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12/06/07

COMPUTED BY: JOM DATE: 1/31/2019
CHECKED BY: RWP DATE: 3/19/2019

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
WBS 47854	3B-1

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+15%	BORROW	WASTE
–L– 10+13.80 TO 11+75.00	68		305	237	
–Y– 12+55.00 TO 15+50.00	68		907	839	
TOTAL	136		1,212	1,076	
ESTIMATED LOSS DUE TO CLEARING AND GRUBBING	–36			36	
PROJECT TOTAL	100		1,212	1,112	
ESTIMATED 5% TO REPLACE TOPSOIL ON BORROW PIT				56	
GRAND TOTAL	100		1,212	1,168	
SAY	100			1,200	

THE FOLLOWING CONTINGENCY QUANTITIES ARE PER THE "ROADWAY SUBSURFACE INVESTIGATION – RECOMMENDATIONS" LETTER DATED DECEMBER 18, 2018 AND ARE TO BE USED AT THE DISCRETION OF THE ENGINEER:

EST. UNDERCUT (FOR SUBGRADE STABILITY) = 200 CY

EST. GEOTEXTILE FOR SOIL STABILIZATION = 500 SY (200 SY TO BE USED WITH EST. UNDERCUT, 300 SY TO BE USED WITH AGGREAGATE SUBGRADE.)

EST. SELECT GRANUALAR MATERIAL = 200 CY

APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

NOTE: Earthwork quantities are calculated by the Roadway Designer. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineer.

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT / RT / CL	DRAIN TYPE* UD/BD/SD	LF
			CONTINGENCY	UD	100
				GRAND TOTAL (LF)	100
				SAY (LF)	100

*UD = UNDERDRAIN
*BD = BLIND DRAIN
*SD = SUBSURFACE DRAIN

SUMMARY OF PAVEMENT REMOVAL
IN SQUARE YARDS

LOCATION	ASPHALT REMOVAL	ASPHALT BREAK–UP	CONCRETE REMOVAL	CONCRETE BREAK–UP
–L– 10+00.00 TO 10+75.34 LT	18			
TOTAL	18			
SAY	20			

SUMMARY OF AGGREGATE SUBGRADE / STABILIZATION

LINE	BEG STATION	END STATION	AGGREGATE TYPE* ASU / AST	AGGREGATE THICKNESS (INCHES)	SHALLOW UNDERCUT (CY)	CLASS IV SUBGRADE STABILIZATION (TONS)	GEOTEXTILE FOR SOIL STABILIZATION (SY)	STABILIZER AGGREGATE (TONS)	CLASS IV AGGREGATE STABILIZATION (TONS)
ENGINEERS DISCRETION									
		CONTINGENCY	ASU		100	200	300		
		CONTINGENCY	AST						
				TOTAL	100	200	300		
				SAY	100	200	300		

*ASU = AGGREGATE SUBGRADE
*AST = AGGREGATE STABILIZATION
Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300–5".

SUB–REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | C.S. PIPE THICKNESS OR GAUGE | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE, CLASS III (UNLESS OTHERWISE NOTED) | 15" | 18" | 24" | 30" | 36" | 42" | 48" | | 15" RCP–IV | 30" RCP–IV | 36" RCP–IV | *** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE | | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. "B") PER EACH (0' THRU 5.0') | LIN. *FT. A 5.0' THRU 10.0' | LIN. *FT. B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION CATCH BASIN | DROP INLET | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---