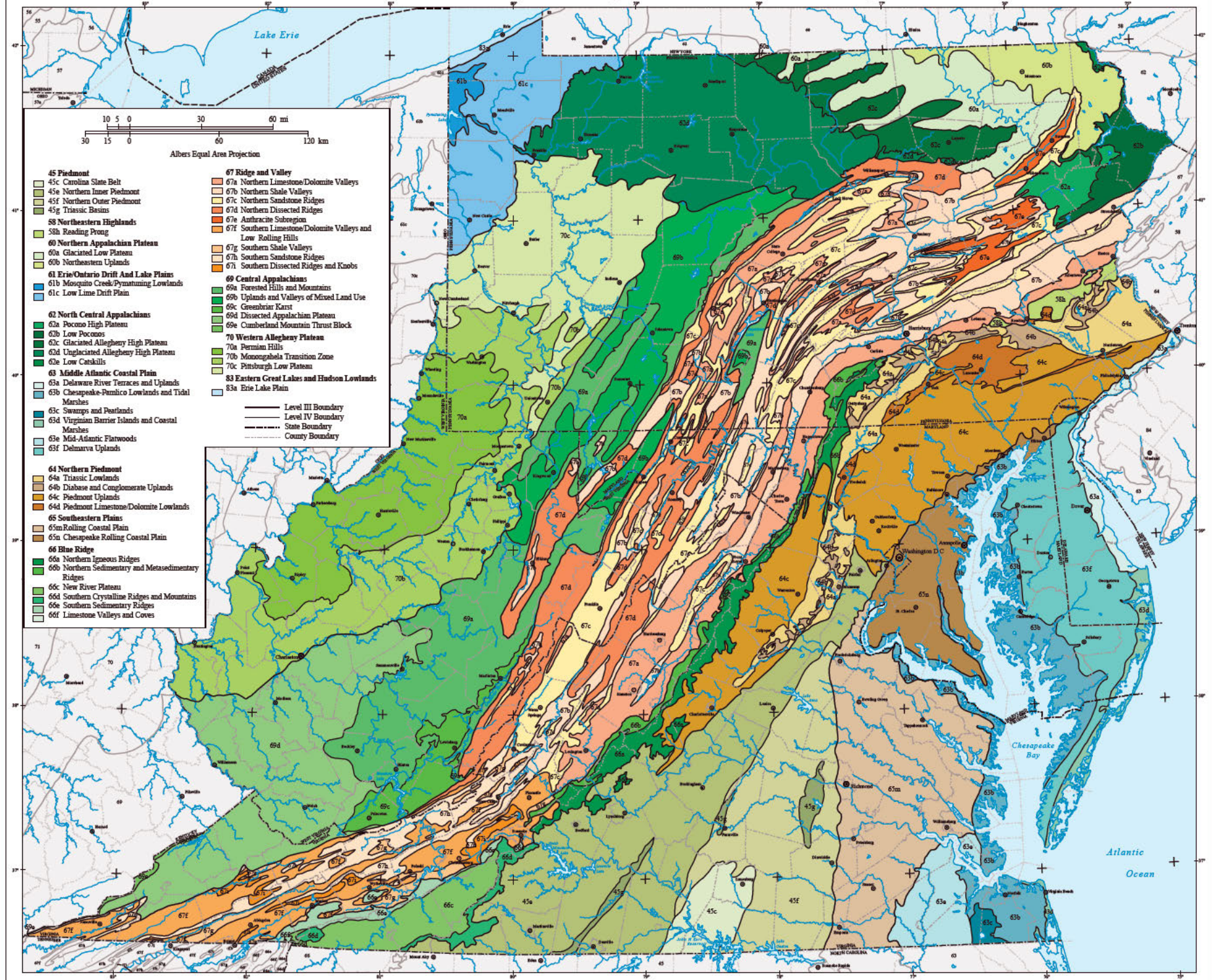


**APPENDIX B**  
**ECOREGIONS MAP**

# Level III and IV Ecoregions of EPA Region 3



## **APPENDIX D**

### **USFWS IPAC REPORT**

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Dorchester County, Maryland



## Local office

Chesapeake Bay Ecological Services Field Office

☎ (410) 573-4599

📅 (410) 266-9127

177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Endangered

## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

## Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below.

Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)"

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

**There are bald and/or golden eagles in your project area.**

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds elsewhere

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)" specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.



## Probability of Presence(■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

## Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

## Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

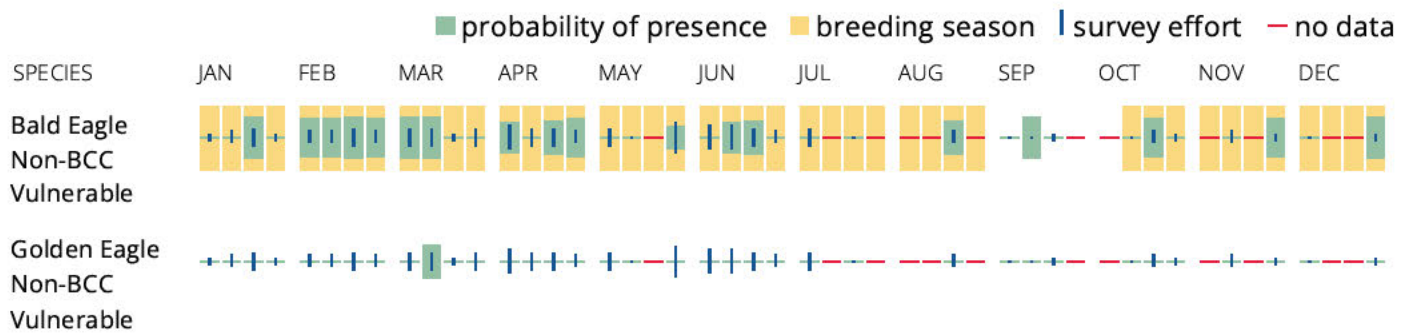
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

## No Data (—)

A week is marked as having no data if there were no survey events for that week.

## Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



### What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#)

### What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#)

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)"

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the [FAQ below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the [PROBABILITY OF PRESENCE SUMMARY](#) below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p><b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Oct 15 to Aug 31

<b>Bobolink</b> <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
<b>Chimney Swift</b> <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds elsewhere
<b>Kentucky Warbler</b> <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
<b>Prairie Warbler</b> <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
<b>Prothonotary Warbler</b> <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
<b>Rusty Blackbird</b> <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
<b>Wood Thrush</b> <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

## Probability of Presence(■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

## Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

## Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

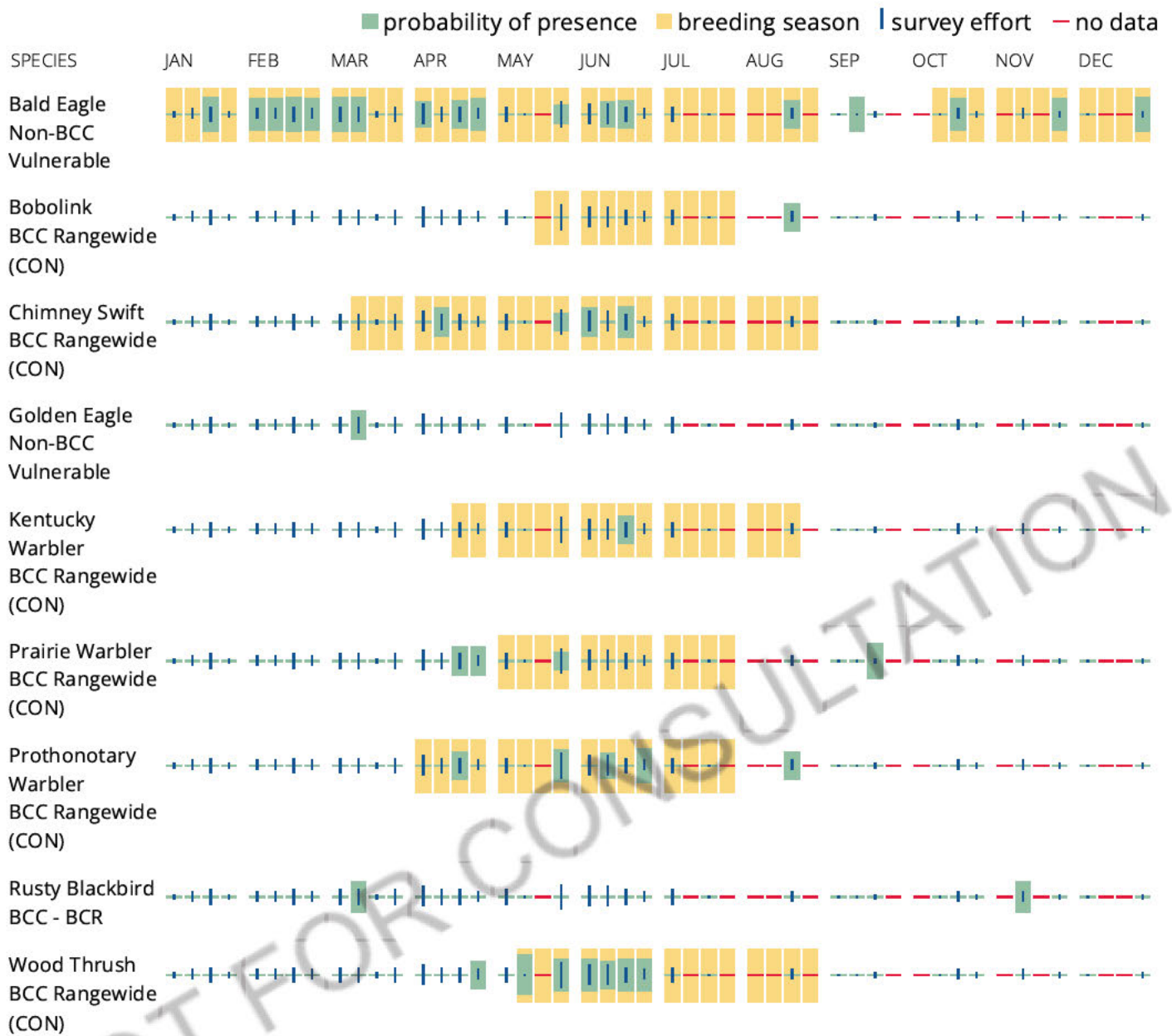
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

## No Data (—)

A week is marked as having no data if there were no survey events for that week.

## Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

### **What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### **How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### **What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### **Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.



# Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

### Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

#### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

#### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also

been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

## **APPENDIX E**

### **NLEB DETERMINATION KEY**



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Chesapeake Bay Ecological Services Field Office  
177 Admiral Cochrane Drive  
Annapolis, MD 21401-7307  
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To:  
Project code: 2024-0021193  
Project Name: Linkwood Mitigation Bank

December 11, 2023

Federal Nexus: yes  
Federal Action Agency (if applicable): Army Corps of Engineers

**Subject:** Technical assistance for 'Linkwood Mitigation Bank'

Dear [REDACTED]:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on December 11, 2023, for 'Linkwood Mitigation Bank' (here forward, Project). This project has been assigned Project Code 2024-0021193 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements are not complete.**

## **Ensuring Accurate Determinations When Using IPaC**

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter. **Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.**

## **Determination for the Northern Long-Eared Bat**

Based upon your IPaC submission and a standing analysis, your project is not reasonably certain to cause incidental take of the northern long-eared bat. Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

## Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above. Note that if a new species is listed that may be affected by the identified action before it is complete, additional review is recommended to ensure compliance with the Endangered Species Act.

## Next Step

Consultation with the Service is necessary. The project has a federal nexus (e.g., Federal funds, permit, etc.), but you are not the federal action agency or its designated (in writing) non-federal representative. Therefore, the ESA consultation status is incomplete and no project activities should occur until consultation between the Service and the Federal action agency (or designated non-federal representative), is completed.

As the federal agency or designated non-federal representative deems appropriate, they should submit their determination of effects to the Service by doing the following.

1. Log into IPaC using an agency email account and click on My Projects, click "Search by record locator" to find this Project using **077-135257522**. (Alternatively, the originator of the project in IPaC can add the agency representative to the project by using the Add Member button on the project home page.)
2. Review the answers to the Northern Long-eared Bat Range-wide Determination Key to ensure that they are accurate.
3. Click on Review/Finalize to convert the 'not likely to adversely affect' consistency letter to a concurrence letter. Download the concurrence letter for your files if needed.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place before project implements any changes which are final or commits additional resources.

If you have any questions regarding this letter or need further assistance, please contact the Chesapeake Bay Ecological Services Field Office and reference Project Code 2024-0021193 associated with this Project.

**Action Description**

You provided to IPaC the following name and description for the subject Action.

**1. Name**

Linkwood Mitigation Bank

**2. Description**

The following description was provided for the project 'Linkwood Mitigation Bank':

Potential mitigation site

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.5502107,-75.92694101864262,14z>



## DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for the Endangered northern long-eared bat (*Myotis septentrionalis*).

## QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

**Note:** Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. The action area does not overlap with an area for which U.S. Fish and Wildlife Service currently has data to support the presumption that the northern long-eared bat is present. Are you aware of other data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed NLEB acoustic detections. Data on captures, roost tree use, and acoustic detections should post-date the year when white-nose syndrome was detected in the relevant state. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

No

3. Does any component of the action involve construction or operation of wind turbines?

**Note:** For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

No

6. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

**Note:** This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

*No*

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

*No*

8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

*No*

9. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the [effects of any activities](#) that would not occur but for the proposed action.

If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer “No” below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project’s action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a “no effect” determination for the northern long-eared bat.

**Note:** Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer “No” and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of [Effects of the Action](#) can be found here: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

*No*

10. [Semantic] Is the action area located within 0.5 miles of a known northern long-eared bat hibernaculum?

**Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

**Automatically answered**

*No*



11. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

*No*

12. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?  
(If unsure, answer "Yes.")

**Note:** If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags  $\geq 3$  inches (12.7 centimeter) dbh), answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat can be found at: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

*Yes*

13. Will the action cause effects to a bridge?

*No*

14. Will the action result in effects to a culvert or tunnel?

*Yes*

15. Do the interior dimensions of the culvert or tunnel equal or exceed 4.0 feet (1.3 meters) in height and 130 feet (40 meters) in length? Answer "No" if the affected culvert(s) or tunnel is smaller in either of these two dimensions.

*No*

16. Does the action include the intentional exclusion of northern long-eared bats from a building or structure?

**Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local U.S. Fish and Wildlife Services Ecological Services Field Office to help assess whether northern long-eared bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures

*No*

17. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

*No*

18. Will the action directly or indirectly cause construction of one or more new roads that are open to the public?

**Note:** The answer may be yes when a publicly accessible road either (1) is constructed as part of the proposed action or (2) would not occur but for the proposed action (i.e., the road construction is facilitated by the proposed action but is not an explicit component of the project).

*No*

19. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic on one or more existing roads?

**Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

*No*

20. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

*No*

21. Will the proposed action involve the creation of a new water-borne contaminant source (e.g., leachate pond pits containing chemicals that are not NSF/ANSI 60 compliant)?

*No*

22. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

*No*

23. Will the action include drilling or blasting?

*No*

24. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

*No*

25. Will the proposed action involve the use of herbicides or pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

*Yes*

26. Will the action result in herbicide use that may affect suitable summer habitat for the northern long-eared bat?

**Note:** Additional information defining suitable summer habitat for the northern long-eared bat can be found at: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

*Yes*

27. Will all herbicide use that may affect suitable summer habitat for the northern long-eared bat include only targeted application methods like spot-spraying, hack-and-squirt, basal bark, injections, cut-stump, or foliar spraying on individual plants?

**Note:** Additional information defining suitable summer habitat for the northern long-eared bat can be found at: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

*No*

28. Will the proposed action result in the cutting or other means of knocking down, bringing down, or trimming of any trees suitable for northern long-eared bat roosting?

**Note:** Suitable northern long-eared bat roost trees are live trees and/or snags  $\geq 3$  inches dbh that have exfoliating bark, cracks, crevices, and/or cavities.

*Yes*

## PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

192

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the inactive (hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: <https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas>

0

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the active (non-hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: <https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas>

192

Will all potential northern long-eared bat (NLEB) roost trees (trees  $\geq 3$  inches diameter at breast height, dbh) be cut, knocked, or brought down from any portion of the action area greater than or equal to 0.1 acre? If all NLEB roost trees will be removed from multiple areas, select 'Yes' if the cumulative extent of those areas meets or exceeds 0.1 acre.

Yes

Enter the extent of the action area (in acres) from which all potential NLEB roost trees will be removed. If all NLEB roost trees will be removed from multiple areas, entire the total extent of those areas. Round up to the nearest tenth of an acre.

192

For the area from which all potential northern long-eared bat (NLEB) roost trees will be removed, on how many acres (round to the nearest tenth of an acre) will trees be allowed to regrow? Enter '0' if the entire area from which all potential NLEB roost trees are removed will be developed or otherwise converted to non-forest for the foreseeable future.

192

Will any snags (standing dead trees)  $\geq 3$  inches dbh be left standing in the area(s) in which all northern long-eared bat roost trees will be cut, knocked down, or otherwise brought down?

Yes

Will all project activities be completed by April 1, 2024?

No

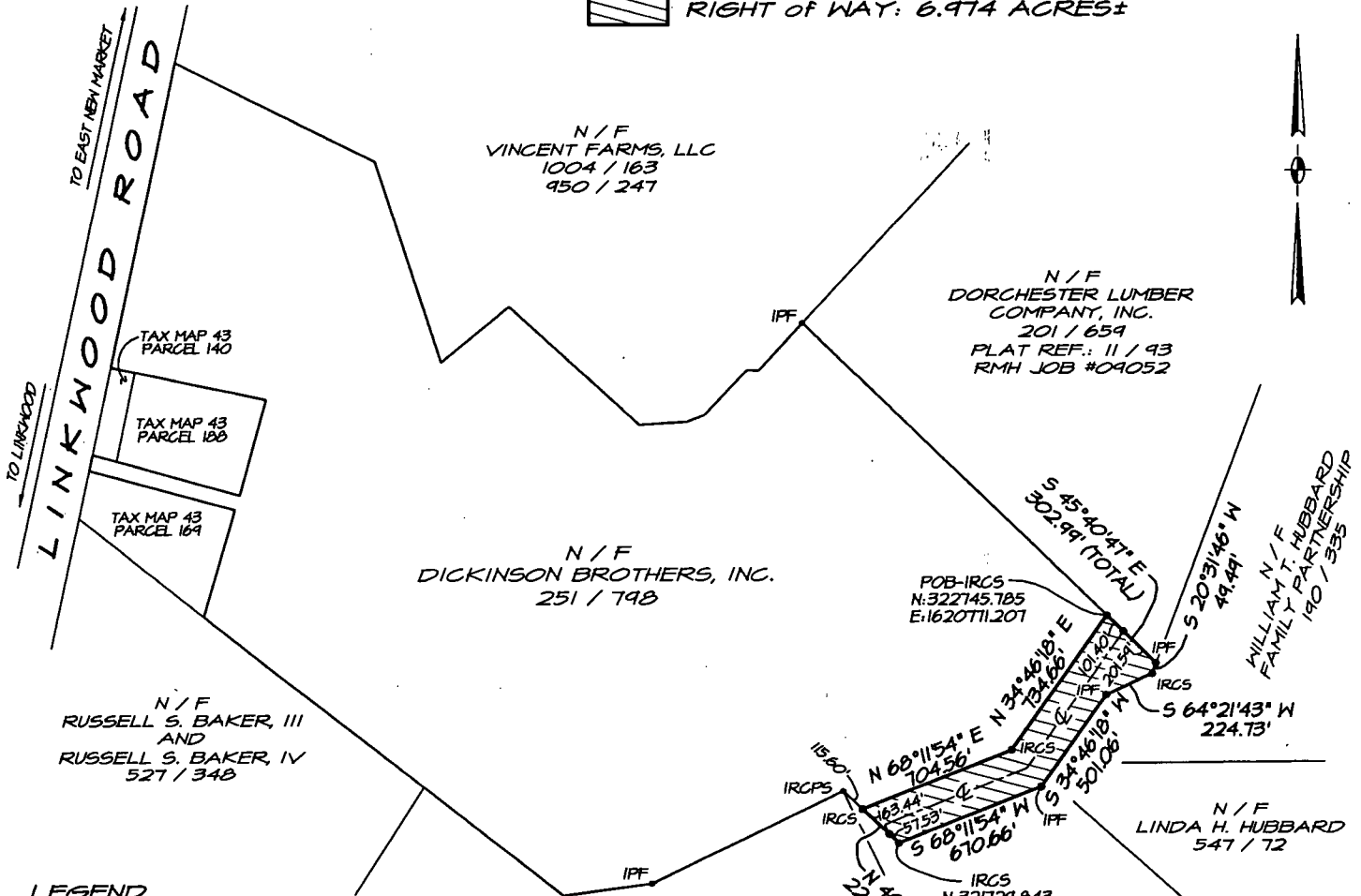
## **APPENDIX F**

### **ROW SURVEYS**

**EXHIBIT A-1**  
**RIGHT-OF-WAY LIBER 1034 FOLIO 471**  
 ON THE LAND OF  
**DICKINSON BROTHERS, INC.**

IN THE FOURTEENTH ELECTION DISTRICT  
 DORCHESTER COUNTY, MARYLAND  
 TAX MAP: 43, PARCEL 139

 RIGHT OF WAY: 6.974 ACRES±



**LEGEND**

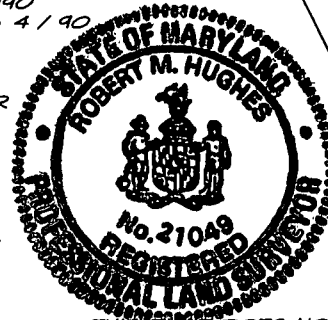
- IRCS = IRON ROD & CAP SET
- IRCPS = IRON ROD & CAP PREVIOUSLY SET
- IFF = IRON PIPE FOUND
- POB = POINT OF BEGINNINGS
- CL = CENTERLINE

**SURVEYOR**

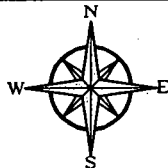
I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION WITHOUT THE REVIEW OF AN ABSTRACT OF TITLE AND IS ACCURATE TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.



ROBERT M. HUGHES  
 PROFESSIONAL LAND SURVEYOR  
 MARYLAND No. 21049  
 DELAWARE No. 640



RFP # 0808-01  
 THIS PLAT DOES NOT CONSTITUTE A BOUNDARY SURVEY.



Robert M.  
**HUGHES**  
 & Associates Inc.  
 PROFESSIONAL LAND SURVEYING  
 St. Michaels - Trappe - Cambridge  
 410-476-3223 - FAX 410-476-9957

DATE: 03 / 02 / 2011  
 SCALE: 1" = 800'  
 DRAWN BY: BSF  
 JOB No. 04053

EXHIBIT A-1  
RIGHT-OF-WAY LIBER 1034 FOLIO 477

ON THE LAND OF  
**DORCHESTER LUMBER COMPANY, INC.**

IN THE FOURTEENTH ELECTION DISTRICT  
DORCHESTER COUNTY, MARYLAND  
TAX MAP: 44, PARCEL 57

 RIGHT OF WAY: 16.365 ACRES±

**LEGEND**

- IRCS = IRON ROD & CAP SET
- IRCF = IRON ROD & CAP FOUND
- IPF = IRON PIPE FOUND
- POB = POINT OF BEGINNING
- ℄ = CENTERLINE OF 200' WIDE CONSTRUCTION CORRIDOR



N / F  
VINCENT FARMS, LLC  
1004 / 163  
950 / 247

N / F  
DORCHESTER LUMBER  
COMPANY, INC.  
201 / 659  
PLAT REF.: 11 / 93

N / F  
DICKINSON BROTHERS, INC.  
251 / 798  
RMH JOB #09053

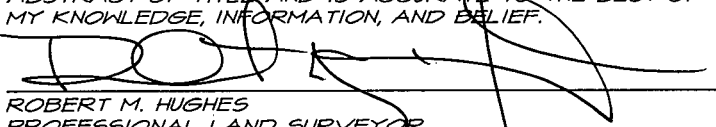
N / F  
OTTO SCHOTT  
AND  
MARIA A. SCHOTT  
116 / 466

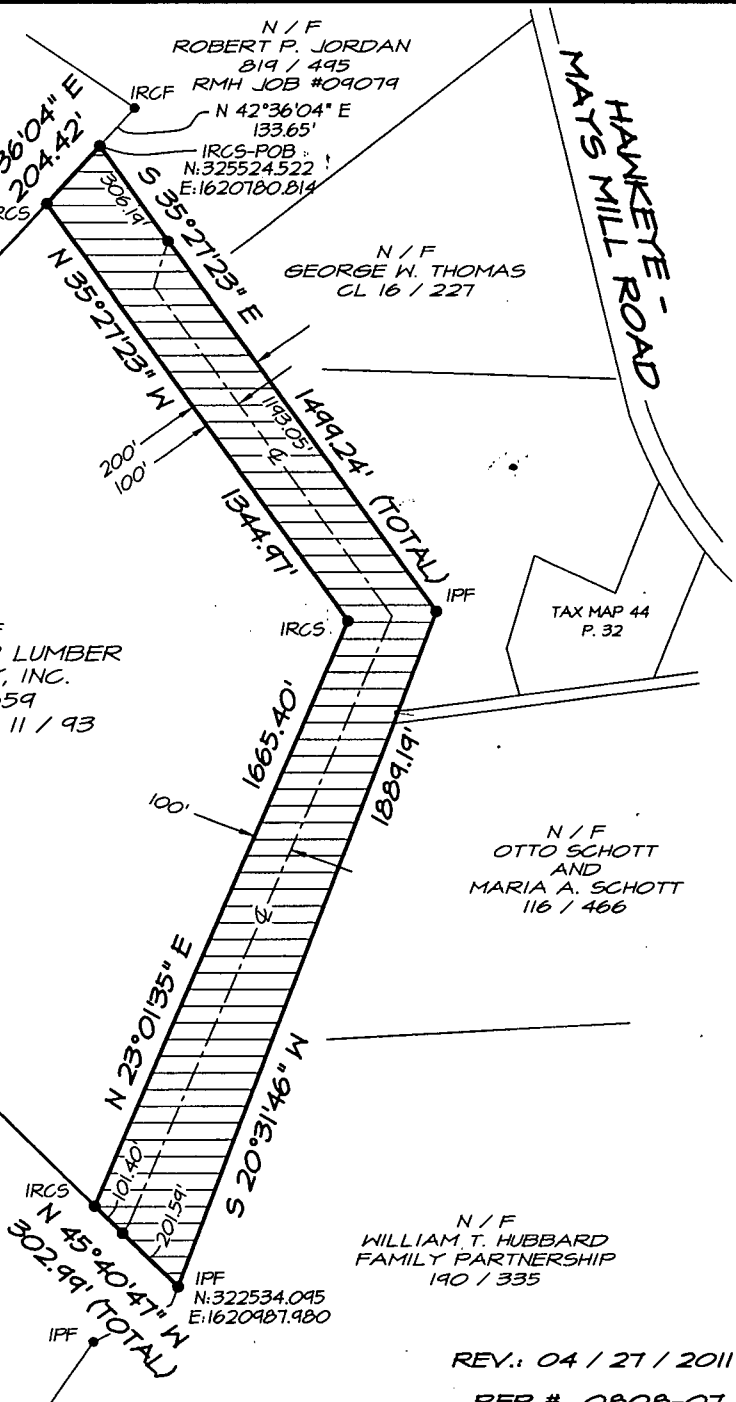
N / F  
WILLIAM T. HUBBARD  
FAMILY PARTNERSHIP  
190 / 335



**SURVEYOR**

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION WITHOUT THE REVIEW OF AN ABSTRACT OF TITLE AND IS ACCURATE TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

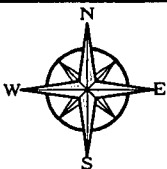
  
ROBERT M. HUGHES  
PROFESSIONAL LAND SURVEYOR  
MARYLAND No. 21049  
DELAWARE No. 640



REV.: 04 / 21 / 2011

RFP # 0808-07

THIS PLAT DOES NOT CONSTITUTE A BOUNDARY SURVEY.



