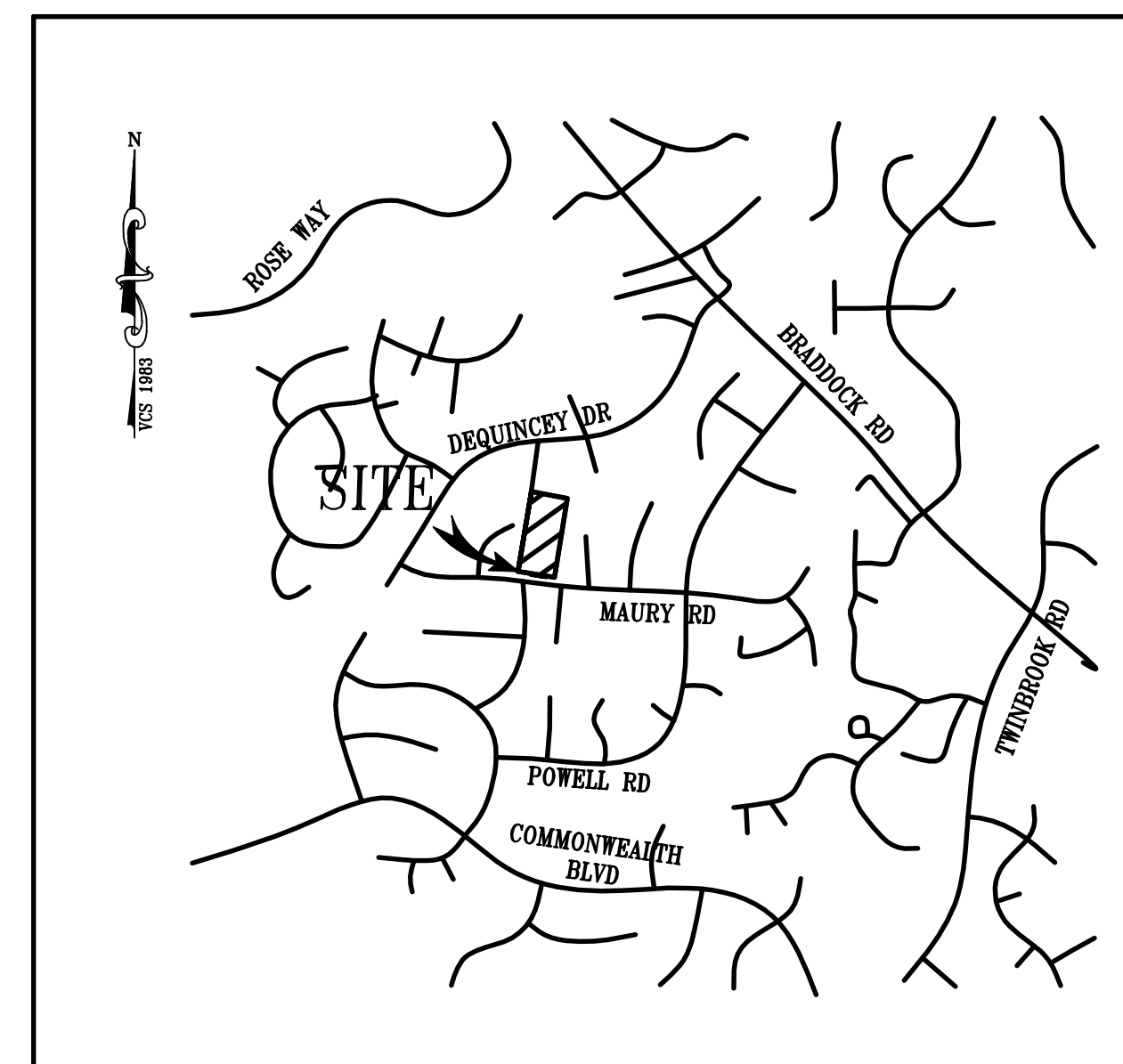


# COVE ROAD SUBDIVISION

## GENERALIZED DEVELOPMENT PLAN (GDP)

BRADDOCK DISTRICT  
FAIRFAX COUNTY, VIRGINIA 22032

APRIL 3, 2019  
REVISED JULY 12, 2019



VICINITY MAP  
SCALE: 1" = 1,000'

### SHEET INDEX

1. COVER SHEET
2. NOTES AND DETAILS
3. EXISTING CONDITIONS
4. EXISTING VEGETATION MAP
5. GDP LAYOUT
6. LANDSCAPE PLAN
7. TREE CONSERVATION AND INVENTORY PLAN
8. PRELIMINARY BMP ANALYSIS
9. PRELIMINARY STORMWATER MANAGEMENT ANALYSIS
10. ADEQUATE OUTFALL ANALYSIS

### OWNER:

MARALEE MOORE SISSON, TRUSTEE  
MARALEE MOORE SISSON REVOCABLE TRUST  
9730 MAURY RD  
FAIRFAX, VA 22032

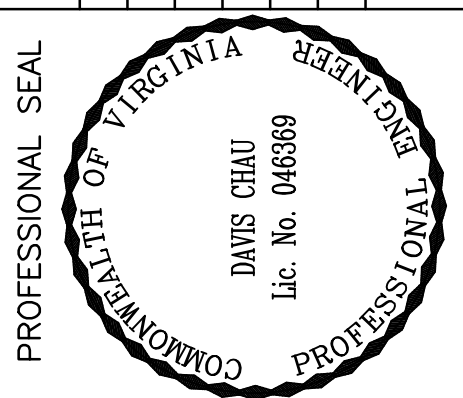
### APPLICANT:

VIRENDRA AND AMIT BERY  
6095 CLIFTON RD  
CLIFTON, VA 20124



Civil, Environmental & Geotechnical Engineering  
10875 Main Street, Suite 213  
Fairfax, VA 22030  
Tel. 703.591.7170  
Fax. 703.591.7074 Web Site: [geoenvi.com](http://geoenvi.com)

REVISION BLOCK	NO.	DESCRIPTION	DATE



**COVER SHEET**  
**LOT 14 VERTAIN PARK AND  
VACATION PORTION OF COVE ROAD  
9730 MAURY RD  
BRADDOCK DISTRICT, FAIRFAX, VA 22032**

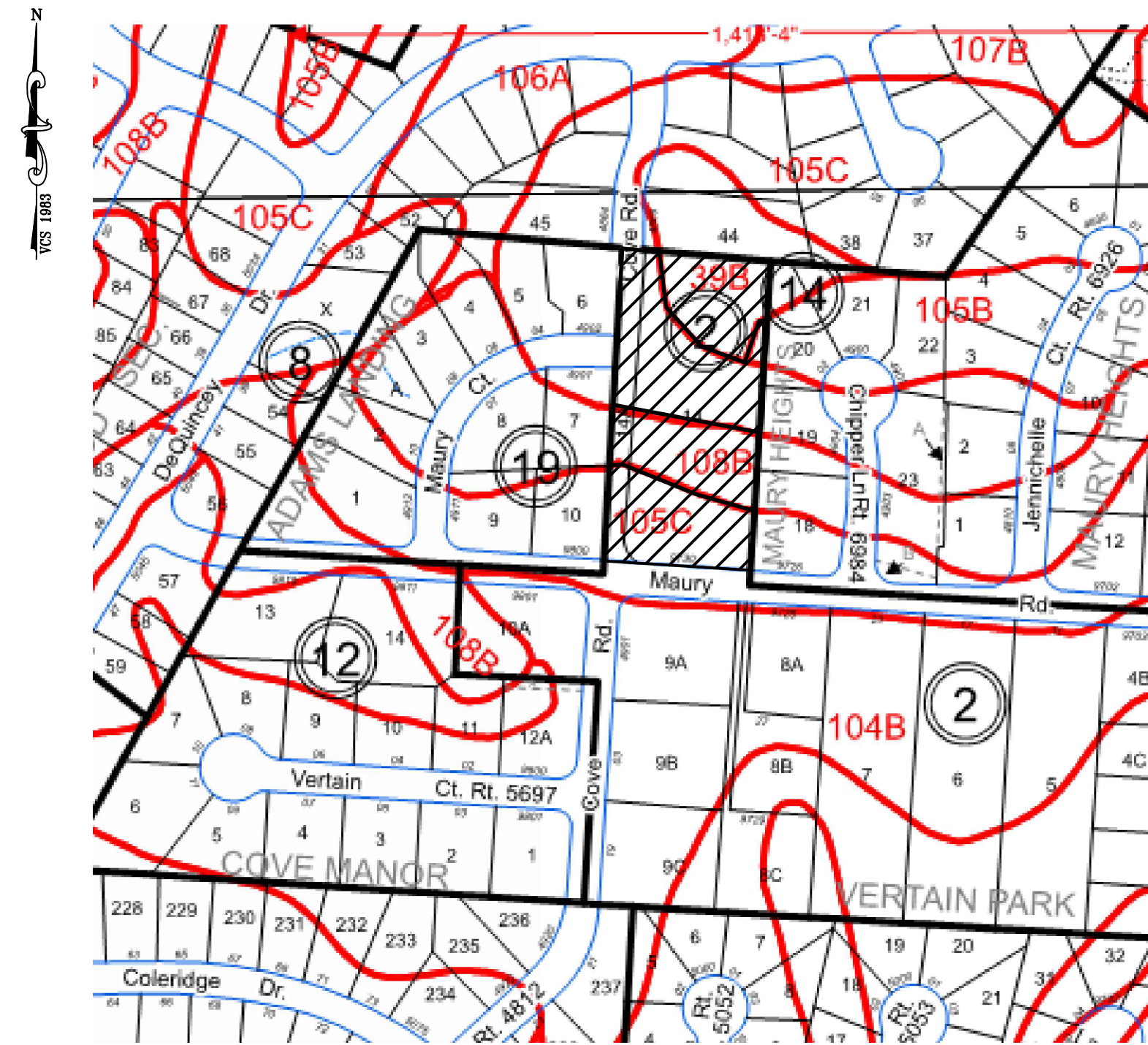
TAX MAP:	69-3-02-14&14A
DATE:	NOV 2018
PREP. BY:	DC
CHECKED BY:	I.C.
PROJECT #	2018-4137
SCALE:	N/A
SHEET:	1 OF 10

