MCPB
Item No.
Date: 05-22-14

Washington Gas Pipeline No. 27 Main Relocation, Forest Conservation Plan #MR2014041

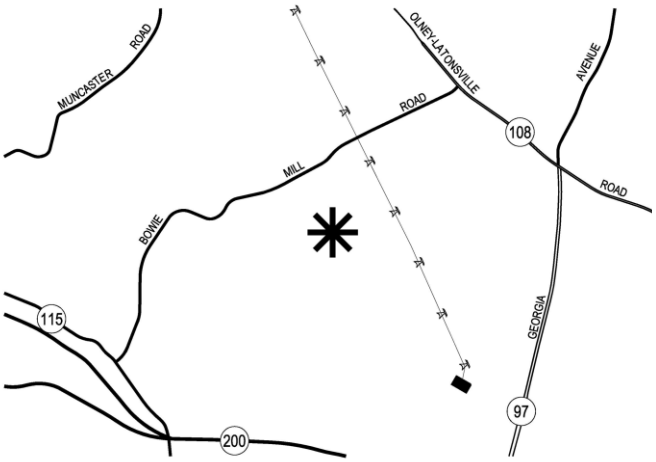
Joshua Penn, Senior Planner, Joshua.Penn@montgomeryPlanning.org, 301-495-4546
Rich Weaver, Supervisor, Richard.Weaver@montgomeryplanning.org, 301-495-4544
John Carter, Chief Area 3 Planning Team

Staff Report Date: 05/12/14

Description

A. Final Forest Conservation Plan: Washington Gas Pipeline No. 27
Construction of approximately 3.3 miles of new 12-inch gas distribution line within the existing Washington Gas easement; includes replacement of an existing pipeline, temporary access pathways and staging areas, clearing, and stream stabilization; located from 830 feet southwest of the ICC (Intercounty Connector) to MD 108 (Olney Laytonsville Road), Olney and Upper Rock Creek Master Plan Areas.
***Staff Recommendation**: Approval with conditions*

Applicant: Washington Gas
Submittal Date: 04/15/14



Summary

Two items are included for the Planning Board review for the Washington Gas Pipeline No. 27 Main Relocation project as follows:

- mandatory referral plan and,
- final forest conservation plan (FCP)

This memorandum addresses staff's review and recommendations on the forest conservation plan. As a regulatory application, the Planning Board must take a separate action on Chapter 22a for the Mandatory Referral and adopt a Resolution for the Forest Conservation Plan that is provided with this Agenda Item.

STAFF RECOMMENDATION

Staff recommends approval with the following conditions:

1. Prior to any land disturbing activities or issuance of Sediment and Erosion Control Permit, the Applicant must submit a revised Forest Conservation Plan, subject to Staff approval for the following:
    a. Include a signed developers certificate on every page;
    b. Include original Qualified Professional's signature on every page;
    c. Add note that indicates that forty-three (43) – Three inch (3") DBH native canopy trees are required to be planted within the Upper Rock Creek watershed as required Variance Tree mitigation;
2. No ground disturbing activities shall occur within Washington Gas easements and within the Limits of Disturbance shown on the Final Forest Conservation Plan in Maryland-National Capital Park and Planning Commission (M-NCPPC) properties without permission from M-NCPPC inspectors or representatives, and obtain any necessary park permits.
3. Applicant must plant forty-three (43) – Three inch (3") DBH native canopy trees within the Upper Rock Creek watershed as Variance Tree mitigation.
    a. The location of the trees to be planted for Variance mitigation must be submitted to Staff within three (3) months of the date of the Resolution;
    b. All Variance mitigation plantings must occur within one (1) year of date of the Resolution

DISCUSSION

In order to meet the requirements of the gas distribution pipeline integrity management requirements under the Pipeline Safety Improvement Act of 2002, Washington Gas ("Applicant") is planning to replace approximately 3.3 miles of existing 20-inch-diameter gas distribution main that was installed in 1931, with a new 12-inch-diameter gas distribution line. The new pipeline will be installed using both the insertion method, which inserts the new pipe through the existing 20-inch-diameter gas main and, horizontal directional drilling (HDD) techniques via access pits. In order to install the new pipeline, the Applicant proposes to only clear vegetation within the areas needed for: drilling access pits, construction equipment access, string line areas for pipe laydown during the HDD pullback operation, and stream stabilization work where the existing pipeline is exposed. The proposed pipeline project extends from a point located 830 feet southwest of the ICC (Intercounty Connector) near Muncaster Mill Road to MD 108 (Olney-Laytonsville Road) spanning the Olney and Upper Rock Creek Master Plan Areas ("Project").

The Planning Board's action on the FCP is regulatory and binding, therefore, the Board must act on the FCP before it finalizes its recommendations on the mandatory referral.

SPA WATER QUALITY

This Project is partially within the Upper Rock Creek Special Protection Area (SPA) and crosses publicly owned property (MNCPPC, State and County) so the Applicant is required to obtain approval of a water quality plan under section 19-62 of the Montgomery County Code. This section of the Code states:

(c) Publicly owned property. Before engaging in any land disturbing activity on publicly owned property in an area designated as a special protection area, the applying agency or department should prepare a combined preliminary and final water quality plan.

Review for Conformance to the Special Protection Area Requirements

As part of the requirements of the SPA law, a SPA water quality plan should be reviewed in conjunction with a mandatory referral.[1] Under the provision of the SPA law, the Montgomery County Department of Permitting Services (MCDPS) is the lead agency for determining applicability to Section 19 of the Montgomery County Code including Water Quality Inventory/Plan requirements.

MCDPS reviewed the Project and issued the following statement: (Attachment A)

> *"The Washington Gas project is being reviewed and inspected for sediment control requirements by WSSC. Since DPS is not part of that permitting and enforcement process, there is no permitting involvement through DPS. DPS stormwater management review and permitting enforcement is directly associated with issuance of a sediment control permit. DPS does not issue a separate "stormwater management" permit. Therefore there is no stormwater management requirement that DPS can enforce in this instance, so DPS can not require submission of a Water Quality Inventory.*
>
> *Since DPS will not be issuing a permit for the gas project, DPS can not require review of stormwater management requirements unless MNCPPC directs the applicant to submit such a review application as part of the mandatory referral process. Even in that case, DPS would not be able to enforce the elements of the approved Water Quality Inventory since DPS would not be issuing any permits for the project."*

[1] Section 19-67 of the Montgomery County Code states that "before engaging in any land disturbing activity on publicly owned property in an area designated as a special protection area, the applying agency or department should prepare a combined preliminary and final water quality plan."

MCDPS has determined that this Project is not required to submit either a Water Quality Plan or a Water Quality Inventory.

Environmental Guidelines

The Natural Resource Inventory/Forest Stand Delineation (NRI/FSD) for the Project identified the Stream Valley Buffers (SVB) associated with the stream impacted by the construction. SVBs include wetlands, wetland buffers, floodplains, streams, and stream buffers. The NRI/FSD was approved by M-NCPPC on February 24, 2014.

The NRI/FSD identified a 100 foot study area on either side of the pipeline alignment. That area within the study area determined the boundary of the NRI/FSD. This study area contains 1.97 acres of forest (0.1 acres in wetlands and 0.85 acres in SVB), 0.89 acres of wetlands, and 1.79 acres of SVB.

The Project extends through the Upper Rock Creek watershed, which is a Use III-P watershed upstream of Muncaster Mill Road and a Use IV-P watershed downstream of Muncaster Mill Road. . The Countywide Stream Protection Strategy (CSPS) rates streams in Upper Rock Creek watershed as fair to good condition.

The acreage of affected forest has changed between the approval of the NRI/FSD and the submission of the FCP. A combination of factors contributed to the increase in forested acreage, including:

1. During the site visit with M-NCPPC Parks on April 9, 2014, Parks staff requested that the limit of disturbance (LOD) be extended 50 feet upstream and 300 feet downstream from the stream crossings near Ridge Drive, in Olney, to allow for removal of the existing pipe and re-stabilization of the stream. The addition of these LODs west of Ridge Drive increased the forested LOD.
2. The addition of a Staging Area near the receiving pit (Design Plans Page 40 and FCP Pages 10 and 11) increased the forested LOD.
3. The stream stabilization LOD next to the Staging Area above (Page 10 and 11 of the FCP) increased the forested LOD.

The submitted FCP contains all the data required for the Project not included on the NRI/FSD. The updated numbers are listed in Table 1.

Table 1: Updated Natural Resources Data

NATURAL RESOURCES TABLE

Natural Resource	Area (Acres)	Length (Linear Feet)	Width (Linear Feet)
Forested	2.55	N/A	N/A
Wetlands	1.47	N/A	N/A
Forested Wetlands	0.12	N/A	N/A
Forested Stream Buffer	1.38	N/A	N/A
Stream Buffer	4.38	2,141	357

Stream Buffer Encroachments

The encroachments into the SVBs associated with this Project are necessary because the gas easement/ROW and underground gas pipeline already exist and crosses SVBs and M-NCPPC Parkland. In an effort to avoid large trees and other environmental features, the Applicant will avoid open trench construction to the greatest extent possible and will rely on insertion and horizontal directional drilling (HDD) to avoid as much surface disturbance as possible.

Additionally the construction access points to the Washington Gas easement have been carefully selected to minimize disturbance within environmentally sensitive areas. The LOD shown on the FCP is wider (larger) than will be necessary. This was done to allow the contractor flexibility to adjust the work area for unforeseen field conditions. So while the LOD may appear wide on the plan, there will be less actual disturbances in the field as they adjust to field conditions.

Forest Conservation

This Project is subject to the Montgomery County Forest Conservation law (Chapter 22A of the County code) under section 22A-4(d) "*a government entity subject to mandatory referral on a tract of land 40,000 square feet or larger...*" The Project is 14.31 acres in size and contains 2.55 acres of forest.

Construction activity for the Project is mostly contained within the existing Washington Gas easement; much of the forest clearing is due to the Applicant's need to clear the easements and maintain lower levels of vegetation growth to protect the pipeline from future root damage.

The Project requires clearing forest below the conservation threshold, therefore; the replacement ratio becomes 2:1 in the forest conservation worksheet.

The FCP shows 2.55 acres of forest clearing and no forest retention, generating a 5.10 acre planting requirement. The Applicant wishes to meet the forest planting requirements off-site. (Attachment B)

Tree Variance

Section 22A-12(b)(3) of the Montgomery County Forest Conservation Law provides criteria that identify certain individual trees as high priority for retention and protection. The law requires no impact to trees that: measure 30 inches or greater, diameter at breast height (DBH); are part of an historic site or designated with an historic structure; are designated as a national, State, or County champion trees; are at least 75 percent of the diameter of the current State champion tree of that species; or trees, shrubs, or plants that are designated as Federal or State rare, threatened, or endangered species (Variance Trees). Any impact, including removal, disturbance within the tree's critical root zone (CRZ) or pruning, requires a tree variance. An applicant for a tree variance must provide certain written information in support of the required findings in accordance with Section 22A-21 of the County Forest Conservation Law.

Variance Request

The Applicant submitted a variance request dated April 15, 2014 and revised on May 9, 2014 for the impacts/removal of Variance Trees by the proposed activities (Attachment C). The Applicant has requested a tree variance for the removal of thirty-one (31) Variance Trees and to impact, but not remove, forty-two (42) other Variance Trees.

Tree ID	Common Name	Scientific Name	DBH	Health	CRZ Radius
Specimen Tree Summary Table - Removals					
36	White Pine	*Pinus strobus*	30.0	Good	45.00
42	Tulip Poplar	*Liriodendron tulipifera*	30.9	Good	46.35
49	Black Cherry	*Prunus serotina*	35.3	Good	52.95
50	Red Maple	*Acer rubrum*	36.5	Poor	54.75
58	Willow Oak	*Quercus phellos*	35.0	Good	52.50
59	Black Cherry	*Prunus serotina*	30.0	Good	45.00
69	Black Willow	*Salix nigra*	34.8	Poor	52.20
77	Silver Maple	*Acer saccharinum*	32.4	Good	48.60
91	White Pine	*Pinus strobus*	51.0	Good	76.50
102	Scarlet Oak	*Quercus coccinea*	40.1	Good	60.15
119	Sugar Maple	*Acer saccharum*	32.0	Good	56.40
137	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	66.75
231	Northern Red Oak	*Quercus rubra*	34.8	Good	73.95
232	White Oak	*Quercus alba*	36.5	Good	52.20
233	Northern Red Oak	*Quercus rubra*	30.1	Fair	54.75
235	Scarlet Oak	*Quercus coccinea*	30.7	Good	45.15
313	White Oak	*Quercus alba*	32.1	Good	61.20
357	Red Maple	*Acer rubrum*	34.9	Good	48.15
367	Tulip Poplar	*Liriodendron tulipifera*	40.2	Good	47.85
379	Tulip Poplar	*Liriodendron tulipifera*	31.9	Good	60.30
387	Tulip Poplar	*Liriodendron tulipifera*	34.0	Good	54.45
393	White Oak	*Quercus alba*	38.4	Poor	47.10
408	White Oak	*Quercus alba*	35.3	Good	51.00
520	Mockernut Hickory	*Carya tomentosa*	27.2	Good	52.95
582	Tulip Poplar	*Liriodendron tulipifera*	32.0	Good	49.05
629	Red Maple	*Acer rubrum*	30.2	Good	48.15
635	Swamp Chestnut Oak	*Quercus michauxii*	33.5	Fair	45.30
641	Tulip Poplar	*Liriodendron tulipifera*	35.0	Fair	50.25
667	Northern Red Oak	*Quercus rubra*	31.6	Good	52.50
673	Mockernut Hickory	*Carya tomentosa*	25.2	Good	47.40
3A	Tulip Poplar	*Liriodendron tulipifera*	30.0	Fair	45.00

Figure 1: Variance Trees to be Removed

Tree ID	Common Name	Scientific Name	DBH	Health	CRZ Radius
Specimen Tree Summary Table - Impacts					
20	White Pine	*Pinus strobus*	30	Fair	45.00
30	White Pine	*Pinus strobus*	30.6	Fair	45.90
45	Black Cherry	*Prunus serotina*	52.1	Good	78.15
48	Red Maple	*Acer rubrum*	31.3	Good	46.95
54	White Pine	*Pinus strobus*	30	Good	45.00
55	Black Cherry	*Prunus serotina*	30.4	Fair	45.60
84	White Pine	*Pinus strobus*	34.8	Good	52.20
92	Red Maple	*Acer rubrum*	32.8	Good	49.20
94	Red Maple	*Acer rubrum*	30	Fair	45.00
95	Silver Maple	*Acer saccharinum*	38.6	Good	57.90
104	Tulip Poplar	*Liriodendron tulipifera*	34	Good	51.00
107	Tulip Poplar	*Liriodendron tulipifera*	31.5	Good	47.25
108	Northern Red Oak	*Quercus rubra*	36.1	Good	54.15
120	Silver Maple	*Acer saccharinum*	32.5	Fair	48.00
124	Red Maple	*Acer rubrum*	49.8	Good	48.75
132	Silver Maple	*Acer saccharinum*	36.9	Good	74.70
133	Silver Maple	*Acer saccharinum*	44.5	Good	55.35
139	Tulip Poplar	*Liriodendron tulipifera*	32.8	Good	47.10
146	Tulip Poplar	*Liriodendron tulipifera*	37.2	Good	49.20
151	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	55.80
158	Red Maple	*Acer rubrum*	30.3	Good	47.55
159	Tulip Poplar	*Liriodendron tulipifera*	31.8	Good	45.45
160	Tulip Poplar	*Liriodendron tulipifera*	31.6	Good	47.70
234	Northern Red Oak	*Quercus rubra*	32.7	Good	
252	White Oak	*Quercus alba*	35.6	Good	49.05
257	Tulip Poplar	*Liriodendron tulipifera*	34.4	Good	46.05
259	Tulip Poplar	*Liriodendron tulipifera*	35	Good	53.40
273	Scarlet Oak	*Quercus coccinea*	35	Fair	51.60
276	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	52.50
279	Tulip Poplar	*Liriodendron tulipifera*	34.3	Good	52.50
282	Scarlet Oak	*Quercus coccinea*	40.8	Good	47.55
301	Tulip Poplar	*Liriodendron tulipifera*	30.3	Good	51.45
323	Tulip Poplar	*Liriodendron tulipifera*	33.4	Good	45.45
363	Tulip Poplar	*Liriodendron tulipifera*	31.9	Fair	50.10
365	Tulip Poplar	*Liriodendron tulipifera*	36.9	Good	52.35
368	Tulip Poplar	*Liriodendron tulipifera*	38.4	Good	55.35
380	Tulip Poplar	*Liriodendron tulipifera*	36.3	Good	57.60
384	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	47.85
494	Willow Oak	*Quercus phellos*	48.3	Good	57.60
566	Northern Red Oak	*Quercus rubra*	32.7	Good	72.45
623	Tulip Poplar	*Liriodendron tulipifera*	32.1	Good	48.00
695	American Sycamore	*Platanus occidentalis*	50	Good	75.00

Figure 2: Variance Trees to be Impacted

Justification of Unwarranted Hardship

As per Section 22A-21, a variance may only be considered if the Planning Board finds that leaving the Variance Trees in an undisturbed state would result in an unwarranted hardship.

Federal law and Department of Transportation regulations require that vegetation within rights-of-way/easements must be maintained so that it does not hinder pipeline inspections and maintenance activities. Trees within the boundaries of rights-of-way/easements have the potential to damage pipeline coatings, which may contribute to the loss of integrity of the pipeline. If the pipeline is not replaced, the goals of the *gas distribution pipeline integrity management* under the Pipeline Safety Improvement Act of 2002 will not be met. The Project area (Strip 27) has been identified as *a high consequence area*; an area where a pipeline incident would most severely affect public safety due to a dense population or frequent use of the area. Failure to grant a variance would result in the unwarranted hardship of not being able to implement this project.

Variance Findings

Section 22A-21 of the County Forest Conservation Law sets forth the findings that must be made by the Planning Board in order for a variance to be granted.

Staff has made the following determination based on the required findings that granting of the requested variance:

1. *Will not confer on the applicant a special privilege that would be denied to other applicants.*

   Given the scope of the construction activity necessary to replace the gas pipeline combined with the location of the Gas Easement, trees, and root zones, disturbance to Variance Trees is unavoidable. Additionally, as required by federal law and as a condition of its easement, Washington Gas must be able to maintain the vegetation within the easement so as not to hinder pipeline inspection, maintenance, and integrity. No special privilege would be conferred.

2. *Is not based on conditions or circumstances which are the result of the actions by the applicant.*

   The requested variance is based upon the location of the existing Washington Gas easements, location and distribution of the Variance Trees, and the need to upgrade outdated gas infrastructure.

3. *Is not based on a condition relating to land or building use, either permitted or non-conforming, on a neighboring property.*

   The requested variance is based upon the location of the existing Washington Gas easements, location and distribution of the Variance Trees, and the location of the gas

easement and not on a condition relating to land or building use on a neighboring property.

4. *Will not violate State water quality standards or cause measurable degradation in water quality.*

   The granting of this variance will not adversely affect water quality. Appropriate erosion and sediment controls will be installed during vegetation clearing activities, as specified in the Erosion and Sediment Control Plan for this project. All disturbed areas will be stabilized with an approved seed mix following vegetation clearing. Furthermore, an increase in impervious surfaces will not occur as a result of this project. Additionally Staff is recommending mitigation for the 15 protected trees located outside of existing forest and would result in 43 - 3" DBH native canopy trees being planted to offset the water quality benefits of the 15 Variance Trees lost.

Mitigation for Trees Subject to the Variance Provision

There are thirty-one (31) trees proposed for removal in this variance request. Sixteen (16) of these trees are within existing forest and forest clearing is already mitigated for in the forest conservation worksheet. No additional mitigation is requested for those sixteen trees. No mitigation is recommended for trees impacted but retained.

