County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

October 19, 2011

John Thillmann
Landmark Atlantic Development, LLC
2700 S. Nelson Street
Arlington, VA 22206

RE: Rezoning Application RZ 2011-SU-006

Dear Mr. Thillmann:

Enclosed you will find a copy of an Ordinance adopted by the Board of Supervisors at a regular meeting held on October 18, 2011, granting Rezoning Application RZ 2011-SU-006 in the name of Landmark Atlantic Development, LLC. The Board's action rezones certain property in the Sully District from the R-1 and WS Districts to the PDH-8 and WS Districts and permits residential development with an overall density of 5.26 dwelling units per acre, approval of the Conceptual Development Plan and a waiver of the minimum district size. The subject property is located on the east side of Stone Road approximately 100 feet north of its intersection with Battery Ridge Lane on approximately 1.9 acres of land [Tax Map 54-3 ((2)) 61 and 61C], and is subject to the proffers dated October 18, 2011.

Please note that on September 29, 2011, the Planning Commission approved Final Development Plan Application FDP 2011-SU-006.

The Board also:

- Approved waiver of the minimum district size required per the Zoning Ordinance, Section 6-207.

- Directed the Director of the Department of Public Works and Environmental Services (DPWES) to grant a deviation of the tree preservation target area as required in PFM Section 12-0507.1.

- Approved a modification of Section 10-104 (3) of the Zoning Ordinance to allow a maximum eight-foot tall fence along the western property line.

Office of the Clerk to the Board of Supervisors
12000 Government Center Parkway, Suite 533
Fairfax, Virginia 22035
Phone: 703-324-3151 ♦ Fax: 703-324-3926 ♦ TTY: 703-324-3903
Email: clerktothebos@fairfaxcounty.gov
http://www.fairfaxcounty.gov/bosclerk

- Approved modification of the transitional screening I requirement between the attached and detached units on the subject property in favor of that shown on the CDP/FDP.

Sincerely,

Nancy Vehrs

Nancy Vehrs
Clerk to the Board of Supervisors
NV/ph
Enclosure

Cc: Chairman Sharon Bulova
Supervisor Michael Frey, Sully District
Janet Coldsmith, Director, Real Estate Division, Dept. of Tax Administration
Barbara Berlin, Director, Zoning Evaluation Division, DPZ
Diane Johnson-Quinn, Deputy Zoning Administrator, Dept. of Planning and Zoning
Thomas Conry, Dept. Manager – GIS - Mapping/Overlay
Angela K. Rodeheaver, Section Chief, Transportation Planning Division
Ken Williams, Plans & Document Control, ESRD, DPWES
Department of Highways-VDOT
Sandy Stallman, Park Planning Branch Manager, FCPA
District Planning Commissioner
Denise James, Office of Capital Facilities/Fairfax County Public Schools
Karyn Moreland, Chief Capital Projects Sections, Dept. of Transportation

At a regular meeting of the Board of Supervisors of Fairfax County, Virginia, held in the Board Auditorium in the Government Center at Fairfax, Virginia, on the 18th day of October, 2011, the following ordinance was adopted:

AN ORDINANCE AMENDING THE ZONING ORDINANCE
PROPOSAL NUMBER RZ 2011-SU-006

WHEREAS, Landmark Atlantic Development, LLC, filed in the proper form an application requesting the zoning of a certain parcel of land herein after described, from the R-1 and WS Districts to the PDH-8 and WS Districts, and

WHEREAS, at a duly called public hearing the Planning Commission considered the application and the propriety of amending the Zoning Ordinance in accordance therewith, and thereafter did submit to this Board its recommendation, and

WHEREAS, this Board has today held a duly called public hearing and after due consideration of the reports, recommendation, testimony and facts pertinent to the proposed amendment, the Board is of the opinion that the Ordinance should be amended,

NOW, THEREFORE, BE IT ORDAINED, that that certain parcel of land situated in the Sully District, and more particularly described as follows (see attached legal description):

Be, and hereby is, zoned to the PDH-8 and WS Districts, and said property is subject to the use regulations of said PDH-8 and WS Districts, and further restricted by the conditions proffered and accepted pursuant to Va. Code Ann., 15.2-2303(a), which conditions are in addition to the Zoning Ordinance regulations applicable to said parcel, and

BE IT FURTHER ENACTED, that the boundaries of the Zoning Map heretofore adopted as a part of the Zoning Ordinance be, and they hereby are, amended in accordance with this enactment, and that said zoning map shall annotate and incorporate by reference the additional conditions governing said parcel.

GIVEN under my hand this 18th day of October, 2011.

Nancy Vehrs

Nancy Vehrs
Clerk to the Board of Supervisors

RZ 2011-SU-006/FDP-2011-SU-006

October 18, 2011

Pursuant to Section 15.2-2303 (A), Code of Virginia, 1950 as amended, the owners, and Landmark Atlantic Development, LLC (hereinafter referred to as "Applicant") for themselves, their successors and assigns in RZ 2011-SU-006/FDP 2011-SU-006 filed for property identified as Tax Maps 54-3 ((2)) Parcels 0061, 0061C hereinafter referred to as the "Application Property"), proffer the following, provided that the Board of Supervisors approves a rezoning of the Application Property to the PDH-8 District.

1. Development Plan:

Development of the Application Property shall be in substantial conformance with the Conceptual / Final Development Plan ("CDP/FDP") prepared by Charles P. Johnson & Associates consisting of 9 sheets dated April 07, 2011, amended through August 17, 2011.

2. Minor Modifications:

Minor modifications from what is shown on the CDP/FDP and these Proffers, which may become occasioned as a part of final architectural and/or engineering design, may be permitted as determined by the Zoning Administrator in accordance with the provisions set forth in Section 16-403 of the Zoning Ordinance. Additionally, except as may be further qualified by these proffered conditions, minor modifications to (1) the building envelopes including house location and sizes may be permitted in accordance with Section 16-403 of the Zoning Ordinance as long as such changes do not materially decrease the amount of open space, the building setbacks outlined on the CDP/FDP are honored, and the limits of clearing and grading are adhered to. As shown on the typical lot layout in the CDP/FDP, under no circumstances shall the houses be less than 12 feet apart. (2) If an alternative SWM facility is required by DPWES to that shown on the CDP/FDP it may take the place of the Bio-Retention facility including if DPWES states that additional space is required under an alternative design.

3. Density Credit:

The applicant reserves density credit as may be permitted by the provisions of Paragraph 4, of Section 2-308 of the Zoning Ordnance for all dedications herein and as may be reasonably required by Fairfax County Department of Transportation and of Virginia Department of Transportation whether such dedications occur prior to or at the time of site plan approval.

4. Provision of Sidewalks and Private Streets:

Sidewalks shall be provided in the locations as generally shown on the CDP/FDP.
Both the future street and sidewalks shall be constructed in conformance with the Public Facilities Manual [PFM] to design, depth of pavement and materials consistent with public street and sidewalk standards. The HOA shall be responsible for the maintenance of all private streets and sidewalks. Purchasers shall be advised in writing prior to entering into a contract of sale that the HOA will be responsible for the maintenance of the private streets and sidewalks. The HOA documents shall expressly state that the HOA shall be responsible for the maintenance of the private streets and sidewalks serving that HOA's development area.

5. Energy Efficiency:

All homes on the subject site shall be designed and constructed as ENERGY STAR qualified homes to meet the thermal guidelines of the Energy Star Program for energy efficient homes. Major features include: Effective Insulation, High-Performance Windows, Efficient Heating and Cooling Equipment, Efficient Products, and Third Party Verification (home rater).

Prior to issuance of the Residential Use Permit (RUP) for each dwelling unit, documentation shall be submitted to the Environment Review Branch of the Department of Planning and Zoning from a home energy rater certified through the Residential Energy Services network program that demonstrates that the dwelling unit has attained the ENERGY STAR for homes qualification, as described in these conditions.

6. Landscaping:

The applicant shall submit a landscaping plan in substantial conformance with the CDP/FDP as part of the first and all subsequent site plan submissions for review and approval by the Urban Forest Management DPWES. The applicant shall utilize native species in site landscaping wherever possible.

7. Homeowner Associations:

The applicant will apply for membership of these 10 homes to become part of the Sully Station II HOA. In the event that the Sully Station II HOA is not able to assume this development into the Sully Station II HOA then prior to the issuance of the first RUP the Applicant shall cause a homeowners association ("HOA") to be formed in accordance with Virginia law.
The Sully Station II and or the newly created HOA shall be responsible for the maintenance, repair and replacement of private streets, all sidewalks, openspace including lawn/landscaping maintenance and removal of snow from streets and all sidewalks within the Application Property. The 10 homes if unable to become a part of the Sully Station II HOA will contract for the services of the Sully Station II HOA for road maintenance, sidewalk maintenance, trash removal, snow removal, open space maintenance, and to use recreational facilities.

8. Private Street and Recreation Reserve Fund:

The applicant HOA shall include a Reserve Fund to be used as funding for maintenance of the private streets and sidewalks. The applicant shall deposit five thousand dollars ($5,000) into the Reserve Fund for private streets and sidewalks. These funds will be provided to the Sully Station II HOA upon incorporation of these 10 homes into that association.

9. Conversion of Garages:

The Applicant shall place a covenant on each residential lot, which provides that garages shall be used for purposes that will not interfere with their intended purpose (e.g. parking of vehicles). This covenant shall be recorded among the land records of Fairfax County prior to the sale of any lots and shall run to the benefit of the HOA and to the Board of Supervisors. Prior to recordation, the covenant shall be approved by the Fairfax County Attorney's Office.

10. Recreational/Public Facilities:

The Applicant proffers that the expenditure for recreational facilities will be a minimum of One Thousand Six Hundred dollars ($1,600.00) per residential unit for a total of Sixteen Thousand Dollars ($16,000.00) to be used for on site recreation facilities identified on the CDP/FDP. Any remaining unspent funds will be given to the Sully Station II HOA for use in constructing recreational facilities as part of the HOA pool and meeting area complex and other HOA owned recreation and open space if this application becomes part of Sully Station II HOA.
In addition, the Applicant proffers to contribute an additional amount of One Thousand Dollars ($1,000.00) per Dwelling Unit for a total of Ten Thousand Dollars $10,000 to the Sully Recreational Fund to spend on recreational facilities in the Sully District. Project(s) will be chosen in coordination with the Sully District Supervisor. The funds will be transferred at the time of Site Plan approval.

11. Storm Water Management Facilities and BMP's:

The Applicant shall provide a Rain Garden as shown on the CDP/FDP subject to approval by DPWES. If DPWES requires a conventional SWM dry pond the applicant will provide a same in the same general location as the Bio-Retention facility subject to final engineering.

12. On Site Wells:

The applicant will cap any on site wells and remove any on site septic systems to the satisfaction of the Health Department.

13. School Contribution:

The applicant will contribute $9,378 per student (4 students) for a total of $37,512 directed to Westfield HS pyramid and or to Cluster VIII schools at the discretion of the School Board prior to time of first building permit issuance.

14. Signs:

No temporary signs (including "popsicle" style paper or cardboard) which are prohibited by Article 12 of the Zoning Ordinance, and no signs which are prohibited by Chapter 7 of Title 33.1 or Chapter 8 of Title 46.2 of the Code of Virginia shall be placed on or off site by the Applicant.

15. Architectural Elevations:

The architecture shall generally conform to the illustrative architectural elevations as shown on the FDP and as determined by DPWES. The side elevations of the homes adjacent to Stone Rd. shall receive both the same window treatments and shutters and the side elevations shall also be covered with similar material as the front elevations. The color palate of the dwelling units will be compatible with the single family detached and attached homes in the Sully Station II area.

16. Archeological Investigation:

A Phase I Archeological investigation by an archeological professional shall be conducted in areas identified by the Cultural Resource Management and Protection Section (CRMP) of the Park Authority 30 days before any land disturbance activities on the property. Results of the Phase I study shall be provided to the CRMP. If the phase one study warrants a Phase II archeological investigation that investigation shall also be conducted and submitted to the CRMP but will not hold up the approval of the site plan and if that study warrants a Phase III evaluation and recovery effort that process shall not be a precondition of site plan approval and shall be carried out in conjunction with site construction.