## GENERAL NOTES

- ALL REFERENCES HEREIN TO ZONING ORDINANCE SHALL REFER TO THE FAIRFAX COUNTY ZONING ORDINANCE.
- THE SUBJECT PROPERTY IS LOCATED IN THE BRADDOCK DISTRICT OF FAIRFAX COUNTY WITH TAX MAP# 69-3-((02))-14 AND MAP# 69-3-((02))-14A. ALL REFERENCES HEREIN TO PROPERTY, PARCEL, OR SITE REFER TO THE SUBJECT PROPERTY. THE TOTAL LOT AREA IS 2.3239 ACRES.
- THE PROPERTY IS CURRENTLY ZONED R-1 AND IS PROPOSED TO BE REZONED TO R-3 FOR DEVELOPMENT OF A MAXIMUM OF 5 LOTS. THE DEVELOPER RESERVES THE RIGHT TO DEVELOP FEWER LOTS IF DESIRED.
- THE PROPERTY IS COMPRISED OF PARCELS OWNED BY CHARLES AND MARALEE SISSON AND THE MARALEE MOORE SISSON TR. THE BOUNDARY INFORMATION SHOWN HEREON IS BASED SUBDIVISION PLAT INFORMATION.
- THE TOPOGRAPHY SHOWN HEREON IS AT TWO(2) FOOT CONTOUR INTERVALS, BASED ON A FIELD SURVEY PERFORMED BY GEOENV ENGINEERS, LLC., DATED OCTOBER, 2018.
- THERE ARE NO AFFORDABLE DWELLING UNITS PROPOSED WITH THIS PLAN.
- BASED UPON COUNTY MAPPING THERE ARE NO REGULATED FLOODPLAIN AND/OR RESOURCE PROTECTION AREAS ON THE PROPERTY.
- THERE ARE NO KNOWN EASEMENTS HAVING A WIDTH OF 25 FEET OR MORE ON THE PROPERTY.
- THERE ARE NO AREAS ON THE PROPERTY THAT HAVE SCENIC ASSETS OR NATURAL FEATURES WORTH PROTECTING AND PRESERVING.
- THERE ARE NO KNOWN GRAVE OR BURIAL SITES ON THE PROPERTY.
- THERE ARE NO ENDANGERED OR THREATENED PLANT OR ANIMAL SPECIES ON THE PROPERTY.
- ACCORDING TO THE FAIRFAX COUNTYWIDE TRAILS PLAN, THERE ARE NO TRAILS PROPOSED ON THE PROPERTY.
- THE USE AND DENSITY OF THE PROPOSED DEVELOPMENT CONFORMS TO THE RECOMMENDATIONS OF THE FAIRFAX COUNTY COMPREHENSIVE PLAN.
- THE PROPOSED DEVELOPMENT WILL NOT POSE ANY ADVERSE EFFECT ON ADJACENT OR NEIGHBORING PROPERTIES. LOT SIZES, HOMES AND SETBACKS WILL BE COMPATIBLE WITH THOSE OF ADJACENT DEVELOPMENTS.
- ALL EXISTING STRUCTURES ON THE LOT WILL BE REMOVED.
- THE PROJECT IS ANTICIPATED TO BE DEVELOPED IN A SINGLE PHASE.
- BASED UPON PRELIMINARY SITE INVESTIGATION, 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; ALL HAZARDOUS WASTE AS SET FORTH IN COMMONWEALTH OF VIRGINIA DEPARTMENT OF WASTE MANAGEMENT REGULATIONS VR 872-10-1-VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS; AND/OR PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 260; EXISTING ON SITE, OR PROPOSED TO BE GENERATED, UTILIZED, STORED, TREATED AND/OR DISPOSED OF ONSITE.
- THE PROPOSED DEVELOPMENT WILL CONFORM TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS EXCEPT AS MAY BE SPECIFIED OTHERWISE PER THE REQUESTED WAIVERS/MODIFICATIONS.
- PUBLIC SEWER AND WATER SHALL BE PROVIDED BY EXTENSION OF EXISTING SERVICE AREA. SOLID WASTE REMOVAL SHALL BE PROVIDED BY PRIVATE CONTRACTOR.
- PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE.
- LOT SIZES AND HOUSE FOOTPRINTS REPRESENTED ARE ILLUSTRATIVE AND APPROXIMATE. THE SIZE AND CONFIGURATION OF HOUSE FOOTPRINTS MAY BE REVISED PROVIDED THAT THE REQUIRED MINIMUM SETBACKS ARE NOT DIMINISHED.
- PURSUANT TO THE ZONING ORDINANCE, MINOR MODIFICATIONS TO THE HOUSE SIZES, DIMENSIONS, AND/OR FOOTPRINTS AND LOCATIONS OF SIDEWALKS, UTILITIES, SWM FACILITIES AND RECREATIONAL FACILITIES MAY OCCUR WITH FINAL SITE ENGINEERING AND MAY REQUIRE AMENDMENTS TO THIS GDP AND/OR INTERPRETATIONS.
- LANDSCAPING CONSISTING OF A COMBINATION OF EVERGREEN AND DECIDUOUS TREES WILL BE PROVIDED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF ARTICLE 13 AND ANY PROFFERS.
- SUBJECT TO MARKET CONDITIONS, IT IS ANTICIPATED THAT CONSTRUCTION WILL COMMENCE AS SOON AS ALL NECESSARY COUNTY APPROVALS AND PERMITS ARE OBTAINED.
- STORMWATER MANAGEMENT FACILITIES WILL CONFORM TO ALL DPWS AND PFM REQUIREMENTS UNLESS WAIVED OR MODIFIED AS MAY BE PERMITTED BY THE DIRECTOR. THE DEVELOPER RESERVES THE RIGHT TO USE SUPPLEMENTARY INNOVATIVE MEASURES SUCH AS RAIN GARDENS AND GRASS SWALES TO MEET WATER QUALITY REQUIREMENTS.
- PUBLIC IMPROVEMENTS THAT WILL BE CONSTRUCTED SIMULTANEOUSLY WITH THE SINGLE FAMILY DWELLINGS INCLUDE STREET FRONTAGE IMPROVEMENTS, PUBLIC STREETS, AND SIDEWALKS AS SHOWN ON THE GDP.
- PURSUANT TO THE ZONING ORDINANCE, THE LIMIT OF CLEARING AND GRADING AND LANDSCAPED OPEN SPACE AREA REPRESENTED ON THE PLAN ARE PRELIMINARY AND SUBJECT TO MINOR MODIFICATION AT THE TIME OF FINAL DESIGN AND SITE ENGINEERING.

## SOIL MAP

SCALE: 1" = 200'



### SOIL DATA (RATINGS OF NRCS MAPPED SOIL IN FAIRFAX COUNTY)

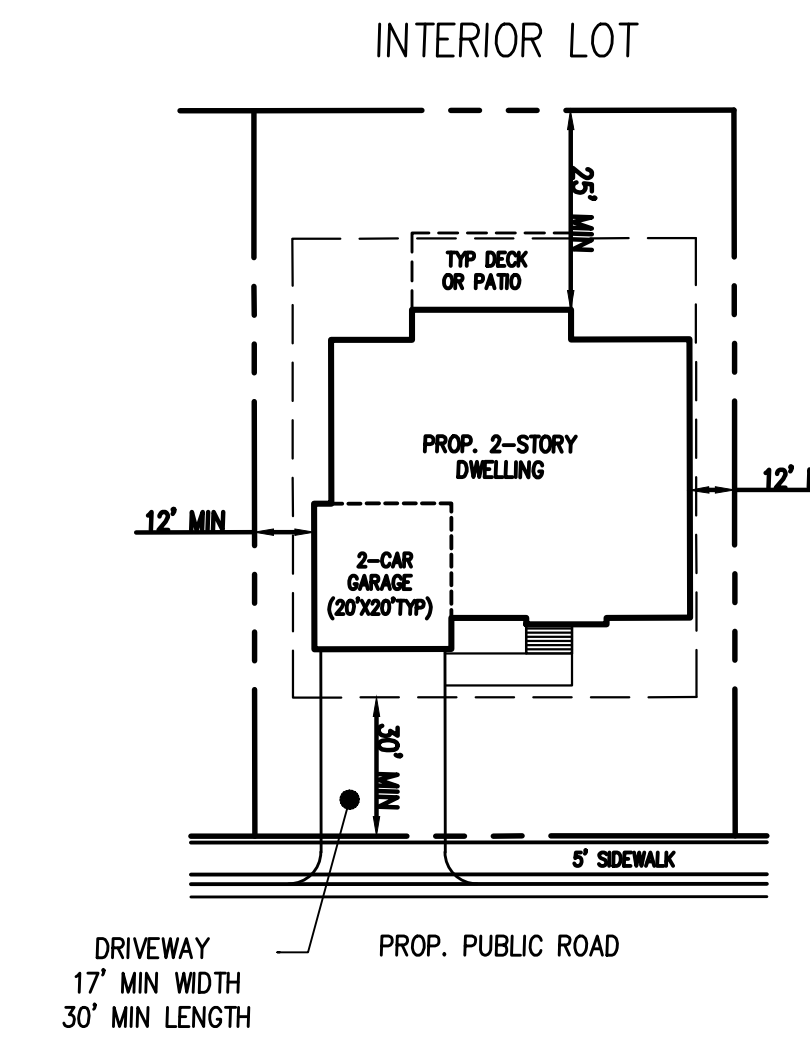
SOIL ID NUMBERS	SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	SUITABILITY FOR INFILTRATION TRENCHES	SOIL PROBLEM CLASS	EROSION POTENTIAL	SOIL HYDROLOGIC GROUP	% OF SITE	GEOTECH INVESTIGATION REQUIRED
39B	GLENELG SILT LOAM	GOOD	GOOD	GOOD	I	HIGH	B	19%	NO
105B/C	WHEATON - GLENELG COMPLEX	GOOD	GOOD	GOOD	IVB	HIGH	D	59%	YES*
108B	WHEATON - SUMERDUCK COMPLEX	MARGINAL	POOR	POOR	IVB	MEDIUM	D	22%	YES*

### SOIL NOTES:

- SOIL INFORMATION AND MAPPING PROVIDED BY THE OFFICIAL 2018 FAIRFAX COUNTY SOILS MAPS.
- \*GEOTECHNICAL REPORT IF REQUIRED WILL BE PROVIDED AT TIME OF SUBDIVISION PLANS.

## TYPICAL LOT DETAIL

(NTS)



### INTERIOR LOT NOTES

- THE TYPICAL LOT DETAIL IS INTENDED TO ESTABLISH MINIMUM YARD AREAS AND SETBACKS. THE FOOTPRINT SHOWN IS ILLUSTRATIVE AND IS NOT INTENDED TO REPRESENT THE ACTUAL FOOTPRINT. ALTERNATIVE FOOTPRINT MAY BE USED.
- DRIVEWAY LENGTH IS MEASURED FROM THE FACE OF THE GARAGE DOOR TO THE EDGE OF THE SIDEWALK OR FACE OF THE CURB IF NO SIDEWALK IS PROVIDED.
- DECK MODIFICATIONS MAY INCLUDE BUT ARE NOT LIMITED TO: LATTICE WORK, PERGOLAS, PRIVACY SCREENS, TRELLISES, BENCHES AND OVERHANGING PLANTER BOXES.

### ZONING AND AREA TABULATIONS

TOTAL SITE AREA:	2.3239 ACRES OR 101,228 S.F.
EXISTING ZONING:	R-1
PROPOSED ZONING:	R-3
PROPOSED DEVELOPMENT:	5 LOTS
PROPOSED DENSITY:	5 LOTS/2.3239 AC = 2.15 DU/AC
MINIMUM LOT AREA:	10,500 SQFT
MINIMUM LOT WIDTH:	80 FT
MINIMUM YARDS:	
FRONT:	30 FEET
SIDE:	12 FEET
REAR:	25 FEET
BUILDING HEIGHT:	35 FEET MAXIMUM

### PARKING TABULATIONS

TOTAL # OF UNITS:	5
PARKING SPACED REQ'D FOR SFD UNITS ON A PUBLIC STREET:	5 x 2 = 10 SPACES
PARKING SPACES PROVIDED:	
2 GARAGE (MIN) & 2 DRIVEWAY SPACES X 5 SFD UNITS	= 20 SPACES
20 SPACES PROVIDED > 10 SPACES REQUIRED, THEREFORE PARKING REQUIREMENT MET.	
FINAL PARKING COUNT SUBJECT TO CHANGE WITH FINAL ENGINEERING PLANS.	

## CONCEPTUAL ARCHITECTURAL RENDERINGS



ARCHITECTURAL SHOWN IS ILLUSTRATIVE AND IS INTENDED TO REPRESENT THE GENERAL CHARACTER AND QUALITY OF THE DESIGN. REFINEMENT AND REVISION MAY OCCUR WITH FINAL DESIGN DEVELOPMENT AND ENGINEERING.

## WAIVER/MODIFICATION REQUEST

- TREE PRESERVATION TARGET DEVIATION IS REQUESTED PER PFM 12-0508.3A(2). THE REMAINING TEN-YEAR TREE CANOPY REQUIREMENTS WILL BE MET THROUGH MEANS OF ON-SITE TREE PLANTING. SEE SHEET 4 FOR THE FORMAL REQUEST LETTER.

