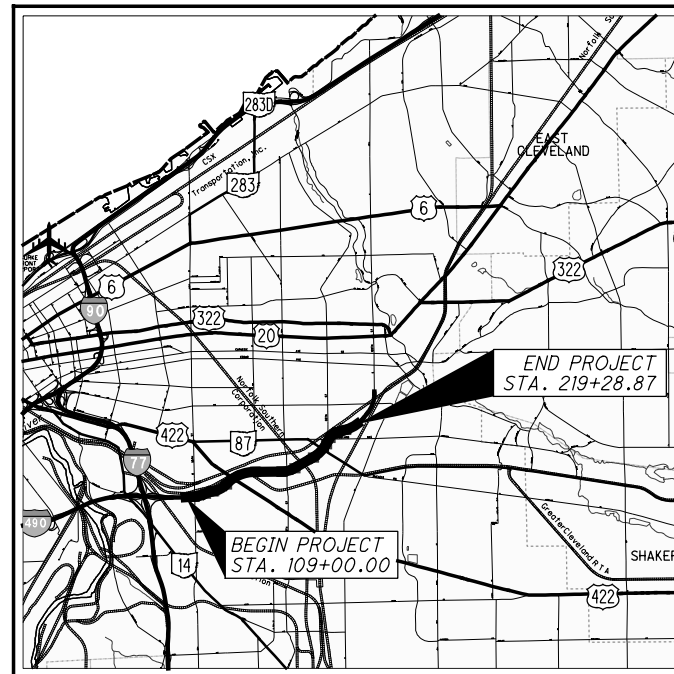


STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION  
**CUY-IR490/ SR010-**  
**2.09 / 19.28**  
CITY OF CLEVELAND  
CUYAHOGA COUNTY



LOCATION MAP

LATITUDE: 41°29'08"      LONGITUDE: 81°37'22"



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

DESIGN DESIGNATION

CURRENT ADT (2017)	35,820
DESIGN YEAR ADT (2020)	48,230
DESIGN HOURLY VOLUME (2020)	3,580
DIRECTIONAL DISTRIBUTION	58%
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	40 MPH
LEGAL SPEED	35 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL
NHS PROJECT	NO

## DESIGN EXCEPTIONS

NONE

<h2 style="text-align: center;">UNDERGROUND UTILITIES</h2> <p style="text-align: center;">CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.</p>	
 <p><b>OHIO Utilities Protection SERVICE</b></p> <p>(Non-members must be called directly)</p>	<p><i>Call Before You Dig</i></p> <p><b>1-800-362-2764</b></p>
<p style="text-align: center;"><b>OIL &amp; GAS PRODUCERS UNDERGROUND PROTECTION SERVICE</b></p> <p style="text-align: center;"><b>1-800-925-0988</b></p>	



*INDEX OF SHEETS:*

SEE SHEET 2

**BU-23**  
**WALLS 5A, 5B, 5C, AND 5D**

PLAN PREPARED BY:



ENGINEERS SEAL:



SIGNED: Peter Chavany  
DATE: 3/7/2019

ENGINEERS SEAL:

SIGNED: \_\_\_\_\_  
DATE: \_\_\_\_\_

[illegible]

## PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF 2.09 MILES OF A NEW TWO- TO THREE-LANE BOULEVARD FROM E. 55TH ST. TO E. 93RD ST. WORK INCLUDES PAVEMENT, RAILROAD, STRUCTURES, DRAINAGE, WATERWORK, LIGHTING, POWER DISTRIBUTION, TRAFFIC CONTROL, LANDSCAPING, AND ADJUSTMENT OF EXISTING UTILITIES.

### EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 87.2 ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0 ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: 87.2 ACRES  
(AREA SERVICED BY COMBINED SEWER)

## 2016 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.


0	2019-03-07	RFC
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
<b>ISSUE RECORD</b>		

