

QUANTITY + COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRE			
GRADING --- ROADWAYS ONLY		C.Y.			
DEMOLITION		LUMP SUM			
CURB INLET DI-3A SERIES		EA.			
CURB INLET DI-3B SERIES		EA.			
CURB INLET DI-3C SERIES		EA.			
MANHOLE MH-2 SERIES		EA.			
MANHOLE MH-		EA.			
15 -IN. CONCRETE PIPE, CLASS III		L.F.			
60 -IN. CONCRETE PIPE, CLASS III		L.F.			
24 -IN. CONCRETE PIPE, CLASS III		L.F.			
30 -IN. CONCRETE PIPE, CLASS III		L.F.			
42 -IN. CONCRETE PIPE, CLASS III		L.F.			
15 -IN. CONCRETE PIPE, CLASS IV		L.F.			
36 -IN. CONCRETE PIPE, CLASS IV		L.F.			
BOX CULVERT		L.F.			
PRECAST ENERGY DISSIPATOR W/RIPRAP		EA.			
PAVED DITCH		L.F.			
RECONSTRUCTION OF WATERCOURSE		L.F.			
RIPRAP - CLASS I		C.Y.			
RIPRAP - CLASS II		C.Y.			
SODDED SWALE		L.F.			
60 -IN. CONCRETE ENDWALL (SPECIAL DESIGN)		EA.			
15 -IN. END SECTION ES-1		EA.			
30 -IN. END SECTION ES-1		EA.			
-IN. END SECTION ES-		EA.			
HEADER CURB & GUTTER CG-2	80	L.F.	\$15.00	\$1,200.00	
CURB & GUTTER CG-6		L.F.			
VDOT STD CG-9D ENTRANCE		L.F.			
GRAVEL BASE		S.Y.			
TRAFFIC CONTROL		LUMP SUM		COVERED BY VDOT PERMIT	
SURFACE TREATMENT		S.Y.			
-IN. BIT. CONC.: TYPE B-		S.Y.			
-IN. BIT. CONC.: TYPE S-		S.Y.			
-IN. BASE MATERIAL		S.Y.			
STD. PAVEMENT SECTION	127	S.Y.	\$15.00	\$1,905.00	
R/W PAVEMENT SECTION	133	S.Y.	\$20.00	COVERED BY VDOT PERMIT	
6" CONNECTION TO Existing 6" w/ WET TAP		LUMP SUM			\$2,500.00
6" WATER LINE	505	L.F.	\$22.50	\$11,365.00	
8" WATER LINE	285	L.F.	\$35.00	\$9,975.00	
DOUBLE CHECK DETECTOR ASSEMBLY	1	EA.	\$9,000.00	\$9,000.00	
FIRE HYDRANT ASSEMBLIES	1	EA.	\$2,000.00	\$2,000.00	
BLOW OFFS ASSEMBLY		EA.			
6 -IN. GATE VALVES, W/VAULT, FRAME & COVER	1	EA.	\$1,000.00	\$1,000.00	
8 -IN. GATE VALVES, W/VAULT, FRAME & COVER	2	EA.	\$1,500.00	\$3,000.00	
TEMPORARY BLOW-OFF ASSEMBLY	2	EA.	\$500.00	\$1,000.00	
DOUBLE WATER METER SETTERS W/PRVS		EA.			
MAJOR FITTINGS	10	EA.	\$200.00	\$2,000.00	
8" SANITARY SEWER		L.F.			
4" RESIDENTIAL LATERALS		EA.			
6" DOUBLE RESIDENTIAL LATERALS		EA.			
STANDARD MANHOLE W/FRAME & COVER		EA.			
S.S. PUMP AND FORCE MAIN		EA.			
SWM CONVERSION FROM A Sedment Basin		LUMP SUM			
FENCING		L.F.			
DOUBLE GATE		EA.			
AS-BUILT PLANS		LUMP SUM	\$1,000.00	\$1,000.00	
SUB-TOTAL					\$45,945.00
10% CONTINGENCY					\$4,595.00
ESTIMATED TOTAL					\$50,540.00

COUNTY OF ROANOKE GENERAL NOTES

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

The contractor or developer is required to notify the Roanoke County Engineering Division in writing at least three (3) days prior to any 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, 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 design. REMOVED PER VDOT

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 contractor's 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 V.D.O.T. inspectors.