17. Revetment:

The applicant will place a wood fence along the property line adjacent to the Civil War period revetment and consult with the History Commission on the fencing style. Applicant shall also coordinate with the History Commission the desirability of providing a historical marker. If such a marker is provided, the applicant will coordinate with the History Commission on the style and text on the marker. If not the applicant will donate $1,000 to the History Commission for the Sully District Civil War mapping effort.

18. Driveways:

Driveways where provided shall be a minimum of eighteen (18) feet in length from the property line to the garage door.

19. Centreville Road Fund:

Applicant will contribute the sum of $2,230.00 per dwelling unit to the Centreville Road Fund for a total contribution of $22,300.00. The dwelling unit contribution of $2,230.00 shall be made at the time of each Residential Use Permit application.

20. Housing Contribution:

At the time of issuance of each building permit, the Applicant shall contribute to the Habitat for Humanity of Northern Virginia, the Fairfax County Housing Trust Fund or the Fellowship Square Foundation (FSF) for subsidized elderly housing, the sum equal to one half of one percent (1/2%) of the projected sales price for each new dwelling unit on the subject property. The funds if contributed to Habitat for Humanity of Northern Virginia or the Fellowship Square Foundation will be directed to FSF or Habitat projects in Fairfax County. The projected sales price shall be based upon the aggregate sales price of all the units, as those units were sold at the time of issuance of first building permit and as is estimated through comparable sales of similar units. This sales price information shall be provided to and approved by the Fairfax County Department of Housing and Community Development (HCD). The percentage shall be based on the aggregate sales price of all of the units subject to the contribution, as if all of 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. The projected sales price shall be proposed by the Applicant in consultation with Fairfax County Department of Housing and Community Development (HCD) and shall be approved by HCD and DPWES.

21. Successors and Assigns:

These Proffers will bind and inure to the benefit of the Applicant and his successors and assigns. Each reference to "Applicant" in this proffer statement shall include within its meaning, and shall be binding upon, Applicant's successor(s) in interest and/or developer(s) of the site or any portion of the site.

TITLE OWNER of TM 054-3((2)) Parcel 61

MARK W. SPUNGIN

BY: LANDMARK ATLANTIC DEVELOPMENT, LLC, as his

Agent and Attorney-in-Fact

BY: _____

Scott M. Herrick, Managing Member

Scott M. Herrick, Managing Member Landmark Atlantic Development LLC
as his agent and attorney in fact

TITLE OWNERS OF TM 054-3((2)) Parcel 61-C

DALE L. KEENER AND THELMA A. KEENER, TRUSTEES OF THE DALE L. KEENER AND THELMA A. KEENER TRUST

BY: LANDMARK ATLANTIC DEVELOPMENT, LLC, as their

Agent and Attorney-in-Fact

BY: _____

Scott M. Herrick, Managing Member

Scott M. Herrick, Managing Member Landmark Atlantic Development, LLC
as their agent and attorney in fact

APPLICANT/CONTRACT ASSIGNEE

LANDMARK ATLANTIC DEVELOPMENT, LLC

BY: _____

Scott M. Hentiek, Managing Member

CONTRACT PURCHASER/ASSIGNOR

EASTWOOD PROPERTIES, INC.

BY: _____

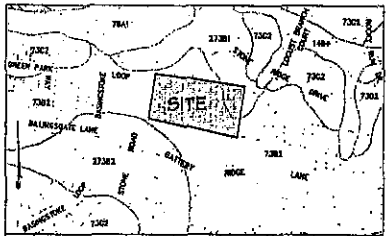
Richard L. Labbe, President

CONCEPTUAL / FINAL DEVELOPMENT PLAN

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

RZ 2011-SU-006



SOIL #	SERIES NAME	FOUNDATION SUPPORT	SUBSURFACE DRAINAGE	SLOPE STABILITY	EROSION POTENTIAL	PROBLEM CLASS	GEOTECH REPORT REQ'D
7302	PENN (sH)	GOOD	MARGINAL	GOOD	HIGH	C	NO
17381	READINGTON	GOOD	MARGINAL	GOOD	MODERATE	B	NO

SOILS MAP/DATA
SCALE : 1" = 250'

BLENDED DENSITY CALCULATIONS

	PARCEL 81	PARCEL 81C	TOTAL
AREA	0.95204 Ac	0.95049 Ac	1.90253 Ac

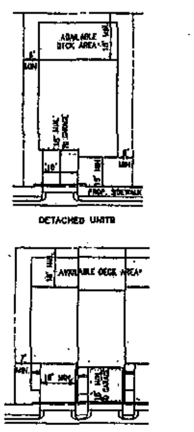
LOW END @ 2 = 1.90090 + @ 5 = 4.762 = 6.66290 LOTS
HIGH END @ 5 = 2.85147 + @ 8 = 7.61632 = 10.46779 LOTS

PROPOSED DENSITY

4 LOTS = 4.205 DU/Ac	2 LOTS = 6.392 DU/Ac	10 LOTS = 5.256 DU/Ac

"BLENDED" LOW END
6.66299 LOTS ÷ 1.90253 Ac = 3.502 DU/Ac

"BLENDED" HIGH END
10.49772 LOTS ÷ 1.90253 Ac = 5.502 DU/Ac



TYPICAL LOT LAYOUTS
SCALE : 1" = 30'
*NOTE : DECKS ARE TO BE SET BACK AT LEAST FIVE (5) FEET FROM PROPERTY LINE(S)

NOTES

1. THE PROPERTY DELINEATED ON THIS PLAN IS LOCATED ON FAIRFAX COUNTY TAX ASSESSMENT MAP NUMBER 54-3((2))41 & 41C. THE SITE IS CURRENTLY ZONED R-1 & WSPOD. THE PROPOSED ZONES ARE PDH-8 & WSPOD.
2. AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA, THE PROPERTY HEREON IS CURRENTLY UNDER THE OWNERSHIP OF:
   - PARCEL 41 – MARK W. SPUHLER IN DEED BOOK 18000 AT PAGE 210
   - PARCEL 41C – DALE L. & THELMA A. KEENER IN DEED BOOK 16200 AT PAGE 1492
3. BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A FIELD RUN SURVEY PREPARED BY CHARLES P. JOHNSON & ASSOCIATES, DATED NOVEMBER 2010. CONTOUR INTERVAL EQUALS TWO FEET NGVD 1929.
4. THERE ARE NO 100-YEAR FLOODPLAINS ON-SITE. NO FLOODPLAIN OR DRAINAGE STUDIES ARE REQUIRED FOR THIS PROJECT.
5. THERE ARE NO RESOURCE PROTECTION AREAS (RPAs) OR ENVIRONMENTAL QUALITY CORRIDORS (EQCs) ON THIS SITE. A WATER QUALITY IMPACT ASSESSMENT WILL NOT BE REQUIRED.
6. TO THE BEST OF OUR KNOWLEDGE, THE SITE HAS NO SCENIC ASSETS OR NATURAL FEATURES DESERVING OF PROTECTION AND PRESERVATION.
7. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO KNOWN GRAVES, OBJECTS, OR STRUCTURES MARKING A PLACE OF BURIAL.
8. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITY EASEMENTS HAVING A WIDTH OF 25 FEET OR GREATER, NOR ANY MAJOR UNDERGROUND UTILITY EASEMENTS LOCATED WITHIN THE SITE.
9. ANY EXISTING WELLS ON-SITE ARE TO BE CAPPED AND ABANDONED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS.
10. SEE SHEETS 2 AND 5 FOR A DESCRIPTION OF THE EXISTING VEGETATION.
11. EXISTING STRUCTURES ARE TO BE REMOVED. THE EXISTING DWELLINGS WERE CONSTRUCTED IN 1929 (PARCEL 41) AND 1963 (PARCEL 41C).
12. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 116.4, 302.4, AND 355; ALL HAZARDOUS WASTE AS SET FORTH IN COMMONWEALTH OF VIRGINIA/DEPARTMENT OF WASTE MANAGEMENT VR 672-10-1 – VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS; AND/OR PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 280; TO BE GENERATED, UTILIZED, STORED, TREATED, AND/OR DISPOSED OF ON-SITE AND THE SIZE AND CONTENTS OF ANY EXISTING OR PROPOSED STORAGE TANKS OR CONTAINERS.
13. THE SUBJECT SITE LIES WITHIN THE WATER SUPPLY PROTECTION OVERLAY DISTRICT.
14. THERE ARE NO AFFORDABLE DWELLING UNITS (ADUs) REQUIRED FOR THIS PROJECT.
15. NO DENSITY REDUCTIONS ARE REQUIRED BY ZONING ORDINANCE SECTION 2-308.
16. IN ACCORDANCE WITH THE ADOPTED COMPREHENSIVE PLAN, THE PROPOSED DEVELOPMENT WILL PROVIDE RESIDENTIAL DEVELOPMENT AT 5.26 DWELLING UNITS PER ACRE AND WILL CONFORM TO ALL APPLICABLE ORDINANCES, REGULATIONS, AND ADOPTED STANDARDS EXCEPT AS NOTED BELOW :
   - A WAIVER OF THE MINIMUM DISTRICT SIZE OF TWO ACRES IS HEREBY REQUESTED
   - A DEVIATION FROM THE REQUIRED TREE PRESERVATION TARGET AREA IS HEREBY REQUESTED
   - A MODIFICATION IS HEREBY REQUESTED TO ALLOW UP TO AN 8-FOOT HIGH SOLID WOOD FENCE AS SET FORTH IN ZONING ORDINANCE §10-104.3.H
17. PUBLIC WATER SERVICE IS TO BE PROVIDED BY AN EXISTING 8" MAIN LOCATED IN BATTERY RIDGE LANE. PUBLIC SEWER SERVICE IS TO BE PROVIDED BY AN EXISTING 8" MAIN LOCATED NEAR BATTERY RIDGE LANE.
18. PARKING SPACES WILL BE PROVIDED AS GENERALLY SHOWN ON THE PLAN. THE NUMBER OF PARKING SPACES MAY BE INCREASED OR DECREASED FROM THAT NUMBER REPRESENTED IN THAT TABULATION AS LONG AS THE MINIMUM NUMBER OF SPACES IS PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE.
19. THERE ARE NO RECREATIONAL FACILITIES PROPOSED WITH THIS DEVELOPMENT.
20. A SEATING AREA IS BEING PROPOSED AS A SPECIAL AMENITY FOR THIS DEVELOPMENT.
21. A DEVELOPMENT SCHEDULE HAS NOT BEEN DETERMINED AT THIS TIME.
22. SEE SHEET 9 FOR ARCHITECTURAL ELEVATIONS.
23. A TRAIL IS NOT REQUIRED FOR THIS PROJECT PER THE FAIRFAX COUNTY TRAILS PLAN.
24. PARCEL "A" WILL BE CONVEYED TO A HOMEOWNERS ASSOCIATION FOR OWNERSHIP AND MAINTENANCE.
25. MINOR MODIFICATIONS TO THE BUILDING FOOTPRINTS, LOT AREAS, DIMENSIONS, UTILITY LAYOUT, AND LIMITS OF CLEARING AND GRADING MAY OCCUR WITH THE FINAL ENGINEERING DESIGN, IN SUBSTANTIAL CONFORMANCE WITH THE CDP/FDP, PROVIDED SUCH ARE IN ACCORDANCE WITH THE MINOR MODIFICATIONS PROVISION IN SECTION 16-403 OF THE ZONING ORDINANCE.

MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

☒ 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 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 3.

☒ 3. Provide :

Facility Name/ Type & No.	On-site area served (acres)	Off-site area served (acres)	Drainage area (acres)	Footprint area (sf)	Storage Volume (cf)	If pond, dam height (ft)
Bioretention Filter	1.30±	0	1.30±	4,650±	1,780±	N/A

☒ 4. Onsite drainage channels, outfalls, and pipe systems are shown on Sheet 3. Pond inlet and outlet pipe systems are shown on Sheet 3.

☒ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet 3. Type of maintenance access road surface noted on the plat is subject to review at final plans.

☒ 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet 4.

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

☒ 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.

☒ 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 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 1 & 2.