Fifteen (15) trees, with a cumulative DBH of 508.9", subject to the variance and proposed for removal are not within existing forest and, therefore; are not mitigated for by the forest conservation worksheet. Mitigation should be at a rate that approximates the form and function of the trees removed. Therefore, staff is recommending that replacement occur at a ratio of approximately 1" DBH for every 4" DBH removed, using trees that are 3" DBH in caliper. This means that for the 508.9 caliper inches of variance trees removed, the Applicant should mitigate the removals with 127.225" or 43 - 3" DBH native canopy trees to be planted on the site or indicate where the mitigation trees will be planted. All of the trees to be planted as mitigation should be planted within the Upper Rock Creek watershed. While these trees will not be as large as the trees lost, they will provide some immediate canopy and will help augment the canopy coverage and eventually fill in open areas of the forest where the large trees have been removed.

County Arborist's Recommendation on the Variance

In accordance with Montgomery County Code Section 22A-21(c), the Planning Department is required to refer a copy of the variance request to the County Arborist in the Montgomery County Department of Environmental Protection for a recommendation prior to acting on the request. The request was forwarded to the County Arborist on April 16, 2014.

At the time of the posting of this staff report, May 12, 2014, Staff has not yet received the County Arborist's formal recommendation. The County Arborist was waiting on additional information from the Applicant before sending Staff the recommendation. The 30 day review period began on April 16th and would expire on May 15th, however, it is expected that a formal

recommendation will be issued before that date. The County Arborist's recommendation will be posted online and forwarded to the Planning Board upon receipt.

Variance Recommendation
Staff recommends that the variance be granted.

The submitted FCP meets all applicable requirements of the Chapter 22A of the County Code (Forest Conservation Law).

COMMUNITY OUTREACH

This Application was submitted and noticed in accordance with all Planning Board adopted procedures. As of the date of this report, Staff has not received any correspondence regarding this Application. Any correspondence received after posting of the Staff Report will be forwarded to the Planning Board for discussion at the hearing.

M-NCPPC Parkland
M-NCPPC Parks is an affected property owner. The Washington Gas easement and some of the construction access points directly affect parkland. Park Staff is aware of the application and has been working directly with the Applicant to minimize impact to parkland. Parks Staff has issued a separate letter discussing their position and requirements; that letter is included with the Mandatory Referral staff report.

CONCLUSION

The Application and Project comply with Chapter 22A for the review of a Mandatory Referral project. Staff recommends the Planning Board approve the final forest conservation plan with the conditions cited in this Staff Report.

Attachments

Attachment A – MCDPS Statement
Attachment B – Final Forest Conservation Plan
Attachment C – Variance Request

Penn, Joshua

From: Etheridge, Mark <Mark.Etheridge@montgomerycountymd.gov>
Sent: Wednesday, April 23, 2014 9:07 AM
To: Penn, Joshua; Galanko, Leo
Cc: Brush, Rick
Subject: RE: Washington Gas Strip #27

Hi Josh -

The Washington Gas project is being reviewed and inspected for sediment control requirements by WSSC. Since DPS is not part of that permitting and enforcement process, there is no permitting involvement through DPS. DPS stormwater management review and permitting enforcement is directly associated with issuance of a sediment control permit. DPS does not issue a separate "stormwater management" permit. Therefore there is no stormwater management requirement that DPS can enforce in this instance, so DPS can not require submission of a Water Quality Inventory.

Since DPS will not be issuing a permit for the gas project, DPS can not require review of stormwater management requirements unless MNCPPC directs the applicant to submit such a review application as part of the mandatory referral process. Even in that case, DPS would not be able to enforce the elements of the approved Water Quality Inventory since DPS would not be issuing any permits for the project.

Mark C. Etheridge
Manager
Water Resources Section
Department of Permitting Services
255 Rockville Pike, 2nd Fl.
Rockville, MD 20850
240-777-6338
249-777-6339 (fax)

From: Penn, Joshua [mailto:joshua.penn@montgomeryplanning.org]
Sent: Thursday, April 17, 2014 11:54 AM
To: Etheridge, Mark; Galanko, Leo
Subject: Washington Gas Strip #27

Mark and Leo,
I can't remember if I sent this so please ignore if this is a duplicate.

Washington Gas Strip #27 (MR2014041)
Planning Board Date: 5/22/14
Staff Report Posting Date: 5/9/14

Any letter you can provide to describe the applicability of SPA regulations in regards to Water Quality for this project would be greatly appreciated.

Joshua Penn
Senior Planner
Montgomery Planning Department
Maryland-National Capital Park & Planning Commission
(301) 495-4546
8787 Georgia Avenue
Silver Spring, MD 20910-3760
Joshua.Penn@montgomeryplanning.org

WASHINGTON GAS STRIP 27

FOREST CONSERVATION PLAN

MONTGOMERY COUNTY, MARYLAND

NOTES:

1. OWNER INFORMATION: WASHINGTON GAS
   6801 INDUSTRIAL ROAD
   SPRINGFIELD, VA 22151
2. FOREST STUDY AREA DEFINED AS A 260-FOOT-WIDE CORRIDOR. TOTAL FOREST STUDY AREA: 127.16 ACRES; TOTAL TRACT AREA (WASHINGTON GAS EASEMENT): 14.31 ACRES.
3. NRI/FSD CONDUCTED OCTOBER 18 AND 21, 2013, BY VIRGINIA BOONE AND NICOLE LINDSEY, CEM STAFF. TREE DIAMETERS WERE MEASURED USING DBH TAPE.
4. BASE DATA OBTAINED FROM THE FOLLOWING SOURCES: MONTGOMERY COUNTY GIS DATA, STATE HIGHWAY CENTERLINE GIS DATA, US DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE SOILS DATA, MARYLAND DEPARTMENT OF NATURAL RESOURCES (MDNR) WETLAND GIS DATA, US FISH AND WILDLIFE SERVICE (USFWS) NATIONAL WETLANDS INVENTORY GIS DATA, US GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, MARYLAND HISTORICAL TRUST (MHT) GIS DATA, MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION (M-NCPPC) GIS DATA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) 100-YEAR FLOOPLAIN DATA, AND WASHINGTON GAS GIS DATA.
5. THE STUDY AREA IS WITHIN THE UPPER ROCK CREEK SPECIAL PROTECTION AREA (SPA) ON SHEETS 5, 6, 7, AND 8.
6. ACCORDING TO FEMA FLOOD INSURANCE RATE MAP PANEL NO. 24031C0215D, EFFECTIVE DATE SEPTEMBER 29, 2006, THE STUDY AREA CROSSES THE 100-YEAR FLOODPLAINS OF AN UNNAMED TRIBUTARY TO WILLIAMSBURG RUN, WILLIAMSBURG RUN, AND NORTH BRANCH ROCK CREEK.
7. THE STUDY AREA IS WITHIN THE MIDDLE POTOMAC MARYLAND WATERSHED (02140206).
8. STREAM BUFFER WIDTHS IN THE STUDY AREA WERE EXPANDED DUE TO STATE WATER USE DESIGNATIONS (III AND IV) AND VARYING CROSS-SECTION SLOPES. STREAM BUFFER WIDTHS FOR USE III WATERS ARE 150 FEET WITH A SLOPE RANGE OF 0 TO < 15%, 175 FEET WITH A SLOPE RANGE OF 15 TO < 25%, AND 200 FEET WITH A SLOPE RANGE OF 25% AND GREATER. STREAM BUFFER WIDTHS FOR USE IV WATERS ARE 125 FEET WITH A SLOPE RANGE OF 0 TO < 15%, 150 FEET WITH A SLOPE RANGE OF 15 TO < 25%, AND 175 FEET WITH A SLOPE RANGE OF 25% AND GREATER. SLOPE RANGES WERE DETERMINED USING THE STEEPEST 100-FOOT SECTION OF A 200-FOOT CROSS-SECTION ADJACENT TO THE STREAM. THE STREAM BUFFER WAS EXTENDED TO THE OUTERMOST LIMIT OF STEEP SLOES (25% AND GREATER), THE 100-YEAR FLOODPLAIN, OR THE EXPANDED WETLAND BUFFER WIDTH WITHIN THE SPA.
9. WETLAND BUFFER WIDTHS IN THE STUDY AREA WERE EXPANDED DUE TO STATE WATER USE DESIGNATIONS (III AND IV), STREAM ORDER, STEEP SLOPES, ERODIBLE SOILS, AND OCCURENCE WITHIN AN SPA. WETLAND BUFFER WIDTHS FOR WETLANDS OUTSIDE OF THE SPA AND ADJACENT TO USE IV FIRST ORDER STREAMS ARE EITHER 40 FEET (WETLANDS WITH NO STEEP SLOPES) OR 100 FEET (WETLANDS WITH STEEP SLOPES). WETLAND BUFFER WIDTHS FOR WETLANDS WITHIN THE SPA AND ADJACENT TO USE IV FIRST ORDER STREAMS ARE EITHER 75 FEET (WETLANDS WITH NO STEEP SLOPES) OR 100 FEET (WETLANDS WITH STEEP SLOPES). WETLAND BUFFER WIDTHS FOR WETLANDS WITHIN THE SPA AND ADJACENT TO USE III FIRST ORDER STREAMS ARE 150 FEET.
10. ON OCTOBER 30, 2013, MDNR STATED THAT THERE ARE NO STATE OR FEDERAL RECORDS FOR RARE, THREATENED, OR ENDANGERED (RTE) SPECIES WITHIN THE BOUNDARIES OF THE STUDY AREA. NO RTE SPECIES WERE IDENTIFIED DURING THE FIELD STUDIES. BY LETTER DATED NOVEMBER 12, 2013, THE USFWS STATED THAT NO FEDERALLY PROPOSED OR LISTED ENDANGERED OR THREATENED SPECIES ARE KNOWN TO EXIST WITHIN THE PROJECT AREA.
11. NO SITES LISTED IN THE NATIONAL REGISTER OF HISTORIC PLACES OCCUR WITHIN THE STUDY AREA. ON OCTOBER 28, 2013, THE MHT STATED THAT NO HISTORIC PROPERTIES WILL BE AFFECTED BY THE PROJECT. A MONTGOMERY COUNTY HISTORIC SITE, "JAMES H. CASHELL FARM," OCCURS ALONG THE SOUTHEASTERN EDGE OF THE STUDY AREA ON SHEET 8. THE SITE IS BORDERED BY MUNCASTER MILL ROAD TO THE SOUTHWEST AND THE WASHINGTON GAS RIGHT-OF-WAY TO THE NORTHWEST. BY EMAIL DATED NOVEMBER 15, 2013, THE MONTGOMERY COUNTY HISTORIC COMMISSION STATED THAT THE PROJECT DOES NOT REQUIRE REVIEW AND APPROVAL FROM THE COMMISSION, PROVIDED IMPACTS TO THE HISTORIC SITE DO NOT OCCUR.
12. THE LAND USE CATEGORY FOR THE ENTIRE STUDY AREA IS IDA (INSTITUTIONAL DEVELOPMENT AREA).
13. ALL PROPERTIES SHOWN WITHIN THE STUDY AREA ARE ZONED ONE FAMILY RESIDENTIAL OR RURAL NEIGHBORHOOD CLUSTER.
14. ALL TREES MARKED FOR REMOVAL ARE BEING REMOVED TO PROVIDE FOR PIPELINE INSPECTIONS AND MAINTENANCE ACTIVITIES. CONTRACTOR SHALL REMOVE TOPS AND STEMS WITHOUT DISTURBING OUTSIDE THE LOD OR ADJACENT VEGETATION TO REMAIN. ACCESS FOR THIS WORK WILL BE THE EXISTING LOD.
15. NO GROUND DISTURBING ACTIVITIES SHALL OCCUR WITHIN WASHINGTON GAS EASEMENTS AND WITHIN THE LIMITS OF DISTURBANCE SHOWN ON THE FINAL FOREST CONSERVATION PLAN IN MARYLAND CAPITAL PARK AND PLANNING COMMISSION (M-NCPPC) PROPERTIES WITHOUT PERMISSION FROM M-NCPPC INSPECTORS OR REPRESENTATIVES, AND OBTAIN ANY NECESSARY PARK PERMITS.
16. ALL REFORESTATION AND PLANTING REQUIREMENTS WILL BE MET WITH OFF-SITE PLANTING IN AN APPROVED FOREST MITIGATION BANK.
17. EVERY TREE, WHERE THE PLANNED DISTURBANCE OF THE ROOTS INCLUDES 33% OR MORE OF THE CRITICAL ROOT ZONE (CRZ), MUST BE EVALUATED BY AN ISA CERTIFIED ARBORIST. THE ARBORIST MUST RECOMMEND ACTIONS TO OFFSET THE IMPACTS OF THE DISTURBANCE AND RECOMMENDATIONS MUST BE IMPLEMENTED UNDER THE DIRCT SUPERVISION OF AN ISA CERTIFIED ARBORIST.
18. VARIANCE MITIGATION PLANTINGS WILL BE COMPLETED BASED ON CONDITIONS SET BY THE PLANNING BOARD.

DEVELOPER'S CERTIFICATE

The Undersigned agrees to execute all the features of the Approved Final Forest Conservation Plan No. _____ including, financial bonding, forest planting, maintenance, and all other applicable agreements.

Developer's Name: _____
Printed *Company Name*

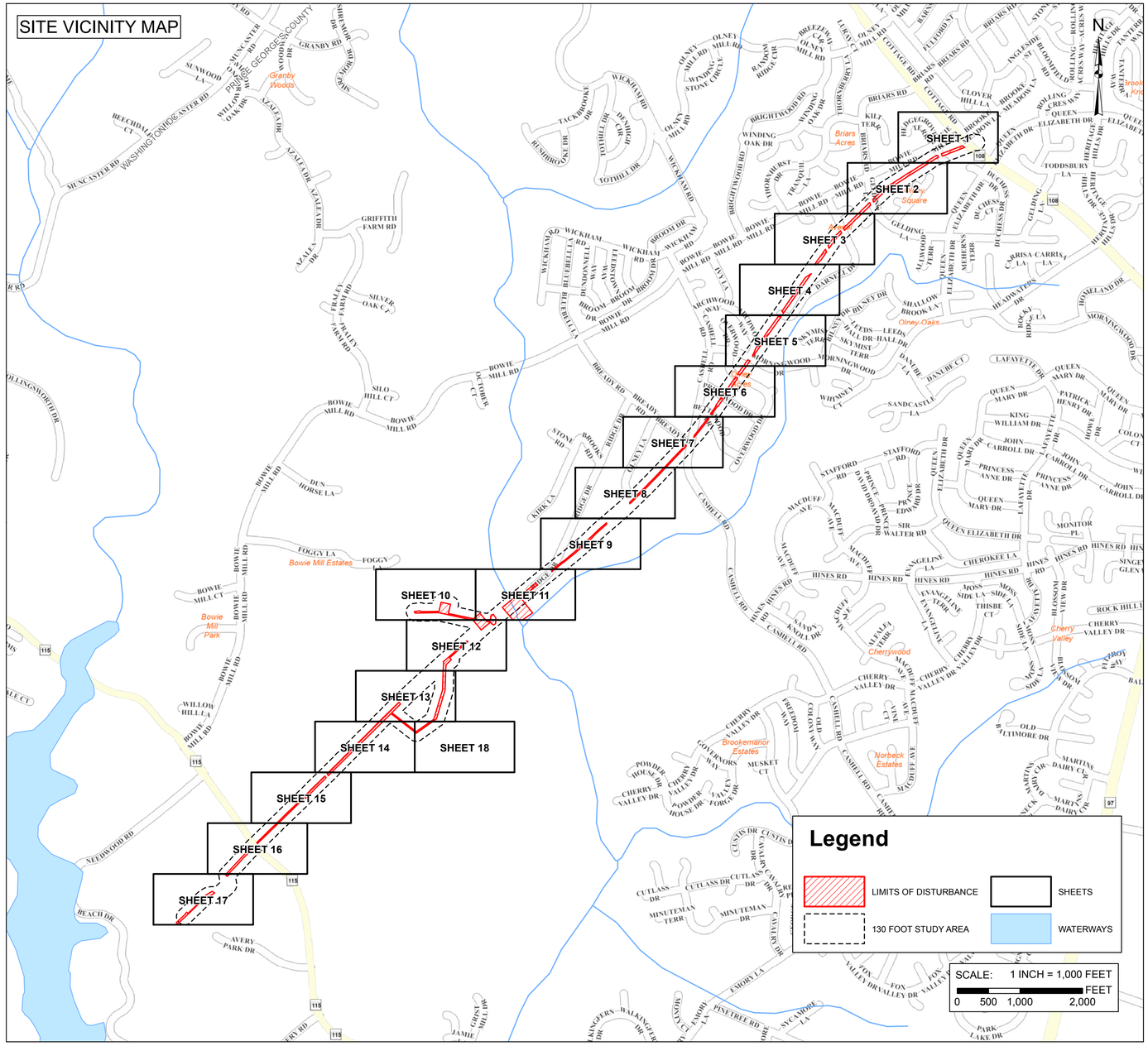
Contact Person or Owner: _____
Printed *Name*

Address: _____

Phone and Email: _____

Signature: _____

SITE VICINITY MAP



Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST., BEL AIR, MD 21014

REVISIONS

REV.NO.	DATE	DESCRIPTIONS

COMMENTS

REV NO.	DATE	DESCRIPTIONS

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

COVER SHEET

MONTGOMERY COUNTY, MARYLAND
MAY 2014

WASHINGTON GAS STRIP 27

FOREST CONSERVATION PLAN

MONTGOMERY COUNTY, MARYLAND

Construction Sequence

Pre-Construction

1. An on-site pre-construction meeting is required after the limits of disturbance have been staked and flagged, but before any clearing or grading begins. The property owner should contact the Montgomery County Planning Department inspection staff before construction to verify the limits of disturbance and discuss tree protection and tree care measures. The developer's representative, construction superintendent, ISA certified arborist or Maryland-licensed tree expert that will implement the tree protection measures, forest conservation inspector, and Department of Permitting Services (DPS) sediment control inspector should attend this pre-construction meeting.

2. No clearing or grading shall begin before stress-reduction measures have been implemented. Appropriate measures may include, but are not limited to:
   a. Root pruning
   b. Crown reduction or pruning
   c. Watering
   d. Fertilizing
   e. Vertical mulching
   f. Root aeration matting

   Measures not specified on the forest conservation plan may be required as determined by the forest conservation inspector in coordination with the arborist.

3. A Maryland-licensed tree expert or an International Society of Arboriculture- certified arborist must perform all stress reduction measures. Documentation of stress reduction measures must be either observed by the forest conservation inspector or sent to the inspector at 8787 Georgia Avenue, Silver Spring, MD 20910. The forest conservation inspector will determine the exact method to convey the stress reductions measures during the pre-construction meeting.

4. Temporary tree protection devices shall be installed per the Forest Conservation Plan/Tree Save Plan and prior to any construction activities. Tree protection fencing locations should be staked prior to the pre-construction meeting. The forest conservation inspector, in coordination with the DPS sediment control inspector, may make field adjustments to increase the survivability of trees and forest shown as saved on the approved plan. Temporary tree protect devices may include:
   a. Chain link fence (4 feet high)
   b. Super silt fence with wire strung between support poles (minimum 4 feet high} with high visibility flagging.
   c. 14 gauge 2 inch x 4 inch welded wire fencing supported by steel T-bar posts (minimum 4 feet high) with high visibility flagging.
5. Temporary protection devices shall be maintained and installed by the contractor for the duration of construction project and must not be altered without prior approval from the forest conservation inspector. No equipment, trucks, materials, or debris may be stored within the tree protection fence areas during the entire construction project. No vehicle or equipment access to the fenced area will be permitted. Tree protection shall not be removed without prior approval of forest conservation inspector.
6. Forest retention area signs shall be installed as required by the forest conservation inspector, or as shown on the approved plan.
7. Long-term protection devices will be installed per the Forest Conservation Plan/Tree Save Plan and attached details. Installation will occur at the appropriate time during the construction project. Refer to the plan drawing for long-term protection measures to be installed.

During Construction

8. Periodic inspections by the forest conservation inspector will occur during the construction project. Corrections and repairs to all tree protection devices, as determined by the forest conservation inspector, must be made within the timeframe established by the inspector.

