



**APPLICATION ACCEPTED:** August 5, 2015  
**PLANNING COMMISSION:** January 27, 2016  
Admin. Moved to February 17, 2016  
**BOARD OF SUPERVISORS:** TBD

## County of Fairfax, Virginia

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February 10, 2016

**STAFF REPORT ADDENDUM**  
**APPLICATION RZ 2015-HM-010**  
**HUNTER MILL DISTRICT**



**APPLICANTS:** Christopher W. Warner and Mary J. Warner

**PRESENT ZONING:** R-1: Residential, One Dwelling Unit/Acre

**REQUESTED ZONING:** R-3: Residential, Three Dwelling Units/Acre

**PARCEL:** 28-3 ((1)) 46

**LOCATION:** 9717 Clarks Crossing Road, Vienna, 22182

**SITE AREA:** 1.34 acres

**PROPOSED DENSITY:** 2.25 dwelling units per acre (du/ac)

**PLAN MAP:** Residential; 2-3 du/ac

**PROPOSAL:** To retain the existing dwelling and rezone the property from R-1 to R-3 to permit the construction of 2 new single family detached dwelling units and waiver of the minimum lot width requirements.

### **STAFF RECOMMENDATIONS:**

Staff recommends approval of RZ 2015-HM-010 subject to the execution of proffers consistent with those contained in Appendix 1.

Staff recommends approval of a modification of Section 9-610 of the Zoning Ordinance, to permit the width of Lot 3 to be a minimum of 10 feet wide.

*Laura B. Arseneau*

It should be noted that it is not the intent of staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicants/owners from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be further noted that the content of this report reflects the analysis and recommendation of staff; it does not reflect the position of the Board of Supervisors.

The approval of this application does not interfere with, abrogate or annul any easements, covenants, or other agreements between parties, as they may apply to the property subject to this application

For information, contact the Zoning Evaluation Division, Department of Planning and Zoning, 12055 Government Center Parkway, Suite 801, Fairfax, Virginia 22035-5505, (703) 324-1290.



Americans with Disabilities Act (ADA): Reasonable accommodation is available upon 48 hours advance notice. For additional information on ADA call (703) 324-1334 or TTY 711 (Virginia Relay Center).

# Rezoning Application

RZ 2015-HM-010



Applicant: CHRISTOPHER W. WARNER AND MARY J. WARNER

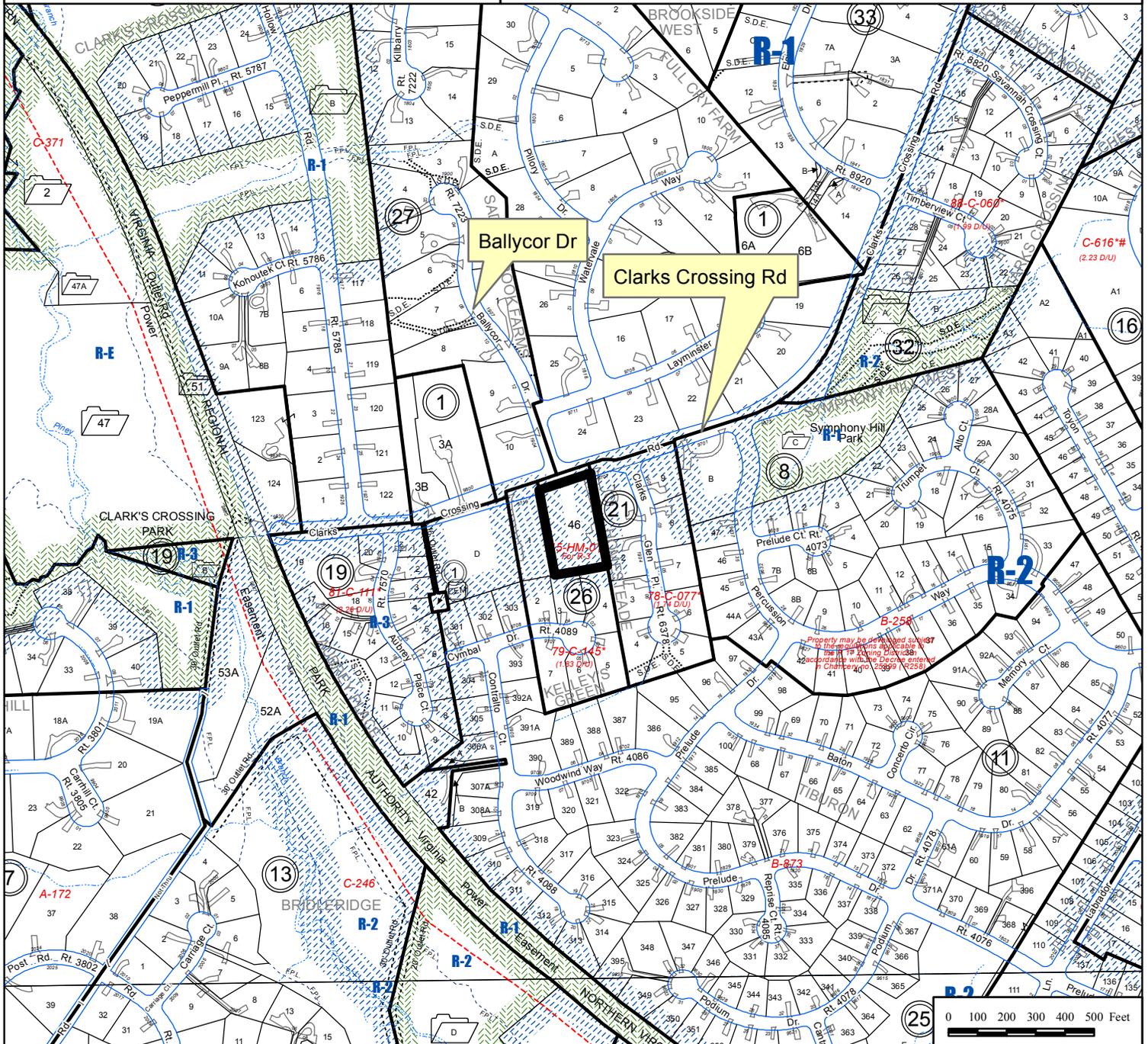
Accepted: 08/05/2015  
Proposed: RESIDENTIAL AND WAIVER OF MINIMUM LOT WIDTH

Area: 1.34 AC OF LAND; DISTRICT - HUNTER MILL

Zoning Dist Sect: SOUTH SIDE OF CLARKS CROSSING ROAD AT  
Located: ITS INTERSECTION WITH BALLYCOR DRIVE

Zoning: FROM R- 1 TO R- 3

Overlay Dist:  
Map Ref Num: 028-3- /01/ /0046





**SMITH ENGINEERING**  
 PROJECT: 171-01  
 ANTHONY VENAARO  
 703-956-6204  
 Anthony@SMITHEngineeringVA.com  
 14901 BOGLE DRIVE SUITE 202  
 CHANTILLY, VA 20151

DATE	PLAN STATUS
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12/18/15	SUBMIT TO FFX DPZ
01/19/16	SUBMIT TO FFX DPZ
01/29/16	SUBMIT TO FFX DPZ

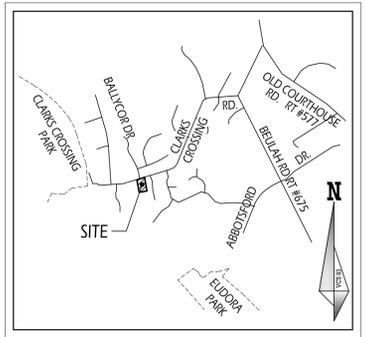
SCALE: AS SHOWN  
 DATE: JULY 1, 2015  
 SHEET: 1 OF 7

# GENERALIZED DEVELOPMENT PLAN (GDP) FOR **WARNER SUBDIVISION** HUNTER MILL DISTRICT FAIRFAX COUNTY, VIRGINIA

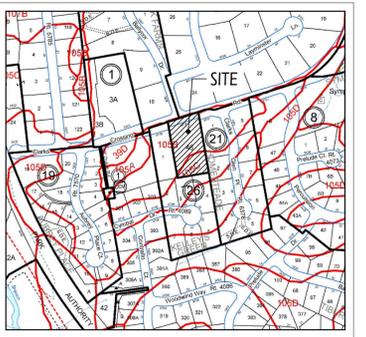
RZ 2015-0215

### GENERAL NOTES

- THIS SITE CONSISTS OF THE FOLLOWING PARCEL:  
 TAX MAP # AREA (SF/AC) DB PG ADDRESS  
 028-3 (011) 0046 58,191 / 1.3359 06340 0417 9717 CLARKS CROSSING ROAD
- THE PURPOSE OF THIS APPLICATION IS TO REZONE THE SUBJECT PROPERTY FROM R-1 TO THE R-3 DISTRICT AND REQUEST A REDUCTION OF LOT WIDTH FROM 80' (REQUIRED PER R-3) TO 10' (FOR LOT #3).
- THE COMPREHENSIVE PLAN RECOMMENDS RESIDENTIAL DEVELOPMENT AT A DENSITY OF 2-3 DWELLING UNITS PER ACRE FOR THIS PROPERTY. THE PROPOSED DENSITY OF 2.25 DWELLING UNITS PER ACRE MEET THE INTENT OF THE COMPREHENSIVE PLAN.
- BOUNDARY SURVEY PERFORMED BY TARGET SURVEYS, INC. DATED APRIL 10, 2015.
- FIELD RUN TOPOGRAPHIC SURVEY PERFORMED BY TARGET SURVEYS, INC. DATED APRIL 10, 2015.
- EXISTING USE: SINGLE FAMILY DETACHED
- PROPOSED USE: SINGLE FAMILY DETACHED
- THE SITE IS CURRENTLY SERVED BY PRIVATE WATER AND SEPTIC.
- AN EXISTING WELL IS LOCATED ON SITE AND IS CURRENTLY BEING UTILIZED BY EXISTING DWELLING.
- UPON SITE INSPECTION, THERE ARE NO APPARENT BURIAL STRUCTURES OR GRAVE SITES ON THIS SITE.
- THE PROPERTY IS NOT IMPACTED BY A FEMA 100-YEAR FLOODPLAIN. THE SITE IS LOCATED WITHIN FLOOD ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% CHANCE OF FLOODPLAIN, PER FIRM MAP NUMBER 5109C0145 E EFFECTIVE DATE SEPTEMBER 17, 2010.
- EXISTING STRUCTURES ARE ONLY TO BE REMOVED AS SHOWN ON SHEET 2 AS NOTED.
- THIS DEVELOPMENT SHALL CONFORM TO THE PROVISIONS OF APPLICABLE ORDINANCES, REGULATIONS, AND ADOPTED STANDARDS EXCEPT AS NOTED HEREIN.
- THE DEVELOPMENT WILL MEET THE PARKING REQUIREMENTS AS SET FORTH IN ARTICLE 11 OF THE ZONING ORDINANCE.
- THERE ARE NO KNOWN WETLANDS OR RESOURCE PROTECTION AREAS ON THE PROPERTY. REGULATIONS REGARDING ENVIRONMENTAL QUALITY CORRIDORS DO NOT APPLY TO THIS DEVELOPMENT.
- THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES, AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS, PARTS 116.4, 302.4 AND 355, AND / OR ALL HAZARDOUS WASTE AS SET FORTH IN COMMONWEALTH OF VIRGINIA DEPARTMENT OF WASTE MANAGEMENT VR 672-10-1- VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS, AND / OR PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 280; TO BE GENERATED, UTILIZED, STORED, TREATED, AND / OR DISPOSED OF ON SITE.
- THERE ARE NO KNOWN UTILITY EASEMENTS 25 FEET OR MORE IN WIDTH ON THE PROPERTY.
- THE APPLICANT RESERVES THE RIGHT TO MAKE MINOR MODIFICATIONS TO THE LOT LAYOUT, BUILDING FOOTPRINT SIZE, SHAPE SHOWN ON THIS GDP/FDP BASED ON FINAL ENGINEERING AND ARCHITECTURAL DESIGN.
- THERE ARE NO SCENIC ASSETS OR NATURAL FEATURES ON THIS SITE WORTHY OF PRESERVATION.
- UTILITIES SHOWN HEREON ARE CONCEPTUAL. SIZE, LOCATION AND MATERIAL ARE SUBJECT TO REVISION WITH FINAL ENGINEERING.
- THE PROPOSED AND EXISTING DWELLING UNITS SHALL CONNECT TO PUBLIC SEWER AS SHOWN HEREIN.
- THE PROPOSED DWELLING, AT THEIR DISCRETION, MAY CHOOSE TO ABANDON THE EXISTING WELL OR CONNECT TO PUBLIC WATER.
- LOTS 2 AND 3 SHALL BE SERVED BY PUBLIC WATER.
- RESOURCE PROTECTION AREA (RPA) DOES NOT EXIST ON THE SUBJECT PROPERTY.
- THE APPLICATION HAS BEEN DESIGNED WITH THE INTENTION OF PRESERVING EXISTING VEGETATION WHICH IS IN GOOD CONDITION TO EXTENT FEASIBLE.
- SWM/BMP WILL BE MET THROUGH THE IMPLEMENTATION OF WATER QUALITY AND QUANTITY FACILITIES AS PRELIMINARY SHOWN HEREIN. FACILITY TYPES AND DESIGN SHOWN HEREIN IS PRELIMINARY AND IS SUBJECT TO MODIFICATION UPON FINAL ENGINEERING BASED ON FINAL GRADING, SUBSURFACE SOIL TESTING AND THE ULTIMATE AMOUNT OF IMPERVIOUS AREA.