☐ 11. A submission waiver is requested for N/A

☐ 12. Stormwater management is not required because N/A

SITE TABULATIONS

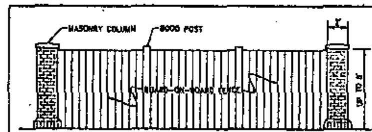
SITE AREA :	
LOT AREA	37,545 sf (0.862 Ac)
PARCEL "A"	45,025 sf (1.030 Ac)
TOTAL	82,570 sf (1.903 Ac)

PDH-8 ZONE

	REQUIRED	PROVIDED
NUMBER OF UNITS	----	6 SINGLE-FAMILY DETACHED + 4 SINGLE-FAMILY ATTACHED (10 TOTAL UNITS)
MAXIMUM DENSITY	8 DU/AC *	5.256 DU/AC *
MINIMUM LOT AREA		
SINGLE-FAMILY DETACHED	N/R	4,500sf ±
SINGLE-FAMILY ATTACHED	N/R	1,900sf ±
AVERAGE LOT AREA		
SINGLE-FAMILY DETACHED	N/R	4,800sf ±
SINGLE-FAMILY ATTACHED	N/R	2,240sf ±
MAXIMUM BUILDING HEIGHT	N/R	40'
MINIMUM YARDS	N/R	SEE DETAIL ON THIS SHEET
OPEN SPACE	25%	37%±
PARKING	SFD – 3 spaces/unit (18 spaces) SFA – 2.7 spaces/unit (11 spaces) = 29 total spaces	20 garage spaces + 20 driveway spaces + 8 surface spaces = 48 total spaces (4.8 spaces/unit)

* SEE DENSITY CALCULATIONS

VICINITY MAP
SCALE : 1" = 2000'



TYPICAL WOOD FENCE W/COLUMNS
SCALE : 1" = 5'

REVISIONS		
NO.	SHEET NUMBER AND REVISION DESCRIPTION	DATE
1.	(1) REVISED SITE TABS & TYPICAL LOT DETAIL, ADDED DENSITY CALCULATIONS (3) REVISED LAYOUT FOR LOTS 1-4, REMOVED R/W DED., ADJUSTED RAIN GARDEN FOOTPRINT (4) REV. LANDSCAPING, TREE COVER CALCS & DEVIATION LETTER (5&6) REVISED TREES TO BE PRESERVED/REMOVED (7) REVISED OUTFALL CALCULATIONS & NARRATIVE (8&9) NEW SHEETS	7-14-11
2.	(1) REVISED SITE TABS, ADDED MODIFICATION REQUEST, ADDED FENCE DETAIL (3) ADDED 2ND SEATING AREA, REVISED RAIN GARDEN, REVISED FENCE HEIGHTS (4) REV. LANDSCAPING, TREE COVER CALCS & DEVIATION LETTER (7&8) REVISED OUTFALL CALCULATIONS & NARRATIVES	8-17-11

NO CHANGES, OTHER THAN THOSE SPECIFIED ABOVE, HAVE BEEN MADE TO THIS PLAN FROM WHAT WAS PREVIOUSLY SUBMITTED OR APPROVED.

COMMONWEALTH OF VIRGINIA
PAUL B. JOHNSON
Lic. No. 012450
PROFESSIONAL ENGINEER

DEVELOPER
LANDMARK ATLANTIC
2700 SOUTH NELSON STREET
ARLINGTON, VIRGINIA 22206
(703)298-5200

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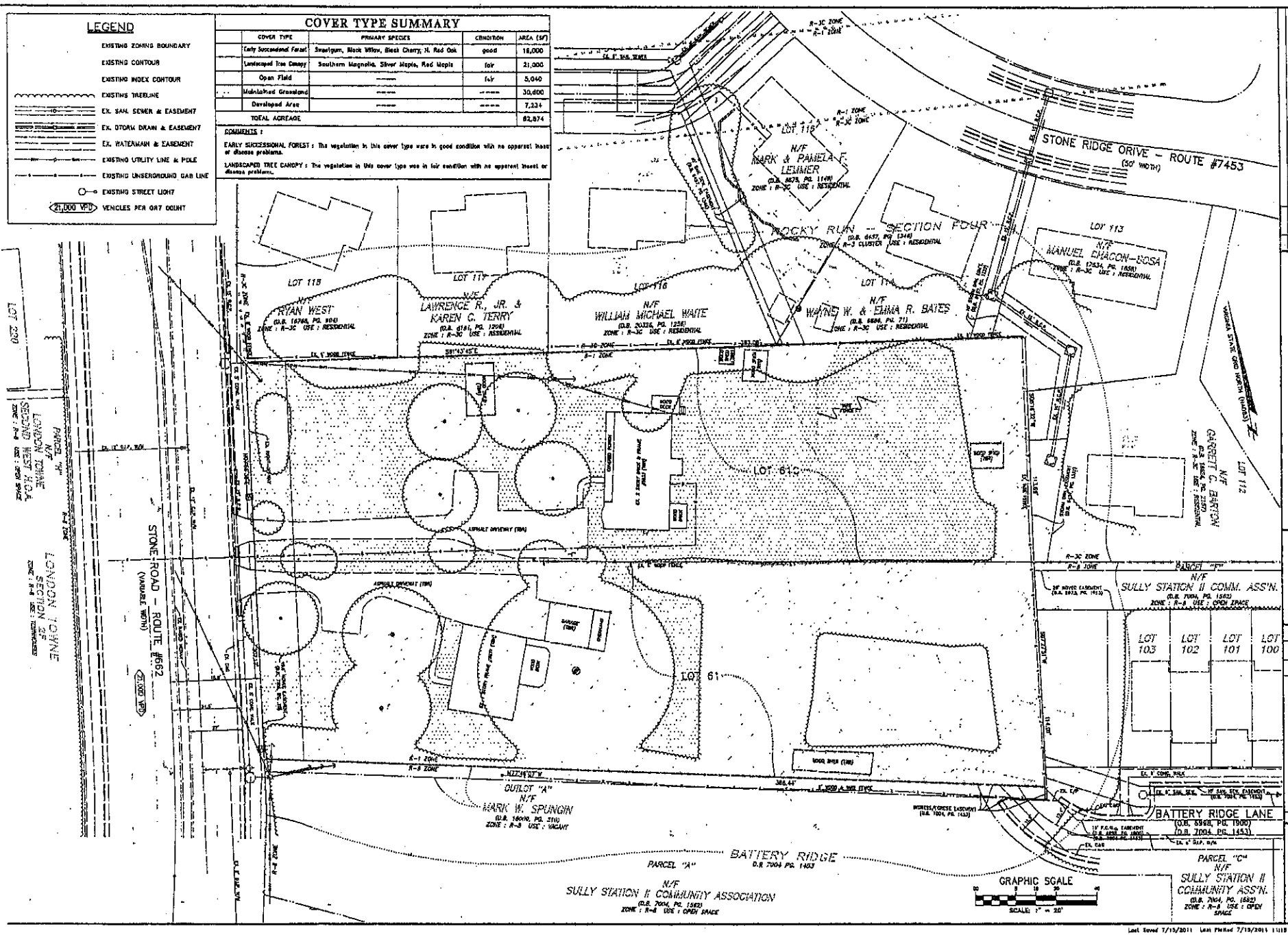
6 TREE PRESERVATION INVENTORY
7 & 8 OUTFALL ANALYSIS
9 ARCHITECTURAL ELEVATIONS

CPJ Associates
Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS
3959 PENDER DRIVE SUITE 210 FAIRFAX, VIRGINIA 22030 (703)385-7555
SILVER SPRING, MD FAX(703)385-4919

DATE : APRIL 7, 2011
REVISED : JULY 14, 2011
AUGUST 17, 2011



COVER TYPE SUMMARY

COVER TYPE	PRIMARY SPECIES	CONDITION	AREA (SF)
Early Successional Forest	Sweetgum, Black Willow, Black Cherry, N. Red Oak	good	18,000
Landscaped Tree Canopy	Southern Magnolia, Silver Maple, Red Maple	fair	21,000
Open Field	----	fair	5,040
Maintained Grassland	----	----	30,600
Developed Area	----	----	7,234
TOTAL ACREAGE			82,874

COMMENTS :

EARLY SUCCESSIONAL FOREST : The vegetation in this cover type were in good condition with no apparent insect or disease problems.

LANDSCAPED TREE CANOPY : The vegetation in this cover type was in fair condition with no apparent insect or disease problems.

EXISTING CONDITIONS PLAN & VEGETATION MAP

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

R7 2011-SU-006

CPJ Associates
Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

SHEET 2 OF 9

PR4 NO: 10-506
TYPE: CDP/FDP

Last Saved 7/15/2011 Last Plotted 7/15/2011 11:18 AM Sheet N:\10506\DWG\00-70501

LEGEND

- EXISTING ZONING BOUNDARY
- LIMITS OF CLEARING & GRADING
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING UTILITY LINE & POLE
- EXISTING UNDERGROUND GAS LINE
- EX. SAN. SEWER & EASEMENT
- PROPOSED SANITARY SEWER
- EX. STORM DRAIN & EASEMENT
- PROPOSED STORM DRAIN
- EX. WATERMAIN & EASEMENT
- PROPOSED WATERMAIN
- 21,000 VPD VEHICLES PER DAY COUNT

STONE ROAD DRIVE - ROUTE #7453 (50' WIDTH)

LOT 115 N/F MARK & PAMELA F. LEMMER (D.B. 6875, PG. 1148) ZONE : R-3C USE : RESIDENTIAL

ROCKY RUN - SECTION FOUR (D.B. 6181, PG. 1348) ZONE : R-3 CLUSTER USE : RESIDENTIAL

LOT 113 N/F MANUEL CHACCA-SOSA (D.B. 17834, PG. 1878) ZONE : R-3C USE : RESIDENTIAL

LOT 116 N/F RYAN WEST (D.B. 14168, PG. 1142) ZONE : R-3C USE : RESIDENTIAL

LOT 117 N/F LAWRENCE R. JR. & KAREN C. TERRY (D.B. 8161, PG. 1206) ZONE : R-3C USE : RESIDENTIAL

LOT 118 N/F WILLIAM MICHAEL WAITE (D.B. 21324, PG. 1256) ZONE : R-3C USE : RESIDENTIAL

LOT 114 N/F WAYNE W. & EMMA R. BATES (D.B. 6888, PG. 71) ZONE : R-3C USE : RESIDENTIAL

LOT 112 N/F GARRETT C. BARTON (D.B. 18611, PG. 1163) ZONE : R-3C USE : RESIDENTIAL

LOT 600 PARCEL "H" N/F LONDON TOWNE SECOND WEST H.O.A. ZONE : R-8 USE : OPEN SPACE

LONDON TOWNE SECTION 2F ZONE : R-8 USE : TOWNHOUSES

STONE ROAD - ROUTE #662 (VARIABLE WIDTH) 21,000 VPD

PARCEL "A" 45,025 s.f. PRIVATE STREET

1 5,051 s.f. 2 4,953 s.f. 3 4,875 s.f. 4 4,755 s.f. 5 4,531 s.f. 6 4,519 s.f. 7 2,560 s.f. 8 1,820 s.f. 9 1,920 s.f. 10 2,560 s.f.

RAIN GARDEN

TREE SAVE AREA

SULLY STATION II COMM. ASS'N. (D.B. 7004, PG. 1652) ZONE : R-8 USE : OPEN SPACE

LOT 103 LOT 102 LOT 101 LOT 100

SUBLOT "A" N/F MARK W. SPUNGIN (D.B. 18000, PG. 210) ZONE : R-8 USE : VACANT

BATTERY RIDGE LANE PRIVATE STREET

BATTERY RIDGE (D.B. 7004 PG. 1453)

PARCEL "A" N/F SULLY STATION II COMMUNITY ASSOCIATION (D.B. 7004, PG. 1652) ZONE : R-8 USE : OPEN SPACE

PARCEL "C" N/F SULLY STATION II COMMUNITY ASS'N. (D.B. 7004, PG. 1652) ZONE : R-8 USE : OPEN SPACE

GRAPHIC SCALE 20 0 10 20 40 SCALE: 1" = 20'

VIRGINIA STATE GRID NORTH (NAD83)

NO.	DATE	REVISION
1	7-11-11	ROAD 3RD BUILDING AREA, REV. SIDE CURBS, REV. FENCE HEIGHTS (E.A.)
2	7-11-11	REV. SIDEWALK, REV. TREE SAVE AREA, REV. SIDE CURBS, REV. BUILDING
3	7-11-11	REV. SIDEWALK, REV. TREE SAVE AREA, REV. BUILDING, REV. SPECIAL NOTES, ADDED

REVISION PRIOR TO APPROVAL

CPJ Associates

Charles P. Johnson & Associates, Inc.

PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

3959 PROVIDENCE DRIVE SUITE 210 FAIRFAX, VIRGINIA 22030 (703)591-7555

FAX (703)273-3568

CONCEPTUAL/FINAL DEVELOPMENT PLAN

STONE ROAD PROPERTY

SULLY DISTRICT

FAIRFAX COUNTY, VIRGINIA

RZ 2011-SU-006

COMMONWEALTH OF VIRGINIA PAUL B. JOHNSON Lic. No. 010410 PROFESSIONAL ENGINEER

DESIGN	DRAFT	K.J.V.	
	APPROVED		
	DATE	APR. 2011	
HORIZ.	1" = 20'		
VERT.	—		

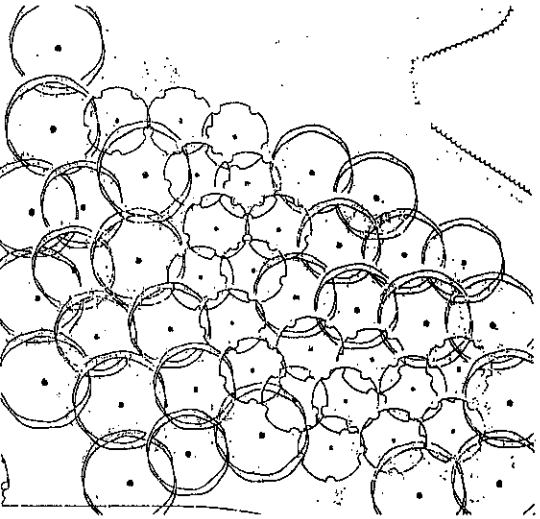
SHEET 3 OF 9

PRJ NO: 10-506

TYPE: CDP/FDP

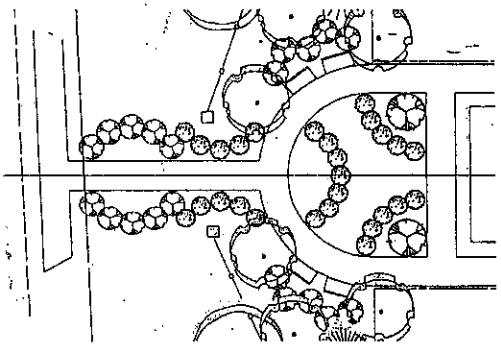
Last Saved 8/17/2011 Last Plotted 8/17/2011 3:41 PM Sheet in \10506\dwg\pb-rb101

Attached Sheet 10-FIT\Pb-RB101/Pb-RB101



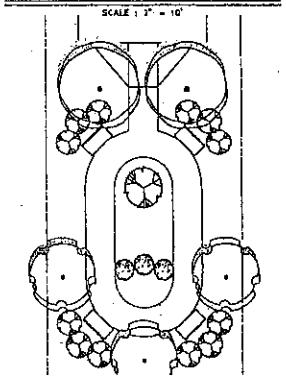
RAIN GARDEN LANDSCAPING

SCALE : 1" = 10'



SEATING AREA LANDSCAPING

SCALE : 1" = 10'



SEATING AREA LANDSCAPING

SCALE : 1" = 10'

Table 12.10 10-YEAR TREE CANOPY CALCULATION WORKSHEET

A. Tree Preservation Target Calculation (Table 12.9)		
a	Preservation Area of existing tree canopy	68,600 SF
B	Percentage of area to be cleared for building and canopy	63.3 %
C	Percentage of 10-year canopy required to be preserved	20 %
D	Percentage of 10-year canopy requirement that should be met through tree preservation	46.7 %
E	Proposed percentage of canopy requirement that will be met through tree preservation	15.8 %
F	Has the Tree Preservation Target requirement been met?	NO
G	If no, please state why and explain what is being done	SHEET 3

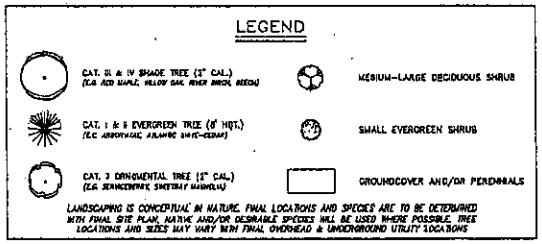
B. Tree Canopy Requirement		
1	Gross site area	83,574 SF
2	Less: (C) site area that is not building and parking	5 SF
3	Subtract square footage of easements	0 SF
4	Adjusted gross site area (B1 - B2 - B3)	83,574 SF
5	Subtract: Tree canopy credit (C)	PC=0.0
6	Percentage of 10-year canopy required	20 %
7	Area of 10-year canopy required (B4 x B6)	16,675 SF
8	Is a waiver, deviation, or other requirements being requested?	NO
9	If OB is yes, please state section number, modification request to be filed	YES

C. Tree Preservation		
1	Tree Preservation Target Value	8,000 SF
2	Total canopy area remaining (Parcel) at 10-20 yrs	2,600 SF
3	x 1.25	3,313 SF
4	Total canopy area of vegetation (Note 1) in easement (Conservation)	0 SF
5	x 1.00	0 SF
6	Total canopy area of Heritage, Specimen, Specimen or Street Trees	0 SF
7	x 1.50 or 2.0	0 SF
8	Canopy area of trees within Parking Lot and 100-year floodplain	0 SF
9	x 1.5	0 SF
10	Total of C3, C5, C7, and C9	3,313 SF

D. Tree Planting		
1	Area of canopy to be met through tree planting (B7 - C10)	13,362 SF
2	Area of canopy to be planted for air quality or water benefits	14,600 SF
3	x 1.50	19,563 SF
4	Area of canopy to be planted for energy conservation	0 SF
5	x 1.50	0 SF
6	Area of canopy to be planted for water quality benefits	0 SF
7	x 1.25	0 SF
8	Area of canopy provided by native trees	0 SF
9	x 1.50	0 SF
10	Area of canopy provided by ornamental cultivars and varieties	0 SF
11	25% credit	0 SF
12	Area of canopy provided by native trees	1,750 SF
13	x 1.0	1,750 SF
13	Area of canopy provided through tree rehabilitation	0 SF
	x 1.5	0 SF
14	Area of canopy provided through tree planting in urban areas	0 SF
	x 1.0	0 SF
15	Percentage of line B13 that could not be met (not more than 33% of B13)	0 %
16	Total of canopy area to be provided through tree planting	19,750 SF
17	Is offsite planting required?	NO
18	Tree bank or Note 2 fund?	N/A
19	Canopy area requirement to be provided through offsite planting or tree fund	0 SF
20	Amount to be requested into the Tree Preservation and Planting Fund	$

E. Total of 10-year Tree Canopy Provided		
1	Total canopy area provided through tree preservation (C10)	3,313 SF
2	Total canopy area provided through tree planting (D16)	19,750 SF
3	Total canopy area provided through other mechanisms (E4+E5)	N/A SF
4	Total 10-year tree canopy provided	23,063 SF

Total 10-year tree canopy provided (To be filled after design) 28 %



CPJ Associates — Charles P. Johnson & Associates, Inc.
Planners Engineers Landscape Architects Surveyors Environmental Services
3959 Pender Drive, Suite 210 • Fairfax, VA 22030 • 703-385-7555 • Fax: 703-273-9595

August 12, 2011

Fairfax County
Urban Forest Management Division
12055 Government Center Parkway
Fairfax, Virginia 22035

Attention: Mr. Mike Kraege

Re: Stone Road Property

Dear Mr. Kraege:

The purpose of this letter is to request a deviation from the Tree Preservation Target Area requirement of PFM § 12-0507. It is our belief that this deviation request meets the conditions allowed under PFM § 12-0507.3A(1).

If the development were to meet the required target area of 8,000 square feet, or more than what is proposed to be saved with this plan, it would preclude the development of the density allowed by the Zoning Ordinance. The tree cover is most dense in the southeastern corner of the site in the point of access to the project. Roughly half of the existing tree canopy of the site can be categorized as Landscape or Tree Canopy, as shown on the Existing Vegetation Map on Sheet 2. Because the locations of these areas are scattered across a large portion of the site, it would require multiple lots to be removed in order to save another 6,387 square feet of tree cover to meet the Target Area. One large silver maple in less than ideal condition covers 3,300 square feet by itself near the middle of the site. The plan as shown has a total tree preservation area of 6,713 square feet. This does not include 1,700 square feet of tree canopy (2,125 square feet with 10-year growth) to be saved within the parking utility easement along Stone Road, which cannot be counted toward the site's total tree preservation area.

Clearing and grading for the development has been minimized to only what is necessary, preserving several on-site trees along the northern and eastern boundaries.

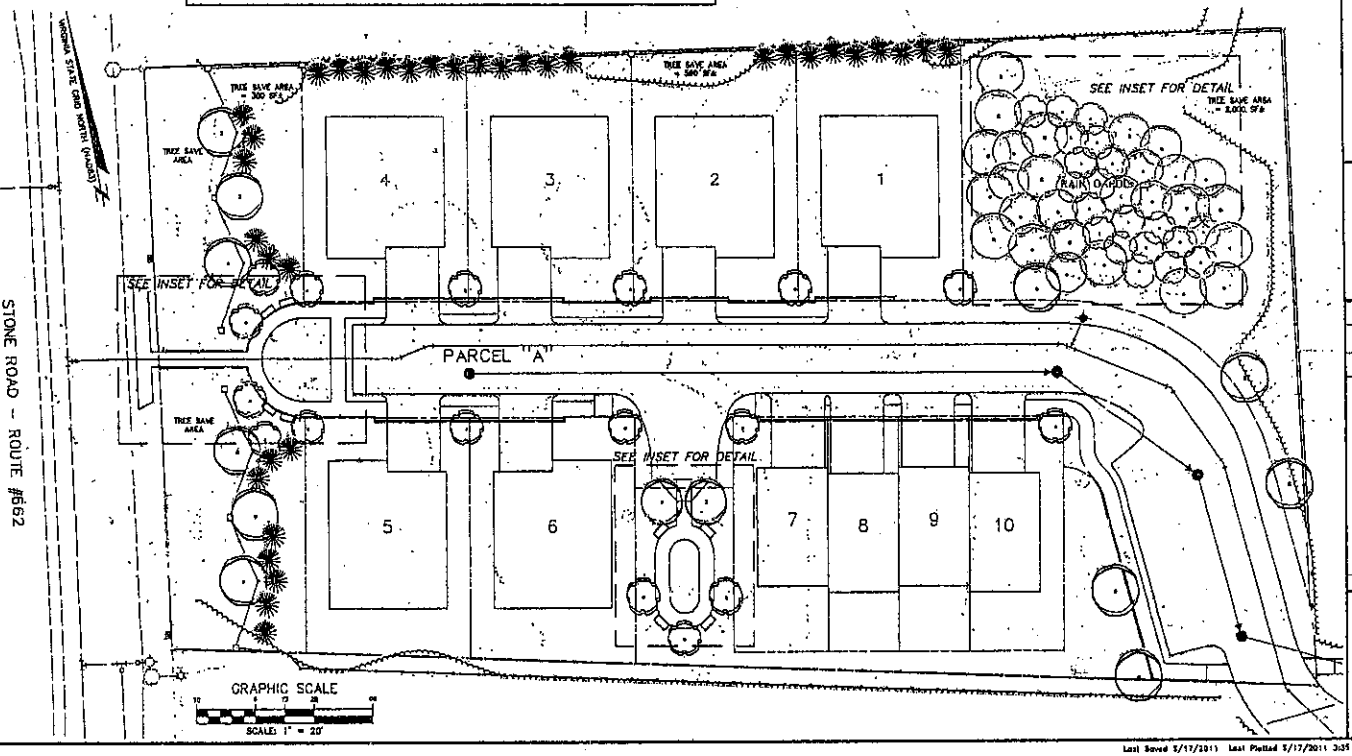
The remainder of the ten-year Tree Canopy Requirement of 23% will be achieved with landscaping which will be of better quality and species than much of the vegetation currently occupying the site, the goal of which will be to replace the Requirement. Most of these trees will be located along Stone Road and the proposed private street transition, as well as in the proposed rain garden.

