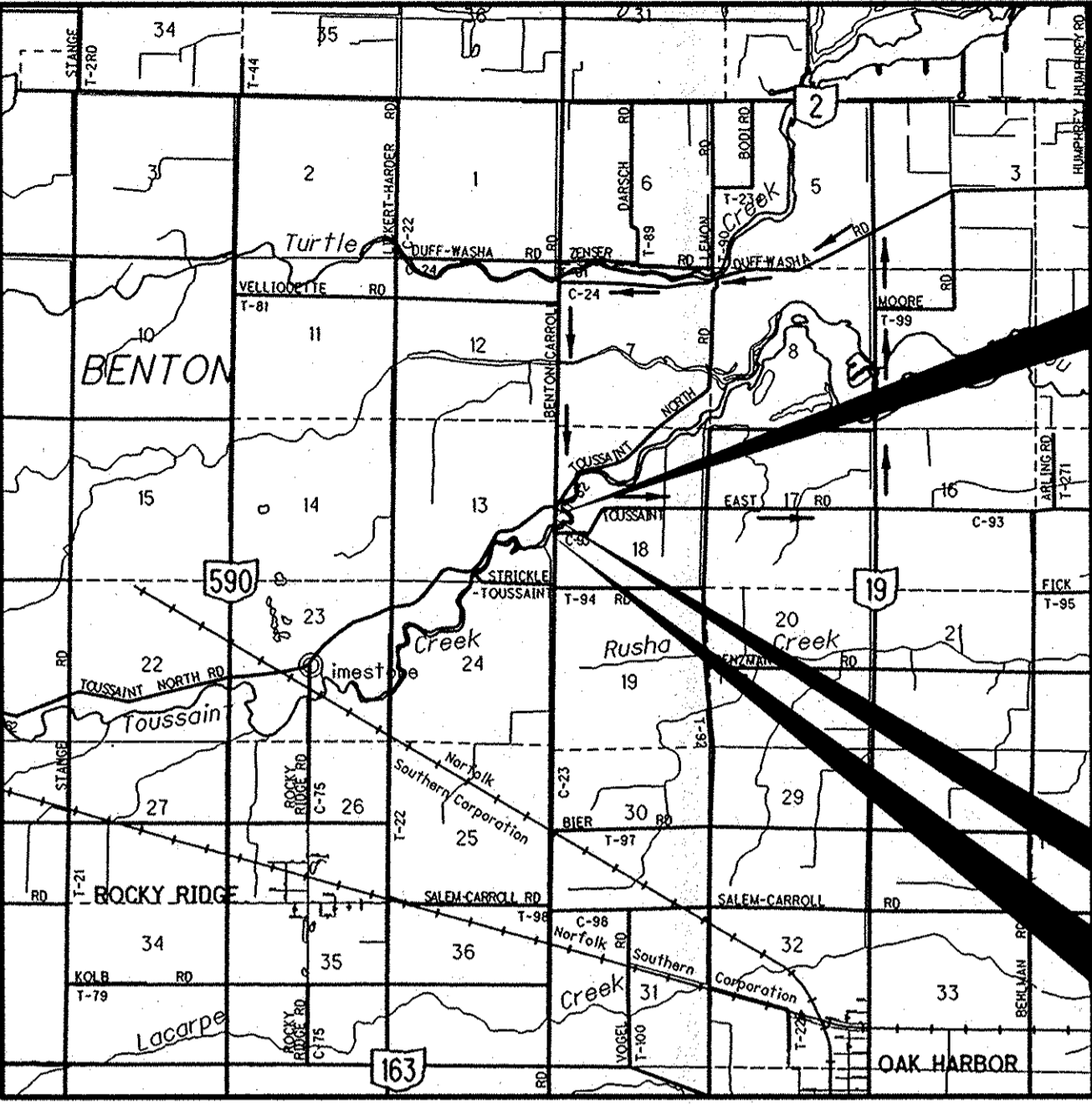
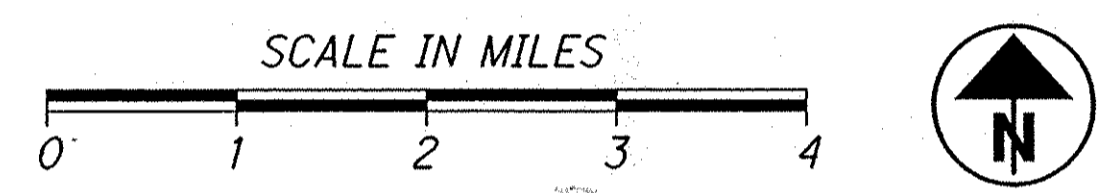


REPLACEMENT OF BRIDGE OTT-CR23-3.50 BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK CARROLL TOWNSHIP OTTAWA COUNTY, OH



LOCATION MAP



END WORK
STA. 47+94.00

END PROJECT
STA. 47+00.00

BEGIN PROJECT
BEGIN WORK
STA. 42+60.25

INDEX OF SHEETS:

TITLE SHEET	1
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STRUCTURES (OVER 20')	12-21
RIGHT OF WAY	22

PORTION TO BE IMPROVED	—————
INTERSTATE & DIVIDED HIGHWAY	—————
UNDIVIDED STATE & FEDERAL ROUTES	—————
OTHER ROADS	—————
DETOUR ROUTE	—————

DESIGN DESIGNATION

CURRENT ADT (2009)	730
DESIGN ADT (2029)	876
DESIGN HOURLY VOLUME	88
DIRECTIONAL DISTRIBUTION	0.55
TRUCKS (24 HOUR B&C)	2%
LEGAL SPEED	55 MPH
DESIGN SPEED	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION	MINOR COLLECTOR

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)

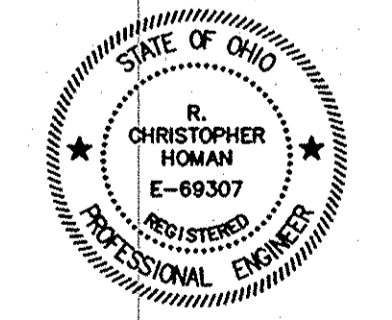
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

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

PLAN PREPARED BY:
Mannik & Smith
Group, Inc.
Civil Engineering, Surveying and Environmental Consulting

ENGINEERS SEAL:

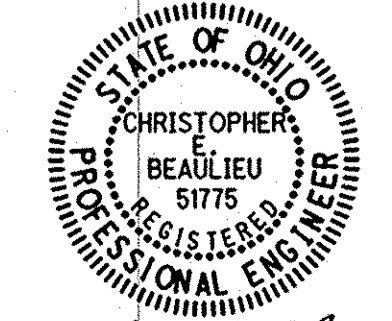
FOR STRUCTURES
20' AND OVER



SIGNED: *R. Christopher Homan*
DATE: 1-13-11

ENGINEERS SEAL:

FOR ENTIRE PLAN
EXCEPT STRUCTURES
20' AND OVER



SIGNED: *Christopher E. Beaulieu*
DATE: 1-13-11

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	
BP-3.1	10-19-07	DS-1-92	7-18-03	800	4-17-10
				832	5-5-09
DM-4.1	7-19-02	TC-73.10	1-19-01		
DM-4.3	4-17-09	PSBD-2-07	10-19-07		
DM-4.4	4-17-09	MT-101.60	9-5-06		
GR-1.1	7-16-04	TST-1-99	4-18-08		
GR-2.1	1-16-04				
GR-3.6	10-16-09				
GR-5.2	1-16-04				
GR-5.3	1-16-04				
RM-1.1	7-18-08				

2010 SPECIFICATIONS

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

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

APPROVED *David B. Peters*
DATE 2-1-11 OTTAWA COUNTY ENGINEER

APPROVED *James M. Sen*
DATE 2-1-11 OTTAWA COUNTY COMMISSIONER

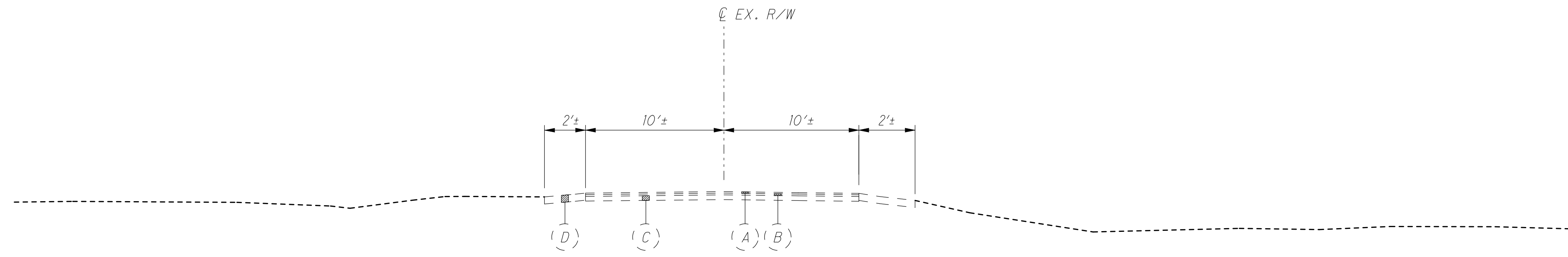
APPROVED *Mahesh Ball*
DATE 2-1-11 OTTAWA COUNTY COMMISSIONER

APPROVED *James M. Sen*
DATE 2-1-11 OTTAWA COUNTY COMMISSIONER

1/13/2011 S:\Projects\Projects K-O\OTTA0004\CAD\SHEETS\OTTA0004.dgn

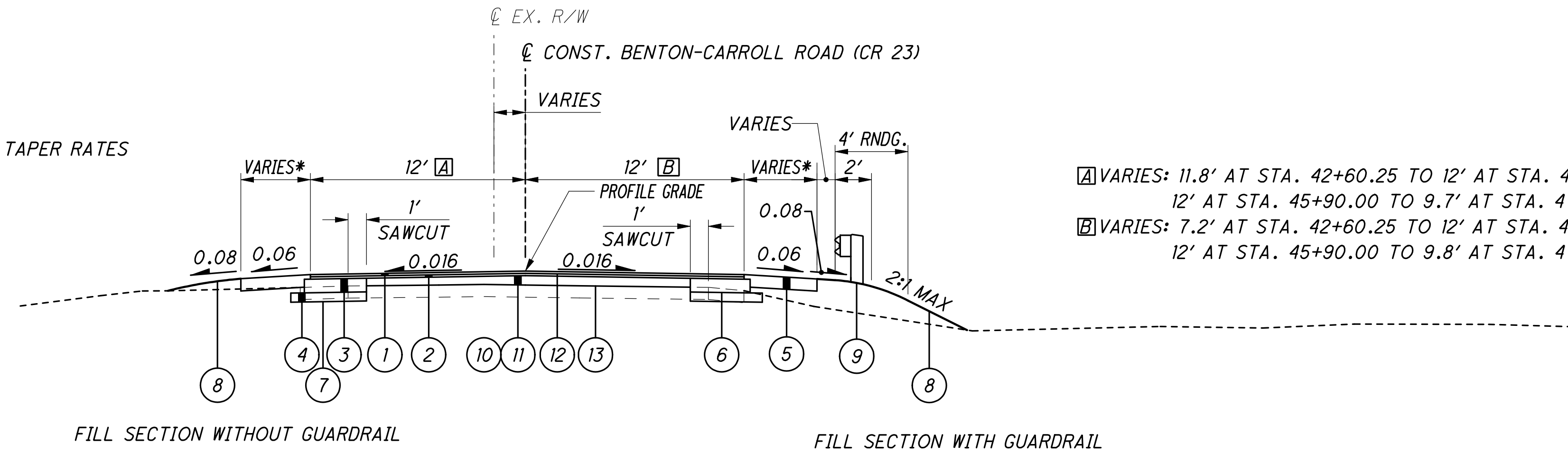
FEDERAL PROJECT NO. E100189
PID NO. 86758
CONSTRUCTION PROJECT NO. NONE
RAILROAD INVOLVEMENT NONE
OTT-CR23-3.50
1/22

- (A) - 1/4" 448 ASPHALT, TYPE 1, PG 64-22
- (B) - 1/2" 448 ASPHALT, TYPE 2, PG 64-22
- (C) - 4" AGGREGATE BASE
- (D) - AGGREGATE BASE



EXISTING SECTION - BENTON-CARROLL ROAD (CR 23)

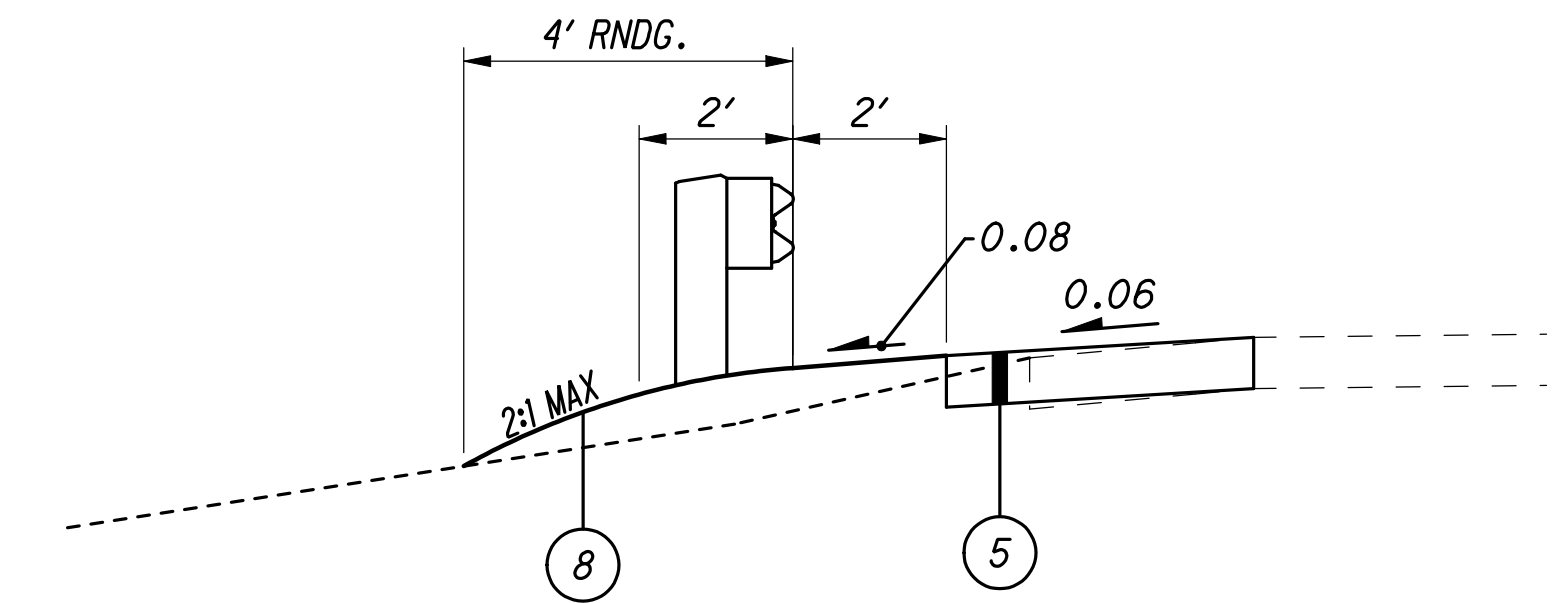
* SEE PLAN SHEET FOR SHOULDER TAPER RATES



- A VARIES: 11.8' AT STA. 42+60.25 TO 12' AT STA. 42+67.25
12' AT STA. 45+90.00 TO 9.7' AT STA. 47+00.00
- B VARIES: 7.2' AT STA. 42+60.25 TO 12' AT STA. 43+68.92
12' AT STA. 45+90.00 TO 9.8' AT STA. 47+00.00

PROPOSED SECTION - BENTON-CARROLL ROAD (CR 23)

SECTION APPLIES:
 STA. 42+60.25 TO 43+68.92 = 108.67 FT.
 STA. 45+75.00 TO 47+00.00 = 125.00 FT.
 TOTAL = 233.67 FT.

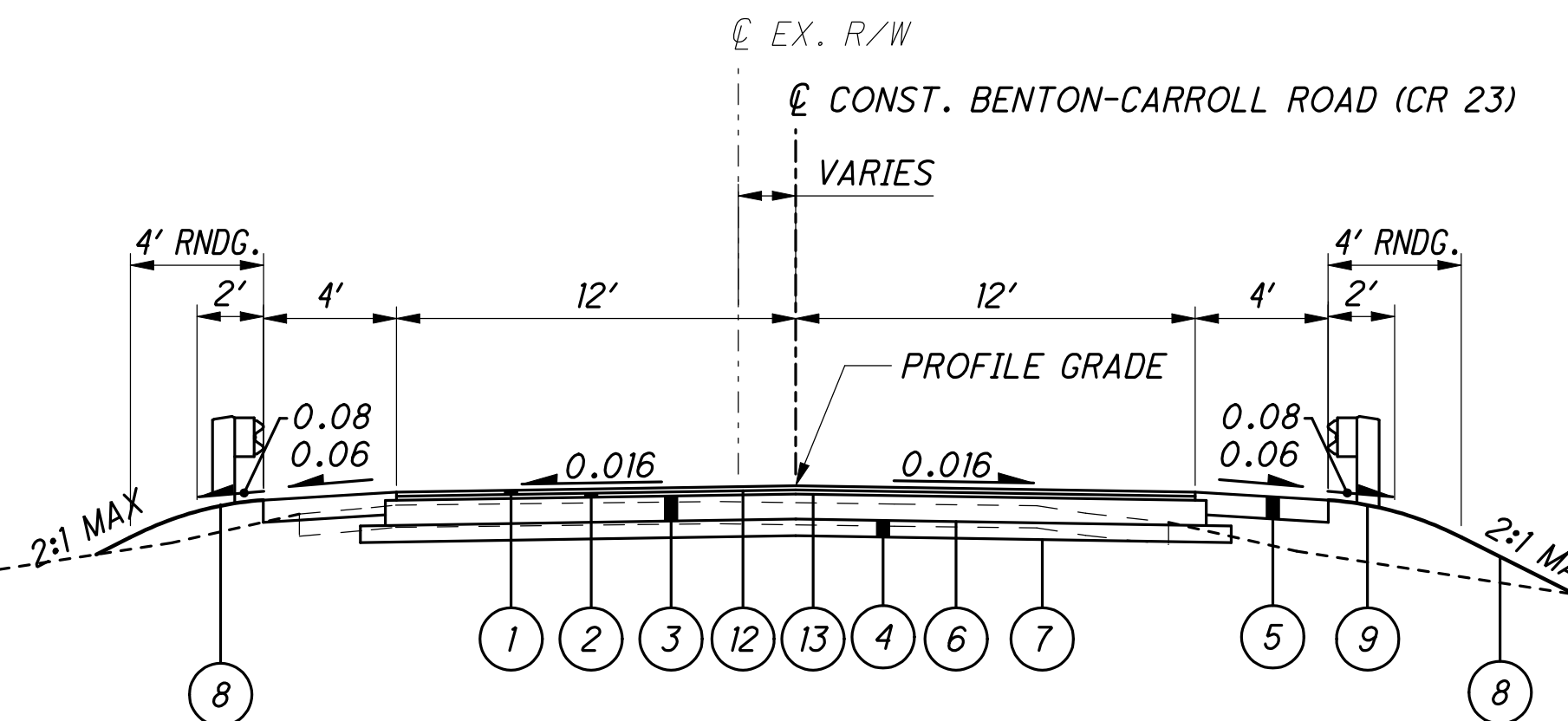


TYPICAL SHOULDER REPLACEMENT

SECTION APPLIES:
 STA. 47+00.00 TO 47+94.00 (LT.) = 94.00 FT.
 STA. 47+00.00 TO 47+57.00 (RT.) = 57.00 FT.

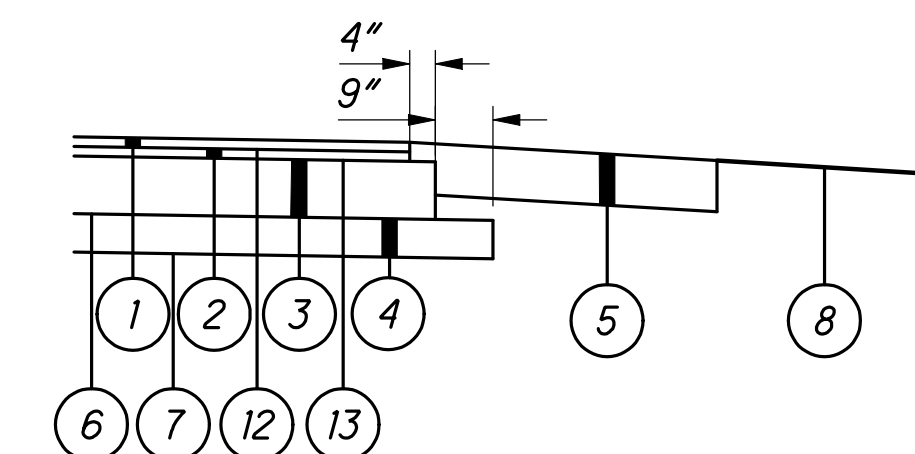
LEGEND

- 1 ITEM 448 - 1/4" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22
- 2 ITEM 448 - 3/4" ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, PG 64-22
- 3 ITEM 301 - 9" ASPHALT CONCRETE BASE
- 4 ITEM 304 - 6" AGGREGATE BASE
- 5 ITEM 304 - 8" AGGREGATE BASE
- 6 ITEM 408 - PRIME COAT (APPLIED AT A RATE OF 0.4 GAL./SQ.YD.)
- 7 ITEM 204 - SUBGRADE COMPACTION
- 8 ITEM 659 - SEEDING AND MULCHING
- 9 ITEM 606 - GUARDRAIL, TYPE 5
- 10 ITEM 254 - PAVEMENT PLANING (VARIABLE DEPTH), TO ACHIEVE PROPOSED PROFILE GRADE
AFTER 3" INTERMEDIATE AND SURFACE COURSES, 1/2" MIN.
- 11 ITEM 448 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-28 (VARIABLE DEPTH)
- 12 ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (0.04 GAL./SQ. YD.)
- 13 ITEM 407 - TACK COAT (0.075 GAL./SQ. YD.)



PROPOSED SECTION - BENTON-CARROLL ROAD (CR 23)

SECTION APPLIES:
 STA. 43+68.92 TO 44+47.81 = 78.89 FT.
 STA. 45+48.81 TO 45+75.00 = 26.19 FT.
 TOTAL = 105.08 FT.



PAVEMENT EDGE DETAIL

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

ELECTRIC TOLEDO EDISON
RICK SHIPLE
300 MADISON AVENUE
MAILSTOP 1880
TOLEDO, OH 43652
419-249-5818
(CELL) 419-265-6379

TELEPHONE VERIZON
AMY ROTH
300 W. GYPSY LANE RD.
BOWLING GREEN, OH 43402
419-841-7281
(CELL) 419-631-2823

SEWER OTTAWA COUNTY ENGINEER
315 MADISON STREET
ROOM 106
PORT CLINTON, OHIO 43452
(419) 734-6777

WATER/SANITARY SEWER CARROLL WATER AND SEWER DISTRICT
10340 W S.R. 2
OAK HARBOR, OH 43449-9013
(419) 898-5028

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.

UTILITY LINES

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

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 9 P.M. AND 6 A.M. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED UPON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

WORK LIMITS

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

CLEARING AND GRUBBING

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 SUM-

MARY 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.

ITEM 202 - GUARDRAIL REMOVED

WHEN GUARDRAIL IS DESIGNATED TO BE REPLACED AND TRAFFIC IS BEING MAINTAINED IN THE ADJACENT LANE, DO NOT LEAVE HAZARDS REQUIRED TO REMOVE THE EXISTING GUARDRAIL AND INSTALL THE PROPOSED GUARDRAIL IN A CONTINUOUS OPERATION. DO NOT REMOVE THE GUARDRAIL UNTIL THE REPLACEMENT MATERIAL IS ON THE SITE AND READY FOR INSTALLATION. THE ENGINEER WILL SUSPEND WORK FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.

SEEDING AND MULCHING

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

659, SEEDING AND MULCHING	710 SQ. YD.
659, COMMERCIAL FERTILIZER	0.10 TON
659, LIME	0.14 ACRE
659, WATER	3 M. GAL.

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

TEMPORARY EROSION AND SOIL CONTROL

THE PERMITTEE SHALL TAKE ANY AND ALL APPROPRIATE MEASURES TO LIMITS SOIL EROSION PRIOR TO EXCAVATION DURING AND AFTER CONSTRUCTION AUTHORIZED HEREIN. AS SUCH HE/SHE SHALL BE FULLY ACCOUNTABLE TO THE EPA, THE SOIL CONSERVATION SERVICE, AND OTHER APPROPRIATE AGENCIES FOR ANY VIOLATION OR DISREGARD OF THE APPLICABLE GOVERNING STANDARDS AND REGULATIONS RELATED TO THE PROTECTION AND CONSERVATION OF SOILS THAT ARE AFFECTED BY THIS PERMITTED WORK, INCLUDING STANDARD DRAWINGS DM-4.3 AND DM-4.4.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE COUNTY, REPRESENTATIVES OF THE COUNTY 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 COUNTY.

