



PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

October 6, 2016

Addendum No. 1

RE: Contract ID C203921

WBS # 46448.3.1

CORRECTION

STATE FUNDED

Johnston County (R-5769)

Novo Nordisk Access Road From SR-1913 (Gordon Road) To
Proposed Novo Nordisk Site

October 18, 2016 Letting

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to the plans:

Sheet No.	Revisions
W-1 and W-4	Revised to show Temporary Shoring for Wall Construction and change a note about temporary shoring

Please void Sheet Nos. W-1 and W-4 in your plans and staple the revised Sheet Nos. W-1 and W-4 thereto.

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads "Includes Addendum No. 1 Dated 10-06-2016".
R-2 and R-3	Revised the project special provision entitled "Embankment Settlement Gauges"
GT-1.9	The third paragraph under "Measurement and Payment" within the project special provision entitled "Mechanically Stabilized Earth Retaining Wall" has been revised
New Page Nos. GT-6.1 thru GT-6.4	Added to include the new special provision entitled "Temporary Shoring For Wall Construction"



Please void the Proposal Cover and the above listed pages in your proposal and staple the revised pages thereto. Please add New Page Nos. GT-6.1 thru GT-6.4 after existing Page No. GT-5.2 in your proposal.

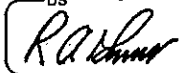
On the item sheets the following pay item has been added:

<u>Item</u>	<u>Description</u>	<u>Old Quantity</u>	<u>New Quantity</u>
122-8847000000-E- SP	Temporary Shoring For Wall Construction	NEW ITEM	1,700 SF

The Contractor's bid must include this new pay item. The contract will be prepared accordingly.

The Expedite File has been updated to reflect this revision. Please download the Expedite Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,



R. A. Garris, PE
Contract Officer

RAG/jag
Attachments

cc: Mr. Lamar Sylvester, PE	Mr. Ray Arnold, PE
Mr. Tim Little, PE	Ms. Theresa Canales, PE
Mr. Rodger Rochelle, PE	Mr. Glen Mumford, PE
Mr. R.E. Davenport, PE	Mr. Mike Gwyn
Mr. Ken Kennedy, PE	Mr. Mitchell Dixon
Ms. Lori Strickland	Ms. Marsha Sample
Ms. Jaci Kincaid	Ms. Penny Higgins
Project File (2)	

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No. 1 DATED 10-06-16

DATE AND TIME OF BID OPENING: **OCTOBER 18, 2016 AT 2:00 PM**

CONTRACT ID C203921
WBS 46448.3.1

FEDERAL-AID NO. STATE FUNDED

COUNTY JOHNSTON

T.I.P. NO. R-5769

MILES 0.636

ROUTE NO.

LOCATION NOVO NORDISK ACCESS ROAD FROM SR-1913 (GORDON ROAD) TO
PROPOSED NOVO NORDISK SITE.

TYPE OF WORK GRADING, DRAINAGE, PAVING, AND STRUCTURE.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

payment, as payment for the work requiring the excavation will be considered adequate compensation for depositing and grading the material on the shoulders or slopes.

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

When shoulder material is obtained from borrow sources or from stockpiled material, payment for the work of shoulder construction will be made at the contract unit price per cubic yard for *Borrow Excavation* or *Shoulder Borrow* in accordance with the applicable provisions of Section 230 or Section 560 of the *2012 Standard Specifications*.

EMBANKMENT SETTLEMENT GAUGES:

(7-1-95) (Rev. 8-18-15)

235

SP2 R75

Revise the *2012 Standard Specifications* as follows:

Page 2-22, Article 235-1 DESCRIPTION, add the following:

Surcharges and waiting periods will not be required. Settlement gauges may be required to monitor settlement at approximate locations shown in the plans and as directed.

Page 2-22, Article 235-2 MATERIALS, add the following:

Provide Schedule 40 black steel pipes and couplers with steel or wood bases for settlement gauges. Use steel plates with yield strength of at least 36 ksi and pressure treated wood boards for bases of settlement gauges.