**GeoEnv Engineers**  
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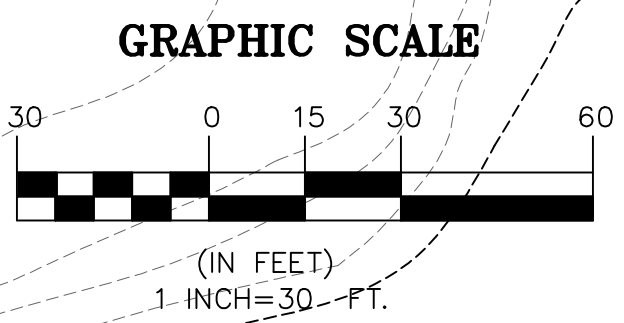
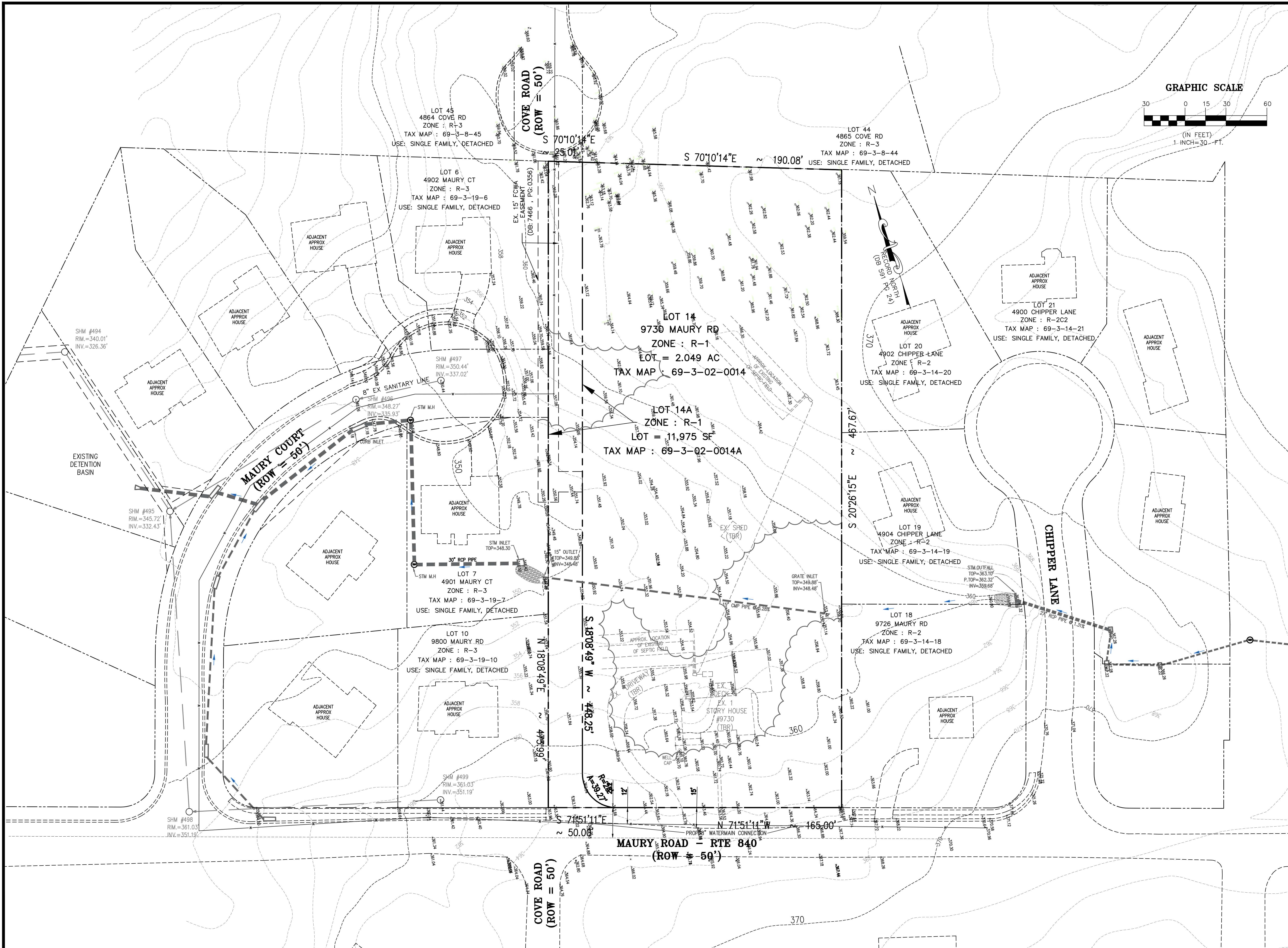
NO.	DESCRIPTION	DATE



NOTES AND DETAILS

LOT 14 VERTAIN PARK AND  
VACATION PORTION OF COVE ROAD  
9730 MAURY RD  
BRADDOCK DISTRICT, FAIRFAX, VA 22032

TAX MAP:	69-3-02-14&14A
DATE:	NOV 2018
PREP. BY:	DC
CHECKED BY:	I.C.
PROJECT #	2018-4137
SCALE:	N/A
SHEET:	2 OF 10

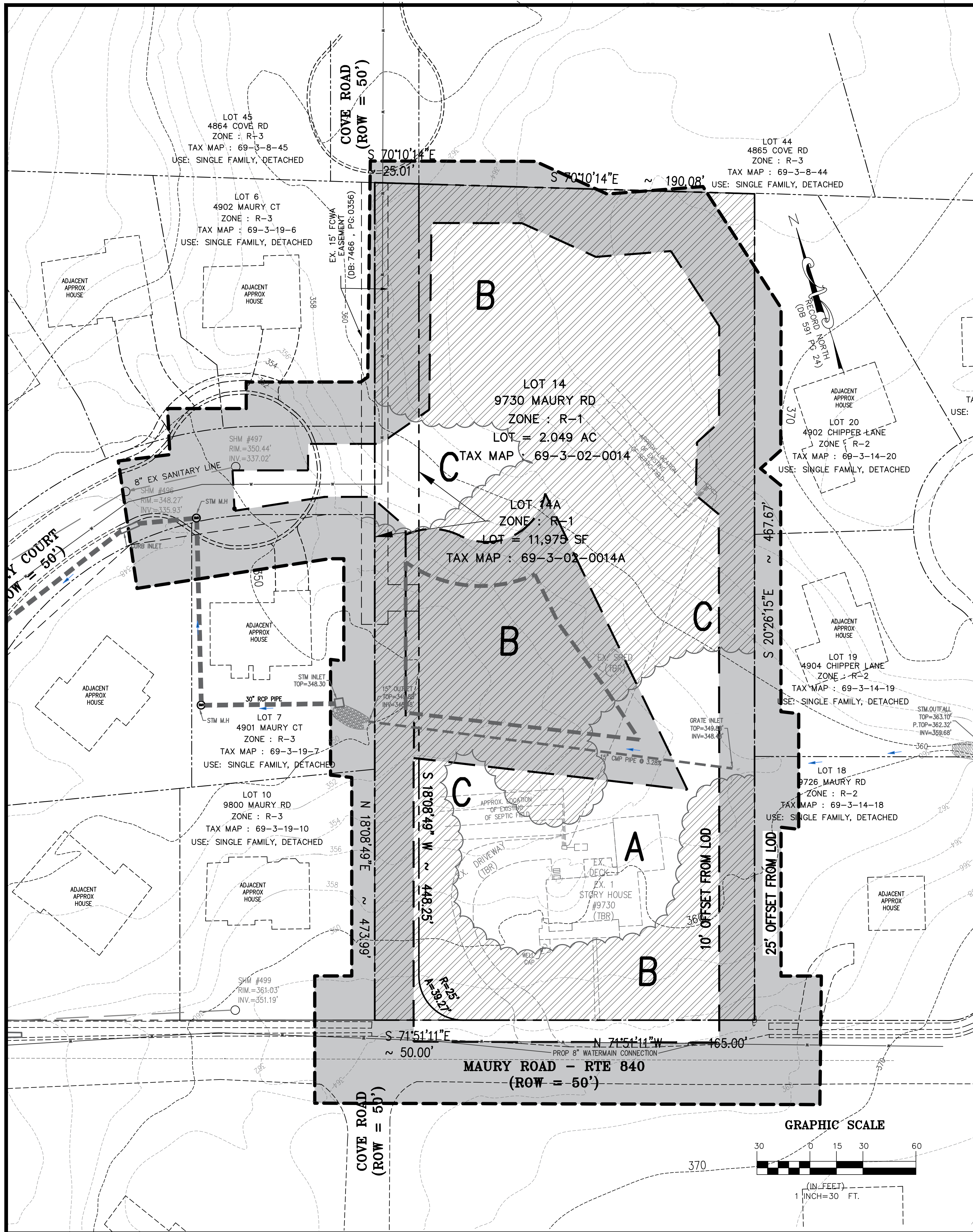


NO.	DESCRIPTION	DATE



**EXISTING CONDITIONS**  
**LOT 14 VERTAIN PARK AND**  
**VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

TAX MAP:	69-3-02-14&14A
DATE:	NOV 2018
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PROJECT #	2018-4137
SCALE:	1"=30'
SHEET:	3 OF 10



EXISTING VEGETATION SUMMARY

KEY	COVER TYPE	PRIMARY SPECIES	SUCCESIONAL STAGE	CONDITION	AREA (AC)	COVER TYPE DESCRIPTION
A	DEVELOPED LAND	N/A	N/A	N/A	0.12 AC	THIS AREA CONSISTS OF ONE EXISTING DWELLING, DRIVEWAY, PORCH, ETC.
B	UPLAND FOREST	PREDOMINANTLY POPLAR, OAK, PINE, ETC	CLIMAX	GOOD/FAIR	1.87 AC	THE LOT CONTAINS MAJORITY OF TULIP POPLAR, PINE AND OAK. THE TREES ARE SCATTERED DENSITY THROUGHOUT. THE MAJORITY OF THE TREES ARE IN GOOD/FAIR CONDITION.
C	OPEN FIELD	N/A	N/A	N/A	0.33 AC	THIS COVER TYPE CONTAINS OPEN SPACE ON THE PROPERTY, IE MAINTAINED LAWN.
TOTAL					2.32 AC	



July 12, 2019

To,  
 Brian Keightley, Director  
 Forest Conservation Branch  
 Urban Forest Management Division  
 12055 Government Center Parkway  
 Fairfax, Virginia 22035

Subject: Request for Deviation from the Tree Preservation Target

Re: Project Name: Cove Road Subdivision  
 9730 Maury Road, Fairfax, VA 22032  
 Tax ID: 69-3-((02))-14 and 69-3-((02))-14A

Dear Mr. Keightley

On behalf of our client Bery Homes, LLC, we would like to request for deviation from the tree preservation target requirement for the above referenced property. The property is located at 9730 Maury Road, Fairfax, VA 22032. The proposed rezoning plan is for R-3 single family residential use, as allowed for this site by the Fairfax County Comprehensive Plan.

The site in existing condition is 2.324 acres or 101,228 sq ft. Approximately 84,463 (80.5%) of the lot area is covered by the existing tree canopy area.

The existing tree preservation area required for this lot is 25,307 sf (please refer to sheet #6). GeoEnv Engineers has explored multiple roadway layouts and lot placements to achieve the required tree preservation. However, due to the large amount of the lot dedicated for roadway and utilities, only 9,408 sf of existing trees could be preserved. Thus, the tree preservation target area requirement is not met for the site and tree preservation target deviation has been requested under PFM 12-05-08.3A (3). The proposed replacement trees will be planted with on each of the lots as well as throughout the common area. Approximately, 86 trees will be planted to exceed the overall 10-year tree canopy requirement for this proposed subdivision. This will achieve a tree canopy of over 25 percent. The proposed tree canopy will be approximately 3,000 sqft greater than the requirement to account for any potential issues with the existing preserved tree canopy. Special attention will be given to protect offsite trees. The owner/ contractor shall strictly follow the approved tree preservation plan and tree preservation narratives. A tree preservation target deviation is requested per PFM 12-0508.3A (3).

12-0508.3A (3): Construction activities could be reasonably expected to impact existing trees or forested areas used to meet the tree preservation target to the extent these would not likely survive in a healthy and structurally sound manner for a minimum of 10 -years in accordance with post-development standards for trees and forested areas provided in 12-0403 and 12-0404.

The 10-yr Tree canopy requirements will be met by planting new trees. A total of 27.9% of the tree canopy area will be provided, which is equal to the minimum required of 25.0% of the total lot area. Please refer to attached tree preservation plan on sheet #6.

We trust that this request meets the tree preservation requirements. If you have any questions, please feel free to call the undersigned at 703-591-7170. Thank you in advance for your prompt approval of this request.

Very truly yours,

Davis Chau, P.E.  
 Principal

10875 Main Street, Suite 213, Fairfax, Virginia, 22030 Tel (703)591-7170 Fax (703) 591-7074

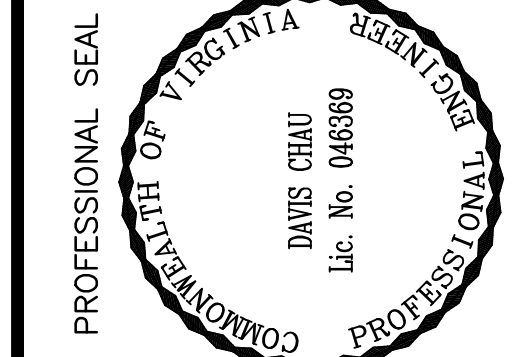
INVASIVE SPECIES CONTROL NARRATIVE:

THE APPLICANT SHALL RETAIN THE SERVICES OF A VIRGINIA CERTIFIED APPLICATOR OR REGISTERED TECHNICIAN TO PERFORM THE INVASIVE SPECIES CONTROL AS DETAILED BELOW. THE PROJECT ARBORIST SHALL MONITOR THE INVASIVE SPECIES EFFORTS UNTIL PLANTS NOTED BELOW ARE NO LONGER IN ABUNDANCE OR UNTIL BOND RELEASE, WHICHEVER IS LATER. INVASIVE SPECIES CONTROL EFFORTS SHALL OCCUR AS DETAILED BELOW FOR EACH SPECIES, AND FOLLOW-UP TREATMENTS SHALL OCCUR AS NEEDED DURING BOND.

