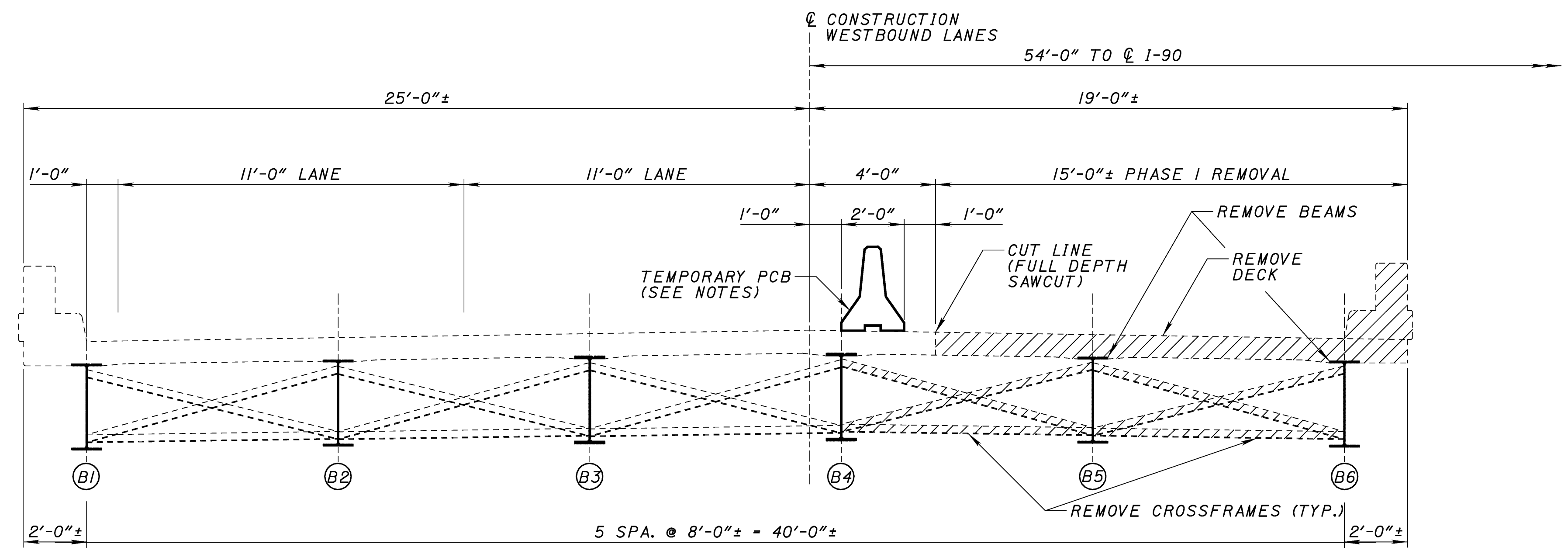
119
199

DESIGN AGENCY
Baker
1228 BROAD AVENUE, SUITE 1050
CLEVELAND, OHIO 44115

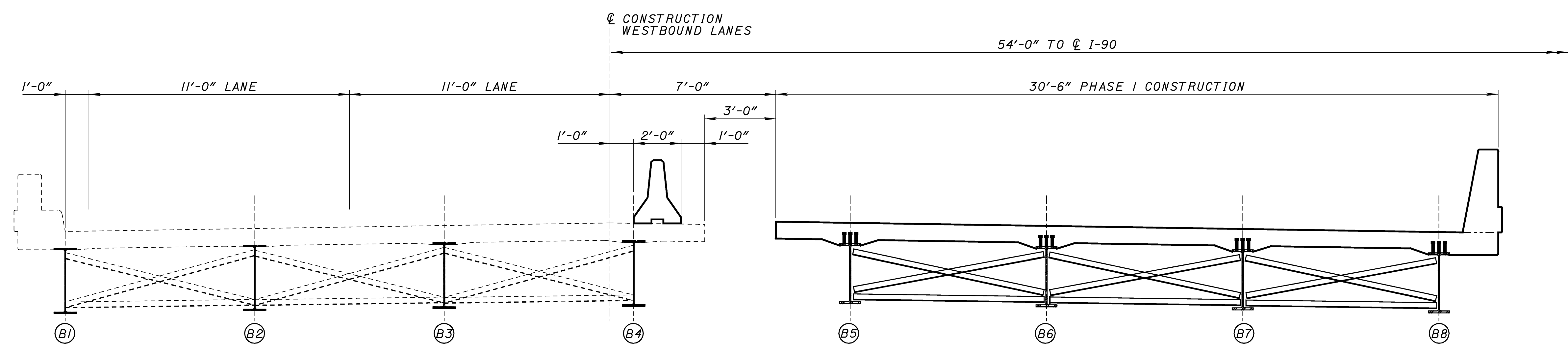
DATE 01-07-08
REVIEWED LPC
STRUCTURE FILE NUMBER 4704355L/470444R

DRAWN VLL
REVISED

DESIGNED VLL
CHECKED MMB



PHASE I REMOVAL



PHASE I CONSTRUCTION

LEGEND:

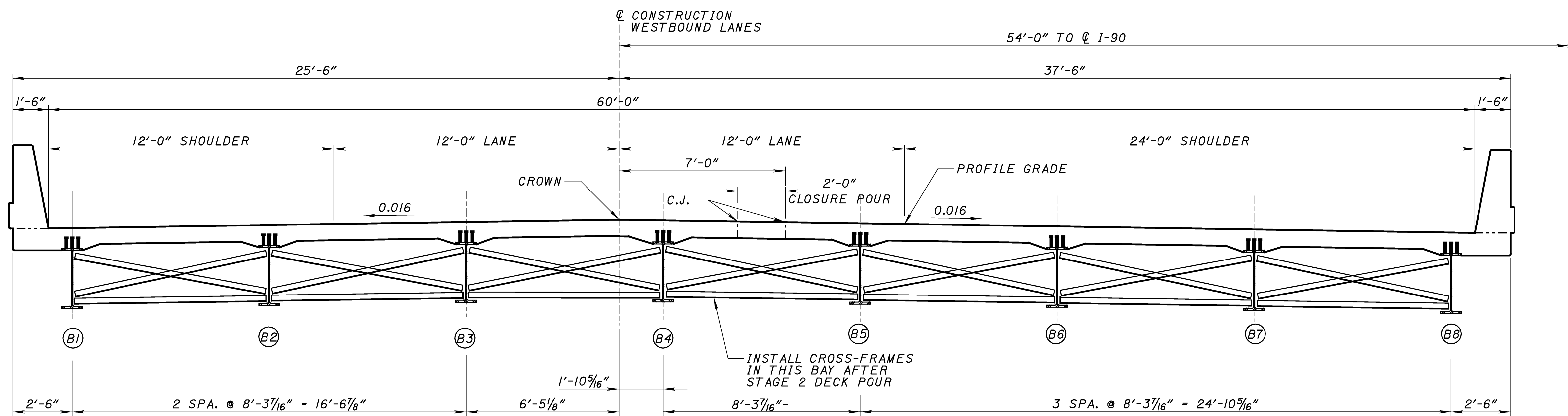
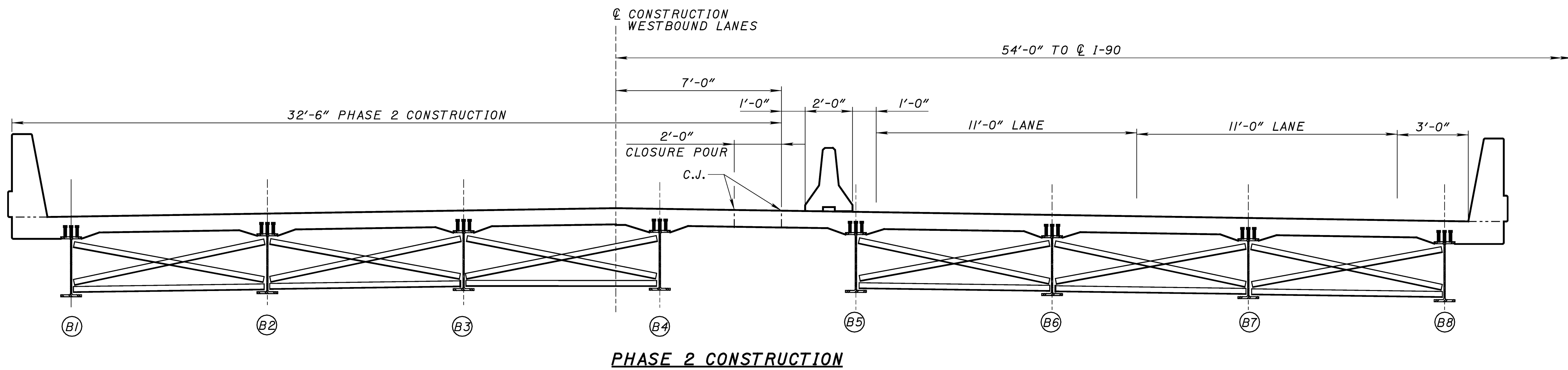
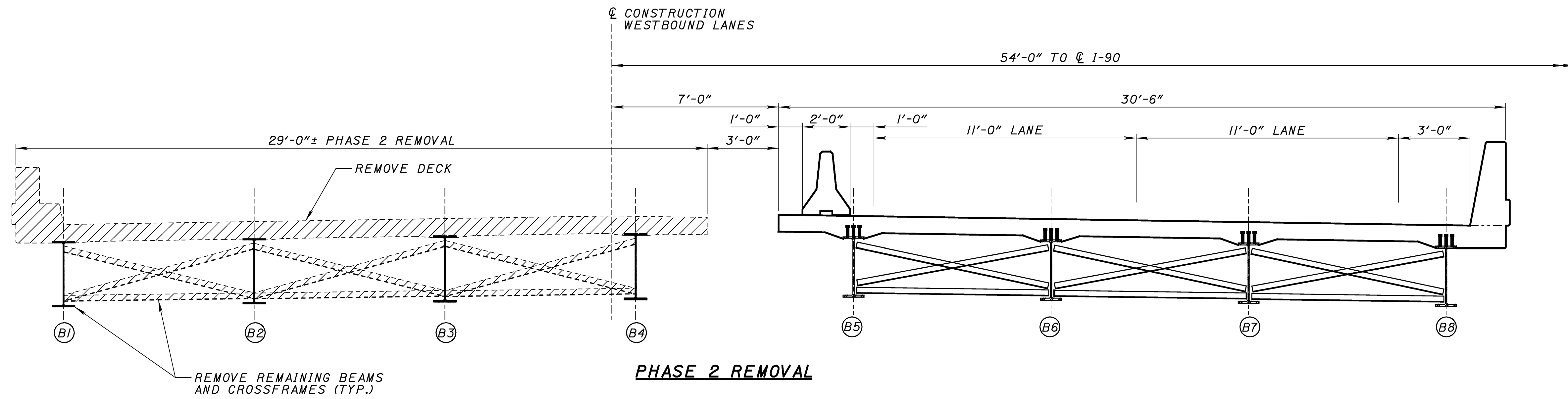
- PORTIONS OF EXISTING STRUCTURE TO BE REMOVED UNDER ITEM 202 - PORTIONS STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.
- BEAM NUMBER

NOTES:

1. INSTALL 32" PORTABLE CONCRETE BARRIER, 6 ANCHORS PER SEGMENT ON THE BRIDGE DECK AND 6 ANCHORS PER SEGMENT ON THE APPROACH SLAB IN ACCORDANCE WITH STD. DWG. PCB-91. PAYMENT FOR PCB INCLUDED WITH APPROPRIATE MOT ITEMS.
2. AT THE OPTION OF THE CONTRACTOR, HOLES FOR PORTABLE CONCRETE BARRIER ANCHORS MAY BE PERFORMED IN THE NEW DECK. AFTER REMOVAL OF BARRIER ANCHORS, FILL ALL HOLES AS SPECIFIED ON STD.DWG. PCB-91 AND SEAL WITH HIGH MOLECULAR WEIGHT METHACRYLATE. PAYMENT SHALL BE INCLUDED WITH ITEM 892.
3. SEE ROADWAY MOT PLANS FOR ADDITIONAL INFORMATION.
4. LEFT BRIDGE SHOWN, RIGHT BRIDGE SIMILAR BUT OPPOSITE HAND.

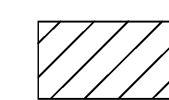
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PROPOSED TRANSVERSE SECTION

LEGEND:



- PORTIONS OF EXISTING STRUCTURE TO BE REMOVED UNDER ITEM 202 - PORTIONS STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.



- BEAM NUMBER

SEE PREVIOUS SHEET FOR NOTES.

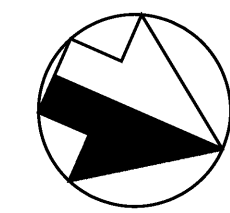
PHASED CONSTRUCTION DETAILS 2 OF 2

BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

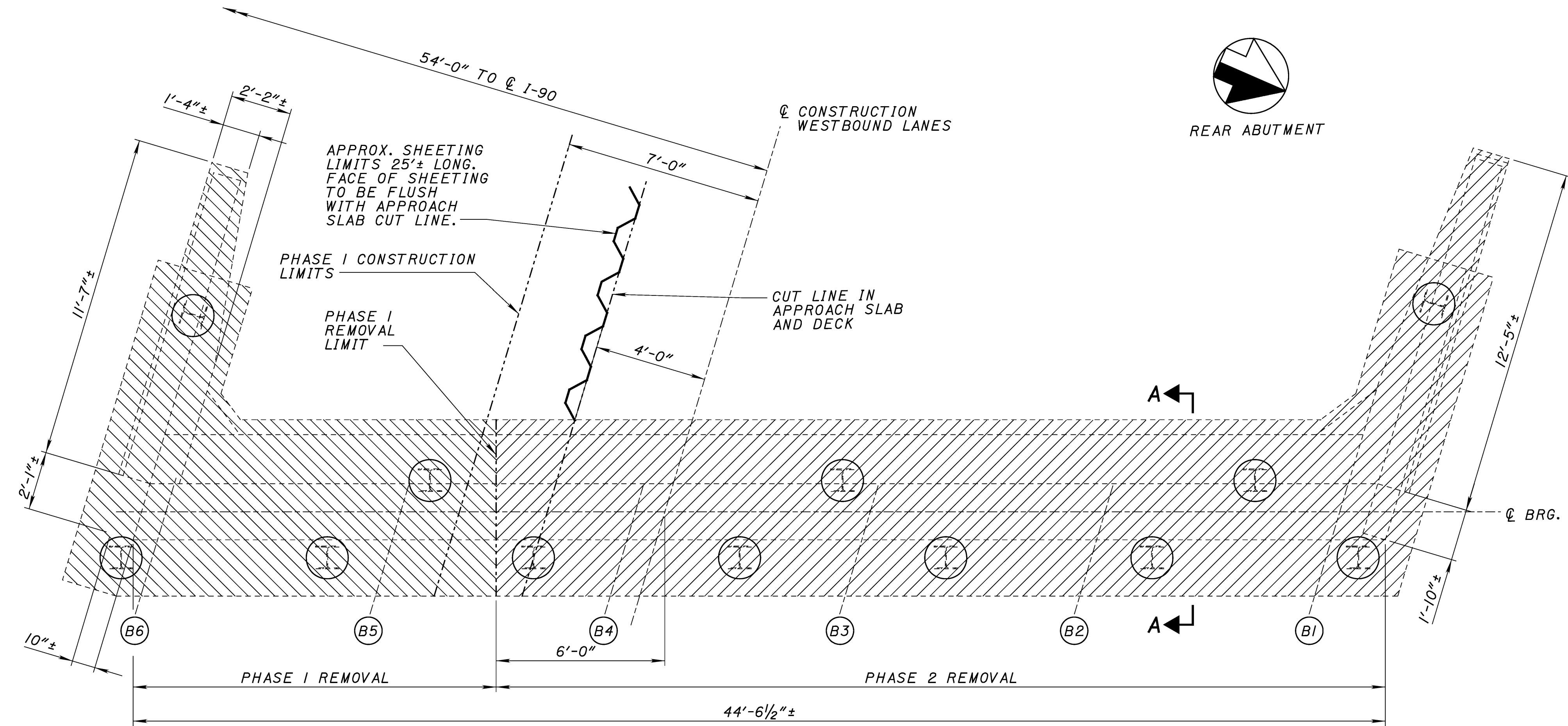
LOR-90-12.42
PID 24868

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199



REAR ABUTMENT



PLAN

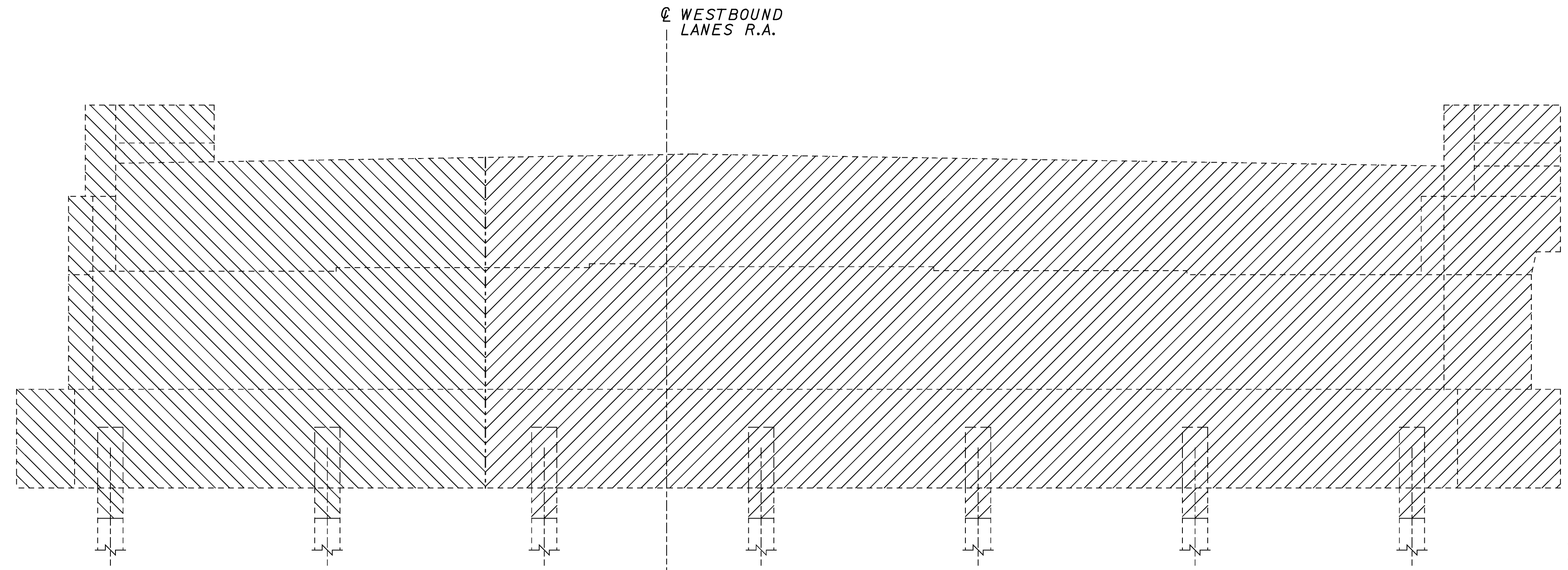
(LEFT BRIDGE REAR ABUTMENT SHOWN, OTHER ABUTMENTS SIMILAR)

LEGEND

- PORTION OF STRUCTURE TO BE REMOVED IN PHASE 1
- PORTION OF STRUCTURE TO BE REMOVED IN PHASE 2
- PILES TO BE CUT OFF AT 1'-0" BELOW GRADE AFTER ABUTMENT REMOVAL

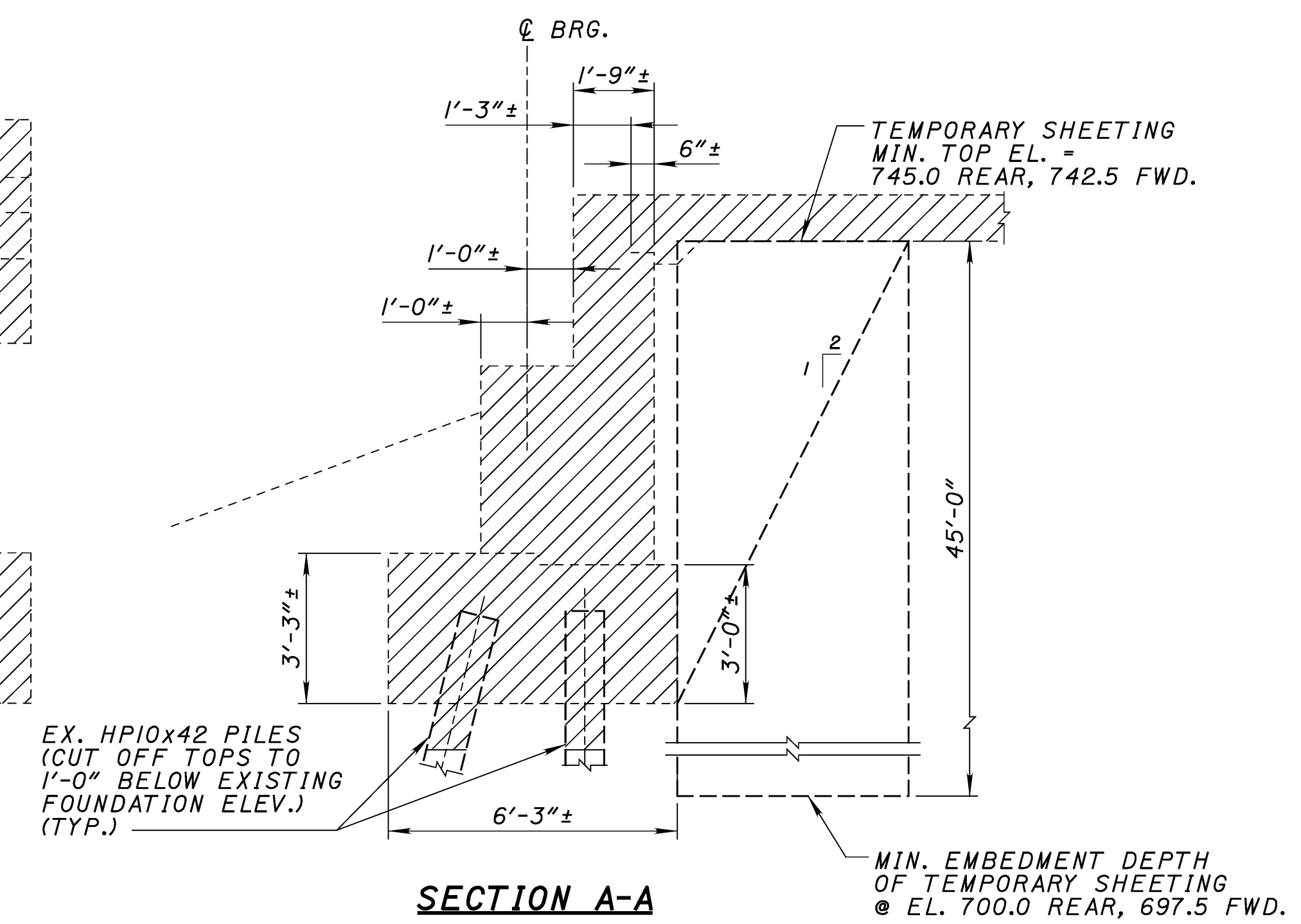
NOTES:

1. THE MINIMUM SECTION MODULUS FOR TEMPORARY CANTILEVERED SHEET PILE WALL (FOR YIELD STRENGTH = 50 KSI) SHALL BE 70.3 IN³/FT. THE CHOSEN SHEETING SECTION SHALL HAVE SUFFICIENT SECTION PROPERTIES TO LIMIT DEFLECTION AT THE TOP OF SHORING TO 1" OR LESS.
2. TEMPORARY SHEETING SHALL BE INSTALLED BEFORE EXCAVATION AND ABUTMENT REMOVAL IN PHASE 1 CONSTRUCTION. THE SHEETING SHALL REMAIN IN PLACE UNTIL PHASE 2 ABUTMENT HAS BEEN CONSTRUCTED AND THE EMBANKMENT SUFFICIENTLY PLACED AND COMPACTED TO THE LEVEL OF THE PROPOSED SUBGRADE.
3. THE CONSTRUCTOR MAY PROVIDE AN ALTERNATE MEANS OF SHORING FOR PHASED CONSTRUCTION IN ACCORDANCE WITH ITEM 503.
4. ALL MATERIALS EQUIPMENT, LABOR, AND INCIDENTALS NECESSARY TO INSTALL AND SUBSEQUENTLY REMOVE THE TEMPORARY SHORING SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM PRICE BID FOR ITEM 503 - COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN.
5. PAYMENT FOR ABUTMENT REMOVAL SHALL BE INCLUDED UNDER ITEM 202-PORIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. SEE SHEET 3/36 FOR SPECIFICATIONS REGARDING THIS ITEM.



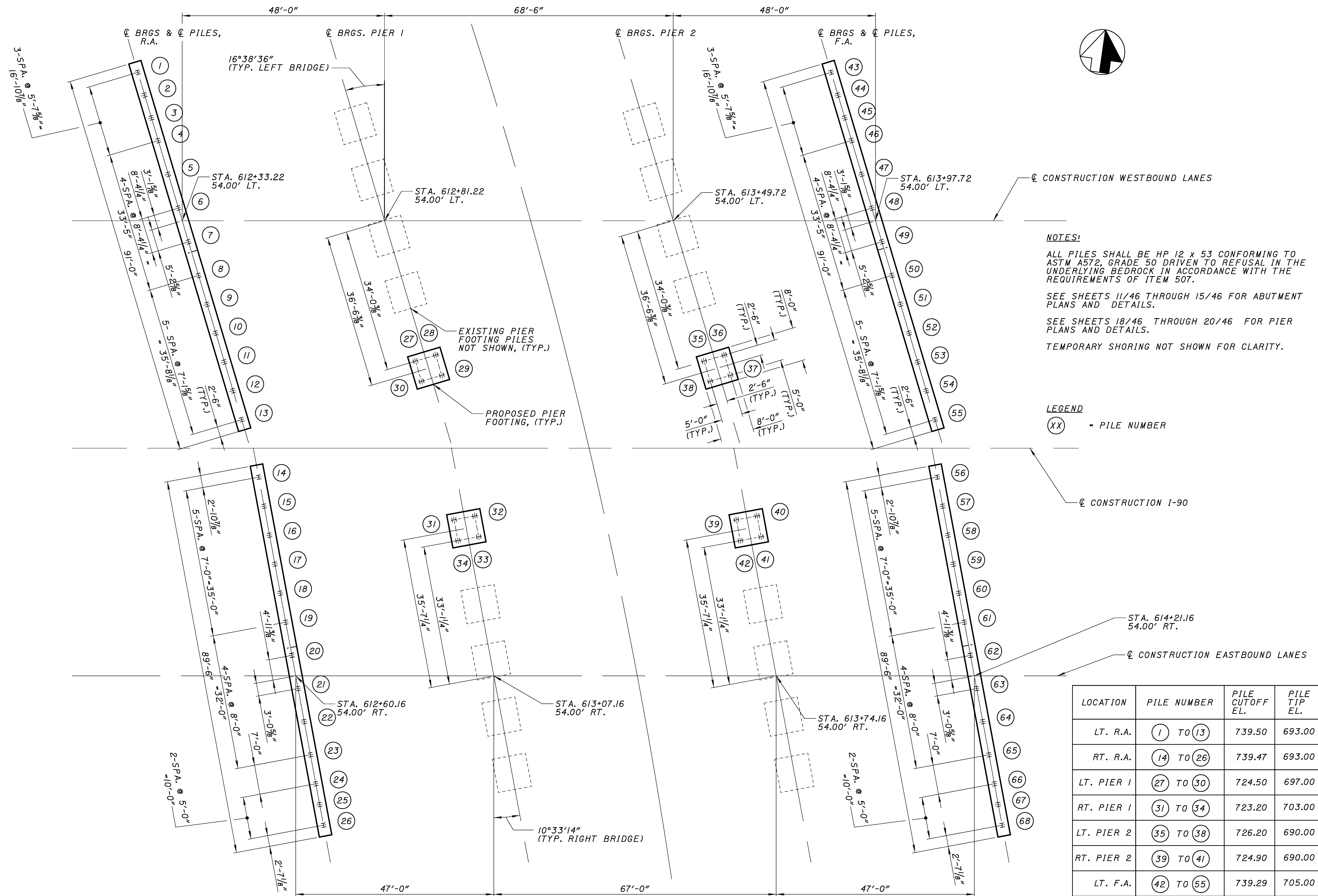
ELEVATION

REAR PILES NOT SHOWN FOR CLARITY



SECTION A-A

\$DATE\$
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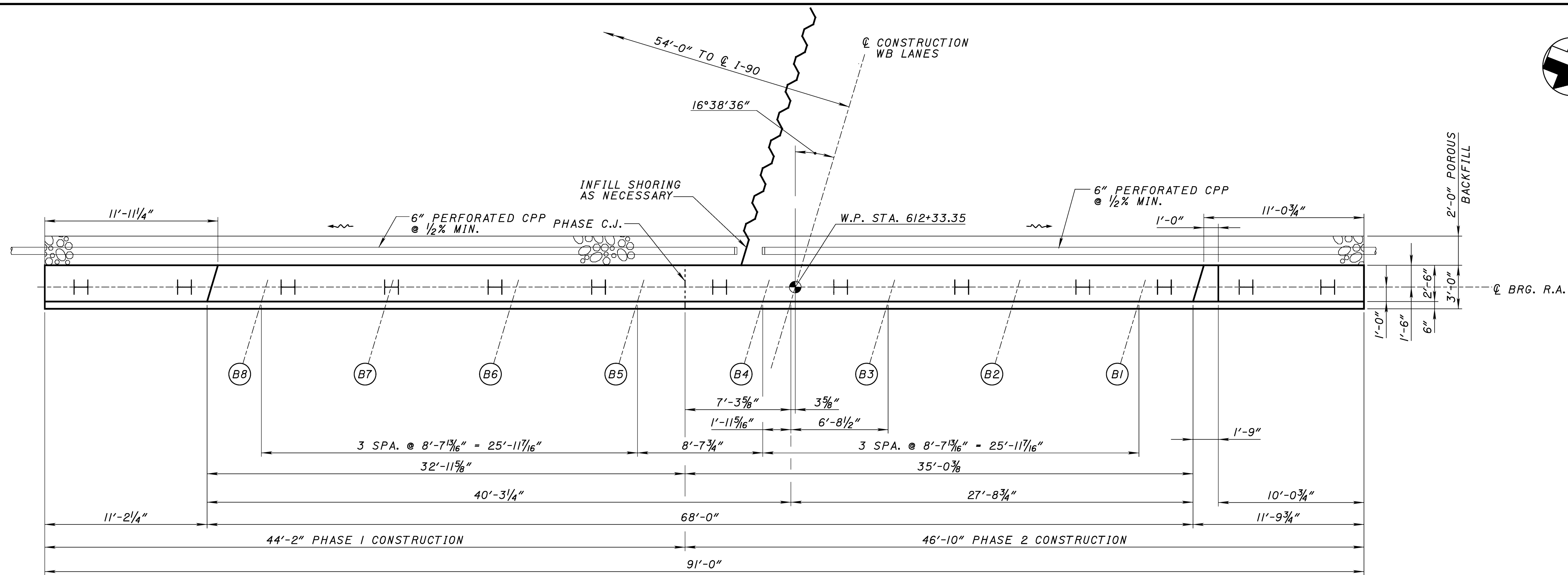
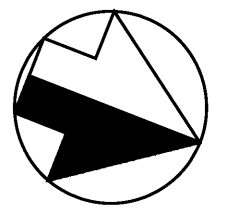


NOTES:
 ALL PILES SHALL BE HP 12 x 53 CONFORMING TO ASTM A572, GRADE 50 DRIVEN TO REFUSAL IN THE UNDERLYING BEDROCK IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 507.
 SEE SHEETS 11/46 THROUGH 15/46 FOR ABUTMENT PLANS AND DETAILS.
 SEE SHEETS 18/46 THROUGH 20/46 FOR PIER PLANS AND DETAILS.
 TEMPORARY SHORING NOT SHOWN FOR CLARITY.

LEGEND
 (XX) - PILE NUMBER

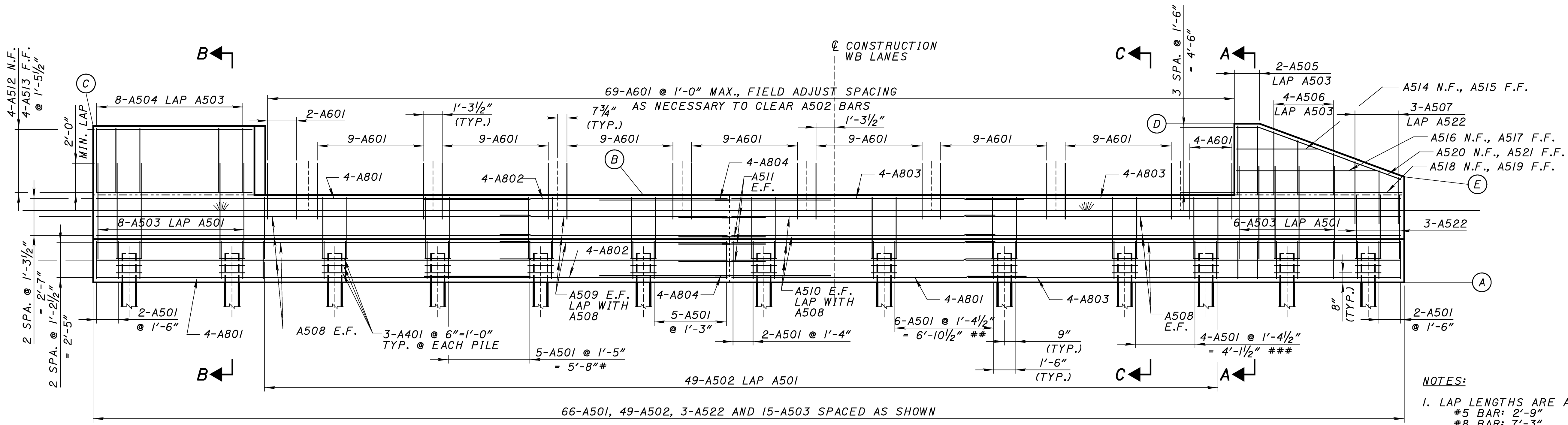
LOCATION	PILE NUMBER	PILE CUTOFF EL.	PILE TIP EL.
LT. R.A.	(1) TO (13)	739.50	693.00
RT. R.A.	(14) TO (26)	739.47	693.00
LT. PIER 1	(27) TO (30)	724.50	697.00
RT. PIER 1	(31) TO (34)	723.20	703.00
LT. PIER 2	(35) TO (38)	726.20	690.00
RT. PIER 2	(39) TO (41)	724.90	690.00
LT. F.A.	(42) TO (55)	739.29	705.00
RT. F.A.	(56) TO (68)	739.19	686.00

SUBSTRUCTURE LOCATION AND PILE PLAN



REAR ABUTMENT PLAN

ALL HORIZONTAL DIMENSIONS ARE MEASURED ALONG FACE OF ABUTMENT

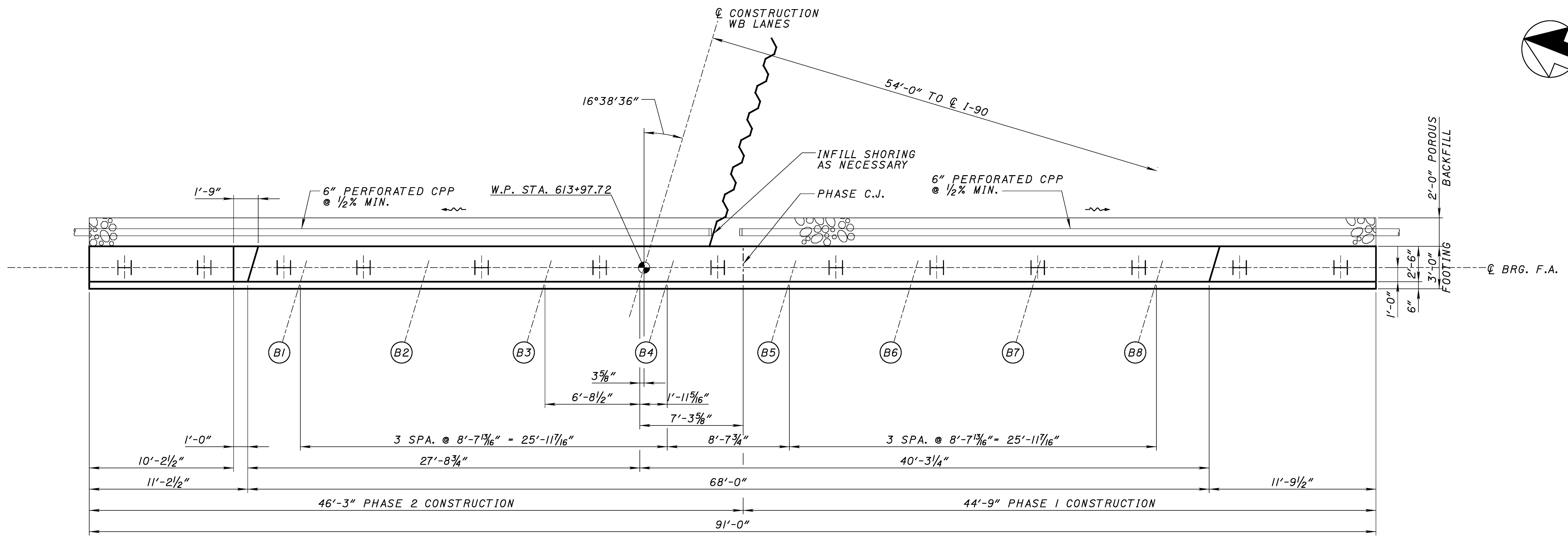
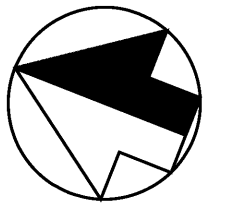


REAR ABUTMENT ELEVATION

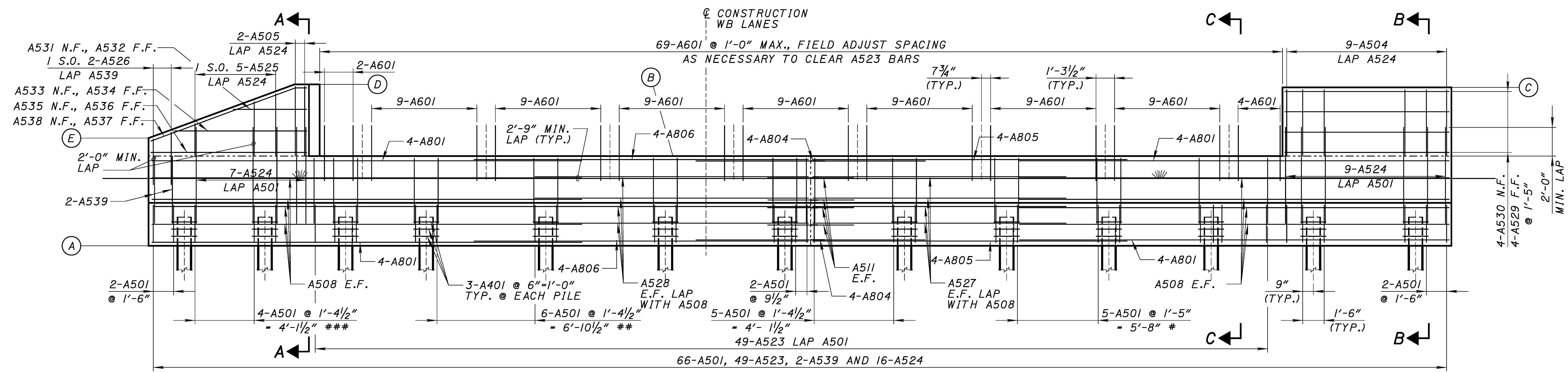
TYPICAL FOR 5 - 7'-1 1/16" SPACINGS BETWEEN PILES
 ## TYPICAL FOR 3 - 8'-4 3/16" SPACINGS BETWEEN PILES
 ### TYPICAL FOR 3 - 5'-7 9/16" SPACINGS BETWEEN PILES

TABLE OF ABUTMENT ELEVATIONS					
LOCATION	A	B	C	D	E
ELEVATION	737.50	743.57	748.35	748.50	744.82

- NOTES:**
- LAP LENGTHS ARE AS FOLLOWS:
 #5 BAR: 2'-9"
 #8 BAR: 7'-3"
 - SEE GENERAL PLAN, SHEET 2/46 FOR DRAINAGE DETAILS.
 - SEE SHEET 15/46 FOR SECTIONS A-A, B-B AND C-C, AND ADDITIONAL NOTES REGARDING ABUTMENT CONSTRUCTION.
 - SEE SHEET 41/46 FOR REINFORCING SCHEDULE.



FORWARD ABUTMENT PLAN
 ALL HORIZONTAL DIMENSIONS ARE
 MEASURED ALONG FACE OF ABUTMENT



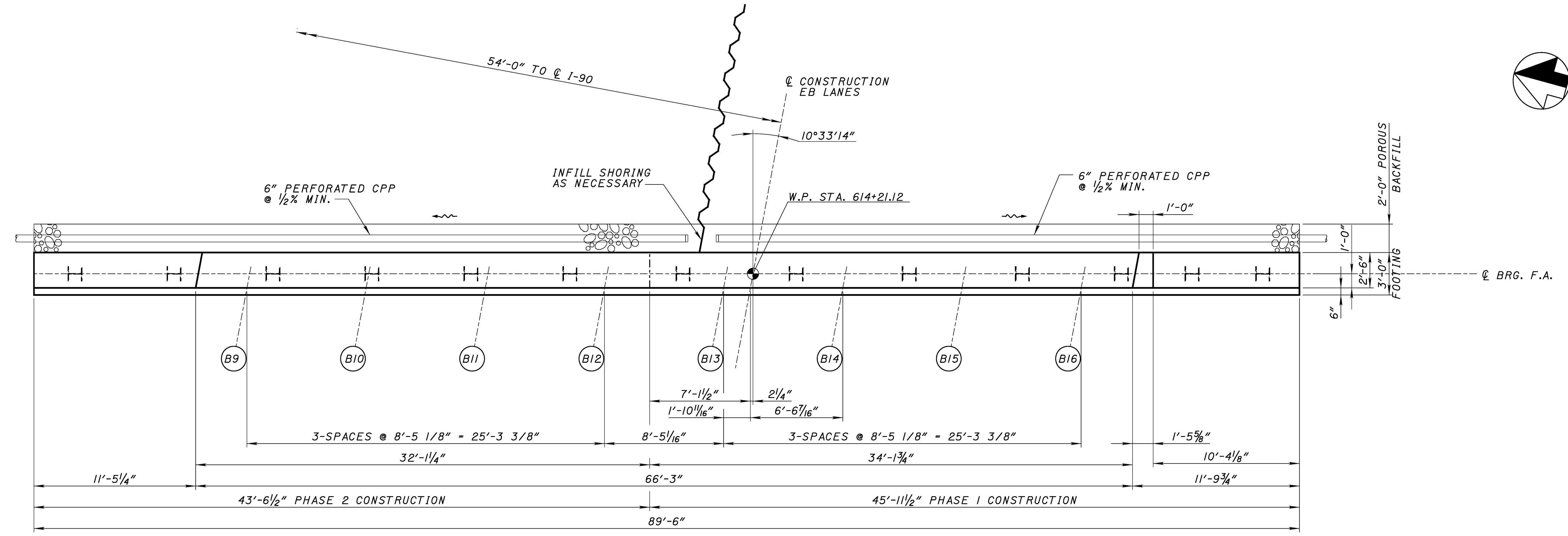
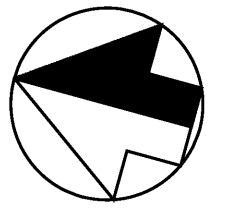
FORWARD ABUTMENT ELEVATION

* TYPICAL FOR 5 - 7'-1 1/16" SPACINGS BETWEEN PILES
 ** TYPICAL FOR 3 - 8'-4 3/16" SPACINGS BETWEEN PILES
 *** TYPICAL FOR 3 - 5'-7 7/16" SPACINGS BETWEEN PILES

TABLE OF ABUTMENT ELEVATIONS					
LOCATION	A	B	C	D	E
ELEVATION	737.29	743.57	748.35	748.57	744.82

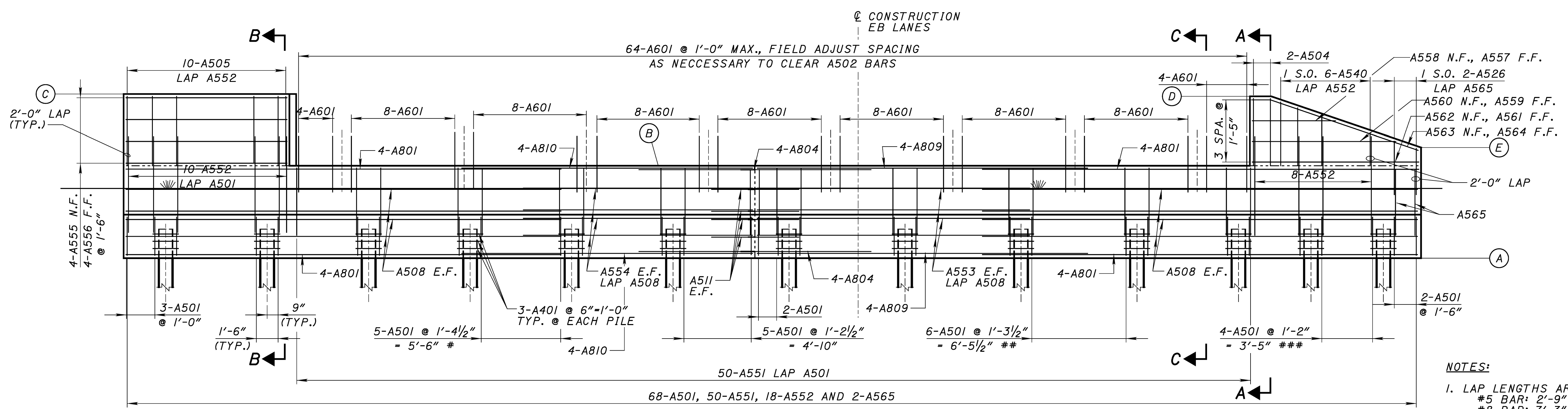
- NOTES:**
- LAP LENGTHS ARE AS FOLLOWS U.N.O:
 #5 BAR: 2'-9"
 #8 BAR: 7'-3"
 - SEE GENERAL PLAN, SHEET 2/46 FOR DRAINAGE DETAILS.
 - SEE SHEET 15/46 FOR SECTIONS A-A, B-B AND C-C, AND ADDITIONAL NOTES REGARDING ABUTMENT CONSTRUCTION.
 - SEE SHEET 41/46 FOR REINFORCING SCHEDULE.

\$DATE\$
 \$FILES\$



FORWARD ABUTMENT PLAN

*HORIZONTAL DIMENSIONS ARE MEASURED FROM FACE OF ABUTMENT



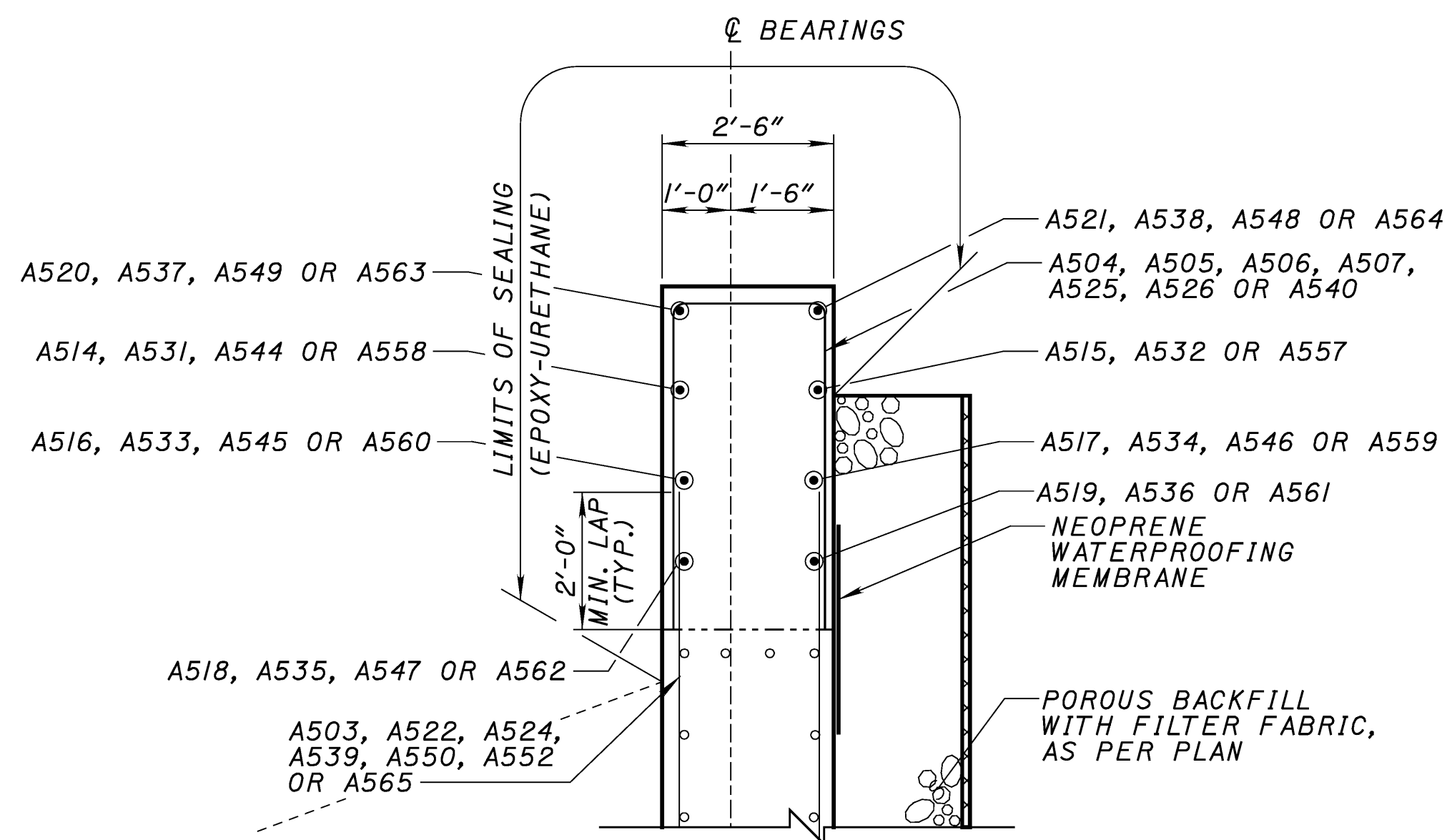
FORWARD ABUTMENT ELEVATION

* TYPICAL FOR 6 - 7'-0" SPACINGS BETWEEN PILES
 ** TYPICAL FOR 3 - 8'-0" SPACINGS BETWEEN PILES
 *** TYPICAL FOR 2 - 5'-0" SPACINGS BETWEEN PILES

TABLE OF ABUTMENT ELEVATIONS					
LOCATION	A	B	C	D	E
ELEVATION	737.19	743.57	748.50	748.34	744.82

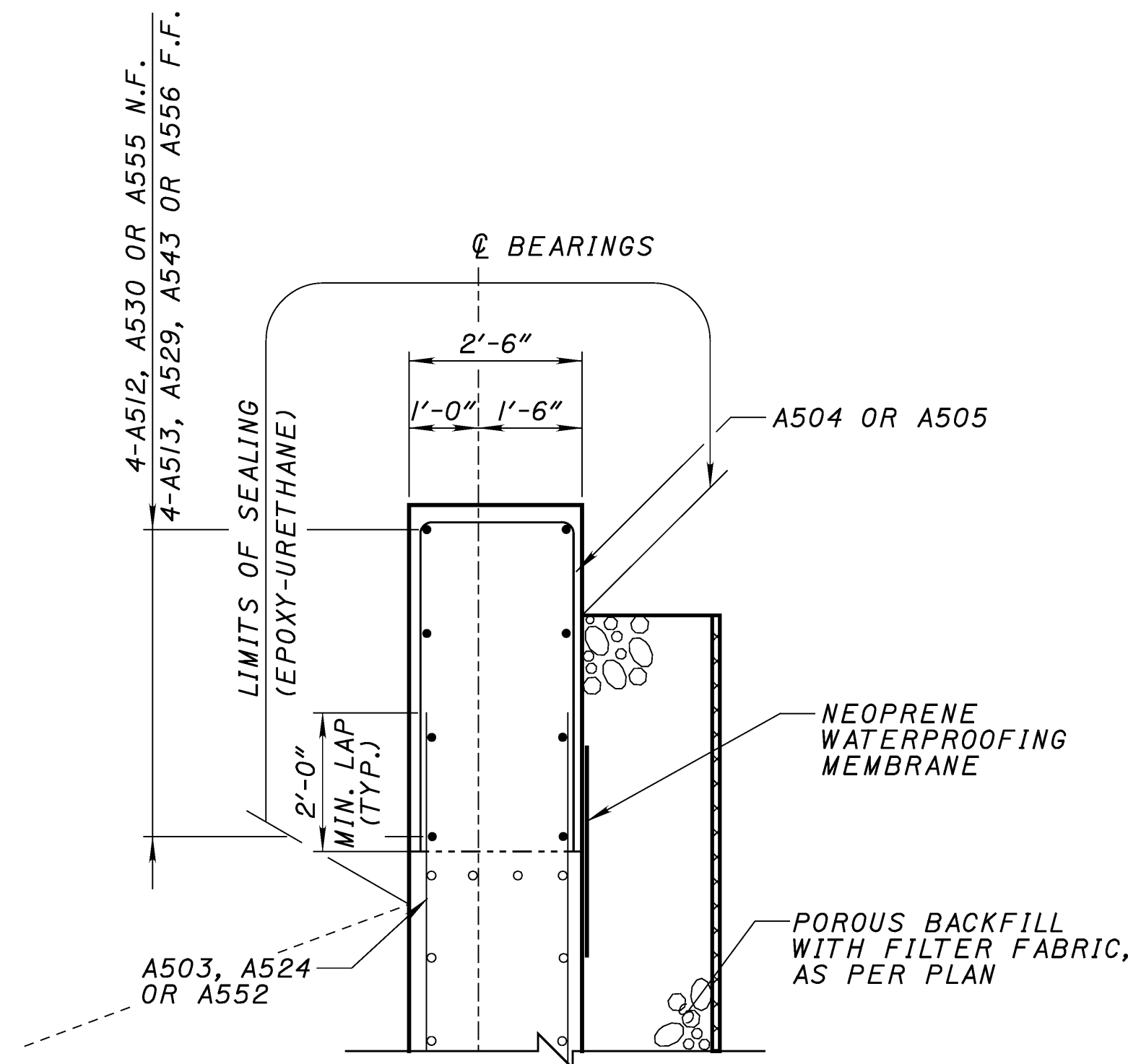
NOTES:

- LAP LENGTHS ARE AS FOLLOWS U.N.O.:
 #5 BAR: 2'-9"
 #8 BAR: 7'-3"
- SEE GENERAL PLAN, SHEET 2/46 FOR DRAINAGE DETAILS.
- SEE SHEET 15/46 FOR SECTIONS A-A, B-B AND C-C, AND ADDITIONAL NOTES REGARDING ABUTMENT CONSTRUCTION.
- SEE SHEET 44/46 FOR REINFORCING SCHEDULE.



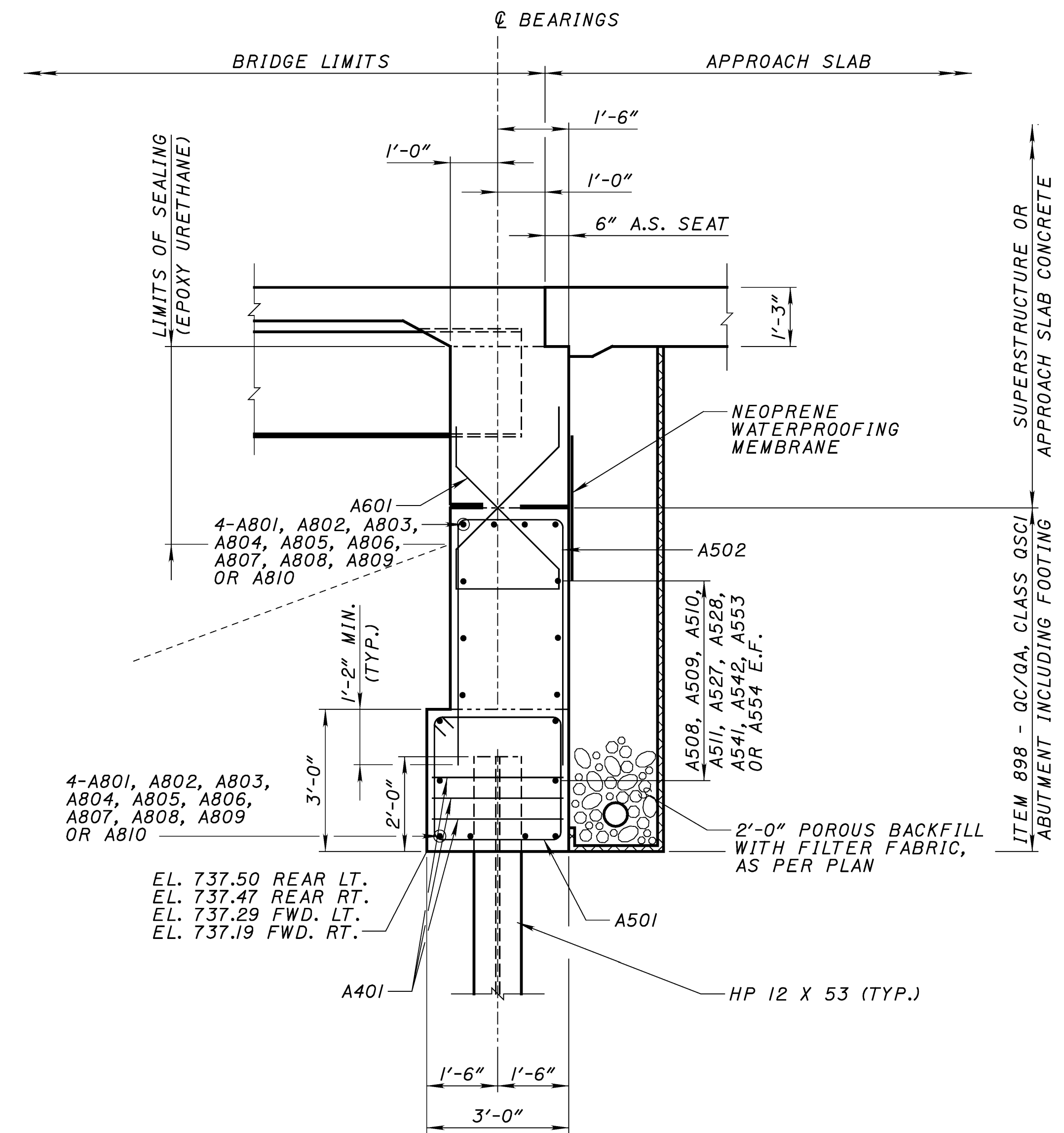
SECTION A-A

NORTH WW L.F. & L.R.
SOUTH WW R.F. & R.R.



SECTION B-B

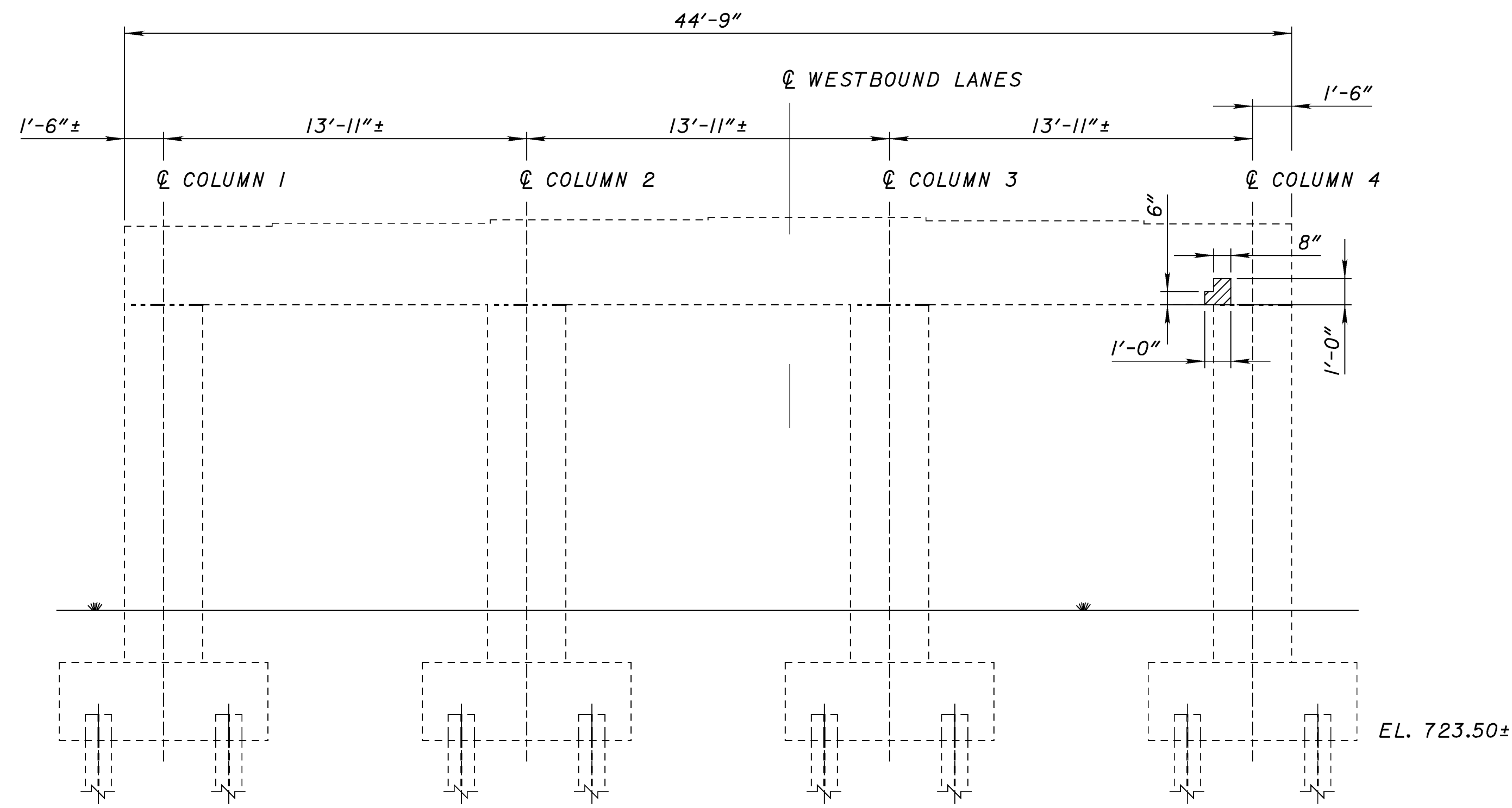
SOUTH WW L.F. & L.R.
NORTH WW R.F. & R.R.



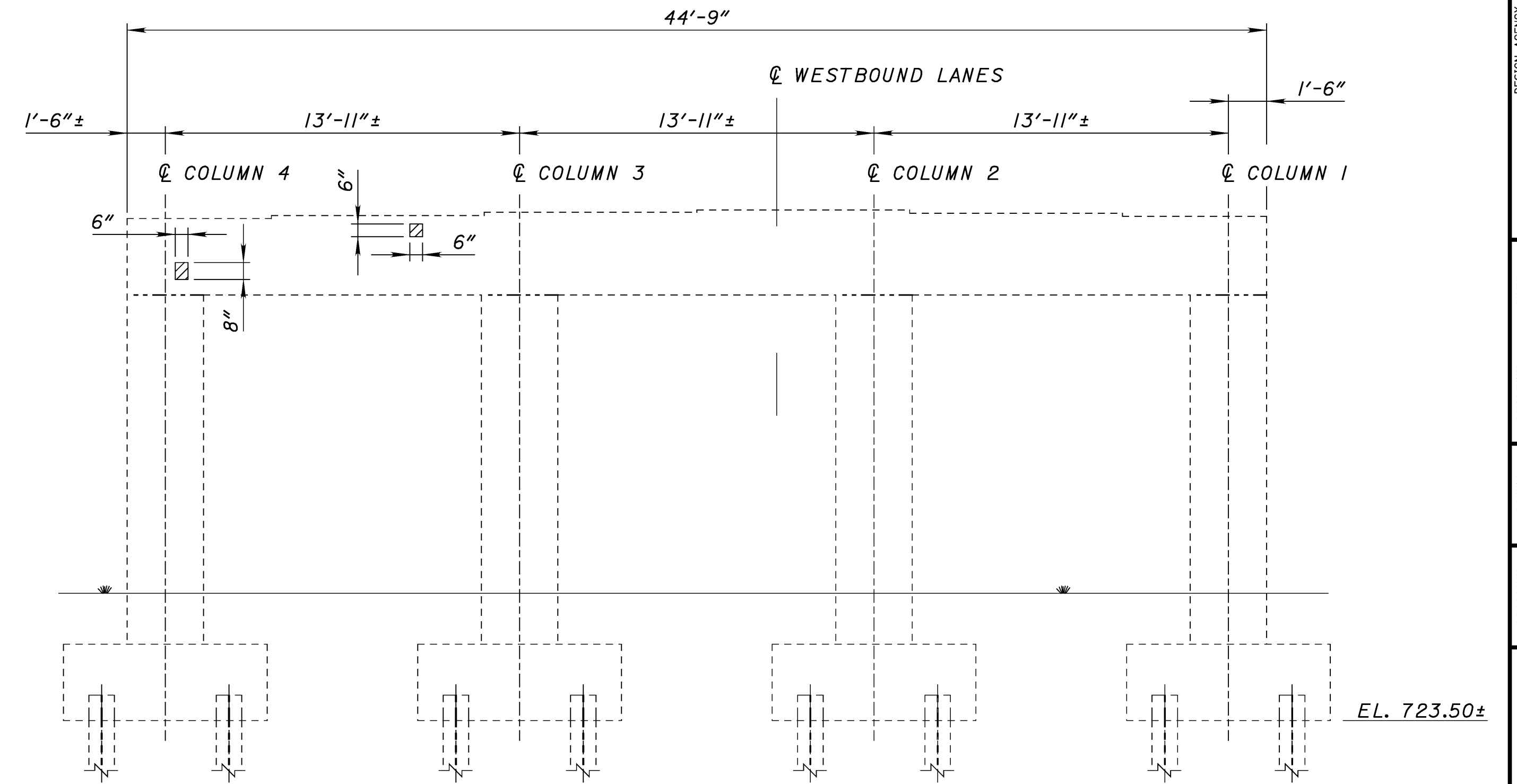
SECTION C-C

NOTES:

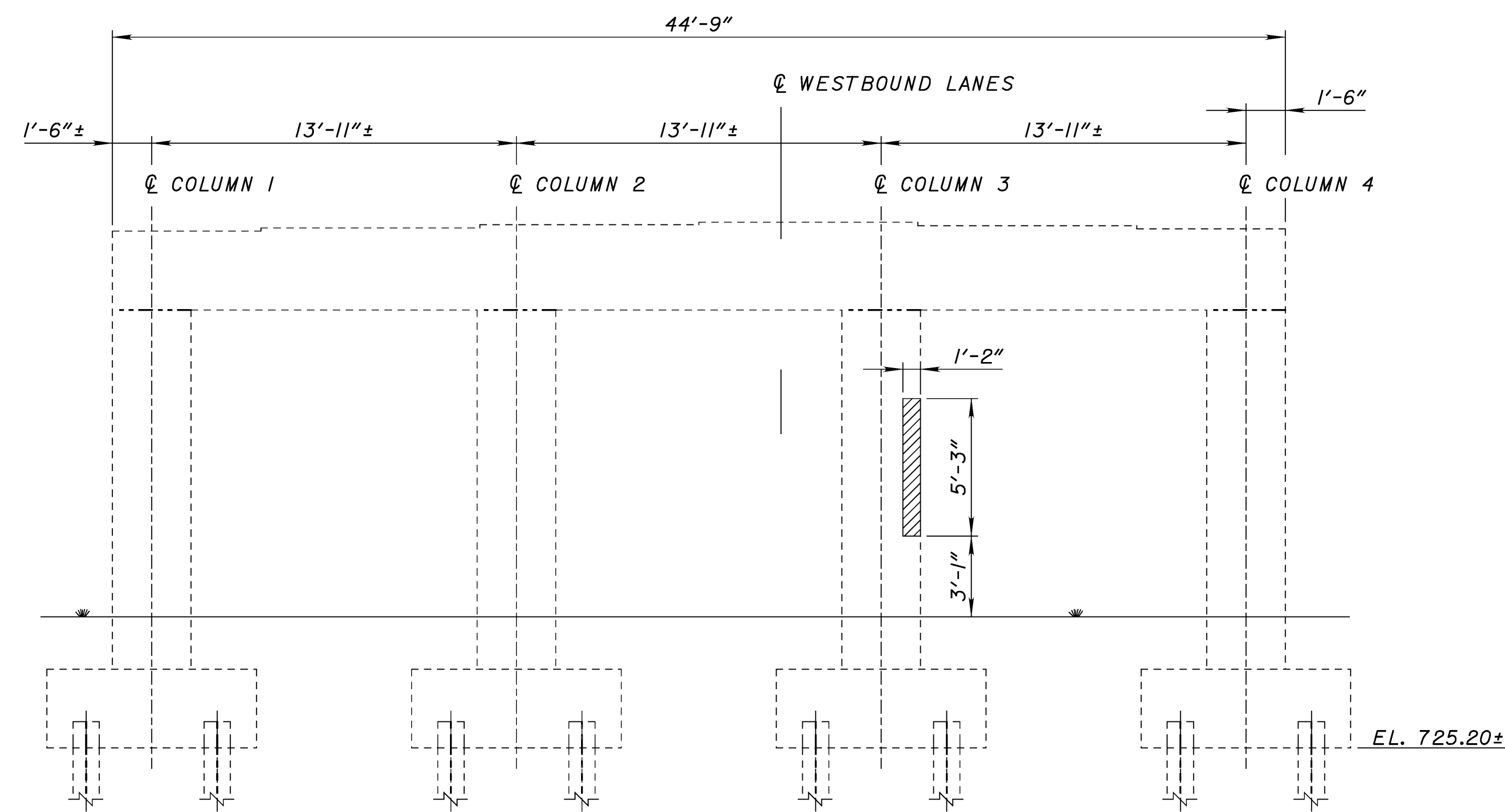
1. POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE AND Laterally TO THE ENDS OF THE WINGWALLS.
2. ABUTMENT CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSCI, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING).
3. SEE SHEETS 41/46 AND 44/46 FOR REINFORCING SCHEDULES.
4. SEE SHEETS 11/46 THROUGH 14/46 FOR LOCATIONS OF SECTIONS A-A, B-B AND C-C.



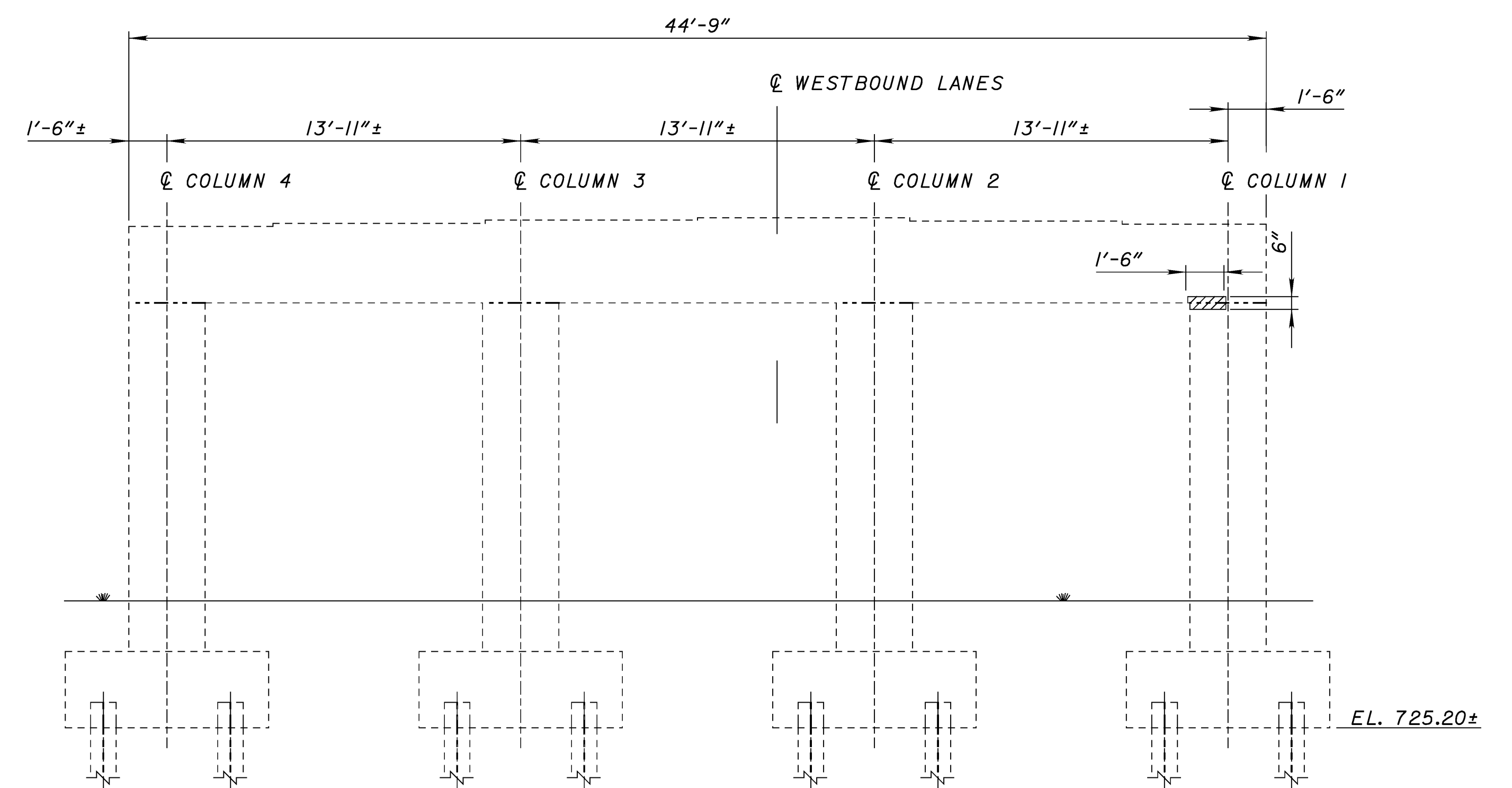
PIER 1 (LOOKING EAST)



PIER 1 (LOOKING WEST)



PIER 2 (LOOKING EAST)



PIER 2 (LOOKING WEST)

LEGEND

= AREA TO BE PATCHED IN ACCORDANCE WITH ITEM 843, PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR.

NOTES:

SEE SHEET 17/46 FOR SUMMARY OF PATCHING QUANTITIES.

\$DATE\$
\$FILES\$

PIER REPAIR DETAILS-LEFT BRIDGE

BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

16 / 46

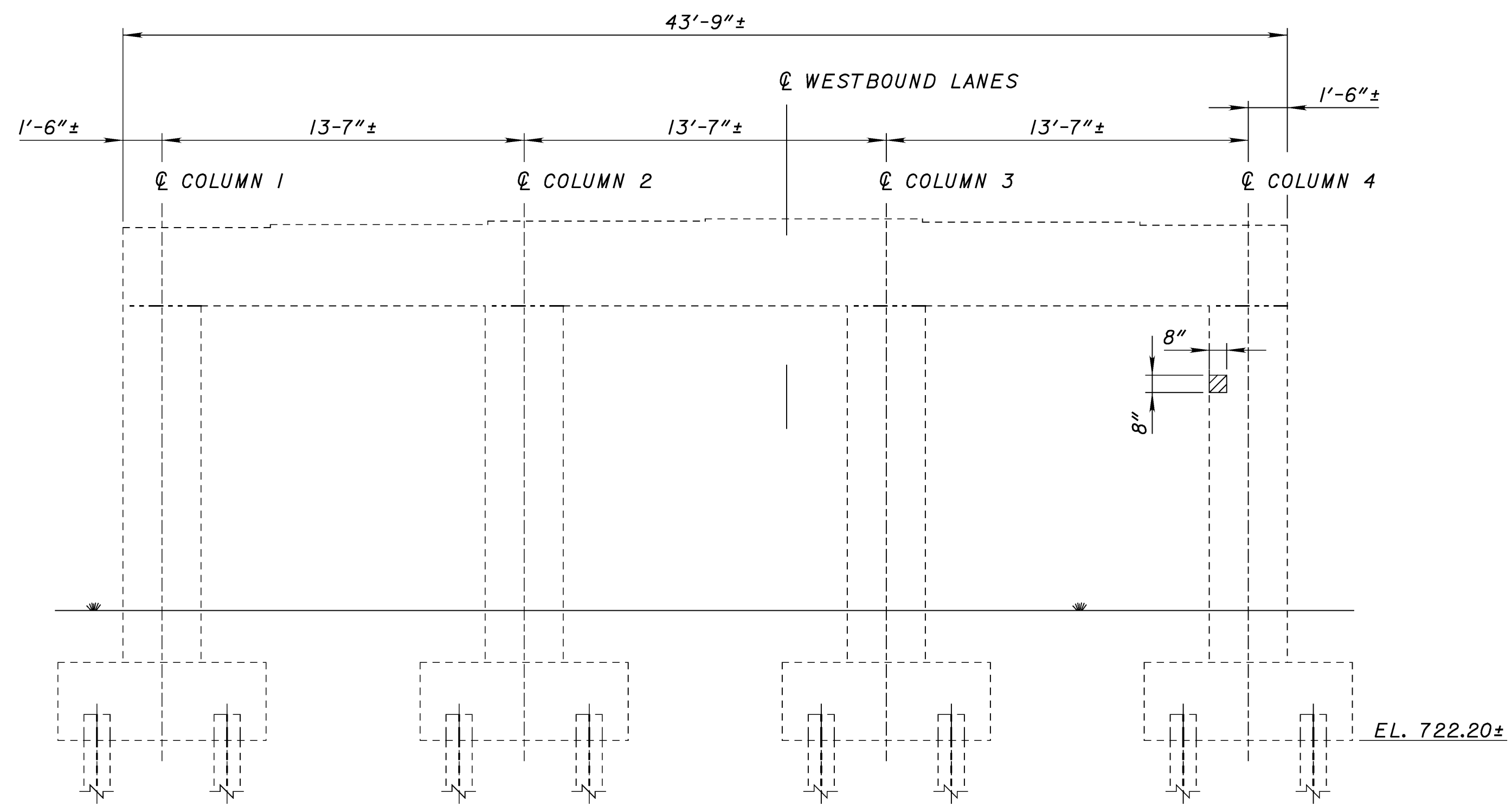
129
199

DESIGN AGENCY
Baker
1288 EUGLID AVENUE, SUITE 1050
CLEVELAND, OHIO 44115

DATE
01-07-08
REVIEWED
LPC
STRUCTURE FILE NUMBER
47043551/4704444R

DRAWN
VLL
REVISED

DESIGNED
VLL
CHECKED
SCT



PIER 1 (LOOKING EAST)

LEGEND

= AREA TO BE PATCHED IN ACCORDANCE WITH ITEM 843, PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR.

PHYSICAL INVENTORY OF MEASURED QUANTITIES OF DETERIORATION WAS PERFORMED IN SEPTEMBER, 2003.

SUMMARY OF PATCHING QUANTITIES ▲	
LOCATION	ESTIMATED QUANTITY
PIERS - LT. BRIDGE	25 FT ²
PIERS - RT. BRIDGE	2 FT ²

▲ ESTIMATED QUANTITY HAS BEEN INCREASED BY 200% OVER FIELD MARK QUANTITY TO ALLOW FOR ADDITIONAL DETERIORATION.

\$DATE\$
\$FILE\$

PIER REPAIR DETAILS - RIGHT BRIDGE
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

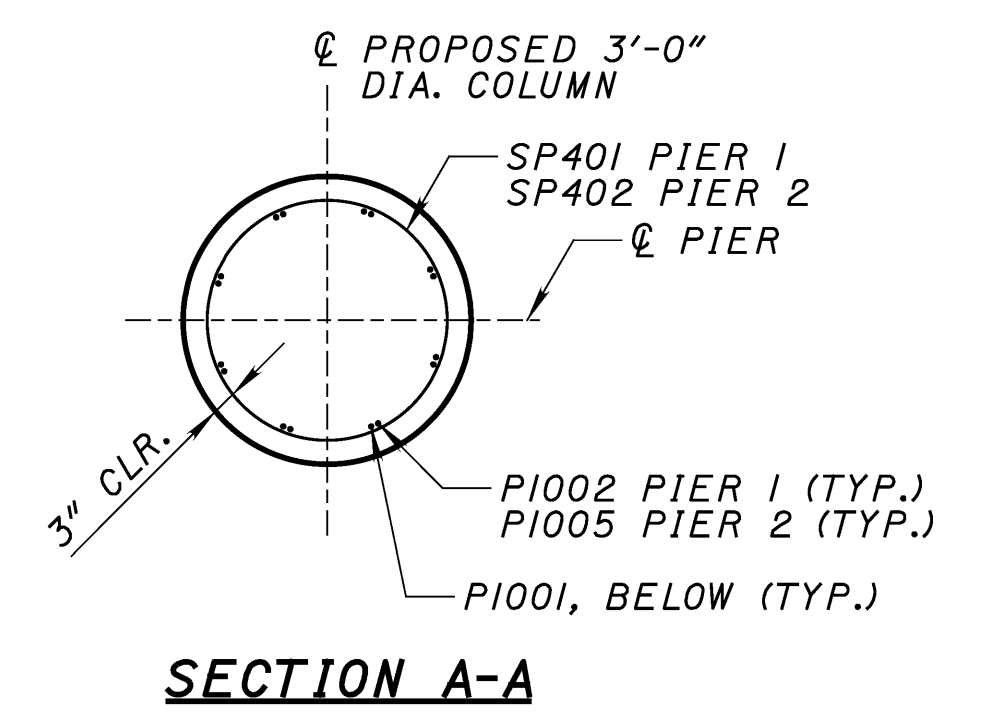
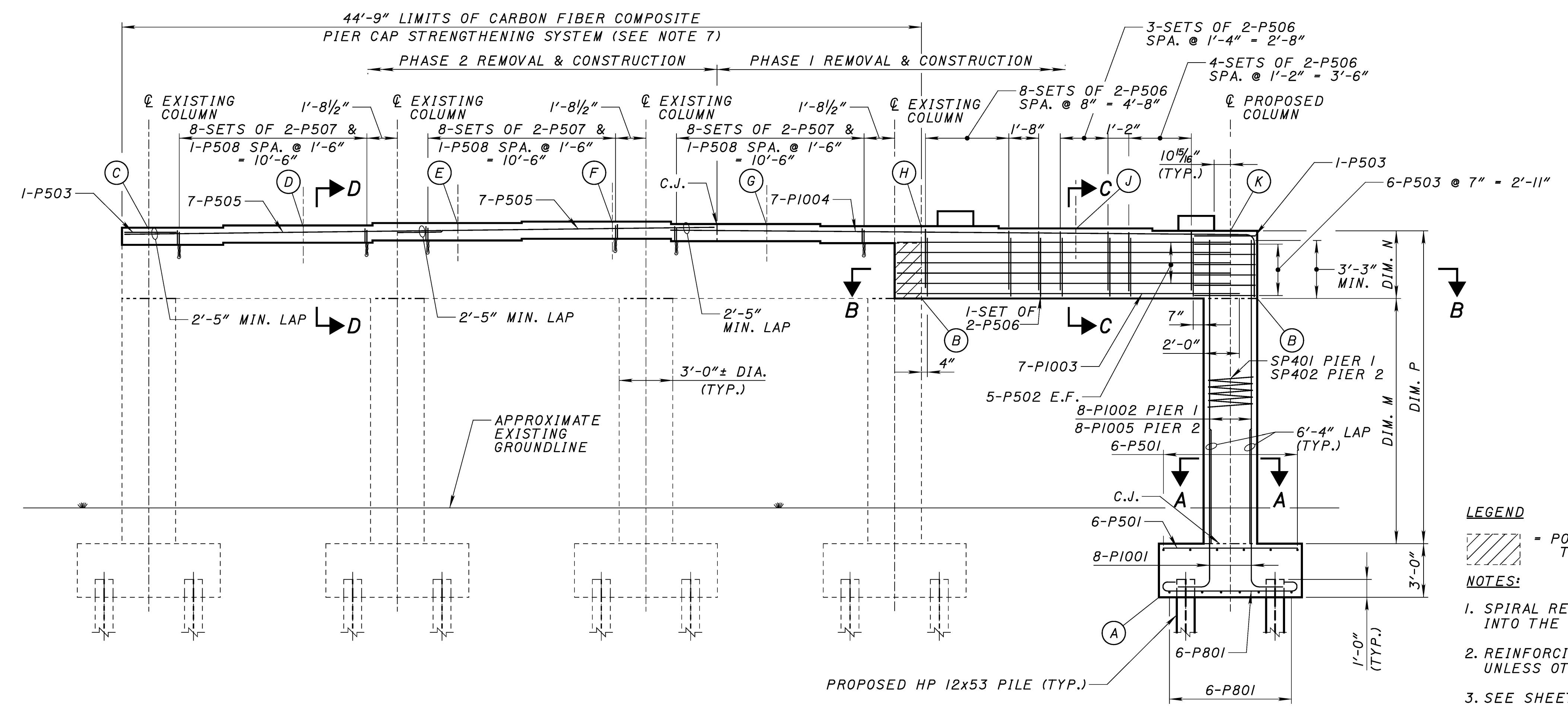
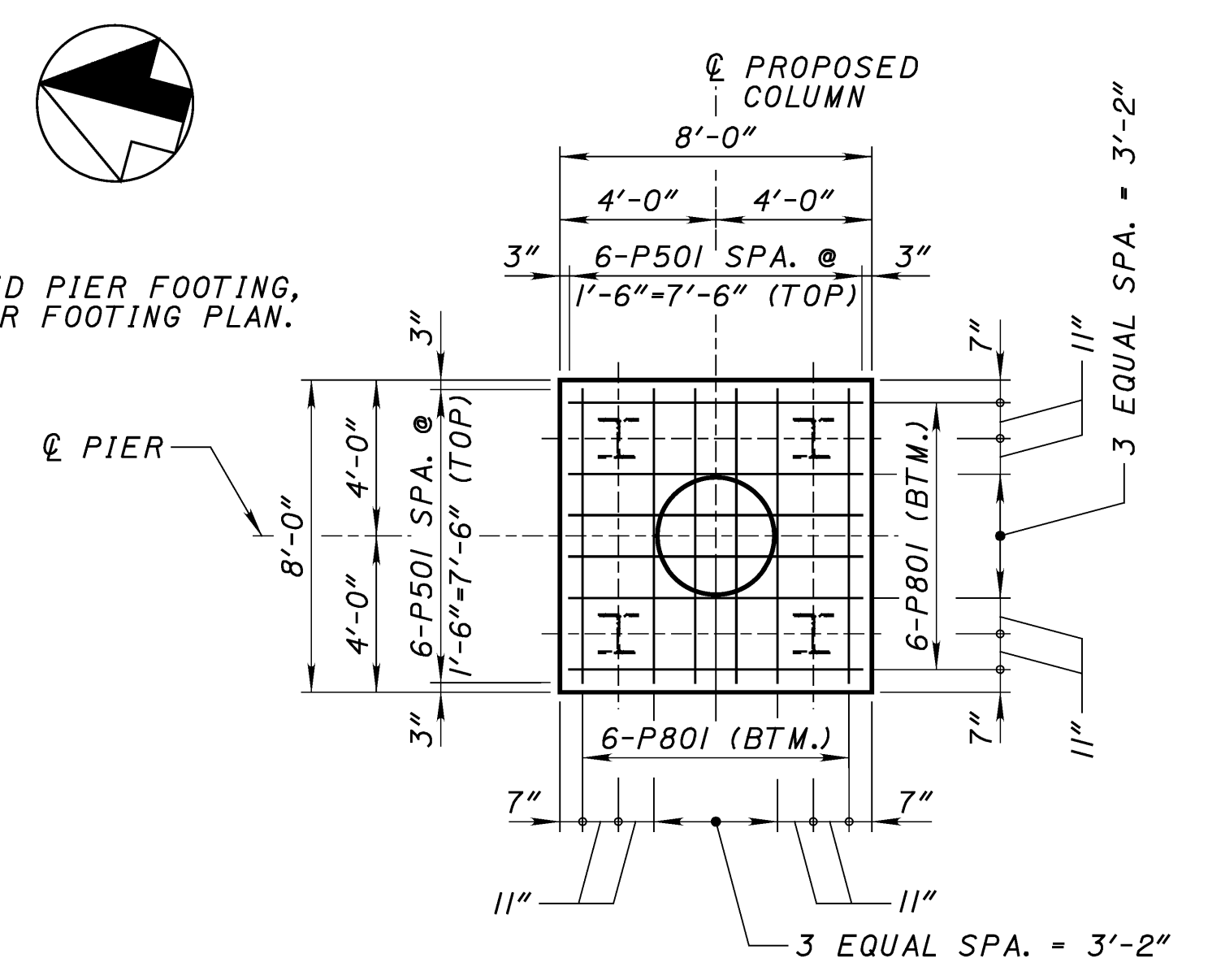
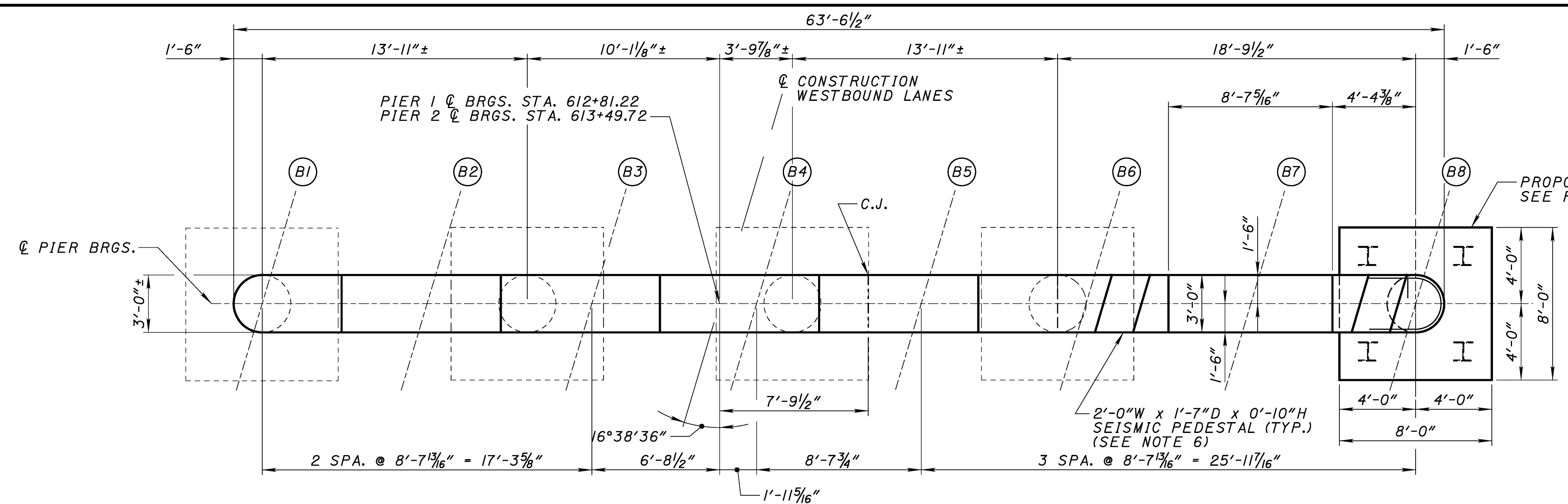
LOR-90-12.42
PID 24868

17 / 46

130
199

DESIGNED	VLL	CHECKED	SCT
DRAWN	VLL	REVISED	
REVIEWED	LPC	STRUCTURE FILE NUMBER	4704355L/470444R
DATE	01-07-08		

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CLEVELAND, OHIO 44115

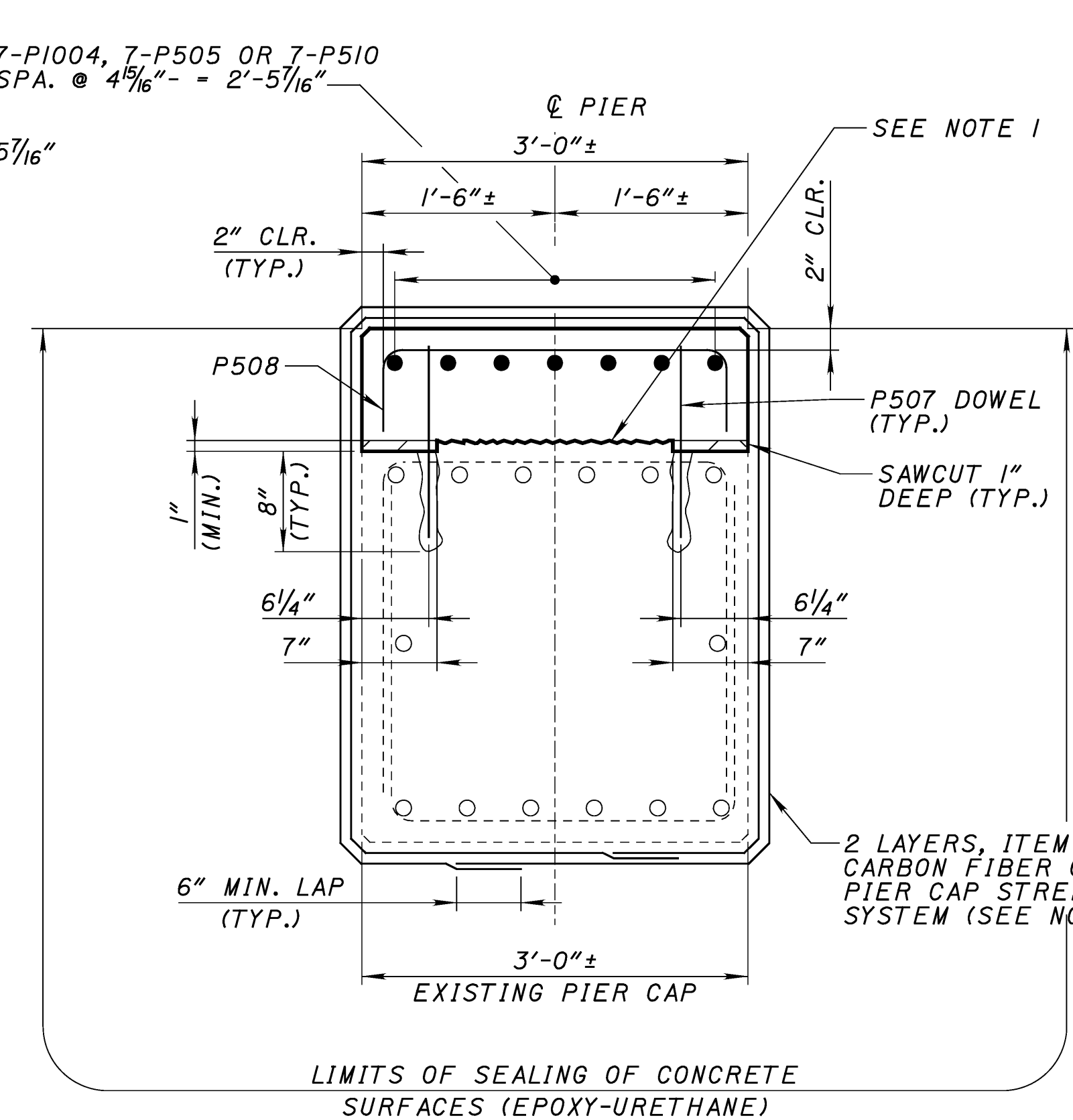
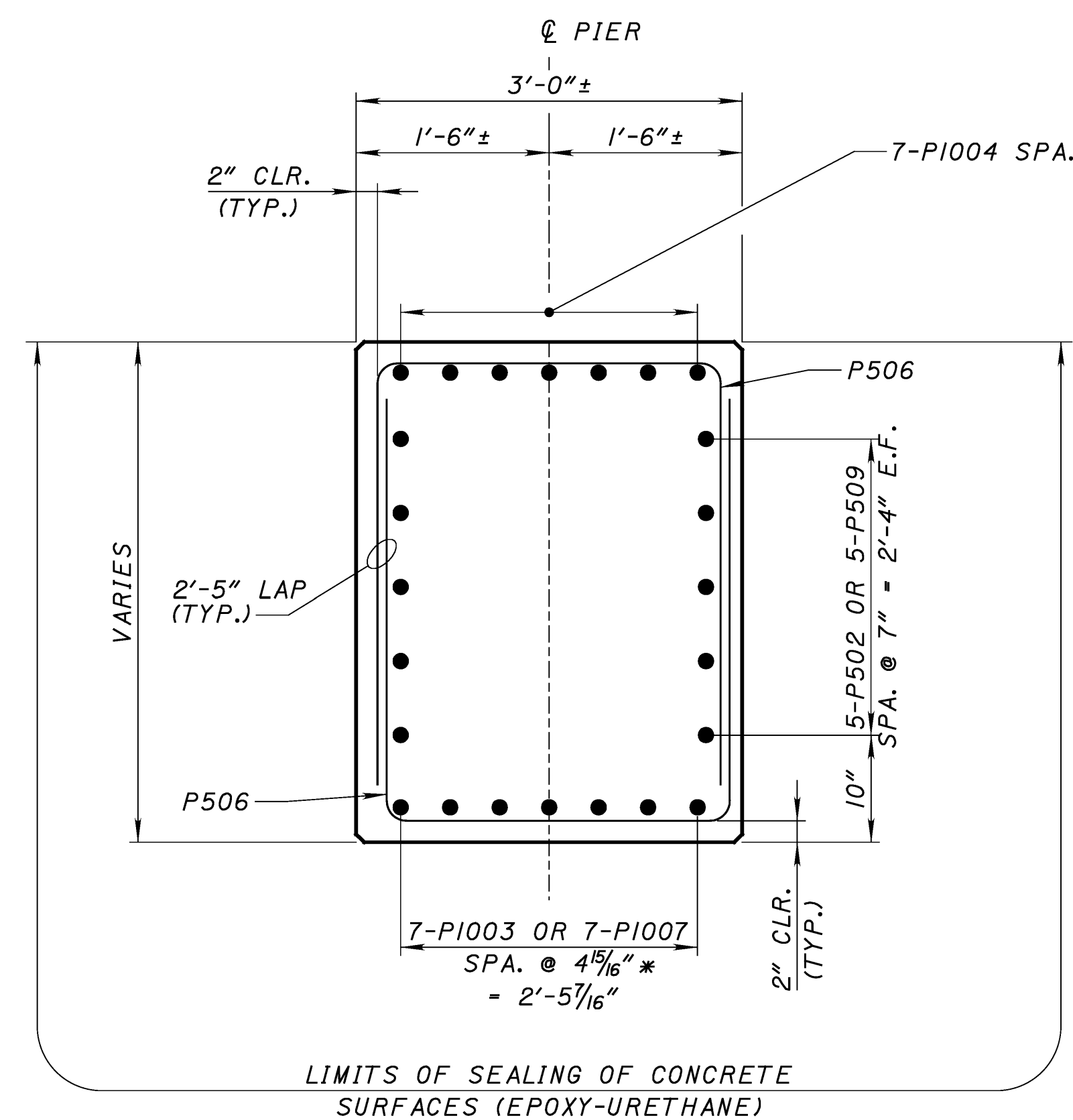
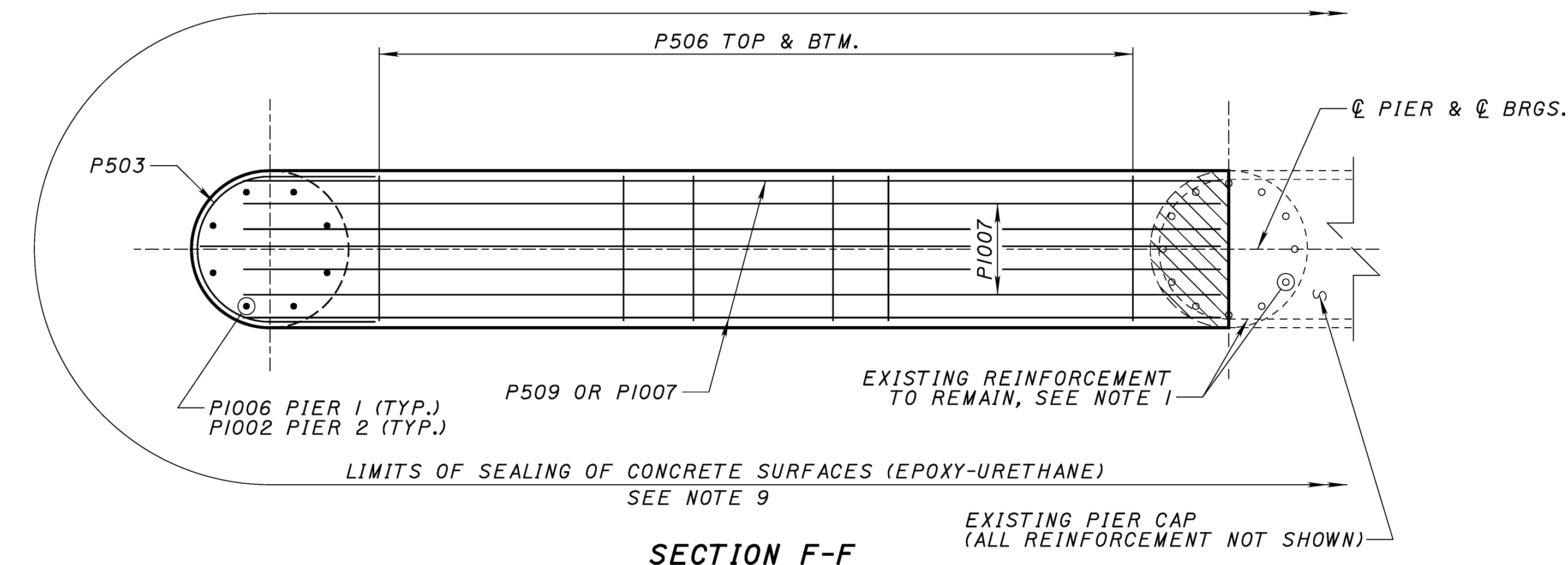
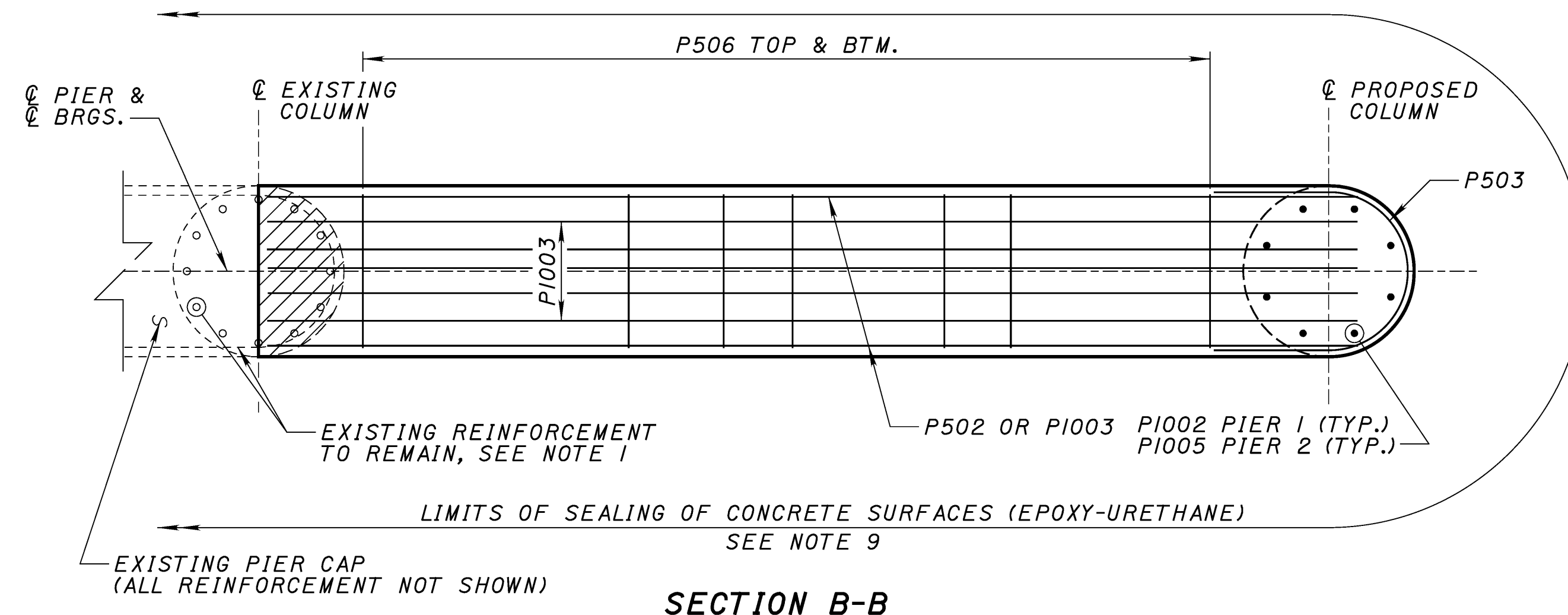
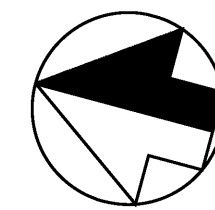


- LEGEND**
 - PORTION OF EXISTING STRUCTURE TO BE REMOVED
- NOTES:**
1. SPIRAL REINFORCEMENT SHALL EXTEND A MINIMUM OF 2" INTO THE PIER CAP.
 2. REINFORCING SPLICE LENGTHS SHALL BE 2'-0" FOR #5 BARS UNLESS OTHERWISE SHOWN.
 3. SEE SHEET 20/46 FOR SECTIONS B-B, C-C, AND D-D.
 4. PIER CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSCI, SUBSTRUCTURE (PIER ABOVE FOOTING).
 5. PIER FOOTING CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSCI, SUBSTRUCTURE (FOOTING).
 6. SEE SHEET 42/46 FOR REINFORCING SCHEDULE.
 7. SEE SHEET 19/46 FOR SEISMIC PEDESTAL REINFORCING.
 8. SEE SHEET 4A/46 FOR NOTES GOVERNING ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE PIER CAP STRENGTHENING SYSTEM.
 9. SEE SHEET 10/46 FOR FOUNDATION PLAN.