(E) Embankment Monitoring

Fabricate and install settlement gauges in accordance with the contract. Make settlement gauges highly visible so gauges are not disturbed while monitoring settlement. Use only hand operated compaction equipment to compact fill material around gauges.

Do not damage settlement gauges. Damaged settlement gauges may require replacement or additional gauges and waiting period extensions as determined by the Engineer.

Page 2-24, Article 235-5 MEASUREMENT AND PAYMENT, add the following:

Embankment Settlement Gauges will be measured and paid in units of each. Settlement gauges will be measured as one per gauge location. The contract unit price for *Embankment Settlement Gauges* will be full compensation for fabricating and installing settlement gauges including placing and compacting fill material around gauges, adding pipes and couplers until embankment monitoring ends and any incidentals necessary to monitor settlement. No payment will be made

R-5769

GT-1.9

Johnston County

7.0 MEASUREMENT AND PAYMENT

MSE Retaining Wall No. 1 and *MSE Retaining Wall No. 2* will be measured and paid in square feet. MSE walls will be measured as the square feet of wall face area with the pay height equal to the difference between top of wall and top of leveling pad elevations. Define "top of wall" as top of coping or top of panels for MSE walls without coping.

The contract unit price for *MSE Retaining Wall No. 1* and *MSE Retaining Wall No. 2* will be full compensation for providing designs, submittals, labor, tools, equipment and MSE wall materials, excavating, backfilling, hauling and removing excavated materials and supplying site assistance, leveling pads, panels, reinforcement, aggregate, wall drainage systems, geotextiles, bearing pads, coping, miscellaneous components and any incidentals necessary to construct MSE walls. The contract unit price for *MSE Retaining Wall No. 1* and *MSE Retaining Wall No. 2* will also be full compensation for reinforcement connected to and aggregate behind end bent caps in the reinforced zone, if required.

Payment will be made for temporary shoring for wall construction under the Temporary Shoring for Wall Construction Special Provision.

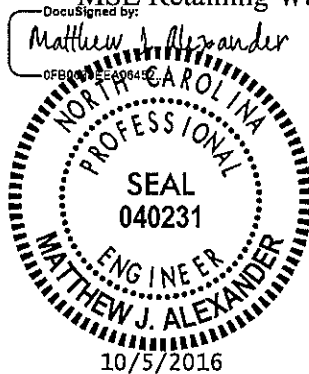
The contract unit price for *MSE Retaining Wall No. 1* and *MSE Retaining Wall No. 2* does not include the cost for the reinforced aggregate platforms or guardrail associated with MSE walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind the reinforced zone from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

Pay Item	
MSE Retaining Wall No. 1	
MSE Retaining Wall No. 2	

Pay Unit
Square Foot
Square Foot



R-5769

GT-6.1

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TEMPORARY SHORING FOR WALL CONSTRUCTION**(Special)****1.0 GENERAL**

Temporary shoring includes cantilever shoring. Temporary shoring does not include trench boxes. Design and construct temporary shoring based on actual elevations and shoring dimensions in accordance with the contract and accepted submittals. Construct temporary shoring at locations shown in the retaining wall plans and as directed. This provision does not apply to pipe, inlet or utility installation.

A. Cantilever Shoring

Cantilever shoring consists of steel sheet piles or H-piles with timber lagging. Define "piles" as sheet piles or H-piles.

B. Embedment

Define "embedment" for cantilever shoring as the pile depth below the grade in front of shoring.

2.0 MATERIALS

Refer to the 2012 Standard Specifications.

Item	Section
Flowable Fill, Excavatable	1000-6
Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2

Provide Type 6 material certifications for shoring materials in accordance with Article 106-3 of the *2012 Standard Specifications*. Use Class A concrete that meets Article 450-2 of the *2012 Standard Specifications* or Type 1 grout for drilled-in piles. Provide untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

3.0 PRECONSTRUCTION REQUIREMENTS**A. Temporary Shoring Designs**

Before beginning temporary shoring design, survey existing ground elevations in the vicinity of shoring locations to determine actual design heights (H). Submit 8 copies of working drawings and 3 copies of design calculations and a PDF copy of each for temporary shoring designs in accordance with Article 105-2 of the *2012 Standard Specifications*. Submit working drawings showing plan views, shoring profiles, typical sections and details of temporary shoring design and construction sequence. Do not begin

R-5769

GT-6.2

Johnston County

shoring construction until a design submittal is accepted. Have cantilever shoring designed, detailed and sealed by an engineer licensed in the state of North Carolina.