FEDERAL PROJECT NO.  
**E140 (249)**

PID NO.  
**96833**

CONSTRUCTION PROJECT NO. **17-3000**

RAILROAD INVOLVEMENT  
**NORFOLK SOUTHERN  
GCRTA**

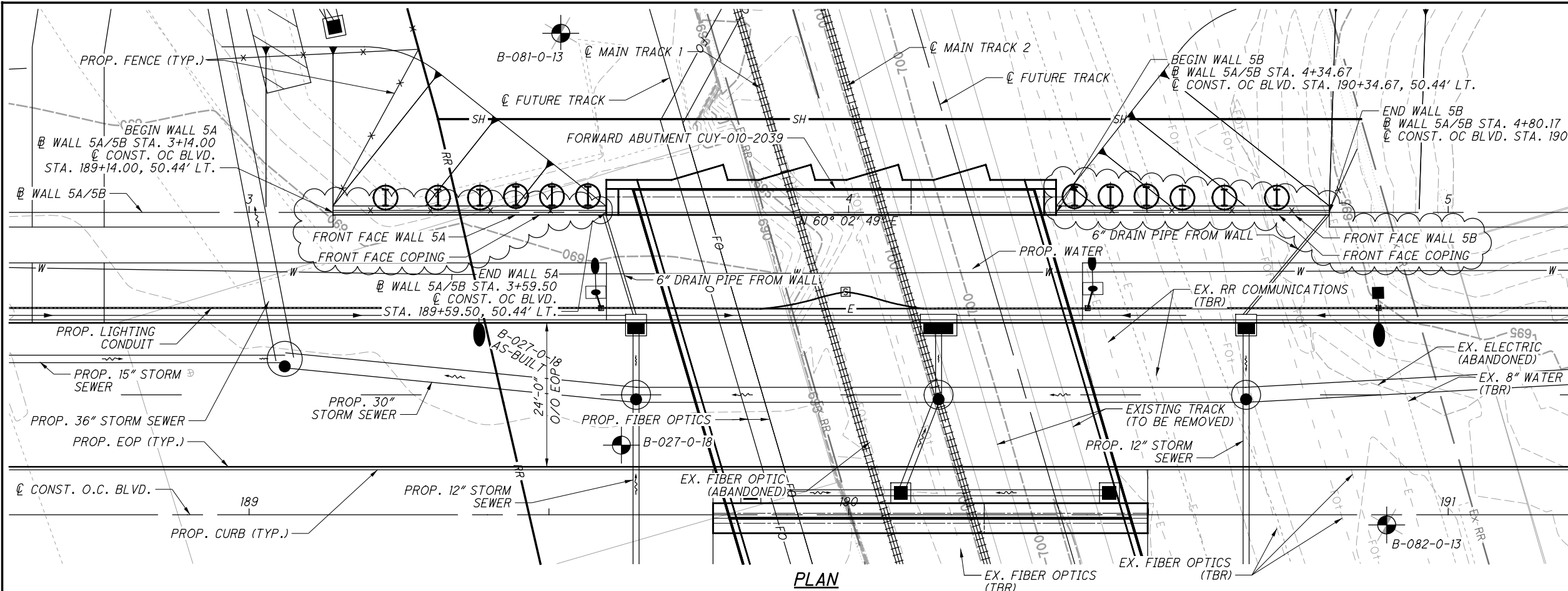
-IR490/SR010-  
2.09 / 19.28

## RECORD PLANS

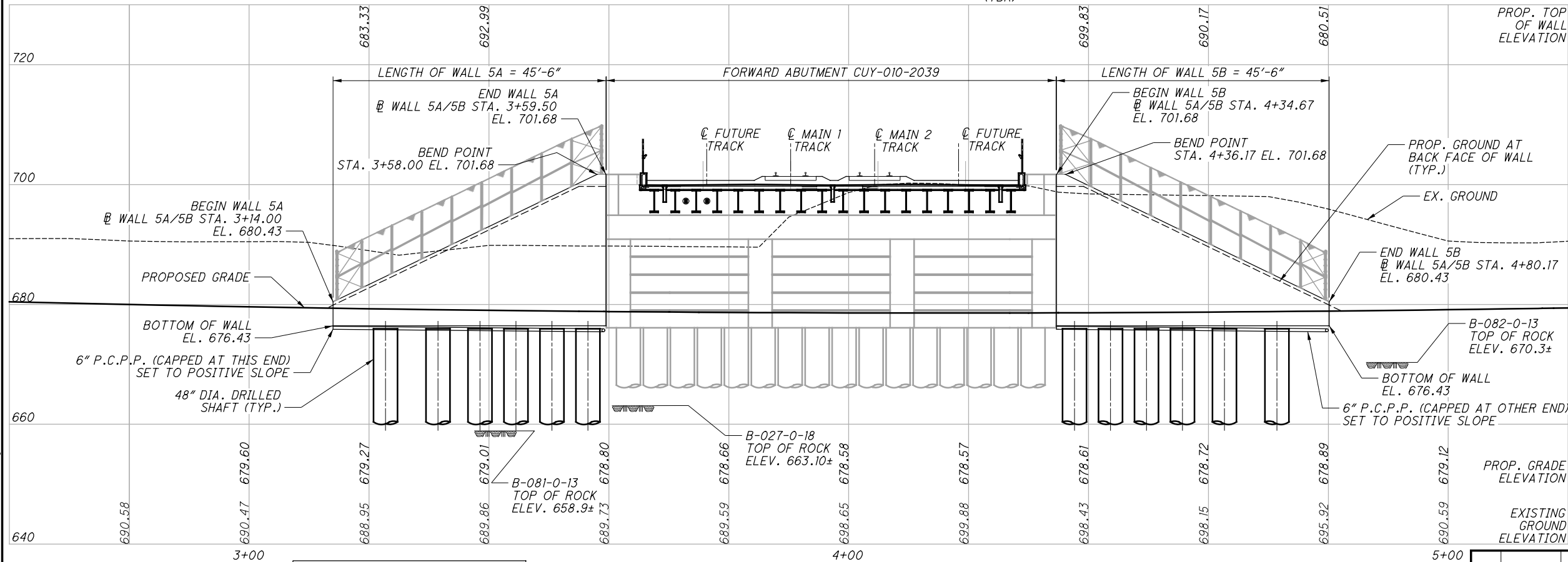
## RECORD PLANS

## RECORD PLANS





PLAN



ELEVATION ALONG WALL 5A/5B

LEGEND



BORING LOCATION

BENCHMARK DATA

BM #1 STA. 185+81.89 EL. 684.155  
OFFSET 260.81' LT.  
BM #2 STA. 194+97.72 EL. 685.29  
OFFSET 216.22' LT.

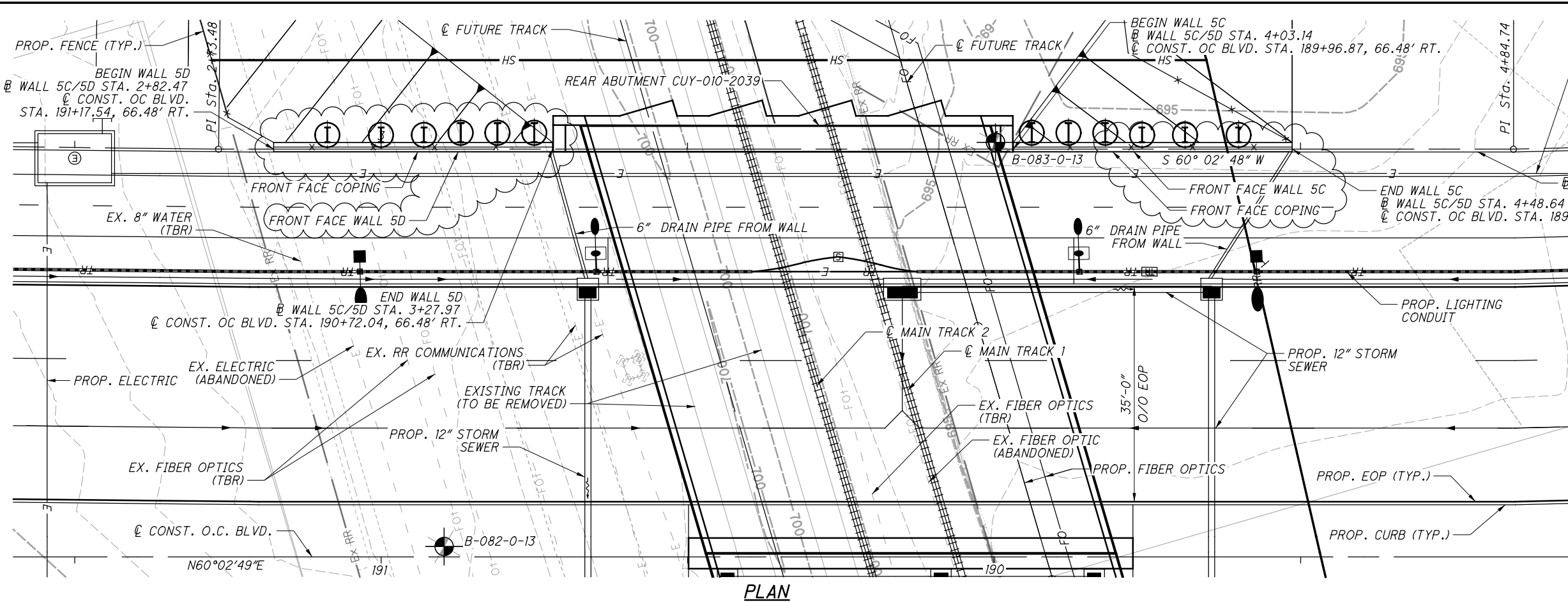
NOTES

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

PLAN ABBREVIATIONS:

ABUT. - ABUTMENT  
APPR. - APPROACH  
B - BOTTOM  
B - BASELINE  
B.F. - BACK FACE  
BM - BENCHMARK  
BOT. OR BTM. - BOTTOM  
C - CENTERLINE  
C/C - CENTER TO CENTER  
C.I.P. - CAST-IN-PLACE  
C.J. - CONSTRUCTION JOINT  
CLR. - CLEAR  
CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS  
CONC. - CONCRETE  
CONSTR. - CONSTRUCTION  
DIA. - DIAMETER  
DIM. - DIMENSION  
DTBD - DISPOSITION TO BE DETERMINED  
DWG. - DRAWING  
E.F. - EACH FACE  
EL. OR ELEV. - ELEVATION  
EQ. - EQUAL  
EST. - ESTIMATED  
EX. - EXISTING  
F/F - FACE TO FACE  
F.F. - FRONT FACE  
FT. - FOOT OR FEET  
FTG. - FOOTING  
FWD. - FORWARD  
IN. - INCH  
JT. - JOINT  
LT. - LEFT  
MAX. - MAXIMUM  
MIN. - MINIMUM  
MISC. - MISCELLANEOUS  
N - NORTH  
NB - NORTHBOUND  
NO. - NUMBER  
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE  
OHWM - ORDINARY HIGH WATER MARK  
O/O - OUT TO OUT  
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE  
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER  
PROP. - PROPOSED  
PSF - POUNDS PER SQUARE FOOT  
S - SOUTH  
SB - SOUTHBOUND  
SER. - SERIES  
SHLDR - SHOULDER  
SPA. - SPACE OR SPACES  
STA. - STATION  
STD. - STANDARD  
STR - STRAIGHT  
T - TOP  
T&B - TOP & BOTTOM  
TBR - TO BE RELOCATED  
TEMP. - TEMPORARY  
TYP. - TYPICAL  
U.N.O. - UNLESS NOTED OTHERWISE  
VAR. - VARIES  
WWR - WELDED WIRE REINFORCEMENT

