

Natural Heritage – Locality Liaison/Habitat Restoration

Final Report for FY2014 VCZMP Grant No. NA14NOS4190141 Task #6

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*Virginia Department of Conservation and Recreation –
Division of Natural Heritage*



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The views expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Department of Commerce, NOAA, or any of its sub agencies.

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Executive Summary

During the FY2014 grant year, the Locality Liaison reviewed 886 projects for impacts to natural heritage resources in the coastal zone (44% of the projects reviewed statewide). Several projects for renewable energy were submitted this year, with five different solar projects as well as continuing studies for offshore wind studies and their onshore impacts. James City County has continued to be an active partner with DCR's Natural Heritage Program, requesting review for mitigation of the Hampton Roads Sanitary District Williamsburg Force Main project impact to natural heritage resources.

Coastal localities and other conservation partners participated in eight training sessions for the Natural Heritage Data Explorer (NHDE) website (<https://vanhde.org>) including 15 from state agencies, 1 from a Federal agency, 8 from local governments, 1 from a Planning District Commission, 8 Soil and Water Conservation Districts, 2 from land trusts, and 5 from consulting companies. At the end of FY214, there were twenty-five coastal counties and fifteen coastal cities, eight Planning District Commissions (100%) and sixteen land trusts (66%) within the Coastal Zone with access to NHDE, digital shapefile data, and/or a combination of these tools. This equates to 91% of Coastal Zone counties or cities having Natural Heritage data, 100% of the Planning District Commissions and 66% of the Land Trusts.

Presentations included an overview of DCR's Natural Heritage Program, the Locality Assistance Program, and the Natural Heritage Data Explorer (NHDE) website highlighting the Virginia ConservationVision models, and the Virginia Species and Communities Database Search. In addition, other online conservation tools were presented including the Virginia Wetlands Catalog and the Coastal Ecological Value Assessment (Coastal VEVA), part of the Virginia DEQ's Coastal GEMS. Natural Heritage information is updated quarterly on the NHDE website and shapefiles including the updated information are also distributed to licensed users. During FY14, 341 projects were submitted through the NHDE, 40% of all the projects submitted statewide.

DCR worked with NatureServe to update the Natural Heritage Data Explorer Species and Community Search to include a planning district and coastal zone filters (<https://vanhde.org/species-search>). The Locality Liaison worked with the data management specialist to improve tracking of Natural Heritage Data Explorer licenses and renewed or initiated 64 licenses throughout this year.

The Locality Liaison also added a quarterly coastal species highlight section to the Local Assistance webpage (<http://www.dcr.virginia.gov/natural-heritage/localityliaison>) and the locality map (<http://www.dcr.virginia.gov/natural-heritage/localitiesmap>) was updated quarterly identifying localities with natural heritage data.

On October 10, 2015, the Locality Liaison gave a brief introduction to the Natural Heritage Program and the Natural Heritage Data Explorer to the approximately 45 participants of the Virginia Chapter of the American Society of Landscape Architects' annual meeting.

Introduction

Through the Locality Liaison program, the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) works with local and regional planners to assist them in fully utilizing natural heritage resource information as well as the consultative services we provide to ensure protection of natural heritage resources. The Locality Liaison program seeks to establish natural heritage resource information as part of fundamental locality decision-making criteria through tools such as project review, comprehensive planning, project sitings, zoning amendments, and open space planning.

The Virginia Coastal Zone Management Program (VCZMP) and the Chesapeake Bay Program initiatives have generated interest in land use issues within the Coastal Zone. In addition, the Bay Total Maximum Daily Load (TMDL) program is encouraging localities to incorporate green infrastructure into their land planning. Coastal localities are developing conservation objectives, identifying potential areas for protection and looking at innovative approaches in making land use decisions that will improve water quality. The Locality Liaison program continues to work to have natural heritage resources play a larger role in helping localities find beneficial answers to the problems and opportunities they face.

Staffing

Alli Baird currently serves as the Coastal Zone Locality Liaison (Locality Liaison) and reviews projects within the coastal zone with assistance from other environmental review staff. Rene' Hypes (Environmental Review Coordinator) provides general oversight for all projects reviewed within the Coastal Zone. Numerous other DCR-DNH staff members also support the Locality Liaison program, including Data Manager Megan Rollins, Information Manager Jason Bulluck, Project Review Assistants, and various Natural Heritage biological inventory personnel.

Environmental Review

The DCR-DNH Environmental Review Section, to which the Locality Liaison is assigned, works with local, state, and federal government agencies as well as private individuals and consultants to assess the potential for proposed activities to impact natural heritage resources and to recommend ways to avoid or minimize these impacts. The Locality Liaison has primary responsibility for reviewing projects in the Coastal Zone. She conducts the review for Coastal Zone projects and provides oversight for the Project Review staff assisting in the review process. During this grant year, DCR-DNH has reviewed 886 projects in the Coastal Zone. This represents 44% of the projects reviewed statewide by DCR-DNH.

Through environmental review, the Locality Liaison provides service in connecting clients directly to needed information about natural heritage resources. With the state's most comprehensive database for rare, threatened and endangered species and significant natural

communities, environmental review provides an opportunity for cooperating with other organizations. Many private consultants routinely and voluntarily coordinate with DCR-DNH before taking development project applications to regulatory agencies. Though DCR-DNH does not have regulatory authority, it has agreements with regulatory agencies that rely on our natural heritage resource data. The United States Army Corps of Engineers (ACOE) and the Department of Environmental Quality (DEQ) Virginia Water Protection Permit Program (VWPP) screen wetland development projects against the DCR-DNH database and forward potential conflicts for our comment. The DEQ Virginia Pollutant Discharge Elimination System (VPDES) program also screens issuance and re-issuances of permits for point source discharges to surface waters against the DCR-DNH database, and the Virginia Department of Health screens for issuance or re-issuance of pump-out facilities as part of their permitting process. The Virginia Marine Resource Commission relies on the DCR-DNH to review Joint Permit Applications for potential impacts to natural heritage resources. Virginia Soil and Water Conservation Districts, which coordinate local natural resource protection programs, rely on DCR-DNH for information to include in local agricultural conservation planning. The United States Fish and Wildlife Service (USFWS) also relies heavily on DCR-DNH data for their own regulatory responses. The USFWS Information, Planning, and Conservation (IPaC) System web site on-line screening process includes DCR-DNH species distribution models and references the Natural Heritage website for species coordination purposes. Additionally DCR-DNH provides information on natural heritage resources to the Virginia Outdoors Foundation as they work on developing conservation easements.

The DCR-DNH has a Memorandum of Agreement with the Virginia Department of Game and Inland Fisheries (VDGIF) for sharing of data and species coordination between the two agencies. In addition to regulatory agencies, the Virginia Department of Transportation (VDOT) integrates Natural Heritage data into CEDARs, their internal database for environmental screening purposes, and uses the Natural Heritage Data Explorer for submitting transportation projects. Also, under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR-DNH represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

Specific Projects

Fairfax County Parks Authority

Braddock Road and Pleasant Valley Road Intersection Improvements

VDOT proposed a roundabout at the intersection of Braddock Road and Pleasant Valley Road in Fairfax County (Appendix A). The project as proposed was within the Rock Hill Conservation Site which is also the Rock Hill District Park managed by the Fairfax County Park Authority. The Rock Hill Conservation Site has three natural heritage resources associated with it: Purple milkweed, Flat-stemmed spikerush and a Piedmont Upland Depression Swamp (Pin oak-Swamp White Oak Type). In addition, diabase soils are present, which can support occurrences of several global and state rare species. DCR-DNH recommended surveys for the diabase rare

plants and supported recommendations of the Fairfax County Park Authority to design the project to avoid or minimize impacts to the documented resources including avoidance of alteration of the hydrology to the wetlands in the park that would impact the sensitive plant community and rare species. Subsequent submittals have indicated that the footprint of the project has been altered to minimize impact to the Rock Hill Conservation Site.

Columbia Gas Transmission Line - WB Xpress Project

One of the several sites proposed with this project (Site 3) is within the Bull Run Diabase Flatwoods and the Ellick Diabase Flatwoods Conservation Sites (Appendix A). The original proposed infrastructure alignment intersected a significant natural community, the Northern Hardpan Basic Oak Hickory Forest, in both conservation sites. In addition, Purple milkweed and Torrey's mountain-mint have been documented in the Bull Run Diabase Flatwoods. Stiff goldenrod, historically documented in the existing ROW, is intersected by the project along the existing transmission line and diabase glades within the project site have the potential to support several globally and state rare plant species. Furthermore, the Ellick Woodlands Natural Area Preserve is located within the project area and is owned by the Fairfax County Parks Authority and DCR. Through written comments and participation in bi-weekly conference calls, DCR-DNH strongly recommended avoidance of the significant rare communities within the conservation sites, and a survey for the rare plants associated with diabase glades. DCR-DNH also recommended coordinating with the Parks Authority and the DCR Northern Region Natural Area Steward in regards to the impacts to the natural area preserves. The consultant subsequently submitted an alternate location for the pipeline ROW that avoids the Ellick Woodlands Natural Area Preserve and an alternate location to the southern edge of the Bull Run Diabase Flatwoods Conservation Site / Fairfax Park Authority Hickory Forest Park along Bull Run Post Office Road.