1. ANY APPLICATION OF ENVIRONMENTALLY SENSITIVE APPROVED HERBICIDES SHALL BE APPLIED BY A VIRGINIA CERTIFIED APPLICATOR OR REGISTERED TECHNICIAN.
2. BUSH AND JAPANESE HONEYSUCKLE, ENGLISH IVY AND BARBERRY: REMOVE FROM TREES BY CUTTING ALL VINES AT GROUND LEVEL. VINES SHOULD BE CUT AGAIN SEVERAL FEET UP THE TRUNK. PEEL THE CUT SECTION OF IVY OFF BUT CARE SHOULD BE TAKEN NOT TO STRIP THE BARK OFF THE TREE. PULL GROUND IVY BACK A FEW FEET FROM THE BASE OF THE TREE TO SLOW REGROWTH UP THE TREE TRUNK. REMOVE GROUND IVY BY HAND PULLING AND MOW USING A STAND BEHIND MOWER AND MULCHING OVER TOP, AND/OR APPLYING A SYSTEMIC HERBICIDE LIKE TRICLOPYR TO LEAVES OR FRESHLY CUT LARGE STEMS. RETREATMENT MAY BE NECESSARY FOR COMPLETE ERADICATION. THE ENGLISH IVY REMNANTS SHALL BE BAGGED AND REMOVED FROM THE PROJECT SITE.
3. ROSA MULTIFLORA: SHALL BE REMOVED BY HAND TO MINIMIZE SITE DISTURBANCE. IN THE GROWING SEASON, AN APPLICATION OF AN ENVIRONMENTALLY SENSITIVE APPROVED HERBICIDE MAY BE APPLIED BY A VIRGINIA CERTIFIED APPLICATOR. TO REDUCE DAMAGE TO NON-TARGET PLANTS, HERBICIDES SUCH AS GLYPHOSATE AND TRICLOPYR SUGGESTED CHEMICAL CONTROL DURING JULY, AUGUST, AND UP TO MID-SEPTEMBER IS TO CUT MULTIFLORA ROSE DOWN TO ONE INCH FROM THE GROUND AND IMMEDIATELY APPLY STRAIGHT GLYPHOSATE HERBICIDE TO THE FRESHLY CUT STUMP USING A PAINT BRUSH OR SPONGE APPLICATOR.
4. MILE-A-MINUTE(MAM): REMOVE FROM TREES BY CUTTING ALL VINES AT GROUND LEVEL. VINES SHOULD BE CUT AGAIN SEVERAL FEET UP THE TRUNK AS LONG AS RIPE OR NEARLY-RIPE SEED (LOOK FOR THE BLUE FRUIT) ARE NOT PRESENT. THE VINES CAN BE PULLED (WITH PROTECTIVE GLOVES) AND LEFT TO DRY. IF RIPE SEED IS PRESENT, PULLED VINES SHOULD BE BAGGED AND DESTROYED, PREFERABLY BY BURNING. THE SIMPLEST APPROACH WOULD BE TO USE STURDY PAPER BAGS AND BURN THE BAGS. IT IS IMPORTANT TO REMOVE THE PLANTS BEFORE THE FRUITS START TO RIPEN IN MID-JULY TO PREVENT ITS SPREAD AND FURTHER CONTAMINATION OF THE SITE. MAM SEED IS VIABLE IN THE SOIL FOR AT LEAST FIVE YEARS, SO PREVENTIVE MAM MANAGEMENT TECHNIQUE SUCH AS APPLICATION OF PRE-EMERGENCE PENDIMETHALIN AROUND MARCH IS RECOMMENDED.

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 Civil, Environmental & Geotechnical Engineering  
 10875 Main Street, Suite 213  
 Fairfax, VA 22030  
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 Web Site: geoenv.com

REVISION BLOCK	NO.	DESCRIPTION	DATE



**EXISTING VEGETATION MAP**  
**LOT 14 VERTAIN PARK AND**  
**VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

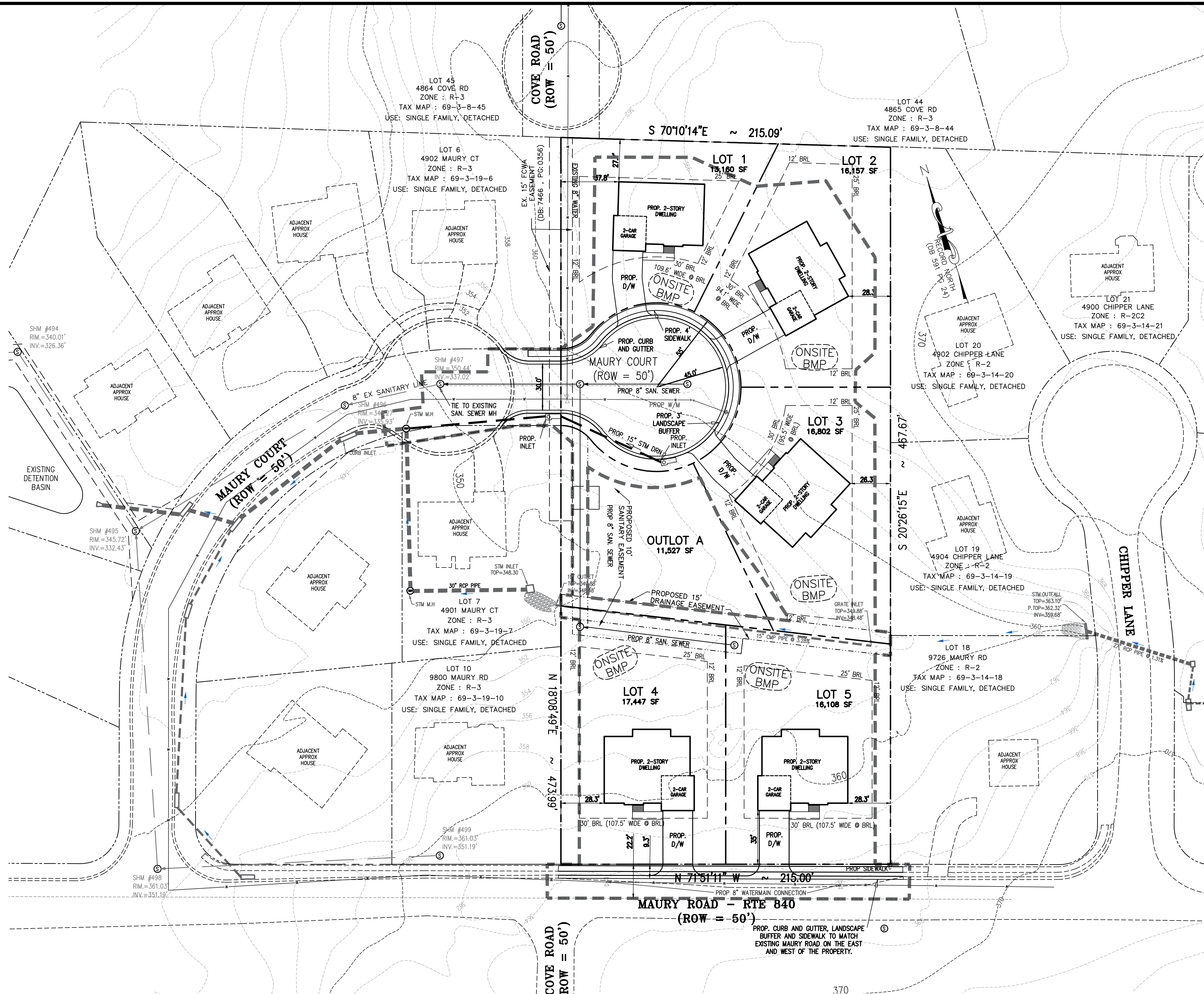
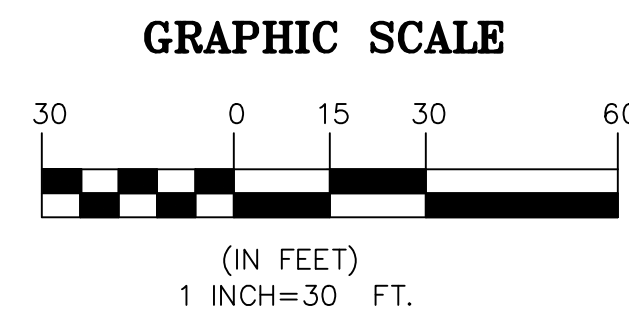
TAX MAP: 69-3-02-14&14A
DATE: NOV 2018
PREP. BY: DC
CHECKED BY: I.C.
PROJECT #: 2018-4137
SCALE: 1"=30'
SHEET: 4 OF 10

**NOTES:**

1. PROPOSED UTILITY LINE AND LOT LINE LOCATIONS ARE CONCEPTUAL AND SUBJECT TO ADJUSTMENT WITH FINAL ENGINEERING, PROVIDED THEY ARE IN SUBSTANTIAL CONFORMANCE WITH SE PLAT.
2. THE SIZE AND SHAPE OF THE HOUSE FOOTPRINTS ARE ILLUSTRATIVE AND SUBJECT TO ADJUSTMENT AT TIME OF FINAL ENGINEERING.
3. CLEARING LIMITS MAY BE ADJUSTED IN CERTAIN AREAS TO FACILITATE POSITIVE DRAINAGE AND FOR UTILITIES CONNECTION.
4. OFFSITE EASEMENTS IF ANY WILL BE RECORDED PRIOR TO FINAL PLAN APPROVAL.

**APPROXIMATE LOT AREAS**

Lots	Sqft	Acres
1	13,160	0.30
2	16,157	0.37
3	16,802	0.39
4	17,447	0.40
5	16,108	0.37
Outlot A	11,527	0.26
<b>Total Area</b>	<b>91,201</b>	
<b>Avg Lot Area</b>	<b>15,935 SF</b>	
<b>Min Lot Area</b>	<b>13,160 SF</b>	
<b>Min Lot Width</b>	<b>80 FT</b>	



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 Fairfax, VA 22030  
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 Web Site: [geoenvl.com](http://geoenvl.com)

