

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING	1	L.S.			
EXCAVATION & EMBANKMENT (ESTIMATED)	1	L.S.	9500.00	9500.00	9500.00
LANDSCAPING	1	L.S.	7600.00	7600.00	7600.00
DROP INLET DI-7 24-IN. RCP CULVERT	3 207	EACH LIN. FT.	1500 40.00	4500.00 8280.00	4500.00 8280.00
24" ENDWALL EW-1	2	EACH	800	1600.00	1600.00
RIPRAP - CLASS	150	S.F.	50.00	7500.00	7500.00
HEADER CURB CG-2	236	LIN. FT.	12.00	2832.00	2832.00
SURFACE TREATMENT 2-IN. BIT. CONC.: TYPE SM 9.5A 6-IN. BASE MATERIAL	44000 44000	S.F. S.F.	1.00 0.60	44000.00 26400.00	44000.00 26400.00
SANITARY SEWER SAMPLING MH	1	EA.	350.00	350.00	350.00
1" WATERLINE	100	LIN. FT.	10.00	1000.00	1000.00
STORMWATER MANAGEMENT (FROM SHT. C7)	1	LUMP SUM	9900.00	9900.00	9900.00
SUB TOTAL				132462.00	132462.00
10% CONTINGENCY				1324.00	1324.00
ESTIMATED TOTAL				133786.00	133786.00

I HEREBY CERTIFY THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.

SIGNED: Sean G. Hollis DATE: 11/21/05
VIRGINIA DEPARTMENT OF TRANSPORTATION NOTES:

- QUALITY CONTROL

ALL WORK DONE IN THE PROPOSED, OR EXISTING RIGHT OF WAY, INCLUDING BUT NOT LIMITED TO STREET GRADING, STREET PAVING AND ALL CONSTRUCTION OF ALL STRUCTURAL COMPONENTS, SHALL BE DONE IN ACCORDANCE WITH CURRENT VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS. ALL MATERIALS USED SHALL BE TESTED IN ACCORDANCE WITH VDOT STANDARD POLICIES. THE DEVELOPER SHALL CONTACT THE OFFICE OF THE RESIDENT ENGINEER, PRIOR TO BEGINNING ANY CONSTRUCTION WITHIN THE PROPOSED OR EXISTING RIGHT OF WAY. AT THAT TIME, THE RESIDENT ENGINEER SHALL PREPARE AN INSPECTION AND TESTING SCHEDULE. THE DEVELOPER WILL PRODUCE TEST REPORTS FROM APPROVED INDEPENDENT LABORATORIES AT THE DEVELOPER'S EXPENSE.

THE PAVEMENT DESIGNS SHOWN ARE BASED ON A SUB-GRADE CBR VALUE OF 10 OR GREATER. THE SUB-GRADE SOIL IS TO BE TESTED BY AN INDEPENDENT LABORATORY AND THE RESULTS SUBMITTED TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO BASE CONSTRUCTION. SHOULD THE SUB-GRADE CBR VALUES BE LESS THAN 10, ADDITIONAL BASE MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH DEPARTMENTAL SPECIFICATIONS.

THE SUB-GRADE SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO PLACEMENT OF THE BASE. BASE SHALL BE APPROVED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION FOR DEPTH, TEMPLATE AND COMPACTION BEFORE SURFACE IS APPLIED.
- UTILITIES

ALL NECESSARY UTILITY LATERALS ALONG WITH PROVISIONS FOR CONDUITS (I.E. WATER, SEWER, STORM, GAS AND TELEPHONE) WILL BE CONSTRUCTED PRIOR TO PLACEMENT OF BASE MATERIAL. GAS OR PETROLEUM TRANSMISSION LINES WILL NOT BE PERMITTED WITHIN THE PAVEMENT OR SHOULDER ELEMENT (BACK CURB TO BACK OF CURB) OF THIS DEVELOPMENT. SERVICE LATERALS CROSSING AND PIPE LINES LOCATED OUTSIDE THE PAVEMENT BY INSIDE THE RIGHT-OF-WAY WILL BE CONSTRUCTED IN CONFORMITY WITH ASA B 31.8 SPECIFICATIONS AND SAFETY REGULATIONS. DISTRIBUTION LINES WITH PRESSURES LESS THAN 120 LBS. ARE UNAFFECTED BY THE ABOVE.