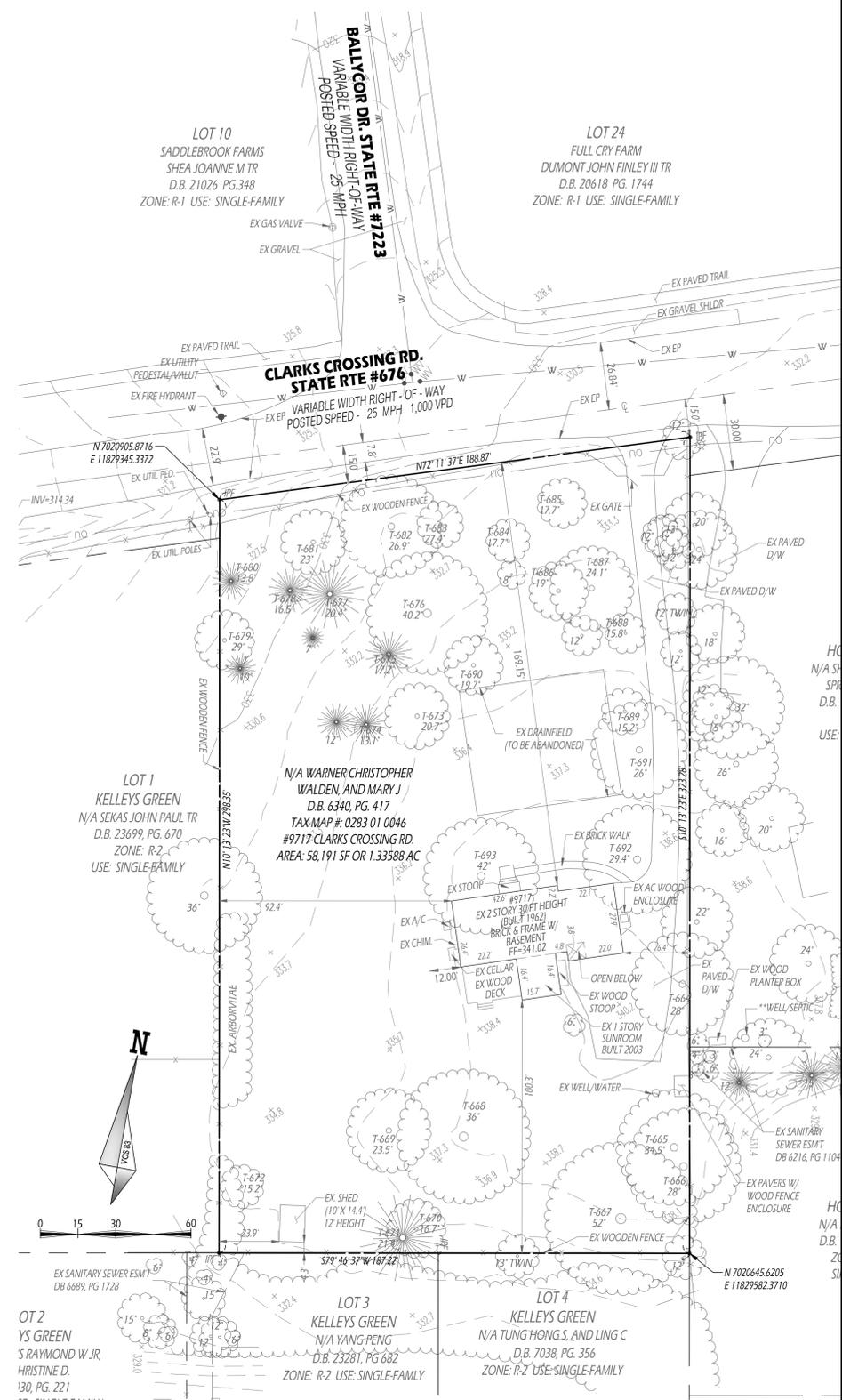


VICINITY MAP  
 SCALE: 1" = 2,000'

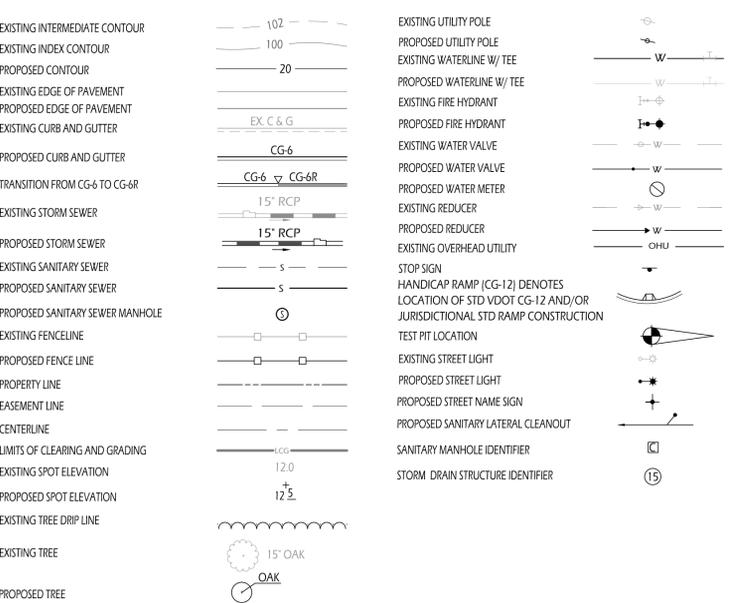


SOILS MAP  
 SCALE: 1" = 500'  
 SOILS MAP SOURCE: COUNTY MAP

SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	ERODABILITY	PROBLEM CLASS
105B	WHEATON-CLENELG COMPLEX	GOOD	0.06 to 2.0	2-7%	HIGH	IVB
105C	WHEATON-CLENELG COMPLEX	GOOD	0.06 to 2.0	7-15%	HIGH	IVB



### LEGEND



**APPLICANT/OWNER**  
 CHRISTOPHER WALDEN,  
 AND MARY J. WARNER  
 9717 CLARKS CROSSING ROAD  
 VIENNA, VIRGINIA 22182

**LAND USE ATTORNEY**

**WALSH, COLUCCI, LUBELY & WALSH**  
 COURTHOUSE PLAZA, 2200 CLARENDON BLVD.,  
 13TH FLOOR  
 ARLINGTON, VIRGINIA 22201  
 (703) 528-4700

**CIVIL ENGINEER**

**SMITH ENGINEERING**  
 14901 BOGLE DRIVE SUITE 101  
 CHANTILLY, VIRGINIA 20151  
 (703) 956-6204

### ZONING & AREA TABULATION

1) ZONING	EXISTING - R-1	PROPOSED - R-3	
2) AVERAGE LOT AREA		R-3 11,500	(SQ. FT.)
3) MIN. LOT AREA		10,500	(SQ. FT.)
4) MIN. LOT WIDTH		80 *	(FT.)
5) MAX. BUILDING HEIGHT		35	(FT.)
6) NUMBER OF FLOORS		N/A	
7) MIN. YARD REQUIREMENTS:			
	FRONT	30 (FT.)	SIDE 12 (FT.) REAR 25 (FT.)
8) MAXIMUM FAR		N/A	
9) MAXIMUM DENSITY		3	(D.U./AC.)
10) OPEN SPACE REQUIRED		0 %	(SQ. FT.)
	FRONT	N/A	SIDE N/A REAR N/A
11) ANGLE OF BULK PLANE:			
	(DETAIL(S) ON SHEET ...)		
12) OVERLAY DISTRICT(S)		NONE	

### PRELIMINARY SUBDIVISION TABULATIONS

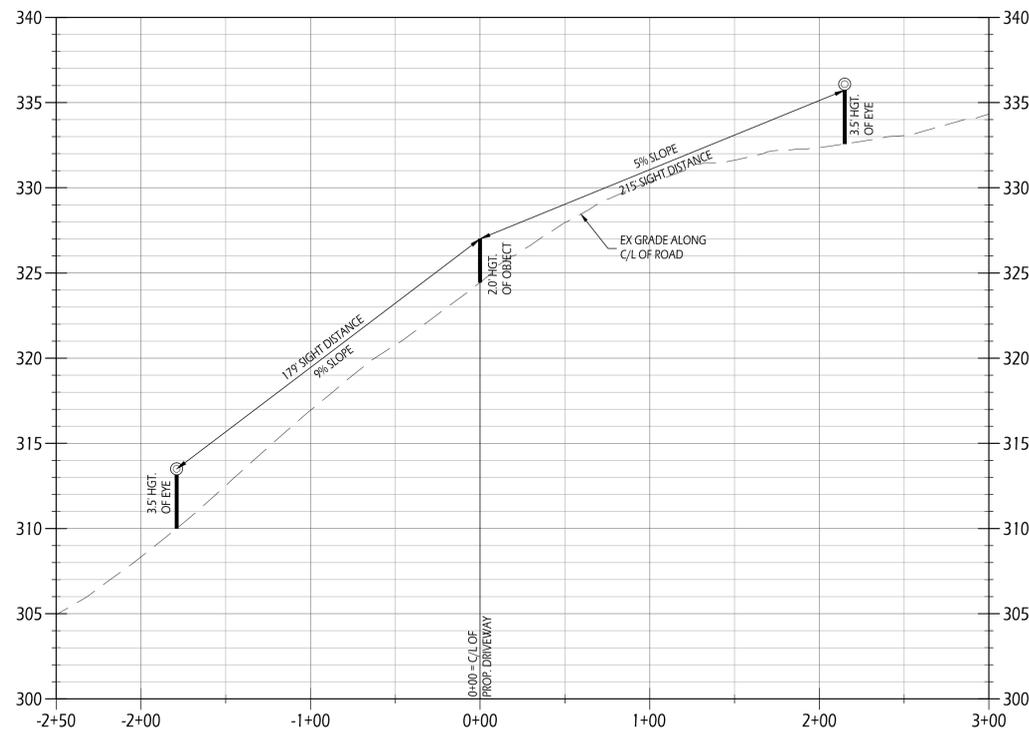
1) SITE AREA	1.3359	(ACRES)	58,191	(SQ. FT.)
2) AREA OF STREET DEDICATION			± 2,833	(SQ. FT.)
3) USE			SINGLE FAMILY DETACHED	
4) NUMBER OF LOTS			3	
5) AREA OF LOTS			± 55,358	(SQ. FT.)
6) AVERAGE LOT AREA			± 18,452	(SQ. FT.)
7) MEDIAN LOT AREA			± 20,126	(SQ. FT.)
8) MINIMUM LOT AREA			± 12,882	(SQ. FT.)
9) DENSITY			± 2.25	(D.U./AC.)
10) PROPOSED BUILDING HEIGHT			35' MAX.	
11) TOTAL PARKING SPACES REQUIRED			2.0/UNIT	
12) TOTAL PARKING SPACES PROVIDED			2.0/UNIT MIN.	

### EXISTING CONDITIONS

SCALE: 1" = 30'

### SHEET INDEX

- COVER SHEET
- GENERALIZED DEVELOPMENT PLAN
- STORMWATER MANAGEMENT PLAN
- OUTFALL ANALYSIS
- EXISTING VEGETATION MAP
- TREE PRESERVATION & PROTECTION PLAN
- TREE PRESERVATION NARRATIVE



PROPOSED DRIVEWAY  
STOPPING SIGHT DISTANCE  
CLARKS CROSSING RD, STATE RTE. #676  
POSTED SPEED: 25 MPH  
ASSUMED DESIGN SPEED: 30 MPH  
SCALE: HOR 1" = 50'  
VERT 1" = 5'

Design Speed (mph)	Stopping Sight Distance on Grades					
	Downgrades			Upgrades		
	3%	6%	9%	3%	6%	9%
15	80	82	85	75	74	73
20	116	120	126	109	107	104
25	158	165	173	147	143	140
30	205	215	227	200	184	179

Lot Number	Lot Perimeter (P) (ft.)	Lot Area (A) (sq. ft.)	Lot Shape Factor (SF)
1	789.07	27,370	22.75
2	445.73	12,882	15.42
3	725.1	15,106	34.81

**NOTES**

- PRESERVATION OF VARIOUS EXISTING VEGETATION ALONG THE PERIMETER OF THE PROPERTY SHALL HELP PROTECT FROM ANY ADVERSE VISUAL AFFECTS OF THIS DEVELOPMENT.
- PROPOSED BUILDING FOOTPRINTS ARE CONCEPTUAL AND SHOWN ONLY TO REPRESENT POSSIBLE ARCHITECTURE AND APPROXIMATE IMPERVIOUS AREAS.
- UPON APPROVAL OF THE FINAL SUBDIVISION PLAN INDIVIDUAL LOT GRADING PLANS WILL BE PREPARED AND SUBMITTED TO SHOW THE ULTIMATE DESIGN AND FOOTPRINT FOR LOTS 2 AND 3.
- 30' OF RIGHT-OF-WAY MEASURED FROM THE CENTERLINE ALONG THE FRONTAGE OF CLARKS CROSSING ROAD SHALL BE DEDICATED AS REQUIRED BY FCDOT AND VDOT. FRONTAGE IMPROVEMENTS INCLUDING SHOULDER AND DITCH SECTION AS SHOWN ON THIS SHEET WILL BE CONSTRUCTED AS PART OF THE DEVELOPMENT OF THIS PROJECT.
- DEVELOPMENT SHALL OCCUR IN A SINGLE PHASE.
- LIMITS OF CLEARING AND GRADING IS SUBJECT TO MINOR ADJUSTMENTS UPON FINAL ENGINEERING AND FINAL STORMWATER MANAGEMENT DESIGN.
- THE OWNER/APPLICANT RESERVES THE RIGHT TO CONNECT THE DEVELOPMENT TO PUBLIC SEWER VIA EXISTING EASEMENTS WHICH EXTEND TO THE EASTERN AND SOUTHERN PROPERTY LINES IF DEEMED FEASIBLE UPON FINAL ENGINEERING.
- FOR MORE INFORMATION ON SWM/BMP FACILITIES SEE SHEET 3.
- FOR DETAILED INFORMATION ON THE CONDITION OF EXISTING VEGETATION AND WHICH TREES ARE ANTICIPATED TO BE PRESERVED WITH THIS DEVELOPMENT SEE SHEETS 4-6.
- WATER QUALITY AND QUANTITY CONTROL FACILITIES LOCATED ON INDIVIDUAL LOTS ARE TO BE PRIVATELY MAINTAINED AND LOCATED IN ACCORDANCE WITH THE SETBACKS ESTABLISHED IN THE PFM AND THE BMP CLEARINGHOUSE.
- PROPOSED LANDSCAPING SHOWN HEREIN IS SUBJECT TO MINOR MODIFICATIONS WITH FINAL ENGINEERING. EXACT SPECIES AND LOCATION OF PROPOSED PLANTINGS MAY BE ADJUSTED TO ACCOMMODATE FINAL GRADING, BUILDING ARCHITECTURE AND UTILITY DESIGN PROVIDED THAT THE FINAL LANDSCAPE PLAN IS IN SUBSTANTIAL CONFORMANCE WITH THAT SHOWN HEREIN.
- MINIMUM CALIPER OF AT TIME OF PLANTING SHALL BE 2.0 INCHES.
- TBR - DENOTES 'TO BE REMOVED'

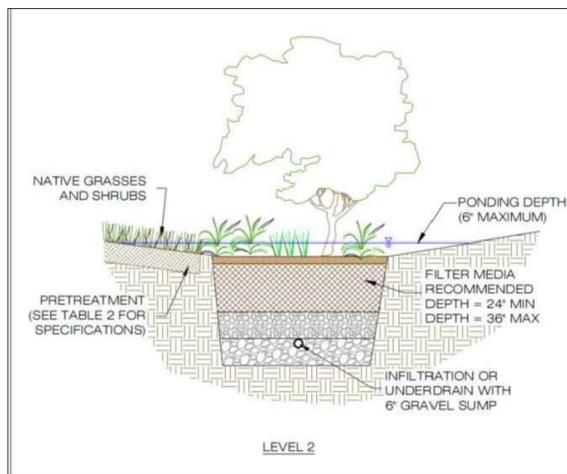
**MINIMUM STORM WATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS**

THE FOLLOWING INFORMATION IS REQUIRED TO BE SHOWN OR PROVIDED IN ALL ZONING APPLICATIONS, OR A WAIVER REQUEST OF THE SUBMISSION REQUIREMENT WITH JUSTIFICATION SHALL BE ATTACHED.  
NOTE: WAIVERS WILL BE ACTED UPON SEPARATELY. FAILURE TO ADEQUATELY ADDRESS THE REQUIRED SUBMISSION INFORMATION MAY RESULT IN A DELAY IN PROCESSING THIS APPLICATION.

