QUANTITIES ESTIMATE

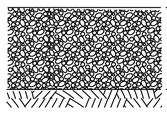
EROSION AND SEDIMENT CONTROL:	
CONSTRUCTION ENTRANCE –	2
SILT FENCE –	2,300 LF
CULVERT INLET PROTECTION –	3
OUTLET PROTECTION –	3
DIVERSION DIKES –	2,000 LF
CHECK DAMS –	18
SEDIMENT TRAP –	4
TEMPORARY SEEDING –	20.2 AC
PERMANENT SEEDING –	22.5 AC
STORM SEWER:	
18" CONCRETE PIPE –	95 LF
24" CONCRETE PIPE –	160 LF
SANITARY SEWER:	
MANHOLES –	3
CLEANOUTS –	1
8" SDR 35 PVC PIPE –	863 LF
UTILITIES:	
16" D.I. WATER LINE –	505 LF
AIR RELEASE VALVE –	1
BLOW OFF VALVE –	1
8" D.I. STUB TO BLDG. –	60 LF
GAS LINE –	535 LF
EARTHWORK:	
TOTAL CUT –	112,000 C.Y.
TOTAL FILL (FILL FACTOR=1.15) –	100,000 C.Y.
NET EARTHWORK –	12,000 C.Y. CUT

NOTES:

1. THE QUANTITIES PROVIDED IN THIS ESTIMATE ARE FOR REFERENCE ONLY AND IT SHALL BE THE CONTRACTOR'S RESPONBILITY TO VERIFY ALL QUANTITIES FOR BIDDING PURPOSES.
2. THE SITE HAS BEEN DESIGNED WITH AN EXCESS CUT TO ACCOUNT FOR THE APPROXIMATE VOLUME OF TOPSOIL THAT WILL BE REMOVED PRIOR TO EARTHWORK OPERATIONS. THE INTENT IS TO ADJUST GRADES AS NECESSARY TO BALANCE THE SITE AND/OR TO WORK WITH THE CONTRACTOR TO IDENTIFY LOCATIONS WHERE ANY EXCESS MATERIAL CAN BE PLACED SO THAT THERE IS NO EXPORT OF MATERIAL REQUIRED.
3. EARTHWORK SHALL BE BID AS CLASSIFIED WITH UNIT PRICES FOR ROCK REMOVAL (BULK/MASS AND TRENCH).
4. BOTETOURT COUNTY SHALL BE RESPONSIBLE FOR COORDINATING WITH AEP FOR EXTENSION OF POWER TO THE PROPOSED SITE. ONCE POWER IS AVAILABLE ON–SITE, G.C. SHALL BE RESPONSIBLE FOR COORDINATING ELECTRICAL SERVICE TO THE BUILDING.
5. THE STORMWATER MANAGEMENT DESIGN FOR THE PROPOSED PROJECT IS CONTINGENT UPON ALL PROPOSED AND FUTURE IMPERVIOUS AREAS BEING CONVEYED AWAY FROM THE EXISTING WATERCOURSE TO THE WEST OF THE PROJECT SITE AND TOWARD THE EXISTING STORMWATER MANAGEMENT FACILITY TO THE EAST OF THE PROJECT SITE. THE G.C. SHALL ENSURE THAT THE PROPOSED CONVEYANCE CHANNELS ARE INSTALLED TO CONVEY RUNOFF FROM ALL IMPERVIOUS AREAS TO THE STORMWATER MANAGEMENT FACILITY.
6. G.C. SHALL PROVIDE TEMPORARY BLOW–OFF VALVE AS NECESSARY FOR WATERLINE TESTING PURPOSES.

ESC LEGEND

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	3.15	TEMPORARY SLOPE DRAIN	TSD
3.03	CONSTRUCTION ROAD STABILIZATION	CRS	3.18	OUTLET PROTECTION	OP
3.05	SILT FENCE	SF	3.20	ROCK CHECK DAMS	CD
3.08	CULVERT INLET PROTECTION	CIP	3.31	TEMPORARY SEEDING	TS
3.09	TEMPORARY DIVERSION DIKE	DD	3.32	PERMANENT SEEDING	PS
3.10	TEMPORARY FILL DIVERSION	FD	3.35	MULCHING	MU
3.13	TEMPORARY SEDIMENT TRAP	ST			

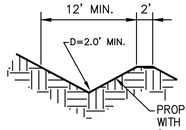


(SUBGRADE– MIN 95% COMPACTION)

GRAVEL PAVEMENT SECTION

NO SCALE

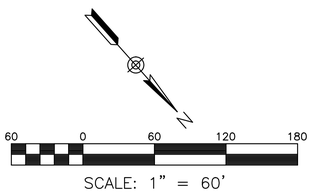
1. STONE BASE MUST BE PLACED IN TWO LIFTS OF NO MORE THAN 4" EACH.
2. G.C. TO ENSURE A MINIMUM OF 95% COMPACTION OF THE SUBGRADE PRIOR TO STONE PLACEMENT.



