APPLICATION ACCEPTED: October 18, 2014
PLANNING COMMISSION: May 18, 2016
BOARD OF SUPERVISORS: Not Yet Scheduled

County of Fairfax, Virginia

May 13, 2016

STAFF REPORT ADDENDUM II

APPLICATION RZ 2014-DR-022

DRANESVILLE DISTRICT

APPLICANT:	Basheer/Edgemoore-Brooks, LLC
PRESENT ZONING:	R-A and R-E
REQUESTED ZONING:	R-E
PARCEL(S):	7-2 ((1)) 17 and 23
ACREAGE:	51.97 acres
DENSITY:	0.38 dwelling units/acre
OPEN SPACE:	41%
PLAN MAP:	Residential – 0.2 to 0.5 units/acre
PROPOSAL:	To rezone the R-A portion of the property to R-E to permit development of a 20-lot cluster single family detached dwelling subdivision at a density of 0.38 du/ac.

STAFF RECOMMENDATIONS:

Staff recommends approval of RZ 2014-DR-022, subject to the execution of proffers consistent with those contained in Appendix 1.

Bob H. Katai

Department of Planning and Zoning
Zoning Evaluation Division
12055 Government Center Parkway, Suite 801
Fairfax, Virginia 22035-5509
Phone 703-324-1290 FAX 703-324-3924
www.fairfaxcounty.gov/dpz/

Staff recommends a waiver of Sect. 6-1308.2D of the Public Facilities Manual (PFM) to allow stormwater management and best management practices within the minimum required setbacks specified in that section.

Staff recommends a waiver of Sect. 6-1308.2G of the PFM to allow the maximum drainage area to a vegetated swale to be greater than two acres.

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 applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

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

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.

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.

N:\Bkatai\Basheer-Edgemoore\Staff Report and Conditions\00 – Consolidated Staff Report Addendum II for RZ 2014-DR-022

Americans with Disabilities Act (ADA): Reasonable accommodation is available upon 7 days advance notice. For additional information on ADA call (703) 324-1334 or TTY 711 (Virginia Relay Center).

DESCRIPTION OF THE APPLICATION

As described in the staff report published December 30, 2015, RZ 2014-DR-022 is an application requesting rezoning of 51.97 acres of land from the R-A (Residential-Agriculture) and R-E (Residential Estates) zoning districts to the R-E zoning district to permit a cluster subdivision for 20 single family detached dwelling units. The 20-lot subdivision will have a proposed density of 0.38 dwelling units per acre with approximately 41 percent of the site retained in open space. The average lot size will be 58,901 square feet and the lots will range in size from 52,204 square feet (1.20 acres) to 80,281 square feet (1.84 acres). Access to the proposed development will be provided by extension of Forest Lake Drive, a public street. An existing farm pond and associated stream and adjoining environmentally sensitive land will be preserved, enhanced, and incorporated into the layout of the development.

BACKGROUND

On January 21, 2016, the Planning Commission conducted a public hearing on the rezoning request. A number of speakers presented testimony identifying various concerns, including stormwater management (potential impacts to Walker Lake, downstream erosion of Pond Branch, and erosion problems during construction); protection of trees on neighboring properties; the possibility of cut-through traffic on Forest Lake Drive; and night sky lighting. At the close of the hearing, the Commission deferred a decision on the rezoning to provide time to consider the testimony and to allow an opportunity for the applicant to respond to the concerns identified during the public hearing; the record remained open for submittal of additional comments.

In response to public comments, the applicant submitted several revised sets of the proffers and the General Development Plan (GDP). On February 29, 2016, an addendum to the staff report, summarizing the revisions was published. At its March 2, 2016 meeting, the Planning Commission continued its deferral of the rezoning and continued to keep the record open for written comment. Subsequently, the concerned parties continued to meet to further discuss their concerns, the applicants submitted several revised sets of the proffers and the GDP, and the Planning Commission deferred its recommendation on the rezoning several more times.

Analysis

This second Staff Report Addendum summarizes and analyzes revisions to the proffers and the GDP made since the publication of the staff report prepared for the January 21, 2016 Planning Commission hearing.

Title of GDP:	General Development Plan, RZ 2014-DR-022, Brooks Property

Prepared By: Christopher Consultants

Original and Revision Dates: August 28, 2014, as revised through April 26, 2016

A blacklined version of the revised draft proffers, dated April 25, 2016, highlighting the revisions that have been made since the publication of the staff report for the January 21, 2016 hearing is attached as Appendix 1. A redlined version of the revised GDP is attached as Appendix 2.

THE REVISED PROFFERS and GENERALIZED DEVELOPMENT PLAN

The revisions, both to the proffers and GDP, are grouped under the headings of Stormwater; Tree Preservation/Landscaping; Site Access; Notifications/Disclosures; and Green Building, Lighting, Signage, and Public Facilities. Revisions that cross over into more than one topic are listed under multiple headings and are highlighted in Italics.

<u>Stormwater</u>

Proffer Revisions

- *A provision has been added to Proffer 17 requiring the applicant to provide copies of the on-site stormwater management facilities maintenance inspection reports to the Walker Woods Lake HOA and to the District Supervisor's office.*

- Proffer 18 commits the applicant to install Low Impact Development (LID) [stormwater management] facilities on lots bordering the RPA/EQC areas.

- *Proffer 19 requires the applicant to provide the HOA with maintenance documents for the individual stormwater facilities and alternative sewage systems.*

- *A provision has been added to Proffer 22 requiring the applicant to provide copies of the stream monitoring report to the District Supervisor's office, the Walker Woods Lake Community Association, and the two property owners immediately downstream of Outfall A.*

- A provision has been added to Proffer 24 stating that the applicant shall install a "stilling basin" at the Forest Lake Drive culvert crossing as part of extension of the roadway.

- Proffer 27 details additional erosion and sedimentation control procedures for each phase of subdivision construction. The proffer requires that the erosion and sedimentation control plans for each phase provide for stabilization measures to be in place prior to commencing land disturbing activities in the next construction

phase. Additionally, the proffer requires third-party monitoring and compliance inspection services during the development and construction periods to ensure that all protective measures remain in-place and are fully functional. Further, the proffer mandates notification of distribution of the monitoring and compliance inspection reports to specified parties.

- Provisions have been added to Proffer 40 to require an additional bathymetric survey of downstream Walker Woods Lake to determine if any post-road construction impacts to the lake had occurred.

GDP Revisions

Since the January 21, 2016 Commission hearing, the applicant has replaced the development's northern proposed stormwater facility, a dry swale, with a grass swale in order to shift the limits of clearing and grading away from the northern property line. With this revision, the limits of clearing, which were coincident with the northern property line, are now located 25 feet to the south. This revision was made to reduce the disturbance to the critical root zones of offsite trees located on the adjoining properties to the north.

The replacement of the dry swale with the narrower and less elaborate grass swale necessitated other GDP modifications. Because the grass swale will receive less drainage than the former dry swale, the proposed grading on Lots 8, 9, and 10 was adjusted so that the stormwater from the front yards, as well as from the proposed dwellings' rooftops, would flow towards the street, instead of towards the rear of the lots. The front yard/rooftop stormwater will now be routed to the central, underground bioretention facility (isolator row) for treatment, infiltration, and/or timed release.

With the changes to the stormwater facility on the northern portion of the site, other facilities needed to be modified accordingly. To accommodate the increase in stormwater being directed towards the central portion of the site, a third rain garden is being proposed to the immediate north of the central, underground bioretention facility. Additionally, the water quality efficiency rating of the rain gardens has been upgraded from Level 1 efficiency to Level 2, which results in a higher reduction of phosphorus levels.

The applicant has submitted a revised Statement of Justification, dated May 3, 2016 and attached as Appendix 3, summarizing the stormwater management efforts being undertaken. In the staff report prepared for the January 21 hearing, staff determined that that the proposed proffers and GDP supported implementation of the County's stormwater management policies and the RPA/EQC protection provisions. Staff believes that the currently proposed proffer revisions and GDP modifications will supplement the stormwater efforts that staff had previously analyzed. Staff continues to find that the application satisfies the County's applicable County policies and ordinance provisions pertaining to stormwater management.

Tree Preservation/Landscaping

Proffer Revisions

- A provision has been added to Proffer 30 clarifying that the types of plantings shown on the lot typical plan on Sheet 9.8 are representative of the future landscaping of the individual lots.

- A provision has been added to Proffer 32 qualifying the narrow exceptions to the limits of clearing and grading (besides the previously listed installation of utilities and/or trails, the revision added "stream, outfall, or land stabilization measures as determined necessary by DPWES").

- A provision has been added to Proffer 33, including the offsite trees north the property boundary in the project's Tree Preservation Plan, even though the trees are outside of the 25-foot clearing limit.

- A provision has been added to Proffer 37 clarifying that the tree appraisal provisions do not apply to any offsite trees.

- A provision has been added to Proffer 41 setting a timeframe (prior to bond release) for imposition of the conservation easement on the forested area of the southeast portion of the property.

GDP Revisions

- The proposed limit of clearing and grading was modified so that it is offset 25 feet from the subject property's northern property. This revision was made to reduce the disturbance to the critical root zones of the offsite trees located on the adjoining properties to the north. As noted in its analysis attached as Appendix 5, Urban Forestry Management staff is satisfied with the 25-foot setback of the clearing and grading line from the northern boundary of the subject property.

- Addressing the offsite tree issues along the northern property line resulted in a number of revisions to the tree preservation information in the diagrams, text, and tables throughout the GDP.

In the staff report prepared for the January 21 hearing, staff determined that that the proposed proffers and GDP supported implementation of the County's tree preservation provisions. Staff believes that the currently proposed proffer revisions and GDP modifications will supplement the preservation efforts that staff had previously analyzed. Staff continues to find that the application satisfies the County's applicable County policies and ordinance provisions pertaining to tree preservation.

Site Access

Proffer Revisions

- Proffer 13 clarifies that prior to bond release, the applicant will record a public access easement over any trails not located within the public right-of-way.

- Proffer 14 commits the applicant to work with the Great Falls Trail Blazers to promote equestrian access and use on the property.

- A provision has been added to Proffer 15 clarifying the timing of the closing off of Springvale Road vehicle access to the subject site.

- A provision has been added to Proffer 16 committing the applicant to request a waiver of construction from VDOT regarding the interparcel connection stub between Lots 4 and 5. If granted, the waiver would allow the stub area to remain unimproved.

Recently, some community members have voiced concerns regarding construction vehicle access to the proposed development. The GDP proposes that all access, including construction access, be obtained from Forest Lake Drive. An alternative solution proposed by some in the community is that the applicant acquire the right-of-way along the existing easement access from Springvale Road and that the construction vehicles access the site from that point. The Fairfax County Department of Transportation (FCDOT), in conjunction with the Virginia Department of Transportation (VDOT), has reviewed the existing site conditions at both potential construction site access points. Based on this review, of the two existing locations, staff determined that the Forest Lake Drive entrance would provide the most safe and adequate access to the proposed development site. The FCDOT memo is attached as Appendix 4.

In the staff report prepared for the January 21 hearing, staff determined that that the proposed proffers and GDP supported implementation of the County's transportation provisions. Staff believes that the currently proposed proffer revisions will supplement the transportation efforts that staff had previously analyzed. Staff continues to find that the application satisfies the County's applicable County policies and ordinance provisions pertaining to transportation.

Notifications/Disclosures

Proffer Revisions

- *Proffer 7 lists the disclosures, restrictions, and commitments that will be contained in future Homeowner's Association (HOA) documents. These provisions cover a broad range of topics including the maintenance of any equestrian trails in the community, making available septic system maintenance information, disclosing the existence of stormwater management facilities and*

compost soil amendment areas on the individual lots, and informing residents of restrictions related to irrigation systems, lawn fertilization and pest management treatment methods, swimming pools filling, and buildable areas on the individual lots.

- Proffer 8 outlines the maintenance procedures to be followed by the individual homeowners in maintaining the on-lot stormwater management facilities and the alternative on-site sewage systems. The specified reporting requirements supplement those required by the County.

- A provision has been added to Proffer 12 committing the applicant to organize a pre-construction site-walk to inform interested neighbors about construction phasing.

- *A provision has been added to Proffer 17 requiring the applicant to provide copies of the on-site stormwater management facilities maintenance inspection reports to the Walker Woods Lake HOA and to the District Supervisor's office.*

- *Proffer 19 requires the applicant to provide the HOA with Maintenance documents for the individual stormwater facilities and alternative sewage systems.*

- *A provision has been added to Proffer 22 requiring the applicant to provide copies of the stream monitoring report to the district supervisor's office, the Walker Woods Lake Community Association, and the two property owners immediately downstream of Outfall A.*

Staff supports the supplemental notification and disclosure commitments contained in these proffer revisions.

<u>Green Building, Lighting, Signage, and Public Facilities</u>

Proffer Revisions

- *Proffer 6 lists the disclosures, restrictions, and commitments that will be contained in future Homeowner's Association (HOA) documents. These provisions cover a broad range of topics including the maintenance of any equestrian trails in the community, making available septic system maintenance information, disclosing the existence of stormwater management facilities and compost soil amendment areas on the individual lots, and informing residents of restrictions related to irrigation systems, lawn fertilization and pest management treatment methods, swimming pools filling, and buildable areas on the individual lots.*

- A provision has been added to Proffer 9 specifically precluding the use of prohibited temporary signs, including “popsicle” style signs either on or offsite of the development.

- A provision has been added to Proffer 12 stating that construction activity will maintain dust control prevention measures in conformance with County Code.

- A provision has been added to Proffer 28 mandating that exterior lighting for the development be full cut-off and not exceed 1,600 lumens each.

- A provision has been added to Proffer 29 committing the applicant to install water efficient/low water appliances.

- A provision has been added to Proffer 44 to better define the benefit area of the $50,008 recreation contribution.

- The provisions of Proffer 45 have been revised to reflect the current per student contribution amount.

Staff supports the updates, clarifications, and additional green building commitments provided in these proffer revisions.

ZONING

To accommodate previously mentioned replacement of the dry swale with the grass swale, the lot lines of Lots 8, 9, and 10 were adjusted. The modified lots continue to conform to the zoning requirements of R-E Cluster, including lot area, lot width, and shape factor.

WAIVERS AND MODIFICATIONS

Two waivers to the Public Facilities Manual (PFM) stormwater management provisions continue to be part of the application. However, the requests have been refined to better reflect the requests and the revisions.

- A waiver of Sect. 6-1308.2D of the Public Facilities Manual (PFM) to allow stormwater management and best management practices within the minimum required setbacks specified in that section.

The currently proposed grass swale will be located along the northern rear property lines of development’s northernmost three lots. The PFM requires a minimum setback of two feet from property lines for vegetated swales. Given that the proposed grass swale is being constructed as part of the same development as the proposed lots and will be maintained by the development’s Homeowner’s Association and given that the

waiver would permit flexibility in the location of the grass swale so that the facility can be installed further away from neighboring properties and trees, staff does not object to this waiver.

- A waiver of Sect. 6-1308.26 of the PFM to allow the maximum drainage area to a vegetated swale to be greater than two acres.

The previous GDP requested this waiver as the drainage area to the former dry swale contained 4.7 acres. With the replacement of the dry swale with the grass swale, the drainage area has been reduced to 3.47 acres. However, a waiver is still needed since the drainage area is still is over two acres, but the calculations on Sheet 8.4 demonstrate that the swale will be sized and vegetated in manner that will accommodate the requested increase. The calculations will be reconfirmed at time of site plan review. Staff believes that the flexibility in the sizing and plant material of the swale will allow the BMP standards to be satisfied. Also important to note is that Sect. 6-1308.2.G of the PFM also contains a maximum for an imperious area draining to a vegetated swale (one acre). The proposed 3.47-acre drainage area is calculated as having an impervious area of less than one-third of an acre and therefore easily satisfies the impervious threshold of the PFM standard. Staff does not object to this waiver.

RECOMMENDATION

Staff continues to recommend approval of RZ 2014-DR-022, subject to the execution of proffers consistent with those contained in Attachment 1.

Staff recommends a waiver of Sect. 6-1308.2D of the Public Facilities Manual (PFM) to allow stormwater management and best management practices within the minimum required setbacks specified in that section.

Staff recommends a waiver of Sect. 6-1308.2G of the PFM to allow the maximum drainage area to a vegetated swale to be greater than two acres.

APPENDICES

1. Blacklined Proffers dated April 25, 2016
2. Redlined General Development Plan dated April 26, 2016
3. Updated Statement of Justification dated May 3, 2016
4. Transportation Analysis of Springvale Road Access dated May 12, 2016
5. Updated Urban Forestry Management Analysis dated May 13, 2016

Proffered Conditions
Basheer/Edgemoore-Brooks, LLC
RZ 2014-DR-022
January 30, 2015
April 24, 2015
July 8, 2015
November 30, 2015
December 16, 2015
December 30, 2015
February 10, 2016
February 19, 2016
February 23, 2016
March 24, 2016
April 25, 2016

Pursuant to Section 15.2-2303(A), Code of Virginia, 1950 as amended, the undersigned Owners and Applicant, in this rezoning proffer that the development of the parcel under consideration and shown on the Fairfax County Tax Map as Tax Map Reference 7-2((1))17 and 23 (hereinafter referred to as the "Property") will be in accordance with the following conditions (the "Proffered Conditions"), if and only if, said rezoning request for the R-E Zoning District is granted. In the event said rezoning request is denied, these Proffered Conditions shall be null and void. The Owners and the Applicant, for themselves, their successors and assigns hereby agree that these Proffered Conditions shall be binding on the future development of the Property unless modified, waived or rescinded in the future by the Board of Supervisors of Fairfax County, Virginia, in accordance with applicable County and State statutory procedures. The Proffered Conditions are:

I. GENERAL

1. Substantial Conformance. Subject to the provisions of Section 18-204 of the Fairfax County Zoning Ordinance (hereinafter referred to as the "Zoning Ordinance"), development of the Property shall be in substantial conformance with the Generalized Development Plan (GDP), prepared by christopher consultants, ltd., dated August 28, 2014, revised through ~~November 30, 2015.~~**April 26, 2016.**

2. Maximum Lot Yield. The development shall consist of a maximum of twenty (20) single family detached units.

3. Minor Modifications. Pursuant to Paragraph 5 of Section 18-204 of the Zoning Ordinance, minor modifications to the GDP may be permitted as determined by the Zoning Administrator.

4. Establishment of Home Owners Association (HOA). Prior to record plat approval, the Applicant shall establish an HOA in accordance with Sect. 2-700 of the Zoning Ordinance. The purpose of the HOA shall be, among other things, establishing the necessary residential covenants governing the use and operation of common open space and other facilities of the approved development, to provide a mechanism for ensuring the ability to

complete the maintenance obligations and other provisions noted in these proffer conditions, including an estimated budget for such common maintenance items, and to establish necessary restrictions and maintenance for any low impact development elements and tree preservation areas located on private lots.

5. Dedication to HOA. At the time of record plat recordation, the open space and common features/amenities not otherwise conveyed or dedicated to the County shall be dedicated to the HOA and maintained by the same.

6. Disclosure. Prior to entering into a contract of sale, prospective purchasers shall be notified in writing by the Applicant of the maintenance responsibility for common area landscaping and any other open space amenities and shall acknowledge receipt of this information in writing.

7. HOA Documents. The HOA governing documents and initial deeds of conveyance shall expressly contain ~~these disclosures.~~ **the disclosure outlined in Proffer 6, as well as the following:**

- **A commitment on the part of the HOA to work closely with the Great Falls Trail Blazers on the maintenance of any equestrian trails in the community**
- **The requirement that homeowners maintain their own septic systems and that the HOA maintains information on the maintenance protocol for the same**
- **A disclosure of the fact that some lots have on-lot stormwater management facilities which cannot be altered by individual homeowners**
- **A disclosure of the fact that the lots have compost soil amendment around the perimeter of each house planted with drought resistant turf grasses**
- **A restriction that there shall be no on-lot irrigation systems and that the HOA will not install an irrigation system in any HOA open space areas**
- **A restriction that the on-lot use of lawn fertilization and pest management treatments will be limited to an HOA approved list of environmentally-friendly products and time-of-year application specified by the products for purposes of nutrient reduction and mitigating potential downstream impacts**
- **A restriction that swimming pools cannot be filled via well water**
- **Information regarding the buildable area for each lot as shown on Sheet 6 of the GDP and the restriction that there shall be no accessory sheds or storage units constructed on individual private lots**

8. BMP/Septic System Maintenance. After establishing the HOA pursuant to these proffers, the Applicant shall provide the HOA with written materials describing proper maintenance of the approved BMPs in accordance with the PFM and County guidelines as well as maintenance procedures for the Alternative on-site sewage system which shall then be included in the disclosure information/HOA documents for each homeowner as outlined in Proffer 6. The HOA shall maintain a copy of the maintenance procedures for the Alternative on-site sewage system and provide the same in the HOA documents package distributed to each new homeowner and successive purchasers.

~~7.~~**9.** Signs. The Applicant will comply with the General Provisions of Article 12 of the Zoning Ordinance and the Sign Regulations therein. **No temporary signs (including "popsicle" style paper or cardboard signs), which are prohibited by Article 12 of the Zoning Ordinance and Chapter 7 of Title 33.1, and Chapter 8 of Title 46.2 of the Code of Virginia, shall be placed on or offsite by the Applicant or at the Applicant's direction.** The Applicant shall direct its agents and employees involved with the Property to adhere to this proffer.

~~8.~~**10.** Architectural Design. The architectural design of the dwellings shall be in substantial conformance with the bulk, mass and type and quality of materials and elevations shown on the GDP. The primary building materials, exclusive of trim shall be limited to brick, stone, cementitious siding, shingles or other similar masonry materials. The Applicant reserves the right to add extensions, porches and other structural components appurtenant to the elevations as long as they are limited to the buildable area as depicted on the GDP. Modifications may be made with the final architectural designs provided such modifications are in substantial conformance with the elevations shown on the GDP.

~~9.~~**11.** Peripheral Lot Line Fencing. Any fencing proposed on the perimeter lot line between adjoining property and the subject Property shall be a wooden, four-rail horse paddock style fence painted or stained a dark color, except on the perimeter lot line directly abutting Tax Parcels 0072-01-0033A and 0072-16-0003 said fence shall be of similar style, color, material and treatment as presently installed at Tax Parcel 0072-01-0033A. In the event a lot owner installs a swimming pool, then the fence requirement shall be Ameristar Fence Products Montage series residential ornamental steel fence, in the Majestic Style, 3-rail panel and 6-foot height, or approved equal.

~~10.~~**12.** Construction Phase. While construction is in progress, construction related vehicle traffic shall not commence prior to 7:00 am. The parking of construction vehicles and equipment, including personal vehicles utilized by construction workers, shall occur on the application property. There shall be no construction vehicle parking or staging on the existing paved portion of Lake Forest Drive immediately east of the existing cul-de-sac or on adjacent properties, except to allow for the relocation or installation dry utilities and for purposes of implementing traffic control within the identified work safety zone. The Applicant shall communicate these requirements to all construction vehicle drivers in both English and Spanish.

Prior to commencement of any clearing, grading or construction on the Property, the Applicant shall coordinate with the District Supervisor's office to organize a pre-construction site-walk to inform interested neighbors about pertinent construction phase information. During development of the subject site, the telephone number of the site superintendent that shall be present on-site during construction shall be provided to the Dranesville District Supervisor's Office.

Construction activity will maintain dust control prevention measures and keep Forest Lake Drive free of sediment and debris, in conformance with the Code of

Fairfax County. To the greatest extent possible, noise from construction activity will be minimized, in conformance with the Code of Fairfax County.

Outdoor construction activity shall be limited to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday and 9:00 a.m. and 5:00 p.m. on Saturdays. No outdoor construction activities shall be permitted on Sundays or on federal holidays. The site superintendent shall notify all employees and subcontractors of these hours of operation and shall ensure that the hours of operation are respected by all employees and subcontractors. Construction hours shall be posted on-site in both English and Spanish. The Applicant shall provide updated construction schedules to the adjacent HOAs and the Dranesville Supervisors Office. This development condition applies to the original construction only and not to future additions and renovations by homeowners.

13. Public Access Easement. Prior to bond release, the Applicant shall cause to be recorded among the land records a public access easement running to the benefit of Fairfax County, in a form acceptable to the County Attorney, over any trails not within the public right-of-way. Such trails shall be maintained by the Applicant.

14. Equestrian Access. The Applicant shall work cooperatively with the Great Falls Trail Blazers to promote equestrian access and use on the Property.

II. TRANSPORTATION

~~11.~~**15.** Connection to Forest Lake Drive. Generally within the temporary turnaround easement associated with the existing temporary cul-de-sac at the end of Forest Lake Drive, the Applicant shall restore the area to grass and the matching of the existing ditch section. Per the Forest Lake deed of subdivision, the temporary turnaround easement will become null and void at such time as dedication and construction of the connection to the west occurs.

At the completion of installation of the stabilized construction entrance from Forest Lake Drive during the initial period of site development activity, the applicant shall cease use of the existing gravel driveway which currently provides ingress and egress to Springvale Road. A temporary barricade shall be installed on the property line at this location along with appropriate signage prohibiting further use.

~~12.~~**16.** Interparcel Connection. At the time of subdivision plat approval, the applicant shall dedicate an interparcel connection between Lots 4 and 5 as shown on the GDP. The interparcel connection shall be constructed as shown on the GDP contemporaneously with the construction of Forest Lake Drive extended into the Property~~. The~~ **unless a waiver of construction is approved by VDOT. The Applicant shall pursue such waiver prior to or concurrent with the filing of the subdivision plan. If a waiver is approved, the Applicant, prior to** subdivision plan approval**, shall escrow funds equivalent to that required for construction of the stub street based on Fairfax County's Unit Price Schedule in effect at the time. If a waiver is not approved and the stub connection is constructed, the** applicant shall install a Temporary Barrier at the stub-end of the interparcel connection to prevent unauthorized cut-through traffic. In addition, a sign will

be conspicuously placed at this location stating that this area will be the site of a future extension of the road by others. Both the barricade and the sign will remain in place until the future road connection is made. Prior to entering into any contract of sale with any purchaser, the applicant shall notify all prospective purchasers in writing that this interparcel connection is anticipated. In addition, the HOA documents shall provide written notification that this interparcel connection is anticipated.

III. ENVIRONMENTAL

~~13.~~**17.** Stormwater Management Facilities and Best Management Practices. The Applicant shall provide stormwater management ("SWM") and Best Management Practices ("BMPs") as determined by DPWES in the locations as generally shown on the GDP and in accordance with the requirements of the Stormwater Management Ordinance, the Public Facilities Manual (PFM), and the Chesapeake Bay Preservation Ordinance (CBPO). The requirements for maintaining non-County maintained SWM improvements shall be in a standard maintenance agreement between the County and the Applicant who is the land owner, its successor and assigns. This agreement shall be recorded in the County land records and run with the land. Should any deficiencies in the existing SWM or BMP facilities/improvements be identified by the Stormwater Management Maintenance Division during regular inspections, or when investigating a drainage complaint, then maintenance shall be performed in reasonable fashion and time in accordance with the recorded maintenance agreement. **The Applicant and its successors and assigns shall provide any maintenance inspection reports to the Walker Woods Lake HOA and to the District Supervisor's office.** Should future County policy permit all or part of the SWM facilities on the Property to be eligible for County Maintenance, then the Applicant or the successor homeowner's association may request County maintenance for eligible facilities.

18. On-Lot Low Impact Development (LID) Facilities. The Applicant shall install LID facilities on those lots shown on the GDP bordering the Resource Protection Area/Environmental Quality Corridor. Such facilities can include but are not limited to rooftop disconnects, biodiffuser infiltration facilities, and rain gardens. These facilities shall be maintained by the HOA and their presence disclosed to homeowners per Proffer 7.

19. BMP/Septic System Maintenance. After establishing the HOA pursuant to these proffers, the Applicant shall provide the HOA with written materials describing proper maintenance of the approved BMPs in accordance with the PFM and County guidelines as well as maintenance procedures for the Alternative on-site sewage system which shall then be included in the disclosure information/HOA documents for each homeowner as outlined in Proffer 6.

~~14.~~**20.** Stormwater Run-off. The proposed runoff reduction practices shall be designed in accordance with the design criteria outlined in the Virginia Department of Environmental Quality BMP Clearinghouse and additional design requirements outlined in the Fairfax

County Public Facilities Manual (PFM). The applicant shall follow the 'Detention Method' methodology for determination of allowable post-development peak rates of runoff for the 1-, 2- and 10-year storm events when addressing adequacy of the downstream receiving system.

The subdivision plan that shows the stormwater outfall/outfalls shall include the following information:

1) Five (5) field surveyed cross-sections of the receiving stream channel in locations determined by the project's submitting civil engineer, subject to DPWES approval, to be most susceptible to erosion problems due to soil type or geometric shape. One (1) of the field surveyed cross sections shall be located immediately upstream of the buffer. These sections shall be provided with permanent monuments on each end of the section, with monument coordinates (horizontal and vertical) provided on plans.

2) Sieve analysis to determine soil classification data of stream bank and bed materials from representative channel materials, including the material with the lowest allowable velocity in the receiving stream reach.

3) A calculation of the allowable average channel velocity at each cross-section using methods in accordance with Chapter 5 of the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

~~15.~~**21.** Pre-construction Monitoring of Receiving Stream Channels Prior to approval of the subdivision plan that shows the stormwater outfall, the Applicant shall submit a stream monitoring report to DPWES for review and approval with a courtesy copy to NVSWCD, that contains the following data for each survey section utilized for the adequate outfall analysis:

1) Location of sections and outfall;
2) Cross-section survey data, consisting of a graphical section drawing, coordinates of surveyed points, and the area of the channel below the plane formed by the section monuments;
3) Photograph of each section; and
4) Narrative statement describing the status of the stream channel.

~~16.~~**22.** Post-construction Monitoring of Receiving Stream Channels. The Applicant shall prepare a stream monitoring report in the same manner as the pre-construction monitoring report in Proffer ~~15~~**21** above. This report shall be submitted to DPWES and ~~NVSWCD~~**the Northern Virginia Soil and Water Conservation District (NVSWCD)** annually after submission of each pre-construction report, until two (2) years after the development is completed in the drainage area of each outfall (hereinafter referred to as the "control period"), as evidenced by final bond release. **Copies of the submitted report(s) shall be provided to the District Supervisor's office, the Walker Woods Lake Community Association and the two property owners immediately downstream of Outfall A.** All survey data shall be compared graphically and numerically to the original pre-construction submission.

~~17.~~**23.** Criteria for Repair of Outfall Channels: If the stream cross-section (measured vertically from a plane formed by the survey monuments) has not changed by more than an average of 5% or the stream's thalweg (the deepest part of the channel) has not moved in amount greater than three (3) feet or 25% of the stream width (original top-of-bank to top-of-bank), whichever distance is greater, from the pre-construction survey during the monitoring period, then no repairs shall be required. If the repair criteria described above are exceeded, the Applicant accepts responsibility for corrective restoration and/or stabilization measures, as determined by DPWES. The Applicant shall correct the cause of the problem as well as repair any erosion damage.

~~18.~~**24.** Outfall Channel Design: To the **maximum** extent possible, as determined by DPWES, restoration and stabilization measure shall incorporate biostabilization or bio-engineering processes to include, but not limited to, stabilization, regarding, or revegetation with native species.

Further, the applicant shall install a "stilling basin" at the Forest Lake Drive culvert crossing as part of the construction of the new roadway.

~~19.~~**25.** Off-Site Work. Any off-site work required to satisfy Proffers ~~14~~**17** through ~~18~~**20** shall be contingent upon the Applicant obtaining written permission from the respective off-site property owner(s) at no cost to the Applicant, prior to site plan approval. The Applicant shall use best efforts to obtain this permission and if such permission cannot be secured, the Applicant shall provide DPWES with documentation of the efforts to obtain the permission. If permission is not granted, then the applicant shall be relieved of any requirements related to off-site work as required by these proffers.

~~20.~~**26.** Existing Farm Pond. The Applicant shall maintain the pre-development drainage area to the maximum extent possible but in no case change the drainage area by more than 10% of the pre-development drainage area. The applicant shall not reduce the volume of runoff flowing to the existing farm pond. The applicant shall not increase the rate of runoff (cfs) to the existing farm pond.

27. Erosion and Sediment Control. The applicant shall provide, as part of the erosion and sediment control plan and the final subdivision plan, construction phasing and sequencing of land disturbing activities for purposes of limiting areas of bare and exposed soil. The erosion and sedimentation control plan shall provide for stabilization measures within each construction phase prior to the land disturbing activities into the next construction phase. The applicant shall provide additional erosion and sediment control measures which may include but not be limited to: clean-water diversions integrated with temporary slope drains as part of Phase 1 controls, heavy applications of straw mulch (minimum 2 tons/acre) on the individual lots subsequent back-fill of the foundation, and use of innovative practices and measures as part of both Phase 1 and 2 controls such as "Filtrexx Siltsoxx", "Silt-Saver Pipe Stopper" and "Silt Sack". Further, the applicant shall provide additional downstream erosion and sediment control measures on those offsite properties provided written permission is obtained and Proffer 25 is satisfied. The

applicant shall provide third-party monitoring and compliance inspection services during the development and construction period activities to insure that all protective measures remain in-place and are fully functional. The applicant shall provide the Walker Woods Lake Community Association, the two property owners immediately downstream of Outfall A, and DPWES copies all of the monitoring and compliance inspection reports associated with land-disturbing activity. The applicant shall include the added measures as part of the Stormwater Pollution Prevention Plan (SWPPP) in compliance with the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Construction Activities (Permit).

~~21.~~**28.** Lighting. ~~There~~**To further the Great Falls policy on Dark Skies, there** shall be no streetlights on the public streets within the development~~.~~**, and any other exterior lighting utilized on the property such as entry sign lighting, door sconces, lamp posts and landscape lighting on individual lots shall be full cut-off, emitting no light above the horizon. Exterior fixtures shall not exceed 1600 lumens (including all lamps) each. No light from exterior lighting fixtures shall produce light trespass or glare onto an adjoining property. These restrictions shall be contained within the HOA documents and the HOA shall be responsible for enforcing any violations of these requirements and ensuring remediation in a timely fashion.**

~~22.~~**29.** Energy Conservation. In support of energy conservation and green building techniques; the Applicant shall select one of the following programs, within its sole discretion at the time of subdivision plan submission.

A. Certification in accordance with the Earthcraft House Program as demonstrated through documentation provided to DPWES and the Environment and Development Review Branch of the Department of Planning of Zoning (EDRB) 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 EDRB from a home energy rater certified through Home Innovation Research Labs that demonstrates that the dwelling unit has attained the certification prior to the issuance of the RUP for each dwelling.

As part of either program, the Applicant shall utilize/install water efficient/low water appliances such as toilets, shower heads, bathroom faucets and dishwashers.

~~23.~~**30.** Landscaping. Landscaping shall be generally consistent with the quality, quantity and the locations shown on the GDP and shall be non-invasive, predominantly native species. At the time of planting, actual types, sizes, locations and species of vegetation shall be determined pursuant to more detailed landscape plans submitted at the time of submission of the subdivision plans for review and approval by the Urban Forestry Management Division (UFMD), provided that, to the extent possible, all species are ~~locally common~~

~~native species~~**indigenous to the Mid-Atlantic region. Notwithstanding that shown on Sheet 7.0 of the GDP, the landscaping on the individual lots shall be in substantial conformance with the type of plantings shown on the typical lot plan on Sheet 9.8 in that there will be a mixture of deciduous shade trees, ornamental trees, evergreen trees, perennials and understory foundation plantings on each lot**. The landscape plan submitted at time of subdivision plan review shall show tree preservation and restored forested areas, in substantial conformance with that shown on the GDP. The Landscaping and reforestation plan will be subject to the review and approval by the Urban Forestry Management Division (UFMD) of DPWES. Such landscape plans shall provide tree coverage and species diversity consistent with the PFM criteria~~, as determined by the Urban Forester~~. The Applicant reserves the right to make minor modifications to such landscaping to reasonably accommodate utilities and other design considerations, as approved by UFMD, provided such relocated landscaping shall retain a generally equivalent number of plantings as shown on the approved GDP.

~~24.~~**31.** Landscape Buffering**.** The Applicant shall provide supplemental landscaping treatment within the proposed tree save area for the benefit of Tax Parcels 0072-01-0033A and 0072-01-0003 to fill "gaps"; and, the Applicant shall include in the HOA documents a restriction that would prohibit future lot owners directly abutting Tax Parcels 0072-01-0033A and 0072-16-0003 from constructing sheds, out-buildings or accessory structures within the rear yards of the proposed lots directly abutting the said Tax Parcels. The Applicant shall consult with the current owners of Tax Parcels 0072-01-0033A and 0072-16-0003, prior to land disturbing activities and development of the Property, with respect to the type of landscape materials to be planted and their respective locations within the buffer area.

~~25.~~**32.** Limits of Clearing and Grading. The Applicant shall conform to the limits of clearing and grading as shown on the GDP, subject to allowances for the installation of utilities and/or trails**,** as determined necessary by the Director of DPWES, as described herein~~.~~ **and stream, outfall, or land stabilization measures as determined necessary by the Director of DPWES.** If it is determined necessary to install utilities ~~and/or~~**,** trails **or stream/land stabilization measures** in areas protected by the limits of clearing and grading as shown on the GDP, they shall be located in the least disruptive manner necessary. A replanting plan shall be developed and implemented, subject to approval by the UFMD, DPWES, for any areas protected by the limits of clearing and grading that must be disturbed for such ~~utilities~~**elements**.

~~26.~~**33.** Tree Preservation. The applicant shall submit a Tree Preservation Plan and Narrative as part of the first and all subsequent subdivision plan submissions. The preservation plan and narrative shall be prepared by a Certified Arborist, a Registered Consulting Arborist or a Professional Landscape Architect, and shall be subject to the review and approval of the UFMD. The tree preservation plan shall include a tree inventory that identifies the location, species, critical root zone, size, crown spread and condition analysis percentage rating for individual trees, living or dead, with trunks 12 inches in diameter and greater (measured at 4 ½ -feet from the base of the trunk or as otherwise allowed in the latest edition of the Guide for Plant Appraisal published by the International Society of

Arboriculture) and within 25 feet of the limits of clearing and grading in the undisturbed area. **One exception to this 25 foot offset from the limits shall be along the northern property boundary. The trees along the northern property boundary shown on Sheet 4.1 of 9 of the GDP shall be included in the Tree Preservation Plan even though they are outside of the 25 foot clearing limit.** The tree preservation plan shall provide for the preservation of those areas shown for tree preservation, those areas outside of the limits of disturbance shown on the GDP and those additional areas in which trees can be preserved as a result of final engineering. The tree preservation plan and narrative shall include all items specified in PFM 12-0507 and 12-0509. Specific tree preservation activities that will maximize the survivability of any tree identified to be preserved, such as: crown pruning, root pruning, mulching, fertilization, and others as necessary, determined by the certified arborist shall be included in the plan.

~~27.~~**34.** Tree Preservation Walk-Through. The Applicant shall retain the services of a certified arborist, a Registered Consulting Arborist or a Professional Landscape Architect, and 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 Applicant's certified arborist or landscape architect or designated representative shall walk the limits of clearing and grading with an UFMD, DPWES representative to determine where adjustments to the clearing limits can be made to increase the area of tree preservation, increasing the survivability of trees at the edge of the limits of clearing and grading, 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.

~~28.~~**35.** Tree Preservation Fencing. All trees shown to be preserved on the tree preservation plan shall be protected by tree protection ~~fence~~**fencing**. Tree protection fencing **shall be** in the form of four (4) foot high, fourteen (14) gauge welded wire attached to six (6) foot steel posts driven eighteen (18) inches into the ground and placed no further than ten (10) feet apart or, super silt fence to the extent that required trenching for super silt fence is done per the root pruning guidelines contained in these proffers. Fencing shall be erected at the limits of clearing and grading as shown on the demolition, and phase I & II erosion and sediment control sheets.

All tree protection fencing shall be installed after the tree preservation walk-through meeting but prior to any clearing and grading activities, including the demolition of any existing structures. The installation of all tree protection fencing shall be performed under the supervision of a certified arborist or professional landscape architect, and accomplished in a manner that does not harm existing vegetation that is to be preserved. Three (3) days prior to the commencement of any clearing, grading or demolition activities, but subsequent to the installation of the tree protection devices, the UFMD, DPWES, shall be notified and given the opportunity to inspect the site to ensure that all

tree protection devices have been correctly installed. If it is determined that the fencing has not been installed correctly, no grading or construction activities shall occur until the fencing is installed correctly, as determined by the UFMD, DPWES.

~~29.~~**36.** Root Pruning. The Applicant shall root prune, as needed to comply with the tree preservation requirements of these proffers. Root pruning shall be clearly identified, labeled, and detailed on the erosion and sediment control sheets of the ~~site~~**subdivision** plan submission. Root pruning shall be accomplished in a manner that protects affected and adjacent vegetation to be preserved, and may include, but not be limited to the following:

• Root pruning shall be done with a trencher or vibratory plow to a minimum depth of 18 inches.

• Root pruning shall take place prior to any clearing and grading, or demolition of structures and in conjunction with the installation of all super silt fence being used as tree protection fence.

• Root pruning shall be conducted ~~with~~**under** the supervision of a certified arborist.

• An UFMD, DPWES, representative shall be informed when all root pruning and tree protection fence installation is complete.

~~30.~~**37.** Tree Appraisal. The Applicant shall retain a certified arborist or professional landscape architect, to determine the replacement value of all trees 12 inches in diameter or greater located on the Application Property that are inventoried to be ~~saved~~**preserved** 25 feet outside and 10 feet inside the proposed limits of clearing and grading, as shown on the Tree Preservation Plan. ~~These trees~~**This proffer shall not apply to any offsite trees. The on-site trees to be preserved** and their value shall be identified on the Tree Preservation Plan at the time of the first submission of the respective ~~site~~**subdivision** plan(s). The replacement value shall take into consideration the age, size and condition of these trees and shall be determined by the so-called "Trunk Formula Method" contained in the latest edition of the Guide for Plan Appraisal published by the International Society of Arboriculture, subject to review and approval by UFMD.