Robert M.  
**HUGHES**  
& Associates Inc.  
PROFESSIONAL LAND SURVEYING  
St. Michaels - Trappe - Cambridge  
410-476-3223 - FAX 410-476-9957

DATE: 03 / 03 / 2011

SCALE: 1" = 500'

DRAWN BY: BSF

JOB No. 09052

## **APPENDIX G**

### **PJD DATA PACKAGE**



District: **14** Account Number: **003312**



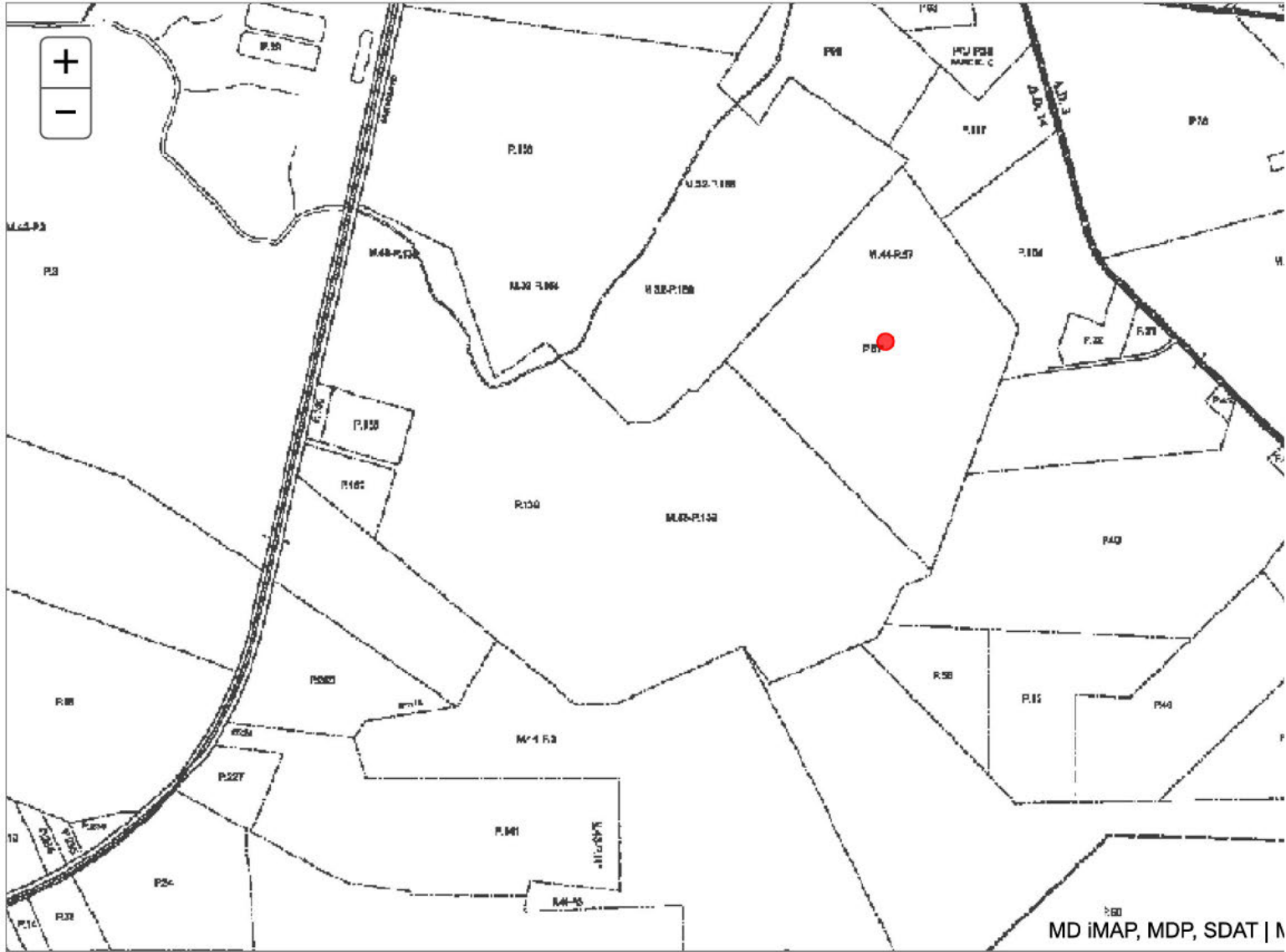
The information shown on this map has been compiled from deed descriptions and plats and is not a property survey. The map should not be used for legal descriptions. Users noting errors are urged to notify the Maryland Department of Planning Mapping, 301 W. Preston Street, Baltimore MD 21201.

If a plat for a property is needed, contact the local Land Records office where the property is located. Plats are also available online through the Maryland State Archives at [www.plats.net](http://www.plats.net) (<http://www.plats.net>).

Property maps provided courtesy of the Maryland Department of Planning.

For more information on electronic mapping applications, visit the Maryland Department of Planning web site at <http://planning.maryland.gov/Pages/OurProducts/OurProducts.aspx> (<http://planning.maryland.gov/Pages/OurProducts/OurProducts.aspx>).

District: **14** Account Number: **004254**

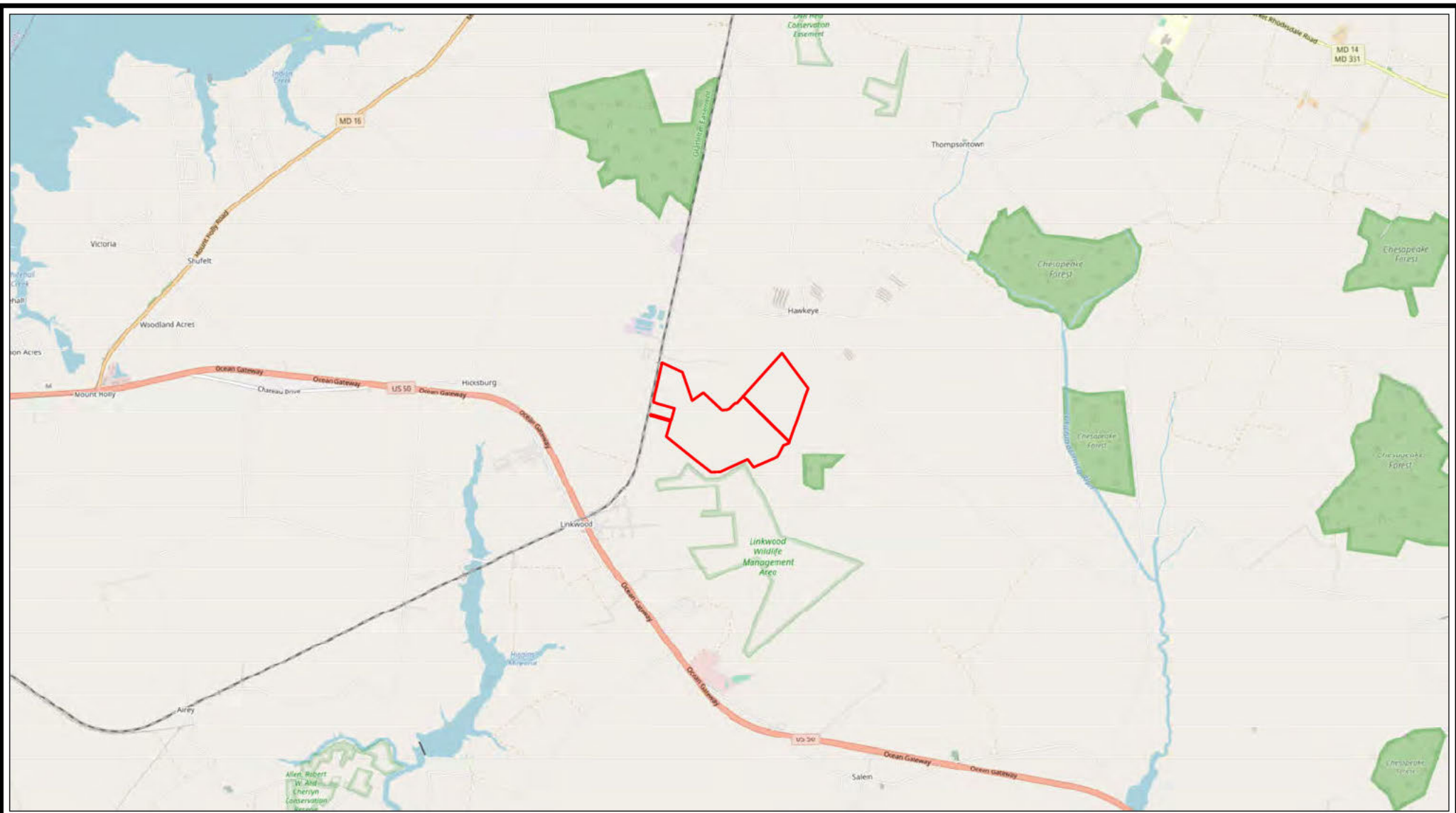


The information shown on this map has been compiled from deed descriptions and plats and is not a property survey. The map should not be used for legal descriptions. Users noting errors are urged to notify the Maryland Department of Planning Mapping, 301 W. Preston Street, Baltimore MD 21201.

If a plat for a property is needed, contact the local Land Records office where the property is located. Plats are also available online through the Maryland State Archives at [www.plats.net](http://www.plats.net) (<http://www.plats.net>).

Property maps provided courtesy of the Maryland Department of Planning.

For more information on electronic mapping applications, visit the Maryland Department of Planning web site at <http://planning.maryland.gov/Pages/OurProducts/OurProducts.aspx> (<http://planning.maryland.gov/Pages/OurProducts/OurProducts.aspx>).



L:\Ecosystem Services\2022 Ecosystem Services Files\DRGNCW22.194\Maps  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: OpenStreetMap

Linkwood Rd Feasibility  
 Dorchester County, MD

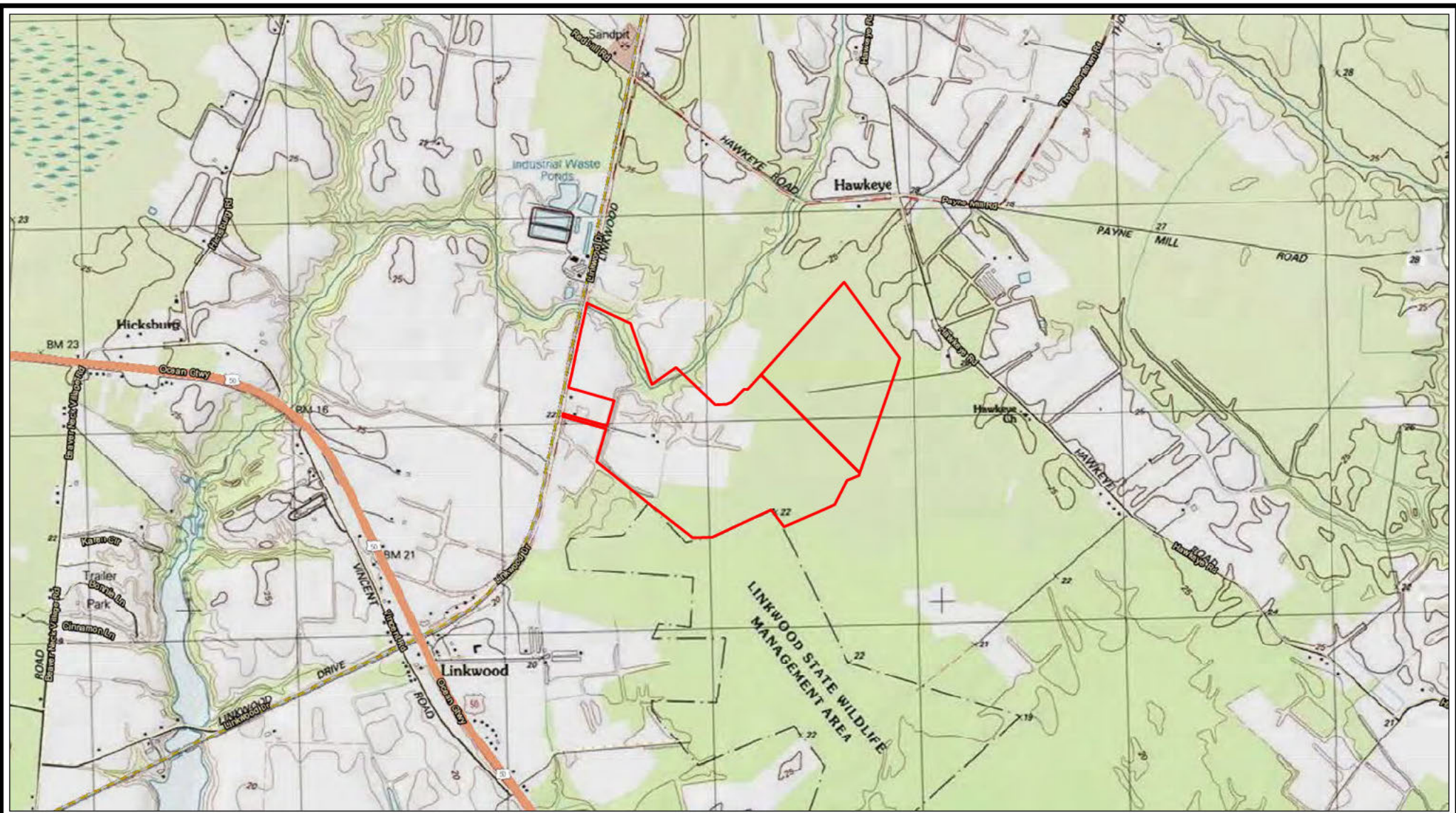
July, 2022  
 DRGNCW22.194

**DAVEY**  
**Resource Group**  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Figure 1**  
**Site Location**



0 1,500 3,000 6,000  
 ft  
 Scale applies to 11X17" print.



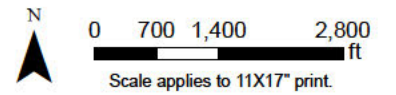
L:\Ecosystem Services\2022 Ecosystem Services Files\DRGNCW22.194\Maps  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: USGS Topographic 7.5 Minute - East New Market

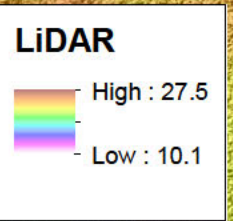
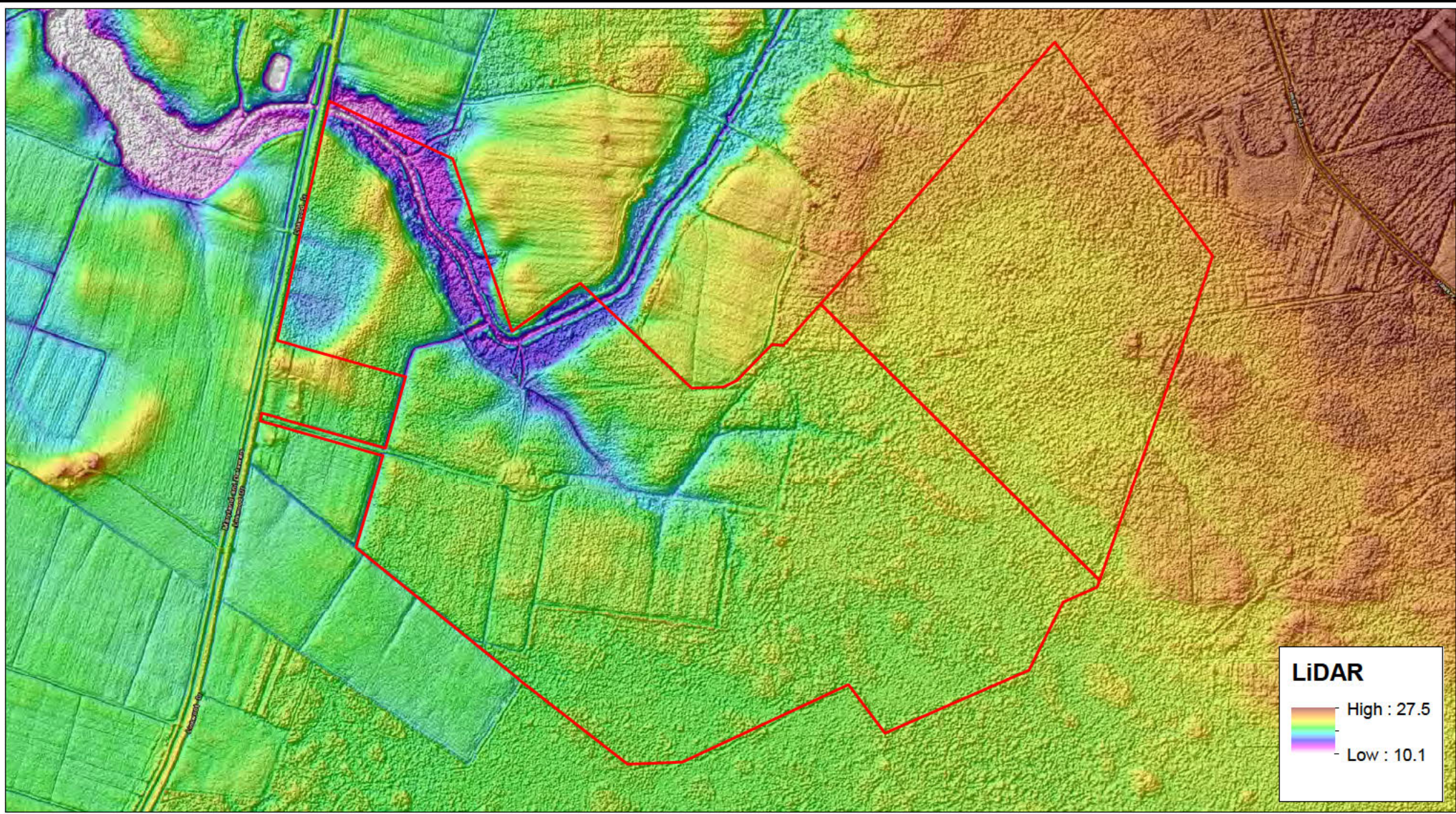
Linkwood Rd Feasibility  
 Dorchester County, MD

July, 2022  
 DRGNCW22.194

**DAVEY**  
 Resource Group  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Figure 2**  
**Topographic Map**




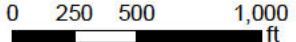


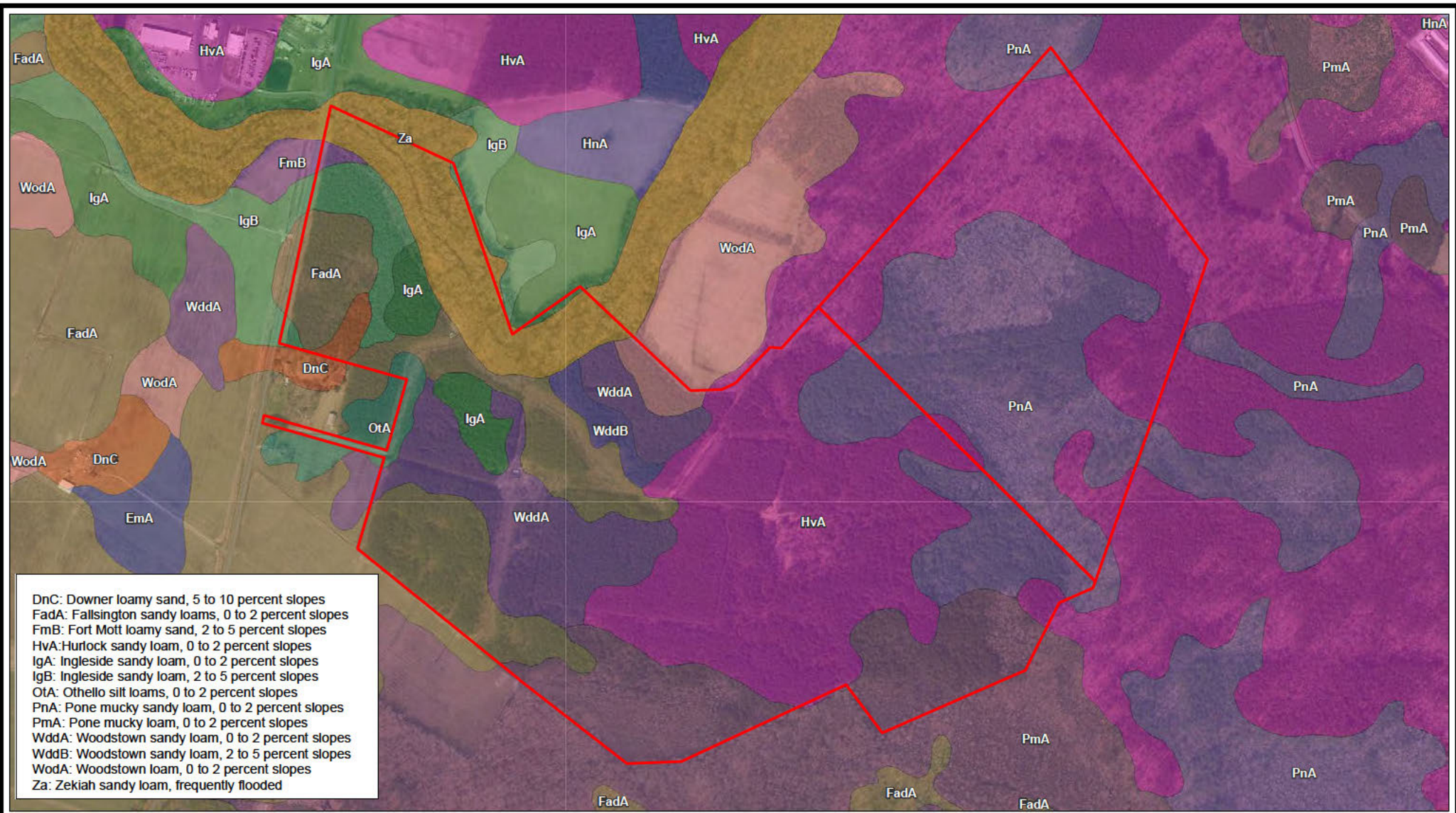
L:\Ecosystem Services\2022 Ecosystem Services Files\  
 DRGNCW22.194\Maps  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: Eastern Shore Regional GIS Cooperative LiDAR  
 Data 2021 - DEM Feet

Linkwood Rd Feasibility  
 Dorchester County, MD  
 July, 2022  
 DRGNCW22.194

**DAVEY**   
 Resource Group  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Figure 3**  
**LiDAR Map**

   
 Scale applies to 11X17" print.



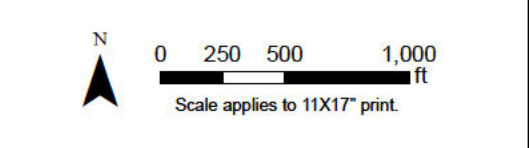
DnC: Downer loamy sand, 5 to 10 percent slopes  
 FadA: Fallsington sandy loams, 0 to 2 percent slopes  
 FmB: Fort Mott loamy sand, 2 to 5 percent slopes  
 HvA: Hurlock sandy loam, 0 to 2 percent slopes  
 IgA: Ingleside sandy loam, 0 to 2 percent slopes  
 IgB: Ingleside sandy loam, 2 to 5 percent slopes  
 OtA: Othello silt loams, 0 to 2 percent slopes  
 PnA: Pone mucky sandy loam, 0 to 2 percent slopes  
 PmA: Pone mucky loam, 0 to 2 percent slopes  
 WddA: Woodstown sandy loam, 0 to 2 percent slopes  
 WddB: Woodstown sandy loam, 2 to 5 percent slopes  
 WodA: Woodstown loam, 0 to 2 percent slopes  
 Za: Zekiah sandy loam, frequently flooded

L:\Ecosystem Services\2022 Ecosystem Services Files\  
 DRGNCW22.194\Maps  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: GIS Soils Data Dorchester County

Linkwood Rd Feasibility  
 Dorchester County, MD  
 May 2023  
 DRGNCW22.194



**Figure 4**  
**Soils Map**





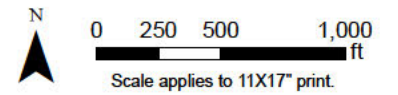
L:\Ecosystem Services\2022 Ecosystem Services Files\  
 DRGNCW22.194\Maps  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: 1995 Maryland Digital Orthophoto Quads - Color  
 Infrared DOQs

Linkwood Rd Feasibility  
 Dorchester County, MD

July, 2022  
 DRGNCW22.194

**DAVEY**   
 Resource Group  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Figure 5**  
**1995 Infrared Map**





L:\Ecosystem Services\2022 Ecosystem Services Files\  
DRGNCW22.194\Maps  
Boundaries are approximate and not meant to be absolute.  
Map Source: Maryland Six Inch Imagery - Image Service, 2019

Linkwood Rd Feasibility  
Dorchester County, MD

July, 2022  
DRGNCW22.194

**DAVEY**   
**Resource Group**  
3805 Wrightsville Avenue  
Wilmington, NC 28403  
(910) 452-0001

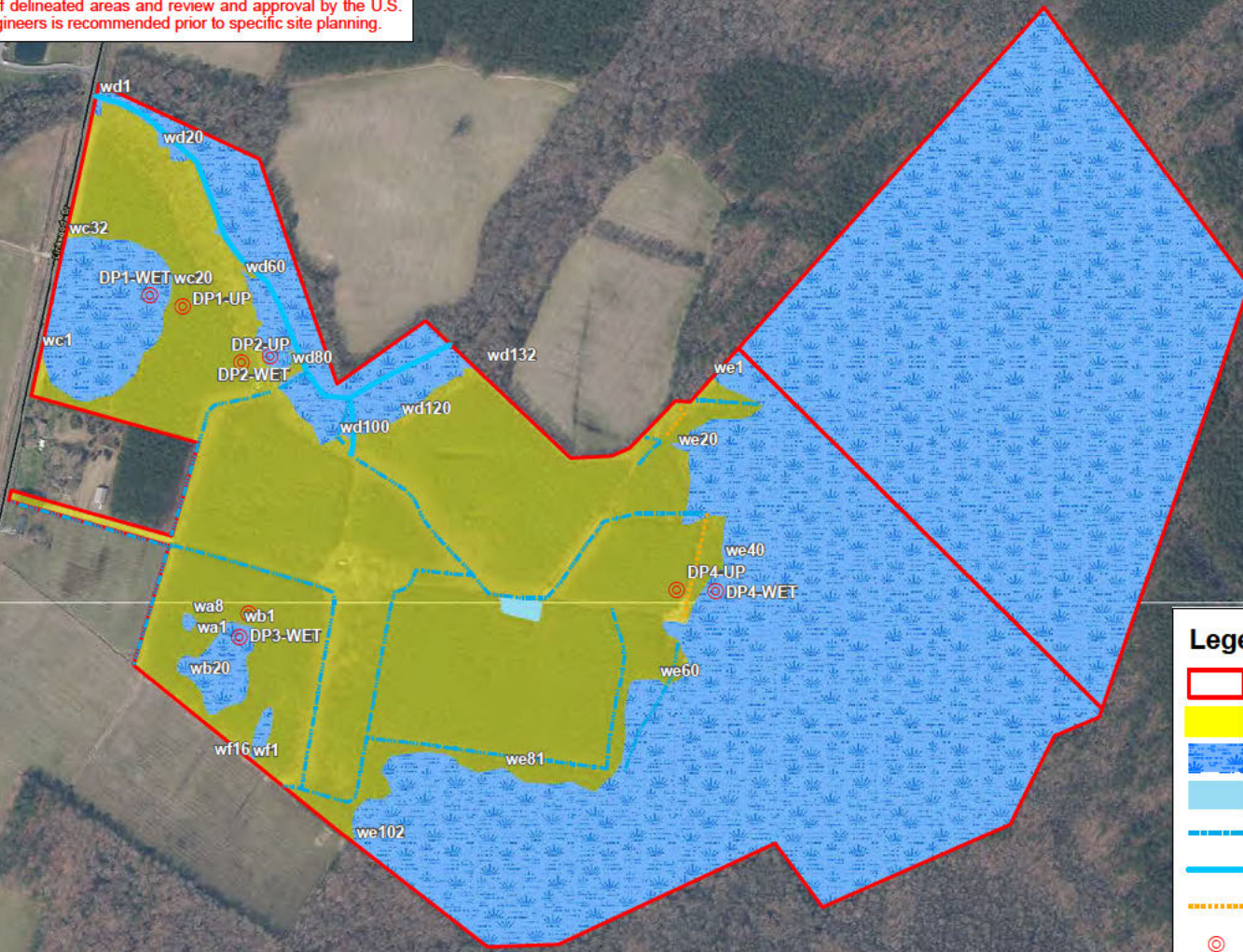
**Figure 6**  
**Current Aerial**



0 250 500 1,000  
ft  
Scale applies to 11X17" print.



