

## QUANTITY &amp; COST ESTIMATE (BONDABLE ITEMS ONLY)

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	BONDABLE
CLEARING AND GRUBBING		ACRES			
EXCAVATION		C.Y.			
EMBANKMENT (CONTROL FILL)	4150	C.Y.	4 <sup>00</sup>	16,600 <sup>00</sup>	16,600 <sup>00</sup>
CURB INLET DI- 3A	9	EACH	800 <sup>00</sup>	7200 <sup>00</sup>	7200 <sup>00</sup>
CURB INLET DI- 3B	2	EACH	1200 <sup>00</sup>	2400 <sup>00</sup>	2400 <sup>00</sup>
	1	EACH	1000 <sup>00</sup>	1000 <sup>00</sup>	1000 <sup>00</sup>
	2	EACH	800 <sup>00</sup>	1600 <sup>00</sup>	1600 <sup>00</sup>
MANHOLE MH-		EACH			
MANHOLE MH-		EACH			
15 -IN. CONCRETE PIPE, CLASS III	60	LIN. FT.	12 <sup>00</sup>	720 <sup>00</sup>	720 <sup>00</sup>
24 -IN. CONCRETE PIPE, CLASS IV	22	LIN. FT.	21 <sup>50</sup>	1333 <sup>00</sup>	1333 <sup>00</sup>
24 -IN. ADS PIPE	613	LIN. FT.	14 <sup>50</sup>	8888 <sup>50</sup>	8888 <sup>50</sup>
18 -IN. ADS PIPE	342	LIN. FT.	11 <sup>00</sup>	3762 <sup>00</sup>	3762 <sup>00</sup>
15 -IN. ADS PIPE	576	LIN. FT.	9 <sup>50</sup>	5472 <sup>00</sup>	5472 <sup>00</sup>
18 -IN. C.M. CULVERT	150	LIN. FT.	13 <sup>50</sup>	2025 <sup>00</sup>	2025 <sup>00</sup>
-IN C.M. CULVERT		LIN. FT.			
12 -IN ADS PIPE	572	LIN. FT.	8 <sup>00</sup>	4576 <sup>00</sup>	4576 <sup>00</sup>
BOX CULVERT		LUMP SUM			
ENERGY DISSIPATOR EG-1	1	EACH	100 <sup>00</sup>	100 <sup>00</sup>	100 <sup>00</sup>
PAVED DITCH - PG-1	600	LIN. FT.	10 <sup>00</sup>	6000 <sup>00</sup>	6000 <sup>00</sup>
-PG-5	30	LIN. FT.	15 <sup>00</sup>	450 <sup>00</sup>	450 <sup>00</sup>
RIPRAP - CLASS	3500	S.F.			
SODDED SWALE (GRASS LINED)	1500	S.Y.	2 <sup>00</sup>	3000 <sup>00</sup>	3000 <sup>00</sup>
18 -IN. CONCRETE ENDWALL EW-1	1	EA.	150 <sup>00</sup>	150 <sup>00</sup>	150 <sup>00</sup>
15 -IN. END SECTION ES-1	2	EA.	50 <sup>00</sup>	100 <sup>00</sup>	100 <sup>00</sup>
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		S.Y.			
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT		S.Y.			
-IN. BIT. CONC.: TYPE B-		S.Y.			
-IN. BIT. CONC.: TYPE S-		S.Y.			
-IN. BASE MATERIAL		C.Y.			
-IN. SUBBASE MATERIAL		C.Y.			
STREET SIGNS		EA.			
TRAFFIC BARRICADE		EA.			
PIPES AS SHOWN ON PLAT.		EA.			
MONUMENTS AS SHOWN ON PLAT		EA.			
-IN. WATER LINE		LIN. FT.			
-IN. WATER LINE		LIN. FT.			
-IN. WATER LINE		LIN. FT.			
FIRE HYDRANT ASSEMBLIES		EA.			
BLOW OFFS W/VAULT, FRAME & COVER		EA.			
-IN. GATE VALVES W/VAULT, FRAME & COVER		EA.			
-IN. GATE VALVES W/VAULT, FRAME & COVER		EA.			
-IN. GATE VALVES W/VAULT, FRAME & COVER		EA.			
SERVICE CONNECTIONS		EA.			
8 -IN. SAN. SEWER	1220	LIN. FT.	15 <sup>00</sup>	18300 <sup>00</sup>	18300 <sup>00</sup>
-IN. SAN. SEWER		LIN. FT.			
-IN. SAN. SEWER		LIN. FT.			
STD. MANHOLE W/FRAME & COVER	5	EA.	800 <sup>00</sup>	4000 <sup>00</sup>	4000 <sup>00</sup>
SERVICE CONNECTIONS W/ CLEANOUTS	29	EA.	200 <sup>00</sup>	5800 <sup>00</sup>	5000 <sup>00</sup>
AS-BUILT PLANS		LUMP SUM			
STORM WATER MANAGEMENT		LUMP SUM	12,037 <sup>50</sup>		12,037 <sup>50</sup>
ESTIMATED TOTAL					105,514 <sup>00</sup>

I hereby certify that the foregoing estimate reflects the current improvement costs of this project.

Signed: John D. Mulford, P.E. (G.E.G.)

Date: 6-29-87

## GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards and Specifications of RNKE, CITY, Roanoke County and/or The Virginia Department of Highways and 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:

- 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.

N/A A preconstruction conference should be scheduled with the Roanoke County Engineering Division, to be held at least one day prior to any construction.

Measures to control erosion and siltation must be provided for 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 V.D.H.&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.H.&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 V.D.H.&T. and to the Roanoke County Engineering Division prior to placement. CBR values < 10 will require revised pavement sections.