NO.		DATE	DESCRIPTION
1		2024-09-10	RECORD DRAWINGS
0		2019-03-07	RFC
ISSUE RECORD			

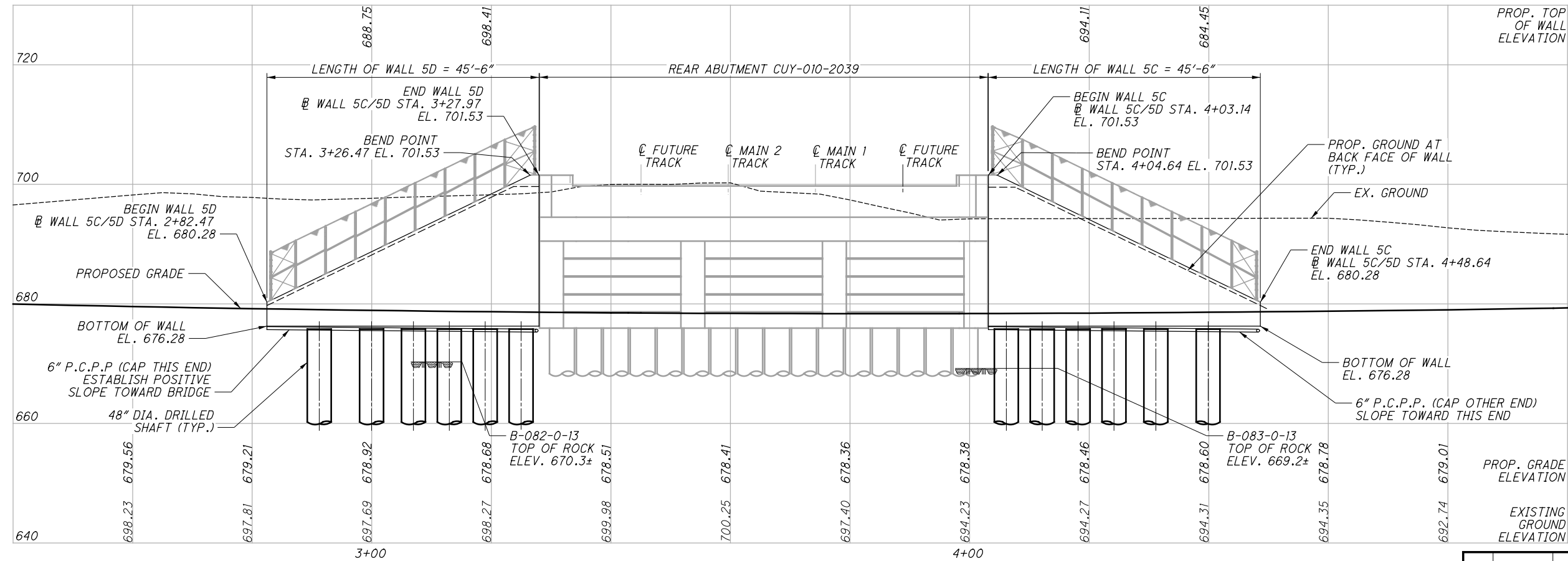


PLAN

BENCHMARK DATA		
BM #1	STA. 188+15.79	EL. 686.17 OFFSET 125.85' RT.
BM #2	STA. 191+27.76	EL. 697.67 OFFSET 173.29' RT.

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

**LEGEND**  
 BORING LOCATION  
TBR - TO BE RELOCATED



ELEVATION ALONG WALL 5C/5D

NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-03-07	RFC
ISSUE RECORD		

BU-23 - WALL 5A, 5B, 5C, & 5D  
...\\Wall\_5ABCD\96833\_05A\_WN001.dgn 3/13/2019 5:12:46 PM ccummings

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING:  
VPF-I-90 REVISED 7/17/2015

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:  
800 REVISED 7/15/2016

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO AREMA (AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION, 2016) MANUAL FOR RAILWAY ENGINEERING.

DESIGN ASSUMPTIONS:

SOIL UNIT WEIGHT, γ= 120 pcf  
ANGLE OF INTERNAL FRICTION, φ= 30°

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI  
(CONCRETE FACING AND DRILLED SHAFTS)  
REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI  
STEEL SOLDIER PILES - ASTM A572 - YIELD STRENGTH 50 KSI

ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W30x90  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W33x118  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W40x149  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W40x183

THIS WORK CONSISTS OF FURNISHING AND PLACING STEEL SOLDIER PILES INTO DRILLED HOLES. FURNISH SOLDIER PILES CONSISTING OF STRUCTURAL STEEL MEMBERS THAT MEET THE PLAN REQUIREMENTS AND CONFORM TO ASTM A572, GRADE 50. DO NOT SPLICE STEEL SOLDIER PILES.

ITEM 509 - WALL FACING REINFORCEMENT

THE CONTRACTOR MAY REPLACE THE REINFORCING BARS IN THE RETAINING WALL FACING WITH EPOXY COATED WELDED WIRE FABRIC CONFORMING TO C&MS 709.14. THE EPOXY COATED WELDED WIRE FABRIC MUST PROVIDE AN EQUIVALENT AREA OF STEEL IN EACH DIRECTION AS THE REINFORCING BARS SHOWN IN THE PLANS.

ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN

PLACE WATERPROOFING MEMBRANE AT THE LOCATIONS OF THE PROPOSED JOINTS IN THE CONCRETE WALL FACING. PLACE THE WATERPROOFING MEMBRANE OVER THE PGD AND SECURELY ATTACH TO THE TIMBER LAGGING WITH SCREWS AND 1-INCH OUTER DIAMETER FENDER WASHERS. PLACE THE MEMBRANE SO THAT THE ADHESIVE SIDE FACES THE CAST-IN-PLACE CONCRETE. THE SURFACE PREPARATION DESCRIBED IN C&MS 512.08 IS NOT REQUIRED.

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

SEAL SURFACES OF THE CAST-IN-PLACE CONCRETE WALL FACING, PILASTERS, AND COPING AS SHOWN IN THE PLANS WITH AN EPOXY-URETHANE SEALER ACCORDING TO C&MS 512. COLOR SHALL BE LIGHT TAN (FEDERAL STD. 595C #27769).

ITEM 513 - WELDED STUD SHEAR CONNECTORS

SOLDIER PILES WHICH REQUIRE HEADED STUDS ARE SHOWN IN THE TABLE ON SHEET [9/10]. WELD HEADED STEEL STUDS TO THE FLANGES OF THE SOLDIER PILE IN ORDER TO CONNECT THE CONCRETE WALL FACING TO THE SOLDIER PILE. ATTACH HEADED STUDS ACCORDING TO C&MS 513.22 AND AS SHOWN IN THE PLANS. THE CONTRACTOR MAY ATTACH THE STUDS EITHER BEFORE PLACING THE SOLDIER PILE IN THE DRILLED HOLE OR AFTER EXCAVATING IN FRONT OF THE WALL. PROTECT THE HEADED STUDS FROM DAMAGE UNTIL THE CONCRETE WALL FACING IS POURED. REPAIR OR REPLACE DAMAGED HEADED STUDS AT NO EXPENSE TO THE DEPARTMENT.

REGULATED MATERIALS

REFER TO DEMOLITION PLANS IN BUILDABLE UNIT 15 - ROADWAY AND PAVEMENT, KINGSBURY RUN TO END PROJECT FOR LOCATION AND IDENTIFICATION OF KNOWN REGULATED MATERIALS. HANDLING OF REGULATED MATERIALS SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS.

ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, AS PER PLAN

THIS WORK CONSISTS OF FURNISHING AND INSTALLING DRILLED SHAFTS FOR SOLDIER PILE WALLS. THE DRILLED SHAFTS ARE REINFORCED WITH SOLDIER PILES INSTEAD OF REINFORCING STEEL CAGES. THE SOLDIER PILES EXTEND ABOVE THE TOP OF THE DRILLED SHAFT. FURNISH AND INSTALL THE DRILLED SHAFTS ACCORDING TO C&MS 524 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

EXCAVATE THE HOLE FOR THE DRILLED SHAFT WITHIN 3 INCHES OF THE PLAN LOCATION. PLACE THE SOLDIER PILE WITHIN THE HOLE SO IT IS VERTICAL. PLACE THE SOLDIER PILE SO THAT THE FLANGES ARE PARALLEL TO THE CENTERLINE OF THE ROW OF DRILLED SHAFTS. DO NOT ALLOW THE ORIENTATION OF THE FLANGES TO VARY BY MORE THAN 10 DEGREES. SUPPORT THE SOLDIER PILE SO THAT IT DOES NOT MOVE DURING CONCRETE PLACEMENT.

USE CLASS QC1 CONCRETE ACCORDING TO C&MS 511. PLACE CONCRETE TO THE ELEVATION FOR THE TOP OF THE DRILLED SHAFT. THE CONTRACTOR MAY PLACE CONCRETE USING THE FREE FALL METHOD PROVIDED THE DEPTH OF WATER IS LESS THAN 6 INCHES AND THE CONCRETE FALLS WITHOUT STRIKING THE SIDES OF THE HOLE. POURING CONCRETE ALONG THE WEB OF THE SOLDIER PILE IS ACCEPTABLE.

CHECK THE POSITION, THE VERTICAL ALIGNMENT AND ORIENTATION OF THE SOLDIER PILE IMMEDIATELY AFTER CONCRETE PLACEMENT. MAKE CORRECTIONS AS NECESSARY TO MEET THE ABOVE TOLERANCES.

FILL THE HOLE ABOVE THE CONCRETE TO THE EXISTING GROUND SURFACE WITH ITEM 613 LOW STRENGTH MORTAR BACKFILL (LSM).

REMOVE CONCRETE AND LSM AS NECESSARY FROM AROUND THE SOLDIER PILE IN ORDER TO PLACE THE LAGGING. WAIT AT LEAST 12 HOURS AFTER PLACING CONCRETE BEFORE PLACING LAGGING.

