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NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.

USE AN MSE WALL SYSTEM WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL, 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 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL STRESS ON FOUNDATION MATERIAL = 3000 LB/SF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 6 FT. OR 0.85 X HT. WHICHEVER IS GREATER
- 5) MINIMUM EMBEDMENT ELEVATION = 1 FT. INTO WEATHERED ROCK
- 6) AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0
FINE	125	34	0

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

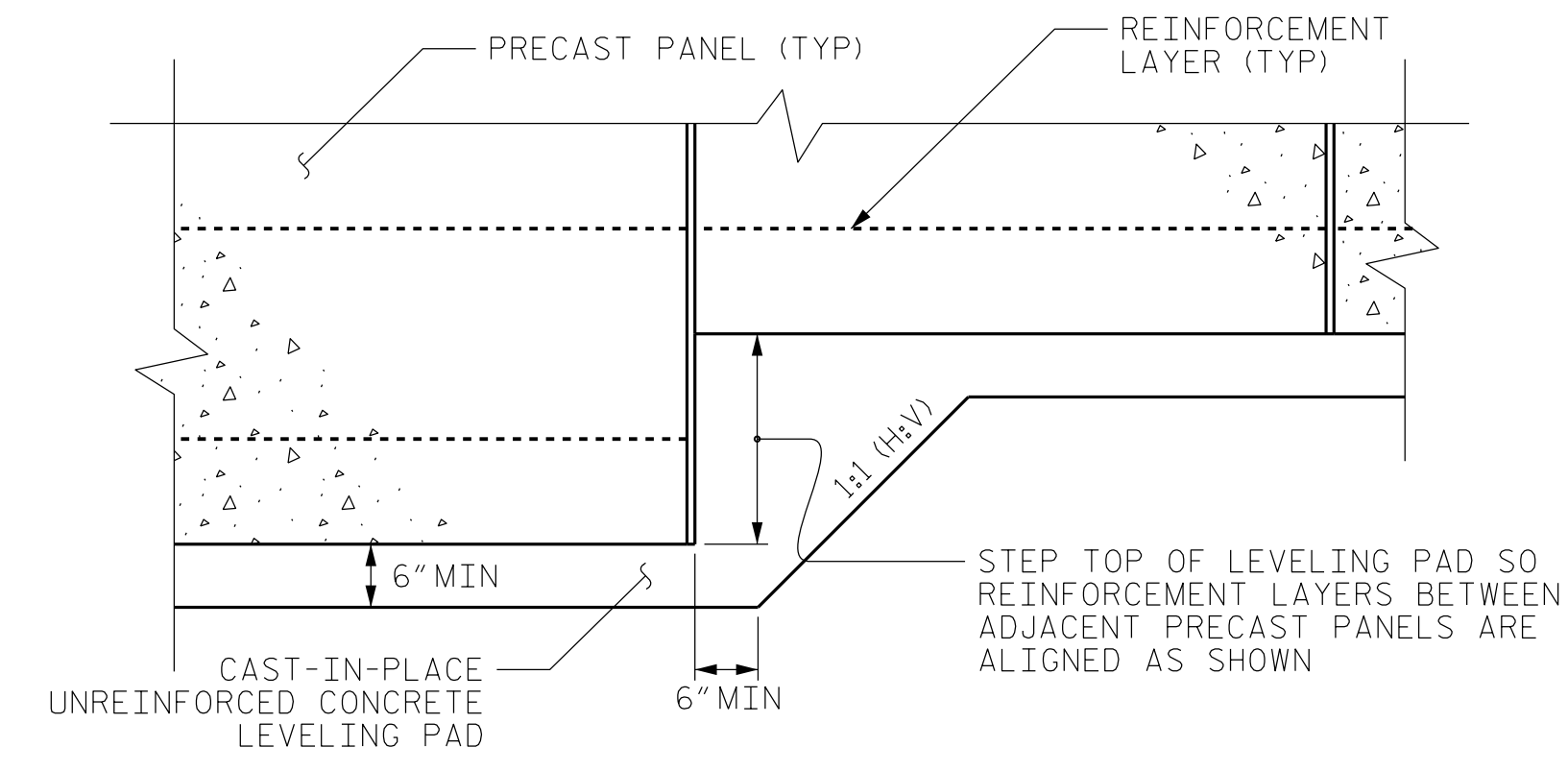
7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