PIER ELEVATIONS										
LOCATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)
PIER 1 PROPOSED	723.50	740.21	744.14	744.27	744.40	744.48	744.35	744.22	744.10	743.97
EXISTING			743.21±	743.33±	743.46±	743.55±	743.42±	743.30±		
PIER 2 PROPOSED	725.20	740.43	744.17	744.30	744.42	744.49	744.36	744.23	744.10	743.97
EXISTING			743.43±	743.55±	743.67±	743.76±	743.63±	743.50±		

PIER DIMENSIONS			
DIMENSION	M	N	P
PIER 1	13'-8 1/2"	3'-9 1/8"	17'-5 1/8"
PIER 2	12'-2 3/4"	3'-6 1/2"	15'-9 1/4"

\$DATE\$
 \$FILES\$



LEGEND

- PORTION OF EXISTING STRUCTURE TO BE REMOVED

NOTES:

1. PREPARATION OF THE TOP SURFACE OF EXISTING PIER CAPS: THE TOP SURFACE OF THE EXISTING PIER CAP IN CONTACT WITH THE NEW CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4" AND FULLY CLEANED. ALL LOOSE CONCRETE SHALL BE REMOVED IN SUCH A MANNER AND EXTENT TO EXPOSE A CLEAN, SOUND CONCRETE SURFACE. SOUND CONCRETE SHALL BE REMOVED TO A DEPTH NOT LESS THAN 1/4" AND NOT MORE THAN 1". ONLY PNEUMATIC HAND TOOLS THAT WILL GIVE RESULTS SATISFACTORY TO THE ENGINEER SHALL BE USED IN PREPARING THE EXISTING PIER CAP TOP SURFACE. REINFORCEMENT THAT IS DAMAGED DURING CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT NO COST TO THE STATE.
2. COST OF ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO PREPARE THE TOP SURFACES OF EXISTING PIER CAPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.
3. ALL EXISTING REINFORCING BARS EXPOSED IN CONCRETE REMOVAL AT THE END OF THE EXISTING PIER CAPS SHALL BE PRESERVED. EXTREME CARE SHALL BE TAKEN IN CONCRETE REMOVAL NOT TO DAMAGE EXISTING REINFORCING BARS.
4. LOCATION OF EXISTING REINFORCING BARS IS TAKEN FROM EXISTING PLANS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE BARS IN THE FIELD.
5. SEE SHEETS 18/46 AND 19/46 FOR SECTION B-B, C-C, D-D AND F-F LOCATIONS.
6. SEE SHEETS 42/46 AND 45/46 FOR REINFORCING SCHEDULES.
7. P507 DOWELS SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL FOR PAYMENT. THE COST OF DRILLING AND GROUTING THE DOWEL HOLES SHALL BE INCLUDED WITH ITEM 510 - DOWEL HOLES WITH NON-SHRINK NON-METALLIC GROUT FOR PAYMENT.
8. SEE SHEET 4A/46 FOR NOTES GOVERNING ITEM SPECIAL - STRUCTURE MISC.: CARBON FIBER COMPOSITE PIER CAP STRENGTHENING SYSTEM.
9. EPOXY URETHANE SEALING LIMITS FOR PROPOSED AND EXISTING COLUMNS SHALL BE EXPOSED SURFACES FROM GROUNDLINE TO BOTTOM OF PIER CAP.

* ADJUST CAP BAR SPACING TO AVOID COLUMN BARS WHERE NECESSARY

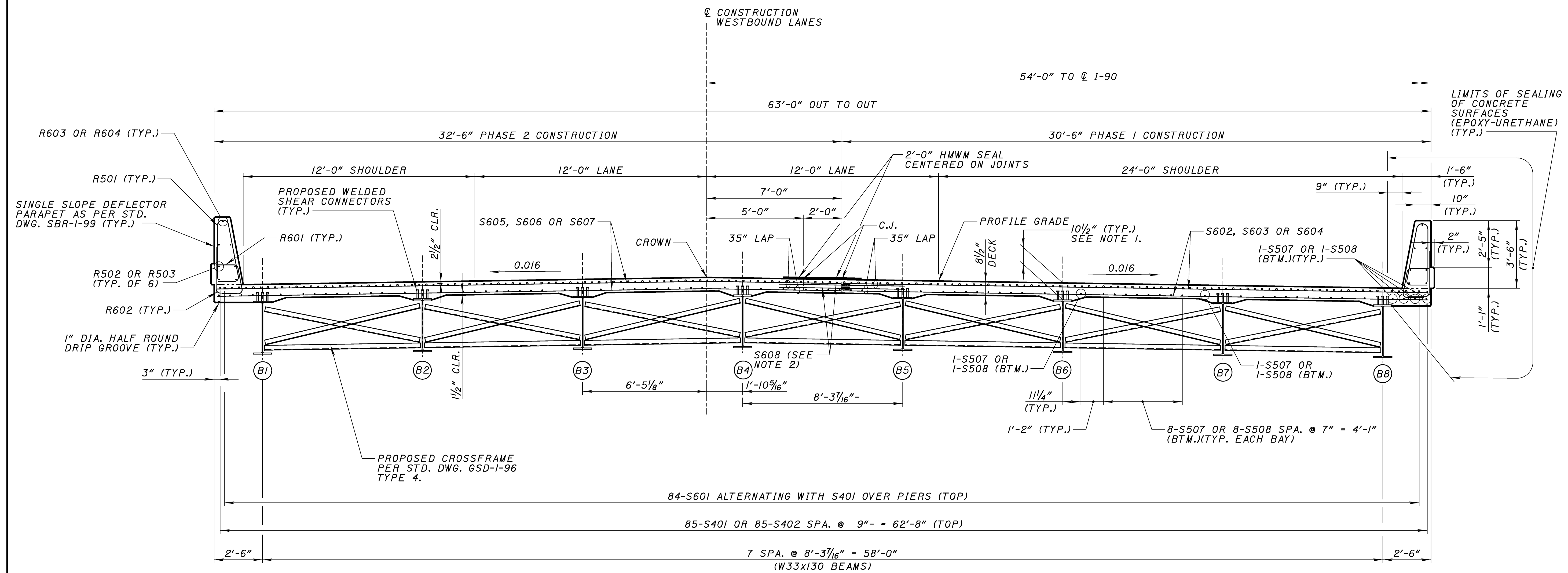
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DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	47043551/4704444R
DRAWN	MKB
REVISED	
DESIGNED	MKB
CHECKED	KAS

PIER DETAILS
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

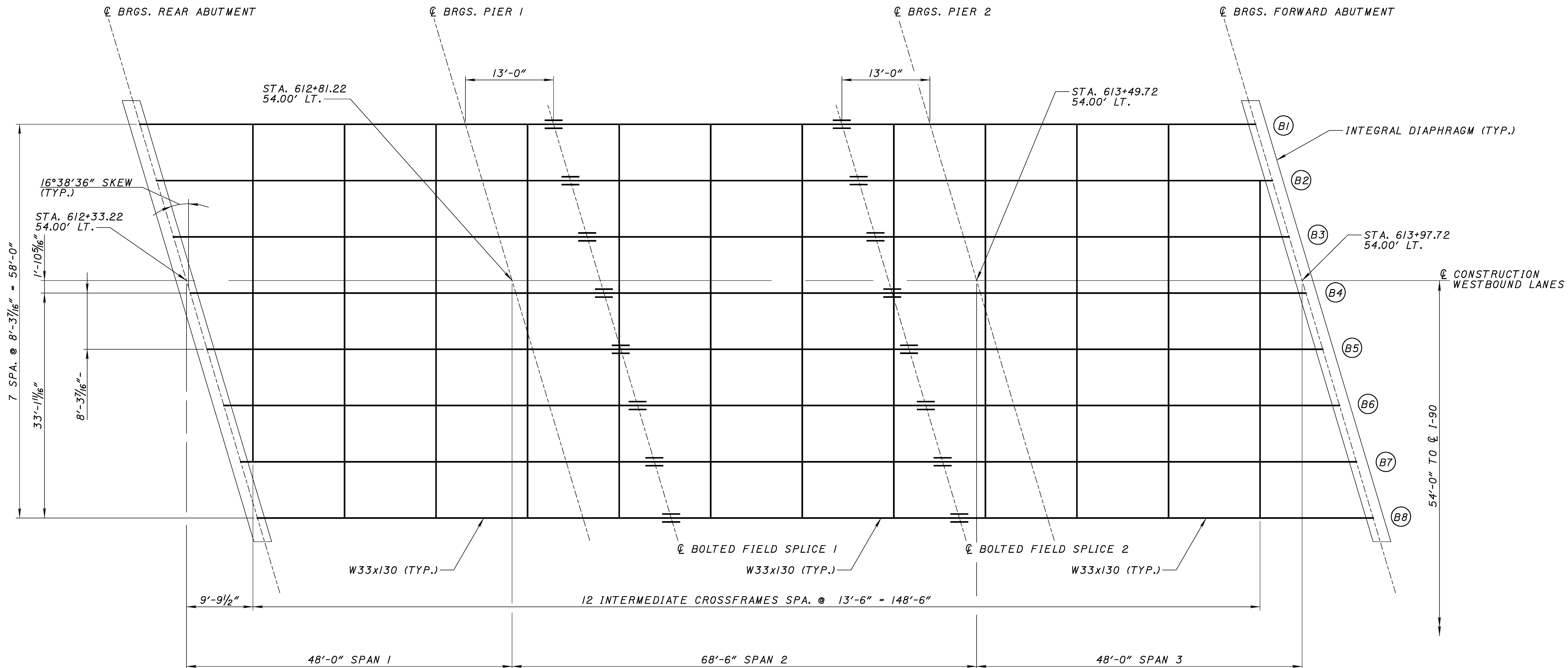
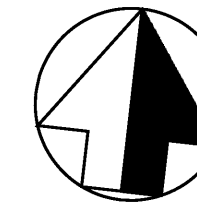
LOR-90-12.42
PID 24868

\$DATE\$
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TRANSVERSE SECTION

- NOTES:**
- DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, 8 1/2", PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
 - NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
 - DECK SLAB CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
 - PARAPET CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN.
 - SEE SHEET 43/46 FOR REINFORCING SCHEDULE.
 - SEE SHEETS 22/46 THROUGH 24/46 FOR FRAMING PLAN AND SUPERSTRUCTURE DETAILS.
 - SEE SHEETS 25/46 THROUGH 28/46 FOR DECK SLAB PLAN, END DIAPHRAGM DETAILS AND SCREED ELEVATION TABLE.



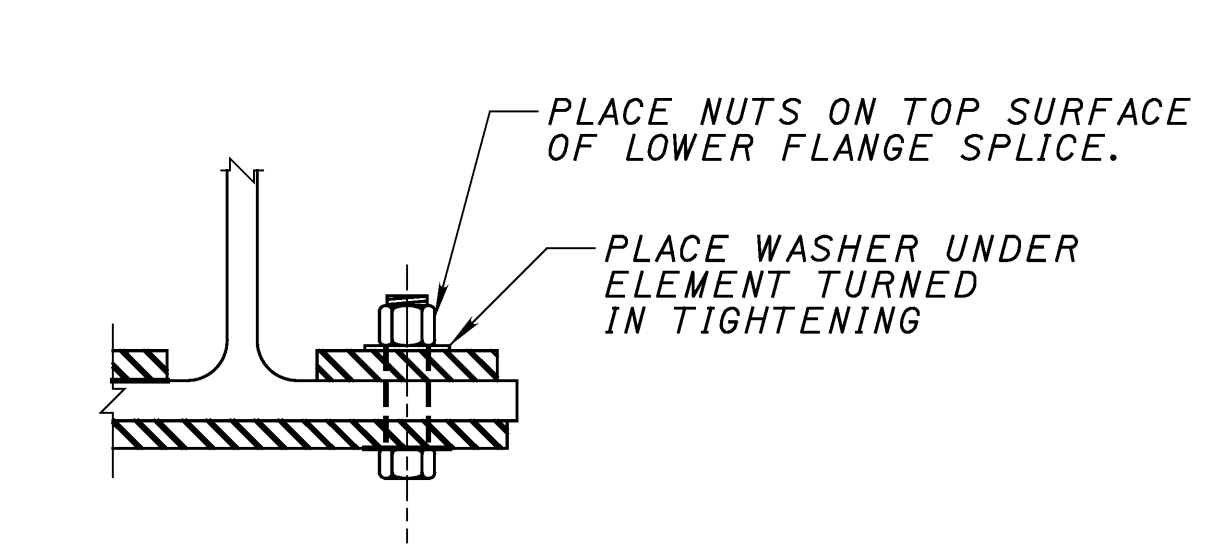
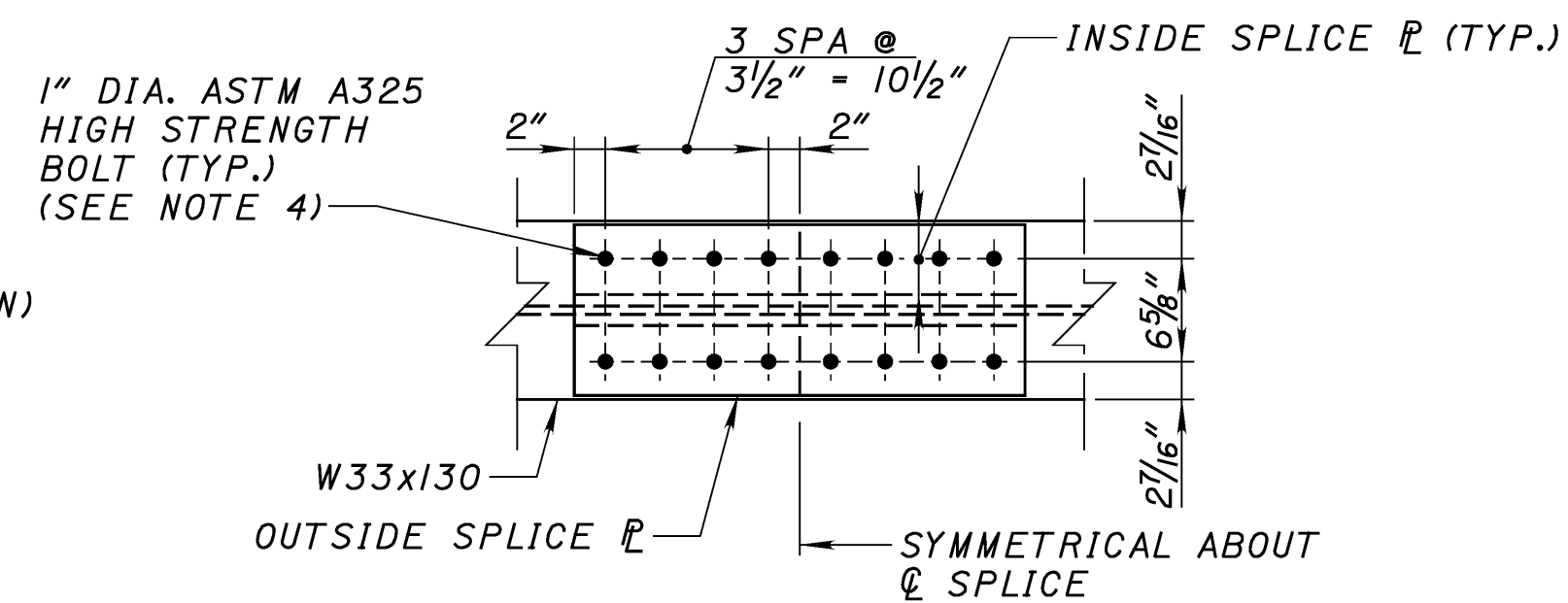
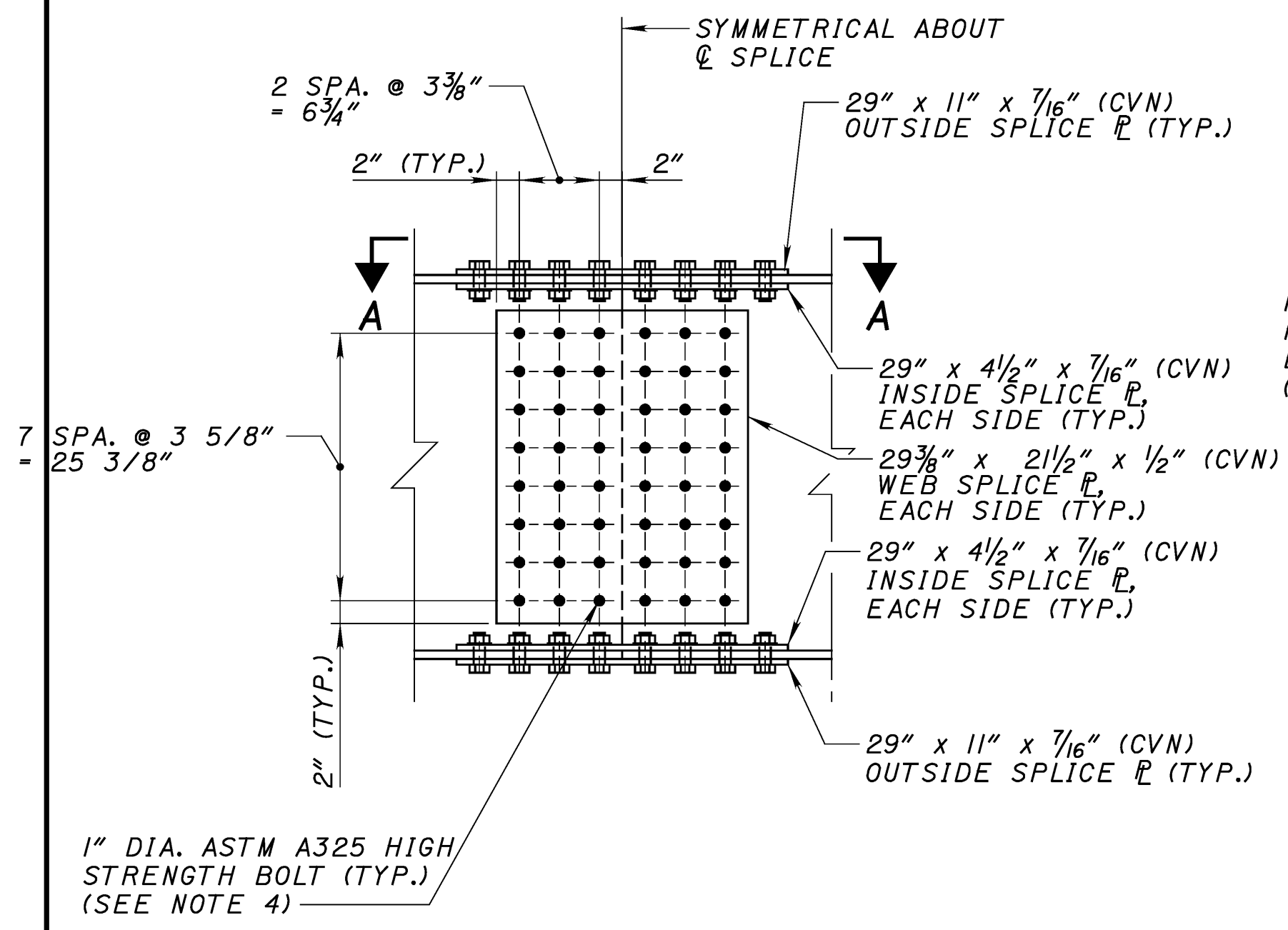
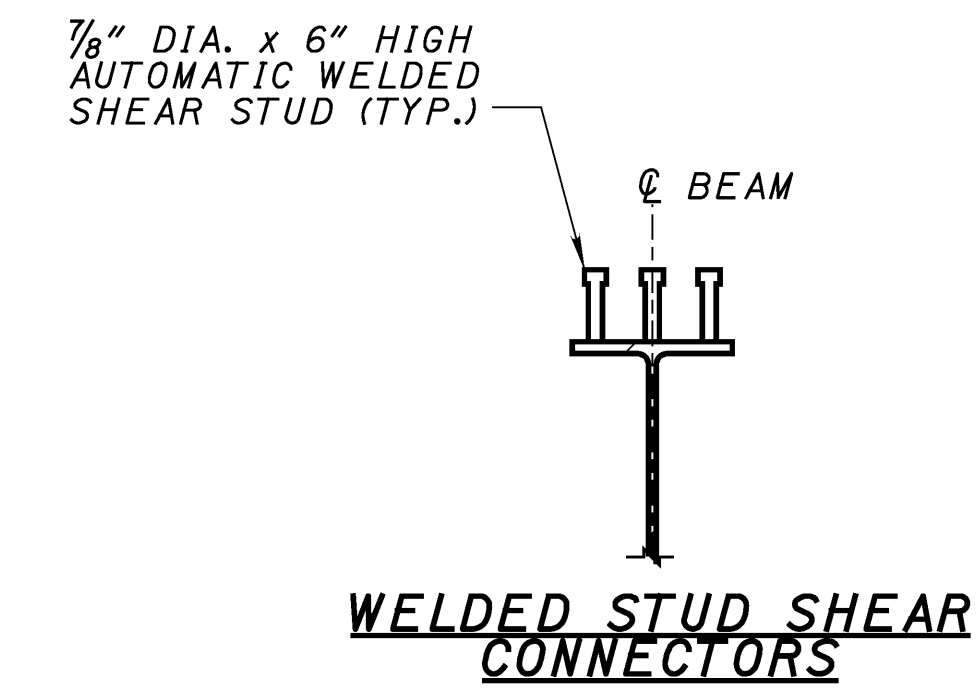
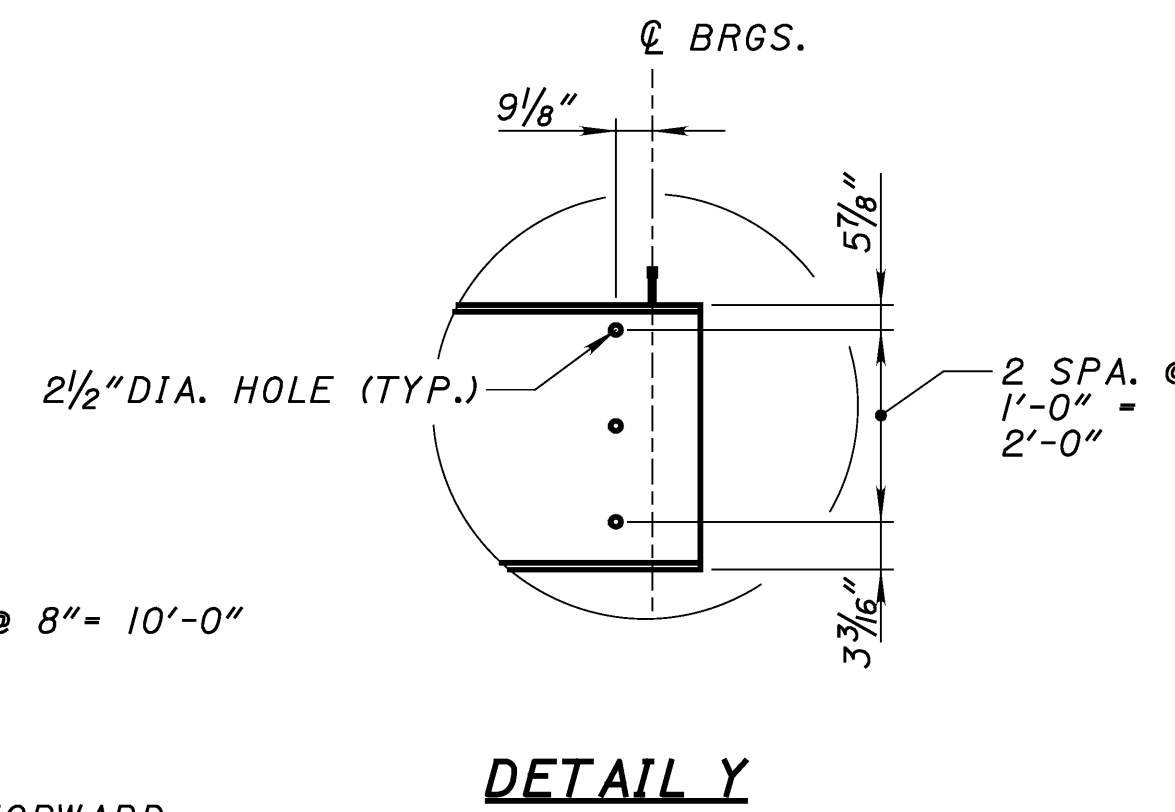
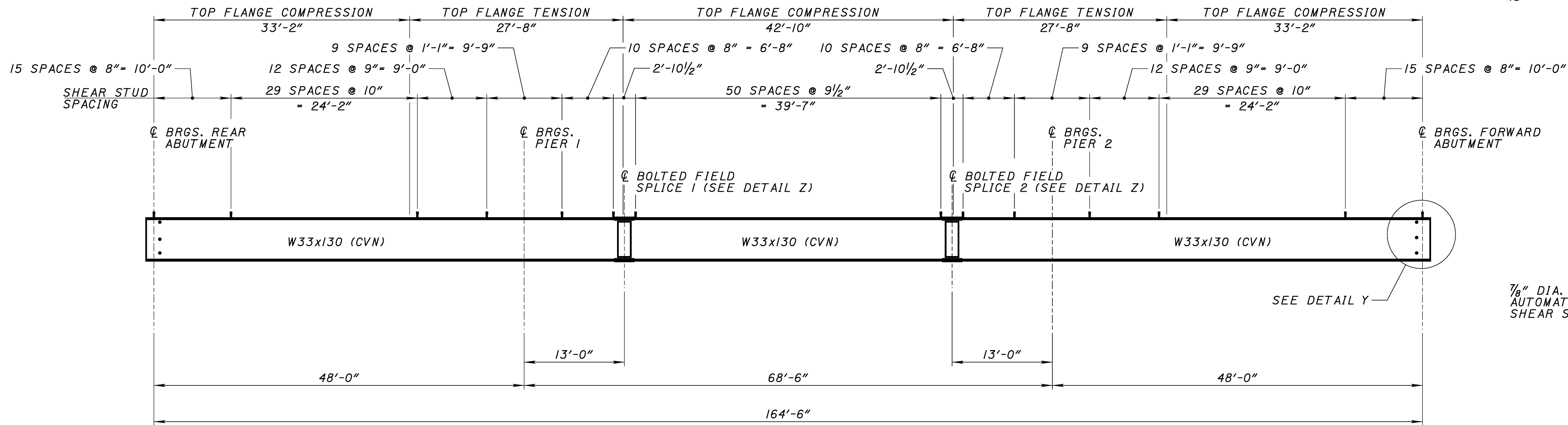
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REVIEWED	LPC
STRUCTURE FILE NUMBER	47043551/4704444R
DRAWN	VLC/MKB
REVISED	
DESIGNED	VLC/MKB
CHECKED	KAS

FRAMING PLAN - LEFT BRIDGE
 BRIDGE NO. LOR-90-1244 L/R
 I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

- NOTES:**
1. SEE STD. DWG. GSD-I-96 FOR CROSSFRAME DETAILS.
 2. SEE SHEET 24/46 FOR DEFLECTION AND CAMBER TABLE.
 3. SEE SHEET 23/46 FOR BEAM ELEVATION AND BOLTED FIELD SPLICE DETAILS.
 4. SEE SHEET 21/46 FOR TRANSVERSE SECTION.

\$DATE\$
\$FILE\$



- NOTES:
1. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 3/16" FOR GREATER THAN 3/4" THICK.
 2. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
 3. SEE SHEET 22/46 FOR FRAMING PLAN.
 4. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325, GALVANIZED, UNLESS OTHERWISE NOTED.

\$DATE\$
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DESIGN AGENCY
Baker
1288 E. 124th AVENUE, SUITE 1050
CLEVELAND, OHIO 44115

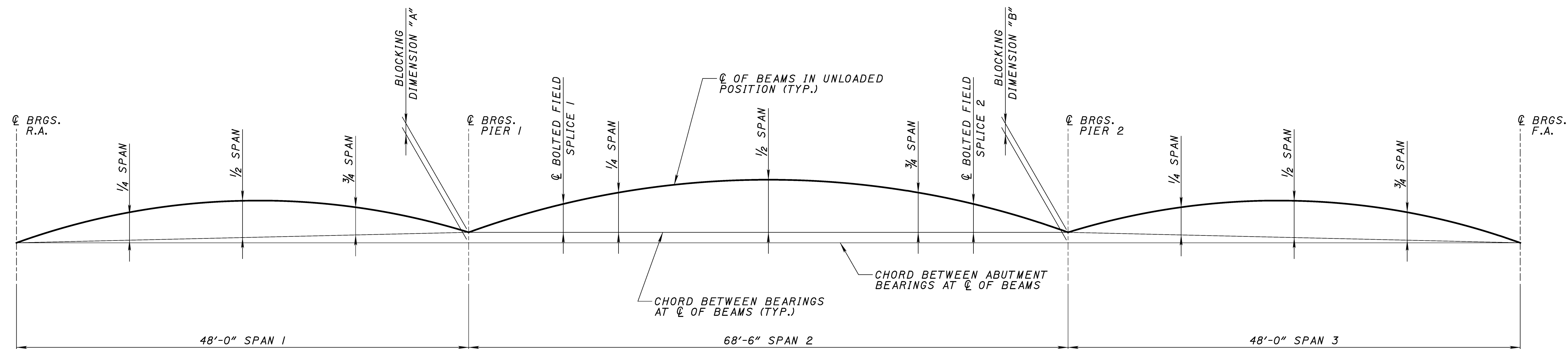
DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	47043551/4704444R
DRAWN	MKB
REVIS	
DESIGNED	MKB
CHECKED	KAS

SUPERSTRUCTURE DETAILS - LEFT BRIDGE
BRIDGE NO. LOR-90-1244 L/R
I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

23/46

136
199



CAMBER DIAGRAM

BLOCKING DIMENSIONS	
DIMENSION "A"	13/16"
DIMENSION "B"	13/16"

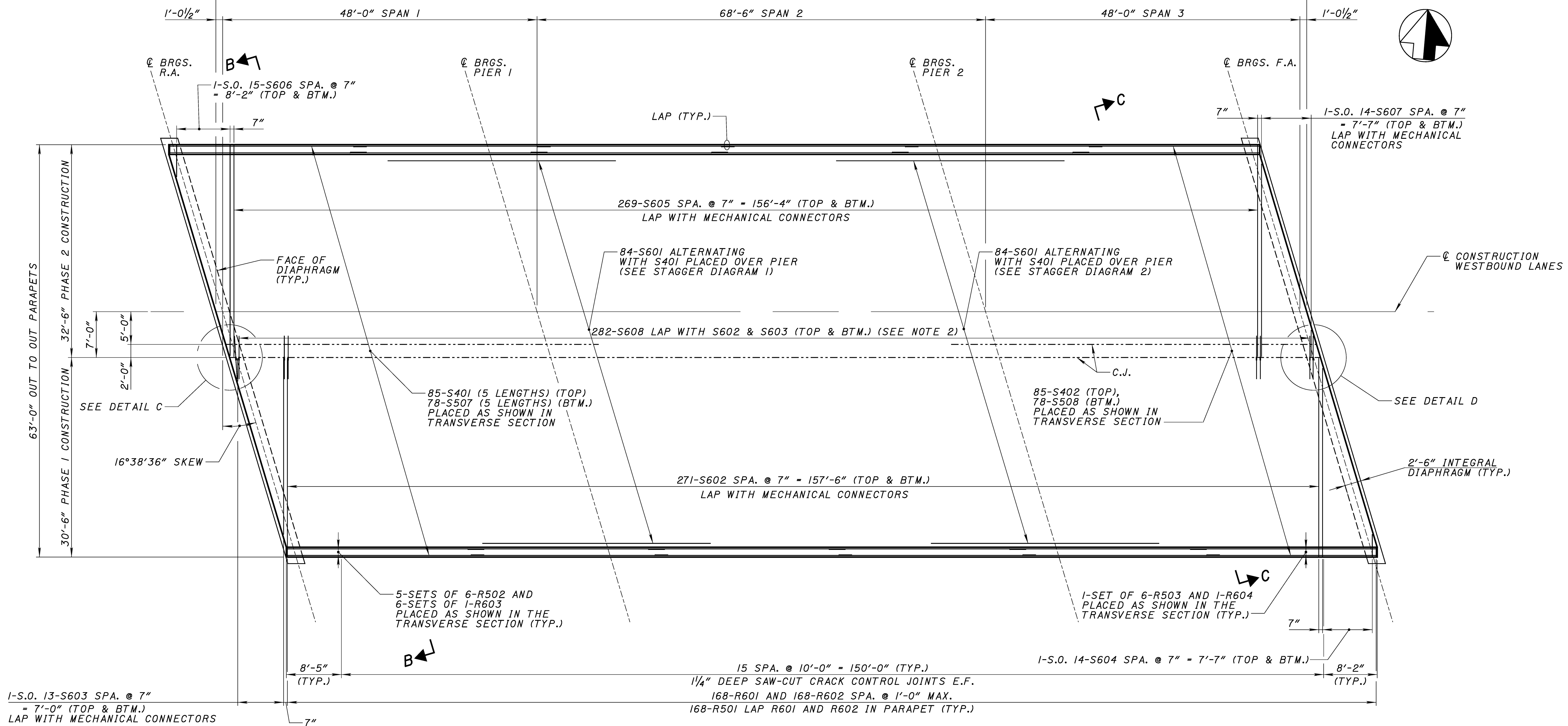
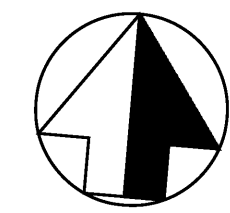
LEFT BRIDGE DEFLECTION AND CAMBER (INCHES) B1 & B8											
CAMBER DESCRIPTION	SPAN 1			SPAN 2				SPAN 3			
	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 2	1/4 SPAN	1/2 SPAN	3/4 SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	1/16	1/16	1/16	1/16	1/16	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1/8	3/16	1/16	1/4	3/8	5/8	3/8	1/4	1/16	3/16	1/8
VERTICAL CURVE ADJUSTMENT	1/16	1/16	1/16	1/8	1/8	3/16	1/8	1/8	1/16	1/16	1/16
REQUIRED SHOP CAMBER	3/16	1/4	1/8	7/16	9/16	7/8	9/16	7/16	1/8	1/4	3/16

LEFT BRIDGE DEFLECTION AND CAMBER (INCHES) B2 - B7											
CAMBER DESCRIPTION	SPAN 1			SPAN 2				SPAN 3			
	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 2	1/4 SPAN	1/2 SPAN	3/4 SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	1/16	1/16	1/8	1/16	1/16	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16	3/16	1/16	1/4	7/16	3/8	7/16	1/4	1/16	3/16	3/16
VERTICAL CURVE ADJUSTMENT	1/16	1/16	1/16	1/8	1/8	3/16	1/8	1/8	1/16	1/16	1/16
REQUIRED SHOP CAMBER	1/4	1/4	1/8	7/16	3/8	5/16	5/8	7/16	1/8	1/4	1/4

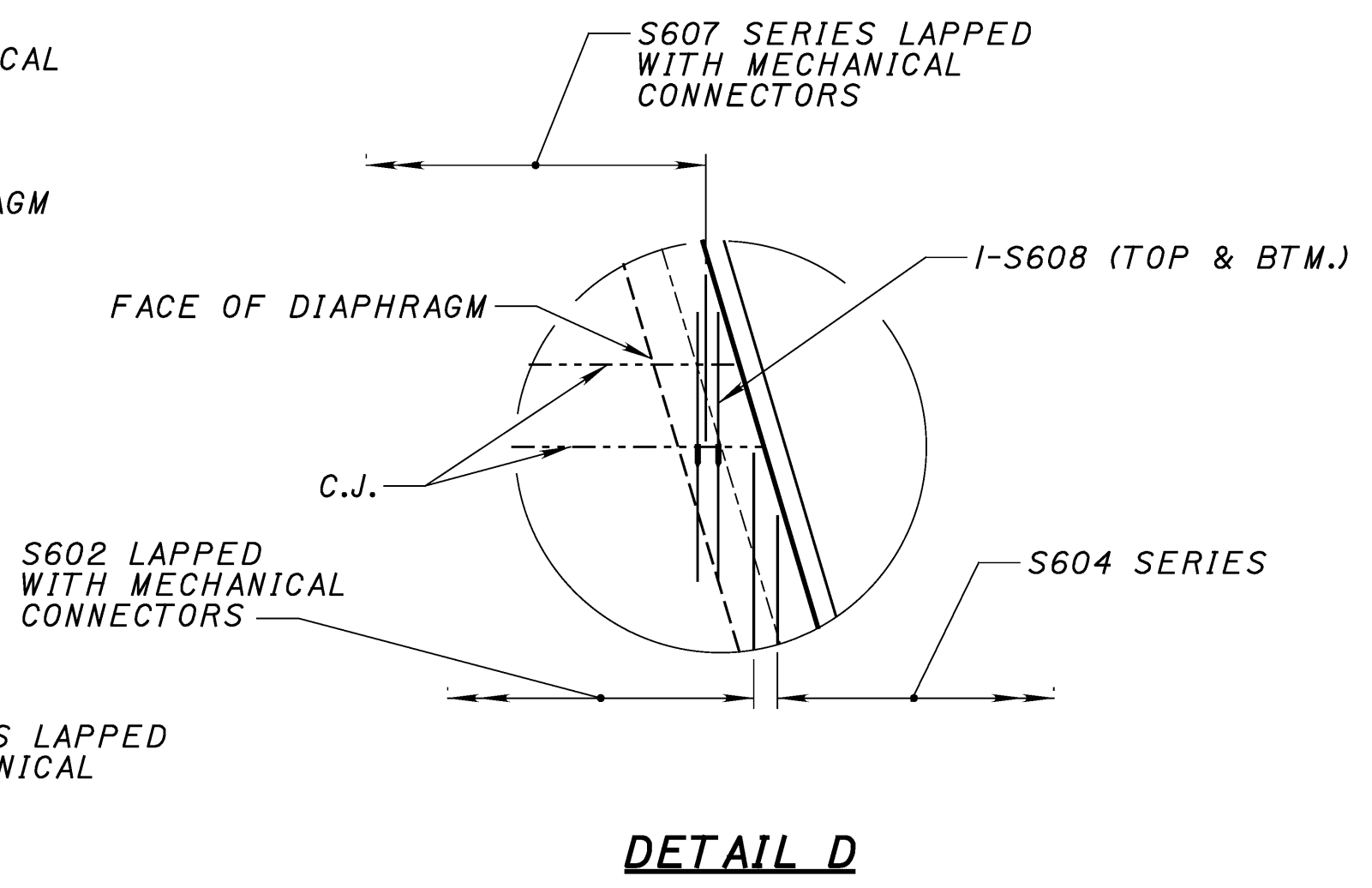
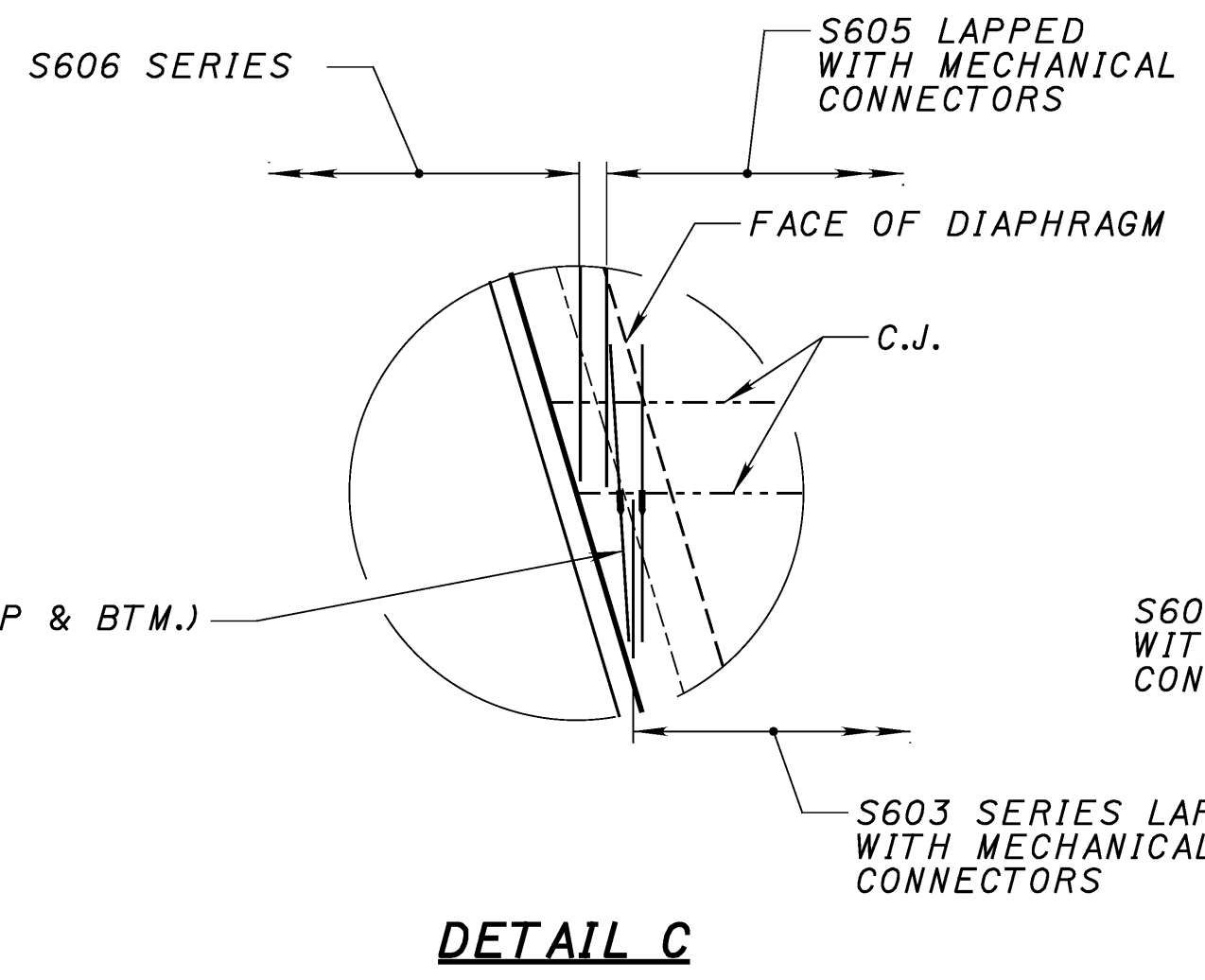
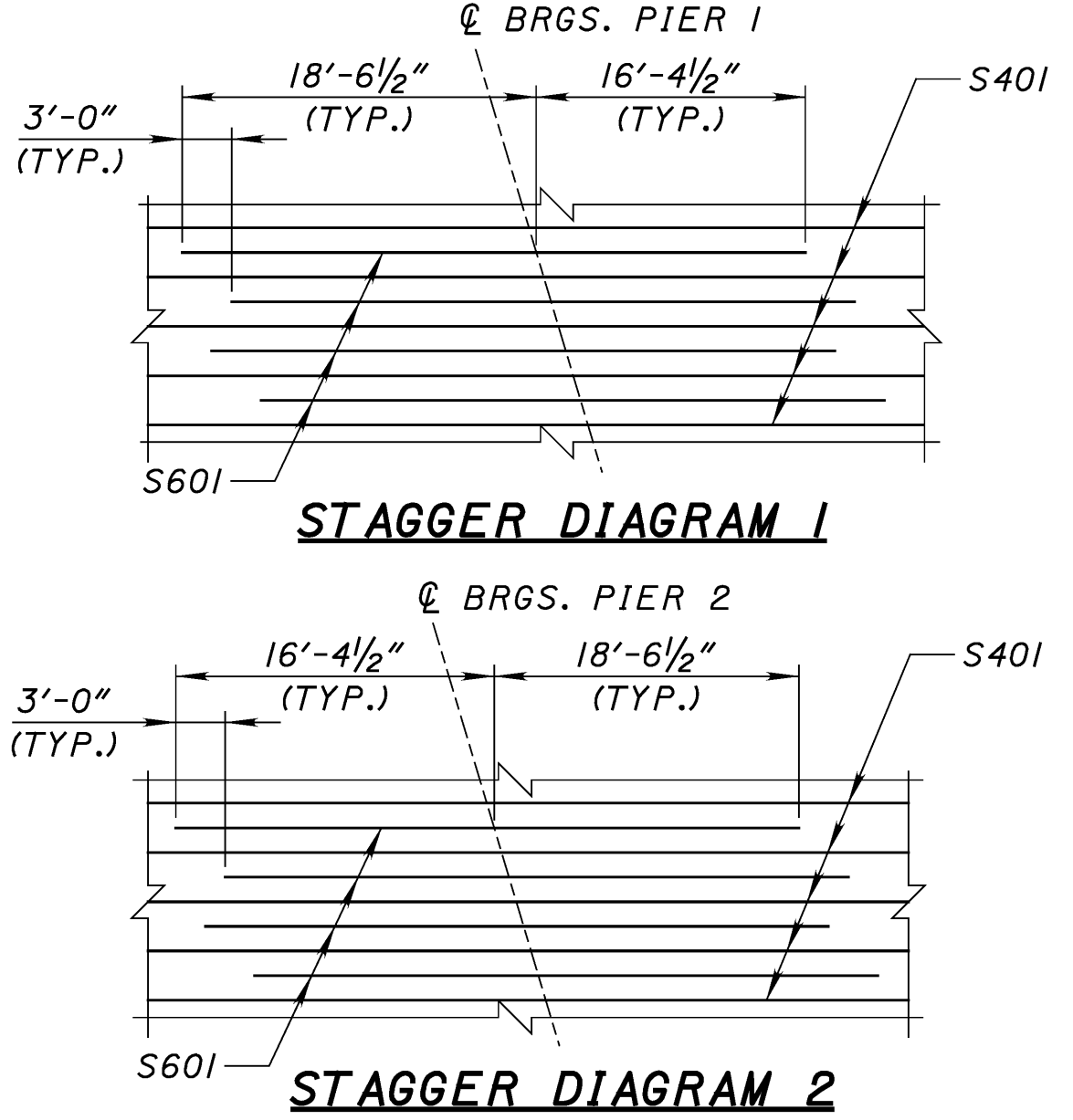
NOTES:

1. POSITIVE DIMENSIONS INDICATE DOWNWARD DEFLECTION AND UPWARD CAMBER.
2. "B.F.S." = BOLTED FIELD SPLICE
3. SEE SHEET 22/46 FOR FRAMING PLAN.

166'-7" BRIDGE LIMITS



DECK PLAN



NOTES:

1. LAP LENGTHS U.N.O.
 #4 BARS = 23"
 #5 BARS = 29"
 #6 BARS = 35"
2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
3. DECK SLAB CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
4. PARAPET CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN.
5. SEE SHEET 21/46 FOR TRANSVERSE SECTION.
6. SEE SHEETS 26/46 AND 27/46 FOR SECTIONS B-B & C-C, RESPECTIVELY.
7. SEE SHEET 28/46 FOR SCREED TABLE.
8. SEE SHEET 43/46 FOR REINFORCING SCHEDULE.

DECK PLAN - LEFT BRIDGE
 BRIDGE NO. LOR-90-1244 L/R
 I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

25/46

138
199

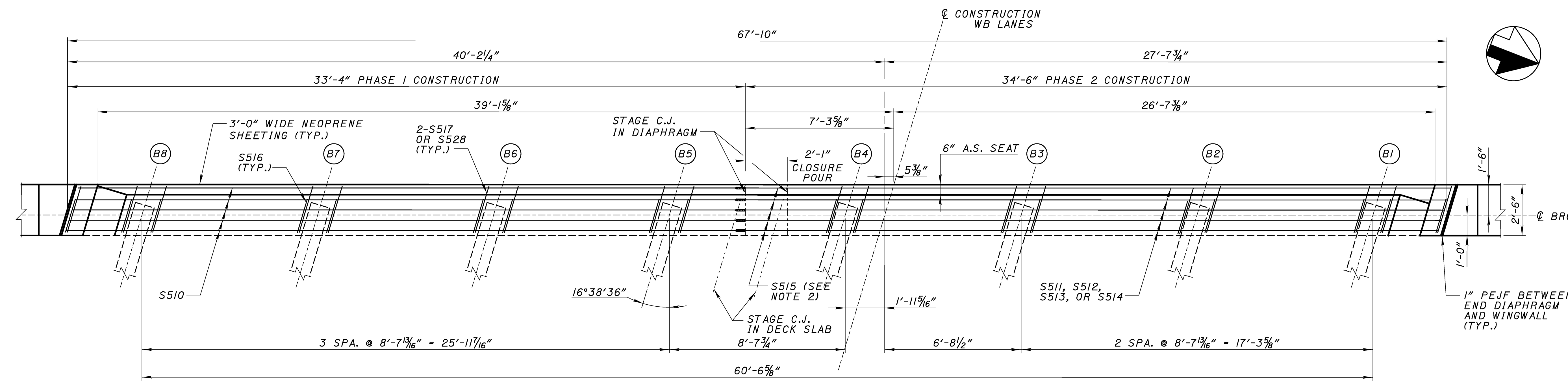
DESIGN AGENCY
Paker
 1228 EGLID AVENUE, SUITE 1050
 CLEVELAND, OHIO 44115

DATE
 01-07-08
 REVIEWED
 LPC
 STRUCTURE FILE NUMBER
 47043551/4704444R

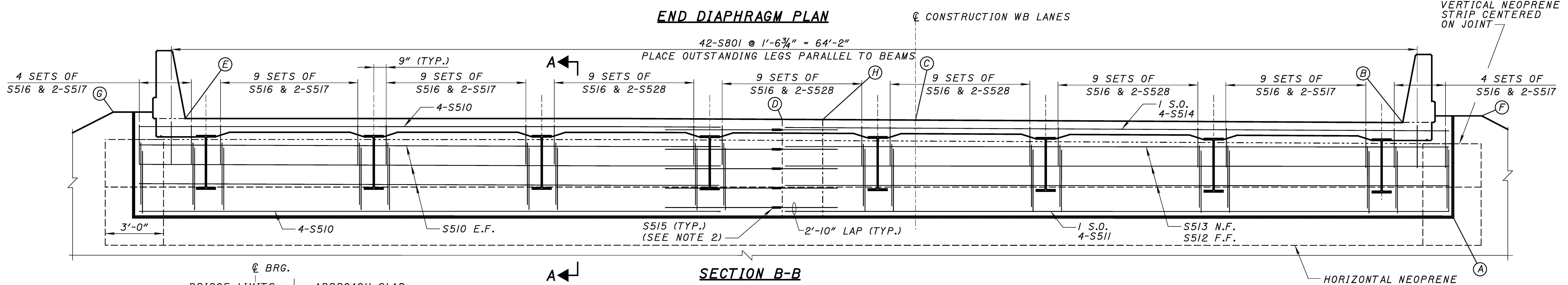
DRAWN
 MKB
 REVISED

DESIGNED
 MKB
 CHECKED
 KAS

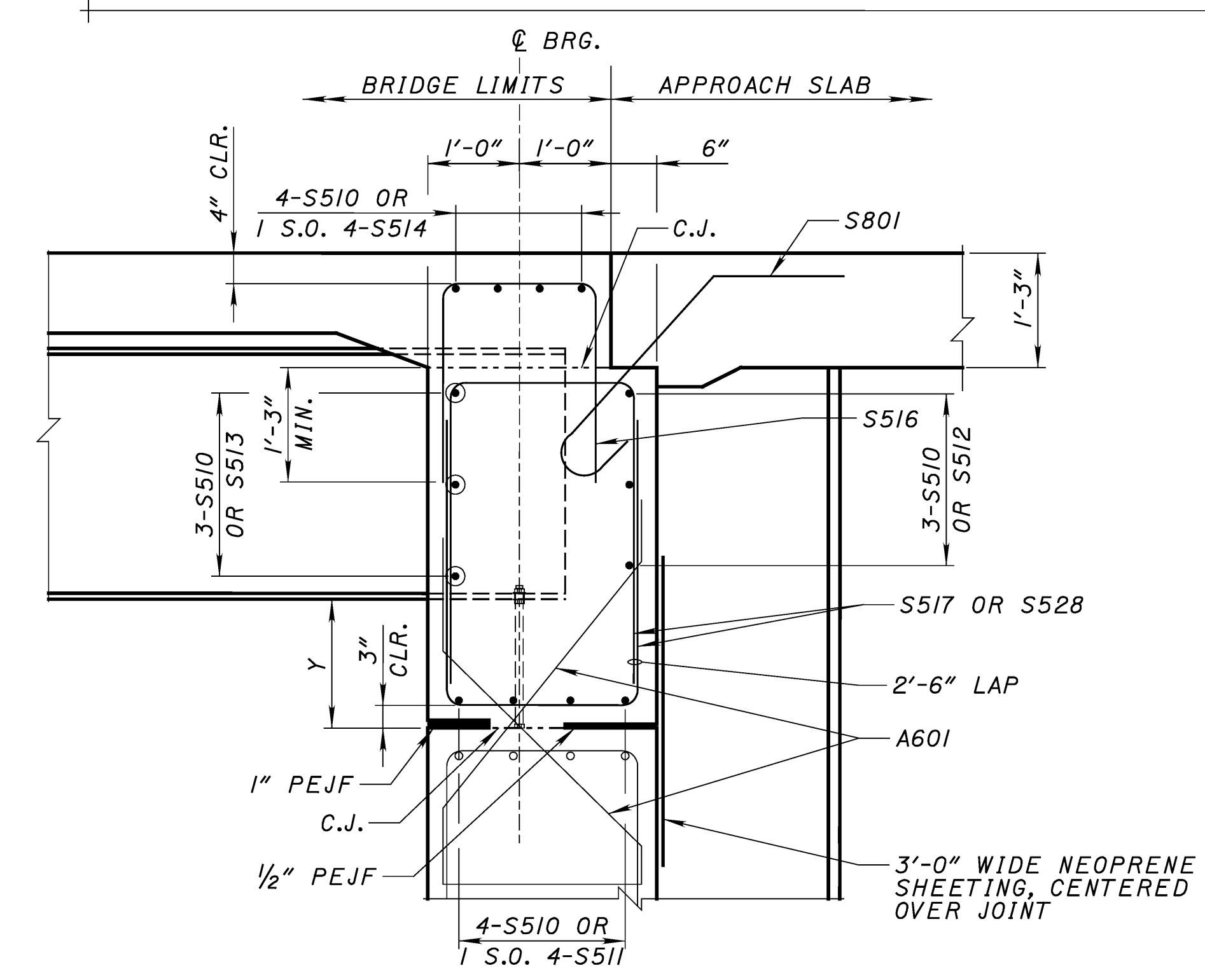
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END DIAPHRAGM PLAN



SECTION B-B



SECTION A-A

TABLE OF END DIAPHRAGM ELEVATIONS AT @ BEARINGS

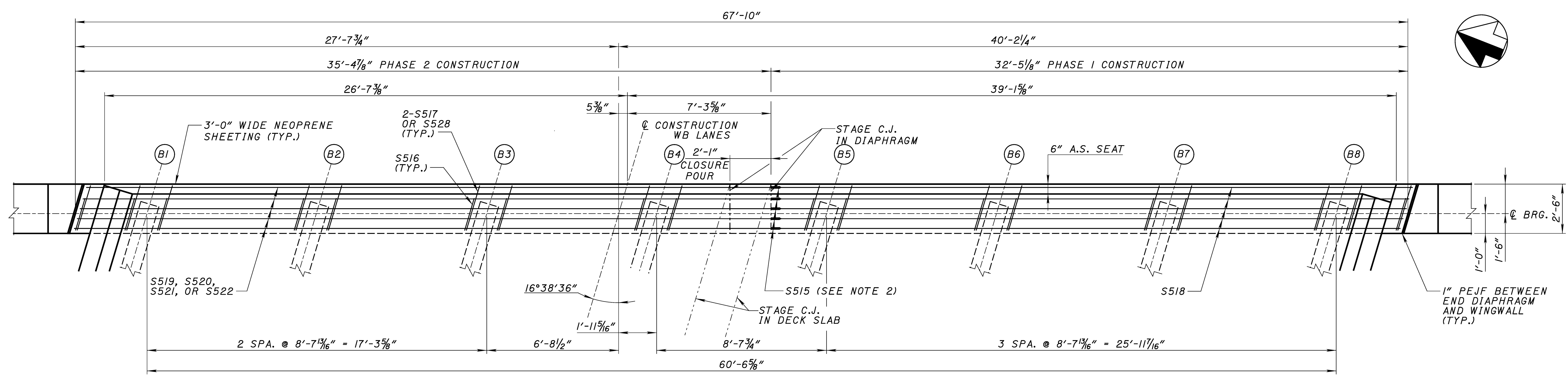
LOCATION	A	B	C	D	E	F	G	H
REAR ABUTMENT	743.57	748.17	748.56	748.45	748.02	748.50	748.35	748.48

TABLE OF DIMENSION Y (IN INCHES)

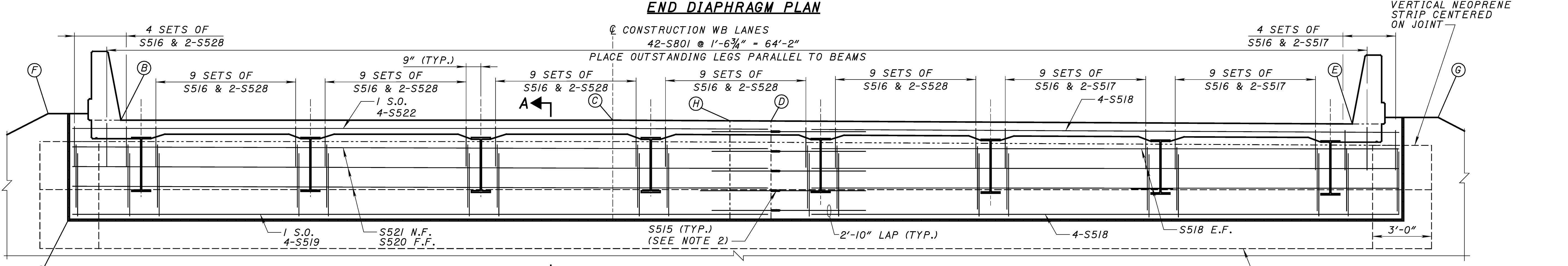
BEAM	B1	B2	B3	B4	B5	B6	B7	B8
REAR ABUTMENT	11 3/4	13 7/16	15	15 5/16	14 7/16	12 5/16	11 1/2	9 5/16

NOTES:

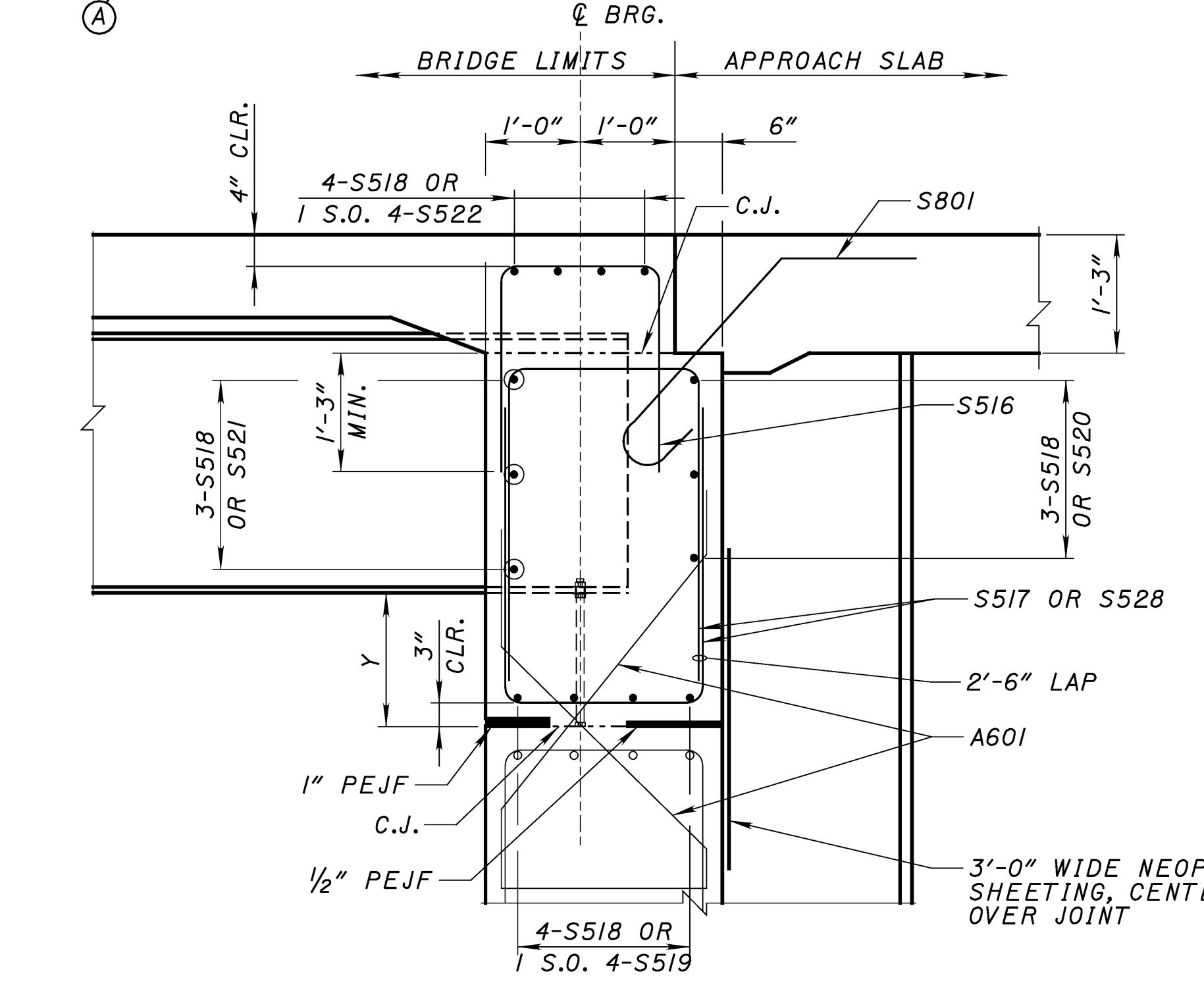
1. ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE, PHASED CONSTRUCTION: PLACE THE CONCRETE IN THE ABUTMENT DIAPHRAGM ENCASEING STRUCTURAL STEEL MEMBERS OF AN INDIVIDUAL PHASE SEPARATELY OR WITH THE DECK CONCRETE OF THAT PHASE. IF THE DIAPHRAGM CONCRETE IS PLACED SEPARATELY, ALLOW AT LEAST 48 HOURS OF SET TIME BEFORE PLACING DECK CONCRETE. LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
3. SEE SHEET 23/46 FOR BEAM END DETAILS.
4. SEE SHEET 43/46 FOR REINFORCING SCHEDULE.
5. END DIAPHRAGM CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - GC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
6. SEE SHEET 25/46 FOR SECTION B-B LOCATION.



END DIAPHRAGM PLAN



SECTION C-C



SECTION A-A

TABLE OF END DIAPHRAGM ELEVATIONS AT @ BEARINGS

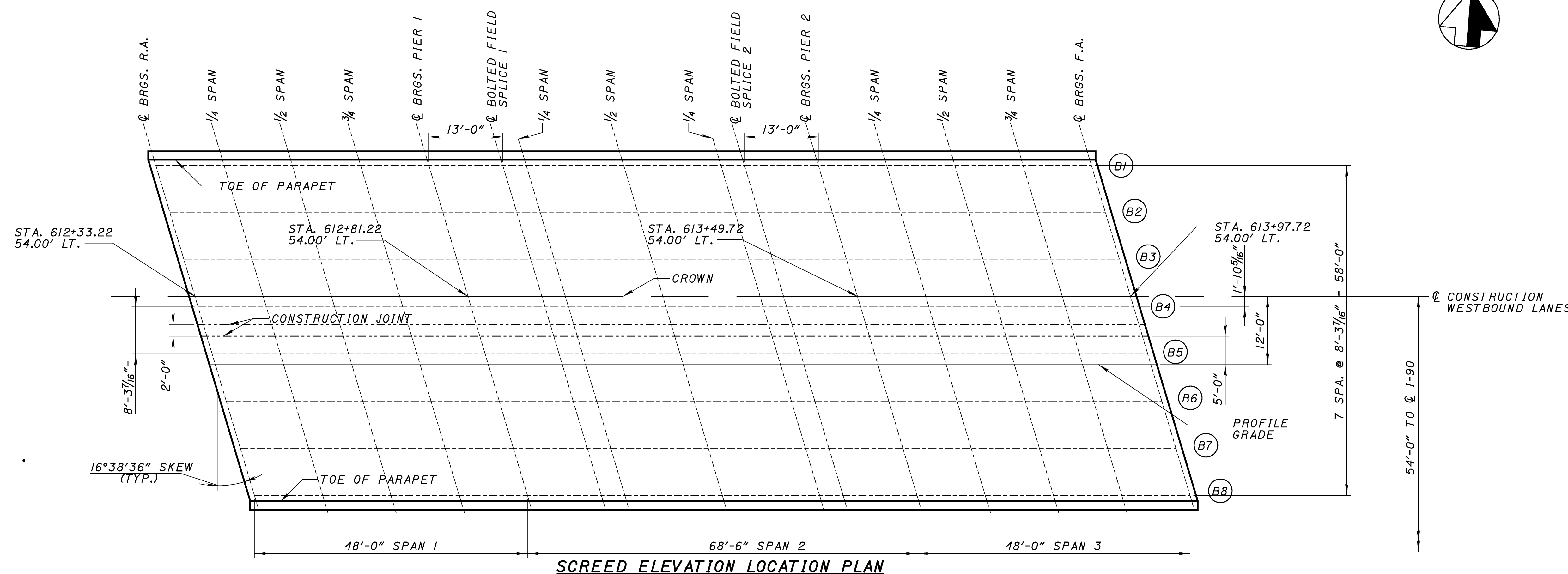
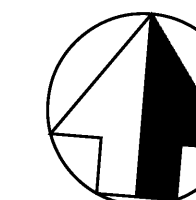
LOCATION	A	B	C	D	E	F	G	H
FORWARD ABUTMENT	743.57	748.24	748.60	748.49	748.02	748.57	748.35	748.52

TABLE OF DIMENSION Y (IN INCHES)

BEAM	B1	B2	B3	B4	B5	B6	B7	B8
FORWARD ABUTMENT	12 5/8	14 3/16	15 5/8	16 7/16	14 7/8	13 3/16	11 5/8	9 5/16

NOTES:

1. ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE, PHASED CONSTRUCTION: PLACE THE CONCRETE IN THE ABUTMENT DIAPHRAGM ENCASEING STRUCTURAL STEEL MEMBERS OF AN INDIVIDUAL PHASE SEPARATELY OR WITH THE DECK CONCRETE OF THAT PHASE. IF THE DIAPHRAGM CONCRETE IS PLACED SEPARATELY, ALLOW AT LEAST 48 HOURS OF SET TIME BEFORE PLACING DECK CONCRETE. LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPlicing MECHANISM, OR APPROVED EQUAL.
3. SEE SHEET 23/46 FOR BEAM END DETAILS.
4. SEE SHEET 43/46 FOR REINFORCING SCHEDULE.
5. END DIAPHRAGM CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - GC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
6. SEE SHEET 25/46 FOR SECTION C-C LOCATION.



SCREED ELEVATION LOCATION PLAN

DECK SCREED ELEVATION TABLE

ELEVATION LINE	SPAN 1					SPAN 2					SPAN 3				
	¢ BRGS. R.A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	¢ BRGS. PIER 1	¢ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	¢ B.F.S. 2	¢ BRGS. PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	¢ BRGS. F.A.
TOE OF PARAPET	748.17	748.20	748.23	748.24	748.26	748.29	748.30	748.34	748.32	748.31	748.29	748.28	748.28	748.27	748.24
BEAM 1	748.18	748.22	748.25	748.26	748.27	748.31	748.32	748.35	748.34	748.33	748.30	748.30	748.30	748.28	748.25
BEAM 2	748.32	748.36	748.38	748.39	748.41	748.44	748.46	748.49	748.47	748.46	748.43	748.43	748.43	748.41	748.38
BEAM 3	748.45	748.49	748.52	748.53	748.54	748.58	748.59	748.62	748.60	748.59	748.56	748.55	748.55	748.54	748.50
CROWN	748.56	748.60	748.62	748.63	748.64	748.68	748.69	748.72	748.70	748.69	748.66	748.65	748.65	748.63	748.60
BEAM 4	748.53	748.57	748.59	748.60	748.61	748.65	748.66	748.69	748.67	748.66	748.63	748.62	748.62	748.60	748.57
STAGE C.J.	748.48	748.52	748.54	748.55	748.56	748.60	748.61	748.64	748.62	748.61	748.58	748.57	748.57	748.55	748.52
STAGE C.J.	748.45	748.49	748.51	748.52	748.53	748.57	748.58	748.61	748.59	748.58	748.55	748.54	748.54	748.52	748.49
BEAM 5	748.41	748.44	748.47	748.47	748.49	748.52	748.53	748.56	748.54	748.53	748.50	748.49	748.49	748.47	748.44
PROFILE GRADE	748.38	748.42	748.44	748.45	748.46	748.49	748.50	748.53	748.51	748.50	748.47	748.46	748.46	748.44	748.41
BEAM 6	748.28	748.32	748.34	748.35	748.36	748.39	748.41	748.43	748.41	748.40	748.37	748.36	748.36	748.34	748.30
BEAM 7	748.16	748.19	748.21	748.22	748.23	748.27	748.28	748.30	748.28	748.27	748.24	748.23	748.22	748.20	748.17
BEAM 8	748.03	748.07	748.09	748.09	748.10	748.13	748.14	748.17	748.14	748.13	748.10	748.10	748.09	748.07	748.04
TOE OF PARAPET	748.02	748.05	748.07	748.08	748.09	748.12	748.13	748.15	748.13	748.12	748.09	748.08	748.07	748.05	748.02

NOTE: ELEVATIONS SHOWN INCLUDE ALLOWANCE FOR DEAD LOAD DEFLECTION DUE TO THE WEIGHT OF STEEL, DECK AND PARAPETS.

ANTICIPATED DECK SLAB DEPTHS (INCHES)

ELEVATION LINE	SPAN 1					SPAN 2					SPAN 3				
	¢ BRGS. R.A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	¢ BRGS. PIER 1	¢ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	¢ B.F.S. 2	¢ BRGS. PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	¢ BRGS. F.A.
TOE OF PARAPET															
BEAM 1	10.50	10.92	11.16	11.23	11.33	11.30	11.88	12.19	11.88	11.30	11.33	11.23	11.16	10.92	10.50
BEAM 2	10.50	10.94	11.18	11.23	11.33	11.34	11.93	12.28	11.93	11.34	11.33	11.23	11.18	10.94	10.50
BEAM 3	10.50	10.94	11.18	11.23	11.33	11.34	11.93	12.28	11.93	11.34	11.33	11.23	11.18	10.94	10.50
CROWN															
BEAM 4	10.50	10.94	11.18	11.23	11.33	11.34	11.93	12.28	11.93	11.34	11.33	11.23	11.18	10.94	10.50
STAGE C.J.															
STAGE C.J.															
BEAM 5	10.50	10.94	11.18	11.23	11.33	11.34	11.93	12.28	11.93	11.34	11.33	11.23	11.18	10.94	10.50
PROFILE GRADE															
BEAM 6	10.50	10.94	11.18	11.23	11.33	11.34	11.93	12.28	11.93	11.34	11.33	11.23	11.18	10.94	10.50
BEAM 7	10.50	10.94	11.18	11.23	11.33	11.34	11.93	12.28	11.93	11.34	11.33	11.23	11.18	10.94	10.50
BEAM 8	10.50	10.92	11.16	11.23	11.33	11.30	11.88	12.19	11.88	11.30	11.33	11.23	11.16	10.92	10.50
TOE OF PARAPET															

NOTE: DEPTHS ARE SHOWN FROM THE TOP OF DECK TO TOP OF BEAM FLANGE.

- NOTES:
1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.
 2. SEE SHEET 21/46 FOR TRANSVERSE SECTION.

DESIGN AGENCY
Paker
 1228 EGLID AVENUE, SUITE 1050
 CLEVELAND, OHIO 44115

DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	4704355L/4704444R
DRAWN	DJB
DESIGNED	MKB
CHECKED	KAS

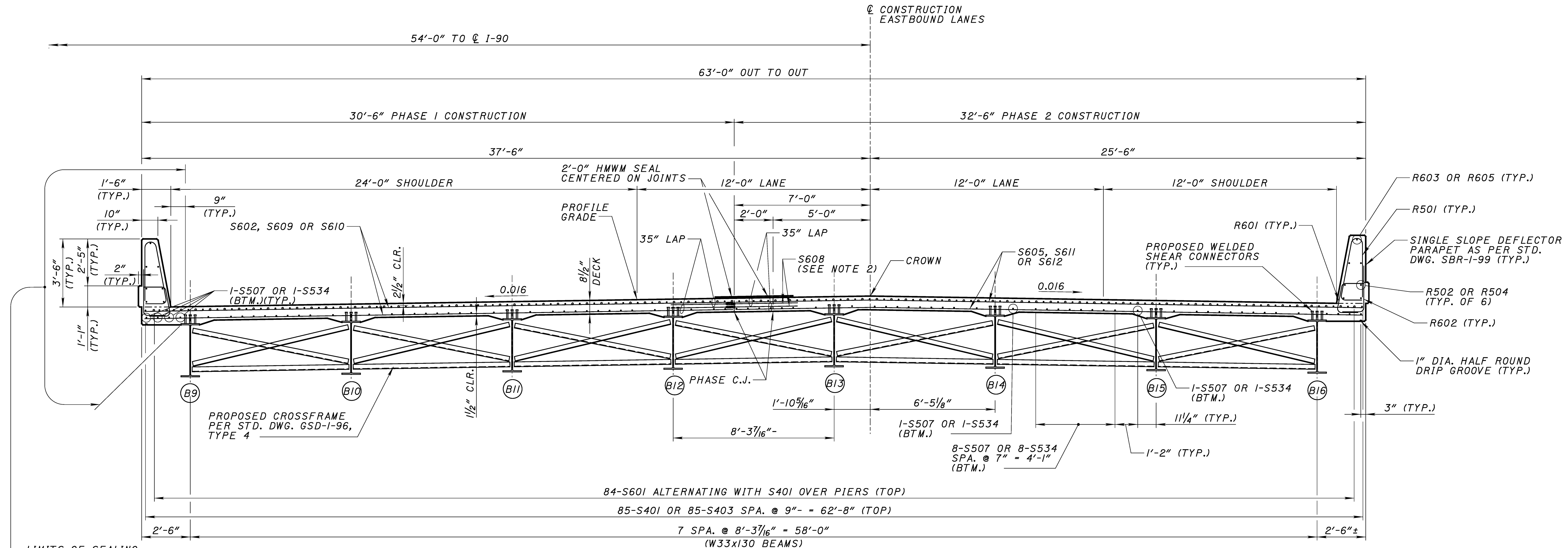
DECK SCREED ELEVATION PLAN - LEFT BRIDGE
 BRIDGE NO. LOR-90-1244 L/R
 I.R. 90 OVER LAKE AVENUE

LOR-90-12.42
PID 24868

28/46

141
199

\$DATE\$
 \$FILES\$

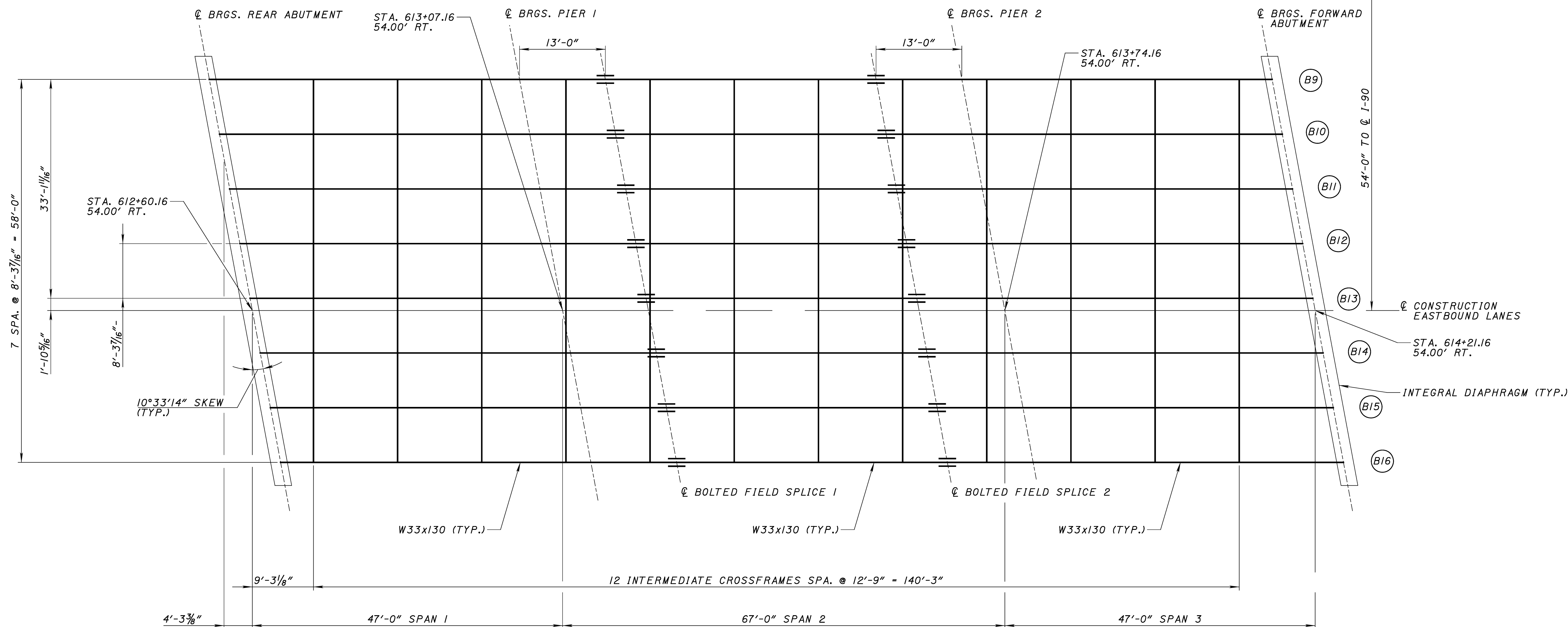
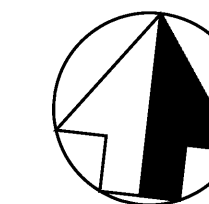


TRANSVERSE SECTION

NOTES:

1. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, 8 1/2", PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
3. DECK SLAB CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
4. PARAPET CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN.
5. SEE SHEET 46/46 FOR REINFORCING SCHEDULE.
6. SEE SHEETS 30/46 THROUGH 32/46 FOR FRAMING PLAN AND SUPERSTRUCTURE DETAILS.
7. SEE SHEETS 33/46 THROUGH 36/46 FOR DECK SLAB PLAN, END DIAPHRAGM DETAILS AND SCREED ELEVATION TABLE.

\$DATE\$
 \$FILES\$



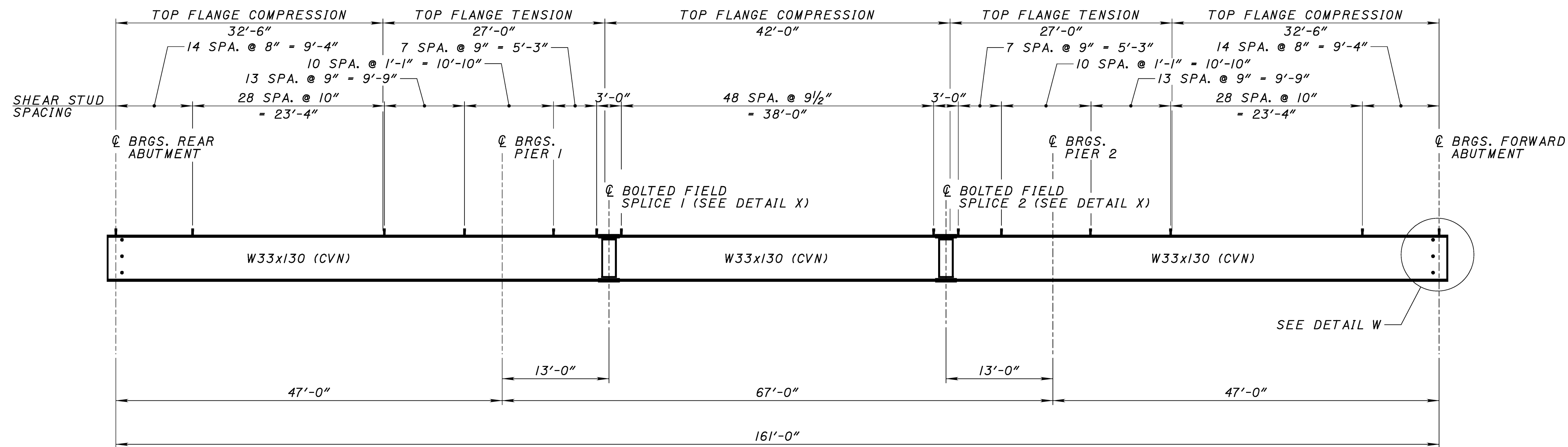
FRAMING PLAN

NOTES:

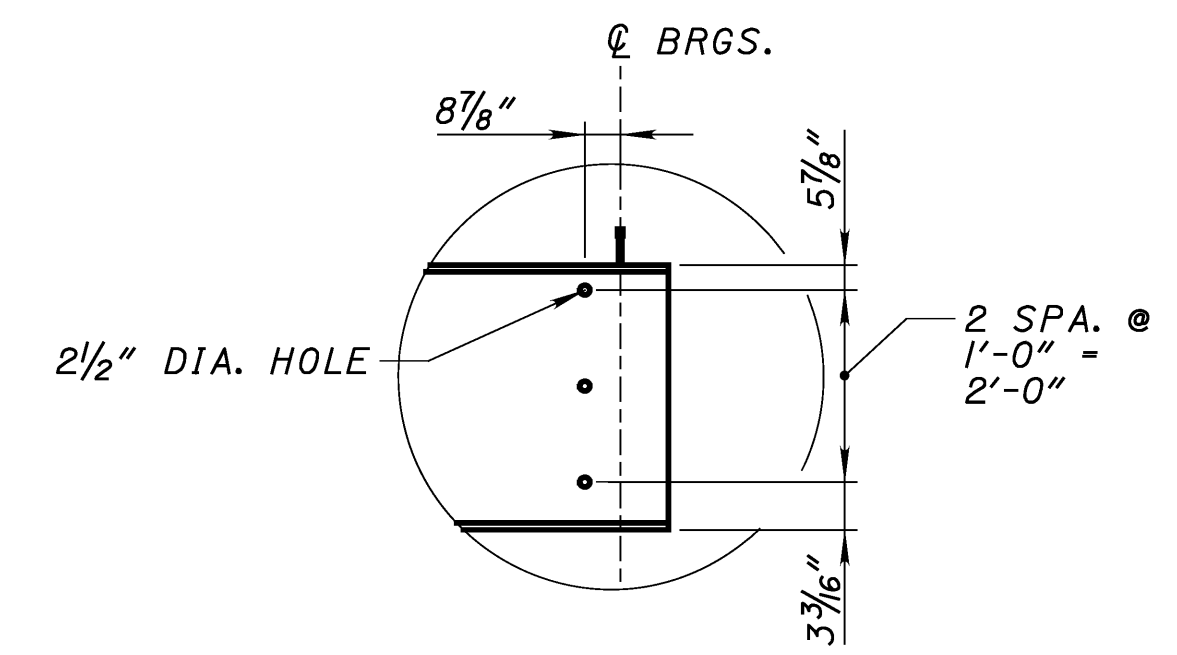
1. SEE STD. DWG. GSD-I-96 FOR CROSSFRAME DETAILS.
2. SEE SHEET 32/46 FOR DEFLECTION AND CAMBER TABLE.
3. SEE SHEET 31/46 FOR BEAM ELEVATION AND BOLTED FIELD SPLICE DETAILS.
4. SEE SHEET 29/46 FOR TRANSVERSE SECTION.