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 606 - ANCHOR ASSEMBLY, TYPE B

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	DATE	DATE	DWG./ REV.	ODOT APPROVAL
SS444	SLOTTED RAIL TERMINAL POST LAYOUT AND	7/12/99	8/27/99		
SS444M	ERECTION DETAILS SRT-350 (12.5, 8 POST)	7/12/99		Rev. 1	
SS425M	SLOTTED RAIL TERMINAL SRT-350 POST LAYOUT AND ERECTION DETAILS (12.5, 9 POST)	6/21/97	3/6/98		Rev. 1

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	DATE	DATE	DWG./ REV.	ODOT APPROVAL
FLT-M	FLARED ENERGY ABSORBING TERMINAL (FLEAT-350) ASSEMBLY	4/16/98	7/31/98		
FLT	FLARED ENERGY	5/4/06	5/23/06		
HINGED CRT	ABSORBING TERMINAL (POSTS 1 AND 2 ARE STEEL HINGED)				
FLT-SP	FLARED ENERGY ABSORBING TERMINAL (A SEVEN POST OPTION USING STANDARD STEEL POSTS)	3/30/09	3/4/09		

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 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, 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

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	DATE	DATE	DWG./ REV.	ODOT APPROVAL
SSI42	ET2000 PLUS 50'-0" PLAN, ELEVATION AND SECTION 25'-0" RAIL, SLEEVE W/PL POSTS 1-4	4/12/00	7/31/00		
SSI41	ET2000 PLUS PLAN, ELEVATION AND SECTION 25'-0" RAIL, HBA POSTS 1-4	2/29/00	7/31/00		
SSI58	ET2000 PLUS 50'-0" WITH 12'-6" PANELS AND HBA POSTS 1-4 PLAN, ELEVATION AND SECTION	5/22/00	7/31/00		
SS330	ET2000 PLUS 50'-0" WITH FOUR FOUNDATION TUBES AND FOUR CRT POSTS	3/28/06	3/29/06		
SS373	ET2000 PLUS 50'-0" WITH 7 SYT POSTS AND ONE HBA POST	6/20/09	1/20/09		

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	DATE	DATE	DWG./ REV.	ODOT APPROVAL
SKT-4M	SEQUENTIAL KINKING TERMINAL (SKT-350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98		
SKT HINGED CRT	SEQUENTIAL KINKING TERMINAL (SKT-350) FOUR POSTS ARE STEEL HINGED AND FIVE POSTS ARE CRT	4/30/06	5/23/06		
SKT-SP	SEQUENTIAL KINKING TERMINAL (SKT-350) A SEVEN POST OPTION USING STANDARD STEEL POST	3/30/09	3/4/09		

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, 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.

ITEM 448 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-28, AS PER PLAN (VARIABLE DEPTH)

AN ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE BY THE CONTRACTOR FOR PROVIDING A LEVELING COURSE AS NEEDED AFTER THE PAVEMENT PLANING, ASPHALT CONCRETE OPERATION IN AREAS REQUIRING ADJUSTMENTS PRIOR TO PLACING THE FINAL ASPHALT CONCRETE INTERMEDIATE AND SURFACE COURSES.

ENVIRONMENTAL COMMITMENTS

1. THE SPECIFICATIONS SET FORTH IN THE MOST CURRENT VERSION OF ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATIONS, LOCATION AND DESIGN MANUAL AND STANDARD DRAWINGS WILL BE USED TO ENSURE ADEQUATE EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION. DISTURBED AREAS WILL BE RESEED. A STORWATER POLLUTION PREVENTION PLAN IS NOT REQUIRED FOR THE PROJECT
2. UTILITY RELOCATIONS THAT IMPACT ENVIRONMENTAL RESOURCES NOT PREVIOUSLY DOCUMENTED WILL BE CONVEYED TO THE DISTRICT 2 ENVIRONMENTAL COORDINATOR AS SOON AS POSSIBLE FOR FURTHER EVALUATION.
3. IN-STREAM WORK IS PROHIBITED FROM APRIL 15TH TO JUNE 15TH TO COMPLY WITH THE MEMORANDUM AGREEMENT WITH ODNR WHEN WORKING IN STREAMS HAVING DRAINAGE AREAS OVER 20 SQUARE MILES.
4. NO INDIANA BAT TREES ARE EXPECTED TO BE REMOVED DUE TO THE PROJECT WORK. HOWEVER, THE ODOT DISTRICT ENVIRONMENTAL COORDINATOR SHALL BE NOTIFIED IF CONSTRUCTION ACTIVITIES CHANGE TO INCLUDE THE CUTTING OF TREES WITH SUITABLE ROOSTING AND BROOD-REARING HABITAT FOR THE INDIANA BAT (LIVING OR STANDING DEAD TREES OR SNAGS WITH EXFOLIATING, PEELING OR LOOSE BARK, SPLIT TRUNKS AND/OR BRANCHED, OR CAVITIES).

MAINTENANCE OF TRAFFIC AND DETOUR ROUTE

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 90 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 1. LIQUIDATED DAMAGES SHALL BE ASSESSED IN ACCORDANCE WITH SECTION 108.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

THE CONTRACTOR SHALL PROVIDE, ERECT, MAINTAIN, AND SUBSEQUENTLY REMOVE SIGNS, BARRICADES, GATES, AND LIGHTS AS DETAILED IN STANDARD CONSTRUCTION DRAWING MT-101.60.

RESURFACING OF THE INTERSECTION SHALL BE COMPLETED UTILIZING FLAGGERS CLOSING ONE HALF OF THE INTERSECTION AT A TIME. FULL INTERSECTION CLOSURE MAY BE PERMITTED IF THE CONTRACTOR SECURES WRITTEN AUTHORIZATION FROM THE ENGINEER.

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

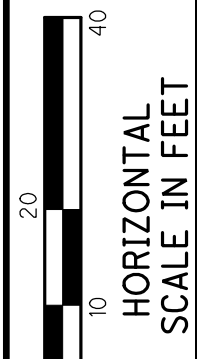
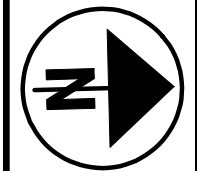
TRAFFIC CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE PLANS FOR TRAFFIC CONTROL:

626 BARRIER REFLECTOR	11 EACH
642 EDGE LINE	0.17 MILE
642 CENTER LINE	0.08 MILE

SHEET NUMBER					ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
3	4	6	11	OFFICE CALC						
ROADWAY										
LUMP					201	11000	LUMP		CLEARING AND GRUBBING	
					958	23000	958	SQ YD	PAVEMENT REMOVED, ASPHALT	
		20			202	35100	20	FT	PIPE REMOVED, 24" AND UNDER	
		25			202	38000	25	FT	GUARDRAIL REMOVED	
			150		203	10000	150	CU YD	EXCAVATION	
			132		203	20000	132	CU YD	EMBANKMENT	
				413	204	10000	413	SQ YD	SUBGRADE COMPACTION	
		1			604	39500	EACH		MOUMENT BOX ADJUSTED TO GRADE	
		550.0			606	13000	550.0	FT	GUARDRAIL, TYPE 5	
		2			606	26000	2	EACH	ANCHOR ASSEMBLY, TYPE B	
		2			606	26100	2	EACH	ANCHOR ASSEMBLY, TYPE E	
		4			606	32160	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE TST	
EROSION CONTROL										
710					659	10000	710	SQ YD	SEEDING AND MULCHING	
0.10					659	20000	0.10	TON	COMMERCIAL FERTILIZER	
0.14					659	31000	0.14	ACRE	LIME	
3					659	35000	3	M GAL	WATER	
321					832	30000	321	EACH	EROSION CONTROL	
DRAINAGE										
		1			604	09500	1	EACH	CATCH BASIN RECONSTRUCTED TO GRADE	
PAVEMENT										
					670	254	01000	670	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE
					94	301	46000	94	CU YD	ASPHALT CONCRETE BASE, PG64-22
					127	304	20000	127	CU YD	AGGREGATE BASE
					72	407	10000	72	GALLON	TACK COAT
					42	407	14000	42	GALLON	TACK COAT FOR INTERMEDIATE COURSE
					143	408	10000	143	GALLON	PRIME COAT
					11	448	46041	11	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-28, AS PER PLAN (VARIABLE DEPTH)
					50	448	46050	50	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22
					36	448	47020	36	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22
TRAFFIC CONTROL										
LUMP					614	12420	LUMP		DETOUR SIGNING	
11					626	00100	11		BARRIER REFLECTOR	
0.17					642	00090	0.17		EDGE LINE	
0.08					642	00290	0.08		CENTER LINE	
INCIDENTALS										
LUMP					614	11000	LUMP		MAINTAINING TRAFFIC	
LUMP					623	10000	LUMP		CONSTRUCTION LAYOUT STAKING	
LUMP					624	10000	LUMP		MOBILIZATION	
										13
FOR STRUCTURE QUANTITIES, SEE SHEET 13										

CALCULATED ALZ CHECKED CEB	GENERAL SUMMARY
OTT-CR23-3.50	
5 22	



CALCULATED
ALZ
CHECKED
CEB

PLAN AND PROFILE - CR 23
STA. 42+20.00 TO STA. 48+20.00

OTT-CR23-3.50

**BEGIN PROJECT
BEGIN WORK
STA. 42+60.25**

BENCHMARK DATA

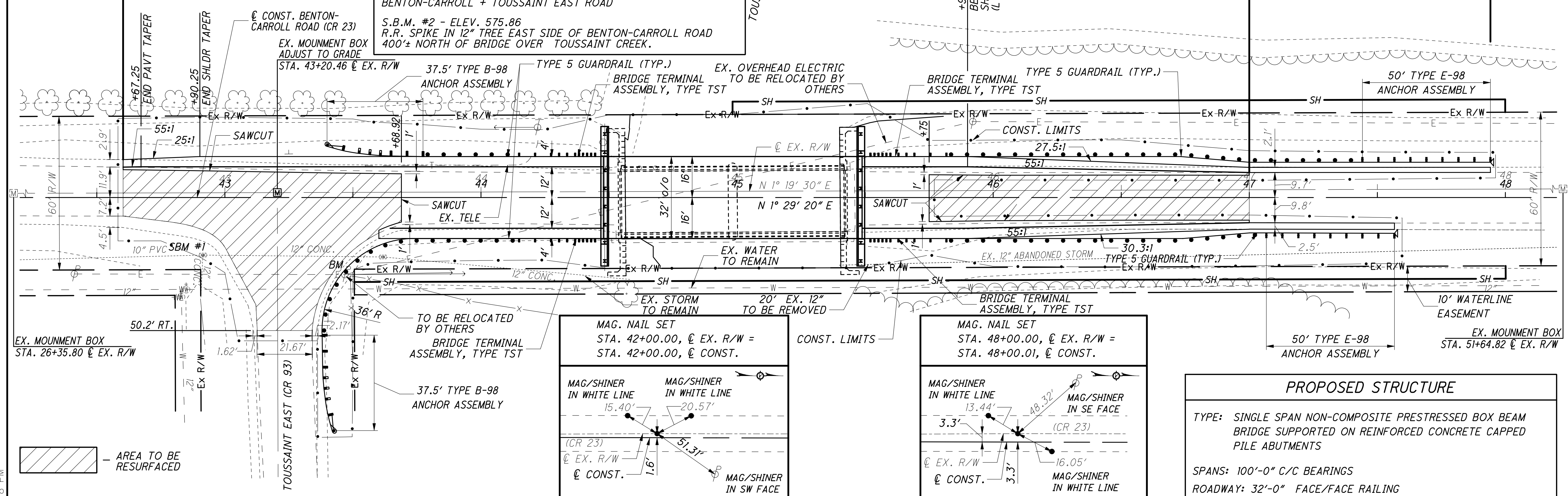
B.M. - STA. 43+46.83, 30.1' RT. ELEV. 579.90
R.R. SPIKE IN POWER POLE NORTHEAST CORNER
BENTON-CARROLL + TOUSSAINT EAST ROAD

S.B.M. #1 - STA. 42+92.47, 23.8' RT. ELEV. 578.61
BOX CUT NORTHEAST CORNER C.B. AT SOUTHEAST CORNER
BENTON-CARROLL + TOUSSAINT EAST ROAD

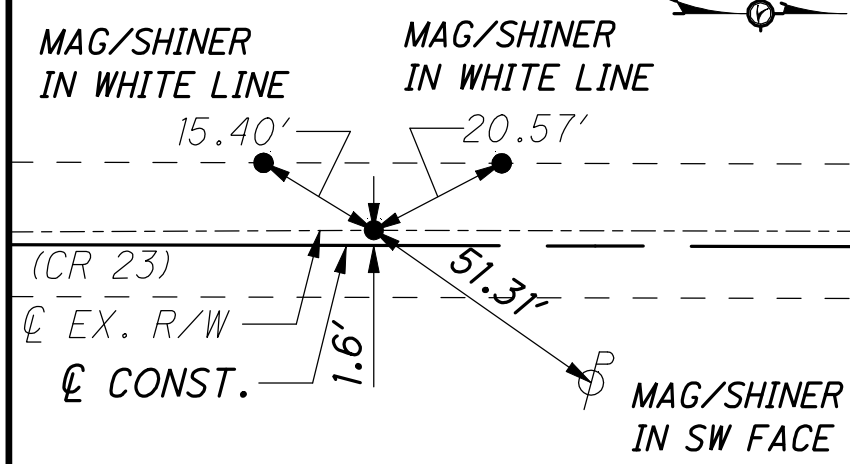
S.B.M. #2 - ELEV. 575.86
R.R. SPIKE IN 12" TREE EAST SIDE OF BENTON-CARROLL ROAD
400'± NORTH OF BRIDGE OVER TOUSSAINT CREEK.

**END PROJECT
STA. 47+00.00**

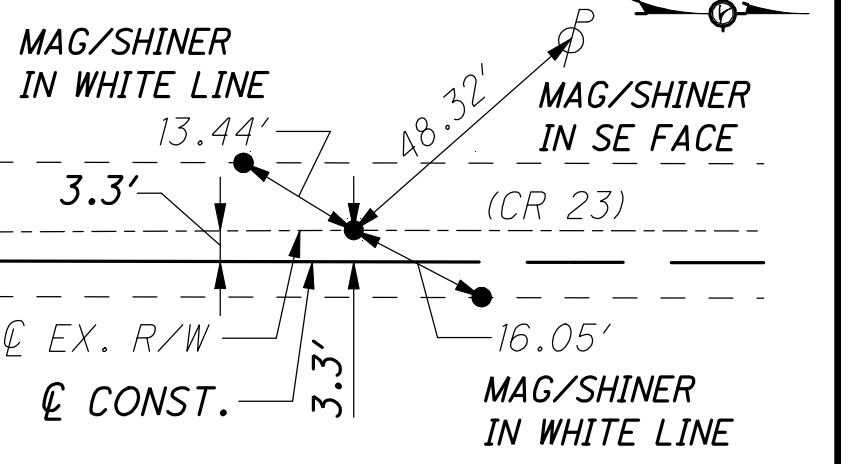
**END WORK
STA. 47+94.00**



MAG. NAIL SET
STA. 42+00.00, @ EX. R/W =
STA. 42+00.00, @ CONST.



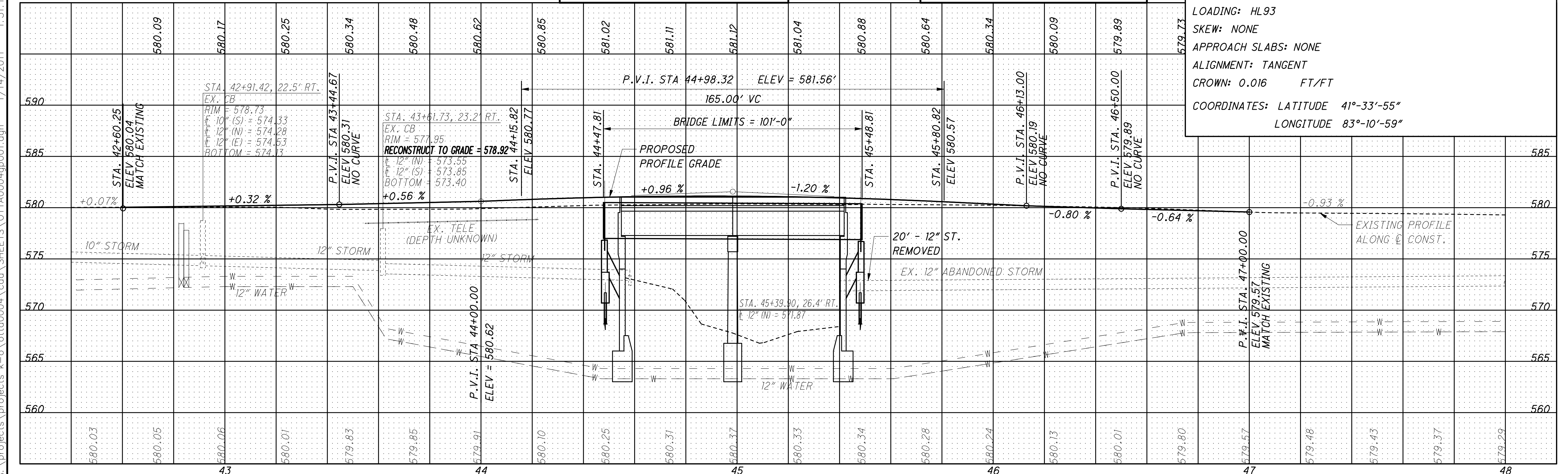
MAG. NAIL SET
STA. 48+00.00, @ EX. R/W =
STA. 48+00.01, @ CONST.



PROPOSED STRUCTURE

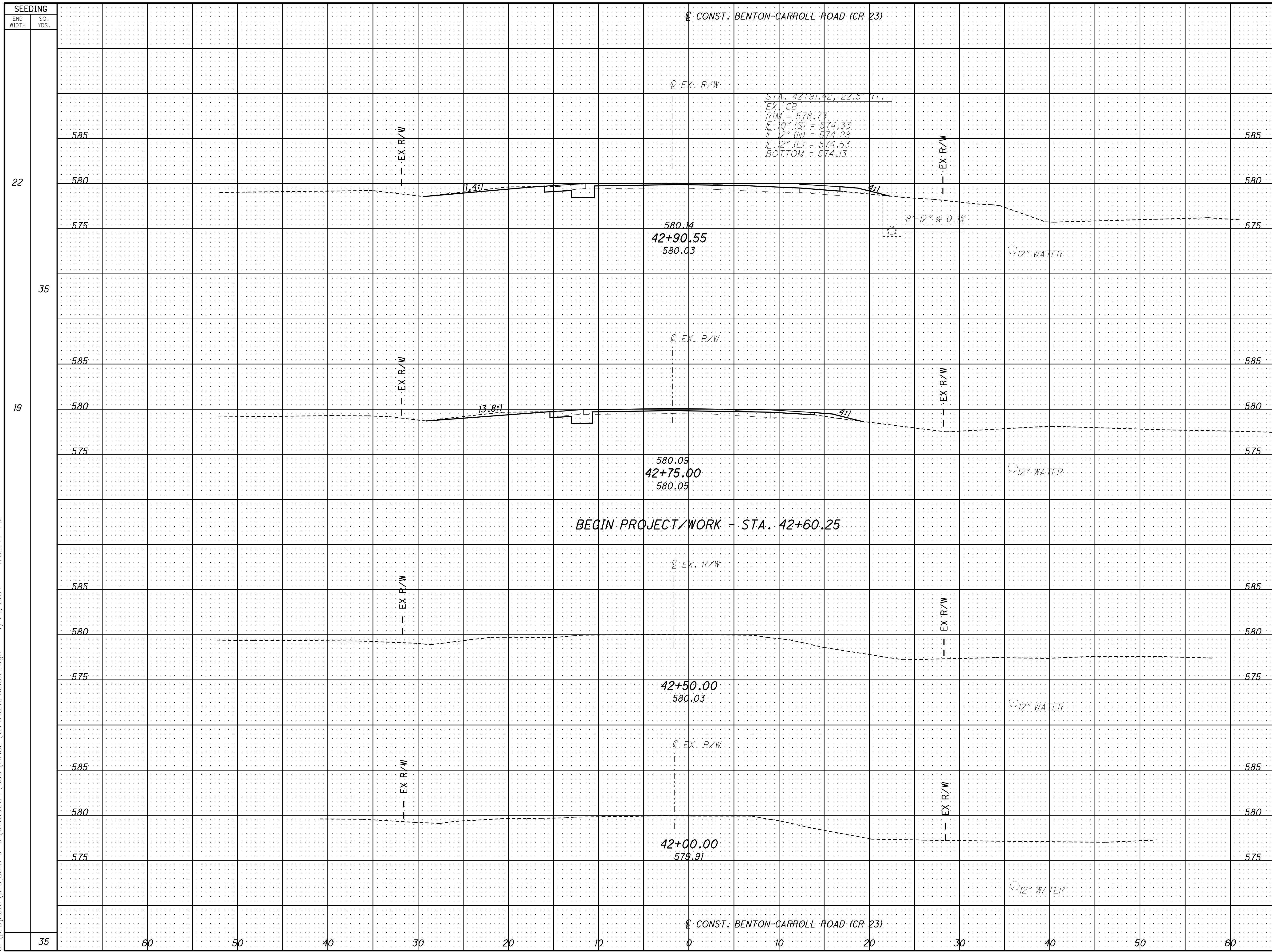
TYPE: SINGLE SPAN NON-COMPOSITE PRESTRESSED BOX BEAM
BRIDGE SUPPORTED ON REINFORCED CONCRETE CAPPED
PILE ABUTMENTS

SPANS: 100'-0" C/C BEARINGS
ROADWAY: 32'-0" FACE/FACE RAILING
LOADING: HL93
SKEW: NONE
APPROACH SLABS: NONE
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41°-33'-55"
LONGITUDE 83°-10'-59"



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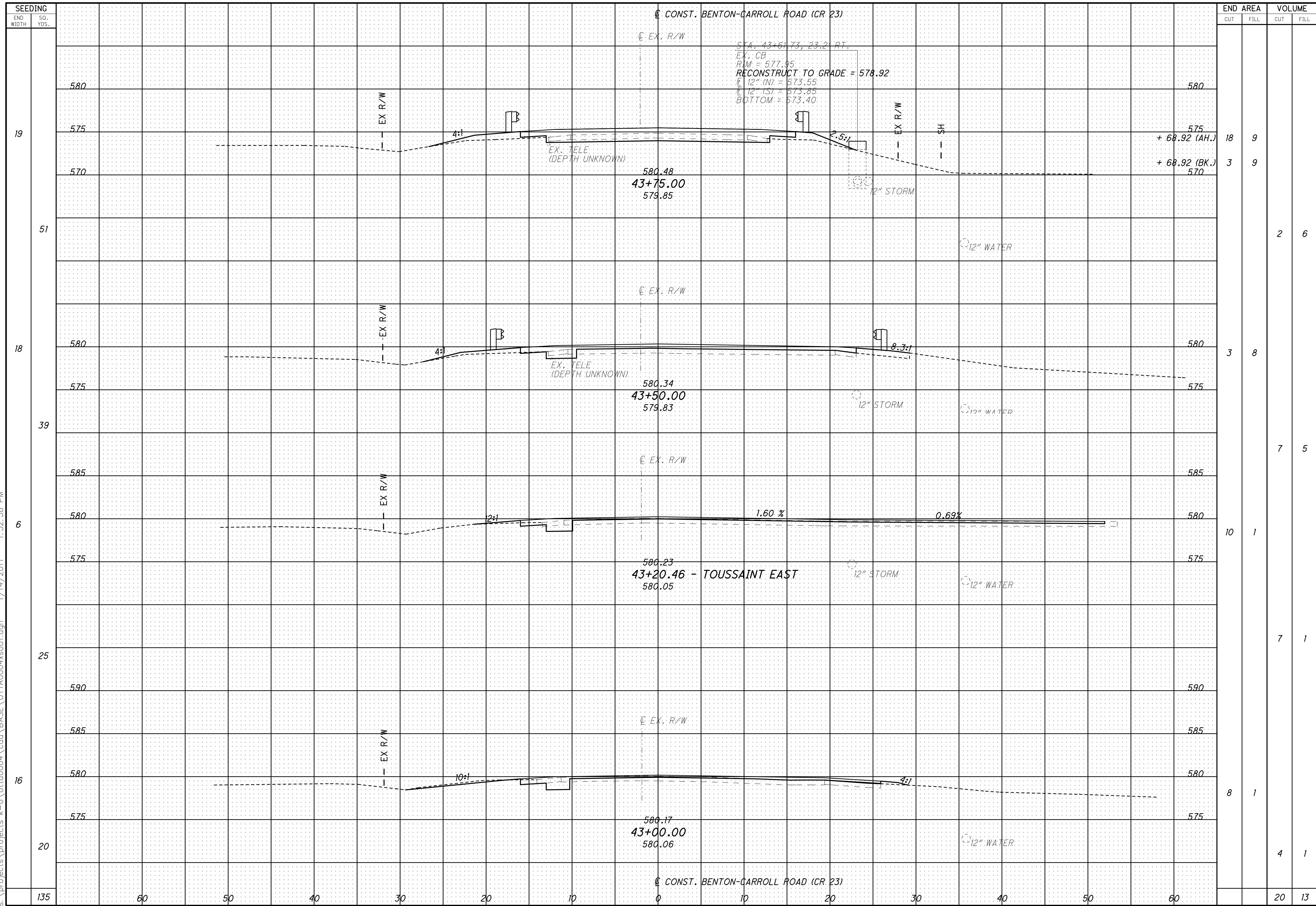
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END AREA	VOLUME	SEEDING	
		CUT	FILL
16	2		
8	2		
2	1		
9	2		

