



County of Fairfax, Virginia

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

August 1, 2012

Gregory A. Riegler
McGuire Woods LLP
1750 Tysons Boulevard, Suite 1800
Tysons Corner, VA 22102

RE: Rezoning Application RZ 2011-MA-029

Dear Mr. Riegler:

Enclosed you will find a copy of an Ordinance adopted by the Board of Supervisors at a regular meeting held on July 31, 2012, granting Rezoning Application RZ 2011-MA-029 in the name of Neighborhoods, VI, LLC. The Board's action rezones certain property in the Mason District from the R-2 and HC Districts to the PDH-4 and HC Districts to permit residential development with an overall density of 3.30 du/ac and approval of the conceptual plan. The subject property is located in the S.W. quadrant of the intersection of Willow Run Drive and Little River Turnpike on approximately 8.79 acres of land. [Tax Map 71-2 ((1)) 36; 71-2 ((10)) 17A and 71-2 ((13)) 1], and is subject to the proffers dated May 14, 2012.

Please note that on June 14, 2012, the Planning Commission approved Final Development Plan Application FDP 2011-MA-029.

The Board also:

- Waived the 600-foot maximum length of a private street.
- Modified the trail requirements on Little River Turnpike in favor of right-of-way dedication shown on the Conceptual Development Plan/Final Development Plan (CDP/FDP).

Office of the Clerk to the Board of Supervisors
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- Waived the service drive along the Little River Turnpike frontage in favor of right-of-way dedication shown on the CDP/FDP.

Sincerely,



Catherine A. Chianese
Clerk to the Board of Supervisors

Cc: Chairman Sharon Bulova
Supervisor Penelope Gross, Mason 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
Donald Stephens, Transportation Planning Division
Department of Highways-VDOT
Sandy Stallman, Park Planning Branch Manager, FCPA
Charlene Fuhrman-Schulz, Development Officer, DHCD/Design Development Division
Planning Commission
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 31st day of July, 2012, the following ordinance was adopted:

**AN ORDINANCE AMENDING THE ZONING ORDINANCE
PROPOSAL NUMBER RZ 2011-MA-029**

WHEREAS, Neighborhoods, VI, LLC, filed in the proper form an application requesting the zoning of a certain parcel of land herein after described, from the R-2 and HC Districts to the PDH-4 and HC 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 Mason District, and more particularly described as follows (see attached legal description):

Be, and hereby is, zoned to the PDH-4 and HC Districts, and said property is subject to the use regulations of said PDH-4 and HC 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 31st day of July, 2012.



Catherine A. Chianese
Clerk to the Board of Supervisors

**NEIGHBORHOODS VI, LLC
CALLAWAY**

**RZ 2011-MA-029
PROFFERS**

May 14, 2012

Pursuant to Section 15.2-2303(a) of the Code of Virginia, 1950, as amended, the property owner who is the Applicant in this rezoning proffer that the development of the parcels under consideration and shown on the Fairfax County Tax Maps as Tax Map Reference – 71-2-((1))-36 and 71-2-((10))-17A and 71-2-((13))-1 (hereinafter referred to as the “Property”) shall be in accordance with the following conditions if, and only if, said rezoning request for the PDH-4 District is granted by the Board of Supervisors of Fairfax County, Virginia (the "Board"). In the event said application request is denied or the Board’s approval is overturned by a court of competent jurisdiction, these proffers shall be null and void. The Owners and the Applicant (“Applicant”), for themselves, their successors and assigns, agree that these proffers shall supersede any and all previously approved proffers or Special Exception conditions and shall be binding on the future development of the Property unless modified, waived or rescinded in the future by the Board, in accordance with applicable County and State statutory procedures. The proffered conditions are:

I. GENERAL

1. Substantial Conformance. Subject to the proffers and the provisions of Article 18 of the Zoning Ordinance, under which minor modifications to an approved development plan are permitted, the development shall be in substantial conformance with the Conceptual/Final Plan entitled “Callaway” (CDP/FDP), containing twenty four

(24) sheets prepared by BC Consultants dated July 2011 and revised through May 16, 2012.

2. Architecture. 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 sheet 17 of the CDP/FDP. The primary building materials exclusive of trim shall be limited to brick, stone, cementitious siding, shingles or other similar masonry materials. Minor modifications may be made with the final architectural designs provided such modifications are in substantial conformance with the elevations shown on the CDP/FDP.

3. Rears of Units 11-13 and 19-24. The rear facade and architecture of units 11-13 and 19-24 as shown on the CDP/FDP shall include the following:

- Within units 11-13, a minimum of one unit shall incorporate rear dormers or gables into the roof architecture.
- Within units 19-24, a minimum of three units shall incorporate rear dormers or gables into the roof architecture.
- Two different roof styles shall be used.
- There shall be a minimum of two exterior colors used with no two adjacent units having an identical color.
- Decorative window treatments will be varied among the units. The treatments may include but are not limited to: trim, shutters and ornamental features.
- All decorative fixtures shall be of a type and style consistent with those used on the front facade.

4. Lot 14. The roof style on Lot 14 shall be a hip style roof, similar to that shown on Sheet 17 of the CDP/FDP. The south side and rear of the house on Lot #14 shall be finished with materials proportional to and matching those on the front of the

unit. There shall be no raised deck or second floor deck on this unit. There shall be no third floor living space permitted on this house.

5. 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 engineering design, may be permitted as determined by the Zoning Administrator in accordance with the provisions set forth in Article 16 of the Zoning Ordinance.

6. Lot Yield and Uses. The development shall consist of a maximum of twenty-nine (29) single-family detached dwelling units.

7. Establishment of HOA. Prior to record plat approval, the Applicant shall establish a Homeowners Association (HOA) in accordance with Sect. 2-700 of the Zoning Ordinance for the purpose of, among other things, establishing the necessary residential covenants governing the use and operation of common open space, stormwater management facilities and other common facilities of the approved development and to provide a mechanism for ensuring the ability to complete the maintenance obligations and other provisions noted in these proffer conditions.

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

9. Disclosure. Prior to entering into a contract of sale, prospective purchasers shall be notified in writing by the Applicants of the land use and parking restraints imposed by the proffers as well as the maintenance responsibility for the private roadways, guest parking spaces, painted walkways, stormwater management facilities, common area landscaping and any other open space amenities and shall acknowledge

receipt of this information in writing. The initial deeds of conveyance and HOA governing documents shall expressly contain these disclosures.

10. Public Access Easement. At the time of record plat recordation, 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 the private road and sidewalks as generally shown on the CDP/FDP.

11. Escalation. All monetary contributions required by these proffers shall escalate on a yearly basis from the base year of 2012, 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.

12. Garage Conversion. Any conversion of garages or use of garages that precludes the parking of vehicles within the garage is prohibited. Garages shall not be converted to living space. A covenant setting forth this restriction shall be recorded among the land records of Fairfax County in a form approved by the County Attorney prior to the sale of any lots and shall run to the benefit of the HOA and the Board of Supervisors. This restriction shall also be disclosed in the HOA documents. Prospective purchasers shall be advised of this use restriction, in writing, prior to entering into a contract of sale.

13. Parking. The parking of boats or recreational vehicles shall be prohibited within the community. This restraint shall also be described in the HOA documents and to prospective purchasers, in writing, prior to entering into a sales contract.

14. Length of Driveways. All driveways serving the residential single family units shall be a minimum of twenty feet (20') in length as measured outward from the face of the garage door to the edge of the sidewalk.

15. Lot Typical, Decks and Similar Appurtenances. Decks, bay windows, patios, chimneys, areaways, stairs and stoops, mechanical equipment and other similar appurtenances may encroach into minimum yards as depicted on the "lot typical" as shown on Sheet 3 of the CDP/FDP, as permitted by Section 2-412 and Article 10 of the Zoning Ordinance. Side yards shall be a minimum of seven (7) feet. No sheds shall be permitted in the rear yards. Porches (including screened in porches) or sunrooms may be permitted in the rear yard in the area identified as "Deck, Addition or Accessory Feature Area" on the lot typical included on Sheet 3 of the CDP/FDP. The specifications of this proffer shall be disclosed to future homeowners in the Homeowners Association documents.

16. Retaining Walls. The retaining walls shall be finished as to have the appearance of stone facing or brick as detailed on Sheet 16 of the CDP/FDP. Retaining wall heights and locations are subject to final engineering and approval at the time of subdivision plan approval. They may be reduced in height, or eliminated subject to final grading at the time of subdivision plan review.

II. TRANSPORTATION

17. Right-of-Way Dedication along Little River Turnpike. At the time of record plat recordation, or upon demand by VDOT or Fairfax County, whichever occurs first, the Applicant shall dedicate, at no cost to Fairfax County and in fee simple to the Board, the right-of-way along the site frontage of Little River Turnpike and any associated ancillary easements, as generally shown on the CDP/FDP.

18. Willow Run Road Frontage Improvements. Prior to the issuance of the first Residential Use Permit for the single family dwellings on the subject property, the Applicant shall construct improvements along Willow Run Drive as shown on the CDP/FDP.

19. Bus Shelter. A bus shelter along Little River Turnpike shall be provided by the Applicant in consultation with DPWES and Fairfax County Department of Transportation (FCDOT). The bus shelter shall be installed prior to issuance of the first Residential Use Permit; provided, however, that the Zoning Administrator may administratively approve a later date for completion of the improvement upon demonstration by the Applicant that despite diligent efforts and due to factors beyond the Applicant's control, the required improvements have been delayed. Final locations shall be determined in consultation with FCDOT and VDOT at the time of subdivision approval.

20. Traffic Signal Pro-Rata Contribution. Prior to the issuance of the first Residential Use Permit, the Applicant shall contribute \$2,250 to Fairfax County Board of Supervisors to be used for the traffic signal programmed for the intersection of Little River Turnpike and Willow Run Drive.

21. Private Road. The street width and remaining standards shall be designed and constructed in accordance with the private residential street standards in accordance with the PFM, subject to DPWES approval.

22. Guest Parking Spaces. Signs shall be posted that the parking spaces along the street are reserved for guests. Consistent with the requirements of these proffers, no recreational vehicles (RV's), commercial vehicles, boats or trailer shall be permitted in those spaces. The restrictions that the parking spaces are restricted for guests shall be

included in the initial deeds of conveyance and the HOA governing documents shall expressly contain these disclosures.

III. CONSTRUCTION

23. Construction Access and Hours. The staging and parking of construction vehicles shall occur on the Property, including personal vehicles utilized by construction workers. No parking shall occur on adjacent roadways. The hours of initial construction shall be posted in English and in Spanish and shall be limited to the hours between 7:00 a.m. and 7:30 p.m. Monday through Friday and 8:00 a.m. to 7:30 p.m. on Saturdays. No construction shall occur on Sundays or Federal Holidays. This shall be disclosed to all contractors and sub-contractors who perform work on the subject property during site construction.

24. Erosion & Sedimentation Controls. To ensure off-site properties are not impacted by silt or associated run-off, the Applicant shall design and implement siltation control mechanisms that shall include “super silt” fencing or similar procedures as determined by DPWES. The functioning and integrity of all erosion and sedimentation controls (E&S controls) required by DPWES shall be inspected, by the Applicant or their designated representative, no later than the next business day following each storm event during the period of construction on-site. If the E&S controls have been damaged or breached, the E&S controls shall be repaired in accordance with the requirements of the Fairfax County Public Facilities Manual as determined by DPWES.

IV. ENVIRONMENTAL

25. Stormwater Management Facilities and Best Management Practices. Stormwater management shall be provided as generally depicted on the CDP/FDP and as approved by DPWES. The stormwater management techniques may include but are not

limited to the following: dry detention pond, rain gardens, filtera systems, infiltration trenches, drainage swales or bay filters. All such facilities shall be located in a manner that is in substantial conformance with the CDP/FDP. If warranted by final engineering, minor modifications to the size, location and configuration of the dry detention pond may be made in connection with subdivision plan approval; provided however, that such changes shall not serve to diminish the effectiveness of any required screening and landscaping. Similarly, the Applicant acknowledges that such minor modifications may result in a loss of density. Adequate outfall shall be demonstrated in accordance with the PFM as determined by DPWES. If the options listed above are not approved by DPWES, a Proffered Condition Amendment or proffer interpretation will be required.

All BMP facilities/improvements not accepted for maintenance by Fairfax County shall be properly maintained on the Property in a manner determined by DPWES. Dry detention facilities are maintained by Fairfax County. The requirements for maintaining other 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 accordance with the recorded maintenance agreement.

26. Stormwater Management and BMP Maintenance. After establishing the HOA, the Applicant shall provide the HOA and all future homeowners with written materials in the form of a manual describing the proper maintenance any approved stormwater management facilities not otherwise maintained by Fairfax County, including

the need for inspections, cleaning and general maintenance in accordance with County guidelines and the manufacturer's guidelines. Should the approved subdivision plan reflect any stormwater facilities not maintained by Fairfax County, the Applicant shall establish an escrow for the HOA to provide for the future maintenance of such improvements as well as a contribution towards a reserve fund for the future replacement of the underground facility which will receive annual deposits from the HOA based on initial construction costs. The amount of such escrow shall be approved by DPWES.

27. Landscaping. At the time of subdivision plan review, the Applicant shall submit to DPWES, a landscape plan showing landscaping consistent with the quality, quantity and general location shown on the Landscape Plan of the CDP/FDP. This plan shall be subject to review and approval of Urban Forestry Management, DPWES. At the time of planting, the minimum caliper for deciduous trees shall be two (2.0) inches to three (3) inches and the minimum height for evergreen trees shall be eight (8) feet. Actual types and species of vegetation shall be determined pursuant to more detailed landscape plans approved by Urban Forest Management at the time of subdivision plan approval. Maintenance responsibilities for the landscaping shall be disclosed in the homeowners' association documents.

28. Landscape Buffer. The landscape buffer around the perimeter of the property shall be owned and maintained by the Homeowners Association. The rear of the single family lots shall be clearly defined by either a fence and/or vegetative buffer to delineate where the lot ends and the landscape buffer begins. The maintenance responsibilities of the landscape buffer shall be disclosed in HOA documents which shall be distributed to all future homeowners.

29. Energy Conservation. All new dwelling units shall be designed and constructed as ENERGY STAR[®] qualified homes. The major features of an ENERGY STAR home include: Effective Insulation, High Performance Windows, Tight Construction and Ducts, Efficient Heating and Cooling Equipment, Efficient Products (may include but are not limited to: refrigerator, stove and dishwasher) and Third Party Verification (Home Energy Rater). Prior to issuance of the Residential use Permit (RUP) for each dwelling unit, documentation shall be submitted to the Environment and Development Review Branch of the Department of Planning and Zoning from a home energy rater certified through the Residential Energy Services network (RESNET) program that demonstrates that the dwelling unit has attained the ENERGY STAR for homes certification, as described in these conditions.