**NOTE:** This is not a survey. All boundaries and distances are considered approximate. This represents a preliminary sketch prepared from field notes. A survey of delineated areas and review and approval by the U.S. Army Corps of Engineers is recommended prior to specific site planning.



**Legend**



- Project Area ~ 269.3 ac
- Uplands ~ 91.6 ac (34%)
- Wetlands ~ 177.3 ac (65%)
- Open Water ~ 0.3 ac (<1%)
- Potential Waters of the US (RPW) ~ 10,480 l.f.
- Potential Waters of the US (Stream) ~ 2,540 l.f.
- Upland Drainage Feature ~ 640 l.f.
- ⊙ DataPoints

L:\ECOSYSTEM SERVICES\2022 ECOSYSTEM SERVICES FILES\DRGNCW22.194 — Linkwood Rd Feasibility, WRC\Maps\GIS  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: Maryland Six Inch Imagery - Image Service, 2019

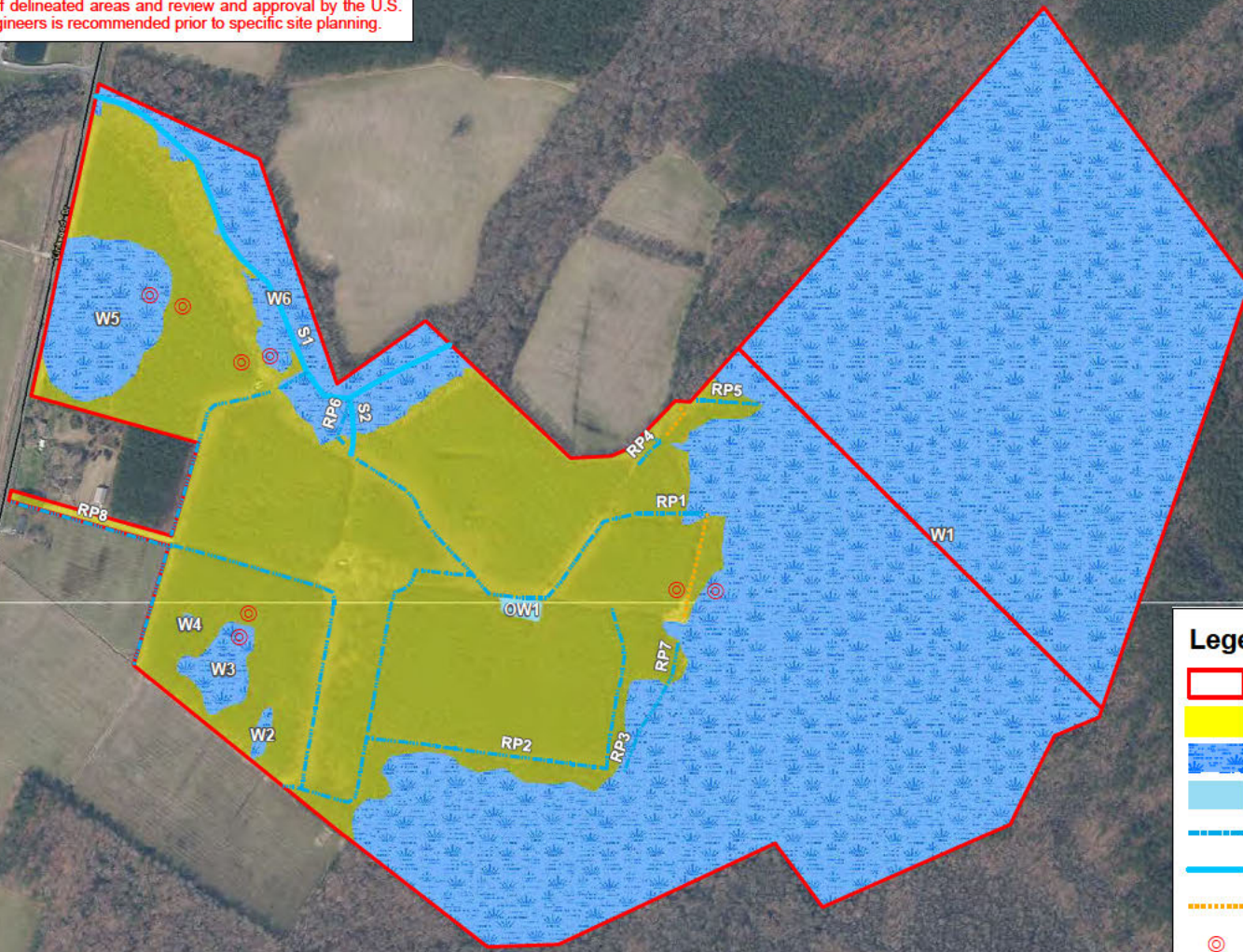
Linkwood Road  
 Dorchester County, MD  
 Map Date: April 2023  
 DRGNCW22.194

**DAVEY**   
**Resource Group**  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Delineation  
 Preliminary Sketch**

   
 Scale applies to 11X17" print.

**NOTE:** This is not a survey. All boundaries and distances are considered approximate. This represents a preliminary sketch prepared from field notes. A survey of delineated areas and review and approval by the U.S. Army Corps of Engineers is recommended prior to specific site planning.



**Legend**


- Project Area ~ 269.3 ac
- Uplands ~ 91.6 ac (34%)
- Wetlands ~ 177.3 ac (65%)
- Open Water ~ 0.3 ac (<1%)
- Potential Waters of the US (RPW) ~ 10,480 l.f.
- Potential Waters of the US (Stream) ~ 2,540 l.f.
- Upland Drainage Feature ~ 640 l.f.
- DataPoints

L:\ECOSYSTEM SERVICES\2022 ECOSYSTEM SERVICES FILES\DRGNCW22.194 — Linkwood Rd Feasibility, WRC\Maps\GIS  
 Boundaries are approximate and not meant to be absolute.  
 Map Source: Maryland Six Inch Imagery - Image Service, 2019

Linkwood Road  
 Dorchester County, MD  
 Map Date: April 2023  
 DRGNCW22.194

**DAVEY**   
 Resource Group  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**PJD Reference Map**

N  0 250 500 1,000 ft  
 Scale applies to 11X17" print.

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP1-Up  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.552217 Long: -75.934553 Datum: NAD-83  
 Soil Map Unit Name: Ingelside sandy loam NWI classification: Upland on map  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks: No water table or saturation observed within 24 inches.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP1-Up

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Pinus taeda</i></u>	<u>80</u>	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
80 =Total Cover				
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Liquidambar styraciflua</i></u>	<u>30</u>	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u><i>Ilex opaca</i></u>	<u>2</u>	No	FAC	
3. <u><i>Juniperus virginiana</i></u>	<u>2</u>	No	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
34 =Total Cover				
50% of total cover: <u>17</u>		20% of total cover: <u>7</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u>None</u>				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. <u>None</u>				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____				
3. _____				
4. _____				
5. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP1-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR 5/3	100					Sandy	
14-24	10YR 5/6	100					Loamy/Clayey	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP1-Wet  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.552351 Long: -75.935040 Datum: NAD-83  
 Soil Map Unit Name: Fallsington sandy loams NWI classification: PFO  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Aquatic Fauna (B13) _____ High Water Table (A2) _____ Marl Deposits (B15) <b>(LRR U)</b> _____ Saturation (A3) _____ Hydrogen Sulfide Odor (C1) _____ Water Marks (B1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Sediment Deposits (B2) _____ Presence of Reduced Iron (C4) _____ Drift Deposits (B3) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Algal Mat or Crust (B4) _____ Thin Muck Surface (C7) _____ Iron Deposits (B5) _____ Other (Explain in Remarks) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) <u>x</u> Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) <u>x</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) <u>x</u> FAC-Neutral Test (D5) _____ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 No water table or saturation within 24 inches.

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP1-Wet

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30'</u> )				
1. <u>Liquidambar styraciflua</u>	<u>55</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. <u>Acer rubrum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>75</u> =Total Cover				
50% of total cover: <u>38</u>		20% of total cover: <u>15</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> )				
1. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>Ilex opaca</u>	<u>2</u>	<u>Yes</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>7</u> =Total Cover				
50% of total cover: <u>4</u>		20% of total cover: <u>2</u>		
<b>Herb Stratum</b> (Plot size: <u>30'</u> )				
1. <u>Gelsemium sempervirens</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Juncus effusus</u>	<u>5</u>	<u>Yes</u>	<u>OBL</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>20</u> =Total Cover				
50% of total cover: <u>10</u>		20% of total cover: <u>4</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> )				
1. <u>None</u>				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP1-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-24	10YR 5/2	60	10YR 5/6	40	C	M	Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes X      No \_\_\_\_\_

Remarks:



Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP2-Up  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.551551 Long: -75.933675 Datum: NAD-83  
 Soil Map Unit Name: Fallsington Sandy Loam NWI classification: Upland on map  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 No water table or saturation observed within 24 inches.

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP2-Up

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Pinus taeda</i></u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
40 =Total Cover				
50% of total cover: <u>20</u>	20% of total cover: <u>8</u>			
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Liquidambar styraciflua</i></u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
30 =Total Cover				
50% of total cover: <u>15</u>	20% of total cover: <u>6</u>			
<b>Herb Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Gelsemium sempervirens</i></u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. <u><i>Ilex opaca</i></u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
3. <u><i>Ligustrum sinense</i></u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
24 =Total Cover				
50% of total cover: <u>12</u>	20% of total cover: <u>5</u>			
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> )				
1. <u>None</u>	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ =Total Cover				
50% of total cover: _____	20% of total cover: _____			

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP2-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 5/3	100					Loamy/Clayey	
12-24	10YR 5/6	100					Loamy/Clayey	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP2-Wet  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Flood Plain Local relief (concave, convex, none): Concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.551618 Long: -75.933238 Datum: NAD-83  
 Soil Map Unit Name: Zekiah sandy loam NWI classification: PFO  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1)      ___ Aquatic Fauna (B13) <u>X</u> High Water Table (A2)      ___ Marl Deposits (B15) <b>(LRR U)</b> ___ Saturation (A3)      ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1)      ___ Oxidized Rhizospheres on Living Roots (C3) ___ Sediment Deposits (B2)      ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3)      ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4)      ___ Thin Muck Surface (C7) ___ Iron Deposits (B5)      ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Sphagnum Moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>12</u> Saturation Present? Yes <u>x</u> No _____ Depth (inches): <u>12</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP2-Wet

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Acer rubrum</i></u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u><i>Liquidambar styraciflua</i></u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>	
3. <u><i>Quercus rubra</i></u>	<u>12</u>	<u>No</u>	<u>FACU</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>72</u> =Total Cover			
	50% of total cover: <u>36</u>	20% of total cover: <u>15</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Ligustrum sinense</i></u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>5</u> =Total Cover			
	50% of total cover: <u>3</u>	20% of total cover: <u>1</u>		
<b>Herb Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Lonicera sempervirens</i></u>	<u>40</u>	<u>Yes</u>	<u>FACU</u>	<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. <u><i>Allium canadense</i></u>	<u>8</u>	<u>No</u>	<u>FACU</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>48</u> =Total Cover			
	50% of total cover: <u>24</u>	20% of total cover: <u>10</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> )				
1. <u>None</u>				
2. _____				
3. _____				
4. _____				
5. _____				
	_____ =Total Cover			
	50% of total cover: _____	20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP2-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 2/2	95	7.5YR 4/6	5	c		Loamy/Clayey	Prominent redox concentrations
2-7	10YR 5/2	90	10YR 5/6	10	c		Loamy/Clayey	Prominent redox concentrations
7-13	10YR 3/1	90	7.5YR 4/6	10	c		Loamy/Clayey	Prominent redox concentrations
13-38	10YR 4/1	75	10YR 5/6	25	c		Loamy/Clayey	Prominent redox concentrations
38-42	10YR 4/2	95	7.5YR 4/6	5	c		Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes       No \_\_\_\_\_

Remarks:

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP3-Up  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): \_\_\_\_\_  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.548570 Long: -75.933609 Datum: NAD-83  
 Soil Map Unit Name: Fallsington sandy loam NWI classification: Upland on Map  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No water table or saturation observed within 24 inches.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP3-Up

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Pinus taeda</i></u>	<u>75</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
2. <u><i>Liquidambar styraciflua</i></u>	<u>10</u>	<u>No</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>85</u> =Total Cover				
50% of total cover: <u>43</u>		20% of total cover: <u>17</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Liquidambar styraciflua</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u><i>Juniperus virginiana</i></u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>	
3. <u><i>Ilex opaca</i></u>	<u>1</u>	<u>No</u>	<u>FAC</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>21</u> =Total Cover				
50% of total cover: <u>11</u>		20% of total cover: <u>5</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u>None</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>  </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>  </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>  </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. <u>None</u>				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below.)				



**SOIL**

Sampling Point: DP3-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 5/3	100					Sandy	
10-16	10YR 6/2	100					Sandy	
16-24	10YR 6/1	60	10YR 5/6	40	C	M	Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP3-Wet  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.548293 Long: -75.933748 Datum: NAD-83  
 Soil Map Unit Name: Fallsington sandy loams NWI classification: PFO  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
___ Surface Water (A1)                      ___ Aquatic Fauna (B13) <u>X</u> High Water Table (A2)                    ___ Marl Deposits (B15) <b>(LRR U)</b> ___ Saturation (A3)                            ___ Hydrogen Sulfide Odor (C1) ___ Water Marks (B1)                         ___ Oxidized Rhizospheres on Living Roots (C3) ___ Sediment Deposits (B2)                 ___ Presence of Reduced Iron (C4) ___ Drift Deposits (B3)                        ___ Recent Iron Reduction in Tilled Soils (C6) ___ Algal Mat or Crust (B4)                    ___ Thin Muck Surface (C7) ___ Iron Deposits (B5)                         ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9)	___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) <u>X</u> Geomorphic Position (D2) ___ Shallow Aquitard (D3) <u>X</u> FAC-Neutral Test (D5) ___ Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>6</u> Saturation Present? Yes <u>x</u> No _____ Depth (inches): <u>6</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP3-Wet

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30'</u> )					
1. <u>Liquidambar styraciflua</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)  <b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
2. <u>Pinus taeda</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
<u>50</u> =Total Cover					
50% of total cover: <u>25</u>		20% of total cover: <u>10</u>			
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> )					
1. <u>Liquidambar styraciflua</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
<u>30</u> =Total Cover					
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>			
<b>Herb Stratum</b> (Plot size: <u>30'</u> )					
1. <u>Juncus effusus</u>	<u>2</u>	<u>No</u>	<u>OBL</u>		
2. <u>Polygonum persicaria</u>	<u>2</u>	<u>No</u>	<u>FACW</u>		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
<u>4</u> =Total Cover					
50% of total cover: <u>2</u>		20% of total cover: <u>1</u>			
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> )					
1. <u>None</u>				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.	
2. _____					
3. _____					
4. _____					
5. _____					
_____ =Total Cover					
50% of total cover: _____		20% of total cover: _____			
<b>Hydrophytic Vegetation Present?</b>				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP3-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 5/1	80	10YR 5/6	20	C	M	Loamy/Clayey	Prominent redox concentrations
10-24	10YR 6/1	60	10YR 5/6	40	C	M	Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes       No \_\_\_\_\_

Remarks:

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP4-Up  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.548795 Long: -75.927140 Datum: NAD-83  
 Soil Map Unit Name: Hurlock sandy loam NWI classification: Upland on Map  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No water table or saturation observed within 24 inches.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP4-Up

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Pinus taeda</i></u>	<u>80</u>	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>80</u> =Total Cover				
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30'</u> )				
1. <u><i>Liquidambar styraciflua</i></u>	<u>20</u>	Yes	FAC	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u><i>Acer rubrum</i></u>	<u>2</u>	No	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>22</u> =Total Cover				
50% of total cover: <u>11</u>		20% of total cover: <u>5</u>		
<b>Herb Stratum</b> (Plot size: <u>30'</u> )				
1. <u>None</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. <u>None</u>				<b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
_____ =Total Cover				
50% of total cover: _____		20% of total cover: _____		

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP4-Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 5/2	100					Sandy	
6-10	10YR 6/1	100					Sandy	
10-24	10YR 7/1	70	10YR 5/6	30	C	M	Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Project/Site: Linkwood Rd City/County: Linkwood/Dorchester Sampling Date: 3/16/2023  
 Applicant/Owner: William K. Blanchet/Wetlands Resource Center LLC State: MD Sampling Point: DP4-Wet  
 Investigator(s): Wes Fryar - DRG Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Swamp Local relief (concave, convex, none): Concave Slope (%): 0-2  
 Subregion (LRR or MLRA): LRR T, MLRA 153D Lat: 38.548773 Long: -75.926561 Datum: NAD-83  
 Soil Map Unit Name: Hurlock sandy loam NWI classification: PFO  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No x (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes x No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: According to Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network, drier than normal conditions were present at the time of the field work.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum Moss (D8) <b>(LRR T, U)</b>

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>8</u> Saturation Present? Yes <u>x</u> No _____ Depth (inches): <u>8</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP4-Wet

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Pinus taeda</i></u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) <hr/> <b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u><i>Liquidambar styraciflua</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
3. <u><i>Acer rubrum</i></u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>70</u> =Total Cover			
	50% of total cover: <u>35</u>	20% of total cover: <u>14</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Liquidambar styraciflua</i></u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u><i>Acer rubrum</i></u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
3. <u><i>Juniperus virginiana</i></u>	<u>1</u>	<u>No</u>	<u>FACU</u>	
4. <u><i>Ilex opaca</i></u>	<u>1</u>	<u>No</u>	<u>FAC</u>	
5. _____				
6. _____				
7. _____				
8. _____				
	<u>19</u> =Total Cover			
	50% of total cover: <u>10</u>	20% of total cover: <u>4</u>		
<b>Herb Stratum</b> (Plot size: <u>30</u> )				
1. <u><i>Juncus effusus</i></u>	<u>2</u>	<u>No</u>	<u>OBL</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <hr/> <b>Definitions of Four Vegetation Strata:</b> <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody Vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>2</u> =Total Cover			
	50% of total cover: <u>1</u>	20% of total cover: <u>1</u>		
<b>Woody Vine Stratum</b> (Plot size: <u>30</u> )				
1. <u>None</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
3. _____				
4. _____				
5. _____				
	_____ =Total Cover			
	50% of total cover: _____	20% of total cover: _____		

Remarks: (If observed, list morphological adaptations below.)

**SOIL**

Sampling Point: DP4-Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/1	100					Loamy/Clayey	
6-12	10YR 3/2	100					Loamy/Clayey	
12-24	10YR 4/2	90	10YR 5/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) **(LRR P, T, U)**
- 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- Muck Presence (A8) **(LRR U)**
- 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) **(MLRA 150A)**
- Sandy Mucky Mineral (S1) **(LRR O, S)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) **(LRR P, S, T, U)**
- Polyvalue Below Surface (S8) **(LRR S, T, U)**
- Thin Dark Surface (S9) **(LRR S, T, U)**
- Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- Loamy Mucky Mineral (F1) **(LRR O)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) **(LRR U)**
- Depleted Ochric (F11) **(MLRA 151)**
- Iron-Manganese Masses (F12) **(LRR O, P, T)**
- Umbric Surface (F13) **(LRR P, T, U)**
- Delta Ochric (F17) **(MLRA 151)**
- Reduced Vertic (F18) **(MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) **(LRR O)**
- 2 cm Muck (A10) **(LRR S)**
- Coast Prairie Redox (A16) **(outside MLRA 150A)**
- Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- Piedmont Floodplain Soils (F19) **(LRR P, T)**
- Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

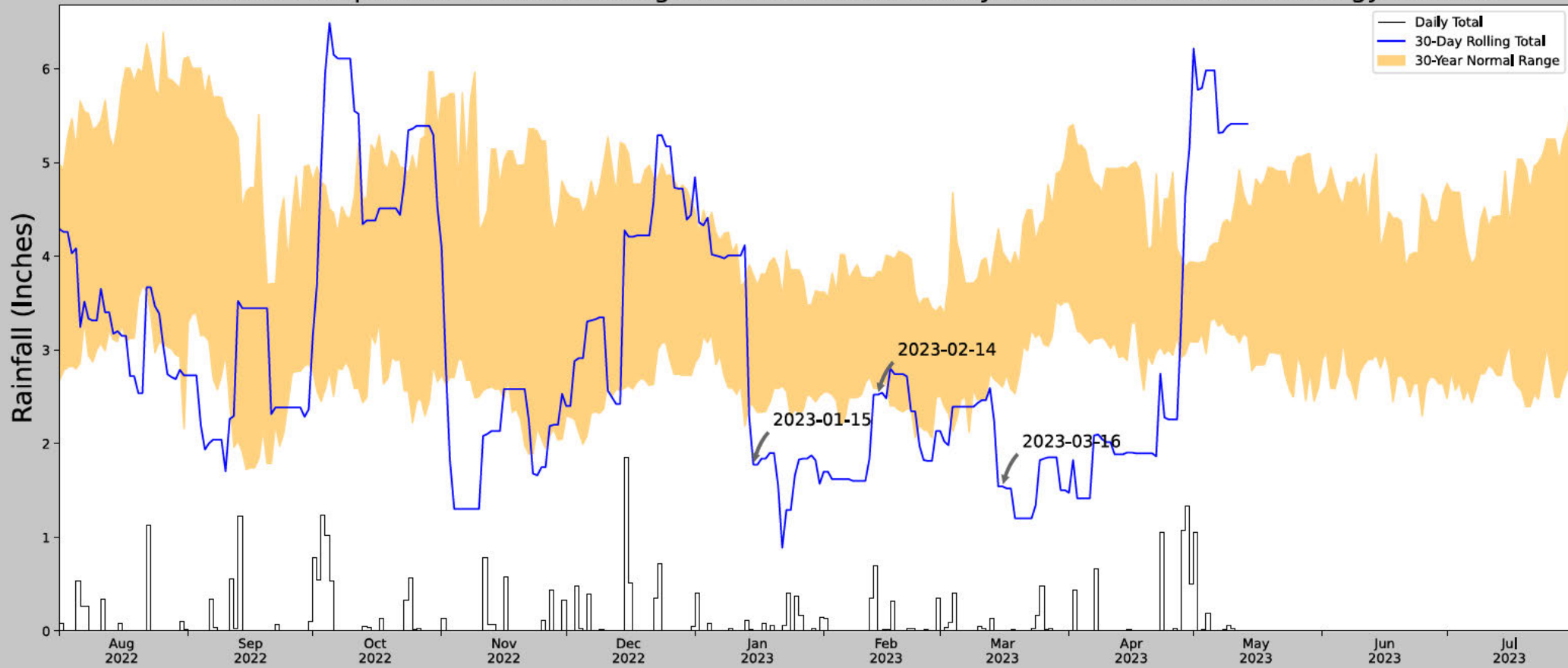
**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No \_\_\_\_\_

Remarks:

# Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.551618, -75.933238
Observation Date	2023-03-16
Elevation (ft)	15.216
Drought Index (PDSI)	Moderate drought
WebWIMP H <sub>2</sub> O Balance	Wet Season

30 Days Ending	30 <sup>th</sup> %ile (in)	70 <sup>th</sup> %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-03-16	2.602756	4.044488	1.543307	Dry	1	3	3
2023-02-14	2.590945	3.835039	2.523622	Dry	1	2	2
2023-01-15	2.409449	3.803937	1.775591	Dry	1	1	1
<b>Result</b>							<b>Drier than Normal - 6</b>



Figure and tables made by the  
**Antecedent Precipitation Tool**  
Version 1.0

Written by Jason Deters  
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ROYAL OAK 2 SSW	38.7153, -76.1908	9,843	17.921	5.373	8.161	11214	90
TRAPPE 4.8 W	38.6478, -76.1454	8,858	5.268	0.985	2.376	4	0
BELLEVUE 0.3 NNE	38.7065, -76.1814	-3280,512	0.792	3290,355	2,962	78	0
EASTON 1.1 SW	38.7633, -76.0853	2,953	6.582	6.89	3,007	24	0
EASTON 1.2 SSW	38.758, -76.079	13,123	6.709	3.28	3,041	2	0
EASTON 1.7 SSE	38.7528, -76.0561	42,979	7.708	33.136	3,724	23	0
EASTON 2.4 SE	38.748, -76.041	56,102	8.384	46.259	4,161	1	0
VIENNA	38.4875, -75.8211	9,843	25.421	0.0	11,439	6	0
GREENWOOD 2NE	38.8161, -75.5761	44,948	33.84	35.105	16,416	1	0

**Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM**

**BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR PJD:**

**B. NAME AND ADDRESS OF PERSON REQUESTING PJD:** William K. Blanchet/Wetlands Resource Center LLC

**C. DISTRICT OFFICE, FILE NAME, AND NUMBER:**

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:**

**(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)**

State: **MD** County/parish/borough: **Dorchester** City: **Linkwood**

Center coordinates of site (lat/long in degree decimal format):

Lat.: **38.548335** Long.: **-75.927533**

Universal Transverse Mercator: 18 S 419174.38 m E 4267064.49 m N

Name of nearest waterbody: **Transquaking River**

**E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

Office (Desk) Determination. Date:

Field Determination. Date(s):

**TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.**

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
OW1	38.548584	-75.929475	0.32 ac	Non-Wetland Water	Section 404
S1	38.552452	-75.933239	2300 l.f.	Non-Wetland Water	Section 404
S2	38.550775	-75.931995	240 l.f.	Non-Wetland Water	Section 404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "*may be*" waters of the U.S. and/or that there "*may be*" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

**SUPPORTING DATA. Data reviewed for PJD (check all that apply)**

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:  
Map: PJD Reference Map
- Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report. Rationale: \_\_\_\_\_
- Data sheets prepared by the Corps: \_\_\_\_\_
- Corps navigable waters' study: \_\_\_\_\_
- U.S. Geological Survey Hydrologic Atlas: \_\_\_\_\_
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: USGS Topographic 7.5 Minute - East New Market
- Natural Resources Conservation Service Soil Survey. Citation: GIS Soils Data - Dorchester
- National wetlands inventory map(s). Cite name: \_\_\_\_\_
- State/local wetland inventory map(s): \_\_\_\_\_
- FEMA/FIRM maps: \_\_\_\_\_
- 100-year Floodplain Elevation is: \_\_\_\_\_.(National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date): 1995 Maryland DOQ; 2019 MDE 6 Inch Imagery  
or  Other (Name & Date): \_\_\_\_\_
- Previous determination(s). File no. and date of response letter: \_\_\_\_\_
- Other information (please specify): \_\_\_\_\_

**IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.**

\_\_\_\_\_  
Signature and date of  
Regulatory staff member  
completing PJD

\_\_\_\_\_  
Signature and date of  
person requesting PJD  
(REQUIRED, unless obtaining  
the signature is impracticable)<sup>1</sup>

<sup>1</sup> Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

# Potential Waters of the US (RPW) ~ 10,480 l.f

Label	Lat	Long	Resource Type	Geographic Authority
RP1	38.546345	-75.932287	Non-Wetland Waters	Section 404
RP2	38.546773	-75.92906	Non-Wetland Waters	Section 404
RP3	38.547067	-75.927755	Non-Wetland Waters	Section 404
RP4	38.550497	-75.92743	Non-Wetland Waters	Section 404
RP5	38.551007	-75.926365	Non-Wetland Waters	Section 404
RP6	38.550795	-75.932168	Non-Wetland Waters	Section 404
RP7	38.547779	-75.927222	Non-Wetland Waters	Section 404
RP8	38.549649	-75.935991	Non-Wetland Waters	Section 404

## Wetlands ~ 177.3 ac (65%)

Label	Lat	Long	Acreage	Resource Type	Geographic Authority
W1	38.549431	-75.923928	156.848507	Wetland Waters	Section 404
W2	38.547145	-75.933416	0.292197	Wetland Waters	Section 404
W3	38.547923	-75.934003	1.778638	Wetland Waters	Section 404
W4	38.548462	-75.934504	0.079083	Wetland Waters	Section 404
W5	38.552129	-75.935735	6.898923	Wetland Waters	Section 404
W6	38.552312	-75.932792	11.433241	Wetland Waters	Section 404



## **APPENDIX H**

**PJD**



DEPARTMENT OF THE ARMY  
U. S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT  
ATTN: REGULATORY BRANCH  
2 HOPKINS PLAZA  
BALTIMORE, MARYLAND 21201-2930

December 19, 2023

Operations Division

Mr. William K. Blanchet  
Wetlands Resource Center, LLC  
33 Stahl Point Road, Building #1  
Curtis Bay, Maryland 21226

Dear Mr. Blanchet:

This is in response to your letter dated May 17, 2023 requesting a preliminary jurisdictional determination (JD) of the presence or indications of the approximate location(s) of waters of the United States, including wetlands on your property located at 5317 Linkwood Road in Linkwood, Dorchester County, Maryland.