\$DATE\$
\$FILES\$

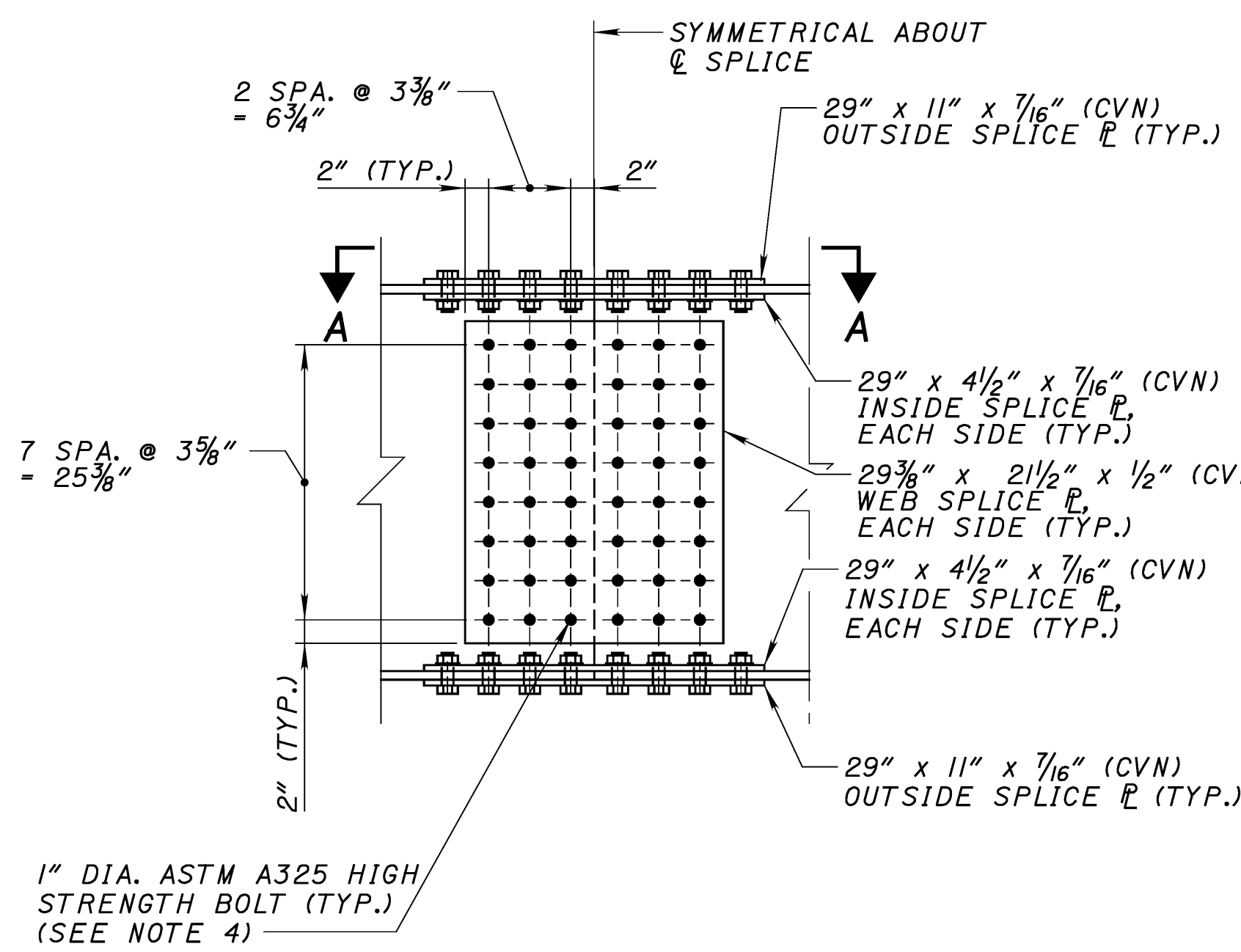
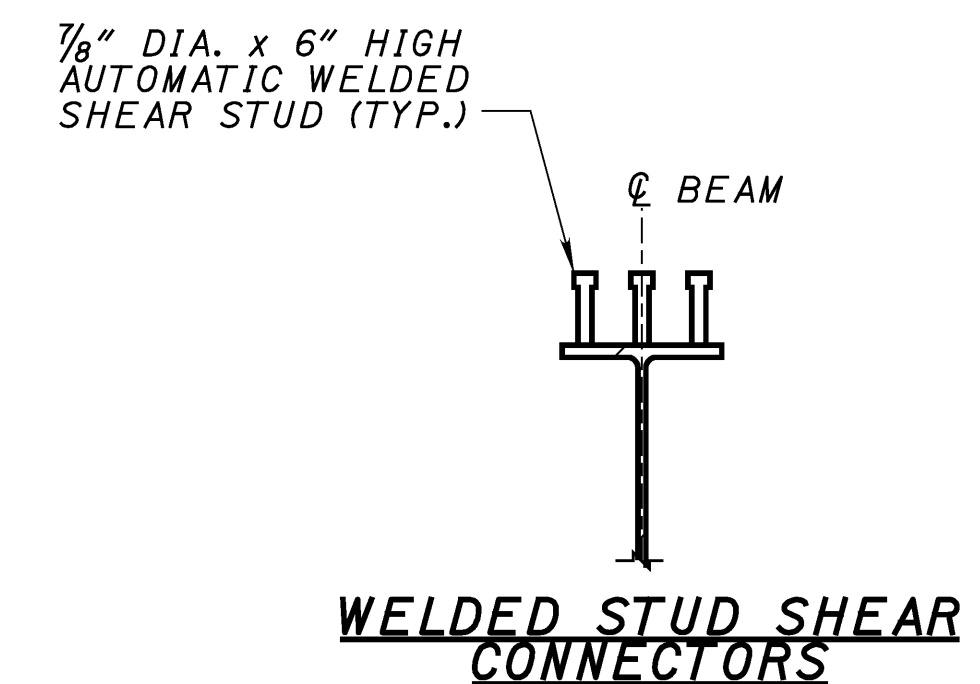
DESIGNED	MKB	CHECKED	KAS
DRAWN	MKB	REVISED	
REVIEWED	LPC	STRUCTURE FILE NUMBER	4704355L/4704444R
DATE	01-07-08		



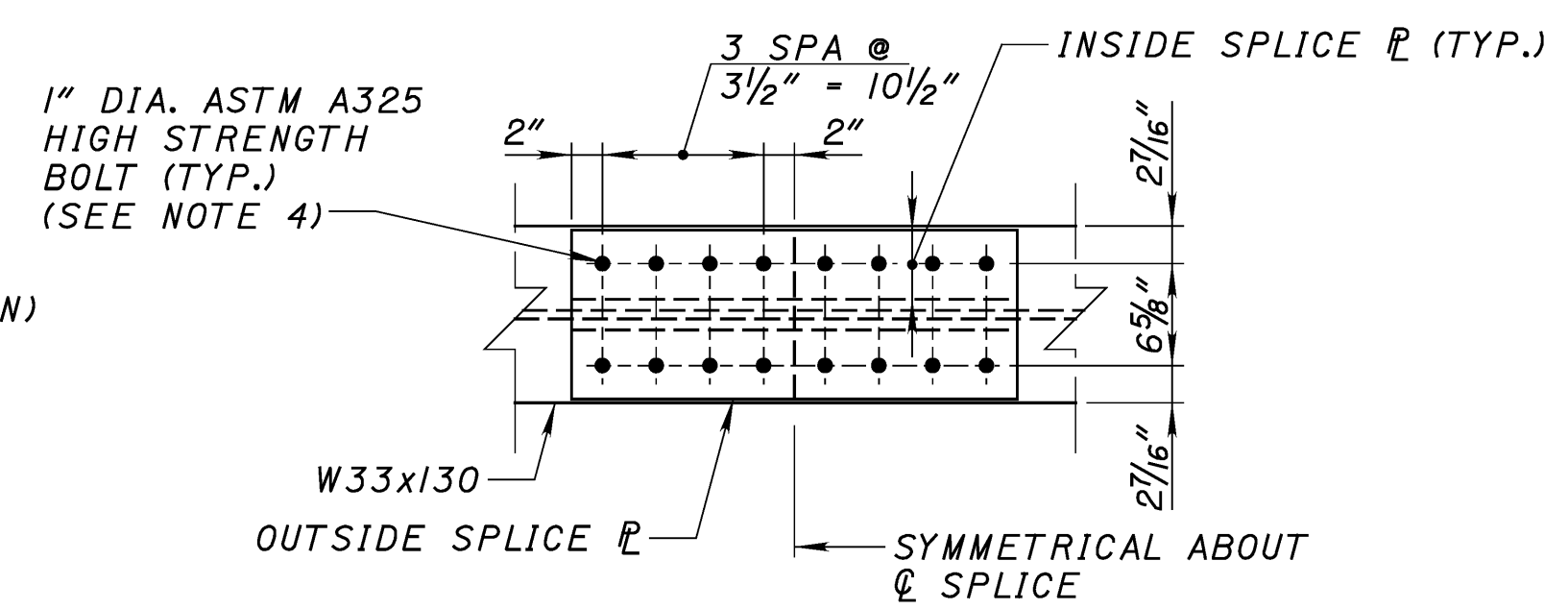
BEAM ELEVATION



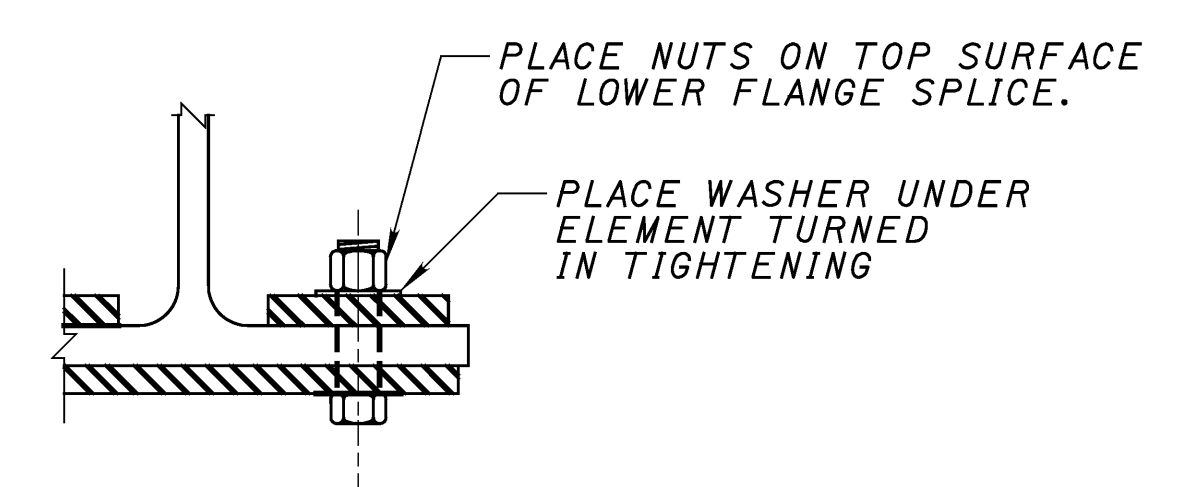
DETAIL W



DETAIL X



VIEW A-A

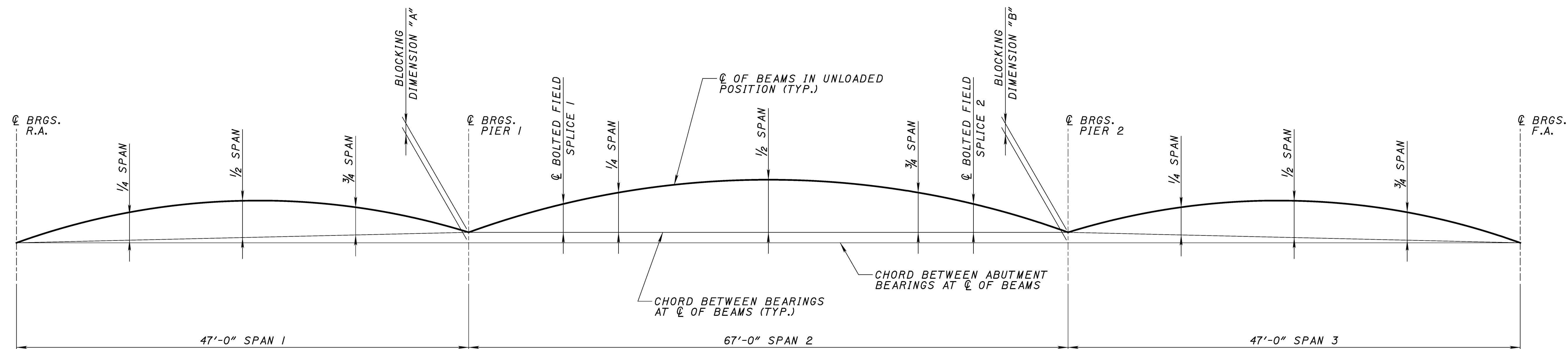


PARTIAL SECTION

- NOTES:**
1. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 3/16" FOR GREATER THAN 3/4" THICK.
 2. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
 3. SEE SHEET 30/46 FOR FRAMING PLAN.
 4. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325, GALVANIZED, UNLESS OTHERWISE NOTED.

\$DATE\$
\$FILES\$

DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	47043551/4704444R
DRAWN	MKB
REVISOR	
DESIGNED	MKB
CHECKED	KAS



CAMBER DIAGRAM

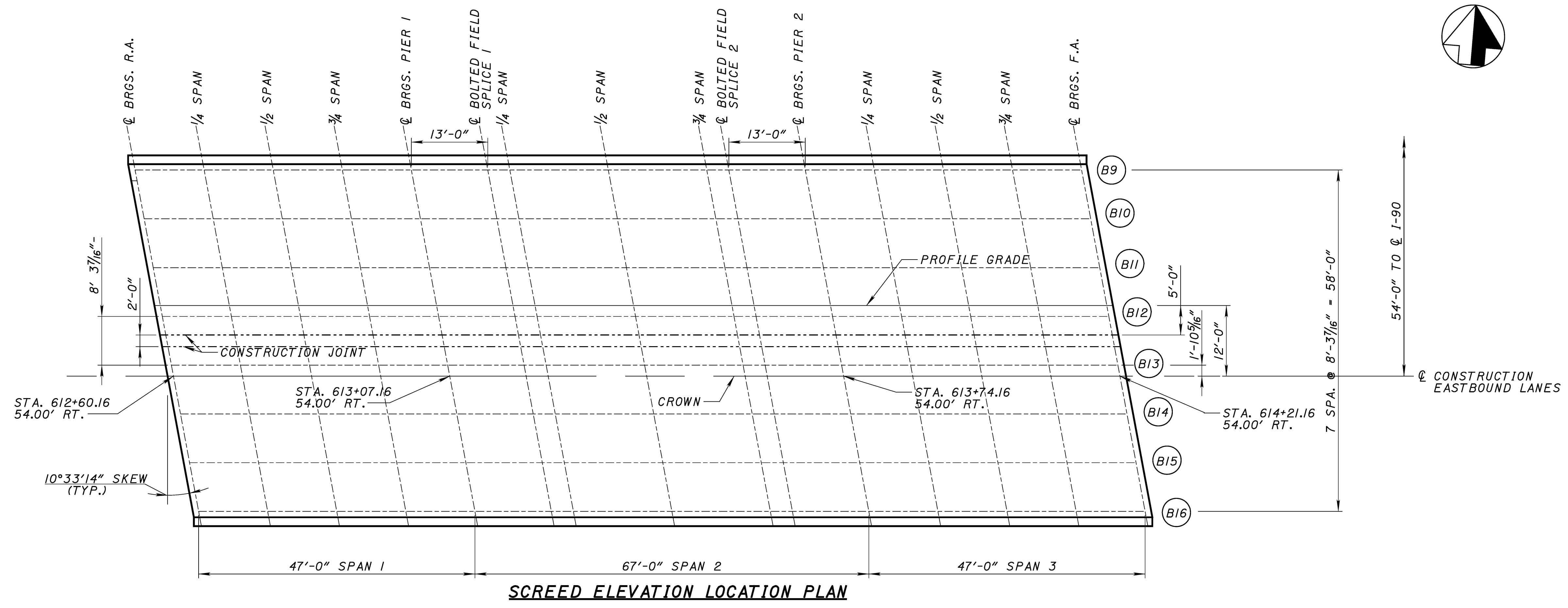
BLOCKING DIMENSIONS	
DIMENSION "A"	13/16"
DIMENSION "B"	17/16"

RIGHT BRIDGE DEFLECTION AND CAMBER (INCHES) B9 & B16											
CAMBER DESCRIPTION	SPAN 1			SPAN 2				SPAN 3			
	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 2	1/4 SPAN	1/2 SPAN	3/4 SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	1/16	1/16	1/16	1/16	1/16	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1/8	3/16	1/16	3/16	5/16	3/16	3/16	3/16	1/16	3/16	1/8
VERTICAL CURVE ADJUSTMENT	1/16	1/16	1/16	1/8	1/8	3/16	1/8	1/8	1/16	1/16	1/16
REQUIRED SHOP CAMBER	3/16	1/4	1/8	3/8	1/2	13/16	1/2	3/8	1/8	1/4	3/16

RIGHT BRIDGE DEFLECTION AND CAMBER (INCHES) B10 - B15											
CAMBER DESCRIPTION	SPAN 1			SPAN 2				SPAN 3			
	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	Ⓞ B.F.S. 2	1/4 SPAN	1/2 SPAN	3/4 SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	1/16	1/16	1/16	1/16	1/16	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1/8	3/16	1/16	1/4	3/8	3/8	3/8	1/4	1/16	3/16	1/8
VERTICAL CURVE ADJUSTMENT	1/16	1/16	1/16	1/8	1/8	3/16	1/8	1/8	1/16	1/16	1/16
REQUIRED SHOP CAMBER	3/16	1/4	1/8	7/16	9/16	7/8	9/16	7/16	1/8	1/4	3/16

NOTES:

1. POSITIVE DIMENSIONS INDICATE DOWNWARD DEFLECTION AND UPWARD CAMBER.
2. "B.F.S." = BOLTED FIELD SPLICE
3. SEE SHEET 30/46 FOR FRAMING PLAN.



DECK SCREED ELEVATION TABLE

ELEVATION LINE	SPAN 1					SPAN 2					SPAN 3				
	☉ BRGS. R.A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	☉ BRGS. PIER 1	☉ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	☉ B.F.S. 2	☉ BRGS. PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	☉ BRGS. F.A.
TOE OF PARAPET	748.04	748.07	748.08	748.09	748.09	748.12	748.13	748.15	748.12	748.11	748.08	748.07	748.06	748.04	748.01
BEAM 9	748.05	748.08	748.10	748.10	748.11	748.14	748.14	748.16	748.14	748.13	748.10	748.09	748.08	748.06	748.02
BEAM 10	748.19	748.22	748.23	748.24	748.24	748.27	748.28	748.30	748.27	748.26	748.23	748.21	748.21	748.18	748.15
BEAM 11	748.32	748.35	748.36	748.37	748.37	748.40	748.41	748.43	748.40	748.39	748.35	748.34	748.33	748.31	748.27
PROFILE GRADE	748.42	748.45	748.47	748.47	748.47	748.50	748.51	748.53	748.50	748.49	748.45	748.44	748.43	748.41	748.37
BEAM 12	748.45	748.48	748.49	748.50	748.50	748.53	748.54	748.56	748.53	748.52	748.48	748.47	748.46	748.44	748.40
STAGE C.J.	748.50	748.53	748.54	748.55	748.55	748.58	748.59	748.61	748.58	748.57	748.53	748.52	748.51	748.48	748.45
STAGE C.J.	748.53	748.56	748.58	748.58	748.58	748.61	748.62	748.64	748.61	748.60	748.56	748.55	748.54	748.51	748.48
BEAM 13	748.58	748.61	748.63	748.63	748.63	748.66	748.67	748.69	748.66	748.64	748.61	748.60	748.59	748.56	748.53
CROWN	748.61	748.64	748.65	748.66	748.66	748.69	748.70	748.71	748.68	748.67	748.64	748.62	748.61	748.59	748.55
BEAM 14	748.51	748.54	748.56	748.56	748.56	748.59	748.60	748.61	748.58	748.57	748.54	748.52	748.51	748.49	748.45
BEAM 15	748.39	748.41	748.43	748.43	748.43	748.46	748.47	748.48	748.45	748.44	748.40	748.39	748.38	748.36	748.32
BEAM 16	748.26	748.28	748.30	748.30	748.30	748.33	748.33	748.35	748.32	748.31	748.27	748.26	748.25	748.22	748.18
TOE OF PARAPET	748.24	748.27	748.28	748.28	748.29	748.31	748.32	748.33	748.30	748.29	748.26	748.24	748.23	748.20	748.17

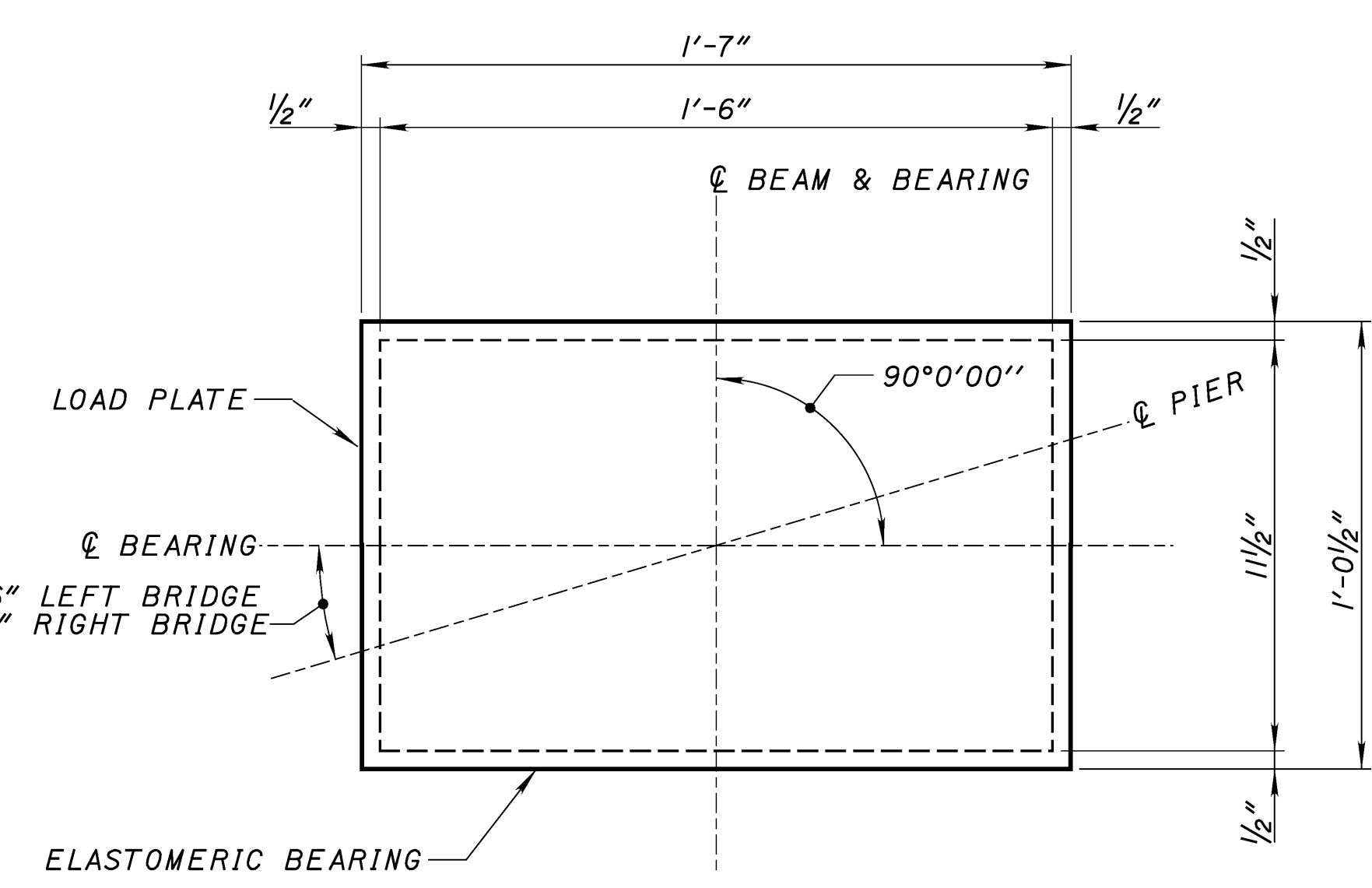
NOTE: ELEVATIONS SHOWN INCLUDE ALLOWANCE FOR DEAD LOAD DEFLECTION DUE TO THE WEIGHT OF STEEL, DECK AND PARAPETS.

ANTICIPATED DECK SLAB DEPTHS (INCHES)

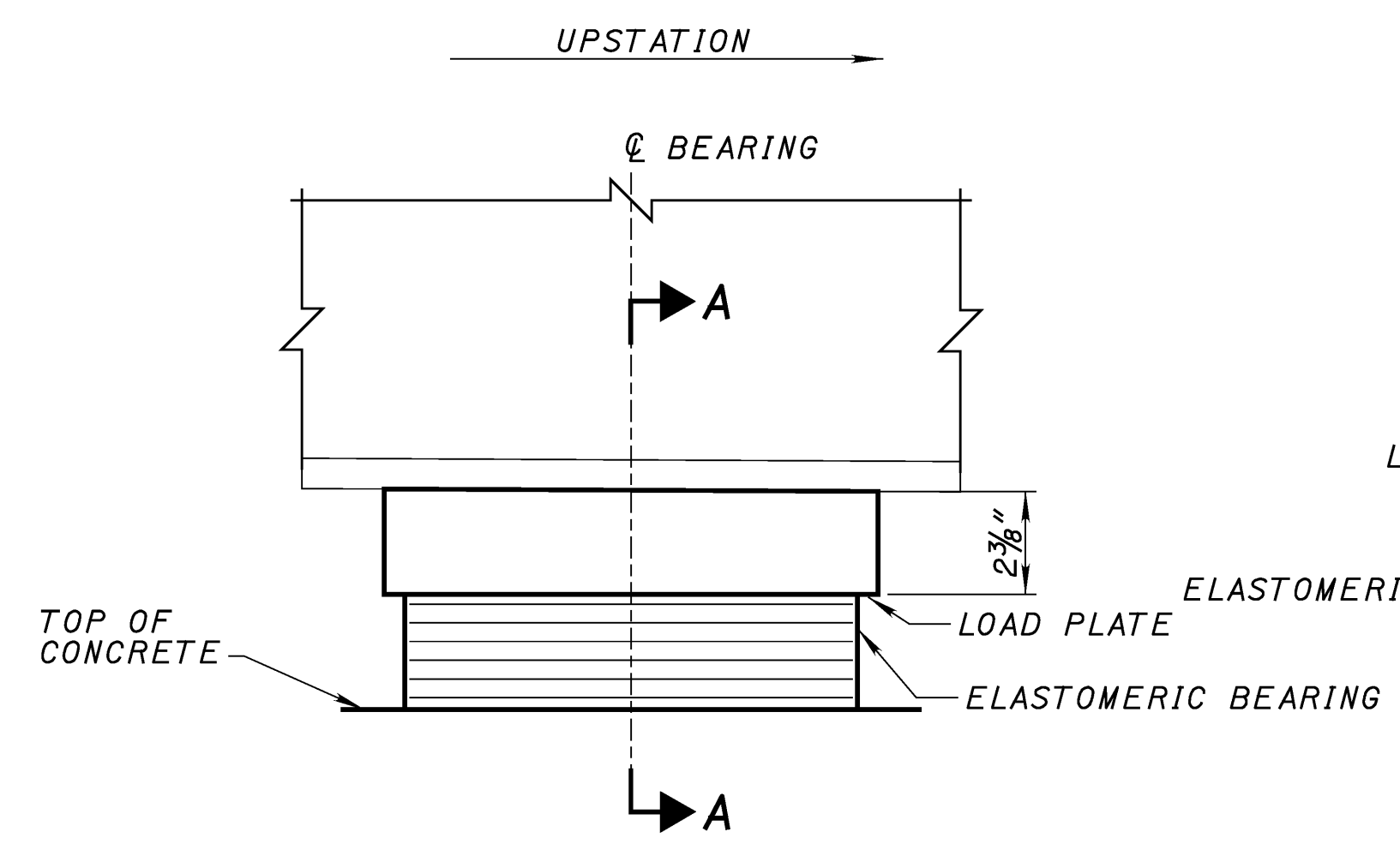
ELEVATION LINE	SPAN 1					SPAN 2					SPAN 3				
	☉ BRGS. R.A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	☉ BRGS. PIER 1	☉ B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	☉ B.F.S. 2	☉ BRGS. PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	☉ BRGS. F.A.
TOE OF PARAPET															
BEAM 9	10.50	10.90	11.13	11.20	11.30	11.25	11.80	12.09	11.80	11.25	11.30	11.20	11.13	10.90	10.50
BEAM 10	10.50	10.92	11.15	11.20	11.30	11.28	11.85	12.17	11.85	11.28	11.30	11.20	11.15	10.92	10.50
BEAM 11	10.50	10.92	11.15	11.20	11.30	11.28	11.85	12.17	11.85	11.28	11.30	11.20	11.15	10.92	10.50
PROFILE GRADE															
BEAM 12	10.50	10.92	11.15	11.20	11.30	11.28	11.85	12.17	11.85	11.28	11.30	11.20	11.15	10.92	10.50
STAGE C.J.															
STAGE C.J.															
BEAM 13	10.50	10.92	11.15	11.20	11.30	11.28	11.85	12.17	11.85	11.28	11.30	11.20	11.15	10.92	10.50
CROWN															
BEAM 14	10.50	10.92	11.15	11.20	11.30	11.28	11.85	12.17	11.85	11.28	11.30	11.20	11.15	10.92	10.50
BEAM 15	10.50	10.92	11.15	11.20	11.30	11.28	11.85	12.17	11.85	11.28	11.30	11.20	11.15	10.92	10.50
BEAM 16	10.50	10.90	11.13	11.20	11.30	11.25	11.80	12.09	11.80	11.25	11.30	11.20	11.13	10.90	10.50
TOE OF PARAPET															

NOTE: DEPTHS ARE SHOWN FROM THE TOP OF DECK TO TOP OF BEAM FLANGE.

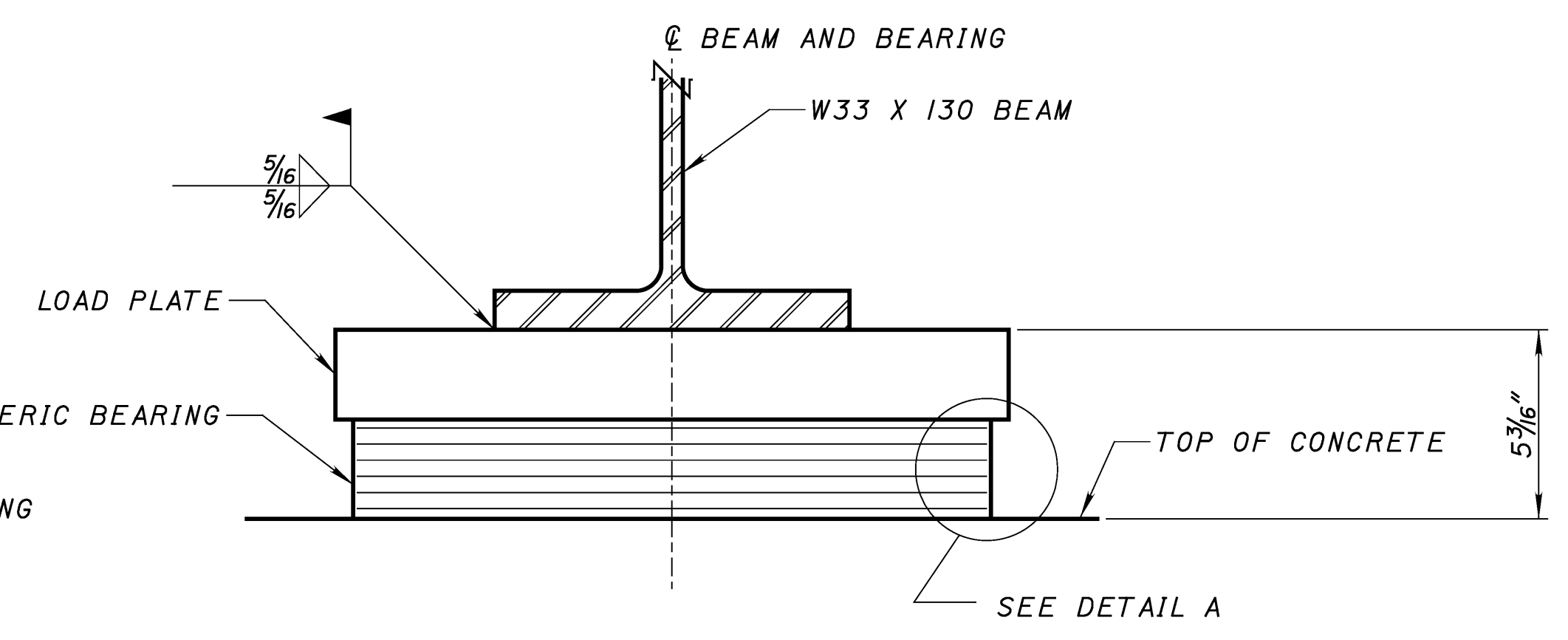
NOTES:
 1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.
 2. SEE SHEET 29/46 FOR TRANSVERSE SECTION.



PLAN VIEW
 EXPANSION BEARING

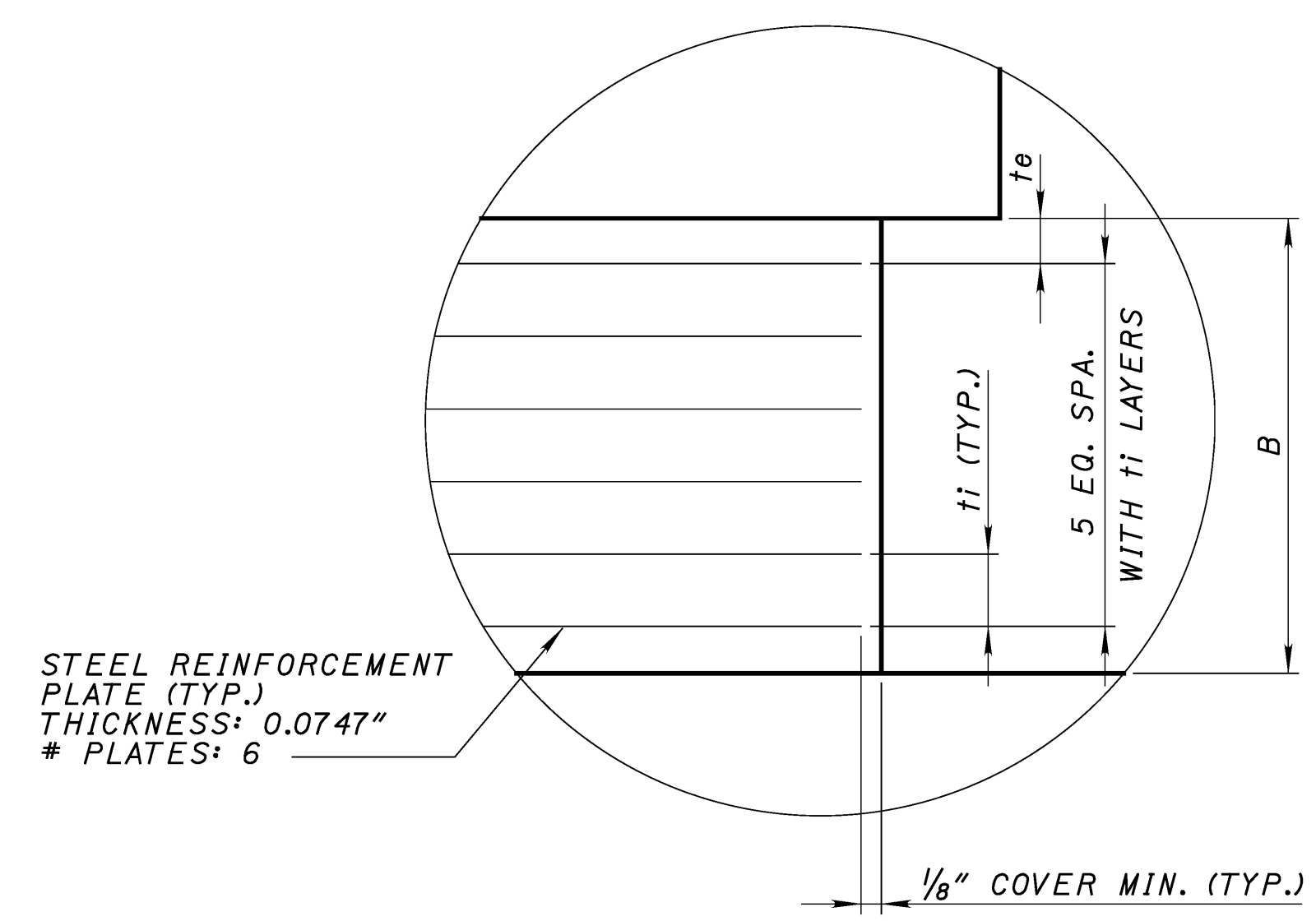


ELEVATION VIEW
 EXPANSION BEARING



SECTION A-A

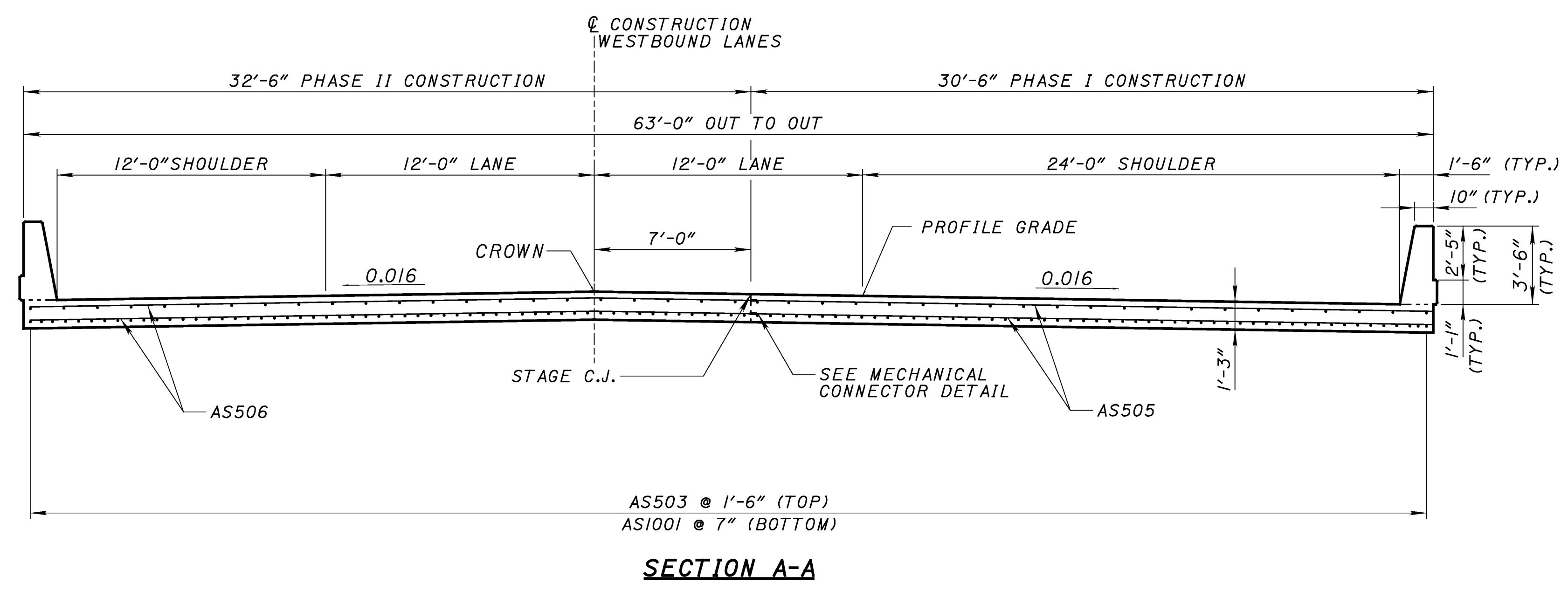
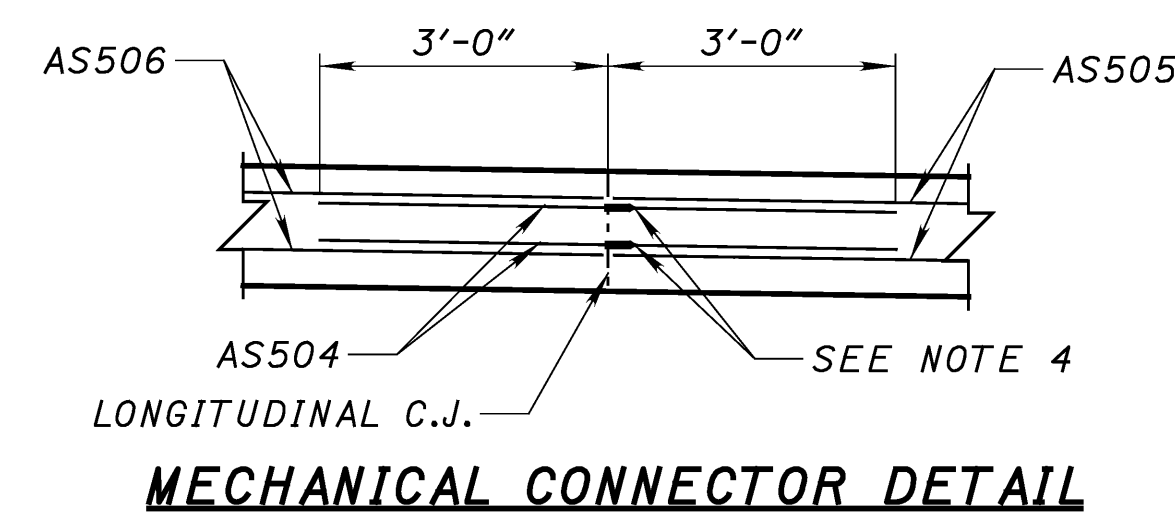
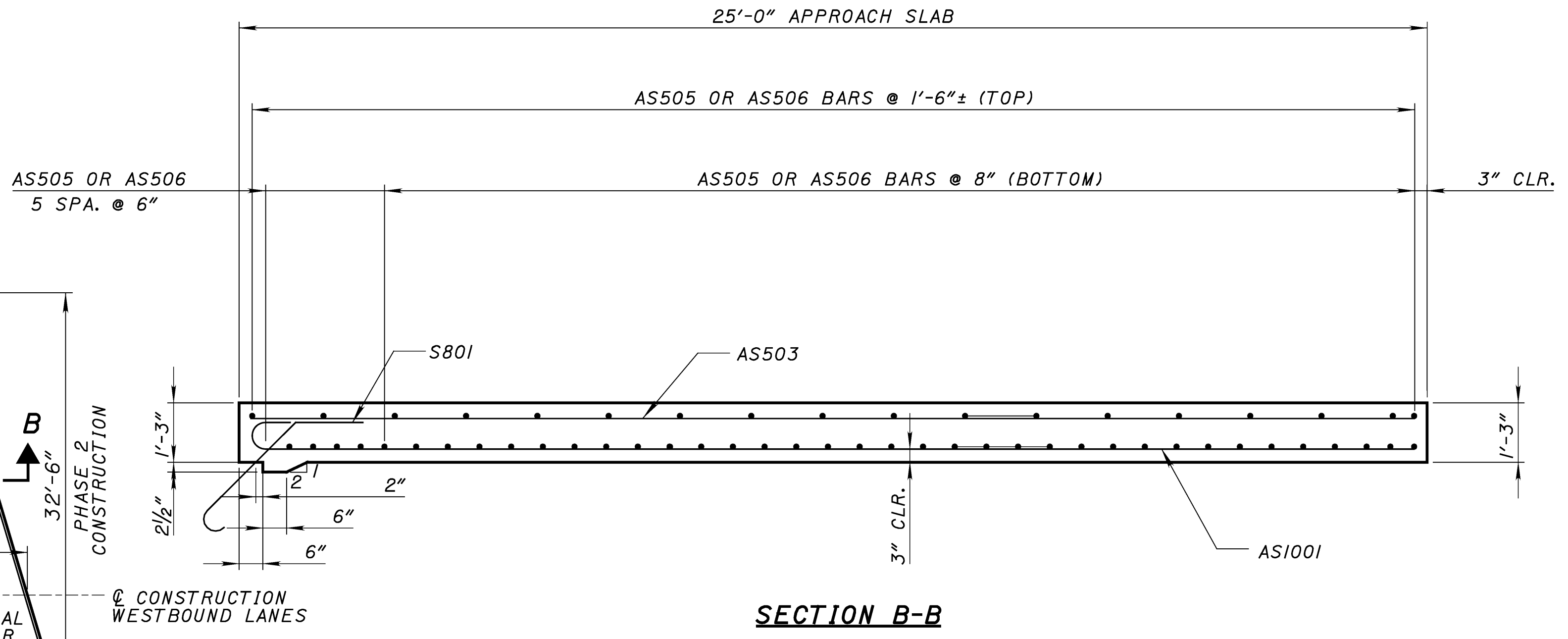
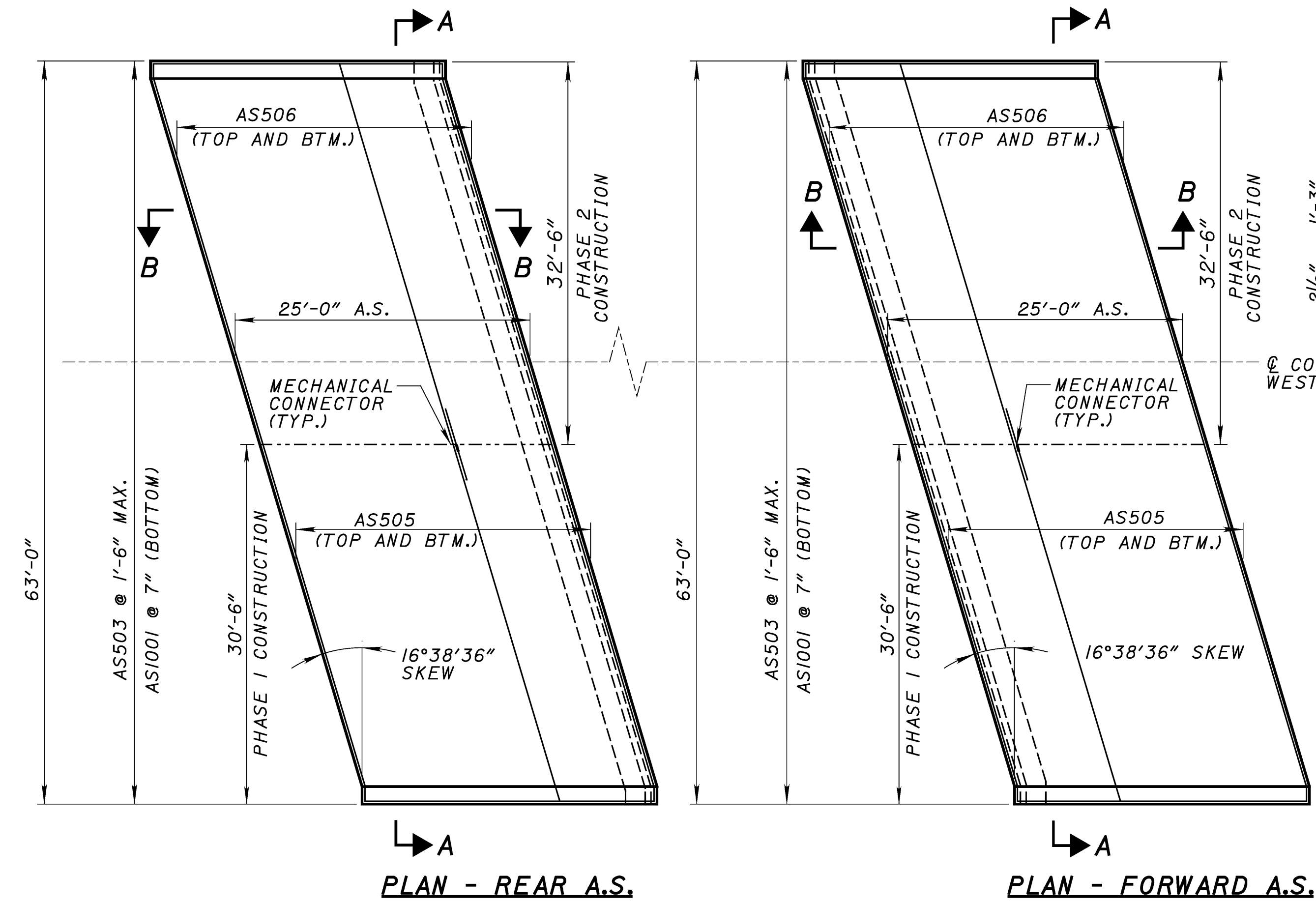
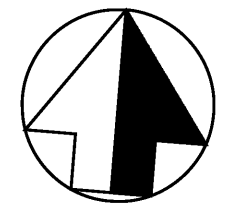
BEARING DATA		
PIERS 1 & 2		
	LEFT BRIDGE	RIGHT BRIDGE
	BEAMS	BEAMS
B	2.7982"	2.7982"
te	0.25"	0.25"
ti	0.37"	0.37"
DEAD LOAD	108.79 K	106.45 K
LIVE LOAD (NO IMPACT)	65.99 K	65.10 K
TOTAL LOAD	174.78 K	171.55 K



DETAIL A

NOTES:

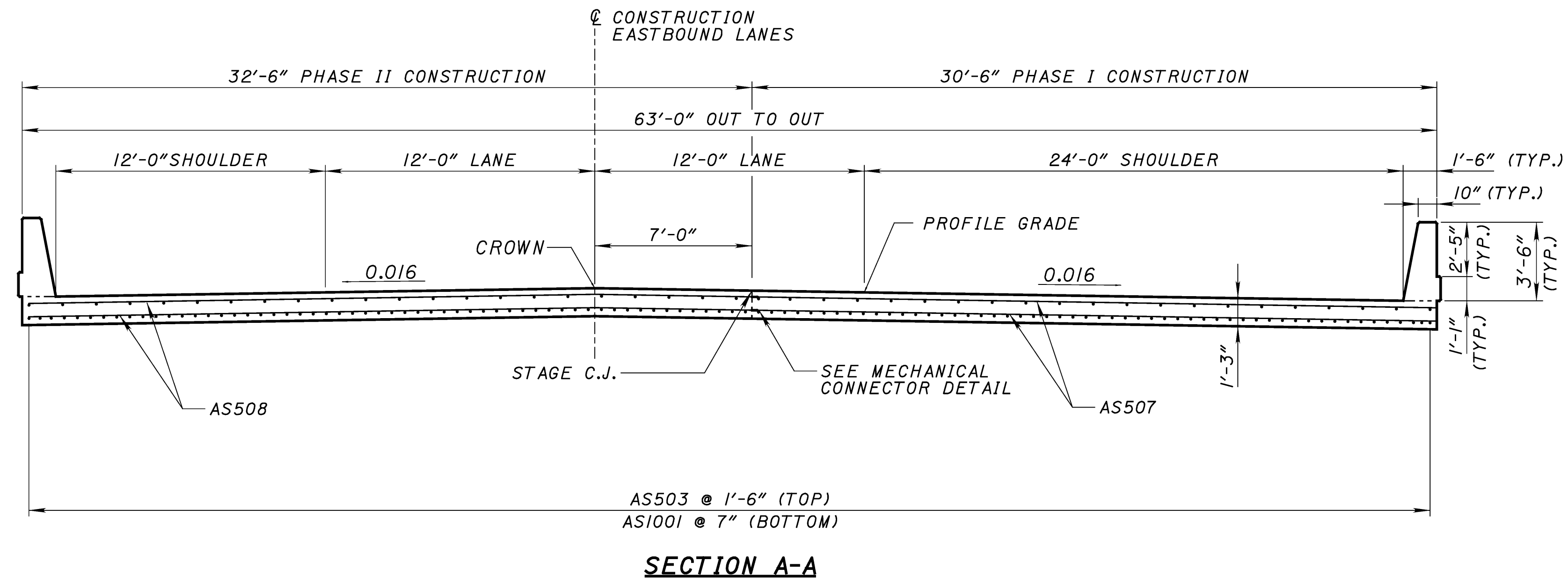
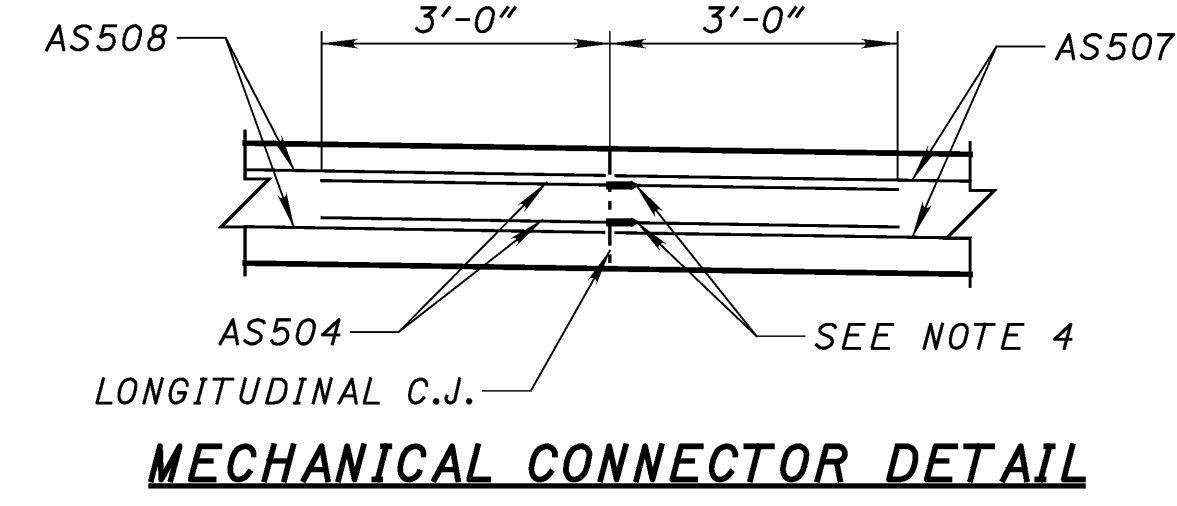
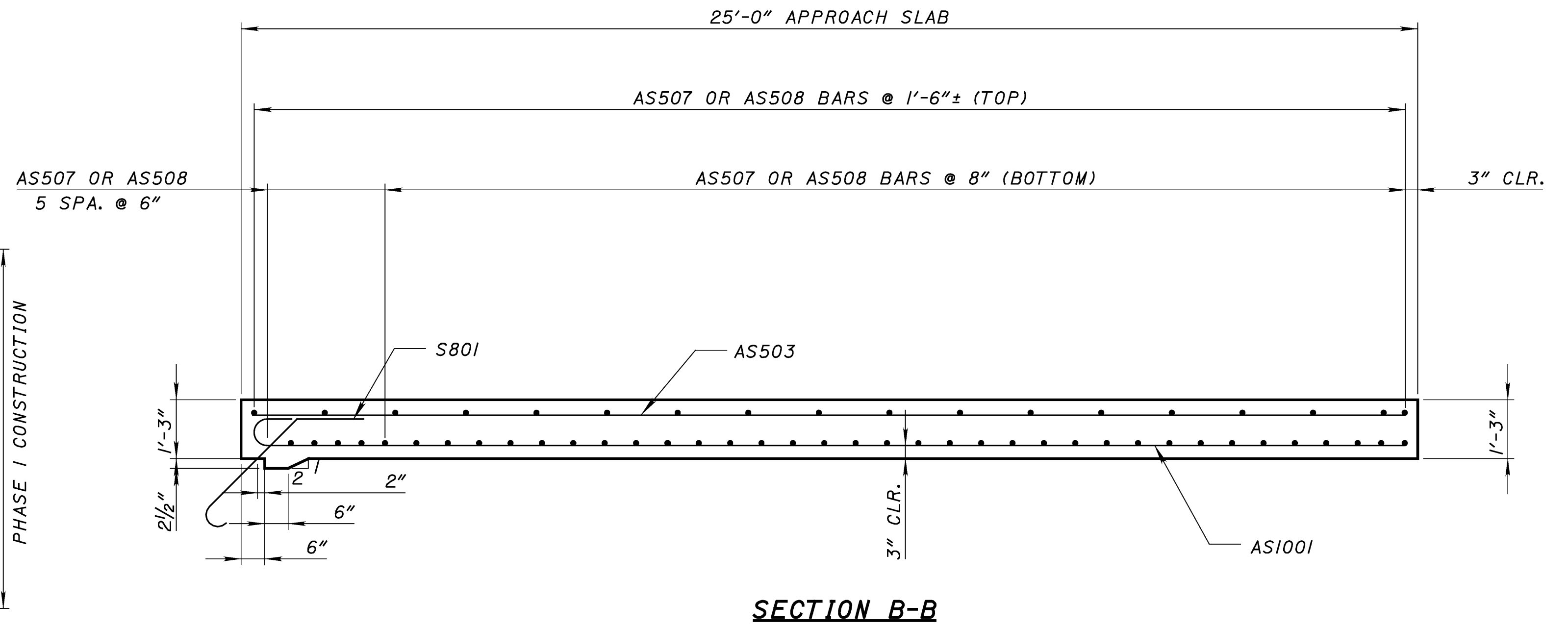
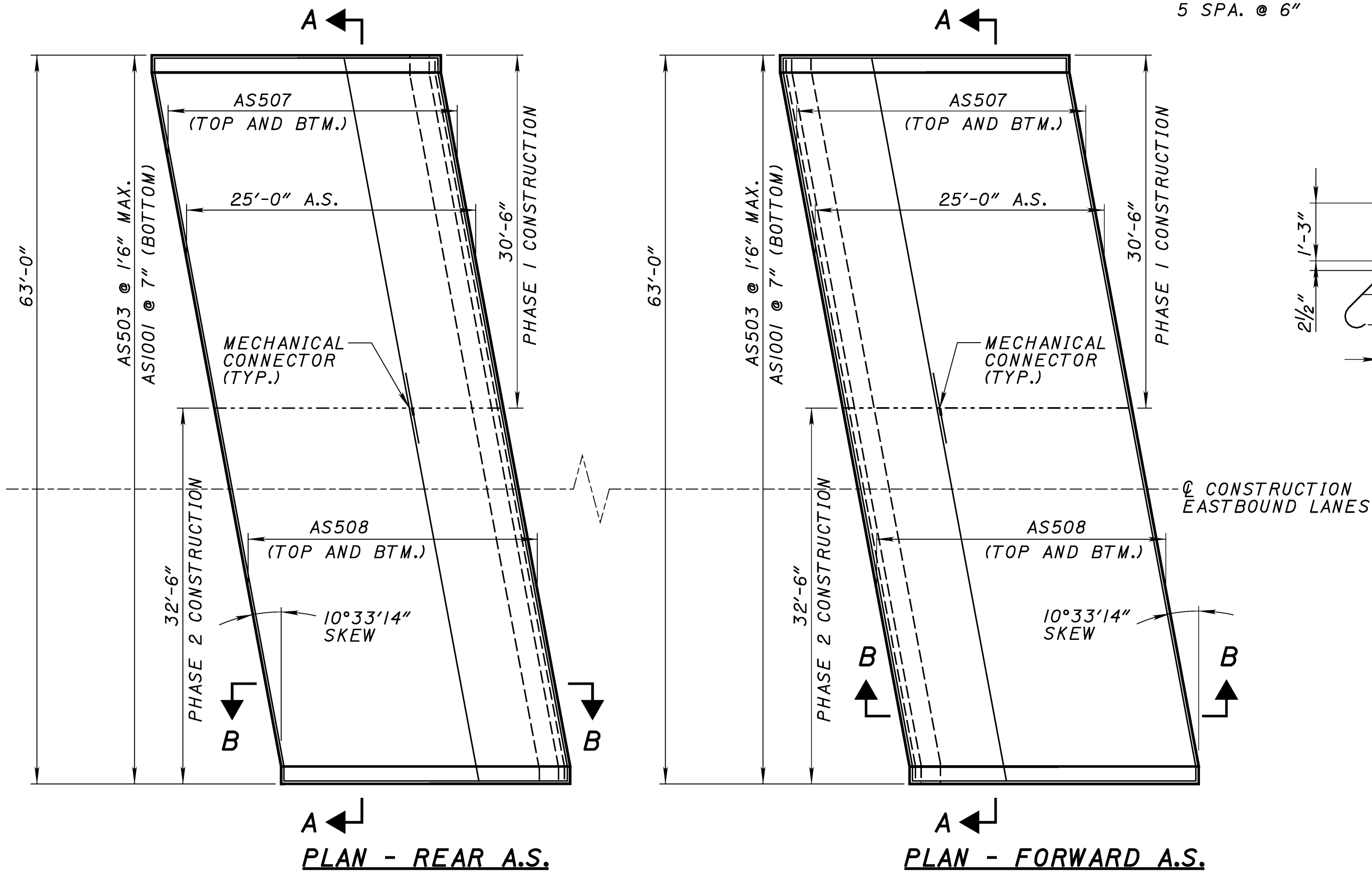
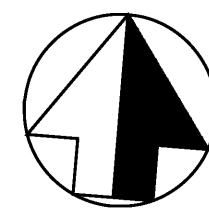
- CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300° F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
- THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
- IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80 DEGREES F OR LOWER THAN 40 DEGREES F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60 DEGREES F (±) 10 DEGREES F, RAISE THE BEAMS OR GIRDERS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60 DEGREES F (±) 10 DEGREES F.
- THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
- LOAD PLATES MAY BE EITHER A709 GRADE 36 OR GRADE 50, SHOP PAINTED IN ACCORDANCE WITH APPLICABLE PROVISIONS OF ITEM 514. INCLUDE LOAD PLATES AND PAINTING WITH ITEM 516 FOR PAYMENT.
- BEARINGS, INCLUDING LOAD PLATES AND PAINTING, SHALL BE PAID FOR UNDER ITEM 516 - ELASTOMERIC BEARING WITH INTERNAL LAMINATES (NEOPRENE) AND LOAD PLATE, AS PER PLAN.



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, AS501 IS A #5 BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.
3. FOR INFORMATION NOT SHOWN REFER TO STANDARD DRAWING AS-1-B1.
4. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPlicing MECHANISM, OR APPROVED EQUAL.
5. BAR SPACING IS MEASURED PERPENDICULAR TO THE C OR PARALLEL TO THE C.
6. SEE SHEET 40/46 FOR ADDITIONAL DETAILS AND REINFORCING SCHEDULE.
7. APPROACH SLAB AND APPROACH SLAB PARAPET CONCRETE AND REINFORCEMENT SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN.

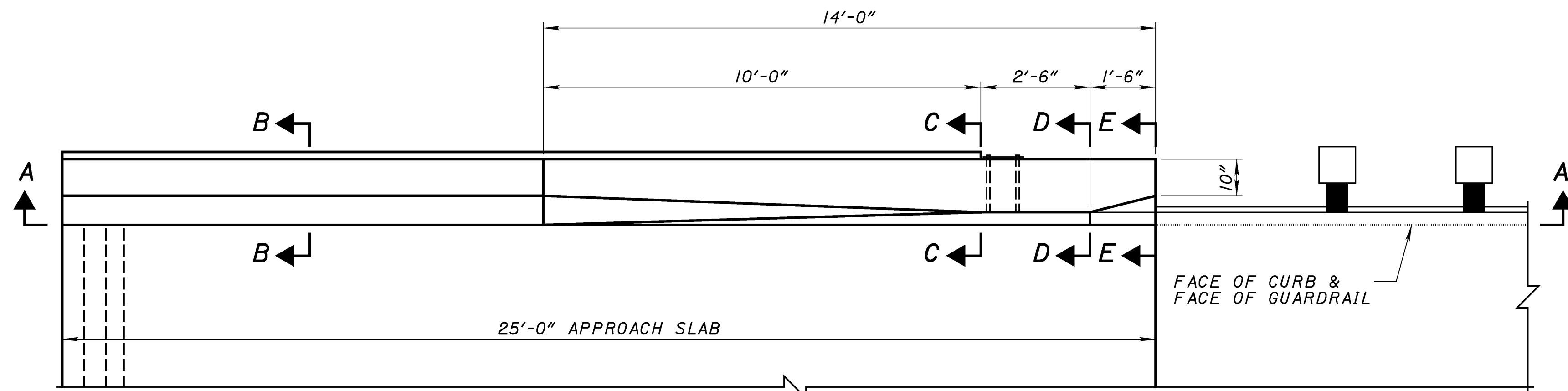
\$DATE\$
 \$FILES\$



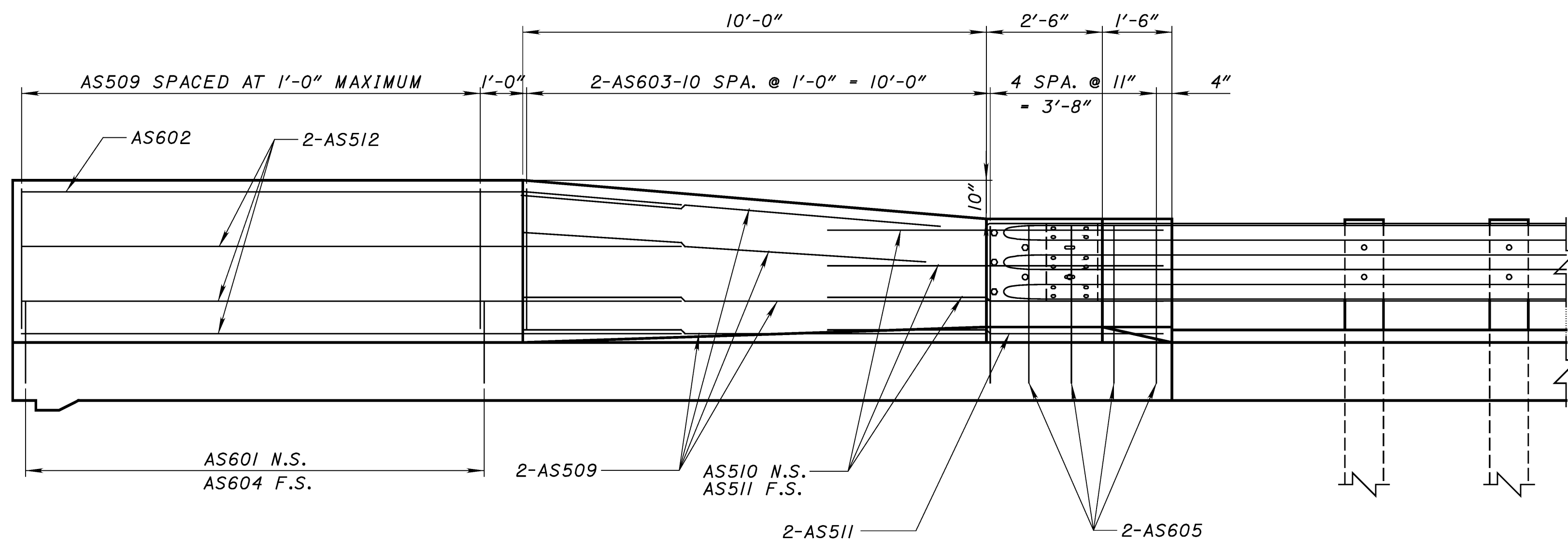
SEE SHEET 38/46 FOR NOTES.

\$DATE\$
\$FILES\$

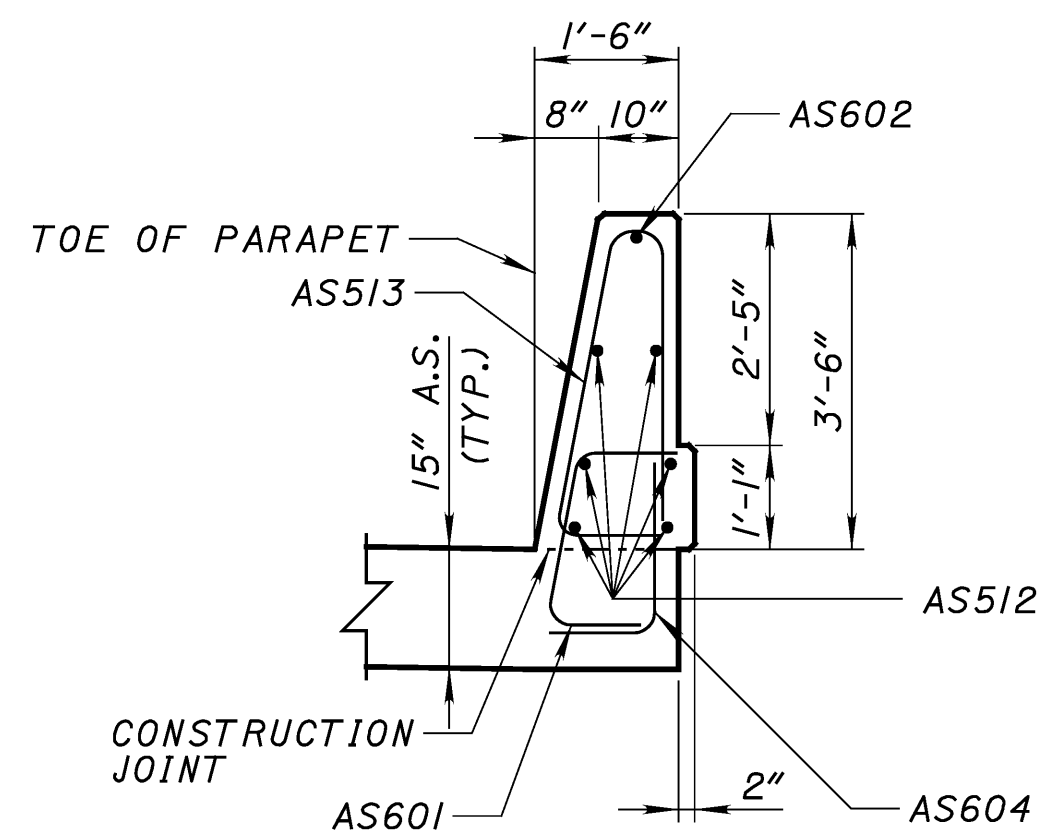
DESIGNED	DATE
DJB	01-07-08
CHECKED	STRUCTURE FILE NUMBER
SCT	4704355L/4704444R
DRAWN	REVISED
DJB	
REVIEWED	
LPC	



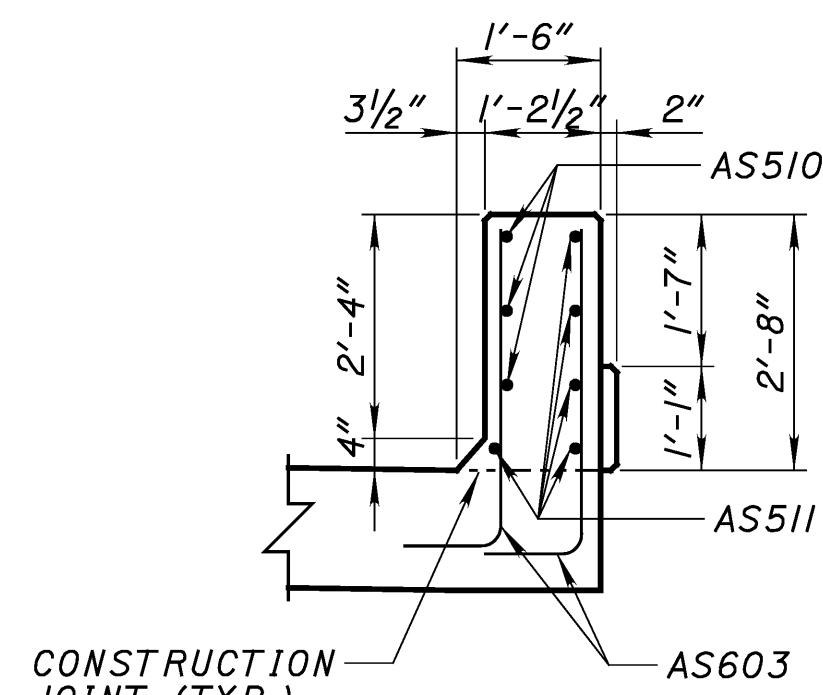
PART PLAN AT ABUTMENT



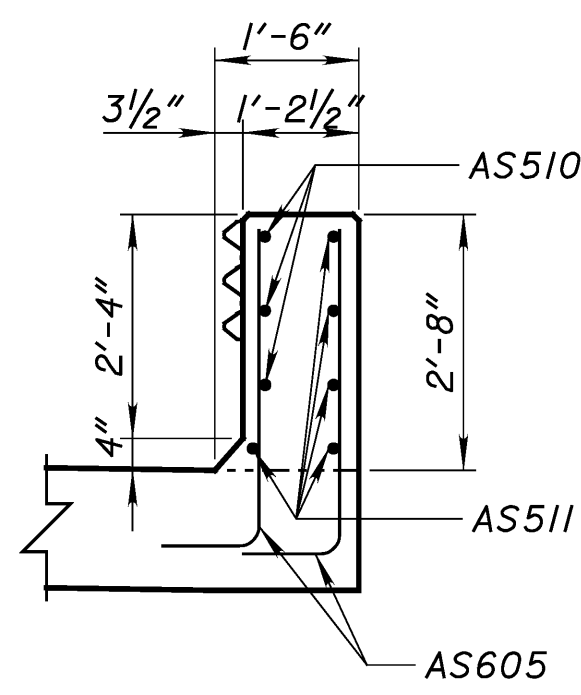
SECTION A-A



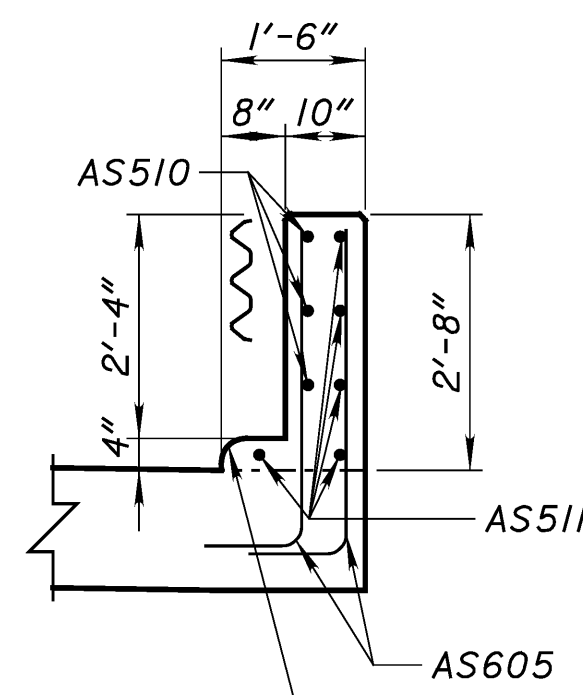
SECTION B-B



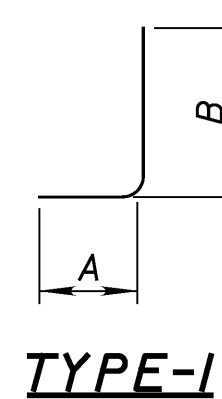
SECTION C-C



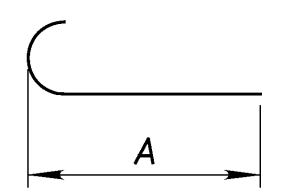
SECTION D-D



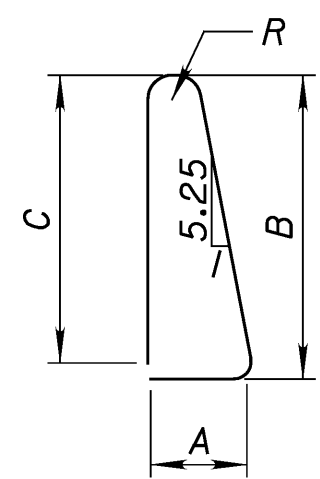
SECTION E-E



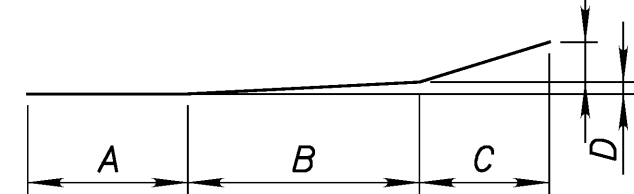
TYPE-1



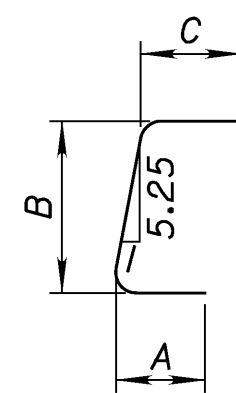
TYPE-16



TYPE-23



TYPE-25

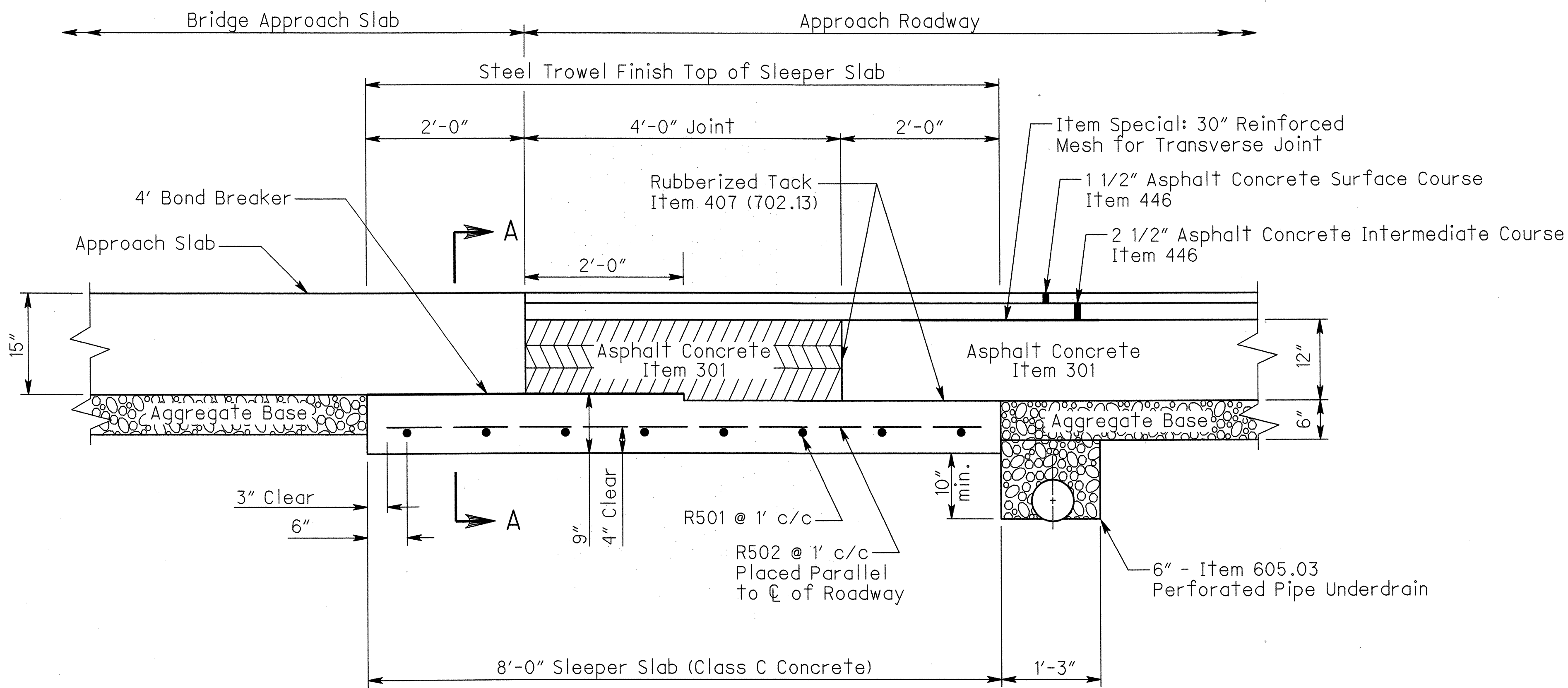


AS601

APPROACH SLAB REINFORCING STEEL SCHEDULE											
MARK	NO.	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
REAR AND FORWARD APPROACH SLAB LEFT BRIDGE											
AS503	86	24'-6"	2198	STR.							
AS504	228	3'-0"	713	STR.							
AS505	114	31'-3 3/4"	3723	STR.							
AS506	114	33'-4 3/4"	3971	STR.							
AS509	32	10'-0"	334	STR.							
AS510	12	5'-6"	69	25	1'-8"	2'-5"	1'-4 1/4"	1 1/2"	5"		
AS511	20	5'-6"	115	STR.							
AS512	24	14'-3"	357	STR.							
AS513	44	7'-5"	340	23	1'-1"	3'-2"	3'-0"			2 3/4"	
AS601	44	3'-10 1/2"	256		1'-1"	1'-10 1/2"	1'-1"				
AS602	4	14'-11"	90	STR.							
	8	4'-2 3/4"				3'-4 3/4"					
AS603	S.O.	T0	616	1	1'-0"	T0					1"
	11	5'-3 3/4"				4'-2 3/4"					
AS604	44	2'-8 1/2"	178	1	1'-1"	1'-9 1/2"					
AS605	32	4'-2 3/4"	204	1	1'-0"	3'-4 3/4"					
AS1001	218	25'-11"	24311	16	24'-6"						
		TOTAL:	37475								
REAR AND FORWARD APPROACH SLAB RIGHT BRIDGE											
AS503	86	24'-6"	2198	STR.							
AS504	228	3'-0"	713	STR.							
AS507	114	30'-6 1/4"	3629	STR.							
AS508	114	32'-6 1/2"	3869	STR.							
AS509	32	10'-0"	334	STR.							
AS510	12	5'-6"	69	25	1'-8"	2'-5"	1'-4 1/4"	1 1/2"	5"		
AS511	20	5'-6"	115	STR.							
AS512	24	14'-3"	357	STR.							
AS513	44	7'-5"	340	23	1'-1"	3'-2"	3'-0"			2 3/4"	
AS601	44	3'-10 1/2"	256		1'-1"	1'-10 1/2"	1'-1"				
AS602	4	14'-11"	90	STR.							
	8	4'-2 3/4"				3'-4 3/4"					
AS603	S.O.	T0	616	1	1'-0"	T0					1"
	11	5'-3 3/4"				4'-2 3/4"					
AS604	44	2'-8 1/2"	178	1	1'-1"	1'-9 1/2"					
AS605	32	4'-2 3/4"	204	1	1'-0"	3'-4 3/4"					
AS1001	218	25'-11"	24311	16	24'-6"						
		TOTAL:	37279								

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, AS501 IS A #5 BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED
3. ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED OTHERWISE
4. SERIES BARS - EACH BAR VARIES BY TABULATED AMOUNTS.
5. FOR BRIDGE TERMINAL ASSEMBLY SEE STANDARD CONSTRUCTION DRAWING GR-3.1 AND GR-3.2.



SLEEPER SLAB AND PAVEMENT DETAIL

REINFORCING STEEL LIST - LEFT BRIDGE			
Mark	Shape	Number	Length
R501	1	8	65'-3"
R502	Straight	66	8'-4"

1 R501 bars may be furnished in segments with a 2'-6" bar lap between segments.

REINFORCING STEEL LIST - RIGHT BRIDGE			
Mark	Shape	Number	Length
R501	1	8	63'-7"
R502	Straight	64	8'-1 1/2"

1 R501 bars may be furnished in segments with a 2'-6" bar lap between segments.

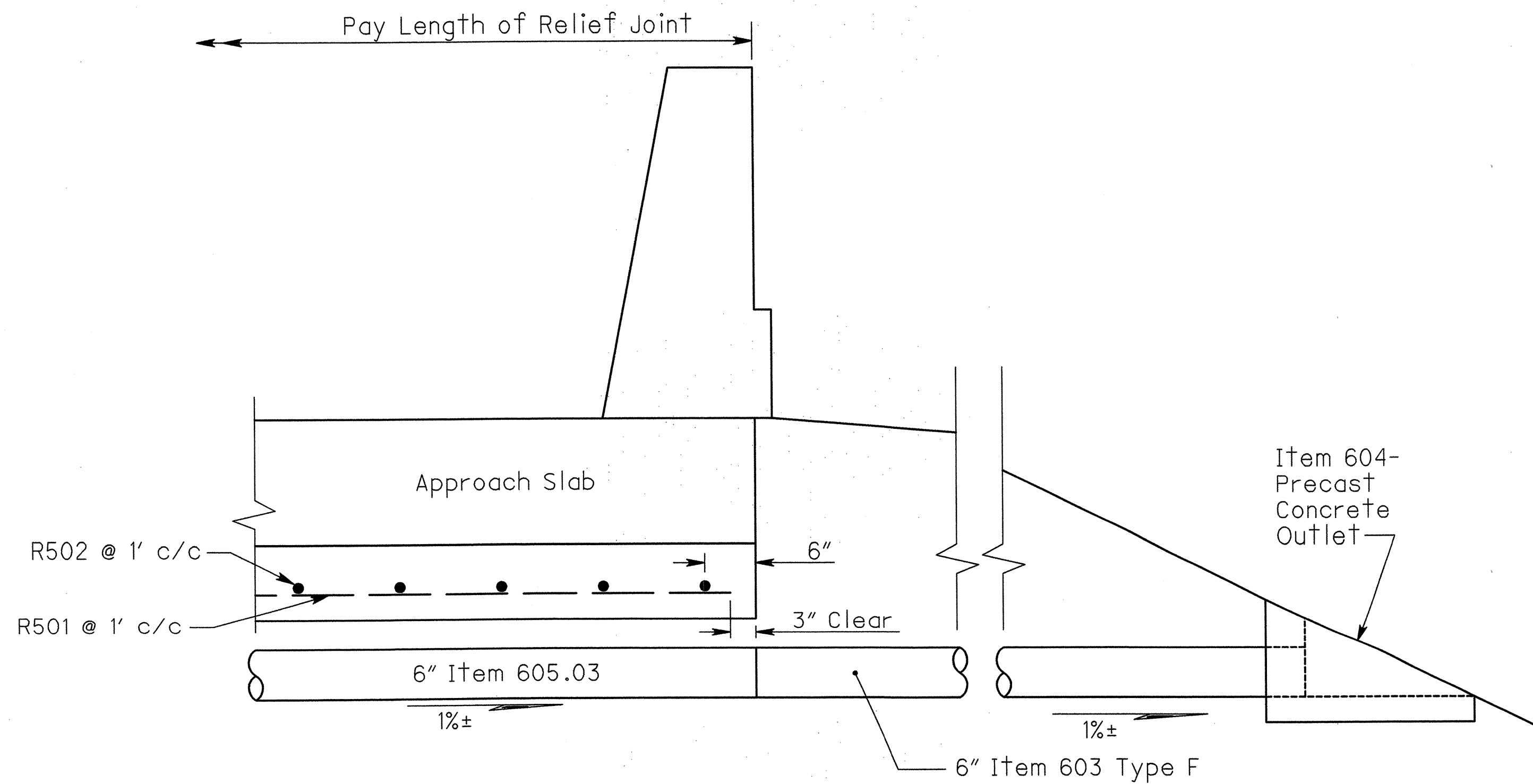
NOTES

APPROACH SLAB PRESSURE RELIEF JOINTS: Relief joints are to be provided regardless of abutment design at all 1244 L/R approaches.

BOND BREAKER: A bond breaker consisting of two 4 foot sheets of clear or opaque polyethylene film, Item 705.06, shall be centered above the joint between the subbase and the sleeper slab. Care shall be taken in the area beneath the polyethylene film to ensure the surface of the subbase is finished smooth and is flush with or slightly higher than the surface of the sleeper slab. The film shall have a nominal thickness of 4 mils.

UNDERDRAIN: A perforated underdrain shall be placed as shown. It shall extend from edge to edge of the sleeper slab and be outletted through the embankment as shown in Section A-A. For additional information, see SCD DM-1.2.

PAYMENT: Measurement of the pressure relief joint for payment purposes shall be along the centerline of the Sleeper Slab between the backs of curb. Payment shall be per Linear Foot of **Item Special - Pressure Relief Joint, Type A** and shall include saw cutting & removal of existing pavement, Items 301 & 446, and all labor, materials and incidentals needed to construct the joint as shown, except for the pipe Underdrain. The Underdrains shall be paid for per Linear Foot of **Item 605 - 6" Shallow Pipe Underdrains, Item 707.32 Type CP, or 707.41.** The outlet pipe shall be paid for per Linear Foot of **Item 603 - 6" Conduit, Type F with Item 604 - Precast Reinforced Concrete Outlet** at each.



SECTION A-A
(Showing an Underdrain Outlet through the embankment)

DESIGN AGENCY: DISTRICT 3 OFFICE OF PRODUCTION
 DATE: 03-21-08
 REVIEWED: CLB
 DRAWN: KRB
 DESIGNED: KRB
 CHECKED: RDN
 STRUCTURE FILE NUMBER: 470444R
 REVISIONS:
 PRESSURE RELIEF JOINT TYPE A
 BRIDGE NO. LOR-90-1244 L/R
 I.R. 90 OVER LAKE AVENUE
 LOR-90-12.42
 PID 24868
 40A/46
 153A
 199

REAR ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	39	9'-1"	237	3	2'-6 ³ / ₄ "	1'-9"				
A501	66	11'-0"	758	3	2'-7"	2'-8"				
A502	49	10'-1"	516	2	4'-1"	2'-2"	4'-1"			
A503	14	14'-5"	211	2	6'-3"	2'-2"	6'-3"			
A504	8	11'-1 ¹ / ₂ "	93	2	4'-7 ¹ / ₄ "	2'-2"	4'-7 ¹ / ₄ "			
A505	2	11'-5"	24	2	4'-9"	2'-2"	4'-9"			
	1	7'-8"			2'-10 ¹ / ₂ "		2'-10 ¹ / ₂ "			
A506	S.O.	T0	39	2	T0	2'-2"	T0			1'-0"
	4	10'-8"			4'-4 ¹ / ₂ "		4'-4 ¹ / ₂ "			
	1	8'-4 ¹ / ₂ "			3'-2 ³ / ₄ "		3'-2 ³ / ₄ "			
A507	S.O.	T0	30	2	T0	2'-2"	T0			1'-1 ¹ / ₄ "
	3	10'-7"			4'-4"		4'-4"			
A508	16	30'-0"	501	STR.						
A509	8	16'-7"	139	STR.						
A510	8	19'-3"	161	STR.						
A511	8	6'-0"	50	30	3'-3"	2'-9"				
A512	4	10'-11"	46	STR.						
A513	4	11'-6 ¹ / ₂ "	49	STR.						
A514	1	5'-7"	6	STR.						
A515	1	4'-11"	6	STR.						
A516	1	9'-8"	10	STR.						
A517	1	9'-0"	10	STR.						
A518	1	11'-5"	12	STR.						
A519	1	10'-9"	12	STR.						
A520	1	11'-11 ¹ / ₄ "	13	19	1'-6"	9'-10 ¹ / ₂ "	3'-6"			
A521	1	11'-3 ³ / ₄ "	12	19	0'-10 ¹ / ₂ "	9'-10 ¹ / ₂ "	3'-6"			
A522	3	10'-5"	33	2	4'-3"	2'-2"	4'-3"			
A601	69	10'-9"	1115	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A801	16	30'-0"	1282	STR.						
A802	8	21'-1"	451	STR.						
A803	8	23'-9"	508	STR.						
A804	8	15'-0"	321	30	7'-9"	7'-3"				

REAR ABUTMENT TOTAL = 6645

FORWARD ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	39	9'-1"	237	3	2'-6 ³ / ₄ "	1'-9"				
A501	66	11'-0"	758	3	2'-7"	2'-8"				
A504	9	11'-1 ¹ / ₂ "	105	2	4'-7 ¹ / ₄ "	2'-2"	4'-7 ¹ / ₄ "			
A505	2	11'-5"	24	2	4'-9"	2'-2"	4'-9"			
A508	16	30'-0"	501	STR.						
A511	8	6'-0"	50	30	3'-3"	2'-9"				
A523	49	10'-6"	537	2	4'-3 ¹ / ₂ "	2'-2"	4'-3 ¹ / ₂ "			
A524	16	14'-10"	248	2	6'-5 ¹ / ₂ "	2'-2"	6'-5 ¹ / ₂ "			
	1	6'-5"			2'-3"		2'-3"			
A525	S.O.	T0	45	2	T0	2'-2"	T0			1'-1 ¹ / ₂ "
	5	10'-7"			4'-4"		4'-4"			
	1	8'-3 ¹ / ₂ "			3'-2 ¹ / ₄ "		3'-2 ¹ / ₄ "			
A526	S.O.	T0	19	2	T0	2'-2"	T0			0'-11 ¹ / ₂ "
	2	9'-3"			3'-8"		3'-8"			
A527	8	17'-2"	144	STR.						
A528	8	18'-8"	156	STR.						
A529	4	10'-9"	45	STR.						
A530	4	11'-5"	48	STR.						
A531	1	5'-2"	6	STR.						
A532	1	5'-9 ³ / ₄ "	6	STR.						
A533	1	9'-3"	10	STR.						
A534	1	9'-10 ³ / ₄ "	11	STR.						
A535	1	10'-11"	12	STR.						
A536	1	11'-6 ¹ / ₂ "	12	STR.						
A537	1	12'-2 ¹ / ₂ "	13	19	1'-6"	10'-0 ¹ / ₂ "	3'-10"			
A538	1	11'-7"	12	19	0'-10 ¹ / ₂ "	10'-0 ¹ / ₂ "	3'-10"			
A539	2	10'-10"	23	2	4'-5 ¹ / ₂ "	2'-2"	4'-5 ¹ / ₂ "			
A601	69	10'-9"	1115	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A801	16	30'-0"	1282	STR.						
A804	8	15'-0"	321	30	7'-9"	7'-3"				
A805	8	21'-8"	463	STR.						
A806	8	23'-2"	495	STR.						

FWD. ABUTMENT TOTAL = 6698

ABUTMENT TOTAL = 13343

NOTES:

SEE SHEET 43/46 FOR BAR BENDING DIAGRAMS.

SEE SHEET 43/46 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

PIER 1								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
					A	B	C	R
SP401	1	309'-2"	207	27	0'-4½"	1'-6"	13'-11"	
P501	12	7'-6"	94	STR.				
P502	10	19'-0"	199	STR.				
P503	8	9'-0"	75	24	2'-8"	2'-5"		1'-4"
P504	OMITTED							
P505	14	17'-8"	258	STR.				
P506	32	9'-0"	301	2	3'-3½"	2'-8"	3'-3½"	
P507	48	1'-3"	63	STR.				
P508	24	3'-7"	90	2	0'-7"	2'-8"	0'-7"	
P511	2	7'-0"	15	2	2'-10"	1'-7"	2'-10"	
P801	12	9'-4"	299	17	7'-6"			
P802	12	7'-0½"	226	3	1'-8"	2'-7"		
P1001	8	12'-5"	428	1	1'-10"	10'-10"		
P1002	8	17'-0"	586	STR.				
P1003	7	19'-2"	578	STR.				
P1004	7	35'-8"	1075	1	3'-4"	32'-8"		
PIER 1 TOTAL =			4494					

PIER 2								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
					A	B	C	R
SP402	1	280'-0"	187	27	0'-4½"	1'-6"	12'-5"	
P501	12	7'-6"	94	STR.				
P502	10	19'-0"	199	STR.				
P503	8	9'-0"	75	24	2'-8"	2'-5"		1'-4"
P504	OMITTED							
P505	14	17'-8"	258	STR.				
P506	32	9'-0"	301	2	3'-3½"	2'-8"	3'-3½"	
P507	48	1'-3"	63	STR.				
P508	24	3'-7"	90	2	0'-7"	2'-8"	0'-7"	
P511	2	7'-0"	15	2	2'-10"	1'-7"	2'-10"	
P801	12	9'-4"	299	17	7'-6"			
P802	12	7'-0½"	226	3	1'-8"	2'-7"		
P1001	8	12'-5"	428	1	1'-10"	10'-10"		
P1003	7	19'-2"	578	STR.				
P1004	7	35'-8"	1075	1	3'-4"	32'-8"		
P1005	8	15'-6"	534	STR.				
PIER 2 TOTAL =			4422					
PIER TOTAL =			8916					

NOTES:

SEE SHEET 43/46 FOR BAR BENDING DIAGRAM.

SEE SHEET 43/46 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

SUPERSTRUCTURE								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			INC
					A	B	C	
S401	425	30'-0"	8517	STR.				
S402	85	25'-10"	1467	STR.				
S501	OMITTED							
S502	OMITTED							
S503	OMITTED							
S504	OMITTED							
S505	OMITTED							
S506	OMITTED							
S507	390	30'-0"	12203	STR.				
S508	78	28'-4"	2305	STR.				
S509	OMITTED							
S510	14	30'-0"	438	STR.				
S511	S.O.	T0	144	STR.				0'-2 1/2"
	4	34'-8 1/2"						
S512	3	34'-8 1/2"	109	STR.				
S513	3	34'-1"	107	STR.				
	1	34'-1"						
S514	S.O.	T0	143	STR.				0'-1 13/16"
	4	34'-6 1/2"						
S515	28	9'-1"	266	30	6'-3"	2'-10"		
S516	142	5'-9"	852	2	2'-2"	1'-8"	2'-2"	
S517	114	7'-6"	892	2	2'-9 1/2"	2'-2"	2'-9 1/2"	
S518	14	29'-10"	436	STR.				
	1	34'-10"						
S519	S.O.	T0	147	STR.				0'-2 1/2"
	4	35'-5 1/2"						
S520	3	34'-10"	109	STR.				
S521	3	35'-5 1/2"	111	STR.				
	1	35'-0"						
S522	S.O.	T0	147	STR.				0'-1 13/16"
	4	35'-5 1/2"						
S528	170	7'-11"	1404	2	3'-0"	2'-2"	3'-0"	

SUPERSTRUCTURE (CONTINUED)									
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS				INC
					A	B	C	R	
S601	168	34'-11"	8811	STR.					
S602	542	30'-2"	24558	STR.					
	2	3'-5"							
S603	S.O.	T0	591	STR.					1'-11 3/8"
	13	26'-10"							
	2	3'-3 1/4"							
S604	S.O.	T0	668	STR.					1'-11 3/8"
	14	28'-6"							
S605	538	32'-2"	25993	STR.					
	2	4'-8 1/2"							
S606	S.O.	T0	827	STR.					1'-11 3/8"
	15	32'-0"							
	2	4'-0"							
S607	S.O.	T0	699	STR.					1'-11 3/8"
	14	29'-3"							
S608	568	6'-4"	5403	30	3'-5"	2'-11"			
S801	86	5'-0 1/2"	1158	18	2'-8 1/2"	1'-0"	1'-0"		
R501	336	7'-5"	2600	23	1'-1"	3'-2"	3'-0"	0'-2 3/4"	
R502	60	30'-0"	1878	STR.					
R503	12	33'-4"	418	STR.					
R601	336	3'-6"	1767	29	1'-6"	1'-1"	1'-1"		
R602	336	2'-5"	1220	2	1'-1"	1'-6"			
R603	10	30'-0"	451	STR.					
R604	2	36'-8"	111	STR.					