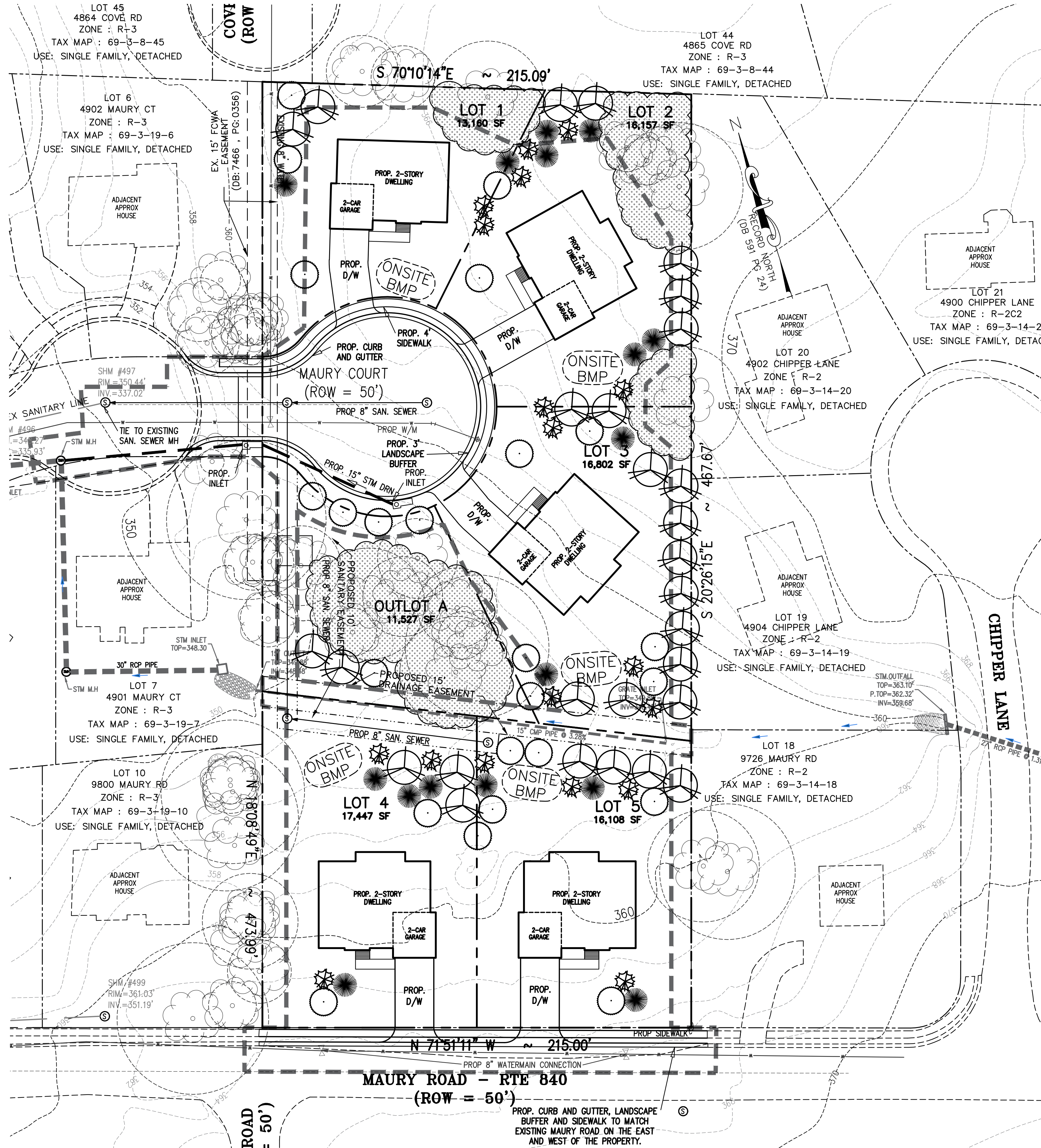
REVISION BLOCK	NO.	DESCRIPTION	DATE

PROFESSIONAL SEAL  
 COMMONWEALTH OF VIRGINIA  
 DAVIS CHAU  
 Lic. No. 046889  
 PROFESSIONAL ENGINEER

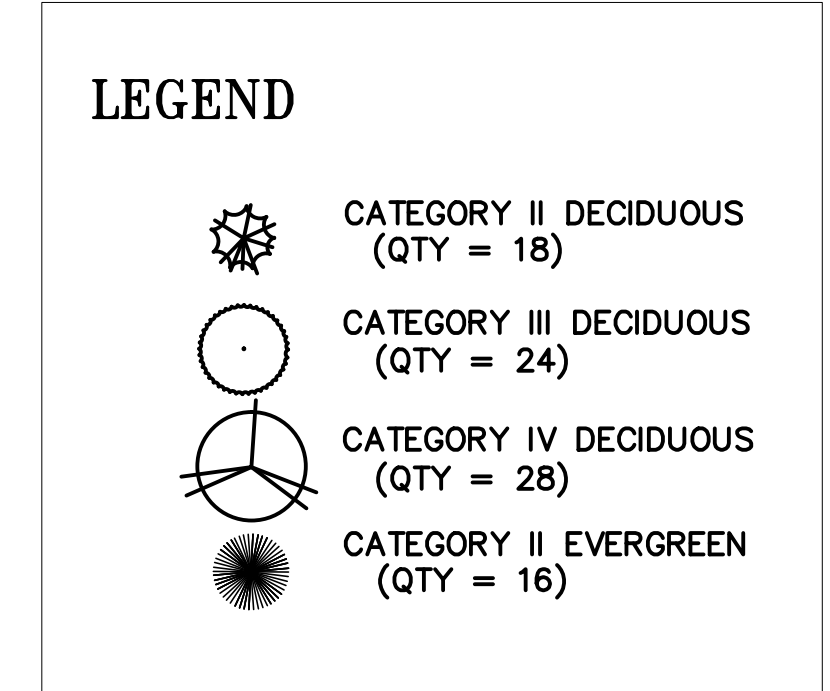
**GDP LAYOUT**  
**LOT 14 VERTAIN PARK AND**  
**VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

TAX MAP:	69-3-02-14&14A
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SHEET:	5 OF 10

A



B



**TRANSITIONAL SCREENING AND BARRIER**

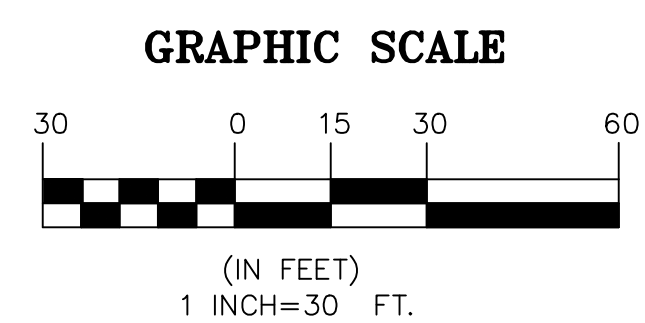
ADJACENT LINE	ADJACENT USES	REQUIRED BARRIER
NORTH A-B	SINGLE FAMILY DETACHED	NONE REQUIRED
EAST B-C	SINGLE FAMILY DETACHED	NONE REQUIRED
SOUTH C-D	SINGLE FAMILY DETACHED	NONE REQUIRED
SOUTH D-A	SINGLE FAMILY DETACHED	NONE REQUIRED

**NOTES:**

- TOTAL CANOPY COVERAGE PROVIDED BY MEANS OF WILDLIFE BENEFITS AND IMPROVED CULTIVARS MAY VARY AT TIME OF FINAL ENGINEERING. MINIMUM CANOPY COVERAGE REQUIREMENT WILL BE MET.
- LANDSCAPING TO BE PROPOSED WITH THIS APPLICATION SHALL CONSIST OF NATIVE, NON-INVASIVE SPECIES, TO THE GREATEST EXTENT POSSIBLE.
- PROPOSED PLANTINGS ARE MEANT TO CONVEY THE GENERAL CHARACTER AND QUALITY OF DESIGN. THE LOCATION, SPECIES SIZE AND QUANTITIES OF PROPOSED TREES ARE SUBJECT TO CHANGE AT FINAL ENGINEERING.

C

D



**TABLE 12.10 10-YEAR TREE CANOPY CALCULATION WORKSHEET**

A. TREE PRESERVATION TARGET AND STATEMENT		
A1	PRE-DEVELOPMENT AREA OF EXISTING TREE CANOPY (FROM EXISTING VEGETATION MAP)=	81463 SF
A2	PERCENTAGE OF GROSS SITE AREA COVERED BY EXISTING TREE CANOPY=	80.5%
A3	PERCENTAGE OF 10-YEAR TREE CANOPY REQUIRED FOR SITE (SEE TABLE 12.4)=	25%
A4	PERCENTAGE OF THE 10-YEAR TREE CANOPY REQUIREMENT THAT SHOULD BE MET THROUGH TREE PRESERVATION=	20.12%
A5	PROPOSED PERCENTAGE OF CANOPY REQUIREMENT THAT WILL BE MET THROUGH TREE PRESERVATION=	9.29%
A6	HAS THE TREE PRESERVATION TARGET MINIMUM BEEN MET?	NO
A7	IF NO FOR A6, THEN SHEET NUMBER WHERE DEVIATION REQUEST IS LOCATED	SHEET 4
A8	IF STEP G REQUIRES A NARRATIVE, IT SHALL BE PREPARED IN ACCORDANCE WITH § 12-0508.3	SHEET 4
B. TREE CANOPY REQUIREMENT		
B1	GROSS SITE AREA=	101228 SF
B2	SUBTRACT TO PARKS, ROAD FRONTAGE AND OTHERS=	0 SF
B3	SUBTRACT AREA OF EXEMPTIONS=	0 SF
B4	ADJUSTED GROSS SITE AREA 9B1-B2)=	101228 SF
B5	SITE ZONE/USE=	R-3
B6	PERCENT OF 10-YEAR TREE CANOPY REQUIREMENT=	25%
B7	AREA OF 10-YEAR TREE CANOPY REQUIRED (B4xB5)=	25307 SF
B8	MODIFICATION OF 10-YEAR TREE CANOPY REQUIREMENT REQUESTED?	NO
B9	IF B8 IS YES, THEN LIST PLAN SHEET WHERE MODIFICATION REQUEST IS LOCATED=	N/A
C. TREE PRESERVATION		
C1	TREE PRESERVATION TARGET AREA=	20366 SF
C2	TOTAL CANOPY AREA MEETING STANDARDS OF § 12-0400=	9408 SF
C3	C2x1.00=	9408 SF
C4	TOTAL CANOPY AREA PROVIDED BY UNIQUE OR VALUABLE FOREST OR WOODLAND COMMUNITIES=	0 SF
C5	C4x1.5=	0 SF
C6	TOTAL OF CANOPY AREA PROVIDED BY "HERITAGE", "MEMORIAL", "SPECIMEN" OR "STREET" TREES=	0 SF
C7	C6x1.25 OR 1.50=	0 SF
C8	CANOPY OF TREES WITHIN THE RESOURCE PROTECTION AREAS AND 100-YEAR FLOODPLAINS=	0 SF
C9	C8x1.0=	0 SF
C10	TOTAL OF C3, C5, C7 AND C9=	9408 SF
D. TREE PLANTING		
D1	AREA OF CANOPY TO BE MET THROUGH TREE PLANTING (B7-C10)=	0 SF
D2	AREA OF CANOPY PLANTED FOR AIR QUALITY BENEFITS=	0 SF
D3	(D2x1.5)=	0 SF
D4	AREA OF TREE PLANTED FOR ENERGY CONSERVATION=	0 SF
D5	(D4x1.5)=	0 SF
D6	AREA OF TREE PLANTED FOR WATER QUALITY BENEFITS=	0 SF
D7	(D6x1.5)=	0 SF
D8	AREA OF CANOPY PLANTED FOR WILDLIFE BENEFITS=	12600 SF
D9	(D8x1.5)=	18900 SF
D10	AREA OF CANOPY PROVIDED BY NATIVE TREES=	0 SF
D11	(D10x1.5)=	0 SF
D12	AREA OF CANOPY PROVIDED BY IMPROVED CULTIVARS AND VARIETIES=	0 SF
D13	(D12x1.25)=	0 SF
D14	AREA OF CANOPY PROVIDED THROUGH TREE SEEDLINGS=	0 SF
D15	(D14x1.0)=	0 SF
D16	PERCENTAGE OF D14 REPRESENTED BY D15= (MUST NOT EXCEED 33% OF D14)	0 SF
D17	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING=	18900 SF
D18	IS AN OFFSITE PLANTING RELIEF REQUESTED?	NO
D19	TREE BANK OR TREE FUND? § 12-0511=	NO
D20	CANOPY AREA REQUESTED TO BE PROVIDED THROUGH OFFSITE BANKING OR TREE FUND=	0 SF
D21	AMOUNT TO BE DEPOSITED INTO THE TREE PRESERVATION AND PLANTING FUND=	0 SF
E. TOTAL OF 10-YEAR TREE CANOPY PROVIDED		
E1	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PRESERVATION=	9408 SF
E2	TOTAL OF CANOPY AREA PROVIDED THROUGH TREE PLANTING=	18900 SF
E3	TOTAL OF CANOPY AREA PROVIDED THROUGH OFFSITE MECHANISM (D19)=	0 SF
E4	TOTAL OF 10-YEAR TREE CANOPY PROVIDED=	28308 SF