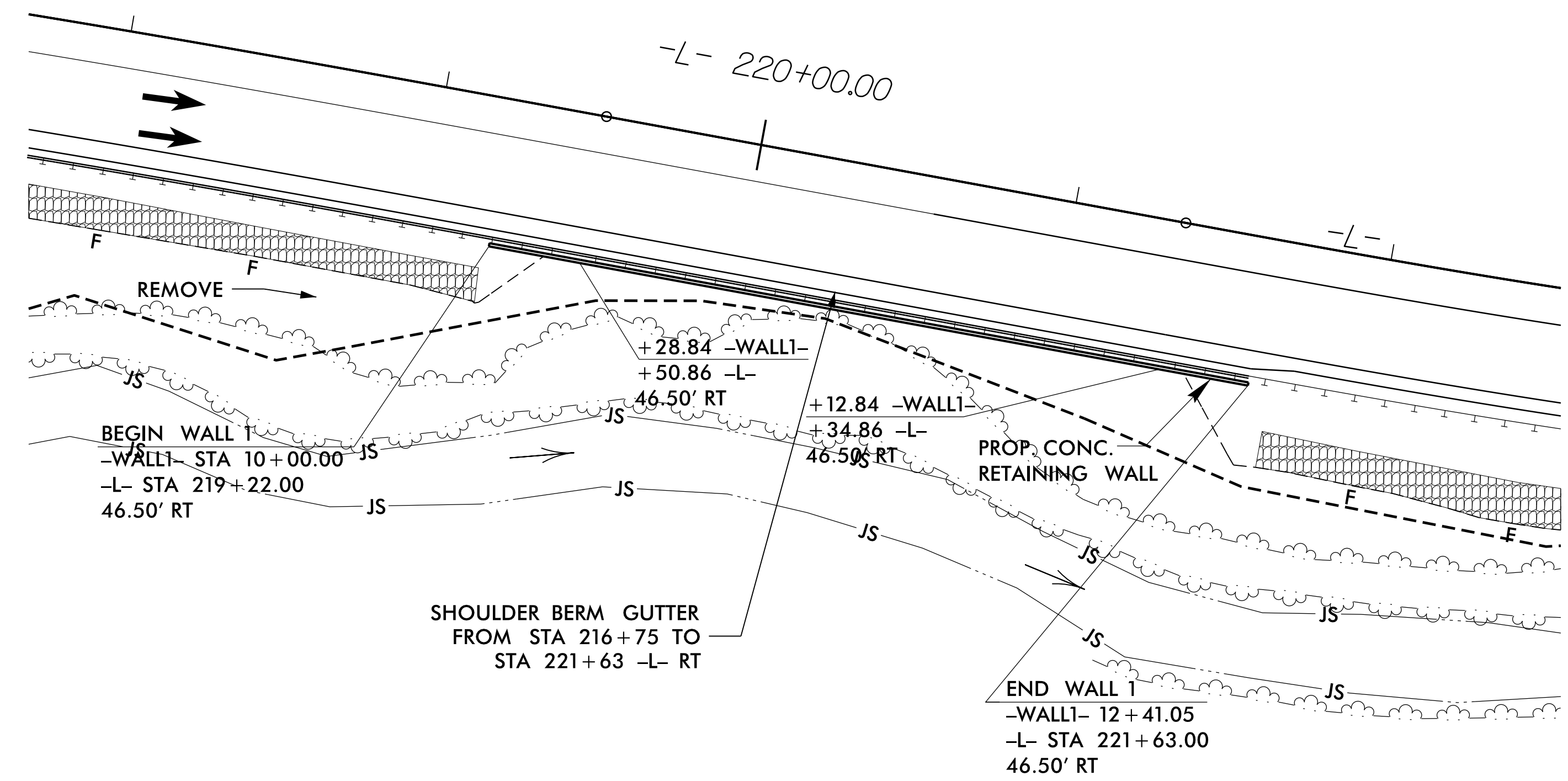
EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS



PLAN OF WALL

PROJECT NO.: R-2915B

ASHE COUNTY

STATION: 219+22.00-L- TO 221+63.00-L-

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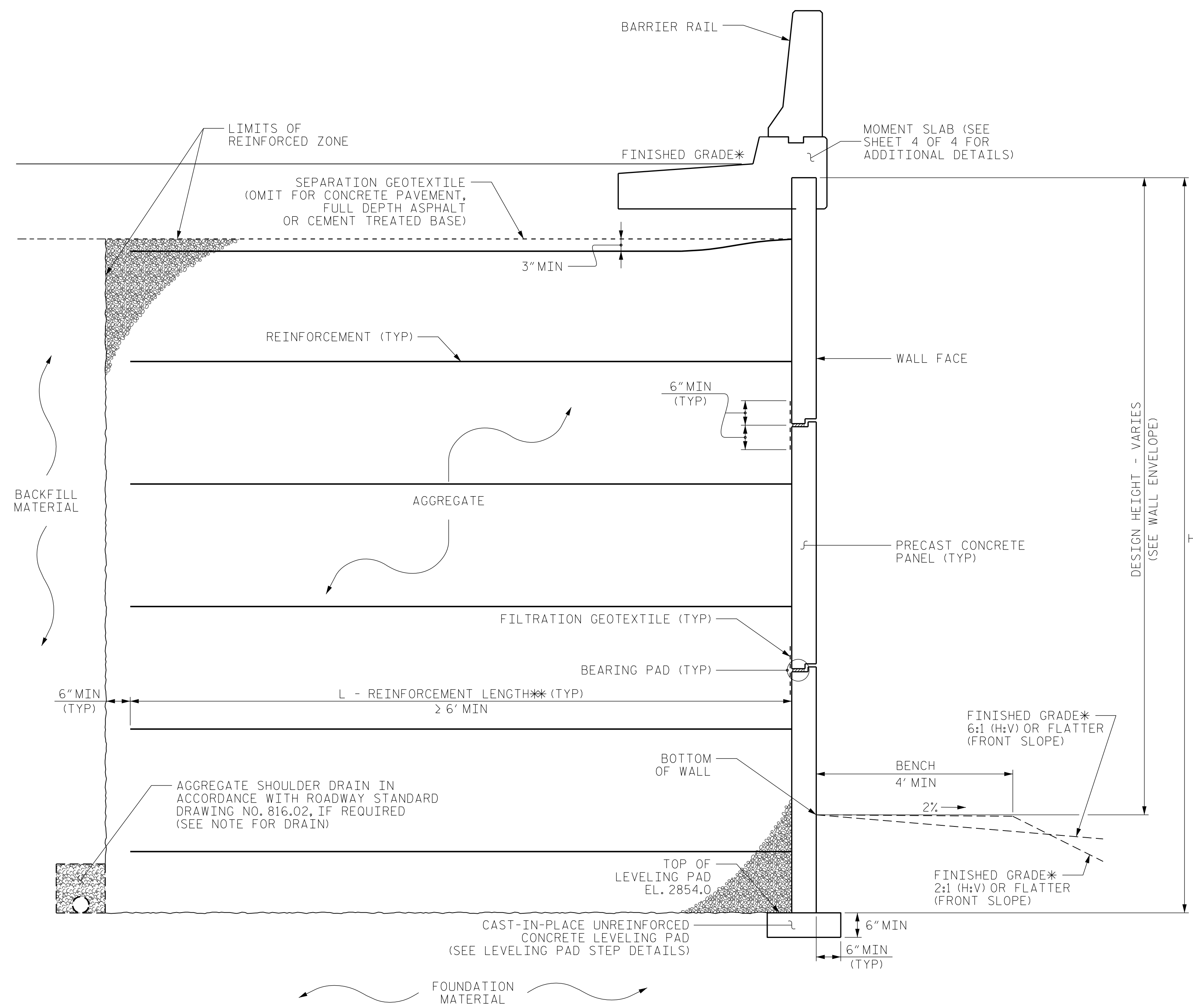
PREPARED BY: EJS DATE: 4/15

