



PLANNING COMMISSION

AGENDA for July 12th 2022

AGENDA

PUBLIC HEARING

- 1) Zoning Map Amendment for Dickinson property, tax map 61-1---2, South Magnolia Avenue

REGULAR MEETING

Call to Order by Chairman and Roll Call

Public Comment

Review and Adoption of Minutes

May 10th meeting

Report of Secretary

New Business

- 1) South Magnolia Avenue Zoning Map Amendment
- 2) Zoning Text Amendment – Private Road Standards

Old Business

None

Adjournment

Members and Term Expirations

Dennis Hawes, Chairman, *7/31/2024*

Mike Ohleger, Vice-Chairman, *6/30/2022*

Justin Wiseman, *8/31/2025*

Marolyn Cash, *6/30/2024*

Lucy Ferrebee, *9/30/2023*

Melvin Henson, City Council Representative,
9/30/2023

Kristie Gibbons, *12/31/2024*

Timothy Petrie, *12/31/2024*

Jason Tyree, Ex Officio member

Staff

Tom Roberts, Director of Community & Economic Development
City Hall, 2039 Sycamore Avenue, Buena Vista VA 24416
(540) 261-8607 | troberts@bvcity.org | buenvistava.org/planning

Meetings

Members of the Buena Vista Planning Commission meet in Council Chambers, 2039 Sycamore Avenue, at 7:00 p.m. on the 2nd Tuesday of each month, unless otherwise announced. Meetings may be held and business conducted without a quorum, but no votes may be taken unless a quorum is present. A majority of members constitutes a quorum. A motion passes with a majority vote; a tie constitutes defeat of the motion.



PLANNING COMMISSION Staff Report

Zoning Map Amendment
 300 block South Magnolia Ave - Dickinson
 7/7/2022

Synopsis

Property owner Robert Dickinson requests rezoning a portion of his property between South Magnolia Ave and the Maury River from Light Manufacturing to R1 Low Density Residential for future construction of a house.

Site Information

Address/Tax Map:	Portion of 56-A---3A, no address	
Existing zoning:	LM Light Manufacturing	
Existing land use:	Agricultural/vacant	
Proposed zoning:	R1 Low Density Residential	
Proposed land use:	Future house construction	
Surrounding zoning and land use:		
North: Dickinson Well & Filtration Plant, Munters Corporation East: Beverly Brothers log yard, agricultural/vacant Savernake Tract and former drive-in South: Agricultural (Snider property), 501 Self Storage, Hall Springs West: Maury River		
Size:	Approximately 23 acres	
Staff Recommendation:		
Tentative Timeline	Preliminary Commission Discussion	6/14/2022
	Planning Commission Public Hearing	7/12/2022
	City Council Public Hearing	8/4/2022
	City Council Adoption	8/18/2022

Overview

Mr. Dickinson would like to build a house for his daughter on some of his land near the river. The site and plans for the house are not part of the rezoning proposal.

Environmental Characteristics

Much of the proposed area to rezone is located in the 100-year floodplain. The portion of the proposed rezoning that is outside either the 500 or 100 year floodplain is only about 3 acres. As a result, the area has limited potential for significant manufacturing development; there is really only about a 4 or 5 acre usable area that is outside the 100 year floodplain.

Vegetated buffer zones along rivers and streams (the northern edge of the proposed rezoning is Lowry's Run, a small creek) are important for mitigating erosion from runoff and stabilizing the landscape. The presence of the floodplains as development constraints is good for the surrounding land because the subject property helps to manage runoff and drainage.

The proposed area situated between to Hall Springs, a highly-productive but currently unused water source owned by the City, and Dickinson Well and filtration plant, one of the City's primary wells. The City's 2016 Wellhead Protection Plan identified existing and potential sources of contamination for City water sources and strategies for mitigating them, focusing on 1,000 foot buffers around each source. The buffers for both Hall Springs and Dickinson Well encompass a large amount of the proposed area. Industrial land uses are a major potential contaminant, so rezoning the land to residential can help protect both Hall Springs and Dickinson Well. Contamination risks from residential uses are typically limited to household chemicals and fertilizers and faulty septic systems, both of which can be more easily mitigated than industrial uses.

Comprehensive Plan Conformance

The Future Land Use Plan calls for this area to remain light manufacturing. However, the future land use chapter recommends for industrial use types that, "New industrial growth should be located in areas to best preserve the natural environment."

Surrounding Land Uses

The surrounding land is a mix of residential, agricultural, and industrial.

Infrastructure and Access

This site is served by public water, but not sewer. A 6" water main is adjacent to this site, running on the same side of S Magnolia Ave, which currently serves several houses south of this location. The nearest sewer is in the industrial park, at least 1200' north of the proposed rezoning. Any sewer would need to be pumped up from the site to the industrial park, from which point it runs through another pump station.

This site has excellent road frontage on South Magnolia Ave (Rt 501).

Analysis and Recommendation

Downzoning industrial land to a less intense use such as residential should be considered very carefully. The City has limited industrial-zoned land, and when this land is occupied, it has a