(1) Soil Parameters

Design temporary shoring for applicable soil parameters and groundwater elevations based on the plans. Assume the following soil parameters for shoring backfill:

(a) Unit weight (γ) = 120 lb/cf;

(b)	Friction Angle (ϕ)	Shoring Backfill
	30°	A-2-4 Soil
	34°	Class II, Type 1 or Class III Select Material
	38°	Class V or VI Select Material

(c) Cohesion (c) = 0 lb/sf.

(2) Traffic Surcharge

Design temporary shoring for any construction surcharge if construction traffic will be above and within H of shoring. For LRFD shoring designs, apply traffic (live load) surcharge in accordance with Figure C11.5.5-3 of the *AASHTO LRFD Bridge Design Specifications*.

(3) Cantilever Shoring Designs

Use shoring backfill for fill sections and voids between cantilever shoring and the critical failure surface. Use concrete or grout for embedded portions of drilled-in H-piles. Do not use drilled-in sheet piles.

Define “top of shoring” for cantilever shoring as where the grade intersects the back of sheet piles or H-piles and timber lagging. Extend cantilever shoring at least 6" above top of shoring.

Design cantilever shoring for a maximum deflection of 6". Design cantilever shoring in accordance with the plans and *AASHTO Guide Design Specifications for Bridge Temporary Works*.

B. Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction, inspection and testing of the temporary shoring. If required and if this meeting occurs before all shoring submittals have been accepted, additional preconstruction meetings may be required before beginning construction of temporary shoring without accepted submittals. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring

R-5769

GT-6.3

Johnston County

Contractor Superintendent, and a representative of the railroad will attend preconstruction meetings.

4.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of shoring. Direct run off away from shoring and shoring backfill. Contain and maintain backfill and protect material from erosion.

A. Tolerances

Construct shoring with the following tolerances:

- (1) Shoring location is within 6" of horizontal and vertical alignment shown in the accepted submittals, and
- (2) Shoring plumbness (batter) is not negative and within 2° of vertical.

B. Cantilever Shoring Installation

Install piles before excavating for shoring. Install cantilever shoring in accordance with the construction sequence shown in the accepted submittals. Remove piles and if applicable, timber lagging when shoring is no longer needed.

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance with Subarticles 450-3(D) and 450-3(E) of the *2012 Standard Specifications* except that a pile driving equipment data form is not required. Piles may be installed with a vibratory hammer as approved by the Engineer.

Do not splice sheet piles. Use pile excavation to install drilled-in H-piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised design submittal may be required.

(2) Excavation

Excavate in front of piles from the top down in accordance with the accepted submittals. For H-piles with timber lagging, excavate in staged horizontal lifts with a maximum height of 5 ft. Remove flowable fill and material in between H-piles as needed to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the

R-5769

GT-6.4

Johnston County

next lift until timber lagging for the current lift is installed and if applicable, bracing and anchors for the current lift are accepted. Backfill behind cantilever shoring with shoring backfill.

5.0 MEASUREMENT AND PAYMENT

Temporary Shoring for Wall Construction will be measured and paid in square feet. Cantilever shoring will be measured as the square feet of exposed shoring face area with the shoring height equal to the difference between the top and bottom of shoring elevations. Define “top of shoring” as where the grade intersects the back of sheet piles or H-piles and timber lagging. Define “bottom of shoring” as where the grade intersects front of sheet piles or H-piles and timber lagging. No measurement will be made for any embedment or shoring extension above top of shoring.

The contract unit price for *Temporary for Wall Construction* will be full compensation for providing shoring designs, submittals and materials, excavating, backfilling, hauling and removing excavated materials and supplying all labor, tools, equipment and incidentals necessary to construct temporary shoring.

