

# KCDC Western Heights

Knoxville, Tennessee  
Segmental Block Retaining Walls  
June 15, 2023

## Notes For The Construction Of Retaining Wall(s)

### GENERAL NOTES

- THE DESIGN IS BASED ON SPECIFIC SEGMENTAL RETAINING WALL (SRW) UNIT PROPERTIES. THE USE OF ANY MATERIALS OTHER THAN THESE SPECIFIED HEREIN SHALL NOT BE ALLOWED WITHOUT PRIOR REVIEW AND APPROVAL.
- THE WALL CONTRACTOR AND/OR CEI (CONSTRUCTION ENGINEER INSPECTION) STAFF SHALL VERIFY ALL CONDITIONS, GRADES, DIMENSIONS, AND TOPOGRAPHIC INFORMATION PRIOR TO CONSTRUCTION. IF THE WALL CONTRACTOR AND/OR CEI STAFF DISCOVERS ANY ERRORS, OMISSIONS, OR DISCREPANCIES, THEY SHALL CONTACT THE DESIGN PROFESSIONAL (GEOSERVICES, LLC). THE DESIGN PROFESSIONAL WILL THEN ISSUE INSTRUCTIONS AS TO HOW TO PROCEED.
- THE CONTRACTOR/OWNER SHALL BE RESPONSIBLE FOR OBSERVING ALL APPLICABLE SAFETY LAWS AND REGULATIONS, INCLUDING BY NOT LIMITED TO SHORING, GUARDRAILS AND/OR FENCING, TEMPORARY EXCAVATION, LOCAL BUILDING CODES AND REGULATIONS, ETC.
- EXCAVATION FOR CURB AND GUTTER, FENCING, GUARDRAILS, UTILITIES, AND FOUNDATIONS SHALL BE COORDINATED WITH WALL CONSTRUCTION AND SHALL BE COMPLETED WITHOUT DAMAGE TO THE WALL SYSTEM.
- THE OWNER/CEI ENGINEER SHALL PROVIDE TESTING IN ACCORDANCE WITH THE SPECIAL INSPECTIONS REQUIREMENTS OF IBC AND ITEMS LISTED HEREIN. THE CEI ENGINEER SHALL MAINTAIN RESPONSIBILITY FOR WALL CERTIFICATION (IF REQUIRED) TO THE PROVIDED PLANS AND SPECIFICATIONS.
- DRAWINGS ARE SPECIFIC TO THE PROJECT. ANY PARTY ACCEPTING THESE DOCUMENTS DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED IN WHOLE OR IN PART, NOR DISCLOSED TO OTHERS WITHOUT THE CONSENT OF GEOSERVICES, LLC.
- CONSTRUCTION AND INSPECTION OF THE SRW SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE BLOCK MANUFACTURER, THE ELEVATION VIEW, DETAIL(S), AND THE SPECIFICATIONS.
- INSTALLATION OF UTILITIES IN THE REINFORCEMENT ZONE SHALL BE COORDINATED WITH WALL CONSTRUCTION.
- DIFFERENTIAL SETTLEMENT OF STRUCTURES ABOVE THE WALL SHALL BE ADDRESSED BY THE GEOTECHNICAL ENGINEER.
- DESIGN ELEVATIONS ARE BASED ON THE PROVIDED FILES FOR THE PROJECT. GEOSERVICES SHALL NOT BE LIABLE FOR DISCREPANCIES DUE TO PROVIDED FILES OR ANY REVISIONS TO THE SITE GRADES AFTER THESE FILES ARE PROVIDED.

### DESIGN INFORMATION

- DESIGN STANDARDS: NCMA IBC 2018 FHWA-NHI-00-043
- GEOTECHNICAL REPORT: NONE PROVIDED (CONSERVATIVE PARAMETERS SELECTED BASED ON EXPERIENCE IN THE AREA). THE ON-SITE TESTING FIRM SHALL CONFIRM THAT THE SOIL PARAMETERS UTILIZED IN THE DESIGN ARE CONSISTENT WITH THE SITE CONDITIONS.
- SURCHARGE & GEOMETRY: THE RETAINING WALLS WERE DESIGNED WITH THE SLOPES AND SURCHARGES LISTED IN TABLE 1 ON THIS SHEET. IF DISCREPANCIES ARE FOUND TO EXIST BETWEEN THE FIELD CONDITIONS AND THE DESIGN CONDITIONS, THE DESIGN ENGINEER SHALL BE NOTIFIED TO DETERMINE IF DESIGN MODIFICATIONS ARE REQUIRED PRIOR TO BEGINNING WALL CONSTRUCTION.
- SOIL PROPERTIES:

SOIL	EFFECTIVE FRICTION	UNIT WEIGHT	COHESION	NOTES
REINFORCED (#57)	PHI (φ) = 40 DEGREES	GAMMA (γ) = 105 PCF	C = 0 PSF	ALL WALLS
RETAINED (CLAY)	PHI (φ) = 26 DEGREES	GAMMA (γ) = 120 PCF	C = 0 PSF	ALL WALLS
FOUNDATION (CLAY)	PHI (φ) = 26 DEGREES	GAMMA (γ) = 120 PCF	C = 100 PSF	ALL WALLS
- ALLOWABLE BEARING PRESSURE: VARIES; SEE WALL PROFILES (TO BE EVALUATED PRIOR TO CONSTRUCTION BY TESTING COMPANY)
- GEOGRID COVERAGE PERCENTAGE: 100%
- MINIMUM FACTORS OF SAFETY:

	STATIC	SEISMIC
GEOGRID STRENGTH	1.5	N/A
GEOGRID PULL OUT	1.5	N/A
BASE SLIDING	1.5	N/A
OVERTURNING	2.0	N/A
BEARING	3.0	N/A
GLOBAL	(SEE TABLE 2 ON THIS SHEET)	N/A
- MATERIALS:

BLOCK TYPE	RIDGEROCK
GRID TYPE	STRATAGRID SG200 OR APPROVED EQUAL
NON-WOVEN GEOTEXTILE	GEOTEX 8 OZ OR APPROVED EQUAL
- REINFORCED BACKFILL REQUIREMENTS: ALL REINFORCED BACKFILL SHALL MEET THE SOIL STRENGTH REQUIREMENTS IN NOTE 4 ABOVE, THE REQUIREMENTS OUTLINED IN THE REINFORCED FILL MATERIAL REQUIREMENTS TABLE BELOW, THE RECOMMENDATIONS OF THE NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA) BEST PRACTICES GUIDE FOR REINFORCED BACKFILL, MUST HAVE A USCS DESIGNATION OF GP, GW, SW, SP, OR SM. EACH PROPOSED REINFORCED BACKFILL MATERIAL SHALL BE SUBJECTED TO GRADATION ANALYSIS AND ATTERBERG LIMITS DETERMINATIONS PRIOR TO THE BEGINNING OF CONSTRUCTION ON EACH WALL. EACH TIME THERE IS AN APPARENT MATERIAL CHANGE, OR A MINIMUM OF ONCE PER WEEK, WHICHEVER OCCURS FIRST, MATERIAL WHICH HAS NOT BEEN TESTED AND APPROVED SHALL NOT BE PLACED IN THE REINFORCEMENT ZONE UNTIL TESTING IS COMPLETE AND THE MATERIAL HAS BEEN APPROVED BY GEOSERVICES. IF UNTESTED/UNAPPROVED MATERIAL IS PLACED IN THE REINFORCED ZONE, THESE MATERIALS SHALL BE REMOVED AND REPLACED WITH TESTED AND APPROVED MATERIALS. GEOSERVICES SHALL NOT BE LIABLE FOR UNTESTED/UNAPPROVED MATERIALS WHICH HAVE BEEN PLACED IN THE REINFORCED ZONE.

REINFORCED FILL MATERIAL REQUIREMENTS								
Wall Height (FT)	Plasticity Requirements		Gradation Requirements					
	LL	PI	Sieve Size					
			1"	No. 4	No. 40	No. 200		
Percent Passing								
0 <	H	≤ 10	< 40	< 20	100	20-100	0-60	0-35
10 <	H	≤ 20	< 6	< 6	100	20-100	0-60	0-35
	H	> 20	< 6	< 6	100	20-100	0-60	0-15

\*NOTE: THIS INFORMATION PROVIDED BY THE "SEGMENTAL RETAINING WALLS BEST PRACTICES GUIDE FOR THE SPECIFICATION, DESIGN, CONSTRUCTION, AND INSPECTION OF SRW SYSTEMS" BY THE NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA).

TABLE 1 - WALL SLOPES AND SURCHARGES					
Wall ID	Stations	Backslope (H:V)	Toe Slope (H:V)	Surcharge (PSF)	Surcharge Type
1	0+00-2+23	Flat	Flat	250	Traffic
	2+23-End	Flat	Flat	2000	Building
2	ALL	Flat	Flat	100	Landscape
	0+00-0+14.7	Flat	Flat	2000	Building
3	0+14.7-End	Flat	Flat	250	Traffic
	0+00-0+93.9	Flat	Flat	100	Landscape
4	0+93.9-1+14.2	Flat	Flat	2408	Wall #3
	1+14.2-2+44.3	Flat	Flat	100	Landscape
	2+44.3-End	2:1	Flat	0	N/A

TABLE 2 - MINIMUM GLOBAL STABILITY FACTORS OF SAFETY		
Wall ID	Stations	Minimum Global FOS
1	0+00-2+23	1.50
	2+23-End	1.50
2	ALL	1.50
	0+00-0+14.7	1.50
3	0+14.7-End	1.50
	0+00-0+93.9	1.50
4	0+93.9-1+14.2	1.35
	1+14.2-2+44.3	1.50
	2+44.3-End	1.40

### INSTALLATION NOTES

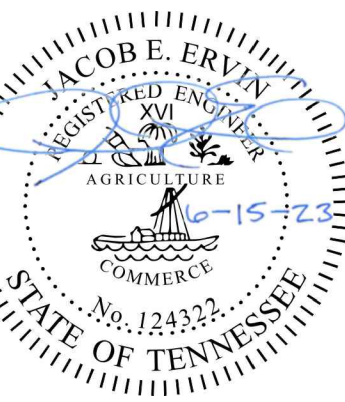
- BASE LEVELING PAD MATERIAL**
  - LEVELING PAD MATERIAL SHALL CONSIST OF DENSE-GRADED LIMESTONE AGGREGATE OR LEAN CONCRETE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6 INCHES IN FRONT OF AND BEHIND THE MODULAR WALL UNITS. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.
  - DENSE-GRADED AGGREGATE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR MAXIMUM DRY DENSITY PER ASTM D-698 WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT TO ENSURE A LEVEL HARD SURFACE ON WHICH TO PLACE THE FIRST COURSE OF BLOCKS.
- DRAINAGE**
  - A 4" PERFORATED DRAINAGE PIPE SHALL BE INSTALLED AT THE BASE OF THE RETAINING WALL AS SHOWN ON THE TYPICAL CROSS-SECTIONS AND SHALL BE SLOPED TO DRAIN AT 1% MINIMUM. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING PIPE CONTINUOUS ALONG THE ENTIRE LENGTH OF THE WALL. THE PERFORATED DRAIN PIPE SHALL BE CONNECTED TO OUTLETS INSTALLED THROUGH THE FACING UNITS. THE OUTLET PIPES SHALL EXTEND TO THE EXTERIOR OF THE WALL FACE AT ALL LOW POINTS AND/OR A MINIMUM OF EVERY 20 LINEAR FEET, WHICH EVER IS LESS. THE OUTLET PIPES SHALL BE SLOPED TO DRAIN TOWARDS THE EXTERIOR WALL FACE AT 1% MINIMUM. THE OUTLET PIPES SHALL BE SOLID PVC PIPE IN ACCORDANCE WITH ASTM D-3034 OR CORRUGATED HDPE PIPE IN ACCORDANCE WITH ASTM D-1248.
  - OPEN-GRADED STONE SHALL BE PLACED IMMEDIATELY BEHIND THE FACING UNITS AS SHOWN IN THE TYPICAL RETAINING WALL CROSS-SECTION IN THESE PLANS. THE OPEN-GRADED STONE SHALL BE WRAPPED WITH A NON-WOVEN GEOTEXTILE FABRIC AS SHOWN, WHERE SEAMS EXIST IN THE GEOTEXTILE FABRIC, THE GEOTEXTILE FABRIC SHALL BE OVERLAPPED A MINIMUM OF 24 INCHES.
  - DENSE-GRADED AGGREGATE SHALL BE BACKFILLED BEHIND THE INITIAL COURSE(S) OF WALL UNITS TO THE ELEVATION OF THE FINAL FINISHED GRADE AT THE BOTTOM OF THE WALL. THIS DENSE-GRADED AGGREGATE BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY PER ASTM D-698 WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. THE TOP SURFACE OF THE OPEN-GRADED AGGREGATE BACKFILL SHALL BE SLOPED TO DRAIN AT 1% MINIMUM TOWARDS THE WALL FACE AT ALL TIMES.
  - NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE SURFICIAL SOIL, RETAINED SOIL, AND THE REINFORCED FILL AS SHOWN ON THE TYPICAL WALL CROSS-SECTIONS. WHERE SEAMS EXIST IN THE GEOTEXTILE FABRIC, THE GEOTEXTILE SHALL BE OVERLAPPED A MINIMUM OF 24 INCHES.
  - AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL GRADE THE SURFACE OF THE LAST LIFT OF RETAINED SOIL AWAY FROM THE FACE AND COMPACT TO PREVENT WATER FROM PONDING AND/OR FLOWING OVER THE WALL FACE.
  - THE CONTRACTOR SHALL INSTALL TEMPORARY SOIL BERMS AND DRAINAGE DITCHES AS NECESSARY TO DIVERT WATER AWAY FROM THE WALLS.
- MODULAR UNIT INSTALLATION**
  - FIRST COURSE OF WALL FACING UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROXIMATE LINE AND GRADE WITH THE AESTHETIC SURFACE FACING OUT AND THE FRONT EDGES TIGHT TOGETHER. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.
  - PLACE THE FRONT OF UNITS SIDE BY SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH THE BLOCK MANUFACTURER'S RECOMMENDATIONS.
  - INSTALL SHEAR / CONNECTING DEVICES PER THE MANUFACTURER'S RECOMMENDATIONS (IF APPLICABLE).
  - THE BACKFILL IN FRONT AND IN BACK OF ENTIRE BASE ROW SHALL BE PLACED AND COMPACTED TO FIRMLY LOCK THEM IN PLACE. CHECK ALL UNITS AGAIN FOR LEVEL AND ALIGNMENT. ALL EXCESS MATERIAL SHALL BE SWEEPED FROM TOP OF UNITS.
  - INSTALL NEXT COURSE OF WALL UNITS ON TOP OF BASE ROW. POSITION BLOCKS TO BE OFFSET FROM SEAMS OF BLOCKS BELOW IN A RUNNING BOND PATTERN. CHECK EACH BLOCK FOR PROPER ALIGNMENT AND LEVEL.
  - INSTALL EACH SUBSEQUENT COURSE IN LIKE MANNER. REPEAT PROCEDURE TO THE EXTENT OF THE WALL HEIGHT.
  - CAP UNITS SHALL BE GLUED TO THE UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER AND CONFORMS TO ASTM 2339.
- BACKFILL PLACEMENT**
  - THE BACKFILL MATERIAL USED IN THE REINFORCED ZONE SHALL BE THE REINFORCED BACKFILL DESIGNATED IN THE SOIL PROPERTIES OF THE DESIGN INFORMATION. ANY CHANGES IN THE BACKFILL MATERIALS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BACKFILL PLACEMENT.
  - BACKFILL MATERIALS SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK OR WRINKLES IN THE GEOGRID, INSTALLATION DAMAGE, AND WITHOUT DISPLACING THE GEOGRID OR WALL FACING UNITS.
  - BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS NEEDED.
  - DENSE GRADED BACKFILL MATERIALS SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698.
  - OPEN-GRADED BACKFILL MATERIALS SHALL BE CONSOLIDATED BY MAKING A MINIMUM OF 4 PASSES OVER THE AREA USING A VIBRATORY PLATE COMPACTOR OR UNTIL A NON-YIELDING SURFACE IS ACHIEVED (NO DOWNWARD MOVEMENT OF STONE).
  - ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE FACING UNITS. COMPACTION EQUIPMENT BEYOND 3 FEET FROM THE FACE SHALL NOT EXCEED 8 TONS IN WEIGHT.
  - TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO THE OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.
  - RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 5 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.
  - WALL SYSTEM SHALL NOT EXTEND MORE THAN 5 FEET ABOVE PROPOSED GRADE AT THE FRONT OF THE WALL WITHOUT BACKFILLING TO THE SPECIFIED GRADE AND INCLINATION AT THE TOE OF THE WALL. BACKFILL SHOULD BE PLACED AS SOON AS REASONABLY POSSIBLE.
- GEOGRID INSTALLATION**
  - GEOGRID SHALL BE PLACED WITH THE STRONGEST AXIS PERPENDICULAR TO THE WALL FACE. THE GEOGRID LAYERS SHALL BE PULLED TAUT PRIOR TO FILL PLACEMENT. THE GEOGRID LAYERS SHALL BE PLACED WITH AN ALLOWABLE TOLERANCE OF PLUS OR MINUS THREE INCHES FROM THE DESIGN ELEVATIONS.
  - THE MINIMUM LENGTHS OF THE REINFORCEMENT LAYERS (GEOGRID EMBEDMENT LENGTHS - L) ARE SHOWN ON THE WALL PROFILE.
  - WHERE OVERLAP IS NECESSARY, A MINIMUM OF THREE INCHES OF BACKFILL SHOULD BE PLACED BETWEEN THE GEOGRID LAYERS.
  - GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGH THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. ONLY CONTINUOUS LENGTHS OF GEOGRID SHALL BE USED TO DEVELOP THE REINFORCEMENT LENGTH. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID SHALL NOT BE PERMITTED.
  - MEASURES SHALL BE IMPLEMENTED TO PROTECT THE GEOGRID AT THE BACK EDGE OF THE FACING UNITS TO PREVENT DAMAGE TO THE GEOGRID BY ALL SHARP EDGES.
  - INSTALLED GEOGRIDS OR PORTIONS OF GEOGRIDS SHALL NOT BE CUT, DAMAGED, OR REMOVED DURING SUBSEQUENT CONSTRUCTION OPERATIONS. ANY EXCAVATION CONDUCTED IN THE REINFORCED ZONE MUST BE DONE WITHOUT DAMAGING THE GEOGRID LAYERS. UTILITIES TO BE PLACED WITHIN THE REINFORCED ZONE OF THE WALL SHALL BE COORDINATED BY THE CONTRACTOR. THE ENGINEER SHALL BE CONTACTED IF THERE ARE ANY QUESTIONS.
- AS-BUILT CONSTRUCTION TOLERANCES**
  - VERTICAL ALIGNMENT: +/- 1.25 INCHES OVER ANY 10 FOOT DISTANCE.
  - WALL BATTER: WITHIN 2 DEGREES OF DESIGN BATTER.
  - HORIZONTAL ALIGNMENT: +/- 1.5 INCHES OVER ANY 10 FOOT DISTANCE. CORNERS, BENDS, CURVES +/- 1 FOOT TO THEORETICAL LOCATION.
  - MAXIMUM HORIZONTAL GAP BETWEEN ERRECTED UNITS SHALL BE 1/8 INCH.
- STATEMENT OF SPECIAL INSPECTIONS**
  - SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH IBC SECTION 1704.5.
  - THE SPECIAL INSPECTOR'S RESPONSIBILITIES INCLUDE VERIFYING THE FOLLOWING:

(I) WALL UNIT IDENTIFICATION AND COMPRESSIVE STRENGTH	ONCE PER WALL PRIOR TO CONSTRUCTION (FOUNDATION EXCAVATION MAY NOT BEGIN UNTIL THIS DOCUMENTATION IS RECEIVED)
(II) FOUNDATION PREPARATION AND BEARING CAPACITY	ONCE PER WALL SECTION PRIOR TO STONE PLACEMENT (LEVELING PAD INSTALLATION MAY NOT BEGIN UNTIL THIS INSPECTION IS PERFORMED)
(III) LEVELING PAD COMPACTION	ONCE PER WALL SECTION (BLOCK PLACEMENT MAY NOT BEGIN UNTIL THIS INSPECTION IS PERFORMED)
(IV) UNIT PLACEMENT INCLUDING ALIGNMENT, SIZE, AND INCLINATION	ONCE PER DAY (FURTHER VERTICAL WALL CONSTRUCTION MAY NOT BEGIN UNTIL THIS INSPECTION IS PERFORMED)
(V) GEOSYNTHETIC REINFORCEMENT TYPE AND PLACEMENT	ONCE PER DAY (FURTHER VERTICAL WALL CONSTRUCTION MAY NOT BEGIN UNTIL THIS INSPECTION IS PERFORMED)
(VI) INITIAL REINFORCED FILL GRADATION	ONCE FOR EACH PROPOSED BACKFILL MATERIAL
(VII) BACKFILL PLACEMENT AND COMPACTION	CONTINUOUS (EVERY 20-40 YARDS; FURTHER VERTICAL WALL CONSTRUCTION MAY NOT BEGIN UNTIL THIS INSPECTION IS PERFORMED)
(VIII) DRAINAGE PROVISIONS	PERIODIC (WALL CONSTRUCTION ABOVE DRAIN PIPE MAY NOT BEGIN UNTIL THIS INSPECTION IS PERFORMED)
(IX) REINFORCED FILL TESTING	ONCE PER WALL AT EACH APPARENT MATERIAL CHANGE, OR ONCE PER WEEK, WHICHEVER IS GREATER (THE MATERIAL SHALL NOT BE PLACED IN THE REINFORCEMENT ZONE UNTIL TESTING IS COMPLETE AND THE MATERIAL IS APPROVED)
  - CEI STAFFING MAY REQUIRE FURTHER TESTING FOR CERTIFICATION PURPOSES.
  - EACH OF THE INSPECTION REQUIREMENTS SHALL BE TREATED AS HOLD POINTS FOR WALL CONSTRUCTION. WALL CONSTRUCTION MAY NOT CONTINUE UNTIL EACH APPROPRIATE INSPECTION HAS BEEN COMPLETED. THE INSPECTIONS ARE MANDATORY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY GEOSERVICES WHEN AN INSPECTION IS REQUIRED. IF ANY OF THE INSPECTIONS ARE NOT PERFORMED PRIOR TO THE CONTINUANCE OF WALL CONSTRUCTION, A WALL CERTIFICATION LETTER WILL NOT BE ISSUED UNTIL THE INSPECTIONS ARE COMPLETED AND ANY DISCREPANCIES ARE ADDRESSED.



Retaining Wall Construction Notes

KCDC Western Heights  
Knoxville, Tennessee



DESIGNED BY:	REVIEWED BY:
NSS	JEE
DESIGNED BY:	APPROVED BY:
JEE	JEE

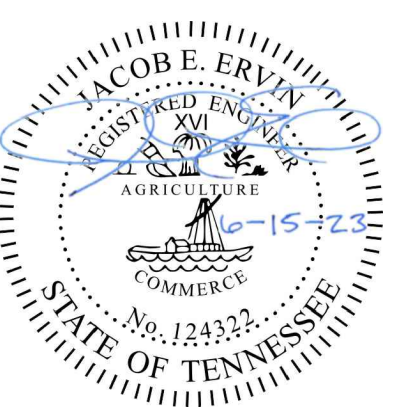
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DATE: June 15, 2023

Revisions	Description	Date	By:								
			No.	1	2	3	4	5	6		

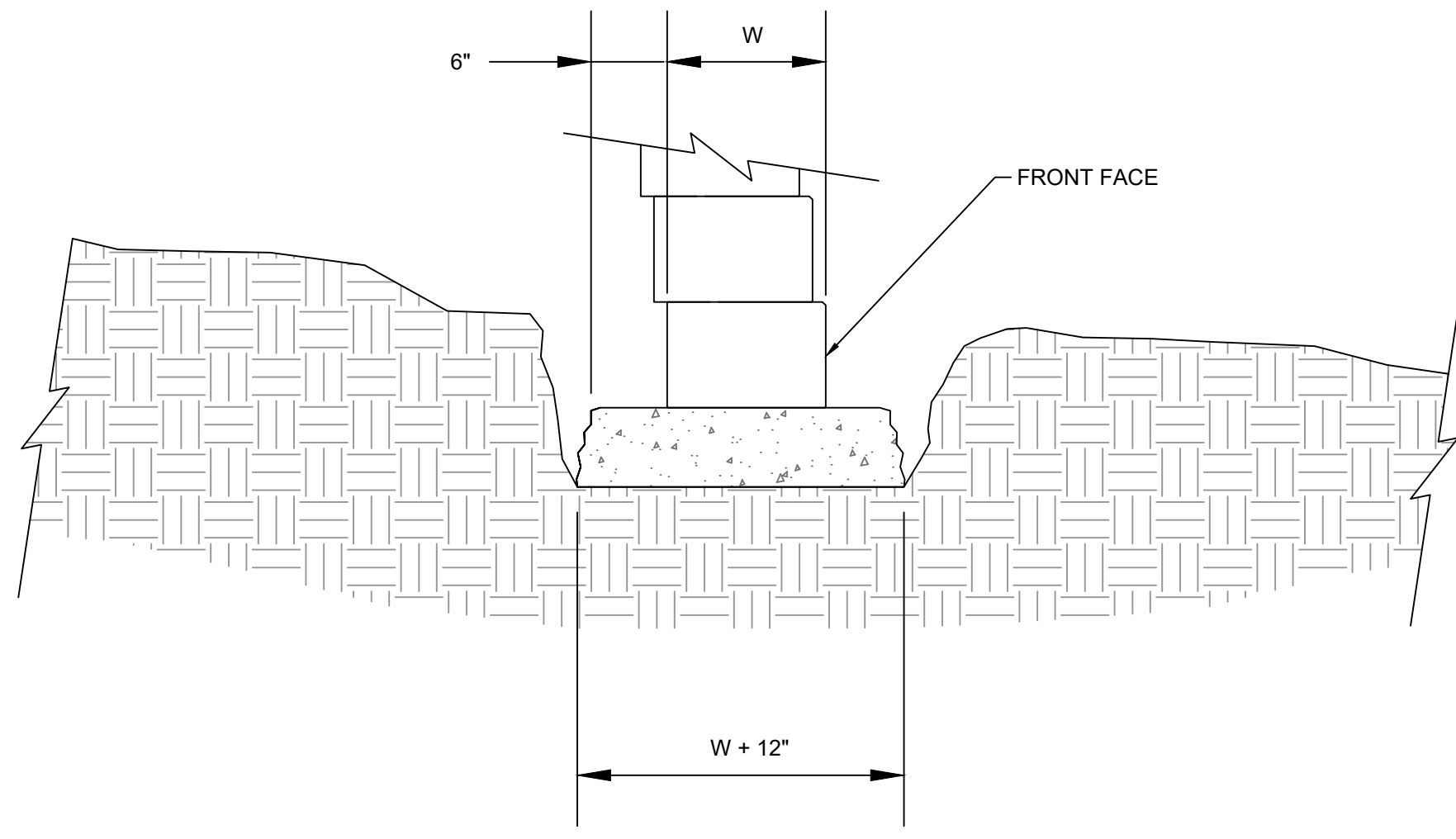
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PROJECT NUMBER: 43-23409