SUPERSTRUCTURE TOTAL = 106950
LEFT BRIDGE TOTAL = 129209

NOTES:

ALL BAR LISTED BAR DIMENSIONS ARE MEASURED OUT TO OUT UNLESS OTHERWISE NOTED.

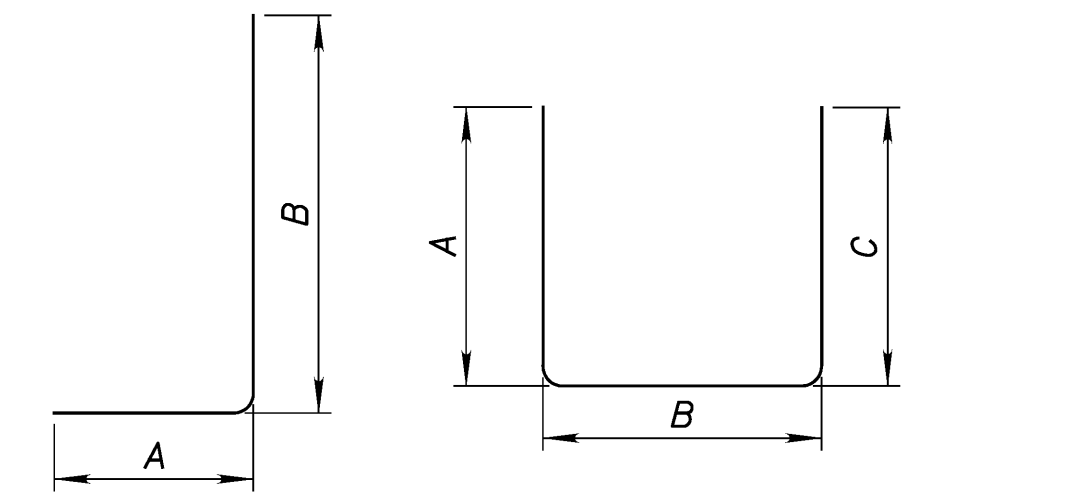
STANDARD BEND SHALL BE ASSUMED WHEN NO BAR LEG DIMENSION IS LISTED.

BAR SIZE AND LOCATION ARE INDICATED BY THE BAR MARK. THE LETTER INDICATES BAR LOCATION. THE FIRST NUMBER OF A THREE DIGIT NUMBER, OR THE FIRST TWO DIGITS OF A FOUR DIGIT NUMBER INDICATES BAR SIZE. THE REMAINING TWO DIGITS INDICATE BAR MARK.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

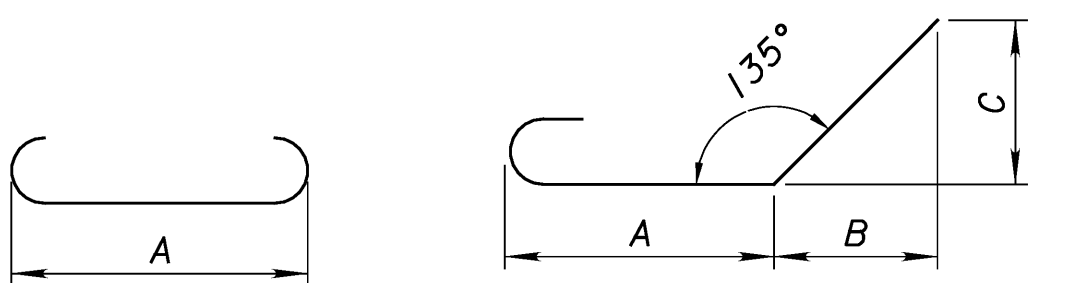
SPIRAL SPACERS

CONCRETE SPACERS OR OTHER APPROVED NONCORROSIVE SPACING DEVICES SHALL BE USED AT SUFFICIENT INTERVALS (NEAR THE BOTTOM AND AT INTERVALS NOT EXCEEDING 10 FEET) TO ENSURE CONCENTRIC SPACING FOR THE ENTIRE CAGE LENGTH. SPACERS SHALL BE CONSTRUCTED OF APPROVED MATERIAL EQUAL IN QUALITY AND DURABILITY TO THE CONCRETE SPECIFIED FOR THE DRILLED SHAFT OR COLUMN. THE SPACERS SHALL HAVE ADEQUATE DIMENSIONS TO ENSURE A MINIMUM OF 3 INCH CLEAR SPACE BETWEEN THE OUTSIDE OF THE REINFORCING CAGE AND THE DESIGN DIMENSION OF THE DRILLED SHAFT OR COLUMN. CYLINDRICAL CONCRETE FEET (BOTTOM SUPPORTS) SHALL BE PROVIDED TO ENSURE THAT THE BOTTOM OF THE CAGE IS MAINTAINED AT THE PROPER DISTANCE ABOVE THE BASE.



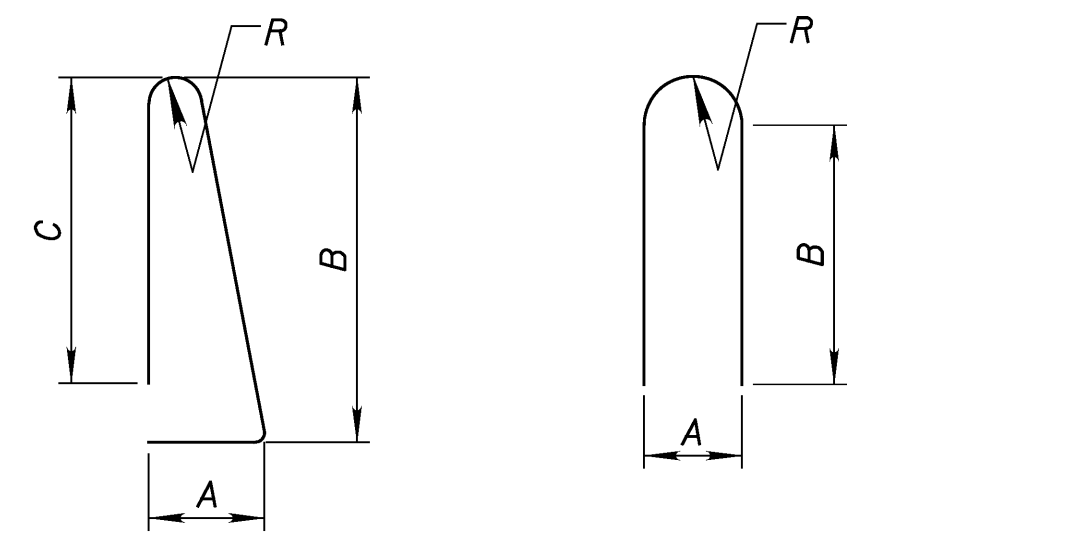
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TYPE 2



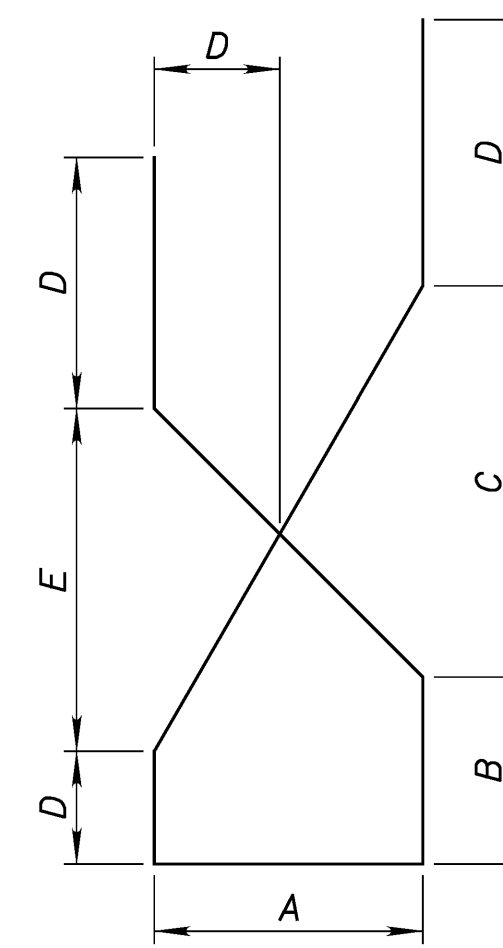
TYPE 17

TYPE 18

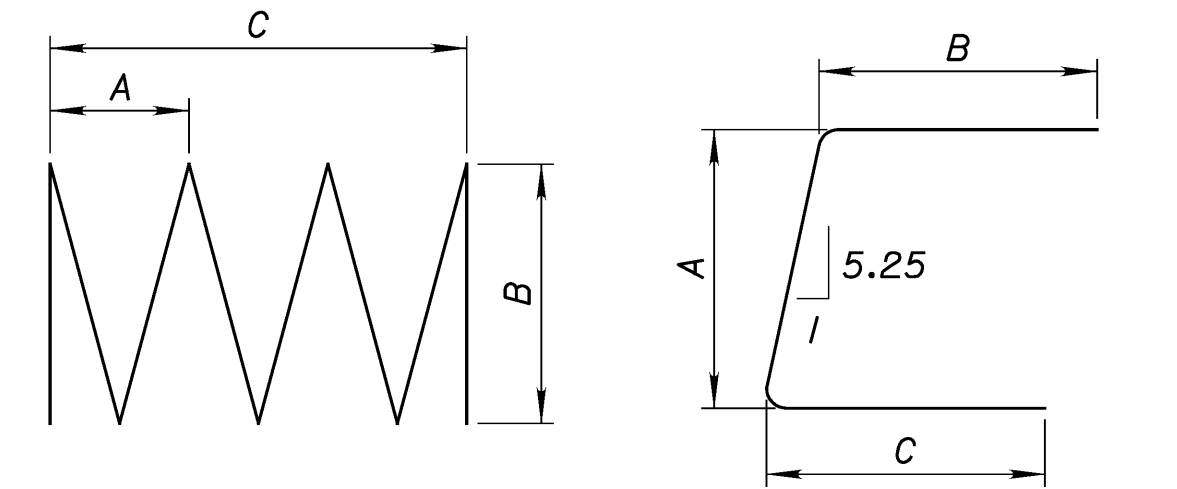


TYPE 23

TYPE 24

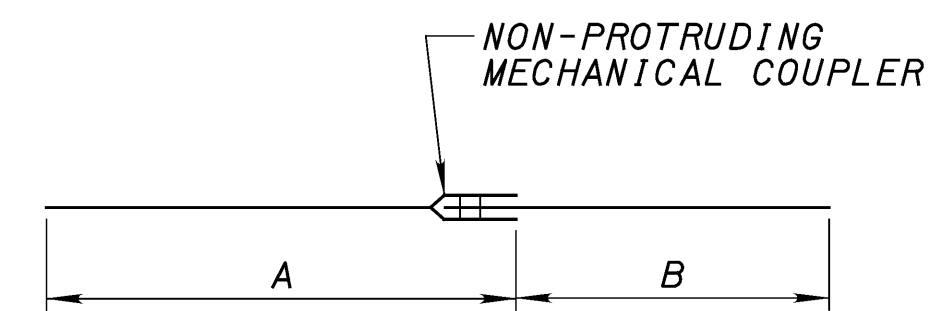


TYPE 26



TYPE 27

TYPE 29



TYPE 30

REAR ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	39	9'-1"	237	3	2'-6 ³ / ₄ "	1'-9"				
A501	68	11'-0"	781	3	2'-7"	2'-8"				
A502	50	10'-1"	526	2	4'-1"	2'-2"	4'-1"			
A503	16	14'-5"	241	2	6'-3"	2'-2"	6'-3"			
A504	2	11'-1 ¹ / ₂ "	24	2	4'-7 ¹ / ₄ "	2'-2"	4'-7 ¹ / ₄ "			
A505	10	11'-5"	119	2	4'-9"	2'-2"	4'-9"			
A508	16	30'-0"	501	STR.						
A511	8	6'-0"	50	30	3'-3"	2'-9"				
	1	8'-3 ¹ / ₂ "			3'-2 ¹ / ₄ "		3'-2 ¹ / ₄ "			
A526	S.O.	T0	19	2	T0	2'-2"	T0			0'-11 ¹ / ₂ "
	2	9'-3"			3'-8"		3'-8"			
A530	4	11'-5"	48	STR.						
A532	1	5'-9 ³ / ₄ "	6	STR.						
A536	1	11'-6 ¹ / ₂ "	12	STR.						
	1	6'-5"			2'-3"		2'-3"			
A540	S.O.	T0	54	2	T0	2'-2"	T0			0'-10"
	6	10'-7"			4'-4"		4'-4"			
A541	8	16'-4"	137	STR.						
A542	8	18'-0"	151	STR.						
A543	4	11'-0"	46	STR.						
A544	1	5'-4 ³ / ₄ "	6	STR.						
A545	1	9'-6 ³ / ₄ "	10	STR.						
A546	1	9'-11 ¹ / ₂ "	11	STR.						
A547	1	11'-1 ¹ / ₂ "	12	STR.						
A548	1	12'-1 ¹ / ₄ "	13	19	1'-3"	10'-3 ¹ / ₄ "	3'-7 ¹ / ₂ "			
A549	1	11'-8 ³ / ₄ "	12	19	0'-10 ¹ / ₂ "	10'-3 ¹ / ₄ "	3'-7 ¹ / ₂ "			
A550	2	10'-5"	22	2	4'-3"	2'-2"	4'-3"			
A601	64	10'-9"	1034	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A801	16	30'-0"	1282	STR.						
A804	8	15'-0"	321	30	7'-9"	7'-3"				
A807	8	20'-10"	445	STR.						
A808	8	22'-6"	481	STR.						

REAR ABUTMENT TOTAL = 6601

FORWARD ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	39	9'-1"	237	3	2'-6 ³ / ₄ "	1'-9"				
A501	68	11'-0"	781	3	2'-7"	2'-8"				
A504	2	11'-1 ¹ / ₂ "	24	2	4'-7 ¹ / ₄ "	2'-2"	4'-7 ¹ / ₄ "			
A505	10	11'-5"	119	2	4'-9"	2'-2"	4'-9"			
A508	16	30'-0"	501	STR.						
A511	8	6'-0"	50	30	3'-3"	2'-9"				
	1	8'-3 ¹ / ₂ "			3'-2 ¹ / ₄ "		3'-2 ¹ / ₄ "			
A526	S.O.	T0	19	2	T0	2'-2"	T0			0'-11 ¹ / ₂ "
	2	9'-3"			3'-8"		3'-8"			
	1	6'-5"			2'-3"		2'-3"			
A540	S.O.	T0	54	2	T0	2'-2"	T0			0'-10"
	6	10'-7"			4'-4"		4'-4"			
A551	50	10'-8"	557	2	4'-4 ¹ / ₂ "	2'-2"	4'-4 ¹ / ₂ "			
A552	18	15'-0"	282	2	6'-6 ¹ / ₂ "	2'-2"	6'-6 ¹ / ₂ "			
A553	8	18'-4 ¹ / ₂ "	154	STR.						
A554	8	15'-11 ¹ / ₂ "	134	STR.						
A555	4	11'-1 ¹ / ₂ "	47	STR.						
A556	4	11'-6 ¹ / ₂ "	49	STR.						
A557	1	5'-3 ³ / ₄ "	6	STR.						
A558	1	5'-8 ¹ / ₂ "	6	STR.						
A559	1	9'-5 ¹ / ₂ "	10	STR.						
A560	1	9'-10 ¹ / ₂ "	11	STR.						
A561	1	11'-0 ¹ / ₂ "	12	STR.						
A562	1	11'-5 ¹ / ₄ "	12	STR.						
A563	1	11'-11 ¹ / ₂ "	13	19	1'-3"	10'-2"	3'-6"			
A564	1	11'-7"	12	19	0'-10 ¹ / ₂ "	10'-2"	3'-6"			
A565	2	11'-0"	23	2	4'-6 ¹ / ₂ "	2'-2"	4'-6 ¹ / ₂ "			
A601	64	10'-9"	1034	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A801	16	30'-0"	1282	STR.						
A804	8	15'-0"	321	30	7'-9"	7'-3"				
A809	8	22'-10 ¹ / ₂ "	489	STR.						
A810	8	20'-5 ¹ / ₂ "	437	STR.						

FWD. ABUTMENT TOTAL = 6676

ABUTMENT TOTAL = 13277

NOTES:

SEE SHEET 46/46 FOR BAR BENDING DIAGRAMS.

SEE SHEET 46/46 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

PIER 1								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
					A	B	C	R
	TOTAL							
SP403	1	332'-1"	222	27	0'-4½"	2'-6"	15'-0"	
P501	12	7'-6"	94	STR.				
P503	8	9'-0"	75	24	2'-8"	2'-5"		1'-4"
P504	OMITTED							
P506	32	9'-0"	301	2	3'-3½"	2'-8"	3'-3½"	
P507	48	1'-3"	63	STR.				
P508	24	3'-7"	90	2	0'-7"	2'-8"	0'-7"	
P509	10	18'-2"	190	STR.				
P510	14	16'-11"	248	STR.				
P511	2	7'0"	15	2	2'-10"	1'-7"	2'-10"	
P801	12	9'-4"	299	17	7'-6"			
P802	12	7'-0½"	226	3	1'-8"	2'-7"		
P1001	8	12'-5"	428	1	1'-10"	10'-10"		
P1004	7	35'-8"	1075	1	3'-4"	32'-8"		
P1006	8	18'-3"	629	STR.				
P1007	7	18'-8"	563	STR.				
PIER 1 TOTAL =			4518					

PIER 2								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
					A	B	C	R
	TOTAL							
SP401	1	309'-2"	207	27	0'-4½"	2'-6"	13'-11"	
P501	12	7'-6"	94	STR.				
P503	8	9'-0"	75	24	2'-8"	2'-5"		1'-4"
P504	OMITTED							
P506	32	9'-0"	301	2	3'-3½"	2'-8"	3'-3½"	
P507	48	1'-3"	63	STR.				
P508	24	3'-7"	90	2	0'-7"	2'-8"	0'-7"	
P509	10	18'-2"	190	STR.				
P510	14	16'-11"	248	STR.				
P511	2	7'0"	15	2	2'-10"	1'-7"	2'-10"	
P801	12	9'-4"	299	17	7'-6"			
P802	12	7'-0½"	226	3	1'-8"	2'-7"		
P1001	8	12'-5"	428	1	1'-10"	10'-10"		
P1002	8	16'-9"	577	STR.				
P1004	7	35'-8"	1075	1	3'-4"	32'-8"		
P1007	7	18'-8"	563	STR.				
PIER 2 TOTAL =			4451					
PIER TOTAL =			8969					

NOTES:

SEE SHEET 46/46 FOR BAR BENDING DIAGRAM.

SEE SHEET 46/46 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

SUPERSTRUCTURE								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			INC
					A	B	C	
S401	425	30'-0"	8517	STR.				
S403	85	22'-4"	1268	STR.				
S501	OMITTED							
S502	OMITTED							
S507	390	30'-0"	12203	STR.				
S509	OMITTED							
S515	28	9'-1"	266	30	6'-0"	2'-10"		
S516	142	5'-9"	852	2	2'-2"	1'-8"	2'-2"	
S517	122	7'-5"	944	2	2'-9"	2'-2"	2'-9"	
S523	14	29'-2"	426	STR.				
	1	33'-11"						
S524	S.O.	T0	143	STR.				0'-1 1/16"
	4	34'-4"						
S525	3	33'-11"	107	STR.				
S526	3	34'-4"	108	STR.				
	1	34'-0"						
S527	S.O.	T0	143	STR.				0'-1 3/16"
	4	34'-4"						
S528	162	7'-9 1/2"	1317	2	2'-11 1/4"	2'-2"	2'-11 1/4"	
S529	14	29'-0"	424	STR.				
	1	33'-10 1/2"						
S530	S.O.	T0	141	STR.				0'-1 1/16"
	4	33'-5 1/2"						
S531	3	33'-10 1/2"	106	STR.				
S532	3	33'-5 1/2"	105	STR.				
	1	33'-5 1/2"						
S533	S.O.	T0	141	STR.				0'-1 3/16"
	4	33'-9"						
S534	78	24'-10"	2021	STR.				

SUPERSTRUCTURE (CONTINUED)									
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS				INC
					A	B	C	R	
S601	168	34'-11"	8811	STR.					
S602	540	30'-2"	24468	STR.					
S605	540	32'-2"	26090	STR.					
S608	558	6'-4"	5308	30	3'-5"	2'-11"			
	2	4'-2"							
S609	S.O.	T0	452	STR.					3'-1 5/8"
	9	29'-3"							
	2	3'-9"							
S610	S.O.	T0	354	STR.					3'-1 5/8"
	8	25'-8"							
	2	5'-11"							
S611	S.O.	T0	406	STR.					3'-1 5/8"
	8	27'-10"							
	2	4'-11"							
S612	S.O.	T0	472	STR.					3'-1 5/8"
	9	30'-0"							
S801	86	5'-0 1/2"	1158	18	2'-8 1/2"	1'-0"	1'-0"		
R501	328	7'-5"	2538	23	1'-1"	3'-2"	3'-0"	0'-2 3/4"	
R502	60	30'-0"	1878	STR.					
R504	12	24'-10"	311	STR.					
R601	328	3'-6"	1725	29	1'-6"	1'-1"	1'-1"		
R602	328	2'-5"	1191	2	1'-1"	1'-6"			
R603	10	30'-0"	451	STR.					
R605	2	27'-4"	82	STR.					

SUPERSTRUCTURE TOTAL = 104927
RIGHT BRIDGE TOTAL = 127173

NOTES:

ALL BAR LISTED BAR DIMENSIONS ARE MEASURED OUT TO OUT UNLESS OTHERWISE NOTED.

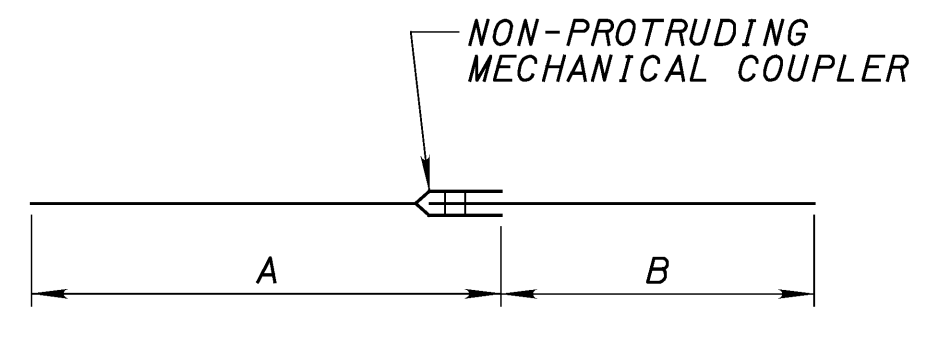
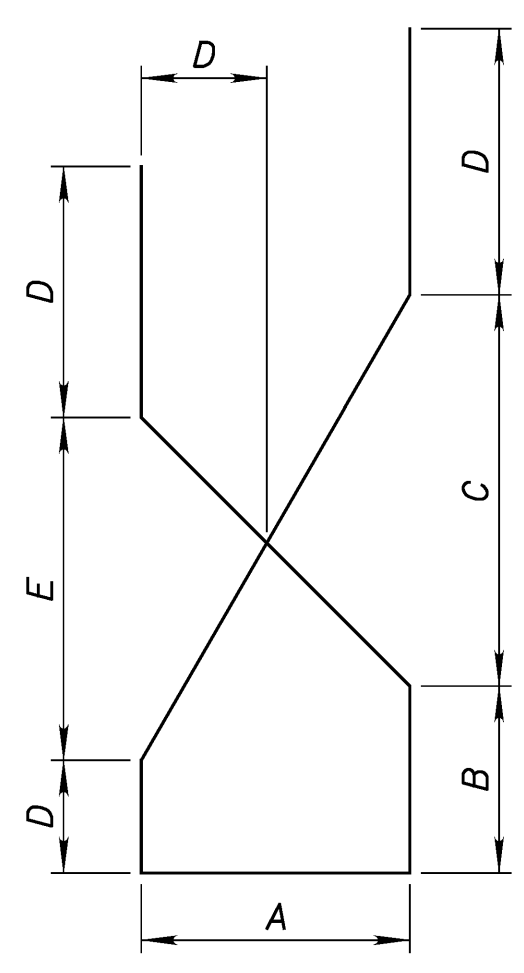
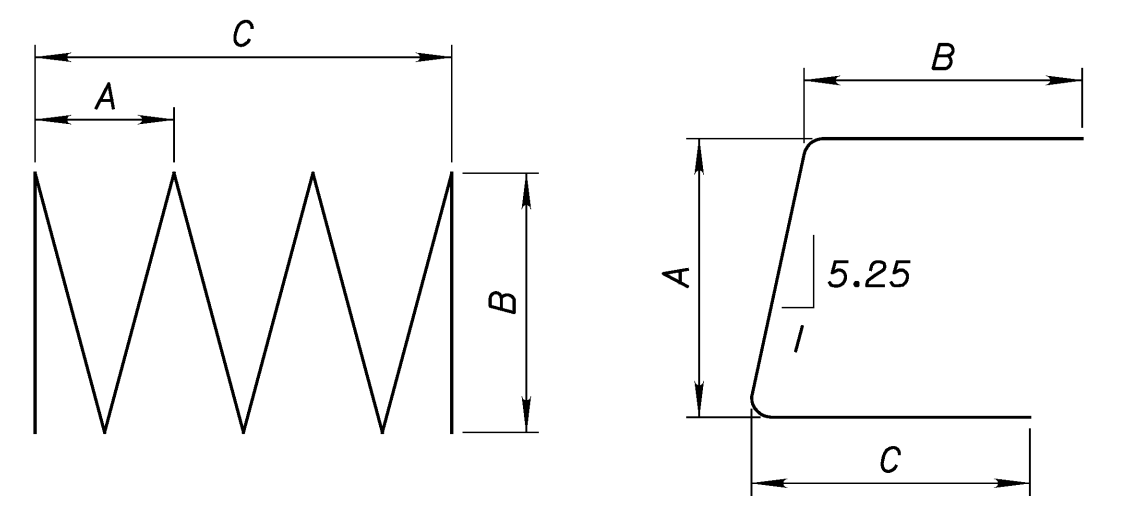
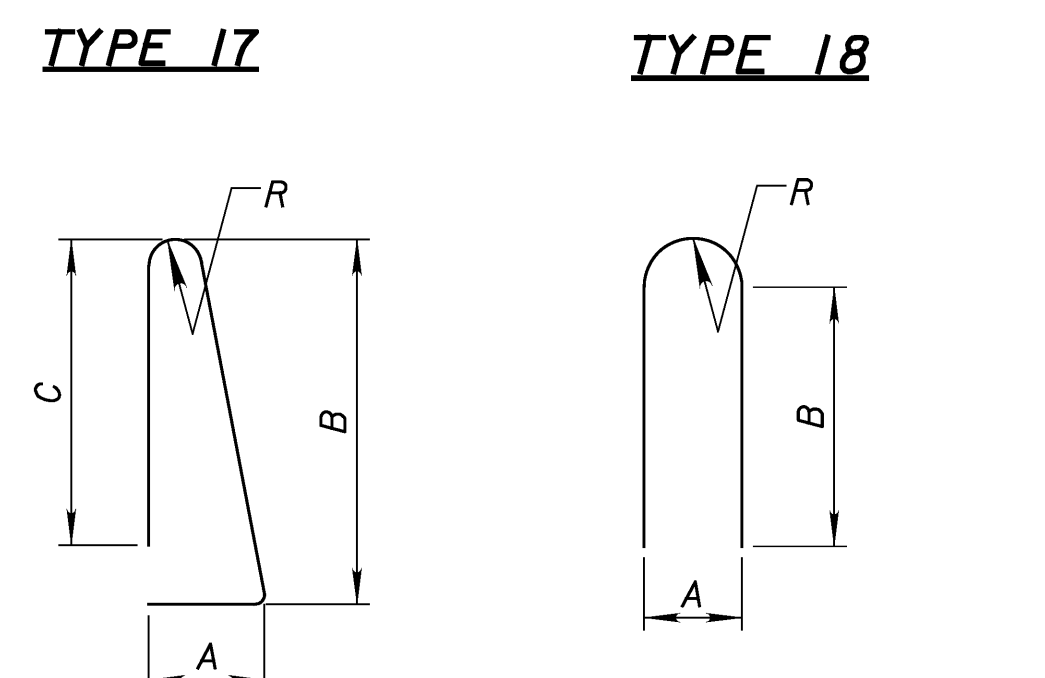
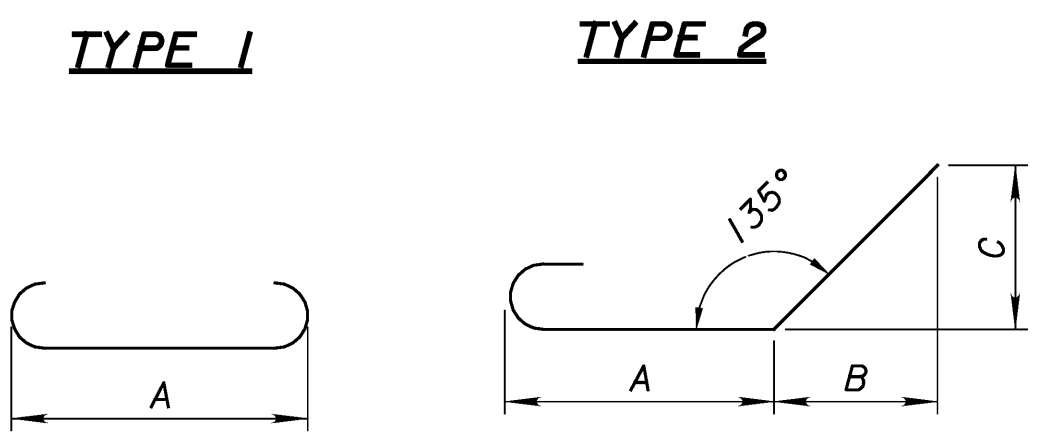
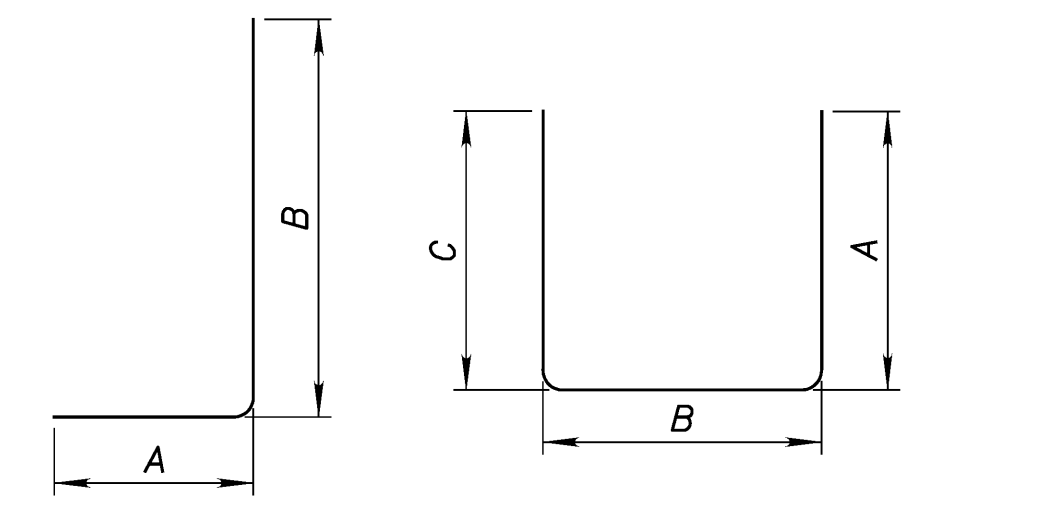
STANDARD BEND SHALL BE ASSUMED WHEN NO BAR LEG DIMENSION IS LISTED.

BAR SIZE AND LOCATION ARE INDICATED BY THE BAR MARK. THE LETTER INDICATES BAR LOCATION. THE FIRST NUMBER OF A THREE DIGIT NUMBER, OR THE FIRST TWO DIGITS OF A FOUR DIGIT NUMBER INDICATES BAR SIZE. THE REMAINING TWO DIGITS INDICATE BAR MARK.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

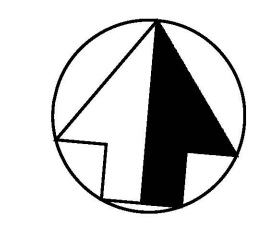
SPIRAL SPACERS

CONCRETE SPACERS OR OTHER APPROVED NONCORROSIVE SPACING DEVICES SHALL BE USED AT SUFFICIENT INTERVALS (NEAR THE BOTTOM AND AT INTERVALS NOT EXCEEDING 10 FEET) TO ENSURE CONCENTRIC SPACING FOR THE ENTIRE CAGE LENGTH. SPACERS SHALL BE CONSTRUCTED OF APPROVED MATERIAL EQUAL IN QUALITY AND DURABILITY TO THE CONCRETE SPECIFIED FOR THE DRILLED SHAFT OR COLUMN. THE SPACERS SHALL HAVE ADEQUATE DIMENSIONS TO ENSURE A MINIMUM OF 3 INCH CLEAR SPACE BETWEEN THE OUTSIDE OF THE REINFORCING CAGE AND THE DESIGN DIMENSION OF THE DRILLED SHAFT OR COLUMN. CYLINDRICAL CONCRETE FEET (BOTTOM SUPPORTS) SHALL BE PROVIDED TO ENSURE THAT THE BOTTOM OF THE CAGE IS MAINTAINED AT THE PROPER DISTANCE ABOVE THE BASE.



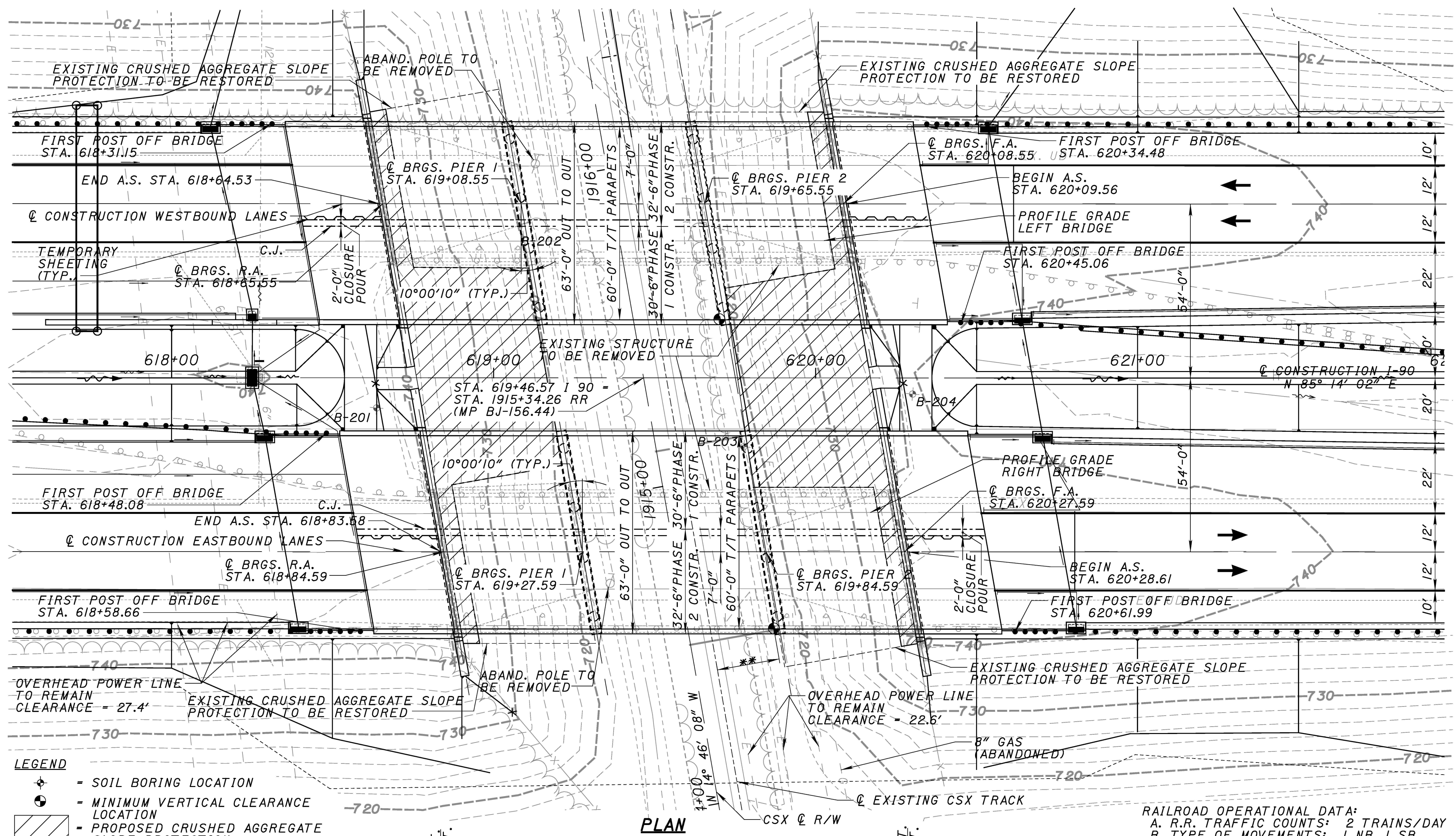
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TYPE 30

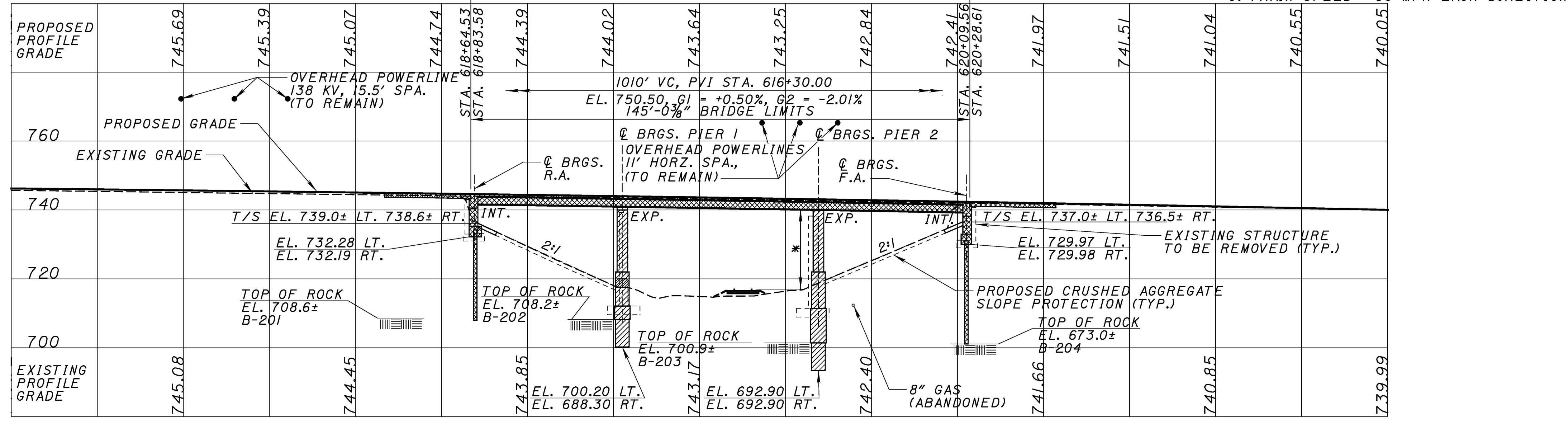


NOTE:
 EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
 FOR ABBREVIATIONS, SEE STRUCTURE NOTES SHEET 3/36.

DESIGN AGENCY
Baker
 1228 BUCKLAND AVENUE, SUITE 1080
 CLEVELAND, OHIO 44115



- LEGEND**
- ⊕ - SOIL BORING LOCATION
 - ⊙ - MINIMUM VERTICAL CLEARANCE LOCATION
 - ▨ - PROPOSED CRUSHED AGGREGATE SLOPE PROTECTION



L:\Projects\0001\OR-90-1256\Drawings\STR\CSX\lor 90-1256.sp.dgn 13-MAR-2008 4:44PM mb11tner

BENCHMARK DATA

BENCHMARK 1:
 DISK IN CONCRETE MONUMENT STA. 624+25.61
 OFFSET 81.34 RT. EL. 732.118

BENCHMARK 2:
 DISK IN CONCRETE MONUMENT STA. 616+43.18
 OFFSET 81.06 RT. EL. 745.468

BENCHMARK 3:
 DISK IN CONCRETE MONUMENT STA. 607+60.06
 OFFSET 80.66 RT. EL. 743.874

FOUNDATION DATA

ESTIMATED PILE LENGTH FOR HP 12x53 PILES:
 REAR ABUTMENT: 20' LT., 30' RT.
 FORWARD ABUTMENT: 60' LT., 60' RT.

TRAFFIC DATA

CURRENT ADT (2008)67530
 DESIGN YEAR ADT (2028)87940
 DESIGN YEAR ADTT (2028)17588

EXISTING STRUCTURE

SFN: 4704479L/4704509R
 TYPE: TWIN 3-SPAN CONTINUOUS STEEL BEAM WITH CONCRETE DECK AND SUBSTRUCTURE
 SPANS: 44'±, 55'±, 44'± C/C BRGS.
 ROADWAY: 42'-0" f/f PARAPETS
 LOADING: CF-2000(57)
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 ALIGNMENT: TANGENT
 APPROACH SLABS: 25'± LONG
 SKEW: 10°00' R.F. DATE BUILT: 1967

PROPOSED STRUCTURE

TYPE: TWIN 3-SPAN CONTINUOUS COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK WITH INTEGRAL ABUTMENTS AND CAP AND COLUMN PIERS WITH CRASH WALLS.
 SPANS: 43'-0", 57'-0", 43'-0" C/C BRGS.
 ROADWAY: 60'-0" f/f PARAPETS
 LOADING: HS-25 CASE I, ALTERNATE MILITARY LOADING, & 60 PSF FUTURE WEARING SURFACE
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 ALIGNMENT: TANGENT
 APPROACH SLABS: 25' LONG (AS-I-81)
 SKEW: 10°00'10" R.F.
 CROWN: 0.016
 LATITUDE: 41°24'12" LONGITUDE: 82°07'43"

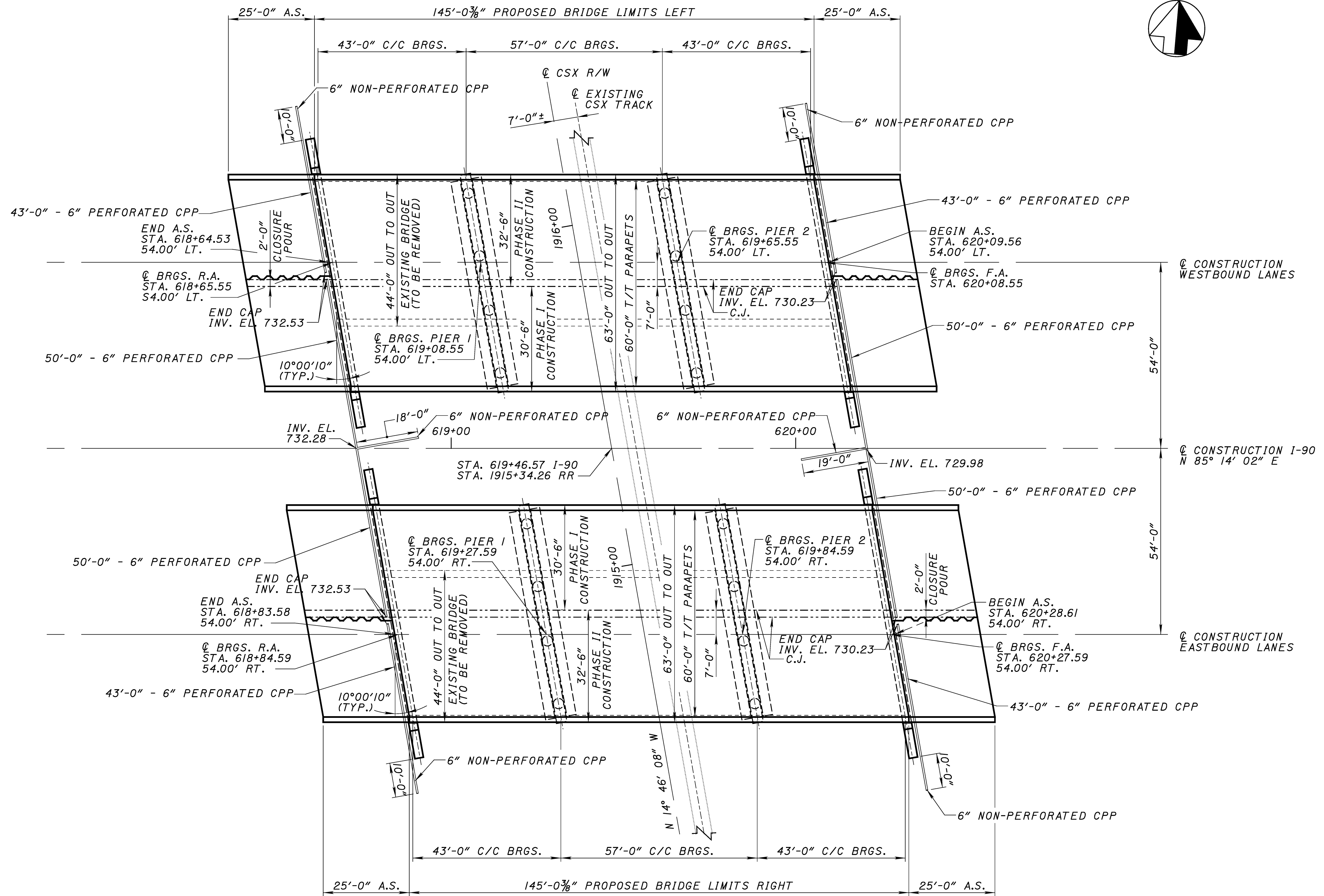
MINIMUM VERTICAL CLEARANCES

	EASTBOUND	WESTBOUND
EXISTING	23.19	24.02
REQUIRED	23.00	23.00
PROPOSED	23.94	24.38

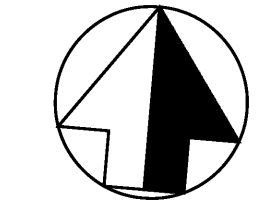
MINIMUM HORIZONTAL CLEARANCES

	PIER 2	
	LEFT BRIDGE	RIGHT BRIDGE
EXISTING	18.22	18.34
REQUIRED	18.00	18.00
PROPOSED	19.43	19.47

DATE 01-08-08
 REVIEWED LPC
 DRAWN MKB
 DESIGNED MKB
 CHECKED JWB
 LORAIN CO. STA. 618+64.53 LT. STA. 620+09.56 RT. STA. 618+83.58 RT. STA. 620+28.61 RT.
S I T E P L A N
 BRIDGE NO. LOR-90-1256 L/R
 I. R. 90 OVER CSX RAILROAD
LOR-90-12.42
PID 24868
 1/36
 160
 199



GENERAL PLAN



DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	4704487L/470451TR
DRAWN	DJB
CHECKED	SCT
DESIGNED	DJB
REVISED	

GENERAL PLAN
BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-81 REVISED 7-19-02
GSD-1-96 REVISED 7-19-02
ICD-1-82 REVISED 7-19-02
PCB-91 REVISED 7-19-02
SBR-1-99 REVISED 7-19-02

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

800 DATED 1-18-08
892 DATED 4-15-05
898 DATED 7-21-06

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17TH ED., 2002, AND THE ODOT BRIDGE DESIGN MANUAL WITH REVISIONS THROUGH JULY 21, 2006.

DESIGN LOADING

HS25, CASE II AND THE ALTERNATE MILITARY LOADING

FUTURE WEARING SURFACE (FWS) OF 60 PSF.

DESIGN DATA

QC/QA CONCRETE CLASS QSC2 - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
QC/QA CONCRETE CLASS QSC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)
QC/QA CONCRETE CLASS QSC3 - QSC2 WITH MODIFIED COMPRESSIVE STRENGTH 4000 PSI (DRILLED SHAFT)

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

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

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
2-1/2" CONCRETE COVER

MONOLITHIC WEARING SURFACE

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

UTILITY LINES

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

138 KV OVERHEAD TRANSMISSION LINES, LOCATED WEST OF THE REAR ABUTMENT, CAN NOT BE DE-ENERGIZED BETWEEN JUNE 1 AND SEPTEMBER 15. BRIDGE STEEL WILL NEED TO BE SET PRIOR TO JUNE 1 IF A CRANE IS USED.

MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC FOR THE STRUCTURE WORK SHALL BE COORDINATED WITH THE OVERALL PROJECT. REFER TO THE MAINTENANCE OF TRAFFIC NOTES IN THE ROADWAY PLANS.

EXISTING STRUCTURE VERIFICATION

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

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

PROPOSED WORK

PHASE I

- 1. MOVE EASTBOUND I-90 TRAFFIC TO SOUTH SIDE OF RIGHT BRIDGE AND WESTBOUND I-90 TRAFFIC TO NORTH SIDE OF LEFT BRIDGE.
- 2. INSTALL TEMPORARY SHORING AND TEMPORARY SUPPORT OF PIER CANTILEVERS.
- 3. REMOVE PORTIONS OF SUPERSTRUCTURE AND APPROACH SLABS ADJACENT TO I-90 MEDIAN.
- 4. REMOVE PORTIONS OF PIERS AS DETAILED IN THE PLANS.
- 5. REMOVE PORTIONS OF ABUTMENTS AS DETAILED IN THE PLANS.
- 6. CONSTRUCT PORTIONS OF PROPOSED ABUTMENTS AND PIERS ADJACENT TO I-90 MEDIAN.
- 7. CONSTRUCT PROPOSED PORTIONS OF SUPERSTRUCTURE ADJACENT TO I-90 MEDIAN.
- 8. BACKFILL, REMOVE UNNECESSARY SHORING AT EAST END ONLY, CONSTRUCT APPROACH SLABS AND ROADWAY.

PHASE 2

- 1. MOVE EASTBOUND I-90 TRAFFIC TO NORTH SIDE OF RIGHT BRIDGE AND WESTBOUND I-90 TRAFFIC TO SOUTH SIDE OF LEFT BRIDGE.
- 2. INSTALL TEMPORARY SHORING.
- 3. REMOVE REMAINING PORTIONS OF EXISTING SUPERSTRUCTURE AND APPROACH SLABS.
- 4. REMOVE REMAINING PORTIONS OF EXISTING PIER AND ABUTMENTS.
- 5. CONSTRUCT REMAINING PORTIONS OF ABUTMENTS.
- 6. CONSTRUCT REMAINING PORTIONS OF THE SUPERSTRUCTURE.
- 7. ATTACH CROSSFRAMES BETWEEN TWO HALVES OF STRUCTURE.
- 8. BACKFILL AND REMOVE SHORING AT EAST END ONLY.
- 9. CONSTRUCT REMAINING PORTIONS OF APPROACH SLABS.

OTHER WORK TO BE COORDINATED WITH CONSTRUCTION SEQUENCE:

- 1. SEALING OF ALL CONCRETE SURFACES.
- 2. RESTORATION OF CRUSHED AGGREGATE SLOPE PROTECTION.

THE ABOVE IS A SUGGESTED CONSTRUCTION PROCEDURE. THE CONTRACTOR SHALL SUBMIT HIS PROPOSED CONSTRUCTION PROCEDURE AND SCHEDULE TO THE DIRECTOR FOR APPROVAL BEFORE BEGINNING CONSTRUCTION. NO CONSTRUCTION OPERATIONS WILL BE PERMITTED WITHOUT PRIOR APPROVAL.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF CONCRETE DECKS INCLUDING SIDEWALKS, PARAPETS, RAILINGS, DECK JOINTS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSS FRAMES, ETC.). REMOVE STEEL SUPPORTING SYSTEM CONSISTING OF BEAMS, CROSSFRAMES, BEARINGS, AND OTHER MISCELLANEOUS ITEMS. REMOVE EXISTING ABUTMENTS COMPLETELY. REMOVE EXISTING PIERS TO TOP OF FOOTINGS. REMOVE PORTIONS OF PIER FOOTING AS NECESSARY TO CONSTRUCT DRILLED SHAFT FOUNDATIONS. 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. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, PEDESTRIAN, BOAT, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE DIRECTOR AT LEAST 30 DAYS BEFORE CONSTRUCTION BEGINS. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. MAINTAIN TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

MEASUREMENT & PAYMENT: 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 SPECIAL - STRUCTURE, MISC.: TEMPORARY SUPPORT

THIS ITEM SHALL INCLUDE DESIGN, INSTALLATION, MAINTENANCE, AND REMOVAL OF A TEMPORARY SUPPORT FOR THE EXISTING PIER CAP WHERE INDICATED IN THE PLANS. THE TEMPORARY SUPPORT IS REQUIRED TO SUPPORT A SERVICE LOAD OF 175 KIPS, OR A FACTORED LOAD OF 300 KIPS FROM THE EXISTING PIER CAP DURING PHASE I REMOVAL AND CONSTRUCTION. THE TEMPORARY SUPPORT MUST BE LOCATED UNDER THE EXISTING FASCIA BEAM. THE SUPPORT SHALL BE INSTALLED BEFORE PHASE I REMOVAL OF THE EXISTING PIER. THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT THE TEMPORARY SUPPORT IS SECURE AND SNUG TO THE EXISTING PIER CAP.

THREE SETS OF TEMPORARY SUPPORT PLANS SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST 30 DAYS BEFORE THE INSTALLATION OF THE SUPPORT. THE TEMPORARY SUPPORT DESIGN SHALL BE PREPARED AND STAMPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER.

PAYMENT FOR ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS REQUIRED TO DESIGN, INSTALL, MAINTAIN, AND REMOVE A TEMPORARY SUPPORT AS DESCRIBED ABOVE AND IN THE PLANS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM SPECIAL - STRUCTURE, MISC.: TEMPORARY SUPPORT.

CONSTRUCTION CLEARANCE

CONSTRUCTION CLEARANCE: MAINTAIN A CONSTRUCTION CLEARANCE OF 10 FEET HORIZONTALLY FROM THE CENTER OF TRACKS AND 23 FEET VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL, AND 6 FEET FROM THE CENTER OF TRACKS, AT ALL TIMES.

RAILROAD AERIAL LINES

RAILROAD AERIAL LINES WILL BE REMOVED BY THE RAILROAD. THE CONTRACTOR SHALL COOPERATE WITH THE RAILROAD IN THE REMOVAL OF THESE LINES.

THE COST OF THE REMOVAL WILL BE INCLUDED IN THE RAILROAD FORCE ACCOUNT WORK.

LEGEND:

- A.S. = APPROACH SLAB
- B.F.S. = BOLTED FIELD SPLICE
- BRGS. = BEARINGS.
- BTM. = BOTTOM
- C/C = CENTER TO CENTER
- C.J. = CONSTRUCTION JOINT
- CLR. = CLEARANCE
- DIA. = DIAMETER
- E.F. = EACH FACE
- ELEV. = ELEVATION
- EQ. = EQUAL
- F.A. = FORWARD ABUTMENT
- F.F. = FAR FACE
- F/F = FACE TO FACE
- HMWM = HIGH MOLECULAR WEIGHT METHACRYLATE
- LT. = LEFT
- MAX. = MAXIMUM
- MIN. = MINIMUM
- N.F. = NEAR FACE
- PEJF = PREFORMED EXPANSION JOINT FILLER
- R.A. = REAR ABUTMENT
- R.F. = RIGHT FORWARD
- RR = RAILROAD
- RT. = RIGHT
- SPA. = SPACES
- STA. = STATION
- T/T = TOE TO TOE
- TYP. = TYPICAL
- W.P. = WORK POINT

\$DATE\$
\$FILE\$



DESIGN AGENCY
DATE 01-07-08
REVIEWED LPC
STRUCTURE FILE NUMBER 4704487L/4704517R

DRAWN MKB
CHECKED KAS

GENERAL NOTES SHEET 1 OF 5
BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

3/36

162
199

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN: THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE TYPE B GRANULAR MATERIAL, 703.16C, PLACED AND COMPACTED IN 6 INCH LIFTS. THIS MATERIAL SHALL BE USED FOR FILLING THE EXCAVATION VOID CREATED BY REMOVAL OF THE EXISTING ABUTMENTS.

PILE DRIVING CONSTRAINTS

PILE DRIVING CONSTRAINTS: PRIOR TO DRIVING PILES, CONSTRUCT THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 200' BEHIND EACH 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.

PILES DRIVEN TO BEDROCK

PILES TO BEDROCK: DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING HARD BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE ULTIMATE BEARING VALUE IS 108 TONS PER PILE FOR THE ABUTMENT PILES.

ABUTMENT PILES:

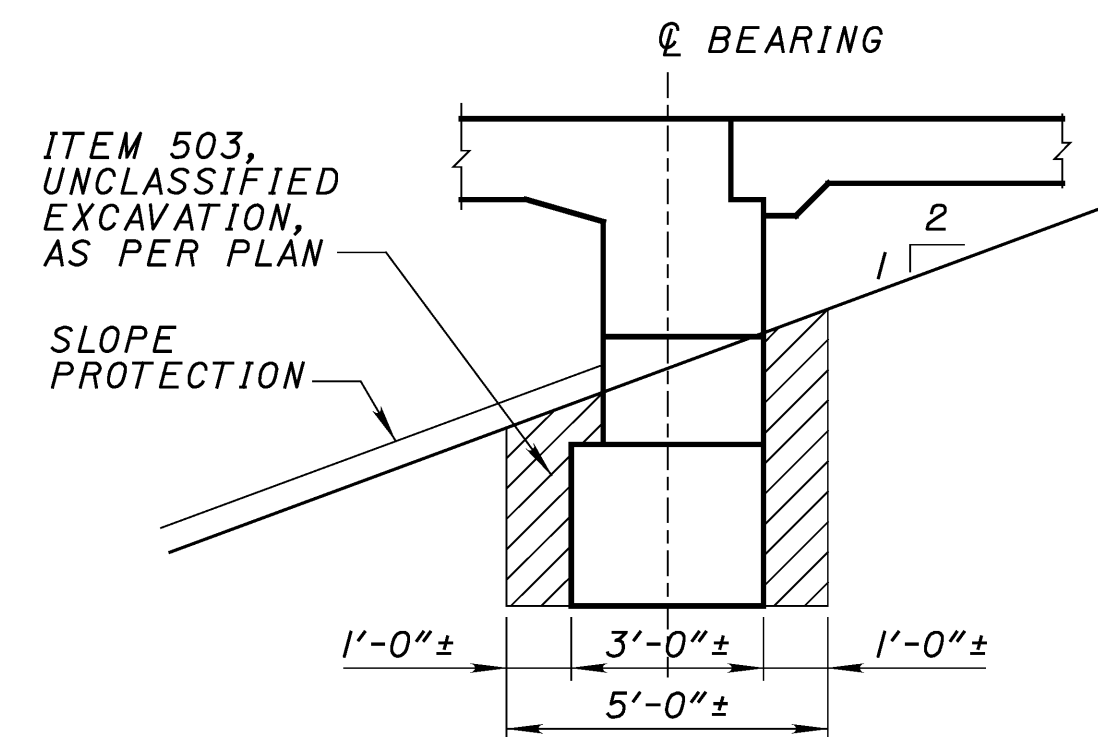
- HP 12x53 PILES 25 FEET LONG, ORDER LENGTH LT. REAR ABUTMENT
- HP 12x53 PILES 35 FEET LONG, ORDER LENGTH RT. REAR ABUTMENT
- HP 12x53 PILES 60 FEET LONG, ORDER LENGTH LT. FORWARD ABUTMENT
- HP 12x53 PILES 60 FEET LONG, ORDER LENGTH RT. FORWARD ABUTMENT

HP PILE SEGMENTS, WITH WELDED SPLICES, MAY BE USED AT NO ADDITIONAL COST TO THE PROJECT. 138 KV OVERHEAD TRANSMISSION LINES, LOCATED WEST OF THE REAR ABUTMENT, CAN NOT BE DE-ENERGIZED BETWEEN JUNE 1 AND SEPTEMBER 15.

ITEM 507, STEEL POINTS, AS PER PLAN

ITEM 507, STEEL POINTS, AS PER PLAN: USE STEEL PILE POINTS TO PROTECT THE TIPS OF THE PROPOSED STEEL "H" PILING. FURNISH STEEL POINTS FROM THE FOLLOWING MANUFACTURERS/SUPPLIERS: ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BLVD., CLIFTON, NEW JERSEY 07014; INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015; DOUGHERTY FOUNDATION PRODUCTS, INC., P.O. BOX 688, FRANKLIN LAKES, NEW JERSEY 07417; VERSA STEEL INC., 1618 N.E. FIRST AVE., PORTLAND, OREGON 97232; PILING ACCESSORIES, INC., 3467 GRIBBLE ROAD, MATHEWS, NORTH CAROLINA 28105; OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO DIRECTOR. THE MATERIAL USED FOR THE MANUFACTURING OF PILE POINTS SHALL CONFORM TO ASTM A27 65/35 - CLASS 2 - HEAT TREATED OR AASHTO M103 65/35 - HEAT TREATED. WELD THE PILE POINTS TO THE PILE IN ACCORDANCE WITH AWS D1.5 OR THE MANUFACTURER'S WRITTEN WELDING PROCEDURE SUPPLIED TO THE ENGINEER BEFORE THE WELDING IS PERFORMED. SUBMIT A NOTARIZED COPY OF THE MILL TEST REPORT TO THE ENGINEER.

STEEL POINTS SHALL ONLY BE FURNISHED FOR THE REAR ABUTMENT PILING.



EXCAVATION DIAGRAM
PROPOSED CONSTRUCTION

ITEM 516 INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN

INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1-1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

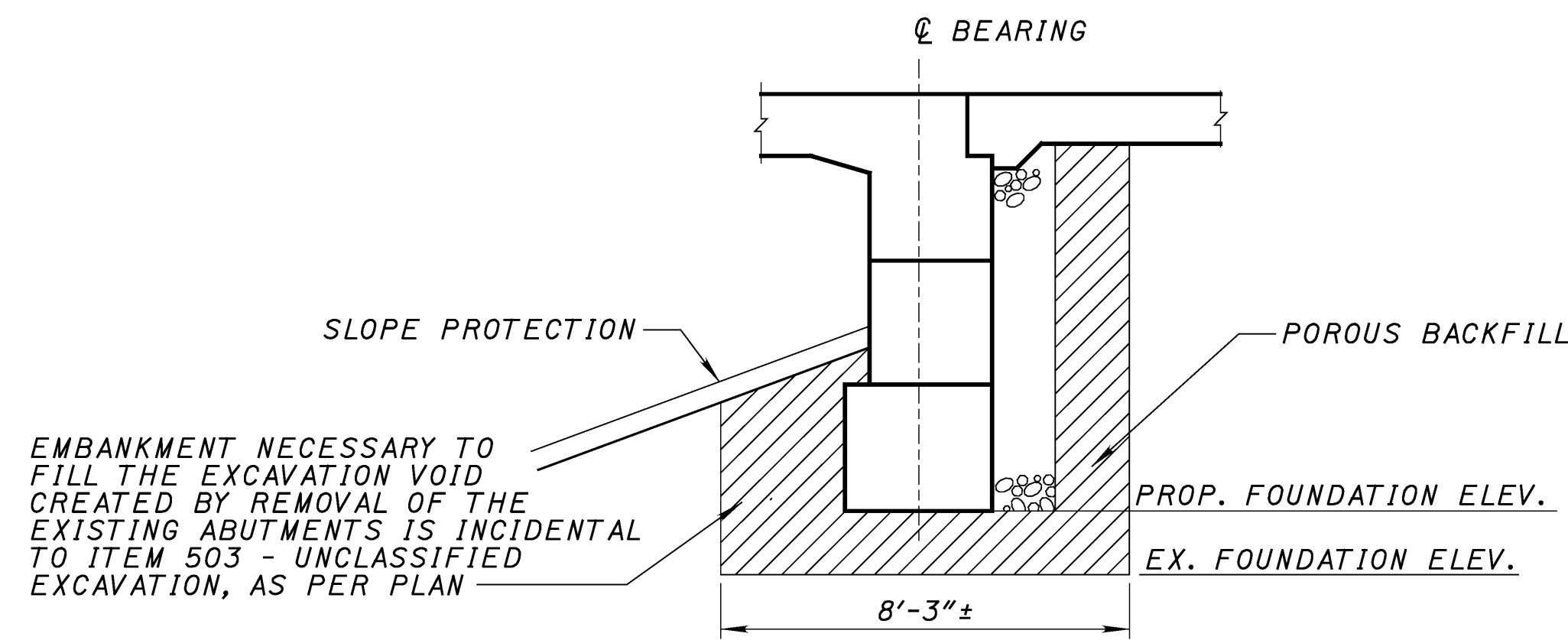
THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NEMOURS AND COMPANY, INC. "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094 +/- 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D751	700 X 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D751	9
BURST STRENGTH, PSI MINIMUM	D751	1400
HEAT AGING, 70 HR, 212 DEGREES F, 180 DEGREES BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLINESS, 1 HR, 40 DEGREES F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.



EXCAVATION DIAGRAM
PROPOSED CONSTRUCTION AT REMOVAL LOCATIONS

ASBESTOS NOTIFICATION

AN ASBESTOS SURVEY OF THE BRIDGE SCHEDULED FOR REHABILITATION WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF THE DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO:

OHIO ENVIRONMENTAL PROTECTION AGENCY

AT LEAST TEN (10) WORKING DAYS PRIOR TO START OF THE BRIDGE DEMOLITION WORK, THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER.

INFORMATION REQUIRED ON THE FORM WILL INCLUDE: THE CONTRACTOR'S NAME AND ADDRESS, THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL OR RENOVATION AND A DESCRIPTION OF THE PLANNED DEMOLITION OR RENOVATION WORK AND THE METHOD(S) TO BE USED. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 3 OFFICE, 906 NORTH CLARK STREET, ASHLAND, OHIO 44805.

BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20' SPAN, AS PER PLAN.

ITEM 524 DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK, AS PER PLAN
ITEM 524 DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK, AS PER PLAN

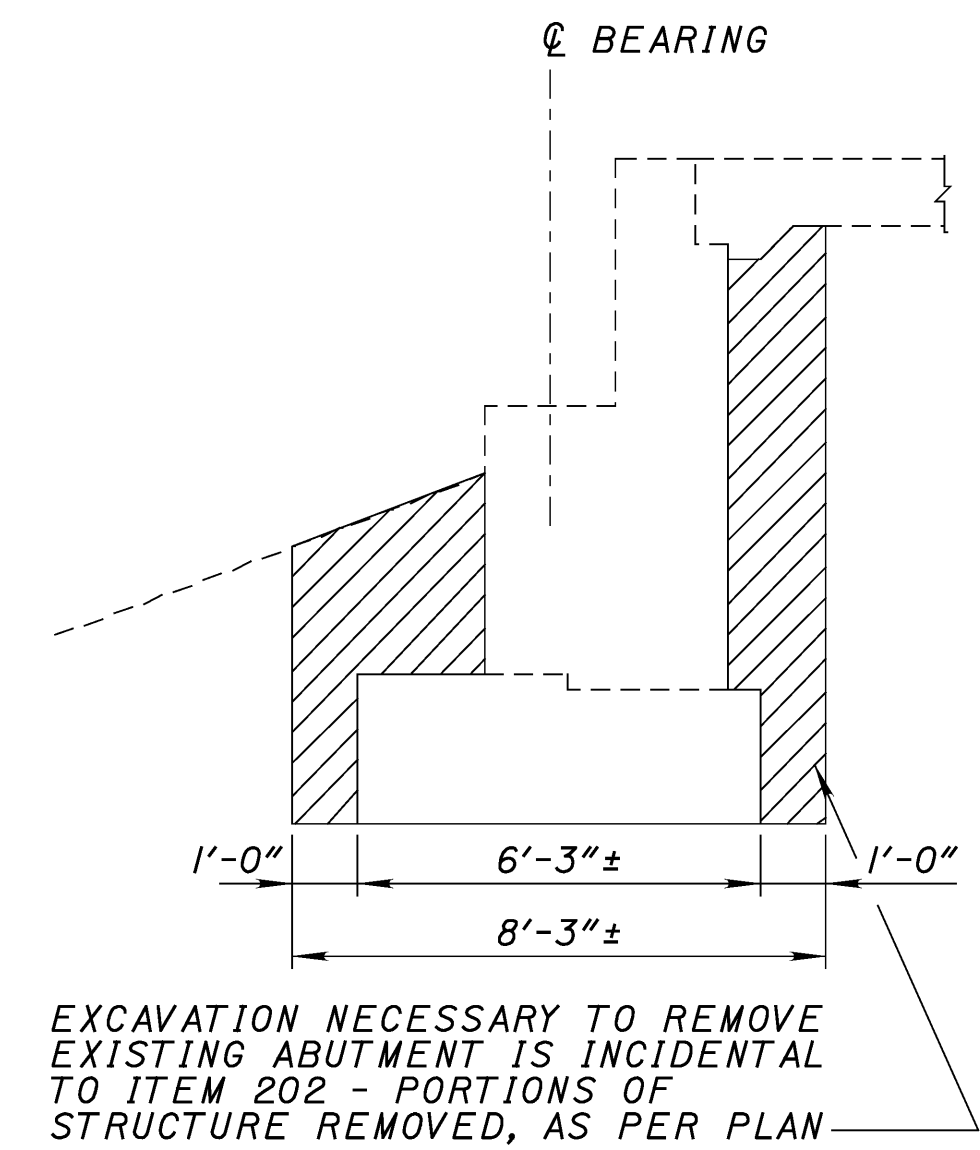
DRILLED SHAFT CONCRETE SHALL BE QC/QA CONCRETE, CLASS QSC3, WHICH SHALL CONSIST OF QC/QA CONCRETE, CLASS QSC2, CONCRETE MODIFIED TO 4000 PSI COMPRESSIVE STRESS.

DRILLED SHAFTS

THE DESIGN LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 200 TONS AT THE PIERS. THIS LOAD IS RESISTED BY SHAFT END BEARING. THE ALLOWABLE END BEARING PRESSURE IS 35 TONS PER SQUARE FOOT. THE REINFORCING STEEL SHALL BE EPOXY COATED ACCORDING TO 709.00.

ITEM 898 QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN:

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898 - QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE APPROACH SLAB INCLUDING PARAPETS, REINFORCING STEEL, AND MECHANICAL CONNECTORS. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS.



EXCAVATION DIAGRAM
REMOVAL OF EXISTING ABUTMENT

ITEM 898 - QC/QA CONCRETE, CLASS QSC2 SUPERSTRUCTURE (PARAPET), AS PER PLAN

GENERAL REQUIREMENTS

THE PROVISIONS OF ITEM 598 SHALL APPLY EXCEPT AS NOTED BELOW.

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.

ANCHOR BOLTS FOR FENCE POSTS SHALL BE CAST IN PLACE.

PARAPET CONSTRUCTION (SLIP FORMED)

SLIP FORMING SHALL NOT BE PERFORMED DIRECTLY OVER AREAS WHERE THERE IS OR WILL BE VEHICULAR OR PEDESTRIAN TRAFFIC (WHICH INCLUDES RAILROADS AND WATER CRAFTS). AT THESE LOCATIONS, THE PARAPETS SHALL BE FORMED AND Poured.

THE CONTRACTOR IS ONLY ALLOWED THE OPTION OF SLIP FORMING BRIDGE PARAPETS OVER NON TRAVELED WAYS, AND ONLY AFTER THE SUCCESSFUL COMPLETION OF A TEST SECTION TWENTY FEET LONG. A MINIMUM OF 3 DAYS AFTER PLACING THE TEST SECTION, THE CONTRACTOR SHALL CORE THE TEST SECTION (A MINIMUM OF 3 CORES) AT LOCATIONS AS DIRECTED BY THE ENGINEER. APPROVAL TO SLIP FORM SHALL NOT BE GRANTED UNTIL AFTER THE CORING AND AFTER A SUCCESSFUL SLIP FORMING RESULT IS OBTAINED.

IN ADDITION TO THE REQUIREMENTS OF THE LAST PARAGRAPH OF 511.11 THE ENGINEER WILL INSPECT THE SLIP FORMED SURFACE FOR HORIZONTAL CRACKING 6 MONTHS AFTER COMPLETION OF THE SLIP FORMING OPERATION. ANY ADDITIONAL CRACKS FOUND SHALL BE REPAIRED AS PER THE SPECIFICATIONS AT NO ADDITIONAL COST TO THE STATE.

ALL ANCHOR BOLTS FOR FENCE POSTS SHALL BE CAST IN PLACE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF SLIP FORMED CONCRETE PARAPETS SHALL BE 1 INCH, WITH A MAXIMUM SLUMP OF 1/2 INCHES.

THE WATER CEMENT RATIO FOR SLIP FORMED PARAPETS SHALL NOT BE LESS THAN THE WATER CEMENT RATIO USED FOR THE DECK CONCRETE. REDUCE SLUMP BY LIMITING THE USE OF SUPERPLASTICIZERS.

CONCRETE PARAPETS

CONCRETE PARAPETS: AS SOON AS A CONCRETE SAW CAN BE OPERATED WITHOUT DAMAGING THE FRESHLY PLACED CONCRETE, SAWCUT 1-1/4" DEEP CONTROL JOINTS INTO THE PERIMETER OF THE CONCRETE PARAPET STARTING AND ENDING AT THE ELEVATION OF THE CONCRETE DECK. PLACE THE SAWCUTS AT A MINIMUM OF 6 FEET AND A MAXIMUM OF 10 FEET CENTERS. USE AN EDGE GUIDE, FENCE, OR JIG TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE JOINT WIDTH SHALL BE THE WIDTH OF THE SAW BLADE, A NOMINAL WIDTH OF 1/4 INCH. SEAL THE PERIMETER OF THE DEFLECTION CONTROL JOINT TO A MINIMUM DEPTH OF 1 INCH WITH A POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S. LEAVE THE BOTTOM 1/2 INCH OF THE INSIDE AND OUTSIDE FACE UNSEALED TO ALLOW WATER TO ESCAPE.

BASIS OF PAYMENT

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

ITEM	UNITS	DESCRIPTION
892E10200	CUBIC YARD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY
898E11001	CUBIC YARD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPETS), AS PER PLAN

VALUE ENGINEERING CHANGE PROPOSALS (VECP)

VECP THAT CHANGE THE STEEL SUPERSTRUCTURE TO A PRESTRESSED CONCRETE / CONCRETE SUPERSTRUCTURE WILL NOT BE ACCEPTED.

\$DATE\$
\$FILE\$

DESIGN AGENCY
Baker
1228 ELLIOT AVENUE, SUITE 1050
CLEVELAND, OHIO 44115

DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	4704487L/4704517R
DRAWN	MKB
REVISION	
DESIGNED	CDC
CHECKED	KAS

GENERAL NOTES SHEET 3 OF 5
BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

4A/36

163A
199

ITEM SPECIAL - STRUCTURE MISC. GALVANIZED COATING SYSTEM FOR STRUCTURAL STEEL BRIDGES

1.0 DESCRIPTION

IN ADDITION TO THE REQUIREMENTS OF ITEM 513, THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO CLEAN AND GALVANIZE ALL STRUCTURAL STEEL SURFACES, AS SPECIFIED HEREIN. THE GALVANIZED COATING SYSTEM MAY BE APPLIED BY A GALVANIZER NOT QUALIFIED AS A FABRICATION SHOP UNDER ITEM 513, BUT THE APPROVED FABRICATOR OF THE STRUCTURAL STEEL SHALL BE RESPONSIBLE FOR THE QUALITY OF THE APPLIED GALVANIZED COATING SYSTEM AND ANY REPAIRS, RE-FABRICATING, ADDITIONAL LAYDOWNS REQUIRED TO ASSURE THE FABRICATED STEEL MEETS ALL REQUIREMENTS OF THIS SPECIFICATION. SECTIONS 513.27 AND 513.28 SHALL NOT APPLY.

THIS ITEM SHALL ALSO INCLUDE GALVANIZING, PER 711.02, OF ALL NUTS, WASHERS, BOLTS, ANCHOR BOLTS, BEARING LOAD PLATES AND WELDS.

ANY SHEAR STUDS, SECTION 513.22, SHALL BE INSTALLED IN THE FABRICATOR'S SHOP BEFORE GALVANIZING.

2.0 PRE-FABRICATION MEETING

IN ADDITION TO THE PRE-FABRICATION MEETING REQUIREMENTS UNDER 513.07, BOTH THE FABRICATOR'S QUALITY CONTROL SPECIALIST, (QCPS) AND GALVANIZED COATING APPLICATOR SHALL BE PRESENT AND DISCUSS METHODS OF OPERATION, QUALITY CONTROL, INCLUDING REPAIRS, TRANSPORTATION, ERECTION METHODS TO ACCOMPLISH ALL PHASES OF THE PREPARATION AND COATING WORK REQUIRED BY THIS SPECIFICATION.

3.0 QUALITY CONTROL

3.1 QUALITY CONTROL SPECIALIST

THE QCPS (QUALITY CONTROL PAINT SPECIALIST) REQUIRED UNDER ITEM 513, IS RESPONSIBLE FOR ALL QUALITY CONTROL REQUIREMENTS OF THIS SPECIFICATION. THE QCPS SHALL HAVE THE TESTING EQUIPMENT SPECIFIED IN 514.05.

3.2 QUALITY CONTROL POINTS (QCP)

QUALITY CONTROL POINTS (QCP) ARE POINTS IN TIME WHEN ONE PHASE OF THE WORK IS COMPLETE AND READY FOR INSPECTION BY THE FABRICATOR'S QCPS AND THE DEPARTMENT'S QA REPRESENTATIVE. THE NEXT OPERATIONAL STEP MUST NOT PROCEED UNLESS THE QCP HAS BEEN ACCEPTED OR QA INSPECTION WAIVED BY THE DEPARTMENT'S QA REPRESENTATIVE. AT THESE POINTS THE FABRICATOR MUST AFFORD ACCESS TO INSPECT ALL AFFECTED SURFACES. IF INSPECTION INDICATES A DEFICIENCY, THAT PHASE OF THE WORK MUST BE CORRECTED IN ACCORDANCE WITH THESE SPECIFICATIONS PRIOR TO BEGINNING THE NEXT PHASE OF WORK. DISCOVERY OF DEFECTIVE WORK OR MATERIAL AFTER A QUALITY CONTROL POINT IS PAST OR FAILURE OF THE FINAL PRODUCT BEFORE FINAL ACCEPTANCE, MUST NOT IN ANY WAY PREVENT REJECTION OR OBLIGATE THE DEPARTMENT TO FINAL ACCEPTANCE.

QUALITY CONTROL POINTS (QCP) PURPOSE

- A. SOLVENT CLEANING REMOVE ASPHALTIC CEMENT, OIL, GREASE, SALT, DIRT, ETC.
- B. GRINDING EDGES REMOVE SHARP CORNERS PER AWS.
- C. ABRASIVE BLASTING BLAST SURFACES, INCLUDING REPAIR FINS, TEARS, SLIVERS OR SHARP EDGES.
- D. GALVANIZING CHECK COATING THICKNESS
- E. FAYING SURFACE CLEANING CHECK FAYING SURFACE ROUGHNESS. CHECK BOLT HOLE CLEARANCE. CHECK FOR OTHER FIELD CONNECTIONS UNIFORM COATING THICKNESS.
- F. SECOND LAY DOWN CHECK SWEEP AND CAMBER TOLERANCES OF EACH STRUCTURAL MEMBER.
- G. FIELD REPAIR OF DAMAGE AREAS CHECK FOR DAMAGE AREAS AFTER ERECTION OF STRUCTURE. PERFORM DAMAGE REPAIRS.
- H. FINAL REVIEW CLEAN STRUCTURE AS PER QCP#1. VISUALLY INSPECT SYSTEM FOR ACCEPTANCE.

A. SOLVENT CLEANING (QCP #1)

THE STEEL MUST BE SOLVENT CLEANED WERE NECESSARY TO REMOVE ALL TRACES OF ASPHALTIC CEMENT, OIL, GREASE, DIESEL FUEL DEPOSITS, AND OTHER SOLUBLE CONTAMINANTS PER SSPC-SP 1 SOLVENT CLEANING. UNDER NO CIRCUMSTANCES MUST ANY ABRASIVE BLASTING BE DONE TO AREAS WITH ASPHALTIC CEMENT, OIL, GREASE, OR DIESEL FUEL DEPOSITS. STEEL MUST BE ALLOWED TO DRY BEFORE BLAST CLEANING BEGINS. THE QCPS SHALL INSPECT AND DOCUMENT THAT THE CLEANING CONFORMS TO SSPC-SPI AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

B. GRINDING EDGES (QCP #2)

ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES MUST HAVE A 1/16 INCH [1.6 MM] RADIUS OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE. THERMALLY CUT MATERIAL THICKER THAN 1/2 INCH [40 MM] MUST HAVE THE SIDES GROUND TO REMOVE THE HEAT EFFECTED ZONE, AS NECESSARY TO ACHIEVE THE SPECIFIED SURFACE CLEANING. THE QCPS MUST VISUALLY INSPECT AND DOCUMENT THAT THE GRINDING CONFORMS TO THIS SPECIFICATION AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

C. ABRASIVE BLASTING (QCP #3)

BEAMS AND GIRDERS MUST BE PREPARED BY THE FABRICATOR TO STEEL STRUCTURES PAINTING COUNCIL (SSPC) GRADE SIX(6) COMMERCIAL BLAST CLEANING PRIOR TO GALVANIZING. ALL MATERIAL MUST BE FREE OF PAINT MARKS. SECONDARY ANGLE, PLATES, BARS AND SHAPES NEED NOT BE BLAST CLEANED.

ABRASIVES MUST ALSO BE CHECKED FOR OIL CONTAMINATION BEFORE USE. A SMALL SAMPLE OF ABRASIVES MUST BE ADDED TO ORDINARY TAP WATER. ANY DETECTION OF A OIL FILM ON THE SURFACE OF THE WATER MUST BE CAUSE FOR REJECTION. THE QCPS MUST PERFORM AND RECORD THIS TEST AT THE START OF EACH SHIFT.

ALL FINS, TEARS, SLIVERS AND BURRED OR SHARP EDGES THAT ARE PRESENT ON ANY STEEL MEMBER OR THAT APPEAR AFTER THE BLASTING OPERATION MUST BE CONDITIONED PER ASTM A6. WELDING REPAIRS MUST ONLY BE PERFORMED BY THE SS863 FABRICATOR.

THE QCPS MUST VISUALLY INSPECT AND DOCUMENT THAT THE BLAST CONFORMS TO SSPC-SP6, THAT ALL CONDITIONING IS PERFORMED PER ASTM A6, AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

D. GALVANIZING (QCP #4)

GALVANIZED PER 711.02 AND THIS SPECIFICATION. COATING THICKNESS MUST BE A MINIMUM OF 4 MILS [100 *M] MEASURED AS SPECIFIED.

MATERIAL MUST BE FREE OF IMPERFECTIONS OR DEPRESSIONS CAUSED BY MATERIAL HANDLING. THE FABRICATOR, GALVANIZER AND ERECTOR MUST USE LIFTING CLAMPS OR SOFTENERS FOR HANDLING. PRIOR TO GALVANIZING, SURFACE IMPERFECTIONS MAY BE REPAIRED BY THE FABRICATOR IN CONFORMANCE WITH ASTM A6. IMPERFECTIONS GREATER THAN THE LIMITS ALLOWED BY ASTM A6 MUST BE DOCUMENTED. REPAIR OR REPLACEMENT OF THIS MEMBER WILL BE AT THE DISCRETION OF THE DEPARTMENT.

ALL DAMAGED GALVANIZING MUST BE REPAIRED IN ACCORDANCE WITH ASTM A780, METHOD A1 OR A3.

DOCUMENTATION OF COATING THICKNESS MUST BE PERFORMED BY THE QCPS. THE QCPS MUST RECORD THE GAGE READINGS AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

E. FAYING SURFACE CLEANING (QCP #5)

AREAS OF FIELD CONNECTIONS MUST HAVE A UNIFORM GALVANIZED COATING THICKNESS FREE OF LOCAL EXCESSIVE ROUGHNESS WHICH WOULD PREVENT SPLICE PLATES, BEARINGS OR OTHER FIELD CONNECTIONS FROM MAKING INTIMATE CONTACT.

FAYING SURFACES OF THE BOLTED SPLICES MUST BE ROUGHENED IN THE SHOP AFTER GALVANIZING BY HAND WIRE BRUSHING. POWER WIRE BRUSHING IS NOT PERMITTED. ALL FIELD SPLICE BOLT HOLES MUST BE FREE OF ZINC BUILD UP. AFTER GALVANIZING, EACH HOLE MUST BE CHECKED IN THE SHOP BY USING A DRIFT PIN WITH A DIAMETER 1/16 INCH [1.6 MM] GREATER THAN THE DIAMETER OF THE BOLT TO BE USED IN THAT HOLE. CONSIDERATION WILL BE GIVEN TO OTHER METHODS OF TREATING THE FAYING SURFACES IF A WRITTEN REQUEST IS SUBMITTED TO THE OFFICE OF STRUCTURAL ENGINEERING (OSE) IN ACCORDANCE WITH CMS 108.05.

INSPECTION OF THE ROUGHENING OF THE FAYING SURFACES AND CHECKING OF HOLES WITH DRIFT PINS MUST BE PERFORMED BY THE QCPS. ACCEPTANCE OF THE FAYING SURFACES AND HOLES SHALL BE DOCUMENTED BY THE QCPS.

F. SECOND LAY DOWN (QCP # 6)

AFTER GALVANIZING, MATERIALS MUST BE PLACED IN A SECOND SHOP ASSEMBLY PER CMS SECTION 513.24 TO CHECK ALIGNMENT OF HOLES, SWEEP AND CAMBER AGAINST THE FABRICATORS ORIGINAL RECORDED LAY DOWN DIMENSIONS. THIS SHOP ASSEMBLY MAY BE PERFORMED AT THE GALVANIZERS FACILITY, BY THE FABRICATORS PERSONNEL, IF APPROVED BY THE OSE. THE SECOND LAY DOWN MAY BE WAIVED BY THE OSE IF THE FABRICATOR RECORDS INDIVIDUAL BEAM CAMBERS AND SWEEPS DURING THE FIRST LAY DOWN, AND THE NEW INDIVIDUAL BEAM CAMBERS AND SWEEPS, AFTER GALVANIZING, COMPARED TO THE FIRST LAY DOWN ARE WITHIN THE FOLLOWING TOLERANCES:

BEARING POINTS AFTER GALVANIZING, MUST BE WITHIN +/- 1/16 INCH [3.2 MM] OF THE APPROVED SHOP DRAWING LAY DOWN.

CAMBER POINTS AFTER GALVANIZING MUST BE +1/4 INCH [6 MM] OR - 0 INCH FROM THE FIRST LAY DOWN.

SWEEP POINTS AFTER GALVANIZING MUST BE +/- 3/8 INCH [9 MM] FROM THE FIRST LAY DOWN.

INDIVIDUAL BEAMS THAT EXCEED THE LISTED TOLERANCES MUST BE PLACED WITH AT LEAST TWO ADJACENT BEAMS IN LAY DOWN FOR CHECKING AGAINST THE RECORDED SHOP ASSEMBLY RECORDS PER 513.04. DOCUMENTATION OF THE SECOND LAY DOWN OR INDIVIDUAL MEMBER CAMBERS MUST BE RECORDED BY THE QCPS PER 513.24.

G. FIELD REPAIR OF DAMAGED AREAS (QCP #7)

MATERIAL MUST BE FREE OF IMPERFECTIONS OR DEPRESSIONS CAUSED BY MATERIAL HANDLING. THE CONTRACTOR MUST USE LIFTING CLAMPS OR SOFTENERS FOR HANDLING. IMPERFECTIONS MAY BE REPAIRED BY GRINDING AS ALLOWED BY ASTM A6 BY THE CONTRACTOR. IMPERFECTIONS THAT ARE GREATER THAN THE GRINDING LIMITS ALLOWED BY ASTM A6, MUST BE DOCUMENTED. REPAIR OR REPLACEMENT OF THIS MEMBER WILL BE AT THE DISCRETION OF THE OSE.

ALL DAMAGED GALVANIZING MUST BE REPAIRED IN ACCORDANCE WITH ASTM A780, METHOD A1 OR A3.

DAMAGED GALVANIZING WHICH WILL BE INACCESSIBLE FOR REPAIR AFTER ERECTION MUST BE REPAIRED PRIOR TO ERECTION.

IN ORDER TO MINIMIZE DAMAGE TO THE GALVANIZED STEEL, CONCRETE SPLATTER AND FORM LEAKAGE MUST BE WASHED FROM THE SURFACE OF THE STEEL SHORTLY AFTER THE CONCRETE IS PLACED AND BEFORE IT IS DRY. IF THE CONCRETE DRIES, IT MUST BE REMOVED.

TEMPORARY ATTACHMENTS, SUPPORTS FOR SCAFFOLDING AND FINISHING MACHINE OR FORMS MUST NOT DAMAGE THE COATING SYSTEM. IN PARTICULAR, SUFFICIENT SIZE SUPPORT PADS MUST BE USED ON THE FASCIAS WHERE BRACING IS USED.

DOCUMENTATION OF GALVANIZING REPAIRS MUST BE PERFORMED BY THE QCPS BY A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

H. FINAL REVIEW (QCP # 8)

AFTER THE ERECTION WORK HAS BEEN COMPLETED, INCLUDING ALL CONNECTIONS AND THE APPROVED REPAIR OF ANY DAMAGED BEAMS, GIRDERS OR OTHER STEEL MEMBERS, AND THE DECK HAS BEEN PLACED, THE CONTRACTOR AND ENGINEER MUST INSPECT THE STRUCTURE FOR DAMAGED COATING. (QCP #8). DAMAGED AREAS MUST BE REPAIRED BY QCPS #7. AT THE COMPLETION OF CONSTRUCTION, THE GALVANIZING MUST BE UNDAMAGED AND THE SURFACES FREE FROM GREASE, OIL, CHALK MARKS, PAINT, CONCRETE SPLATTER OR OTHER SILAGE. SUCH SILAGE WILL BE REMOVED BY SOLVENT CLEANING PER SSPCSPI (QCP #1)

DOCUMENTATION OF FINAL REVIEW MUST BE PERFORMED BY THE QCPS BY A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

4.0 TESTING EQUIPMENT

THE FABRICATOR MUST PROVIDE THE QCPS INSPECTOR THE FOLLOWING TESTING EQUIPMENT IN GOOD WORKING ORDER FOR THE DURATION OF THE PROJECT.

ONE (POSITECTOR 2000 OR 6000, QUANIX 2200, OR ELCOMETER A345FB11) AND THE CALIBRATION PLATES, 38-200 MM AND 250-625 MM [1.5 -8 MILS AND 10-25 MILS] AS PER THE NBS CALIBRATION STANDARDS IN ACCORDANCE WITH ASTM D-1186.

5.0 COATING THICKNESS

GALVANIZED THICKNESS MUST BE DETERMINED BY USE OF TYPE 2 MAGNETIC GAGE IN ACCORDANCE WITH THE FOLLOWING:

FIVE SEPARATE SPOT MEASUREMENTS MUST BE MADE, SPACED EVENLY OVER ONE(1) RANDOMLY SELECTED, 100 SQUARE FEET [9 SQUARE METERS] OF SURFACE AREA ON EACH STRUCTURAL MEMBER. THREE GAGE READINGS MUST BE MADE FOR EACH SPOT MEASUREMENT. THE PROBE MUST BE MOVED A DISTANCE OF 1 TO 3 INCHES [25 TO 75 MM] FOR EACH NEW GAGE READING. ANY UNUSUALLY HIGH OR LOW GAGE READING THAT CANNOT BE REPEATED CONSISTENTLY MUST BE DISCARDED. THE AVERAGE (MEAN) OF THE 3 GAGE READINGS MUST BE USED AS THE SPOT MEASUREMENT. THE AVERAGE OF FIVE SPOT MEASUREMENTS FOR EACH SUCH 100 SQUARE FOOT [9 SQUARE METER] AREA MUST NOT BE LESS THAN THE SPECIFIED THICKNESS. NO SINGLE SPOT MEASUREMENT IN ANY 100 SQUARE FOOT [9 SQUARE METER] AREA MUST BE LESS THAN 80% OF THE SPECIFIED MINIMUM THICKNESS. ANY ONE OF 3 READINGS WHICH ARE AVERAGED TO PRODUCE EACH SPOT MEASUREMENT, MAY UNDER-RUN OR OVER-RUN BY A GREATER AMOUNT. THE 5 SPOT MEASUREMENTS MUST BE MADE FOR ONE(1) RANDOMLY SELECTED, 100 SQUARE FEET [9 SQUARE METER] OF AREA ON EACH STRUCTURAL MEMBER. ALL SPLICE MATERIAL AND SECONDARY MEMBERS MUST HAVE AT LEAST ONE SPOT MEASURED ON EACH PIECE. THE PROBE MUST BE MOVED SO THAT ONE READING IS TAKEN AT EACH END AND MIDDLE OF THE PIECE FOR A TOTAL OF THREE READINGS.

THE QCPS MUST INSPECT AND PROVIDE DOCUMENTATION OF ACTUAL DATA, THE GALVANIZED THICKNESS CHECKS WERE PERFORMED PER SPECIFICATION, AND THE COATING THICKNESS MEETS SPECIFICATION REQUIREMENTS..

6.0 HANDLING AND SHIPPING

REASONABLE CARE MUST BE EXERCISED IN HANDLING THE GALVANIZED STEEL DURING SHIPPING, ERECTION, AND SUBSEQUENT CONSTRUCTION OF THE BRIDGE. THE STEEL MUST BE INSULATED FROM THE BINDING CHAINS BY SOFTENERS. HOOKS AND SLINGS USED TO HOIST STEEL MUST BE PADDED. DIAPHRAGMS AND SIMILAR PIECES MUST BE SPACED IN SUCH A WAY THAT NO RUBBING WILL OCCUR DURING SHIPMENT THAT MAY DAMAGE THE GALVANIZING. THE STEEL MUST BE STORED ON PALLETS AT THE JOB SITE, OR BY OTHER MEANS, SO THAT IT DOES NOT REST ON THE GROUND OR SO THAT COMPONENTS DO NOT FALL OR REST ON EACH OTHER.

7.0 SAFETY REQUIREMENTS AND PRECAUTIONS

THE CONTRACTOR MUST MEET THE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), IN ADDITION TO THE SCAFFOLDING REQUIREMENTS BELOW.

THE CONTRACTOR IS REQUIRED TO MEET THE APPLICABLE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION IN ADDITION TO THE SCAFFOLDING REQUIREMENTS SPECIFIED BELOW.

8.0 SCAFFOLDING

RUBBER ROLLERS, OR OTHER PROTECTIVE DEVICES MEETING THE APPROVAL OF THE ENGINEER, MUST BE USED ON SCAFFOLD FASTENINGS. METAL ROLLERS OR CLAMPS AND OTHER TYPES OF FASTENINGS WHICH WILL MAR OR DAMAGE COATED SURFACES MUST NOT BE USED.