No payment will be made for temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor’s convenience. No value engineering proposals will be accepted based solely on revising or eliminating shoring locations shown in the plans or estimated quantities shown in the bid item sheets as a result of actual field measurements or site conditions.

Payment will be made under:

Pay Item

Temporary Shoring for Wall Construction

Pay Unit

Square Foot

DocuSigned by:
 Matthew J. Alexander
 OFFICE 03855106462

10/5/2016

County : Johnston

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	1 ACR		
0005	0022000000-E	225	UNCLASSIFIED EXCAVATION	3,800 CY		
0006	0106000000-E	230	BORROW EXCAVATION	140,000 CY		
0007	0127000000-N	SP	EMBANKMENT SETTLEMENT GAUGES	13 EA		
0008	0192000000-N	260	PROOF ROLLING	5 HR		
0009	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZA- TION	1,800 SY		
0010	0220000000-E	SP	ROCK EMBANKMENTS	18,300 TON		
0011	0223000000-E	275	ROCK PLATING	9,700 SY		
0012	0241000000-E	SP	GENERIC GRADING ITEM GEOTEXTILE FOR EMBANKMENT STABILIZATION	13,200 SY		
0013	0241000000-E	SP	GENERIC GRADING ITEM GEOTEXTILE FOR ROCK EMBANK- MENTS,TYPE 2	15,500 SY		
0014	0241000000-E	SP	GENERIC GRADING ITEM REINFORCEMENT GEOTEXTILE FOR AGGREGATE PLATFORMS	5,500 SY		
0015	0241000000-E	SP	GENERIC GRADING ITEM SEPARATION GEOTEXTILE, TYPE 2	2,200 SY		
0016	0255000000-E	SP	GENERIC GRADING ITEM #57 STONE FOR AGGREGATE PLATFORMS	800 TON		
0017	0255000000-E	SP	GENERIC GRADING ITEM RIP RAP, CLASS A FOR AGGREGATE PLATFORMS	500 TON		

County: Johnston

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0018	0264000000-E	SP	GENERIC GRADING ITEM ABC (M) SHOULDER CONSTRUCTION	0.05 SMI		
0019	0318000000-E	300	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRUCTURES	110 TON		
0020	0320000000-E	300	FOUNDATION CONDITIONING GEO- TEXTILE	340 SY		
0021	0335200000-E	305	15" DRAINAGE PIPE	152 LF		
0022	0335850000-E	305	*** DRAINAGE PIPE ELBOWS (15")	6 EA		
0023	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	360 LF		
0024	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	184 LF		
0025	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	108 LF		
0026	0448000000-E	310	***** RC PIPE CULVERTS, CLASS IV (54")	64 LF		
0027	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	32 LF		
0028	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	104 LF		
0029	0995000000-E	340	PIPE REMOVAL	50 LF		
0030	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0031	1077000000-E	SP	#57 STONE	5,900 TON		
0032	1099500000-E	505	SHALLOW UNDERCUT	500 CY		
0033	1099700000-E	505	CLASS IV SUBGRADE STABILIZA- TION	400 TON		
0034	1220000000-E	545	INCIDENTAL STONE BASE	1,000 TON		
0035	1330000000-E	607	INCIDENTAL MILLING	1,000 SY		

County: Johnston

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0036	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	3,920 TON		
0037	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	1,950 TON		
0038	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2,670 TON		
0039	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	330 TON		
0040	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	70 TON		
0041	2000000000-N	806	RIGHT OF WAY MARKERS	57 EA		
0042	2209000000-E	838	ENDWALLS	4.5 CY		
0043	2220000000-E	838	REINFORCED ENDWALLS	15 CY		
0044	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	9 EA		
0045	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	5 EA		
0046	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	4 EA		
0047	2556000000-E	846	SHOULDER BERM GUTTER	237 LF		
0048	3030000000-E	862	STEEL BM GUARDRAIL	3,112.5 LF		
0049	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	5 EA		
0050	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	1 EA		
0051	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	3 EA		
0052	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	4 EA		
0053	3628000000-E	876	RIP RAP, CLASS I	13 TON		