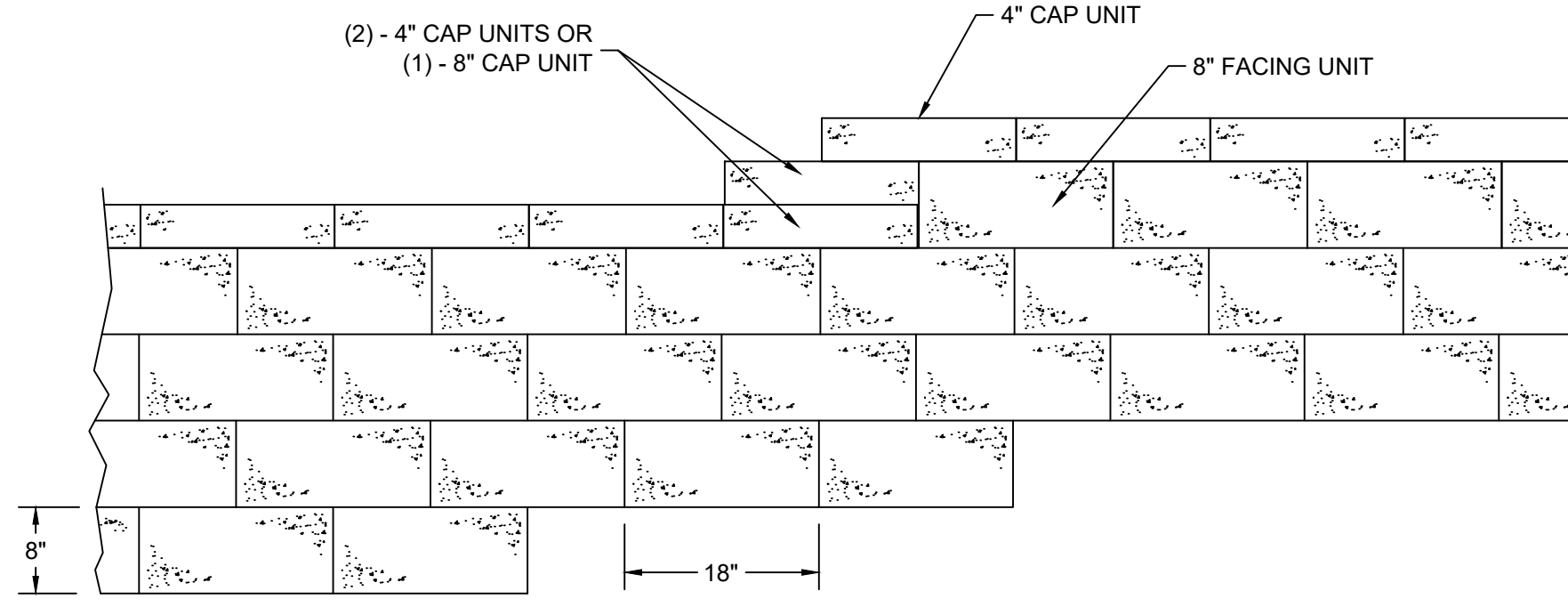


DESIGNED BY: NSS	REVIEWED BY: JEE
APPROVED BY: JEE	DATE: June 15, 2023

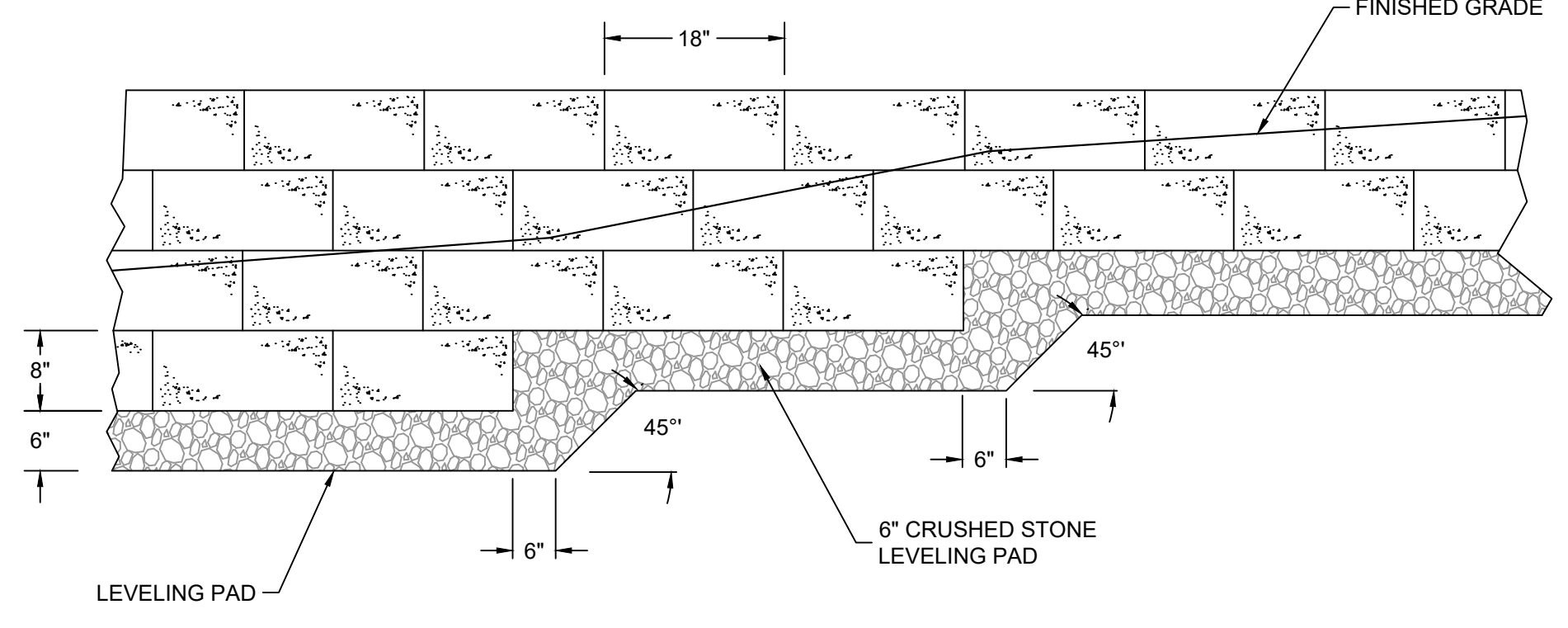
Revisions	
No.	Description



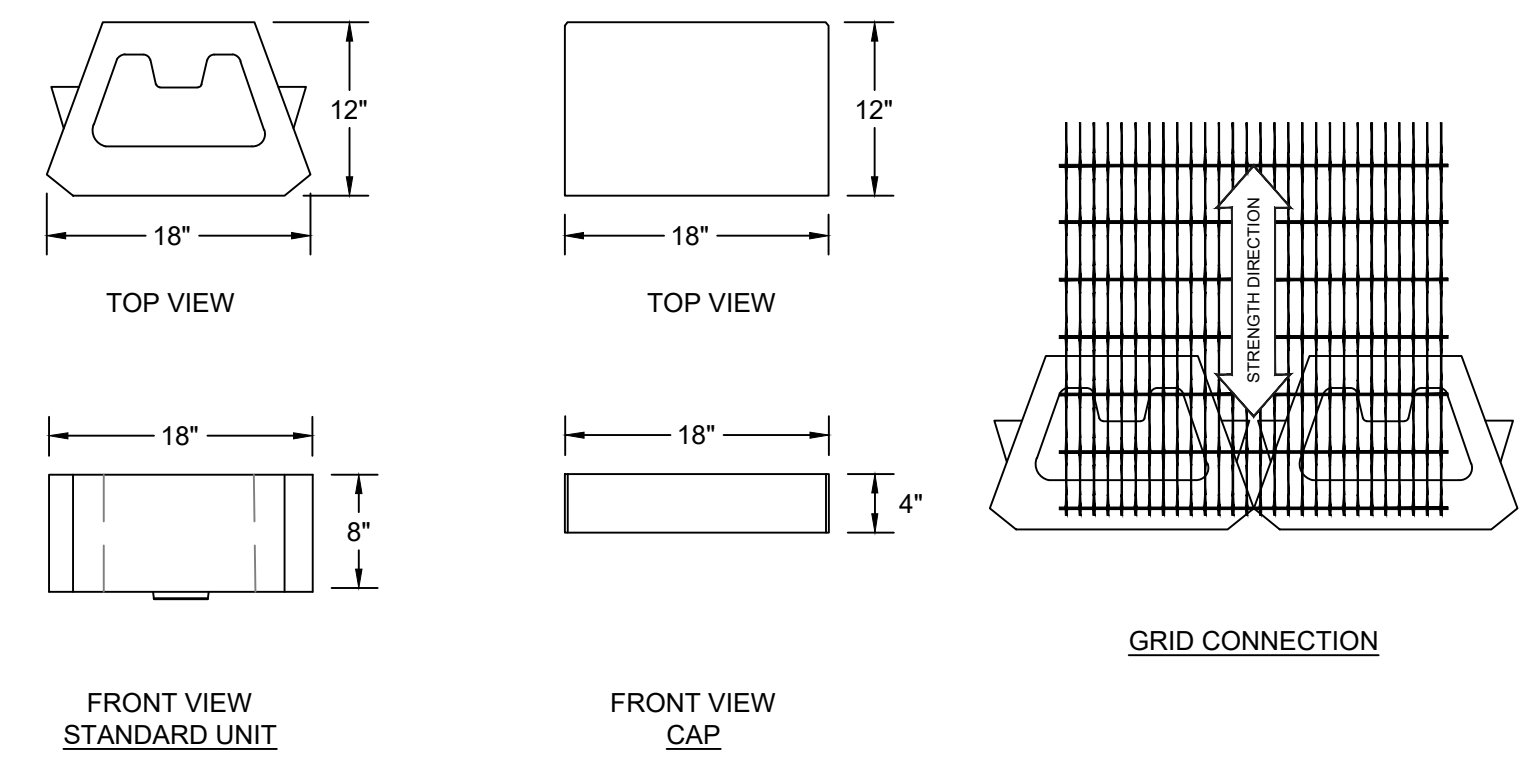
1 TYPICAL LEVELING PAD EXCAVATION DETAIL  
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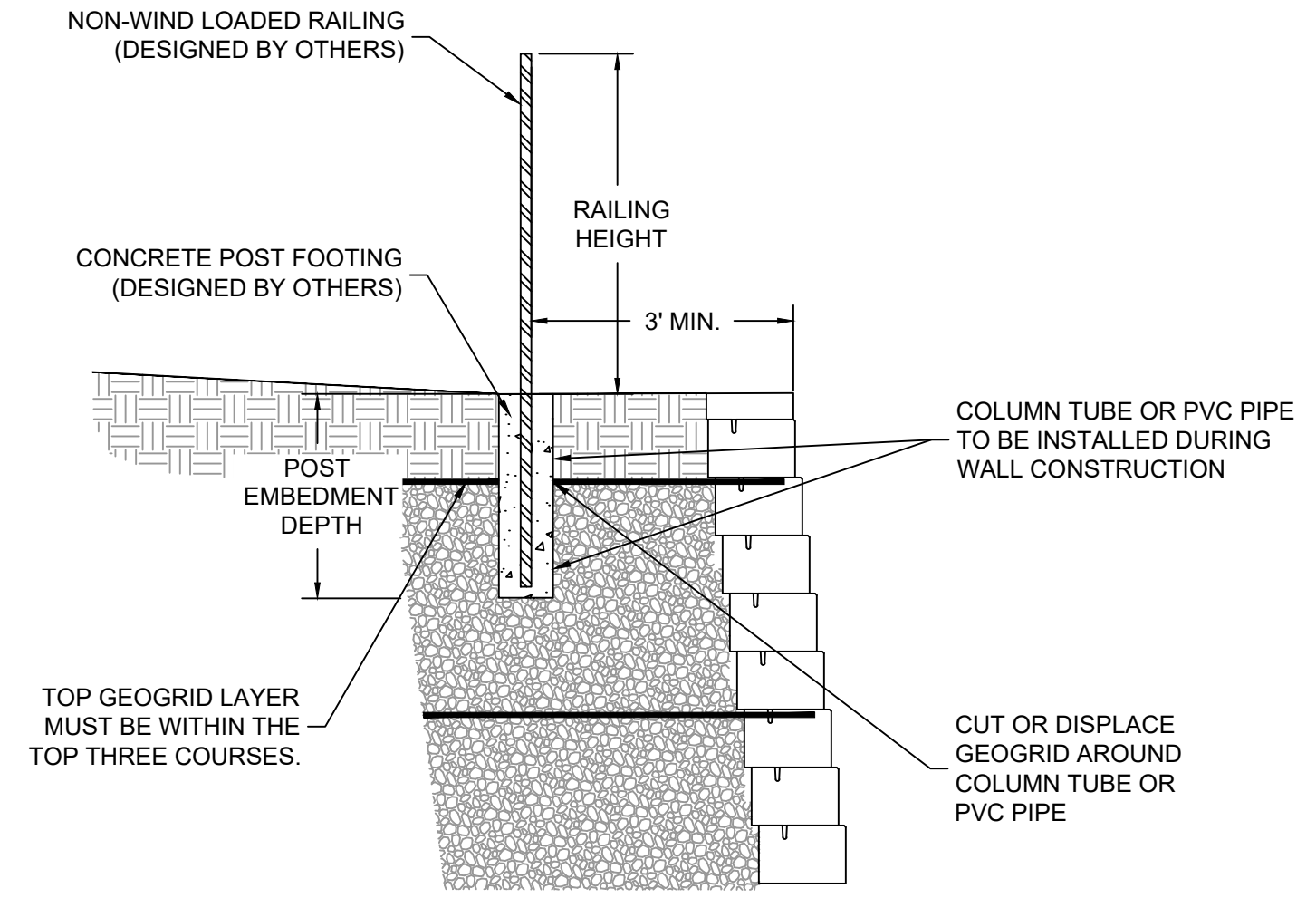
2 TOP OF WALL STEP DETAIL  
SCALE: NTS