9.0 INSPECTION ACCESS FOR FIELD REPAIR

IN ADDITION TO THE REQUIREMENT OF 105.11, THE CONTRACTOR MUST FURNISH, ERECT, AND MOVE SCAFFOLDING AND OTHER APPROPRIATE EQUIPMENT, TO PERMIT THE INSPECTOR THE OPPORTUNITY TO INSPECT CLOSELY OBSERVE), ALL AFFECTED SURFACES. THIS OPPORTUNITY MUST BE PROVIDED TO THE INSPECTOR DURING ALL PHASES OF THE WORK AND CONTINUE FOR A PERIOD OF AT LEAST TEN (10) WORKING DAYS AFTER THE TOUCH-UP WORK HAS BEEN COMPLETED. WHEN SCAFFOLDING IS USED, IT MUST BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS. WHEN SCAFFOLDING, OR THE HANGERS ATTACHED TO THE SCAFFOLDING ARE SUPPORTED BY HORIZONTAL WIRE ROPES, OR WHEN SCAFFOLDING IS PLACED DIRECTLY UNDER THE SURFACE TO BE PAINTED, THE FOLLOWING REQUIREMENTS MUST BE COMPLIED WITH:

WHEN SCAFFOLDING IS SUSPENDED 43" [1100 MM] OR MORE BELOW THE COATED SURFACE TO BE REPAIRED, TWO ROWS OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF THE SCAFFOLDING. ONE ROW OF GUARDRAIL MUST BE PLACED AT 42" [1050 MM] ABOVE THE SCAFFOLDING AND THE OTHER ROW AT 20" [500 MM] ABOVE THE SCAFFOLDING.

WHEN THE SCAFFOLDING IS SUSPENDED AT LEAST 21" [530 MM], BUT LESS THAN 43" [1100 MM] BELOW THE COATED SURFACE TO BE REPAIRED, A ROW OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF THE SCAFFOLDING AT 20" [500 MM] ABOVE THE SCAFFOLDING.

TWO ROWS OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF SCAFFOLDING NOT PREVIOUSLY MENTIONED. THE ROWS OF GUARDRAIL MUST BE PLACED AT 42" [1050 MM] AND 20" [500 MM] ABOVE SCAFFOLDING, AS PREVIOUSLY MENTIONED.

ALL SCAFFOLDING MUST BE AT LEAST 24" [610 MM] WIDE WHEN GUARDRAIL IS USED AND 28" [710 MM] WIDE WHEN THE SCAFFOLDING IS SUSPENDED LESS THAN 21" [530 MM] BELOW THE COATED SURFACE TO BE REPAIRED AND GUARDRAIL IS NOT USED IF TWO OR MORE SCAFFOLDING ARE LAID PARALLEL TO ACHIEVE THE PROPER WIDTH, THEY MUST BE RIGIDLY ATTACHED TO EACH OTHER TO PRECLUDE ANY DIFFERENTIAL MOVEMENT. ALL GUARDRAIL MUST BE CONSTRUCTED AS A SUBSTANTIAL BARRIER WHICH IS SECURELY FASTENED IN PLACE AND IS FREE FROM PROTRUDING OBJECTS SUCH AS NAILS, SCREWS AND BOLTS. THERE MUST BE AN OPENING IN THE GUARDRAIL, PROPERLY LOCATED, TO ALLOW THE INSPECTOR ACCESS ONTO THE SCAFFOLDING. THE RAILS AND UPRIGHTS MUST BE EITHER METAL OR WOOD. IF PIPE RAILING IS USED, THE RAILING MUST HAVE A NOMINAL DIAMETER OF NO LESS THAN ONE AND ONE HALF INCHES. IF STRUCTURAL STEEL RAILING IS USED, THE RAILS MUST BE 2 X 2 X 3/8 INCH [50 X 50 X 10 MM] STEEL ANGLES OR OTHER METAL SHAPES OF EQUAL OR GREATER STRENGTH. IF WOOD RAILING IS USED, THE RAILING MUST BE 2 X 4 INCH [50 X 100MM] (NOMINAL) STOCK. ALL UPRIGHTS MUST BE SPACED AT NO MORE THAN 8 FEET [2.4 M] ON CENTER. IF WOOD UPRIGHTS ARE USED, THE UPRIGHTS MUST BE 2 X 4 INCHES [50 X 100MM] (NOMINAL) STOCK.

WHEN THE SURFACE TO BE INSPECTED IS MORE THAN 15 FEET [4.6 M] ABOVE THE GROUND OR WATER, AND THE SCAFFOLDING IS SUPPORTED FROM THE STRUCTURE BEING PAINTED, THE CONTRACTOR MUST PROVIDE THE INSPECTOR WITH A SAFETY BELT AND LIFELINE. THE LIFELINE MUST NOT ALLOW A FALL GREATER THAN 6 FEET [2 M]. THE CONTRACTOR MUST PROVIDE A METHOD OF ATTACHING THE LIFELINE TO THE STRUCTURE INDEPENDENT OF THE SCAFFOLDING, CABLES, OR BRACKETS SUPPORTING THE SCAFFOLDING.

WHEN SCAFFOLDING IS MORE THAN TWO AND ONE HALF FEET [0.75 M] ABOVE THE GROUND, THE CONTRACTOR MUST PROVIDE A LADDER FOR ACCESS ONTO THE SCAFFOLDING. THE LADDER AND ANY EQUIPMENT USED TO ATTACH THE LADDER TO THE STRUCTURE MUST BE CAPABLE OF SUPPORTING 250 POUNDS [115 KG] WITH A SAFETY FACTOR OF AT LEAST FOUR (4). ALL RUNGS, STEPS, CLEATS, OR TREADS MUST HAVE UNIFORM SPACING AND MUST NOT EXCEED 12" [305 MM] ON CENTER. AT LEAST ONE SIDE RAIL MUST EXTEND AT LEAST 36" [915MM] ABOVE THE LANDING NEAR THE TOP OF THE LADDER.

AN ADDITIONAL LANDING MUST BE REQUIRED WHEN THE DISTANCE FROM THE LADDER TO THE POINT WHERE THE SCAFFOLDING MAY BE ACCESSED, EXCEEDS 12" [305 MM]. THE LANDING MUST BE A MINIMUM OF AT LEAST 24" [610 MM] WIDE AND 24" [610 MM] LONG. IT MUST ALSO BE OF ADEQUATE SIZE AND SHAPE SO THAT THE DISTANCE FROM THE LANDING TO THE POINT WHERE THE SCAFFOLDING IS ACCESSED DOES NOT EXCEED 12" [305 MM]. THE LANDING MUST BE RIGID AND FIRMLY ATTACHED TO THE LADDER; HOWEVER, IT MUST NOT BE SUPPORTED BY THE LADDER. THE SCAFFOLDING MUST BE CAPABLE OF SUPPORTING A MINIMUM OF 1000 LBS [455 KG].

IN ADDITION TO THE AFOREMENTIONED REQUIREMENTS, THE CONTRACTOR IS STILL RESPONSIBLE TO OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS, ORDERS AND DECREES.

THE CONTRACTOR MUST FURNISH ALL NECESSARY TRAFFIC CONTROL TO PERMIT INSPECTION DURING AND AFTER ALL PHASES OF THE PROJECT.

10.0 PROTECTION OF PERSONS AND PROPERTY

THE CONTRACTOR MUST INSTALL AND MAINTAIN SUITABLE SHIELDS OR ENCLOSURES TO PREVENT DAMAGE TO ADJACENT BUILDINGS, PARKED CARS, TRUCKS, BOATS OR VEHICLES TRAVELING ON, OVER, OR UNDER STRUCTURES HAVING GALVANIZED REPAIRS. THEY MUST BE SUITABLY ANCHORED AND REINFORCED TO PREVENT INTERFERING WITH NORMAL TRAFFIC OPERATIONS IN THE OPEN LANES. PAYMENT FOR THE SHIELDS MUST BE INCLUDED AS INCIDENTAL TO THE APPLICABLE FIELD COATING OPERATION. WORK MUST BE SUSPENDED WHEN DAMAGE TO ADJACENT BUILDINGS, MOTOR VEHICLES, BOATS, OR OTHER PROPERTY IS OCCURRING.

WHEN OR WHERE ANY DIRECT OR INDIRECT DAMAGE OR INJURY IS DONE TO PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR MUST RESTORE, AT HIS OWN EXPENSE, SUCH PROPERTY, TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE.

11.0 POLLUTION CONTROL

THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION CONTROL LAWS, RULES OR REGULATIONS OF FEDERAL, STATE OR LOCAL AGENCIES.

12.0 METHOD OF MEASUREMENT

THE COST OF ALL LABOR, MATERIALS, EQUIPMENT NECESSARY TO GALVANIZE THE STRUCTURAL STEEL AND PERFORM ANY NECESSARY FIELD REPAIR SHALL BE BASED ON MEASURED WEIGHT (POUNDS) OF STRUCTURAL STEEL INCLUDED IN ITEM 513.

13.0 BASIS OF PAYMENT

PAYMENT WILL BE MADE AT CONTRACT PRICES FOR ITEM SPECIAL-STRUCTURE MISC.: GALVANIZED COATING SYSTEM FOR STRUCTURAL STEEL BRIDGES.

ESTIMATED QUANTITIES									AS PER PLAN REFERENCE SHEET
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GENERAL	
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					3/36
202	22900	136	SQ. YD.	APPROACH SLAB REMOVED				136	
SPECIAL	45IE30000	128	FEET	PRESSURE RELIEF JOINT, TYPE A				128	
503	11101	LUMP		COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN					10/36, 11/36
503	21101	340	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	102	238			4/36
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION					
507	00200	1080	FEET	STEEL PILES HP 12x53, FURNISHED	1080				
507	00250	960	FEET	STEEL PILES HP 12x53, DRIVEN	960				
507	93300	12	EACH	STEEL POINTS OR SHOES	12				
509	10000	136221	POUND	EPOXY COATED REINFORCING STEEL	14228	31212	90781		
512	10100	1056	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	114	481	363	98	
513	10260	156000	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 3			156000		
513	20000	4800	EACH	WELDED STUD SHEAR CONNECTORS			4800		
516	13200	132	SQ. FT.	1/2" PREFORMED EXPANSION JOINT FILLER	132				
516	13600	135	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER	135				
516	14015	167	FEET	INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	167				4/36
516	44001	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (NEOPRENE 1 1/8"x 1 1/2"x 1'-6") (LOAD PLATE 2 1/2" BEVELED TO 2 1/4"x 1'-0 1/2"x 1'-7")			16		28/36
518	21200	154	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC	154				
518	40000	186	FEET	6" PERFORATED CORRUGATED PLASTIC PIPE	186				
518	40010	39	FEET	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	39				
524	94905	64	FEET	DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK, AS PER PLAN		64			4/36
524	94907	53	FEET	DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK, AS PER PLAN		53			4/36
524	95200	LUMP		DRILLED SHAFTS, MISC.: DRILLED SHAFT EQUIPMENT MOBILIZATION					
SPECIAL	53000200	LUMP		SPECIAL - STRUCTURE MISC.: TEMPORARY SUPPORT					
SPECIAL	53000300	156000	POUND	SPECIAL - STRUCTURE MISC.: SHOP GALVANIZED COATING SYSTEM FOR STRUCTURAL STEEL BRIDGES			156000		
601	20000	419	SQ. YD.	CRUSHED AGGREGATE SLOPE PROTECTION				419	
603	01500	12	FEET	6" CONDUIT, TYPE F				12	
604	36600	2	EACH	PRECAST REINFORCED CONCRETE OUTLET				2	
605	11100	128	FEET	6" SHALLOW PIPE UNDERDRAINS				128	
892	10200	310	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY			310		4A/36
898	10705	350	SQ. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN				350	4/36
898	11001	46	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			46		4A/36
898	20100	284	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		284			
898	20160	162	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	162				

ESTIMATED QUANTITIES										AS PER PLAN REFERENCE SHEET
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUT	PIER	SUPER	GENERAL		
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN						3/36
202	22900	136	SQ. YD.	APPROACH SLAB REMOVED				136		
SPECIAL	45IE30000	128	FEET	PRESSURE RELIEF JOINT, TYPE A				128		
503	11101	LUMP		COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN						10/36, 11/36
503	21101	322	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	99	223				4/36
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION						
507	00200	1200	FEET	STEEL PILES HP 12x53, FURNISHED	1200					
507	00250	1080	FEET	STEEL PILES HP 12x53, DRIVEN	1080					
507	93300	12	EACH	STEEL POINTS OR SHOES	12					
509	10000	135373	POUND	EPOXY COATED REINFORCING STEEL	14218	30439	90716			
512	10100	1060	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	120	480	363	97		
513	10260	156000	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 3			156000			
513	20000	4800	EACH	WELDED STUD SHEAR CONNECTORS			4800			
516	13200	132	SQ. FT.	1/2" PREFORMED EXPANSION JOINT FILLER	132					
516	13600	135	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER	135					
516	14015	167	FEET	INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	167					4/36
516	44001	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (NEOPRENE 1 1/8"x 1 1/2"x 1'-6" (LOAD PLATE 2 1/2" BEVELED TO 2 1/4"x 1'-0 1/2"x 1'-7")			16			28/36
518	21200	154	CU. YD.	POROUS BACKFILL WITH FILTER FABRIC	154					
518	40000	186	FEET	6" PERFORATED CORRUGATED PLASTIC PIPE	186					
518	40010	39	FEET	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	39					
524	94905	64	FEET	DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK, AS PER PLAN		64				4/36
524	94907	106	FEET	DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK, AS PER PLAN		106				4/36
524	95200	LUMP		DRILLED SHAFTS, MISC.: DRILLED SHAFT EQUIPMENT MOBILIZATION						
SPECIAL	53000200	LUMP		SPECIAL - STRUCTURE MISC.: TEMPORARY SUPPORT						
SPECIAL	53000300	156000	POUND	SPECIAL - STRUCTURE MISC.: SHOP GALVANIZED COATING SYSTEM FOR STRUCTURAL STEEL BRIDGES			156000			
601	20000	419	SQ. YD.	CRUSHED AGGREGATE SLOPE PROTECTION				419		
603	01500	12	FEET	6" CONDUIT, TYPE F				12		
604	36600	2	EACH	PRECAST REINFORCED CONCRETE OUTLET				2		
605	11100	128	FEET	6" SHALLOW PIPE UNDERDRAINS				128		
892	10200	310	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY			310			4A/36
898	10705	350	SQ. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN				350		4/36
898	11001	46	CU. YD.	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN			46			4A/36
898	20100	269	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		269				
898	20160	162	CU. YD.	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	162					

ESTIMATED QUANTITIES - RIGHT BRIDGE
 BRIDGE NO. LOR-90-1256 L/R
 I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
 PID 24868

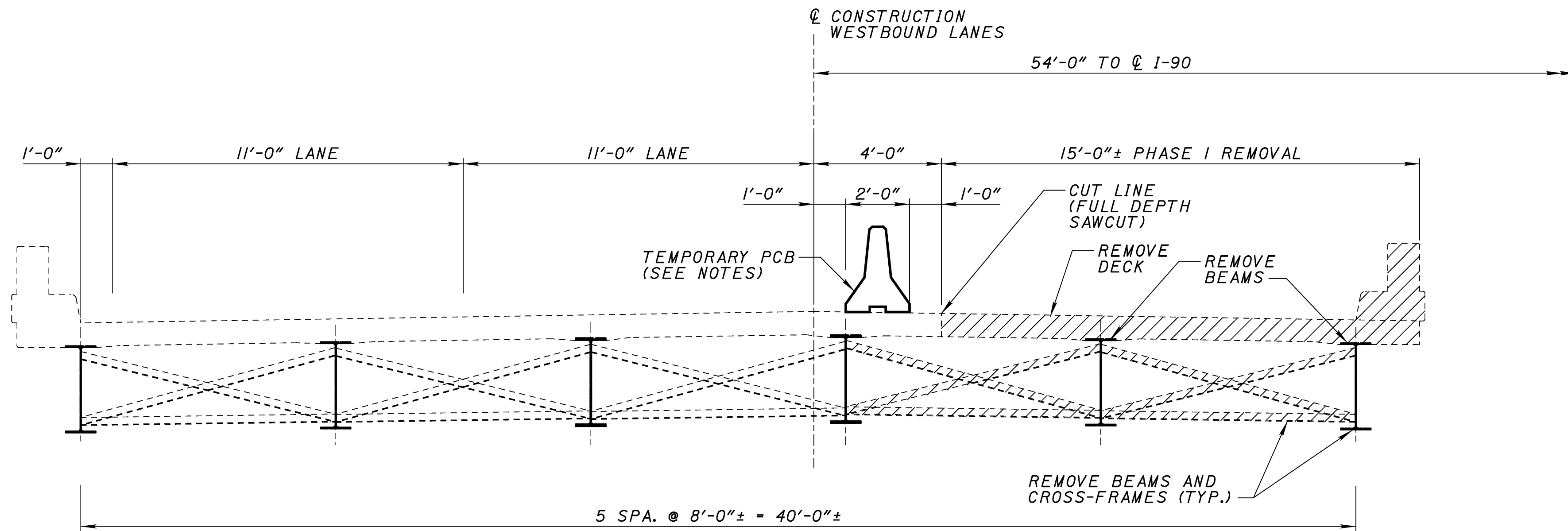
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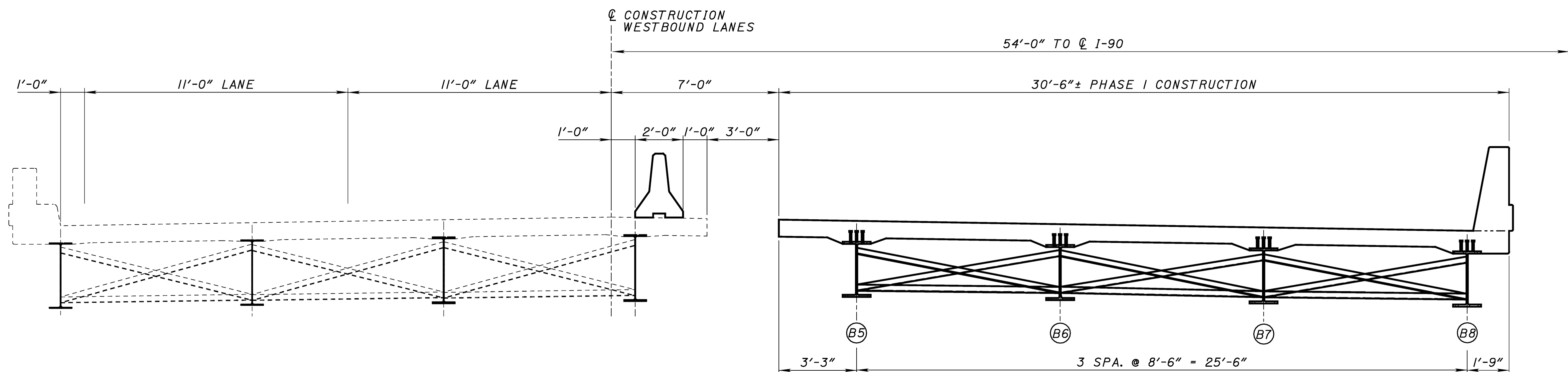
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 828 EUCLID AVENUE, SUITE 1060
 CLEVELAND, OHIO 44115

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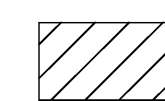


PHASE I REMOVAL



PHASE I CONSTRUCTION

LEGEND:



- PORTIONS OF EXISTING STRUCTURE TO BE REMOVED UNDER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

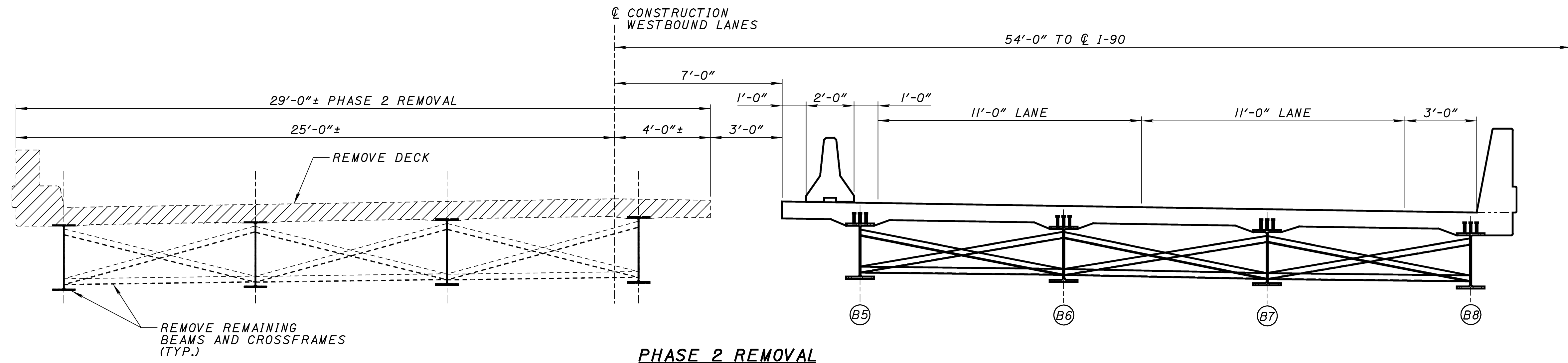


- BEAM NUMBER

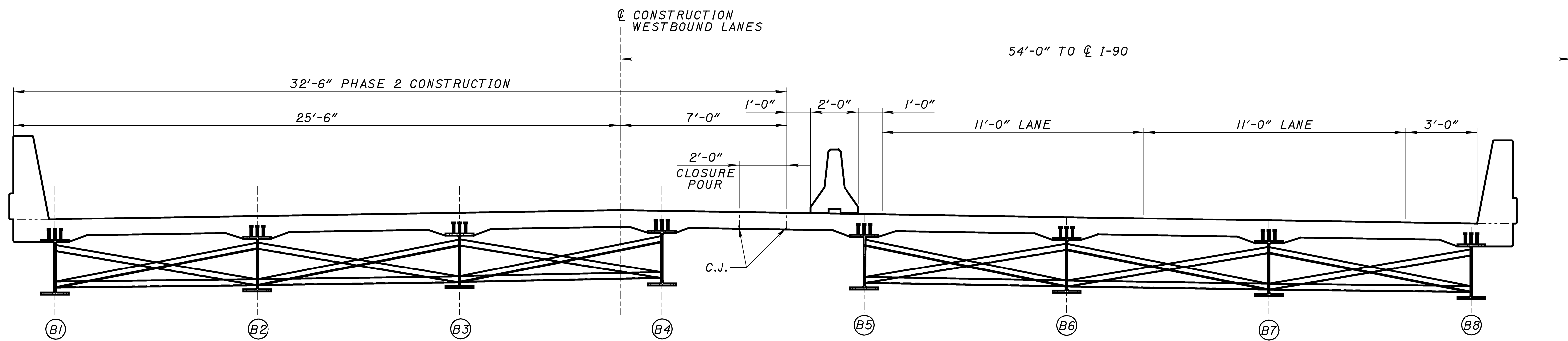
NOTES:

1. INSTALL 32" PORTABLE CONCRETE BARRIER, 6 ANCHORS PER SEGMENT ON THE BRIDGE DECK AND 6 ANCHORS PER SEGMENT ON THE APPROACH SLAB IN ACCORDANCE WITH STD. DWG. PCB-91. PAYMENT FOR PCB INCLUDED WITH APPROPRIATE MOT ITEMS.
2. AT THE OPTION OF THE CONTRACTOR, HOLES FOR PORTABLE CONCRETE BARRIER ANCHORS MAY BE PRE-FORMED IN THE NEW DECK. AFTER REMOVAL OF BARRIER ANCHORS, FILL ALL HOLES AS SPECIFIED ON STD. DWG. PCB-91 AND SEAL WITH HIGH MOLECULAR WEIGHT METHACRYLATE. PAYMENT SHALL BE INCLUDED WITH ITEM 892.
3. SEE ROADWAY MOT PLANS FOR ADDITIONAL INFORMATION.
4. LEFT BRIDGE SHOWN, RIGHT BRIDGE SAME OPPOSITE HAND.

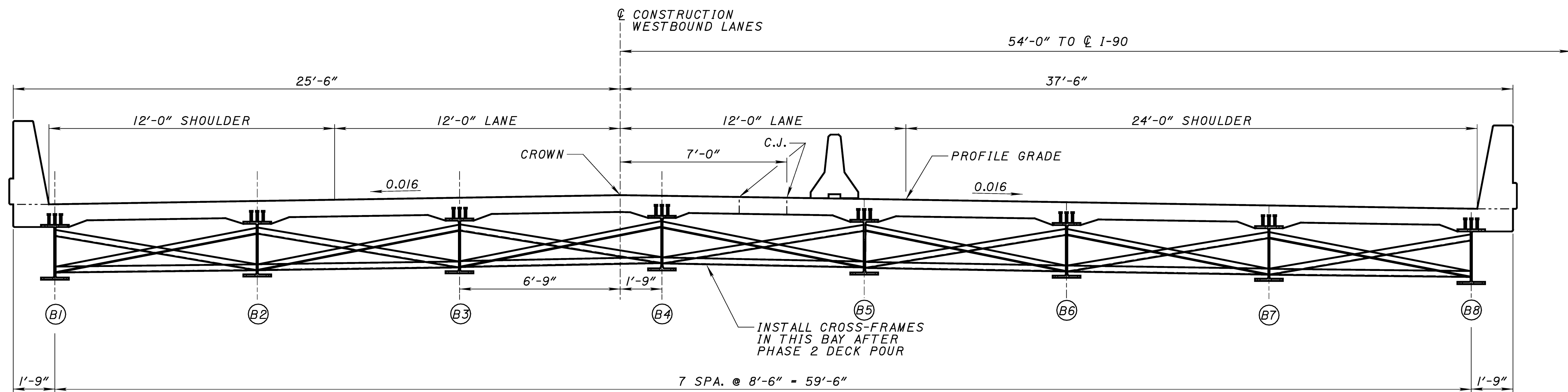
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PHASE 2 REMOVAL



PHASE 2 CONSTRUCTION

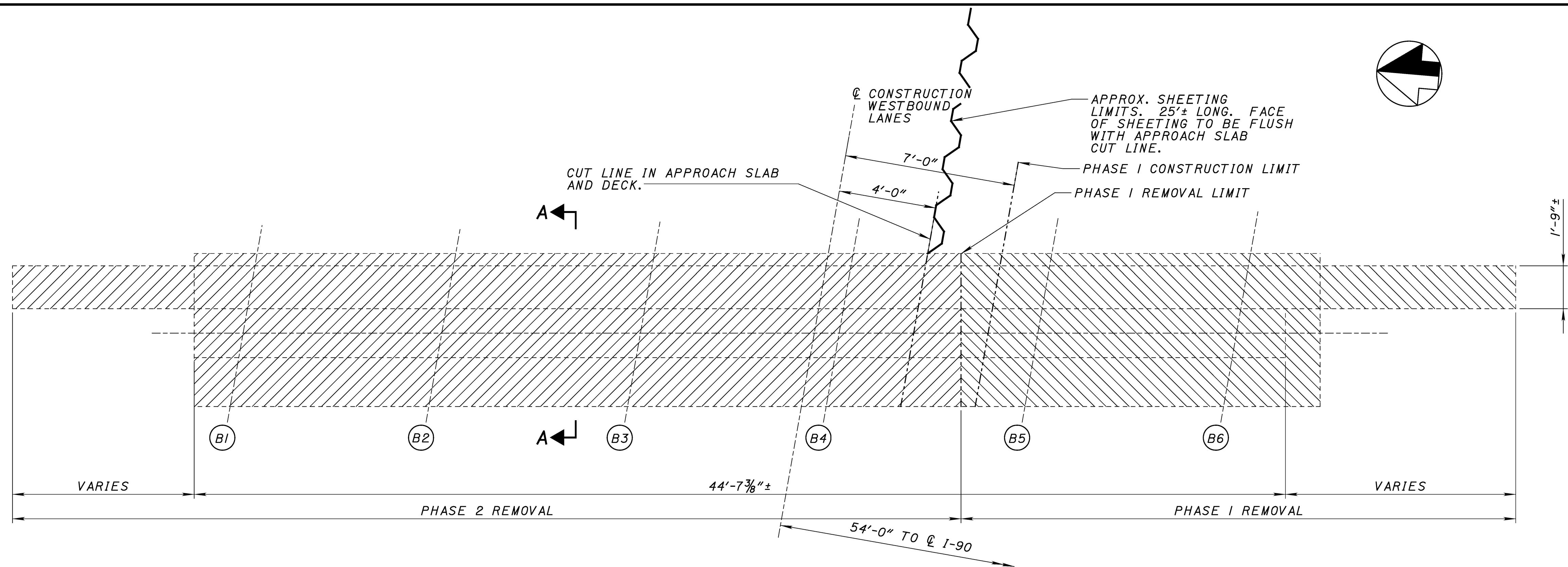


PROPOSED TRANSVERSE SECTION

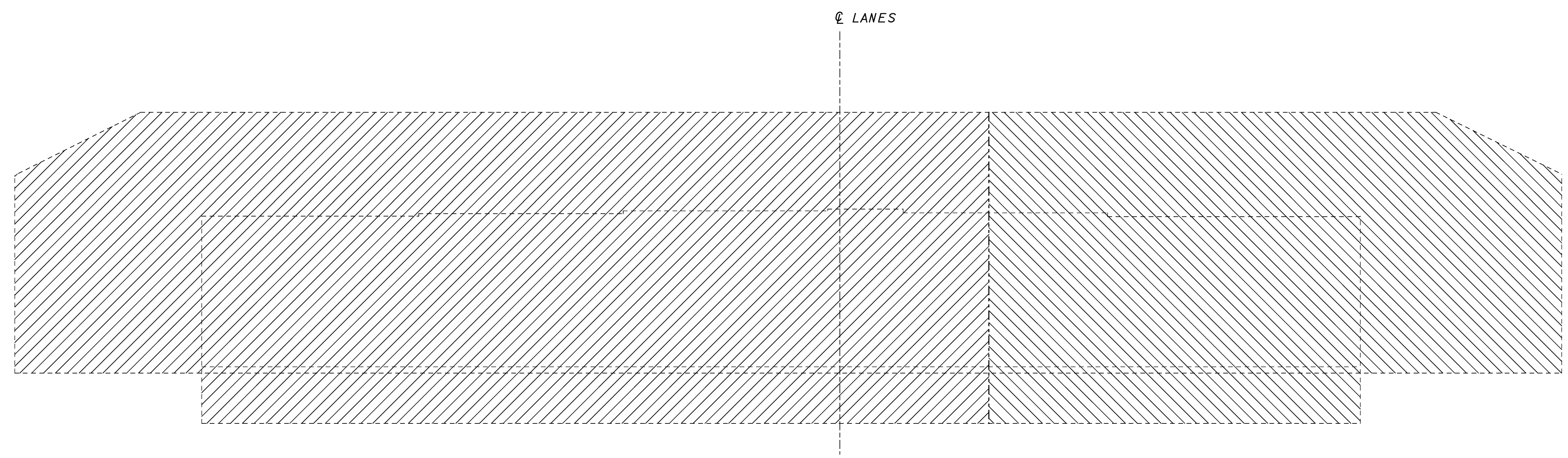
LEGEND:

- = PORTIONS OF EXISTING STRUCTURE TO BE REMOVED UNDER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.
- = BEAM NUMBER

SEE PREVIOUS SHEET FOR NOTES.



PLAN
 (LEFT BRIDGE FORWARD ABUTMENT
 SHOWN, OTHER ABUTMENTS SIMILAR)



ELEVATION

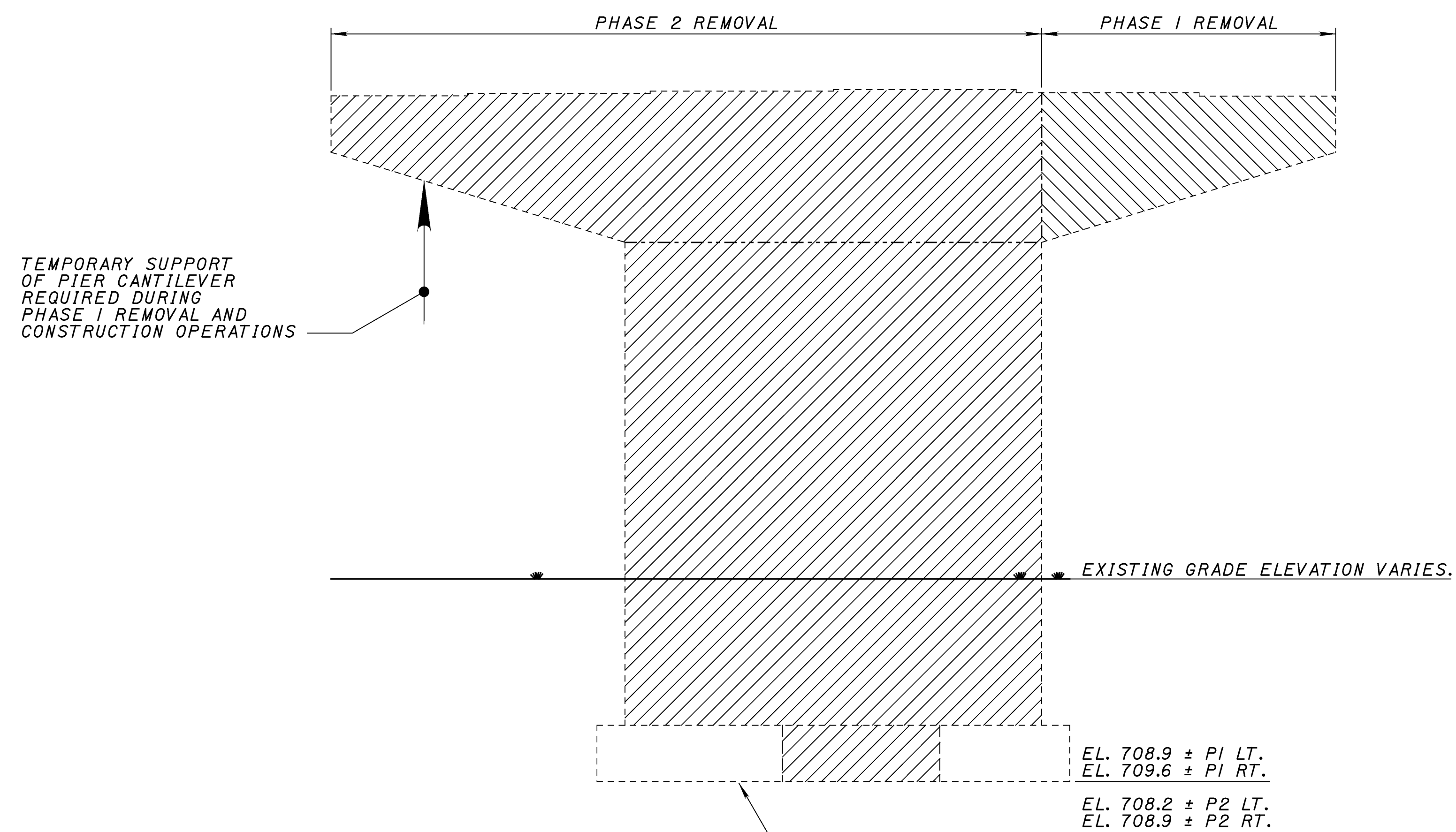
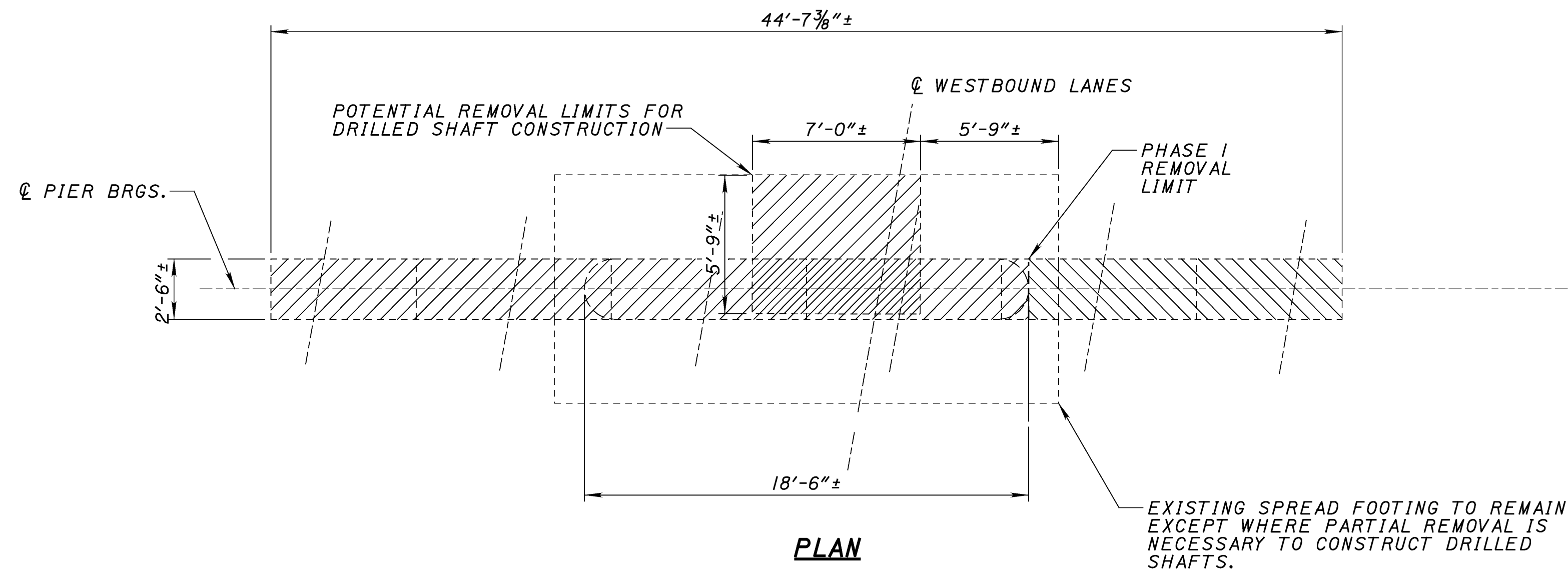
NOTES:

- PAYMENT FOR ABUTMENT REMOVAL SHALL BE INCLUDED UNDER ITEM 202-PORIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. SEE SHEET 3/36 FOR SPECIFICATIONS REGARDING THIS ITEM.
- THE MINIMUM SECTION MODULUS FOR TEMPORARY CANTILEVERED SHEET PILE WALL (FOR YIELD STRENGTH = 50 KSI) SHALL BE 70.3 IN³/FT. THE CHOSEN SHEETING SECTION SHALL HAVE SUFFICIENT SECTION PROPERTIES TO LIMIT DEFLECTION AT THE TOP OF SHORING TO 1" OR LESS.
- TEMPORARY SHEETING SHALL BE INSTALLED BEFORE EXCAVATION AND ABUTMENT REMOVAL IN PHASE 1 CONSTRUCTION. THE SHEETING SHALL REMAIN IN PLACE UNTIL PHASE 2 ABUTMENT HAS BEEN CONSTRUCTED AND THE EMBANKMENT SUFFICIENTLY PLACED AND COMPACTED TO THE LEVEL OF THE PROPOSED SUBGRADE.
- THE CONSTRUCTOR MAY PROVIDE AN ALTERNATE MEANS OF SHORING FOR PHASED CONSTRUCTION IN ACCORDANCE WITH ITEM 503.
- ALL MATERIALS EQUIPMENT, LABOR, AND INCIDENTALS NECESSARY TO INSTALL AND SUBSEQUENTLY REMOVE THE TEMPORARY SHORING SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM PRICE BID FOR ITEM 503 - COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN.
- SEE SHEET 10/36 FOR SECTION A-A.

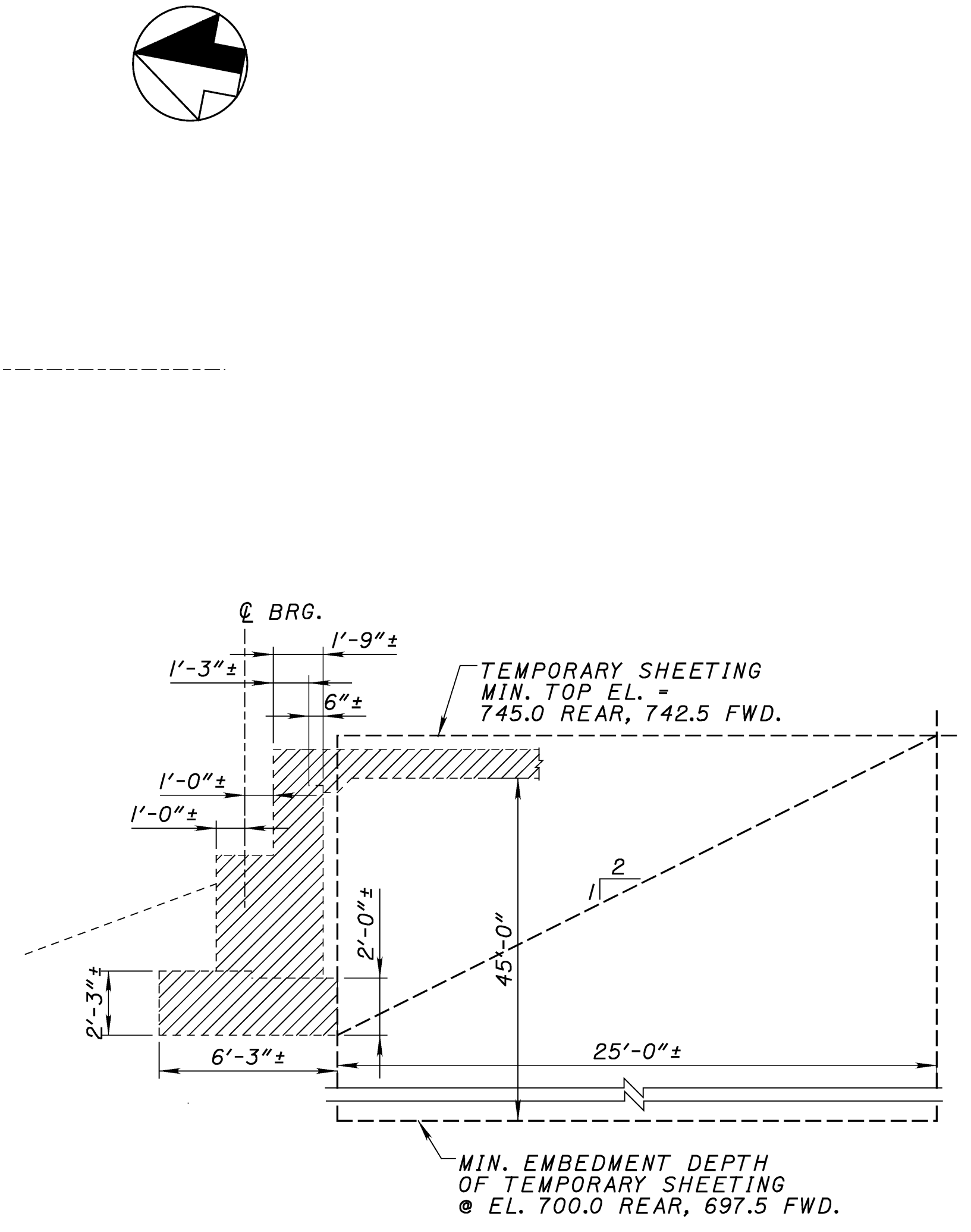
LEGEND

- AREA TO BE REMOVED PER ITEM 202-PORION OF STRUCTURE REMOVED, AS PER PLAN, IN PHASE 1
- AREA TO BE REMOVED PER ITEM 202-PORION OF STRUCTURE REMOVED, AS PER PLAN, IN PHASE 2

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ELEVATION



SECTION A-A

NOTES:

PAYMENT FOR PIER REMOVAL SHALL BE INCLUDED UNDER ITEM 202-PORIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. SEE SHEET 3/36 FOR SPECIFICATIONS REGARDING THIS ITEM.

PAYMENT FOR THE TEMPORARY SUPPORT OF THE PIER CAP CANTILEVERS DURING THE PHASE 1 REMOVAL AND CONSTRUCTION OPERATIONS SHALL BE PAID FOR UNDER ITEM SPECIAL-STRUCTURE MISC.: TEMPORARY SUPPORT. SEE SHEET 3/36 FOR SPECIFICATIONS REGARDING THIS ITEM.

SEE SHEET 11/36 FOR TEMPORARY SHORING DETAILS FOR PIER 2 ADJACENT TO THE CSX TRACK.

- LEGEND**
- AREA TO BE REMOVED PER ITEM 202-PORION OF STRUCTURE REMOVED, AS PER PLAN, IN PHASE 1
 - AREA TO BE REMOVED PER ITEM 202-PORION OF STRUCTURE REMOVED, AS PER PLAN, IN PHASE 2

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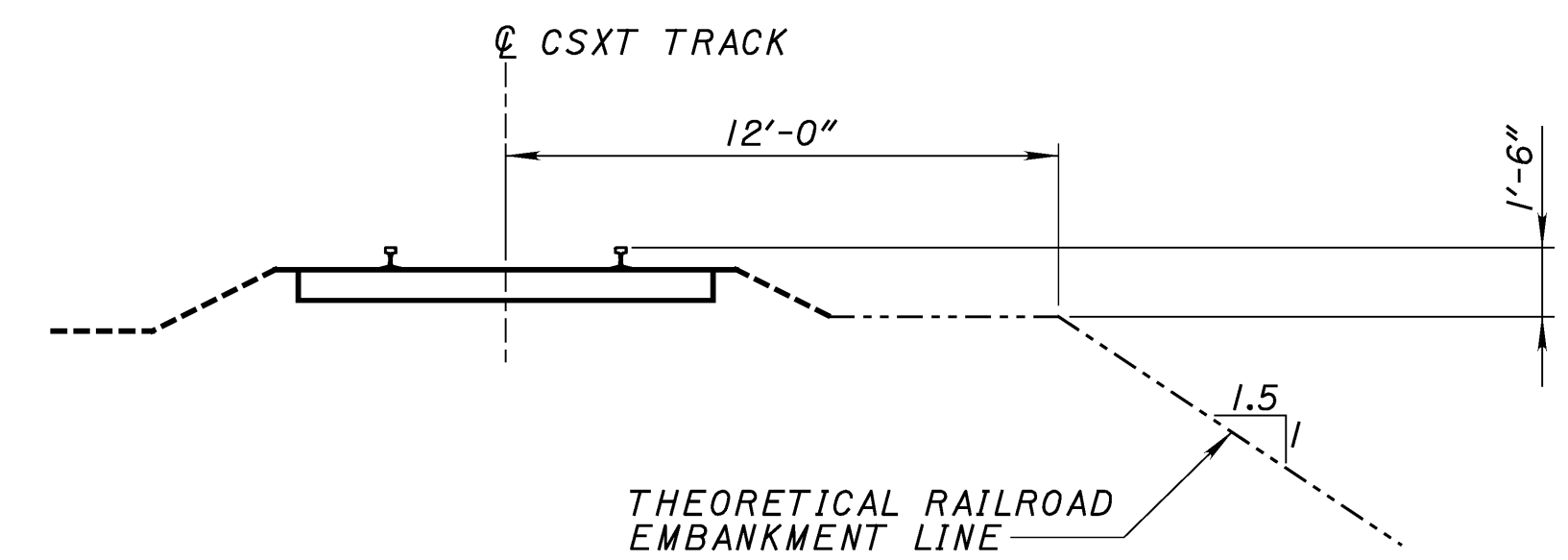
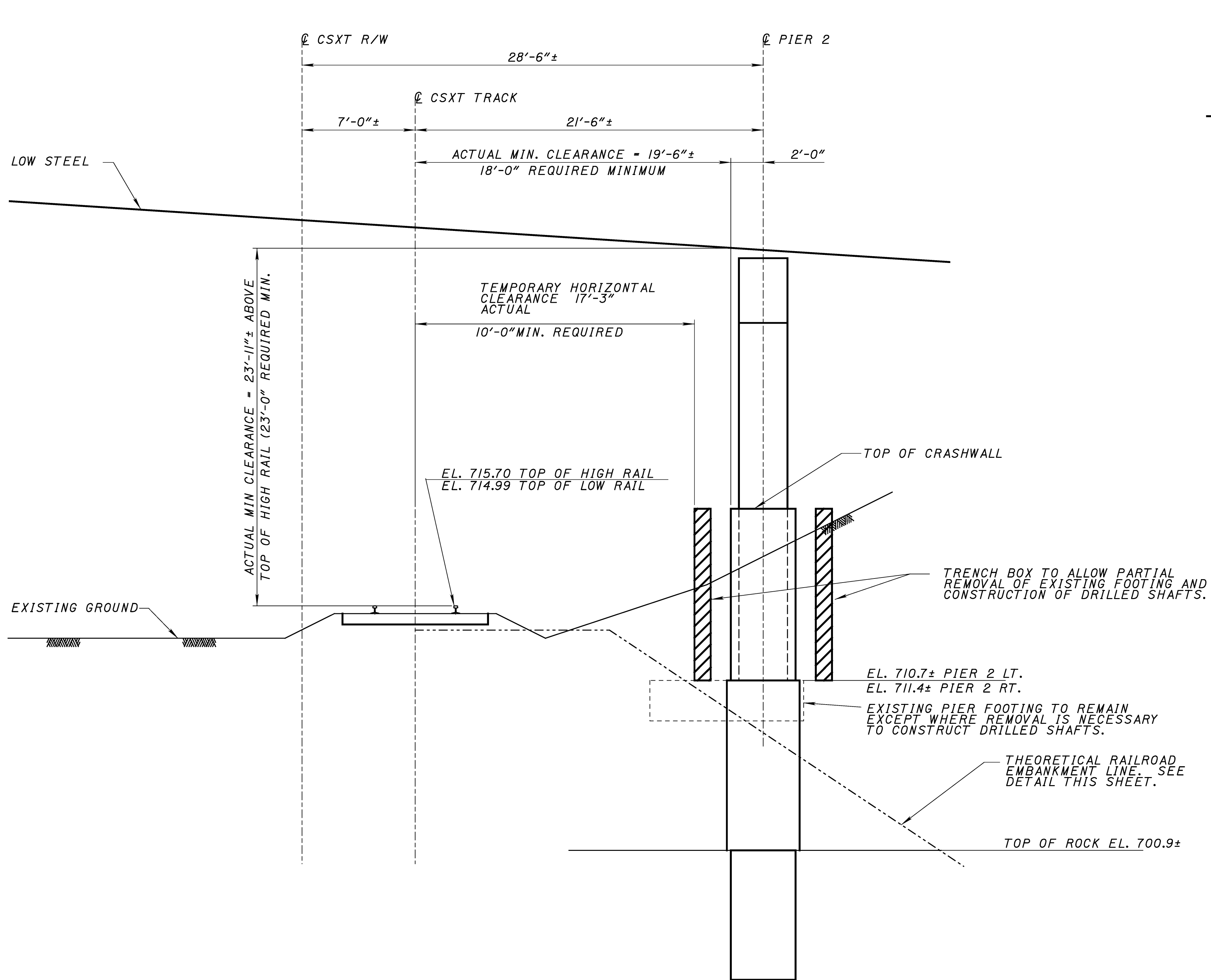
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DESIGNED	VLL
CHECKED	SCT

PIER REMOVAL DETAILS
BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

10/36

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199



**REQUIREMENTS FOR TEMPORARY SHEET PILING
ADJACENT TO TRACK**

1. STEEL SHEET PILING FOR TRACK SUPPORT IS NOT REQUIRED FOR EXCAVATION OUTSIDE THE THEORETICAL RAILROAD EMBANKMENT LINE. SHORING IN ACCORDANCE WITH OSHA REQUIREMENTS SHALL BE USED IN THIS AREA.
2. STEEL SHEET PILING, DRIVEN PRIOR TO EXCAVATION, IS REQUIRED WHEN EXCAVATION IS WITHIN THE THEORETICAL RAILROAD EMBANKMENT LINE.
3. ALL SHEET PILING IS TO BE DESIGNED TO RESIST A VERTICAL LIVE LOAD SURCHARGE OF 1800 POUNDS PER SQUARE FOOT IN ADDITION TO THE ACTIVE EARTH PRESSURE. THE SURCHARGE SHALL BE ASSUMED TO ACT ON CONTINUOUS STRIP, 8'-6" WIDE. LATERAL PRESSURES DUE TO SURCHARGE SHALL BE COMPUTED USING THE STRIP LOAD FORMULA SHOWN IN AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, PART 20.
4. ALL MATERIALS EQUIPMENT, LABOR, AND INCIDENTALS NECESSARY TO INSTALL AND SUBSEQUENTLY REMOVE THE TEMPORARY SHORING SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM PRICE BID FOR ITEM 503 - COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN.

SECTION THROUGH TRACK AT PIER 2
LOOKING NORTH

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\$FILE\$

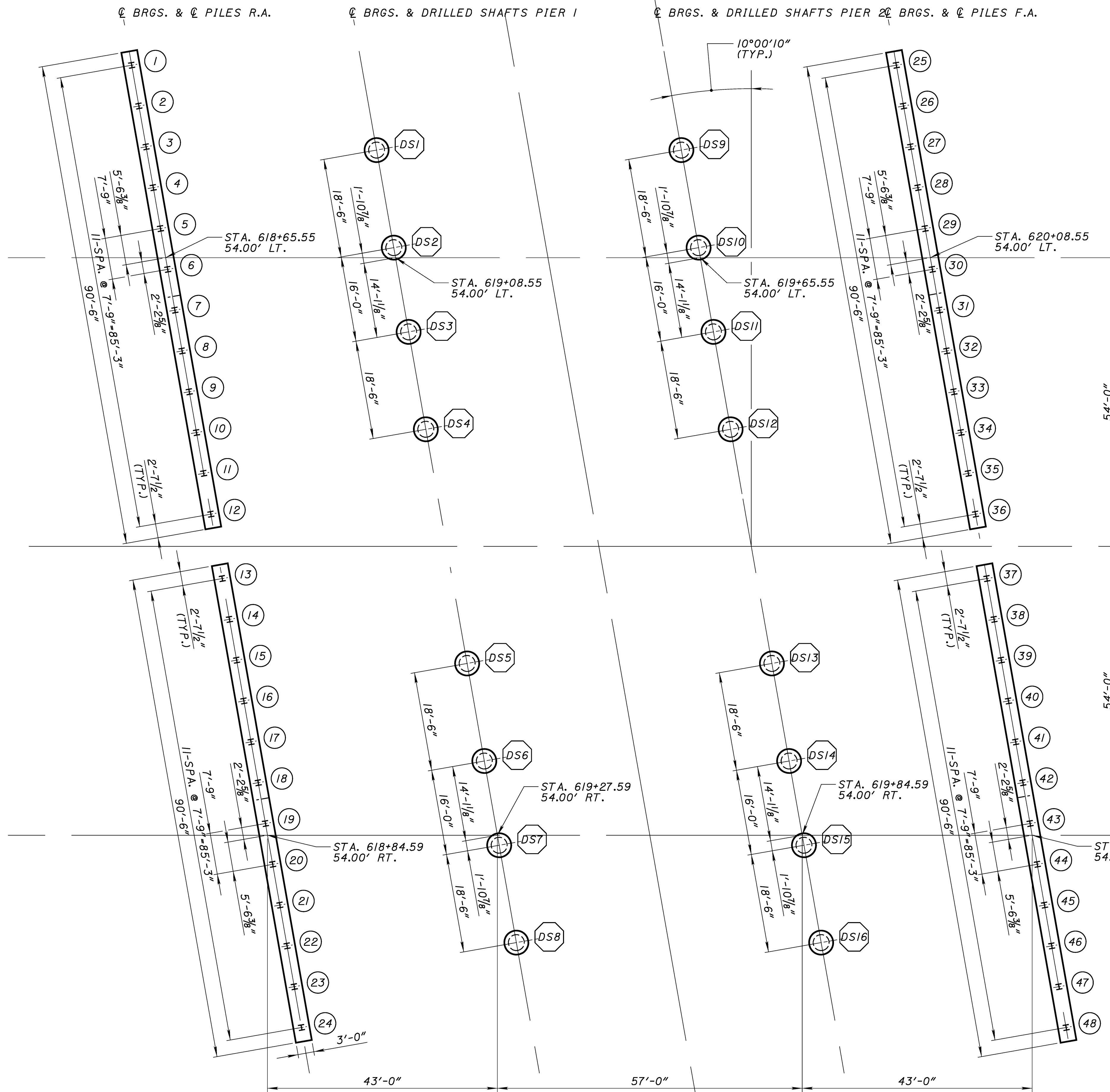
RAILROAD TEMPORARY SHORING DETAILS

BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

11 / 36

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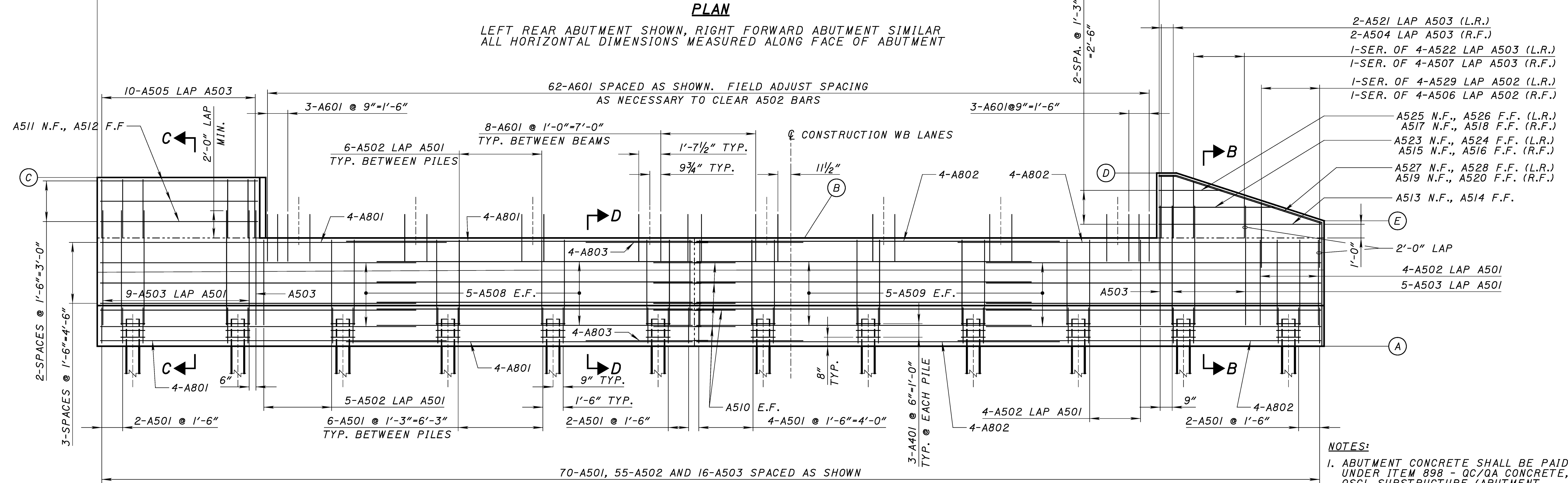
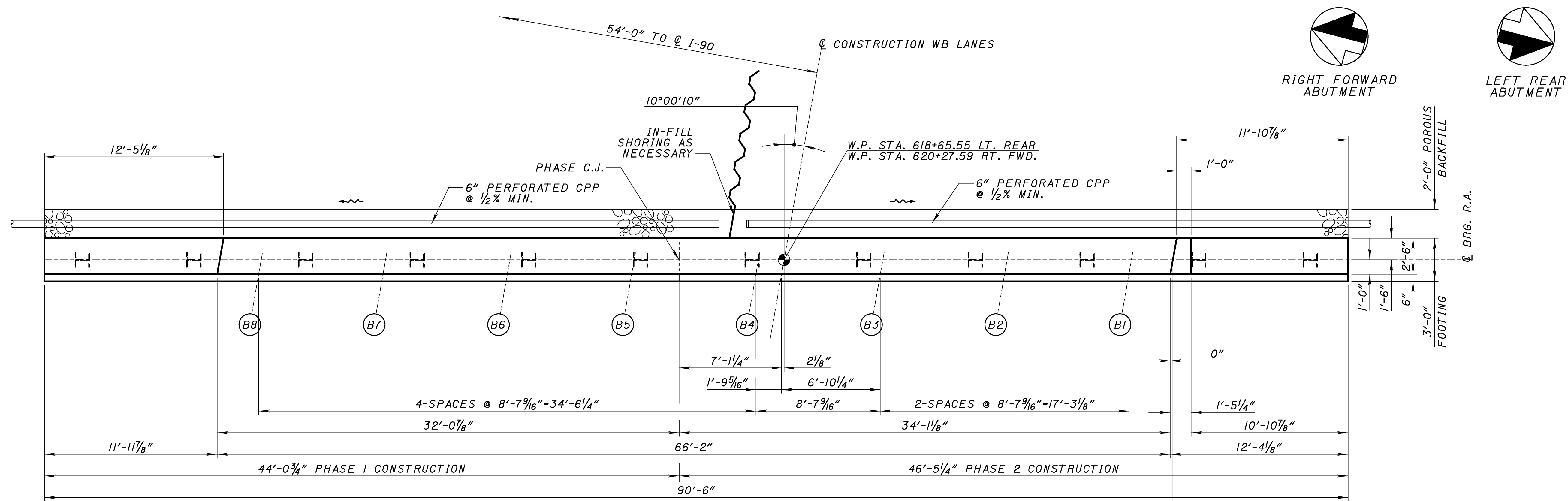
LEGEND
 (XX) - PILE NUMBER
 (DXX) - DRILLED SHAFT NUMBER

NOTES:
 ALL PILES SHALL BE HP 12 x 53 CONFORMING TO ASTM A572, GRADE 50 DRIVEN TO REFUSAL IN THE UNDERLYING BEDROCK IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 507.
 REAR ABUTMENT PILES SHALL BE FURNISHED WITH STEEL POINTS OR SHOES IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 507.
 4'-6" DIAMETER DRILLED SHAFTS SHALL EXTEND FROM THE BOTTOM OF CRASHWALL TO THE TOP OF ROCK.
 4'-0" DIAMETER SHALL EXTEND A MINIMUM OF 8'-0" BELOW TOP OF ROCK.
 SEE SHEETS 13/36 THROUGH 15/36 FOR ABUTMENT PLANS AND DETAILS.
 SEE SHEETS 16/36 THROUGH 18/36 FOR PIER PLANS AND DETAILS AND DRILLED SHAFT DETAILS.
 TEMPORARY SHORING NOT SHOWN FOR CLARITY.

LOCATION	PILE NUMBER	PILE CUTOFF EL.	PILE TIP EL.
LT. R.A.	(1) TO (12)	734.28	716.10
RT. R.A.	(13) TO (24)	734.19	708.60
LT. F.A.	(25) TO (36)	731.97	672.10
RT. F.A.	(37) TO (48)	731.98	673.00

LOCATION	SHAFT NUMBER	TOP OF SHAFT EL.	TOP OF ROCK EL.
LT. PIER 1	(DS1) TO (DS4)	711.40	708.20
RT. PIER 1	(DS5) TO (DS8)	712.10	696.30
LT. PIER 2	(DS9) TO (DS12)	710.70	700.90
RT. PIER 2	(DS13) TO (DS16)	711.40	700.90

SUBSTRUCTURE LOCATION AND PILE PLAN



70-A501, 55-A502 AND 16-A503 SPACED AS SHOWN

TABLE OF ABUTMENT ELEVATIONS

LOCATION	A	B	C	D	E
LEFT REAR	732.28	740.25	744.73	745.06	741.53
RIGHT FORWARD	729.98	737.95	742.43	742.43	739.23

- NOTES:**
- ABUTMENT CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSCI, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING).
 - SEE SHEET 15/36 FOR SECTION B-B, C-C AND D-D.
 - SEE SHEETS 31/36 AND 34/36 FOR REINFORCING SCHEDULE.
 - SEE GENERAL PLAN, SHEET 2/36, FOR DRAINAGE DETAILS.
 - LAP LENGTHS ARE AS FOLLOWS U.N.O.:
 #5 BAR: 2'-9"
 #8 BAR: 7'-3"

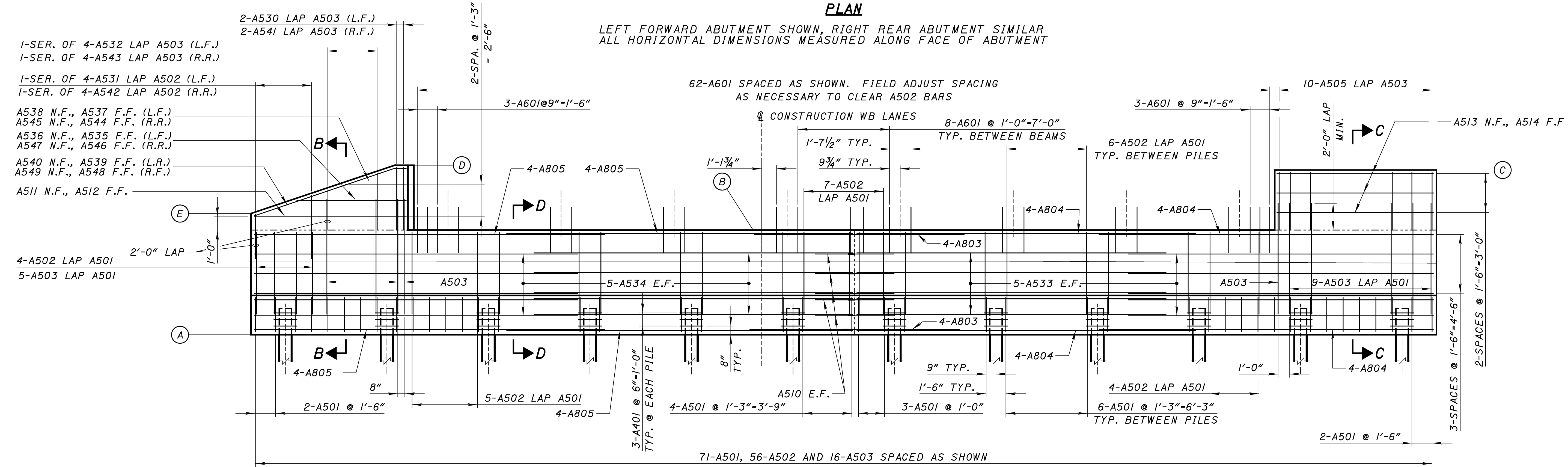
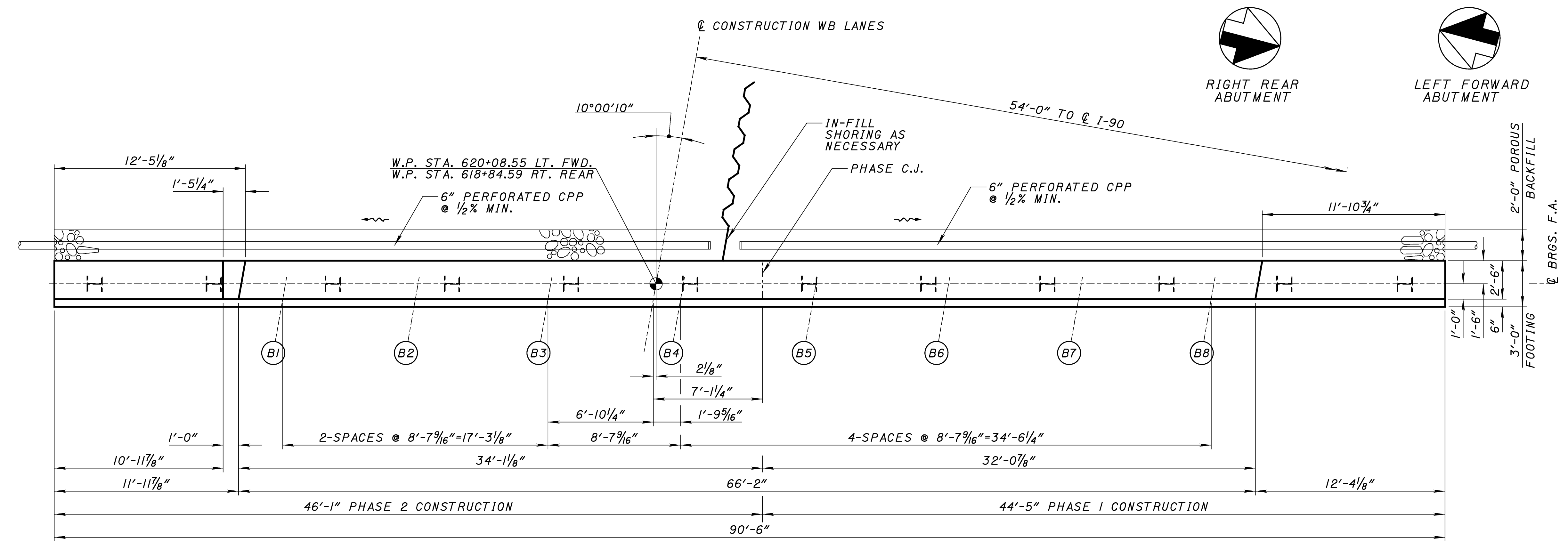


TABLE OF ABUTMENT ELEVATIONS

LOCATION	A	B	C	D	E
LEFT FORWARD	729.97	737.94	742.54	742.91	739.22
RIGHT REAR	732.19	740.16	744.65	744.69	741.44

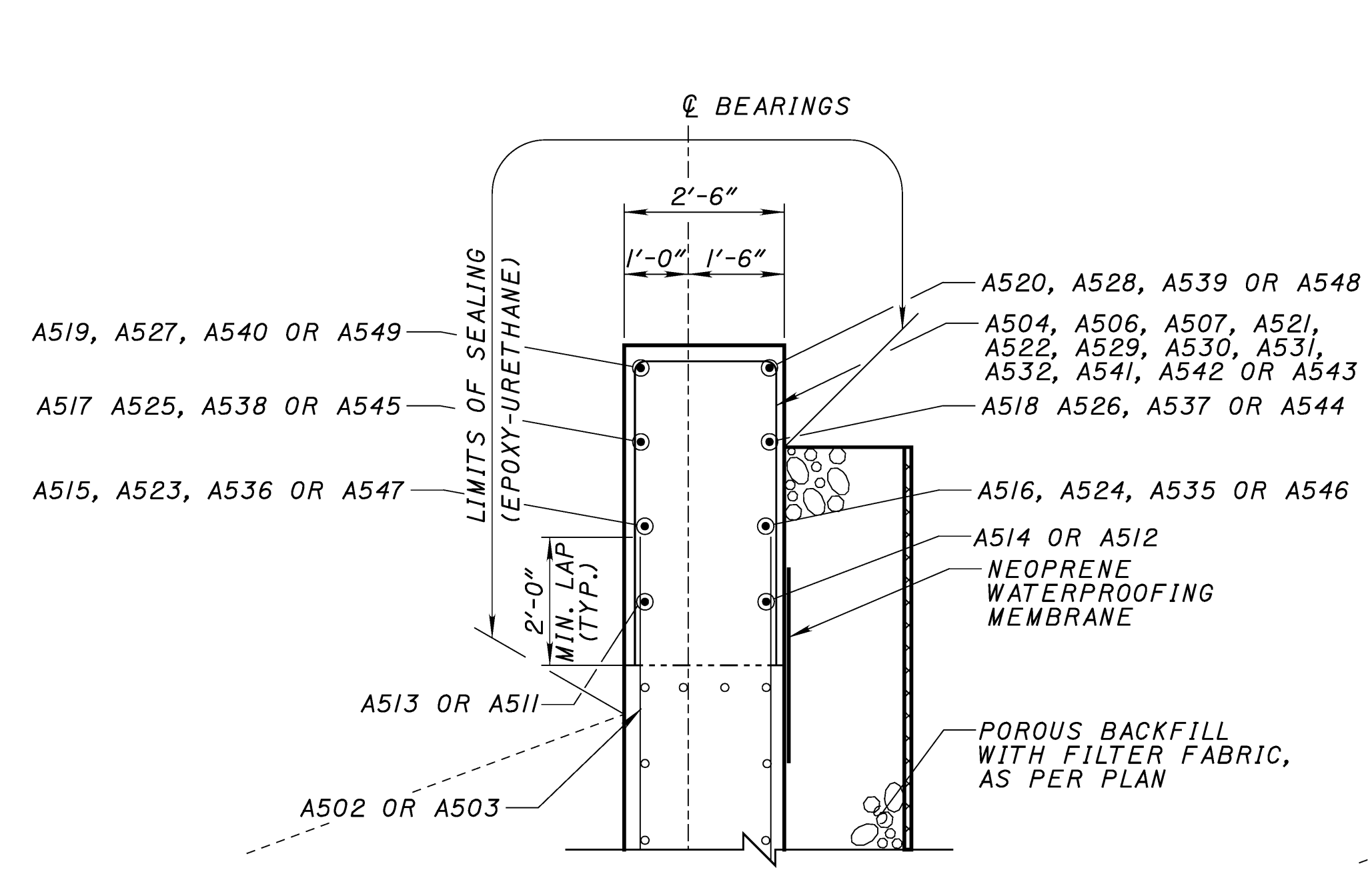
- NOTES:
- ABUTMENT CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSCI, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING).
 - SEE SHEET 15/36 FOR SECTION B-B, C-C AND D-D.
 - SEE SHEETS 31/36 AND 34/36 FOR REINFORCING SCHEDULE.
 - SEE GENERAL PLAN, SHEET 2/36, FOR DRAINAGE DETAILS.
 - LAP LENGTHS ARE AS FOLLOWS U.N.O.:
 #5 BAR: 2'-9"
 #8 BAR: 7'-3"

\$DATE\$
 \$FILE\$

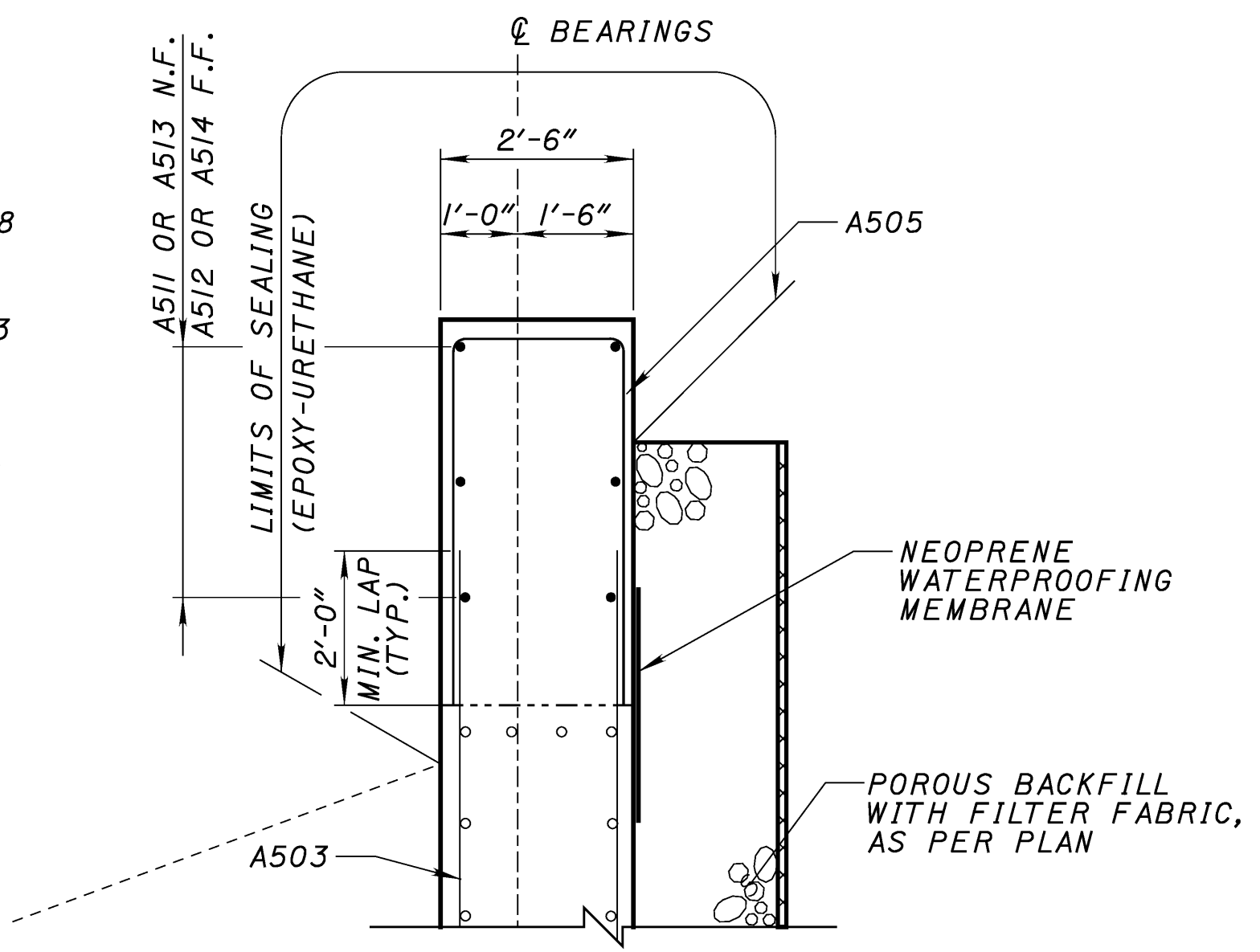
DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	4704487L/4704517R
DRAWN	VLL/KAS
REVISION	
DESIGNED	VLL
CHECKED	SCT

ABUTMENT DETAILS
 BRIDGE NO. LOR-90-1256 L/R
 I.R. 90 OVER CSX RAILROAD

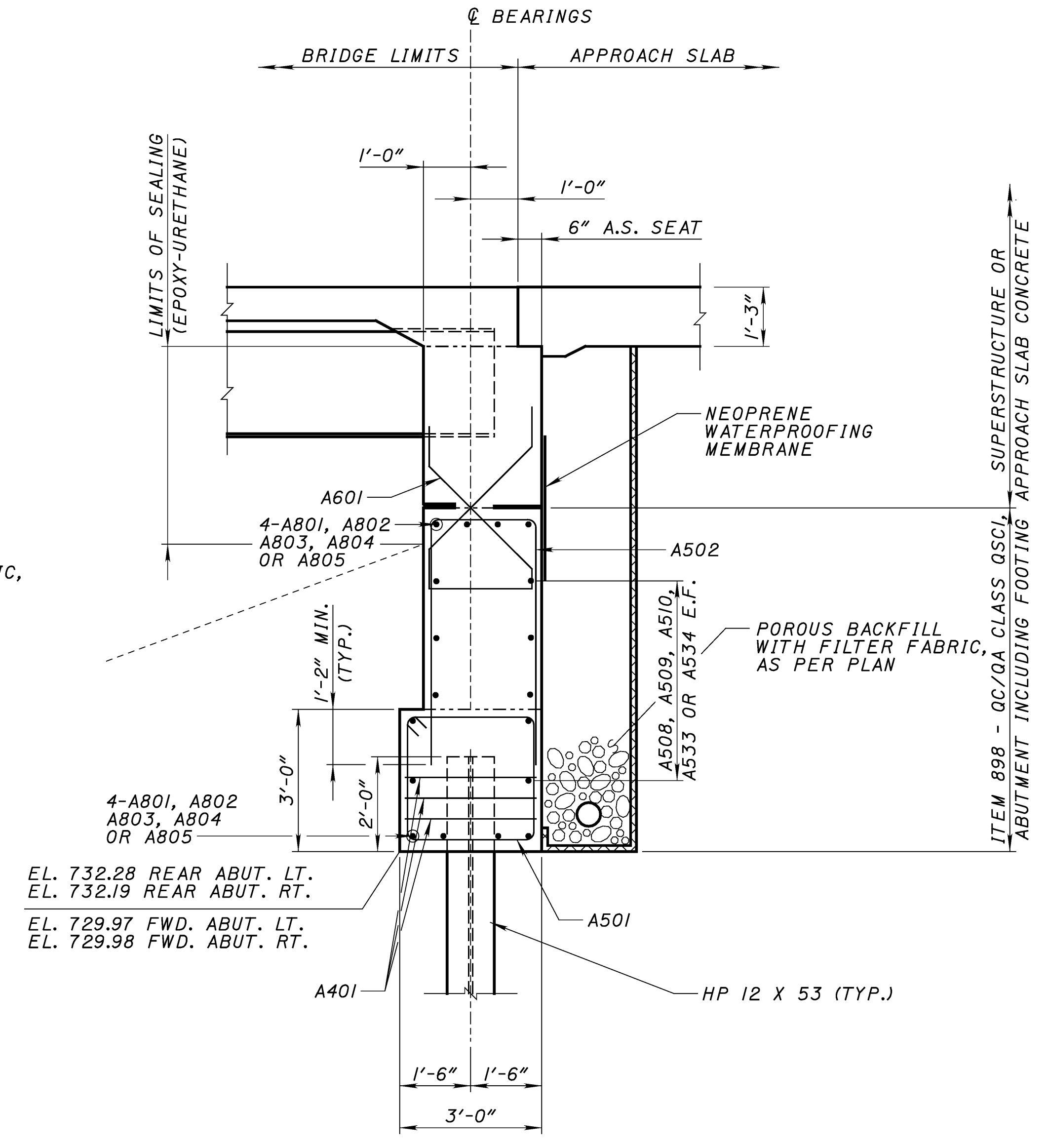
LOR-90-12.42
 PID 24868



SECTION B-B
 NORTH WW L.F. & L.R.
 SOUTH WW R.F. & R.R.



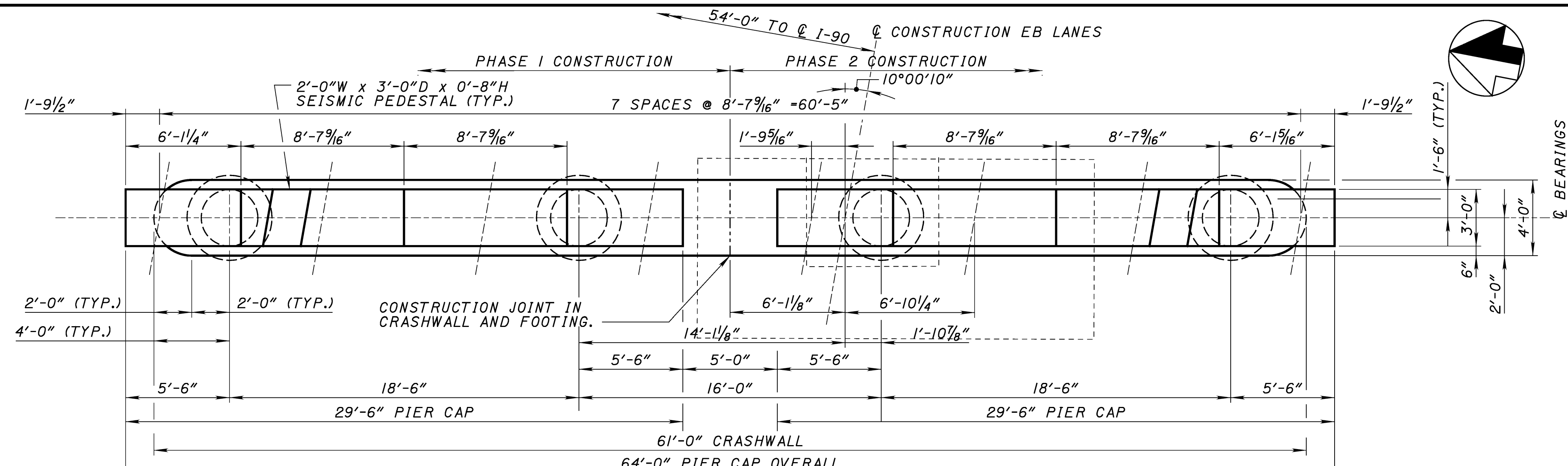
SECTION C-C
 SOUTH WW L.F. & L.R.
 NORTH WW R.F. & R.R.



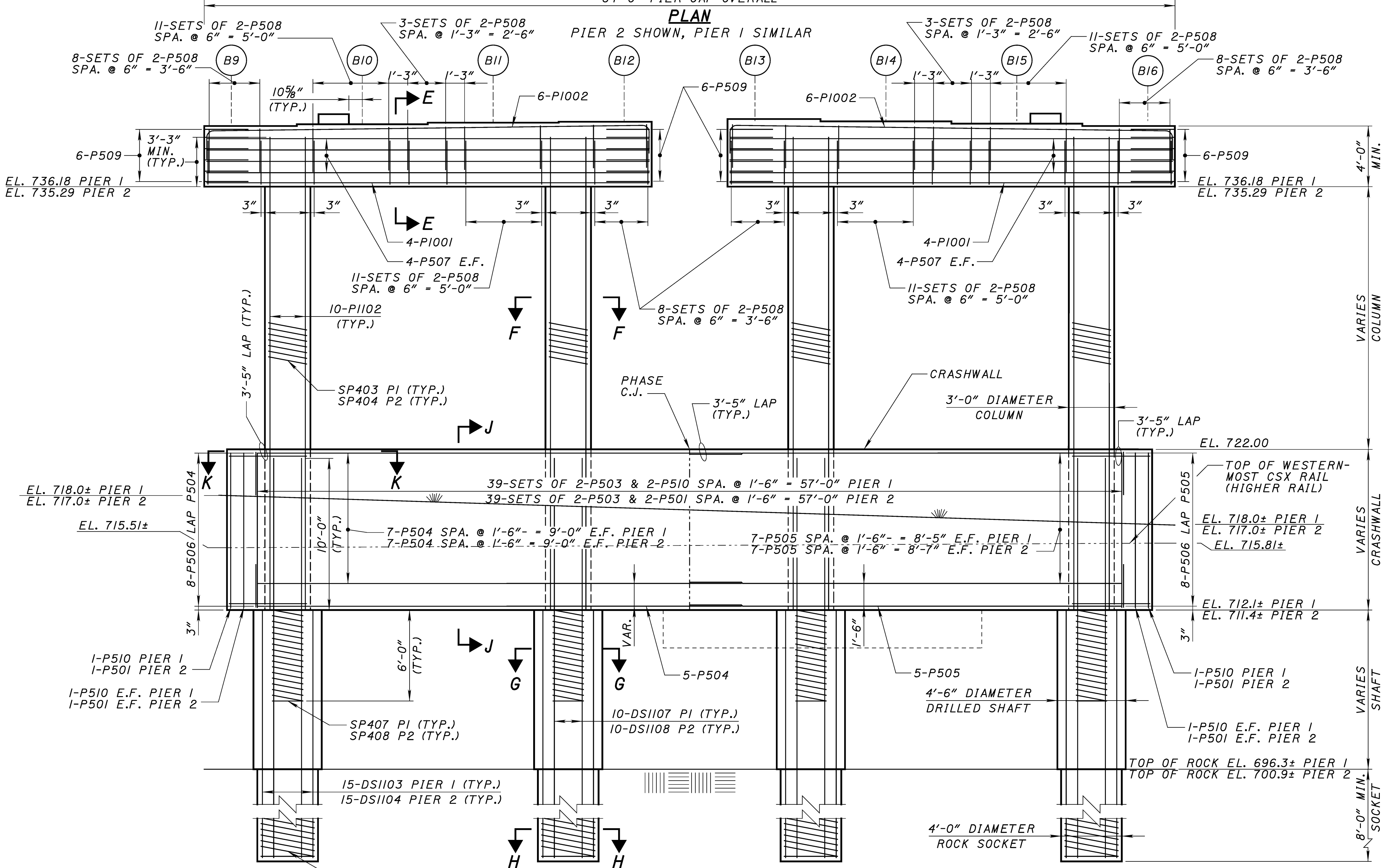
SECTION D-D

NOTES:

1. 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.
2. SEE SHEETS 31/36 AND 34/36 FOR REINFORCING SCHEDULE.
3. SEE SHEETS 13/36 AND 14/36 FOR SECTIONS B-B, C-C AND D-D.



PLAN
PIER 2 SHOWN, PIER 1 SIMILAR

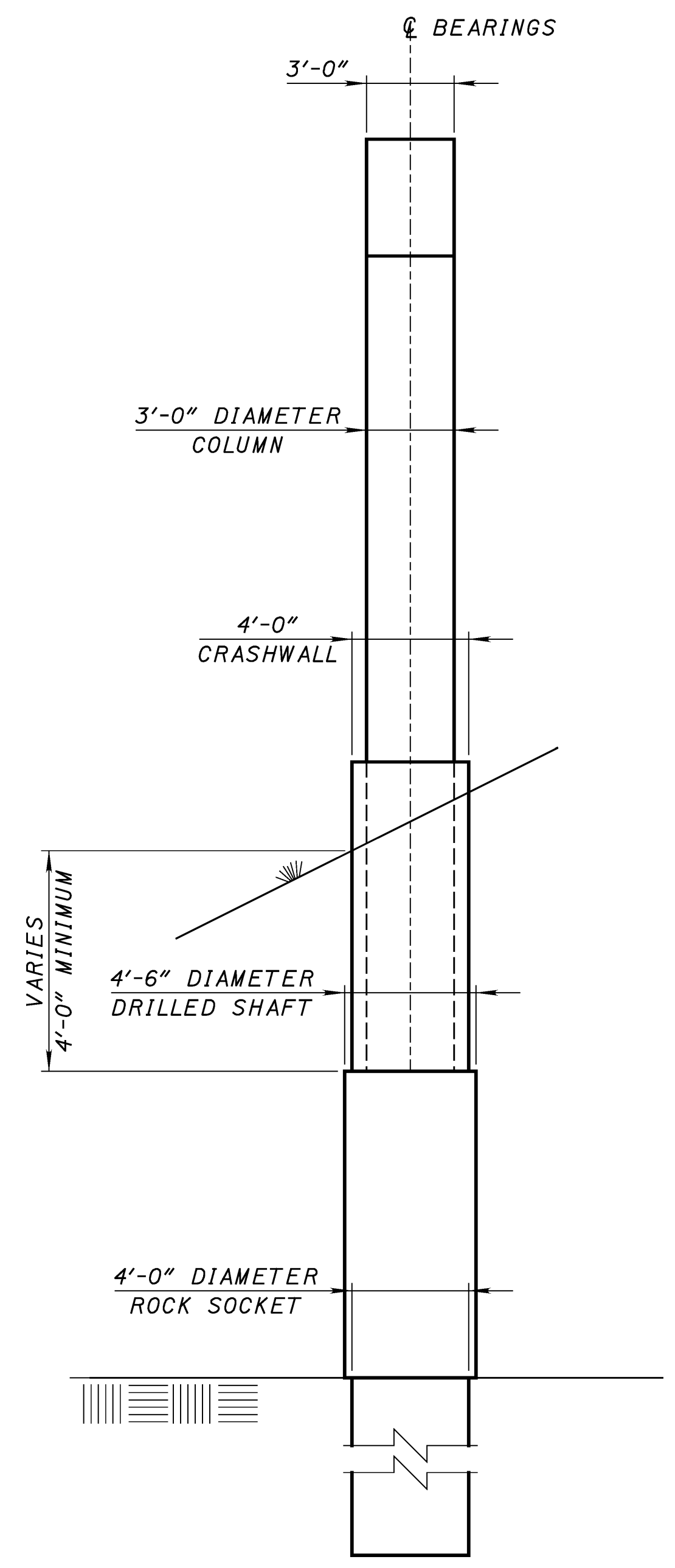


ELEVATION
PIER 2 SHOWN, PIER 1 SIMILAR.

TOP OF PIER ELEVATIONS

	PIER 1	PIER 2
B9	740.18	739.29
B10	740.29	739.40
B11	740.40	739.51
B12	740.51	739.62
B13	740.62	739.73
B14	740.52	739.62
B15	740.37	739.47
B16	740.21	739.31

- NOTES:**
1. SEE SHEET 18/36 FOR SECTIONS E-E, F-F, G-G, H-H, J-J AND K-K AND PAYMENT NOTES.
 2. SEE SHEET 35/36 FOR REINFORCING SCHEDULE.
 3. SEE SHEET 16/36 FOR SEISMIC PEDESTAL REINFORCING.



