

QUANTITY AND COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
GRADING	790	LIN. FT.	\$20.00	\$15,600.00	
EXCAVATION		C.Y.			
EMBANKMENT		C.Y.			
CURB INLET DI - 3	7	EACH	\$1,500.00	\$10,500.00	
VDOT DI - 7	4	EACH	\$1,000.00	\$4,000.00	
STORM DRAIN MANHOLE	2	EACH	\$1,200.00	\$2,400.00	
15" CONCRETE STORM DRAIN	170	LIN. FT.	\$22.00	\$3,740.00	
18" CONCRETE STORM DRAIN	243	LIN. FT.	\$26.00	\$6,318.00	
30" CLASS III RCP STORM DRAIN	293	LIN. FT.	\$35.00	\$10,255.00	
-IN. CULVERT		LIN. FT.			
-IN. CULVERT		LIN. FT.			
IS-1, INVERT SHAPING	3	EA.	\$500.00	\$1,500.00	
BOX CULVERT		LUMP SUM			
TYPE "A" DITCH		LIN. FT.			
SODDED SWALE		S.Y.			
30-IN. CONCRETE ENDWALL, EW-1	1	EACH	\$900.00	\$900.00	
42-IN. CONCRETE ENDWALL, EW-1 MODIFIED		EACH			
ENERGY DISSIPATER		EACH			
VDOT STD. CG-6	1,640	LIN. FT.	\$11.00	\$18,040.00	
VDOT STD. CG-2		LIN. FT.			
VALLEY GUTTER		EACH			
GRAVEL BASE		S.Y.			
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT		S.Y.			
8" 21-B AGGREGATE	2,530	S.Y.	\$5.00	\$12,650.00	
2" SM-9.5A ASPHALT	2,530	S.Y.	\$5.00	\$12,650.00	
8" WATER LINE	948	LIN. FT.	\$16.00	\$15,168.00	
6" WATER LINE		LIN. FT.			
AUTOMATIC AIR RELEASE ASSEMBLY	1	EACH	\$700.00	\$700.00	
FIRE HYDRANT ASSEMBLIES	1	EACH	\$1,500.00	\$1,500.00	
BLOW OFFS W/VAULT, FRAME & COVER	1	EACH	\$700.00	\$700.00	
8-IN. GATE VALVES, W/VAULT, FRAME & COVER	4	EACH	\$900.00	\$3,200.00	
-IN. GATE VALVES, W/VAULT, FRAME & COVER		EACH			
DOUBLE WATER SERVICE METERS	7	EACH	\$400.00	\$2,800.00	
SINGLE WATER SERVICE METERS	2	EACH	\$300.00	\$600.00	
INDIVIDUAL PRESSURE REDUCING VALVES	16	EACH	\$300.00	\$4,800.00	
6" SANITARY SEWER	744	LIN. FT.	\$20.00	\$14,880.00	
STANDARD MANHOLE W/FRAME & COVER	5	EACH	\$1,200.00	\$6,000.00	
SAMPLING MANHOLE		EACH			
LATERAL, CLEANDUT, AND STUBOUT	16	EACH	\$300.00	\$4,800.00	
AS-BUILT PLANS		LUMP SUM			
STORMWATER MANAGEMENT		LUMP SUM	\$7,500.00	\$7,500.00	
SUBTOTAL				\$160,601.00	
10% CONTINGENCY				\$16,060.00	
ESTIMATED TOTAL				\$176,661.00	

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.O.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.O.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.O.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.O.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.O.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.O.T. inspectors.

Field corrections 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.

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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.

