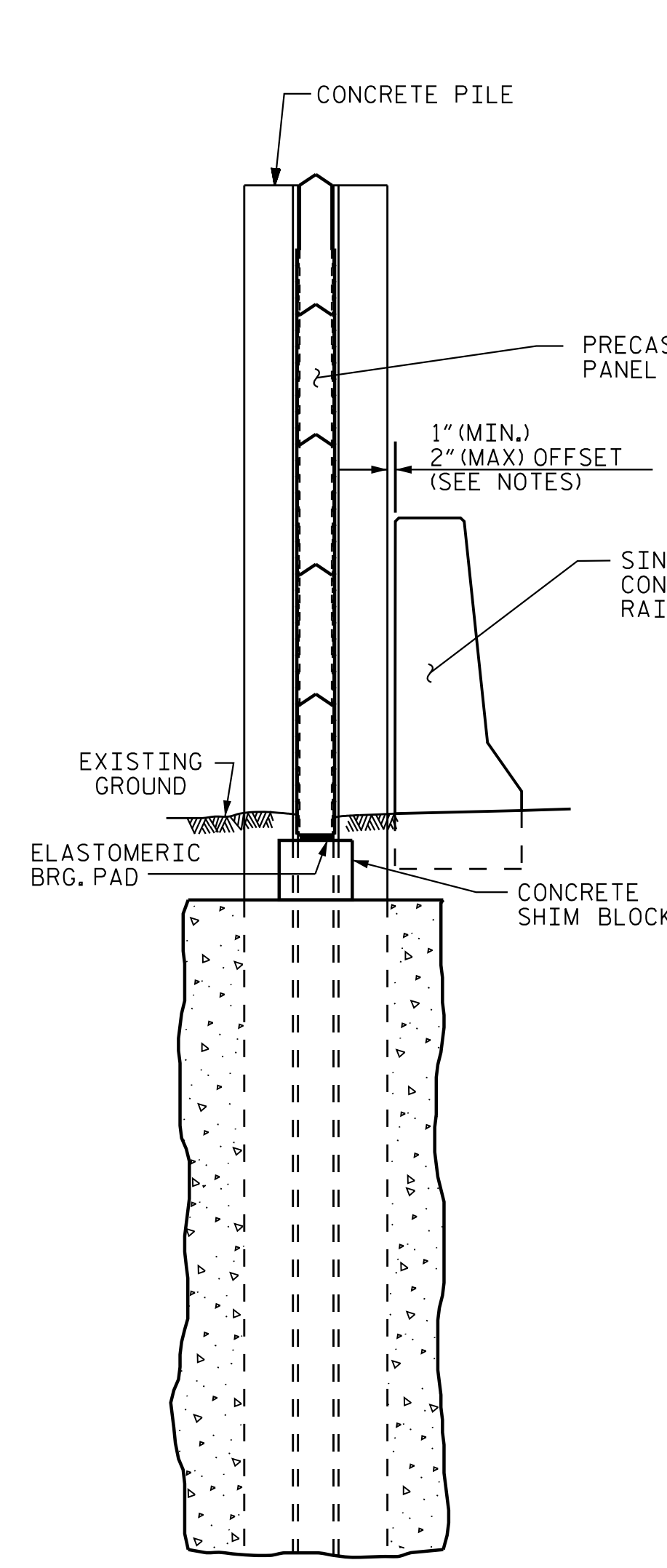
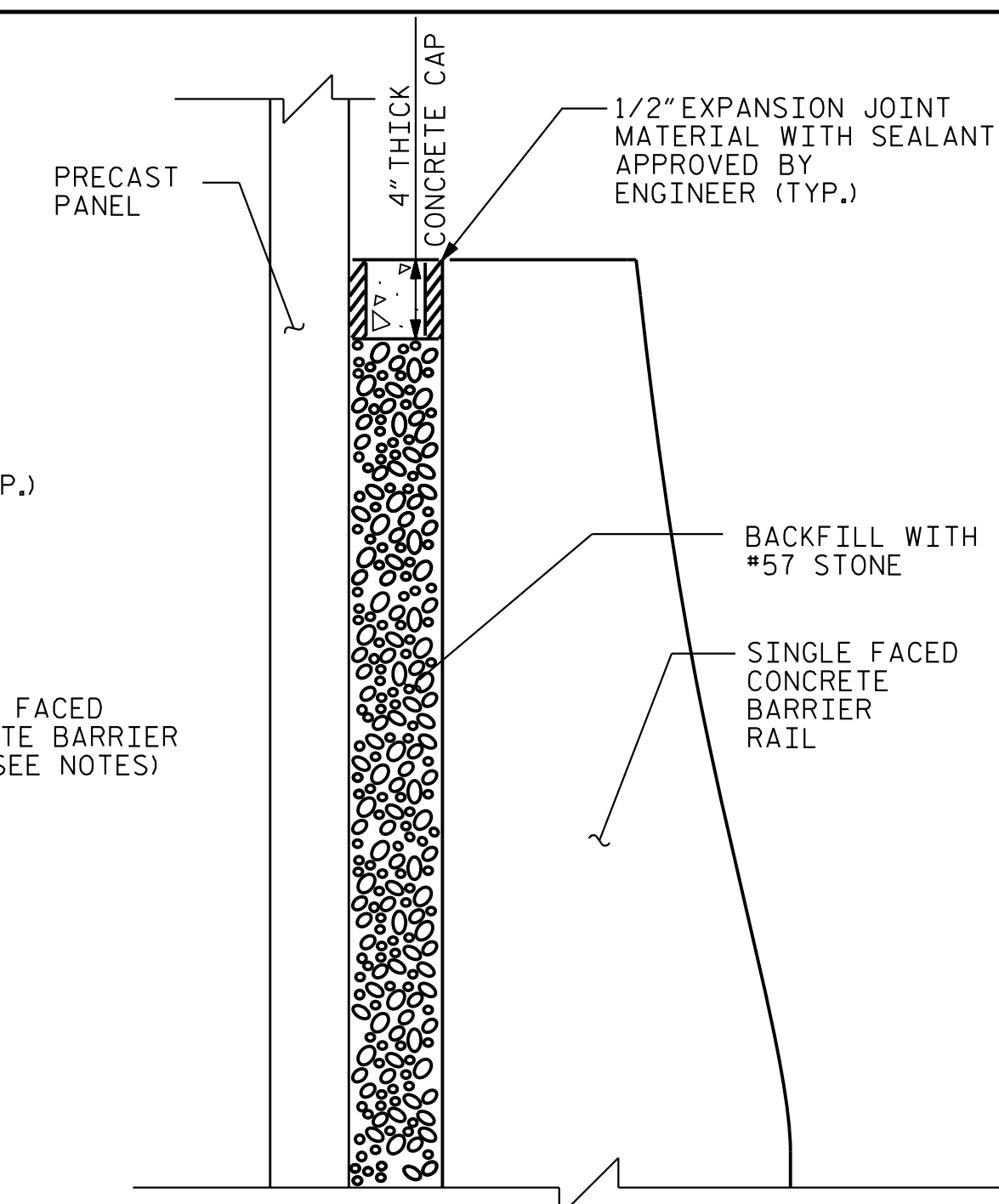


ELEVATION



SECTION A-A

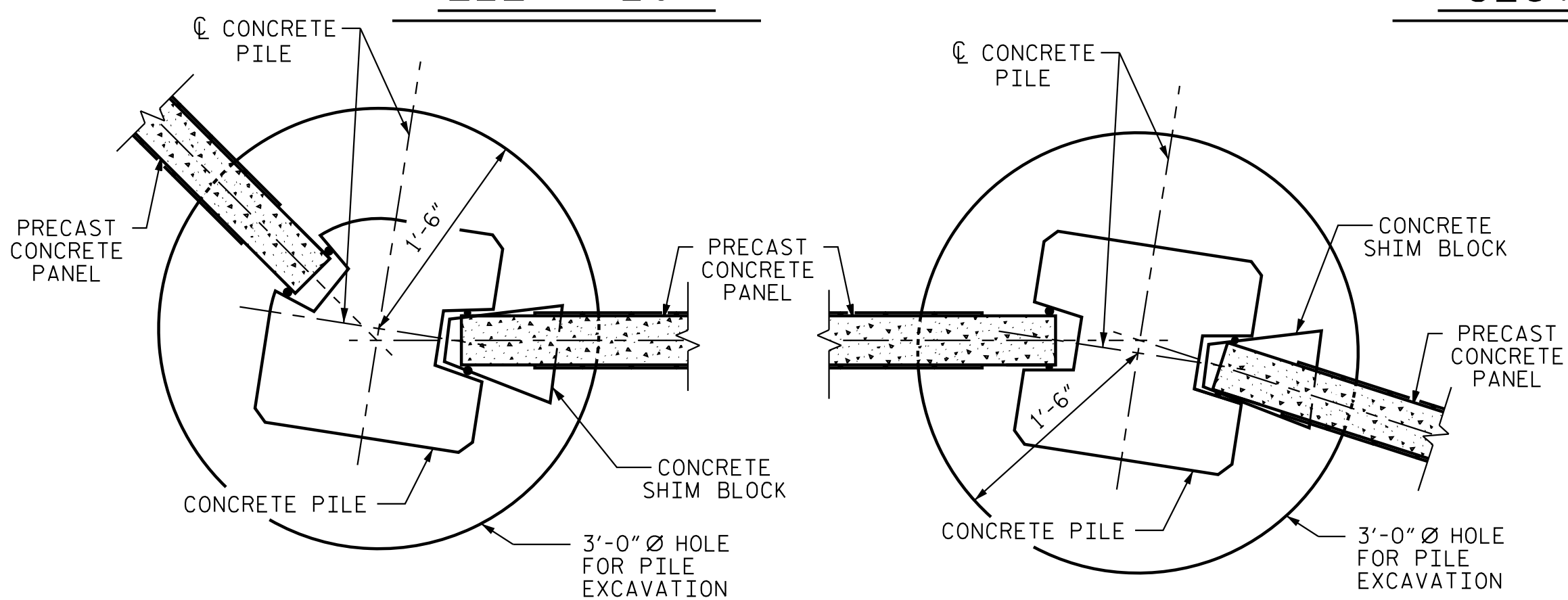
SOUND WALL BACKFILL DETAIL



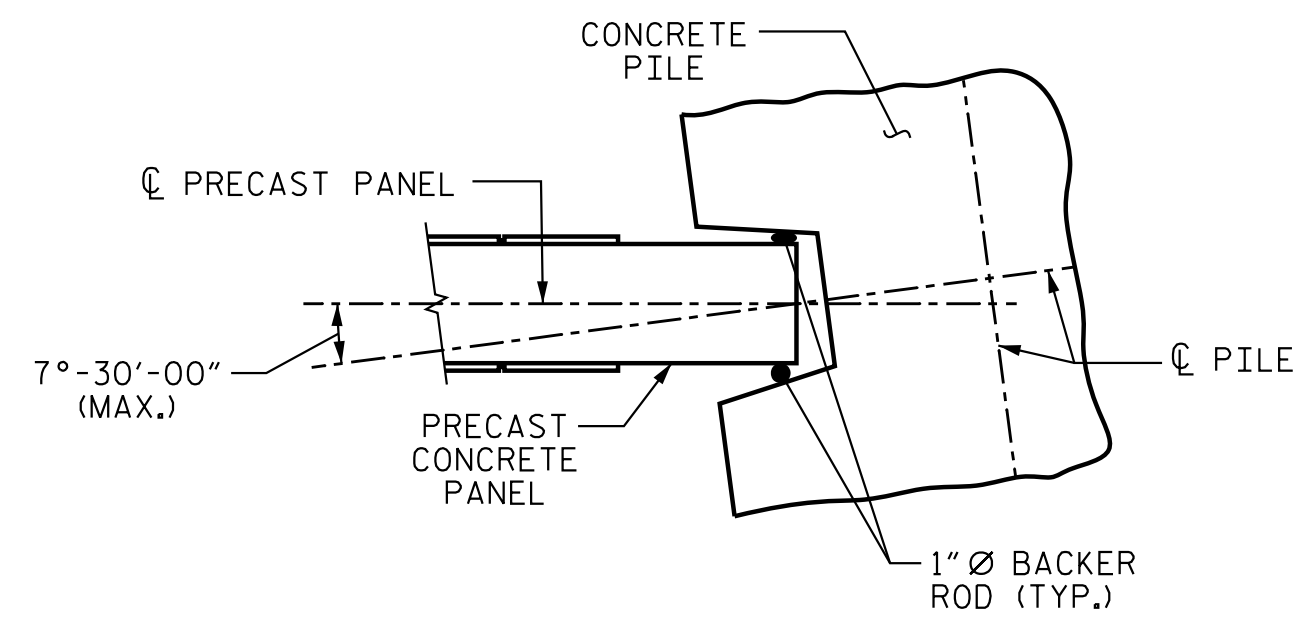
NOTES

- FOR SOUND BARRIER WALL, SEE SPECIAL PROVISIONS.
- CONSTRUCT SOUND BARRIER WALL TO LINES AND GRADES SHOWN ON THE ROADWAY PLANS.
- PROVIDE PANELS WITH A FLAT BOTTOM.
- VERIFY THE LOCATION OF UNDERGROUND UTILITIES BEFORE DRILLING HOLES TO ENSURE SUFFICIENT CLEARANCE IS AVAILABLE.
- ADJUST PILE EXCAVATION ELEVATIONS TO MAINTAIN 6" MINIMUM EMBEDMENT OF THE BOTTOM PANEL.
- USE CLASS AA FOR PANELS AND CLASS A CONCRETE PILE EXCAVATION BACKFILL, IN ACCORDANCE WITH ARTICLE 1000-4 OF THE STANDARD SPECIFICATIONS.
- AT THE CONTRACTOR'S OPTION, USE 10'-0", 15'-0", OR 20'-0" PILE SPACINGS. STANDARD PRECAST CONCRETE PANELS MAY BE USED WITH THE 10'-0" AND 15'-0" PILE SPACING. FOR 20'-0" PILE SPACING, PANELS DESIGNED AND MANUFACTURED BY A THIRD PARTY VENDOR SHALL BE USED.
- PLACE 1" Ø BACKER RODS FULL HEIGHT ON EACH SIDE OF THE PRECAST PANELS. SET AND SEAL THE BACKER ROD IN PLACE WITH SEALANT THAT CONFORMS WITH ARTICLE 1028-3 OF THE STANDARD SPECIFICATIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR ADDITIONAL SOUND BARRIER WALL DETAILS, SEE ROADWAY DRAWINGS.
- SINGLE FACED CONCRETE BARRIER RAIL NOT SHOWN IN ELEVATION VIEW FOR CLARITY. FOR BACKFILL TREATMENT AT BARRIER RAIL, SEE "SOUND WALL BACKFILL DETAIL" AND SPECIAL PROVISIONS.
- FOR LIMITS OF THE SINGLE FACED CONCRETE BARRIER RAIL, SEE ROADWAY DRAWINGS.
- FOR SOUND BARRIER WALL STATIONS, OFFSETS, AND WALL ENVELOPE, SEE ROADWAY PLANS.

| PILE REINFORCING STEEL | | | | | | | |
|--|--------------------------|----------------------------|-----------------|--------------------|--------------------------|---|-----------------|
| EXPOSURE CATEGORY B DESIGN WIND PRESSURE = 20 PSF (0' < H ≤ 14'); 25 PSF (14' < H ≤ 25') | | | | | | | |
| PILE TYPE I | | | | PILE TYPE III | | | |
| PILE SPACING | MAXIMUM WALL HEIGHT (H') | VERTICAL REINFORCING STEEL | TIES | PILE SPACING | MAXIMUM WALL HEIGHT (H') | VERTICAL REINFORCING STEEL | TIES |
| 10'-0" | H ≤ 25' | 4 - #8 EA. FACE | #3 @ 1'-4" CTS. | 10'-0" | H ≤ 25' | 3 - #9 SHORT FACE 4 - #9 LONG FACE | #3 @ 1'-4" CTS. |
| 15'-0" | H ≤ 20' | 4 - #8 EA. FACE | #3 @ 1'-4" CTS. | 15'-0" | H ≤ 20' | 3 - #9 SHORT FACE 4 - #9 LONG FACE | #3 @ 1'-4" CTS. |
| | 20' < H ≤ 25' | 4 - #10 EA. FACE | #3 @ 1'-4" CTS. | | 20' < H ≤ 25' | 3 - #11 SHORT FACE 4 - #11 LONG FACE | #3 @ 1'-4" CTS. |
| 20'-0" | H ≤ 20' | 4 - #9 EA. FACE | #3 @ 1'-4" CTS. | 20'-0" | H ≤ 20' | 3 - #10 SHORT FACE 4 - #10 LONG FACE | #3 @ 1'-4" CTS. |
| | 20' < H ≤ 25' | 4 - #11 EA. FACE | #3 @ 1'-4" CTS. | | | | |
| PILE TYPE II | | | | PILE TYPE III ALT. | | | |
| PILE SPACING | MAXIMUM WALL HEIGHT (H') | VERTICAL REINFORCING STEEL | TIES | PILE SPACING | MAXIMUM WALL HEIGHT (H') | VERTICAL REINFORCING STEEL | TIES |
| 10'-0" | H ≤ 25' | 4 - #6 EA. FACE | #3 @ 1'-4" CTS. | 10'-0" | H ≤ 25' | 3 - #9 SHORT FACE 4 - #9 LONG FACE | #3 @ 1'-4" CTS. |
| 15'-0" | H ≤ 20' | 4 - #6 EA. FACE | #3 @ 1'-4" CTS. | 15'-0" | H ≤ 20' | 3 - #9 SHORT FACE 4 - #9 LONG FACE | #3 @ 1'-4" CTS. |
| | 20' < H ≤ 25' | 4 - #7 EA. FACE | #3 @ 1'-4" CTS. | | 20' < H ≤ 25' | 3 - #11 SHORT FACE 4 - #11 LONG FACE | #3 @ 1'-4" CTS. |
| 20'-0" | H ≤ 20' | 4 - #6 EA. FACE | #3 @ 1'-4" CTS. | 20'-0" | H ≤ 20' | 3 - #10 SHORT FACE 4 - #10 LONG FACE | #3 @ 1'-4" CTS. |
| | 20' < H ≤ 25' | 4 - #8 EA. FACE | #3 @ 1'-4" CTS. | | | | |



TYPICAL WALL TURN DETAILS



PILE ROTATION LIMIT FOR WALL TURN

(ROTATE THE CONCRETE PILE ±7°-30'-00" TO ACCOMMODATE WALL TURN.)

| BILL OF MATERIAL | |
|--|---------------------|
| SOUND BARRIER WALL | 87,214 S.F. |
| ARCHITECTURAL SURFACE TREATMENT | 142,870 S.F. |
| QUANTITIES PROVIDED ARE APPROXIMATE AND ARE FOR BID PURPOSES ONLY. | |
| ARCHITECTURAL SURFACE TREATMENT | |
| TEXTURE OPTION: | DRY STACK |
| STAIN OPTION: | FEDERAL COLOR 30450 |

PROJECT NO. R-2707D
CLEVELAND COUNTY
STATION: 692+50.00 -L-

SHEET 1 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SOUND BARRIER WALL



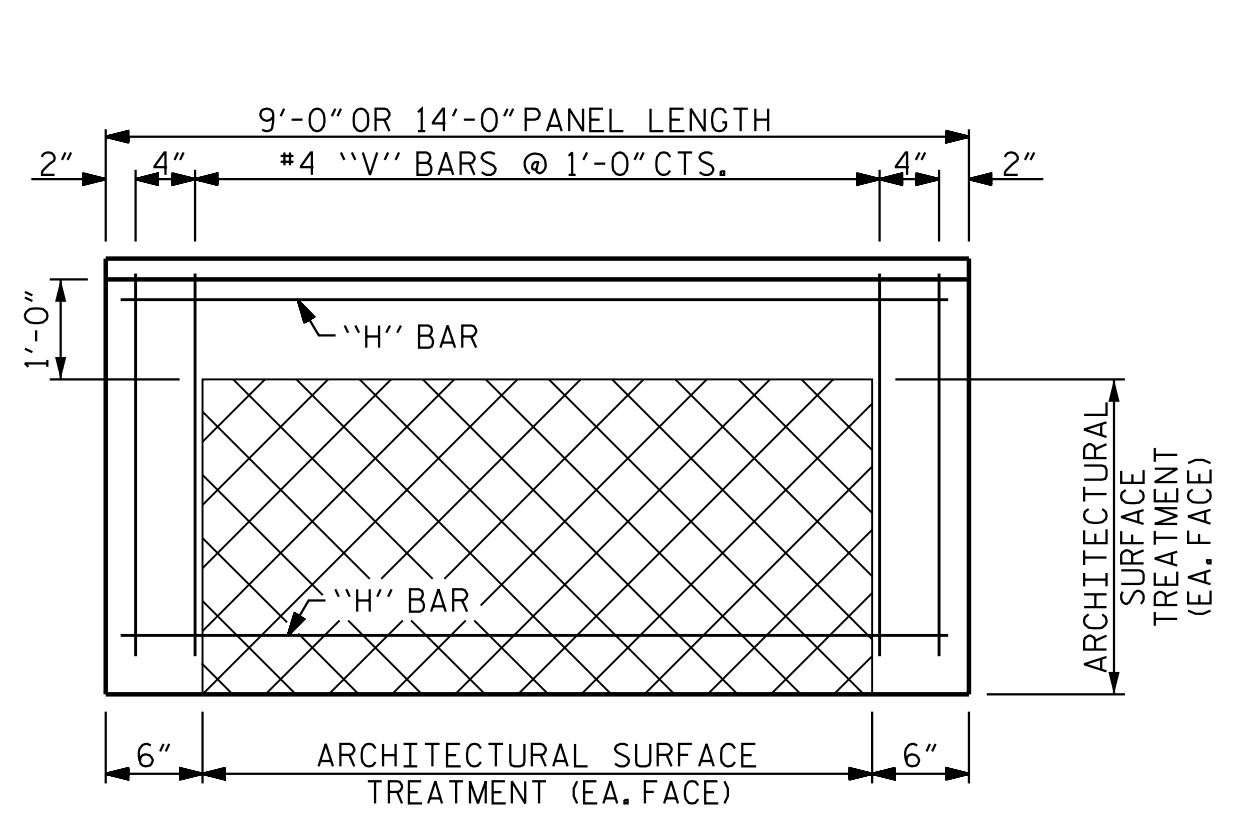
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|-----------|-----|-------|-----|-----|-------|----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | NW3A-1 |
| 2 | | | 4 | | | TOTAL SHEETS 4 |