Post-Construction

9. After construction is completed, an inspection shall be requested. Corrective measures may include:
   a. Removal and replacement of dead and dying trees
   b. Pruning of dead or declining limbs
   c. Soil aeration
   d. Fertilization
   e. Watering
   f. Wound repair
   g. Clean-up of retention areas
10. After inspection and completion of corrective measures have been undertaken, all temporary protection devices shall be removed from the site. Removal of tree protection devices that also operate for erosion and sediment control must be coordinated with both the Department of Permitting Services and the forest conservation inspector. No additional grading, sodding, or burial may take place after the tree protection fencing is removed.

INSPECTIONS

All field inspections must be requested by the contractor. Inspections must be conducted as follows:

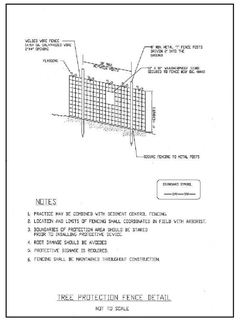
1. After the limits of disturbance have been staked and flagged, but before any clearing or grading begin.
2. After necessary stress reduction measures have been completed and protection measures have been installed, but before any clearing and grading begin.
3. After completion of all construction activities, but before removal of tree protection fencing, to determine the level of compliance with the provision of the forest conservation.
4. Before the start of any required reforestation and afforestation planting
5. After the required reforestation and afforestation planting has been completed to verify that the planting is acceptable and prior to the start the maintenance period.
6. At the end of the maintenance period to determine the level of compliance with the provisions of the planting plan, and if appropriate, release of the performance bond.

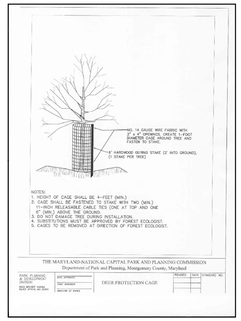
HERBACEOUS SEED MIX SPECIES LIST - WET

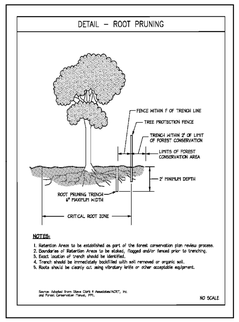
TYPE	BOTANICAL NAME	COMMON NAME	DISTRIBUTION
GRASSES			
CB	*Carex baileyi*	Bailey's sedge	30%
CL	*Carex lurida*	Shallow sedge	30%
JT	*Juncus tenuis*	Path rush	10%
FORBS			
IV	*Iris versicolor*	Blue flag iris	10%
LC	*Lobelia cardinalis*	Cardinal flower	10%
SF	*Symplocarpus foetidus*	Skunk cabbage	10%
*Note - herbaceous seed to be spread separately from shrub seed			
SHRUBS			
CO	*Cephalanthus occidentalis*	Buttonbush	50%
LB	*Lindera benzoin*	Spicebush	50%
*Note - shrub seed to be spread separately from herbaceous seed			

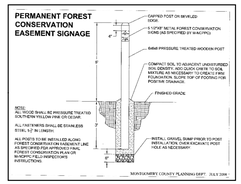
HERBACEOUS SEED MIX SPECIES LIST - DRY

TYPE	BOTANICAL NAME	COMMON NAME	DISTRIBUTION
GRASSES			
CP	*Carex pensylvanica*	Pennsylvania sedge	10%
CS	*Carex swanii*	Swan's sedge	10%
EH	*Elymus hystrix*	Bottlebrush grass	20%
FR	*Festuca rubra*	Red fescue	30%
FORBS			
AD	*Aster divaricatus*	White wood aster	15%
SC	*Solidago caesia*	Bluestem goldenrod	15%
*Note - herbaceous seed to be spread separately from shrub seed			
SHRUBS			
LB	*Lindera benzoin*	Spicebush	50%
VD	*Viburnum dentatum*	Southern Arrowwood	50%
*Note - shrub seed to be spread separately from herbaceous seed			









Forest Conservation Data Table

	Number of Acres
Tract	14.31
Remaining in Agricultural Use	-
Road & Utility ROWs[1]	-
Total Existing Forest	2.55
Forest Retention	-
Forest Cleared	2.55

Land Use & Thresholds[2]		
Land Use Category	IDA	ARA, MDR, IDA, HDR, MDP, or CIA.
Conservation Threshold	2.86%	percent
Afforestation Threshold	2.15%	percent

	Total Channel Length (ft.)	Average Buffer Width (ft.)[3]
Stream(s)	202	50-200

Acres of Forest in	Retained	Cleared	Planted
Wetlands	-	0.12	-
100-Year Floodplain	-	0.51	-
Stream Buffers	-	1.38	-
Priority Areas	-	2.38	-

[1] Only Road or Utility ROWs not to be improved as part of development application.
[2] Information from FCLand Use Categories & Thresholds document.
[3] Measured from stream edge to buffer edge.

FOREST CONSERVATION WORKSHEET
Washington Gas Strip 27

NET TRACT AREA:

A. Total tract area …			14.31
B. Land dedication acres (parks, county facility, etc.) …			0.00
C. Land dedication for roads or utilities (not being constructed by this plan) …			0.00
D. Area to remain in commercial agricultural production/use …			0.00
E. Other deductions (specify) ……			0.00
F. Net Tract Area ……=			14.31
LAND USE CATEGORY: (from *Trees Technical Manual*) Input the number "1" under the appropriate land use, limit to only one entry.			
ARA 0 / MDR 0 / IDA 1 / HDR 0 / MPD 0 / CIA 0			
G. Afforestation Threshold …	15%	x F =	2.15
H. Conservation Threshold …	20%	x F =	2.86

EXISTING FOREST COVER:

I. Existing forest cover ……=		2.55
J. Area of forest above afforestation threshold ……=		0.40
K. Area of forest above conservation threshold ……=		0.00

BREAK EVEN POINT:

L. Forest retention above threshold with no mitigation ….=		0.00
M. Clearing permitted without mitigation ……=		0.00

PROPOSED FOREST CLEARING:

N. Total area of forest to be cleared ……=		2.55
O. Total area of forest to be retained ……=		0.00

PLANTING REQUIREMENTS:

P. Reforestation for clearing above conservation threshold ….=		0.00
Q. Reforestation for clearing below conservation threshold ….=		5.10
R. Credit for retention above conservation threshold ……=		0.00
S. Total reforestation required ……=		5.10
T. Total afforestation required ……=		0.00
U. Credit for landscaping (may not exceed 20% of "S") ……=		0.00
V. Total reforestation and afforestation required ……=		5.10

worksheet updated 8/5/2002

DEVELOPER'S CERTIFICATE

The Undersigned agrees to execute all the features of the Approved Final Forest Conservation Plan No. _____ including, financial bonding, forest planting, maintenance, and all other applicable agreements.

Developer's Name: _____
Printed *Company Name*

Contact Person or Owner: _____
Printed *Name*

Address: _____

Phone and Email: _____

Signature: _____

A PRE-CONSTRUCTION MEETING WILL BE HELD WITH THE M-NCPPC URBAN FORESTER PRIOR TO ANY TREE CLEARING OR OTHER DISTURBANCES. DURING THIS MEETING, M-NCPPC WILL DETERMINE WHERE WITHIN THE LOD ACTUAL TREE CLEARING CAN OCCUR.

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST., BEL AIR, MD 21014

REVISIONS

REV.NO.	DATE	DESCRIPTIONS

COMMENTS

REV NO.	DATE	DESCRIPTIONS

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

NOTES SHEET 1 OF 4

MONTGOMERY COUNTY, MARYLAND
MAY 2014

WASHINGTON GAS STRIP 27

FOREST CONSERVATION PLAN

MONTGOMERY COUNTY, MARYLAND

Significant and Specimen Tree Inventory

Tree ID	Type	Common Name	Scientific Name	DBH (In.)	Health	Forest Stand
1	Significant	Norway Maple	*Acer platanoides*	25.0	Good	N/A
2	Significant	White Pine	*Pinus strobus*	29.5	Good	N/A
3	Significant	Silver Maple	*Acer saccharinum*	24.0	Fair	N/A
4	Significant	Silver Maple	*Acer saccharinum*	24.0	Good	N/A
5	Significant	Silver Maple	*Acer saccharinum*	28.0	Good	N/A
6	Significant	White Pine	*Pinus strobus*	27.8	Fair	N/A
9	Significant	White Pine	*Pinus strobus*	24.0	Fair	N/A
13	Significant	White Pine	*Pinus strobus*	28.0	Good	N/A
16	Significant	White Pine	*Pinus strobus*	24.0	Good	N/A
17	Significant	White Pine	*Pinus strobus*	24.0	Good	N/A
18	Significant	Silver Maple	*Acer saccharinum*	28.0	Good	N/A
19	Significant	White Pine	*Pinus strobus*	26.0	Good	N/A
20	Specimen	White Pine	*Pinus strobus*	30.0	Fair	N/A
21	Significant	White Pine	*Pinus strobus*	24.0	Fair	N/A
22	Significant	White Pine	*Pinus strobus*	26.0	Fair	N/A
23	Significant	White Pine	*Pinus strobus*	24.0	Fair	N/A
24	Specimen	White Pine	*Pinus strobus*	30.0	Fair	N/A
25	Significant	Pin Oak	*Quercus palustris*	28.7	Good	N/A
26	Significant	White Pine	*Pinus strobus*	26.0	Fair	N/A
27	Significant	Pin Oak	*Quercus palustris*	24.0	Good	N/A
28	Significant	Silver Maple	*Acer saccharinum*	25.0	Good	N/A
29	Significant	White Pine	*Pinus strobus*	26.8	Good	N/A
30	Specimen	White Pine	*Pinus strobus*	30.6	Fair	N/A
31	Significant	White Pine	*Pinus strobus*	24.0	Fair	N/A
33	Specimen	Willow Oak	*Quercus phellos*	30.0	Good	N/A
35	Significant	White Pine	*Pinus strobus*	27.9	Good	N/A
36	Specimen	White Pine	*Pinus strobus*	30.0	Good	N/A
37	Significant	White Pine	*Pinus strobus*	28.0	Good	N/A
38	Significant	White Pine	*Pinus strobus*	24.0	Good	N/A
39	Significant	Silver Maple	*Acer saccharinum*	26.0	Good	N/A
40	Specimen	Silver Maple	*Acer saccharinum*	33.9	Good	N/A
41	Significant	Green Ash	*Fraxinus pennsylvanica*	25.0	Good	N/A
42	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.9	Good	N/A
43	Significant	Water Oak	*Quercus nigra*	26.8	Good	N/A
44	Significant	Silver Maple	*Acer saccharinum*	26.0	Good	N/A
45	Specimen	Black Cherry	*Prunus serotina*	52.1	Good	N/A
46	Significant	Black Cherry	*Prunus serotina*	28.0	Good	N/A
47	Specimen	Red Maple	*Acer rubrum*	40.3	Good	N/A
48	Specimen	Red Maple	*Acer rubrum*	31.3	Good	N/A
49	Specimen	Black Cherry	*Prunus serotina*	35.3	Good	N/A
50	Specimen	Red Maple	*Acer rubrum*	36.5	Poor	N/A
51	Significant	Black Cherry	*Prunus serotina*	24.0	Fair	N/A
52	Significant	White Pine	*Pinus strobus*	24.0	Good	N/A
53	Significant	White Pine	*Pinus strobus*	24.0	Good	N/A
54	Specimen	White Pine	*Pinus strobus*	30.0	Good	N/A
55	Specimen	Black Cherry	*Prunus serotina*	30.4	Fair	N/A
56	Specimen	Willow Oak	*Quercus phellos*	30.9	Good	N/A
57	Significant	Silver Maple	*Acer saccharinum*	26.4	Good	10
58	Specimen	Willow Oak	*Quercus phellos*	35.0	Good	10
59	Specimen	Black Cherry	*Prunus serotina*	30.0	Good	10
64	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.8	Good	10
66	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Good	10
67	Specimen	Silver Maple	*Acer saccharinum*	39.9	Good	10
69	Specimen	Black Willow	*Salix nigra*	34.8	Poor	10
76	Significant	Silver Maple	*Acer saccharinum*	28.3	Good	N/A
77	Specimen	Silver Maple	*Acer saccharinum*	32.4	Good	N/A
78	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	10
82	Significant	Pin Oak	*Quercus palustris*	24.0	Good	N/A
83	Significant	Red Maple	*Acer rubrum*	25.0	Good	N/A
84	Specimen	White Pine	*Pinus strobus*	34.8	Good	N/A
85	Significant	White Pine	*Pinus strobus*	29.3	Good	N/A
86	Significant	White Pine	*Pinus strobus*	26.5	Good	N/A
87	Significant	White Pine	*Pinus strobus*	24.4	Good	N/A
88	Specimen	Black Cherry	*Prunus serotina*	38.0	Good	N/A
89	Significant	White Pine	*Pinus strobus*	28.4	Good	N/A
90	Significant	Red Maple	*Acer rubrum*	24.0	Good	N/A
91	Specimen	White Pine	*Pinus strobus*	51.0	Good	N/A
92	Specimen	Red Maple	*Acer rubrum*	32.8	Good	N/A
93	Significant	Red Maple	*Acer rubrum*	24.0	Good	N/A
94	Specimen	Red Maple	*Acer rubrum*	30.0	Fair	N/A
95	Specimen	Silver Maple	*Acer saccharinum*	38.6	Good	N/A
96	Specimen	Silver Maple	*Acer saccharinum*	30.0	Good	N/A
97	Specimen	Silver Maple	*Acer saccharinum*	30.0	Good	N/A
98	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	N/A
99	Specimen	Scarlet Oak	*Quercus coccinea*	30.0	Good	N/A
100	Specimen	Scarlet Oak	*Quercus coccinea*	30.0	Good	N/A
101	Specimen	Scarlet Oak	*Quercus coccinea*	30.0	Good	N/A
102	Specimen	Scarlet Oak	*Quercus coccinea*	40.1	Good	8
103	Significant	Black Gum	*Nyssa sylvatica*	28.5	Good	8

Significant and Specimen Tree Inventory

Tree ID	Type	Common Name	Scientific Name	DBH (In.)	Health	Forest Stand
104	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.0	Good	8
105	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.6	Fair	8
106	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.9	Good	8
107	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.5	Good	8
108	Specimen	Northern Red Oak	*Quercus rubra*	36.1	Good	8
109	Significant	Post Oak	*Quercus stellata*	27.1	Fair	8
110	Specimen	White Oak	*Quercus alba*	38.5	Good	8
111	Specimen	Northern Red Oak	*Quercus rubra*	41.8	Good	8
112	Significant	Northern Red Oak	*Quercus rubra*	28.0	Good	N/A
113	Significant	Northern Red Oak	*Quercus rubra*	24.2	Good	N/A
114	Significant	Red Maple	*Acer rubrum*	28.0	Good	N/A
115	Significant	Red Maple	*Acer rubrum*	28.6	Good	N/A
116	Significant	Red Maple	*Acer rubrum*	25.0	Good	N/A
117	Significant	Red Maple	*Acer rubrum*	27.9	Good	N/A
118	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.6	Good	N/A
119	Specimen	Sugar Maple	*Acer saccharum*	32.0	Good	N/A
120	Specimen	Silver Maple	*Acer saccharinum*	32.5	Fair	N/A
121	Significant	Black Cherry	*Prunus serotina*	28.1	Fair	N/A
122	Significant	Black Cherry	*Prunus serotina*	29.7	Poor	N/A
123	Significant	Green Ash	*Fraxinus pennsylvanica*	24.5	Poor	N/A
124	Specimen	Red Maple	*Acer rubrum*	49.8	Good	N/A
125	Significant	Silver Maple	*Acer saccharinum*	28.8	Fair	N/A
126	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.0	Fair	6
127	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.5	Fair	6
128	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.2	Poor	N/A
129	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.5	Poor	N/A
130	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	N/A
131	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.6	Good	N/A
132	Specimen	Silver Maple	*Acer saccharinum*	36.9	Good	N/A
133	Specimen	Silver Maple	*Acer saccharinum*	44.5	Good	N/A
134	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	N/A
135	Significant	Red Maple	*Acer rubrum*	26.7	Good	6
136	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.3	Good	6
137	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	6
138	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.4	Good	6
139	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.8	Good	6
140	Specimen	Tulip Poplar	*Liriodendron tulipifera*	49.2	Good	6
141	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.9	Good	6
142	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.9	Good	6
143	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.9	Good	6
144	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.1	Good	6
145	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.5	Good	6
146	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.2	Good	6
147	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.0	Good	6
148	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.4	Good	6
149	Specimen	Silver Maple	*Acer saccharinum*	34.8	Good	N/A
150	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.9	Good	6
151	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	6
152	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.8	Good	6
153	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.5	Good	6
154	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.6	Good	6
155	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.5	Good	6
156	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.9	Good	N/A
157	Significant	Red Maple	*Acer rubrum*	28.6	Good	N/A
158	Specimen	Red Maple	*Acer rubrum*	30.3	Good	N/A
159	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.8	Good	N/A
160	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.6	Good	N/A
161	Specimen	Red Maple	*Acer rubrum*	35.2	Fair	N/A
162	Specimen	Red Maple	*Acer rubrum*	30.3	Good	N/A
163	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.7	Good	N/A
164	Specimen	Red Maple	*Acer rubrum*	31.7	Good	N/A
165	Significant	Red Maple	*Acer rubrum*	24.9	Fair	N/A
166	Specimen	Red Maple	*Acer rubrum*	31.7	Good	6
167	Significant	Black Cherry	*Prunus serotina*	28.9	Good	N/A
168	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.6	Good	N/A
169	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.0	Good	6
170	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.8	Good	6
171	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.2	Good	6
172	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.0	Good	6
173	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.3	Good	6
174	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	N/A
175	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.1	Fair	6
176	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.6	Good	6
177	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.1	Fair	5
178	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.4	Fair	5
179	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.2	Good	5
180	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.6	Good	5
181	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.6	Good	5
182	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.1	Good	5

Significant and Specimen Tree Inventory

Tree ID	Type	Common Name	Scientific Name	DBH (In.)	Health	Forest Stand
183	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.3	Good	5
184	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.3	Good	5
185	Significant	American Elm	*Ulmus americana*	25.5	Fair	5
186	Specimen	American Sycamore	*Platanus occidentalis*	49.3	Good	5
187	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Fair	5
188	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
189	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.0	Good	5
190	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.9	Good	5
191	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.6	Good	5
192	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.3	Fair	5
193	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.3	Good	5
194	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.6	Good	5
195	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.4	Fair	5
196	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.7	Fair	5
197	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.5	Good	5
198	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.4	Fair	5
199	Specimen	Northern Red Oak	*Quercus rubra*	35.9	Good	5
200	Specimen	Tulip Poplar	*Liriodendron tulipifera*	48.9	Fair	5
201	Specimen	Tulip Poplar	*Liriodendron tulipifera*	40.0	Good	5
202	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.5	Good	5
203	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.6	Good	5
204	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Fair	5
205	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.2	Good	5
206	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.0	Good	5
207	Significant	Black Cherry	*Prunus serotina*	27.0	Good	5
208	Significant	American Sycamore	*Platanus occidentalis*	25.5	Good	5
209	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.0	Fair	5
210	Specimen	Tulip Poplar	*Liriodendron tulipifera*	43.4	Good	5
211	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.1	Poor	5
212	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.5	Fair	5
213	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.9	Good	5
214	Specimen	Tulip Poplar	*Liriodendron tulipifera*	47.4	Poor	5
215	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.5	Poor	5
216	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.2	Fair	5
217	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.9	Fair	5
218	Specimen	Mockernut Hickory	*Carya tomentosa*	28.4	Good	5
219	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.6	Good	5
220	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.1	Good	5
221	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.5	Good	5
222	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.8	Good	5
223	Specimen	Tulip Poplar	*Liriodendron tulipifera*	49.0	Good	5
224	Specimen	Tulip Poplar	*Liriodendron tulipifera*	39.8	Good	5
225	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.5	Fair	5
226	Significant	White Oak	*Quercus alba*	27.1	Good	5
227	Significant	White Oak	*Quercus alba*	26.8	Good	5
228	Significant	Green Ash	*Fraxinus pennsylvanica*	24.1	Fair	5
229	Specimen	Northern Red Oak	*Quercus rubra*	34.7	Good	5
230	Significant	Northern Red Oak	*Quercus rubra*	29.3	Good	N/A
231	Specimen	Northern Red Oak	*Quercus rubra*	34.8	Good	N/A
232	Specimen	White Oak	*Quercus alba*	36.5	Good	N/A
233	Specimen	Northern Red Oak	*Quercus rubra*	30.1	Fair	N/A
234	Specimen	Northern Red Oak	*Quercus rubra*	32.7	Good	N/A
235	Specimen	Scarlet Oak	*Quercus coccinea*	30.7	Good	N/A
236	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.5	Good	5
237	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.3	Good	N/A
238	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.8	Fair	N/A
239	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.5	Good	N/A
240	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.5	Good	5
241	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.4	Good	5
242	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.7	Fair	5
243	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.0	Good	5
244	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.0	Fair	5
245	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
246	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.8	Fair	5
247	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.8	Good	5
248	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.0	Good	5
249	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
250	Significant	Green Ash	*Fraxinus pennsylvanica*	27.0	Fair	5
251	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
252	Specimen	White Oak	*Quercus alba*	35.6	Good	5
253	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.7	Good	5
254	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.6	Good	5
255	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Good	5
256	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.6	Good	5
257	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.4	Good	5
258	Significant	White Oak	*Quercus alba*	29.1	Good	5
259	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.0	Good	5
260	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.1	Good	5
261	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.5	Good	5

