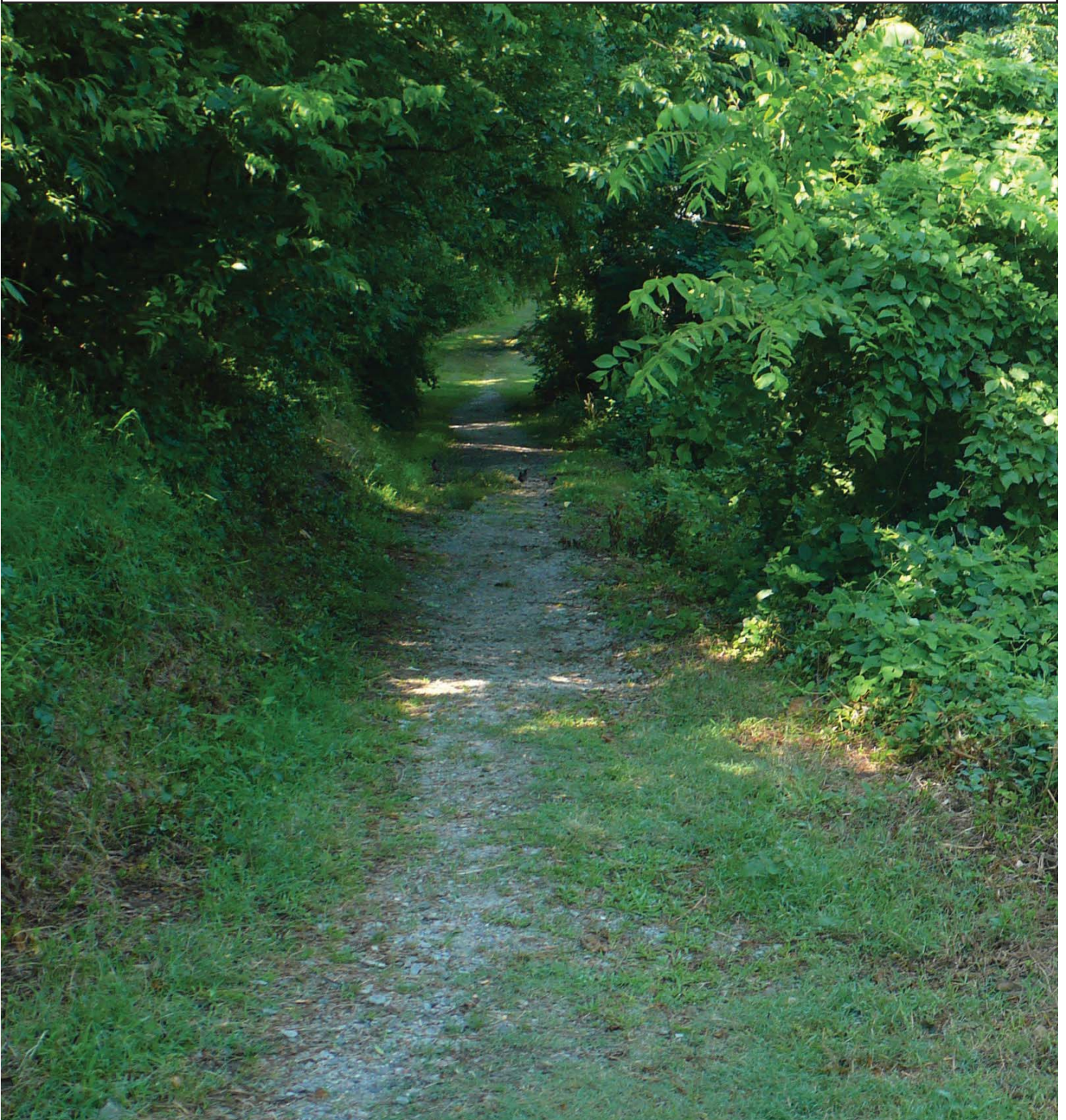


APPENDIX A

Priority Matrix



APPENDIX B

Cost Estimate



FOLAR - Lower Appomattox River Heritage Trail Master Plan							October 4, 2016
Estimate Summary							JEM, JMO
Prepared By: Land Planning and Design Associates Inc. Charlottesville, VA							
Total Trail Length: xx.xx miles							TOTAL
A: Lake Chesdin to Ferndale Appomattox Riverside Park							
Rustic trail on south side of river	Dirt		7,730	\$	25	\$	193,250
John J. Radcliffe Trail (improvements)	Asphalt Overlay		8,400	\$	50	\$	420,000
Bridge across river	New Bridge		1,000	\$	3,000	\$	3,000,000
Historic tow path (improvements)	Asphalt Overlay		8,800	\$	50	\$	440,000
Neighborhood access trail to Westbriar Lane	Dirt		750	\$	25	\$	18,750
Neighborhood access trail to West Autumn Drive	Dirt		1,000	\$	25	\$	25,000
Rustic trail along river (improvements)	Dirt		800	\$	25	\$	20,000
Ferndale Appomattox Riverside Park improvements							N/A
Subtotal							\$ 4,117,000
B: Ferndale Appomattox Riverside Park to Rawlings Lane							
Rustic trail along river (improvements)	Dirt		500	\$	25	\$	12,500
Historic tow path (improvements)	Asphalt Overlay		4,240	\$	50	\$	212,000
Historic tow path (extension)	New Asphalt		4,890	\$	100	\$	489,000
Neighborhood access trail to Ferndale Circle	Dirt		610	\$	25	\$	15,250
Subtotal							\$ 728,750
C: Rawlings Lane to Battersea Lane							
VSU trail extension- west	New Asphalt		3,000	\$	100	\$	300,000
Trail along south side of river (improvements)	Asphalt overlay		5,800	\$	50	\$	290,000
Trail through Battersea Neighborhood	Stone Dust		3,500	\$	65	\$	227,500
Pedestrian bridge across river	New Bridge		1,300	\$	3,000	\$	3,900,000
Subtotal							\$ 4,717,500
D: Battersea Lane to University							
VSU trail extension- east	New Asphalt		4,000	\$	100	\$	400,000
Trail along south side of river (improvements)	Asphalt Overlay		4,150	\$	50	\$	207,500
Trailhead west of Patton Park (improvements)						N/A	
Trail through Battersea Neighborhood	Stone Dust		4,800	\$	65	\$	312,000
Connection to McKenzie Street Park	Stone Dust		610	\$	65	\$	39,650
Subtotal							\$ 959,150
E: University Blvd. to Boulevard							
Pedestrian bridge across Campbell's Bridge abutments	Bridge decking		600	\$	2,000	\$	1,200,000
Patton Park improvements							N/A
Patton Park extension-east							N/A
Pedestrian bridge across brick abutments	Bridge decking		300	\$	2,000	\$	600,000
Sidewalk improvements along Grove Ave.	Wide sidewalk		1,700	\$	75	\$	127,500
New path between railroad and river	Stone Dust		1,350	\$	65	\$	87,750
Shared-use path along Pike/River Streets	Asphalt overlay		1,600	\$	50	\$	80,000
Trail connection VSU- Appamatuck Park	New Asphalt		4,450	\$	100	\$	445,000
Subtotal							\$ 2,540,250
F: Boulevard to I-95							
Sidewalk along Pocahontas Street from 3rd Street	Wide sidewalk		1,200	\$	75	\$	90,000
Historic rail line converts to trail	Stone Overlay		2,200	\$	45	\$	99,000
Trail along south side of river (improvements)	Asphalt overlay		3,100	\$	50	\$	155,000
Connect trail along north side of river to Boulevard	New Asphalt		340	\$	100	\$	34,000
Pedestrian bridge across historic abutments	Bridge decking		550	\$	2,000	\$	1,100,000
Improve fishing area and trail extension							N/A
Subtotal							\$ 1,388,000
G: I-95 to Temple Ave.							
Trail along Magazine Rd.	Stone overlay		8,500	\$	45	\$	382,500
Trail on north side of river- extend east	New Asphalt		2,500	\$	100	\$	250,000
Trail on south side of river	New Asphalt		10,110	\$	100	\$	1,011,000
Pedestrian bridge under Temple Ave.	New Bridge		1,000	\$	3,000	\$	3,000,000
Subtotal							\$ 6,031,500
H: Temple Ave. to Irwin Road (North)							
Rustic trail along Town Creek drainage (incl boardwalks)	Dirt		6,500	\$	50	\$	325,000
Sidewalk improvements along Conduit Road.	Wide sidewalk		4,500	\$	75	\$	337,500
Sidewalk improvements along Brockwell Lane	Wide sidewalk		1,500	\$	75	\$	112,500
Trail through Fort Clifton Park	Dirt		2,400	\$	25	\$	60,000
Trail along White Bank Road	Stone overlay		1,250	\$	45	\$	56,250
Subtotal							\$ 891,250
I: Temple Ave. to Irwin Road (South)							
Trail between Temple Ave. and the marina	New Asphalt		3,000	\$	100	\$	300,000
Trail around Vulcan property	New Asphalt		16,000	\$	100	\$	1,600,000
Subtotal							\$ 1,900,000
J: Irwin Road to I-295							
Trail along River road/ Fort Lee	New Asphalt		10,000	\$	100	\$	1,000,000
Trail on south side of river, Fed. Penn	Stone Dust		17,000	\$	65	\$	1,105,000
Subtotal							\$ 2,105,000
K: I-295 to Cabin Creek Road							
Trail along I-295 to Atwater Park	New Asphalt		5,500	\$	100	\$	550,000
Sidewalk improvements in Cameron's Landing	Wide sidewalk		2,500	\$	75	\$	187,500
Trail through drainage and along river banks	Dirt		3,800	\$	25	\$	95,000
Trail through Cabin Creek drainage (incl. boardwalks)	Dirt		5,300	\$	50	\$	265,000
Sidewalk improvements on River Road	Wide sidewalk		2,700	\$	75	\$	202,500
Subtotal							\$ 1,300,000
L: Cabin Creek Road to Route 10							
Sidewalk improvements on River Road/Mesa Broadway	Wide sidewalk		8,800	\$	75	\$	660,000
Rustic trail through drainage	Stone Dust		5,000	\$	65	\$	325,000
Trail connection next to Baptist Church	New Asphalt		550	\$	100	\$	55,000
Riverside Harbor Park improvements							N/A
Trail along Riverside Ave. to Riverwalk Trail	New Asphalt		850	\$	100	\$	85,000
Trail through Riverside Park (improvements)	Asphalt overlay		2,500	\$	50	\$	125,000
Subtotal							\$ 1,250,000
M: Route 10 to City Point Park							
Hopewell City Park improvements							N/A
Trail connection between City Park and Appomattox St.	Wide sidewalk		400	\$	75	\$	30,000
Sidewalk improvements on Appomattox St./Cedar Ln.	Wide sidewalk		4,500	\$	75	\$	337,500
Trailhead at Hunter House							N/A
Subtotal							\$ 367,500
GRAND TOTAL							\$ 28,295,900

21 acres, parking lot enhancements, building reuse, additional pavilions, expanded playground area, more water access points, additional structured parking, lawn improvements.

900 SF, bench, informational sign,

8.5 acres, intensive upgrades: 2 new parking areas (30-40 spaces each), interpretive loop, paved trails, playground, riverbank restoration, fishing beach restoration, swimm beach addition, revegetation, new pavilion, comfor stations
1.5 acres, bridge restoration, fishing beach, vehicular turn-around, 5 parking spaces, revegetation, asphalt paths

4000 SF, asphalt trail, stone river access steps, benches.

4 acres, restructured parking, redeveloped pier and bulkhead, riverfront promanade, playground, new walkways, asphalt trail, benches and pavilions.

11 acres, new driveway, restructured parking, beach restoration, playground, trail connections, walkways, new pedestrian entrance

1.25 acres, restore historic house, add parking (3-4 spaces), trail to beach, elevated viewing deck, trail to City Point Park parking lot, benches, informational signs.

*This estimate represents 2015 dollars. Costs will need to be re-examined in subsequent years for increases in material, labor costs and inflation.

APPENDIX C

Potential Funding Sources



Funding Sources

The most frequently used funding sources for trail projects are the federal government, state government, local government, and the private sector. The following is a summary of several funding sources. Others may be available that are not outlined.

Federal Sources

1. Transportation Alternatives Program (also known as TAP funds). To be eligible for this program the trail project must fall under one of the following categories:

- Bicycle or pedestrian facility.
- Scenic easement and scenic or historic sites/preservation.
- Landscaping or other scenic beautification.
- Preservation of abandoned railway corridor.
- Environmental mitigation for wildlife protection.