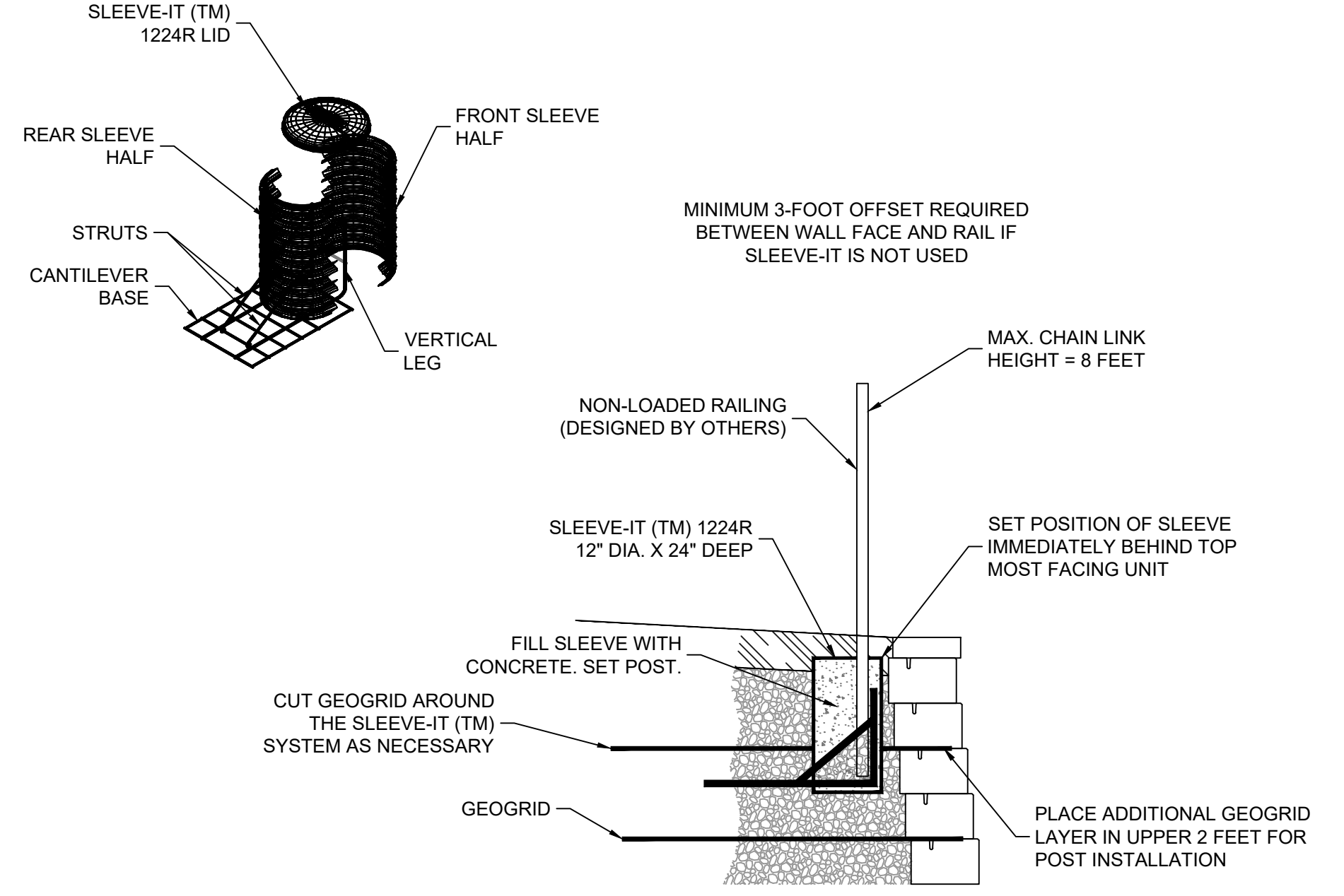
3 BOTTOM OF WALL STEP DETAIL  
SCALE: NTS



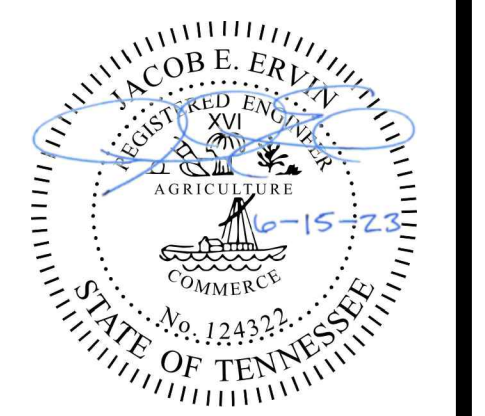
4 RIDGEROCK FACING UNIT DETAILS  
SCALE: NTS



5 POST INSTALLATION DETAIL (SONATUBE)  
SCALE: NTS



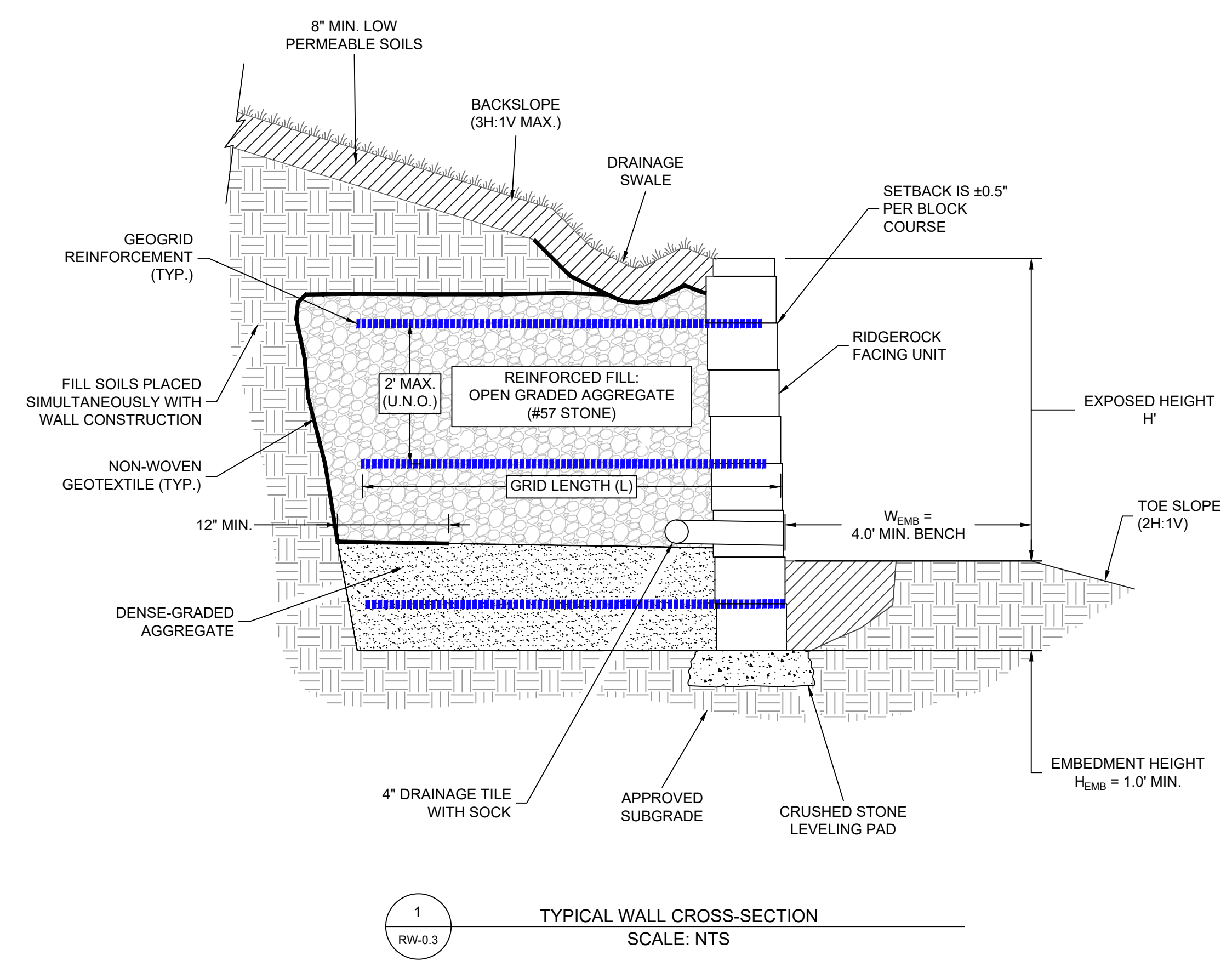
6 POST INSTALLATION DETAIL (SLEEVE-IT)  
SCALE: NTS



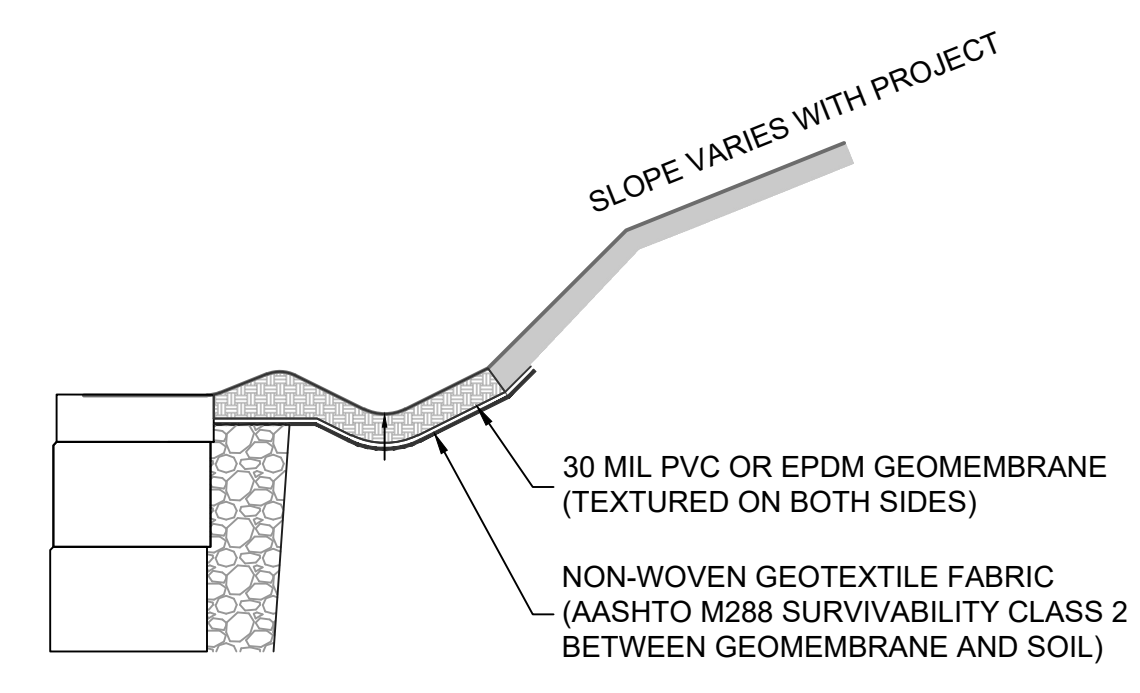
DRAWN BY:	DESIGNED BY:	REVIEWED BY:
NSS	JEE	JEE
DATE:	SCALE:	AS SHOWN
June 15, 2023		

Revisions	
No.	Description

\*NOTE: DRAINAGE SWALE DIMENSIONS SHALL BE DETERMINED BY THE PROJECT CIVIL ENGINEER. THIS DETAIL IS INTENDED TO SHOW THE MEMBRANE AND FABRIC REQUIREMENTS ONLY.



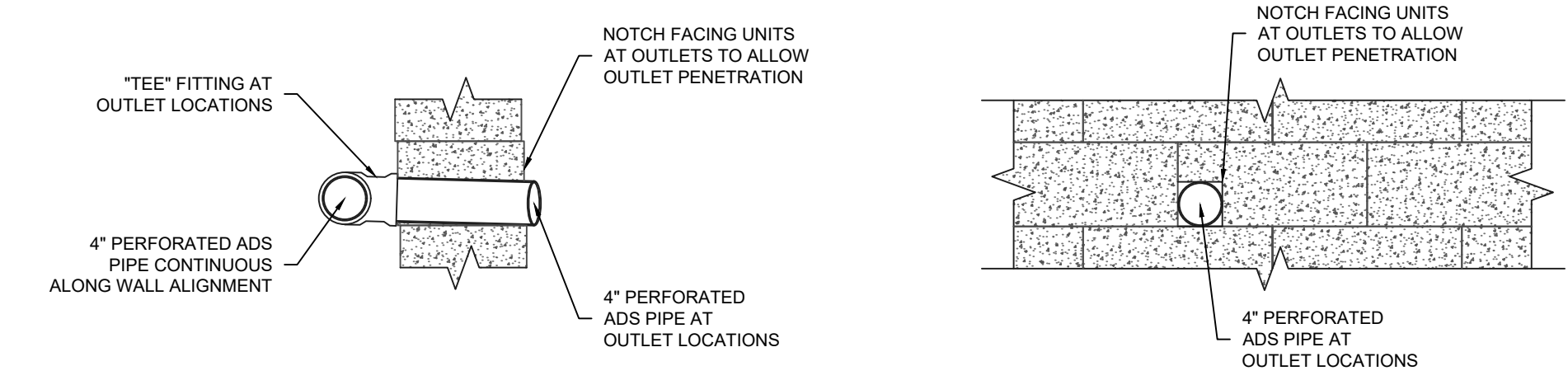
1 TYPICAL WALL CROSS-SECTION SCALE: NTS



2 TYPICAL DRAIN PIPE DETAIL SCALE: NTS

\*NOTES:

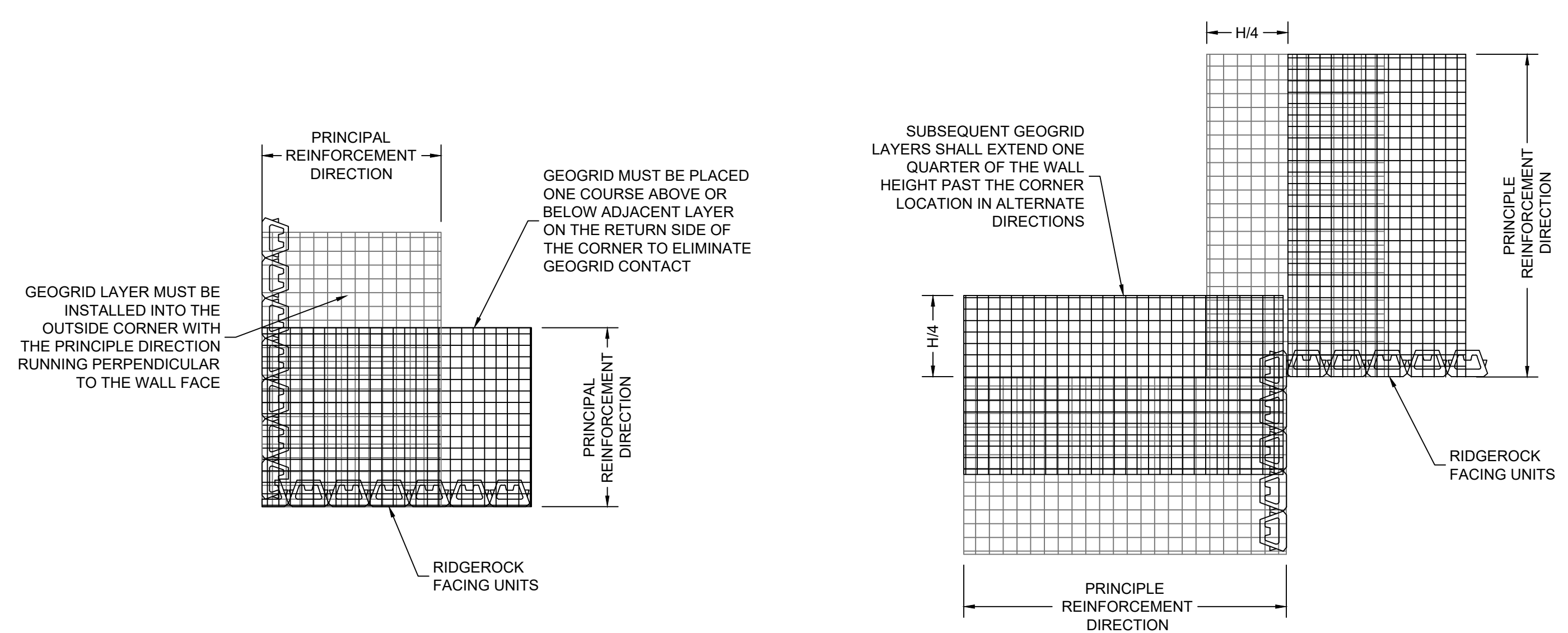
- PERFORATED PIPE SHALL BE PREMANUFACTURED WITH PERFORATIONS PER THE PIPE MANUFACTURER SPECIFICATIONS.
- WALL DRAIN PRO BY SRW PRODUCTS MAY BE UTILIZED IN LIEU OF 4-INCH DRAIN OUTLETS AT OWNER REQUEST.