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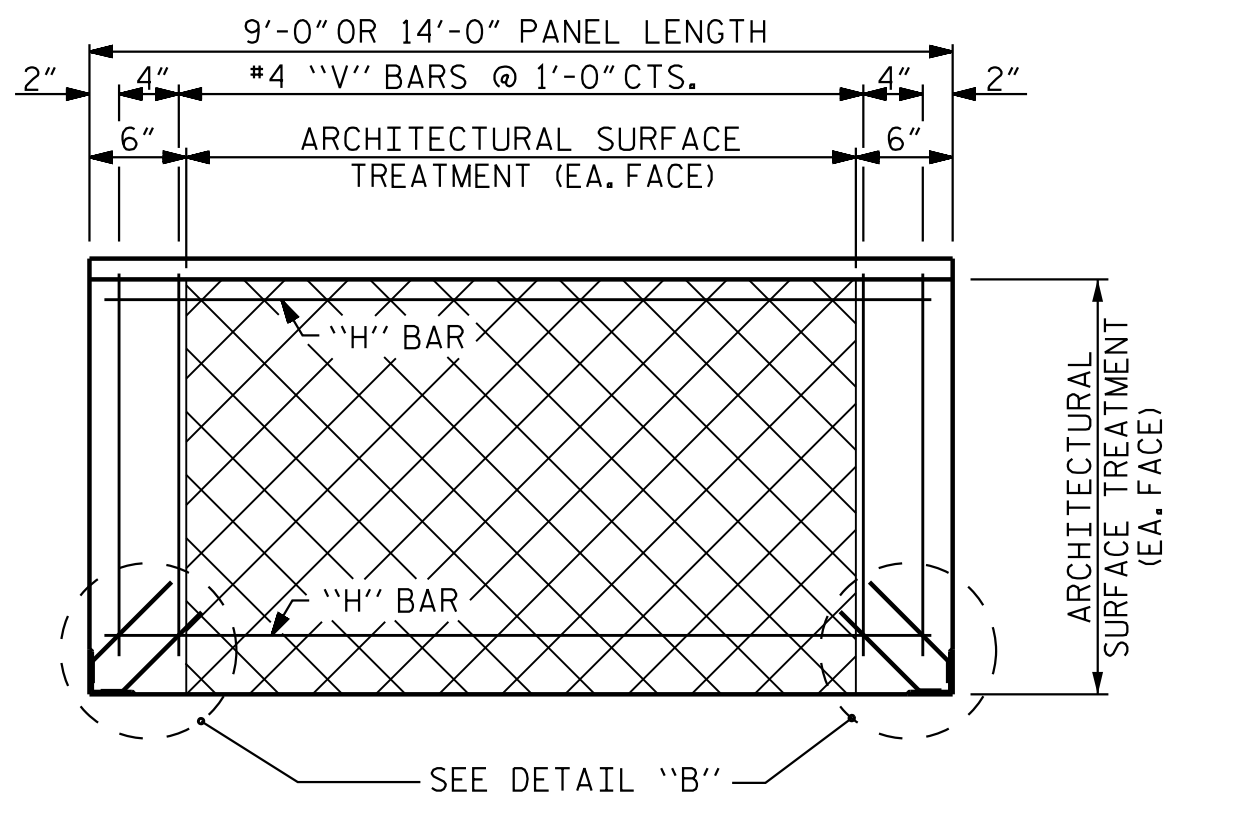
4/14/2023 jlhagenbush

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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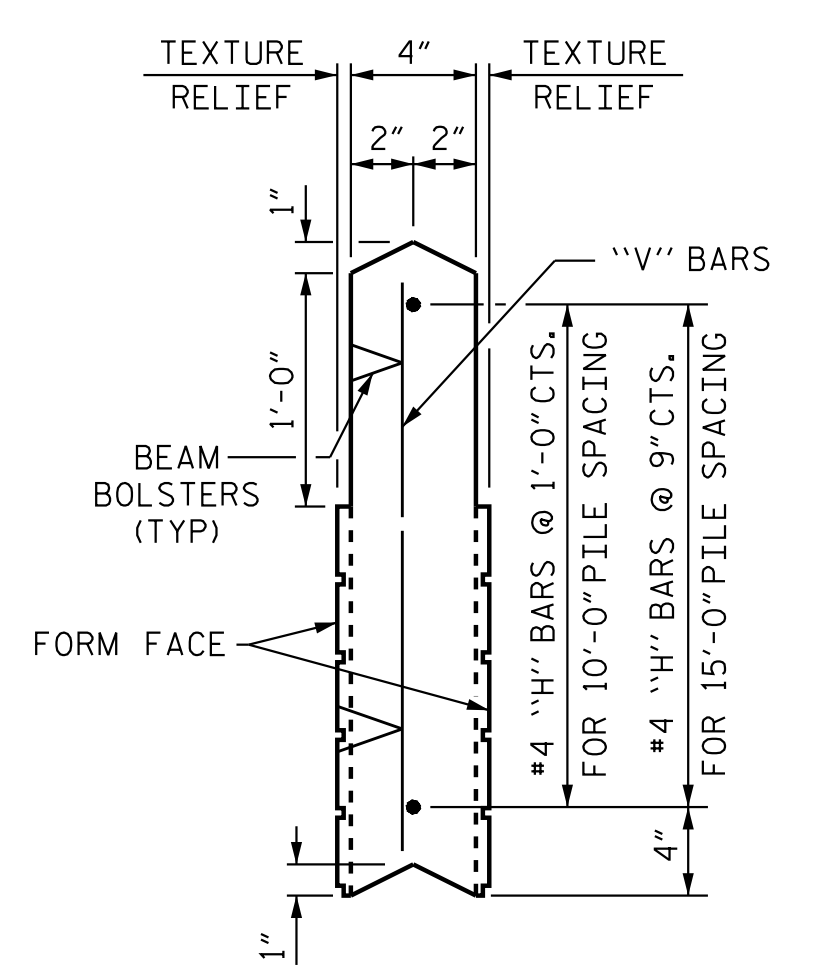
DRAWN BY: A.L. BOYKIN DATE: 02/23/23
CHECKED BY: S.S. POOLE DATE: 03/03/23
DESIGN ENGINEER OF RECORD: S.S. POOLE DATE: 04/14/23



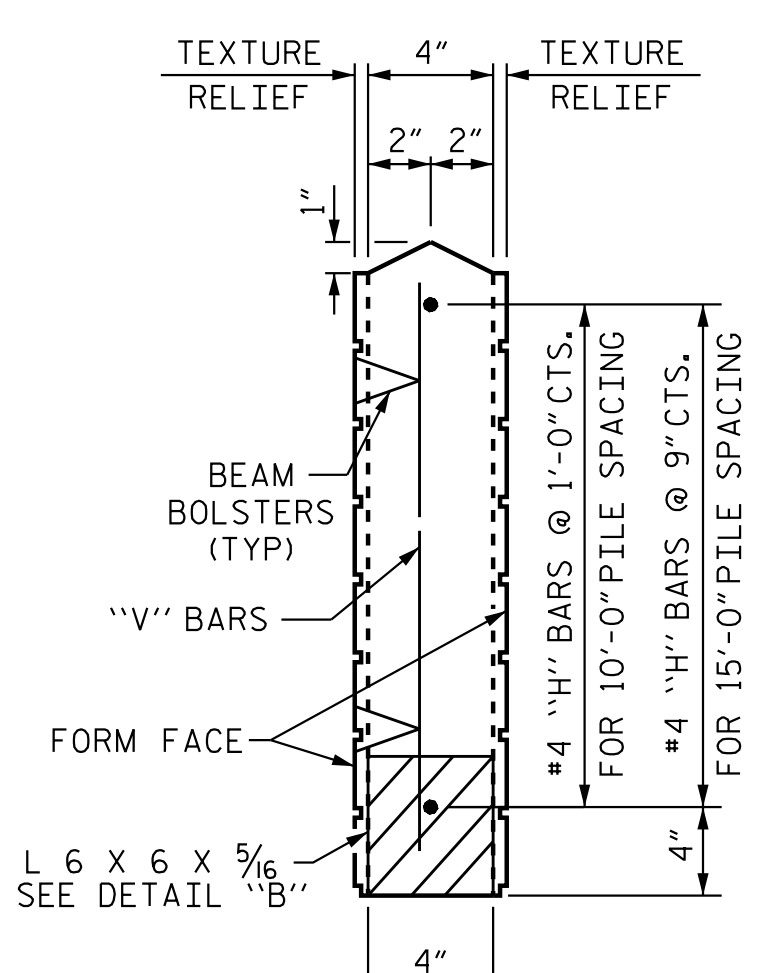
FRONT ELEVATION OF UPPER PRECAST PANEL



FRONT ELEVATION OF BOTTOM PRECAST PANEL

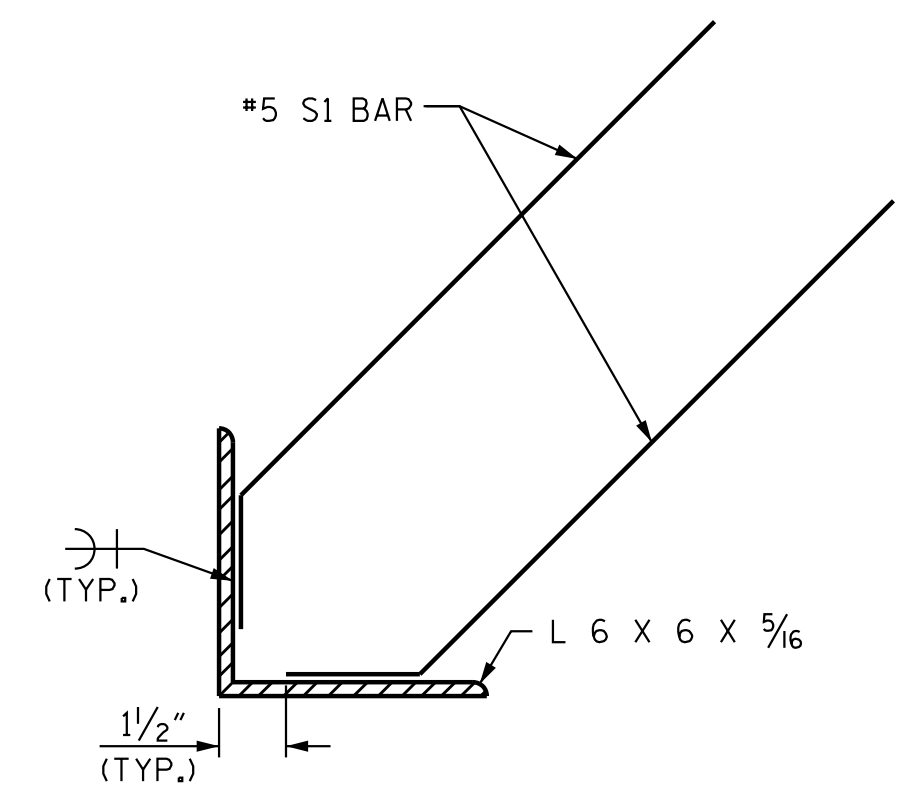


UPPER PANEL



BOTTOM PANEL

SECTION THROUGH PRECAST PANELS



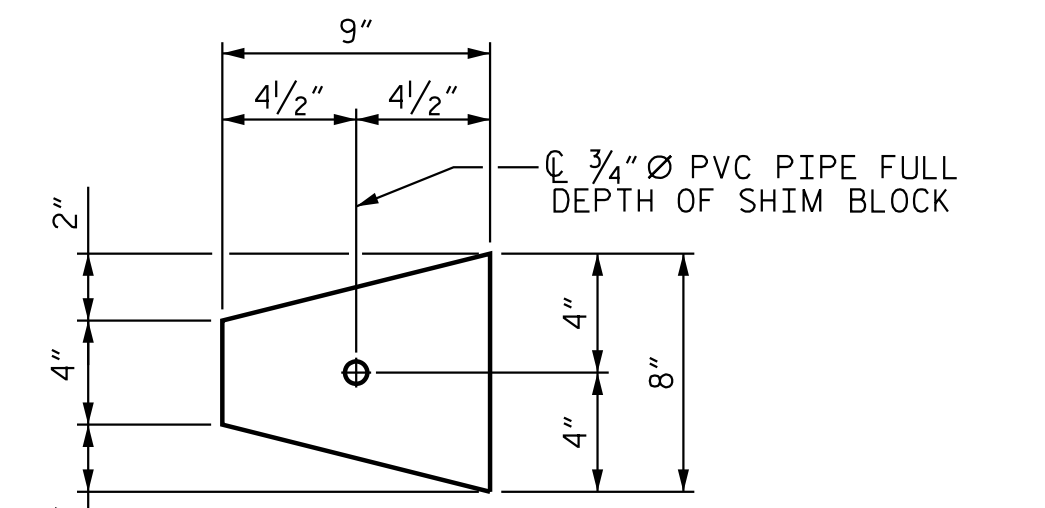
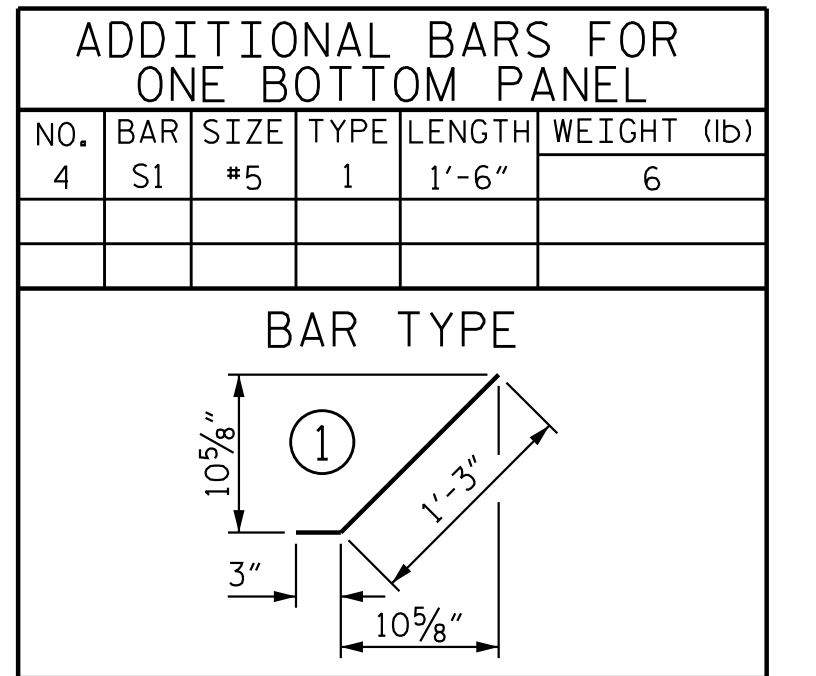
DETAIL "B"

QUANTITIES FOR ONE PRECAST PANEL (FOR 10'-0" PILE SPACING)

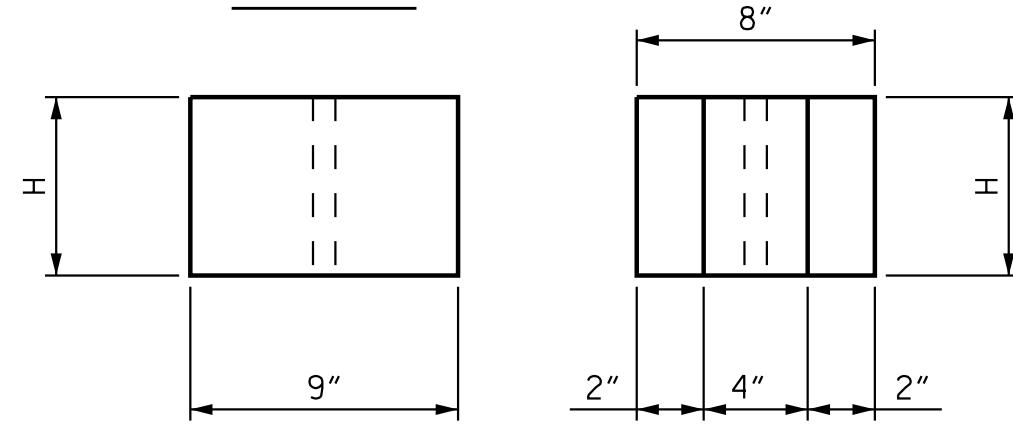
| PANEL HEIGHT | CLASS AA CONCRETE C.Y. | BAR TYPES | | | | | | | | | | | |
|--------------|------------------------|------------|-----|------|------|--------|-------------|----------|-----|------|------|--------|-------------|
| | | HORIZONTAL | | | | | | VERTICAL | | | | | |
| | | NO. | BAR | SIZE | TYPE | LENGTH | WEIGHT (lb) | NO. | BAR | SIZE | TYPE | LENGTH | WEIGHT (lb) |
| 2'-0" | 0.22 | 3 | H1 | #4 | STR | 8'-8" | 17 | 11 | V1 | #4 | STR | 1'-8" | 12 |
| 3'-0" | 0.33 | 4 | H2 | #4 | STR | 8'-8" | 23 | 11 | V2 | #4 | STR | 2'-8" | 20 |
| 4'-0" | 0.44 | 5 | H3 | #4 | STR | 8'-8" | 29 | 11 | V3 | #4 | STR | 3'-8" | 27 |

QUANTITIES FOR ONE PRECAST PANEL (FOR 15'-0" PILE SPACING)

| PANEL HEIGHT | CLASS AA CONCRETE C.Y. | BAR TYPES | | | | | | | | | | | |
|--------------|------------------------|------------|-----|------|------|--------|-------------|----------|-----|------|------|--------|-------------|
| | | HORIZONTAL | | | | | | VERTICAL | | | | | |
| | | NO. | BAR | SIZE | TYPE | LENGTH | WEIGHT (lb) | NO. | BAR | SIZE | TYPE | LENGTH | WEIGHT (lb) |
| 3'-0" | 0.52 | 5 | H1 | #4 | STR | 13'-8" | 46 | 16 | V1 | #4 | STR | 2'-8" | 29 |
| 4'-0" | 0.69 | 6 | H2 | #4 | STR | 13'-8" | 55 | 16 | V2 | #4 | STR | 3'-8" | 39 |
| 5'-0" | 0.86 | 7 | H3 | #4 | STR | 13'-8" | 64 | 16 | V3 | #4 | STR | 4'-8" | 50 |
| 6'-0" | 1.04 | 8 | H4 | #4 | STR | 13'-8" | 73 | 16 | V4 | #4 | STR | 5'-8" | 61 |



PLAN

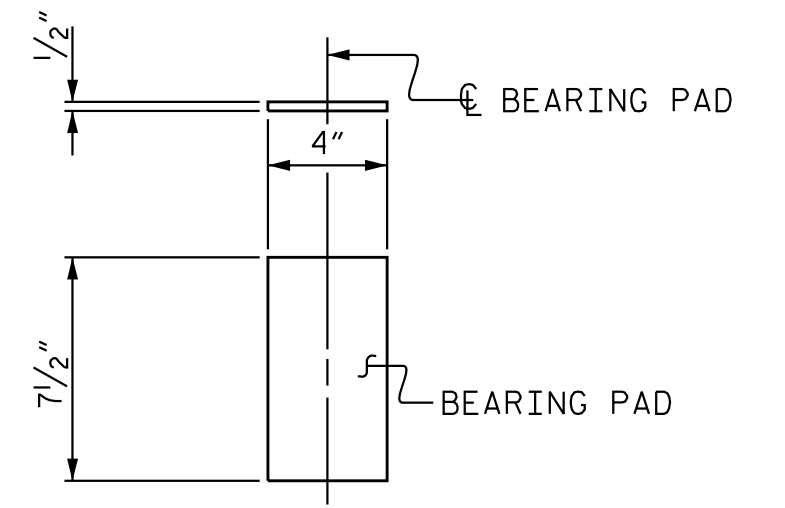


ELEVATION

END

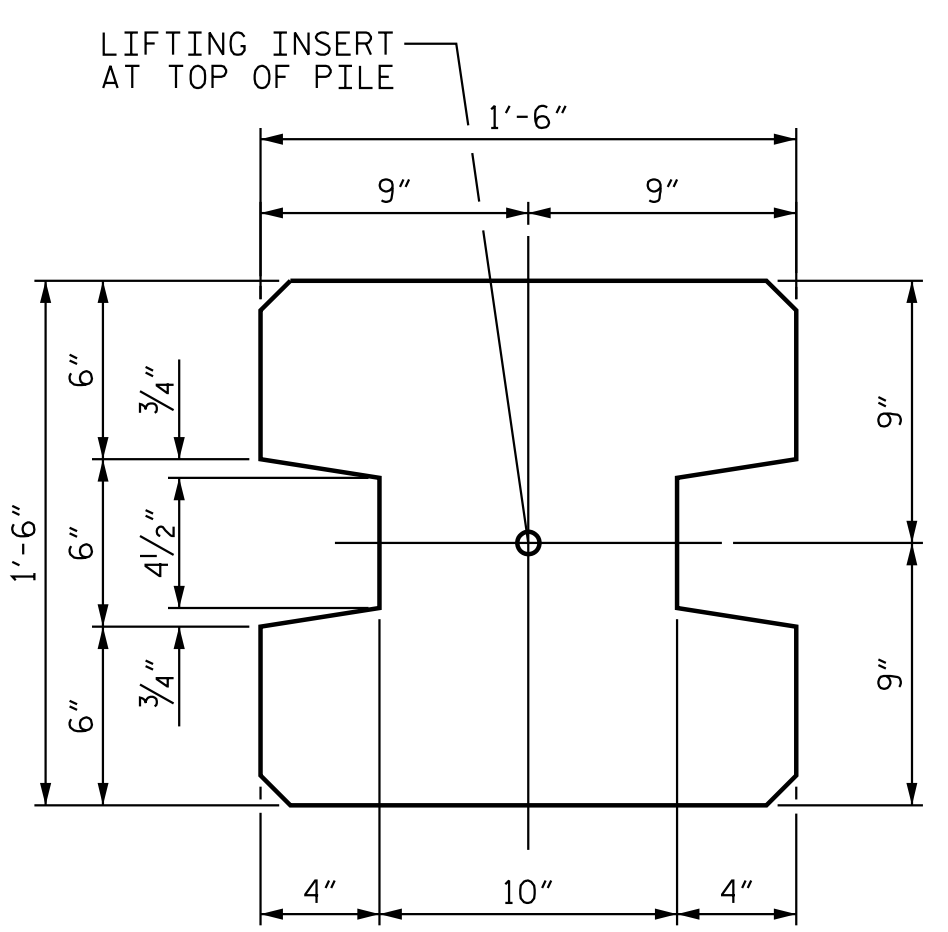
CONCRETE SHIM BLOCK

H = 3', 6" or 1'-0"

