

QUANTITY & COST ESTIMATE

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	RONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION		CY			
EMBANKMENT		CY			
CURB INLET DI-		EACH			
CURB INLET DI-		EACH			
MANHOLE MH-		EACH			
MANHOLE MH-		EACH			
-IN CONCRETE PIPE, CLASS III		LIN FT			
-IN CONCRETE PIPE, CLASS IV		LIN FT			
-IN C.M. CULVERT		LIN FT			
IN C.M. CULVERT		LIN FT			
BOX CULVERT		LUM. SUM			
PAVED DITCH		LIN FT			
RIPRAP - CLASS		SF			
SODDED SWALE		SY			
IN CONCRETE ENDWALL EW-		EA			
-IN END SECTION ES-		EA			
DRIVEWAY, ENTRANCE TYPE		EACH			
SIDEWALK, - FT WIDE		LIN FT			
TRAIL, - FT WIDE		LIN FT			
HEADER CURB & GUTTER CG-		LIN FT			
CURB & GUTTER CG-		LIN FT			
VALLEY GUTTER		EA			
GRAVEL BASE		SY			
GRAVEL SHOULDER		SY			
SURFACE TREATMENT		S.Y.			
-IN BIT CONC. TYPE B-		SY			
-IN BIT CONC. TYPE S-		SY			
-IN BASE MATERIAL		CY			
-IN SUBBASE MATERIAL		CY			
STREET SIGNS		EA			
TRAFFIC BARRICADE		EA			
PIPES AS SHOWN ON PLAT		EA			
MONUMENTS AS SHOWN ON PLAT		EA			
8 -IN WATER LINE	505	LIN FT	20.00	10,100	
-IN WATER LINE		LIN FT			
-IN WATER LINE		LIN FT			
PRESSURE REDUCING VALVES	5	EA.	100	500	
FIRE HYDRANT ASSEMBLIES	1	EA	1,200	1,200	
BLOW OFFS W/VAULT, FRAME & COVER	2	EA	400	800	
8 -IN GATE VALVES W/VAULT, FRAME & COVER	2	EA	600	1,200	
-IN GATE VALVES W/VAULT, FRAME & COVER		EA			
-IN GATE VALVES W/VAULT, FRAME & COVER		EA			
SERVICE CONNECTIONS, DOUBLE METERS	2	EA	450	900	
SERVICE CONNECTIONS, SINGLE METERS	1	EA	350	350	
MISC. BENDS, PLUGS, ETC.	3	EA	300	900	
-IN SAN. SEWER		LIN FT			
-IN SAN. SEWER		LIN FT			
-IN SAN. SEWER		LIN FT			
STD. MANHOLE W/FRAME & COVER		EA			
SERVICE CONNECTIONS W/ CLEANOUTS		EA			
AS-BUILT PLANS	1	LUMP SUM		\$ 500	
SUB-TOTAL		LUMP SUM		\$ 16,450	
CONTINGENCY				\$ 1645	
ESTIMATED TOTAL				\$ 18095	

I hereby certify that the foregoing estimate reflects the current improvement costs of this project.
Signed _____ Date: _____

GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards and Specifications of Roanoke Co. and/or The Virginia Department of Highways and Transportation.

The contractor or developer is required to notify the Roanoke Co. 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 preconstruction conference should be scheduled with the Roanoke Co. Engineering Division, to be held at least one 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 in erosion and siltation control policies.

A permit must be obtained from the VDH&T Residency Office, Salem prior to construction in the highway Right of Way.

Plan approval does not guarantee issuance of any permits by VDH&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 min. CBR of 10. CBR tests are to be performed by the engineer and submitted to the VDH&T and to the Roanoke Co. Engineering Division prior to placement. CBR values < 10 will require revised pavement sections.

Contractor shall verify and be responsible for all dimensions at the job site.

V.D.H.&T. std. HR-1, handrail, required on walls exceeding 4.0' in height.

Location of guard rails shall be determined at a joint field inspection by the county and the VDH&T.

All springs shall be capped and piped to the nearest storm sewer or natural water course. The pipe shall be 6" min. dia and conform to VDH&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, but not more than ten working in advance. Area public utilities may be notified thru Miss Utility (800) 552-7001.

The developer or contractor shall supply the county with correct As-Built plans before final acceptance.

All work shall be subject to inspection by Roanoke Co. and/or VDH&T inspectors.