Field corrections shall be approved by the Roanoke County Engineering Division and/or 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.

No construction and/or field changes without approval of the consulting engineer and Roanoke County.

Any new alignments, changes in grades, alternative pipe sizes or manholes and ESC measures will require a new set of plans stamped by the consulting engineer. Plan sheets can be 8.5"x11" if the information is legible.

DEVELOPMENT PLAN APPROVED FOR CONSTRUCTION BY ROANOKE COUNTY	
Department	Date
Development Review	1/24/08
Engineering	1/14/08
Water & Sewer	2/13/08

INDEX

- C-1 COVER SHEET
- C-2 SITE PLAN
- C-3 WATERLINE PROFILES and SITE DETAILS
- C-4 W.V.W.A. WATERLINE DETAILS

REVISIONS

10/09/2007 Per 1st Review Comments

WESTERN VIRGINIA WATER AUTHORITY NOTES

Availability No.: NOT APPLICABLE

GENERAL NOTES:

A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE WESTERN VIRGINIA WATER AUTHORITY TO BE HELD AT LEAST ONE (1) DAY PRIOR TO ANY CONSTRUCTION OF THE APPROVED WATER AND SANITARY SEWER FACILITIES.

A MINIMUM COVER OF THREE (3) FEET IS REQUIRED OVER PROPOSED LINES.

ALL SANITARY SEWER AND WATER CONNECTIONS TO EXISTING LINES SHALL BE COORDINATED WITH AND PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.

CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING VALVE VAULTS, MANHOLES, ETC. AFTER PAVING AND ADJUSTING 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 VIRGINIA DEPARTMENT OF TRANSPORTATION'S STANDARDS.

LINES SHALL BE STAKED PRIOR TO CONSTRUCTION.

CONTRACTOR SHALL REFER TO THE WESTERN VIRGINIA WATER AUTHORITY STANDARD WATER AND SEWER REGULATIONS FOR CONSTRUCTION DETAILS AND INSTALLATION METHODS AS REQUIRED TO COMPLETE THE PROPOSED UTILITY FACILITIES AS INDICATED BY THESE DRAWINGS.

FIELD CORRECTIONS SHALL BE APPROVED BY THE WVWA ENGINEERING DIVISION PRIOR TO SUCH CONSTRUCTION.

THE CONTRACTOR SHALL PROVIDE THE WESTERN VIRGINIA WATER AUTHORITY WITH CORRECT AS-BUILT PLANS PRIOR TO SUBSTANTIAL COMPLETION OF ANY NEW PUBLIC EXTENSIONS.

WATER NOTES

WATER MAINS SHALL BE MINIMUM CLASS 350 DUCTILE IRON IN ACCORDANCE TO AWWA C151 OR DR-14 PVC IN ACCORDANCE WITH AWWA C-900.

WATER LATERALS FROM THE METER TO THE BUILDING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.

THE CONSTRUCTION OF THE PROPOSED PUBLIC WATER MAIN AND ALL RESIDENTIAL SERVICES SHALL BE IN COMPLIANCE WITH THE CURRENT WESTERN VIRGINIA WATER AUTHORITY REGULATIONS. REFER TO THESE REGULATIONS FOR COMPLETE DETAILS AND INSTALLATION METHODS.

BASED ON AVAILABLE INFORMATION THE ANTICIPATED PRESSURE FOR ALL OF THE PROPOSED DWELLINGS WILL BE BETWEEN 40-90 psi. THEREFORE ALL HOMES WILL REQUIRE A PRESSURE REDUCING VALVE TO BE INSTALLED BETWEEN THE PUBLIC METERS AND THE PROPOSED DWELLING AS INDICATED BY WVWA STD W-02.