Contact: VDOT at 1-800-444-7832. A 20% match is required to receive funding.

2. Surface Transportation Block Grant Program (also known as STBG). To be eligible for this program the project must provide pedestrian and bicycle transportation. Ten percent (10%) of STP funds are available only for transportation enhancement activities.

Contact: National Transportation Enhancements Clearinghouse at 1-800-388-6832. The federal share is 80% (sometimes higher in states with large amounts of federal land).

3. Public Lands Highways Discretionary Program (also known as PLH). To be eligible for this program the project must be able to provide access to federal lands that are open to the public.

Contact: Federal Highway Administration at www.fhwa.dot.gov/discretionary. There is no local match required to obtain this funding.

4. National Scenic Byways Program. To be eligible for this program the project must be related to designated scenic byways in one of the following ways:

- Constructing a bicycle and pedestrian facility along a scenic byway.
- Interpretive sites or information about the byway and overlooks along a scenic byway.
- Protection of resources (scenic, historical, natural, etc.) adjacent to a scenic byway.

Contact: Federal Highway Administration at www.fhwa.dot.gov/discretionary or www.byways.org. Awards are made with a local match of 20% and are based on an annual competitive grant application process.

5. Community Development Block Grant Program. To be eligible for this program the project must be located in a low or moderate-income area. The funds may be used for neighborhood revitalization, economic development, and improvements to community facilities.

Contact: The U.S. Department of Housing and Urban Development.

6. Land and Water Conservation Fund (also known as LWCF). These funds are used to provide park and recreation facilities to communities throughout the U.S.

Contact: State Parks Department or Conservation Agency. Funds are distributed annually and a 50% match must come from the community.

7. Transportation and Community and System Preservation Pilot Program (also known as TCSP). To be eligible for this program the project must meet the following criteria:

- Make the transportation system more efficient.
- Reduce transportation impacts on the environment.
- Provide better access to jobs and services.

Contact: Federal Highway Administration at www.fhwa.dot.gov/tcsp. No local match needed for these funds.

8. Recreational Trails Program. To be eligible for this program the trail or related facility must be open to the public. If the trail is on private land it is not eligible.

Contact: the Virginia Department of Conservation and Recreation at 804-786-3218. A local funding match of 20% is required.

State Sources

1. Virginia Outdoors Fund. This program is for outdoor recreation land acquisition and development projects. Greenways and trails are eligible for funding through this program.

Contact: the Department of Conservation at 804-786-3218. A 50% match is required.

2. Bike Ways.

Contact: the Virginia Department of Transportation. This program offers 100% funding.

3. Urban and Community Forestry Assistance Grants. This program offers assistance for tree planting.

Contact: the Virginia Department of Forestry. This program requires a 100% match.

4. Recreational Access Roads.

Contact: the Virginia Department of Transportation. This program offers 100% funding.

5. Virginia Land Conservation Fund. This program is for land purchase assistance only.

Contact: the Virginia Department of Conservation and Recreation. This funding requires a 100% match.

6. Virginia Recreational Trails Fund Program. This fund is for development.

Contact: the Virginia Department of Conservation and Recreation. This program requires a 100% match.

Local Sources

7. Cities, towns, and counties can be used to meet the local match requirements for some grant programs. Local funds are good to use for taxes, impact fees, bond referenda, local capital improvements programs, development proffers, and railroad franchise agreements.

Private Sector Sources

Private sector contributions can help develop trails in the following ways:

- Land trusts.
- Local and national foundations.
- Local businesses.
- Service clubs.
- Individual sponsors.
- Volunteer work.

APPENDIX D

Field Reconnaissance and Analysis





Project work team

Field Reconnaissance

The Friends of the Lower Appomattox River (FOLAR) planning team and Land Planning and Design Associates (LPDA) staff spent three days exploring potential trail routes along the banks and edges of the lower Appomattox River between Lake Chesdin and City Point Park. The team primarily focused efforts on the south side of the river (or the east side in some areas), but also explored connections and trail spurs on the north/west side.

There are currently over 6.5 miles of trails on the south side of the river and almost 3 miles of trail on the north side within the study area. The access points to the existing trail segments are primarily at riverside parks and/or small public trailheads.

Opportunities

The lower Appomattox River corridor is rife with visual, natural, and historic treasures, some of which can be accessed by the current trails and some of which should be accessed by future trails.

Existing Parks and Trails

On the North/West side of the river:

Just east of the Lake Chesdin dam in Chesterfield County there is a parking area and canoe launch

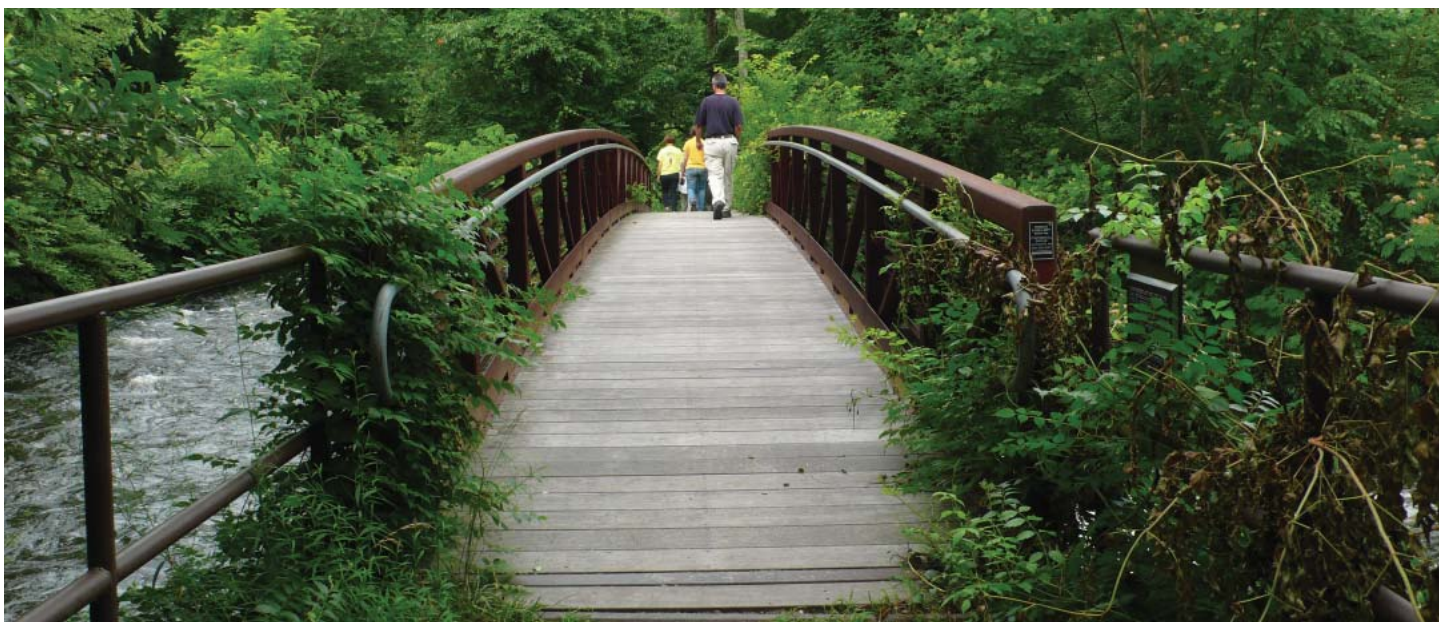
at the Appomattox River Canoe Launch. From the launch, there is a trail through the John J. Radcliffe Conservation Area. The trail is close to 1.5-miles in length and the eastern terminus is located near an old dam structure that almost connects the north and south sides of the river.

In Chesterfield County, across the river from the Battersea neighborhood, 1/3-mile of the Appomattox River Trail at Ettrick is complete. Further to the east, across from Patton Park, there is a private fishing park called Dimirack Park in Colonial Heights. A utility corridor along the north bank of the river connects Dimirack Park to Appamatuck Park, future trailhead for the Appomattox River Trail (C.H.A.R.T.S. trail). This trail currently begins under the Route 1 underpass and follows the north bank of the river, under I-95, to Roslyn Landing Park.

Continuing to the east along the north side of the river, Fort Clifton Park and R. Garland Dodd Park at Point of Rocks have river access (both on the north side of the river in Chesterfield County).

On the South/East side of the river:

From the historic abutment dam below Lake Chesdin, the trail, called the Lower Appomattox River Trail, follows a historic tow path adjacent to a canal along the south side of the river to Ferndale Appomattox Riverside Park. This park has river access and picnic



Existing bridge

tables and event amenities. The trail continues to the east, past the Battersea neighborhood and several river access points, to University Blvd., where it terminates at Patton Park.

Patton Park in Petersburg has a well-used fishing beach, a parking area, interpretive signs, a picnic areas and is home to the iconic arches of the historic Campbell's' Bridge (sometimes referred to as "Camels Bridge"). About a half-mile downstream from Patton park is a .6-mile long trail around Pocahontas Island, which terminates under I-95.

Between Patton Park and Pocahontas Island is walkable Old Towne Petersburg, boasting original cobblestone streets, historic building facades, and the Southside Depot, future home of a National Park Service Visitor Center.

Just west of the I-295 bridge in Prince George County, Appomattox River Regional Park, which has trails and a canoe and kayak launch, connects to the Cameron's Landing development via a trail under the highway.

In Hopewell, there are three parks along the river: Riverside Harbor Park, City Park, and City Point Park. There is a current effort to connect City Park to the Hopewell City Marina with the Hopewell Riverwalk Trail.

There are several parks that are not on the banks of the river but that are close enough still be part of the "river park system":

- McKenzie Street Park
- Atwater Park and Soccer Complex
- Mathis Park and Crystal Lake
- Riverside Park and City Point National Cemetery
- Fort Abbott Park

Existing Trail Access Points

Along the existing 10+ miles of trail in the trail corridor, there are currently 14 trail access locations:

1. Appomattox River Canoe Launch: accessing the John J. Radcliffe Conservation Area trail
2. (Ferndale) Appomattox Riverside Park: accessing the Lower Appomattox River Trail
3. Patton Park: accessing the Lower Appomattox River Trail
4. Ettrick VSU Trailhead
5. Sapony Street on Pocahontas Island
6. Rolfe Street on Pocahontas Island
7. Parking area on Magazine Road on Pocahontas Island
8. Appamatuck Park: accessing the Appomattox River Trail (C.H.A.R.T.S)
9. Roslyn Park: accessing the Appomattox River Trail (C.H.A.R.T.S)
10. Appomattox River Regional Park : accessing its



Path along Temple Avenue

own trails

11. Cameron's Landing: accessing Appomattox River Regional Park trails
12. Riverside Park: accessing Riverside Park trail
13. Riverside Ave. parking area: accessing Riverside Park trail
14. City Point Park parking lot: accessing City Point Park trail

Fort Clifton Park

Anchor Point Marina

R. Garland Dodd Park at Point of Rocks

Weston Plantation

Riverside Harbor Park

Hopewell City Marina

City Park

City Point Park

River Access Points

River access is a major benefit of having a riverside trail system. The current public river access points are primarily at riverside parks, marinas, and fishing paths off trail segments. These are the public (or semi-public) river access points (which include a mixture of boat, fishing, swimming, and other recreational uses):

Appomattox River Canoe Launch
 John J. Radcliffe Conservation Area
 Ferndale Appomattox Riverside Park
 Battersea neighborhood
 Appomattox River Trail at Ettrick
 Patton Park
 Dimirack Park
 Pocahontas Island
 Roslyn Landing Park
 Appomattox Boat Harbor
 Appomattox River Regional Park

Historic and Cultural Features

The historic and cultural features along the river, including the cities of Petersburg, Colonial Heights, and Hopewell, are not only important sights to see, but also help define the character of the entire corridor. There are remnants of historic dams, bridge abutments, mill structures, railroad trestles, and riverside buildings.

There are a series of historic dam remnants along the Appomattox River, including at the eastern end of John J. Radcliffe Conservation Area and the Harvell Dam and Power Plant in Petersburg. There are also many historic railroad bridges and decommissioned trestles that cross the river, such as one between the Appomattox River Scenic Trail at Ettrick and the Battersea neighborhood, Campbell's Bridge between Virginia State University and Patton Park, historic abutments at the Harvell Dam in Petersburg, and historic abutments at Pocahontas Island in Petersburg.