30. Interior Noise. In order to reduce interior noise to a level of approximately DNL 45 dBA, lots 1-4, 27-29 within the highway noise impact zone of DNL 65-70 dBA shall employ the following acoustical treatment measures:

- Exterior walls shall have a laboratory sound transmission class (STC) rating of at least 39.
- Doors and glazing shall have a laboratory STC rating of at least 28 unless glazing constitutes more than 20 percent of any façade exposed to noise levels of DNL 65 dBA or above. If glazing constitutes more than 20 percent of an exposed façade, then the glazing shall have an STC rating of at least 39.
- All surfaces shall be sealed and caulked in accordance with methods approved by the American Society of Testing and Materials (ASTM) to minimize sound transmission.

In lieu of applying these measures, the Applicant may submit a revised noise study, based on final grading and engineering plans, prior to filing for a building permit to determine appropriate noise attenuation measures in order to reduce interior noise to a level of approximately DNL 45 dBA for lots which are within the highway noise impact zone of DNL 65-70 dBA. Noise attenuation measure may include but are not limited to appropriate STC ratings and construction for walls and windows. The noise study will be conducted by a qualified engineer and the noise attenuation measures shall be subject to review and approval of the Environmental Branch of the Department of Planning and Zoning.

31. Exterior Noise. All lots affected by highway noise above DNL 65 dBA are shown on the CDP/FDP. Exterior noise levels for outdoor recreational areas for the lots within the DNL 65 dBA zone shall be reduced below DNL 65 dBA through the use of noise attenuation fencing as shown on the CDP/FDP. The acoustical fence shall be architecturally solid from ground up with no gaps or openings as shown on the CDP/FDP. At the time of Subdivision Plan approval, the Applicant shall have the option to submit a revised noise study based on final grading and engineering plans. The noise study will be conducted by a qualified engineer and the noise attenuation measures shall be subject to review and approval of the Environmental Branch of Department of Planning and Zoning.

V. TREE PRESERVATION

32. Tree Preservation Plan. The applicant shall submit a Tree Preservation Plan and Narrative as part of the first and all subsequent submissions of the subdivision plan review process. The preservation plan and narrative shall be prepared by a Certified Arborist or a Registered Consulting Arborist, and shall be subject to the review and

approval of the Urban Forest Management Division (UFMD), DPWES.

The tree preservation plan shall include a tree inventory that identifies the location, species, critical root zone and size for all individual trees to be preserved, as well as all on and off-site trees, living or dead with trunks eight (8) inches in diameter and greater (measured at 4 1/2 -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) located within 25 feet of either side of the limits of clearing and grading. Trees to be inventoried at the northeast corner of the site shall be limited to those as shown on sheet 9 of the CDP/FDP or as directed by UFMD. Additional condition analysis shall be provided for all trees inventoried. The tree preservation plan shall provide for the preservation of those areas shown for tree preservation, those areas outside of the limits of clearing and grading shown on the CDP/FDP 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 along the limits of clearing (LOC), mulching, fertilization, installation of welded wire tree protection fencing and others as necessary, shall be included in the plan.

33. 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 proffered and as approved by the UFMD. The Applicant shall retain the services of a certified arborist or registered consulting arborist to monitor all construction and demolition work and tree preservation efforts in order to ensure conformance with all tree preservation proffers, and UFMD

approvals. The monitoring schedule shall be described and detailed in the Landscaping and Tree Preservation Plan, and reviewed and approved by the UFMD, DPWES.

34. Tree Preservation Walk-Through. The Applicant shall retain the services of a certified arborist or registered consulting arborist, and shall have the limits of clearing and grading marked with a continuous line of flagging prior to the walk-through meeting as part of the tree preservation plan. During the tree preservation walk-through meeting which shall occur prior to the commencement of construction, the Applicant's certified arborist or registered consulting arborist 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 and/or to increase 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

35. - Limits of Clearing and Grading. The Applicant shall conform substantially to the limits of clearing and grading as shown on the CDP/FDP, subject to allowances specified in these proffered conditions and for the installation of utilities and/or trails as determined necessary by the Director of DPWES, as described herein. If it is determined necessary to install utilities and/or trails in areas protected by the limits of clearing and grading as shown on the CDP/FDP, they shall be located in the least

disruptive manner necessary as determined by the UFMD, DPWES. 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. Any trees impacted within the limits of clearing and grading as specified above shall be replaced on the site as determined by UFMD.

36. Tree Preservation Fencing. All trees shown to be preserved on the tree preservation plan shall be protected by tree protection fence. Tree protection fencing 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 does not sever or wound compression roots which can lead to structural failure and/or uprooting of trees shall be erected at the limits of clearing and grading as shown on the demolition, and phase I & II erosion and sediment control sheets, as may be modified by the "Root Pruning" proffer below.

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, 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.

37. Root Pruning. The Applicant shall root prune after the tree preservation walk-through, as needed to comply with the tree preservation requirements of these proffers. All treatments shall be clearly identified, labeled, and detailed on the erosion and sediment control sheets of the subdivision plan submission. The details for these treatments shall be reviewed and approved by the UFMD, DPWES, 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 depth of 18 inches.
- Root pruning shall take place prior to any clearing and grading, or demolition of structures.
- Root pruning shall be conducted with the supervision of a certified arborist.
- An UFMD, DPWES, representative shall be informed when all root pruning and tree protection fence installation is complete.

38. Tree Appraisal. The Applicant shall retain a professional arborist with experience in plant appraisal, to determine the replacement value of all trees 8 inches in diameter or greater located on the Application Property that are shown to be saved on the Tree Preservation Plan. These trees and their value shall be identified on the Tree Preservation Plan at the time of the first submission of the respective 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 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 UFMD due to unauthorized construction activities, the Applicant shall replace such trees at its expense. The replacement trees shall be of equivalent size, species and/or canopy cover as approved by UFMD. In addition to this replacement obligation, the Applicant shall also make a payment equal to the value of any Bonded Tree that is dead or dying or improperly removed due to unauthorized construction activity. This payment shall be determined based on the Trunk Formula Method and paid to a fund established by the County for furtherance of tree preservation objectives. 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.

-39. Tree Transplant Plan. The applicant shall provide a transplantation plan as part of the first and all subsequent submissions of the subdivision plan. The plan shall be prepared by a professional with experience in the preparation of tree transplanting plans, such as a Certified Arborist or Registered Consulting Arborist. The plan as detailed on Sheet 15 of the CDP/FDP shall address all of the following items: (1) the species and sizes to be transplanted, (2) the existing locations of the trees, (3) staging location(s) (4)

the proposed final locations of the trees, (5) the proposed time of year when the trees will be moved, (6) the transplant methods to be used, including tree spade size, (7) details regarding after-transplant care, including mulching, watering, soil amendments, etc., support measures such as guying or staking all subject to approval of UFMD. Note, the final location of the trees to be transplanted as shown on Sheet 14 of the CDP/FDP may be adjusted in consultation with UFM at the time of subdivision plan.

VI. STREAM RESTORATION AND INVASIVE PLANT SPECIES MANAGEMENT PLAN

40. Stream Restoration. The stream on the property shall be restored in the general location shown on the sheet entitled Conceptual Stream Restoration Plan accompanying the CDP/FDP, subject to review and approval by DPWES and the Northern Virginia Soil and Water Conservation District (NVSWCD). HEC-RAS shall be used to determine velocities and shear stresses from the design flow rates in the channel bed and any overbank flow area. Substrate materials for the stream shall be specified based on these results. Non-erosive velocities of the substrate material in the stream channel during the 2-year storm event shall be demonstrated in the design calculations. Allowable velocities shall be based on requirement of the Public Facilities Manual (PFM) or by other accepted engineering methods as approved by DPWES. The design shall also provide incipient motion, scour, limiting slope criteria and bed armoring calculations to demonstrate the adequacy of the specified cobble size in the streambed. Calculations shall also be provided to check for toe and bank stability. Final design characteristics shall be subject to review and modification by DPWES and the NVSWCD and shall be submitted at the time of subdivision plan.

41. Invasive Plant Species Management Plan. As part of the first and all subsequent submissions of the subdivision plan review process the Applicant shall submit a Stream Restoration Plan and Invasive Plant Species Management Plan (Restoration Plan) prepared by a Certified Arborist or Registered Consulting Arborist and shall be subject to the review and approval of the Department of Public Works and Environmental Services and UFMD. The plan will:

- Establish invasive plant management success criteria for evaluation purposes. This plan will describe and document the invasive plant species present. Provide information about each identified invasive plant species. It will include monitoring objectives and protocols for measuring effectiveness of management actions.
- The plan will:
 - Prioritize management of the identified invasive plant species and provide proactive prevention and early detection/rapid response strategies for newly invading plant species (example: assisting with education of volunteers to conduct invasive species searches and implementing management strategies).
 - Describe selected management strategies and control options for invasive plant populations/infested areas, prevention, early detection, control (eradication, suppression, containment), and restoration.
 - Include the selected methods by which the management strategies are to be achieved (e.g. specific treatments such as herbicide application rate and timing, manual removal).
 - Include a list of equipment and other resources to be used in the management plan.
- Annual monitoring shall include restoration reports to DPWES to be submitted by the end of the calendar year each year for five years commencement of the restoration plan. Commencement of the restoration plan shall occur within six months of the final inspection of the landscaping plan by DPWES.

42. Outreach to Students. As part of the restoration project, outreach programs shall be offered to students within the Fairfax County School system within the school pyramid for the subject property to teach them about the restoration of the stream.

43. Stream Restoration Sign. A sign detailing that the stream has been restored shall be posted in the vicinity of the stream prior to submission of the final annual monitoring report.

VII. RECREATION

44. Park Authority Contributions: The Applicant shall contribute \$75,471 to the Board of Supervisors, within 60 days after the Board of Supervisors approves this rezoning application for transfer to the Fairfax County Park Authority, for use at off-site recreational facilities intended to serve the future residents, as determined by FCPA.

45. Parks and Recreation. Pursuant to Section 6-409 of the Zoning Ordinance regarding developed recreational facilities, the Applicant shall provide the recreational facilities to serve the Application Property. The amenity areas may be programmed with recreational amenities at the discretion of the homeowners association after subdivision plan approval. The recreational amenities may include but are not limited to passive and active recreational features which may include but are not limited to: additional landscaping, playground equipment, play area, a tot lot, picnic area, gazebo, benches and street furniture. Per Section 6-409, recreational facilities such as recreational trails, walking paths, excluding any trails required by the Comprehensive Plan, and similar features shall be used to fulfill this requirement. At the time of subdivision plan review, the Applicant shall demonstrate that the value of any proposed recreational amenities are equivalent to a minimum of \$1,700 per unit (or as Section 6-409 may escalate). In the event it is demonstrated that the proposed facilities do not have sufficient value, the Applicant shall contribute funds in the amount needed to achieve the overall proffered amount of \$1,700 per unit to the Fairfax County Park Authority ("FCPA") for off-site recreational facilities intended to serve the future residents within the Mason District.

VIII. OTHER

46. Temporary Signage. No temporary signs (including “popsicle” style paper or cardboard signs) which are prohibited by Article 12 of the Zoning Ordinance, and no signs which are prohibited by Chapter 7 of Title 33.1 or Chapter 8 of Title 46.2 of the Code of Virginia shall be placed on or off-site by the Applicant or at the Applicant’s direction to assist in the initial marketing and sale of homes on the subject Property. Furthermore, the Applicant shall direct its agents and employees involved in marketing and/or sale of residential units on the subject Property to adhere to this proffer.

47. School Contribution. A contribution of \$140,670 (15 students X \$9,378) shall be made to the Board of Supervisors for transfer to Fairfax County Public Schools (FCPS) and designated for capital improvements directed to the Annandale High School Pyramid and/or Cluster III schools that service the subject property. The contribution shall be made at the time of, or prior to, issuance of the first Building Permit for the approved single family detached units. Follow 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 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.

48. Affordable Dwelling Units. Prior to the issuance of the first Building Permit for the single family attached units, the Applicant shall contribute to the Fairfax County Housing Trust Fund the sum equal to one half of one percent (1/2 %) of the value of all the units approved on the property. The one half of one percent (1/2 %)

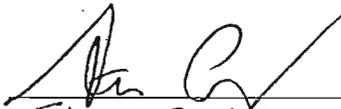
contribution shall be based on the aggregate sales price of all of the units subject to the contribution, as if those units were sold at the time of the issuance of the first Building Permit. The projected sales price shall be determined by the Applicant through an evaluation of the sales prices of comparable units in the area, in consultation with the Fairfax County Department of Housing and Community Development (HCD) and DPWES.

49. 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, assigns, and/or developer(s) of the Property or any portion of the Property.

Neighborhoods VI, LLC

Contract Purchaser of:

Tax Map Numbers 71-2-((1))-36 and 71-2-((13))-1 and
17-2-((10))-17A

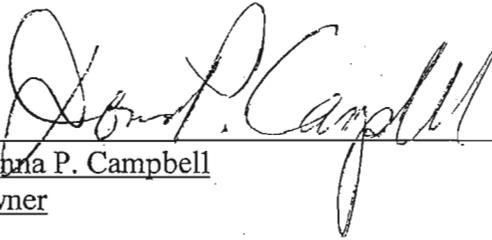
Signature: 
Name: Steven B. Alloy
Title: President

6651, LLC

Owner of:

Tax Map Numbers 71-2-((1))-36 and 71-2-((13))-1 and
17-2-((10))-17A

Signature:

A handwritten signature in black ink, appearing to read "Dohra P. Campbell", written over a horizontal line.