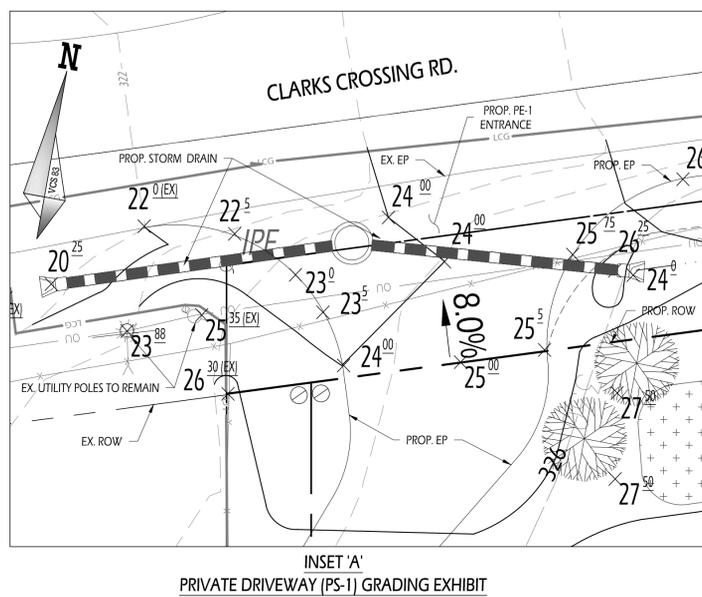
THIS INFORMATION IS REQUIRED UNDER THE FOLLOWING ZONING ORDINANCE PARAGRAPHS:  
SPECIAL PERMITS (9-011 2J & 2L) SPECIAL EXCEPTIONS (9-011 2J & 2L)  
CLUSTER SUBDIVISION (9-615 1G & 1N) COMMERCIAL REVITALIZATION DISTRICTS (9-622 2A (12)&(14))  
DEVELOPMENT PLANS PRC DISTRICT (16-302 2 & 4L) PRC PLAN (16-303 1E & 10)  
FDP P DISTRICTS (EXCEPT PRC) 916-502 1 F & 1Q) AMENDMENTS (18-202 L OF & 101)

- PLAT IS AT A MINIMUM SCALE OF 1"=50' (UNLESS IT IS DEPICTED ON ONE SHEET WITH A MINIMUM SCALE OF 1"=100).
- A GRAPHIC DEPICTING THE STORMWATER MANAGEMENT FACILITY(IES) AND LIMITS OF CLEARING AND GRADING ACCOMMODATE THE STORMWATER MANAGEMENT FACILITY(IES), STORM DRAINAGE PIPE SYSTEMS AND OUTLET PROTECTION, POND SPILLWAYS, ACCESS ROADS, SITE OUTFALLS, ENERGY DISSIPATION DEVICES, AND STREAM STABILIZATION MEASURES AS SHOWN ON PROVIDE:  
FACILITY NAME/ TYPE & NO. ON-SITE AREA SERVED (AC) OFF-SITE AREA SERVED (AC) DRAINAGE AREA SERVED (AC) FOOTPRINT AREA (SF) STORAGE VOLUME (CF) IF POND, DAM HEIGHT (FT)  
SWM A1 (BIO LV2) ±0.16 0 ±0.16 ±310 ± 372 N/A  
SWM A2 (BIO LV2) ±0.18 0 ±0.18 ±260 ± 406 N/A  
SWM A3 (BIO LV2) ±0.08 0 ±0.08 ±130 ± 154 N/A  
SWM A4 (BIO LV2) ±0.12 0 ±0.12 ±240 ± 327 N/A  
SWM B1 (BIO LV2) ±0.15 0 ±0.15 ±250 ± 297 N/A  
SWM B2 (BIO LV2) ±0.09 0 ±0.09 ±120 ± 134 N/A

- ONSITE DRAINAGE CHANNELS, OUTFALLS AND PIPE SYSTEMS ARE SHOWN ON THIS SHEET.
- MAINTENANCE ACCESS (ROAD) TO STORMWATER MANAGEMENT FACILITY (IES) ARE SHOWN ON N/A (PRIVATELY MAINTAINED).
- LANDSCAPING AND TREE PRESERVATION SHOWN IN AND NEAR THE STORMWATER MANAGEMENT FACILITY IS SHOWN ON SHEETS 5-7.
- A 'STORMWATER MANAGEMENT NARRATIVE' WHICH CONTAINS A DESCRIPTION OF HOW DETENTION AND BEST MANAGEMENT PRACTICES REQUIREMENTS WILL BE MET IS PROVIDED ON SHEET 3.
- A DESCRIPTION OF THE EXISTING CONDITIONS OF EACH NUMBERED SITE OUTFALL EXTENDED DOWNSTREAM FROM THE SITE TO A POINT WHICH IS AT LEAST 100 TIMES THE SITE AREA OR WHICH HAS A DRAINAGE AREA OF AT LEAST ONE SQUARE MILE (640 ACRES) IS PROVIDED ON SHEET 4.
- A DESCRIPTION OF HOW THE OUTFALL REQUIREMENTS, INCLUDING CONTRIBUTING DRAINAGE AREAS OF THE PUBLIC FACILITIES MANUAL WILL BE SATISFIED IS PROVIDED ON THIS SHEET 4.
- EXISTING TOPOGRAPHY WITH MAXIMUM CONTOUR INTERVALS OF TWO (2) FEET AND A NOTE AS TO WHETHER IT IS AN AIR SURVEY OR FIELD RUN IS PROVIDED. (SEE SHEET 1 FOR NOTE AND SHEET 1 AND 2 FOR EXISTING TOPOGRAPHY.)
- SUBMISSION WAIVER IS REQUESTED FOR N/A
- STORMWATER MANAGEMENT IS NOT REQUIRED BECAUSE: N/A

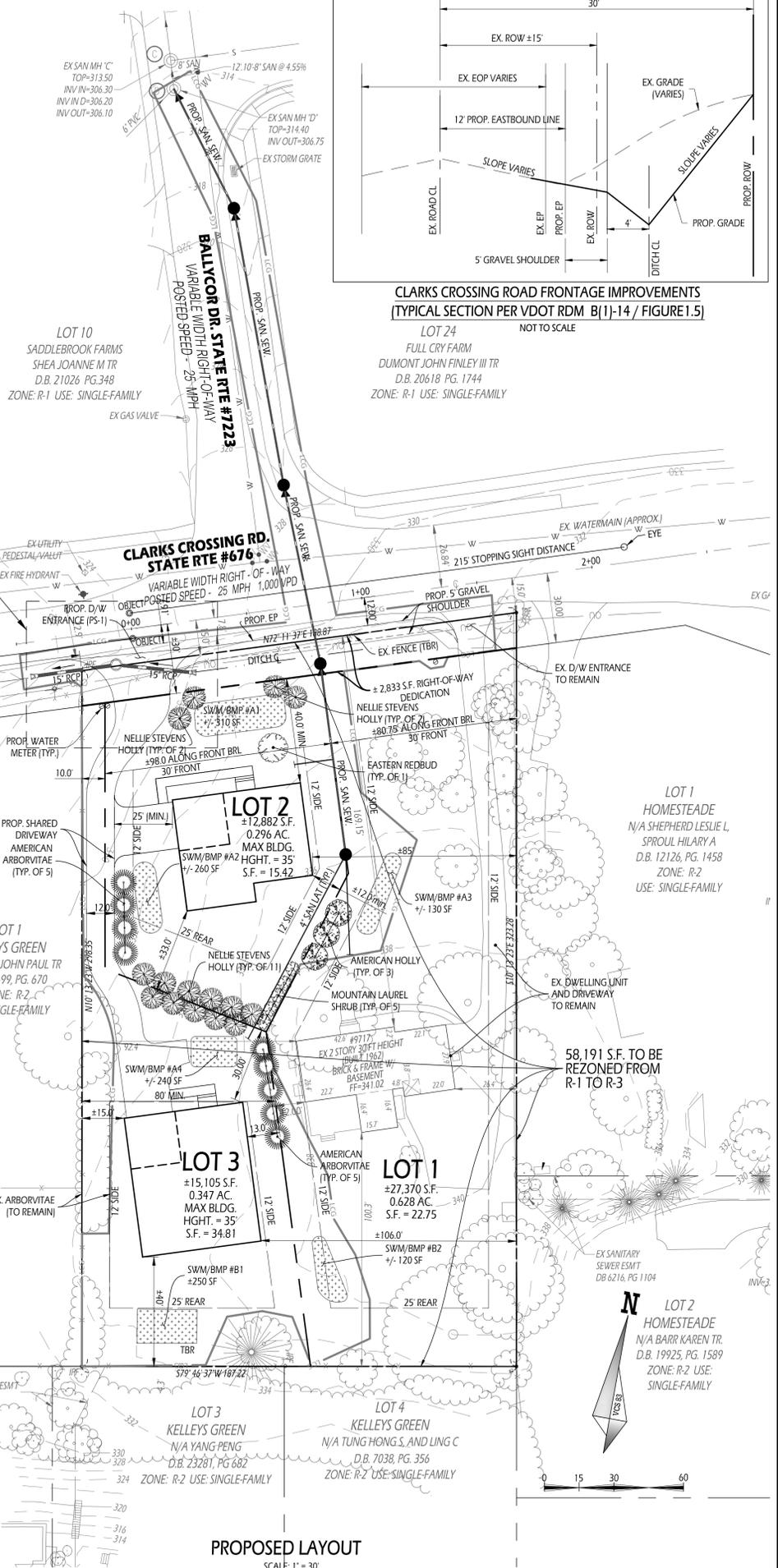


TYPICAL BIORETENTION CROSS SECTION  
(EXACT DESIGN AND TYPE OF FACILITY TO BE DETERMINED AT FINAL ENGINEERING)

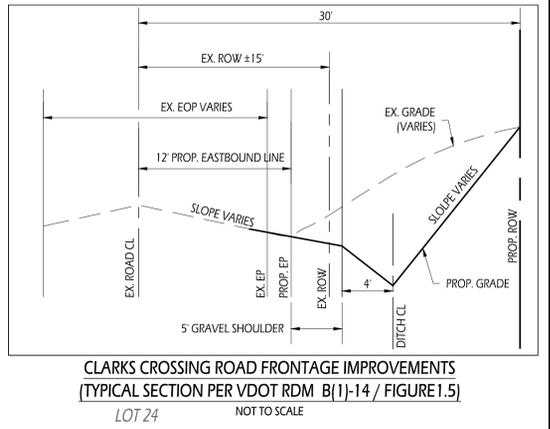


INSET 'A'  
PRIVATE DRIVEWAY (PS-1) GRADING EXHIBIT  
SCALE: 1"=10'

SEE INSET 'A'  
THIS SHEET



PROPOSED LAYOUT  
SCALE: 1" = 30'



