



**ENVIRONMENTAL ASSESSMENT CHECKLIST
ASHLAWN ELEMENTARY SCHOOL**

ECS PROJECT NO. 01:20709

**PREPARED FOR
SHW GROUP, INC**

**FEBRUARY 19, 2013
REVISED: MARCH 8, 2013 & JANUARY 27, 2014**

ARLINGTON COUNTY ENVIRONMENTAL CHECKLIST INSTRUCTIONS

Arlington County Administration Regulation 4.4 calls for assessment of the environmental impacts of County projects. The attached environmental assessment guidelines are designed to help County staff carry out such assessments. It provides a checklist for identifying environmental and energy impacts of proposed projects and developing strategies to avoid or minimize them.

This form, or an environmental assessment, is not required for all projects. Admin Regulation 4.4 excludes such projects as road and sewer maintenance, and exempts others, such as those with no impacts at all on vegetation, noise, or other environmental concerns. To determine whether your project is excluded or exempt, please check sections 3.2 and 3.3 of the Regulation. If your project is exempt or excluded, please complete only page 1 of this form, through question A, and submit it to the Department of Environmental Services.

If your project is not excluded or exempt, you must either complete this form or provide a separate environmental assessment report to comply with Admin Reg. 4.4. If you choose to provide a separate report, please make sure it addresses all of the questions posed in the form. If you prefer to complete the form, please answer the questions briefly. If you have already prepared other documents providing information on specific questions, you are encouraged to attach them rather than rewriting the material on the form.

We encourage you to seek community input into project design prior to completing this form. You may want to solicit the views of civic associations, citizen commissions, and other groups as appropriate. For applicable projects, the Environment and Energy Conservation Commission (E2C2) will hold a public hearing on the project.

Please submit two (2) copies of the completed form with all attachments, printed double-sided, to the Environmental Planning Office in the Department of Environmental Services. The submission will be reviewed by DES staff and by the Environment and Energy Conservation Commission (E2C2). In rare instances, a proposed project may raise significant environmental questions not fully answered by this form. In such cases, DES or E2C2 may request additional information or analysis.

**ARLINGTON COUNTY
ENVIRONMENTAL CHECKLIST**

February 19, 2013 (Revised 3/8/13 -AMS)

Date: _____

Project Name and Address: Ashlawn Elementary School
59501 8th Road North, Arlington, Virginia 22205

Agency Name: Arlington Public Schools

Agency Point of Contact: John C. Chadwick

Fax: _____ Phone: 703-228-6609 E-Mail: john.chadwick@apsva.us

Timeline for development process. On a separate page, please provide a checklist of the steps in the design and implementation of this project, indicating which have already been completed and when, and the schedule for completion of the rest. Your list might include planning, community input, compliance with siting guidelines, consultation with citizen commissions (including E2C2) or other boards, budget approvals, Site Plan review, Planning Commission Review, Board approvals, site design, Chesapeake Bay Preservation Ordinance review, granting of required permits, construction start, estimated completion date, and so on.

Architect/Design Engineer/Consultant (if any) SHW Group, Inc.

Point of Contact: Mr. Doug Gehley

Fax: (571) 521-7511 Phone: (571) 521 7530 E-Mail: dgehley@shwgroup.com

Based on the criteria specified in sections 3.2 and 3.3 of Reg. 4.4, this project is:

- Subject to Reg. 4.4
- Excluded from Reg. 4.4 as specified in section 3.2
- Exempt from EA under Reg. 4.4 as specified in section 3.3

A. BRIEF PROJECT DESCRIPTION (provide a brief description of the proposed project):

The Ashlawn Elementary School project site consists of approximately 7.13-acres of land located south of N. 8th Road at its intersection with N. Manchester Street. The site is also identified by the physical address 5950 N. 8th Road and the Arlington County PID#: 12041033. The site is currently improved by Ashlawn Elementary School and its associated outbuildings, driveways, parking lots, and athletic fields. The remainder of the site is wooded or lawn. The purpose of the proposed project is the addition of a new three-story wing to the east side of the existing elementary school building and renovations to the existing building. Additionally, the site layout will be improved by the relocation of some of the existing parking and the pick-up/drop-off area. The location for the proposed addition and renovations is currently occupied by an asphalt recreational court, metal trailers, concrete walks, trees and lawn.

The revitalization planned for Ashlawn Elementary School is inherently sustainable by virtue of the planned re-use of both existing site and existing building. Through re-use a significant portion of the original schools materials – energy to manufacture, deliver to the site and construct – are maintained and their lifespan extended through refurbishment. Materials and aspects of the original design that no longer suit the building’s use or are now considered sub-standard by today’s energy efficiency standards are able to be removed and replaced. The result will be an energy efficient school that offers the highest and best use of the land it sits on and extends its positive effect into the community far beyond the limits of the site.

(Complete only to here if your project is excluded or exempt from Reg. 4.4

B. CURRENT CONDITION OF SITE (briefly describe topography, slopes, number and species of trees, extent and location of bushes, low ground cover, and impervious surface)

The topography of the project site ranges from 276 feet above mean sea level (MSL) in the northwestern portion of the site to 216 feet above MSL in the southeaster corner of the site. Ground elevation is at 266 feet above MSL on the western side of the existing school building, sloping to 252 feet above MSL on the east side. From the east side of the building a small hill slopes down to an elevation of 244 feet above MSL. A gravel path, trailers, and recreation court are located here in a level area. Elevation on the eastern boundary of the property slopes from 234 to 220 feet above MSL to meet the road elevation of N. Manchester Street. Mature trees and shrubs form a screen along N. Manchester Street and around the school building. Small landscaping trees are located in parking islands and around the existing metal trailers. Tree species include Northern Red Oak, Southern Red Oak, Willow Oak, Pin Oak, Red Maple, Sugar Maple, Black Cherry, Black Locust, White Pine, American Holly, and Crepe myrtle. Impervious (i.e. asphalt, school building) or semi-impervious (i.e. gravel, mulch play area) surface covers approximately 3.1 acres (43%) of the site. The remainder consists of trees or turf grass.

C. CHARACTER OF SURROUNDING AREA (provide a brief description of the surrounding area, including a description of the current property use, including whether the property is developed or undeveloped, adjacent land uses, topography, vegetation, etc).

To the east of the site, across N. Manchester Street, is Bluemont Park, which contains tennis courts, baseball diamonds, and other recreational areas, as well as a portion of the Washington and Old Dominion Trail and Four Mile Run. To the north and south of the site are residential neighborhoods, including single and multi family housing. To the west of the site is the Dominion Hills Area Recreation Association pool and Powhatan Springs Park. Portions of the parks and recreation areas are undeveloped and contain mature woods and streams. The residential areas are fully developed.

D. SUBSURFACE CONDITIONS

(1) Will the project disturb soil or subsurface conditions?

Yes No

If yes, describe the extent of the disturbance (for example, how much soil will be disturbed, to what depth, will the soil be replaced, what is the nature of the soil to be disturbed, will the lot be regraded, will additional backfill be added and what type). What measures will be taken to minimize such disturbances?

This project will disturb soil and subsurface conditions on approximately 3.75 acres on the subject property. This project will employ several retaining walls and minimize the amount of cut to reduce the disturbance. The greatest amount of cut will be at the western portion of the new edition and at the first half of the entrance of the new driveway.

(2) Will the project affect groundwater?
 Yes No

If yes, describe the effect(s) and the steps taken to minimize the effects:

Note: If yes, please contact DES/Environmental Planning staff if you have questions.

E. STORM WATER MANAGEMENT

(1) Describe the current water/storm water drainage at the site (e.g. location of storm drains, retention areas, streams, etc.):

Existing storm drainage for the site consists of sheet and/or channel flow to the existing underground closed conduit system. Three drainage sub-sheds exists on-site and outfalls at the southeast corner of the property: The existing 8th Road surface drainage is captured via inlets and conveyed east and south through the site via an 18" RCP pipe. The system connects to the pipe system that runs east along the southern property line with pipes ranging from 36-inch to 48-inch before leaving the site. Surface run-off from the staff parking lot is captured via existing inlets and conveyed to the existing underground storm water detention system with pipes ranging from 15-inch to 24-inch. The courtyard area, consisting of sidewalk and green space, drains to a single drainage inlet. The flow is conveyed by RCP pipes ranging from 15-inch to 18-inch, to the underground detention facility. An existing culvert opening with headwall located near the southwest corner of the school (existing structure #8B) captures off-site drainage and conveys it along the south property line before leaving the site. The rear of the school is mostly grass open space and sheet flows surface drainage to the existing yard inlet south of the gravel track (existing structure #13). The flow is conveyed to existing 48-inch pipes before leaving the site.

The school is within the 4-mile Run Upper Main Stem 2 watershed and storm water management is provided by an underground facility at the southwest corner of the school. The facility was constructed with plans prepared in 1994 and was designed only accommodate the building addition and parking lot expansion. The existing facility includes three (3) rows of 60" RCP pipes with manhole vaults for access. The facility discharges into the existing storm sewer.

(2) Storm water management - All projects should consider implementing innovative and environmentally beneficial stormwater management techniques such as bioretention or use of pervious paving. Describe the design for managing storm water or attach any stormwater flow or drainage plans prepared for the project.

The storm water management (water quality) will be designed in accordance to the Arlington Code Chapter 60-Storm Water Management and Chapter 61-Chesapeake Bay Preservation Ordinance.

Using Arlington County Stormwater Detention Calculation Site Design Standard Worksheet, 126,302 square feet (71% of total site area), including 36,115 square feet of impervious surface (59% of total impervious surface) will be detained by the proposed facilities. Run-off from the new building addition roof, portions of proposed sidewalk and new parent drop-off driveway will be captured by storm inlets and directed to the bio-retention facility at the southeast corner of the property. The biofiltration basin or rain garden will provide 65% treatment efficiency of pollutants and will have a surface area of 2,750 square feet. The rain garden is designed to have 12-inches of ponding water which will filtrate through the planting media and into the PVC under drain. This flow will be captured and directed into the underground detention system. The rain garden will be designed in accordance to the Virginia Stormwater Management Handbook. Stormwater detention is required to detain the storm run-off of the 100-year storm at the allowable release rate of approximately 3.71 cubic feet per second (CFS) with the approximate storage volume required of 5,557 cubic feet. Stormwater detention will be accomplished using an underground facility at the southeast corner of the property. Approximately 283 linear feet of 60-inch corrugated metal pipe (CMP) will be required for detention. An outlet control structure will be place within the facility to control the discharge to not exceed the allowable release rate of 3.71 cfs.

Manhole access from the surface will be required along the facility.

The storm outfall structure (culvert 17B) located on the southeast corner of the property will remain and receive undetained flow through a swale along the southern portion of the site. The rain garden and underground detention facility will be designed connect to the pipe underground pipe associated with this outfall.

See Appendix I for additional details along with the completed Stormwater Requirements Worksheet.

(3) Describe your erosion and sediment control plan, or attach your E&S document.

Appropriate measures for erosion and sediment control during construction will be maintained. Perimeter controls will consist of a construction entrance along North Manchester Street, silt fence, super silt fence, diversions, inlet protection, tree protection and temporary silt traps. All vegetative and structural erosion and sediment control practices shall be constructed and maintained according the minimum standards and specifications. See Appendix I for additional details.

F. FLOODPLAINS, WETLANDS, CHESAPEAKE BAY ISSUES

(1) Is the project in the 100-year floodplain? (as per Chapter 48. Floodplain Management Ordinance)

Yes No

If yes, describe how the project complies with the requirements of the Floodplain Management Ordinance.

(2) Is your site:

within Resource Protection Area (RPA) as defined in the Chesapeake Bay Preservation Ordinance?

If yes, you must contact DES and DPW about compliance with the conditions set out in the Chesapeake Bay Preservation Ordinance.

within Resource Management Area (RMA) as defined in Chesapeake Bay Preservation Ordinance?

If your site is in RMA, describe the measures taken to comply with the criteria for such development under the Chesapeake Bay ordinance (minimize impervious cover, retain/maintain vegetation to the maximum extent practicable, minimize site disturbance).

To minimize site disturbance and impervious cover and maintain vegetation to the maximum extent possible, the existing site will be revitalized through renovations and an addition rather than a complete demolition and reconstruction. The majority of the area to be occupied by the proposed addition and pick-up/drop-off area is existing impervious surface (trailers, parking, and recreation courts). See Appendix II for RPA map.

exempt from compliance with the Chesapeake Bay Preservation Ordinance?

If your site is exempt, please specify the category of exemption:

G. WATER QUALITY (excluding stormwater)

(1) Will the project result in the discharge of pollutants directly into a surface water body, thus requiring a state discharge permit (Virginia Pollutant Discharge Elimination System, VPDES)?

No (proceed to next question)

Yes (provide confirmation of compliance with VPDES requirements)

(2) Will the project discharge to the waste water treatment plant?

No (proceed to next question)

Yes (provide confirmation of compliance with limits for discharge to local treatment plant)

The waste water from the building addition will discharge to the waste water treatment plant. The proposed use of the building addition is a permitted use under the Arlington County Zoning Ordinance Section 3. "S-3A" Special Districts. The sanitary sewer drainage shed should have incorporated the permitted use of the proposed building to account for future developments. The

building addition will not produce excessive waste water and will not overburden the waste water treatment plant.

H. AIR QUALITY

(1) Will the project cause increased air emissions? (for example, from vehicles, lawn mowers and other landscape maintenance equipment, generators, boilers, etc.)

No (proceed to next question) Yes

Describe source and nature of emissions, and measures taken to reduce or minimize them:

We do not anticipate increased emissions from the existing electric generator, vehicles, or landscaping equipment. We estimate that by replacing the existing natural gas-fired boilers (80% combustion efficiency) with new condensing-type boilers (est. 95% combustion efficiency), the gas combustion emissions of the proposed building (including the existing building and the proposed addition) will increase by about 8% from the current emissions of the existing building. The use of high-efficiency boilers will minimize emissions to the greatest extent possible.

(2) Will the proposal create objectionable odors?

No (proceed to next question) Yes

Describe source and nature of emissions, and measures taken to reduce or minimize such them:

I. FLORA AND FAUNA

(1) Please describe impacts on vegetation (for example, change in species diversity, removal of trees or other vegetation), how the project will minimize and mitigate such impacts, and how you will comply with the County's tree replacement policy. All vegetation planted on the site should be native species; contact the County's urban forester for more information.

Impacts to vegetation will be minimized by the location of the proposed addition and parking lot renovations. Species diversity will not be significantly impacted by the necessary removal of some trees onsite. Ninety-four (94) trees with a diameter at breast height greater than three (3) inches will be removed from the site according to the proposed design. These trees will be replaced with native vegetation, including eighty-three (83) deciduous overstory trees, one hundred and forty-one (141) evergreen and deciduous understory trees, and two hundred and seventy-eight (278) shrubs, as well as perennial herbaceous ground cover. Seven (7) trees are proposed to be removed from the RPA, and will be replaced by five (5) overstory and nine (9) understory trees. Overall, both canopy cover and species diversity will be improved by the proposed plantings. The removal of some mature trees cannot be

avoided as they are within the footprint of the proposed addition and site improvements.

See Appendix III for more details.

(2) Please describe impacts on fauna and wildlife habitat (e.g. butterflies, birds, small mammals) and how the project will minimize or mitigate such impacts. Consider both design and timing strategies to minimize impacts.

The project will have minimal affect on wildlife habitat. The location of the proposed addition and parking lot renovations will minimize the impact to trees, which represent the most significant source of habitat onsite. Tree removal will be timed to avoid impacts to nesting/breeding wildlife to the extent feasible.

J. NOISE

Will the proposal result in increased noise levels?

No (proceed to next question) Yes

If yes, please describe your abatement procedures to comply with the County's Noise Control Ordinance, Chapter 15.

The proposed improvements will not result in a permanent increase in noise levels. Any temporary increase due to construction activities will be minimized in compliance with Arlington County Code 15-6(F) and the Table of Maximum Permissible Noise Levels from Stationary Sources

K. LIGHT and GLARE

If the project involves outdoor lighting, describe how it has been designed to avoid nuisance light that disturbs neighbors, minimize glare, and protect dark skies.

Pole lights and/or path lights will be provided in parking areas and along pedestrian walkways for safety. The selected lights will be Dark Sky Compliant to reduce light pollution and glare.

L. HAZARDOUS SUBSTANCES/WASTE

Will the project involve the generation, storage or management of hazardous substances or hazardous waste?

No (proceed to next question)

_____ Yes. Please provide a description of the measures taken to prevent the release of such substances/waste. Copies of plans or similar documents required by law may be provided in lieu of a description.

M. TRANSPORTATION/CIRCULATION

(1) Will the project:

- _____ generate additional traffic?
- x add to existing parking facilities or create demand for new parking?
- x have a substantial impact upon existing transportation systems or traffic flow?
- _____ create or increase a hazard to pedestrian or bicycle traffic?

If the answer to any of the above is yes, please describe the impacts and how they can be avoided or mitigated (for example, incentives for mass transit or pedestrian/bike use, design to avoid traffic flow problems, etc.). Please describe, summarize, or attach any traffic studies.

This project will not generate additional traffic and will improve the traffic circulation around the school. The addition of the parent drop-off drive on North Manchester Street will improve the traffic during peak hours by providing separate access to the school without conflicting with the bus-drop off traffic. The removal of temporary trailers in the staff parking will create additional parking spaces. This project will not create a pedestrian/bike traffic hazards and will address current safety issues raised by Arlington Public Schools and the local community.

Please see Appendix IV for further details.

(2) Describe what you are doing to facilitate bicycle and pedestrian access to and within your site:

Several site features are proposed to improve the safety and access for pedestrians/bike traffic. New sidewalks will connect areas of pedestrian access off-site to the school property. The intersection of 8th Street and North Manchester Street will become a raised intersection and 3-way stop with a reduce road width encourage slow vehicle speeds and pedestrian crossing.

N. ENERGY CONSUMPTION/CONSERVATION

Describe energy consumption and measures to promote energy efficiency in your project (e.g., measures to reduce heating and cooling energy loads, minimize lighting power density, harvest daylight, use solar technologies, or meet EPA Energy Star or Consortium for Energy Efficiency performance levels):

The building addition will utilize energy efficient HVAC and lighting systems such as a Dedicated Outdoor Air (Ventilation) Unit equipped with Heat Recovery, a Water-Source Heat Pump System for building heating and cooling and LED lighting fixtures equipped with daylighting and occupancy/vacancy controls, where applicable. Water efficient plumbing fixtures will also reduce both water consumption

and energy required for the production of hot water. Replacement of the existing boilers and the rooftop HVAC units serving the multi-purpose room with higher-efficiency equipment will also reduce energy consumption. Finally, retro-commissioning of the existing building will identify the energy savings opportunities of low-cost and no-cost measures, including repair and/or tuning of existing systems (including air and water testing and balancing) as well as enhanced control strategies. The overall goal of 25% energy savings post-construction should be met based on the proposed schematic design. Further, the applicant is proposing dedicated outdoor air systems with energy recovery. Two stage water source heat pumps will also be incorporated into the proposed design.

O. GREEN BUILDING

Describe your compliance with the US Green Building Council's LEED standards or submit your LEED checklist and related descriptive materials:

This project will utilize the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) system for identifying and documenting sustainable aspects of the design approach. Although this project will be designed utilizing this system the project will not be submitted for USGBC certification due to current inefficiencies in the LEED system that make achieving certification for a renovation of an existing building impractical. This LEED system offers a useful framework for evaluating green building features. The LEED 2009 version for New Construction and Major Renovations offers 7 categories of sustainable design for documentation: Sustainable Site, Water Efficiency, Energy & Atmosphere, Materials & Resources, Interior Environmental Environment, Innovation & Design Process and Priority Regional Credits. Appendix V identifies options that are available to this project by virtue of its location, size, use and budget. Full documentation of LEED exploration and compliance has not been completed and is outside of the APS team's contract.

P. CULTURAL/HISTORIC RESOURCES

Will the proposal

- _____ result in the alteration or destruction of a prehistoric or historic archaeological site?
- _____ result in adverse physical or aesthetic effects to a historic building, structure, or object?
- _____ have the potential to cause physical change that would affect unique cultural or historic values?

If yes, please describe or attach related documents.

This project will not alter or destroy cultural/historic resources. See Appendix VI containing a map of nearby historic resources for reference.

Q. GENERAL QUESTIONS

Beyond the specific areas identified above, do you anticipate that the proposal individually or in association with similar projects or other projects within the same area has the potential to cause significant adverse impacts on the environment, either short-term or long-term?

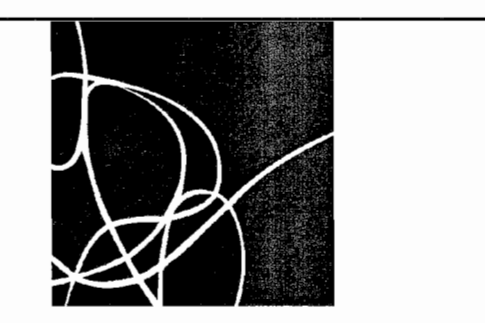
If the answer is yes, and your response has not already been addressed above, please describe such impacts and how they will be minimized or mitigated.

APPENDIX I:
SECTION E - STORMWATER MANAGEMENT



KEY

- UNDETAINED AREA (BYPASS AREA) (51,454SF or 1.18AC.)
- DETAINED AREA (TO SWM FACILITY) (126,302SF or 2.90AC.)
- OFF-SITE AREA (TO SWM FACILITY) (28,659SF or 0.66AC.)
- APPLICABLE AREA (177,756SF or 4.08AC.)



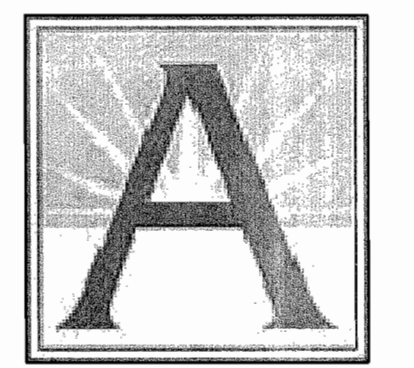
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DRAWN:
CHECKED:
SCALE:
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ISSUE: JULY 26, 2013

08.28.2013	DES COMMENTS
11.07.2013	FOOTING TO GRADE PERMIT SET
11.22.2013	DES COMMENTS

ARLINGTON PUBLIC SCHOOLS



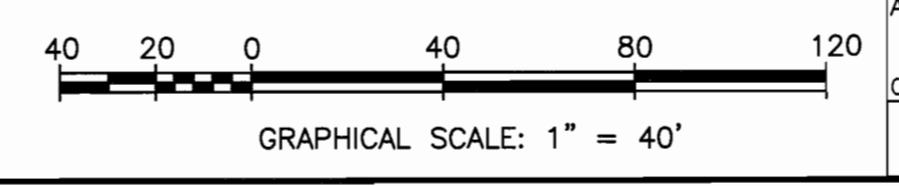
ASHLAWN ELEMENTARY SCHOOL ADDITION
Arlington, VA 22205



SHEET TITLE:
STORMWATER MANAGEMENT DRAINAGE MAP

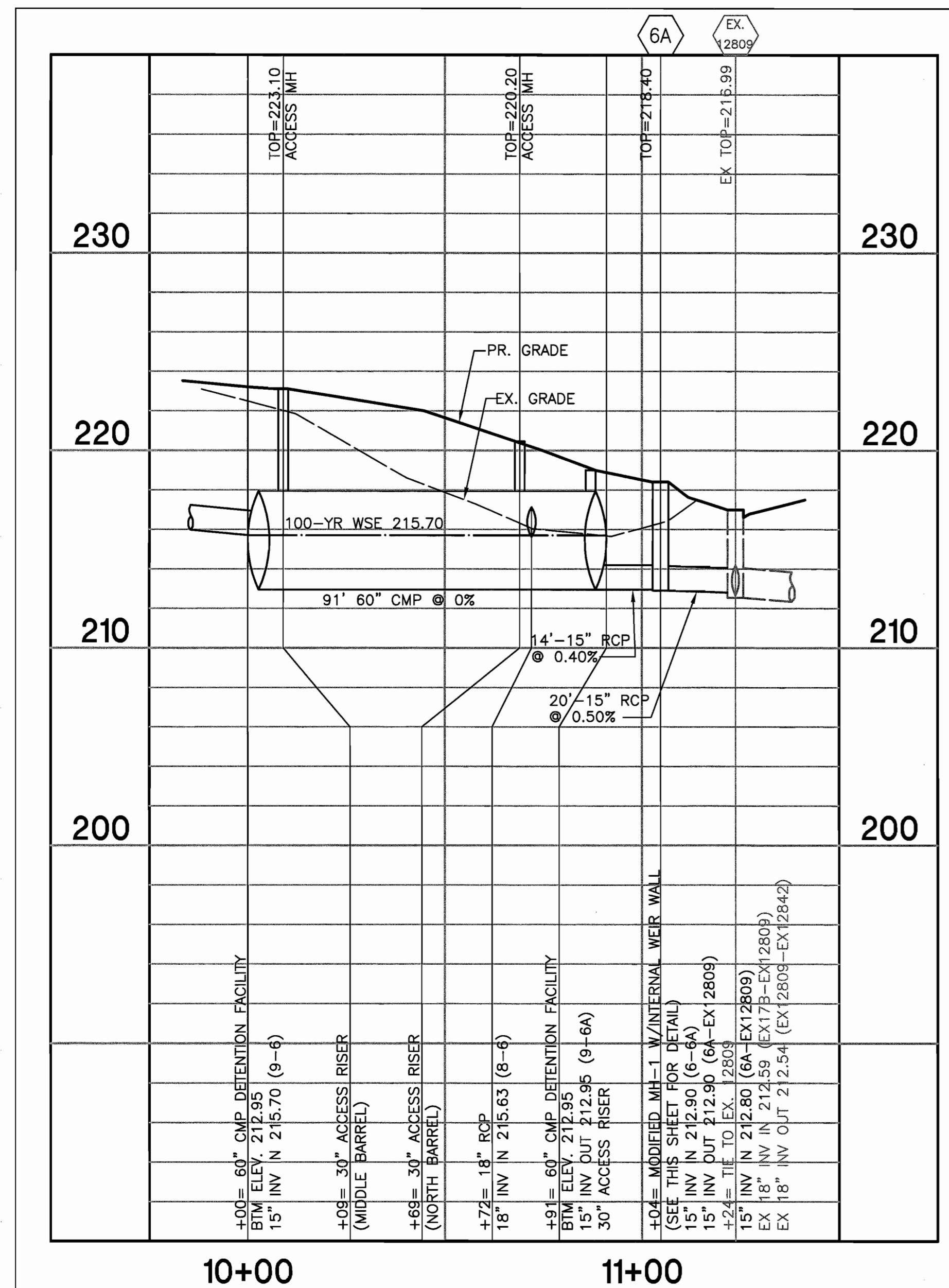
ARLINGTON, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DRAINAGE MAP
ASHLAWN ELEMENTARY SCHOOL ADDITION