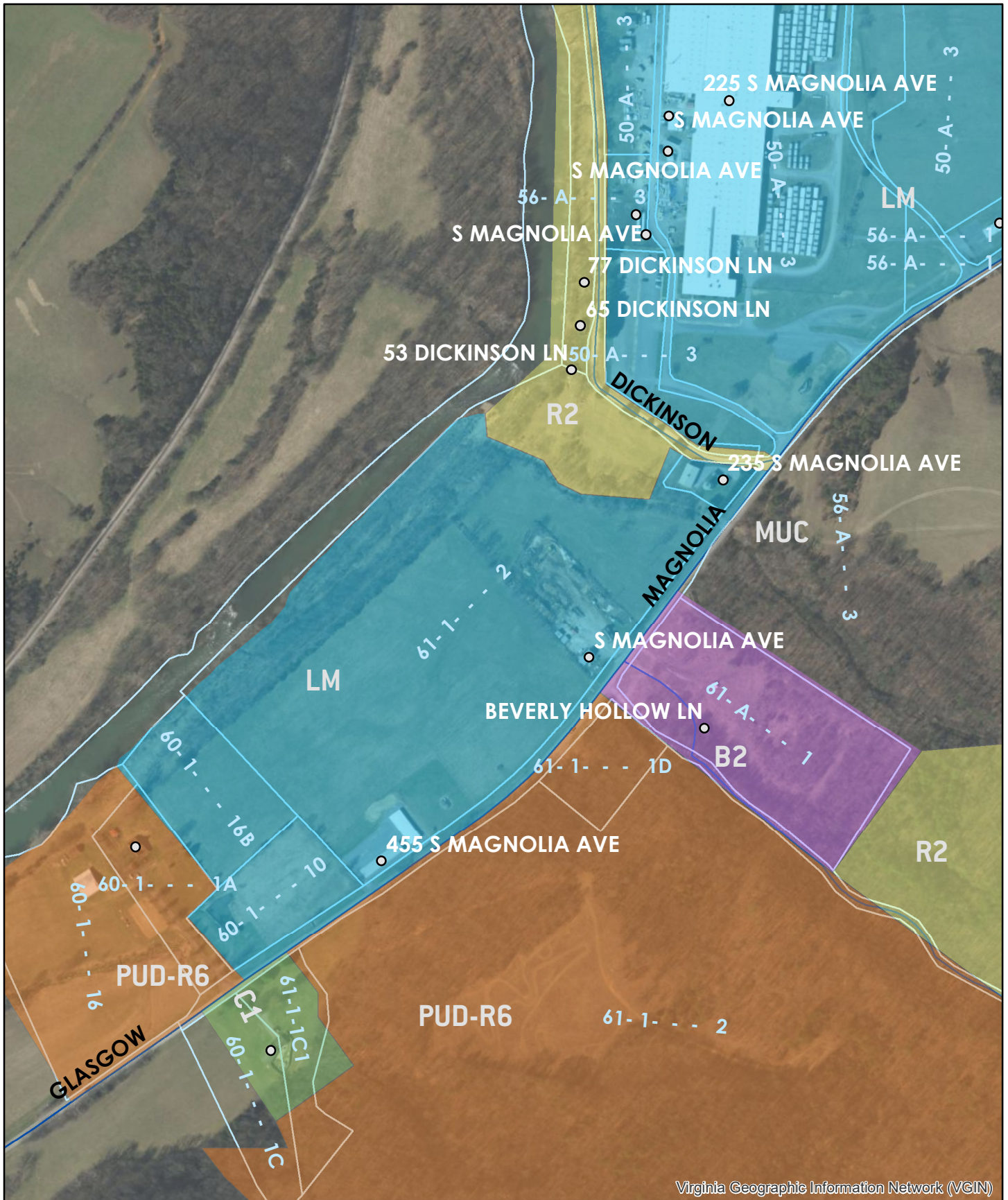
high return to the local economy and in taxes. There is more land zoned for residential uses than industrial, and it is harder to find or create more industrial land. Generally, upzoning land to industrial from residential or other use is not supported by adjacent owners because industrial uses can generate nuisances such as trucks, traffic, lights, noise, smells, etc.

However, this property is not prime industrial land. Although it has good road frontage on S Magnolia Ave, the contiguous developable area outside the 100 year floodplain is very small for industrial uses. Water is available, but sewer would require significant investment to construct. The two existing adjacent industrial uses, 501 Self Storage and the Beverly Brothers log yard, have very light infrastructure needs.

From infrastructure and environmental perspectives, low-density residential use is a much better fit. Although there are two small industrial uses, the predominant character is rural agricultural/residential, so low-density residential zoning would be compatible. The City's industrial land is valuable, but there are multiple available industrial properties with better infrastructure, chiefly in the industrial park just north of here. Although currently the owner envisions a single house here, depending on septic system constraints, there may be acreage for multiple high-quality river-front homes which would benefit the City. Additionally, residential use of this land is more likely to protect Hall Springs and Dickinson Well from local contamination than industrial uses.

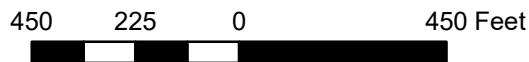
Finally, prior to annexation of this part of the City in 1984, this land was zoned Agricultural. Mr. Dickinson asserts that he did not want it zoned for manufacturing to begin with, and would have preferred it remain agricultural. (There is no agricultural zone in the City.)

Staff recommend approval of the rezoning as presented.



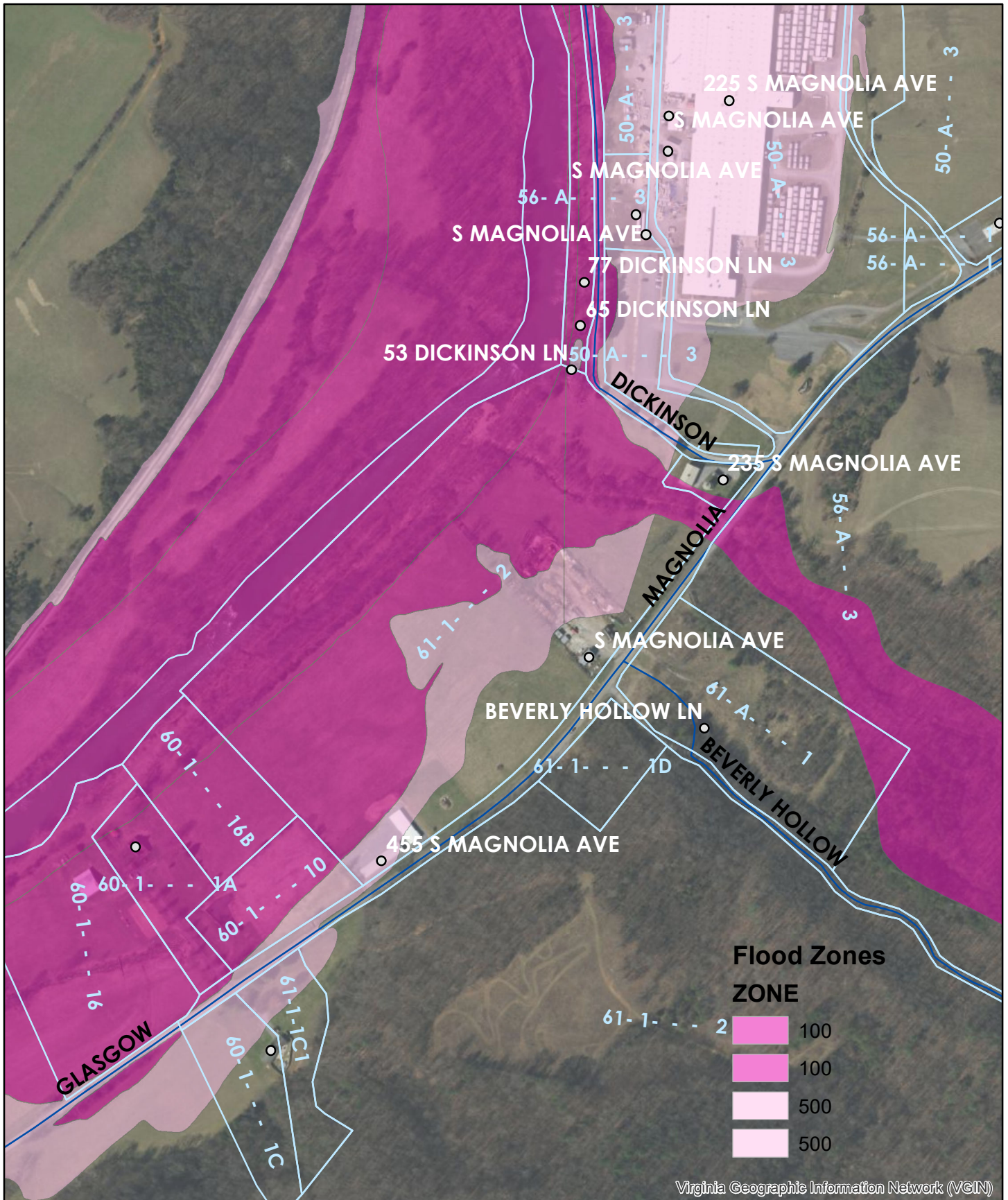
Virginia Geographic Information Network (VGIN)