National Park Service

Manassas Battlefield Park Fire Management Plan

DCR-DNH provided written comments supporting Alternative 2 of the National Park Service's Manassas Battlefield Fire Management Plan (Appendix B) with several caveats. DCR recommended the limited use of herbicide targeting individual woody stems only, to avoid the intrusion of weedy non-native and native annuals into areas of dominant native perennial herbs / grasses. DCR also recommended avoiding the use of goats in areas containing rare plant populations and replanting with a native plant mix only when needed to reclaim formerly fallow areas or areas where the native vegetation has been removed or overwhelmed by exotic species. As specific projects are proposed, DCR recommended re-review for recommendations specific to the particular location.

James City County

Hampton Roads Sanitation District Williamsburg Force Main

The Hampton Roads Sanitation District (HRSD) Williamsburg Force Main project is a proposal to replace a deteriorating pipeline for a new force main pipeline through Grove Creek Conservation site (Appendix C). The Grove Creek ravine is a rare example of a Coastal Plain drainage that has downcut into deep deposits of Tertiary shell deposits and supports three globally rare natural communities, the Coastal Plain Calcareous Ravine Forest, Coastal Plain Dry Calcareous Forest and Coastal Plain Calcareous Seepage Swamp. A state rare plant, Mountain camellia is also associated with the Grove Creek Conservation Site. In addition, the Coastal Plain Dry Calcareous Forest is in the vicinity of the project area. DCR-DNH recommended a survey for the Mountain camellia, and strongly recommended that the force main right-of-way (ROW) be maintained in the existing location. While the proposed location of the new ROW was approved, James City County staff required coordination with DCR –DNH to assure that the proposed mitigation would replace existing vegetation removed by the project and take steps to avoid invasives entering the ROW.

Renewable Energy Projects

Eastern Shore Solar

The Eastern Shore Solar Project, located in northern Accomack County, will use a traditional photovoltaic solar module to produce electricity that will be connected to the regional grid. The four sub-projects will generate a total of 80 Megawatts for use by local homes and businesses. The proposed Eastern Shore Solar plan (Appendix D) is adjacent to the Pitts Creek Conservation Site that includes two rare plants and three rare natural communities. In addition, two additional conservation sites, the Jenkins Bridge and New Church Powerline Wetland Conservation Sites are within two miles of the project area. DCR biologists determined that there is potential for the Awnead Mountain –mint, Pine-barrens peanut grass, and Bronze copper within the project area and recommended a survey to better evaluate potential impacts to these natural heritage resources. However, DCR-DNH does not anticipate adverse impacts to these resources if directional drilling is used to avoid wetlands when connecting transmission lines between arrays. As an alternative to a fescue lawn mix, DCR-DNH recommended use of a native plant species such as Indian grass, Big or Little bluestem with maintenance mowing around the arrays .DCR-DNH recommended the development and implementation of an invasive species management plan implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers and maintaining natural stream flow. In addition, the project falls within the Coastal Avian Protection Zone 5. Due to potential impacts to migratory songbirds, DCR-DNH recommended closely monitoring avian species mortality during the facility operations with the funding provided by the applicant for avian research per the permit by rule requirement, preventative measures if there are significant avian fatalities and reporting of findings back to natural resource agencies on an annual basis. Finally, DCR supported the establishment of a “Solar Walk” for the purpose of highlighting benefits of native plants, historic and solar energy education.

City of Virginia Beach

Virginia Offshore Wind Technology Advancement Project

In addition to proposed activity at the offshore location, the off shore wind project (Appendix D) includes installation of onshore components connecting the wind turbines to switching and interconnection stations. DCR-DNH supported horizontal directional drilling under sensitive coastal habitats, installation within the existing rights-of-way and placing facilities within previously disturbed areas. In addition, DCR-DNH recommended the use of flashing aviation safety lights on the wind turbine nacelles and anti-perching devices on the foundations to reduce the potential for impacts. The implementation of a post-construction monitoring program was supported as well as a recommendation to re-submit the project when information and map for an update on this natural heritage information once the construction laydown area(s), construction port and the operations and maintenance facility with associated base port locations are identified and/or six months has passed before it is utilized.

Private Landowner

Grices Run at Carter's Grove-James City County

A private landowner employed a landscape architecture firm to help develop a conservation and restoration management plan for a property under a conservation easement. (Appendix E) The owner expressed a desire to manage the property to support natural heritage resources. DCR provided information on the Grices Run Natural Area Conservation Site including the site visit information and element occurrence record for the Coastal Plain Dry Calcareous Forest / Woodland and Mountain camellia on site, as well as a locational map to assist in the planning analysis and recommendations.

Natural Heritage Data and Natural Heritage Data Explorer

The heart of DCR-DNH's service to localities is the set of databases and information tools that indicate what is rare, where the rarities are, and how they can be protected. As of September 30, 2015, DCR-DNH databases contain information about approximately 9,254 specific occurrences of natural heritage resources, 2,368 of which reside in the coastal zone. Over the years, DCR-DNH has continually worked to improve the quality of the data and the utility of the tools used to present the data to researchers, planners, and decision-makers. All DCR-DNH data has been converted to modified polygons within the GIS system. Conservation sites are now the primary mechanism for distributing natural heritage location information for public use. Conservation sites identify areas that potentially warrant conservation action because of the associated natural heritage resources and the habitat required for their survival. They incorporate contextual information about the key areas of the landscape surrounding the actual locations of natural heritage resources that are necessary to ensure protection of those resources. DCR-DNH

currently tracks over 2,031 conservation sites, of which 555 are in the coastal zone as of September 30, 2015. These sites are continuously being updated by DCR-DNH staff.

The Virginia Natural Heritage Data Explorer (NHDE) allows Internet users to access Natural Heritage data on a remote website. This ArcServer GIS informational tool can alert planners to potential areas of opportunity or concern, facilitate proactive planning for county resources, and allow preliminary screening of projects and activities for potential impacts to natural heritage resources. In addition, licensed user may submit projects for review through the website. The natural heritage data on the website is updated quarterly, as updates are released for digital screening coverage shapefiles.

The website includes the Species and Communities Search function which allows users to search for a list of natural heritage resources by various filters including localities, coastal zone and planning district commissions. The Virginia ConservationVision models are also accessible through the website, which help target conservation efforts by guiding comprehensive planning. Several different levels of access are available, from a public access level to a paid subscription with increasing information made available to different Tier level users. The Natural Heritage Data Explorer website tool can be accessed at <https://vanhde.org/>.

Training sessions for the Natural Heritage Data Explorer have generally been held on an every-other-month basis. Three training days were held at various localities throughout the state including the Virginia Institute of Marine Science, and others were held in Richmond utilizing the DEQ computer lab. Training is provided by the project review staff, including the Locality Liaison. The general training sessions are open to all organizations, but may be divided into three sections according to the user's tier access level. During this grant year, 8 separate hands-on training sessions for NHDE were held for coastal zone participants.

Approximately 844 projects have been submitted through NHDE within the FY2014 with 341 from the coastal zone. In addition, 145 projects statewide including 35 in the coastal zone did not have natural heritage resources within two miles of the project location with a report automatically sent to the requestor from the NHDE website application stating this information and that no further review was required by DCR-DNH staff. Improvements to internal project review efficiency have been achieved through enhanced database query functions, updates to the fillable on-line information services order forms and increasing the number of projects reviewed electronically.

Participants in Locality Liaison Presentations

Presentations included an overview of DCR's Natural Heritage Program, the Locality Assistance Program, the Natural Heritage Data Explorer (NHDE) website and ConservationVision models. Additional information was provided about the Virginia Wetlands Catalog and the Coastal Virginia Ecological Value Assessment (VEVA), part of DEQ's Coastal GEMS website application.

Coastal participants in the training sessions included 15 from state agencies, 1 from a Federal agency, 8 from local governments, 1 from a Planning District Commission, 8 Soil and Water Conservation Districts, 2 from a land trusts and 5 from consulting companies. A list of the local governments, conservation partners and state, federal agencies and consultants that participated in these training sessions can be found in Appendix F.

Locality Partnerships with DCR-Natural Heritage

The Locality Liaison has worked with localities within the Coastal Zone to encourage comprehensive use of natural heritage data and DCR-DNH services for conservation planning.

At the end of FY14, there were twenty-five coastal counties and fifteen coastal cities, eight Planning District Commissions and sixteen land trusts within the Coastal Zone with access to NHDE, digital shapefile data, and/or a combination of these tools. This equates to 91% of Coastal Zone counties or cities having Natural Heritage data, 100% of the Planning District Commissions and 66% of the Land Trusts. The Locality Liaison updated the website map (<http://www.dcr.virginia.gov/natural-heritage/localitiesmap>) quarterly to display localities with natural heritage data, reflecting the current status. Please see Appendix G for a map of the Virginia localities with Natural Heritage information. The Locality Liaison worked with the data management specialist to improve tracking of Natural Heritage Data Explorer licenses and renewed or initiated 64 licenses throughout this year.

DCR worked with NatureServe to update the Natural Heritage Data Explorer Species and Community Search to include a planning district and coastal zone filters (<https://vanhde.org/species-search>). (Appendix H)

On October 10, 2015, the Locality Liaison gave a brief introduction to the Natural Heritage Program and the Natural Heritage Data Explorer to the approximately 45 participants of the Virginia Chapter of the American Society of Landscape Architects' annual meeting. Please see Appendix I for a copy of the handout.