At the time of the respective ~~site~~**subdivision** plan approvals, the Applicant shall post a cash bond or a letter of credit payable to the County of Fairfax to ensure preservation and/or replacement of the trees for which a tree value has been determined in accordance with the paragraph above (the "Bonded Trees") that die or are dying due to unauthorized construction activities. The letter of credit or cash deposit shall be equal to 50% of the replacement value of the Bonded Trees. At any time prior to final bond release for the improvements on the Application Property constructed adjacent to the respective tree save areas, should any Bonded Trees die, be removed, or are determined to be dying by the project arborist and/or UFMD due to unauthorized construction activities, the Applicant shall replace such trees at its expense. The replacement of the trees shall be determined by the Fairfax County Public Facilities Manual and by UFMD. Upon release of the bond for the improvements on the Application Property constructed adjacent to the respective tree save areas, any amount remaining in the tree bonds required by this proffer shall be returned/released to the Applicant.

~~31.~~**38.** Site Monitoring. During any clearing or tree/vegetation/structure removal on the Applicant Property, a representative of the Applicant shall be present to monitor the process and ensure that the activities are conducted as conditioned and as approved by the UFMD. The Applicant shall retain the services of a certified arborist, a Registered Consulting Arborist, or a Professional Landscape Architect to monitor all construction and demolition work and tree preservation efforts in order to ensure conformance with all tree preservation development conditions, and UFMD approvals. The monitoring schedule shall be described and detailed in the ~~Landscaping~~**Landscape** and Tree Preservation Plan, and **shall be** reviewed and approved by the UFMD, DPWES.

~~32.~~**39.** Resource Protection Area (RPA) and Environmental Quality Corridor (EQC) Restoration Plan. Specific areas within the RPA/EQC, as agreed upon by the County and Applicant, shall detail restoration measures in accordance with current County requirements and shall include mutually agreed upon bio-engineering techniques where deemed appropriate. This restoration plan shall be reviewed and approved by Urban Forestry Management Division (UFMD). The Applicant shall diligently pursue any Nationwide Permits (NMPs) that may be required by the U.S. Army Corps of Engineers and shall update the County on the progress of those permits throughout the subdivision plan process.

~~33.~~**40.** Walker Woods Lake. The Applicant shall perform ~~a pre-development and a post-development bathymetric survey on the downstream lake, Walker Woods Lake, and~~**three bathymetric surveys on Walker Woods Lake: pre-development, subsequent to base paving and stabilization of Forest Lake Drive extended into the Property, and post-development. Per the second bathymetric survey, if construction activities on the Property are shown to be the proximate cause of sedimentation or other downstream water quality impacts, the Applicant shall perform the appropriate remediation work to correct the impact within 60 days. Per the post development bathymetric survey**, if construction activities on the Property are shown to be the proximate cause of sedimentation or other downstream water quality impacts, the Applicant shall perform the appropriate remediation work to correct the impact prior to bond release. **Since the surveys and any remediation work will be off-site, the ability to satisfy this proffer shall be contingent upon the Applicant obtaining written permission from the respective off-site property owner(s) at no cost to the Applicant. The Applicant shall use best efforts to obtain this permission and if such permission cannot be secured, the Applicant shall provide DPWES with documentation of the efforts to obtain the permission. If permission is not granted, then the applicant shall be relieved of any requirements related to off-site work as required by this proffer.**

~~34.~~**41.** Conservation Easement. ~~The~~**Prior to bond release, the** forested area at the southeast corner of the property not otherwise a part of the EQC/RPA and unaffected by the **Forest Lake** roadway extension shall be encumbered by a Conservation Easement, ~~to~~**which will** be owned and maintained by the HOA, ~~with~~**and contain** general language as follows**:**

FURTHER WITNESSETH, that in consideration of the sum of Ten Dollars ($10.00), cash in hand paid, and other valuable consideration, the receipt and sufficiency of which are

hereby acknowledged, the Owner, with the consent and approval of the Trustee and Beneficiary, does convey to the County, Conservation Easements for the purpose of conserving and preserving undisturbed the natural vegetation, topography, habitat and other natural features now existing on and across the Property of Owner, said Easements being more particularly bounded and described as "Conservation Easement" on the Plat attached hereto and incorporated herein. The easements are subject to the following terms and conditions:

1. No use shall be made of, nor shall any improvements be made within, the conservation easement area without prior written authorization from Fairfax County **with the exception of the trail as shown on the north side of the entrance road which shall be field located in coordination with the County Urban Forester with the goal of preserving as many trees over eight inches in diameter as possible**.

2. All existing vegetation in the conservation easement area shall be preserved and protected and no clearing or grading shall be permitted, nor shall the easement area be denuded, defaced or otherwise disturbed without the prior written approval of the appropriate County agency or department.

3. In the event of any violation of this conservation easement, the Owner shall be solely responsible for the restoration of the conservation easement area to its condition as of the execution of this Deed. Further, the County and its agents shall have the right, but not the obligation, to enter upon the property and restore the conservation easement area to the extent the County may deem necessary. The cost of such restoration by the County shall be reimbursed to the County by the Owner, its successors and assigns, upon demand.

~~35.~~**42.** Septic System. ~~Alternative~~**An alternative** on-site sewage system (AOSS), as approved by the Health Department, will be utilized on each lot.

IV. CONTRIBUTIONS

~~36.~~**43.** Housing Trust Fund. At the time of the first building permit issuance, the Applicant shall contribute a sum equal to one-half of one percent (0.5%) of the projected sales price for each dwelling unit on the Property to the Fairfax County Housing Trust Fund, as determined by the Department of Housing and Community Development in consultation with the Applicant to assist the County in its goal to provide affordable dwellings. The projected sales price shall be based upon the aggregate sales price of all of the units, as if those units were sold at the time of the issuance of the first building permit and is estimated through comparable sales of similar type units.

~~37.~~**44.** Recreation Contribution. At the time of subdivision approval, the Applicant shall contribute the sum of $50,008 to the Fairfax County Park Authority for use at **or in connection with** off-site recreational facilities **that are in** the Dranesville District **and**

intended to serve ~~the future residents of the Dranesville District~~**residents within an area generally located north of Route 7 and west of Towlston Road, and south of the Potomac River**, as determined by the Fairfax County Park Authority in consultation with the Dranesville District Supervisor.

~~38.~~**45.** Public Schools. A contribution of $~~10,825~~**11,749** per projected student for the total number of units constructed, based on methodology for calculating the number of students outlined by the Office of Facilities Planning Services, Fairfax County Public Schools, shall be made to the Board of Supervisors for transfer to Fairfax County Public Schools (FCPS) and designated for capital improvements at the public schools serving the development. The contribution shall be made at the time of, or prior to, ~~subdivision plan approval~~**issuance of each residential use permit**. Following approval of this Application and prior to the Applicant's payment of the amount set forth in this Proffer, if Fairfax County should increase the ratio of students per unit or the amount of the contribution per student, the Applicant shall increase the amount of the contribution for that phase of development to reflect the then-current contribution. In addition, notification shall be given to FCPS when construction is anticipated to commence to assist FCPS by allowing for the timely projection of future students as a part of the Capital Improvement Program.

~~39.~~**46.** Escalation. All monetary contributions required by these proffers, with the exception of the proffer relating to the Housing Trust Fund and the proffer relating to the public school contribution, shall escalate on a yearly basis from the base year of 2015, and change effective each January 1 thereafter, based on the Consumer Price Index as published by the Bureau of Labor Statistics, the U.S. Department of Labor for the Washington-Baltimore, MD-VA-DC-WV Consolidated Metropolitan Statistical Area (the "CPI"), as permitted by Virginia State Code Section 15.2-2303.3.

Successors and Assigns

These proffers shall bind and inure to the benefit of the Applicant and his/her successors and assigns.

Counterparts

These proffers may be executed in one or more counterparts, each of which when so executed and delivered shall be deemed an original document and all of which taken together shall constitute but one and the same instrument.

TITLE OWNERS AND APPLICANTS SIGNATURES TO FOLLOW ON THE NEXT PAGE:

Susan M. Pesner
Co-Trustee of Land Trust Agreement dated March 30, 2014

Name: _____
Co-Owner of 7-2((1))17 and 23

Robert J. Segan
Co-Trustee of Land Trust Agreement dated March 30, 2014

Name: _____
Co-Owner of 7-2((1))17 and 23

Basheer/Edgemoore-Brooks, L.L.C.
A Virginia limited liability company
Contract Purchaser of 7-2((1))17 and 23

By: Basheer-Brooks, L.L.C.
A Virginia limited liability company
Its Sole Member

By:_____
Diane Cox Basheer
Title: Sole Member/Manager

GENERAL DEVELOPMENT PLAN
RZ 2014-DR-022

BROOKS PROPERTY

DRANESVILLE DISTRICT
FAIRFAX COUNTY, VIRGINIA

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-09-30	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

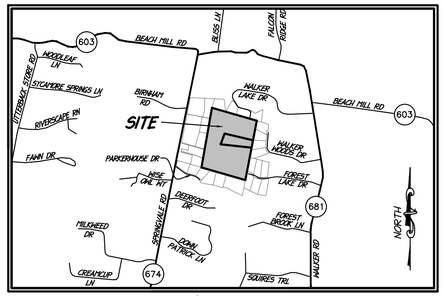
APPENDIX 2

christopher consultants
engineering · surveying · land planning
9900 main street (fourth floor) · fairfax, va 22030
phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

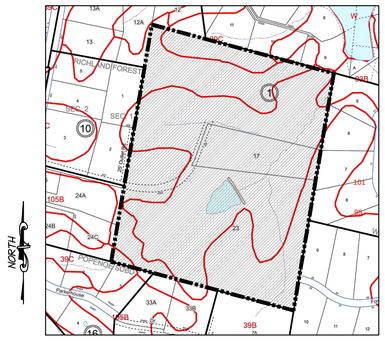
ZONING NOTES

1. THE SUBJECT PROPERTY IS IDENTIFIED AS FAIRFAX COUNTY TAX MAP# 7-2 ((1)), PARCELS 17 AND 23.
2. EXISTING PROPERTY OWNER: SUSAN M. PESNER AND ROBERT J. SEGAN, CO-TRUSTEES.
3. PROPERTY LOCATION: 4391 SPRINGVALE RD, GREAT FALLS, VA 22066
4. SITE AREA: 2,264,016 SF (51.97 AC): THIS AREA IS BASED ON A BOUNDARY SURVEY PREPARED AND CERTIFIED TO BY christopher consultants DATED MARCH 13, 2014. FAIRFAX COUNTY TAX ASSESSMENTS INDICATES THE SITE AREA TO BE 50 ACRES. FOR PURPOSES OF THIS APPLICATION WE ARE USING 51.97 ACRES WHICH IS BASED ON THE RECENT SURVEY WHICH IS CURRENT AND ACCURATE INFORMATION.
5. THE EXISTING ZONING FOR TAX MAP# 7-2 ((1)) PARCEL 17 IS R-A. THE EXISTING ZONING FOR TAX MAP# 7-2 ((1)) PARCEL 23 IS BOTH R-A AND R-E (APPROXIMATELY 0.29 ACRES IS ZONED R-E, AND 46.68 ACRES IS ZONED R-A).
6. EXISTING USE: SINGLE-FAMILY, DETACHED STRUCTURES (YEARS BUILT: 1970 AND 1995). ALL EXISTING STRUCTURES ON SITE WILL BE REMOVED
7. THE PROPOSED ZONING OF THE SUBJECT PROPERTY IS R-E CLUSTER (RESIDENTIAL ESTATE HOUSING DISTRICT, 0.5 DU/AC) TO PERMIT 20 SINGLE-FAMILY DETACHED DWELLING UNITS WITH A PUBLIC STREET. THE AREAS ALONG THE EASTERN PROPERTY LINES AND THE CENTRAL PORTION OF THE PROPERTY WILL BE COMPRISED OF OPEN SPACE / RPA THAT WILL BE PRESERVED AS NATURAL AND SCENIC FEATURES FOR THE DEVELOPMENT, AND A PEDESTRIAN LOOP TRAIL WILL BE INCORPORATED AS AN AMENITY WITHIN THE PROPOSED DEVELOPMENT THAT CONNECTS TO SPRINGVALE ROAD.
8. BOUNDARY AND PHYSICAL IMPROVEMENTS SHOWN HEREON IS BASED ON A CURRENT FIELD SURVEY, BY christopher consultants, LTD., DATED MARCH 13, 2014.
9. TOPOGRAPHIC INFORMATION IS FROM AN AERIAL SURVEY PERFORMED BY MCKENZIE SNYDER, INC. ON JANUARY 13, 2014 AND A FIELD RUN TOPOGRAPHIC SURVEY BY christopher consultants, LTD., BETWEEN MARCH 5 AND MARCH 13, 2014. THE CONTOUR INTERVAL IS TWO (2) FEET.
10. DURING THE PROCESS OF OUR PHYSICAL SURVEY NO INDICATIONS OF ANY GRAVES, OBJECTS OR STRUCTURES MARKING A PLACE OF BURIAL WERE FOUND. NO FURTHER INSPECTION OF THIS PROPERTY HAS BEEN MADE FOR POSSIBLE CEMETERIES.
11. THE LOCATION OF UTILITIES SHOWN HEREON ARE FROM OBSERVED EVIDENCE OF ABOVE GROUND APPURTENANCES ONLY. THE SURVEYOR WAS NOT PROVIDED WITH UNDERGROUND PLANS TO DETERMINE THE LOCATION OF ANY SUBTERRANEAN USES.
12. THE PROPERTY SHOWN HEREON IS LOCATED ON THE FLOOD INSURANCE RATE MAP (FIRM), COMMUNITY PANEL NO. 51059C 0045E, REVISED ON SEPTEMBER 17, 2010. BY GRAPHIC DEPICTION ONLY, THE PROPERTY SHOWN HEREON IS SHOWN IN: FLOOD ZONE 'X,' AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
13. THE SUBJECT PROPERTY IS NOT SERVED BY FAIRFAX COUNTY PUBLIC WATER AND SEWER. THE PROPOSED DEVELOPMENT WILL BE SERVED BY WELL AND SEPTIC.
14. THE SUBJECT PROPERTY IS LOCATED IN THE DRANESVILLE DISTRICT AND THE POND BRANCH WATERSHED OF FAIRFAX COUNTY, VA. REFER TO SHEETS 8.3 AND 8.4 FOR STORMWATER MANAGEMENT (SWM) AND BEST MANAGEMENT PRACTICE (BMP) NARRATIVES AND AN OUTFALL STATEMENT.
15. THERE IS NO EVIDENCE OF EXISTING UTILITY EASEMENTS HAVING A WIDTH OF 25 FEET OR MORE ON THE PROPERTY.
16. A WETLAND DELINEATION WAS CONDUCTED BY PASSAGE CREEK ENVIRONMENTAL, VERIFIED BY THE CORPS WITH JURISDICTIONAL DETERMINATION, DATED MAY 27, 2014. THERE ARE JURISDICTIONAL WETLANDS ON THE SUBJECT PROPERTY. THERE IS ALSO RESOURCE PROTECTION (RPA) ON THE PROPERTY, AS SHOWN ON SHEETS 3.1 AND 3.2 OF THIS PLAN SET. THE RPA HAS SCENIC ASSETS AND NATURAL FEATURES THAT WILL BE PROTECTED AND PRESERVED. MINIMAL DISTURBANCE/GRADING WILL BE REQUIRED IN THE RPA TO ESTABLISH A STORMWATER OUTFALL. A SMALL PORTION OF WORK IN THE RPA IS ALSO REQUIRED BY FAIRFAX COUNTY TO REMEDIATE EXISTING HAZARDOUS CONDITIONS SURROUDNING THE EXISTING WET POND IN THE RPA/EQC. SEE NARRATIVE ON SHEET 8.3 FOR THE REQUIRED WET POND IMPROVEMENTS.
17. A PHASE I CULTURAL RESOURCES SURVEY WAS COMPLETED BY ARCHEOLOGICAL TESTING AND CONSULTING, INC.
18. NO ADVERSE EFFECTS TO ADJACENT NEIGHBORING PROPERTIES ARE ANTICIPATED WITH THIS PROJECT. THIS DEVELOPMENT PROPOSAL IS COMPATIBLE WITH THE EXISTING DEVELOPMENT IN THE VICINITY OF THIS SITE.
19. TO THE BEST KNOWLEDGE OF THE ENGINEER AND DEVELOPER, THIS GENERAL DEVELOPMENT PLAN CONFORMS TO ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS, INCLUDING THE ADOPTED COMPREHENSIVE PLAN FOR THE COUNTY, UNLESS OTHERWISE SPECIFICALLY NOTED.
20. THERE IS NO TRAIL REQUIREMENT ON THIS PROPERTY BASED ON THE COUNTYWIDE TRAILS PLAN.
21. THE PUBLIC IMPROVEMENTS ANTICIPATED WITH THIS PROJECT INCLUDE THE EXTENSION OF FOREST LAKE DRIVE FROM OFFSITE ON TO THIS PROPERTY TO SERVE THE PROPOSED DEVELOPMENT. AS WELL, A PEDESTRIAN TRAIL WILL BE INCORPORATED INTO THE PROJECT AS AN AMENITY FEATURE.
22. NOTWITHSTANDING THE IMPROVEMENTS AND TABULATIONS SHOWN ON THIS PLAN, THE APPLICANT RESERVES THE RIGHT TO MAKE MODIFICATIONS TO THE FINAL DESIGN TO COMPLY WITH FINAL ENGINEERING AND NEW CRITERIA AND REGULATIONS WHICH MAY BE ADOPTED BY FAIRFAX COUNTY SUBSEQUENT TO THE SUBMISSION OF THIS APPLICATION, PROVIDED THAT SUCH MODIFICATIONS ARE CONSISTENT WITH THE APPROVED GENERAL DEVELOPMENT PLAN.
23. THE SITE IMPROVEMENTS SHOWN HEREIN ARE PRELIMINARY. FINAL BUILDING FOOTPRINT AND SITE IMPROVEMENTS WILL BE CONFIGURED AT THE TIME OF SITE PLAN APPROVAL, SUBJECT TO MARKET CONDITIONS, BUT SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED GENERAL DEVELOPMENT PLAN.
24. CONSTRUCTION OF THE PROPOSED DEVELOPMENT WILL COMMENCE AS SOON AS NECESSARY APPROVALS ARE OBTAINED, SUBJECT TO MARKET CONDITIONS AND DISCRETION OF THE OWNER.
25. PROPOSED SIGNAGE WILL CONFORM TO ARTICLE 12 OF THE ZONING ORDINANCE. REFER TO SHEET 6.2 FOR ENTRY SIGN LOCATION.
26. THERE ARE NO KNOWN HAZARDOUS OR TOXIC SUBSTANCES ON THE SUBJECT PROPERTY.



VICINITY MAP
SCALE: 1" = 2000'

2000 1000 0 2000 4000
SCALE



SOILS MAP
SCALE: 1" = 500'

500 250 0 500 1000
SCALE

SOILS KEY

39B	GLENELG SILT LOAM
39C	GLENELG SILT LOAM
93B	SUMERDUCK LOAM
105B	WHEATON-GLENELG COMPLEX
105C	WHEATON-GLENELG COMPLEX

NOTE: SOILS LISTED ARE THOSE WITHIN 500' RADIUS OF SITE BOUNDARIES

SHEET INDEX

1.	COVER SHEET
2.1-2.2	EXISTING CONDITIONS PLAN
3.1-3.2	EXISTING VEGETATION MAP
4.1-4.2	TREE PRESERVATION PLAN
5.1-5.2	TREE PRESERVATION NOTES & DETAILS
6.0-6.3	GENERAL DEVELOPMENT PLAN
7.0-7.2	LANDSCAPE PLAN
7.3	CONCEPTUAL LANDSCAPE BUFFER PLAN
7.4	CONCEPTUAL GRASS CHANNEL LANDSCAPE PLAN
8.1	PRE-DEVELOPMENT DRAINAGE DIVIDES
8.2	POST-DEVELOPMENT DRAINAGE DIVIDES
8.3	OVERALL BMP MAP AND NARRATIVE
8.4	VRRM & BMP TREATMENT VOLUME CALCULATIONS
8.5-8.6	SWM CALCULATIONS
8.7	OUTFALL MAP
8.8	CHANNEL CROSS-SECTIONS
9.1	OVERALL CONCEPT LAYOUT WITH ENVIRONMENTAL INFORMATION
9.2	PERIMETER LANDSCAPE BUFFER EXHIBIT
9.3-9.5	RPA RESTORATION CONCEPT PLAN
9.6	OVERALL CONCEPT PLAN
9.7	ENTRANCE CONCEPT ELEVATION & DESIGN IMAGERY
9.8	TYPICAL LOT LANDSCAPE PLANS
9.9-9.10	TYPICAL ARCHITECTURE ELEVATIONS

WAIVERS, MODIFICATIONS AND EXCEPTIONS

1. A WAIVER IS BEING REQUESTED TO ALLOW STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES WITHIN THE MINIMUM REQUIRED DISTANCE OF 6-1308.2D.
2. A WAIVER IS BEING REQUESTED TO ALLOW THE MAXIMUM DRAINAGE AREA TO A VEGETATED SWALE TO BE GREATER THAN 2 ACRES; SECTION 6-1308.2G.

DATE OF FIRST SUBMISSION: AUGUST 28, 2014
DATE OF SECOND SUBMISSION: OCTOBER 2, 2014
DATE OF THIRD SUBMISSION: JANUARY 30, 2015
DATE OF FOURTH SUBMISSION: MARCH 27, 2015
DATE OF FIFTH SUBMISSION: APRIL 24, 2015
DATE OF SIXTH SUBMISSION: JULY 8, 2015
DATE OF SEVENTH SUBMISSION: OCTOBER 19, 2015
DATE OF EIGHTH SUBMISSION: NOVEMBER 30, 2015
DATE OF NINTH SUBMISSION: FEBRUARY 18, 2016
- (INCLUDES REVISIONS BASED ON UFMD COMMENTS DATED 02-10-16 AND COUNTY ENVIRONMENTAL COMMENTS)

DATE OF TENTH SUBMISSION: APRIL 7, 2016
- (INCLUDES REVISIONS BASED ON GREAT FALLS CITIZENS ASSOCIATION (GFCA) MEETING COMMENTS 03-11-16)

DATE OF ELEVENTH SUBMISSION: APRIL 26, 2016
- (INCLUDES REVISIONS BASED ON NEIGHBOR CONCERNS & COUNTY STORMWATER COMMENTS)

APPLICANT/DEVELOPER:
BASHEER-EDGEMOORE-BROOKS, L.L.C.
2071 CHAIN BRIDGE ROAD
SUITE 510
VIENNA, VA 22182

COVER SHEET

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
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102267

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2016-04-26	REVISED PER COUNTY COMMENTS

LEGEND

Utilities - Water
- WATER VALVE
- FIRE HYDRANT

Utilities - Sanitary
- SANITARY MANHOLE

Utilities - Storm
- STORM DRAIN INLET (DIG.)
- STORM DRAIN MANHOLE
- STORM CATCH BASIN (CB)
- STORM INVERT

Utilities - Electric
- LIGHT POLE
- POWER POLE
- GUY WIRE

Utilities - Telephone
- TELEPHONE PEDESTAL
- TELEPHONE M.H.

Utilities - Misc.
- TREE
- TRAFFIC SIGNAL
- TRAFFIC CONTROL BOX
- MAIL BOX

Misc. Structures
- 150.0 GROUND SPOT SHOT

Linetypes
- RPA LINE
- OVERHEAD UTILITY LINE
- GUARD RAIL
- FENCE
- RPA LINE
- EQC LINE
- TREE LINE
- CURB & GUTTER
- PROPERTY LINE
- ADJOINER LINE
- EX. INDEX CONTOUR (10')
- EX. INT. CONTOUR (2')

Abbreviations
- IPF IRON PIPE FOUND
- IPS IRON PIPE SET
- C&G CURB & GUTTER
- RCP REIN. CONC. PIPE

Surfaces
- GRAVEL AREA
- STONE AREA

TM #0072-01-0012
ROBERT M. WEAVER
DB 14394 PG 880
ZONED: RE

TM #0072-14-0012
CALVIN A. & JANET HILL
DB 7570 PG 179
ZONED: RE

TM #0072-14-0011
MINOK K. & EUNHEE L. KWON
DB 9781 PG 37
ZONED: RE

TM #0072-14-0010
CHUKRI F. NASSAR
DB 16447 PG 1344
ZONED: RE

TM #0072-14-0009
ROBERT J. COX
DB 21857 PG 1117
ZONED: RE

TM #0072-01-0012A
HOSSEIN SHAHSAVAN
DB 19971 PG 1196
ZONED: RE

DWELLING (OTHERS)

STF (HELD) 0.7' ON, WIRE FNC 0.3' ON

S75°00'12"E 349.37'

2" IPF (HELD)

1" IPF (HELD)

S74°28'41"E 949.38'

1" IPF (HELD) 0.4' ON

WIRE FNC

2.3' OFF 1" IPF (HELD)

N08°58'20"E 309.47'

WIRE FNC

0.8' ON 1" IPS

REM. OF BARB WIRE FNC ALONG P/L

TM #0072-01-0023
SUSAN M. PESNER & ROBERT J. SEGAN, CO-TRUSTEES
DB 23640 PG 2179
ZONED: RA/RE
2,043,857 SQ. FT. OR 46.9205 ACRES

WOOD POLE BARN (TBR)

EQC (48) INV=306.68 (18" RCP)

WIRE FNC

1" IPF (HELD)

S01°34'11"W 1462.37' (TOTAL)

559.18'

TM #0072-11-0009
IRA N. SILVERMAN
DB 10291 PG 85
ZONED: RE

TM #0072-11-0008
JOHN C. TALCOTT
DB 18805 PG 747
ZONED: RE

TM #0072-11-0007
BAHRAM MEHROSTAMI
DB 22362 PG 1876
ZONED: RE

LIMITS OF WETLANDS AS DELINEATED BY OTHERS

S78°13'33"E 816.67'

(HELD) 1" IPF

TM #0072-10-0001
MARK E. PETERS
DB 11043 PG 787
ZONED: RE

N08°59'20"E 863.16'

WIRE FNC

TM #0072-10-0002
MARIMAN K. MARIMAN & ARYA BAHN
DB 9471 PG 763
ZONED: RE

WOOD BARN (TBR)

EX. 50' INGRESS/EGRESS EASEMENT DB 7525 PG 467

GARDEN W/ WIRE FNC

WELL

WOOD SHED (TBR)

PLANTER (TBR)

WOOD DECK (TBR)

1 STORY WOOD FRAME DWELLING W/ BASEMENT (DATE OF CONSTRUCTION: 1970) (TBR)

FLAGPOLE (TBR)

STONE LEADWALK (TBR)

WOOD FNC

N08°45'37"E 270.00'

78.5'

75.8'

TM #0072-01-0023
SUSAN M. PESNER & ROBERT J. SEGAN, CO-TRUSTEES
DB 23640 PG 2179
ZONED: RA/RE
220,159 SQ. FT. OR 5.0542 ACRES

WOOD FNC

N84°57'53"W 875.32'

(HELD) 1" IPF

212.01'

621.08'

FOR CONTINUATION SEE SHEET 2.2

VIRGINIA STATE GRID NORTH (NAD 83)

SCALE: 1" = 60'
60 30 0 60 120
GRAPHIC SCALE

christopher consultants
engineering · surveying · land planning
9900 main street (fourth floor) · fairfax, va 22030
phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

EXISTING CONDITIONS PLAN

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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DESIGN: JR
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CHECKED:
SHEET No. 2.1 OF 9

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LEGEND

- Utilities - Water
  - WATER VALVE
  - FIRE HYDRANT
- Utilities - Sanitary
  - SANITARY MANHOLE
- Utilities - Storm
  - STORM DRAIN INLET (DIG.)
  - STORM DRAIN MANHOLE
  - STORM CATCH BASIN (CB)
  - STORM INVERT
- Utilities - Electric
  - LIGHT POLE
  - POWER POLE
  - GUY WIRE
- Utilities - Telephone
  - TELEPHONE PEDESTAL
  - TELEPHONE M.H.
- Utilities - Misc.
  - TREE
  - TRAFFIC SIGNAL
  - TRAFFIC CONTROL BOX
  - MAIL BOX
- Misc. Structures
  - GROUND SPOT SHOT
- Linetypes
  - RPA LINE
  - OVERHEAD UTILITY LINE
  - GUARD RAIL
  - FENCE
  - RPA LINE
  - EQC LINE
  - TREE LINE
  - CURB & GUTTER
  - PROPERTY LINE
  - ADJOINER LINE
  - EX. INDEX CONTOUR (10')
  - EX. INT. CONTOUR (2')
- Abbreviations
  - IPF — IRON PIPE FOUND
  - IPS — IRON PIPE SET
  - C&G — CURB & GUTTER
  - RCP — REIN. CONC. PIPE
- Surfaces
  - GRAVEL AREA

SPRINGVALE ROAD
ROUTE #674
VARIABLE WIDTH PUBLIC RIGHT-OF-WAY
(ASPHALT ROAD)

TM #0072-01-0023
HAYDOWN FAMILY, LP
DB 7525 PG 467
ZONED: RA/RE
2,043,857 SQ. FT. OR 46.9205 ACRES

INV=345.03 (12" CMP)
EC 1299
N10°07'50"E 15.31'
1-1/2" IPF (HELD)
0.2' OFF
1-1/2" IPF (HELD)
GRAVEL DRIVEWAY
S75°21'57"E
0.6' ON
665.44'
N75°19'47"W
455.03'
WOOD FNC
210.77'
1" IPS
53.30'
695'± TO INT. OF FAIRHOUSE DRIVE
3/4" RBF
1" IPF (HELD)
FOR CONTINUATION SEE BELOW

TM #0072-01-0025
CLAUDE J. ANDERSEN
DB 8131 PG 1124
ZONED: RE

TM #0072-01-0024A
RANDALL L. BAUGHMAN, TR.
DB 18367 PG 1337
ZONED: RE

FOR CONTINUATION SEE SHEET 2.1

TM #0072-10-0002
NIAZMANI K. ARYABAN
DB 9471 PG 763
ZONED: RE

WOOD FNC
WIRE FNC
GARDEN
FENCE GATE
GRAVEL DRIVEWAY
2 STORY WOOD FRAME DWELLING (DATE OF CONSTRUCTION: 1935) (TBR)
WELL
GARDEN W/ WIRE FNC
WOOD DECK (TBR)
EX. 50' INGRESS/EGRESS EASEMENT DB 7525 PG 467
WOOD SHED (TBR)
STRUCTURE IN DISREPAIR (TBR)
POND
LIMITS OF WETLANDS AS DELINEATED BY OTHERS
WOOD DOCK
EC 516
INV=326.45 (6" METAL)
FOR CONTINUATION SEE ABOVE

TM #0072-01-0024A
RANDALL L. BAUGHMAN, TR.
DB 18367 PG 1337
ZONED: RE

TM #0072-01-0024C
JUNIPER FARMS, LLC
DB 21805 PG 1935
ZONED: RE

N85°54'20"E 514.69'

TM #0072-01-0023
SUSAN M. PESNER & ROBERT J. SEGAN, CO-TRUSTEES
DB 23640 PG 2179
ZONED: RA/RE
2,043,857 SQ. FT. OR 46.9205 ACRES

TM #0072-12-0006
ALICE W. MILLS
& TIMOTHY E. QUICK
DB 1160 PG 1339
ZONED: RE

TM #0072-12-0009
ELYSE & ROBERT TURKEL TRUST
DB 9612 PG 823
ZONED: REC

TM #0072-01-0008
ROBERT MATHAN VAL. TR.
DB 20284 PG 327
ZONED: REC

GRAVEL DRIVEWAY
PPF (HELD)
PPF (HELD)
PPF
FOREST LAKE DRIVE
ASPHALT ROAD
ROUTE #6299
1" IPF

TM #0072-12-0010
THOMAS G. & COLLEEN M. GRIMLE
DB 10642 PG 1267
ZONED: REC

TM #0072-01-0011
THOMAS DILENGE
DB 20545 PG 1898
ZONED: REC

S21°34'11"W 1682.27' (TOTAL)
921.08'

STF (HELD FOR LINE)
1" IPS
REM. OF BARB-WIRE FNC
N75°01'18"W
1" IPF (HELD)
VAR. WIDTH WOOD FNC
0.5' OFF
3.6' OFF
5' METAL FNC
1" IPF
2.2' OFF
6' CHAIN-LINK FNC
0.7' ON
1" IPF
1324.41'
6' CHAIN LINK FNC
1" IPF (HELD)

TM #0072-16-0002
GARY S. & CAROLYN M. CUPPERNULL
DB 11095 PG 982
ZONED: RE

TM #0072-16-0003
THOMAS G. KAMIASKY
DB 16635 PG 1164
ZONED: RE

TM #0072-01-0033A
SHERRI B. KROHL
DB 21512 PG 1720
ZONED: RE

TM #0072-01-0033B
ERNEST B. & JOCELYNE J. GRANT
DB 9930 PG 71
ZONED: RE

TM #0072-01-0007A
STEVEN DANN
DB 19545 PG 1861
ZONED: RE

VIRGINIA STATE GRID NORTH (NAD 83)

SCALE: 1" = 60'
60 30 0 60 120
GRAPHIC SCALE

CORNER DETAIL
SCALE: 1" = 10'

N85°54'20"E 514.69'
STF (HELD FOR LINE)
STF (HELD)
1" IPF (HELD)
2.5'
1" IPS
N75°01'18"W 1324.41'
982.07' TIE
1" IPF (HELD)
TM #0072-16-0003
THOMAS G. KAMIASKY
DB 16635 PG 1164
ZONED: RE

christopher consultants
engineering · surveying · land planning
9900 main street (fourth floor) · fairfax, va 22030
phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No. 33635
4/26/16
PROFESSIONAL ENGINEER

EXISTING CONDITIONS PLAN

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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TABLE 12.3 TREE PRESERVATION TARGET CALCULATIONS AND STATEMENT	
A Pre-development area of existing tree canopy =	625,466 SF
B Percentage of gross site area covered by existing tree canopy =	28 %
C Percentage of 10-year tree canopy required for site (R-E Zone) =	30 %
D Percentage of the 10-year tree canopy requirement that should be met through tree preservation =	8 %
E Proposed percentage of canopy requirement that will be met through tree preservation =	450,090 SF 100 %
F Has the Tree Preservation Target minimum been met?	YES

Existing Vegetation Map Designation Cover Type Table

Area	Vegetation and Land Use Cover Type	Specie Composition		Successional Stage	Acreage	General Health and Condition
A	Developed Land	Overstory	None	N/A	0.34	Residential buildings with gravel driveway.
		Understory	None			
		Shrub/Groundcover	None			
B	Maintained Grassland	Overstory	None	intermediate	3.76	Average Health.
		Understory	None			
		Shrub/Groundcover	Maintained Grassland			
C	Open Field	Overstory	None	intermediate	31.85	Average Health. Used in the past for horse pasture.
		Understory	None			
		Shrub/Groundcover	Meadow grasses			
		Invasive	Japanese stilt grass			
D	Upland Forest	Overstory	Prunus serotina, Liriodendron tulipifera, Acer rubrum, Robinia pseudoacacia, Quercus alba	intermediate to climax community	*15.20	Overall in good health. Some fallen trees were observed. Trees at the edge of the forest are overgrown with vines. Trees north of existing entrance along western property line in poor health.
		Understory	Sassafras albidum, Diospyros virginiana			
		Shrub/Groundcover	Parthenocissus quinquefolia, Carex spp.			
		Invasive	none			
E	Landscaped Tree Canopy	Overstory	none	intermediate	0.08	Poor Health. Nursery stock apple trees have not fared well with some dead specimens visible. Infestation and hollow trees were observed as well. Heavily pruned.
		Understory	Malus spp.			
		Shrub/Groundcover	Maintained Grassland			
F	Miscellaneus	Overstory	none	intermediate	0.73	Existing pond on site.
		Understory	none			
		Shrub/Groundcover	none			

Total Site Acreage = 51.07 Acres

*Total acreage of upland forest includes approximate canopy of on-site and off-site trees. Hatch pattern (see legend) indicates square footage of on-site trees and that number is reflected in the pre-development area of existing tree canopy (line 'a') of Table 12.3.

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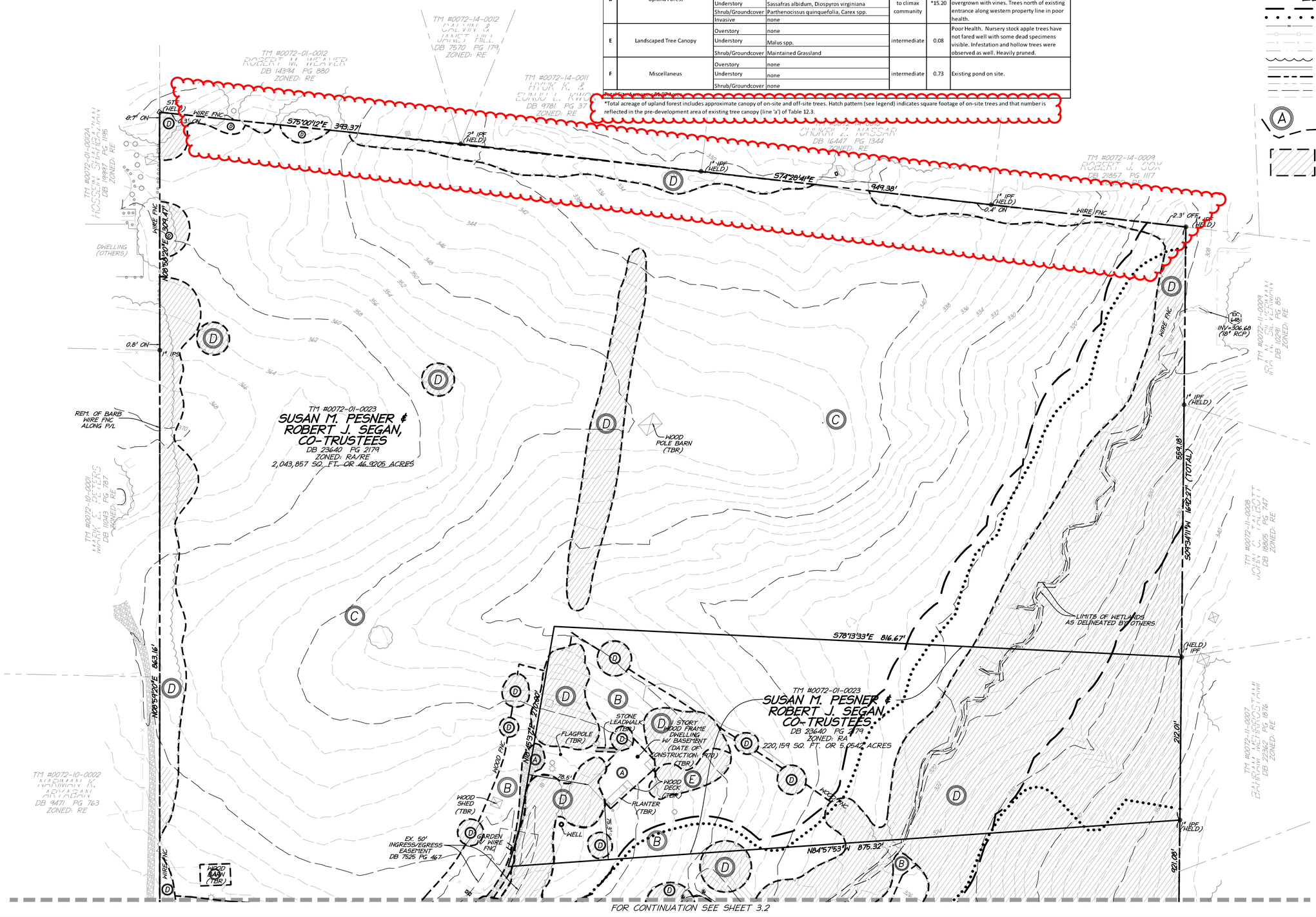
LEGEND

- RPA LINE
- EQC LINE
- OVERHEAD UTILITY LINE
- GUARD RAIL
- FENCE
- DITCH CENTERLINE
- TREE LINE
- CURB & GUTTER
- PROPERTY LINE
- ADJOINER LINE
- EX. INDEX CONTOUR (10')
- EX. INT. CONTOUR (2')
- (A) LIMITS OF EVM DESIGNATION
- EXISTING TREES ON-SITE (±625,466 SF)



FOR CONTINUATION SEE SHEET 3.2

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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
2016-04-26
LANDSCAPE ARCHITECT

EXISTING VEGETATION MAP

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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		Shrub/Groundcover	Maintained Grassland			
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		Shrub/Groundcover	Parthenocissus quinquefolia, Carex spp.			
		Invasive	none			
E	Landscaped Tree Canopy	Overstory	none	intermediate	0.08	Poor Health. Nursery stock apple trees have not fared well with some dead specimens visible. Infestation and hollow trees were observed as well. Heavily pruned.
		Understory	Malus spp.			
		Shrub/Groundcover	Maintained Grassland			
F	Miscellaneus	Overstory	none	intermediate	0.73	Existing pond on site.
		Understory	none			
		Shrub/Groundcover	none			
Total Site Acreage = 51.97 Acres						

*Total acreage of upland forest includes approximate canopy of on-site and off-site trees. Hatch pattern (see legend) indicates square footage of on-site trees and that number is reflected in the pre-development area of existing tree canopy (line 'a') of Table 12.3.