CLARKS CROSSING ROAD FRONTAGE IMPROVEMENTS  
(TYPICAL SECTION PER VDOT RDM B(1)-14 / FIGURE 1.5)  
NOT TO SCALE



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PROJECT: 171-01  
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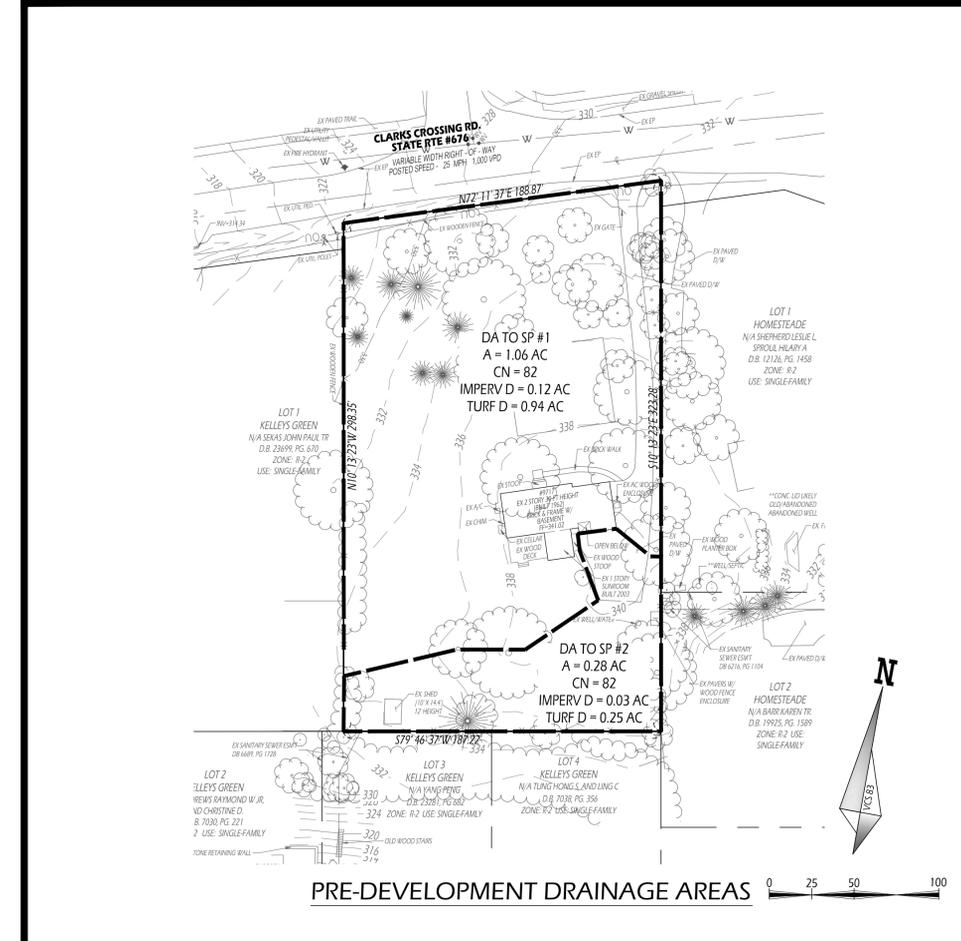
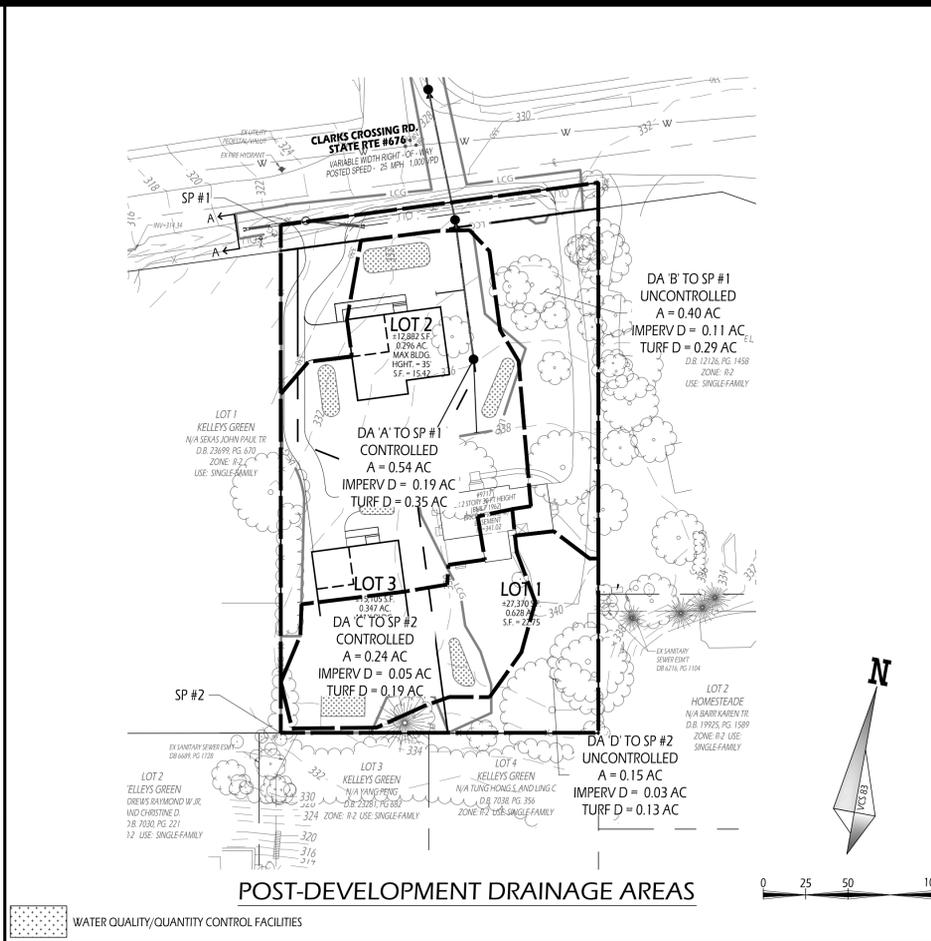
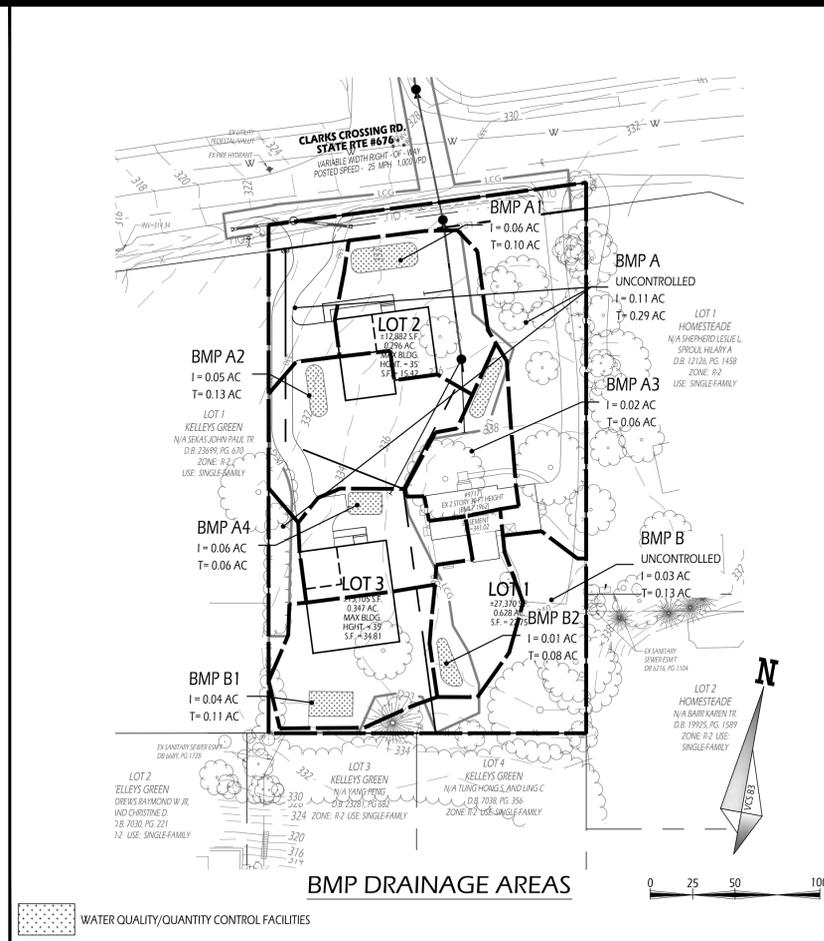
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SCALE: AS SHOWN  
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SHEET 2 OF 7



**SMITH ENGINEERING**  
 ANTHONY VENAARO  
 703-956-6204  
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WATER QUALITY/QUANTITY CONTROL FACILITIES

WATER QUALITY/QUANTITY CONTROL FACILITIES

WATER QUALITY/QUANTITY CONTROL FACILITIES

### WATER QUANTITY CONTROL NARRATIVE

FOR THE PURPOSES OF ANALYZING THE SITE FOR WATER QUANTITY CONTROL, THE 1.43 ACRE SITE IS GENERALLY DIVIDED INTO TWO DRAINAGE AREAS (SP #1 AND SP #2). IN THE PRE-DEVELOPMENT CONDITION, THE DRAINAGE AREA TO SP#1 CONSISTS OF APPROXIMATELY 1.06 ACRES WITH A CURVE NUMBER (CN) OF 82 AND FLOWS TO THE NORTHERN PROPERTY LINE INTO A ROADSIDE DITCH ALONG CLARKS CROSSING ROAD. THE DRAINAGE AREA TO SP#2 CONSISTS OF APPROXIMATELY 0.28 ACRES WITH A CN OF 82 AND SHEET FLOWS TO THE SOUTHERN PROPERTY LINE. SEE BELOW FOR PRE-DEVELOPED RUNOFF RATES AND VOLUMES FOR THE 1, 2, AND 10 YEAR STORM EVENTS.

	Pre-Developed						
	Area(Ac)	Q 1 (cfs)	Vol 1 (cf)	Q 2 (cfs)	Vol 2 (cf)	Q 10 (cfs)	Vol 10 (cf)
Drainage Area SP #1	1.06	1.78	4,064	2.55	5,826	4.95	11,401
Drainage Area SP #2	0.28	0.52	1,036	0.67	1,539	1.31	3,012
<b>Totals</b>	<b>Site Area 1.34</b>	<b>Q 1 pre 2.30</b>	<b>Vol 1 pre 5,100</b>	<b>Q 2 pre 3.22</b>	<b>Vol 2 pre 7,365</b>	<b>Q 10 pre 6.26</b>	<b>Vol 10 pre 14,413</b>

VIA THE IMPLEMENTATION OF RUNOFF REDUCTION PRACTICES SUCH AS BIORETENTION OR INFILTRATION FACILITIES, THE POST DEVELOPED CNs FOR THE DRAINAGE AREA TO SP#1 CAN BE REDUCED FROM 86 TO 82 (1YR & 2YR) AND 83 (10YR). THE CNs FOR THE DRAINAGE AREA TO SP#2 IS REDUCED FROM 83 TO 80 (1YR), 81 (2YR), AND 82 (10YR). FOR SP#2, THE RUNOFF REDUCTION PRACTICES ALONE DO NOT REDUCE POST-DEVELOPED VOLUMES TO PRE-DEVELOPED VOLUMES. THEREFORE IT IS ANTICIPATED THAT AN ADDITIONAL STORAGE OF 1.021 CF WILL BE PROVIDED UNDER THE BIORETENTION AND/OR INFILTRATION FACILITIES TO REDUCE THE VOLUMES TO EQUAL TO OR BELOW PRE-DEVELOPED VOLUMES. SEE BELOW FOR ANTICIPATED POST-DEVELOPED RUNOFF RATES AND VOLUMES FOR THE 1, 2, AND 10 YEAR STORM EVENTS. AS THE POST-DEVELOPMENT PEAK RATES AND VOLUMES WILL BE LESS THAN PRE-DEVELOPED RATES AND VOLUMES, NO FURTHER WATER QUANTITY CONTROL WILL BE REQUIRED.

	Post-Developed						
	Area(Ac)	Q 1 (cfs)	Vol 1 (cf)	Q 2 (cfs)	Vol 2 (cf)	Q 10 (cfs)	Vol 10 (cf)
Drainage Area SP #1	0.94	1.74	3,477	2.40	4,843	4.77	9,778
Drainage Area SP #2	0.40	0.66	1,324	0.98	1,968	1.97	4,033
<b>Totals</b>	<b>Site Area 1.34</b>	<b>Q 1 post 2.40</b>	<b>Vol 1 post 4,801</b>	<b>Q 2 post 3.38</b>	<b>Vol 2 post 6,811</b>	<b>Q 10 post 6.74</b>	<b>Vol 10 post 13,811</b>

### WATER QUALITY CONTROL NARRATIVE

THE SUBJECT 1.34 ACRE SITE HAS BEEN PREVIOUSLY DEVELOPED FOR THE CONSTRUCTION OF A DRIVEWAY AND SINGLE-FAMILY DETACHED HOME WITH ACCESSORY STRUCTURES, THEREFORE, FOR THE PURPOSES OF DETERMINING WATER QUALITY CONTROL REQUIREMENTS FOR THE PROPOSED IMPROVEMENTS WITH THIS APPLICATION, THE RE-DEVELOPMENT RUNOFF REDUCTION SPREADSHEET WILL BE UTILIZED. AS LESS THAN 1 ACRE OF DISTURBANCE IS ANTICIPATED, A TOTAL PHOSPHOROUS LOAD REDUCTION OF ≈0.51 LB/YR IS REQUIRED. NOTE THAT THIS LOADING REQUIREMENT IS SUBJECT TO CHANGE BASED ON FINAL ENGINEERING.

A COMBINATION OF ROOFTOP DISCONNECTION, BIORETENTION, AND INFILTRATION PRACTICES WILL LIKELY BE IMPLEMENTED TO ACHIEVE THE REQUIRED PHOSPHOROUS REMOVAL RATES. UPON FINAL ENGINEERING ADDITIONAL OR ALTERNATIVE PRACTICES AS PERMITTED WITH THE PFM MAY BE UTILIZED TO ACHIEVE THE APPROPRIATE WATER QUALITY CONTROL FOR THE DEVELOPMENT.

Phosphorus											
<b>TOTAL PHOSPHOROUS LOAD REDUCTION REQUIRED (LB/YEAR)</b>											
0.51											
<b>RUNOFF REDUCTION (cf)</b>											
1115											
<b>PHOSPHOROUS LOAD REDUCTION ACHIEVED (LB/YR)</b>											
0.82											
<b>ADJUSTED POST-DEVELOPMENT PHOSPHOROUS LOAD (TP) (lb/yr)</b>											
0.57											
<b>REMAINING PHOSPHOROUS LOAD REDUCTION (LB/YR) NEEDED</b>											
CONGRATULATIONS!! YOU EXCEEDED THE TARGET REDUCTION BY 0.3 LB/YEAR											

### NOTES

- THE SOILS LOCATED ON THE SUBJECT PROPERTY ARE CLASSIFIED WITH THE HYDROLOGIC SOILS GROUP D' (WHEATON-GLENELG COMPLEX) AND ARE CLASSIFIED AS SOILS WITH "GOOD" POTENTIAL FOR INFILTRATION PRACTICES.
- WATER QUALITY AND QUANTITY CONTROL METHODOLOGY IS CONCEPTUAL. THE EXACT QUANTITY, LOCATION AND TYPE OF FACILITIES ARE SUBJECT TO CHANGE WITH FINAL DESIGN AND FIELD TESTED INFILTRATION RATES.

