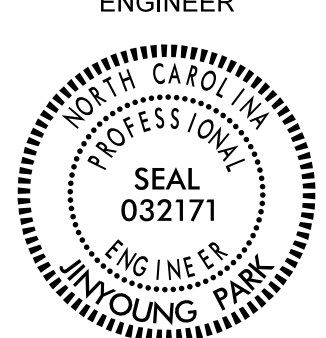
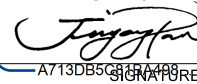


GEOTECHNICAL ENGINEER  SEAL 032171 ENGINEER W. YOUNG PARK	ENGINEER
DocuSigned by:  ATTORNEY-IN-FACT	3/29/2016 DATE SIGNATURE DATE

**NOTES:**

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

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A CONCRETE PARAPET WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO. 2 THROUGH NO. 5. 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 (ALTERNATE) THROUGH NO. 5.

USE RECTANGULAR PANELS WITH A TEXTURE DIMENSIONED ON THE FRONT FACE OF THE PANELS AS SHOWN ON THE PLANS FOR RETAINING WALL NO. 2 THROUGH NO. 5. SEE THE FITZGERALD FORMLINER PATTERN NO. 14641 (HTTP://WWW.FORMLINERS.COM), OR APPROVED EQUAL. THE JOINTS OF THE PANELS SHALL BE ALIGNED HORIZONTALLY AND VERTICALLY. ANY DEVIATION OF THE SURFACE DETAIL DIMENSIONS OR PATTERN SHALL BE APPROVED BY THE ENGINEER.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 1 (ALTERNATE) THROUGH NO. 5.

A DRAIN IS REQUIRED FOR RETAINING WALL NO. 1 (ALTERNATE) THROUGH NO. 5.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 1 (ALTERNATE) THROUGH NO. 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 NO. 1 (ALTERNATE) THROUGH NO. 5 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION = 3,590 LB/SF, 7,600 LB/SF, 7,470 LB/SF, 6,780 LB/SF AND 7,310 LB/SF FOR RETAINING WALL NO. 1 (ALTERNATE) THROUGH NO. 5, RESPECTIVELY.
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT, WHICHEVER IS LONGER
- 5) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT ( $\gamma$ ) LB/CF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0
FINE	115	34	0

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

6) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT ( $\gamma$ ) LB/CF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO. 2 THROUGH NO. 5 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN RETAINING WALL NO. 1 (ALTERNATE) FOR A PIPE EXTENDING THROUGH THE WALL AS SHOWN. VERIFY PIPE LOCATION AND ELEVATION BEFORE BEGINNING MSE WALL DESIGN OR CONSTRUCTION.

DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENT NO. 1 LOCATED AT STATION 21+39.41 -L-, END BENT NO. 2 LOCATED AT STATION 22+74.41 -L-, END BENT NO. 1 LOCATED AT STATION 19+19.50 -FLYOVER- AND END BENT NO. 2 LOCATED AT STATION 21+76.69 -FLYOVER-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1 (ALTERNATE) THROUGH NO. 5.

FOUNDATIONS FOR END BENT NO. 1 LOCATED AT STATION 21+39.41 -L-, END BENT NO. 2 LOCATED AT STATION 22+74.41 -L-, END BENT NO. 1 LOCATED AT STATION 19+19.50 -FLYOVER- AND END BENT NO. 2 LOCATED AT STATION 21+76.69 -FLYOVER- WILL INTERFERE REINFORCEMENT FOR RETAINING WALL NO. 2 THROUGH NO. 5, RESPECTIVELY. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

INSTALL 16 GAUGE 24 INCH DIAMETER CORRUGATED STEEL PIPES FOR HP12X53 STEEL PILE FOUNDATIONS OF END BENT NO. 2 LOCATED AT STATION 21+76.69 -FLYOVER- FOR RETAINING WALL NO. 5. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

THE COST FOR THE 16 GAUGE 24 INCH DIAMETER CORRUGATED STEEL PIPES FOR END BENT NO. 2 LOCATED AT STATION 21+76.69 -FLYOVER- IS INCIDENTAL TO MSE RETAINING WALL NO. 5.

