

QUANTITY + COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI-3	28	EACH	1,500.00	\$ 42,000.00	
GRATE INLET DI-5, DI-7	2	EACH	1,500.00	\$ 3,000.00	
STORM DRAIN MANHOLE	8	EACH	1,200.00	\$ 9,600.00	
15-IN. CONC. STORM DRAIN	1,367	LIN. FT.	22.00	\$ 30,074.00	
15-IN. CMP STORM DRAIN	129	LIN. FT.	20.00	\$ 2,580.00	
18-IN. CONC. STORM DRAIN	319	LIN. FT.	27.00	\$ 8,613.00	
24-IN. CONC. STORM DRAIN	627	LIN. FT.	30.00	\$ 18,810.00	
60-IN. CL. V RCP	159	LIN. FT.	150.00	\$ 23,850.00	
26' X 8'-6" STRUCTURAL PLATE ARCH	1	LS	90,000.00	\$ 90,000.00	
15' ES-1 END SECTION	1	EACH	400.00	\$ 400.00	
15' EW-1 CONC. ENDWALL	2	EACH	800.00	\$ 1,600.00	
18' EW-1 CONC. ENDWALL	2	EACH	1,000.00	\$ 1,000.00	
24' EW-1 CONC. ENDWALL	3	EACH	1,200.00	\$ 3,600.00	
60' EW-2 CONC. ENDWALL	2	EACH	4,000.00	\$ 8,000.00	
18' ES-1 END SECTION	1	EACH	500.00	\$ 500.00	
ENERGY DISSIPATORS	3	EACH	300.00	\$ 900.00	
BOX CULVERT		LUMP SUM			
		LIN. FT.			
		LIN. FT.			
RIPRAP - CLASS		S.F.			
SODDED SWALE		S.Y.			
-IN. CONCRETE ENDWALL EW-		EACH			
-IN. END SECTION ES-		EACH			
ROLL TOP CURB	8,734	LIN. FT.	11.00	\$ 96,074.00	
CURB & GUTTER CG-6		LIN. FT.			
VALLEY GUTTER		EACH			
GRAVEL BASE		S.Y.			
ASPHALT PAVEMENT		S.Y.			
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT		S.Y.			
SM-9.5A ASPHALT CONCRETE	1,888	TON	55.00	\$ 103,840.00	
BM-25.0 ASPHALT CONCRETE BASE	1,819	TON	45.00	\$ 81,855.00	
VDOT 21B AGGREGATE	3,721	TON	14.00	\$ 52,094.00	
12" WATER LINE	764	LIN. FT.	20.00	\$ 15,280.00	
8" WATER LINE	2,010	LIN. FT.	16.00	\$ 32,160.00	
6" WATER LINE	90	LIN. FT.	14.00	\$ 1,260.00	
AIR RELEASE VALVES	2	EACH	700.00	\$ 1,400.00	
FIRE HYDRANT ASSEMBLIES	4	EACH	1,500.00	\$ 6,000.00	
BLOW OFFS W/VAULT, FRAME & COVER	5	EACH	700.00	\$ 3,500.00	
12-IN. GATE VALVES, W/VAULT, FRAME & COVER	3	EACH	900.00	\$ 2,700.00	
8-IN. GATE VALVES, W/VAULT, FRAME & COVER	4	EACH	700.00	\$ 2,800.00	
6-IN. GATE VALVES, W/VAULT, FRAME & COVER	1	EACH	600.00	\$ 600.00	
SINGLE WATER METER SERVICE	51	EACH	300.00	\$ 15,300.00	
DOUBLE WATER METER SERVICE	2	EACH	400.00	\$ 800.00	
8" SANITARY SEWER	3,919	LIN. FT.	20.00	\$ 78,380.00	
LATERAL, CLEANOUT, STUBOUT	55	EACH	300.00	\$ 16,500.00	
STANDARD MANHOLE W/FRAME & COVER	26	EACH	1,200.00	\$ 31,200.00	
SAMPLING MANHOLE/PORT		EACH			
AS-BUILT PLANS		LUMP SUM			
STORMWATER MANAGEMENT	1	LUMP SUM	50,000.00	\$ 50,000.00	
LANDSCAPING		LUMP SUM			
SCREENING FENCE		LIN. FT.			
SUBTOTAL				\$ 852,250.00	
10% CONTINGENCY				\$ 85,225.00	
ESTIMATED TOTAL				\$ 937,475.00	

GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke County, the Western Virginia Water Authority and/or the Virginia Department of Transportation.