CALCULATED ALZ CHECKED CEB
CROSS SECTIONS
STA. 42+00.00 TO STA. 42+90.55
OTT-CR23-3.50
 7
 22

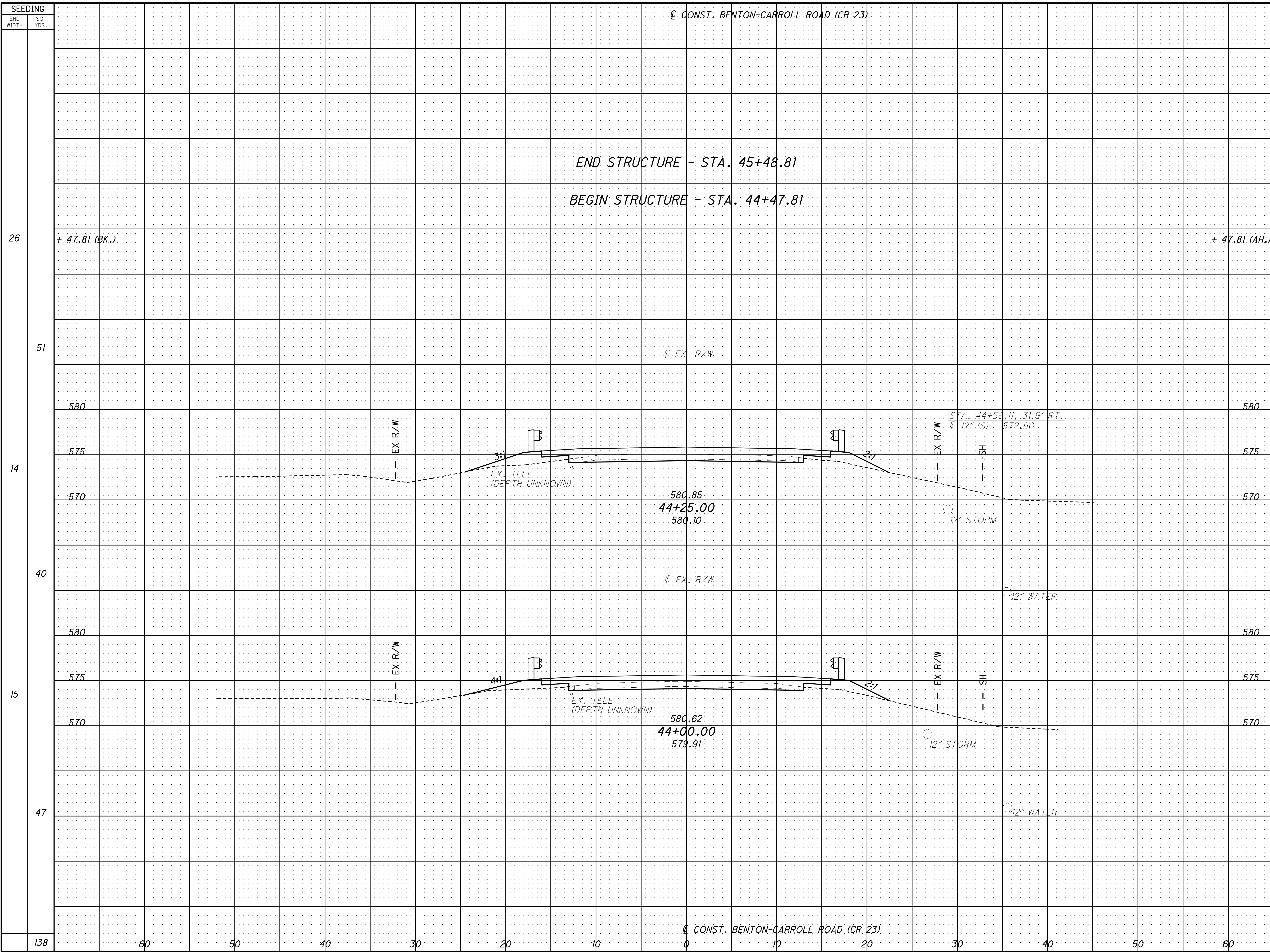
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END	AREA		VOLUME	
	CUT	FILL	CUT	FILL
19				
18		9		
51			2	6
18	3	8		
39			7	5
6	10	1		
25			7	1
16	8	1		
20			4	1
135			20	13

CALCULATED ALZ CHECKED CEB
CROSS SECTIONS
STA. 43+00.00 TO STA. 43+75.00
OTT-CR23-3.50
 8
 22

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END STRUCTURE - STA. 45+48.81
 BEGIN STRUCTURE - STA. 44+47.81

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
26	+ 47.81 (BK.)			20	31
51				14	19
14				13	14
40				13	12
15				14	12
47				18	11
138				45	42

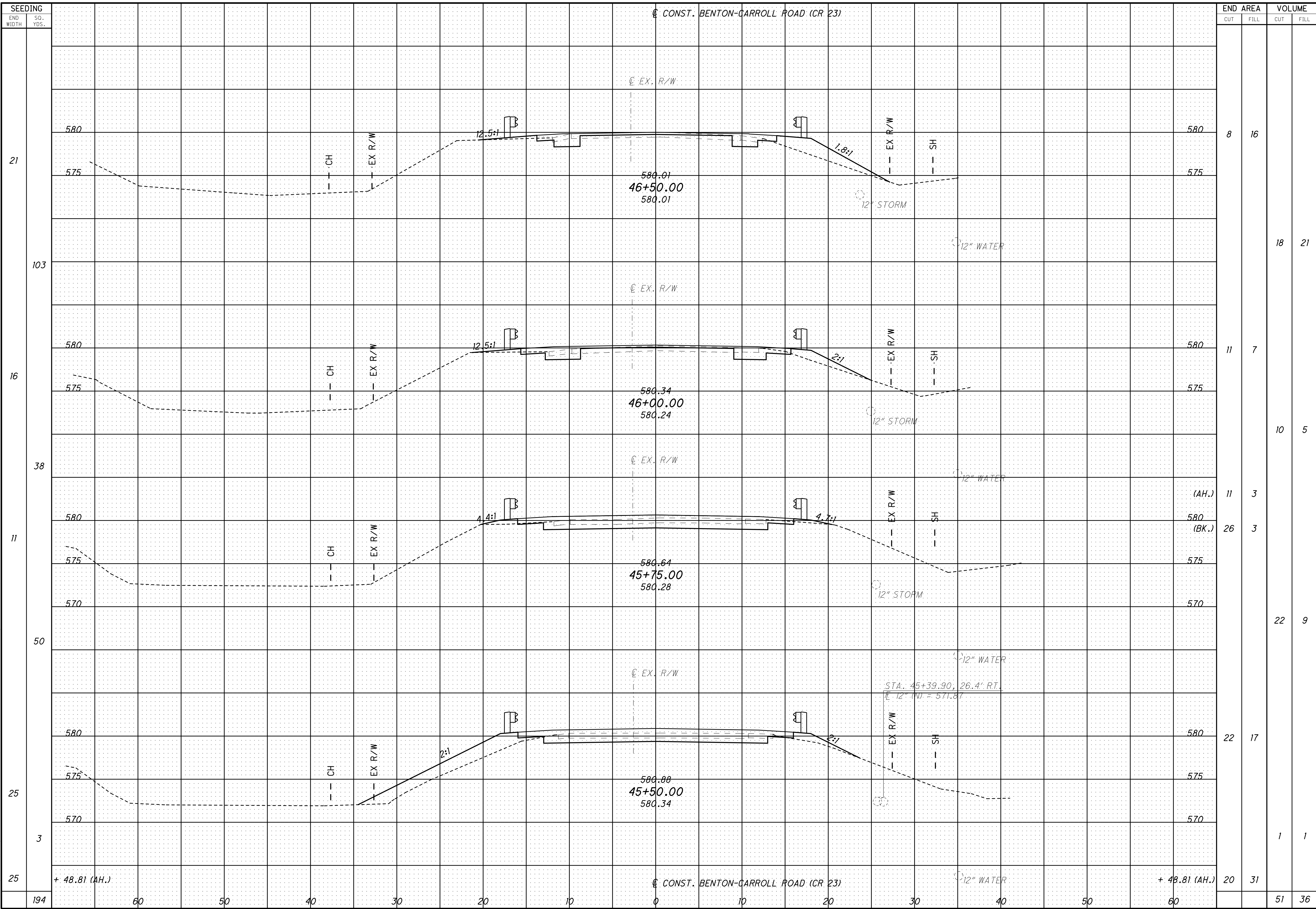
CROSS SECTIONS
STA. 44+00.00 TO STA. 44+25.00

OTT-CR23-3.50

CALCULATED	ALZ	CHECKED	CEB

9
22

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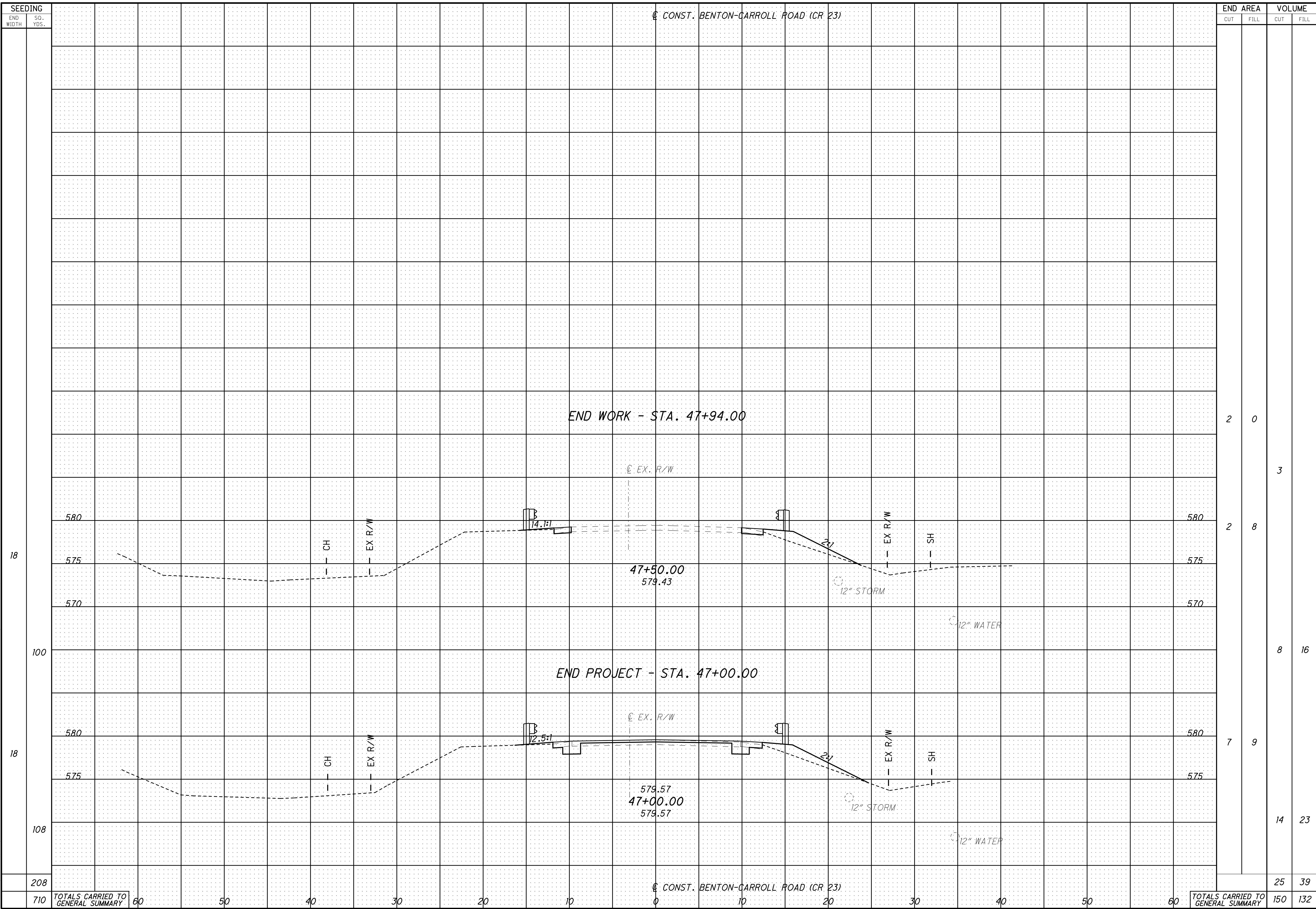
STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
21	8	16		
103			18	21
16	11	7		
38			10	5
11	11	3		
50	26	3		
			22	9
25	22	17		
3			1	1
25	20	31		
194			51	36

CROSS SECTIONS
STA. 45+50.00 TO STA. 46+50.00

OTT-CR23-3.50

CALCULATED ALZ CHECKED CEB
 10
 22

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SEEDING	
END WIDTH	SQ. YDS.
18	
100	
18	
108	
208	
710	TOTALS CARRIED TO GENERAL SUMMARY

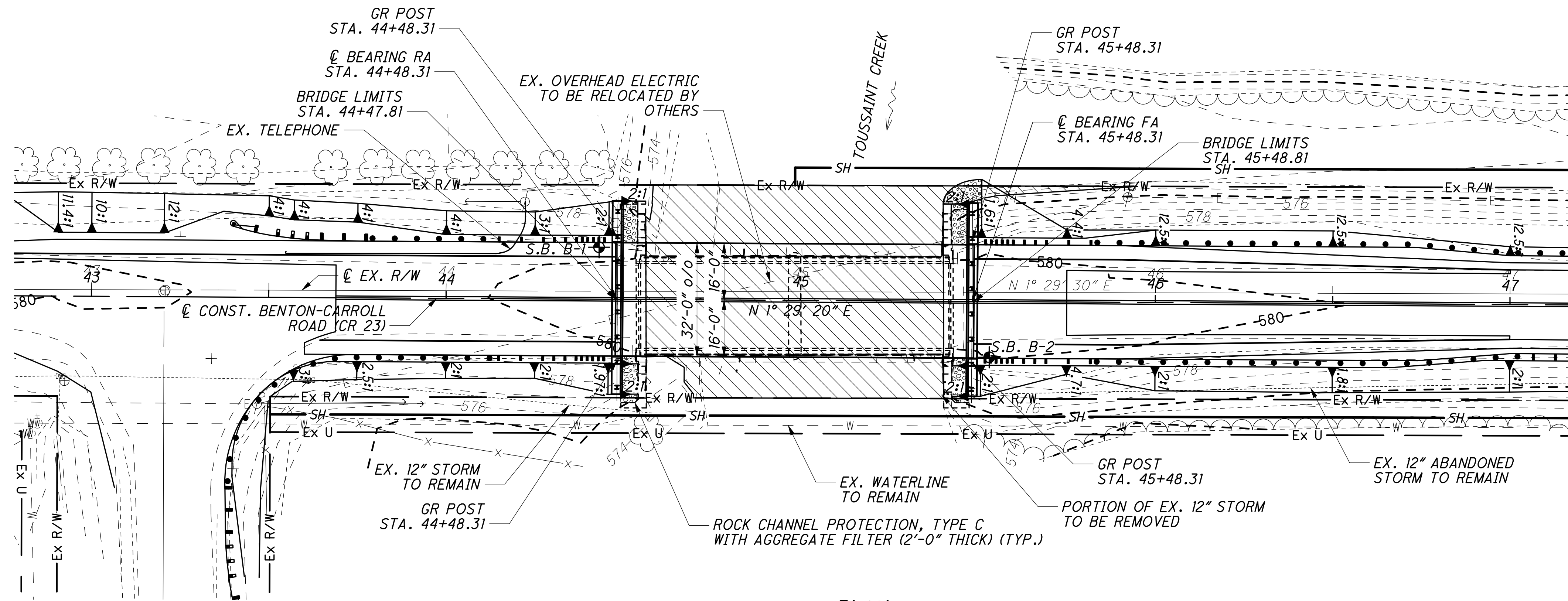
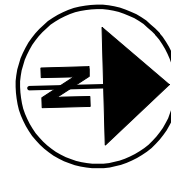
END AREA		VOLUME	
CUT	FILL	CUT	FILL
2	0		
2	8		
8	16		
7	9		
14	23		
25	39		
150	132		

CALCULATED	CHECKED
ALZ	CEB

**CROSS SECTIONS
STA. 47+00.00 TO STA. 47+50.00**

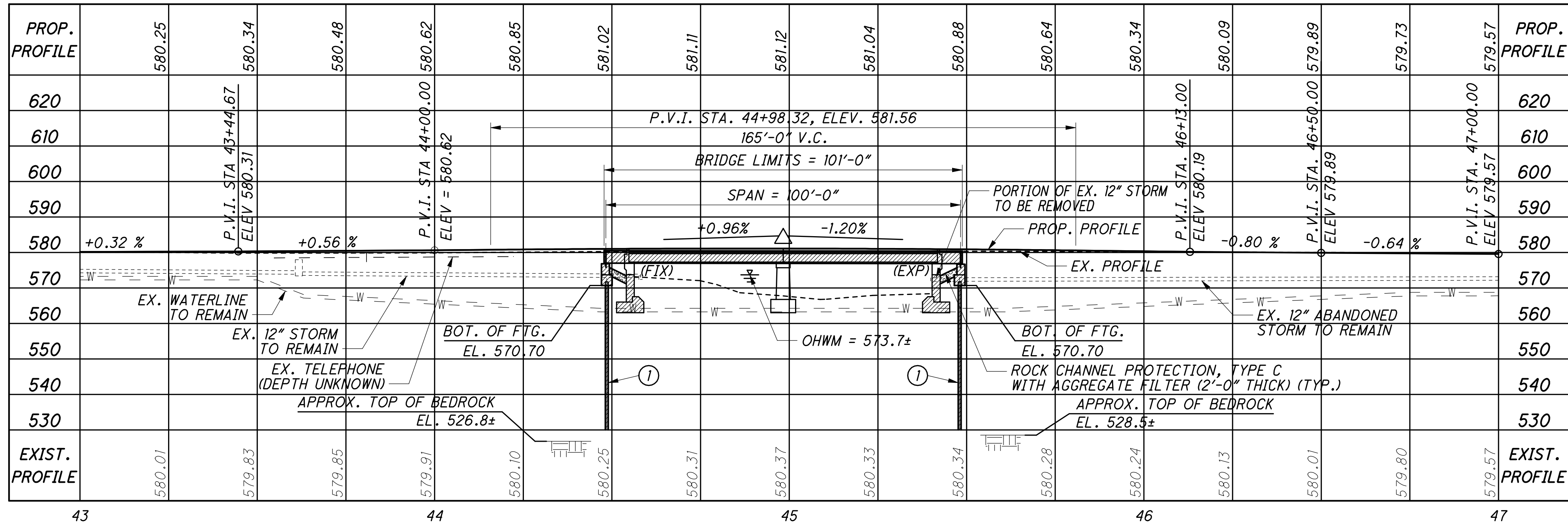
OTT-CR23-3.50

11
22



PLAN

TEMPORARY FILL MATERIAL PLACED IN WATERWAY BELOW OHWM
 TOTAL TEMPORARY FILL PLAN AREA = 0.12 AC
 TOTAL TEMPORARY FILL VOLUME = 752 CY



PROFILE ALONG CENTERLINE BENTON-CARROLL ROAD (CR-23)

BENCHMARK DATA

B.M. - STA. 43+46.83, 30.1' RT. ELEV. 579.90
 R.R. SPIKE IN POWER POLE NORTHEAST CORNER BENTON-CARROLL + TOUSSAINT EAST ROAD
 S.B.M. #1 - STA. 42+92.47, 23.8' RT. ELEV. 578.61
 BOX CUT NORTHEAST CORNER C.B. AT SOUTHEAST CORNER BENTON-CARROLL + TOUSSAINT EAST ROAD
 S.B.M. #2 - ELEV. 575.86
 R.R. SPIKE IN 12" TREE EAST SIDE OF BENTON-CARROLL ROAD 400± NORTH OF BRIDGE OVER TOUSSAINT CREEK

FOR ADDITIONAL BENCHMARK INFORMATION, SEE ROADWAY PLAN SHEET 6 OF 21.

NOTES

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

NO HYDRAULIC ANALYSIS WAS PERFORMED FOR THIS PROJECT. THE PROPOSED LOW CHORD IS AT ELEV. 576.85 AND THE EXISTING LOW CHORD IS AT ELEV. 576.75.

DESIGN TRAFFIC:
 2009 ADT = 730 2009 ADTT = 15
 2029 ADT = 876 2029 ADTT = 18
 DIRECTIONAL DISTRIBUTION = 0.55

LEGEND

- ⊕ BORING LOCATION
- ① - HP12X53 PILES
 REAR ABUTMENT ESTIMATED PILE LENGTH = 50'
 FORWARD ABUTMENT ESTIMATED PILE LENGTH = 45'

EXISTING STRUCTURE

TYPE: CAST-IN-PLACE REINFORCED CONCRETE T-BEAM BRIDGE SUPPORTED ON REINFORCED CONCRETE WALL ABUTMENTS AND WALL TYPE PIER
 SPANS: 43'-0", 43'-0" C/C BEARINGS
 ROADWAY: 24'-0" F/F SAFETY CURB
 LOADING: UNKNOWN
 SKEW: NONE
 APPROACH SLABS: NONE
 ALIGNMENT: TANGENT
 CROWN: 0.016 FT/FT
 STRUCTURAL FILE NUMBER: 6232213
 DATE BUILT: 1937
 DISPOSITION: FAIR CONDITION

PROPOSED STRUCTURE

TYPE: SINGLE SPAN NON-COMPOSITE PRESTRESSED BOX BEAM BRIDGE SUPPORTED ON REINFORCED CONCRETE CAPPED PILE ABUTMENTS
 SPANS: 100'-0" C/C BEARINGS
 ROADWAY: 32'-0" FACE/FACE RAILING
 LOADING: HL93
 SKEW: NONE
 APPROACH SLABS: NONE
 ALIGNMENT: TANGENT
 CROWN: 0.016 FT/FT
 COORDINATES: LATITUDE 41°-33'-55"
 LONGITUDE 83°-10'-59"

The Mannik & Smith Group, Inc.
 Civil Engineering, Surveying and Environmental Consulting

DATE	2-10	REVIEWED	RCH	DRAWN	JRC	DESIGNED	JRC	CHECKED	JPM
STRUCTURE FILE NUMBER	6232205								
SITE PLAN									
BRIDGE NO. OTT-CR23-0350									
BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK									
OTAWA COUNTY									
STA. 44+47.81									
STA. 45+48.81									
OTT-CR23-3.50									
PID No. 86758									
1 / 10									
12 / 22									

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STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

DS-1-92 REVISED 7-18-03

PSBD-2-07 DATED 10-19-07

TST-1-99 REVISED 4-18-08

AND TO THE FOLLOWING STANDARD PLAN INSERT SHEET:

POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

DESIGN SPECIFICATIONS

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2007, AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING

DESIGN LOADING: HL-93

FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/SQ.FT.

DESIGN DATA

CONCRETE CLASS QSCI - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

STEEL H-PILES - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

CONCRETE FOR PRESTRESSED BEAMS:
COMPRESSIVE STRENGTH (FINAL) - 7 KSI
COMPRESSIVE STRENGTH (RELEASE) - 5 KSI

PRESTRESSING STRAND:
AREA = 0.153 SQ.IN.
ULTIMATE STRENGTH = 270 KSI
INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

LOAD DISTRIBUTION FACTORS:

DEAD LOAD DISTRIBUTION: DEAD LOADS HAVE BEEN DISTRIBUTED EQUALLY TO ALL BEAMS

LIVE LOAD DISTRIBUTION (INTERIOR MEMBERS):
LIVE LOAD MOMENT = 0.339 FOR TRUCK & LANE LOADS (2 LANES LOADED)

LIVE LOAD MOMENT = 0.346 FOR TRUCK & LANE LOADS (1 LANE LOADED)

LIVE LOAD SHEAR = 0.447 FOR TRUCK & LANE LOADS (2 LANES LOADED)

LIVE LOAD SHEAR = 0.421 FOR TRUCK & LANE LOADS (1 LANE LOADED)

LIVE LOAD DISTRIBUTION (EXTERIOR MEMBERS):
LIVE LOAD MOMENT = 0.355 FOR TRUCK & LANE LOADS (2 LANES LOADED)

LIVE LOAD MOMENT = 0.392 FOR TRUCK & LANE LOADS (1 LANE LOADED)

LIVE LOAD SHEAR = 0.543 FOR TRUCK & LANE LOADS (2 LANES LOADED)

LIVE LOAD SHEAR = 0.532 FOR TRUCK & LANE LOADS (1 LANE LOADED)

DECK PROTECTION METHOD

WATERPROOFING (TYPE 3) AND ASPHALT CONCRETE OVERLAY

STEEL DRIP STRIP

UTILITY LINES

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

SURVEY DISC ON STRUCTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST ONE (1) WEEK IN ADVANCE OF POURING THE CONCRETE FOR COMPLETION OF THE ABUTMENT. THE ENGINEER WILL PROVIDE THE CONTRACTOR ONE (1) SURVEY DISC FOR THE STRUCTURE (OBTAINED FROM THE COUNTY ENGINEER) WHICH THE CONTRACTOR SHALL PLACE IN THE SURFACE OF THE FRESH CONCRETE. THE LOCATION OF THE DISC SHALL BE ON THE ABUTMENT, AND ON A FLAT, HORIZONTAL SURFACE BEYOND THE EDGE OF THE DECK AND RAILING. THE BENCHMARK SHALL BE ACCESSIBLE TO A SURVEYOR'S ROD WITHOUT ANY OBSTRUCTIONS. COST OF THIS WORK SHALL BE INCLUDED WITH ITEM 842.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THE EXISTING PIER SHALL BE REMOVED DOWN TO THE TOP OF FOOTING, APPROXIMATE ELEVATION 566.8±. THE EXISTING ABUTMENT AND WINGWALLS SHALL BE REMOVED TO APPROXIMATE ELEVATION 573.7± EXCEPT FOR THE WEST WINGWALLS THAT SHALL BE REMOVED TO APPROXIMATE ELEVATION 562.7±. REFER TO REMOVAL DETAILS ON SHEET 3 OF 10 FOR ADDITIONAL DETAILS.