A Species Highlight section has been added to the Locality Liaison webpage. On a quarterly basis a particular coastal species was highlighted by adding a photograph to the webpage that, when clicked, would take the viewer to a pop-up with additional species and habitat description. (Appendix J)

Habitat Restoration and Protection Initiatives

Virginia Wetlands Catalog

The Virginia Wetlands Catalog contains potential wetland restoration sites that are within or adjacent to Natural Heritage Conservation Sites. This catalog is intended to guide localities and regulatory agencies to appropriate sites for various conservation purposes including wetland

mitigation. These sites represent high-probability opportunities to design and implement high-value wetland restoration projects.

The Virginia Natural Heritage Program developed a revised methodology for updating and modifying the Virginia Wetlands Catalog, starting with the development of a wetlands basemap that includes all National Wetland Inventory wetlands, as well as other predicted wetlands based on analyses of soils data, floodplains, and agricultural wetlands data. All wetlands in this statewide basemap were then prioritized for their conservation and restoration values, using various datasets that identify each wetland's contributions to biodiversity conservation, wildlife habitat and/or water quality. This methodology was tested in an 11-subwatershed pilot area of the Pamunkey River of Virginia.

With findings from the Pamunkey Pilot and with funding from the Natural Resources Conservation Service (NRCS), DCR-DNH, The Nature Conservancy (TNC), and the Virginia Department of Transportation (VDOT), DCR-DNH is currently completing a statewide Virginia Wetlands Catalog. In November, 2014, the Catalog was be provided to the CZMP and other conservation partners as distinct and separate map-based summaries of wetland conservation and restoration opportunities ranked from 1-Outstanding to 5-General value. Both conservation and restoration opportunities are mapped by sub-watershed boundaries, wetland boundaries and tax parcel IDs in six separate map outputs. The revised catalog provides a wetland and stream conservation and restoration prioritization tool for use in ranking specific opportunities for wetland and stream mitigation and shared with other conservation partners as part of the locality liaison presentations. It is now available for download on the DCR Natural Heritage website (<http://www.dcr.virginia.gov/natural-heritage/wetlandscat>). In addition to the Natural Resource Conservation Service, approximately 30 local, state and private partners have downloaded the catalog and are utilizing the catalog for their work.

State Parks Planning Review

Natural Heritage staff participated on an advisory committee for state parks to discuss their master planning efforts. DCR staff review the park's resource information to consider appropriate park development. This process has provided state park planners with natural heritage resource information early in the planning stages to prevent impacts to resources.

Virginia Aquatic Resources Trust Fund Interagency Review Team

The Corps-Norfolk District and DEQ chair the Virginia Aquatic Resources Trust Fund (VARTF) Interagency Review team that reviews and approves wetland and stream mitigation projects. Once approved these projects serve as an acceptable form of compensatory mitigation for impacts to state waters, including wetlands, permitted under Virginia Water Protection individual and general permits. DCR-DNH environmental review coordinator was asked to join the VATRF interagency review team reviewing proposed wetland mitigation projects in the coastal zone as well as the other parts of the state.

Recommendations for Further Actions

The Locality Liaison program has proven most effective when the Locality Liaison can become actively involved in a specific project of concern to the locality such as the partnership with James City County. Furthermore, interest in natural heritage information often depends on timing such as whether a comprehensive plan is under review or a major development project is being considered. Thus, the Locality Liaison will strive to stay aware of upcoming locality events through coordination with other Heritage regional and agency staff. The Liaison continues to identify when Coastal Zone localities comprehensive plans are due for review and will contact these localities at the appropriate time to offer assistance.

The Natural Heritage Data Explorer training will continue to be available every other month to provide interested users with the ability to access natural heritage information. In addition to on-site training, the ability for participants to attend by webinar may also be included to increase participation by localities in NHDE training sessions.

40 Coastal Zone localities currently have access to the NHDE or digital shapefile Natural Heritage data. It is very important to provide follow-up assistance to these localities beyond the initial presentation and delivery of data. The Locality Liaison plans to work with these localities to determine how these data are being used and discuss local needs for further assistance. Additionally, localities that had used the NHDE in the past, but have not attended training for the upgraded NHDE will be targeted in FY15. It is also important to keep in contact with the localities due to possible staffing changes.

The Locality Liaison will continue to focus on contacting localities that currently do not have Natural Heritage data, with Middlesex and King and Queen Counties being targeted for FY15. In some cases this may involve contacting departments other than planning, such as GIS, Environmental, Recreation, Parks or Utilities departments if they are separate entities. This may also involve an effort to assist localities in developing ordinances or regulations necessitating the review of Natural Heritage information for certain projects, including renewable energy projects. Contacting PDCs may help in identifying the best way to involve some of the localities.

The Locality Liaison web page will be updated and revised to continue to provide relevant natural heritage information for localities as well as updating the quarterly coastal species section and the map of localities with Natural Heritage data. The Liaison will work to further the promotion and use of the Virginia Wetlands Catalog as an effective tool for planning and environmental review processes. The Locality Liaison along with the project review staff will continue to work to improve the environmental review process.

Appendix A

Letters for
Fairfax County Parks Authority

Molly Joseph Ward
Secretary of Natural Resources



Joe Elton
Deputy Director of Operations

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
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December 12, 2014

Amy Dooley
DEQ-NRO
13901 Crown Court
Woodbridge, VA 22193

Re: WP3-14-1730, Braddock Road and Pleasant Valley Road Intersection Improvements

Dear Ms. Dooley:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Rock Hill Conservation Site is within the project area. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Rock Hill Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources of concern associated with this site are:

Purple milkweed	<i>Asclepias purpurascens</i>	G4G5/S2/NL/NL
Flat-stemmed spikerush	<i>Eleocharis compressa</i>	G4/S2/NL/NL
Piedmont Upland Depression Swamp (Pin Oak-Swamp White Oak Type)		G2/S1/NL/NL

Purple milkweed occurs in prairies, woodland openings/edges, and thickets, and in wet situations as well as on dry, rocky ridgetops, along roadsides and rights-of-way (NatureServe, 2004). The plant flowers in June and July. It occurs in eastern North America from Ontario and New Hampshire south to Georgia and west as far as South Dakota and Texas. However, distribution is spotty in parts of the range,

especially along the northeastern seaboard, in the southeast (Virginia to Mississippi), and in the northern midwest. Purple milkweed is currently known from 9 locations in Virginia.

Flat-stemmed spikerush (*Eleocharis compressa*, G4/S2/NL/NL), a state rare perennial sedge, generally inhabits limestone and dolostone glades and barrens (Weakley, in prep.) and temporarily flooded soils where calcareous conditions prevail. This plant fruits from late spring to winter (Flora of North America Editorial Committee 2002). Flat-stemmed spikerush is currently known from eight locations in Virginia's Piedmont and Ridge and Valley physiographic provinces.

Piedmont Upland Depression Swamp (Pin Oak – Swamp White Oak Type) is a wetland forest community nearly endemic to hardpan soils of the Culpeper Basin in northern Virginia (Fairfax, Fauquier, Culpeper, Loudoun, and Prince William counties) and Montgomery County, Maryland, with a few known outliers elsewhere in the Piedmont and the Ridge and Valley of both states. Habitats are shallow, seasonally flooded upland basins and wet, elongated bottoms along sluggish small streams with little or no active alluvial deposition (Fleming et al., 2011). These habitats are characterized by shallow seasonal flooding induced by perched groundwater. Moderate hummock-and-hollow microtopography is often present, and maximum flooding depth is usually <25 cm (10 inches) (Fleming et al., 2011). A-horizon soils are dark brown to blackish, loamy clays which typically exhibit pronounced orange and white mottling and have moderate base status. These are typically underlain by sticky, light-colored clay subsoils that impede drainage. This type is most common on areas underlain by diabase but also occurs on some soils weathered from siltstone and other metasedimentary substrates. The vegetation is an open forest or woodland dominated by pin oak (*Quercus palustris*), mixtures of pin oak and swamp white oak (*Quercus bicolor*), or less frequently swamp white oak alone. The invasive exotic Nepalese browntop (*Microstegium vimineum*) can be problematic on the drier edges and hummocks. Many occurrences of this community have been destroyed outright by development, and many others are imminently threatened with destruction, severe alteration, presence of invasive weeds, agricultural impacts such as grazing and ditching, and poor landscape context (NatureServe, 2010).

Several rare plants, which are typically associated with prairie vegetation and inhabit semi-open diabase glades in Virginia, may occur at this location if suitable habitat is present. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995).

In Northern Virginia, diabase supports occurrences of several global and state rare plant species: Earleaf False foxglove (*Agalinis auriculata*, G3/S1/NL/NL), Purple milkweed, American bluehearts (*Buchnera americana*, G5/S1S2/NL/NL), Downy phlox (*Phlox pilosa*, G5/S1/NL/NL), Torrey's Mountain-mint, Stiff goldenrod (*Solidago rigida* var. *rigida*, G5T5/S2/NL/NL), and Hairy hedgenettle (*Stachys arenicola*, G4/S1/NL/NL).

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for natural heritage resources including diabase rare plants in the project area. Please coordinate survey results with DCR. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR continues to support recommendations outlined in the Fairfax County Park Authority May 7, 2013 Memorandum including efforts to design the project to avoid or minimize impacts to the documented

sensitive resources and avoidance of alteration of the hydrology to the wetlands in Rock Hill District Park which could cause impacts to the sensitive plant community and species.