Any determination of topography or contours, or any depiction of physical improvements, property lines or boundaries is for general information only and shall not be used for the design, modification, or construction of improvements to real property or for flood plain determination.

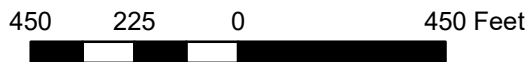


Dickinson Property Existing Zoning

6/9/2022



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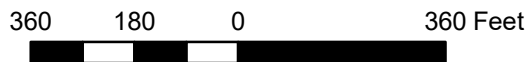


Dickinson Property Flood Plains

6/9/2022



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Virginia Geographic Information Network (VGIN)

Dickinson Property Proposed Rezoning

6/20/2022

LINE	BEARING	DISTANCE
A-B	N 45°33'17" E	603.26'
B-C	N 45°34'38" E	665.66'
C-D	N 65°08'00" E	315.38'
D-E	N 03°10'19" E	529.13'
E-F	N 00°43'00" W	445.75'
F-G	N 19°08'06" W	221.15'
G-H	N 01°28'52" E	327.28'
H-I	N 24°13'15" W	211.05'
I-J	N 10°15'25" W	110.27'
J-K	N 44°17'02" W	84.20'

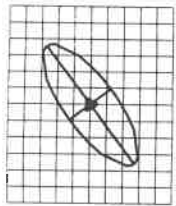
**BOUNDARY SURVEY FOR
ROBERT C. & DAWN S. DICKINSON
BUENA VISTA, VIRGINIA
GREEN FOREST JOB # GF00640A
SURVEYED JULY 30, 2003**

LINE	BEARING	DISTANCE
L1	N 82°26'50" E	482.62'
L2	S 04°28'10" E	385.15'
L3	S 38°43'38" E	20.69'
L4	S 04°53'14" E	78.96'
L5	S 83°47'50" W	249.41'
L6	S 05°06'10" E	675.25'
L7	S 00°09'10" E	809.69'
L8	S 55°53'10" E	350.20'
L9	S 85°25'06" E	222.84'
L10	S 37°04'05" W	59.28'
L11	N 85°25'06" W	162.00'
L12	S 24°37'44" W	106.66'
L13	S 58°04'30" E	114.14'
L14	S 37°04'05" W	771.38'
L15	S 54°36'44" W	387.29'
L16	N 43°04'02" W	305.74'
L17	N 43°18'40" W	531.76'

LEGEND

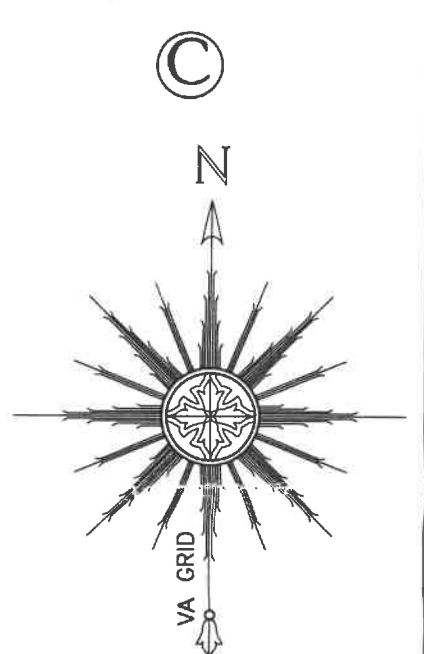
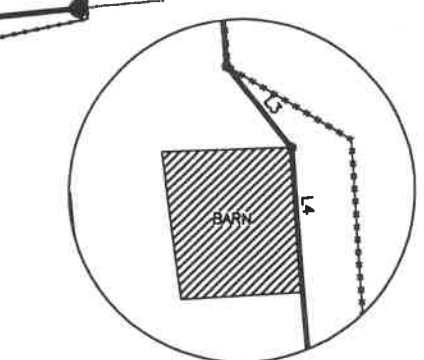
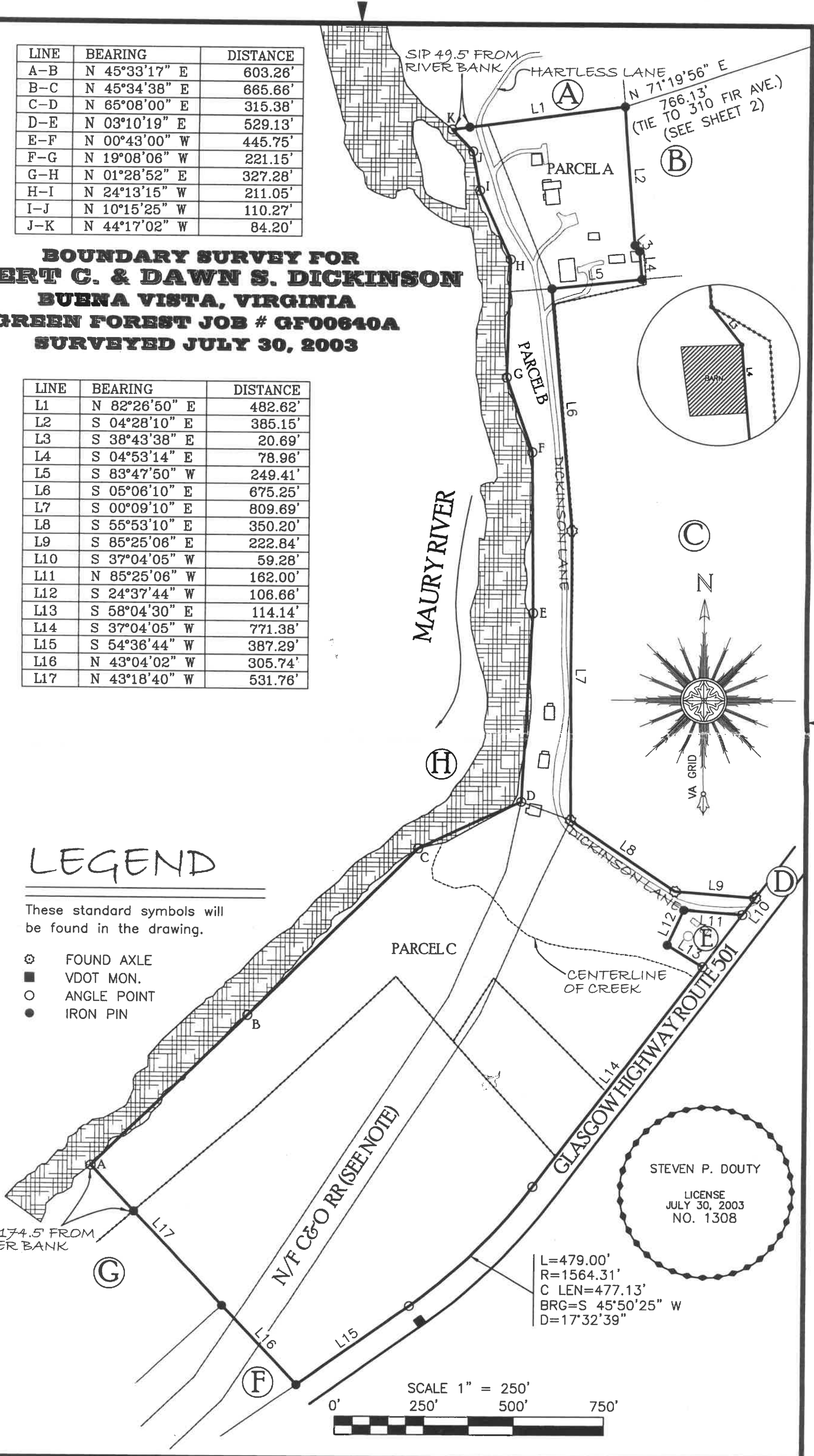
These standard symbols will be found in the drawing.