REVIEWED BY: SCC DATE: 4/15

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

REVISIONS						SHEET NO.
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1			3			W-2
2			4			



MSE WALL WITH PRECAST PANELS - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
**SEE MSE RETAINING WALLS PROVISION FOR REINFORCEMENT LENGTH REQUIREMENTS.



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS.
*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: R-2915B
ASHE COUNTY
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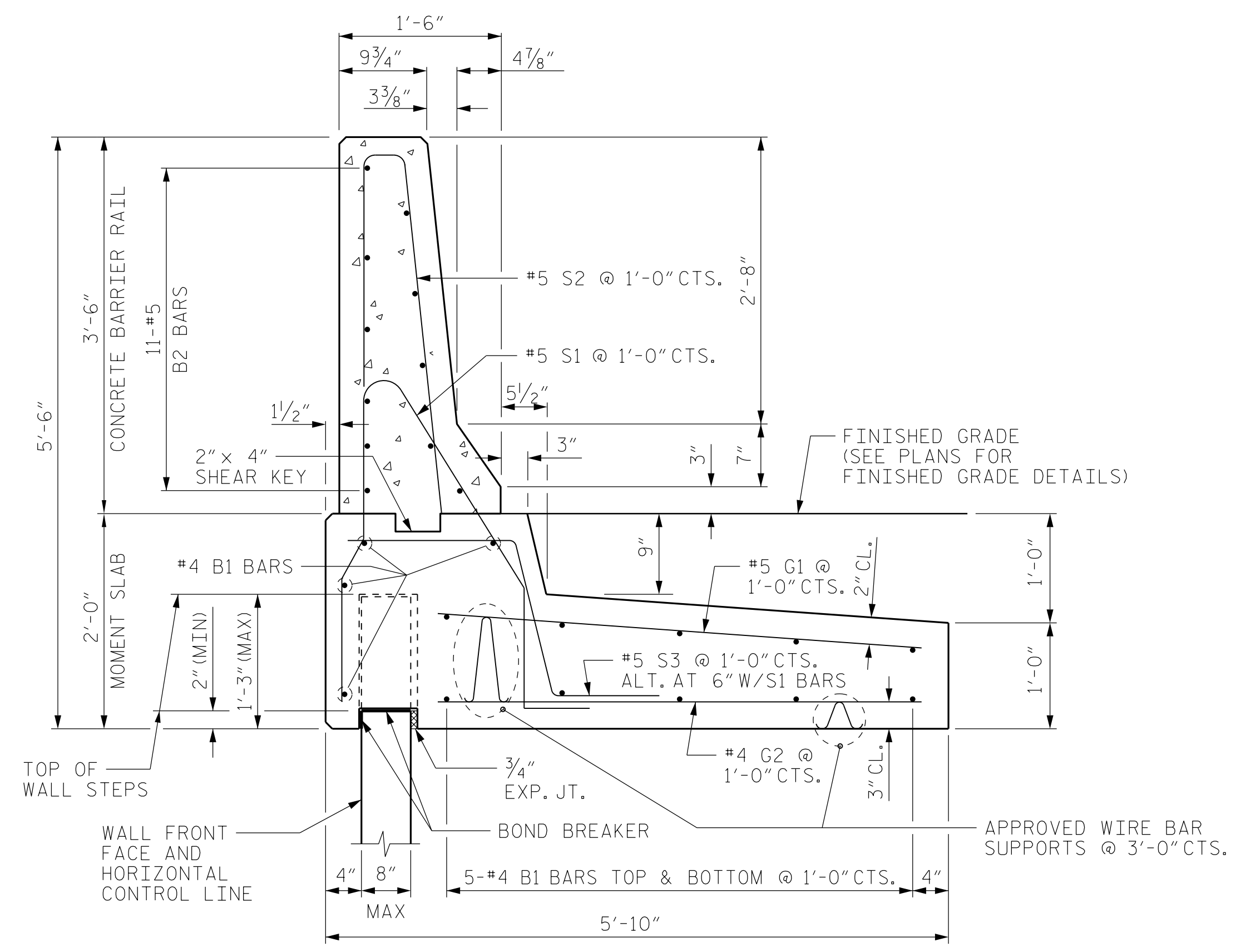
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

