

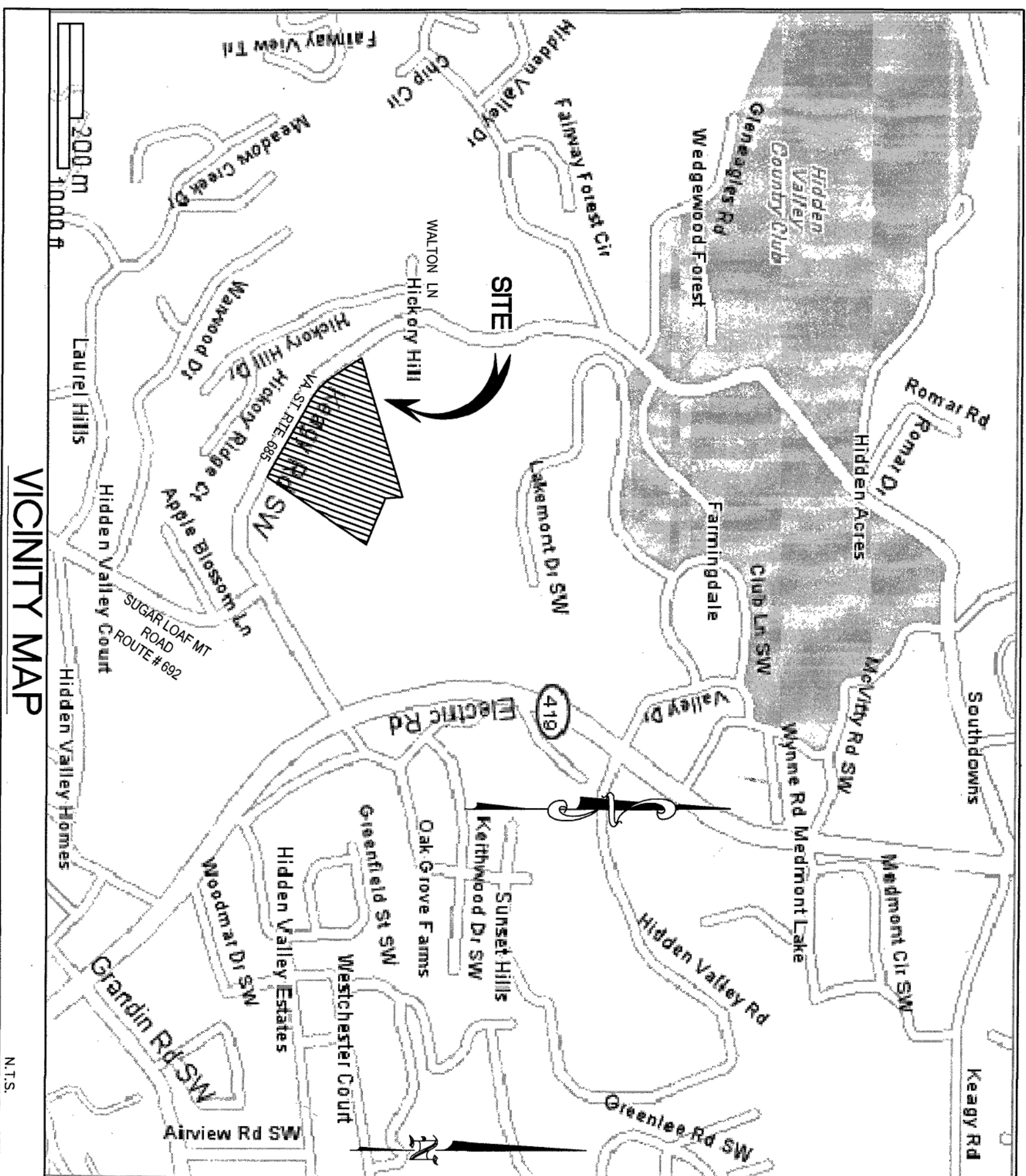
MIKE MORGAN ENGINEERING, LLC  
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# SITE DEVELOPMENT PLAN FOR THE TOWNES AT HIDDEN VALLEY WINDSOR HILLS DISTRICT, ROANOKE COUNTY, VIRGINIA

REVISION	1. PER COUNTY COMMENTS
2. 10/30/07 - PER VDOT AND	
3. 11/06/07 - PER COUNTY	
4. 12/11/07 - PER VDOT	
5. 11/20/09 - ADDED PHASE 1	
6. 02/10/10 - PER COUNTY	
7. 02/10/10 - PER COUNTY	
8. 8/12/13 - P-2 Water Quality	

DATE	03/20/07
ISSUE	01/20/10
CHECK BY	DLG
DATE	03/20/07
ISSUE	01/20/10

15346 Date: 01/20/10  
Phase 2 complete  
As-Built: 12/11/07  
Submitted to: Roanoke County  
Plan Approval: 01/13/10  
As-Built: 12/11/07  
Substantial Completion: 01/13/10  
Final Acceptance: 01/13/10