Significant and Specimen Tree Inventory

Tree ID	Type	Common Name	Scientific Name	DBH (In.)	Health	Forest Stand
262	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.0	Good	5
263	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.3	Good	5
264	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.7	Good	5
265	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.5	Good	5
266	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.1	Fair	5
267	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.8	Good	5
268	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.9	Fair	5
269	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.5	Good	5
270	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.2	Good	5
271	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Good	5
272	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.6	Good	5
273	Specimen	Scarlet Oak	*Quercus coccinea*	35.0	Fair	5
274	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.9	Good	5
275	Significant	Scarlet Oak	*Quercus coccinea*	27.5	Good	5
276	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	5
277	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
278	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.0	Good	5
279	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.3	Good	5
280	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.2	Good	5
281	Significant	Scarlet Oak	*Quercus coccinea*	27.1	Good	5
282	Specimen	Scarlet Oak	*Quercus coccinea*	40.8	Good	5
283	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.6	Good	5
284	Significant	White Oak	*Quercus alba*	25.7	Good	5
285	Significant	White Oak	*Quercus alba*	24.0	Good	5
286	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.3	Good	5
287	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	5
288	Significant	Northern Red Oak	*Quercus rubra*	24.2	Good	5
289	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.4	Good	5
290	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Fair	5
291	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.4	Fair	5
292	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.5	Good	5
293	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.8	Good	5
294	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.9	Good	5
295	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.0	Good	5
296	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.4	Good	5
297	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.9	Good	5
298	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.8	Good	5
299	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.0	Good	5
300	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.5	Good	5
301	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.3	Good	5
302	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
303	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.3	Good	5
304	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.0	Good	5
305	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.8	Good	5
306	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	5
307	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.5	Good	5
308	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.5	Good	5
309	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.1	Good	5
310	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	5
311	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
312	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.5	Good	5
313	Specimen	White Oak	*Quercus alba*	32.1	Good	5
314	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.7	Good	5
315	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.8	Good	5
316	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	5
317	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.0	Good	5
318	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.9	Good	5
319	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.0	Good	5
320	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.4	Good	5
321	Significant	White Oak	*Quercus alba*	27.3	Good	5
322	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.3	Good	5
323	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.4	Good	5
324	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.4	Good	5
325	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good	5
326	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.7	Good	5
327	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.9	Good	5
328	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Good	N/A
329	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.2	Good	N/A
330	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.4	Good	4
331	Significant	Northern Red Oak	*Quercus rubra*	27.9	Good	4
332	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	4
333	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.1	Good	4
334	Significant	White Oak	*Quercus alba*	27.0	Good	5
335	Significant	Northern Red Oak	*Quercus rubra*	25.0	Good	5
343	Significant	Northern Red Oak	*Quercus rubra*	24.4	Fair	5
349	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.0	Good	5
357	Specimen	Red Maple	*Acer rubrum*	34.9	Good	3
361	Significant	Red Maple	*Acer rubrum*	26.2	Good	N/A
362	Significant	Red Maple	*Acer rubrum*	29.9	Good	2

DEVELOPER'S CERTIFICATE

The Undersigned agrees to execute all the features of the Approved Final Forest Conservation Plan No. _____ including, financial bonding, forest planting, maintenance, and all other applicable agreements.

Developer's Name: _____
Printed *Company Name*

Contact Person or Owner: _____
Printed *Name*

Address: _____

Phone and Email: _____

Signature: _____

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST., BEL AIR, MD 21014

REVISIONS

REV.NO.	DATE	DESCRIPTIONS

COMMENTS

REV NO.	DATE	DESCRIPTIONS

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

NOTES SHEET 2 OF 4

MONTGOMERY COUNTY, MARYLAND
MAY 2014

WASHINGTON GAS STRIP 27

FOREST CONSERVATION PLAN

MONTGOMERY COUNTY, MARYLAND

Significant and Specimen Tree Inventory

Tree ID	Type	Common Name	Scientific Name	DBH (In.)	Health	Forest Stand
363	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Fair	2
364	Significant	Green Ash	*Fraxinus pennsylvanica*	27.5	Fair	2
365	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.9	Good	2
366	Significant	Green Ash	*Fraxinus pennsylvanica*	29.0	Poor	2
367	Specimen	Tulip Poplar	*Liriodendron tulipifera*	40.2	Good	2
368	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.4	Good	2
370	Specimen	Red Maple	*Acer rubrum*	30.0	Good	2
373	Significant	White Oak	*Quercus alba*	27.8	Good	2
374	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.3	Good	2
375	Significant	White Oak	*Quercus alba*	28.2	Good	2
379	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Good	2
380	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.3	Good	2
381	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.9	Good	2
382	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.1	Good	2
383	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	2
384	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	2
385	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.5	Good	2
386	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.5	Good	2
387	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.0	Good	2
393	Specimen	White Oak	*Quercus alba*	38.4	Poor	2
394	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	2
396	Significant	Red Maple	*Acer rubrum*	24.7	Good	2
397	Specimen	Northern Red Oak	*Quercus rubra*	36.0	Good	2
398	Specimen	Chestnut Oak	*Quercus prinus*	38.0	Good	2
399	Significant	Chestnut Oak	*Quercus prinus*	27.5	Good	2
400	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.5	Good	2
401	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Good	2
402	Significant	Chestnut Oak	*Quercus prinus*	25.5	Fair	2
403	Significant	White Oak	*Quercus alba*	24.2	Good	2
405	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.9	Good	2
406	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	2
407	Significant	White Oak	*Quercus alba*	28.4	Good	2
408	Specimen	White Oak	*Quercus alba*	35.3	Good	2
409	Significant	White Oak	*Quercus alba*	24.7	Good	1
410	Specimen	White Oak	*Quercus alba*	55.7	Poor	1
411	Specimen	Red Maple	*Acer rubrum*	32.0	Poor	1
412	Specimen	Swamp chestnut oak	*Quercus michauxii*	35.0	Fair	1
413	Specimen	Red Maple	*Acer rubrum*	37.3	Fair	1
414	Significant	Chestnut Oak	*Quercus prinus*	25.2	Fair	1
415	Specimen	Green Ash	*Fraxinus pennsylvanica*	34.8	Fair	1
416	Specimen	Red Maple	*Acer rubrum*	32.4	Fair	1
417	Significant	Red Maple	*Acer rubrum*	27.9	Good	1
418	Significant	Green Ash	*Fraxinus pennsylvanica*	28.7	Poor	1
419	Specimen	Swamp chestnut oak	*Quercus michauxii*	33.6	Good	1
420	Specimen	Red Maple	*Acer rubrum*	33.4	Good	1
421	Significant	Red Maple	*Acer rubrum*	25.0	Good	1
422	Specimen	Pin Oak	*Quercus palustris*	43.8	Good	1
423	Specimen	Red Maple	*Acer rubrum*	35.4	Good	1
424	Significant	Red Maple	*Acer rubrum*	28.5	Good	1
425	Significant	Red Maple	*Acer rubrum*	24.9	Good	1
426	Significant	Pin Oak	*Quercus palustris*	29.3	Good	1
427	Specimen	Red Maple	*Acer rubrum*	37.6	Good	1
428	Significant	Black Gum	*Nyssa sylvatica*	25.0	Fair	1
429	Significant	Red Maple	*Acer rubrum*	24.3	Good	1
430	Specimen	Red Maple	*Acer rubrum*	33.3	Good	1
431	Specimen	Pin Oak	*Quercus palustris*	30.9	Good	1
432	Significant	Black Gum	*Nyssa sylvatica*	28.7	Fair	1
433	Significant	Red Maple	*Acer rubrum*	25.4	Good	1
434	Significant	Red Maple	*Acer rubrum*	26.0	Good	1
435	Significant	Red Maple	*Acer rubrum*	24.9	Fair	1
436	Significant	Red Maple	*Acer rubrum*	25.5	Good	1
437	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.9	Good	1
438	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.3	Good	1
445	Significant	Red Maple	*Acer rubrum*	28.8	Good	1
457	Specimen	Green Ash	*Fraxinus pennsylvanica*	35.5	Poor	1
474	Significant	Green Ash	*Fraxinus pennsylvanica*	25.7	Poor	N/A
494	Specimen	Willow Oak	*Quercus phellos*	48.3	Good	2
496	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.3	Good	2
502	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.5	Good	2
503	Specimen	Other	*Other*	31.9	Good	2
512	Significant	Black Cherry	*Prunus serotina*	24.5	Good	2
520	Specimen	Mockernut Hickory	*Carya tomentosa*	27.2	Good	2
521	Significant	Northern Red Oak	*Quercus rubra*	26.9	Good	2
526	Significant	Northern Red Oak	*Quercus rubra*	25.3	Good	2
532	Significant	Tulip Poplar	*Liquidambar styraciflua*	24.3	Good	2
537	Specimen	Northern Red Oak	*Quercus rubra*	31.4	Good	2
538	Significant	Northern Red Oak	*Quercus rubra*	27.0	Good	2
539	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.8	Good	2
540	Specimen	Northern Red Oak	*Quercus rubra*	30.4	Fair	2

Significant and Specimen Tree Inventory

Tree ID	Type	Common Name	Scientific Name	DBH (In.)	Health	Forest Stand
542	Significant	Northern Red Oak	*Quercus rubra*	29.0	Good	2
544	Significant	Northern Red Oak	*Quercus rubra*	28.1	Good	2
546	Significant	Northern Red Oak	*Quercus rubra*	26.1	Good	2
547	Specimen	Mockernut Hickory	*Carya tomentosa*	21.6	Good	2
548	Specimen	Mockernut Hickory	*Carya tomentosa*	23.1	Good	2
550	Specimen	Mockernut Hickory	*Carya tomentosa*	23.9	Good	2
552	Significant	White Oak	*Quercus alba*	29.6	Good	2
556	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	2
557	Specimen	Mockernut Hickory	*Carya tomentosa*	26.5	Good	2
558	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.6	Good	2
560	Significant	Northern Red Oak	*Quercus rubra*	26.1	Good	2
565	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.0	Good	2
566	Specimen	Northern Red Oak	*Quercus rubra*	32.7	Good	2
573	Specimen	Mockernut Hickory	*Carya tomentosa*	24.9	Good	2
582	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.0	Good	2
583	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	2
584	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.9	Good	2
585	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.0	Good	2
586	Significant	Red Maple	*Acer rubrum*	25.2	Fair	2
587	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.2	Fair	2
594	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.8	Good	2
598	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	2
601	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	2
606	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.2	Good	2
607	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.5	Good	2
608	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.5	Good	2
609	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.7	Good	2
610	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.3	Good	2
611	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.6	Good	2
612	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.7	Good	2
616	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.4	Good	2
618	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good	2
620	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.6	Good	2
622	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Good	2
623	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.1	Good	2
628	Significant	Red Maple	*Acer rubrum*	25.4	Good	N/A
629	Specimen	Red Maple	*Acer rubrum*	30.2	Good	N/A
635	Specimen	Swamp chestnut oak	*Quercus michauxii*	33.5	Fair	N/A
640	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.0	Fair	N/A
641	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.0	Fair	N/A
645	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.2	Good	5
646	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.2	Good	5
647	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.3	Good	5
648	Significant	Northern Red Oak	*Quercus rubra*	28.7	Good	5
657	Significant	Northern Red Oak	*Quercus rubra*	26.0	Good	5
658	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.7	Good	5
662	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.4	Good	5
663	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.0	Good	5
664	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.4	Good	5
667	Specimen	Northern Red Oak	*Quercus rubra*	31.6	Good	5
673	Specimen	Mockernut Hickory	*Carya tomentosa*	25.2	Good	5
675	Significant	Northern Red Oak	*Quercus rubra*	24.6	Good	5
678	Significant	Northern Red Oak	*Quercus rubra*	28.6	Good	5
679	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.2	Fair	5
680	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.7	Good	5
681	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.0	Good	5
682	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.8	Good	5
684	Significant	Red Maple	*Acer rubrum*	24.8	Good	7
695	Specimen	American Sycamore	*Platanus occidentalis*	50.0	Good	N/A
696	Specimen	American Sycamore	*Platanus occidentalis*	35.0	Good	N/A
697	Specimen	American Sycamore	*Platanus occidentalis*	38.5	Fair	N/A
698	Specimen	American Sycamore	*Platanus occidentalis*	36.0	Poor	N/A
699	Specimen	American Sycamore	*Platanus occidentalis*	42.0	Fair	N/A
700	Specimen	American Sycamore	*Platanus occidentalis*	42.0	Fair	N/A
701	Significant	American Sycamore	*Platanus occidentalis*	28.0	Fair	N/A
702	Specimen	American Sycamore	*Platanus occidentalis*	35.0	Fair	N/A
703	Significant	American Sycamore	*Platanus occidentalis*	25.0	Good	N/A
704	Significant	American Sycamore	*Platanus occidentalis*	24.0	Fair	N/A
705	Significant	American Sycamore	*Platanus occidentalis*	26.0	Fair	N/A
706	Significant	Black Cherry	*Prunus serotina*	26.8	Fair	N/A
707	Specimen	Silver Maple	*Acer saccharinum*	33.8	Good	N/A
708	Significant	Silver Maple	*Acer saccharinum*	28.7	Good	N/A
709	Significant	Black Cherry	*Prunus serotina*	28.6	Good	9
710	Significant	Red Maple	*Acer rubrum*	28.3	Good	9
711	Significant	Red Maple	*Acer rubrum*	24.5	Good	9
1A	Significant	Red Maple	*Acer rubrum*	26.9	Good	N/A
2A	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.6	Good	N/A
3A	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.0	Fair	N/A

Significant Tree Impact Summary Table

Tree ID	Type	Common Name	Scientific Name	DBH	Health	% CRZ Impacted	Expected Impact	Worst Case Impact	Cause of Removal	Removal Process	Notes	Requested for Variance	Mitigation
1	Significant	Norway Maple	*Acer platanoides*	25.0	Good		1		R-AC	See note #14		No	
2	Significant	White Pine	*Pinus strobus*	29.5	Good		1		R-AC	See note #14		No	
6	Significant	White Pine	*Pinus strobus*	27.8	Fair		5					No	
9	Significant	White Pine	*Pinus strobus*	24.0	Fair	38%	5	1				No	
13	Significant	White Pine	*Pinus strobus*	28.0	Good		5					No	
37	Significant	White Pine	*Pinus strobus*	28.0	Good		5					No	
41	Significant	Green Ash	*Fraxinus pennsylvanica*	25.0	Good		5					No	
51	Significant	Black Cherry	*Prunus serotina*	24.0	Fair		5					No	
53	Significant	White Pine	*Pinus strobus*	24.0	Good		1		R-AC	See note #14		No	
64	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.8	Good		5					No	
78	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good		1		R-IP	See note #14		No	
93	Significant	Red Maple	*Acer rubrum*	24.0	Good		5					No	
98	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.0	Good		5					No	
103	Significant	Black Gum	*Nyssa sylvatica*	28.5	Good	36%	5	1				No	
114	Significant	Red Maple	*Acer rubrum*	28.0	Good	35%	5	1				No	
131	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.6	Good		1		R-SL	See note #14		No	
136	Significant	Tulip Poplar	*Liriodendron tulipifera*	29.3	Good		1		R-SL	See note #14		No	
167	Significant	Black Cherry	*Prunus serotina*	28.9	Good	34%	3	1				No	
241	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.4	Good		1		R-SL	See note #14		No	
246	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.8	Fair	45%	1		R-SL	See note #14		No	
247	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.8	Good	33%	2	1				No	
271	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.2	Good	35%	5	1				No	
272	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.6	Good	39%	1		R-SL	See note #14		No	
290	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Fair	45%	1		R-SL	See note #14		No	
291	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.4	Fair		1		R-SL	See note #14		No	
303	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.3	Good		1		R-SL	See note #14		No	
305	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.8	Good		1		R-SL	See note #14		No	
361	Significant	Red Maple	*Acer rubrum*	26.2	Good		5				TBD-final stream design	No	
394	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	38%	2	1				No	
406	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	36%	1		R-SL	See note #14		No	
407	Significant	White Oak	*Quercus alba*	28.4	Good		1		R-SL	See note #14		No	
502	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.5	Good	35%	5	1				No	
583	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.1	Good		5				TBD-final stream design	No	
584	Significant	Tulip Poplar	*Liriodendron tulipifera*	27.9	Good		5				TBD-final stream design	No	
585	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.0	Good		5				TBD-final stream design	No	
586	Significant	Red Maple	*Acer rubrum*	25.2	Fair		5				TBD-final stream design	No	
587	Significant	Tulip Poplar	*Liriodendron tulipifera*	26.2	Fair		5				TBD-final stream design	No	
601	Significant	Tulip Poplar	*Liriodendron tulipifera*	25.7	Good	39%	5	1			TBD-final stream design	No	
628	Significant	Red Maple	*Acer rubrum*	25.4	Good		5				TBD-final stream design	No	
640	Significant	Tulip Poplar	*Liriodendron tulipifera*	28.0	Fair		5	1			TBD-final stream design	No	
657	Significant	Northern Red Oak	*Quercus rubra*	26.0	Good		1		R-AC	See note #14		No	
658	Significant	Tulip Poplar	*Liriodendron tulipifera*	24.7	Good		1		R-AC	See note #14		No	
675	Significant	Northern Red Oak	*Quercus rubra*	24.6	Good		1		R-IP	See note #14		No	
703	Significant	American Sycamore	*Platanus occidentalis*	25.0	Good	44%	1		R-IP	See note #14		No	
704	Significant	American Sycamore	*Platanus occidentalis*	24.0	Fair	46%	1		R-IP	See note #14		No	
705	Significant	American Sycamore	*Platanus occidentalis*	26.0	Fair	40%	5	1				No	
1A	Significant	Red Maple	*Acer rubrum*	26.9	Good		5				TBD-final stream design	No	

Legend	
1	Tree removed
2	Impact due to compaction
3	Root impact 0-5' below the surface
4	Root impact 5' and greater below the surface
5	Tree to remain with impact due to compaction
R-AC	Removed for Access
R-IP	Removed for Insertion Pit
R-SL	Removed for String Line Area

Notes
The %'s shown under the column % CRZ Impacted only apply to trees whose CRZ extends into the LOD. It does not apply to trees that physically touch the LOD with their trunk or are located completely inside the LOD.

DEVELOPER'S CERTIFICATE

The Undersigned agrees to execute all the features of the Approved Final Forest Conservation Plan No. _____ including, financial bonding, forest planting, maintenance, and all other applicable agreements.