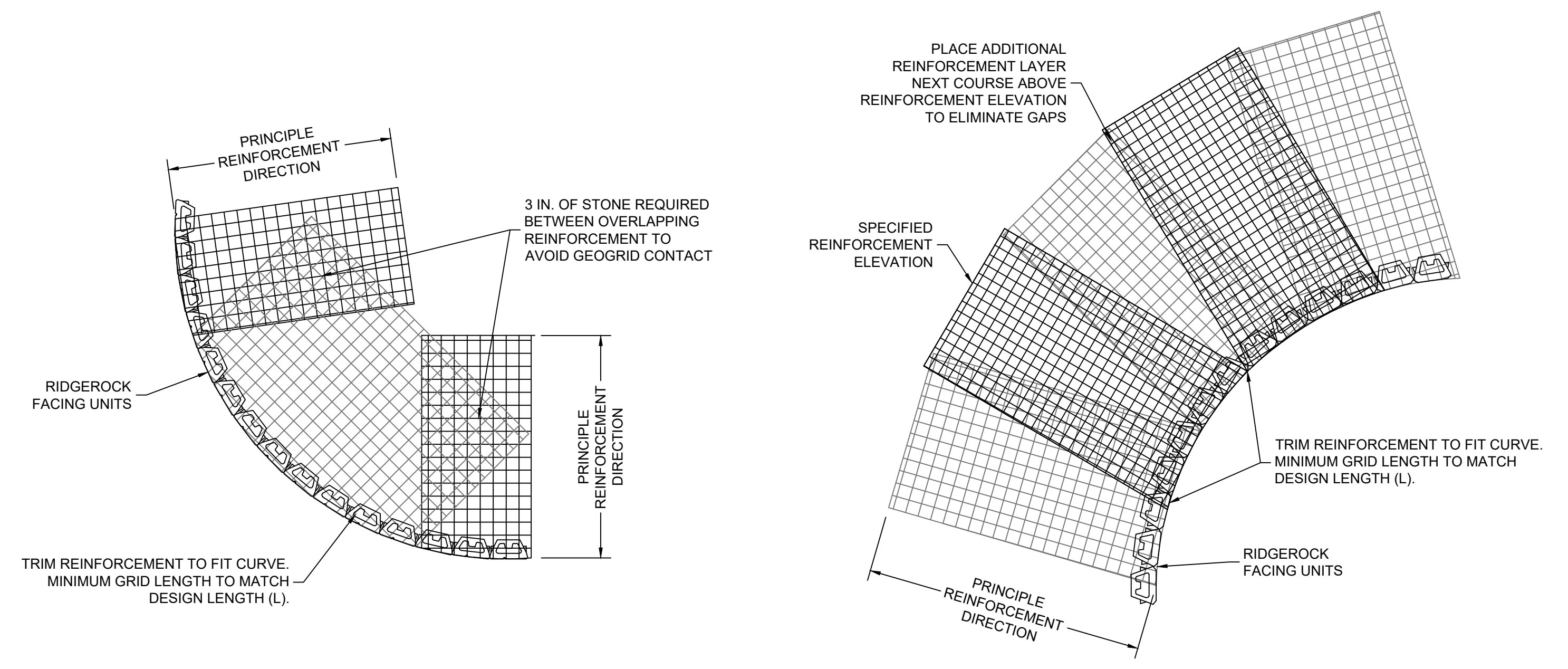
3 TYPICAL DRAIN PIPE DETAIL SCALE: NTS

\*NOTES:

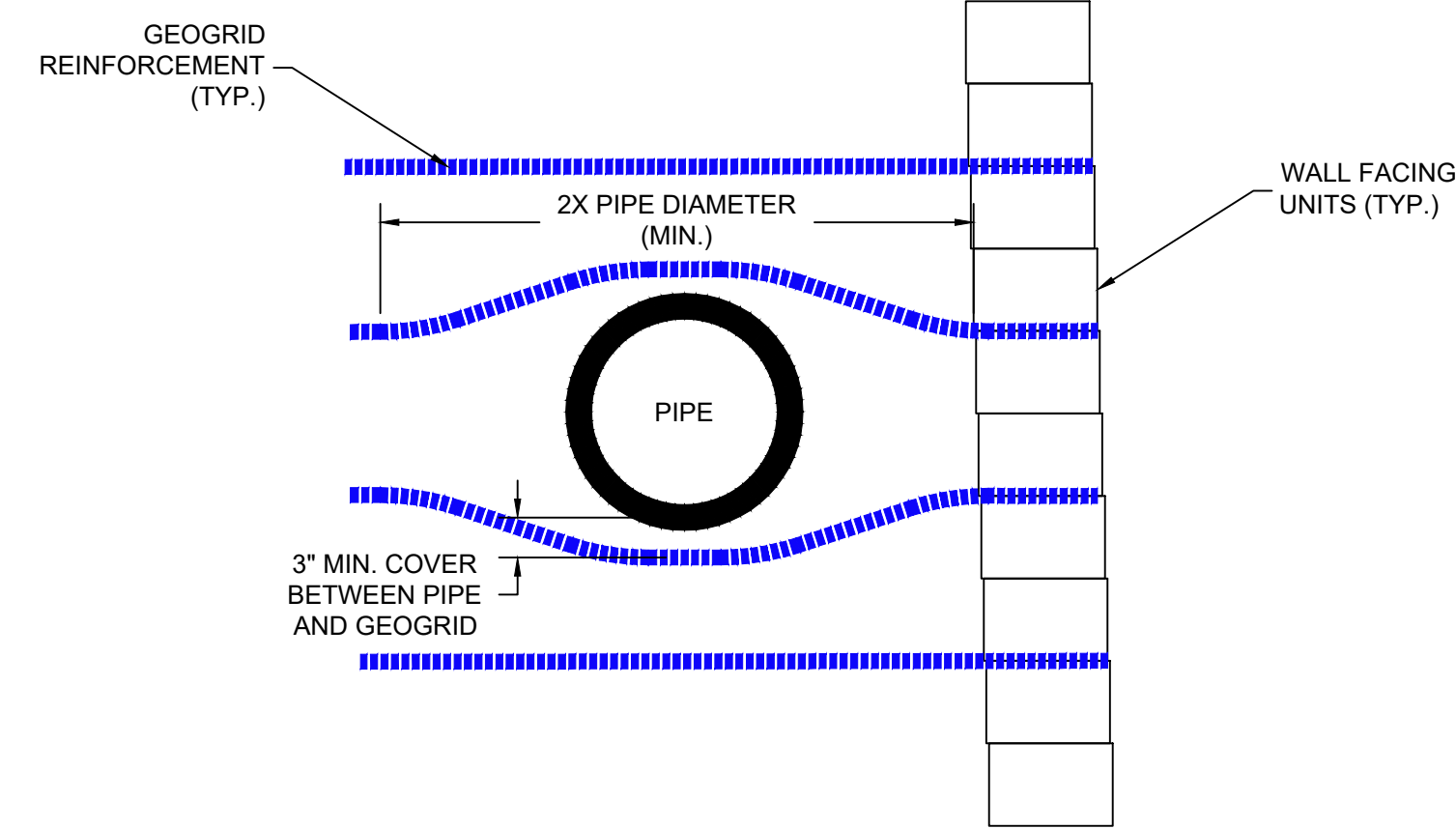
- ALL CORNERS AND CURVES SHALL BE CONSTRUCTED PER THE BLOCK MANUFACTURER SPECIFICATIONS.
- ALL INSIDES CORNERS WHICH ARE NOT 90-DEGREE CORNERS SHALL BE CONVERTED TO CURVES IN ACCORDANCE WITH THE BLOCK MANUFACTURER RECOMMENDATIONS.