SCALE: HOR: AS NOTED VER:	DESIGNED: DTR SPET	CHECKED: JMCC SPET
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:
	CHIEF TRANSPORTATION PLANNING BUREAU	CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
	PROJECT SHEET OF	CONTRACT SHEET OF



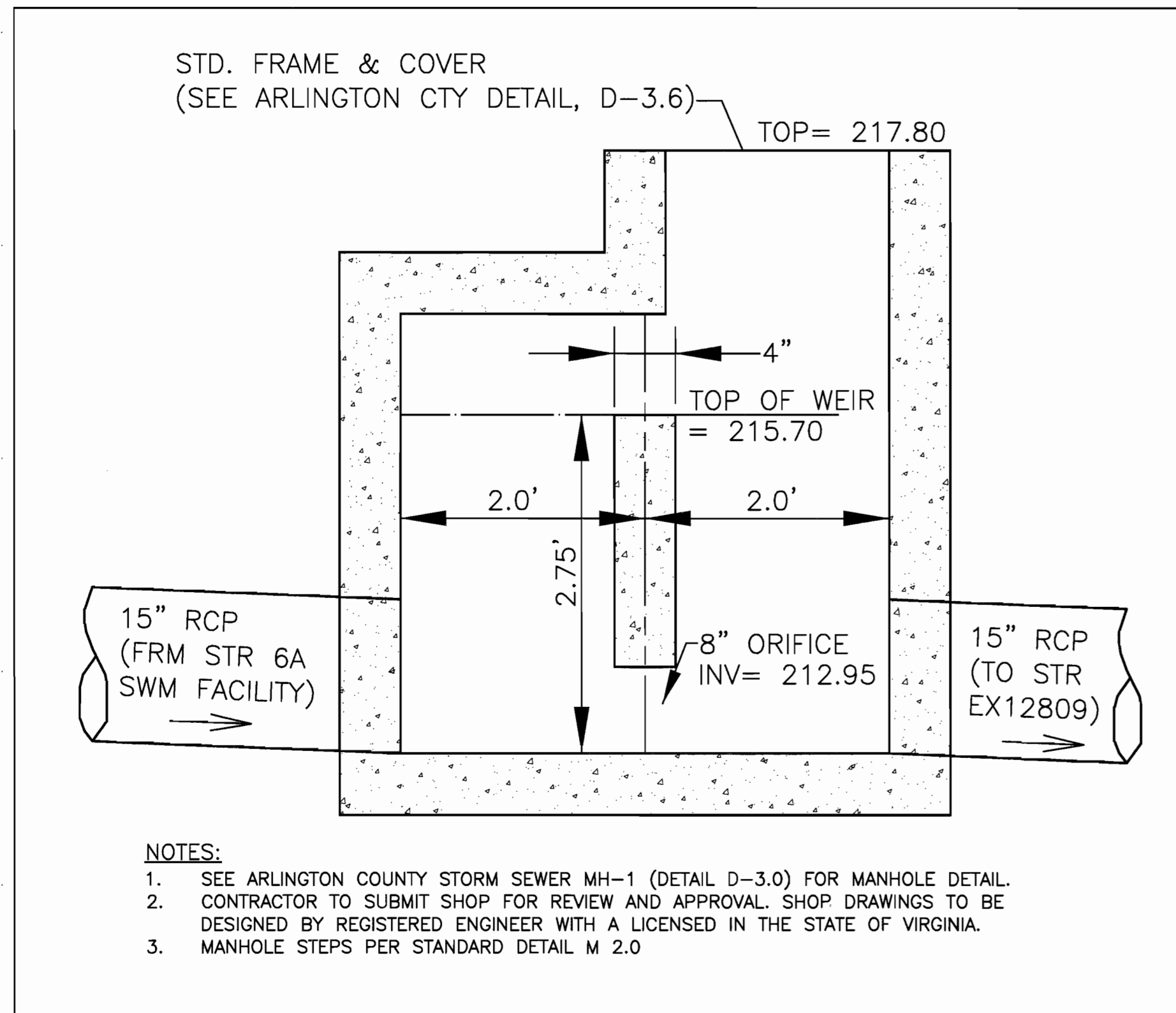
THIS SHEET FOR STORMWATER DRAINAGE ONLY.

C-600
SHW Project: 3112.006.00



10+00 11+00
SWM 60" CMP DETENTION PROFILE

SCALE: HORIZ: 1" = 25"
VERT: 1" = 5'



MODIFIED MH-1 - STRUCTURE 6A

SCALE: 1" = 1'-0"

WATER QUANTITY CONTROL NARRATIVE

STORM WATER CONTROL FOR THIS DEVELOPMENT IS BEING PROVIDED BY UNDERGROUND DETENTION. PER THE ARLINGTON COUNTY CODE, CHAPTER 60, THE SITE IS WITHIN THE FOUR MILE RUN MAIN STEM 2 WATERSHED AND THE SITE SHALL PROVIDE STORMWATER DETENTION CAPACITY SUFFICIENT TO ACCOMMODATE THE MAXIMUM STORAGE REQUIRED FOR A 100-YEAR STORM AT THE RUNOFF RATE ON THE DEVELOPED SITE AND A RELEASE RATE WHICH WOULD BE EQUIVALENT TO THE 10-YEAR STORM USING AN ASSUMED RUNOFF COEFFICIENT OF 0.30.

THE APPLICABLE AREA (LIMITS OF DISTURBANCE) IS 4.08 AC (177,756 SF). COMPUTATIONS CALCULATE THE PRE-DEVELOPED RUNOFF FOR THE SITE TO BE 8.31 CFS WITH AN ASSUMED COEFFICIENT OF 0.30 AND COMPOSITE C-VALUE OF 0.43. THERE IS AN UNDETAINED AREA OF 1.18 AC OR 6.40 CFS. THE FLOW OFF-SITE (SOUTH OF THE APPLICABLE AREA) IS 1.80 CFS FROM 0.66 AC. THE ALLOWABLE RELEASE RATE IS 3.71 CFS WITH THE STORAGE VOLUME REQUIRED OF 5,421 CF.

AN UNDERGROUND DETENTION FACILITY COMPOSED OF 283LF OF 60" CMP WITH A TOTAL VOLUME OF 5,557 CF AND IS LOCATED AT THE SOUTHEAST CORNER OF THE SITE, SOUTH OF THE NEW NORTH MANCHESTER STREET ENTRANCE. DISCHARGE FROM THE FACILITY IS LOCATED AT SOUTHEAST END OF THE CMP PIPES AT STRUCTURE 6A. STRUCTURE 6A IS A MODIFIED MH-1 MANHOLE WITH AN INTERNAL WEIR AND 8" ORIFICE OPENING. THE TOP OF THE WEIR ELEVATION PROVIDES OVERFLOW FOR LARGER STORM EVENTS. THE 8" DIAMETER ORIFICE AT THE STRUCTURE IS USED AS AN OUTLET ORIFICE FOR THE WATER QUANTITY AND RELEASES THE FLOW BELOW THE ALLOWABLE RELEASE RATE OF 3.71 CFS.

IT IS THE ENGINEER'S OPINION THAT THE IMPROVEMENTS PROPOSED WITH THIS APPLICATION HAS NO ADVERSE IMPACT TO THE ADJACENT PROPERTIES.

RESOURCE PROTECTION AREAS ARE LOCATED ON THE SUBJECT PROPERTY PER ARLINGTON COUNTY GIS DATA.

SWM FACILITIES PRIVATE MAINTENANCE NOTES:

THE STORMWATER MANAGEMENT FACILITIES SHALL BE PRIVATELY INSPECTED AND MAINTAINED ACCORDING TO THE MAINTENANCE SCHEDULE SHOWN OR REFERENCED ON THE PLANS. A MAINTENANCE CERTIFICATION WILL BE SUBMITTED TO ARLINGTON COUNTY ANNUALLY.

PRIVATE INSPECTION AND MAINTENANCE CERTIFICATION FOR THE STORMWATER DETENTION FACILITIES SHALL BE DONE BY A REGISTERED ENGINEER, LICENSED LAND SURVEYOR, OR A MASTER PLUMBER IN ACCORDANCE WITH CHAPTER 80 OF THE ARLINGTON COUNTY CODE.

THE OWNER SHOULD CONTACT ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES IF THERE ARE ANY QUESTIONS OR CONCERNS REGARDING THE STORMWATER MANAGEMENT FACILITY INSPECTION MAINTENANCE, AND ANNUAL CERTIFICATION REQUIREMENTS.

SWM CONSTRUCTION INSPECTION STATEMENT:

THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THIS PLAN SHALL BE CONSTRUCTED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER WHO WILL PROVIDE TO ARLINGTON COUNTY ALL APPLICABLE CONSTRUCTION INSPECTION LOGS AND TEST DOCUMENTATION FOR THE FACILITY AND PREPARE AND SUBMIT A WRITTEN STATEMENT CERTIFYING THE FACILITY WAS BUILT AS DESIGNED PER THE APPROVED PLANS.

ONLY THE FOLLOWING NON-STORMWATER DISCHARGES ARE AUTHORIZED BY ARLINGTON COUNTY'S MS4 PERMIT, UNLESS THE STATE WATER CONTROL BOARD, THE VIRGINIA SOIL AND WATER CONSERVATION BOARD (BOARD), OR ARLINGTON COUNTY DETERMINES THE DISCHARGE TO BE A SIGNIFICANT SOURCE OF POLLUTANTS TO SURFACE WATERS: WATER LINE FLUSHING; LANDSCAPE IRRIGATION; DIVERTED STREAM FLOWS; RISING GROUND WATERS; UNCONTAMINATED GROUND WATER INFILTRATION (AS DEFINED IN 40 CFR 35.2005(20)); UNCONTAMINATED PUMPED GROUND WATER; DISCHARGES FROM POTABLE WATER SOURCES; FOUNDATION DRAINS; AIR CONDITIONING CONDENSATION; IRRIGATION WATER; SPRINGS; WATER FROM CRAWL SPACE PUMPS; FOOTING DRAINS; LAWN WATERING; INDIVIDUAL RESIDENTIAL CAR WASHING; OR FLOWS FROM RIPARIAN HABITATS AND WETLANDS; DECHLORINATED SWIMMING POOL DISCHARGES; DISCHARGES OR FLOWS FROM FIRE FIGHTING; AND, OTHER ACTIVITIES GENERATING DISCHARGES IDENTIFIED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY AS NOT REQUIRING VPDES AUTHORIZATION. APPROPRIATE CONTROLS MUST BE IMPLEMENTED TO PREVENT ANY NON-STORMWATER DISCHARGES NOT INCLUDED ON THE ABOVE LIST (E.G., CONCRETE WASH WATER, PAINT WASH WATER, VEHICLE WASH WATER, DETERGENT WASH WATER, ETC.) FROM BEING DISCHARGED INTO ARLINGTON COUNTY'S MS4 SYSTEM, WHICH INCLUDES THE CURB AND GUTTER SYSTEM AS WELL AS CATCH BASINS AND OTHER STORM DRAIN INLETS, OR STREAM NETWORK. PER CHAPTER 26 OF THE ARLINGTON COUNTY CODE, IT SHALL BE UNLAWFUL FOR ANY PERSON TO DISCHARGE DIRECTLY OR INDIRECTLY INTO THE STORM SEWER SYSTEM OR STATE WATERS, ANY SUBSTANCE LIKELY, IN THE OPINION OF THE COUNTY MANAGER, TO HAVE AN ADVERSE EFFECT ON THE STORM SEWER SYSTEM OR STATE WATERS.

ORIFICE FOR SWM DETENTION FACILITY:

Required orifice area (A_o)
 $A_o = q_o / C (2gh_o)^{0.5}$
 $A_o = q_o / 4.81 h_o^{0.5}$
 From: 217.95
 To: 212.95
 $h_o = 3.55$ ft
 $A_o = 0.41$ sq ft
 Required orifice diameter, d_o
 $d_o = (4 A_o / \pi)^{0.5}$
 $d_o = 0.72$ ft
 $d_o = 8.66$ in
 USE ORIFICE SIZE:
 8 INCH DIA. @ 212.95
 DETENTION Elevation = 217.95
 Actual release rate = 3.17 cfs

Q_p = ACTUAL COMBINED RELEASE RATE = 3.17 cfs
 Q_p = ALLOWABLE COMBINED RELEASE RATE = 3.71 cfs
REQUIREMENT MET

ARLINGTON COUNTY STORMWATER DETENTION CALCULATION
SITE DESIGN STANDARD WORKSHEET

1. SITE DESCRIPTION
 LOCATION: FOUR MILE RUN WATERSHED
 TOTAL SITE AREA A = 177756 SF OR 4.08 AC
 (APPLICABLE AREA)

EXISTING CONDITIONS
 IMPERVIOUS AREA 39817 SF OR 0.91 AC
 PERVIOUS AREA 137939 SF OR 3.17 AC
 TOTAL 177756 SF OR 4.08 AC
 PERCENT IMPERVIOUSNESS 22.4% (1)
 COMPOSITE C = 0.43

(1) SINCE EXISTING IMPERVIOUSNESS IS LESS THAN 50% PREDEVELOPMENT FLOW CAN NOT UTILIZE PARTIAL WAIVER AVERAGE OPTION THEREFORE C-VALUE IS 0.30 FOR THE FOUR MILE RUN WATERSHED.

PROPOSED CONDITIONS
 UNDETAINED
 IMPERVIOUS AREA A_{imp} = 25314 SF OR 0.58 AC
 PERVIOUS AREA 26140 SF OR 0.60 AC
 TOTAL 51454 SF OR 1.18 AC
 COMPOSITE C = 0.60

DETAINED
 IMPERVIOUS AREA A_{imp} = 36115 SF OR 0.83 AC
 PERVIOUS AREA 90187 SF OR 2.07 AC
 TOTAL 126302 SF OR 2.90 AC
 COMPOSITE C = 0.47

TOTAL
 IMPERVIOUS AREA A_{imp} = 61429 SF OR 1.41 AC
 PERVIOUS AREA 116327 SF OR 2.67 AC
 TOTAL 177756 SF OR 4.08 AC
 COMPOSITE C = 0.51

T_c = 5 MIN
 I_{10} = 6.79 IN/HR
 I_{100} = 9.10 IN/HR

2. PREDEVELOPMENT RUNOFF
 C = 0.30 (SPECIFIED BY ORDINANCE)
 Q_{10} = 8.31 CFS (SPECIFIED BY ORDINANCE)

3A. UNDETAINED FLOW
 UNDETAINED AREA A = 51454 SF OR 1.18 AC
 IMPERVIOUS AREA A_{imp} = 25314 SF OR 0.58 AC
 PERVIOUS AREA 26140 SF OR 0.60 AC
 C = 0.595
 Q_{10} = 6.40 CFS

3B. OFFSITE FLOW
 OFFSITE AREA A = 28659 SF OR 0.66 AC
 IMPERVIOUS AREA A_{imp} = 0 SF OR 0.00 AC
 PERVIOUS AREA 28659 SF OR 0.66 AC
 C = 0.30
 Q_{10} = 1.80 CFS

4. ALLOWABLE RELEASE RATE
 ALLOWABLE Q_{100} = PRE Q_{10} - UNDETAINED Q_{10} + OFFSITE FLOW Q_{10}
 ALLOWABLE Q_{100} = 3.71 CFS (SPECIFIED BY ORDINANCE)

5. STORAGE VOLUME REQUIRED
 DETAINED AREA A = 126302 SF OR 2.90 AC
 COMPOSITE C = 0.51
 TOTAL A^*C = 1,471 AC

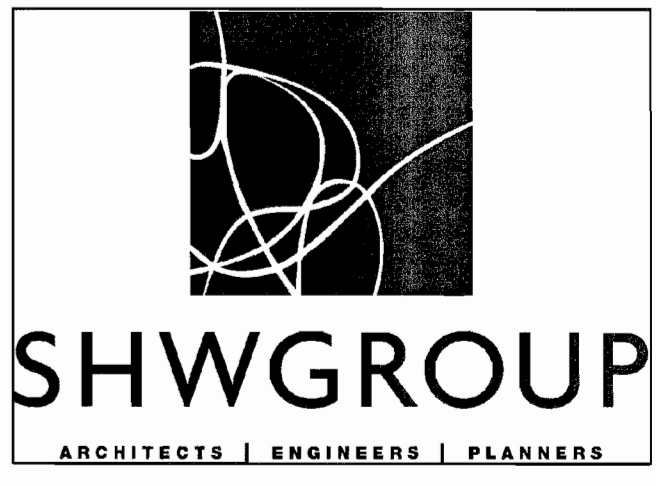
TIME (MIN)	TIME (SEC)	I_{100} (CFS)	IMP AC (A^*C)	Q_{10} INFLOW (CFS)	VOL. INFLOW (CF)	Q_{10} OUTFLOW RR (CFS)	VOL. OUTFLOW RR (CF)	STORAGE (CF)
5	300	9.10	1.471	13.387	4016	3.71	1113	2903
10	600	7.28	1.471	10.709	6426	3.71	2227	4199
15	900	6.22	1.471	9.150	8235	3.71	3340	4895
20	1200	5.50	1.471	8.091	9709	3.71	4453	5256
25	1500	4.97	1.471	7.311	10967	3.71	5566	5400
30	1800	4.57	1.471	6.723	12101	3.71	6680	5421
35	2100	4.25	1.471	6.252	13129	3.71	7793	5336
40	2400	3.98	1.471	5.855	14052	3.71	8906	5145
50	3000	3.56	1.471	5.237	15711	3.71	11133	4578
60	3600	3.25	1.471	4.781	17211	3.71	13359	3852
90	5400	2.64	1.471	3.884	20971	3.71	20039	933
120	7200	2.27	1.471	3.339	24043	3.71	26718	(2675)
180	10800	1.83	1.471	2.692	29074	3.71	40077	(11003)
STORAGE VOLUME REQUIRED:				5421 CF		(SPECIFIED BY ORDINANCE)		

6. STORAGE VOLUME PROVIDED
 DETENTION FACILITY: 283.00 LF OF 60" CMP
 PROVIDED VOLUME: 5557 CF

ARLINGTON, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT COMPUTATIONS

ASHLAWN ELEMENTARY SCHOOL ADDITION

SCALE: HOR, AS NOTED	DESIGNED: DJR SPET	CHECKED: JMC SPET
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:
APPROVED DATE:	CHIEF TRANSPORTATION PLANNING BUREAU	CHIEF TRAFFIC ENGINEERING BUREAU
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET	OF	CONTRACT SHEET OF



11415 Isaac Newton Square, Reston, VA 20190



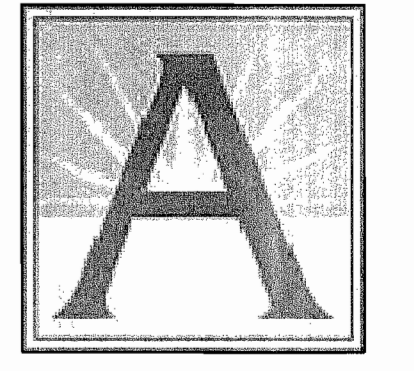
4501 Daly Drive
 Chantilly, VA 20151
 Phone: 703-263-1900

DRAWN:
 CHECKED:
 SCALE:
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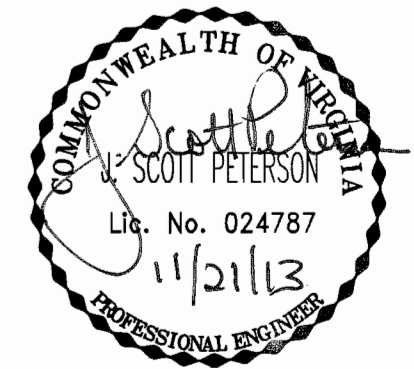
ISSUE: JULY 26, 2013

08/26/2013	DES COMMENTS
11/07/2013	FOOTING TO GRADE PERMIT SET
11/22/2013	DES COMMENTS

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION
 Arlington, VA 22205

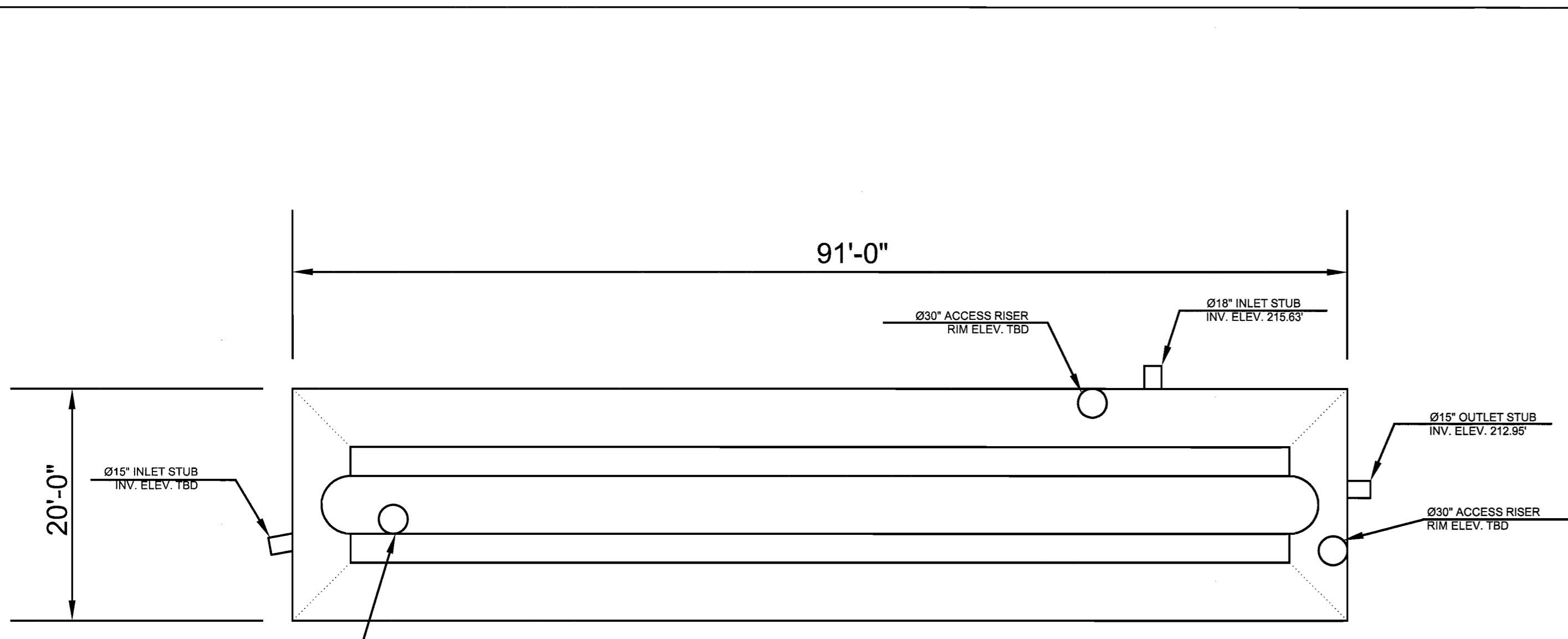


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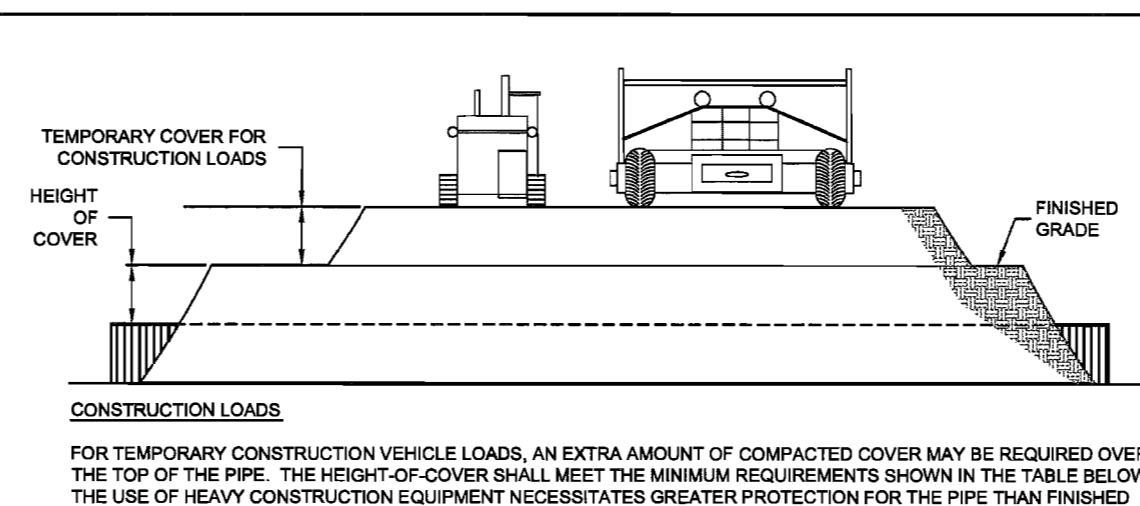
STORMWATER MANAGEMENT COMPUTATIONS