PERMITS WILL BE REQUIRED FOR ALL UTILITIES WITHIN STREET RIGHT-OF-WAY PRIOR TO ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM. ANY EASEMENTS GRANTED TO A UTILITY COMPANY FOR PLACEMENT OF POWER, TELEPHONE, ETC. SHALL BE RELEASED PRIOR TO ACCEPTANCE.
- PRIVATE ENTRANCES

MODIFIED CG-90 GUTTER WILL BE PROVIDED AT ALL ENTRANCES TO PRIVATE LOTS WHERE STANDARD CG-6 CURB AND GUTTER IS APPROVED FOR USE. A VDOT STANDARD PE-1 IS REQUIRED FOR PRIVATE ENTRANCES ON STREETS WITHOUT CURB AND GUTTER. IT IS THE DEVELOPER'S RESPONSIBILITY TO ENSURE THAT ALL PRIVATE ENTRANCES HAVE EITHER A CG-90 OR A PE-1. A STREET SHALL NOT BE BROUGHT INTO THE SYSTEM WHERE EXISTING HOUSES (OCCUPIED, UNOCCUPIED, OR UNDER CONSTRUCTION) HAVE NEITHER A CG-90 NOR A PE-1.

PERMITS WILL BE REQUIRED FOR ALL PRIVATE ENTRANCES CONSTRUCTED ON STREET RIGHTS-OF-WAY AFTER ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM.

ALL PRIVATE ENTRANCES WITHIN THE RIGHT-OF-WAY AREA SHOULD NOT EXCEED EIGHT PERCENT (8%) MAXIMUM GRADE.
- EROSION CONTROL AND LANDSCAPING

CARE SHALL BE TAKEN DURING CONSTRUCTION TO PREVENT EROSION, DUST AND MUD FROM DAMAGING ADJACENT PROPERTY, CLOGGING DITCHES, TRACKING PUBLIC STREETS AND OTHERWISE CREATING A PUBLIC OR PRIVATE NUISANCE TO SURROUNDING AREAS.

THE ENTIRE CONSTRUCTION AREA INCLUDING DITCHES, CHANNELS, BACK OF CURBS AND/OR PAVEMENT IS TO BE BACKFILLED AND SEEDDED AT THE EARLIEST POSSIBLE TIME AFTER FINAL GRADING.

DRAINAGE EASEMENTS SHALL BE DEFINED BY EXCAVATED DITCHES OR CHANNELS FOR THEIR FULL LENGTH TO WELL DEFINED EXISTING NATURAL WATERCOURSES.

THE ROAD WILL BE REVIEWED DURING CONSTRUCTION FOR THE NEED OF PAVED DITCHES. IF EROSION IS ENCOUNTERED IN ANY DRAINAGE EASEMENT, IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER TO SOD, RIP RAP, GROUT, PAVE OR TO DO WHATEVER IS NECESSARY TO CORRECT THE PROBLEM.

ALL VEGETATION AND OVERBURDEN SHALL BE REMOVED FROM SHOULDER PRIOR TO CONDITIONING (CUTTING AND/OR PREPARATION) OF THE SUB-GRADE.
- INTERSECTION PAVEMENT RADIUS

MINIMUM PAVEMENT RADIUS OF 25 FEET IS REQUIRED AT ALL STREET INTERSECTIONS.
- CONNECTIONS TO STATE MAINTAINED ROADS

WHILE THESE PLANS HAVE BEEN APPROVED, SUCH APPROVAL DOES NOT EXEMPT CONNECTIONS WITH EXISTING STATE MAINTAINED ROADS FROM CRITICAL REVIEW AT THE TIME PERMIT APPLICATIONS ARE MADE. THIS IS NECESSARY IN ORDER THAT THE PREVAILING CONDITIONS BE TAKEN INTO CONSIDERATION REGARDING SAFETY ACCOMPANIMENTS SUCH AS TURNING LANES.
- GUARDRAILS

STANDARD GUARDRAIL WITH SAFETY END SECTIONS MAY BE REQUIRED ON FILLS DEEMED NECESSARY BY THE RESIDENT ENGINEER. AFTER COMPLETION OF ROUGH GRADING OPERATIONS, THE OFFICE OF THE RESIDENT ENGINEER SHALL BE NOTIFIED SO THAT A FIELD REVIEW MAY BE MADE OF THE PROPOSED LOCATIONS.