The contractor or developer is required to notify the Roanoke County Engineering Division and the Western Virginia Water Authority in writing at least three (3) days prior to construction, including, but not limited to the following:

A. Installation of approved erosion control devices  
B. Clearing and grubbing  
C. Subgrade excavation  
D. Installing storm sewers or culverts  
E. Setting curb and gutter forms  
F. Placing curb and gutter  
G. Placing other concrete  
H. Placing gravel base  
I. Placing any roadway surface  
J. Installing water lines  
K. Installing sanitary sewer lines

A pre-construction conference should be scheduled with the Roanoke County Engineering Division and the Western Virginia Water Authority, to be held at least one (1) day prior to any construction.

Measures to control erosion and siltation must be provided prior to plan approval. Plan approval in no way relieves the developer or contractor of the responsibilities contained within the erosion and siltation control policies.

A permit must be obtained from the V.D.D.T. Residency Office, Roanoke County, prior to construction in the highway right-of-way.

Plan approval does not guarantee issuance of any permits by V.D.D.T.

An approved set of plans and all permits must be available at the construction site.

Field construction shall honor proposed drainage divides as shown on plans.

All unsuitable material shall be removed from the construction limits of the roadway before placing embankment.

Pavement sections on approved plans are based on a minimum CBR of 10. CBR tests are to be performed by the engineer and submitted to V.D.D.T. and to the Roanoke County Engineering Division prior to placement. CBR values < 10 will require revised pavement sections.

All roadside ditches or grades of more than 5 percent shall be paved with cement concrete to the limits as indicated on the plans and as required at the field inspection.

Location of guard rails shall be determined at a joint field inspection by the County and V.D.D.T.

All springs shall be capped and piped to the nearest storm sewer or natural watercourse. The pipe shall be 6 inch minimum diameter and conform to V.D.D.T. Standard SB-1.

Standard street and traffic control signs shall be erected at each intersection by the developer prior to final street acceptance.

Construction debris shall be containerized in accordance with the Virginia Litter Control Act. No less than one litter receptacle shall be provided on site.

The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets. It is the contractors responsibility to insure that the streets are in a clean, mud and dust free condition at all times.

The developer and/or contractor shall supply all utility companies with copies of approved plans, advising them that all grading and installation shall conform to approved plans.

Contractors shall notify utilities of proposed construction at least two (2), but not more than ten (10) working days in advance. Area public utilities may be notified thru "Miss Utility": 1-800-552-7001.

The developer or contractor shall supply the county and the Western Virginia Water Authority with correct As-Built plans before final acceptance.

All work shall be subject to inspection by Roanoke County, the Western Virginia Water Authority, and/or V.D.D.T. inspectors.

Field connections shall be approved by the Roanoke County Engineering Division and the Western Virginia Water Authority prior to such construction.

100 year floodway and floodplain information shall be shown where applicable.

Grade stakes shall be set for all curb and gutter, culvert, sanitary sewer and storm sewer.

INDEX

SEE LUMSDEN ASSOCIATES, P.C. COVER SHEET

SEWER NOTES

All sanitary sewer connections to existing lines shall be coordinated with and performed by the Western Virginia Water Authority.

All sanitary sewer facilities are to be installed according to the Western Virginia Water Authority Design and Construction Standards.

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering all manholes after paving. Manhole tops shall be adjusted to grade if necessary.

All existing utilities may not be shown or may not be shown in the exact location. The contractor shall comply with State Water Works Regulations, Section 12.05.03, where lines cross.

House connections are to be made with 4" pipe installed at a minimum grade of 1/4 inch to 1 foot in R/W.

Laterals from manholes shall be PVC or Ductile Iron of sufficient length to provide two (2) feet of bearing on natural ground. The transition from ductile iron to asbestos cement or concrete pipe shall be made with an adapter coupling in R/W.