C-601

SHW Project: 3112.006.00



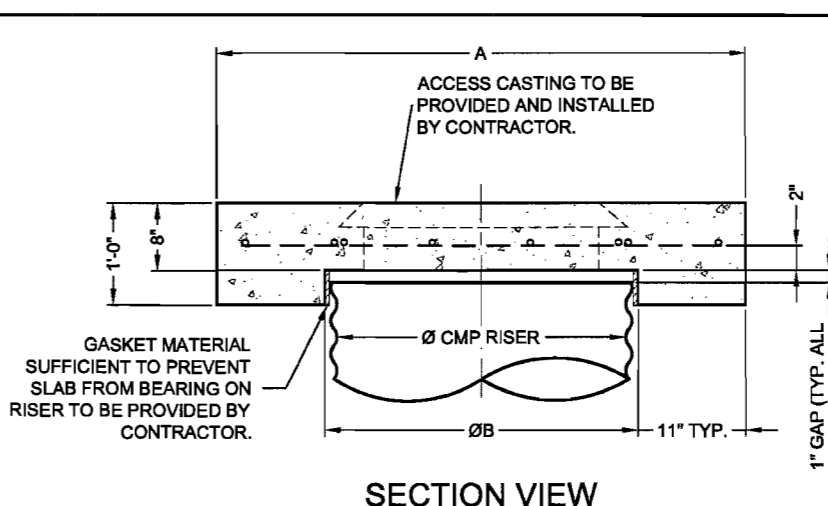
TOTAL PIPE LENGTH FOR STORAGE = 283'
 SYSTEM INVERT = 212.95'
 TOTAL STORAGE VOLUME = 5,557 CF



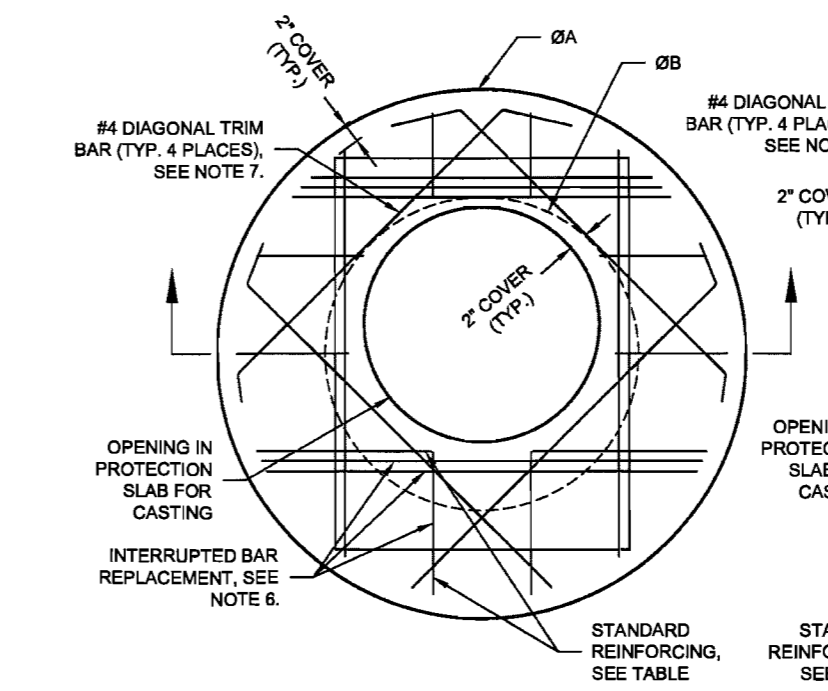
PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
12-42	2.0	2.5	3.0	3.0
42-72	3.0	3.0	3.5	4.0
72-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

3 CONSTRUCTION LOADING DIAGRAM
 SCALE: N.T.S.



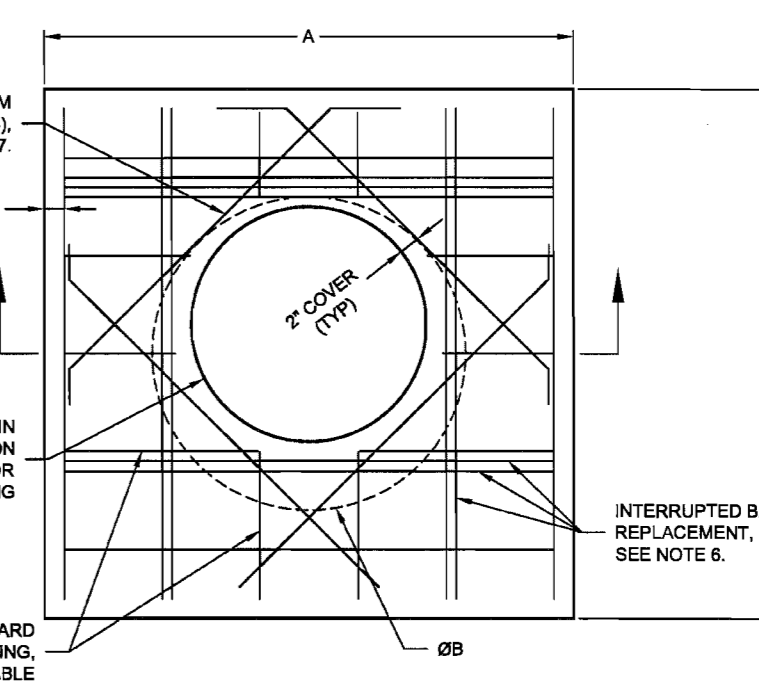
SECTION VIEW



ROUND OPTION PLAN VIEW

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4"x6'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	Ø 4' 6" 4' 8" x 4' 8"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	Ø 5' 5' x 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,880 1,350
42"	Ø 5' 6" 5' 6" x 5' 6"	44"	#5 @ 10" OCEW #5 @ 10" OCEW	1,720 1,210
48"	Ø 6' 6' x 6'	50"	#5 @ 10" OCEW #5 @ 10" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY

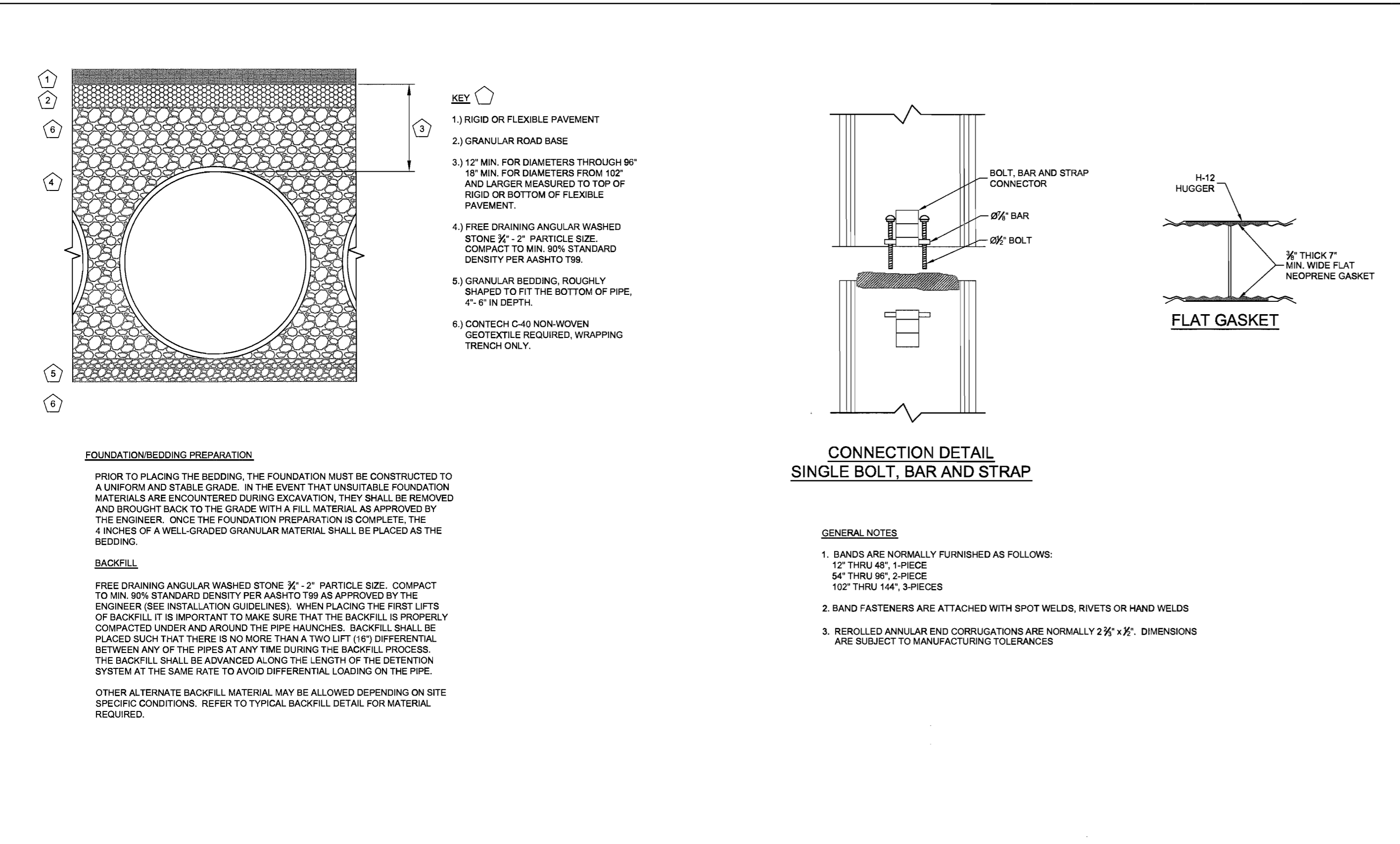


SQUARE OPTION PLAN VIEW

- NOTES:
- DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
 - DESIGN LOAD HS25.
 - EARTH COVER = 1' MAX.
 - CONCRETE STRENGTH = 3,500 psi
 - REINFORCING STEEL = ASTM A615, GRADE 60.
 - PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
 - TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING. BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
 - PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
 - DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

4 MANHOLE CAP DETAIL
 SCALE: N.T.S.

				60" UNDERGROUND DETENTION SYSTEM - 484651 ASHLAWN ELEMENTARY SCHOOL ARLINGTON COUNTY, VA						60" UNDERGROUND DETENTION SYSTEM - 484651 ASHLAWN ELEMENTARY SCHOOL ARLINGTON COUNTY, VA	
PROJECT NO.	484651	REV. NO.	013	DATE	09/2013	PROJECT NO.	484651	REV. NO.	013	DATE	09/2013
DESIGNED	AML	CHECKED	AML	APPROVED		DESIGNED	AML	CHECKED	AML	APPROVED	
SHEET NO.	1	OF	1	MARK		SHEET NO.	1	OF	1	MARK	



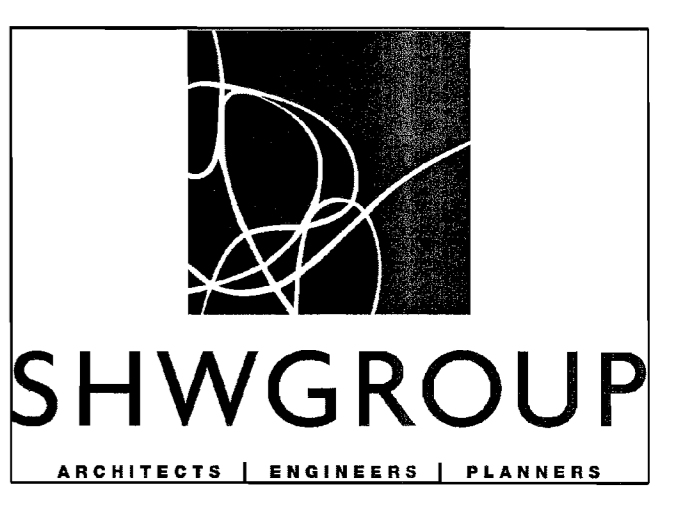
- KEY
- RIGID OR FLEXIBLE PAVEMENT
 - GRANULAR ROAD BASE
 - 12" MIN. FOR DIAMETERS THROUGH 96" 18" MIN. FOR DIAMETERS FROM 102" AND LARGER MEASURED TO TOP OF RIGID OR BOTTOM OF FLEXIBLE PAVEMENT.
 - FREE DRAINING ANGULAR WASHED STONE 3/4" - 2" PARTICLE SIZE, COMPACT TO MIN. 90% STANDARD DENSITY PER AASHTO T99.
 - GRANULAR BEDDING, ROUGHLY SHAPED TO FIT THE BOTTOM OF PIPE, 4" - 6" IN DEPTH.
 - CONTECH C-40 NON-WOVEN GEOTEXTILE REQUIRED, WRAPPING TRENCH ONLY.

CONNECTION DETAIL
 SINGLE BOLT, BAR AND STRAP

- GENERAL NOTES
- BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
 12" THRU 48", 1-PIECE
 54" THRU 96", 2-PIECE
 102" THRU 144", 3-PIECES
 - BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS
 - ROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2 1/2" x 1/2". DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES

				60" UNDERGROUND DETENTION SYSTEM - 484651 ASHLAWN ELEMENTARY SCHOOL ARLINGTON COUNTY, VA						60" UNDERGROUND DETENTION SYSTEM - 484651 ASHLAWN ELEMENTARY SCHOOL ARLINGTON COUNTY, VA	
PROJECT NO.	484651	REV. NO.	013	DATE	09/2013	PROJECT NO.	484651	REV. NO.	013	DATE	09/2013
DESIGNED	AML	CHECKED	AML	APPROVED		DESIGNED	AML	CHECKED	AML	APPROVED	
SHEET NO.	1	OF	1	MARK		SHEET NO.	1	OF	1	MARK	

NOTE:
 CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL.



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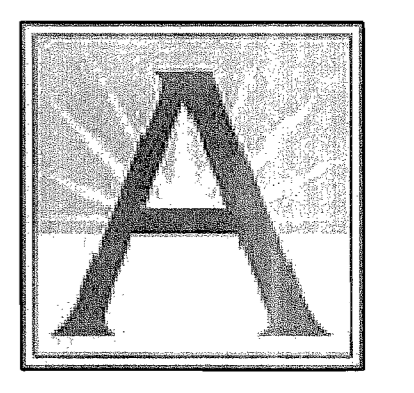
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 Phone: 703-263-1900

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 CHECKED:
 SCALE:
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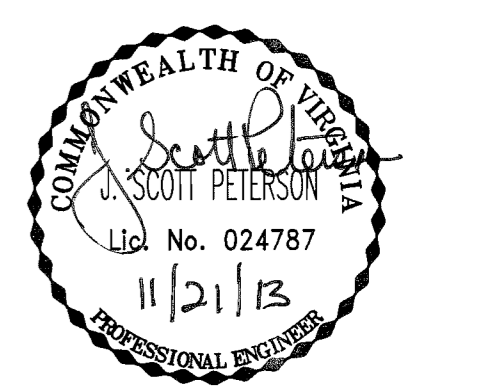
ISSUE: JULY 26, 2013

08/26/2013	DES COMMENTS
11/07/2013	FOOTING TO GRADE PERMIT SET
11/22/2013	DES COMMENTS

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION
 Arlington, VA 22205



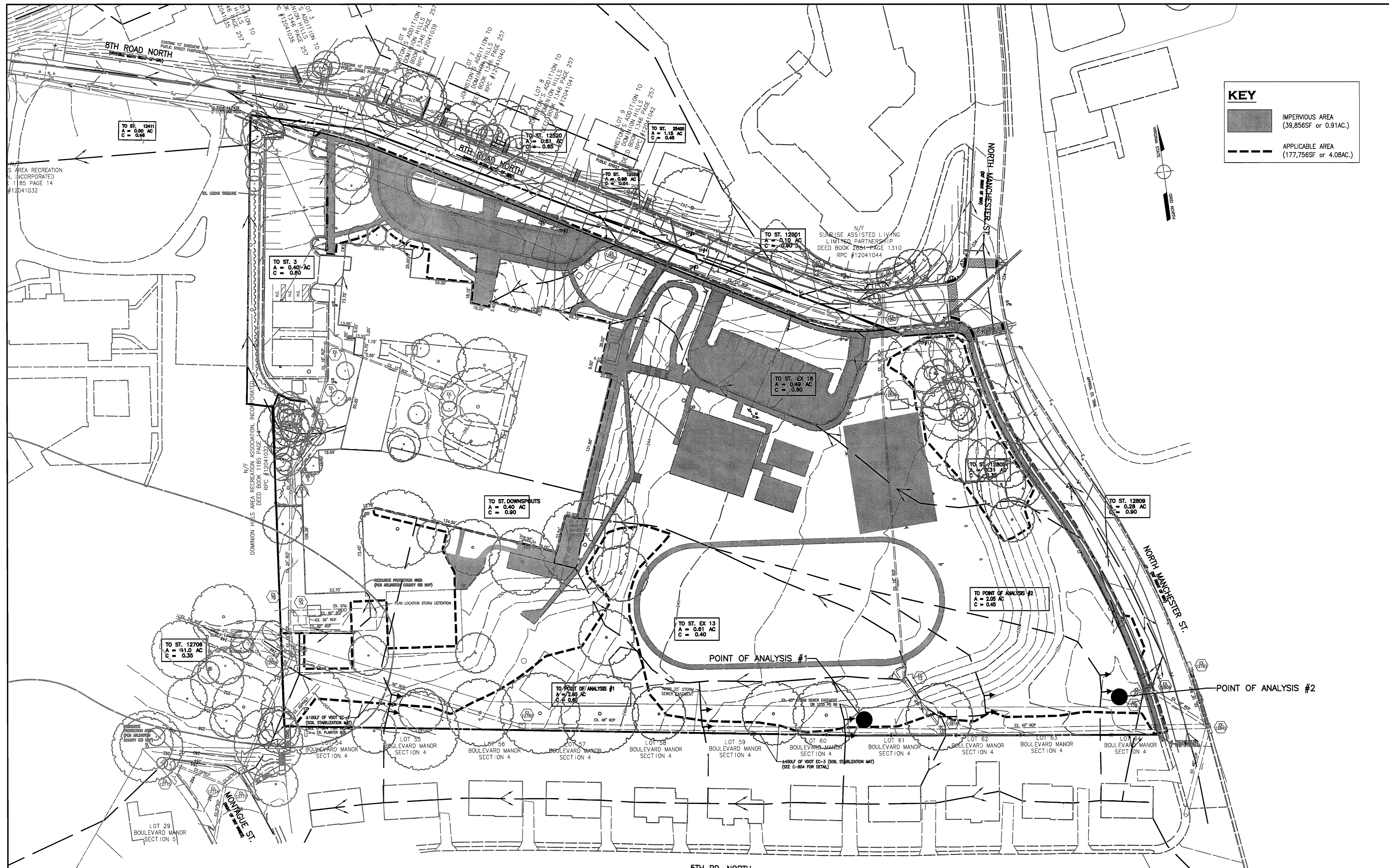
ARLINGTON, VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL SERVICES
 STORMWATER MANAGEMENT DETAILS

ASHLAWN ELEMENTARY SCHOOL ADDITION

SCALE: HOR. AS NOTED	DESIGNED: DTR SPET	CHECKED: JMCC SPET
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:
	CHIEF TRANSPORTATION PLANNING BUREAU	CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
	PROJECT SHEET OF	CONTRACT SHEET OF

SHEET TITLE:
 STORMWATER MANAGEMENT DETAILS

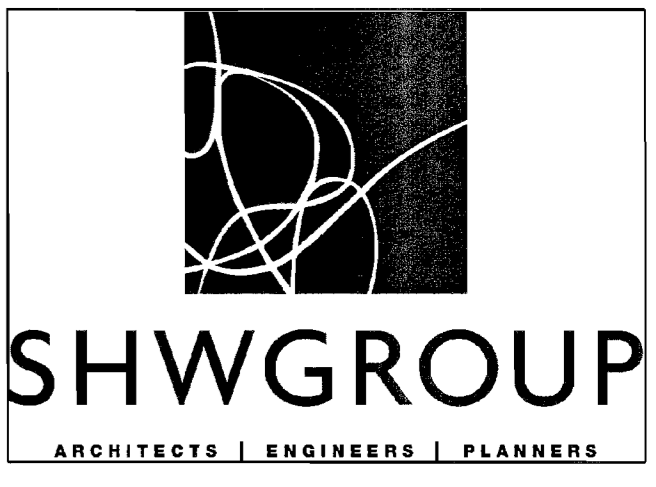
C-602
 SHW Project: 3112.006.00



KEY

IMPERVIOUS AREA
(39,856SF or 0.91AC.)

APPLICABLE AREA
(177,756SF or 4.08AC.)



11415 Isaac Newton Square, Reston, VA 20190



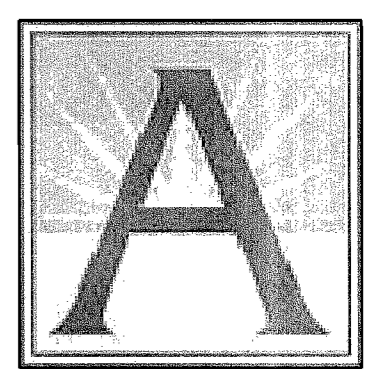
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Chantilly, VA 20151
Phone: 703-263-1900

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SCALE:
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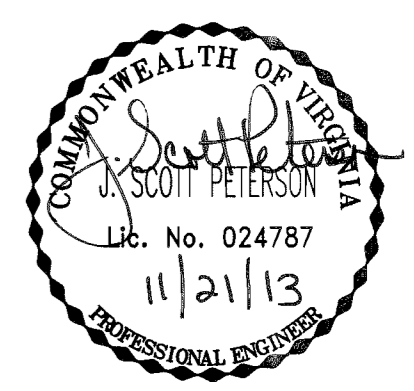
ISSUE: JULY 26, 2013

08.26.2013	DES COMMENTS
11.07.2013	FOOTING TO GRADE PERMIT SET
11.22.2013	DES COMMENTS

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION
Arlington, VA 22205



ARLINGTON, VIRGINIA			
DEPARTMENT OF ENVIRONMENTAL SERVICES			
BMP DRAINAGE MAP-EXISTING CONDITIONS			
ASHLAWN ELEMENTARY SCHOOL ADDITION			
SCALE: HOR. AS NOTED VER.	DESIGNED: DTIR SPET	CHECKED: JMCC SPET	
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:	
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:	
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES	
	PROJECT	CONTRACT	
	SHEET OF	SHEET OF	

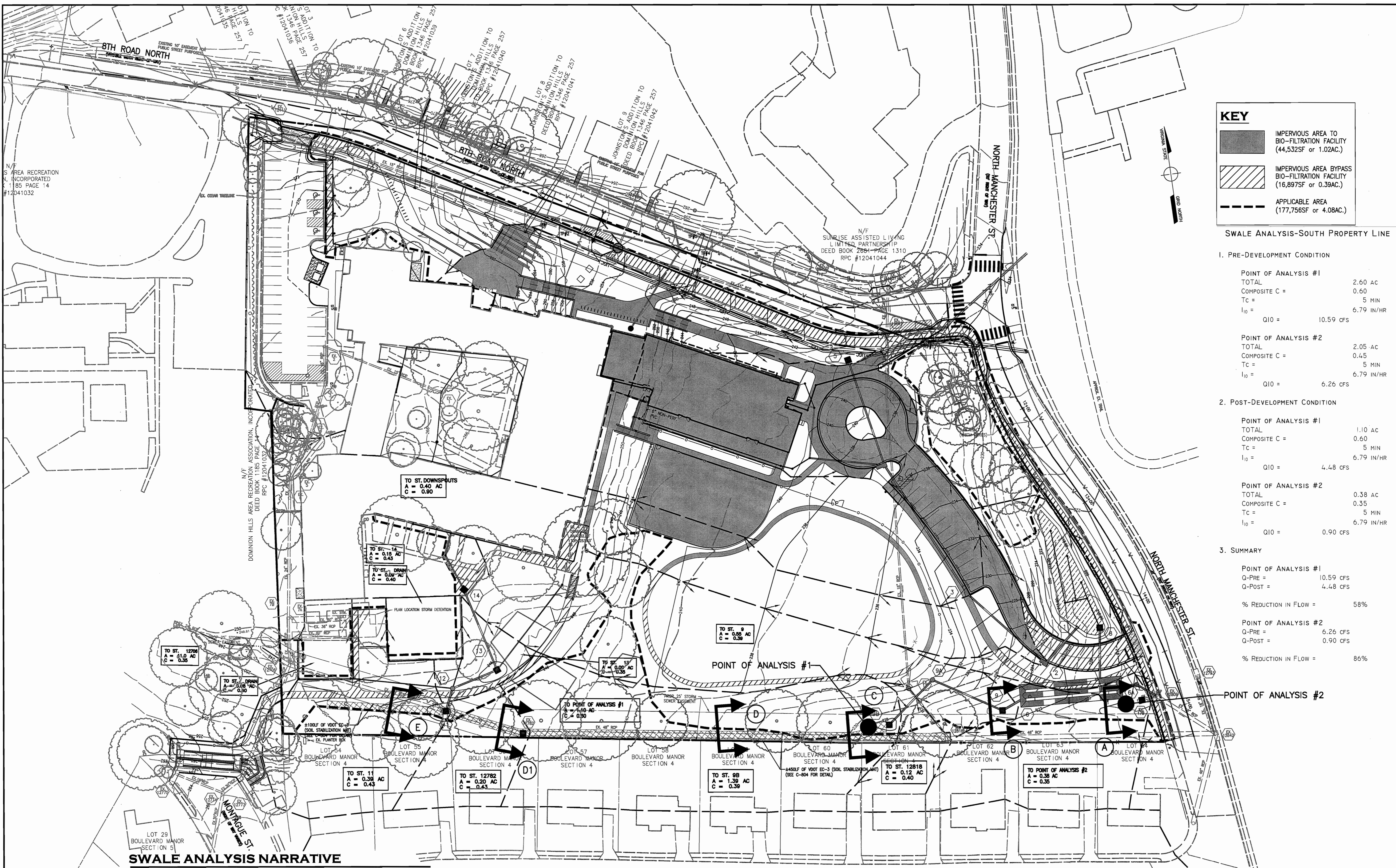
SHEET TITLE:

BMP DRAINAGE MAP-EXISTING CONDITIONS

THIS SHEET FOR BMP DRAINAGE ONLY.

