NOTES:

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

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NOS. 3, 4, AND 5.

A DRAIN IS REQUIRED FOR RETAINING WALL NOS. 3, 4, AND 5.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 3, 4 OR 5, 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 NOS. 3, 4, AND 5 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 5,000 LB/SF
4) MINIMUM REINFORCEMENT LENGTH (L) = 1.0 H OR 6 FT, WHICHEVER IS LONGER
5) MINIMUM EMBEDMENT ELEVATION = SEE TABLE

FRONT SLOPE WALL EMBEDMENT

SLOPE IN FRONT OF STRUCTURES		MINIMUM EMBEDMENT DEPTH
HORIZONTAL	FOR WALLS	H/20
HORIZONTAL	FOR ABUTMENTS	H/10
3.0H:1.0V	WALLS	H/10
2.5H:1.0V	WALLS	H/8.5
2.0H:1.0V	WALLS	H/7
1.5H:1.0V	WALLS	H/5
1.25H:1.0V	WALLS	H/4
1.0H:1.0V	WALLS	H/3

NOTE:
1) MAINTAIN A MINIMUM BENCH WIDTH OF 4.0 IN FRONT OF THE WALL FOR ITS ENTIRE LENGTH.
2) MINIMUM EMBEDMENT DEPTH OF 2 FT, UNLESS LARGER DEPTHS DICTATED BY THE ABOVE TABLE.
3) MAXIMUM SLOPE OF 1H:1V WILL BE MAINTAINED ON FRONT SLOPES FOR THE ENTIRE LENGTH OF THE WALL.
4) SUBMITT WITH THE WALL DESIGN INTERNAL, EXTERNAL, AND GLOBAL STABILITY ANALYSISES.

6) REINFORCED ZONE AGGREGATE PARAMETERS:

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

*SEE MSE RETAINING WALLS PROVISION FOR COARSE 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	135	34	0
FOUNDATION	120	30	0

THE MINIMUM EMBEDMENT ELEVATION FOR RETAINING WALL NOS. 3 AND 4 INCLUDES EMBEDMENT FOR SCOUR. EMBEDMENT SHALL INCLUDE A MINIMUM PENTRATION OF 1 FT INTO PARTIALLY WEATHER ROCK OR ROCK

DESIGN RETAINING WALL NOS. 3, 4, AND 5 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN RETAINING WALL NOS. 3, 4, AND 5 FOR A PIPE EXTENDING THROUGH THE WALL AS SHOWN. VERIFY PIPE LOCATION AND ELEVATION BEFORE BEGINNING MSE WALL DESIGN OR CONSTRUCTION.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NOS. 3, 4, AND 5.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NOS. 3, 4, AND 5 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 NOS. 3, 4, AND 5.

SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

NO SEPARATE RETAINING WALL INVENTORIES WERE PRODUCED FOR THIS PROJECT, SEE ROADWAY INVENTORY FOR SUBSURFACE INFORMATION

FOR RETAINING WALL NO. 5 UNDERCUT ALL ALLUVIAL SOILS BENEATH THE WALL AND WALL REINFORCEMENT. BACKFILL WITH SITE DERIVED ROCK AS DIRECTED BY THE ENGINEER. UNDERCUT WILL BE PAID FOR AS UNCLASSIFIED EXCAVATION WITH NO ADDITIONAL COMPENSATION FOR BACKFILLING WITH PROJECT DERIVED ROCK. CONSTRUCT BACKFILL ACCORDING TO THE ROCK EMBANKMENTS SPECIAL PROVISION.