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 TOTAL FACTORED LOAD IS 197 KIPS PER PILE FOR THE REAR AND FORWARD ABUTMENT PILES.

ABUTMENT PILES:
7 PILES 55 FEET LONG, ORDER LENGTH (REAR ABUTMENT)
7 PILES 50 FEET LONG, ORDER LENGTH (FORWARD ABUTMENT)

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, PHONE: (973)773-8400, (800)526-9047, FAX: (973)773-8442; INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015, PHONE: (704)821-8200, (888)423-8721, FAX: (704)821-8201; DOUGHERTY FOUNDATION PRODUCTS, INC., P.O. BOX 688, FRANKLIN LAKES, NEW JERSEY 07417, PHONE: (201)337-5748, FAX: (201)337-9022; VERSA STEEL INC., 1618 N.E. FIRST AVE., PORTLAND, OREGON 97232, PHONE: (503)287-9822, (800)678-0814, FAX: (503)287-7483; VERSABITE PILING ACCESSORIES, 1704 TOWER INDUSTRIAL DR., MONROE, NORTH CAROLINA 28110, PHONE: (800)280-9950, (704)225-1566, FAX: (704)225-1567; 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/A27M 65/35 [450/240] - CLASS 2 - HEAT TREATED OR AASHTO M103/M103M 65/35 [450/240] - 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.

BEARING PAD SHIMS

BEARING PAD SHIMS: PLACE 1/8" THICK PREFORMED BEARING PAD SHIMS, PLAN AREA 7 INCHES BY 11 INCHES, UNDER THE ELASTOMERIC BEARING PADS WHERE REQUIRED FOR PROPER BEARING. FURNISH TWO SHIMS PER BEAM. THE DEPARTMENT WILL MEASURE THIS ITEM BY THE TOTAL NUMBER SUPPLIED. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516 - 1/8" PREFORMED BEARING PADS. ANY UNUSED SHIMS WILL BECOME THE PROPERTY OF THE STATE.

ESTIMATED QUANTITIES

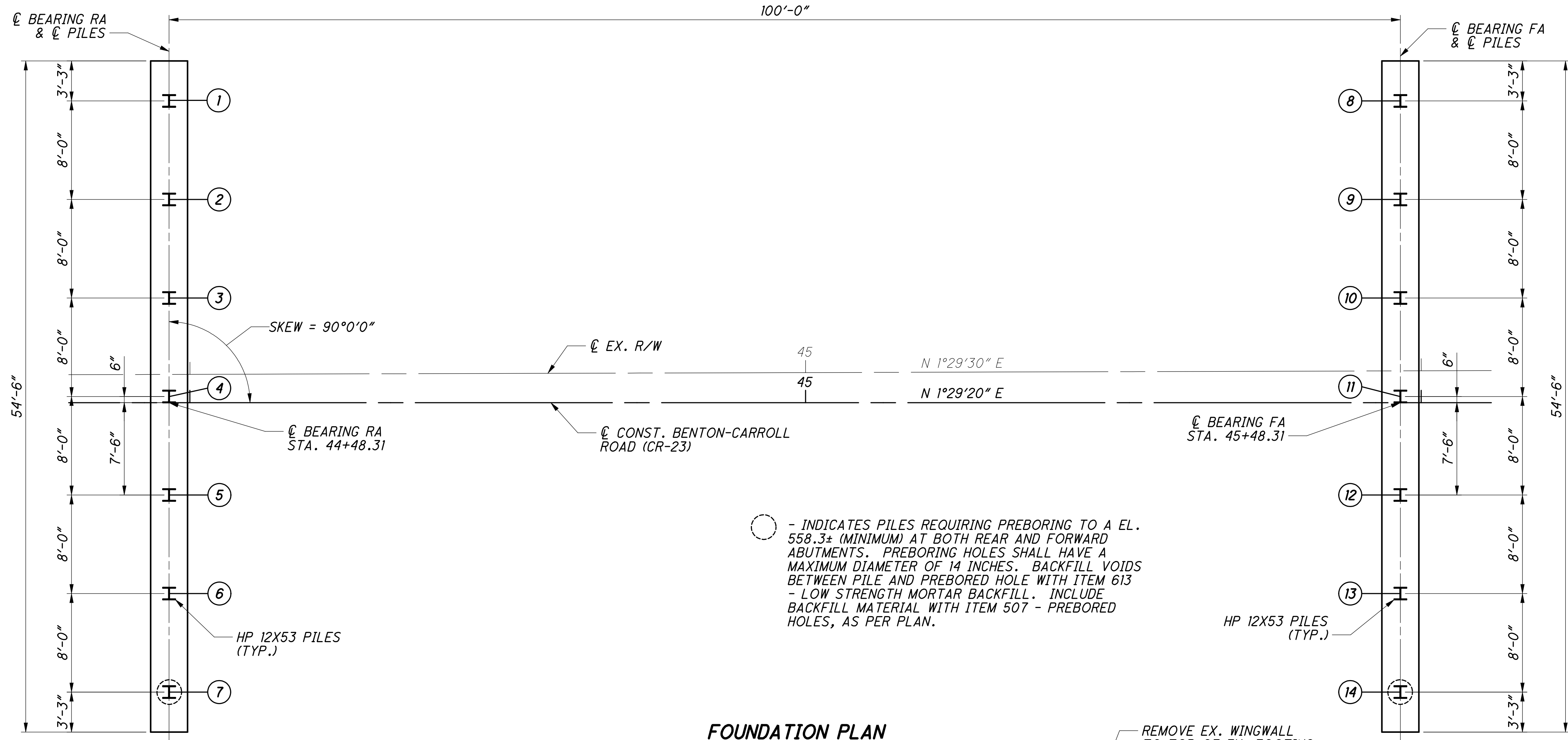
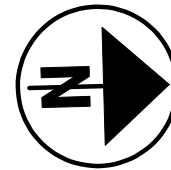
CALC BY: BCR DATE: 1/25/10
CHKD BY: JRC DATE: 1/28/10

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTS.	PIER	SUPER.	GEN.	REFERENCE
202	11203		LUMP	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	2 & 3 OF 10
202	23500	235	SQ YD	WEARING COURSE REMOVED			235		
407	10000	28	GALLON	TACK COAT			28		
407	14000	15	GALLON	TACK COAT FOR INTERMEDIATE COURSE			15		
448	46050	19	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22			19		
448	47020	13	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22			13		
503	11101		LUMP	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	2 OF 10
503	21101	381	CU YD	UNCLASSIFIED EXCAVATION, AS PER PLAN	381				2 & 3 OF 10
505	11100		LUMP	PILE DRIVING EQUIPMENT MOBILIZATION					
507	00200	735	FT	STEEL PILES HP12X53, FURNISHED	735				
507	00250	665	FT	STEEL PILES HP12X53, DRIVEN	665				
507	92201	25	FT	PREBORED HOLES, AS PER PLAN	25				3 OF 10
507	93301	14	EACH	STEEL POINTS OR SHOES, AS PER PLAN	14				2 OF 10
509	10000	7862	LB	EPOXY COATED REINFORCING STEEL	7862				
512	10100	143	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	143				
512	33011	403	SQ YD	TYPE 3 WATERPROOFING, AS PER PLAN			403		4 OF 10
515	10110	8	EACH	PRESTRESSED CONCRETE NON-COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, B42-48			8		
516	13200	22	SQ FT	1/2" PREFORMED EXPANSION JOINT FILLER			22		
516	13600	238	SQ FT	1" PREFORMED EXPANSION JOINT FILLER			238		
516	31300	65	FT	SPECIAL - POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM			65		
516	41100	16	EACH	1/8" PREFORMED BEARING PAD, 711.21			16		
516	43200	32	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE) (7"x11"x2.06" THICK)			32		
517	70000	210	FT	RAILING (TWIN STEEL TUBE)			210		
518	21200	69	CU YD	POROUS BACKFILL WITH FILTER FABRIC	69				
518	22300	244	FT	SPECIAL - STEEL DRIP STRIP			244		
518	40000	109	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	109				
518	40010	42	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	42				
601	32210	48	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH AGGREGATE FILTER	48				
898	20160	77	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT INCLUDING FOOTING)	77				

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

THIS PAY ITEM HAS BEEN INCLUDED IN THE PLANS IN ORDER TO ESTABLISH A PRICE FOR THE COFFERDAMS AND EXCAVATION BRACING REQUIRED BY THE CONTRACTOR TO REMOVE PORTIONS OF THE EXISTING PIER WITHIN TOUSSAINT CREEK.

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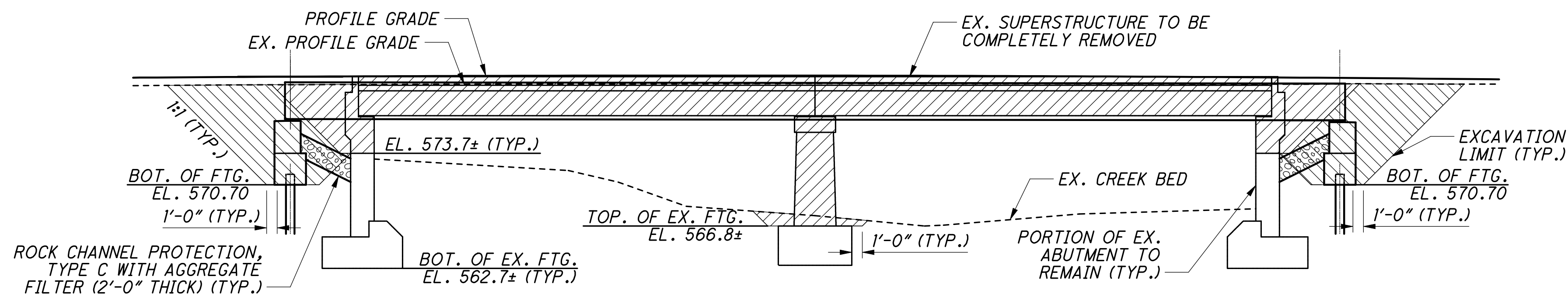


FOUNDATION PLAN

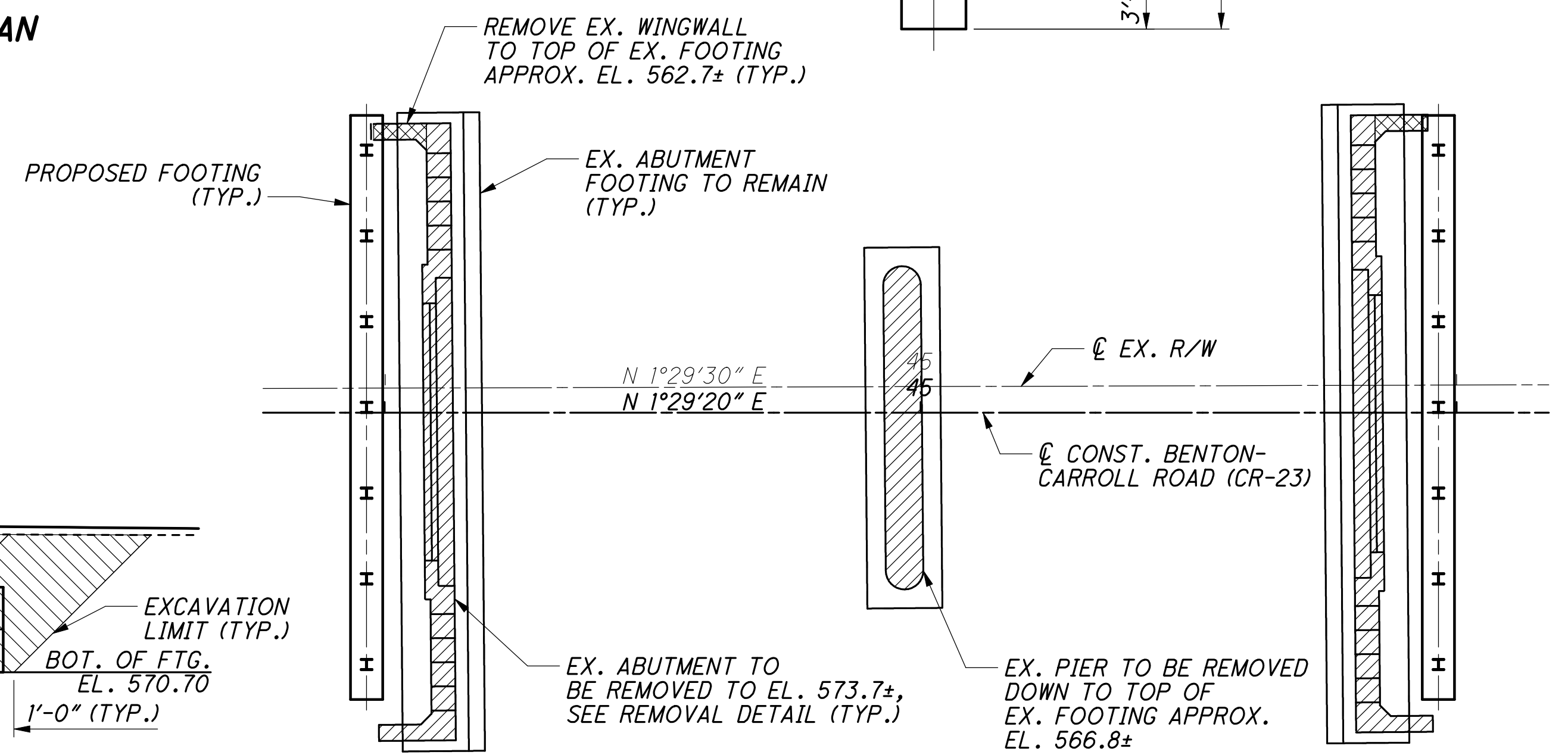
LEGEND:

RA = REAR ABUTMENT
FA = FORWARD ABUTMENT

- ITEM 202, STRUCTURE REMOVED, OVER 20 FT. SPAN, AS PER PLAN (FOR REMOVAL OF STRUCTURE ONLY AND INCLUDING EXCAVATION AS SHOWN WITHOUT BACKFILL)
- ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN (INCLUDES ALL ADDITIONAL EXCAVATION AND BACKFILL NECESSARY FOR PROPOSED STRUCTURE).



EXCAVATION REMOVAL DETAIL

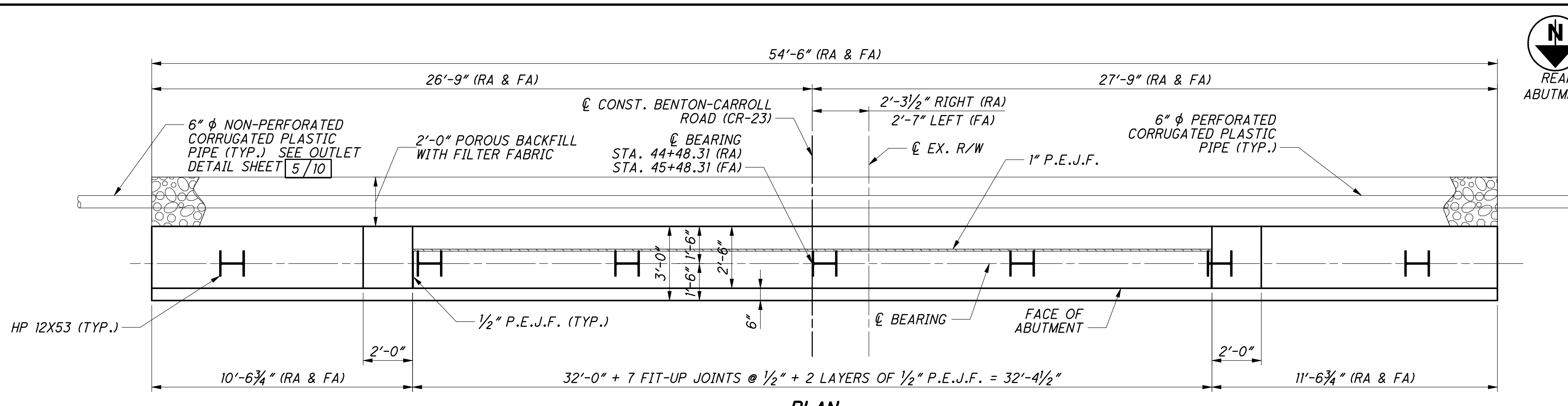


EXCAVATION PLAN DETAIL

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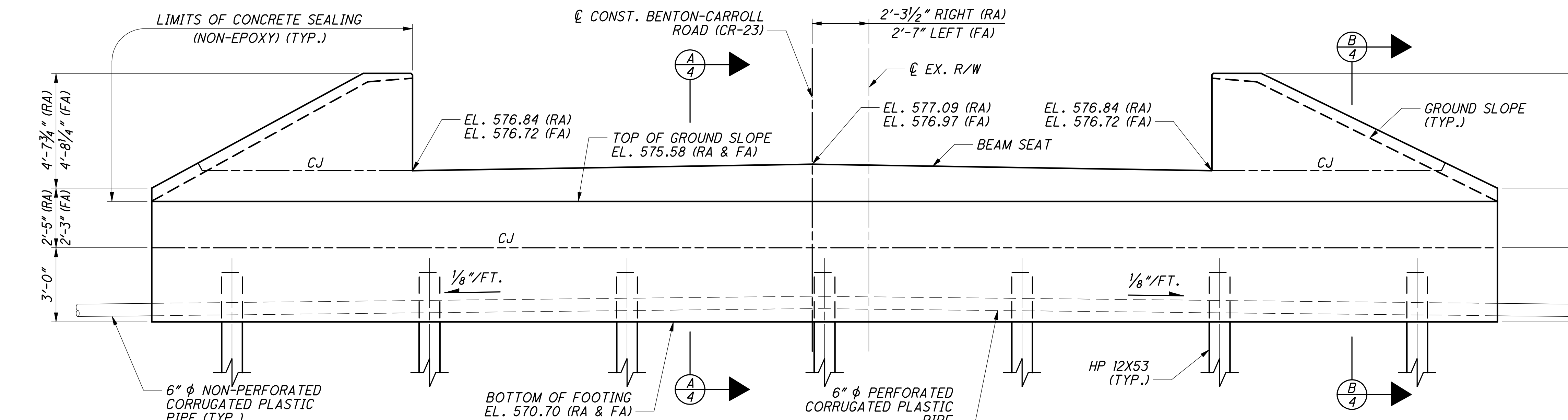
DESIGNED	JRC	CHECKED	JPM
DRAWN	JRC	REVISED	
REVIEWED	RCH	STRUCTURE FILE NUMBER	6232205
DATE	2-10		

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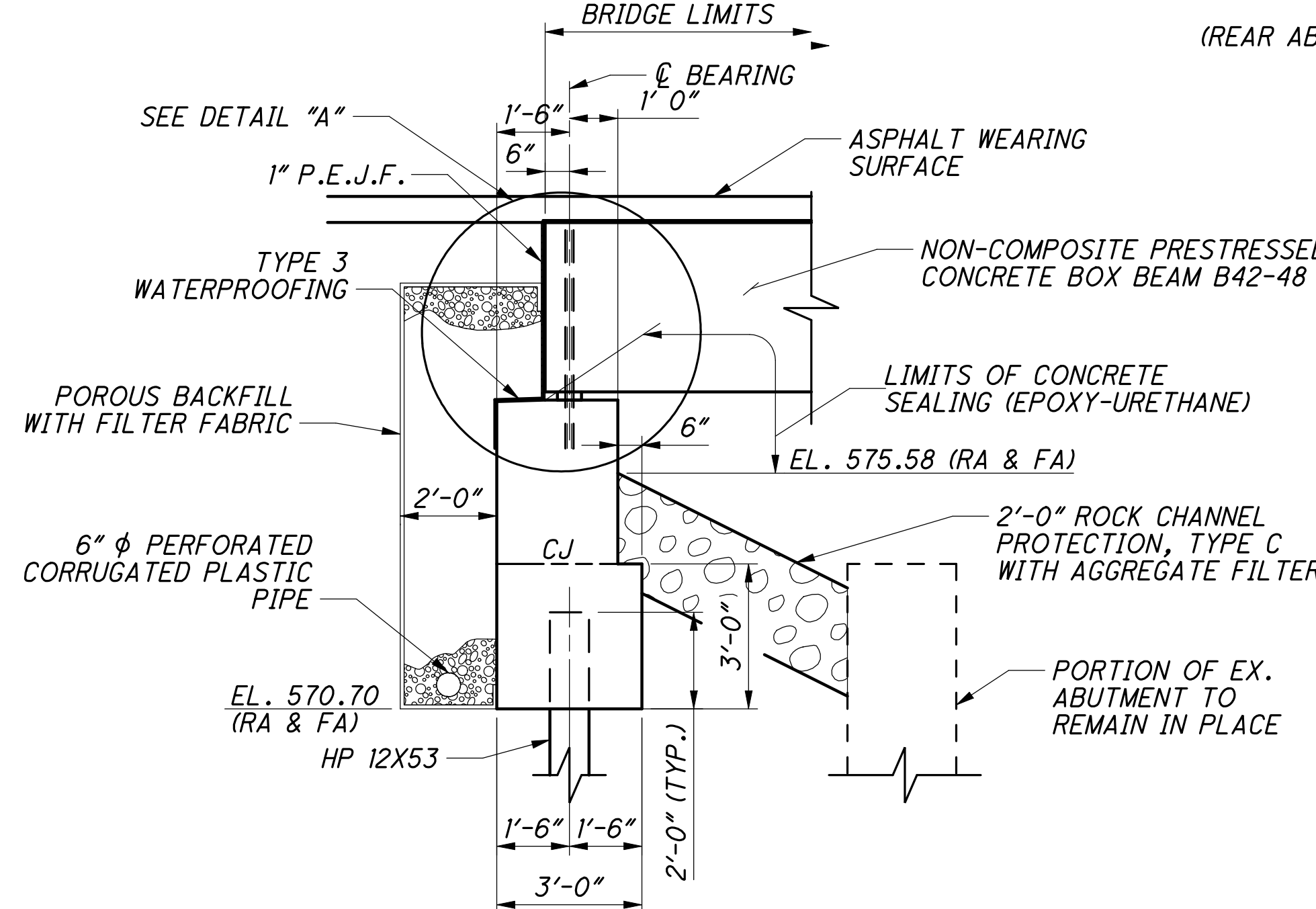
PLAN

(REAR ABUTMENT SHOWN, FORWARD SIMILAR OPPOSITE HAND)