County: Johnston

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0054	3649000000-E	876	RIP RAP, CLASS B	99	TON	
0055	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	1,385	SY	
0056	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	606	SF	
0057	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	192	SF	
0058	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	220	SF	
0059	4430000000-N	1130	DRUMS	60	EA	
0060	4435000000-N	1135	CONES	25	EA	
0061	4445000000-E	1145	BARRICADES (TYPE III)	264	LF	
0062	4450000000-N	1150	FLAGGER	1,500	HR	
0063	4516000000-N	1180	SKINNY DRUM	25	EA	
0064	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	32	EA	
0065	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	10,197	LF	
0066	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	11,034	LF	
0067	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	162	LF	
0068	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	125	LF	
0069	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	30	LF	
0070	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	12	EA	
0071	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)	620	LF	

County: Johnston

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0072	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	10,160 LF		
0073	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	152 EA		
0074	6000000000-E	1605	TEMPORARY SILT FENCE	14,300 LF		
0075	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	285 TON		
0076	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	2,855 TON		
0077	6012000000-E	1610	SEDIMENT CONTROL STONE	3,990 TON		
0078	6015000000-E	1615	TEMPORARY MULCHING	8 ACR		
0079	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	500 LB		
0080	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	3.5 TON		
0081	6024000000-E	1622	TEMPORARY SLOPE DRAINS	1,765 LF		
0082	6029000000-E	SP	SAFETY FENCE	3,000 LF		
0083	6030000000-E	1630	SILT EXCAVATION	4,810 CY		
0084	6036000000-E	1631	MATTING FOR EROSION CONTROL	16,615 SY		
0085	6037000000-E	SP	COIR FIBER MAT	100 SY		
0086	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	125 SY		
0087	6042000000-E	1632	1/4" HARDWARE CLOTH	1,245 LF		
0088	6043000000-E	SP	LOW PERMEABILITY GEOTEXTILE	130 SY		
0089	6046000000-E	1636	TEMPORARY PIPE FOR STREAM CROSSING	50 LF		
0090	6070000000-N	1639	SPECIAL STILLING BASINS	6 EA		