Post-ReDevelopment Project & Land Cover Information		Total Disturbed Acreage	0.80		
<b>Constants</b>					
Annual Rainfall (inches)	43				
Target Rainfall Event (inches)	1.00				
Phosphorus EMC (mg/L)	0.26	Nitrogen EMC (mg/L)	1.86		
Target Phosphorus Target Load (lb/acre/yr)	0.41				
	0.90				
<b>Pre-ReDevelopment Land Cover (acres)</b>					
	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	1.19	1.19
Impervious Cover (acres)	0.00	0.00	0.00	0.15	0.15
<b>Total</b>					
1.34					
<b>Post-ReDevelopment Land Cover (acres)</b>					
	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	0.95	0.95
Impervious Cover (acres)	0.00	0.00	0.00	0.39	0.39
<b>Total</b>					
1.34					
<b>Area Check</b>					
	Okay	Okay	Okay	Okay	

### Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area A

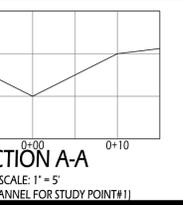
Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
<b>6. Bioretention</b>													
6. b. Bioretention #2 (Spec #9)	impervious acres draining to bioretention	80% runoff volume reduction	0.80	0.19	0	524	131	50	0.00	0.41	0.37	0.04	
	turf acres draining to bioretention	80% runoff volume reduction	0.80	0.35	0	254	64	50	0.00	0.20	0.18	0.02	

### Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area C

Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
<b>6. Bioretention</b>													
6. b. Bioretention #2 (Spec #9)	impervious acres draining to bioretention	80% runoff volume reduction	0.80	0.05	0	138	34	50	0.00	0.11	0.10	0.01	
	turf acres draining to bioretention	80% runoff volume reduction	0.80	0.19	0	138	34	50	0.00	0.11	0.10	0.01	

### ENERGY BALANCE EQUATION SP #1

$$1\text{-YR } Q_{\text{ALLOWABLE}} = 0.9 \left( \text{VOL}_{\text{PRE}} + Q_{\text{NET}} \right) / \text{VOL}_{\text{POST}} = 0.9 (4,064 + 1,781) / 3,477 = 1.87 \text{ CFS}$$



### WEIGHTED RUNOFF CURVE NUMBER CALCULATIONS

DRAINAGE AREA TO SP #1							
Controlled	0.54	Uncontrolled	0.40	Weighted	0.94		
1	79	42.66	1	85	34	1	82
2	80	43.2	2	85	34	2	82
10	82	44.28	10	85	34	10	83

DRAINAGE AREA TO SP #2							
Controlled	0.24	Uncontrolled	0.16	Weighted	0.40		
1	78	18.72	1	84	13.44	1	80
2	79	18.96	2	84	13.44	2	81
10	81	19.44	10	84	13.44	10	82

P:\171-01 Warner Subdivision\Zoning\Eng\Sheets\171-01\_SMM.dwg 01/19/16 15:05



PLAN STATUS	DATE
ISSUED TO CLIENT	07/01/15
SUBMIT TO FFX DPZ	07/15/15
SUBMIT TO FFX DPZ	07/15/15
SUBMIT TO FFX DPZ	07/27/15
SUBMIT TO FFX DPZ	10/30/15
SUBMIT TO FFX DPZ	12/01/15
SUBMIT TO FFX DPZ	12/18/15
SUBMIT TO FFX DPZ	01/19/16
SUBMIT TO FFX DPZ	01/29/16

### OUTFALL STATEMENT

STORM WATER RUNOFF FROM THE SITE DISCHARGES GENERALLY IN TWO DIRECTIONS: OUTFALL POINT #1 AT THE NORTHWESTERN PROPERTY CORNER AND OUTFALL #2 IN THE SOUTH-WESTERN CORNER OF THE SITE.

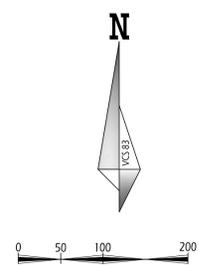
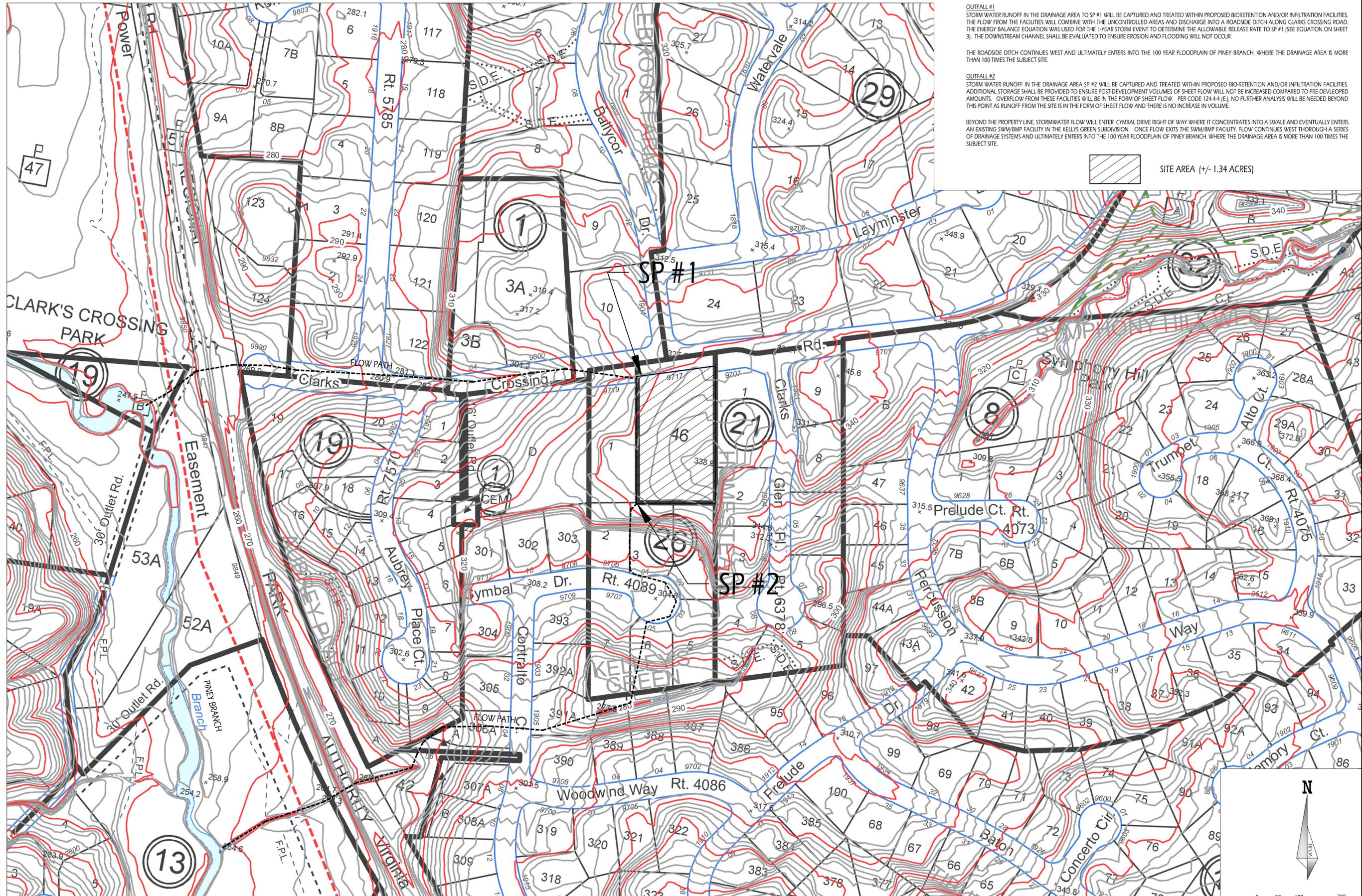
**OUTFALL #1**  
 STORM WATER RUNOFF IN THE DRAINAGE AREA TO SP #1 WILL BE CAPTURED AND TREATED WITHIN PROPOSED BIORETENTION AND/OR INFILTRATION FACILITIES. THE FLOW FROM THE FACILITIES WILL COMBINE WITH THE UNCONTROLLED AREAS AND DISCHARGE INTO A ROADSIDE DITCH ALONG CLARKS CROSSING ROAD. THE ENERGY BALANCE EQUATION WAS USED FOR THE 1-YEAR STORM EVENT TO DETERMINE THE ALLOWABLE RELEASE RATE TO SP #1 (SEE EQUATION ON SHEET 3). THE DOWNSTREAM CHANNEL SHALL BE EVALUATED TO ENSURE EROSION AND FLOODING WILL NOT OCCUR.

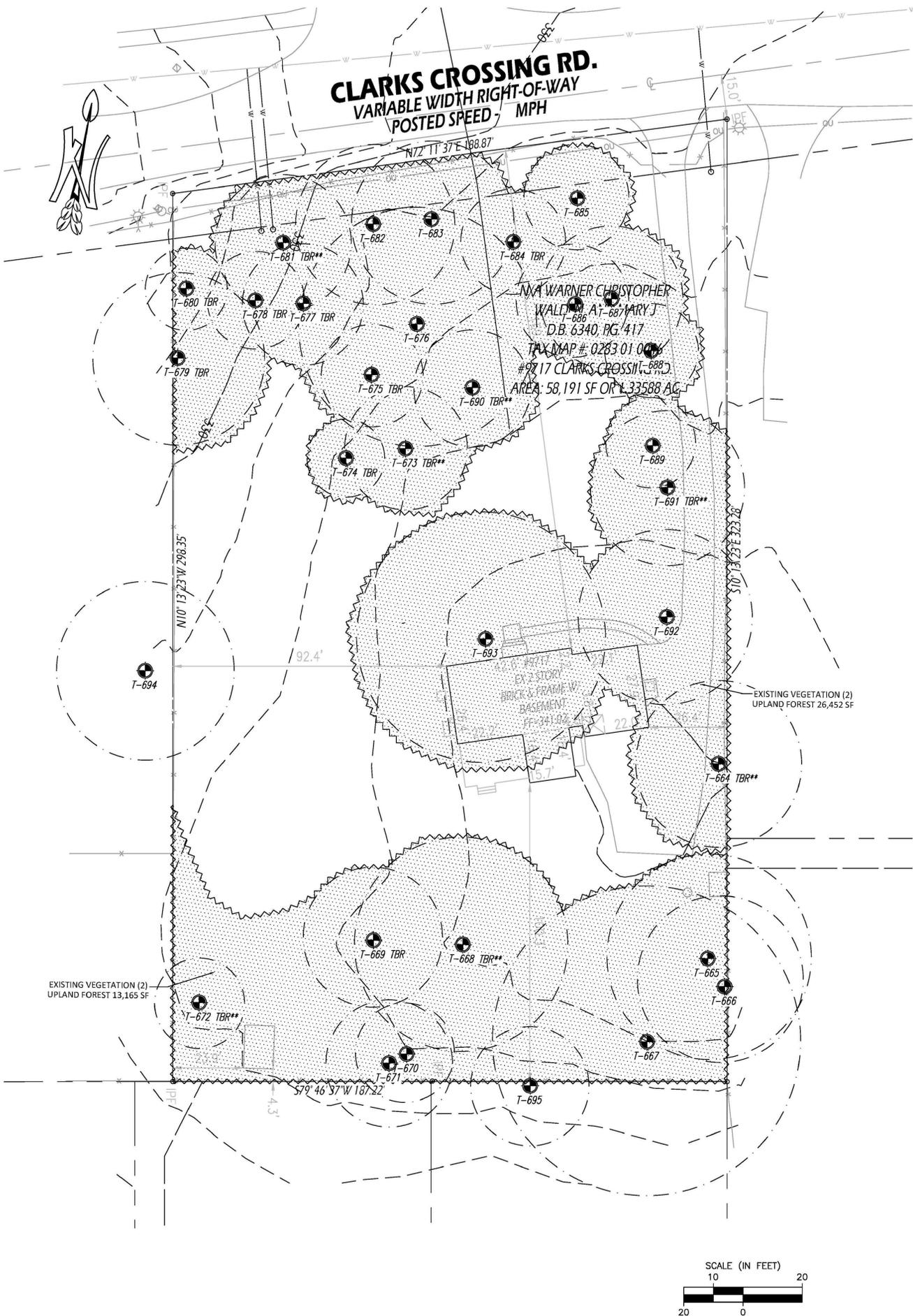
THE ROADSIDE DITCH CONTINUES WEST AND ULTIMATELY ENTERS INTO THE 100 YEAR FLOODPLAIN OF PINEY BRANCH, WHERE THE DRAINAGE AREA IS MORE THAN 100 TIMES THE SUBJECT SITE.

**OUTFALL #2**  
 STORM WATER RUNOFF IN THE DRAINAGE AREA SP #2 WILL BE CAPTURED AND TREATED WITHIN PROPOSED BIO-RETENTION AND/OR INFILTRATION FACILITIES. ADDITIONAL STORAGE SHALL BE PROVIDED TO ENSURE POST-DEVELOPMENT VOLUMES OF SHEET FLOW WILL NOT BE INCREASED COMPARED TO PRE-DEVELOPED AMOUNTS. OVERFLOW FROM THESE FACILITIES WILL BE IN THE FORM OF SHEET FLOW. PER CODE 124-4-4 (E), NO FURTHER ANALYSIS WILL BE NEEDED BEYOND THIS POINT AS RUNOFF FROM THE SITE IS IN THE FORM OF SHEET FLOW AND THERE IS NO INCREASE IN VOLUME.

BEYOND THE PROPERTY LINE, STORMWATER FLOW WILL ENTER CYMBAL DRIVE RIGHT OF WAY WHERE IT CONCENTRATES INTO A SWALE AND EVENTUALLY ENTERS AN EXISTING SWM/BMP FACILITY IN THE KELLYS GREEN SUBDIVISION. ONCE FLOW EXITS THE SWM/BMP FACILITY, FLOW CONTINUES WEST THROUGH A SERIES OF DRAINAGE SYSTEMS AND ULTIMATELY ENTERS INTO THE 100 YEAR FLOODPLAIN OF PINEY BRANCH, WHERE THE DRAINAGE AREA IS MORE THAN 100 TIMES THE SUBJECT SITE.