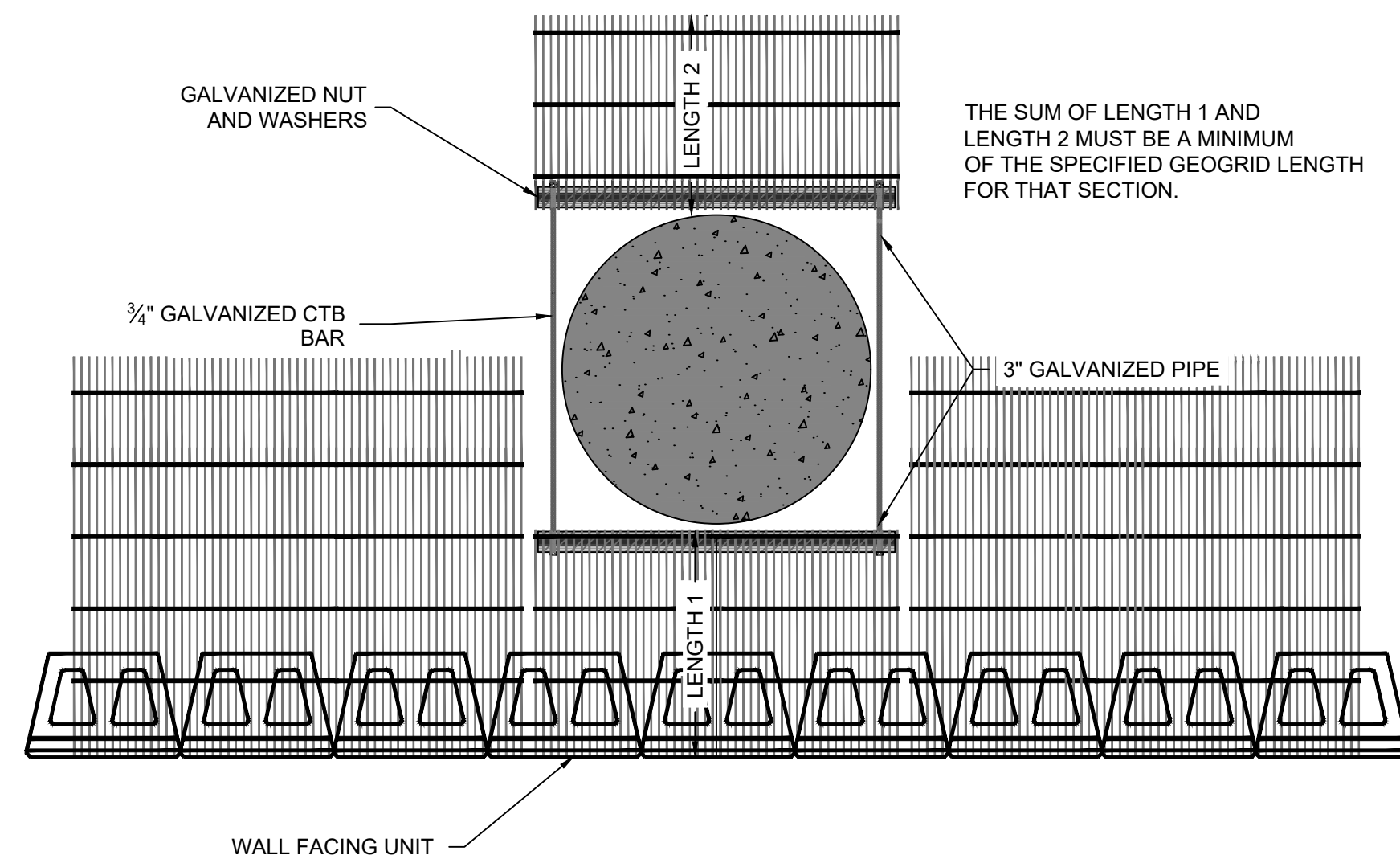
4 GEOGRID PLACEMENT AT CORNERS AND CURVES SCALE: NTS



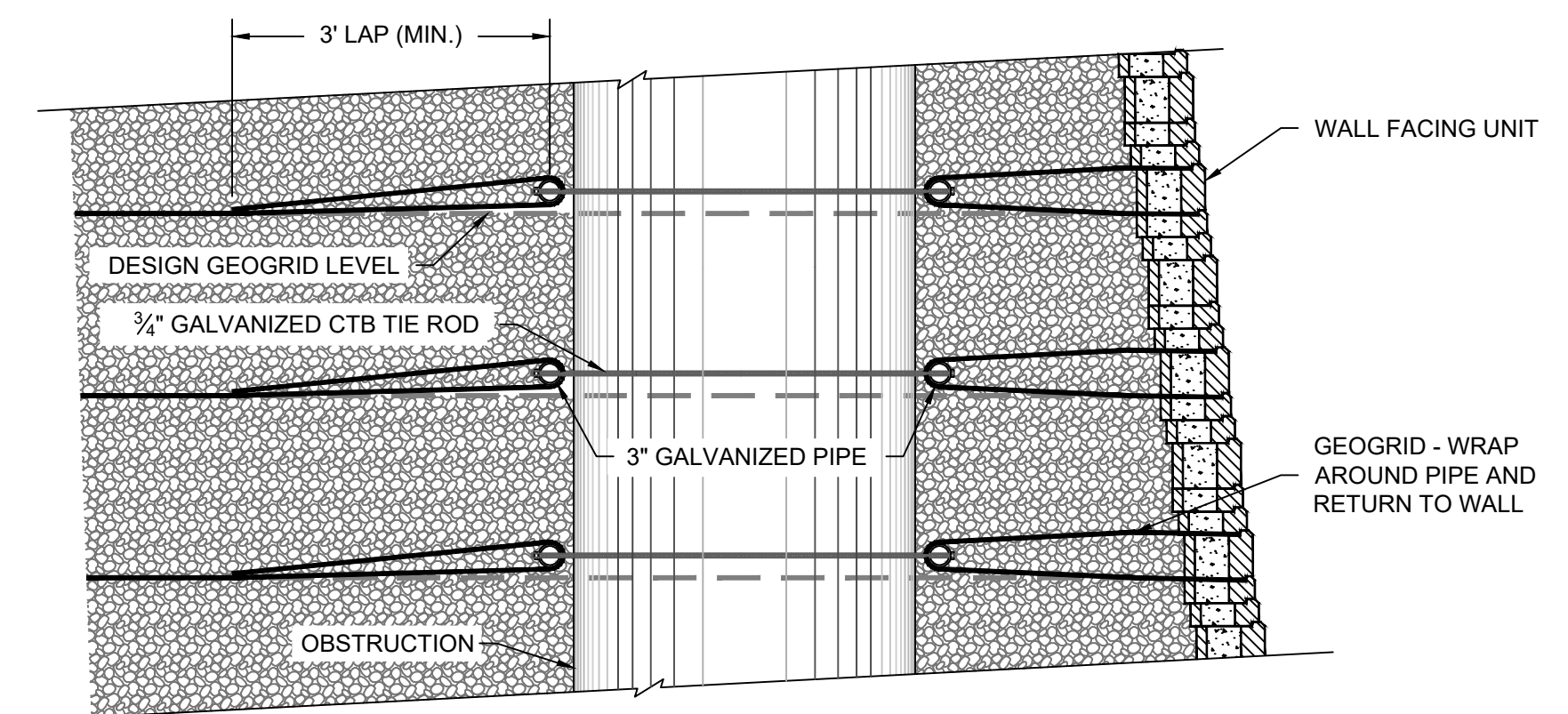
3 TYPICAL DRAIN PIPE DETAIL SCALE: NTS



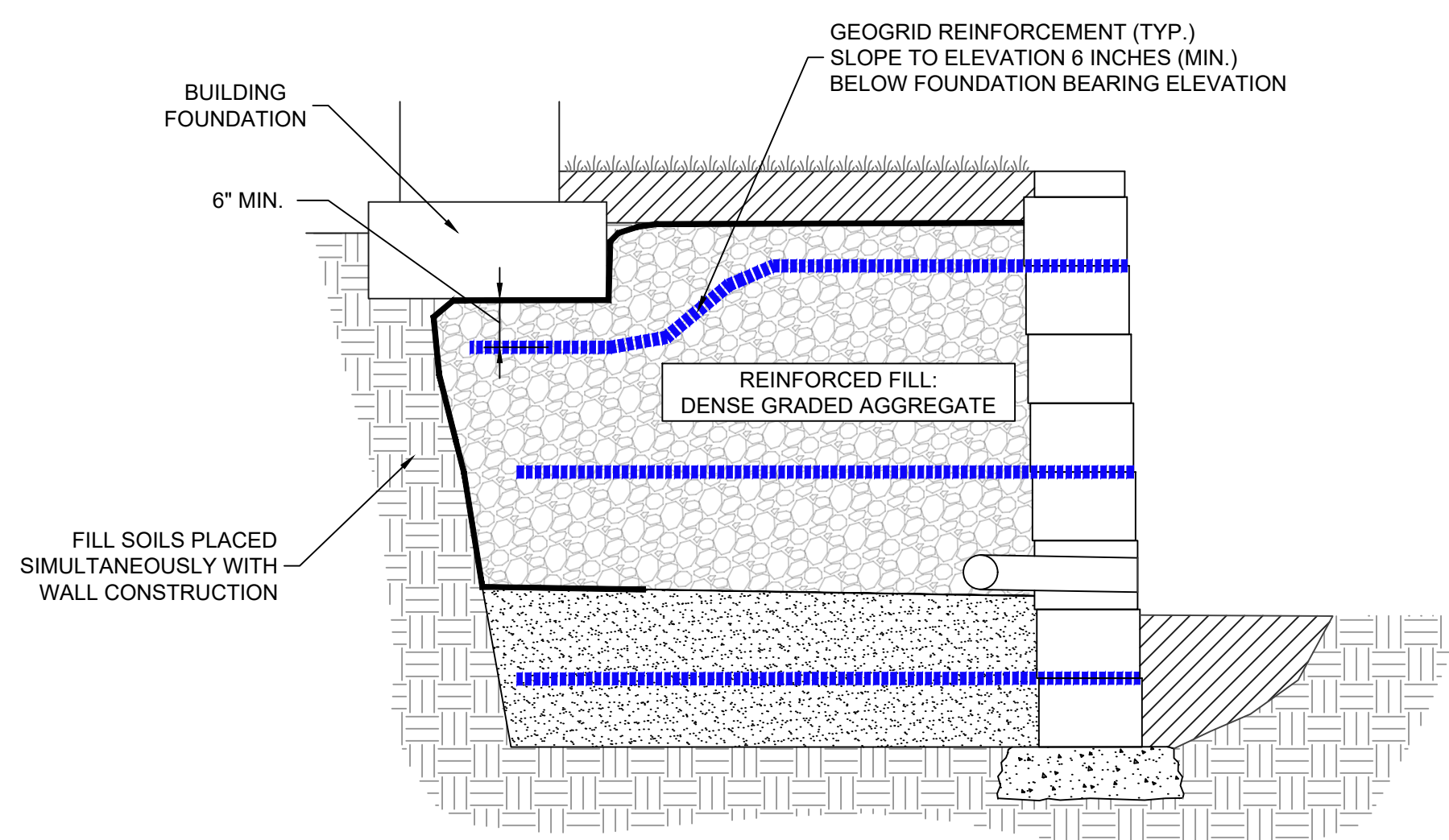
1  
RW-0.4 HORIZONTAL PIPE THROUGH GEOGRID REINFORCEMENT ZONE  
SCALE: NTS



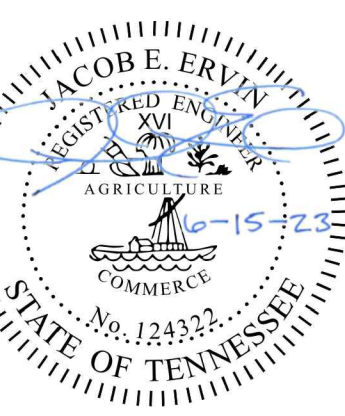
2  
RW-0.4 GRID PLACEMENT AT VERTICAL STRUCTURES - PLAN  
SCALE: NTS



3  
RW-0.4 GRID PLACEMENT AT VERTICAL STRUCTURES - PROFILE  
SCALE: NTS



4  
RW-0.4 GEOGRID UNDER FOUNDATION DETAIL  
SCALE: NTS



DRAWN BY:	REVIEWED BY:
NSS	JEE
DESIGNED BY:	APPROVED BY:
JEE	JEE
SCALE:	AS SHOWN
DATE:	June 15, 2023

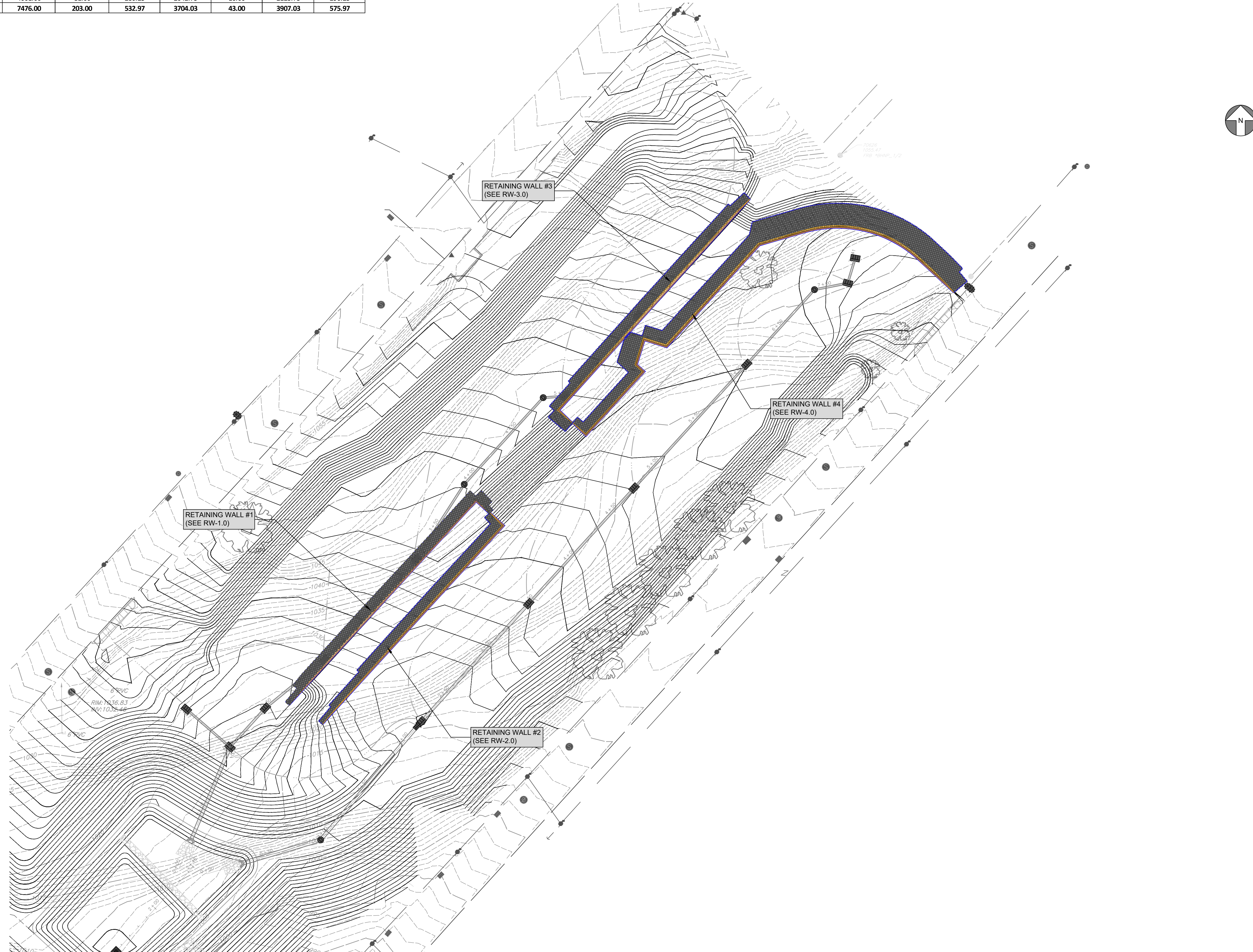
Revisions	
No.	Description
1	
2	
3	
4	
5	
6	

DRAWING: **RW-0.4**

PROJECT NUMBER: 43-23409

ESTIMATED WALL QUANTITIES										
Wall ID	Cap Area (SF)	Face Area (SF)	Total Wall Area (SF)	Stratagrid SG200 Area (SY)	Block Infill - #57 Volume (CY)	Backfill - DGA Volume (CY)	Backfill - #57 Volume (CY)	Leveling Pad - DGA Volume (CY)	Total #57 Stone Volume (CY)	Total DGA Volume (CY)
1	79.00	2336.00	2415.00	1062.00	39.00	77.65	507.35	9.00	546.35	86.65
2	78.00	2162.00	2240.00	978.00	36.00	74.25	449.75	9.00	485.75	83.25
3	81.00	2839.00	2920.00	1435.00	47.00	100.82	704.18	9.00	751.18	109.82
4	140.00	4876.00	5016.00	4001.00	81.00	280.25	2042.75	16.00	2123.75	296.25
<b>TOTALS</b>	<b>378.00</b>	<b>12213.00</b>	<b>12591.00</b>	<b>7476.00</b>	<b>203.00</b>	<b>532.97</b>	<b>3704.03</b>	<b>43.00</b>	<b>3907.03</b>	<b>575.97</b>

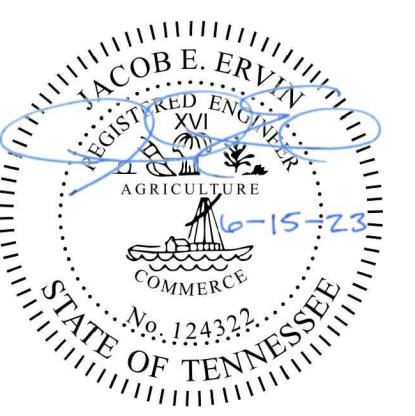
- \*NOTES:
- BASE MAP AND GRADING PROVIDED BY:
    - AUTOCAD FILE "325032XR-CV01-Civil Base for Western.dwg". GEOSERVICES IS NOT LIABLE FOR INACCURATE INFORMATION ASSOCIATED WITH THIS FILE.
    - DRAWING NO. C400, SITE DRAINAGE PLAN, PROJECT NO. 325-032, FROM CIVIL & ENVIRONMENTAL CONSULTANTS, INC. DATED APRIL 2023.
  - FOR MSE RETAINING WALL DETAILS, SEE SHEETS RW-0.2 THROUGH RW-0.4.
  - IF DISCREPANCIES ARE NOTED WITHIN THE BASE FILE, THESE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF GEOSERVICES TO DETERMINE IF DESIGN MODIFICATIONS ARE REQUIRED.
  - THE ESTIMATED QUANTITIES ARE NEAT QUANTITIES AND DO NOT ACCOUNT FOR OVERAGES OR WASTE. CONTRACTORS USING THESE QUANTITIES FOR BIDDING SHALL BE SOLELY RESPONSIBLE FOR CONTINGENCIES FOR OVERAGES AND WASTE.



1  
RW-0.5  
RETAINING WALL SITE PLAN  
SCALE: 1" = 80' (24x36)  
0' 80' 160'



Retaining Wall Site Plan  
KCDC Western Heights  
Knoxville, Tennessee



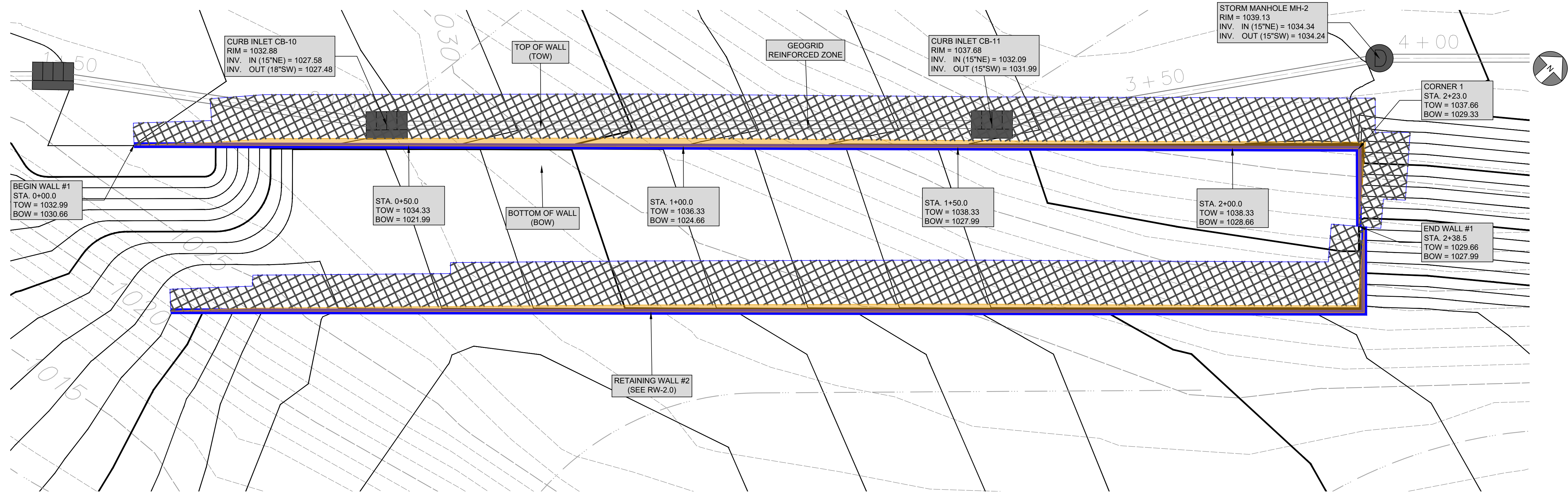
DRAWN BY: NSS	REVIEWED BY: JEE
DESIGNED BY: JEE	APPROVED BY: JEE
SCALE: AS SHOWN	
DATE: June 15, 2023	