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN, PERMANENT GRAFFITI PROTECTION

APPLY A PERMANENT GRAFFITI COATING QUALIFIED ACCORDING TO SUPPLEMENT 1083 THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. PROVIDE A COATING THAT MEETS THE REQUIREMENTS LISTED BELOW. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

- A. THE MATERIAL SHALL BE A SINGLE COMPONENT, RTV (ROOM TEMPERATURE VULCANIZED), NEUTRAL MOISTURE CURE, PERMANENT (NON-SACRIFICIAL), TYPE III (WATER CLEANABLE) POLYSILOXANE (SILICONE) ANTI-GRAFFITI COATING, FREE OF ANY WAXES, EPOXIES, OR POLYURETHANE COMPONENTS.
- B. THE COATING SHALL BE A ONE COAT SYSTEM (NO PRIMER) CAPABLE OF BEING SPRAY APPLIED TO A DRY FILM THICKNESS OF 15 MILS (375 MICRONS) WITHOUT RUNS OR SAGS (MULTIPLE COAT APPLICATION ACCEPTABLE FOR BRUSH/ROLLER USAGE AND PRIMER USAGE ACCEPTABLE FOR SPECIALTY SUBSTRATES SUCH AS GALVANIZED METAL).
- C. THE COATING SHALL EMIT LESS THAN 300 G/L (2.5 POUNDS PER GALLON) OF VOLATILE ORGANIZE COMPOUNDS (EPA METHOD 24).
- D. THE COATING SHALL MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:

1. CLEANABILITY LEVEL 1 (GRAFFITI COMPLETELY REMOVED WITH COLD WATER POWER WASH) AS PER ASTM D7089 WITH LOW PRESSURE (1200 PSI) COLD WATER WASH AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM D4587.

2. GRAFFITI RESISTANCE LESS THAN 7.5 AS PER ASTM D6578 AFTER 2000 HOURS ACCELERATED UV-CONDENSATION EXPOSURE IN ACCORDANCE WITH ASTM 4578.

3. NO SIGNS OF GRAFFITI OR GRAFFITI STAINING AND MUST BE INTACT AND EXHIBIT NO SIGNS OF STREAKING, CRACKING, PINHOLING, DISCOLORING, OR OTHER VISIBLE COATING DEGRADATION UPON CASUAL OBSERVATION WHEN TESTED IN ACCORDANCE WITH TXDOT TEX 890-B, TYPE III METHOD.

4. BREATHABILITY OF 10 PERMS (+/- 3) PER ASTM D1653 USING "WET CUP METHOD".

5. ELONGATION AT BREAK GREATER THAN 100% AS PER ASTM D412 (USING DIE "D").

6. ADHESION RATING OF "8 - DIFFICULT TO REMOVE" AS PER ASTM D6677 (ADHESION BY KNIFE).

ITEM 518 - STRUCTURE DRAINAGE, MISC.: PREFABRICATED GEOCOMPOSITE DRAIN

THIS WORK CONSISTS OF FURNISHING AND PLACING PREFABRICATED GEOCOMPOSITE DRAIN (PGD) AGAINST THE TIMBER LAGGING OR AGAINST THE CONCRETE WALL FACING WHERE THE TIMBER LAGGING IS NOT REQUIRED.

FURNISH PGD CONSISTING OF A DRAINAGE CORE WITH A GEOTEXTILE FABRIC BONDED TO AT LEAST ONE SIDE. USE CORE MATERIAL THAT CONSISTS OF A STABLE, POLYMER PLASTIC MATERIAL WITH A CUSPATED OR GEONET STRUCTURE. THE CORE MATERIAL SHALL HAVE SUFFICIENT FLEXIBILITY TO WITHSTAND BENDING AND HANDLING DURING INSTALLATION WITHOUT DAMAGE. FURNISH GEOTEXTILE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS FORMED INTO A WOVEN OR NON-WOVEN FABRIC. FURNISH PGD CONFORMING TO THE FOLLOWING REQUIREMENTS. FURNISH MANUFACTURER'S CERTIFIED TEST DATA.

	PROPERTY	TEST METHOD	VALUE
CORE	THICKNESS	ASTM D 5199	0.4 INCH
	COMPRESSIVE STRENGTH	ASTM D 1621	13,650 PSF MIN.
	FLOW RATE	ASTM D 4716	9 TO 25 GPM/FT
FABRIC	APPARENT OPENING SIZE	ASTM D 4751	0.3 MM MAX.
	FLOW RATE	ASTM D 4491	40 GPM/SQ.FT. MIN.
	GRAB TENSILE STRENGTH	ASTM D 4632	90 LBS MIN.
	CBR PUNCTURE	ASTM D 6241	65 LBS MIN.

PLACE PGD BETWEEN THE SOLDIER PILES, INCLUDING THE CANTILEVER PORTION AT THE END OF THE WALL. PLACE THE SIDE FACED WITH GEOTEXTILE AGAINST THE TIMBER LAGGING, FACING TOWARDS THE RETAINED GROUND, AND SECURE THE PGD TO THE LAGGING. USE NAILS AND WASHERS AT LEAST 1-INCH DIAMETER IN SIZE TO SECURE THE PGD ALONG THE EDGES OF THE PGD AND AT A MAXIMUM SPACING OF 4 FEET.

SPLICE ABUTTING SECTIONS TOGETHER BY OVERLAPPING THE GEOTEXTILE FLAP (IF PROVIDED) ON ONE SECTION WITH THE ADJACENT SECTION OF PGD. OVERLAP THE GEOTEXTILE IN A SHINGLED OVERLAP SO THAT THE UPPER GEOTEXTILE IS ON TOP OF THE LOWER GEOTEXTILE. IF A GEOTEXTILE FLAP IS NOT PROVIDED, COVER THE SEAM WITH A 12-INCH WIDE STRIP OF GEOTEXTILE FABRIC CENTERED OVER THE SEAM AND SECURED IN PLACE USING 3-INCH WIDE WATERPROOF PLASTIC TAPE.

SEAL ALL EXPOSED EDGES OF THE CORE MATERIAL TO PREVENT SOIL INSTRUSION. SEAL EXPOSED EDGES BY FOLDING THE GEOTEXTILE FLAPS OVER AND AROUND THE PGD OR, IF A FLAP IS NOT PROVIDED, COVERING THE EXPOSED EDGE WITH A 12-INCH WIDE STRIP OF GEOTEXTILE FABRIC, TAPING THE STRIP TO THE PGD GEOTEXTILE 8 INCHES FROM THE EXPOSED EDGE, AND FOLDING THE REMAINING 4 INCHES OVER AND AROUND THE PGD. SECURE LOOSE EDGES OF THE GEOTEXTILE FABRIC WITH 3-INCH WIDE WATERPROOF PLASTIC TAPE.

REPAIR ANY DAMAGE TO THE GEOTEXTILE FABRIC BY COVERING WITH A PATCH WHICH OVERLAPS THE DAMAGED AREA AND EXTENDS AT LEAST 6 INCHES BEYOND THE EDGE OF THE DAMAGED AREA. TAPE THE EDGES OF THE PATCH IN PLACE USING 3-INCH WIDE WATERPROOF PLASTIC TAPE. IF THE CORE OF THE PGD IS DAMAGED, REPLACE IT WITH A NEW SECTION OF PGD AND SPLICE IT AS DESCRIBED ABOVE.

WHERE SHOWN ON THE PLANS, PLACE THE BOTTOM OF THE PGD ADJACENT TO A PERFORATED DRAINAGE COLLECTION PIPE AND POROUS BACKFILL AND COVER WITH GEOTEXTILE FABRIC. ENSURE A CONTINUOUS DRAINAGE PATH FROM THE PGD CORE TO THE PIPE. WHERE A WALL HAS WEEPHOLES FOR DRAINAGE, ENSURE WATER CAN DRAIN FROM THE PGD TO THE WEEPHOLE. IF NECESSARY, CUT A HOLE IN THE CORE TO ALLOW DRAINAGE OR USE A WEEPHOLE FITTING FROM THE PGD MANUFACTURER. DO NOT CUT GEOTEXTILE.

IF TIMBER LAGGING IS NOT REQUIRED BECAUSE THE PORTION OF THE WALL IS ABOVE THE EXISTING GROUND, ATTACH PGD TO THE BACK FACE OF CONCRETE WALL FACING UNTIL BACKFILL IS PLACED.

0	2019-03-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

DESIGN AGENCY  
**E.L. ROBINSON**  
ENGINEERING  
1469 West 9th Street • Cleveland, Ohio 44113  
www.elrobinsonengineering.com

DATE  
10/10/18  
FILE NUMBER

REVIEWED  
RER  
STRUCTURE

DRAWN  
FIB  
REVISED  
LJS

DESIGNED  
LJS  
CHECKED  
PAN

GENERAL NOTES (SHEET 1 OF 2)  
RETAINING WALL 5A, 5B, 5C, & 5D  
NORFOLK SOUTHERN RAILROAD OVER OH-10

CUY-IR490/SR010-  
2.09/19.28  
PID No. 96833

3 / 10

5  
12

RECORD PLANS

RECORD PLANS

ITEM SPECIAL - RETAINING WALL, MISC.: TIMBER LAGGING

THIS WORK CONSISTS OF FURNISHING AND PLACING TIMBER LAGGING BETWEEN THE SOLDIER PILES WHERE REQUIRED BELOW THE EXISTING GROUND SURFACE. FURNISH TIMBER LAGGING CONSISTING OF CONSTRUCTION GRADE, UNTREATED HARDWOOD WITH A MINIMUM THICKNESS OF 3 INCHES. TO PERMIT DRAINAGE, PROVIDE 1/4 TO 1/2-INCH SPACES BETWEEN LAGGING BOARDS USING 3/8-INCH THICK SPACER BLOCKS OR OTHER MEANS ACCEPTABLE TO THE ENGINEER.