Historic Battersea Mill remnants

Utility Corridors

There are several utility corridors within the project boundaries that offer long passages of connectivity primarily free of obstructions. One utility corridor connects the Petersburg Wastewater Treatment Facility on the south side of the river to a power station just east of Temple Ave. This route follows an access road along a spit of land in the river until the overhead power lines cross the river to the south bank at the power station. A second overhead utility line corridor runs from the Appomattox River Regional Park to Mathis Park in Hopewell. This utility corridor crosses residential areas as well as undeveloped land.

In some cases, property ownership issues could shift these utility corridors into the “Constraints” category, discussed in the next section.

Existing Road Corridors with Pedestrian Improvements

Several road corridors within the project area have existing pedestrian or bicycle improvements that already make them safe and passable. These areas include Grove Avenue in Petersburg and Broadway Avenue and Appomattox Street in Hopewell.

Adjacent Attractions

The lower Appomattox River is a thread stringing together a series of important locations. Virginia State University, Historic Petersburg, Downtown Hopewell, Matoaca, Ettrick, Colonial Heights, parks, other trail systems, and historic sites are all adjacent to the river, and could access or be accessed by the proposed Appomattox River Trail.



Appomattox Street in Hopewell

Constraints

For a project of this type and scale, it is best to think of constraints in terms of physical limitations and political limitations. Constraints in both categories can be mitigated, but the processes for doing so would be different.

Physical Constraints

The primary physical constraints along the 20+-mile corridor are either environmental-- steep slopes, tributaries, and wetlands; or built-- structures, railroads, and major roadways.

In some cases steep slopes can be an amenity as well (when they act as a screen from adjacent land-uses). In some instances along the river corridor the steep slopes divide the river (and existing or potential trail corridor) from residential properties. This is the case at the west end of the canal, near Autumn Drive and Westbriar Lane. And while the slopes serve to separate the trail from the houses, they also present a barrier between the neighborhood and potential trail access.

Between Patton Park and Pocahontas Island there are steep slopes along the rivers edge, making it very challenging to put a trail along the river.

In the City of Hopewell there are several areas with steep slopes along the river. These occur mostly in dense residential areas.

When tributaries join the lower Appomattox River it presents an amenity as well as a constraint. In addition to the opportunities for blueways connections and attractive wayside locations, crossing a tributary often requires a bridge or a culvert. Depending on the width of the tributary, the cost can be manageable or prohibitive. The canal that stretches from the area near Ferndale Circle to the historic dam structure below the Lake Chesdin dam acts as a constraint much like a tributary. It inhibits pedestrian connection between the adjacent neighborhoods and the trail.

Buildings, railroads, and major roadways are constraints in many locations along the corridor. In some case, such as I-95, I-295, and Route 10, there is already sufficient passage under the roadway. In other cases there will need to be at-grade crossings, pedestrian bridges, or tunnels.

Railroads are prevalent along this corridor and help to define the character of the area, but they also hinder connections between some neighborhoods and downtown areas and the river/trail. This is the case between Ferndale Appomattox Riverside Park and downtown Petersburg. Although there are some



Historic Abutment Dam

locations where pedestrians can cross the railroad tracks, there are lengthy stretches of trail that have no access point because of the tracks.

Wetlands are also common along this corridor and again, they are an amenity as well as a physical constraint. With proper planning, mitigation, design and collaboration, wetlands may not hinder the passage of the trail along this corridor.

Political and Property Constraints

Many of the potential political constraints associated with this project have already been mitigated. With all six municipalities involved, the political issues that the project may face will likely be associated with individual property owners, developers, commercial properties, and state and federal lands. Property ownership along the river is a mix of public, commercial, and private residential.

Property Ownership and Easements

Several steps are required to acquire property for greenway use:

1. Identify land parcels.
2. Make offers of acquisition of right-of-way.
3. Transfer the proper documentation.
4. Record the proper documentation.

Before ROW or property acquisitions are considered, affected properties must be identified. Further research can be performed to identify conditions of deeds or easements that may be attached to ownership properties. Additionally, it is recommended that greenway trail developers obtain assistance from an attorney experienced with right-of-way acquisition and knowledgeable of local real estate law, considering there are many methods of trail right-of-way acquisition. Trail right-of-way acquisition is the process through which trail developers can negotiate legal access to private properties desired for trail development.

In order to boost public support and clarify the intentions of the Appomattox River Trail, and to potentially ease the trail right-of-way process, public meetings were held to introduce the trail project. As the trail planning process continues, it will be important to meet with each individual landowner. According to state law, a greenway cannot cross private property without the consent of the landowner. Considering that greenway projects are truly community projects, separate from roads, industrial and commercial development and utility construction, it is important to keep the lines of communication open. Landowners should be made aware of the likelihood of increased property values and the benefit of direct access to the greenway trails. An advising attorney should also be



Trail on Pocahontas Island

on hand to discuss possible tax benefits for property owners and that their property would be assessed for its fair market value.

It may be useful to develop a phasing strategy for easement acquisition. In order to gain the confidence of the public, certain locations may be initially focused on for acquisition and trail implementation. Areas of intended high use, public visibility, and ease of property acquisition may be considered first. It is also useful to determine the method of acquisition that will best benefit the trail developer and the landowner. This may be in part determined by the existing land use, topography or quantity of land desired.

Methods of land acquisition vary from temporary easements to land purchases. There is a legal mechanism for property owners to limit and indemnify liability of landowners when they grant easements for recreational use. They could also potentially be covered under a greenway's insurance program. The following are methods of acquisition:

Donation of land is the most ideal scenario, and the landowner will receive an income tax credit for this charitable gift.

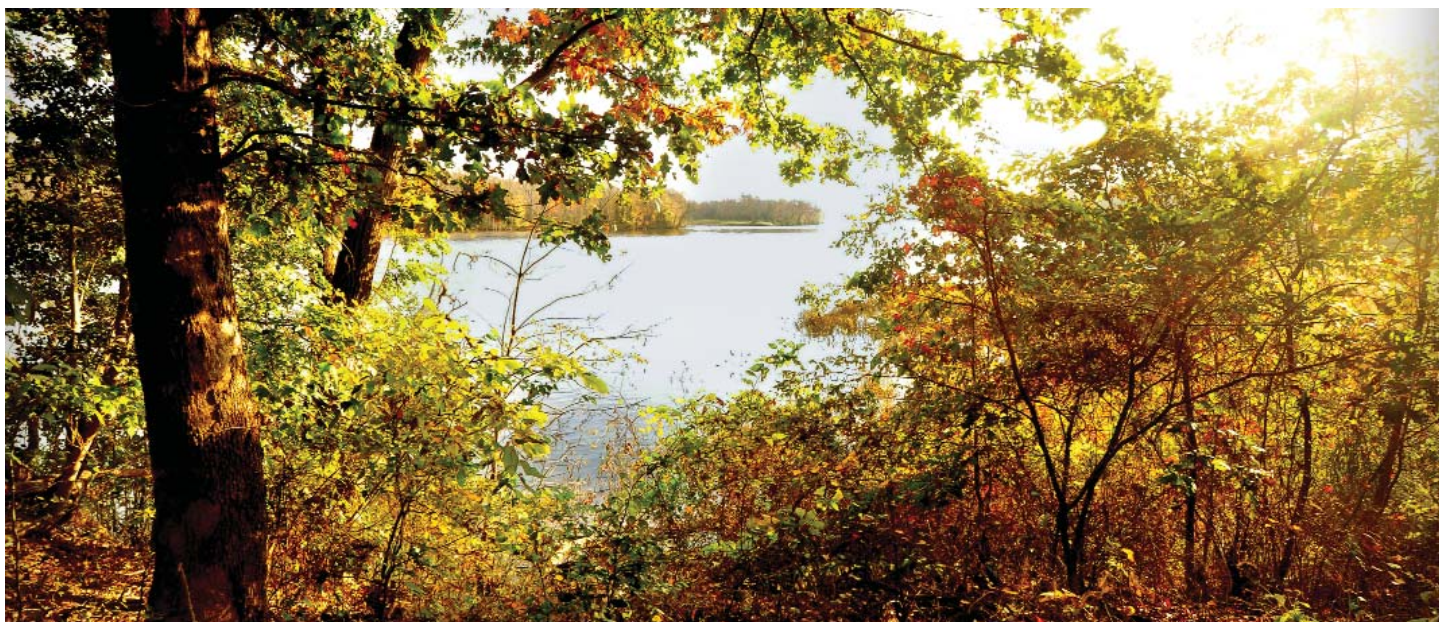
Land Dedication is often associated with the subdivision of property. The sub divider, or

developer, dedicates certain portions of land for greenway use. Certain localities mandate this action in order to comply with zoning ordinances. This type of zoning ensures future green spaces and possible opportunities for trails.

Lease or License will convey almost all rights, control, and liability from the landowner to the trail developer. Ideally a lease will be enacted for a minimum of 99 years. Upon its termination, the lease may be renewed or the land may be purchased or donated. The owner is compensated for the terms of the lease.

Revocable Permits, Access or Use Agreements are similar to a lease, however, the landowner may revoke access if the terms of the agreement are not being met. Breach of terms may include improper trail maintenance, damage of property, unauthorized activities or vandalism. Termination may also occur due to land use changes or the sale of the land.

Easements may be donated, sold, or traded. This legally binding agreement grants right of public access, with the landowner maintaining the land. If this agreement is granted in perpetuity, the easement is attached to the title of the land if it is sold. Income tax incentives are sometimes provided to encourage such easements. Easements are ideal



for properties that include a floodplain, or otherwise unusable land. The property owner can receive tax benefits from temporary and permanent easements from land that may have been providing no other value.

Often, *utility corridors* provide opportunities for greenway easements as thoroughways have already been created. Sometimes the utility companies lease the land they are using. These will need to be looked into on a case-by-case basis. Existing sewer easements provide the best opportunity because they are often located in gradually sloping areas and are wide enough for trail development.

Purchase of a Title is another means of land acquisition. A fee-simple purchase is the purchase of the land for its fair market value. A bargain sale is when the owner sells the property for less than full value in exchange for income tax credits. The purchase of a title can include the entire property or a portion of the property.

Rail Banking is a method to be used in areas where railroad lines are abandoned or soon to be abandoned. Rail banking is a process where rail corridors, bridges and trestles can be secured for use in the trail system. Generally the railroad will want compensation for this land, and it may be restored to rail use in the future.

Once the landowner has accepted the acquisition offer, transfer documents (titles, easements, etc.) are created in compliance with the format and procedures of the local courts. Papers are signed and filed with the court for recording in the deed books. The task is to acquire title, leases, easements and access agreements to parcels or portions of parcels for the greenway. The greenway boundaries can include only the property necessary for the trail, or additional property for to the overall character of the greenway or associated amenities.

In cases where the greenway follows a river or stream, it is recommended to acquire a permanent easement or acquire property from the edge of the trail to the water line. This protects and preserves land increasing the environmental quality of the greenway. It can often removes from a landowners responsibility property that is usually unusable for development.



Rohoic Creek area -photo by Tara Ciavarella

Maintenance

Chapter 5 of the DCR Greenways and Trails Toolbox gives information on how to operate and maintain a trail after construction is completed. Different trail types require different schedules of maintenance to keep them in fit condition. The Appomattox River Trail provides an amazing recreational, cultural, and economic resource and it needs to continue to be a beautiful and functional place to visit in order to succeed. Implementing a routine maintenance schedule, proper budgeting, and leveraging community volunteers, as described in this chapter, is key to the trail's long-term success.

Utilizing volunteer time is a valuable resource in trail maintenance and supervision. There are several volunteer trail groups in the region that do an excellent job of recruiting enthusiastic and knowledgeable volunteers, keeping them engaged, and promoting the local trail systems at the same time. Two examples of different types of volunteer organizations are the Friends of the James River Park System in Richmond Virginia (www.jamesriverpark.org/be-a-friend/volunteer.php) and the Crozet Trails Crew in Crozet Virginia (www.crozettrailscrew.org).

APPENDIX E

Area Trail Plans (descriptions and bibliography)



A. East Coast Greenway

Source: East Coast Greenway Virginia, East Coast Greenway Alliance, 2012

The East Coast Greenway, with a vision of traffic-free greenways creating safe, accessible routes for people of all ages and abilities, is a bike and pedestrian route running from Maine to Florida and is a mixture of on- and off-road trails. The existing bike route passes through Matoaca, crosses the Appomattox River on Pickett Avenue bridge, and continues south through Dinwiddie County. There is an alternate off-road proposed route through Chesterfield and Petersburg.