County: Johnston

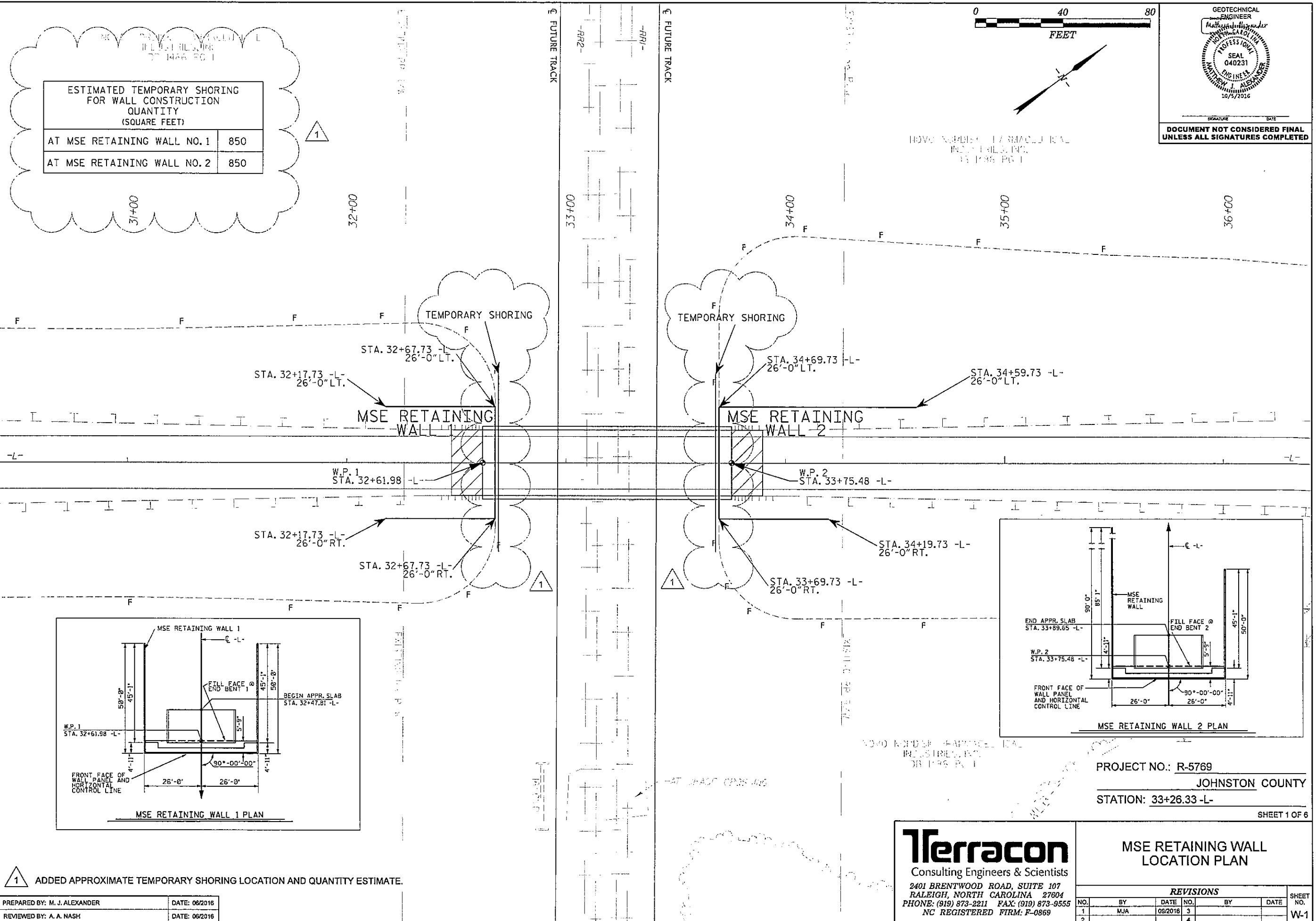
Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0091	6071012000-E	SP	COIR FIBER WATTLE	180 LF		
0092	6071020000-E	SP	POLYACRYLAMIDE (PAM)	195 LB		
0093	6071030000-E	1640	COIR FIBER BAFFLE	1,905 LF		
0094	6071050000-E	SP	*** SKIMMER (1-1/2")	8 EA		
0095	6084000000-E	1660	SEEDING & MULCHING	18 ACR		
0096	6087000000-E	1660	MOWING	12 ACR		
0097	6090000000-E	1661	SEED FOR REPAIR SEEDING	100 LB		
0098	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.5 TON		
0099	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	425 LB		
0100	6108000000-E	1665	FERTILIZER TOPDRESSING	12.25 TON		
0101	6111000000-E	SP	IMPERVIOUS DIKE	52 LF		
0102	6114500000-N	1667	SPECIALIZED HAND MOWING	10 MHR		
0103	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	25 EA		
0104	6120000000-E	SP	CULVERT DIVERSION CHANNEL	52 CY		
0105	6123000000-E	1670	REFORESTATION	0.5 ACR		
0106	6132000000-N	SP	GENERIC EROSION CONTROL ITEM CONCRETE WASHOUT STRUCTURE	6 EA		
STRUCTURE ITEMS						
0107	8112730000-N	450	PDA TESTING	2 EA		
0108	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	3,774 SF		

County : Johnston

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0109	8161000000-E	420	GROOVING BRIDGE FLOORS	3,785 SF		
0110	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	38.2 CY		
0111	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (33+26.23 -L-)	Lump Sum	L.S.	
0112	8217000000-E	425	REINFORCING STEEL (BRIDGE)	6,622 LB		
0113	8265000000-E	430	54" PRESTRESSED CONCRETE GIR- DERS	446.67 LF		
0114	8355000000-E	450	HP ***X*** STEEL PILES (14 X 117)	1,292 LF		
0115	8393000000-N	450	PILE REDRIVES	16 EA		
0116	8503000000-E	460	CONCRETE BARRIER RAIL	223.67 LF		
0117	8531000000-E	462	4" SLOPE PROTECTION	30 SY		
0118	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0119	8801000000-E	SP	MSE RETAINING WALL NO **** (1)	5,200 SF		
0120	8801000000-E	SP	MSE RETAINING WALL NO **** (2)	6,250 SF		
0121	8860000000-N	SP	GENERIC STRUCTURE ITEM CONCRETE PENETRATING STAIN	Lump Sum	L.S.	
0122	8847000000-E	SP	GENERIC RETAINING WALL ITEM TEMPORARY SHORING FOR WALL CONSTRUCTION	1,700 SF		