Name: Dohra P. Campbell

Title: Owner

6651, LLC

Owner of:

Tax Map Numbers 71-2-((1))-36 and 71-2-((13))-1 and
17-2-((10))-17A

Signature: 

Name: James M. Campbell

Title: Owner

DEVELOPMENT PLAN CONDITIONS

FDP 2011-MA-029

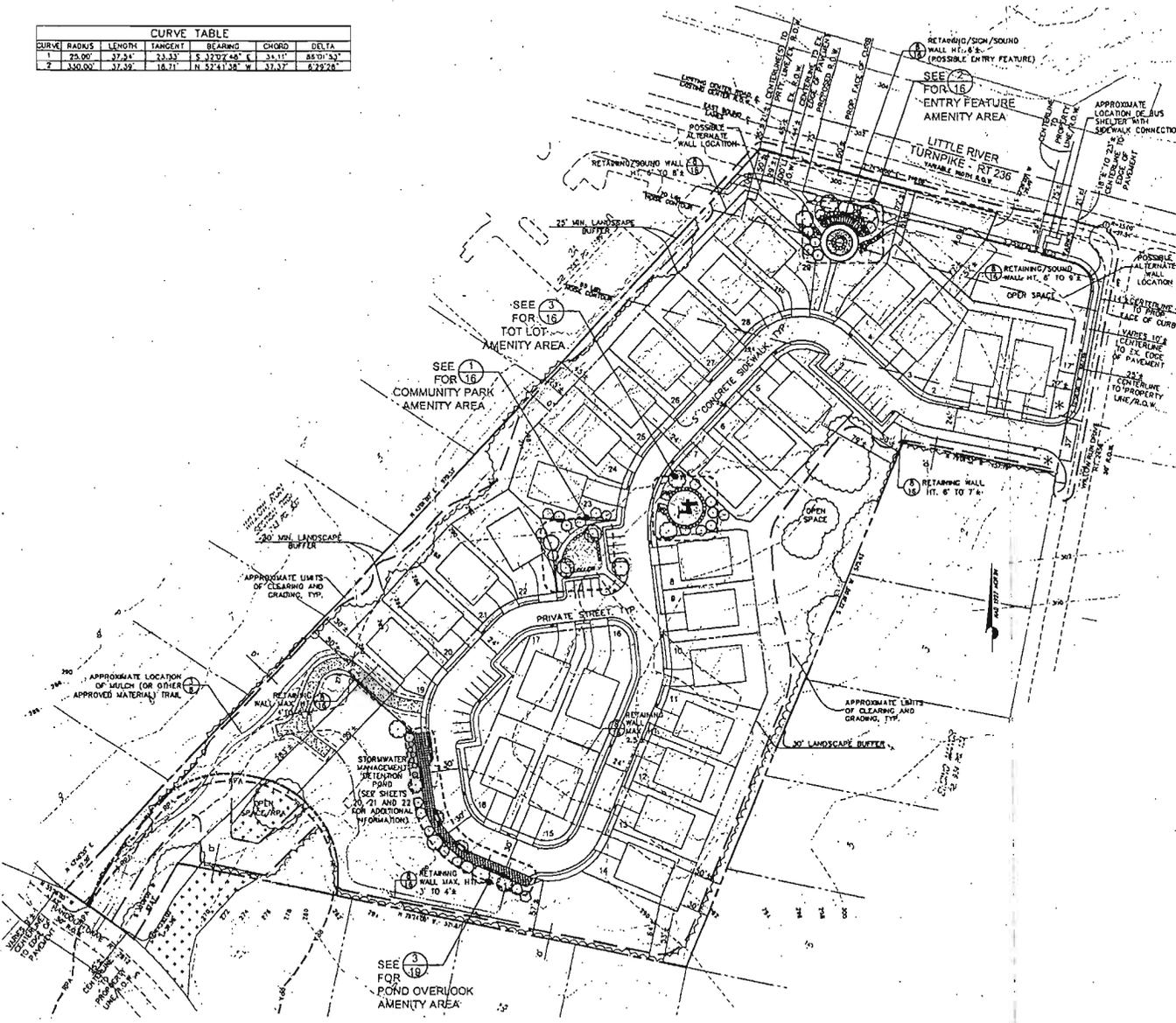
May 31, 2012

If it is the intent of the Planning Commission to approve Final Development Plan FDP 2011-MA-029 for residential development located at Tax Maps 71-2 ((1)) 36, 71-2 ((13)) 1, and 71-2 ((10)) 17A, staff recommends that the Planning Commission condition the approval by requiring conformance with the following development conditions.

1. Development of the property shall be in substantial conformance with the Final Development Plan entitled "Callaway Conceptual/Final Development Plan RZ 2011-MA-029" prepared by BC Consultants consisting of twenty-four sheets dated July 2011, as revised through May 16, 2012.
2. The quantity and species types listed in the Proposed Tree List and Tree Canopy Calculation chart shown on Sheet 8 of the CDP/FDP may be modified provided that the 10 year tree canopy requirement is met subject to the review and approval of Urban Forest Management.

The proposed conditions are staff recommendations and do not reflect the position of the Planning Commission unless and until adopted by that Commission.

CURVE TABLE					
CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA
1	25.00'	27.24'	23.33'	5.320' X 45° E	25.11'
2	150.00'	27.39'	16.71'	N. 52.41.38" W. 27.37'	5.722' X 28°



LEGEND:

- EXISTING TREELINE
- PROPOSED TREELINE
- FIELD-VERIFIED AND APPROVED RESOURCE PROTECTION AREA (25234-RPA-01-1)
- APPROXIMATE LIMITS OF CLEARING AND GRADING
- APPROXIMATE LOCATION OF POSSIBLE ENTRY FEATURE/SCN
- PROPOSED STREET LIGHTS. SEE DETAIL ON SHEET 16 FOR ADDITIONAL INFORMATION
- ADDITIONAL DISTURBED AREA FOR STREAM RESTORATION ONLY (PERMISSION FROM THE OWNER OF OFF-SITE RESTORATION AREA IS REQUIRED PRIOR TO ANY RESTORATION ACTIVITIES WITHIN THIS AREA)

SITE TABULATIONS:

GROSS SITE AREA (G.S.A.):	383,069 S.F. ± or 8.79405 Ac. ±
EXISTING ZONE:	R-2 HC
PROPOSED ZONE:	PDH-4
PROPOSED NUMBER OF LOTS:	29
PROPOSED DENSITY:	3.30 DU/AC
OPEN SPACE REQUIRED: (20.0% OF G.S.A.)	76,613 S.F. ± OR 1.78 Ac. ±
OPEN SPACE PROVIDED: (40.1% OF G.S.A.):	153,810 S.F. ± OR 3.53 Ac. ±
PARKING SPACES REQUIRED:	87 (2)
PARKING SPACES PROVIDED:	149 (3)
BUILDING HEIGHT PROPOSED:	35'

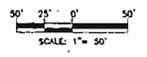
- (1) TOTAL AREA TO BE REZONED, 8.79405 ACRES ±, SHOWN HEREON IS BASED ON THE MATHEMATICAL CLOSURE OF DEEDS OF RECORD AND ADJACENT INFORMATION ALL AMONG THE LAND RECORDS OF FAIRFAX COUNTY.
- (2) THREE SPACES PER UNIT FOR SINGLE FAMILY DETACHED UNITS WITH FRONTAGE ON A PRIVATE STREET.
- (3) TWO SPACES/UNIT IN THE GARAGE PLUS TWO SPACES/UNIT IN THE DRIVEWAY PLUS 33 GUEST SPACES.

BC Consultants
 Planners • Engineers • Surveyors • Landscape Architects
 12800 Fair Lakes Circle, Suite 100, Fairfax, VA 22033
 (703)449-8100 (703)449-8108 (Fax)
 www.bcconsultants.com



CONCEPTUAL/FINAL DEVELOPMENT PLAN
 CONCEPTUAL-FINAL DEVELOPMENT PLAN
CALLAWAY
 MAJOR CONTRACT
 FAIRFAX COUNTY, VIRGINIA

DATE REVISIONS	NO. 1	REVISIONS	AS SHOWN
REVISION	NO. 2	REVISIONS	AS SHOWN
REVISION	NO. 3	REVISIONS	AS SHOWN
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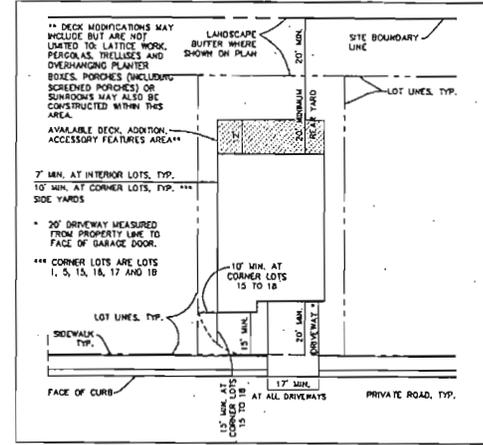
DESIGNED BY: PLR
DRAWN BY: CAD
CHECKED BY: PLR
DATE: JULY, 2011
SCALE: HOR. 1" = 50'
VERT.
SHEET 2 OF 22
CO. NO.
CAD NAME: F115247DP
LAYOUT: FDP
FILE NO. 11524-08

GENERAL NOTES:

1. THE PROPERTIES DELINEATED ON THIS CONCEPTUAL/FINAL DEVELOPMENT PLAN (CDP/FDP) ARE IDENTIFIED ON FAIRFAX COUNTY TAX ASSESSMENT MAP NO. 71-2 ((1)), PARCEL 26; 71-2 ((10)), PARCEL 17A AND 71-2 ((12)), PARCEL 1. ALL ARE ZONED R-2 MC.
2. THE BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON INFORMATION AND DEEDS OF RECORD AND SHOULD NOT BE CONSIDERED A BOUNDARY SURVEY.
3. THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS INTERPOLATED FROM FAIRFAX COUNTRY DS AERIAL TOPOGRAPHY AND IS SHOWN AT TWO (2) FEET CONTOUR INTERVALS.
4. THE PROPERTY SHOWN ON THIS CDP/FDP IS IN THE MASON MAGISTERIAL DISTRICT, THE CAMERON SEWER DISTRICT AND THE CAMERON RUN WATERSHED.
5. TO THE BEST OF OUR KNOWLEDGE THIS DEVELOPMENT IS IN CONFORMANCE WITH THE FAIRFAX COUNTY COMPREHENSIVE PLAN AND WILL CONFORM TO THE PROVISIONS OF ALL APPLICABLE ORDINANCES, REGULATIONS AND ADOPTED STANDARDS AND CONDITIONS WITH THE EXCEPTION OF THE FOLLOWING:
 - * REQUEST A WAIVER OF THE SERVICE DRIVE REQUIREMENT ALONG LITTLE RIVER TURNPIKE.
 - * REQUEST A WAIVER OF THE MAXIMUM 600 FEET LENGTH OF A PRIVATE ROAD. THE LOOPED DESIGN OF THE PRIVATE ROAD ALLOWS EMERGENCY VEHICLE ACCESS IN ACCORDANCE WITH DESIGN STANDARDS CURRENTLY ACCEPTED BY THE FAIRFAX COUNTY FIRE MARSHALL'S OFFICE.
6. ACCORDING TO THE FAIRFAX COUNTY-COUNTY/DC TRAILS PLAN (ADOPTED BY THE BOARD OF SUPERVISORS JUNE 17, 2002), AN ON-ROAD BIKE LANE IS REQUIRED ALONG THE SITE'S FRONTAGE WITH BLAKE LANE.
7. THE FAIRFAX COUNTY WATER AUTHORITY IS THE PUBLIC WATER SUPPLY AGENCY FOR THIS DEVELOPMENT. THE COUNTY OF FAIRFAX IS THE SANITARY SEWER SUPPLY AGENCY FOR THIS DEVELOPMENT.
8. ACCORDING TO TAX RECORDS AND/OR DEEDS AND INFORMATION OF RECORD, THERE ARE NO KNOWN EXISTING UNDERGROUND UTILITIES OR EXISTING UTILITY EASEMENTS OF 25' OR MORE. NO TITLE REPORT HAS BEEN FURNISHED.
9. THIS PLAN DOES NOT SHOW PROPOSED UTILITIES. ALL NECESSARY PUBLIC UTILITIES ARE READILY ACCESSIBLE TO THE SITE AND WILL BE EXTENDED BY THE DEVELOPER OR UTILITY COMPANY. UTILITY PLANS AND PROFILES WILL BE SUBMITTED IN THE FUTURE FOR CONSTRUCTION PURPOSES.
10. THE PROPOSED LIMITS OF CLEARING AND GRADING ARE SHOWN ON THE PLAN. THESE LIMITS ARE APPROXIMATE AND SUBJECT TO ADJUSTMENT AT THE TIME OF FINAL GRADING ENGINEERING AND LOCATION OF PROPOSED UTILITIES. WHERE THE LIMITS OF CLEARING AND GRADING ARE SHOWN ADJACENT TO A PROPERTY LINE, IT SHOULD BE ASSUMED THAT THE LIMITS EXTEND TO THE PROPERTY LINE.

ZONING ORDINANCE, ARTICLE 16-502, PARAGRAPH 10 COMMENTS:

1. WORTHY MAP AS SHOWN ON SHEET 1.
2. CLEARING AND DISTANCES OF THE PERMETER PROPERTY LINES AS SHOWN ON THE PLAN.
3. SEE THE SITE TABULATIONS ON SHEET 2 FOR THE TOTAL AREA OF THE PROPERTY.
4. SCALE AND NORTH ARROW AS SHOWN ON THE PLAN.
5. NAMES AND ROUTE NUMBERS OF BOUNDARY STREETS AND THE WIDTH OF EXISTING RIGHT(S)-OF-WAY AS SHOWN ON THE PLAN. PROPOSED IMPROVEMENTS TO THE PUBLIC RIGHT(S) OF WAY AND DELINEATION OF THE EXISTING CENTERLINE WITH ALL REQUIRED DIMENSIONS ARE AS SHOWN ON THE PLAN OR AS SHOWN ON SHEET 1B.
6. REFER TO GENERAL NOTE 3 FOR INFORMATION CONCERNING EXISTING TOPOGRAPHY.
7. THE LOCATION AND ARRANGEMENT OF ALL PROPOSED USES ARE AS SHOWN ON THE PLAN.
8. REFER TO THE SITE TABULATIONS ON SHEET 2 FOR THE PROPOSED BUILDING HEIGHT.
9. THE DISTANCES OF ALL STRUCTURES FROM THE DEVELOPMENT BOUNDARIES AND STREETS ARE AS SHOWN ON THE PLAN.
10. ANGLE OF BULK PLANE NOT APPLICABLE.
11. THE TRAFFIC CIRCULATION SYSTEM, THE PEDESTRIAN CIRCULATION SYSTEM AND ALL REQUIRED DIMENSIONS ARE AS SHOWN ON THE PLAN. REFER TO GENERAL NOTE 6 FOR INFORMATION CONCERNING ALL TRAILS REQUIRED BY THE ADOPTED COMPREHENSIVE PLAN.
12. OFF-STREET PARKING AS SHOWN ON THE PLAN AND AS LISTED IN THE SITE TABULATIONS ON SHEET 2.
13. OPEN SPACE AREAS INCLUDING SPECIFIC TYPES OF DEVELOPED RECREATIONAL FACILITIES ARE AS SHOWN ON THE PLAN.
14. REFER TO SHEETS 5 AND 6 FOR LANDSCAPE INFORMATION INCLUDING THE APPROPRIATE LIMITS OF CLEARING AND GRADING, THE DESIGN OF ALL SCREENING MEASURES AND THE TYPE AND HEIGHT OF SOIL SCREENINGS ARE AS SHOWN ON THE PLAN OR PROVIDED IN THE SECTIONS SHOWN ON SHEET 1B. SEE SHEET 4 FOR INFORMATION CONCERNING EXISTING VEGETATION.
15. THERE ARE NO KNOWN GRAVES OR PLACES OF BURIAL ON THE SITE.
16. REFER TO GENERAL NOTE 9 FOR INFORMATION CONCERNING PUBLIC UTILITIES.
17. REFER TO SHEETS 20, 21 AND 22 FOR ALL REQUIRED STORMWATER MANAGEMENT INFORMATION.
18. REFER TO GENERAL NOTE 6 FOR INFORMATION CONCERNING ALL EXISTING UNDERGROUND UTILITIES AND ALL EXISTING UTILITY EASEMENTS OF 25' OR MORE.
19. THERE ARE NO FLOODPLAINS DESIGNATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, UNITED STATES GEOLOGICAL SURVEY OR FAIRFAX COUNTY ON THE SITE. A FIELD-VERIFIED AND APPROVED (2022-RPA-01-1) RPA IS AS SHOWN ON THE PLAN. NO LAND ON THE SITE MEETS THE CRITERIA FOR DESIGNATION AS AN ENVIRONMENTAL QUALITY CORRIDOR (EQC) AS DEFINED IN THE POLICIES OF ENVIRONMENT OBJECTIVE 3 OF THE FAIRFAX COUNTY COMPREHENSIVE PLAN, 2011 EDITION. THE SITE AREA OUTSIDE OF THE RPA IS A RESOURCE MANAGEMENT AREA. DIMENSIONS WHERE REQUIRED ARE AS SHOWN ON THE PLAN.
20. REFER TO THE SITE TABULATIONS ON SHEET 2 FOR INFORMATION CONCERNING THE TOTAL NUMBER AND TYPE OF DWELLING UNITS, DENSITY, TOTAL OPEN SPACE AREA, TOTAL DEVELOPED OPEN SPACE AREA AND NUMBER OF REQUIRED OFF-STREET PARKING SPACES. BONUS DENSITY IS NOT APPLICABLE TO THIS APPLICATION.
21. A MAP IDENTIFYING CLASSIFICATION OF SOIL TYPES WILL BE SUBMITTED UNDER SEPARATE COVER.
22. ARCHITECTURAL SKETCHES ARE INCLUDED.
23. ON-SITE HAZARDOUS OR TOXIC SUBSTANCES ARE SUBJECT TO FURTHER INVESTIGATION AND POTENTIAL REMEDIATION, IF WARRANTED. FOR ANY SUBSTANCES FOUND, THEIR METHODS OF DISPOSAL SHALL ADHERE TO COUNTY, STATE AND/OR FEDERAL LAW.
24. REFER TO GENERAL NOTE 5 FOR INFORMATION CONCERNING THIS DEVELOPMENT'S CONFORMANCE TO ALL APPLICABLE ORDINANCES AND STANDARDS.
25. AFFIDAVITS TO BE SUBMITTED UNDER SEPARATE COVER.
26. THE SITE IS NOT WITHIN OR IN THE VICINITY OF A HISTORIC OVERLAY DISTRICT.