B. Chesterfield County Bikeway and Trail

Source: Chesterfield County Board of Supervisors, 2015

In 2015 the Chesterfield County Board of Supervisors approved a bikeways and trails plan as part of the County's Comprehensive Plan. These routes include existing and proposed on or along road routes and separate shared use paths, intended for all ages and abilities to bike and walk. The routes shown on the map are conceptual and actual alignment will be determined based on site conditions and other factors summarized in the Bikeways and Trails chapter of the Comprehensive Plan. An ordinance was passed in 2016 to require construction at time of development.

C. Petersburg Bike Routes

Source: City of Petersburg

Petersburg has designated bike routes, as defined by the City's GIS department.

D. VSU Campus Paths

Source: 2015 Campus Master Plan, Virginia State University

As part of the campus master plan, Virginia State University identified routes for safe pedestrian and bicycle circulation. Some of these routes are existing and some will be developed in the future.

E. Ettrick Sidewalk/Bikelane

Source: Ettrick VSU Special Area Plan, Chesterfield County Board of Supervisors, 2015

The Chesterfield County Board of Supervisors adopted the Ettrick VSU Special Area Plan in 2015. This plan provides detailed guidance and recommendations for the future growth and development of the community of Ettrick and Virginia State University (VSU). This plan identifies pedestrian and biking facilities on-road and trail development on the VSU Randolph Farm and along the Appomattox River.

F. Canal-Fleet Street Gateway Corridor

Source: City of Petersburg Comprehensive Plan, 2011

In their 2011 Comprehensive Plan, the City of Petersburg identified the route from the Fleet Street bridge up Canal Street to the Canal-High Street intersection as a corridor for focused improvement of vehicular flow patterns, new bike routes, pedestrian improvements, and landscaping.

G. Canal Heritage Art Walk

Source: Battersea Rising, Quality of Life Plan, Virginia Local Initiative Support Corporation in association with Pathways, 2010

The Battersea Rising plan conducted an assessment of the Petersburg Battersea neighborhood using resident input to establish goals and identify solutions that could revitalize the neighborhood. One of the future projects identified was to develop a walking path along the historic canal way through the neighborhood. The path will be a location for the placement of thematic public art creating wayside locations for interpreting the canal and the railroad's history.

H. Pocahontas Island Historical Trail

Source: Pocahontas Island Neighborhood Plan, City of Petersburg, 2014

Petersburg is working towards revitalizing the city, focusing in part on the historic harbor as a redevelopment district. In 2014 VCU Planning Department prepared the Pocahontas Island Neighborhood Plan for the City of Petersburg. This

plan outlines the a plan for dredging the historic harbor and redeveloping the old industrial district. As part of this plan, an interpretive historic walking trail will be developed through the island.

I. John J. Radcliffe Conservation Area Trail

Source: Lower Appomattox Trail Plans, Chesterfield Parks & Recreation, 2016

The John J. Radcliffe Conservation Area is an 87 acre woodland park just below the Brasfield Dam. The site contains the Appomattox River Canoe Launch and 1.5 miles of trail and over 500 feet of elevated boardwalk through swampland and along the Appomattox River.

J. Lower Appomattox River Trail

Source: Greenway and Blueway Concept Plan for the Lower Appomattox River Corridor, Community Design Assistance Center of Virginia Polytechnic Institute and State University, 2001

FOLAR, the Friends of the Lower Appomattox River, is an non-profit organization developing a series of trails along the Appomattox River. The Lower Appomattox River Trail runs along the south bank, and follows the historic canal for a section. The trail is a predominately a multi-use trail. The section of trail on Pocahontas Island in Petersburg is known as the Appomattox River Heritage Trail. In conjunction with the Crater Planning District, FOLAR's long term plan is to extend the trail along the entire length of the lower Appomattox River from the Brasfield Dam to City Point Park in Hopewell.

K. Appomattox River Trail at Ettrick VSU Trailhead

Source: Lower Appomattox Trail Plans, Chesterfield Parks & Recreation, 2016

A trailhead and trail through the VSU Randolph Farm currently exist, with plans to extend the trail along the river bank upstream to the edge of the VSU Trail Park and downstream to connect with Chesterfield Avenue.

L. C.H.A.R.T.S. Trail

Source: City of Colonial Heights

The Colonial Heights Appomattox River Trail System (CHARTS) is a greenway along the Appomattox River from Roslyn Landing Park to the western city boundary, approximately two miles in length.

M. Swift Creek Trail

Source: Lower Appomattox Trail Plans, Chesterfield Parks & Recreation, 2016

The Chesterfield County Parks and Recreation Department's Lower Appomattox Trail Plans proposed walking trail connecting Swift Creek Conservation Area with R. Garland Dodd Park.

N. Appomattox River Regional Park Trails

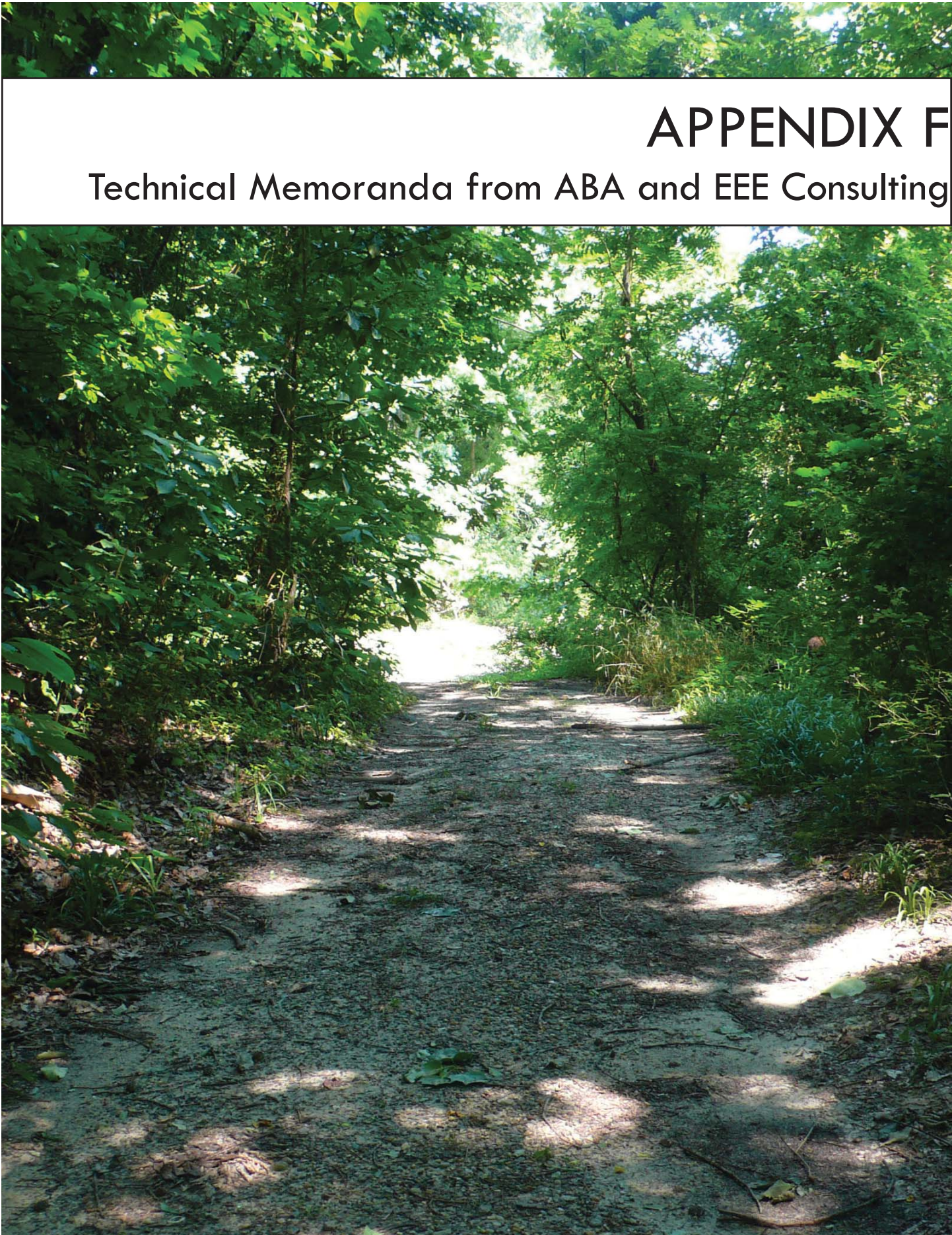
Source: Prince George County

This 67 acre park has hiking trails, a canoe launch, and picnic facilities and is maintained by the Prince George Parks and Recreation Department in partnership with FOLAR. There is a private access trail to the park for the residents of the Cameron's Landing development on the east side of I-295 from the park.

O. Hopewell Riverwalk

Source: City of Hopewell

The City of Hopewell is developing a riverfront trail connecting Festival Park below the library to the Hopewell City Marina.



APPENDIX F

Technical Memoranda from ABA and EEE Consulting

CIVIL FINDINGS - APPOMATTOX RIVER TRAIL

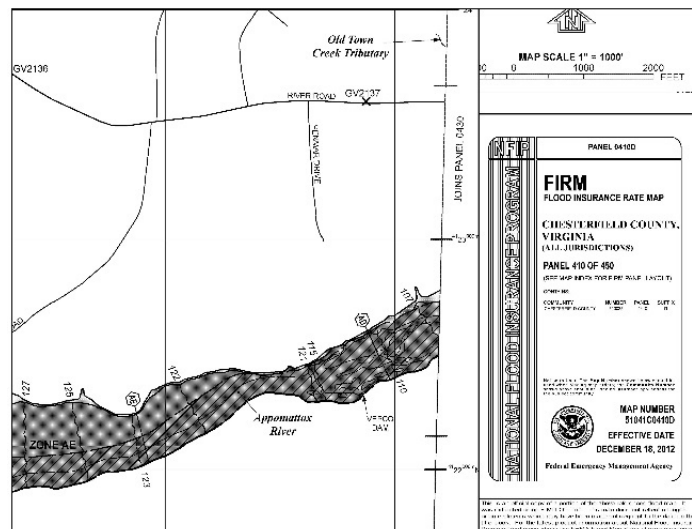
1. Penmar Drive Crossing

The crossing the Appomattox River at any location will involve potential impacts to the floodplain. The Federal Emergency Management Agency (FEMA) regulates the floodplain delineation along the river as well as its major tributaries. FEMA maintains the models, data and mapping of all floodplains in the United States and they require a detailed set of specific computer model calculations to justify any modifications to a floodplain. The process is called a “Letter of Map Revision” or LOMAR.

The best way to avoid any impacts to the floodplain is to span it completely. The river near Penmar Drive has a parallel canal along the southern bank. The photograph below shows part of the canal opposite Penmar Drive in September. The water is very low.



The photo shows the canal portion along the southern bank but does **not** show the entire floodplain. Spanning the Appomattox and its floodplain can result in a very long bridge. Typically, to reduce the bridge length, engineers will provide a plan that crosses the river at a narrow location and the alignment will be perpendicular to the floodplain. An excerpt from the FEMA map is provided below that shows the varying width of the floodplain in the area.



According to the FEMA map for this area, we do have a fairly narrow section of floodplain, approximately 1000 feet upstream of the Penmar Drive area. To span the area as shown on the master plan a bridge span of nearly 800 feet would be required whereas a bridge as little as 400 feet could span the area upstream. To span the 400 feet with a truss pedestrian bridge would likely cost between \$750K and \$1M whereas spanning the 800-foot section would likely require footings in the Appomattox River and cost between \$2M-\$2.5M.

2. Pickett Avenue Crossing

Pickett Avenue crosses the Appomattox River south of the village of Matoaca. The bridge is two lanes with a sidewalk on one side and is posted 40 mph. As shown in the photo below, the sidewalk along the southbound side is 5-foot wide with a 3-foot shoulder along the northbound side.



The approach roads to the north and south have 4 foot shoulders confined by guardrail. This existing crossing will accommodate pedestrians on one side but would require major modifications to accommodate any additional width.

3. Canal Tributary Crossing

The canal along the south bank of the Appomattox River, just east of Matoaca has suffered damage from a tributary flowing north into the canal. Approximately 500 feet to the south of the river is a parallel railroad. The tributary drains through a structure under the railroad and has created significant scour hole on the downstream side. The discharge and debris has washed down toward the canal and has likely caused maintenance issues with the trail along the river. The trail crossed the tributary with a small bridge, shown in the photograph below.



The best solution to remedy the erosion being caused by the broken canal is to restore the stream from the railroad tracks north to the river, approximately 500 feet. It may also be best to restore the stream approximately 200 feet west to ensure the erosion does not return. With the stream restoration a pedestrian crossing could be designed. The stream restoration is likely to cost between \$400 and \$500 per linear foot.