Developer's Name: _____
Printed *Company Name*

Contact Person or Owner: _____
Printed *Name*

Address: _____

Phone and Email: _____

Signature: _____

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST., BEL AIR, MD 21014

REVISIONS

REV.NO.	DATE	DESCRIPTIONS

COMMENTS

REV NO.	DATE	DESCRIPTIONS

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

NOTES SHEET 3 OF 4

MONTGOMERY COUNTY, MARYLAND
MAY 2014

WASHINGTON GAS STRIP 27

FOREST CONSERVATION PLAN

MONTGOMERY COUNTY, MARYLAND

Specimen Tree Impact Summary Table

Tree ID	Type	Common Name	Scientific Name	DBH	Health	% CRZ Impacted	Expected Impact	Worst Case Impact	Cause of Removal	Removal Process	Notes	Requested for Variance	Mitigation
20	Specimen	White Pine	*Pinus strobus*	30	Fair	11%	5					Yes	Off-site forest bank
30	Specimen	White Pine	*Pinus strobus*	30.6	Fair	9%	5						
36	Specimen	White Pine	*Pinus strobus*	30.0	Good		5	1				Yes	Off-site forest bank
42	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.9	Good		5	1				Yes	Off-site forest bank
45	Specimen	Black Cherry	*Prunus serotina*	52.1	Good	12%	5						
48	Specimen	Red Maple	*Acer rubrum*	31.3	Good	30%	5						
49	Specimen	Black Cherry	*Prunus serotina*	35.3	Good		5	1				Yes	Off-site forest bank
50	Specimen	Red Maple	*Acer rubrum*	36.5	Poor		5	1				Yes	Off-site forest bank
54	Specimen	White Pine	*Pinus strobus*	30	Good	31%	5						
55	Specimen	Black Cherry	*Prunus serotina*	30.4	Fair	31%	5					Yes	Off-site forest bank
58	Specimen	Willow Oak	*Quercus phellos*	35.0	Good		5	1				Yes	Off-site forest bank
59	Specimen	Black Cherry	*Prunus serotina*	30.0	Good		5	1				Yes	Off-site forest bank
69	Specimen	Black Willow	*Salix nigra*	34.8	Poor		5	1				Yes	Off-site forest bank
77	Specimen	Silver Maple	*Acer saccharinum*	32.4	Good	43%	3	1				Yes	Off-site forest bank
84	Specimen	White Pine	*Pinus strobus*	34.8	Good	1%	5					Yes	Off-site forest bank
91	Specimen	White Pine	*Pinus strobus*	51.0	Good	43%	5	1				Yes	Off-site forest bank
92	Specimen	Red Maple	*Acer rubrum*	32.8	Good	7%	5					Yes	Off-site forest bank
94	Specimen	Red Maple	*Acer rubrum*	30	Fair	29%	5					Yes	Off-site forest bank
95	Specimen	Silver Maple	*Acer saccharinum*	38.6	Good	26%	5					Yes	Off-site forest bank
102	Specimen	Scarlet Oak	*Quercus coccinea*	40.1	Good	38%	5	1				Yes	Off-site forest bank
104	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34	Good	23%	5					Yes	Off-site forest bank
107	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.5	Good	4%	5					Yes	Off-site forest bank
108	Specimen	Northern Red Oak	*Quercus rubra*	36.1	Good	3%	5					Yes	Off-site forest bank
118	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.6	Good	1%	5						
119	Specimen	Sugar Maple	*Acer saccharum*	32.0	Good		1		R-IP	See note #14		Yes	Off-site forest bank
120	Specimen	Silver Maple	*Acer saccharinum*	32.5	Fair	5%	3					Yes	Off-site forest bank
124	Specimen	Red Maple	*Acer rubrum*	49.8	Good	27%	5					Yes	Off-site forest bank
132	Specimen	Silver Maple	*Acer saccharinum*	36.9	Good	1%	5					Yes	Off-site forest bank
133	Specimen	Silver Maple	*Acer saccharinum*	44.5	Good	5%	5					Yes	Off-site forest bank
137	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	38%	5	1				Yes	Off-site forest bank
139	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.8	Good	19%	3					Yes	Off-site forest bank
146	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.2	Good	8%	5					Yes	Off-site forest bank
151	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	1%	5					Yes	Off-site forest bank
158	Specimen	Red Maple	*Acer rubrum*	30.3	Good	2%	5					Yes	Off-site forest bank
159	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.8	Good	3%	5					Yes	Off-site forest bank
160	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.6	Good	32%	5					Yes	Off-site forest bank
186	Specimen	American Sycamore	*Platanus occidentalis*	49.3	Good	0.1%	5						
231	Specimen	Northern Red Oak	*Quercus rubra*	34.8	Good	45%	5	1				Yes	Off-site forest bank
232	Specimen	White Oak	*Quercus alba*	36.5	Good		1		R-SL	See note #14		Yes	Off-site forest bank
233	Specimen	Northern Red Oak	*Quercus rubra*	30.1	Fair		1		R-SL	See note #14		Yes	Off-site forest bank
234	Specimen	Northern Red Oak	*Quercus rubra*	32.7	Good	30%	5					Yes	Off-site forest bank
235	Specimen	Scarlet Oak	*Quercus coccinea*	30.7	Good		1		R-SL	See note #14		Yes	Off-site forest bank
252	Specimen	White Oak	*Quercus alba*	35.6	Good	4%	5					Yes	Off-site forest bank
257	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.4	Good	32%	5					Yes	Off-site forest bank
259	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35	Good	4%	5					Yes	Off-site forest bank
273	Specimen	Scarlet Oak	*Quercus coccinea*	35	Fair	15%	5					Yes	Off-site forest bank
276	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	1%	5					Yes	Off-site forest bank
279	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.3	Good	29%	5					Yes	Off-site forest bank
282	Specimen	Scarlet Oak	*Quercus coccinea*	40.8	Good	0.003%	5					Yes	Off-site forest bank
301	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.3	Good	3%	5					Yes	Off-site forest bank
313	Specimen	White Oak	*Quercus alba*	32.1	Good	33%	5	1				Yes	Off-site forest bank
323	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.4	Good	8%	5					Yes	Off-site forest bank
357	Specimen	Red Maple	*Acer rubrum*	34.9	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
363	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Fair	29%	5				TBD-final stream design	Yes	Off-site forest bank
365	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.9	Good	11%	5				TBD-final stream design	Yes	Off-site forest bank
367	Specimen	Tulip Poplar	*Liriodendron tulipifera*	40.2	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
368	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.4	Good	30%	5				TBD-final stream design	Yes	Off-site forest bank
379	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Good	47%	5	1			TBD-final stream design	Yes	Off-site forest bank
380	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.3	Good	7%	5				TBD-final stream design	Yes	Off-site forest bank
384	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	24%	5				TBD-final stream design	Yes	Off-site forest bank
387	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.0	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
393	Specimen	White Oak	*Quercus alba*	38.4	Poor	51%	5	1				Yes	Off-site forest bank
408	Specimen	White Oak	*Quercus alba*	35.3	Good	38%	5	1				Yes	Off-site forest bank
494	Specimen	Willow Oak	*Quercus phellos*	48.3	Good	1%	5					Yes	Off-site forest bank
520	Specimen	Mockernut Hickory	*Carya tomentosa*	27.2	Good		1		R-SL	See note #14		Yes	Off-site forest bank
566	Specimen	Northern Red Oak	*Quercus rubra*	32.7	Good	30%	3					Yes	Off-site forest bank
582	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.0	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
623	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.1	Good	1%	5				TBD-final stream design	Yes	Off-site forest bank
629	Specimen	Red Maple	*Acer rubrum*	30.2	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
635	Specimen	Swamp Chestnut Oak	*Quercus michauxii*	33.5	Fair		5	1			TBD-final stream design	Yes	Off-site forest bank
641	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.0	Fair		5	1			TBD-final stream design	Yes	Off-site forest bank
667	Specimen	Northern Red Oak	*Quercus rubra*	31.6	Good		1		R-AC	See note #14		Yes	Off-site forest bank
673	Specimen	Mockernut Hickory	*Carya tomentosa*	25.2	Good		1		R-AC	See note #14		Yes	Off-site forest bank
695	Specimen	American Sycamore	*Platanus occidentalis*	50	Good	2%	5					Yes	Off-site forest bank
3A	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.0	Fair		5	1			TBD-final stream design	Yes	Off-site forest bank

Legend	
1	Tree removed
2	Impact due to compaction
3	Root impact 0-5' below the surface
4	Root impact 5' and greater below the surface
5	Tree to remain with impact due to compaction
R-AC	Removed for Access
R-IP	Removed for Insertion Pit
R-SL	Removed for String Line Area

Notes

The %'s shown under the column % CRZ Impacted only apply to trees whose CRZ extends into the LOD. It does not apply to trees that physically touch the LOD with their trunk or are located completely inside the LOD.

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Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST., BEL AIR, MD 21014

REVISIONS

REV.NO.	DATE	DESCRIPTIONS

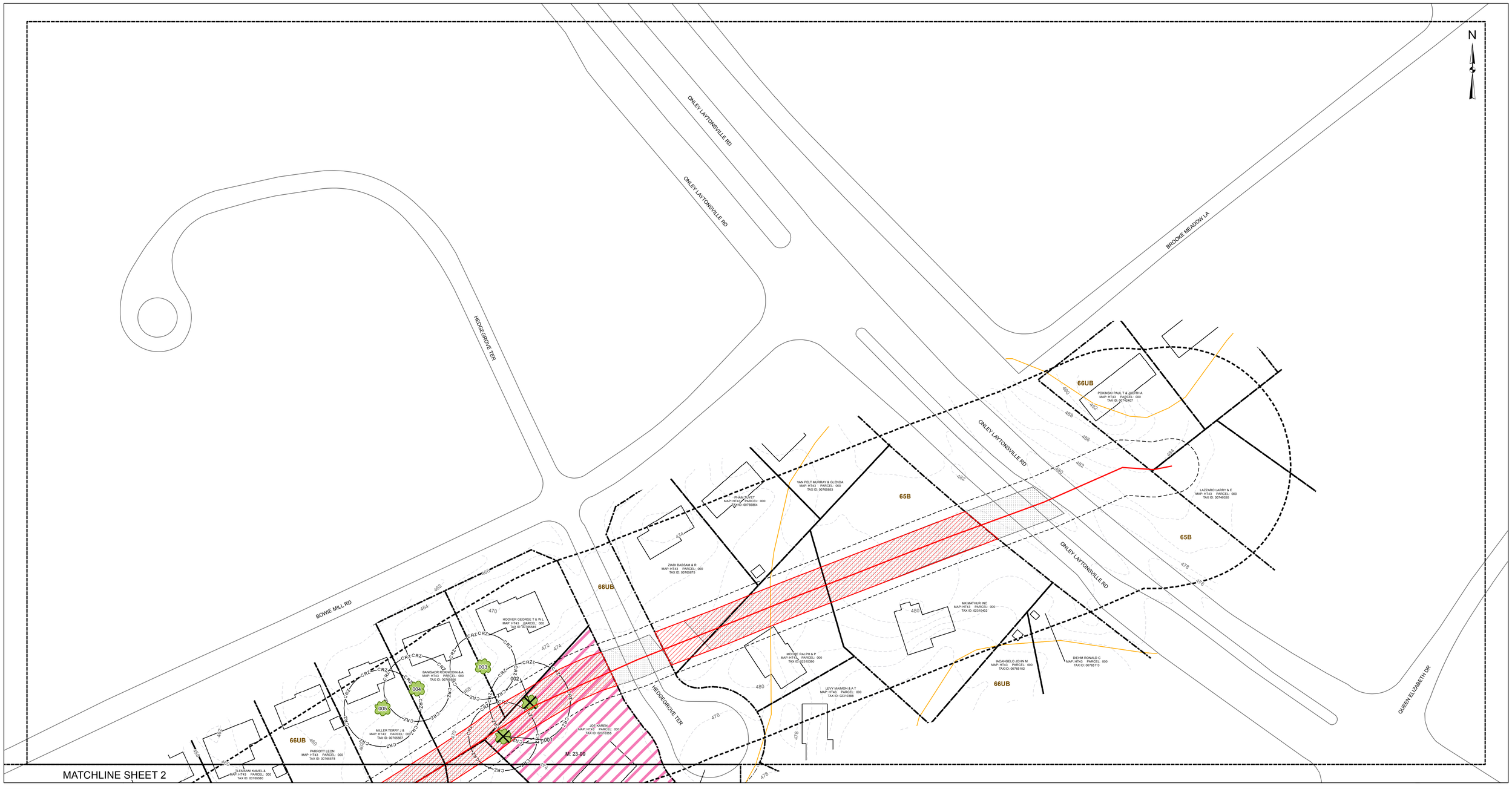
COMMENTS

REV NO.	DATE	DESCRIPTIONS

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

NOTES SHEET 4 OF 4

MONTGOMERY COUNTY, MARYLAND
MAY 2014



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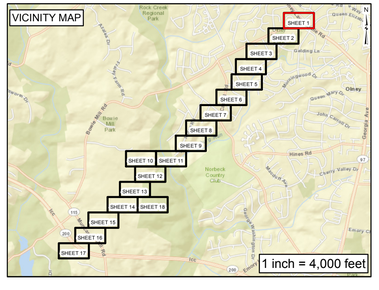
VICINITY MAP



WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 1 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

Washington Gas

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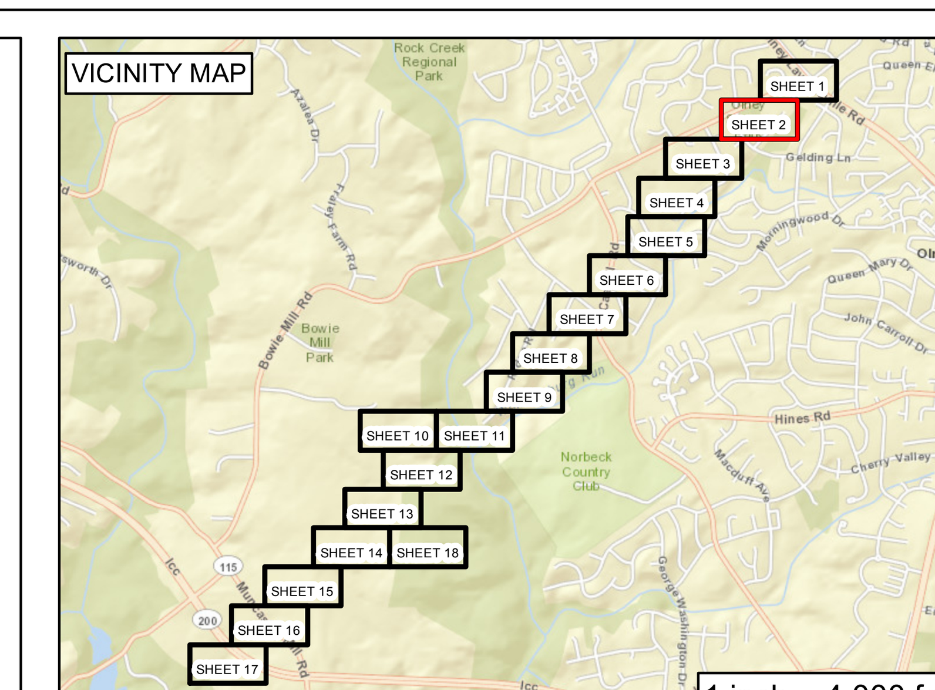
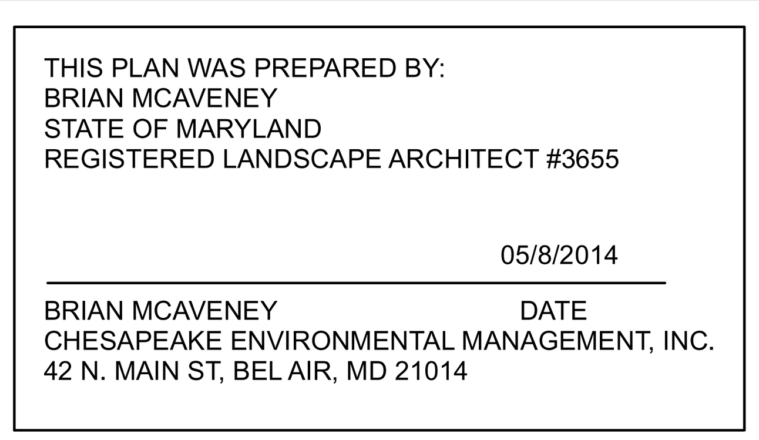


1 inch = 4,000 feet

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 2 OF 18

MONTGOMERY COUNTY, MARYLAND
MAY 2014



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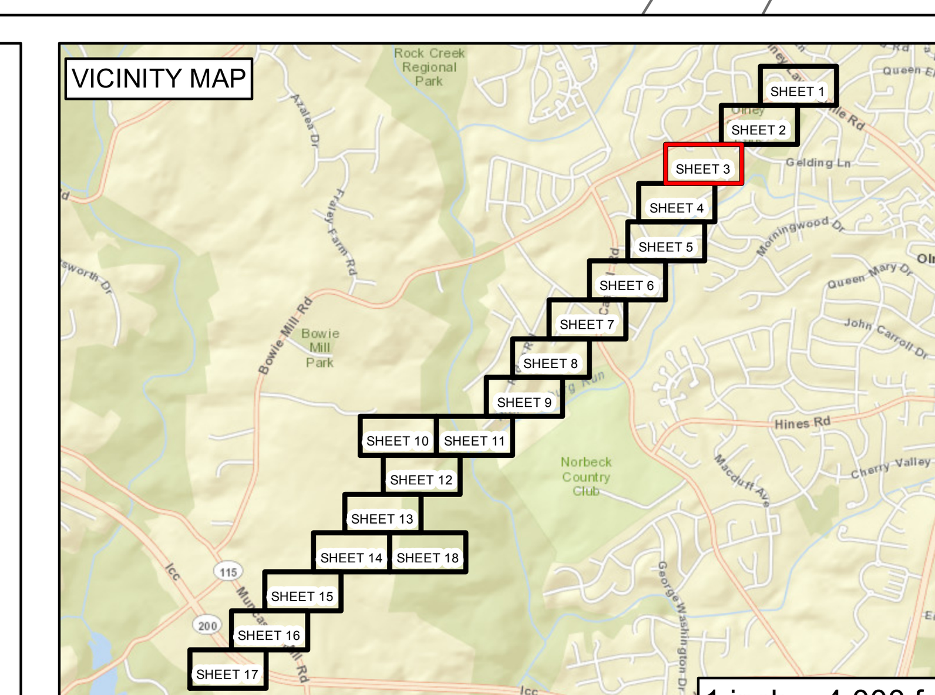