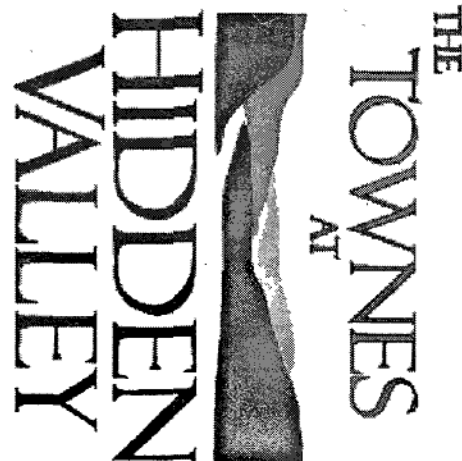
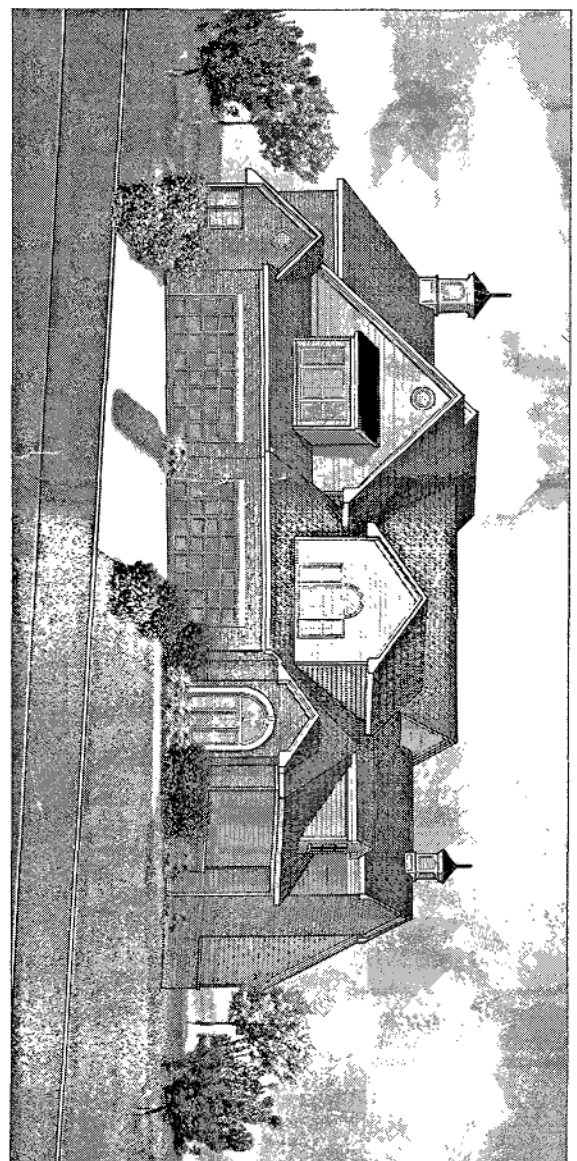
## SURVEY INFORMATION

Horizontal and vertical control surveys were performed in 1997 by \_\_\_\_\_

All elevations must be referenced to the National Geodetic Vertical Datum of 1929. Source of topographic mapping is \_\_\_\_\_ dated \_\_\_\_\_

Boundary was performed by \_\_\_\_\_ dated \_\_\_\_\_

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



## COUNTY OF ROANOKE

NAME OF DEVELOPMENT	THE TOWNES AT HIDDEN VALLEY
WINDSOR HILLS DISTRICT	
OWNER (name, address, telephone)	HIDDEN VALLEY WILAS, LLC, 5041-A BENIOS ROAD, ROANOKE, VIRGINIA 24014, (540) 345-9600
DEVELOPER (name, address, telephone)	MIKE MORGAN ENGINEERING, LLC, 14350 SOMMERVILLE COURT, MIDLOTHIAN, VIRGINIA 23113, (540)239-2080
ENGINEER, ARCHITECT OR SURVEYOR (name, address, telephone)	MIKE MORGAN ENGINEERING, LLC, 14350 SOMMERVILLE COURT, MIDLOTHIAN, VIRGINIA 23113, (540)239-2080
TAX MAP NOS	06/17-01-01-00-0000, 06/17-01-01-05-0000
BLOCK NOS	0 LARM LANE
PARCEL NOS	

## SEWER NOTES

All water and 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. Contractor shall comply with the 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 Right of Way (R/W). All trenches in existing or future rights-of-way shall be compacted according to VDOT standards. Lines shall be staked prior to construction. All sanitary sewer connections to existing lines shall be coordinated with and performed by the Western Virginia Water Authority.