WHERE GUARDRAILS ARE TO BE INSTALLED THE SHOULDER WIDTH SHALL BE INCREASED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS.
- STORM DRAINAGE

FIELD REVIEW WILL BE MADE DURING CONSTRUCTION TO DETERMINE THE NEED AND LIMITS OF PAVED DITCHES AND/OR DITCH STABILIZATION TREATMENTS, AND TO DETERMINE THE NEED AND LIMITS OF ADDITIONAL DRAINAGE EASEMENTS. ALL DRAINAGE EASEMENTS SHALL BE CUT AND MADE TO FUNCTION TO A NATURAL WATERCOURSE. ANY EROSION PROBLEMS ENCOUNTERED IN AN EASEMENT SHALL BE CORRECTED BY WHATEVER MEANS NECESSARY PRIOR TO SUBDIVISION ACCEPTANCE.

DITCH SLOPES ARE TO BE FOUR TO ONE (4:1) FOR SHOULDER WIDTHS OF SIX FEET (6') OR GREATER AND THREE TO ONE (3:1) FOR SHOULDER WIDTHS OF FOUR FEET (4') OR FIVE FEET (5'), UNLESS OTHERWISE SPECIFIED IN THE PLANS.
- ENTRANCE PERMIT

CONTRACTOR SHALL OBTAIN ENTRANCE PERMIT TO THE EXISTING VIRGINIA DEPARTMENT OF TRANSPORTATION'S RIGHT-OF-WAY RESIDENT ENGINEER PRIOR TO ROAD CONSTRUCTION.
- INSPECTION

AN INSPECTOR WILL NOT BE FURNISHED EXCEPT FOR PERIODIC PROGRESS INSPECTIONS, THE ABOVE MENTIONED FIELD REVIEWS AND CHECKING FOR REQUIRED STONE DEPTHS. THE DEVELOPER WILL BE REQUIRED TO POST A SURETY TO GUARANTEE THE ROAD FREE OF DEFECTS FOR ONE YEAR AFTER ACCEPTANCE BY THE DEPARTMENT OF TRANSPORTATION.

- STREET MAINTENANCE

THE STREET SHALL BE PROPERLY MAINTAINED UNTIL ACCEPTANCE. AT SUCH TIME AS ALL REQUIREMENTS HAVE BEEN MET FOR ACCEPTANCE, ANOTHER INSPECTION WILL BE MADE TO DETERMINE THAT THE STREET HAS BEEN PROPERLY MAINTAINED.
- UNDERGROUND UTILITIES

CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK BY CONTACTING MISS UTILITY. CONTACT SITE ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS. IF THERE APPEARS TO BE A CONFLICT, AND UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THIS PLAN, CALL "MISS UTILITY" OF CENTRAL VIRGINIA AT 1-800-552-7001.
- REVISIONS OF SPECIFICATIONS AND STANDARDS

APPROVAL OF THESE PLANS WILL BE BASED ON SPECIFICATIONS AND STANDARDS IN EFFECT AT THE TIME OF APPROVAL AND WILL BE SUBJECT, UNTIL COMPLETION OF THE ROADWAY AND ACCEPTANCE BY THE DEPARTMENT, TO FUTURE REVISIONS OF THE SPECIFICATIONS AND STANDARDS.
- TRAFFIC CONTROL DEVICES

THE DEVELOPER SHALL BE RESPONSIBLE FOR INSTALLATION OF ALL TRAFFIC CONTROL DEVICES, STOP SIGNS, YIELD SIGNS, SPEED LIMIT SIGNS, PAVEMENT STRIPING, ETC., REQUIRED BY THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE DEVELOPER SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL TRAFFIC CONTROL DEVICES REQUIRED AS PART OF THIS DEVELOPMENT UNTIL THE STREETS ARE TAKEN INTO THE SECONDARY SYSTEM. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED ACCORDING TO THE MUTCD.
- RESTRICTIVE COVENANT

THE STREET(S) SERVING THE PROPERTY DESCRIBED DOES NOT MEET STATE STANDARDS AND WILL NOT BE MAINTAINED BY THE DEPARTMENT OF TRANSPORTATION OR THIS COUNTY (OR THE MUNICIPALITY).