A field inspection was conducted on September 20, 2023. This preliminary JD finds that there "may be" waters of the United States, including wetlands within the review area as indicated by the approximate location(s) of waters of the United States, including wetlands within the review area on the enclosed drawing dated September 2023 and identifies all potential jurisdictional waters and wetlands within the review area. These areas may be regulated by this office pursuant to Section 404 of the Clean Water Act.

This preliminary JD is based on the information included on the enclosed Preliminary Jurisdictional Determination Form and is not appealable. If you do not agree with the extent of waters or wetlands and this preliminary JD, you are hereby advised of your option to request and obtain an approved JD from this office at the address above. An approved JD is an official, written Corps determination stating the presence or absence of jurisdictional waters of the United States and identifies the limits of waters of the United States on a project site. An approved JD can be relied upon for a period of 5 years and can be appealed through the Corps' administrative appeal process set out at 33 CFR Part 331.

You are reminded that any grading or filling of waters of the United States, including wetlands, is subject to Department of the Army authorization. state and local authorizations may be required to conduct activities in these locations. Wetlands under the jurisdiction of the Maryland Department of the Environment (MDE) may be located on the parcel. You may contact MDE at (410) 537-3768 for information regarding jurisdiction and permitting requirements.

In addition, the Interstate Land Sales Full Disclosure Act may require that prospective buyers be made aware, by the seller, of the Federal authority over any waters of the United States, including wetlands, being purchased.

In future correspondence and permit applications regarding this parcel, please include the file number located in the first paragraph of this letter.

A copy of this letter will be furnished to Ms. Kelly Neff and Mr. Ace Adkins of MDE for informational purposes.

If you have any questions concerning this matter, please call me at (443) 310-4567 or via email at [meghan.e.fullam@usace.army.mil](mailto:meghan.e.fullam@usace.army.mil).

Sincerely,

A handwritten signature in black ink, appearing to read 'Meg Fullam', with a long horizontal line extending to the right.

Meg Fullam  
Biologist (Regulatory Specialist)  
Maryland South Section

Enclosures

Enclosed Preliminary Jurisdictional Determination Form  
Preliminary Delineation Sketch – Field Verified

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

**BACKGROUND INFORMATION**

A. REPORT COMPLETION DATE FOR PJD: 18-DEC-2023

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Blanchet, Matt  
 Wetland Resource Center, Llc  
 33 Stahl Point Road  
 Bldg #1  
 Curtis Bay, MD 21226

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

NAB, Wetland Resource Center LLC - Linkwood Mitigation Bank AI:177780, NAB-2023-60340-M37

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: MD County/parish/borough: Dorchester County City:

Center coordinates of site (lat/long in degree decimal format):

Lat.: 38.549° Long.: -75.932°

Universal Transverse Mercator: 18

Name of nearest waterbody: Transquaking River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): September 20, 2023

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site Number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
OW1	38.548584	-75.929475	0.32 acres		Section 404
RP1	38.546345	-75.932287	6700 feet	Non-wetland waters	Section 404
RP2	38.546773	-75.92906	1750 feet	Non-wetland waters	Section 404
RP3	38.547067	-75.927755	330 feet	Non-wetland waters	Section 404
RP4	38.550497	-75.92743	210 feet	Non-wetland waters	Section 404
RP5	38.551007	-75.926365	280 feet	Non-wetland waters	Section 404
RP6	38.550795	-75.932168	220 feet	Non-wetland waters	Section 404
RP7	38.547779	-75.927222	290 feet	Non-wetland waters	Section 404
RP8	38.549649	-75.935991	710 feet	Non-wetland waters	Section 404
S1	38.552452	-75.933239	2300 feet	Non-wetland waters	Section 404
S2	38.550775	-75.931995	240 feet	Non-wetland waters	Section 404
W1	38.549431	-75.923928	156.7998 acres	Wetland	Section 404
W2	38.547145	-75.933416	0.29 acres	Wetland	Section 404
W3	38.547923	-75.934003	1.78 acres	Wetland	Section 404
W4	38.548462	-75.934504	0.08 acres	Wetland	Section 404

<sup>1</sup> Districts may establish timeframes for requester to return signed PJD forms. If the requester does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

W5	38.552129	-75.934504	6.9 acres	Wetland	Section 404
W6	38.552312	-75.935735	11 acres	Wetland	Section 404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

**SUPPORTING DATA. Data reviewed for PJD (check all that apply)**

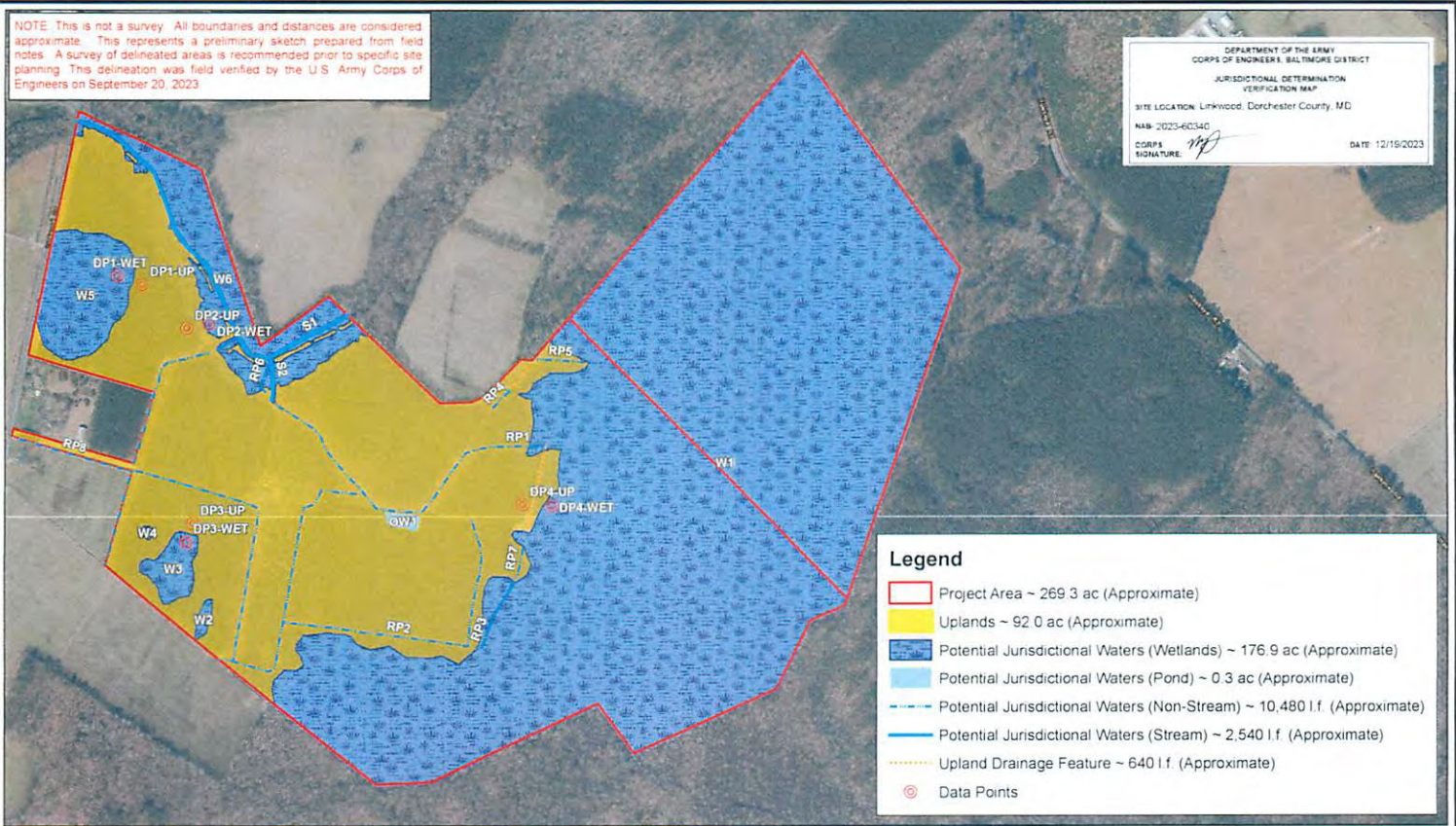
Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:  
Map:   PJD Reference Map
- Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report. Rationale:

<sup>1</sup> Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

NOTE: This is not a survey. All boundaries and distances are considered approximate. This represents a preliminary sketch prepared from field notes. A survey of delineated areas is recommended prior to specific site planning. This delineation was field verified by the U.S. Army Corps of Engineers on September 20, 2023.

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, BALTIMORE DISTRICT  
JURISDICTIONAL DETERMINATION  
VERIFICATION MAP  
SITE LOCATION: Linkwood, Dorchester County, MD  
NAID: 2023-60340  
CORPS SIGNATURE: [Signature] DATE: 12/19/2023



**Legend**

- Project Area ~ 269.3 ac (Approximate)
- Uplands ~ 92.0 ac (Approximate)
- Potential Jurisdictional Waters (Wetlands) ~ 176.9 ac (Approximate)
- Potential Jurisdictional Waters (Pond) ~ 0.3 ac (Approximate)
- Potential Jurisdictional Waters (Non-Stream) ~ 10,480 l.f. (Approximate)
- Potential Jurisdictional Waters (Stream) ~ 2,540 l.f. (Approximate)
- Upland Drainage Feature ~ 640 l.f. (Approximate)
- Data Points

L:\ECOSYSTEM SERVICES\2022 ECOSYSTEM SERVICES FILES\DRGNCW22 194 --- Linkwood Rd Feasibility, WRC\Maps\GIS  
Boundaries are approximate and not meant to be absolute  
Map Source: Maryland Six Inch Imagery - Image Service, 2019

Linkwood Road  
Dorchester County, MD  
Map Date: September 27, 2023  
DRGNCW22 194

**DAVEY**  
Resource Group  
3805 Wrightsville Avenue  
Wilmington, NC 28403  
(910) 452-0001

**Preliminary Delineation  
Sketch - Field Verified**

N  
0 250 500 1,000  
ft  
Scale applies to 11x17" print

# **APPENDIX I**

## **SITE PHOTOS**



1) View of drainage ditch in area proposed for non-riparian wetland restoration



2) View of area proposed for non-riparian wetland enhancement





3) View of area proposed for non-riparian wetland preservation



4) View of drainage ditch in area proposed for non-riparian wetland restoration



5) View of area proposed for non-riparian wetland preservation




6) View of area proposed for non-riparian wetland rehabilitation



7) View of area proposed for non-riparian wetland rehabilitation

## **APPENDIX J**

### **SOIL PROFILES**

<b>Project Site:</b>	Linkwood Road		<b>Date:</b>	1/23/2023			
<b>County:</b>	Dorchester		<b>Job#:</b>	DRGNCW22.194			
<b>Location:</b>	Linkwood/Cambridge		<b>State:</b>	MD			
<b>Soil Series:</b>	Hurlock		<b>Data Point:</b>	B1			
<b>Soil Classification:</b> Coarse-loamy, siliceous, semiactive, mesic Typic Endoaquults							
<b>OWT:</b>	21"	<b>SHWT:</b>	< 6"	<b>Slope:</b>	0%	<b>Landscape:</b>	terrace
<b>Elevation:</b>	~22'		<b>Drainage:</b>	very poor to poor / D5		<b>Permeability:</b>	moderate to slowly permeable
<b>Vegetation:</b>	Sawtooth Oak, Loblolly Pine, Sweet Gum, Swamp Chestnut Oak						
<b>Hydric Soil Indicator(s):</b>	F3						
<b>Horizon</b>	<b>Depth (in)</b>	<b>Matrix</b>	<b>Redox</b>	<b>Texture</b>	<b>Structure</b>	<b>Consistence</b>	<b>Notes</b>
A	0-12	10YR 4/1	7.5YR 4/6	SL	1 sbk m	fr, ns, np	15% concentrations
Btg1	12-20	2.5Y 5/1	7.5YR 4/6	SL	1 sbk co	fr, ns, np	20% concentrations
Btg2	20-28	2.5YR 4/1	10 YR 4/6	L	1 sbk m	fr, ns, np	20% concentrations
2Cg1	28-48	2.5Y 6/1	10YR 5/6	SiL	2 sbk co	fr, ss, sp	30% concentrations
2Cg2	48-58	2.5Y 4/1	7.5YR 5/6	SiL	2 sbk co	fr, ss, sp	20% concentrations
3Ab	58-64	10YR 3/2		MuL	0 ma	vfr, ss, sp	
<b>Comments:</b>			<b>Described By:</b>		Nick Howell - CPSS# 328892		
Hurlock Pedon minor component of larger Falsington Unit			 <p>Certified Professional Soil Scientist NICHOLAS P. HOWELL 328892</p>				

<b>Project Site:</b>	Linkwood Road	<b>Date:</b>	1/23/2023
<b>County:</b>	Dorchester	<b>Job#:</b>	DRGNCW22.194
<b>Location:</b>	Linkwood/Cambridge	<b>State:</b>	MD
<b>Soil Series:</b>	Zekiah	<b>Data Point:</b>	B2

**Soil Classification:** Coarse-loamy, siliceous, active, acid, mesic Typic Fluvaquents

<b>OWT:</b>	2"	<b>SHWT:</b>	< 6"	<b>Slope:</b>	0-2%	<b>Landscape:</b>	Flood Plain / Toe Slope
<b>Elevation:</b>	~15	<b>Drainage:</b>	very poorly / D6	<b>Permeability:</b>	moderate to slowly permeable		
<b>Vegetation:</b>	Red Maple, Sweet Gum, small herbaceous						

**Hydric Soil Indicator(s):** F3, F6

Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A	0-2	10Yr 2/2	7.5YR 4/6	L	1 sbk m	fr, ns, np	5% concentrations
Cg	2-7	10YR 5/2	10YR 5/6	SL	1 sbk m	fr, ns, np	10% concentrations
Ab1	7-13	10YR 3/1	7.5YR 4/6	L	1 sbk m	fr, ns, np	10% concentrations
Ab2	13-38	10YR 4/1	10YR 5/6	L	1 sbk m	fr, ns, np	25% concentrations
2C'g	38-42	10YR 4/2	7.5YR 4/6	LCos	0 sg	l, ns, np	5% concentrations 20% subrounded gravels

**Comments:** **Described By:** Nick Howell - CPSS# 328892



**Certified Professional  
Soil Scientist  
NICHOLAS P. HOWELL  
328892**



<b>Project Site:</b>	Linkwood Road	<b>Date:</b>	1/23/2023
<b>County:</b>	Dorchester	<b>Job#:</b>	DRGNCW22.194
<b>Location:</b>	Linkwood/Cambridge	<b>State:</b>	MD
<b>Soil Series:</b>	Hurlock	<b>Data Point:</b>	B3

**Soil Classification:** Coarse-loamy, siliceous, semiactive, mesic Typic Endoaquults

<b>OWT:</b>	47"	<b>SHWT:</b>	< 10"	<b>Slope:</b>	3%	<b>Landscape:</b>	Toeslope
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<b>Elevation:</b>	~22'	<b>Drainage:</b>	Poorly D4/D5	<b>Permeability:</b>	moderate to slowly permeable
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**Vegetation:** Planted Loblolly Pine, no understory

**Hydric Soil Indicator(s):** F3, F6(weak)


Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A	0-8	10YR 4/3	10YR 5/6	SL	1 gr, f	fr, ns, np	10% concentrations
Btg1	8-22	10YR 5/1	10YR 5/8	SL	1 sbk co	fr, ns, np	20% concentrations
Btg2	22-39	N 5/0	10YR 5/8	SL	1 sbk m	fr, ns, np	30% concentrations
Cgm	39-47	N 5/0		SL	2 sbk co	fr, ss, sp	Cemented / Indurated
Cg	47-52	2.5Y 5/2		SL	2 sbk co	fr, ss, sp	

**Comments:** Water typically perched above indurated Cgm

**Described By:** Nick Howell - CPSS# 328892





<b>Project Site:</b> Linkwood Road		<b>Date:</b> 1/23/2023					
<b>County:</b> Dorchester		<b>Job#:</b> DRGNCW22.194					
<b>Location:</b> Linkwood/Cambridge		<b>State:</b> MD					
<b>Soil Series:</b> Fallsington		<b>Data Point:</b> B4					
<b>Soil Classification:</b> Fine-loamy, mixed, active, mesic Typic Endoaquults							
<b>OWT:</b> 19"	<b>SHWT:</b> < 6"	<b>Slope:</b> 0%	<b>Landscape:</b> Depression / Bay				
<b>Elevation:</b> ~19'	<b>Drainage:</b> Very Poorly / D6	<b>Permeability:</b> Slow					
<b>Vegetation:</b> Planted Pine, no understory							
<b>Hydric Soil Indicator(s):</b> F3, A7							
Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A1	0-5	10YR 2/2	7.5YR 4/6	MuSL	1 sbk m	fr, ns, np	20% depletions
A2	5-14	10YR 2/1	10YR 5/6	L	1 sbk m	fr, ns, np	20% depletions
Btg	14-24	10YR4/1	10YR 5/8	SCL	1 sbk m	fr, ss, sp	10% concentrations
			10YR 5/2				10% depletions
2Cg1	24-34	10YR 5/2	10YR 5/6	LCos	0, sg	l, ns, np	30% concentrations
2Cg2	34-43	10YR 4/2	10YR 5/1	LCos	0, sg	l, ns, np	10% depletions
<b>Comments:</b> Ponded water nearby		<b>Described By:</b> Nick Howell - CPSS# 328892					
		 <p><b>Certified Professional Soil Scientist NICHOLAS P. HOWELL 328892</b></p>					



<b>Project Site:</b>	Linkwood Road	<b>Date:</b>	1/23/2023
<b>County:</b>	Dorchester	<b>Job#:</b>	DRGNCW22.194
<b>Location:</b>	Linkwood/Cambridge	<b>State:</b>	MD
<b>Soil Series:</b>	Zekiah	<b>Data Point:</b>	B5

**Soil Classification:** Coarse-loamy, siliceous, active, acid, mesic Typic Fluvaquents

<b>OWT:</b>	21"	<b>SHWT:</b>	< 6"	<b>Slope:</b>	0%	<b>Landscape:</b>	Flood Plain
<b>Elevation:</b>	~22'	<b>Drainage:</b>	Very Poorly / D6	<b>Permeability:</b>	Slow		
<b>Vegetation:</b>	Planted Pine, blackberry, Sweet Gum, Bush Honey Suckle						

**Hydric Soil Indicator(s):** A7, A9, F13

Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A1	0-6	10YR 2/2		MuL	1 sbk m	fr, ss, sp	
A2	6-15	10YR 2/1		Mu	1 sbk m	fr, ss, sp	
Btg	15-20	10YR 3/1	7.5YR 4/6	SiCL	1 sbk m	fr, ms, mp	30% concentrations
Cg1	20-25	10YR 3/1	7.5YR 4/6	L	1 sbk m	fr, ss, sp	30% concentrations
Cg2	25-37	10YR 4/1	7.5YR 4/6	L	1 sbk m	fr, ss, sp	30% concentrations
Ab	37-42	10YR 3/1	7.5YR 4/6	SCL	1 sbk c	fr, ms, mp	25% concentrations
C'g	42-48	5Y 6/2	10YR 5/4 5G 5/1	CoS/SiCL	0 ma	l, ns, np fr, ms, mp	5% concentrations stratified lenses of SiCL

**Comments:** **Described By:** Nick Howell - CPSS# 328892



**Certified Professional  
Soil Scientist  
NICHOLAS P. HOWELL  
328892**

<b>Project Site:</b>	Linkwood Road	<b>Date:</b>	1/23/2023
<b>County:</b>	Dorchester	<b>Job#:</b>	DRGNCW22.194
<b>Location:</b>	Linkwood/Cambridge	<b>State:</b>	MD
<b>Soil Series:</b>	Hurlock	<b>Data Point:</b>	B6

**Soil Classification:** Coarse-loamy, siliceous, semiactive, mesic Typic Endoaquults


<b>OWT:</b>	48"	<b>SHWT:</b>	< 12"	<b>Slope:</b>	1-2%	<b>Landscape:</b>	Drainage Way
<b>Elevation:</b>	~22'	<b>Drainage:</b>	Poorly / D5	<b>Permeability:</b>	Moderate to Rapid		
<b>Vegetation:</b>	Planted Pine						

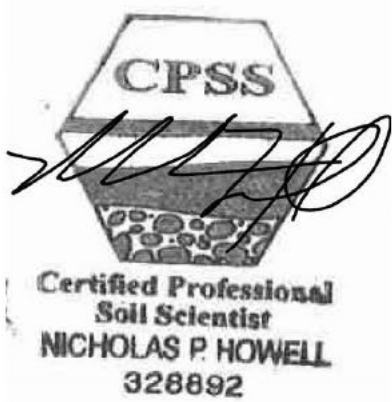
**Hydric Soil Indicator(s):** F3 (F6 buried surface horizon)

Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A	0-7	10YR 3/3		SL	1 sbk m	fr, ss, sp	Erosional Overwash
Ab	7-20	10YR 3/2	7.5YR 4/6	SL	1 sbk m	fr, ss, sp	10% concentrations
BCg	20-43	10YR 5/1	10YR 5/8	SL	1 sbk m	fr, ms, mp	15% concentrations
2Cg1	43-57	10YR 5/1	10YR 5/8	CoS	0 ma	l, ns, np	5% concentrations
2Cg2	57-64	10YR 4/1	10YR 4/6	CoS/SCL	0 ma	l, ns, np	30% concentrations Stratified SCL Lenses

**Comments:** Old relic wet drain with erosional overwash from plowing and dragging soil across old field. **Described By:** Nick Howell - CPSS# 328892



<b>Project Site:</b>	Linkwood Road		<b>Date:</b>	1/23/2023			
<b>County:</b>	Dorchester		<b>Job#:</b>	DRGNCW22.194			
<b>Location:</b>	Linkwood/Cambridge		<b>State:</b>	MD			
<b>Soil Series:</b>	Fallsington		<b>Data Point:</b>	B7			
<b>Soil Classification:</b> Fine-loamy, mixed, active, mesic Typic Endoaquults							
<b>OWT:</b>	33"	<b>SHWT:</b>	< 12"	<b>Slope:</b>	0%	<b>Landscape:</b>	terrace flat
<b>Elevation:</b>	~22'		<b>Drainage:</b>	Poorly / D5		<b>Permeability:</b>	Moderate to Rapid
<b>Vegetation:</b>	Planted Pine, Sawtooth Oak, Holly						
<b>Hydric Soil Indicator(s):</b>	F13, F3 (weak)						
Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A1	0-9	10YR 2/1		L	1 sbk m	fr, ss, sp	
A2	9-18	10YR 2/1	7.5YR 4/6	L	1 sbk m	fr, ss, sp	15% concentrations
Btg	18-29	10YR 5/1	10YR 5/6	CL	1 sbk m	fr, ms, mp	10% concentrations
2BC	29-48	5Y 5/1	2.5Y 5/6	SiL / SCL	1, sbk, c	fr, ms, mp	5% concentrations Stratified SCL Lenses
3Cg	48-64+	10YR 5/1	10YR 4/6	CoS/SCL	0 ma	l, ns, np	30% concentrations Stratified SCL Lenses Rounded gravels
<b>Comments:</b>							
			<b>Described By:</b>	Nick Howell - CPSS# 328892			
				 <b>Certified Professional Soil Scientist NICHOLAS P. HOWELL 328892</b>			

<b>Project Site:</b>	Linkwood Road		<b>Date:</b>	1/23/2023			
<b>County:</b>	Dorchester		<b>Job#:</b>	DRGNCW22.194			
<b>Location:</b>	Linkwood/Cambridge		<b>State:</b>	MD			
<b>Soil Series:</b>	Hurlock		<b>Data Point:</b>	B8			
<b>Soil Classification:</b> Coarse-loamy, siliceous, semiactive, mesic Typic Endoaquults							
<b>OWT:</b>	21"	<b>SHWT:</b>	< 12"	<b>Slope:</b>	0%	<b>Landscape:</b>	terrace flat
<b>Elevation:</b>	~22'		<b>Drainage:</b>	Poorly / D5		<b>Permeability</b>	Moderate / Perched
<b>Vegetation:</b>	Planted Pine, Holly, Sweet Gum, Maple, Blueberry						
<b>Hydric Soil Indicator(s):</b>	A7, F3, F13						
<b>Horizon</b>	<b>Depth (in)</b>	<b>Matrix</b>	<b>Redox</b>	<b>Texture</b>	<b>Structure</b>	<b>Consistence</b>	<b>Notes</b>
A	0-7	10YR 2/1		MuSL	1 sbk m	vfr, ss, np	
Bg	7-24	2.5Y 6/2	10YR 5/8	SL	1 sbk m	vfr, ns, np	20% concentrations
			10YR 6/6				15% concentrations
2BCg	24-55	10YR 5/1	10YR 5/6	SiCl	1 sbk c	fr, ms, mp	10% concentrations
							Perching Physical Water
3Ab	55-60	2.5Y 2.5/1		MuL	0 ma	fr, ss, np	Saturated
<b>Comments:</b>	Physical water perched at 24-55" , layer had much lower moisture level than above and below.		<b>Described By:</b>	Nick Howell - CPSS# 328892			
							

<b>Project Site:</b>	Linkwood Road	<b>Date:</b>	1/23/2023
<b>County:</b>	Dorchester	<b>Job#:</b>	DRGNCW22.194
<b>Location:</b>	Linkwood/Cambridge	<b>State:</b>	MD
<b>Soil Series:</b>	Hurlock	<b>Data Point:</b>	B9

**Soil Classification:** Coarse-loamy, siliceous, semiactive, mesic Typic Endoaquults

<b>OWT:</b>	0"	<b>SHWT:</b>	< 12"	<b>Slope:</b>	0%	<b>Landscape:</b>	terrace flat
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<b>Elevation:</b>	~22'	<b>Drainage:</b>	Verry Poorly / D6	<b>Permeability</b>	Moderate to Rapid
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**Vegetation:** Pine, Maple, Swamp Chestnut Oak, Black Oak, Laurel Oak, Willow Oak, Holly, Blueberry

**Hydric Soil Indicator(s):** F3

Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A	0-5	2.5Y 3/1		LS	1 sbk m	fr, ss, sp	
Btg	5-20	2.5Y 5/1	10YR 5/6	SL	1 sbk m	fr, ss, sp	10% concentrations
Cg1	20-27	2.5Y 5/2	10YR 5/8	LCoS	0 ma	l, ns, np	10% concentrations
Cg2	27-43	2.5Y 4/1	2.5YR 4/6	CoSL	0 ma	fr, ns, np	25% concentrations
2Cg	43-60+	5Y 5/1	10YR 4/6	CoS/SCL	0 ma	l, ns, np	20% concentrations

**Comments:** **Described By:** Nick Howell - CPSS# 328892



**Certified Professional  
Soil Scientist  
NICHOLAS P. HOWELL  
328892**

<b>Project Site:</b>	Linkwood Road	<b>Date:</b>	1/23/2023
<b>County:</b>	Dorchester	<b>Job#:</b>	DRGNCW22.194
<b>Location:</b>	Linkwood/Cambridge	<b>State:</b>	MD
<b>Soil Series:</b>	Fallsington - Drained	<b>Data Point:</b>	B10

**Soil Classification:** Fine-loamy, mixed, active, mesic Typic Endoaquults

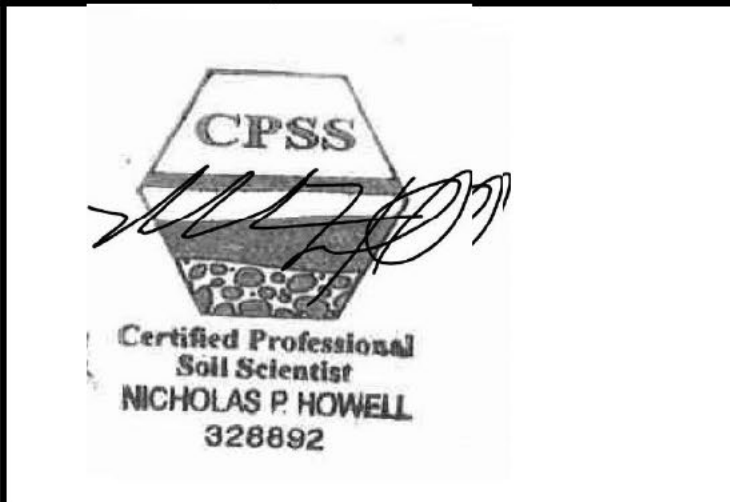
<b>OWT:</b>	>48"	<b>SHWT:</b>	12"	<b>Slope:</b>	0-1%	<b>Landscape:</b>	terrace
<b>Elevation:</b>	~22'	<b>Drainage:</b>	Poorly / D5/D4	<b>Permeability</b>	SLOW		

**Vegetation:** Planted Pine

**Hydric Soil Indicator(s):** F3

Horizon	Depth (in)	Matrix	Redox	Texture	Structure	Consistence	Notes
A	0-9	10YR 4/2	10YR 4/4	L	1 sbk m	fr, ss, sp	8% concentrations
Btg1	9-27	2.5Y 5/1	10YR 5/8	SiL	1 sbk m	fr, ss, sp	15% concentrations
Btg2	27-37	10YR 5/2	10YR 5/6 10YR 4/4	L	1 sbk m	fr, ms, mp	10% concentrations 10% concentrations
2Cg	37-48+	5Y 5/1	10YR 5/6	SiL	0 ma	fr, ns, np	5% concentrations

**Comments:** **Described By:** Nick Howell - CPSS# 328892



# **APPENDIX K**

## **FORESTRY PLAN**

OWNERS PRIMARY OBJECTIVE: Wildlife habitat

OWNERS SECONDARY OBJECTIVE: Forest Products

PROPERTY OVERVIEW: Landowner recently purchased this property and wishes to update the Forest Management Plan on the property and implement practices that will improve the wildlife habitat on the property.