TABLE 12.3 TREE PRESERVATION TARGET CALCULATIONS AND STATEMENT

A Pre-development area of existing tree canopy =	625,466 SF
B Percentage of gross site area covered by existing tree canopy =	28 %
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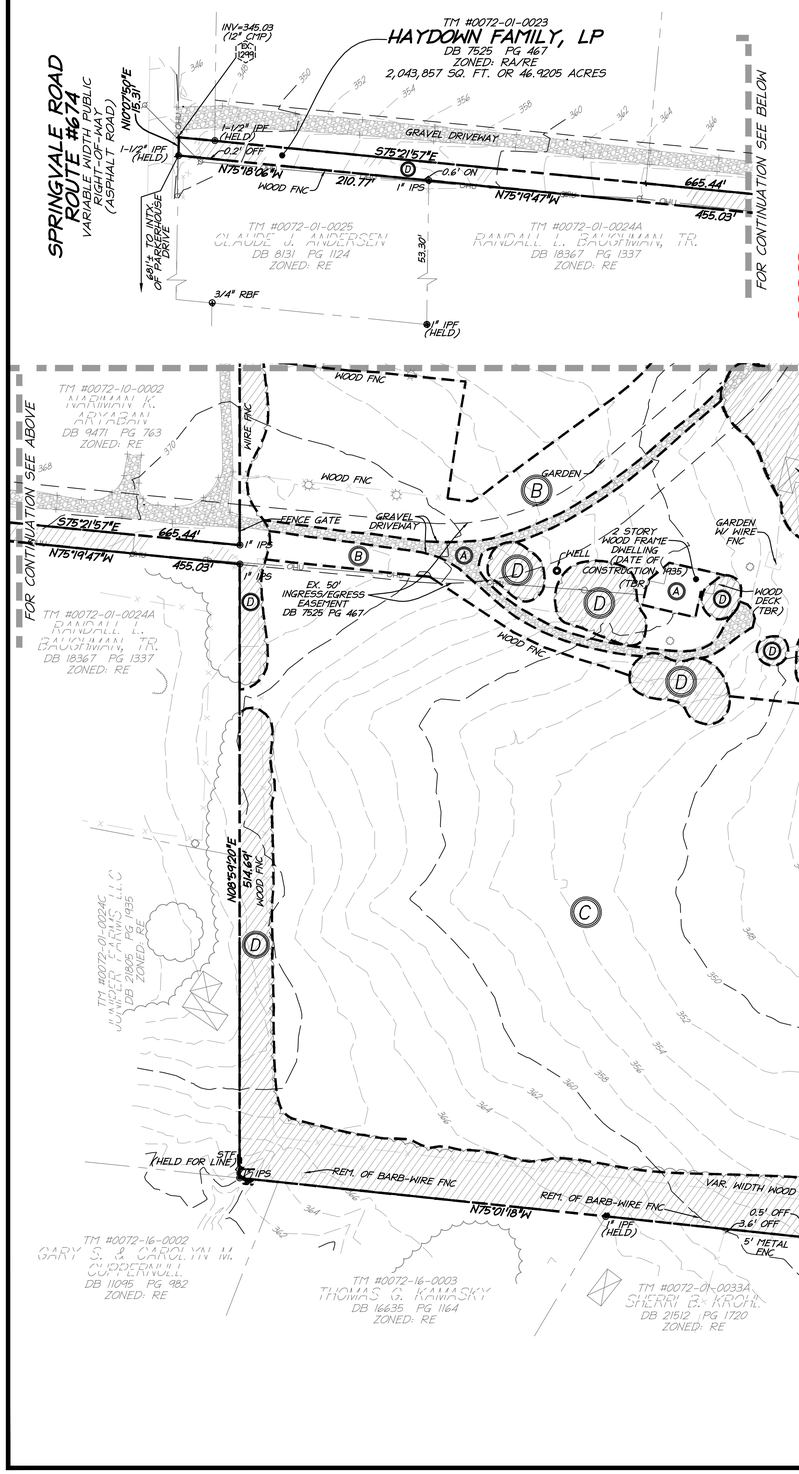
D Percentage of the 10-year tree canopy requirement that should be met through tree preservation =	8 %
E Proposed percentage of canopy requirement that will be met through tree preservation =	450,090 SF 100 %
F Has the Tree Preservation Target minimum been met?	YES



LEGEND

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- EX. INDEX CONTOUR (10')
- EX. INT. CONTOUR (2')
- LIMITS OF EVM DESIGNATION
- EXISTING TREES ON-SITE (±625,466 SF)

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phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
2016-04-26
LANDSCAPE ARCHITECT

EXISTING VEGETATION MAP

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: LB, JM
DRAWN: DL
CHECKED:
SHEET No.
3.2 OF 9

102267

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

AS PER PFM SECTION 12-0509.2A, ONLY TREES 12" CALIPER AND GREATER LOCATED 25' OUTSIDE THE PROPOSED LIMITS OF CLEARING ARE REQUIRED TO BE DELINEATED ON THE GDP. HOWEVER, FOR THE PURPOSES OF THIS APPLICATION, IN THIS AREA TREES OUTSIDE THIS 25' OFFSET ARE SHOWN FOR ADJACENT PROPERTY OWNER INFORMATION PURPOSES. OFF-SITE TREE LOCATIONS IN THIS AREA WERE SURVEYED. TRUNK DIAMETER AND TREE CONDITIONS RATINGS HAVE BEEN ESTIMATED FROM A VISUAL ASSESSMENT FROM THE SUBJECT PROPERTY.

LEGEND

- RPA LINE
- EQC LINE
- OVERHEAD UTILITY LINE
- GUARD RAIL
- FENCE
- DITCH CENTERLINE
- CURB & GUTTER
- PROPERTY LINE
- ADJOINER LINE
- EX. INDEX CONTOUR (10')
- EX. INT. CONTOUR (2')
- LIMITS OF CONSTRUCTION
- TREE LINE
- EXISTING TREE TO BE PRESERVED
- EXISTING TREE TO BE REMOVED
- TP — TREE PROTECTION FENCE (TP)
- RP — ROOT PRUNING (RP)
- EXISTING TREES OUTSIDE OF LIMITS TO BE PRESERVED (±450,090 SF)

NOTES:
1. THE TREE PRESERVATION SCHEDULE IS LOCATED ON SHEET 4.1.
2. OFF-SITE TREES LOCATED ALONG THE NORTHERN PROPERTY LINE, ARE NOTED ON THE PLAN.

FOR CONTINUATION SEE SHEET 4.2

VIRGINIA STATE GRID NORTH (NAD 83)

SCALE: 1" = 60'
60 30 0 60 120
GRAPHIC SCALE

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2016-04-26
LANDSCAPE ARCHITECT

TREE PRESERVATION PLAN

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: JM, LB
DRAWN: DL
CHECKED:
SHEET No.
4.1 OF 9

102267

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

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COMMONWEALTH OF VIRGINIA
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TREE PRESERVATION PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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SHEET No.
4.2 OF 9

102267

TREE PRESERVATION SCHEDULE

TREE #	BOTANICAL NAME	COMMON NAME	DIAMETER TRUNK (INCHES)	RADIUS CROWN (FEET)	ZONE RADIUS CRITICAL ROOT (FEET)	RATING CONDITION	COMMENTS	
368	LIRIODENDRON TULIPIFERA	TULIP POPLAR	28	15	28	65.6	TO BE PRESERVED	
369	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	20	30	71.9	TO BE PRESERVED	
370	PRUNUS SEROTINA	BLACK CHERRY	18	28	18	87.5	TO BE PRESERVED	
371	PRUNUS SEROTINA	BLACK CHERRY	8	10	8	68.8	TO BE REMOVED	
372	PRUNUS SEROTINA	BLACK CHERRY	15	10	15	65.6	TO BE REMOVED	
373	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	25	30	75	TO BE REMOVED	
374	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	20	24	68.8	TO BE REMOVED	
375	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32	12	32	71.9	TO BE REMOVED	
376	LIRIODENDRON TULIPIFERA	TULIP POPLAR	14	8	14	71.9	TO BE PRESERVED	
377	LIRIODENDRON TULIPIFERA	TULIP POPLAR	32	20	32	78.1	TO BE PRESERVED	
378	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	12	30	65.6	TO BE PRESERVED	
382	CARYA OVATA	SHAGBARK HICKORY	12	10	12	71.9	TO BE PRESERVED	
383	LIRIODENDRON TULIPIFERA	TULIP POPLAR	28	12	28	59.4	TO BE PRESERVED	
385	LIRIODENDRON TULIPIFERA	TULIP POPLAR	10	28	10	71.9	TO BE REMOVED	
386	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36	10	36	71.9	TO BE REMOVED	
388	CARYA TOMENTOSA	MOCKERNUT HICKORY	12	10	12	71.9	TO BE REMOVED	
389	CARYA TOMENTOSA	MOCKERNUT HICKORY	10	5	10	75	TO BE REMOVED	
393	PRUNUS SEROTINA	BLACK CHERRY	28	20	28	81.3	TO BE PRESERVED	
394	LIRIODENDRON TULIPIFERA	TULIP POPLAR	34	12	34	75	TO BE PRESERVED	
395	ILEX OPACA	AMERICAN HOLLY	9	8	9	75	TO BE PRESERVED	
396	QUERCUS RUBRA	NORTHERN RED OAK	30	12	30	46.9	TO BE PRESERVED	
397	FAGUS GRANDIFOLIA	AMERICAN BEECH	8	8	8	65.6	TO BE PRESERVED	
398	LIRIODENDRON TULIPIFERA	TULIP POPLAR	10	14	10	65.6	TO BE PRESERVED	
400	FAGUS GRANDIFOLIA	AMERICAN BEECH	8	6	8	75	TO BE PRESERVED	
401	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	10	20	59.4	TO BE PRESERVED	
403	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	30	30	75	TO BE PRESERVED	
404	ACER RUBRUM	RED MAPLE	20	20	20	65.6	TO BE PRESERVED	
405	ACER RUBRUM	RED MAPLE	24	20	24	68.8	TO BE REMOVED	
406	LIRIODENDRON TULIPIFERA	TULIP POPLAR	26	12	26	71.9	TO BE PRESERVED	
407	LIRIODENDRON TULIPIFERA	TULIP POPLAR	8	6	8	40.6	TO BE REMOVED	
414	ULMUS AMERICANA	AMERICAN ELM	28	6	28	31.3	TO BE PRESERVED	
416	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	15	20	56.2	TO BE PRESERVED	
417	LIRIODENDRON TULIPIFERA	TULIP POPLAR	26	9	26	59.4	TO BE PRESERVED	
424	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	15	24	84.4	TO BE REMOVED	
43[illegible]	ACER RUBRUM	RED MAPLE	22	12	22	71.9	TO BE PRESERVED	
434	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	12	20	59.8	TO BE PRESERVED	
435	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	15	30	65.6	TO BE REMOVED	
437	LIRIODENDRON TULIPIFERA	TULIP POPLAR	26	15	26	65.6	TO BE PRESERVED	
439	CARYA TOMENTOSA	MOCKERNUT HICKORY	14	10	14	40.6	TO BE REMOVED	
481	ACER RUBRUM	RED MAPLE	12	5	12	71.9	TO BE REMOVED	
504	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	10	12	50	TO BE PRESERVED	
592	ROBINIA PSEUDOACACIA	BLACK LOCUST	12	15	12	40.6	TO BE PRESERVED	
593	ROBINIA PSEUDOACACIA	BLACK LOCUST	8	6	8	40.6	TO BE PRESERVED	
594	ROBINIA PSEUDOACACIA	BLACK LOCUST	18	6	18	40.6	TO BE PRESERVED	
595	ROBINIA PSEUDOACACIA	BLACK LOCUST	10	5	10	40.6	TO BE PRESERVED	
596	PRUNUS SEROTINA	BLACK CHERRY	12	6	12	50	TO BE PRESERVED	
598	PRUNUS SEROTINA	BLACK CHERRY	12	4	12	56.2	TO BE PRESERVED	
599	PRUNUS SEROTINA	BLACK CHERRY	8	6	8	50	TO BE PRESERVED	
600	ULMUS AMERICANA	AMERICAN ELM	11	10	11	50	TO BE PRESERVED	
601	ROBINIA PSEUDOACACIA	BLACK LOCUST	13	30	13	37.5	TO BE PRESERVED	
601-W	PRUNUS SEROTINA	BLACK CHERRY	10	10	10	50	TO BE PRESERVED	
602	PRUNUS SEROTINA	BLACK CHERRY	36	21	36	50	TO BE PRESERVED	
603	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	15	12	59.8	TO BE PRESERVED	
604	PRUNUS SEROTINA	BLACK CHERRY	24	48	24	56.3	TO BE PRESERVED	
605	PRUNUS SEROTINA	BLACK CHERRY	8	10	8	34.4	TO BE PRESERVED	
606	PRUNUS SEROTINA	BLACK CHERRY	8	4	8	34.4	TO BE PRESERVED	
607	PRUNUS SEROTINA	BLACK CHERRY	11	10	11	40.6	TO BE PRESERVED	
608		STANDING DEAD	48	15	48	25	TO BE PRESERVED	
609	QUERCUS FALCATA	S. RED OAK	26	15	26	59.8	TO BE PRESERVED	
610	FAGUS GRANDIFOLIA	AMERICAN BEECH	15	15	15	65.6	TO BE PRESERVED	
611	QUERCUS ALBA	WHITE OAK	30	25	30	68.8	TO BE PRESERVED	
612	PRUNUS SEROTINA	BLACK CHERRY	10	10	10	31.3	TO BE PRESERVED	
613	CARYA TOMENTOSA	MOCKERNUT HICKORY	10	10	10	56.2	TO BE PRESERVED	
614	PRUNUS SEROTINA	BLACK CHERRY	20	10	20	59.8	TO BE PRESERVED	
615	PRUNUS SEROTINA	BLACK CHERRY	10	10	10	56.2	TO BE PRESERVED	
616	PRUNUS SEROTINA	BLACK CHERRY	15	15	15	56.2	TO BE PRESERVED	
617	PRUNUS SEROTINA	BLACK CHERRY	12	12	12	50	TO BE PRESERVED	
618	GLEDITSIA TRIACANTHOS	HONEY LOCUST	14	15	14	65.6	TO BE PRESERVED	
619	GLEDITSIA TRIACANTHOS	HONEY LOCUST	16	10	16	59.8	TO BE PRESERVED	
620	ACER RUBRUM	RED MAPLE	20	20	20	50	TO BE PRESERVED	
621	PRUNUS SEROTINA	BLACK CHERRY	15	10	15	59.8	TO BE PRESERVED	
622	ROBINIA PSEUDOACACIA	BLACK LOCUST	14	24	14	46.9	TO BE PRESERVED	
622-W	DIOSPYROS VIRGINIANA	COMMON PERSIMMON	13	10	13	59.8	TO BE PRESERVED	
623	NYSSA SYLVATICA	BLACK GUM	12	10	12	25	TO BE PRESERVED	
624	PRUNUS SEROTINA	BLACK CHERRY	11	24	11	34.4	TO BE PRESERVED	
625	PAULOWNIA TOMENTOSA	PRINCESS TREE	21	30	21	56.2	TO BE PRESERVED	
626	QUERCUS ALBA	WHITE OAK	35	35	35	75	TO BE PRESERVED	
628	QUERCUS FALCATA	S. RED OAK	29	10	29	65.6	TO BE PRESERVED	
629	CARYA TOMENTOSA	MOCKERNUT HICKORY	11	10	11	71.8	TO BE PRESERVED	
630	ACER RUBRUM	RED MAPLE	11	10	11	56.2	TO BE PRESERVED	
631	ACER RUBRUM	RED MAPLE	20	10	20	59.8	TO BE PRESERVED	
632	QUERCUS FALCATA	S. RED OAK	39	45	39	59.8	TO BE PRESERVED	
633	ACER RUBRUM	RED MAPLE	11	15	11	71.8	TO BE PRESERVED	
634	FAGUS GRANDIFOLIA	AMERICAN BEECH	19	15	19	71.8	TO BE PRESERVED	
635	PRUNUS SEROTINA	BLACK CHERRY	10	20	10	59.8	TO BE PRESERVED	
636	PRUNUS SEROTINA	BLACK CHERRY	24	25	24	59.8	TO BE PRESERVED	
637	CARYA TOMENTOSA	MOCKERNUT HICKORY	11	33	11	65.6	TO BE PRESERVED	
639	CARYA TOMENTOSA	MOCKERNUT HICKORY	24	33	24	68.7	TO BE PRESERVED	
640	ACER RUBRUM	RED MAPLE	56	36	56	75	TO BE PRESERVED	
641	ACER RUBRUM	RED MAPLE	30	30	30	71.8	TO BE PRESERVED	
642	DIOSPYROS VIRGINIANA	COMMON PERSIMMON	24	24	24	59.4	TO BE PRESERVED	
643	ROBINIA PSEUDOACACIA	BLACK LOCUST	8	18	8	46.9	TO BE PRESERVED	
644	DIOSPYROS VIRGINIANA	COMMON PERSIMMON	15	25	15	62.5	TO BE PRESERVED	
645	DIOSPYROS VIRGINIANA	COMMON PERSIMMON	18	30	18	46.9	TO BE PRESERVED	
646	ROBINIA PSEUDOACACIA	BLACK LOCUST	22	15	22	28.1	TO BE PRESERVED	
647	ACER RUBRUM	RED MAPLE	21	21	21	65.6	TO BE PRESERVED	
648	ROBINIA PSEUDOACACIA	BLACK LOCUST	13	22	13	56.3	TO BE PRESERVED	
649	ROBINIA PSEUDOACACIA	BLACK LOCUST	9	10	9	59.4	TO BE PRESERVED	
650	CARYA TOMENTOSA	MOCKERNUT HICKORY	10	13	10	46.9	TO BE PRESERVED	
651	CARYA TOMENTOSA	MOCKERNUT HICKORY	8	12	8	31.3	TO BE PRESERVED	
652	PRUNUS SEROTINA	BLACK CHERRY	10	15	10	62.5	TO BE PRESERVED	
653	SASSAFRAS ALBIDUM	SASSAFRAS	9	25	9	31.3	TO BE PRESERVED	
654	ROBINIA PSEUDOACACIA	BLACK LOCUST	14	18	14	31.3	TO BE PRESERVED	
655	PRUNUS SEROTINA	BLACK CHERRY	17	15	17	62.5	TO BE PRESERVED	
656	PRUNUS SEROTINA	BLACK CHERRY	24	25	24	62.5	TO BE PRESERVED	
657	ROBINIA PSEUDOACACIA	BLACK LOCUST	8	10	8	28.1	TO BE PRESERVED	
658	ROBINIA PSEUDOACACIA	BLACK LOCUST	19	15	19	50	TO BE PRESERVED	
659	ROBINIA PSEUDOACACIA	BLACK LOCUST	11	12	11	46.9	TO BE PRESERVED	
660	PINUS STROBUS	WHITE PINE	34	24	34	59.4	TO BE REMOVED	
661	PRUNUS SEROTINA	BLACK CHERRY	8	10	8	40.6	TO BE PRESERVED	
662	PRUNUS SEROTINA	BLACK CHERRY	9	15	9	53.1	TO BE PRESERVED	
663	MORUS RUBRA	RED MULBERRY	11	15	11	62.5	TO BE PRESERVED	
664	ROBINIA PSEUDOACACIA	BLACK LOCUST	15	15	15	40.6	TO BE PRESERVED	
665	PRUNUS SEROTINA	BLACK CHERRY	20	15	20	59.4	TO BE PRESERVED	
666	PRUNUS SEROTINA	BLACK CHERRY	13	12	13	78.1	TO BE PRESERVED	
667	ACER RUBRUM	RED MAPLE	24	30	24	84.4	TO BE PRESERVED	
668	PRUNUS SEROTINA	BLACK CHERRY	8	15	8	81.3	TO BE PRESERVED	
669	PRUNUS SEROTINA	BLACK CHERRY	15	18	15	81.3	TO BE PRESERVED	
670	PRUNUS SEROTINA	BLACK CHERRY	8	12	8	40.6	TO BE PRESERVED	
671	ROBINIA PSEUDOACACIA	BLACK LOCUST	14	20	14	37.5	TO BE PRESERVED	
672	NYSSA SYLVATICA	BLACK GUM	16	26	16	62.5	TO BE PRESERVED	
673	PINUS STROBUS	WHITE PINE	13	18	13	75	TO BE PRESERVED	
674	ACER NEGUNDO	BOXELDER	10	25	10	53.1	TO BE PRESERVED	
675	SASSAFRAS ALBIDUM	SASSAFRAS	18	20	18	56.3	TO BE PRESERVED	
676	PINUS STROBUS	WHITE PINE	10	20	10	90.6	TO BE PRESERVED	
677	SASSAFRAS ALBIDUM	SASSAFRAS	9	25	9	59.4	TO BE PRESERVED	
678	SASSAFRAS ALBIDUM	SASSAFRAS	9	15	9	56.3	TO BE PRESERVED	
679	PRUNUS SEROTINA	BLACK CHERRY	9	12	9	75	TO BE PRESERVED	
680	PRUNUS SEROTINA	BLACK CHERRY	9	15	9	50	TO BE PRESERVED	
682	PRUNUS SEROTINA	BLACK CHERRY	25	30	25	65.6	TO BE PRESERVED	
683	PRUNUS SEROTINA	BLACK CHERRY	11	18	11	62.5	TO BE PRESERVED	
684	UNKNOWN	UNKNOWN	8	10	8	25	TO BE PRESERVED	
685	QUERCUS RUBRA	NORTHERN RED OAK	21	30	21	78.1	TO BE PRESERVED	
686	SASSAFRAS ALBIDUM	SASSAFRAS	10	15	10	28.1	TO BE PRESERVED	
687	SASSAFRAS ALBIDUM	SASSAFRAS	8	15	8	71.9	TO BE PRESERVED	
688	ROBINIA PSEUDOACACIA	BLACK LOCUST	8	10	8	56.3	TO BE PRESERVED	
689	ROBINIA PSEUDOACACIA	BLACK LOCUST	10	15	10	56.3	TO BE PRESERVED	
690	ROBINIA PSEUDOACACIA	BLACK LOCUST	9	15	9	56.3	TO BE PRESERVED	
691	LIRIODENDRON TULIPIFERA	TULIP POPLAR	14	22	14	65.6	TO BE PRESERVED	
692	PRUNUS SEROTINA	BLACK CHERRY	15	20	15	59.4	TO BE PRESERVED	
693	PRUNUS SEROTINA	BLACK CHERRY	12	25	12	62.5	TO BE PRESERVED	
694	PRUNUS SEROTINA	BLACK CHERRY	15	28	15	62.5	TO BE PRESERVED	
695	PRUNUS SEROTINA	BLACK CHERRY	11	20	11	62.5	TO BE PRESERVED	
696	PRUNUS SEROTINA	BLACK CHERRY	9	19	9	59.4	TO BE PRESERVED	
697	PRUNUS SEROTINA	BLACK CHERRY	10	24	10	59.4	TO BE PRESERVED	
701	ACER RUBRUM	RED MAPLE	8	15	8	68.8	TO BE PRESERVED	
702	PRUNUS SEROTINA	BLACK CHERRY	13	23	13	50	TO BE PRESERVED	
703	ROBINIA PSEUDOACACIA	BLACK LOCUST	17	26	17	37.5	TO BE PRESERVED	
704	LIRIODENDRON TULIPIFERA	TULIP POPLAR	35	40	35	65.6	TO BE PRESERVED	
705	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	24	24	81.3	TO BE PRESERVED	
706	ACER RUBRUM	RED MAPLE	16	18	16	62.5	TO BE PRESERVED	
707	ACER RUBRUM	RED MAPLE	8	16	8	65.6	TO BE PRESERVED	
708	LIRIODENDRON TULIPIFERA	TULIP POPLAR	11	15	11	75	TO BE PRESERVED	
709	PRUNUS SEROTINA	BLACK CHERRY	13	20	13	46.9	TO BE PRESERVED	
710	LIRIODENDRON TULIPIFERA	TULIP POPLAR	26	35	26	62.5	TO BE PRESERVED	
711	PRUNUS SEROTINA	BLACK CHERRY	20	20	20	50	TO BE PRESERVED	
712	LIRIODENDRON TULIPIFERA	TULIP POPLAR	27	28	27	65.6	TO BE PRESERVED	
713	LIRIODENDRON TULIPIFERA	TULIP POPLAR	15	19	15	62.5	TO BE PRESERVED	
714	LIRIODENDRON TULIPIFERA	TULIP POPLAR	10	17	10	84.4	TO BE PRESERVED	
715	PRUNUS SEROTINA	BLACK CHERRY	9	12	9	65.6	TO BE PRESERVED	
716	LIRIODENDRON TULIPIFERA	TULIP POPLAR	18	18	18	62.5	TO BE PRESERVED	
717	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	20	24	62.5	TO BE PRESERVED	
718	LIRIODENDRON TULIPIFERA	TULIP POPLAR	23	20	23	62.5	TO BE PRESERVED	
719	PRUNUS SEROTINA	BLACK CHERRY	26	25	26	65.6	TO BE PRESERVED	
720	PRUNUS SEROTINA	BLACK CHERRY	8	15	8	62.5	TO BE PRESERVED	
721	LIRIODENDRON TULIPIFERA	TULIP POPLAR	29	31	29	81.3	TO BE PRESERVED	
722	PRUNUS SEROTINA	BLACK CHERRY	16	22	16	59.4	TO BE PRESERVED	
723	PRUNUS SEROTINA	BLACK CHERRY	36	45	36	40.6	TO BE PRESERVED	
724	PRUNUS SEROTINA	BLACK CHERRY	11	22	11	34.4	TO BE PRESERVED	
725	PRUNUS SEROTINA	BLACK CHERRY	12	20	12	34.4	TO BE PRESERVED	
726	PRUNUS SEROTINA	BLACK CHERRY	24	23	24	62.5	TO BE PRESERVED	
727	LIRIODENDRON TULIPIFERA	TULIP POPLAR	38	28	38	68.8	TO BE PRESERVED	
728	ACER RUBRUM	RED MAPLE	22	30	22	71.9	TO BE PRESERVED	
729	ACER RUBRUM	RED MAPLE	20	29	20	71.9	TO BE PRESERVED	
730	LIRIODENDRON TULIPIFERA	TULIP POPLAR	17	25	17	68.8	TO BE PRESERVED	
731	PRUNUS SEROTINA	BLACK CHERRY	20	25	20	50	TO BE PRESERVED	
732	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	38	30	62.5	TO BE PRESERVED	
733	PRUNUS SEROTINA	BLACK CHERRY	10	15	10	46.9	TO BE PRESERVED	
734	SASSAFRAS ALBIDUM	SASSAFRAS	8	15	8	59.4	TO BE PRESERVED	
735	PRUNUS SEROTINA	BLACK CHERRY	9	23	9	62.5	TO BE PRESERVED	
736	LIRIODENDRON TULIPIFERA	TULIP POPLAR	13	20	13	78.1	TO BE PRESERVED	
737	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	26	20	46.9	TO BE PRESERVED	
738	ROBINIA PSEUDOACACIA	BLACK LOCUST	12	15	12	50	TO BE PRESERVED	
739	LIRIODENDRON TULIPIFERA	TULIP POPLAR	18	23	18	59.4	TO BE PRESERVED	
740	LIRIODENDRON TULIPIFERA	TULIP POPLAR	33	35	33	59.4	TO BE PRESERVED	
741	PRUNUS SEROTINA	BLACK CHERRY	9	18	9	53.1	TO BE PRESERVED	
742	PRUNUS SEROTINA	BLACK CHERRY	10	19	10	62.5	TO BE PRESERVED	
743	ROBINIA PSEUDOACACIA	BLACK LOCUST	11	14	11	25	TO BE PRESERVED	
744	ACER RUBRUM	RED MAPLE	21	23	21	65.6	TO BE PRESERVED	
745	LIRIODENDRON TULIPIFERA	TULIP POPLAR	41	35	41	56.3	TO BE PRESERVED	
746	LIRIODENDRON TULIPIFERA	TULIP POPLAR	47	34	47	68.8	TO BE PRESERVED	
747	SASSAFRAS ALBIDUM	SASSAFRAS	8	15	8	25	TO BE PRESERVED	
748	PRUNUS SEROTINA	BLACK CHERRY	10	15	10	62.5	TO BE PRESERVED	
749	PRUNUS SEROTINA	BLACK CHERRY	10	21	10	56.3	TO BE PRESERVED	
750	ACER RUBRUM	RED MAPLE	16	25	16	53.1	TO BE PRESERVED	
751	LIRIODENDRON TULIPIFERA	TULIP POPLAR	11	17	11	71.9	TO BE PRESERVED	
752	LIRIODENDRON TULIPIFERA	TULIP POPLAR	33	33	33	62.5	TO BE PRESERVED	
753	ROBINIA PSEUDOACACIA	BLACK LOCUST	14	10	14	53.1	TO BE PRESERVED	
754	ACER RUBRUM	RED MAPLE	13	16	13	56.3	TO BE PRESERVED	
755	ROBINIA PSEUDOACACIA	BLACK LOCUST	18	15	18	50	TO BE PRESERVED	
756	ROBINIA PSEUDOACACIA	BLACK LOCUST	17	17	17	50	TO BE PRESERVED	
757	ACER RUBRUM	RED MAPLE	8	16	8	62.6	TO BE PRESERVED	
758	LIRIODENDRON TULIPIFERA	TULIP POPLAR	40	36	40	75	TO BE PRESERVED	
759	ACER RUBRUM	RED MAPLE	8	15	8	43.8	TO BE PRESERVED	
760	PRUNUS SEROTINA	BLACK CHERRY	10	18	10	65.6	TO BE PRESERVED	
761	UNKNOWN	UNKNOWN	15	10	15	40.6	TO BE PRESERVED	
762	ACER RUBRUM	RED MAPLE	11	20	11	65.6	TO BE PRESERVED	
763	LIRIODENDRON TULIPIFERA	TULIP POPLAR	22	25	22	62.5	TO BE PRESERVED	
765	ACER RUBRUM	RED MAPLE	8	10	8	65.6	TO BE PRESERVED	
766	LIRIODENDRON TULIPIFERA	TULIP POPLAR	27	24	27	62.5	TO BE PRESERVED	
767	LIRIODENDRON TULIPIFERA	TULIP POPLAR	22	20	22	62.5	TO BE PRESERVED	
768	LIRIODENDRON TULIPIFERA	TULIP POPLAR	21	22	21	62.5	TO BE PRESERVED	
769	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	21	20	59.8	TO BE PRESERVED	
770	LIRIODENDRON TULIPIFERA	TULIP POPLAR	28	30	28	65.6	TO BE PRESERVED	
771	ACER RUBRUM	RED MAPLE	13	18	13	65.6	TO BE PRESERVED	
772	LIRIODENDRON TULIPIFERA	TULIP POPLAR	17	24	17	65.6	TO BE PRESERVED	
773	ACER RUBRUM	RED MAPLE	10	28	10	62.5	TO BE PRESERVED	
774	ACER RUBRUM	RED MAPLE	11	31	11	65.6	TO BE PRESERVED	
775	PRUNUS SEROTINA	BLACK CHERRY	22	28	22	71.9	TO BE PRESERVED	
776	ACER RUBRUM	RED MAPLE	13	25	13	75	TO BE PRESERVED	
777	LIRIODENDRON TULIPIFERA	TULIP POPLAR	15	21	15	62.5	TO BE PRESERVED	
778	ACER RUBRUM	RED MAPLE	9	23	9	62.5	TO BE PRESERVED	
779	ROBINIA PSEUDOACACIA	BLACK LOCUST	10	5	10	34.4	TO BE PRESERVED	
780	CARYA TOMENTOSA	MOCKERNUT HICKORY	8	15	8	53.1	TO BE PRESERVED	
781	ACER RUBRUM	RED MAPLE	10	18	10	62.5	TO BE PRESERVED	
782	ACER RUBRUM	RED MAPLE	21	38	21	56.3	TO BE PRESERVED	
783	PRUNUS SEROTINA	BLACK CHERRY	14	20	14	75	TO BE PRESERVED	
784	PRUNUS SEROTINA	BLACK CHERRY	19	24	19	50	TO BE PRESERVED	
785	LIRIODENDRON TULIPIFERA	TULIP POPLAR	14	27	14	59.4	TO BE PRESERVED	
786	LIRIODENDRON TULIPIFERA	TULIP POPLAR	27	27	27	78.1	TO BE PRESERVED	
787	LIRIODENDRON TULIPIFERA	TULIP POPLAR	15	21	15	75	TO BE PRESERVED	
788	LIRIODENDRON TULIPIFERA	TULIP POPLAR	28	30	28	56.3	TO BE PRESERVED	
789	ACER RUBRUM	RED MAPLE	16	21	16	56.3	TO BE PRESERVED	
790	LIRIODENDRON TULIPIFERA	TULIP POPLAR	14	25	14	71.9	TO BE PRESERVED	
791	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	20	12	59.4	TO BE PRESERVED	
792	LIRIODENDRON TULIPIFERA	TULIP POPLAR	29	30	29	75	TO BE PRESERVED	
793	ACER RUBRUM	RED MAPLE	17	22	17	65.6	TO BE PRESERVED	
794	LIRIODENDRON TULIPIFERA	TULIP POPLAR	26	26	26	62.5	TO BE PRESERVED	
795	LIRIODENDRON TULIPIFERA	TULIP POPLAR	11	31	11	59.4	TO BE PRESERVED	
796	LIRIODENDRON TULIPIFERA	TULIP POPLAR	11	27	11	62.5	TO BE PRESERVED	
797	LIRIODENDRON TULIPIFERA	TULIP POPLAR	20	22	20	62.5	TO BE PRESERVED	
798	LIRIODENDRON TULIPIFERA	TULIP POPLAR	21	20	21	65.6	TO BE PRESERVED	
799	LIRIODENDRON TULIPIFERA	TULIP POPLAR	8	18	8	65.6	TO BE PRESERVED	
800	SASSAFRAS ALBIDUM	SASSAFRAS	9	16	9	56.3	TO BE PRESERVED	
801	ACER RUBRUM	RED MAPLE	9	17	9	71.9	TO BE PRESERVED	
802	ACER RUBRUM	RED MAPLE	8	18	8	71.9	TO BE PRESERVED	
803	PRUNUS SEROTINA	BLACK CHERRY	8	20	8	53.1	TO BE PRESERVED	
804	LIRIODENDRON TULIPIFERA	TULIP POPLAR	24	30	24	71.9	TO BE PRESERVED	
805	LIRIODENDRON TULIPIFERA	TULIP POPLAR	22	20	22	62.5	TO BE PRESERVED	
806	LIRIODENDRON TULIPIFERA	TULIP POPLAR	9	15	9	68.8	TO BE PRESERVED	
838	NYSSA SYLVATICA	BLACK GUM	11	25	11	71.9	TO BE PRESERVED	
840	ACER RUBRUM	RED MAPLE	32	20	32	56.3	TO BE PRESERVED	
842	CELTIS OCCIDENTALIS	HACKBERRY	9	16	9	65.6	TO BE PRESERVED	
843	NYSSA SYLVATICA	BLACK GUM	14	17	14	71.9	TO BE PRESERVED	
852	LIRIODENDRON TULIPIFERA	TULIP POPLAR	82	41	82	84.4	TO BE PRESERVED	
854	ACER RUBRUM	RED MAPLE	19	25	19	59.4	TO BE PRESERVED	
855	FAGUS GRANDIFOLIA	AMERICAN BEECH	9	16	9	71.9	TO BE PRESERVED	
856	LIRIODENDRON TULIPIFERA	TULIP POPLAR	27	25	27	65.6	TO BE PRESERVED	
857	LIRIODENDRON TULIPIFERA	TULIP POPLAR	29	26	29	56.2	TO BE PRESERVED	
858	LIRIODENDRON TULIPIFERA	TULIP POPLAR	23	18	23	59.8	TO BE PRESERVED	
910	FAGUS GRANDIFOLIA	AMERICAN BEECH	18	18	18	71.9	TO BE PRESERVED	
911	ACER RUBRUM	RED MAPLE	20	15	20	59.8	TO BE REMOVED	
915	LIRIODENDRON TULIPIFERA	TULIP POPLAR	33	15	33	75	TO BE PRESERVED	
918	ULMUS AMERICANA	AMERICAN ELM	22	25	22	40.6	TO BE REMOVED	
919	CASTANEA MOLLISSIMA	CHINESE CHESTNUT	29	25	29	62.5	TO BE REMOVED	
920	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	27	15	27	53.1	TO BE REMOVED	
920-E	ACER RUBRUM	RED MAPLE	11	15	11	68.8	TO BE PRESERVED	
921	MALUS SPP.	APPLE	16	13	16	50	TO BE REMOVED	
922	MALUS SPP.	APPLE	20	18	20	31.3	TO BE REMOVED	
922-E	FAGUS GRANDIFOLIA	AMERICAN BEECH	9	9	9	65.6	TO BE PRESERVED	
923	MALUS SPP.	APPLE	12	12	12	31.3	TO BE REMOVED	
924	MALUS SPP.	APPLE	9	10	9	43.8	TO BE REMOVED	
928	LIRIODENDRON TULIPIFERA	TULIP POPLAR	23	20	23	65.6	TO BE PRESERVED	
931	LIRIODENDRON TULIPIFERA	TULIP POPLAR	23	15	23	56.2	TO BE PRESERVED	
932	LIRIODENDRON TULIPIFERA	TULIP POPLAR	19	18	19	50	TO BE PRESERVED	
933	ACER RUBRUM	RED MAPLE	24	18	24	56.2	TO BE PRESERVED	
934	PRUNUS SEROTINA	BLACK CHERRY	17	20	17	59.8	TO BE PRESERVED	
935	PRUNUS SEROTINA	BLACK CHERRY	13	15	13	34.4	TO BE PRESERVED	
936	ACER RUBRUM	RED MAPLE	18	18	18	71.9	TO BE PRESERVED	
937	FAGUS GRANDIFOLIA	AMERICAN BEECH	8	8	8	65.6	TO BE PRESERVED	
938	QUERCUS ALBA	WHITE OAK	13	6	13	65.6	TO BE PRESERVED	
939	PRUNUS SEROTINA	BLACK CHERRY	14	20	14	56.2	TO BE PRESERVED	
940	PRUNUS SEROTINA	BLACK CHERRY	23	15	23	56.2	TO BE PRESERVED	
941	LIRIODENDRON TULIPIFERA	TULIP POPLAR	21	18	21	56.2	TO BE PRESERVED	
942	PRUNUS SEROTINA	BLACK CHERRY	8	6	8	31.3	TO BE PRESERVED	
943	UNKNOWN	UNKNOWN	10	10	10	25	TO BE PRESERVED	
944	FAGUS GRANDIFOLIA	AMERICAN BEECH	22	15	22	59.8	TO BE PRESERVED	
945	QUERCUS FALCATA	S. RED OAK	24	15	24	59.8	TO BE PRESERVED	
946	PRUNUS SEROTINA	BLACK CHERRY	12	15	12	46.9	TO BE PRESERVED	
947	FAGUS GRANDIFOLIA	AMERICAN BEECH	10	10	10	68.8	TO BE PRESERVED	
948	LIRIODENDRON TULIPIFERA	TULIP POPLAR	22	20	22	65.6	TO BE PRESERVED	
949	ILEX OPACA	AMERICAN HOLLY	8	6	8	59.8	TO BE PRESERVED	
950	LIRIODENDRON TULIPIFERA	TULIP POPLAR	9	9	9	59.8	TO BE PRESERVED	
951	ILEX OPACA	AMERICAN HOLLY	9	9	9	71.9	TO BE PRESERVED	
953	PRUNUS SEROTINA	BLACK CHERRY	12	12	12	59.8	TO BE PRESERVED	
954	PRUNUS SEROTINA	BLACK CHERRY	12	12	12	46.9	TO BE PRESERVED	
955	PRUNUS SEROTINA	BLACK CHERRY	9	15	9	59.8	TO BE PRESERVED	
956	ACER RUBRUM	RED MAPLE	18	25	18	46.9	TO BE PRESERVED	
957	PRUNUS SEROTINA	BLACK CHERRY	11	9	11	50	TO BE PRESERVED	
958	FAGUS GRANDIFOLIA	AMERICAN BEECH	16	18	16	78.1	TO BE PRESERVED	
959	ILEX OPACA	AMERICAN HOLLY	9	9	9	75	TO BE PRESERVED	
960	QUERCUS RUBRA	N. RED OAK	30	18	30	50	TO BE PRESERVED	
961	ACER RUBRUM	RED MAPLE	18	15	18	68.8	TO BE PRESERVED	
962	ILEX OPACA	AMERICAN HOLLY	9	10	9	71.9	TO BE PRESERVED	
963	QUERCUS ALBA	WHITE OAK	32	18	32	68.8	TO BE PRESERVED	
964	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12	12	12	56.2	TO BE PRESERVED	
965	ACER RUBRUM	RED MAPLE	10	9	10	46.9	TO BE PRESERVED	
966	LIRIODENDRON TULIPIFERA	TULIP POPLAR	17	9	17	59.8	TO BE PRESERVED	
967	LIRIODENDRON TULIPIFERA	TULIP POPLAR	13	6	13	56.2	TO BE PRESERVED	
968	ACER RUBRUM	RED MAPLE	13	6	13	50	TO BE PRESERVED	
969	ACER RUBRUM	RED MAPLE	9	9	9	40.6.6	TO BE PRESERVED	
970	QUERCUS FALCATA	S. RED OAK	34	25	34	71.9	TO BE PRESERVED	
971	NYSSA SYLVATICA	BLACK GUM	8	8	8	71.9	TO BE PRESERVED	
972	QUERCUS ALBA	WHITE OAK	13	6	13	68.8	TO BE PRESERVED	
973	LIRIODENDRON TULIPIFERA	TULIP POPLAR	10	12	10	71.9	TO BE PRESERVED	
974	FAGUS GRANDIFOLIA	AMERICAN BEECH	15	15	15	81.3	TO BE PRESERVED	
975	LIRIODENDRON TULIPIFERA	TULIP POPLAR	13	13	13	75	TO BE PRESERVED	
976	QUERCUS RUBRA	N. RED OAK	48	30	48	46.9	TO BE PRESERVED	
977	QUERCUS ALBA	WHITE OAK	17	9	17	75	TO BE PRESERVED	
978	ACER RUBRUM	RED MAPLE	14	12	14	65.6	TO BE PRESERVED	
1028	CARYA TOMENTOSA	MOCKERNUT HICKORY	15	15	15	71.9	TO BE PRESERVED	*OFF-SITE*
1029	ILEX AMERICANA	AMERICAN HOLLY	10	5	10	75	TO BE PRESERVED	*OFF-SITE*
1045	FAGUS GRANDIFOLIA	AMERICAN BEECH	36	30	36	71.9	TO BE PRESERVED	*OFF-SITE*
1047	ROBINIA PSEUDOACACIA	BLACK LOCUST	10	15	10	43.8	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1051	ACER RUBRUM	RED MAPLE	12	10	12	53.1	TO BE PRESERVED	*OFF-SITE*
1052	PLATANUS OCCIDENTALIS	SYCAMORE	30	30	30	68.7	TO BE PRESERVED	*OFF-SITE*
1055	CELTIS OCCIDENTALIS	HACKBERRY	24	25	24	71.9	TO BE PRESERVED	*OFF-SITE*
1056	QUERCUS ALBA	WHITE OAK	15	14	15	56.3	TO BE PRESERVED	*OFF-SITE*
1058	ACER RUBRUM	RED MAPLE	10	10	10	50	TO BE PRESERVED	*OFF-SITE*
1059	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36	25	36	65.6	TO BE PRESERVED	*OFF-SITE*
1061	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36	30	36	50	TO BE PRESERVED	*OFF-SITE*
1062	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	10	30	65.6	TO BE PRESERVED	*OFF-SITE*
1063	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36	30	36	50	TO BE PRESERVED	*OFF-SITE*
1065	ACER RUBRUM	RED MAPLE	12	s	12	65.6	TO BE PRESERVED	*OFF-SITE*
1066	QUERCUS ALBA	WHITE OAK	15	20	15	50	TO BE PRESERVED	*OFF-SITE*
1067	FAGUS GRANDIFOLIA	AMERICAN BEECH	12	10	12	71.9	TO BE PRESERVED	*OFF-SITE*
1068	QUERCUS FALCATA	SOUTHERN RED OAK	30	50	30	40.6	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1069	ACER RUBRUM	RED MAPLE	15	5	15	37.5	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1071	QUERCUS FALCATA	SOUTHERN RED OAK	36	30	36	71.9	TO BE PRESERVED	*OFF-SITE*
1072	LIRIODENDRON TULIPIFERA	TULIP POPLAR	8	25	8	56.3	TO BE PRESERVED	*OFF-SITE*
1074	PRUNUS SEROTINA	BLACK CHERRY	12	10	12	65.6	TO BE PRESERVED	*OFF-SITE*
1076	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30	25	30	75	TO BE PRESERVED	*OFF-SITE*
1078	LIRIODENDRON TULIPIFERA	TULIP POPLAR	48	25	48	43.8	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1079	ACER RUBRUM	RED MAPLE	24	15	24	25	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1080	LIRIODENDRON TULIPIFERA	TULIP POPLAR	15	20	15	75	TO BE PRESERVED	*OFF-SITE*
1081	QUERCUS FALCATA	SOUTHERN RED OAK	30	30	30	50	TO BE PRESERVED	*OFF-SITE*
1082	QUERCUS ALBA	WHITE OAK	15	25	15	68.8	TO BE PRESERVED	*OFF-SITE*
1083	FAGUS GRANDIFOLIA	AMERICAN BEECH	8	10	8	78.1	TO BE PRESERVED	*OFF-SITE*
1085	QUERCUS ALBA	WHITE OAK	18	27	18	68.8	TO BE PRESERVED	*OFF-SITE*
1086	ACER RUBRUM	RED MAPLE	30	34	30	40.6	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1087	ILEX OPACA	AMERICAN HOLLY	10	12	10	78.1	TO BE PRESERVED	*OFF-SITE*
1105	QUERCUS ALBA	WHITE OAK	48	40	48	62.5	TO BE PRESERVED	*OFF-SITE*
1110	UNKNOWN	UNKNOWN	8	2	8	25	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1111	ACER RUBRUM	RED MAPLE	18	10	18	37.5	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1112	PRUNUS SEROTINA	BLACK CHERRY	20	12	20	25	TO BE PRESERVED	*OFF-SITE; SUSPECTED IN POOR CONDITION*
1113	CELTIS OCCIDENTALIS	HACKBERRY	5	5	5	75	TO BE PRESERVED	*OFF-SITE*
1114	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	3	5	3	81.3	TO BE PRESERVED	*OFF-SITE*
1115	GLEDITSIA TRIACANTHOS	HONEY LOCUST	6	7	6	75	TO BE PRESERVED	*OFF-SITE*
1116	LIRIODENDRON TULIPIFERA	TULIP POPLAR	58	48	58	93.8	TO BE PRESERVED	*OFF-SITE*

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

NOTES:

1. AS PER PFM SECTION 12-0509.2A, ONLY TREES 12" CALIPER AND GREATER LOCATED 25' OUTSIDE THE PROPOSED LIMITS OF CLEARING ARE REQUIRED TO BE DELINEATED. HOWEVER, FOR THE PURPOSES OF THIS APPLICATION, TREES 978-1116 IN THE TREE PRESERVATION SCHEDULE ARE LOCATED OUTSIDE THIS 25' OFFSET ALONG THE NORTHERN AND NORTHEASTERN PROPERTY LINES AND ARE SHOWN FOR ADJACENT PROPERTY OWNER INFORMATION PURPOSES. OFF-SITE TREE LOCATIONS FOR TREES 978-1116 HAVE BEEN SURVEYED. TRUNK DIAMETERS AND TREE CONDITION RATINGS HAVE BEEN ESTIMATED FROM A REMOTE VISUAL ASSESSMENT FROM THE SUBJECT PROPERTY. TREES LOCATED OUTSIDE THE REQUIRED 25' ARE NOT REQUIRED TO BE INCLUDED IN THE TREE APPRAISAL DURING THE FINAL SUBDIVISION PROCESS.
2. AS PART OF THE VISUAL ASSESSMENT FOR OFF-SITE TREES, SOME TREES ARE SUSPECTED IN POOR CONDITION, AS DENOTED. THESE ARE EXISTING CONDITIONS AND NOT A RESULT OF THIS PROPOSED APPLICATION.

