



[illegible]

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

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING:  
VPF-1-90      REVISED 7/17/2015

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

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS", 7TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, INCLUDING THE 2016 INTERIM REVISIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007 (DATED 07-15-16).

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, W24x94  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W24x207  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W36x135  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W40x167  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W40x183  
ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES, W40x199

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 PREFABRICATED GEOCOMPOSITE DRAIN 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, PARAPET, 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).

REGULATED MATERIALS

REFER TO DEMOLITION PLANS IN BUILDABLE UNIT 14 - ROADWAY AND PAVEMENT, BEGIN PROJECT TO KINGSBURY RUN FOR LOCATION AND IDENTIFICATION OF KNOWN REGULATED MATERIALS. HANDLING OF REGULATED MATERIALS SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS.

ITEM 524 - DRILLED SHAFTS, 36" DIAMETER, AS PER PLAN  
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 INSTRUSSION. 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.

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DESIGN AGENCY  
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DATE  
6/5/2019  
REVIEWED  
RER  
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FTB  
DESIGNED  
LJS  
CHECKED  
PAN

FILE NUMBER  
STRUCTURE

GENERAL NOTES (SHEET 1 OF 3)  
RETAINING WALL 2  
ALONG O.C. BOULEVARD AND QUADRANT ROAD

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

1/27

3  
29

RECORD PLANS

ITEM 513 – WELDED STUD SHEAR CONNECTORS

SOLDIER PILES WHICH REQUIRE HEADED STUDS ARE SHOWN IN THE TABLE ON THE TYPICAL SECTION SHEETS FOR EACH WALL. 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.

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 4 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, AS PER PLAN

THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO FABRICATE, GALVANIZE, CLEAN, APPLY A TWO-COAT SHOP PAINT SYSTEM (EPOXY/URETHANE) AND INSTALL THE RAILING. ALL FENCE AND RAILING MATERIALS SHALL BE GALVANIZED AND PAINTED PER THIS NOTE.

A. FABRICATION OF THE RAILING SHALL BE IN ACCORDANCE WITH C&MS 513, UF LEVEL. COATING OF THE RAILING SHALL BE IN ACCORDANCE WITH C&MS 514, EXCEPT AS NOTED BELOW.

B. THE ARCHITECTURAL FENCING SHALL SATISFY THE MINIMUM DESIGN REQUIREMENTS FOR POSTS AND ANCHORAGES AS SPECIFIED IN STANDARD BRIDGE DRAWING VPF-1-90, "VANDAL PROTECTION FENCE".

C. THE FENCING SHALL BE CONSTRUCTED USING WELDED WIRE FABRIC WITH 10.5 GAGE CORE WIRE, GALVANIZED AFTER WELDING.

D. STEEL PLATES AND SHAPES SHALL BE ASTM A709 GRADE 36 OR 50. ALL OTHER MATERIALS SHALL BE IN ACCORDANCE WITH C&MS 707.10 OR 711.09.

E. THE GALVANIZED COATING SYSTEM MAY BE APPLIED BY A GALVANIZER NOT PRE-QUALIFIED AS A FABRICATION SHOP UNDER SUPPLEMENT 1078, BUT THE PRE-QUALIFIED FABRICATOR OF THE STRUCTURAL STEEL SHALL BE RESPONSIBLE FOR THE QUALITY OF THE APPLIED GALVANIZED COATING SYSTEM AND ANY REPAIRS, RE-FABRICATION AND ADDITIONAL ASSEMBLIES REQUIRED TO ASSURE THE FABRICATED STEEL MEETS THE PLAN REQUIREMENTS.

F. THE TWO SHOP COATS SHALL BE APPLIED IN A STRUCTURAL STEEL FABRICATION SHOP HAVING PERMANENT BUILDINGS PER 513.04 AND PREQUALIFIED AT THE UF LEVEL. THE PAINT QUALITY CONTROL SPECIALIST (QCS) SHALL BE QUALIFIED AS SPECIFIED IN 514.04.

G. PRIOR TO GALVANIZING, ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES SHALL HAVE A 1/16-INCH RADIUS OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE.

H. GALVANIZE THE FABRICATED RAILING AND HARDWARE ACCORDING TO C&MS 711.02, EXCEPT THAT FABRICATED RAILING ELEMENTS SHALL NOT BE POST TREATED WITH WATER QUENCHING OR CHROMATE CONVERSION COATED.

I. AFTER GALVANIZATION, REMOVE ZINC HIGH SPOTS SUCH AS METAL DRIP LINE AND OTHERS THAT WOULD DETRACT FROM THE PAINT APPEARANCE BY SSPC SP2 OR SP3. TAKE CARE THAT THE BASE GALVANIZED COATING IS NOT REMOVED. CHECK REPAIRED AREAS FOR REQUIRED COATING THICKNESS.

J. REPAIR GALVANIZED COATINGS DAMAGED IN THE SHOP ACCORDING TO ASTM A780 METHOD A3. REPAIR GALVANIZED COATINGS DAMAGED IN THE FIELD ACCORDING TO ASTM A780 METHOD A1.

K. AFTER REMOVING HIGH SPOTS, CLEAN THE GALVANIZED COATING ACCORDING TO SSPC SP-1. THE CLEANING SOLUTION SHALL BE AN ALKALINE SOLUTION WITH A PH RANGING FROM A MINIMUM OF 11 TO A MAXIMUM OF 12. THIS SOLUTION CAN BE APPLIED BY IMMERSION, SPRAY OR SOFT NYLON BRUSH. FOLLOW CLEANING WITH A HOT WATER OR HOT PRESSURE WASHER RINSE. SEPARATE INDIVIDUAL PIECES AND POSITION TO FACILITATE DRAINAGE AND DRYING. THE PIECES SHALL BE COMPLETELY DRY BEFORE PROCEEDING.

L. AFTER CLEANING, ABRASIVE BLAST THE PIECES ACCORDING TO SSPC-SP7 BRUSH-OFF BLAST CLEANING. THE BLASTING OPERATION SHALL ROUGHEN THE GALVANIZED SURFACE TO AN ANGULAR SURFACE PROFILE OF 0.75 TO 1.00 MILS. SELECT THE BLASTING EQUIPMENT, TECHNIQUE AND ABRASIVE MATERIAL TO PROVIDE FOR THE SPECIFIED SURFACE PROFILE WITHOUT REMOVAL OF EXCESSIVE ZINC LAYERS. THE FINAL ZINC MILLAGE SHALL NOT BE LESS THAN 4.0 MILS. REMOVE ALL ABRASIVE RESIDUE WITH CLEAN COMPRESSED AIR OR OTHER METHODS ACCEPTABLE TO THE DEPARTMENT.

M. AFTER OBTAINING SURFACE PROFILE, SHOP APPLY A TWO COAT PAINT SYSTEM CONSISTING OF EPOXY INTERMEDIATE COAT AND A URETHANE FINISH COAT MEETING THE REQUIREMENTS OF C&MS 708.02. THE FINISH COAT SHALL MATCH FEDERAL COLOR STANDARD FS 595C-17038 BLACK. APPLY THE EPOXY COATING WITHIN 24 HOURS OF THE BRUSH-OFF BLASTING.

N. PRIOR TO FABRICATION OF THE RAILING SYSTEM, FABRICATE A SAMPLE RAILING PANEL OF A LENGTH AGREEABLE TO THE PROJECT ENGINEER WHICH INCLUDES TWO POSTS, ALL HARDWARE, INCIDENTALS AND COATINGS. THE PROJECT ENGINEER WILL USE THIS SAMPLE PANEL TO JUDGE ACCEPTANCE OF THE FABRICATION, COATINGS AND QUALITY CONTROL PROGRAM. AFTER THE REVIEW OF THIS SAMPLE, THE DEPARTMENT AND THE CONTRACTOR MAY AGREE UPON ANY FABRICATION, COATING, QUALITY CONTROL OR INSTALLATION CHANGES AS A MODIFICATION TO THESE NOTES. THE FABRICATION CAN PROCEED ANY TIME AFTER THE ACCEPTANCE OF THIS SAMPLE PANEL. THE SAMPLE PANEL MAY BE INCORPORATED INTO THE FINISHED WORK AT THE DISCRETION OF THE ENGINEER.

O. REPAIR DAMAGE TO THE PAINT SYSTEM CAUSED DURING STORAGE, TRANSPORTATION, ERECTION, ACCORDING TO C&MS 514.22. EXERCISE EXTREME CARE WHILE HANDLING THE STEEL DURING ERECTION, AND DURING SUBSEQUENT CONSTRUCTION OF THE RAILING AND FENCE. INSULATE THE STEEL FROM THE BINDING CHAINS BY SOFTENERS AND PAD ALL HOOKS AND SLINGS THAT ARE USED TO HOIST/ERECT THE MEMBERS.

P. ALL FENCE ANCHORS SHALL BE CAST INTO THE PARAPET. A WASHER AND NUT SHALL BE TACK WELDED TO THE BOTTOM OF THE THREADED ROD TO AVOID THE ANCHORS PULLING LOOSE WHEN THE TEMPLATES FOR THE BASEPLATES ARE STRIPPED. FENCE ANCHORAGE SHALL BE STAINLESS STEEL PER C&MS 730.10.

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.

COARSE AGGREGATE FOR CONCRETE

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1 PERCENT OR GREATER AS DEFINED BY THE AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) C127.

CONCRETE WALL FACING

THE CONCRETE WALL FACING ALONG THE CURVED PORTIONS OF THE WALL ALIGNEMENT SHALL BE FORMED CURVED AND NOT ALONG THE CHORDS BETWEEN SOLDIER PILES.

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GENERAL NOTES (SHEET 2 OF 3)  
RETAINING WALL 2  
ALONG O.C. BOULEVARD AND QUADRANT ROAD

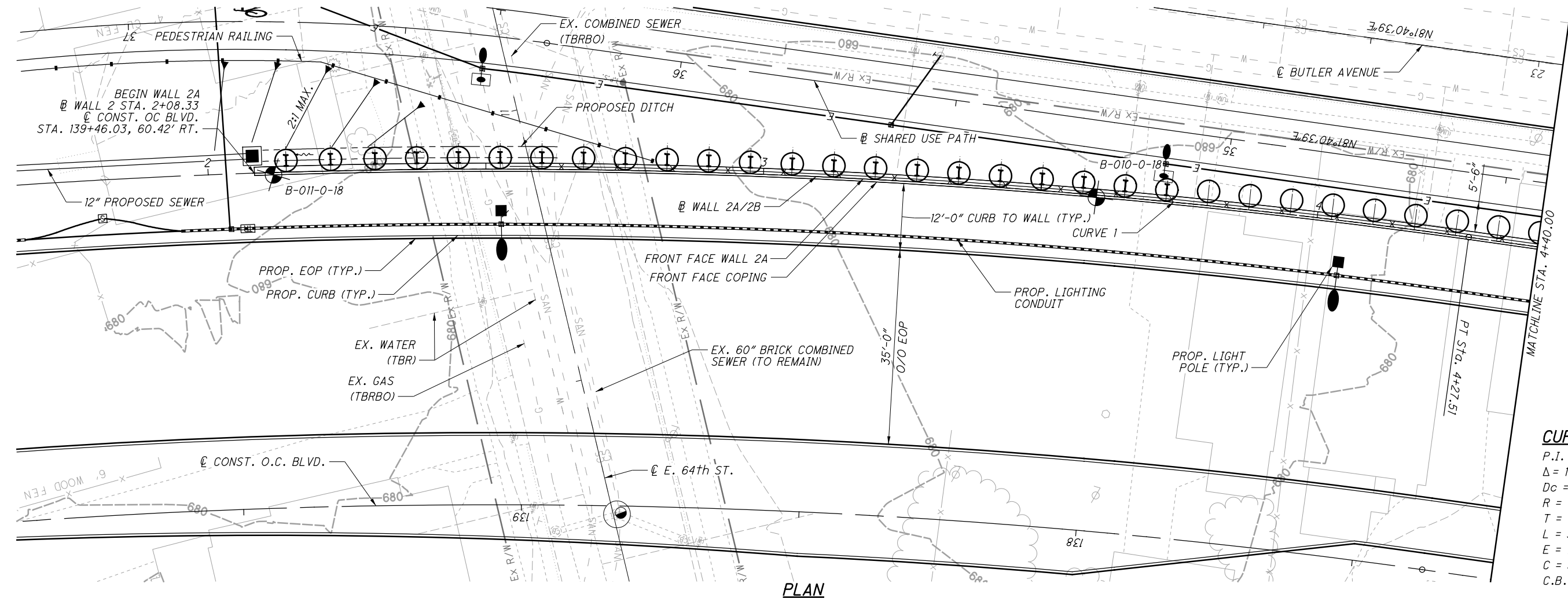
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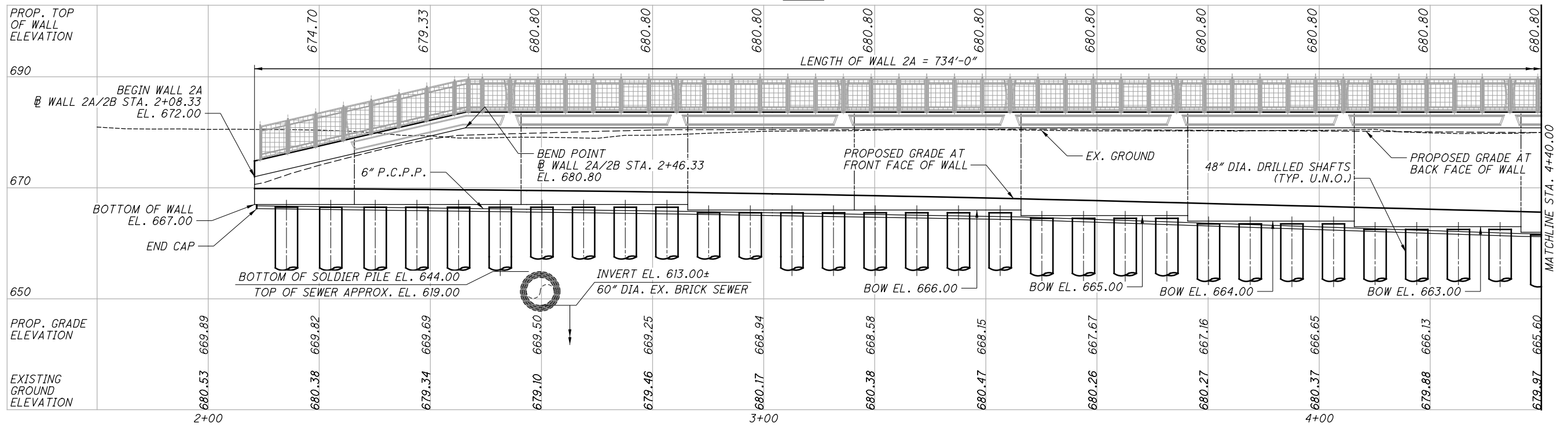
RECORD PLANS





CURVE 1 DATA

P.I. Sta. 2+64.67  
 $\Delta = 14^\circ 48' 53''$  (RT)  
 $DC = 4^\circ 31' 24''$   
 $R = 1,266.64'$   
 $T = 164.67'$   
 $L = 327.51'$   
 $E = 10.66'$   
 $C = 326.60'$   
 $C.B. = S 74^\circ 16' 12'' W$




NOTES

1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS AND THE GRADING PLANS SHOWN IN BU-14.
2. ALL EXISTING UTILITIES TO BE REMOVED OR ABANDONED UNLESS NOTED OTHERWISE.

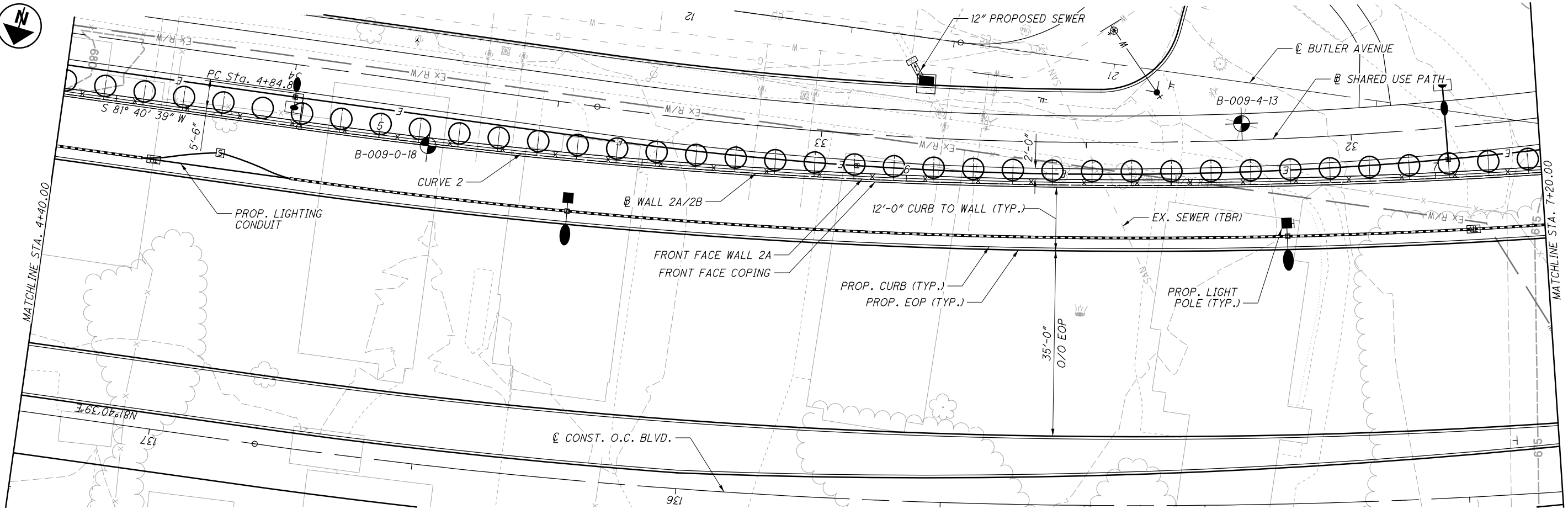
BENCHMARK DATA
BM MN2 STA. 109+55.47 EL. 642.14 OFFSET 87.02' RT. BM MN3 STA. 158+90.59 EL. 668.04 OFFSET 266.47' LT.

LEGEND

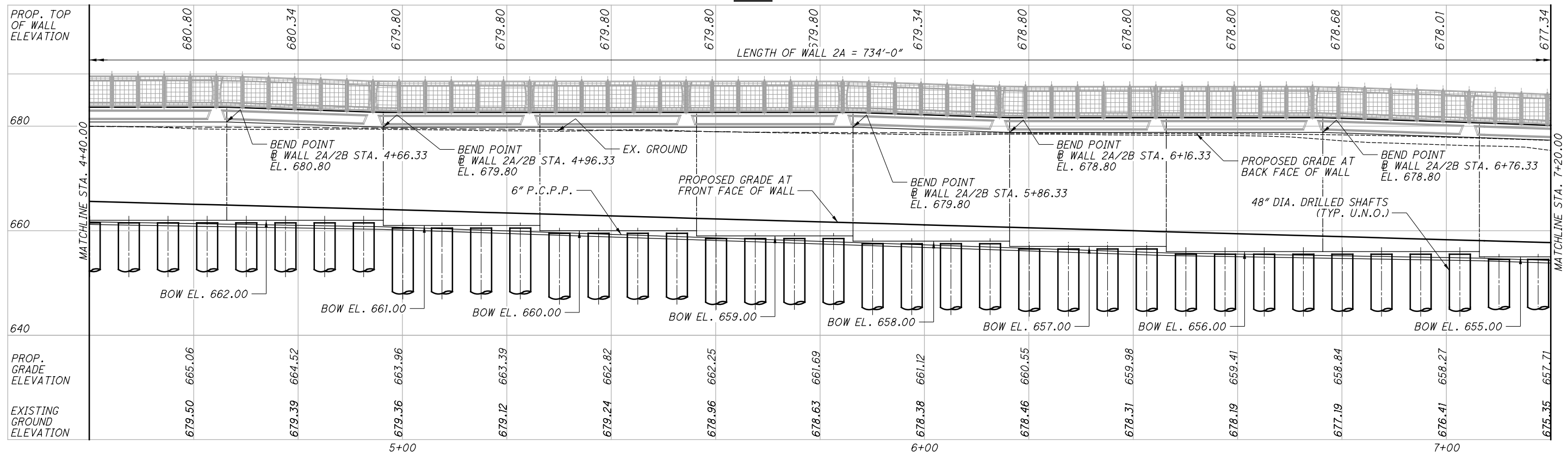
-  BORING LOCATION  
TBRBO - TO BE RELOCATED BY OTHERS  
TBR - TO BE REMOVED  
BOW - BOTTOM OF WALL

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PLAN



ELEVATION ALONG WALL 2A/2B

NOTES

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- ALL EXISTING UTILITIES TO BE REMOVED OR ABANDONED UNLESS NOTED OTHERWISE.