Field locations shall be approved by the Roanoke Co. Engineering Division prior to such construction.

100 year floodway and flood plain shall be shown where applicable.

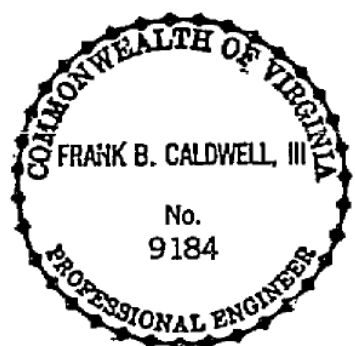
Grade stakes shall be set for all curb & gutter, culvert, sanitary sewer and storm sewer.

Location of underground utilities is based on field surveys, as shown by available records and as located by the Utility Locator Service. Contractor shall verify location of all utilities prior to construction.

The site work and landscaping contractor shall comply with local codes in observing erosion control measures, both on and off the site. Refer to the Virginia Uniform Coding System contained in the Virginia Soil Erosion & Sediment Control Handbook, dated 1980, for details and specifications of erosion control items on the plans.

All storm drain construction shall be in conformance with the Virginia Department of Highways and Transportation Standards and Specifications.

DESIGNED D.W.B.	DATE	REVISIONS	BY
DRAWN D.W.B.	6-23-88	PER RKE CTY LETTER - 1 ST REVIEW	JD
CHECKED			
DATE MAY 12, 1988			
SCALE AS SHOWN			
W.O. 88-0548			
N.B. 2R-44/46			



SURVEY INFORMATION

Horizontal and vertical control surveys were performed in year 1987 by T.P. PARKER & SON.

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

Source of topographic mapping is T.P. PARKER & SON dated 1987.

Boundary survey was performed by T.P. PARKER & SON dated 1987.