TYPICAL LOT LAYOUT

SCALE: 1"=20'

BC Consultants
 Planner, Engineer, Surveyor, Landscape Architect
 12000 FIVE LAKES DRIVE, SUITE 100
 FARMINGTON, VA 22033
 (703)446-0100 (Fax)
 www.bccon.com



CONCEPTUAL/FINAL DEVELOPMENT PLAN
 GENERAL NOTES AND COMMENTS
CALLAWAY
 JAMES H. CALLAWAY
 MECHANICAL ENGINEER
 FAIRFAX COUNTY, VIRGINIA

DATE RECEIVED	02-17-12
DESIGNED BY	PLR
DRAWN BY	CHD
CHECKED BY	PLR
DATE	JULY 2011
SCALE	HOR 1"=10'
VERT.	1/4"
SHEET	3 OF 22
CO. NO.	
CAD NAME	FT1524601
LAYOUT NOTES	
FILE NO.	11524-06

TREE TYPE AND TREE CANOPY CALCULATIONS

TREE GENUS AND SPECIES IS SHOWN IN THE PROPOSED TREE LIST ON SHEET 8.

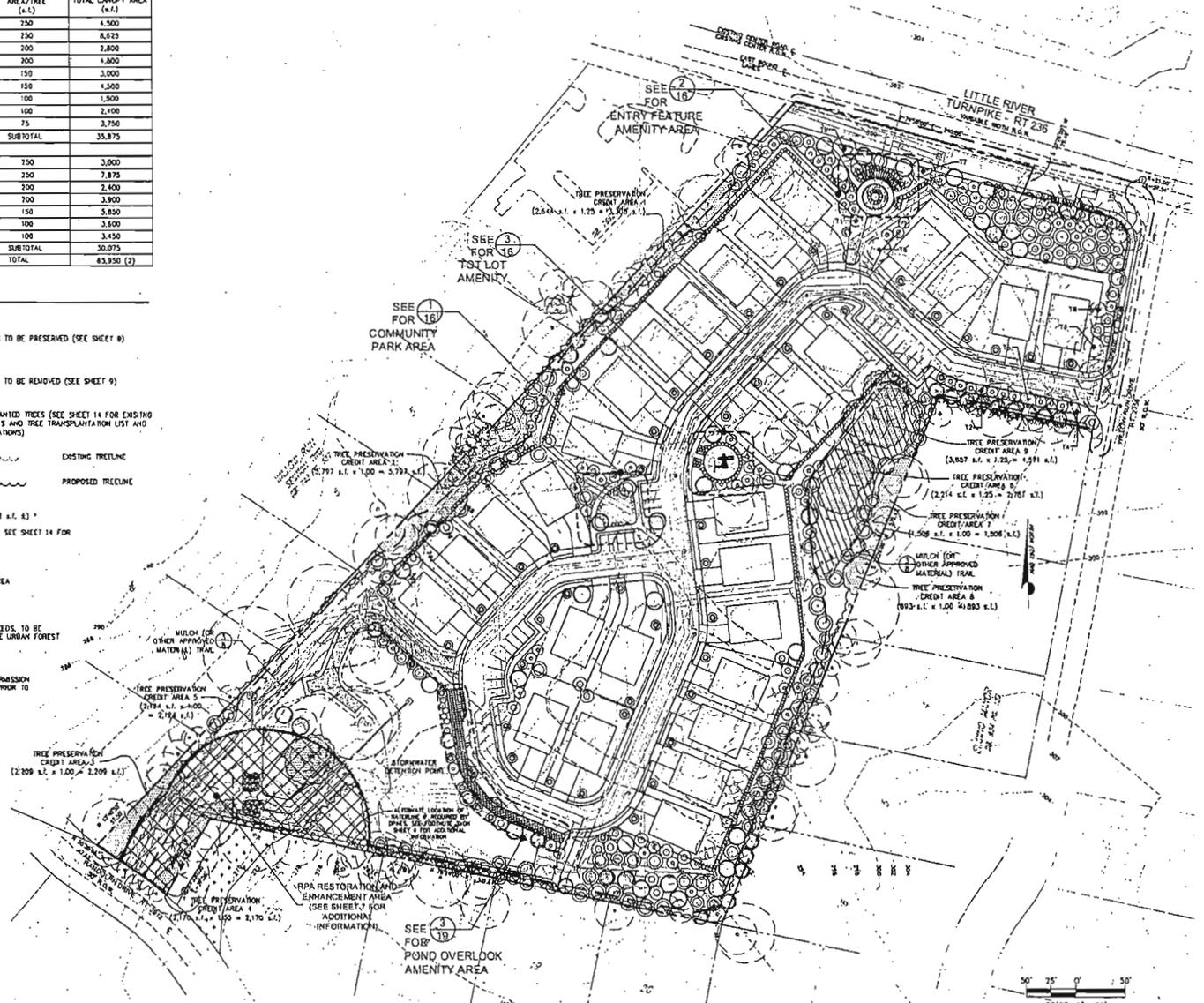
QTY.	TYPE	SIZE	HEIGHT	TREE CANOPY CALCULATION		
				USE MULTIPLIER (1)	AREA/TREE (A-L)	TOTAL CANOPY AREA (A-L)
18	CATEGORY IV DECIDUOUS TREE	3" CAL	1.0	250	4,500	
23	CATEGORY IV DECIDUOUS TREE	3" CAL	1.5	250	8,525	
14	CATEGORY IV DECIDUOUS TREE	2" CAL	1.0	200	2,800	
16	CATEGORY IV DECIDUOUS TREE	2" CAL	1.5	200	4,800	
20	CATEGORY III DECIDUOUS TREE	2" CAL	1.0	150	3,000	
20	CATEGORY III DECIDUOUS TREE	2" CAL	1.5	150	4,500	
13	CATEGORY II DECIDUOUS TREE	2" CAL	1.0	100	1,500	
18	CATEGORY II DECIDUOUS TREE	2" CAL	1.5	100	2,400	
50	CATEGORY I DECIDUOUS TREE	3" CAL	1.0	75	3,750	
				SUBTOTAL	35,875	
12	CATEGORY IV EVERGREEN TREE	10 FT.	1.0	250	3,000	
21	CATEGORY IV EVERGREEN TREE	10 FT.	1.5	250	7,875	
12	CATEGORY IV EVERGREEN TREE	8 FT.	1.0	200	2,400	
13	CATEGORY IV EVERGREEN TREE	8 FT.	1.5	200	3,900	
39	CATEGORY III EVERGREEN TREE	8 FT.	1.0	150	5,850	
36	CATEGORY III EVERGREEN TREE	8 FT.	1.0	100	3,600	
23	CATEGORY II EVERGREEN TREE	8 FT.	1.5	100	3,450	
				SUBTOTAL	30,075	
				TOTAL	65,950 (2)	

LEGEND

- 2' OR 3" CAL. CATEGORY IV DECIDUOUS TREES
- 2" CAL. CATEGORY II-III DECIDUOUS TREES
- 3" CAL. CATEGORY I DECIDUOUS TREES (COLUMNAR RED MAPLE STREET TREES)
- 10' HEIGHT CATEGORY IV EVERGREEN TREES
- 8' HEIGHT CATEGORY III-IV EVERGREEN TREES
- 8' HEIGHT CATEGORY II EVERGREEN TREES
- DECIDUOUS AND/OR EVERGREEN SHRUBS
- EXISTING TREES TO BE PRESERVED (SEE SHEET 8)
- EXISTING TREES TO BE REMOVED (SEE SHEET 8)
- TRANSPLANTED TREES (SEE SHEET 14 FOR EXISTING LOCATIONS AND TREE TRANSPLANTATION LIST AND SPECIFICATIONS)
- EXISTING TREELINE
- PROPOSED TREELINE
- APPROXIMATE LIMITS OF CLEARING AND GRADING (1)
- POST DEVELOPMENT 10-YEAR TREE CANOPY CREDIT AREA (25,141 A-L, 8.3) *
* EXCLUDES CANOPY CREDIT FOR TREES TO BE TRANSPLANTED. SEE SHEET 14 FOR ADDITIONAL INFORMATION.
- RESOURCE PROTECTION AREA RESTORATION AND ENHANCEMENT AREA
- WOODLAND SEED MIX (FINAL SEED MIX, AS SUPPLIED BY ECST SEEDS, TO BE DETERMINED AT THE SUBDIVISION PLAN IN CONSULTATION WITH THE URBAN FOREST MANAGEMENT DIVISION)
- ADDITIONAL DISTURBED AREA FOR STREAM RESTORATION ONLY (PERMISSION FROM THE OWNER OF OFF-SITE RESTORATION AREA IS REQUIRED PRIOR TO ANY RESTORATION ACTIVITIES WITHIN THIS AREA)

- (1) USE MULTIPLIERS MAY BE APPLIED FOR ADDITIONAL 10-YEAR TREE CANOPY CREDIT TO REDUCE THE NUMBER OF 3" CAL. TREES AS APPROVED BY UFMD. USES QUALIFYING FOR ADDITIONAL 10-YEAR TREE CANOPY CREDITS SHALL INCLUDE AIR QUALITY, ENERGY CONSERVATION, RESILIENT AND WATER QUALITY AS ALLOWED BY THE PROVISIONS OF THE PERM. USE MAPLE TREES FOR WALKWAY TREES WILL NOT BE USED.
- (2) WHEN ADDED TO THE 10-YEAR TREE CANOPY CREDIT RECEIVED FOR TREE PRESERVATION (SEE THE 10-YEAR TREE CANOPY CALCULATIONS SHOWN ON SHEET 8), THE 65,950 A-L TOTAL REPRESENTS THE MINIMUM 10-YEAR TREE CANOPY CREDIT FOR TREES TO BE PLANTED NECESSARY TO ACHIEVE THE OVERALL 10-YEAR TREE CANOPY REQUIRE FOR THE SITE, NO LESS THAN THE QUANTITY OF TREES SHOWN IN THE PLANT SCHEDULE WILL BE PROVIDED UNLESS APPROVED BY UFMD. TREES PLANTED THAT DO NOT MEET THE MINIMUM RESTRICTIVE REQUIREMENTS OF THE PPM WILL NOT RECEIVE CANOPY CREDIT. IF NEEDED, ADDITIONAL TREES WILL BE PROVIDED TO MEET THE MINIMUM 10-YEAR TREE CANOPY FOR THE SITE. AT THEIR DISCRETION, THE APPLICANT RESERVES THE RIGHT TO PROVIDE ADDITIONAL TREES ABOVE AND BEYOND THOSE REQUIRED TO MEET THE MINIMUM 10-YEAR TREE CANOPY REQUIREMENTS.
- (3) UTILITY LOCATIONS AND THEIR ASSOCIATED EASEMENTS (WHERE SHOWN ON THE PLAN) MAY BE ADJUSTED WITH FINAL ENGINEERING. THE FINAL LOCATIONS OF THE UTILITIES MAY RESULT IN THE RELOCATION OF THE PROPOSED TREES AS CURRENTLY SHOWN ON THE LANDSCAPE PLAN. EXISTING TREES LISTED FOR PRESERVATION ON SHEET 8 MAY BE REMOVED AS REQUIRED BY ACCORDANCE WITH THE PROVISIONS OF THE ZONING ORDINANCE, ARTICLE 16, SECTION 16-203 PARAGRAPH B, BUT ONLY IN CONSULTATION WITH UFMD AND PRIOR TO FINAL ENGINEERING. THE LIMITS OF CLEARING AND GRADING WILL BE REVISED ACCORDINGLY WITH UFMD APPROVAL. ANY TREE PRESERVATION TREE CANOPY THAT IS LOST DUE TO REQUIRED UTILITIES WILL BE RECORDED BY THE TRANSPORTATION OF SUSTAINABLE DISTING ON-SITE TREES OR ADDITIONAL NEW TREES IN CONSULTATION WITH THE UFMD. AN ALTERNATE LOCATION OF THE PROPOSED WATERLINE HAS BEEN SHOWN ON THE PLAN. IF THIS ALTERNATE LOCATION IS PROVIDED BY OTHERS THEN THE LIMITS OF CLEARING AND GRADING, TREE PRESERVATION CREDIT AREAS AND PROPOSED TREE LOCATIONS WILL BE REVISED ACCORDINGLY IN CONSULTATION WITH UFMD.

- NOTE:
 1. SEE SHEET 14 FOR TREE TRANSPLANTATION PLAN AND SHEET 15 FOR TREE TRANSPLANTATION SPECIFICATIONS AND DETAILS.
 2. PLANTING WITHIN THE UNDISTURBED AREAS SHALL BE DONE IN THE LEAST DISRUPTIVE MANNER POSSIBLE IN CONSULTATION WITH THE URBAN FOREST MANAGEMENT DIVISION.