All trenches in existing or future rights-of-way shall be compacted according to V.D.O.T. standards.

Lines shall be staked prior to construction.

WATER NOTES

All water connections to existing lines shall be coordinated with and performed by the Western Virginia Water Authority.

All water facilities are to be installed according to the Western Virginia Water Authority Design and Construction Standards.

A minimum cover of three (3) feet is required over proposed lines.

Contractor shall be responsible for locating and uncovering valve vaults after paving and adjustment to final grade if necessary.

All existing utilities may not be shown or may not be shown in the exact location. The contractor shall comply with the State Water Works Regulations, Section 12.05.03, where lines cross.

All trenches in existing or future highway right-of-ways shall be compacted according to V.D.O.T. standards.

Lines shall be staked prior to construction.

Water main shall be minimum Class 350 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

Availability number: 05-75

LEGEND

Property Line	—E—
Right-of-way	—R/W—
Centerline	—C—
Minimum Building Line	—M.B.L.—
Existing Storm Sewer	—18" S.D.—
Existing Sanitary Sewer	—8" SAN.—
Existing Water Main	—4" W.—
Existing Contour	—1045—
Proposed Contour	—1045—
Proposed Drainage Divide	—<—
Proposed Limits of Clearing	—24" S.D.—
Proposed Storm Sewer	—8" M.H.—
Proposed Sanitary Sewer	—8" M.H.—
Proposed Water Main	—HYDRANT VALVE BLDG OFF—

SEE LUMSDEN ASSOCIATES, P.C. COVER SHEET

VICINITY MAP

SURVEY INFORMATION

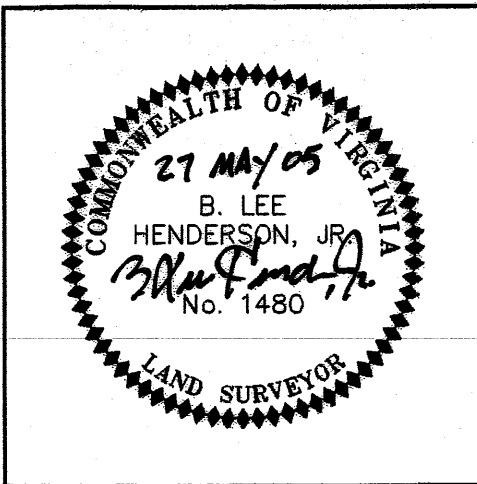
Horizontal and vertical control surveys were performed in (year) 2004 by LUMSDEN ASSOCIATES, P.C.

All elevations must be referenced to the National Geodetic Vertical Datum of 1929.

Source of topographic mapping is AERIAL BY MCKENZIE-SNYDER dated 2003

Boundary was performed by LUMSDEN ASSOCIATES, P.C. dated 2004

The professional seal and signature below certifies the boundary survey and topographic mapping to be accurate and correct.



PROFESSIONAL SEAL AND SIGNATURE

COUNTY OF ROANOKE

NAME OF DEVELOPMENT SECTION No. 1, MASON'S CREST

MAGISTERIAL DISTRICT(S) CAVE SPRING

OWNER (name, address, telephone) RADFORD & COMPANY  
2772 ELECTRIC ROAD  
ROANOKE, VIRGINIA 24018 (540) 343-5000

DEVELOPER (name, address, telephone) SAME AS ABOVE

ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone) LUMSDEN ASSOCIATES, P.C.  
P.O. BOX 20669  
ROANOKE, VIRGINIA 24018 (540) 774-4411

TAX MAP NO(S) 97.03 97.01 BLOCK NO(S) 2 2 PARCEL NO(S) 2,5 17 WWW ID# 6KVKBC

I, *B. Lee Henderson, Jr.* OWNER/DEVELOPER, AM AWARE OF THE SITE DESIGN REQUIREMENTS IMPOSED BY THIS SITE DEVELOPMENT PLAN AND OTHER APPLICABLE COUNTY CODES. I HEREBY CERTIFY THAT I AGREE TO COMPLY WITH THESE REQUIREMENTS, UNLESS MODIFIED IN ACCORDANCE WITH LOCAL LAW.