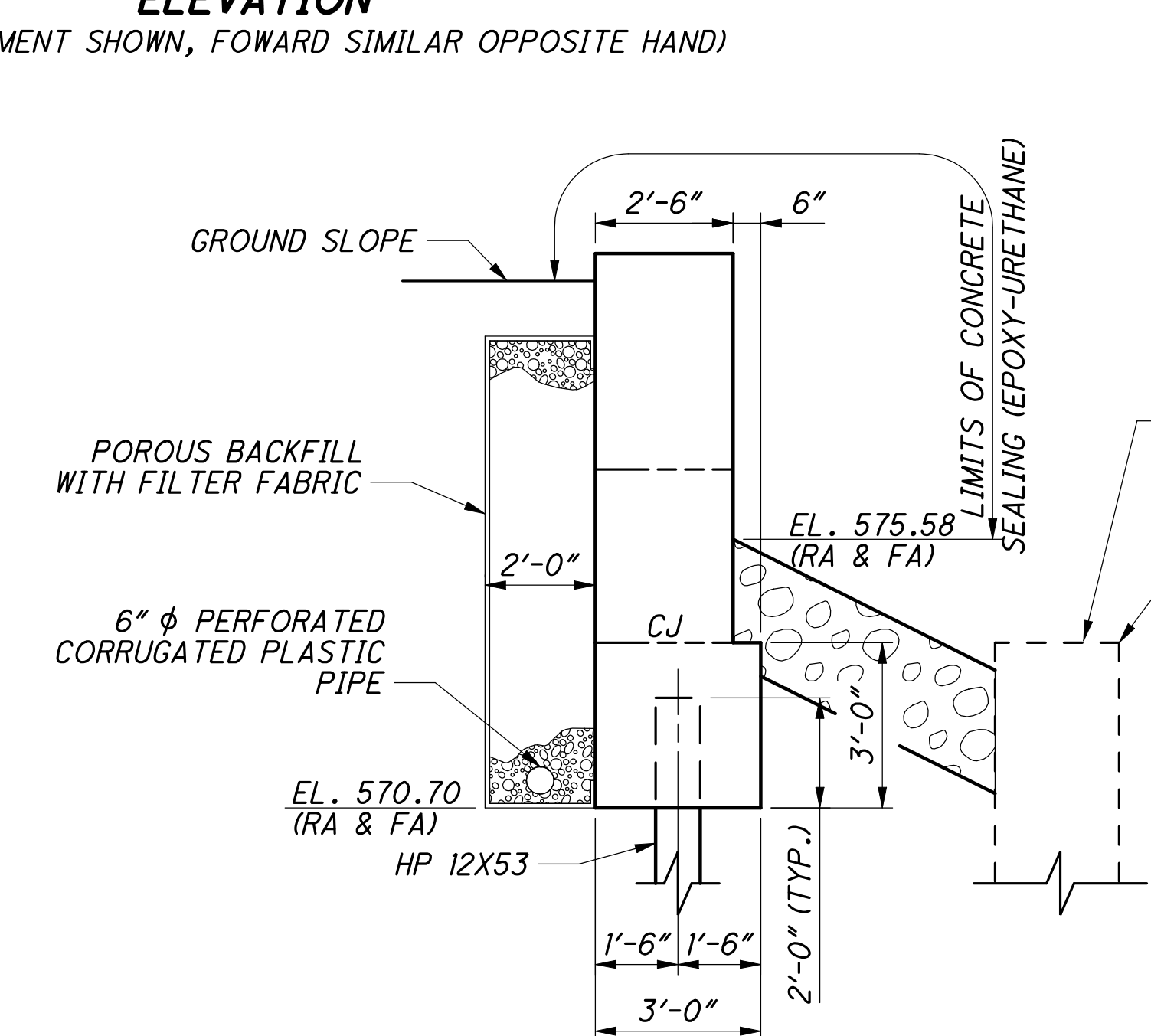


ELEVATION

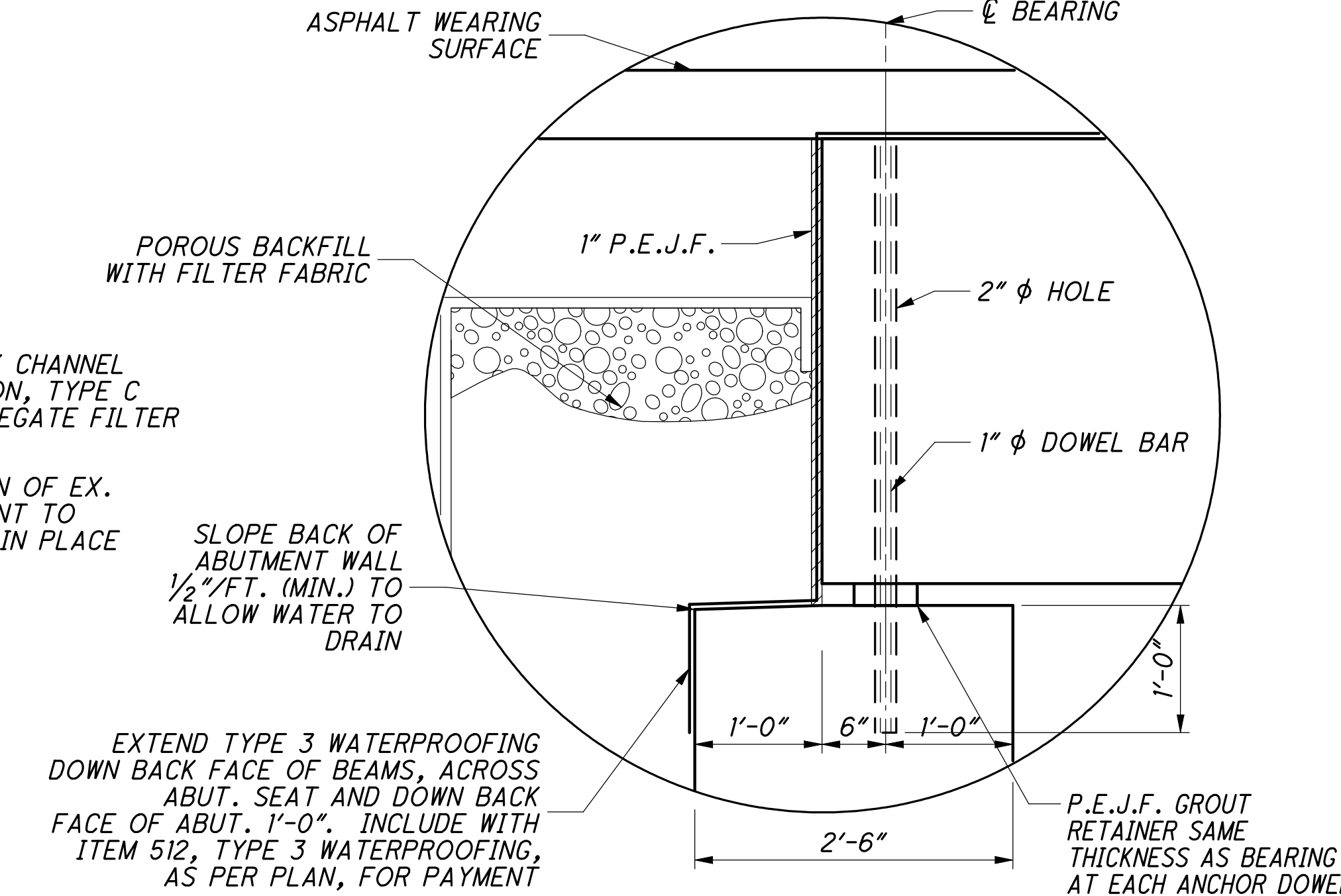
(REAR ABUTMENT SHOWN, FOWARD SIMILAR OPPOSITE HAND)



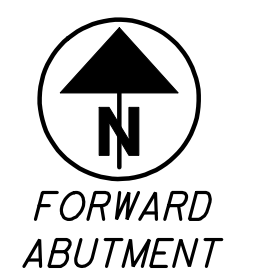
SECTION A-A



SECTION B-B



DETAIL "A"



NOTES

- POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND Laterally TO THE ENDS OF THE WINGWALLS.
- FIXED ANCHOR DOWEL (REAR ABUTMENT) PROCEDURE: PLACE PREFORMED EXPANSION JOINT FILLER, DRILL AND CLEAN DOWEL HOLE. PLACE NON-SHRINKAGE GROUT AS PER STD. DWG. PSBD-1-93, DOWEL BAR, AND P.E.J.F. PLUG. INCLUDE WITH ITEM 515 FOR PAYMENT.
- EXPANSION ANCHOR DOWEL (FORWARD ABUTMENT) PROCEDURE: PLACE PREFORMED EXPANSION JOINT FILLER, DRILL AND CLEAN DOWEL HOLE. PLACE 705.04 JOINT SEALER AS PER STD. DWG. PSBD-1-93, DOWEL BAR, AND P.E.J.F. PLUG. INCLUDE WITH ITEM 515 FOR PAYMENT.
- P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
- ABUTMENT CONCRETE: DO NOT PLACE THE ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT UNTIL PRESTRESSED CONCRETE BOX BEAMS HAVE BEEN ERECTED.
- SEALING OF BEAM SEATS: IF THE BEAMS SEATS ARE SEALED WITH AN EPOXY OR NON-EPOXY SEALER PRIOR TO SETTING THE BEARINGS, DO NOT APPLY SEALER TO THE CONCRETE SURFACES UNDER THE PROPOSED BEARING LOCATIONS. IF THESE LOCATIONS ARE SEALED, REMOVE THE SEALER TO THE SATISFACTION OF THE ENGINEER PRIOR TO SETTING THE BEARINGS. THE DEPARTMENT WILL NOT PAY FOR THIS REMOVAL.

LEGEND

- RA = REAR ABUTMENT
- FA = FORWARD ABUTMENT
- TYP. = TYPICAL

Mannick & Smith
 DESIGN AGENCY
 990 INDIAN WOOD CIRCLE
 MALMEE, OHIO 43037
 TEL: (419) 881-2222
 FAX: (419) 881-1515

DESIGNED	JRC	CHECKED	JPM
DRAWN	JRC	REVISED	
REVIEWED	RCH	STRUCTURE FILE NUMBER	6232205
DATE	2-10		

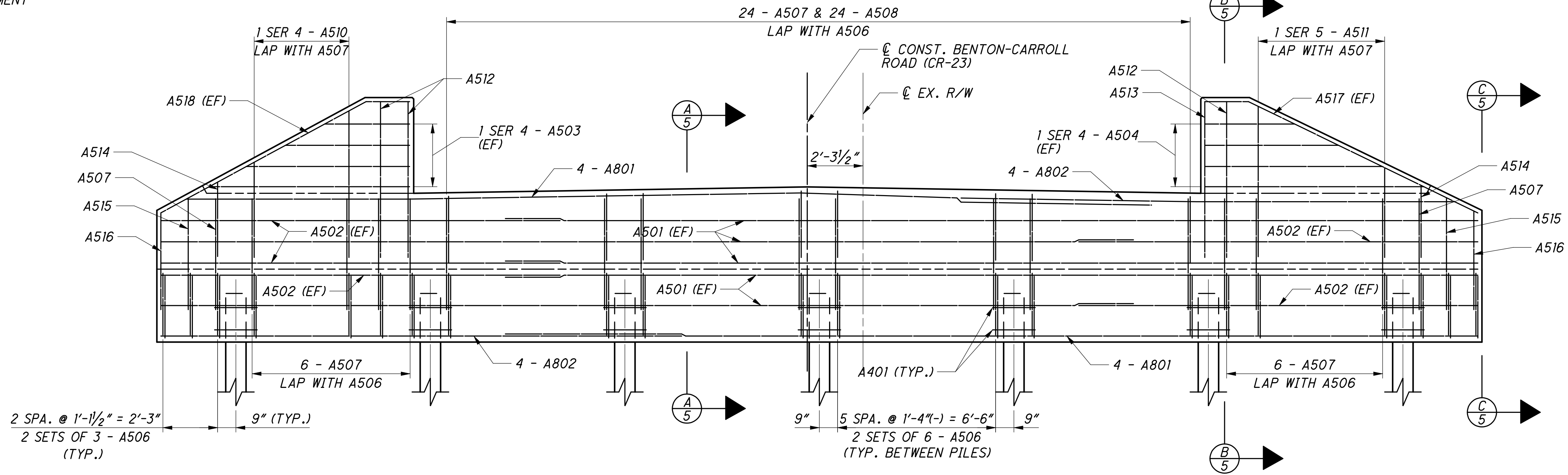
ABUTMENT DETAILS
 BRIDGE NO. OTT-CR23-0350
 BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK

OTT-CR23-3.50
 PID No. 86758

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 15
 22



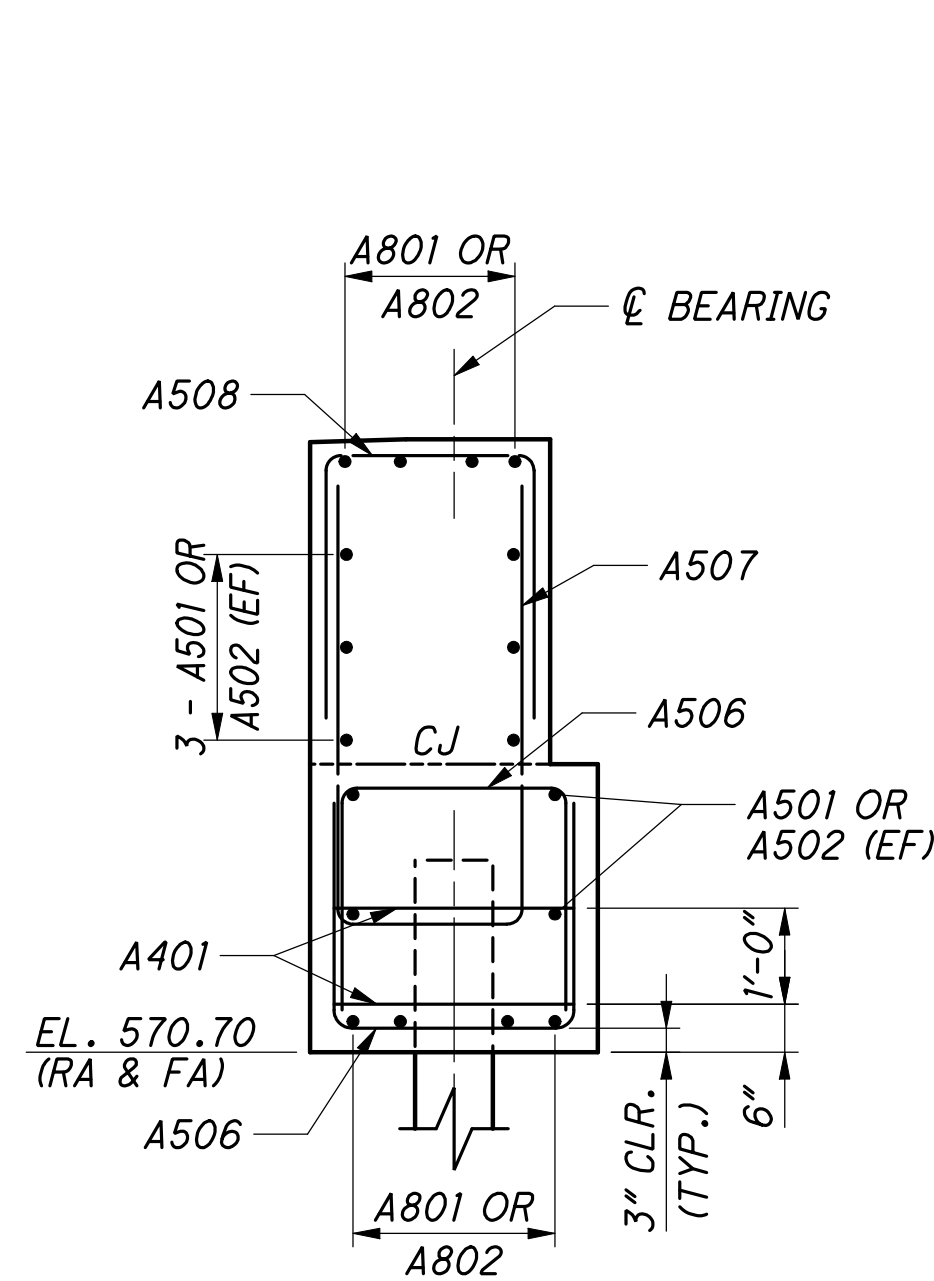
REAR
ABUTMENT



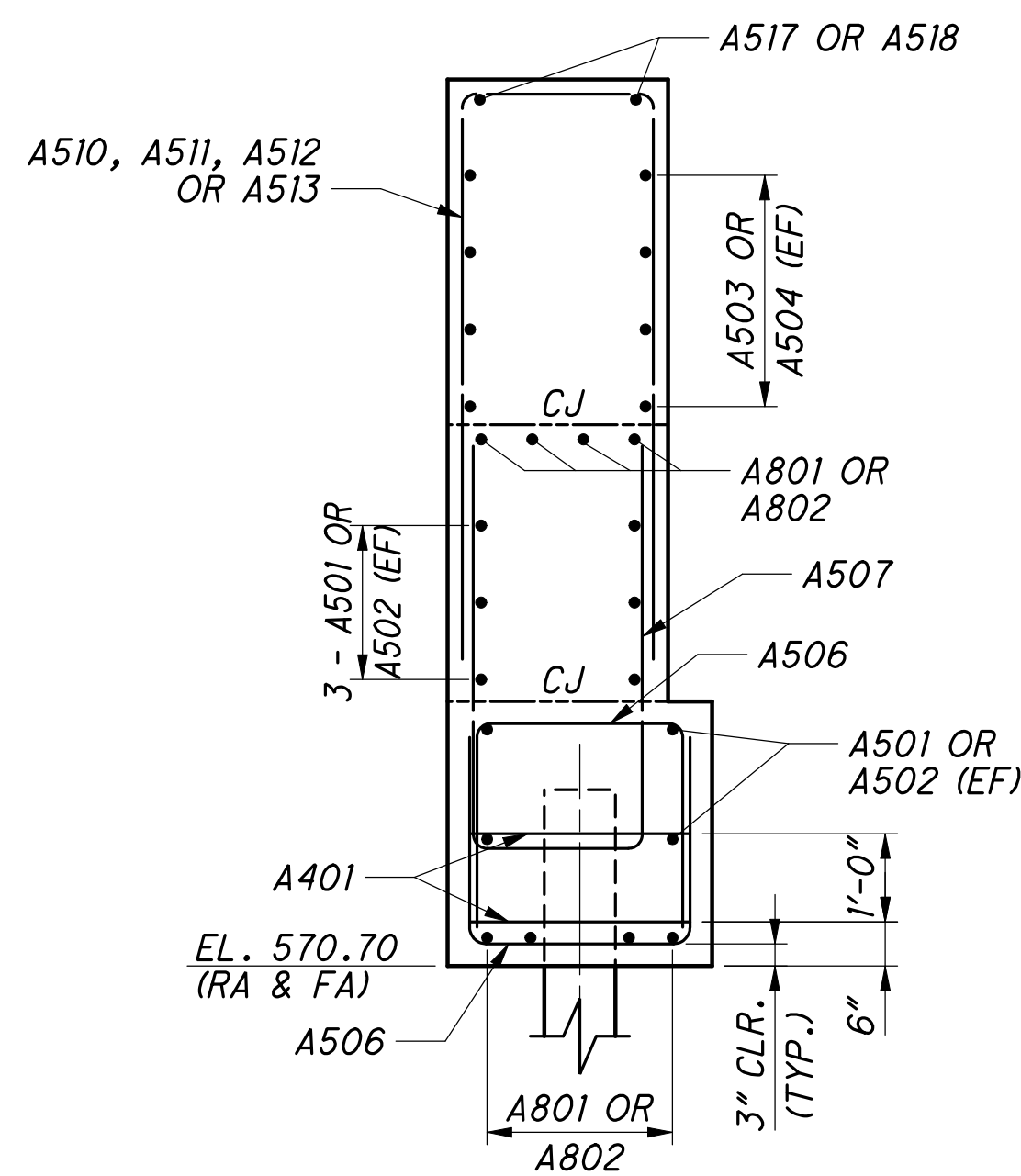
ELEVATION

NOTES

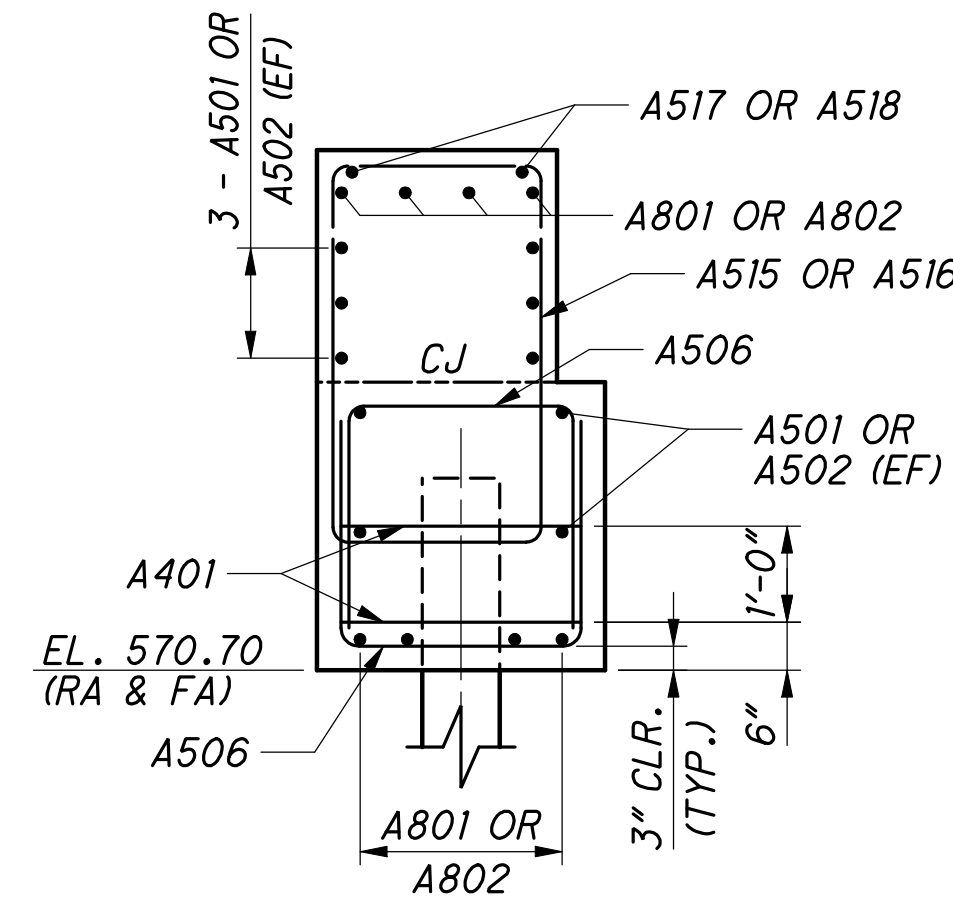
- BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES OR PRE-SETTING OF BEARING ANCHORS.
- SEE SHEET [7/10] FOR FIXED ANCHOR DOWEL DETAILS.
- REINFORCING SPLICE LENGTHS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED.
#5 BARS - 2'-5" (MIN.)
#8 BARS - 7'-3" (MIN.)
- MINIMUM CLEARANCE TO REINFORCING SHALL BE 2" UNLESS OTHERWISE NOTED. CLEARANCE TO FOOTING STIRRUPS SHALL BE 3" (MINIMUM).