- ⊙ FOUND AXLE
- VDOT MON.
- ANGLE POINT
- IRON PIN



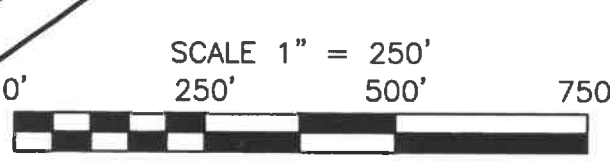
GREEN FOREST SURVEYS
P.O. BOX 428
BUENA VISTA, VA 24416
(540) 261-1077

JOB NO.	GF00640A	SIZE	2	REV.	1	DATE	30JUL2003	DRAWN BY	CJP	SHEET	1 OF 3
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STEVEN P. DOUTY
LICENSE
JULY 30, 2003
NO. 1308

L=479.00'
R=1564.31'
C LEN=477.13'
BRG=S 45°50'25" W
D=17°32'39"



SIP 174.5' FROM RIVER BANK

SIP 49.5' FROM RIVER BANK

N 71°19'56" E
766.13'
(TIE TO 310 FIR AVE.)
(SEE SHEET 2)

N/F C&O RR (SEE NOTE)

DICKINSON LANE
CENTERLINE OF CREEK

HARTLESS LANE

PARCELA

PARCELB

PARCELC

GLASGOW HIGHWAY ROUTE 501

MAURY RIVER

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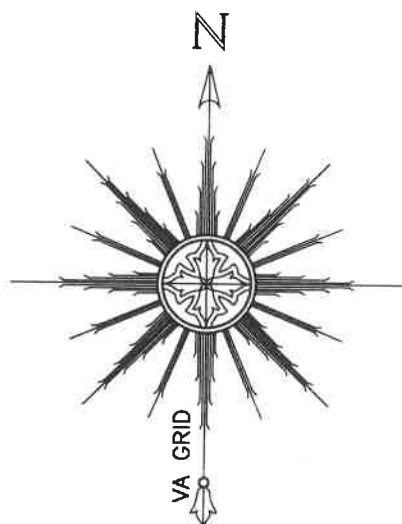
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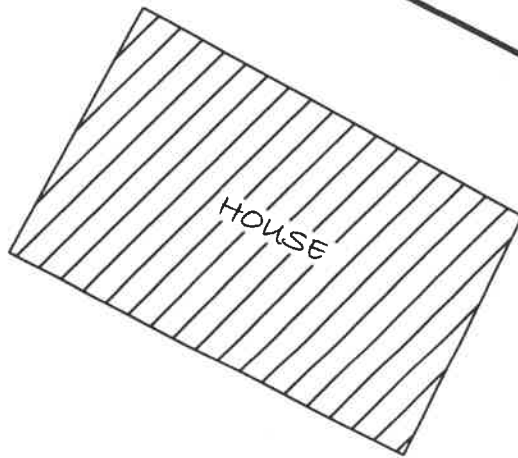


FIR AVENUE

EDGE OF PAVEMENT

DRIVEWAY

LOT 12 BLOCK 21
DB 53 P 413 (COUNTY)



HOUSE

**310 FIR AVENUE
SEE SHEET 3 FOR
AREA AND NOTES**

(J)

(B)

(B)

(B)

N 27°48'30" E
21.92'

N 34°57'41" W
32.24'

N 07°46'05" E
41.01'

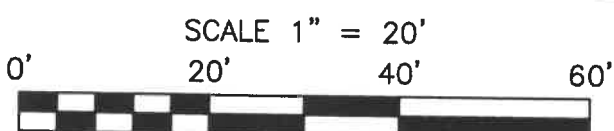
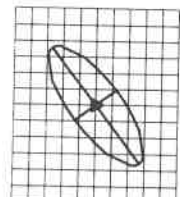
N 71°19'56" E
766.13'
(TIE LINE)
(SEE SHEET 1)

S 63°24'55" E
161.15'

S 68°39'55" E
21.54'

N 65°14'35" W
165.58'

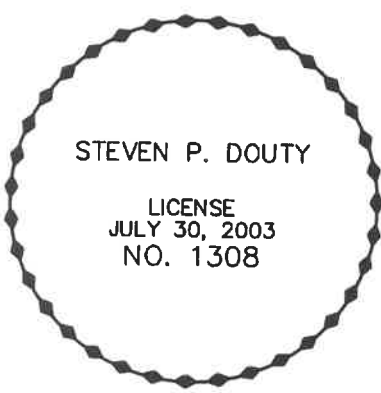
S 08°20'05" W
76.64'



LEGEND

These standard symbols will be found in the drawing.