Property lines are generally well established.

0 acres of the property falls within the 1000' Chesapeake Bay Critical Area.

Property contains several sensitive species areas:

Property is listed as Delmarva Fox Squirrel and Forest Interior Dweller Bird habitat, FIDS.

Much of the woodland has been harvested since 2003.

Approximately 80 acres of fields were planted into trees in 2002.

Several small areas, 1/10 acre, in stand 1 have had the trees cutdown and left.

Several small hunting camps exist along the northern access road.

Soils are mapped primarily as Elkton and Othello silt loam

A small area along the northern side of the northern access road, stand 6, has a stand of black walnut.



## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND #: 1

AREA ACRES: 80.5

DOMINANT OVERSTORY SPECIES: loblolly pine, sweetgum

DOMINANT UNDERSTORY SPECIES: sweetgum, virginia creeper

DEVELOPMENT STAGE: Immature, sapling to pole to size trees.

AGE: Even aged, 21 years old

STOCKING/BASAL AREA: Adequate to high for pine

SITE GROWTH POTENTIAL: Adequate: Loblolly pine is expected to grow 78 feet tall in the first 50 years.

SOIL TYPE: Predominately Fallsington, Ingleside and Woodstown sandy silt loam

---

### RECOMMENDATIONS/PRACTICES:

This stand was a field that was machine planted under the CREP program in 2002. Loblolly pine was the dominant species planted along with 2 rows each of indigobush and sawtooth oaks planted around the perimeters of each separate field. The indigobush did not survive and the sawtooth oaks are widely scattered.

The density of the pole size loblolly pine is highly variable. In areas where it's too thick, a commercial pulpwood thinning could be done to reduce the density.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND #: 2

AREA ACRES: 95

DOMINANT OVERSTORY SPECIES: Loblolly pine, sweetgum, red maple

DOMINANT UNDERSTORY SPECIES: Holly, pepperbush, sweetgum, blueberry, ferns

DEVELOPMENT STAGE: Sapling to pole size timber

AGE: Even aged, pine 20-21 years old

STOCKING/BASAL AREA: Adequate to high for pine

SITE GROWTH POTENTIAL: Average: Loblolly pine expected to grow 70 feet tall in the first 50 years.

SOIL TYPE: Elkton and Othello silt loam and Pone Mucky loam

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RECOMMENDATIONS/PRACTICES: This stand was harvested in 2002. It was reforested to loblolly pine in 2003 and aerially sprayed with an herbicide to control herbaceous and hardwood competition in 2003. Area is wet and survival of the pine was poor in some areas due to the wetness of the soil.

Areas where the pine is thicker could be commercially thinned if stand 1 is thinned.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND #: 3

AREA ACRES: 23

DOMINANT OVERSTORY SPECIES: sweetgum, red maple, scattered loblolly pine

DOMINANT UNDERSTORY SPECIES: blueberry, azalea, pepperbush, sweetgum, red maple, black gum

DEVELOPMENT STAGE: Sapling to pole size timber, some overstory hardwood

AGE: Even aged, pine 20-21 years old

STOCKING/BASAL AREA: Low to Adequate for pine

SITE GROWTH POTENTIAL: Average: Loblolly pine expected to grow 70 feet tall in the first 50 years.

SOIL TYPE: Same

---

RECOMMENDATIONS/PRACTICES: This stand was harvested in conjunction with stand 2. It was never reforested because it was too wet. It's predominately small, mixed hardwood

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND #: 4

AREA ACRES: 43

DOMINANT OVERSTORY SPECIES: sweetgum, red maple, swamp white oak, scattered loblolly pine

DOMINANT UNDERSTORY SPECIES: blueberry, azalea, pepperbush, sweetgum, red maple, black gum

DEVELOPMENT STAGE: pole to sawtimber size timber

AGE: Uneven aged

STOCKING/BASAL AREA: Low to Adequate for pine

SITE GROWTH POTENTIAL: Average: Loblolly pine expected to grow 70 feet tall in the first 50 years.

SOIL TYPE: Same

---

RECOMMENDATIONS/PRACTICES: This stand was not harvested as heavy or at all in conjunction with stands 2 and 3. It is an uneven aged stand of hardwood and pine and the soils are very wet.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND #: 5

AREA ACRES: 14

DOMINANT OVERSTORY SPECIES: sweetgum, yellow poplar, swamp white oak,

DOMINANT UNDERSTORY SPECIES: blueberry, azalea, pepperbush, sweetgum, red maple, black gum

DEVELOPMENT STAGE: pole to sawtimber size timber

AGE: Uneven aged

STOCKING/BASAL AREA: Low for pine

SITE GROWTH POTENTIAL: Average: Loblolly pine expected to grow 70 feet tall in the first 50 years.

SOIL TYPE: Zekiah sandy loam

---

RECOMMENDATIONS/PRACTICES: This stand is a riparian hardwood forest buffer adjacent to a blue line stream that runs through the middle of it. Maintain as stream buffer and wildlife habitat.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND #: 6

AREA ACRES: 2

DOMINANT OVERSTORY SPECIES: black walnut, sweetgum, red maple

DOMINANT UNDERSTORY SPECIES: blueberry, azalea, pepperbush, sweetgum, red maple, black gum

DEVELOPMENT STAGE: sapling to pole size timber

AGE: Uneven aged

STOCKING/BASAL AREA: Low

SITE GROWTH POTENTIAL: Average: Loblolly pine expected to grow 70 feet tall in the first 50 years.

SOIL TYPE: Zekiah sandy loam

---

RECOMMENDATIONS/PRACTICES: This stand had some type of disturbance in the 1980's, fields? Black walnut seeded in this area from somewhere. Very unique. Maintain as stream buffer and wildlife habitat.

**MANAGEMENT PRACTICE SCHEDULE**

				Stand	acres
Next 5 years			Commercial pulpwood thinning	1&2	80+-
2023		Ongoing	Mark and maintain property boundary lines.	All	
		Ongoing	Stabilize and maintain all roads and trails.	All	
		Ongoing	Protect woodland from wildfire, insects and disease.	All	
		Ongoing	Monitor/Spot treat for invasive weeds	All	
			Have forester re-examine woodland and prepare a new Forest Stewardship plan.	All	

---

**To provide further assistance and advice in carrying out the recommended practices please**



## ADDITIONAL COMMENTS

1. The Project Forester is available to help the landowner initiate the recommended practices. Contact must be made at least six months before the scheduled practice is to be completed.
2. It is the landowner's responsibility to file this plan with the State Department of Assessments in Dorchester County in order to receive a reduced tax assessment to an agricultural/woodland level. This plan must be filed before July 1 of the taxable year. In order to maintain the reduced assessment the landowner must participate in the recommended practices.
3. For any future commercial harvesting activities that may be recommended, you should consider retaining a consultant forester to assist you. There are several good reasons for this. Nationwide, statistics show that landowners who retain a consulting forester receive about double the income from a forest harvest than landowners who do not retain a consulting forester. Additionally, hiring a consultant forester relieves you of worrying about all the details of a harvest, such as contracts, inspections, legal permits required, etc., which can be handled by the consultant forester. Most importantly, by hiring a forester to administer a harvest according to a management plan, you can be assured the condition of the woodland following the harvest will continue to be productive and valuable. You can contact the forestry office for a list of private consulting foresters licensed to practice forestry in Maryland.
4. A Sediment and Erosion Control Plan is required prior to beginning a commercial timber harvest operation.
5. Upon request, the Maryland Forest Service will lay out a logging road system, mark trees to be removed during Timber Stand Improvement operations, and provide technical assistance for the best management of the property. There is a nominal fee for marking the trees (\$12.00/acre).
6. Boundary location and marking is essential in order to eliminate the potential threat of timber trespass during active timber cutting operations, and will deter unwanted intruders. Boundary lines should be clearly marked with blue paint at eye level facing away from the property. A law passed a few years ago makes posting land much easier and cheaper by allowing the use of vertical strips of blue paint as an alternative to signs. Article 27, Section 576-576A states that paint marks must be at least 2 inches in width and 8 inches in length, and centered from 3 to 6 feet from the ground or water surface.
7. Tree seedlings are available at cost to landowners for reforesting cut over areas, afforesting old fields or improving wildlife habitat. Contact the project forester for ordering and planting details.
8. Cost-share assistance may be available through state cost-share programs to help pay for a portion the expenses associated with implementing the forestry or wildlife management activities in this plan. Contact the forestry office for further information.
9. The University of Maryland Cooperative Extension Service maintains a website with information for forest landowners. The address is [www.naturalresources.umd.edu](http://www.naturalresources.umd.edu).



10. This property was checked for the presence of Forests of Recognized Importance (FORI) as part of the Forest Stewardship Planning process. FORI areas are defined as riparian forest areas within a 100-foot buffer of identified high quality streams. High quality streams are identified using specific data sets from the Maryland Biological Stream Survey, the Maryland Department of the Environment, and Maryland Fisheries Service. After a review of these data sets, none of these areas are present

11. This property was checked for cultural and historic resources as part of the Forest Stewardship Planning process using data provided by the Maryland Historical Trust. None of these areas were found.

12. **0 acres fall within the Critical Area.** The Critical Area includes all land and waters within 1000 feet of the mean high water line. Forest harvesting is specifically regulated under the Critical Area Law. Therefore, any proposed timber harvesting within the Critical Area must be submitted and reviewed for a 45-day period by various Maryland DNR Agencies (Forest Service, Wildlife, Natural Heritage) for comments and possible restrictions on the harvest. The comments are then compiled in a Forest Harvest Plan that is reviewed by the Dorchester County Forestry Board.

## DEFINITION OF TERMS

**SILVICULTURE:** is the practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values. Silviculture also focuses on making sure that the treatment(s) of forest stands are used to preserve and to better their productivity.

**STAND:** A basic forest management unit. A grouping of trees which are uniform in species composition, age arrangement, and condition, and are distinguishable.

**DOMINANT SPECIES:** Those trees species which dominate the stand.

**DEVELOPMENT STAGE:** The size class of the trees which are predominant in the stand. These classes include:

**Seedling** - Up to 0.9" in caliper (Diameter measure 6" above ground level)

**Sapling** - 1" to 5.9" DBH (Diameter measured 4-1/2 feet above ground level)

**Pole** - 6" to 10.9" DBH

**Sawtimber** - 11" DBH and larger

**AGE:** A system of classifying stands based on the arrangement of the ages of the trees in the stand.

**Even-aged** - Trees have relatively small differences in age. (80% of the trees are no more than 10-20 years different in age)

**Uneven-aged** - Three or more age classes of trees represented.

**Two-aged** - Two distinct age classes of trees present. (Twenty or more years different in age.)

**All-aged** - All, or almost all, age classes of trees represented.

**STOCKING:** the number of trees growing in a stand.

**High** - too many trees, diameter growth rate is below normal.

**Adequate** - an optimum number of trees which have sufficient room to grow at an acceptable rate.

**Low** - an insufficient number of trees; the stand is not producing at full potential.

**DESIRABLE - UNDESIRABLE:** The percentage of desirable or undesirable trees. Desirability of a tree is based on the form of the tree (straight, crooked), species depending on the owner's objective, local markets, and the presence of disease or insects.

**SITE GROWTH POTENTIAL:** The inherent capacity of the site, which is made up of soil, moisture, topography and other environmental factors for tree growth. This is expressed in the terms: excellent, good, average, fair, poor. It is based on site index which is a standard based on the height a dominant tree reaches at age 50.

**RECOMMENDATIONS:** The practices which a landowner should follow to obtain their management objectives. Specific descriptions are included with the report.

**BASAL AREA:** A measure of density of stocking. It is the area of the cross-section of tree stems including bark at breast height, measured in square feet.

**RESIDUAL STAND:** The stand remaining after a partial harvest, such as a thinning or other treatment.

## FOREST INTERIOR DWELLER SPECIES (FIDS)

Forest Interior Dweller species (FIDs) are an important component of Maryland forests. There are 19 species of birds found here in Maryland. These birds all have one thing in common in that they require large tracts of relatively undisturbed mature hardwood forests as breeding habitat. The loss of these forests and the fragmentation of the remainder due to agriculture and increasing urbanization is the leading threat to these birds. Competition from edge species which arrive earlier or are year round residents, parasitism by brown headed cowbirds, and predation by edge species like blue jays and raccoons take a heavy toll on the population. Critical habitat for these birds is the interior forest canopy where competition from edge species is limited. A large tract of woods does not guarantee FID species although it can encourage or promote them with good forest stewardship practices which encourage structural diversity in the forest and maintain a crown closure of 70%. Regeneration harvests on areas of 100 acres or more are not detrimental as long as the harvest is kept to the edges of the forest and is done in small areas (<25 acres).

Conservation of FID habitat is required within the Chesapeake Bay Critical Area and recommended in other areas also. The following are management recommendations or FIDs that should be considered when forest management operations are planned.

- 1) Minimize forest disturbances during the breeding season (May 1 - August 31) whenever possible.
- 2) The forest canopy should not be removed in excess of 70% crown closure with selective cutting or timber stand improvement practices.
- 3) Retain or encourage snags 10 inches diameter at breast height or greater. Cluster snags where possible. Snags which protrude above a closed forest canopy should be removed.
- 4) Maintain forested buffers along streams and shorelines. Daylighting (widening) of access roads in forest interiors should be discouraged.

If you have any questions concerning FID species or habitat or think they might be present on your property please call your local Maryland DNR forester or biologist.

### Forest Interior Breeding Birds of Coastal Maryland

Red Shouldered Hawk\*  
American Redstart\*  
Barred Owl\*  
Prothonotary Warbler  
Whip-poor-will  
Worm-eating Warbler\*  
Hairy Woodpecker

Pileated Woodpecker  
Ovenbird  
Acadian Flycatcher  
Louisiana Waterthrush  
Yellow-throated Vireo  
Kentucky Warbler\*  
Red-eyed Vireo

Northern Parula  
Scarlet Tanager  
Black-and-White Warbler  
Swainson's Warbler\*  
Hooded Warbler  
*\*species especially  
sensitive to disturbance*

## NONTIDAL WETLANDS

Nontidal wetlands (wetlands not adjacent to tidal waters) are found all across the state. These wetlands include marshes, bogs, and swamps, and may include other areas which are only flooded or saturated for fairly short periods of time. Nontidal wetlands are delineated on the ground by the presence of wetland hydrology, wetland soils, and wetland vegetation. Many of these wetlands are forested.

These wetlands areas often provide important benefits such as water quality improvement, flood control, natural products for human use, and aesthetic and recreational opportunities. They also provide habitat for a wide variety of plants and animals, many of which depend on wetlands for all or part of their life cycle.

Activities in nontidal wetlands, such as excavation, filling, draining, or other activities which may change the water level will require a permit issued by the Maryland DNR - Water Resources Administration. Most forestry activities, such as the harvest of timber or the creation of roadways do not require a permit. However, these activities must be carried out under an Erosion and Sediment Control Plan approved by your county Soil Conservation District, and must follow guidelines called Best Management Practices.

These Best Management Practices or “BMP’s”, which describe how certain operations should be carried out, must be used to prevent or minimize any adverse impacts on water quality, or the functional characteristics of the wetland.

For more information, contact the DNR Forest Service or your local Soil Conservation District.

## **BOUNDARY LINES**

### **Property Line Maintenance**

One of the first steps in becoming a good land steward is to know your property boundaries. Marked boundaries avoid any future confusion, when management activities take place. In addition, it will help minimize illegal hunting and trespassing on the property. Well marked and maintained property lines are especially important if conducting management practices that involve timber cutting.

Boundary marking for private property is a 2" x 8" vertical stripe of blue oil-based paint placed at breast height on boundary trees at a maximum of every 100 feet. A landowner should place paint marks on trees or posts, and at each road entrance and adjacent to public roadways, public waterways, and any other land adjoining the property. The vertical slash should be readily visible to a person with normal eyesight who approaches the property. You are strongly encouraged to maintain your boundaries. The use of blue paint is significant in that it is the universal demarcation for no trespassing.

When conducting management practices that involve cutting, the Maryland Forest Service recommends a distance between marks equaling 30' to 40' or closer depending on the density in vegetation along the boundaries. The marks should easily be visible from one established mark to the next.

## **DELMARVA FOX SQUIRREL HABITAT MANAGEMENT GUIDELINES**

The Delmarva fox squirrel, a state- and federally-listed endangered species, is known to occur on or in the immediate vicinity of your property. Delmarva fox squirrel habitat is generally characterized as forests with relatively mature trees, either hardwoods or loblolly pine, with a relatively sparse understory. This endangered species occurs in most forests of sawtimber (12" diameter or >) sized trees within its occupied range. Delmarva fox squirrels nest in tree cavities or leaf nests placed high in the canopy. They feed on berries, acorns, nuts, mushrooms, and pine cones. They will also feed on grain crops, such as corn and soy beans.

Forest management for Delmarva fox squirrels and timber production can be compatible if the following is practiced:

1. As much contiguous forested acreage as possible should be retained. If timber harvesting is necessary, at least 15-25% of suitable Delmarva fox squirrel habitat should remain unaltered or a minimum of 10 acres whichever is greater.
2. Preference for habitat retention should be given to those forest stands in the sawtimber size class.
3. Delmarva fox squirrel habitat should be retained as a contiguous forested tract, not as small disjunctive parcels.
4. Required forested buffers, such as buffers along streams or nontidal wetlands, should be expanded to at least 100 feet and preferably 300 feet in width.
5. Retention of mast producing trees such as oaks, hickories, and beech is encouraged.

6. For selection harvests or timber stand improvement (TSI), den trees and trees with leaf nests should be retained.

7. Wooded corridors, such as hedgerows or riparian forests along streams and ditches that connect tracts of forests should be retained.

These general guidelines are used by DNR biologists for Delmarva fox squirrel habitat protection. For more specific technical assistance regarding conservation of Delmarva fox squirrels contact the DNR's Wildlife and Heritage Service.

The Delmarva fox squirrel is also listed by the federal government as endangered and, as such, protection for this species comes under federal jurisdiction as well. Federal requirements may differ from the state's. To avoid any violations of the federal Endangered Species Act during your project implementation we suggest you consult with U.S. Fish & Wildlife Service, 177 Admiral Cochrane Drive, Annapolis, MD 21401.

Additional information concerning this species and other endangered species can be found at the following website:  
<http://www.fws.gov/chesapeakebay/EndSppWeb/INDEX.HTM>



## COMMERCIAL THINNING - LOBLOLLY PINE

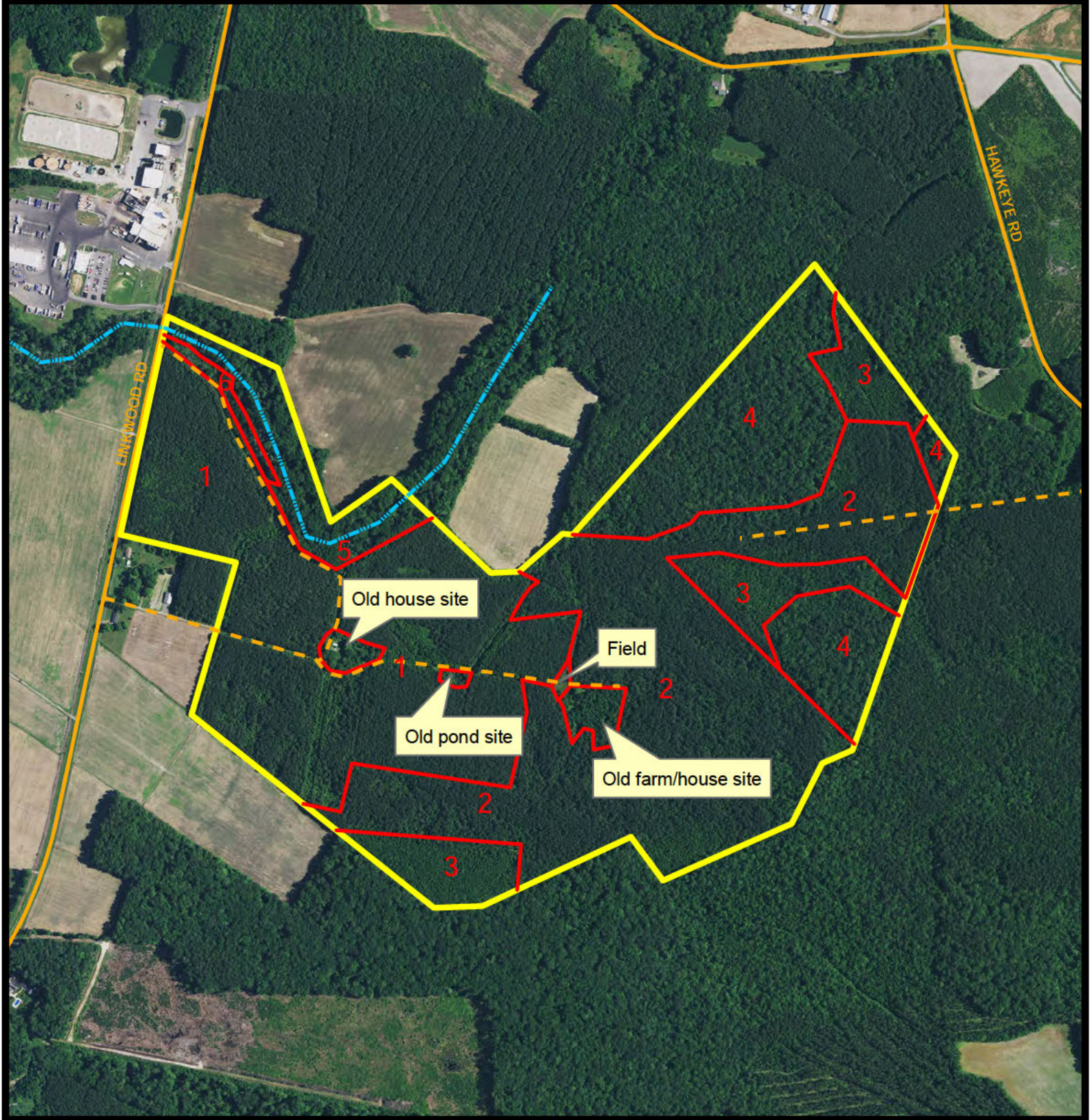
Young stands of loblolly pine ordinarily grow and develop rapidly for the first 15 to 20 years, but then slow down as competition among trees increases. Thinning can relieve overcrowding and help to maintain the growth rate of potential crop trees left as a residual stand. Unthinned stands often stagnate and lose vigor, becoming highly susceptible to disease and insect attacks.

Two thinning systems are commonly used. First, selective thinning where individual trees are marked for removal from the stand. Generally, the best trees are retained as the residual crop and those marked for removal are in some way competing with these trees. The second method involves cutting all trees in selected rows in plantations, or in lanes through natural thickets. The exact thinning prescription would depend on markets available, volumes to be removed, and the method of harvest.

Generally, three products result from commercial thinning operations: pulpwood in stick form, either in short lengths or tree length; chips for pulp or composting; and small sawlogs. The economic yield or commercial thinnings will vary with the size of timber and the products cut.

Your forester can assist you in designating which trees to be removed in thinning and in locating a market for these trees.

Maryland DNR Forest Service  
580 Taylor Avenue, E-1  
Annapolis, MD 21401  
410-260-8531



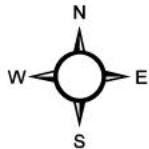
**Legend**

<p>--- Access road</p> <p>--- Stream</p>	<p>— Stand boundary</p> <p>— Property boundary</p>
--	--

**Forest Stewardship Map**  
**for Wetland Resource Center LLC**  
**County: Dorchester**  
**Woodland Acres: 274**  
**Scale: 1" = 833'**  
**Prepared by: S. Daniels**  
**Date: 6/16/2023**



This map is for planning purposes only.  
 This map is not a boundary survey.





## **APPENDIX L**

### **MDE MITIGATION BANK APPLICATION**

## Maryland Department of the Environment Application for Mitigation Bank Approval - Instructions

July 21, 2023

A mitigation bank sponsor proposing to create a tidal or nontidal wetland or waterway mitigation bank in Maryland must complete and submit a “Maryland Department of the Environment Application for Mitigation Bank Approval” (Mitigation Bank Application) to the Maryland Department of the Environment (Department) to start the bank review process.