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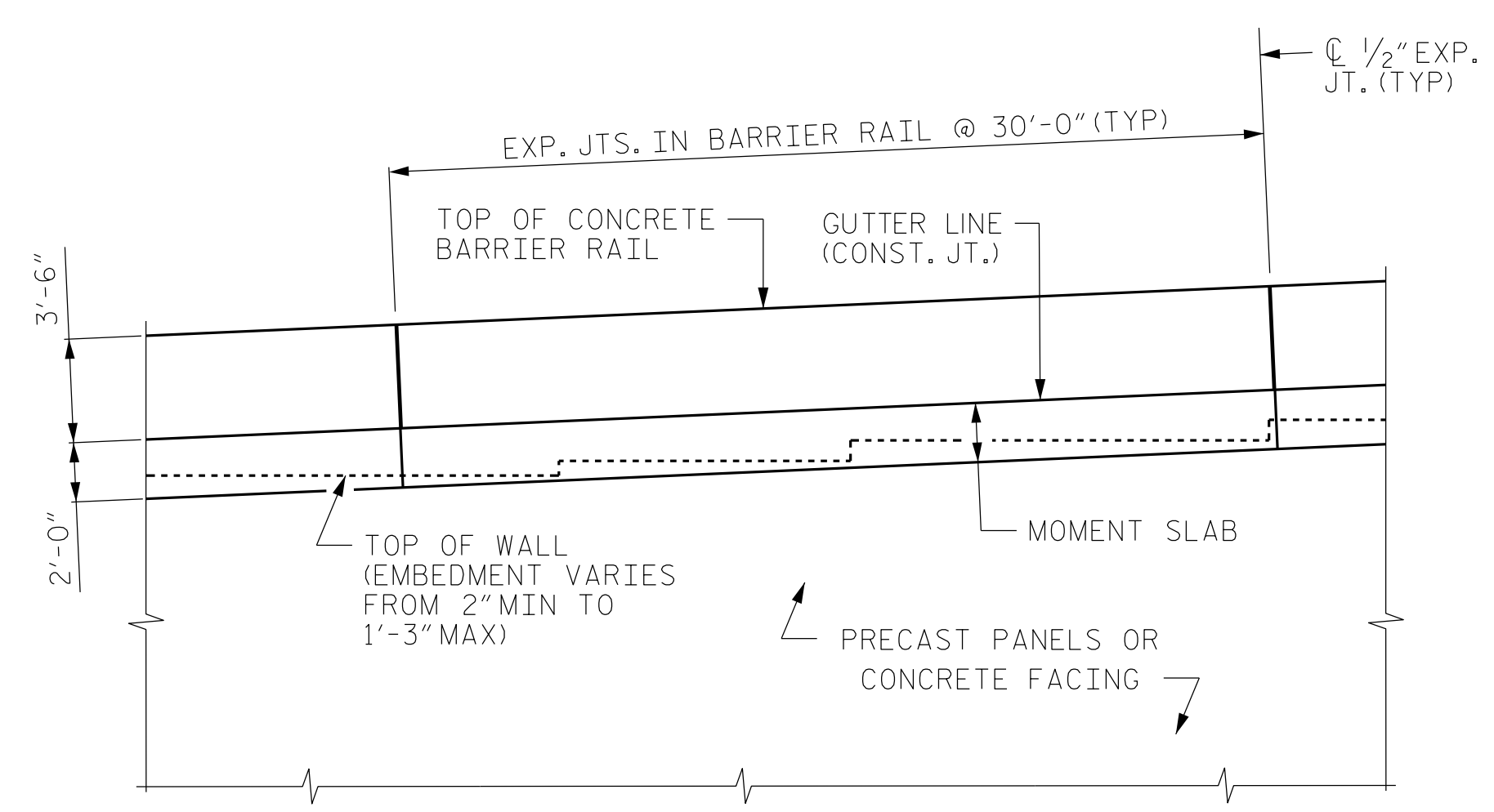
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-3
2			4			