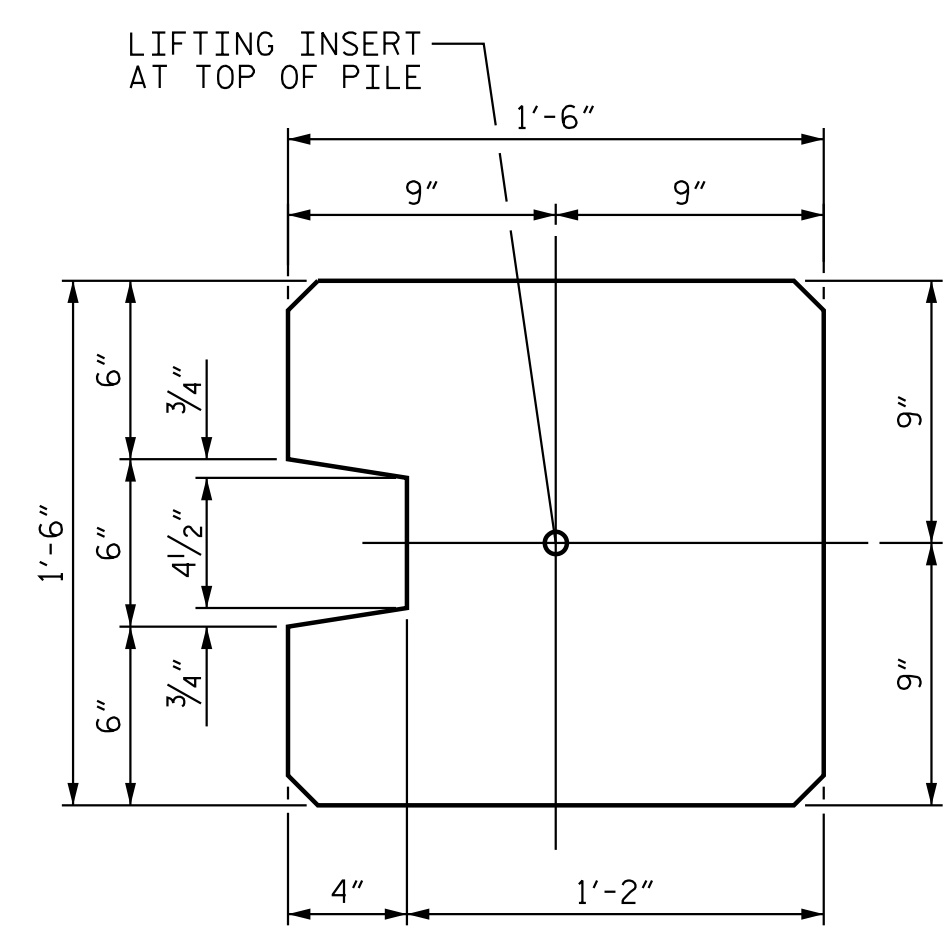


ELASTOMERIC BEARING DETAILS

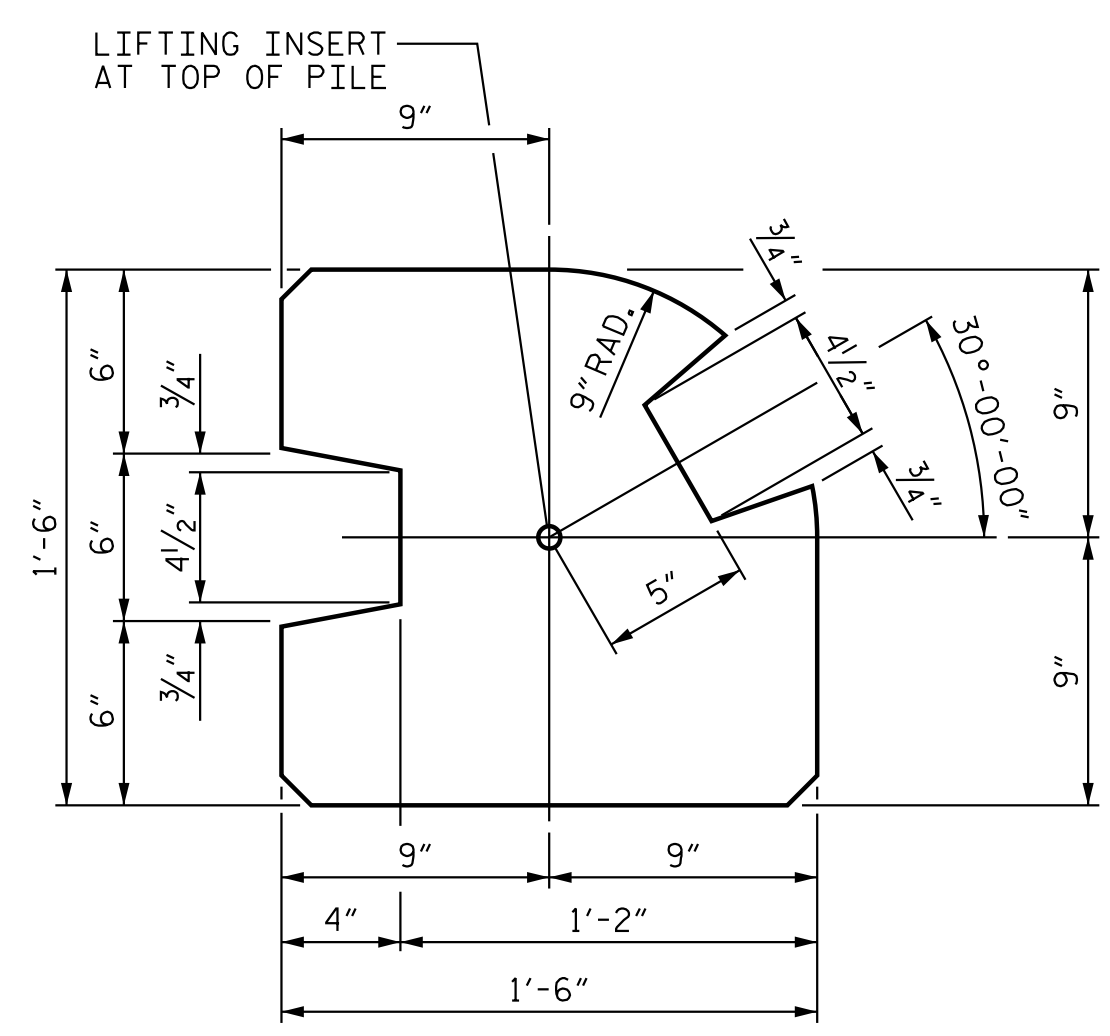
ELASTOMER IN BEARINGS SHALL BE 50 DUROMETER HARDNESS.



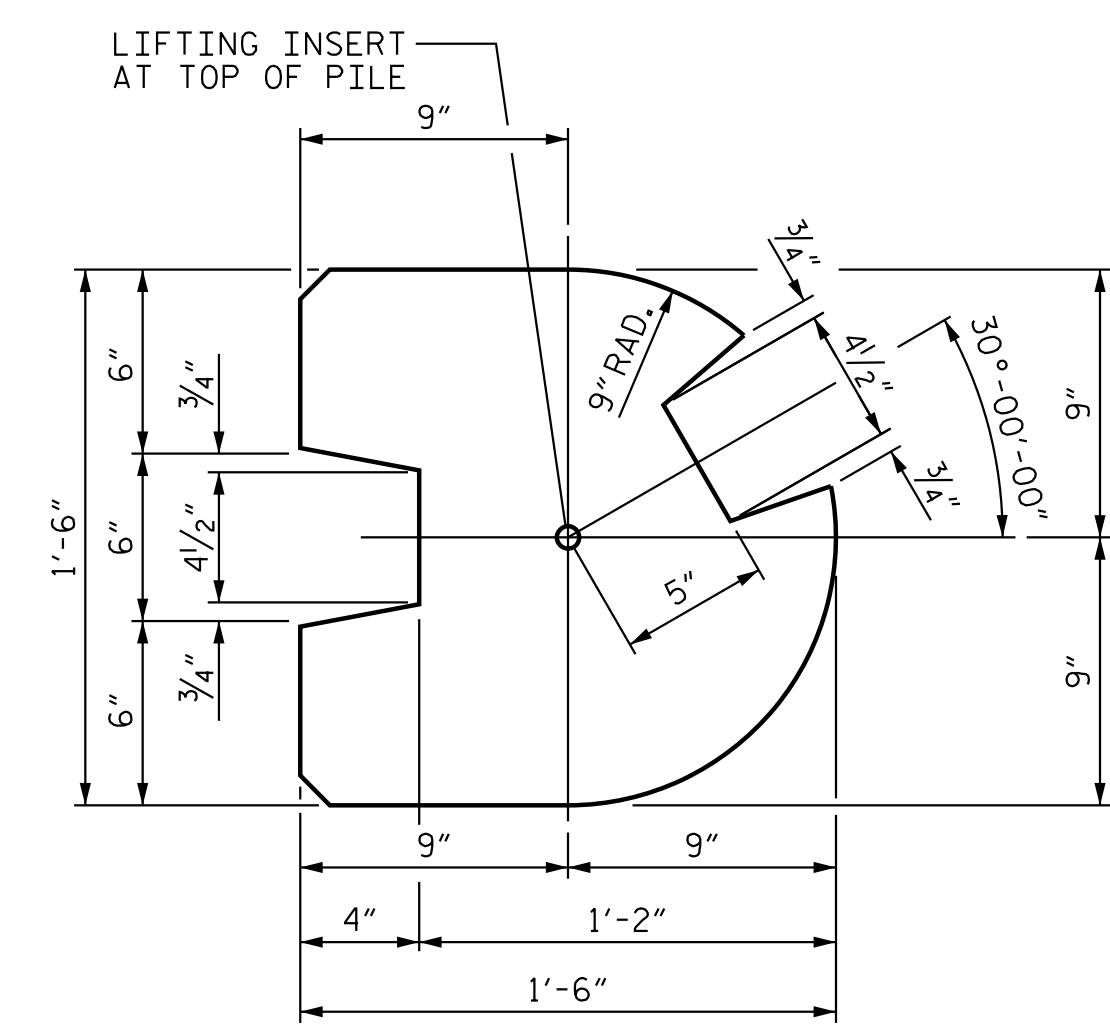
TYPE - I (AREA = 1.9444 SQ. FT.)



TYPE - II (AREA = 2.0903 SQ. FT.)



TYPE - III (AREA = 1.8336 SQ. FT.)



TYPE - III (ALT.) (AREA = 1.7163 SQ. FT.)

PILE DETAIL

(ALL CORNERS TO BE CHAMFERED 1")

PROJECT NO. R-2707D
CLEVELAND COUNTY
STATION: 692+50.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SOUND BARRIER WALL
DETAILS



| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | NW3A-2 |
| 1 | | | 3 | | | TOTAL SHEETS 4 |
| 2 | | | 4 | | | |

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STD. NO. SBW2

jhagenbush

4/14/2023

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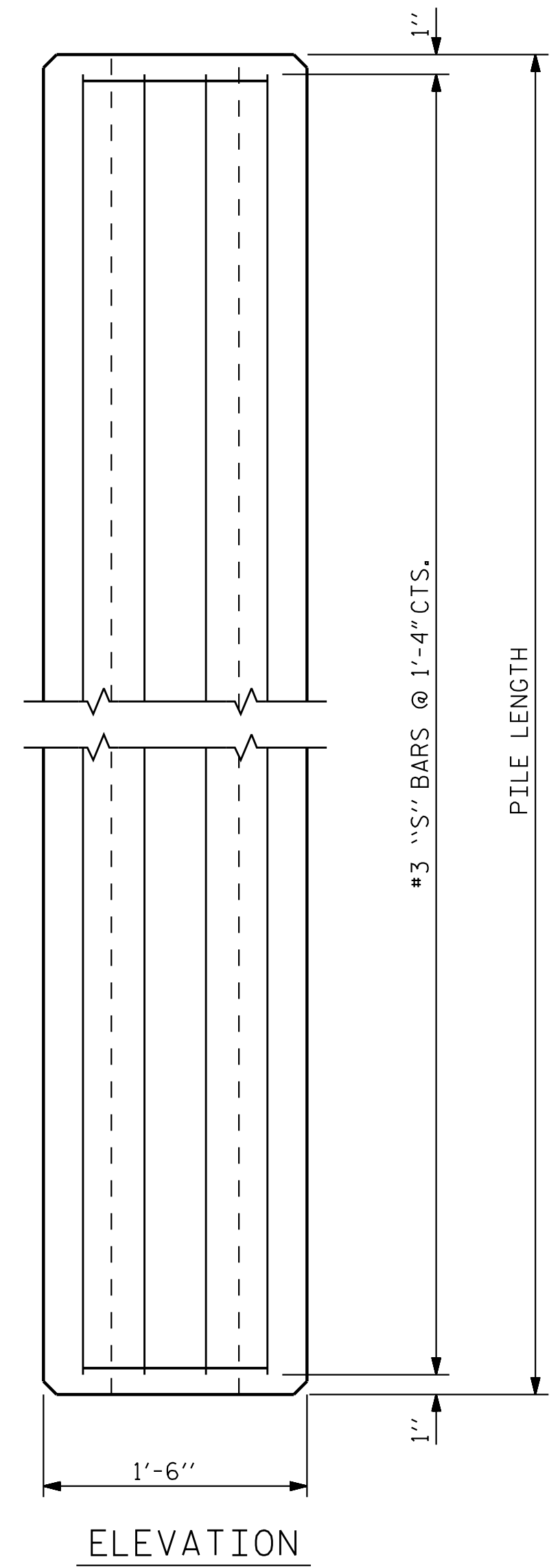


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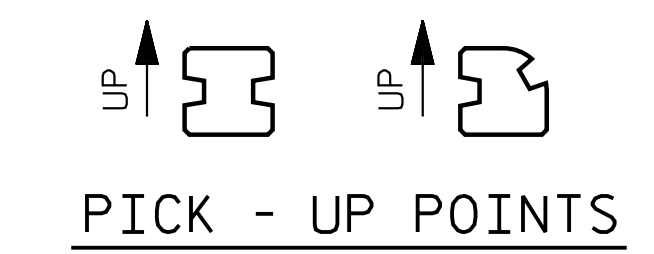
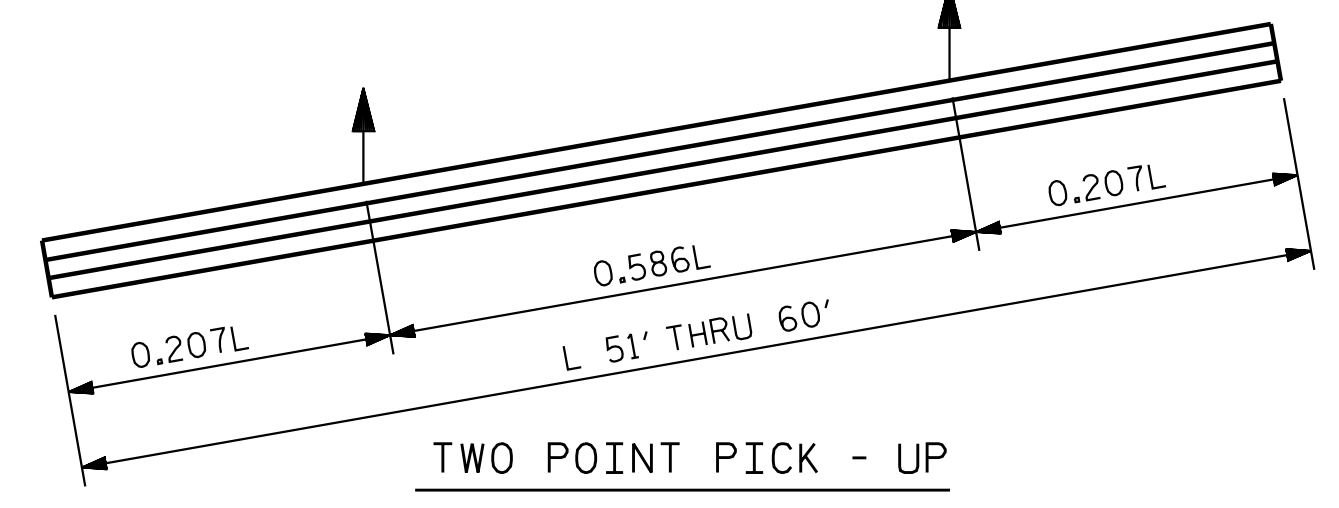
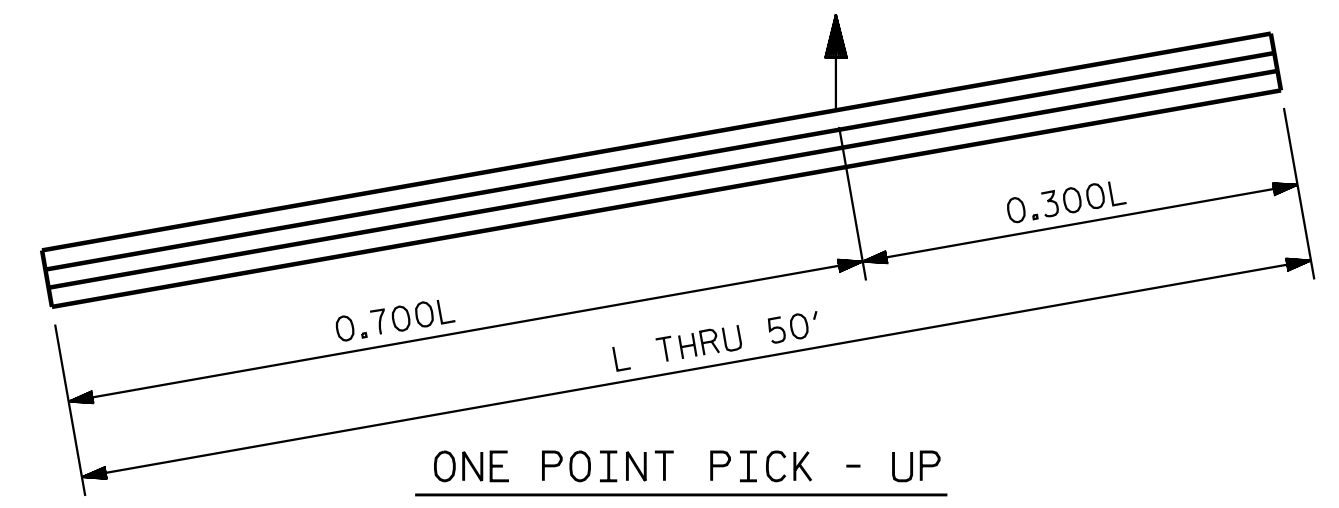
DRAWN BY: A.L. BOYKIN DATE: 02/23/23
CHECKED BY: S.S. POOLE DATE: 03/03/23

DESIGN ENGINEER OF RECORD: S.S. POOLE DATE: 04/14/23

4/14/2023 jlhagenbush



ELEVATION



NOTES

CONCRETE DESIGN DATA : $f'_c = 5,000$ PSI

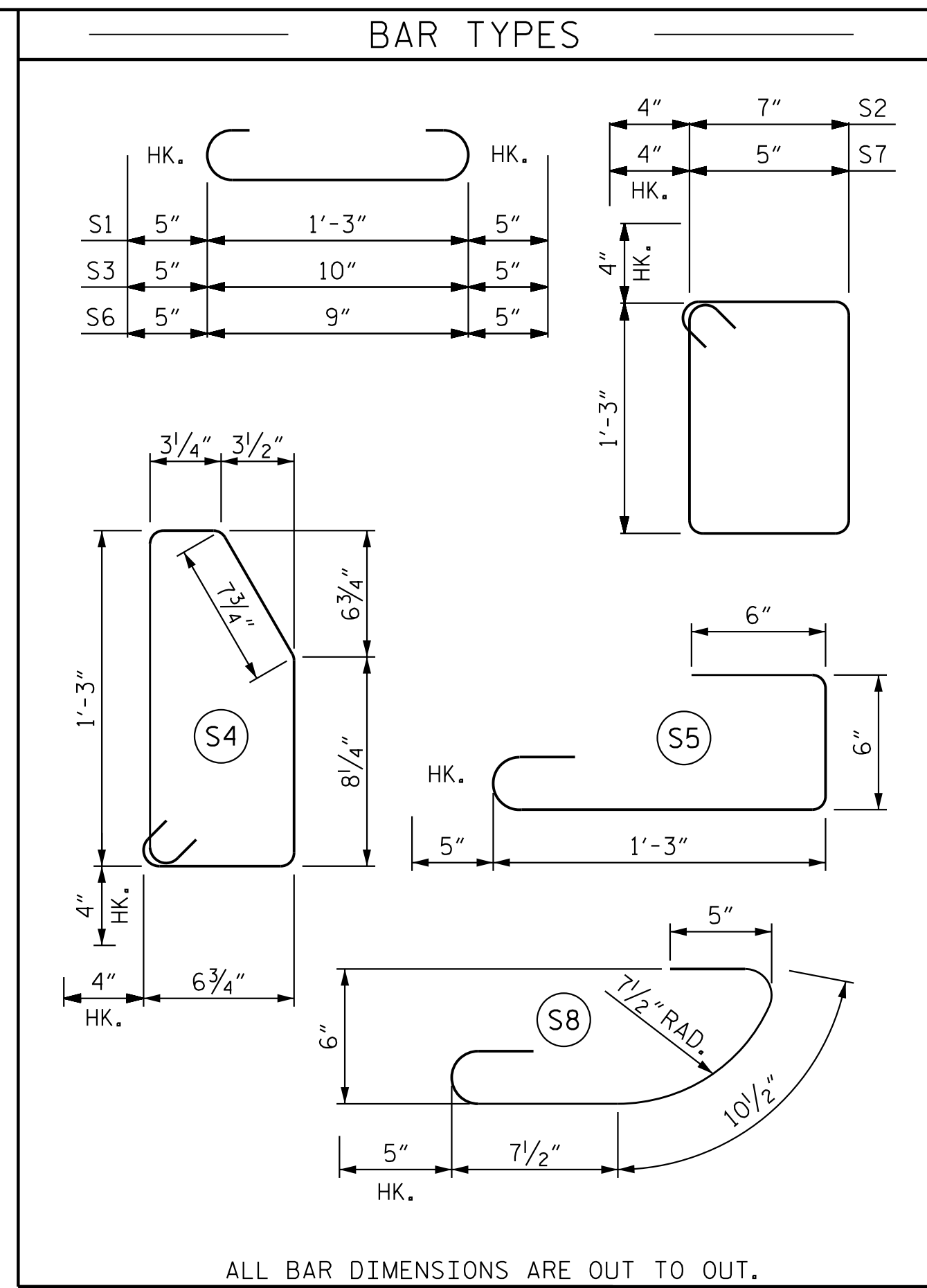
PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS TO BE INDICATED WITH A BLACK MARK 2" WIDE.