Many invasive plant species are adapted to take advantage of soil disturbances and poor soil conditions. These adaptations are part of what enable certain species to be invasive. Non-native invasive plants are found through Virginia. Therefore, the potential exists for some projects to further the establishment of invasive species. To minimize the potential for invasive species infestation, projects should be conducted to minimize the area of disturbance, and disturbed sites should be revegetated with desirable species at the earliest opportunity following disturbance. Equally as important, species used for revegetation should not include the highly invasive species that have traditionally been used for revegetating disturbed sites. We recommend avoid using Crown vetch, Tall fescue, Weeping lovegrass, and Autumn olive if at all possible.

For more information on invasive alien plants and native plants, see the DCR-Division of Natural Heritage website http://www.dcr.virginia.gov/natural_heritage/invspinfo.shtml. For sources of native plant material, see the Virginia Native Plant Society's website (<http://www.vnps.org>) or the U.S. Fish and Wildlife Service nursery list for Virginia (<http://www.fws.gov/ChesapeakeBay/BayScapes/bsresources/bs-nurseries.html>).

The Elicklick Woodlands Natural Area Preserve is documented in the project vicinity. Due to the distance to the natural area preserve, DCR does not anticipate impacts to the natural area preserve and associated natural heritage resources. Please note, Fairfax County Park Authority conserved lands are adjacent to the project area and DCR recommends continued coordination with Fairfax County Park Authority staff.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov). According to the information currently in our files, Cub Run has been designated by the VDGIF as being "Threatened and Endangered Species Waters" for the Wood turtle is within 2 miles of the project area. Therefore, DCR recommends coordination with DGIF, Virginia's regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,

Alli Baird

Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

Cc: Amy Ewing, VDGIF
Patricia Rosend, Fairfax County Park Authority

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Molly Joseph Ward
Secretary of Natural Resources



Joe Elton
Deputy Director of Operations

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804)786-6124

August 21, 2015

Karen Beatty
Natural Resource Group
121 W. Trade Street, Suite 2350
Charlotte, NC 28202

Re: Columbia Gas Transmission Line – WB Xpress Project, Submission 2, Virginia Sites 1-5

Dear Ms. Beatty:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the submitted shapefiles. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Sites 1, 4 and 5:

These project areas are situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. If such features are encountered during the project, please coordinate with Wil Orndorff (540-230-5960, Wil.Orndorff@dcr.virginia.gov) to document and minimize adverse impacts. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. If the project involves filling or “improvement” of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for stormwater discharge, copies of VDOT Form EQ-120 will suffice. New “Karst Assessment Guidelines” developed by the Virginia Cave Board for land development can be found at http://www.dcr.virginia.gov/natural_heritage/documents/karst_assessment_guidelines.pdf.

In addition, Site 4 is within the range of and overlies potential habitat for the state and federally threatened Madison Cave isopod (*Antrolana lira*, G2G4/S2/LT/LT). Because this species is a groundwater obligate crustacean, knowledge of its presence at specific locations within its range is poor, and sampling to determine its presence is difficult and frequently inconclusive. Projects involving the following components have potential to impact this species: 1) withdrawal of water from wells or lowering the water table, 2) alteration of sinkholes, cave entrances, or sinking streams, 3) waste water injection, 4) quarrying, 5) nutrient applications lacking a certified nutrient management plan, or 6)

discharge of water to a conveyance that discharges to a karst feature downstream. If the project meets one or more of these criteria, please coordinate with the DCR Karst Protection Coordinator Wil Orndorff (Wil.Orndorff@dcr.virginia.gov or 540-230-5960). Due to the legal status of the Madison Cave isopod, DCR recommends coordination with the US Fish and Wildlife Service (USFWS) and Virginia Department of Game and Inland Fisheries (VDGIF) to ensure compliance with protected species legislation.

Site 2:

According to the information currently in our files, the Little River Stream Conservation Unit (SCU) is located downstream from the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are also given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain. The Little River SCU has been given a biodiversity ranking of B2, which represents a site of very high significance. The natural heritage resources associated with this site are:

<i>Lasmigona subviridis</i>	Green floater	G3/S2/NL/LT
	Aquatic Natural Community	G2/S2/NL/NL
	Aquatic Natural Community	G3G4/S3S4/NL/NL

The Green floater, a rare freshwater mussel, ranges from New York to North Carolina in the Atlantic Slope drainages, as well as the New and Kanawha River systems in Virginia and West Virginia (NatureServe, 2009). In Virginia, there are records from the New, Roanoke, Chowan, James, York, Rappahannock, and Potomac River drainages. Throughout its range, the Green floater appears to prefer the pools and eddies with gravel and sand bottoms of smaller rivers and creeks, smaller channels of large rivers (Ortman, 1919) or small to medium-sized streams (Riddick, 1973). Please note that this species has been listed as state threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species.

The documented Aquatic Natural Communities are based on Virginia Commonwealth University’s **INSTAR** (*Interactive Stream Assessment Resource*) database which includes over 2,000 aquatic (stream and river) collections statewide for fish and macroinvertebrate. These data represent fish and macroinvertebrate assemblages, instream habitat, and stream health assessments. The associated Aquatic Natural Community is significant on multiple levels. First, one stream is a grade A- and the other stream is a grade B, per the VCU-Center for Environmental Sciences (CES), indicating its relative regional significance, considering its aquatic community composition and the present-day conditions of other streams in the region. The first stream reach also holds an “Exceptional” stream designation and the second stream reach holds a “Healthy” stream designation per the INSTAR Virtual Stream Assessment (VSS) score. This score assesses the similarity of this stream to ideal stream conditions of biology and habitat for this region. Lastly, these streams contribute to high Biological Integrity at the watershed level (6th order) based on number of native/non-native, pollution-tolerant/intolerant and rare, threatened or endangered fish and macroinvertebrate species present.

Threats to the significant Aquatic Natural Communities and the surrounding watershed include water quality degradation related to point and non-point pollution, water withdrawal and introduction of non-native species.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow. Due to the legal status of the Green floater, DCR also recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Site 3:

According to the information currently in our files, the Elklick Diabase Flatwoods and the Bull Run Diabase Flatwoods Conservation Sites are located within the project boundary. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Elklick Diabase Flatwoods Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources associated with this site are:

<i>Asclepias purpurascens</i>	Purple milkweed	G5/S2/NL/NL
	Northern Hardpan Basic Oak Hickory Forest	G3S3/NL/NL
<i>Pycnanthemum torreyi</i>	Torrey's mountain-mint	G2/S2/SOC/NL

The Northern Hardpan Basic Oak – Hickory Forest is endemic to the Culpeper Basin and western Piedmont foothills of Virginia and Maryland. This community is a subserice to submesic oak-hickory forest occurring in association with soils weathered from Triassic diabase but occasionally on soils weathered from other mafic rocks and siltstone. Most soils occupied by this community have plastic, hardpan subsoil or are shallow over bedrock, and some have pronounced shrink-swell properties. Forest canopies can be open to closed, sometimes stunted, with variable combinations of oaks (*Quercus alba*, *Quercus rubra*, *Quercus stellata*), hickories (*Carya glabra*, *Carya ovalis*, *Carya alba*), and *Fraxinus americana*. The lower strata contain eastern redbud (*Cercis canadensis*) and other plants indicative of base-rich soils, and the herb layer usually has a prominent component of forest grasses. Many stands of this community have been destroyed by suburban development and virtually all stands have been impacted to some extent by timber removal, conversion to pine silviculture, and grazing (Fleming, et al, 2011, NatureServe, 2010).

Torrey's mountain mint is a globally rare perennial herb with a mint-like odor. It measures 3 feet in height and has small white to purple flowers arranged in dense, terminal clusters that bloom in July - September (Strausbaugh & Core, 1978). It occurs in dry, rocky deciduous woods, along roadsides, powerline rights-of-way, calcareous seepage, and in thickets near streams. Populations of Torrey's mountain mint are found as small, dense colonies and are sensitive to minor habitat disturbances as well as stochastic events. Additional threats include woody plant succession, invasive species, herbicide use in

rights-of-way and roadside locations, road maintenance work, and general habitat destruction (NatureServe 2011). Surveys for this species should be conducted during the July-September flowering/fruitletting period.

Please note that this species is currently classified as a species of concern by the United States Fish and Wildlife Service (USFWS); however this designation has no official legal status.

The Bull Run Diabase Flatwoods Conservation Site has been given a rank of B4, which represents a site of moderate significance. The natural heritage resource of concern at this site is the Northern Hardpan Basic Oak-Hickory Forest.

DCR supports the alternate location of the pipeline Right-of-Way (ROW) within and south of the existing Virginia Power Electric Easement that avoids the Ellick Woodlands Natural Area Preserve as submitted by Natural Resource Group to DCR Division of Natural Heritage through the Natural Heritage Data Explorer on August 4, 2015(see attached map). In addition, DCR supports the alternate location of the pipeline ROW to the southern edge of the Bull Run Diabase Flatwoods Conservation Site / Fairfax County Park Authority Hickory Forest Park along Bull Run Post Office Road, avoiding the Northern Hardpan Basic Oak-Hickory Forest within the park to the maximum extent practicable.

There is a small subpopulation of Torrey’s Mountain-mint at the edge of the woods within the Atlantic Seaboard / Columbia Gas Easement headed east north-east within the Ellick Woodlands Natural Area Preserve (see attached map). DCR recommends that these rare plants be located through an inventory, marked, and protected during the construction.