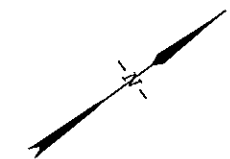
1108/Oct06/Q353116.54/D483069692000/E122

Total Amount Of Bid For Entire Project :



**ESTIMATED TEMPORARY SHORING
FOR WALL CONSTRUCTION
QUANTITY
(SQUARE FEET)**

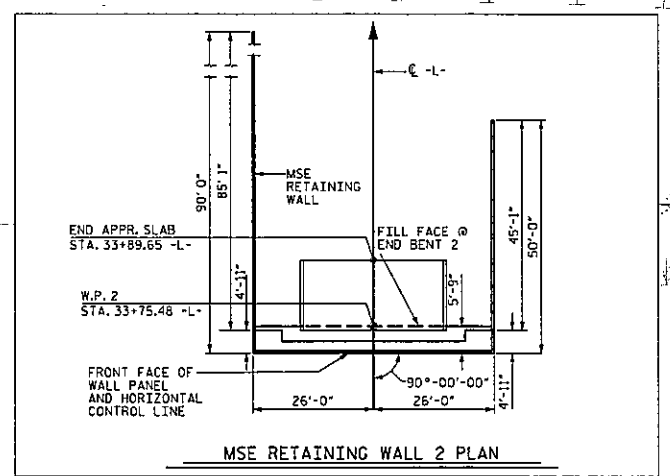
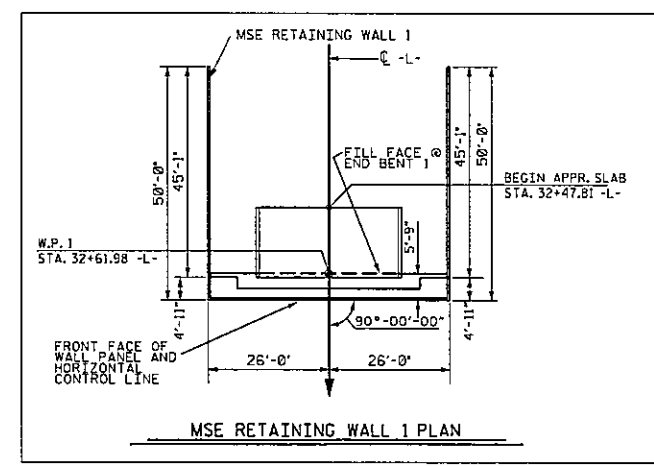
AT MSE RETAINING WALL NO. 1	850
AT MSE RETAINING WALL NO. 2	850



GEOTECHNICAL ENGINEER
Matthew J. Alexander
Professional Engineer
Seal No. 040231
10/5/2016

SIGNATURE _____ DATE _____

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



1 ADDED APPROXIMATE TEMPORARY SHORING LOCATION AND QUANTITY ESTIMATE.

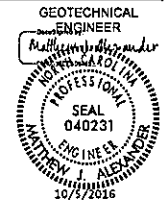
PREPARED BY: M. J. ALEXANDER	DATE: 06/2016
REVIEWED BY: A. A. NASH	DATE: 06/2016

Terracon

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2401 BRENTWOOD ROAD, SUITE 107
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PHONE: (919) 873-2211 FAX: (919) 873-9555
NC REGISTERED FIRM: F-0869