C-603

SHW Project: 3112.006.00



KEY

- IMPERVIOUS AREA TO BIO-FILTRATION FACILITY (44,532SF or 1.02AC.)
- IMPERVIOUS AREA BYPASS BIO-FILTRATION FACILITY (16,897SF or 0.39AC.)
- APPLICABLE AREA (177,756SF or 4.08AC.)

SWALE ANALYSIS-SOUTH PROPERTY LINE

1. PRE-DEVELOPMENT CONDITION

POINT OF ANALYSIS #1	
TOTAL	2.60 AC
COMPOSITE C =	0.60
Tc =	5 MIN
I ₁₀ =	6.79 IN/HR
Q ₁₀ =	10.59 CFS

POINT OF ANALYSIS #2	
TOTAL	2.05 AC
COMPOSITE C =	0.45
Tc =	5 MIN
I ₁₀ =	6.79 IN/HR
Q ₁₀ =	6.26 CFS

2. POST-DEVELOPMENT CONDITION

POINT OF ANALYSIS #1	
TOTAL	1.10 AC
COMPOSITE C =	0.60
Tc =	5 MIN
I ₁₀ =	6.79 IN/HR
Q ₁₀ =	4.48 CFS

POINT OF ANALYSIS #2	
TOTAL	0.38 AC
COMPOSITE C =	0.35
Tc =	5 MIN
I ₁₀ =	6.79 IN/HR
Q ₁₀ =	0.90 CFS

3. SUMMARY

POINT OF ANALYSIS #1	
Q-PRE =	10.59 CFS
Q-POST =	4.48 CFS
% REDUCTION IN FLOW =	58%

POINT OF ANALYSIS #2	
Q-PRE =	6.26 CFS
Q-POST =	0.90 CFS
% REDUCTION IN FLOW =	86%

SWALE ANALYSIS NARRATIVE

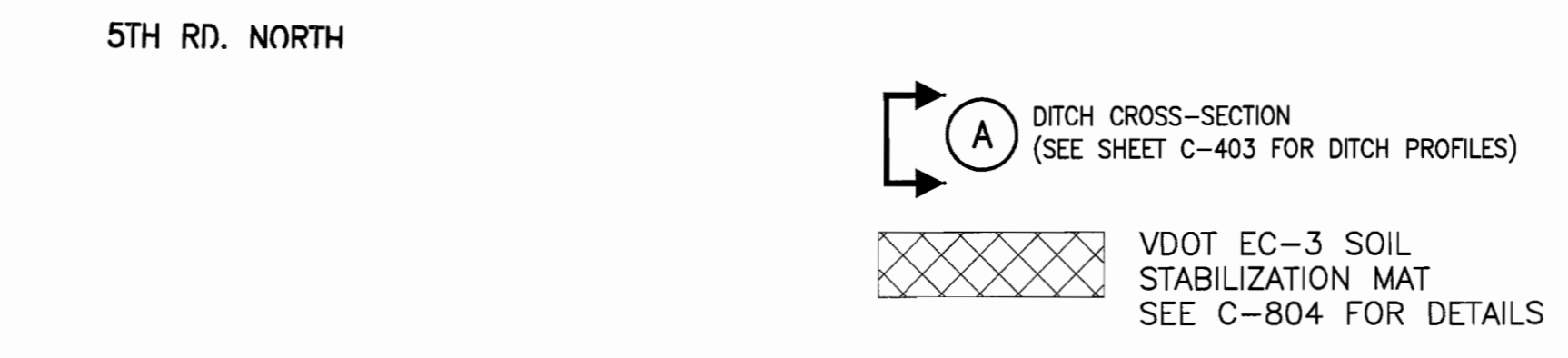
THIS APPLICATION PROPOSES SEVERAL MEASURES THAT ADDRESSES THE CURRENT ADVERSE IMPACTS TO THE SOUTHERN SWALE FROM THE EXISTING ASHLAWN SITE.

IN THE EXISTING CONDITION, THE MAJORITY OF THE SOUTHERN HALF OF THE SITE CONVEYS SURFACE RUN-OFF TO THE SOUTHERN SWALE. THIS INCLUDES A PORTION OF THE ROOF RUN-OFF WHICH DISCHARGES TO THE SURFACE VIA DOWN SPOUTS ON TO THE ASPHALT PLAY AREA AT THE REAR OF THE BUILDING AND TRAVELS TO AN EXISTING GRATE INLET. THE EXISTING GRATE INLET IS CLOGGED AND UNDERSIZED TO ACCEPT SURFACE FLOW AND RUN-OFF PONDS IN THIS AREA AND EVENTUALLY TRAVELS TO THE SOUTHERN SWALE.

IN THE PROPOSED CONDITION, SEVERAL DRAINAGE INLETS ARE PROPOSED TO INTERCEPT SURFACE FLOW BEFORE ENTERING THE SWALE. STORM STRUCTURE 12 & 13 ARE LOCATED IN AREAS WHERE PONDING IS COMMON. THE ROOF DOWN SPOUTS WILL NO LONGER DISCHARGE ON TO THE SURFACE AND WILL BE COLLECTED AND CONVEYED TO THE UNDERGROUND STORM SYSTEM VIA STORM STRUCTURE 14. THE EXISTING CLOGGED STORM STRUCTURE IN THE ASPHALT PLAY AREA WILL BE REPLACED WITH AN APPROPRIATELY SIZE GRATE INLET TO CAPTURE SURFACE RUN-OFF (STRUCTURE 14). THE DRAINAGE AREA PREVIOUSLY CONVEYED TO EXISTING STRUCTURE 17B IS NOW INTERCEPTED AND ROUTED TO THE BIO-FILTRATION FACILITY AND THE UNDERGROUND SWM DETENTION FACILITY.

TWO POINTS ARE ANALYZED TO DEMONSTRATE THE REDUCTION OF FLOW IN THE SWALE. POINT OF ANALYSIS #1 AND POINT OF ANALYSIS #2. SEE SHEET C-603 AND THIS SHEET FOR LOCATION. THE PROPOSED IMPROVEMENTS TO THE ASHLAWN SITE HAS REDUCED THE AMOUNT OF FLOW FOR POINT OF ANALYSIS #1 AND POINT OF ANALYSIS #2 BY 58% AND 86% RESPECTIVELY. SEE SHEET THIS SHEET. THEREFORE, THE PROPOSED IMPROVEMENTS TO THE ASHLAWN SITE ADDRESSES THE CURRENT ADVERSE IMPACTS TO THE SWALE AS WELL AS DECREASED THE RUN-OFF IMPACTS.

DITCH SECTIONS, SECTIONS A-A, B-B, C-C, D-D, D1-D1 AND E-E, HAVE BEEN PROVIDED TO DEMONSTRATE THAT THE PROPOSED SURFACE FLOW IS CONTAINED WITHIN THE EXISTING/PROPOSED SWALE ALONG THE SOUTH PROPERTY LINE. SEE SHEET C-403B FOR DITCH PROFILES. VDOT EC-3 SOIL STABILIZATION MAT IS PROVIDED FROM STORM STRUCTURE 9B UPSTREAM TO STORM STRUCTURE 11 TO PROVIDE STABILIZATION OF SOIL AND REDUCE EROSION WITHIN THE SWALE.



ARLINGTON, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES
BMP DRAINAGE MAP-PROPOSED CONDITIONS

ASHLAWN ELEMENTARY SCHOOL ADDITION

SCALE: HOR: AS NOTED	DESIGNED: DJR/SPT	CHECKED: JMC/SPT
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET OF	CONTRACT SHEET OF	

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 ARCHITECTS | ENGINEERS | PLANNERS
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Gordon
 4501 Daly Drive
 Chantilly, VA 20151
 Phone: 703-263-1900

DRAWN:
 CHECKED:
 SCALE:
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08.28.2013	DES COMMENTS
11.07.2013	FOOTING TO GRADE PERMIT SET
11.22.2013	DES COMMENTS

ARLINGTON PUBLIC SCHOOLS

ASHLAWN ELEMENTARY SCHOOL ADDITION
 Arlington, VA 22205



SHEET TITLE:
BMP DRAINAGE MAP-PROPOSED CONDITIONS

C-604

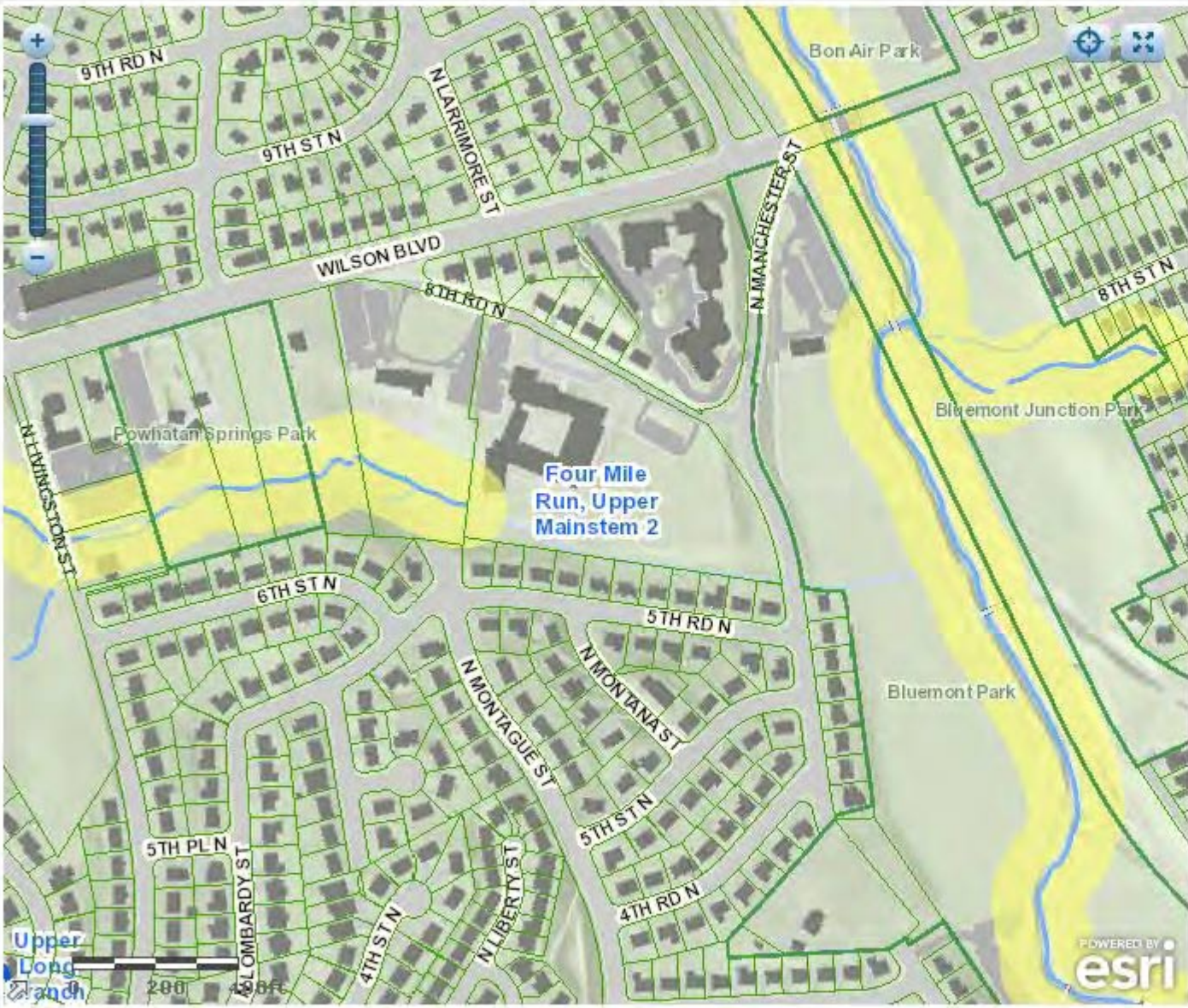
SHW Project: 3112.006.00

THIS SHEET FOR BMP DRAINAGE ONLY.

APPENDIX II:
**SECTION F – FLOODPLAINS, WETLANDS,
CHESAPEAKE BAY ISSUES**

Watershed & Resource Protection Areas

Watershed boundaries for Arlington County, VA

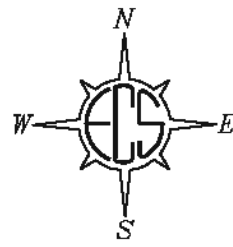
Layers

- Parcels
- Street Names
- Watershed Boundary
- Parks_Natural_Resource
- 2011 Aerial Image




Legend

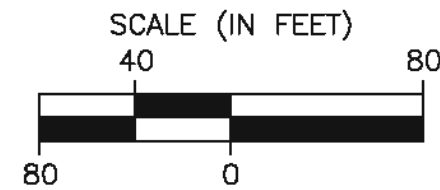
- Parcels**
Parcels
- Street Names**
Street Names
- Watershed Boundary**
Watersheds
- Parks_Natural_Resource**
Arlington Parks
- Resource Protection Buffer**

APPENDIX III:
SECTION I - FLORA AND FAUNA



LEGEND

-  EXISTING CANOPY COVER
-  TREE LOCATION
T-#
-  CRITICAL ROOT ZONE



ASHLAWN ELEMENTARY SCHOOL ARLINGTON COUNTY, VIRGINIA

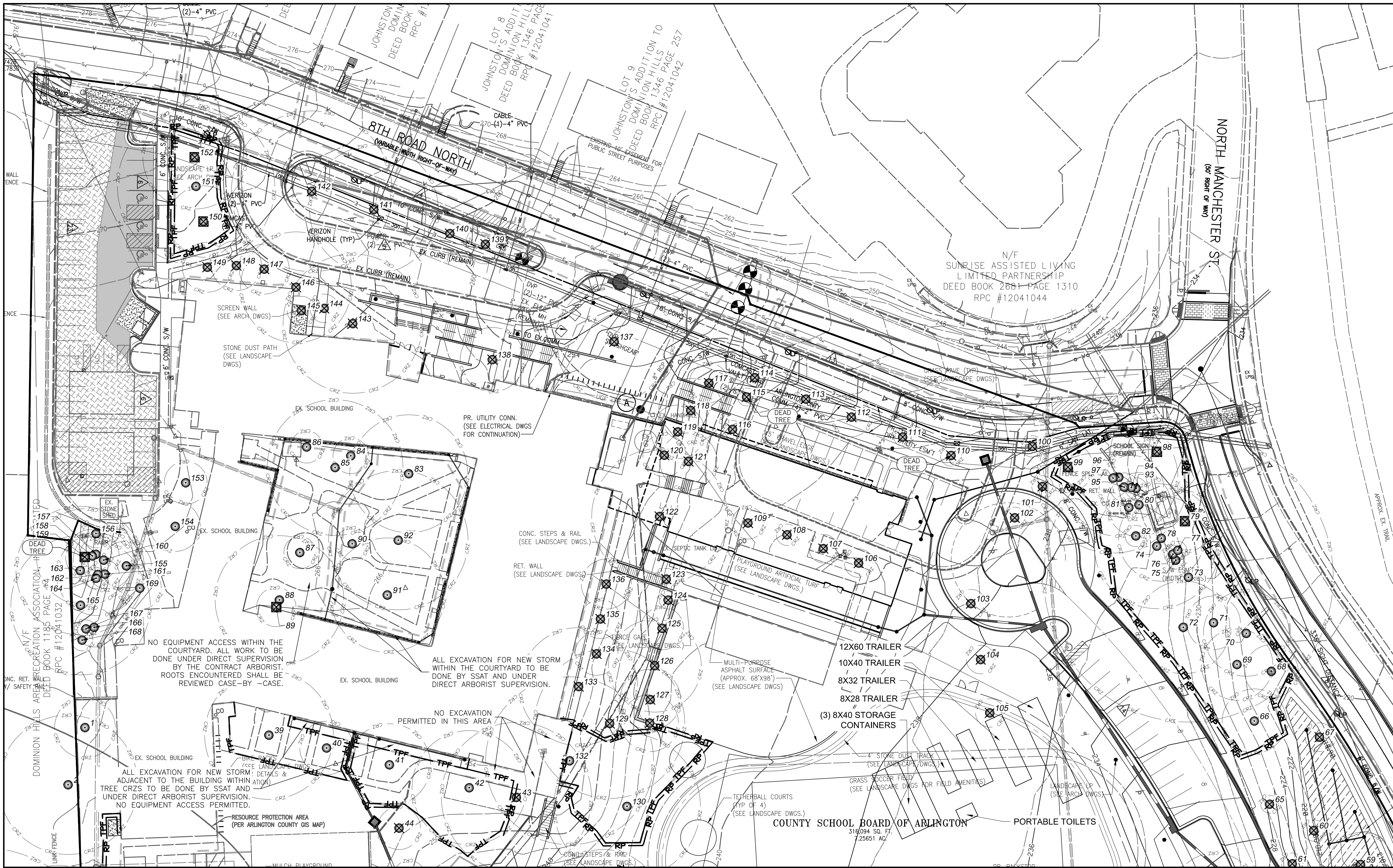


EXISTING VEGETATION MAP SHW GROUP, INC.

ECS REVISIONS	
ENGINEER	DRAFTING
AMS	AEA
SCALE	1" - 80"
PROJECT NO.	01:20709
SHEET	1 OF 1
DATE	2/19/13

Tree Number	Common Name	Scientific Name	Size (inches DBH)	Critical Root Zone (feet)	Condition	Remove	Notes
1	Red Maple	<i>Acer rubrum</i>	15.4	15.4	Poor		Dead leader, dead wood at base
2	Pin Oak	<i>Quercus palustris</i>	25.5/18	25.5	Fair		Vines
3	Pin Oak	<i>Quercus palustris</i>	5.5	8.0	Fair		
4	Pin Oak	<i>Quercus palustris</i>	9.3	9.3	Fair		
5	Black Cherry	<i>Prunus serotina</i>	9.0	9.0	Fair		
6	Sugar Maple	<i>Acer saccharum</i>	10.5	10.5	Fair		Some dead limbs
7	Black Cherry	<i>Prunus serotina</i>	9.5	9.5	Fair		
8	Black Locust	<i>Robinia pseudoacacia</i>	24.5	24.5	Fair		
9	Black Cherry	<i>Prunus serotina</i>	5.0	8.0	Fair		
10	Black Cherry	<i>Prunus serotina</i>	5.5	8.0	Fair		
11	Black Cherry	<i>Prunus serotina</i>	6.5	8.0	Fair		
12	Southern Red Oak	<i>Quercus falcata</i>	52.8	52.8	Fair		Large dead limbs
13	Pin Oak	<i>Quercus palustris</i>	14.2	14.2	Good		
14	Pin Oak	<i>Quercus palustris</i>	10.0	10.0	Good		
15	Sugar Maple	<i>Acer saccharum</i>	11.5	11.5	Good		
16	Sugar Maple	<i>Acer saccharum</i>	12.5	12.5	Good		
17	Sugar Maple	<i>Acer saccharum</i>	16.0	16.0	Good		
18	Hawthorn	<i>Crataegus spp.</i>	11.5	11.5	Fair		
19	Golden Rain Tree	<i>Koelreuteria paniculata</i>	6.0	8.0	Good		Double Trunk
20	Golden Rain Tree	<i>Koelreuteria paniculata</i>	13.5	13.5	Good	x	
21	Red Maple	<i>Acer rubrum</i>	21.5	21.5	Good	x	Double trunk
22	Red Maple	<i>Acer rubrum</i>	16.5	16.5	Good	x	
23	Blue Spruce	<i>Picea pungens</i>	12.0	12.0	Fair	x	Dead wood in trunk
24	Red Maple	<i>Acer rubrum</i>	15.4	15.4	Fair		Exposed, girdling roots
25	Red Maple	<i>Acer rubrum</i>	15.0	15.0	Fair		Exposed, girdling roots
26	Sugar Maple	<i>Acer saccharum</i>	23.0	23.0	Fair		
27	Sugar Maple	<i>Acer saccharum</i>	23.0	23.0	Fair		
28	Sugar Maple	<i>Acer saccharum</i>	24.0	24.0	Fair		Exposed, girdling roots
29	Sugar Maple	<i>Acer saccharum</i>	23.2	23.2	Fair		Exposed, girdling roots
30	Sugar Maple	<i>Acer saccharum</i>	24.5	24.5	Fair		Trunk damage, exposed, girdling roots
31	Sugar Maple	<i>Acer saccharum</i>	20.0	20.0	Fair		
32	Sugar Maple	<i>Acer saccharum</i>	25.5	25.5	Fair		Exposed, girdling roots
33	Sugar Maple	<i>Acer saccharum</i>	26.2	26.2	Fair		Exposed, girdling roots
34	Sugar Maple	<i>Acer saccharum</i>	25.2	25.2	Fair		Large dead limbs, exposed, girdling roots
35	Pin Oak	<i>Quercus palustris</i>	18.5	18.5	Fair		Exposed, girdling roots
36	Silver Maple	<i>Acer saccharinum</i>	40.0	40.0	Fair		Offsite tree, double trunk
37	Tulip Poplar	<i>Liriodendron tulipifera</i>	18.3	18.3	Fair		Offsite tree
38	Red Maple	<i>Acer rubrum</i>	29.3	29.3	Fair		Leaning
39	Willow Oak	<i>Quercus phellos</i>	14.0	14.0	Good		
40	Willow Oak	<i>Quercus phellos</i>	7.0	8.0	Good	x	
41	Black Cherry	<i>Prunus serotina</i>	11.0	11.0	Fair		Trunk damage
42	Black Cherry	<i>Prunus serotina</i>	5.5	8.0	Fair	x	
43	Willow Oak	<i>Quercus phellos</i>	7.3	8.0	Fair	x	
44	Willow Oak	<i>Quercus phellos</i>	23.0	23.0	Good		
45	Northern Red Oak	<i>Quercus rubra</i>	10.5	10.5	Fair		
46	Silver Maple	<i>Acer saccharinum</i>	15.5	15.5	Fair		
47	Sugar Maple	<i>Acer saccharum</i>	20.5	20.5	Fair		Prune dead limbs
48	Sugar Maple	<i>Acer saccharum</i>	27.3	27.3	Fair		Exposed roots
49	Red Maple	<i>Acer rubrum</i>	31.0	31.0	Fair		Exposed roots
50	Red Maple	<i>Acer rubrum</i>	24.0	24.0	Fair		
51	Red Maple	<i>Acer rubrum</i>	19.4	19.4	Fair		Exposed, girdling roots
52	Willow Oak	<i>Quercus phellos</i>	27.5	27.5	Good		
53	Southern Red Oak	<i>Quercus falcata</i>	24.0	24.0	Good		
54	American Holly	<i>Ilex opaca</i>	6.0	8.0	Good	x	Double trunk
55	American Sycamore	<i>Platanus occidentalis</i>	8.5	8.5	Good	x	
56	Southern Red Oak	<i>Quercus falcata</i>	30.9	30.9	Good	x	Double trunk
57	Pin Oak	<i>Quercus palustris</i>	10.0	10.0	Good		
58	Ornamental Viburnum	<i>Viburnum spp.</i>	3.0	8.0	Good		Multi trunk
59	Black Locust	<i>Robinia pseudoacacia</i>	4.6	8.0	Fair		
60	Eastern Hemlock	<i>Tsuga canadensis</i>	3.0	8.0	Fair		Multi-trunk
61	Black Locust	<i>Robinia pseudoacacia</i>	6.3	8.0	Fair		
62	Unknown spp.	-	5.0	8.0	Poor		Covered in vines
63	White Pine	<i>Pinus strobus</i>	7.0	8.0	Good		
64	White Pine	<i>Pinus strobus</i>	12.0	12.0	Fair		Vines
65	White Pine	<i>Pinus strobus</i>	14.0	14.0	Fair		Vines
66	White Pine	<i>Pinus strobus</i>	16.0	16.0	Fair		Vines
67	Black Cherry	<i>Prunus serotina</i>	8.0	8.0	Fair		Vines