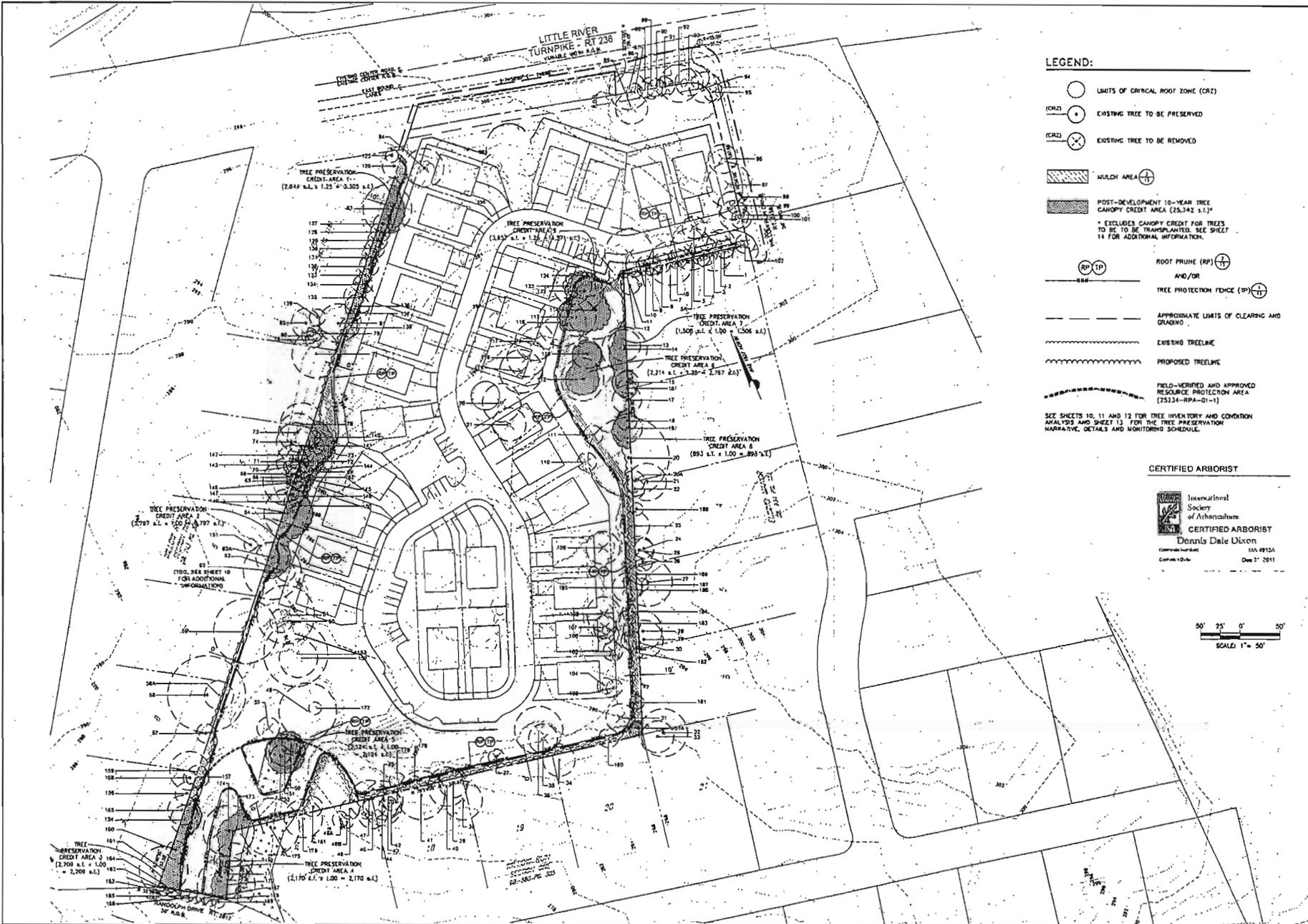
1 TREE CANOPY LANDSCAPE PLAN

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CONCEPTUAL/FINAL DEVELOPMENT PLAN
 TREE CANOPY LANDSCAPE PLAN
CALLAWAY
 MARK W. HARTZ
 FAYATOWN COUNTY, VIRGINIA

DATE: 02-17-12	DESIGNED BY: PLR
REVISION: 02-02-11	DRAFTED BY: CAD
REVISION: 11-09-11	CHECKED BY: PLR
REVISION: 02-17-12	DATE: JULY, 2011
REVISION: 02-17-12	SCALE: PER AS SHOWN
REVISION: 02-17-12	NO.:
REVISION: 02-17-12	SHEET 6 OF 22
REVISION: 02-17-12	CO. NO.
REVISION: 02-17-12	CAD NAME: P1131321.dwg
REVISION: 02-17-12	LAYOUT: CANOPY
REVISION: 02-17-12	FILE NO. 11524-08



- LEGEND:**
- LIMITS OF CRITICAL ROOT ZONE (CRZ)
 - EXISTING TREE TO BE PRESERVED
 - EXISTING TREE TO BE REMOVED
 - MULCH AREA
 - POST-DEVELOPMENT 10-YEAR TREE CANOPY CREDIT AREA (25,342 s.f.)
 - * EXCLUDES CANOPY CREDIT FOR TREES TO BE TO BE TRANSPORTED. SEE SHEET 14 FOR ADDITIONAL INFORMATION.
 - ROOT PRUNE (RP) AND/OR TREE PROTECTION FENCE (TP)
 - APPROXIMATE LIMITS OF CLEARING AND GRADING
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - FIELD-VERIFIED AND APPROVED RESOURCE PROTECTION AREA (75234-RPA-01-1)
- SEE SHEETS 10, 11 AND 12 FOR TREE INVENTORY AND CONDITION ANALYSIS AND SHEET 13 FOR THE TREE PRESERVATION NARRATIVE, DETAILS AND MONITORING SCHEDULE.

CERTIFIED ARBORIST

International Society of Arboriculture
CERTIFIED ARBORIST
 Dennis Dale Dixon
 155 4915A
 Columbia, MD 21046
 Dec 31, 2011

50' 25' 0' 50'
 SCALE: 1" = 50'

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CONCEPTUAL/FINAL DEVELOPMENT PLAN
 TREE PRESERVATION PLAN
CALLAWAY
 MAPLE HARBOR
 FAYETTE COUNTY, VIRGINIA

DESIGNED BY: PLR
DRAWN BY: CAD
CHECKED BY: PLR
DATE: JULY, 2011
SCALE: 1" = 50'
LAYOUT: TFP
FILE NO. 11524-08

TREE INVENTORY AND CONDITION ANALYSIS													
TREE KEY	BOTANICAL NAME AND/OR COMMON NAME	SIZE	HCRZ	CDBH	CANOPY POSITION	DENSITY	HCRZ SPREAD	FNL STARS	ACTIVITIES			PROBLEMS	COMMENTS
									ROOT PRUNE	TRUNK PRUNE	BRANCH PRUNE		
1	Robinia pseudacacia/Black Locust	17	12	88	Co-Dominant	75	15	R				Some dead/broken branches	
2	Robinia pseudacacia/Black Locust	18	18	75	Co-Dominant	75	15	R				Some dead/broken branches	
3	Robinia pseudacacia/Black Locust	24	24	68	Co-Dominant	80	30	R				Some dead/broken branches	
4	Robinia pseudacacia/Black Locust	18	18	72	Co-Dominant	70	25	R				Some dead/broken branches	
5	Prunus sp./Cherry	14	14	81	Co-Dominant	80	16	R				Some dead/broken branches	
5A	Robinia pseudacacia/Black Locust	24-12	26	75	Co-Dominant	80	25	R				Some dead/broken branches	Thin Stem
6	Robinia pseudacacia/Black Locust	19	19	72	Co-Dominant	70	30	R				Some dead/broken branches	
7	Acer sp./Maple	24-12	27	84	Co-Dominant	75	30	R				Some dead/broken branches	Thin Stem, Co-Dominant
8	Robinia pseudacacia/Black Locust	12	12	72	Co-Dominant	70	15	R				Some dead/broken branches	
9	Ulmus sp./Elm	10	10	84	Co-Dominant	70	15	R				Some dead/broken branches	
10	Robinia pseudacacia/Black Locust	12	12	72	Co-Dominant	75	18	R				Some dead/broken branches	
11	Prunus sp./Cherry	12	12	84	Co-Dominant	78	25	POS	X			Lower pruning scars; minor upper branch damage	Off Site
12	Robinia pseudacacia/Black Locust	20	20	78	Co-Dominant	55	20	R				One major stem dead/broken off; some rot; other stem broken; upper branch damage	Poor Condition
13	Myrica sp./Black Gum	20	20	72	Co-Dominant	70	25	P				One dead; upper branch damage; slight lean	
14	Acer sp./Maple	28	28	84	Co-Dominant	85	40	P				upper stems codominant	
15	Acer sp./Maple	14	14	75	Co-Dominant	65	25	P	X	X		thin at bottom; one sided; some upper branch damage; pruned at bottom	
16	Acer sp./Maple	12	12	72	Co-Dominant	60	15	P/UP	X	X		very thin; upper branch damage; borderline dead; branch decay at top	Poor Condition
17	Acer sp./Maple	18	18	72	Co-Dominant	80	25	P/UP	X	X		large cavities with rot; dead/decaying upper branches; hole in stem/trunk	Poor Condition
18	Acer sp./Maple	12	12	78	Co-Dominant	80	20	P/UP	X	X		Some grating roots; major cavity in middle; upper dead/decaying branches	Poor Condition
19	Acer sp./Maple	18	18	78	Co-Dominant	70	30	P	X	X		codominant upper stems; some decay; upper branch damage; some dead branches	
20	Quercus sp./White Oak	30	30	78	Dominant	50	30	P	X	X	X	major branch damage; trunk rot; cavities	Poor Condition
20A	Acer sp./Maple	12-8	14	31	Co-Dominant	75	30	POS	X			some rot; evidence of termites on small stems; dead/decaying branches on top; possible root girdling	Thin Stem, Off Site, Poor Condition
21	Acer sp./Maple	24	24	72	Co-Dominant	65	30	POS	X			curved trunk; some major branches damaged in middle	Off Site
22	Acer sp./Maple	10-8	12	28	Co-Dominant	80	25	POS	X			some rot; dead/decaying branches; possible root girdling	Thin Stem, Off Site, Poor Condition
23	Dead (Black Locust)	18	18	-	-	-	-	POS				Dead	Dead, Off Site
24	Robinia pseudacacia/Black Locust	12	12	78	Co-Dominant	65	25	POS	X			Broken/dead branches; major decaying upper branches	Off Site, Poor Condition
25	Robinia pseudacacia/Black Locust	18	18	24	Co-Dominant	80	35	POS	X	X		24' slump next to tree; some broken branches	Off Site
26	Acer rubrum/Red Maple	12	12	72	Co-Dominant	80	25	POS	X	X		Heavily pruned; exposed roots	Off Site
27	Acer sp./Maple	25	20	78	Co-Dominant	95	50	POS	X	X			
28	Dead (Black Locust)	24	24	-	-	-	-	POS				Dead	Dead, Off Site
29	Dead (Black Locust)	24	24	-	-	-	-	POS				Dead	Dead, Off Site
30	Abrus sp./Tree of Heaven	19	19	72	Co-Dominant	65	30	R					
31	Slump	18	18	-	-	-	-	R				Slump	
31A	Prunus sp./Cherry	8	8	75	Co-Dominant	80	18	P	X	X		Some broken branches; rubbing branches; needs pruning	
32	Robinia pseudacacia/Black Locust	20	20	75	Co-Dominant	80	20	POS				Broken/dead branches at top	Off Site
33	Acer sp./Maple	20	20	78	Co-Dominant	70	30	POS				some rot; some branch damage; one sided	Off Site
34	Acer sp./Maple	20	20	72	Co-Dominant	80	25	POS	X	X		lopsided; one major stem on one side	Off Site
35	Ulmus sp./Elm	18	18	81	Co-Dominant	80	18	R					
36	Metasequoia glyptostroboides/Dawn Redwood	20	20	80	Co-Dominant	65	25	R					
37	Quercus sp./Oak	10	10	31	Co-Dominant	80	30	R				Minor branch damage; exposed roots	
38	Pinus sp./Pine	24	24	78	Co-Dominant	65	25	POS				Thin at bottom	Off Site

TREE INVENTORY AND CONDITION ANALYSIS													
TREE KEY	BOTANICAL NAME AND/OR COMMON NAME	SIZE	HCRZ	CDBH	CANOPY POSITION	DENSITY	HCRZ SPREAD	FNL STARS	ACTIVITIES			PROBLEMS	COMMENTS
									ROOT PRUNE	TRUNK PRUNE	BRANCH PRUNE		
38	Robinia pseudacacia/Black Locust	18	18	21	Co-Dominant	65	30	POS	X	X		Major branch damage; vine cover; almost dead	Off Site, Poor Condition
40	Acer sp./Maple	8-14	25	72	Co-Dominant	80	25	POS	X	X		Small codominant stems at bottom; intertwined with locust; some branch damage	Thin Stem, Off Site
41	Liriodendron tulipifera/Tulip Poplar	30	30	81	Co-Dominant	80	30	POS	X	X		Lower branches dead	Off Site
42	Robinia pseudacacia/Black Locust	12	12	72	Co-Dominant	75	30	POS	X	X		Vine cover; upper broken/dead branches; some rot	Off Site
43	Picea abies/Horsey Spruce	12	12	78	Co-Dominant	65	30	POS	X	X		One side; vine cover	Off Site
44	Robinia pseudacacia/Black Locust	24	24	28	Co-Dominant	70	25	POS	X	X		Dead/decaying upper branches; lower broken branches	Off Site, Poor Condition
45	Robinia pseudacacia/Black Locust	24	24	75	Co-Dominant	65	20	POS	X	X			Off Site
46	Acer sp./Maple	12	12	84	Co-Dominant	80	15	POS	X	X		Some vine cover	Off Site
47	Dead (Black Locust)	14	24	-	-	-	-	POS				Dead	Dead, Off Site
48	Acer sp./Maple	12	12	78	Co-Dominant	80	25	POS	X	X		heavy vine cover; curved trunk	Off Site
48A	Acer sp./Maple	10	10	84	Co-Dominant	80	30	POS	X	X		Minor branch damage	Off Site
48B	Acer sp./Maple	10	10	84	Co-Dominant	80	30	POS	X	X		heavy vine cover; top broken	Major Vine Cover, Top Broken, Off Site
48C	Taxus canadensis/Canadian Hemlock	8	8	72	Suppressed	80	8	POS	X	X		at edge of pile out; leaning; exposed roots; major branch damage	Poor Condition
49	Acer sp./Maple	16	16	25	Co-Dominant	70	60	R	X	X		Edge of bank; leaning; dead/broken branches	
50	Robinia pseudacacia/Black Locust	12	12	81	Co-Dominant	65	20	P	X	X		Edge of bank; vine cover; broken/dead lower branches	Remove Vines
51	Acer sp./Maple	20	20	78	Co-Dominant	80	45	P	X	X	X		
52	Dead (Cherry)	12	12	-	-	-	-	POS				Dead	Dead
53	Betula nigra/Black Birch	8-8-8	8	75	Co-Dominant	60	18	R				Exposed/grated roots; slight lean	Multi-Stem
54	Not Used												
55	Not Used												
56	Not Used												
57	Acer sp./Maple	12	12	84	Co-Dominant	80	25	POS	X	X		Minor upper branch damage	Off Site
58	Juglans nigra/Black Walnut	16	16	81	Co-Dominant	80	30	POS	X	X			Off Site
58A	Acer sp./Maple	18	18	84	Co-Dominant	85	25	POS	X	X			Off Site
58B	Acer sp./Maple	10	10	83	Co-Dominant	85	45	R				major broken branch at top; some rot	Off Site
60	Acer sp./Maple	8-8-8-8-10	18	81	Co-Dominant	75	30	R					Multi-Stem
61	Acer sp./Maple	20	20	28	Suppressed	75	65	R				some rot; some vine cover; some broken branches; one side; leaning; roots at edge of silicon bank; upper branch damage	Poor Condition
62	Ulmus sp./Elm	28	28	88	Co-Dominant	65	60	TRD				Minor branch damage	Attempt to remove this tree. Engineering review required prior to submission for approval in consultation with USFS.
63A	Quercus phellos/Willow Oak	30	30	84	Co-Dominant	80	30	P	X	X	X	Minor branch damage	
63B	Slump	12	12	-	-	-	-	POS				Slump	
64	Quercus palustris/Pine Oak	30	30	75	Co-Dominant	80	60	P	X	X	X	Upper broken branches; vine cover; pruning scars	

TREE INVENTORY AND CONDITION ANALYSIS CONTINUED ON SHEET 11.
SEE SHEET 9 FOR THE TREE PRESERVATION PLAN AND SHEET 13 FOR THE TREE PRESERVATION DETAILS AND NARRATIVE.