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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
2016-04-26
LANDSCAPE ARCHITECT

TREE PRESERVATION NOTES & DETAILS

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: LB
DRAWN: DL
CHECKED:
SHEET No. 5.1 OF 9

102267

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL

Ref. Sec. 12-0702.1 12-0704.20 Rev. 2-02, 2011 Reprint	ROOT PRUNING	PLATE NO. 7-12	STD. NO.

TREE PROTECTION FENCING DETAIL

TREE PRESERVATION NARRATIVE (AS PER PFM SEC. 12-0509.3B-K)

3A. THE FOLLOWING TREE PRESERVATION NARRATIVE IS PROVIDED TO ACCOMPANY THE TREE PRESERVATION PLAN AS SHOWN ON SHEETS 4.1 AND 4.2.

3B. AS PER A SITE VISIT AUGUST 2014, THERE ARE SOME FALLEN TREES OBSERVED WITHIN THE TREE PRESERVATION AREA ALONG THE EASTERN PROPERTY LINE. WITHIN THE TREE PRESERVATION AREAS, NO WORK OR ACTIVITY IS PROPOSED TO TAKE PLACE.

3C. THERE IS NO EVIDENCE OF ANY HAZARDOUS MATERIALS WITHIN THE FORESTED AREAS ADJACENT TO THE DEVELOPMENT SITE.

3D. IN SOME EXISTING AREAS OF OPEN FIELD ON THE PROPERTY, THERE IS MICROSTEGIUM VIMINEUM (JAPANESE STILTGRASS) THAT IS WELL ESTABLISHED. THERE IS BAMBOO, MULTIFLORA ROSE & AUTUMN OLIVE NEAR THE EXISTING POND. INVASIVE SPECIES MANAGEMENT TREATMENT WILL BE ADDRESSED ON SUBSEQUENT SUBDIVISION PLAN SUBMISSIONS.

3E. THERE ARE NO "HERITAGE", "SPECIMEN", "MEMORIAL" OR "STREET" TREES WITHIN OR ADJACENT TO THE DEVELOPMENT SITE THAT WILL BE ADVERSELY AFFECTED BY THE PROPOSED IMPROVEMENTS.

3F. THERE ARE NO "HERITAGE", "SPECIMEN", "MEMORIAL" OR "STREET" TREES WITHIN OR ADJACENT TO THE DEVELOPMENT SITE (INCLUDING OFF-SITE ON AN ADJACENT PROPERTY) THAT WILL BE ADVERSELY AFFECTED BY THE PROPOSED IMPROVEMENTS.

3G. TREE PRESERVATION PROFFERS ARE BEING SUBMITTED WITH THIS APPLICATION.

3H. THERE ARE NO TRANSPLANTING EFFORTS REQUIRED OR PROPOSED FOR THIS PROJECT.

3I. THE TREE PRESERVATION SCHEDULE ON SHEET 5.1 DESCRIBES WHICH PROCEDURES ARE REQUIRED FOR TREES TO BE PRESERVED OR REMOVED. ROOT PRUNING AND TREE PROTECTION FENCE INSTALLATION SHALL BE COMPLETED DURING E&S PHASE I INSTALLATION AND WILL BE REFLECTED ON THE FINAL SUBDIVISION PLAN. DETAILS AND MAINTENANCE OF E&S CONTROLS/TREE PROTECTION FENCING WILL BE DESCRIBED ON THE E&S SHEETS OF THE APPROVED SUBDIVISION PLAN.

3J. WITHIN THE TREE PRESERVATION AREAS, NO WORK OR ACTIVITY IS PROPOSED TO TAKE PLACE. TREE PROTECTION FENCING AND ROOT PRUNING SHALL BE INSTALLED AS PER THE TREE PRESERVATION PLAN AND TREE PRESERVATION NOTES & DETAILS PLAN TO PROTECT VEGETATION TO BE PRESERVED.

3K. THE TREE PRESERVATION SCHEDULE CONTAINS TREE ANALYSES SUCH AS TREE IDENTIFICATION AND TREE CONDITION RATINGS AS SHOWN ON SHEET 5.1. TREE PRESERVATION PROFFERS ADDRESSING TREE APPRAISALS FOR TREES TO BE PRESERVED ARE BEING SUBMITTED WITH THIS APPLICATION.

TREE PROTECTION FENCING SIGNAGE

BILINGUAL SIGNS SHALL BE POSTED AND MAINTAINED AT THE LIMITS OF CLEARING AT A MINIMUM OF 50-FOOT INTERVALS.

SIGNS SHALL BE POSTED THROUGHOUT ALL PHASES OF CONSTRUCTION

SIGNS SHALL BE ATTACHED TO THE TREE PROTECTION FENCING AND SHALL NOT BE NAILED OR IN ANY MANNER ATTACHED TO THE TREES OF VEGETATION TO BE PRESERVED.

TREE PROTECTION AREA-
DO NOT ENTER
OFF LIMITS TO CONSTRUCTION
EQUIPMENT, MATERIALS AND WORKERS

ÁREA DE PROTECCIÓN DE
ÁRBOLES-NO ENTRAR
PROHIBIDO EL INGRESO DE EQUIPO,
MATERIALES Y EMPLEADOS DE CONSTRUCCIÓN

GENERAL NOTES:

1. IN LIEU OF MORE STRENOUS SPECIFICATIONS, ALL LANDSCAPE RELATED WORK SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT AND MOST UP-TO-DATE EDITION (AT TIME OF CONSTRUCTION) OF 'LANDSCAPE SPECIFICATION GUIDELINES' AS PRODUCED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF MARYLAND, DISTRICT OF COLUMBIA AND VIRGINIA, GAITHERSBURG, MARYLAND.
2. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY PRIOR TO BEGINNING ANY WORK.
3. ALL WORK PERFORMED SHALL MEET OR EXCEED THE MOST RECENT INDUSTRY STANDARDS, AS PUBLISHED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA), AMERICAN NATIONAL ARBORIST ASSOCIATION (NAA). IN THE EVENT CULTURAL TREATMENTS PRESCRIBED ARE NOT COVERED BY AN EXISTING STANDARD, ALL WORK PERFORMED SHALL MEET OR EXCEED STANDARDS APPROVED BY THE URBAN FORESTRY MANAGEMENT DIVISION.
4. ALL CONSTRUCTION ACTIVITY BEYOND THE LIMITS OF CLEARING AND GRADING SHOWN ON THE SITE PLAN AND THE TREE PRESERVATION PLAN SHALL BE PROHIBITED UNLESS PREVIOUSLY APPROVED BY THE URBAN FORESTRY BRANCH.
5. THE REQUIREMENTS OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL, ARTICLE 12, VEGETATION PRESERVATION AND PLANTING, SHALL BE FOLLOWED.

TREE PRESERVATION NOTES

1. CLEARING LIMITS SHALL BE CLEARLY MARKED IN THE FIELD WITH FLAGGING PRIOR TO BEGINNING OF ANY CLEARING AND GRADING OPERATIONS AND COORDINATED WITH THE URBAN FORESTRY DIVISION.
2. ALL FENCING AND ROOT PRUNING SHALL BE COMPLETE PRIOR TO ANY CLEARING AND GRADING OPERATIONS.
3. TREE PROTECTION FENCING MATERIAL SHALL BE EITHER FOUR (4) FOOT TALL FOURTEEN (14) GAUGE WELDED WIRE ATTACHED TO SIX (6) FOOT TALL, TWO-INCH (2") STEEL U-CHANNEL ANCHOR POSTS DRIVEN EIGHTEEN (18) INCHES INTO THE GROUND PLACED NO FURTHER 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 OF TREES TO BE PRESERVED AS THIS CAN LEAD TO STRUCTURAL FAILURE AND/OR UPROOTING OF TREES. FENCING SHALL BE INSTALLED AT THE LIMITS OF CLEARING AND GRADING AS ADJUSTED PRIOR TO ANY CLEARING AND GRADING OPERATIONS.
4. ROOT PRUNING SHALL BE COMPLETED AT THE LIMITS OF DISTURBANCE AS SHOWN ON TREE PRESERVATION PLAN PRIOR TO CONSTRUCTION. ROOT PRUNING SHALL BE TO THE DEPTH OF EIGHTEEN (18) TO TWENTY-FOUR (24) INCHES AND SHALL BE ACCOMPLISHED BY USING A TRENCHER, VIBRATING PLOW OR BY HAND. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH REMOVED SOIL.
5. BILINGUAL SIGNS SHALL BE INSTALLED EVERY THIRTY (30) FEET ON TREE PROTECTION FENCING WHICH INDICATES "TREE PRESERVATION AREA - KEEP OUT".
6. WHEN EXCAVATING ALL TREE ROOTS GREATER THAN 1 INCH IN DIAMETER THAT ARE EXPOSED AND/OR DAMAGED SHALL BE TRIMMED CLEANLY, AND COVERED WITH ORGANIC MULCH, TOPSOIL, OR OTHER SUITABLE MATERIAL TO PREVENT THE EXPOSED ROOTS FROM DRYING OUT.
7. DURING CLEARING AND GRADING OPERATIONS AND THROUGHOUT CONSTRUCTION, NO ACTIVITY SHALL BE PERMITTED IN TREE SAVE AREAS WITHOUT AUTHORIZATION FROM OWNER, ARBORIST/FORESTER, AND URBAN FORESTRY DIVISION. PRECLUDED ACTIVITIES INCLUDE:
   * FELLING OF TREES INTO PRESERVATION AREAS OR OPERATION OF HEAVY MACHINERY IN SAVE AREAS TO FELL TREES ON THE PERIMETER OF PRESERVATION AREAS.
   * OPERATION OF HEAVY EQUIPMENT OR MACHINERY OF ANY KIND IN PRESERVATION AREAS FOR ANY PURPOSE-INCLUDING REMOVAL OF TREES ADJACENT TO SAVE AREAS.
   * PLACEMENT OF EXCESS SOIL, FILL, OR MATERIALS OF ANY KIND IN PRESERVATION AREAS.
   * PLACEMENT OF ANY CONSTRUCTION MATERIALS OF ANY KIND IN PRESERVATION AREAS.
   * PARKING OR STORING EQUIPMENT OR VEHICLES IN PRESERVATION AREAS.
   * DUMPING CHEMICALS OR CONCRETE WASHOUT IN PRESERVATION AREAS.
   * BURNING OF ANY MATERIAL OR DEBRIS IN PRESERVATION AREAS OR WITHIN 200 FEET OF PRESERVATION AREAS.
   * TRENCHING, GRADING, EXCAVATING FOR ANY PURPOSE IN PRESERVATION AREAS.
   * INSTALLATION OF LANDSCAPING, IRRIGATION, TURF, DRAINAGE SYSTEMS, ETC.
8. ALL EXISTING TRASH AND/OR DEBRIS ON SITE SHALL BE REMOVED AT THE TIME OF DISTURBANCE. INDIVIDUAL TREES AND FORESTED AREAS DESIGNATED TO BE PRESERVED SHALL BE PROTECTED AND MANAGED THAT ENSURES TREE SURVIVAL DURING ALL PHASES OF DEMOLITION, CLEARING AND GRADING, AND CONSTRUCTION. IN ADDITION TO PROTECTING TREES, ALL UNDERSTORY PLANTS, LEAF LITTER AND SOIL CONDITIONS FOUND IN FORESTED AREAS DESIGNATED TO BE LEFT PRESERVED SHALL BE PROTECTED.
9. TREES TO REMAIN LOCATED ALONG THE LIMITS OF CLEARING SHALL BE PRUNED DURING CLEARING OPERATIONS TO AVOID MECHANICAL DAMAGE. THIS SHOULD BE ADMINISTRATED UNDER THE SUPERVISION OF THE PROJECT ARBORIST. ANY DAMAGE INFLICTED TO THE ABOVE OR BELOW-GROUND PORTIONS OF THE TREES SHOWED TO BE PRESERVED SHALL BE REPAIRED IMMEDIATELY.
10. ALL PRUNING SHALL CONFORM TO ANSI A300-2001 PRUNING STANDARDS. DISEASED LIMBS SHALL BE REMOVED OR TREATED AT THE DISCRETION OF THE ARBORIST. WHILE PRUNING, THE ARBORIST SHALL MAKE NOTE OF ANY CONDITIONS WHICH AFFECT THE HEALTH OR CONDITION OF THE TREE AND RECOMMEND CORRECTIVE TREATMENT FOR THESE CONDITIONS. VINE REMOVAL SHALL BE INCLUDED IN ALL PRUNING ACTIVITIES. UNDER NO CIRCUMSTANCES SHALL THE INTERIOR OF TREES BE STRIPPED OF FOLIAGE, SUCKERS, EPICORMIC BRANCHING, OR OTHER LIVE GROWTH. INTERIOR GROWTH MAY BE THINNED AS NECESSARY TO REMOVE BRANCHES DAMAGED DURING OPERATIONS. DEBRIS FROM PRUNING SHALL BE CHIPPED AND DEPOSITED INTO THE TREE SAVE AREA AND SPREAD BY HAND TO A UNIFORM THICKNESS OR BE REMOVED FROM SITE.
11. TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO TREE PRESERVATION AREAS. EQUIPMENT OPERATORS SHALL NOT CLEAN ANY PART OF THEIR EQUIPMENT BY SLAMMING AGAINST THE TRUNKS OF TREES TO BE RETAINED.
12. TREES ON THE EDGE OF THE LIMITS OF CLEARING SHALL BE CUT DOWN BY HAND WITH A CHAIN SAW. REMAINING STUMPS SHALL EITHER BE LEFT IN PLACE OR GROUND DOWN WITH A STUMP GRINDER.
13. PROJECT ARBORIST SHALL MONITOR THE CONSTRUCTION AND TREE PRESERVATION ACTIVITIES TO ENSURE PLAN IMPLEMENTATION.
14. ALL ACTIVITIES IN TREE PRESERVATION ACTIVITY SCHEDULE SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF CERTIFIED ARBORIST.

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LINDSAY E. BURLEIGH
Lic. No. 0406001630
2016-04-26
LANDSCAPE ARCHITECT

TREE PRESERVATION NOTES & DETAILS

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: LB
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SHEET No. 5.2 OF 9

102267

DATE	REVISION
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VIRGINIA STATE GRID NORTH (NAD 83)

LEGEND

- RPA LINE
- EGC LINE
- OVERHEAD UTILITY LINE
- GUARD RAIL
- FENCE
- ROAD CENTERLINE
- TREE LINE
- CURB & GUTTER
- PROPERTY LINE
- ADJOINER LINE
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- CONSERVATION EASEMENT
- POTENTIAL DEVELOPABLE AREA AVAILABLE FOR OPTIONAL DECKS, PATIO IMPROVEMENTS, GAZEBO, ETC. (EXCLUDES SHEDS, STORAGE OR ACCESSORY STRUCTURES ON ALL PORTIONS OF LOTS - DETAILS TO BE DETERMINED ON FINAL SUBDIVISION PLAN)
- PROPOSED DRAINFIELD (APPROXIMATE LOCATION)
- PROPOSED WELL (APPROXIMATE LOCATION)

ZONING TABULATION REQUIREMENTS
R-E CLUSTER

ZONING REGULATIONS REQUIREMENTS:

LOT SIZE REQUIREMENTS:
MINIMUM LOT AREA: 52,000 SF
MINIMUM LOT WIDTH: INTERIOR LOT - NO REQUIREMENT
CORNER LOT - 175 FEET

BULK REGULATION REQUIREMENTS:
MAX BUILDING HEIGHT: SINGLE FAMILY DWELLINGS - 35'
MINIMUM YARDS: FRONT 30'
SIDE 15', BUT A TOTAL MINIMUM OF 40'
BACK 25'

DENSITY:
MAXIMUM 0.5 DU/AC FOR SUBDIVISIONS AS A RESULT OF A PROFFERED REZONING FROM A DISTRICT THAT ALLOWS A PERMITTED MAX DENSITY OF LESS THAN ONE (1) DWELLING UNIT PER TWO (2) ACRES

OPEN SPACE: 30%

TREE COVER: 30%

PARKING: TWO (2) SPACES PER UNIT FOR LOTS WITH FRONTAGE ON A PUBLIC STREET (2x20=40)

PROPOSED DEVELOPMENT TABULATIONS

PROPERTY AREA:	2,264,016 SF (±51.97 AC)
MAXIMUM BUILDING HEIGHT	35 FEET
MINIMUM YARD SETBACKS	FRONT - 30' SIDE - 15', BUT A TOTAL MINIMUM OF 40' BACK - 25'
DENSITY	± 0.38 DU/AC (20 SFD UNITS PROPOSED)
OPEN SPACE	± 934,749 SF ± 41%
TREE COVER	± 698,856 SF ± 31%
PARKING	2 SPACES PER UNIT (2x20=40)

#INCLUDES TREE PRESERVATION AND PROPOSED PLANTINGS.

NOTES:
1. THE AVERAGE LOT SIZE IS ±58,901 SF. THE LOT SIZES RANGE FROM ±52,204 SF TO ±80,281 SF. THERE IS NO AVERAGE LOT SIZE REQUIREMENT IN THE R-E DISTRICT.
2. THE PROPOSED PUBLIC ROAD SHOWN ON THIS PLAN WILL BE DESIGNED AS A DITCH SECTION ROAD (AS SHOWN ON THIS PLAN).
3. TRAIL LOCATION IS APPROXIMATE AND FINAL LOCATION IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING. ALL PROPOSED TRAILS WILL BE LOCATED WITH PUBLIC ACCESS EASEMENTS.
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SHEET 6.1
SHEET 6.2

100 75 50 0 100 200
GRAPHIC SCALE
1" = 100'

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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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R-E CLUSTER

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- EQC LINE
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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
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DESIGN: TT
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CHECKED:
SHEET No. 6.1 OF 9

VIRGINIA STATE GRID NORTH (NAD 83)

SCALE: 1" = 60'
60 30 0 60 120
GRAPHIC SCALE

FOR CONTINUATION SEE SHEET 6.2

102267

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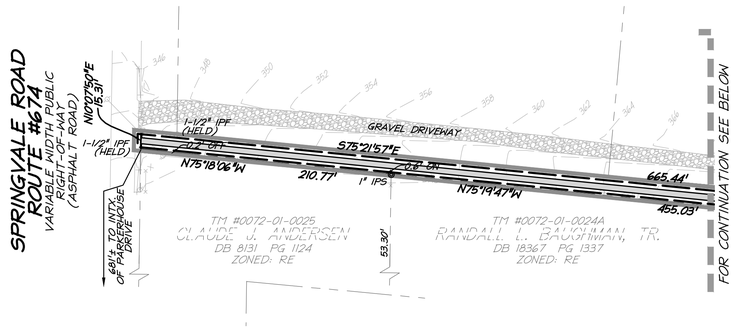

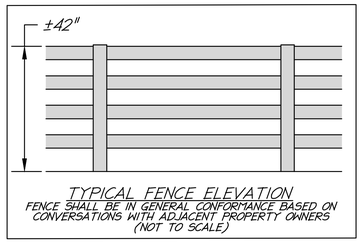

TYPICAL FENCE ELEVATION
FENCE SHALL BE IN GENERAL CONFORMANCE BASED ON CONVERSATIONS WITH ADJACENT PROPERTY OWNERS
(NOT TO SCALE)

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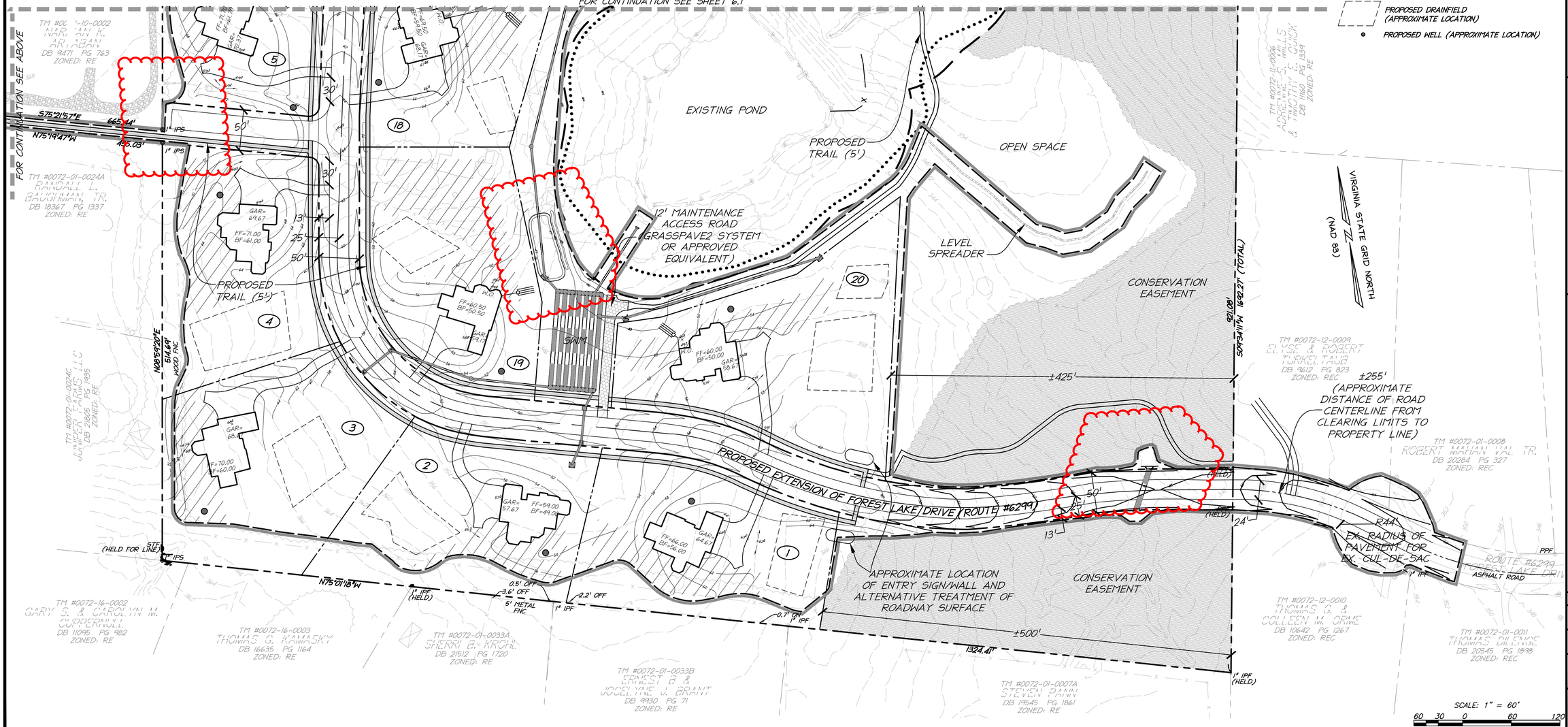

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COMMONWEALTH OF VIRGINIA
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GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

GENERAL DEVELOPMENT PLAN

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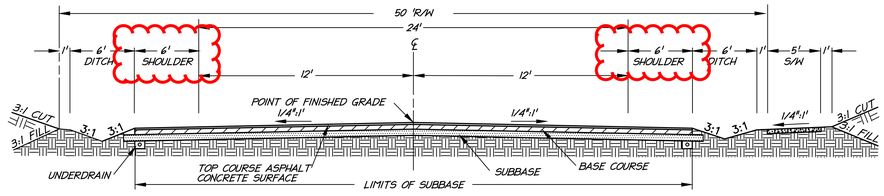
102267

FOREST LAKE DRIVE EXTENSION TYPICAL SECTION

N.T.S.



NOTE:

1. PROPOSED ROADWAY SHALL BE IN CONFORMANCE WITH FIGURE 1.5 ON PAGE B (1) - 14 OF APPENDIX B (1) OF THE VDOT ROAD DESIGN MANUAL.

2. PARKING SHALL BE PROHIBITED ON ONE SIDE OF THE STREET. PROPER SIGNAGE AND NOTATION RESTRICTING PARKING SHALL BE SHOWN ON THE FINAL CONSTRUCTION DRAWINGS.

B(1)-8

GEOMETRIC DESIGN STANDARDS FOR RESIDENTIAL AND MIXED USE SUBDIVISION STREETS (GS- SSAR)

TABLE 2 – SHOULDER AND DITCH SECTION

PROJECTED TRAFFIC VOLUME (ADT)	MINIMUM DESIGN SPEED (MPH) (NOT POSTED SPEED)	HORIZONTAL AND VERTICAL CONTROLS Maximum 2:1 Cut or Fill Slope					SHOULDER AND DITCH ROADWAYS Minimum ditch width (front slope) should be 4 feet or greater, based on slopes of 3:1 or flatter (Gentler slopes promote homeowner maintenance of ditches)			
		CURVE DATA		MAXIMUM % GRADE	MINIMUM SIGHT DISTANCE		MINIMUM PAVEMENT WIDTH			MIN. TOTAL WIDTH OF SHOULDER (8) (9)
		MINIMUM CENTERLINE RADIUS (4)	SUPER-ELEV.		STOPPING (2)	INTER-SECTION (3)	NO PARKING (5)	PARKING 1 SIDE (5)	PARKING BOTH SIDES (5)	
UP TO 2000	25	200'	NONE	NOTE (6)	155'	280'	24' (1) (11)	24' (1)	29' (1)	6'
2001 TO 4000	30	335'	NONE	NOTE (7)	200'	335'	26' (10)	31' (10)	36' (10)	8'

Notes:

For streets with volumes over 4000 or serving heavy commercial or Industrial traffic; use the appropriate geometric design standard. (see VDOT's Road Design Manual)

The roadway with the highest volume will govern the sight distance.

Right of Way requirements can be found in Section B-4.1 Right Of Way

For volumes 2001 – 4000 vpd, design criteria for the Collector functional class was utilized to determine minimum design values.

Lower design speeds (and street widths) may be utilized provided they are designed in accordance with the AASHTO Green Book or AASHTO's Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT<400). The designer should coordinate with VDOT in advance of design (e.g. sketch plan stage) if this alternative criteria is being utilized.

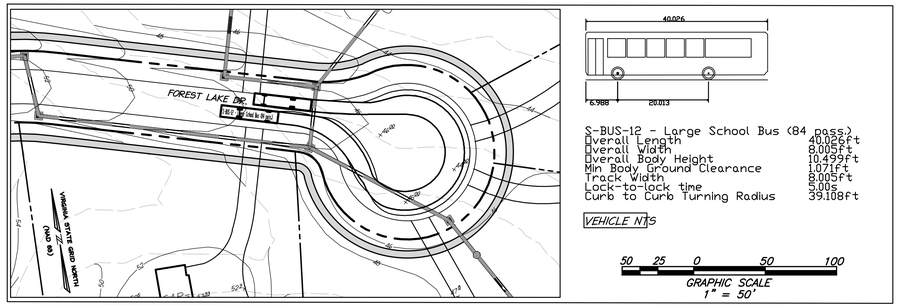
If 20 mph minimum design speed is utilized, a 20 mph advisory speed limit sign shall be posted along with any other horizontal or vertical curve warning signs as warranted.

An engineering speed study sealed and signed by a licensed professional engineer, using VDOT's standard speed study report, must be provided by the developer and approved by VDOT for any roads posted at other than the statutory speed limit and planned for acceptance into the state system.

1. If the Local Street has 1 point of access and ADT>400 vpd, then the roadway width must meet design values (2001 TO 4000 vpd).
2. 2011AASHTO Green Book Chapter 3 (Page 3-4, Table 3-1)*
3. 2011AASHTO Green Book Chapter 9 (Page 9-38, Table 9-6). For grades greater than 3%, the time gap must be adjusted and required sight distance recalculated.
4. 2011 AASHTO Green Book Chapter 3 (Page 3-55, Table 3-13b)
5. Clear zone width for UP TO 2000 vpd is 7' and clear zone values for 2001 TO 4000 vpd is 10'.
6. 2011 AASHTO Green Book Chapter 5 (Page 5-12)
7. 2011 AASHTO Green Book Chapter 6 (Page 6-12)
8. 2011 AASHTO Green Book Chapter 5 (Page 5-6, Table 5-5)
9. Add an additional 3' if guardrail is required.
10. Lane widths may vary between 10'-12' feet for collectors with 2001-4000 ADT. Widths shown may be decreased by 2 feet (26 feet to 24 feet), (31 feet to 29 feet) and (36 feet to 34 feet) based upon engineering judgment subject to VDOT approval.
11. For 0-400 ADT and "No Parking" ONLY minimum pavement width may be reduced from 24 feet to 18 feet and shoulder width may be reduced in accordance with Note 8 above.

* Rev. 7/12

TABLE 2 - SHOULDER AND DITCH SECTION STREET



SCHOOL BUS TURNING MOVEMENT ANALYSIS - CUL-DE-SAC

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

GDP
ROAD SECTIONS

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: JS, JL
DRAWN: DL
CHECKED:
SHEET No.
6.3 OF 9

102267

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2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

LEGEND

EXISTING TREE TO BE PRESERVED

PROPOSED VEGETATION

PROPOSED VEGETATION IS SHOWN AS A MIXTURE OF DECIDUOUS AND EVERGREEN SPECIES IN GENERAL LOCATIONS THAT IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING. A MIXTURE OF CALIPER SIZES WILL BE UTILIZED UPON FINAL SPECIES SELECTION AND AVAILABLE NURSERY STOCK.

LEGEND

- RPA LINE
- EQC LINE
- OVERHEAD UTILITY LINE
- FENCE
- ROAD CENTERLINE
- PROPERTY LINE
- ADJOINER LINE
- EX. INDEX CONTOUR (10')
- EX. INT. CONTOUR (2')
- PROPOSED TRAIL
- PROPOSED MAINTENANCE ACCESS ROAD
- POTENTIAL DEVELOPABLE AREA AVAILABLE FOR OPTIONAL DECKS, PATIO IMPROVEMENTS, GAZEBO, ETC. (EXCLUDES SHEDS, STORAGE OR ACCESSORY STRUCTURES ON ALL PORTIONS OF LOTS - DETAILS TO BE DETERMINED ON FINAL SUBDIVISION PLAN)
- PROPOSED DRAINFIELD (APPROXIMATE LOCATION)
- PROPOSED WELL (APPROXIMATE LOCATION)

NOTES:

1. THE PROPOSED PUBLIC ROAD SHOWN ON THIS PLAN WILL BE DESIGNED AS A DITCH SECTION ROAD (AS SHOWN ON THIS PLAN).
2. TRAIL LOCATION IS APPROXIMATE AND FINAL LOCATION IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING.
3. WELL AND DRAINFIELD LOCATIONS ARE SHOWN APPROXIMATELY AND FINAL LOCATIONS ARE SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING.
4. A PROFFER WITH THIS GDP WILL INCLUDE THE FOLLOWING PARAMETERS FOR AN INVASIVE SPECIES MANAGEMENT PLAN TO BE COMPLETED AT TIME OF FINAL SUBDIVISION PLAN:
   - TARGETED SPECIES FOR SUPPRESION AND MANAGEMENT
   - LOCATION OF THE TARGETED AREAS REQUIRED FOR TREATMENT AND MANAGEMENT
   - METHOD(S) OF CONTROL AND MANAGEMENT
   - SCHEDULE OF TREATMENTS
   - DISPOSAL OF DEBRIS
   - CHEMICAL APPLICATIONS MUST BE PERFORMED UNDER THE DIRECT SUPERVISION OF A VIRGINIA CERTIFIED PESTICIDE APPLICATOR
   - DURATION OF MANAGEMENT PLAN
   - MONTHLY MONITORING REPORTS SENT TO URBAN FORESTRY MANAGEMENT DIVISION

VIRGINIA STATE GRID NORTH (NAD 83)

100 75 50 0 100 200

GRAPHIC SCALE 1" = 100'

STUDIO39

christopher consultants
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phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
JOSEPH J. PLUMPE
No.000802
04/26/16
LANDSCAPE ARCHITECT

LANDSCAPE PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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CHECKED:
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102267

LEGEND

- RPA LINE
- EOC LINE
- OVERHEAD UTILITY LINE
- FENCE
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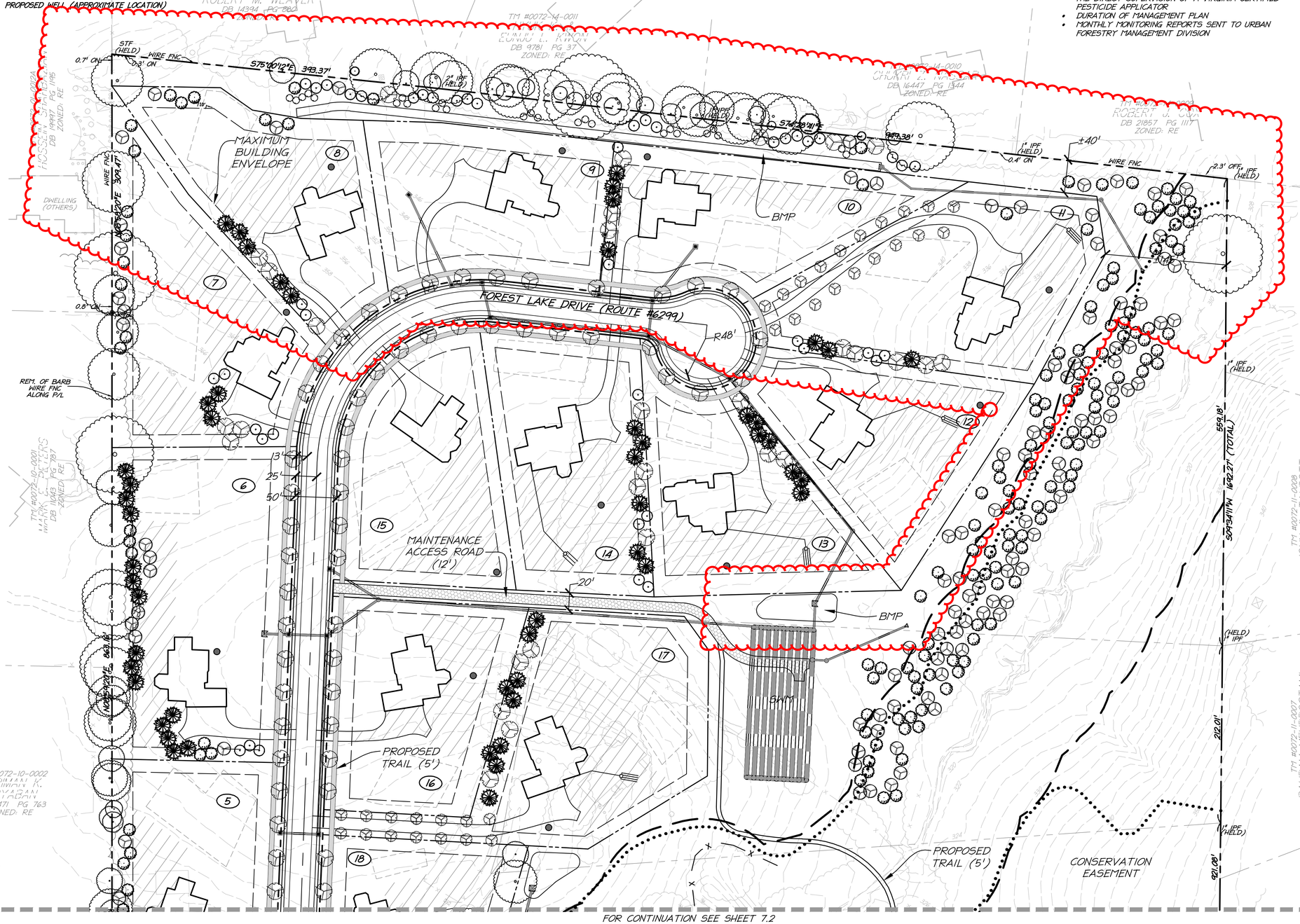
- PROPERTY LINE
- ADJOINER LINE
- EX. INDEX CONTOUR (10')
- EX. INT. CONTOUR (2')

POTENTIAL DEVELOPABLE AREA AVAILABLE FOR OPTIONAL DECKS, PATIO IMPROVEMENTS, GAZEBO, ETC. (EXCLUDES SHEDS, STORAGE OR ACCESSORY STRUCTURES ON ALL PORTIONS OF LOTS - DETAILS TO BE DETERMINED ON FINAL SUBDIVISION PLAN)

PROPOSED DRAINFIELD (APPROXIMATE LOCATION)

PROPOSED WELL (APPROXIMATE LOCATION)



FOR CONTINUATION SEE SHEET 7.2

VIRGINIA STATE GRID NORTH (NAD 83)

SCALE: 1" = 60'

60 30 0 60 120

GRAPHIC SCALE

NOTES:

1. THE PROPOSED PUBLIC ROAD SHOWN ON THIS PLAN WILL BE DESIGNED AS A DITCH SECTION ROAD (AS SHOWN ON THIS PLAN).
2. TRAIL LOCATION IS APPROXIMATE AND FINAL LOCATION IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING.
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LEGEND

- EXISTING TREE TO BE PRESERVED
- PROPOSED VEGETATION

PROPOSED VEGETATION IS SHOWN AS A MIXTURE OF DECIDUOUS AND EVERGREEN SPECIES IN GENERAL LOCATIONS THAT IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING. A MIXTURE OF CALIPER SIZES WILL BE UTILIZED UPON FINAL SPECIES SELECTION AND AVAILABLE NURSERY STOCK.