If you have any questions or concerns, please do not hesitate to contact me at 703-385-7555 or kvastel@cpj.com.

Sincerely,

Kenneth J. Vastel, L.L.A.

Silver Spring, MD • Gaithersburg, MD • Frederick, MD • Eastern Shore, MD • Fairfax, VA



CONCEPTUAL LANDSCAPE PLAN

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

RZ 2011-SU-006

NO.	DATE	DESCRIPTION	BY
2	8-17-11	REV. LANDSCAPING, TREE COVER CALCS. & DEVIATION LETTER PLAN	
1	7-15-11	REVISED LANDSCAPING, TREE COVER CALCS. & DEVIATION LETTER PLAN	

REVISIONS

Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS
3959 PENDER DRIVE, SUITE 210 FAIRFAX, VIRGINIA 22030-7413
(703) 385-7555 FAX (703) 273-9595

COMMONWEALTH OF VIRGINIA — PAUL B. JOHNSON — Lic. No. 110400 — PROFESSIONAL ENGINEER

DESIGN	KJV
DRAWN	KJV
APPROVED	PBJ
DATE	APRIL 2011
SCALE	HORIZ: 1" = 20' VERT: ----

SHEET	OF
4	9

PRJ NO: 10-508
TYPE: CDP/FDP

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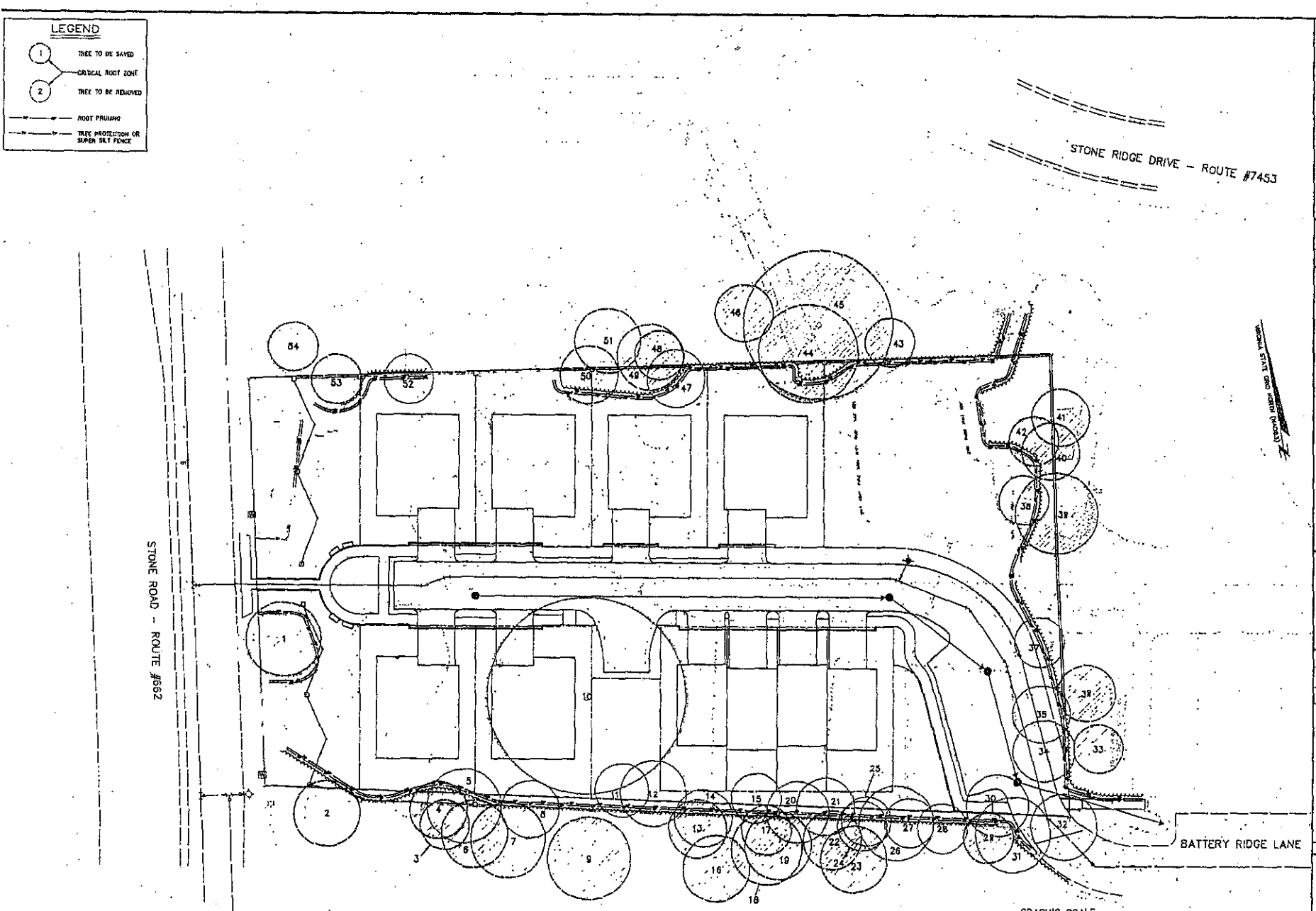


THIS SHEET IS FOR TREE PRESERVATION PURPOSES ONLY

TREE PRESERVATION PLAN

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

RZ 2011-SU-006

CPJ Associates
Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

COMMONWEALTH OF VIRGINIA
PAUL B. JOHNSON
Lic. No. 018450
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS
1	7-14-11	REVISED TREES TO BE PRESERVED/REMOVED (N.A.)

REVISION PRIOR TO APPROVAL

DESIGN BLM | DRAFT BLM | APPROVED HMP | DATE APR. 2011 | SCALE HORIZ. 1" = 20' | VERT. --

SHEET 5 OF 9

PRJ NO: 10-508
TYPE: COP/FDP

Last Saved 7/15/2011 Last Plotted 7/15/2011 11:18 AM Sheet #: \10508\DWG\DO-F0000

TREE INVENTORY AND ACTIVITIES SPREADSHEET

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (in)	CONDITION	COMMENTS	STATUS	ACTIVITIES (ROOT PRUNE / MULCH / TREE FENCE / PRUNE / FERTILIZE / CABLE / CAMBISTAT / TREAT PESTS)
1	Red Maple	Acer rubrum	18	75	Included bark, limb dieback, broken limbs, girdling roots	Preserve	x x x x
2	Northern Red Oak	Quercus rubra	36	71	Offsite - Dual leader, included bark, buttressing roots, limb dieback, uneven canopy, vines growing at the base of the tree	Preserve	x x x x
3	Black Oak	Quercus velutina	32	71	Offsite - Large growth at the base of the trunk, large vine growing up the trunk, limb dieback, one sided growth, sparse canopy	Preserve	x x x x
4	Black Oak	Quercus velutina	14	76	Offsite - Large vine growing up the trunk, sparse canopy	Preserve	x x x x
5	White Oak	Quercus alba	16	40	Offsite - One sided growth, tree leaning toward the site, limb dieback. Removal recommended with owner's permission.	Remove	
6	Northern Red Oak	Quercus rubra	14	68	Offsite - Epicormic sprouting, girdling roots, included bark, poor form, small canopy	Preserve	x x x x
7	Northern Red Oak	Quercus rubra	16	75	Offsite - Buttressing roots, girdling roots, limb dieback, large broken limb	Preserve	x x x x
8	Sweetgum	Liquidambar styraciflua	15	65	Offsite - Uneven growth, poor branching & form, limb dieback, broken limbs, growing against small fence. Removal recommended with owner's permission.	Remove	
9	Northern Red Oak	Quercus rubra	20	36	Offsite - Poor form, included bark, limb dieback, Trunk jogs out of place near the canopy, uneven canopy, epicormic sprouting	Preserve	x x x x
10	Silver Maple	Acer saccharinum	46	68	Included bark, poor branch connections, poor branching, limb dieback, epicormic sprouting	Remove	
11	Black Oak	Quercus velutina	17	40	Large vine growing up the trunk of the tree, limb dieback	Remove	
12	Sweetgum	Liquidambar styraciflua	16	65	Assessed as Hazardous. Severely leaning tree, large vine growing up the trunk, cable tied into trunk	Remove	
13	Ash	Fraxinus americana	14	76	Offsite - Poor form, crooked trunk with several jogs, included bark, uneven canopy	Preserve	x x x x
14	Sweetgum	Liquidambar styraciflua	32	78	Offsite - Epicormic sprouting, uneven canopy. Removal recommended with owner's permission.	Remove	
15	Sweetgum	Liquidambar styraciflua	17	78	Limb dieback, small uneven canopy	Remove	
16	Northern Red Oak	Quercus rubra	16	71	Offsite - Dual leader, poor form, uneven canopy, hole at the base of the trunk, curve in the trunk	Preserve	x x x x
17	Sweetgum	Liquidambar styraciflua	12	74	Offsite - Curved trunk, uneven canopy, poor form	Preserve	x x x x
18	Sweetgum	Liquidambar styraciflua	14	72	Offsite - Small canopy, secondary leader dead, included bark	Preserve	x x x x
19	Sweetgum	Liquidambar styraciflua	16	60	Offsite - Large vine growing up the trunk, limb dieback, uneven canopy	Preserve	x x x x
20	Sweetgum	Liquidambar styraciflua	16	61	Limb dieback, crowding uneven canopy	Remove	
21	Sweetgum	Liquidambar styraciflua	14	61	One sided canopy, broken limbs	Remove	
22	Sweetgum	Liquidambar styraciflua	12	84	Offsite - Broken limbs, sparse canopy, limb dieback	Preserve	x x x x
23	Sweetgum	Liquidambar styraciflua	14	84	Offsite - Limb dieback, sparse canopy	Preserve	x x x
24	Sweetgum	Liquidambar styraciflua	12	79	Offsite - Large vine growing up the trunk, limb dieback, sparse canopy. Removal recommended with owner's permission.	Remove	
25	Sweetgum	Liquidambar styraciflua	10	69	Offsite - Secondary leader growing at an angle, uneven canopy, limb dieback, small beginning at growing trunk of tree. Removal recommended with owner's permission.	Remove	
26	Northern Red Oak	Quercus rubra	18	71	Offsite - Epicormic sprouting, uneven canopy. Removal recommended with owner's permission.	Remove	
27	American Beech	Fagus grandifolia	12	62	Growing into adjacent sweetgum, included bark, broken limbs, limbs growing towards the ground, epicormic sprouting.	Remove	
28	Sweetgum	Liquidambar styraciflua	30	74	Offsite - Uneven canopy, trunk near the crown is beginning to grow at an angle. Removal recommended with owner's permission.	Remove	
29	Northern Red Oak	Quercus rubra	12	75	Offsite - Limb dieback, sparse canopy, epicormic sprouting	Preserve	x x x
30	Sweetgum	Liquidambar styraciflua	15	78	Vines growing up the trunk, uneven canopy, limb dieback.	Remove	
31	Northern Red Oak	Quercus rubra	18	78	Offsite - Large vine growing up the trunk of the tree, limb dieback, sparse canopy	Remove	
32	Northern Red Oak	Quercus rubra	16	75	Asphalt covering one side of the root zone, broken limbs, limb dieback	Remove	
33	White Pine	Pinus strobus	17	78	Offsite - Limb dieback on one side, broken limbs	Preserve	x x x x
34	White Pine	Pinus strobus	16	84	Limb dieback on fence side	Remove	
35	White Pine	Pinus strobus	14	84	Limb dieback on fence side	Remove	
36	White Pine	Pinus strobus	14	74	Offsite - Single curve in the trunk, broken limbs, limb dieback	Preserve	x x x x
37	White Pine	Pinus strobus	12	64	Limb dieback on fence side	Remove	
38	White Ash	Fraxinus americana	13	71	Dual trunk, limb dieback, epicormic sprouting, chain wrapped around trunk	Remove	
39	Northern Red Oak	Quercus rubra	20	81	Offsite - Ivy growing up trunk, limb dieback, included bark	Preserve	x x x
40	Black Birch	Betula lenta	14	79	Poor form, epicormic sprouting, limb dieback, small [illegible] of the trunk has multiple jogs, included bark	Preserve	x x x x
41	Sweetgum	Liquidambar styraciflua	16	71	Multi-trunk, sparse canopy, limb dieback, broken limbs, included bark, poor form	Preserve	x x x x
42	Black Willow	Salix nigra	12	71	Dual trunk, poor form, 2 cavities in trunk, uneven canopy	Preserve	x x x x
43	Black Birch	Betula lenta	12	69	Offsite - poor form, poor pruning techniques used, epicormic sprouting	Preserve	x x x x
44	Northern Red Oak	Quercus rubra	24	78	Offsite - Limb dieback, broken limbs	Preserve	x x x x
45	White Oak	Quercus alba	26	69	Offsite - Triple trunk, sparse canopy, limb dieback, limbs growing into the ground	Preserve	x x x x
46	Bigtooth Aspen	Populus grandidentata	14	69	Offsite - Crack near base of the trunk, sparse canopy	Preserve	x x x x
47	Sweetgum	Liquidambar styraciflua	14	78	Broken limbs, uneven canopy, limb dieback	Remove	
48	Sweetgum	Liquidambar styraciflua	12	71	Offsite - dual trunk, poor form, limb dieback	Preserve	x x
49	Bigtooth Aspen	Populus grandidentata	14	69	Offsite - Recent [illegible], limb dieback	Preserve	x x
50	Sweetgum	Liquidambar styraciflua	14	71	Multi-trunk, growing into overhead power lines, leaning	Preserve	x x x x
51	Sweetgum	Liquidambar styraciflua	16	75	Offsite - Large broken limb, limbs growing toward ground, uneven canopy	Preserve	x x
52	Bigtooth Aspen	Populus grandidentata	12	81	Offsite - Uneven canopy, growing against the fence	Remove	
53	Ash	Fraxinus americana	12	72	Large vine growing up the trunk, limb dieback, included bark	Preserve	x x x x
54	Red Maple	Acer rubrum	12	69	Offsite - Included bark	Preserve	x x