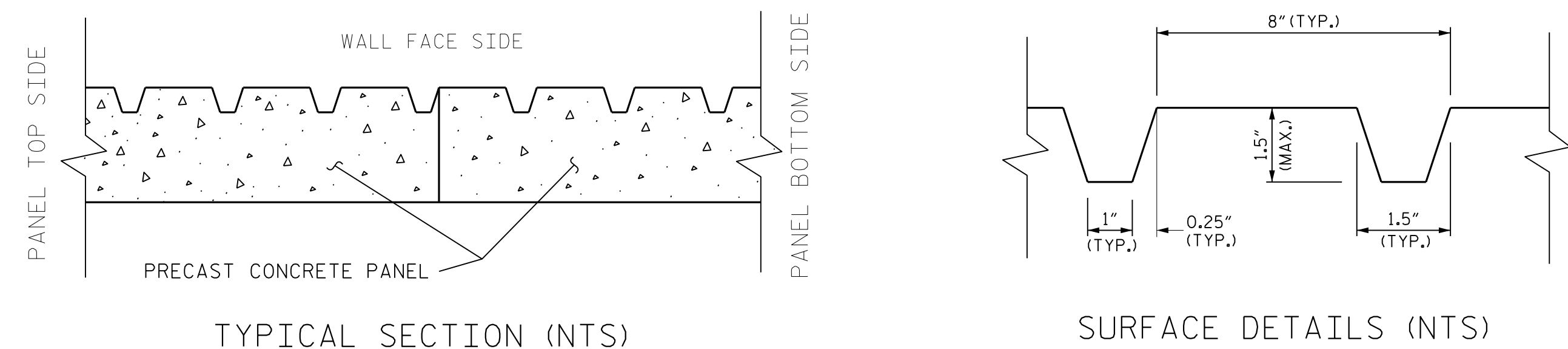
CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR THE VERTICAL EDGES WHERE RETAINING WALL NO. 2 THROUGH NO. 5 TIE TO BACKWALL.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 1 (ALTERNATE) THROUGH NO. 5 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

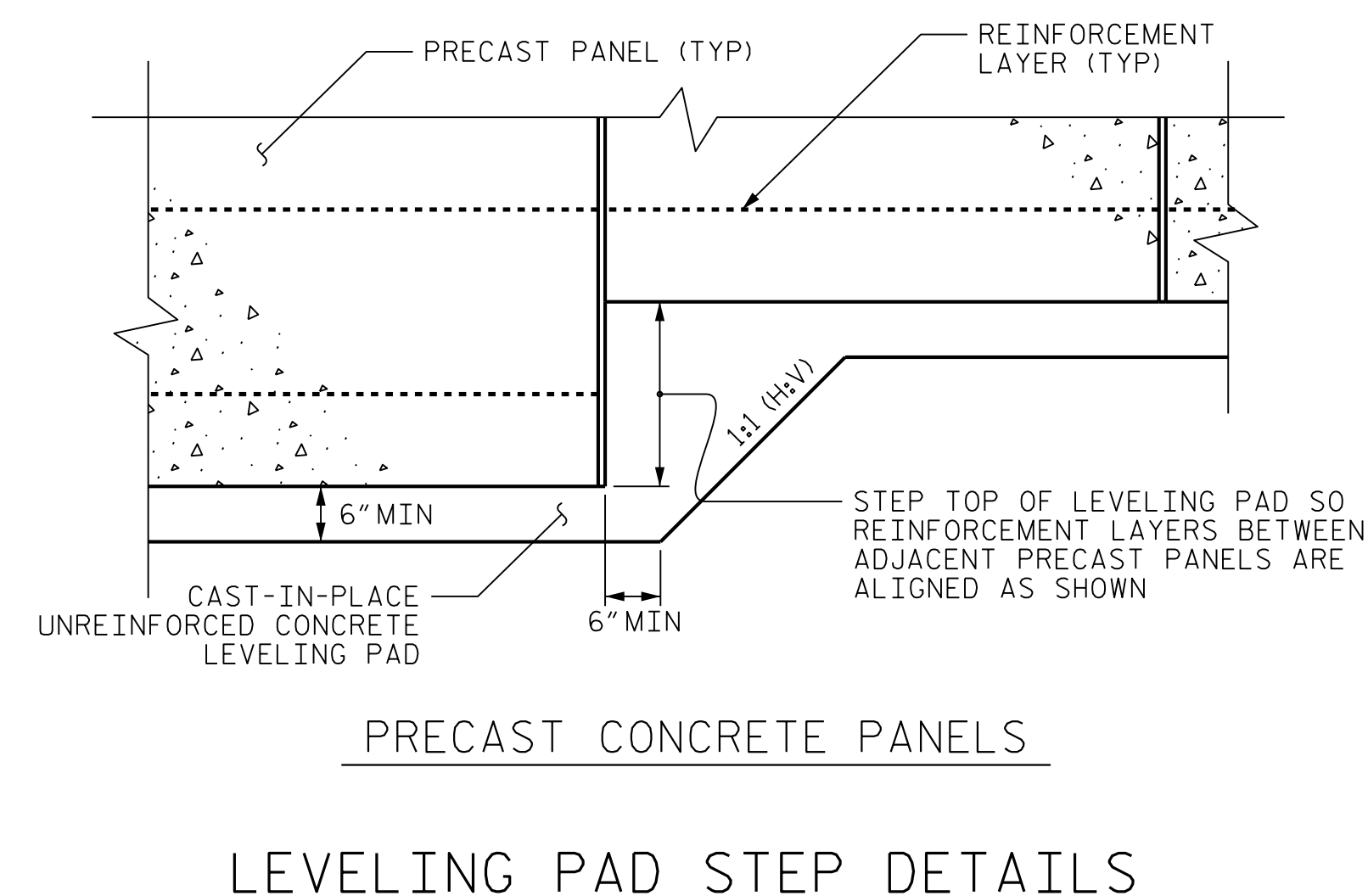
WHEN TEMPORARY SLOPE IS NOT APPLICABLE TO CONSTRUCT THE RETAINING WALL NO. 1 (ALTERNATE), USE "TEMPORARY SHORING FOR WALL CONSTRUCTION" TO MAINTAIN ACCESS TO PARKING LOT. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