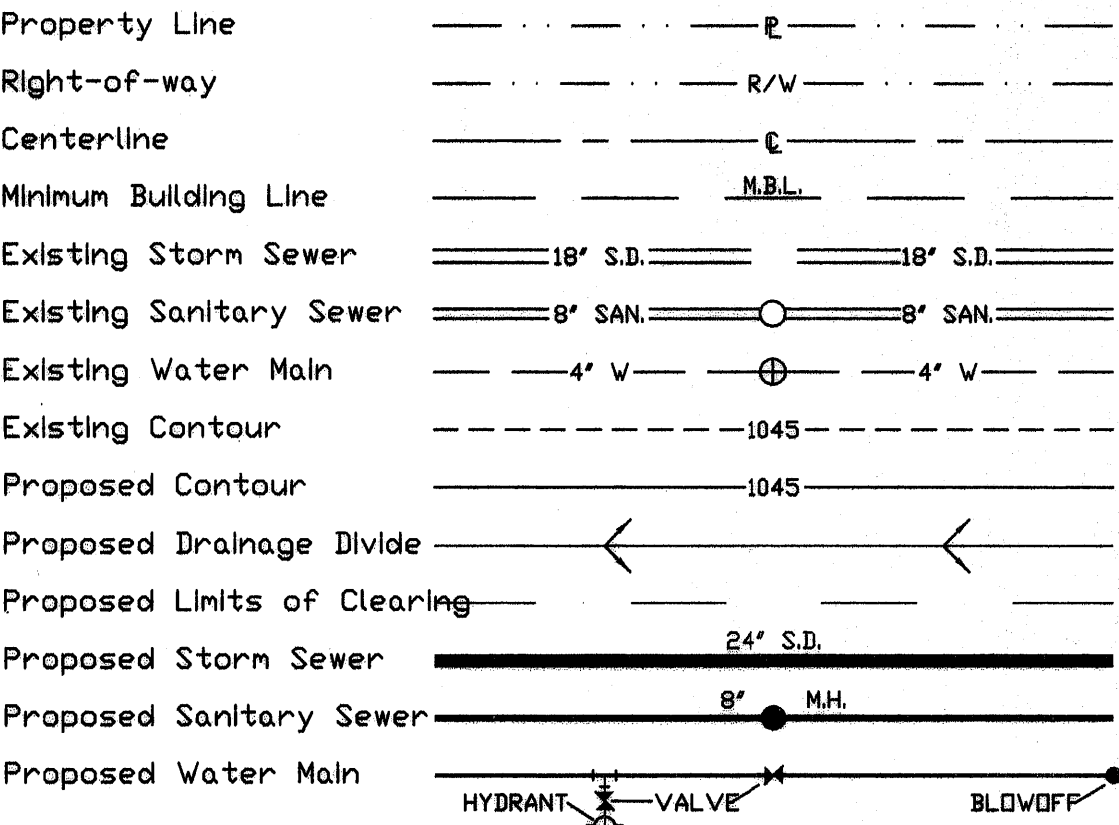
All trenches in existing or future highway right-of-ways shall be compacted according to V.D.O.T. standards.

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 03-56

LEGEND



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VICINITY MAP

SURVEY INFORMATION

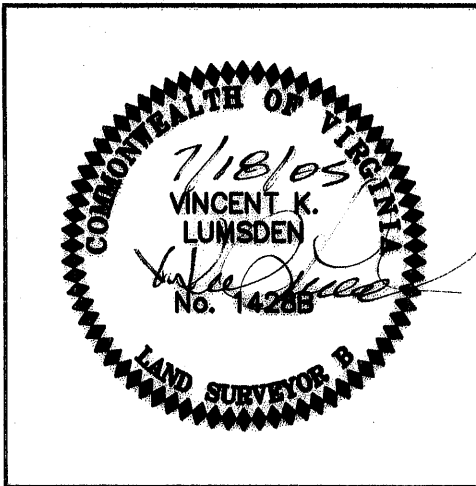
Horizontal and vertical control surveys were performed in (year) 1992 AND 2002 by LUMSDEN ASSOCIATES, P.C.

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

Source of topographic mapping is AERIAL MAPPING (P.D.S.) DATED 1992, AND SUPPLEMENTED BY LUMSDEN ASSOCIATES, P.C. IN 2002

Boundary was performed by LUMSDEN ASSOCIATES, P.C. dated 2000

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



PROFESSIONAL ENGINEER
SEAL AND SIGNATURE

COUNTY OF ROANOKE

NAME OF DEVELOPMENT	THE HILLS AT CASTLE ROCK		I, <i>Richard K. Lumsden</i> 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.		
MAGISTERIAL DISTRICT(S)	WINDSOR HILLS				
OWNER (name, address, telephone)	PARK PLACE DEVELOPERS, INC. 6720 THIRLANE ROAD, NW ROANOKE, VIRGINIA 24019 15401 563-4200				
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 15401 774-4411				
TAX MAP NO(S)	76.03	BLOCK NO(S)	12	PARCEL NO(S)	22 & 23