TREE APPRAISAL SPREADSHEET (TRUNK FORMULA METHOD)

TREE #	COMMON NAME	SCIENTIFIC NAME	SPECIES RATING	DBH (in)	CONDITION	SITE	CONTRIBUTION	PLACEMENT	LOCATION	STATUS	Appraised Trunk Area TA (in)	Tree Trunk Area Increase TA incr	Basic Tree Cost	Appraised Value Trunk Formula Method
1	Red Maple	Acer rubrum	15	18	75	70	70	50	63	Preserve	254.34	234.34	19075.5	$6,795.65
2	Northern Red Oak	Quercus rubra	70	16	74	70	70	70	70	Preserve	200.96	180.96	15072	$5,241.55
3	Black Oak	Quercus velutina	70	12	71	70	63	50	65	Preserve	113.04	93.04	8478	$3,130.08
4	Black Oak	Quercus velutina	70	14	78	70	70	50	63	Preserve	153.86	133.86	11539.5	$4,560.41
6	Northern Red Oak	Quercus rubra	70	16	49	70	45	40	50	Preserve	200.96	180.96	15072	$4,731.85
7	Northern Red Oak	Quercus rubra	70	18	75	70	70	50	67	Preserve	254.34	234.34	19075.5	$6,676.43
9	Northern Red Oak	Quercus rubra	85	20	71	70	40	45	65	Preserve	314	294	23550	$9,238.08
13	Ash	Fraxinus americana	61	14	78	70	70	50	67	Preserve	153.86	133.86	11539.5	$3,900.39
16	Northern Red Oak	Quercus rubra	70	16	74	70	61	45	66	Preserve	200.96	180.96	15072	$4,869.06
17	Sweetgum	Liquidambar styraciflua	70	12	78	70	67	20	62	Preserve	113.04	93.04	8478	$2,891.16
18	Sweetgum	Liquidambar styraciflua	70	14	72	70	45	50	62	Preserve	153.86	133.86	11539.5	$3,580.40
19	Sweetgum	Liquidambar styraciflua	70	16	64	70	32	50	62	Preserve	200.96	180.96	15072	$3,485.11
22	Sweetgum	Liquidambar styraciflua	70	12	84	70	65	45	68	Preserve	113.04	93.04	8478	$3,373.73
23	Sweetgum	Liquidambar styraciflua	70	14	84	70	65	70	68	Preserve	200.96	180.96	15072	$4,055.63
29	Northern Red Oak	Quercus rubra	70	12	75	70	75	70	72	Preserve	113.04	51.04	8478	$3,169.95
33	White Pine	Pinus strobus	40	12	78	70	50	75	75	Preserve	113.04	93.04	8478	$2,011.97
36	White Pine	Pinus strobus	40	14	74	70	65	75	75	Preserve	153.86	133.86	11539.5	$4,202.59
39	Northern Red Oak	Quercus rubra	70	20	81	70	55	70	72	Preserve	314	294	23550	$9,560.54
40	Black Birch	Betula lenta	75	14	79	70	35	65	70	Preserve	153.86	133.86	11539.5	$4,725.45
41	Sweetgum	Liquidambar styraciflua	70	16	71	70	35	50	72	Preserve	200.96	180.96	15072	$5,368.40
42	Black Willow	Salix nigra	50	12	71	70	55	50	60	Preserve	113.04	93.04	8478	$2,144.98
43	Black Birch	Betula lenta	72	12	69	70	65	70	61	Preserve	113.04	93.04	8478	$2,666.03
44	Northern Red Oak	Quercus rubra	70	24	78	70	70	45	72	Preserve	452.16	432.16	33912	$11,418.17
45	White Oak	Quercus alba	85	26	69	70	46	50	67	Preserve	1017.34	997.36	76302	$20,834.05
46	Bigtooth Aspen	Populus grandidentata	50	14	69	70	70	70	76	Preserve	153.86	133.86	11539.5	$2,282.52
48	Sweetgum	Liquidambar styraciflua	74	12	71	70	75	63	70	Preserve	113.04	93.04	8478	$2,949.50
49	Bigtooth Aspen	Populus grandidentata	45	16	69	70	75	55	70	Preserve	200.96	180.96	15072	$2,113.91
50	Sweetgum	Liquidambar styraciflua	76	14	71	70	60	43	70	Preserve	153.86	133.86	11539.5	$3,345.40
51	Sweetgum	Liquidambar styraciflua	76	16	75	0	75	34	72	Preserve	200.96	180.96	15072	$3,670.44
53	Ash	Fraxinus pennsylvanica	55	12	79	70	70	45	62	Preserve	113.04	93.04	8478	$2,664.23
54	Red Maple	Acer rubrum	75	12	69	70	35	75	70	Preserve	113.04	93.04	8478	$3,443.47
													TOTAL	$170,712.32

Tree appraisal value determined by the Trunk Formula Method as outlined in the latest edition of *The Guide for Plant Appraisal* published by the International Society of Arboriculture (ISA).

The cost figures applied for Replacement Tree DBH, Installed Tree Cost and Unit Tree Cost are referenced in the 2007 edition of *The Mid-Atlantic Species Rating Guide* published by the Mid-Atlantic Chapter of the ISA.

Prepared by Rebecca Mitchell ISA Certified Arborist MA-4660A

TREE PRESERVATION NARRATIVE:

Trees as referred to in this document are considered those trees that are protected by limits of clearing and grading and shown for preservation on approved plans.

1. Flagging/ Site Layout: Prior to requesting a pre-construction meeting, the contractor is responsible for flagging the limits of clearing and grading. These limits shall not exceed that shown on the approved plans.

2. Pre Construction Meeting: After clearing limits have been staked a meeting shall be requested by the contractor to walk with owner or owner's designated representative, arborist/forester hired by owner, site superintendent, clearing contractor and UFMD, DPWES representative to make minor adjustments as necessary to observe trees listed in tree preservation activity schedule. Additional preservation activities will be coordinated with the Urban Forestry Division at this time.

3. Tree Protection Approval: Selective tree removals, root pruning, and tree protection fence installation should be completed prior to any demolition or land clearing operations. An UFMD, DPWES, representative shall be contacted a minimum of three (3) days prior to any site clearing, grading or demolition activities are to begin, to inspect the site to insure that the tree protection has been installed.

4. Protection of Existing Understory Vegetation and Soil Conditions in Tree Preservation Areas: All tree preservation-related work occurring in or adjacent to tree preservation areas shall be accomplished in a manner that minimizes damage to vegetation to be preserved in the lower canopy environment, and to the existing top soil and leaf litter layers that provide nourishment and protection to that vegetation. Any removal of any vegetation or soil disturbance in tree preservation areas including the removal of plant species that may be perceived as noxious or invasive, such as poison ivy, greenbrier, multi-floral rose, etc. shall be subject to the review and approval of UFMD, DPWES.

5. Use of Equipment: Except as qualified herein, the use of motorized equipment in tree preservation areas will be limited to hand-operated equipment such as chain saws, wheel barrows, rake and shovels. Any work that requires the use of motorized equipment, such as tree transplanting spades, skid loaders, tractors, trucks, stump-grinders, etc., or any accessory or attachment connected to this type of equipment shall not occur unless pre-approved by UFMD.

6. Root Pruning: Tree preservation Areas shall be root pruned along the limits of clearing adjacent to significant trees 20" dbh and greater or as noted by the project arborist in the Tree Inventory and Activity Schedule. Root pruning shall be a minimum of 18" deep and shall be accomplished using a small walk behind trencher or air spade. The root pruning trench shall be backfilled immediately. Silt fence/super silt fence installation utilizing walk behind trencher can be substituted for root pruning.

7. Mulching: Trees indicated will be mulched with wood chips generated from on site clearing or tree removal and pruning operations when possible. Shredded hardwood mulch from offsite maybe utilized if approved by project arborist. Mulch shall be spread in a uniform depth of three (3") inches by hand. Mulch shall be placed in an areas as indicated on approved plans or extending in a swath fifteen feet wide along the Limit of Disturbance adjacent to indicated trees at minimum.

8. Tree Protection Fencing: Tree Preservation Areas shall be protected by fencing in the form of four (4) foot high, fourteen (14) gauge welded wire attached to six (6) foot steel t-bar posts driven eighteen (18) inches into the ground at maximum ten (10) foot spacing. Super-Silt fencing can be substituted for tree protection fencing as approved by UFMD. Fencing shall be erected at the limits of clearing and grading as shown on the demolition, and erosion and sediment control sheets. The installation of all tree protection fence types should be performed under the supervision of a certified arborist, and accomplished in a manner that does not harm existing vegetation that is to be preserved. Tree protection fencing shall be made clearly visible to all construction personnel. Bilingual signs stating "TREE PRESERVATION AREA – KEEP OUT" shall be affixed to the tree preservation fence at least every 30 feet, and five (5) working days prior to the commencement of any clearing, grading, or demolition activities, but subsequent to the installation of the tree protection devices including fencing. UFMD and the district supervisor staff 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 UFMD.

9. Tree Protection Maintenance: Fencing shall be maintained in an upright position for the duration of the project. Tree protection fencing that is damaged as a result of land clearing operations shall be repaired prior to the end of the workday that the damage occurred.

10. Pruning: All pruning shall conform to current ANSI A300-2001 pruning standards. Trees designated for pruning shall be crown cleaned of deadwood 2" and greater unless otherwise specified by the project arborist. The interior of trees shall not be stripped of live tissue, suckers, or epicormic branches. Damaged, crossing, and rubbing branches may be removed at the arborist's discretion. Debris from pruning operations may be chipped and deposited into the Tree Preservation Areas and spread by hand at a uniform depth or be removed from the site.