SEWER NOTES:

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 LATERALS AND REQUIRED FITTINGS LOCATED WITHIN A PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENT SHALL BE OF THE SAME TYPE OF MATERIAL AS THE MAINLINE SEWER PIPELINE.

THE CONSTRUCTION OF THE PROPOSED PUBLIC SEWER MAIN AND ALL RESIDENTIAL SERVICES SHALL BE IN COMPLIANCE WITH THE CURRENT WESTERN VIRGINIA WATER AUTHORITY REGULATIONS. REFER TO THESE REGULATIONS FOR COMPLETE DETAILS AND INSTALLATION METHODS.

ALL SANITARY SEWER PIPING SHALL BE PVC (POLYVINYL CHLORIDE) MANUFACTURED IN ACCORDANCE WITH ASTM DESIGNATION 3034-77 (SDR 35) UNLESS OTHERWISE NOTED ON THE PLANS/PROFILES.

ALL MANHOLE FRAMES AND COVERS SHALL BE WATERTIGHT AND ALL COVERS SHALL BE BOLT-DOWN MANHOLE COVERS (SEE DETAIL S-05 AND S-06) WHERE APPLICABLE.

LEGEND

Property Line	_____
Right-of-way	_____
Centerline	_____
Minimum Building Line	_____
Existing Storm Sewer	_____
Existing Sanitary Sewer	_____ 8" SS _____
Existing Water Main	_____ 8" W _____
Existing Contour	_____ 1155 _____
Proposed Contour	_____ 1155 _____
Proposed Drainage Divide	_____
Proposed Limits of Clearing	_____
Proposed Storm Sewer	_____
Proposed Sanitary Sewer	_____ 8" SS _____
Proposed Water Main	_____ 8" W _____

MADISON SQUARE
Waterline Extension

NAME OF DEVELOPMENT

LOCAL GOVERNING AUTHORITY

COUNTY OF ROANOKE

MAGISTERIAL DISTRICT(S)

Cave Spring

CURRENT OWNER
(name, address)

MHM INVESTMENTS, LLC
120 W. CHURCH ST.
ROANOKE, VA 24011

GENERAL CONTRACTOR
(name, address, telephone)

SUBJECT TO BID

ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone)

BALZER AND ASSOCIATES, INC.
1208 CORPORATE CIRCLE
ROANOKE, VA 24018 540-772-9580 FAX 540-772-8050

TAX MAP NO(S)