 SITE AREA (+/- 1.34 ACRES)





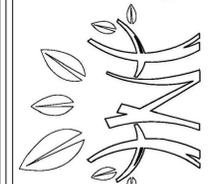
**LEGEND**

- TREELINE
- EXISTING CANOPY (2) UPLAND FOREST (39,617-SF)  
LONGTERM SUCCESSIONAL FOREST
- CRITICAL ROOT ZONE (CRZ)
- TREE LOCATION  
T-37

Tree Number	Common Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes & Arborists Recommendations
664	Sugar Maple	28.0	28.0	Poor	x**	Dead limbs, rot at base and trunk
665	Black Walnut	34.5	34.5	Fair		Shallow damaged roots, prune dying limbs
666	Black Walnut	28.0	28.0	Fair		Prune large dead limbs
667	Black Walnut	52.0	52.0	Fair		Quad-trunk, two dead leaders and several dead limbs
668	Hackberry	36.0	36.0	Poor	x	Dead wood up trunk-hit by lightning
669	Black Walnut	23.5	23.5	Fair	x	Dead limbs and minimal girdling
670	Black Walnut	16.7	16.7	Fair		Slight lean, prune dead limbs
671	Redcedar	21.4	21.4	Fair		Prune dead limbs
672	Black Gum	15.2	15.2	Poor	x	Hollow sounding- dead wood up trunk
673	Pignut Hickory	20.7	20.7	Fair/Poor	x	Dead limbs and trunk failing
674	Virginia Pine	13.1	13.1	Fair	x	One sided and several dead limbs
675	Virginia Pine	17.2	17.2	Fair	x	Several small dead limbs
676	Pignut Hickory	40.2	40.2	Fair		Prune dead limbs, remove vines
677	Virginia Pine	20.4	20.4	Fair	x	Small dead limbs
678	Virginia Pine	16.5	16.5	Fair	x	One sided, several small dead limbs
679	Mulberry	29.0	29.0	Fair	x	Quad-trunk
680	Virginia Pine	13.8	13.8	Fair	x	One sided, several small dead limbs
681	Pin Oak	23.0	23.0	Poor	x	Top dead, many deal limbs and small cavity at base
682	Northern Red Oak	26.9	26.9	Fair		Prune dead limbs
683	Northern Red Oak	27.4	27.4	Fair		Prune dead limbs. Some disease noted around the base
684	Pin Oak	17.7	17.7	Fair	x	Dead limbs
685	Black Walnut	17.7	17.7	Fair		Lichen present, prune dead limbs
686	Southern Red Oak	19.0	19.0	Fair		Prune dead limbs
687	Southern Red Oak	24.1	24.1	Fair		Prune dead limbs
688	Pignut Hickory	15.8	15.8	Fair		Woodpecker damage, prune dead limbs
689	Pignut Hickory	15.2	15.2	Fair		Leaning, prune dead limbs
690	Southern Red Oak	19.7	19.7	Poor	x	Dead wood up trunk
691	Black Walnut	26.0	26.0	Poor	x**	Leaning and rot up trunk
692	Pecan	29.4	29.4	Fair		Prune dead limbs
693	Pecan	42.0	42.0	Fair		Woodpecker damage and several wounds
694	Red Maple	30.0	30.0	Fair		Offsite, dead limbs
695	Mulberry	20.0	20.0	Fair		Offsite

NOTES:  
 1. CO-OWNED/SHARED TREES SHALL NOT BE REMOVED WITHOUT WRITTEN PERMISSION FROM AFFECTED ADJACENT PROPERTY OWNERS.  
 2. \*\* TREES NOTED FOR REMOVAL WITHIN THE TREE SAVE AREA SHALL BE DONE BY HAND WITHOUT THE USE OF HEAVY MACHINERY.  
 3. OFFSITE TREES WERE ASSESSED FROM THE SUBJECT PROPERTY SO NOT TO TRESPASS ONTO ADJACENT PROPERTY. DBH MEASUREMENTS ARE APPROXIMATE.

**ENVIRONMENTAL**  
 13996 Parkeast Circle, Suite 101  
 Chantilly, VA 20151  
 PH: 703-466-5123 WWW.TNTENNIFONMENTALINC.COM



9717 CLARKS  
 CROSSING ROAD

FAIRFAX COUNTY

EXISTING  
 VEGETATION MAP

REVISIONS

DATE	COMMENTS
01/29/15	SUBMIT TO FFX DPZ

SHEET **5 of 7**

SCALE: 1" = 20'

PROJECT DATE:  
6/29/15

DRAFT: SSS CHECK: AMS

FILE NUMBER:  
317

I certify this plan meets both the tree preservation target (PFM 12-0501) and the tree conservation plan (PFM 12-0502) submittal requirements; no deviations or modifications to these requirements are being requested.

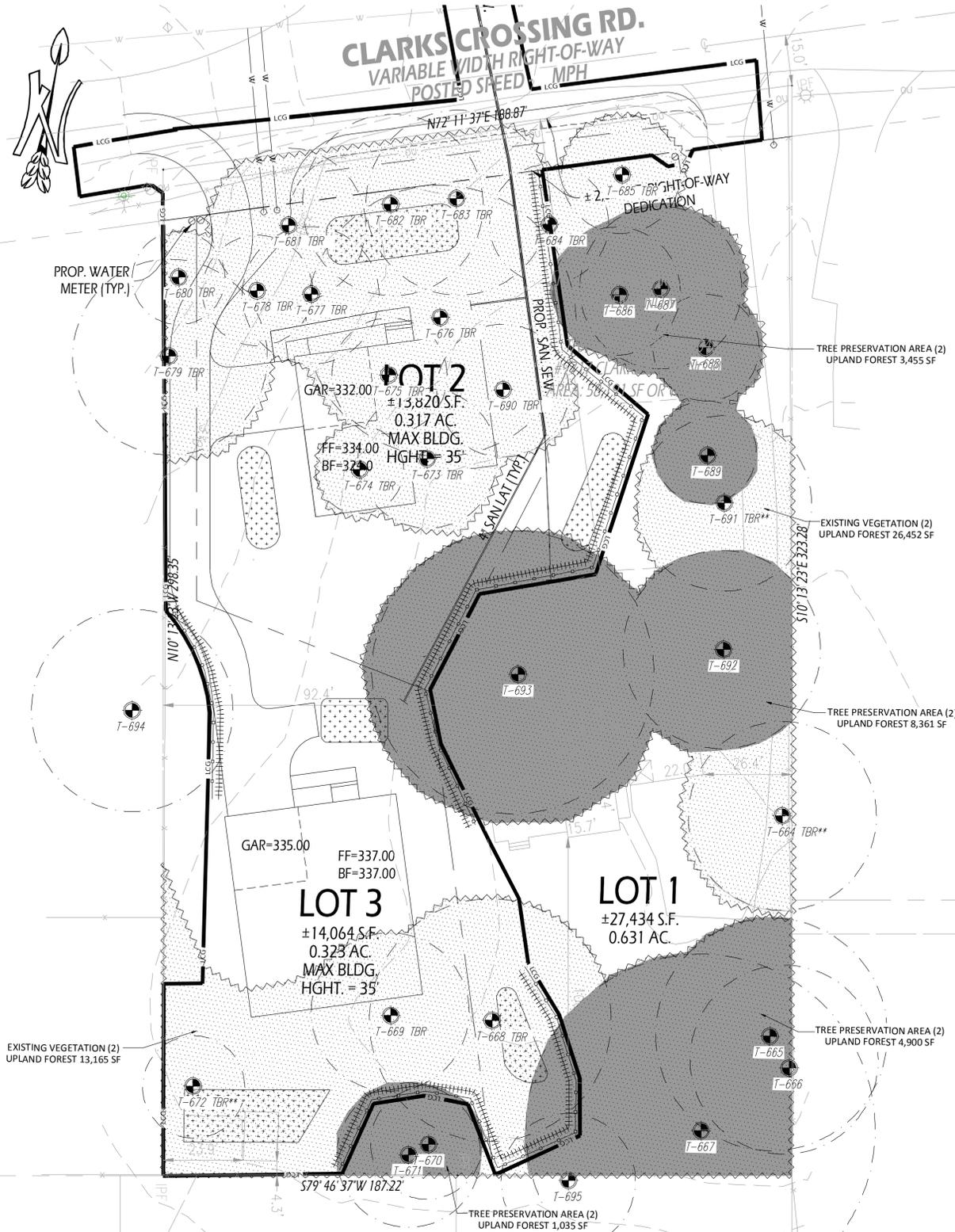
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**Table 12.3 - Tree Preservation Target Calculations & Statement**

A	Pre-development area (sf) of existing tree canopy (From Existing Vegetation Map) =	39,617.0
B	Percentage of gross site area covered by existing tree canopy =	71.6%
C	Percentage of 10-year tree canopy required for site per zoning =	25%
D	Percentage of the 10-year tree canopy requirement that should be met through preservation =	71.6%
E	Proposed percentage of canopy requirement that will be met through tree preservation =	160.3%
F	Has the Tree Preservation Target minimum been met?	YES
G	If no for line F, provide sheet number where deviation request is located	NA
H	If step G requires a narrative it shall be prepared and attached	NA

**LEGEND**

- TREELINE
- EXISTING CANOPY (2) UPLAND FOREST (39,617-SF)  
LONGTERM SUCCESSIONAL FOREST
- TREE PRESERVATION AREA (17,751-SF)
- CRITICAL ROOT ZONE (CRZ)
- TREE LOCATION
- TREE PROTECTION FENCING
- ROOT PRUNING



Tree Number	Common Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes & Arborists Recommendations
664	Sugar Maple	28.0	28.0	Poor	x**	Dead limbs, rot at base and trunk
665	Black Walnut	34.5	34.5	Fair		Shallow damaged roots, prune dying limbs
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667	Black Walnut	52.0	52.0	Fair		Quad-trunk, two dead leaders and several dead limbs
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675	Virginia Pine	17.2	17.2	Fair	x	Several small dead limbs
676	Pignut Hickory	40.2	40.2	Fair	x	Some dead limbs and vines
677	Virginia Pine	20.4	20.4	Fair	x	Small dead limbs
678	Virginia Pine	16.5	16.5	Fair	x	One sided, several small dead limbs
679	Mulberry	29.0	29.0	Fair	x	Quad-trunk
680	Virginia Pine	13.8	13.8	Fair	x	One sided, several small dead limbs
681	Pin Oak	23.0	23.0	Poor	x	Top dead, many dead limbs and small cavity at base
682	Northern Red Oak	26.9	26.9	Fair	x	Some dead limbs
683	Northern Red Oak	27.4	27.4	Fair	x	Some dead limbs. Some disease noted around the base
684	Pin Oak	17.7	17.7	Fair	x	Dead limbs
685	Black Walnut	17.7	17.7	Fair	x	Lichen present, some dead limbs
686	Southern Red Oak	19.0	19.0	Fair		Prune dead limbs
687	Southern Red Oak	24.1	24.1	Fair		Prune dead limbs
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- NOTES:  
 1. CO-OWNED/SHARED TREES SHALL NOT BE REMOVED WITHOUT WRITTEN PERMISSION FROM AFFECTED ADJACENT PROPERTY OWNERS.  
 2. \*\* TREES NOTED FOR REMOVAL WITHIN THE TREE SAVE AREA SHALL BE DONE BY HAND WITHOUT THE USE OF HEAVY MACHINERY.  
 3. OFFSITE TREES WERE ASSESSED FROM THE SUBJECT PROPERTY SO NOT TO TRESPASS ONTO ADJACENT PROPERTY. DBH MEASUREMENTS ARE APPROXIMATE.



I certify this plan meets both the tree preservation target (PFM 12-0501) and the tree conservation plan (PFM 12-0502) submittal requirements; no deviations or modifications to these requirements are being requested.

**ENVIRONMENTAL**  
 13996 Parkeast Circle, Suite 101  
 Chantilly, VA 20151  
 PH: 703-466-5123 WWW.TNTENVIRONMENTALINC.COM



9717 CLARKS  
 CROSSING ROAD

TREE PRESERVATION  
 & PROTECTION PLAN

REVISIONS

DATE	COMMENTS
10/29/15 AMS	
11/20/15 COUNTY COMMENTS	
12/17/15 COUNTY COMMENTS	
1/19/16 REV BY LAD	SUBMIT TO FFX DPZ

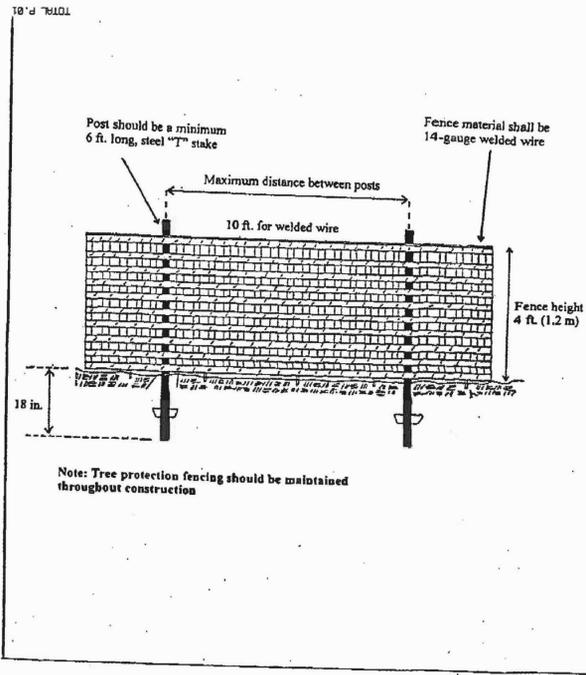
SHEET 6 OF 7

SCALE: 1" = 20'

PROJECT DATE: 6/29/15

DRAFT: SSS CHECK: AMS

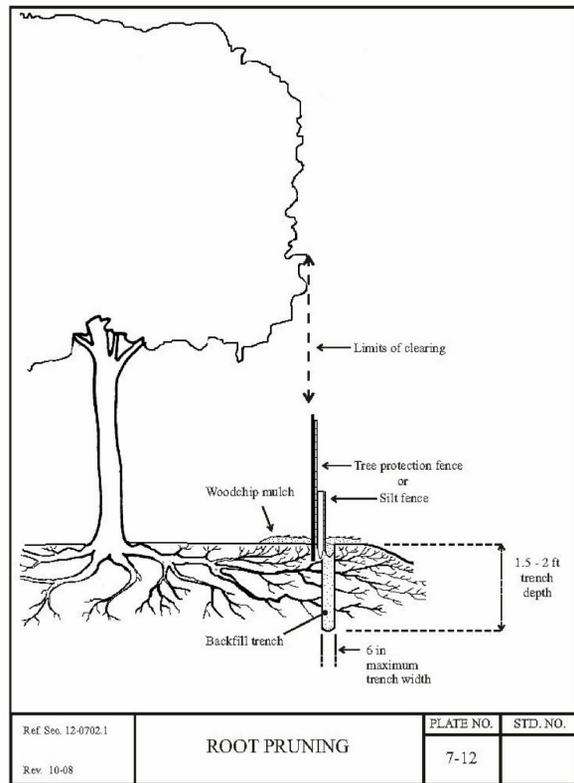
FILE NUMBER: 317



**TREE PROTECTION FENCE  
INSTALLATION DETAIL**

703 324 8359 P. 01/01  
DRAWS: GFRB 16:04  
12-0509-06-2810 16:04

**FAIRFAX COUNTY PUBLIC FACILITIES MANUAL**



Ref. Sec. 12-0702.1	<b>ROOT PRUNING</b>	PLATE NO.	STD. NO.
Rev. 10-08		7-12	

**TREE CONDITION ANALYSIS**

TNT Environmental, Inc. (TNT) conducted a site reconnaissance to evaluate the wooded habitat on the project site in May 2015. The undeveloped portions of the site are comprised primarily of Upland Hardwoods and Softwoods (i.e. Walnut, Hickory, Oak & Pine). The species of trees assessed near the limits of clearing are listed in the Tree Table on the previous sheet.

Based on our site reconnaissance, invasive and/or noxious species were not observed onsite. Invasive species located within the areas to be preserved should be removed by hand wherever practicable to minimize site disturbance. The trees onsite are generally in Fair to Poor condition, except where otherwise noted on the EVM (i.e.: Poor, Dead). Onsite trees within 150-feet of the proposed limits of clearing meet the standards for structural integrity and health identified in § 12-0403.2A and 12-0403.2B and are identified on the EVM. At the time of inspection there were poor trees located within 150-feet of the proposed limits of clearing, which are identified on the Existing Vegetation Map.