- ⊗ FOUND AXLE
- VDOT MON.
- ANGLE POINT
- IRON PIN



STEVEN P. DOUTY
LICENSE
JULY 30, 2003
NO. 1308

GREEN FOREST SURVEYS

P.O. BOX 428
BUENA VISTA, VA 24416
(540) 261-1077

JOB NO.	GF00640A	2	1	30JUL2003	CJP	2 OF 3
SIZE	REV.	REV.	DATE	DRAWN BY	SHEET	

NOTES:

THE PROPERTY SHOWN HEREON IS DESCRIBED AS STANDING IN THE NAME OF ROBERT C. AND DAWN S. DICKENSON AS RECORDED IN THE CITY OF BUENA VISTA, VIRGINIA IN DEED BOOK 112 AT PAGE 308 AND SHOWN ON THE CITY TAX MAPS AS PARCEL 61-1-1, 56-A-4, 56-A-3 AND 50-A-4.

THE PROPERTY SHOWN HEREON AS N/F (NOW OR FORMERLY) C & O RAIL ROAD IS LOCATED APPROXIMATELY BASED ON DEED INFORMATION, RAIL ROAD RECORDS AND FIELD EVIDENCE.

THE FOLLOWING SHOULD BE NOTED:

1) DEED BOOK 62 PAGE 94, DEED BOOK SS PAGE 433 AND DEED BOOK SS PAGE 334 ALL INDICATE THAT THE RIGHT OF WAY IS TO BE 100 FEET WIDE, 50 FEET EACH SIDE OF THE CENTER OF THE LEXINGTON OR NORTH RIVER BRANCH OF THE RAILROAD (SUBJECT TO THE RIGHTS OF THE COMMONWEALTH).

2) CHESAPEAKE AND OHIO RAILWAY COMPANY RIGHT OF WAY AND TRACK MAPS V.3-E/5 AND V.3-E/6 ARE NOT IN FULL AGREEMENT WITH STATEMENT 1 ABOVE.

3) NOTES FOUND ON THE TRACK MAPS MENTIONED IN STATEMENT NUMBER 2 ABOVE INDICATE THAT THE LINE HAS BEEN TEMPORARILY ABANDONED AS PER ACT OF ASSEMBLY (VA) APPROVED MARCH 14, 1902 AND THAT LAND OWNERS ARE ALLOWED THE USE OF ABUTTING RIGHT OF WAY UNTIL SUCH TIME AS C & O RESUMES USE OF ITS TRACKS.

4) THE ACT OF ASSEMBLY SAYS (IN PART) "... SO LONG AS THE USE OF SAID RAILWAY SHALL BE SO DISCONTINUED THE OWNERS OF THE LAND THROUGH WHICH SAID LINE OF RAILWAY EXTENDS SHALL BE ENTITLED TO, AND SHALL HAVE THE RIGHT TO, THE UNMOLESTED USE AND OCCUPATION OF THE SAME..."

5) THE LEGAL STATUS OF THE LAND REFERRED TO AS THE C & O RIGHT OF WAY WAS NOT DETERMINED AS A PART OF THIS SURVEY.



THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT AND, THEREFORE, MAY NOT, NECESSARILY, INDICATE ALL ENCUMBRANCES ON THE PROPERTY.

THE ATTACHED PLAT SHOWS THE LARGER CONTIGUOUS TRACT AS THREE PARCELS. THIS DIVISION AS SHOWN IS FOR THE PURPOSE OF DELINEATING THE ACREAGE AND NOT INTENDED AS A SUBDIVISION AS DEFINED BY THE CITY OF BUENA VISTA.

DICKENSON LANE IS NOT PRESENTLY MAINTAINED BY THE CITY. DICKENSON LANE WAS ONCE USED AS A PUBLIC (COUNTY) ROAD. THE STATUS OF DICKENSON LANE WAS NOT DETERMINED AS A PART OF THIS SURVEY.

ADJOINERS:

A) H. P. HARTLESS,
TAX ID 50-A-2,
DB 270 P 235 (COUNTY)

B) REGIONAL IDA
TAX ID 50-A-3
DB 95 P 320 (CITY)

C) EFORAY, L.T.D.
TAX ID 56-A-1
DB 129 P 567 (CITY)

D) COMMONWEALTH OF VIRGINIA
US ROUTE 501
GLASGOW HIGHWAY
66 FOOT RIGHT OF WAY
DB 152 P 255 (COUNTY)

E) CITY OF BUENA VISTA
TAX ID 56-A-4
DB 385 P 454 (COUNTY)

F) CITY OF BUENA VISTA
TAX ID 60-1-10
DB 277 P 18 (COUNTY)

G) BROTHERTON T., SR. & JOYCE B. SNIDER
TAX ID 6-1-1A
DB 77 P 504 (CITY)

H) COMMONWEALTH OF VIRGINIA
MAURY RIVER
SECTIONS 62.1-1 AND 62.1-2 CODE OF VIRGINIA.

J) MONICA C. KISER
DB 121 P 280 (CITY)

THE WESTERN BOUNDARY OF THE PROPERTY SHOWN LIES WITH THE MEANDERS OF THE EAST (SOMETIMES CALLED NORTH) BANK OF THE MAURY RIVER (PREVIOUSLY KNOWN AS THE NORTH FORK OF THE JAMES RIVER OR THE NORTH RIVER) BEARINGS AND DISTANCES FROM POINT A THROUGH POINT K AS GIVEN HEREON ARE FOR THE PURPOSE OF MATHEMATICAL CLOSURE ONLY AND NOT INTENDED TO DEFINE THE BOUNDARY. THE LINES SHOWN AS THE EAST BANK ARE THE RESULT OF A FIELD LOCATION AT THE TIME OF THIS SURVEY.