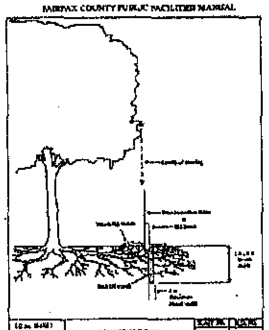
11. Site Monitoring: During any clearing or tree/vegetation structure removal or transplantation of vegetation on the subject site, a representative of the applicant shall be present to monitor the process and ensure that the activities are conducted as approved by UFMD. The applicant should retain the services of a certified arborist to monitor all construction work and tree preservation efforts in order to ensure conformance with all tree preservation conditions, and UFMD approvals. Monitoring inspections to ensure compliance with tree preservation plans and other jurisdictional requirements shall be conducted daily during initial site clearing operations, weekly through the erosion and sediment control phase, weekly for four weeks thereafter and monthly for 12 months. The district supervisor shall be notified of the name and contact information of the Applicant's representative responsible for site monitoring of the tree preservation work through meeting.

NOTE: AS STATED BY SECTION 12-0507.1B IN THE PUBLIC FACILITIES MANUAL, DEAD TREES AND TREES THAT REPRESENT A POTENTIAL HAZARD TO HUMAN HEALTH AND PROPERTY WHICH ARE 12 INCHES IN DIAMETER OR GREATER THAT RESIDE IN ONE OF THE TWO FOLLOWING AREAS WILL BE IDENTIFIED ON THE TREE INVENTORY.

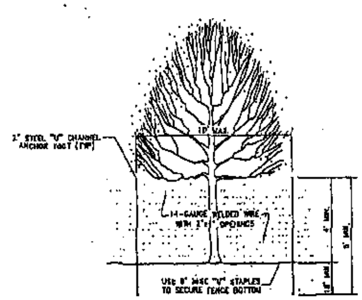
AREA 1. 100 FEET FROM THE PROPOSED LIMITS OF CLEARING AND GRADING WITHIN THE UNDISTURBED AREA.

AREA 2. 10 FEET FROM THE PROPOSED LIMITS OF CLEARING AND GRADING WITHIN THE DISTURBED AREA.

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



(2 in. DIAM.)	ROOT PRUNING	PLATE NO. 9-14	



NOTE: TREE PROTECTION FENCING SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION

TREE PROTECTION FENCE DETAIL
NOT TO SCALE

THIS SHEET IS FOR TREE PRESERVATION PURPOSES ONLY

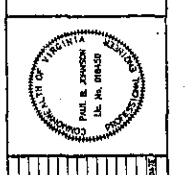
NO.	DATE	REVISION
1	7-14-11	REVISED TREES TO BE PRESERVED/REMOVED (EJP) REVISION PRIOR TO APPROVAL

CPJ Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

TREE PRESERVATION INVENTORY

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA



DESIGN BLK | DRAFT BLM | APPROVED HMF | DATE APRIL 2011 | SCALE HORIZ: — VERT: —

SHEET 6 OF 9

PRJ NO: 10-800
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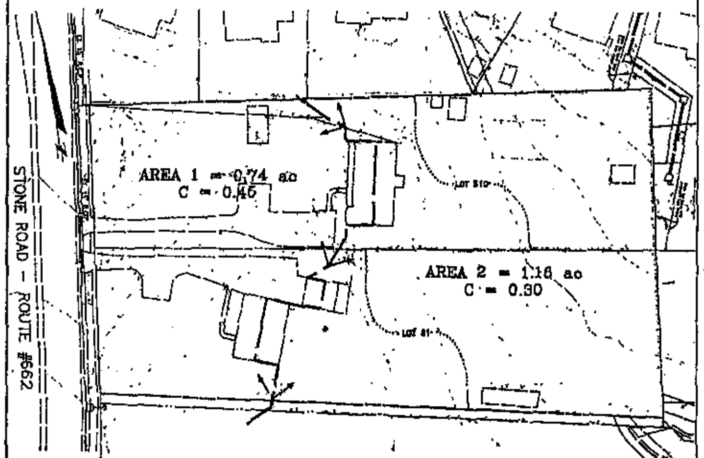
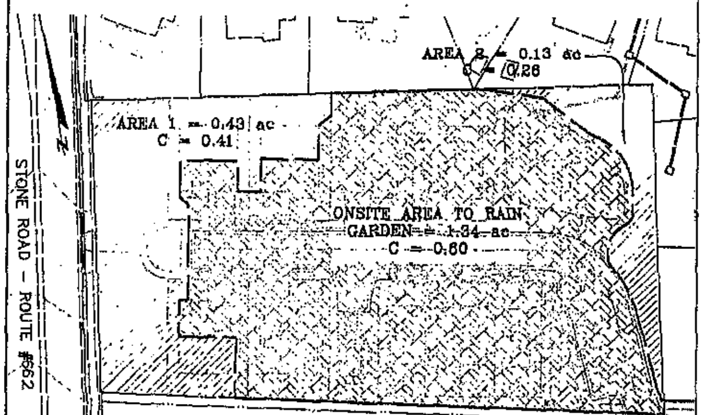


PRE-DEVELOPMENT DRAINAGE MAP
SCALE : 1" = 40'

GRAPHIC SCALE
SCALE: 1" = 40'



POST-DEVELOPMENT DRAINAGE MAP
SCALE : 1" = 40'

GRAPHIC SCALE
SCALE: 1" = 40'

LEGEND

- ONSITE AREA TO PROPOSED BIO-RETENTION FILTER (B1 & B2)
- ONSITE AREA UNCONTROLLED (B3)
- EXISTING CLOSED STORM SEWER SYSTEM

OUTFALL NARRATIVE

THE PROPERTY CONSISTS OF 1.90 ACRES, ON WHICH 5 DETACHED & 4 ATTACHED SINGLE-FAMILY UNITS, A PRIVATE STREET, AND RELATED UTILITIES ARE PROPOSED. HALF OF THE EXISTING SITE IS WOODED. THERE ARE TWO EXISTING HOUSES AND ASPHALT DRIVEWAYS ON THE SITE WHICH ARE TO BE REMOVED. THE SITE HAS SLOPES THAT VARY FROM 2% TO 4%.

THE SITE'S EXISTING STORMWATER RUNOFF SHEET FLOWS IN TWO DIFFERENT DIRECTIONS. AREA 1 (0.74 ACRES) SHEET FLOWS INTO AN EXISTING CLOSED STORM SEWER SYSTEM ALONG STONE ROAD (ROUTE #662) TO THE WEST OF THE SITE. AREA 2 (1.16 ACRES) SHEET FLOWS TOWARDS THE EAST INTO AN EXISTING CLOSED STORM SEWER SYSTEM LOCATED IN ROCKY RUN SECTIONS 3 & 4 (SEE FAIRFAX COUNTY PLAN # 3610-SD-004-2 & 3610-SD-003-3). THIS EXISTING STORM SEWER SYSTEM DRAINS INTO AN EXISTING DRY POND AND ULTIMATELY DISCHARGES RUNOFF INTO A MAJOR 100-YR FLOODPLAIN FOR BIG ROCKY RUN TO THE EAST OF THE SITE.

Pre-Development Condition

A1=	0.74 Ac		C= 0.45						
Q2=	0.74	x	0.45	x	5.45	=	1.81	cfs	
Q10=	0.74	x	0.45	x	7.27	=	2.42	cfs	
A2=	1.16 Ac		C= 0.30						
Q2=	1.16	x	0.3	x	5.45	=	1.90	cfs	
Q10=	1.16	x	0.3	x	7.27	=	2.53	cfs	

TOTAL EXISTING FLOW FROM THE SITE

A =	1.90 Ac					
	A1		A2			
Q2=	1.81	+	1.90	=	2.71	cfs
Q10=	2.42	+	2.53	=	4.95	cfs

AFTER THE DEVELOPMENT IS COMPLETED, THE DRAINAGE PATTERN WILL BE SIMILAR TO THE EXISTING DRAINAGE PATTERN. THE TOTAL PROPOSED FLOW FROM THE SITE WILL BE REDUCED (SEE POST-DEVELOPMENT CONDITION COMPUTATION BELOW). MOST OF THE SITE'S RUNOFF (1.34 ACRES) WILL BE COLLECTED INTO A PROPOSED ONSITE CLOSED STORM SEWER SYSTEM AND DISCHARGED INTO A PROPOSED ONSITE BIORETENTION FILTER. RUNOFF FROM AREA 1 (0.43 ACRES) WILL CONTINUE TO SHEET FLOW INTO STONE ROAD (ROUTE #662). THIS FLOW WILL BE REDUCED DUE TO LESS AREA DRAINING TO IT. THE PROPOSED FLOW FROM THE SITE IS AS FOLLOWS:

Post-Development Condition

A1=	0.43 Ac		C= 0.41					
Q2=	0.43	x	0.41	x	5.45	=	0.96	cfs
Q10=	0.43	x	0.41	x	7.27	=	1.28	cfs
A2=	0.12 Ac		C= 0.26					
Q2=	0.13	x	0.26	x	5.45	=	0.18	cfs
Q10=	0.13	x	0.26	x	7.27	=	0.25	cfs

THE BIORETENTION FILTER WILL RELEASE APPROXIMATELY 0.80 CFS FOR THE 2-YR AND 1.2 CFS FOR THE 10-YR STORMS RESPECTIVELY. THESE RELEASE RATES MAY CHANGE WITH THE FINAL ENGINEERING DESIGN, BUT THE TOTAL RUNOFF FROM THE SUBJECT SITE WILL BE BELOW PRE-DEVELOPMENT LEVELS.

TOTAL PROPOSED FLOW FROM THE SITE

A =	1.90 Ac							
	A1		A2		RAIN GARDEN			
Q2=	0.96	+	0.18	+	0.8	=	1.90	cfs
Q10=	1.25	+	0.25	+	1.2	=	2.73	cfs

THE REMAINING UNCONTROLLED AREA FROM AREA 2 (0.13 ACRES) WILL CONTINUE TO SHEET FLOW TOWARDS THE EAST INTO THE EXISTING YARD INLET (EX. STR. # 13) ON ADJACENT LOT 12. THE PROPOSED BIORETENTION FILTER WILL DISCHARGE RUNOFF INTO THE SAME EXISTING STORM SEWER SYSTEM AT EXISTING STRUCTURE #13 (SEE OFFSITE DRAINAGE MAP THIS SHEET). THE EXISTING STORM SEWER SYSTEM HAS BEEN ANALYZED AND FOUND TO HAVE ADEQUATE CAPACITY TO HANDLE THE RUNOFF FROM THE SUBJECT SITE (SEE EXISTING STORM DRAIN DESIGN COMPUTATION THIS SHEET). THIS EXISTING STORM SEWER SYSTEM CONTINUES TO DISCHARGE RUNOFF INTO THE EXISTING MAJOR 100-YR FLOODPLAIN TO THE EAST OF THE SITE.

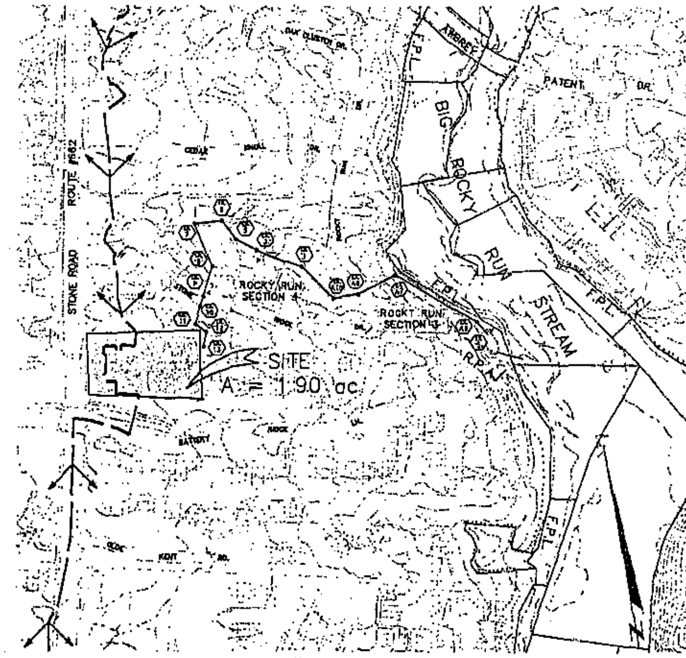
THE SITE IS LOCATED WITHIN CUB RUN WATERSHED. THE OVERALL DRAINAGE MAP SHOWN ON SHEET 8 DEPICTS THE DRAINAGE AREA WHERE THE EXISTING STORM SEWER SYSTEM OUTFALLS TO THE EXISTING MAJOR FLOODPLAIN FOR BIG ROCKY RUN SUBWATERSHED AT POINT "A". AT THIS POINT, THE TOTAL DRAINAGE AREA IS APPROXIMATELY 4,780 ACRES, WHICH IS MUCH GREATER THAN 100 TIMES OF THE SITE'S AREA (1.90 ACRES).