In accordance with § 12-0507.E2(1), trees designated for preservation shall be protected during construction.

**TREE PRESERVATION NARRATIVE**

§ 12-0509.3B: Dead or potentially hazardous trees shall be removed upon their discovery if they are located within 100-feet of the proposed limits of clearing. Dead trees not within this area shall be left in place to serve as wildlife habitat. Dead or potentially hazardous trees will be removed by hand (i.e.: chainsaw) wherever practical and will be conducted in a manner that incurs the least amount of damage to surrounding trees and vegetation proposed for preservation. Felled trees shall be left in place and brush should be removed by hand. No heavy equipment shall be used within tree preservation areas.

§ 12-0509.3C: Based on the current condition of the existing wooded areas, no adverse human health risks are anticipated provided that trees which pose a hazard to human health and safety are properly removed from areas where they could pose such a risk.

§ 12-0509.3D: Invasive and/or noxious species were not observed on the site. Invasive species located within the areas to be preserved should be removed by hand wherever practicable to minimize site disturbance.

§ 12-0509.3E: The Applicant is not requesting official Specimen Tree designation for any of the large trees located onsite and is not using a multiplier for tree canopy calculations.

§ 12-0509.3F: Non-impacted Specimen trees located on and off-site shall be protected throughout all phases of construction by utilizing tree protection fencing as required by §12-0507.2E(1).

§ 12-0509.3G: Prior to land disturbing activities, root pruning with a vibratory plow, trencher or other device approved by the Director shall be conducted along the limits of clearing adjacent to tree preservation areas. Root pruning shall be conducted along the proposed limits of clearing and grading adjacent to the wooded habitat to be preserved and along property boundaries where the CRZ of off-site trees will be impacted. Locations of root pruning and tree protection fencing (trenchless super silt fence) are shown on the Tree Preservation & Protection Plan.

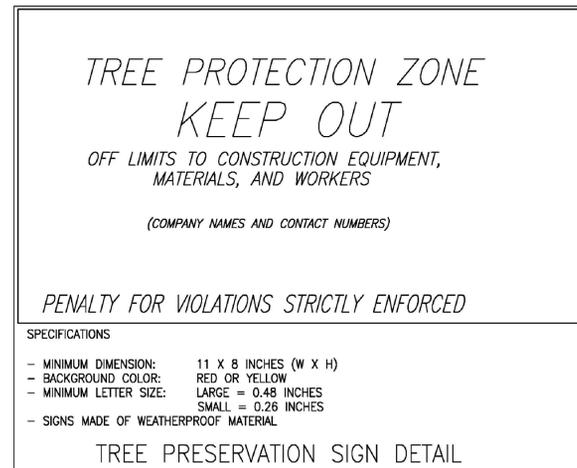
§ 12-0509.3H: No trees will be transplanted as part of the proposed construction activities.

§ 12-0509.3I: Tree protection fencing and signage shall be placed subsequent to the staking of the limits of clearing in the field prior to construction in accordance with current Fairfax County ordinances. 14-gauge welded wire fence shall be used as devices to protect trees and forested areas. The protective device shall be placed within the disturbed area at the limits of clearing and erected at a minimum height of 4 feet, except for super silt fence where height may be 3.5 feet. The fencing material shall be mounted on 6-foot tall steel poses driven 1.5 feet into the ground and placed a maximum of 10 feet apart.

§ 12-0509.3J: No work shall occur within the areas to be protected. Onsite trees within the limits of clearing and grading will be removed. No trees outside this area shall be removed unless indicated on the plan. Trees in preservation areas indicated on the plan to be removed shall be removed by hand. Dead or hazardous trees within this area may be limbed or topped, rather than removing the entire tree and left as snags.

§ 12-0509.3K: There are no known proffer conditions which would require additional tree inventory, tree condition, tree valuation or tree bonding information.

Table 12.10 - 10-Year Tree Canopy Calculation Worksheet		Totals
<b>A. Tree Preservation Target &amp; Statement</b>		
A1	Tree Preservation Target calculations and statement	
<b>B. Tree Canopy Requirement</b>		
B1	Gross Site Area =	58,191.0
B2	Subtract area dedicated to parks, road frontage =	2,833.0
B3	Subtract area of exemptions (wetlands/stream and drainfields) =	0.0
B4	Adjusted gross site area =	55,358.0
B5	Identify site's zoning and/or use =	F-3
B6	Percentage of 10-year canopy required =	25%
B7	Area of 10-year canopy required =	13,840
B8	Modification of 10-year Tree Canopy Requirement Requested?	No
B9	If B8 is yes, list plan sheet where modification is located	N/A
<b>C. Tree Preservation</b>		
C1	Tree Preservation Target Area =	9,893.0
C2	Total canopy area meeting standards of § 12-0400 =	17,751.0
C3	C2 x 1.25 =	22,188.8
C4	Total canopy area provided by unique or valuable forest/woodland communities =	0.0
C5	C4 x 1.5 =	0.0
C6	Total of canopy area provide by Heritage, Memorial, Specimen, or Street Trees =	0.0
C7	C6 x 1.5 to 3.0 =	0.0
C8	Canopy area of trees within Resource Protection Areas and 100-year floodplains =	0.0
C9	C8 x 1.0 =	0.0
C10	Total of C3, C5, C7, and C9 =	22,189
<b>D. Tree Planting</b>		
D1	Area of canopy to be met through tree planting =	1,675.0
D2	Minimum area of canopy planted for air quality benefits =	0.0
D3	D2 x 1.5 =	0.0
D4	Minimum area of canopy planted for energy conservation =	0.0
D5	D4 x 1.5 =	0.0
D6	Minimum area of canopy planted for water quality benefits =	0.0
D7	D6 x 1.25 =	0.0
D8	Minimum area of canopy planted for wildlife benefits =	0.0
D9	D8 x 1.5 =	0.0
D10	Minimum area of canopy provided by native trees =	0.0
D11	D10 x 1.5 =	0.0
D12	Minimum area of canopy provided by improved cultivars and varieties =	0.0
D13	D12 x 1.5 =	0.0
D14	Area of canopy provided through tree seedlings =	0.0
D15	Area of canopy provided through native shrubs or woody seed mix =	0.0
D16	Percentage of 14 represented by D15 (must be less than 33%) =	0.0%
D17	Canopy area provided through tree planting =	1,650
D18	Is an offsite planting relief requested?	No
D19	Tree Bank or Tree Fund?	No
D20	Canopy area requested to be provided through offsite banking or tree fund?	No
D21	Amount to be deposited into the Tree Preservation and Planting Fund =	\$0.0
<b>E. Total of 10-year Tree Canopy Provided</b>		
E1	Total of canopy area provided through tree preservation =	22,189
E2	Canopy area provided through tree planting =	1,650
E3	Total of canopy area provided through offsite mechanism =	0
E4	Total of 10-year Tree Canopy Provided =	23,839



**TREE PRESERVATION SIGN NOTE:**

WEATHERPROOF TREE PRESERVATION AREA SIGNS SHALL BE POSTED ON TREE PROTECTION FENCING, PER PFM 12-0703.3, THE PERMITTEE SHALL POST AND MAINTAIN BILINGUAL SIGNS AT THE LIMITS OF CLEARING AT A MINIMUM OF 50 FOOT INTERVALS. SIGNS SHALL BE POSTED IN ENGLISH AND SPANISH.



I certify this plan meets both the tree preservation target (PFM 12-0501) and the tree conservation plan (PFM 12-0502) submittal requirements; no deviations or modifications to these requirements are being requested.



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9717 CLARKS  
CROSSING ROAD

FAIRFAX COUNTY

TREE PRESERVATION  
NARRATIVE

REVISIONS	
DATE	COMMENTS
10/29/15	AMS
11/20/15	COUNTY COMMENTS
12/17/15	COUNTY COMMENTS
01/29/16	SUBMIT TO FFX DPZ

SHEET 7 OF 7

SCALE: NTS

PROJECT DATE:  
6/29/15

DRAFT: SSS CHECK: AMS

FILE NUMBER:

## REASON FOR THE ADDENDUM

Since the publication of the staff report dated January 13, 2016, it came to staff's attention that one of the proposed lots did not meet the shape factor required for the Zoning Ordinance. The applicants have updated the General Development Plan (GDP) to demonstrate that all lots meet the shape factor requirements of the Zoning Ordinance<sup>1</sup> and have added additional evergreen landscaping for screening between the proposed lots (see Figure 1). The applicants have decreased the area of Lot 2 by about 1,000 square feet and have increased the area of Lot 3 by 1,000 square feet.

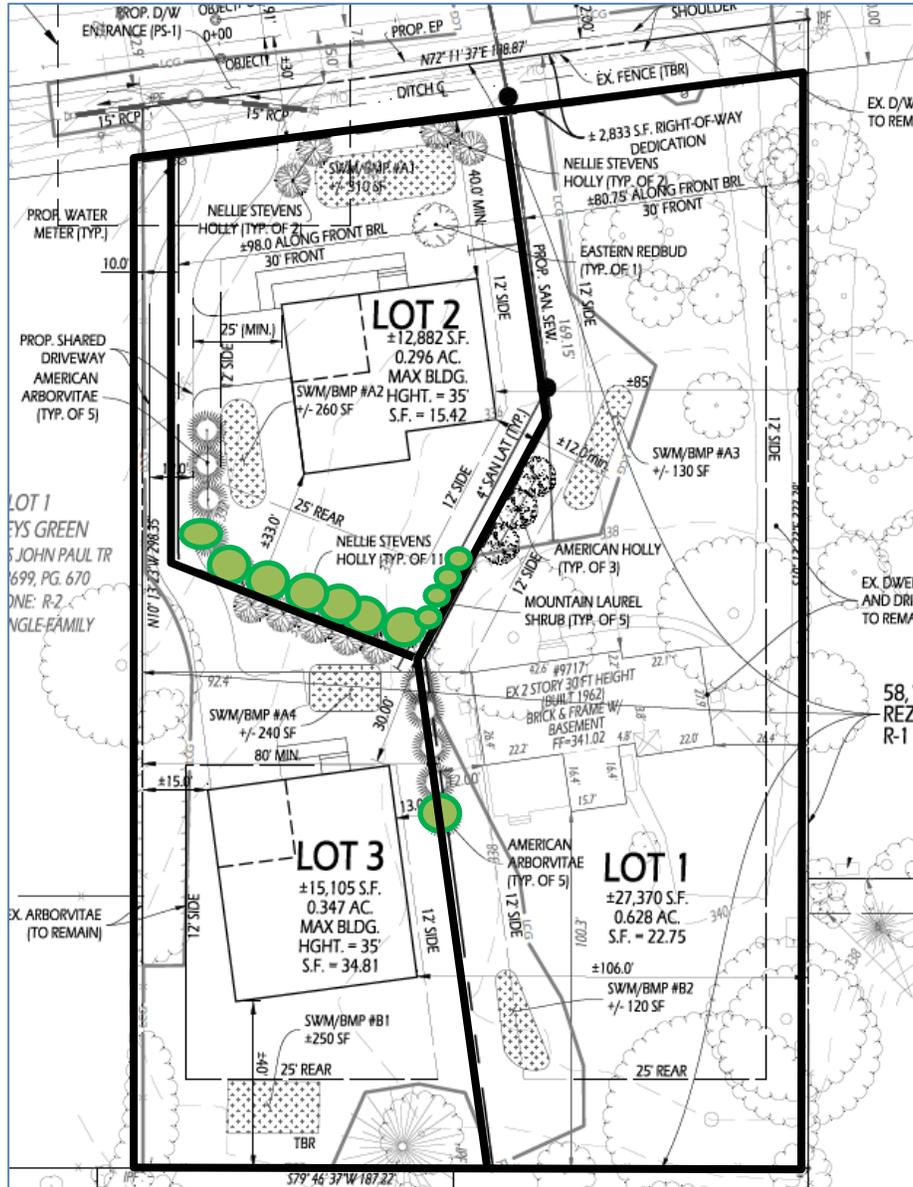


Figure 1- Applicants' Revised GDP

<sup>1</sup> The shape factor requirements are found in Sect. 2-401 of the Zoning Ordinance. The shape factor of the lot is measured by perimeter squared divided by the area of the lot ( $SF = P^2/A$ ) and must be less than or equal to 35.

## **MODIFICATIONS AND WAIVERS**

The applicants have submitted a request for a modification of Section 9-610 to permit the proposed Lot 3 to have a minimum lot width of 10 feet. The standard lot width for an R-3 District is 80 feet; therefore the applicants are requesting a reduction of 70 feet.

This modification request was previously discussed in the staff report dated January 13, 2016. The minor changes proposed to the GDP do not change staff's analysis and staff does not object to the request.

## **REVISED REZONING (RZ) PLANS ANALYSIS**

### **Land Use**

There is no change to the uses on the property. The proposal remains a development with three single family dwellings. Staff's analysis is focused on the increased landscaping for screening.

Staff's analysis of the GDP, including proposed dwelling units, access and parking, stormwater management, and the review of Residential Development Criteria, remains unchanged and was previously described in the staff report dated January 13, 2016. The only exception is the additional landscaping added and modification of the property lines to meet the limitations on the subdivisions of a lot and all shape factor requirements since the publication of the staff report.

### **Landscaping and Screening**

The applicants have added additional screening between Lots 1, 2 and 3. Evergreen landscaping has been added along the southern property lines of Lot 2 and along the northern and eastern property lines of Lot 3 (as shown in Figure 1). Staff believes the additional evergreen landscaping increases the visual buffer and provides more privacy between all of the proposed lots. In addition, previously proposed proffers have been carried over to this addendum including tree preservation, construction monitoring, root pruning, and tree protection that are typically recommended by the Department of Public Works and Environmental Service's (DPWES) Urban Forest Management Division (UFMD).

### **Proffer Changes**

The applicants' proffers have also been updated. Changes include updating the revision date on the GDP, the addition of a proffer to notice potential purchasers of the properties of yard setbacks and limitation on the construction of additions, and a new proffer that prohibits the use of temporary signs ("popsicle" signs) to market the property. A copy of the black lined updated proffers dated January 29, 2016 are included in Appendix 1.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Staff Conclusions**

The applicants revised their GDP to reflect the additional landscaping to increase screening between the properties and modified the boundary lines to ensure that all lots met the shape factor requirements in the Zoning Ordinance. The overall layout and location of the buildings was slightly altered to meet the aforementioned shape factor. The remainder of the RZ application remains unchanged.