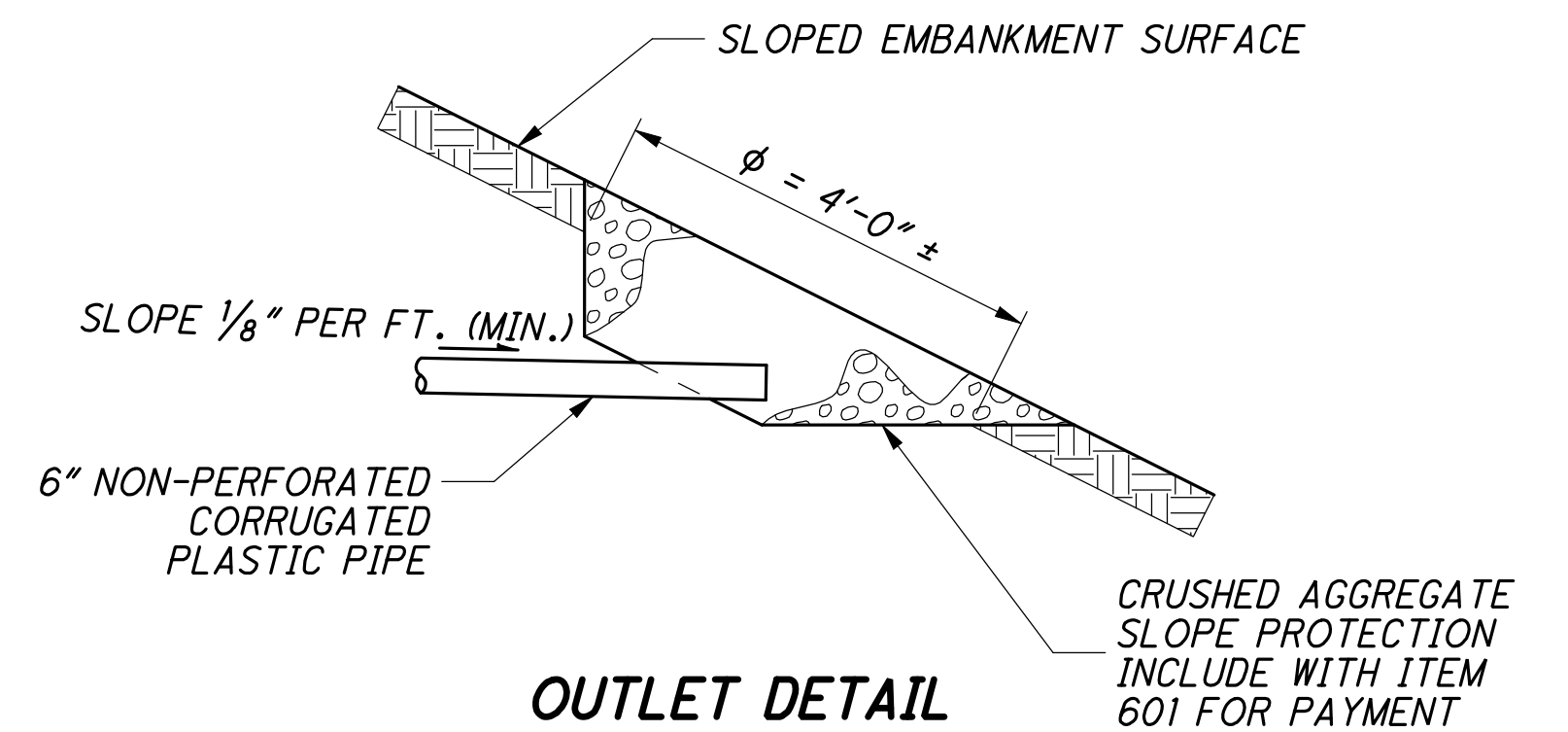
SECTION A-A



SECTION B-B



SECTION C-C

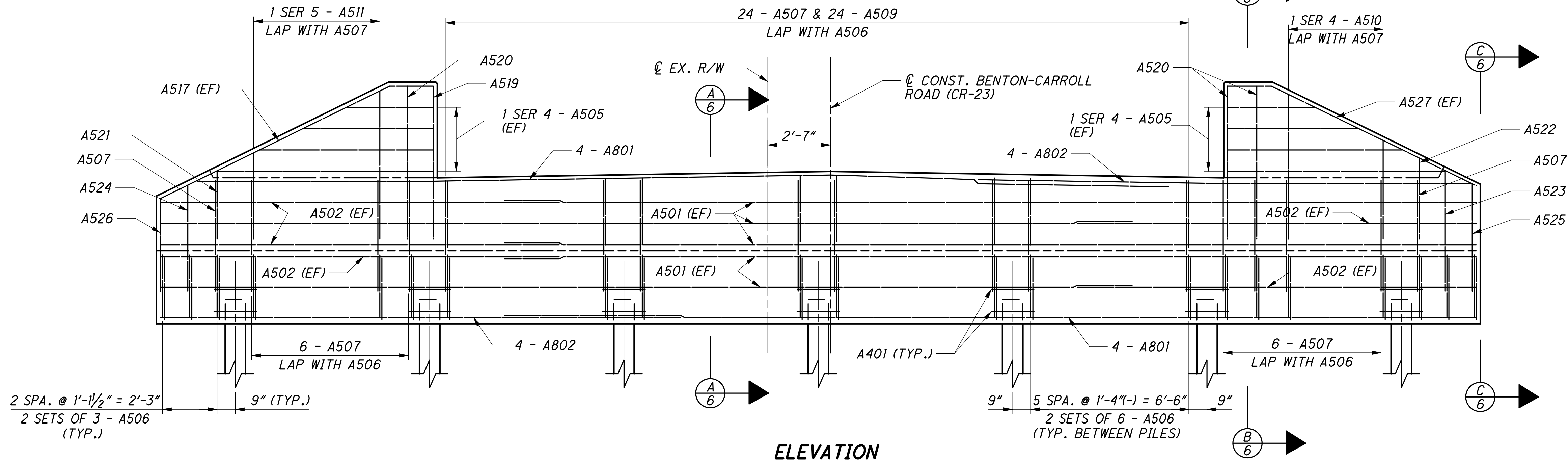


OUTLET DETAIL

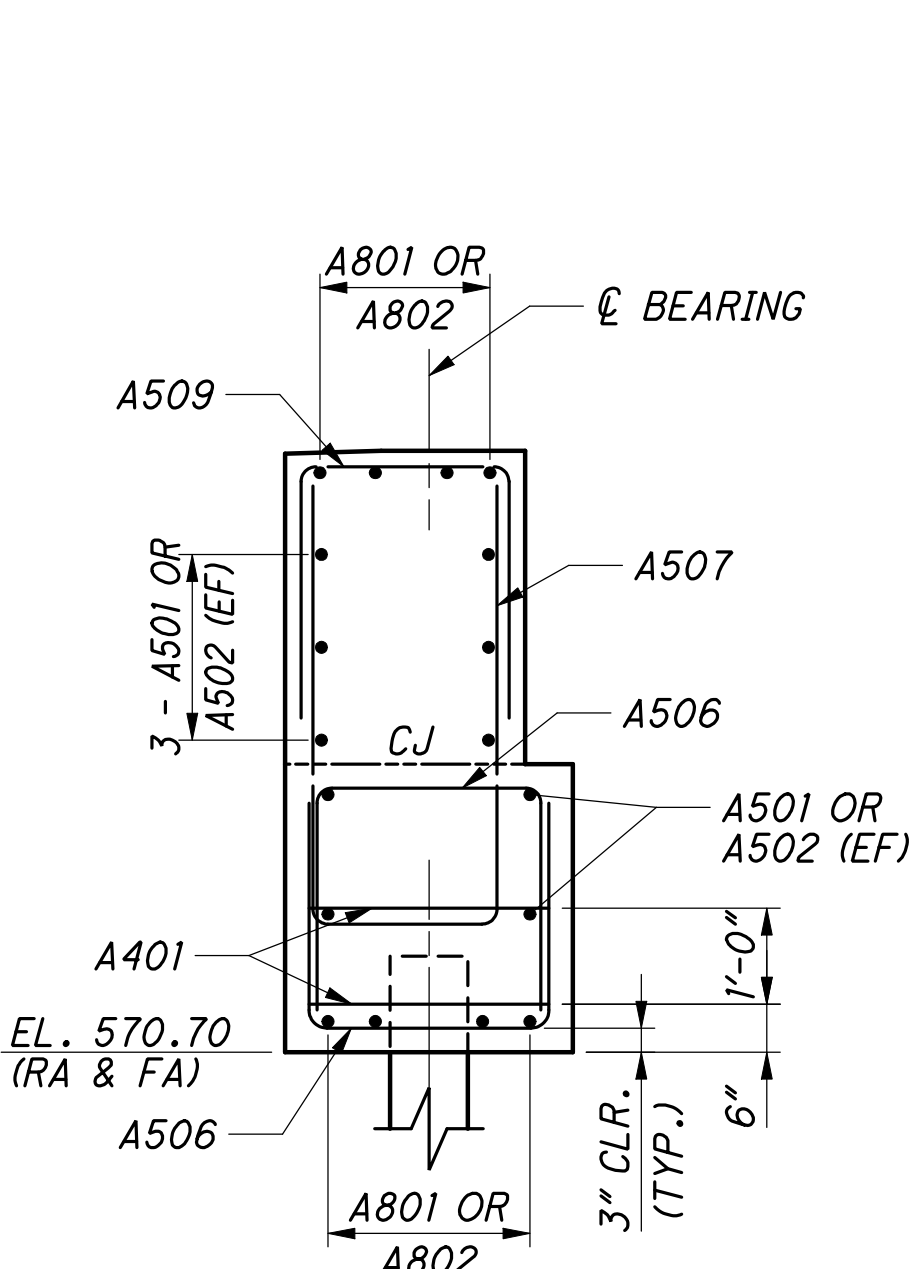
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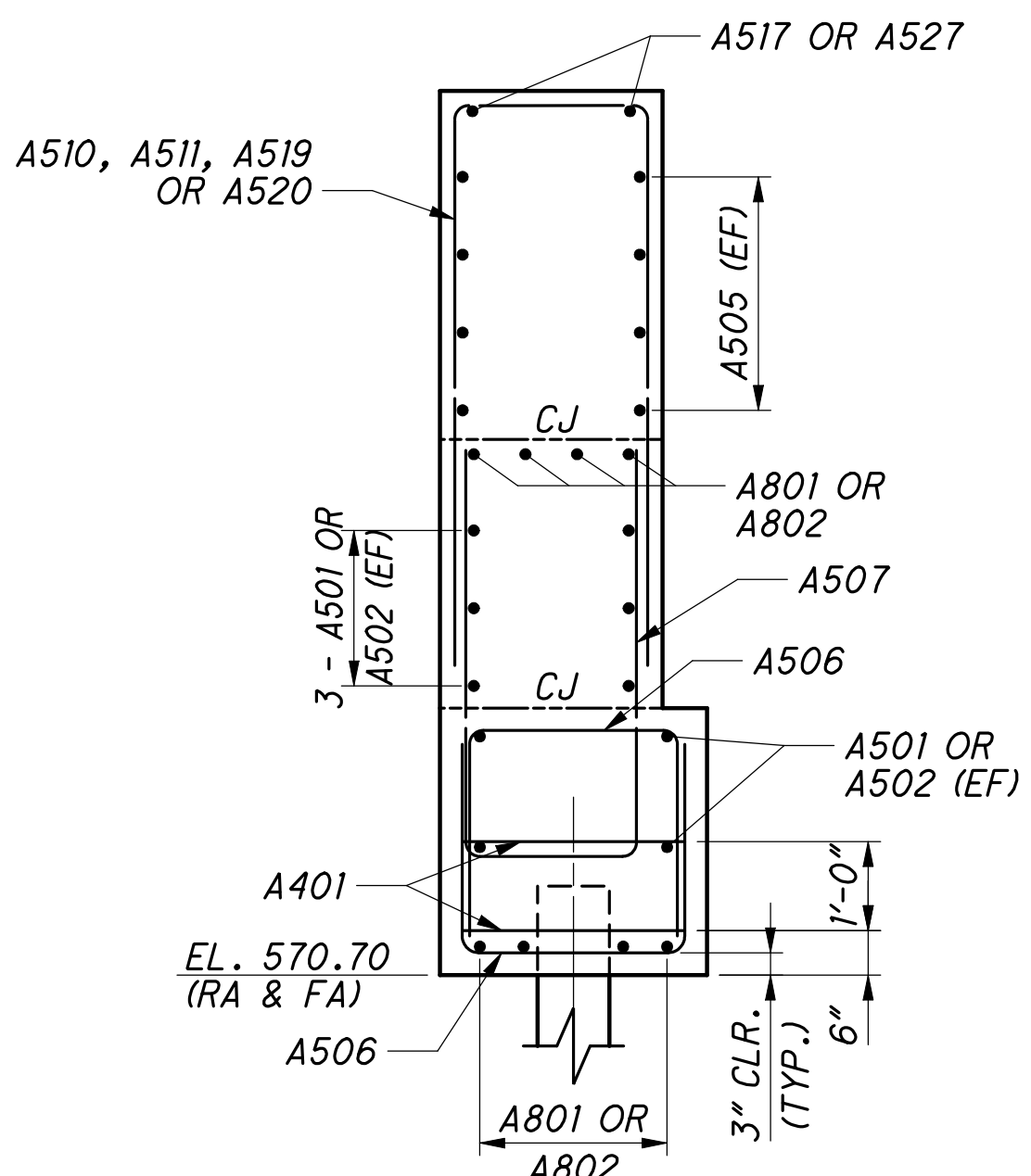
FORWARD
ABUTMENT



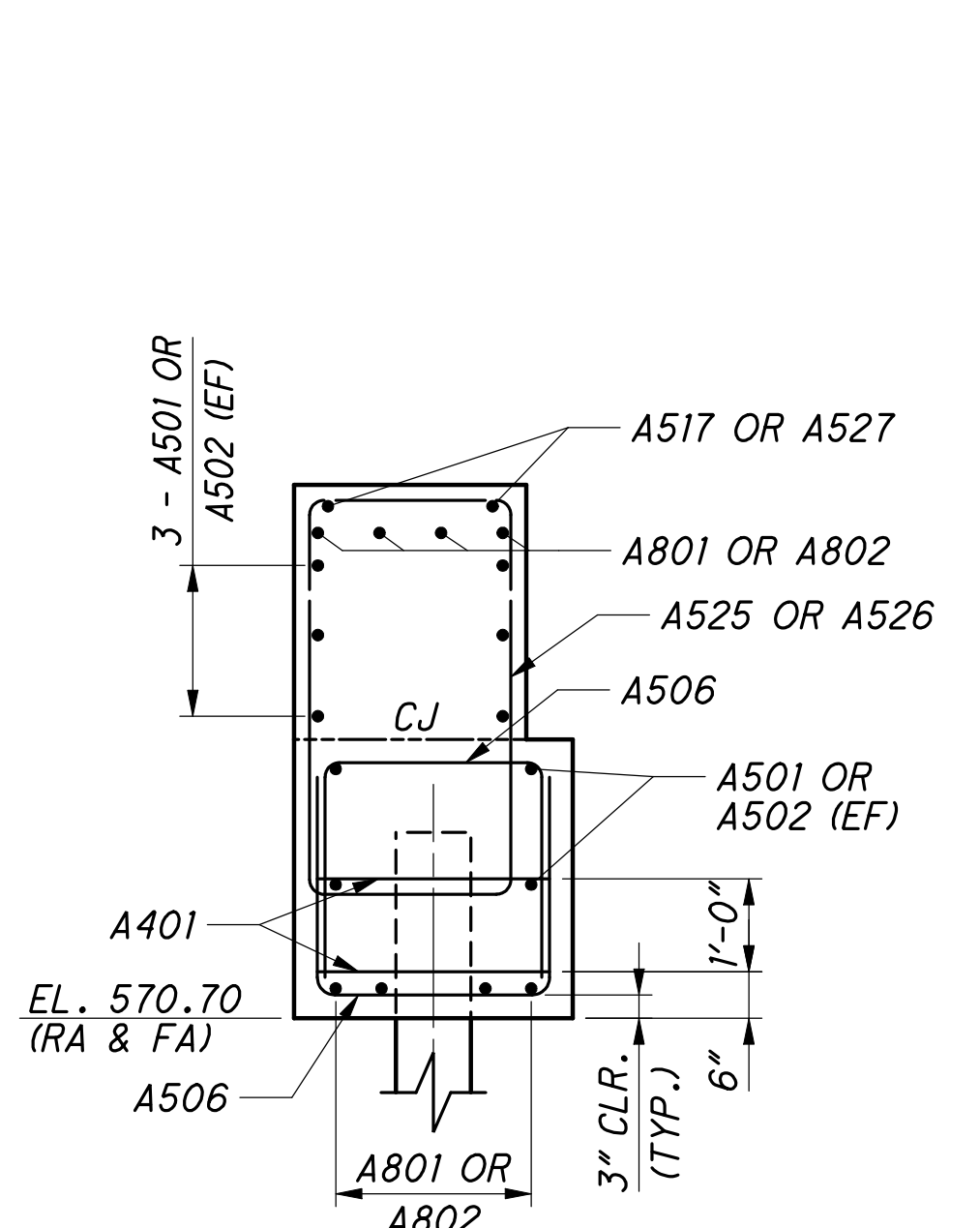
ELEVATION



SECTION A-A



SECTION B-B



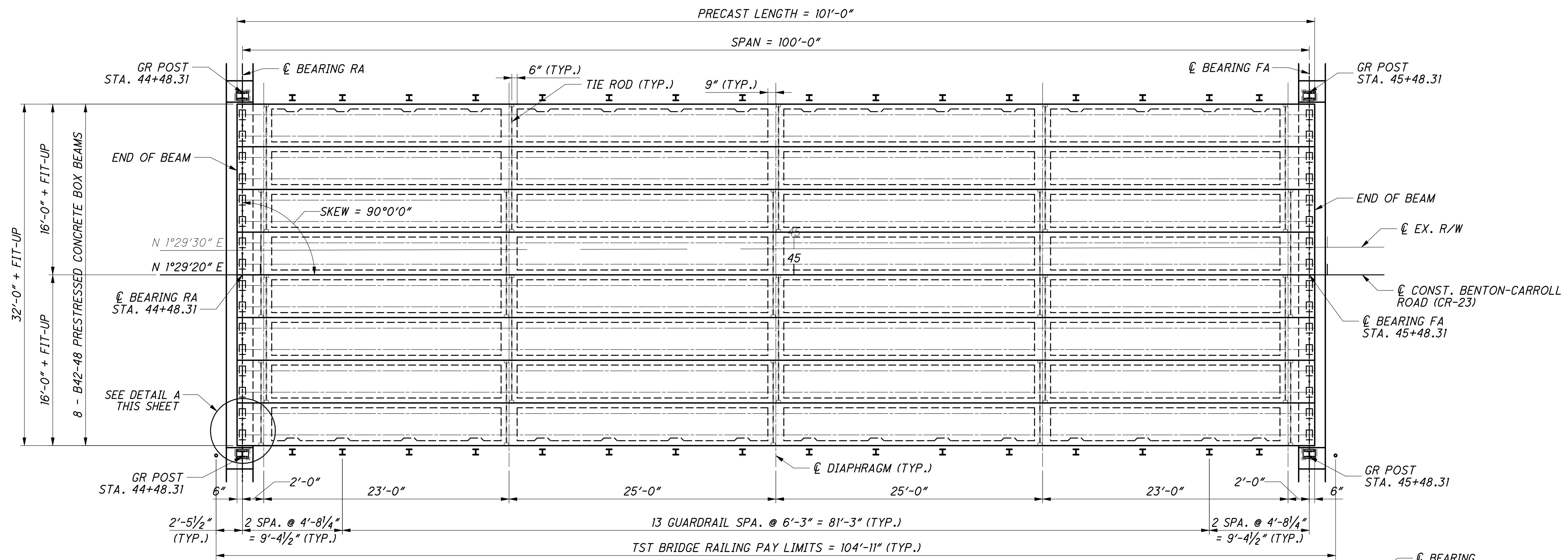
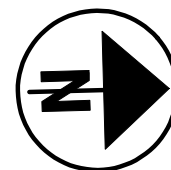
SECTION C-C

NOTES

- BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES OR PRE-SETTING OF BEARING ANCHORS.
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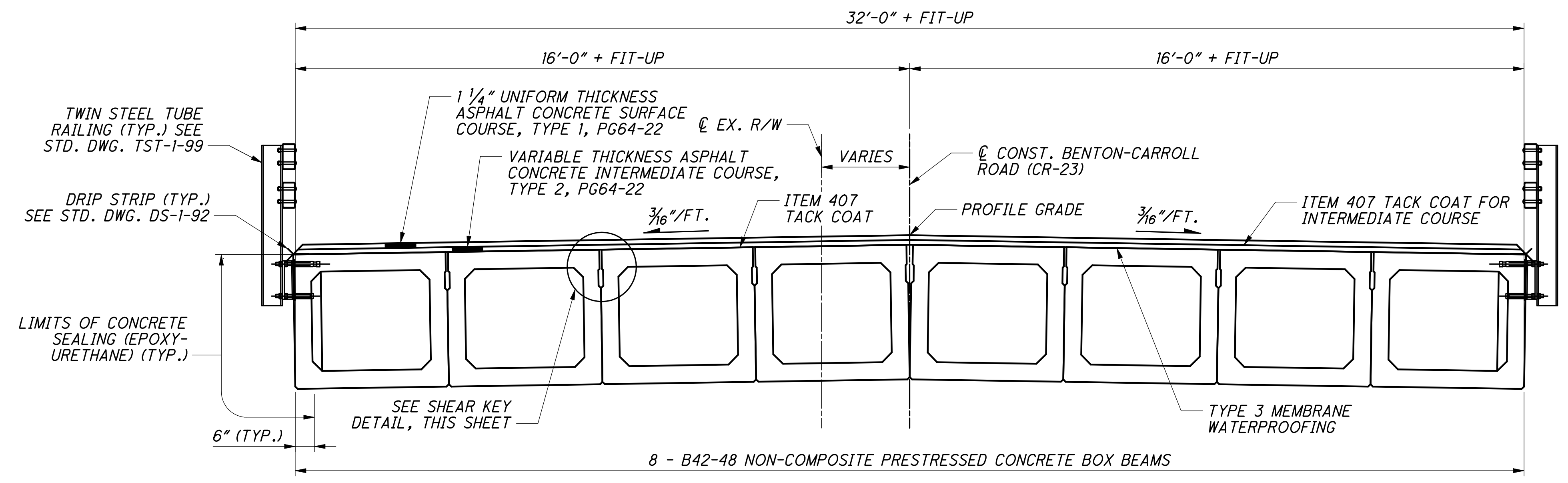
	DESIGN AGENCY Mannik & Smith THE GROUP 890 INDIAN WOOD CIRCLE MALMEE, OHIO 43037	DATE 2-10	STRUCTURE FILE NUMBER 6232205
DESIGNED JRC	CHECKED JPM	DRAWN JRC	REVISED REVISIONS
REVIEWED RCH	DATE 2-10	BRIDGE NO. OTT-CR23-0350 BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK	
OTT - CR23-3.50 PID No. 86758			
6 / 10			
17 22			



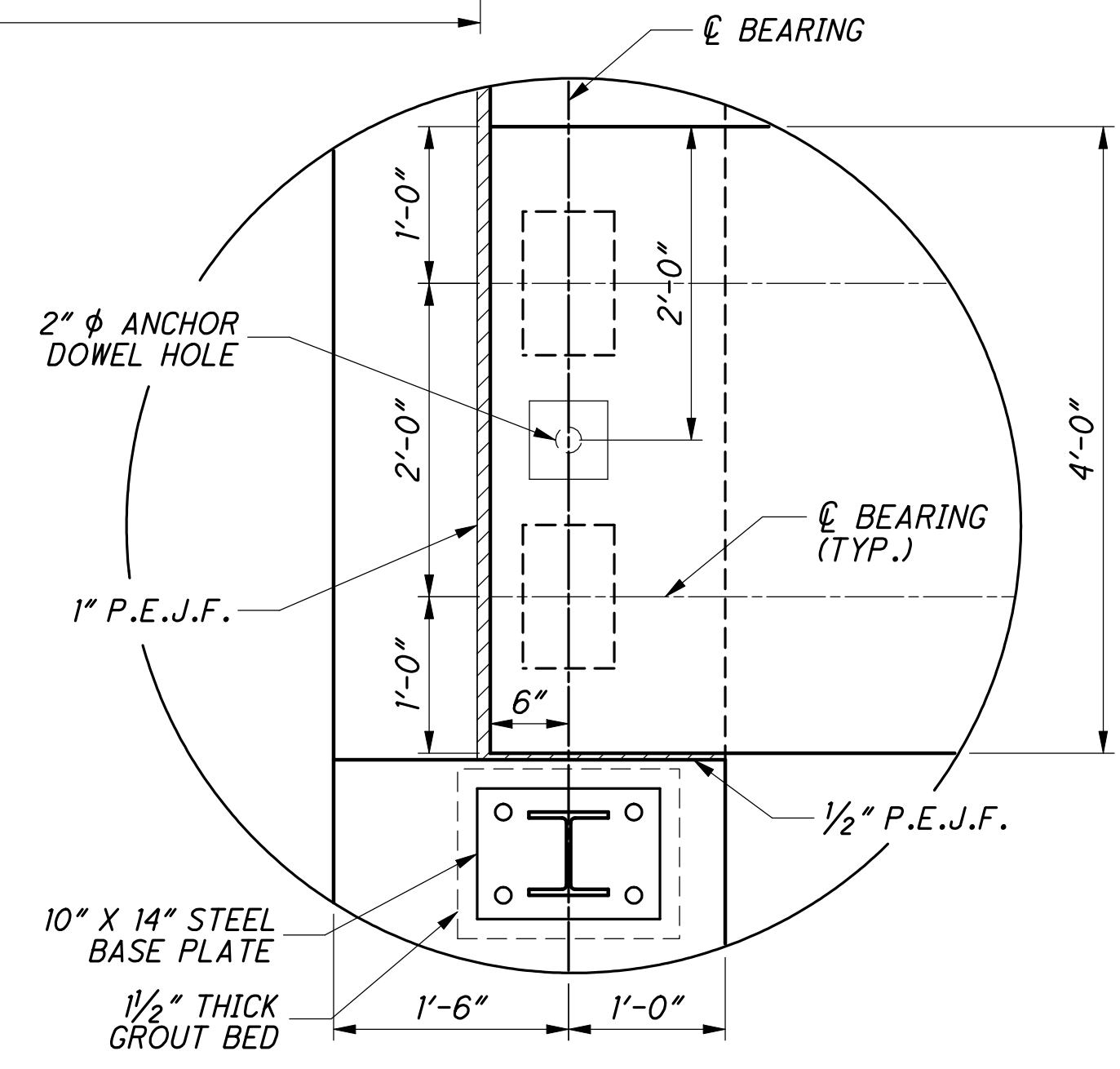
FRAMING PLAN

NOTES & LEGEND

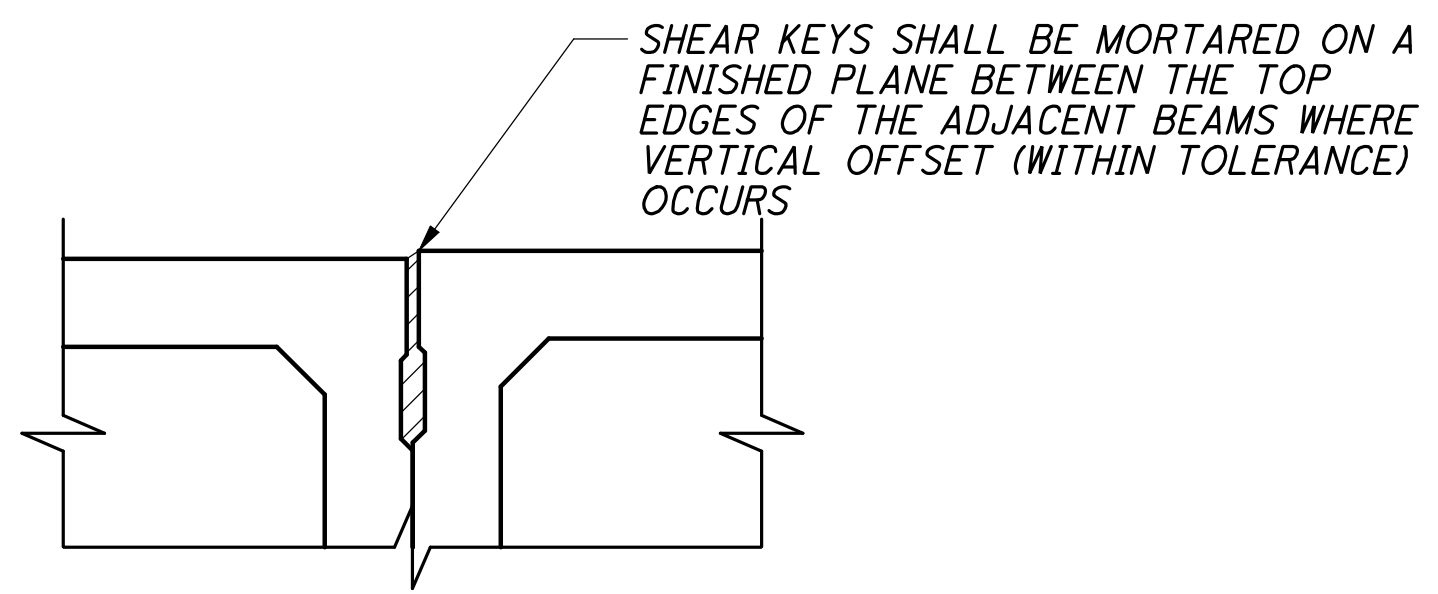
- FOR ADDITIONAL PRESTRESSED BOX BEAM DETAILS, SEE ODOT STD. DWG. PSBD-2-07.
- FOR TWIN STEEL TUBE BRIDGE RAILING DETAILS, SEE ODOT STD. DWG. TST-1-99.
- P.E.J.F. = PREFORMED EXPANSION JOINT FILLER
- (TYP.) = TYPICAL