PROJECT NO.: R-5769
JOHNSTON COUNTY
STATION: 33+26.33 -L-
SHEET 1 OF 6

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	MJA	05/2016	3			W-1
2			4			



DOCUMENT NOT CONSIDERED FINAL
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NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
 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 WALLS NO.1 AND 2.
 A DRAIN IS NOT REQUIRED FOR RETAINING WALLS NO.1 AND 2.
 BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALLS NO.1 AND 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.
 DESIGN RETAINING WALLS NO.1 AND 2 FOR THE FOLLOWING:
 1) H = DESIGN HEIGHT + EMBEDMENT
 2) DESIGN LIFE = 100 YEARS
 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 8,250 LB/SF
 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT, WHICHEVER IS LONGER
 5) EMBEDMENT ELEVATION FOR WALL FACES PARALLEL TO NORFOLK SOUTHERN RAILROAD = 285.3 FT
 6) EMBEDMENT DEPTH FOR WALL FACES PERPENDICULAR TO NORFOLK SOUTHERN RAILROAD = H/7 OR 2 FT, BUT NOT DEEPER THAN TOP OF REINFORCED AGGREGATE PLATFORM
 7) 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 AND FINE AGGREGATE MATERIAL REQUIREMENTS.

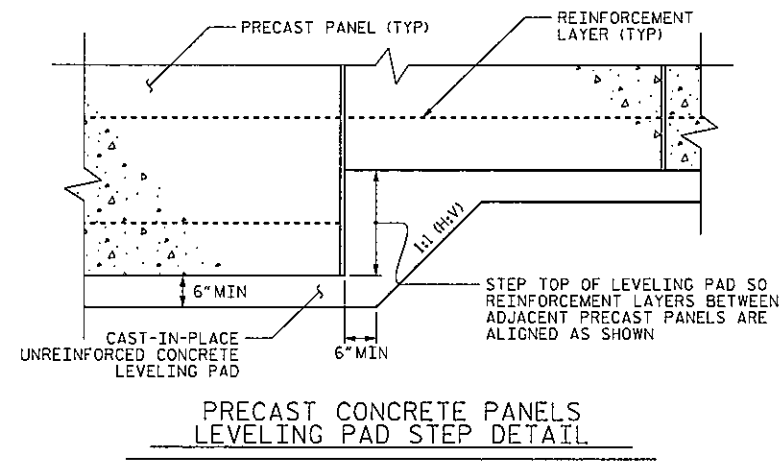
B) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	125	34	0
FOUNDATION	N/A	N/A	N/A

THE MINIMUM EMBEDMENT ELEVATION FOR THE WALL FACES PARALLEL TO THE NORFOLK SOUTHERN RAILROAD AT RETAINING WALLS NO.1 AND 2 INCLUDES EMBEDMENT FOR FUTURE CONSTRUCTION IN THE RAILROAD RIGHT-OF-WAY PER NORFOLK SOUTHERN RAILROAD.
 DESIGN RETAINING WALLS NO.1 AND 2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
 EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALLS NO.1 AND 2.
 FOUNDATIONS FOR END BENT NO.1 LOCATED AT STATION 32+61.98 -L- WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.
 FOUNDATIONS FOR END BENT NO.2 LOCATED AT STATION 33+75.48 -L- WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.2. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

"TEMPORARY SHORING" IS REQUIRED FOR MSE RETAINING WALLS NO.1 AND 2 IN ACCORDANCE WITH THE MSE WALL AND TEMPORARY SHORING FOR WALL CONSTRUCTION SPECIAL PROVISIONS.

EXPOSED SURFACES OF MSE WALLS ARE TO RECEIVE A CONCRETE STAIN. FOR CONCRETE PENETRATING STAIN, SEE STRUCTURE SPECIAL PROVISIONS.



PRECAST CONCRETE PANELS
LEVELING PAD STEP DETAIL



REVISED TEMPORARY SHORING REFERENCE TO MSE WALL SPECIAL PROVISION AND TEMPORARY SHORING FOR WALL CONSTRUCTION SPECIAL PROVISION.

PREPARED BY: M. J. ALEXANDER	DATE: 06/2016
REVIEWED BY: A. A. NASH	DATE: 08/2016

PROJECT NO.: R-5769
 JOHNSTON COUNTY
 STATION: 33+26.33 -L-

SHEET 4 OF 6

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MSE RETAINING WALL
NOTES

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	MJA	10/2016	3			W-4
2			4			