PREPARED BY: EJS	DATE: 4/15
REVIEWED BY: SCC	DATE: 4/15

NOTES:
FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB, SEE CONCRETE BARRIER RAIL WITH MOMENT SLAB PROVISION.
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.
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.

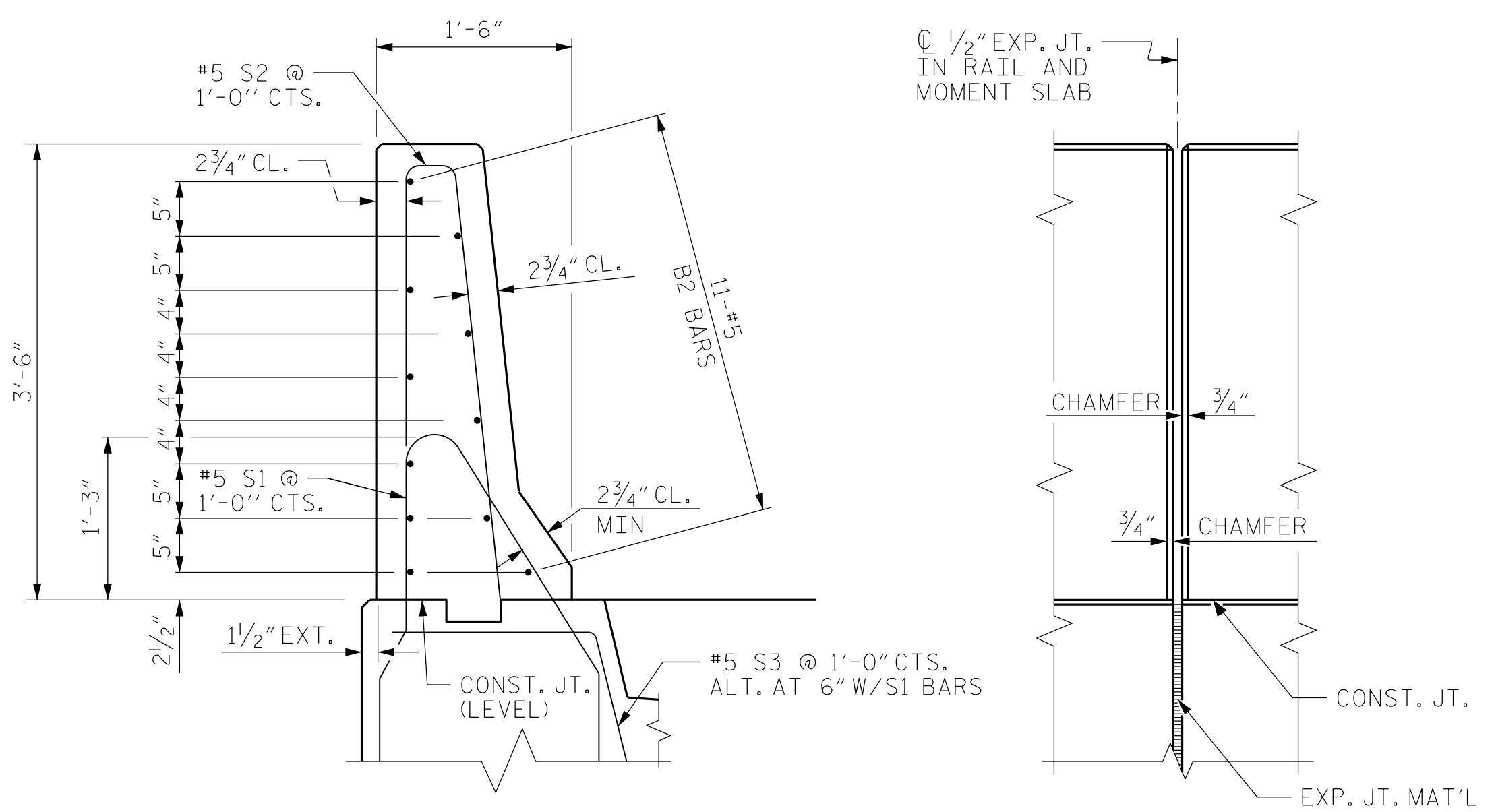


CONCRETE BARRIER RAIL WITH MOMENT SLAB