Revisions	
No.	Description

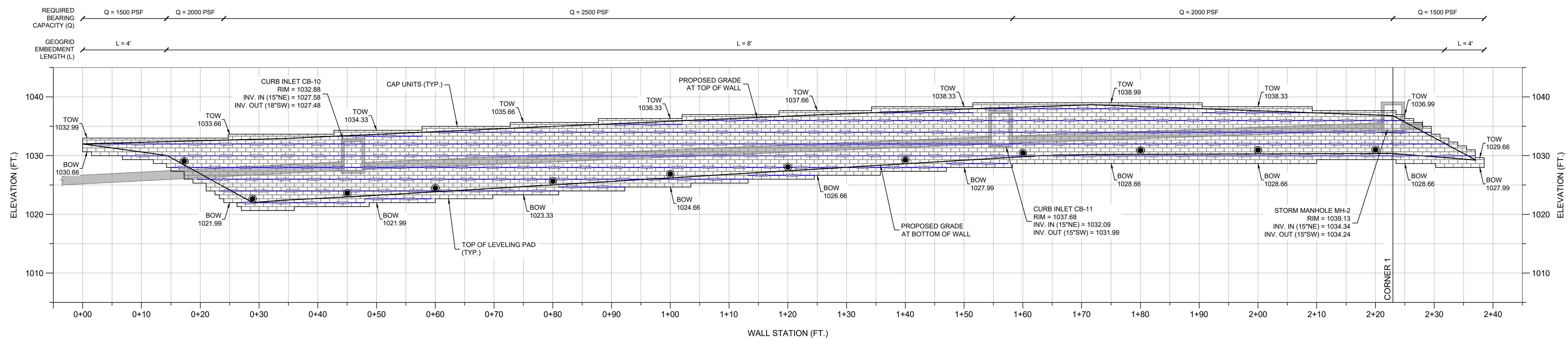
DRAWING:  
**RW-0.5**  
PROJECT NUMBER:  
43-23409

ESTIMATED WALL QUANTITIES										
Wall ID	Cap Area (SF)	Face Area (SF)	Total Wall Area (SF)	Stratagrid SG200 Area (SY)	Block Infill - #57 Volume (CY)	Backfill - DGA Volume (CY)	Backfill - #57 Volume (CY)	Leveling Pad - DGA Volume (CY)	Total #57 Stone Volume (CY)	Total DGA Volume (CY)
1	79.00	2336.00	2415.00	1062.00	39.00	77.65	507.35	9.00	546.35	86.65

- \*NOTES:
- BASE MAP, GRADING, AND PIPE INFORMATION PROVIDED BY:
    - AUTOCAD FILE "325032XR-CV01-Civil Base for Western.dwg". GEOSERVICES IS NOT LIABLE FOR INACCURATE INFORMATION ASSOCIATED WITH THIS FILE.
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  - FOR MSE RETAINING WALL DETAILS, SEE SHEETS RW-0.2 THROUGH RW-0.4.
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1  
RW-1.0  
RETAINING WALL #1 PLAN  
SCALE: 1" = 10' (24x36)

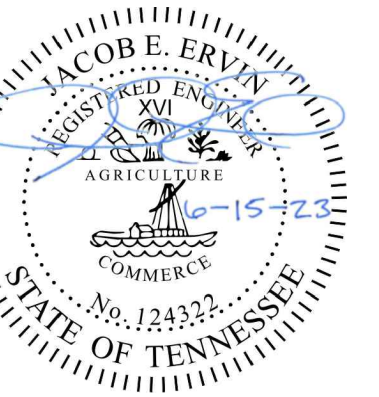


2  
RW-1.0  
RETAINING WALL #1 PROFILE  
SCALE: 1" = 10' (24x36)

- LEGEND:**
- STAKING ALIGNMENT AT WALL FACE
  - STRATAGRID SG200 GEOGRID
  - APPROXIMATE WALL BATTER
  - DRAIN OUTLET THROUGH WALL FACE (TYP.)
  - CHANGE IN REINFORCEMENT LENGTH OR TYPE
  - TOW XXX.XX ELEVATION OF TOP OF CAP
  - BOW XXX.XX ELEVATION OF TOP OF LEVELING PAD



Retaining Wall #1 Plan & Profile  
KCDC Western Heights  
Knoxville, Tennessee



DRAWN BY:	REVIEWED BY:
NSS	JEE
DESIGNED BY:	APPROVED BY:
JEE	JEE

SCALE: AS SHOWN  
DATE: June 15, 2023

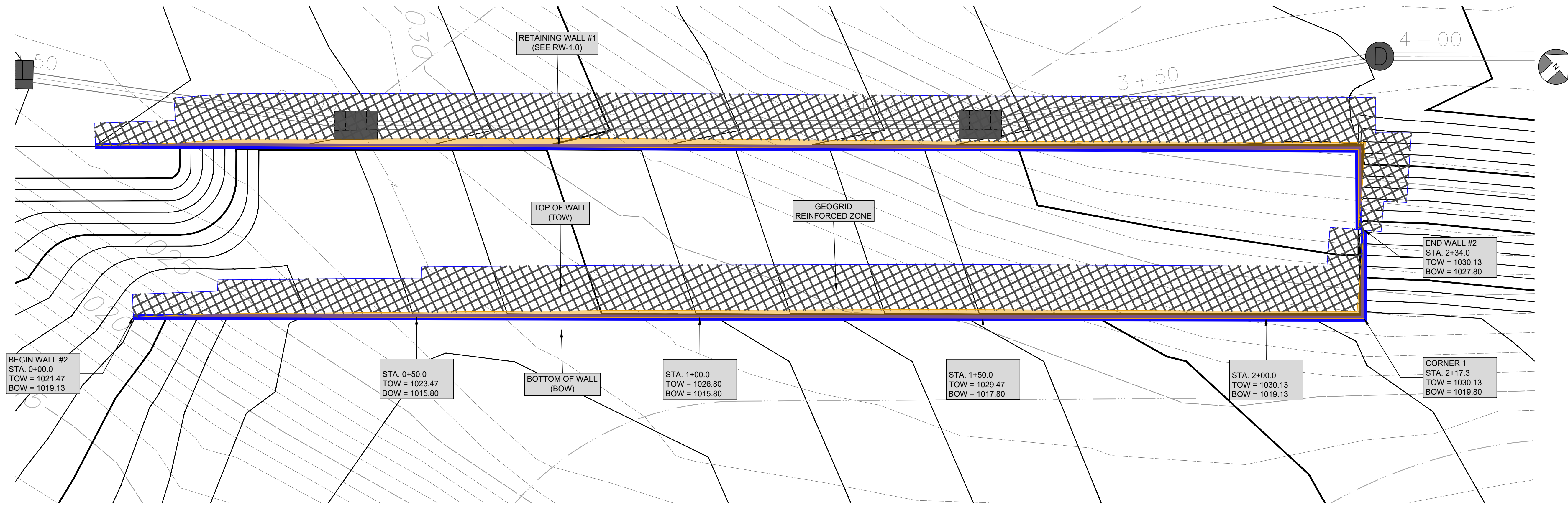
No.	Date	Description	By							
			1	2	3	4	5			

DRAWING: RW-1.0

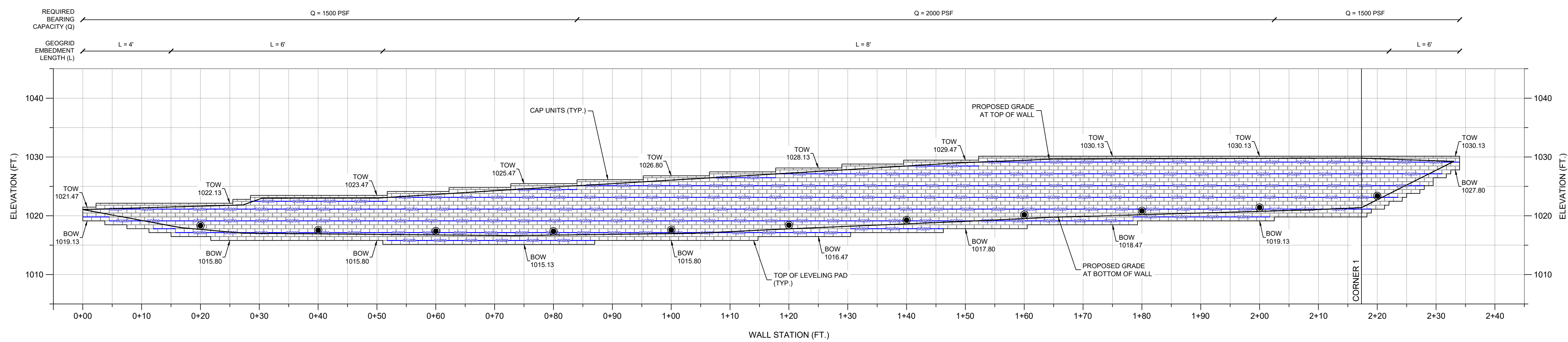
PROJECT NUMBER: 43-23409

ESTIMATED WALL QUANTITIES										
Wall ID	Cap Area (SF)	Face Area (SF)	Total Wall Area (SF)	Stratagrid SG200 Area (SY)	Block Infill - #57 Volume (CY)	Backfill - DGA Volume (CY)	Backfill - #57 Volume (CY)	Leveling Pad - DGA Volume (CY)	Total #57 Stone Volume (CY)	Total DGA Volume (CY)
2	78.00	2162.00	2240.00	978.00	36.00	74.25	449.75	9.00	485.75	83.25

- \*NOTES:
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1  
RW-2.0  
RETAINING WALL #2 PLAN  
SCALE: 1" = 10' (24x36)  
0' 10' 20'

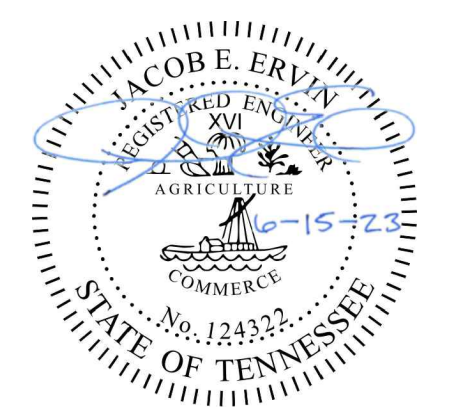


2  
RW-2.0  
RETAINING WALL #2 PROFILE  
SCALE: 1" = 10' (24x36)  
0' 10' 20'

- LEGEND:
- STAKING ALIGNMENT AT WALL FACE
  - STRATAGRID SG200 GEOGRID
  - APPROXIMATE WALL BATTER
  - DRAIN OUTLET THROUGH WALL FACE (TYP.)
  - CHANGE IN REINFORCEMENT LENGTH OR TYPE
  - TOW XXX.XX ELEVATION OF TOP OF CAP
  - BOW XXX.XX ELEVATION OF TOP OF LEVELING PAD



Retaining Wall #2 Plan & Profile  
KCDC Western Heights  
Knoxville, Tennessee



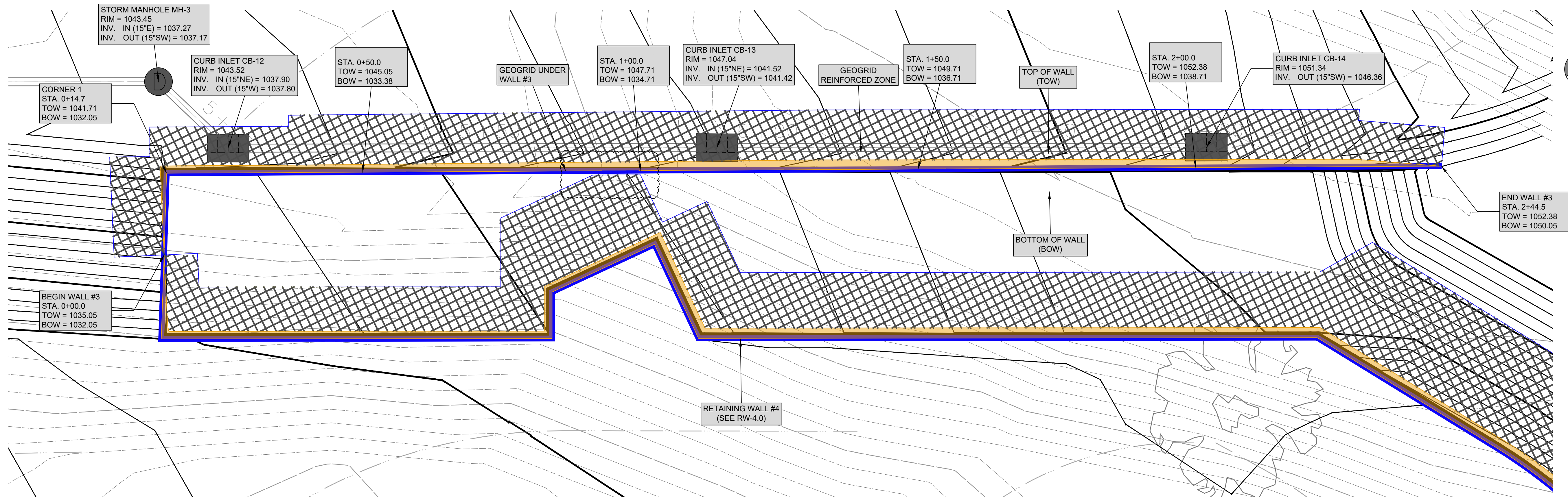
DRAWN BY:	REVIEWED BY:
NSS	JEE
DESIGNED BY:	APPROVED BY:
JEE	JEE
SCALE:	AS SHOWN
DATE:	June 15, 2023

Revisions	
No.	Description

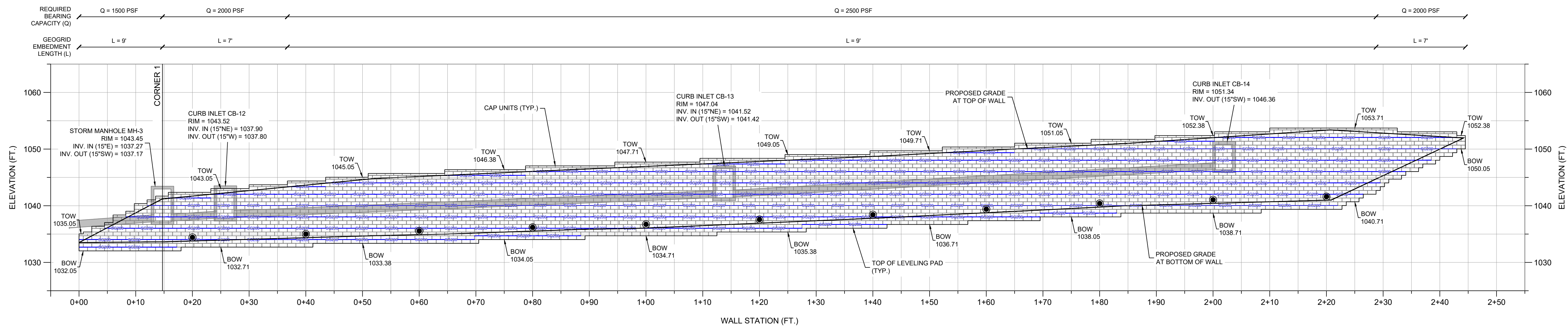
DRAWING: **RW-2.0**  
PROJECT NUMBER: 43-23409