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

N/A Location of guard rails shall be determined at a joint field inspection by the county and the V.D.H.&T.

N/A 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 V.D.H.&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, but not more than ten working in advance. Area public utilities may be notified thru Miss Utility: (800) 552-7001.

N/A 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 County and/or V.D.H.&T. inspectors.

N/A Field corrections shall be approved by the Roanoke County Engineering Division prior to such construction.

N/A 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.

## SURVEY INFORMATION

Horizontal and vertical control surveys were performed in year 1984 by JACK G. BESS, C.L.S.

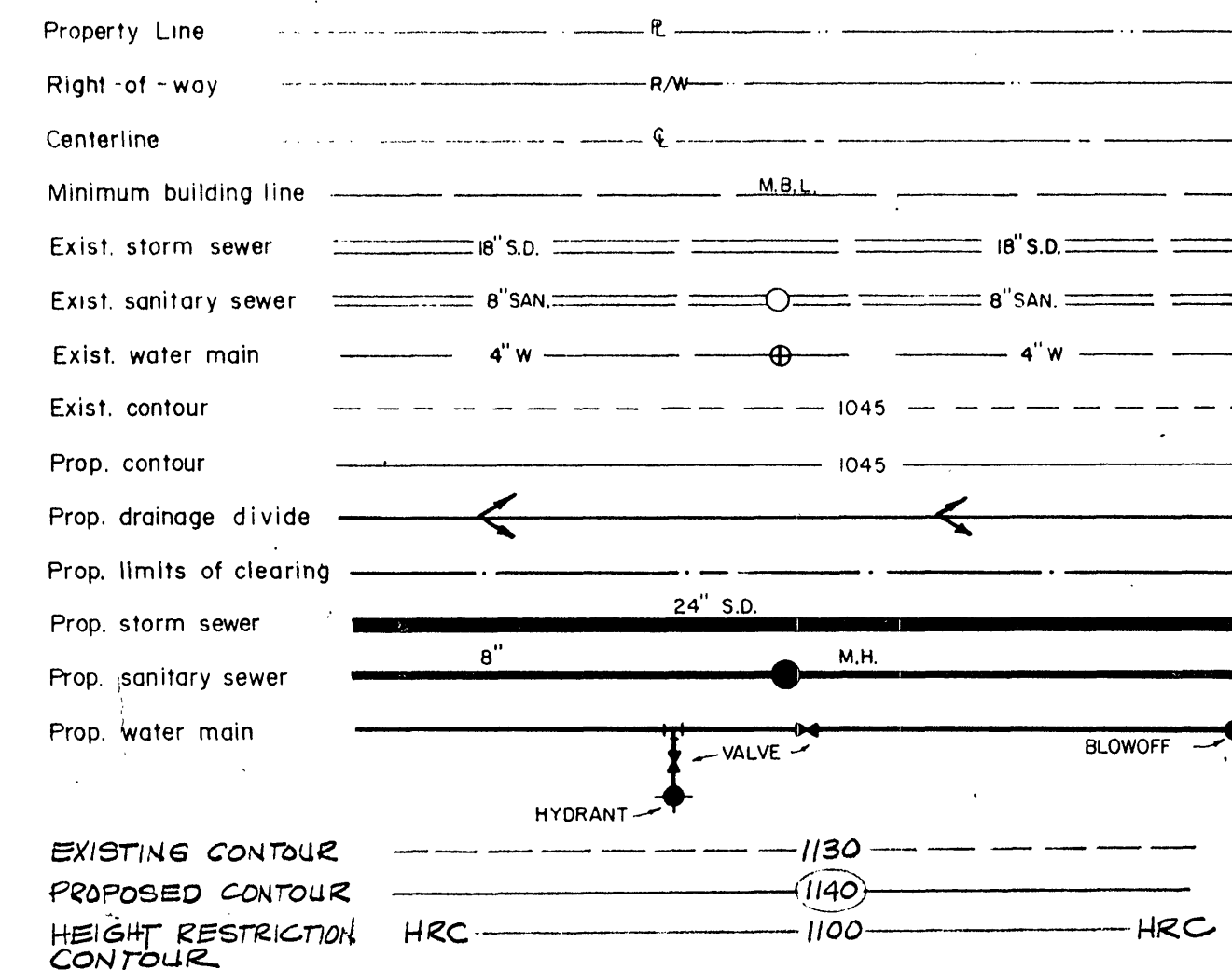
All elevations must be referenced to the National Geodetic Vertical Datum of 1929.

Source of topographic mapping is SURVEY BY JACK G. BESS, C.L.S. dated JUNE 1984

Boundary survey was performed by BUFORD T. LUMSDEN & ASSOC. P.C. dated 30 AUGUST 1983

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

## LEGEND



## 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 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 mains shall be class 50min., ductile iron pipe.

## 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.

COUNTY OF ROANOKE  
AND CITY OF ROANOKE

NAME OF DEVELOPMENT ROANOKE BUSINESS CONDOMINIUMS

MAGISTERIAL DISTRICT(S) N/A

OWNER (name, address, telephone) ROANOKE BUSINESS CONDOMINIUMS  
P.O. BOX 381, DUBLIN, VA.DEVELOPER (name, address, telephone) ROANOKE BUSINESS CONDOMINIUMS  
P.O. BOX 381, DUBLIN, VA.

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



TAX MAP NO(S) 6620102

SHEET BLOCK NO(S) 662 ON SECT. 1976 ZONE MAP PARCEL NO(S)

City Engineering  
Plan # 6054

Sheet ONE of THIRTEEN

Trapper Circle