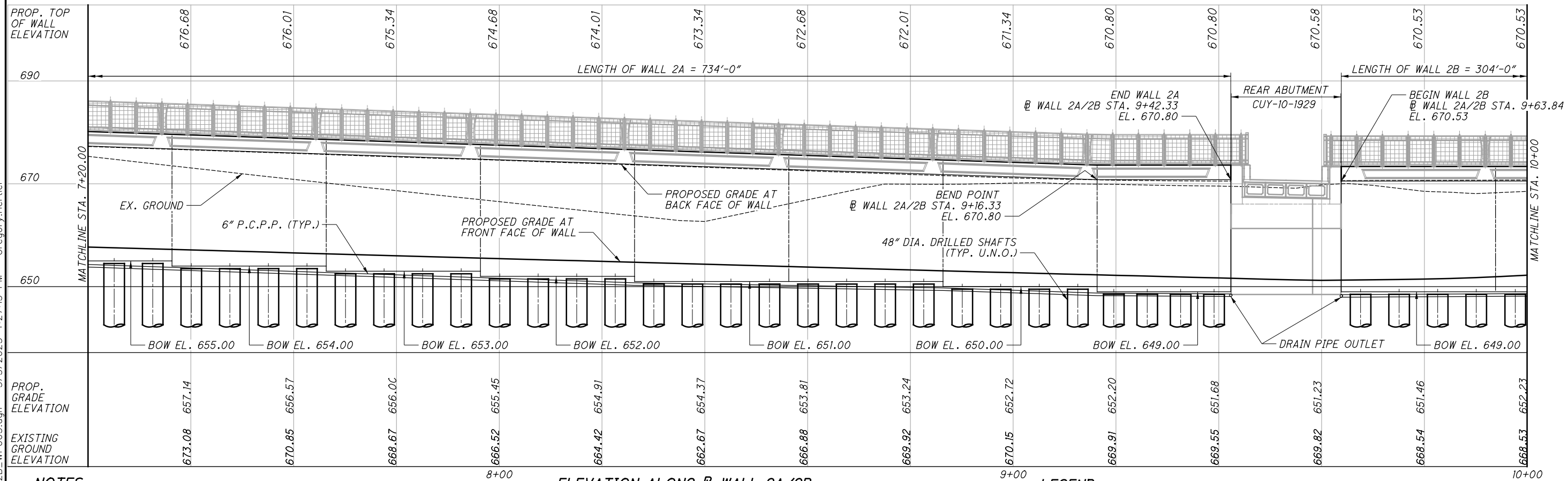
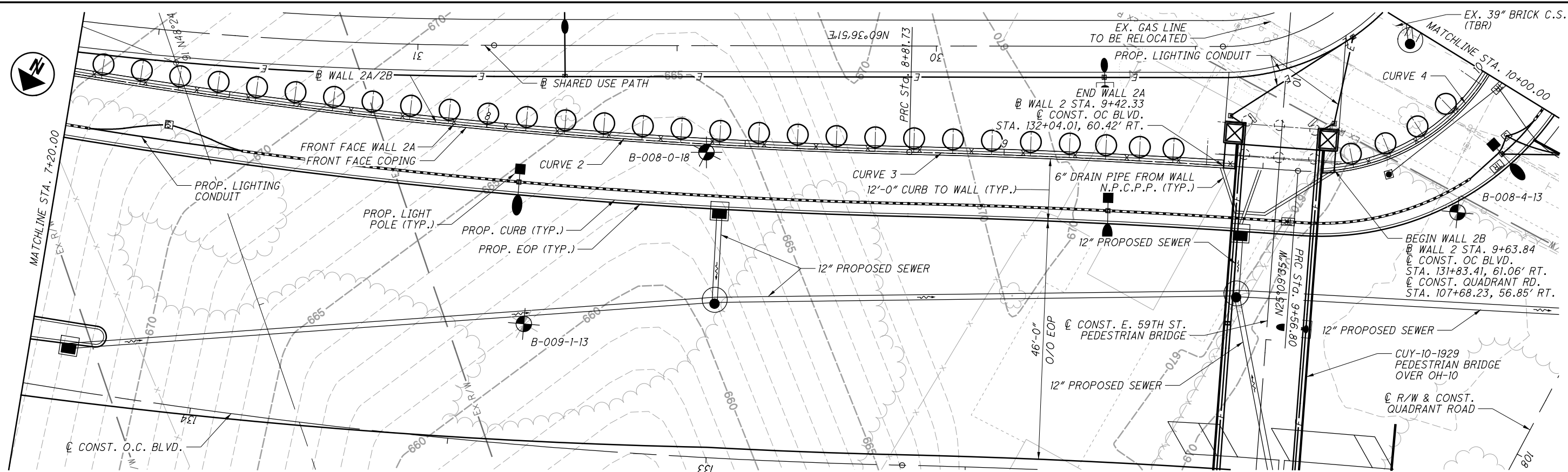
CURVE 2 DATA

P.I. Sta. 6+85.31 L = 396.85'  
 $\Delta = 19^\circ 50' 40''$  (LT) E = 17.40'  
Dc = 5° 00' 02" C = 394.87'  
R = 1,145.81' C.B. = S 71° 45' 19" W  
T = 200.44'

LEGEND

- BORING LOCATION  
TBRBO - TO BE RELOCATED BY OTHERS  
TBR - TO BE REMOVED  
BOW - BOTTOM OF WALL

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## NOTES

- EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS AND THE GRADING PLANS SHOWN IN BU-14.
- ALL EXISTING UTILITIES TO BE REMOVED OR ABANDONED UNLESS NOTED OTHERWISE.

## CURVE 3 DATA

P.I. Sta. 9+19.27 L = 75.07'  
Δ = 2° 52' 52" (RT) E = 0.47'  
Dc = 3° 50' 17" C = 75.06'  
R = 1,492.81' C.B. = S 63° 16' 25" W  
T = 37.54'

## CURVE 4 DATA

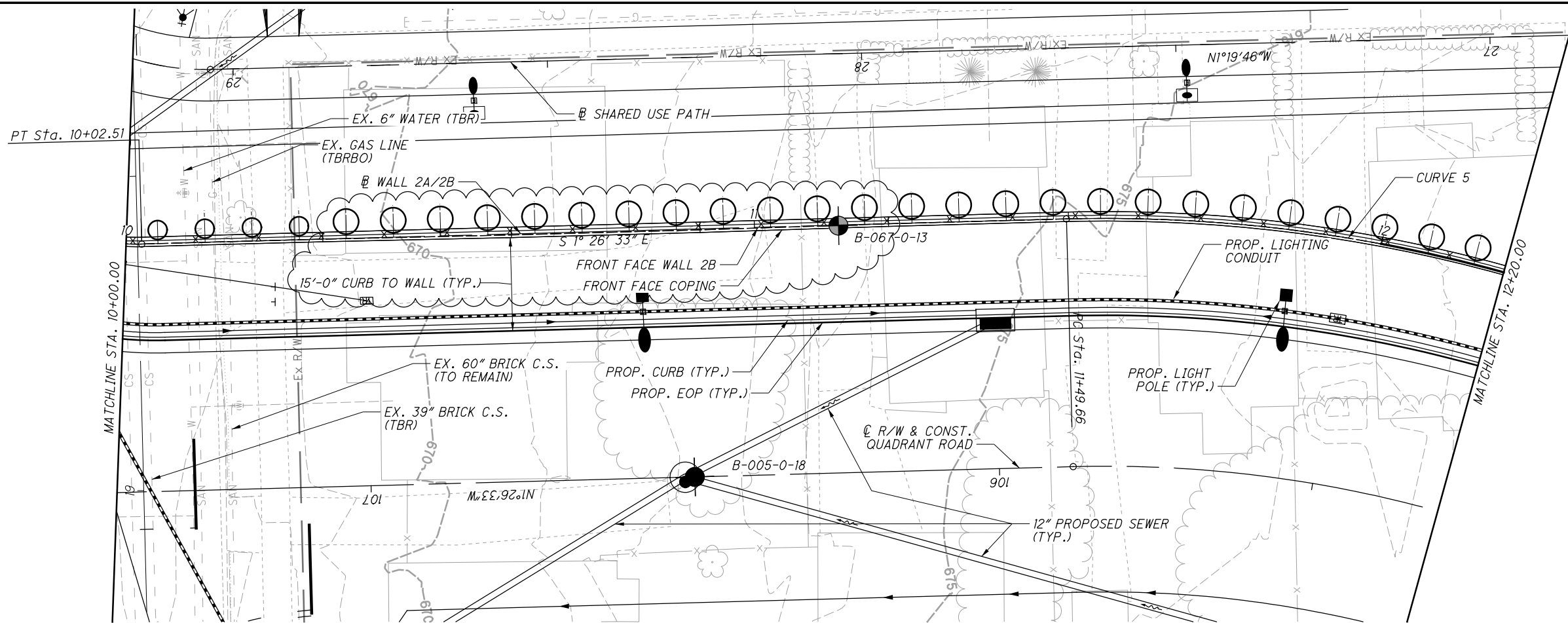
P.I. Sta. 9+82.58 L = 45.70'  
Δ = 66° 09' 23" (LT) E = 7.66'  
Dc = 144° 44' 50" C = 43.21'  
R = 39.58' C.B. = S 31° 38' 09" W  
T = 25.78'

## LEGEND

- BORING LOCATION  
TBR - TO BE REMOVED  
TBR - TO BE REMOVED  
BOW - BOTTOM OF WALL

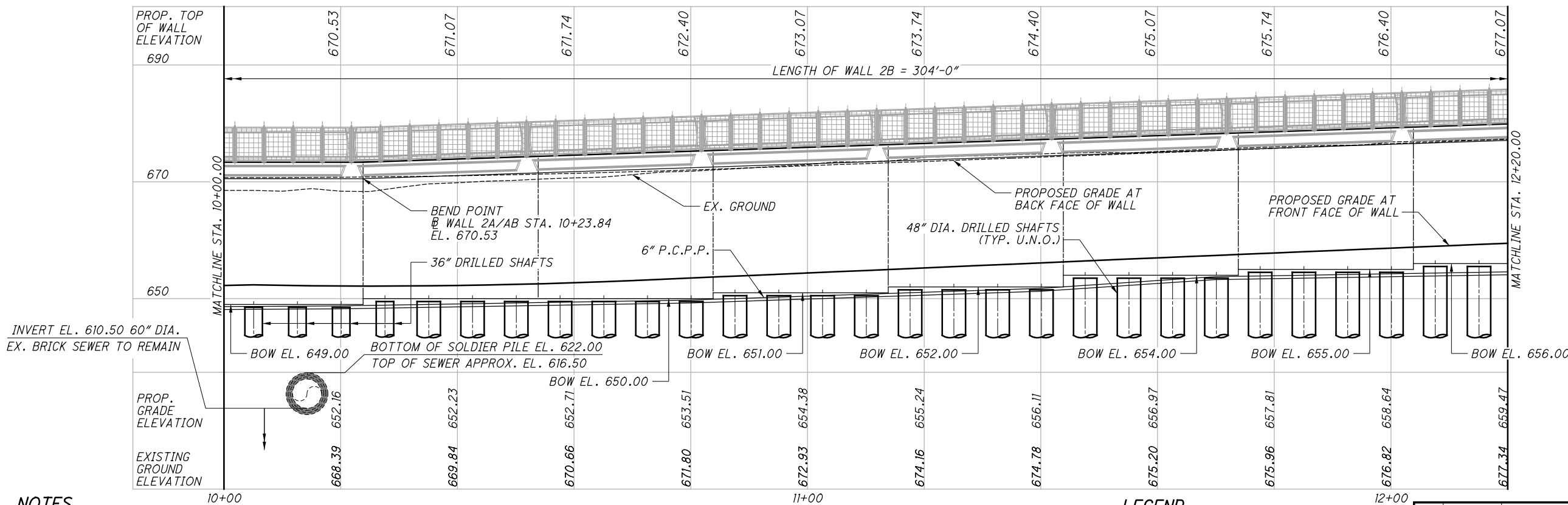
NO.	DATE	DESCRIPTION
0	2019-09-09	RFC
ISSUE RECORD		





**CURVE 5 DATA**  
P.I. Sta. 13+87.57  
 $\Delta = 90^\circ 13' 17''$  (RT)  
 $D_c = 24^\circ 10' 36''$   
 $R = 236.99'$   
 $T = 237.91'$   
 $L = 373.18'$   
 $E = 98.81'$   
 $C = 335.80'$   
C.B. = S  $43^\circ 40' 06''$  W

PLAN



ELEVATION ALONG @ WALL 2A/2B

NOTES

- EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS AND THE GRADING PLANS SHOWN IN BU-14.
- ALL EXISTING UTILITIES TO BE REMOVED OR ABANDONED UNLESS NOTED OTHERWISE.

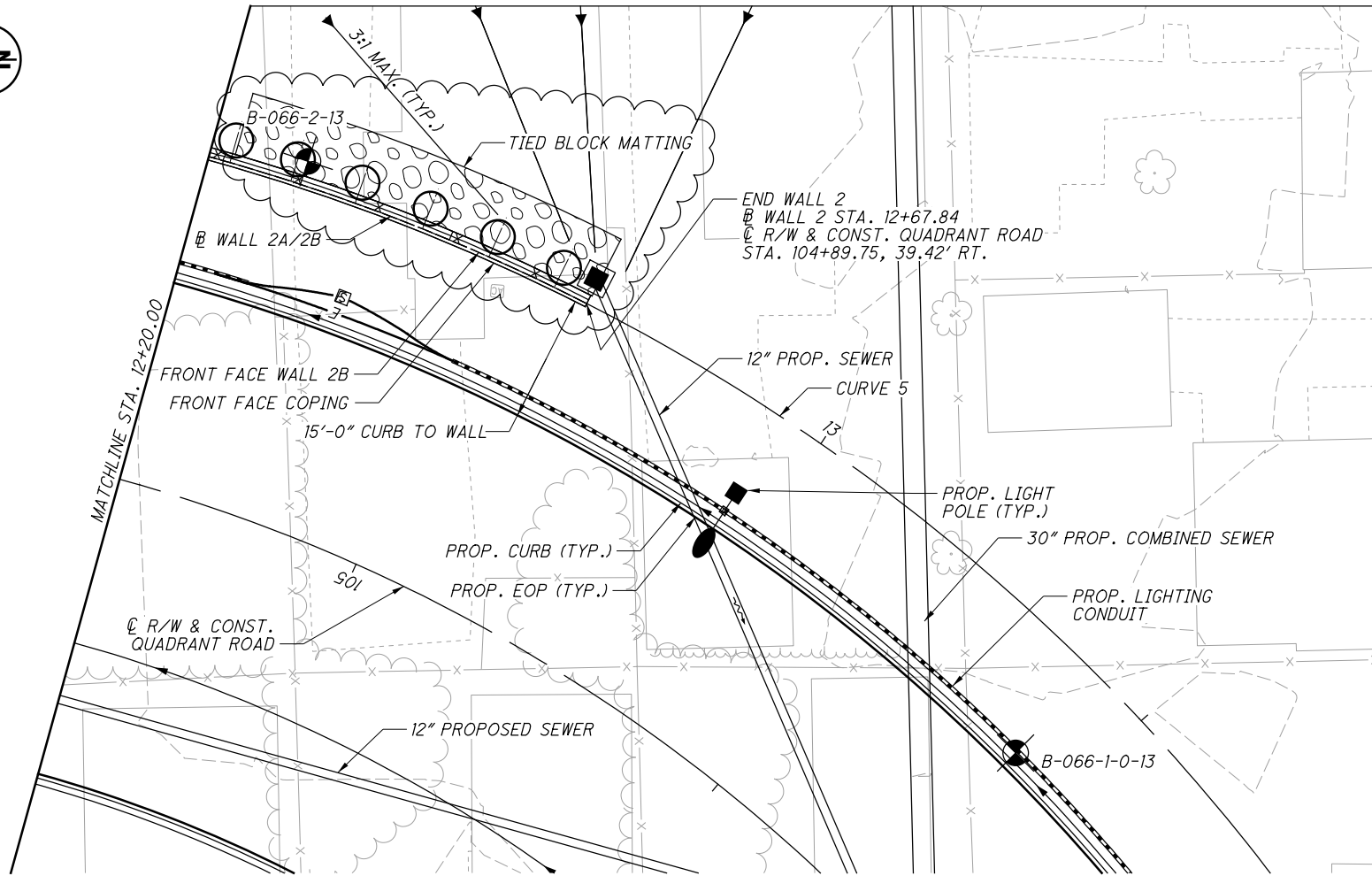
LEGEND

- BORING LOCATION  
TBRBO - TO BE RELOCATED BY OTHERS  
TBR - TO BE REMOVED  
BOW - BOTTOM OF WALL

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

7 / 27

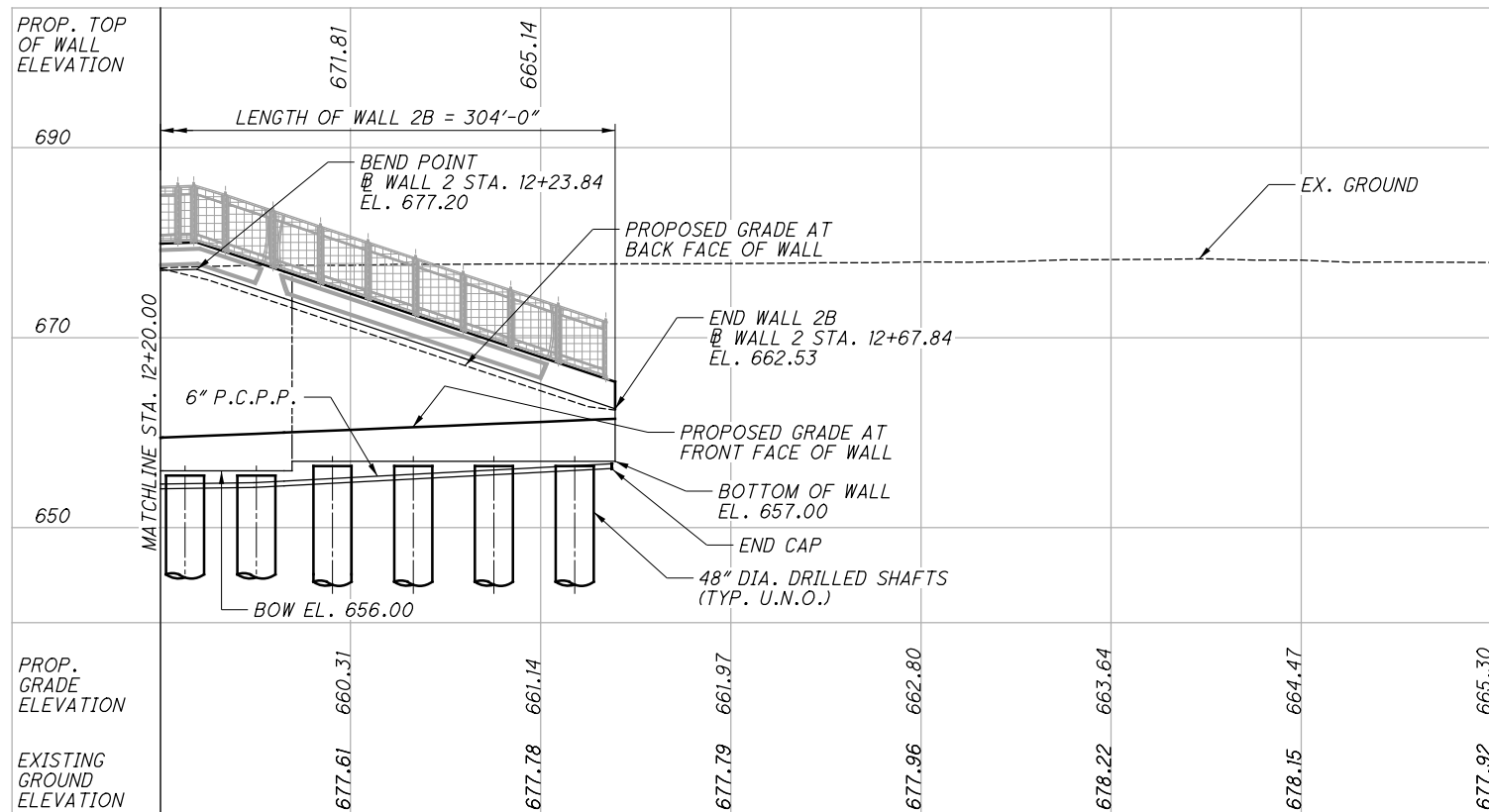
9 / 29



PLAN

**CURVE 5 DATA**

P.I. Sta. 13+87.57  
 $\Delta = 90^\circ 13' 17''$  (RT)  
 $Dc = 24^\circ 10' 36''$   
 $R = 236.99'$   
 $T = 237.91'$   
 $L = 373.18'$   
 $E = 98.81'$   
 $C = 335.80'$   
 $C.B. = S 43^\circ 40' 06'' W$



ELEVATION ALONG  $\emptyset$  WALL 2A/2B

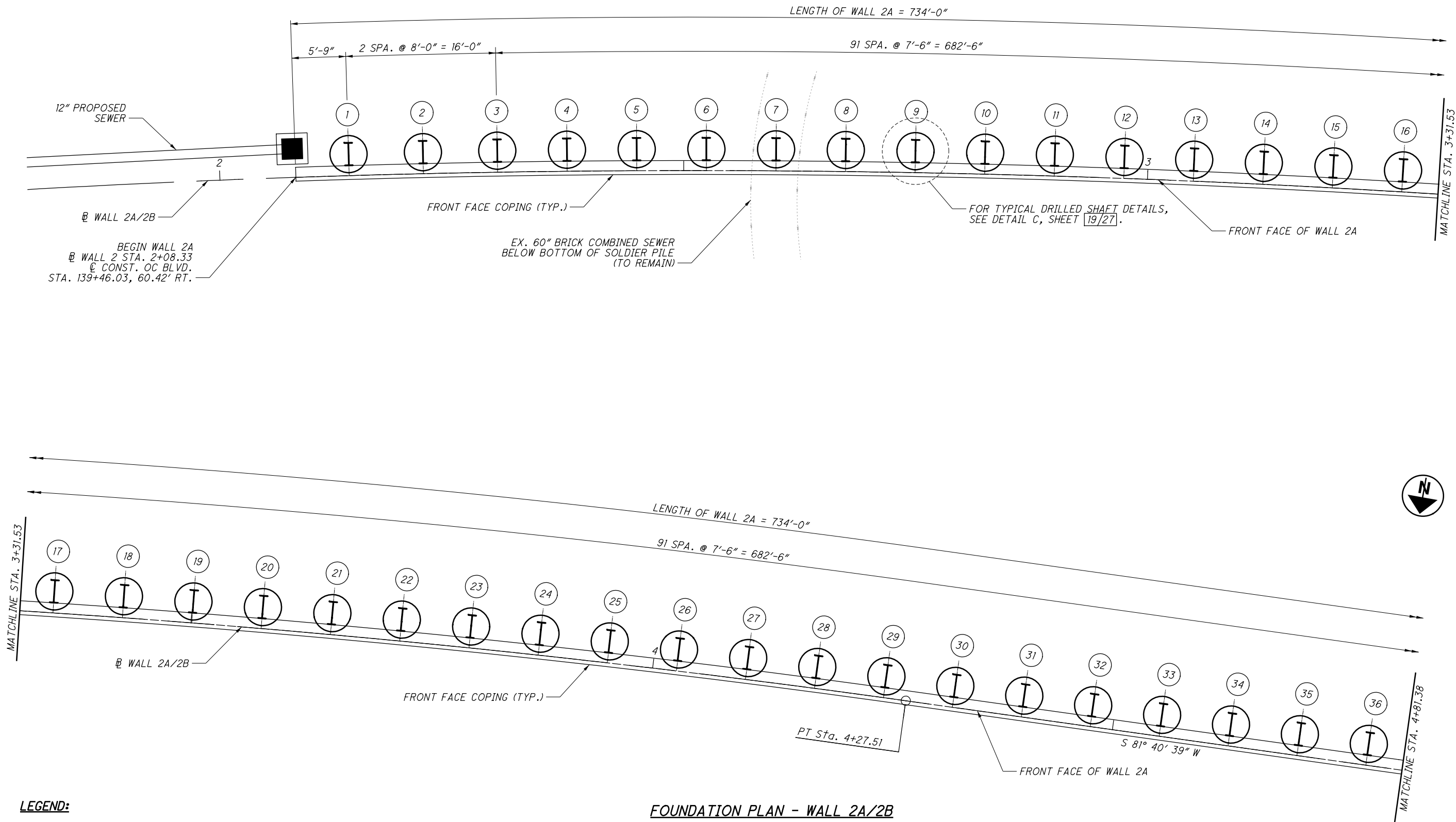
**LEGEND**

- BORING LOCATION
- TBRBO - TO BE RELOCATED BY OTHERS
- TBR - TO BE REMOVED
- BOW - BOTTOM OF WALL

**NOTES**

- EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS AND THE GRADING PLANS SHOWN IN BU-14.
- ALL EXISTING UTILITIES TO BE REMOVED OR ABANDONED UNLESS NOTED OTHERWISE.