ESTIMATED WALL QUANTITIES										
Wall ID	Cap Area (SF)	Face Area (SF)	Total Wall Area (SF)	Stratagrid SG200 Area (SY)	Block Infill - #57 Volume (CY)	Backfill - DGA Volume (CY)	Backfill - #57 Volume (CY)	Leveling Pad - DGA Volume (CY)	Total #57 Stone Volume (CY)	Total DGA Volume (CY)
3	81.00	2839.00	2920.00	1435.00	47.00	100.82	704.18	9.00	751.18	109.82

- \*NOTES:
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  - FOR MSE RETAINING WALL DETAILS, SEE SHEETS RW-0.2 THROUGH RW-0.4.
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1  
RW-3.0  
RETAINING WALL #3 PLAN  
SCALE: 1" = 10' (24x36)  
0' 10' 20'

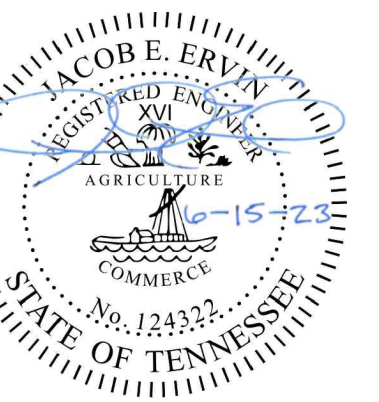


2  
RW-3.0  
RETAINING WALL #3 PROFILE  
SCALE: 1" = 10' (24x36)  
0' 10' 20'

- LEGEND:
- STAKING ALIGNMENT AT WALL FACE
  - STRATAGRID SG200 GEOGRID
  - APPROXIMATE WALL BATTER
  - DRAIN OUTLET THROUGH WALL FACE (TYP.)
  - CHANGE IN REINFORCEMENT LENGTH OR TYPE
  - TOW XXX.XX ELEVATION OF TOP OF CAP
  - BOW XXX.XX ELEVATION OF TOP OF LEVELING PAD



Retaining Wall #3 Plan & Profile  
KCDC Western Heights  
Knoxville, Tennessee



DRAWN BY:	REVIEWED BY:
NSS	JEE
DESIGNED BY:	APPROVED BY:
JEE	JEE
SCALE:	AS SHOWN
DATE:	June 15, 2023

Revisions	
No.	Description

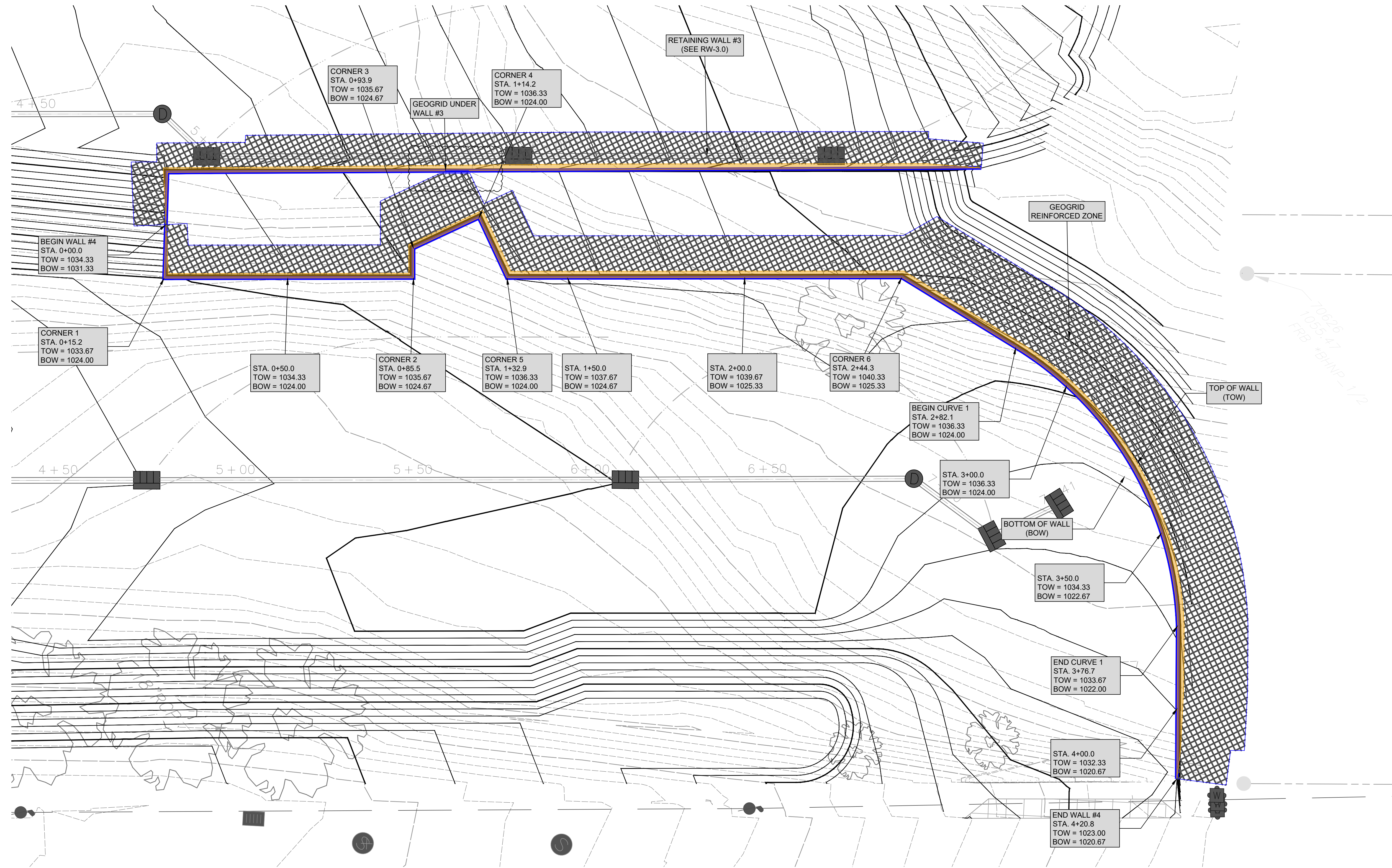
DRAWING: RW-3.0

PROJECT NUMBER: 43-23409



ESTIMATED WALL QUANTITIES										
Wall ID	Cap Area (SF)	Face Area (SF)	Total Wall Area (SF)	Stratagrid SG200 Area (SY)	Block Infill - #57 Volume (CY)	Backfill - DGA Volume (CY)	Backfill - #57 Volume (CY)	Leveling Pad - DGA Volume (CY)	Total #57 Stone Volume (CY)	Total DGA Volume (CY)
4	140.00	4876.00	5016.00	4001.00	81.00	280.25	2042.75	16.00	2123.75	296.25

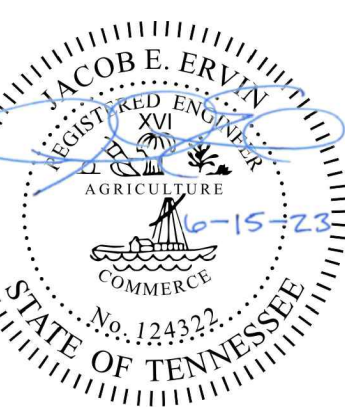
- \*NOTES:
- BASE MAP, GRADING, AND PIPE INFORMATION PROVIDED BY:
    - AUTOCAD FILE "325032XR-CV01-Civil Base for Western.dwg". GEOSERVICES IS NOT LIABLE FOR INACCURATE INFORMATION ASSOCIATED WITH THIS FILE.
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  - IF DISCREPANCIES ARE NOTED WITHIN THE BASE FILE, THESE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF GEOSERVICES TO DETERMINE IF DESIGN MODIFICATIONS ARE REQUIRED.
  - THE ESTIMATED QUANTITIES ARE NEAT QUANTITIES AND DO NOT ACCOUNT FOR OVERAGES OR WASTE. CONTRACTORS USING THESE QUANTITIES FOR BIDDING SHALL BE SOLELY RESPONSIBLE FOR CONTINGENCIES FOR OVERAGES AND WASTE.



1  
RW-4.0  
RETAINING WALL #4 PLAN  
SCALE: 1" = 10' (24x36)



Retaining Wall #4 Plan  
KCDC Western Heights  
Knoxville, Tennessee



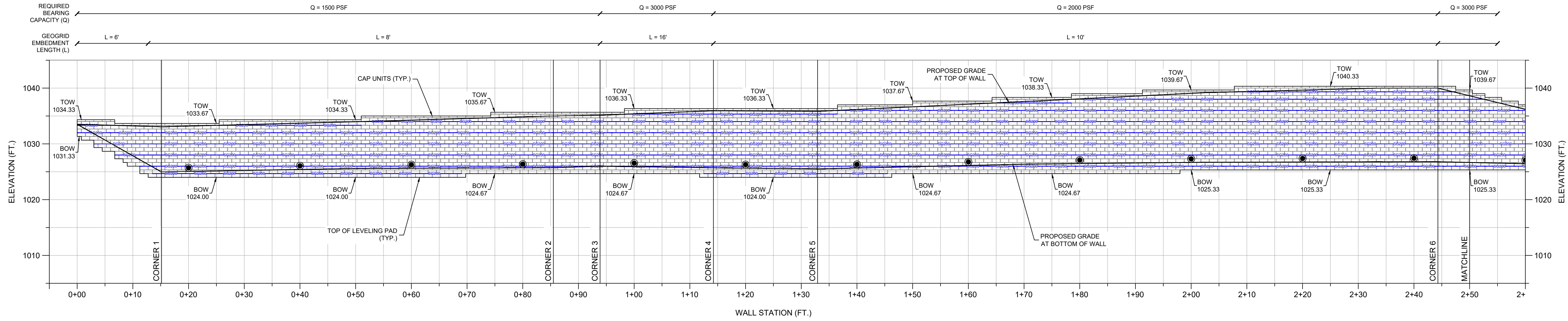
DRAWN BY:	REVIEWED BY:
NSS	JEE
DESIGNED BY:	APPROVED BY:
JEE	JEE

SCALE: AS SHOWN  
DATE: June 15, 2023

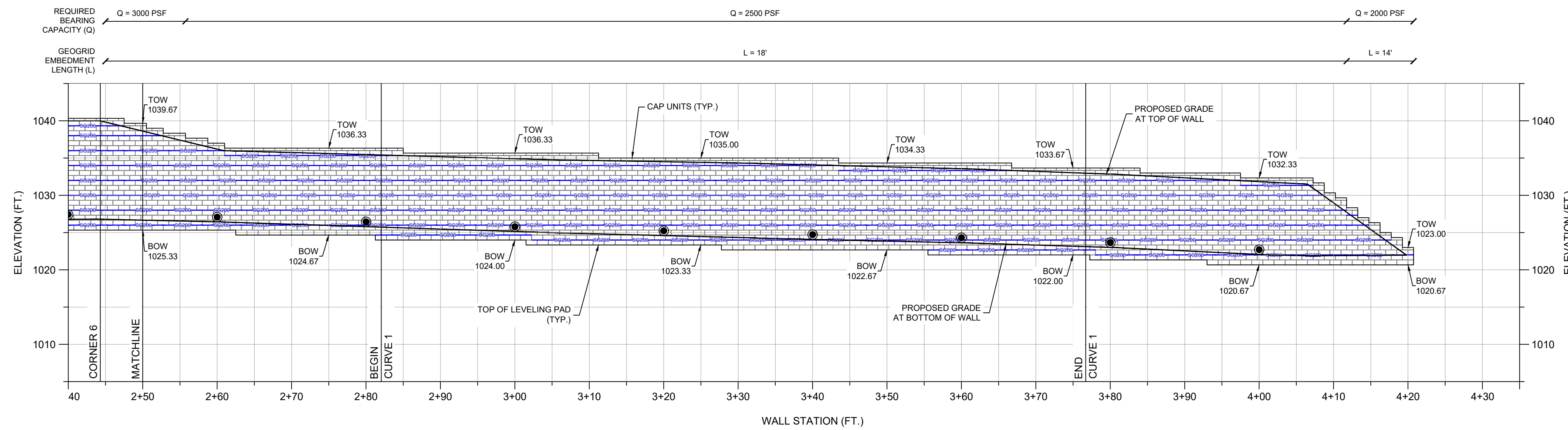
Revisions	
No.	Description

DRAWING: **RW-4.0**  
PROJECT NUMBER: 43-23409

- \*NOTES:**
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  - FOR MSE RETAINING WALL DETAILS, SEE SHEETS RW-0.2 THROUGH RW-0.4.
  - IF DISCREPANCIES ARE NOTED WITHIN THE BASE FILE, THESE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF GEOSERVICES TO DETERMINE IF DESIGN MODIFICATIONS ARE REQUIRED.
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1  
RW-4.1  
RETAINING WALL #4 PROFILE  
SCALE: 1" = 10' (24x36)  
0' 10' 20'

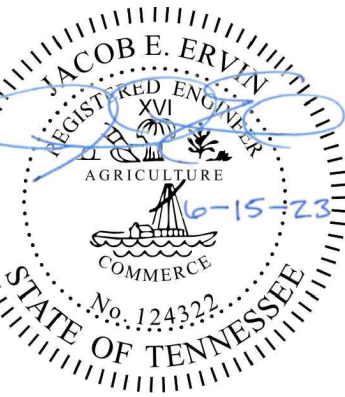


2  
RW-4.1  
RETAINING WALL #4 PROFILE  
SCALE: 1" = 10' (24x36)  
0' 10' 20'

- LEGEND:**
- STAKING ALIGNMENT AT WALL FACE
  - STRATAGRID SG200 GEOGRID
  - APPROXIMATE WALL BATTER
  - DRAIN OUTLET THROUGH WALL FACE (TYP.)
  - CHANGE IN REINFORCEMENT LENGTH OR TYPE
  - TOW XXX.XX ELEVATION OF TOP OF CAP
  - BOW XXX.XX ELEVATION OF TOP OF LEVELING PAD



Retaining Wall #4 Profile  
KCDC Western Heights  
Knoxville, Tennessee



DRAWN BY: NSS	REVIEWED BY: JEE
DESIGNED BY: JEE	APPROVED BY: JEE
SCALE: AS SHOWN	
DATE: June 15, 2023	

Revisions	
No.	Description

DRAWING:  
**RW-4.1**  
PROJECT NUMBER:  
43-23409