ADDITIONALLY, THE STREET(S) WILL NOT BE CONSIDERED ELIGIBLE FOR ADDITION AS AN ELEMENT OF THE SECONDARY SYSTEM OF STATE HIGHWAYS UNTIL IT IS CONSTRUCTED TO THE STANDARDS OF THE CURRENT PREVAILING SUBDIVISION STREET REQUIREMENTS OR OTHER APPLICABLE APPROVED STANDARD OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION, UTILIZING FUNDS OTHER THAN THOSE ADMINISTERED BY THE "DEPARTMENT OF TRANSPORTATION.

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 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:

- Installation of approved erosion control devices
- Clearing and grubbing
- Subgrade excavation
- Installing storm sewers or culverts
- Setting curb and gutter forms
- Placing curb and gutter
- Placing other concrete
- Placing gravel base
- Placing any roadway surface
- Installing water lines
- Installing sanitary sewer lines

A pre-construction conference shall 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 shall be provided prior to plan approval. Plan approval in no way relieves the owner or contractor of the responsibilities contained within the erosion and siltation control policies.

A permit shall 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 shall 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. Unsuitable material shall be defined as containing muck, frozen materials, roots, sod, or other deleterious material.

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.

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 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 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 contractor shall supply the Roanoke 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 modifications due to unforeseen conditions shall be approved by the Roanoke County Engineering Division and/or the Western Virginia Water Authority prior to such construction.

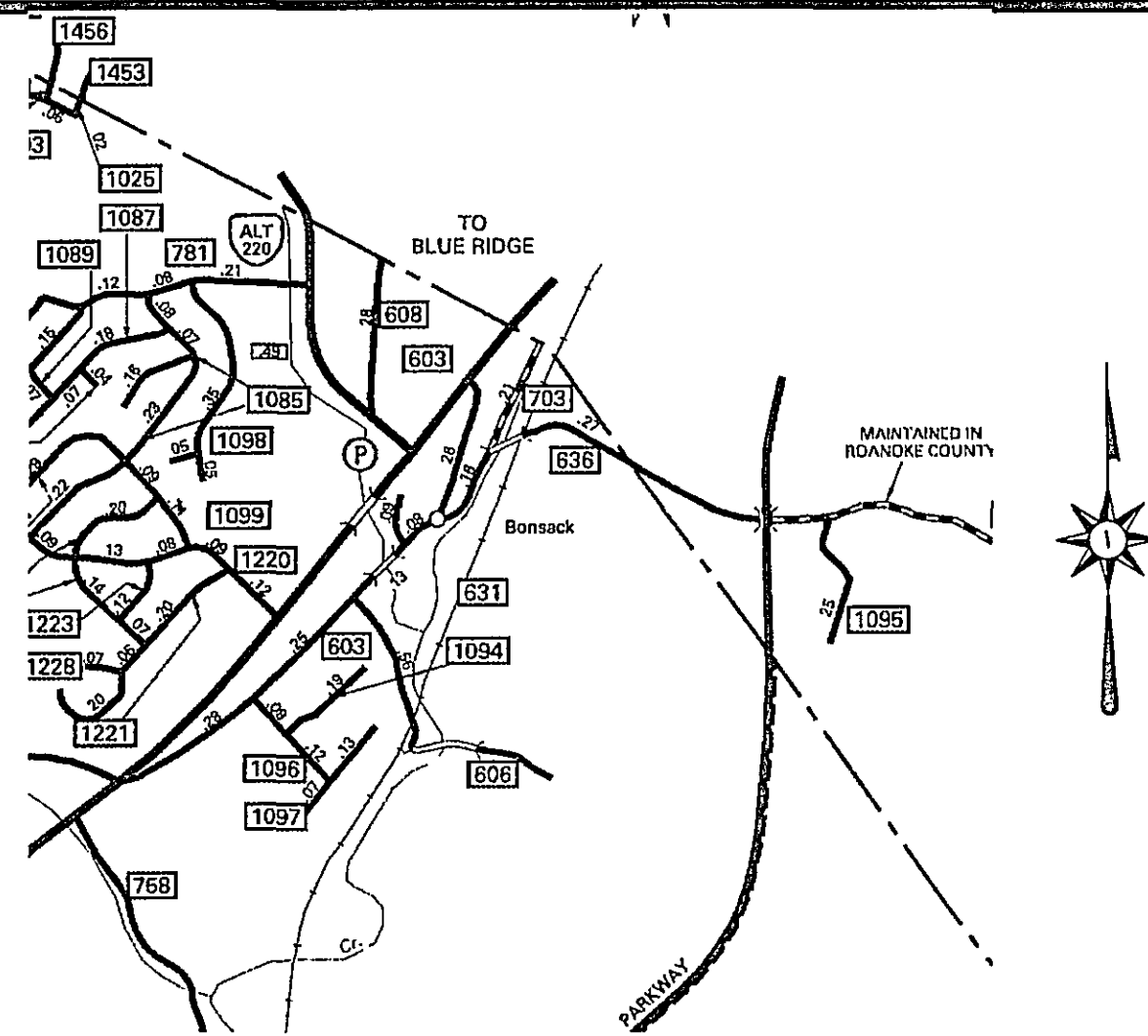
100 year floodway and floodplain information shall be shown where applicable.