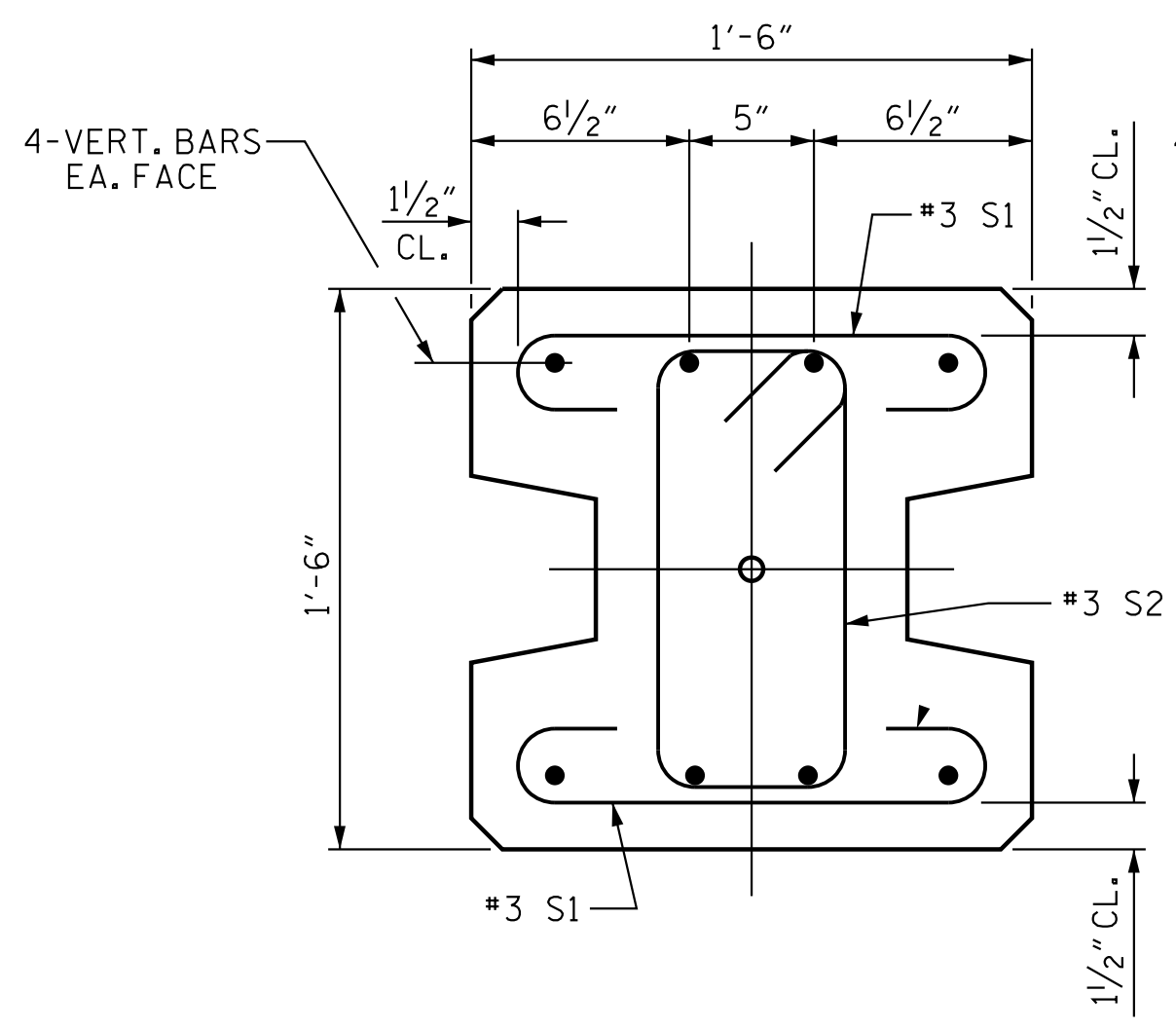
THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

ALL CORNERS TO BE CHAMFERED 1".

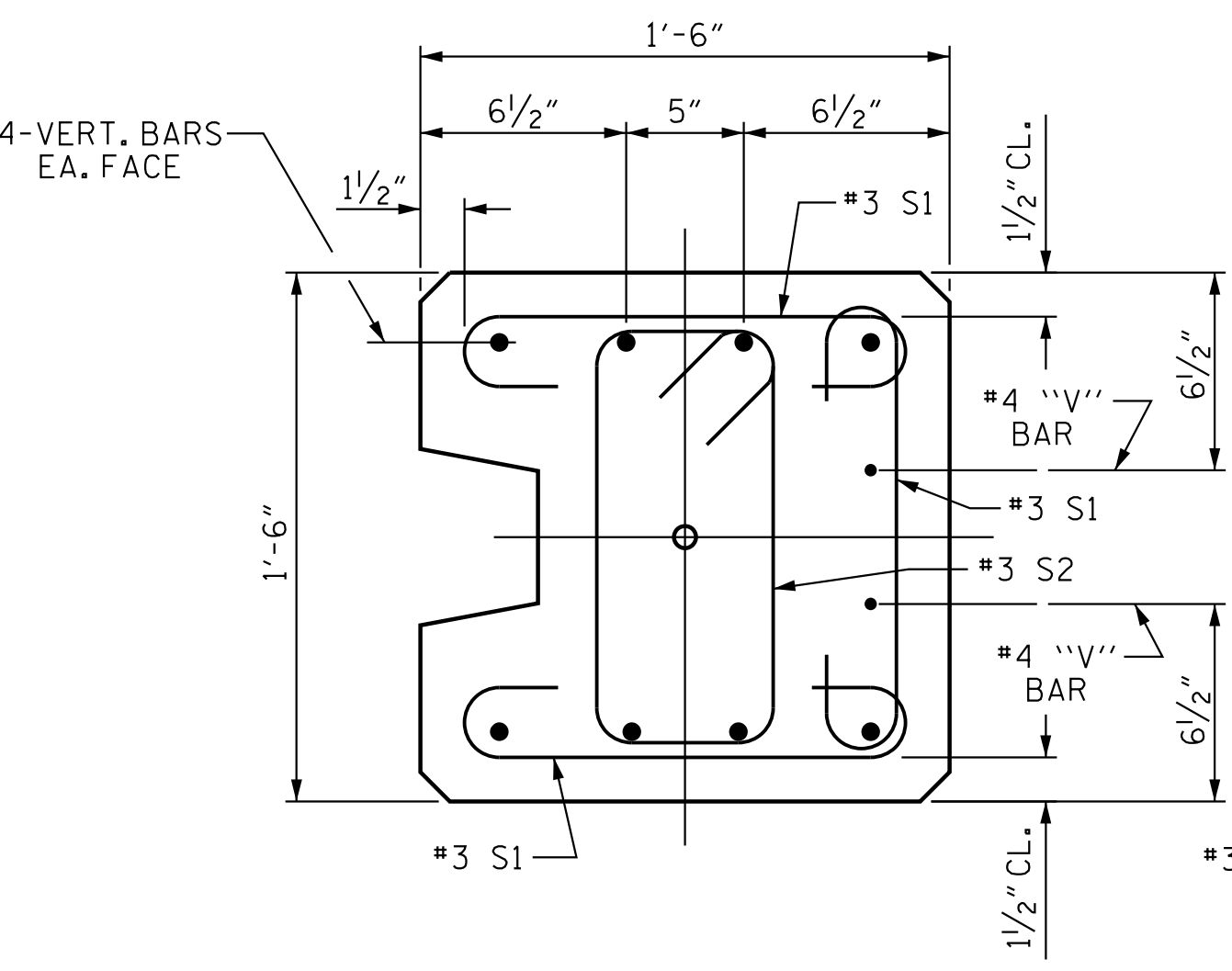
| LENGTH | APPROX. PILE WT. TONS | ONE PICK-UP POINT | | TWO PICK-UP POINT | |
|--------|-----------------------|-------------------|--------|-------------------|--------|
| | | 0.300L | 0.700L | 0.207L | 0.586L |
| 10'-0" | 1.56 | 3'-0" | 7'-0" | | |
| 15'-0" | 2.35 | 4'-6" | 10'-6" | | |
| 20'-0" | 3.14 | 6'-0" | 14'-0" | | |
| 25'-0" | 3.93 | 7'-6" | 17'-6" | | |
| 30'-0" | 4.70 | 9'-0" | 21'-0" | | |
| 35'-0" | 5.49 | 10'-6" | 24'-6" | | |
| 40'-0" | 6.28 | 12'-0" | 28'-0" | | |
| 45'-0" | 7.05 | 13'-6" | 31'-6" | | |
| 50'-0" | 7.84 | 15'-0" | 35'-0" | | |
| 55'-0" | 8.63 | | | 11'-4 1/2" | 32'-3" |
| 60'-0" | 9.42 | | | 12'-5" | 35'-2" |



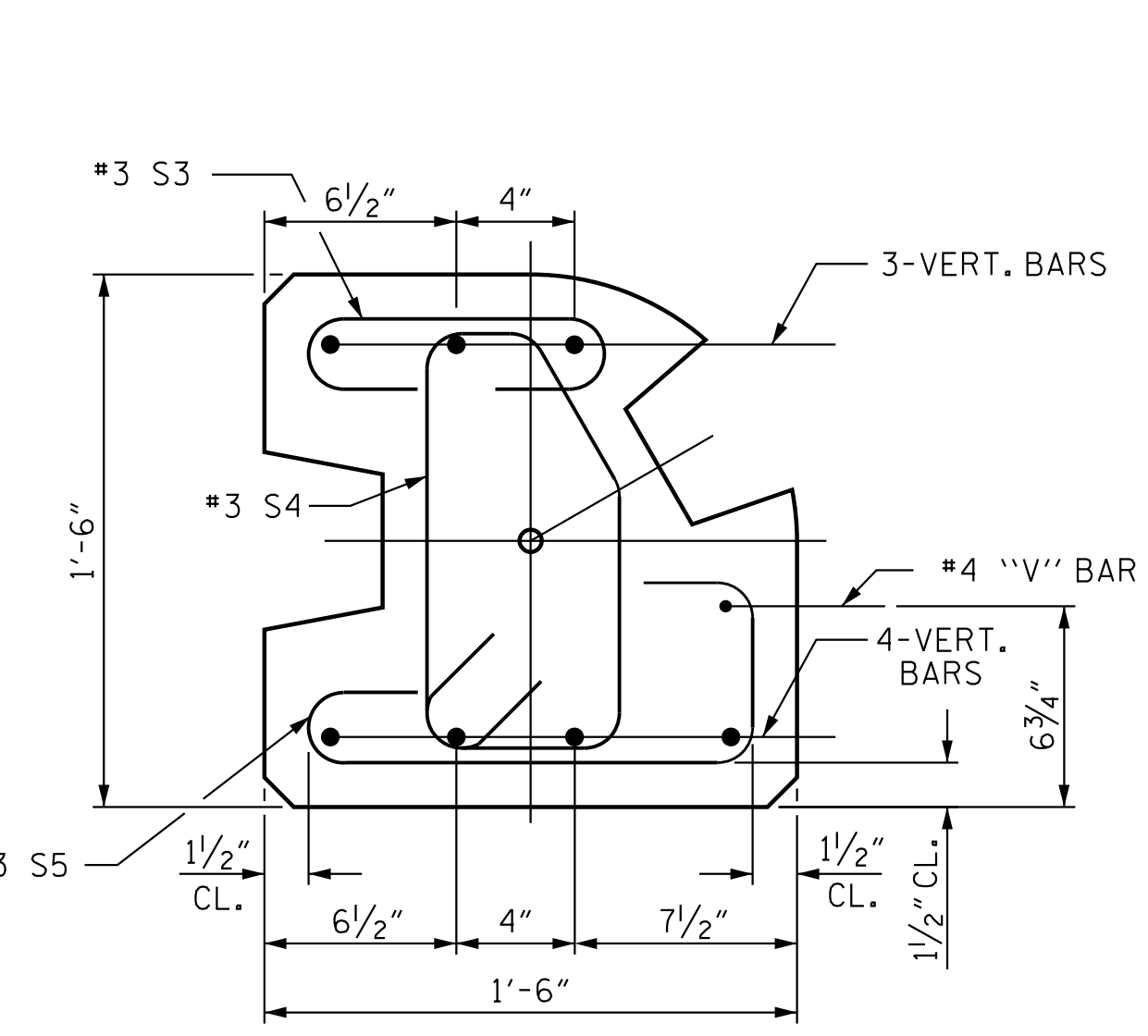
ALL BAR DIMENSIONS ARE OUT TO OUT.



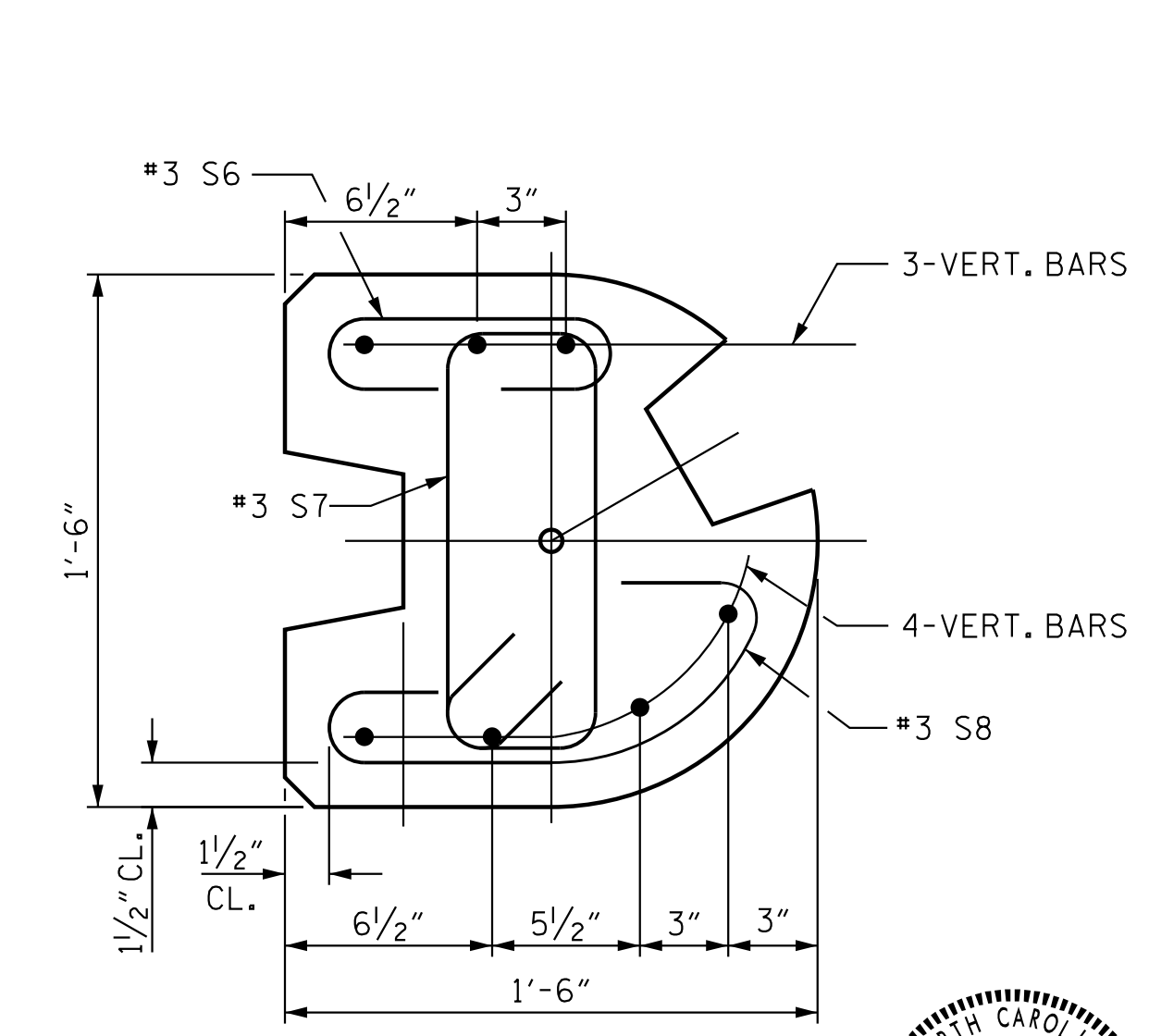
TYPE - I



TYPE - II



TYPE - III



TYPE - III (ALT.)

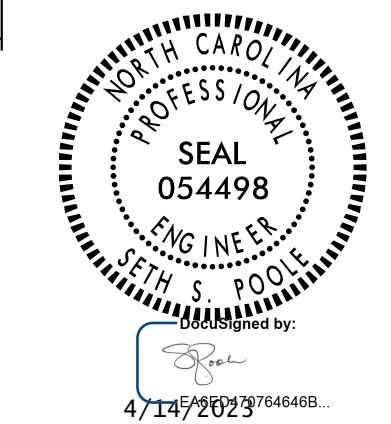
PILE DETAIL

FOR VERTICAL BAR PILE REINFORCING, SEE SHEET 1 OF 4

PROJECT NO. R-2707D
 CLEVELAND COUNTY
 STATION: 692+50.00 -L-

SHEET 3 OF 4

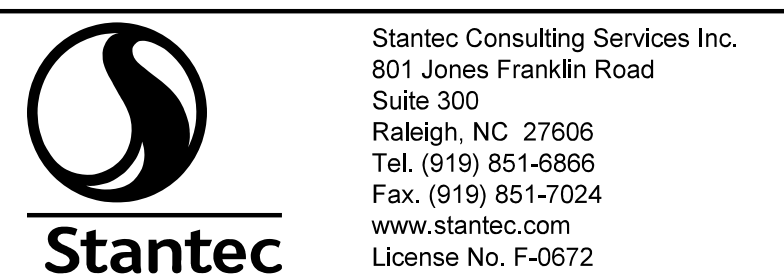
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SOUND BARRIER WALL
 DETAILS



| REVISIONS | | | | | | SHEET NO. NW3A-3 |
|-----------|-----|-------|-----|-----|-------|---------------------|
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| 1 | | | 3 | | | TOTAL SHEETS 4 |
| 2 | | | 4 | | | |

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STD. NO. SBW3



DRAWN BY: A.L. BOYKIN DATE: 02/23/23
 CHECKED BY: S.S. POOLE DATE: 03/03/23
 DESIGN ENGINEER OF RECORD: S.S. POOLE DATE: 04/14/23

jHagenbush

4/14/2023

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| BEGIN WALL STATION (NW3A) | END WALL STATION (NW3A) | PILE EXCAVATION DEPTHS, "D" (FT) | | |
|---------------------------|-------------------------|----------------------------------|----------------------|----------------------|
| | | PILE SPACING = 10 FT | PILE SPACING = 15 FT | PILE SPACING = 20 FT |
| 10+00 | 10+15 | 8 | 9 | 10 |
| 10+15 | 12+70 | 9 | 10 | 12 |
| 12+70 | 13+90 | 9 | 10 | 11 |
| 13+90 | 15+70 | 8 | 9 | 10 |
| 15+70 | 16+90 | 9 | 10 | 11 |
| 16+90 | 17+35 | 9 | 10 | 12 |
| 17+35 | 18+40 | 10 | 11 | 13 |
| 18+40 | 19+90 | 8 | 9 | 10 |
| 19+90 | 21+55 | 10 | 11 | 13 |
| 21+55 | 22+90 | 9 | 10 | 12 |
| 22+90 | 24+55 | 9 | 10 | 11 |
| 24+55 | 27+40 | 10 | 11 | 13 |
| 27+40 | 27+70 | 9 | 10 | 11 |
| 27+70 | 28+45 | 8 | 9 | 10 |
| 28+45 | 29+50 | 9 | 10 | 12 |
| 29+50 | 30+70 | 9 | 10 | 11 |
| 30+70 | 32+20 | 9 | 10 | 11 |
| 32+20 | 43+00 | 8 | 9 | 10 |
| 43+00 | 44+65 | 10 | 11 | 13 |
| 44+65 | 56+95 | 8 | 9 | 10 |

PILE EXCAVATION DEPTHS - SOUND BARRIER WALL 3A

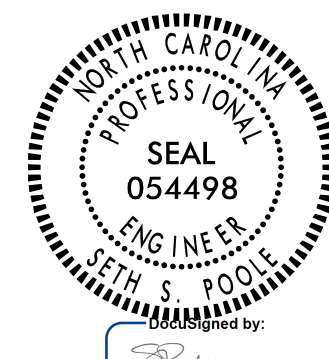
1. BEGIN AND END WALL STATIONS ARE REFERENCED TO THE NW3A ALIGNMENT. SEE ROADWAY PLANS FOR ADDITIONAL INFORMATION.
2. STATIONS ARE TO THE ROADWAY FACE OF THE SOUND BARRIER WALL CONCRETE PILES.