END ELEVATION
PIER 2 SHOWN, PIER 1 SIMILAR

\$DATE\$
\$FILE\$

DESIGN AGENCY
Baker
1228 EGLID AVENUE, SUITE 1050
CLEVELAND, OHIO 44115

DATE
01-07-08

REVIEWED
LPC

STRUCTURE FILE NUMBER
4704481L/470451TR

DRAWN
MKB

CHECKED
CDC

DESIGNED
SCT

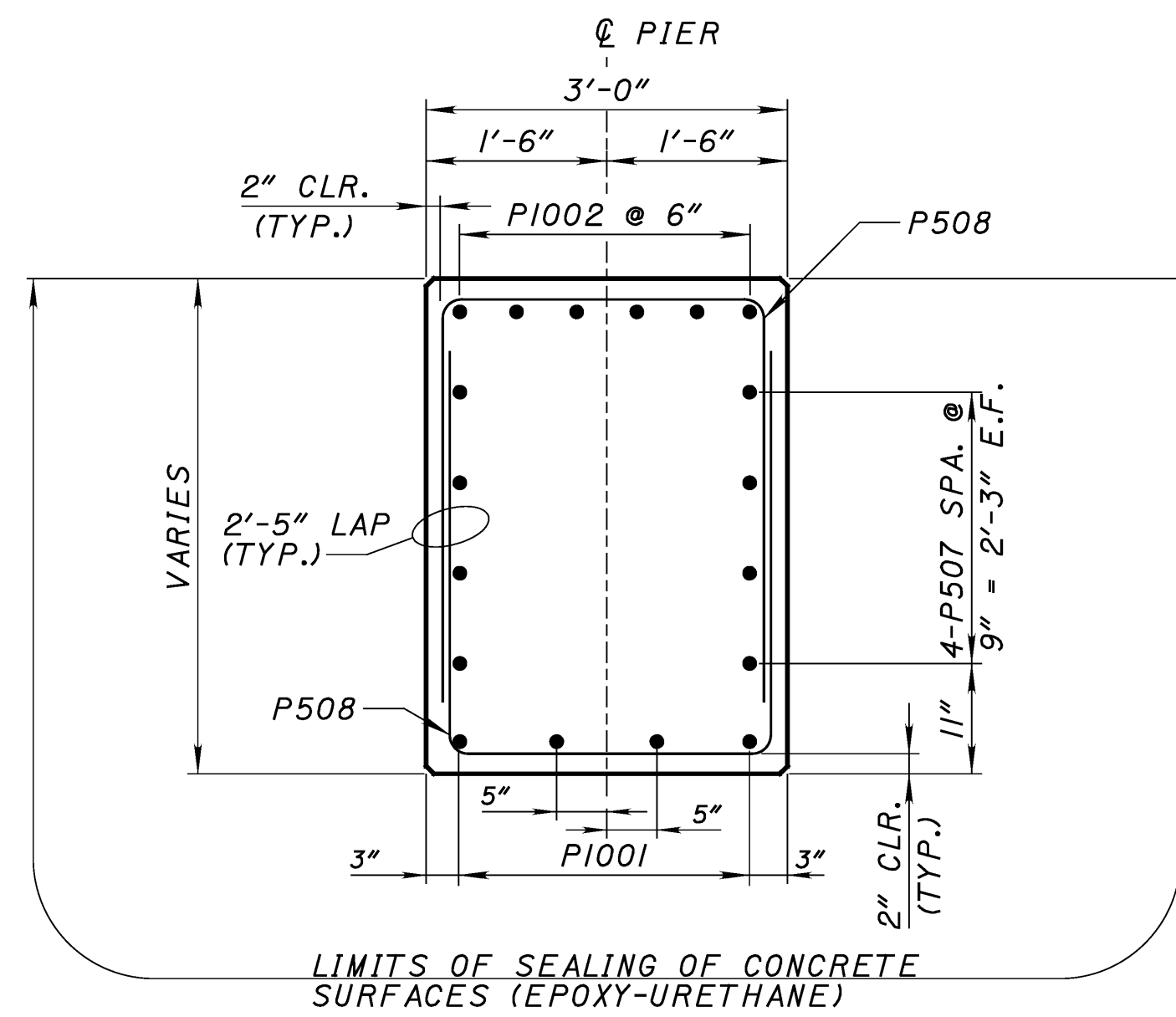
REVISED

PIER PLAN AND ELEVATION - RIGHT BRIDGE
BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

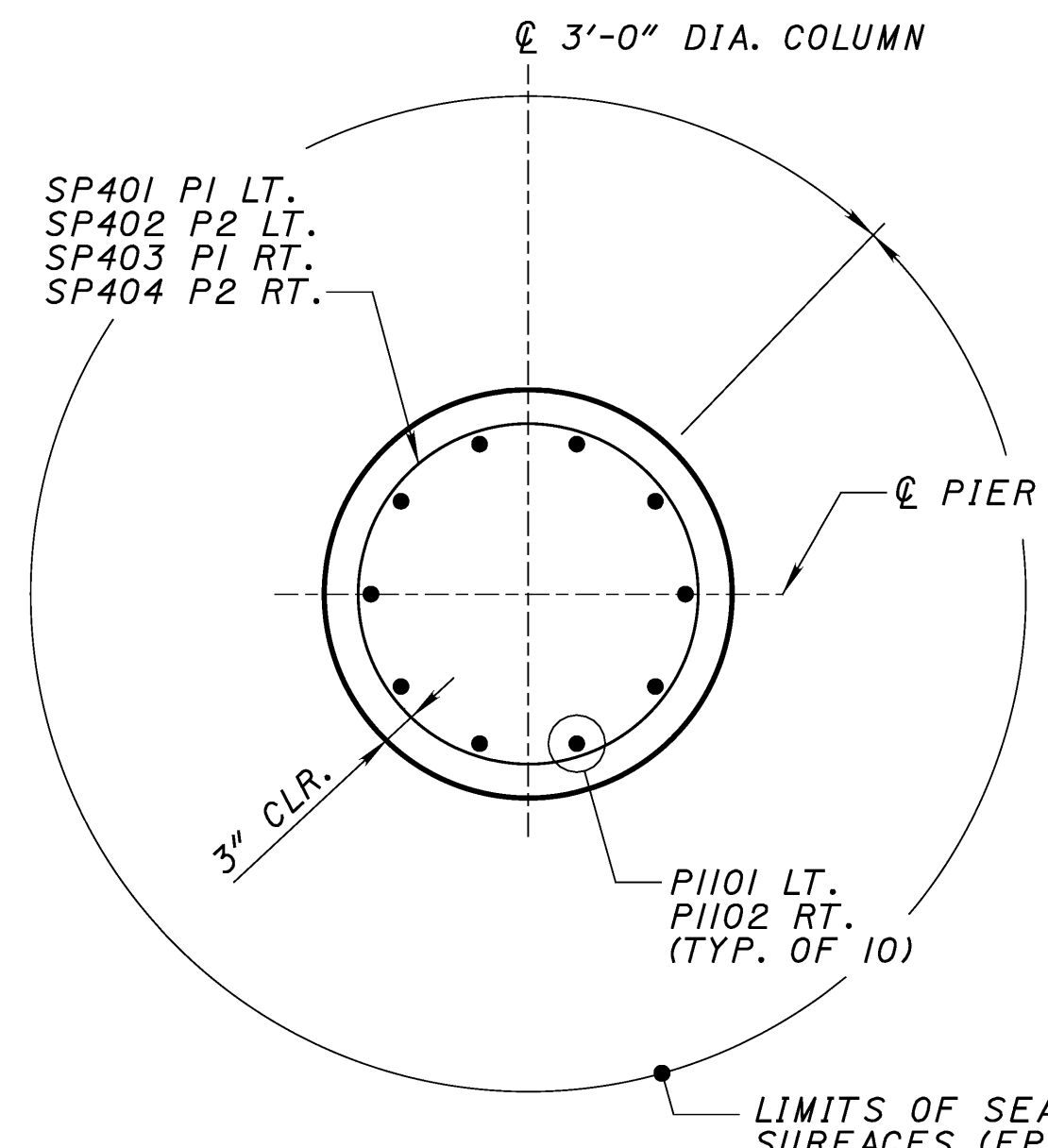
LOR-90-12.42
PID 24868

17/36

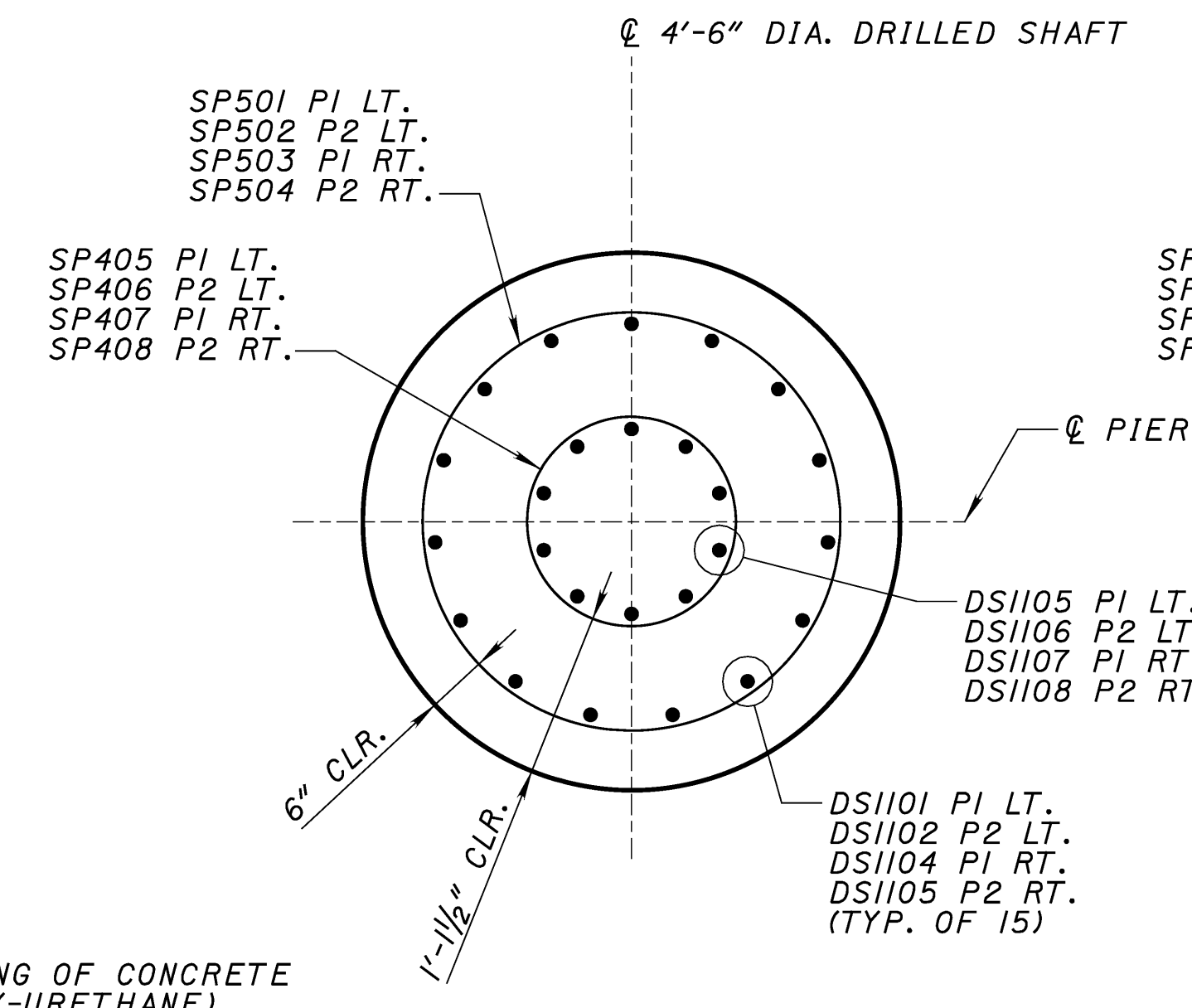
176
199



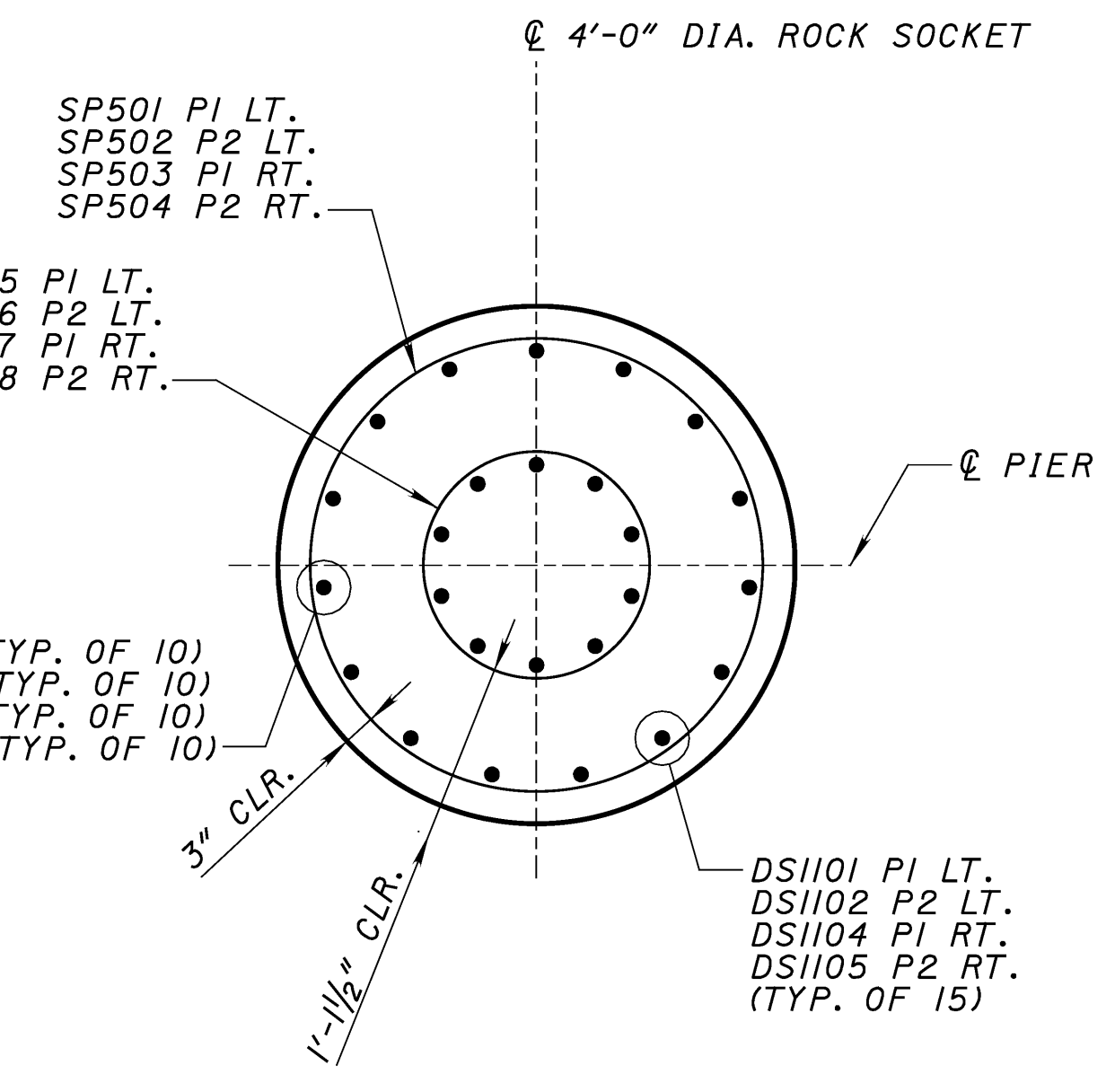
SECTION E-E



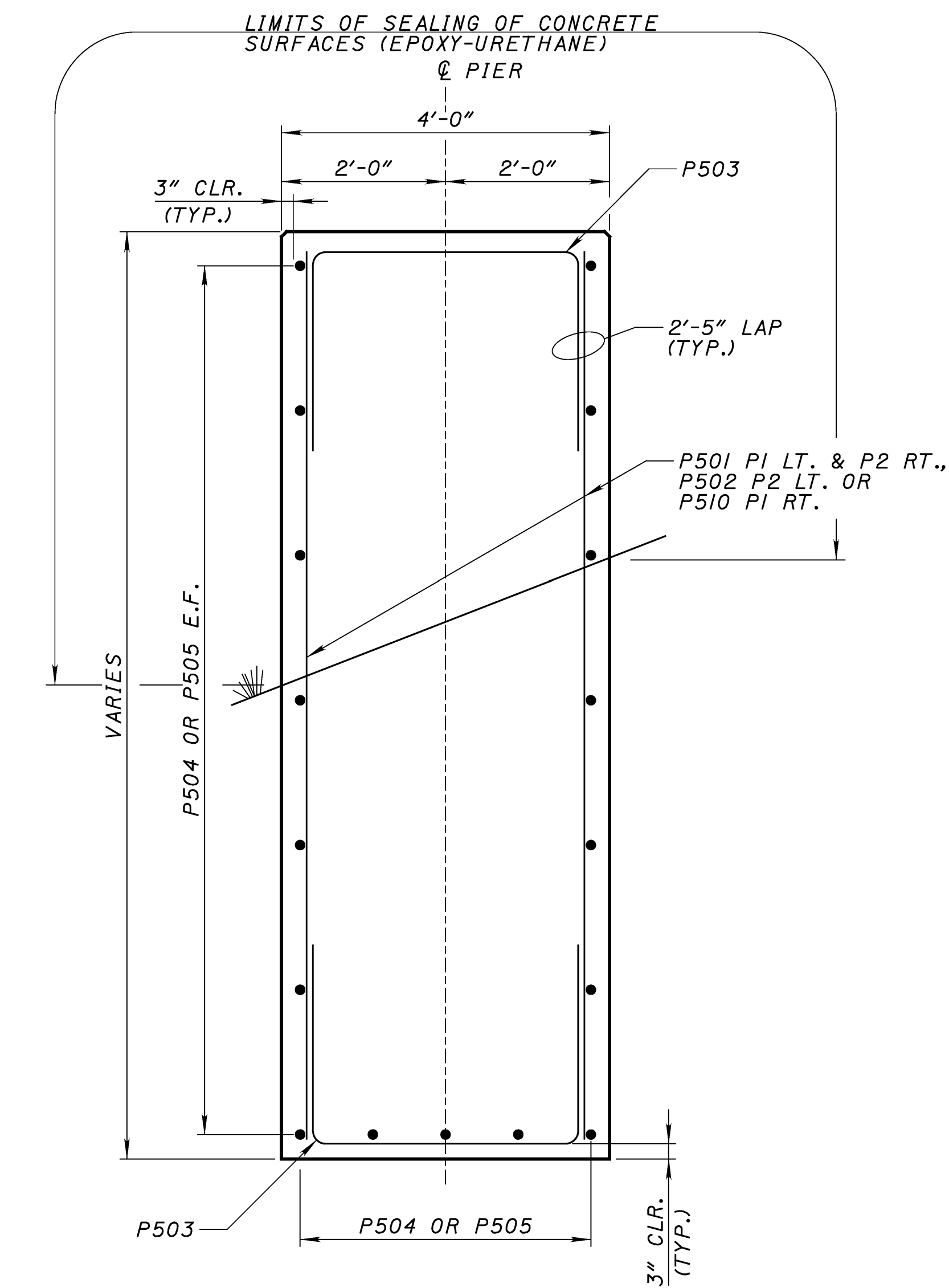
SECTION F-F



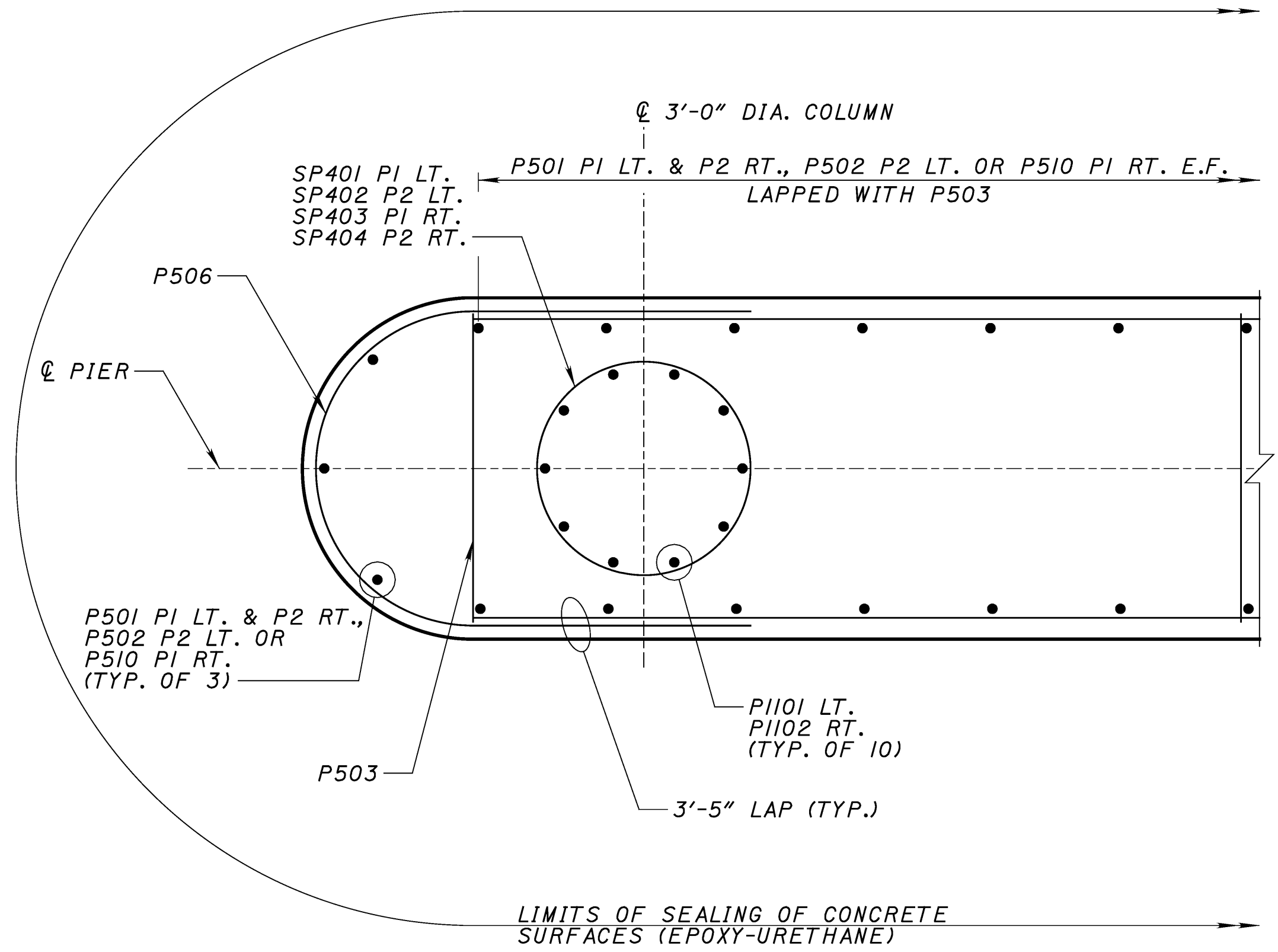
SECTION G-G



SECTION H-H



SECTION J-J



SECTION K-K

LEGEND

- LT. = LEFT BRIDGE PIERS
- PI LT. = PIER 1 LEFT BRIDGE
- P2 LT. = PIER 2 LEFT BRIDGE
- PI RT. = PIER 1 RIGHT BRIDGE
- P2 RT. = PIER 2 RIGHT BRIDGE
- RT. = RIGHT BRIDGE PIERS

NOTES:

1. SEE SHEETS 16/36 AND 17/36 FOR THE LOCATIONS OF SECTIONS E-E, F-F, G-G, H-H, J-J AND K-K.
2. SEE SHEETS 32/36 AND 35/36 FOR REINFORCING SCHEDULE.
3. CONCRETE FOR PIER CAPS, COLUMNS AND CRASHWALLS SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSCI, SUBSTRUCTURE (PIER ABOVE FOOTING).
4. DRILLED SHAFTS SHALL BE PAID FOR UNDER ITEM 524- DRILLED SHAFTS, 54" DIAMETER, ABOVE BEDROCK, AS PER PLAN.
5. ROCK SOCKETS SHALL BE PAID FOR UNDER ITEM 524- DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK, AS PER PLAN.

\$DATE\$
\$FILE\$

DESIGN AGENCY
Baker
1228 E. 14th Avenue, Suite 1050
Cleveland, Ohio 44115

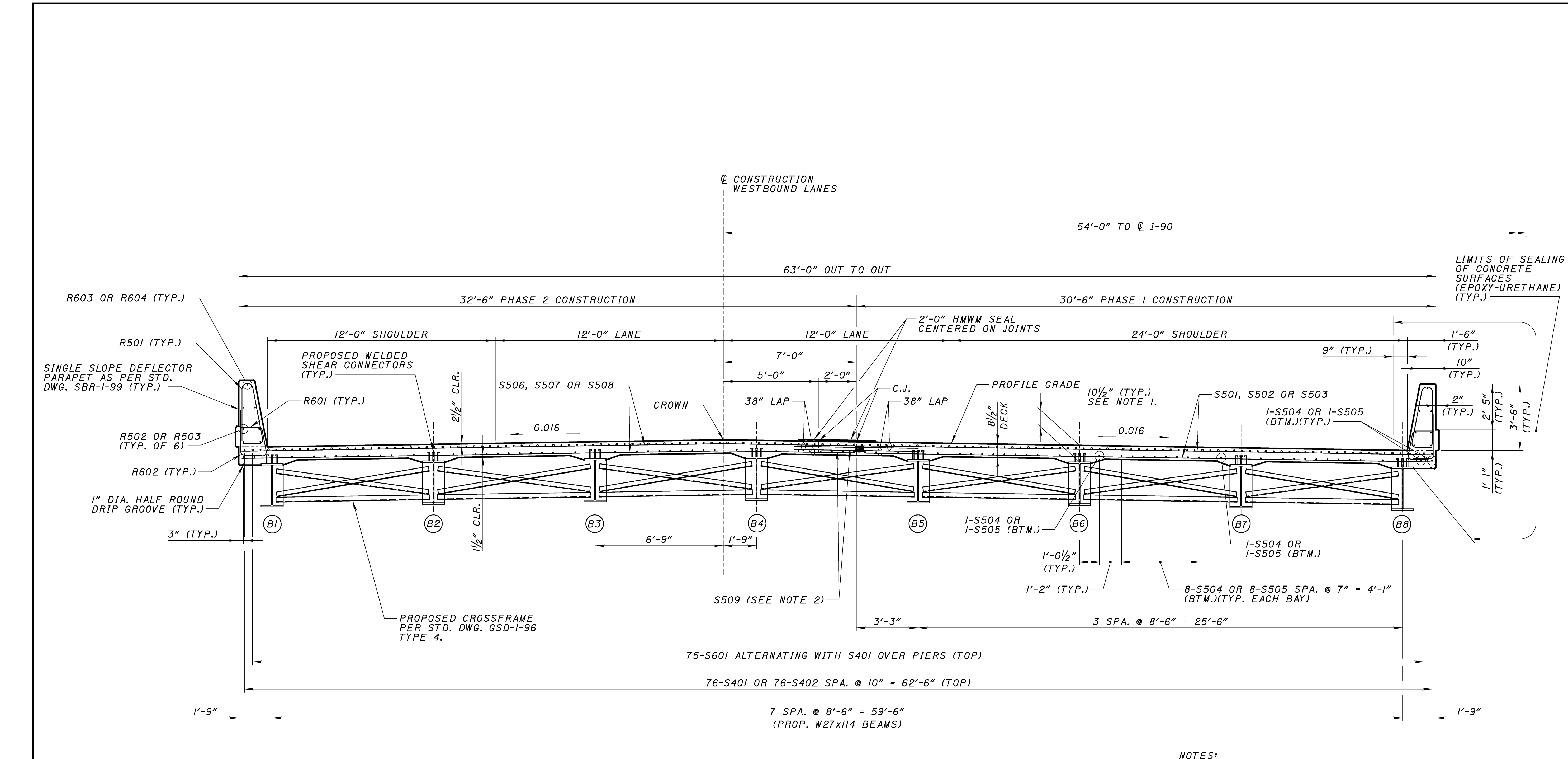
DESIGNED	DRAWN	REVIEWED	DATE
MKB	MKB	LPC	01-07-08
CHECKED	REVISED	STRUCTURE FILE NUMBER	
SCT		4704487L/470451TR	

PIER DETAILS
BRIDGE NO. LOR-90-1256 L/R
I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

18 / 36

177
199



TRANSVERSE SECTION
 (LEFT BRIDGE SHOWN, RIGHT BRIDGE OPPOSITE HAND)

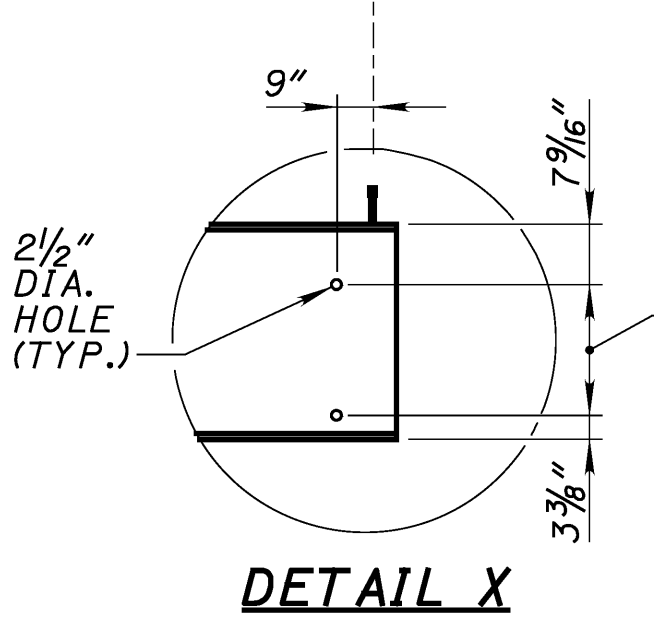
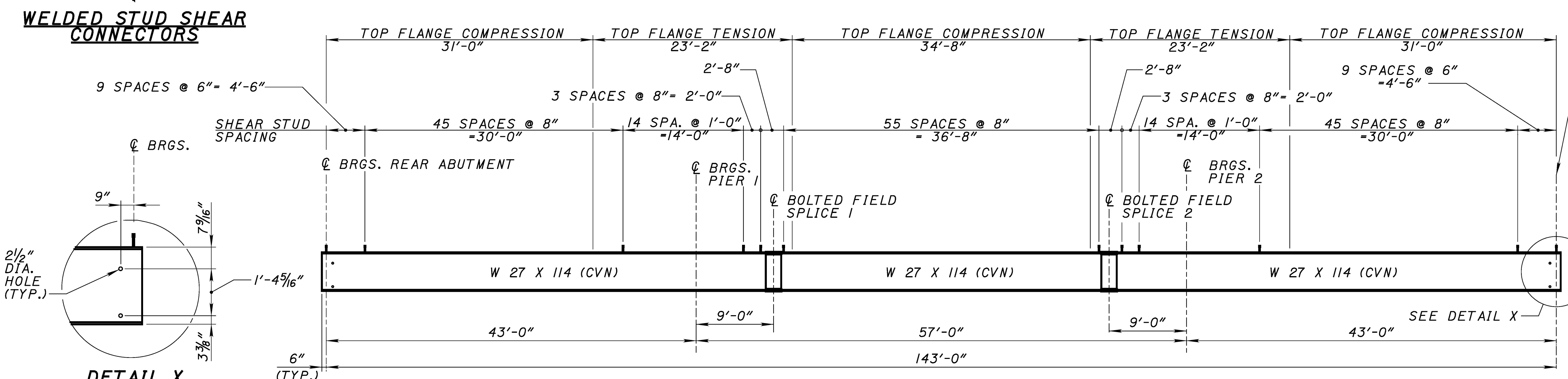
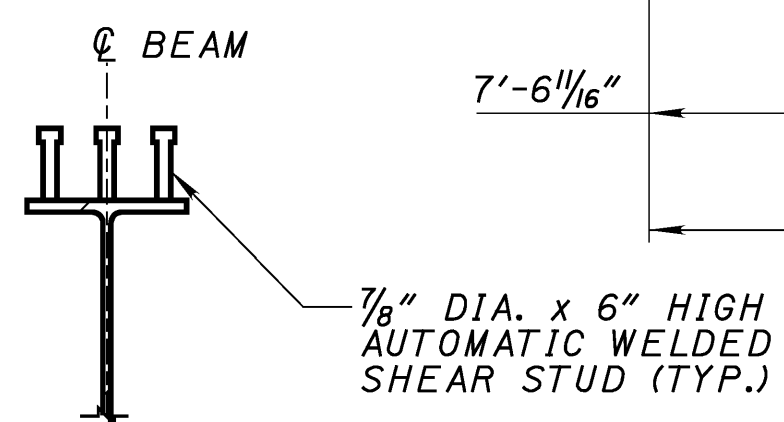
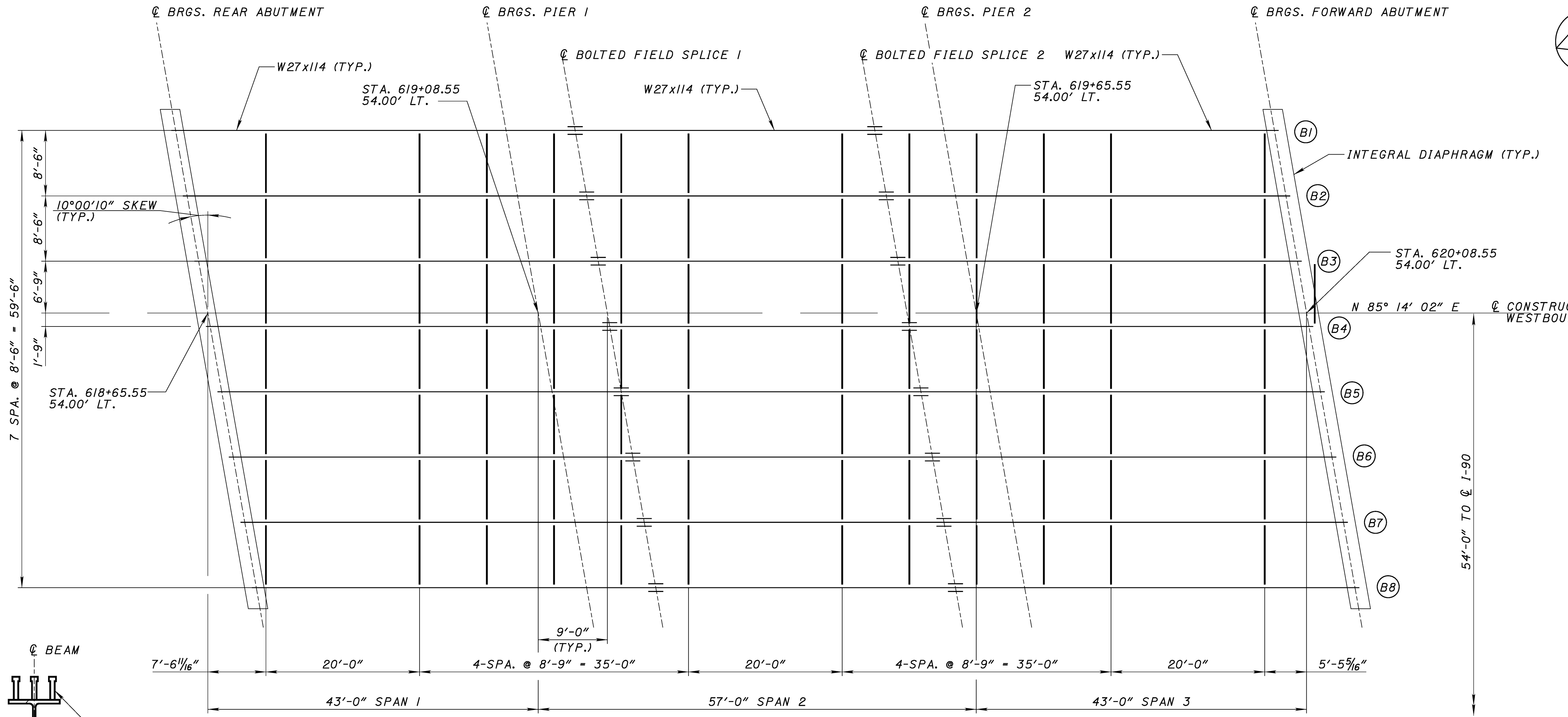
- NOTES:**
1. DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, 8 1/2", PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A HAUNCH THICKNESS OF 2 INCHES AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE OF 9 INCHES. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM FLANGE IS ±3 INCHES.
 2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
 3. SEE SHEETS 20/36 THROUGH 22/36 FOR FRAMING PLAN AND SUPERSTRUCTURE DETAILS.
 4. SEE SHEETS 23/36 THROUGH 27/36 FOR DECK SLAB PLAN, END DIAPHRAGM DETAILS AND SCREED ELEVATION TABLES.
 5. SEE SHEETS 33/36 AND 36/36 FOR REINFORCING SCHEDULE.
 6. DECK SLAB CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
 7. PARAPET CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN.

\$DATE\$
 \$FILE\$

DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	4704487L/4704517R
DRAWN	MKB
REVISER	
DESIGNED	MKB
CHECKED	KAS

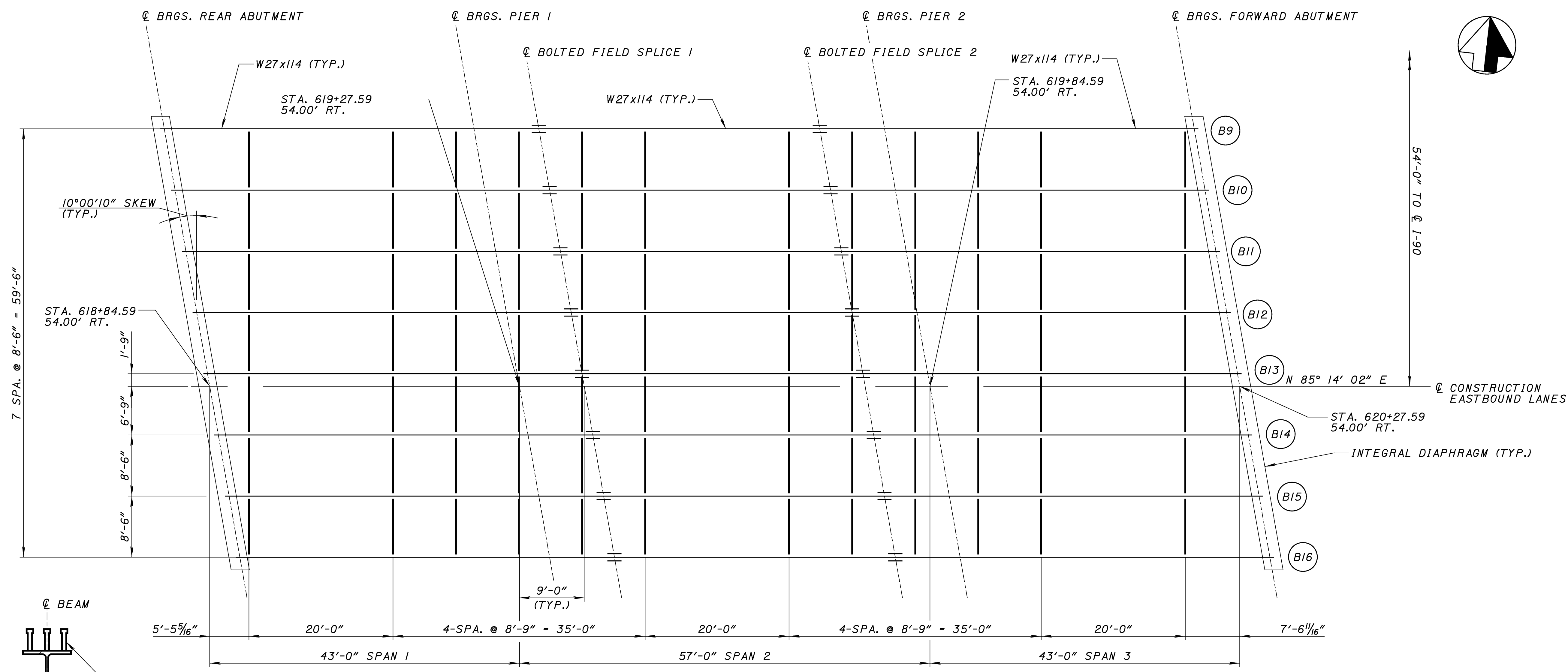
FRAMING PLAN - LEFT BRIDGE
 BRIDGE NO. LOR-90-1256 L/R
 I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
 PID 24868

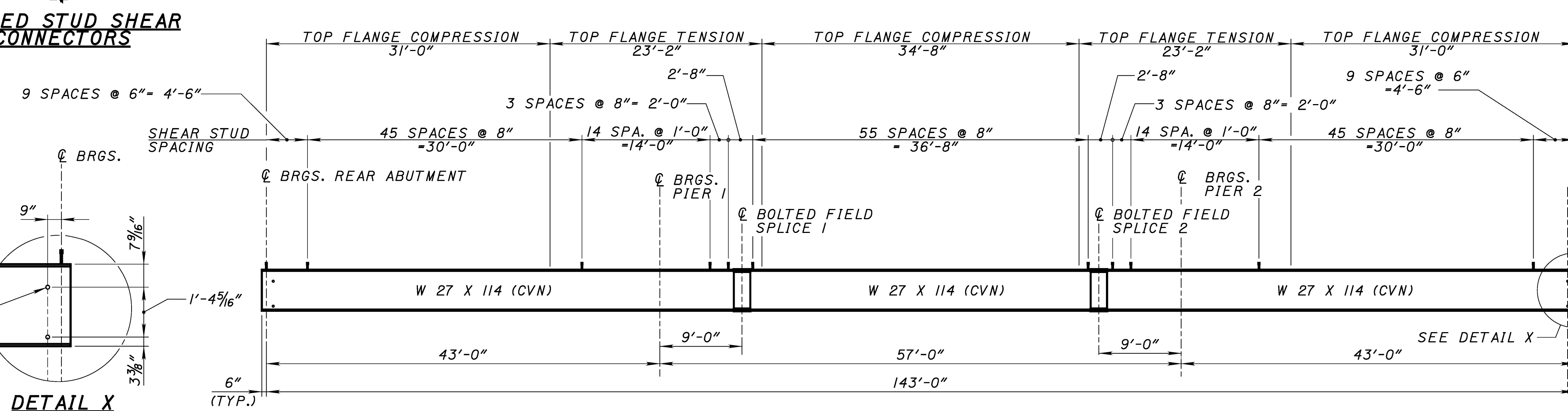
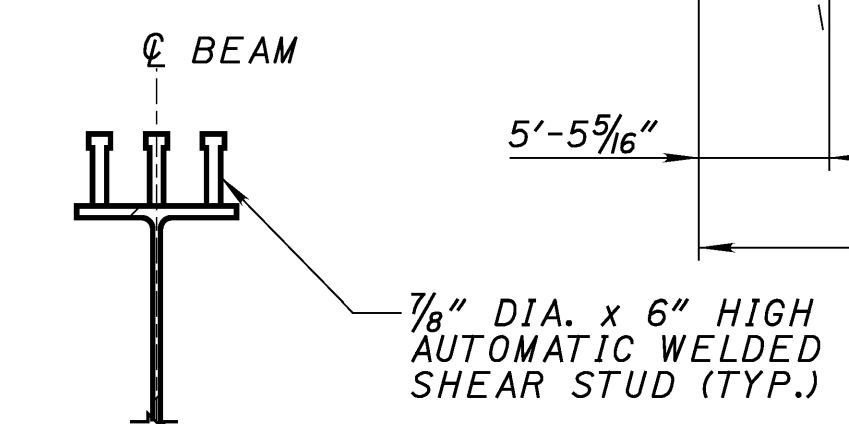


NOTES:

1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. ALL STEEL SHOWN SHALL BE A709 GRADE 50.
3. WELDED SHEAR CONNECTORS: INSTALL THE WELDED SHEAR CONNECTORS IN THE SHOP OR IN THE FIELD. IF THE CONNECTORS ARE SHOP INSTALLED PRIOR TO GALVANIZING, PROVIDE FALL PROTECTION ACCORDING TO OSHA STANDARDS FOR ALL WORKERS, INCLUDING THOSE ENGAGED IN CONNECTING AND IN DECKING. IF THE CONNECTORS ARE FIELD INSTALLED, REMOVE THE GALVANIC COATING BY GRINDING AT EACH CONNECTOR LOCATION PRIOR TO WELDING.
4. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
5. SEE SHEET 19/36 FOR TRANSVERSE SECTION.
6. SEE SHEET 21A / 36 FOR BOLTED FIELD SPLICE DETAILS.



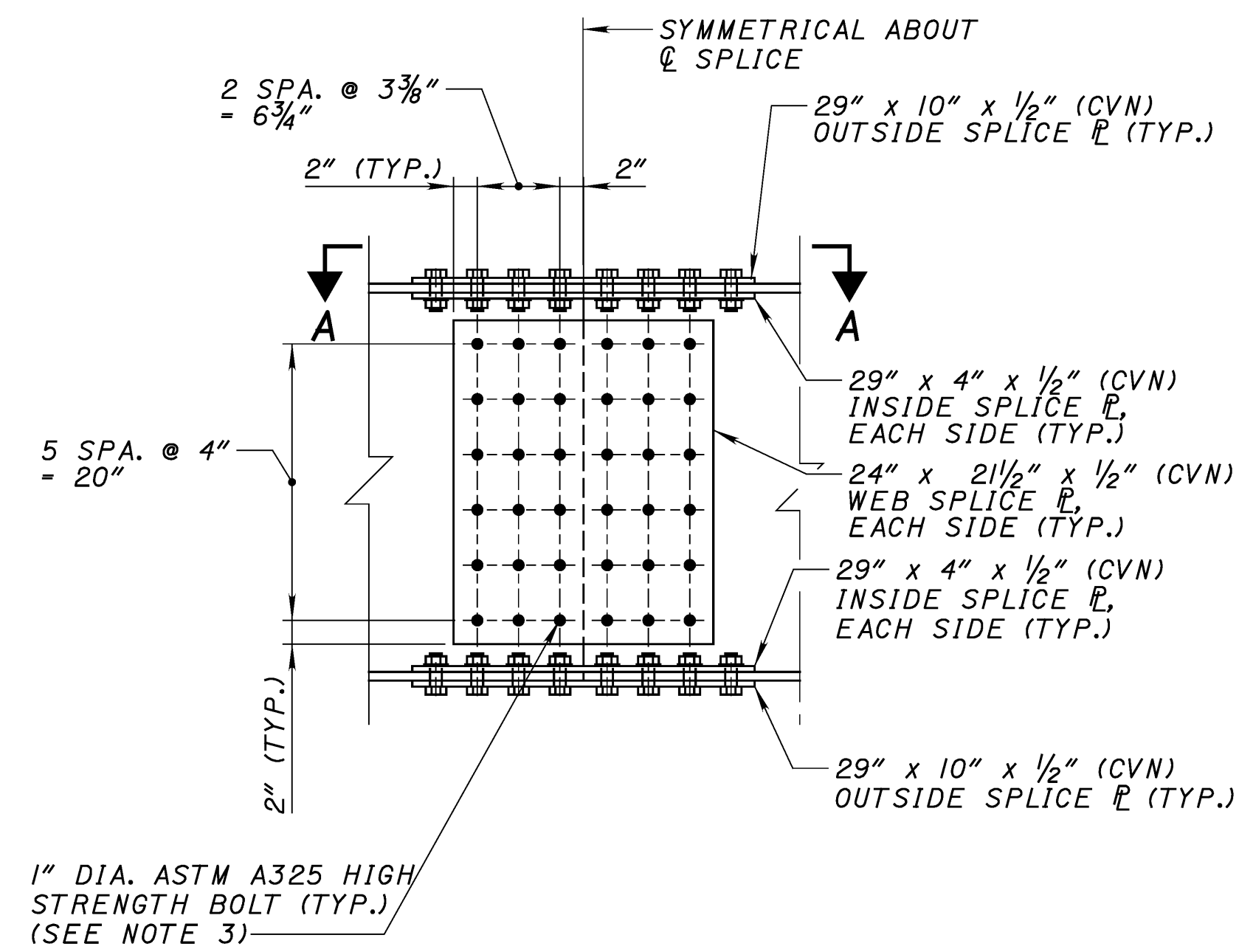
FRAMING PLAN



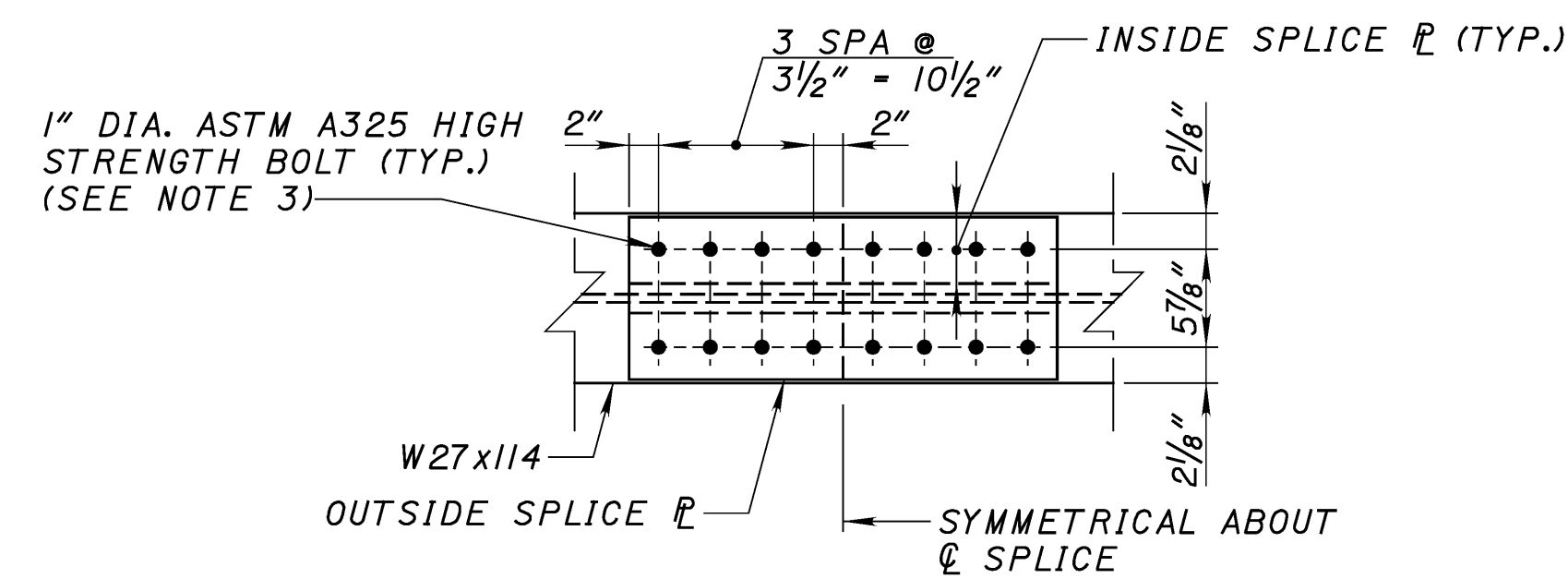
DETAIL X

NOTES:

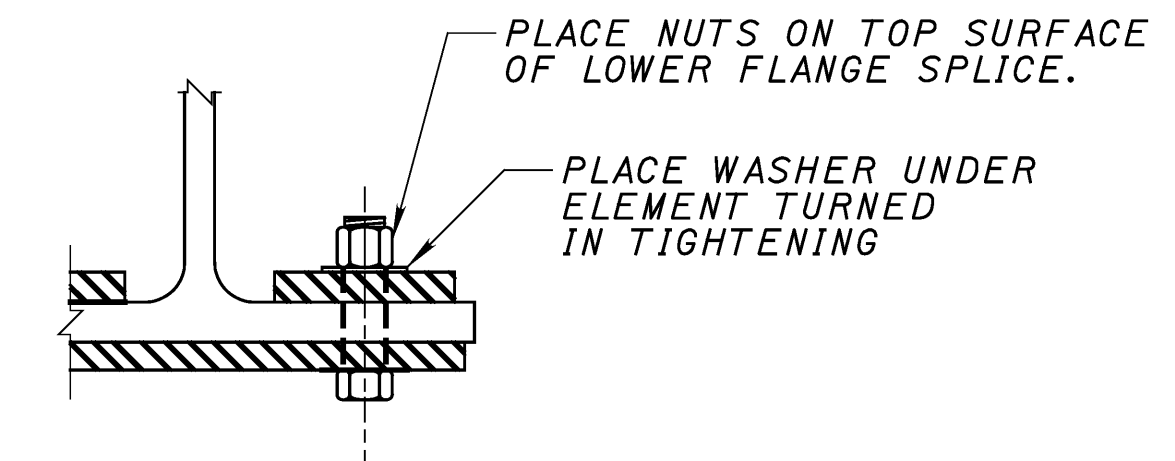
1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. ALL STEEL SHOWN SHALL BE A709 GRADE 50.
3. WELDED SHEAR CONNECTORS: INSTALL THE WELDED SHEAR CONNECTORS IN THE SHOP OR IN THE FIELD. IF THE CONNECTORS ARE SHOP INSTALLED PRIOR TO GALVANIZING, PROVIDE FALL PROTECTION ACCORDING TO OSHA STANDARDS FOR ALL WORKERS, INCLUDING THOSE ENGAGED IN CONNECTING AND IN DECKING. IF THE CONNECTORS ARE FIELD INSTALLED, REMOVE THE GALVANIC COATING BY GRINDING AT EACH CONNECTOR LOCATION PRIOR TO WELDING.
4. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE AT LEAST 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
5. SEE SHEET 19/36 FOR TRANSVERSE SECTION.
6. SEE SHEET 21A / 36 FOR BOLTED FIELD SPLICE DETAILS.



BOLTED FIELD SPLICE ELEVATION



VIEW A-A

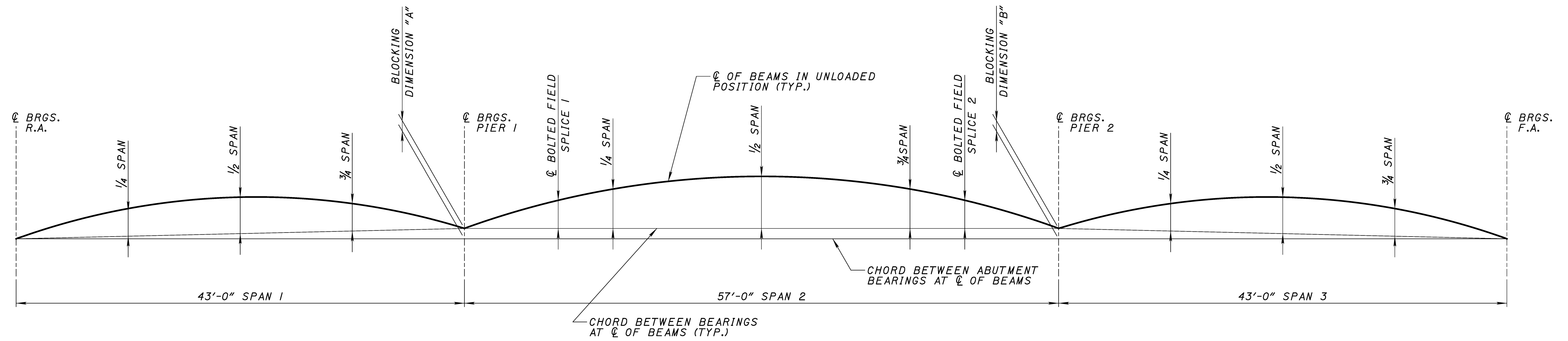


PARTIAL SECTION

NOTES:

1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. ALL STEEL SHOWN SHALL BE GALVANIZED A709 GRADE 50.
3. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER GALVANIZED A325 BOLTS WITH 1 1/8" DIAMETER HOLES UNLESS OTHERWISE NOTED.
4. SEE SHEETS 20 & 21/36 FOR BOLTED FIELD SPLICE LOCATIONS.

\$DATE\$
\$FILE\$



CAMBER DIAGRAM

BLOCKING DIMENSIONS	
DIMENSION "A"	5/8"
DIMENSION "B"	5/8"

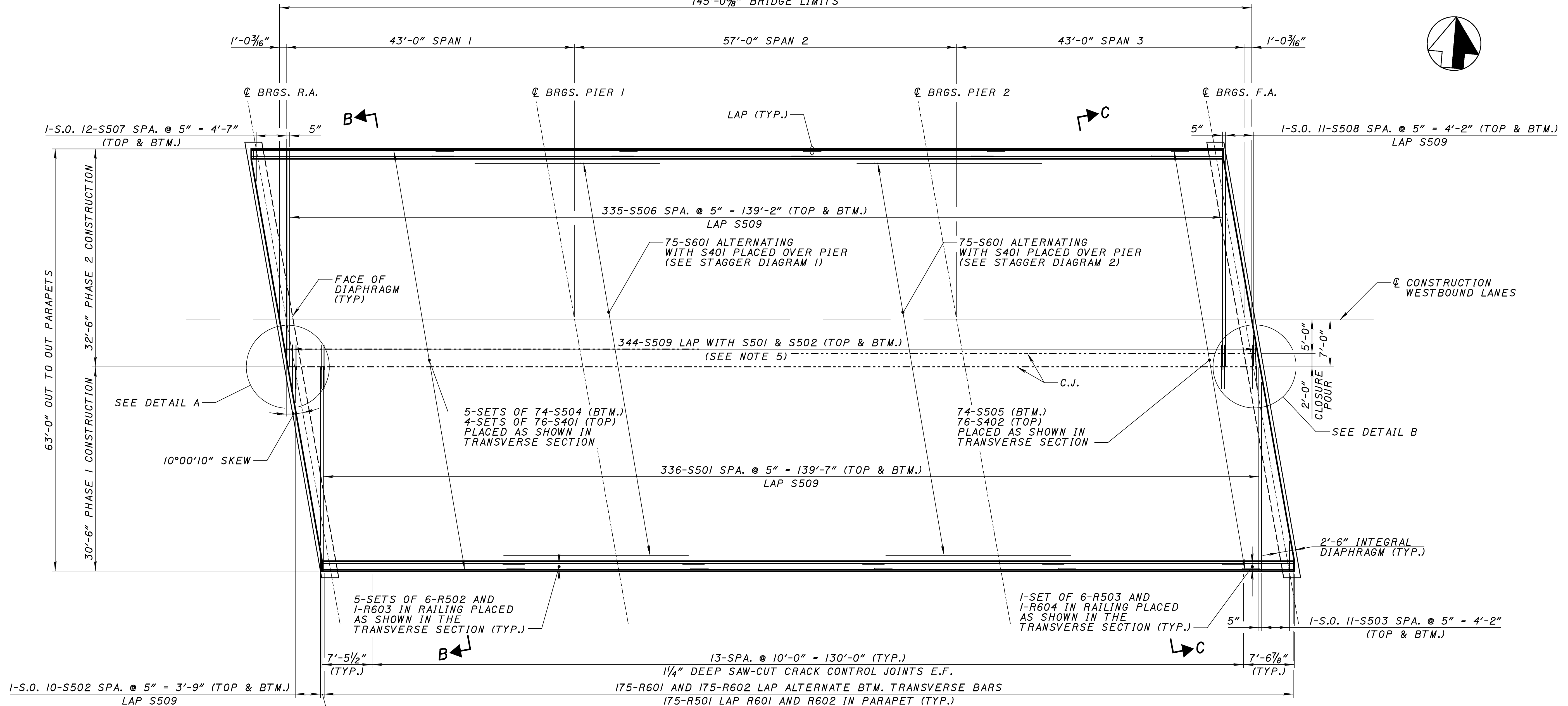
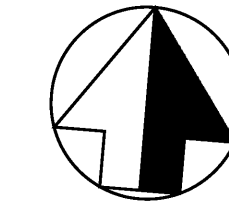
LEFT AND RIGHT BRIDGE DEFLECTION AND CAMBER (INCHES) B1, B8, B9 & B16											
CAMBER DESCRIPTION	SPAN 1			B.F.S. 1	SPAN 2			B.F.S. 2	SPAN 3		
	1/4 SPAN	1/2 SPAN	3/4 SPAN		1/4 SPAN	1/2 SPAN	3/4 SPAN		1/4 SPAN	1/2 SPAN	3/4 SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	0	1/16	1/16	1/16	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16	3/16	1/16	1/8	1/4	3/8	1/4	1/8	1/16	3/16	3/16
VERTICAL CURVE ADJUSTMENT	1/16	1/16	1/16	1/16	1/16	1/8	1/16	1/16	1/16	1/16	1/16
REQUIRED SHOP CAMBER	1/4	1/4	1/8	3/16	3/8	9/16	3/8	3/16	1/8	1/4	1/4

LEFT AND RIGHT BRIDGE DEFLECTION AND CAMBER (INCHES) B2 THROUGH B7 & B10 THROUGH B15											
CAMBER DESCRIPTION	SPAN 1			B.F.S. 1	SPAN 2			B.F.S. 2	SPAN 3		
	1/4 SPAN	1/2 SPAN	3/4 SPAN		1/4 SPAN	1/2 SPAN	3/4 SPAN		1/4 SPAN	1/2 SPAN	3/4 SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	0	0	0	0	1/16	1/16	1/16	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16	1/4	1/16	3/16	1/4	1/16	1/4	3/16	1/16	1/4	3/16
VERTICAL CURVE ADJUSTMENT	1/16	1/16	1/16	1/16	1/16	1/8	1/16	1/16	1/16	1/16	1/16
REQUIRED SHOP CAMBER	1/4	5/16	1/8	1/4	3/8	5/8	3/8	1/4	1/8	5/16	1/4

NOTE:

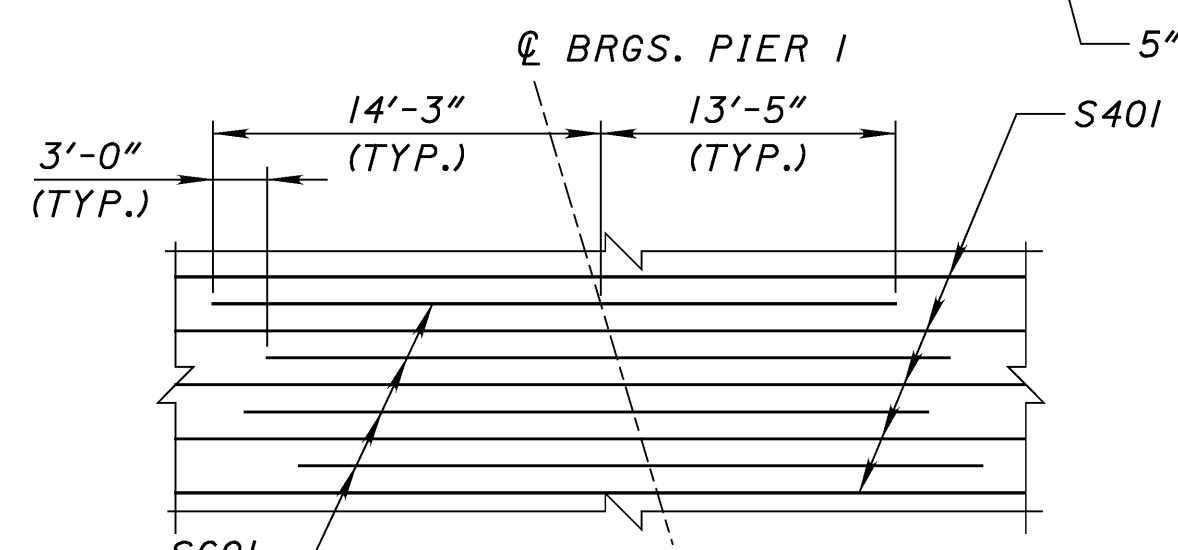
1. POSITIVE DIMENSIONS INDICATE DOWNWARD DEFLECTION AND UPWARD CAMBER.
2. "B.F.S." - BOLTED FIELD SPLICE
3. SEE SHEETS 20/36 AND 21/36 FOR FRAMING PLAN.

145'-0³/₁₆" BRIDGE LIMITS

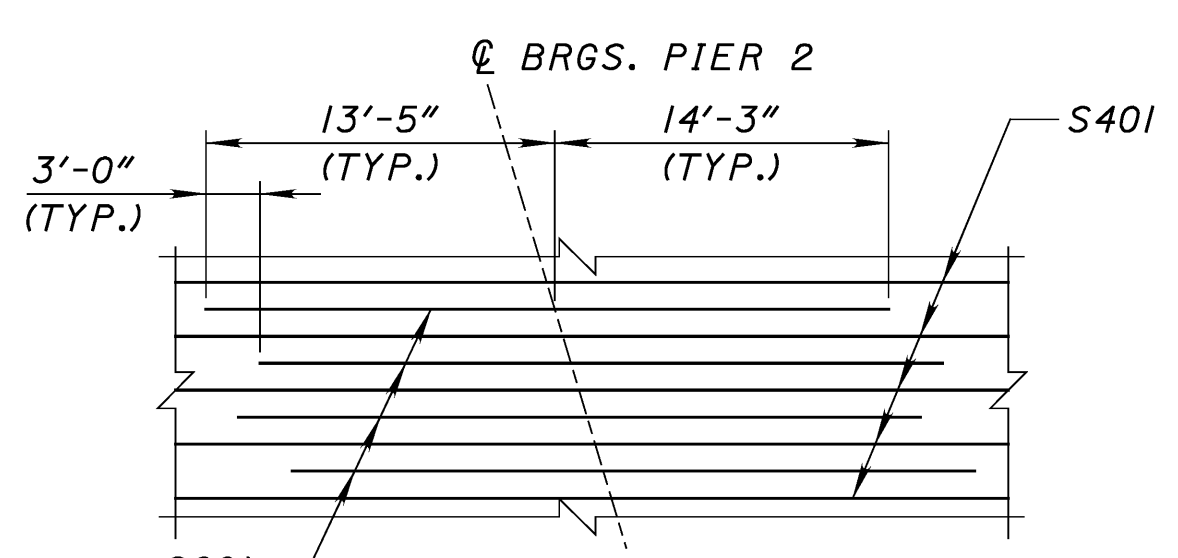


DECK PLAN

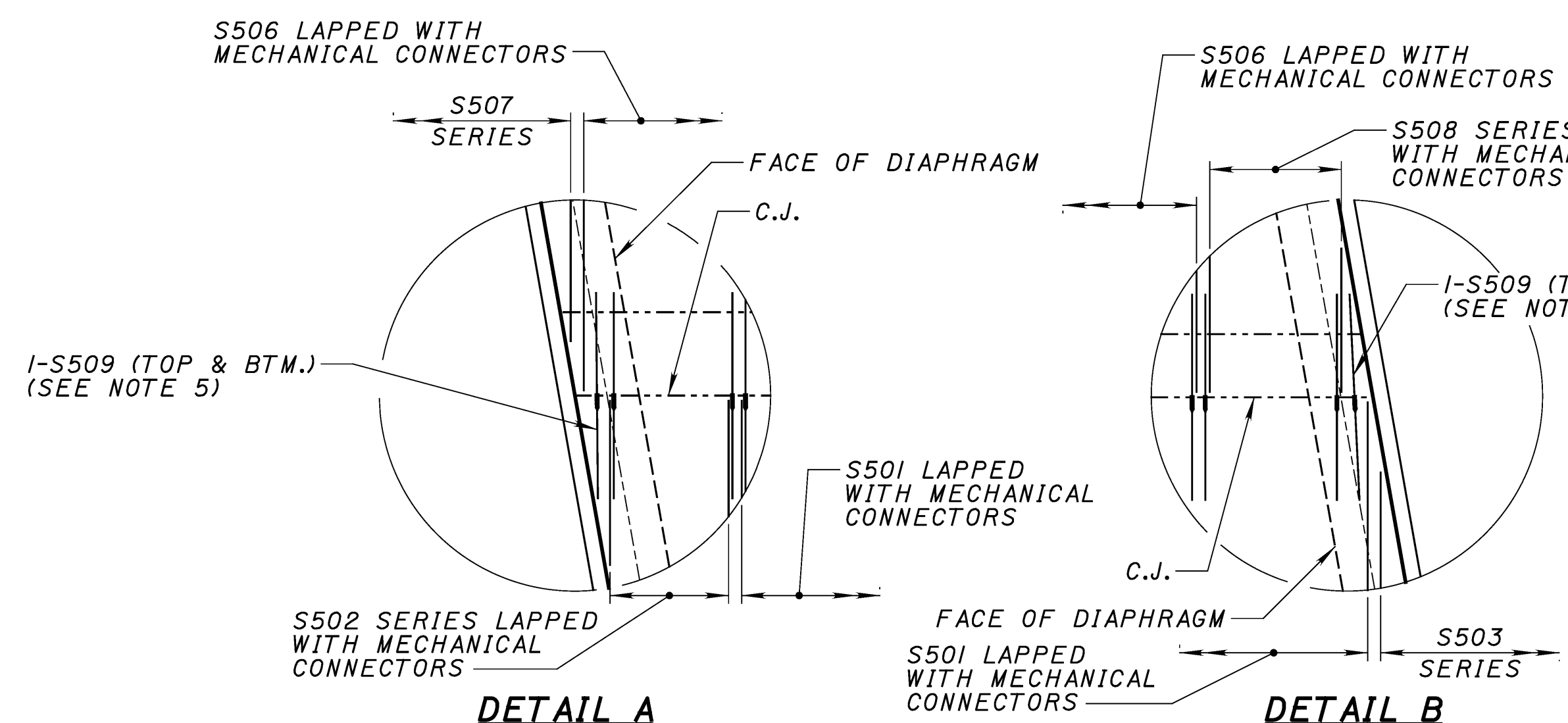
(LEFT BRIDGE SHOWN RIGHT BRIDGE OPPOSITE HAND)



STAGGER DIAGRAM 1



STAGGER DIAGRAM 2



DETAIL A

DETAIL B

NOTES:

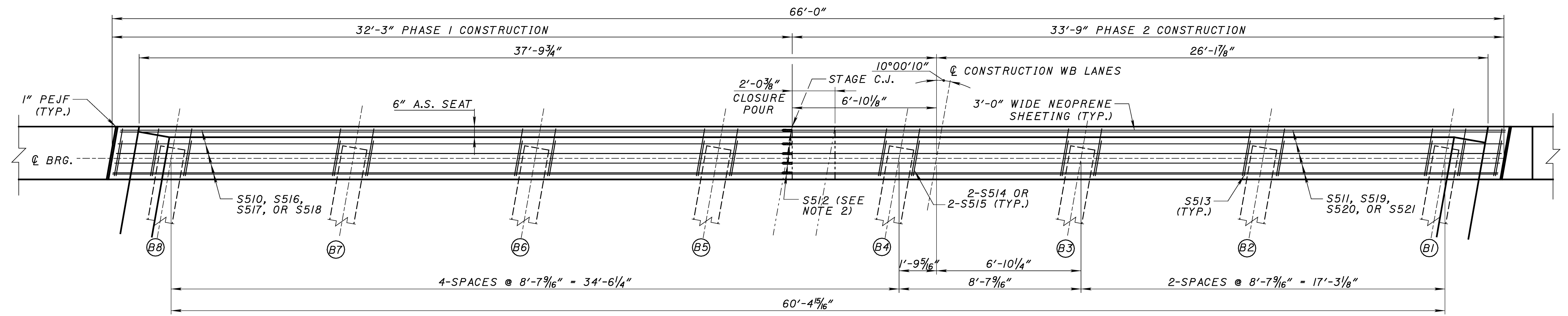
- LAP LENGTHS U.N.O.
#4 BARS = 31"
#5 BARS = 38"
- SEE SHEET 19/36 FOR TRANSVERSE SECTION
- SEE SHEETS 24/36 AND 25/36 FOR SECTIONS B-B & C-C, RESPECTIVELY.
- SEE SHEETS 26/36 AND 27/36 FOR SCREED TABLES
- NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL
- SEE SHEETS 33/36 AND 36/36 FOR REINFORCING SCHEDULE.
- DECK SLAB CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.
- PARAPET CONCRETE SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (PARAPET), AS PER PLAN.

\$DATE\$
\$FILES\$

DATE	01-07-08
REVIEWED	LPC
STRUCTURE FILE NUMBER	4704487L/4704517R
DRAWN	MKB
REVISED	
DESIGNED	MKB
CHECKED	VLL

DECK PLAN
 BRIDGE NO. LOR-90-1256 L/R
 I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

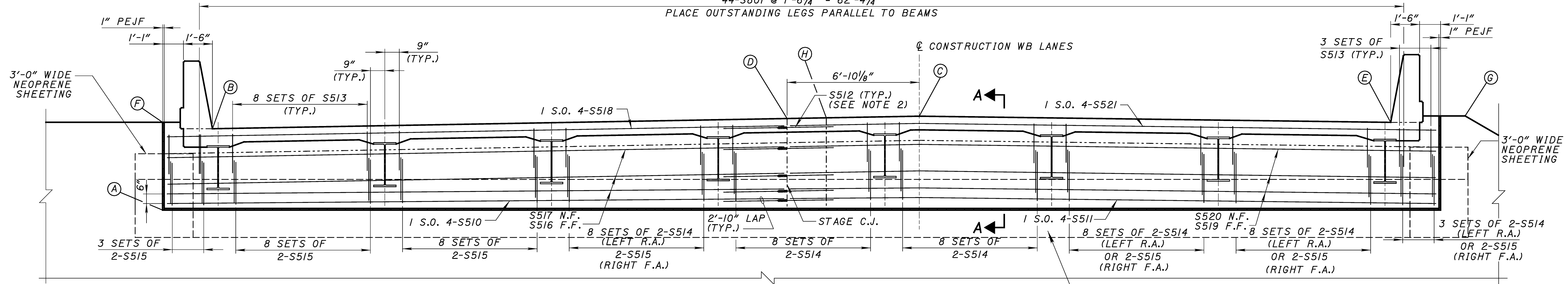


END DIAPHRAGM PLAN

LEFT REAR ABUTMENT SHOWN, RIGHT FORWARD ABUTMENT SIMILAR

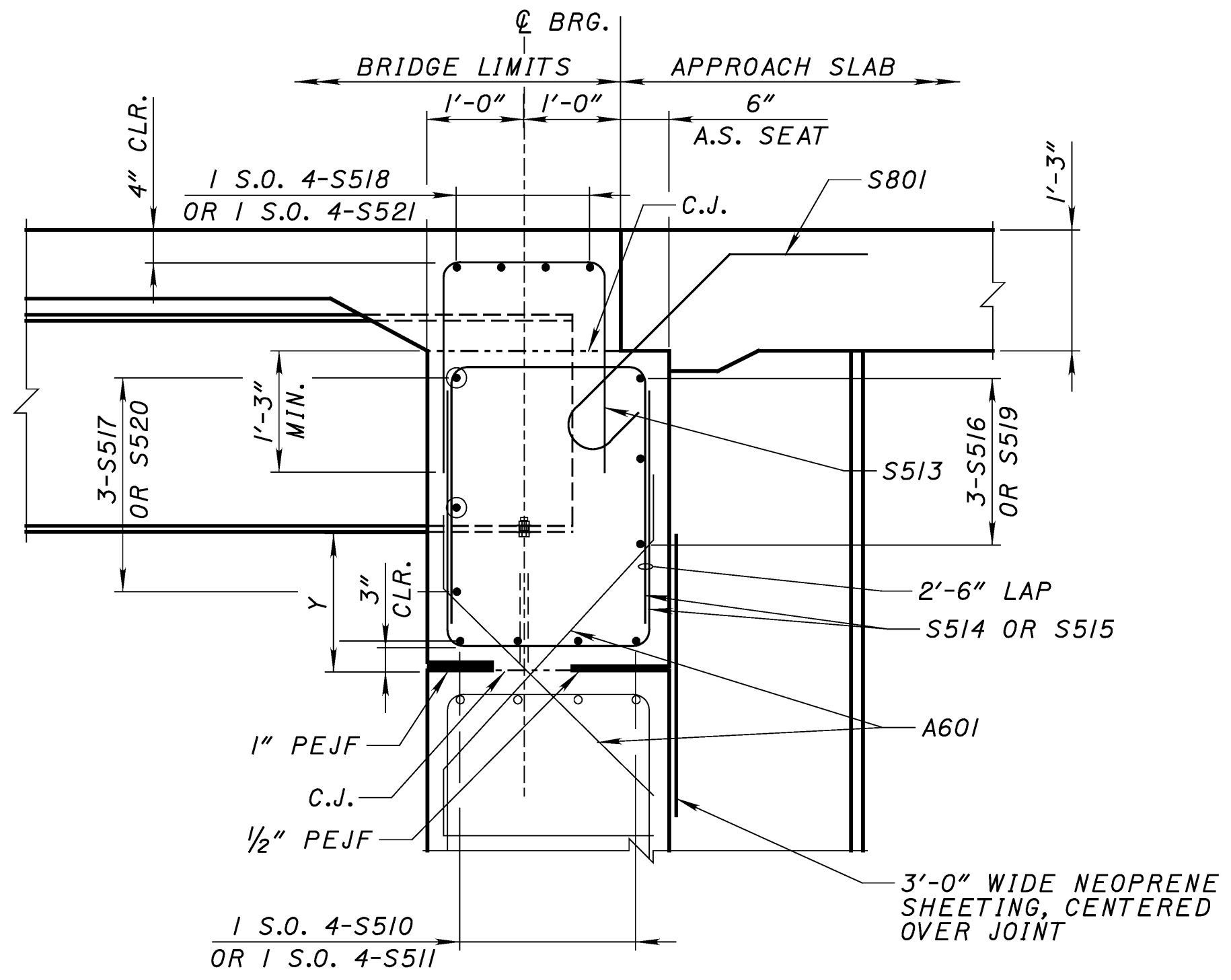
44-S801 @ 1'-6 1/4" = 62'-4 1/4"

PLACE OUTSTANDING LEGS PARALLEL TO BEAMS



SECTION B-B

LEFT REAR ABUTMENT SHOWN, RIGHT FORWARD ABUTMENT SIMILAR



SECTION A-A

TABLE OF END DIAPHRAGM ELEVATIONS AT @ BEARINGS

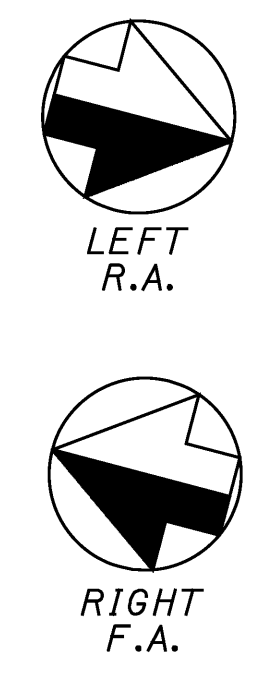
LOCATION	A	B	C	D	E	F	G	H
LEFT BRIDGE:								
REAR ABUTMENT	740.25	744.40	745.05	744.92	744.73	744.73	745.06	744.96
RIGHT BRIDGE:								
FORWARD ABUTMENT	737.95	742.10	742.55	742.46	742.10	742.43	742.43	742.49

TABLE OF DIMENSION Y (IN INCHES)

BEAM	B1	B2	B3	B4	B5	B6	B7	B8
LEFT BRIDGE:								
REAR ABUTMENT	16 1/16	17 3/8	18 3/4	19 7/16	17 5/8	15 5/16	13 5/16	12 1/8
RIGHT BRIDGE:								
BEAM	B9	B10	B11	B12	B13	B14	B15	B16
FORWARD ABUTMENT	12 1/4	13 7/16	14 3/4	16 1/16	17 1/4	16 1/16	14 3/16	12 1/4

NOTES:

1. ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE, PHASED CONSTRUCTION: PLACE THE CONCRETE IN THE ABUTMENT DIAPHRAGM ENCASED STRUCTURAL STEEL MEMBERS OF AN INDIVIDUAL PHASE SEPARATELY OR WITH THE DECK CONCRETE OF THAT PHASE. IF THE DIAPHRAGM CONCRETE IS PLACED SEPARATELY, ALLOW AT LEAST 48 HOURS OF SET TIME BEFORE PLACING DECK CONCRETE. LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
3. SEE SHEETS 20/36 AND 21/36 FOR BEAM END DETAILS.
4. SEE SHEETS 33/36 AND 36/36 FOR REINFORCING SCHEDULE.
5. END DIAPHRAGM CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.



DESIGN AGENCY: Baker (1228 E. 12th Avenue, Suite 1050, Cleveland, Ohio 44115)

DATE: 01-07-08

REVIEWED: LPC

STRUCTURE FILE NUMBER: 4704487L/4704517R

DESIGNED: MKB/VLL

CHECKED: SCT

DRAWN: VLL

REVISED: KAS

END DIAPHRAGM DETAILS LEFT REAR & RIGHT FWD.

BRIDGE NO. LOR-90-1256 L/R

I.R. 90 OVER CSX RAILROAD

LOR-90-12.42

PID 24868

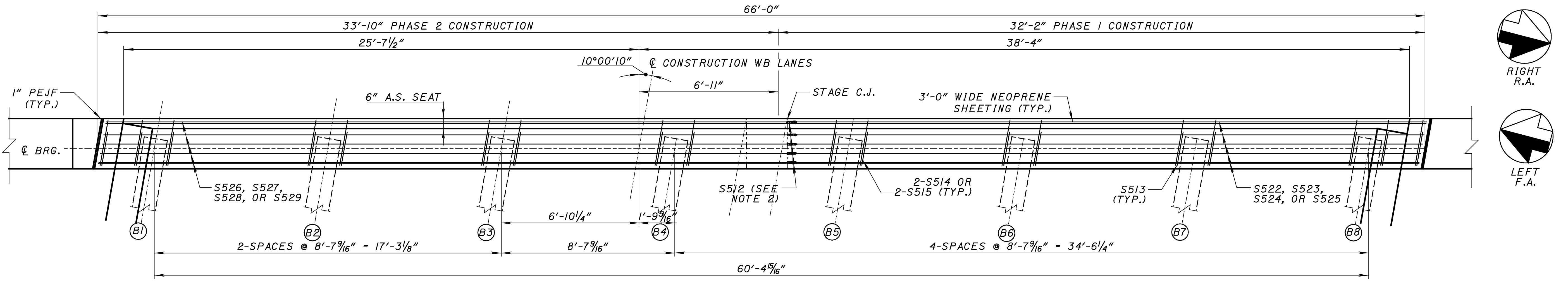
24/36

183

199

\$DATE\$

\$FILE\$

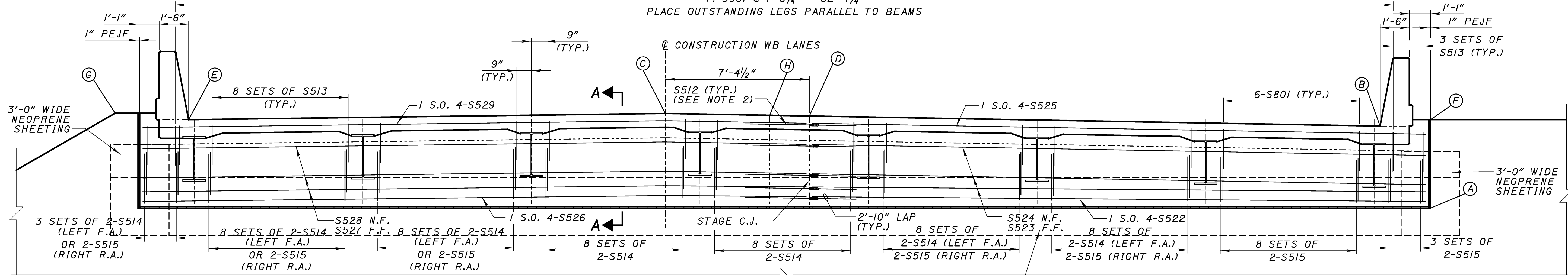


END DIAPHRAGM PLAN

LEFT FORWARD ABUTMENT SHOWN,
 RIGHT REAR ABUTMENT SIMILAR

44-S801 @ 1'-6 1/4" = 62'-4 1/4"

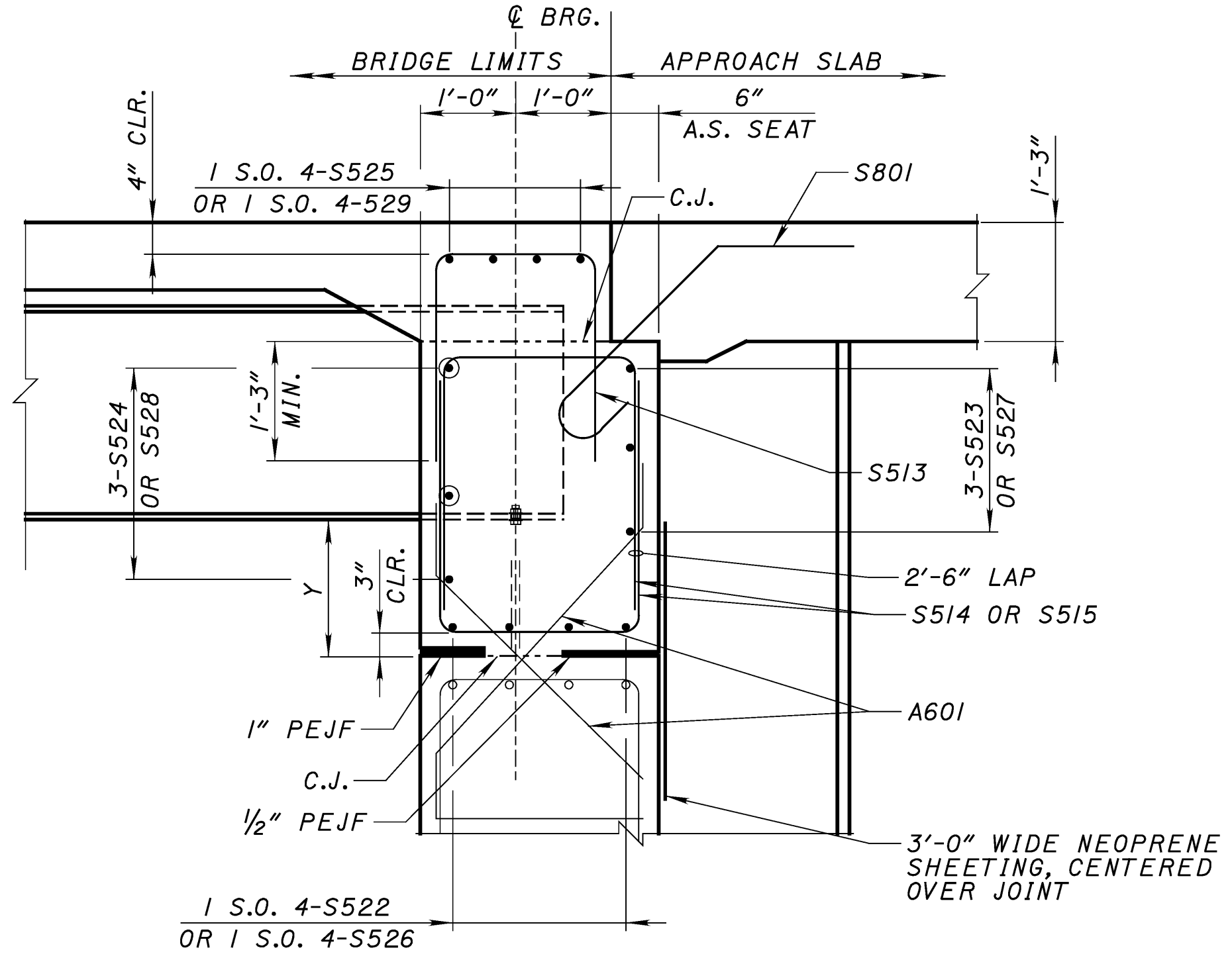
PLACE OUTSTANDING LEGS PARALLEL TO BEAMS



SECTION C-C

LEFT FORWARD ABUTMENT SHOWN,
 RIGHT REAR ABUTMENT SIMILAR

3'-0" WIDE NEOPRENE SHEETING



SECTION A-A

TABLE OF END DIAPHRAGM ELEVATIONS AT @ BEARINGS

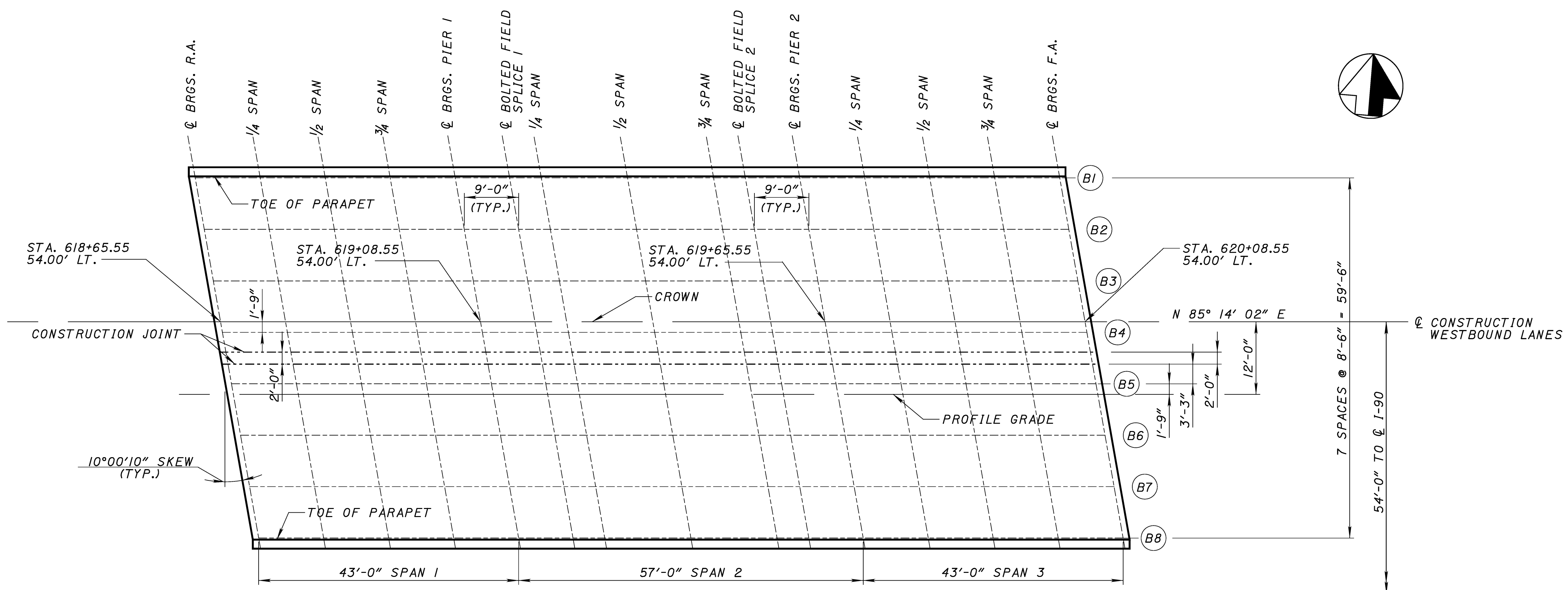
LOCATION	A	B	C	D	E	F	G	H
LEFT BRIDGE:								
FORWARD ABUTMENT	737.94	742.21	742.88	742.75	742.58	742.54	742.91	742.79
RIGHT BRIDGE:								
REAR ABUTMENT	740.16	744.32	744.79	744.70	744.36	744.65	744.69	744.73

TABLE OF DIMENSION Y (IN INCHES)

BEAM	B1	B2	B3	B4	B5	B6	B7	B8
LEFT BRIDGE:								
FORWARD ABUTMENT	17 7/8	19 3/16	20 1/2	21 1/8	19 3/16	17 1/4	15 3/8	13 3/16
RIGHT BRIDGE:								
REAR ABUTMENT	12 1/8	13 7/16	14 7/8	16 3/16	17 1/2	16 5/16	14 1/2	12 5/8

NOTES:

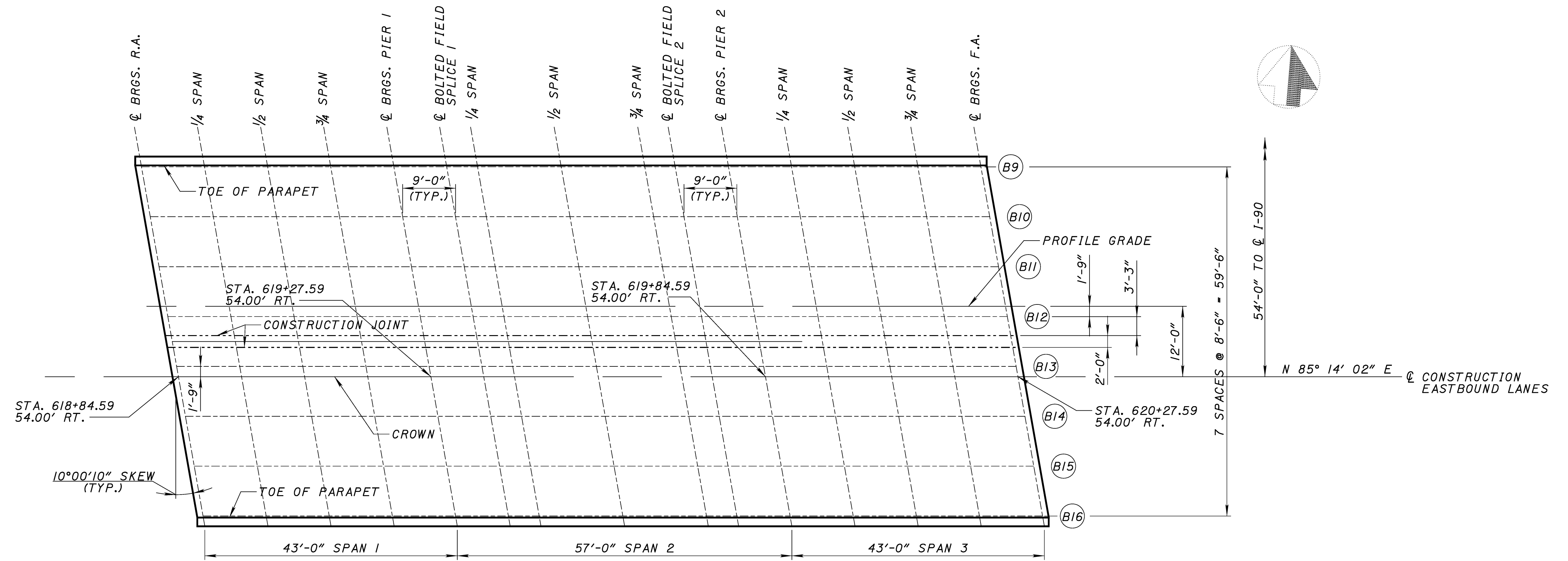
1. ABUTMENT DIAPHRAGM CONCRETE, STEEL SUPERSTRUCTURE, PHASED CONSTRUCTION: PLACE THE CONCRETE IN THE ABUTMENT DIAPHRAGM ENCASEING STRUCTURAL STEEL MEMBERS OF AN INDIVIDUAL PHASE SEPARATELY OR WITH THE DECK CONCRETE OF THAT PHASE. IF THE DIAPHRAGM CONCRETE IS PLACED SEPARATELY, ALLOW AT LEAST 48 HOURS OF SET TIME BEFORE PLACING DECK CONCRETE. LOCATE THE HORIZONTAL CONSTRUCTION JOINT BETWEEN THE DIAPHRAGM AND DECK CONCRETE AT THE APPROACH SLAB SEAT.
2. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
3. SEE SHEETS 20/36 AND 21/36 FOR BEAM END DETAILS.
4. SEE SHEETS 33/36 AND 36/36 FOR REINFORCING SCHEDULE.
5. END DIAPHRAGM CONCRETE SHALL BE PAID FOR UNDER ITEM 892 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK) WITH WARRANTY.



SCREED ELEVATION LOCATION DIAGRAM

ELEVATION LINE	SPAN 1				SPAN 2				SPAN 3						
	CL BRGS. R. A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	CL BRGS. PIER 1	B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	B.F.S. 2	CL BRGS. PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	CL BRGS. F. A.
TOE OF PARAPET	744.73	744.60	744.45	744.30	744.14	744.02	743.95	743.75	743.52	743.43	743.28	743.11	742.95	742.77	742.58
BEAM 1	744.74	744.60	744.46	744.30	744.14	744.02	743.95	743.75	743.52	743.43	743.28	743.12	742.95	742.77	742.58
BEAM 2	744.85	744.72	744.57	744.41	744.25	744.13	744.07	743.87	743.64	743.55	743.39	743.23	743.06	742.88	742.69
BEAM 3	744.96	744.83	744.69	744.52	744.36	744.25	744.18	743.98	743.75	743.66	743.50	743.33	743.17	742.99	742.79
CROWN	745.05	744.92	744.78	744.61	744.45	744.33	744.27	744.07	743.83	743.74	743.59	743.42	743.26	743.08	742.88
BEAM 4	745.02	744.89	744.74	744.58	744.42	744.30	744.23	744.04	743.80	743.71	743.55	743.39	743.22	743.04	742.85
C.J.	745.96	744.83	744.68	744.52	744.36	744.24	744.17	744.98	743.74	743.65	743.49	743.33	743.16	742.98	742.79
C.J.	744.92	744.80	744.65	744.49	744.32	744.21	744.14	743.94	743.70	743.61	743.46	743.29	743.13	742.95	742.75
BEAM 5	744.87	744.74	744.59	744.43	744.27	744.15	744.08	743.88	743.64	743.55	743.40	743.23	743.07	742.89	742.69
PROFILE GRADE	744.83	744.70	744.56	744.40	744.23	744.12	744.05	743.85	743.61	743.52	743.36	743.20	743.03	742.85	742.66
BEAM 6	744.71	744.58	744.44	744.27	744.11	743.99	743.92	743.72	743.49	743.40	743.24	743.07	742.91	742.73	742.53
BEAM 7	744.56	744.43	744.28	744.12	743.96	743.84	743.77	743.57	743.33	743.24	743.08	742.92	742.75	742.57	742.37
BEAM 8	744.41	744.27	744.12	743.96	743.80	743.68	743.61	743.41	743.17	743.08	742.93	742.76	742.59	742.41	742.21
TOE OF PARAPET	744.40	744.27	744.12	743.96	743.80	743.67	743.60	743.40	743.17	743.08	742.92	742.75	742.59	742.40	742.21

NOTES:
 1. SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.
 2. SEE SHEET 19/36 FOR TRANSVERSE SECTION.