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

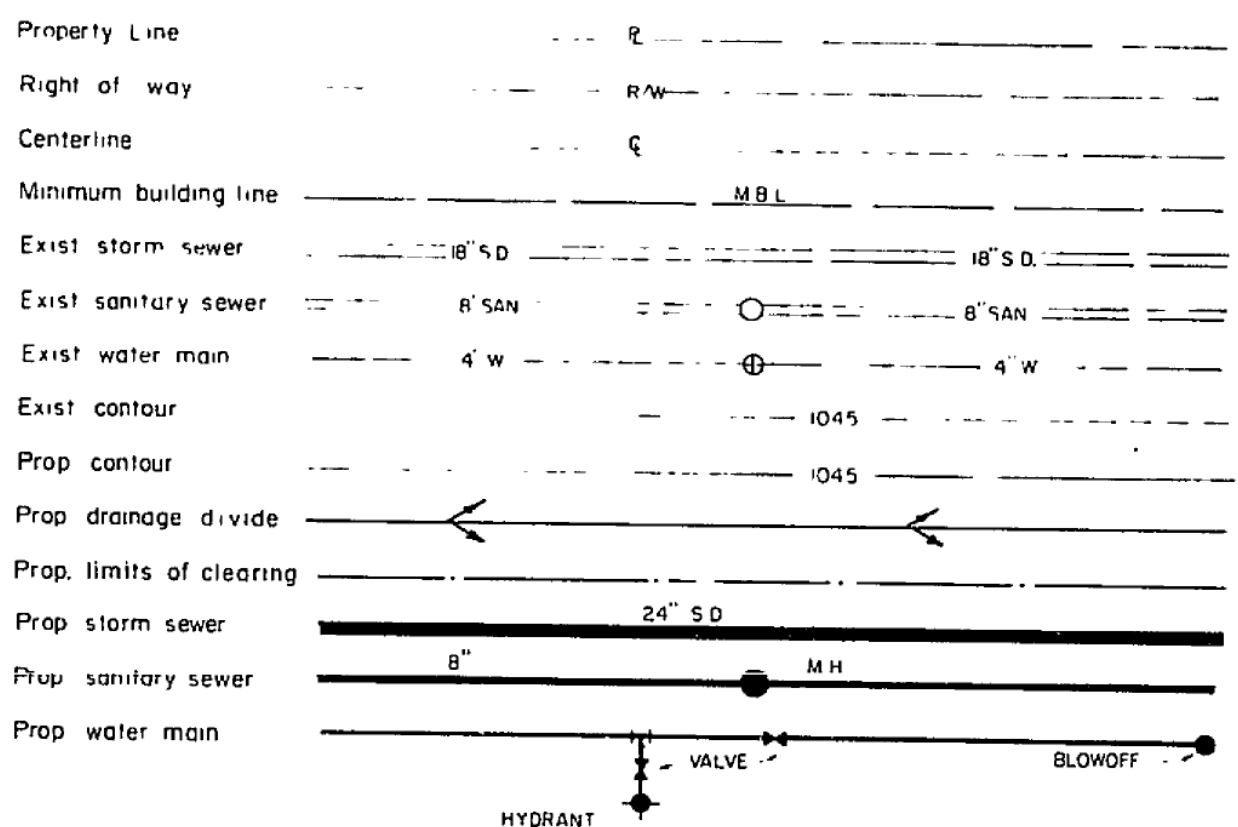
ENGINEERS NOTES

T.P. PARKER & SON assumes no responsibility for adequacy of plans or for information on plans until such plans have approved by the required public agencies.

Any work commenced on a project prior to plan approval is at sole risk of the developer.

T.P. PARKER & SON does not guarantee the completion or quality of performance of the contracts or the completion or quality of performance of contracts by subcontractors or other third parties.

LEGEND



SEWER NOTES

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 on a minimum grade of 1/4 inch to 1 foot in R/W.

Laterals from manholes shall be P.V.C. 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 highway right of ways shall be compacted according to V.D.H.&T. standards.

Lines shall be staked prior to construction.

WATER NOTES

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 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.H.&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 to AWWA C-900.

Application for utilities to serve development reference number _____.

V.D.H. & T. NOTES

Streets to be graded, paved and all structural components erected in accordance with the Virginia Department of Highways and Transportation Road and Bridge Specifications and Road Design Standards. All materials used shall be tested in accordance with standard policies. The developer must contact the office of the resident engineer, prior to beginning any construction at which time an inspection and testing procedure policy will be drawn. The developer may produce test reports from a proved independent laboratories or solicit testing by VDH&T, in either event at the developer's expense.

The pavement designs shown are based on a subgrade rating of CBR 10 or greater. The subgrade soil is to be tested by an independent laboratory and the results submitted to the Virginia Department of Highways and Transportation prior to pavement construction. Should the subgrade CBR values be less than CBR 10, then additional base material will be required.

All necessary utility laterals will be placed prior to pavement surfacing or conduit provisions made for the same (i.e. water, sewer, gas and telephone).

Gas or petroleum transmission lines will not be permitted within the pavement or shoulder element (back of curb to back of curb) of this development. Service laterals crossing and pipe lines located outside the pavement but inside the right of way will be constructed in conformity with A.S.A. 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.

Standard CG-8 gutter will be provided at all entrances to private lots where Standard CG-6 curb and gutter is approved for use.

Permits will be required for all private entrances constructed on street rights of way prior to acceptance into the secondary highway system.

Care must 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 back of curbs and or pavement to be backfilled and seeded together with ditches and channels, at the earliest possible time after final grading.

Drainage easements must be defined by excavated ditches or channels for their full length to well defined existing natural watercourses.

This road will be reviewed during construction for the need and limits of paved gutters.

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.

Minimum pavement radius of 25 feet required at all street intersections.

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 requirements. Additional safety accompaniments such as turning lanes may or may not be required.

SHEET	TITLE
1	COVER SHEET
2	RECORD PLAT, NICHOLS ESTATES, SECT. 4
3	PLAN & PROFILE, WATERLINE EXTENSION
4	WATERLINE DETAILS

NAME OF DEVELOPMENT	NICHOLS ESTATES, SECTION 4
LOCATION	WINDSOR HILLS MAGISTERIAL DISTRICT WING COMMANDER DRIVE, S.W. ROANOKE COUNTY, VIRGINIA
OWNER (name, address, telephone)	ROANOKE LAND DEVELOPMENT CORP. P.O. BOX 158 FLOYD, VIRGINIA (703) 345-3733
DEVELOPER (name, address, telephone)	SAME AS ABOVE
ENGINEER, ARCHITECT OR SURVEYOR (name, address, phone)	T. P. PARKER & SON 816 BOULEVARD SALEM, VIRGINIA (703) 387-1153
TAX MAP NO(S)	86.08
BLOCK NO(S)	5
PARCEL NO(S)	11