68	Virginia Pine	<i>Pinus virginiana</i>	5.0	8.0	Fair		Vines
69	Black Locust	<i>Robinia pseudoacacia</i>	6.0	8.0	Fair		Vines
70	American Holly	<i>Ilex opaca</i>	8.5	8.5	Good		
71	Pin Oak	<i>Quercus palustris</i>	6.3	8.0	Good		
72	Black Locust	<i>Robinia pseudoacacia</i>	18.0	18.0	Poor		Nearly dead
73	White Pine	<i>Pinus strobus</i>	17.2	17.2	Fair		
74	Crepe Myrtle	<i>Laegerstroemia indica</i>	3.0	8.0	Good		Multi-trunk
75	Flowering Dogwood	<i>Cornus florida</i>	7.0	8.0	Poor		Multi-trunk, dead trunks
76	Black Cherry	<i>Prunus serotina</i>	8.0	8.0	Good		
77	Black Cherry	<i>Prunus serotina</i>	8.0	8.0	Good		
78	Black Cherry	<i>Prunus serotina</i>	8.0	8.0	Good		
79	Red Cedar	<i>Juniperus virginiana</i>	8.0	8.0	Good		Triple trunk
80	White Pine	<i>Pinus strobus</i>	26.0	26.0	Fair	x	Large broken, poorly pruned limbs
81	Crepe Myrtle	<i>Laegerstroemia indica</i>	3.0	8.0	Good		Multi-trunk
82	Red Maple	<i>Acer rubrum</i>	5.0	8.0	Fair		Multi-trunk
83	Unk. Ornamental	-	5.9	8.0	Good		
84	Unk. Ornamental	-	5.5	8.0	Good		
85	Flowering Dogwood	<i>Cornus florida</i>	10.5	10.5	Fair	x	Dead trunk
86	Red Maple	<i>Acer rubrum</i>	22.0	22.0	Fair	x	Girdling roots
87	Red Maple	<i>Acer rubrum</i>	6.0	8.0	Good	x	
88	Black Cherry	<i>Prunus serotina</i>	10.0	10.0	Good	x	
89	Black Cherry	<i>Prunus serotina</i>	10.0	10.0	Good	x	
90	Crepe Myrtle	<i>Laegerstroemia indica</i>	3.0	8.0	Good	x	Multi-trunk
91	Crepe Myrtle	<i>Laegerstroemia indica</i>	3.0	8.0	Good	x	Multi-trunk
92	Red Maple	<i>Acer rubrum</i>	26.0	26.0	Fair	x	Trunk knots, dead wood
93	Northern Red Oak	<i>Quercus rubra</i>	3.5	8.0	Good	x	
94	Willow Oak	<i>Quercus phellos</i>	5.0	8.0	Fair	x	
95	Willow Oak	<i>Quercus phellos</i>	4.0	8.0	Fair	x	
96	Willow Oak	<i>Quercus phellos</i>	4.5	8.0	Fair	x	
97	Willow Oak	<i>Quercus phellos</i>	4.5	8.0	Fair	x	
98	Sugar Maple	<i>Acer saccharum</i>	4.0	8.0	Good	x	
99	Sugar Maple	<i>Acer saccharum</i>	6.0	8.0	Fair	x	
100	Sugar Maple	<i>Acer saccharum</i>	3.0	8.0	Good	x	
101	Sugar Maple	<i>Acer saccharum</i>	5.0	8.0	Good	x	
102	Willow Oak	<i>Quercus phellos</i>	5.0	8.0	Fair	x	
103	Willow Oak	<i>Quercus phellos</i>	5.0	8.0	Fair	x	
104	Willow Oak	<i>Quercus phellos</i>	5.0	8.0	Fair	x	
105	Sugar Maple	<i>Acer saccharum</i>	4.0	8.0	Good	x	
106	Sugar Maple	<i>Acer saccharum</i>	4.0	8.0	Good	x	
107	Sugar Maple	<i>Acer saccharum</i>	4.0	8.0	Good	x	
108	Norway Spruce	<i>Picea abies</i>	5.0	8.0	Good	x	



MATCHLINE SEE SHEET LJ-102

ARLINGTON, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

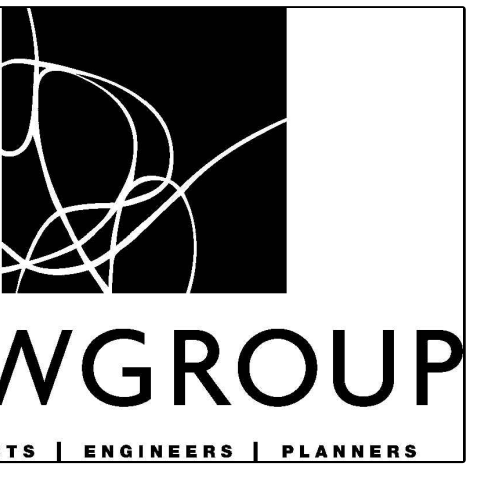
ASHLAWN ELEMENTARY SCHOOL ADDITION

SCALE: HOR. AS NOTED VER. AS NOTED	DESIGNED: CH	CHECKED: CC
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:
APPROVED DATE:	CHIEF TRANSPORTATION PLANNING BUREAU APPROVED DATE:	CHIEF TRAFFIC ENGINEERING BUREAU APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET OF	CONTRACT SHEET OF	

SHEET TITLE:
TREE PRESERVATION PLAN

LJ-101

SHW Project: 3112.006.00



DRAWN: CH
CHECKED: CC
SCALE: AS NOTED
© 2013 SHW Group

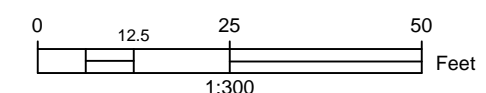
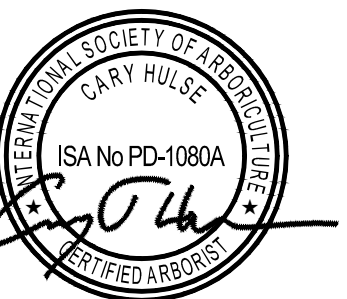
ISSUE: OCTOBER 16, 2013

10.01.2013	ISSUED FOR CONSTRUCTION
10.16.2013	USE PERMIT RESUBMISSION
01.09.2014	PERMIT RESUBMISSION

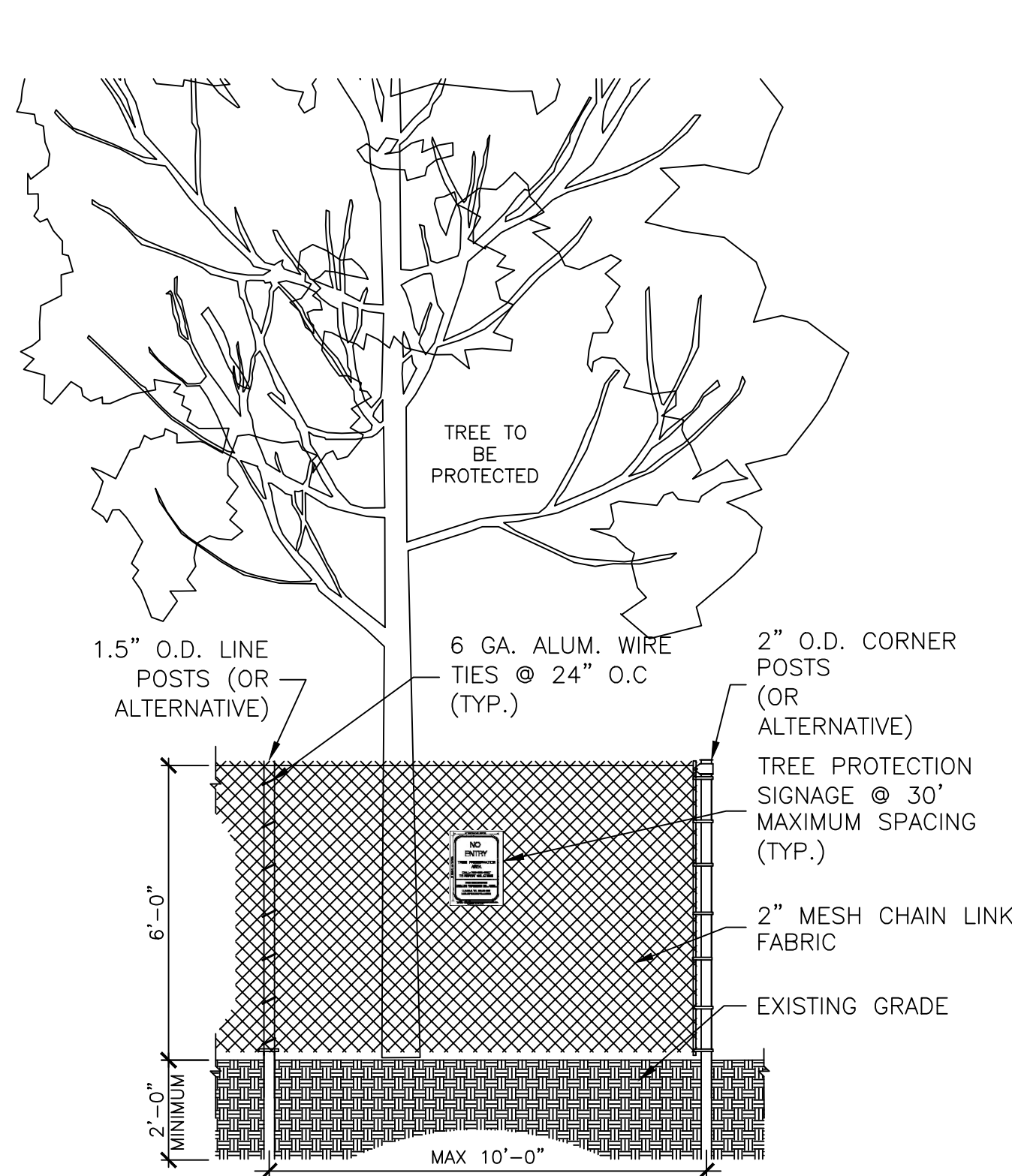
ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION
Arlington, VA 22205

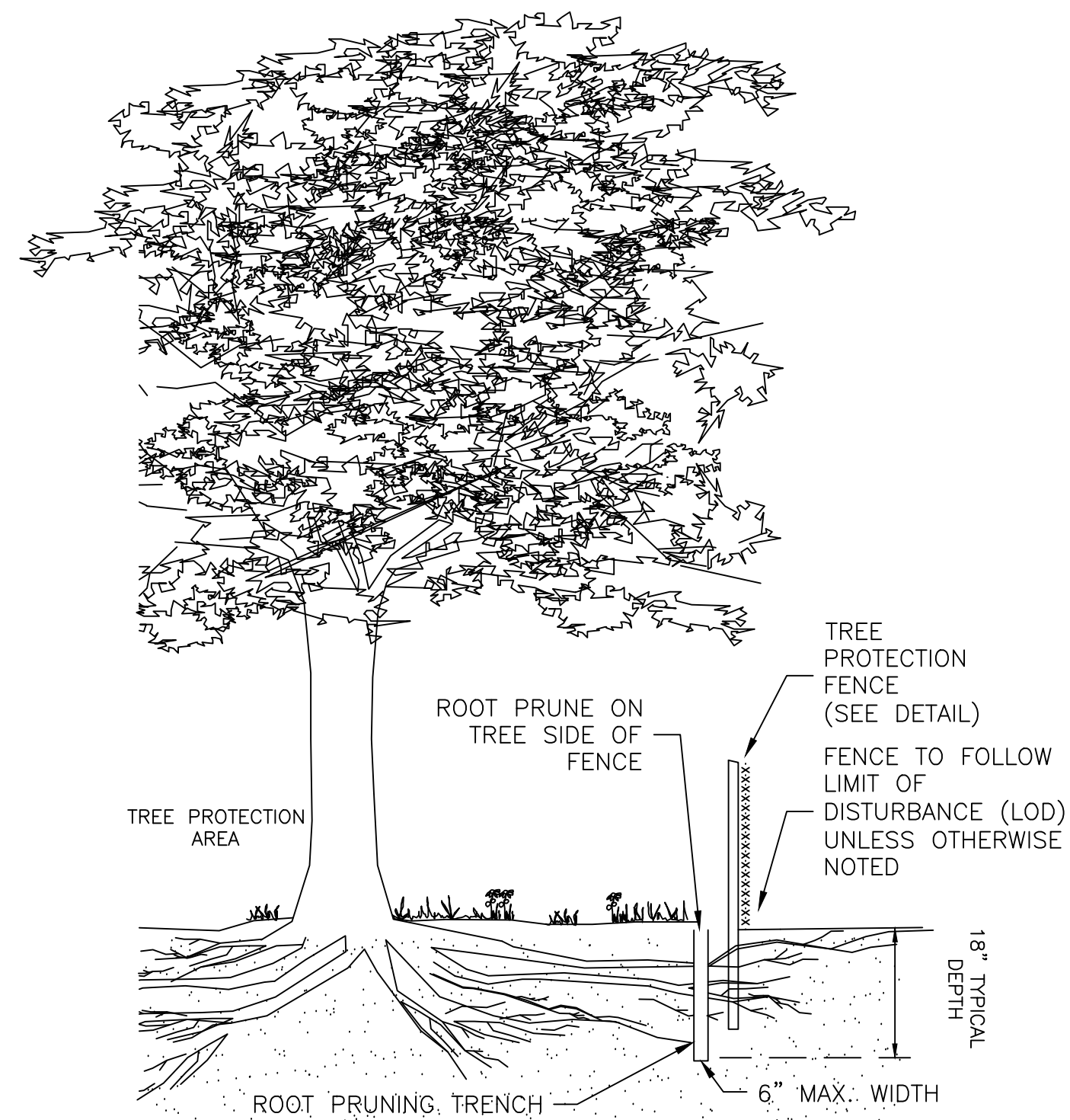


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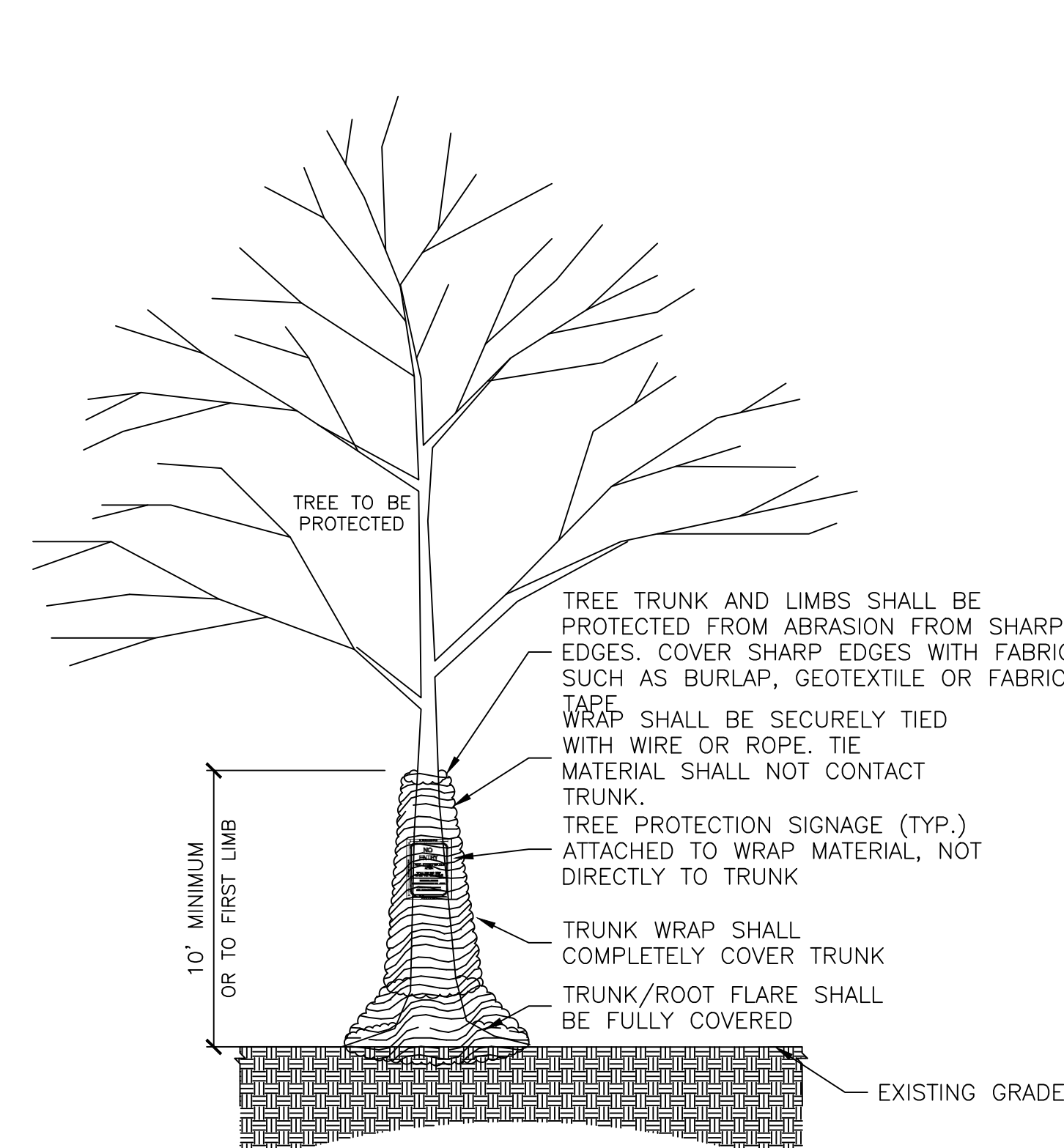
- NOTES:**
- TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
 - SUPER SILT FENCE MAY BE USED IN LIEU OF WELDED WIRE FOR TREE PROTECTION PROVIDED IT IS INSTALLED AND MAINTAINED AS A TREE PROTECTION MEASURE AND IS POSTED WITH TREE PROTECTION SIGNS.
 - TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE FENCE ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.

1 CHAIN LINK TREE PROTECTION FENCE (TYPICAL)
SCALE: NTS



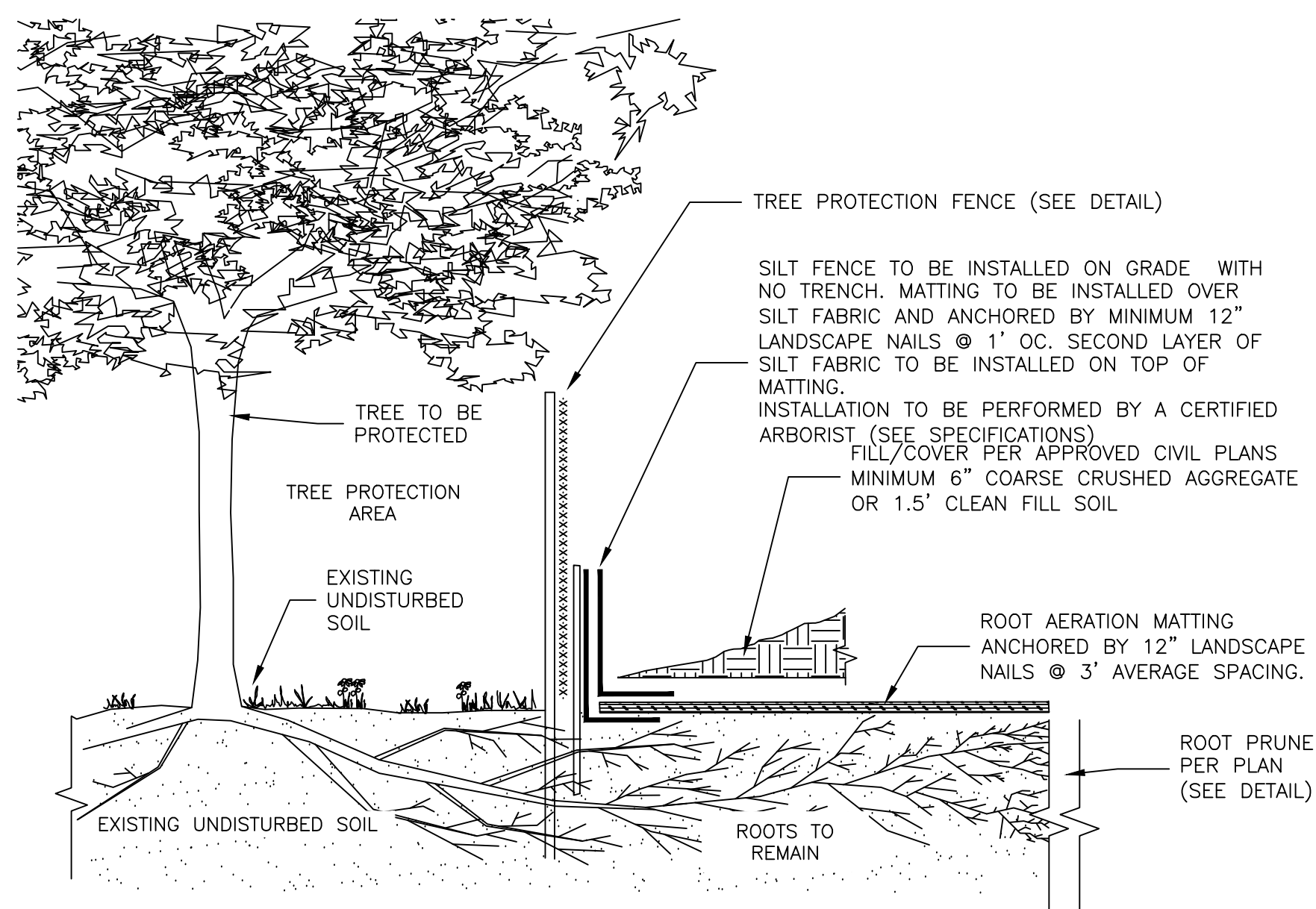
- NOTES:**
- TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD BY PROJECT ARBORIST.
 - EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
 - TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
 - ROOTS SHOULD BE SEVERED BY TRENCHER, VIBRATORY FLOW OR APPROVED EQUIVALENT. ROOTS OVER 1.5\"/>

2 ROOT PRUNING (TYPICAL)
SCALE: NTS



- NOTES:**
- TRUNK WRAP MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENAX TENDRAIN 770/2) OR EQUIVALENT.
 - WRAP SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
 - WRAP SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
 - WRAP SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE WRAP ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.
 - WRAP SHALL BE REMOVED PROMPTLY AFTER CONSTRUCTION.
 - MAJOR SCAFFOLD LIMBS MAY ALSO REQUIRE THIS PROTECTION AS DIRECTED BY THE PROJECT ARBORIST.

3 TREE TRUNK & LIMB PROTECTION WRAP (TYP)
SCALE: NTS

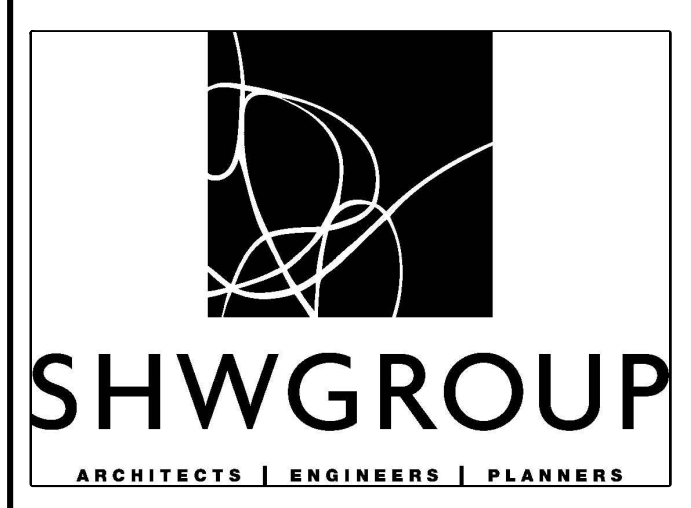


- NOTES:**
- MATting MATERIAL SHALL BE AMERDRAIN® 700 PERFORATED SHEET DRAIN OR APPROVED EQUIVALENT. MANUFACTURER: AMERICAN WICK DRAIN CORP., 1209 AIRPORT ROAD, MONROE, NC 28110
 - RAM SHALL BE ANCHORED BY 12\"/>

4 ROOT AERATION MATTING (TYP)
SCALE: NTS



ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES			
ASHLAWN ELEMENTARY SCHOOL ADDITION			
SCALE: HOR. VER. AS NOTED	DESIGNED: CH	CHECKED: CC	
SUBMITTED DATE:	APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
APPROVED DATE:	CHIEF TRANSPORTATION PLANNING BUREAU APPROVED DATE:	CHIEF TRAFFIC ENGINEERING BUREAU APPROVED DATE:	
CHIEF WATER,SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES	
	PROJECT SHEET OF	CONTRACT SHEET OF	



DRAWN: CH
CHECKED: CC
SCALE: AS NOTED
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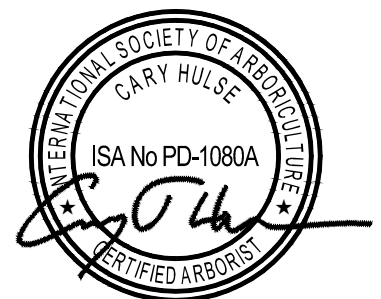
ISSUE: **OCTOBER 16, 2013**

10.01.2013	ISSUED FOR CONSTRUCTION
10.16.2013	USE PERMIT RESUBMISSION
01.09.2014	PERMIT RESUBMISSION

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION
Arlington, VA 22205



SHEET TITLE:
TREE PRESERVATION DETAILS

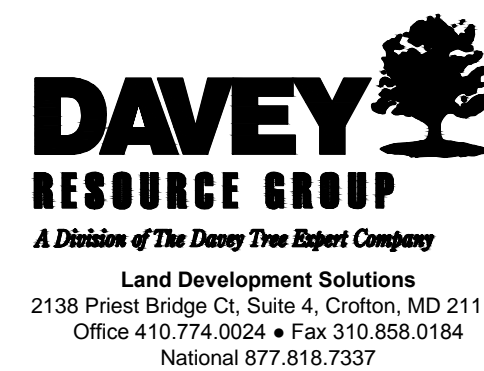
LJ-104

SHW Project: **3112.006.00**

Table with columns: Tree #, DBH, Common Name, Botanical Name, Condition Rating %, Condition Rating, SCRZ, CRZ, Removal, Recommended Preservation Measures, Comments, Additional Notes, Condition Notes. Contains 73 rows of tree data.



Table with columns: Tree #, DBH, Common Name, Botanical Name, Condition Rating %, Condition Rating, SCRZ, CRZ, Removal, Recommended Preservation Measures, Comments, Additional Notes, Condition Notes. Contains 139 rows of tree data.



ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES ASHLAWN ELEMENTARY SCHOOL ADDITION. Includes project details, scale, and approval signatures.



11415 Isaac Newton Square, Reston, VA 20190



4501 Daly Drive Chantilly, VA 20151 Phone: 703-263-1900

DRAWN: CH CHECKED: CC SCALE: AS NOTED © 2013 SHW Group

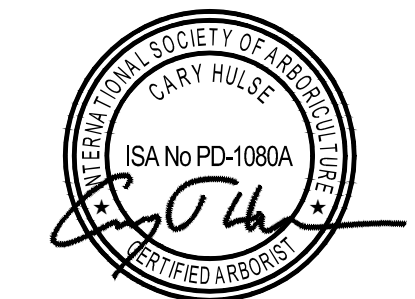
ISSUE: OCTOBER 16, 2013

Revision table with columns: Date, Description, Issued For Construction, Use Permit Resubmission, Permit Resubmission.

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION Arlington, VA 22205



SHEET TITLE: TREE PRESERVATION TABLES

Table with 16 columns: Tree #, DBH, Common Name, Botanical Name, Condition Rating %, Condition Rating, SCRZ, CRZ, Removal, and Recommended Preservation Measures (including Root Prune, Tree Protection Fence, etc.). Rows 140-169.



11415 Isaac Newton Square, Reston, VA 20190



4501 Daly Drive
Chantilly, VA 20151
Phone: 703-263-1900

DRAWN: CH
CHECKED: CC
SCALE: AS NOTED
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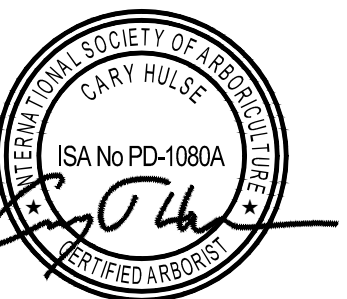
ISSUE: OCTOBER 16, 2013

Table with 2 columns: Date and Description. 10.01.2013 ISSUED FOR CONSTRUCTION, 10.16.2013 USE PERMIT RESUBMISSION, 01.09.2014 PERMIT RESUBMISSION

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL ADDITION
Arlington, VA 22205



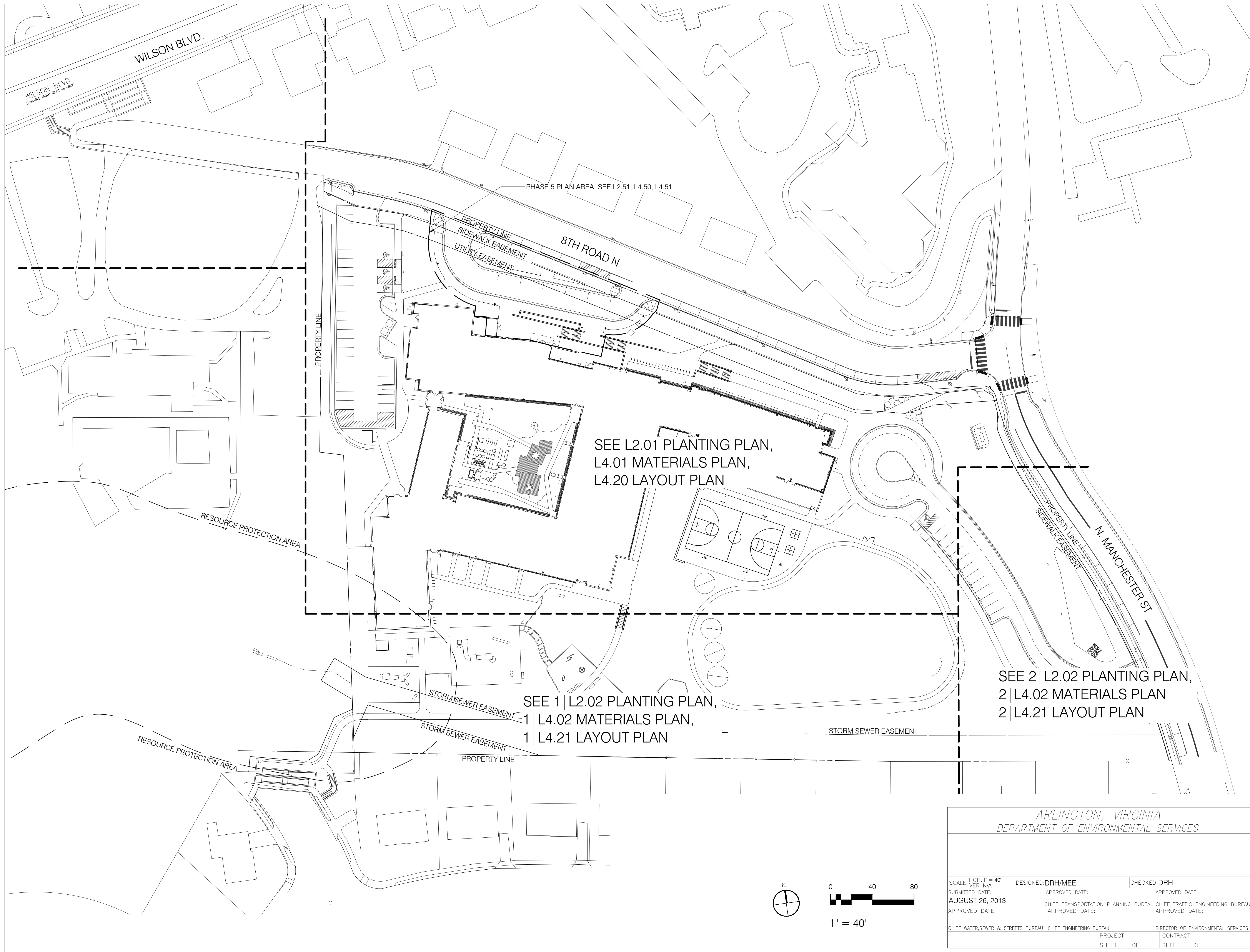
Land Development Solutions
2138 Priest Bridge Ct, Suite 4, Crofton, MD 21114
Office 410.774.0024 • Fax 310.858.0184
National 877.818.7337

Form with project details: ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES, ASHLAWN ELEMENTARY SCHOOL ADDITION, SCALE: HOR VER AS NOTED, DESIGNED: CH, CHECKED: CC, SUBMITTED DATE, APPROVED DATE, PROJECT SHEET OF, CONTRACT SHEET OF

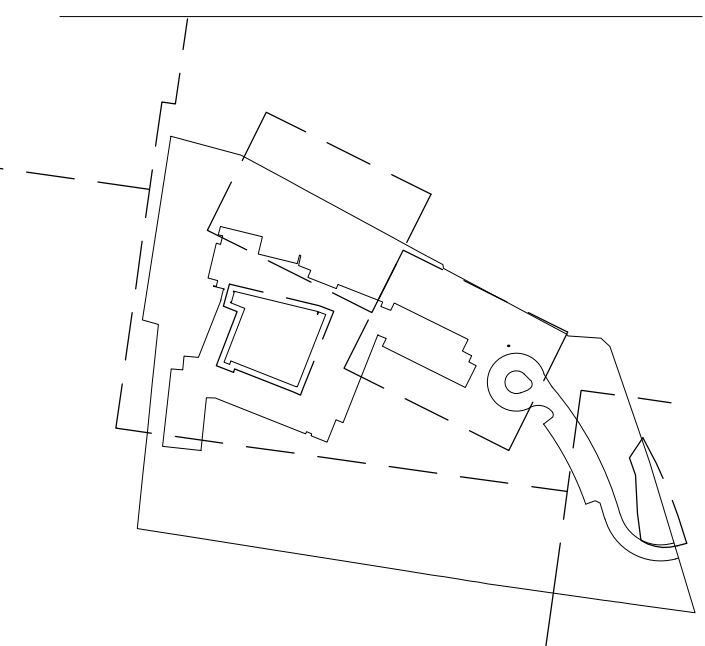
SHEET TITLE: TREE PRESERVATION TABLES

LJ-106

P:\Arlington Schools\Ashlawn\DWGS\KEY PLAN.dwg -- Tuesday January 14, 2014, 12:10pm



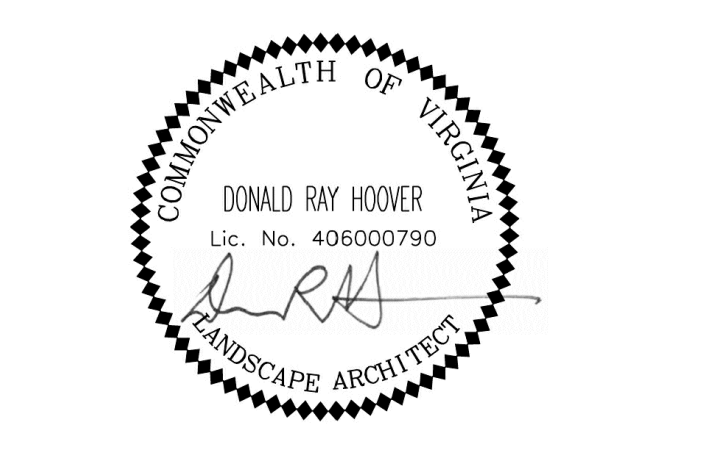
OCULUS
 2410 17th STREET NW SUITE 201
 WASHINGTON, DC 20009
 P 202 588 5454
 F 202 588 5449
 E OCULUS@OCULUS-DC.COM
 ISSUE: **AUGUST 26, 2013**



KEY PLAN (NTS)
ARLINGTON PUBLIC SCHOOLS

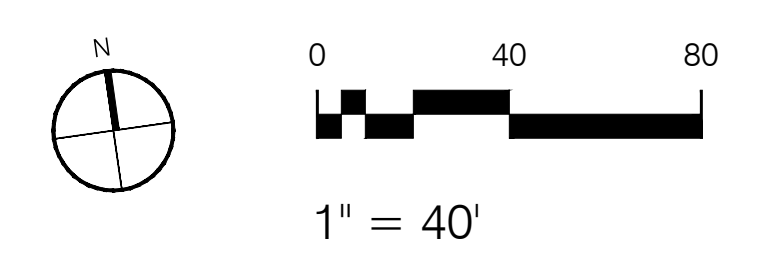


ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION
 Arlington, VA 22205

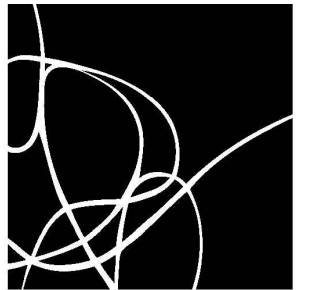


SHEET TITLE:
KEY PLAN

<i>ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES</i>		
SCALE: HOR 1" = 40' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE: CHIEF TRANSPORTATION PLANNING BUREAU	APPROVED DATE: CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET	OF	CONTRACT SHEET
OF		OF



L1.00
 SHW Project: **3112.006.00**



SHWGROUP

ARCHITECTS | ENGINEERS | PLANNERS

11415 Isaac Newton Square, Reston, VA 20190

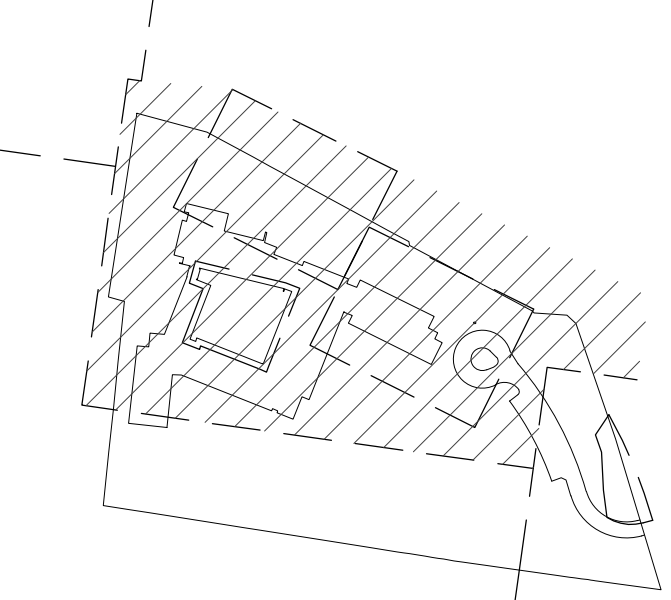
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01.14.2014	DRAFT LANDSCAPE PLAN



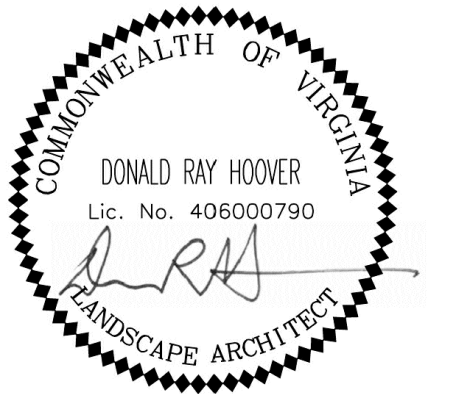
KEY PLAN (NTS)

ARLINGTON PUBLIC SCHOOLS

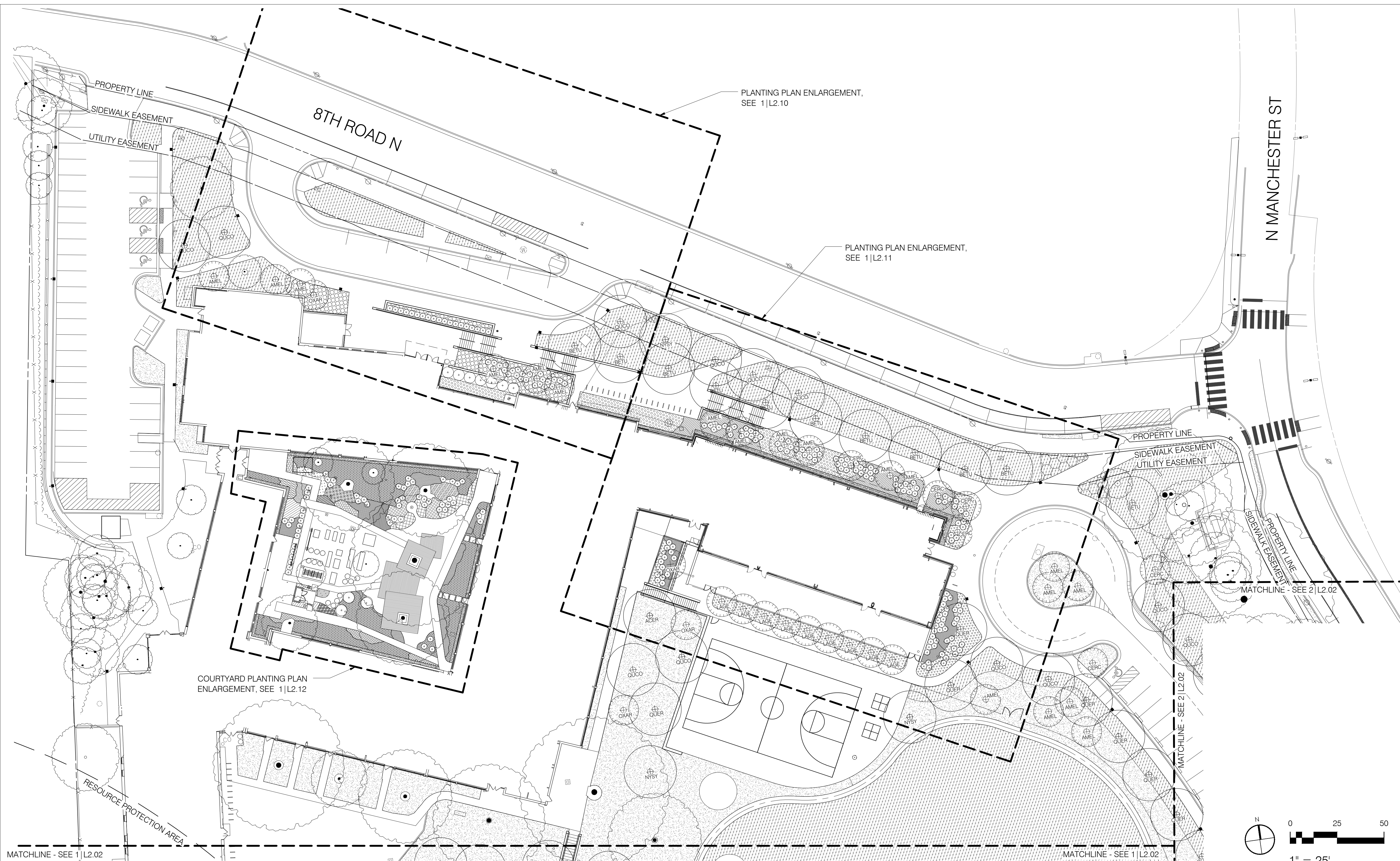


ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION

Arlington, VA 22205



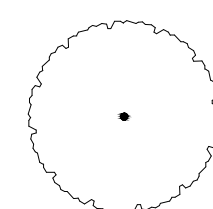
SHEET TITLE:
NORTH PLANTING PLAN



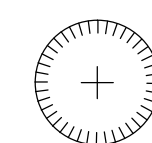
1 NORTH PLANTING PLAN

SCALE: 1" = 25'

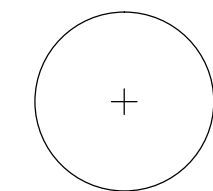
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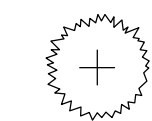
EXISTING TREE TO REMAIN



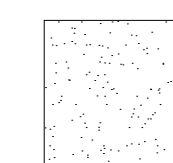
UNDERSTORY TREE (3:1 REPLACEMENT VALUE)



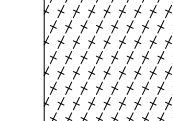
CANOPY TREE (1:1 REPLACEMENT VALUE)



EVERGREEN TREE (3:1 REPLACEMENT VALUE)



LAWN (SEEDED)



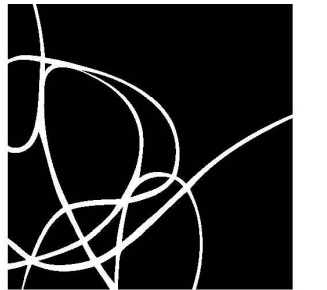
LAWN (SOD)

<i>ARLINGTON, VIRGINIA</i> DEPARTMENT OF ENVIRONMENTAL SERVICES		
SCALE: HOR 1" = 25' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE: CHIEF TRANSPORTATION PLANNING BUREAU	APPROVED DATE: CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET	OF	CONTRACT SHEET
OF		OF

L2.01

SHW Project: **3112.006.00**

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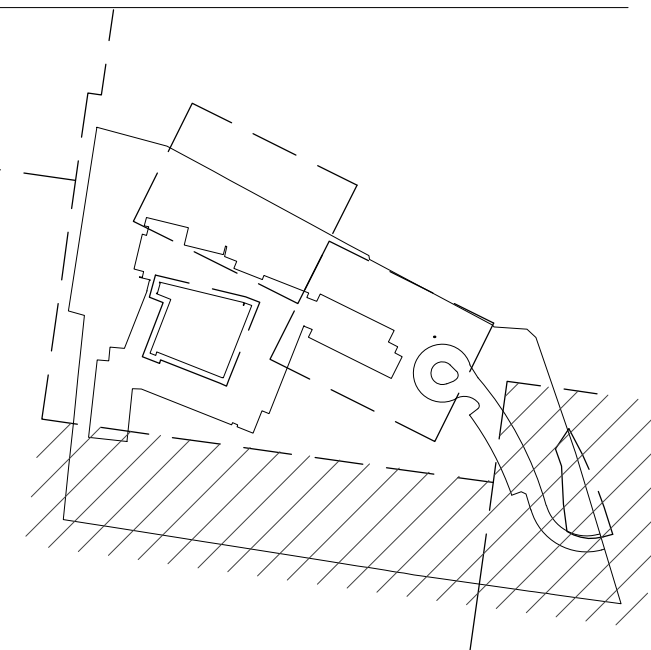
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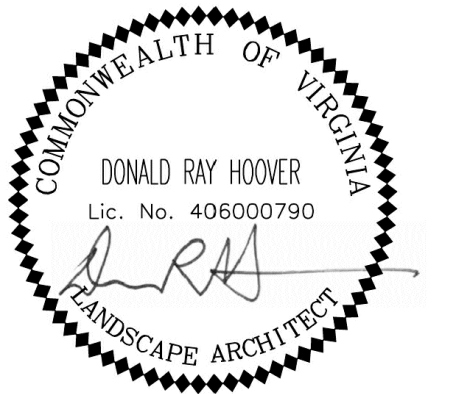
KEY PLAN (NTS)

ARLINGTON PUBLIC SCHOOLS

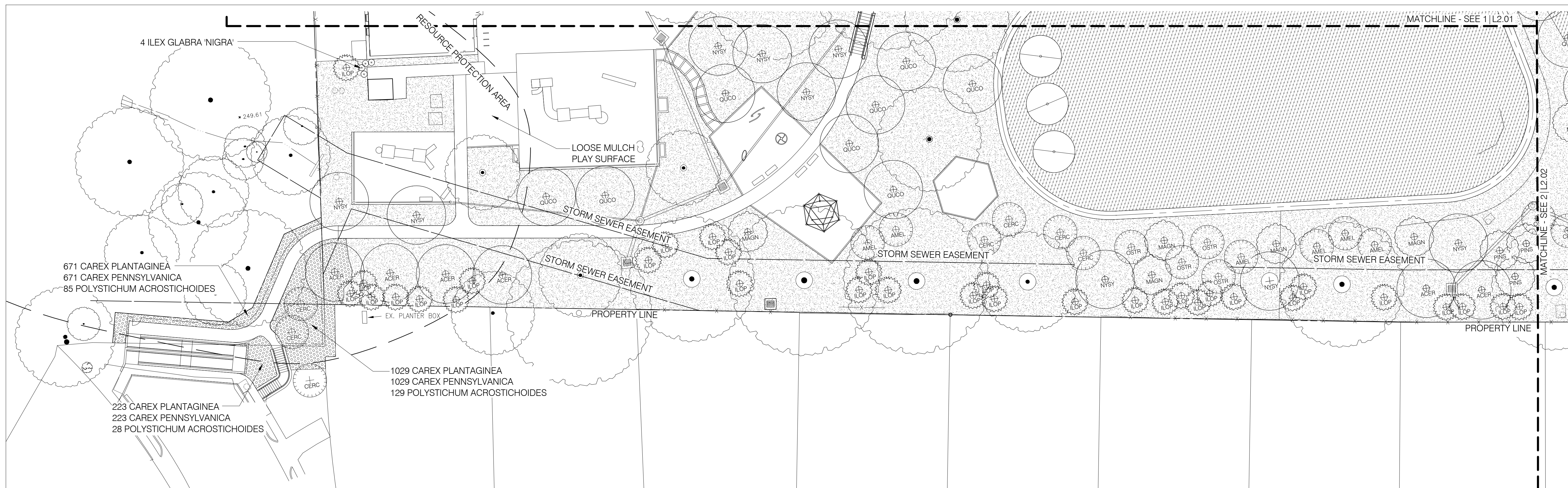


ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION

Arlington, VA 22205



SHEET TITLE:
SOUTH PLANTING PLAN



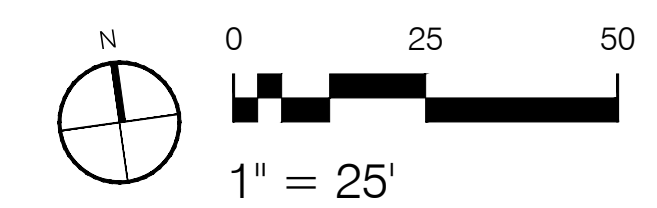
1 SW PLANTING PLAN
SCALE: 1" = 25'



2 SE PLANTING PLAN
SCALE: 1" = 25'

KEY

- EXISTING TREE TO REMAIN
- CANOPY TREE (1:1 REPLACEMENT VALUE)
- UNDERSTORY TREE (3:1 REPLACEMENT VALUE)
- EVERGREEN TREE (3:1 REPLACEMENT VALUE)
- LAWN (SEEDED)
- LAWN (SOD)

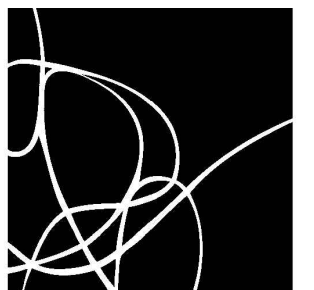


ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES		
SCALE: HOR 1" = 25' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE:	APPROVED DATE:
APPROVED DATE:	CHIEF TRANSPORTATION PLANNING BUREAU APPROVED DATE:	CHIEF TRAFFIC ENGINEERING BUREAU APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
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L2.02
3112.006.00

SHW Project:



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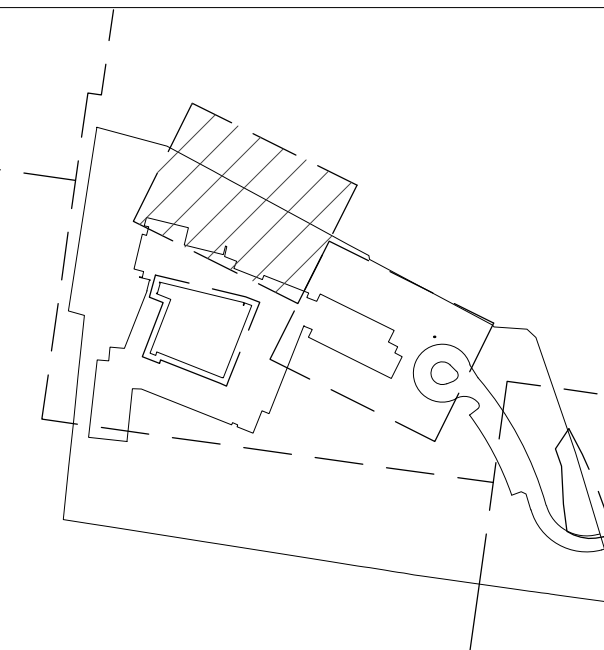
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KEY PLAN (NTS)