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



**LEGEND:**

# - PILE NUMBER

**NOTES:**

1. FOR WALL ELEVATION, SEE SHEETS 15/27 THRU 18/27.
2. FOR DRILLED SHAFT LOCATION, SIZES AND ELEVATIONS, SEE SHEET 14/27.

**FOUNDATION PLAN - WALL 2A/2B**  
(ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL)

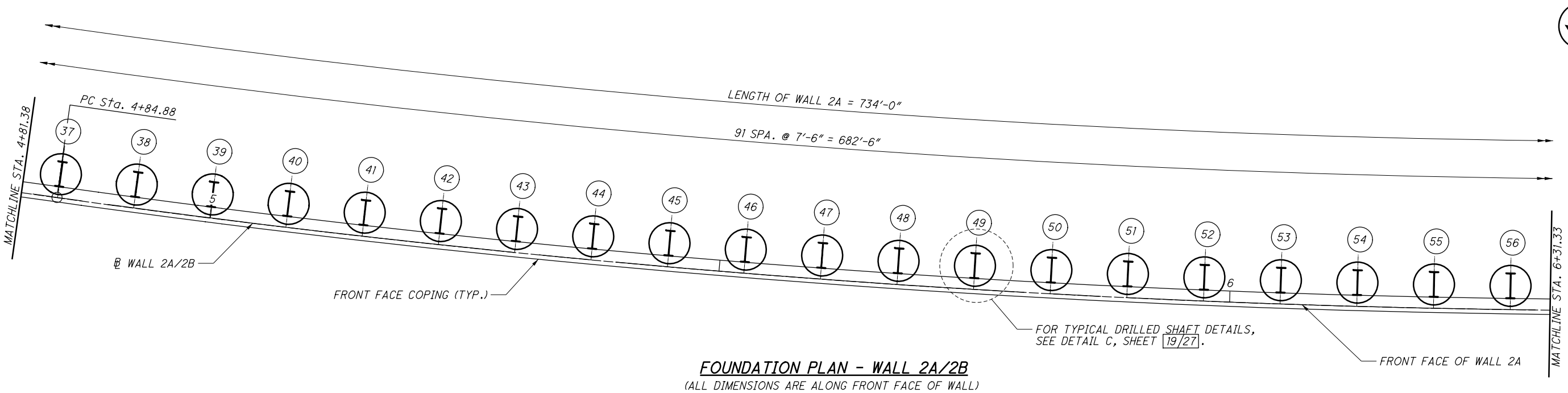
NO.	DATE	DESCRIPTION
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11	2019-09-09	RFC
29	2019-09-09	RFC

LEGEND:

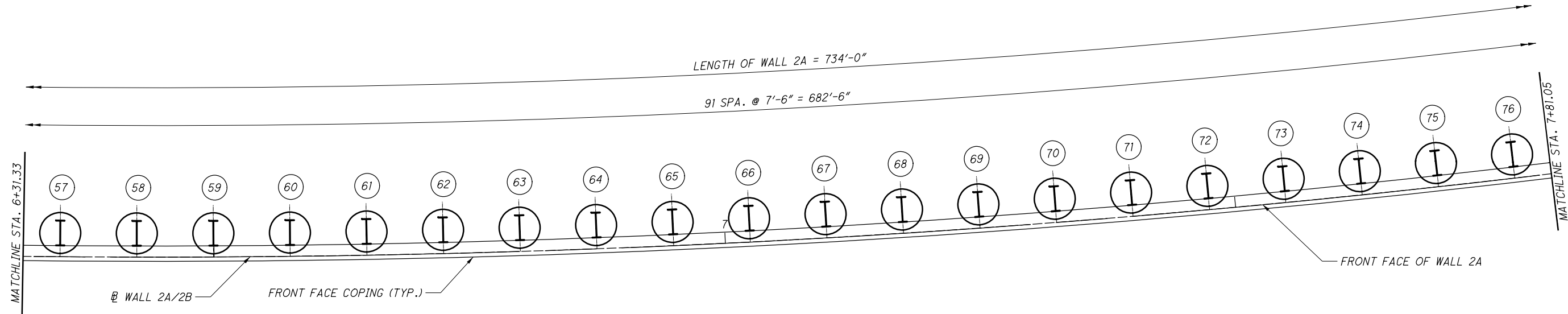
# - PILE NUMBER

NOTES:

1. FOR WALL ELEVATION, SEE SHEETS 15/27 THRU 18/27.  
2. FOR DRILLED SHAFT LOCATION, SIZES AND ELEVATIONS, SEE SHEET 14/27.



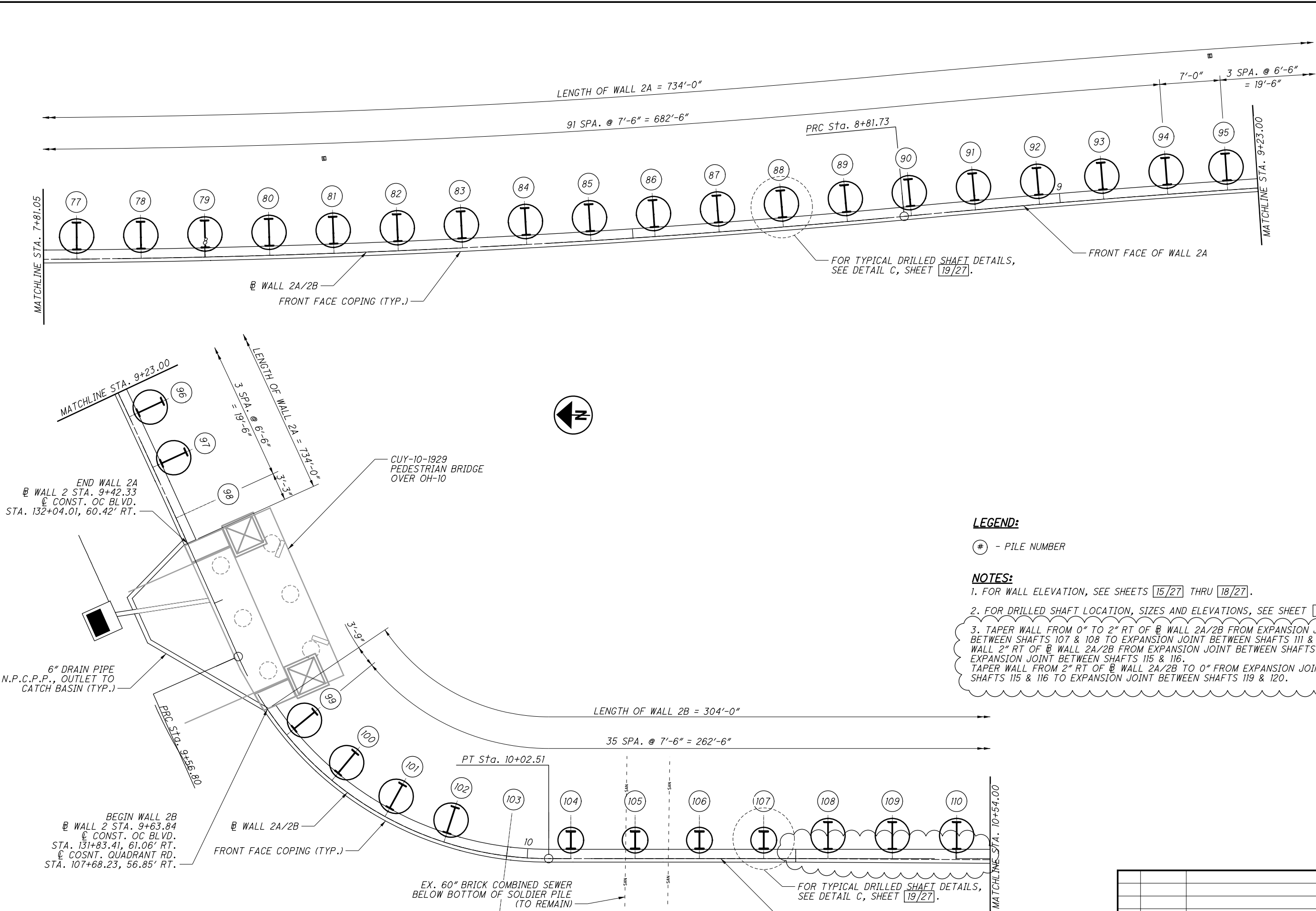
FOUNDATION PLAN - WALL 2A/2B  
(ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL)



FOUNDATION PLAN - WALL 2A/2B  
(ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL)

ISSUE RECORD		
NO.	DATE	DESCRIPTION
0	2019-09-09	RFC

BU-08 - WALL 2A & 2B  
...\\Wall\_2B\\96833\_02B\_WB003.dgn 8/20/2025 4:37:37 PM Gregory.Hertler



**LEGEND:**

# - PILE NUMBER

**NOTES:**

1. FOR WALL ELEVATION, SEE SHEETS 15/27 THRU 18/27.
2. FOR DRILLED SHAFT LOCATION, SIZES AND ELEVATIONS, SEE SHEET 14/27.
3. TAPER WALL FROM 0" TO 2" RT OF B WALL 2A/2B FROM EXPANSION JOINT BETWEEN SHAFTS 107 & 108 TO EXPANSION JOINT BETWEEN SHAFTS 111 & 112. WALL 2" RT OF B WALL 2A/2B FROM EXPANSION JOINT BETWEEN SHAFTS 111 & 112 TO EXPANSION JOINT BETWEEN SHAFTS 115 & 116. TAPER WALL FROM 2" RT OF B WALL 2A/2B TO 0" FROM EXPANSION JOINT BETWEEN SHAFTS 115 & 116 TO EXPANSION JOINT BETWEEN SHAFTS 119 & 120.

**FOUNDATION PLAN - WALL 2A/2B**  
(ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL)

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

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

FOUNDATION PLAN (SHEET 3 OF 4)  
RETAINING WALL 2A/2B  
ALONG O.C. BOULEVARD AND QUADRANT ROAD

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

REVIEWED  
RER  
DATE  
6/5/2019  
STRUCTURE FILE NUMBER

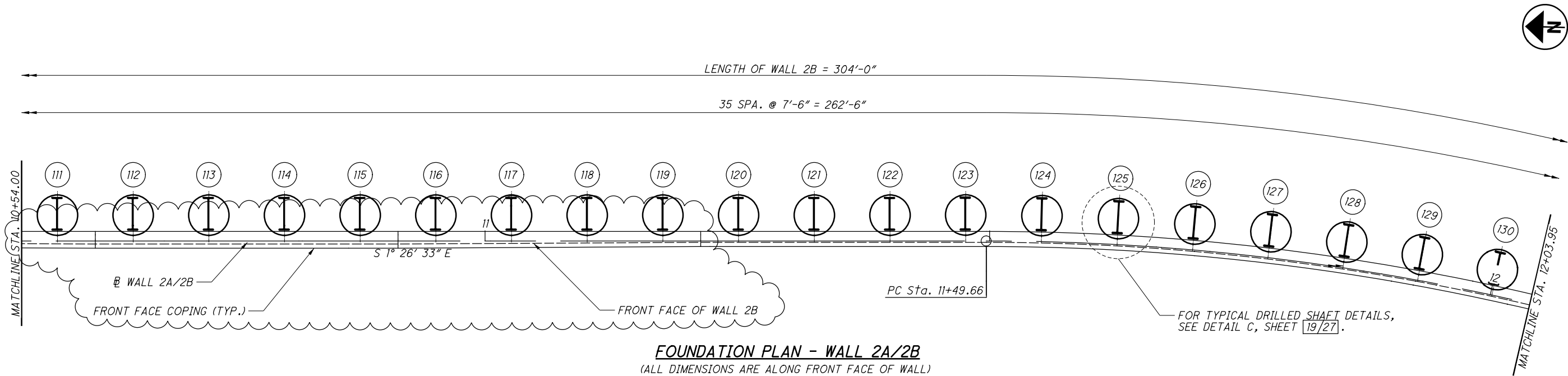
DRAWN  
FIB  
REVISED

DESIGNED  
LJS  
CHECKED  
PAN

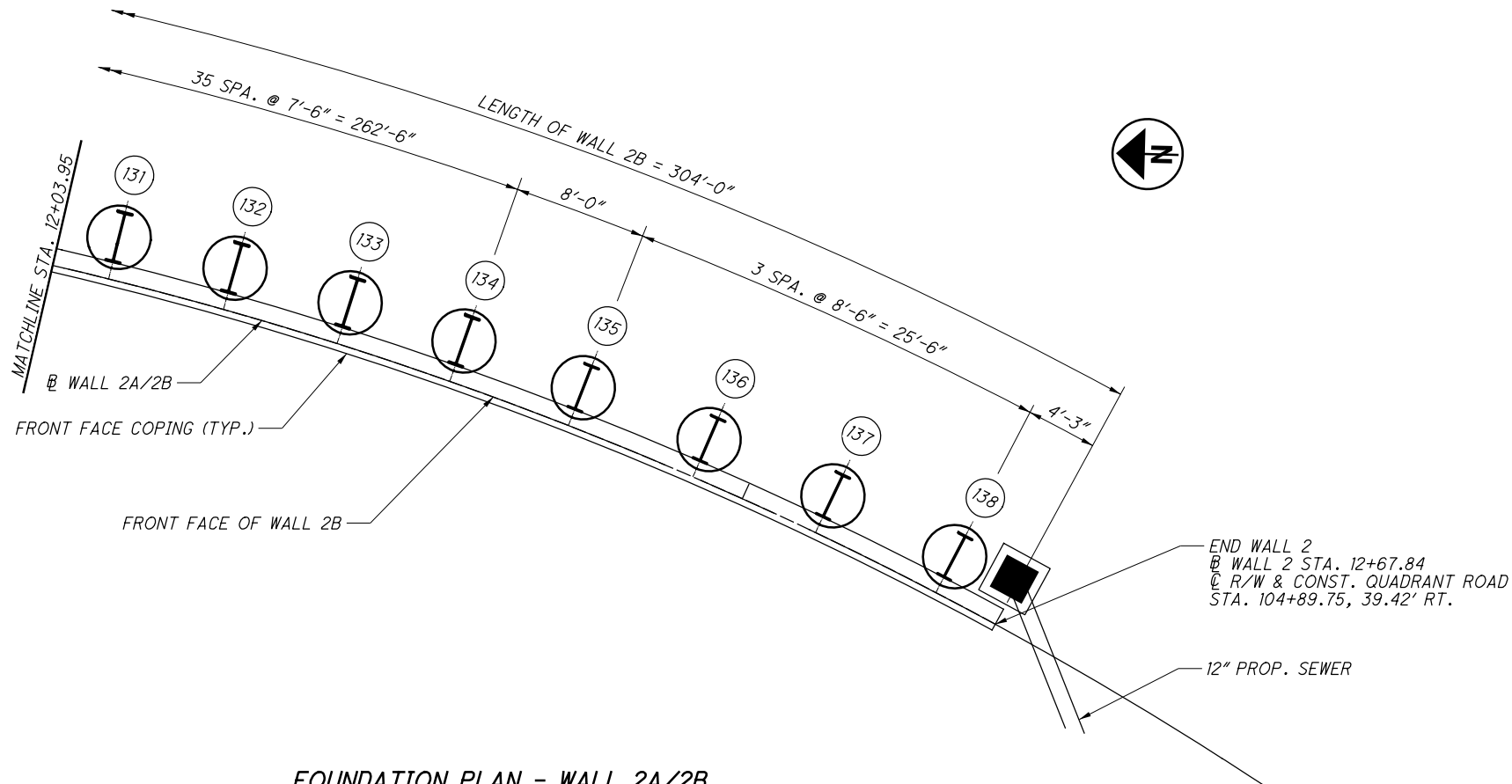
RECORD PLANS

RECORD PLANS

BU-08 - WALL 2A & 2B  
...\\Wall\_2B\\96833\_02B\_WB004.dgn 8/20/2025 4:32:11 PM Gregory.Hertler



**FOUNDATION PLAN - WALL 2A/2B**  
(ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL)



**FOUNDATION PLAN - WALL 2A/2B**  
(ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL)

**LEGEND:**

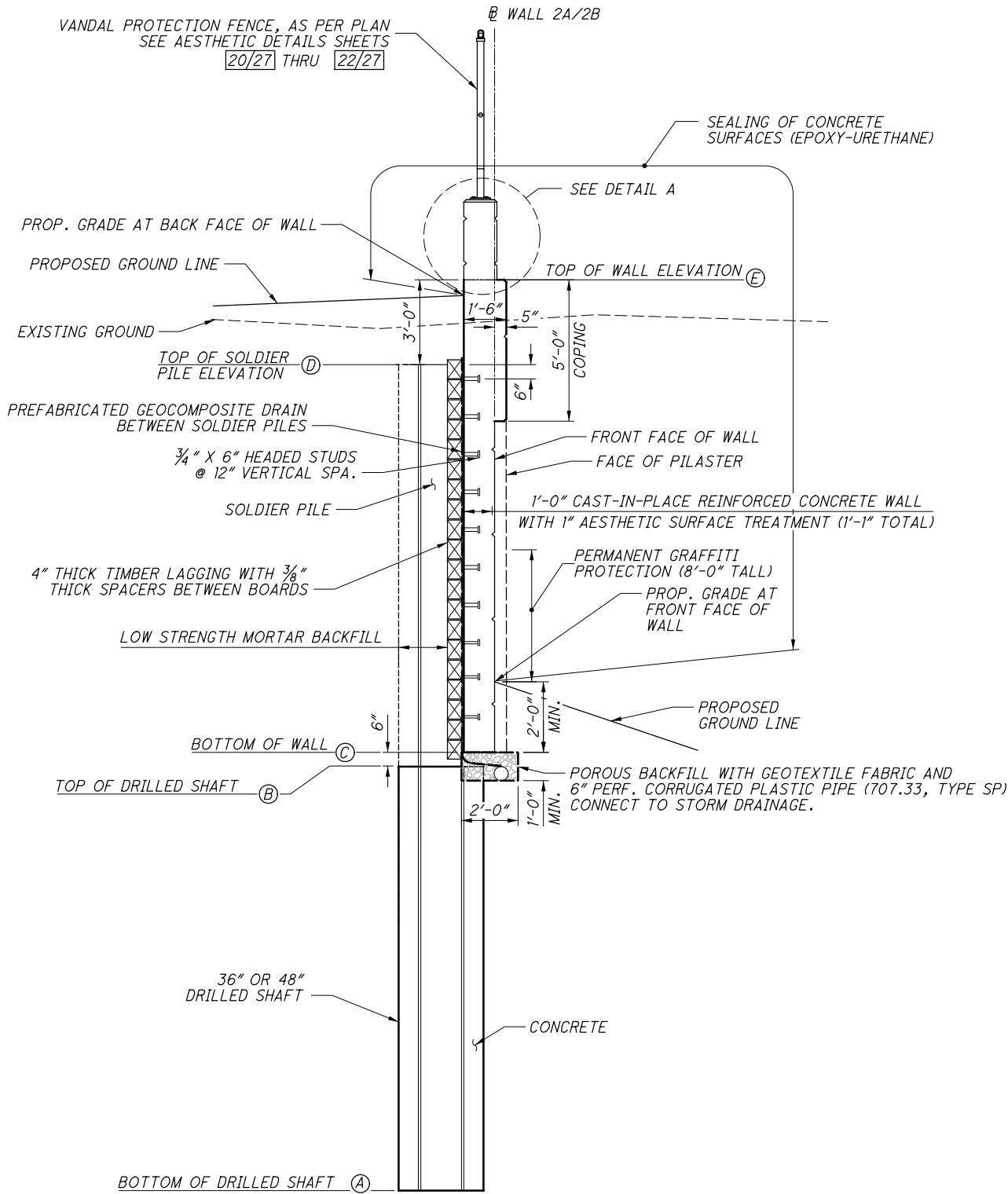
# - PILE NUMBER

**NOTES:**

- FOR WALL ELEVATION, SEE SHEETS 15/27 THRU 18/27.
- FOR DRILLED SHAFT LOCATION, SIZES AND ELEVATIONS, SEE SHEET 14/27.
- TAPER WALL FROM 0" TO 2" RT OF WALL 2A/2B FROM EXPANSION JOINT BETWEEN SHAFTS 107 & 108 TO EXPANSION JOINT BETWEEN SHAFTS 111 & 112. WALL 2" RT OF WALL 2A/2B FROM EXPANSION JOINT BETWEEN SHAFTS 111 & 112 TO EXPANSION JOINT BETWEEN SHAFTS 115 & 116. TAPER WALL FROM 2" RT OF WALL 2A/2B TO 0" FROM EXPANSION JOINT BETWEEN SHAFTS 115 & 116 TO EXPANSION JOINT BETWEEN SHAFTS 119 & 120.