NOTE:
1. NO OFF-SITE TREES OR CO-DOMINANT TREES SHALL BE REMOVED WITHOUT THE PRIOR PERMISSION OF THE OFF-SITE OWNER(S) OR CO-OWNER(S) OF THE TREES.
2. THE ADJACENT PROPERTY OWNERS DID NOT GRANT PERMISSION TO ACCESS THEIR PROPERTY. THE LOCATION, DIRECTION AND CONDITION ANALYSIS FOR ALL OFF-SITE TREES HAS BEEN ESTIMATED.
3. ALL TREES 8 INCHES OR GREATER IN DIAMETER WITHIN 25 FEET OF EITHER SIDE OF THE LIMITS OF CLEARING AND GRADING HAVE BEEN LISTED EXCEPT WHERE DIRECTED OTHERWISE BY THE URBAN FOREST MANAGEMENT DIVISION.
4. CONDITION ANALYSIS INFORMATION HAS BEEN PROVIDED FOR ALL TREES LISTED.

LEGEND:
FC - FLOOR COVERING STATUS TO BE DETERMINED IN CONSULTATION WITH THE URBAN FOREST MANAGEMENT DIVISION (UFMD).
TRD - TRUNK ROT DETERMINED FOR TREE OF SPECIAL CONCERN. STATUS TO BE DETERMINED IN CONSULTATION WITH THE UFMD.
P - PRESERVE.
POS - PRESERVE OFF-SITE.
R - REMOVE WITH PERMISSION FROM THE UFMD. TREE IS WITHIN UNDISTURBED AREA BUT CONDITIONS WARRANT ITS REMOVAL.
RUB - RUBBING BRANCHES INDICATED.
L - LIGN/DIAMETER BREAST HEIGHT AS MEASURED 4.5 FEET ABOVE GROUND.
CZ - CRITICAL ROOT ZONE (ONE FOOT OF RADII FOR EVERY INCH OF TREE DIAMETER, OR FOR TREES WITH MULTIPLE STEMS ARE CALCULATED BASED ON THE DIAMETER OF A TREE WITH A BASAL AREA EQUIVALENT TO THE SUM OF THE BASAL AREAS FOR ALL STEMS MEASURED).
CORONATION BRANCHES ARE PROVIDED AS PERCENTAGES BASED ON METHODS OUTLINED IN THE LATEST EDITION OF THE GUIDE FOR PLANT APPRAISAL PUBLISHED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE.

CERTIFIED ARBORIST
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RESTON, VA 20190
DESIGNED BY: PLR
DRAWN BY: CAD
CHECKED BY: PLR
DATE: JULY 2011
SCALE: N/A
SHEET 10 OF 22
CAD NAME: F11624TRP-RVY
LAYOUT: TYP-INVENTORY(1)
FILE NO.: 11524-03

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CONCEPTUAL/FINAL DEVELOPMENT PLAN
TREE INVENTORY AND CONDITION ANALYSIS
CALLAWAY
Nancy Bennett
Regional Country, Virginia

DESIGNED BY: PLR
DRAWN BY: CAD
CHECKED BY: PLR
DATE: JULY 2011
SCALE: N/A
SHEET 10 OF 22
CAD NAME: F11624TRP-RVY
LAYOUT: TYP-INVENTORY(1)
FILE NO.: 11524-03

TREE KEY	BOTANICAL NAME AND OR/ COMMON NAME	SIZE	HCRZ	COMMON	CANOPY POSITION	CROWN DENSITY	HCRZ OPEN SPACE	FINAL STATUS	ACTIVITIES					PROBLEMS	COMMENTS	
									ROOT PRUNE	TRUNK PRUNE	CROWN PRUNE	REMOVAL	OTHER			
																MOIST PRUNE
65	Acer sp./ Maple	30	30	65-	Co-Dominate	60	50	POS	X	X	X	X	X	X	One main upper branch dead/dying; slight lean; major broken branches	Off Site
66	Dead (Sassafras)	12	12	-	-	-	-	PNP								Dead
67	Sassafras obliquum/Common Sassafras	14	14	78	Co-Dominate	70	33	F	X	X	X	X	X	X	Thin, crooked leader	
68	Dead (Sassafras)	12	12	-	-	-	-	PNP								Dead
69	Sassafras obliquum/Common Sassafras	14	14	78	Co-Dominate	65	20	F	X	X	X	X	X	X	Slight lean; some dead branches	Co-Owned
70	Acer sp./ Maple	10	10	50	Co-Dominate	65	30	POS							Some broken branches; some decay; one sided	Off Site; Poor Condition
71	Acer sp./ Maple	12-8	30	51	Co-Dominate	30	30	POS	X						One sided; major upper branches broken	Twin Stem, Off Site; Poor Condition
72	Rubus pseudoacacia/Black Locust	30	30	71	Co-Dominate	66	36	F	X	X	X	X	X	X	Some upper broken branches	
73	Rubus pseudoacacia/Black Locust	34	24	71	Co-Dominate	66	30	F	X	X	X	X	X	X	Dead/broken upper branches	
74	Acer sp./ Maple	24	24	68	Co-Dominate	73	48	POS							One sided; some minor branches decaying	Off Site
75	Acer sp./ Maple	24	24	78	Co-Dominate	65	36	POS							Some broken branches	Off Site
76	Acer sp./ Maple	18-12-12	27	51	Co-Dominate	70	30	POS							Major branch damage; two main trunk stems leaning; one corner dead/dying branches	Multi-Stem, Off Site; Poor Condition
77	Acer sp./ Maple	18-24	30	75	Co-Dominate	65	33	POS	X						Upper broken/dying branches	Multi-Stem, Off Site
78	Hovea obliqua/Common Mulberry	10	10	26	Co-Dominate	60	23	POS							Leaning; one sided; growing into 78; dead/dying/broken branches	Off Site; Poor Condition
79	Acer sp./ Maple	10	10	72	Co-Dominate	70	60	POS							Growing into 78; some vine cover; broken branches	Off Site
80	Acer sp./ Maple	10	10	78	Co-Dominate	60	20	POS							Leaning; one sided; some vine cover	Off Site
81	Quercus phellos/Walnut Oak	24	18	84	Co-Dominate	75	20	POS	X	X					Some broken branches	Off Site
82	Quercus phellos/Walnut Oak	24	18	72	Co-Dominate	60	20	POS							Vine cover; one sided; dead/broken branches	Off Site
83	Malessegoe glyptostrobilus/Down Redwood	30	30	81	Dominate	63	30	F	X	X	X	X	X	X	Previously pruned	
84	Quercus phellos/Walnut Oak	24	24	75	Dominate	65	45	R							In traffic island; exposed/canopied roots	
85	Fagus sp./Beech	10-8	12	78	Suppressed	75	15	R							Thin; some broken branches	Twin Stem
86	Rubus pseudoacacia/Black Locust	24	24	75	Co-Dominate	70	20	R							Some dead/broken branches	In R.O.W.
87	Rubus pseudoacacia/Black Locust	10	10	72	Co-Dominate	63	10	R							Some dead/broken branches	In R.O.W.
88	Rubus pseudoacacia/Black Locust	10	10	78	Co-Dominate	70	8	R							Some dead/broken branches	In R.O.W.
89	Rubus pseudoacacia/Black Locust	14	14	71	Co-Dominate	75	10	R							Some dead/broken branches	In R.O.W.
90	Rubus pseudoacacia/Black Locust	12	12	71	Co-Dominate	75	10	R							Some dead/broken branches	In R.O.W.
91	Rubus pseudoacacia/Black Locust	12	12	71	Co-Dominate	70	10	R							Some dead/broken branches	In R.O.W.
92	Rubus pseudoacacia/Black Locust	24	24	75	Co-Dominate	75	18	R							Some dead/broken branches	In R.O.W.
93	Rubus pseudoacacia/Black Locust	10-10-10	17	78	Co-Dominate	70	25	R							Some dead/broken branches	Multi-Stem, In R.O.W.
94	Rubus pseudoacacia/Black Locust	20	20	75	Co-Dominate	65	18	R							Some dead/broken branches	In R.O.W.
95	Rubus pseudoacacia/Black Locust	12	12	71	Co-Dominate	65	10	R							Some dead/broken branches	In R.O.W.
96	Rubus pseudoacacia/Black Locust	18	18	71	Co-Dominate	70	15	R							Some dead/broken branches	In R.O.W.
97	Rubus pseudoacacia/Black Locust	28	28	75	Co-Dominate	70	25	R							Some dead/broken branches	In R.O.W.
98	Rubus pseudoacacia/Black Locust	12-12	17	75	Co-Dominate	75	20	R							Some dead/broken branches	Twin Stem
99	Rubus pseudoacacia/Black Locust	18	18	71	Co-Dominate	65	10	R							Some dead/broken branches	In R.O.W.
100	Rubus pseudoacacia/Black Locust	18	18	71	Co-Dominate	75	12	R							Some dead/broken branches	In R.O.W.
101	Rubus pseudoacacia/Black Locust	12	12	71	Co-Dominate	65	12	R							Some dead/broken branches	In R.O.W.
102	Dead (Black Locust)	12	12	-	-	-	-	-								Dead
103	Acer sp./ Maple	10	10	28	Co-Dominate	70	8	R							Split trunk; some rot; exposed roots	Poor Condition
104	Quercus phellos/Walnut Oak	12	12	72	Co-Dominate	65	18	R							Roots above ground; bottom rot	
105	Amberis virginiana/Eastern Redcedar	10	10	69	Suppressed	63	12	R							Thin at bottom/midline; some dead branches at bottom; upper stem has broken branch; some rot	
106	Amberis virginiana/Eastern Redcedar	15	15	75	Co-Dominate	70	20	R								
107	Pinus sp./Pine	15	15	78	Co-Dominate	70	20	R								
108	Pinus sp./Pine	24	24	78	Co-Dominate	75	50	R								

TREE KEY	BOTANICAL NAME AND OR/ COMMON NAME	SIZE	HCRZ	COMMON	CANOPY POSITION	CROWN DENSITY	HCRZ OPEN SPACE	FINAL STATUS	ACTIVITIES					PROBLEMS	COMMENTS	
									ROOT PRUNE	TRUNK PRUNE	CROWN PRUNE	REMOVAL	OTHER			
																MOIST PRUNE
109	Pinus sp./Pine	28	28	78	Co-Dominate	60	55	R								
110	Taxodium distichum/Bald Cypress	12	12	81	Co-Dominate	60	15	R								
111	Malessegoe glyptostrobilus/Down Redwood	14	14	84	Co-Dominate	65	25	F	X	X	X	X	X	X	Split trunk in the middle and lower section	Potential hazard; but tall trunk; monitor condition
112	Malessegoe glyptostrobilus/Down Redwood	26	26	81	Co-Dominate	65	25	F	X	X	X	X	X	X		
113	Malessegoe glyptostrobilus/Down Redwood	18	18	81	Co-Dominate	65	25	F	X	X	X	X	X	X		
114	Taxodium distichum/Bald Cypress	36	36	81	Co-Dominate	65	20	F								Leaned up
115	Malessegoe glyptostrobilus/Down Redwood	24	24	81	Co-Dominate	65	25	F	X	X	X	X	X	X		Leaned up
116	Malessegoe glyptostrobilus/Down Redwood	30	30	81	Co-Dominate	65	25	R								Leaned up
117	Taxodium distichum/Bald Cypress	24	24	81	Co-Dominate	60	20	R								Leaned up
118	Malessegoe glyptostrobilus/Down Redwood	28	28	81	Co-Dominate	65	25	R								
119	Malessegoe glyptostrobilus/Down Redwood	27	27	81	Co-Dominate	65	25	R								
120	Malessegoe glyptostrobilus/Down Redwood	24	24	81	Co-Dominate	60	25	R								
121	Taxodium distichum/Bald Cypress	27	27	95	Co-Dominate	60	25	R								
122	Pinus sp./Pine	24	24	81	Co-Dominate	60	30	F	X	X	X	X	X	X	Some broken branches	
123	Rubus pseudoacacia/Black Locust	24	24	69	Co-Dominate	60	25	R								Some broken branches
124	Ulmus sp./Elm	28	28	78	Co-Dominate	90	60	R								
125	Prunus sp./Cherry	8	8	91	Specimen	90	12	POS								Well Pruned; off site
126	Lagerströmia indica/Crape Myrtle	3-5-5	6	94	Specimen	100	20	POS								Multi-Stem; off site
127	Thuja occidentalis/White Cedar	6-6	6	81	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Twin Stem
128	Thuja occidentalis/White Cedar	6-6	6	81	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Twin Stem
129	Thuja occidentalis/White Cedar	6-6	6	81	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Twin Stem
130	Thuja occidentalis/White Cedar	6-6	6	81	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Twin Stem
131	Thuja occidentalis/White Cedar	6-6	6	84	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Single Stem
132	Thuja occidentalis/White Cedar	6-6	6	81	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Twin Stem
133	Thuja occidentalis/White Cedar	6-6	6	78	Co-Dominate	100	12	P	X	X	X	X	X	X	Vine cover	Remove Vines, Single Stem With One Small Stem
134	Thuja occidentalis/White Cedar	6-6	6	75	Co-Dominate	100	12	P	X	X	X	X	X	X		Twin Stem
135	Pinus sp./Pine	6-6-6-3	10	72	Co-Dominate	100	12	P	X	X	X	X	X	X		Twin Stem
136	Thuja occidentalis/White Cedar	6-6-3-3	7	72	Co-Dominate	90	10	P	X	X	X	X	X	X	Leaning; browsing; lower/upper branch damage	Multi Stem
137	Pinus strobus/White Pine	6	6	78	Co-Dominate	95	12	P	X	X	X	X	X	X	Lower branch damage; broken branches	
138	Pinus sp./Pine	3-3-3-3	6	81	Co-Dominate	100	12	R								Multi Stem
139	Prunus sp./Cherry	10	10	69	Co-Dominate	65	20	POS							Major branch damage; exposed roots; hanging over building	Off Site
140	Prunus sp./Cherry	8	8	75	Co-Dominate	80	20	P							Leaning; one sided; lots of dead branches; trunk damage	
141	Quercus phellos/Walnut Oak	10	10	31	Co-Dominate	50	20	R							Vine covered; one sided; small cluster of branches growing up trunk; some dead/dying branches	Poor Condition
142	Cercis canadensis/Redbud	10	10	69	Co-Dominate	70	25	P							Several dead branches at the bottom; exposed roots; one sided	
143	Pinus sp./Pine	8	8	72	Co-Dominate	60	15	P	X	X	X	X	X	X	One sided; slight leaning; one corner	
144	Pinus oaks/Horsey Spruce	8	8	72	Suppressed	100	65	R							Very thin and crowded; one corner	

TREE INVENTORY AND CONDITION ANALYSIS CONTINUED ON SHEET 11.
SEE SHEET 9 FOR THE TREE PRESERVATION PLAN AND SHEET 13 FOR THE TREE PRESERVATION DETAILS AND NARRATIVES.