TRANSVERSE SECTION



DETAIL A



SHEAR KEY DETAIL

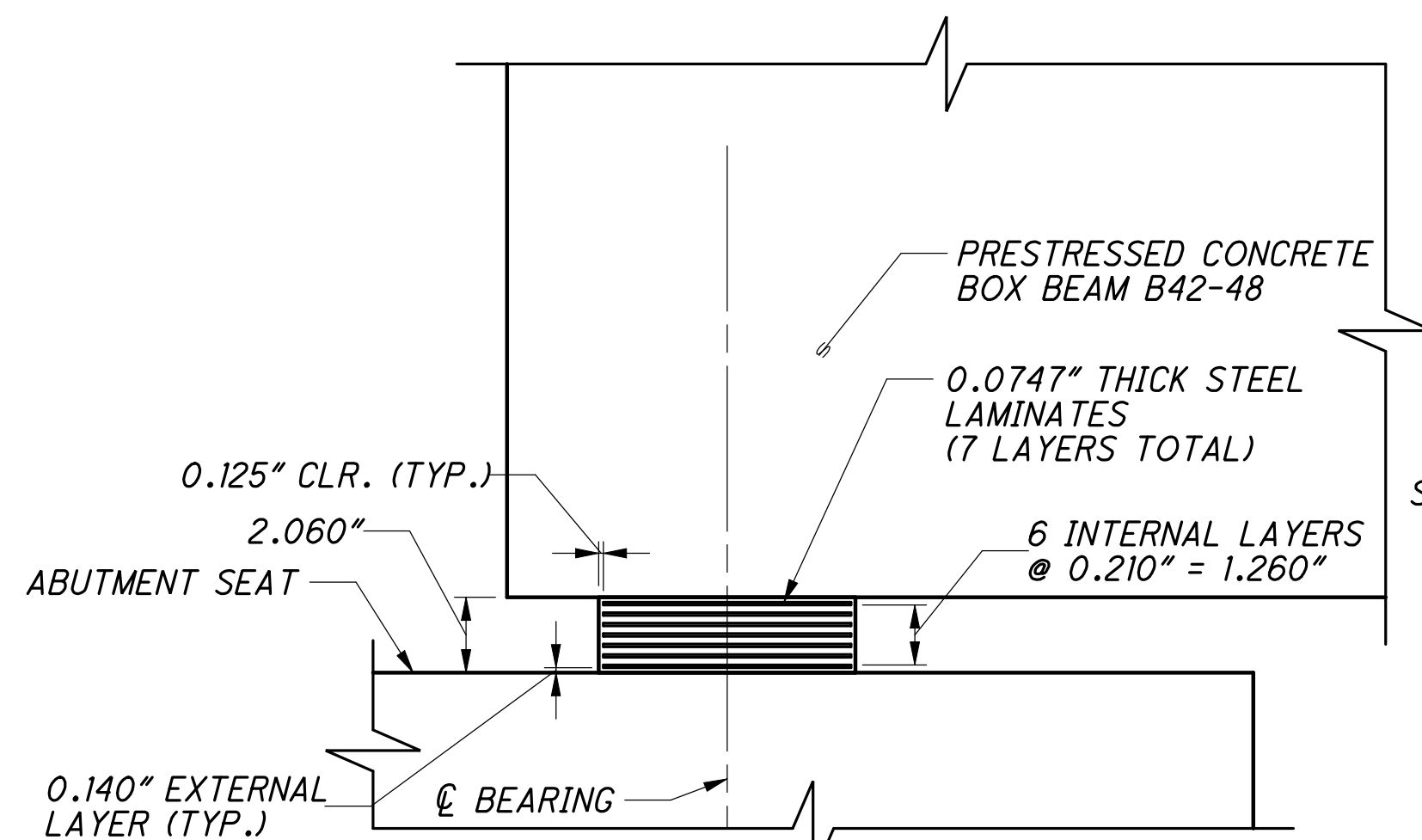
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FRAMING PLAN AND TRANSVERSE SECTION		BRIDGE NO. OTT-CR23-0350
BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK		PID No. 86758
DESIGNED JRC	CHECKED JPM	DATE 2-10
DRAWN JRC	REVISED	STRUCTURE FILE NUMBER 6232205
REVIEWED RCH		
DESIGN AGENCY Mannik & Smith THE GROUP 890 INDIAN WOOD CIRCLE MALMEE, OHIO 43037 TEL: (419) 881-2222 FAX: (419) 881-1535		

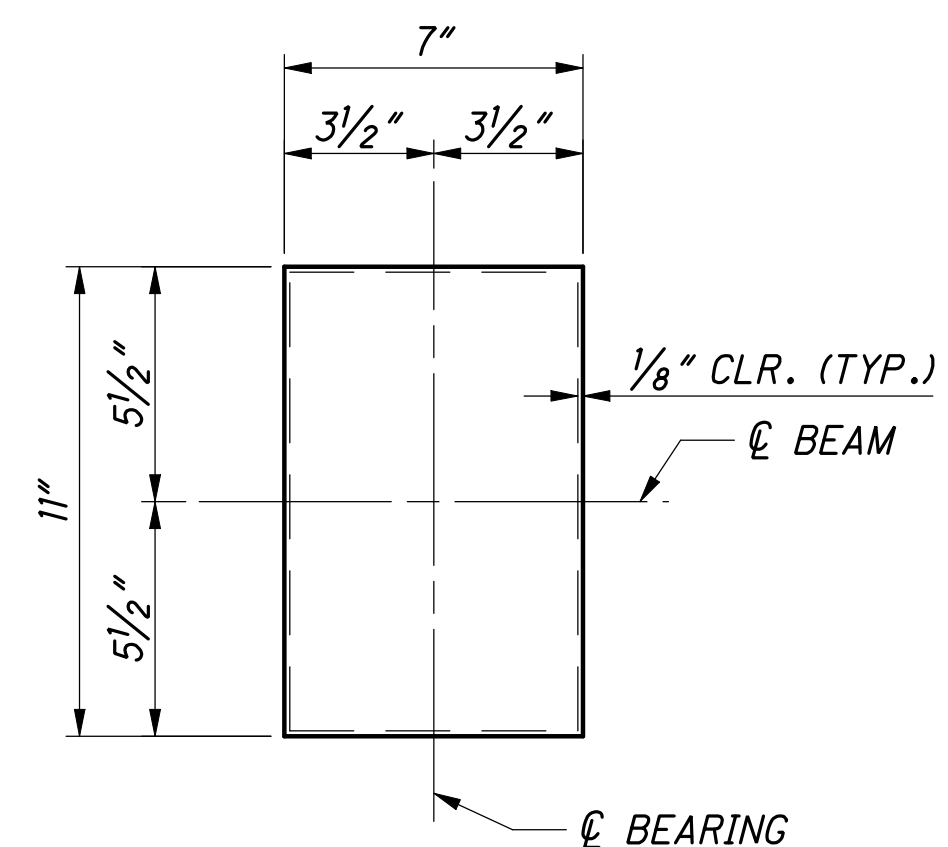
OTT-CR23-3.50

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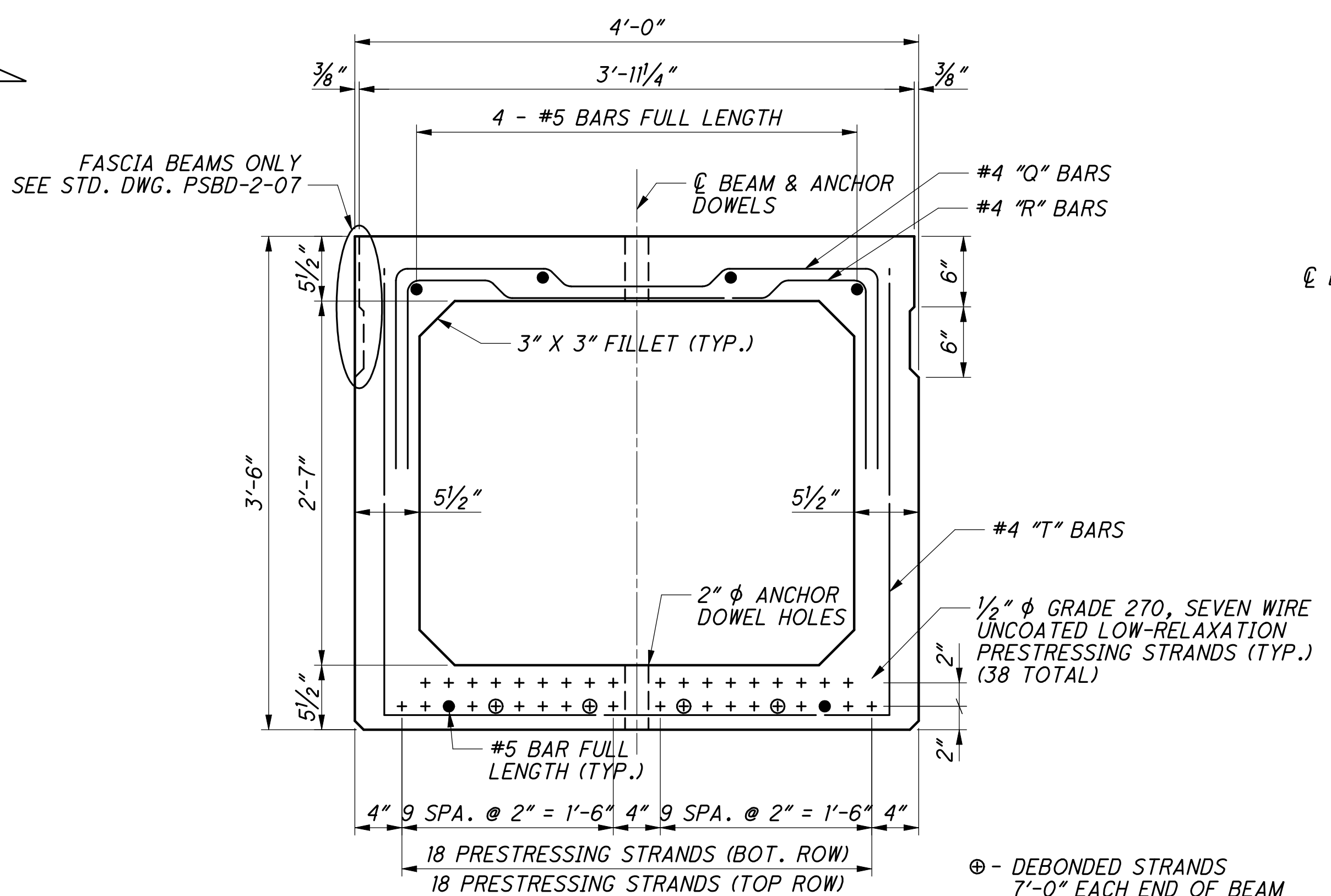
BEARING ELEVATION



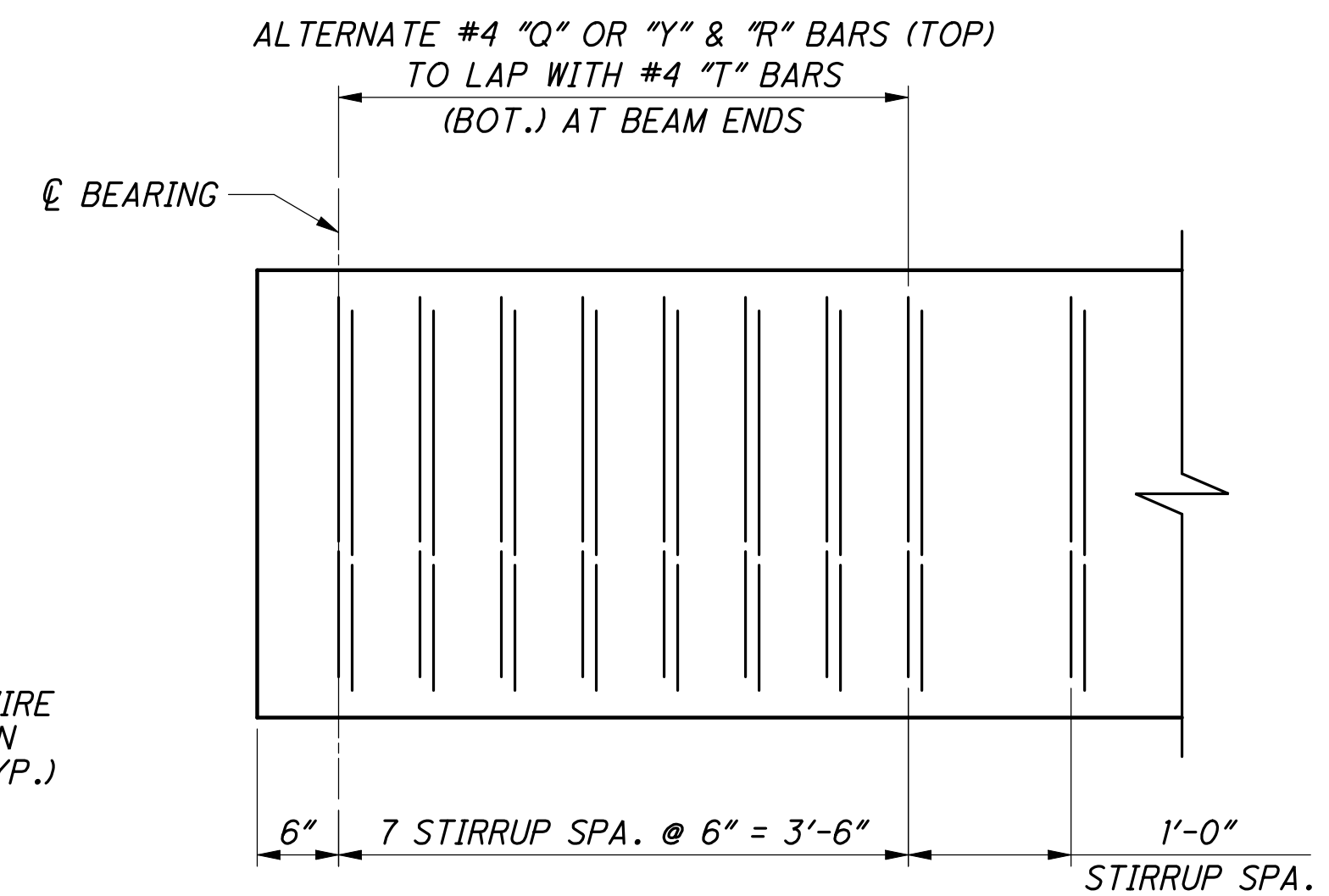
BEARING PLAN

BEARING DESIGN LOADS:

DEAD LOAD	37.0 KIPS
LIVE LOAD WITHOUT IMPACT	26.4 KIPS
TOTAL	63.4 KIPS



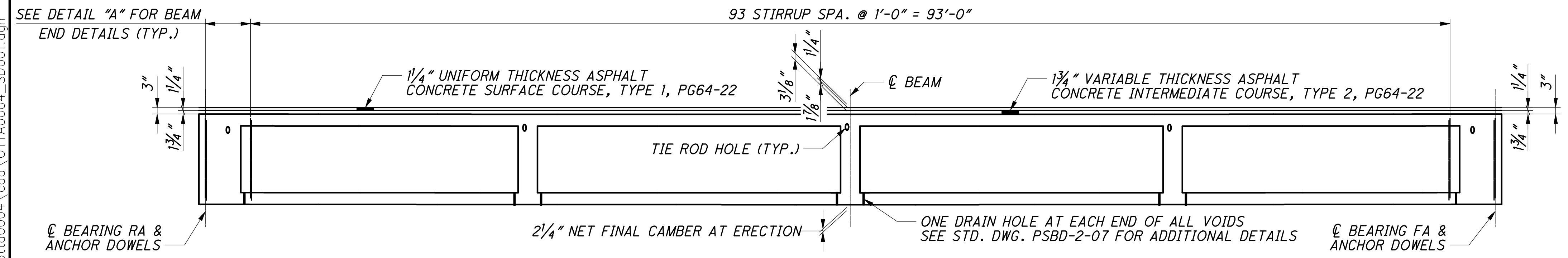
B42-48 PRESTRESSED CONCRETE BOX BEAM



DETAIL "A"

NOTES

- PRESTRESSING STRAND: STRAND DESCRIPTION = 1/2" φ (A = 0.153 IN²), GRADE 270, SEVEN WIRE, UNCOATED LOW RELAXATION PRESTRESSING STRAND. ULTIMATE STRENGTH = 270 KSI. INITIAL STRESS = 202,500 PSI (LOW RELAXATION STRANDS). INITIAL TENSION LOAD = 30.98 KIPS PER STRAND.
- ASPHALT CONCRETE SURFACE COURSE: ASPHALT CONCRETE SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 AND A 1/4" THICKNESS OF 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22. PLACE THE 448 INTERMEDIATE COURSE IN TWO OPERATIONS. THE FIRST PORTION OF THE COURSE SHALL BE OF 1 3/4" UNIFORM THICKNESS. FEATHER THE SECOND PORTION OF THE COURSE TO PLACE THE SURFACE PARALLEL TO AND 1/4" BELOW THE FINAL PAVEMENT SURFACE ELEVATION.
- ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
- SEE STD. DWG. PSBD-2-07 FOR ADDITIONAL BOX BEAM DETAILS.
- CAMBER FOR B42-48 BOX BEAM: CALCULATED CAMBER AT TIME OF RELEASE IS 1 3/8 INCHES. CALCULATED CAMBER AT TIME OF PAVING IS 2 1/4 INCHES. CALCULATED LONG TERM CAMBER IS 3 3/8 INCHES.
- CALCULATED DEFLECTION DUE TO DEAD LOAD APPLIED AFTER THE BEAMS ARE SET (WEIGHT OF SURFACE COURSE, RAILINGS, SIDEWALKS, ETC.) IS 1/16 INCHES.
- THE VERTICAL CURVE ADJUSTMENT TO THE TOPPING THICKNESS AT MIDSPAN IS 2 INCHES UPWARD.
- THE VERTICAL CURVE ADJUSTMENT TO THE TOPPING THICKNESS AT EACH BEARING IS 0 INCHES UPWARD/DOWNWARD.



B42-48 CAMBER AND DEFLECTION

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DESIGN AGENCY
Mannik & Smith
 GROUP, INC.
 900 INDIAN WOOD CIRCLE
 MALMEE, OHIO 43037
 TEL: (419) 881-2222
 FAX: (419) 881-1515

DESIGNED	JRC	CHECKED	JPM
DRAWN	BCR	REVISED	
REVIEWED	RCH	STRUCTURE FILE NUMBER	6232205
DATE	2-10		

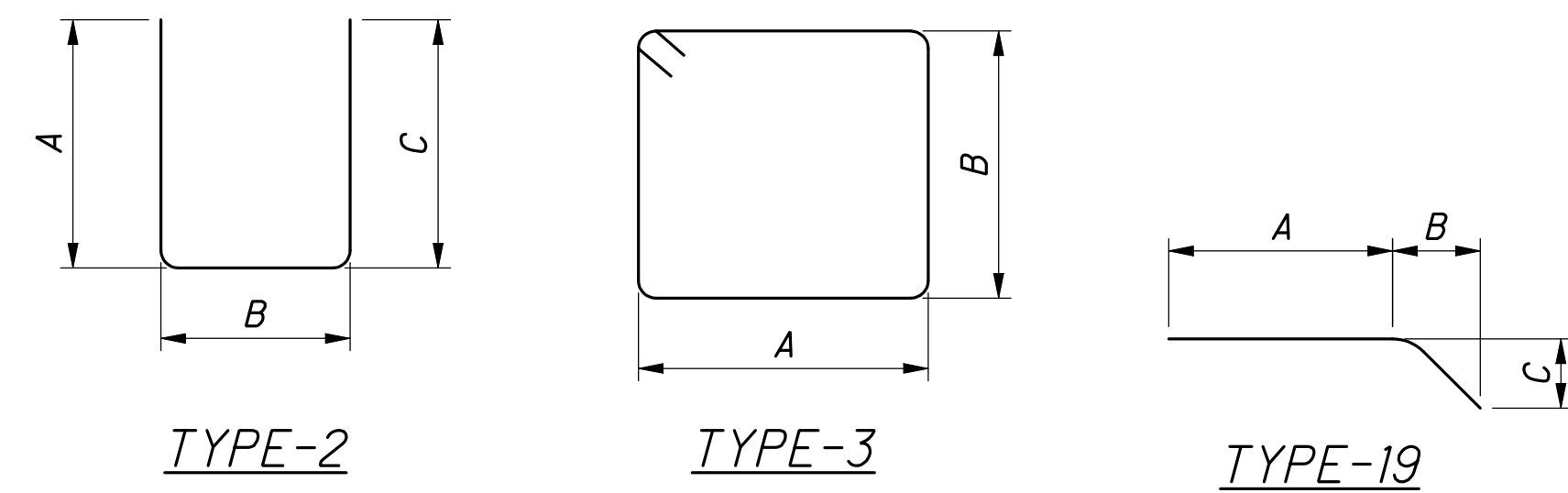
SUPERSTRUCTURE DETAILS
 BRIDGE NO. OTT-CR23-0350
 BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK

OTT - CR23-3.50
 PID No. 86758

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 19
 22

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS					
	REAR	FORWARD	TOTAL				A	B	C	D	E	R
ABUTMENT REINFORCING												
A401	14	14	28	8'- 11"	167	3	2'-6"	1'-9"				
A501	10	10	20	40'- 0"	834	STR						
A502	10	10	20	16'- 7"	346	STR						
A503	2 SR		2 SR	3'- 6"	49	STR						1'-7"
	OF	0	OF	TO								
A504	4		4	8'- 3"	53	STR						1'-9 1/4"
	2 SR	0	2 SR	3'- 8"								
A505	OF		OF	TO	104	STR						1'-9 1/4"
	4	4 SR	4 SR	3'- 7"								
A506	84	84	168	10'- 6"	1840	3	2'-6"	2'-5"				
A507	38	38	76	11'- 1"	879	2	4'-7"	2'-2"	4'-7"			
A508	24	0	24	7'- 5"	186	2	2'-9"	2'-2"	2'-9"			
A509	0	24	24	7'- 3"	181	2	2'-8"	2'-2"	2'-8"			
A510	1 SR	1 SR	2 SR	10'- 1"	101	2	4'-1"		4'-1"			1'-4"
	OF	OF	OF	TO			TO	2'-2"	TO			
A511	4	4	4	14'- 1"	123	2	6'-1"		6'-1"			1'-3 1/2"
	1 SR	1 SR	2 SR	9'- 3"			3'-8"	3'-8"				
A512	OF	OF	OF	TO	46	2	6'-3"		6'-3"			
	5	5	5	14'- 5"			6'-5"	6'-5"				
A513	3	0	3	14'- 9"	46	2	6'-5"	2'-2"	6'-5"			
A514	1	0	1	17'- 10"	19	3	2'-2"	6'-5"				
A515	2	0	2	8'- 3"	17	2	3'-2"	2'-2"	3'-2"			
A516	2	0	2	14'- 2"	30	3	2'-2"	4'-7"				
A517	2	0	2	13'- 0"	27	3	2'-2"	4'-0"				
A518	2	2	4	12'- 3"	51	19	10'-6"	1'-7"	0'-10"			
A519	2	0	2	11'- 4"	24	19	9'-7"	1'-7"	0'-10"			
A520	0	1	1	17'- 8"	18	3	2'-2"	6'-4"				
A521	0	3	3	14'- 7"	46	2	6'-4"	2'-2"	6'-4"			
A522	0	1	1	7'- 7"	8	2	2'-10"	2'-2"	2'-10"			
A523	0	1	1	8'- 7"	9	2	3'-4"	2'-2"	3'-4"			
A524	0	1	1	15'- 0"	16	3	2'-2"	5'-0"				
A525	0	1	1	13'- 8"	14	3	2'-2"	4'-4"				
A526	0	1	1	13'- 10"	14	3	2'-2"	4'-5"				
A527	0	1	1	12'- 8"	13	3	2'-2"	3'-10"				
A527	0	2	2	11'- 1"	23	19	9'-4"	1'-7"	0'-10"			
A801	8	8	16	40'- 0"	1709	STR						
A802	8	8	16	21'-5"	915	STR						
SUB-TOTAL					7862							

BENDING DIAGRAMS



NOTES

- BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. "R" INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.
- ALL REINFORCING STEEL TO BE EPOXY COATED.
- BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST TWO DIGITS INDICATE THE BAR SIZE NUMBER. EXAMPLE A501 IS A NO. 5 SIZE BAR.