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

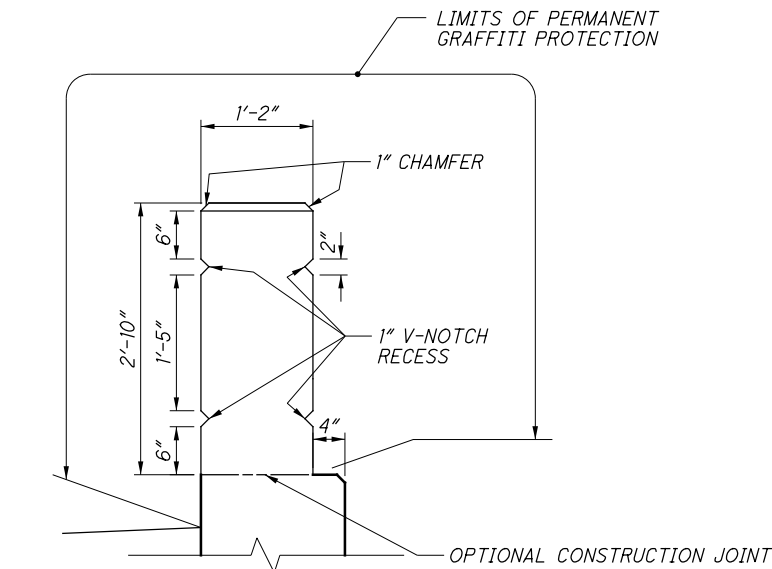




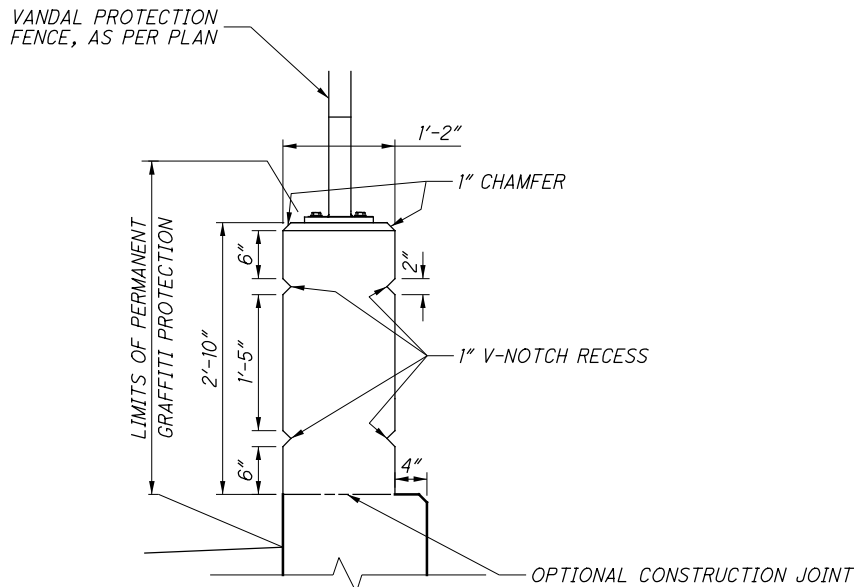
**SOLDIER PILE RETAINING WALL 2A & 2B TYPICAL SECTION**  
(REINFORCING STEEL NOT SHOWN FOR CLARITY)

**NOTES:**

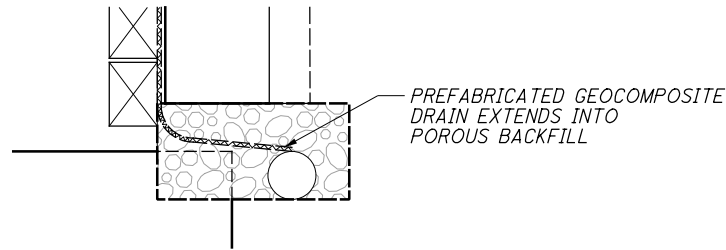
1. THE PLAN CONCRETE WALL THICKNESS IS 12 INCHES. THESE ARE THE MINIMUM REQUIRED DIMENSIONS. HOWEVER, DUE TO MISALIGNMENT OF SOLDIER PILES, THE CONTRACTOR SHALL PROVIDE ADDITIONAL THICKNESSES AT NO ADDITIONAL COST TO THE DEPARTMENT.
2. FOR MORE DETAILS ABOUT THE WOOD LAGGING, SHEAR STUD SPACING, AND THE PREFABRICATED GEOCOMPOSITE DRAIN, SEE DETAIL C ON SHEET 19/27.
3. FOR ELEVATIONS "A" THRU "E", AND DRILLED SHAFT LOCATIONS AND INFORMATION, SEE SHEET 14/27.



**DETAIL A**  
TYPICAL BETWEEN BEGIN WALL 2A & STA. 2+54.35  
(REINFORCING STEEL NOT SHOWN FOR CLARITY)



**DETAIL A**  
TYPICAL BETWEEN STA. 2+54.35 & END WALL 2B  
(REINFORCING STEEL NOT SHOWN FOR CLARITY)



**DRAINAGE DETAIL**

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

DRILLED SHAFT LOCATIONS AND ELEVATIONS - WALL 2A/2B												
DRILLED SHAFT NUMBER	STATION @ WALL 2A/2B	DRILL SHAFT SIZE (IN)	OFFSET DIM "A" (FEET)	BOTTOM OF DRILLED SHAFT EL. ④	TOP OF DRILLED SHAFT EL. ⑤	BOTTOM OF WALL EL. ③	TOP OF SOLDIER BEAM EL. ①	TOP OF WALL EL. ②	EXISTING GROUND EL.	PROPOSED GROUND EL. BEHIND WALL	ORDER LENGTH OF SOLDIER BEAM (FEET)	SOLDIER BEAM SIZE
1	2+14.08	48	2.09	644.00	666.50	667.00	670.33	673.33	680.47	672.29	27.0	W24x94
2	2+22.08	48	2.09	644.00	666.50	667.00	672.18	675.18	680.31	674.60	29.0	W24x94
3	2+30.08	48	2.09	644.00	666.50	667.00	674.04	677.04	679.91	676.64	31.0	W24x94
4	2+37.58	48	2.09	644.00	666.50	667.00	675.77	678.77	679.39	678.30	32.0	W24x94
5	2+45.08	48	2.09	644.00	666.50	667.00	677.51	680.51	678.97	679.45	34.0	W24x94
6	2+52.58	48	2.09	644.00	666.50	667.00	677.80	680.80	679.04	679.67	34.0	W24x94
7	2+60.08	48	2.09	644.00	666.50	667.00	677.80	680.80	679.10	679.88	34.0	W24x94
8	2+67.58	48	2.09	644.00	666.50	667.00	677.80	680.80	678.97	680.09	34.0	W24x94
9	2+75.08	48	2.09	644.00	666.50	667.00	677.80	680.80	679.43	680.29	34.0	W24x94
10	2+82.58	48	2.09	644.00	666.50	667.00	677.80	680.80	679.53	680.44	34.0	W24x94
11	2+90.08	48	2.09	643.00	665.50	666.00	677.80	680.80	679.84	680.48	35.0	W24x94
12	2+97.58	48	2.09	643.00	665.50	666.00	677.80	680.80	680.09	680.48	35.0	W24x94
13	3+05.08	48	2.09	643.00	665.50	666.00	677.80	680.80	680.22	680.49	35.0	W24x94
14	3+12.58	48	2.09	643.00	665.50	666.00	677.80	680.80	680.26	680.50	35.0	W24x94
15	3+20.08	48	2.09	643.00	665.50	666.00	677.80	680.80	680.38	680.51	35.0	W24x94
16	3+27.58	48	2.09	643.00	665.50	666.00	677.80	680.80	680.50	680.52	35.0	W24x94
17	3+35.08	48	2.09	643.00	665.50	666.00	677.80	680.80	680.53	680.53	35.0	W24x94
18	3+42.58	48	2.09	643.00	665.50	666.00	677.80	680.80	680.44	680.54	35.0	W24x94
19	3+50.08	48	2.09	642.00	664.50	665.00	677.80	680.80	680.35	680.55	36.0	W24x94
20	3+57.58	48	2.09	642.00	664.50	665.00	677.80	680.80	680.28	680.52	36.0	W24x94
21	3+65.08	48	2.09	642.00	664.50	665.00	677.80	680.80	680.25	680.46	36.0	W24x94
22	3+72.58	48	2.09	642.00	664.50	665.00	677.80	680.80	680.24	680.41	36.0	W24x94
23	3+80.08	48	2.57	634.00	663.50	664.00	677.80	680.80	680.27	680.35	44.0	W36x135
24	3+87.58	48	2.57	634.00	663.50	664.00	677.80	680.80	680.26	680.30	44.0	W36x135
25	3+95.08	48	2.57	634.00	663.50	664.00	677.80	680.80	680.35	680.25	44.0	W36x135
26	4+02.58	48	2.57	634.00	663.50	664.00	677.80	680.80	680.39	680.20	44.0	W36x135
27	4+10.08	48	2.57	633.00	662.50	663.00	677.80	680.80	680.51	680.14	45.0	W36x135
28	4+17.58	48	2.57	633.00	662.50	663.00	677.80	680.80	679.97	680.09	45.0	W36x135
29	4+25.08	48	2.57	633.00	662.50	663.00	677.80	680.80	679.78	680.04	45.0	W36x135
30	4+32.58	48	2.57	633.00	662.50	663.00	677.80	680.80	679.81	680.00	45.0	W36x135
31	4+40.08	48	2.57	632.00	661.50	662.00	677.80	680.80	679.97	679.95	46.0	W36x135
32	4+47.58	48	2.57	632.00	661.50	662.00	677.80	680.80	679.91	679.90	46.0	W36x135
33	4+55.08	48	2.57	632.00	661.50	662.00	677.80	680.80	679.72	679.85	46.0	W36x135
34	4+62.58	48	2.57	632.00	661.50	662.00	677.80	680.80	679.46	679.82	46.0	W36x135
35	4+70.08	48	2.57	632.00	661.50	662.00	677.68	680.68	679.39	679.78	46.0	W36x135
36	4+77.58	48	2.57	632.00	661.50	662.00	677.43	680.43	679.39	679.75	46.0	W36x135
37	4+85.08	48	2.57	632.00	661.50	662.00	677.18	680.18	679.41	679.70	46.0	W36x135
38	4+92.58	48	2.57	632.00	661.50	662.00	676.93	679.93	679.43	679.64	45.0	W36x135
39	5+00.08	48	2.57	631.00	660.50	661.00	676.80	679.80	679.36	679.58	46.0	W36x135
40	5+07.58	48	2.57	631.00	660.50	661.00	676.80	679.80	679.29	679.52	46.0	W36x135
41	5+15.08	48	2.57	631.00	660.50	661.00	676.80	679.80	679.17	679.46	46.0	W36x135
42	5+22.58	48	2.57	631.00	660.50	661.00	676.80	679.80	679.10	679.39	46.0	W36x135
43	5+30.08	48	2.69	628.00	659.50	660.00	676.80	679.80	679.03	679.33	49.0	W40x167
44	5+37.58	48	2.69	628.00	659.50	660.00	676.80	679.80	679.18	679.24	49.0	W40x167
45	5+45.08	48	2.69	628.00	659.50	660.00	676.80	679.80	679.34	679.14	49.0	W40x167
46	5+52.58	48	2.69	628.00	659.50	660.00	676.80	679.80	679.15	679.05	49.0	W40x167
47	5+60.08	48	2.69	627.00	658.50	659.00	676.80	679.80	678.96	678.95	50.0	W40x167
48	5+67.58	48	2.69	627.00	658.50	659.00	676.80	679.80	678.83	678.86	50.0	W40x167
49	5+75.08	48	2.69	627.00	658.50	659.00	676.80	679.80	678.71	678.82	50.0	W40x167
50	5+82.58	48	2.69	627.00	658.50	659.00	676.80	679.80	678.59	678.79	50.0	W40x167
51	5+90.08	48	2.69	626.00	657.50	658.00	676.68	679.68	678.55	678.76	51.0	W40x167
52	5+97.58	48	2.69	626.00	657.50	658.00	676.43	679.43	678.42	678.74	51.0	W40x167
53	6+05.08	48	2.69	626.00	657.50	658.00	676.18	679.18	678.33	678.71	51.0	W40x167
54	6+12.58	48	2.69	626.00	657.50	658.00	675.93	678.93	678.43	678.69	50.0	W40x167
55	6+20.08	48	2.69	625.00	656.50	657.00	675.80	678.80	678.46	678.67	51.0	W40x167
56	6+27.58	48	2.69	625.00	656.50	657.00	675.80	678.80	678.44	678.64	51.0	W40x167
57	6+35.08	48	2.69	625.00	656.50	657.00	675.80	678.80	678.34	678.62	51.0	W40x167
58	6+42.58	48	2.69	625.00	656.50	657.00	675.80	678.80	678.30	678.60	51.0	W40x167
59	6+50.08	48	2.70	620.00	655.50	656.00	675.80	678.80	678.28	678.58	56.0	W40x199
60	6+57.58	48	2.70	620.00	655.50	656.00	675.80	678.80	678.23	678.55	56.0	W40x199
61	6+65.08	48	2.70	620.00	655.50	656.00	675.80	678.80	678.10	678.51	56.0	W40x199
62	6+72.58	48	2.70	620.00	655.50	656.00	675.80	678.80	677.77	678.43	56.0	W40x199
63	6+80.08	48	2.70	620.00	655.50	656.00	675.68	678.68	677.18	678.32	56.0	W40x199
64	6+87.58	48	2.70	620.00	655.50	656.00	675.43	678.43	676.81	678.18	56.0	W40x199
65	6+95.08	48	2.70	620.00	655.50	656.00	675.18	678.18	676.57	678.02	56.0	W40x199
66	7+02.58	48	2.70	620.00	655.50	656.00	674.93	677.93	676.32	677.82	55.0	W40x199
67	7+10.08	48	2.70	619.00	654.50	655.00	674.68	677.68	676.17	677.60	56.0	W40x199
68	7+17.58	48	2.70	619.00	654.50	655.00	674.43	677.43	675.66	677.35	56.0	W40x199
69	7+25.08	48	2.70	619.00	654.50	655.00	674.18	677.18	674.77	677.09	56.0	W40x199
70	7+32.58	48	2.70	619.00	654.50	655.00	673.93	676.93	673.92	676.84	55.0	W40x199

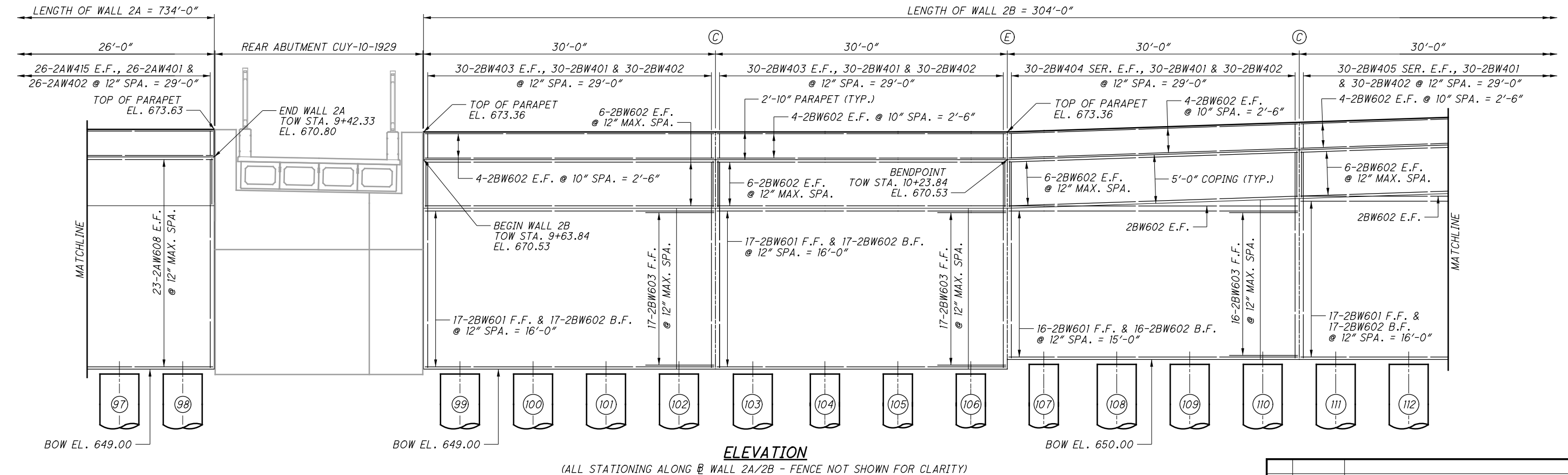
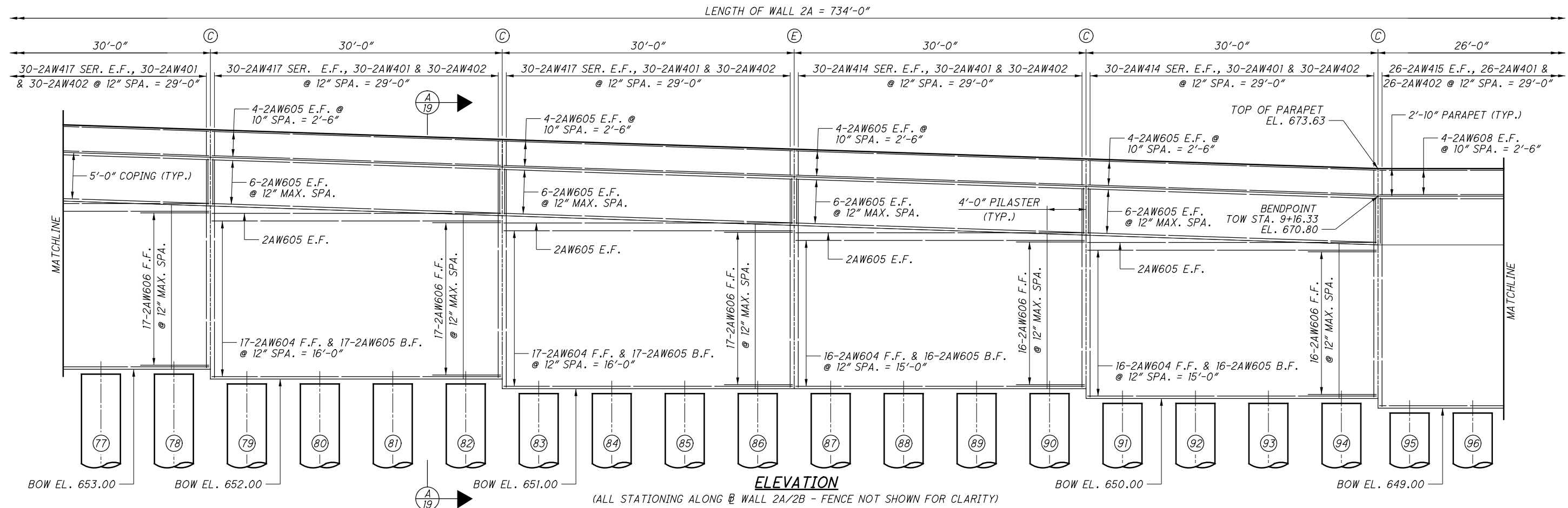
NOTES:

1. FOR LOCATION OF DIM "A", SEE SHEET [19/27] .
2. FOR LOCATION OF ELEVATIONS "A" THRU "E", SEE SHEET [13/27] .

DRILLED SHAFT LOCATIONS AND ELEVATIONS - WALL 2A/2B												
DRILLED SHAFT NUMBER	STATION @ WALL 2A/2B	DRILL SHAFT SIZE (IN)	OFFSET DIM "A" (FEET)	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	ORDER LENGTH OF SOLDIER BEAM (FEET)	SOLDIER BEAM SIZE
71	7+40.08	48	2.70	618.00	653.50	654.00	673.68	676.68	673.07	676.58	56.0	W40x199
72	7+47.58	48	2.70	618.00	653.50	654.00	673.43	676.43	672.23	676.33	56.0	W40x199
73	7+55.08	48	2.70	618.00	653.50	654.00	673.18	676.18	671.40	676.08	56.0	W40x199
74	7+62.58	48	2.70	618.00	653.50	654.00	672.93	675.93	670.57	675.82	55.0	W40x199
75	7+70.08	48	2.69	621.00	652.50	653.00	672.68	675.68	669.75	675.57	52.0	W40x167
76	7+77.58	48	2.69	621.00	652.50	653.00	672.43	675.43	668.93	675.32	52.0	W40x167
77	7+85.08	48	2.69	621.00	652.50	653.00	672.18	675.18	668.12	675.07	52.0	W40x167
78	7+92.58	48	2.69	621.00	652.50	653.00	671.93	674.93	667.31	674.82	51.0	W40x167
79	8+00.08	48	2.69	620.00	651.50	652.00	671.68	674.68	666.51	674.57	52.0	W40x167
80	8+07.58	48	2.69	620.00	651.50	652.00	671.43	674.43	665.72	674.32	52.0	W40x167
81	8+15.08	48	2.69	620.00	651.50	652.00	671.18	674.18	664.93	674.07	52.0	W40x167
82	8+22.58	48	2.69	620.00	651.50	652.00	670.93	673.93	664.15	673.81	51.0	W40x167
83	8+30.08	48	2.69	619.00	650.50	651.00	670.68	673.68	663.37	673.56	52.0	W40x167
84	8+37.58	48	2.69	619.00	650.50	651.00	670.43	673.43	662.77	673.30	52.0	W40x167
85	8+45.08	48	2.69	619.00	650.50	651.00	670.18	673.18	663.74	673.04	52.0	W40x167
86	8+52.58	48	2.69	619.00	650.50	651.00	669.93	672.93	665.32	672.78	51.0	W40x167
87	8+60.08	48	2.69	622.00	650.50	651.00	669.68	672.68	666.90	672.52	48.0	W40x167
88	8+67.58	48	2.69	622.00	650.50	651.00	669.43	672.43	668.49	672.26	48.0	W40x167
89	8+75.08	48	2.69	622.00	650.50	651.00	669.18	672.18	669.96	671.99	48.0	W40x167
90	8+82.58	48	2.69	622.00	650.50	651.00	668.93	671.93	669.90	671.73	47.0	W40x167
91	8+90.08	48	2.69	621.00	649.50	650.00	668.68	671.68	669.94	671.46	48.0	W40x167
92	8+97.58	48	2.69	621.00	649.50	650.00	668.43	671.43	670.10	671.22	48.0	W40x167
93	9+05.08	48	2.69	621.00	649.50	650.00	668.18	671.18	670.23	671.01	48.0	W40x167
94	9+12.58	48	2.69	621.00	649.50	650.00	667.93	670.93	669.98	670.85	47.0	W40x167
95	9+19.58	48	2.69	620.00	648.50	649.00	667.80	670.80	669.91	670.72	48.0	W40x167
96	9+26.08	48	2.69	620.00	648.50	649.00	667.80	670.80	669.76	670.63	48.0	W40x167
97	9+32.58	48	2.69	620.00	648.50	649.00	667.80	670.80	669.65	670.57	48.0	W40x167
98	9+39.08	48	2.69	620.00	648.50	649.00	667.80	670.80	669.56	670.54	48.0	W40x167
99	9+67.59	48	2.69	620.00	648.50	649.00	667.53	670.53	669.88	670.63	48.0	W40x167
100	9+75.09	48	2.69	620.00	648.50	649.00	667.53	670.53	669.10	670.65	48.0	W40x167
101	9+82.59	48	2.69	620.00	648.50	649.00	667.53	670.53	668.45	670.67	48.0	W40x167
102	9+90.09	48	2.69	620.00	648.50	649.00	667.53	670.53	668.08	670.69	48.0	W40x167
103	9+97.59	48	2.69	620.00	648.50	649.00	667.53	670.53	668.42	670.72	48.0	W40x167
104	10+05.09	36	2.15	622.00	648.50	649.00	667.53	670.53	668.53	670.72	46.0	W24x207
105	10+12.59	36	2.15	622.00	648.50	649.00	667.53	670.53	668.62	670.73	46.0	W24x207
106	10+20.09	36	2.15	622.00	648.50	649.00	667.53	670.53	668.39	670.78	46.0	W24x207
107	10+27.59	36	2.15	623.00	649.50	650.00	667.65	670.65	668.69	670.85	45.0	W24x207
108	10+35.09	48	2.69	621.00	649.50	650.00	667.90	670.90	669.65	670.95	47.0	W40x167
109	10+42.59	48	2.69	621.00	649.50	650.00	668.15	671.15	669.98	671.07	48.0	W40x167
110	10+50.09	48	2.69	621.00	649.50	650.00	668.40	671.40	670.26	671.21	48.0	W40x167
111	10+57.59	48	2.69	619.00	649.50	650.00	668.65	671.65	670.57	671.38	50.0	W40x167
112	10+65.09	48	2.69	619.00	649.50	650.00	668.90	671.90	670.80	671.57	50.0	W40x167
113	10+72.59	48	2.69	619.00	649.50	650.00	669.15	672.15	671.45	671.79	51.0	W40x167
114	10+80.09	48	2.69	619.00	649.50	650.00	669.40	672.40	671.81	672.03	51.0	W40x167
115	10+87.59	48	2.69	620.00	650.50	651.00	669.65	672.65	672.22	672.29	50.0	W40x167
116	10+95.09	48	2.69	620.00	650.50	651.00	669.90	672.90	672.68	672.57	50.0	W40x167
117	11+02.59	48	2.69	620.00	650.50	651.00	670.15	673.15	673.18	672.84	51.0	W40x167
118	11+10.09	48	2.69	620.00	650.50	651.00	670.40	673.40	673.38	673.12	51.0	W40x167
119	11+17.59	48	2.69	621.00	651.50	652.00	670.65	673.65	673.91	673.39	50.0	W40x167
120	11+25.09	48	2.69	621.00	651.50	652.00	670.90	673.90	674.36	673.67	50.0	W40x167
121	11+32.59	48	2.69	621.00	651.50	652.00	671.15	674.15	674.56	673.94	51.0	W40x167
122	11+40.09	48	2.69	621.00	651.50	652.00	671.40	674.40	674.79	674.22	51.0	W40x167
123	11+47.59	48	2.71	619.00	653.50	654.00	671.65	674.65	675.00	674.50	53.0	W40x183
124	11+55.09	48	2.71	619.00	653.50	654.00	671.90	674.90	674.94	674.77	53.0	W40x183
125	11+62.59	48	2.71	619.00	653.50	654.00	672.15	675.15	675.31	675.06	54.0	W40x183
126	11+70.09	48	2.71	619.00	653.50	654.00	672.40	675.40	675.61	675.34	54.0	W40x183
127	11+77.59	48	2.71	620.00	654.50	655.00	672.65	675.65	675.89	675.63	53.0	W40x183
128	11+85.09	48	2.71	620.00	654.50	655.00	672.90	675.90	676.15	675.93	53.0	W40x183
129	11+92.59	48	2.71	620.00	654.50	655.00	673.15	676.15	676.26	676.23	54.0	W40x183
130	12+00.09	48	2.71	620.00	654.50	655.00	673.40	676.40	676.82	676.53	54.0	W40x183
131	12+07.59	48	2.71	621.00	655.50	656.00	673.65	676.65	676.99	676.82	53.0	W40x183
132	12+15.09	48	2.71	621.00	655.50	656.00	673.90	676.90	677.13	677.11	53.0	W40x183
133	12+22.59	48	2.71	621.00	655.50	656.00	674.15	677.15	677.42	676.65	54.0	W40x183
134	12+30.09	48	2.71	621.00	655.50	656.00	672.11	675.11	677.60	674.38	52.0	W40x183
135	12+38.09	48	2.57	629.00	656.50	657.00	669.45	672.45	677.61	671.71	41.0	W36x135
136	12+46.59	48	2.57	629.00	656.50	657.00	666.61	669.61	677.72	668.88	38.0	W36x135
137	12+55.09	48	2.57	629.00	656.50	657.00	663.78	666.78	677.76	666.05	35.0	W36x135
138	12+63.59	48	2.57	629.00	656.50	657.00	660.95	663.95	677.75	663.22	32.0	W36x135



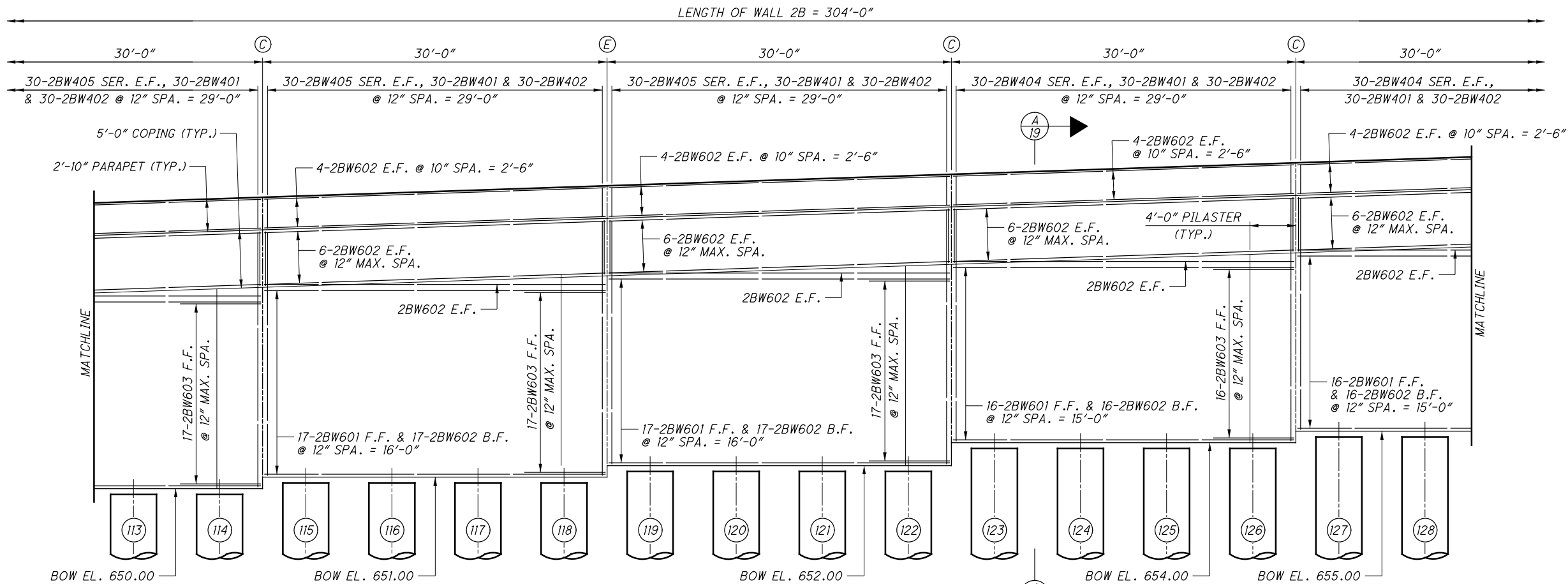




- NOTES:**
- FOR ADDITIONAL NOTES, LEGEND, ABBREVIATIONS AND REQUIRED LAP LENGTHS TABLE, SEE SHEET 18/27 AND 3/27.
  - FOR SECTION A-A, SEE SHEET 19/27.

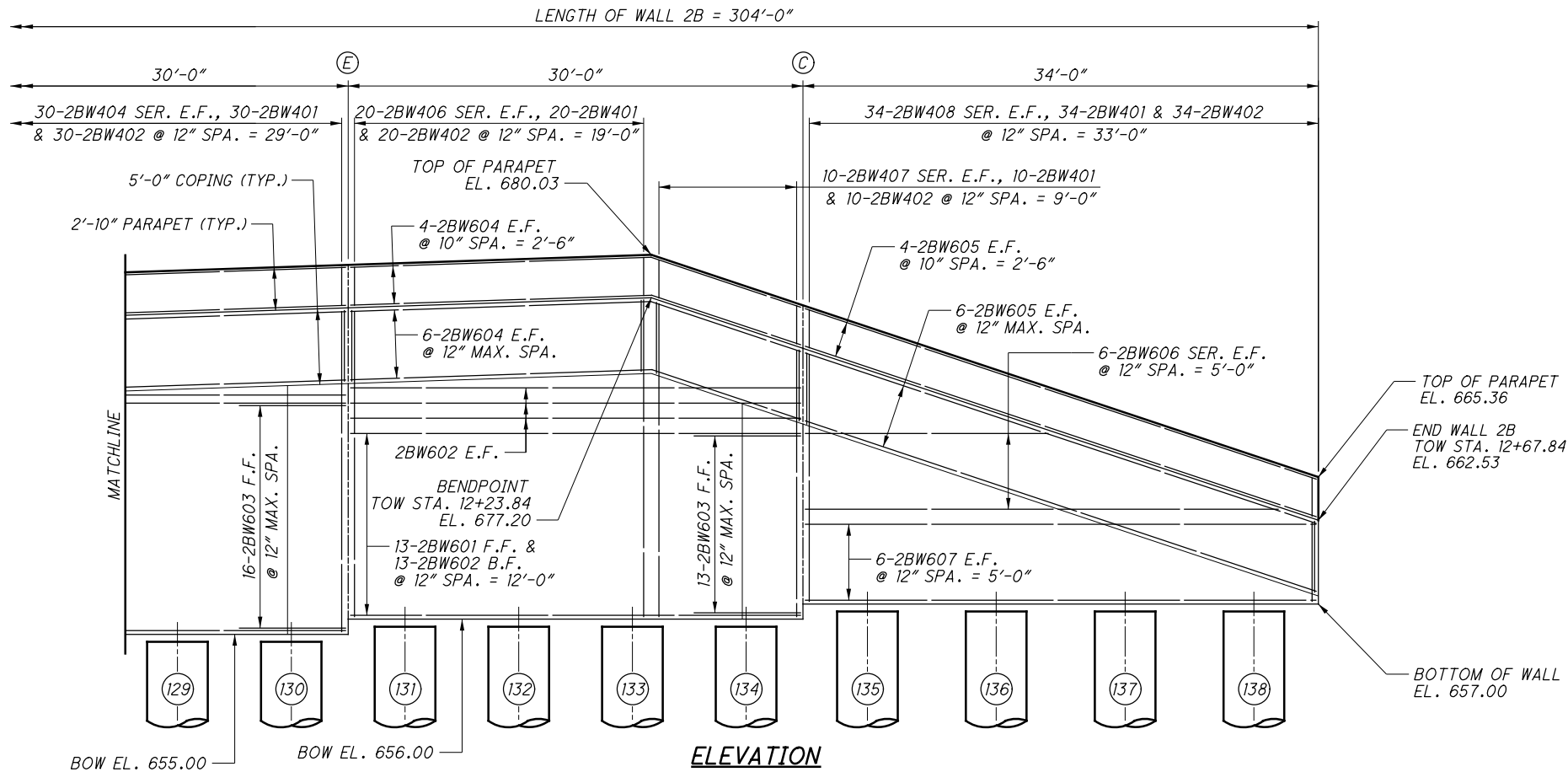
NO.	DATE	DESCRIPTION
0	2019-09-09	RFC
19		
29		

ISSUE RECORD



ELEVATION

(ALL STATIONING ALONG @ WALL 2A/2B - FENCE NOT SHOWN FOR CLARITY)



ELEVATION

(ALL STATIONING ALONG @ WALL 2A/2B - FENCE NOT SHOWN FOR CLARITY)

ABBREVIATIONS:

TOW = TOP OF WALL  
BOW = BOTTOM OF WALL

LEGEND:

- (C) - CONTRACTION JOINT LOCATION  
(E) - EXPANSION JOINT LOCATION  
(#) - PILE NUMBER

NOTES:

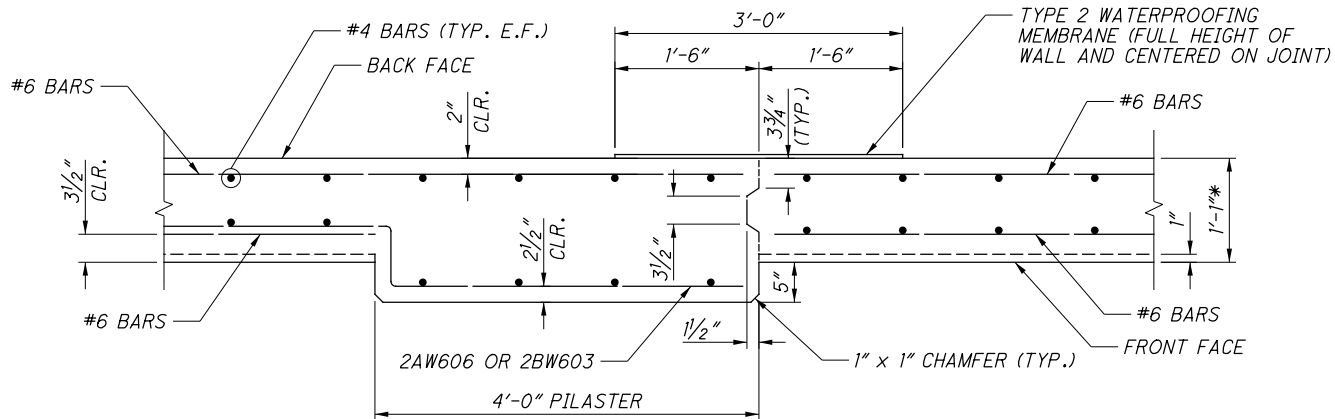
1. FOR WALL FOUNDATION PLAN, SEE SHEETS [9/27] THRU [12/27].
2. FOR DRILLED SHAFT LOCATION AND ELEVATIONS, SEE SHEET [14/27].
3. FOR DETAILS ABOUT EXPANSION AND CONTRACTION JOINTS, SEE SHEET [19/27].
4. FENCE ON PARAPET NOT SHOWN FOR CLARITY.
5. ADDITIONAL ABBREVIATIONS CAN BE FOUND ON SHEET [3/27].
6. FOR SECTION A-A, SEE SHEET [19/27].

REQUIRED LAP LENGTHS

NO. 4 BARS	1'-10" MIN.
NO. 6 BARS	4'-0" MIN.