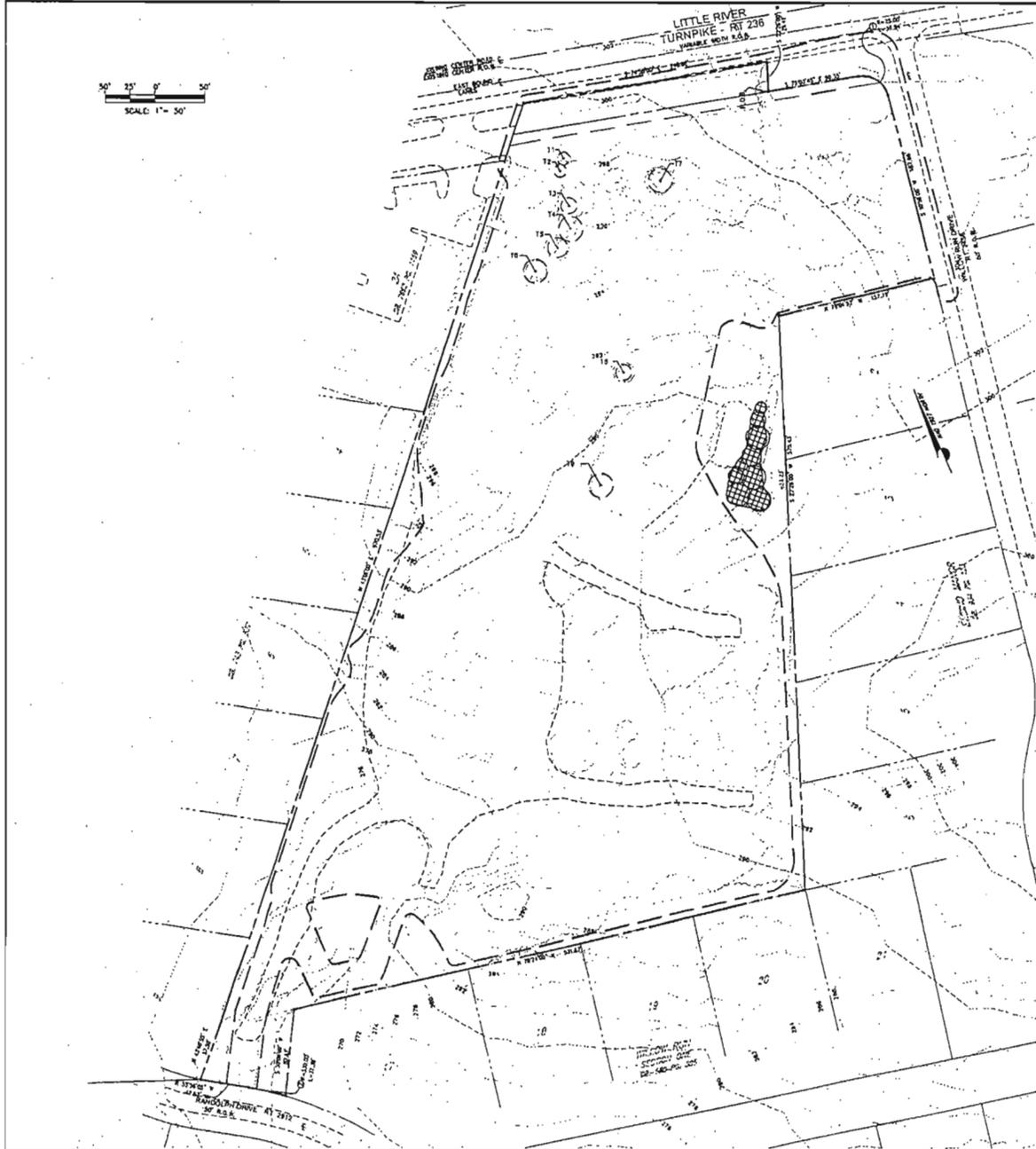
NOTES:
1. NO OFF-SITE TREES OR CO-OWNED TREES SHALL BE REMOVED WITHOUT THE PRIOR PERMISSION OF THE OFF-SITE OWNER(S) OR CO-OWNER(S) OF THE TREES.
2. THE ADJACENT PROPERTY OWNER(S) DID NOT GRANT PERMISSION TO ACCESS THEIR PROPERTY. THE LOCATION, DIAMETER AND CONDITION ANALYSIS FOR ALL OFF-SITE TREES HAVE BEEN ESTIMATED.
3. ALL TREES 8 INCHES OR GREATER IN DIAMETER WITHIN 25 FEET OF OTHER SIDE OF THE LIMITS OF CLEARING AND GRADING HAVE BEEN LISTED EXCEPT WHERE DIRECTED OTHERWISE BY THE URBAN FOREST MANAGEMENT DIVISION.
4. CONDITION ANALYSIS INFORMATION HAS BEEN PROVIDED FOR ALL TREES LISTED.

LEGEND:
PC - POOR CONDITION STATUS TO BE DETERMINED IN CONSULTATION WITH THE URBAN FOREST MANAGEMENT DIVISION (UFGM).
TPO - POTENTIAL HAZARD OR TREE OF SPECIAL CONCERN STATUS TO BE DETERMINED IN CONSULTATION WITH THE UFGM.
P - PRESERVE.
R - REMOVE.
POS - PRESERVE OFF-SITE.
RWP - REMOVE WITH PERMISSION FROM THE UFGM. TREE IS WITHIN UNINSURED AREA BUT CONDITIONS WARRANT ITS REMOVAL. CONDUCT ACTIVITY INDICATED.
* - DBH/DIAMETER MEASURED AS MEASURED +.5 FEET ABOVE GROUND.
HCRZ/CROWN ROOT ZONE (ONE FOOT OF RADII FOR EVERY INCH OF TREE DIAMETER). CRZ FOR TREES WITH HEAVY STEMS ARE CALCULATED BASED ON THE DIAMETER OF A TREE WITH A BASAL AREA EQUIVALENT TO THE SUM OF THE BASAL AREAS FOR ALL STEMS MEASURED.
CONDITION RATINGS ARE PROVIDED AS PERCENTAGES BASED ON METHODS OUTLINED IN THE LATEST EDITION OF THE GUIDE FOR PLANT APPRAISAL PUBLISHED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE.

CERTIFIED ARBORIST

INTERNATIONAL SOCIETY OF ARBORICULTURE
Dariusz Dule Dux
MEMBER # 144-2154
ISSUED 03/21/2011

SCALE: 1" = 50'



LEGEND:

-  APPROXIMATE LIMITS OF CLEARING AND GRADING
-  TREE STORAGE AREA (SEE SHEET 15 FOR TREE TRANSPLANTATION STORAGE SPECIFICATIONS)
-  EXISTING TREE TO BE TRANSPLANTED

SEE SHEET 15 FOR TREE TRANSPLANTATION SPECIFICATIONS AND DETAILS. SEE SHEET 8 FOR 10-YEAR CANOPY CALCULATIONS. FINAL PLANTING LOCATIONS OF TRANSPLANTED TREES ARE SHOWN ON SHEETS 8 AND 9. AT THE TIME OF SUBDIVISION PLAN, FINAL LOCATIONS OF THESE TREES MAY BE ADJUSTED IN CONSULTATION WITH THE URBAN FOREST MANAGEMENT DIVISION.

TREE TRANSPLANTATION LIST:

Qty	Botanical Name	Common Name	Condition	Transplantation Method	Caliper (Inches)	10 Year Tree Canopy (sq. ft.)
11	Acer rubrum	Japanese Red Maple	Excellent	Tree Spine	6	113
12	Fagus sylvatica	European Beech	Excellent	Tree Spine	6	113
13	Fagus sylvatica	European Beech	Excellent	Tree Spine	8	201
14	Acer rubrum	Japanese Red Maple	Excellent	Tree Spine	12	452
15	Acer rubrum	Japanese Red Maple	Excellent	Tree Spine	12	452
16	Fagus sylvatica	European Beech	Excellent	Tree Spine	12	452
17	Acer rubrum	Japanese Red Maple	Excellent	Tree Spine	12	452
18	Pinus strobus	Japanese White Pine	Excellent	Tree Spine	12	261
19	Acer rubrum	Japanese Red Maple	Excellent	Tree Spine	12	452
Total					Two	2,750

* DIAMETER OF TREE MEASURED AT 12 INCHES ABOVE GROUND [D.B.H.]
 ** LOSS OF ANY TREE CANOPY PROVIDED THROUGH TRANSPLANTATION WILL BE RECOVERED BY THE PLANTING OF TREES PROVIDING THE EQUIVALENT TREE CANOPY IN CONSULTATION WITH THE URBAN FOREST MANAGEMENT DIVISION. NO BONUS MULTIPLIERS HAVE BEEN TAKEN FOR THE TREE CANOPY FOR ANY OF THE TRANSPLANTED TREES.

BC Consultants
 Planners • Engineers • Surveyors • Landscape Architects
 12000 Fair Lakes Circle, Suite 100, Fairfax, VA 22033
 (703)448-8100 (Fax)
 www.bcconsult.com



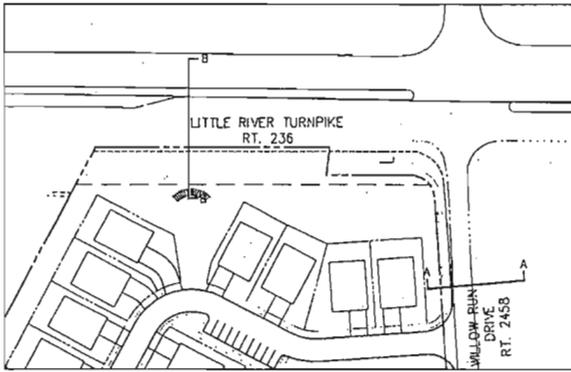
CONCEPTUAL/FINAL DEVELOPMENT PLAN
 TREE TRANSPLANTATION PLAN
CALLAWAY
 MARK BENTLEY
 VIRGINIA CERTIFIED ARBORIST

REVISIONS:
 SHEET NUMBER 13-02-11-12
 REVISION 01-30-12
 REVISION 02-11-12
 REVISION 04-30-12
 REVISION 05-15-12
 APPROVED BY: [Signature]
 DATE: 05-15-12
 STATE: VA
 11101 BENTLEY & LLC
 11101 BENTLEY & LLC
 RESTON, VA 20190

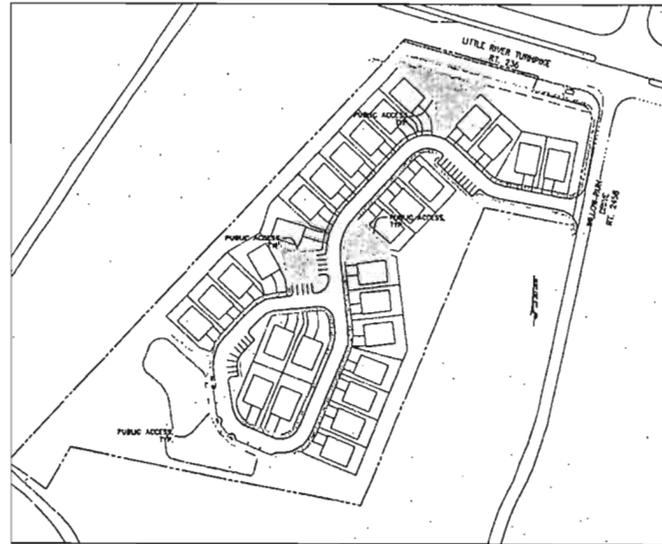
CERTIFIED ARBORIST

 International Society of Arboriculture
CERTIFIED ARBORIST
 Dennis Dale Dixon
 444-80-2A
 05/17/2011

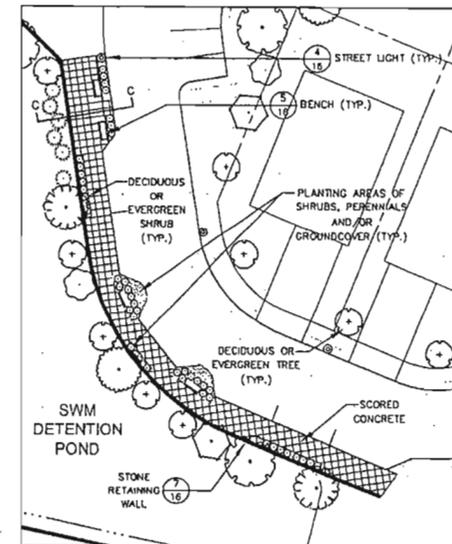
DESIGNED BY: PLR
 DRAFTER BY: CAD
 CHECKED BY: PLR
 DATE: JULY, 2011
 SCALE: 1" = 50'
 SHEET 14 OF 22
 CD. NO.
 CAD NAME: F11324TRP
 LAYOUT: ETRP
 FRZ. NO. 11524-08



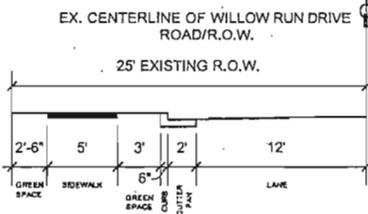
1 ROAD FRONTAGE IMPROVEMENTS PLAN
19 SCALE: 1" = 65'