PROJECT NO. R-2707D
CLEVELAND COUNTY
STATION: 692+50.00 -L-

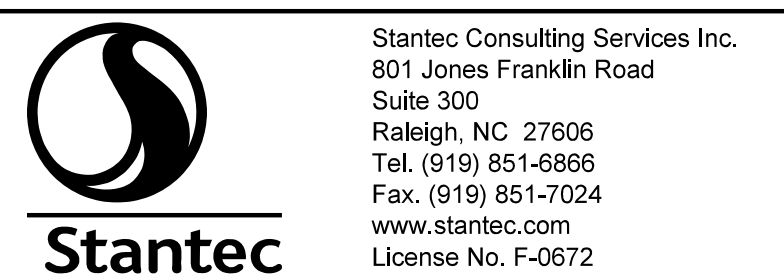
SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
SOUND BARRIER WALL
PILE EXCAVATION
DEPTHS

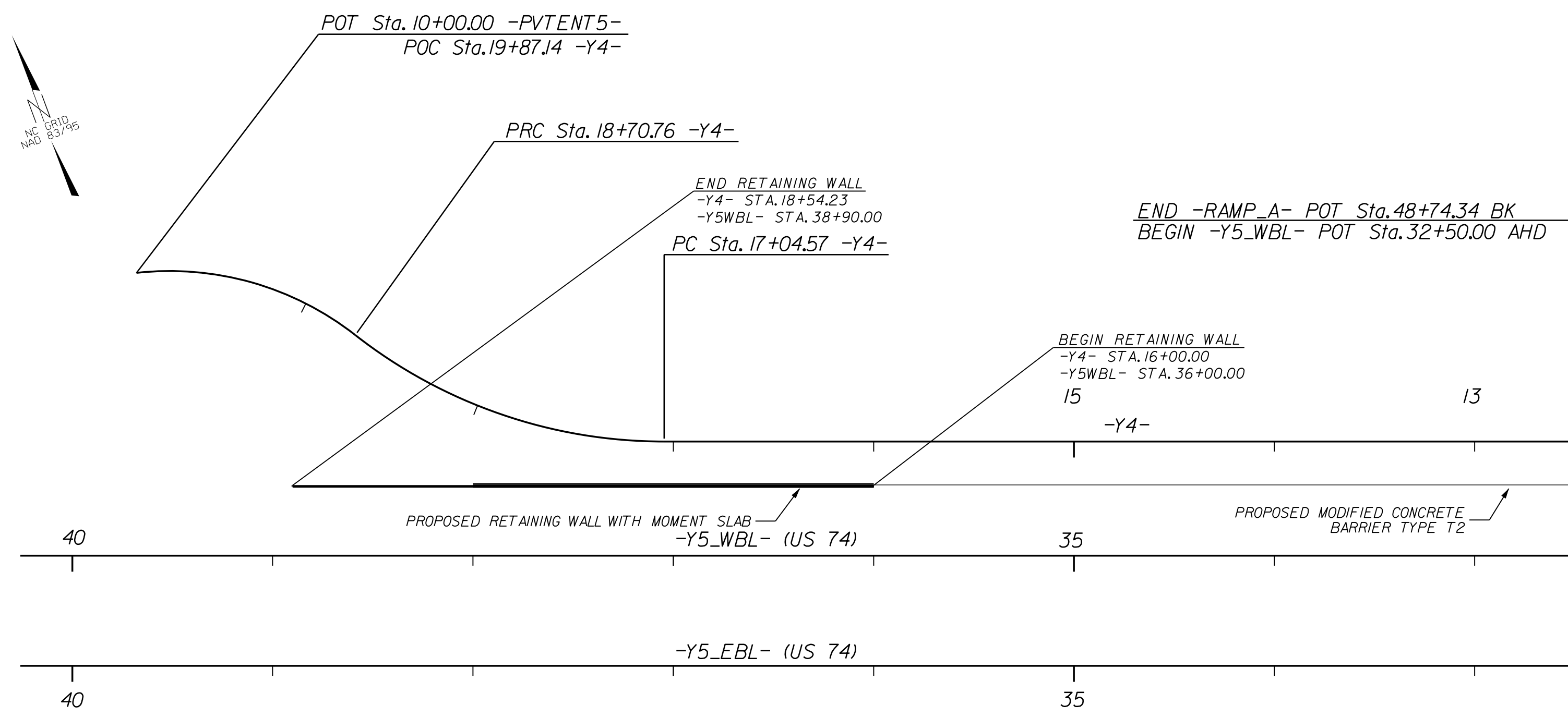
| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-------------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | NW3A-4 |
| 1 | | | 3 | | | TOTAL SHEETS 4 |
| 2 | | | 4 | | | |



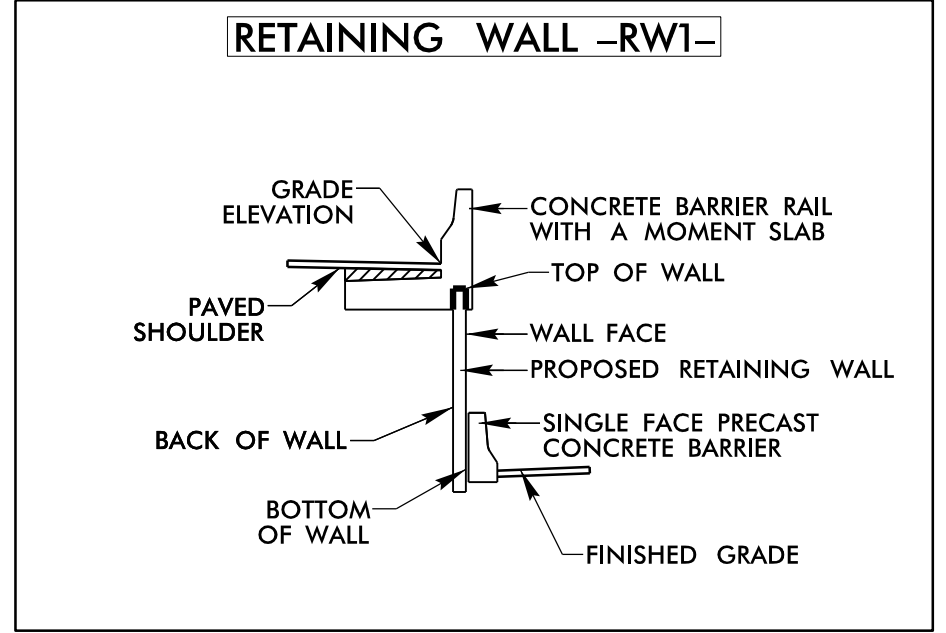
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DESIGN ENGINEER OF RECORD: S.S. POOLE DATE : 04/14/23

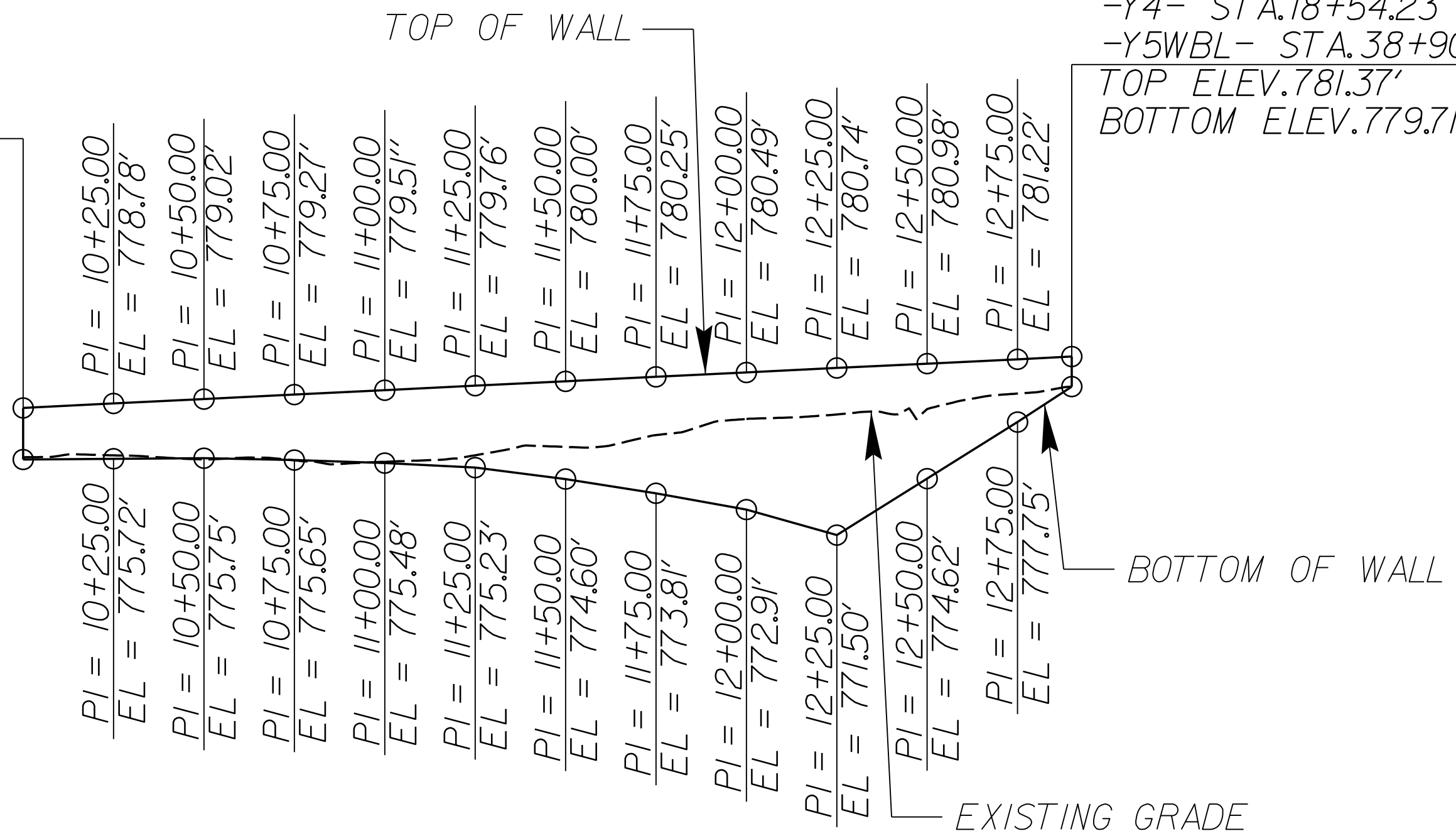


RETAINING WALL RW1 PLAN



BEGIN RETAINING WALL
-Y4- STA. 16+00.00
-Y5WBL- STA. 36+00.00
TOP ELEV. 778.53'
BOTTOM ELEV. 775.68'

END RETAINING WALL
-Y4- STA. 18+54.23
-Y5WBL- STA. 38+90.00
TOP ELEV. 781.37'
BOTTOM ELEV. 779.71'



| ESTIMATED MSE WALL QUANTITIES (SQUARE FEET) | |
|---|----------|
| MSE RETAINING WALL RW1 | 1,750 SF |

RETAINING WALL RW1 ENVELOPE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

GEOTECHNICAL ENGINEER

ENGINEER

SEAL 048207

STEPHEN C. CROCKETT

DocuSigned by: Stephen Crockett 7/5/2023

DATE 7/5/2023

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: R-2707D

CLEVELAND COUNTY

STATION: -Y4- 16+00.00

SHEET 1 OF 5

WALL ID RW1

PREPARED BY: STEPHEN CROCKETT DATE: 1/13/23

REVIEWED BY: JEREMY HAMM DATE: 1/13/23

FALCON ENGINEERING

FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
CARY, NC 27513

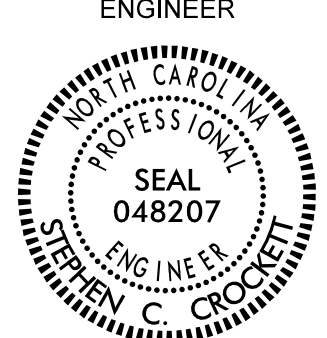
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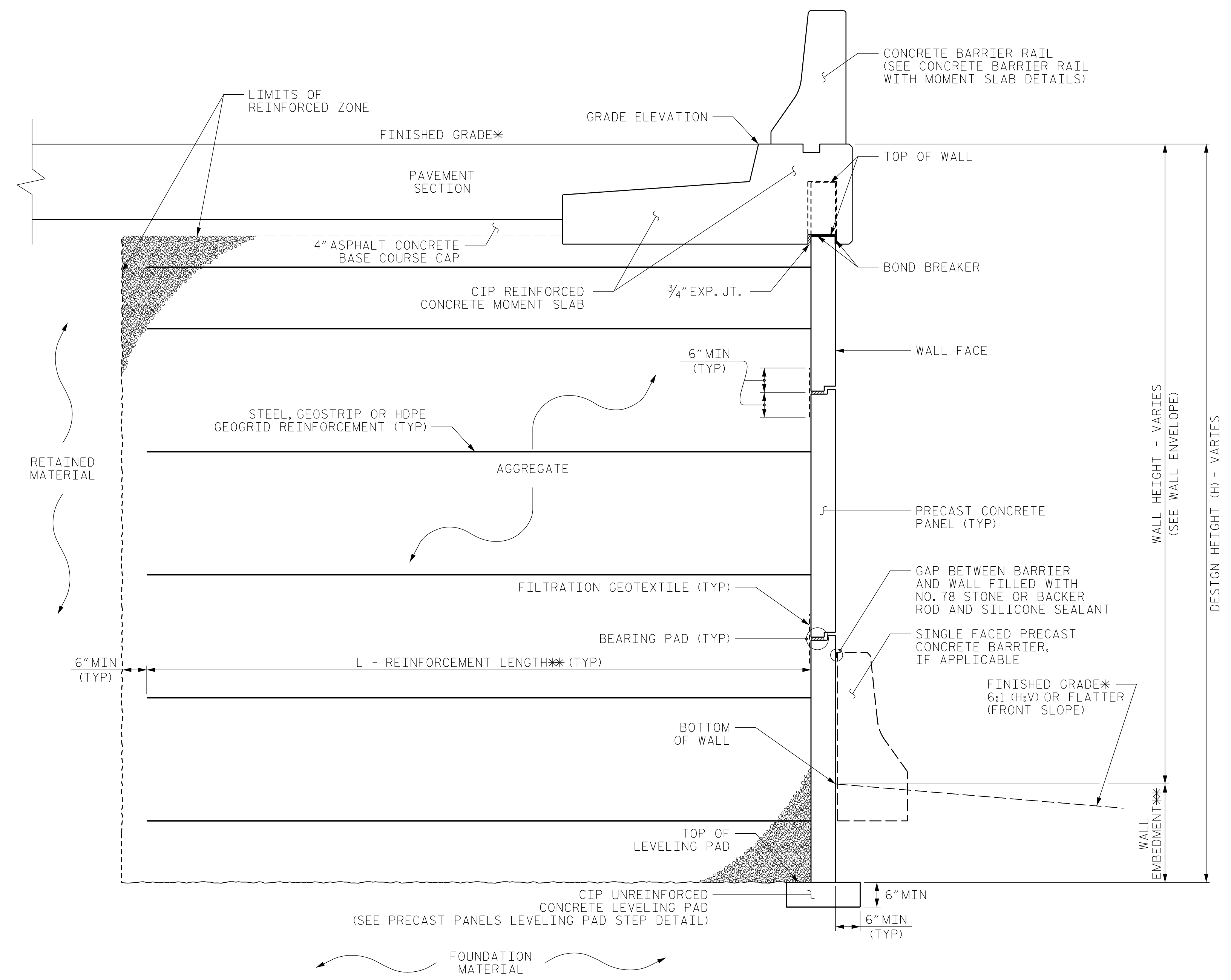
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

| RETAINING WALL RW1 WALL PLAN AND ENVELOPE | | | | | |
|---|----|------|-----|----|------|
| REVISIONS | | | | | |
| NO. | BY | DATE | NO. | BY | DATE |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. W-1

| | |
|---|--|
| GEOTECHNICAL ENGINEER  SEAL 048207 ENGINEER STEPHEN C. CROCKETT | ENGINEER _____ SIGNATURE DATE |
| DocuSigned by: Stephen Crockett 7/5/2023 CSCASPE048207 SIGNATURE DATE | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |



MSE WALL WITH PANELS AND MOMENT SLAB AND BARRIER RAIL - TYPICAL SECTION RW1 STA. 10+00 TO 12+00

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: R-2707D
 CLEVELAND COUNTY
 STATION: -Y4- 16+00.00
 SHEET 2 OF 5 WALL ID RW1

PREPARED BY: STEPHEN CROCKETT DATE: 1/13/23
 REVIEWED BY: JEREMY HAMM DATE: 1/13/23

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 CARY, NC 27513
 PHONE: 919.871.0800
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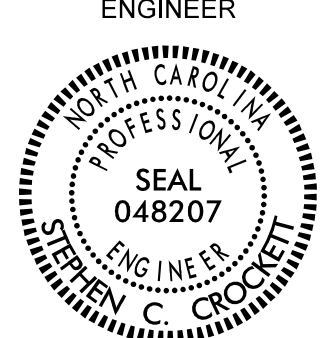
NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

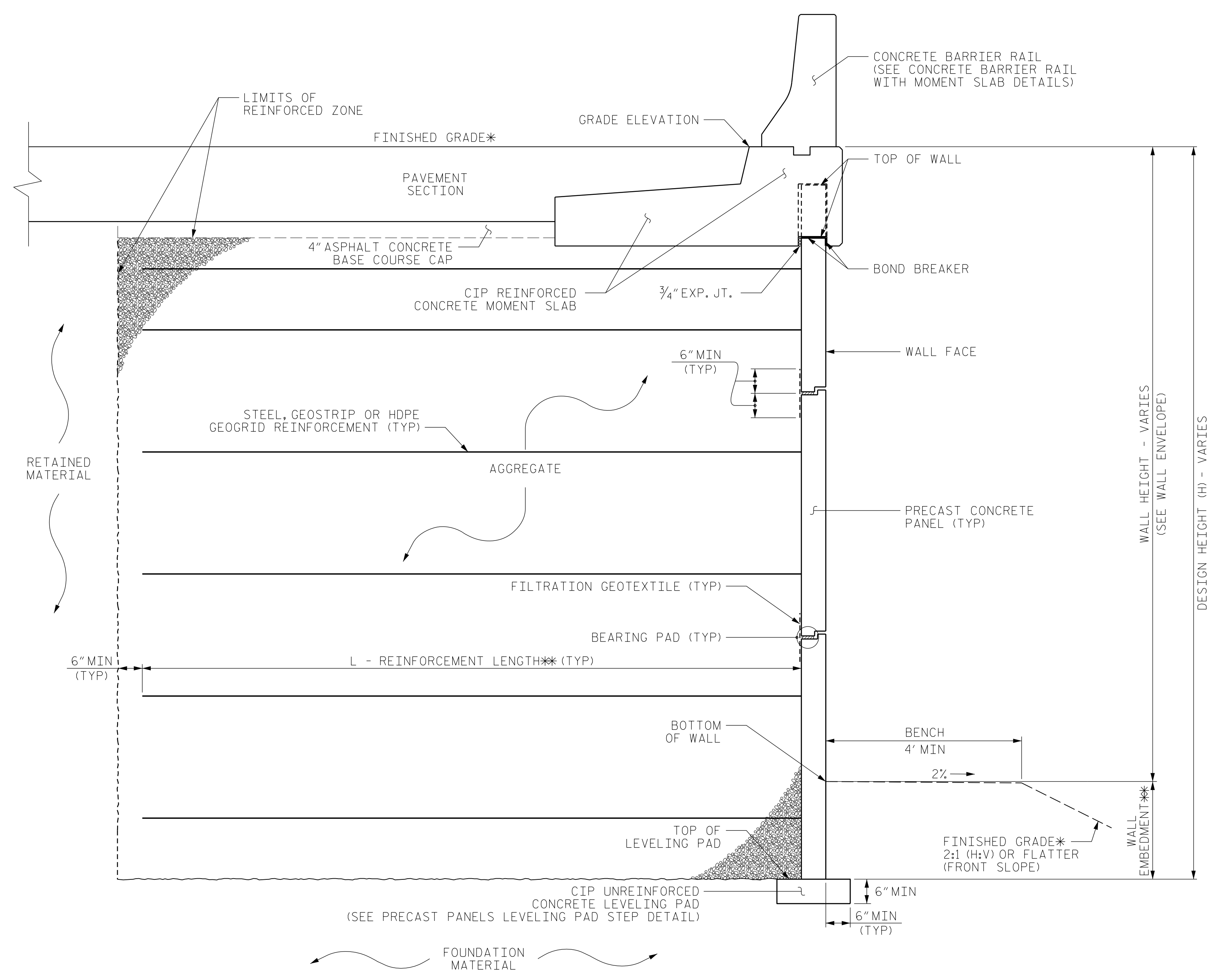
**GEOTECHNICAL
ENGINEERING UNIT**

**MSE WALL WITH PANELS AND
MOMENT SLAB AND CONCRETE
BARRIER RAIL TYPICAL
RW1 STA. 10+00 TO 12+00**

| REVISIONS | | | | | |
|-----------|----|------|-----|----|------|
| NO. | BY | DATE | NO. | BY | DATE |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. W-2

| | |
|---|--|
| GEOTECHNICAL ENGINEER  SEAL 048207 ENGINEER STEPHEN C. CROCKETT | ENGINEER _____ SIGNATURE DATE |
| DocuSigned by: Stephen Crockett 7/5/2023 SIGNATURE DATE | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |



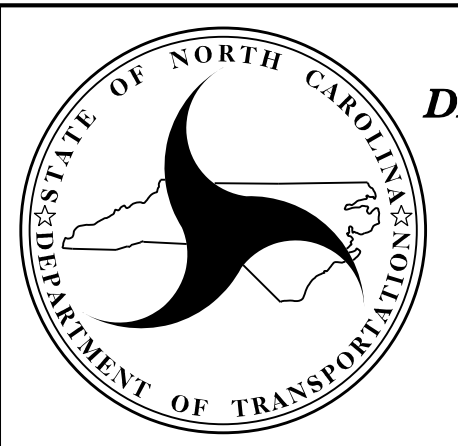
MSE WALL WITH PANELS AND MOMENT SLAB AND BENCH - TYPICAL SECTION RW1 STA. 12+00 TO 12+90

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: R-2707D
 CLEVELAND COUNTY
 STATION: -Y4- 16+00.00
 SHEET 3 OF 5 WALL ID RW1

| | |
|-------------------------------|---------------|
| PREPARED BY: STEPHEN CROCKETT | DATE: 1/13/23 |
| REVIEWED BY: JEREMY HAMM | DATE: 1/13/23 |

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**NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

**GEOTECHNICAL
 ENGINEERING UNIT**

**MSE WALL WITH PANELS WITH
 MOMENT SLAB AND BENCH
 TYPICAL
 RW1 STA. 12+00 TO 12+90**

| REVISIONS | | | | | |
|-----------|----|------|-----|----|------|
| NO. | BY | DATE | NO. | BY | DATE |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. W-3

NOTES:

- FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
- FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO.1. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.
- AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO.1.
- A SEPARATION GEOTEXTILE IS NOT REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1.
- A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO.1.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

- DESIGN RETAINING WALL NO.1 FOR THE FOLLOWING:
- 1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
 - 2) DESIGN LIFE = 100 YEARS
 - 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,750 PSF
 - 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.8H OR 6 FT, WHICHEVER IS LONGER
 - 5) MINIMUM EMBEDMENT DEPTH = 1 FT
 - 6) REINFORCED ZONE AGGREGATE PARAMETERS:

| AGGREGATE TYPE* | UNIT WEIGHT (γ) PCF | FRICTION ANGLE (ϕ) DEGREES | COHESION (c) PSF |
|-----------------|------------------------------------|---|------------------------|
| COARSE | 110 | 38 | 0 |
| FINE | 115 | 34 | 0 |

*SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

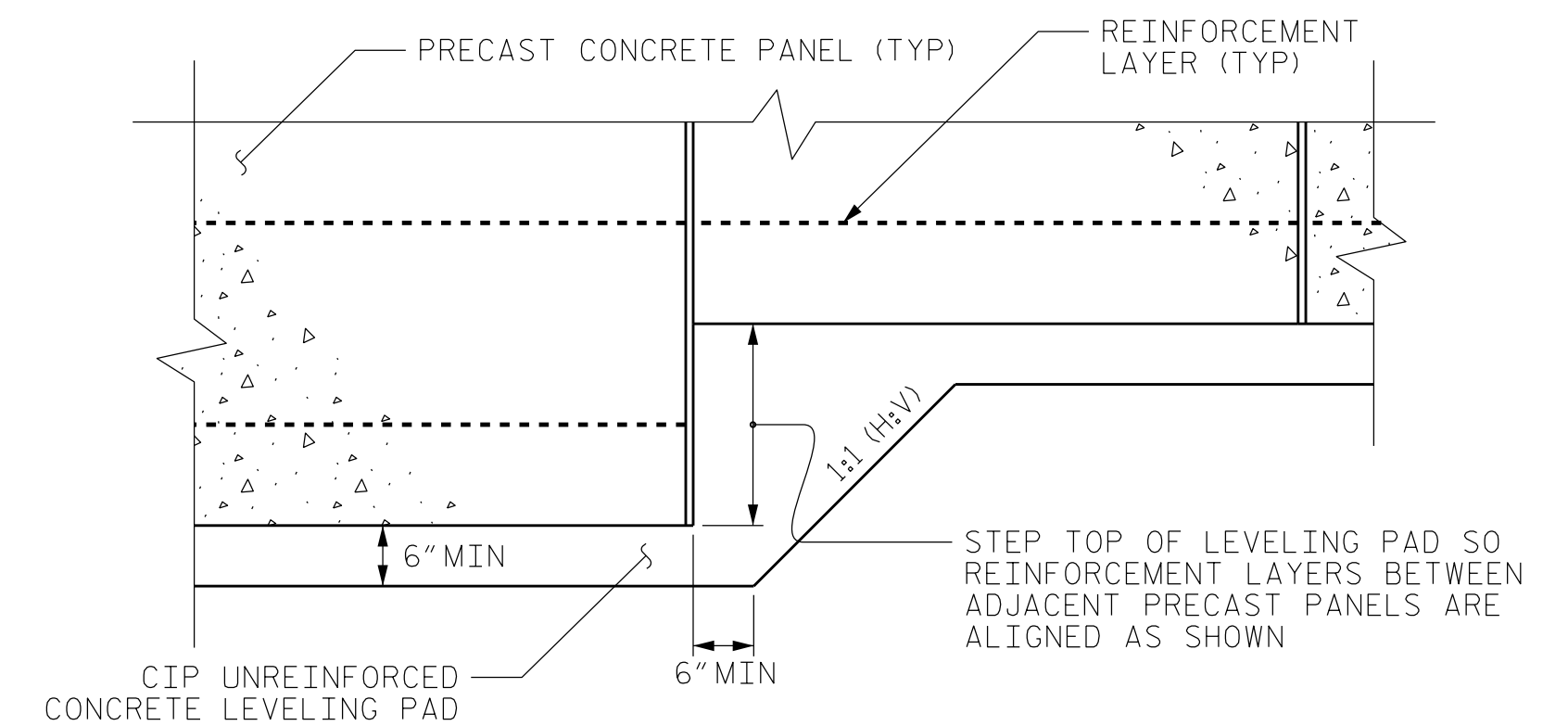
| MATERIAL TYPE | UNIT WEIGHT (γ) PCF | FRICTION ANGLE (ϕ) DEGREES | COHESION (c) PSF |
|---------------|------------------------------------|---|------------------------|
| RETAINED | 120 | 30 | 0 |
| FOUNDATION | 115 | 28 | 0 |

DESIGN RETAINING WALL NO.1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.


EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL NO.1. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

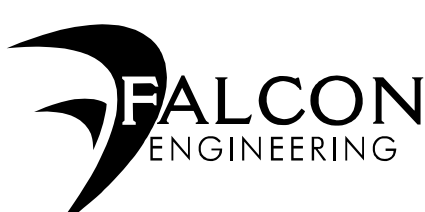


PRECAST PANELS
LEVELING PAD STEP DETAIL

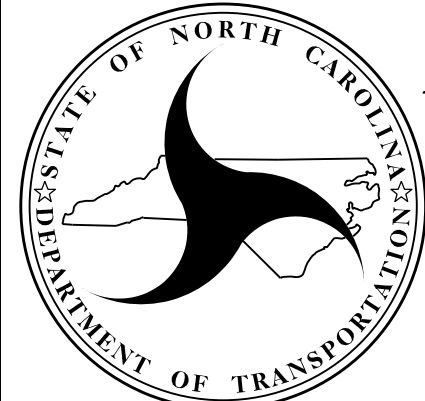
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| GEOTECHNICAL ENGINEER  DocuSigned by: Stephen Crockett CSCASPE048207 SIGNATURE | ENGINEER DATE: 7/5/2023 DATE |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

PROJECT NO.: R-2707D
 CLEVELAND COUNTY
 STATION: -Y4- 16+00.00
 SHEET 4 OF 5 WALL ID RW1

| | |
|-------------------------------|---------------|
| PREPARED BY: STEPHEN CROCKETT | DATE: 1/13/23 |
| REVIEWED BY: JEREMY HAMM | DATE: 1/13/23 |



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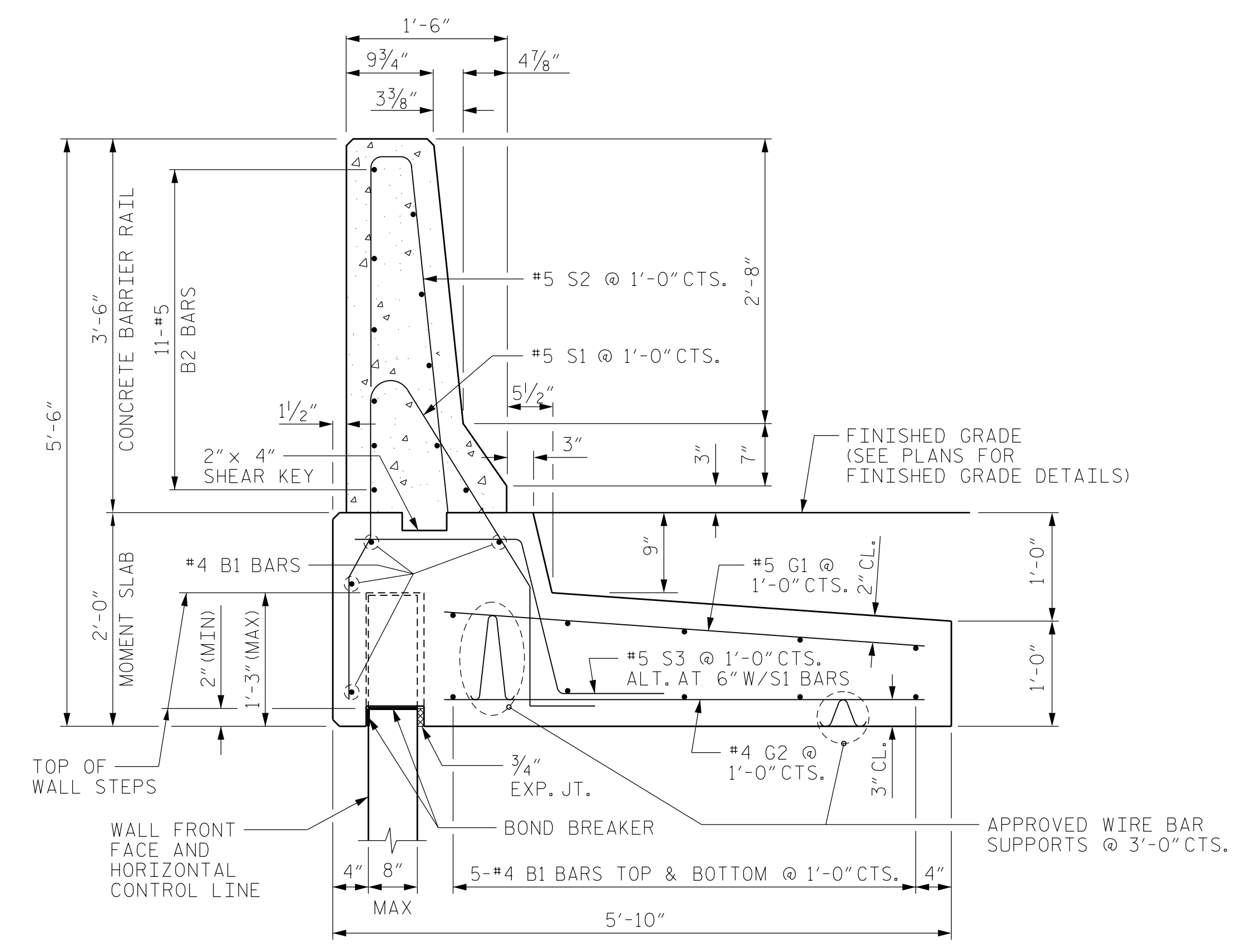


**NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

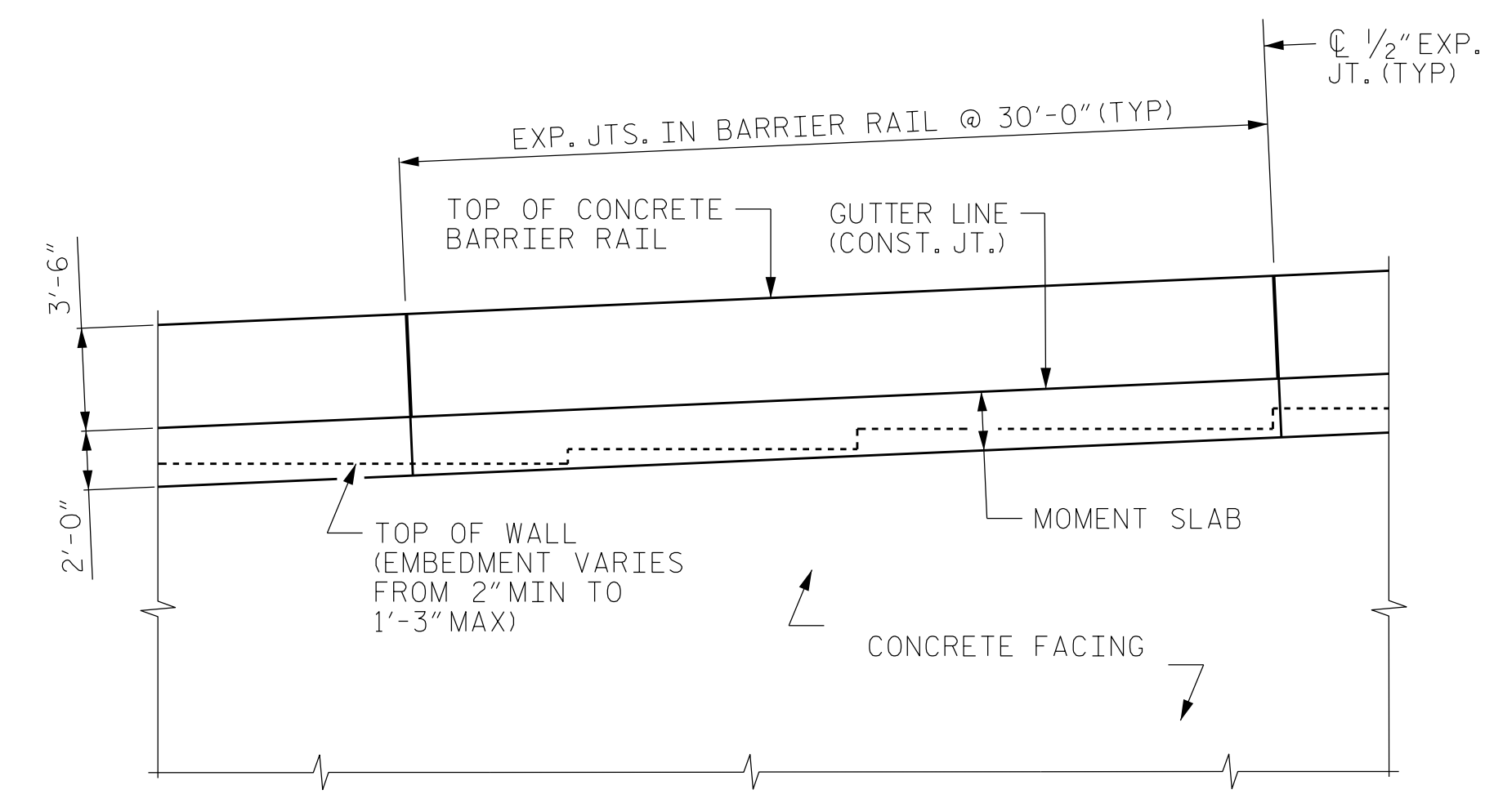
**GEOTECHNICAL
 ENGINEERING UNIT**

**MSE WALL WITH PANELS NOTES
 AND LEVELING PAD STEP DETAIL**

| REVISIONS | | | | | | SHEET NO. W-4 |
|-----------|----|------|-----|----|------|------------------|
| NO. | BY | DATE | NO. | BY | DATE | |
| 1 | | | 3 | | | |
| 2 | | | 4 | | | |



CONCRETE BARRIER RAIL WITH MOMENT SLAB



CONCRETE BARRIER RAIL WITH MOMENT SLAB - PARTIAL ELEVATION

NOTES:

FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB, SEE SECTION 460 OF THE STANDARD SPECIFICATIONS.

CONCRETE BARRIER RAIL WITH MOMENT SLAB SHALL BE A MINIMUM OF 15' IN LENGTH.

EXPANSION JOINTS SHALL BE PLACED IN THE BARRIER RAIL AND MOMENT SLAB AT A MAXIMUM SPACING OF 30'.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED SURFACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID-POINT OF BARRIER RAIL SEGMENTS LESS THAN 20' IN LENGTH.

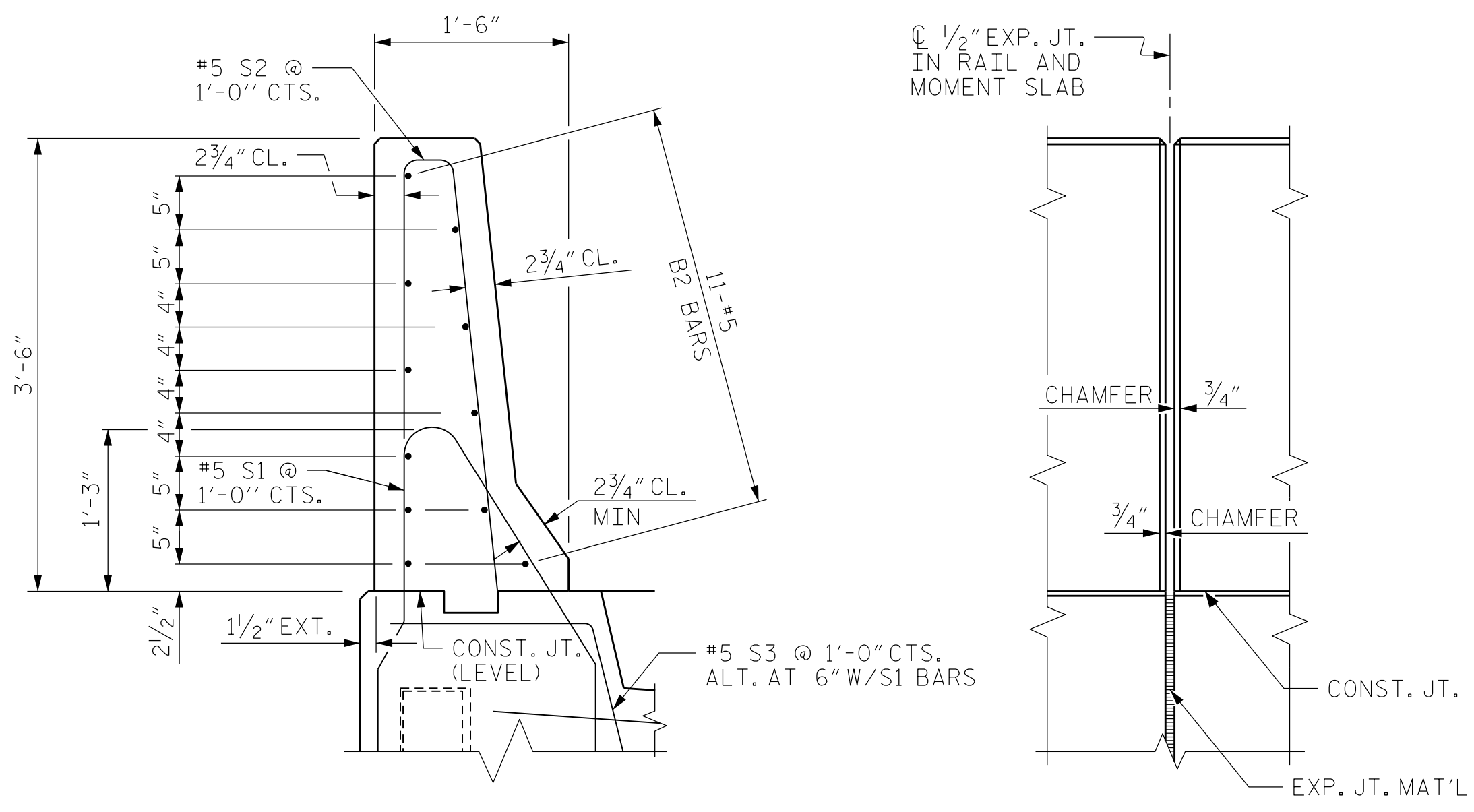
EXPANSION OR CONTRACTION JOINTS IN THE BARRIER RAIL AND MOMENT SLAB SHALL BE ALIGNED WITH JOINTS IN WALL FACING BELOW.

THE BARRIER RAIL SHALL NOT BE CAST UNTIL THE MOMENT SLAB HAS ATTAINED AN AGE OF THREE CURING DAYS OR A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI. IN ADDITION, NO FILL MATERIAL, ASPHALT, OR CONSTRUCTION EQUIPMENT IS ALLOWED ON THE MOMENT SLAB PRIOR TO SATISFYING THE MINIMUM CONCRETE CURING AND STRENGTH REQUIREMENTS.

ALL REINFORCING STEEL IN THE BARRIER RAIL SHALL BE EPOXY COATED.

IF EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, BARRIERS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH CONCRETE BARRIER RAIL WITH MOMENT SLAB OR CONCRETE FACING FOR RETAINING WALL WILL BE THICKER THAN 8", CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS SHALL BE REVISED AND SUBMITTED FOR APPROVAL.

CONCRETE BARRIER RAIL WITH MOMENT SLAB
PAY LENGTH = 290 LIN FT



SECTION THRU RAIL

ELEV. @ EXP. JOINTS

BARRIER RAIL DETAILS

STRUCTURE ENGINEER
ENGINEER

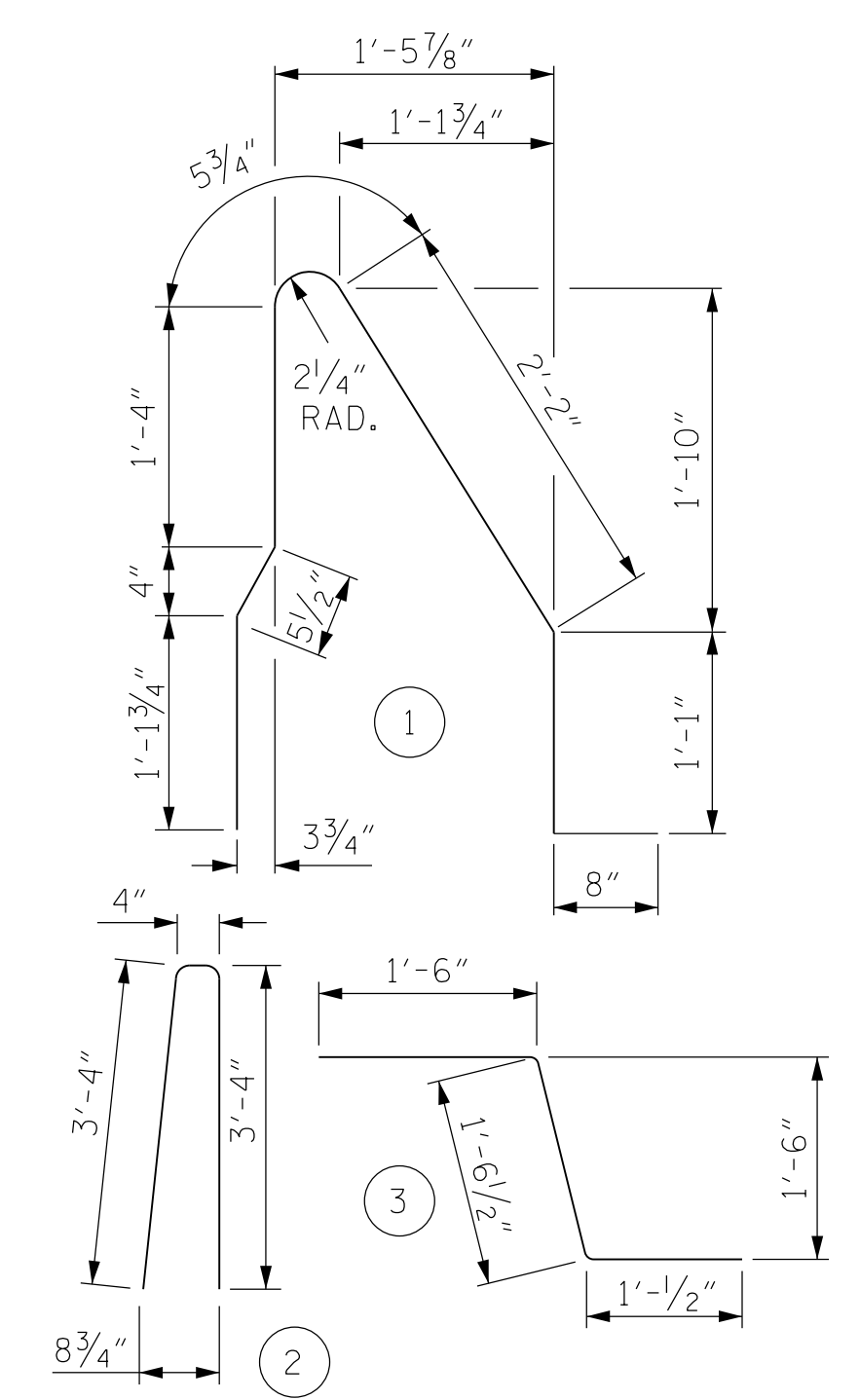
SEAL 048207
STEPHEN C. CROCKETT

DocuSigned by:
Stephen Crockett 7/5/2023

DATE SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR ONE 30'-0" SECTION OF CONCRETE BARRIER RAIL WITH MOMENT SLAB