Finally, one extant and one historic occurrence of Purple milkweed (*Asclepias purpurascens*, G5?/S2/NL/NL) and historic occurrences of Stiff goldenrod (*Solidago rigida* var. *rigida*, G5T5/S2/NL/NL), and Earleaf false foxglove (*Agalinis auriculata*, G3/S1/NL/NL) have been documented within the project area along the existing transmission lines (see attached map). Purple milkweed occurs in prairies, woodland openings/edges, and thickets, and in wet situations as well as on dry, rocky ridgetops, along roadsides and rights-of-way (NatureServe, 2004). The plant flowers in June and July. It occurs in eastern North America from Ontario and New Hampshire south to Georgia and west as far as South Dakota and Texas. However, distribution is spotty in parts of the range, especially along the northeastern seaboard, in the southeast (Virginia to Mississippi), and in the northern midwest. Purple milkweed is currently known from 9 locations in Virginia.

Stiff goldenrod is a species of goldenrod that ranges from Rhode Island, Connecticut, western Massachusetts and New York, south to Georgia and west to Minnesota and Missouri. Stiff goldenrod is a perennial herb that grows in the spring and summer, and blooms in the late summer. This plant is considered imperiled in Virginia (NatureServe, 2009).

Earleaf False Foxglove is an annual herb that can grow to 8 decimeters tall. The plant is stiffly erect with 4 angled simple stems and opposite leaves. The purple flowers are 20-25 millimeters long and bloom in late September and October. This plant occurs in clearings and old fields on soils weathered from diabase from the Culpeper Basin of Fairfax and Prince William Counties (Weakley et al., 2012). In 2014, 5 occurrences of this state rare herbaceous plant were documented in Virginia, 1 extant and 4 historic. Threats include habitat loss and competition from non-native invasive species which are common in its habitat. Surveys for this species should be conducted in August – September when the plant is flowering or fruiting.

According to DCR botanist John Townsend, in addition to the Stiff goldenrod, Purple milkweed and Earleaf false foxglove, the project area along the transmission lines also has potential to support other rare

plants commonly associated with open diabase glades. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995).

In Northern Virginia, diabase also supports occurrences of other global and state rare plant species: American bluehearts (*Buchnera americana*, G5/S1S2/NL/NL), Downy phlox (*Phlox pilosa*, G5/S1/NL/NL), and Hairy hedgenettle (*Stachys arenicola*, G4/S1/NL/NL).

DCR recommends an inventory for these rare plants in the study area and requests copies of these survey reports upon completion. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

All Sites:

There is potential for the Northern Long-eared bat (*Myotis septentrionalis*, G1G3/S3/LT/NL) to occur within the project area. The Northern Long-eared bat is a small insect-eating bat characterized by its long-rounded ears that when folded forward extend beyond the tip of the nose. Hibernation occurs in caves, mines and tunnels from late fall through early spring and bats occupy summer roosts comprised of older trees including single and multiple tree-fall gaps, standing snags and woody debris. Threats include white nose syndrome and loss of hibernacula, maternity roosts and foraging habitat (NatureServe, 2014). Due to the decline in population numbers, the Northern Long-eared bat has been federally listed as “threatened” by the United States Fish and Wildlife Service (USFWS).

DCR recommends coordination with the USFWS regarding potential impacts upon federally threatened Northern Long-eared bats associated with tree removal.

The Elklick Woodlands Natural Area Preserve is located within the project area, and is owned by the Fairfax County Parks Authority and jointly managed by the Fairfax County Parks Authority and DCR. Therefore, DCR recommends coordination with the DCR Northern Region Natural Area Steward, Mike Lott (Michael.Lott@dcr.virginia.gov; 540-658-8690) and Patricia Rosend (Patricia.Rosend@fairfaxcounty.gov; 703-324-2387) with Fairfax County Parks Authority to minimize impacts to the natural area preserve and associated natural heritage resources

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of \$360.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, Department of Conservation and Recreation, Division of Natural Heritage, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or please contact Ernie Aschenbach at 804-367-2733 or ernie.aschenbach@vdgif.gov. Project Site 2 is located within 2 miles of a documented occurrence of a state listed animal. Project Site 3 is within 2 miles of Cub Run, which has been designated by VDGIF as a “Threatened and Endangered Species Water” for Wood turtle (*Glyptemys insculpta*), and project site 5 is within 2 miles of Cedar Creek and Meadow Brook T & E Waters for the Wood turtle and North Fork Shenandoah River T & E for the Brook floater (*Alasmidonta varicosa*). Therefore, DCR recommends coordination with VDGIF, Virginia's regulatory authority for the management and protection of these species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

CC: Ernie Aschenbach, VDGIF
Troy Andersen, USFWS
Mike Lott, DCR, Northern Region Steward
Pat Rosend, Fairfax County Parks Authority
Wil Orndorff, DCR-Karst

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Appendix B

Letter for
Manassas Battlefield Park
Fire Management Plan



DCR Interoffice MEMORANDUM

To: Robbie Rhur, DCR-DPRR
From: Alli Baird, DCR-DNH
Date: December 19, 2014
Subject: DEQ 14-197F, Manassas Battlefield Park Fire Management Plan
Due December 30, 2014

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to information currently in our files, numerous natural heritage resources have been documented within the Manassas Battlefield Park (see Table I) and shown on attached map.

DCR supports Alternative 2 (National Park Service [NPS] preferred alternative), however with several recommendations.

In general, herbicide use should be used only in areas where the use of fire or mechanical means are not possible, and only in a very targeted way to control woody plants. The use of a large amount of herbicide could turn areas of dominant native perennial herbs / grasses to ones dominated by weedy non-native and native annuals. The rare species documented within the park are mostly those that occur in open, non-forested areas. These areas should not have herbicide treatment except in a restricted limited way to only target individual woody stems.

The use of goats, which may be useful in some areas, should not be used in areas containing rare plant populations to avoid negative impacts from this intense management method.

Manassas Battlefield Park is known for its nice mix of open-space natives. DCR recommends replanting with a native seed mix only when needed to reclaim formerly fallow areas or in those areas where the native vegetation has been removed or overwhelmed by exotic species.

DCR also recommends that as specific project areas are scheduled for treatment, the proposed project location and management methods be submitted to this office to review for potential impacts to natural heritage resources. DCR recommends contacting Rene' Hypes, Natural Heritage Project Coordinator (804-371-2708), if the NPS is interested in obtaining shapefiles of natural heritage resources for the park through an annual subscription to help inform management planning.

In addition, the Elklick Woodlands Natural Area Preserve has been documented within the project site. Please coordinate with Mike Lott, DCR's Northern Region Steward, at (540)658-8690 or michael.lott@dcr.virginia.gov for more information about the preserve and associated natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov).

Thank you for the opportunity to comment on this project.

Cc: Mike Lott, DCR

Appendix C

Letters for
Hampton Roads Sanitation District
Williamsburg Force Main



**DCR
Interoffice
MEMORANDUM**

To: Robbie Rhur, DCR-DPRR
From: Alli Baird, DCR-DNH
Date: May 20, 2015
Subject: MRC 15-0531, HRSD Williamsburg Force Main
 Due May 28, 2015

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, this site is located within the Grove Creek Conservation Site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Grove Creek Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Coastal Plain Calcareous Ravine Forest	G2/S2/NL/NL
Coastal Plain Calcareous Seepage Swamp	G2/S2/NL/NL
Coastal Plain Dry Calcareous Forest	G1/S1/NL/NL
<i>Fleischmannia incarnate</i> Pink thoroughwort	G5/S2/NL/NL

The Grove Creek ravine is a rare example of a Coastal Plain drainage that has downcut into deep deposits of Tertiary shell deposits. As a result, soils of the sideslopes and bottomland, as well as the groundwater saturating the drainage, are highly calcareous. Since most soils of the Coastal Plain are highly acidic, the vegetation of Grove Creek is rare and unusual, containing numerous species that are disjunct from further west, disjunct from further south, or simply rare on the Coastal Plain. Two globally rare natural communities occur within the project area. Please see the attached map of the area containing the above referenced natural heritage resources.

The Coastal Plain Calcareous Ravine Forest is the rich mixed hardwood forest of slopes bordering Grove Creek. This is a rich mesophytic to submesophytic forest in calcareous ravines that are found in the southeastern Virginia Coastal Plain and possibly the adjacent Piedmont. Habitats are north- to east-facing slopes and adjacent low interfluves downcut into Tertiary shell deposits or lime sands, including the Pliocene marine shell deposits of the calcium-rich Yorktown Formation (NatureServe, 2013).

The Coastal Plain Calcareous Seepage Swamp is the swamp forest occupying the bottom of the Grove Creek drainage, above tidal influence. It occurs on the Virginia Coastal Plain on groundwater-saturated stream bottoms in ravines that have cut into Tertiary shell deposits or limesands. Braided streams and hummock-and-hollow microtopography are characteristic of the environmental setting. Soils are highly calcareous with pH values up to 7.4 and calcium levels that range up to 6000 ppm. It is known only from calcareous ravines in the James and York River drainages, in James City, Surry, and York counties (Fleming, et al., 2012).

The Coastal Plain Dry Calcerous Forest is adjacent to the project area. This forest is a dry, open, forest or woodland of the Coastal Plain of Virginia and Maryland, is restricted to subxeric to xeric, fertile habitats over unconsolidated, calcareous deposits. These localized habitats are found on southeast- to southwest-facing, usually convex slopes of deep ravines or stream-fronting bluffs that have downcut into Tertiary shell deposits or limesands (NatureServe, 2013). Compared to Basic Mesic Forests of the Coastal Plain, these dry calcareous forests have a larger component of oaks (particularly chinkapin oak) in the overstory and have a much less lush herb layer (Fleming, et al., 2012.)