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LANDSCAPE ARCHITECT

LANDSCAPE PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

STUDIO39

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SHEET No.	7.1 OF 9

102267

NOTES:
1. THE PROPOSED PUBLIC ROAD SHOWN ON THIS PLAN WILL BE DESIGNED AS A DITCH SECTION ROAD (AS SHOWN ON THIS PLAN).
2. TRAIL LOCATION IS APPROXIMATE AND FINAL LOCATION IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING.
3. TRAIL WILL BE FIELD LOCATED AT SOUTHEAST CORNER OF PROPERTY IN ORDER TO PRESERVE EXISTING VEGETATION.
4. WELL AND DRAINFIELD LOCATIONS ARE SHOWN APPROXIMATELY AND FINAL LOCATIONS ARE SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING.
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TABLE 12.10 - 10 YEAR TREE CANOPY CALCULATIONS

A	**TREE PRESERVATION TARGET AND STATEMENT (TABLE 12.3)**	**TOTALS**
A1	Pre-development area of existing tree canopy (SF)	625,466
A2	Percentage of gross site area covered by existing canopy (A1/B1)	28%
A3	Percentage of 10-year tree canopy required for the site	30%
A4	Percentage of the 10-year tree canopy requirement that should be met through tree perservation	9%
A5	Proposed percentage of canopy requirement that will be met through tree preservation (C10/B7)	81%
A6	Has the tree preservation target minimum been met?	Yes
A7	If A6 is no, then a request to deviate from the Tree Preservation Target shall be provided on the plan that states one or more of the justifications listed in 12-0507.3 along with a narrative that provides a site-specific explanation of why	N/A
B	**TREE CANOPY REQUIREMENT**	
B1	Identify gross site area (SF)	2,264,016
B2	Subtract area dedicated to parks and road frontage (SF)	0
B3	Subtract area exemptions (SF)	0
B4	Adjusted gross site area (B1 - B2) (SF)	2,264,016
B5	Identify site's zoning and/or use	R-E Cluster
B6	Percentage of 10-year tree canopy required	30%
B7	Area of 10-year tree canopy required (B4 x B6) (SF)	679,205
B8	Modification of 10-year tree requirements requested?	No
B9	If B8 yes, then list paln sheet where modification request is located	N/A
C	**TREE PRESERVATION**	
C1	Tree preservation target area	187,634
C2	Total canopy area meeting standards of 12-0400	350,100
C3	C2 x 1.25	437,625
C4	Total canopy area provided by unique or valuable forest or woodland communities	0
C5	C4 x 1.5	0
C6	Total of canopy area provided by "Heritage", "Memorial", "Specimen", or "Street Trees"	0
C7	C6 x 1.5 to 3.0	0
C8	Canopy area of trees within Resource Protection Areas and 100-year floodplains	113,106
C9	C8 x 1.0	113,106
C10	Total of C3, C5, C7, and C9	550,731
D	**TREE PLANTING**	
D1	Area of canopy to be met through tree planting (B7-C10)	128,474
D2	Area of canopy planted for air quality benefits	0
D3	D2 x 1.5	0
D4	Area of canopy planted for energy conservation	0
D5	D4 x 1.5	0
D6	Area of canopy planted for water quality benefits	0
D7	D6 x 1.25	0
D8	Area of canopy planted for wildlife benefits	94,925
D9	D8 x 1.5	142,388
D10	Area of canopy provided by native trees	0
D11	D10 x 1.5	0
D12	Area of canopy provided by improved cultivars and varieties	0
D13	D12 x 1.25	0
D14	Area of canopy provided through tree seedlings	0
D15	D14 x 1.0	0
D16	Percentage of D14 represented by D15	0
D17	Total of canopy area provided through tree planting	142,388
D18	Is an off-site planting relief requested?	No
D19	Tree bank or Tree Fund?	No
D20	Canopy area requested to be provided through off-site banking or tree fund	0
D21	Amount to be deposited into the Tree Preservation and Planting Fund	0
E	**TOTAL 10-YEAR TREE CANOPY PROVIDED**	
E1	Total of canopy area provided through tree preservation (C10)	550,731
E2	Total of canopy area provided through tree planting (D17)	142,388
E3	Total of canopy area provided through off-site mechanism (D19)	0
E4	Total of 10-year Tree Canopy Provided (E1+E2+E3)	693,119

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COMMONWEALTH OF VIRGINIA
JOSEPH J. PLUMPE
No.000802
04/26/16
LANDSCAPE ARCHITECT

LANDSCAPE PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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CHECKED:
SHEET No. 7.2 OF 9

STUDIO39

SCALE: 1" = 60'
60 30 0 60 120
GRAPHIC SCALE

VIRGINIA STATE GRID NORTH (NAD 83)

102267

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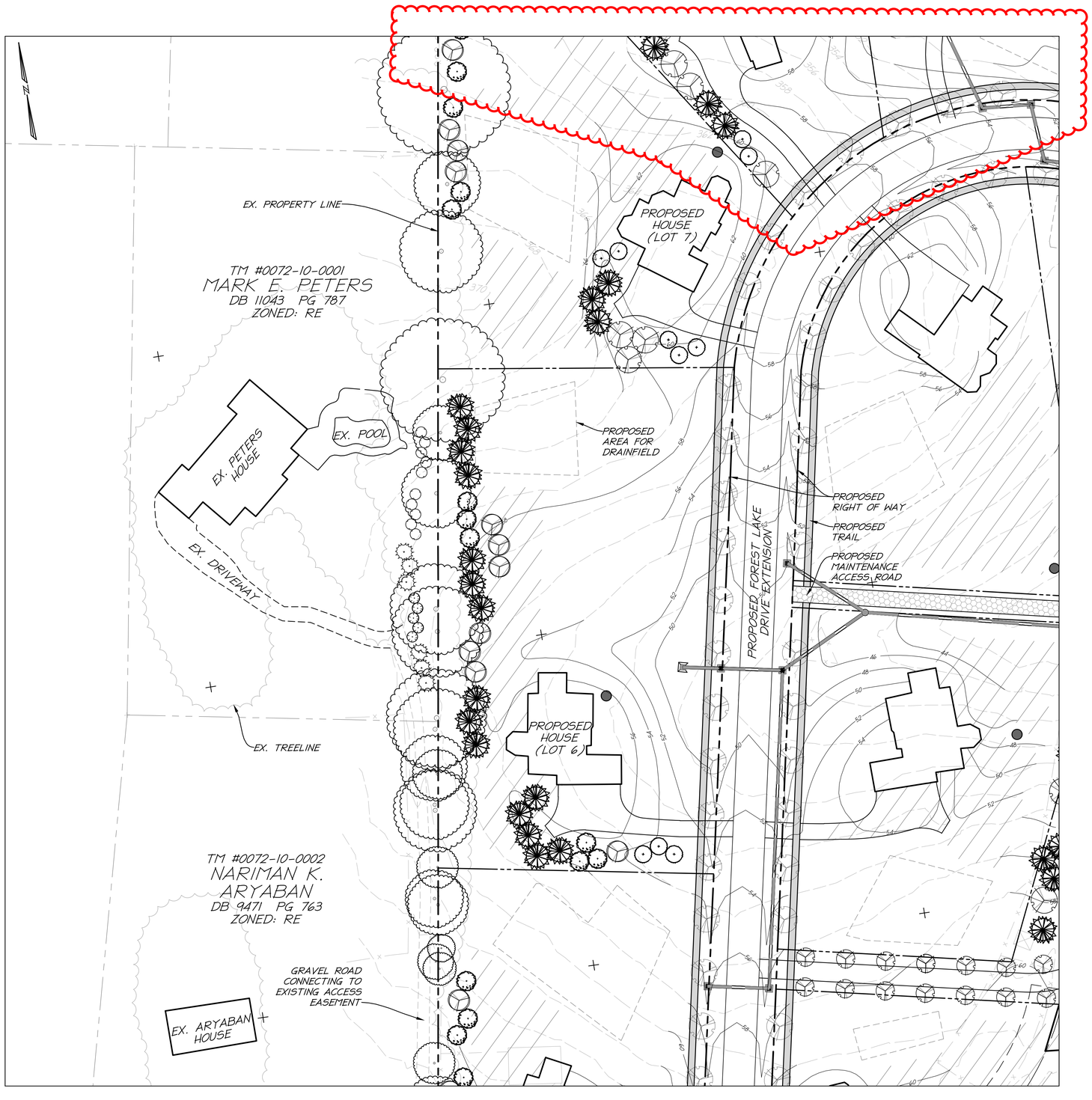

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PROPOSED PLANT LIST

THIS LIST IS SUBJECT TO CHANGE BASED ON SPECIES AVAILABILITY AT THE TIME OF FINAL SITE PLAN AND MAY INCLUDE BUT SHOULD NOT BE LIMITED TO THE FOLLOWING SPECIES:

ACER RUBRUM
(RED MAPLE)

CERCIS CANADENSIS
(EASTERN REDBUD)

ILEX x NELLIE STEVENS
(NELLIE STEVENS HOLLY)

ILEX OPACA
(AMERICAN HOLLY)

JUNIPERUS VIRGINIANA
(EASTERN RED CEDAR)

MAGNOLIA VIRGINIANA
(SWEETBAY MAGNOLIA)

QUERCUS PALUSTRIS
(PIN OAK)

VIBURNUM DENTATUM
(ARROWWOOD VIBURNUM)

NOTE:

1. THE PURPOSE OF THIS EXHIBIT IS TO HIGHLIGHT EXISTING AND PROPOSED LANDSCAPE SCREENING ALONG THE PETERS PROPERTY AND THE BROOKS PROPERTY BOUNDARY.
2. PROPOSED VEGETATION IS SHOWN AS A MIXTURE OF DECIDUOUS AND EVERGREEN SPECIES IN GENERAL LOCATIONS THAT IS SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING. A MIXTURE OF CALIPER SIZES WILL BE UTILIZED UPON FINAL SPECIES SELECTION AND AVAILABLE NURSERY STOCK.
3. BASE INFORMATION FOR BROOKS PROPERTY SHOWN ON THIS EXHIBIT IS BASED ON A BOUNDARY SURVEY PREPARED AND CERTIFIED BY christopher consultants ltd. DATED MARCH 13, 2014.
4. OFF-SITE BASE INFORMATION IS APPROXIMATE AND BASED ON AVAILABLE IMAGERY FROM GOOGLE MAPS DATED SEPTEMBER 18, 2015.
5. THIS IS A CONCEPT SKETCH AND IS SUBJECT TO CHANGE BASED ON COOPERATION WITH ADJOINING PROPERTY OWNERS DURING DESIGN DEVELOPMENT.

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9900 main street (fourth floor) · fairfax, va 22030
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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
LANDSCAPE ARCHITECT
2016-04-26

CONCEPTUAL LANDSCAPE BUFFER PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: DL
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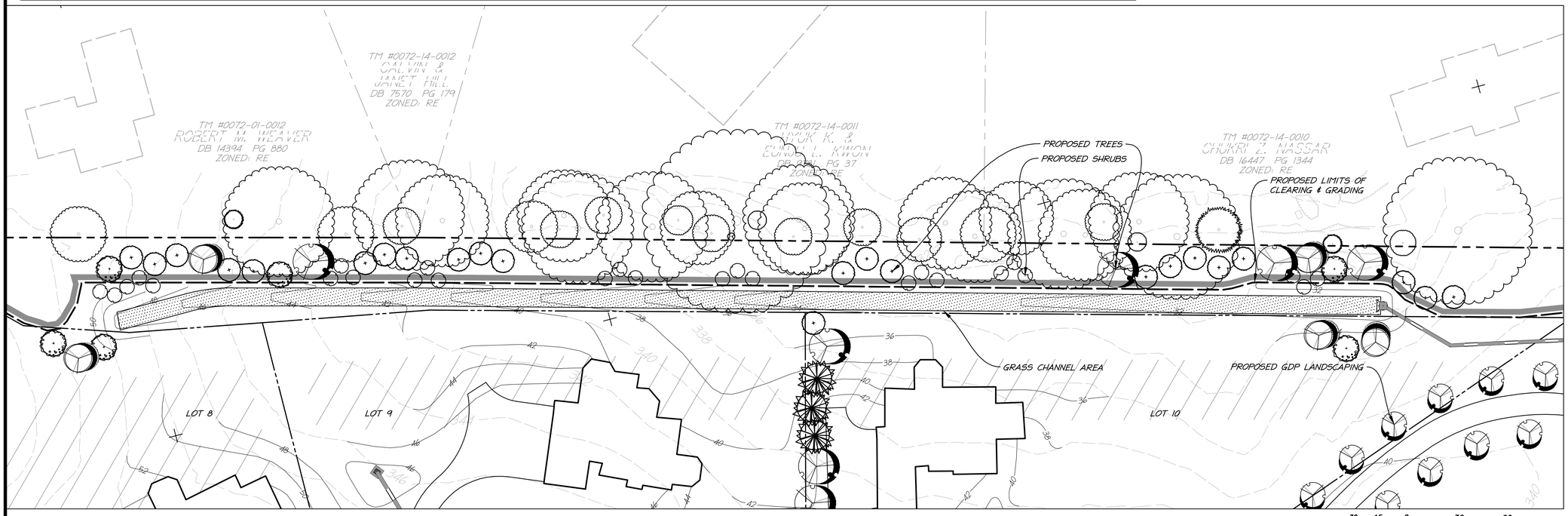
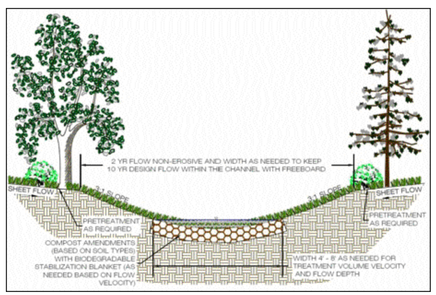
CONCEPTUAL GRASS CHANNEL LANDSCAPE PLAN ALONG THE NORTHERN PROPERTY LINE





TYPICAL GRASS CHANNEL SECTION
(FROM VA DEQ SPEC #3) N.T.S.

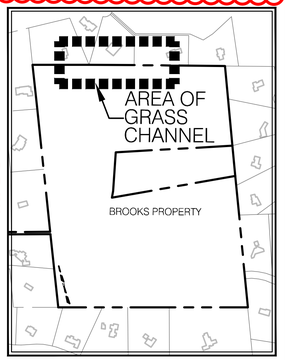
NOTES:

1. THE PURPOSE OF THIS CONCEPTUAL GRASS CHANNEL LANDSCAPE PLAN IS TO OFFER DESIGN CONSIDERATIONS FOR PROPOSED LANDSCAPING ALONG THE GRASS CHANNEL ALONG THE NORTHERN BROOKS PROPERTY BOUNDARY. ALL GRASS CHANNEL PLANTING SHALL CONFORM TO FFX. CO. PFM SECTION 6-1308.10 AND VA DEQ SPECIFICATION #3.
2. PROPOSED VEGETATION SHOWN AS A MIXTURE OF DECIDUOUS AND EVERGREEN SPECIES IN GENERAL LOCATIONS THAT ARE SUBJECT TO CHANGE BASED ON FINAL SITE ENGINEERING. A MIXTURE OF CALIPER SIZES WILL BE UTILIZED UPON FINAL SPECIES SELECTION AND AVAILABLE NURSERY STOCK.
3. THIS IS A CONCEPT SKETCH AND IS SUBJECT TO CHANGE.
4. ALL PROPOSED LANDSCAPING SHALL BE IN COOPERATION WITH ADJOINING PROPERTY OWNERS DURING THE FINAL SUBDIVISION PROCESS.

PROPOSED PLANT LIST

THIS LIST IS SUBJECT TO CHANGE BASED ON SPECIES AVAILABILITY AT THE TIME OF FINAL SITE PLAN AND MAY INCLUDE BUT SHOULD NOT BE LIMITED TO THE FOLLOWING SPECIES:

AP -AESCULUS PARVIFLORA (BOTTLEBRUSH BUCKEYE)
CC -CERCIS CANADENSIS (REDBUD)
CF -CALYCANTHUS FLORIDUS (CAROLINA ALLSPICE)
LB -LINDERA BENZOIN (SPICEBUSH)
QB -QUERCUS BICOLOR-(SWAMP WHITE OAK)
QP -QUERCUS PALUSTRIS (PIN OAK)
RM -RHODODENDRON MAXIMUM (AMERICAN RHODODENDRON)



KEY MAP
SCALE 1"=500'

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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
2016-04-26
LANDSCAPE ARCHITECT

CONCEPTUAL GRASS CHANNEL LANDSCAPE PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

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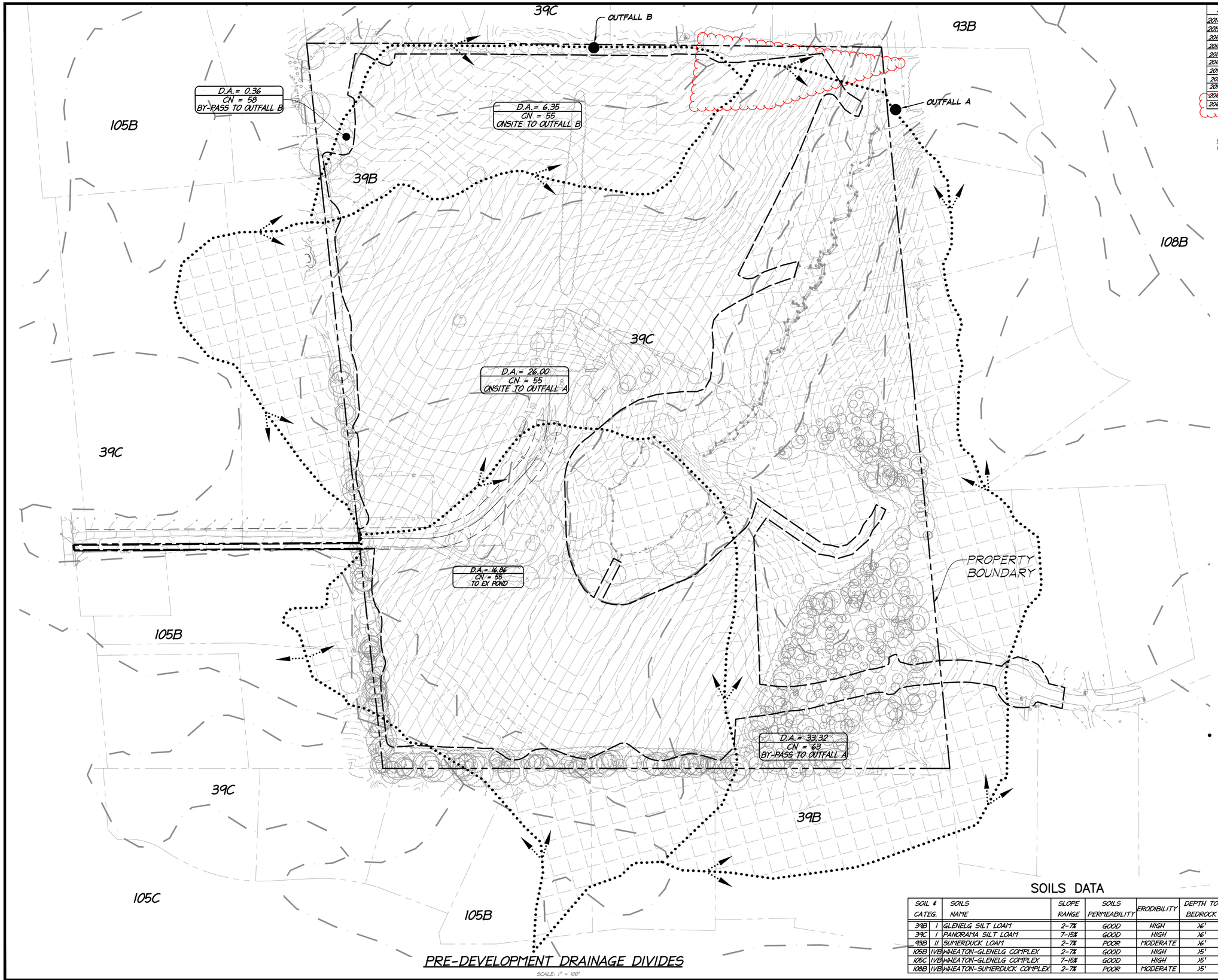

PRE-DEVELOPMENT DRAINAGE DIVIDES

SCALE: 1" = 100'

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2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-06-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

NOTES:

1. DRAINAGE DIVIDES, DRAINAGE AREAS, CN-VALUES, AND SWM/BMP CONTROL MEASURES (TYPE/LOCATION) SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING FINAL ENGINEERING. THE INFORMATION SHOWN HEREON IS A CONCEPTUAL DESIGN TO PRESENT AN OPTION FOR MEETING VARRM REQUIREMENTS & STORMWATER CHANNEL & FLOOD PROTECTION CRITERIA. FINAL DESIGN WILL BE ENGINEERED TO MEET WATER QUALITY AND CHANNEL AND FLOOD PROTECTION REQUIREMENTS (CHAPTER 124-4 OF COUNTY CODE).

LEGEND

25C — SOIL CATEGORY

SOIL LINE

PRE-DEVELOPED DRAINAGE DIVIDE

COUNTY RPA LINE

SITE AREA FOR SWM & BMP CALCULATIONS

SOILS DATA

SOIL # / CATEG.		SOILS NAME	SLOPE RANGE	SOILS PERMEABILITY	ERODIBILITY	DEPTH TO BEDROCK
39B	I	GLENELG SILT LOAM	2-7%	GOOD	HIGH	>6'
39C	I	PANORAMA SILT LOAM	7-15%	GOOD	HIGH	>6'
93B	II	SUMERDUCK LOAM	2-7%	POOR	MODERATE	>6'
105B	IVB	WHEATON-GLENELG COMPLEX	2-7%	GOOD	HIGH	>5'
105C	IVB	WHEATON-GLENELG COMPLEX	7-15%	GOOD	HIGH	>5'
108B	IVB	WHEATON-SUMERDUCK COMPLEX	2-7%	POOR	MODERATE	>5'

100 50 0 100 200

HORIZONTAL GRAPHIC SCALE
1" = 100'

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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

PRE-DEVELOPMENT DRAINAGE

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: 1" = 100'
DATE: 8/28/14
DESIGN: JES
DRAWN: JES
CHECKED: ES
SHEET No. 8.1 OF 9

102267

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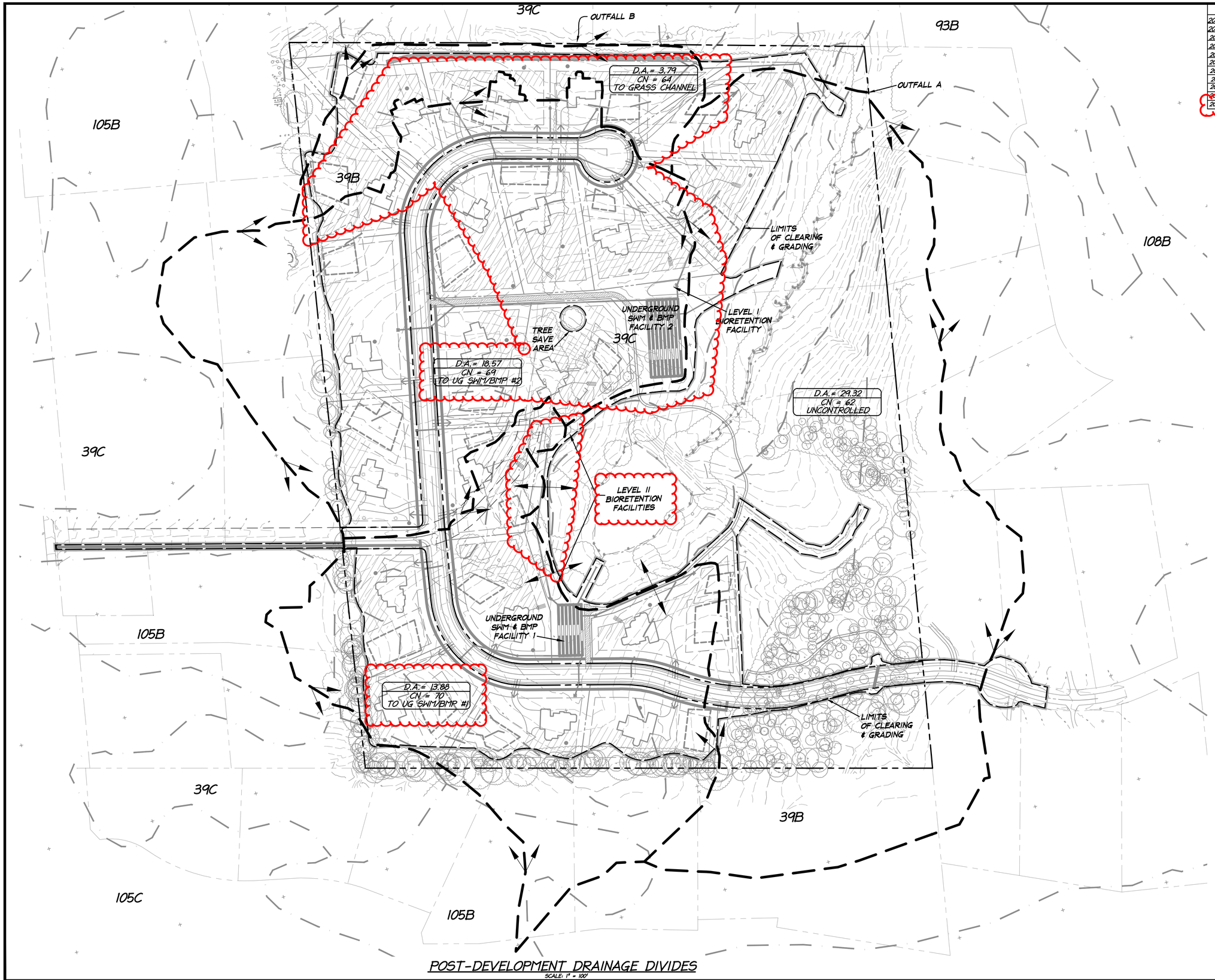

POST-DEVELOPMENT DRAINAGE DIVIDES
SCALE: 1" = 100'

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2014-10-02	REVISED PER COUNTY COMMENTS
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NOTES:
1. DRAINAGE DIVIDES, DRAINAGE AREAS, CN-VALUES, AND SWM/BMP CONTROL MEASURES (TYPE/LOCATION) SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING FINAL ENGINEERING. THE INFORMATION SHOWN HEREON IS A CONCEPTUAL DESIGN TO PRESENT AN OPTION FOR MEETING VARRM REQUIREMENTS & STORMWATER CHANNEL & FLOOD PROTECTION CRITERIA. FINAL DESIGN WILL BE ENGINEERED TO MEET WATER QUALITY AND CHANNEL AND FLOOD PROTECTION REQUIREMENTS (CHAPTER 124-4 OF COUNTY CODE).

LEGEND

25C — SOIL CATEGORY
SOIL LINE
POST-DEVELOPED DRAINAGE DIVIDE
COUNTY RPA LINE

100 50 0 100 200
HORIZONTAL GRAPHIC SCALE
1" = 100'

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GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

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8.2 OF 9

102267

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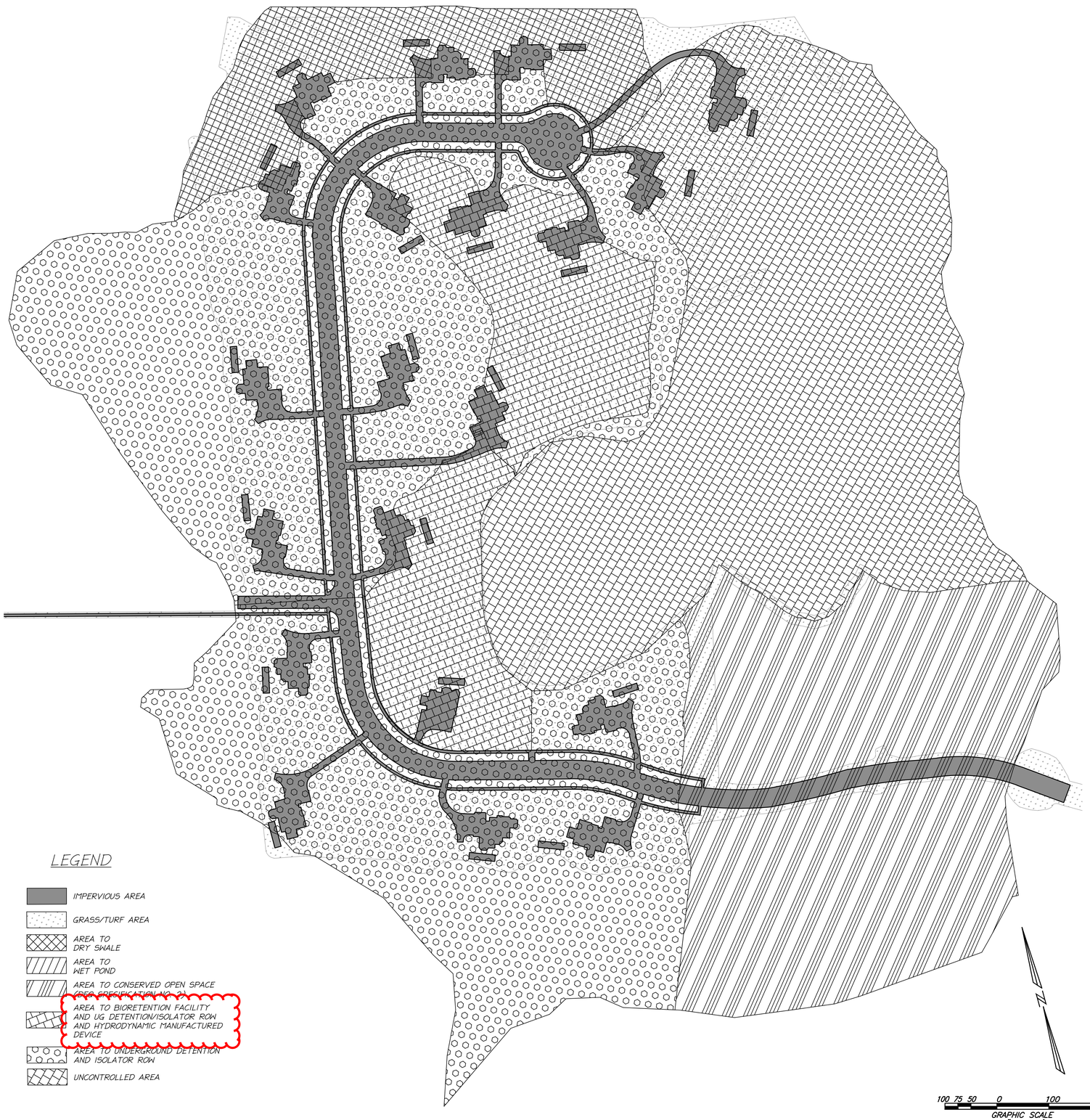

LEGEND

- IMPERVIOUS AREA
- GRASS/TURF AREA
- AREA TO DRY SWALE
- AREA TO WET POND
- AREA TO CONSERVED OPEN SPACE (SEE SPECIFICATION NO. 2)
- AREA TO BIORETENTION FACILITY AND UG DETENTION/ISOLATOR ROW AND HYDRODYNAMIC MANUFACTURED DEVICE
- AREA TO UNDERGROUND DETENTION AND ISOLATOR ROW
- UNCONTROLLED AREA

100 75 50 0 100 200

GRAPHIC SCALE
1" = 100'

DATE	REVISION
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2015-01-30	REVISED PER COUNTY COMMENTS
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2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-12	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS

STORMWATER MANAGEMENT / WATER QUALITY NARRATIVE:

WATER QUANTITY AND QUALITY TREATMENT OF STORMWATER RUNOFF FROM THE SUBJECT SITE IS PROVIDED BY A GRASS CHANNEL, THREE (3) BIORETENTION FACILITIES, AN AREA OF SHEET FLOW TO CONSERVED OPEN SPACE, AND TWO (2) ON-SITE UNDERGROUND STORMWATER DETENTION SYSTEMS WITH ISOLATOR ROWS THAT BOTH DRAIN TO TWO (2) HYDRODYNAMIC MANUFACTURED DEVICES FOR FINAL WATER QUALITY TREATMENT PRIOR TO OUTFALLING. THE LAYOUT OF THESE FACILITIES IS SHOWN ON SHEET 8.3, THE GOAL OF THIS LAYOUT IS TO MEET THE REQUIREMENTS FOR STORMWATER QUANTITY AND QUALITY TREATMENT AS OUTLINED IN THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM) AND CHAPTER 124 OF THE COUNTY CODE. THE "OVERALL BMP MAP" ON THIS SHEET DEPICTS THE OVERALL DRAINAGE AREAS TO EACH BMP FACILITY AS WELL AS THE LAND COVER CONDITIONS FOR THE SUBJECT SITE (WITHIN THE PROPOSED LIMITS OF DISTURBANCE). SHEETS 8.1 AND 8.2 OF THIS APPLICATION SHOW THE PRE-DEVELOPMENT AND POST-DEVELOPMENT DRAINAGE DIVIDES AS WELL AS THE HYDROLOGIC SOIL ZONES ACROSS THE SUBJECT SITE. THE HYDROLOGIC INFORMATION (CN-VALUES, DRAINAGE AREAS, T_c, etc.) SHOWN ON SHEETS 8.1 AND 8.2 WAS USED TO CREATE A HYDROLOGIC MODEL OF SITE RUNOFF USING THE NRCS HYDROLOGY METHODS OUTLINED IN 4-0100 OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM).

THE ON-SITE UNDERGROUND DETENTION FACILITIES WITH ISOLATOR ROWS SHALL AND HYDRODYNAMIC MANUFACTURED DEVICES SHALL BE DESIGNED IN ACCORDANCE WITH THE FAIRFAX COUNTY PFM REQUIREMENTS FOR DETENTION FACILITIES AND THE MANUFACTURER'S GUIDELINES. SEE CONSTRUCTION PLANS SHEET 4 FOR THE MANUFACTURER'S INSTALLATION AND MAINTENANCE RECOMMENDATIONS, INCLUDING THE INTERVALS FOR INSPECTIONS AND ROUTINE MAINTENANCE.

THE ON-SITE GRASS CHANNEL IS DESIGNED IN ACCORDANCE WITH THE "VIRIGINIA STORMWATER DESIGN SPECIFICATION NO. 3 - GRASS CHANNELS" AND THE FAIRFAX COUNTY PFM.

THE ON-SITE BIORETENTION FACILITIES SHALL BE DESIGNED IN ACCORDANCE WITH THE "VIRGINIA DEQ STORMWATER DESIGN SPECIFICATION NO. 9 - BIORETENTION" AND THE FAIRFAX COUNTY PFM. BOTH OF THE BIORETENTION FACILITIES SHALL BE DESIGNED TO PROVIDE LEVEL 2 TREATMENT AND ONE SHALL BE DESIGNED TO PROVIDE LEVEL ONE TREATMENT.

THE ON-SITE SHEET FLOW TO CONSERVED OPEN SPACE SHALL BE DESIGNED IN ACCORDANCE WITH THE "VIRGINIA STORMWATER DESIGN SPECIFICATION NO. 2 - SHEET FLOW TO A VEGETATED FILTER STRIP OR CONSERVED OPEN SPACE" AND THE FAIRFAX COUNTY PFM.

IN ACCORDANCE WITH THE VIRGINIA RUNOFF REDUCTION METHOD (VARRM) FOR NEW DEVELOPMENT (AS SHOWN IN THE SPREADSHEETS ON SHEET 8.4 OF THIS APPLICATION), THE COMBINATION OF BMP SYSTEMS ON-SITE EXCEED THE REQUIRED PHOSPHORUS LOAD REDUCTION BY 0.3 LB/YR.

CHANNEL PROTECTION NARRATIVE:

THE SUBJECT SITE DISCHARGES CONCENTRATED STORMWATER RUNOFF TO TWO OUTFALL STUDY POINTS. THE "OVERALL BMP MAP" ON THIS SHEET INDICATES THE LOCATION OF THE STUDY POINTS. THE CHANNEL PROTECTION REQUIREMENTS FOR THE SUBJECT SITE ARE MET VIA THE "DETENTION METHOD". THE PROPOSED DEVELOPMENT PROVIDES SUFFICIENT DETENTION SUCH THAT THE POST-DEVELOPMENT PEAK FLOWS FOR THE 1-YEAR 24-HOUR STORM EVENT, THE 2-YEAR 24-HOUR STORM EVENT AND THE 10-YEAR 24-HOUR STORM EVENT ARE BELOW THE ALLOWABLE RELEASE RATES THAT WERE DETERMINED USING THE METHOD OUTLINED IN SECTION 124-4-4(b)(3)A OF THE VIRGINIA STORMWATER ORDINANCE (SEE SUPPORTING ALLOWABLE RELEASE RATE COMPUTATIONS ON SHEET 8.5 OF THIS EXHIBIT).

AREAS OF THE SUBJECT SITE RELEASING SHEET FLOW WERE EVALUATED FOR POTENTIAL IMPACTS ON DOWN-GRADIENT PROPERTIES AND THERE IS NO ANTICIPATED INCREASE IN VOLUME OF SHEET FLOW THAT WOULD CAUSE OR CONTRIBUTE TO EROSION, SEDIMENTATION, OR FLOODING OF DOWN GRADIENT PROPERTIES OR RESOURCES.

FLOOD PROTECTION NARRATIVE:

IN ACCORDANCE WITH THE "DETENTION METHOD" OUTLINED IN 124-4-4(c)(4) OF THE VIRGINIA STORMWATER ORDINANCE AND SECTION 6-0203.4A OF THE FAIRFAX COUNTY PFM, THE DOWNSTREAM REVIEW ANALYSIS IS LIMITED TO PROVIDING CROSS-SECTIONS SHOWING A DEFINED CHANNEL AND CHECKING FOR FLOODING OF EXISTING BUILDINGS OR DWELLINGS FROM THE 100-YEAR STORM EVENT. THE EXTENT OF REVIEW EXTENDS TO A POINT THAT IS AT LEAST 150 FEET DOWNSTREAM OF A POINT WHERE THE DRAINAGE AREA IS 360 ACRES OR GREATER IN ACCORDANCE WITH SECTION 6-0203.2 OF THE PFM. SEE SHEETS 8.7 AND 8.8 FOR AN OUTFALL REVIEW AND NARRATIVE.

EXISTING RESOURCE PROTECTION AREA/ENVIRONMENTAL QUALITY CORRIDOR IMPROVEMENTS:

THERE IS AN EXISTING FARM POND LOCATED ON THE SUBJECT PROPERTY WITHIN THE EXISTING RESOURCE PROTECTION AREA (RPA)/ENVIRONMENTAL QUALITY CORRIDOR (EQC). PURSUANT TO THE ENGINEERING INVESTIGATION PERFORMED BY GEOTECHNICAL SOLUTIONS, INC. (GSI), DATED OCTOBER 5, 2015 AND ATTACHED ON SHEET 8.6, THE EXISTING DAM STRUCTURE IS MOSTLY STABLE. IN ACCORDANCE WITH THE GSI'S RECOMMENDATIONS, THE FOLLOWING IMPROVEMENTS WILL BE REQUIRED WITH THIS PROPOSED DEVELOPMENT:

- EXISTING BAMBOO VEGETATION EMERGING FROM THE UPSTREAM SLOPE IN THE SOUTHEASTERN HALF OF THE DAM EMBANKMENT NEAR THE NORMAL POOL ELEVATION MUST BE REMOVED IN ITS ENTIRETY. SINCE BAMBOO IS AN AGRESSIVE SPREADING PLANT THROUGH ROOT GROWTH, THE REMOVAL OF THE ROOT SYSTEM SHALL BE OBSERVED BY A QUALIFIED SOILS TECHNICIAN OR ENGINEER UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER OF RECORD. LIMITED SURFICIAL FILL MAY BE NECESSARY FOLLOWING REMOVAL OF THE ROOT SYSTEM. THE LIMITED FILL PLACEMENT SHALL BE OBSERVED AND TESTED BY A QUALIFIED SOILS TECHNICIAN.
- ROUTINE REPAIR OF THE DOWNSTREAM HALF OF THE EXISTING EMERGENCY SPILLWAY THAT IS DOCUMENTED TO SHOW SIGNS OF EROSION.

OVERLAND RELIEF NARRATIVE:

STORMWATER RUNOFF THAT EXCEEDS THE DESIGN CAPACITY OF THE PROPOSED STORMWATER FACILITIES (10-YEAR STORM) WILL FLOW OVERLAND IN ACCORDANCE WITH THE OVERLAND RELIEF PATH FLOW ARROWS SHOWN ON SHEET 8.2. OVERLAND FLOWS WILL BE CHECKED TO ENSURE THAT NO DOWNSTREAM BUILDINGS OR STRUCTURES CONSTRUCTED UNDER AN APPROVED BUILDING PERMIT WILL BE DAMAGED OR FLOODED AS A RESULT OF THE PROPOSED DEVELOPMENT.