The proposed density is within the limits specified on the Comprehensive Plan's Land Use Map. While staff would still prefer a two lot layout without the use of a pipestem, staff continues conclude that the proposed development does meet the Residential Development Criteria.

### **Recommendations**

Staff recommends approval of RZ 2015-HM-010, subject to the execution of proffers consistent with those contained in Appendix 1 of the Addendum.

Staff recommends approval of a modification of Section 9-610 of the Zoning Ordinance, to permit the width of Lot 3 to be a minimum of 10 feet wide.

It should be noted that it is not the intent of staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicants/owners from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be further noted that the content of this report reflects the analysis and recommendation of staff; it does not reflect the position of the Board of Supervisors.

The approval of this application does not interfere with, abrogate or annul any easements, covenants, or other agreements between parties, as they may apply to the property subject to this application.

## **APPENDIX**

1. Revised Blacklined Proffers dated January 29, 2016.

**DRAFT PROFFERS****Christopher W. Warner and Mary J. Warner****RZ 2015-HM-010****January 29, 2016**

Pursuant to Section 15.2-2303 (A) of the Code of Virginia (1950, as amended), Christopher Walden Warner and Mary Jo Warner, for themselves and their successors and/or assigns (hereinafter referred to as the “Applicants”), hereby proffer that the development of the property identified as Fairfax County 2015 tax map reference 28-3 ((1)) 46 (the “Application Property”) shall be in accordance with the following conditions if, and only if, the Board of Supervisors (the “Board”) approves this rezoning application. These proffers shall replace and supersede all previous proffers approved on the Application Property.

**1. GENERALIZED DEVELOPMENT PLAN –**

- A. Development of the Application Property shall be in substantial conformance with the Generalized Development Plan entitled “Warner Subdivision” consisting of six (6) sheets prepared by Smith Engineering, dated July 1, 2015, as revised through January 29, 2016 (the “GDP”).
- B. Pursuant to Paragraph 5 of Section 18-204 of the Fairfax County Zoning Ordinance (the “Zoning Ordinance”), minor modifications to the GDP may be permitted as determined by the Zoning Administrator. The Applicants reserve the right to make minor adjustments to the layout, internal lot lines, and lot sizes of the proposed dwelling units at time of subdivision plan submission based on final building footprints, utility locations and final engineering design, provided that such do not materially decrease the amount and location of open space below the minimum required by the Zoning Ordinance, tree save areas, tree planting, distance to peripheral lot lines below the minimum required by the Zoning Ordinance, or typical lot setbacks as shown on the GDP.

**2. TRANSPORTATION –**

- A. Subject to Virginia Department of Transportation (VDOT) approval, the Applicants shall dedicate at no cost and convey in fee simple to the Board right-of-way up to a width of thirty (30) feet as measured from the centerline along the Application Property’s Clark’s Crossing Road frontage, as shown on the GDP. Dedication shall be made at time of subdivision plan or upon demand of either Fairfax County or VDOT, whichever should first occur. The existing fence located on the property to be dedicated shall be removed at the time of dedication. The Applicant shall be responsible for the cost of fence removal.
- B. Subject to VDOT and Department of Public Works and Environmental Services (DPWES) approval, and prior to the issuance of the first Residential Use Permit

(“RUP”) for the Application Property, the Applicants shall construct frontage improvements within the dedicated right-of-way to Clark’s Crossing Road as shown on the GDP.

- C. The Applicants agree to provide non-illuminated signage within the Clark’s Crossing Road right-of-way that alert eastbound motorists of slow moving cyclist ahead subject to VDOT and Fairfax County Department of Transportation (FCDOT) approval. The Applicants shall construct said signage prior to the issuance of the first RUP for the Application Property.

3. LANDSCAPING AND OPEN SPACE –

The Applicants shall provide landscaping on the Application Property as generally shown on Sheets 2 and 5 of the GDP. As part of the subdivision plan submission, the Applicants shall submit to the Urban Forest Management Division (“UFMD”) a detailed landscape plan for review and approval that shall be generally consistent with the quality and quantity of plantings and materials shown on the GDP. The landscape plan shall be designed to ensure adequate planting space for all trees based on the requirements in the Public Facilities Manual (“PFM”). Plantings shall include only non-invasive species and, to the extent practical, native species. At time of subdivision plan, adjustments to the type and location of vegetation and the design of landscaped areas from that shown on the GDP shall be permitted as approved by UFMD.

4. DESIGN AND LAYOUT –

- A. The residential dwelling unit proposed on Lot 2, as shown on the GDP, shall be setback a minimum of forty (40) feet from the dedicated right-of-way along Clarks Crossing Road.
- B. Prior to entering into a sales contract, potential purchasers shall be given notice of yard setbacks and any limitations on the construction of additions, such as porches, sunrooms, patios and decks.

5. TREE PRESERVATION –

- A. For the purposes of maximizing the preservation of trees located on adjacent properties, the Applicants shall prepare a Tree Preservation Plan. The Applicants shall contract with a certified arborist or registered consulting arborist (the “Project Arborist”) to prepare a Tree Preservation Plan to be included as part of the subdivision plan submission. The Tree Preservation Plan shall be reviewed and approved by UFMD. The Tree Preservation Plan shall seek to preserve the trees identified on the GDP for preservation. The condition analysis shall be prepared using methods outlined in the latest edition of the *Guide for Plant Appraisal*. Specific tree preservation activities designed to maximize the survivability of trees designated for preservation shall be incorporated into the Tree Preservation Plan.

Activities should include, but are not limited to, crown pruning, root pruning, mulching, and fertilization.

- B. Clearing, grading, and construction shall conform to the limits of clearing and grading as shown on the GDP, subject to the installation of necessary utility lines and other required site improvements, all of which shall be installed in the least disruptive manner possible, considering cost and engineering, as determined in accordance with the approved plans.
- C. The Applicants shall have the limits of clearing and grading marked with a continuous line of flagging prior to the walk-through meeting. During the tree preservation walk-through meeting, the Project Arborist shall walk the limits of clearing and grading with a UFMD representative to determine where adjustments to the clearing limits can be made to increase the area of tree preservation and/or to increase the survivability of trees at the edge of the limits of clearing and grading, and such adjustment shall be implemented. The Applicants shall also work with UFMD to identify areas adjacent to the limits of clearing and grading where a mix of understory plantings and shrubs may be provided, and such adjustment shall be implemented. Trees that are identified as dead or dying may be removed as part of the clearing operation. Any tree that is so designated shall be removed using a chain saw, and such removal shall be accomplished in a manner that avoids damage to surrounding trees and associated understory vegetation. If a stump must be removed, this shall be done using a stump-grinding machine in a manner causing as little disturbance as possible to adjacent trees and associated understory vegetation and soil conditions.
- D. All trees shown to be preserved on the Tree Preservation Plan shall be protected by tree protection fencing. Tree protection fencing, consisting of four (4) foot high, 14 gauge welded wire attached to six (6) foot steel posts driven eighteen (18) inches into the ground and placed no farther than ten (10) feet apart or super silt fence, to the extent that required trenching for super silt fence does not sever or wound compression roots which can lead to structural failure and/or uprooting of trees, shall be placed at the limits of clearing and grading. The tree protection fencing shall be installed after the tree preservation walk-through meeting but prior to the performance of any clearing and grading activities on the site. Prior to the commencement of any clearing or grading on the site, the Project Arborist shall verify in writing that the tree protection fencing has been properly installed.
- E. The Applicants shall (1) prune roots one inch in diameter or larger of trees to be preserved that may be damaged during clearing, demolition, grading, utility installation and/or the installation of retaining walls; and (2) mulch to a minimum depth of three (3) inches within the areas to be left undisturbed where soil conditions are poor, lacking leaf litter or prone to soil erosion. Areas that will be root pruned and mulched shall be clearly identified on the Tree Preservation Plan. All treatments for such trees and vegetation shall be clearly specified, labeled, and detailed on the erosion and sediment control sheets of the subdivision plan submission. The details

for these treatments shall be included in the Tree Preservation Plan and shall be subject to the review and approval of UFMD.

All root pruning and mulching work shall be performed in a manner that protects adjacent trees and vegetation that are required to be preserved and may include, but not be limited to, the following:

- (i) Root pruning shall be done with a trencher or vibratory plow to a depth of eighteen (18) inches, or as specified by UFMD at the pre-construction meeting.
  - (ii) Root pruning shall take place prior to installation of tree protection fencing.
  - (iii) Root pruning shall not sever or significantly damage structural or compression roots in a manner that may compromise the structural integrity of trees or the ability of the root system to provide anchorage for the above ground portions of the trees.
  - (iv) Root pruning shall be conducted with the on-site supervision of the Project Arborist.
  - (v) Tree protection fencing shall be installed immediately after root pruning, and shall be positioned directly in the root pruning trench and backfilled for stability, or just outside the trench within the disturbed area.
  - (vi) Mulch shall be applied at a depth of three (3) inches within designated areas. Mulch may be placed within tree preservation areas at points designated by the Project Arborist to minimize impacts to existing vegetation. Motorized equipment may be used to reach over tree protection fence to place mulch at designated points. Mulch shall be spread by hand within tree preservation areas.
  - (vii) Mulch shall consist of wood chips or pine bark mulch. Hay or straw mulch shall not be used within tree preservation areas.
  - (viii) UFMD shall be informed in writing when all root pruning and tree protection fence installation is complete.
- F. During the installation of tree protection fencing, performance of root pruning, and/or any clearing or removal of trees, vegetation, or structures, or other activities in or adjacent to tree conservation areas on the Application Property, the Project Arborist, as a representative of the Applicants, shall be present to monitor the process and ensure that the activities are conducted in accordance with the proffers and as approved by the UFMD. Inappropriate activities such as storage of construction materials, dumping of construction debris, and traffic by construction personnel shall not occur within these areas. Damage to understory plant materials, leaf litter and

soil conditions resulting from activities not approved in writing by UFMD shall be restored to the satisfaction of UFMD.

6. PARKS CONTRIBUTION –

The Applicants shall contribute the sum of Five Thousand Three Hundred Fifty Eight Dollars (\$5,358.00) to the Fairfax County Park Authority to offset the impact to parks and recreation services from the new residents anticipated by the development of the Application Property. Said contribution is to be utilized for recreational facility development at one or more park sites located within the service area of the Application Property. Such contribution shall be made prior to the issuance of the first RUP for the Application Property and shall be based on the actual number of dwelling units constructed.

7. STORMWATER MANAGEMENT –

A. Subject to review and approval by DPWES, stormwater management (“SWM”) and Best Management Practice (“BMP”) measures for the Application Property shall be provided in bioretention facilities, or other type of water quality and quantity control facilities as permitted by the PFM, as depicted on Sheets 2 and 3 of the GDP. The SWM and BMP measures shall be developed in accordance with the PFM, unless waived or modified by DPWES.

B. The owners of each dwelling unit shall be responsible for the maintenance of the proposed stormwater facilities located on their lot. The maintenance responsibilities will be disclosed to all prospective purchasers prior to entering into a contract of sale.

C. The Applicants shall provide written materials to contract purchasers of the dwelling units describing proper maintenance of the stormwater facilities in accordance with the PFM and County guidelines.

8. GREEN BUILDING PRACTICES –

New dwelling units on the Application Property shall be constructed to achieve one of the following programs, or an alternative third-party certification as approved by the Environmental and Development Review Branch of the Department of Planning and Zoning (“DPZ”). Selection of one of the following certification methods, or an alternative, shall be within the Applicants’ sole discretion at time of subdivision plan submission:

A. Certification in accordance with the Earth Craft House Program as demonstrated through documentation provided to DPWES and DPZ prior to the issuance of a RUP; or

B. Certification in accordance with the 2012 National Green Building Standard (NGBS) using the ENERGY STAR® Qualified Homes path for energy performance as demonstrated through documentation submitted to DPWES and DPZ from a home

energy rater certified through Home Innovation Research Labs that demonstrates that the dwelling unit has attained the certification prior to issuance of a RUP.

9. SCHOOLS CONTRIBUTION –

- A. The Applicants shall contribute the sum of Twenty Three Thousand Four Hundred Ninety Eight Dollars (\$23,498.00) to the Fairfax County School Board to offset the student generation anticipated by the new development located on the Application Property. Said contribution is to be utilized for capital improvements to Fairfax County Public Schools to address impacts on the school district resulting from new development located on the Application Property. Such contribution shall be made prior to the issuance of the first RUP for the Application Property and shall be based on the actual number of new dwelling units constructed. Such contribution shall be directed to schools in the James Madison High School pyramid.
- B. The Applicants shall notify Fairfax County Public Schools when development of the Application Property is likely to occur.
- C. Should Fairfax County modify the ratio of students per unit or the amount of contribution per student prior to payment of the contribution described in Proffer 9.A., the Applicants shall contribute the modified contribution amount.

10. AFFORDABLE HOUSING -

Prior to the issuance of the first building permit, the Applicants shall contribute to the Fairfax County Housing Trust Fund a sum equal to one-half of one percent (0.5%) of the anticipated sales price of all new dwelling units constructed on the Application Property to assist the County in its goal to provide affordable dwellings. The contribution shall be based on the aggregate sales price of all of the units, as if all of the units were sold at the time of the issuance of the first building permit, and on comparable sales of similar type units. The projected sales price shall be as determined by the Applicants in consultation with the Department of Housing and Community Development (HCD).

11. SIGNS –

- A. Notwithstanding the fact that signs for the Application Property are not depicted in the GDP, the Applicants reserve the right to install signs on the Application Property that are in accordance with the requirements of Article 12 of the Fairfax County Zoning Ordinance.

B. No temporary signs (including “popsicle” style paper or cardboard signs) which are prohibited by Article 12 of the Zoning Ordinance, and no signs which are prohibited by Chapter 7 of Title 33.1 or Chapter 8 of Title 46.2 of the Code of Virginia shall be placed on-street or off-site by the Applicants or at the Applicants’ direction to assist in the initial marketing and sale of homes on the Application Property. Furthermore,

the Applicants shall direct its agents involved in marketing and/or home sales for the Application Property to adhere to this proffer.

12. MISCELLANEOUS -

- A. Upon demonstration by the Applicants that, despite diligent efforts or due to factors beyond the Applicants' control, the required improvements have been or will be delayed beyond the time set forth in these proffers, the Zoning Administrator may agree to a later date for the completion of such improvements.
- B. These proffers shall bind and inure to the benefit of the Applicants and their successors and assigns.

**[SIGNATURES ON THE FOLLOWING PAGE]**

RZ 2015-HM-010

APPLICANTS/OWNERS:

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CHRISTOPHER WALDEN WARNER

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MARY JO WARNER

*[SIGNATURES END]*