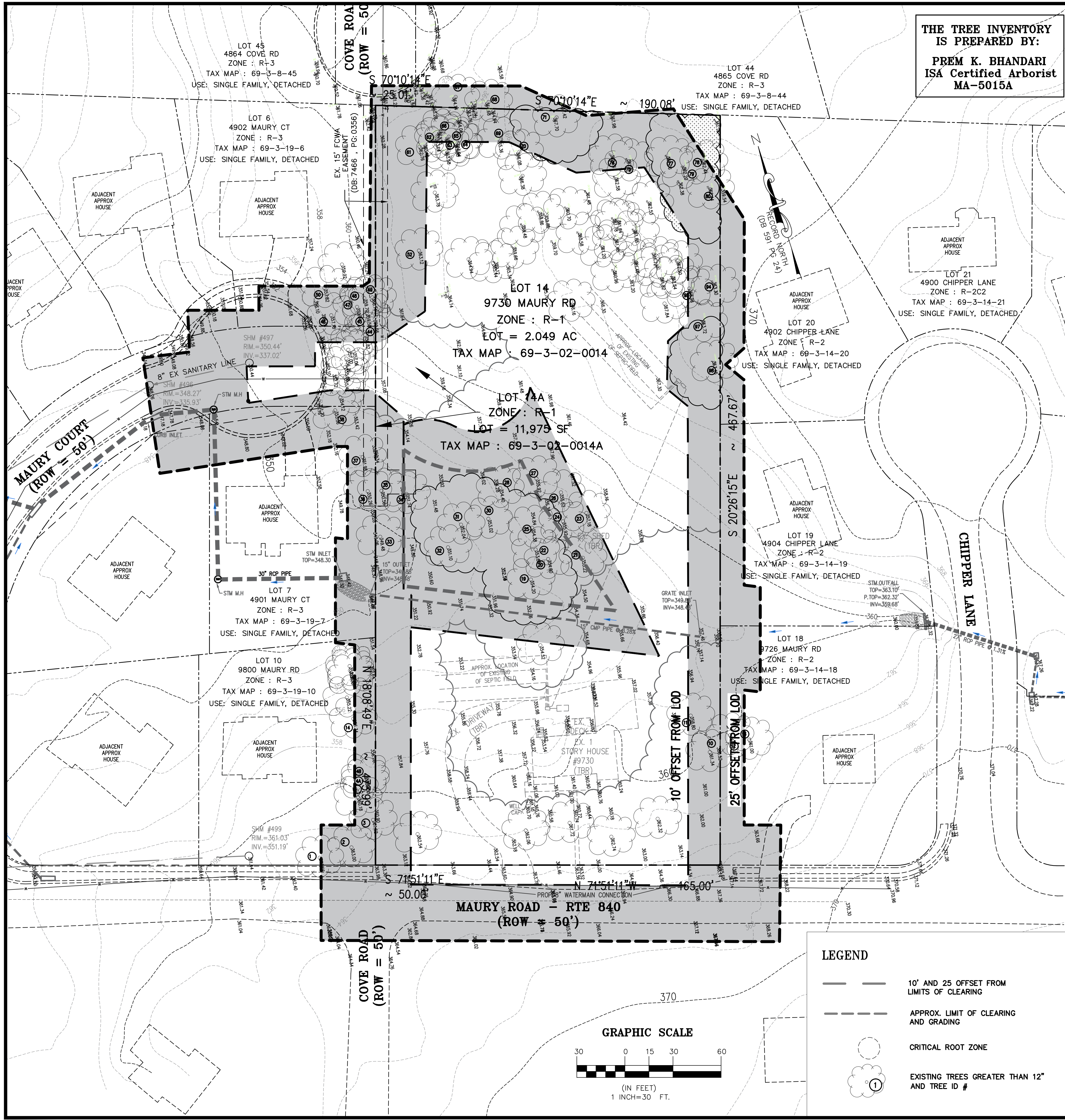
**TREE CANOPY PROVIDED > TREE CANOPY REQUIRED**  
**28,308 SF > 25,307 SF**

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REVISION BLOCK	NO.	DESCRIPTION	DATE

**LANDSCAPE PLAN**  
**LOT 14 VERTAIN PARK AND**  
**VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

TAX MAP: 69-3-02-14&14A  
 DATE: NOV 2018  
 PREP. BY: DC  
 CHECKED BY: I.C.  
 PROJECT #: 2018-4137  
 SCALE: 1"=30'  
 SHEET: 6 OF 10



**THE TREE INVENTORY IS PREPARED BY:**  
**PREM K. BHANDARI**  
**ISA Certified Arborist**  
**MA-5015A**

**EXISTING TREE INVENTORY (DIA > 12")**

TREE NO	BOTANICAL NAME	COMMON NAME	SIZE (in)	CRZ R(ft)	POOR CONDITION	POOR CONDITION RATING %	COMMENT
1	QUERCUS PALUSTRIS	PIN OAK	38	38			OFFSITE
2	QUERCUS VELUTINA	BLACK OAK	12	12			OFFSITE
3	LIRIODENDRON TULIPIFERA	TULIP POPLAR	16	16			OFFSITE
4	QUERCUS VELUTINA	BLACK OAK	18	18			OFFSITE
4A	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	24			OFFSITE
4B	QUERCUS PALUSTRIS	PIN OAK	12	12			OFFSITE
10	LIRIODENDRON TULIPIFERA	TULIP POPLAR	45	45			
11	LIRIODENDRON TULIPIFERA	TULIP POPLAR	42	42			
12	QUERCUS VELUTINA	BLACK OAK	28	28			OFFSITE
13	QUERCUS VELUTINA	BLACK OAK	34	34			OFFSITE
14	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20			OFFSITE
19	FAGUS	BEECH	28	28			SAVE, OUTLOT A
20	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36	36			SAVE, OUTLOT A
21	QUERCUS ALBA	WHITE OAK	14	14			
22	NYSSA SYLVATICA	BLACK GUM	12	12	YES	45	SAVE, OUTLOT A
23	QUERCUS ALBA	WHITE OAK	14	14	YES	40	
24	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20			
25	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20			SAVE, OUTLOT A
26	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	24	YES	42	
27	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20			
28	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20	YES	41	SAVE, OUTLOT A
30	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20			SAVE, OUTLOT A
31	FAGUS	BEECH	28	28			SAVE, OUTLOT A
32	NYSSA SYLVATICA	BLACK GUM	12	12			SAVE, OUTLOT A
33	LIRIODENDRON TULIPIFERA	TULIP POPLAR	14	14	YES	48	SAVE, OUTLOT A
34	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	20	YES	43	SAVE, OUTLOT A
35	QUERCUS ALBA	WHITE OAK	12	12			SAVE, OUTLOT A
36	LIRIODENDRON TULIPIFERA	TULIP POPLAR	14	14			OFFSITE
37	FAGUS	BEECH	40	40			OFFSITE
38	PINUS STROBUS	WHITE PINE	6	6			OFFSITE
44		DEAD TREE					
45	PINUS RESINOSA	RED PINE	12	12			OFFSITE
46	PRUNUS AVIUM	CHERRY	16	16			OFFSITE
47	PINUS RESINOSA	RED PINE	14	14	YES	42	OFFSITE
48	PINUS RESINOSA	RED PINE	12	12	YES	45	OFFSITE
49	PINUS RESINOSA	RED PINE	12	12	YES	44	OFFSITE
50	QUERCUS VELUTINA	BLACK OAK	16	16			OFFSITE
52	LIRIODENDRON TULIPIFERA	TULIP POPLAR	38	38			
61	QUERCUS VELUTINA	BLACK OAK	12	12			
62	PRUNUS AVIUM	CHERRY	12	12			
63	LIRIODENDRON TULIPIFERA	TULIP POPLAR	44	44			OFFSITE
64	CARYA	HICKORY	12	12			
65	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	24			
66	QUERCUS VELUTINA	BLACK OAK	28	28			
67	LIRIODENDRON TULIPIFERA	TULIP POPLAR	18	18			OFFSITE
68	ACER SACCHARUM	SUGAR MAPLE	16	16			OFFSITE
69	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	12			
70	LIRIODENDRON TULIPIFERA	TULIP POPLAR	16	16			
71	QUERCUS VELUTINA	BLACK OAK	28	28			SAVED
74	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	12			
75	LIRIODENDRON TULIPIFERA	TULIP POPLAR	26	26			
77	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	12			SAVED
78		DEAD TREE	32	32			SAVED
79	CARYA	HICKORY	12	12			SAVED
80	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32	32			SAVED
88	CARYA	HICKORY	12	12			
94	QUERCUS RUBRA	RED OAK	22	22			
95	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	30			
97	FAGUS	BEECH	26	26			
98	CARYA	HICKORY	28	28			SAVED

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REVISION	BLOCK	DESCRIPTION	DATE

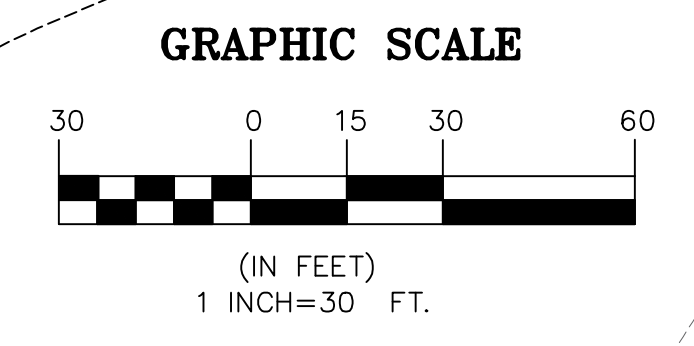
PROFESSIONAL SEAL  
 COMMONWEALTH OF VIRGINIA  
 DAVIS CHAU  
 Lic. No. 046889  
 PROFESSIONAL ENGINEER

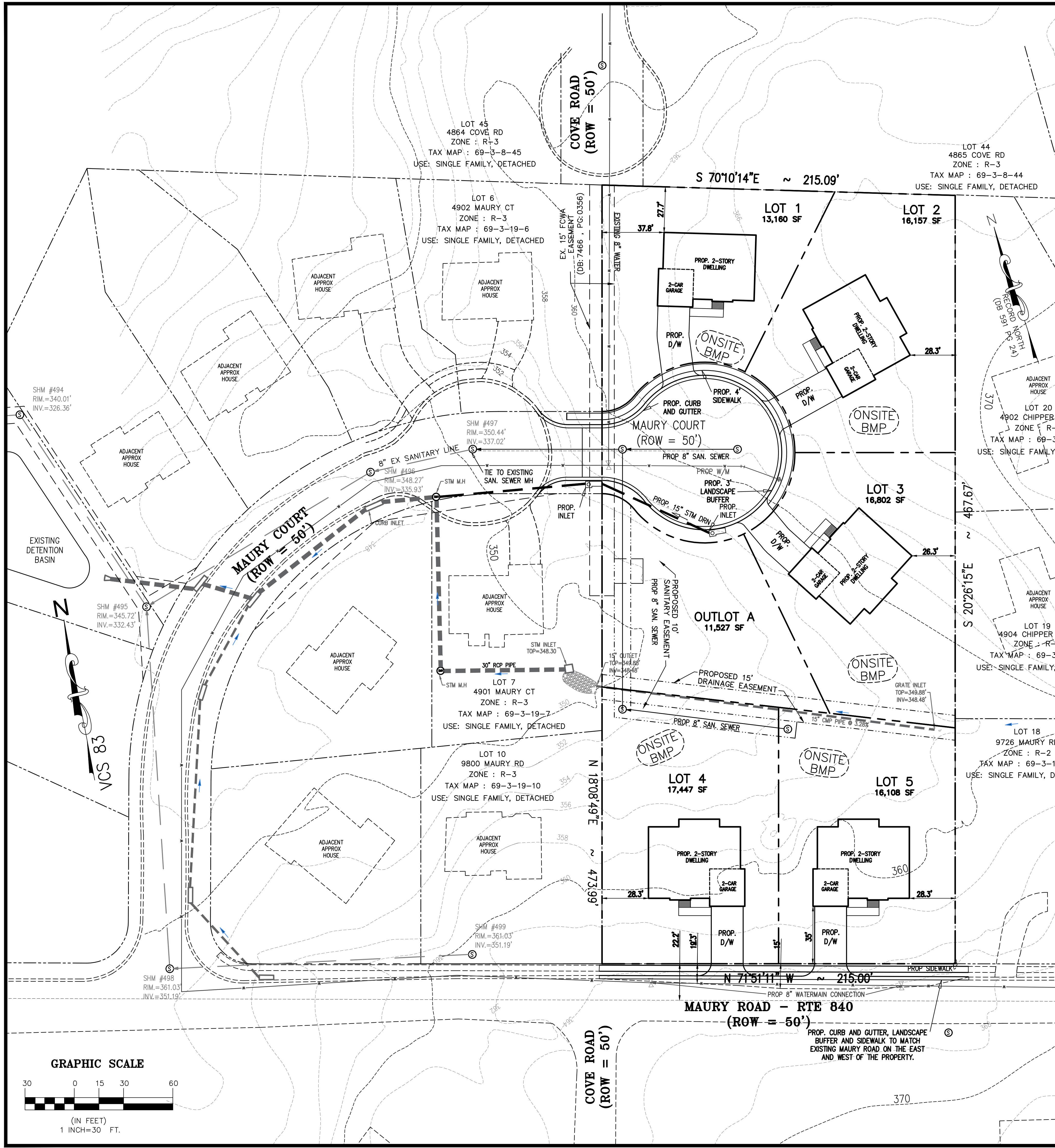
**TREE CONSERVATION AND INVENTORY PLAN**  
**LOT 14 VERTAIN PARK AND VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