NOTES:
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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
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4/26/16
PROFESSIONAL ENGINEER

OVERALL BMP MAP AND NARRATIVE

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: 1" = 100'
DATE: 8/28/14
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SHEET No. 8.3 OF 9

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Virginia Runoff Reduction Method New Development Worksheet - v2.8 - June 2014

To be used w/ DRAFT 2013 BMP Standards and Specifications

Site Data

Project Name: Brooks Property
Date: February 18, 2015

data input cells
calculation cells
constant values

VARRM SUMMARY:

1. Post-Development Project & Land Cover Information

Constants

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		
Pj	0.90		

Land Cover (acres)

	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	26.19	0.00	0.06	26.25
Impervious Cover (acres)	0.00	# 6.68	0.00	0.00	6.68
				Total	32.93

\# INCLUDES 12,500 SQ.FT. OF ADDITIONAL IMPERVIOUS AREA OR 625 SQ. FT. PER LOT

Rv Coefficients

	A soils	B Soils	C Soils	D Soils
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

Forest/Open Space Cover (acres)	0.00		
Weighted Rv(forest)	0.00		
% Forest	0%		
Managed Turf Cover (acres)	26.25		
Weighted Rv(turf)	0.20		
% Managed Turf	80%		
Impervious Cover (acres)	6.68		
Rv(impervious)	0.95		
% Impervious	20%		
Total Site Area (acres)	32.93		
Site Rv	0.35		
Post-Development Treatment Volume (acre-ft)	0.97		
Post-Development Treatment Volume (cubic feet)	42,094		
Post_Development Load (TP) (lb/yr)	26.45	Post_Development Load (TN) (lb/yr)	189.20
Total Load (TP) Reduction Required (lb/yr)	12.95		

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	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	7.47	0.00	0.00	7.47	0.20
Impervious Cover (acres)	0.00	2.00	0.00	0.00	2.00	0.95
				Total	9.47	

Post Development Treatment Volume (cf) 12320

6. Bioretention

6.a. Bioretention #1 or Urban Bioretention (Spec #9)	impervious acres draining to bioretention	40% runoff volume reduction	0.40		0	0	0	25	0.00	0.00	0.00	0.00	None
	turf acres draining to bioretention	40% runoff volume reduction	0.40		0	0	0	25	0.00	0.00	0.00	0.00	None
6.b. Bioretention #2 (Spec #9)	impervious acres draining to bioretention	80% runoff volume reduction	0.80	0.20	0	552	138	50	0.00	0.43	0.39	0.04	14. Manufactured Device
	turf acres draining to bioretention	80% runoff volume reduction	0.80	1.53	0	889	222	50	0.00	0.70	0.63	0.07	14. Manufactured Device

14. Manufactured BMP

14. Isolator Row	impervious acres draining to device	0% runoff volume reduction	0.00	1.80	138	0	6345	40	0.04	3.90	1.58	2.36	~~10a. Wet Swale #1~~ HYDRODYNAMIC MANUFACTURED DEVICES
	turf acres draining to device	0% runoff volume reduction	0.00	5.94	222	0	4535	40	0.07	2.71	1.11	1.67	~~10a. Wet Swale #1~~

10. Wet Swale (Coastal Plain)

HYDRODYNAMIC MANUFACTURED DEVICES **	impervious acres draining to wet swale	0% runoff volume reduction	0.00	0.00	6,345	0	6345	20	2.36	0.00	0.47	1.89	
~~10a. Wet Swale #1 (Spec #10)~~	turf acres draining to wet swale	0% runoff volume reduction	0.00	0.00	4,535	0	4535	20	1.67	0.00	0.33	1.33	

TOTAL IMPERVIOUS COVER TREATED (ac) 2.00
TOTAL TURF AREA TREATED (ac) 7.47

AREA CHECK OK.

PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. A 3.49
TOTAL PHOSPHORUS REMOVAL IN D.A. A (lb/yr) 4.51

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. A 11.97
TOTAL NITROGEN REMOVAL IN D.A. A (lb/yr) 20.05

Drainage Area B

Drainage Area B Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	11.15	0.00	0.00	11.15	0.20
Impervious Cover (acres)	0.00	3.33	0.00	0.00	3.33	0.95
				Total	14.48	

Post Development Treatment Volume (cf) 19578

6. Bioretention

6.a. Bioretention #1 or Urban Bioretention (Spec #9)	impervious acres draining to bioretention	40% runoff volume reduction	0.40	0.41	0	566	848	25	0.00	0.89	0.49	0.40	14. Manufactured Device
	turf acres draining to bioretention	40% runoff volume reduction	0.40	3.35	0	973	1459	25	0.00	1.53	0.84	0.69	14. Manufactured Device

14. Manufactured BMP

14. Isolator Row	impervious acres draining to device	0% runoff volume reduction	0.00	2.92	848	0	10918	40	0.40	6.32	2.69	4.03	~~10a. Wet Swale #1~~ HYDRODYNAMIC MANUFACTURED DEVICES
	turf acres draining to device	0% runoff volume reduction	0.00	7.80	1,459	0	7122	40	0.69	3.55	1.70	2.54	~~10a. Wet Swale #1~~

10. Wet Swale (Coastal Plain)

HYDRODYNAMIC MANUFACTURED DEVICES **	impervious acres draining to wet swale	0% runoff volume reduction	0.00	0.00	10,918	0	10918	20	4.03	0.00	0.81	3.23	
~~10a. Wet Swale #1 (Spec #10)~~	turf acres draining to wet swale	0% runoff volume reduction	0.00	0.00	7,122	0	7122	20	2.54	0.00	0.51	2.04	

TOTAL IMPERVIOUS COVER TREATED (ac) 3.33
TOTAL TURF AREA TREATED (ac) 11.15

AREA CHECK OK.

PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. B 5.70
TOTAL PHOSPHORUS REMOVAL IN D.A. B (lb/yr) 7.03

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. B 19.21
TOTAL NITROGEN REMOVAL IN D.A. B (lb/yr) 36.48

** NOTE: SPEC 10 IS UTILIZED TO MODEL THE HYDRODYNAMIC SEPARATOR BECAUSE THE SPREADSHEET HAS ONLY A SINGLE LINE FOR MANUFACTURED DEVICES. THE HYDRODYNAMIC DEVICES HAS THE SAME PERFORMANCE CHARACTERISTICS AS SPEC 10. (1YR 0% RR & 20% TP REMOVAL)

Drainage Area C

Drainage Area C Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	3.17	0.00	0.06	3.23	0.20
Impervious Cover (acres)	0.00	0.31	0.00	0.00	0.31	0.95
				Total	3.54	

Post Development Treatment Volume (cf) 3425

4. Grass Channel

4.a. Grass Channel A/B Soils (Spec #3)	impervious acres draining to grass channels	20% runoff volume reduction	0.20	0.31	0	214	855	15	0.00	0.67	0.21	0.46	
	turf acres draining to grass channels	20% runoff volume reduction	0.20	3.17	0	462	1850	15	0.00	1.45	0.46	0.99	
b. Grass Channel C/D Soils (Spec #3)	impervious acres draining to grass channels	10% runoff volume reduction	0.10	0.00	0	0	0	15	0.00	0.00	0.00	0.00	
	turf acres draining to grass channels	10% runoff volume reduction	0.10	0.06	0	4	39	15	0.00	0.03	0.01	0.02	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.31
TOTAL TURF AREA TREATED (ac) 3.23

AREA CHECK OK.

PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. C 0.00
TOTAL PHOSPHORUS REMOVAL IN D.A. C (lb/yr) 0.69

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. C 0.00
TOTAL NITROGEN REMOVAL IN D.A. C (lb/yr) 15.38

Drainage Area D

Drainage Area D Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	0.96	0.00	0.00	0.96	0.20
Impervious Cover (acres)	0.00	0.56	0.00	0.00	0.56	0.95
				Total	1.52	

Post Development Treatment Volume (cf) 2628

9. Sheetflow to Filter/Open Space

9.a. Sheetflow to Conservation Area with A/B Soils (Spec #2)	impervious acres draining to conserved open space	75% runoff volume reduction for treated area	0.75	0.56	0	1448	483	0	0.00	1.21	0.91	0.30	
	turf acres draining to conserved open space	75% runoff volume reduction for treated area	0.75	0.96	0	523	174	0	0.00	0.44	0.33	0.11	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.56
TOTAL TURF AREA TREATED (ac) 0.96

AREA CHECK OK.

PHOSPHORUS REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. D 0.00
TOTAL PHOSPHORUS REMOVAL IN D.A. D (lb/yr) 1.24

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVAL BY PRACTICES THAT DO NOT REDUCE RUNOFF VOLUME IN D.A. D 0.00
TOTAL NITROGEN REMOVAL IN D.A. D (lb/yr) 11.80

* NOTE: THIS DESIGN IS PRELIMINARY AND SUBJECT TO CHANGE AT THE TIME OF FINAL ENGINEERING. THE PHOSPHORUS LOAD REDUCTION IS SUBJECT TO CHANGE AT FINAL DESIGN. THE FINAL ENGINEERING DESIGN WILL MEET THE MINIMUM REQUIREMENTS OF CHAPTER 124-4 FOR NEW DEVELOPMENT PROJECTS BY EXCEEDING THE MINIMUM REQUIRED PHOSPHORUS LOAD REDUCTION.

Site Results

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	2.00	3.33	0.31	0.56	0.00	OK.
IMPERVIOUS COVER TREATED	2.00	3.33	0.31	0.56	0.00	OK.
TURF AREA	7.47	11.15	3.23	0.96	0.00	OK.
TURF AREA TREATED	7.47	11.15	3.23	0.96	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Phosphorus

TOTAL TREATMENT VOLUME (cf)	42,094
TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	12.95
RUNOFF REDUCTION (cf)	5630
PHOSPHORUS LOAD REDUCTION ACHIEVED (LB/YR)	13.46
ADJUSTED POST-DEVELOPMENT PHOSPHORUS LOAD (TP) (lb/yr)	12.99
REMAINING PHOSPHORUS LOAD REDUCTION (LB/YR) NEEDED	CONGRATULATIONS!! YOU EXCEEDED THE TARGET REDUCTION BY 0.5 LB/YEAR!!

Nitrogen (for information purposes)

TOTAL TREATMENT VOLUME (cf)	42,094
RUNOFF REDUCTION (cf)	5630
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	83.71
ADJUSTED POST-DEVELOPMENT NITROGEN LOAD (TN) (lb/yr)	105.49

Drainage Area A

		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	7.47	0.00	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	2.00	0.00	0.00
	CN	98	98	98	98
					Weighted CN
					69

S 4.49

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	0.48	0.76	1.84
$RV_{Developed}$ (in) with Runoff Reduction	0.43	0.72	1.80
Adjusted CN	68	68	68

Drainage Area B

		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	11.15	0.00	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	3.33	0.00	0.00
	CN	98	98	98	98
					Weighted CN
					70

S 4.29

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	0.51	0.81	1.92
$RV_{Developed}$ (in) with Runoff Reduction	0.48	0.78	1.89
Adjusted CN	69	69	70

Drainage Area C

		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	3.17	0.00	0.06
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.31	0.00	0.00
	CN	98	98	98	98
					Weighted CN
					65

S 5.38

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	0.34	0.59	1.55
$RV_{Developed}$ (in) with Runoff Reduction	0.29	0.53	1.50
Adjusted CN	63	64	64

Drainage Area D

		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.96	0.00	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.56	0.00	0.00
	CN	98	98	98	98
					Weighted CN
					75

S 3.33

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS

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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

VRRM & BMP TREATMENT VOLUME CALCULATIONS

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: N/A
DATE: 8/28/14
DESIGN: JES
DRAWN: JES
CHECKED: ES
SHEET No.

102267

P:\Projects\13171\001\01\02267 GDP\8.4-BMP CALCULATIONS.dwg, 5/2/2016 2:25:07 PM, tuckertravis, 1:1, christopher consultants, ltd.

ALLOWABLE RELEASE RATE CALCULATIONS:

PRE-DEVELOPMENT(FORESTED)					RV and Q		
DRAINAGE AREA:	DESCRIPTION	AREA (Ac.)	CN	WEIGHTED CN	1-yr	2-yr	10-yr
ON-SITE TO OUTFALL A	WOODED (B SOILS)	26.00	55				
	TOTAL	26.00		55	9963	22849	86451
					0.51	2.11	16.92
BY-PASS/UNCONTROLLED TO OUTFALL A	WOODED (B SOILS)	16.94	55				
	WOODED (C SOILS)	0.28	70				
	1 ACRE LOTS (B SOILS)	13.76	68				
	1 ACRE LOTS (D SOILS)	1.49	84				
	IMPERVIOUS	0.85	98				
	TOTAL	33.32		63	34270	60753	171352
					4.02	9.12	32.93
ON-SITE TO OUTFALL B	WOODED (B SOILS)	6.29	55				
	WOODED AREA (D SOILS)	0.06	77				
	TOTAL	6.35		55	2464	5650	21378
					0.13	0.57	4.55
BY-PASS/UNCONTROLLED TO OUTFALL B	WOODED (B SOILS)	0.29	55				
	WOODED AREA (C SOILS)	0.02	70				
	1 ACRE LOTS (B SOILS)	0.05	68				
	TOTAL	0.36		58	215	436	1449
					0.02	0.05	0.29

POST-DEVELOPMENT					RV and Q		
DRAINAGE AREA:	DESCRIPTION	AREA (Ac.)	CN	WEIGHTED CN	1-yr	2-yr	10-yr
ON-SITE TO OUTFALL A	GRASS AREA (B SOILS)	20.74	61				
	IMPERVIOUS	5.26	98				
	TOTAL	26.00		68	41662	67608	168716
					7.66	14.33	40.05
ON-SITE TO OUTFALL B	GRASS AREA (B SOILS)	4.91	61				
	GRASS AREA (C SOILS)	0.05	74				
	IMPERVIOUS	1.39	98				
	TOTAL	6.35		69	11188	17896	43720

TO OUTFALL A:		
$Q_{DEVELOPED} \le I.F. * \{(Q_{PRE\text{-}DEVELOPED} * RV_{PRE\text{-}DEVELOPED}) / RV_{DEVELOPED}\}$		
1-YR	$Q_1 <$	(0.51 cfs * 9,963 cf) / 41,662 cf + 4.02 cfs
	$Q_1 <$ 0.12 cfs + 4.02 < 4.14 cfs	
2-YR	$Q_1 <$	(2.11 cfs * 22,849 cf) / 67,608 cf + 9.12 cfs
	$Q_1 <$ 0.71cfs + 9.12 < 9.83 cfs	
10-YR	$Q_1 <$	(16.92 cfs * 86,451 cf) / 168,716 cf + 32.93 cfs
	$Q_1 <$ 8.67 cfs + 32.93 < 41.60 cfs	

ALLOWABLE RELEASE RATE COMPUTATIONS		
TO OUTFALL B:		
$Q_{DEVELOPED} \le I.F. * \{(Q_{PRE\text{-}DEVELOPED} * RV_{PRE\text{-}DEVELOPED}) / RV_{DEVELOPED}\}$		
1-YR	$Q_1 <$	(0.13 cfs * 2,464 cf) /11,188 cf +0.02 cfs
	$Q_1 <$ 0.03cfs + 0.02 < 0.045 cfs	
2-YR	$Q_1 <$	(0.57 cfs * 5,650 cf) / 17,896 cf + 0.05 cfs
	$Q_1 <$ 0.18cfs + 0.05 < 0.23 cfs	
10-YR	$Q_1 <$	(4.55 cfs * 21,378 cf) / 43,720 cf + 0.29 cfs
	$Q_1 <$ 2.23 cfs + 0.29 < 2.52 cfs	

POST-DEVELOPMENT DRAINAGE AREA SUMMARY:

POST-DEVELOPMENT				
DRAINAGE AREA:	DESCRIPTION	AREA (Ac.)	CN	WEIGHTED CN
TO UG SWM/BMP #1	GRASS AREA (B SOILS)	7.33	61	
	IMPERVIOUS	2.09	98	
	WOODED (B SOILS)	0.79	55	
	1 ACRE LOT (D SOILS)	1.49	84	
	1 ACRE LOT (B SOILS)	2.18	68	
	TOTAL	13.88		70
TO UG SWM/BMP #2	IMPERVIOUS	3.39	98	
	GRASS AREA (B SOILS)	11.21	61	
	WOODED (B SOILS)	0.41	55	
	1 ACRE LOT (B SOILS)	3.56	68	
	TOTAL	18.57		69
OUTFALL B DIVERTED TO OUTFALL A	GRASS AREA (C SOILS)	0.05	74	
	IMPERVIOUS	0.29	98	
	GRASS AREA (B SOILS)	3.36	61	
	WOODED (B SOILS)	0.09	55	
	TOTAL	3.79		64
UNCONTROLLED TO OUTFALL A	IMPERVIOUS	1.67	98	
	GRASS AREA (B SOILS)	3.60	61	
	1 ACRE LOT (B SOILS)	8.02	68	
	WOODED (B SOILS)	15.75	55	
	WOODED (C SOILS)	0.28	70	
	TOTAL	29.32		62

NOTES:
1. STORMWATER FACILITIES SHALL BE DESIGNED TO ACCOMODATE 625 sf OF ADDITIONAL IMPERVIOUS AREA ON EACH LOT FOR FUTURE IMPROVEMENTS BY FUTURE PROPERTY OWNERS.

NOTES:
1. DRAINAGE DIVIDES, DRAINAGE AREAS, CN-VALUES, AND SWM/BMP CONTROL MEASURES (TYPE/LOCATION) SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING FINAL ENGINEERING. THE INFORMATION SHOWN HEREON IS A CONCEPTUAL DESIGN TO PRESENT AN OPTION FOR MEETING WATER QUALITY, STORMWATER CHANNEL & FLOOD PROTECTION CRITERIA. FINAL DESIGN WILL BE ENGINEERED TO MEET WATER QUALITY AND CHANNEL AND FLOOD PROTECTION REQUIREMENTS (CHAPTER 124-4 OF COUNTY CODE). THE DETENTION FACILITIES CONCEPTUALLY SIZED AS SHOWN ON PLAN AND ADDITIONAL ROOM IS AVAILABLE TO EXPAND THE FACILITY SIZES IF NEEDED AT FINAL DESIGN.

UNDERGROUND DETENTION & DRY SWALE VOLUME REPORTS:

Pond Report 3

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3 — Monday, 04 / 18 / 2016

Pond No. 8 - UG SWM/BMP 1 (FOR ROUTING)

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	342.00	n/a	0	0
0.25	342.25	n/a	1,065	1,065
0.50	342.50	n/a	1,064	2,129
0.75	342.75	n/a	1,065	3,194
1.25	343.25	n/a	4,649	7,843
1.50	343.50	n/a	2,300	10,143
1.75	343.75	n/a	2,281	12,424
2.00	344.00	n/a	2,258	14,682
2.25	344.25	n/a	2,232	16,914
2.75	344.75	n/a	4,373	21,287
3.00	345.00	n/a	2,133	23,420
3.25	345.25	n/a	2,091	25,511
3.50	345.50	n/a	2,046	27,557
3.75	345.75	n/a	1,995	29,552
4.00	346.00	n/a	1,936	31,488
4.25	346.25	n/a	1,872	33,360
4.50	346.50	n/a	1,796	35,156
5.00	347.00	n/a	3,310	38,466
5.50	347.50	n/a	2,673	41,139
6.25	348.25	n/a	3,247	44,386
6.75	348.75	n/a	2,129	46,515

Culvert / Orifice Structures

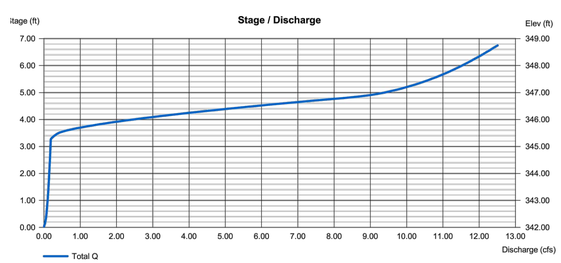
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	2.00	0.00	0.00
Span (in)	= 15.00	2.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 341.75	342.00	0.00	0.00
Length (ft)	= 96.52	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.50	1.00	0.00	0.00
Crest El. (ft)	= 345.25	345.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Rect	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Discharge



POST-DEVELOPED SUMMARY:

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs) 1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	Hydrograph Description
1	SCS Runoff	------	0.513	2.110	-------	-------	15.04	-------	-------	-------	PRE ON-SITE OUTFALL A
2	SCS Runoff	------	4.018	9.118	-------	-------	32.93	-------	-------	-------	PRE BY-PASS/OFFSITE TO OUTFA
4	SCS Runoff	------	0.128	0.567	-------	-------	4.553	-------	-------	-------	PRE ON-SITE TO OUTFALL B
5	SCS Runoff	------	0.017	0.054	-------	-------	0.293	-------	-------	-------	PRE BYPASS/OFFSITE TO OUTFAL
7	SCS Runoff	------	7.664	14.33	-------	-------	40.05	-------	-------	-------	POST ON-SITE TO OUTFALL A
8	SCS Runoff	------	2.749	4.904	-------	-------	13.03	-------	-------	-------	POST ON-SITE TO OUTFALL B
13	SCS Runoff	------	5.693	9.884	-------	-------	25.61	-------	-------	-------	TO UG SWM/BMP #1
14	Reservoir	13	0.165	0.471	-------	-------	9.094	-------	-------	-------	UG SWM/BMP 1
16	SCS Runoff	------	7.460	13.32	-------	-------	35.44	-------	-------	-------	TO UG SWM/BMP #2
17	Reservoir	16	0.156	0.356	-------	-------	6.228	-------	-------	-------	UG SWM/BMP 2
19	SCS Runoff	------	0.644	1.455	-------	-------	4.921	-------	-------	-------	OUTFALL B DIVERTED TO OUTFAL A
21	SCS Runoff	------	2.920	6.918	-------	-------	26.50	-------	-------	-------	UNCONTROLLED TO OUTFALL A
23	Combine	14, 17, 19, 21,	3.575	8.224	-------	-------	40.23	-------	-------	-------	COMBINED OUTFALL A

ALLOWABLE RELEASE RATE SUMMARY:

PEAK FLOWS FROM THE 1-YEAR, 2-YEAR AND 10-YEAR STORM EVENTS HAVE BEEN DETAINED ON-SITE BELOW ALLOWABLE RELEASE RATES (CALCULATED ON THIS SHEET - SEE CHART TO THE LEFT) IN ACCORDANCE WITH THE DETENTION METHOD (124-4-4(d) OF THE COUNTY CODE).

1YR Q = 3.58 CFS < 4.14 CFS
2YR Q = 8.22 CFS < 9.83 CFS
10YR Q = 40.23 CFS < 41.60 CFS

Pond Report 6

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3 — Monday, 04 / 18 / 2016

Pond No. 7 - UG SWM/BMP 2 (FOR ROUTING)

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	324.50	n/a	0	0
0.25	324.75	n/a	1,563	1,563
0.75	325.25	n/a	3,128	4,691
1.25	325.75	n/a	6,893	11,584
1.75	326.25	n/a	6,794	18,378
2.00	326.50	n/a	3,349	21,727
2.25	326.75	n/a	3,311	25,038
2.50	327.00	n/a	3,267	28,305
3.00	327.50	n/a	6,383	34,688
3.25	327.75	n/a	3,104	37,792
3.50	328.00	n/a	3,035	40,827
3.75	328.25	n/a	2,958	43,785
4.00	328.50	n/a	2,873	46,658
4.50	329.00	n/a	5,439	52,097
4.75	329.25	n/a	2,533	54,630
5.00	329.50	n/a	2,372	57,002
5.25	329.75	n/a	2,152	59,154
5.75	330.25	n/a	3,438	62,592
6.25	330.75	n/a	3,127	65,719
6.75	331.25	n/a	3,127	68,846

Culvert / Orifice Structures

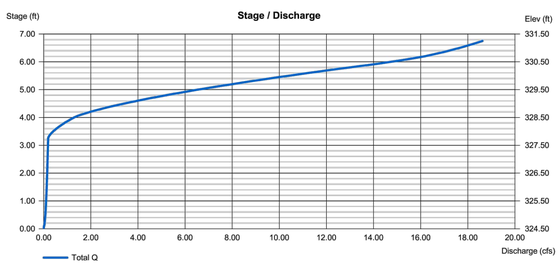
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	2.00	0.00	0.00
Span (in)	= 18.00	2.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 324.25	324.50	0.00	0.00
Length (ft)	= 17.00	0.00	0.00	0.00
Slope (%)	= 1.19	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.50	0.75	0.00	0.00
Crest El. (ft)	= 327.75	328.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Rect	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Discharge



DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
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4/26/16
PROFESSIONAL ENGINEER

SWM COMPUTATIONS

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: N/A
DATE: 8/28/14
DESIGN: JES
DRAWN: JES
CHECKED: ES
SHEET No. 8.5 OF 9

102267

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GEOTECHNICAL ENGINEER ASSESSMENT OF EX. FARM POND

Geotechnical Solutions, Inc.

Geotechnical Engineering
Environmental Consulting • Construction Materials

October 5, 2015

Mr. Mark Fields
Director, Land Development & Acquisitions
BASHEER/EDGEMOORE PROPERTIES, LLC
2071 Chain Bridge Road, Suite 510
Vienna, VA 22182

GSI Project No. GP-14977

Reference: Dam Embankment Observations
Brooks Property
Fairfax County, Virginia

Dear Mr. Fields:

As requested, Geotechnical Solutions, Inc. (GSI) has completed a reconnaissance of the existing dam embankment at the Brooks Property project located in Fairfax County, Virginia.

Background

We understand the subject property is currently known as Haydown Farm and consists of two (2) parcels totaling approximately 51.97 acres. The site is located east of Springvale Road in Fairfax County, VA 22066. The site is located just north of the intersection of Springvale Road and Parkerhouse Drive. The property is located in a primarily residential area. Surrounding property uses include single-family residential development on all sides. Based on the conceptual site layout plans prepared by Christopher Consultants, Ltd., dated April 24, 2015, the site is planned for the development of 20 single homes with all associated paved roadways, SWM pond, and site underground utilities. The existing farm pond, which is centrally located on the property, is to remain.

Observations

A GSI Professional Geologist performed a site reconnaissance of the existing dam embankment on May 12, 2015 to assess the superficial conditions along the exposed portions of the dam. Several photographs of the observed site conditions are attached. A steel probe was utilized to assess the relative strength of the embankment soils at various locations.

The upper portion of emergency spillway located at the northwest end of the dam embankment appears to be in good condition as shown in Figure 1. However, an erosion channel approximately 2 feet wide and 4 to 6 inches deep was observed in the downstream half of the emergency spillway (Figure 2).

3859 Centerview Drive, Suite 160, Chantilly, VA 20151 • 703-657-0014 • F: 703-657-0666 • www.geotechnical-solutions.com

The upstream slope of the dam embankment (Figures 1 and 3) appear to be stable. Probes along the upstream slope appear to indicate firm soil conditions. The thick grassy vegetation at the normal pool elevation appears to limit erosion of the embankment due to wave action. However, new bamboo shoots are emerging from the upstream slope in the southeastern half of the dam embankment near the normal pool elevation. This new vegetation may provide conduits for water seepage through the dam if not maintained properly.

The downstream slope of the dam embankment (Figures 4, 5, and 6) appear to be stable. Probes along the downstream slope appear to indicate firm soil conditions. Seeps or wet areas along the toe of the dam embankment were not observed, except within 2 to 3 feet around the principal spillway for the pond (Figures 7, 8 and 9). Additionally, no water appeared to be seeping or flowing from the principal spillway pipe. A valve for controlling the flow of water through the principal spillway was not observed on the upstream side of the dam and, if present is likely below the water surface. The central and southeastern portions of the downstream embankment are covered with dense bamboo. The roots of this vegetation may provide conduits for water seepage through the dam if not maintained properly.

Conclusions and Recommendations

Based on our observations, the existing dam embankment appears for the most part to be structurally stable. However, the existing bamboo vegetation must be removed in its entirety from the dam and its vicinity. Since bamboo is an aggressive spreading plant through root growth, the removal of the root system should be observed by a qualified soils technician or engineer under the supervision of the geotechnical engineer of record. Limited surficial fill may be necessary following removal of the root system. This limited fill placement should be observed and tested by a qualified soils technician.

We thank you for your confidence in our services. We will remain available for future consultation during the design and construction phases of the project. Should you have any questions regarding the content of this report, please do not hesitate to call us at (703) 657-0014.

Respectfully submitted,
GEOTECHNICAL SOLUTIONS, INC.

James T. Kline, P.G.
Project Manager

Samir A. Alqutri, P.E.
Principal Engineer

COMMONWEALTH OF VIRGINIA — SAMIR A. ALQUTRI — Lic. No. 031076 — OCT 05 2015 — PROFESSIONAL ENGINEER

Attachments: Dam Photographs

Geotechnical Solutions, Inc.

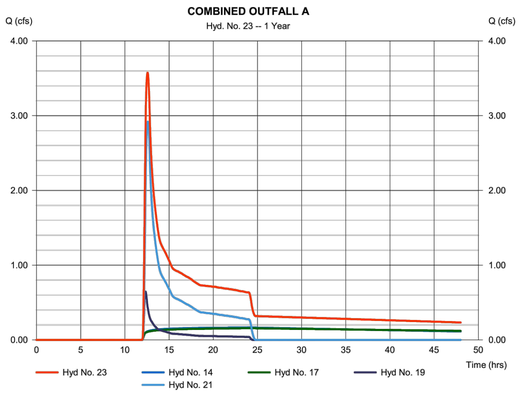
1-YR POST-DEVELOPED HYDROGRAPH

Hydrograph Report 1

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3 — Monday, 04 / 18 / 2016

Hyd. No. 23
COMBINED OUTFALL A

Hydrograph type	= Combine	Peak discharge	= 3.575 cfs
Storm frequency	= 1 yrs	Time to peak	= 12.57 hrs
Time interval	= 1 min	Hyd. volume	= 68,324 cuft
Inflow hyds.	= 14, 17, 19, 21	Contrib. drain. area	= 33.110 ac



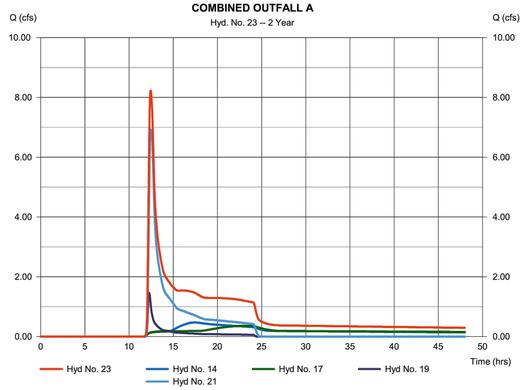
2-YR POST-DEVELOPED HYDROGRAPH

Hydrograph Report 2

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3 — Monday, 04 / 18 / 2016

Hyd. No. 23
COMBINED OUTFALL A

Hydrograph type	= Combine	Peak discharge	= 8.224 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.45 hrs
Time interval	= 1 min	Hyd. volume	= 111,618 cuft
Inflow hyds.	= 14, 17, 19, 21	Contrib. drain. area	= 33.110 ac



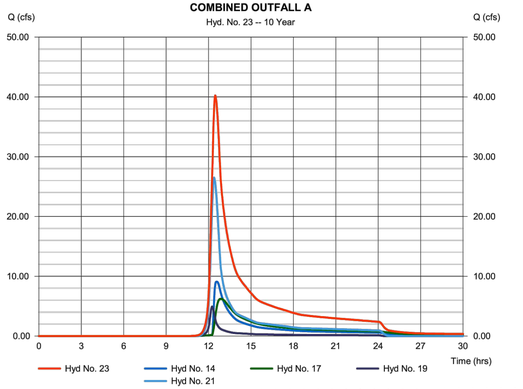
10-YR POST-DEVELOPED HYDROGRAPH

Hydrograph Report 3

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2014 by Autodesk, Inc. v10.3 — Monday, 04 / 18 / 2016

Hyd. No. 23
COMBINED OUTFALL A

Hydrograph type	= Combine	Peak discharge	= 40.23 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.47 hrs
Time interval	= 1 min	Hyd. volume	= 348,621 cuft
Inflow hyds.	= 14, 17, 19, 21	Contrib. drain. area	= 33.110 ac



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 paragraphs:

Special Permits (9-011 2J & 2L)
Cluster Subdivision (9-615 1G & 1N)
Development Plans: PRC District (16-302.2 & 4L)
FDP - P Districts (except PRC) 916-502.1F & 1Q)
Special Exceptions (9-011 2J & 2L)
Commercial Revitalization Districts (9-622 2A (12)&(14))
PRC Plan (16-303 1E & 10)
Amendments (18-202 10F & 10I)

☑ 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100).

☑ 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading to 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 8.2

☑ 3. Provide: (SEE THIS SHEET FOR TABLE)

Facility Name/ Type & No.	On-Site area served (acres)	Off-Site are served (acres)	Drainage area (acres)	Footprint area (sf.)	Storage Volume (cf.)	If pond, dam height (ft.)
(e.g., dry pond A. infilt. trench, underground vault, etc.)						
				Totals		

☑ 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet 8.2
Pond inlet and outlet pipe systems are shown on Sheet 8.2

☑ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 6.1, 6.2 AND 8.2
Type of maintenance access road surface noted on the plat is ____(asphalt, geoblock, [gravel] etc.)

☑ 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 4.1-4.2 & 7.1-7.2

☑ 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet 8.3

☑ 8. 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 8.7

☑ 9. A description of how the outfall requirements, including known changes to contributing drainage areas (i.e. drainage diversions), of the Public Facilities Manual will be satisfied is provided on Sheet 8.3 & 8.7

☑ 10. 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 Sheets: 2.1 & 2.2

☐ 11. A submission waiver is requested for _____

☐ 12. Stormwater management is not required because _____

Revised 2-21-2006

FACILITY NAME/TYPE & NUMBER	DRAINAGE AREA (AC.)	FOOTPRINT AREA (S.F.)	STORAGE VOLUME (C.F.)	IF POND, DAM HEIGHT (FT.)
UNDERGROUND DETENTION #1	13.88	11,580	78,213	N/A
UNDERGROUND DETENTION #2	18.57	16,166	51,175	N/A
TOTALS:	32.45	27,746	129,388	

NOTES:
1. DRAINAGE DIVIDES, DRAINAGE AREAS, CN-VALUES, AND SWM/BMP CONTROL MEASURES (TYPE/LOCATION) SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING FINAL ENGINEERING. THE INFORMATION SHOWN HEREON IS A CONCEPTUAL DESIGN TO PRESENT AN OPTION FOR MEETING WATER QUALITY, STORMWATER CHANNEL & FLOOD PROTECTION CRITERIA. FINAL DESIGN WILL BE ENGINEERED TO MEET WATER QUALITY AND CHANNEL AND FLOOD PROTECTION REQUIREMENTS (CHAPTER 124-4 OF COUNTY CODE).

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

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phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA — JOHN C. LEVTOV — Lic. No. 33635 — 4/26/16 — PROFESSIONAL ENGINEER

SWM COMPUTATIONS

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: 1" = 100'
DATE: 8/28/14
DESIGN: JES
DRAWN: JES
CHECKED: ES
SHEET No. 8.6 OF 9

102267

P:\Projects\13171\001\01\02267 GDP\8.6-SWM COMPUTATIONS.dwg, 5/2/2016 2:50:55 PM, nackenasis, 1:1, christopher consultants, ltd.

DISTANCE FROM POINT A (TOP OF DRAINAGE SHED) TO POINT B (CROSS SECTION 9 LOCATION) = 1.4 mi

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS

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phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

OUTFALL MAP

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

ADEQUATE OUTFALL NARRATIVE:

THE SUBJECT SITE CONSISTS OF 31.79 ACRES AND DRAINS TO THE NORTHEAST, DISCHARGING CONCENTRATED RUNOFF TO AN UNNAMED TRIBUTARY IN THE POND BRANCH WATERSHED. STORM WATER ENTERING THIS UNNAMED TRIBUTARY TRAVELS DOWNSTREAM APPROXIMATELY 1.7 MILES AND OUTFALLS INTO THE POTOMAC RIVER.

FLOOD AND CHANNEL PROTECTION COMPLIANCE HAS BEEN OUTLINED IN THE NARRATIVES INCLUDED ON SHEETS 8.3 AND 8.5-8.6 OF THIS PLAN. IN ACCORDANCE WITH THE DETENTION METHOD, DOWNSTREAM ANALYSIS IS LIMITED TO PROVIDING CROSS-SECTIONS TO SHOW A DEFINED CHANNEL. A DEFINED CHANNEL IS SHOWN FOR THE EXTENT OF REVIEW BY THE CROSS-SECTIONS INCLUDED ON SHEET 8.8 OF THIS PLAN, CROSS SECTION LOCATIONS ARE INDICATED ON THIS SHEET. 100-YEAR FLOWS HAVE BEEN CHECKED THROUGH THE CROSS-SECTIONS SHOWN TO VERIFY THAT EXISTING DWELLINGS OR BUILDINGS DOWNSTREAM WILL NOT BE FLOODED OR ADVERSELY IMPACTED BY THE 100-YEAR STORM EVENT FOR THE EXTENT OF REVIEW.

THEREFORE, IT IS THE ENGINEER'S OPINION THAT ADEQUATE OUTFALL REQUIREMENTS FOR THE SUBJECT PROJECT HAVE FOUND TO BE MET BY THE PROPOSED SYSTEM.

GRAPHIC SCALE
-250 0 125 250 500 1000
(IN FEET)
1 inch = 250 ft.

PROJECT NO: 13171.001.01
SCALE: 1" = 250'
DATE: 8/28/14
DESIGN: JES
DRAWN: JES
CHECKED: ES
SHEET No. 8.7 OF 9

102267

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DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS

DOWNSTREAM CHANNEL CROSS SECTIONS

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Tuesday, Sep 30 2014

Cross Section 1-1

User-defined		Highlighted	
Invert Elev (ft)	= 306.56	Depth (ft)	= 1.17
Slope (%)	= 1.10	Q (cfs)	= 33.15
N-Value	= 0.024	Area (sqft)	= 7.57
		Velocity (ft/s)	= 4.38
Calculations		Wetted Perim (ft)	= 13.28
Compute by:	Known Q	Crit Depth, Yc (ft)	= 1.18
Known Q (cfs)	= 33.15	Top Width (ft)	= 12.94
		EGL (ft)	= 1.47

(Sta, El, n)-(Sta, El, n)...
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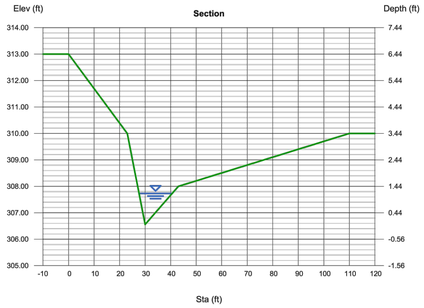

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 2-2

User-defined		Highlighted	
Invert Elev (ft)	= 280.74	Depth (ft)	= 2.81
Slope (%)	= 1.00	Q (cfs)	= 120.01
N-Value	= 0.030	Area (sqft)	= 17.88
		Velocity (ft/s)	= 6.71
Calculations		Wetted Perim (ft)	= 11.30
Compute by:	Known Q	Crit Depth, Yc (ft)	= 2.54
Known Q (cfs)	= 120.01	Top Width (ft)	= 8.73
		EGL (ft)	= 3.51

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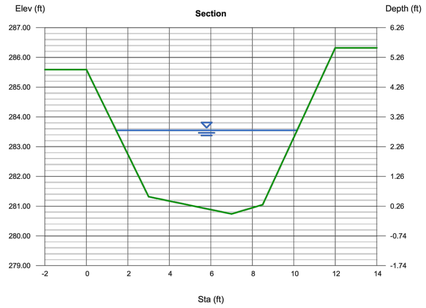

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 3-3

User-defined		Highlighted	
Invert Elev (ft)	= 280.74	Depth (ft)	= 2.84
Slope (%)	= 1.77	Q (cfs)	= 163.56
N-Value	= 0.030	Area (sqft)	= 18.15
		Velocity (ft/s)	= 9.01
Calculations		Wetted Perim (ft)	= 11.37
Compute by:	Known Q	Crit Depth, Yc (ft)	= 3.00
Known Q (cfs)	= 163.56	Top Width (ft)	= 8.77
		EGL (ft)	= 4.10

(Sta, El, n)-(Sta, El, n)...
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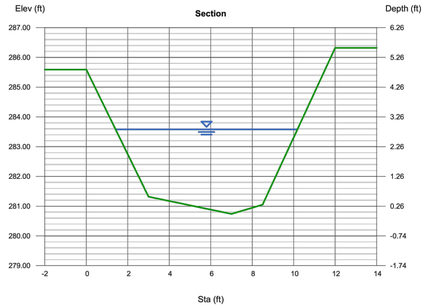

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 4-4

User-defined		Highlighted	
Invert Elev (ft)	= 274.48	Depth (ft)	= 3.33
Slope (%)	= 1.60	Q (cfs)	= 201.86
N-Value	= 0.030	Area (sqft)	= 22.34
		Velocity (ft/s)	= 9.03
Calculations		Wetted Perim (ft)	= 12.85
Compute by:	Known Q	Crit Depth, Yc (ft)	= 3.45
Known Q (cfs)	= 201.86	Top Width (ft)	= 10.09
		EGL (ft)	= 4.60

(Sta, El, n)-(Sta, El, n)...
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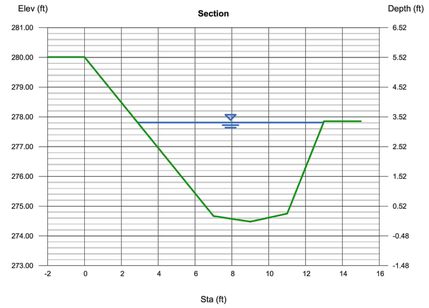

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 5-5

User-defined		Highlighted	
Invert Elev (ft)	= 269.20	Depth (ft)	= 3.72
Slope (%)	= 0.60	Q (cfs)	= 209.33
N-Value	= 0.030	Area (sqft)	= 33.33
		Velocity (ft/s)	= 6.28
Calculations		Wetted Perim (ft)	= 15.89
Compute by:	Known Q	Crit Depth, Yc (ft)	= 3.07
Known Q (cfs)	= 209.33	Top Width (ft)	= 13.11
		EGL (ft)	= 4.33

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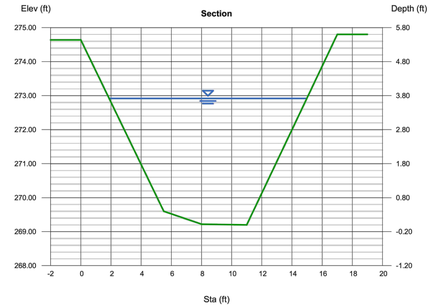

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 6-6

User-defined		Highlighted	
Invert Elev (ft)	= 264.24	Depth (ft)	= 2.68
Slope (%)	= 1.70	Q (cfs)	= 286.80
N-Value	= 0.030	Area (sqft)	= 30.26
		Velocity (ft/s)	= 9.48
Calculations		Wetted Perim (ft)	= 16.99
Compute by:	Known Q	Crit Depth, Yc (ft)	= 2.96
Known Q (cfs)	= 286.80	Top Width (ft)	= 15.39
		EGL (ft)	= 4.08

(Sta, El, n)-(Sta, El, n)...
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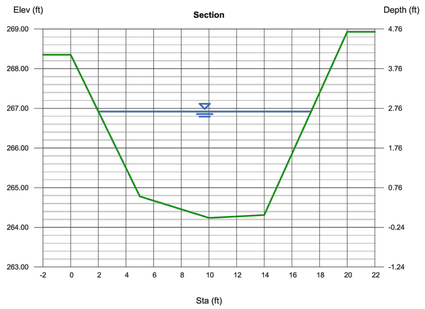


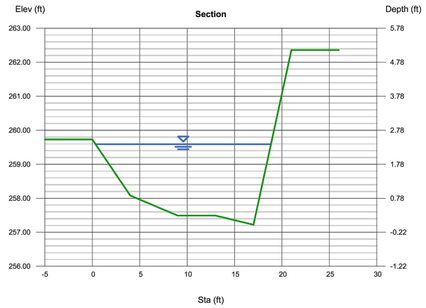
Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 7-7

User-defined		Highlighted	
Invert Elev (ft)	= 257.22	Depth (ft)	= 2.37
Slope (%)	= 2.50	Q (cfs)	= 329.70
N-Value	= 0.030	Area (sqft)	= 31.31
		Velocity (ft/s)	= 10.53
Calculations		Wetted Perim (ft)	= 20.01
Compute by:	Known Q	Crit Depth, Yc (ft)	= 2.84
Known Q (cfs)	= 329.70	Top Width (ft)	= 18.50
		EGL (ft)	= 4.09

(Sta, El, n)-(Sta, El, n)...
(0.00, 259.73)-(4.50, 258.08, 0.030)-(9.00, 257.49, 0.030)-(13.00, 257.49, 0.030)-(17.00, 257.22, 0.030)-(21.00, 262.36, 0.030)



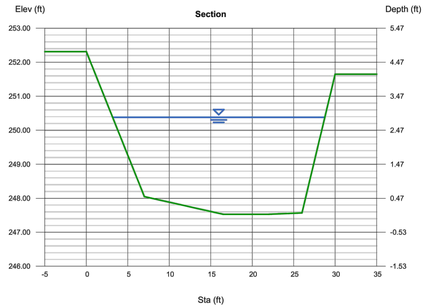
Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 8-8

User-defined		Highlighted	
Invert Elev (ft)	= 247.53	Depth (ft)	= 2.85
Slope (%)	= 0.60	Q (cfs)	= 386.60
N-Value	= 0.030	Area (sqft)	= 59.93
		Velocity (ft/s)	= 6.45
Calculations		Wetted Perim (ft)	= 27.43
Compute by:	Known Q	Crit Depth, Yc (ft)	= 2.39
Known Q (cfs)	= 386.60	Top Width (ft)	= 25.58
		EGL (ft)	= 3.50

(Sta, El, n)-(Sta, El, n)...
(0.00, 252.31)-(7.00, 248.05, 0.030)-(16.50, 247.53, 0.030)-(22.00, 247.53, 0.030)-(28.00, 247.57, 0.030)-(30.00, 251.65, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Monday, Sep 29 2014

Cross Section 9-9

User-defined		Highlighted	
Invert Elev (ft)	= 236.64	Depth (ft)	= 2.42
Slope (%)	= 1.80	Q (cfs)	= 399.52
N-Value	= 0.030	Area (sqft)	= 41.00
		Velocity (ft/s)	= 9.74
Calculations		Wetted Perim (ft)	= 23.03
Compute by:	Known Q	Crit Depth, Yc (ft)	= 2.74
Known Q (cfs)	= 399.52	Top Width (ft)	= 21.34
		EGL (ft)	= 3.90

(Sta, El, n)-(Sta, El, n)...
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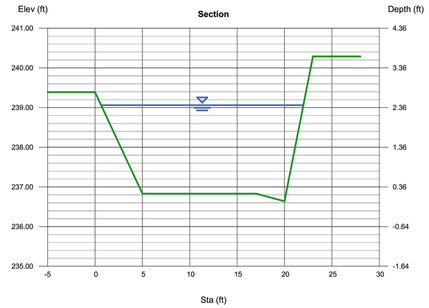

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phone 703.273.6820 · fax 703.273.7636

COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
4/26/16
PROFESSIONAL ENGINEER

CHANNEL CROSS SECTIONS

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: N.T.S.
DATE: 8/28/14
DESIGN: JES
DRAWN: JES
CHECKED: ES
SHEET No.