SUMMARY OF AREA SURVEYED

(41.367 ACRES GROSS)

310 FIR AVENUE (SHEET 2)
0.297 ACRES

PARCEL A
4.418 ACRES GROSS
0.994 ACRES IN RIGHT OF WAY
3.424 ACRES NET IN PARCEL A

PARCEL B
4.068 ACRES GROSS
4.068 ACRES IN RIGHT OF WAY
0.000 ACRES NET IN PARCEL A

PARCEL C
32.584 ACRES GROSS
3.966 ACRES IN RIGHT OF WAY
28.618 ACRES NET IN PARCEL A

TOTAL NET AREA
32.339 ACRES

GREEN FOREST SURVEYS
P.O. BOX 428
BUENA VISTA, VA 24416
(540) 261-1077

JOB NO.	GF00640A
SIZE	2
REV.	1
REV. DATE	30JUL2003
DRAWN BY	CJP
SHEET	3 OF 3

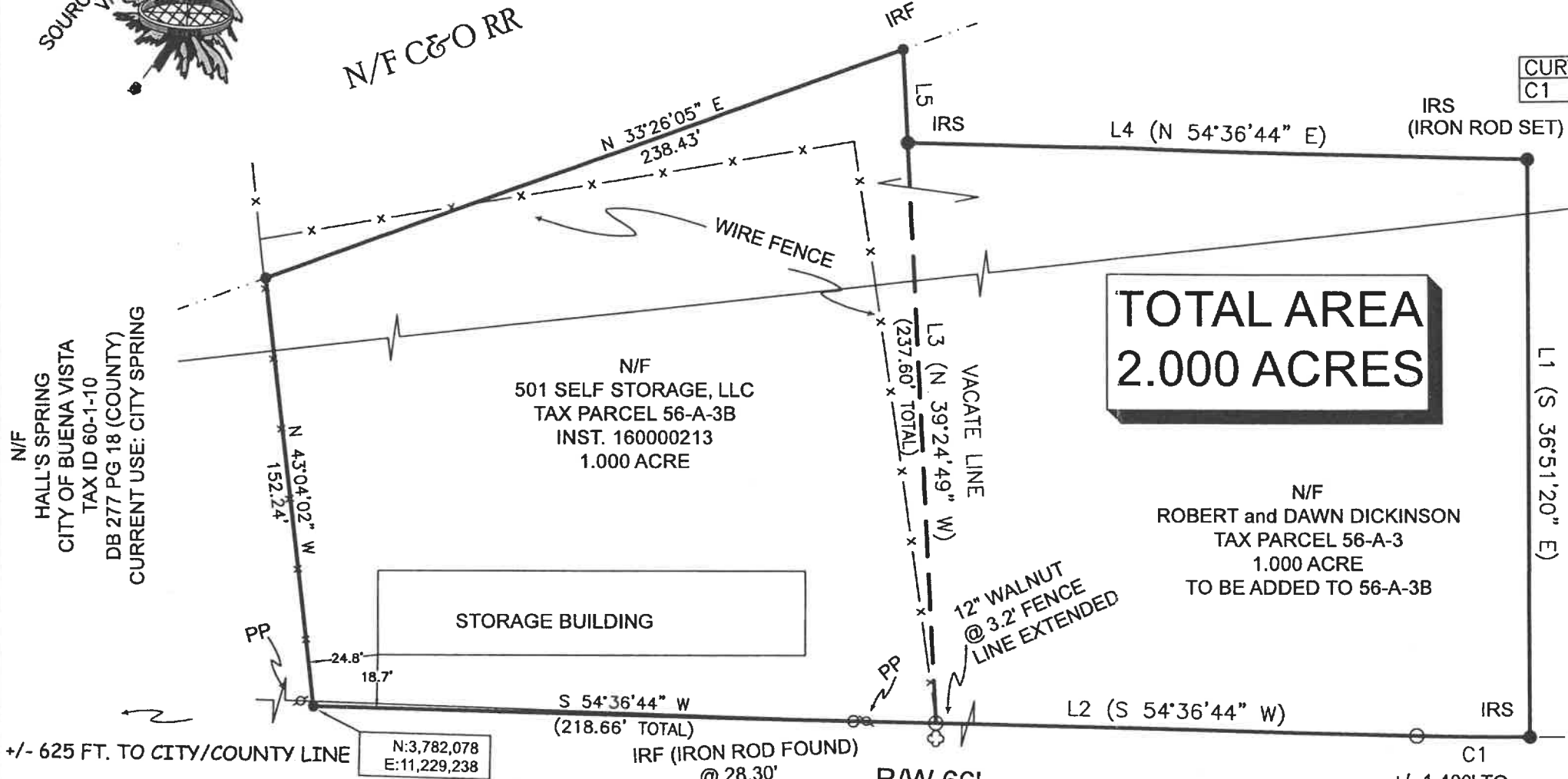
Gm 16-10 Plat sub 1 slide 173 12/5/16



**BOUNDARY ADJUSTMENT FOR
501 SELF STORAGE, LLC
CITY OF BUENA VISTA, VIRGINIA
GREEN FOREST JOB # GF00640F
SURVEYED NOVEMBER 3, 2015**

N/F
ROBERT and DAWN DICKINSON
TAX PARCEL 56-A-3
DB 135 PG 143
PLAT BOOK 1, PAGES 87,88
(RESIDUE 26.618 ACRES)

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	1564.31'	40.08'	S 53°52'42" W	40.08'



**TOTAL AREA
2.000 ACRES**

THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT AND, THEREFORE, MAY NOT, NECESSARILY, INDICATE ALL ENCUMBRANCES ON THE PROPERTY.

THIS PROPERTY LIES IN FLOOD ZONE "X" AS SHOWN ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR ROCKBRIDGE COUNTY, VIRGINIA AND INCORPORATED AREAS. MAP NUMBER 51163C0385 C; EFFECTIVE DATE: APRIL 6, 2000.

LINE	BEARING	DISTANCE
L1	S 36°51'20" E	199.55'
L2	S 54°36'44" W	168.63'
L3	N 39°24'49" W	204.77'
L4	N 54°36'44" E	217.86'
L5	S 39°26'49" E	32.82'

APPROVED BY:

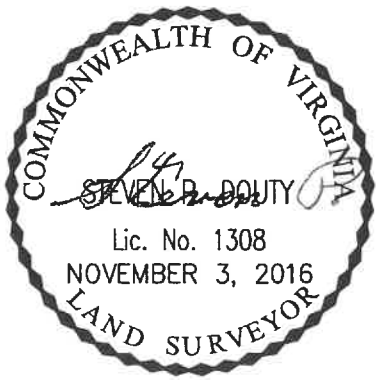
[Signature]

APPROVING OFFICIAL FOR THE CITY OF BUENA VISTA DATE

GLASGOW HIGHWAY (RT. 501)
(MAGNOLIA AVE.)

PROPERTY IS ZONED LIGHT INDUSTRIAL (LI).