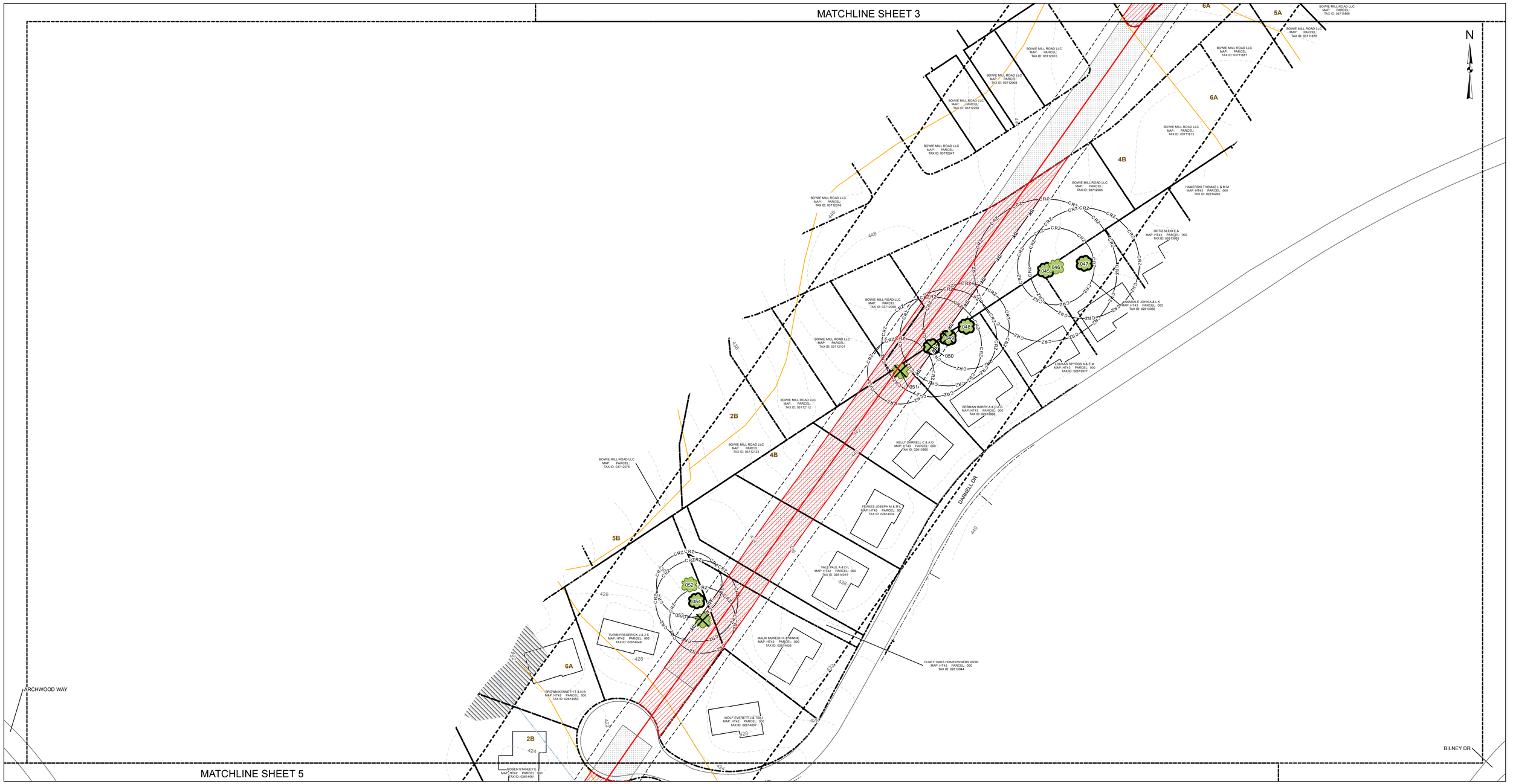
WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 3 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

MATCHLINE SHEET 3



MATCHLINE SHEET 5

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.
Applying Practical Science to Improve Communities

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BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
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42 N. MAIN ST, BEL AIR, MD 21014

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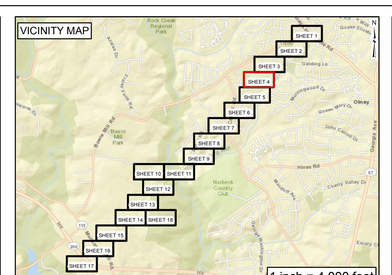

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 4 OF 18

MONTGOMERY COUNTY, MARYLAND
MAY 2014

Washington Gas

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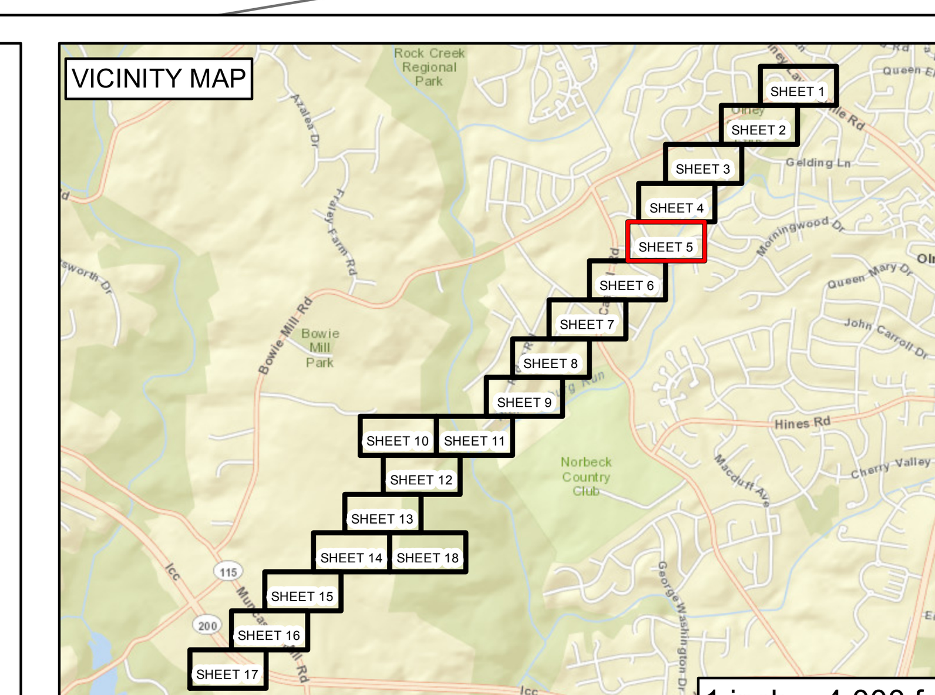

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 5 OF 18

MONTGOMERY COUNTY, MARYLAND
MAY 2014

MATCHLINE SHEET 5

MATCHLINE SHEET 7

N

PRIVATE DRIVE

PRIVATE DRIVE

PRIVATE DRIVE

CASHELL RD

PRESTWOOD DR

BETTSWOOD DR

MORNINGWOOD DR

OVERWOOD DR

OVERWOOD CT

OVERWOOD DR

66UB

2B

SPRAGUE ANN
MAP: HT42 PARCEL: 000
TAX ID: 00724481

DEPORTER, HELEN ET
MAP: HT42 PARCEL: 000
TAX ID: 00728032

LI MING-CHUNG
MAP: HT42 PARCEL: 000
TAX ID: 00726020

BACZYNSKY ALEXANDER & P M
MAP: HT42 PARCEL: 000
TAX ID: 00723925

PIRNIA MEHDI N & F N
MAP: HT42 PARCEL: 000
TAX ID: 00723938

FRITZINGER CARL J 2ND
MAP: HT42 PARCEL: 000
TAX ID: 00724033

DAVIS KARIN H
MAP: HT42 PARCEL: 000
TAX ID: 00724807

NICKLOW ROBERT T & CATHERINE A
MAP: HT42 PARCEL: 000
TAX ID: 00724920

HONG WOO K & NAM K
MAP: HT42 PARCEL: 000
TAX ID: 00725378

CASSIDY KEVIN R & K M
MAP: HT42 PARCEL: 000
TAX ID: 00725967

MARYLAND NATIONAL CAPITOL
MAP: HT42 PARCEL: 000
TAX ID: 00725215

PARKS RAYMOND G & L L
MAP: HT42 PARCEL: 000
TAX ID: 00725356

LEE HYUN JUNG
MAP: HT42 PARCEL: 000
TAX ID: 00725345

ESTRADA OSCAR R & THELMA A
MAP: HT42 PARCEL: 000
TAX ID: 00725538

ABDULLAH JAMAAL F ET AL
MAP: HT42 PARCEL: 000
TAX ID: 00725527

ORTIZ JACQUELINE &
MAP: HT42 PARCEL: 000
TAX ID: 00725516

CHOKSI SOLI K TRUSTEE
MAP: HT42 PARCEL: 000
TAX ID: 01981912

GROTHE KIRK ANTHONY
MAP: HT42 PARCEL: 000
TAX ID: 01981923

CUTINO CHRISTOPHER A &
MAP: HT42 PARCEL: 000
TAX ID: 00725505

STEPHENS JOHN F & S G
MAP: HT42 PARCEL: 000
TAX ID: 01981934

O'BRIEN RONALD R &CHRISTINE G
MAP: HT22 PARCEL: 000
TAX ID: 01981901

083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
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05/8/2014

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42 N. MAIN ST, BEL AIR, MD 21014

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VICINITY MAP

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10 SHEET 11 SHEET 12 SHEET 13 SHEET 14 SHEET 15 SHEET 16 SHEET 17 SHEET 18

1 inch = 4,000 feet

WASHINGTON GAS STRIP 27 FOREST CONSERVATION PLAN

SHEET 6 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

MATCHLINE SHEET 6

MATCHLINE SHEET 8

Washington Gas

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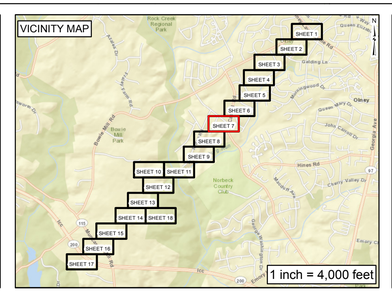

WASHINGTON GAS STRIP 27
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SHEET 7 OF 18

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MAY 2014

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WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 8 OF 18

MONTGOMERY COUNTY, MARYLAND
MAY 2014

MATCHLINE SHEET 8

MATCHLINE SHEET 11

N

PRIVATE DR

RIDGE DR

TCP#: 420063010

FOREST STAND 5

FOREST STAND 4

FOREST STAND 5

TENER TIMOTHY S ET AL
MAP: HT22 PARCEL: 000
TAX ID: 01532671

TENER TIMOTHY S ET AL
MAP: HT22 PARCEL: 000
TAX ID: 00724272

COLLINS MICHAEL J & M V
MAP: HT22 PARCEL: 000
TAX ID: 00724077

RIDGE DRIVE LLC
MAP: HT22A PARCEL: 000
TAX ID: 00724192

CULVER GARY D & A N
MAP: HT21 PARCEL: 000
TAX ID: 00723494

STRIZAK PAUL A & M A
MAP: HT21 PARCEL: 000
TAX ID: 00723530

DIVICO BENJAMIN J ET AL
MAP: HT22 PARCEL: 000
TAX ID: 00724443

MAZZULLO JAMES
MAP: HT21 PARCEL: 000
TAX ID: 00723687

NORBECK COUNTRY CLUB INC
MAP: PARCEL: NAD
TAX ID: 03649613

FS-5 PLOT 1

FS-5 PLOT 2

WL004

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST, BEL AIR, MD 21014

SCALE: 1 INCH = 50 FEET

0 25 50 100 FEET

LEGEND:

- LIMITS OF DISTURBANCE
- 130 FOOT STUDY AREA
- PROPOSED GAS LINE
- 100 YEAR FLOODPLAIN
- DELINEATED WETLAND
- DELINEATED WATERWAY
- WETLAND BUFFER
- WATERWAY BUFFER
- STRUCTURES
- TREE PROTECTION FENCING
- 2 FOOT CONTOUR
- GAS EASEMENT
- M-NCPPC PARK
- PROPERTY BOUNDARY
- ADJACENT PROPERTY
- SIGNIFICANT TREE, TO BE REMOVED
- SPECIMEN TREE, TO BE REMOVED
- HYDRO LINE
- FOREST STAND PLOTS
- FSD BOUNDARY
- FOREST BOUNDARY
- SOIL TYPE BOUNDARY
- MHT PROPERTY
- ROADWAY
- TCP 1 OR TCP 2
- SIGNIFICANT TREE
- SPECIMEN TREE
- DNR/NWI WETLAND

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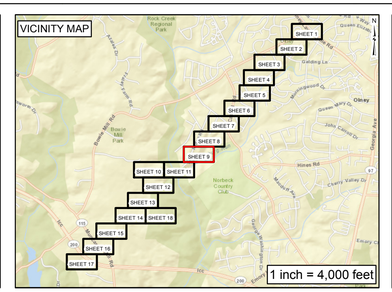
Signature: _____

VICINITY MAP



WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 9 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

PRIVATE DRIVE

N

MATCHLINE SHEET 11

2B

408

410

418

TCP#: 420023000

416

414

416

418

OXBRIDGE DEVELOPMENT AT
MAP: GT61 PARCEL: P600
TAX ID: 00707905

17C

396

402

400

2B

16D

422

420

MATCHLINE SHEET 12

5B

SB

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.
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05/8/2014

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VICINITY MAP

SHEET 1 SHEET 2 SHEET 3 SHEET 4 SHEET 5 SHEET 6 SHEET 7 SHEET 8 SHEET 9 SHEET 10 SHEET 11 SHEET 12 SHEET 13 SHEET 14 SHEET 15 SHEET 16 SHEET 17 SHEET 18

1 inch = 4,000 feet

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 10 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

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STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

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42 N. MAIN ST, BEL AIR, MD 21014

SCALE: 1 INCH = 50 FEET

0 25 50 100 FEET

LEGEND:

LIMITS OF DISTURBANCE	TREE PROTECTION FENCING	FSD BOUNDARY
130 FOOT STUDY AREA	2 FOOT CONTOUR	FOREST BOUNDARY
PROPOSED GAS LINE	GAS EASEMENT	SOIL TYPE BOUNDARY
100 YEAR FLOODPLAIN	M-NCPPC PARK	MHT PROPERTY
DELINEATED WETLAND	PROPERTY BOUNDARY	ROADWAY
DELINEATED WATERWAY	ADJACENT PROPERTY	TCP 1 OR TCP 2
WETLAND BUFFER	SIGNIFICANT TREE, TO BE REMOVED	SIGNIFICANT TREE
WATERWAY BUFFER	SPECIMEN TREE, TO BE REMOVED	SPECIMEN TREE
STRUCTURES	HYDRO LINE	DNR/NWI WETLAND
	FOREST STAND PLOTS	

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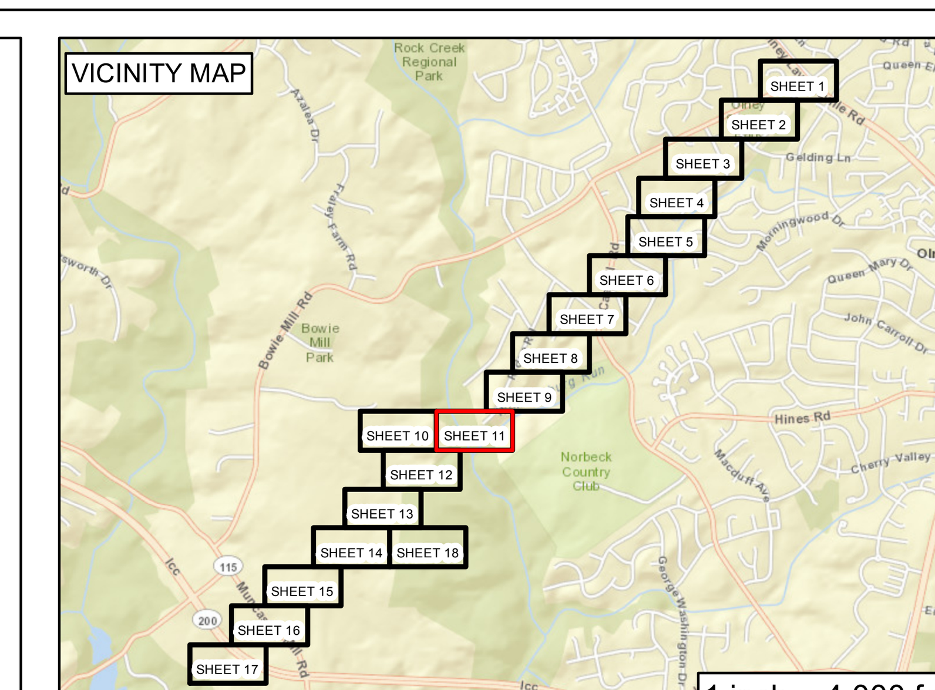

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 11 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

MATCHLINE SHEET 10

MATCHLINE SHEET 11

MATCHLINE SHEET 13

FOREST STAND 2

FOREST STAND 2

FOREST STAND 1

TCP#: 420023000

FS-1 PLOT 2

FS-2 PLOT 1

FS-2 PLOT 2

OXBRIDGE DEVELOPMENT AT MAP: GT61 PARCEL: P600 TAX ID: 00707905

MONTGOMERY COUNTY MAP: PARCEL: N670 TAX ID: 00722171

WL006

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.

Applying Practical Science to Improve Communities

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VICINITY MAP

1 inch = 4,000 feet

WASHINGTON GAS STRIP 27 FOREST CONSERVATION PLAN

SHEET 12 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

MATCHLINE SHEET 12

MATCHLINE SHEET 14

MATCHLINE SHEET 18

N

FOREST STAND 1

FOREST STAND 1

TCP#: 420023000

FS-1 PLOT

WP002B

WL002

WP002C

6A

2B

2C

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT INC.

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05/8/2014

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42 N. MAIN ST, BEL AIR, MD 21014

SCALE: 1 INCH = 50 FEET

FEET
0 25 50 100

LEGEND:

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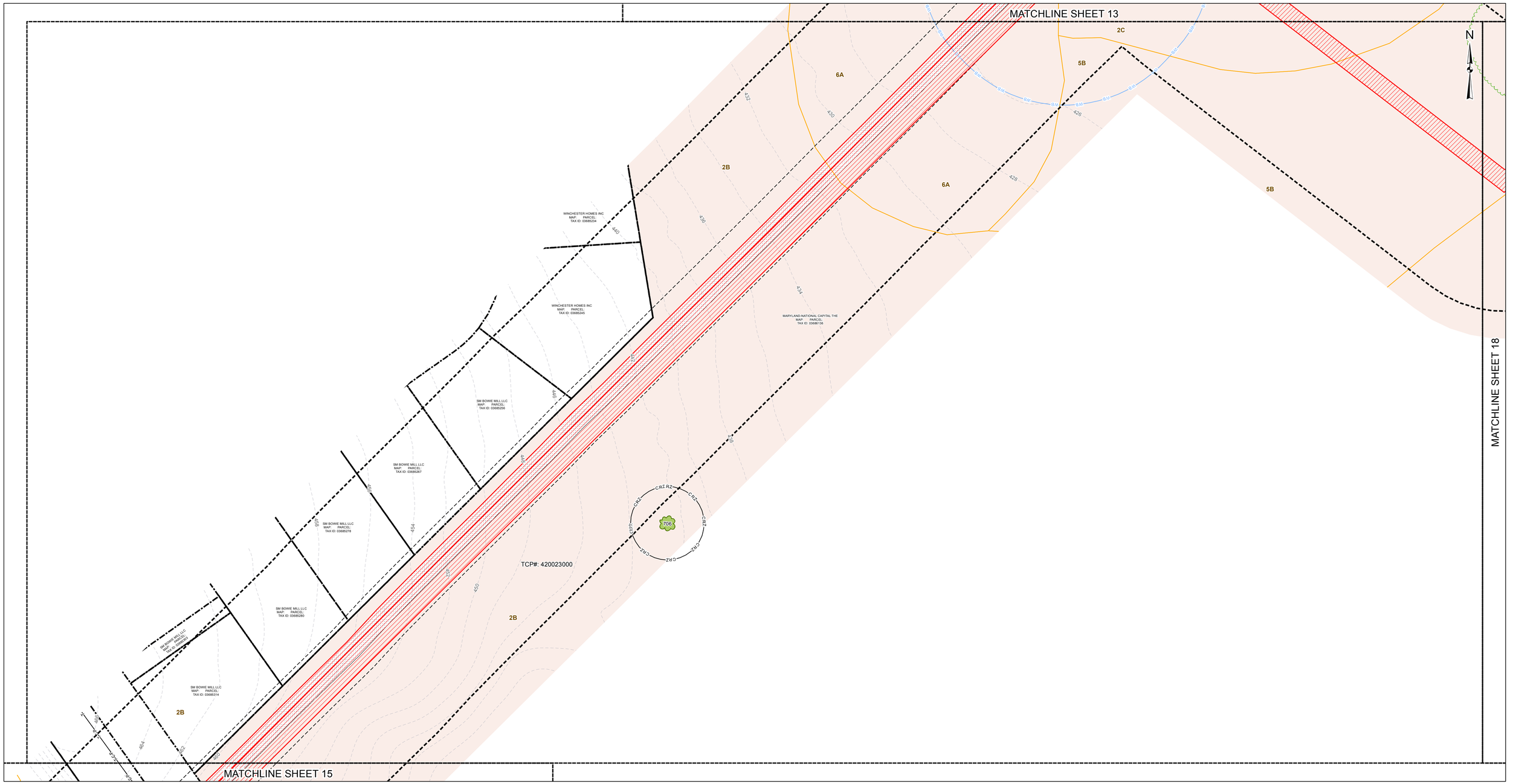
1 inch = 4,000 feet

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 13 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014