8.8 OF 9

102267

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DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
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2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

LEGEND

- EX. BOUNDARY
- EX. CONTOUR
- EX. TREE LINE
- ENVIRONMENTAL QUALITY CORRIDOR (EQC) (AS DEFINED BY THE FAIRFAX COUNTY COMPREHENSIVE PLAN)
- RESOURCE PROTECTION AREA (RPA)
- TREE PRESERVATION
- OPEN SPACE
- CONSERVATION EASEMENT

CDP LAYOUT TABULATIONS			
Total Lot Area (20 Lots):	± 1,178,033 SF	± 27.04 AC	± 52.03 %
Total Road Area:	± 154,234 SF	± 3.54 AC	± 6.81 %
Total Open Space Area:	± 934,749 SF	± 21.46 AC	± 41.29 %
TOTAL SITE AREA:	2,264,016 SF	51.97 AC	

Total Tree Preservation:	± 550,731 SF	± 12.64 AC	
Total Conservation Easement:	± 298,718 SF	± 6.86 AC	

Tree Preservation & Conservation Easement calculations include multipliers as specified in Table 12.10 found on Sheet 7.2

NOTES:

1. BASE INFORMATION SHOWN ON THIS EXHIBIT IS BASED ON A BOUNDARY SURVEY PREPARED AND CERTIFIED BY christopher consultants DATED MARCH 13, 2014.
2. THIS CONCEPT SKETCH AND YIELD IS SUBJECT TO CHANGE BASED ON FINAL ENGINEERING.
3. TREE REMOVAL AND/OR LAND DISTURBANCE LIMITS ARE SUBJECT TO CHANGE BASED ON FINAL ENGINEERING.

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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
2016-04-26
LANDSCAPE ARCHITECT

OVERALL CONCEPT LAYOUT WITH ENVIRONMENTAL INFORMATION

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE:
DATE: 8/28/14
DESIGN:
DRAWN:
CHECKED:
SHEET No. 9.1 OF 9

THIS SHEET IS FOR ILLUSTRATIVE PURPOSES ONLY. THIS IS NOT FOR CONSTRUCTION.

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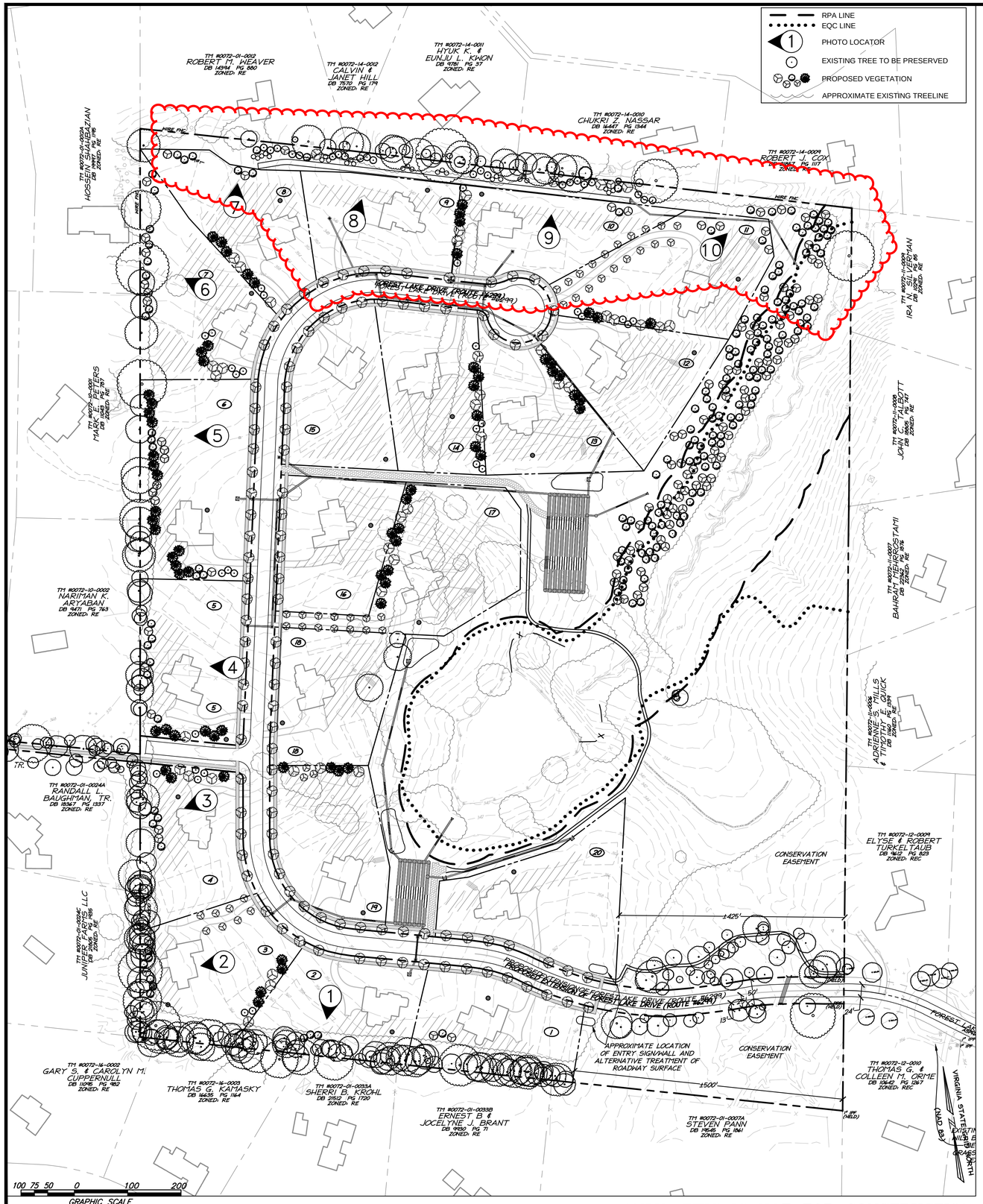

THIS SHEET IS FOR ILLUSTRATIVE PURPOSES ONLY. THIS IS NOT FOR CONSTRUCTION.

Note: The purpose of this exhibit is to depict general conditions along the perimeter of the Brooks Property and highlight opportunities to enhance buffer areas. The proposed plantings would be comprised of overstory and understory tree species. The intent of the proposed plan is not to fully screen the perimeter, but to supplement the existing vegetation and provide a transition to the neighboring properties without compromising privacy. This exhibit is associated with GDP #RZ 2014-DR-022 and is conceptual in nature and should act as a guide for final site plan purposes.

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
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2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

PHOTO LOCATION 1

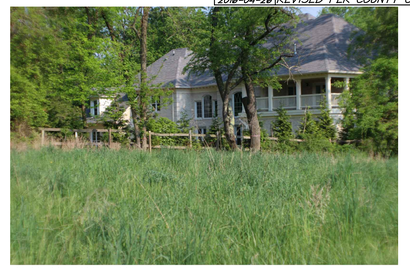
PHOTO LOCATION 6

PHOTO LOCATION 2

PHOTO LOCATION 7

PHOTO LOCATION 3

PHOTO LOCATION 8

PHOTO LOCATION 4

PHOTO LOCATION 9

PHOTO LOCATION 5

PHOTO LOCATION 10

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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
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LANDSCAPE ARCHITECT
2016-04-26

PERIMETER LANDSCAPE BUFFER EXHIBIT

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
DATE: 8/28/14
DESIGN: LB
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SHEET No. 9.2 OF 9

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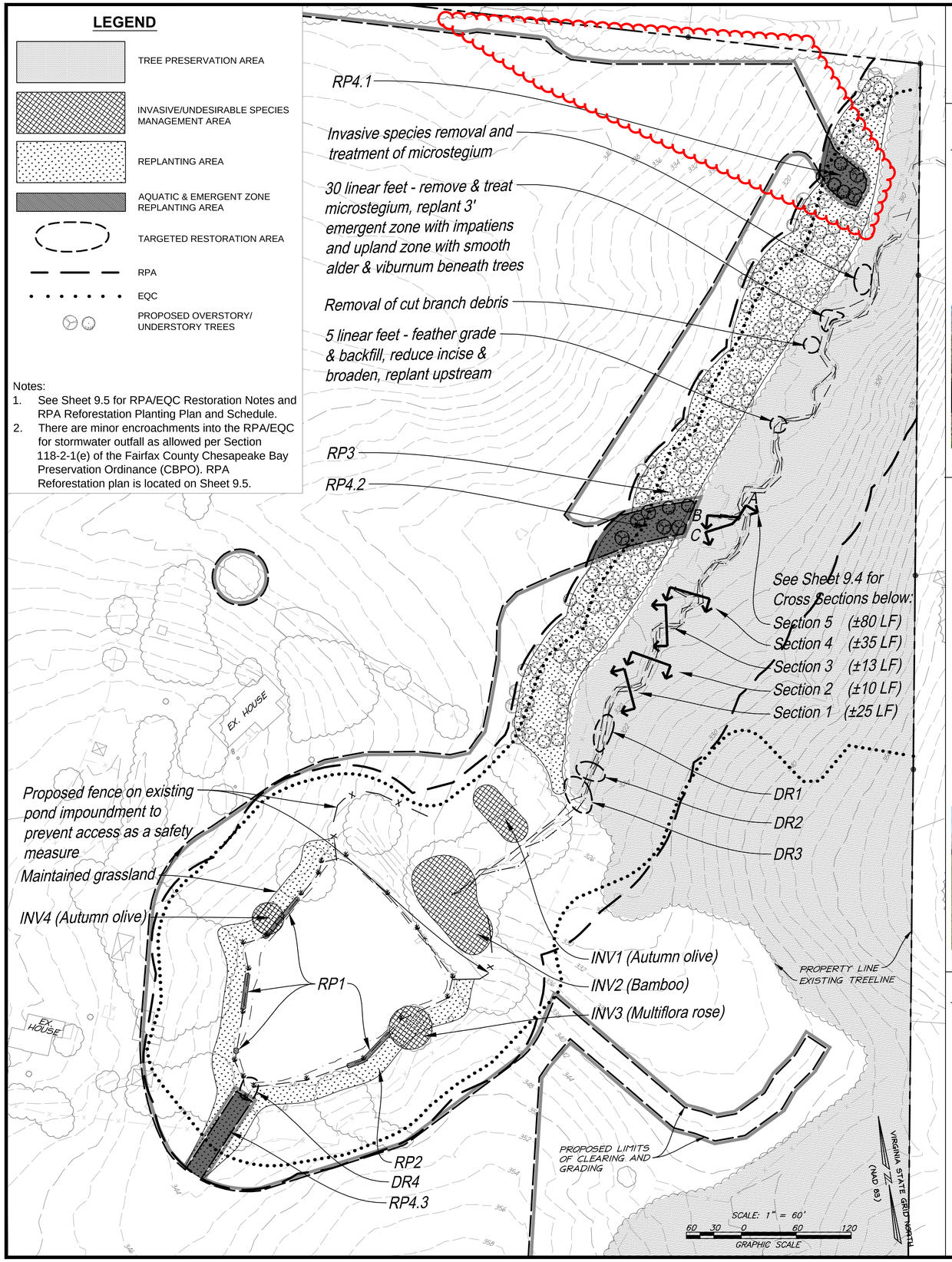
LEGEND

- TREE PRESERVATION AREA
- INVASIVE/UNDESIRABLE SPECIES MANAGEMENT AREA
- REPLANTING AREA
- AQUATIC & EMERGENT ZONE REPLANTING AREA
- TARGETED RESTORATION AREA
- RPA
- EQC
- PROPOSED OVERSTORY/ UNDERSTORY TREES

Notes:
1. See Sheet 9.5 for RPA/EQC Restoration Notes and RPA Reforestation Planting Plan and Schedule.
2. There are minor encroachments into the RPA/EQC for stormwater outfall as allowed per Section 118-2-1(e) of the Fairfax County Chesapeake Bay Preservation Ordinance (CBPO). RPA Reforestation plan is located on Sheet 9.5.



Note: The purpose of this concept plan is to depict areas on the Brooks Property within the RPA/EQC that are proposed to be restored, remediated and enhanced. The specified restoration areas are: the existing pond edge, areas of erosion along the perennial stream downstream from the existing pond, and areas of invasive vegetation management within the RPA/EQC. This plan is conceptual in nature and should act as a guide for final subdivision plan purposes. All applicable codes shall be followed for approval of these restoration efforts.

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INVASIVE/UNDESIRABLE SPECIES MANAGEMENT

Invasive/Undesirable Species Management to include but not be limited to:
- mechanical removal techniques of bamboo, russian olive, multiflora rose, greenbriar, nepalese browntop, invasive grasses, etc. (regular maintenance schedule to be established at time of final site plan, including several seasons for eradication)
- chemical treatment of invasives where necessary under the supervision of VA Certified Pesticide Applicator (perform treatment in late June/July)
- supplemental planting with native species
- PFM Sections 12-0404 and 12-0516 shall be followed

A proffer is provided with this GDP and includes the following parameters for an invasive species management plan:
- Targeted species for suppression and management
- Location of the targeted areas required for treatment and management
- Method(s) of control and management
- Schedule of treatments
- Disposal of debris
- Chemical applications must be performed under the direct supervision of a Virginia Certified Pesticide Applicator
- Duration of management plan
- Monthly monitoring reports sent to Urban Forestry Management Division

INV 1

INV 2

INV 3

INV 4

REPLANTING

Replanting to include but not be limited to:
- **RP1** -
  - Area of RP1: ±800 SF (±165 LF)
  - a 5' wide zone (containing a 2' aquatic zone and a 3' emergent zone)
  - replace existing turfgrass with aquatic shelf planting
  - replant 2' zone with species such as blue flag, yellow flag and cardinal flower (±1,000 bareroot, tuber or plugs placed @ 6" O.C.)
  - replant 3' zone with species such as redosier dogwood & buttonbush (±700 quarts placed @ 10" O.C.)
  - use goose-netting around the pond perimeter until plants establish
  - plant in late winter
- **RP2** -
  - Area of RP2: ±16,500 SF (0.38 Ac) (±725 LF)
  - a 20' wide replanting area containing amended topsoil for water infiltration with plantings to trap silt and improve water quality (not to be mowed to prevent access as a safety measure)
  - clear & grub area to be planted, compact soil to stabilize, amend topsoil as necessary
  - plant with native meadow grass mix (±5.7 lbs) (ERNMX-178 or equivalent @ 15 lbs/Ac)
- **RP3** -
  - Area of RP3: ±50,000 SF (±800 LF)
  - overstory and understory trees to supplement existing meadow
  - replant with trees at approximately 2:1 understory to overstory trees per 1,000 SF (approximately 100 understory & 50 overstory trees proposed) (and as specified on the GDP Landscape Plan)
  - supplement grass with native meadow grass mix (See Sheet 9.5 for Recommended Riparian Grass Mixes)
  - remove existing fence at treeline
- **RP4.1, RP4.2, RP4.3** -
  - Area of RP4.1, RP4.2, RP4.3: ±6,900 SF (0.16 Ac)
  - overstory & understory trees, shrubs, seedlings and native groundcover proposed as per PFM 12-0516.4 & CBPO Section 118-3-3(f)
  - see Sheet 9.5 for RPA Reforestation Plans and Planting Schedule

RP 1

RP 2

RP 3

DEBRIS REMOVAL

The below photos show debris removal areas that include lifting pipe pieces out of the RPA areas using mimimal disturbance.

DR 1
- Remove cast iron pipe
- ±6" diam., ±20 LF

DR 2
- Remove concrete pipe
- ±18" diam., ±3 LF

DR 3
- Remove fence & concrete pipe
- ±1' diam., ±3 LF

DR 4
- Remove pipe 15' back from water's edge and recover bank with on-site dirt to match existing grade

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LANDSCAPE ARCHITECT
2016-04-26

RPA/EQC RESTORATION CONCEPT PLAN

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
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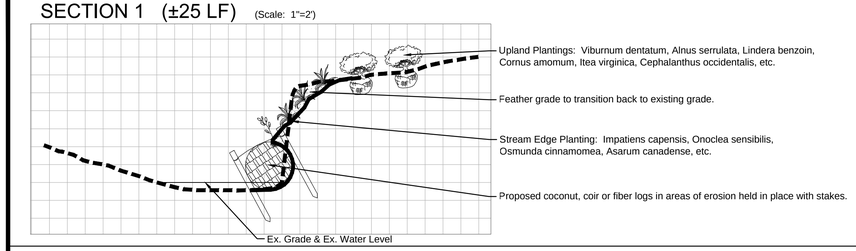
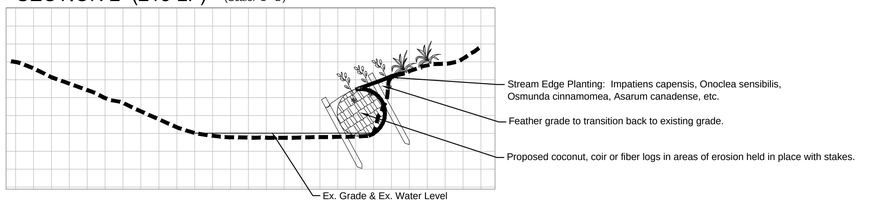
SECTION 1 (±25 LF) (Scale: 1"=2')



SECTION 2 (±15 LF) (Scale: 1"=2')



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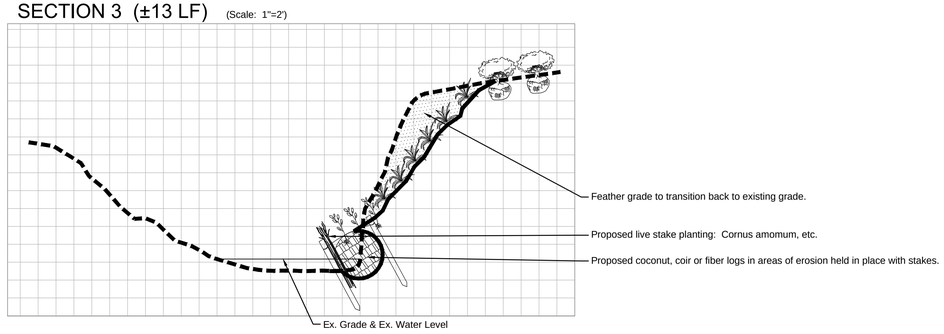
2016-04-26	REVISED PER COUNTY COMMENTS

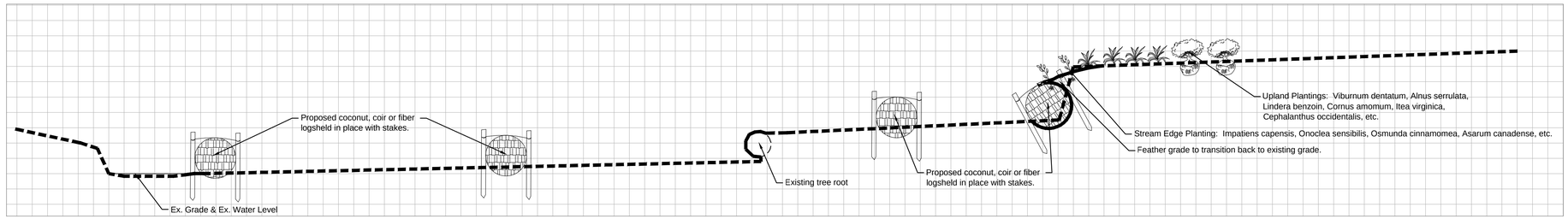
SECTION 3 (±13 LF) (Scale: 1"=2')



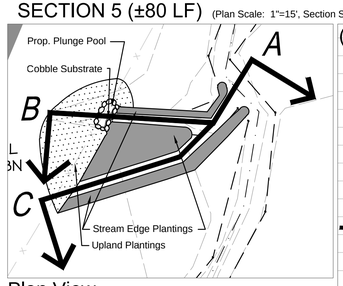
NOTES:

1. THESE STREAM RESTORATION CROSS SECTIONS ARE BASED ON PLAN SECTIONS ON SHEET 9.3.
2. THESE CROSS SECTIONS PROPOSE STREAMBANK RESTORATION SOLUTIONS TO MITIGATE FURTHER DETERIORATION OF THE CURRENT STREAMBACK. THESE CROSS SECTIONS ARE CONCEPTUAL IN NATURE AND SHOULD ACT AS A GUIDE FOR FINAL SITE PLAN PURPOSES.
3. EACH GRID SQUARE IS SHOWN AT 6"X6".

SECTION 4 (±35 LF) (Scale: 1"=2')

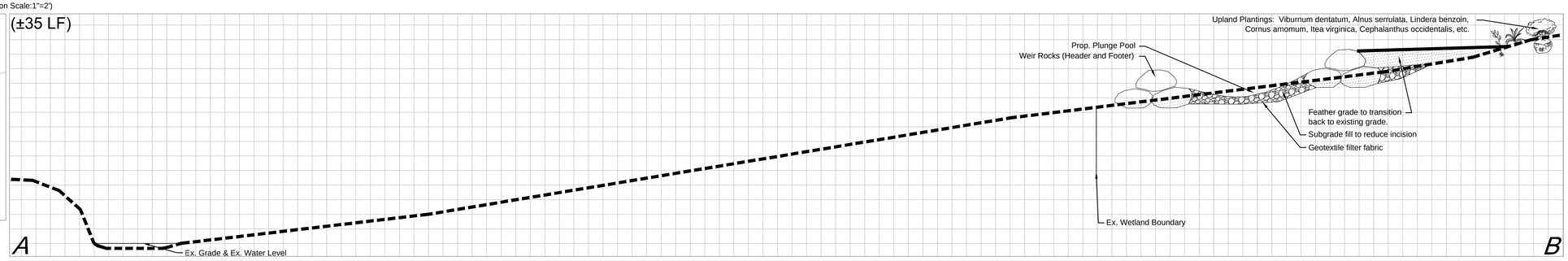


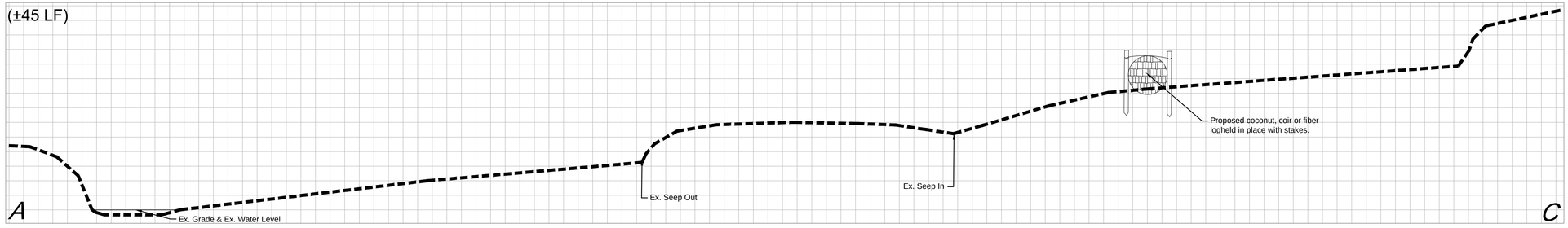
SECTION 5 (±80 LF) (Plan Scale: 1"=15', Section Scale:1"=2')



Plan View

0 7.5 15 30





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COMMONWEALTH OF VIRGINIA
LINDSAY E. BURLEIGH
Lic. No. 0406001630
LANDSCAPE ARCHITECT
2016-04-26

RPA RESTORATION
CONCEPT PLAN

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS NOTED
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DESIGN: LB
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RPA/EQC RESTORATION NOTES

1. All restoration and remediation proposed within the Resource Protection Area (RPA) and Environmental Quality Corridor (EQC) is provided to demonstrate to reviewing agencies that efforts taken will result in improving and enhancing the RPA/EQC through replanting, debris removal and invasive/undesirable species management, including the removal of invasive species and noxious weeds (as defined by Section 118-1-6(r) of the CBPO).
2. There are minor encroachments into the RPA/EQC for stormwater outfall as allowed per Section 118-2-1(e) of the Fairfax County Chesapeake Bay Preservation Ordinance (CBPO). Replanting to mitigate this disturbance shall abide by the most current specifications within the Fairfax County Public Facilities Manual (PFM), specifically section 12-0516, Chapter 118 of the Chesapeake Bay Preservation Ordinance, and the "Riparian Buffers Modification and Mitigation Guidance Manual" as published by the Division of Chesapeake Bay Local Assistance, Virginia Department of Conservation and Recreation (DCR) and is provided on this page and Sheet 9.3.
3. The plant lists provided on this sheet from DCR and the PFM depict representative species allowable to plant within the RPA per the sources listed above. The plant lists on this page are recommendations and are not all-inclusive. Actual plant list and quantities are subject to availability and seasonal installation needs during final site plan and planting stages.
4. Appropriate nationwide permits from USACOE will be applied to any activity occurring within the RPA.
5. All areas of reseeding shall be cleared of all existing perennial groundcover and grubbed to a depth of six to twelve inches, free of stumps, roots, trash or debris. The area shall be compacted to the least extent necessary to stabilize the site. Only tracked mechanical equipment shall be used when working within the RPA/EQC. The surface layer shall be made to meet the following standards to a minimum depth of six inches either by amending the existing soils or by the addition of top soil meeting the following specifications:

   A. Imported Topsoil

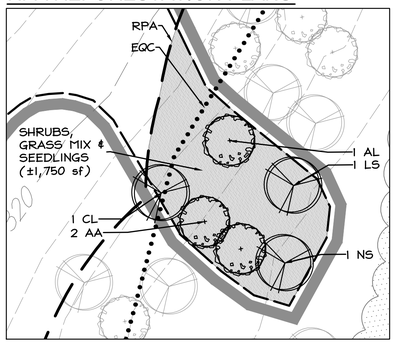
   a. Loamy, friable soil, containing a minimum of 2.0 percent by dry weight organic matter; free from subsoil, refuse, roots, heavy or stiff clay, stones larger than 25mm (1 in.), noxious seeds, sticks, brush, litter, and other deleterious substances; suitable for the germination of seeds and the support of vegetative growth. The pH value shall be between 5.5 and 6.5.
   b. Soil Texture: loam soil eith the following particle size distribution:

Approximate Particle Distribution Imported Topsoil	
Gravel	Less than 10%
Coarse to medium sand	30-65%
Fine sand	5-20%
Very fine sand	0-20%
Silt	15-25%
Clay	15-25%

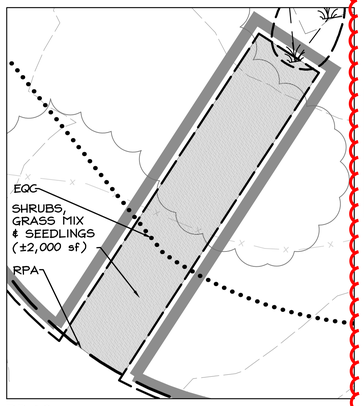
   B. Existing Topsoil

   c. Existing topsoil from the site may be used if it meets the requirements for imported topsoil or if approved by a landscape architect or certified arborist with concurrence from the UFMD. Provided a minimum of one soil sample with accompanying soil test report for each topsoil type found at the site.
6. Monitoring of RPA/EQC plantings should occur during the growing season and at least once during the 1st, 2nd, 3rd and 5th growing seasons. If installation of material is reported to under perform based on standards set forth during the final subdivision process as recorded in monitoring reports, monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria has been successfully satisfied and that corrective actions were successful. Monitoring reports should note the condition of the material, whether adequate watering is being maintained, and whether there are any pests, noxious species or diseases present that threaten the health and vigor of the materials planted. If any deficiencies are noted, a recommendation for corrective action should also be made.
7. Invasive species management will follow either a 5-year monitoring program or shall be completed up until bond release, whichever comes first (or as agreed upon with UFMD during the final subdivision plan process).

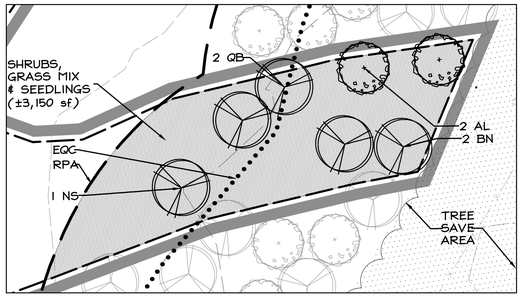
RPA REFORESTATION PLANS



RP 4.1



RP 4.3



RP 4.2

REFORESTATION REQUIREMENTS WITHIN THE RESOURCE PROTECTION AREA

	PFM 12-0516.4			CBPO SECTION 118-3-3(F)			
	REQUIRED		PROVIDED	REQUIRED		PROVIDED	
	DESCRIPTION	AMOUNT	AMOUNT	DESCRIPTION	AMOUNT	AMOUNT	
OVERSTORY TREES	25% OF DISTURBED AREA	1,920 SF TREE CANOPY	1,850 SF (SEE PLANTING SCHEDULE ON THIS SHEET)	200 PER ACRE	35	35	(8 B&B and 27 SEEDLINGS)
UNDERSTORY TREES				400 PER ACRE	71	71	(5 B&B and 66 SEEDLINGS)
SHRUBS	25 PER 1000 SF	192	192	1,089 PER ACRE	192	192	
SEEDLINGS	10 PER 1000 SF	77	77	NOT APPLICABLE		82	
GROUND COVER	AREA WITHIN RPA	7,680 SF	7,680 SF	AREA WITHIN RPA	7,680 SF	7,680 SF	

RPA PLANTING SCHEDULE

(DISTURBED AREA WITHIN RPA = ± 6,900 SF, ± 0.16 AC)

KEY	QTY	BOTANICAL NAME	COMMON NAME	STOCK SIZE		STOCK TYPE	CANOPY PER TREE (SF)	TOTAL COVER (SF)	COMMENTS
				CALIPER	HEIGHT				
DECIDUOUS TREES - CATEGORY IV									
LS	1	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	2" MIN.	N/A	B&B	200	200	NATIVE
QB	2	QUERCUS BICOLOR	SWAMP WHITE OAK	2" MIN.	N/A	B&B	200	400	NATIVE
DECIDUOUS TREES - CATEGORY III									
BN	2	BETULUS NIGRA	RIVER BIRCH	2" MIN.	N/A	B&B	150	300	NATIVE
CL	1	CELTIS OCCIDENTALIS	HACKBERRY	2" MIN.	N/A	B&B	150	150	NATIVE
NS	1	NYSSA SYLVATICA	BLACK GUM	2" MIN.	N/A	B&B	150	300	NATIVE
DECIDUOUS TREES - CATEGORY II									
AA	2	AMELANCHIER ARBOREA	DOWNEY SERVICEBERRY	2" MIN.	N/A	B&B	100	200	NATIVE
AL	3	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	2" MIN.	N/A	B&B	100	300	NATIVE
SHRUBS									
AM	17	ARONIA MELANOCARPA	BLACK CHOKECHERRY	N/A	18" MIN.	CONTAINER	0	0	NATIVE
CS	26	CORNUS STOLONIFERA	RED TWIG DOGWOOD	N/A	18" MIN.	CONTAINER	0	0	NATIVE
IG	26	ILEX GLABRA	INKBERRY HOLLY	N/A	18" MIN.	CONTAINER	0	0	NATIVE
IV	26	ILEX VERTICILLATA	WINTERBERRY HOLLY	N/A	18" MIN.	CONTAINER	0	0	NATIVE
IT	26	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	N/A	18" MIN.	CONTAINER	0	0	NATIVE
VD	26	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	N/A	18" MIN.	CONTAINER	0	0	NATIVE
VP	26	VIBURNUM PRUNIFOLIUM	BLACKHAW VIBURNUM	N/A	18" MIN.	CONTAINER	0	0	NATIVE
GRASS MIX									
VSS	7,680	ERNMX-178	RIPARIAN BUFFER MIX	N/A	N/A	SEED	0	2.4 LB.	15 LB. PER ACRE
SEEDLINGS-OVERSTORY TREES*									
	7	CARYA TOMENTOSA	MOCKERNUT HICKORY	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	7	PRUNUS SEROTINA	BLACK CHERRY	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	7	QUERCUS MICHAUXII	SWAMP CHESTNUT OAK	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	6	QUERCUS IMBRICATA	SHINGLE OAK	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
SEEDLINGS-UNDERSTORY TREES*									
	11	CERCIS CANADENSIS	REDBUD	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	11	CELTIS LAEVIGATA	SUGAR HACKBERRY	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	11	CHIONANTHUS VIRGINICUS	FRINGETREE	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	11	CRATAEGUS CRUS-GALLI	COCKSPUR HAWTHORN	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	11	ILEX OPACA	AMERICAN HOLLY	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
	11	SAMBUCUS CANADENSIS	ELDERBERRY	N/A	N/A	BAREROOT	0	0	SEE NOTE 2
						TOTAL:	1,850		

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2015-04-24	REVISED PER COUNTY MEETINGS
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2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

RPA REFORESTATION NOTES

1. THE RPA PLANTING SCHEDULE ON THIS SHEET SHOWS ALL REQUIRED QUANTITIES OF TREES, SHRUBS, SEEDLINGS AND RIPARIAN GRASS MIX THAT ARE REQUIRED TO BE PLANTED AS PER THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM) AND CHAPTER 118 OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE.
2. THE QUANTITY, DENSITY AND SPECIES FOR ALL SHRUBS & SEEDLINGS SHALL BE EVENLY DISTRIBUTED THROUGHOUT THE PROPOSED SHRUB & SEEDLING REFORESTION AREA (HATCHED AREA). ALL REQUIRED QUANTITIES OF SHRUBS AND SEEDLINGS ARE AS LISTED IN THE RPA PLANTING SCHEDULE. SEEDLINGS SHALL BE AT LEAST THREE YEARS OLD AND 12 INCHES IN HEIGHT AND PLANTED AT A DENSITY OF APPROXIMATELY 400 SEEDLINGS PER ACRE. SHRUBS SHALL BE AS SPECIFIED IN THE RPA PLANTING SCHEDULE.
3. A RIPARIAN GRASS SEED MIX SHALL BE APPLIED TO THE ENTIRE DISTURBED AREA WITHIN THE RPA, AS NOTED IN THE RPA PLANTING SCHEDULE.
4. ALL PROPOSED REFORESTATION SHALL CONFORM TO THE MOST CURRENT EDITION OF THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM), SPECIFICALLY SECTIONS 6-1311.2 AND 12-0515, AS WELL AS CHAPTER 118 OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE.
5. PLANTING STOCK SHALL BE HEALTHY AND FREE FROM INSECT AND DISEASE PESTS AND HAVE A SINGLE LEADER. THE ROOT SYSTEM IS TO BE WELL DEVELOPED, FIBROUS, AND KEPT MOIST UNTIL PLANTED.
6. PLANT SEEDLINGS BETWEEN MARCH 1 AND MAY 15, AND NOVEMBER 15 AND DECEMBER 15 UNLESS OTHERWISE APPROVED BY THE DIRECTOR.
7. IN AREAS OF COMPACTED SOIL OR FILL, THE SOIL THROUGHOUT THE AREA SHALL BE AMENDED WITH 3-6 INCHES OF ORGANIC MATTER AND THOROUGHLY TILLED TO A DEPTH OF 12 INCHES BEFORE PLANTING. AFTER THE SOIL HAS BEEN PREPARED AND ALLOWED TO SETTLE, THE SEEDLINGS MAY BE PLANTED USING THE DIBBLE BAR, SHOVEL OR AUGER METHOD.

RECOMMENDED RIPARIAN GRASS MIXES

The below seed mix lists are provided as an overview to potential seed mixes for riparian sites. These lists are conceptual in nature and are subject to change based on final site plan design and approval, availability at time of planting and seasonal availability.

1. Periodically moist with ephemeral inundation.

ERNMX-178 Riparian Buffer Mix

% of Mix	Latin Name	Common Name
5	Andropogon gerardi	Big Bluestem 'Niagra'
2	Asclepias syriaca	Common Milkweed
1	Baptista australis	Blue False Indigo
10	Carex vulpinoidea	Fox Sedge
6	Chamaecrista fasciculata	Partridge Pea
4	Cornus amomum	Silky Dogwood
2	Desmodium canadense	Showy Tick Trefoil
6	Elymus riparius	Riverbank Wild Rye
6	Elymus virginicus	VA Wild Rye
2	Eupatorium fistulosum	Joe Pye Weed
2	Eupatorium maculatum	Spotted Joe Pye Weed
2	Eupatorium perfoliatum	Boneset
1	Euthamia graminifolia	Grass Leaved Goldenrod
5	Heliopsis helianthoides	Ox Eye Sunflower
2	Juncus effusus	Soft Rush
2	Monarda fistulosa	Wild Bergamot
8	Panicum clandestinum	Deer Tongue
4	Panicum virgatum	Switchgrass 'Shelter'
2	Penstemon digitalis	Tall White Beard Tongue
2	Rhus typhina	Staghorn Sumac
2	Rudbekia hirta	Black Eyed Susan
8	Schizachyrium scoparium	Little Bluestem
4	Sorghastrum nutans	Indiangrass
6	Verbena hastata	Blue Vervain
1	Vernonia gigantea	Giant Ironweed
5	Viburnum dentatum	Arrow Wood
100	Total	

Apply this mix at 15 lbs/acre.