ITEM 607 - VANDAL PROTECTION FENCE, 8’ STRAIGHT, COATED FABRIC, AS PER PLAN

INSTALL VANDAL PROTECTION FENCE ACCORDING TO STD. CONSTRUCTION DRAWING VPF-1-90 AND C&MS 607, EXCEPT AS MODIFIED BELOW.

POSTS, PLATES, TIE WIRES, CAULK AND ADDITIONAL VISIBLE HARDWARE SHALL BE COLOR BLACK (FEDERAL STD. 595C #17038). FENCE FABRIC SHALL BE BLACK VINYL-COATED, CHAIN LINK STYLE. MOUNT FENCING TO TOP OF RETAINING WALL WITH CAST-IN-PLACE ANCHORS.

AT THE TOP OF THE WALL, MAKE THE FENCE FABRIC CONTINUOUS BETWEEN THE FENCE ON THE WALL AND THE FENCE ON THE BRIDGE ABUTMENT.

PRE-CONSTRUCTION SURVEY, VIBRATION MONITORING, AND VIDEO INSPECTION OF SEWERS

CONDUCT A PRE-CONSTRUCTION SURVEY ACCORDING TO THE SETTLEMENT AND VIBRATION MONITORING PLAN OF BUILDINGS, STRUCTURES, UTILITIES, AND CRITICAL LOCATIONS WITHIN THE LIMITS DETERMINED BY THE DBT VIBRATION SPECIALIST. PERFORM A PRE-CONSTRUCTION VIDEO INSPECTION ACCORDING TO CM&S 611 OF ALL SEWERS WITHIN THE INFLUENCE ZONES OF CONSTRUCTION. PERFORM SETTLEMENT AND VIBRATION MONITORING ACCORDING TO THE SETTLEMENT AND VIBRATION MONITORING PLAN DURING CONSTRUCTION. AFTER CONSTRUCTION IS SUBSTANTIALLY COMPLETE, PERFORM A SECOND VIDEO INSPECTION OF THE SEWERS. PROVIDE RECORDINGS OF THE VIDEOS TO THE DEPARTMENT AND MAINTAINING AGENCY FOR REVIEW.

APPLICABLE ODOT CM&S SPECIFICATIONS

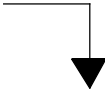
THE FOLLOWING WORK ITEMS SHALL BE CONSTRUCTED PER THE CM&S ITEMS LISTED BELOW.

ITEM NO.	ITEM DESCRIPTION
507	STEEL PILES, MISC.: SOLDIER PILES, W30x90
507	STEEL PILES, MISC.: SOLDIER PILES, W33x118
507	STEEL PILES, MISC.: SOLDIER PILES, W40x149
507	STEEL PILES, MISC.: SOLDIER PILES, W40x183
509	EPOXY COATED REINFORCING STEEL
511	CONCRETE, CLASS QC 1 WITH QC/QA
512	TYPE 2 WATERPROOFING, AS PER PLAN
512	SEALING OF CONCRETE SURFACES (EPOXY URETHANE)
512	SEALING OF CONCRETE SURFACES, AS PER PLAN, PERMANENT GRAFFITI PROTECTION
513	WELDED STUD SHEAR CONNECTORS
516	PREFORMED EXPANSION JOINT FILLER
518	STRUCTURE DRAINAGE, MISC.: PREFABRICATED GEOCOMPOSITE DRAIN
518	POROUS BACKFILL WITH FILTER FABRIC
524	DRILLED SHAFT, 48" DIAMETER, AS PER PLAN
607	VANDAL PROTECTION FENCE, 8’ STRAIGHT, COATED FABRIC, AS PER PLAN

SECTION / DETAIL / VIEW CALLOUTS



(SEE SECTION A ON SHEET 10)



(SECTION A CUT FROM SHEET 9)

0	2019-03-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

DESIGN AGENCY  
**E.L. ROBINSON**  
ENGINEERING  
1468 West 9th Street • Cleveland, Ohio 44113  
www.elrobinsonengineering.com

GENERAL NOTES (SHEET 2 OF 2)  
RETAINING WALL 5A, 5B, 5C, & 5D  
NORFOLK SOUTHERN RAILROAD OVER OH-10

CUY-IR490/SR010-  
2.09/19.28  
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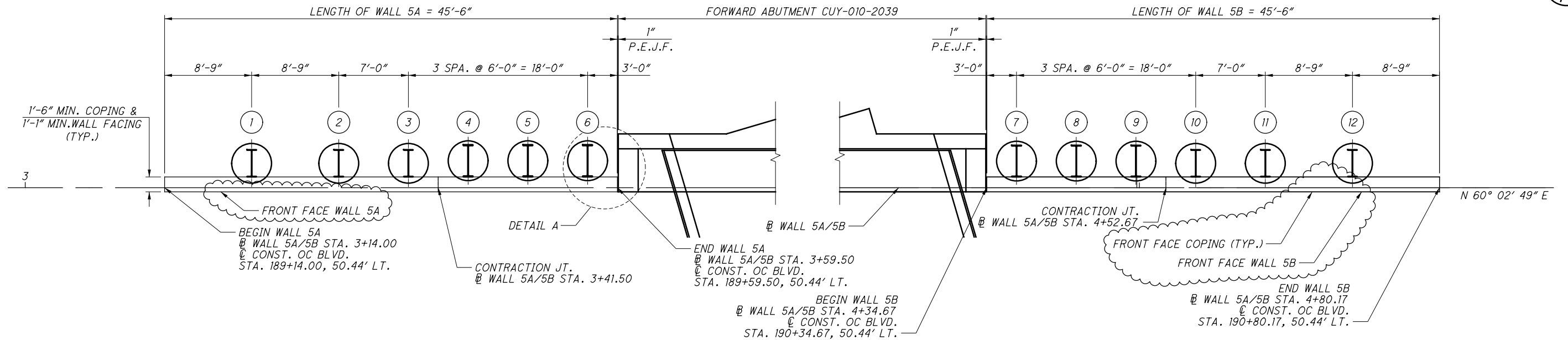
4 / 10

6 / 12

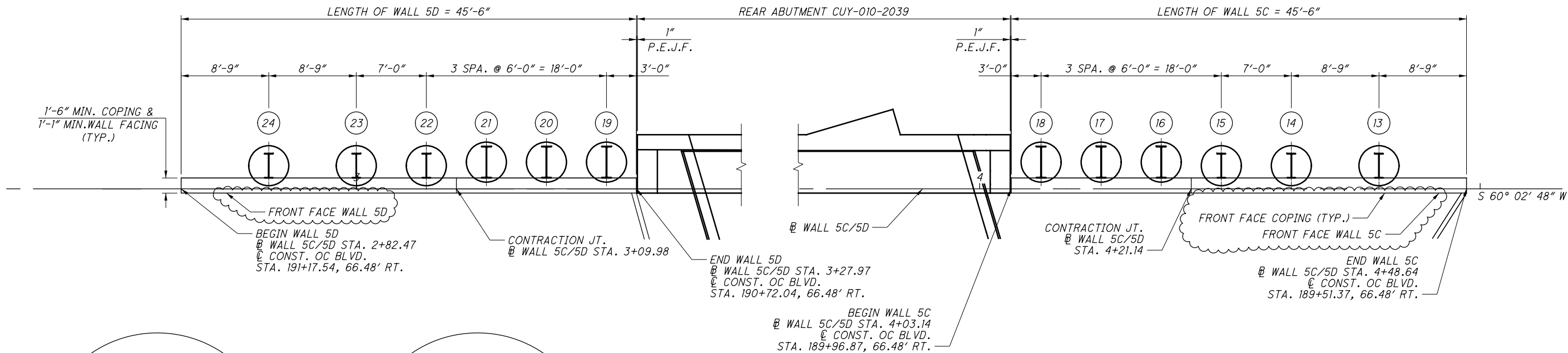
RECORD PLANS

RECORD PLANS

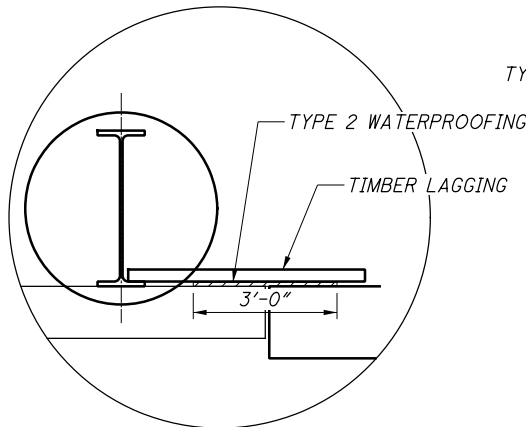
BU-23 - WALL 5A, 5B, 5C, & 5D  
...\\Wall\_5ABCD\96833\_05A\_WB001.dgn 10/23/2024 3:16:05 PM Gregory.Hertler