4. University Boulevard Crossing

The University Boulevard crossing of the Appomattox is considered a “Gateway” entry in the Petersburg Comprehensive Plan. It is also one of the main entrances to Virginia State University. Adjacent to the road, among the abandoned bridge piers is a historic “Civil War Trails” interpretive site. The site is striking and any modifications will invite input many interested parties.

The abandoned row of railroad piers is massive. The pier below is 40 feet tall with 11.5 feet of space between the legs. The crossing at the river is even higher.



The actual river crossing site is also remarkable as shown in the photo above. The channel is narrow, deep and lined with rock. The channel photograph is taken from an existing bridge only a few hundred feet upstream.

Pedestrians and bicycles can cross the river on the existing Fleet Street roadway bridge. Alternatively, a bridge may be feasible along the old rail alignment. Considering the elevation of the upstream bridge, a multiuse trail bridge could be located along the rail alignment, between the pier legs and a little higher than the existing roadway bridge. The 105-foot span bridge may be feasible with no impact to the existing floodplain.

5. Historic Crossing at Boat Ramp

Downstream from the Fleet Street crossing is a power substation and a boat ramp. Another set of abandoned railroad piers cross the river at this park area. The combination concrete and masonry piers are about 86 feet apart and each pier is about 8 foot by 16 foot in plan area as shown below.



The piers could be rehabilitated to support a light bridge and possibly avoid any impact to the Appomattox floodplain

6. Historic Crossing at Pocahontas Island

The abandoned rail crossing at Pocahontas Island is very similar to the boat ramp crossing. The piers are 5.5 feet by 25 feet by about 13 feet high, above the water level. The piers are concrete with cracks and effervescence and they are about 64 feet apart. All of the old rail crossings may be rehabilitated and refitted for a multi-use path. They may require additional permitting because of possible historic significance.



7. Route 144 Crossing

Route 144 is Temple Avenue and it crosses the Appomattox downstream of Petersburg. The crossing is a 4-lane divided arterial with an ADT of 33,000 (2015) and a posted speed of 35 mph. An experienced bicyclist may be willing to cross the river using the bridges because the outside shoulders are 7.5 feet wide southbound and 9 feet wide northbound. Based on background research we have found the 1984 Environmental Impact Statement for the Temple Avenue Extension over the Appomattox River. In that report the Coast Guard required a 40-foot clear height from mean water elevation and the report identified that this minimum height would be provided. Therefore, we believe that a bridge underneath the Temple Ave bridge would not be practical. A crossing in this location would likely require the addition of a parallel pedestrian bridge.

8. I-295 Crossing

Interstate 295 crosses the Appomattox between Petersburg and Hopewell. The bridge could be used to support a pedestrian bridge underneath. Any modifications to the bridge will require approval from the FHWA and not diminish the function as a highway bridge. Any additional load added to the bridge will require structural calculations that demonstrate the capacity to support the load.



In addition, as shown in the photograph, the shipping channel is designated and marked at the bridge high point. Any impacts or reductions in clearance will require approval from the Coast Guard.

9. Trail Extension along I-295

Appomattox River Regional Park is located on the southwest quadrant of I-295 and the Appomattox River. The residential area on the other side of the interstate is connected to the park via a trail that passes under the I-295 bridge. The Appomattox Trail could tie in with the existing trail to provide some desirable connectivity.

Interstate 295 is a limited access facility. The limited access boundary is typically identified by a limited access fence. The Cameron's Landing subdivision has provided the trail facility along a maintenance easement between the limited access fence and a privacy fence across the back lot lines of several lots. The trail connects the park, under the bridge, along I-295 to a residential road in the subdivision. The easement along the interstate is shown in the photograph below.



Review of the subdivision parcels in Cameron's Landing where there is the existing trail shows lots with shallow back yards such that the trail can be placed between the limited access fence and residential privacy fences. The lots further south of this trail do not have these shallow lots and therefore any trail extension would need to be in the I-295 limited access right-of-way. Placing pedestrian facilities parallel to limited access roads and in limited access rights of way is not something that VDOT or FHWA does regularly, would require an exception to regulations, and would likely require fencing and guard rails to separate pedestrians from the interstate. We would not anticipate a high likelihood of success in pursuing this option. As an alternative, the subdivision streets could be marked to direct bicycles and pedestrians along a desirable route.

10. Bike Lane through Hopewell

If the Appomattox River Trail is to be contiguous with City Point Park it must go through Hopewell. We are proposing a route from Cameron's Landing, East along River Road, north on Mesa Drive and then east through town on West Broadway Avenue.

From Cameron's Landing Subdivision, near the Atwater Soccer Complex, River Road is already marked with bike lanes on both sides of the road, to Mesa Drive. Mesa Drive is a 4 lane urban section with sidewalks on both sides of the road. The lanes appear to be VDOT minimum 12-foot width lanes with a 2-foot utility strip and 4 foot sidewalks. Further, Mesa Drive appears to have significant utilities along the right-of-way and homes quite close to the road. A number of options could be feasible to add paths to this area:

1. Rebuild Mesa Drive Section – The sidewalks on both sides of Mesa Drive are narrow and not conducive to bike traffic. A potential solution could be to rebuild the road section and remove the sidewalk from one side and place a wider path on one side of Mesa Drive. Significant utility relocations would be required in this option

2. Restripe Mesa Drive and Add Shared Use Path in Lane – Mesa Drive could be restriped to provide a single travel lane in each direction with an opposable left turn lane in the middle. The vehicular traffic would be offset to the east or west and the fourth lane could be converted into a shared use path. If a simple striped lane is not desired, physical separations of the shared use path could be added which could range from plastic lane dividers to raising the lane up to sidewalk level.
3. Clean Up Existing Sidewalks – The existing sidewalks could be swept, patched, and repaired to provide a smooth clean walking surface. Also, the grass strips in this area are quite narrow so sidewalk could be placed directly against the curb to add some additional width to the pedestrian paths.

From Mesa, the route could continue through Hopewell via West Broadway Avenue. West Broadway is 48 feet between curb lines with 4 foot sidewalks on one or both sides of the street and carries an ADT of 7800 (2015). Parking lines the street on both sides of the road. Using VDOT standard 12 foot lanes and 8-foot wide parallel parking spaces it would be conceivable to restripe the road and maintain an 8-foot shared use path. The path could be at road grade or could be built up to provide a wider sidewalk. The typical section is shown below.



As an alternate, the bicycle route could cross through town on West City Point Road. West City Point Road is also 4 lanes wide, with a little less on-street parking and has an ADT of 7,000 (2015).

From West Broadway the route could continue through Hopewell via Appomattox Street. Appomattox Street has a nearly identical section to West Broadway and could be improved in the same manner.

Summary

Lower Appomattox River Heritage Trail Proposed Greenway - Master Plan

Summary and Key Points

Depending on the funding source for each trail section or phase, documentation may be required to satisfy the National Environmental Policy Act if federal funds are used. This project would likely qualify for a Programmatic Categorical Exclusion (PCE) or a Categorical Exclusion (CE) since the project should not involve significant environmental impacts or property acquisition. PCEs can typically be completed and approved in several weeks while CE's may take four to six months.

- Permitting

A Virginia Marine Resources Commission (VMRC) Sub-aqueous Bed Permit for the proposed work over the Appomattox River may be required. A VMRC permit requires submittal of a Joint Permit Application (JPA) and a minor Royalty Fee. A U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) may also be required depending on project impacts and the results of a wetland delineation that will identify the wetland boundaries within the project limits of disturbance. The request for the VMRC and NWP can be submitted in unison using the same JPA form. The wetland/stream impact thresholds for the NWP are up to ½ acre of non-tidal WOUS and up to 300 linear feet of stream channel. If the impacts to wetlands and streams are greater than these thresholds, the project may require an Individual Permit increasing costs and agency review time. Coordination with additional agencies (Department of Historic Resources, Department of Conservation and Recreation, Department of Game and Inland Fisheries, and the US Fish and Wildlife Service) will be conducted during this permitting process. It is our professional opinion that no major issues should result from this coordination since the project does not involve significant environmental impacts and that the project should qualify for a NWP. The review of the JPA by VMRC and USACE typically takes 45 to 60 days from submittal of a complete permit package.

- Threatened and Endangered Species

Of the documented species in the project area the northern long-eared bat (*Myotis septentrionalis*) is likely to require the highest level of permit coordination during the design and permitting phases of the project. There could potentially be a time-of-year restriction (April 15-October 15) placed on tree removal depending on the results of the coordination with the Department of Conservation and Recreation, Department of Game and Inland Fisheries, and the US Fish and Wildlife Service (USFWS).

- Cultural Resources

The project area is located in a region rich in cultural and architectural resources which may require additional studies to identify and assess these resources in order to satisfy Section 106 of the National Historic Preservation Act. This may require close coordination with the Department of Historic Resources (DHR) during the design/permitting phases. A Phase I Cultural Resource Survey will help determine the distribution of historic architectural and archaeological resources in the project area and whether the proposed project would impact these resources. Additional more intensive studies (Phase II and Phase III) could be required depending on the results of the Phase I study and the coordination efforts with DHR.

Five areas were identified along the trail network that may require additional studies and/or permitting before moving forward with trail construction. These areas are described in more detail in the Technical Memorandum dated October 2016. The table below provides a summary of the permits and studies that may be required for each of these areas.

TABLE 1: SUMMARY OF PERMITTING/STUDIES

Permits/Actions Likely Needed	Area 1	Area 2	Area 3	Area 4	Area 5
US Army Corps of Engineers (USACE)	Yes	Yes	Yes	Yes	Yes
Virginia Marine Resources Commission (VMRC)	Yes	No	No	No	No
Virginia Department of Environmental Quality (VDEQ)	No	No	No	No	No
Phase I Cultural Resource Survey	Yes	Yes	Possibly	Yes	Yes
Wetland Delineation and Jurisdictional Determination	Yes	Yes	Yes	Yes	Yes
Categorical Exclusion (CE)	Possibly	Possibly	Possibly	Possibly	Possibly
Remarks	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction for anadromous fish. Cultural Resources could be an issue.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing. Cultural Resources could be an issue.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing.

The impacts to protected resources is expected to be minimal from the proposed project and no fatal flaws were identified during the master planning process for the trail network. Early coordination with the resource agencies during the design phases of the project should be conducted to identify and avoid possible conflicts and/or project delays.

TECHNICAL MEMORANDUM
Lower Appomattox River Heritage Trail
Proposed Greenway - Master Plan
October 2016

1.0 Executive Summary

EEE Consulting, Inc. (EEE), under contract with Land Planning & Design Associates (LPDA), developed an environmental constraints assessment as a part of the master planning process for the proposed greenway and sidewalk trails located in the Lower Appomattox River Corridor. The Friends of the Lower Appomattox River Group (FOLAR) is proposing to construct/improve approximately 39 miles of sidewalks, greenways, and multi-use trails, creating a network of trails connecting existing parks throughout the region. As part of the master plan process, EEE is providing information concerning possible environmental constraints, as well as the permits and additional studies that may be required during the design/construction of the proposed trail system. Specifically, EEE looked at site location, topography, threatened and endangered species, wetlands and other Waters of the United States (WOUS), and cultural resources.

Summary and Key Points

Depending on the funding source for each trail section or phase, documentation may be required to satisfy the National Environmental Policy Act if federal funds are used. This project would likely qualify for a Programmatic Categorical Exclusion (PCE) or a Categorical Exclusion (CE) since the project should not involve significant environmental impacts or property acquisition. PCEs can typically be completed and approved in several weeks while CEs may take four to six months.

- *Permitting*

A Virginia Marine Resources Commission (VMRC) Sub-aqueous Bed Permit for the proposed work over the Appomattox River may be required. A VMRC permit requires submittal of a Joint Permit Application (JPA) and a minor Royalty Fee. A U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) may also be required depending on project impacts and the results of a wetland delineation that will identify the wetland boundaries within the project limits of disturbance. The request for the VMRC and NWP can be submitted in unison using the same JPA form. The wetland/stream impact thresholds for the NWP are up to ½ acre of non-tidal WOUS and up to 300 linear feet of stream channel. If the impacts to wetlands and streams are greater than these thresholds, the project may require an Individual Permit increasing costs and agency review time. Coordination with additional agencies (Department of Historic Resources, Department of Conservation and Recreation, Department of Game and Inland Fisheries, and the US Fish and Wildlife Service) will be conducted during this permitting process. It is our professional opinion that no major issues should result from this coordination since the project does not involve significant environmental impacts and that the project should qualify for a NWP. The review of the JPA by VMRC and USACE typically takes 45 to 60 days from submittal of a complete permit package.