ARLINGTON PUBLIC SCHOOLS

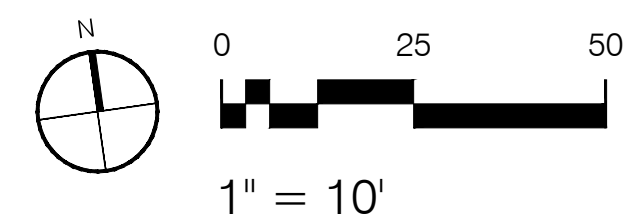
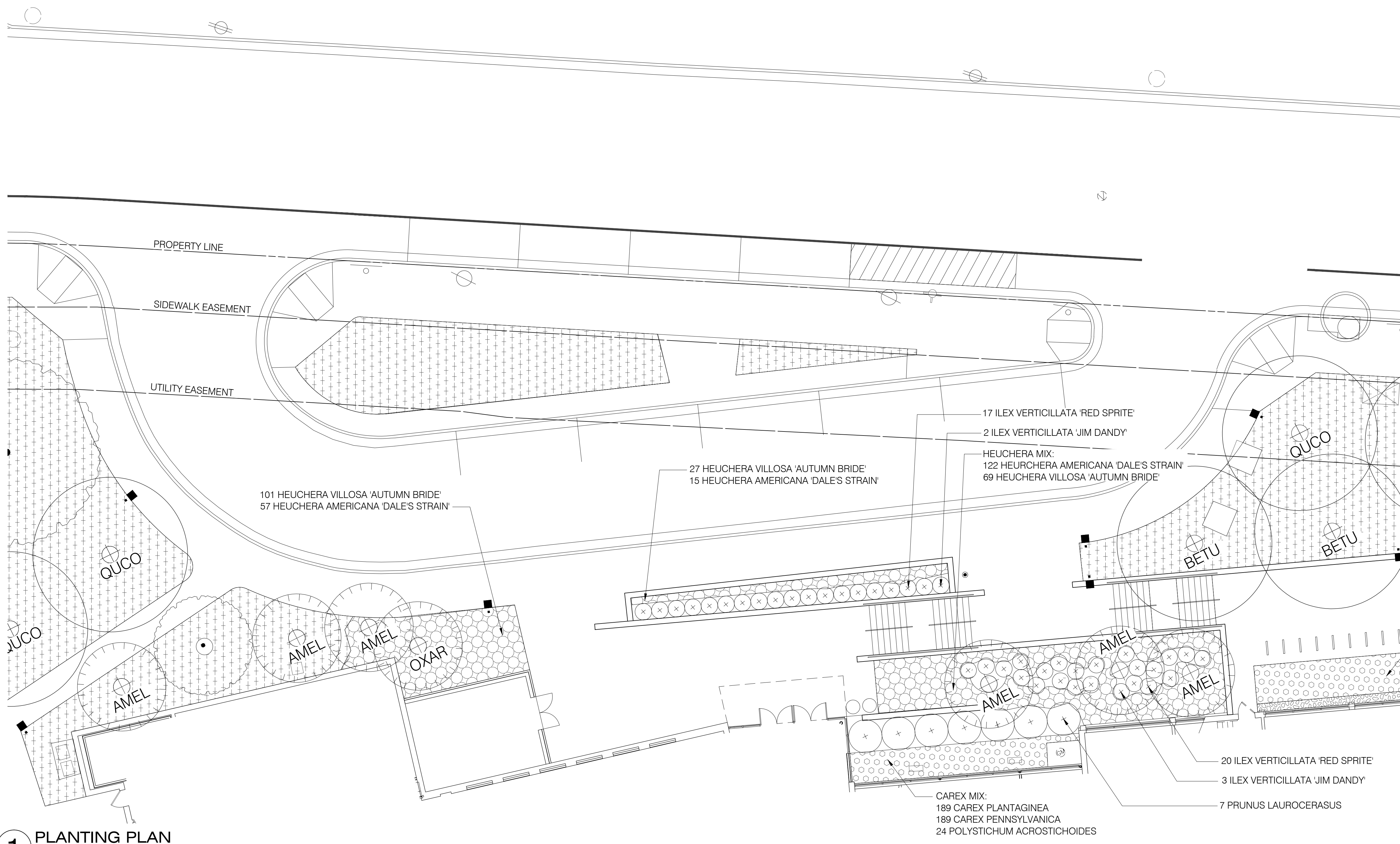


ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION
Arlington, VA 22205



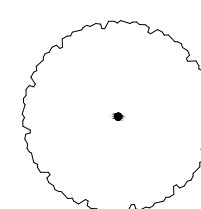
SHEET TITLE:
NW PLANTING PLAN
ENLARGEMENT

L2.10
3112.006.00

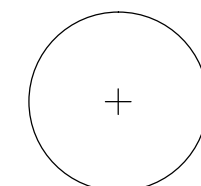


1 PLANTING PLAN
SCALE: 1" = 10'

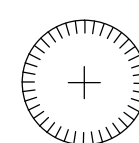
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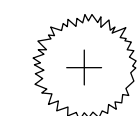
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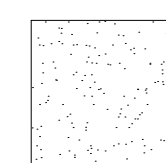
CANOPY TREE (1:1 REPLACEMENT VALUE)



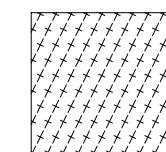
UNDERSTORY TREE (3:1 REPLACEMENT VALUE)



EVERGREEN TREE (3:1 REPLACEMENT VALUE)

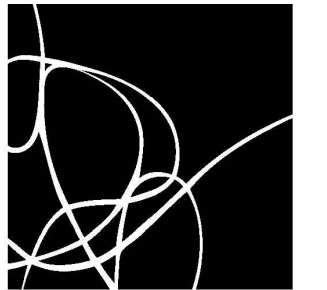


LAWN (SEEDED)



LAWN (SOD)

ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES		
SCALE: HOR 1" = 10' VER N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE: CHIEF TRANSPORTATION PLANNING BUREAU	APPROVED DATE: CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET OF	CONTRACT SHEET OF	



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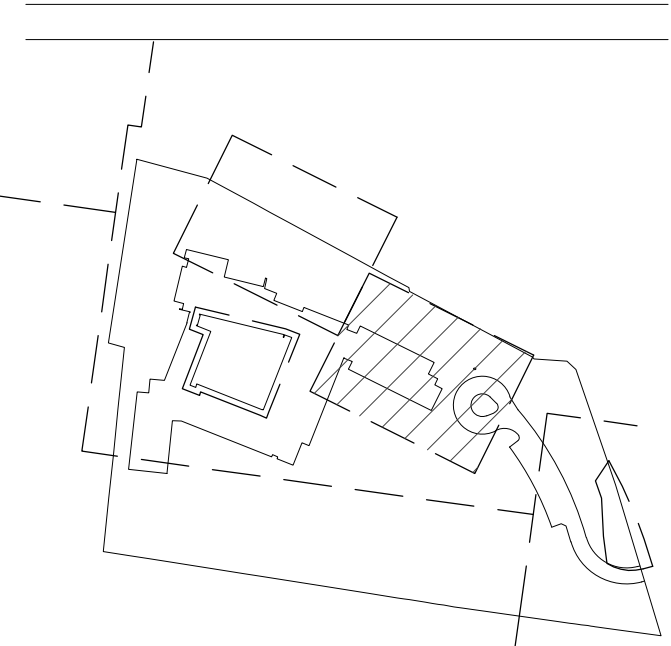
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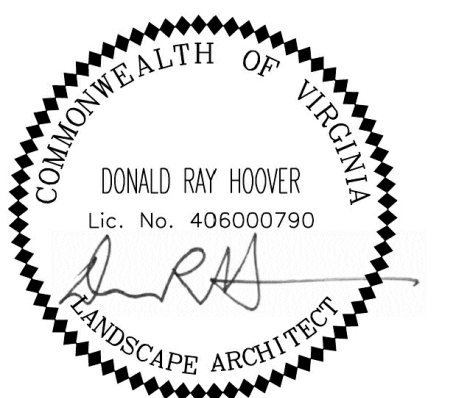


KEY PLAN (NTS)

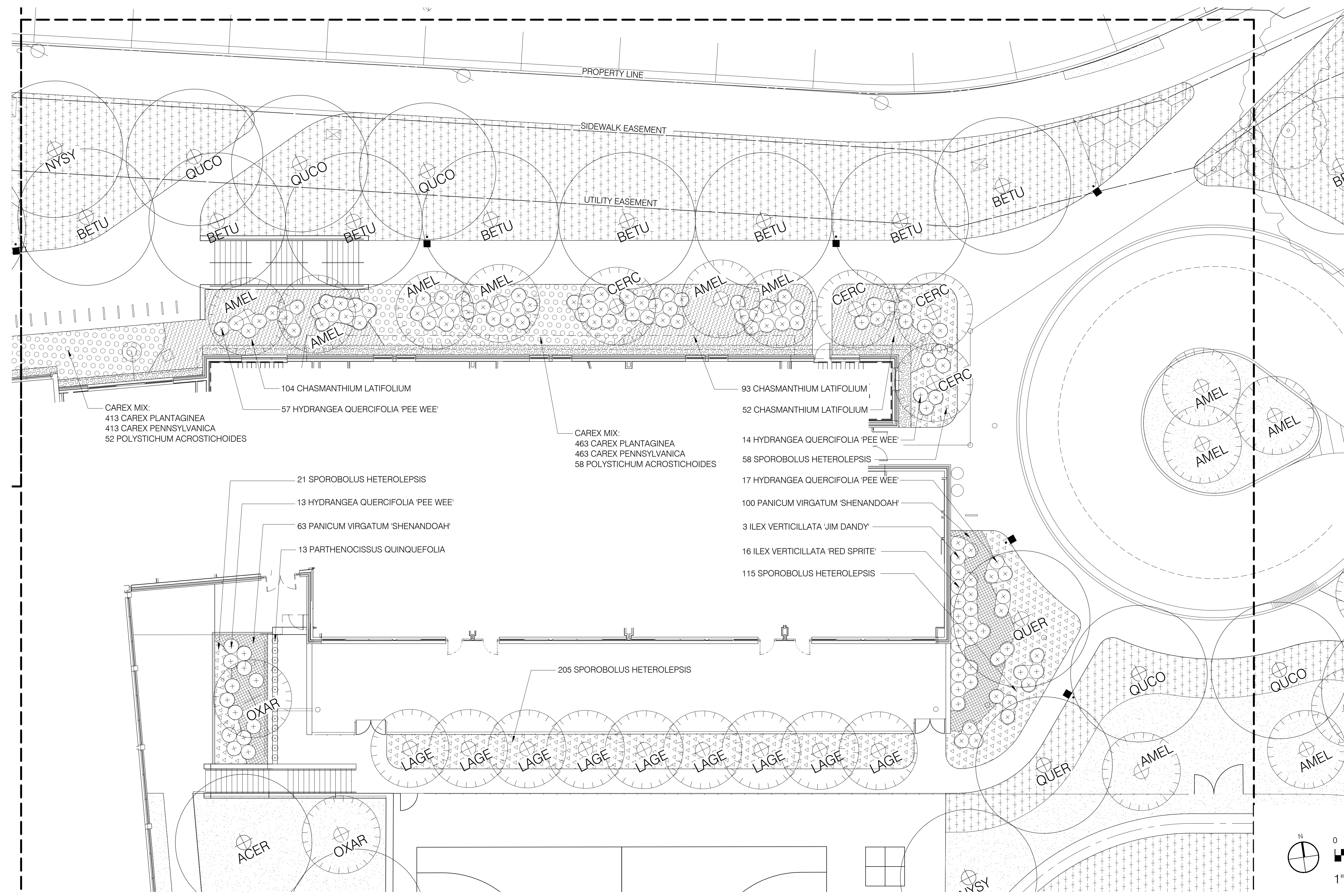
ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION
Arlington, VA 22205



SHEET TITLE:
NE PLANTING PLAN ENLARGEMENT

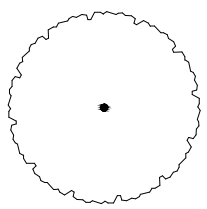


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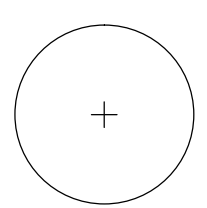
1 PLANTING PLAN

SCALE: 1" = 10'

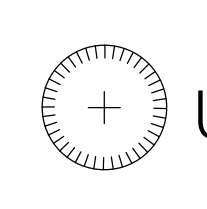
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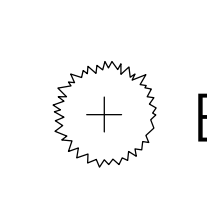
EXISTING TREE TO REMAIN



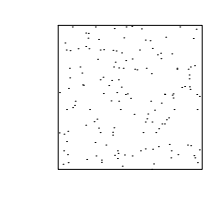
CANOPY TREE (1:1 REPLACEMENT VALUE)



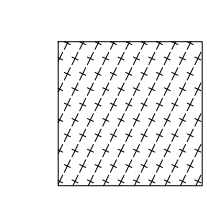
UNDERSTORY TREE (3:1 REPLACEMENT VALUE)



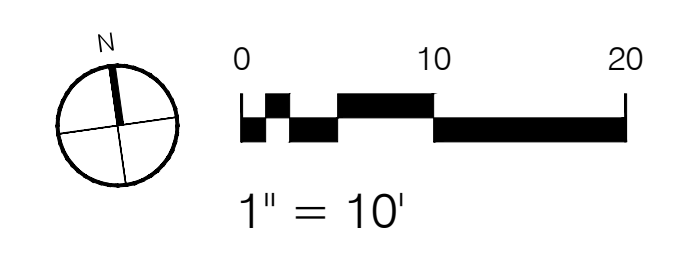
EVERGREEN TREE (3:1 REPLACEMENT VALUE)



LAWN (SEEDED)



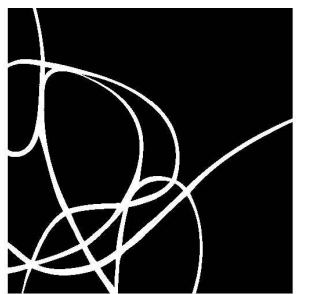
LAWN (SOD)



ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES		
SCALE: HOR 1" = 10' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE:	APPROVED DATE:
APPROVED DATE:	CHIEF TRANSPORTATION PLANNING BUREAU APPROVED DATE:	CHIEF TRAFFIC ENGINEERING BUREAU APPROVED DATE:
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L2.11

SHW Project: 3112.006.00



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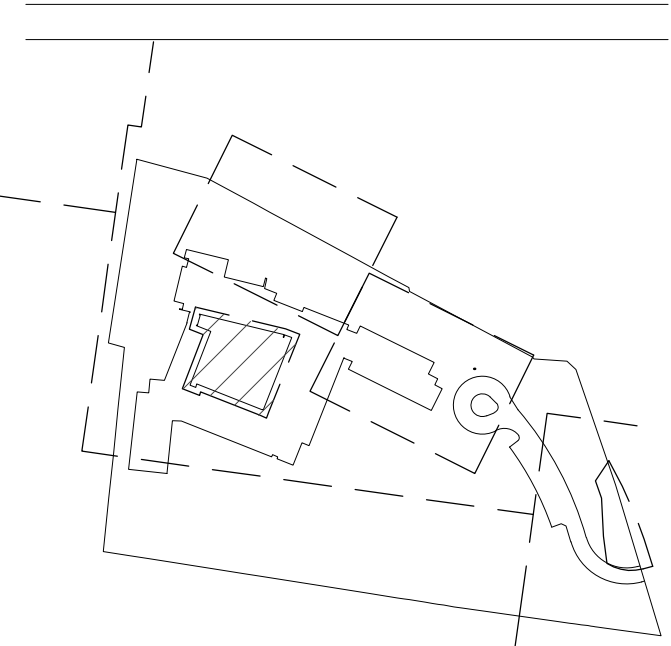
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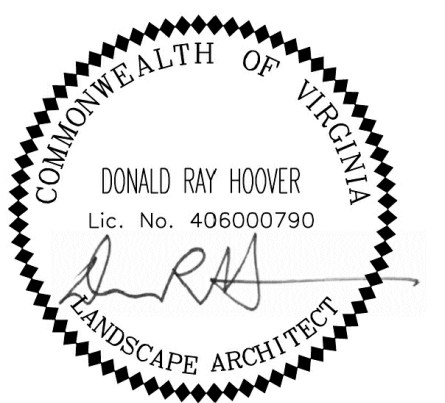
KEY PLAN (NTS)

ARLINGTON PUBLIC SCHOOLS

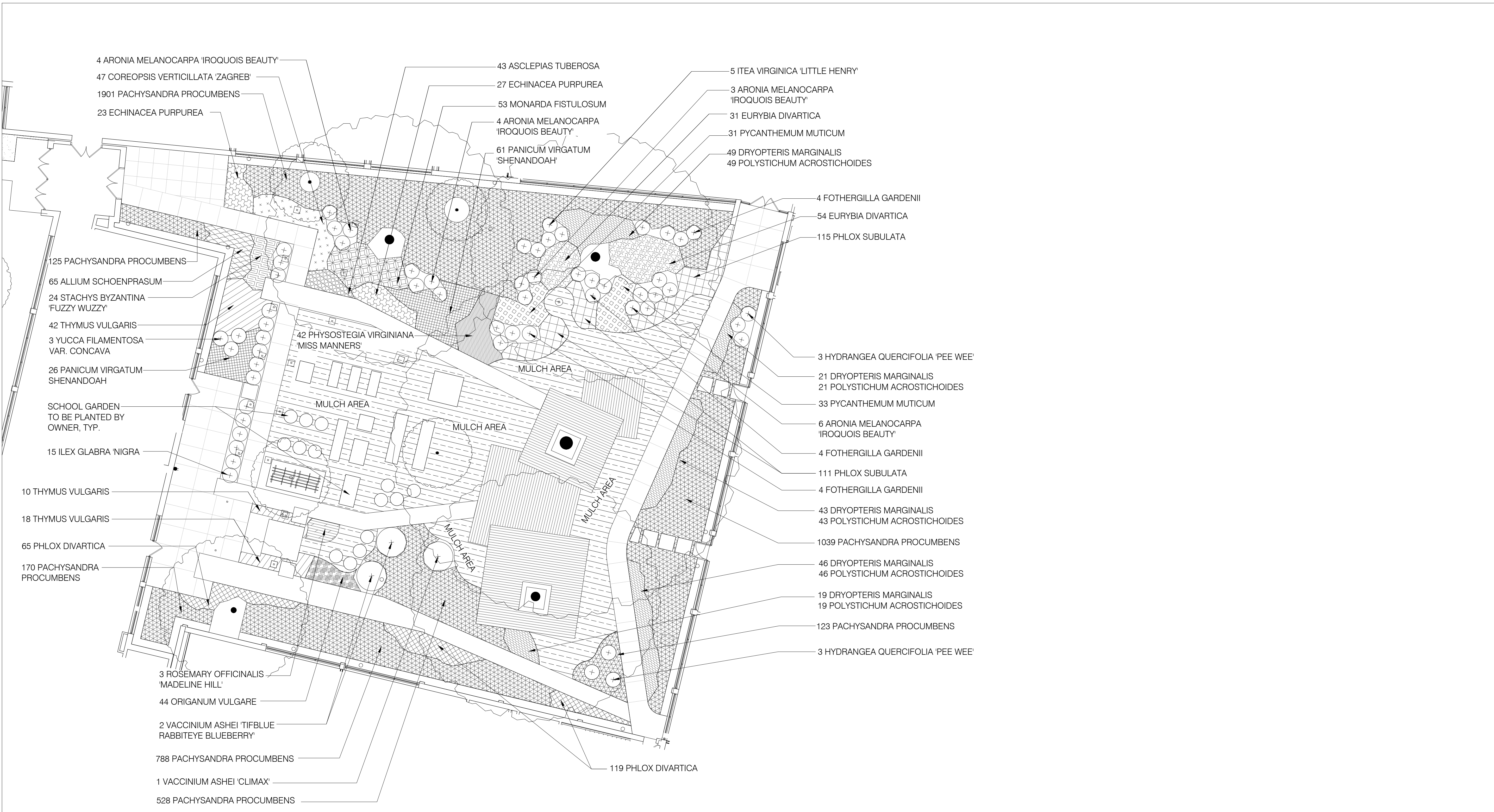


ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION

Arlington, VA 22205



SHEET TITLE:
PLANTING PLAN

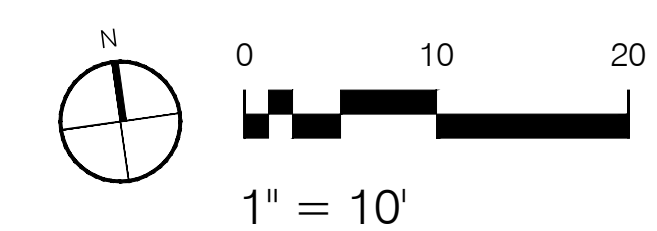


1 COURTYARD PLANTING PLAN DETAIL

SCALE: 1" = 10'

KEY

- EXISTING TREE TO REMAIN
- CANOPY TREE (1:1 REPLACEMENT VALUE)
- UNDERSTORY TREE (3:1 REPLACEMENT VALUE)
- EVERGREEN TREE (3:1 REPLACEMENT VALUE)
- LAWN (SOD)
- LAWN (SEEDED)
- MULCH



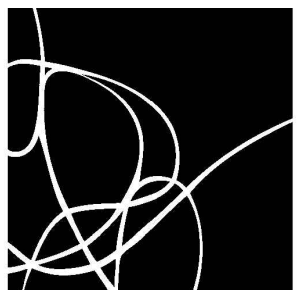
ARLINGTON, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

SCALE: HOR 1" = 10' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE: CHIEF TRANSPORTATION PLANNING BUREAU	APPROVED DATE: CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET	OF	CONTRACT SHEET OF

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L2.12
3112.006.00

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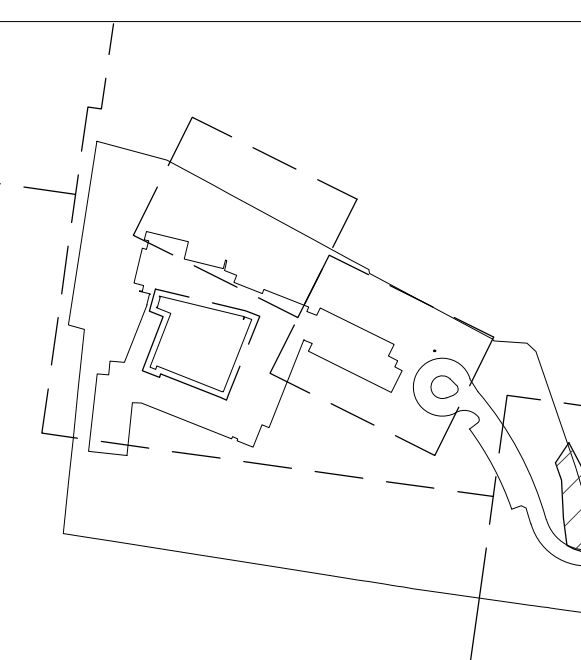
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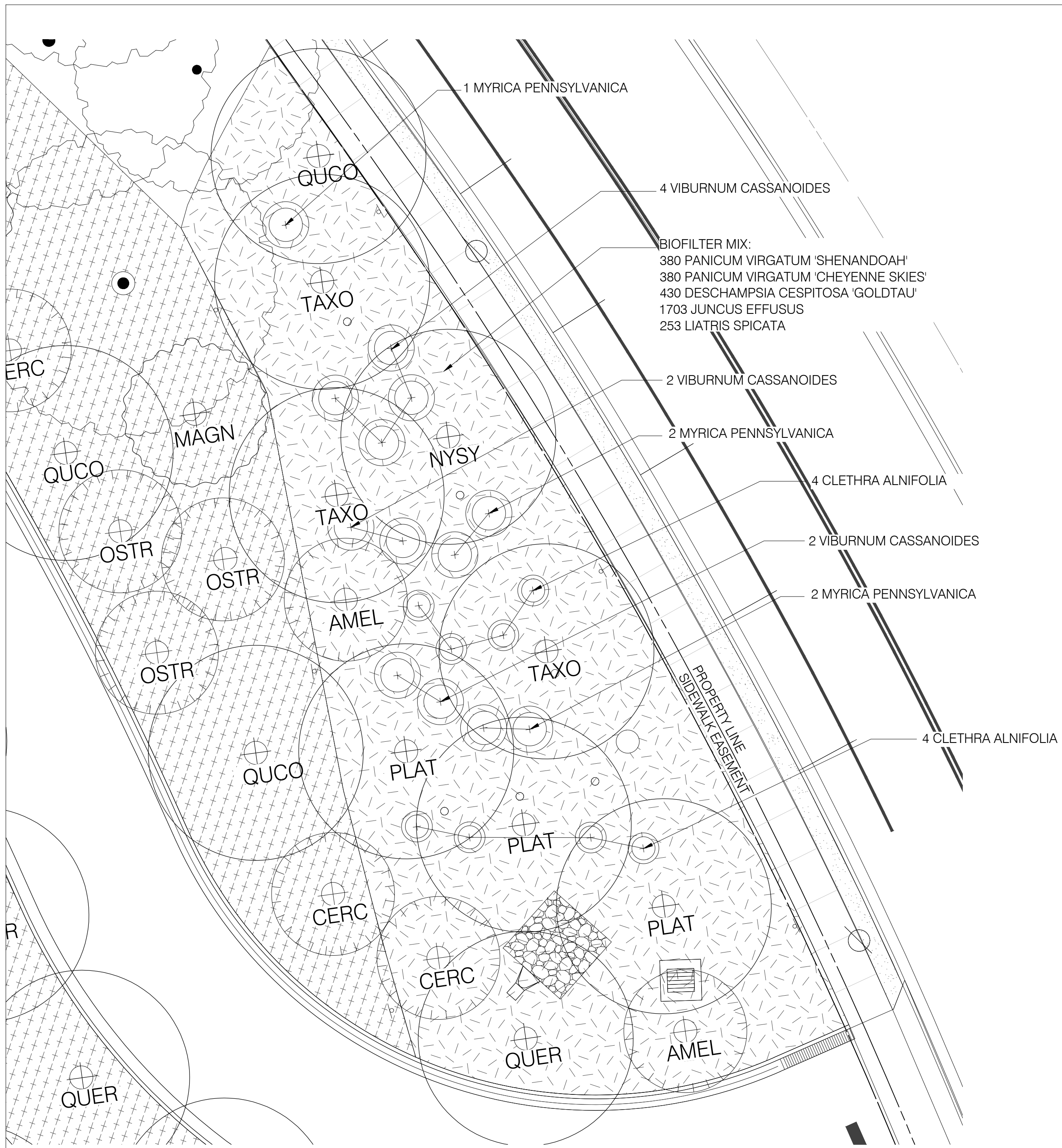
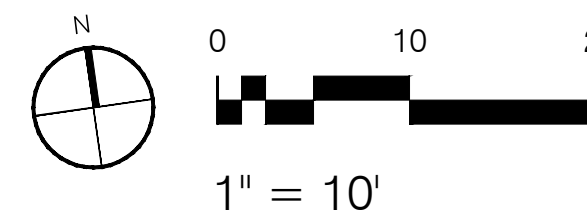