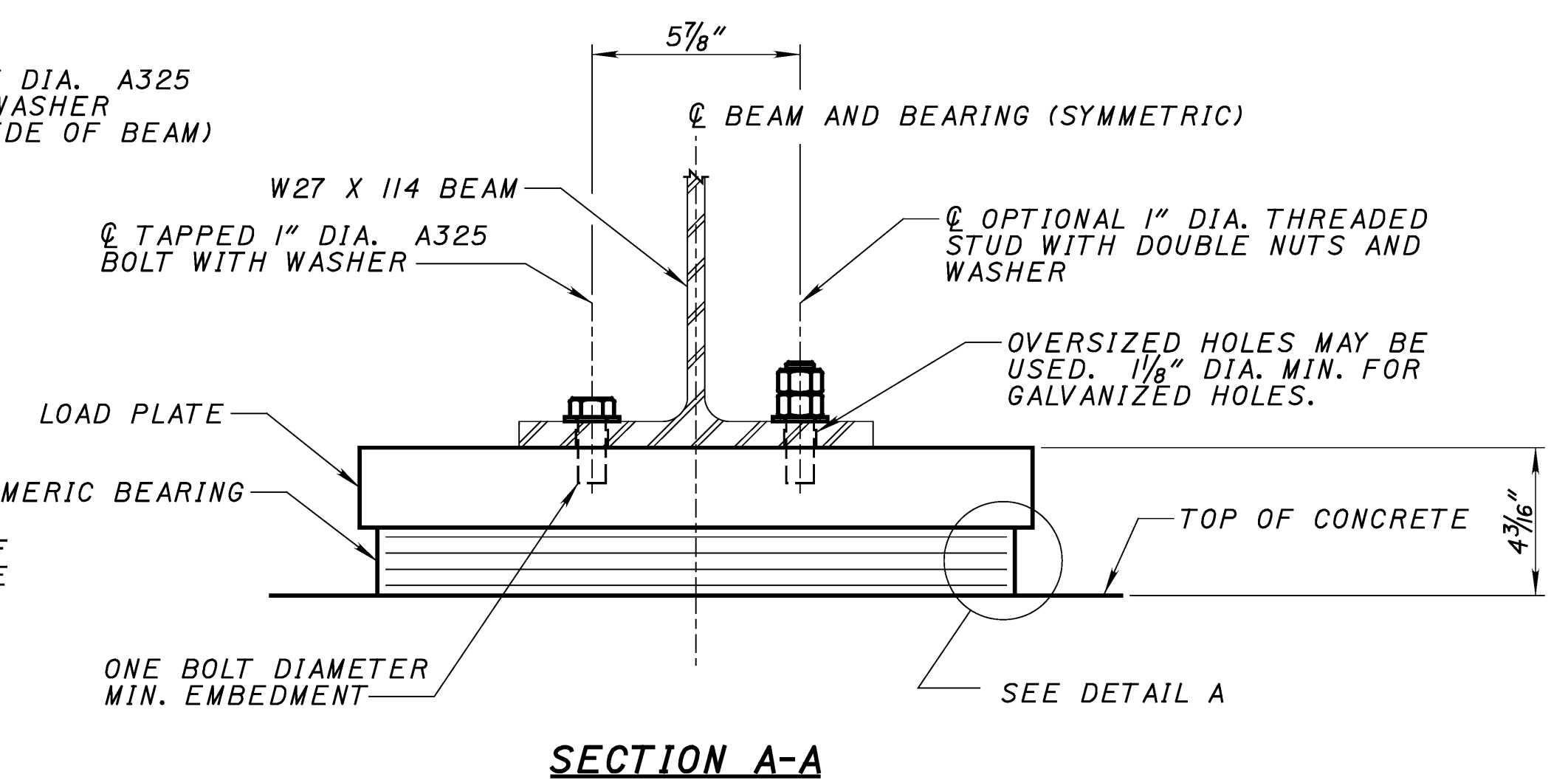
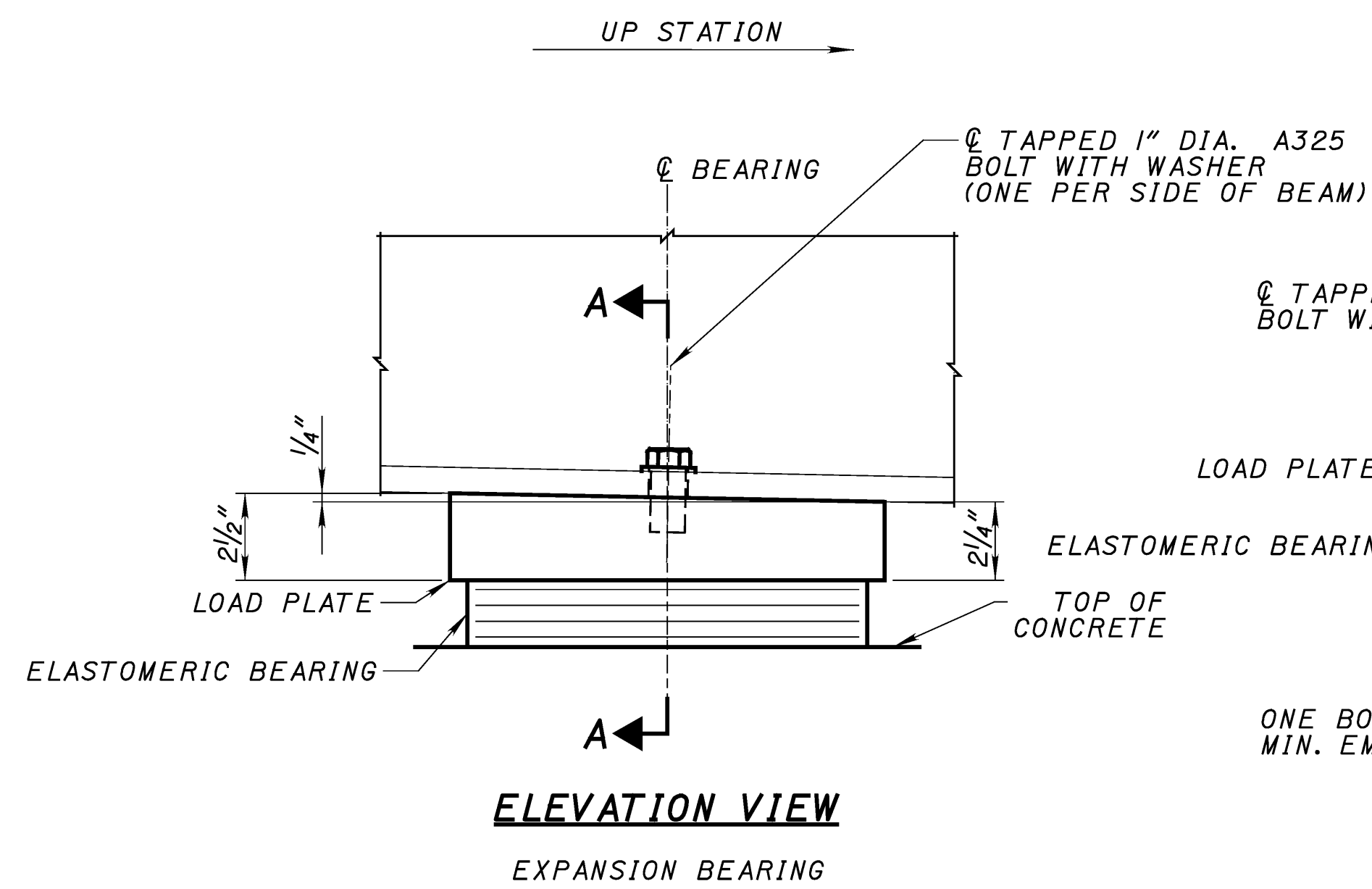
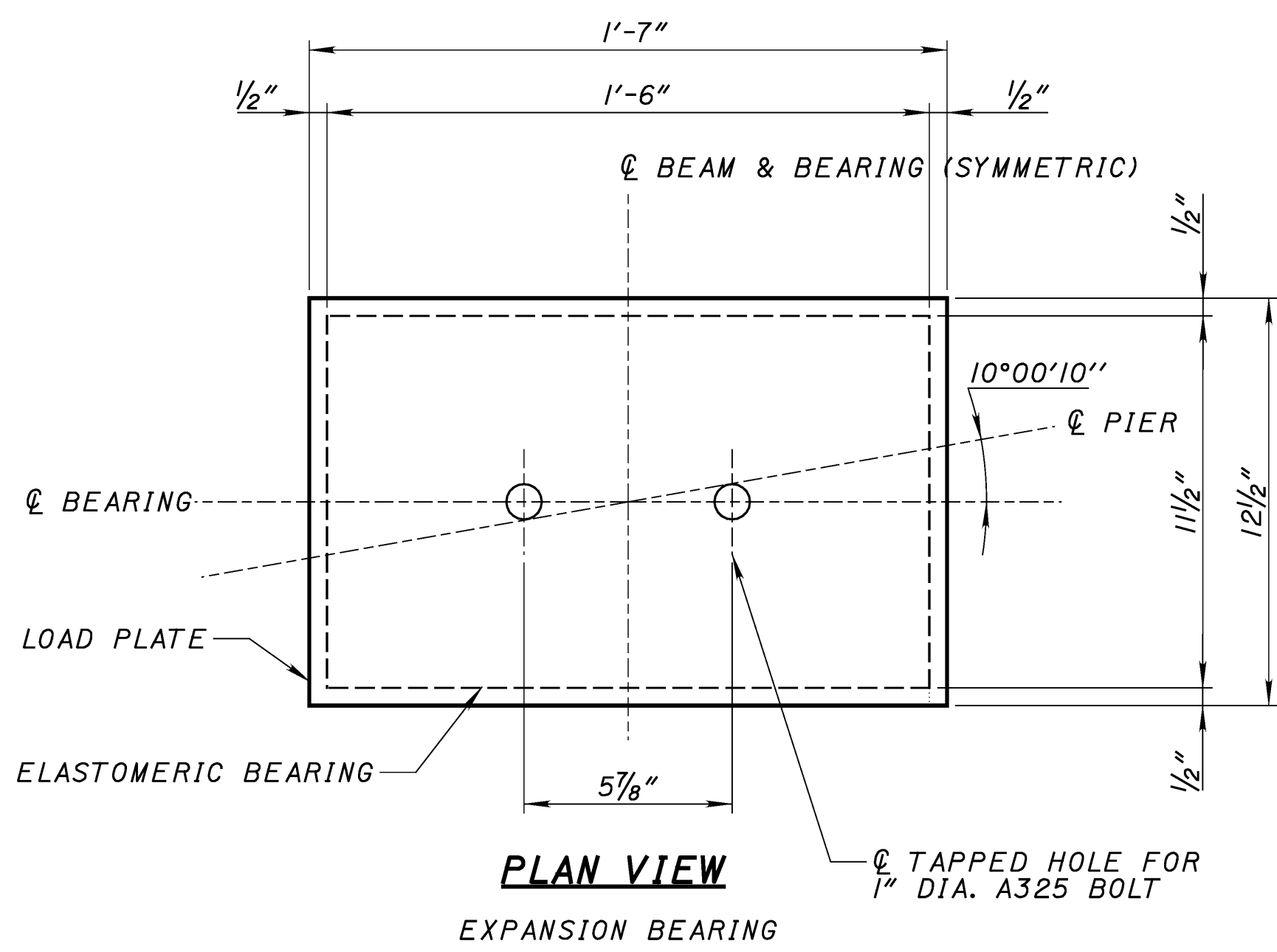


SCREED ELEVATION LOCATION DIAGRAM

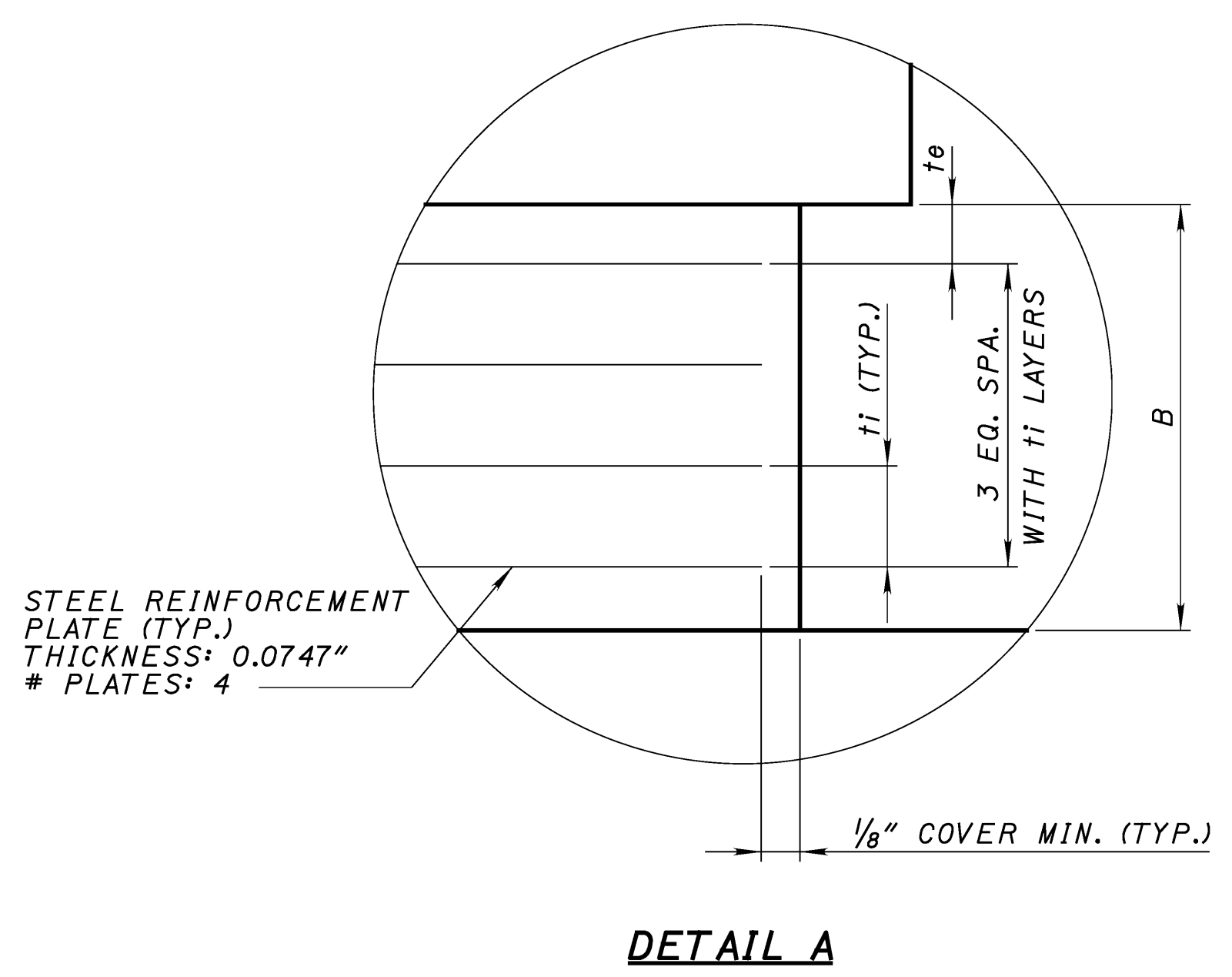
ELEVATION LINE	SPAN 1				SPAN 2				SPAN 3						
	CL BRGS. R. A.	1/4 SPAN	1/2 SPAN	3/4 SPAN	CL BRGS. PIER 1	CL B.F.S. 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	CL B.F.S. 2	CL BRGS. PIER 2	1/4 SPAN	1/2 SPAN	3/4 SPAN	CL BRGS. F. A.
TOE OF PARAPET	744.32	744.18	744.03	743.87	743.70	743.58	743.51	743.30	743.07	742.98	742.82	742.65	742.48	742.30	742.10
BEAM 9	744.32	744.18	744.03	743.87	743.71	743.58	743.51	743.31	743.07	742.98	742.82	742.65	742.48	742.30	742.10
BEAM 10	744.43	744.30	744.15	743.98	743.82	743.70	743.63	743.43	743.18	743.09	742.93	742.76	742.60	742.41	742.21
BEAM 11	744.54	744.41	744.26	744.09	743.93	743.81	743.74	743.53	743.29	743.20	743.04	742.87	742.70	742.52	742.32
PROFILE GRADE	744.63	744.50	744.35	744.18	744.02	743.89	743.82	743.62	743.38	743.29	743.13	742.96	742.79	742.60	742.40
BEAM 12	744.66	744.52	744.37	744.20	744.04	743.92	743.85	743.64	743.40	743.31	743.15	742.98	742.81	742.63	742.42
C.J.	744.70	744.56	744.41	744.25	744.08	743.96	743.89	743.69	743.44	743.35	743.19	743.02	742.85	742.67	742.46
C.J.	744.73	744.59	744.44	744.27	744.11	743.98	743.91	743.71	743.47	743.37	743.22	743.05	742.88	742.69	742.49
BEAM 13	744.77	744.63	744.48	744.31	744.15	744.03	743.96	743.75	743.51	743.42	743.26	743.09	742.92	742.73	742.53
CROWN	744.79	744.66	744.51	744.34	744.17	744.05	743.98	743.78	743.53	743.44	743.28	743.11	742.94	742.75	742.55
BEAM 14	744.67	744.53	744.38	744.21	744.05	743.93	743.85	743.65	743.41	743.31	743.15	742.98	742.81	742.63	742.43
BEAM 15	744.52	744.38	744.23	744.06	743.89	743.77	743.70	743.50	743.25	743.16	743.00	742.83	742.66	742.47	742.27
BEAM 16	744.36	744.22	744.07	743.90	743.74	743.61	743.54	743.33	743.09	743.00	742.84	742.67	742.49	742.31	742.11
TOE OF PARAPET	744.36	744.22	744.07	743.90	743.73	743.61	743.53	743.33	743.09	742.99	742.83	742.66	742.49	742.30	742.10

NOTES:

- SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.
- SEE SHEET 19/36 FOR TRANSVERSE SECTION.



BEARING DATA	
	PIERS 1 & 2
B	1.9238"
t _e	0.25"
t _i	0.38"
DEAD LOAD	94.90 K
LIVE LOAD (NO IMPACT)	65.60 K
TOTAL LOAD	160.50 K



- NOTES:**
1. THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
 2. IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80 DEGREES F OR LOWER THAN 40 DEGREES F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60 DEGREES F (±) 10 DEGREES F, RAISE THE BEAMS OR GIRDERS TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60 DEGREES F (±) 10 DEGREES F.
 3. THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
 4. LOAD PLATES MAY BE EITHER A709 GRADE 36 OR GRADE 50, GALVANIZED.
 5. BEAM FABRICATOR AND BEARING FABRICATOR MUST COORDINATE BOLT HOLE LOCATIONS.
 6. BEARINGS, INCLUDING LOAD PLATES, GALVANIZING, BOLTS, WASHERS, NUTS, AND/OR THREADED STUDS SHALL BE PAID FOR UNDER ITEM 516 - ELASTOMERIC BEARING WITH INTERNAL LAMINATES (NEOPRENE) AND LOAD PLATE, AS PER PLAN.

\$DATE\$
\$FILE\$

DESIGN AGENCY
Baker
 1228 EUGLID AVENUE, SUITE 1050
 CLEVELAND, OHIO 44115

DESIGNED	MKB	CHECKED	KAS
DRAWN	DJB	REVISED	
REVIEWED	LPC	DATE	01-07-08
STRUCTURE FILE NUMBER		4704487L/4704517R	

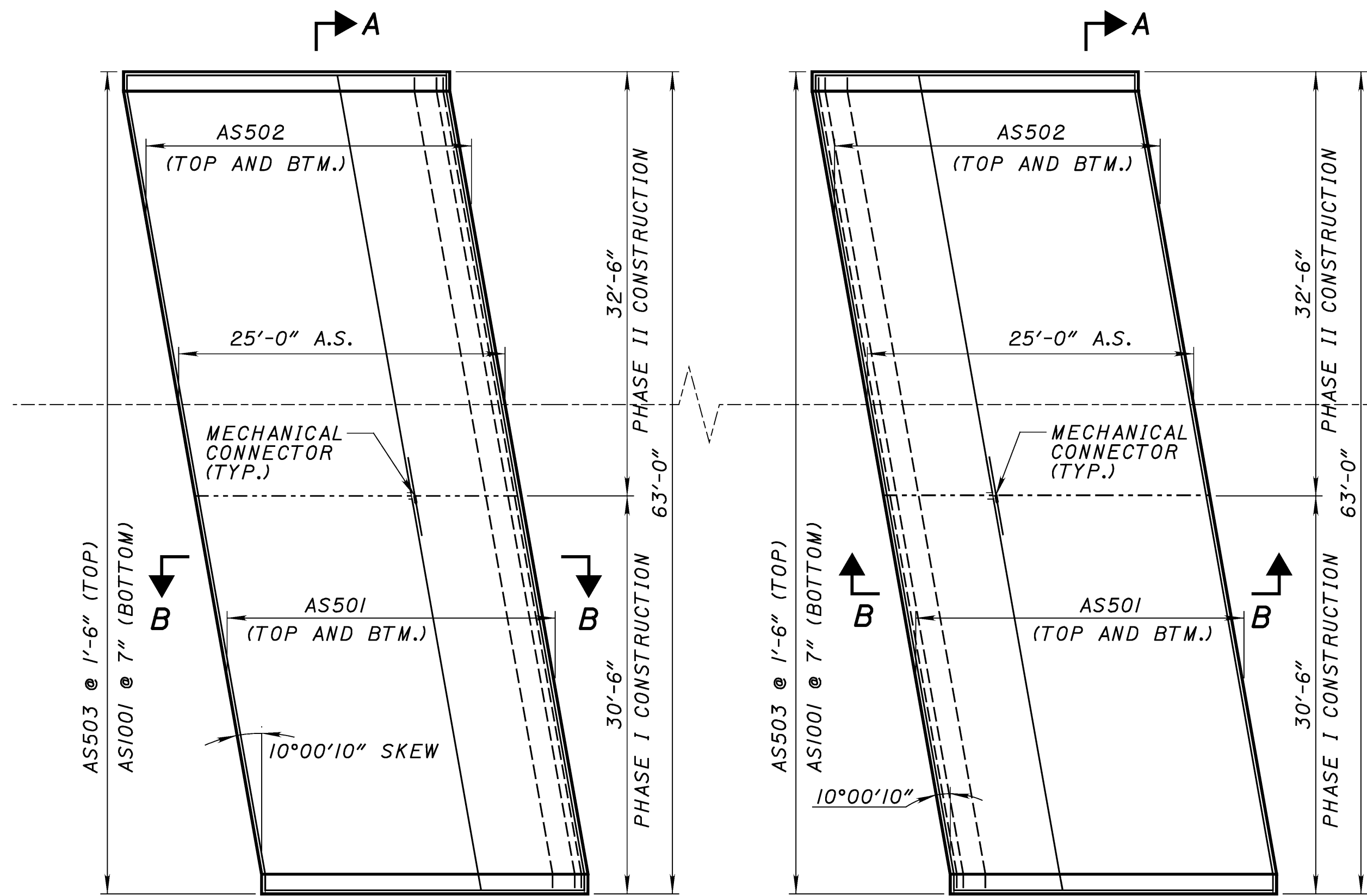
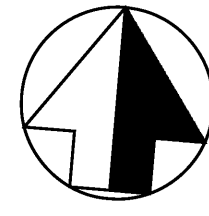
BEARING DETAILS

BRIDGE NO. LOR-90-1256 L/R
 I.R. 90 OVER CSX RAILROAD

LOR-90-12.42
PID 24868

28/36

187
 199

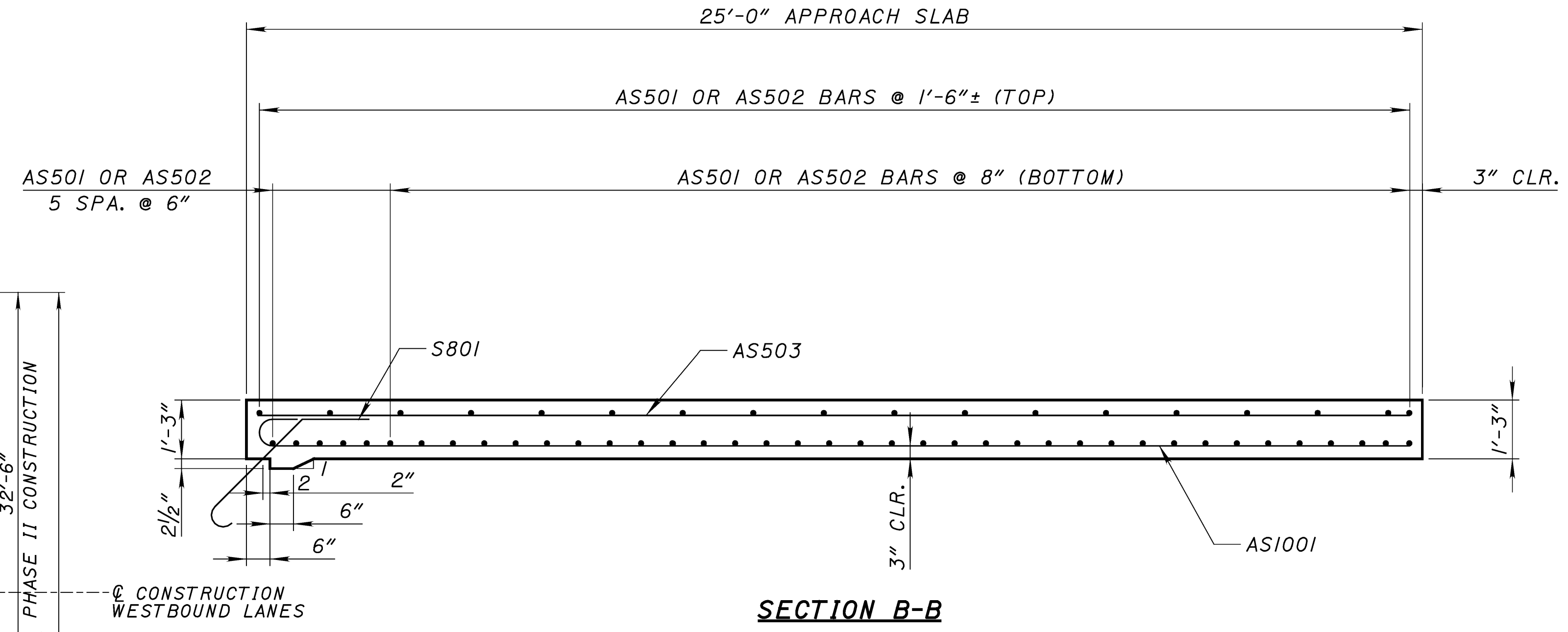


PLAN - REAR A.S.

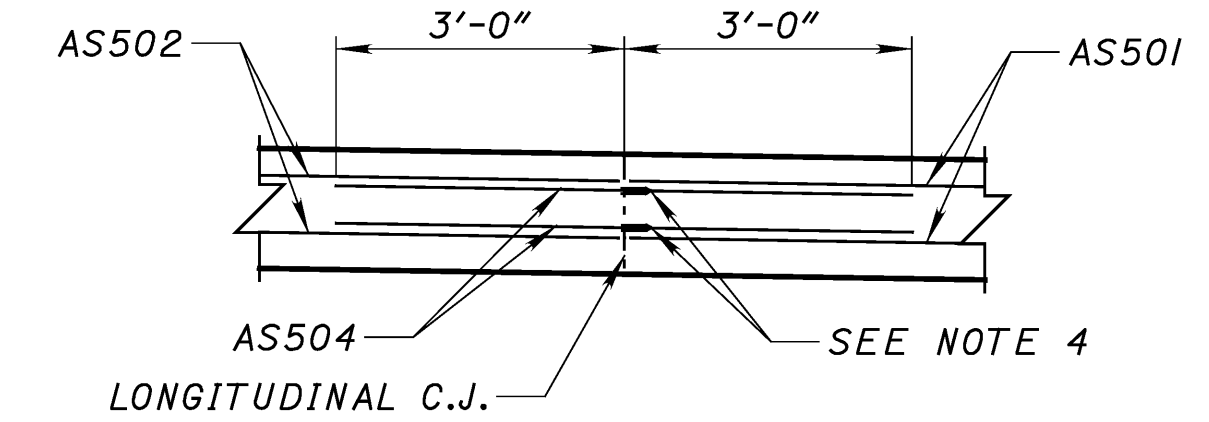
PRESSURE RELIEF JOINT NOT SHOWN
LEFT BRIDGE SHOWN. RIGHT BRIDGE OPPOSITE HAND

PLAN - FORWARD A.S.

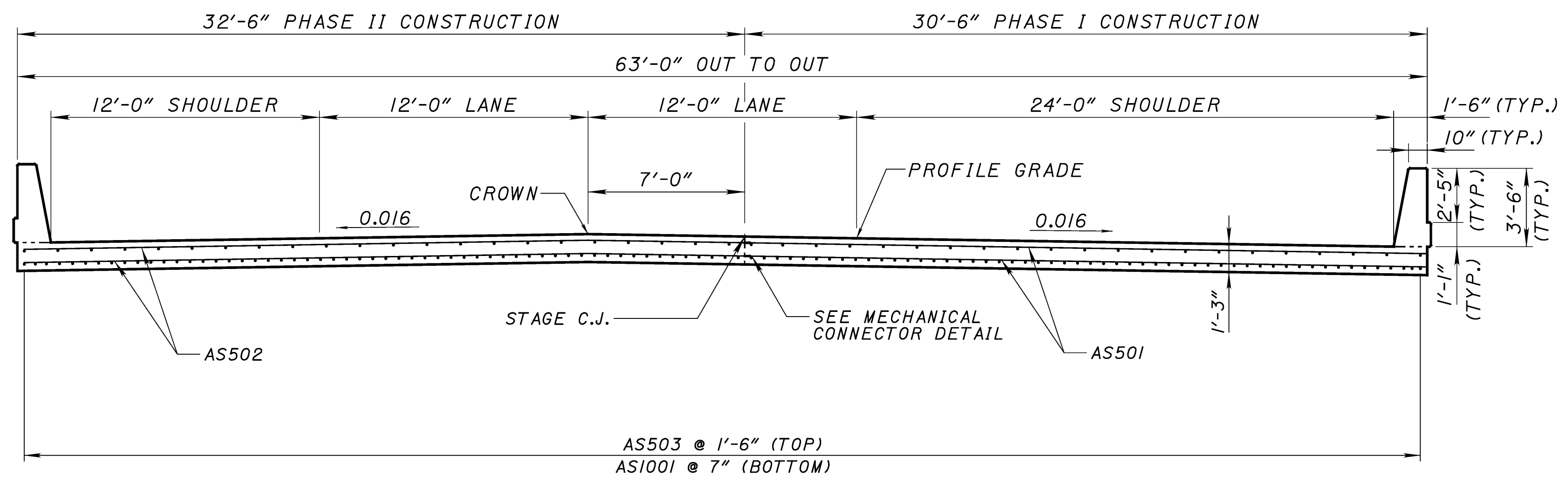
PRESSURE RELIEF JOINT NOT SHOWN
LEFT BRIDGE SHOWN. RIGHT BRIDGE OPPOSITE HAND



SECTION B-B



MECHANICAL CONNECTOR DETAIL



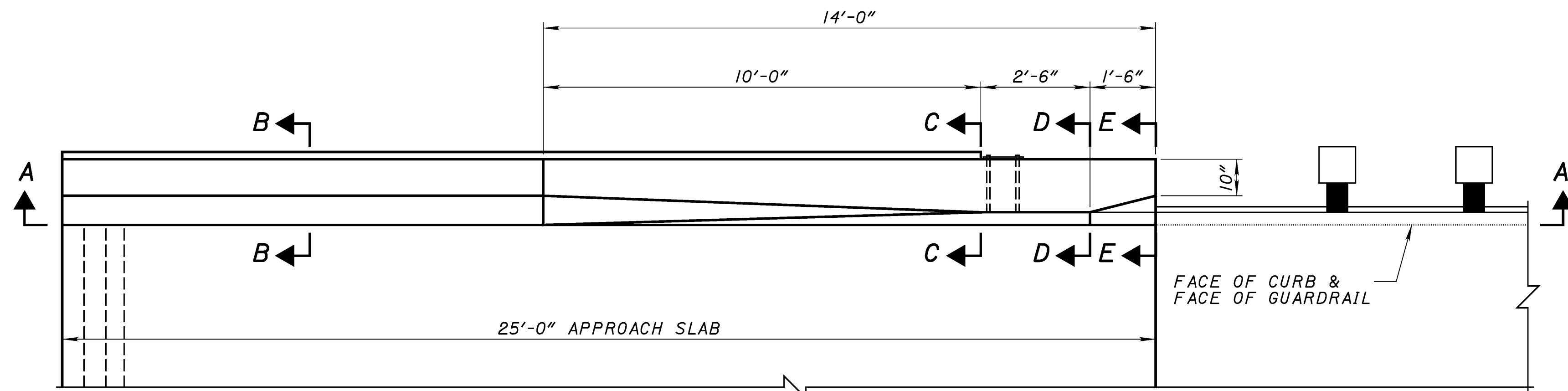
SECTION A-A

NOTES:

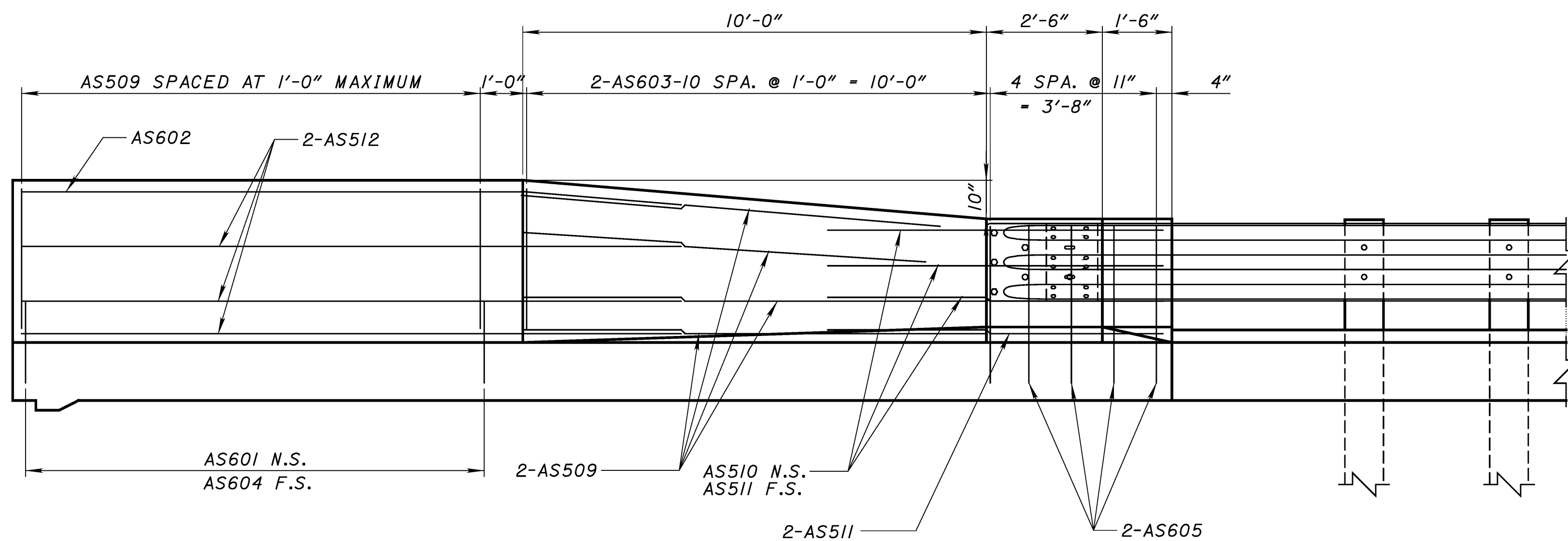
1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, AS501 IS A #5 BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.
3. FOR INFORMATION NOT SHOWN REFER TO STANDARD DRAWING AS-1-81.
4. NON-PROTRUDING THREADED MECHANICAL CONNECTORS SUCH AS RICHMOND SCREW ANCHOR THREADED DOWEL BAR ASSEMBLY, LENTON REBAR SPLICING MECHANISM, OR APPROVED EQUAL.
5. BAR SPACING IS MEASURED PERPENDICULAR TO THE ϕ OR PARALLEL TO THE ϕ .
6. SEE SHEET 30/36 FOR ADDITIONAL DETAILS AND REINFORCING SCHEDULE.
7. APPROACH SLAB AND APPROACH SLAB PARAPET CONCRETE AND REINFORCEMENT SHALL BE PAID FOR UNDER ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), 15", AS PER PLAN.

\$DATE\$
\$FILE\$

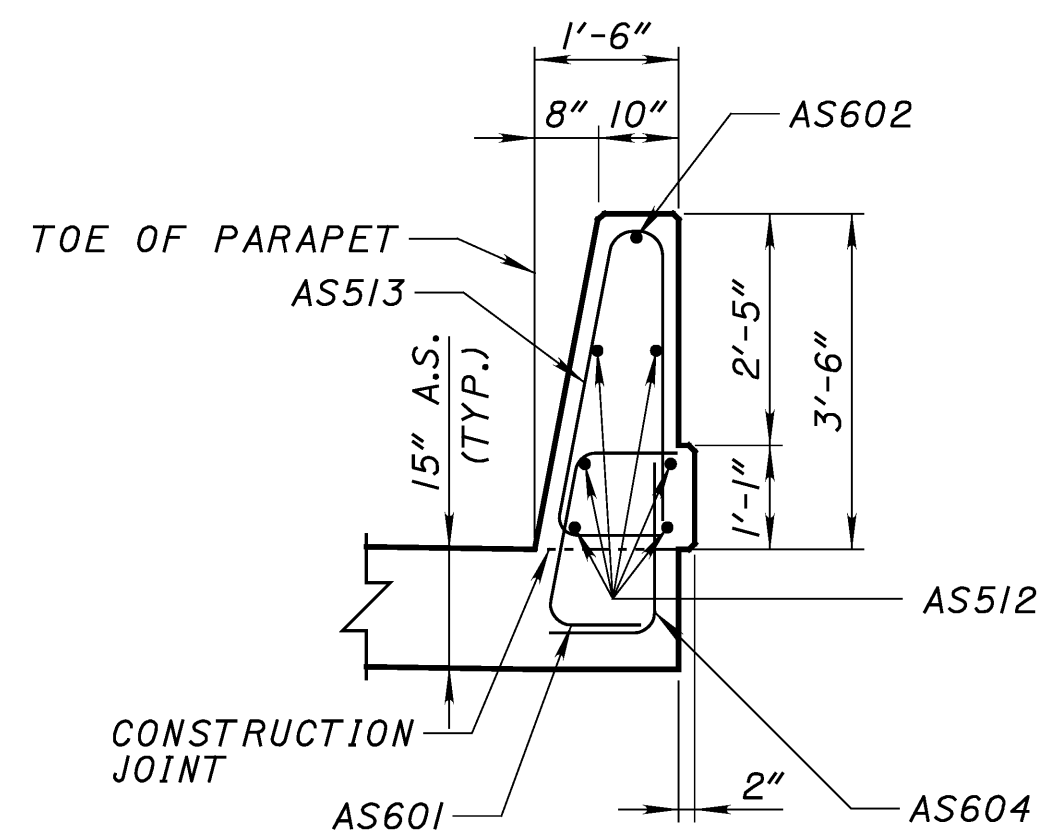
DESIGNED	DJB	CHECKED	SCT
DRAWN	DJB	REVISED	
REVIEWED	LPC	DATE	01-07-08
STRUCTURE FILE NUMBER	4704487L/4704517R		



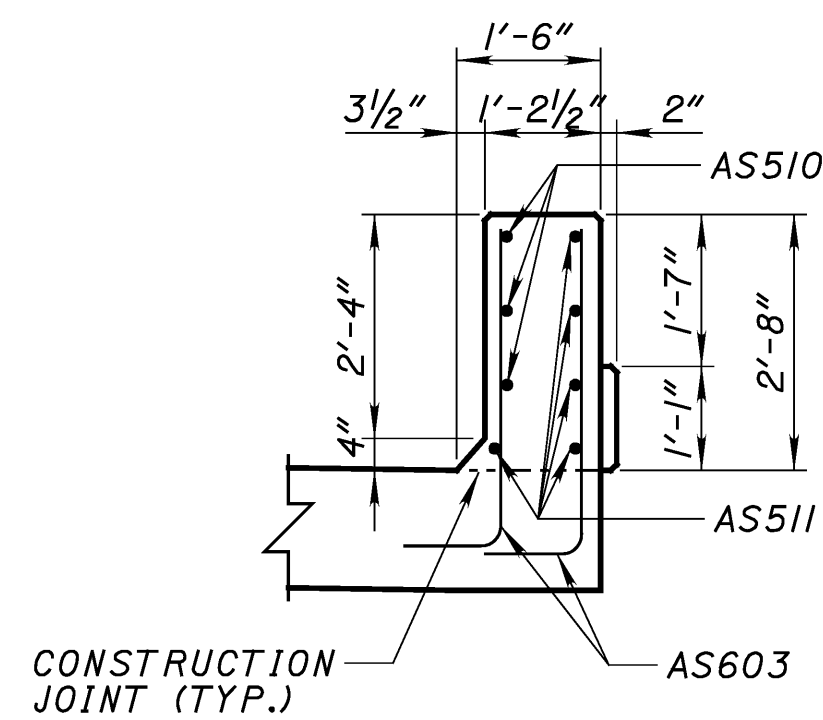
PART PLAN AT ABUTMENT



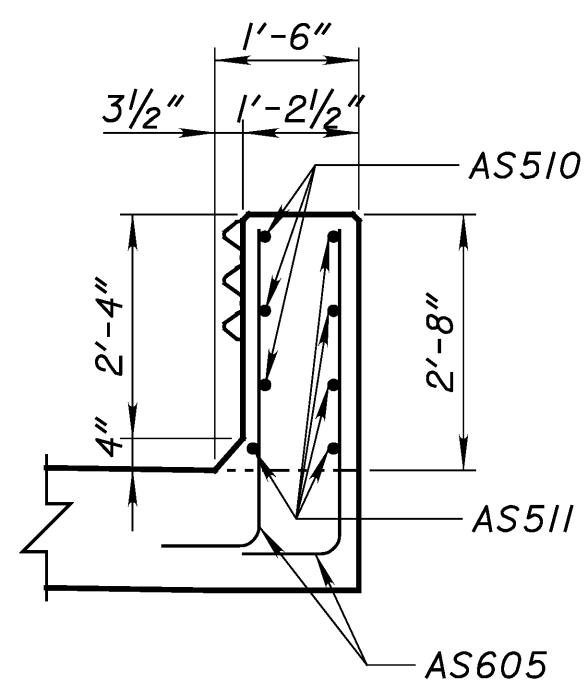
SECTION A-A



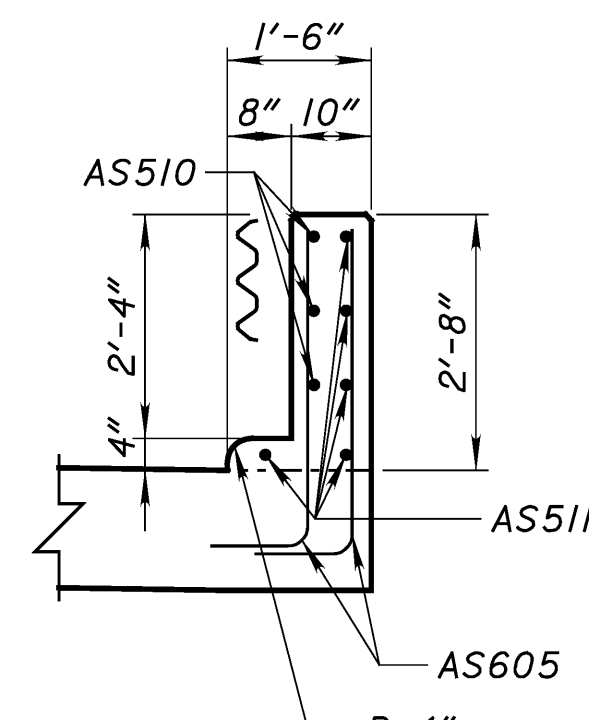
SECTION B-B



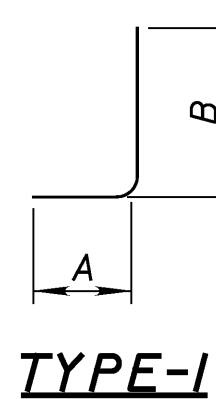
SECTION C-C



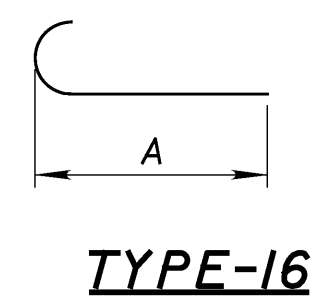
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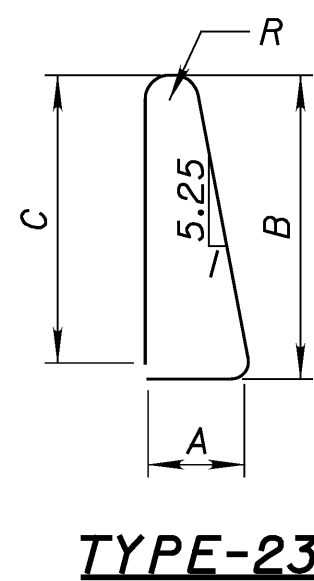
SECTION E-E



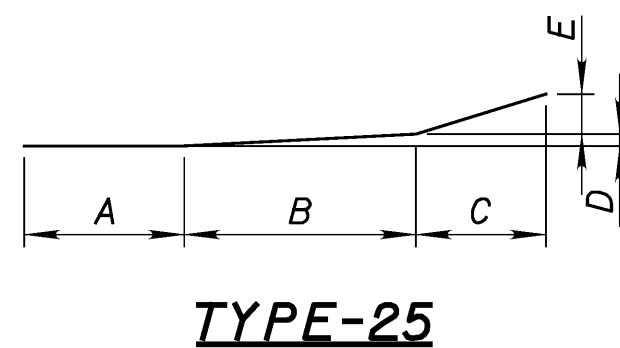
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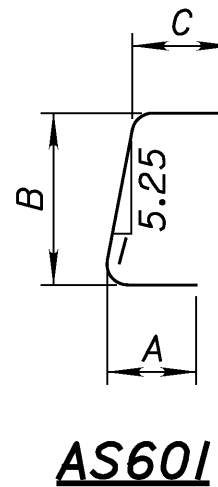
TYPE-16



TYPE-23



TYPE-25



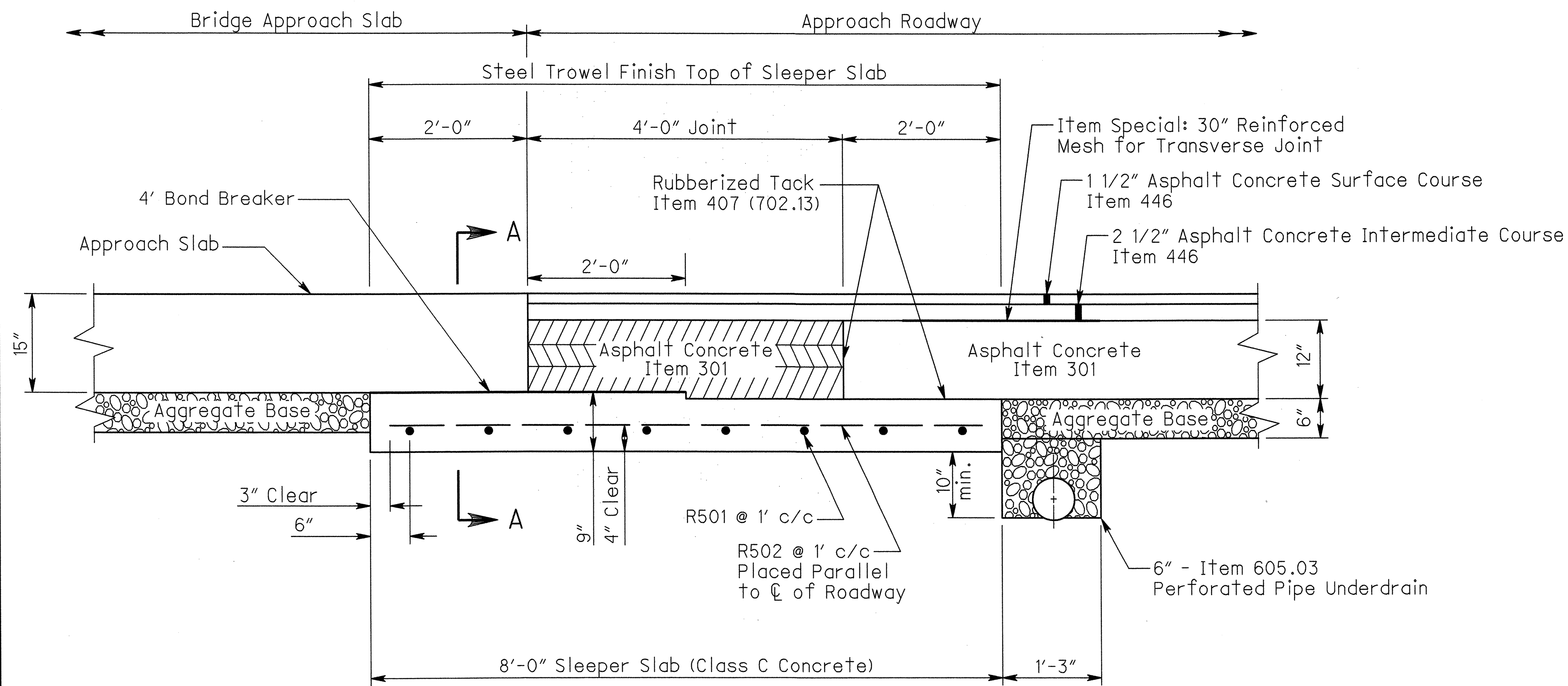
AS601

APPROACH SLAB REINFORCING STEEL SCHEDULE											
MARK	NO.	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
REAR AND FORWARD APPROACH SLAB LEFT BRIDGE											
AS501	114	30'-6"	3627	STR.							
AS502	114	32'-6"	3864	STR.							
AS503	86	24'-6"	2198	STR.							
AS504	228	3'-0"	713	STR.							
AS509	32	10'-0"	334	STR.							
AS510	12	5'-6"	69	25	1'-8"	2'-5"	1'-4 1/4"	1 1/2"	5"		
AS511	20	5'-6"	115	STR.							
AS512	24	14'-3"	357	STR.							
AS513	44	7'-5"	340	23	1'-1"	3'-2"	3'-0"			2 3/4"	
AS601	44	3'-10 1/2"	256		1'-1"	1'-10 1/2"	1'-1"				
AS602	4	14'-11"	90	STR.							
	8	4'-2 3/4"					3'-4 3/4"				
AS603	S.O.	T0	616	1	1'-0"	T0					1"
	11	5'-3/4"					4'-2 3/4"				
AS604	44	2'-8 1/2"	178	1	1'-1"	1'-9 1/2"					
AS605	32	4'-2 3/4"	204	1	1'-0"	3'-4 3/4"					
AS1001	218	25'-11"	24311	16	24'-6"						
		TOTAL:	38411								
REAR AND FORWARD APPROACH SLAB RIGHT BRIDGE											
AS501	114	30'-6"	3627	STR.							
AS502	114	32'-6"	3864	STR.							
AS503	86	24'-6"	2198	STR.							
AS504	228	3'-0"	713	STR.							
AS509	32	10'-0"	334	STR.							
AS510	12	5'-6"	69	25	1'-8"	2'-5"	1'-4 1/4"	1 1/2"	5"		
AS511	20	5'-6"	115	STR.							
AS512	24	14'-3"	357	STR.							
AS513	44	7'-5"	340	23	1'-1"	3'-2"	3'-0"			2 3/4"	
AS601	44	3'-10 1/2"	256		1'-1"	1'-10 1/2"	1'-1"				
AS602	4	14'-11"	90	STR.							
	8	4'-2 3/4"					3'-4 3/4"				
AS603	S.O.	T0	616	1	1'-0"	T0					1"
	11	5'-3/4"					4'-2 3/4"				
AS604	44	2'-8 1/2"	178	1	1'-1"	1'-9 1/2"					
AS605	32	4'-2 3/4"	204	1	1'-0"	3'-4 3/4"					
AS1001	218	25'-11"	24311	16	24'-6"						
		TOTAL:	38411								

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, AS501 IS A #5 BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED
3. ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED OTHERWISE
4. SERIES BARS - EACH BAR VARIES BY TABULATED AMOUNTS.
5. FOR BRIDGE TERMINAL ASSEMBLY SEE STANDARD CONSTRUCTION DRAWING GR-3.1 AND GR-3.2.

\$DATE\$
\$FILES\$



SLEEPER SLAB AND PAVEMENT DETAIL

REINFORCING STEEL LIST - L/R			
Mark	Shape	Number	Length
R501	1	8	63'-5"
R502	Straight	64	8'-1 1/2"

1 R501 bars may be furnished in segments with a 2'-6" bar lap between segments.

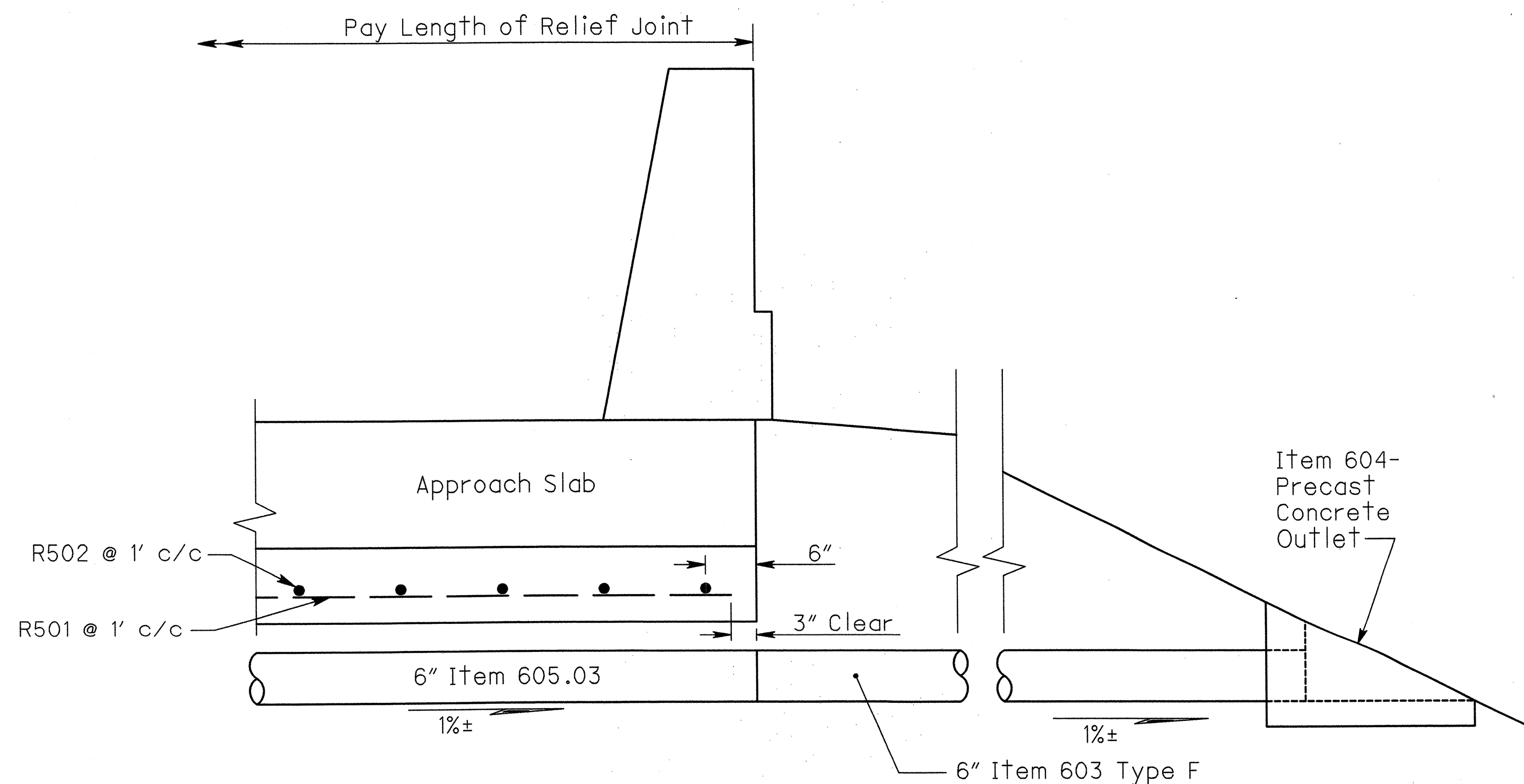
NOTES

APPROACH SLAB PRESSURE RELIEF JOINTS: Relief joints are to be provided regardless of abutment design at all 1256 L/R approaches.

BOND BREAKER: A bond breaker consisting of two 4 foot sheets of clear or opaque polyethylene film, Item 705.06, shall be centered above the joint between the subbase and the sleeper slab. Care shall be taken in the area beneath the polyethylene film to ensure the surface of the subbase is finished smooth and is flush with or slightly higher than the surface of the sleeper slab. The film shall have a nominal thickness of 4 mils.

UNDERDRAIN: A perforated underdrain shall be placed as shown. It shall extend from edge to edge of the sleeper slab and be outletted through the embankment as shown in Section A-A. For additional information, see SCD DM-1.2.

PAYMENT: Measurement of the pressure relief joint for payment purposes shall be along the centerline of the Sleeper Slab between the backs of curb. Payment shall be per Linear Foot of **Item Special - Pressure Relief Joint, Type A** and shall include saw cutting & removal of existing pavement, Items 301 & 446, and all labor, materials and incidentals needed to construct the joint as shown, except for the pipe Underdrain. The Underdrains shall be paid for per Linear Foot of **Item 605 - 6" Shallow Pipe Underdrains**, Item 707.32 Type CP, or 707.41. The outlet pipe shall be paid for per Linear Foot of **Item 603 - 6" Conduit, Type F** with **Item 604 - Precast Reinforced Concrete Outlet** at each.



SECTION A-A
(Showing an Underdrain Outlet through the embankment)

DESIGN AGENCY: DISTRICT 3 OFFICE OF PRODUCTION
 DATE: 03-21-08
 REVIEWED: CLB
 STRUCTURE FILE NUMBER: 470487L/470451R
 DRAWN: KRB
 CHECKED: RDN
 DESIGNED: KRB
 REVISION: RDN
 PRESSURE RELIEF JOINT TYPE A
 BRIDGE NO. LOR-90-1256 L/R
 I.R. 90 OVER CSX RAILROAD
 LOR-90-12.42
 PID 24868
 30A/36
 189A
 199

REAR ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	36	9'-1"	218	3	1'-9"	2'-6 ³ / ₄ "				
A501	70	11'-0"	803	3	2'-7"	2'-8"				
A502	55	13'-11"	799	2	6'-0"	2'-2"	6'-0"			
A503	16	18'-3"	305	2	8'-2"	2'-2"	8'-2"			
A505	10	10'-5"	109	2	4'-3"	2'-2"	4'-3"			
A508	20	23'-3"	485	STR.						
A509	20	24'-5"	510	STR.						
A510	10	6'-0"	63	30	3'-3"	2'-9"				
A511	3	11'-8"	37	STR.						
A512	3	12'-1"	38	STR.						
A513	1	12'-0"	13	STR.						
A514	1	11'-7"	12	STR.						
A521	2	11'-1"	23	2	4'-7"	2'-2"	4'-7"			
	1	8'-3"			3'-2"		3'-2"			
A522	S.O.	T0	39	2	T0	2'-2"	T0			0'-4 ⁷ / ₈ "
	4	10'-7"			4'-4"		4'-4"			
A523	1	8'-2"	9	STR.						
A524	1	7'-9"	9	STR.						
A525	1	4'-3"	4	STR.						
A526	1	3'-10'	4	STR.						
A527	1	12'-7"	13	19	1'-3"	10'-10"	3'-6"			
A528	1	12'-2"	13	19	0'-10'	10'-10"	3'-6"			
	1	8'-7"			3'-4"		3'-4"			
A529	S.O.	T0	42	2	T0	2'-2"	T0			0'-5 ¹¹ / ₁₆ "
	4	11'-5"			4'-9"		4'-9"			
A601	62	10'-9"	1000	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A801	16	25'-6"	1090	STR.						
A802	16	26'-9"	1143	STR.						
A803	8	15'-0"	321	30	7'-9"	7'-3"				

REAR ABUTMENT TOTAL = 7102

FORWARD ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	36	9'-1"	218	3	1'-9"	2'-6 ³ / ₄ "				
A501	71	11'-0"	814	3	2'-7"	2'-8"				
A502	56	13'-11"	814	2	6'-0"	2'-2"	6'-0"			
A503	16	18'-3"	305	2	8'-2"	2'-2"	8'-2"			
A505	10	10'-5"	109	2	4'-3"	2'-2"	4'-3"			
A510	10	6'-0"	63	30	3'-3"	2'-9"				
A511	1	11'-8"	12	STR.						
A512	1	12'-1"	13	STR.						
A513	3	12'-0"	38	STR.						
A514	3	11'-7"	36	STR.						
A530	2	11'-5"	24	2	4'-9"	2'-2"	4'-9"			
	1	8'-9"			3'-5"		3'-5"			
A531	S.O.	T0	43	2	T0	2'-2"	T0			0'-5 ¹ / ₂ "
	4	11'-6"			4'-10"		4'-10"			
	1	8'-5"			3'-3"		3'-3"			
A532	S.O.	T0	40	2	T0	2'-2"	T0			0'-5"
	4	10'-11"			4'-6"		4'-6"			
A533	20	23'-5"	489	STR.						
A534	20	24'-3"	506	STR.						
A535	1	8'-4"	9	STR.						
A536	1	7'-11"	8	STR.						
A537	1	4'-8"	5	STR.						
A538	1	4'-3"	4	STR.						
A539	1	12'-10"	13	19	1'-3"	11'-0"	3'-8"			
A540	1	12'-5"	13	19	0'-10"	11'-0"	3'-8"			
A601	62	10'-9"	1000	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A803	8	15'-0"	321	30	7'-9"	7'-3"				
A804	16	25'-8"	1097	STR.						
A805	16	26'-6"	1132	STR.						

FORWARD ABUTMENT TOTAL = 7126
ABUTMENT TOTAL = 14228

NOTES:

SEE SHEET 33/36 FOR BAR BENDING DIAGRAMS.

SEE SHEET 33/36 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

DRILLED SHAFTS, PIER 1								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP405	4	178'-11"	478	27	0'-4 1/2"	1'-9"	11'-2"	
SP501	4	510'-1"	2128	27	0'-3"	3'-6"	11'-0"	
DS1101	60	11'-0"	3507	STR.				
DS1105	40	21'-0"	4463	STR.				
DRILLED SHAFTS, PIER 1 TOTAL = 10576								

DRILLED SHAFT REINFORCEMENT IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. IT IS PAID FOR UNDER ITEM 524

PIER 1								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP401	4	550'-11"	1472	27	0'-4 1/2"	2'-6"	25'-2"	
P501	84	10'-1"	884	STR.				
P503	78	8'-0"	651	2	2'-5"	3'-5"	2'-5"	
P504	19	31'-11"	633	STR.				
P505	19	28'-6"	565	STR.				
P506	16	12'-4"	206	24	3'-6"	3'-5"		1'-9"
P507	16	29'-2"	487	STR.				
P508	164	9'-1"	1554	2	3'-4"	2'-8"	3'-4"	
P509	24	7'-3"	182	2	2'-5"	2'-8"	2'-5"	
P511	2	6'-9"	14	2	2'-8 1/2"	1'-7"	2'-8 1/2"	
P701	10	8'-6 1/2"	175		3'-4"	1'-8"	3'-4"	
P1001	8	29'-2"	1004	STR.				
P1002	12	32'-3"	1666	2	1'-10"	29'-10"	1'-10"	
P1101	40	28'-3"	6004	STR.				
PIER 1 TOTAL = 15497								

DRILLED SHAFTS, PIER 2								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP406	4	270'-2 1/2"	722	27	0'-4 1/2"	1'-9"	17'-8"	
SP502	4	791'-5 5/8"	3302	27	0'-3"	3'-6"	17'-6"	
DS1102	60	17'-6"	5579	STR.				
DS1106	40	27'-6"	5845	STR.				
DRILLED SHAFTS, PIER 2 TOTAL = 15448								

DRILLED SHAFT REINFORCEMENT IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. IT IS PAID FOR UNDER ITEM 524

PIER 2								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP402	4	550'-11"	1472	27	0'-4 1/2"	2'-6"	25'-2"	
P502	84	10'-10"	950	STR.				
P503	78	8'-0"	651	2	2'-5"	3'-5"	2'-5"	
P504	21	31'-11"	699	STR.				
P505	21	28'-6"	625	STR.				
P506	18	12'-4"	232	24	3'-6"	3'-5"		1'-9"
P507	16	29'-2"	487	STR.				
P508	164	9'-1"	1554	2	3'-4"	2'-8"	3'-4"	
P509	24	7'-3"	182	2	2'-5"	2'-8"	2'-5"	
P511	2	6'-9"	14	2	2'-8 1/2"	1'-7"	2'-8 1/2"	
P701	10	8'-6 1/2"	175		3'-4"	1'-8"	3'-4"	
P1001	8	29'-2"	1004	STR.				
P1002	12	32'-3"	1666	2	1'-10"	29'-2"	1'-10"	
P1101	40	28'-3"	6004	STR.				
PIER 2 TOTAL = 15715								
PIER TOTAL = 31212								

NOTES:

SEE SHEET 33/36 FOR BAR BENDING DIAGRAMS.

SEE SHEET 33/36 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

SUPERSTRUCTURE								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
					A	B	C	INC
S401	304	30'-0"	6093	STR.				
S402	76	35'-0"	1777	STR.				
S501	672	30'-2"	21144	STR.				
	2	5'-2"						
S502	S.O.	T0	330	STR.				2'-4 ³ / ₄ "
	10	26'-5 ¹ / ₂ "						
	2	3'-0"						
S503	S.O.	T0	356	STR.				2'-6"
	11	27'-1 ¹ / ₄ "						
S504	370	30'-0"	11577	STR.				
S505	74	10'-6"	811	STR.				
S506	670	32'-2"	22478	STR.				
	2	3'-0"						
S507	S.O.	T0	421	STR.				2'-6"
	12	30'-7 ¹ / ₄ "						
	2	4'-6 ¹ / ₂ "						
S508	S.O.	T0	375	STR.				2'-4"
	11	28'-2"						
S509	688	6'-10"	4904	30	3'-2"	3'-8"		
	1	31'-10"						
S510	S.O.	T0	134	STR.				0'-1 ¹ / ₂ "
	4	32'-2 ¹ / ₂ "						
	1	33'-5 ¹ / ₂ "						
S511	S.O.	T0	141	STR.				0'-1 ⁵ / ₁₆ "
	4	33'-9 ¹ / ₂ "						
S512	28	6'-2"	180	30	3'-4"	2'-10"		
S513	124	5'-9"	744	2	2'-2"	1'-8"	2'-2"	
S514	188	7'-7 ¹ / ₂ "	1496	2	2'-10 ¹ / ₄ "	2'-2"	2'-10 ¹ / ₄ "	
S515	60	7'-1 ¹ / ₂ "	446	2	2'-7 ¹ / ₄ "	2'-2"	2'-7 ¹ / ₄ "	
S516	3	31'-10"	100	STR.				
S517	3	32'-2 ¹ / ₂ "	101	STR.				
	1	31'-1 ¹ / ₂ "						
S518	S.O.	T0	134	STR.				0'-1"
	4	32'-2 ¹ / ₂ "						
S519	3	33'-9 ¹ / ₂ "	106	STR.				
S520	3	33'-5 ¹ / ₂ "	105	STR.				
	1	33'-5 ¹ / ₂ "						
S521	S.O.	T0	141	STR.				0'-1"
	4	33'-8 ¹ / ₂ "						
	1	31'-5"						
S522	S.O.	T0	132	STR.				0'-1 ¹ / ₂ "
	4	31'-9 ¹ / ₂ "						
S523	3	31'-9 ¹ / ₂ "	100	STR.				
S524	3	31'-5"	99	STR.				
	1	31'-5"						
S525	S.O.	T0	132	STR.				0'-1"
	4	31'-8"						
	1	33'-10"						
S526	S.O.	T0	143	STR.				0'-1 ¹ / ₂ "
	4	34'-3"						
S527	3	33'-10 ¹ / ₂ "	106	STR.				
S528	3	34'-3"	108	STR.				
	1	34'-0"						
S529	S.O.	T0	143	STR.				0'-1"
	4	34'-3"						
		SUBTOTAL =		75057				

SUPERSTRUCTURE (CONTINUED)									
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS				
					A	B	C	R	INC
S601	150	27'-8"	6234	STR.					
S801	88	4'-11 ¹ / ₂ "	1165	18	2'-7 ¹ / ₂ "	1'-0"	1'-0"		
R501	350	7'-5"	2708	23	1'-1"	3'-2"	3'-0"	0'-2 ³ / ₄ "	
R502	60	30'-0"	1877	STR.					
R503	12	6'-9"	85	STR.					
R601	350	3'-6 ³ / ₄ "	1873	29	1'-6 ³ / ₄ "	1'-1"	1'-1"		
R602	350	2'-5 ³ / ₄ "	1303	1	1'-1"	1'-6 ³ / ₄ "			
R603	10	30'-0"	451	STR.					
R604	2	9'-3"	28	STR.					
		SUPERSTRUCTURE TOTAL =		90781					
		LEFT BRIDGE TOTAL =		136221					

NOTES:

ALL BAR LISTED BAR DIMENSIONS ARE MEASURED OUT TO OUT UNLESS OTHERWISE NOTED.

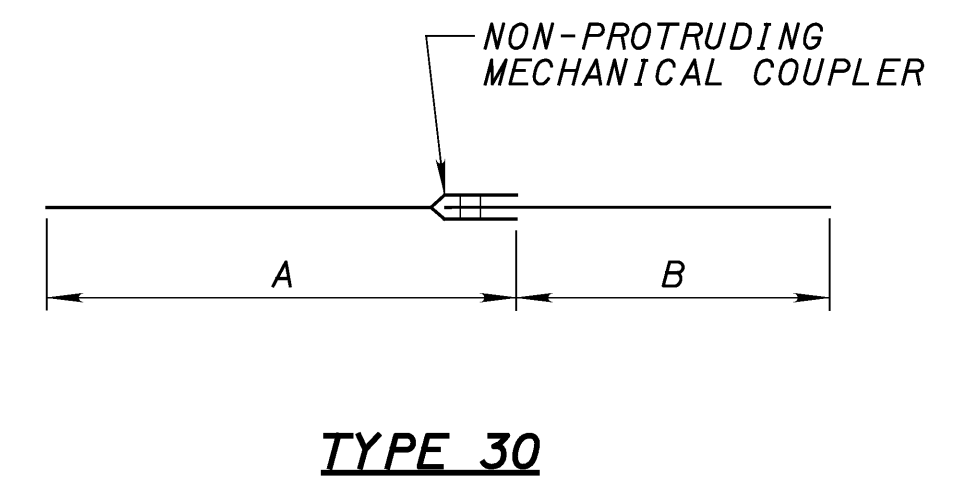
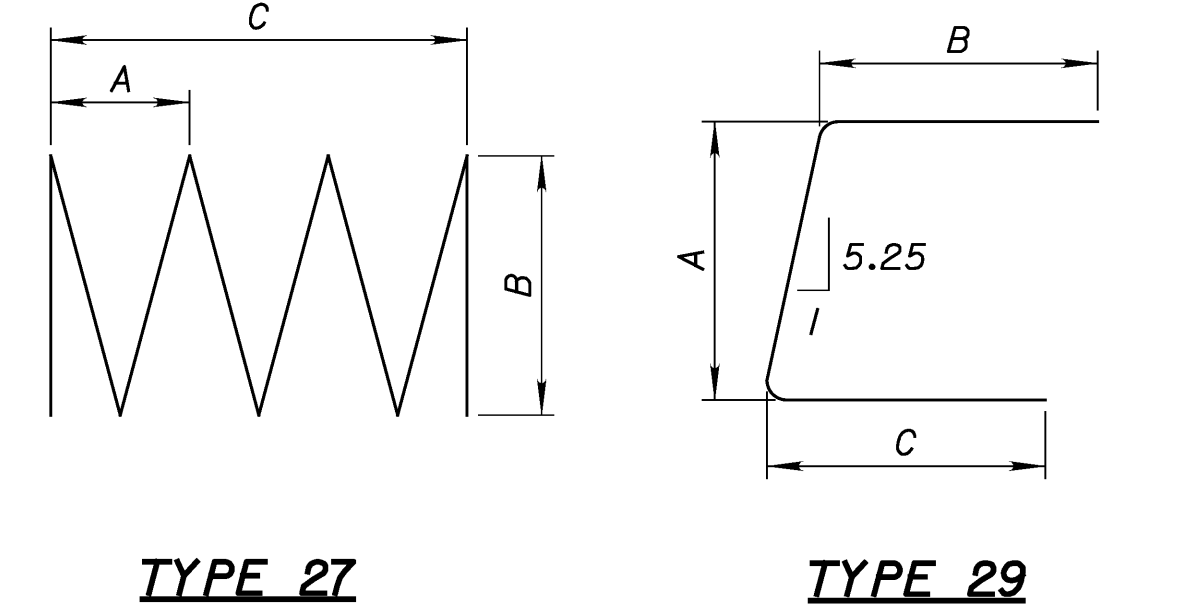
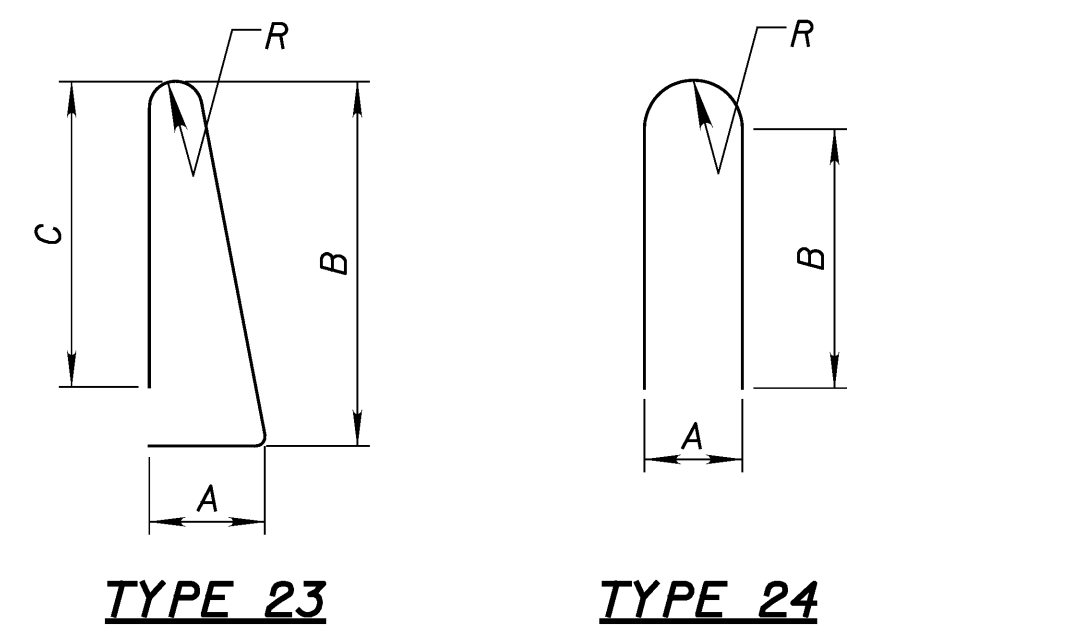
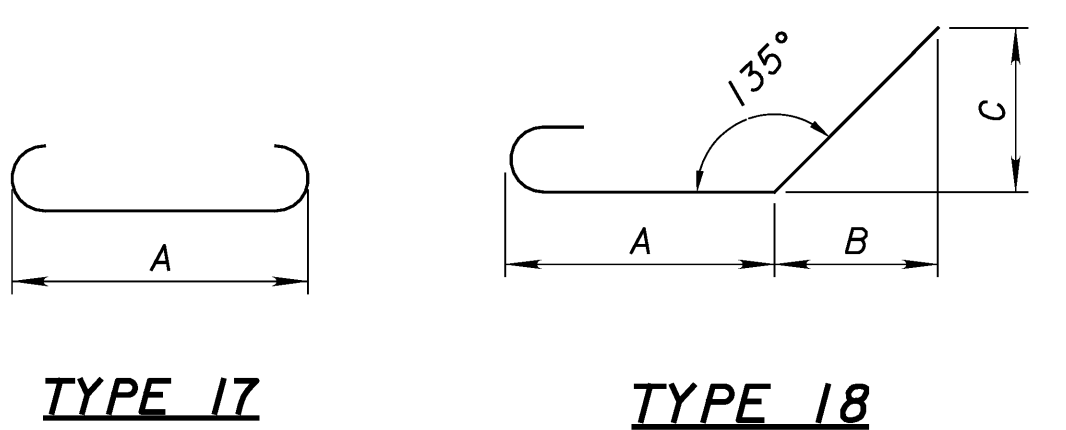
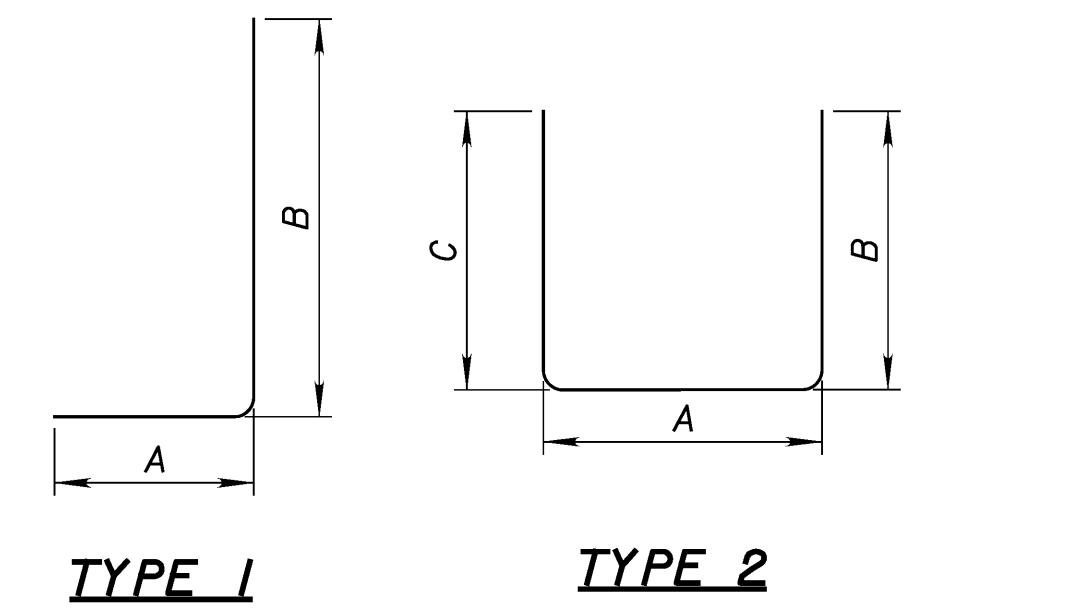
STANDARD BEND SHALL BE ASSUMED WHEN NO BAR LEG DIMENSION IS LISTED.

BAR SIZE AND LOCATION ARE INDICATED BY THE BAR MARK. THE LETTER INDICATES BAR LOCATION. THE FIRST NUMBER OF A THREE DIGIT NUMBER, OR THE FIRST TWO DIGITS OF A FOUR DIGIT NUMBER INDICATES BAR SIZE. THE REMAINING TWO DIGITS INDICATE BAR MARK.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

SPIRAL SPACERS

CONCRETE SPACERS OR OTHER APPROVED NONCORROSIVE SPACING DEVICES SHALL BE USED AT SUFFICIENT INTERVALS (NEAR THE BOTTOM AND AT INTERVALS NOT EXCEEDING 10 FEET) TO ENSURE CONCENTRIC SPACING FOR THE ENTIRE CAGE LENGTH. SPACERS SHALL BE CONSTRUCTED OF APPROVED MATERIAL EQUAL IN QUALITY AND DURABILITY TO THE CONCRETE SPECIFIED FOR THE DRILLED SHAFT OR COLUMN. THE SPACERS SHALL HAVE ADEQUATE DIMENSIONS TO ENSURE A MINIMUM OF 3 INCH CLEAR SPACE BETWEEN THE OUTSIDE OF THE REINFORCING CAGE AND THE DESIGN DIMENSION OF THE DRILLED SHAFT OR COLUMN. CYLINDRICAL CONCRETE FEET (BOTTOM SUPPORTS) SHALL BE PROVIDED TO ENSURE THAT THE BOTTOM OF THE CAGE IS MAINTAINED AT THE PROPER DISTANCE ABOVE THE BASE.



REAR ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	36	9'-1"	218	3	1'-9"	2'-6 ³ / ₄ "				
A501	71	11'-0"	815	3	2'-7"	2'-8"				
A502	56	13'-11"	814	2	6'-0"	2'-2"	6'-0"			
A503	16	18'-3"	305	2	8'-2"	2'-2"	8'-2"			
A505	10	10'-5"	109	2	4'-3"	2'-2"	4'-3"			
A510	10	6'-6"	63	30	3'-3"	2'-9"				
A511	1	11'-8"	12	STR.						
A512	1	12'-1"	13	STR.						
A513	3	12'-0"	38	STR.						
A514	3	11'-7"	36	STR.						
A533	20	2'-9"	489	STR.						
A534	20	24'-3"	508	STR.						
A541	2	10'-7"	22	2	4'-4"	2'-2"	4'-4"			
	1	8'-9"			3'-5"		3'-5"			
A542	S.O.	T0	42	2	T0	2'-2"	T0			0'-5"
	4	11'-3"			4'-8"		4'-8"			
	1	7'-11"			3'-0"		3'-0"			
A543	S.O.	T0	38	2	T0	2'-2"	T0			0'-4 ¹ / ₂ "-
	4	10'-1"			4'-1"		4'-1"			
A544	1	3'-8"	4	STR.						
A545	1	3'-3"	3	STR.						
A546	1	7'-10"	8	STR.						
A547	1	7'-5"	8	STR.						
A548	1	12'-8"	13	19	1'-3"	11'-0"	3'-3"			
A549	1	12'-3"	13	19	0'-10"	11'-0"	3'-3"			
A601	62	10'-9"	1000	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A803	8	15'-0"	321	30	7'-9"	7'-3"				
A804	16	25'-8"	1097	STR.						
A805	16	26'-6"	1132	STR.						

REAR ABUTMENT TOTAL = 7121

FORWARD ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS					
					A	B	C	D	E	INC
A401	36	9'-1"	218	3	1'-9"	2'-6 ³ / ₄ "				
A501	70	11'-0"	803	3	2'-7"	2'-8"				
A502	55	13'-11"	799	2	6'-0"	2'-2"	6'-0"			
A503	16	18'-3"	305	2	8'-2"	2'-2"	8'-2"			
A504	2	10'-5"	22	2	4'-3"	2'-2"	4'-3"			
A505	10	10'-5"	110	2	4'-3"	2'-2"	4'-3"			
	1	8'-7"			3'-4"		3'-4"			
A506	S.O.	T0	41	2	T0	2'-2"	T0			0'-5"
	4	11'-1"			4'-7"		4'-7"			
	1	8'-7"			3'-0"		3'-0"			
A507	S.O.	T0	38	2	T0	2'-2"	T0			0'-4 ¹ / ₂ "-
	4	10'-9"			4'-1"		4'-1"			
A508	20	23'-3"	485	STR.						
A509	20	24'-5"	510	STR.						
A510	10	6'-0"	63	30	3'-3"	2'-9"				
A511	3	11'-8"	37	STR.						
A512	3	12'-1"	38	STR.						
A513	1	12'-0"	13	STR.						
A514	1	11'-7"	12	STR.						
A515	1	7'-9"	8	STR.						
A516	1	7'-4"	8	STR.						
A517	1	3'-6"	4	STR.						
A518	1	3'-1"	3	STR.						
A519	1	12'-6"	13	19	1'-3"	10'-10"	3'-2"			
A520	1	12'-1"	13	19	0'-10"	10'-10"	3'-2"			
A601	62	10'-9"	1000	26	2'-2"	0'-5"	2'-7"	0'-10"	1'-9"	
A801	16	25'-6"	1090	STR.						
A802	16	26'-9"	1143	STR.						
A803	8	15'-0"	321	30	7'-9"	7'-3"				

FORWARD ABUTMENT TOTAL = 7097

ABUTMENT TOTAL = 14218

NOTES:

SEE SHEET 36/36 FOR BAR BENDING DIAGRAMS.

SEE SHEET 36/36 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

DRILLED SHAFTS, PIER 1								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP407	4	395'-11 1/2"	1058	27	0'-4 1/2"	1'-9"	26'-5"	
SP503	4	1170'-10 3/4"	4885	27	0'-3"	3'-6"	26'-3"	
DS1103	60	26'-3"	8368	STR.				
DS1107	40	36'-3"	7704	STR.				
DRILLED SHAFTS, PIER 1 TOTAL = 22015								

DRILLED SHAFT REINFORCEMENT IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. IT IS PAID FOR UNDER ITEM 524.

PIER 1								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP403	4	524'-3"	1401	27	0'-4 1/2"	2'-6"	24'-4"	
P503	78	8'-0"	651	2	2'-5"	3'-5"	2'-5"	
P504	19	31'-11"	633	STR.				
P505	19	28'-6"	565	STR.				
P506	16	12'-4"	206	24	3'-6"	3'-5"		1'-9"
P507	16	29'-2"	487	STR.				
P508	164	9'-1"	1554	2	3'-4"	2'-8"	3'-4"	
P509	24	7'-3"	182	2	2'-5"	2'-8"	2'-5"	
P510	84	9'-5"	825	STR.				
P511	2	6'-9"	14	2	2'-8 1/2"	1'-7"	2'-8 1/2"	
P701	10	8'-6 1/2"	175	2	3'-4"	1'-8"	3'-4"	
P1001	8	29'-2"	1004	STR.				
P1002	12	32'-3"	1666	2	1'-10"	29'-2"	1'-10"	
P1102	40	27'-5"	5827	STR.				
PIER 1 TOTAL = 15190								

DRILLED SHAFTS, PIER 2								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP408	4	281'-0 3/4"	751	27	0'-4 1/2"	1'-9"	18'-5"	
SP504	4	823'-10"	3437	27	0'-3"	3'-6"	18'-3"	
DS1104	60	18'-3"	5818	STR.				
DS1108	40	28'-3"	6004	STR.				
DRILLED SHAFTS, PIER 2 TOTAL = 16010								

DRILLED SHAFT REINFORCEMENT IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. IT IS PAID FOR UNDER ITEM 524.

PIER 2								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			
	TOTAL				A	B	C	R
SP404	4	524'-3"	1401	27	0'-4 1/2"	2'-6"	24'-4"	
P501	84	10'-1"	884	STR.				
P503	78	8'-0"	651	2	2'-5"	3'-5"	2'-5"	
P504	19	31'-11"	633	STR.				
P505	19	28'-6"	565	STR.				
P506	16	12'-4"	206	24	3'-6"	3'-5"		1'-9"
P507	16	29'-2"	487	STR.				
P508	164	9'-1"	1554	2	3'-4"	2'-8"	3'-4"	
P509	24	7'-3"	182	2	2'-5"	2'-8"	2'-5"	
P511	2	6'-9"	14	2	2'-8 1/2"	1'-7"	2'-8 1/2"	
P701	10	8'-6 1/2"	175	2	3'-4"	1'-8"	3'-4"	
P1001	8	29'-2"	1004	STR.				
P1002	12	32'-3"	1666	2	1'-10"	29'-2"	1'-10"	
P1102	40	27'-5"	5827	STR.				
PIER 2 TOTAL = 15249								
PIER TOTAL = 30439								

NOTES:

SEE SHEET 36/36 FOR BAR BENDING DIAGRAM.

SEE SHEET 36/36 FOR ADDITIONAL NOTES REGARDING REINFORCING STEEL.

SUPERSTRUCTURE								
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			INC
					A	B	C	
S401	304	30'-0"	6093	STR.				
S402	76	35'-0"	1777	STR.				
S501	672	30'-2"	21144	STR.				
	2	5'-2"						
S502	S.O.	T0	330	STR.				2'-9 ³ / ₄ "
	10	26'-5 ¹ / ₂ "						
	2	3'-0"						
S503	S.O.	T0	356	STR.				2'-6"
	11	27'-1 ¹ / ₄ "						
S504	370	30'-0"	11577	STR.				
S505	74	10'-6"	811	STR.				
S506	670	32'-2"	22478	STR.				
	2	3'-0"						
S507	S.O.	T0	421	STR.				2'-6"
	12	30'-7 ¹ / ₄ "						
	2	4'-6 ¹ / ₂ "						
S508	S.O.	T0	375	STR.				2'-4"
	11	28'-2"						
S509	688	6'-10"	4904	30	3'-2"	3'-8"		
	1	31'-10"						
S510	S.O.	T0	134	STR.				0'-1 ¹ / ₂ "
	4	32'-2 ¹ / ₂ "						
	1	33'-5 ¹ / ₂ "						
S511	S.O.	T0	141	STR.				0'-1 ⁵ / ₁₆ "
	4	33'-9 ¹ / ₂ "						
S512	28	6'-2"	180	30	3'-4"	2'-10"		
S513	124	5'-9"	744	2	2'-2"	1'-8"	2'-2"	
S514	64	7'-7 ¹ / ₂ "	509	2	2'-10 ¹ / ₄ "	2'-2"	2'-10 ¹ / ₄ "	
S515	184	7'-1 ¹ / ₂ "	1368	2	2'-7 ¹ / ₄ "	2'-2"	2'-7 ¹ / ₄ "	
S516	3	31'-10"	100	STR.				
S517	3	32'-2 ¹ / ₂ "	101	STR.				
	1	31'-11 ¹ / ₂ "						
S518	S.O.	T0	134	STR.				0'-1"
	4	32'-2 ¹ / ₂ "						
S519	3	33'-9 ¹ / ₂ "	106	STR.				
S520	3	33'-5 ¹ / ₂ "	105	STR.				
	1	33'-5 ¹ / ₂ "						
S521	S.O.	T0	141	STR.				0'-1"
	4	33'-8 ¹ / ₂ "						
	1	31'-5"						
S522	S.O.	T0	132	STR.				0'-1 ¹ / ₂ "
	4	31'-9 ¹ / ₂ "						
S523	3	31'-9 ¹ / ₂ "	100	STR.				
S524	3	31'-5"	99	STR.				
	1	31'-5"						
S525	S.O.	T0	132	STR.				0'-1"
	4	31'-8"						
	1	33'-10"						
S526	S.O.	T0	143	STR.				0'-1 ¹ / ₂ "
	4	34'-3"						
S527	3	33'-10 ¹ / ₂ "	106	STR.				
S528	3	34'-3"	108	STR.				
	1	34'-0"						
S529	S.O.	T0	143	STR.				0'-1"
	4	34'-3"						

SUPERSTRUCTURE (CONTINUED)									
MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS			R	INC
					A	B	C		
S601	150	27'-8"	6234	STR.					
S801	88	4'-11 ¹ / ₂ "	1165	18	2'-7 ¹ / ₂ "	1'-0"	1'-0"		
R501	350	7'-5"	2708	23	1'-1"	3'-2"	3'-0"	0'-2 ³ / ₄ "	
R502	60	30'-0"	1877	STR.					
R503	12	6'-9"	85	STR.					
R601	350	3'-6 ³ / ₄ "	1873	29	1'-6 ³ / ₄ "	1'-1"	1'-1"		
R602	350	2'-5 ³ / ₄ "	1303	1	1'-1"	1'-6 ³ / ₄ "			
R603	10	30'-0"	451	STR.					
R604	2	9'-3"	28	STR.					

SUPERSTRUCTURE TOTAL = 90716
 RIGHT BRIDGE TOTAL = 135373

NOTES:

ALL BAR LISTED BAR DIMENSIONS ARE MEASURED OUT TO OUT UNLESS OTHERWISE NOTED.

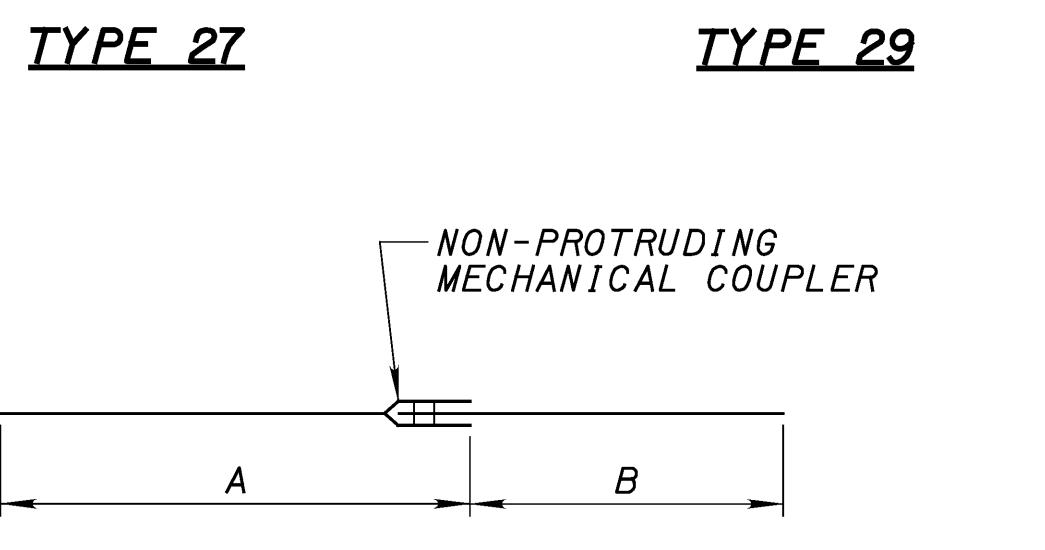
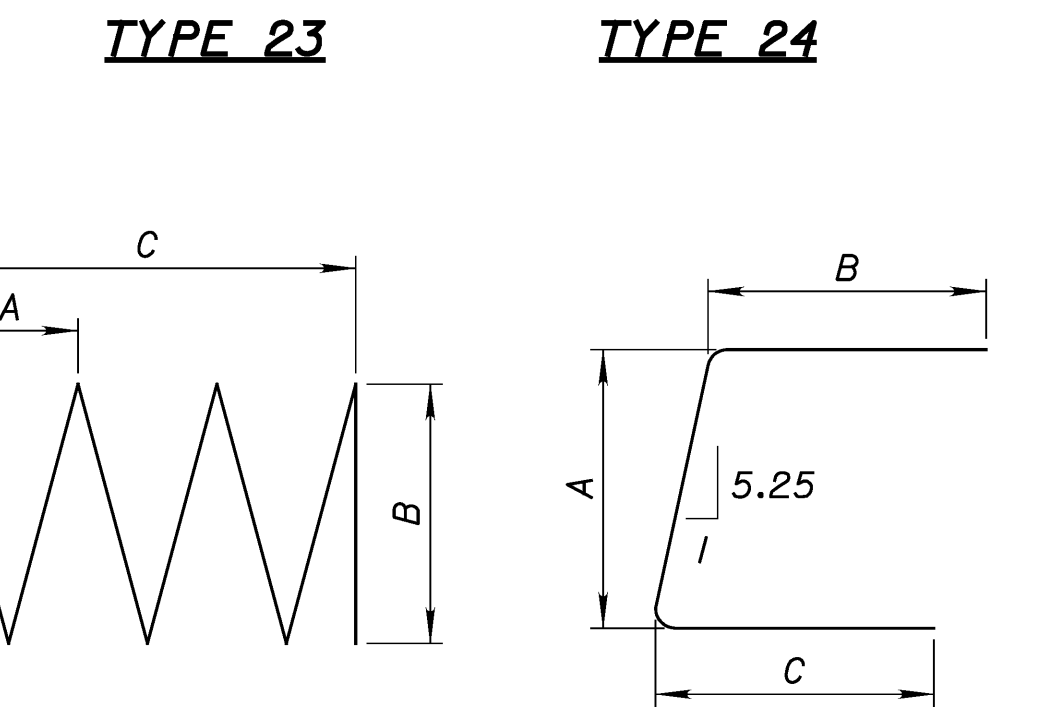
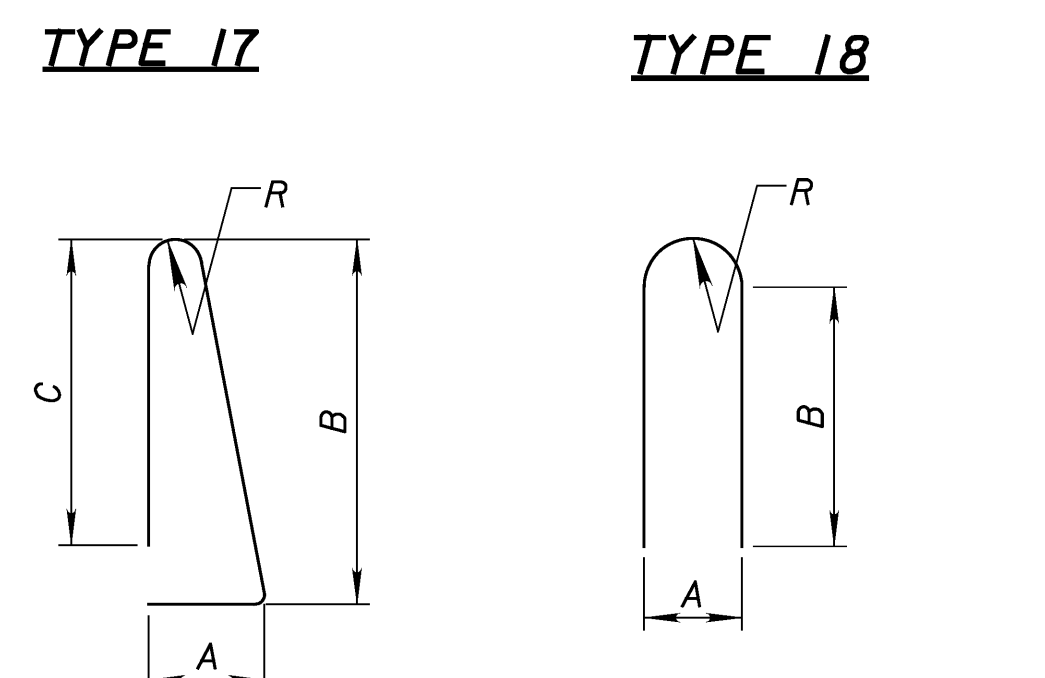
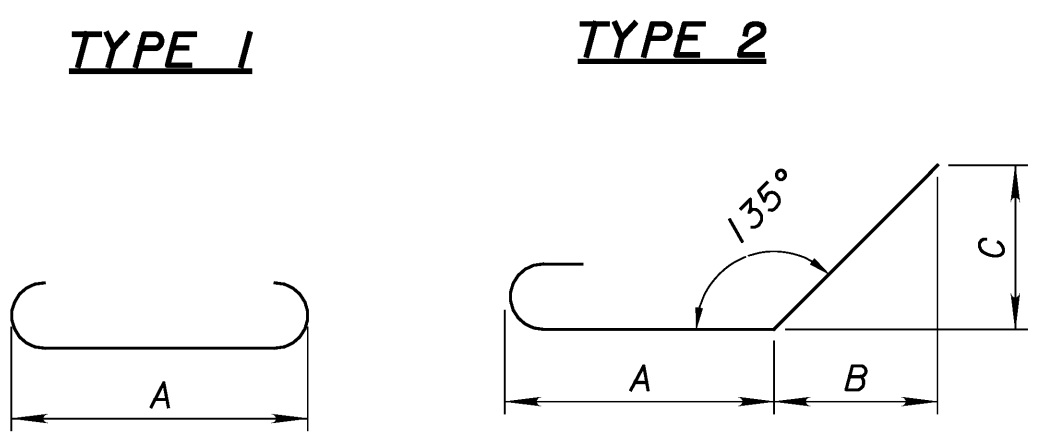
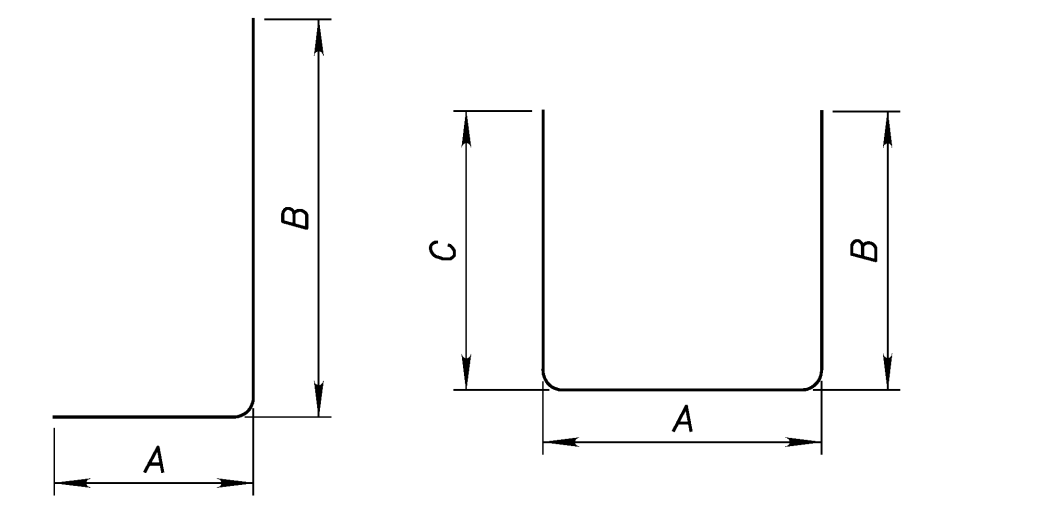
STANDARD BEND SHALL BE ASSUMED WHEN NO BAR LEG DIMENSION IS LISTED.