A PORTION OF THIS PROPERTY LIES WITHIN OR ADJACENT TO THE TRAVELED WAY OF GLASGOW HIGHWAY (VIRGINIA SECONDARY ROUTE 501), AND IS SUBJECT TO ANY PUBLIC RIGHTS NORMALLY ASSOCIATED WITH A PUBLIC ROAD AND OTHER RIGHTS OR RESTRICTIONS REVEALED BY A TITLE REPORT.



[Signature]



GREEN FOREST SURVEYS
WWW.GREENFORESTSURVEYS.COM

P.O. BOX 428
BUENA VISTA, VA 24416
(540) 261-1077

GF00640F	1	03 NOV 2016	HALL ADJ.	1 OF 1
JOB NO.	REV	REV. DATE	NAME	SHEET



PLANNING COMMISSION Staff Report

Zoning Text Amendment

Sec 507.02-2.02 Private Street design standards

7/1/2022

Synopsis

Update and clarify the specific VDOT road design standard for private streets.

Summary

The road design standards for private streets should be updated to require GS-4 Rural Local Road System or GS-8 Urban Local Street System, whichever is appropriate to the site. This will provide both clarity and flexibility to developers by allowing the site to drive the particular standard applied, but still provide for safe and quality new streets.

Analysis

Current text reads thus:

507.02-2.02 Private streets serving three (3) to ten (10) lots shall be constructed, at a minimum, to VDOT Standards for Mountainous Terrain. Private streets serving eleven (11) or greater lots shall, at a minimum, be designed to VDOT Rolling Terrain Standards. If any single lot to be served by a private street contains three (3) or more dwelling units, the street must be constructed at a minimum to VDOT Rolling Terrain Standards.

The intent was to have a more relaxed road standard for small developments or cul-de-sacs, and slightly more robust road design standards for larger developments. However, staff has dug deeper into the exact specifications and determined that the Mountainous Terrain standard is more than adequate to cover private road developments in Buena Vista, and the Rolling Terrain standard is much greater than necessary.

Design Standards

VDOT has a deep hierarchy of road standards. First it is broken into interstate, rural, and urban road types. Then there are separate design specifications based functional classification, traffic volume, physical terrain, and vehicle design speed. A major highway with high traffic volume supporting speeds over 50 mph obviously needs to be wider and have gentler curves than a back road in the county serving 5 houses. The standards currently references can be found in the GS-4 Geometric Standards for Rural Local Road System (see attached).

Application to Buena Vista

This section only applies to private streets, not public streets, which have a separate but similar set of standards. Possible private street scenarios in Buena Vista:

- Small residential development such as a cul-de-sac off of an existing public street to access lots that do not have frontage
- New residential subdivision where developer/HOA maintains ownership of road and is responsible for maintenance

- Mixed-use development or apartment complex with internal driveways and parking areas

Given these scenarios, the only private streets likely to be built will be relatively short and serve a limited number of residences or businesses. Further, because of the sheer size of the City, it is difficult to imagine any private street long enough to warrant design speeds over 30 or 35 mph, or with a volume over 2000 vehicles per day.

Simpler Requirements

After further research and review with an engineer, staff recommend requiring either GS-4 Rural Local Road System or GS-8 Urban Local Street System and no longer specifying a particular terrain type. The nature of the standards is that particular site conditions and expected volume will drive the particular standard used, so it is not necessary to specify a terrain type. Additionally, the zoning code should explicitly refer to the GS-8 Urban Local Street System also, which may better fit some future projects.

Recommended Text

~~507.02-2.02 Private streets serving three (3) to ten (10) lots shall be constructed, at a minimum, to VDOT Standards for Mountainous Terrain. Private streets serving eleven (11) or greater lots shall, at a minimum, be designed to VDOT Rolling Terrain Standards. If any single lot to be served by a private street contains three (3) or more dwelling units, the street must be constructed at a minimum to VDOT Rolling Terrain Standards.~~

507.02-2.02 Private streets shall be constructed, at a minimum, using the VDOT GS-4 Geometric Design Standards for Rural Local Road System or VDOT GS-8 Geometric Design Standards for Urban Local Street System. The Zoning Administrator must approve which standard is used.

GEOMETRIC DESIGN STANDARDS FOR RURAL LOCAL ROAD SYSTEM (GS-4)

TRAFFIC VOLUME	TERRAIN	DESIGN SPEED (MPH)	MINIMUM RADIUS	(9) MINIMUM STOPPING SIGHT DISTANCE	(2) MINIMUM WIDTH OF SURFACING OR PAVEMENT	(3) (4) (5) MINIMUM WIDTH OF GRADED SHOULDERS CUT & FILL		(6) MINIMUM WIDTH OF DITCH FRONT SLOPE	(7) SLOPE	NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES
						With GR	Without GR			
(1) ADT OVER 2000	LEVEL	50	760'	425'	(10) 22'	10*	6**	6' @ 4:1	CS-4, 4A / 4C	See Footnote (8)
	ROLLING	45	589'	360'					CS-3, 3A / 3B	
		40	446'	305'						
	MOUNTAINOUS	35	316'	250'						
30		215'	200'							
(1) ADT 400 TO 2000	LEVEL	50	760'	425'	22'	7**	3**	6' @ 4:1	CS-1	
	ROLLING	45	589'	360'	20'					
		40	446'	305'						
	MOUNTAINOUS	35	316'	250'						
30		215'	200'							
CURRENT ADT UNDER 400	LEVEL	45	589'	360'	18'	6**	2'	4' @ 3:1	CS-1	
		40	446'	305'						
	ROLLING	35	316'	250'						
		30	215'	200'						
	MOUNTAINOUS	25	135'	155'						
		20	77'	125'						

GENERAL NOTES

Low design speeds are generally applicable to roads with winding alignment in rolling or mountainous terrain where environmental conditions dictate.

High design speeds are generally applicable to roads in level terrain or where other environmental conditions are favorable.

Intermediate design speeds would be appropriate where terrain and other environmental conditions are a combination of those described for low and high speed.

For minimum design speeds for 250 ADT and under, see AASHTO Green Book, Chapter 5, Section 5.2.1, Table 5-1.

Standard TC-5.11R superelevation based on 8% maximum is to be used.

In incorporated towns or other built-up areas, Urban Standard GS-8 may be used. "Built-up" is where there is sufficient development along the roadway that justifies a need to channelize traffic into and out of properties utilizing curb and gutter.

For Passing Sight Distance Criteria See AASHTO Green Book, Chapter 3, Section 3.2.4.

For maximum grades relative to terrain and design speed, see AASHTO Green Book, Chapter 5, Section 5.2.1, Table 5-2.

For Recreational Access Road design standards, see AASHTO Green Book, Chapter 5, Section 5.4.2.