- *Threatened and Endangered Species*

Of the threatened and endangered species listed in **Table 1** below, the northern long-eared bat is likely to require the highest level of permit coordination during the design and permitting phases of the project. There could be a time-of-year restriction placed on tree removal depending on the results of the coordination with the Department of Conservation and Recreation, Department of Game and Inland Fisheries, and the US Fish and Wildlife Service (USFWS).

TABLE 1: DOCUMENTED SPECIES

Scientific Name	Common Name	Legal Status	Primary Habitat	Remarks
<i>Picoides borealis</i>	Red-cockaded Woodpecker	FESE	Mature pine forests with longleaf pines averaging 80 to 120 years old and loblolly pines averaging 70 to 100 years old	Unlikely in project area.
<i>Acipenser oxyrinchus</i>	Atlantic Sturgeon	FESE	Juveniles stay in brackish waters before moving out into the ocean waters. Travel upstream to spawn.	May occur in Appomattox river during spawning run.
<i>Enneacanthus chaetodon</i>	Blackbanded Sunfish	SE	Largely restricted to acidic waters in weedy ponds and sluggish streams.	Unlikely in project area.
<i>Laterallus jamaicensis</i>	Black Rail	SE	Inhabits fresh and saline marshes, wet meadows and savannas.	Unlikely in project area.
<i>Myotis lucifugus lucifugus</i>	Little Brown Bat	SE	Inhabits buildings, caves, trees, rocks, and wood piles as roost sites.	May occur in project area.
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	FT	Winter: subterranean refuges; summer: woodlands with specific tree conditions, tend to use open waters for feeding.	May occur in project area.
<i>Corynorhinus rafinesquii macrotis</i>	Eastern Big-eared Bat	SE	Inhabits large hollow trees, buildings, attics, and caves.	May occur in project area.
<i>Perimyotis subflavus</i>	Tri-colored Bat	SE	Inhabits caves or mines and foliage during summer.	May occur in project area.
<i>Hyla gratiosa</i>	Barking Tree Frog	ST	Variety of wooded habitats but require fishless wetlands to breed.	Unlikely in project area.
<i>Falco peregrinus</i>	Peregrine Falcon	ST	Bridges, recesses in high cliffs and platforms, towers.	March through May brooding period.
<i>Lanius ludovicianus</i>	Loggerhead Shrike	ST	Inhabits open pastures or grasslands	Unlikely in project area.
<i>Lasmigona subviridis</i>	Green Floater	ST	Prefers smaller streams, pools with gravelly sandy bottoms.	Unlikely in project area.
<i>Lanius ludovicianus migrans</i>	Migrant Loggerhead Shrike	ST	Open country with scattered shrubs and trees.	Unlikely in project area.
<i>Aeschynomene virginica</i>	Sensitive Joint Vetch	FT	Fresh to slightly brackish tidal river systems, within the intertidal zone where populations are flooded twice daily.	Unlikely in project area.

Key: FT = federal threatened; FE = federal endangered; SE = state endangered; ST = state threatened.

- *Cultural Resources*

The project area is located in a region rich in cultural and architectural resources which may require additional studies in order to identify and assess these resources in order to satisfy Section 106 of the National Historic Preservation Act. This may require close coordination with the Department of Historic Resources (DHR) during the design/permitting phases. A Phase I Cultural Resource Survey will help determine the distribution of historic architectural and archaeological resources in the project area and whether the proposed project would impact these resources. Additional more intensive studies (Phase II and Phase III) could be required depending on the results of the Phase I study and the coordination efforts with DHR.

2.0 Methodology

EEE reviewed available information to identify potential environmental constraints associated with the proposed trail network. LPDA provided mapping illustrating the location of the trail network, including five (5) areas of concern, which are illustrated on **Figure 1**. The environmental constraints developed by EEE for technical consideration are based solely on review of existing information and do not include any field work or detailed supplemental research.

General Project Area Constraints

Jurisdictional Waters of the U.S.

EEE conducted a desktop review to determine the approximate locations of jurisdictional wetlands and other WOUS (e.g., streams, open water, etc.) within the proposed project area. WOUS are regulated under Section 404 and 401 of the Clean Water Act by the USACE and U.S. Environmental Protection Agency. The purpose of this wetlands review was to provide a planning level estimate of potential wetlands and other WOUS that may occur within the project area and the permit that may be required to impact these resources. This reconnaissance is based on a cursory review of the project area and does not constitute a formal delineation, nor does it constitute a jurisdictional determination from the USACE. The project area contains palustrine forested (PFO) wetlands, palustrine scrub-shrub (PSS) wetlands, palustrine emergent (PEM) wetlands, palustrine unconsolidated bottom (PUB) freshwater ponds, one lacustrine unconsolidated bottom (LUB) lake, approximately 20 jurisdictional streams and traditionally navigable waters (Appomattox and James Rivers).

Rare, Threatened, and Endangered Species Database Review

EEE reviewed available online databases for threatened and endangered species to determine whether known occurrences of protected species are present within the vicinity of the project area. Species lists were generated from the state online databases provided by the Department of Conservation and Recreation Division of Natural Heritage (DNH) and the Virginia Department of Game and Inland Fisheries (DGIF) Fish and Wildlife Information Service. A search of the USFWS' Information, Planning, and Conservation (IPaC) System web site was also conducted. The database research results are provided in **Appendix A**.

The potential presence of listed threatened and endangered, candidate, and proposed species with legal protection should be taken into consideration for project planning and timely permit acquisition. **Table 1** provides a summary of the documented species within the project area.

Cultural Resources

EEE reviewed the information provided by DHR's online database. The list of known cultural resources in the region is extensive and more detail is provided in **Section 3**. The cultural resource sites within the project area that are eligible for listing on the National Register of Historic Places (NRHP) are provided in **Appendix B**.

3.0 Identified Areas of Concern

Area 1

Area 1 consists of constructing a pedestrian bridge across the Appomattox River, linking two existing trails along the Appomattox River below Lake Chesdin dam at the Appomattox Riverside Park (see **Figures 2 and 3**). The property for the park was donated by Dominion Virginia Power and is now controlled by the City of Petersburg. It consists of 137 acres of predominately undeveloped open wooded space containing hiking and biking trails, and access to the river for boating and fishing.

Environmental Permits and Wetland/Streams

A VMRC subaqueous bed permit may be required for the crossing of the Appomattox. Depending on the construction methods and bridge footprint Area 1 may also require a USACE NWP 42 for Recreational Facilities. The desktop review of the project area indicates that impacts associated with the bridge would be minimal and well below the NWP thresholds.

Cultural Resources

A Phase I survey for cultural and architectural resources may be required due to the historical significance of the project area. According to the DHR database, the Upper Appomattox Canal (DHR ID: 123-0084) is considered potentially eligible for listing in the NRHP for its historic context of technology/engineering and transportation/communication. A description of the resource is provided below.

- Architectural description: The Appomattox was possibly cleared for bateau navigation sometime after 1745, when an act was passed to that effect. The Upper Appomattox Company, incorporated in 1795, built by 1816 the 5 1/2 mile Upper Appomattox Canal from the head of the falls to a basin in Petersburg, and constructed numerous wing-dams from Farmville down to the canal, a distance of 100 miles. Works on the canal included four well-built stone locks connected in staircase fashion; a stone-arch aqueduct; several stone culverts and the basin. The four mills along the river had locks in their dams; two of these were of stone. The navigation was rebuilt in the 1830's under the engineer John Couty, as a lock-and-dam system, still for poled bateaux, involving 3 1/2 more miles of canal and 13 more wooden locks. In one section, the wing-dams were retained and can still be seen. Parts of the navigation continued to be used into the 1890s. Today, little remains of the wooden locks and the mills. Over 10 miles of the navigation, including the best canal works and the only remaining surviving single stone lock, has been inundated.

Additional more intensive studies (Phase II/III surveys) may be required to determine the project impacts to the identified resources. This would be determined during the permitting and coordination process.

Threatened and Endangered Species

Depending on the proposed construction methods, there could be a time-of-year restriction placed on instream work for anadromous fish (i.e., those saltwater species which seasonally migrate upstream to freshwater to spawn) species and for the Atlantic sturgeon spawning months from February 15 through June 30. NWP have regional conditions requiring all anadromous fish areas documented by the Virginia DGIF be subject to time-of-year restrictions to protect fisheries resources. Early coordination in the permit process could reduce or eliminate uncertainty regarding the time-of-year permitting conflicts.

Impacts to other species in **Table 1** would be unlikely and additional surveys and/or clearances would not be anticipated for project advancement.

Area 2

Area 2 proposes to construct a multi-use trail through an undeveloped parcel along the southern bank of Lieutenant Run, a tributary to the Appomattox River near I-95 (see **Figures 4 and 5**). The area is located between an existing wastewater treatment plant and the CSX railroad and consists primarily of undeveloped wooded areas and a large wetland complex associated with Lieutenant Run.

Environmental Permits and Wetland/Streams

Depending on the location of the multi-use trail, a USACE NWP 42 for Recreational Facilities may be required due to the potential impacts to the wetlands and stream located in this area. Review of the national wetland inventory mapping indicates that the potential impacts associated with the multi-use trail would be minimal and well below the NWP thresholds mentioned above. No VMRC subaqueous bed permit would be required for crossing Lieutenant Run because the drainage area is less than five square miles.

Cultural Resources

A Phase I survey for cultural and architectural resources may be required due to the historical significance of the project area. According to the Virginia DHR database, the Petersburg Battlefield II (DHR ID: 123-5025) is considered potentially eligible for listing in the NRHP for its historic context of military/defense. A description of the resource is provided below.

- Site description: Petersburg's 10-month siege took place over a county-sized area east, south, and southwest of the city. Petersburg National Battlefield preserves much of the siege times to the east - including the initial assaults, the Crater, and Fort Stedman. A swath of commercial and residential development has eradicated nearly all historic resources along Crater Road, the main road to the south. Many fortifications southwest of the city are preserved by the National Park Service (NPS) or the City of Petersburg on land transferred by the NPS.

Due to the minimal disturbance associated with the construction of a multi-use trail and the heavy development experienced in the immediate area of the proposed trail, EEE anticipates that the project would not adversely affect the eligible resource. This would be determined during the permitting and coordination process and additional studies could be required.

Threatened and Endangered Species

Depending on the extent of tree removal required for the multi-use trail, there could be a time-of-year restriction placed on the tree removal due to the potential presence of the northern long-eared bat. The time-of-year restriction is typically April 15 through September 15, but could be reduced or removed during the permitting process and consultation/coordination with the USFWS. In addition, surveys for the bats could be conducted within the project area to avoid the time-of-year restrictions if project scheduling becomes an issue. Impacts to other species in **Table 1** would be unlikely and EEE does not anticipate any additional surveys or clearances for project advancement.

Area 3

Area 3 consists of the construction of an unpaved multi-use trail through an undeveloped parcel north of Route 144 (Temple Avenue), near the northern bank of the Appomattox River (see **Figure 4**). The area is located between Temple Avenue, Elmont Drive to the north, and Conduit Road to the west. The area

consists primarily of undeveloped wooded areas with an extensive wetland complex associated with Old Town Creek, a tributary to the Appomattox River.

Environmental Permits and Wetland/Streams

Depending on the location of the multi-use trail, a USACE NWP 42 for Recreational Facilities may be required due to the potential impacts to the wetlands and Old Town Creek in this area. Depending on the construction methods and design of the trail through this area, impacts could be closer to the permit thresholds if the trail is not elevated for the crossing of Old Town Creek and the associated wetlands. Mitigation for the forested wetland impacts could also be required if the trail is not elevated, increasing project costs. Review of the national wetland inventory mapping indicates an extensive forested wetland feature along Old Town Creek. Once the trail is to the north of Old Town Creek there are steeper slopes that the trail could utilize avoiding additional wetland impacts. No VMRC subaqueous bed permit would be required for the crossing Old Town Creek because the drainage area is less than five square miles.

Cultural Resources

A Phase I survey for cultural and architectural resources may be required due to the historical significance of the project area. According to the Virginia DHR database, there are no known historic resources located within the area. The Phase I survey could potentially uncover unknown resources but due to the minimal disturbance associated with the construction of a multi-use trail. EEE anticipates that the project would not adversely affect any resources uncovered.