Washington Gas

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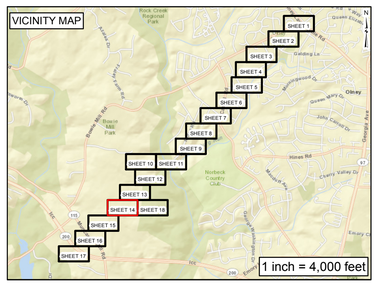
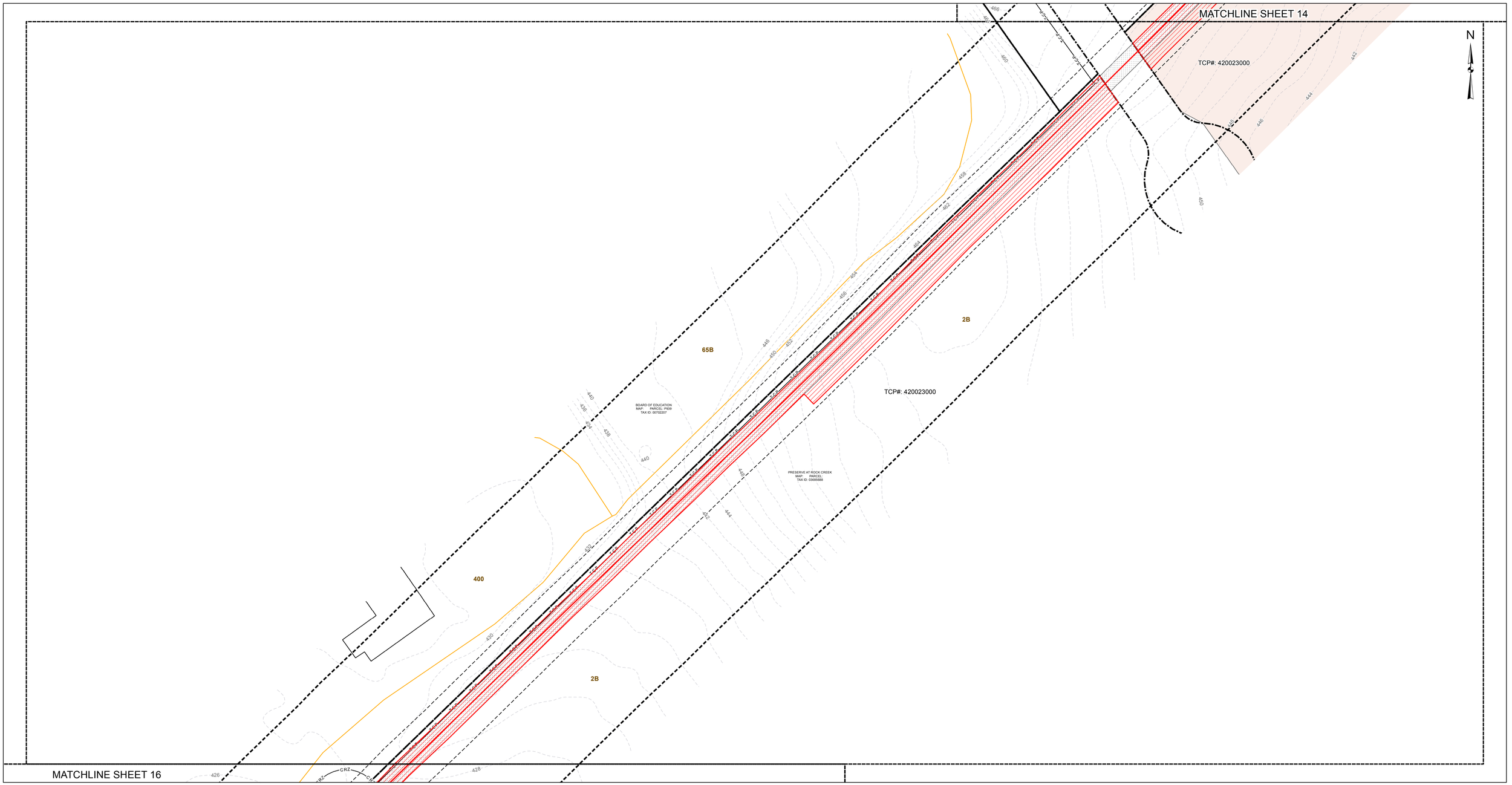


WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 14 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014



Washington Gas

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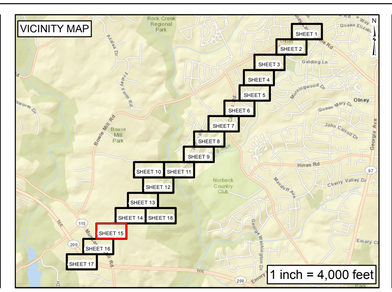

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 15 OF 18

MONTGOMERY COUNTY, MARYLAND
MAY 2014

MATCHLINE SHEET 15

N

TCP#: 42002300

TCP #420022990

FOREST STAND 9

BOARD OF EDUCATION
MAP: 0363 PARCEL: P939
TAX ID: 00702207

PRESERVE AT ROCK CREEK
MAP: PARCEL:
TAX ID: 03685850

SARKIDES PAUL
MAP: N/A PARCEL: P202
TAX ID: 00048730

TRANS GAS PIPE LINE CORP
MAP: 0363 PARCEL: P199
TAXID: 00055462

STATE HIGHWAY ADMINISTRATION
MAP: N/A PARCEL: N/A
TAX ID: 033531028

PRIVATE DR

MUNCASTER MILL RD

PRIVATE DRIVE

FS-9 PLOT 1

FS-9 PLOT 2

WP001E

WP001D

MATCHLINE SHEET 17

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
Applying Practical Science to Improve Communities

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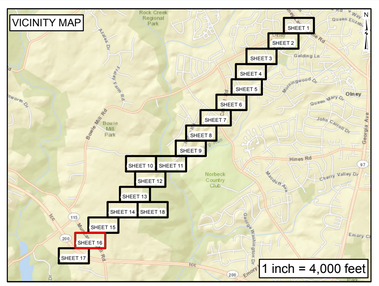

WASHINGTON GAS STRIP 27
FOREST CONSERVATION PLAN

SHEET 16 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014

Washington Gas

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FEET
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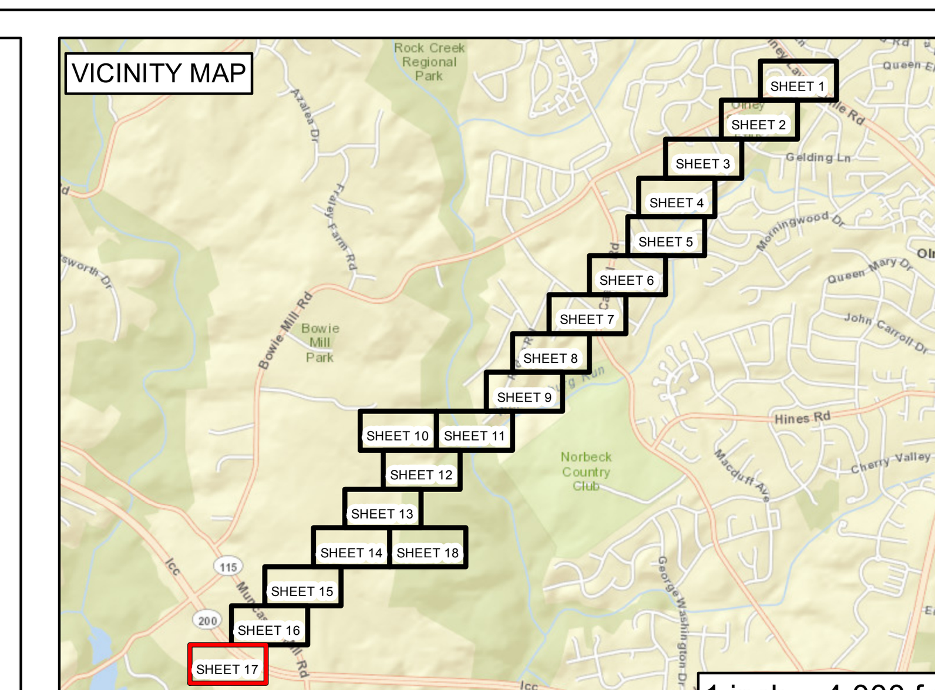


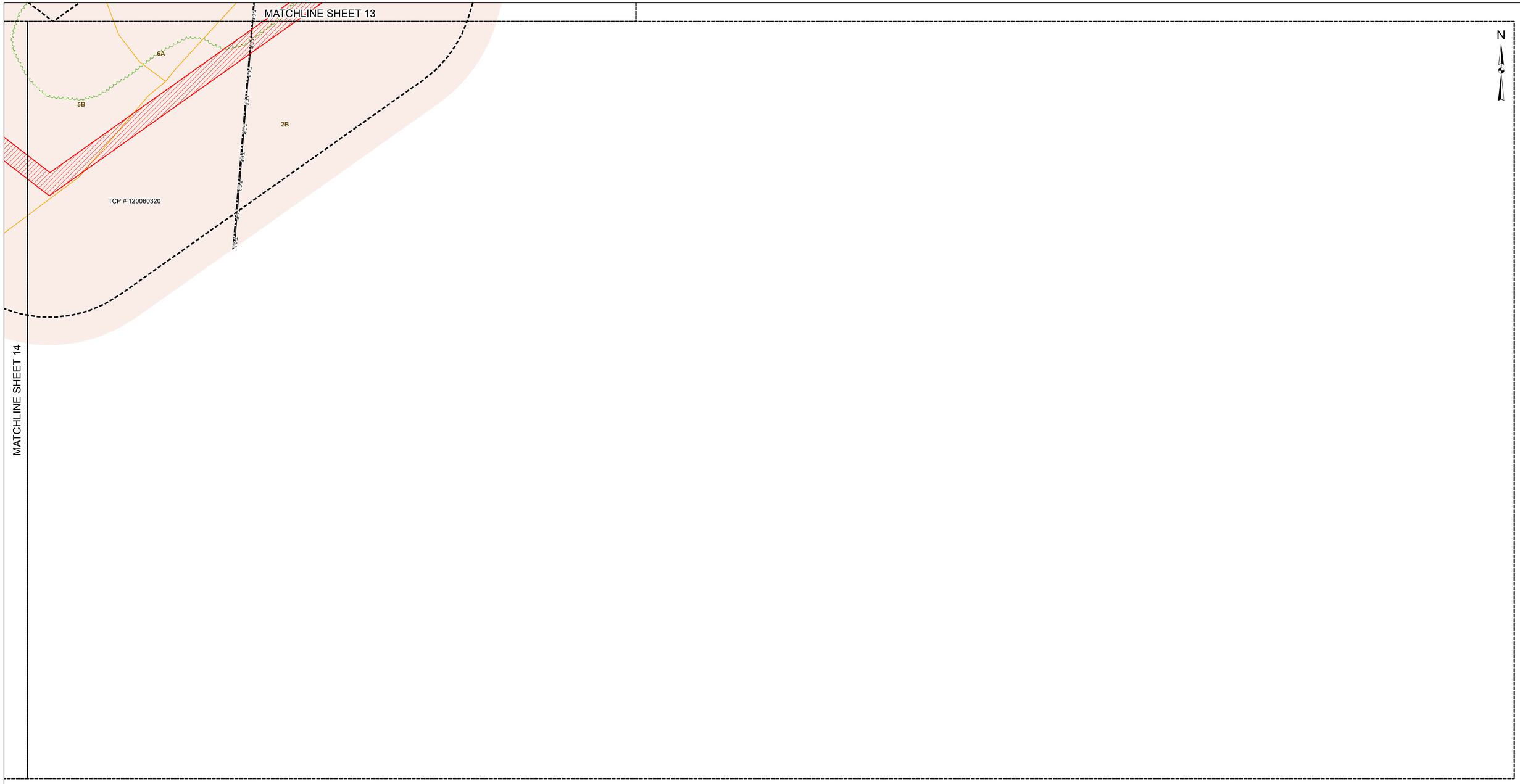
1 inch = 4,000 feet

WASHINGTON GAS STRIP 27 FOREST CONSERVATION PLAN

SHEET 17 OF 18

MONTGOMERY COUNTY, MARYLAND

MAY 2014



Washington Gas

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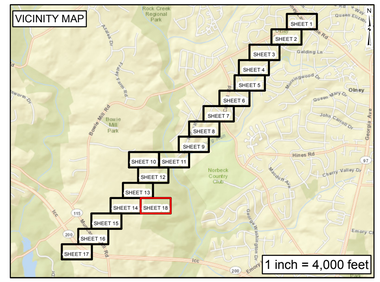

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SHEET 18 OF 18

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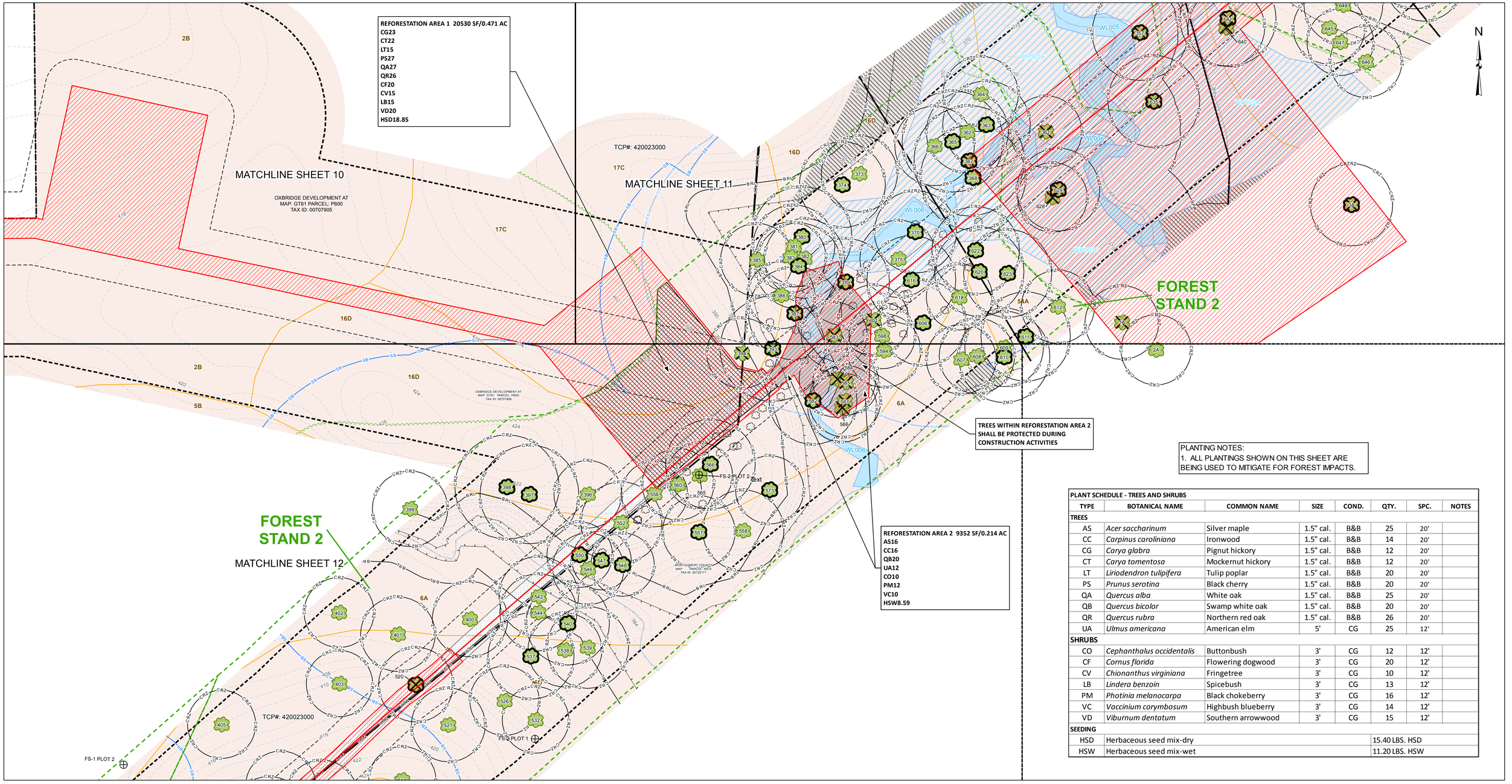


PLANTING NOTES:
1. ALL PLANTINGS SHOWN ON THIS SHEET ARE BEING USED TO MITIGATE FOR FOREST IMPACTS.

PLANT SCHEDULE - TREES AND SHRUBS

TYPE	BOTANICAL NAME	COMMON NAME	SIZE	COND.	QTY.	SPC.	NOTES
TREES							
AS	*Acer saccharinum*	Silver maple	1.5" cal.	B&B	25	20'	
CC	*Carpinus caroliniana*	Ironwood	1.5" cal.	B&B	14	20'	
CG	*Carya glabra*	Pignut hickory	1.5" cal.	B&B	12	20'	
CT	*Carya tomentosa*	Mockernut hickory	1.5" cal.	B&B	12	20'	
LT	*Liriodendron tulipifera*	Tulip poplar	1.5" cal.	B&B	20	20'	
PS	*Prunus serotina*	Black cherry	1.5" cal.	B&B	20	20'	
QA	*Quercus alba*	White oak	1.5" cal.	B&B	25	20'	
QB	*Quercus bicolor*	Swamp white oak	1.5" cal.	B&B	20	20'	
QR	*Quercus rubra*	Northern red oak	1.5" cal.	B&B	26	20'	
UA	*Ulmus americana*	American elm	5'	CG	25	12'	
SHRUBS							
CO	*Cephanthalus occidentalis*	Buttonbush	3'	CG	12	12'	
CF	*Cornus florida*	Flowering dogwood	3'	CG	20	12'	
CV	*Chionanthus virginiana*	Fringetree	3'	CG	10	12'	
LB	*Lindera benzoin*	Spicebush	3'	CG	13	12'	
PM	*Photinia melanocarpa*	Black chokeberry	3'	CG	16	12'	
VC	*Vaccinium corymbosum*	Highbush blueberry	3'	CG	14	12'	
VD	*Viburnum dentatum*	Southern arrowwood	3'	CG	15	12'	
SEEDING							
HSD	Herbaceous seed mix-dry				15.40 LBS. HSD		
HSW	Herbaceous seed mix-wet				11.20 LBS. HSW		

Washington Gas

CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
Applying Practical Science to Improve Communities

THIS PLAN WAS PREPARED BY:
BRIAN MCAVENEY
STATE OF MARYLAND
REGISTERED LANDSCAPE ARCHITECT #3655

05/8/2014

BRIAN MCAVENEY DATE
CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC.
42 N. MAIN ST, BEL AIR, MD 21014

SCALE: 1 INCH = 50 FEET

0 25 50 100 FEET

LEGEND:

- LIMITS OF DISTURBANCE
- 130 FOOT STUDY AREA
- PROPOSED GAS LINE
- 100 YEAR FLOODPLAIN
- DELINEATED WETLAND
- DELINEATED WATERWAY
- WETLAND BUFFER
- WATERWAY BUFFER
- STRUCTURES
- UPLAND PLANTING
- 2 FOOT CONTOUR
- GAS EASEMENT
- M-NCPPC PARK
- PROPERTY BOUNDARY
- ADJACENT PROPERTY
- SIGNIFICANT TREE, TO BE REMOVED
- SPECIMEN TREE, TO BE REMOVED
- HYDRO LINE
- FOREST STAND PLOTS
- LOWLAND PLANTING
- FSD BOUNDARY
- FOREST BOUNDARY
- SOIL TYPE BOUNDARY
- MHT PROPERTY
- ROADWAY
- TCP 1 OR TCP 2
- SIGNIFICANT TREE
- SPECIMEN TREE
- DNR/NWI WETLAND

DEVELOPER'S CERTIFICATE

The Undersigned agrees to execute all the features of the Approved Final Forest Conservation Plan No. _____ including, financial bonding, forest planting, maintenance, and all other applicable agreements.