TAX MAP:	69-3-02-14&14A
DATE:	NOV 2018
PREP. BY:	DC
CHECKED BY:	I.C.
PROJECT #	2018-4137
SCALE:	1"=30'
SHEET:	7 OF 10

**LEGEND**

- 10' AND 25' OFFSET FROM LIMITS OF CLEARING
- - - - - APPROX. LIMIT OF CLEARING AND GRADING
- CRITICAL ROOT ZONE
- ① EXISTING TREES GREATER THAN 12" AND TREE ID #





**WESTBROOK SUBDIVISION STORMWATER MANAGEMENT NARRATIVE:**

THE SITE IS COMPRISED OF ONE DRAINAGE DIVIDE FOR THE ENTIRE SITE OF 2.324 ACRES (SEE SHEET 8)  
 STORMWATER MANAGEMENT FOR BOTH WATER QUALITY AND QUANTITY WILL BE PROVIDED THROUGH REVISED DRAINAGE AREAS WITH PROPOSED CLOSED SYSTEMS AND ONSITE SURFACE SAND FILTERS FOR EACH OF THE LOTS.  
 THE ENTIRE LOT CURRENTLY FLOWS INTO A CHANNEL THROUGH THE CENTER OF THE LOT AND DIRECTLY INTO AN EXISTING YARD INLET. THIS IS A SIGNIFICANT AMOUNT OF DRAINAGE AREA FOR A SINGLE INLET AND POTENTIALLY COULD EXPERIENCE PROLONG DRAWDOWN ON LARGER STORM EVENTS. THE PROPOSED CUL-DE-SAC AND STORM SYSTEM AT THE NORTHERN PORTION OF THE DEVELOPMENT WILL HELP SEGMENT THE FLOW TO THE SINGLE INLET. ALL FLOW WILL EVENTUALLY CONTINUE TO AN EXISTING DETENTION POND (1132 DP) JUST ON THE OTHER SIDE OF MAURY CT. ADDITIONALLY, FIVE INFILTRATION TRENCHES WILL BE PROVIDED TO CONTROL THE 1, 2 AND 10 YEAR EVENTS.

**PRELIMINARY WATER QUALITY (BMP) NARRATIVE:**

BMP REQUIREMENT FOR THIS SITE WILL BE MET THROUGH THE USE OF FIVE INFILTRATION TRENCH FACILITY LOCATED ON EACH LOT. TREE CONSERVATION AREAS MAYBE PROVIDED FOR ADDITIONAL TREATMENT. THE FACILITY UTILIZED FOR FINAL ENGINEERING SHALL COMPLY WITH SECTION 9VAC25-870-65 OF THE VIRGINIA STATE CODE FOR WATER QUALITY AND THE LATEST VERSION OF THE FAIRFAX COUNTY PFM.  
 PER SECTION 124-4-3A OF THE COUNTY CODE, THE BMP COMPUTATIONS FOR THE SITE WILL UTILIZE THE 2013 DEQ VIRGINIA RUNOFF REDUCTION METHOD (VRRM) SPREADSHEET. THE SITE TAB SHOWS THAT A TOTAL OF 1.06 LBS OF P WILL BE GENERATED BY THIS DEVELOPMENT. THE WATER QUALITY COMPLIANCE TAB SHOWS THAT A TOTAL P REDUCTION OF 1.12 LBS WILL BE PROVIDED. THEREFORE THE P REDUCTION PROVIDED MEETS WSPD REQUIREMENTS. THE TOTAL P REMOVAL ALSO EXCEEDS THE OVERALL VRRM P REDUCTION REQUIRED FOR THIS SITE. PRELIMINARY COMPUTATIONS CAN BE FOUND ON SHEET #9.  
 THE POTENTIAL BMP AND SWM FACILITY SHOWN WITH THIS APPLICATION IS PRELIMINARY AND DURING FINAL ENGINEERING QUANTITY AND TYPES OF FACILITIES MAY CHANGE.

**MINIMUM STORMWATER 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 Sections:
- Special Permits (Sect. 8-011 2J & 2L)
  - Cluster Subdivision (Sect. 9-615 1G & 1N)
  - Development Plans PRC District (Sect. 16-302 3 & 4L)
  - FDP P Districts (Sect. 16-502 1A (6) & (17))
  - Special Exceptions (Sect. 9-011 2J & 2L)
  - Commercial Revitalization Districts (Sect. 9-622 2A (12) & (14))
  - PRC Plan (Sect. 16-303 1E & 1 O)
  - Amendments (Sect. 18-202 10F & 10I)

- 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 Sheet(s) **5 & 8**. If infiltration is proposed the soils should be tested for suitability prior to submission of the development plan and results of the infiltration test provided as part of the description of the facility.

3. Provide:

Facility Name/ Type & No. (E.g. dry pond, infiltration trench, underground vault, etc.)	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage volume (cf)	If pond, dam height (ft.)
(5)INFILTRATION TRENCH	1.13 ACRES		1.13 ACRES	2000 SF	5,000 CF	N/A
<b>Totals:</b>	<b>1.13 ACRES</b>		<b>1.13 ACRES</b>	<b>2000 SF</b>	<b>5,000 CF</b>	

- Onsite drainage channels, outfalls and pipe systems are shown on Sheet(s) **5 & 8**. Pond inlet and outlet pipe systems are shown on Sheet(s) **5 & 8**.
- Maintenance access (road) to stormwater management facility(ies) are shown on Sheet(s) **N/A**. Type of maintenance access road surface noted on the plat is **N/A** (asphalt, geoblock, gravel, etc.)
- Landscaping and tree preservation in and near the stormwater management facility is shown on Sheet(s) **6**.
- Stormwater management and BMP narratives including Virginia Runoff Reduction Spreadsheet and descriptions of how detention and best management practices requirements will be met are provided on Sheet(s) **8 & 9**.
- A description of 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(s) **8 & 9**. If the outfall is proposed to be improved off-site it should be specifically noted.
- A detailed description and analysis of how the channel protection requirements and flood protection requirements of each numbered outfall will be satisfied per Stormwater Management Ordinance and Public Facilities Manual are provided on Sheet(s) **9**.
- 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 on Sheet(s) **2**.
- A submission waiver is required for **N/A**.
- Stormwater management is not required because **N/A**.

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REVISION BLOCK	NO.	DESCRIPTION	DATE



**PRELIMINARY BMP ANALYSIS**  
**LOT 14 VERTAIN PARK AND VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

TAX MAP: 69-3-02-14&14A

DATE:	NOV 2018
PREP. BY:	DC
CHECKED BY:	I.C.
PROJECT #	2018-4137
SCALE:	1"=30'
SHEET:	8 OF 10



# PRELIMINARY BMP CALCULATION

**Project Name:** Maury SD  
**Date:** 7/12/2019  
 Linear Development Project?  No

CLEAR ALL (Ctrl+Shift+R)

**data input cells**  
 constant values  
 calculation cells  
 final results

**Site Information**

**Post-Development Project (Treatment Volume and Loads)**

Enter Total Disturbed Area (acres) → 2.22

Check: 2011 Stds & Specs  
 BMP Design Specifications List: Linear project? No  
 Land cover areas entered correctly?   
 Total disturbed area entered?

Maximum reduction required: 20%  
 The site's net increase in impervious cover (acres) is: 0.46  
 Post-Development TP Load Reduction for Site (lb/yr): 1.06

Pre-ReDevelopment Land Cover (acres)					
	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be		0.47		1.73	2.20
Impervious Cover (acres)				0.13	0.13
<b>Totals</b>					<b>2.33</b>

Post-Development Land Cover (acres)					
	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be		0.24		1.50	1.74
Impervious Cover (acres)		0.23		0.36	0.59
<b>Totals</b>					<b>2.33</b>

**Area Check:** OK. OK. OK. OK. 2.33

Constants					
Annual Rainfall (inches)	43				
Target Rainfall Event (inches)	1.00				
Total Phosphorus (TP) EMC (mg/L)	0.26				
Total Nitrogen (TN) EMC (mg/L)	1.86				
Target TP Load (lb/acre/yr)	0.41				
Pj (unitless correction factor)	0.90				

Runoff Coefficients (Rv)					
Forest/Open Space	0.02	0.03	0.04	0.05	
Managed Turf	0.15	0.20	0.22	0.25	
Impervious Cover	0.95	0.95	0.95	0.95	

LAND COVER SUMMARY -- PRE-REDEVELOPMENT			
Land Cover Summary-Pre			
Pre-Re-Development	Listed	Adjusted <sup>1</sup>	
Forest/Open Space Cover (acres)	0.00	0.00	
Weighted Rv(forest)	0.00	0.00	
% Forest	0%	0%	
Managed Turf Cover (acres)	2.20	1.74	
Weighted Rv(turf)	0.24	0.24	
% Managed Turf	94%	93%	
Impervious Cover (acres)	0.13	0.13	
Rv(impervious)	0.95	0.95	
% Impervious	6%	7%	
<b>Total Site Area (acres)</b>	<b>2.33</b>	<b>1.87</b>	
<b>Site Rv</b>	<b>0.28</b>	<b>0.29</b>	

LAND COVER SUMMARY -- POST DEVELOPMENT			
Land Cover Summary-Post (Final)			
Post-ReDev. & New Impervious			
Forest/Open Space Cover (acres)	0.00		
Weighted Rv(forest)	0.00		
% Forest	0%		
Managed Turf Cover (acres)	1.74		
Weighted Rv (turf)	0.24		
% Managed Turf	75%		
Impervious Cover (acres)	0.59		
Rv(impervious)	0.95		
% Impervious	25%		
<b>Final Site Area (acres)</b>	<b>2.33</b>		
<b>Final Post Dev Site Rv</b>	<b>0.42</b>		

Treatment Volume and Nutrient Load			
Pre-Re-Development Treatment Volume (acre-ft)	0.0542	0.0455	
Pre-Re-Development Treatment Volume (cubic feet)	2,360	1,984	
Pre-Re-Development TP Load (lb/yr)	1.48	1.25	
Pre-Re-Development TP Load per acre (lb/acre/yr)	0.64	0.67	
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		0.77	

Treatment Volume and Nutrient Load			
Final Post-Development Treatment Volume (acre-ft)	0.0820		
Final Post-Development Treatment Volume (cubic feet)	3,570		
Final Post-Development TP Load (lb/yr)	2.24		
Final Post-Development TP Load per acre (lb/acre/yr)	0.96		
Max. Reduction Required (Below Pre-Development Load)	20%		
TP Load Reduction Required for Redeveloped Area (lb/yr)	0.25		
TP Load Reduction Required for New Impervious Area (lb/yr)	0.81		

<sup>1</sup>Adjusted Land Cover Summary: Pre-Development land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-Development acreage (minus acreage of new impervious cover).