REINFORCING SCHEDULE
 BRIDGE NO. OTT-CR23-0350
 BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK

OTT - CR23 - 3.50
PID No. 86758

9 / 10

20
22

DESIGN AGENCY: **Mannik & Smith**
 890 INDIAN WOOD CIRCLE, MALMEE, OHIO 43037
 TEL: (419) 881-2222
 FAX: (419) 881-1525

DATE: 2-10
 REVISION: RCH
 STRUCTURE FILE NUMBER: 6232205
 DRAWN: JRC
 CHECKED: JPM
 DESIGNED: JRC
 REVISION: REVISED

GENERAL NOTES AND DETAILS FOR POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

ITEM SPECIAL - POLYMER-MODIFIED ASPHALT EXPANSION JOINT SYSTEM

THIS ITEM WILL BE USED TO SEAL THE EXPANSION/CONTRACTION JOINTS AS PER THESE DETAILS AND THE MANUFACTURER'S REQUIREMENTS USING A POLYMER-MODIFIED ASPHALT SYSTEM. THE PRIME CONTRACTOR WILL OBTAIN THE SERVICES OF ONE OF THE FOLLOWING APPROVED APPLICATORS WHO WILL FURNISH AND INSTALL THE NEW BRIDGE EXPANSION JOINT SYSTEM AFTER ALL PAVING ON THE AFFECTED BRIDGE(S) HAS BEEN COMPLETED.

PRODUCT NAME	SUPPLIER	ADDRESS	PHONE NO.
THORMA-JOINT	DYNAMIC SURFACE APPLICATIONS, LTD	373 VILLAGE RD. PENNSDALE, PA 17756	(570)546-6041
MATRIX 502	CRAFCO INC.	420 N. ROOSEVELT AVE. CHANDLER, AZ 85226	(800)528-8242
EXPANDEX JOINT SYSTEM	WATSON-BOWMAN ACME	95 PINEVIEW DR. AMHERST, NY 14228	(716)691-7566
APJ ASPHALTIC PLUG EXPANSION JOINT	WYOMING EQUIPMENT SALES	281 SIXTH STREET P.O. BOX 287 WEST WYOMING, PA 18644	(570)693-2810

MATERIALS:

BRIDGING PLATE:

MILD STEEL 1/8" OR 1/4" THICK PLATE, 8" WIDE OR 18 GAUGE ALUMINUM, 8" WIDE.

BINDER:

TYPE: POLYMER MODIFIED ASPHALT
 SOFTENING POINT: 180 DEGREES F. MIN.
 FLOW: 3 mm. MAX. AT 140 DEGREES F.
 PENETRATION: 9 mm. MAX. AT 77 DEGREES F. 1 mm. MIN AT 0 DEGREES F. ASTM D 3407
 DUCTILITY: 40 cm. MIN. ASTM D 113
 RESILIENCE: 60% MIN. AT 77 DEGREES F.
 TENSILE ADHESION: 700% MIN.
 SPECIFIC GRAVITY: 1.10 * 0.05
 POURING TEMP: 350 - 390 DEGREES F.

AGGREGATE:

TYPE: CRUSHED, DOUBLE WASHED, AND DRIED GRANITE OR BASALT

GRADATION:

THE GRADATION OF THE AGGREGATE VARIES BY MANUFACTURER AND WILL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE SYSTEM BEING USED ON THIS PROJECT.

BACKER ROD:

THE BACKER SHALL BE A CLOSED CELL FOAM EXPANSION JOINT FILLER CAPABLE OF WITHSTANDING THE PLACEMENT TEMPERATURE OF THE POLYMER MODIFIED ASPHALT.

NOTE: PRIOR TO PLACEMENT OF ANY PORTION OF THE JOINT SYSTEM, THE PROJECT ENGINEER MUST HAVE CERTIFIED TEST DATA MEETING ALL THE MINIMUM REQUIREMENTS OF ALL THE MATERIALS OF THE JOINT SYSTEM.

INSTALLATION PROCEDURES:

SAWING AND SURFACE PREPARATION:

AFTER ALL PAVING OPERATIONS ARE COMPLETE, THE OVERLAY IS TO BE TRANSVERSELY SAW CUT FULL DEPTH NO LESS THAN TWO INCHES DEEP (20" CENTERED OVER JOINT OPENING, UNLESS OTHERWISE NOTED). REMOVE ALL MATERIAL, INCLUDING WATER-PROOFING MATERIAL, BETWEEN SAW CUTS. THOROUGHLY CLEAN AND DRY EXPOSED CONCRETE, STEEL, AND CUT SURFACES USING COMPRESSED AIR AND A HOT COMPRESSED AIR (HCA) LANCE. THE LANCE MUST PRODUCE A FLAME RETARDED AIR STREAM TEMPERATURE OF 3000 DEGREES F. AT A VELOCITY OF 3,000 FEET PER

SECOND WITH 15 PSIG CHAMBER PRESSURE. IF THERE IS AN INTERRUPTION DUE TO WEATHER OR OTHER CAUSES, THE OPERATION WILL BE REPEATED WITH THE HCA LANCE IMMEDIATELY BEFORE THE BINDER COAT OPERATION. ALSO, 6 INCHES OF THE ROAD SURFACE ON EITHER SIDE OF THE JOINT WILL BE DRIED SO THAT A SUITABLE SURFACE FOR BITUMEN ADHESION IS OBTAINED.

SEALING OF EXPANSION JOINT: (PRE-STRESSED BOX OR CONCRETE SLAB)

THE EXPANSION JOINT GAP IS TO BE SEALED AND A BRIDGING PLATE CENTERED ALONG IT. A VERY NARROW GAP WILL BE SEALED BY POURING HOT BINDER INTO THE GAP. GAPS OF 1/8" OR MORE WILL FIRST BE FILLED WITH AN APPROPRIATELY SIZED BACKER ROD. THE BACKER ROD WILL BE INSTALLED SO THAT IT IS BETWEEN 1/8" AND 1/4" BELOW THE TOP OF THE EXISTING GAP. THE GAP WILL THEN BE FILLED WITH BINDER.

BOND BREAKER:

SPREAD BINDER OVER SURFACE AREA WHERE THE METAL BRIDGING PLATE WILL BE PLACED. CENTER THE BRIDGING PLATE OVER THE EXISTING JOINT AND BED INTO THE HOT BINDER. BUTT JOINT THE BRIDGING PLATES TO ACCOMMODATE THE ENTIRE JOINT LENGTH. SPIKE HOLES WILL BE DRILLED AT 1 FOOT INTERVALS ALONG THE LONGITUDINAL CENTERLINE OF THE PLATES. SECURE BRIDGING PLATE WITH NAILS OR SPIKES. SEAL BUTT JOINTS WITH HOT BINDER AND ALLOW BINDER TO SETUP BEFORE NEXT OPERATION. WHEN ALUMINUM BRIDGING PLATES ARE USED, ONLY THE BINDER IS REQUIRED TO SECURE THE INDIVIDUAL PLATES.

BINDER COAT:

SEAL ALL PREPARED, EXPOSED SURFACES OF THE JOINT WITH BINDER. POUR THE HOT BINDER OVER THE FLOOR AREA OF THE JOINT AND SPREAD TO COAT ALL EXPOSED SURFACES. THE BINDER WILL BE A MINIMUM OF 1/32" THICK ON THE BOTTOM OF THE JOINT CAVITY, WITH POOLS OF GREATER THICKNESS WHERE SURFACE IRREGULARITIES EXIST. THE BINDER APPLICATION TEMPERATURE WILL BE BETWEEN 350 AND 390 DEGREES F. THE BINDER WILL NOT BE ALLOWED TO BE HEATED ABOVE 410 DEGREES F. NOR ALLOWED TO EXCEED 390 DEGREES F. FOR MORE THAN 1 HOUR. A DOUBLE JACKETED OIL MELTER WILL BE USED TO HEAT THE BINDER. THE MELTER WILL BE EQUIPPED WITH A CONTINUOUS AGITATION SYSTEM, TEMPERATURE CONTROLS, AND A CALIBRATED THERMOMETER. ALSO A SYSTEM FOR ACCURATELY MEASURING THE WEIGHTS OF THE BINDER AND THE AGGREGATE WILL BE REQUIRED.

BUILD-UP OF JOINT LAYERS:

AGGREGATE PREPARATION:

HEAT THE AGGREGATE TO A TEMPERATURE OF 275 TO 325 DEGREES F., WITH A SUITABLE ROTATING DRUM WITH ATTACHED HEAT SOURCE OR A HOT COMPRESSED AIR LANCE, TO REMOVE DUST AND MOISTURE.

AGGREGATE PROPORTION AND LAYER THICKNESS:

MIX THE AGGREGATE WITH THE BINDER SUCH THAT THE MINIMUM AGGREGATE CONTENT BY WEIGHT WILL BE 68%. THE HEATED AGGREGATE AND BINDER WILL BE COMBINED IN LAYERS, UNLESS PATENTED INSTALLATION REQUIRES DIFFERENTLY, NOT LESS THAN 3/4" OF AN INCH NOR EXCEEDING 2-1/2 INCHES. THE THICKNESS OF EACH LAYER CAN BE VARIED WITHIN THESE LIMITS, TO ACHIEVE THE REQUIRED JOINT THICKNESS (MIN. 2 INCHES). THE OBJECTIVE IS TO COAT EACH STONE AND FILL THE VOIDS WHILE AVOIDING AN EXCESS OF BINDER. THIS WILL ACHIEVE THE MAXIMUM CONTENT OF STONE CONSISTENT WITH ALL STONES BEING COATED WITH BINDER. RAKE THE MIXTURE TO MIX AND LEVEL.

THE TOP LAYER THICKNESS WILL VARY BETWEEN 1/2 INCH AND ONE (1) INCH. IN PREPARING THE TOP LAYER, THE RATIO OF AGGREGATE TO BINDER WILL BE APPROXIMATELY 6:1 BY WEIGHT. OVERFILL THE TOP LAYER AND COMPACT TO THE LEVEL OF THE ADJACENT SURFACES USING A ROLLER OR VIBRATORY PLATE COMPACTOR. IMMEDIATELY AFTER COMPLETION OF THE COMPACTION, POUR SUFFICIENT BINDER OVER THE JOINT TO FILL THE SURFACE VOIDS AND COAT THE SURFACE STONE. DUST THE FINISHED JOINT WITH A FINE, DRY AGGREGATE TO PREVENT TACKINESS.

MAINTENANCE OF TRAFFIC:

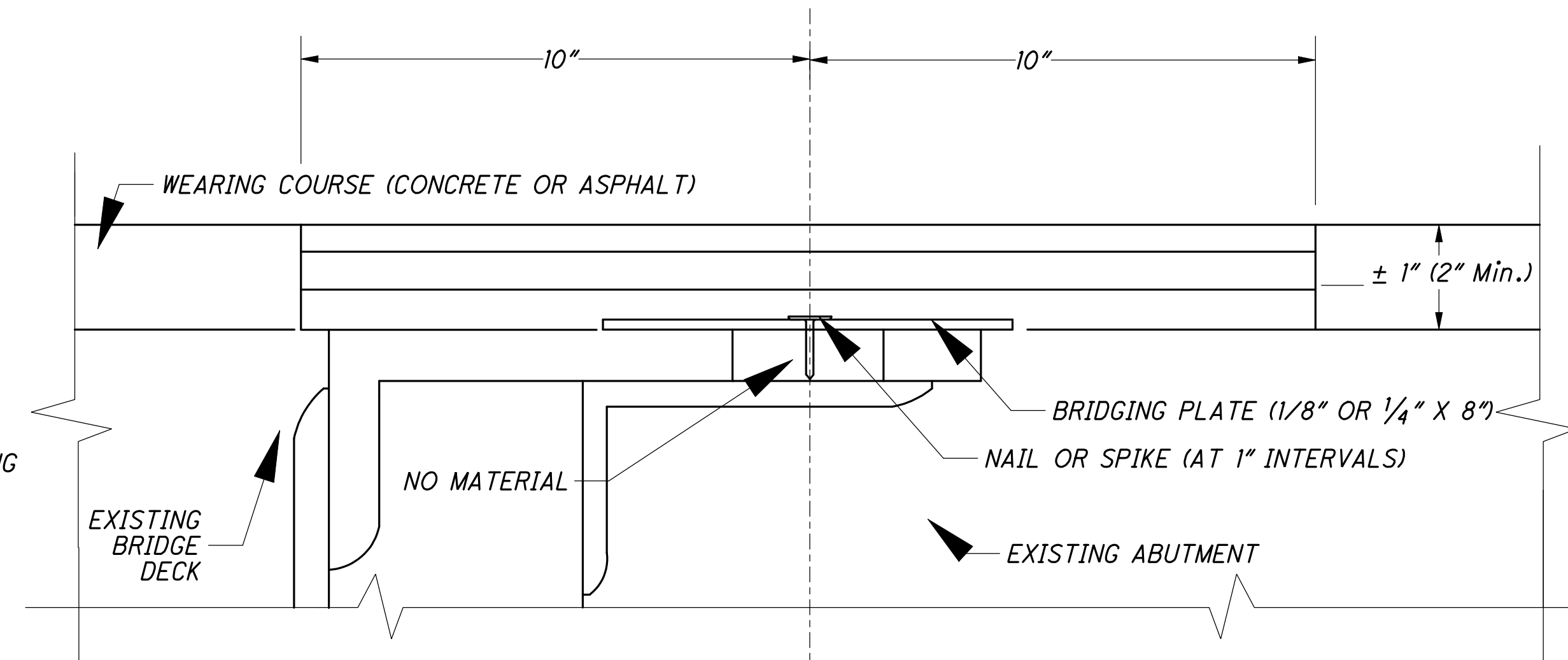
IF NECESSARY TO FACILITATE TRAFFIC MAINTENANCE, THE JOINT WILL BE INSTALLED IN TWO (2) HALF-WIDTH PHASES. DURING PHASE 1 APPROXIMATELY HALF OF THE TOTAL JOINT WILL BE INSTALLED. DURING PHASE 2, A MINIMUM OF TWO (2) INCHES OF THE PHASE 1 JOINT WILL BE REMOVED, AT OR NEAR THE CENTERLINE, WITH THE REMAINDER OF THE JOINT INSTALLED. IN ALL CASES, OPERATIONS WILL BE SCHEDULED SO THAT ALL LANES CAN BE OPEN TO TRAFFIC DURING ALL NON-WORKING HOURS.

TESTING:

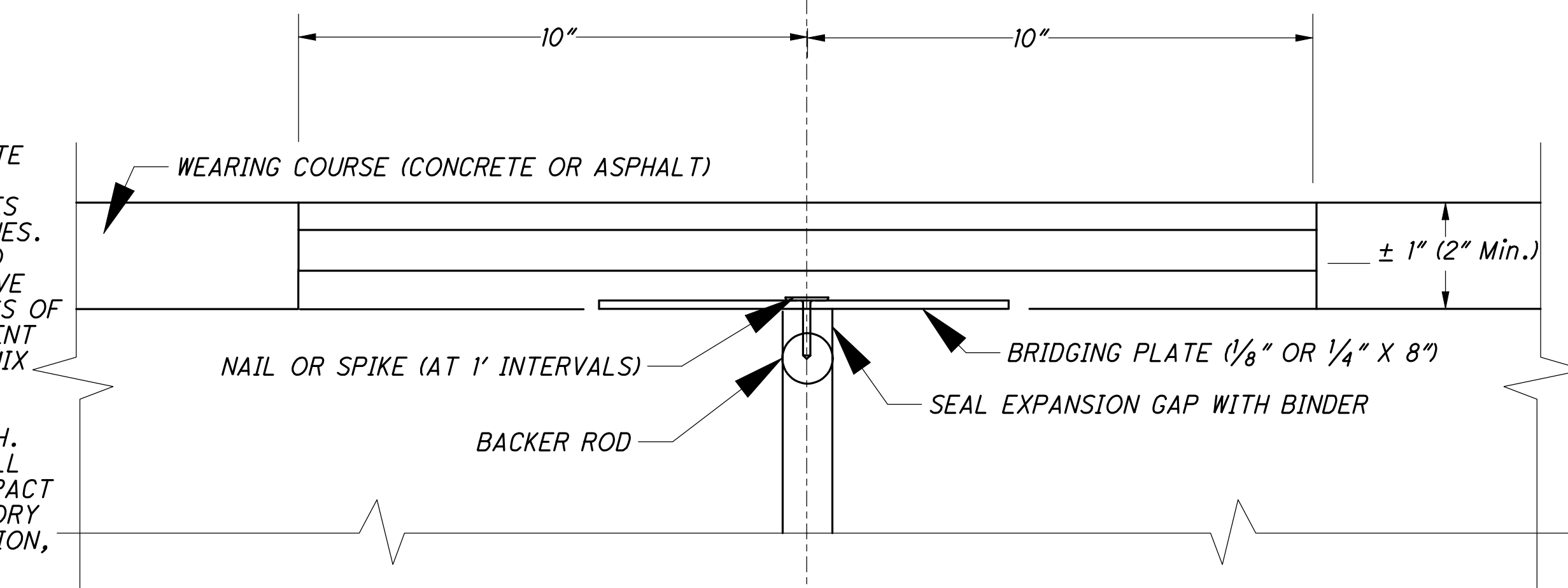
CERTIFICATION WILL BE SUPPLIED FOR EACH PROJECT SHOWING BINDER COMPLIANCE WITH REQUIRED PROPERTIES. A ONE QUART SAMPLE OF BINDER WILL BE RETRIEVED FROM EACH BRIDGE FOR FURTHER TESTING BY THE O.D.O.T OFFICE OF MATERIALS MANAGEMENT.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

THE DEPARTMENT WILL MEASURE THE JOINT BY THE NUMBER OF FEET AND WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE AS: ITEM SPECIAL, FEET, POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM.



TYPICAL STEEL BEAM EXPANSION JOINT



TYPICAL PRESTRESSED BOX BEAM OR CONCRETE SLAB JOINT

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OFFICE OF STRUCTURAL ENGINEERING

DESIGNED: [] CHECKED: [] REVIEWED: []

POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

OTT - CR23-3.50
PID No. 86758

BASIS FOR BEARINGS:

ALL BEARINGS SHOWN ARE RELATIVE TO GRID NORTH OF THE OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE (3401), NAD 83 DATUM, AS ESTABLISHED BY G.P.S. OBSERVATIONS IN NOVEMBER OF 2009.

OTTAWA COUNTY
BENTON TOWNSHIP
SEC. 13, T-7-N, R-14-E

PROJECT DESCRIPTION

THE WORK SHALL CONSIST OF A BRIDGE REPLACEMENT CARRYING BENTON-CARROLL ROAD (CR-23) OVER TOUSSAINT CREEK, AND ROADWAY IMPROVEMENTS NECESSARY TO ACCOMMODATE THE NEW BRIDGE.

PROJECT CONTROL

STATE PLANE GRID, OHIO NORTH, 3402, NAD 83

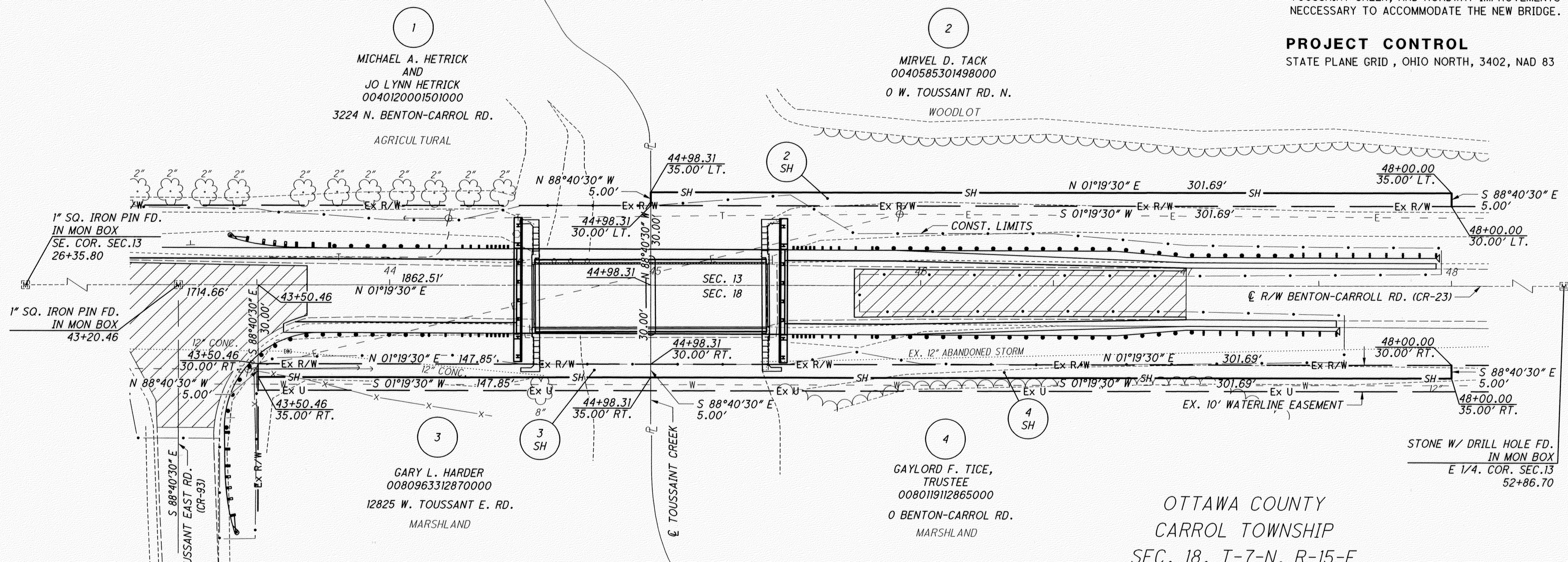


PID NO. **86758**

R/W DESIGNER: TCJ
R/W REVIEWER: JDB

RIGHT OF WAY PLAN

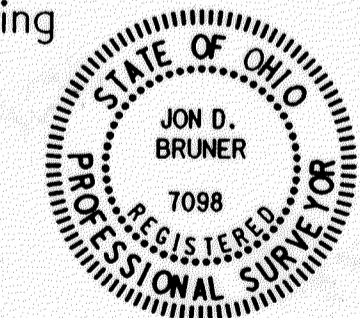
OTT-CR23-3.50



I, Jon D. Bruner, P. S. have conducted a survey of the existing conditions for the County of Ottawa in 2009. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates system NAD 83, Ohio North Zone using 2007 adjustment, by ties to the ODOT CORS network. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Jon D. Bruner
Jon D. Bruner, Professional Land Surveyor No. 7098,

Date: 1/13/11



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

LEGEND:
SH = STANDARD HIGHWAY EASEMENT

NOTE: THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED USING PLANS AND INFORMATION SUPPLIED BY THE OTTAWA COUNTY ENGINEER

RECEIVED _____, 20
RECORDED _____, 20
BOOK _____ PAGE _____
COUNTY RECORDER

REV. BY	DATE	DESCRIPTION

ALL AREAS IN ACRES

GROSS TAKE - PRO IN TAKE = NET TAKE
RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE

SUMMARY OF ADDITIONAL RIGHT-OF-WAY

GRANTEE:
ALL RIGHT OF WAY ACQUIRED IN THE NAME OF THE BOARD OF COMMISSIONERS OF OTTAWA COUNTY UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD		AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
			BOOK	PAGE								LEFT	RIGHT			BOOK	PAGE
1	MICHAEL A. HETRICK AND JO LYNN HETRICK	22			0040120001501000	8.050	1.000	0.000	0.000	0.000					NO TAKE REQUIRED		
2-SH	MIRVEL D. TACK	22	DV 240	835	0040585301498000	56.568	1.220	0.035	0.000	0.035		55.313		LOCAL	HIGHWAY EASEMENT		
3-SH	GARY L. HARDER	22	DV 275 DV 275	504 506	0080963312870000	56.755	2.199	0.017	0.000	0.017		54.539		LOCAL	HIGHWAY EASEMENT		
4-SH	GAYLORD F. TICE, TRUSTEE	22	OR 1253	352	0080119112865000	40.120	2.410	0.035	0.000	0.035		37.675		LOCAL	HIGHWAY EASEMENT		

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