Pink thoroughwort is a loosely clumping perennial herb with opposite, ovate leaves and pink florets. It occupies mesic to dry, open forests, woodlands and clearings over calcareous and mafic rocks and coastal shell deposits and is rare throughout the state (Weakley, et al).

In addition, Mountain camellia, (*Stewartia ovate*, G4/S2/NL/NL) has been historically documented in the project area. Mountain camellia is a mountain-coastal plain disjunct. Mountain camellia is uncommon throughout its range and is considered very rare in Virginia. A shrub of the tea family, mountain camellias have simple oval leaves and bear white flowers in mid-summer. They tend to grow on wooded bluffs and slopes with alkaline soils. Threats to populations include direct habitat destruction from clearing or erosion and alteration of the species microclimate through clearing of adjacent lands (Clark, 1993). This species is currently known from only 4 locations and historically known from multiple locations in Virginia.

The Virginia Natural Heritage Program strongly recommends that, should the expansion of the existing sanitary sewer easement not be feasible, an alternative that stays out of the boundary of the Basic Mesic Forest (as shown on the attached map) be found. The proposal to create a new large sanitary sewer right-of-way through some of the more significant parts of the Basic Mesic Forest in the Grove Creek Conservation Site could negatively impact the long-term viability of this resource by fragmenting the forest and creating a huge vector for the movement of invasives.

Many invasive plant species are adapted to take advantage of soil disturbances and poor soil conditions. These adaptations are part of what enable certain species to be invasive. Non-native invasive plants are found through Virginia. Therefore, the potential exists for this project to further the establishment of invasive species. To minimize the potential for invasive species infestation, projects should be conducted to minimize the area of disturbance, and disturbed sites should be revegetated with desirable species at the earliest opportunity following disturbance. Equally as important, species used for revegetation should not include the highly invasive species that have traditionally been used for revegetating disturbed sites. We recommend avoiding use of crown vetch, tall fescue, weeping lovegrass, and autumn olive if at all possible.

For more information on invasive alien plants and native plants, see the DCR-Division of Natural Heritage website http://www.dcr.virginia.gov/natural_heritage/invspinfo.shtml. For sources of native plant material, see the Virginia Native Plant Society's website (<http://vnps.org/conservation/plant-nurseries/>) or the U.S. Fish and Wildlife Service nursery list for Virginia (<http://www.fws.gov/ChesapeakeBay/BayScapes/bsresources/bs-nurseries.html>).

Due to the potential for this site to support populations of mountain camellia, DCR recommends an inventory for Mountain camellia in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR also recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Angela Weller at 804-364-8747 or Angela.Weller@dgif.virginia.gov). This project is located within 2 miles of a documented occurrence of a state listed animal. Therefore, DCR recommends coordination with VDGIF, Virginia's regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Should you have any questions or concerns, feel free to contact me at 804-692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

Cc: Amy Ewing, VDGIF

Molly Joseph Ward
Secretary of Natural Resources



Joe Elton
Deputy Director of Operations

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804)786-6124

July 31, 2015

Jose Ribeiro
James City County Government
101-A Mounts Bay Road
Williamsburg, VA 23188

Re: Planting Plan for Hampton Roads Sanitary District Force Main

Dear Mr. Ribeiro:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has reviewed the Hampton Roads Sanitation District Williamsburg Interceptor Force Main Contract "A" Replacement, Volume 2 of 2, prepared by AECOM dated July 2015, replanting plan sections on pages C-1 to C-17 and D-1, and the supplemental sheet entitled "Replanting Plan" and has the following comments and requests:

1. The project is within the Grove Creek Conservation Site that has a biodiversity significance ranking of B-1, which represents a site of outstanding significance. The natural heritage resources of concern at this site that are intersected by the project are the Coastal Plain Calcareous Ravine Forest (G2/S2/NL/NL) and the Coastal Plain Calcareous Seepage Swamp (G2/S2/NL/NL). Therefore, per James City County Natural Resource Policy, DCR requests that a Conservation Management Plan be submitted detailing an invasive species management plan for those areas being disturbed and restored to pre-land disturbing conditions.
2. Please submit the seed mix species list to DCR for review and recommendations.
3. For the areas described as "Type B" for grading and seeding beginning at Station 19+80, the contractor should follow site preparation and seeding recommendations of the seed vendor.
 - a. Vendor's recommendations should be included in the "Vegetative Practices 3) Permanent Seeding" notes on Sheet D-1, Erosion and Sedimentation Control Notes and Details
 - b. Topsoil should be tested prior to any lime or fertilizer application, or as directed by vendor's recommendations.
4. In addition, DCR requests a copy of "Project Specification section 02921 'Finish Grading and Seeding'" referenced in the Replanting Plan notes and digital copies of sheets C-1, C-2, C-5 & D-1.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Ernie Aschenbach at (804-367-2733) or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

Molly Joseph Ward
Secretary of Natural Resources



Joe Elton
Deputy Director of Operations

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804)786-6124

October 1, 2015

Jose Ribeiro
James City County Government
101-A Mounts Bay Road
Williamsburg, VA 23188

Re: Planting Plan & Seeding Specifications for Hampton Roads Sanitary District Force Main

Dear Mr. Ribeiro:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has reviewed the Hampton Roads Sanitation District Williamsburg Interceptor Force Main Contract "A" Replacement, Volume 2 of 2, prepared by AECOM dated July 2015, replanting plan sections on pages C-1 to C-17 and D-1, the supplemental sheet entitled "Replanting Plan", the Conservation Management Plan provided 9/10/15, and the revised 02921 Finish Grading and Seeding specifications provided 9/28/15. DCR concerns expressed in a letter dated July 31, 2015, and an email dated 9/2/15 have been addressed.

Due to the fact that topsoil will be stored on site and the project is within the Grove Creek Conservation Site that contains several rare natural heritage communities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from

<http://vafwis.org/fwis/> or contact Ernie Aschenbach at (804-367-2733) or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-692-0984. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink that reads "Alli Baird". The signature is written in a cursive, flowing style.

Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

Appendix D

Letters for
Renewable Energy Projects

Molly Joseph Ward
Secretary of Natural Resources



Joe Elton
Deputy Director of Operations

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804)786-6124

July 15, 2015

Mary Major
DEQ – Central Office
629 E. Main Street
Richmond, VA 23219

Re: Eastern Shore Solar

Dear Ms. Major:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Pitts Creek Conservation Site is adjacent to the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Pitts Creek Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources of concern at this site are:

<i>Pycnanthemum setosum</i>	Awned Mountain-mint	(G4/S1/NL/NL)
<i>Lobelia elongata</i> (G4G5/S1/NL/NL)	Elongated lobelia	
	Freshwater Tidal Hardwood Swamp	(G3/S3/NL/NL)
	Oligohaline Tidal Shrub Swamp	(G4/S3/NL/NL)
	Tidal Freshwater Marsh (Wild Rice-Mixed Forbs type)	
	(G4?/S4?/NL/NL)	
	Tidal Oligohaline Marsh (Big Cordgrass type)	(G4/S4/NL/NL)

In addition, the following conservation sites are within two miles of the project area:

Jenkins Bridge Conservation Site has a biodiversity ranking of B5, which represents a site of general significance. The natural heritage resource of concern at this site is the Bronze copper (*Lycaena hyllus*, G5/S1/NL/NL). The Bronze copper is a small-medium sized species of butterfly with orange and gray on the ventral side. The dorsal side of the male is brownish-colored with a coppery iridescence while the dorsal side of the female has orange patches with scattered black spots. They are mainly found in low-lying wet areas such as meadows, ditches and pond edges and feed on various flowers, including smartweeds and milkweeds. Although this species seems to have the ability to inhabit disturbed and successional habitats, habitat destruction may impact this species. Recommended management practices for the Bronze copper is to monitor and protect occupied habitats (DCR-DNH et al. 2103).

New Church Powerline Wetland Conservation Site has a biodiversity ranking of B4, which represents a site of moderate significance. The natural heritage resource of concern at this site is the Pine-barrens Peanut Grass (*Amphicarpum amphicarpon*, G4/S1/NL/NL). Pine-barrens Peanut Grass, a state rare perennial, inhabits wet, peaty, open soils near peat-burns in pocosin edges (Weakley, in prep.) and shallow pools (Radford et. al., 1968). It has also been documented in such disturbed areas as powerline rights-of-way (TNC, 1996). Pine-barrens Peanut Grass is currently known from two locations in Virginia's coastal plain.

DCR biologists have determined there is potential for Awned Mountain-mint, Pine-barrens Peanut grass and other powerline rare plants and for Bronze copper within the wetlands of the project area. DCR does not anticipate adverse impacts to these resources if directional drilling is used to avoid wetlands when connecting transmission lines between arrays (pg.38 of the Eastern Shore Solar Permit by Rule Application Documents: Folder A). However, if directional drilling is not feasible, DCR recommends an inventory for these resources in the project area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR also recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers and maintaining natural stream flow.