Column 1 shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

**Post-Development Requirement for Site Area**

TP Load Reduction Required (lb/yr): 1.06

**Nitrogen Loads (Informational Purposes Only)**

Pre-ReDevelopment TN Load (lb/yr): 10.61  
 Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr): 16.05

## Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)		0.30		0.45	0.75	0.23
Impervious Cover (acres)		0.15		0.23	0.38	0.95
<b>Total</b>					<b>1.13</b>	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr): 1.22  
 Post Development Treatment Volume in D.A. A (ft<sup>3</sup>): 1,937

## Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
<b>7. Infiltration (RR)</b>													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90	0.75	0.38	0	1,743	194	1,937	25	0.00	1.22	1.12	0.09	

TOTAL IMPERVIOUS COVER TREATED (ac): 0.38 AREA CHECK: OK.  
 TOTAL MANAGED TURF AREA TREATED (ac): 0.75 AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr): 1.06

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr): 1.22  
 TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr): 0.00  
 TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr): 1.12  
 TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr): 1.12  
 TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr): 0.09

**SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS**

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr): 7.96  
 NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr): 0.00  
 TOTAL NITROGEN REMOVED IN D.A. A (lb/yr): 7.96

## Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	0.38	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.38	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.75	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.75	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft<sup>3</sup>): 3,570

## Runoff Reduction Volume and TP By Drainage Area

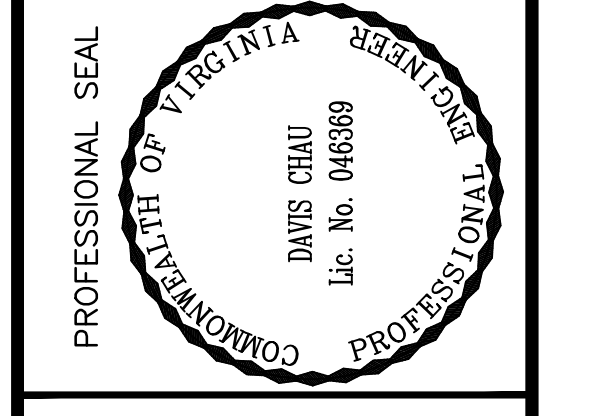
	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft <sup>3</sup> )	1,743	0	0	0	0	1,743
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	1.22	0.00	0.00	0.00	0.00	1.22
TP LOAD REDUCTION ACHIEVED (lb/yr)	1.12	0.00	0.00	0.00	0.00	1.12
TP LOAD REMAINING (lb/yr)	0.09	0.00	0.00	0.00	0.00	0.09
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	7.96	0.00	0.00	0.00	0.00	7.96

## Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	2.24
TP LOAD REDUCTION REQUIRED (lb/yr)	1.06
TP LOAD REDUCTION ACHIEVED (lb/yr)	1.12
TP LOAD REMAINING (lb/yr)	1.12
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **
<b>** TARGET TP REDUCTION EXCEEDED BY 0.07 LB/YEAR **</b>	
<b>Total Nitrogen (For Informational Purposes)</b>	
POST-DEVELOPMENT LOAD (lb/yr)	16.05
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	7.96
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	8.09

**GeoEnv Engineers**  
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 10875 Main Street, Suite 213  
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 Fax. 703.591.7074  
 Web Site: geoenvl.com

NO.	DESCRIPTION	DATE



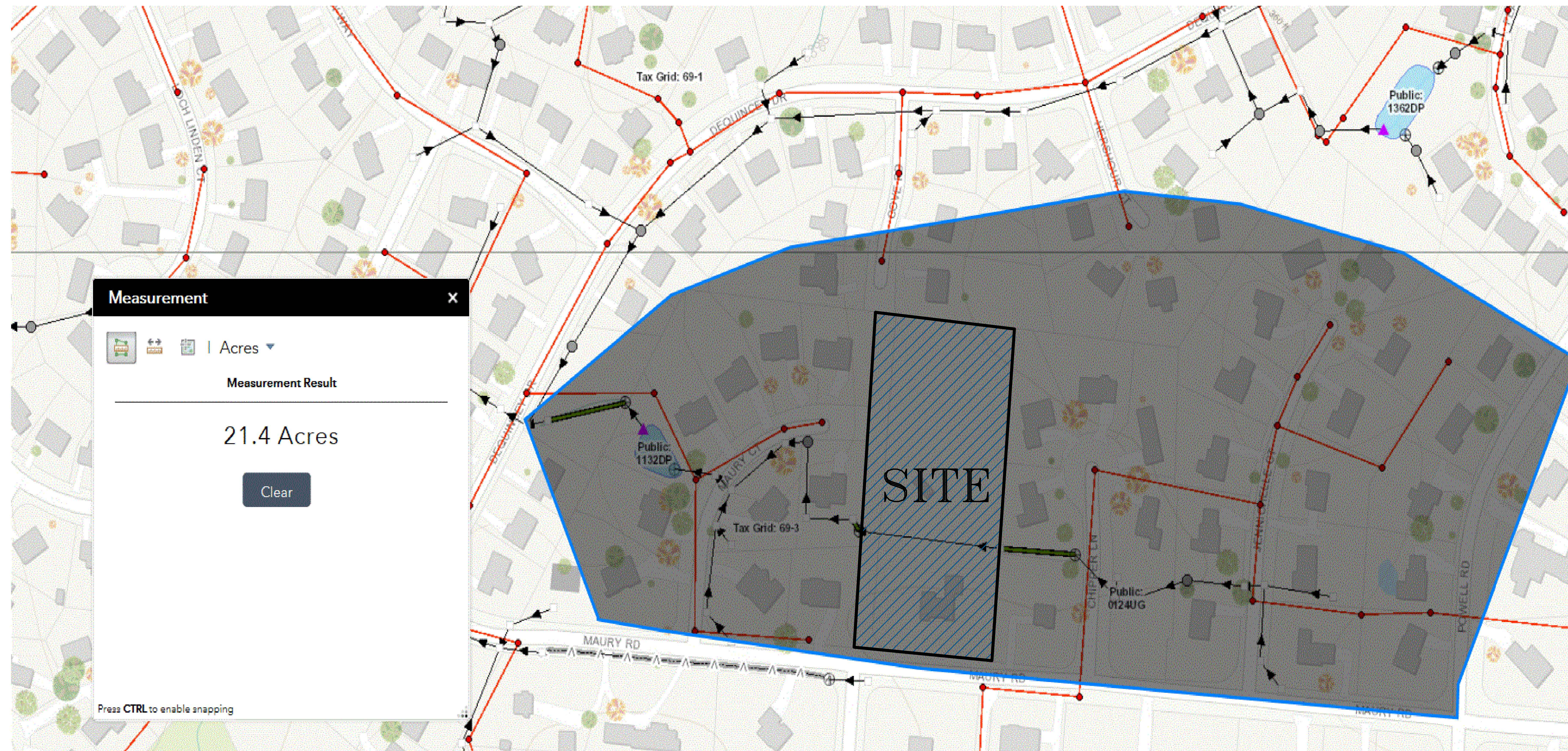
**PRELIMINARY STORMWATER MANAGEMENT ANALYSIS**  
 LOT 14 VERTAIN PARK AND VACATION PORTION OF COVE ROAD  
 9730 MAURY RD  
 BRADDOCK DISTRICT, FAIRFAX, VA 22032

TAX MAP: 69-3-02-14&14A
DATE: NOV 2018
PREP. BY: DC
CHECKED BY: I.C.
PROJECT #: 2018-4137
SCALE: 1"=30'
SHEET: 9 OF 10

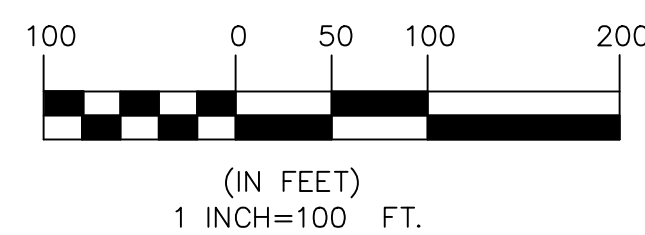
## PRELIMINARY BMP CALCULATION NOTE:

- THE CALCULATIONS SHOWN ON THIS SHEET REFLECT PRELIMINARY ENGINEERING UTILIZING THE 2013 VRRM SPREADSHEET. CALCULATIONS ARE SUBJECT TO CHANGE WITH FINAL ENGINEERING.

# OUTFALL 1 (1"=100')



GRAPHIC SCALE



## PRELIMINARY OUTFALL NARRATIVE

RUNOFF FROM THE SITE DRAINS TO AN EXISTING 30" RCP PIPE SYSTEM VIA A MANMADE CHANNEL/12" CMP LOCATED ONSITE. THIS PIPE SYSTEM RUNS UNDER EXISTING MAURY COURT AND DISCHARGES TO A DETENTION POND (1132 DP) LOCATED ON THE OTHER SIDE OF THE MAURY COURT. UNCONTROLLED SHEET FLOW FROM THE SITE WILL ALSO BE DISCHARGED TO THIS SYSTEM. STORMWATER MANAGEMENT FOR CONCENTRATED RUNOFF FROM THE 2-YR AND 10-YEAR STORM EVENTS WILL BE PROVIDED BY FIVE ONSITE INFILTRATION TRENCH.

## PRELIMINARY OUTFALL ANALYSIS FOR OUTFALL #1

### CHANNEL PROTECTION

#### LIMIT OF ANALYSIS FOR CHANNEL PROTECTION

THE CONTRIBUTING DRAINAGE AREA TO THE SITE'S SOUTHERN BOUNDARY IS 21 ACRES OF WHICH 2.43 ACRES ARE FROM THE DISTURBED ON-SITE AREA. THE LIMIT OF ANALYSIS (SEE OUTFALL MAP) WAS SELECTED AT 150 FT. DOWNSTREAM OF THE POINT WHERE THE TOTAL DRAINAGE AREA FROM THE OUTFALL FROM THE SITE (APPROXIMATELY 21 ACRES) CONNECTS TO AN EXISTING 66" PIPE THAT CONVEYS 57 ACRES AT THE POINT OF CONFLUENCE. THE POINT OF CONFLUENCE OCCURS AT THE OUTFALL OF 1132 DP APPROXIMATELY 700 FT. FROM THE SITE'S SOUTH-EASTERN BOUNDARY. THE EXTENT OF ANALYSIS MEETS THE STORMWATER ORDINANCE REQUIREMENT OF 150-FT DOWNSTREAM OF A POINT WHERE THE RECEIVING SYSTEM IS JOINED BY ANOTHER SYSTEM WHOSE DRAINAGE AREA IS  $\geq 90\%$  OF THE RECEIVING SYSTEM DRAINAGE AREA. THE EXTENT OF ANALYSIS TERMINATES IN THE 66" STORM DRAINAGE SYSTEM.

#### OUTFALL REQUIREMENTS FOR CHANNEL PROTECTION

SINCE THE SITE DOES NOT DISCHARGE TO A NATURAL SYSTEM, THE 1-YR DISCHARGE FROM THE SITE WILL BE NOT BE DETAINED TO MEET THE ENERGY BALANCE REQUIREMENTS. DETENTION OF THE 2-YR STORM WILL BE PROVIDED TO MEET EXISTING CONDITIONS. DEVELOPMENT OF THIS SITE WILL NOT CAUSE EROSION OF THE MAN-MADE SYSTEM.

### FLOOD PROTECTION

#### LIMIT OF ANALYSIS FOR FLOOD PROTECTION

THE LIMIT OF ANALYSIS (SEE OFFSITE OUTFALL MAP) WAS ALSO SELECTED AT 150 FT. DOWNSTREAM OF THE CONFLUENCE OF THE SITE'S RECEIVING DRAINAGE SYSTEM AND THE 66" DRAINAGE SYSTEM LOCATED AT THE OUTFALL OF 1132 DP, AND AS STATED ABOVE, MEETS THE 90% RULE.

#### OUTFALL REQUIREMENTS FOR FLOOD PROTECTION

THERE IS NO EVIDENCE OF LOCAL FLOODING DOWNSTREAM OF THE SITE AT THE PRE DEVELOPMENT STATE. DETENTION WILL BE PROVIDED TO REDUCE THE POST DEVELOPMENT 10-YR DISCHARGE FROM THE SITE BELOW THE PRE DEVELOPMENT DISCHARGE. THERE IS ALSO NO EVIDENCE OF THE FLOODING OF ANY STRUCTURES AT THE 100-YR STORM. IT IS THEREFORE MY OPINION THAT THE OUTFALL FROM THIS SITE IS ADEQUATE.

## PRELIMINARY OUTFALL NOTE

OUTFALL LOCATIONS, DRAINAGE AREAS AND FACILITIES ARE SHOWN CONCEPTUALLY WITH THIS APPLICATION. THE ADEQUATE OUTFALL ANALYSIS, SITE LAYOUT AND CALCULATIONS SHOWN WITH THE APPLICATION ARE FOR PRELIMINARY PURPOSES ONLY. THEY ARE ALL SUBJECT TO CHANGE WITH FINAL ENGINEERING.

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REVISION BLOCK	NO.	DESCRIPTION	DATE

PROFESSIONAL SEAL  
 COMMONWEALTH OF VIRGINIA  
 DAVIS CHAU  
 Lic. No. 046869  
 PROFESSIONAL ENGINEER

**ADEQUATE OUTFALL ANALYSIS**  
**LOT 14 VERTAIN PARK AND VACATION PORTION OF COVE ROAD**  
**9730 MAURY RD**  
**BRADDOCK DISTRICT, FAIRFAX, VA 22032**

TAX MAP:	69-3-02-14&14A
DATE:	NOV 2018
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PROJECT #	2018-4137
SCALE:	VARIES
SHEET:	10 OF 10