All proposed nontidal wetland mitigation banks must go out on public notice, allowing the opportunity for public review and comment, as stated in the House Bill 797 Maryland’s Nontidal Wetlands - Nontidal Wetland Mitigation Banking and the U.S. Army Corps of Engineers/Environmental Protection Agency Mitigation Rule 33 CFR Part 332 and 40 CFR Part 230 (Federal Mitigation Rule). To align with the requirements of the Federal Mitigation Rule, a public notice is completed during the prospectus stage for all mitigation banks. The completed Mitigation Bank Application must be submitted to [kelly.neff@maryland.gov](mailto:kelly.neff@maryland.gov) as part of the prospectus submission before the project can be put on public notice.

Applicants are advised to obtain information and guidance on the mitigation bank review process prior to submitting the Mitigation Bank Application by contacting the Mitigation and Technical Assistance Section (Mitigation Section) of the Nontidal Wetlands Division at 410-537-4018 or [Kelly.neff@maryland.gov](mailto:Kelly.neff@maryland.gov).

In addition to providing the information requested in this application, be sure to include all the information discussed with the Mitigation Section. The prospectus will not be considered complete, and the proposed mitigation bank will not be placed on public notice, unless this application is complete, and the certification signature block is signed by the landowner. Additional information is available at the website:

<https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Pages/mitigationbanks.aspx>

A “Joint Federal/State Application for the Alteration of any Floodplain, Waterways, Tidal or Nontidal Wetland in Maryland,” (JPA) including a wetland and waterway delineation, will be required for any temporary or permanent impacts proposed to tidal or nontidal wetlands and the 25-foot nontidal wetland buffer, nontidal waterways or the nontidal 100-year floodplain. This JPA will generally be submitted with the draft mitigation banking instrument and will be required prior to commencing regulated impacts under an approved bank.

**ADDITIONAL INFORMATION:**

A “Joint Federal/State Application for the Alteration of any Floodplain, Waterways, Tidal or Nontidal Wetland in Maryland,” (JPA) including a wetland and waterway delineation, will be required for any temporary or permanent impacts proposed to tidal or nontidal wetlands and the 25-foot nontidal wetland buffer, nontidal waterways or the nontidal 100-year floodplain. This JPA will generally be submitted with the draft mitigation banking instrument and will be required prior to commencing regulated impacts under an approved bank. The bank sponsor should be working with the Department and the U.S. Army Corps of Engineers permit reviewers from the beginning of the bank review process.

For more information on wetland and waterway mitigation including guidance documents, please visit our website at:

<https://mde.maryland.gov/programs/Water/WetlandsandWaterways/AboutWetlands/Pages/mitigation.aspx>

In addition to the information indicated on the previous pages, the following must be included for the Mitigation Bank Application to be considered complete by the Department.

- Letter from the property owner that indicates their interest in developing the mitigation bank. The letter should indicate whether the bank sponsor owns the land or is acquiring an interest in the proposed bank site. If the property owner will not be the applicant on the JPA, this letter must also clearly state that the property owner wants the bank sponsor / primary consultant (specify which) to be the JPA applicant. *Note: the JPA cannot be issued until the entity designated as the applicant purchases the property or provides a recorded site protection mechanism allowing for the mitigation construction.*
- Prospectus that includes all requirements in "Information for a Complete Mitigation Bank Prospectus per CFR 332.8(d)(2).
- Mitigation bank concept plans (8 ½" x 11") depicting the entire project site, clearly showing the proposed restoration, creation, enhancement, and/or preservation. These plans should also show the boundary proposed to be protected through a site protection mechanism.
  - Drawings at a scale equal to 1-inch equals 200 feet or other scale approved by the Department, and showing existing topography, and boundaries of nontidal wetlands, tidal wetland, 25-foot nontidal wetland buffers, waterways, and 100-year floodplain, if applicable.
  - Vicinity map (8 ½" x 11") of the proposed mitigation bank site that clearly shows the location of the project, including roads.
  - Proposed acreage and type of aquatic resources to be established at the mitigation bank.
  - Description of the methods of establishment of aquatic resources.
  - Proposed water source.
  - Description of proposed earth disturbance necessary.
  - Preliminary assessment of impact, if any, on existing nontidal wetlands, tidal wetlands, 25-foot nontidal wetland buffers, waterways, and 100-year floodplains.
  - Proposed mechanism to protect the mitigation bank site in perpetuity, including easements, covenants, deed restrictions, or similar means approved by the Department.
  - Information regarding consistency with natural resource management plans, approved watershed plans, forest conservation, local growth management policies, and local comprehensive plans:
- Impact sheets (8 ½" x 11") clearly showing proposed impacts to all wetlands, 25-foot wetland buffers, waterways, and 100-year floodplains.
  - These impact sheets should differentiate between Department impacts and U.S. Army Corps of Engineer (USACE) impacts (e.g., include a table with them separated). For example, some stream impacts related to the restoration may be considered "temporary" by Department and "permanent" by the USACE.
  - Impacts should be separated by temporary versus permanent.
  - Impacts should be separated by type (e.g., PFO versus PEM, perennial versus intermittent stream).
- List of contiguous property owners and local officials (local officials should include county executive, county planning office, and county public works). *Note: if project is contiguous to State lines, must also include contiguous property owners and local officials from the other State.*
  - Include parcel map with numbers corresponding to property owners listed on table (to expedite Department confirmation that all contiguous property owners were included).

- List must be provided as labels in a Microsoft Word document (Avery 5160 format - 30 per page format). If mailing will be more than 50 people, applicant must provide pre-printed labels to Department for mailing.
  
- Certification of notification of contiguous property owners and local officials.  
*Please ensure this is signed and includes the permit numbers. Also include certified mail receipts for all properties (stamped white receipts and green confirmation cards) and a list of property owners where delivery was not possible.*
  
- Public Notice Billing Approval Form.
  
- Site Evaluation Form is complete and included.

# **ATTACHMENT B**

## **FLOOD ZONE MAP**

**PANEL**  
**24019C0205E**  
eff. 3/16/2015

**PANEL**  
**24041C0455D**  
eff. 7/20/2016

**PANEL**  
**24019C0210E**  
eff. 3/16/2015

**PANEL**  
**24019C0215E**  
eff. 3/16/2015

**PANEL**  
**24019C0220E**  
eff. 3/16/2015


**Legend**

 Property Boundary

 FIRM Panels

**Flood Hazard Zones**

**Zone Type**

 1% Annual Chance Flood Hazard


 Regulatory Floodway

 Special Floodway

 Area of Undetermined Flood Hazard

 0.2% Annual Chance Flood Hazard

 Future Conditions 1% Annual Chance Flood Hazard

 Area with Reduced Risk Due to Levee

 Area with Risk Due to Levee

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Maps\GIS\Final Prospectus

**Boundaries are approximate and not meant to be absolute.**  
Map Source: FEMA National Flood Hazard Layer (NFHL)



0 1,500 3,000 6,000 Feet

Linkwood Mitigation Bank  
Dorchester County, MD

January 9, 2024  
DRGNCW22.194

**DAVEY**   
**Resource Group**  
3805 Wrightsville Avenue  
Wilmington, NC 28403  
(910) 452-0001

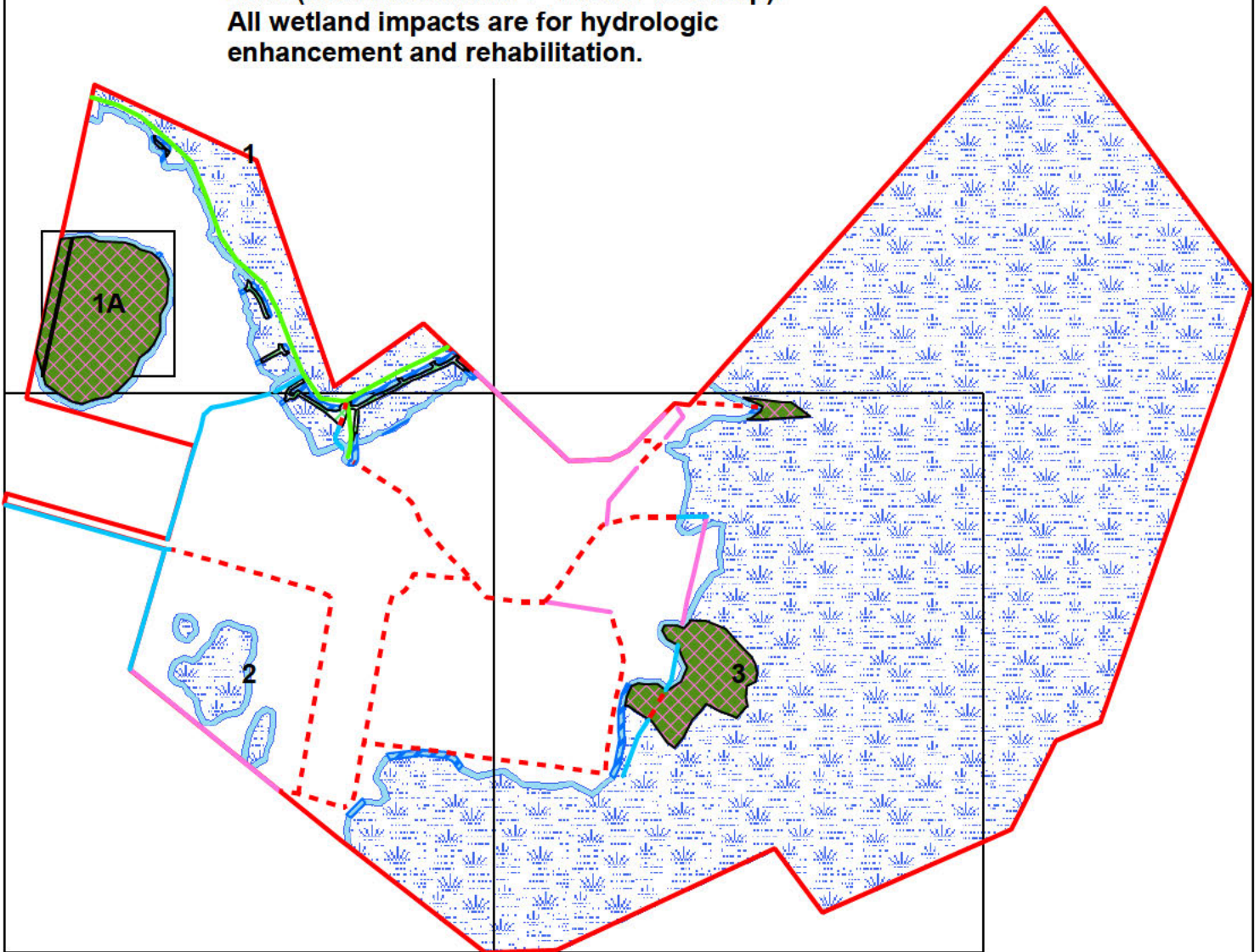
**Attachment B**  
**Flood Zone Map**

# **ATTACHMENT C**

## **IMPACT MAP**



**Note: Site is not located within a FEMA 100-year flood zone (see Attachment B - Flood Zone Map).  
All wetland impacts are for hydrologic enhancement and rehabilitation.**

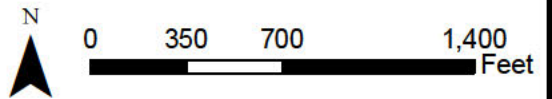


**Legend**

- Property Boundary
- Existing Wetlands (No Impact)
- 25ft Wetland Buffer
- Temporary Wetland Impacts (Access) - Both - PFO (0.625 ac)
- Temporary Wetland Impacts (Berm) - MDE - PFO (0.096 ac)
- Permanent Wetland Impacts (Berm) - USACE - PFO (0.096 ac)
- Temporary Wetland Impacts (Grading) - MDE - PFO (10.649 ac)
- Permanent Wetland Impacts (Grading) - USACE - PFO (10.649 ac)
- Wetland Buffer Impacts - Temporary (1.116 ac)
- Ditch Impacts - USACE sRPW (7,496 LF, 0.59 ac)
- Jurisdictional Ditch - USACE sRPW (no impact)
- Stream (no impact)
- Non-Jurisdictional Ditch

L:\Ecosystem Services\2022\DRGNCW22.194  
 \Maps\GIS\Final Prospectus\Impacts

Boundaries are approximate and not meant to be absolute.



Linkwood Mitigation Bank  
 Dorchester County, MD

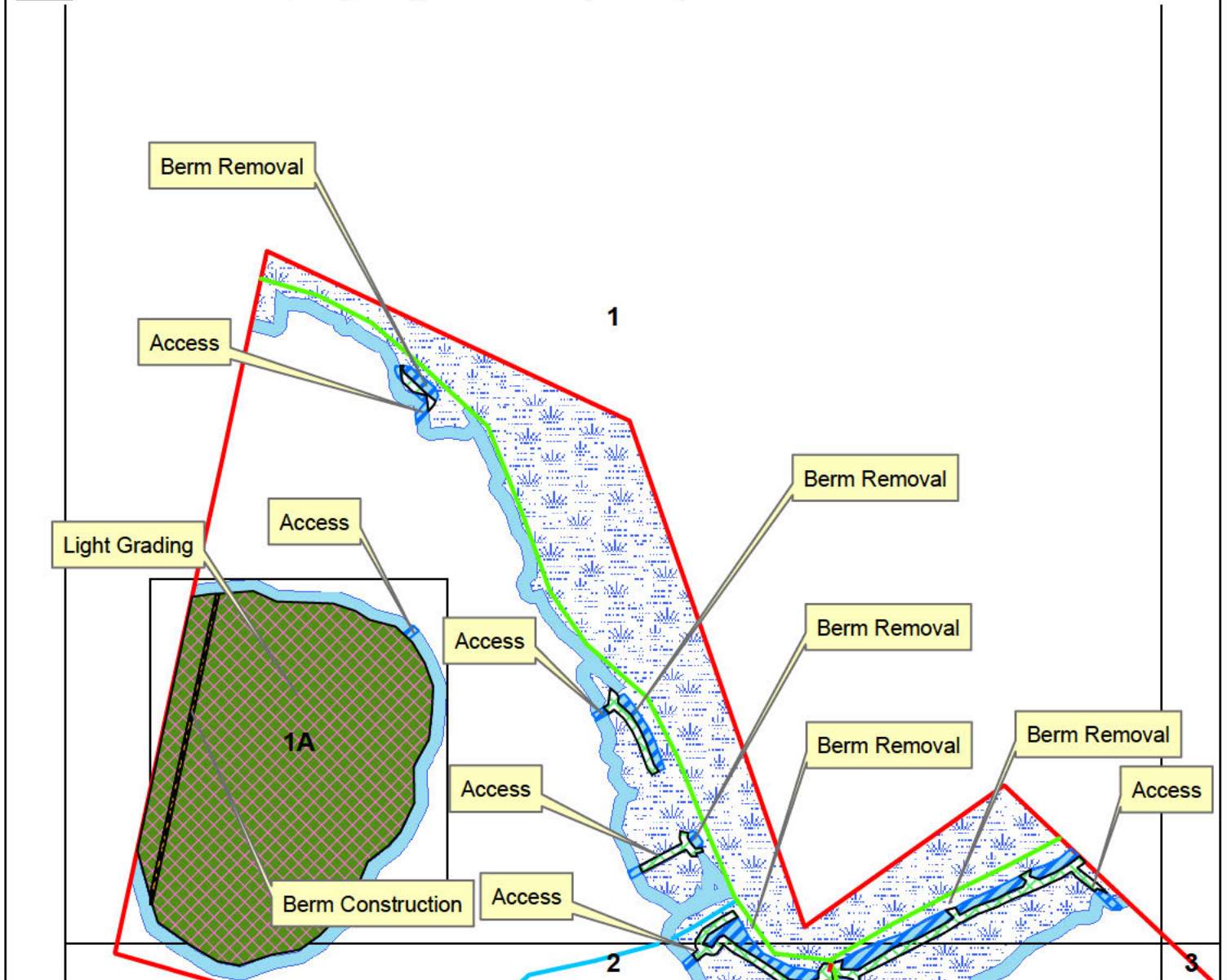
March 29, 2024  
 DRGNCW22.194

**DAVEY**   
**Resource Group**  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Attachment C**  
**Preliminary Conceptual**  
**Impact Map**  
**Overview**

# Legend

- Property Boundary
- Existing Wetlands (No Impact)
- 25ft Wetland Buffer
- Temporary Wetland Impacts (Access) - Both - PFO (0.625 ac)
- Temporary Wetland Impacts (Berm) - MDE - PFO (0.096 ac)
- Permanent Wetland Impacts (Berm) - USACE - PFO (0.096 ac)
- Temporary Wetland Impacts (Grading) - MDE - PFO (10.649 ac)
- Permanent Wetland Impacts (Grading) - USACE - PFO (10.649 ac)
- Wetland Buffer Impacts - Temporary (1.116 ac)
- Ditch Impacts - USACE sRPW (7,496 LF, 0.59 ac)
- Jurisdictional Ditch - USACE sRPW (no impact)
- Stream (no impact)
- Non-Jurisdictional Ditch



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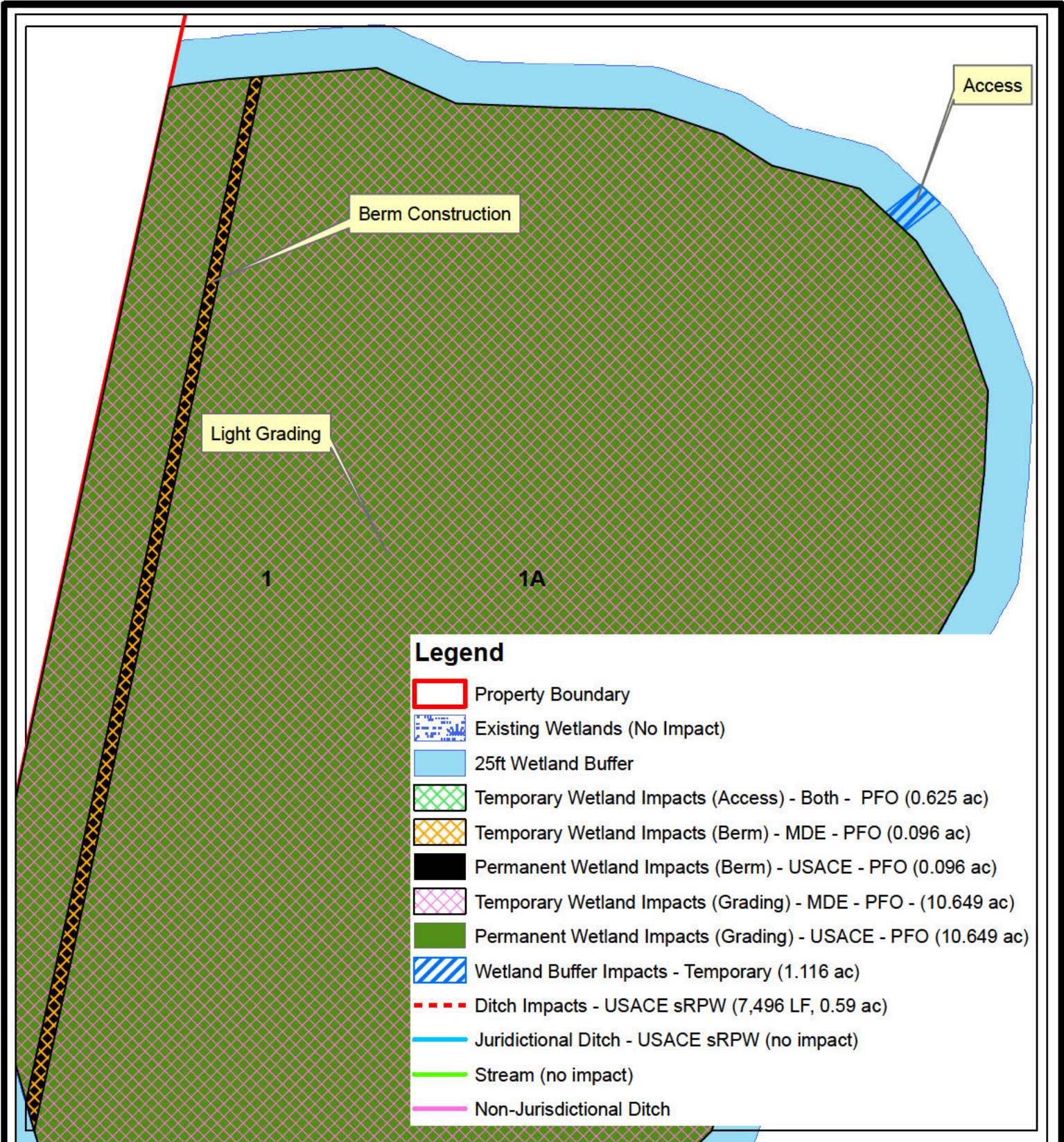
Boundaries are approximate and not meant to be absolute.

Linkwood Mitigation Bank  
 Dorchester County, MD

March 29, 2024  
 DRGNCW22.194

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**Attachment C**  
**Preliminary Conceptual**  
**Impact Map**  
**Sheet 1**



**Legend**

- Property Boundary
- Existing Wetlands (No Impact)
- 25ft Wetland Buffer
- Temporary Wetland Impacts (Access) - Both - PFO (0.625 ac)
- Temporary Wetland Impacts (Berm) - MDE - PFO (0.096 ac)
- Permanent Wetland Impacts (Berm) - USACE - PFO (0.096 ac)
- Temporary Wetland Impacts (Grading) - MDE - PFO - (10.649 ac)
- Permanent Wetland Impacts (Grading) - USACE - PFO (10.649 ac)
- Wetland Buffer Impacts - Temporary (1.116 ac)
- Ditch Impacts - USACE sRPW (7,496 LF, 0.59 ac)
- Jurisdictional Ditch - USACE sRPW (no impact)
- Stream (no impact)
- Non-Jurisdictional Ditch

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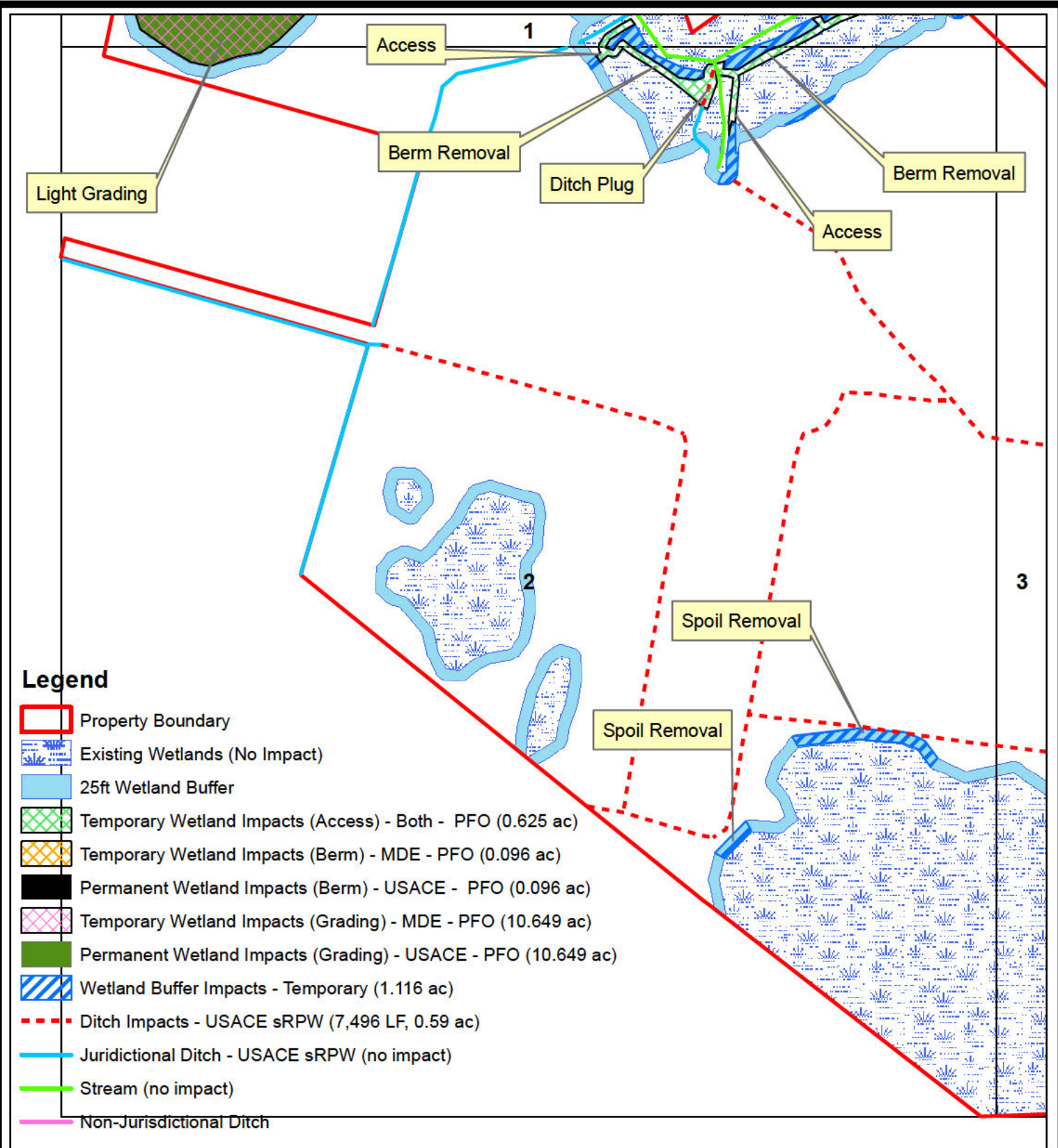


Linkwood Mitigation Bank  
 Dorchester County, MD

March 29, 2024  
 DRGNCW22.194

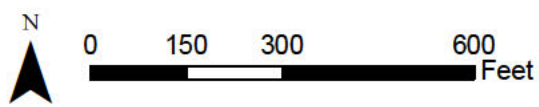
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**Attachment C**  
**Preliminary Conceptual**  
**Impact Map**  
**Sheet 1A**



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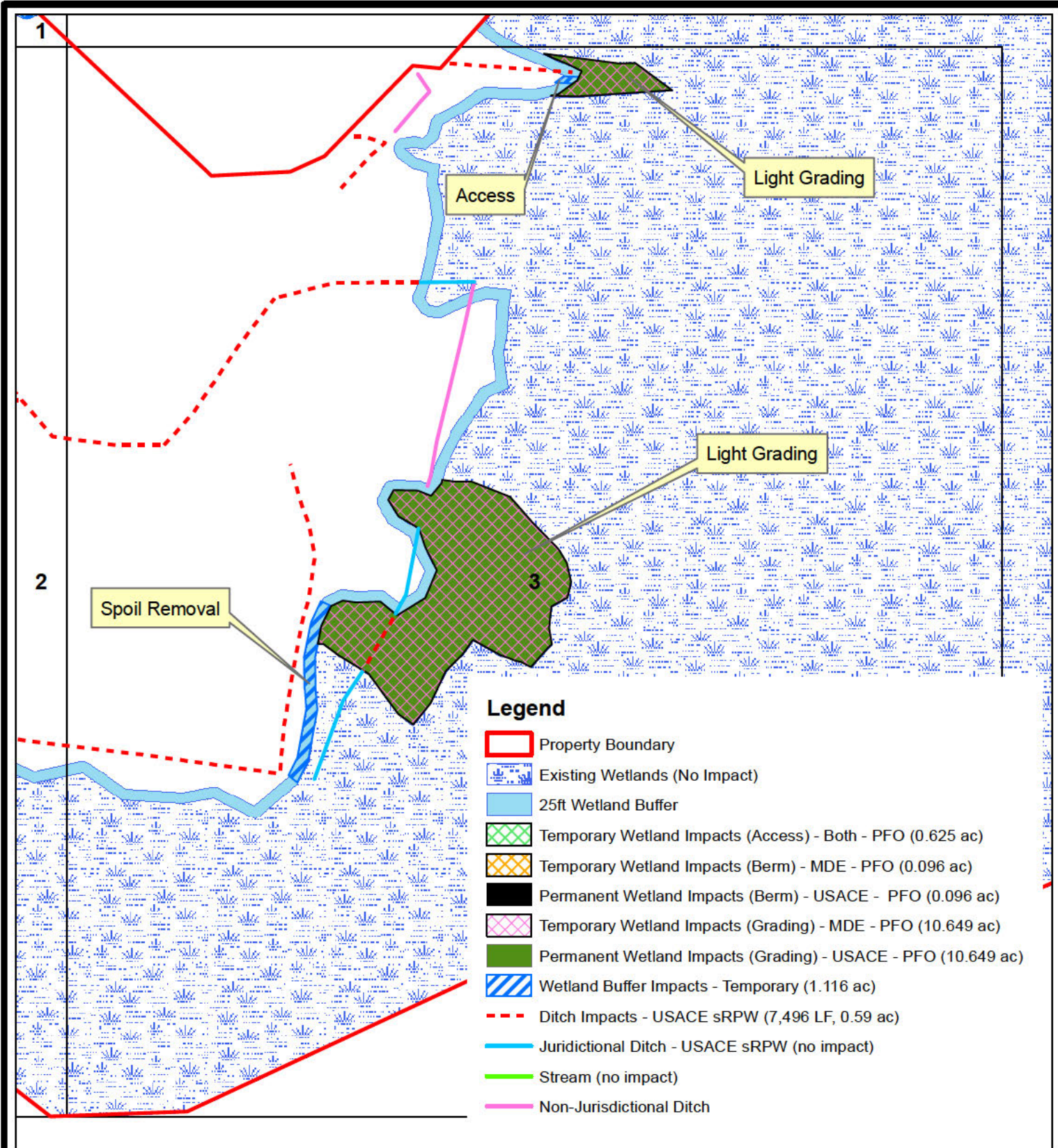


Linkwood Mitigation Bank  
 Dorchester County, MD

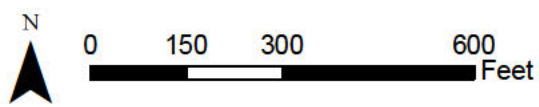
March 29, 2024  
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**Attachment C**  
**Preliminary Conceptual**  
**Impact Map**  
**Sheet 2**



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Linkwood Mitigation Bank  
 Dorchester County, MD

March 29, 2024  
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**Attachment C**  
**Preliminary Conceptual**  
**Impact Map**  
**Sheet 3**

# **ATTACHMENT D**

## **IMPACT TABLE**

Attachment D

Linkwood Mitigation Bank

Preliminary Conceptual Impacts Table

<b>Resource</b>	<b>Duration</b>	<b>Type</b>	<b>Purpose</b>	<b>Agency</b>	<b>Acres</b>	<b>Linear Ft</b>	<b>Square Ft</b>
Wetland	Temporary	PFO	Access	Both	0.625	N/A	27,225
Wetland	Temporary	PFO	Berm	MDE	0.096	N/A	4,182
Wetland	Permanent	PFO	Berm	USACE	0.096	N/A	4,182
Wetland	Temporary	PFO	Light Grading	MDE	10.649	N/A	463,870
Wetland	Permanent	PFO	Light Grading	USACE	10.649	N/A	463,870
Wetland Buffer	Temporary	PFO	Access	MDE	1.116	N/A	48,613
Ditch	Permanent	Seasonal RPW	Fill/Plugs	USACE	0.59	7,496	25,700

**Note: Site is not located within a FEMA 100-year flood zone**

# **ATTACHMENT G**

## **SITE EVALUATION REPORT**



**Site Evaluation Report for Stream and Wetland  
Compensatory Mitigation in NAB (Maryland)  
August 30, 2023**

**SUMMARY:**

The purpose of this Site Evaluation Report is to provide a standard list of screening considerations for selecting stream and wetland mitigation sites. Completion of the report is required at the Draft Site Specific Mitigation Plan (SSMP) Phase of a compensatory mitigation project to determine if a project is feasible and ecologically preferable. The report should be used regardless of the method of compensation (Mitigation Bank, In Lieu Fee Program, or Permittee Responsible Mitigation). This site evaluation report will aid selection of mitigation sites and proposals with the highest probability of success and long term protection, while encouraging applicants and project sponsors to avoid sites with challenging constraints or unresolvable ecological stressors early in the process. Please note that the “Complete Prospectus Checklist” completed at the Prospectus Phase/Concept Plan Phase of the project may help answer many of the questions below.