## WATER NOTES

All water and 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 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. 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 VDOT standards. Lines shall be staked prior to construction. Water main shall be minimum Class 82 Ductile Iron in accordance to AWWA C151 or DR-14 PVC in accordance with AWWA C-300, performed by the Western Virginia Water Authority. Availability number: 07-239

## GENERAL NOTES

All construction methods and materials shall conform to the Construction Standards Virginia Department of Transportation (VDOT). The contractor or developer is required to notify the Roanoke County Engineering Division, 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. Setting and/or culverts  
E. Setting curb and gutter  
F. Paving curb and gutter  
G. Paving other concrete  
H. Paving any roadway surface  
I. Installing sanitary sewer lines  
J. Installing stormwater lines  
K. Installing stormwater lines  
A pre-construction conference should be scheduled with the Roanoke County Engineering Division prior to construction. A permit must be obtained from the VDOT Salem Residency Office prior to construction in the highway right-of-way. A permit does not supersede issuance of any permits by VDOT. 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 paving embankment. Payment sections on approved plans are based on a minimum CBR of 7 and on Rf of 2. CBR tests are to be performed by the engineer and submitted to VDOT, and to the contractor for review prior to placement. CBR values < 7 and Rf < 2 will require revised payment sections. All roadside ditches or grades of more than 5 percent shall be paved with gravel concrete to the limits as indicated on the plans and as required at the field inspection, and VDOT. All springs shall be capped and piped to the nearest storm sewer or natural watercourse. The pipe shall be a 6 inch minimum diameter and conform to VDOT Standard SS-1. Construction details shall be coordinated 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, detailing 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 through Mass Utility: 1-800-552-7901. The developer or contractor shall supply 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, Western Virginia Water Authority and/or VDOT 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 flood plain information shall be shown where applicable. Grade stakes shall be set for all curb and gutter, culvert, sanitary sewer and storm sewer. Site lighting design shall conform to Roanoke County standards. A separate "Sign" permit is required by Roanoke County. Prior to construction of the proposed sign, design criteria etc. shall be reviewed and approved by the County. All sign locations shall be located in VDOT Right of Way and Easements shall conform to 2001 VDOT Roadway and Bridge Standards. Contractor shall report or replace any existing structures damaged during construction to the structure or other work in VDOT Right of Way. VDOT approval of these plans expires (3) three years from date of approval. No field changes including new alignments, change in grades, alternative pipe sizes or manholes shall be done without the approval of the consulting engineer and Roanoke County. A building permit is required for any retaining wall over 2 feet in height. All permitted walls must be shown on the site plan.

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## QUANTITY + COST ESTIMATE for PHASE 2

ITEM	QUANTITY	UNIT	UNIT PRICE	COST	REMARKS
CLEANING AND GRUBBING	0	ACRES	0	0	
EXCAVATION	Free	LS	30.000	30.000	
EMBANKMENT	0	C.Y.	0	0	
CURB INLET D.	10	EACH	3850	38500	
CURB INLET D.	0	EACH			
MANHOLE INH.	2	EACH	3500	7000	
MANHOLE INH.	0	EACH			
15-IN CONCRETE PIPE, CLASS III	2682	LN. FT.	40	82500	
18-IN CONCRETE PIPE, CLASS IV	0	LN. FT.	0	0	
4-IN CM CULVERT		LN. FT.			
4-IN CM CULVERT		LN. FT.			
30-IN RCP	0	LN. FT.	0	0	
PAVED DITCH		LN. FT.			
RIPRAP - CLASS	S.F.				
SCOOED SWALE	1460	S.Y.	5	7300	
4-IN CONCRETE ENDWALL ENV.		EACH			
4-IN END SECTION ES.		EACH			
HEADER CURB & GUTTER CG	3260	LN. FT.	25	81500	
CURB & GUTTER CG		LN. FT.			
GRAVEL BASE	0	TN	0	0	
GRAVEL SHOULDER		S.Y.			
SURFACE TREATMENT	14000	S.Y.	12.7	177800	
4-IN BIT CONC. TYPE B		S.Y.			
4-IN BIT CONC. TYPE B	0	C.Y.	0	0	
4-IN SUBBASE MATERIAL		C.Y.			
TRAFFIC BARBRODE		EACH			
8 WATER LINE	1500	LN. FT.	43.7	65550	
8 WATER LINE		LN. FT.			
FIRE HYDRANT ASSEMBLY	4	EACH	2750	11000	
BLOW OFFS W/VALVE, FRAME & COVER		EACH			
4-IN GATE VALVES W/VALVE, FRAME & COVER		EACH			
4-IN GATE VALVES W/VALVE, FRAME & COVER		EACH			
8 SANITARY SEWER	1772	LN. FT.	40	70880	
STANDARD MANHOLE W/FRAME & COVER	8	EACH	3025	24200	
STANDARD MANHOLE W/FRAME & COVER		EACH			
AS-BUILT PLANS	1	LUMP SUM	2250	2250	
STORMWATER MANAGEMENT	1	LUMP SUM	25000	25000	
90 GPM PUMP	1	LUMP SUM	1500	1500	
FLOAT SWITCH ELECTRIC PIPING	1	LUMP SUM	5000	5000	
10% CONTINGENCY			4000	4000	
ESTIMATED TOTAL				996300	

I HEREBY CERTIFY THAT THE FOREGOING ESTIMATE REFLECTS THE CURRENT IMPROVEMENT COSTS OF THIS PROJECT.  
DATE: \_\_\_\_\_