2. Chronically moist with periodic inundation or drying out.

Fairfax County VA Partially Shaded Wet Meadow Mix

% of Mix	Latin Name	Common Name	Cultivar/ Ecotype
7	Carex squarrosa	Squarrose Sedge	VA
8	Carex vulpinoidea	Fox Sedge	PA
20	Chasmanthium latifolium	River Oats	WVVA
4	Cinna arundinacea	Wood Reedgrass	PA
15	Elymus virginicus	Virginia Wildrye	Suther (NC)
1	Eupatorium fistulosum	Joe Pye Weed	PA
1	Eupatorium perfoliatum	Boneset	PA
2	Heliopsis helianthoides	Ox-Eye Sunflower	PA
2	Juncus tenuis	Path Rush	NC or PA
10	Panicum anceps	Beaked Panicgrass	SC
20	Panicum clandestinum	Deertongue	'Tioga'
10	Panicum rigidulum	Redtop Panicgrass	NC
100	Total		

Apply this mix at 20 lbs/acre with a cover crop of 30 lbs/acre grain rye.

3. Chronically moist to periodically inundated with no drying out.

Fairfax County VA Partially Shaded Wetland Mix

% of Mix	Latin Name	Common Name	Cultivar/ Ecotype
6	Carex lupulina	Hop Sedge	PA
8	Carex lurida	Lurid Sedge	NC/VA or NC
4	Carex squarrosa	Squarrose Sedge	VA
26	Carex vulpinoidea	Fox Sedge	PA
4	Cinna arundinacea	Wood Reedgrass	PA
16	Elymus virginicus	Virginia Wildrye	Suther (NC)
1	Eupatorium fistulosum	Joe Pye Weed	PA
1	Eupatorium perfoliatum	Boneset	PA
2	Lobelia siphilitica	Blue Lobelia	PA
2	Onoclea sensibilis	Sensitive Fern	PA
22	Panicum rigidulum	Redtop Panicgrass	NC
1	Rhexia virginica	Virginia Meadowbeauty	NC
1	Saururus cernuus	Lizard's Tail	NC
2	Scirpus cyperinus	Woolgrass	PA
4	Verbena hastata	Blue Vervain	PA
100	Total		

Apply this mix at 20 lbs/acre with a cover crop of 30 lbs/acre grain rye. Add 1 to 10 lbs/acre Peltandra virginica. (Do not store this seed for lor

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RECOMMENDED RIPARIAN BUFFER PLANTS

SOURCE: RIPARIAN BUFFERS MODIFICATION & MITIGATION GUIDANCE MANUAL BY DCR CHESAPEAKE BAY LOCAL ASSISTANCE, 2006.

Appendix A - Plant Lists

APPENDIX A - PLANT LISTS

These lists are suggestions for recommended plants and are not to be construed as exclusive lists. There are many other suitable plants for riparian buffer planting. These lists are a place to start.

MEDIUM TO LARGE DECIDUOUS CANOPY TREES

Red maple - Acer rubrum
Acer saccharum - Silver maple
Betula lenta - Black birch
River birch - Betula nigra
Shagbark hickory - Carya ovata-
Mockernut hickory - Carya tomentosa
Hackberry - Celtis occidentalis
Washington hawthorn - Crataegus phaenopyrum
Persimmon - Diospyros virginiana
American Beech - Fagus grandifolia
White ash - Fraxinus americana
Green ash - Fraxinus pennsylvanica
Water locust - Gleditsia aquatica-
Black walnut - Juglans nigra
Sweetgum - Liquidamber straciflua
Tulip poplar - Liriodendron tulipifera
Water tupelo - Nyssa aquatica
Black gum - Nyssa sylvatica
Sourwood - Oxydendron arboreum
Sycamore - Platanus occidentalis
Cottonwood poplar - Populus deltoids
Swamp cottonwood - Populus heterophylla
Black cherry - Prunis serotina
Swamp white oak - Quercus bicolor
Shingle oak - Quercus imbricata
Laurel oak - Quercus laurifolia
Overcup oak - Quercus lyrata-
Swamp chestnut oak - Quercus michauxii
Water oak - Quercus nigra
Pin oak - Quercus palustris
Willow oak - Quercus phellos
Shumard oak - Quercus shumardii
Swamp willow, Black willow - Salix nigra
Weeping willow - Salix babylonica
American basswood - Tilia Americana

SMALL CANOPY/UNDERSTORY TREES

Red buckeye - Aesculus pavia
Smooth alder - Alnus serrulata
Serviceberry - Amelanchier canadensis
Devil's walkingstick - Aralia spinosa
Pawpaw - Asimia triloba
American hornbeam- Carpinus caroliniana
Sugar hackberry - Celtis laevigata
Redbud, Judas tree - Cercis canadensis
Fringetree - Chionanthus virginicus
Dogwood - Cornus florida
Cockspur hawthorn - Crataegus crus-galli
Green hawthorn - Crataegus viridis
Parsley hawthorne - Crataegus marshalli
Swamp cyrilla - Cyrilla racemosa
Two-winged Silverbell - Halesia diptera
American holly – Ilex opaca
Possumhaw - Ilex deciduas
Spicebush - Lindera benzoin
Sweetbay Magnolia - Magnolia virginiana
Eastern hophornbeam - Ostrya virginiana
Sourwood - Oxydendron arboreum
Elderberry - Sambucus canadensis
Sassafras - Sassafras albidum
Sparkleberry - Vaccinium arboreum
Nannyberry - Viburnum lentago

Appendix A - Plant Lists

EVERGREEN TREES

American holly - Ilex opaca
Eastern red cedar - Juniperus virginiana
Southern magnolia - Magnolia grandiflora
Shortleaf pine - Pinus echinata
Pitch pine - Pinus rigida
Eastern white pine - Pinus strobus
Loblolly pine - Pinus taeda
Virginia pine - Pinus virginiana
Darlington oak - Quercus laurifolia
Darlingtonia
Live oak - Quercus virginiana

EVERGREEN SHRUBS

Inkberry holly - Ilex glabra
Common juniper - Juniperus communis
Shore juniper - Juniperus conferta
Southern wax myrtle - Myrica cerifera
Bayberry - Myrica pennsylvanica
Swamp azalea - Rhododendrona viscosum
Farkleberry - Vaccinium arboreum

LARGE SHRUBS

Alder - Alnus serrulata
False indigo - Amorpha fruiticosa
Red chokeberry - Aronia arbutifolia
American beautyberry - Calicarpa americana
Eastern sweetshrub -Calycanthus floridus
Buttonbush - Cephalanthus occidentalis
Silky dogwood - Cornus amonum
Greystem dogwood - Cornus racemosa
Red twig dogwood - Cornus stolonifera
Witch hazel - Hammamelis virginiana
Wild hydrangea - Hydrangea arborescens
Oakleaf hydrangea - Hydrangea quercifolia
Winterberry holly - Ilex verticillata
Yaupon holly - Ilex vomitoria
Virginia sweetspire - Itea virginica
Fetterbush/ Sweetbells - Leucothoe racemosa
Fetterbush - Lyonia lucida
Male-berry - Lyonia ligustrina
Southern wax myrtle - Myrica cerifera
Bayberry - Myrica pennsylvanica
Common ninebark - Physocarpus opulifolius
Choke cherry - Prunus virginiana
Swamp azalea - Rhododendrona viscosum
Smooth sumac - Rhus glabra
Allegheny blackberry - Rubus allegheniensis
Pussy willow - Salix discolor
Silky willow - Salix sericea
Elderberry - Sambucus canadensis
American snowbell - Styrax americanus
Highbush blueberry - Vaccinium corybosum
Arrowwood viburnum - Viburnum dentatum
Swamphaw Viburnum - Viburnum nudum
Blackhaw viburnum - Viburnum prunifolium

Appendix A - Plant Lists

SMALL SHRUBS

-
Obovate serviceberry - Amelanchier obovalis
Black chokecherry - Aronia melanocarpa
Sweet pepperbush - Clethra alnifolia
Sweet fern - Comptonia peregrina
Strawberry bush - Euonymus americanus
Fothergilla - Fothergilla gardenii
Black huckleberry - Gaylussacia baccata
Dangleberry - Gaylussacia frondosa
Wild hydrangea - Hydrangea arborescens
Oakleaf hydrangea - Hydrangea quercifolia
Mountain laurel - Kalmia latifolia
Staggerbush - Lyonia mariana
Shrubby cinquefoil - Potentilla fruticosa
Beach plum - Prunus maritime
Sand blackberry - Rubus cuneifolius
Bankers willow - Salix cottettii
White meadowsweet - Spiraea alba
Meadowsweet - Spiraea latifolia
Steeplebush - Spiraea tomentosa
Common snowberry - Symphoricarpos albus
Coralberry - Symphocarpos orbiculatus
Lowbush blueberry - Vaccinium angustifolium
Maple-leaved viburnum - Vaccinium
aceriifolium
Adam's needle - Yucca filamentosa

NATIVE GRASSES

Big Bluestem - Andropogon gerardi
Broomsedge - Andropogon virginicus
Indian woodoats - Chasmanthium latifolium
Coastal panic grass - Panicum amarum
Switch grass - Panicum virgatum
Little bluestem - Schizachyrium scoparium
Indian grass - Sorghastrum nutans
Easternn gama grass - Tripsacum dactyloides

HERBACEOUS PLANTS

Black-eyed Susan - Rudbeckia fulgida
Cardinal Flower - Lobelia cardinalis
Coralbells - Heuchera Americana
Creeping Phlox - Phlox stolonifera
Crested Iris - Iris cristata
Foamflower - Tiarella cordifolia
Goldenrod - Solidago Canadensis
Great Blue Lobelia - Lobelia siphilitica
Green and Gold - Crysogonum virginianum
Ironweed - Vernonia noveboracensis
Jack-in-tho-Pulpit - Arisaema triphyllum
Joe-Pye Weed - Eupatorium purpureum
Mayapple - Podophyllum peltatum
Mistflower - Eupatorium coelestinum
Mouse-ear Coreopsis - Coreopsis auriculata
New York Aster - Aster novi-belgii
Pink Turtlehead - Chelone lyonii
Purple Coneflower - Echinacea purpurea
Small Solomon's Seal - Polygonatum biflorum
Swamp Milkweed - Asclepias incarnata
Sweet Flag - Acorus americanus
Tall Gayfeather - Liatris scarios
Three-toothed Cinquefoil -Potentilla tridentata
Tickseed - Coreopsis grandiflora
Virginia Bluebells - Mertensia virginica
Virginia Blue flag - Iris virginica
Wild Columbine - Aquilegia Canadensis
Woodland Phlox - Phlox divaricata

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL CHAPTER 12-000

TABLE 12.17 TREE SELECTION AND CANOPY COVER GUIDE- ***NATIVE TREES***

BOTANICAL NAME	COMMON NAME
DECIDUOUS TREES - CATEGORY IV	
ACER RUBRUM	RED MAPLE
CARYA CORDIFORMIS	BITTERNUT HICKORY
CARYA GLABRA	PIGNUT HICKORY
CARYA ILLINOENSIS	PECAN
CARYA OVATA	SHAGBARK HICKORY
CARYA TOMENTOSA	MOCKERNUT HICKORY
FAGUS AMERICANA	AMERICAN BEECH
LIQUIDAMBAR STYRACIFLUA	SWEETGUM
LIRIODENDRON TULIPIFERA	TULIP POPLAR
PLATANUS OCCIDENTALIS	SYCAMORE
QUERCUS ALBA	WHITE OAK
QUERCUS BICOLOR	SWAMP WHITE OAK
QUERCUS FALCATA	SOUTHERN RED OAK
QUERCUS PALUSTRIS	PIN OAK
QUERCUS PRINUS	CHESTNUT OAK
QUERCUS PHELLOS	WILLOW OAK
QUERCUS RUBRA	RED OAK
QUERCUS STELLATA	POST OAK
QUERCUS VELUTINA	BLACK OAK
TILIA AMERICANA	AMERICAN LINDEN, BASSWOOD
DECIDUOUS TREES - CATEGORY III	
BETULA NIGRA	RIVER BIRCH
CELTIS OCCIDENTALIS	HACKBERRY
DIOSPYROS VIRGINIANA	PERSIMMON
JUGLANS NIGRA	BLACK WALNUT
MACLURA POMIFERA	OSAGE ORANGE (MALE)
MAGNOLIA ACUMINATA	BIGLEAF MAGNOLIA
NYSSA SYLVATICA	BLACK GUM
SALIX NIGRA	BLACK WILLOW
TAXODIUM DISTICHUM	BALD CYPRESS
DECIDUOUS TREES - CATEGORY II	
AMELANCHIER ARBOREA	DOWNEY SERVICEBERRY
AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY
ASIMINA TRILOBA	PAW PAW
CARPINUS CAROLINIANA	AMERICAN HORNBEAM
CASTENEA PUMILA	ALLEGHENY CHINKAPIN
CERCIS CANADENSIS	EASTERN REDBUD
CHIONANTHUS VIRGINICUS	FRINGE TREE
CORNUS FLORIDA	FLOWERING DOGWOOD
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
OSTRYA VIRGINIANA	EASTERN HOPHORNBEAM
OXYDENDRUM ARBOREUM	SOURWOOD
SASSAFRAS ALBIDUM	SASSAFRAS
EVERGREEN TREES - CATEGORY IV	
PINUS RIGIDA	PITCH PINE
PINUS TAEDA	LOBLOLLY PINE
PINUS VIRGINIANA	VIRGINIA PINE
EVERGREEN TREES - CATEGORY III	
PICEA ECHINATA	SHORTLEAF PINE
EVERGREEN TREES - CATEGORY II	
ILEX OPACA	AMERICAN HOLLY
JUNIPERUS VIRGINIANA	EASTERN RED CEDAR
TSUGA CANADENSIS	CANADIAN HEMLOCK

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Lic. No. 0406001630
LANDSCAPE ARCHITECT
2016-04-26

RPA RESTORATION CONCEPT PLAN-NOTES AND PLANTING LISTS

GENERAL DEVELOPMENT PLAN
BROOKS PROPERTY
FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS SHOWN
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DESIGN: LB
DRAWN: LB
CHECKED:

SHEET No. 9.5 OF 9

102267

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DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
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NORTH

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NOVEMBER 30, 2015

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OVERALL CONCEPT PLAN

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FAIRFAX COUNTY, VIRGINIA

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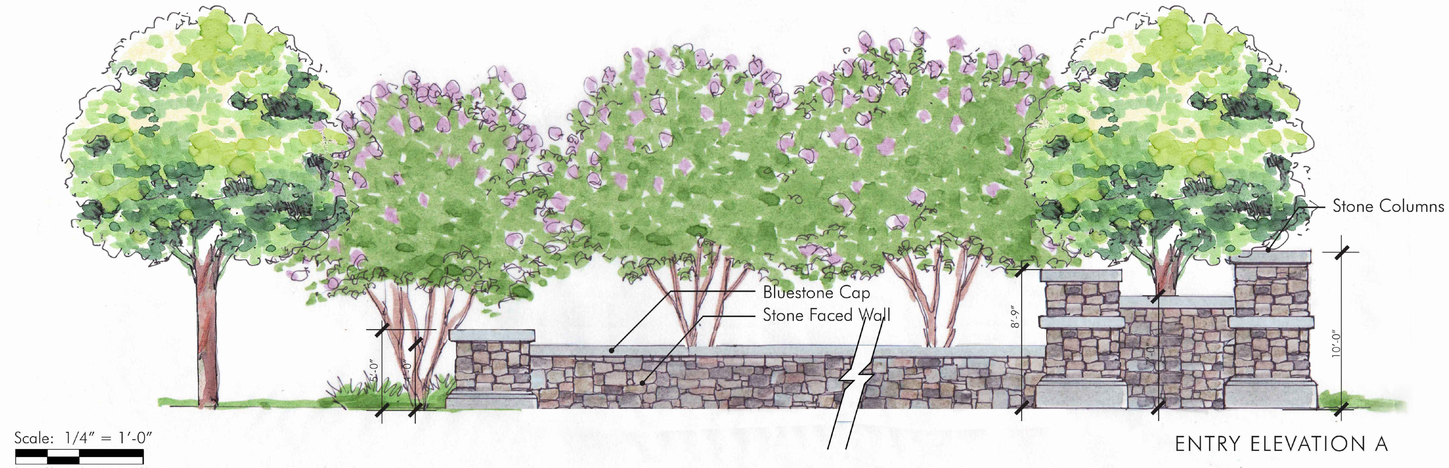

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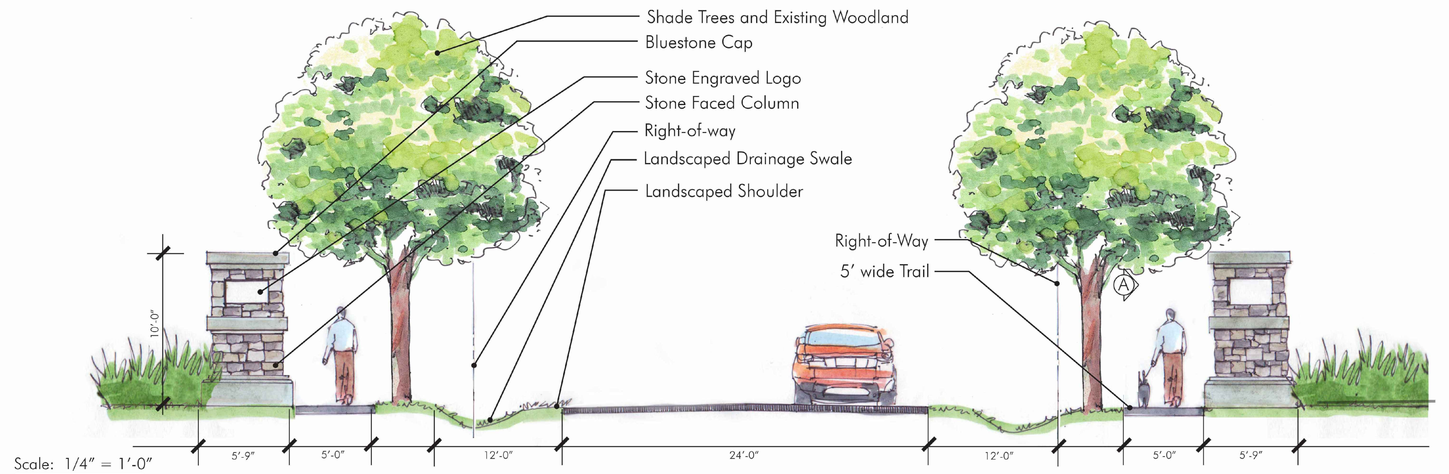
ENTRY ELEVATION A



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ENTRY ELEVATION B

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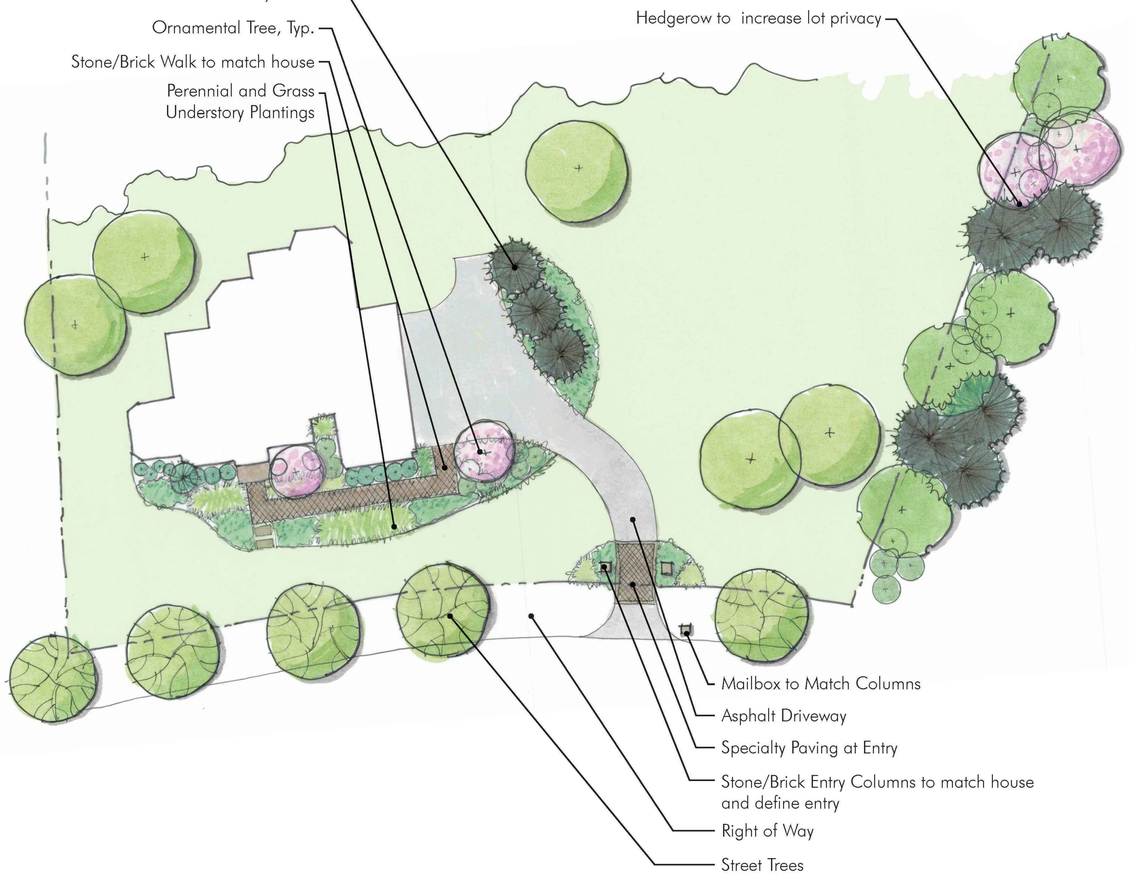

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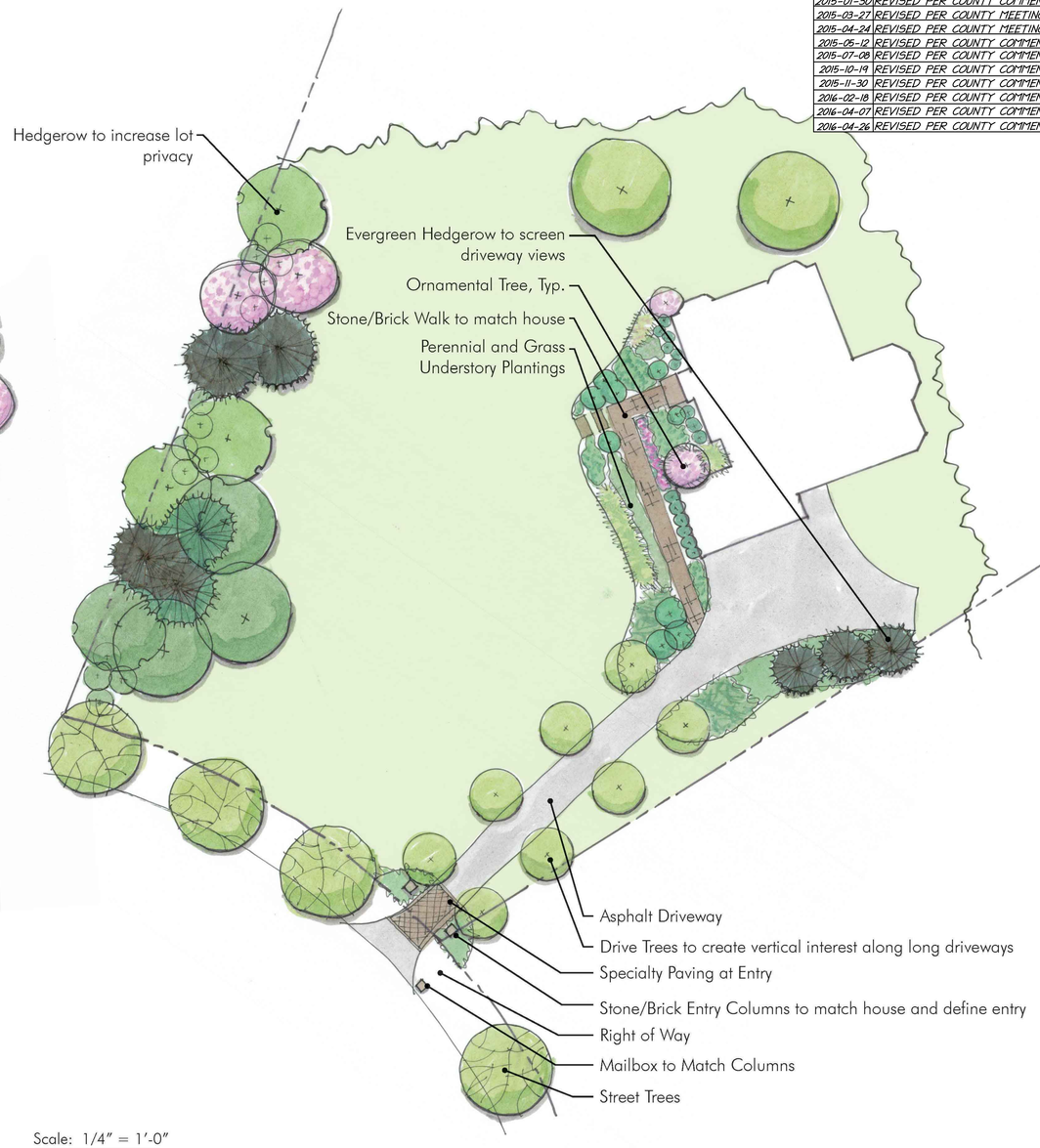
TYPICAL LOT PLAN A: SHORT DRIVEWAY



Scale: 1/4" = 1'-0"
0 2' 4' 8'

TYPICAL LOT PLAN B: LONG DRIVEWAY

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TYPICAL LOT LANDSCAPE PLANS

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TYPICAL LOT LANDSCAPE PLANS

GENERAL DEVELOPMENT PLAN
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FAIRFAX COUNTY, VIRGINIA

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TYPICAL ARCHITECTURE ELEVATIONS

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TYPICAL ARCHITECTURE ELEVATIONS

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

FAIRFAX COUNTY, VIRGINIA

PROJECT NO: 13171.001.01
SCALE: AS SHOWN
DATE: 8/28/14
DESIGN: -
DRAWN: -
CHECKED:
SHEET No. 9.9 OF 9

102267

STUDIO39

BROOKS PROPERTY

TYPICAL ARCHITECTURE ELEVATIONS

THIS SHEET IS BY OTHERS FOR ILLUSTRATIVE PURPOSES ONLY. THIS IS NOT FOR CONSTRUCTION.

DATE	REVISION
2014-10-02	REVISED PER COUNTY COMMENTS
2015-01-30	REVISED PER COUNTY COMMENTS
2015-03-27	REVISED PER COUNTY MEETINGS
2015-04-24	REVISED PER COUNTY MEETINGS
2015-05-12	REVISED PER COUNTY COMMENTS
2015-07-08	REVISED PER COUNTY COMMENTS
2015-10-19	REVISED PER COUNTY COMMENTS
2015-11-30	REVISED PER COUNTY COMMENTS
2016-02-18	REVISED PER COUNTY COMMENTS
2016-04-07	REVISED PER COUNTY COMMENTS
2016-04-26	REVISED PER COUNTY COMMENTS

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COMMONWEALTH OF VIRGINIA
JOHN C. LEVTOV
Lic. No.33635
1/26/16
PROFESSIONAL ENGINEER

TYPICAL ARCHITECTURE ELEVATIONS

GENERAL DEVELOPMENT PLAN

BROOKS PROPERTY

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102267

UPDATED STATEMENT OF JUSTIFICATION

Rezoning Application
Basheer/Edgemoore – Brooks, L.L.C.
For Property Located at Fairfax County Tax Map 7-2((1))17 and 23

May 3, 2016

EXECUTIVE SUMMARY

The statement will serve as an update to the original statement submitted with this application. The original statement discussed how the application conforms with the Comprehensive Plan land use policies, the Upper Potomac Planning District language, the Residential Development Criteria and the Guidelines for Cluster Development, as well as Zoning Ordinance sections 2-421 and 9-615 regarding cluster development. The revisions described in this supplement only serve to strengthen the application's compliance with these applicable regulations and standards.

This application proposes to rezone an island of R-A zoned property to a zoning district that is consistent and compatible with that which surrounds it. The flexibility inherent in the cluster development provisions are properly used in the design of this development to preserve and protect existing environmentally sensitive Resource Protection Areas (RPAs), retain significant open space and treed areas, incorporate strategic buffers and create passive recreational areas. The proposed lot layout takes strategic advantage of the aesthetic value associated with this environmentally sensitive area of the property. The application meets or exceeds all requirements set forth in the Ordinance for approval of a rezoning.

Since the conception of this application and our initial meetings with the surrounding neighbors almost two years ago, it was always been the applicant's intent to create a compatible, attractive community of high quality homes, indicative of the development pattern established for this area of the County.

APPLICATION HIGHLIGHTS

Environmental Protection

The Property is located in a low density, environmentally sensitive area of the County where future development is guided by strict and very clear Comprehensive Plan language designed to protect those important, fundamental aspects of the area. Understandably, the protection of the existing water features (the stream which begins on the Property and runs northward, the farm pond on the Property and Walker Woods Lake, off-site to the north) has been a key

discussion topic with the adjacent neighborhoods. As well, protection of existing, healthy mature trees has also been discussed. Considerable time and attention has been paid to innovative measures to ensure the protection of these environmental elements, many of which go over and above County requirements. Fundamentally, the technical environmental protection aspects of this application (stormwater management, erosion and sediment control, stream restoration and tree preservation) have been thoroughly reviewed and re-reviewed by the County's professional staff in P&Z and DPWES and have been found to more than adequately address the concerns that have been raised.

Stormwater Management/Erosion and Sediment Control

The Applicant has proffered to the following elements/actions as part of the environmental protection plan, all of which go over and above the County requirements:

- Pre-construction monitoring, at five locations along the stream channel (off-site permission needed) to determine a base line condition for those sections of the stream and then the submission of a monitoring report every year after that until two years after construction has been completed. Copies of these reports will also be made available to the Supervisor's office, the Walker Woods Lake HOA, and the two neighbors immediately downstream of the Property
- If this monitoring shows the need for repair of the monitored channel (based upon agreed upon parameters), the Applicant will provide corrective restoration as determined by DPWES. (off-site permission potentially needed)
- Conduct three bathymetric surveys of Walker Woods Lake at agreed upon times through the construction process and provide remediation if construction activities on the Property are determined to have contributed excessive silt and sediment to the impoundment. (off-site permission needed)
- The Applicant has proffered to phase the clearing and grading of the Property in order to minimize land disturbing activities as well as limit the amount of bare and exposed soil at any one time. The erosion and sediment control plan will provide for stabilization measures in each phase prior to disturbing land in the next phase. This greatly increases the efficiency and protection capability of the E&S controls.
- The Applicant is also providing numerous innovative E&S control measures throughout the site which go over and above County requirements (doubling of perimeter controls near RPA, the addition of a stilling basin adjacent to new roadway, and clean water diversions that allow upstream stormwater to bypass disturbed areas during construction)
- The Applicant has agreed to third-party monitoring of the E&S controls during the development and construction period.

- The Applicant is implementing several LID measures on individual lots (all those that border the RPA) which will be maintained by the HOA and for which no water quality "credit" has been taken in the required SWM/BMP calculations.
- The Applicant has proffered to put restrictions in the HOA documents on the use of on-lot fertilizer and pest management products.
- The Applicant has proffered to put restrictions on the amount of future buildable area on each lot (for additions, patios, etc. that future homeowners may desire) in order to limit total impervious surface. Further, the entire allowable amount of the "potential future" impervious surface on each lot (based on the proffer) has been factored into the stormwater quality and quantity calculations.
- The Applicant has proffered to significant stream restoration efforts to include removal of invasive plant species which are a stability hazard, remove debris and correction of current erosion in the stream channel, and re-vegetation of approximately 1.7 acres along the stream channel with native species plants and seed mixes. This plan was developed in concert with County staff to include restorative measures to the existing farm pond, all of which will help with stormwater management but for which no "credit" is taken.
- The water quality efficiency rating of the rain garden facilities proposed on the Property has been upgraded from Level 1 efficiency to Level 2 which results in a higher reduction in phosphorus levels.

Tree Preservation

- The tree preservation plan depicts trees 8 inches or greater in caliper although the County only requires the surveying and depiction of trees 12 inches or greater.
- As shown on the approved subdivision plan for the Forest Lake subdivision, a 50 foot wide strip of right-of-way extends to the eastern lot line of the Brooks property from the existing temporary cul-de-sac that now terminates Forest Lake Drive. There are trees located within this existing right-of-way as well as trees on the Brooks property that will need to be removed to extend the road. The road alignment/geometrics have been designed with tree preservation in mind in that the applicant's engineer worked with VDOT to narrow the proposed road section to 50-feet from the 56-feet previously shown. Further, the applicant's engineer in working with VDOT has been able to shift the centerline location and hold roadway cuts and fills to a minimum which allows nearly all the road construction to be maintained within the 50-foot section.
- Since the Planning Commission public hearing in January, the Applicant redesigned the SWM facility (dry swale) located along the northern lot line to convert it to a grass swale in order to shift the limits of clearing and grading from coincident with the northern lot line to 25 feet away from the

northern lot line. This revision was extensively coordinated with Urban Forestry and the stormwater reviewers in DPWES. The Applicant utilized two arborists and the neighbors also engaged their own arborist to review the work. An analysis was done of the impact to the critical root zone of the offsite trees which was reviewed by all concerned and a site walk was conducted with the neighbors to further discuss the results. While there were some differences in the respective professional opinions about the quality of some of the trees and the method of critical root zone measurement, the Applicant choose to utilize all of the parameters recommended by the neighbors' arborist and has met the "requirements" as outlined by their arborist which was essentially to not impact more than 30% of the critical root zone. The Applicant has agreed to provide tree preservation measures, such as root pruning, along the limits of clearing and grading even though this wouldn't be required since the trees are outside of 25 feet from the limits of clearing and grading. We have fully satisfied all of PFM tree preservation requirements per the County Arborist.

- Also since the public hearing, the Applicant has redesigned/shifted an outfall area in the eastern portion of the property in order to move the limits of clearing and grading line farther away from a 58-inch Tulip Popular which is located on the Brooks property near the eastern lot line. The original limits of clearing and grading were more than 25 feet from the tree so the tree was not required to be depicted on the tree preservation plan. Regardless, the tree location was surveyed and the limits of clearing and grading are now 50 feet plus from the tree and are projected to impact only 6% of the tree's critical root zone, significantly below the County's disturbance maximum.

Additional Proffer Commitments

Since the time of the January public hearing, the Applicant has made several additional proffer commitments in response to citizen concerns:

- A proffer was added to provide stricter controls on the type of lighting that may be used on the property in support of the Great Falls Dark Skies Policy.

- A proffer was added which commits to utilizing low water appliances.

- A proffer was added that include a restriction that homeowners cannot install private irrigation systems nor fill any future swimming pools with water from their wells.

- As part of the environmental protection program, a proffer was added which commits to providing the neighboring HOA with the maintenance reports for the SWM facilities, as well as the stream monitoring reports.

Modifications/Waivers

Below is an explanation of the waivers which have always been a part of the application but which were modified slightly based on the latest submission of the plan:

- A waiver to allow stormwater management and best management practices within the required setback of PFM 6-1308.2D is requested in order to allow some flexibility in the location of the proposed grass swale in the northern portion of the Property. Specifically, the request is that the grass swale be allowed closer than the required 2 feet to proposed lots 8-10 in order that the facility can be located as far from the northern lot line as possible.

- A waiver is being requested to PFM 6-1308.2G which stipulates that the maximum area of drainage to a vegetated swale is 2 acres. When the dry swale in the northern portion of the Property was converted to a grass swale, the amount of land draining to the facility was also reduced from almost 4 acres to 3.74 acres. A waiver is still needed since the amount is over 2 acres but the facility has been designed to handle the acreage draining to it. The waiver is justified given that the amount of impervious surface draining to that area has been reduced from ½ acre to less than 1/3 acre. Note that a waiver to the maximum impervious area draining to a vegetated swale (1 acre) also stipulated in PFM 6-1308.2G is not now, nor was it ever, necessary.

CONCLUSION

The Comprehensive Plan recommends a density range of .2 to .5 dwelling units per acre for the subject Property. With the exception of some land planned for 1 dwelling unit per acre and some planned for parkland, this is the same density recommended for ALL of the land north of Georgetown Pike, south of Beach Mill Road and west of River Bend Road to the Loudoun County line in Great Falls. The density proposed in this application is .38. An analysis of the established subdivision densities in the immediate area (Tax Map 7-2) showed an average density of 0.39. An analysis of the immediately surrounding densities (6 subdivisions) shows that the subject property's density is less than all but one of them. Clearly, the density proposed in this application aligns with that recommended in the Comprehensive and that developed on the ground in this area of Great Falls.

The Comprehensive Plan also sets an expectation that future development will protect the environmentally sensitive lands in Great Falls and while the staff has been satisfied with the Applicant's efforts to meet this expectation, quite frankly, there has always been an belief on the part of the community that this application

must go over and above in order to meet the recommendations of the Plan. The new stormwater regulations adopted by the County in 2014 are conservative and provide a "safety net" to ensure environmental protection. The proposed SWM measures and E&S controls go above and beyond the County requirements and only serve to strengthen that safety net. The revisions made in the areas of stormwater management and tree preservation are responsive and provide a very high level of commitment, meeting or exceeding the Comprehensive Plan requirements and clearly go above and beyond the County requirements for a residential rezoning request.

For the reasons set forth within this and the original statement of justification, the Applicant respectfully requests approval of this rezoning proposal.

County of Fairfax, Virginia

MEMORANDUM

DATE: May 12, 2016

TO: Barbara Berlin, Director
Zoning Evaluation Division, Department of Planning & Zoning

FROM: Michael A. Davis, Acting Chief
Site Analysis Section, Department of Transportation

FILE: RZ 2014-DR-022

REFERENCE: Addendum 1
RZ 2014-DR-022 – Basheer/Edgemoore – Brooks LLC
Tax Map: 007-2 ((1)) 0017, 0023

This department has reviewed the subject application and plans, dated October 18, 2014, and revised through October 19, 2015. Staff provided comments on the application in a memo dated October 29, 2015.

Staff has since been made aware of concerns of some members of the community regarding construction vehicle access to the proposed development site. Current construction plans propose that all construction traffic access the site via Forest Lake Drive. An alternative solution proposed by the community is that the applicant acquire the right-of-way along the existing easement access at Springvale Road, and that construction vehicles access the site at this point.

FCDOT staff has reviewed existing site conditions in conjunction with VDOT at both potential construction site access points. A summary of the assessment of both locations follows.

Walker Road and Forest Lake Drive

- Existing line of trees to the south of Forest Lake Drive at the edge of VDOT right-of-way may impede sight distance; sight distance should be verified.

Springvale Road and existing access easement:

- A public street connecting Springvale Road to the site does not currently exist. The existing easement would need to be dedicated to allow for construction access, and the road's intersection with Springvale Road would need to be widened to accommodate entering and exiting construction vehicles.

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- Existing sight distance at the Springvale Road access easement is severely limited due to a large tree and a small roadway hill crest. The tree would need to be removed, and the roadway lowered to achieve suitable sight distance at this location.

Walker Road and Forest Lake Drive are both currently public roadways, and the existing intersection would require much less mitigation to serve as an adequate point of access for construction vehicles than the Springvale Road location. Therefore, of the two existing locations, FCDOT recommends that the Forest Lake Drive entrance would provide the most safe and adequate access to the proposed development site.

MAD/VLH
cc: Bob Katai/DPZ

County of Fairfax, Virginia

MEMORANDUM

DATE: May 13, 2016

TO: Bob Katai, Staff Coordinator
Zoning Evaluation Division, DPZ

FROM: Craig Herwig, Urban Forester III
Forest Conservation Branch, DPWES

SUBJECT: Brooks Property; RZ 2014-DR-022

This review is based on the Generalized Development Plan, (RZ 2014-DR-022) stamped "Received, Department of Planning and Zoning, May 4, 2016." Numerous site visits were conducted during the review of this case.

General Comments: Staff from the Urban Forest Management Division (UFMD) conducted a site visit on February 9, 2016 to further review the limits of clearing and grading along the northern property boundary. Comments and recommendations were prepared in the memo dated February 10, 2016 and sent to DPZ. The comments and recommendations were prepared to address remaining concerns regarding the limits of clearing and grading in relation to off-site trees along the northern property boundary.

1. In the UFMD memo dated February 10, 2016, staff recommended the limits of clearing and grading on the northern property boundary be adjusted to the south by 25 feet to afford the off-site trees additional protection from proposed construction activities. The Applicant has complied with this recommendation in the latest iteration of the plan.

2. Staff requested clarification of the areas being claimed for 10-year tree canopy credit. The Applicant has identified and revised the areas being claimed for 10-year tree canopy credit in the latest iteration of the plan.

3. Staff requested the Applicant provide a tree inventory and condition analysis for all trees 25-feet outside the limits of clearing and grading and 10-feet inside the limits of clearing and grading. The Applicant has provided and up-dated the tree inventory and condition analysis in the latest iteration of the plan.

4. Staff requested the Applicant to show and identify all arboricultural and tree preservation activities including tree protection fencing and root pruning along the limits of clearing and grading adjacent to any trees and vegetation, on or off-site proposed for preservation.

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Fairfax, Virginia 22035-5503
Phone 703-324-1770, TTY: 711, Fax: 703-653-9550
www.fairfaxcounty.gov/dpwes

The Applicant has shown and identified all arboricultural and tree preservation activities along the limits of clearing and grading in the latest iteration of the plan.

5. The Applicant has met and exceeded the required 10-year tree canopy requirements as well as the tree preservation target for this site.

Additional Comment and Recommendation:

6. **Comment:** There are several trees located along the limits of clearing and grading for the proposed extension of Forest Lake Drive that appear to be too close to the limits of clearing and grading and are not likely to survive the proposed construction of the road. These trees include 416, 393, 394, 856, 857, 437, 840, 842, 843, 437, 378, 369, and 370.

   Recommendation: The Applicant should adjust the limits of clearing and grading to accommodate the preservation of the trees identified above or show these trees as "to be removed" to accurately reflect the trees being preserved along the limits of clearing and grading.

Please feel free to contact me at 703-324-1770 if you have any further questions or concerns.

CSH/

UFMDID #: 197646

cc: DPZ File

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