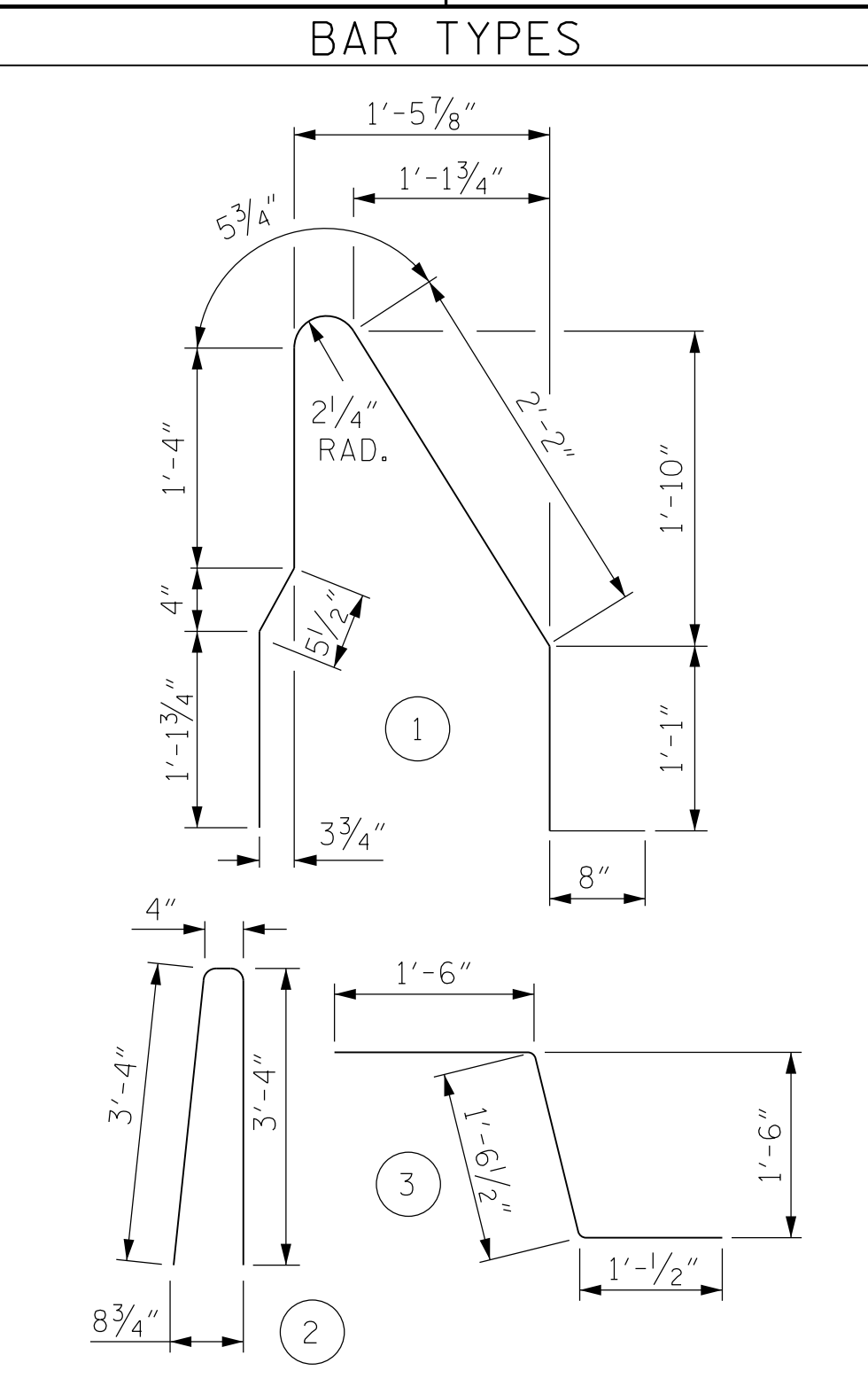


CONCRETE BARRIER RAIL WITH MOMENT SLAB - PARTIAL ELEVATION

CONCRETE BARRIER RAIL WITH MOMENT SLAB
PAY LENGTH = 241 LIN FT



BARRIER RAIL DETAILS



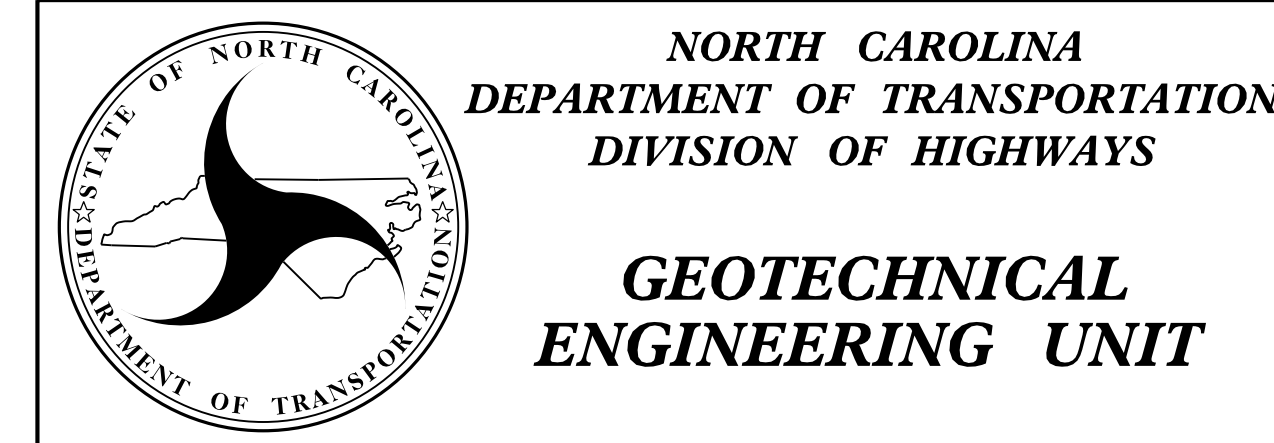
ALL BAR DIMENSIONS ARE OUT TO OUT

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'-3"	234
* S2	31	#5	2	7'-0"	226
S3	30	#5	3	4'-1"	128
REINFORCING STEEL					635 LB
* EPOXY COATED REINFORCING STEEL					799 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

FOR A 30 FT. SECTION

PROJECT NO.: R-2915B
ASHE COUNTY
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CONCRETE BARRIER RAIL WITH MOMENT SLAB FOR PRECAST PANELS AND CONCRETE FACING

REVISIONS

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SHEET NO. W-4