The document is separated into four sections:

- I. General Considerations for all Stream and Wetland Mitigation Projects
- II. Screening Considerations for Stream Mitigation
- III. Screening Considerations for Wetland Mitigation
- IV. Screening Considerations for Fish Passage Mitigation.

The project sponsor is encouraged to fill out only the sections applicable to their site and types of mitigation they are proposing.

In general terms, the site selected for a compensatory mitigation project should replace the lost functions and resource types, provide opportunities for diverse biological colonization from the surrounding area and must not result in detriments that outweigh the proposed benefits for the project. Section 33 CFR 332.3(d) of the 2008 Mitigation Rule identifies factors that must be considered when determining the ecological suitability of the compensatory mitigation project site and is intended to assist in site selection that will support ecologically successful and sustainable compensatory mitigation projects. Please note that sites exhibiting contamination problems, unresolvable property constraints, or lacking plausible ecological rationale regarding location or approach may be deemed ineligible as compensatory mitigation sites. However, constraints such as poor water quality may be limiting for one type of mitigation (work in stream channels), it may not constrain mitigation work in stream buffers.

**MITIGATION TYPE AND SERVICE AREAS:**

The two dominant CWA Section 404 mitigation types in Maryland are Mitigation banks and Permittee-Responsible Mitigation (PRM). Each mitigation type has a respective geographic area where a mitigation site search should occur or where credits may be

sold for banks (Service Area). Mitigation banks or consolidated mitigation sites are preferred to permittee-responsible mitigation (PRM), unless the PRM is determined by the agency(ies) requiring the mitigation, the U.S. Army Corps of Engineers (Corps) and/or the Maryland Department of the Environment (MDE), to be environmentally preferable. On-site mitigation should be considered only when it is environmentally preferable (2016 Maryland House Bill 797: Nontidal Wetlands - Nontidal Wetlands Mitigation Banking). Mitigation bank service areas must be based on ecological justification provided by the bank sponsor and are determined as part of the MBI approval. The standard mitigation bank service area includes a primary service area of the HUC8 where the mitigation bank is located and a secondary service area of adjacent HUC8s within the same drainage basin and physiographic region (e.g., coastal plain, piedmont, etc.).

PRM required by MDE must follow COMAR 26.23.04.03, with off-site mitigation being located within the same 8-digit State watershed of impact. If feasible mitigation cannot be located within the 8-digit State watershed, mitigation may be considered in the larger 6-digit State watershed. Off-site mitigation should also consider areas identified in an approved comprehensive watershed management plan. For mitigation required by the Corps, off-site mitigation is preferred within the same 8-digit USGS Hydrologic Unit Code (HUC8) as the impacts are occurring. Only when documentation is provided that indicates that no suitable mitigation sites are available within the same HUC8, should a mitigation site be considered in an adjacent HUC8 within the same physiographic region.

#### APPLICABILITY TO THE MARYLAND STREAM MITIGATION FRAMEWORK (MSMF V.1. FINAL)

Appendix E2 of the Maryland Stream Mitigation Framework (MSMF V.1. Final) provides calculation grids based on this Site Evaluation Report to determine Site Sensitivity Adjustments for Tabs 3 and 4 of the Stream Mitigation Calculator (Appendix A). Appendix E2 applies to mitigation in Stream Channels and Stream Buffers but does not apply to wetlands or Fish Passage.

SITE EVALUATION REPORT FOR STREAM AND WETLAND MITIGATION  
(MARYLAND)

**INSTRUCTIONS:**

*For Stream Mitigation proposals, please complete sections I and II.*

*For Wetland Mitigation Proposals, please complete sections I and III.*

*For Fish Passage Projects, please complete Sections I.A, I.C, and Section IV.*

*Include this site evaluation report as an attachment to your Site Specific Mitigation Plan (SSMP) (banks) or Mitigation Plan (permittee-responsible mitigation) if completed at that time. The report is required when providing a SSMP (mitigation plan phase) and should be updated with the most current information. At the top of this report, please provide a project name, sponsor, consultant (if applicable), and project coordinates and boundary map. Mapping, photos, and habitat assessment results will be required in this report.*

The applicant may elect to simply reference those items if found elsewhere in the MBI or Mitigation Plan. Please answer every question applicable to your mitigation type even if provided elsewhere in the MBI/mitigation plan, although the applicant may site additional information in various sections.

Specific to stream mitigation, this report will be used to determine the Site Sensitivity Score which factors into crediting in MSMF V.1. Final.

**BACKGROUND INFORMATION:**

Project Name: Linkwood Mitigation Bank

Corps Project Number (if known): NAB-2023-60340-M37

Sponsor: Wetlands Resource Center, LLC

Consultant: Davey Resource Group

Project Coordinates (decimal degrees): 38.549, -75.932

Project boundary map: (see Figure 13 – Conceptual Mitigation Plan)

**I. General Screening Considerations for All Stream and Wetland Mitigation Sites**

**A. General Considerations**

1. Provide a figure showing existing aquatic and terrestrial resources on the site, the proposed mitigation activities, and the proposed limit of disturbance. The figure should label applicable stream reaches, stream buffer areas (SBQAs), wetlands, and wetland buffers as well as any local fish passage barriers and the activity proposed for each (restoration, preservation, avoidance, removal, etc). **See Fig. 13 and Attachment C of Appendix L (MDE Application).**
2. Is the site located within critical habitat for a federally (Section 7 ESA) or state listed species? If so, how might the proposal benefit or damage critical habitat or affect listed species? Note: Given changes to species listings over time, it is recommended IPAC is checked every 90 days.

- Attach or reference any relevant correspondence. **The site is not located within critical habitat. See Appendix D (IPAC Report).**
3. Section 106 NHPA: Is the site located near any known historical, archaeological, or tribal resources? If so, could site development pose a threat to one of these cultural resources? Attach or reference any relevant correspondence. **The site is not located near any known resources. See Appendix C (MHT Letter).**
  4. Section 408: Are there any known Corps projects or facilities near the site (levees, dams, navigation channels, etc.). How might the proposal affect these facilities? **There are no known Corps projects or facilities near the site.**
  5. Is the proposal located within an area identified in the EPA or MDE Environmental Justice Screening Tools? Will the proposal result in adverse impacts to these communities? Please attach and discuss results from both screening tools: <https://www.epa.gov/ejscreen> and <https://mdewin64.mde.state.md.us/EJ/>  
*Note that community engagement is strongly recommended where proposed projects occur in EJ communities. The view of the project may be positive or negative and will be considered in the agency evaluation of the proposal.* **The proposal is not located within EJ communities.**
  6. Have the local community members and/or neighboring property owners been engaged regarding the proposal? **They have not been engaged but will be during the Public Notice process.**
    - a. If so, what local community outreach efforts have occurred to date?
    - b. What feedback did the local community provide?
  7. What is the proximity to the nearest airport(s)? Is the site located such that it will increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur? (*Note: projects occurring near airports require coordination with the airport. Any required measures by the airports (waterfowl management, seeding recommendations, etc.) must be disclosed.*) **The site is located approximately 5.4 miles of the Cambridge-Dorchester Regional Airport. DRG does not believe that the site will increase risks to aviation. However, DRG has begun coordination with the airport and FAA. The airport will require a Wildlife Management Plan which will be submitted with the Draft Mitigation Plan.**
  8. Has the proposed mitigation site been subject to funding by other federal, tribal, state, or local programs for the purpose of aquatic resource restoration. If so, are project components geographically separate? Please include mapping if these features exist on or are planned for the site. **The site has not been subject to funding for aquatic resource restoration. The site is currently in a CREP program, but buyout will occur prior to credit release.**

9. Is the site located on public lands? If so, please note that functions provided by the mitigation project must exceed those provided by public programs already in place (332.3(a)). **The site is not located on public lands.**
10. Please describe what other environmental programs (Bay TMDL, Stormwater Management, Forest Conservation, etc.) already have been implemented at the site or are proposed for the site? **The site is currently in a CREP program, but buyout will occur prior to credit release.**
11. Does the proposal include mitigation by preservation? If so, please elaborate on why this was proposed. Note that according to 332.3(a)(2), restoration (restoration, buffer enhancement, fish passage, etc.) is generally the preferred mitigation method, however preservation is allowable in some circumstances. **The proposal includes wetland preservation. High-quality reference hardwood flat wetlands occur onsite. Refer to the Final Prospectus for more information.**
  - a. If preservation is proposed, does the site provide exceptional conservation value, is it at risk of adverse impacts, and/or is it proposed as part of a plan that includes restoration/enhancement? **The site provides exceptional conservation value, is at risk of adverse impacts, and is part of a plan that includes restoration and enhancement. Refer to the Final Prospectus for more information.**
12. Are there plans to import materials and equipment from beyond the county in which the project occurs? If so, which materials? (Woody debris, wood chips, coconut coir fiber matting, gravel, rock, topsoil, vegetative plantings). How will you ensure invasive species are not introduced through use of materials and equipment from outside of the county? **There are no plans to import materials and equipment from beyond the county.**

#### B. Property Considerations

*\*Note that the property considerations apply to all mitigation sites except for sites that are Fish Passage Only in the MSMF V.1. Considerations regarding fish passage are included in Section V.*

1. Does the site have any known encumbrances (i.e., easements, liens, right-of-ways, reserved timber, severed surface, or subsurface mineral or natural gas rights, etc.) on the site, on adjacent properties, or within the watershed of the site that will negatively affect the compensation goals? Title conflicts must be resolved prior to approval of a mitigation site. Identification of potential title problems at the Prospectus Development phase will help to prevent the sponsor from pursuing a project that is infeasible. **There is a utility right-of-way that is excluded from the Conservation Easement and creditable areas.**
2. Do any conservation related restrictions already exist on the property (Agricultural easement, Environmental Easement, Development Rights

restrictions, Conservation Reserve Program, etc.)? **The site is currently in a CREP program, but buyout will occur prior to credit release.**

3. Is the property title otherwise clear? **Yes.**
  - a. Are there other easements or interests on the property? **There is a utility right-of-way.**
  - b. If so, how is it compatible or not compatible with stream or wetland mitigation? **The utility right-of-way is excluded from the Conservation Easement and creditable areas.**
4. Will the site be protected long-term through recordation of an appropriate site protection instrument or other mechanism that will support the long-term protection of the site? **Yes, the site will be protected by a Conservation Easement.**
5. Will current zoning and current/proposed development use adjacent to the mitigation site affect the mitigation site? **No.**
6. What utility corridors occur on the site? **An undeveloped utility right-of-way occurs on the border of the site.**
  - a. What limitations does this place on the site design? **The ROW will be excluded from site design.**
  - b. What % of the proposed site is encumbered by utility corridors or easements? **9%.**
7. Is the site located where adjacent land uses pose a risk through invasive species, encroachment, trespassing, trails, dumping, vandalism, etc.? **No.**

C. Ecological, Landuse, and Contamination Considerations

*Please provide mapping for items 1, 2, 3, 4, and 7 below*

1. Is the site located near any brownfield or superfund sites? See EnviroAtlas: <https://www.epa.gov/enviroatlas/enviroatlas-interactive-map>  
**The site is not located near any brownfield or superfund sites. See Attachment H of Appendix L (MDE Application).**
2. Have any point source or water withdrawal permits been issued in the vicinity of the project? Was the site listed for any type of waterway impairment? If so, what was the impairment specified and what waterway was it specific to?  
See EPA EnviroAtlas and How's My Waterway:  
<https://www.epa.gov/enviroatlas/enviroatlas-interactive-map>  
<https://mywaterway.epa.gov/>  
**A former point source discharge is located upstream of the site but its permit is expired. Four public water systems withdraw water from the watershed. The Transquaking River onsite and upstream is on the 303d list and is impaired due to turbidity issues. See Attachment H of Appendix L (MDE Application).**

3. Is the site in a highly disturbed area (e.g., old sand/gravel quarries, commercial/industrial) that require additional considerations to achieve success (e.g., degraded soils, hydrologic interruptions, invasive species, contaminants, limited functional lift, etc.)? **No. See Figs. 2 and 8.**
4. Please include soil mapping of the site. Are there any acid forming soils (glaucanite, etc) present within the LOD of the proposed mitigation site? If so, please note that earthwork may be limited in those areas, due to concerns about lowering the pH of receiving waters. **There are no acid forming soils on the site. See Figs. 4 and 12.**
5. How will the site support the watershed needs (e.g., flood management, water quality improvement, habitat restoration)? **The site will benefit flood management, water quality improvement, and habitat restoration.**
6. How will the site replace functions lost from the impacts (for mitigation banks, the bank sponsor should anticipate functions that may be lost from future impacts within the proposed service area)? **Restoration of rare mineral hardwood flat wetlands will offset losses from other non-riparian wetlands that may be lost from agriculture, silviculture, and infrastructure projects.**
7. How well is the site connected to existing natural resources (e.g., aquatic resources, forest, etc.)? How will the site contribute to Maryland's conservation goals (Maryland Watershed Resources Registry (WRR) <https://watershedresourcesregistry.org/states/maryland.html>, see WRR/Priority Conservation Areas)? Provide a map including items 7a, b, c, d, and h. Provide a separate map for item 7i.
  - a. Will the site expand upon existing Green Infrastructure HUBs or contribute to new or existing corridors? At the link below see "Priority Conservation Areas-Green Infrastructure" <https://watershedresourcesregistry.org/map/?config=stateConfigs/maryland.json> **The site will expand upon existing HUBs. See Fig. 9.**
  - b. Is the site located in FIDS habitat or abutting FIDS habitat? **Yes. See Fig. 9.**
    - i. If yes, what benefits and detriments does the project provide to FIDS habitat? **The project will improve FIDS habitat heterogeneity in the long-term.**
  - c. Is the site located within the Chesapeake or Coastal Bays Critical Area? **No. See Fig. 9.**
  - d. Is the site located within a State-designated Tier II watershed? **No. See Fig. 9.**
  - e. What are potential sources of colonization for the site? **The adjacent WMA is a colonization source.**

- f. What species do you anticipate colonizing the site after work is performed? **The Delmarva fox squirrel will likely colonize the site in the long-term.**
  - g. How is work planned to benefit those species? **The long-term goal of a mature forest similar to the WMA will improve habitat.**
  - h. What is the total acreage of the proposed mitigation site? (This is typically the total area that would be permanently protected as a result of the site including all mitigation types and potentially other environmental programs). **The property is 269.3 ac (see Fig. 9). The proposed conservation easement is 244.3 ac (see Fig. 13).**
    - i. If the site is less than 50 Acres in size (contiguous), does it abut other protected lands?
    - ii. Is the site fragmented? (e.g. a series of smaller properties separated by development or agricultural lands). **No.**
  - i. Describe how mitigation outcomes may be affected by climate change in the long-term (50-100 years). **The project proposes to extend the range of bald cypress in anticipation of climate change. See Fig. 13 for vegetative enhancement areas.**
8. Will the mitigation site location support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region? **Yes.** What is the reference community for the proposed mitigation site? **The reference community is the WMA.**
9. What Key Wildlife Habitat Types (MD DNR, 2015) and/or existing natural communities occur on site? Please consider nearby species, life histories of those species, and consult the Key Wildlife Habitat Types in the Maryland State Wildlife Action Plan. Do you anticipate adverse effects to any existing species as a result of the work? **Coastal Plain Floodplain, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Coastal Plain Stream, and Coastal Plain River all occur on site. No adverse effects are anticipated.**
10. Will the project result in significant tree clearing? Will it result in clearing of more the 2 acres of forest or other native plant communities that are 40 years or older? (Historic aerial photographs and tree diameter may help in making this determination). *Note that mitigation crediting may be substantially diminished for sites resulting in losses to native forest, shrub, and emergent communities. Clearing of some resources may be infeasible for a mitigation proposal due to adverse impacts.* **The project will result in significant clearing of monoculture pine plantation less than 40 years old.**
11. Does the site propose a conversion of the plant community? For example, a conversion from mature forest to scrub-scrub? If so, please explain whether this is to be considered a beneficial conversion. (*Example, conversion may be recommended for bog turtle habitat construction*). **The**



site proposes a conversion from immature pine plantation to hardwood forest, which is beneficial.

12. Has native vegetation (>1 acre) been cleared on the site within the past five years? If so, was this a managed silviculture operation? **No.**
13. Are there any known constraints related to construction access? **No.**

## **II. Screening Considerations for Stream Mitigation Sites**

### **A. General Considerations**

1. For Stream Channels: Using the Maryland Watershed Resources Registry: Maryland Stream Mitigation Framework (MSMF) Site Sensitivity Analysis for Stream Mitigation, please answer the following questions:
  - a. What was the Mitigation Site Sensitivity Score for the Site (attach map)?
  - b. Which incentives were indicated by the mapper?
  - c. Based on the information provided in earlier sections of this report, please indicate why this score is appropriate for the mitigation site or why an adjustment to the score may be warranted for use in the Maryland Stream Mitigation Framework Version 1 Final.
  - d. Please visit U.S. Geological Survey stream stats for the subject stream reaches. What is the % impervious cover? Is it over 50%?
2. For Stream Buffers: Based on item I.C.7, does the project provide benefits to Green Infrastructure and/or FIDS habitats? If so these may be substituted for other factors in the Site Sensitivity Model (WRR) to determine the site sensitivity values for stream buffers.
3. Does the proposal include stream restoration?
  - a. If so, does the stream exhibit physical impairments?
  - b. What are the sources of impairment in each reach?
  - c. In general, how do you propose to address the impairments to meet project goals?
  - d. Please include photos of each stream reach discussed and stream assessments if completed. These may be referenced if provided elsewhere in the SSMP.
4. Aquatic Connectivity: for perennial streams only
  - a. Are there any barriers to aquatic movement between the streams of the proposed mitigation site and large downstream waters? (Large downstream waters are defined as tidal waters or streams/rivers of at least 20 square miles in drainage area)
  - b. Do any barriers limit the potential suite of species that may colonize the site or the genetic health of the populations?
  - c. Will the proposed project remedy any of these barriers?

Note: *Connection to consistent perennial waterways is important for recolonization following extreme droughts, unexpected pollution discharge events, and long term ecological viability of a stream restoration or preservation site.*

5. Does topography or infrastructure laterally or vertically adversely affect the stream valley or stream profile?
  - a. Will the proposed site plan remedy these constraints?
  - b. How might lateral confinement or vertical limitations effect the proposed site plan/design?
6. In general, does the site provide stream buffering of at least 35 feet on each side? (Buffering may occur as a credited stream buffer, a wetland, or other preserved area that contains native vegetation and is protected from development and disturbance.)
  - a. What is, in general, the proposed buffer width on the stream reaches? (*May simply reference a site schematic if it contains a scale bar*).
7. What is the channel evolution trend for stream reaches on the site? You may describe using a channel evolution model of your choosing. (For example: Cluer and Thorne 2014, Schumm et al., 1984; Simon and Hupp, 1986)

B. Water Contamination Screening:

*Please address any perennial stream reaches in your answers below. It may be best to describe by stream reach if they show different qualities. If water quality impairments are suspected, a detailed water quality assessment may be needed.*

1. Are waters on the site 303d listed for impairments other than sediment and nutrient pollution?
2. Are there any known or suspected water quality impairments on the site?
3. Does the water surface have an oily sheen or unusual froth?
  - a. If an oil sheen was observed, does the sheen stay broken when disturbed (tapped with stick, etc), or does it reconnect?
4. Is the water a gray or blue-gray color?
5. Does the water have an odor (chemical, oil, sewage, other)?
6. Is there any known mining in the local watershed (typically only of concern in mountainous areas)? If so please provide specific conductance readings for stream reaches.
7. Are stream substrates covered by excessive algae or film such as orange flocculant, green algae, gray film, other unusual films (Do not include natural periphyton)?
  - a. Approximately what % of each stream reach is affected by the algae/film?
8. Has aquatic macroinvertebrate sampling been conducted on the site? If so, did the species observed differ substantially from expected species of

a stream with clean water? (For example, a sample containing primarily chironomids, soldier fly larva, and Hydropsychid caddisflies are an indicator of poor water quality).

### **III. Screening Considerations for Wetland Mitigation Sites**

#### **A. General Considerations**

1. Using the Maryland Watershed Resources Registry: WRR Suitability Analysis, how does the site score for Wetland Restoration? Wetland Preservation? **There are several areas that score 3-4 for Restoration and Preservation.**

#### **B. Hydrologic Screening Considerations**

1. Are hydrologic connections of the site (i.e., surface and subsurface hydrologic connections driving the wetland form and function) consistent with the proposed wetland and stream class? **Yes.**
2. Are the sources of hydrology and hydrodynamics achievable and sustainable? **Yes.**
3. Are the proposed water sources engineered or unnatural (e.g., municipal water)? **No.**
4. Do activities involve impounding water or diverting water (including indirectly) from other areas to the project site? If so, will this affect the area or hydrologic classification of other wetlands or waterways on the site? **No.**
5. Does the proposal include wetland establishment or creation of wetlands in dry land? What portion of the site will be considered “wetland establishment?” *Note that “wetland establishment” proposals are considered higher risk as natural hydrology does not occur. “Wetland establishment” differs from “wetland re-establishment”, where “wetland re-establishment” implies restoration of a resource that previously existed in a given location.* **No. Upland buffer restoration will include creation of vernal pools and depressional wetlands, but wetland establishment or creation credits will not be sought.**

### **IV. Screening Considerations for Fish Passage Projects**

#### **A. General Screening Considerations**

*Note 1: Credited fish passage projects are limited to dams only as of July 2023. Additional capabilities to consider culverts and other small barriers are being discussed, however no method is available to award credits in the Baltimore District. This section refers to fish passage projects for mitigation, however where mitigation credits for stream restoration are also sought, sections I. and II. provide screening details for restoration efforts within the stream through the stream mitigation calculation tabs 3 and 4 in MSMF V.1 Final.*

*Note 2: Fish Passage Crediting (measured in functional feet) and Stream restoration crediting (also measured in functional feet) are independent calculations. Stream restoration crediting requires permanent site protection (see Section I.) while Fish Passage Crediting does not require permanent site protection. See Fish Passage for Mitigation User Manual for more details.*

1. Using the Freshwater Network, what priority tier is the barrier for anadromous fish passage? Resident fish passage? Results are used in the Fish Passage for Mitigation Calculator. The Freshwater Network: <https://maps.freshwaternet.org/chesapeake/>
2. How large is the functional network before and after barrier removal?
3. Other barriers: From satellite imagery, can you identify any additional barriers in the watershed which may limit the function network?
4. Contamination: Are there any known contaminants in the impoundment sediment? If so, what are they and how will they be managed? *Note: detailed sediment analysis may be required at a later stage.*
5. Sediment management: How do you propose sediment will be managed for the project? How much sediment will be removed as a result of the project? How much sediment will be released? Please estimate the volume of both for each grain size (clay, silt, sand, gravel, cobble).
6. Has the project been coordinated with Maryland DNR (Environmental Review) regarding potential impacts to brook trout or other potential adverse impacts?