IF THE LOCATION OF THE TEMPORARY SHORING FOR THE MSE RETAINING WALL NO. 1 (ALTERNATE) IS WITHIN THE CLEAR ZONE OF ANY OPEN ROAD, THEN TEMPORARY POSITIVE PROTECTION WILL NEED TO BE INSTALLED BEFORE ANY WORK ON THE TEMPORARY SHORING CAN BEGIN. THE CONTRACTOR SHALL SUBMIT SEALED DRAWINGS OF THE TEMPORARY POSITIVE PROTECTION DESIGN TO ENGINEER MINIMUM 30 DAYS BEFORE THE CONTRACTOR INSTALLS TEMPORARY POSITIVE PROTECTION. DO NOT INSTALL THE TEMPORARY POSITIVE PROTECTION UNTIL THE TEMPORARY POSITIVE PROTECTION DESIGN IS APPROVED. THE CONTRACTOR SHALL PROVIDE, INSTALL, MAINTAIN, RESET, AND REMOVE THE POSITIVE PROTECTION FOR THE TEMPORARY SHORING.

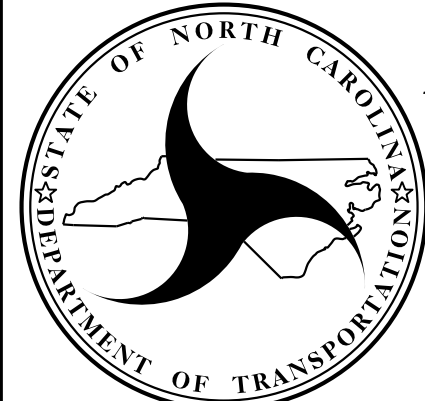
THE COST FOR TEMPORARY SHORING FOR WALL CONSTRUCTION AND TEMPORARY POSITIVE PROTECTION FOR THE TEMPORARY SHORING IS INCIDENTAL TO MSE RETAINING WALL NO. 1 (ALTERNATE).



**WALL PANEL FINISH DETAILS**



PROJECT NO.: B-5121 / B-5317  
 WAKE COUNTY  
 STATION: SEE WALL NO. 1 TO NO. 5  
 SHEET 5 OF 9

  
**NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
  
**GEOTECHNICAL**  
**ENGINEERING UNIT**

MSE RETAINING WALL NOTES AND DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

SHEET NO. W-5

PREPARED BY: J. PARK	DATE: 03 / 2016
REVIEWED BY: J. BATTS	DATE: 03 / 2016