SINCE THE FLOWS FROM THE SITE WILL BE REDUCED, THE DEVELOPMENT WILL NOT HAVE AN ADVERSE IMPACT ON DOWNSTREAM PROPERTIES. IT IS THEREFORE THE ENGINEER'S OPINION THAT AN ADEQUATE OUTFALL EXISTS FOR THIS PROJECT.

STORMWATER MANAGEMENT AND BMP SUMMARY

STORMWATER MANAGEMENT WILL BE PROVIDED BY MEANS OF AN ONSITE BIORETENTION FILTER WITH STONE STORAGE UNDERNEATH. THE FILTER WILL REDUCE THE POST-DEVELOPMENT PEAK FLOWS FROM THE SITE TO LESS THAN THE PRE-DEVELOPMENT PEAK FLOWS (SEE SHEET 8 FOR BIORETENTION FILTER PRELIMINARY DESIGN).

ADDITIONALLY, THE BIORETENTION FILTER WILL PROVIDE A MINIMUM OF 50% BMPs, WHICH MEETS THE REQUIRED 50% BMPs (SEE BMP COMPS THIS SHEET).



OFFSITE DRAINAGE MAP
SCALE : 1" = 200'

GRAPHIC SCALE
SCALE: 1" = 200'

PRELIMINARY BMP COMPUTATIONS

Part I. List all of the Subareas and "C" Factors used in the BMP Computations

Subarea Designation and Description (1)	"C" (2)	Acres (3)
B1 - Onsite to Rain Garden	0.60	1.302
B2 - Onsite to Rain Garden	0.50	[illegible]
B3 - Onsite Uncontrolled	0.30	0.560

Part II. Compute the total Phosphorous removal by the BMP

Subarea Designation (1)	BMP Type (2)	Removal Eff. (%) (3)		Area Ratio (4)		"C" Factor Ratio (5)		Product (6)
B1	Rain Garden	65	x	[illegible]	x	[illegible]	=	[illegible]
B2	By-Passed	0	x	[illegible]	x	[illegible]	=	[illegible]
B3	Uncontrolled	0	x	[illegible]	x	[illegible]	=	[illegible]

(6) Total = [illegible]

NOTES :

1. THESE AREAS AND COMPUTATIONS ARE PRELIMINARY AND MAY BE ADJUSTED WITH THE FINAL ENGINEERING PLANS.
2. THE SITE IS WITHIN A WATER SUPPLY PROTECTION OVERLAY DISTRICT AND IS SUBJECT TO A 50% PHOSPHOROUS REMOVAL EFFICIENCY.

EXISTING STORM DRAIN DESIGN COMPUTATIONS

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NO.	DATE	REVISION
1	8-11-11	REVISED OUTFALL CALCULATIONS & NARRATIVE (WW)
2	7-14-11	REVISED OUTFALL CALCULATIONS & NARRATIVE (WW)
		REVISION PRIOR TO APPROVAL

CPJ Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

OUTFALL ANALYSIS

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

RZ 2011-SU-006

COMMONWEALTH OF VIRGINIA
PAUL B. JOHNSON
Lic. No. 016450
PROFESSIONAL ENGINEER

NO.	DESCRIPTION	REVISIONS	APPROVED BY	DATE

DESIGN WW
DRAFT WW
APPROVED ATD
DATE APRIL 2011
SCALE AS SHOWN

SHEET 7 OF 9

PRJ NO: 10-508
TYPE: SDP/FDP

Last Saved 8/17/2011 Last Plotted 8/17/2011 3:40 PM

Total Site Area A = 1.90 ac

Drainage Area to Rain Garden #2 A_{RG} = 1.54 ac

Solid Impervious Area to Rain Garden A_I = 0.84 ac or 0.68 (Ver. 1.66) Q_{RG} = 0.80 cfs (To rain garden)

Treatment Volume 1 lb per impervious acre (36.30 ft²)

Treatment Volume 1 lb per impervious acre

Total Quality Volume WQ_v = 2234 cf

Filter Bed Design

Max. Ponding Depth h_f = 0.5 ft

Required Surface Area of Filter A_{req} = WQ_v/h_f = 4469 sf

Provided Surface Area of Filter A_f = 4,500 sf at elevation 265.00

Provided surface area is larger than the required area

Depth of Filter d_f = 2.5 ft at elevation 263.25

Coefficient of Permeability of Filter Bed k_f = 1.5 in/hr

Drain tile through the filter Q_f = $(WQ_v)^2/(k_f(12)^2(0.5h_f+d_f)^2A_f)$ = 3.63 hrs

Bioretention Design

Field measured infiltration rate k_s = 0 in/hr (Dominion)

Design infiltration rate k_s = 1/2 in/hr

Design infiltration rate = 0 in/hr

Area of the dam wall A_w = 0.05 ac

Outflow through orifice in dam (C_d=0.6, A_o = area of 3/4" hole) Q_o = $CA(2gh)^{1/2}$ = 3.4 cfs

(K, 75 HOLES)

water elev. 70' deep

Total plant runoff volume (10-yr) 10,990 cf per impervious acre

Total dam runoff volume (10-yr) 10,990 cf per impervious acre

Detention storm volume (10-yr 2-hr storm) V_{st} = 10,990 * A_I = 9273 cf

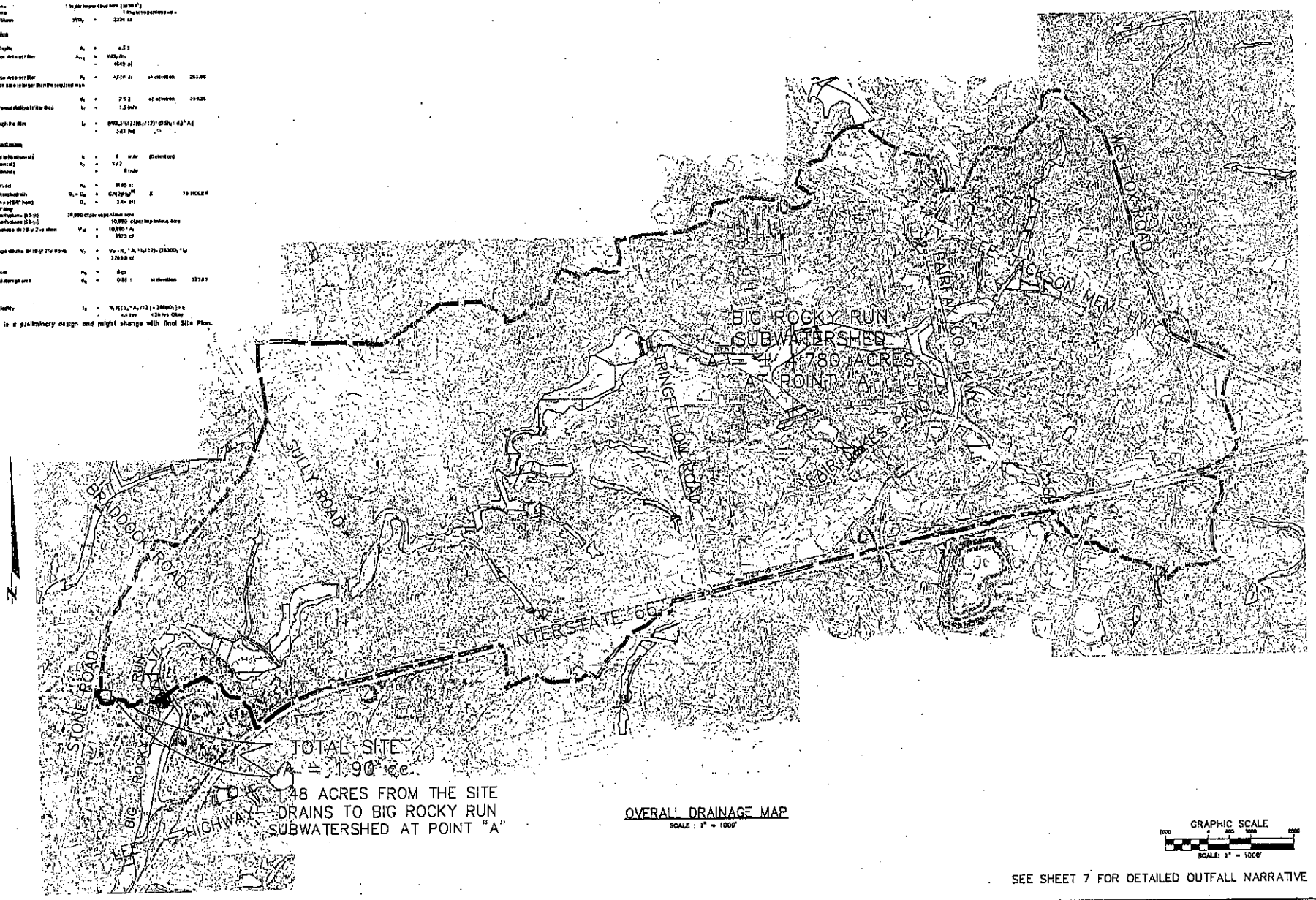
Required storage volume for 10-yr 2-hr storm V_r = V_{st} - h_f * A_f * (12) - (3600) * Q_o = 32638 cf

Porosity of gravel P_g = 0.35

Depth of gravel storage area d_g = 0.88 ft at elevation 267.87

Drain tiles for facility T_d = $V_r/(12 * A_f * (12) + 3600 * Q_o)$ = 4.4 hrs < 24 hrs Okay

Note: This is a preliminary design and might change with final Site Plan.



OVERALL DRAINAGE MAP

SCALE : 1" = 1000'

GRAPHIC SCALE

SCALE: 1" = 1000'

SEE SHEET 7 FOR DETAILED OUTFALL NARRATIVE

OUTFALL ANALYSIS

STONE ROAD PROPERTY

SULLY DISTRICT

FAIRFAX COUNTY, VIRGINIA

RZ 2011-SU-005

REV.	DATE	DESCRIPTION
3	8-17-11	REVISED OUTFALL CALCULATIONS & NARRATIVE (KW)
2	8-1-11	NEW SHEET
1	8-1-11	REVISION PRIOR TO APPROVAL

Charles P. Johnson & Associates, Inc.

PLANNERS ENGINEERS LANDSCAPE ARCHITECTS & SURVEYORS

9900 FAIRFAX BLVD. SUITE 250 FAIRFAX, VIRGINIA 22030 (703) 385-1000

FAX (703) 273-3741

CPJ Associates

COMMONWEALTH OF VIRGINIA PAUL B. JOHNSON Lic. No. 018420

DESIGN	SMPT	
DRAWN	MWF	
APPROVED	PBJ	
DATE	JULY 2011	
SCALE	1" = 1000'	
VERT.	—	

SHEET 8 OF 9

PRJ No: 19-586

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LOTS 1–6

LOTS 7–10

THIS SHEET IS FOR ILLUSTRATIVE PURPOSES ONLY

ARCHITECTURAL ELEVATIONS

STONE ROAD PROPERTY

SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

RZ 2011–SU–006

CPJ Associates
Charles P. Johnson & Associates, Inc.
PLANNERS ENGINEERS LANDSCAPE ARCHITECTS SURVEYORS

REVISION PRIOR TO APPROVAL

NO.	DATE	REVISIONS
1	7-14-11	NEW SHEET (6-9)

NO.	DESCRIPTION	REVISION BY	APPROVED	DATE

DESIGN: KJV DRAFT: KJV
APPROVED: HHF
DATE: JULY 2011
SCALE: HORIZ: — VERT: —

SHEET 9 OF 9

PRJ NO: 10-506
TYPE: CDP/FDP

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