FOUNDATION PLAN - WALLS 5A & 5B

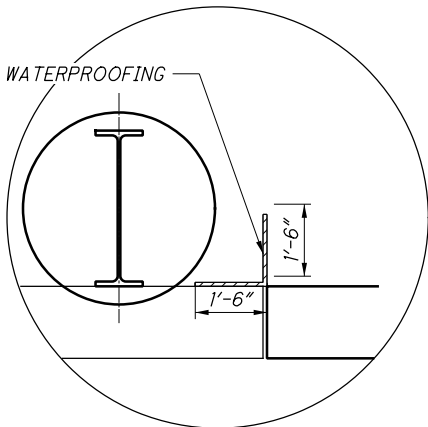


FOUNDATION PLAN - WALLS 5C & 5D



DETAIL A BELOW ABUTMENT CAP

TYPICAL, EACH BRIDGE/WALL CORNER  
SEE BRIDGE PLANS FOR LAGGING CONNECTION TO ABUTMENT DRILLED SHAFT.



DETAIL A AT ABUTMENT CAP

LEGEND:

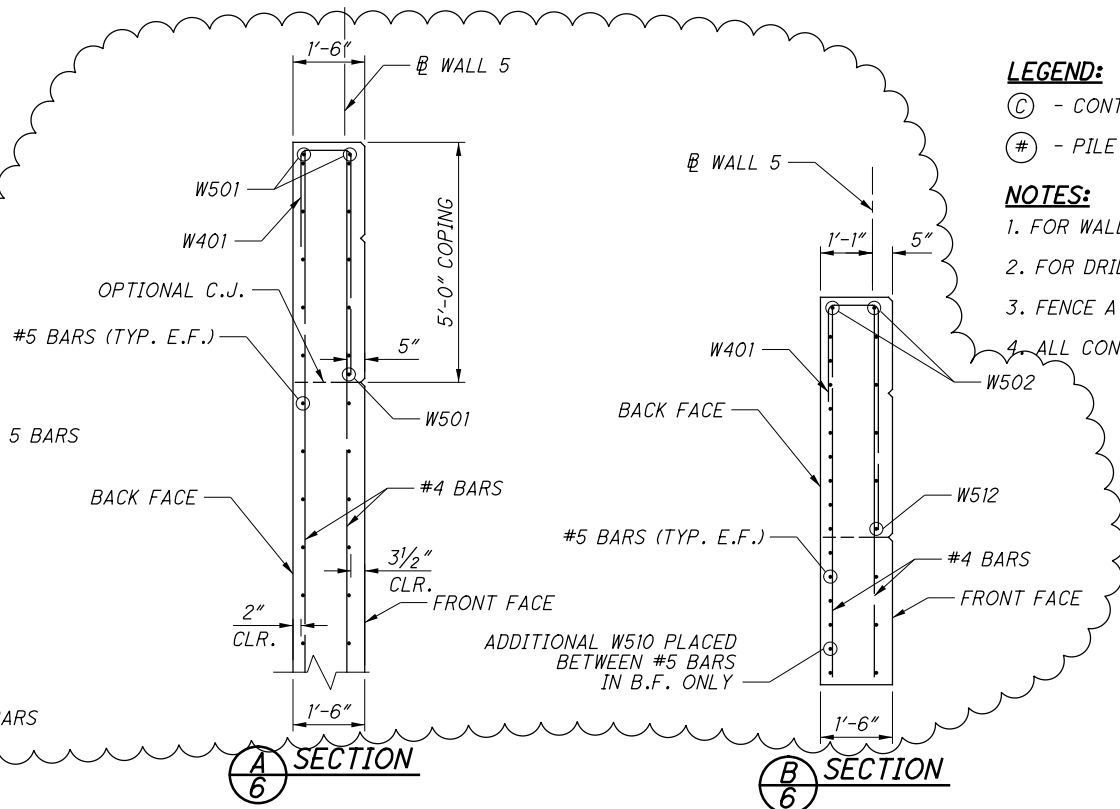
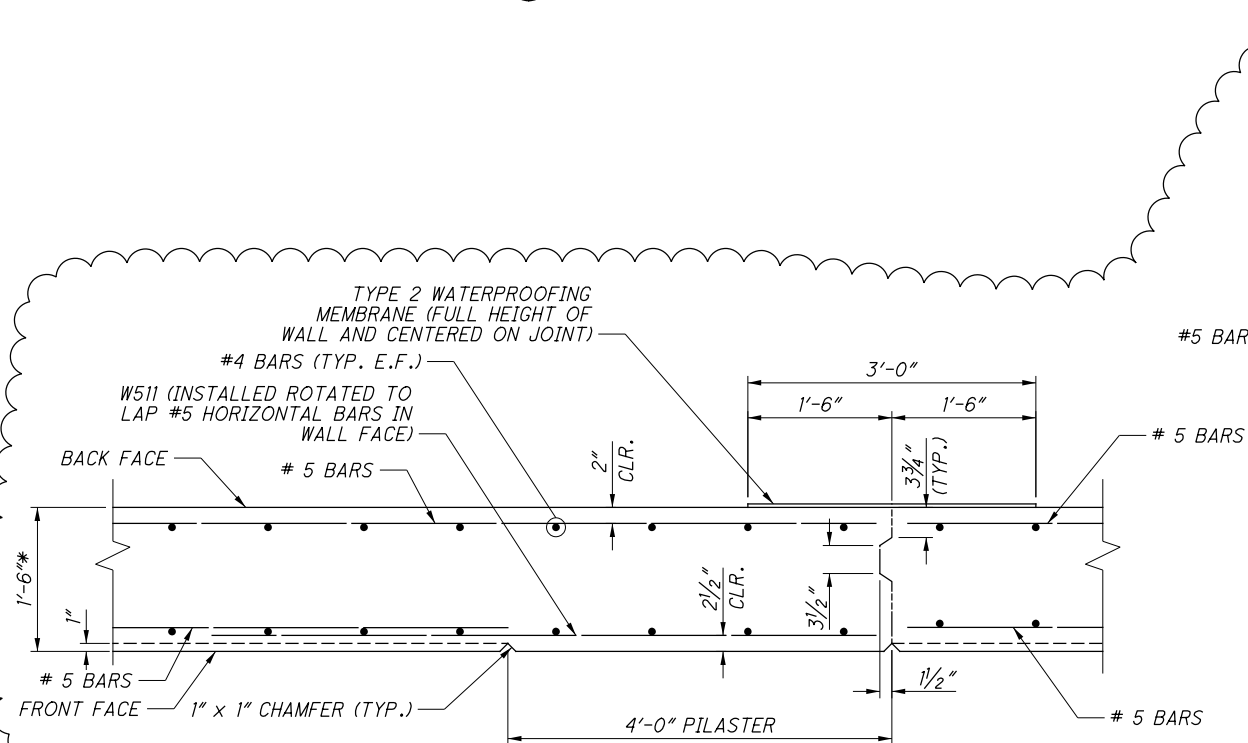
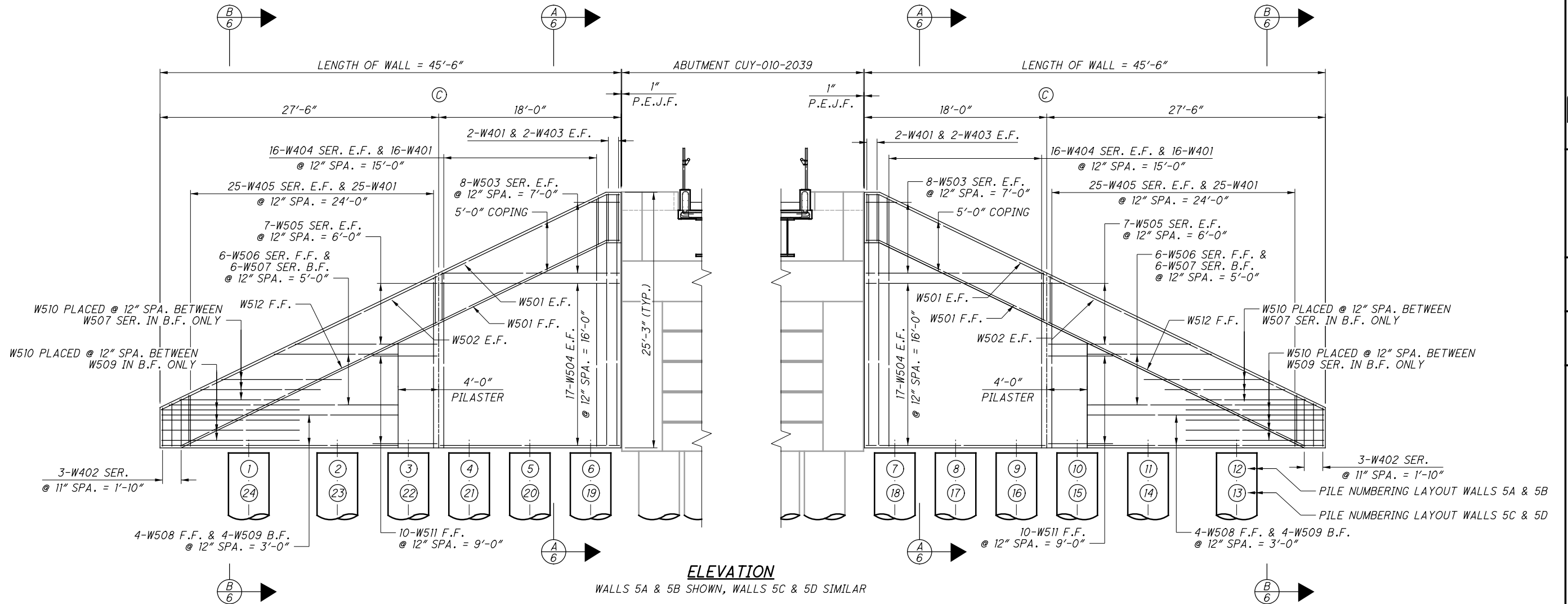
# - PILE NUMBER