PREPARED BY: EJS	DATE: 10/15
REVIEWED BY: SCC	DATE: 10/15

GEOTECHNICAL ENGINEER

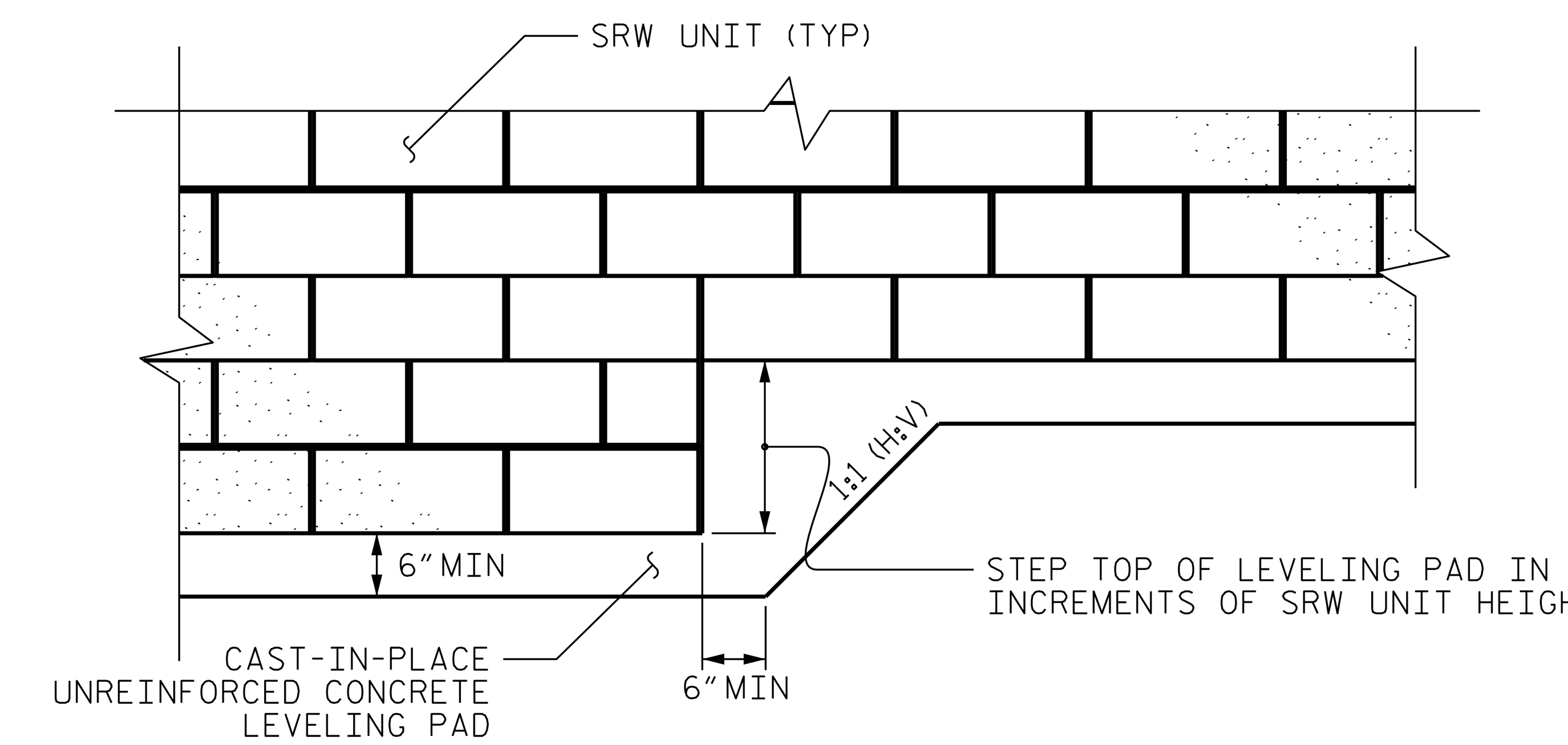
NORTH CAROLINA PROFESSIONAL SEAL 29869 ENGINEER SHANE C. CLARK

DocuSigned by: Shane C. Clark 10/27/2015

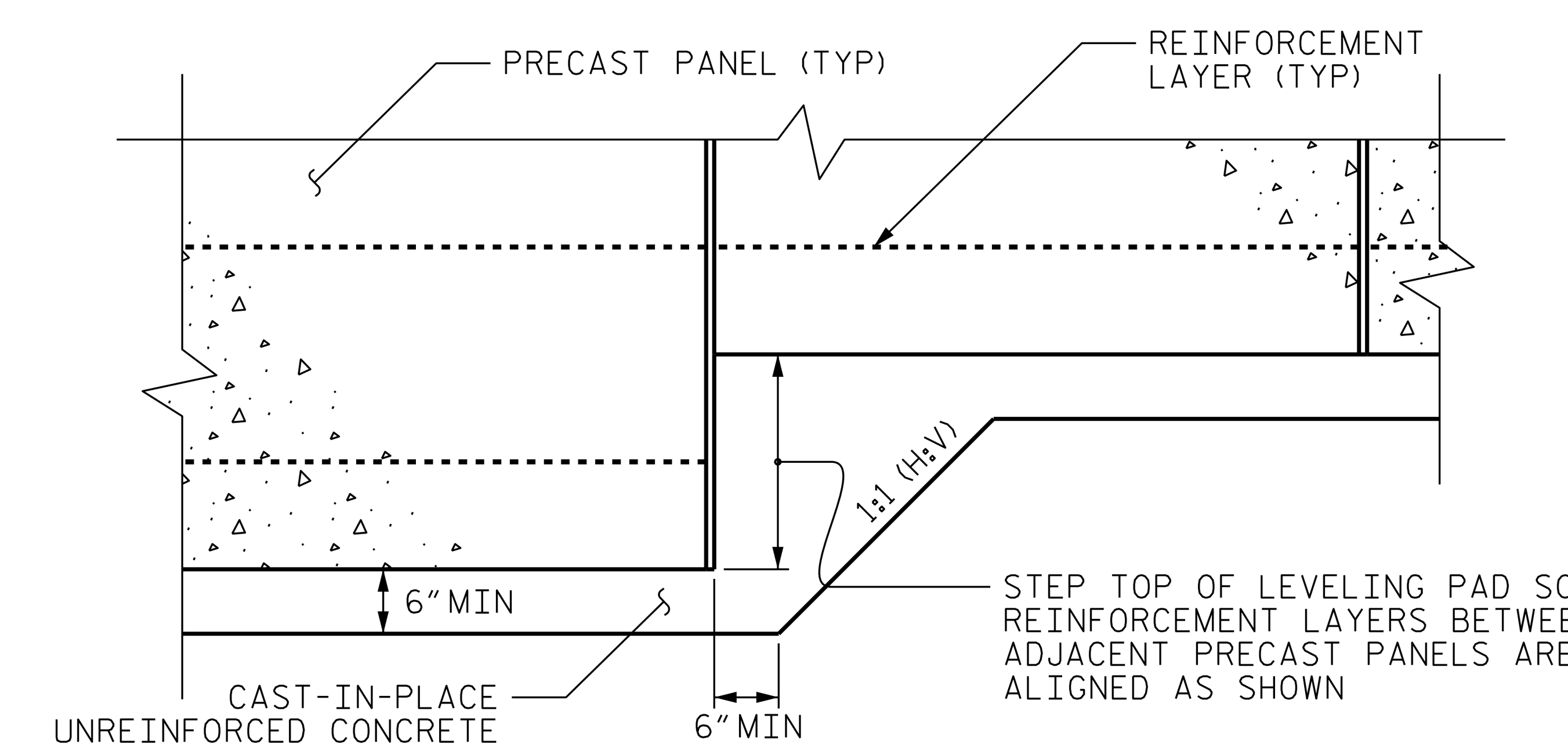
SIGNATURE DATE

ENGINEER

SIGNATURE DATE



SEGMENTAL RETAINING WALL (SRW) UNITS



PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS

PROJECT NO.: R-2409C

TRANSYLVANIA COUNTY

STATION: 42+68.85 -L- to 69+90.98 -L-

SHEET 5 OF 5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

MSE RETAINING WALLS
WALLS #3, #4, #5

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	_	_	3	_	_
2	_	_	4	_	_

SHEET NO. W-8