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

A variance was approved by the BZA on October 20, 2004 for a reduced setback adjacent to Layman Road.

SHEET INDEX

T1 ROANOKE COUNTY COVER SHEET
C1 EXISTING CONDITIONS & DEMOLITION
C2 GRADING & EROSION CONTROL PLAN
C3 DIMENSIONAL LAYOUT & LANDSCAPING
C4 UTILITIES PLAN
C5 DRAINAGE & SEWER DETAILS
C6 MISCELLANEOUS DETAILS
C7 STD. ROANOKE CO. ESC DETAILS



VICINITY MAP

SEWER NOTES

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 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 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 52 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-900.

Availability number — NOT AVAILABLE AT SITE

LEGEND

Property Line	— — — — —
Right-of-way	— — — — —
Centerline	— — — — —
Minimum Building Line	— — — — —
Existing Storm Sewer	— 18" S.D. — 18" S.D. —
Existing Sanitary Sewer	— 8" SAN. — 8" SAN. —
Existing Water Main	— 4" W. — 4" W. —
Existing Contour	— 1045 —
Proposed Contour	— 1045 —
Proposed Drainage Divide	— < — < —
Proposed Limits of Clearing	— — — — —
Proposed Storm Sewer	— 24" S.D. —
Proposed Sanitary Sewer	— 8" M.H. —
Proposed Water Main	— — — — —

SURVEY INFORMATION

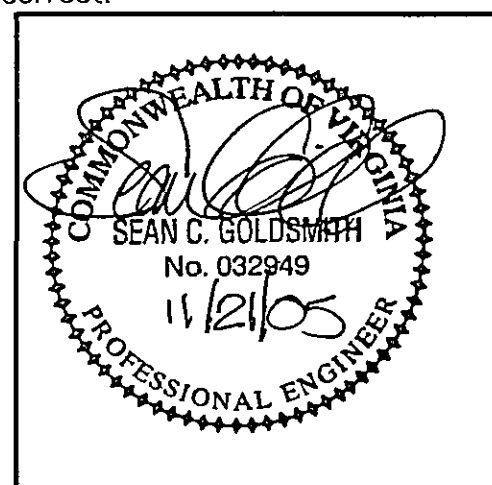
Horizontal and vertical control surveys were performed in (year) 1997 by MIKE HUFFMAN SURVEYING

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

Source of topographic mapping is MIKE HUFFMAN SURVEYING dated 10/97

Boundary was performed by MIKE HUFFMAN SURVEYING

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
**ADDITIONS & ALTERATIONS TO
BONSACK UNITED METHODIST CHURCH**

MAGISTERIAL DISTRICT(S)
VINTON

OWNER (name, address, telephone)
TRUSTEES OF BONSACK UNITED METHODIST CHURCH
4493 BONSACK ROAD
ROANOKE, VIRGINIA 24012

DEVELOPER (name, address, telephone)
SAME AS ABOVE

ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone)
PROVIDENCE ENGINEERING 540-334-4294
819 NAFF ROAD
BOONES MILL, VIRGINIA 24065

TAX MAP NO(S) 40.14-02-40.00 thru 43.00 BLOCK NO(S) PARCEL NO(S)

I, Sean G. Hollis, 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.

DEVELOPMENT PLAN APPROVED FOR CONSTRUCTION BY ROANOKE COUNTY	
Department	Date
Development Review	DR 2/21/06
Engineering	MC 11/29/05
Water & Sewer	
Planning & Zoning	FW 2/21/06