Developer's Name: _____
Printed *Company Name*

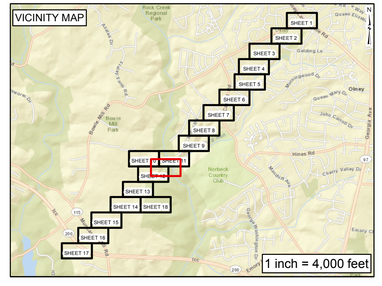
Contact Person or Owner: _____
Printed *Name*

Address: _____

Phone and Email: _____

Signature: _____

VICINITY MAP



WASHINGTON GAS STRIP 27 FOREST CONSERVATION PLAN

PLANTING PLAN SHEET

MONTGOMERY COUNTY, MARYLAND
MAY 2014

Washington Gas Strip 27 Variance Request

in accordance with Montgomery County Forest Conservation Law
(Montgomery County Code, Chapter 22A)

I. BACKGROUND INFORMATION

The purpose of this document is to request a variance from the Montgomery County Forest Conservation Law (Montgomery County Code, Chapter 22A) to allow the removal of 31 specimen trees and impacts to 42 additional specimen trees within, or next to, a Washington Gas easement located in Olney, Montgomery County, Maryland.

In order to meet the requirements of gas distribution pipeline integrity management under the Pipeline Safety Improvement Act of 2002, Washington Gas is planning to replace an existing 20-inch-diameter gas distribution main installed in 1931 with a new 12-inch-diameter gas distribution line. The pipeline will be installed using both the insertion method through the existing 20-inch-diameter gas distribution main and horizontal directional drilling (HDD) techniques via access pits. In order to install the new pipeline, Washington Gas is proposing to clear vegetation within areas proposed for the drilling access pits, construction equipment access, the string line area for pipe laydown during the HDD pullback operation, and stream stabilization work where the existing pipeline is exposed. Vegetation clearing will include the removal of specimen trees in some areas.

Following the guidelines set forth by the Maryland Forest Conservation Act and the Montgomery County Forest Conservation Law, Chesapeake Environmental Management, Inc. (CEM) completed a Forest Stand Delineation (FSD) and Tree Survey of the Washington Gas easement. The FSD was approved by the Montgomery County Planning Department of the Maryland-National Capital Park and Planning Commission on February 24, 2014 (FSD # 420140890). Based on the approved FSD, a Forest Conservation Plan (FCP) has been prepared and submitted along with this variance request.

II. PROPOSED IMPACTS

A total of 176 specimen trees were identified on the approved FSD. Of these 176 Specimen Trees, 31 specimen trees lie within the limits of proposed vegetation clearing. Removal of these specimen trees, as well as impacts to 42 additional specimen trees, is necessary for the installation and maintenance of a new gas distribution line.

The **Specimen Tree Summary Table – Removals** and the **Specimen Tree Summary Table - Impacts** (**Appendix A**) lists the specimen trees that will be removed during the pipe replacement process and specimen trees which have impacts to their critical root zones. The removal of these 31 specimen trees is based on a worst case impact, as shown on the **Specimen Tree Impact Summary Table** (**Appendix B**). In our expected impact, only 7 specimen trees will be removed.

III. DEMONSTRATION OF UNWARRANTED HARDSHIP

(52)*"Describe the special conditions peculiar to the property which would cause the unwarranted hardship"*

Pipe insertion/HDD access pits, pipe string line areas, and temporary construction equipment access within forested areas are required to perform the gas distribution line replacement work. If the pipeline is not replaced, the goals of gas distribution pipeline integrity management under the Pipeline Safety Improvement Act of 2002 will not be met. Strip 27 has been identified as a high consequence area, an area where a pipeline incident would most severely affect public safety due to a dense population or frequent use of the area.

Federal law and Department of Transportation regulations require that vegetation within rights-of-way/easements must be maintained so that it does not hinder pipeline inspections and maintenance activities. Trees should not be allowed within the boundaries of rights-of-way/easements as tree roots have the potential to damage pipeline coatings, which may contribute to the loss of integrity of the pipeline.

(2) "Describe how enforcement of these rules will deprive the landowner of rights commonly enjoyed by others in similar areas"

Enforcement of these rules would deprive Washington Gas the utility easement rights commonly enjoyed by other utility providers in Montgomery County. As required by federal law and as a condition of its easement, Washington Gas must be able to maintain the vegetation within the easement so as not to hinder pipeline inspection, maintenance, and integrity.

(3) "Verify that State water quality standards will not be violated or that a measurable degradation in water quality will not occur as a result of the granting of the variance"

The granting of this variance will not adversely affect water quality. Appropriate erosion and sediment controls will be installed during vegetation clearing activities, as specified in the Erosion and Sediment Control Plan for this project. All disturbed areas will be stabilized with an approved seed mix following vegetation clearing. Furthermore, an increase in impervious surfaces will not occur as a result of this project.

(4) "Provide any other information appropriate to support the request"

Verification that the variance request is not based on conditions or circumstances which are the result of actions by the applicant

The existing 20-inch-diameter gas distribution main was installed in 1931. Due to the age and condition of the pipeline, safety and reliability of this distribution line are compromised. In order to ensure safe and reliable delivery of natural gas to its customers, Washington Gas needs to decommission and replace this pipeline.

Verify that the request does not arise from a condition relating to land or building use, either permitted or nonconforming, on a neighboring property

The gas distribution line installation will occur entirely within the Washington Gas easement. The alignment of the new gas line is based on the existing gas line alignment and feasibility of HDD techniques. This variance request does not arise from a condition relating to land or building use on a neighboring property.

IV. MITIGATION MEASURES

Other than two small reforestation areas, the requirements for reforestation cannot be reasonably accomplished on site due to ongoing maintenance needs of the Washington Gas pipeline easement. Therefore, Washington Gas will not implement an overall replanting plan to meet mitigation requirements and instead proposes to purchase credits from an approved forest mitigation bank. A total of 5.10 (0.68 acres onsite and 4.42 acres offsite) of mitigation will be required. This mitigation plan is documented in the FCP.

Appendix A: Specimen Tree Summary Table – Removals and **Specimen Tree Summary Table - Impacts**

Tree ID	Common Name	Scientific Name	DBH	Health	CRZ Radius
Specimen Tree Summary Table - Removals					
36	White Pine	*Pinus strobus*	30.0	Good	45.00
42	Tulip Poplar	*Liriodendron tulipifera*	30.9	Good	46.35
49	Black Cherry	*Prunus serotina*	35.3	Good	52.95
50	Red Maple	*Acer rubrum*	36.5	Poor	54.75
58	Willow Oak	*Quercus phellos*	35.0	Good	52.50
59	Black Cherry	*Prunus serotina*	30.0	Good	45.00
69	Black Willow	*Salix nigra*	34.8	Poor	52.20
77	Silver Maple	*Acer saccharinum*	32.4	Good	48.60
91	White Pine	*Pinus strobus*	51.0	Good	76.50
102	Scarlet Oak	*Quercus coccinea*	40.1	Good	60.15
119	Sugar Maple	*Acer saccharum*	32.0	Good	56.40
137	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	66.75
231	Northern Red Oak	*Quercus rubra*	34.8	Good	73.95
232	White Oak	*Quercus alba*	36.5	Good	52.20
233	Northern Red Oak	*Quercus rubra*	30.1	Fair	54.75
235	Scarlet Oak	*Quercus coccinea*	30.7	Good	45.15
313	White Oak	*Quercus alba*	32.1	Good	61.20
357	Red Maple	*Acer rubrum*	34.9	Good	48.15
367	Tulip Poplar	*Liriodendron tulipifera*	40.2	Good	47.85
379	Tulip Poplar	*Liriodendron tulipifera*	31.9	Good	60.30
387	Tulip Poplar	*Liriodendron tulipifera*	34.0	Good	54.45
393	White Oak	*Quercus alba*	38.4	Poor	47.10
408	White Oak	*Quercus alba*	35.3	Good	51.00
520	Mockernut Hickory	*Carya tomentosa*	27.2	Good	52.95
582	Tulip Poplar	*Liriodendron tulipifera*	32.0	Good	49.05
629	Red Maple	*Acer rubrum*	30.2	Good	48.15
635	Swamp Chestnut Oak	*Quercus michauxii*	33.5	Fair	45.30
641	Tulip Poplar	*Liriodendron tulipifera*	35.0	Fair	50.25
667	Northern Red Oak	*Quercus rubra*	31.6	Good	52.50
673	Mockernut Hickory	*Carya tomentosa*	25.2	Good	47.40
3A	Tulip Poplar	*Liriodendron tulipifera*	30.0	Fair	45.00

Tree ID	Common Name	Scientific Name	DBH	Health	CRZ Radius
Specimen Tree Summary Table - Impacts					
20	White Pine	*Pinus strobus*	30	Fair	45.00
30	White Pine	*Pinus strobus*	30.6	Fair	45.90
45	Black Cherry	*Prunus serotina*	52.1	Good	78.15
48	Red Maple	*Acer rubrum*	31.3	Good	46.95
54	White Pine	*Pinus strobus*	30	Good	45.00
55	Black Cherry	*Prunus serotina*	30.4	Fair	45.60
84	White Pine	*Pinus strobus*	34.8	Good	52.20
92	Red Maple	*Acer rubrum*	32.8	Good	49.20
94	Red Maple	*Acer rubrum*	30	Fair	45.00
95	Silver Maple	*Acer saccharinum*	38.6	Good	57.90
104	Tulip Poplar	*Liriodendron tulipifera*	34	Good	51.00
107	Tulip Poplar	*Liriodendron tulipifera*	31.5	Good	47.25
108	Northern Red Oak	*Quercus rubra*	36.1	Good	54.15
120	Silver Maple	*Acer saccharinum*	32.5	Fair	48.00
124	Red Maple	*Acer rubrum*	49.8	Good	48.75
132	Silver Maple	*Acer saccharinum*	36.9	Good	74.70
133	Silver Maple	*Acer saccharinum*	44.5	Good	55.35
139	Tulip Poplar	*Liriodendron tulipifera*	32.8	Good	47.10
146	Tulip Poplar	*Liriodendron tulipifera*	37.2	Good	49.20
151	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	55.80
158	Red Maple	*Acer rubrum*	30.3	Good	47.55
159	Tulip Poplar	*Liriodendron tulipifera*	31.8	Good	45.45
160	Tulip Poplar	*Liriodendron tulipifera*	31.6	Good	47.70
234	Northern Red Oak	*Quercus rubra*	32.7	Good	
252	White Oak	*Quercus alba*	35.6	Good	49.05
257	Tulip Poplar	*Liriodendron tulipifera*	34.4	Good	46.05
259	Tulip Poplar	*Liriodendron tulipifera*	35	Good	53.40
273	Scarlet Oak	*Quercus coccinea*	35	Fair	51.60
276	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	52.50
279	Tulip Poplar	*Liriodendron tulipifera*	34.3	Good	52.50
282	Scarlet Oak	*Quercus coccinea*	40.8	Good	47.55
301	Tulip Poplar	*Liriodendron tulipifera*	30.3	Good	51.45
323	Tulip Poplar	*Liriodendron tulipifera*	33.4	Good	45.45
363	Tulip Poplar	*Liriodendron tulipifera*	31.9	Fair	50.10
365	Tulip Poplar	*Liriodendron tulipifera*	36.9	Good	52.35
368	Tulip Poplar	*Liriodendron tulipifera*	38.4	Good	55.35
380	Tulip Poplar	*Liriodendron tulipifera*	36.3	Good	57.60
384	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	47.85
494	Willow Oak	*Quercus phellos*	48.3	Good	57.60
566	Northern Red Oak	*Quercus rubra*	32.7	Good	72.45
623	Tulip Poplar	*Liriodendron tulipifera*	32.1	Good	48.00
695	American Sycamore	*Platanus occidentalis*	50	Good	75.00

Appendix B: Specimen Tree Impact Summary Table

Specimen Tree Impact Summary Table													
Tree ID	**Type**	**Common Name**	**Scientific Name**	**DBH**	**Health**	**% CRZ Impacted**	**Expected Impact**	**Worst Case Impact**	**Cause of Removal**	**Removal Process**	**Notes**	**Requested for Variance**	**Mitigation**
20	Specimen	White Pine	*Pinus strobus*	30	Fair	11%	5					Yes	Off-site forest bank
30	Specimen	White Pine	*Pinus strobus*	30.6	Fair	9%	5						
36	Specimen	White Pine	*Pinus strobus*	30.0	Good		5	1				Yes	Off-site forest bank
42	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.9	Good		5	1				Yes	Off-site forest bank
45	Specimen	Black Cherry	*Prunus serotina*	52.1	Good	12%	5						
48	Specimen	Red Maple	*Acer rubrum*	31.3	Good	30%	5						
49	Specimen	Black Cherry	*Prunus serotina*	35.3	Good		5	1				Yes	Off-site forest bank
50	Specimen	Red Maple	*Acer rubrum*	36.5	Poor		5	1				Yes	Off-site forest bank
54	Specimen	White Pine	*Pinus strobus*	30	Good	31%	5						
55	Specimen	Black Cherry	*Prunus serotina*	30.4	Fair	31%	5					Yes	Off-site forest bank
58	Specimen	Willow Oak	*Quercus phellos*	35.0	Good		5	1				Yes	Off-site forest bank
59	Specimen	Black Cherry	*Prunus serotina*	30.0	Good		5	1				Yes	Off-site forest bank
69	Specimen	Black Willow	*Salix nigra*	34.8	Poor		5	1				Yes	Off-site forest bank
77	Specimen	Silver Maple	*Acer saccharinum*	32.4	Good	43%	3	1				Yes	Off-site forest bank
84	Specimen	White Pine	*Pinus strobus*	34.8	Good	1%	5					Yes	Off-site forest bank
91	Specimen	White Pine	*Pinus strobus*	51.0	Good	43%	5	1				Yes	Off-site forest bank
92	Specimen	Red Maple	*Acer rubrum*	32.8	Good	7%	5					Yes	Off-site forest bank
94	Specimen	Red Maple	*Acer rubrum*	30	Fair	29%	5					Yes	Off-site forest bank
95	Specimen	Silver Maple	*Acer saccharinum*	38.6	Good	26%	5					Yes	Off-site forest bank
102	Specimen	Scarlet Oak	*Quercus coccinea*	40.1	Good	38%	5	1				Yes	Off-site forest bank
104	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34	Good	23%	5					Yes	Off-site forest bank
107	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.5	Good	4%	5					Yes	Off-site forest bank
108	Specimen	Northern Red Oak	*Quercus rubra*	36.1	Good	3%	5					Yes	Off-site forest bank
118	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.6	Good	1%	5						
119	Specimen	Sugar Maple	*Acer saccharum*	32.0	Good		1		R-IP	See note #14		Yes	Off-site forest bank
120	Specimen	Silver Maple	*Acer saccharinum*	32.5	Fair	5%	3					Yes	Off-site forest bank
124	Specimen	Red Maple	*Acer rubrum*	49.8	Good	27%	5					Yes	Off-site forest bank
132	Specimen	Silver Maple	*Acer saccharinum*	36.9	Good	1%	5					Yes	Off-site forest bank
133	Specimen	Silver Maple	*Acer saccharinum*	44.5	Good	5%	5					Yes	Off-site forest bank
137	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	38%	5	1				Yes	Off-site forest bank
139	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.8	Good	19%	3					Yes	Off-site forest bank
146	Specimen	Tulip Poplar	*Liriodendron tulipifera*	37.2	Good	8%	5					Yes	Off-site forest bank
151	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	1%	5					Yes	Off-site forest bank
158	Specimen	Red Maple	*Acer rubrum*	30.3	Good	2%	5					Yes	Off-site forest bank
159	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.8	Good	3%	5					Yes	Off-site forest bank
160	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.6	Good	32%	5					Yes	Off-site forest bank
186	Specimen	American Sycamore	*Platanus occidentalis*	49.3	Good	0.1%	5						
231	Specimen	Northern Red Oak	*Quercus rubra*	34.8	Good	45%	5	1				Yes	Off-site forest bank
232	Specimen	White Oak	*Quercus alba*	36.5	Good		1		R-SL	See note #14		Yes	Off-site forest bank
233	Specimen	Northern Red Oak	*Quercus rubra*	30.1	Fair		1		R-SL	See note #14		Yes	Off-site forest bank
234	Specimen	Northern Red Oak	*Quercus rubra*	32.7	Good	30%	5					Yes	Off-site forest bank
235	Specimen	Scarlet Oak	*Quercus coccinea*	30.7	Good		1		R-SL	See note #14		Yes	Off-site forest bank
252	Specimen	White Oak	*Quercus alba*	35.6	Good	4%	5					Yes	Off-site forest bank
257	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.4	Good	32%	5					Yes	Off-site forest bank
259	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35	Good	4%	5					Yes	Off-site forest bank
273	Specimen	Scarlet Oak	*Quercus coccinea*	35	Fair	15%	5					Yes	Off-site forest bank
276	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.7	Good	1%	5					Yes	Off-site forest bank
279	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.3	Good	29%	5					Yes	Off-site forest bank
282	Specimen	Scarlet Oak	*Quercus coccinea*	40.8	Good	0.003%	5					Yes	Off-site forest bank
301	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.3	Good	3%	5					Yes	Off-site forest bank
313	Specimen	White Oak	*Quercus alba*	32.1	Good	33%	5	1				Yes	Off-site forest bank
323	Specimen	Tulip Poplar	*Liriodendron tulipifera*	33.4	Good	8%	5					Yes	Off-site forest bank
357	Specimen	Red Maple	*Acer rubrum*	34.9	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
363	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Fair	29%	5				TBD-final stream design	Yes	Off-site forest bank
365	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.9	Good	11%	5				TBD-final stream design	Yes	Off-site forest bank
367	Specimen	Tulip Poplar	*Liriodendron tulipifera*	40.2	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
368	Specimen	Tulip Poplar	*Liriodendron tulipifera*	38.4	Good	30%	5				TBD-final stream design	Yes	Off-site forest bank
379	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.9	Good	47%	5	1			TBD-final stream design	Yes	Off-site forest bank

Tree ID	Type	Common Name	Scientific Name	DBH	Health	% CRZ Impacted	Expected Impact	Worst Case Impact	Cause of Removal	Removal Process	Notes	Requested for Variance	Mitigation
380	Specimen	Tulip Poplar	*Liriodendron tulipifera*	36.3	Good	7%	5				TBD-final stream design	Yes	Off-site forest bank
384	Specimen	Tulip Poplar	*Liriodendron tulipifera*	31.4	Good	24%	5				TBD-final stream design	Yes	Off-site forest bank
387	Specimen	Tulip Poplar	*Liriodendron tulipifera*	34.0	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
393	Specimen	White Oak	*Quercus alba*	38.4	Poor	51%	5	1				Yes	Off-site forest bank
408	Specimen	White Oak	*Quercus alba*	35.3	Good	38%	5	1				Yes	Off-site forest bank
494	Specimen	Willow Oak	*Quercus phellos*	48.3	Good	1%	5					Yes	Off-site forest bank
520	Specimen	Mockernut Hickory	*Carya tomentosa*	27.2	Good		1		R-SL	See note #14		Yes	Off-site forest bank
566	Specimen	Northern Red Oak	*Quercus rubra*	32.7	Good	30%	3					Yes	Off-site forest bank
582	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.0	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
623	Specimen	Tulip Poplar	*Liriodendron tulipifera*	32.1	Good	1%	5				TBD-final stream design	Yes	Off-site forest bank
629	Specimen	Red Maple	*Acer rubrum*	30.2	Good		5	1			TBD-final stream design	Yes	Off-site forest bank
635	Specimen	Swamp Chestnut Oak	*Quercus michauxii*	33.5	Fair		5	1			TBD-final stream design	Yes	Off-site forest bank
641	Specimen	Tulip Poplar	*Liriodendron tulipifera*	35.0	Fair		5	1			TBD-final stream design	Yes	Off-site forest bank
667	Specimen	Northern Red Oak	*Quercus rubra*	31.6	Good		1		R-AC	See note #14		Yes	Off-site forest bank
673	Specimen	Mockernut Hickory	*Carya tomentosa*	25.2	Good		1		R-AC	See note #14		Yes	Off-site forest bank
695	Specimen	American Sycamore	*Platanus occidentalis*	50	Good	2%	5					Yes	Off-site forest bank
3A	Specimen	Tulip Poplar	*Liriodendron tulipifera*	30.0	Fair		5	1			TBD-final stream design	Yes	Off-site forest bank