FOOTNOTES

- (1) Use Design Year ADT for new construction and reconstruction projects in accordance with *Road Design Manual*, Chapter 2A, "REQUEST FOR TRAFFIC DATA" and Form *LD-104*. For RRR projects or roads with ADT < 2000, See Road Design Manual, Appendix A, "GUIDELINES FOR RRR PROJECTS."
- (2) Lane width to be 12' at all interchange locations.
- (3) In mountainous terrain or sections with heavy earthwork, the graded width of shoulder in cuts may be decreased by 2', but in no case shall the cut shoulder width be less than 2'.
- (4) Minimum shoulder slope shall be 8% on low side and same slope as pavement on high side (See St'd. GS-12).
- (5) When the mainline is 2 lanes provide 4' wide paved shoulders (right and left) when design year ADT exceeds 2000 VPD, with 5% or more truck and bus usage. Provide 5' wide paved shoulder when design year ADT exceeds 2000 VPD, with 5% or more truck and bus usage and the route is an AASHTO approved U.S. Bicycle Route (1, 76 or 176) or designated as a bicycle route on a locally adopted transportation plan All shoulders not being paved will have the mainline pavement structure extended 1' on the same slope into the shoulder to eliminate raveling at the pavement edge. For additional guidance on shoulder widths, see AASHTO Green Book, Chapter 5, Section 5.2.2.
- (6) A hydraulic analysis is necessary to determine actual depth requirement.
- (7) Additional or modified slope criteria to be applied where shown on typical sections.
- (8) See *Manual of the Structure and Bridge Division - Volume V - Part 2 Design Aids - Chapter 6 Geometrics*.
- (9) For additional information on sight distance requirements on grades of 3 percent or greater, see AASHTO Green Book, Chapter 3, Section 3.2.2, Table 3-2.
- (10) Consider using a lane width of 12 ft. where substantial truck volumes are present or agricultural equipment frequently uses the road. See AASHTO Green Book, Chapter 5, Section 5.2.21, Table 5-5 footnote b.

GEOMETRIC DESIGN STANDARDS FOR URBAN LOCAL STREET SYSTEM (GS-8)

	DESIGN SPEED (MPH)	MINIMUM RADIUS		(1) MAXIMUM PERCENT OF GRADE	(10) MINIMUM STOPPING SIGHT DISTANCE	(2) MINIMUM WIDTH OF LANE	(3) STANDARD CURB / CURB & GUTTER	BUFFER STRIP WIDTH	(5) MINIMUM SIDEWALK WIDTH	(6) SLOPE	NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES
		U	ULS								
STREET WITH CURB & GUTTER	30	251'	273'	15	200'	10'	(12) CG-2 / CG-6	(4)	5'	2:1	
	25	155'	167'		155'						
	20	87'	92'		125'						
	DESIGN SPEED (MPH)	MINIMUM RADIUS		(1) MAXIMUM PERCENT OF GRADE	(10) MINIMUM STOPPING SIGHT DISTANCE	(2) MINIMUM WIDTH OF LANE	(7) (11) MINIMUM WIDTH OF GRADED SHOULDERS CUT & FILL		(8) MINIMUM WIDTH OF DITCH FRONT SLOPE	SLOPE	See Footnote (9)
		U	ULS				With GR	Without GR			
(11) STREET WITH SHOULDER DESIGN	30	251'	273'	15	200'	10'	REFER TO MINIMUM WIDTH OF GRADED SHOULDERS CUT AND FILL FOR GS-4		4' @ 3:1	3:1	
	25	155'	167'		155'						
	20	87'	92'		125'						

GENERAL NOTES

Design Speed is not a major factor for local streets. For consistency in design elements, design speeds ranging from 20 to 30 mph may be used, depending on available right of way, terrain, adjacent development and other area controls.

In the typical street grid, the closely spaced intersections usually limit vehicular speeds, making the effect of a design speed of less significance.

Design speeds exceeding 30 mph in residential areas may require longer sight distances and increased curve radii, which would be contrary to the basic function of a local street.

Standard TC-5.11U (Urban) superelevation based on 4% maximum.

Standard TC-5.11ULS (Urban Low Speed) superelevation based on +2% maximum may be used with a design speed of 45 mph or less.

*For Standard TC-5.11 ULS superelevation based on -2%, please refer to Road and Bridge Standards 803.23.

For minimum widths for roadway and right of way used within incorporated cities or towns to qualify for maintenance funds see [Code of Virginia Section 33.2-319](#).

FOOTNOTES

- (1) Grades in commercial and industrial areas should be less than 8 percent; desirably, less than 5 percent. For maximum grades relative to terrain and design speed, see AASHTO Green Book, Chapter 5, Section 5.2.1, Table 5-2.
- (2) Where feasible, lanes should be 11' wide and in industrial areas should be 12' wide; however, where available or attainable right of way imposes severe limitations, 9' lanes can be used in residential areas and 11' lanes can be used in industrial areas.

- (3) Or equivalent City or Town design.
- (4) For buffer strip widths see [Appendix A\(1\), Section A\(1\)-1 Bicycle & Pedestrian Facility Guidelines](#).
- (5) A width of 8' or more may be needed in commercial areas.
- (6) 3:1 and flatter slopes shall be used when the right of way is behind the sidewalk (or sidewalk space) in residential or other areas where slopes will be maintained by the property owner.
- (7) When Design year ADT exceeds 2000 VPD, with greater than 5% total truck and bus usage: Provide 4' wide paved shoulders when the graded shoulder is 5' wide or greater. Provide 5' wide paved shoulder when design year ADT exceeds 2000 VPD, with 5% or more truck and bus usage and the route is an AASHTO approved U.S. Bicycle Route (1, 76 or 176) or designated as a bicycle route on a locally adopted transportation plan. All shoulders not being paved will have the mainline pavement structure extended 1', on the same slope, into the shoulder to eliminate raveling at the pavement edge (See Standard GS-12 for shoulder design).
- (8) A hydraulic analysis is necessary to determine actual depth requirement.
- (9) See [Manual of the Structure and Bridge Division – Volume V – Part 2 Design Aids – Chapter 6 Geometrics](#).
- (10) For additional information on sight distance requirements on grades of 3 percent or greater, see AASHTO Green Book, Chapter 3, Section 3.2.2, Table 3-2.
- (11) For information on reduced shoulder widths, see AASHTO Green Book, Chapter 5, Section 5.2.2, Table 5-5.
- (12) Where bicycle accommodation is next to curb or curb and gutter, mountable curb (CG-3) or mountable curb and gutter (CG-7) shall be used for design speeds of 45 mph and below.