In addition, the low salt content of the marshes adjacent to the project area make them particularly susceptible to incursion by nonnative species. Ground disturbance in wetlands of the eastern United States can often lead to the establishment of Phragmites (common reed), an exotic, invasive weed species. Phragmites crowds out other plant species due to its rapidly spreading rhizomes and, once established, prevents sunlight from reaching understory species. Thus, through interspecific competition, Phragmites threatens the native plant community and reduces plant diversity.

Phragmites spreads regionally by means of its wind dispersed seeds, but more commonly the vector is vegetative. As pieces of rhizomes break off and enter watercourses, they are carried by currents and deposited in other areas. When the rhizome fragments settle on a suitable substrate, they take root and send up new shoots. If Phragmites is detected during monitoring efforts, it should be eradicated as soon as possible.

DCR recommends the development and implementation of an invasive species management plan for the project. If practicable, existing patches of invasives within the project area should be treated prior to construction. Disturbance to ditches and wet soils should be minimized. Earth moving equipment should

be examined thoroughly for rhizomes and seed heads and any soils being brought in for the project should be inspected for propagules.

DCR supports the use of native plant species as buffers along the project boundary (pg.38 of the Eastern Shore Solar Permit by Rule Application Documents: Folder A). As an alternative to Prairie Nursery's *No Mow Fine Fescue Grass Lawn Mix* (pictured on pg.39 of the Eastern Shore Solar Permit by Rule Application Documents: Folder A), DCR recommends the disturbed areas be planted with native plant *Andropogon* species such as Indian grass, Big or Little bluestem, as soon as practicable after disturbance, and to frequently mow the area around the arrays. The Digital Atlas of Virginia Flora may be used for the identification and verification of plant species native to the Eastern Shore and may be found at www.VAPlantAtlas.org. Please contact Dot Field, Eastern Shore Region Steward, at Dot.field@dcr.virginia.gov or 757-787-5989 for more information regarding native plants and invasive species management.

Furthermore, the project falls within the Coastal Aviation Protection Zone 5, "Regional Importance, No survey."

According to the "Avian Assessment," (pg. 24 of the Eastern Shore Solar Permit by Rule Application Documents: Folder A) no significant impact on avian species is expected, citing larger and more appealing expanses of water with higher potential habitat in the vicinity.

Please note, the Pocomoke Sound, which borders the project area, is increasingly regarded as an important stopover habitat for migratory songbirds, particularly inexperienced and first-year birds which may be more likely to mistake the arrays as fresh water sources or navigation guides. Due to potential impacts to migratory songbirds, DCR recommends closely monitoring avian species mortality during the facility operations with the funding provided by the applicant for avian research per the permit by rule requirement, preventative measures if there are significant avian fatalities and reporting of findings back to natural resource agencies on an annual basis.

Lastly, DCR supports the inclusion of a "Solar Walk" (pg. 23 of the Eastern Shore Solar Permit by Rule Application Documents: Folder A) for the purposes of wildlife, historic, and solar energy education. DCR would like to propose the incorporation of educational information highlighting the benefits of the use of native vegetation. Please coordinate with Dot Field for more information.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

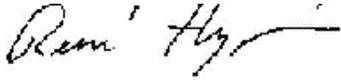
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact René Hypes at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "René Hypes", with a long, sweeping horizontal stroke extending to the right.

S. René Hypes
Project Review Coordinator

CC: Ernie Aschenbach, VDGIF



DCR
Interoffice
MEMORANDUM

To: Robbie Rhur, DCR-DPRR
From: Alli Baird, DCR-DNH
Date: January 22, 2015
Subject: MRC 14-0968, Virginia Offshore Wind Technology Advancement Project
Due January 28, 2015

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to information currently in our files, there is potential for several state and federally-listed species including marine mammals, sea turtles, and marine/coastal birds to occur in the project area. According to the *Annual Avian Survey Report, April 2013 – April 2014*, VOWTAP dated June 2014, Revised October 2014 (Appendix L-1), the Peregrine falcon (*Falco peregrinus*, G4/S1B,S2N/NL/LT), was documented in the project area. Due to the legal status of this species and potential for Gull-billed tern (*Gelochelidon nilotica*, G5/S2B/NL/LT), Wilson's plover (*Charadrius wilsonia*, G5/S1B/NL/LE) and marine resources, DCR-DNH recommends coordination with the Virginia Department of Game and Inland Fisheries (VDGIF), the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to ensure compliance with protected species legislation.

DCR supports using Horizontal Directional Drilling (HDD) during installation within existing road rights of way to route the Onshore Interconnection Cable and Fiber Optic Cable under sensitive coastal habitat areas and the installation of onshore Project components including the Switch Cabinet and Interconnection Station within previously disturbed areas to avoid impacts to natural heritage resources.

DCR also supports the use of flashing aviation safety lights used on wind turbine nacelles to decrease collision risk, down-shield work lights during construction and install anti-perching devices on the foundations to reduce the potential for collisions. Additionally, DCR supports the implementation of a post-construction monitoring program during operation of the project to evaluate actual impacts from the wind turbines as stated in section 3.2.3.2 found on page 67 of the VOWTAP.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information once the construction laydown area(s), construction port and the operations and maintenance facility with associated Base Port locations are identified and/or six months has passed before it is utilized.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential

impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov).

Thank you for the opportunity to comment on this project.

Cc: Amy Ewing, VDGIF
Troy Andersen, USFWS
Christine Vaccaro, NOAA

Appendix E

Letter for
Grice's Run at Carter's Grove,
James City County

Molly Joseph Ward
Secretary of Natural Resources



Joe Elton
Deputy Director of Operations

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804)786-6124

July 20, 2014

Karen Kennedy
Rieley and Associates
601 Market Street
Charlottesville, VA 22902

Re: Grices Run at Carter's Grove

Dear Ms. Kennedy:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Grices Run Natural Area Conservation Site is located within this site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Grices Run Natural Area Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resource of concern at this site is:

Terrestrial Natural Community
G1/S1/NL/NL

Coastal Plain Dry Calcerous Forest

The Coastal Plain Dry Calcerous Forest, a dry, open, forest or woodland of the Coastal Plain of Virginia and Maryland, is restricted to subxeric to xeric, fertile habitats over unconsolidated, calcareous deposits. These localized habitats are found on southeast- to southwest-facing, usually convex slopes of deep ravines or stream-fronting bluffs that have downcut into Tertiary shell deposits or limesands. This community is naturally rare and restricted to a specialized edaphic situation that is regionally restricted

and extremely rare within this region Occurrences are small (typically <1 acre) and highly localized in dissected portions of the Virginia inner Coastal Plain and Maryland outer Coastal Plain. Chinkapin oak (*Quercus muehlenbergii*) is a constant, codominant or dominant canopy tree and is the most characteristic tree of this type. The herb layer is usually patchy but contains a diversity of species, including several long-range mountain disjuncts. (NatureServe, 2012)

Compared to Basic Mesic Forests of the Coastal Plain, these dry calcareous forests have a larger component of oaks (particularly chinkapin oak) in the overstory and have a much less lush herb layer..The single Virginia community in this group is considered globally rare and are threatened by logging and development. (Fleming, et al., 2012.)

In addition, Mountain camellia has been historically documented within the project area. Mountain camellia (*Stewartia ovata*, G4/S2/NL/NL) is a mountain-coastal plain disjunct. Mountain camellia is uncommon throughout its range and is considered very rare in Virginia. A shrub of the tea family, mountain camellias have simple oval leaves and bear white flowers in mid-summer. They tend to grow on wooded bluffs and slopes with alkaline soils. Threats to populations include direct habitat destruction from clearing or erosion and alteration of the species microclimate through clearing of adjacent lands (Clark, 1993). This species is currently known from only 4 locations and historically known from multiple locations in Virginia.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

Finally, please find attached the Site Record for Grices Run Natural Area Conservation Site, including the site visit information from 05/06/2010 and the Element Occurrence Record for the Coastal Plain Dry Calcareous Forest / Woodland, also including information from the 05/06/2010 site visit. In addition a map showing the location of Grices Run Natural Area Conservation Site and the location of the occurrence for the Coastal Plain Dry Calcareous Forest / Woodland is attached.

A fee of \$70.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 600 East Main Street, 24th Floor, Richmond, VA 23219**. Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2013. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the

opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink that reads "Alli Baird". The signature is written in a cursive, flowing style.

Alli Baird, LA, ASLA
Coastal Zone Locality Liaison

Literature Cited

Clark, K.H. 1993. Conservation Planning for the Natural Areas of the Lower Peninsula of Virginia. Natural Heritage Technical Report #93-4. Virginia Department of Conservation and Recreation, Division of Natural Heritage. 8 March 1993. 193pp.

Fleming, G.P., K.D. Patterson, K. Taverna, and P.P. Coulling. 2012. The natural communities of Virginia: classification of ecological community groups. Second approximation. Version 2.5. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, VA.

NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: June 14, 2012).