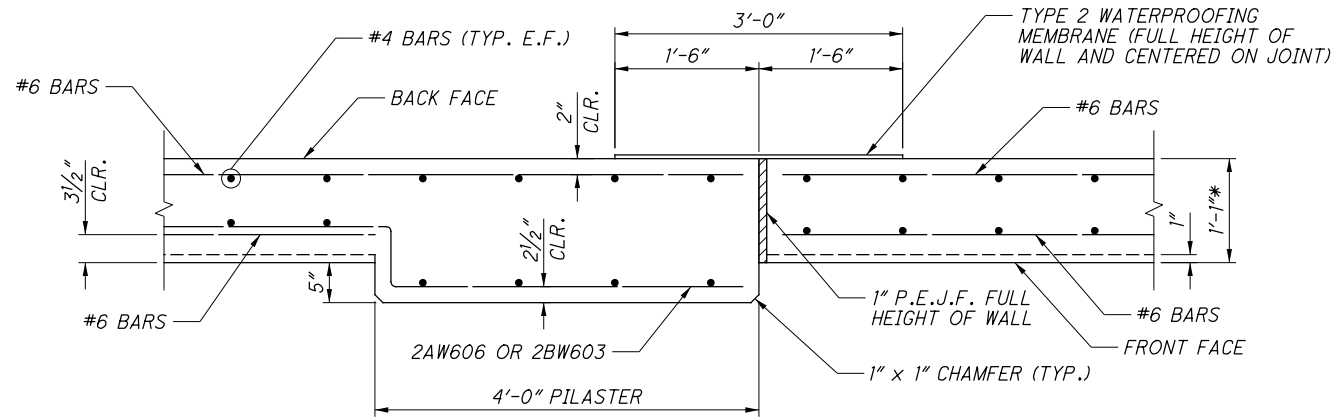
NO.	DATE	DESCRIPTION
0	2019-09-09	RFC
ISSUE RECORD		





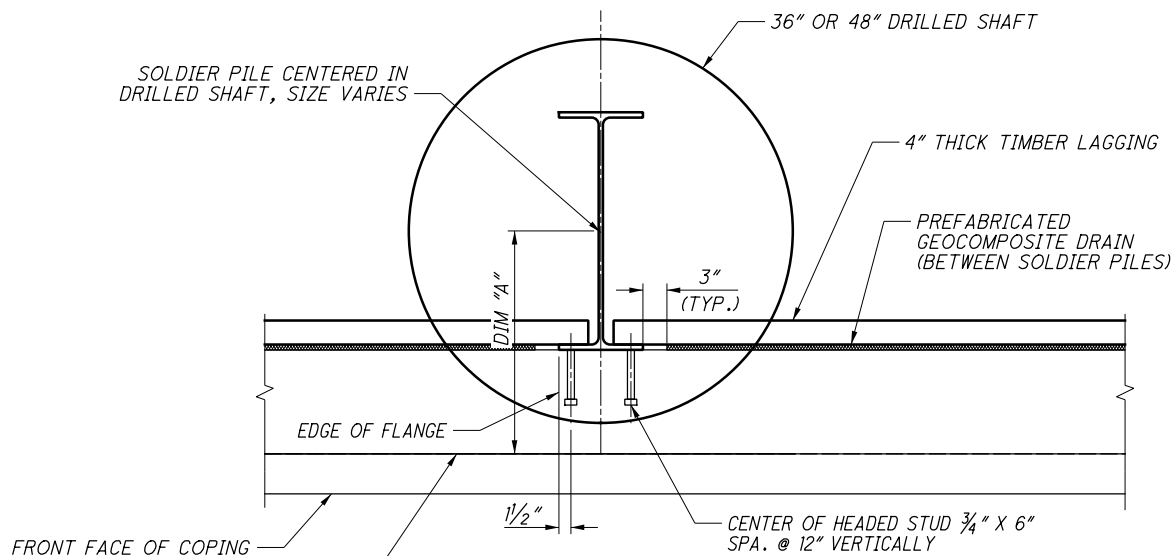
**PILASTER & CONTRACTION JOINT DETAIL**

\* - INCLUDES 1" AESTHETIC TREATMENT



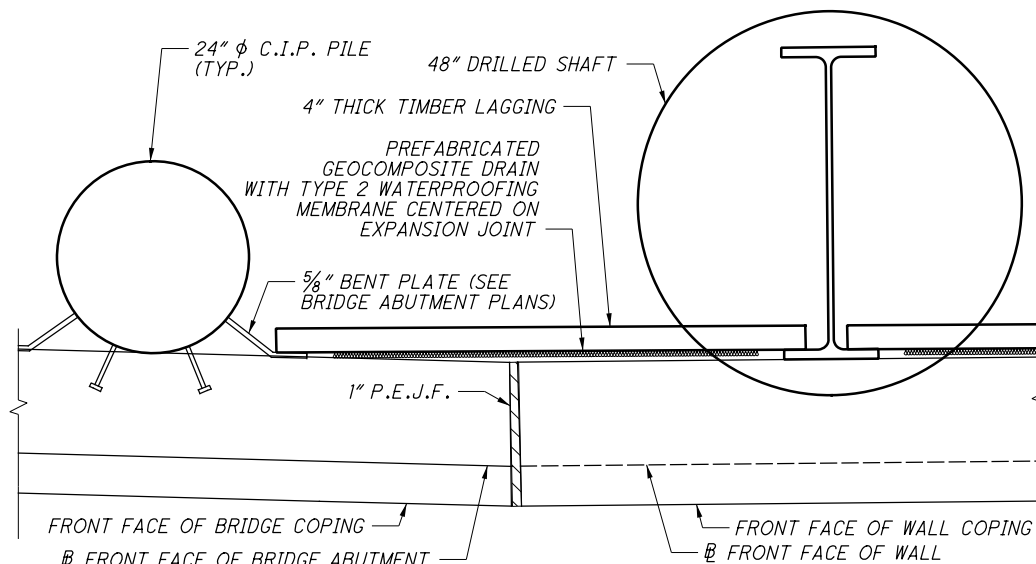
**PILASTER & EXPANSION JOINT DETAIL**

\* - INCLUDES 1" AESTHETIC TREATMENT



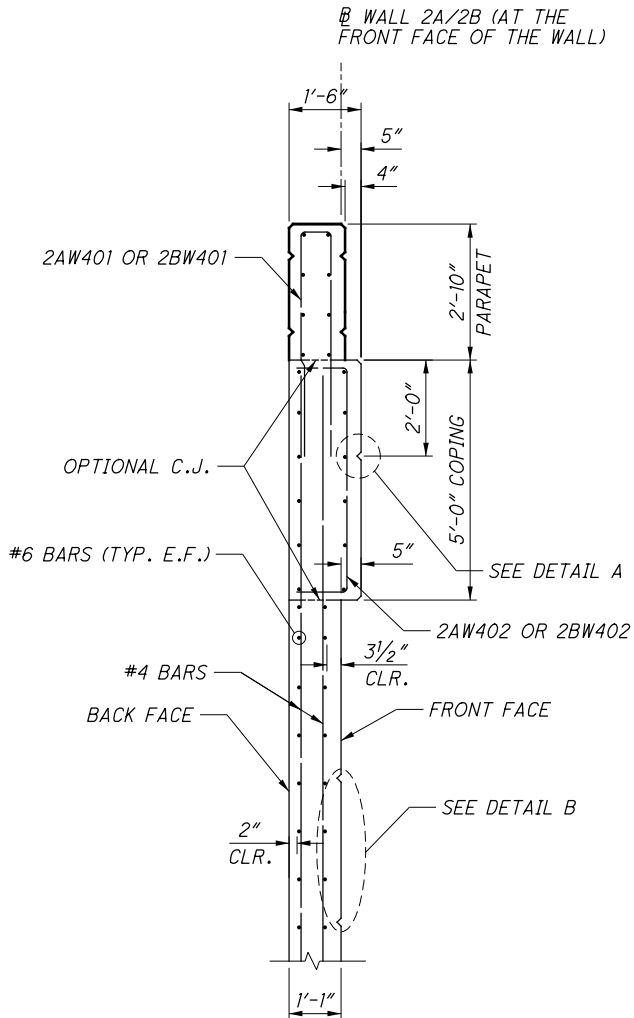
**DETAIL C**

FOR DIMENSION "A", SEE SHEET 14/27.

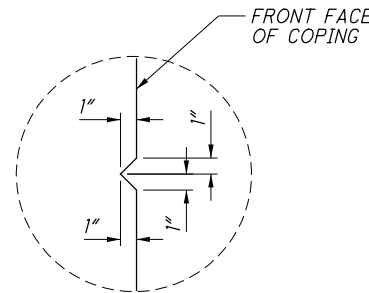


**ABUTMENT TO WALL TRANSITION DETAIL**

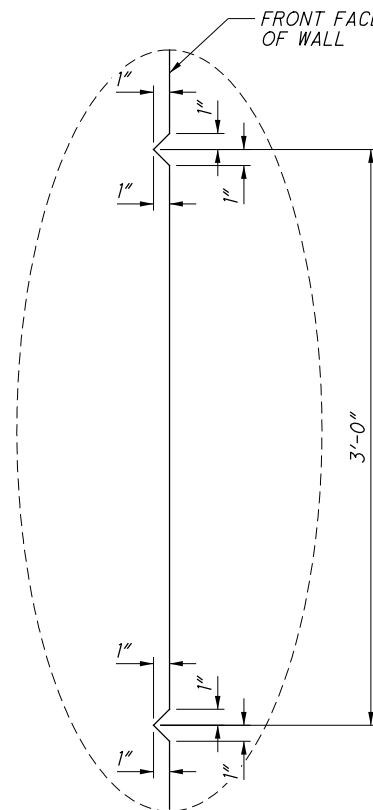
RIGHT SIDE OF E. 59TH BRIDGE ABUTMENT SHOWN, MIRROR FOR LEFT SIDE



**SECTION A 15 A 16 A 17 A 18 SECTION A 20 A 21 A 22**

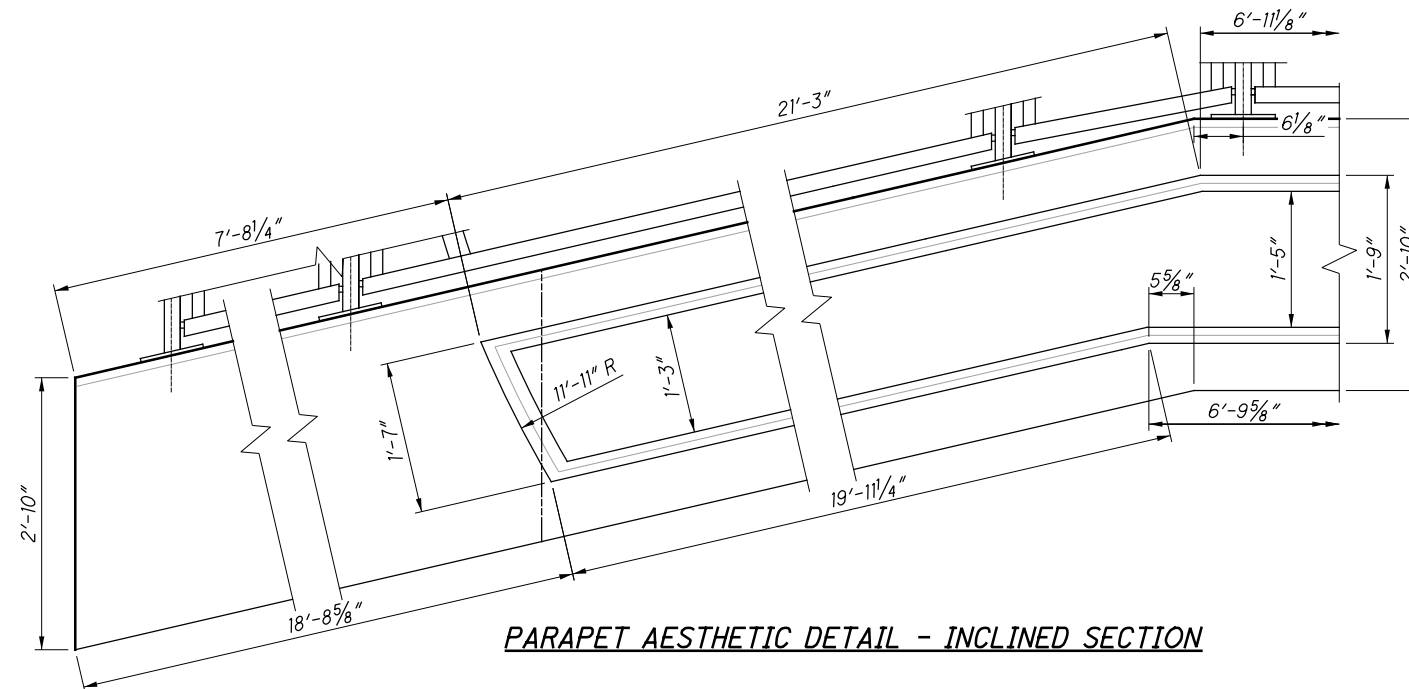
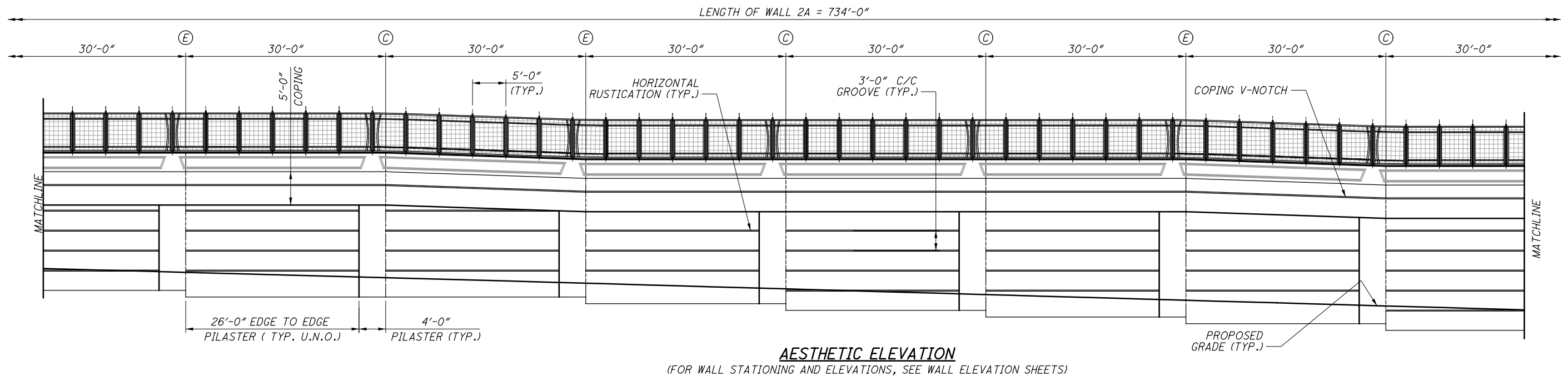
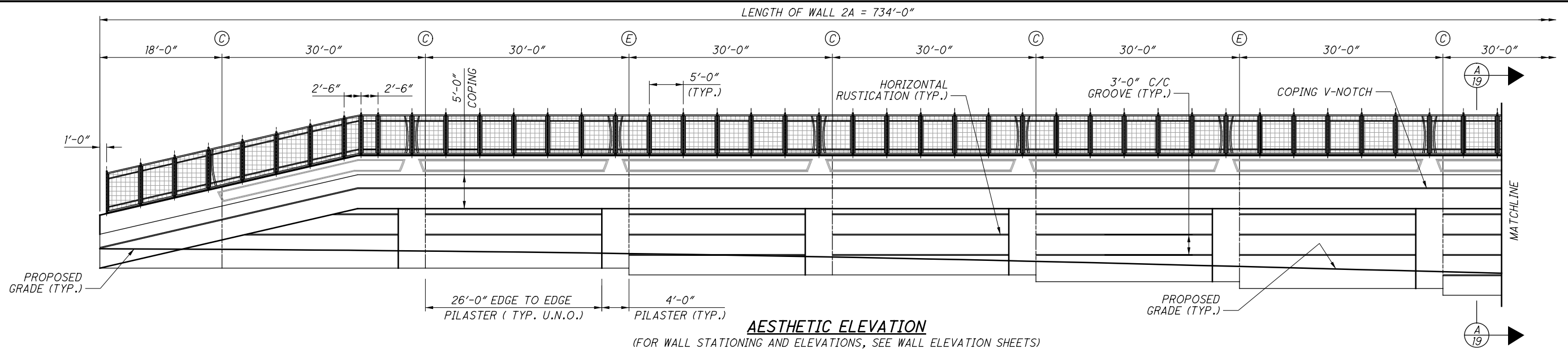


**DETAIL A**



**DETAIL B**

NO.	DATE	DESCRIPTION
0	2019-09-09	RFC
ISSUE RECORD		



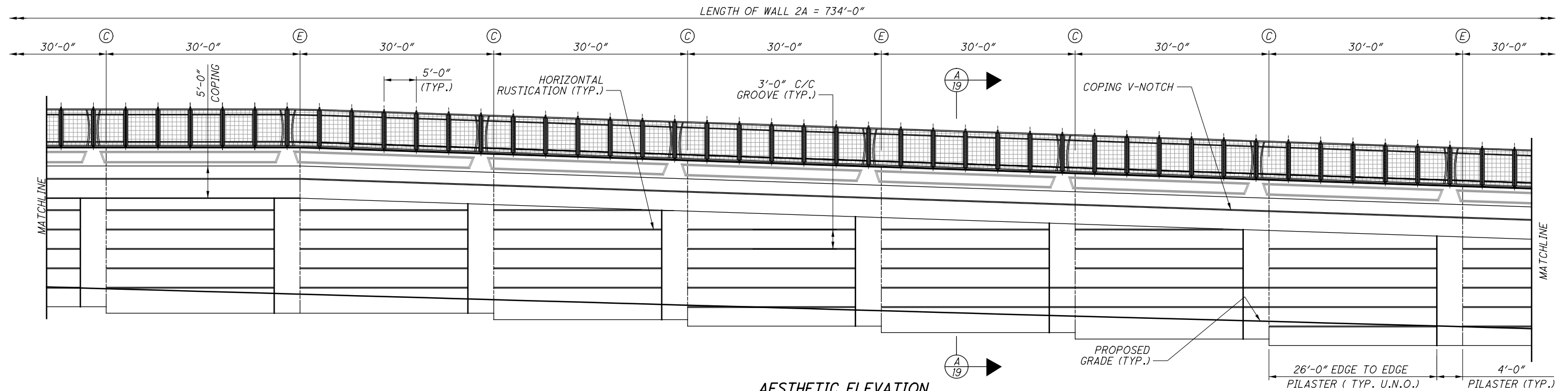
LEGEND:

- (C) - CONTRACTION JOINT LOCATION  
 (E) - EXPANSION JOINT LOCATION

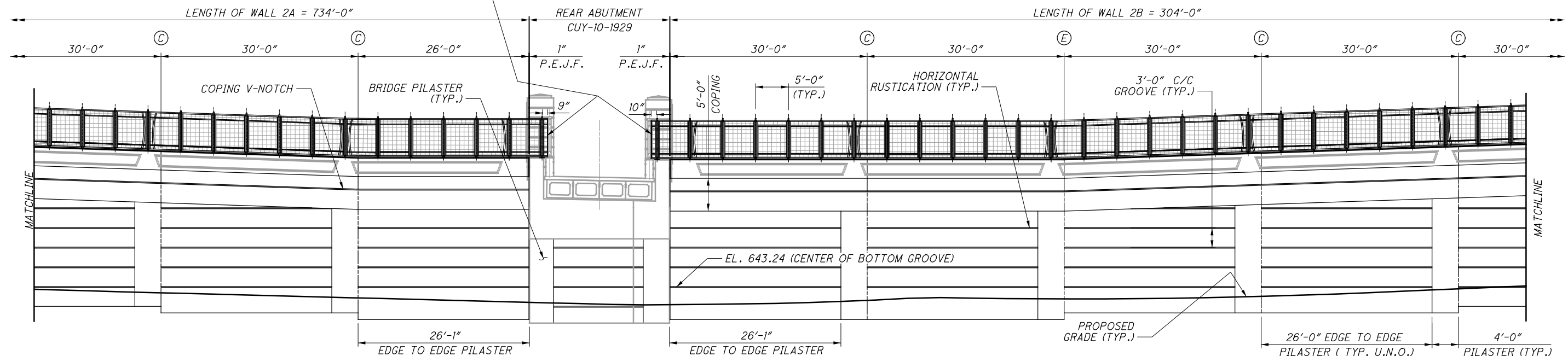
NOTES:

1. FOR WALL ELEVATIONS, SEE SHEETS 15/27 THRU 18/27.
2. FOR CONTRACTION & EXPANSION JOINT DETAILS, SEE SHEET 19/27.
3. FOR FENCE DETAILS, SEE SHEETS 24/27 AND 25/27.

			<div> <div>CUY</div> <div>20/27</div> <div> <div>22</div> <div>29</div> </div> </div>
0	2019-09-09	RFC	
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>	
<b>ISSUE RECORD</b>			



**AESTHETIC ELEVATION**  
(FOR WALL STATIONING AND ELEVATIONS, SEE WALL ELEVATION SHEETS)



**AESTHETIC ELEVATION**  
(FOR WALL STATIONING AND ELEVATIONS, SEE WALL ELEVATION SHEETS)

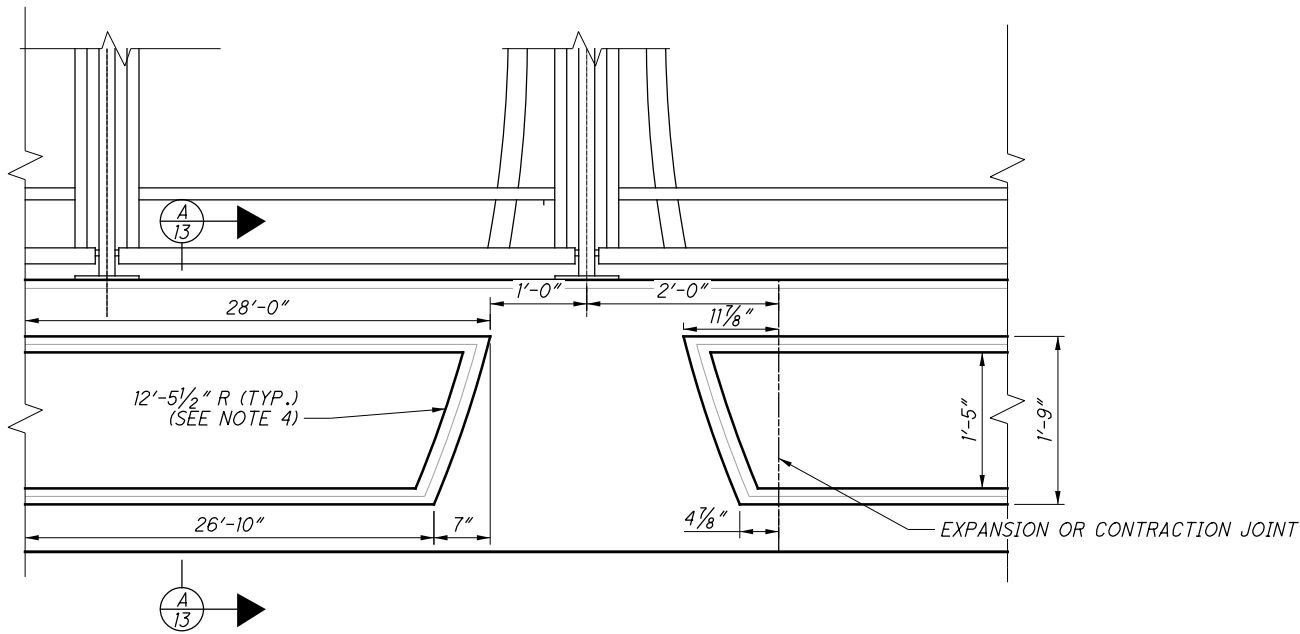
**LEGEND:**

- (C) - CONTRACTION JOINT LOCATION  
 (E) - EXPANSION JOINT LOCATION

NOTES:

1. FOR WALL ELEVATIONS, SEE SHEETS 15/27 THRU 18/27.
2. FOR CONTRACTION & EXPANSION JOINT DETAILS, SEE SHEET 19/27.
3. FOR FENCE DETAILS, SEE SHEETS 24/27 AND 25/27.