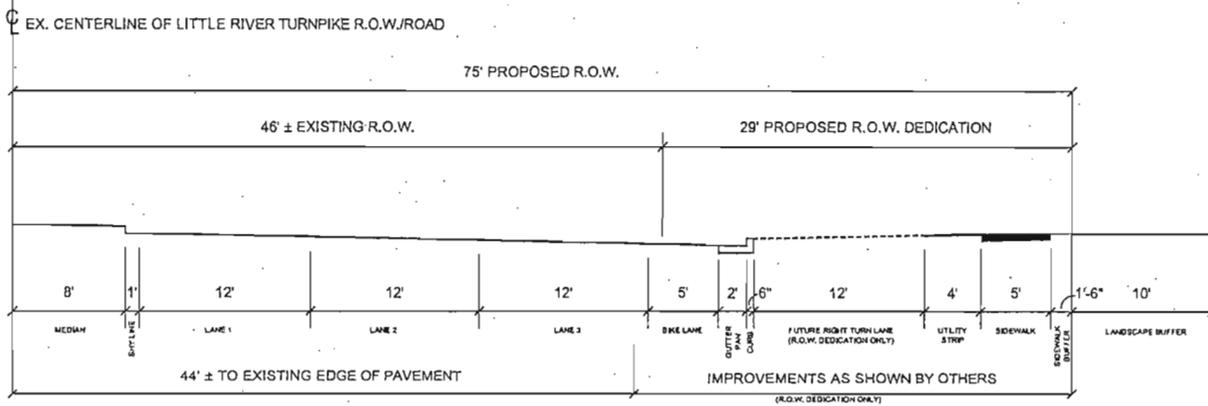
2 PUBLIC ACCESS DIAGRAM
19 SCALE: 1" = 100'



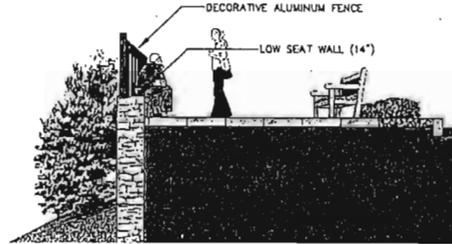
3 POND OVERLOOK AMENITY AREA
19 SCALE: 1" = 20'



4 WILLOW RUN DRIVE SECTION A - A
19 SCALE: 1" = 1'



5 LITTLE RIVER TURNPIKE SECTION B - B
19 SCALE: 1" = 1'



6 POND OVERLOOK AMENITY AREA SECTION C - C NO SCALE
19

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Planners - Engineers - Surveyors - Landscape Architects
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(703)449-8100 (703)449-8108 (Fax)
www.bcconsultants.com



CONCEPTUAL/FINAL DEVELOPMENT PLAN
STREET SECTIONS AND PLANS
CALLAWAY
Major Engineer
Virginia Professional Engineer

DESIGNED BY: PLR	REVISIONS	
DRAFTED BY: CAD	NO. 1	DATE: 02-23-12
CHECKED BY: PLR	NO. 2	DATE: 03-21-12
DATE: JULY 2011	NO. 3	DATE: 04-11-12
SCALE: AS SHOWN	NO. 4	DATE: 04-11-12
WRT: PLR	NO. 5	DATE: 04-11-12
SHEET 19 OF 22	NO. 6	DATE: 04-11-12
CD. NO.	NO. 7	DATE: 04-11-12
CAD NAME: #1133451 SECTIONS	NO. 8	DATE: 04-11-12
LAYOUT: SECTIONS	NO. 9	DATE: 04-11-12
FILE NO: 11324-08	NO. 10	DATE: 04-11-12

OUTFALL 'A' PRE-DEVELOPMENT TIME OF CONCENTRATION CALCULATOR

Segment #1: To: TR-55 Sheet	
Manning's n	1.300
Hydraulic Length	100.00 ft
2% 24hr P	2.700 in
Slope	.030000 ft/ft
Avg. Velocity	.28 ft/sec
Segment #1 Time:	6.06 min
Segment #2: To: TR-55 Shallow	
Hydraulic Length	793.00 ft
Slope	.030000 ft/ft
Unpaved	
Avg. Velocity	2.79 ft/sec
Segment #2 Time:	4.73 min
Segment #3: To: TR-55 Channel	
Flow Area	33,7000 sq.ft
Wetted Perimeter	32.30 ft
Hydraulic Radius	1.01 ft
Slope	.030000 ft/ft
Manning's n	0.500
Hydraulic Length	192.00 ft
Avg. Velocity	5.20 ft/sec
Segment #3 Time:	.62 min
Total To:	11.40 min

OUTFALL 'A' ONSITE PRE-DEVELOPMENT FLOW SUMMARY

Return Event	Depth in	Rainfall Type	RIF ID
Pre 2	3.2000	Synthetic Curve	Type#1 24hr
Pre 10	5.2000	Synthetic Curve	Type#1 24hr
Pre 1	2.7000	Synthetic Curve	Type#1 24hr

Node ID	Type	Return Event	HYD Vol cu.ft	Trun	Opeak min	Opeak cfs	Max MSEL ft	Pond Storage cu.ft	Max cu.ft
*OUTFLOW	JCT	2	38713	720.00	13.78	32.41			
*OUTFLOW	JCT	10	89168	720.00	32.41	9.72			
*OUTFLOW	JCT	1	27749	722.50	9.72				
RAINFALL	AREA	2	38713	720.00	13.78				
RAINFALL	AREA	10	89168	720.00	32.41				
RAINFALL	AREA	1	27749	722.50	9.72				

OUTFALL ANALYSIS COMPUTATIONS OUTFALL A

PART 1. LIST ALL OF THE SUBAREAS WITH IRI NUMBER AND COMPUTE THE AVERAGE CN FOR THE OUTFALL

GOOD FORESTED CONDITION	AREA (AC.)	PRODUCT
(A) SUBAREA 1 DESCRIPTION	CN	
A1 - Wooded Constant SLO	17	0.00
TOTAL	1.00	0.00
(B) WEIGHTED AVERAGE CN	TOTAL = AREA / PRODUCT =	77

POST DEVELOPMENT	AREA (AC.)	PRODUCT
(C) SUBAREA 2 DESCRIPTION	CN	
A2 - Runoff on 1/4" SLO	87	0.00
TOTAL	8.00	763.00
(D) WEIGHTED AVERAGE CN	TOTAL = AREA / PRODUCT =	37

PART 2. COMPUTE THE DEPTH OF RAINFALL AT OUTFALL

(A) CALCULATE THE RAINFALL AMOUNT (P) FOR THE 1, 3, AND 10 YEAR, 24-HOUR STORM. (FROM TABLE 8.32 OF THE FPM)

$P_1 = 2.7"$ $P_3 = 3.2"$ $P_{10} = 5.2"$

(B) DETERMINE THE RUNOFF DEPTH (S) IN INCHES

GOOD FORESTED CONDITION	POST DEVELOPMENT
$S = \frac{100 - 10}{10}$	$S = 1.0$
$s = \frac{(P - 0.15)^2}{P + 0.85}$	$s = 0.87$
	$s = 1.21$
	$s = 3.78$

PART 3. CALCULATE THE 1-YEAR POST DEVELOPMENT VOLUME

(A) DETERMINE TOTAL VOLUME OF WATER TO BE DETAINED FOR 1-YEAR STORM

$V_1 = \text{DRAINAGE AREA (ACRES)} \times 4.356 \text{ (12 INCHES/FOOT)}$ $V_1 = 1.0852 \text{ ac.} \times 4 = 47.278 \text{ cu. ft.}$

(B) SUBTRACT VOLUME DETAINED IN BMP VOLUME (FROM BMP COMPUTATIONS)

$V_{det} = V_1 - V_{bmp}$ $V_{det} = 00 \text{ cu. ft.}$ $V_{det} = 47.278 \text{ cu. ft.}$

PART 4. DETERMINE ORFICE SIZE FOR 1-YEAR STORM

(A) MAXIMUM HEAD (H) AT THE REQUIRED 1-YEAR STORAGE FROM THE ELEVATION STORAGE CURVE FOR THE FACILITY. $H = 8.00 \text{ ft.}$

(B) PEAK OUTFLOW RATE (Q) AT THE MAXIMUM HEAD FOR DRAWDOWN TIME OF 24 HOURS. $Q_p = 1.0944 \text{ cfs}$

(C) REQUIRED ORFICE AREA $A_{1-TR} = \frac{Q_p}{0.6 \sqrt{64.4H}}$

(D) MAXIMUM DIAMETER OF CIRCULAR ORFICE MAXIMUM DIAMETER = 1.84"

PART 5. DETERMINE ALLOWABLE RELEASE

(A) DETERMINE THE VOLUME OF RUNOFF FOR EACH STORM TO BE ANALYZED

$V = \text{DRAINAGE AREA (ACRES)} \times 4.356 \text{ (12 INCHES/FOOT)}$

GOOD FORESTED CONDITION	POST DEVELOPMENT
$V_p = 38.832 \text{ cu. ft.}$	$V_p = 81.332 \text{ cu. ft.}$
$V_{10} = 88.134 \text{ cu. ft.}$	$V_{10} = 120.134 \text{ cu. ft.}$

(B) DETERMINE THE PROPORTIONAL IMPROVEMENTS FOR EACH STORM TO BE ANALYZED

$R_1 = \left(\frac{V_p}{V_{10}} \right)^{1/100}$ $R_1 = 36.83\%$ $R_{10} = 15.80\%$

(C) DETERMINE THE ALLOWABLE PEAK RELEASES

GOOD FORESTED CONDITION RELEASE	PROPORTIONAL IMPROVEMENT RELEASE
$Q_p = 13.78 \text{ cfs}$	$Q_p = 8.68 \text{ cfs} = 2.42 \times (1 - R_1)$
$Q_{10} = 32.41 \text{ cfs}$	$Q_{10} = 24.05 \text{ cfs} = 8.54 \times (1 - R_{10})$

PART 7. MAXIMUM ALLOWABLE OUTFALL

STORM FREQUENCY	PROPORTIONAL IMPROVEMENT RELEASE (CFS)	UNDERTAINED TO OUTFALL A (CFS)	*OFFSITE DETAINED (CFS)	*ALLOWABLE OUTFLOW (CFS)	MAX. OUTFLOW (CFS)
Q_p	8.68	0.82	1.48	8.88	8.88
Q_{10}	24.05	8.80	2.71	17.81	17.81

OUTFALL 'A' ONSITE UNCONTROLLED FLOW SUMMARY

Return Event	Depth in	Rainfall Type	RIF ID
2	3.2000	Synthetic Curve	Type#1 24hr
10	5.2000	Synthetic Curve	Type#1 24hr
1	2.7000	Synthetic Curve	Type#1 24hr

Node ID	Type	Return Event	HYD Vol cu.ft	Trun	Opeak min	Opeak cfs	Max MSEL ft	Pond Storage cu.ft	Max cu.ft
*OUTFLOW	JCT	2	10703	715.50	4.62				
*OUTFLOW	JCT	10	20997	715.50	8.85				
*OUTFLOW	JCT	1	8274	715.50	3.59				
UNDETAILED	AREA	2	10703	715.50	4.62				
UNDETAILED	AREA	10	20997	715.50	8.85				
UNDETAILED	AREA	1	8274	715.50	3.59				

DETENTION VOLUME

Elevation (ft.)	Planimeter (sq. in)	Area (sq. ft)	A1+A2+sq(A1*A2) (sq. ft)	Volume (cu. ft)	Volume Sum (cu. ft)
270.30	0	0	0	0	0
272.00	52	52	29	29	29
274.00	2265	2660	1773	1803	1803
276.00	4891	10481	6990	8792	8792
278.00	8060	19230	12810	21612	21612
280.00	11901	29755	19837	41449	41449
282.00	15921	41587	27725	69174	69174
284.00	19787	53457	35638	104812	104812
284.10	19800	53581	35719	106791	106791

POUND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.
 $\text{Volume} = (1/3) \times (EL2 - EL1) \times (\text{Area1} + \text{Area2} + \text{sq. rt.}(\text{Area1} \times \text{Area2}))$
 where: EL1, EL2 = Lower and upper elevations of the increment
 Area1, Area2 = Areas computed for EL1, EL2, respectively
 Volume = Incremental volume between EL1 and EL2

DETENTION FACILITY DISCHARGE SUMMARY

Return Event	Total Depth in	Rainfall Type	RIF ID
1	2.7000	Synthetic Curve	Type#1 24hr
2	3.2000	Synthetic Curve	Type#1 24hr
10	5.2000	Synthetic Curve	Type#1 24hr
100	7.3000	Synthetic Curve	Type#1 24hr
150	10.9500	Synthetic Curve	Type#1 24hr

MASTER NETWORK SUMMARY

SCS Unit Hydrograph Method
 (*Node=Outfall) (*Node=Diversion)
 (Trun=HYD Truncation) (Man=Maneu L=Left; R=Right; L=Left;R=C)

Node ID	Type	Return Event	HYD Vol cu.ft	Trun	Opeak min	Opeak cfs	Max MSEL ft	Pond Storage cu.ft	Max cu.ft
DRY POND	III POND	1	55778	716.00	22.88				
DRY POND	III POND	2	72163	716.00	29.56				
DRY POND	III POND	10	141547	716.00	56.46				
DRY POND	III POND	100	217432	716.00	85.31				
DRY POND	III POND	150	352004	716.00	134.70				
DRY POND	OUT POND	1	55778	797.00	1.26	278.67	28488		
DRY POND	OUT POND	2	72163	132.00	5.28	219.03	30765		
DRY POND	OUT POND	10	141546	127.00	17.32	281.14	56245		
DRY POND	OUT POND	100	160316	716.00	85.17	282.07	70275		
DRY POND	OUT POND	150	291889	716.00	129.02	282.41	73866		
ONSITE	AREA	1	55778	716.00	22.88				
ONSITE	AREA	2	72163	716.00	29.56				
ONSITE	AREA	10	141547	716.00	56.46				
ONSITE	AREA	100	217432	716.00	85.31				
ONSITE	AREA	150	352004	716.00	134.70				

OWM FACILITY RELEASE FLOW RATES

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 Planner - Engineers - Surveyors - Landscape Architects
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 Reston, VA 20190
 (703) 448-8100
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CONCEPTUAL/FINAL DEVELOPMENT PLAN
 STORMWATER MANAGEMENT COMPUTATIONS
CALLAWAY
 MAKE AHEAD
 LICENSED PROFESSIONAL ENGINEER
 LICENSE NO. 51117

REVISED 02-17-12
 REVIEWED 11-09-11
 CHECKED 08-26-11
 DRAFTED 08-26-11
 DESIGNED BY: PWR
 DRAFTED BY: CAD
 CHECKED BY: PWR
 DATE: JULY, 2011
 SCALE: HOR. V/A
 VERT. V/A
 SHEET 22 OF 22
 CD. NO.
 CAD NAME: F11524-SHW
 LAYOUT: PWP-SM2
 FILE NO. 11524-08