BAR SIZE AND LOCATION ARE INDICATED BY THE BAR MARK. THE LETTER INDICATES BAR LOCATION. THE FIRST NUMBER OF A THREE DIGIT NUMBER, OR THE FIRST TWO DIGITS OF A FOUR DIGIT NUMBER INDICATES BAR SIZE. THE REMAINING TWO DIGITS INDICATE BAR MARK.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

SPIRAL SPACERS

CONCRETE SPACERS OR OTHER APPROVED NONCORROSIVE SPACING DEVICES SHALL BE USED AT SUFFICIENT INTERVALS (NEAR THE BOTTOM AND AT INTERVALS NOT EXCEEDING 10 FEET) TO ENSURE CONCENTRIC SPACING FOR THE ENTIRE CAGE LENGTH. SPACERS SHALL BE CONSTRUCTED OF APPROVED MATERIAL EQUAL IN QUALITY AND DURABILITY TO THE CONCRETE SPECIFIED FOR THE DRILLED SHAFT OR COLUMN. THE SPACERS SHALL HAVE ADEQUATE DIMENSIONS TO ENSURE A MINIMUM OF 3 INCH CLEAR SPACE BETWEEN THE OUTSIDE OF THE REINFORCING CAGE AND THE DESIGN DIMENSION OF THE DRILLED SHAFT OR COLUMN. CYLINDRICAL CONCRETE FEET (BOTTOM SUPPORTS) SHALL BE PROVIDED TO ENSURE THAT THE BOTTOM OF THE CAGE IS MAINTAINED AT THE PROPER DISTANCE ABOVE THE BASE.



LOR-90-12.42

CITY OF ELYRIA
LOT 10, BRACE TRACT, T-6-N, R-17-W
ELYRIA TOWNSHIP
LORAIN COUNTY, OHIO

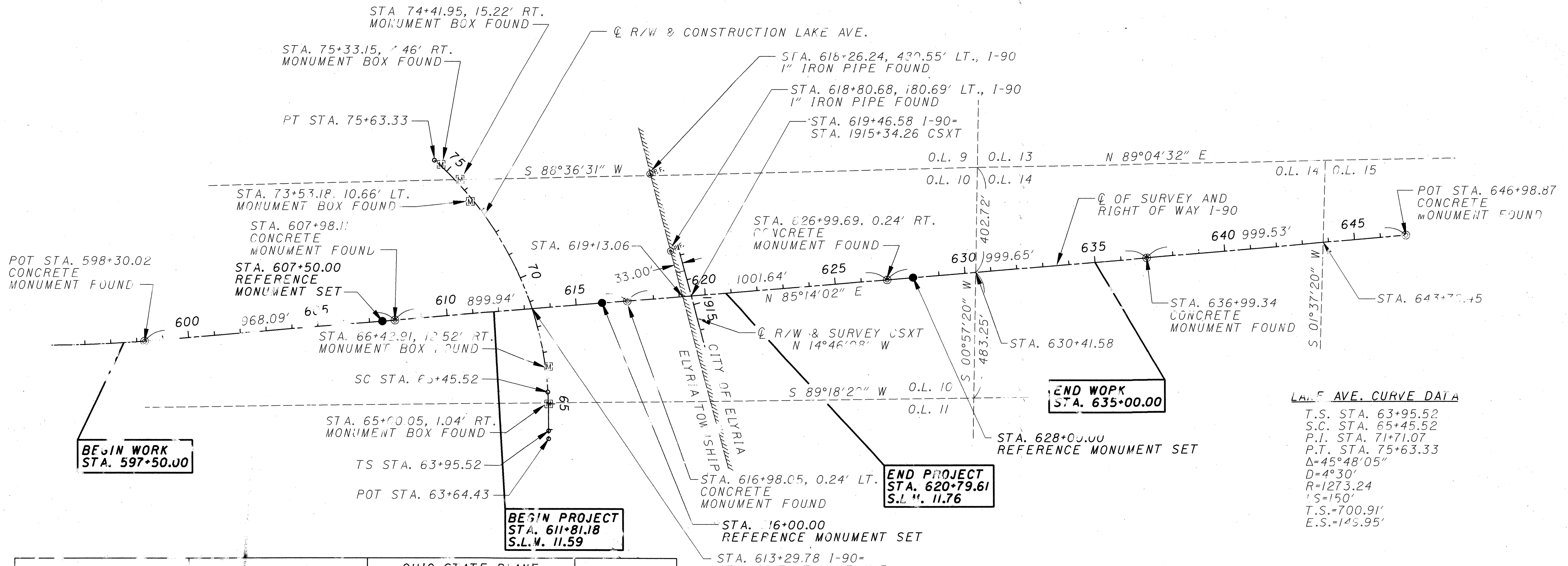
BASIS FOR BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS OHIO STATE PLANE, NORTH ZONE NAD83 (1995) GRID NORTH BASED ON GPS OBSERVATIONS PERFORMED ON AUGUST 11, 2003.

NOTE: EXISTING CENTERLINE OF SURVEY AND RIGHT OF WAY ARE BASED ON PREVIOUS PROJECT PLANS FOR LOR-254-4 18/LOR-90-11.90.

MONUMENT LEGEND

- ⊙ CONCRETE MONUMENT FOUND
- ⊞ MONUMENT BOX FOUND
- ⊙-R.F. IRON PIPE FOUND



LAKE AVE. CURVE DATA

T.S. STA. 63+95.52
S.C. STA. 65+45.52
P.I. STA. 71+71.07
P.T. STA. 75+63.33
Δ=45°48'05"
D=4°30'
R=1273.24
L.S.=150'
T.S.=700.91'
E.S.=145.95'

MONUMENTS (* DENOTES MONUMENT TO BE REMOVED)		PROJECT COORDINATES (FEET)		OHIO STATE PLANE COORDINATES NORTH ZONE NAD83 (1995) (METERS)		REFERENCE MONUMENT SET
STATION	OFFSET	NORTHING	EASTING	NORTHING	EASTING	
I-90						
598+30.02	ON ♂	33,003.466	68,120.615	10,058.686	20,761.573	
607+50.00	ON ♂	33,079.906	69,037.404	10,081.983	21,040.989	I
*607+98.11	ON ♂	33,083.925	69,085.358	10,083.208	21,055.604	
616+00.00	ON ♂	33,150.532	69,884.465	10,103.508	21,299.154	I
*616+98.05	0.24' LT.	33,158.917	69,982.167	10,106.064	21,328.931	
*626+99.69	0.24' RT.	33,241.662	70,980.383	10,131.283	21,633.164	
628+00.00	ON ♂	33,250.240	71,080.315	10,133.897	21,663.621	I
636+99.34	ON ♂	33,324.965	71,976.553	10,156.671	21,936.773	
646+98.87	ON ♂	33,408.017	72,972.630	10,181.984	22,240.354	
LAKE AVENUE						
65+00.05	1.04' RT.	32,763.174	69,677.941	9985.451	21,236.210	
66+42.91	12.52' RT.	32,907.168	69,678.160	10,029.337	21,236.277	
73+53.18	10.66' LT.	33,540.970	69,376.438	10,222.505	21,144.319	
74+41.95	15.22' RT.	33,624.622	69,336.723	10,248.000	21,132.215	
75+33.15	4.46' RT.	33,681.140	69,263.482	10,256.225	21,109.892	
TOTAL						3

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN 2003 BY KS ASSOCIATES, INC.

THE ESTABLISHMENT OF PROPERTY LINES AND EXISTING RIGHT OF WAY LINES SHOWN ON THIS PLAN AS OF THIS DATE WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

BY: Mark A. Yeager
MARK A. YEAGER

SURVEYOR NO. 7289 DATE: 7/19/04

OCT 27 2004
RECEIVED FOR RECORD
at 10:01 o'clock A.M. in 218 RECORD
VOL. 82 JUDITH M. NEDWICK
PAGE 37 Lorain County Recorder
CALL: WES AT ODOT 800-645-3312

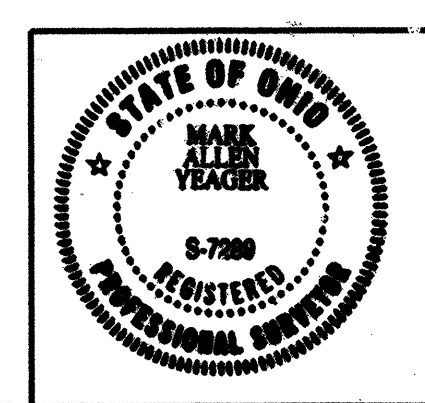
NO TRANSFER NECESSARY
MARK R. STEWART
LORAIN COUNTY AUDITOR
DEPUTY
10/27/04

THE PROPOSED RIGHT OF WAY SHALL BE REFERENCED FROM THE CENTERLINE OF SURVEY AND RIGHT OF WAY.

ADJUSTABLE CENTERLINE MONUMENTS, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM 1.1 (REV. 4-18-03) OF THE OHIO DEPARTMENT OF TRANSPORTATION. THE PLACING OF THE MONUMENTS SHALL BE UNDER THE DIRECTION OF A SURVEYOR REGISTERED IN THE STATE OF OHIO AND ARE TO BE SET AS SHOWN BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION. ANY ALTERATIONS, WITH PRIOR APPROVAL OF THE OHIO DEPARTMENT OF TRANSPORTATION, SHALL BE NOTED AND O.D.O.T. SHALL BE NOTIFIED OF THE NEW LOCATIONS.

OCT 27 2004

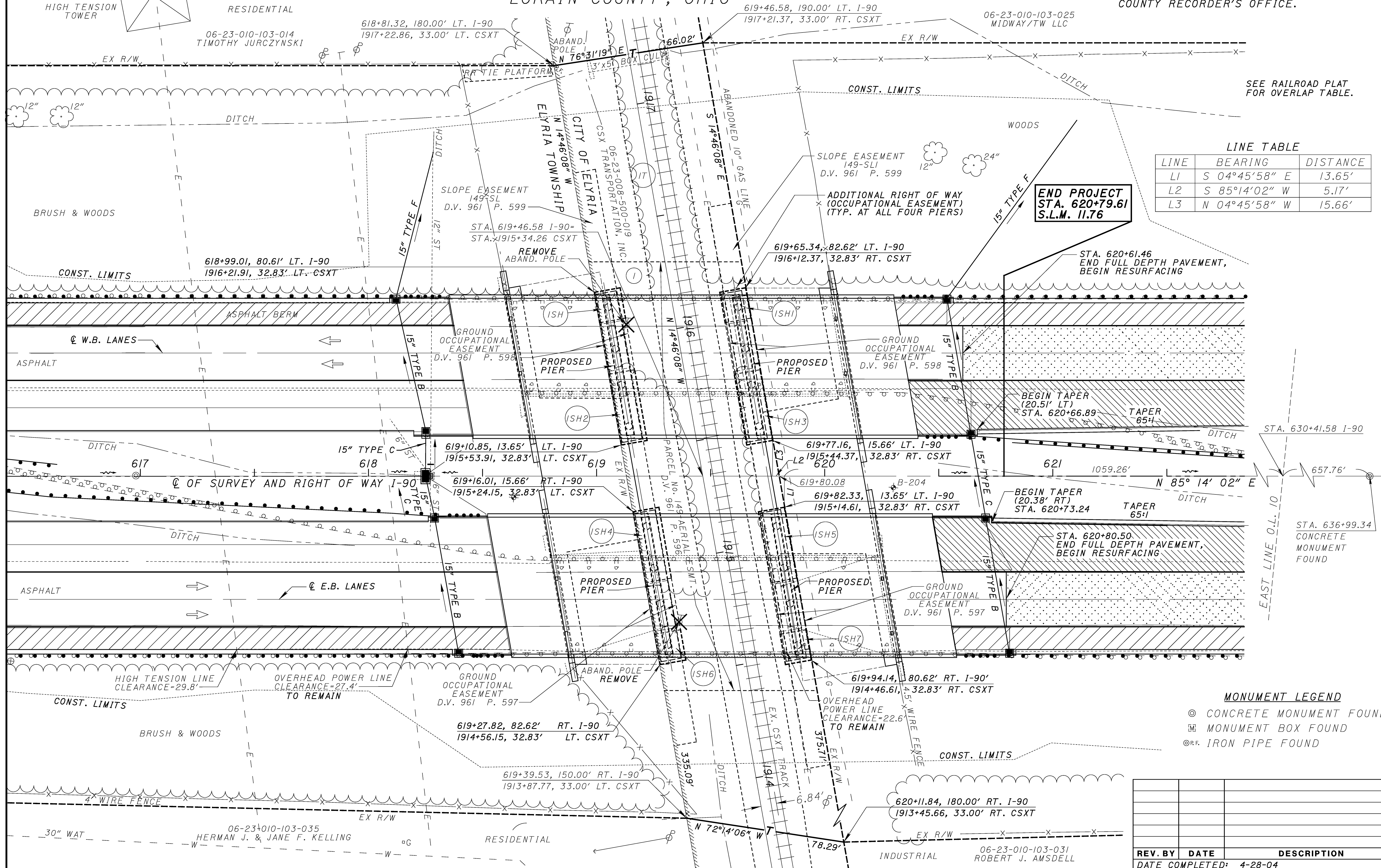
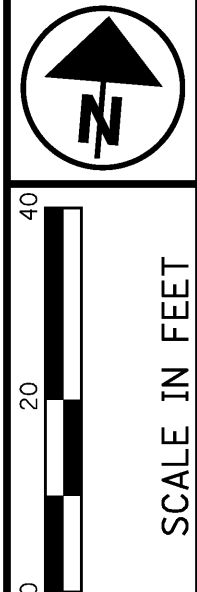
RECEIVED _____, 20____
RECORDED _____, 20____
BOOK _____ PAGE _____
COUNTY RECORDER



PID NO. 24868
 D.L.R. / M.A.Y.
 CENTERLINE PLAT
 LOR-90-12.42
 196 / 199

CITY OF ELYRIA
 LOT 10, BRACE TRACT, T-6-N, R-17-W
 ELYRIA TOWNSHIP
 LORAIN COUNTY, OHIO

NOTE: THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 3 OFFICE, ASHLAND, OHIO, & PLAT LOR-254-4.08 B/ LOR-90-11,90 IN FILE PLAT BOOK 24, PG. 14 COUNTY RECORDER'S OFFICE.



LINE TABLE

LINE	BEARING	DISTANCE
L1	S 04°45'58" E	13.65'
L2	S 85°14'02" W	5.17'
L3	N 04°45'58" W	15.66'

END PROJECT
 STA. 620+79.61
 S.L.M. 11.76

- MONUMENT LEGEND
- ⊙ CONCRETE MONUMENT FOUND
 - ⊞ MONUMENT BOX FOUND
 - ⊙ R.F. IRON PIPE FOUND

REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 4-28-04

PID NO.
24868

R/W DESIGNER
 DLR
 R/W REVIEWER
 MAY

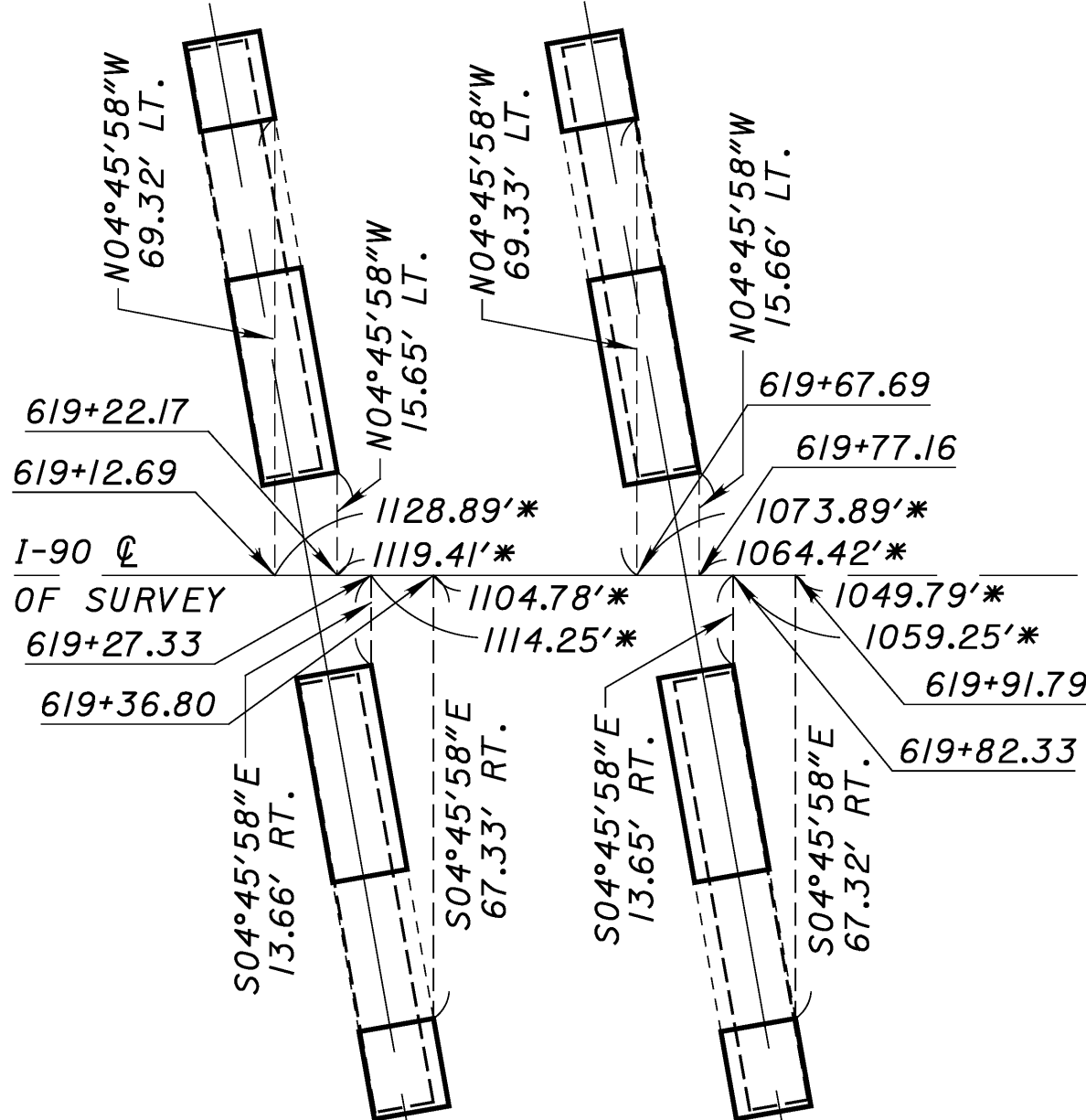
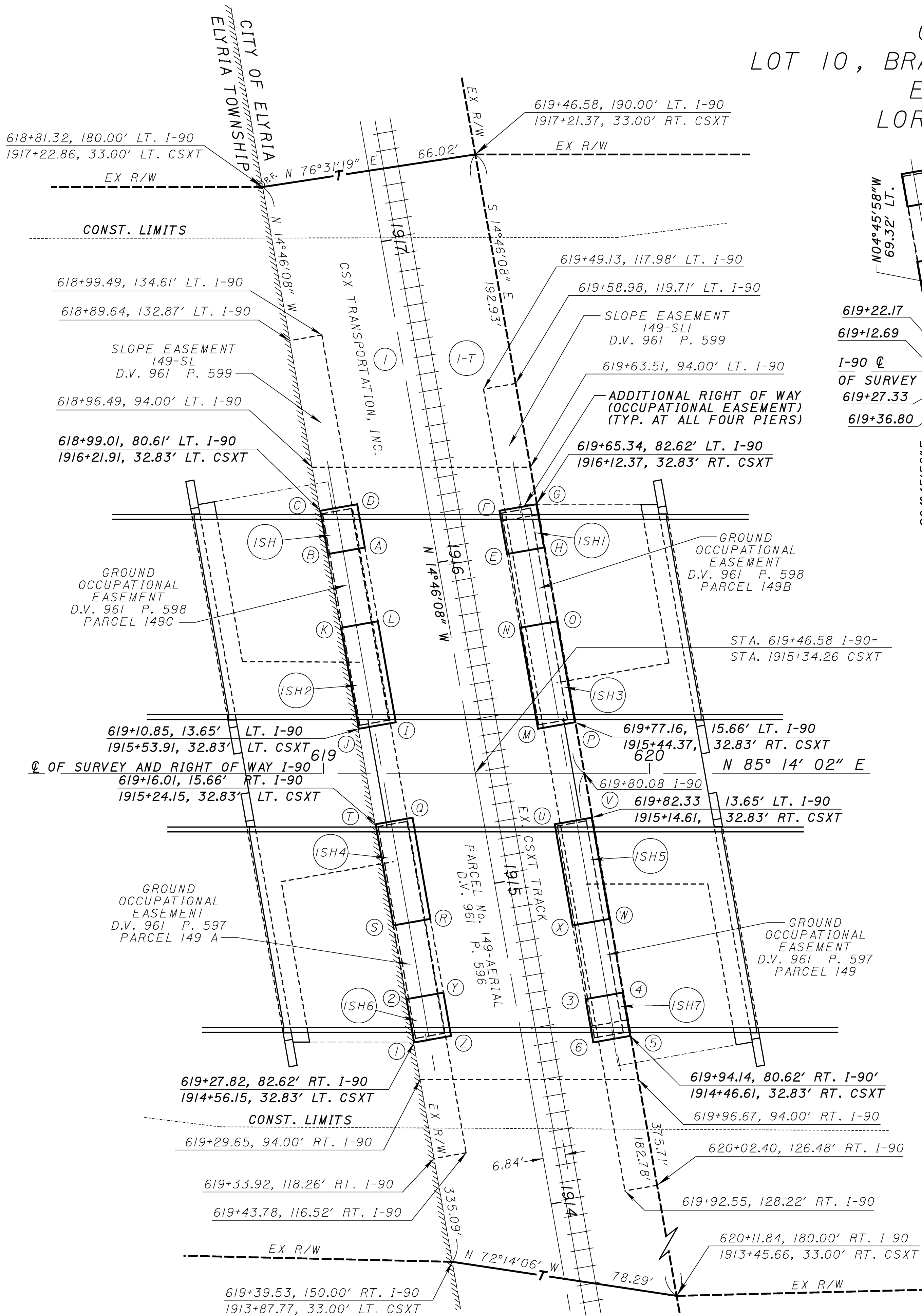
RIGHT OF WAY PLAN
 STA. 618+99.01 TO STA. 619+94.13

LOR-90-12.42

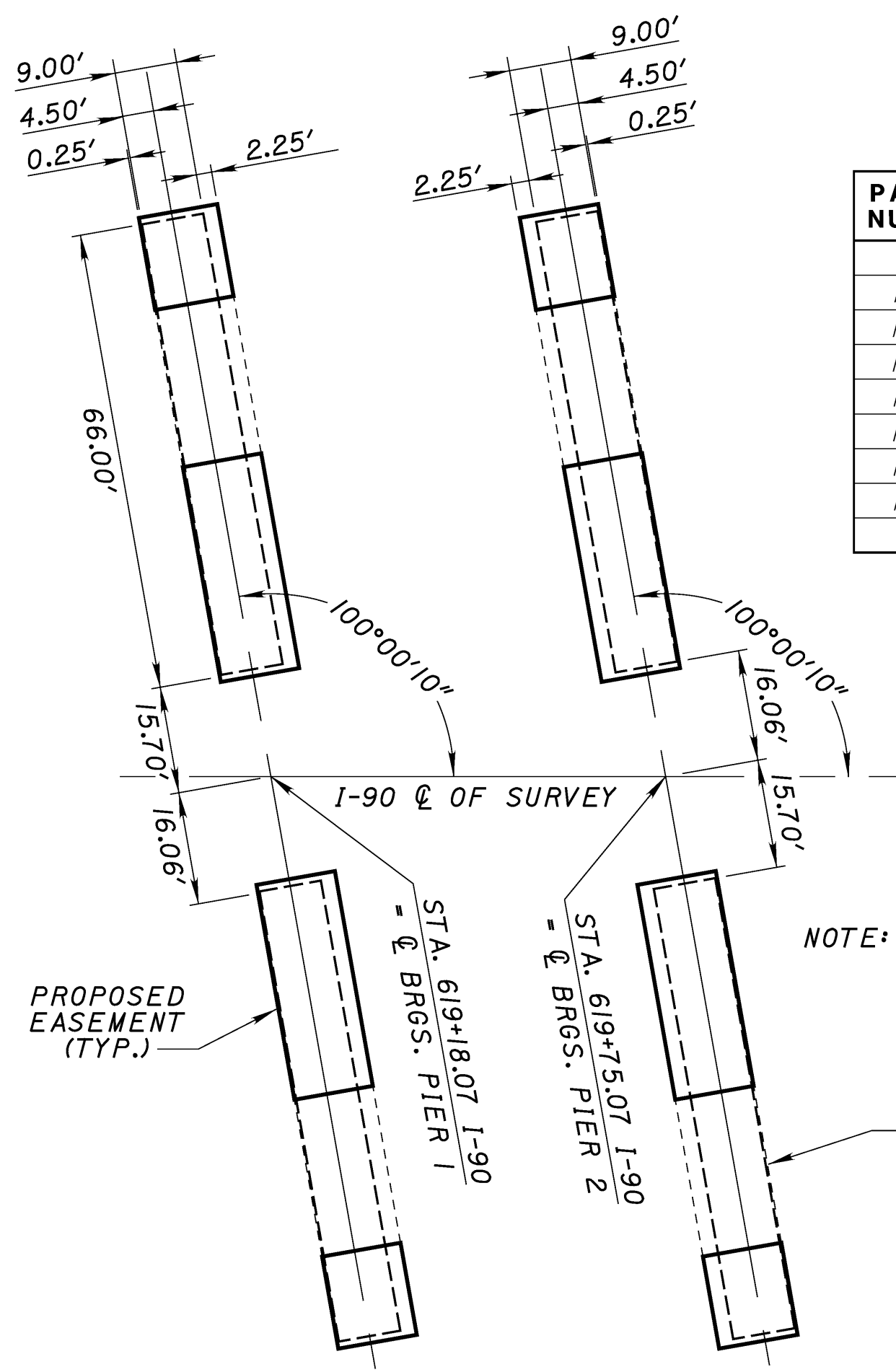
3 / 4
 198
 199

CITY OF ELYRIA
 LOT 10, BRACE TRACT, T-6-N, R-17-W
 ELYRIA TOWNSHIP
 LORAIN COUNTY, OHIO

CSX TRANSPORTATION, INC. RAILWAY PLAT



* LEAD-IN DISTANCE FROM EAST LINE O.L. 10.



NOTE: DIMENSIONS TYPICAL FOR ALL FOOTERS

POINT	RAILROAD		ROADWAY		PERMANENT EASEMENTS FOR PIER FOOTERS			
	STATION	OFFSET	STATION	OFFSET	PARCEL	COURSE	DISTANCE	BEARING
A	1916+08.41	21.33'	619+12.69	69.32'	ISH	A-B	11.50'	S 75°13'52" W
B	1916+08.41	32.83'	619+01.37	67.32'		B-C	13.50'	N 14°46'08" W
C	1916+21.91	32.83'	618+99.01	80.61'		C-D	11.50'	N 75°13'52" E
D	1916+21.91	21.33'	619+10.34	82.61'	ISH1	D-A	13.50'	S 14°46'08" E
E	1915+98.87	21.33'	619+56.36	67.33'		E-F	13.50'	N 14°46'08" W
F	1916+12.37	21.33'	619+54.01	80.62'		F-G	11.50'	N 75°13'52" E
G	1916+12.37	32.83'	619+65.34	82.62'	ISH2	G-H	13.50'	S 14°46'08" E
H	1915+98.87	32.83'	619+67.69	69.33'		H-E	11.50'	S 75°13'52" W
I	1915+53.91	21.33'	619+22.17	15.65'		I-J	11.50'	S 75°13'52" W
J	1915+53.91	32.83'	619+10.85	13.65'	ISH3	J-K	31.50'	N 14°46'08" W
K	1915+85.41	32.83'	619+05.37	44.67'		K-L	11.50'	N 75°13'52" E
L	1915+85.41	21.33'	619+16.69	46.67'		L-I	31.50'	S 14°46'08" E
M	1915+44.37	21.33'	619+65.84	13.66'	ISH4	M-N	31.50'	N 14°46'08" W
N	1915+75.87	21.33'	619+60.36	44.68'		N-O	11.50'	N 75°13'52" E
O	1915+75.87	32.83'	619+71.69	46.68'		O-P	31.50'	S 14°46'08" E
P	1915+44.37	32.83'	619+77.16	15.66'	ISH5	P-M	11.50'	S 75°13'52" W
Q	1915+24.15	21.33'	619+27.33	13.66'		Q-R	31.50'	S 14°46'08" E
R	1914+92.65	21.33'	619+32.80	44.68'		R-S	11.50'	S 75°13'52" W
S	1914+92.65	32.83'	619+21.48	46.67'	ISH6	S-T	31.50'	N 14°46'08" W
T	1915+24.15	32.83'	619+16.01	15.66'		T-Q	11.50'	N 75°13'52" E
U	1915+14.61	21.33'	619+71.00	15.65'		U-V	11.50'	N 75°13'52" E
V	1915+14.61	32.83'	619+82.33	13.65'	ISH7	V-W	31.50'	S 14°46'08" E
W	1914+83.11	32.83'	619+87.80	44.67'		W-X	11.50'	S 75°13'52" W
X	1914+83.11	21.33'	619+76.47	46.67'		X-U	31.50'	N 14°46'08" W
Y	1914+69.65	21.33'	619+36.80	67.33'	ISH6	Y-Z	13.50'	S 14°46'08" E
Z	1914+56.15	21.33'	619+39.15	80.62'		Z-1	11.50'	S 75°13'52" W
1	1914+56.15	32.83'	619+27.82	82.62'		1-2	13.50'	N 14°46'08" W
2	1914+69.65	32.83'	619+25.48	69.33'	ISH7	2-Y	11.50'	N 75°13'52" E
3	1914+60.11	21.33'	619+80.47	69.32'		3-4	11.50'	N 75°13'52" E
4	1914+60.11	32.83'	619+91.79	67.32'		4-5	13.50'	S 14°46'08" E
5	1914+46.61	32.83'	619+94.14	80.62'	ISH7	5-6	11.50'	S 75°13'52" W
6	1914+46.61	21.33'	619+82.81	82.62'		6-3	13.50'	N 14°46'08" W

NOTE: RAILWAY STATIONING OBTAINED FROM THE VALUATION MAP FOR THE BALTIMORE & OHIO RAILROAD COMPANY (CSX) AKRON-CHICAGO DIVISION, WHEELING LORAIN LINE, MAP V. 121.1/19.

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP		
			AERIAL	SLOPE	TEMPORARY
ISH	HIGHWAY	0.0036 AC.	0.0036 AC.	0.0030 AC.	0.0036 AC.
ISH1	HIGHWAY	0.0036 AC.	0.0036 AC.	0.0030 AC.	0.0036 AC.
ISH2	HIGHWAY	0.0083 AC.	0.0083 AC.	0.0071 AC.	0.0083 AC.
ISH3	HIGHWAY	0.0083 AC.	0.0083 AC.	0.0071 AC.	0.0083 AC.
ISH4	HIGHWAY	0.0083 AC.	0.0083 AC.	0.0071 AC.	0.0083 AC.
ISH5	HIGHWAY	0.0083 AC.	0.0083 AC.	0.0071 AC.	0.0083 AC.
ISH6	HIGHWAY	0.0036 AC.	0.0036 AC.	0.0030 AC.	0.0036 AC.
ISH7	HIGHWAY	0.0036 AC.	0.0036 AC.	0.0030 AC.	0.0036 AC.
IT	TEMPORARY	0.5385 AC.	0.2892 AC.	0.1171 AC.	

REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 4-28-04

RAILROAD PLAT

LOR-90-12.42

PID NO. 24868

R/W DESIGNER: DLR
 R/W REVIEWER: MAY

SCALE IN FEET

4 / 4

199
199

DATE	5/28/04
REVIEWED BY	SAH
CHECKED BY	SAH
REVISION	7/29/04

GENERAL INFORMATION

INTRODUCTION

THE EXISTING MAINLINE BRIDGE STRUCTURES (NO. LOR-90-1244 L&R) WHICH CARRY INTERSTATE 90 OVER LAKE AVENUE IN LORAIN COUNTY, OHIO, ARE TO BE REHABILITATED AND WIDENED TO MAINTAIN TWO LANES OF TRAVEL IN BOTH DIRECTIONS DURING CONSTRUCTION. THE EXISTING THREE-SPAN BRIDGES WILL BE WIDENED WITH CONTINUOUS STEEL BEAMS AND THE EXISTING DECKS REPLACED WITH COMPOSITE REINFORCED CONCRETE DECKS. BOTH THE NEW INTEGRAL ABUTMENTS AND THE WIDENED CAP AND COLUMN PIERS WILL BE SUPPORTED ON EXTENDED FOUNDATIONS CONSISTING OF STEEL H-PILES.

GEOLOGY

GEOLOGIC INFORMATION INDICATES THAT THE PROJECT AREA IS LOCATED IN A PORTION OF OHIO WHICH WAS GLACIATED MOST RECENTLY BY THE WISCONSIN ICE SHEET. NEAR SURFACE SOILS IN THE VICINITY OF THE SITE CONSIST OF GROUND MORAINE, TYPICALLY COMPRISED OF DISCONTINUOUS LAYERS OF CLAYS, SILTS AND SANDS. THE UPPERMOST BEDROCK IN THIS AREA GENERALLY CONSISTS OF INTERBEDDED SANDSTONE AND SHALE OF MISSISSIPPIAN AGE AND IS TYPICALLY LOCATED FROM 15 TO 40 FEET BELOW THE EXISTING GROUND SURFACE.

AVAILABLE INFORMATION

THE LOGS OF TWO BORINGS PREVIOUSLY PERFORMED BY ODOT DURING A 1963 SUBSURFACE INVESTIGATION OF THE EXISTING STRUCTURE PAIR HAVE BEEN OBTAINED. THE LOGS OF THESE BORINGS (NOS. B-6 AND B-16) HAVE BEEN REPRINTED AND ARE INCLUDED AS PART OF THIS STRUCTURE FOUNDATION INVESTIGATION.

FIELD EXPLORATION PROGRAM

DURING THE PERIOD OF JUNE 16 THROUGH JUNE 24, 2003, FOUR BORINGS WERE PERFORMED FOR THIS STRUCTURE FOUNDATION INVESTIGATION. BORINGS B-101 AND B-104 WERE DRILLED IN THE MEDIAN OF INTERSTATE 90, AS NEAR AS PRACTICAL TO THE PROPOSED REAR AND FORWARD ABUTMENTS, RESPECTIVELY, AND BORINGS B-102 AND B-103 WERE PERFORMED AS NEAR AS PRACTICAL TO THE PROPOSED EAST AND WEST PIERS (ON EITHER SIDE OF LAKE AVENUE). BORINGS B-101, B-102, B-103 AND B-104 WERE ADVANCED TO DEPTHS BELOW THE EXISTING GROUND SURFACE OF 64.0, 35.0, 53.5, AND 73.9 FEET, RESPECTIVELY. THESE BORINGS WERE PERFORMED BY A TRUCK-MOUNTED DRILLING RIG USING A 3-1/4-INCH I.D. HOLLOW-STEM AUGER TO ADVANCE THE BORINGS BETWEEN SAMPLING ATTEMPTS.

AT REGULAR INTERVALS, DISTURBED BUT REPRESENTATIVE SOIL SAMPLES WERE PROCURED BY LOWERING A 2-INCH O.D. SPLIT-BARREL SAMPLER THROUGH THE AUGER STEM TO THE BOTTOM OF THE BORING, WHERE THE SAMPLER WAS DRIVEN INTO THE SOIL WITH BLOWS FROM A 140-POUND HAMMER FREELY FALLING 30 INCHES (STANDARD PENETRATION TEST). ALL RECOVERED SOIL SAMPLES WERE EXAMINED IMMEDIATELY AND REPRESENTATIVE PORTIONS WERE PRESERVED IN AIRTIGHT GLASS JARS.

UPON ENCOUNTERING APPARENT BEDROCK IN BORINGS B-101, B-102 AND B-103, BETWEEN 5.0 AND 10.0 FEET OF ROCK WAS CORED USING A NX CORE BARREL AND DIAMOND BIT, WITH WATER USED AS A CIRCULATING/COOLING FLUID. BORING B-104 WAS ADVANCED TO A DEPTH WHERE APPROXIMATELY 30 FEET OF 30-BLOW STANDARD PENETRATION TEST (SPT) RESISTANCE WAS ENCOUNTERED. ALL RECOVERED BEDROCK CORE WAS PACKAGED IN COMPARTMENTED CORE BOXES.

FINDINGS OF THE INVESTIGATION

THE GENERAL SUBSURFACE STRATIGRAPHY ENCOUNTERED IN THE TWO ABUTMENT BORINGS (B-101 AND B-104) MAY BE DESCRIBED IN DESCENDING ORDER AS FOLLOWS:

24.3' TO 27.0' OF EMBANKMENT FILL CONSISTING OF ALTERNATING LAYERS OF VERY-STIFF TO HARD SILTY CLAY (A-6a) AND MEDIUM-DENSE TO DENSE SAND AND GRAVEL (A-1-b, A-2- 4) FREQUENTLY CONTAINING COBBLES;

15.0' TO 29.7' OF NATURAL SOILS CONSISTING PRIMARILY OF VERY-STIFF TO HARD SILTY CLAY/CLAYEY SILT (A-4a, A-6a). THIS STRATUM OF HARD SILTY CLAY BECOMES PARTLY SIMILAR TO VERY-SOFT SHALE AT A DEPTH OF APPROXIMATELY 47.0' IN BORING B-101;

VERY-SOFT TO MEDIUM-HARD SHALE (PARTLY SIMILAR TO HARD SILTY CLAY/CLAYEY SILT IN THE UPPER PORTIONS OF THIS STRATUM IN BOTH BORINGS B-101 AND B-104), WAS ENCOUNTERED AT A DEPTH OF 54.0' (EL. 693.1) IN BORING B-101 AND AT A DEPTH OF 42.0' (EL. 705.1) IN BORING B-104. NO ROCK WAS CORED IN BORING B-104.

THE GENERAL SUBSURFACE STRATIGRAPHY ENCOUNTERED IN THE TWO PIER BORINGS (B-102 AND B-103) MAY BE DESCRIBED IN DESCENDING ORDER AS FOLLOWS:

3.0' TO 5.5' OF FILL OR POSSIBLE FILL CONSISTING OF EITHER HARD SILTY CLAY (A-6a) OR MEDIUM-DENSE SAND AND GRAVEL (A-3a);

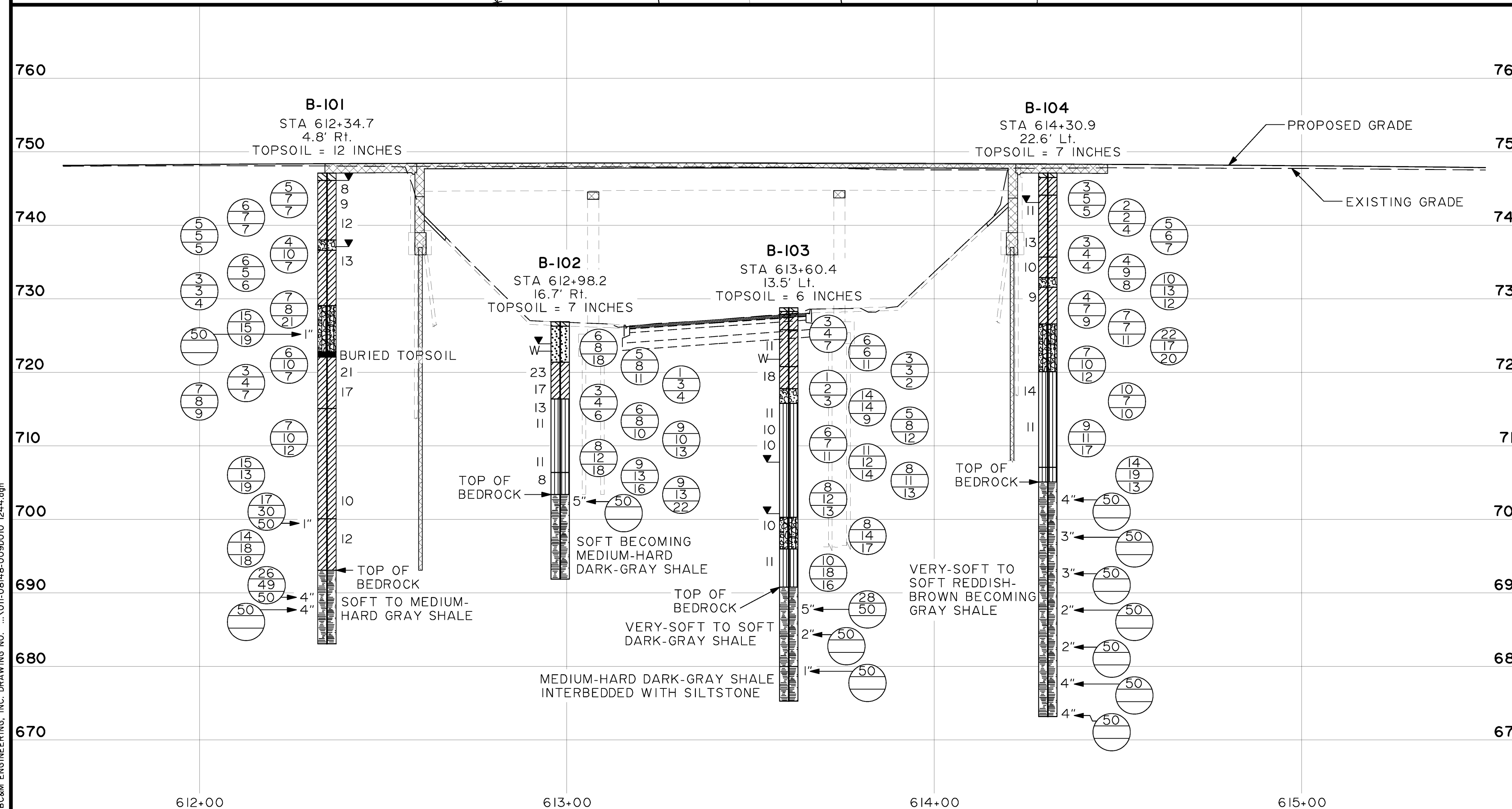
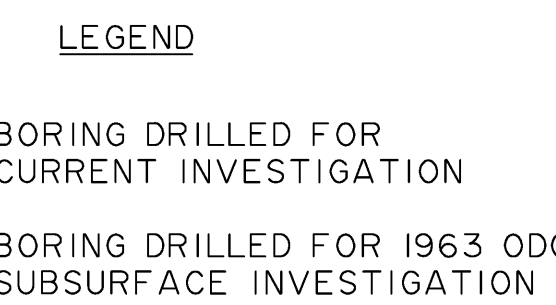
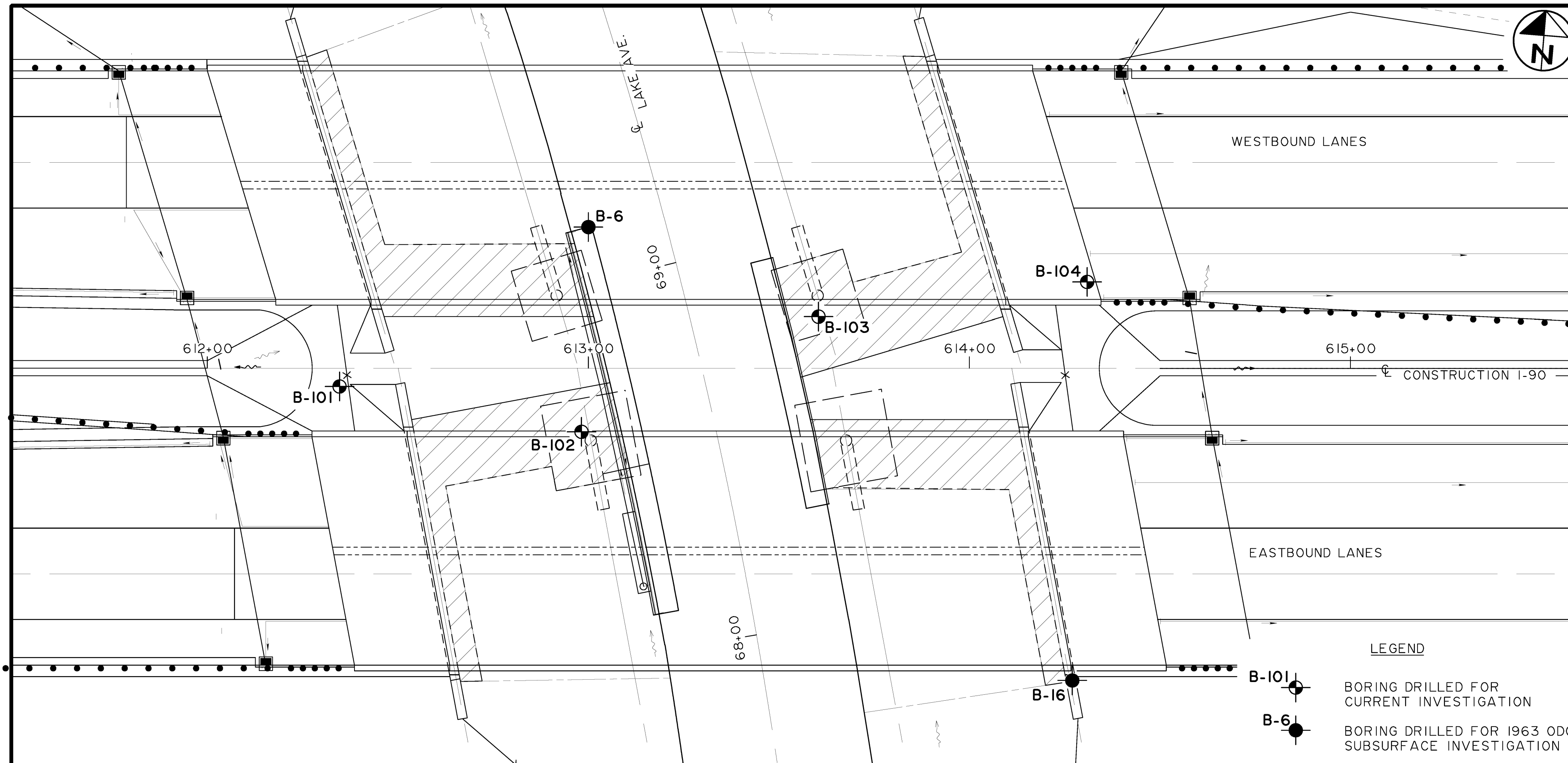
18.0' TO 35.0' OF NATURAL SOILS CONSISTING OF ALTERNATING LAYERS OF STIFF TO HARD SILTY CLAY (A-6a)/CLAYEY SILT (A-4d) AND MEDIUM-DENSE TO DENSE SAND AND GRAVEL (A-2-4). IN BORING B-103, THIS STRATUM OF HARD CLAYEY SILT BECOMES PARTLY SIMILAR TO VERY-SOFT SHALE AT A DEPTH OF 32.8';

VERY-SOFT TO MEDIUM-HARD SHALE WAS ENCOUNTERED AT A DEPTH OF 23.5' (EL. 703.4) IN BORING B-102 AND AT A DEPTH OF 38.0' (EL. 690.8) IN BORING B-103.

DURING DRILLING, GROUNDWATER SEEPAGE WAS NOTED IN BORING B-102 AT A DEPTH OF 4.0, AND IN BORING B-103 AT A DEPTH OF 7.0 FEET. AT THE COMPLETION OF DRILLING, WATER HAD ACCUMULATED AT THE BOTTOMS OF BORINGS B-101 THROUGH B-104, TO DEPTHS BELOW THE EXISTING GROUND SURFACE OF 1.0, 3.0, 21.0, AND 4.0 FEET, RESPECTIVELY. IN BORINGS B-101, B-102 AND B-103, THESE DEPTHS MAY NOT BE REPRESENTATIVE OF THE TRUE GROUNDWATER LEVELS SINCE WATER WAS INDUCED INTO THESE BORINGS DURING ROCK CORING OPERATIONS.

NOTE:

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS, SOIL TESTS, AND BEDROCK BORINGS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA IF ANY, MAY BE INSPECTED IN THE DISTRICT 3 DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, IN COLUMBUS, OHIO.



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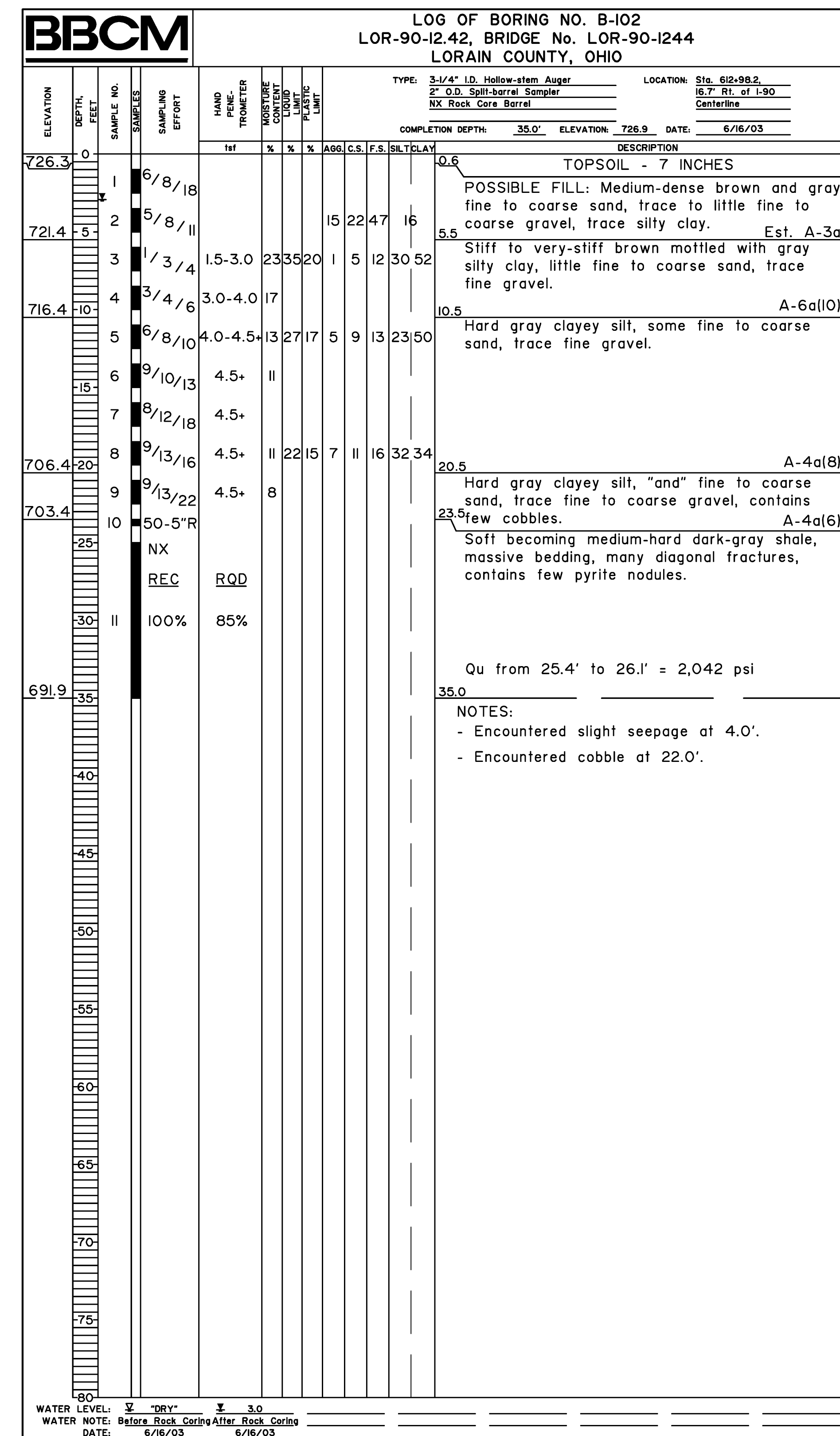
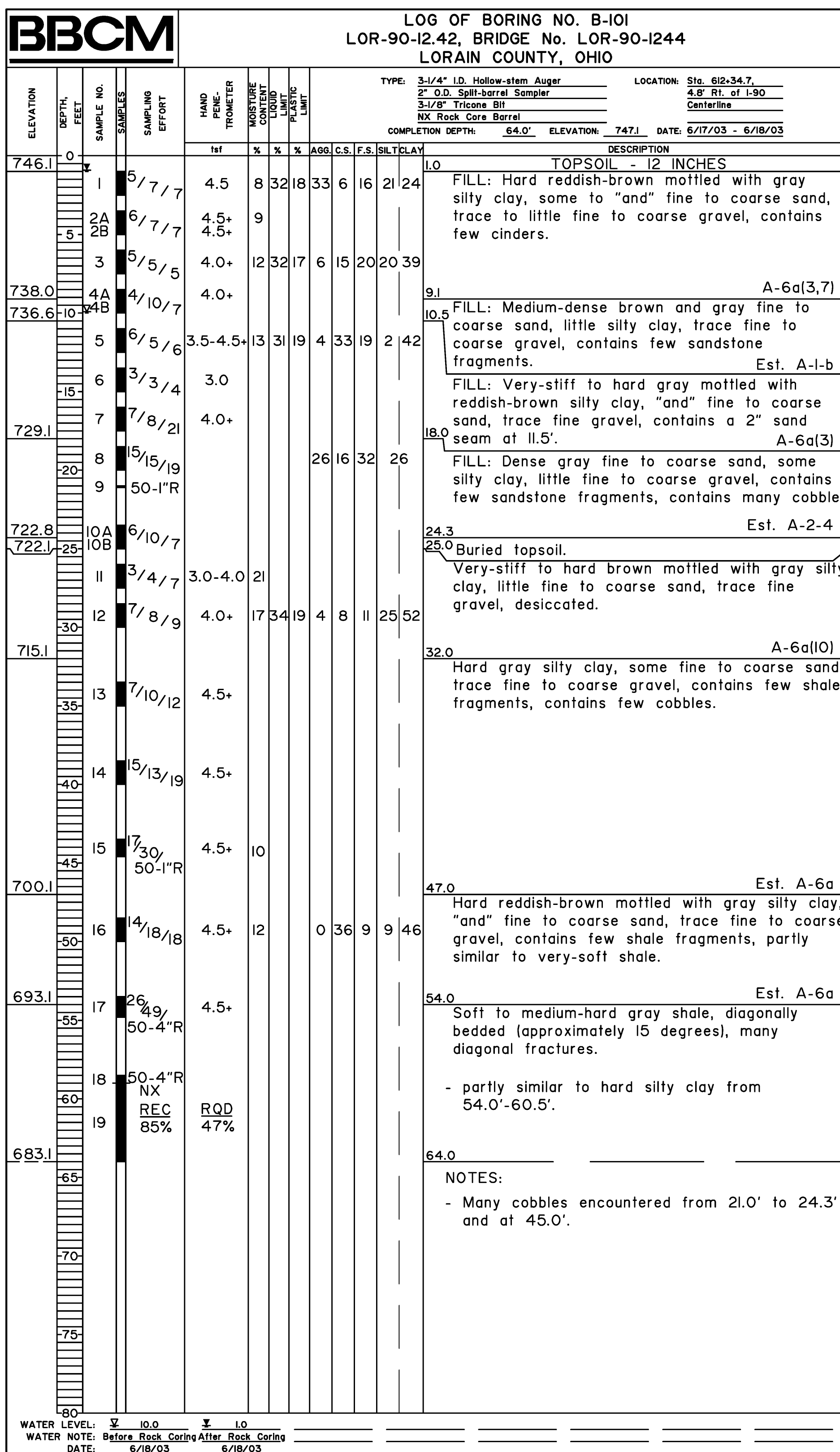
TOP OF BEDROCK ELEVATIONS AT THE LOCATIONS OF ALL BORINGS, INCLUDING THE 1963 BORINGS OBTAINED FROM ODOT, ARE SUMMARIZED AS FOLLOWS:

BORING NO.	LOCATION	OFFSET	TOP-OF-BORING ELEVATION	TOP-OF-BEDROCK ELEVATION *
B-101	STA 612+34.7	4.8' Rt.	747.1	693.1
B-102	STA 612+98.2	16.7' Rt.	726.9	703.4
B-103	STA 613+60.4	13.5' Lt.	728.8	690.8
B-104	STA 614+30.9	22.6' Lt.	747.1	705.1
B-6	~STA 613+00	~37' Lt.	727.7	697.7
B-16	~STA 614+27	~82' Rt.	725.7	686.9

* APPROXIMATE ELEVATION OF THE TOP OF THE INTACT VERY-SOFT TO MEDIUM-HARD SHALE STRATUM.

UNCONFINED COMPRESSIVE STRENGTH TESTING WAS PERFORMED ON SAMPLES OF VERY-SOFT TO MEDIUM-HARD SHALE BEDROCK RECOVERED FROM BORINGS B-102 AND B-103, WITH THE RESULTS SHOWN AS FOLLOWS:

BORING NO.	RECOVERY	RQD	BEDROCK SAMPLE DEPTH	UNCONFINED COMPRESSIVE STRENGTH
B-102	100%	85%	25.4' - 26.1'	2,042 psi
B-103	97%	90%	49.2' - 49.9'	2,417 psi



GENERAL INFORMATION

INTRODUCTION

THE EXISTING MAINLINE BRIDGE STRUCTURES (NO. LOR-90-1256 L&R) WHICH CARRY INTERSTATE 90 OVER THE CSX RAILROAD IN LORAIN COUNTY, OHIO, ARE TO BE WIDENED AND RECONSTRUCTED TO MAINTAIN TWO LANES OF TRAVEL IN BOTH DIRECTIONS DURING CONSTRUCTION. THE PROPOSED THREE-SPAN BRIDGES WILL BE CONTINUOUS COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECKS. THE PROPOSED INTEGRAL ABUTMENTS WILL BE SUPPORTED ON EXTENDED FOUNDATIONS CONSISTING OF STEEL H-PILES AND THE CAP AND COLUMN PIERS WILL BE SUPPORTED ON EXTENDED FOUNDATIONS CONSISTING OF DRILLED SHAFTS.

GEOLOGY

GEOLOGIC INFORMATION INDICATES THAT THE PROJECT AREA IS LOCATED IN A PORTION OF OHIO WHICH WAS GLACIATED MOST RECENTLY BY THE WISCONSIN ICE SHEET. NEAR SURFACE SOILS IN THE VICINITY OF THE SITE CONSIST OF GROUND MORAINE, TYPICALLY COMPRISED OF DISCONTINUOUS LAYERS OF CLAYS, SILTS AND SANDS. THE UPPERMOST BEDROCK IN THIS AREA GENERALLY CONSISTS OF INTERBEDDED SANDSTONE AND SHALE OF MISSISSIPPIAN AGE AND IS TYPICALLY LOCATED FROM 15 TO 40 FEET BELOW THE EXISTING GROUND SURFACE.

AVAILABLE INFORMATION

THE LOGS OF THREE BORINGS PREVIOUSLY PERFORMED BY ODOT DURING A 1963 SUBSURFACE INVESTIGATION OF THE EXISTING STRUCTURE PAIR HAVE BEEN OBTAINED. THE LOGS OF THESE BORINGS (NOS. B-1, B-8 AND B-14) HAVE BEEN REPRINTED AND ARE INCLUDED AS PART OF THIS STRUCTURE FOUNDATION INVESTIGATION.

FIELD EXPLORATION PROGRAM

DURING THE PERIOD OF JUNE 24 THROUGH JULY 16, 2003, A TOTAL OF FOUR BORINGS WERE PERFORMED FOR THIS STRUCTURE FOUNDATION INVESTIGATION. BORINGS B-201 AND B-204 WERE DRILLED IN THE MEDIAN OF INTERSTATE 90, AS NEAR AS PRACTICAL TO THE PROPOSED REAR AND FORWARD ABUTMENTS, RESPECTIVELY, AND BORINGS B-202 AND B-203 WERE PERFORMED AS NEAR AS PRACTICAL TO THE PROPOSED EAST AND WEST WIDENED PIERS (ON EITHER SIDE OF THE CSX RAILROAD TRACKS). BORINGS B-201, B-202, B-203 AND B-204 WERE ADVANCED TO DEPTHS BELOW THE EXISTING GROUND SURFACE OF 44.0, 17.5, 21.0, AND 78.6 FEET, RESPECTIVELY. THESE BORINGS WERE PERFORMED BY A TRUCK-MOUNTED DRILLING RIG USING A 3-1/4-INCH I.D. HOLLOW-STEM AUGER TO ADVANCE THE BORINGS BETWEEN SAMPLING ATTEMPTS.

AT REGULAR INTERVALS, DISTURBED BUT REPRESENTATIVE SOIL SAMPLES WERE PROCURED BY LOWERING A 2-INCH O.D. SPLIT-BARREL SAMPLER THROUGH THE AUGER STEM TO THE BOTTOM OF THE BORING, WHERE THE SAMPLER WAS DRIVEN INTO THE SOIL WITH BLOWS FROM A 140-POUND HAMMER FREELY FALLING 30 INCHES (STANDARD PENETRATION TEST). ALL RECOVERED SOIL SAMPLES WERE EXAMINED IMMEDIATELY AND REPRESENTATIVE PORTIONS WERE PRESERVED IN AIRTIGHT GLASS JARS.

UPON ENCOUNTERING APPARENT BEDROCK IN BORINGS B-201, B-202 AND B-203, 10.0 OF ROCK WAS CORED USING A NX CORE BARREL AND DIAMOND BIT, WITH WATER USED AS A CIRCULATING/COOLING FLUID. BORING B-204 WAS ADVANCED TO A DEPTH WHERE APPROXIMATELY 30 FEET OF 30-BLOW STANDARD PENETRATION TEST (SPT) RESISTANCE WAS ENCOUNTERED. ALL RECOVERED BEDROCK CORE WAS PACKAGED IN COMPARTMENTED CORE BOXES.

FINDINGS OF THE INVESTIGATION

THE GENERAL SUBSURFACE STRATIGRAPHY ENCOUNTERED IN THE TWO ABUTMENT BORINGS (B-201 AND B-204) MAY BE DESCRIBED IN DESCENDING ORDER AS FOLLOWS:

18.0' TO 23.0' OF EMBANKMENT FILL CONSISTING PRIMARILY OF STIFF TO HARD SILTY CLAY (A-6a) AND CLAYEY SILT (A-4a);

11.0' TO 54.0' OF NATURAL SOILS CONSISTING OF HARD CLAYEY SILT (A-4a) OVER VERY-DENSE GRAVEL (A-1-b) IN BORING B-201 AND VERY-STIFF TO HARD SILTY CLAY (A-6a) AND CLAYEY SILT (A-4a) IN BORING B-204. THIS STRATUM OF HARD CLAYEY SILT IN BORING B-204 BECOMES SIMILAR TO VERY-SOFT SHALE AT A DEPTH OF APPROXIMATELY 53.5';

MEDIUM-HARD TO HARD SANDSTONE WAS ENCOUNTERED AT A DEPTH OF 34.0' (EL. 708.6) IN BORING B-201 AND VERY-SOFT TO SOFT SHALE (SIMILAR TO HARD CLAYEY SILT) WAS ENCOUNTERED AT A DEPTH OF 67.5' (EL. 673.0) IN BORING B-204. NO ROCK WAS CORED IN BORING B-204.

THE GENERAL SUBSURFACE STRATIGRAPHY ENCOUNTERED IN THE TWO PIER BORINGS (B-202 AND B-203) MAY BE DESCRIBED IN DESCENDING ORDER AS FOLLOWS:

3.0' TO 3.5' OF FILL CONSISTING OF MEDIUM-DENSE SAND AND GRAVEL (A-1-b) IN BORING B-202 AND VERY-STIFF SILTY CLAY (A-6a) OVER LOOSE SAND (A-1-b) IN BORING B-203;

• 2.8' TO 8.0' OF NATURAL SOILS CONSISTING PRIMARILY OF VERY-STIFF TO HARD SILTY CLAY (A-6a) AND CLAYEY SILT (A-4a);

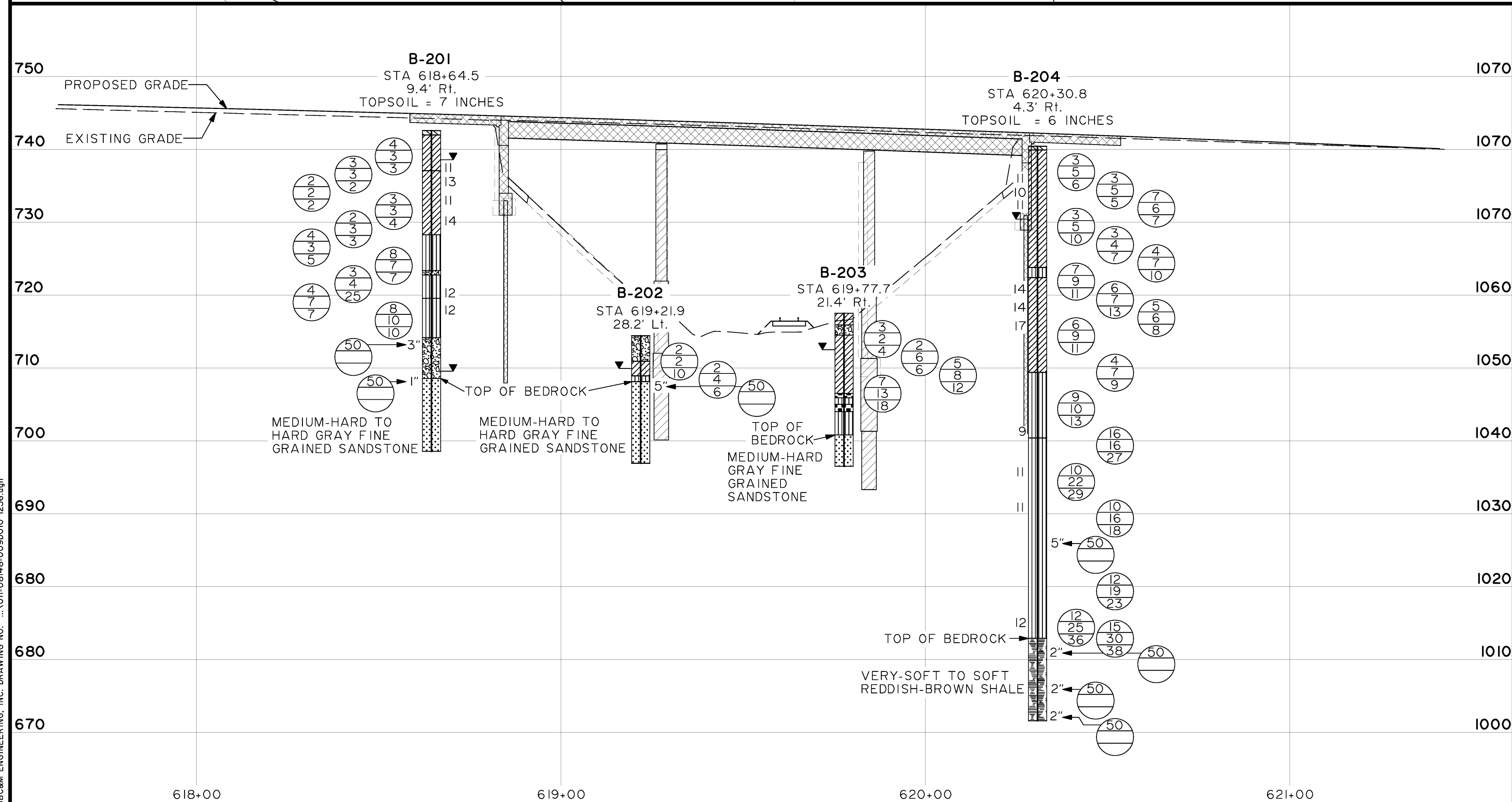
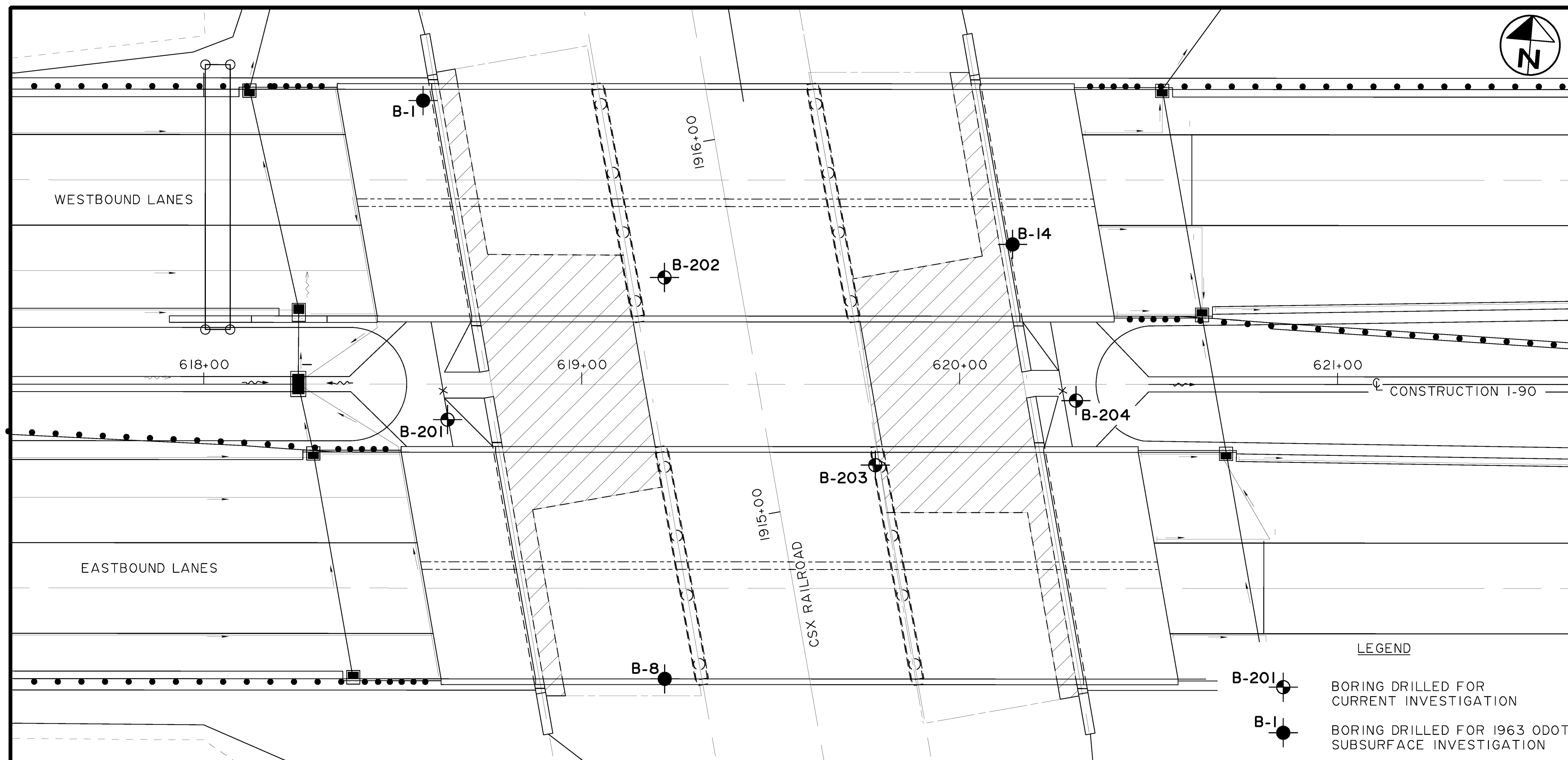
• MEDIUM-HARD TO HARD SANDSTONE WAS ENCOUNTERED AT A DEPTH OF 6.3' (EL. 708.2) IN BORING B-202;

• BBC&M INITIATED ROCK CORING IN BORING B-203 AT A DEPTH OF 11.0', ENCOUNTERING A GRANITE AND A SANDSTONE BOULDER OVER ALTERNATING LAYERS OF HARD CLAYEY SILT (SIMILAR TO VERY-SOFT SHALE). HARD SANDSTONE WAS ENCOUNTERED IN BORING B-203 AT A DEPTH OF 16.7' (EL. 700.9).

DURING DRILLING, GROUNDWATER SEEPAGE WAS NOT ENCOUNTERED IN ANY OF THE FOUR BORINGS. AT THE COMPLETION OF DRILLING, WATER HAD ACCUMULATED AT THE BOTTOMS OF BORINGS B-201 THROUGH B-204, TO DEPTHS BELOW THE EXISTING GROUND SURFACE OF 4.0, 0.0, 0.0, AND 10.0 FEET, RESPECTIVELY. IN BORINGS B-201, B-202 AND B-203, THESE DEPTHS MAY NOT BE REPRESENTATIVE OF THE TRUE GROUNDWATER LEVELS SINCE WATER WAS INDUCED INTO THESE BORINGS DURING ROCK CORING OPERATIONS.

NOTE:

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS, SOIL TESTS, AND BEDROCK BORINGS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA IF ANY, MAY BE INSPECTED IN THE DISTRICT 3 DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET, OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET, IN COLUMBUS, OHIO.



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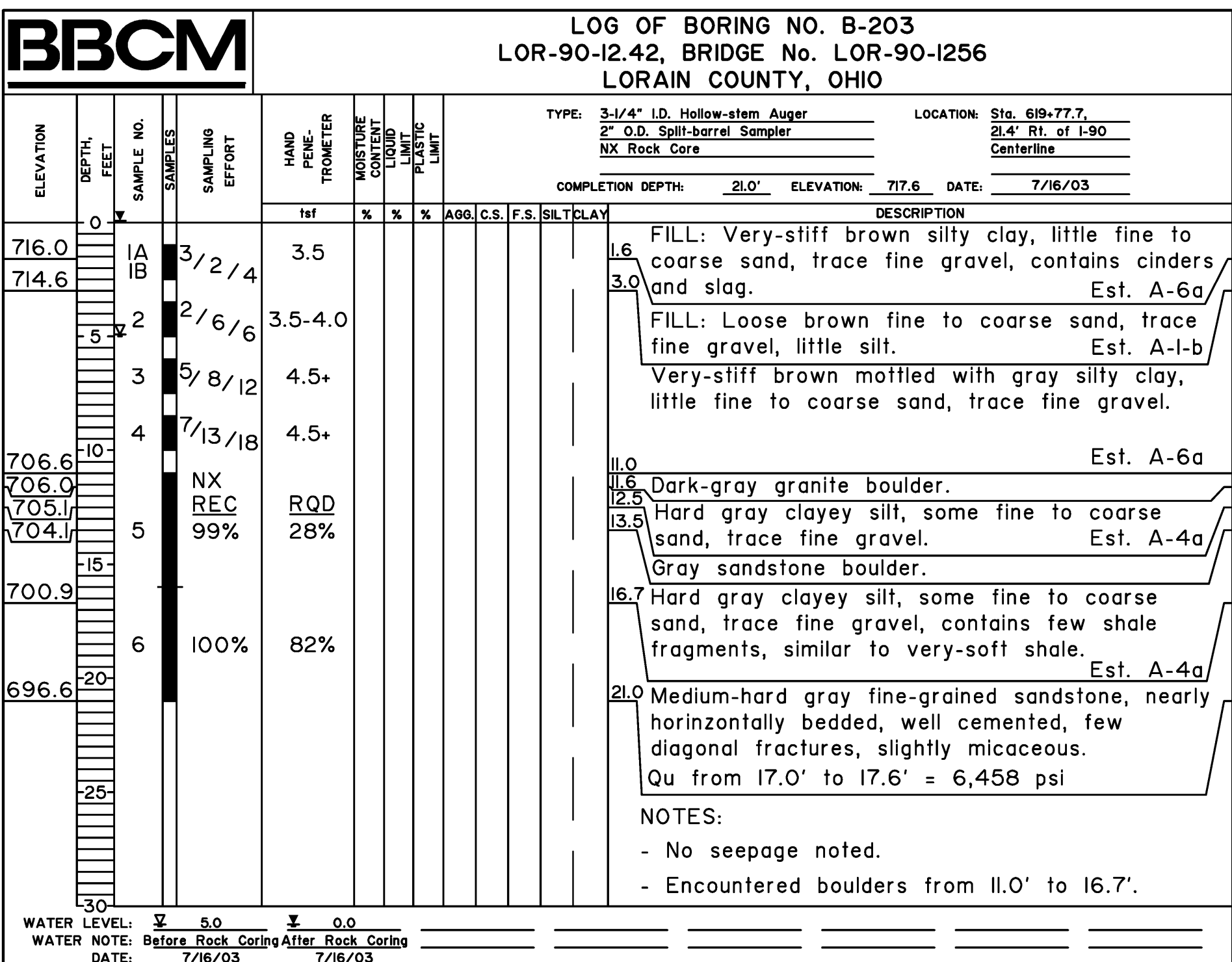
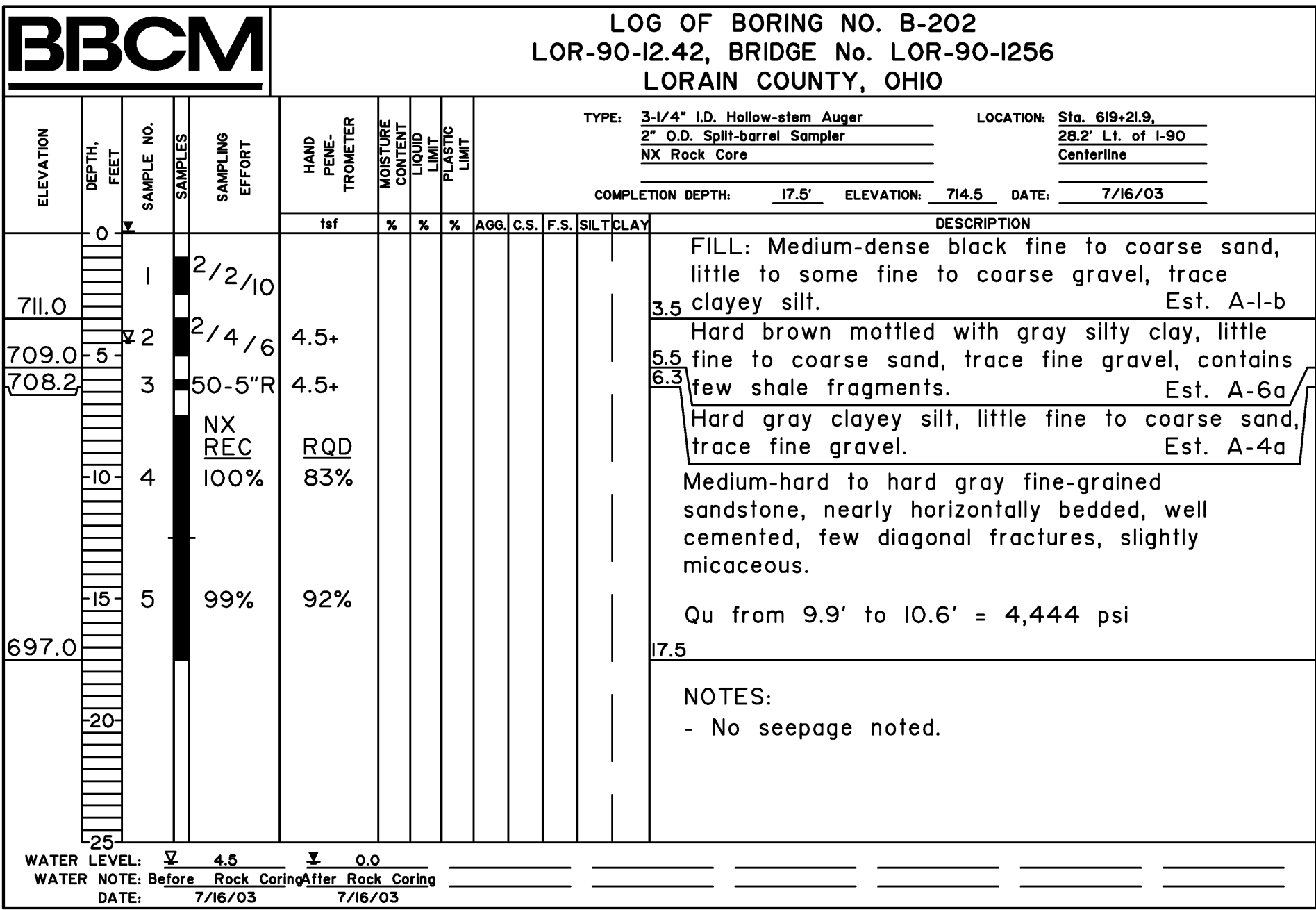
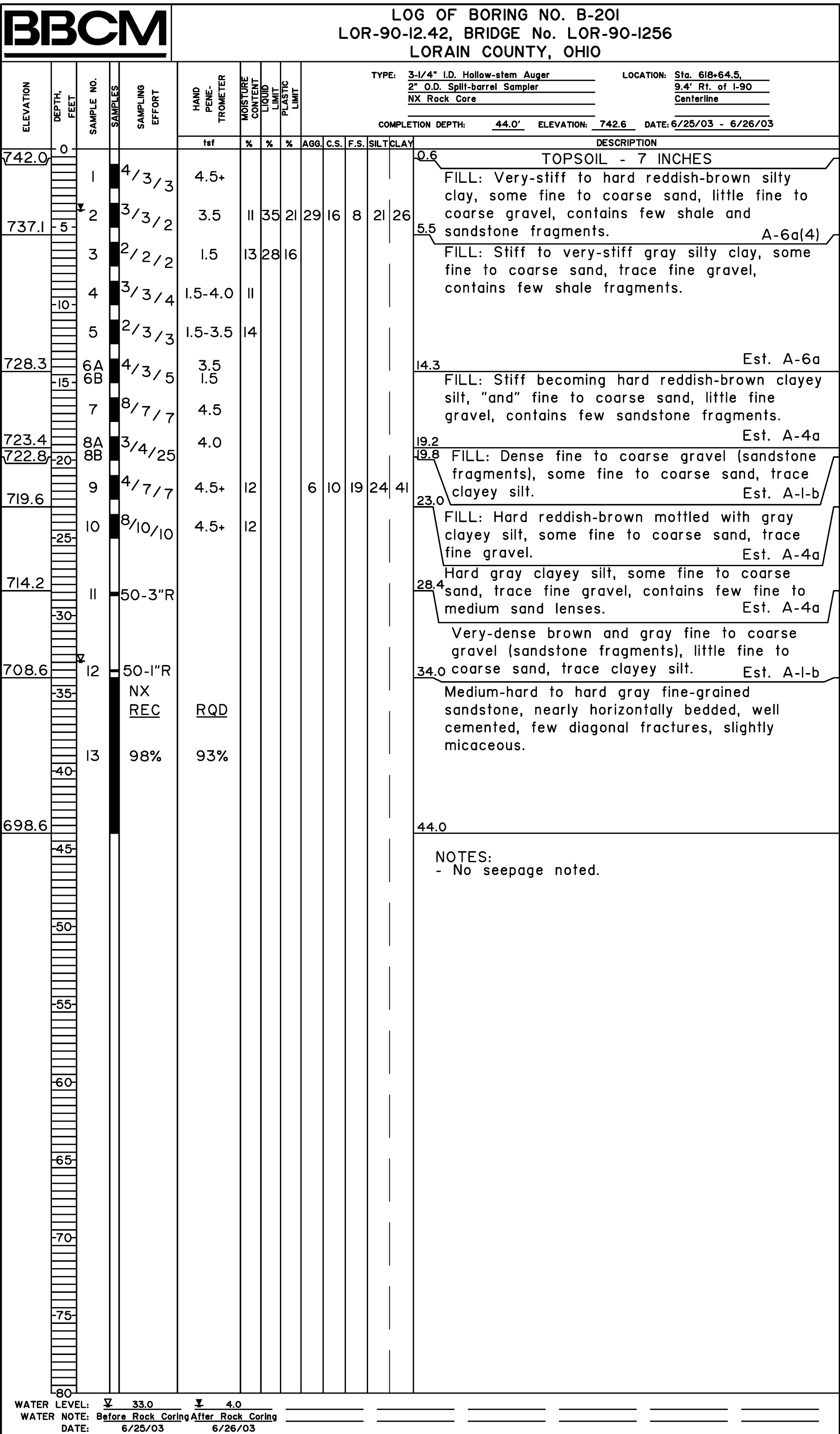
TOP OF BEDROCK ELEVATIONS AT THE LOCATIONS OF ALL BORINGS, INCLUDING THE 1963 BORINGS OBTAINED FROM ODOT, ARE SUMMARIZED AS FOLLOWS:

BORING NO.	LOCATION	OFFSET	TOP-OF-BORING ELEVATION	TOP-OF-BEDROCK ELEVATION *
B-201	STA 618+64.5	9.4' Rt.	742.6	708.6
B-202	STA 619+21.9	28.2' Lt.	714.5	708.2
B-203	STA 619+77.7	21.4' Rt.	717.6	700.9
B-204	STA 620+30.8	4.3' Rt.	740.5	673.0
B-1	~STA 618+58	~75' Lt.	717.6	716.1
B-8	~STA 619+22	~78' Rt.	716.3	696.3
B-14	~STA 620+14	~37' Lt.	716.1	672.1

* APPROXIMATE ELEVATION OF THE TOP OF THE INTACT VERY-SOFT TO SOFT SHALE OR MEDIUM-HARD TO HARD SANDSTONE STRATUM.

UNCONFINED COMPRESSIVE STRENGTH TESTING WAS PERFORMED ON SAMPLES OF MEDIUM-HARD TO HARD SANDSTONE BEDROCK RECOVERED FROM BORINGS B-202 AND B-103, WITH THE RESULTS SHOWN AS FOLLOWS:

BORING NO.	RECOVERY	RQD	BEDROCK SAMPLE DEPTH	UNCONFINED COMPRESSIVE STRENGTH
B-202	99 to 100%	83 to 92%	9.9' - 10.6'	4,444 psi
B-203	99 to 100%	28 to 82%	17.0' - 17.6'	6,458 psi





LOG OF BORING NO. B-204
LOR-90-12.42, BRIDGE No. LOR-90-1256
LORAIN COUNTY, OHIO

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLING EFFORT	HAND PUMP, TROMETER	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION	
													TYPE	LOCATION
740.0	0												0.5	TOPSOIL - 6 INCHES
	1	3/5/6	4.0											FILL: Very-stiff to hard reddish-brown and gray silty clay, some fine to coarse sand, little fine to coarse gravel, contains few shale and sandstone fragments.
	2	3/5/5	4.5+											
	3	7/6/7	4.5+		10	32	19	24	14	9	26	27		
	4	3/5/10	3.5											
	5	3/4/7	3.0-4.5+											
	6	4/7/10	4.5+											
723.9	7A	7/9/11	4.5+										16.6	A-6a(5)
722.5	7B	6/7/13	3.5-4.5										18.0	FILL: Hard gray clayey silt, some to "and" fine to coarse sand, trace fine gravel, contains few shale fragments. Est. A-4a
	8	5/6/8	3.5-4.5		14									Very-stiff to hard brown mottled with gray silty clay, some fine to coarse sand, trace fine to coarse gravel, contains few sandstone fragments, contains few roots. Est. A-4a
	9	6/9/11	3.5-4.5		14	33	19	5	6	16	29	44		
	10	4/7/9	4.5+											
709.5	11	9/10/13	4.5+										31.0	A-6a(9)
	12	16/16/27	4.5+											Hard brown mottled with gray becoming gray clayey silt, some fine to coarse sand, trace fine to coarse gravel, contains few siltstone fragments.
700.5	13	10/22/29	4.5+		9								40.0	A-4a(7)
	14	10/16/18	4.5+		11	25	18	6	12	12	36	34		Hard brown mottled with gray becoming gray clayey silt, some fine to coarse sand, trace fine to coarse gravel, contains few siltstone fragments.
	15	50-5"R	4.5+											- Becoming similar to very-soft shale at 53.5'.
	16	12/19/23	4.5+											
	17	12/25/36	4.5+											
	18A	15/30/38	4.5+		12	23	16	14	13	16	25	32		
673.0	18B	50-2"R	4.5+										67.5	A-4a(7)
	19	50-2"R												Very-soft to soft reddish-brown shale, nearly horizontally bedded, few diagonal fractures, similar to hard clayey silt.
	20	50-2"R												
661.7	21	50-2"R											78.8	

WATER LEVEL: 10.0
WATER NOTE: At Completion
DATE: 6/24/03

LOG OF BORING

Date Started 5-6-63 Sampler Type SS Dia. 1 3/8" Water Elev. _____
Date Completed 5-7-63 Casing Length _____ Dia. _____
Boring No. B-1 Station & Offset 618+58, 75' Lt. (REAR ABUTMENT) Surface Elev. 717.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL. Class
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	
717.6	0													
716.1	2				Brown and Gray Sandstone Fragments									
	4		1.6	0.9	TOP OF ROCK									
	6				Sandstone light-gray, fine, friable, medium-grained, broken by diagonal fractures, reddish-brown iron-stain to 8.0' on many open bedding planes and fracture faces, fractures - clay filled; below 8.0' iron-stain absent, carbonaceous and micaceous crossed-bedded laminae throughout interval. Vertical open fracture 1.6' from base. Core loss 16%.									
	8		4.8	0.2										
	10													
	12													
702.6	14		5.0	0.0										

BOTTOM OF BORING

LOG OF BORING

Date Started 5-7-63 Sampler Type SS Dia. 1 3/8" Water Elev. _____
Date Completed _____ Casing Length _____ Dia. _____
Boring No. B-8 Station & Offset 619+22, 78' Rt. (REAR PIER) Surface Elev. 716.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL. Class
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	
716.3	0													
713.8	2				Brownish-Gray Sandy Clay	1	10	7	12	24	47	33	14	15
711.3	4	7/12			Brown Sandy Clay	2	14	5	9	22	50	30	11	13
708.8	6	12/19			Brownish-Gray Sandy Silt	3	15	6	10	26	43	27	9	15
706.3	8	15/30			Gray Sandy Gravelly Silt	4	25	11	9	23	32	24	9	15
	10	50* (0.6')			Silt, light-gray, very firm to firm, very calcareous, contains dispersed unsorted granular material consisting of native and erratic angular rock fragments, pebbles and boulders, (Glacial till)									
	12													
	14													
	16													
	18													
696.3	20				TOP OF ROCK									
	22		5.0	0.0	Shale, red, dense, non-fissile, firm, random fracture, pattern uniform to bottom. No core loss.									
	24													
	26													
	28		5.0	0.0										
686.3	30													

*REFUSAL

BOTTOM OF BORING

LOG OF BORING

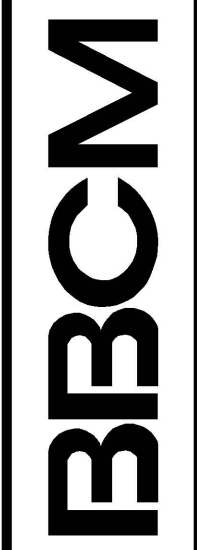
Date Started 5-8-63 Sampler Type SS Dia. 1 3/8" Water Elev. _____
Date Completed 5-9-63 Casing Length None Dia. _____
Boring No. B-14 Station & Offset 620+14, 37' Lt. (Forward Abutment) Surface Elev. 716.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL. Class
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	
716.1	0													
	2													
713.6	4	4/9			Brown Silt and Clay	1	0	7	10	28	55	33	14	21
711.1	6	7/16			Brown Sandy Clay	2	9	6	10	25	50	32	13	21
708.6	8	9/18			Brown Sandy Clay	3	13	7	9	29	42	32	12	13
706.1	10	10/25			Grayish-Brown Sandy Silt	4	14	10	11	26	39	25	8	16
	12													
703.6	14	16/25			Gray Sandy Gravelly Silt	5	23	8	10	28	31	21	4	11
701.1	16	14/27			Gray Gravelly Silt	6	12	9	12	29	38	22	5	13
698.6	18	13/27			Gray Sandy Silt	7	11	10	12	33	34	22	6	12
696.1	20	20/30			Gray Sandy Silt	8	10	9	12	35	34	NP	NP	12
	22													
691.1	24													
	26	18/30			Gray Sandy Silt	9	11	11	11	33	34	NP	NP	11
	28													
686.1	30	18/37			Gray Sandy Silt	10	15	12	11	30	32	NP	NP	14
	32													
681.1	34													
	36													
	38	50* (0.7')			Gray Sandy Silt	11	14	12	9	29	36	24	7	12
676.1	40	50* (0.6')			Gray Gravelly Silt	12	40	6	6	23	25	22	4	7
	42													
672.1	44				TOP OF ROCK									
	46													
	48		3.0	2.0	Indurated clay, dark-redish-brown, firm to crumbly, very badly broken (with soft seams which crumble to powder), compaction slickensides; below 50.0', firm shale, non-fissile dense, firm, reddish-brown, few indurated clay seams. Core loss 34%.									
	50													
	52													
661.1	54		4.3	0.7										

*REFUSAL

BOTTOM OF BORING

BBCM ENGINEERING, INC. DRAWING NO. ... \D:\11-08148-009D020 030 1256.dgn



CALCULATED BY: SAH
CHECKED BY: SAH
DATE: 5/28/04

DRAWN BY: BLR
REVIEWED BY: SAH

STRUCTURE FOUNDATION INVESTIGATION
LOR-90-1256 OVER CSX RAILROAD

LOR-90-12.42
LORAIN COUNTY, OHIO

3/3