NOTES:

- FOR WALL ELEVATION, SEE SHEET [6/10].
- FOR DRILLED SHAFT LOCATION AND ELEVATIONS, SEE SHEET [9/10].
- ALL CONCRETE SHALL BE CLASS QC1 WITH QC/QA.

NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-03-07	RFC
ISSUE RECORD		

BU-23 - WALL 5A, 5B, 5C, & 5D  
10/23/2024 3:17:12 PM Gregory Herliker  
...Wall\_5ABCD\_96833\_05A\_WEO01.dgn



**LEGEND:**

- Ⓢ - CONTRACTION JOINT LOCATION
- # - PILE NUMBER

**NOTES:**

- FOR WALL FOUNDATION PLAN, SEE SHEET 5/10.
- FOR DRILLED SHAFT LOCATION AND ELEVATIONS, SEE SHEET 9/10.
- FENCE AT THE TOP OF THE WALL NOT SHOWN FOR CLARITY.
- ALL CONCRETE SHALL BE QC1 WITH QC/QA.

REQUIRED LAP LENGTHS	
NO. 4 BARS	1'-10" MIN.
NO. 5 BARS	3'-1" MIN.

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1	2024-09-10	RECORD DRAWINGS
0	2019-03-07	RFC
ISSUE RECORD		



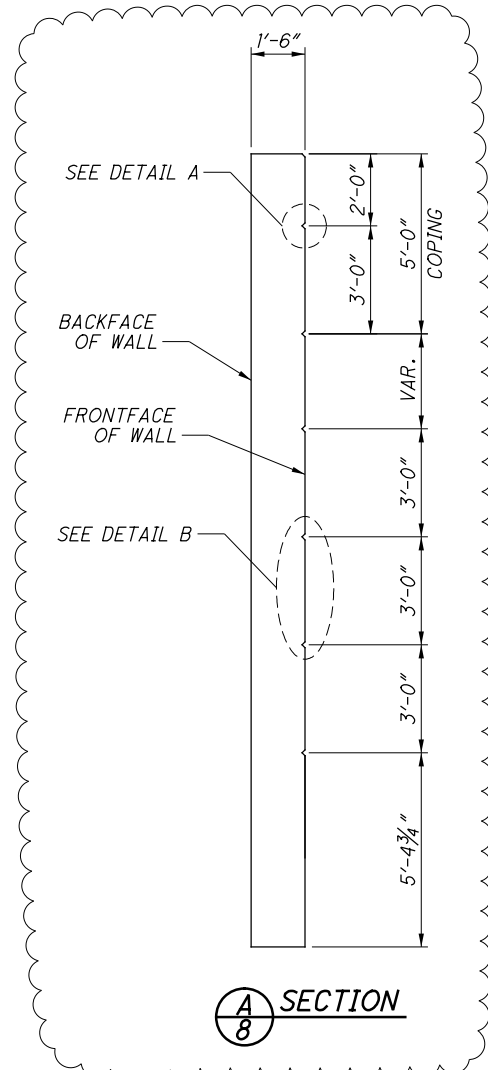


(C) - CONTRACTION JOINT LOCATION

1. MAKE THE FENCE FABRIC CONTINUOUS BETWEEN THE FENCE ON THE WALL AND THE FENCE ON THE BRIDGE ABUTMENT.
2. FOR WALL FOUNDATION PLAN, SEE SHEET 5/10.
3. FOR DRILLED SHAFT LOCATION AND ELEVATIONS, SEE SHEET 9/10.
4. FOR CONTRACTION JOINT DETAILS, SEE SHEET 6/10.



			7 / 10
1	2024-09-10	RECORD DRAWINGS	<div> <div>9</div> <div>12</div> </div>
0	2019-03-07	RFC	
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>	
<b>ISSUE RECORD</b>			



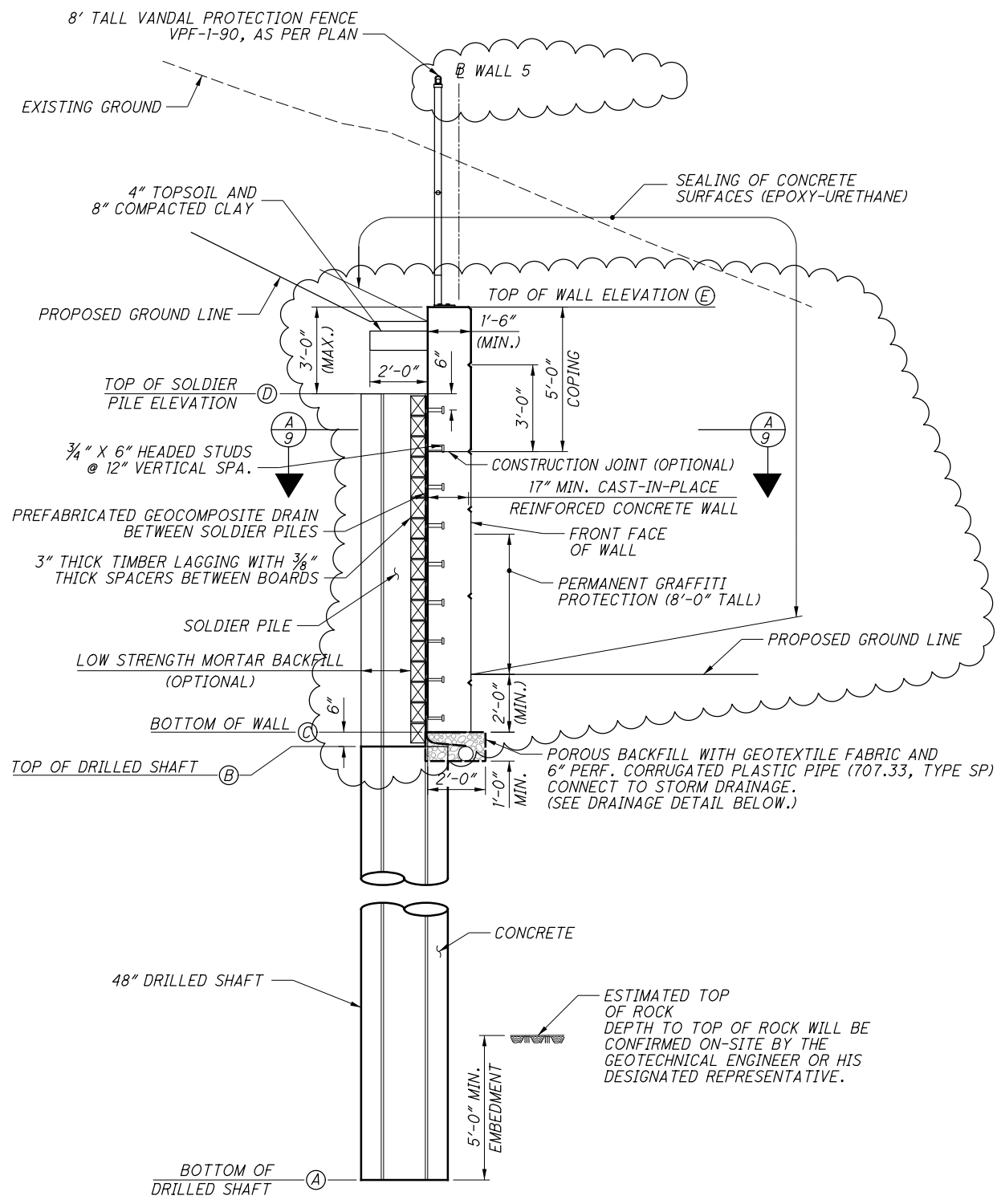
The image contains two technical drawings of a wall coping, labeled **DETAIL A** and **DETAIL B**.