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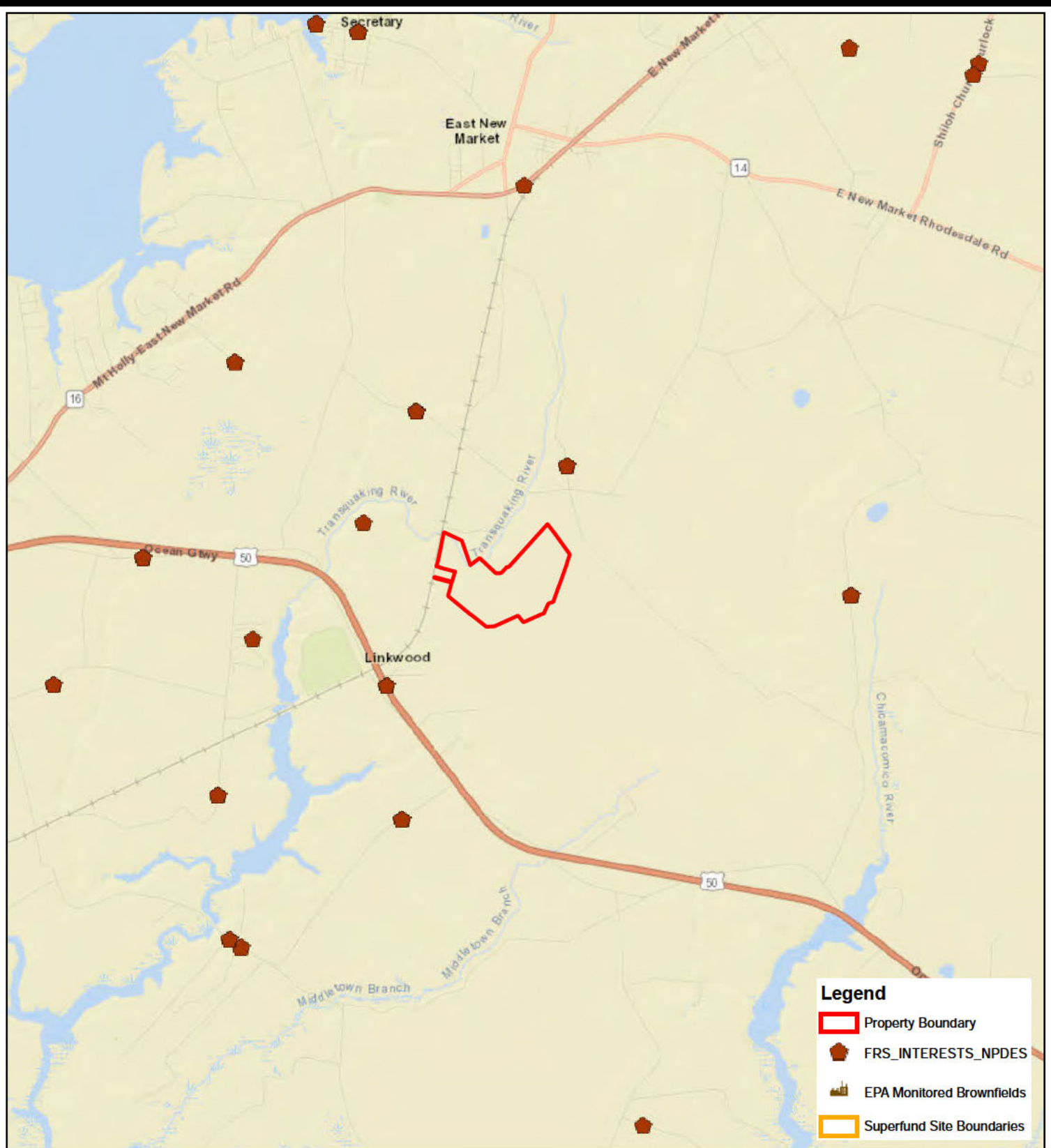
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# **ATTACHMENT H**

## **ENVIRO ATLAS MAP**



L:\Ecosystem Services\2022\DRGNCW22.194  
 \Maps\GIS\Final Prospectus

Boundaries are approximate and not meant to be absolute.  
 Map Source: US EPA Online Data



Linkwood Mitigation Bank  
 Dorchester County, MD

February 7, 2024  
 DRGNCW22.194

**DAVEY**   
**Resource Group**  
 3805 Wrightsville Avenue  
 Wilmington, NC 28403  
 (910) 452-0001

**Attachment H**  
**Enviro Atlas Map**



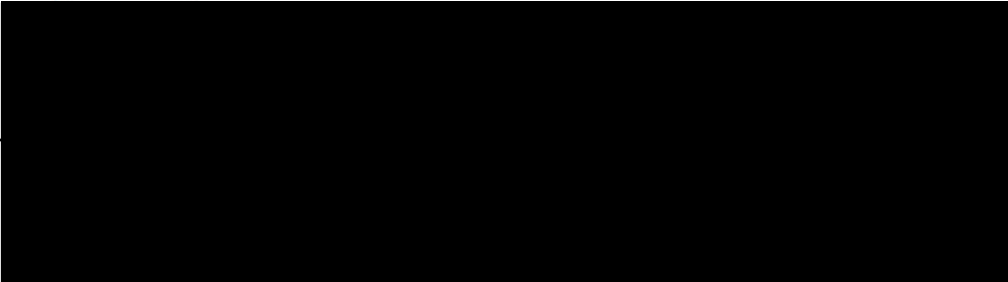
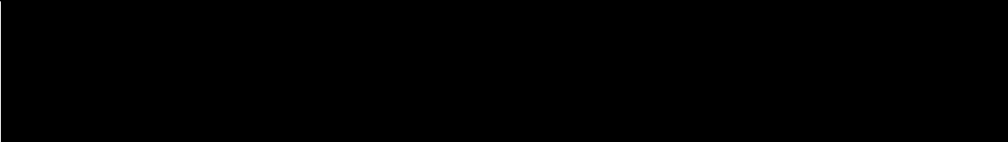
## **APPENDIX M**

### **USACE PROSPECTUS CHECKLIST**

## Information for a Complete Mitigation Bank Prospectus per CFR 332.8(d)(2)

The prospectus initiates the planning and review process by the Interagency Review Team (IRT) and must be sufficiently detailed to support informed comment from the public and IRT regarding the bank's potential to provide successful and sustainable compensatory mitigation projects. This information list is intended to provide bank sponsors, their agents, and other interested parties with a better understanding of the level of detail that is needed for each of the components for a complete prospectus, pursuant to the mitigation rule (332.8(d)(2)(i)-(vii)). Information provided in the prospectus and this initial evaluation process will serve as the basis for establishing the mitigation banking instrument.

While optional, submittal of a draft prospectus (33 CFR 332.8(d)(3)) is strongly recommended for IRT comment and consultation to identify potential issues needing to be addressed prior to the start of the formal prospectus review process.

<b>BASIC INFORMATION</b>	
1.	Proposed Mitigation Bank or Umbrella Bank Site Name: Linkwood Mitigation Bank
2.	
3.	
4.	Project Location (Lat/Long in decimal degrees): 38.548335 / -75.927533
5.	Type of Mitigation Bank: <input checked="" type="checkbox"/> Private Commercial <input type="checkbox"/> Public Commercial <input type="checkbox"/> Combination Private/Public <input type="checkbox"/> Single-Client <input type="checkbox"/> Private Non-Profit
6.	List of figures, maps, other attachments: Figures 1-14 in Final Prospectus
<b>OBJECTIVES OF THE PROPOSED BANK</b>	
7.	Describe the overall goals and objectives of the proposed mitigation bank: The goal of the Linkwood Mitigation Bank is to provide high-quality compensatory mitigation for permitted impacts within the USGS 8-digit Tangier, Choptank, Nanticoke, and Pocomoke-Western Lower Delmarva HUCs via the restoration, enhancement, and preservation of wetlands (including areas historically consisting of wetlands) on the site. The project goals and objectives will be achieved on a multi-spatial scale and include the following: <ul style="list-style-type: none"><li>• To capture and store hydrologic input (i.e. precipitation) that is currently shunted downstream via the existing drainage network;</li><li>• To re-establish native vegetation communities;</li><li>• To improve water quality within the watershed and to contribute to the broader efforts for improving water quality on a regional level; and</li><li>• To provide for and expand protected wildlife habitat.</li></ul>

8. Aquatic Functions: Identify the aquatic functions to be restored/enhanced/established: nutrient removal/transformation, flood attenuation and surface water storage, sediment/pollutant capture and retention, groundwater discharge and recharge, and wildlife habitat.

9. Describe how the work proposed above will result in an improvement in the aquatic functions listed: Nutrient Removal/Transformation – Silviculture increases net export of N and P. Both N and P are soluble and enter water bodies through surface water runoff. Ditches decrease residency times and increase peak flow runoff. As a result, site drainage provides direct conduits of contaminants (including N and P) to down-gradient water bodies and the Transquaking River. Nutrient loading causes hypoxia/anoxia, aquatic weed infestations, and toxic algal blooms. Water quality impairments, in turn, can adversely affect resident macroinvertebrate and fish assemblages. Transformation and removal of N and P will be enhanced through re-establishment of characteristic wetland hydroperiods, removal of direct conduits, and the protection of restored forested wetlands and streams.

Flood Attenuation and Surface Water Storage – Restored and enhanced wetlands will dissipate the current rapid delivery of stormwater runoff via existing ditches. Both surface and subsurface water storage will be increased, ameliorating downstream runoff events and associated adverse impacts, including long-term impacts due to the effects of climate change.

Sediment/Pollutant Capture and Retention – Restoration of the site will reduce sediment runoff via plugging and backfilling of existing ditches. This will reduce the erosive velocity of runoff and channel flows. Protection of the site via a conservation easement will remove any potential occurrence of ditch clean-out/maintenance. Removing the land from silvicultural production will eliminate potential sediment run-off that occurs during harvest periods and will reduce overall sediment loading to downstream waters.

Groundwater Discharge and Recharge - Restoration of typical hydroperiods will allow the restored wetlands to increase infiltration and reduce surface runoff. Shallower and longer hydroperiods will help prolong base flow in the streams and riparian areas near the northern boundary of the site.

Wildlife Habitat – The restoration, enhancement, and preservation of forested wetlands will provide for improved feeding and refuge habitat for a variety of resident and transient fauna such as the Delmarva fox squirrel (*Sciurus niger cinereus*), white-tailed deer (*Odocoileus virginianus*), and a variety of herpetofauna. Important habitat features such as snags and large woody debris will be increased throughout the site. The protection of the site will also provide important habitat connectivity between the existing Linkwood Wildlife Management Area (313 acres of state-protected lands) and the Transquaking River and will expand the area under conservation in this ecologically-significant and diverse landscape. The entire site, with the exception of a small access easement and utility right-of-way, will be protected via a perpetual conservation easement.

10. Total acreage of the proposed mitigation bank: 269.3

11. Describe how the proposed aquatic resource functions of the bank will address the functional needs of the watershed and/or ecoregion: Approximately 67% of stream miles in

the Transquaking River watershed are estimated as having benthic and/or fish indices of biological integrity in the poor to very poor category. These impairments are associated with the prevalence of agricultural use within the watershed and resulting sediment and contaminant run-off into ditches and streams that flow into the river (MDE 2012b). According to the Watershed Report for Biological Impairment of the Lower Choptank River Watershed (MDE 2012a), the Lower Choptank River watershed is listed under Category 5 of the 2008 Integrated Report for impacts to biological communities. Approximately 45% of stream miles in the watershed are estimated as having benthic and/or fish indices of biological integrity in the poor to very poor category. The watershed is not attaining its nontidal warmwater aquatic life use designation due to biological community impacts (MDE 2012a). Data suggest that the biological communities are strongly influenced by agricultural land and its effects including stream channelization and elevated sediment levels. Most of the watershed is drained through ditches for agriculture. The ditches are typically devoid of vegetation which expedites flow and offers less opportunity for nutrient uptake and denitrification. Transportation land use in the watershed was also significantly associated with degraded biological conditions (MDE 2012a). The proposed aquatic resource functions of the bank will improve water quality in these degraded watersheds.

12. In the table below, indicate the approximate quantity of wetlands (acres), open water (acres), rivers (linear feet/acres), and streams (linear feet/acres) proposed to be created, restored, enhanced, and/or preserved for purposes of providing compensatory mitigation. Indicate the waterbody type (emergent wetland, scrub/shrub wetland, forested wetland, perennial stream, intermittent stream, ephemeral stream, open water, other) or upland resources. For uplands, indicate if designated as an upland buffer.

**Table 1: Proposed Mitigation by Aquatic Resource Type**

Proposed Aquatic Resource Type/Upland Resources	Created	Restored	Enhanced	Protected
Forested Wetlands		49.1 ac	97.3 ac	44.4 ac
Open Water				0.3 ac
River				2,300 LF
Intermittent Stream				240 LF
Upland Buffer		49.6 ac		3.3 ac

13. In the table below, indicate the approximate total quantity of existing delineated wetlands (acres) and waterways (linear feet) located in the project area

**Table 2: Existing Wetlands by Aquatic Resource Type**

Existing Aquatic Resource Type	Linear Feet in Project Area	Acres in Project Area
Emergent wetland		
Scrub/Shrub wetland		
Forested wetland		176.9
Perennial stream	2,300	
Intermittent stream	240	
Ephemeral stream		
Other: Pond		0.3

**ESTABLISHMENT AND OPERATION OF THE BANK**

<p>14. Baseline Conditions: Provide the following figures and maps in pdf format with the bank boundaries identified:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> A vicinity map</li> <li><input checked="" type="checkbox"/> A USGS 7.5' topographic map</li> <li><input checked="" type="checkbox"/> A current aerial photograph</li> <li><input checked="" type="checkbox"/> A soil survey map</li> <li><input checked="" type="checkbox"/> A map of the drainage area contributing to the bank, including the size in acres</li> <li><input checked="" type="checkbox"/> A map showing proposed bank location in relationship to USGS 8-digit HUC watershed</li> </ul>
<p>15. <input checked="" type="checkbox"/> Proposed Conditions: Provide a conceptual mitigation development plan in pdf format showing all proposed mitigation type locations, existing wetlands and waterways, property boundaries, bank boundaries, boundaries of conservation easement, excluded areas (e.g., easements and rights-of-way, etc.), buffer widths, hydrological modifications, and acreage/linear footage of all proposed wetlands and waterways. Label all resources and features.</p>
<p>16. If applicable, describe the functional/conditional assessment methodology proposed to assess wetland and/or other aquatic resource restoration, creation, enhancement, and/or preservation activities: MDWAM was conducted by the USACE in October 2023.</p>
<p>17. Describe any funding received or expected to be received for natural resources protection, restoration, acquisition, enhancement, or other purposes on all or a portion of the proposed bank property from federal or state agencies, grants, or nonprofits (e.g., funding source, amount received, purpose, number of acres affected by each purpose, etc.): N/A</p>
<p><b>PROPOSED SERVICE AREA(S)</b></p>
<p>18. Describe the proposed primary and secondary service areas:  Primary - Tangier Subbasin (USGS 8-digit HUC 02080110)  Secondary - Nanticoke Subbasin (USGS 8-digit HUC 02080109), Pocomoke-Western Lower Delmarva Subbasin (USGS 8-digit HUC 02080111), and Choptank Subbasin (USGS 8-digit HUC 02060005)</p>
<p>19. Provide the basis of the service area(s) and rationale supporting its location and extent:  The site is located within the Tangier Subbasin and Ecoregion 63f. The proposed primary GSA for the Linkwood Mitigation Bank includes the Tangier USGS 8-digit HUC occurring within Level III Ecoregion 63. The proposed secondary GSA includes the adjacent Nanticoke Subbasin, Pocomoke-Western Lower Delmarva Subbasin, and Choptank Subbasin which also occur within Level III Ecoregion 63. The Choptank Subbasin is located only approximately 1.4 miles from the site. Although the Choptank is located in the adjacent 6-digit HUC, it is included in the secondary GSA due to its close proximity in addition to similar soil series, topography, and vegetation. The Woodstown-Pocomoke-Fallsington general soil unit and USGS Plant Hardiness Zone 7b located on the site both continue into the adjacent Choptank Subbasin.</p>

20.  Provide a map (8.5" by 11") in pdf format with the bank location and its position within the limits of the proposed geographic service area(s).

**GENERAL NEED AND TECHNICAL FEASIBILITY**

21. Describe how the bank project aligns with existing watershed, estuary, or conservation plans and goals (e.g., <http://watershedresourcesregistry.org>). Include mapping in pdf format to support the basis for this alignment (e.g., green infrastructure, forest interior dwelling species habitat, priority watersheds or habitat for species of concern, etc.):

The bank project supports the plans and goals of the Watershed Reports for Biological Impairment of the Transquaking River and Lower Choptank River Watersheds by improving water quality. The Maryland Watershed Resources Registry (WRR) was consulted to determine compatibility with existing conservation plans and goals. The WRR mapping shows the majority of the site as a green infrastructure hub. Forest interior dwelling species also occur throughout the site. Portions of the site are within a sensitive species project review area. DRG has consulted with MDNR regarding the sensitive species project review area and has not received any negative comments.

22. General need for the type(s) and anticipated number of compensatory mitigation credits that are proposed to be generated by the proposed bank. Discuss past, current, or anticipated demand for proposed compensation:

The IRT has indicated that there are not enough wetland mitigation banks in Maryland to meet the current market demand. As indicated in the Site Selection section of the Final Prospectus, the Sponsor anticipates demand from state projects projected to occur in the watershed in the near future. The Tangier watershed includes the main transportation corridor of Maryland-Route 50. The Lower Choptank watershed includes four main transportation corridors.

23. Summarize the proposed work intended to accomplish site activities and address site impairments and its feasibility, including any alterations to hydrology, anticipated grading needs and proposed structures, soil amendments, plantings, proposed phasing of bank implementation, etc.: Site hydrology will be increased by plugging and/or backfilling ditches and berm removal. Wetland rehabilitation areas will require light grading. All existing structures onsite will be removed. The majority of the site will be replanted with native hardwoods. DRG and the sponsor have demonstrated the feasibility of these restoration techniques on multiple projects. No separate phases are proposed for bank implementation.

**PROPOSED OWNERSHIP ARRANGEMENTS & LONG-TERM MANAGEMENT STRATEGY**

24. Describe whether the sponsor owns the land or is acquiring an interest in the proposed bank site (e.g., fee simple acquisition, mitigation easement, etc.): The sponsor owns the land.

25. Is the bank located on public lands?  Yes  No

26. <input checked="" type="checkbox"/> Preliminary Title Report: Attach a current (dated within six months of submittal) preliminary title report identifying any easements, mortgages, liens, right of ways, or other encumbrances.
27. <input checked="" type="checkbox"/> Attach a map in pdf format depicting the location of all easements and encumbrances in relation to the proposed bank boundary and all relevant property lines.
28. <input checked="" type="checkbox"/> Provide a property assessment that summarizes and explains each recorded or unrecorded lien or encumbrance on, or interest in, the proposed bank property, including, without limitation, each exception listed in the preliminary title report:
29. <input checked="" type="checkbox"/> Provide a written statement from the property owner that there are no easements, encumbrances, or other interests in the property, not previously disclosed to the Corps (e.g., leases, mechanic's liens that might not show up in the title report):
30. Describe the manner in which each encumbrance may affect the operation or ecological value and services and long-term sustainability of the mitigation bank and how the conflict(s) are intended to be resolved: CREP buyout will be required prior to establishment of the mitigation bank. The utility right-of-way has been excluded from creditable areas.
31. Describe any prior permitting history for the bank site: DRG is not aware of any prior permitting for the bank site.
32. Identify the proposed form of site protection instrument (e.g., conservation easement, declaration of restrictive covenants, etc.) that would be utilized for the bank site and the likely responsible parties: conservation easement
33. Identify the proposed long-term ownership and long-term management strategy, including long term financial mechanism(s): DNR has expressed interest in potential long-term ownership of the site. Otherwise, the Bank Sponsor will convey a permanent conservation easement to an appropriate 501(c)3 non-profit organization (as approved by the IRT) for long-term protection of the site. The easement holder will be responsible for the following annual activities in perpetuity: <ol style="list-style-type: none"> <li>1. Walking the boundaries of the conservation easement to check for encroachment.</li> <li>2. Spot-checking planted areas for the presence of invasive species.</li> <li>3. Spot-checking ditch plugs to evaluate their condition.</li> </ol> The Sponsor will provide an endowment fee and separate long-term management fee to fund long-term site inspections and management of the conservation easement area.
34. Identify the likely party that would be responsible for long-term management: The conservation easement holder will be responsible for long-term management (see above). Wetlands Resource Center, LLC has expressed interest in adding this mitigation bank to the Department of Natural Resources' Linkwood Wildlife Management Area upon closure of all required monitoring.

## SPONSOR QUALIFICATIONS

35. Describe the qualifications of the Sponsor to successfully complete the type(s) of mitigation project proposed: Wetlands Resource Center was established in 1998 and they have completed the restoration and preservation of more than 110,000 linear feet of streams and 8,500 acres of wetlands that were used for full delivery permittee responsible mitigation, in-lieu fee mitigation, and mitigation banks. Thus, the Sponsor is well-versed in site restoration techniques, re-forestation practices, and site management.

36. Provide list of prior mitigation or restoration experience (including design, implementation, and monitoring): The sponsor has prior experience including design, implementation, and monitoring with the following projects:

- South Muddy Creek Stream Restoration – 14,520 linear feet of restored stream
- Rutman Creek Wetland and Stream Restoration – 4,230 acres of restored/preserved wetlands and 7,400 linear feet of restored stream
- Little Scioto Wetland Mitigation Bank – 400 acres of restored wetlands
- Northeast Cape Fear Umbrella Mitigation Bank – wetland and stream bank including Holly Shelter Bay, Jeat Tract, and Davis Farm sites

## ECOLOGICAL SUITABILITY OF THE SITE

37. Describe the ecological suitability of the bank site, including the chemical, physical, and biological characteristics, to support the proposed types of mitigation to be implemented and the associated aquatic functions: The site has been determined to be suitable for the proposed mitigation based on its location within a degraded watershed and connectivity with the Linkwood WMA. The Linkwood WMA includes reference hardwood flat wetlands. The majority of the site historically contained similar wetlands, but they were converted to agricultural fields and later planted in pine. Restoring hydrology and native hardwood vegetation to the onsite wetlands will increase their functions of pollutant removal, stormwater retention, and wildlife habitat to reference conditions.

38. Summarize current conditions of the bank site and surroundings, including land use, vegetation, hydrology, and soils (e.g., forested, row crops, pasture, ditched and drained wetlands, previously channelized stream, etc.). Photos should be provided: Current land use of the bank site and surroundings is primarily agricultural conservation. The site is mostly forested with loblolly pine. Hydrology has been reduced by drainage ditches and a riverine berm along the previously channelized river. Soils are mapped as Hurlock, Fallsington, and Zekiah. Photos are provided in an Appendix to the Final Prospectus.

39. Summarize past and recent land uses of the bank site and adjacent properties: The site was historically used for agriculture and silviculture. Recently the site has been used for hunting. Past and recent land uses of adjacent properties are primarily agriculture



<p>and silviculture. Valley Protein owns an industrial facility across Linkwood Road from the site.</p>
<p>40. Identify any proposed development adjacent to the bank site: DRG is not aware of any proposed development adjacent to the bank site. Future land use surrounding the site is agricultural conservation.</p>
<p>41. Describe the Bank site's location relative to other protected lands and connection to existing aquatic and terrestrial resources: The southern boundary of the site directly abuts the protected Linkwood WMA. The northwestern portion of the site includes the Transquaking River. The northeastern portion of the site contains reference hardwood flat wetlands which continue offsite.</p>
<p>42. Describe any potential sources of soil and water chemical contamination of the proposed wetlands and/or other aquatic resources within the bank site from adjacent or upstream sources (<a href="https://www.epa.gov/enviroatlas/enviroatlas-interactive-map">https://www.epa.gov/enviroatlas/enviroatlas-interactive-map</a> and <a href="https://mywaterway.epa.gov/">https://mywaterway.epa.gov/</a> for 303d list, brownfields, point source discharges, etc.): The Transquaking River onsite and upstream is on the 303d list and is impaired due to turbidity issues. There are no brownfields located in the vicinity of the site. A former point source discharge is located upstream of the site but its permit is expired.</p>
<p>43. Describe any and all existing and known proposed private or commercial airports located or proposed to be located within 5 miles of the proposed bank site. This information is required in order to comply with the FAA Advisory Circular (AC) 150/5200-33C, Hazardous Wildlife Attractants on or Near Airports, which can be found on the FAA's website at: <a href="https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5200-33C.pdf">https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5200-33C.pdf</a>: The tract is located approximately 5.4 miles east of the Cambridge-Dorchester Regional Airport (CGE). DRG has begun coordination with the FAA.</p>
<p>44. <b>STREAM MITIGATION PROJECTS:</b> For stream compensatory mitigation projects, the following relevant information should also be included. N/A</p>
<p>44a) Identify the percentage of impervious cover in the HUC12 watershed:</p>
<p>44b) Identify any stream barriers to aquatic movement between the mitigation site and large downstream waters (i.e., having at least 20 square miles in drainage area or tidal waters):</p>
<p>44c) Describe any noticeable sheens, odors, unusual color, or excessive algal blooms observed in the streams at the proposed bank site. If applicable, provide a map in pdf format showing those reach locations and extent of the observed impairment:</p>
<p>44d) Describe any topographic or infrastructure constraints limiting stream design options or increasing failure risk (consider both stream and stream valley):</p>

44d) Describe any stream mitigation prioritization model that was used and relevant score and include relevant mapping:
<b>45. FISH PASSAGE MITIGATION PROJECTS:</b> For fish passage mitigation projects, the following relevant information should also be included. N/A
45a) Identify the individual barrier prioritization tier scores for anadromous fish and resident fish in the Chesapeake Bay watershed ( <a href="https://freshwaternetwork.org/chesapeake/">https://freshwaternetwork.org/chesapeake/</a> ):
45b) Sediment management: Describe proposed sediment management plans, anticipated particle sizes, potential accumulated pollutants based on past upstream land uses and discharges, and estimated volumes of sediment removal and sediment release:
<b>ASSURANCE OF SUFFICIENT WATER RIGHTS</b>
46. Describe how the existing water rights and/or hydrologic influences on the bank site are sufficient to support the long-term sustainability of the proposed mitigation bank site: The sponsor owns fee-simple title to the property and will buyout the CREP. Therefore, the sponsor will have control of all ditches and water rights affecting groundwater hydrology of the site.
47. Describe the hydrologic source(s) and losses (precipitation, surface runoff, groundwater, stream, tidal, etc.) for the proposed bank: Hydrologic sources include precipitation, surface runoff, groundwater, and limited stream overbank flooding. Hydrologic losses include channelized stream drainage, ditch drainage, and evapotranspiration.
48. Describe the hydroperiod (seasonal/continuous depth, duration, and timing of inundation and/or saturation) for the bank site: Bank site wetlands appear to exhibit saturation within 12 inches of the soil surface for >5% of the growing season, typically during the beginning of the growing season. Brief seasonal inundation occurs within depressions and the riverine floodplain.
49. Describe any existing hydrologic disturbances or alterations on and adjacent to the bank site, including those the Sponsor may not be able to manage or control: Several ditches and swales on the site have reduced characteristic wetland hydroperiods. One ditch draining offsite and a few property line ditches will not be manipulated. Berms along the channelized Transquaking River prevent overbank flooding. These berms will be removed on the south side of the river, but the berms on the north side will not be removed.
50. Identify any temporary or long-term structural management requirements (e.g., levees, weirs, culverts, etc.) needed to assure hydrologic/vegetative restoration: Several ditch plugs will be installed which are designed to be self-sustaining but may require maintenance.

<b>ADDITIONAL INFORMATION (Provide as separate attachments)</b>
51. <input checked="" type="checkbox"/> Provide a letter from the property owner indicating their interest in developing a mitigation bank and allowing access to the bank site for the sponsor and IRT agencies.
52. <input checked="" type="checkbox"/> List of adjacent property owners, local post office, local newspaper, and appropriate local officials (name and mailing address) for public notice mailing.
53. <input checked="" type="checkbox"/> Agency Coordination: If available, attach any reports and/or correspondence regarding historic properties, threatened or endangered species, essential fish habitat, and state environmental resources.
54. <input checked="" type="checkbox"/> Provide contact information for property owner (name, address, phone, email).
<b>MARYLAND-SPECIFIC COMPENSATORY MITIGATION BANKS</b>
55. <input checked="" type="checkbox"/> Attach a Maryland Department of the Environment mitigation bank application. This application can be found on MDE Wetlands and Waterways Program website: <a href="https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Documents/MDE-mitigationbank-application-with-instructions-form.pdf">https://mde.maryland.gov/programs/water/WetlandsandWaterways/AboutWetlands/Documents/MDE-mitigationbank-application-with-instructions-form.pdf</a>