077.19-01-16

JOB NO. R0700204.00

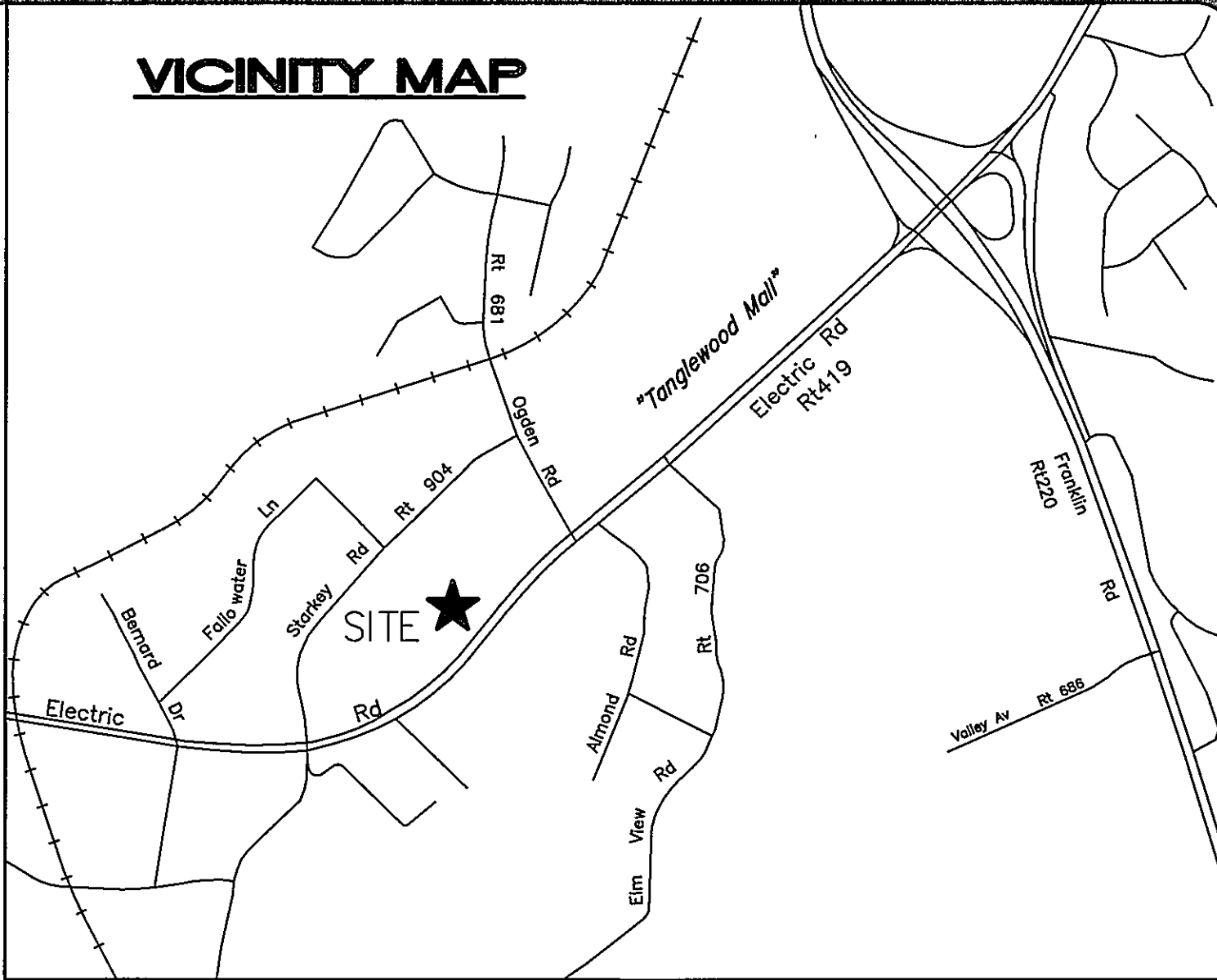
DATE: 08/22/2007

DESIGNED BY: J.V.J.

CHECKED BY: S.M.H.

SHEET 1 OF 4

VICINITY MAP



SURVEY INFORMATION

Horizontal and vertical control surveys were performed in (year) 2007 by BALZER AND ASSOCIATES

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

Source of topographic mapping is BALZER AND ASSOCIATES dated 2007

Boundary was performed by BALZER AND ASSOCIATES dated 2007

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

I AM CERTIFIED BY THE STATE OF VIRGINIA AS A "RESPONSIBLE LAND DISTURBER." I SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN AS SHOWN.

SIGNATURE: _____

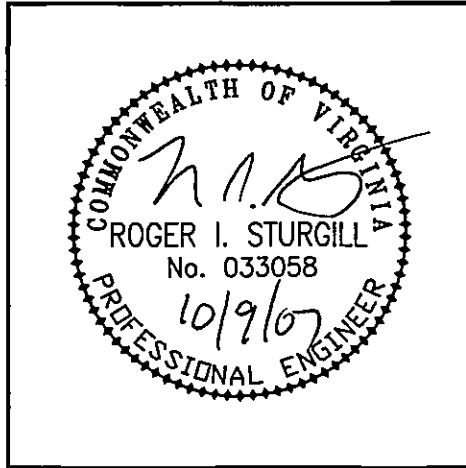
PRINTED NAME: _____

CERTIFICATE DATE: _____

TELEPHONE NUMBER: _____

ADDRESS: _____

REGISTERED LAND DISTURBER



PROFESSIONAL ENGINEER
SEAL AND SIGNATURE

APPROVED