O	2019-09-09	RFC
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
<b>ISSUE RECORD</b>		



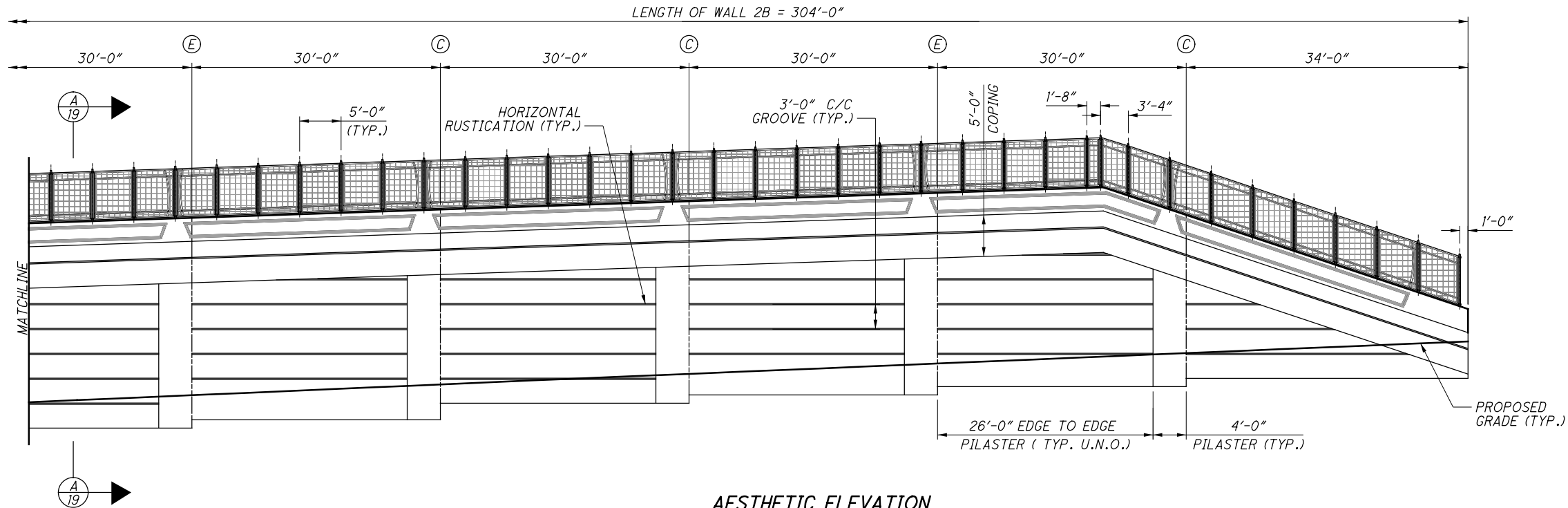
**TYPICAL PARAPET AESTHETIC DETAIL - FLAT SECTION**

**LEGEND:**

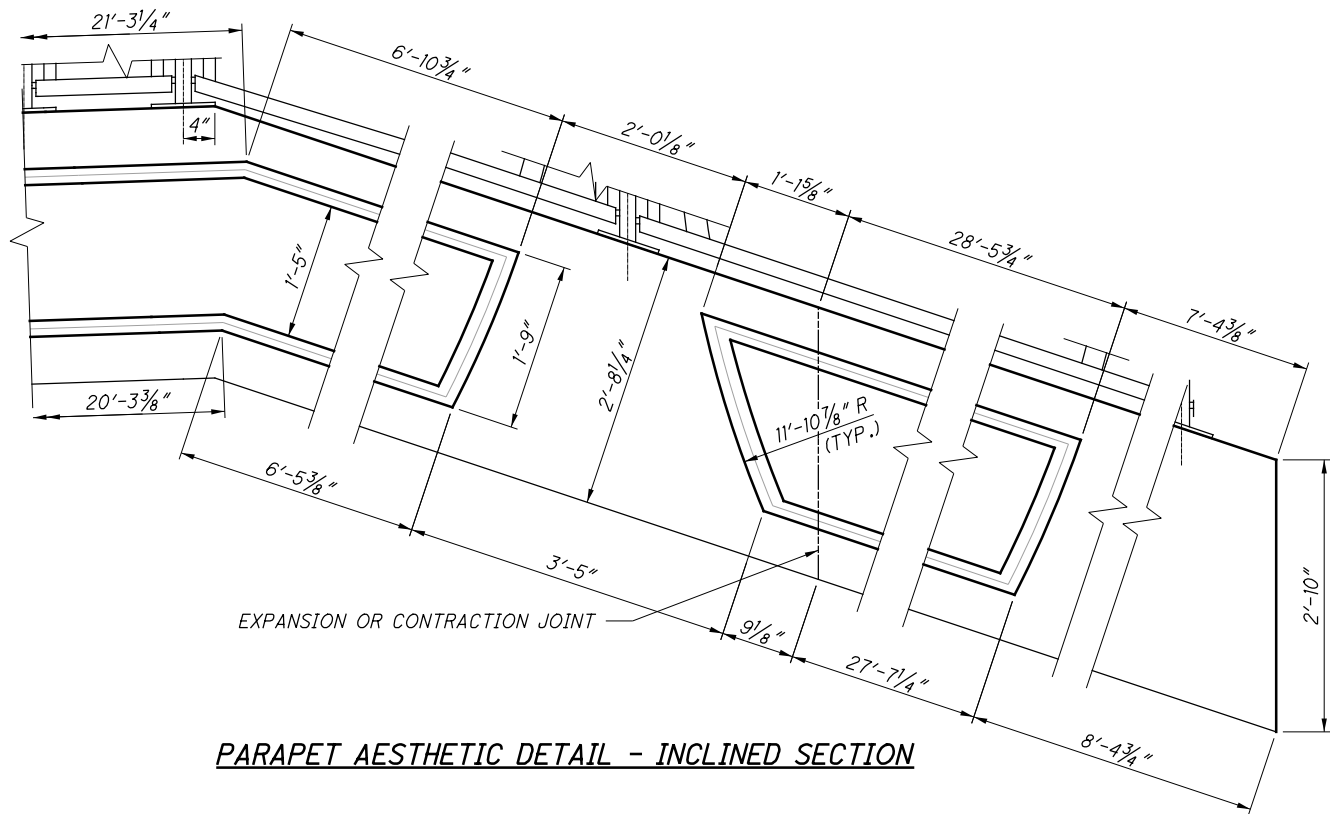
- (C) - CONTRACTION JOINT LOCATION  
(E) - EXPANSION JOINT LOCATION

**NOTES:**

1. FOR WALL ELEVATIONS, SEE SHEETS 15/27 THRU 18/27.
2. FOR CONTRACTION & EXPANSION JOINT DETAILS, SEE SHEET 19/27.
3. FOR FENCE DETAILS, SEE SHEETS 24/27 AND 25/27.
4. FOR LOCATION OF RADIUS POINT, SEE SHEET 25/27.

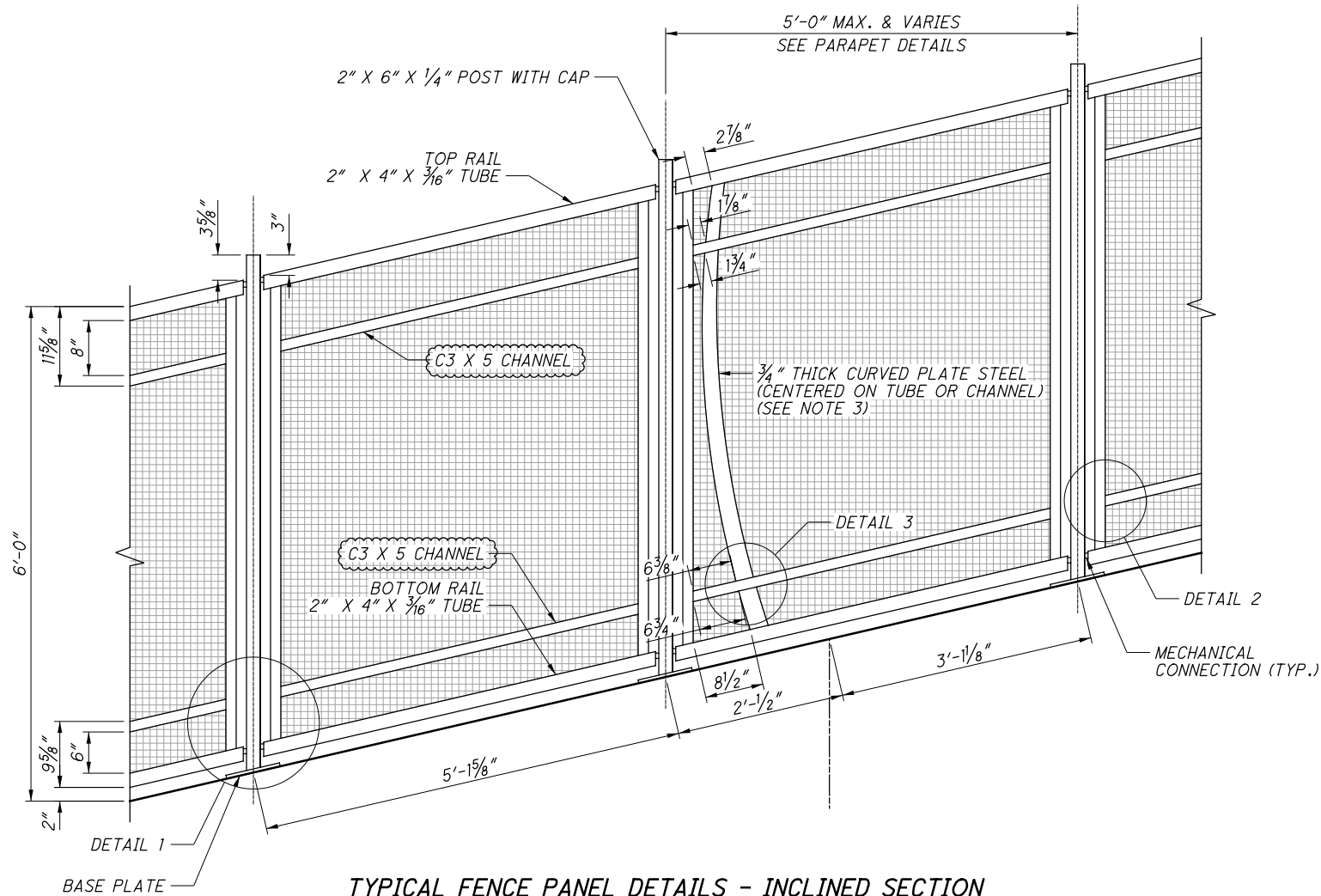


**AESTHETIC ELEVATION**  
(FOR WALL STATIONING AND ELEVATIONS, SEE WALL ELEVATION SHEETS)



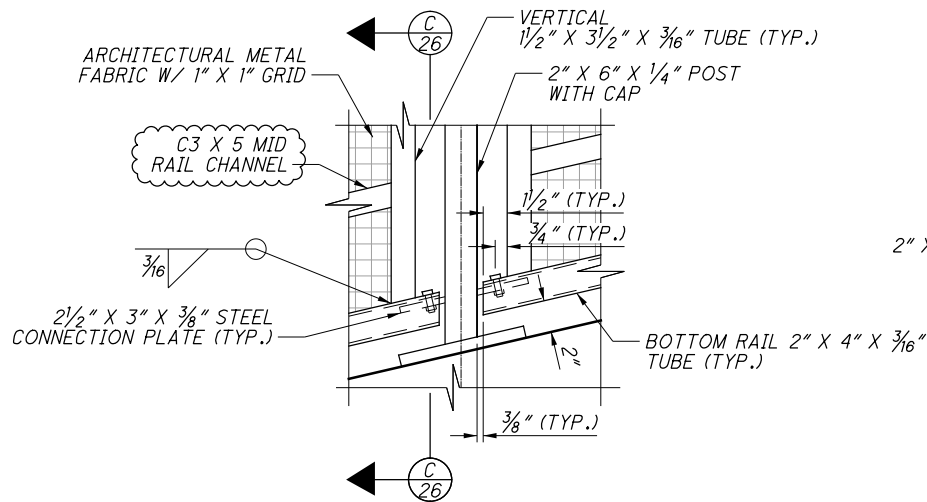
**PARAPET AESTHETIC DETAIL - INCLINED SECTION**

NO.	DATE	DESCRIPTION
0	2019-09-09	RFC
ISSUE RECORD		



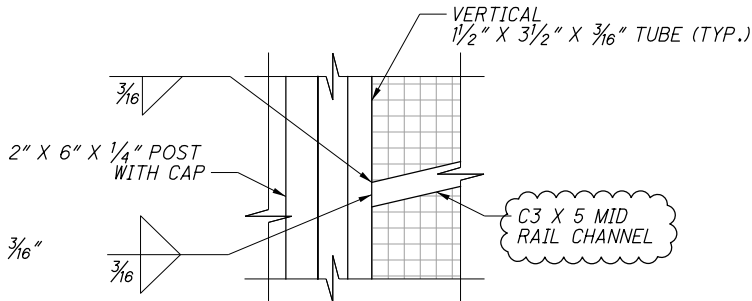
**TYPICAL FENCE PANEL DETAILS - INCLINED SECTION**

(PLACE FABRIC ON BACK FACE OF WALL SIDE OF THE FENCE)  
(FENCE FABRIC FASTENERS NOT SHOWN)



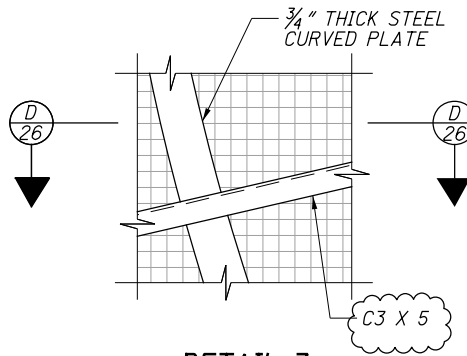
**DETAIL 1**

(FENCE FABRIC FASTENERS NOT SHOWN)



**DETAIL 2**

(FENCE FABRIC FASTENERS NOT SHOWN)

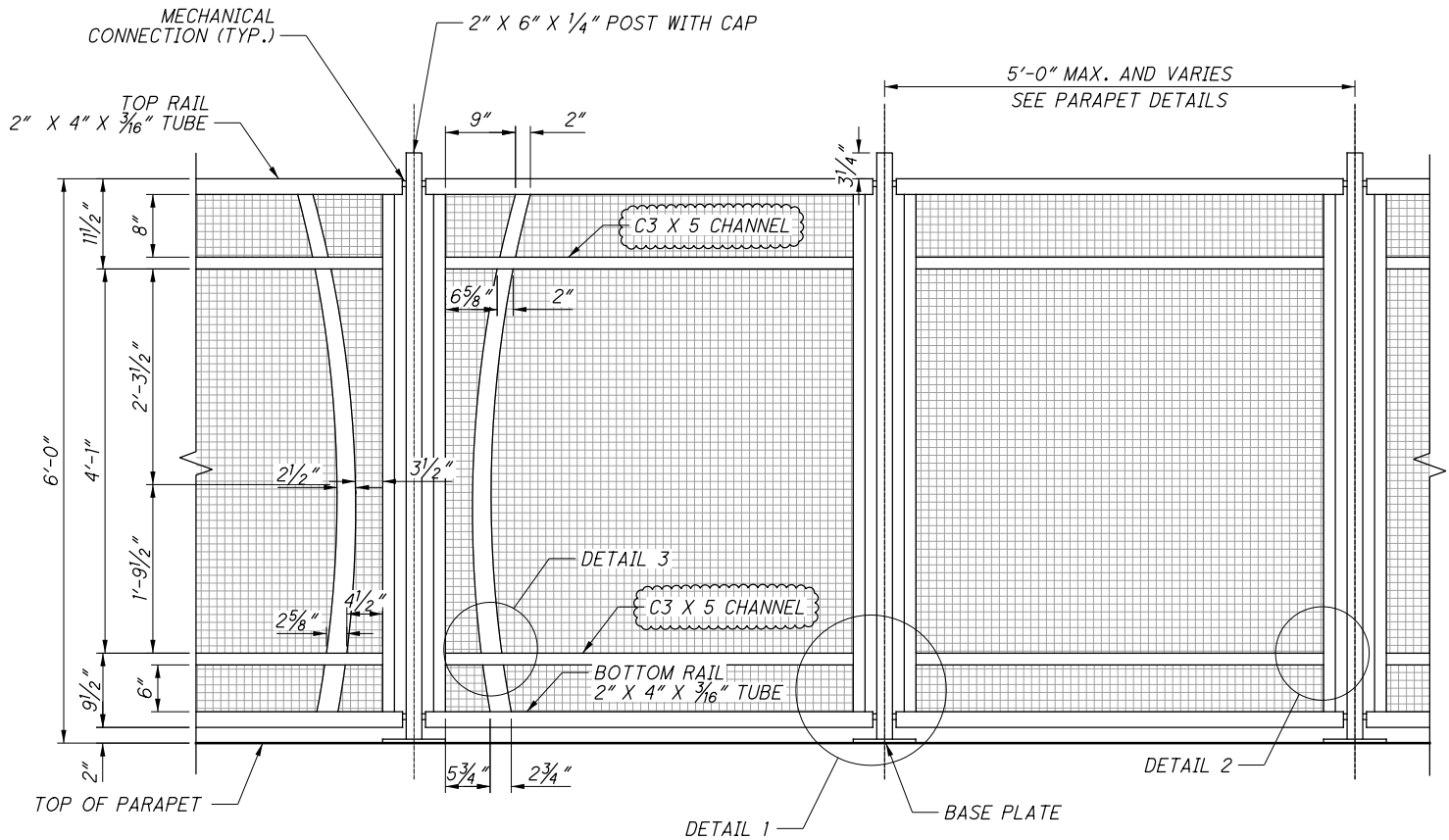


**DETAIL 3**

**NOTES:**

1. ALL POSTS SHALL BE INSTALLED PLUMB. PROVIDE SHIMS MADE FROM MULTI-POLYMER PLASTIC WITH MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI. ENDS OF POSTS MAY BE CUT ON BIAS TO PROVIDE PLUMB INSTALLATION.
2. SEE STD. DWG. VPF-1-90 FOR ADDITIONAL NOTES AND DETAILS RELATED TO BASE PLATE SHIMS AND CAULKING.
3. FOR CURVED STEEL PLATE DETAILS, SEE SHEET 26/27.

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

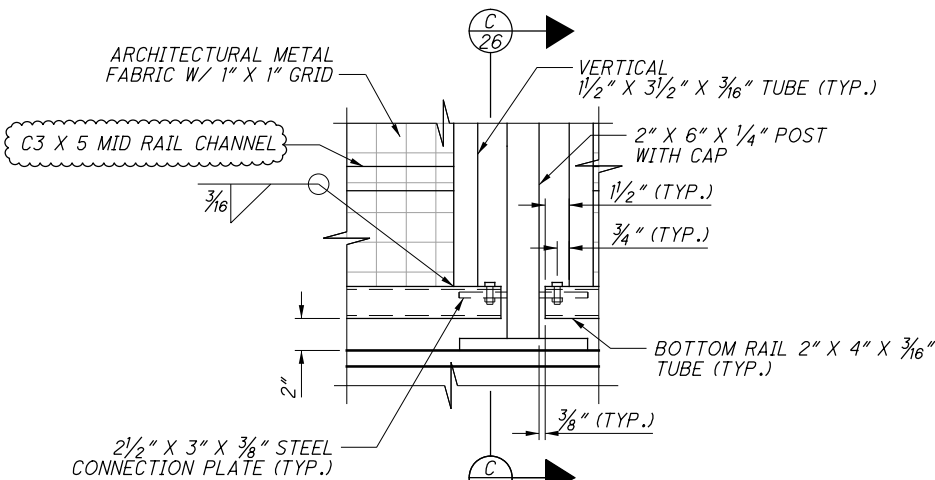


**TYPICAL FENCE PANEL DETAILS - FLAT SECTION**

(PLACE FABRIC ON BACK FACE OF WALL SIDE OF THE FENCE)  
(FENCE FABRIC FASTENERS NOT SHOWN)

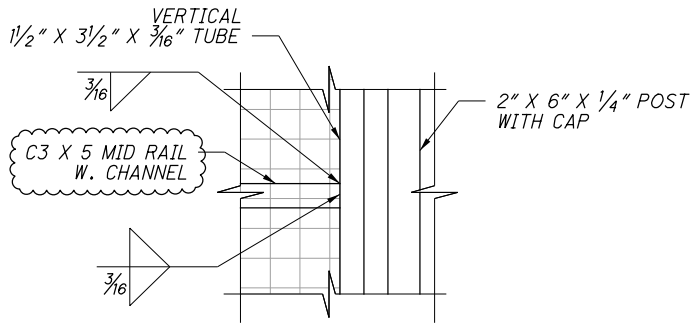
**NOTES:**

1. ALL POSTS SHALL BE INSTALLED PLUMB. PROVIDE SHIMS MADE FROM MULTI-POLYMER PLASTIC WITH MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI. ENDS OF POSTS MAY BE CUT ON BIAS TO PROVIDE PLUMB INSTALLATION.
2. SEE STD. DWG. VPF-1-90 FOR ADDITIONAL NOTES AND DETAILS RELATED TO BASE PLATE SHIMS AND CAULKING.
3. FOR CURVED STEEL PLATE DETAILS, SEE SHEET 26/27.