Threatened and Endangered Species

Depending on the extent of tree removal required for the multi-use trail, there could be a time-of-year restriction placed on the tree removal due to the potential presence of the northern long-eared bat. The time-of-year restriction is typically April 15 through September 15, but could be reduced or removed during the permitting process and consultation with the USFWS. In addition, surveys for the bats could be conducted within the project area to avoid the time-of-year restrictions if project schedule becomes an issue. Impacts to other species in **Table 1** would be unlikely and EEE does not anticipate any additional surveys or clearances for project advancement.

Area 4

Area 4 consists of the construction of an unpaved multi-use trail through an undeveloped parcel north of River Road along Cabin Creek in Hopewell (see **Figures 6 and 7**). The area is located north of River Road and west of a CSX railroad. It consists primarily of undeveloped wooded areas and forested wetlands associated with Cabin Creek, a tributary to the Appomattox River.

Environmental Permits and Wetland/Streams

Depending on the location of the multi-use trail, a USACE NWP 42 for Recreational Facilities may be required due to the potential impacts to the wetlands associated with Cabin Creek. Review of the national wetland inventory mapping indicates that the potential impacts associated with the multi-use trail would be minimal and well below the NWP thresholds. No VMRC subaqueous bed permit would be required for the crossing of Cabin Creek because the drainage area is less than five square miles.

Cultural Resources

A Phase I survey for cultural and architectural resources may be required due to the historical significance of the project area. According to the Virginia DHR database, there are no known historic resources located within this area. A Phase I survey could potentially uncover unknown historic resources but due to the

minimal disturbance associated with the construction of a multi-use trail EEE, anticipates the project would not have an adverse effect.

Threatened and Endangered Species

Depending on the extent of tree removal required for the multi-use trail, there could be a time-of-year restriction placed on the tree removal due to the potential presence of the northern long-eared bat. The time-of-year restriction is typically April 15 through September 15, but could be reduced or removed during the permitting process and consultation/coordination with the USFWS. In addition, surveys for the bats could be conducted within the project area to avoid the time-of-year restrictions if project schedule becomes an issue. Impacts to other species in **Table 1** would be unlikely and EEE does not anticipate any required surveys or clearances for project development.

Area 6

Area 6 consists of the construction of an unpaved multi-use trail through an undeveloped parcel north of West Broadway in Hopewell (see **Figures 7 and 8**). The area is located north of West Broadway and will provide access to Riverside Park. The area consists primarily of undeveloped wooded areas with wetlands associated with two unnamed tributaries to the Appomattox River.

Environmental Permits and Wetland/Streams

Depending on the location of the multi-use trail, a USACE NWP 42 for Recreational Facilities may be required due to the potential impacts to wetlands associated with two unnamed tributaries. Review of the national wetland inventory mapping indicates that the potential impacts associated with the multi-use trail would be minimal and well below the NWP thresholds. No VMRC subaqueous bed permit would be required for the creek crossings because the drainage areas of these two tributaries are less than five square miles.

Cultural Resources

A Phase I survey for cultural and architectural resources may be required due to the historical significance of the project area. According to the Virginia DHR database, there are no known historic resources located within this area. The Phase I survey could potentially uncover unknown historic resources but due to the minimal disturbance associated with the construction of a multi-use trail, EEE anticipates the project would not have an adverse effect.

Threatened and Endangered Species

Depending on the extent of tree removal required for the multi-use trail, there could be a time-of-year restriction placed on tree removal due to the potential presence of the northern long-eared bat. The time-of-year restriction is typically April 15 through September 15, but could be reduced or removed during consultation/coordination with the USFWS during the permitting process. Surveys for the bats could be conducted within the project area to avoid the time-of-year restrictions. Impacts to other species in **Table 1** would be unlikely and EEE does not not anticipate any required surveys or clearances for project development.

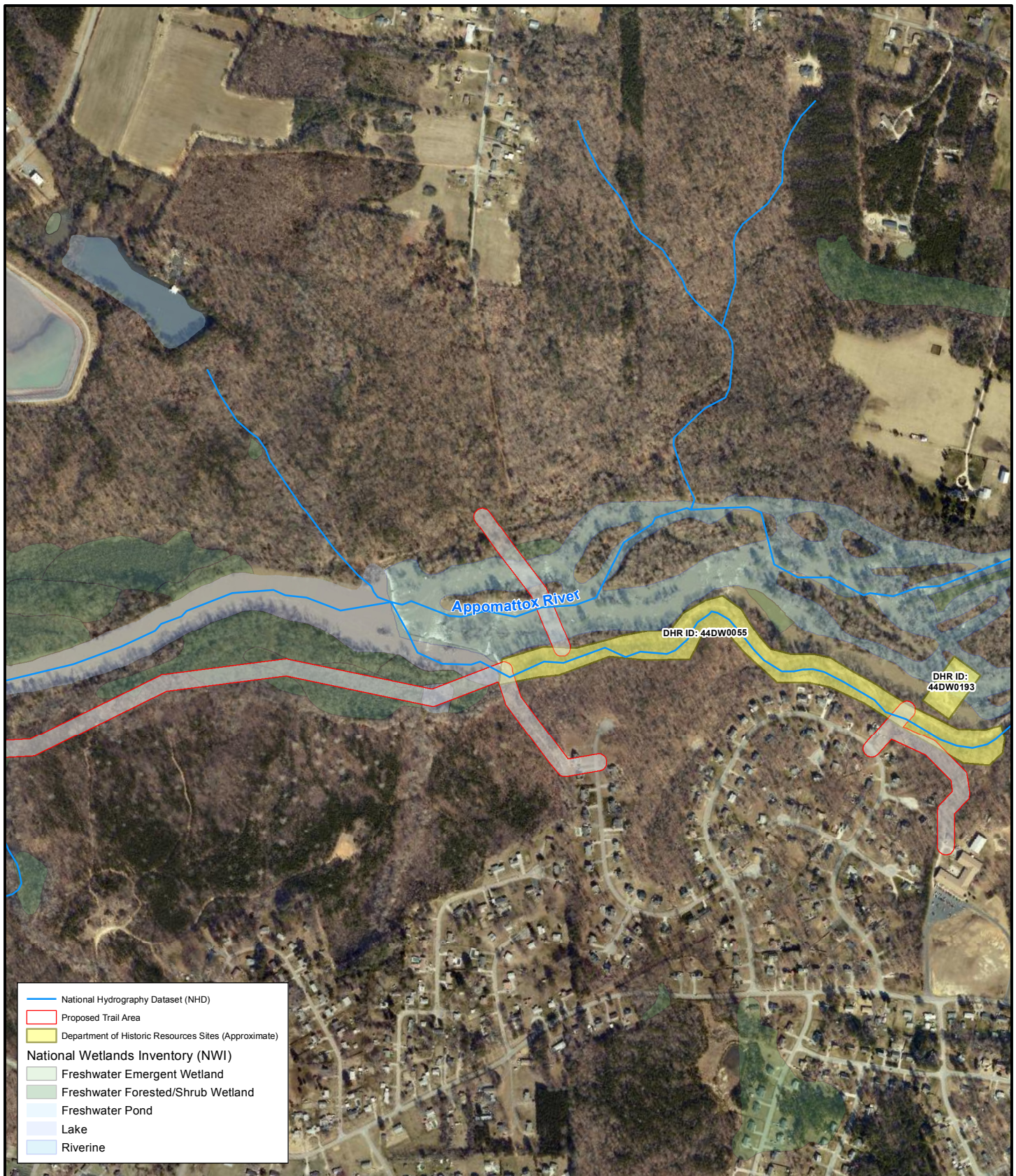
Table 2 summarizes the environmental permits and additional actions that may be required if future design and development of the trail network is implemented. This summary is provided as a guide for future decisions concerning the master plan and trail development.



TABLE 2: SUMMARY OF PERMITTING

Permits/Actions Likely Needed	Area 1	Area 2	Area 3	Area 4	Area 5
US Army Corps of Engineers (USACE)	Yes	Yes	Yes	Yes	Yes
Virginia Marine Resources Commission (VMRC)	Yes	No	No	No	No
Virginia Department of Environmental Quality (VDEQ)	No	No	No	No	No
Phase I Cultural Resource Survey	Yes	Yes	Possibly	Yes	Yes
Wetland Delineation and Jurisdictional Determination	Yes	Yes	Yes	Yes	Yes
Categorical Exclusion (CE)	Possibly	Possibly	Possibly	Possibly	Possibly
Remarks	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction for anadromous fish. Cultural Resources could be an issue.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing. Cultural Resources could be an issue.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing.	The project should qualify for a CE if federal funds are used. Possible time-of-year restriction on tree clearing.





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Prepared by JLL, 10-12-2016
Sources: 2013 VBMP Infrared Aerial Imagery, National Wetlands Inventory (NWI),
Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

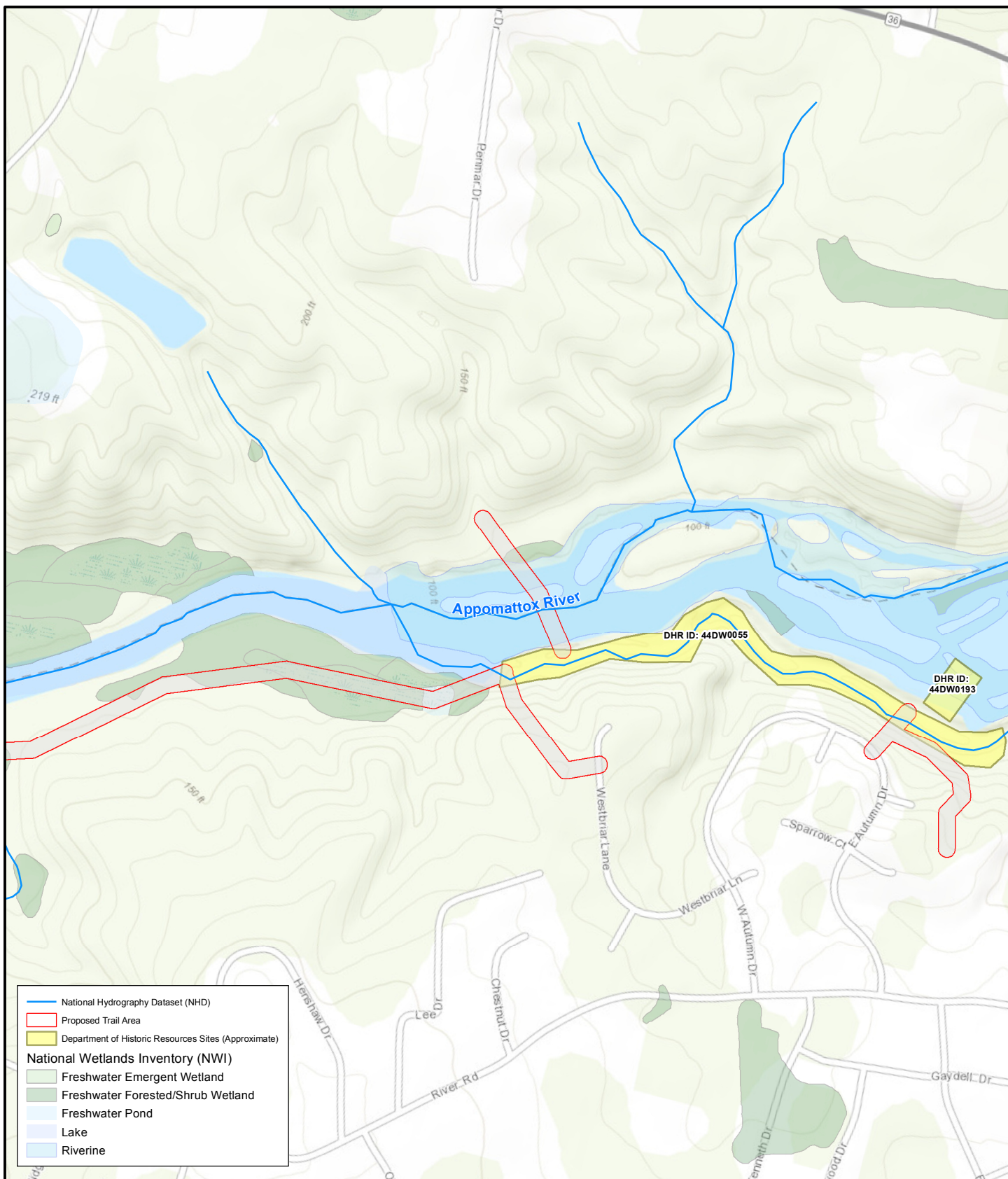


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FIGURE 2
AREA 1 OF 5
APPOMATTOX RIVER HERITAGE TRAIL

0 500 1,000
Feet

Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



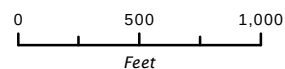
EEE Consulting, Inc.
Environmental, Engineering and Educational Solutions