NatureServe. 2014. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org>. (Accessed: July 23, 2014)

Appendix F

List of Coastal Training Participants

List of Coastal Training Participants

Accomack County
Army Corps of Engineers, Wilmington, NC District Operations Division, Long Branch
CHA Companies
City of Newport News
City of Petersburg
City of Richmond
City of Virginia Beach
Colonial SWCD
Fairfax County
Hampton Roads Sanitation District
Hanover SWCD
Michael Baker International
Middle Peninsula Planning District Commission
North Carolina Natural Heritage Program
Northampton County
Resource International
Rummel, Klepper & Kahn, LLP
Tidewater SWCD
Tri-County / City SWCD
Virginia Dare SWCD
Virginia Department of Conservation and Recreation
Virginia Department of Environmental Quality
Virginia Department of Health
Virginia Department of Forestry
Virginia Department of Transportation
Virginia Eastern Shore Land Trust
Virginia Outdoors Foundation

Appendix G

Map of Localities with
Natural Heritage Information

The screenshot shows a web browser window displaying the website www.dcr.virginia.gov/natural-heritage/localitiesmap. The page has a blue header with the title "Virginia Localities with Natural Heritage Information" and logos for the Virginia Coastal Zone Management Program and NOAA. A navigation menu on the left lists various topics under "Natural Heritage". The main content area features a map of Virginia counties, with a legend indicating that green represents "Western Localities with Natural Heritage Data" and blue represents "Coastal Localities with Natural Heritage Data". The map shows a significant portion of the western and central counties in green and the coastal counties in blue. Below the map, it states "Last updated on Friday, August 7, 2015." and includes a dropdown menu currently set to "Accomack - Coastal Locality with Data".

Map of Virginia Localities with Natural Heritage Information can be found at:

<http://www.dcr.virginia.gov/natural-heritage/localitiesmap>

Appendix H

Species and Community Search Tool



Virginia Department of Conservation & Recreation

- Home
- My Subscription
- Map
- About Us
- Contact Us
- Admin
- Help
- Species/Community

Common Name/Natural Community:

Scientific Name:

Taxonomic Group:

Select All ▲

VASCULAR PLANTS

NON-VASCULAR PLANTS

AMPHIBIANS

BIRDS ▼

Global Conservation Status Rank:

Select All ▲

G1 - Critically imperiled

G2 - Imperiled

G3 - Vulnerable ▼

State Conservation Status Rank:

Select All ▲

S1 - Critically imperiled

S2 - Imperiled

S3 - Vulnerable ▼

Federal Legal Status:

Select All ▲

LE - Listed endangered

LT - Listed threatened

PE - Proposed endangered ▼

State Legal Status:

Select All ▲

LE - Listed endangered

LT - Listed threatened

PE - Proposed endangered ▼

Select Operand:

AND OR

County:

Select All ▲

Accomack

Albemarle

Alleghany ▼

Click [here](#) to view county map

Physiographic Province:

Select All ▲

Allegheny Mountains

Cumberland Mountains

Northern Blue Ridge ▼

Click [here](#) to view province map

Watershed (8 digit HUC):

Select All ▲

02040303 - Chincoteague

02040304 - Eastern Lower Delmarv:

02070001 - So. Branch Potomac Riv ▼

Click [here](#) to view watershed map

Subwatershed (12 digit HUC):

Click [here](#) to view subwatershed map

Planning District:

Select All ▲

Accomack-Northampton

Central Shenandoah

Commonwealth Regional Council ▼

Click [here](#) to view planning district map

Virginia Coastal Zone:

Select All ▲

Yes

No ▼

Click [here](#) to view coastal zone map

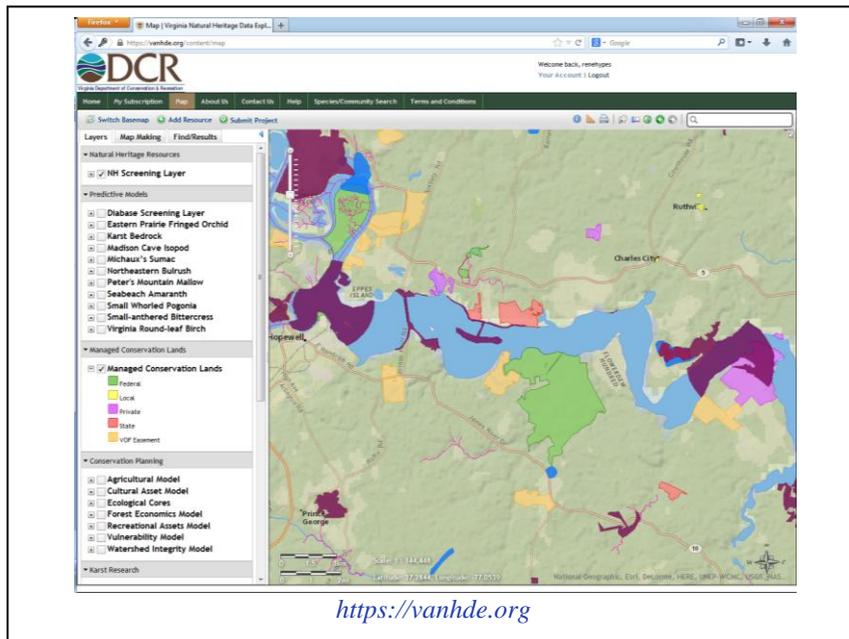
Search

Reset

Appendix I

Handout to
American Society of Landscape Architects
Virginia Chapter

Natural Heritage Data Explorer



The Virginia Natural Heritage Data Explorer is an internet mapping website that allows internet-users to conduct basic GIS functions remotely over the internet with minimal instruction. This informational tool will help to identify natural heritage area conservation sites and karst resources in a particular area, evaluate potential easement or land acquisition projects, and identify potential projects for land conservation grant programs such as the Virginia Land Conservation Fund. By providing immediate access to Natural Heritage information through the internet, we are empowering partners to utilize and apply land conservation information more rapidly and effectively by having it at their desk top. In addition, for subscribers, the NHDE is a tool for submitting projects to DCR-Natural Heritage to review for natural heritage resources.

The Virginia ConservationVision (Formerly the Virginia Conservation Land Needs Assessment) and the Conservation Lands Database, are now incorporated into the Natural Heritage Data Explorer providing a comprehensive data resource, and efficient, technologically sophisticated tools for extracting the knowledge needed for Land Conservation and Green Infrastructure Planning. In addition, the Species/Community search tool is incorporated into the NHDE for producing lists of resources occurring in specific localities, watersheds, sub-watersheds or physiographic regions.

Basic navigational tools allow users to zoom, pan, identify, measure distance, and create printable maps from the results. More advanced capabilities include a query function that allows users to search the many different datasets based upon their specific interests. Users can search for Conservation Lands by name, land type, watershed, county, and acreage range.

Natural Heritage Data Explorer website access is available to the public, however, access to the sensitive Natural Heritage information is by subscription only. For more information please e-mail Alli Baird at alice.baird@dcr.virginia.gov

The next NHDE training will be on October 21 at VIMS, Gloucester Point. Space is limited, please sign up today. The following training will be in Richmond at the DEQ office downtown on December 16. To register, please email nhdetraining@dcr.virginia.gov with your contact information.

Appendix J

Quarterly Coastal Species Highlight

Locality Liaison Program x
 www.dcr.virginia.gov/natural_heritage/localityliaison.shtml

Home » Natural Heritage » Locality Liaison Program

Home | About VA NHP | Natural Heritage Resources | Natural Area Preserves | Information Services | Invasive Species | Cave & Karst Info | Flora of Virginia Project

NATURAL HERITAGE

Locality Assistance Program for Natural Heritage Conservation

Program Mission and Goals | Locality Liaisons | Tools & Services | Data Subscriptions & Map of Locality Subscribers | Contact the Locality Liaison |

Program Mission & Goals

Through the 'Locality Assistance Program for Natural Heritage Conservation,' the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) assists local conservation partners in fully utilizing natural heritage resource information.

Species Highlight



Red-cockaded woodpecker

Click below to learn more

- [Natural Heritage Data Explorer](#)
- [Virginia ConservationVision](#)
- [Land Conservation Data Explorer](#)
- [Project Review](#)
- [NEW Information Services Order Form](#)

If you experience difficulty with the online form version, please print, fill out and send this PDF version: [Information Services Order form \(PDF\)](#)

[Inventory](#)

[Virginia Wetlands Catalog](#)

U. S. Marine Corps

www.dcr.virginia.gov/natural_heritage/quarterly_sphighlight.shtml - Google Chrome

www.dcr.virginia.gov/natural_heritage/quarterly_sphighlight.shtml

Red-Cockaded woodpecker (*Picoides borealis*, G3/S1/LE/LE)



The red-cockaded woodpecker, with a white and black cross-banded back and distinctive white cheeks, is extremely rare in Virginia, with only one breeding population remaining. These woodpeckers are cooperative breeders, living in clans or family groups with year-round territories near their nesting and roosting trees. Their diet is primarily insects, including caterpillars, moths, crickets and many wood-boring insects, especially beetles. The preferred nest site is within the decaying heartwood of a mature pine (65 - 100 plus years old) where they can create their roosting cavity.

Their distribution is closely tied to the open park-like forests of mature pines (long-leaf, slash, loblolly or shortleaf pines), with sparse hardwood understory, that they prefer. Helping to support the federally and state listed bird, the Department of Conservation and Recreation is working with The Nature Conservancy and other natural resource agencies to re-establish suitable forest habitat at The Nature Conservancy's Poney Grove Nature Preserve in Sussex County. Management includes the use of prescribed fire to maintain the open forests these woodpeckers require.

Next time: Long-leaf pine.

Beck, Ruth A. 1991. Red-cockaded Woodpecker. Pp. 513-514 in Virginia Department of Game and Inland Fisheries. Virginia's Endangered Species: Proceedings of a Symposium. Karen Tervitiger, coordinator. Blacksburg, Va., The McDonald and Woodward Publishing Co.

source information such as:

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assistance other Virginia tion and is

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