

NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
 FOR TYPE III REINFORCED BRIDGE APPROACH FILL, SEE BRIDGE APPROACH FILLS PROVISION AND ROADWAY DETAIL DRAWING NO. 422D10.
 FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
 A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1 & 2.
 A DRAIN IS REQUIRED FOR RETAINING WALL NO.1 & 2.
 PILE SLEEVES ARE REQUIRED AROUND PILES FOR END BENT NO.1 LOCATED AT STATION -L- 216+76.59 AT THE LEFT LANE BRIDGE AND 216+89.65 AT THE RIGHT LANE BRIDGE.
 PILE SLEEVES ARE REQUIRED AROUND PILES FOR END BENT NO.2 LOCATED AT STATION -L- 217+73.79 AT THE LEFT LANE BRIDGE AND 217+87.45 AT THE RIGHT LANE BRIDGE.
 BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1 & 2, 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.
 AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO.1 AND NO.2

DESIGN RETAINING WALL NO.1 & 2 FOR THE FOLLOWING:
 1) H = DESIGN HEIGHT + EMBEDMENT
 2) DESIGN LIFE = 100 YEARS
 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 1400 PSF BASED ON $H \leq 5'$.
 4) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 3000 PSF BASED ON $H \leq 10'$.
 5) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 4200 PSF BASED ON $H \leq 15'$.
 6) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 4400 PSF BASED ON $H \leq 22'$.
 7) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT, WHICHEVER IS LONGER
 8) 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

MATERIAL REQUIREMENTS.

9) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	115	29	0

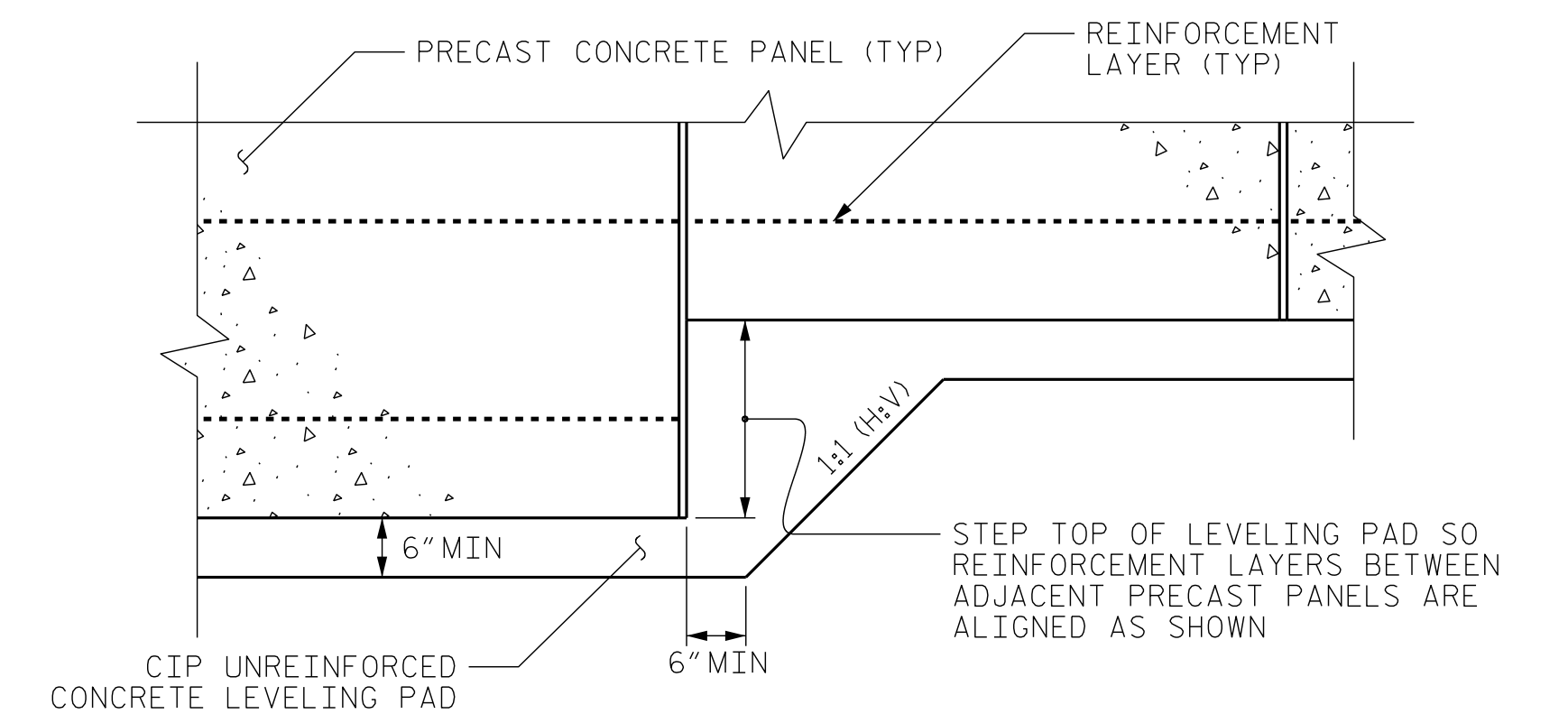
DESIGN RETAINING WALL NO.1 & 2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
 DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_a) SHOWN. CAST REINFORCEMENT OR CONNECTORS INTO CAP BACKWALL FOR END BENT NO.1 LOCATED AT STATION -L- 216+76.59 AT THE LEFT LANE BRIDGE AND 216+89.65 AT THE RIGHT LANE BRIDGE. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN CAP.
 DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_a) SHOWN. CAST REINFORCEMENT OR CONNECTORS INTO CAP BACKWALL FOR END BENT NO.2 LOCATED AT STATION -L- 217+73.79 AT THE LEFT LANE BRIDGE AND 217+87.45 AT THE RIGHT LANE BRIDGE. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR 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 & 2.
 FOUNDATIONS FOR END BENT NO.1 LOCATED AT STATION -L- 216+76.59 AT THE LEFT LANE BRIDGE AND 216+89.65 AT THE RIGHT LANE BRIDGE, MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.
 FOUNDATIONS FOR END BENT NO.2 LOCATED AT STATION -L- 217+73.79 AT THE LEFT LANE BRIDGE AND 217+87.45 AT THE RIGHT LANE BRIDGE, MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.2. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.
 INSTALL PILE SLEEVES FOR END BENT NO.1 LOCATED AT STATION -L- 216+76.59 AT THE LEFT LANE BRIDGE AND 216+89.65 AT THE RIGHT LANE BRIDGE, WHILE CONSTRUCTING RETAINING WALL NO.1. OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALL TO WITHIN 1 FT OF THE BOTTOM OF CAP ELEVATION. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PIPES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAPS.
 INSTALL PILE SLEEVES FOR END BENT NO.2 LOCATED AT STATION -L- 217+73.79 AT THE LEFT LANE BRIDGE AND 217+87.45 AT THE RIGHT LANE BRIDGE, WHILE CONSTRUCTING RETAINING WALL NO.2. OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALL TO WITHIN 1 FT OF THE BOTTOM OF CAP ELEVATION. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PIPES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAPS.
 DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 & 2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE RETAINING WALL NO. 1	19,233 SF
MSE RETAINING WALL NO. 2	21,981 SF



SIGNATURE _____ DATE _____ SIGNATURE _____ DATE _____

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

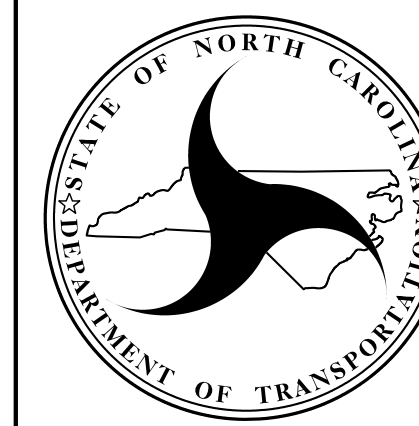


**PRECAST PANELS
LEVELING PAD STEP DETAIL**

PROJECT NO.: W-5600

COUNTY: JOHNSTON

SHEET 6 OF 6



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

**GEOTECHNICAL
ENGINEERING UNIT**

**MSE RETAINING WALLS
TYPICAL SECTION
(PANELS)**

REVISIONS

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

SHEET NO.
W-6