PROPOSED DITCHES SHALL BE LINED WITH VDOT STD. EC–3 (TYPE B) (MAX. SIDE SLOPE OF 3:1)

DRAINAGE DITCH SECTION

NO SCALE



SCALE: 1" = 60'

SANITARY SEWER STRUCTURE SCHEDULE

- (A) TOP=1347.0 INV. OUT=1340.5
- (A)–(B) 392 LF OF 8" SDR–26 PVC AT 4.57%
- (B) TOP=1328.5 INV. IN=1322.6 INV. OUT=1322.5
- (B)–(C) 196 LF OF 8" SDR–35 PVC AT 5.56%
- (C) TOP=1317.55 INV. IN=1311.6 INV. OUT=1311.5
- (C)–(EX) 245 LF OF 8" SDR–26 PVC AT 7.56%
- (EX) TOP=1309.3 INV.=1292.27 ELEV. INFORMATION IS FROM WVWA GIS – VERIFY ELEVATIONS PRIOR TO CONSTRUCTION NEW INV. IN=1293.0 G.C. SHALL CORE THE EX. MANHOLE & PROVIDE FLEXIBLE BOOT CONNECTION

THE G.C. SHALL PAY SPECIAL ATTENTION TO INSPECTION FREQUENCY AND MAINTENANCE OF ESC MEASURES NEAR THE OUTFALL TO THE LAKE

G.C. SHALL EXTEND PROP. DITCH SECTION TO THE EX. POND RIPRAP SHALL BE PROVIDED ALONG STEEP SECTION OF DITCH

ST #4 402 C.Y. MIN. TOP=1318 BOTTOM=1314

LIMITS OF DISTURBANCE APPROX. 22.5 AC

PROPOSED VARIABLE WIDTH PUBLIC DRAINAGE EASEMENT

G.C. SHALL PROVIDE 24" N–12 HDPE CULVERT AND ADEQUATE FILL OVER PIPE TO ALLOW FOR ACCESS AFTER CONSTRUCTION 40 LF AT 2.0% INV. IN=1325.6 INV. OUT=1324.8

50' RIPARIAN BUFFER

SF WIRE–BACKED

ST #3 402 C.Y. MIN. TOP=1322 BOTTOM=1318

EX. WATERCOURSE

TSD 24" DIA.

DRAINAGE DITCH SEE DITCH SECTION FOR DETAILS

TOPSOIL STOCKPILE

LIMITS OF DISTURBANCE APPROX. 22.5 AC

FILL DIVERSIONS SHALL BE INSTALLED AS SOON AS IS PRACTICAL AS FILL MATERIAL IS PLACED TO PROVIDE POSITIVE DRAINAGE TO THE SEDIMENT TRAPS (TYP)

POSSIBLE FUTURE BUILDING EXPANSION
100,000 SF

NOTE: ALL AREAS TO REMAIN DORMANT FOR LONGER THAN 14 DAYS SHALL RECEIVE TEMPORARY SEEDING.

APPROX. LIMITS OF EX. WETLANDS NO DISTURBANCE OF THE STREAM OR WETLANDS IS PERMITTED

PROPOSED BUILDING
100,000 SF
F.F.E.=1347.5
SUBGRADE=1346.83

FILL DIVERSIONS SHALL BE INSTALLED AS SOON AS IS PRACTICAL AS FILL MATERIAL IS PLACED TO PROVIDE POSITIVE DRAINAGE TO THE SEDIMENT TRAPS (TYP)

ST #1 402 C.Y. MIN. TOP=1336 BOTTOM=1332

392 LF @4.57% 8" SDR–35 PVC

245 LF @7.56% EX8" SDR–35 PVC

196 LF @5.56% 8" SDR–35 PVC

(2) 24" RCP CULVERTS WITH VDOT STD. ES–1 END SECTIONS 80 LF AT 1.25% INV. IN=1321.0 INV. OUT=1320.0

Ex. s.s. main

PROP. CLEANOUT AT THE EASEMENT LINE

LIMITS OF DISTURBANCE APPROX. 22.5 AC

G.C. SHALL EXTEND PROP. DITCH SECTION APPROX. 370 LF TO THE EX. POND AS NECESSARY TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN THE DITCH SECTION

Ex. gas main

Ex. waterline

G.C. SHALL REGRADE EXISTING DITCH AS NECESSARY TO MATCH PROP. DITCH SECTION

DRAINAGE DITCH SEE DITCH SECTION FOR DETAILS

18" RCP CULVERT WITH VDOT STD. ES–1 END SECTIONS 70 LF AT 1.0% INV. IN=1338.2 INV. OUT=1337.5

50' RIPARIAN BUFFER

ST #2 402 C.Y. MIN. TOP=1336 BOTTOM=1332

LIMITS OF DISTURBANCE APPROX. 22.5 AC

Ex. right–of–way

Ex. edge of pavement

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COMMONWEALTH OF VIRGINIA
CHRISTOPHER P. BURNS
Lic. No.047338
8/15/16
PROFESSIONAL ENGINEER

GREENFIELD SHELL BUILDING

INTERNATIONAL PARKWAY

UTILITY, GRADING, & PHASE 2 ESC PLAN

BOTETOURT COUNTY, VIRGINIA

DRAWN BY	LAR
DESIGNED BY	LAR
CHECKED BY	CPB
DATE	7/17/2015
SCALE	1" = 60'

REVISIONS:
8/7/2015
10/2/2015
12/21/2015
5/10/2016
6/3/2016
8/31/2016

SHEET NO. C4

JOB NO. R1400042.00