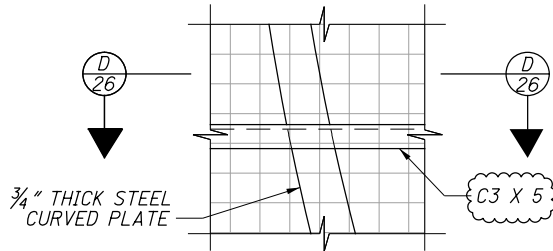
**DETAIL 1**

(FENCE FABRIC FASTENERS NOT SHOWN)



**DETAIL 2**

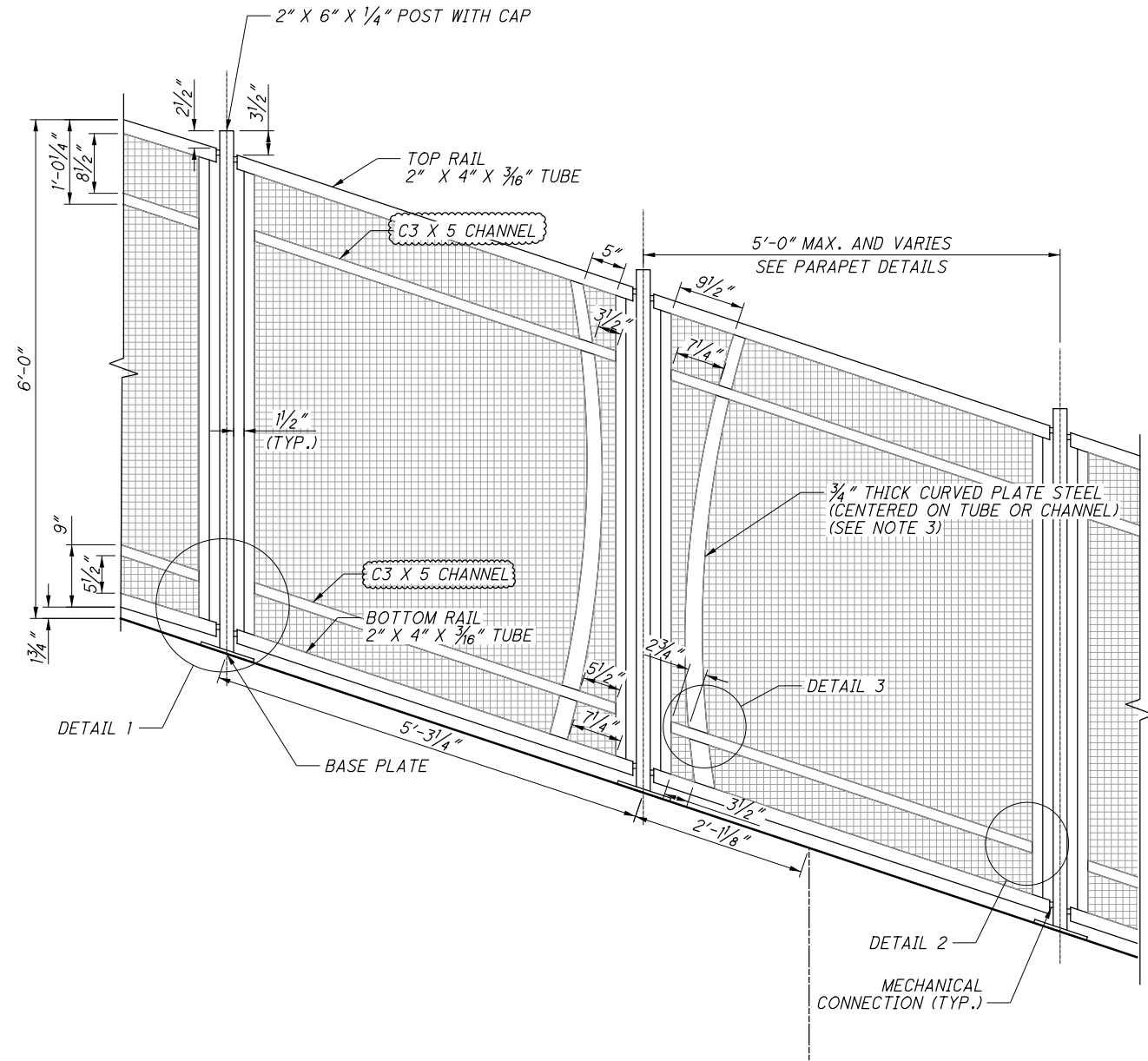
(FENCE FABRIC FASTENERS NOT SHOWN)



**DETAIL 3**

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



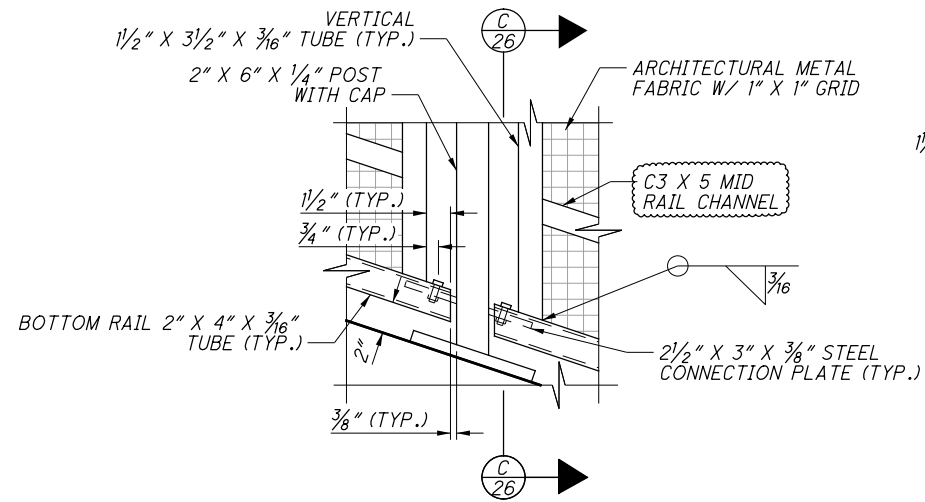


TYPICAL FENCE PANEL DETAILS - INCLINED SECTION

(PLACE FABRIC ON BACK FACE OF WALL SIDE OF THE FENCE)  
(FENCE FABRIC FASTENERS NOT SHOWN)

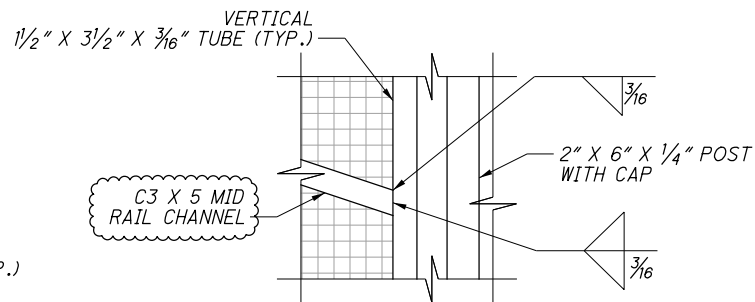
NOTES:

1. ALL POSTS SHALL BE INSTALLED PLUMB. PROVIDE SHIMS MADE FROM MULTI-POLYMER PLASTIC WITH MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI. ENDS OF POSTS MAY BE CUT ON BIAS TO PROVIDE PLUMB INSTALLATION.
2. SEE STD. DWG. VPF-1-90 FOR ADDITIONAL NOTES AND DETAILS RELATED TO BASE PLATE SHIMS AND CAULKING.
3. FOR CURVED STEEL PLATE DETAILS, SEE SHEET 26/27.



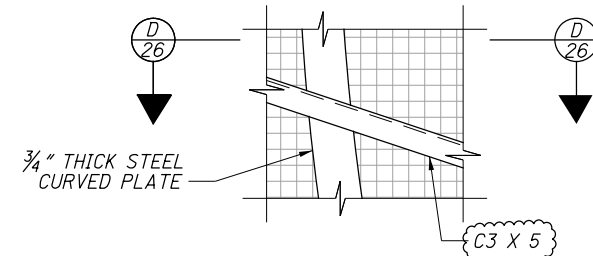
DETAIL 1

(FENCE FABRIC FASTENERS NOT SHOWN)



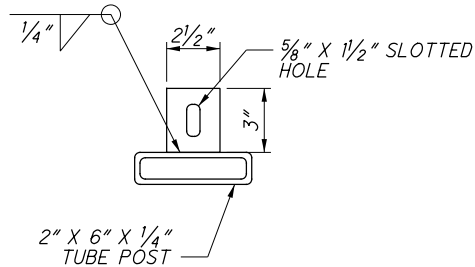
DETAIL 2

(FENCE FABRIC FASTENERS NOT SHOWN)

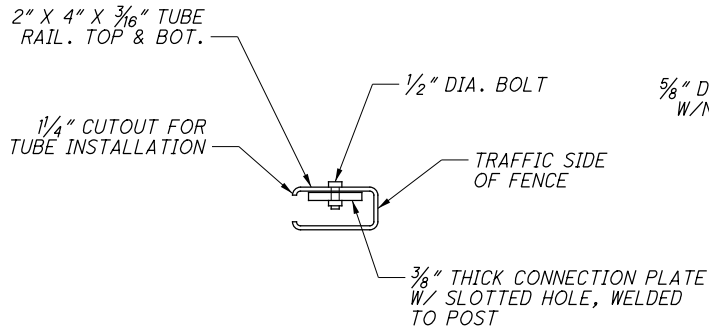


DETAIL 3

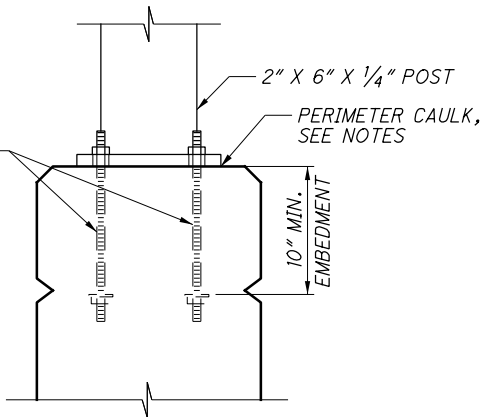
1	2024-09-10	RECORD DRAWINGS
0	2019-09-09	RFC
<b>NO.</b>	<b>DATE</b>	<b>DESCRIPTION</b>
<b>ISSUE RECORD</b>		



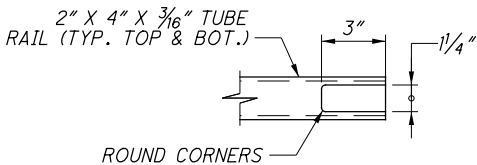
CONNECTION PLATE DETAILS  
(PLAN VIEW)



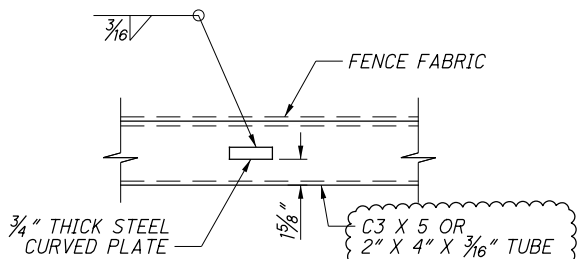
C  
24 SECTION



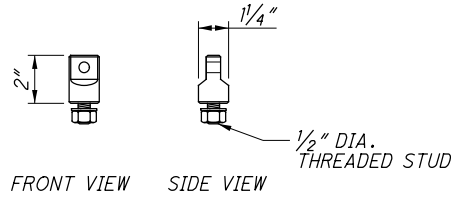
TYPICAL ANCHOR BOLT DETAILS  
THREADED ROD SHALL BE ASTM A320 B8  
CLASS 2 HARDENED STAINLESS STEEL (AISI 304),  
Fy=100 KSI, WITH ASTM A194 GRADE 8  
NUTS AND SS304 WASHERS



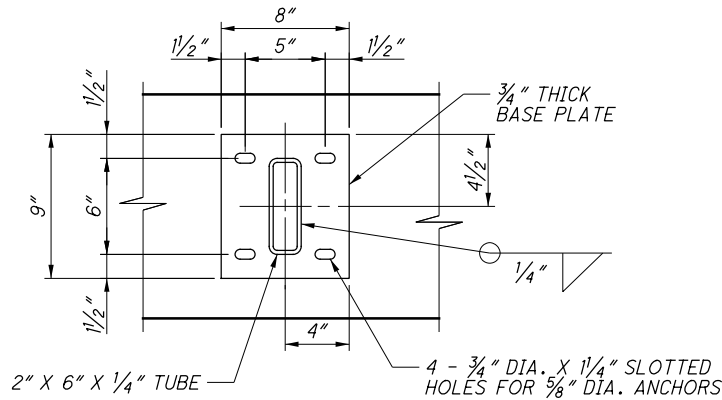
TYPICAL TUBE CUTOUT DETAIL



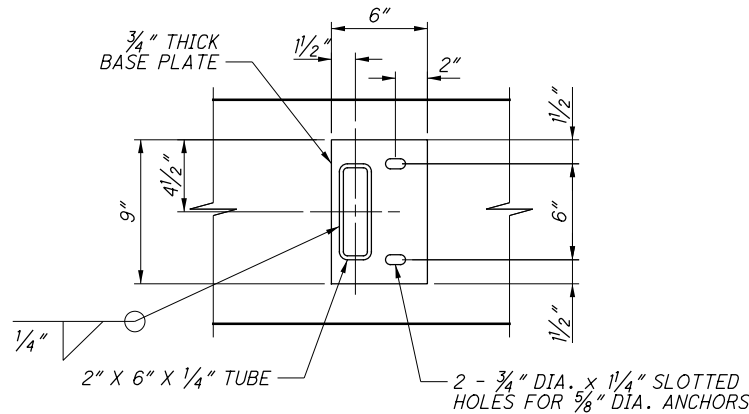
D  
24 SECTION



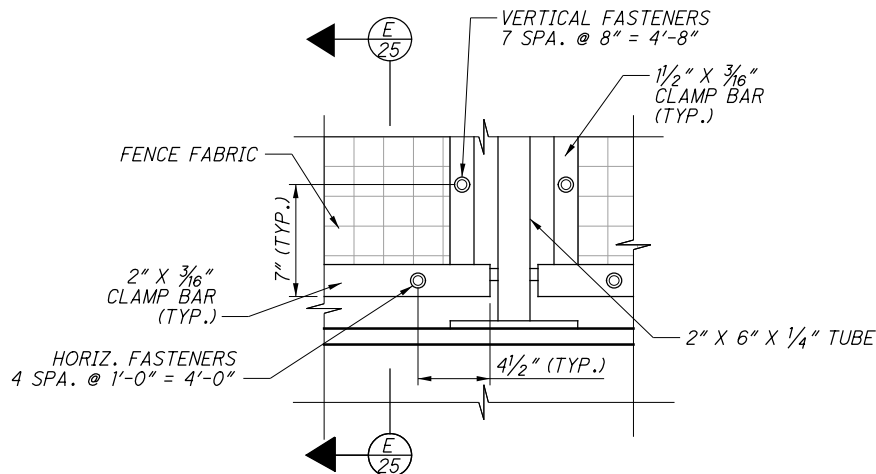
ANCHOR BASE WITH STUD DIAGRAM  
3/8" NOMINAL SIZE (SUNCOR STAINLESS ITEM S0116-HC10)



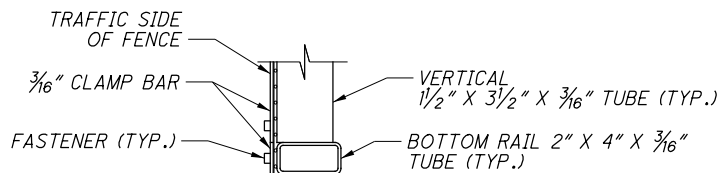
TYPICAL MID-POST BASE PLATE DETAIL



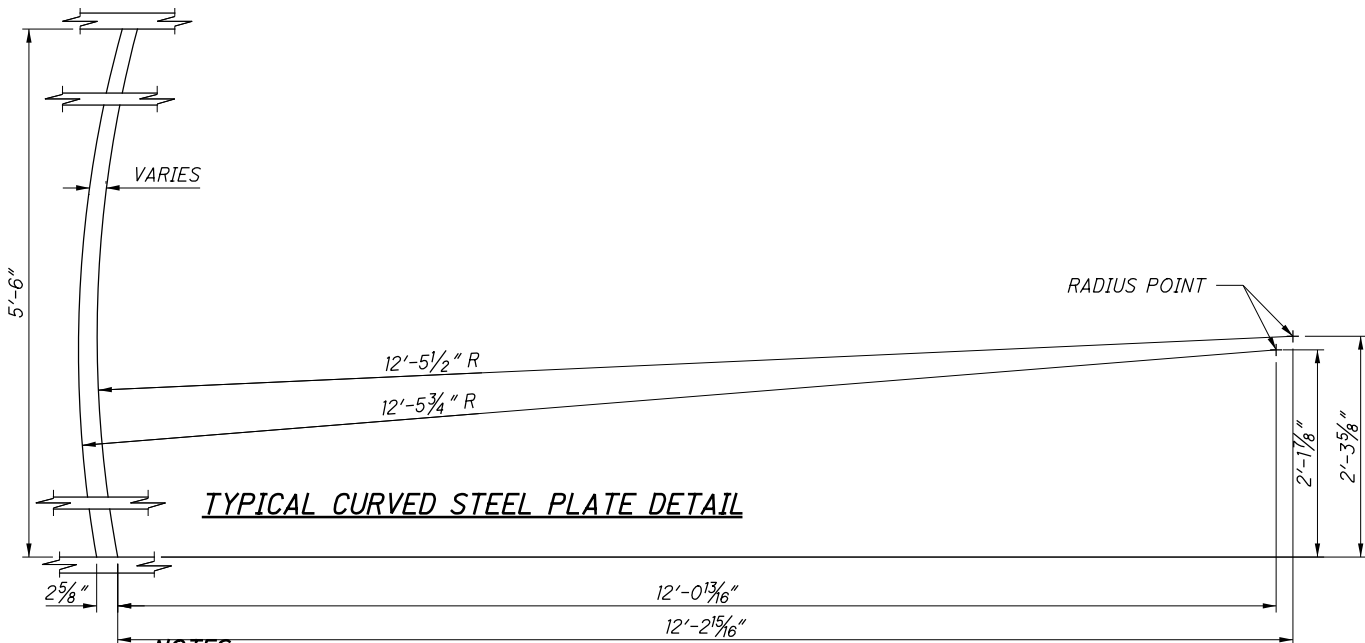
TYPICAL END POST BASE PLATE DETAIL



FENCE FABRIC CONNECTION ELEVATION DETAIL  
(BACK FACE OF WALL SIDE SHOWN)



E  
25 SECTION



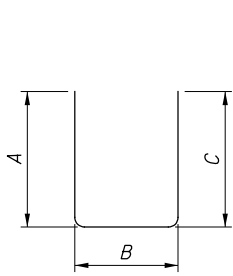
TYPICAL CURVED STEEL PLATE DETAIL

- NOTES:
1. CAULK SHALL CONFORM TO FEDERAL SPEC. TT-S-00230C TYPE II, CLASS A, BLACK. PROVIDE A 1 INCH OPENING THROUGH THE CAULKING ON THE LOW SIDE OF BASE PLATES.

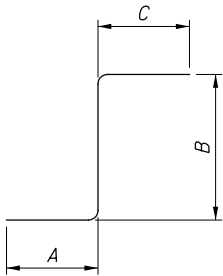
NO.	DATE	DESCRIPTION
1	2024-09-10	RECORD DRAWINGS
0	2019-09-09	RFC
ISSUE RECORD		

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS						
	TOTAL				A	B	C	D	E	R	INC
WALL 2A											
2AW401	734	9'-9"	4,781	2	4'-8"	7"	4'-8"				
2AW402	734	6'-6"	3,187	2	1'-0"	4'-8"	1'-0"				
2AW403	2 SR OF 18	4'-7" TO 8'-8"	159	STR							2 7/8"
2AW404	2 SR OF 20	8'-9" TO 13'-3"	294	STR							2 7/8"
2AW405	80	13'-4"	713	STR							
2AW406	120	14'-4"	1,149	STR							
2AW407	60	15'-4"	615	STR							
2AW408	60	16'-4"	655	STR							
2AW409	60	17'-4"	695	STR							
2AW410	120	18'-4"	1,470	STR							
2AW411	2 SR OF 30	17'-4" TO 18'-4"	715	STR							0 3/8"
2AW412	60	19'-4"	775	STR							
2AW413	60	20'-4"	815	STR							
2AW414	6 SR OF 30	20'-4" TO 21'-4"	2,505	STR							0 3/8"
2AW415	112	21'-4"	1,596	STR							
2AW416	60	22'-4"	895	STR							
2AW417	12 SR OF 30	21'-4" TO 22'-4"	5,250	STR							0 3/8"
2AW601	20	18'-1"	543	STR							
2AW602	4	13'-10"	83	STR							
2AW603	4	17'-8"	106	STR							
2AW604	331	25'-10"	12,843	STR							
2AW605	791	29'-8"	35,246	STR							
2AW606	335	7'-11"	3,983	8	4'-2"	6"	3'-7"				
2AW607	20	30'-1"	904	19	9'-10"	19'-9"	4'-7"				
2AW608	54	25'-8"	2,082	STR							
SUBTOTAL			82,059								

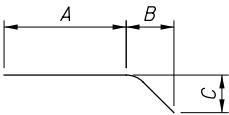
BENDING DIAGRAMS



TYPE-2



TYPE-8

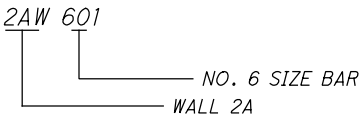


TYPE-19

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 THREE ALPHABETICAL LETTERS INDICATES LOCATION. THE NEXT DIGIT OF THE THREE DIGIT SERIES AND THE NEXT TWO DIGITS OF THE FOUR DIGIT SERIES INDICATE BAR SIZE NUMBER.

EXAMPLE:



MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS						
	TOTAL				A	B	C	D	E	R	INC
WALL 2B											
2BW401	304	9'-9"	1,980	2	4'-8"	7"	4'-8"				
2BW402	304	6'-6"	1,320	2	1'-0"	4'-8"	1'-0"				
2BW403	120	21'-1"	1,690	STR							
2BW404	6 SR OF 30	20'-1" TO 21'-1"	2,475	STR							0 3/8"
2BW405	6 SR OF 30	21'-1" TO 22'-1"	2,595	STR							0 3/8"
2BW406	2 SR OF 20	20'-1" TO 20'-10"	547	STR							0 1/2"
2BW407	2 SR OF 10	17'-6" TO 20'-7"	254	STR							4 1/8"
2BW408	2 SR OF 34	5'-2" TO 16'-3"	486	STR							4"
2BW601	146	25'-10"	5,665	STR							
2BW602	324	29'-8"	14,437	STR							
2BW603	146	7'-11"	1,736	8	4'-2"	6"	3'-7"				
2BW604	20	30'-1"	904	19	19'-9"	9'-8"	3'-7"				
2BW605	20	35'-6"	1,066	STR							
2BW606	2 SR OF 6	16'-0" TO 31'-2"	425	STR							3'-0 3/8"
2BW607	12	33'-8"	607	STR							
SUBTOTAL			36,187								

0	2019-09-09	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

REINFORCING STEEL LIST

RETAINING WALL 2A/2B

ALONG O.C. BOULEVARD AND QUADRANT ROAD

CUY-IR490/SR010-

2.09/19.28

PID No. 96833

27/27

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