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|--|-----|------|------|--------|-----------|
| B1 | 14 | #4 | STR | 29'-7" | 277 |
| * B2 | 11 | #5 | STR | 29'-7" | 339 |
| G1 | 31 | #5 | STR | 4'-4" | 140 |
| G2 | 31 | #4 | STR | 4'-4" | 90 |
| * S1 | 31 | #5 | 1 | 7'-4" | 237 |
| * S2 | 31 | #5 | 2 | 7'-0" | 226 |
| S3 | 30 | #5 | 3 | 4'-1" | 128 |
| REINFORCING STEEL | | | | | 635 LB |
| * EPOXY COATED REINFORCING STEEL | | | | | 802 LB |
| CLASS AA CONCRETE BARRIER RAIL | | | | | 4.1 CY |
| CLASS A CONCRETE MOMENT SLAB | | | | | 9.1 CY |
| CONCRETE BARRIER RAIL WITH MOMENT SLAB | | | | | 30 LIN FT |

PROJECT NO.: R-2707D
CLEVELAND COUNTY
STATION: -Y4- 16+00.00
SHEET 5 OF 5 WALL ID RW1

PREPARED BY: STEPHEN CROCKETT DATE: 1/13/23
REVIEWED BY: JEREMY HAMM DATE: 1/13/23

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

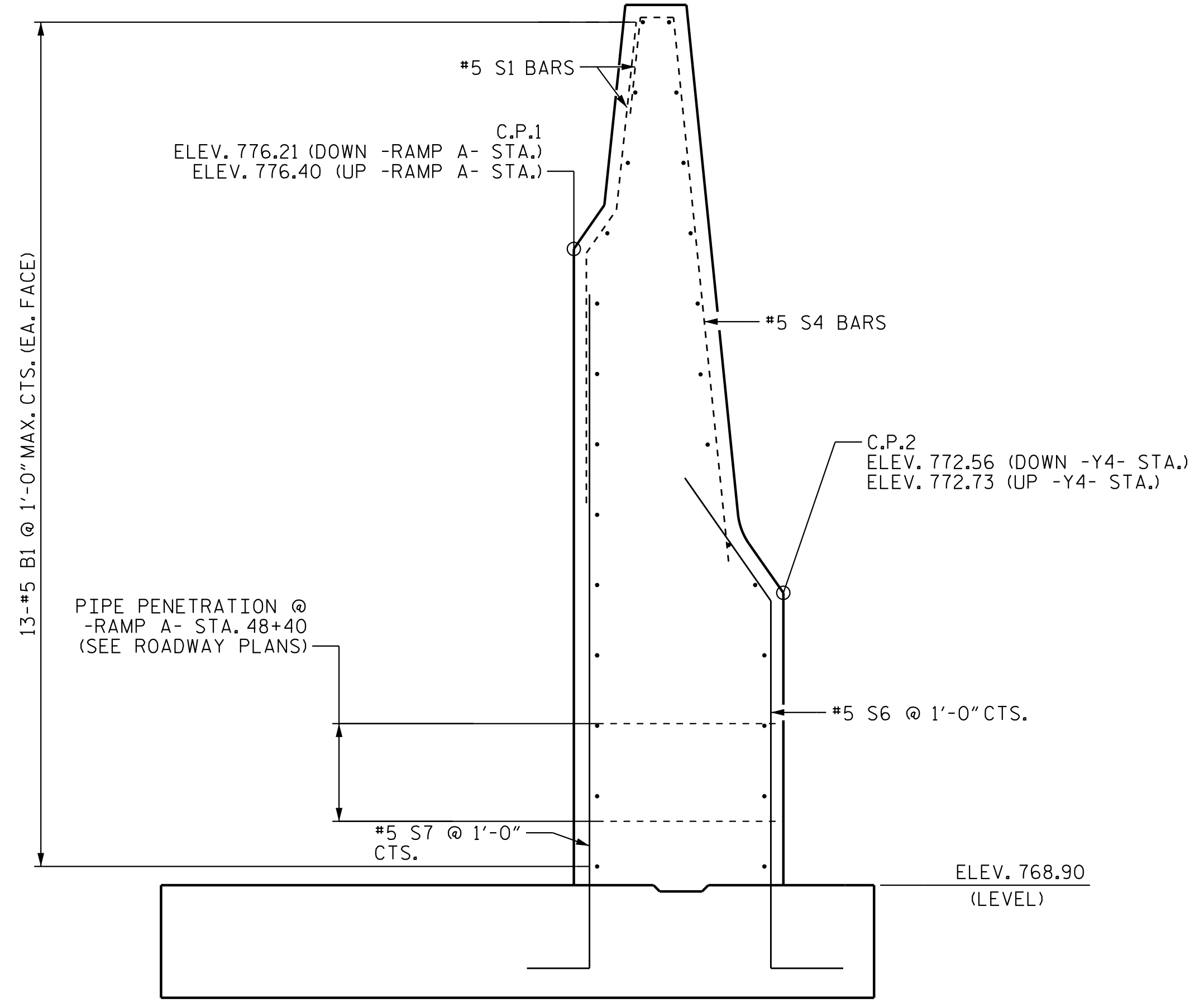
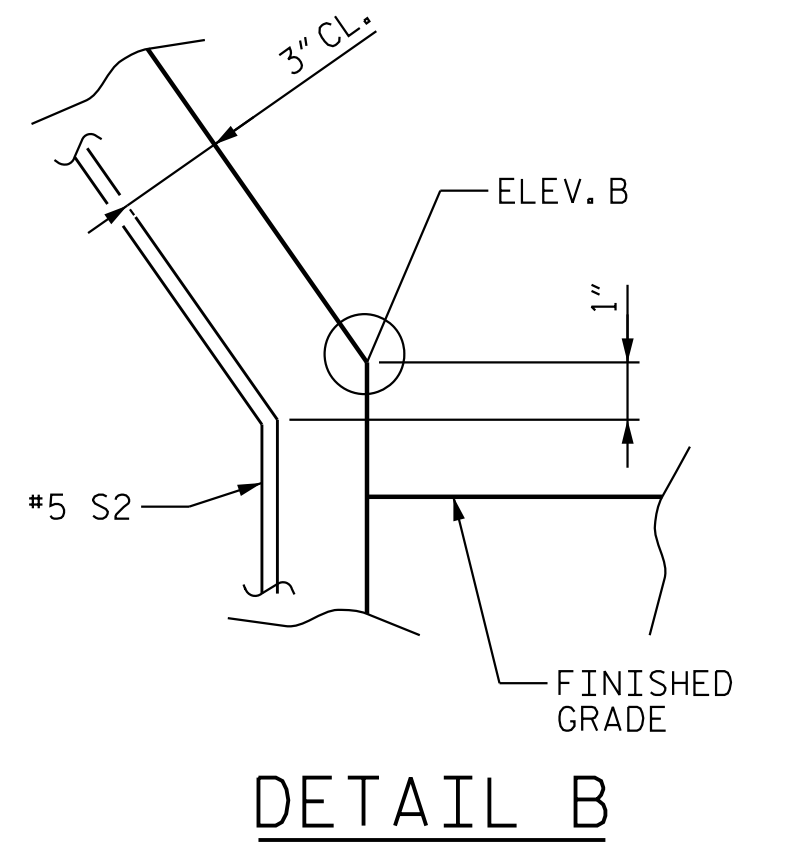
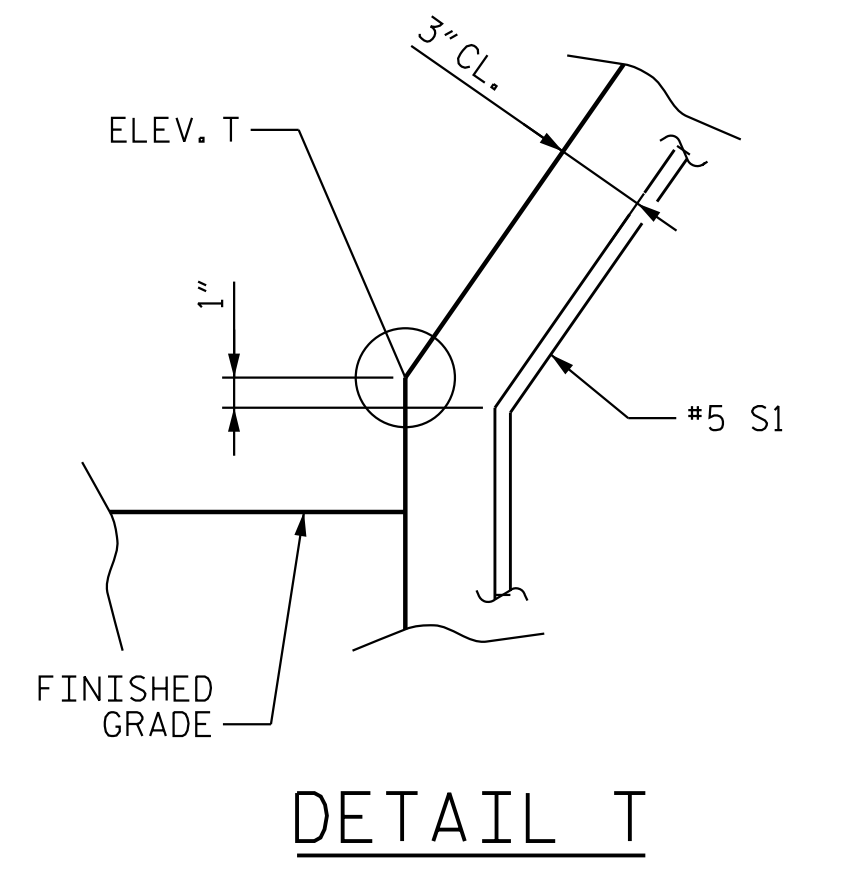
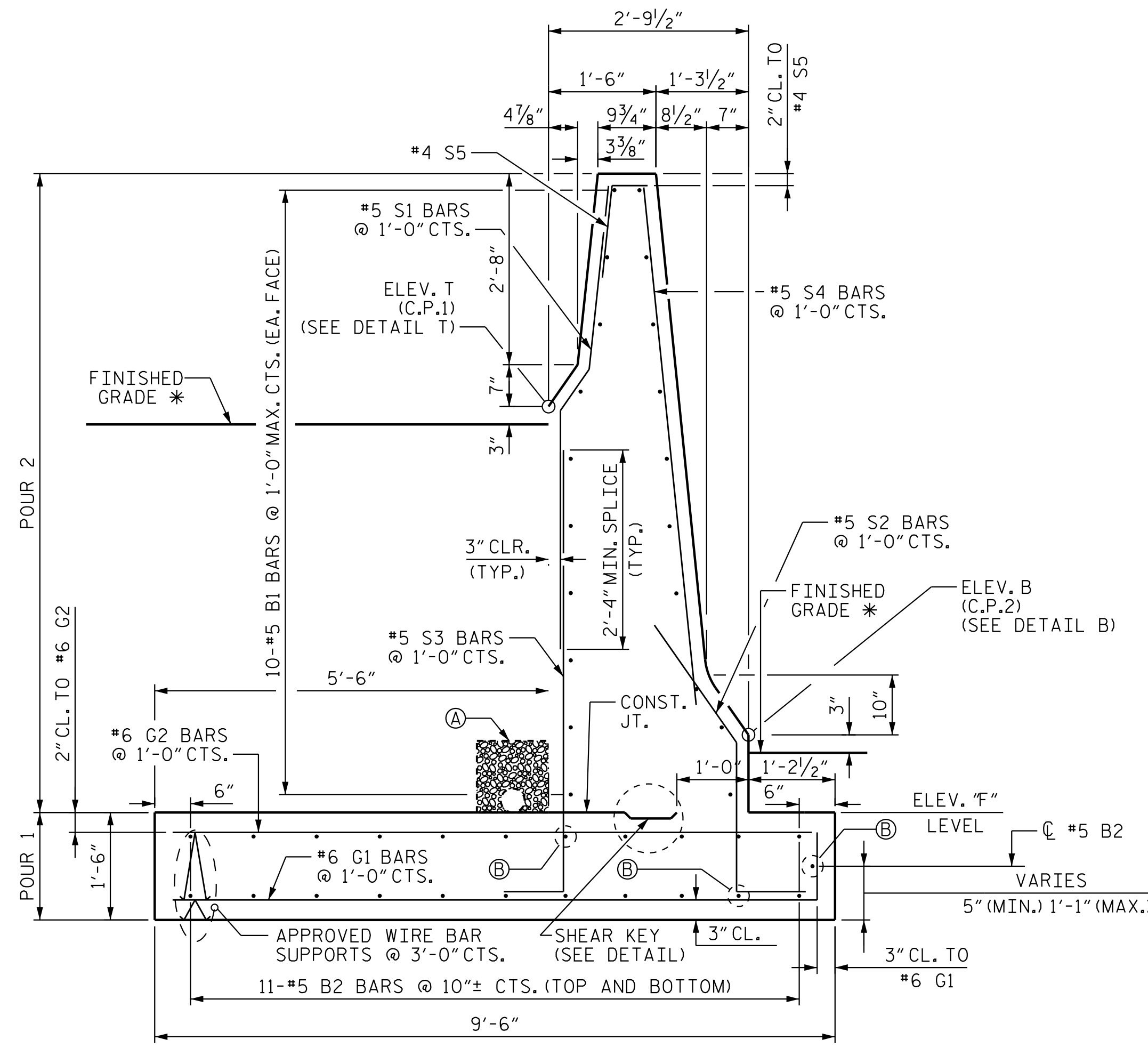
GEOTECHNICAL ENGINEERING UNIT

CONCRETE BARRIER RAIL WITH MOMENT SLAB FOR CIP GRAVITY WALL

| REVISIONS | | | | | |
|-----------|----|------|-----|----|------|
| NO. | BY | DATE | NO. | BY | DATE |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

SHEET NO. W-5

| CONTROL POINT STATIONS, OFFSETS & ELEVATIONS | | | | TYPE T2 WALL PANEL DATA | | | | |
|--|----------|-----------|-----------------|-------------------------|----------|------------|----------------------|---------|
| CONTROL POINT 1 | | | CONTROL POINT 2 | | | PANEL I.D. | APPROX. PANEL LENGTH | ELEV. F |
| ALIGNMENT | STATION | OFFSET | ALIGNMENT | STATION | OFFSET | | | |
| -RAMP_A- | 47+00.00 | 33.83 FT. | 775.22 FT. | -Y4- | 10+99.36 | 44.25 FT. | 770.93 FT. | |
| -RAMP_A- | 47+25.00 | 33.83 FT. | 775.52 FT. | -Y4- | 11+13.43 | 31.28 FT. | 771.60 FT. | A |
| -RAMP_A- | 47+50.00 | 33.83 FT. | 775.78 FT. | -Y4- | 11+30.71 | 22.82 FT. | 772.12 FT. | B |
| -RAMP_A- | 47+75.00 | 33.83 FT. | 775.91 FT. | -Y4- | 11+50.66 | 20.17 FT. | 772.24 FT. | C |
| -RAMP_A- | 48+00.00 | 33.83 FT. | 776.04 FT. | -Y4- | 11+75.66 | 20.17 FT. | 772.39 FT. | D |
| -RAMP_A- | 48+25.00 | 33.83 FT. | 776.21 FT. | -Y4- | 12+00.66 | 20.17 FT. | 772.56 FT. | E |
| -RAMP_A- | 48+50.00 | 33.83 FT. | 776.40 FT. | -Y4- | 12+25.66 | 20.17 FT. | 772.73 FT. | F |
| -Y5- | 32+50.00 | 33.83 FT. | 776.62 FT. | -Y4- | 12+50.00 | 20.17 FT. | 773.06 FT. | G |
| -Y5- | 32+75.00 | 33.83 FT. | 776.84 FT. | -Y4- | 12+75.00 | 20.17 FT. | 773.38 FT. | H |
| -Y5- | 33+00.00 | 33.83 FT. | 777.06 FT. | -Y4- | 13+00.00 | 20.17 FT. | 773.70 FT. | I |
| -Y5- | 33+25.00 | 33.83 FT. | 777.27 FT. | -Y4- | 13+25.00 | 20.17 FT. | 774.00 FT. | J |
| -Y5- | 33+50.00 | 33.83 FT. | 777.48 FT. | -Y4- | 13+50.00 | 20.17 FT. | 774.29 FT. | K |
| -Y5- | 33+75.00 | 33.83 FT. | 777.68 FT. | -Y4- | 13+75.00 | 20.17 FT. | 774.57 FT. | L |
| -Y5- | 34+00.00 | 33.83 FT. | 777.87 FT. | -Y4- | 14+00.00 | 20.17 FT. | 774.84 FT. | M |
| -Y5- | 34+25.00 | 33.83 FT. | 778.06 FT. | -Y4- | 14+25.00 | 20.17 FT. | 775.09 FT. | N |
| -Y5- | 34+50.00 | 33.83 FT. | 778.25 FT. | -Y4- | 14+50.00 | 20.17 FT. | 775.34 FT. | O |
| -Y5- | 34+75.00 | 33.83 FT. | 778.44 FT. | -Y4- | 14+75.00 | 20.17 FT. | 775.57 FT. | P |
| -Y5- | 35+00.00 | 33.83 FT. | 778.64 FT. | -Y4- | 15+00.00 | 20.17 FT. | 775.76 FT. | Q |
| -Y5- | 35+25.00 | 33.83 FT. | 778.86 FT. | -Y4- | 15+25.00 | 20.17 FT. | 775.90 FT. | R |
| -Y5- | 35+50.00 | 33.83 FT. | 779.08 FT. | -Y4- | 15+50.00 | 20.17 FT. | 775.98 FT. | S |
| -Y5- | 35+75.00 | 33.83 FT. | 779.31 FT. | -Y4- | 15+75.00 | 20.17 FT. | 776.01 FT. | Y |
| -Y5- | 36+00.00 | 33.83 FT. | 779.54 FT. | -Y4- | 16+00.00 | 20.17 FT. | 775.99 FT. | U |



NOTES:

1/2" EXPANSION JOINT SHALL BE PLACED BETWEEN MODIFIED TYPE T2 BARRIER WALL PANELS.

ALL CONCRETE IN BARRIER WALL FOOTING AND BARRIER WALL SHALL BE CLASS AA.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED SURFACES OF THE BARRIER WALL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER WALL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MID-POINT OF BARRIER WALL SEGMENTS LESS THAN 20' IN LENGTH.

*SEE ROADWAY PLANS FOR MODIFIED TYPE T2 LAYOUT AND LIMITS.

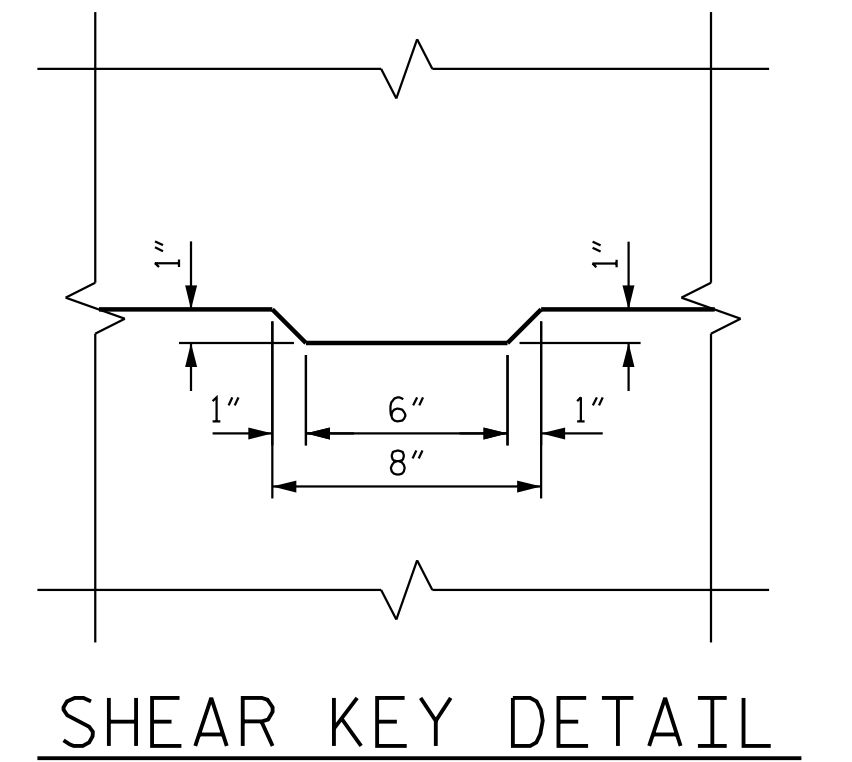
FOR PAYMENT OF MODIFIED TYPE T2 BARRIER SEE ROADWAY DRAWINGS.

(A) AGGREGATE SHOULDER DRAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 816.02. DRAIN SHALL OUTLET INTO ROADWAY DRAINAGE STRUCTURES OR DAYLIGHT @ END OF WALL.

(B) #5 B2 BARS MAY BE REPOSITIONED SLIGHTLY AS NECESSARY TO FACILITATE PLACEMENT OF "S" BARS IN THE FOOTING.

CONTRACTOR SHALL FIELD VERIFY CONTROL POINT STATIONS, OFFSETS, AND ELEVATIONS PRIOR TO THE START OF WALL CONSTRUCTION.

VERTICAL AND HORIZONTAL BARS IN PANEL F MAY BE REPOSITIONED TO CLEAR THE DRAIN PIPE PENETRATION @ -RAMP A- STA. 48+40.