KEY PLAN (NTS)

ARLINGTON PUBLIC SCHOOLS



ASHLAWN ELEMENTARY SCHOOL RENOVATION & EXPANSION
Arlington, VA 22205



1 BIOFILTER PLANTING PLAN DETAIL
SCALE: 1" = 10'

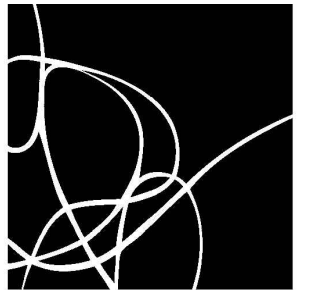
KEY

- EXISTING TREE TO REMAIN
- CANOPY TREE (1:1 REPLACEMENT VALUE)
- UNDERSTORY TREE (3:1 REPLACEMENT VALUE)
- EVERGREEN TREE (3:1 REPLACEMENT VALUE)
- LAWN (SOD)
- LAWN (SEEDED)

<i>ARLINGTON, VIRGINIA</i> DEPARTMENT OF ENVIRONMENTAL SERVICES		
SCALE: HOR 1" = 10' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE: CHIEF TRANSPORTATION PLANNING BUREAU	APPROVED DATE: CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE: CHIEF WATER, SEWER & STREETS BUREAU	APPROVED DATE: CHIEF ENGINEERING BUREAU	APPROVED DATE: DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET OF		CONTRACT SHEET OF

SHEET TITLE:
PLANTING PLAN

L2.13
3112.006.00



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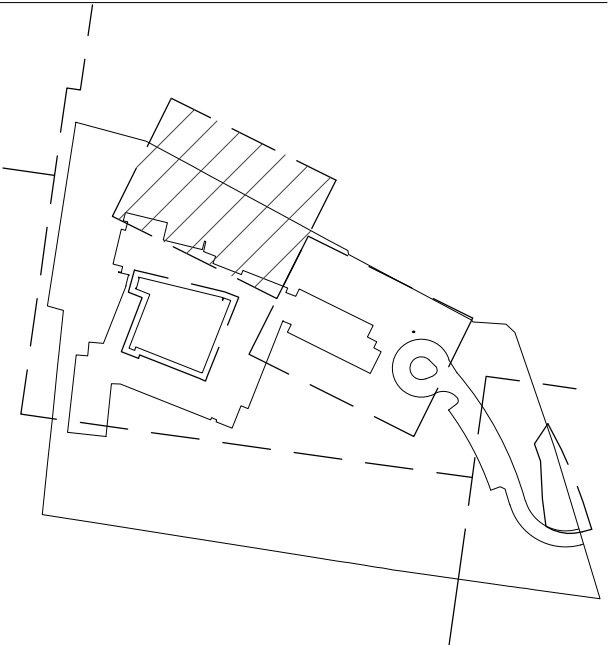
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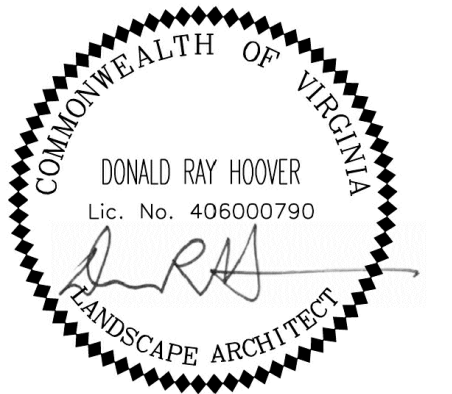
KEY PLAN (NTS)

ARLINGTON PUBLIC SCHOOLS



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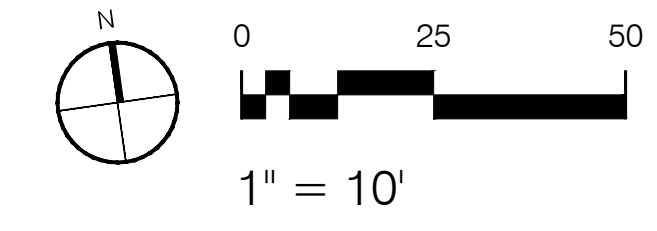
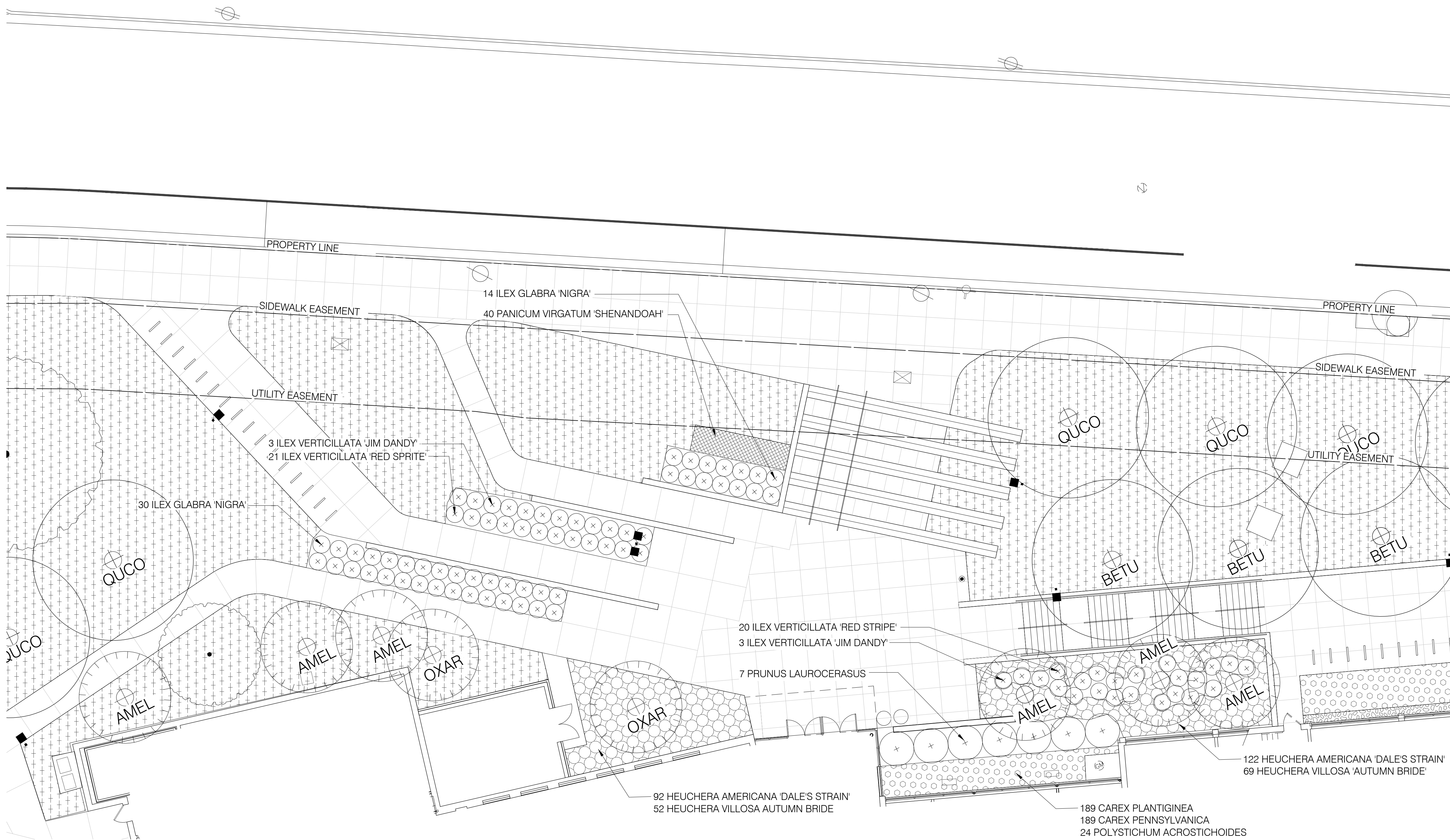
Arlington, VA 22205



SHEET TITLE:
NORTH PLANTING PLAN - PHASE 5

L2.51

SHW Project: **3112.006.00**



1 NORTH PLANTING PLAN - PHASE 5
SCALE: 1" = 10'

KEY

- EXISTING TREE TO REMAIN
- CANOPY TREE (1:1 REPLACEMENT VALUE)
- UNDERSTORY TREE (3:1 REPLACEMENT VALUE)
- EVERGREEN TREE (3:1 REPLACEMENT VALUE)
- LAWN (SEEDED)
- LAWN (SOD)

ARLINGTON, VIRGINIA DEPARTMENT OF ENVIRONMENTAL SERVICES		
SCALE: HOR 1" = 10' VER. N/A	DESIGNED: DRH/MEE	CHECKED: DRH
SUBMITTED DATE: AUGUST 26, 2013	APPROVED DATE: CHIEF TRANSPORTATION PLANNING BUREAU	APPROVED DATE: CHIEF TRAFFIC ENGINEERING BUREAU
APPROVED DATE:	APPROVED DATE:	APPROVED DATE:
CHIEF WATER, SEWER & STREETS BUREAU	CHIEF ENGINEERING BUREAU	DIRECTOR OF ENVIRONMENTAL SERVICES
PROJECT SHEET	OF	CONTRACT SHEET
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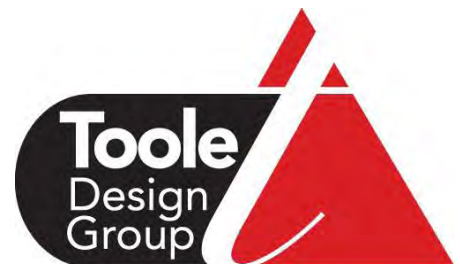
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APPENDIX IV:
SECTION M - TRAFFIC AND CIRCULATION

Ashlawn Elementary School School Transportation Plan

FINAL DRAFT

November 28, 2012



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Executive Summary

Arlington Public Schools (APS) is undertaking a comprehensive school renovation and expansion program and has hired SHW Group to develop a plan for expanding Ashlawn Elementary School. Ashlawn Elementary School has a current enrollment of approximately 533 students with a projected capacity after expansion of 684 students.

Toole Design Group, LLC (TDG) was hired to assess the transportation impacts of the Ashlawn Elementary School expansion project and provide infrastructure and programmatic recommendations to mitigate the demand for increased motor vehicle travel to and from the site. These recommendations will inform site design as well as safe routes to school (SRTS) strategies to impact travel mode choice and safety by staff, students and visitors. This resulting School Transportation Plan does not take the place of a Transportation Demand Management (TDM) plan but includes strategies that may be incorporated into a TDM plan.

TDG began its assessment process by assessing the existing school transportation context under the current configuration. TDG used this understanding to determine future transportation needs with school expansion, and finally develop a number of recommendations to optimize travel to and from the school by all modes.

Summary of Key Findings

A summary of key findings related to school travel for both existing and future conditions is provided below.

Travel Mode and Processes

Data collected through surveys, observation and field work provided a snapshot of the current processes, behaviors and travel modes at Ashlawn Elementary School. In general, the mode split for travel to and from school is promising in terms of balancing walkers and bicyclists, private motor vehicles and school buses. Currently students at Ashlawn Elementary School arrive by all travel modes, with approximately 30% bicycling or walking to/from school on a typical day. Of the students who live within one mile of the school, approximately 47% of students walk or bike to school. This is very close to goal included in the Countywide Master Transportation Plan of a 50% walk/bike rate for elementary school students who live within one mile of their school.

The current arrival process concentrates all modes on 8th Road, which presents challenges because 8th Road is a relatively narrow, dead-end street with no good place for motor vehicles to turn around. The existing Kiss and Drop loop (where private vehicles drop off students) is closed to cars during dismissal and the bus loop is closed to cars after 8:30 AM during arrival, and until all buses have departed during dismissal. During drop off and pick up, cars execute three point turns on 8th Road as buses are entering and leaving the school campus. Walkers coming from/going to Wilson Boulevard must utilize 8th Road during this time as well, because there is no sidewalk on 8th Road west of the upper lot parking lot.

Vehicular Traffic

TDG collected and reviewed various sources of data for consideration in the traffic analysis, including traffic counts, traffic observations, school driveway counts, and surveys of teachers, parents and students regarding their travel modes. The analysis showed that current vehicular traffic demands can be accommodated with the existing infrastructure, with the exception of the Manchester northbound left turning movement at the intersection of Manchester Street and Wilson Boulevard, which currently operates at an LOS F during the elementary school arrival peak hour and an LOS D during the dismissal peak hour. The remaining movements at this intersection operate at LOS C or better during arrival and dismissal peak hours. Analysis showed that all movements at the intersection of Manchester Street and 8th Road operate at LOS A.

The analysis indicates that the current infrastructure can support the additional vehicle trips anticipated to accompany the elementary school expansion. Two access options were studied to improve circulation and safety of the parent pickup/dropoff process: access off 8th Road, and access via a new driveway on Manchester Street. Both options have similar results for the vehicle capacity analysis; however, the access drive on Manchester provides significant benefit to the efficiency and safety by separating modes. A third access option, connecting 8th Road and Wilson Boulevard only for school bus access, was evaluated qualitatively, but did not undergo detailed traffic analysis.

On-campus Infrastructure

Several on-campus infrastructure issues were identified and corresponding recommendations developed to support pedestrian and bicycle access to the school, including:

- Convenient, accessible pedestrian connections are not provided between all school access points and school entrances.
- Some sidewalks adjacent to the campus are not wide enough to accommodate peak pedestrian flows.
- Vegetation obstructs some on-campus pedestrian pathways.
- Some on-campus pedestrian pathways are not well-lit.
- Some on-campus curb ramps do not meet ADA guidelines.
- Driveway entrances create potential conflict points between motor vehicle drivers and pedestrians/bicyclists.
- Sight lines between pedestrians and motor vehicle drivers are obstructed by parked cars and/or vegetation at some driveway openings.
- Bicycle parking is not adequate for existing demand.

Vehicle Parking

- Current on-site parking at Ashlawn Elementary totals 44 spaces (22 in the upper lot, 5 in the bus loop, and 17 in the lower lot). In addition, 30 parking spaces are leased from Dominion Hills. There are currently 68 parking spaces available in the Bluemont Park parking lot, and approximately 20 on-street spaces available on the east side of Manchester Street.

- Responses to a staff survey indicate that approximately 71% of school staff live more than 2 miles from the school and 86% of respondents report driving alone to school.

Summary of Key Recommendations

A summary of key recommendations that relate to school site design or circulation is provided below.

Traffic Circulation (all modes)

Of the three site design concepts presented throughout this project, TDG supports the new driveway off of Manchester Street with the following additional features:

- Permitted or limited access on-street parking on 8th Road
- Crossing guard and raised crosswalk on the south leg of 8th Road and Manchester intersection
- Enhanced drop off and pick up procedure to provide a safer and more efficient unloading and loading process. This could include on-campus signs and paint on curb and driveway surface to provide direction for loading/unloading. Ashlawn Elementary should continue to utilize student valets, and consider implementing a driver ID system for student pick up. Additionally, measures should be taken to communicate early and often with parents regarding the arrival and dismissal processes (see Section 3 for additional information).

Note: The County is conducting a feasibility study of opening 8th Road at Wilson Boulevard to school buses only. TDG would want to see feasibility study before making a decision on this, but generally speaking it could simplify turning movements from Manchester onto 8th Road by removing school buses.

Vehicle Parking

Due to current and projected staff travel mode share, and the existence of off-site parking facilities around Ashlawn Elementary School, it is recommended that the expanded Ashlawn Elementary School accommodate a total of 134 vehicles through a combination of onsite, leased and off-site facilities such as Bluemont Park and on-street parking on Manchester Street. This would accommodate 77% of future estimated school staff parking demand (93 spaces), and 100% of estimated maximum visitor parking demand (41 spaces).

On-Campus Infrastructure

Several recommendations are provided to inform design of the school campus in order to adequately accommodate active modes of travel, including:

- Ensure that convenient, accessible pathways are provided wherever feasible.
- Ensure that all on-campus sidewalks are sufficiently wide.
- Ensure that all on-campus pedestrian pathways are well-lit.
- Update all on-campus curbs to meet ADA guidelines.
- Provide convenient ADA compliant curb ramps from school parking lots and arrival/dismissal drives.
- Minimize and consolidate curb cuts.

- Indicate pedestrian priority at driveway opening by continuing the sidewalk at-grade across the opening.
- Arrange parking locations, signs, utilities, and landscaping to ensure clear sight lines between pedestrians and drivers. Choose landscaping that is low-growing and does not obstruct sight lines and/or continuously trim vegetation to preserve sightlines.
- Add additional bicycle parking. Add parking locations for scooters and strollers.
- Add way finding for all modes of travel that provides clear information as to how to navigate to and from the school by walking bicycling or automobile.
- When constructing a stair along a potential bicycle access route, include wheel gutters (also called rolling trays) if an adjacent ramp is infeasible.

DRAFT

APPENDIX V:
SECTION O - GREEN BUILDING



LEED 2009 for New Construction and Major Renovations

Project Checklist

Project Name

Date

Sustainable Sites Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
Y			Credit 1	Site Selection	1
		N	Credit 2	Development Density and Community Connectivity	5
		N	Credit 3	Brownfield Redevelopment	1
		N	Credit 4.1	Alternative Transportation—Public Transportation Access	6
Y			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
Y			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
Y			Credit 4.4	Alternative Transportation—Parking Capacity	2
Y			Credit 5.1	Site Development—Protect or Restore Habitat	1
Y			Credit 5.2	Site Development—Maximize Open Space	1
Y			Credit 6.1	Stormwater Design—Quantity Control	1
Y			Credit 6.2	Stormwater Design—Quality Control	1
Y			Credit 7.1	Heat Island Effect—Non-roof	1
Y			Credit 7.2	Heat Island Effect—Roof	1
Y			Credit 8	Light Pollution Reduction	1

Water Efficiency Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
Y			Credit 1	Water Efficient Landscaping	2 to 4
	?		Credit 2	Innovative Wastewater Technologies	2
Y			Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
Y			Credit 1	Optimize Energy Performance	1 to 19
		N	Credit 2	On-Site Renewable Energy	1 to 7
		N	Credit 3	Enhanced Commissioning	2
Y			Credit 4	Enhanced Refrigerant Management	2
		N	Credit 5	Measurement and Verification	3
		N	Credit 6	Green Power	2

Materials and Resources Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
Y			Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
Y			Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
Y			Credit 2	Construction Waste Management	1 to 2
Y			Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
Y			Credit 4	Recycled Content	1 to 2
Y			Credit 5	Regional Materials	1 to 2
		N	Credit 6	Rapidly Renewable Materials	1
		N	Credit 7	Certified Wood	1

Indoor Environmental Quality Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
Y			Credit 1	Outdoor Air Delivery Monitoring	1
Y			Credit 2	Increased Ventilation	1
Y			Credit 3.1	Construction IAQ Management Plan—During Construction	1
Y			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
Y			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
Y			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
Y			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
Y			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
Y			Credit 5	Indoor Chemical and Pollutant Source Control	1
Y			Credit 6.1	Controllability of Systems—Lighting	1
Y			Credit 6.2	Controllability of Systems—Thermal Comfort	1
Y			Credit 7.1	Thermal Comfort—Design	1
		N	Credit 7.2	Thermal Comfort—Verification	1
Y			Credit 8.1	Daylight and Views—Daylight	1
Y			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process Possible Points: 6

Y	?	N			
Y			Credit 1.1	Innovation in Design: Specific Title	1
Y			Credit 1.2	Innovation in Design: Specific Title	1
		N	Credit 1.3	Innovation in Design: Specific Title	1
		N	Credit 1.4	Innovation in Design: Specific Title	1
		N	Credit 1.5	Innovation in Design: Specific Title	1
		N	Credit 2	LEED Accredited Professional	1

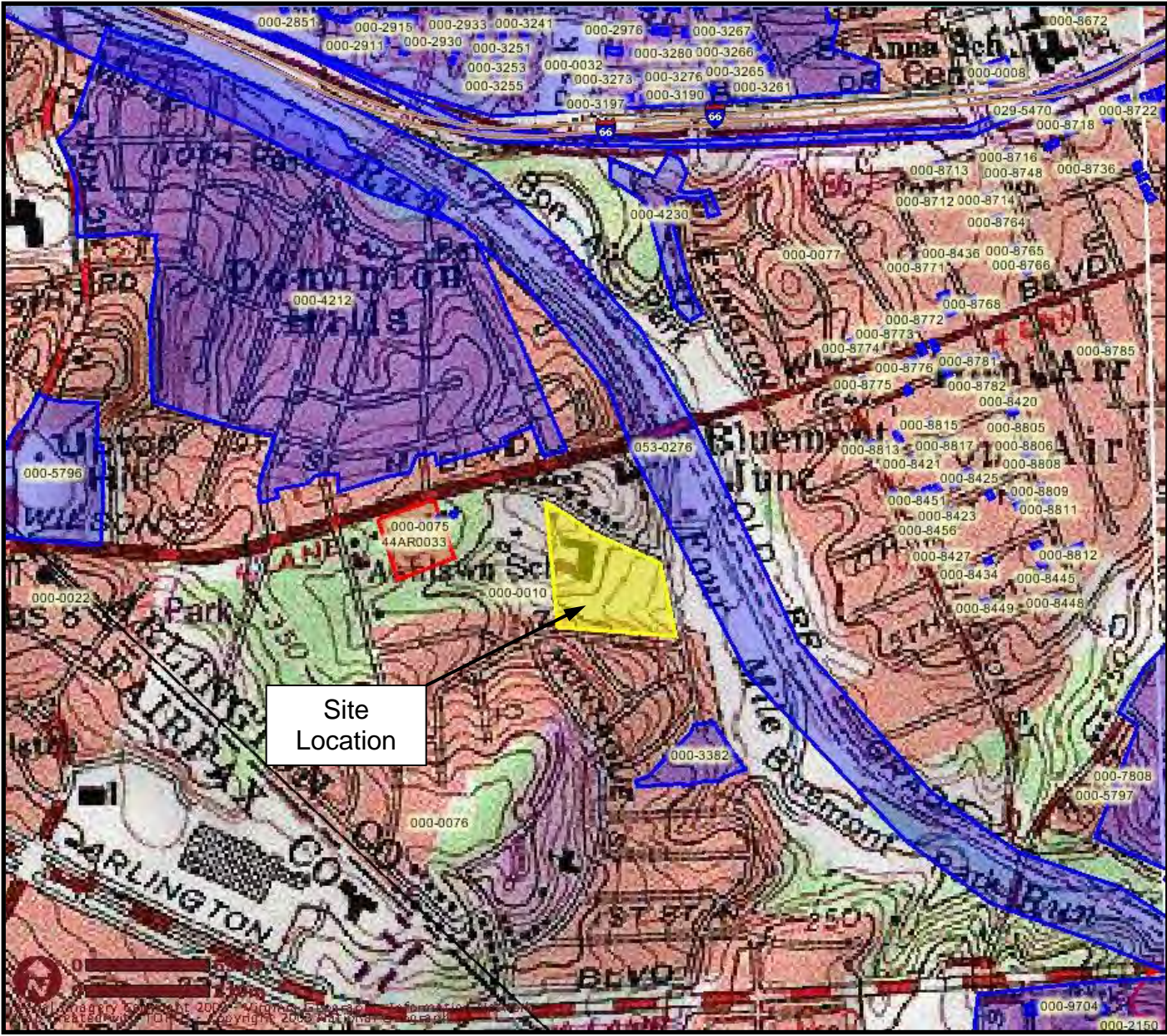
Regional Priority Credits Possible Points: 4


Y	?	N			
		N	Credit 1.1	Regional Priority: Specific Credit	1
		N	Credit 1.2	Regional Priority: Specific Credit	1
		N	Credit 1.3	Regional Priority: Specific Credit	1
		N	Credit 1.4	Regional Priority: Specific Credit	1


Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

APPENDIX VI:
SECTION P - CULTURAL AND HISTORIC RESOURCES



Archeological Resource 

Architectural Resource 

Site 

Site Location