**DETAIL A** is a circular cross-section of the coping. It features a central vertical line representing the front face. On either side of this line, there are horizontal lines indicating a width of 1" at the top and bottom. The entire circular section is enclosed within a dashed oval boundary.

**DETAIL B** is a larger, more detailed cross-section of the coping. It shows a central vertical line representing the front face. On either side of this line, there are horizontal lines indicating a width of 1" at the top and bottom. The entire section is enclosed within a dashed oval boundary. A dimension line on the right side of the drawing indicates a total height of 3'-0".

1	2024-09-10	RECORD DRAWINGS
0	2019-03-07	RFC
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
<b>ISSUE RECORD</b>		

DRILLED SHAFT NUMBER	STATION @ WALL 5C/5D	OFFSET DIM "A" (FEET)	ESTIMATED TOP OF ROCK EL.	BOTTOM OF DRILLED SHAFT EL. (A)	TOP OF DRILLED SHAFT EL. (B)	BOTTOM OF WALL EL. (C)	TOP OF SOLDIER BEAM EL. (D)	TOP OF WALL EL. (E)	EXISTING GROUND EL.	PROPOSED GROUND EL. BEHIND WALL	ESTIMATED LENGTH OF SOLDIER BEAM (FEET)	DRILLED SHAFT SIZE (INCHES)	SOLDIER BEAM SIZE
19	3+24.97	2.68	671	666.00	675.78	676.28	698.00	700.81	698.42	700.31	32.0	48	W40x149
20	3+18.97	2.68	671	666.00	675.78	676.28	695.00	697.91	698.23	697.41	29.0	48	W40x149
21	3+12.97	2.68	671	666.00	675.78	676.28	692.50	695.01	698.06	694.51	26.5	48	W40x149
22	3+06.97	2.31	671	666.00	675.78	676.28	689.50	692.11	697.88	691.61	23.5	48	W30x90
23	2+99.97	2.31	671	666.00	675.78	676.28	686.00	688.73	697.68	688.23	20.0	48	W30x90
24	2+91.22	2.31	671	666.00	675.78	676.28	682.00	684.51	697.43	684.01	16.0	48	W30x90



*PREFABRICATED GEOCOMPOSITE DRAIN EXTENDS INTO POROUS BACKFILL*

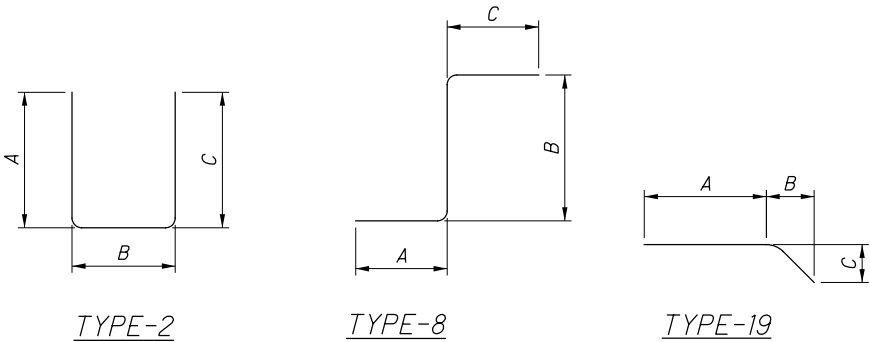
**DRAINAGE DETAIL**

1	2024-09-10	RECORD DRAWINGS
0	2019-03-07	REC

1	2024-09-10	RECORD DRAWINGS
0	2019-03-07	RFC
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
<b>ISSUE RECORD</b>		

MARK	WALL NUMBER					LENGTH	WEIGHT	TYPE	DIMENSIONS						
	5A	5B	5C	5D	TOTAL				A	B	C	D	E	R	INC
WALL 5															
W401	43	43	43	43	172	7'-6"	862	2	2'-0"	1'-0"	4'-8"				
W402	1 SR OF 3	1 SR OF 3	1 SR OF 3	1 SR OF 3	4 SR OF 3	8'-4" TO 10'-2"	74	2	3'-9" TO 4'-8"	1'-0"	3'-9" TO 4'-8"				Incr A = 5 1/2" Incr C = 5 1/2"
W403	4	4	4	4	16	24'-10"	265	STR							
W404	2 SR OF 16	2 SR OF 16	2 SR OF 16	2 SR OF 16	8 SR OF 16	17'-2" TO 24'-4"	1,774	STR							5 3/4"
W405	2 SR OF 25	2 SR OF 25	2 SR OF 25	2 SR OF 25	8 SR OF 25	5'-0" TO 16'-9"	1,453	STR							5 7/8"
W501	3	3	3	3	12	19'-4"	242	19	18'-2"	1'-1"	6"				
W502	2	2	2	2	8	30'-2"	252	STR							
W503	2 SR OF 8	2 SR OF 8	2 SR OF 8	2 SR OF 8	8 SR OF 8	3'-0" TO 17'-6"	684	STR							2'-0 7/8"
W504	34	34	34	34	136	17'-8"	2,506	STR							
W505	2 SR OF 7	2 SR OF 7	2 SR OF 7	2 SR OF 7	8 SR OF 7	1'-7" TO 14'-0"	455	STR							2'-0 7/8"
W506	1 SR OF 6	1 SR OF 6	1 SR OF 6	1 SR OF 6	4 SR OF 6	12'-3" TO 22'-7"	436	STR							2'-0 3/4"
W507	1 SR OF 6	1 SR OF 6	1 SR OF 6	1 SR OF 6	4 SR OF 6	16'-1" TO 26'-5"	532	STR							2'-0 3/4"
W508	4	4	4	4	16	23'-4"	389	STR							
W509	4	4	4	4	16	27'-2"	453	STR							
W510	7	7	7	7	28	13'-7"	397	STR							
W511	10	10	10	10	40	7'-1"	296	8	3'-3"	6"	3'-7"				
W512	1	1	1	1	4	28'-1"	117	STR							
SUBTOTAL							11,187								

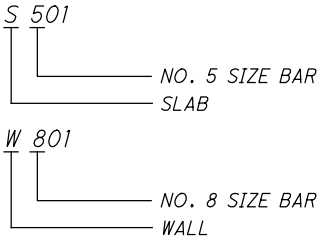
BENDING DIAGRAMS



NOTES:

1. BAR DIMENSIONS ARE OUT TO OUT UNLESS NOTED OTHERWISE.
2. ALL BARS ARE EPOXY COATED.
3. WHEN NO BAR LEG DIMENSIONS ARE SHOWN, IT INDICATES STANDARD BEND.
4. BAR SIZE AND LOCATION ARE INDICATED IN THE BAR MARK. THE FIRST ALPHABETICAL LETTER INDICATES LOCATION. THE NEXT DIGIT OF THE THREE DIGIT SERIES AND THE NEXT TWO DIGITS OF THE FOUR DIGIT SERIES INDICATE BAR SIZE NUMBER.

EXAMPLES:



0	2019-03-07	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

CUY-IR490/SR010-2.09/19.28  
PID No. 96833

10/10

12/12

REINFORCING STEEL LIST  
RETAINING WALL 5A, 5B, 5C, & 5D  
NORFOLK SOUTHERN RAILROAD OVER OH-10

DESIGNED	DATE
LJS	10/10/18
CHECKED	FILE NUMBER
PAN	

DRAWN	REVIEWED
FIB	RER
REVISED	STRUCTURE

DESIGN AGENCY  
E.L. ROBINSON  
ENGINEERING

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www.elrobinsonengineering.com

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