PROJECT NO. R-2707D
CLEVELAND COUNTY
 STATION: -Y4- 16+00.00

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

MODIFIED TYPE T2 BARRIER

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | W-6 |
| 2 | | | 4 | | | |

SEAL 13406
 J. KELVINGTON
 5/5/2023

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Stantec

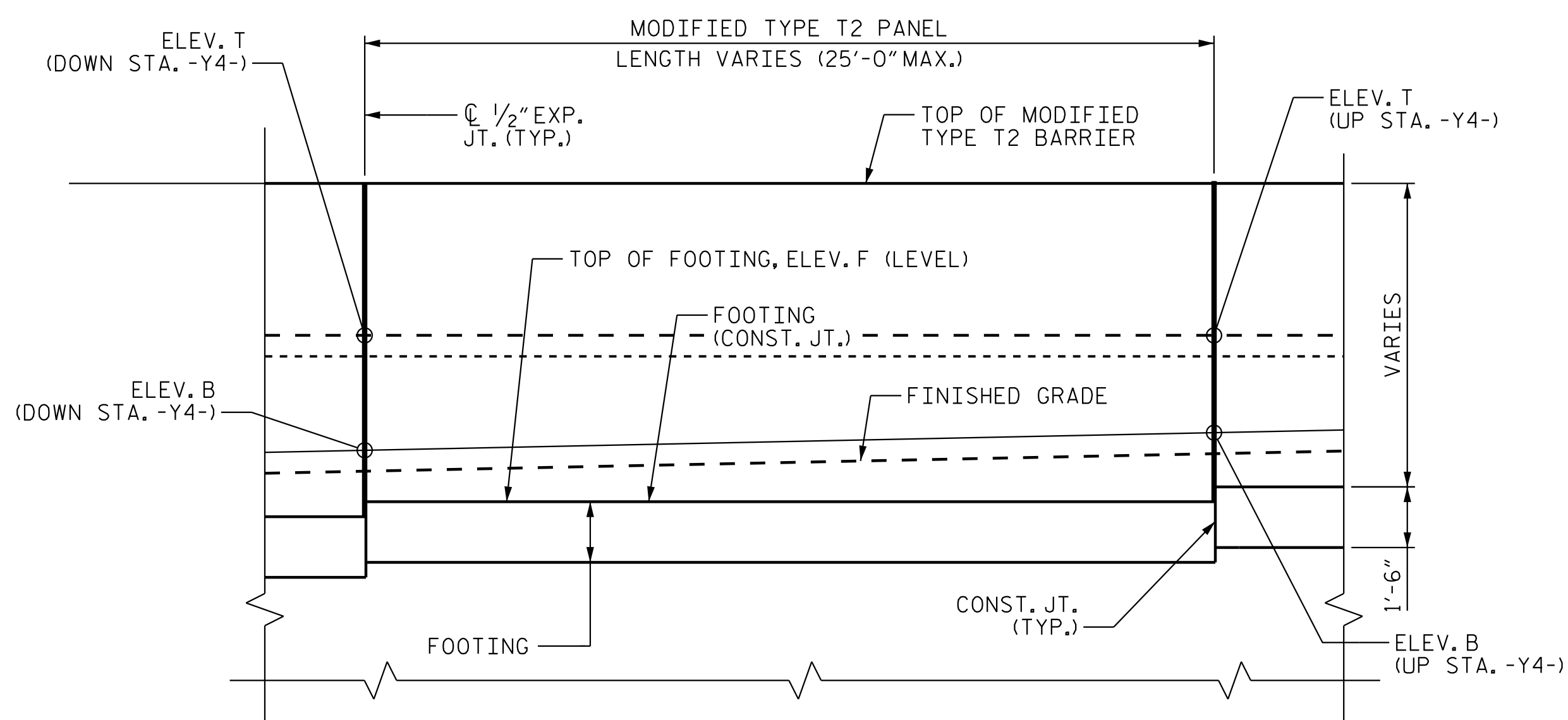
Stantec Consulting Services Inc.
 801 Jones Franklin Road
 Suite 300
 Raleigh, NC 27606
 Tel. (919) 851-6866
 Fax. (919) 851-7024
 www.stantec.com
 License No. F-0672

DRAWN BY: J.E. HAGENBUSH DATE: 4/14/23
 CHECKED BY: J. KELVINGTON DATE: 4/17/23

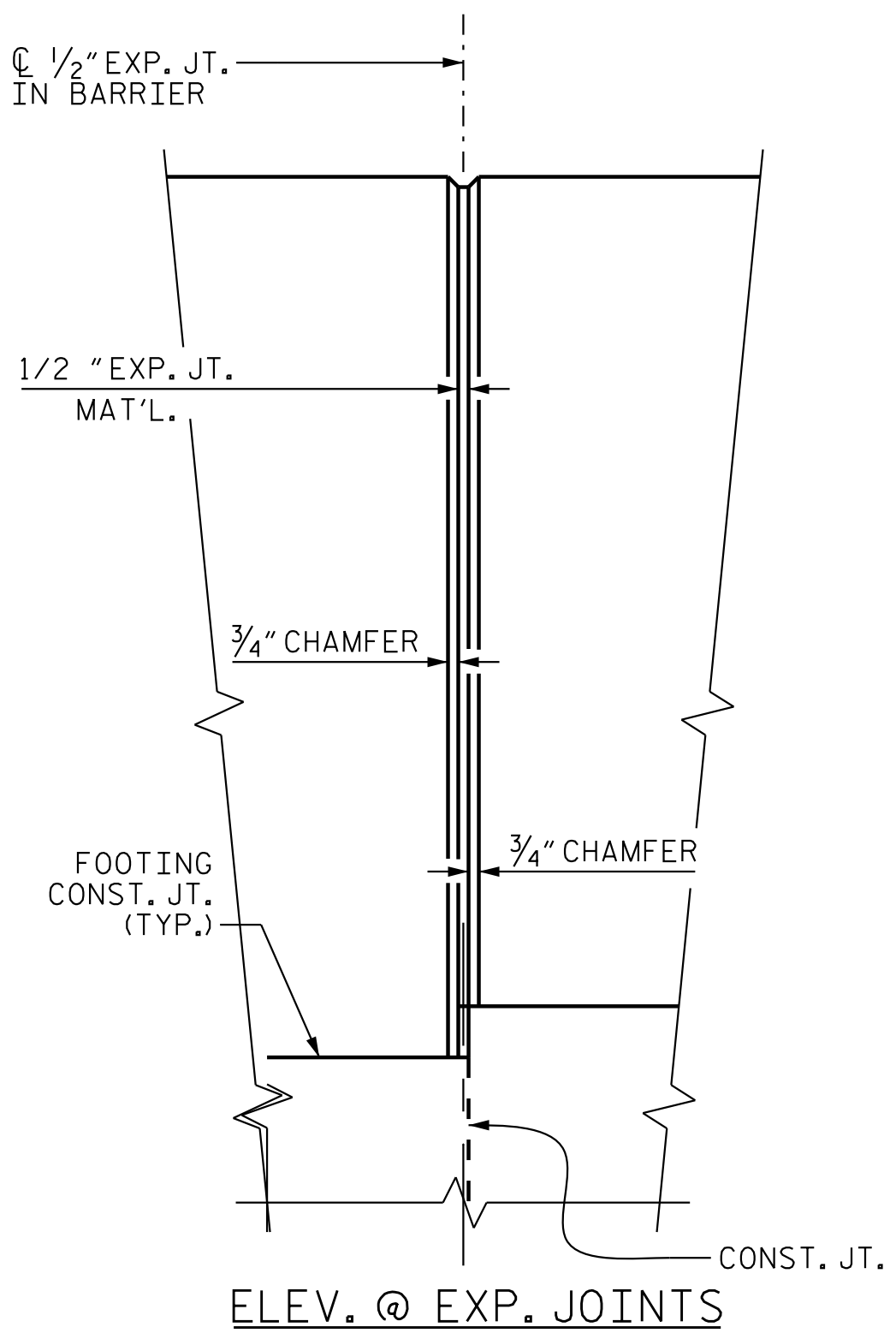
NOTE: ALL DIMENSIONS AND DETAILS NOT SHOWN ARE TYPICAL OF ALL OTHER WALL AND FOOTING PANEL SECTIONS

DESIGN ENGINEER OF RECORD: J. KELVINGTON DATE: 05/05/23

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MODIFIED TYPE T2 BARRIER RAIL TYPICAL ELEVATION



MODIFIED TYPE T2 BARRIER DETAILS

BILL OF MATERIAL FOR ONE PANEL $\Delta\Delta$

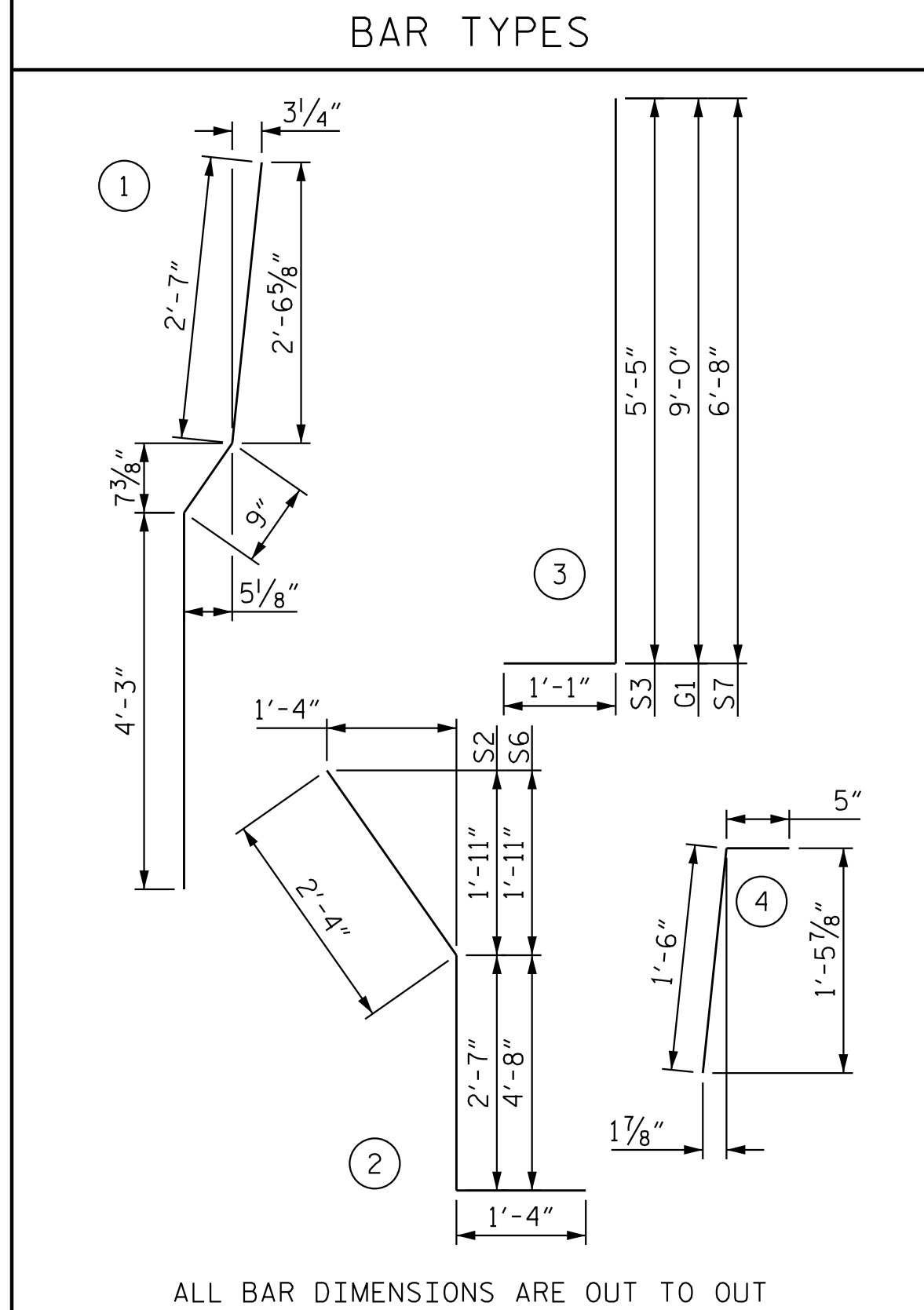
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|-----|------|------|---------|-----------------|
| B1 | 20 | #5 | STR. | 23'-11" | 499 |
| B2 | 23 | #5 | STR. | 23'-11" | 574 |
| G1 | 24 | #6 | 3 | 10'-1" | 363 |
| G2 | 24 | #6 | STR. | 9'-0" | 324 |
| S1 | 24 | #5 | 1 | 7'-7" | 190 |
| S2 | 24 | #5 | 2 | 6'-3" | 156 |
| S3 | 24 | #5 | 3 | 6'-6" | 163 |
| S4 | 24 | #5 | STR. | 7'-8" | 192 |
| S5 | 24 | #4 | 4 | 1'-11" | 31 |
| TOTAL REINFORCING STEEL (FOR SINGLE PANEL) | | | | | 2,492 LB |

$\Delta\Delta$ MODIFIED TYPE T2 BARRIER PANEL G FROM -Y4-STA.12+25.66 TO STA.12+50.00

BILL OF MATERIAL FOR ONE PANEL \square

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|-----|------|------|--------|-----------------|
| B1 | 26 | #5 | STR. | 24'-7" | 667 |
| B2 | 23 | #5 | STR. | 24'-7" | 590 |
| G1 | 25 | #6 | 3 | 10'-1" | 379 |
| G2 | 25 | #6 | STR. | 9'-0" | 338 |
| S1 | 25 | #5 | 1 | 7'-7" | 198 |
| S4 | 25 | #5 | STR. | 7'-8" | 200 |
| S5 | 25 | #4 | 4 | 1'-11" | 32 |
| S6 | 25 | #5 | 2 | 8'-4" | 217 |
| S7 | 25 | #5 | 3 | 7'-9" | 202 |
| TOTAL REINFORCING STEEL (FOR SINGLE PANEL) | | | | | 2,823 LB |

\square MODIFIED TYPE T2 BARRIER PANEL F FROM -Y4- STA.12+00.66 TO STA.12+25.66

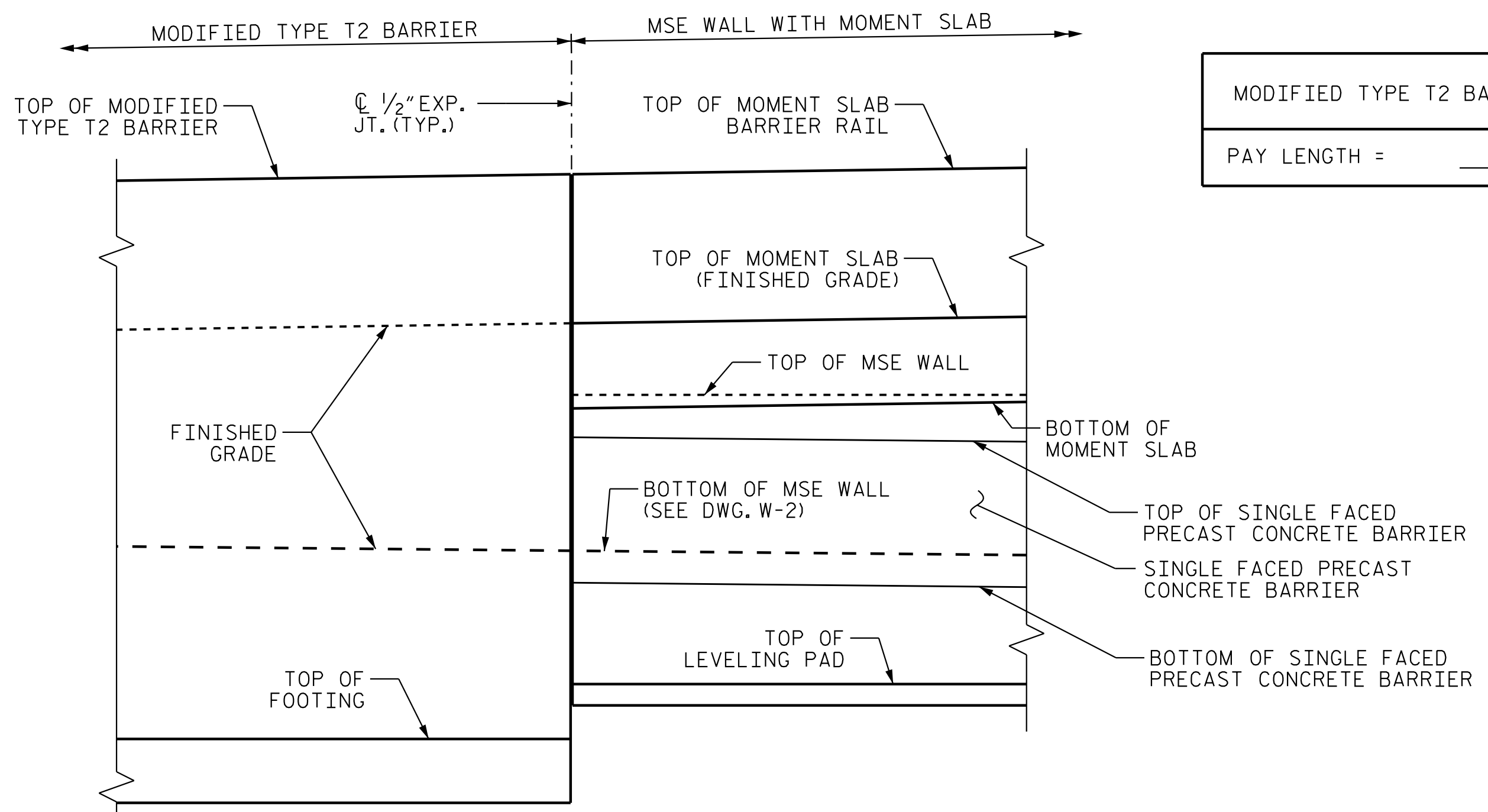


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PANEL Δ

| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
|---|-----|------|------|--------|-----------------|
| B1 | 20 | #5 | STR. | 24'-7" | 513 |
| B2 | 23 | #5 | STR. | 24'-7" | 590 |
| G1 | 25 | #6 | 3 | 10'-1" | 379 |
| G2 | 25 | #6 | STR. | 9'-0" | 338 |
| S1 | 25 | #5 | 1 | 7'-7" | 198 |
| S2 | 25 | #5 | 2 | 6'-3" | 163 |
| S3 | 25 | #5 | 3 | 6'-6" | 169 |
| S4 | 25 | #5 | STR. | 7'-8" | 200 |
| S5 | 25 | #4 | 4 | 1'-11" | 32 |
| TOTAL REINFORCING STEEL (FOR SINGLE PANEL) | | | | | 2,582 LB |

Δ ALL MODIFIED TYPE T2 BARRIERS PANELS EXCEPT FROM -Y4-STA.12+00.66 TO STA.12+50.00



BEGIN MSE WALL & END MODIFIED TYPE T2 BARRIER PARTIAL ELEVATION

MODIFIED TYPE T2 BARRIER RAIL

| | | |
|--------------|-----|--------|
| PAY LENGTH = | 525 | LIN FT |
|--------------|-----|--------|

\square $\Delta\Delta$ CLASS AA CONCRETE BREAK-DOWN

| PANEL I.D. | FROM -Y4- STA. | TO -Y4- STA. | POUR 1 | POUR 2 |
|---|-----------------------|-----------------|---------|---------|
| $\Delta\Delta$ MODIFIED TYPE T2 BARRIER PANEL G | FROM -Y4-STA.12+25.66 | TO STA.12+50.00 | | |
| \square MODIFIED TYPE T2 BARRIER PANEL F | FROM -Y4-STA.12+00.66 | TO STA.12+25.66 | | |
| F | 12+00.66 | 12+25.66 | 13.1 CY | 20.6 CY |
| G | 12+25.66 | 12+50.00 | 12.8 CY | 15.0 CY |

Δ CLASS AA CONCRETE BREAK-DOWN

Δ ALL MODIFIED TYPE T2 BARRIERS PANELS EXCEPT FROM -Y4-STA.12+00.66 TO STA.12+50.00

| PANEL I.D. | FROM -Y4- STA. | TO -Y4- STA. | POUR 1 | POUR 2 |
|------------|----------------|--------------|---------|---------|
| A | 10+99.36 | 11+13.43 | 13.1 CY | 16.7 CY |
| B | 11+13.43 | 11+30.71 | 13.1 CY | 15.9 CY |
| C | 11+30.71 | 11+50.66 | 13.1 CY | 15.2 CY |
| D | 11+50.66 | 11+75.66 | 13.1 CY | 15.2 CY |
| E | 11+75.66 | 12+00.66 | 13.1 CY | 15.2 CY |
| H | 12+50.00 | 12+75.00 | 13.1 CY | 15.2 CY |
| I | 12+75.00 | 13+00.00 | 13.1 CY | 15.0 CY |
| J | 13+00.00 | 13+25.00 | 13.1 CY | 14.8 CY |
| K | 13+25.00 | 13+50.00 | 13.1 CY | 14.7 CY |
| L | 13+50.00 | 13+75.00 | 13.1 CY | 14.5 CY |
| M | 13+75.00 | 14+00.00 | 13.1 CY | 14.4 CY |
| N | 14+00.00 | 14+25.00 | 13.1 CY | 14.2 CY |
| O | 14+25.00 | 14+50.00 | 13.1 CY | 14.1 CY |
| P | 14+50.00 | 14+75.00 | 13.1 CY | 14.0 CY |
| Q | 14+75.00 | 15+00.00 | 13.1 CY | 13.9 CY |
| R | 15+00.00 | 15+25.00 | 13.1 CY | 13.9 CY |
| S | 15+25.00 | 15+50.00 | 13.1 CY | 14.1 CY |
| Y | 15+50.00 | 15+75.00 | 13.1 CY | 14.3 CY |
| U | 15+75.00 | 16+00.00 | 13.1 CY | 14.7 CY |

CLASS AA CONCRETE SUMMARY

| | POUR 1 | POUR 2 |
|---|----------|----------|
| TOTAL CLASS AA CONCRETE (ALL PANELS EXCEPT F & G) | 248.9 CY | 280.0 CY |
| TOTAL CLASS AA CONCRETE (PANELS F & G) | 25.9 CY | 35.6 CY |
| TOTAL CLASS AA CONCRETE | 274.8 CY | 315.6 CY |
| COMBINED TOTAL CLASS AA CONCRETE | | 590.4 CY |



PROJECT NO. R-2707D
CLEVELAND COUNTY
 STATION: -Y4- 16+00.00

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

MODIFIED TYPE T2 BARRIER DETAILS

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | |
| 1 | | | 3 | | | W-7 |
| 2 | | | 4 | | | |

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 CHECKED BY: J. KELVINGTON DATE: 4/17/23
 DESIGN ENGINEER OF RECORD: J. KELVINGTON DATE: 05/05/23

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