Prepared by JLL, 10-12-2016
Sources: ESRI Topographic Base Mapping, National Wetlands Inventory (NWI),
Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

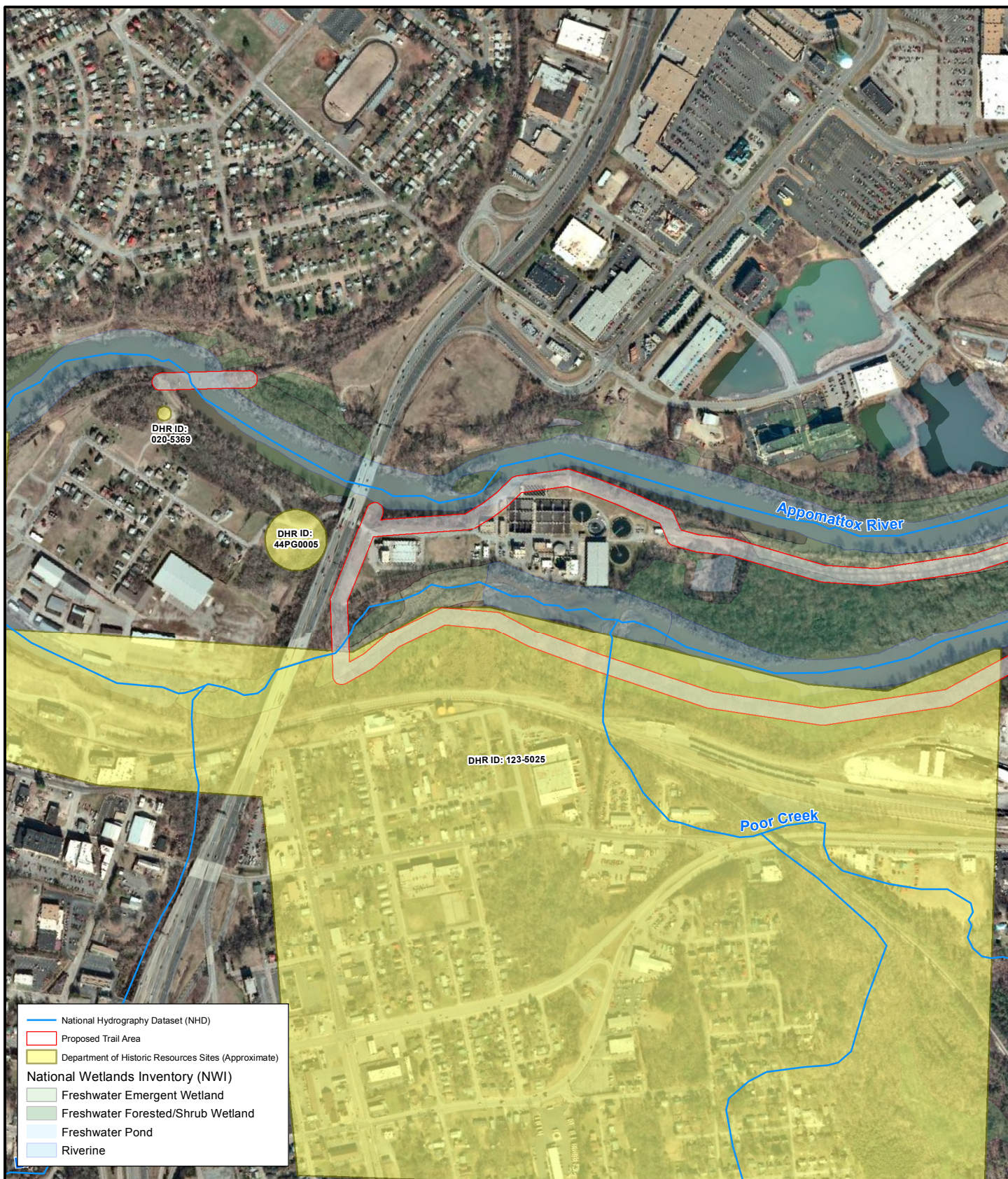


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FIGURE 3
AREA 1 OF 5
APPOMATTOX RIVER HERITAGE TRAIL



Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



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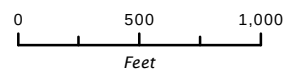
Prepared by JLL, 10-12-2016
Sources: 2013 VBMP Infrared Aerial Imagery, National Wetlands Inventory (NWI),
Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



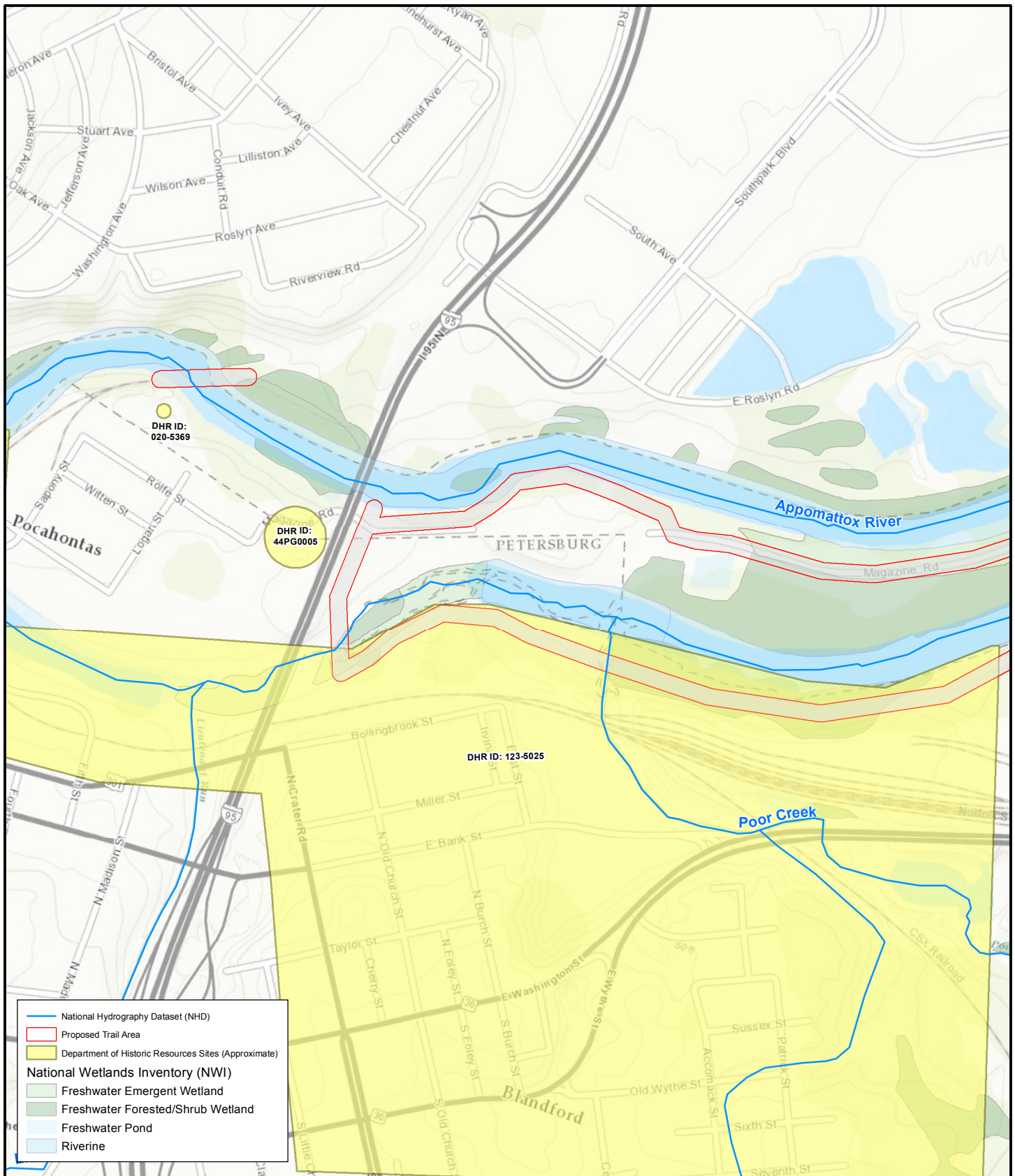
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FIGURE 4
AREA 2 OF 5

APPOMATTOX RIVER HERITAGE TRAIL



Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



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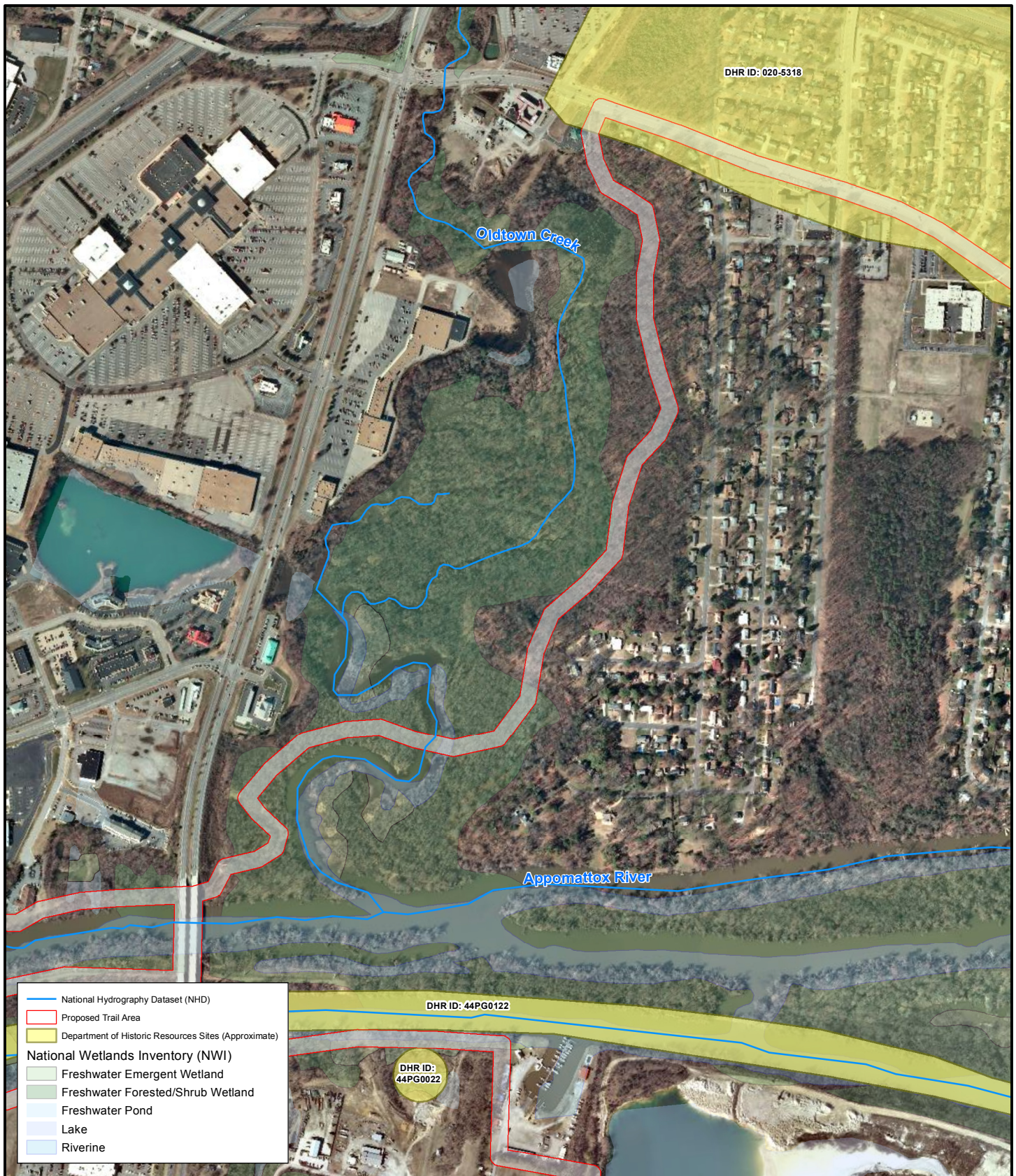
Prepared by JLL, 10-12-2016
Sources: ESRI Topographic Base Mapping, National Wetlands Inventory (NWI),
Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

Proj. 16-106

FIGURE 5
AREA 2 OF 5
APPOMATTOX RIVER HERITAGE TRAIL

0 500 1,000
Feet

Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



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Prepared by JLL, 10-12-2016
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Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

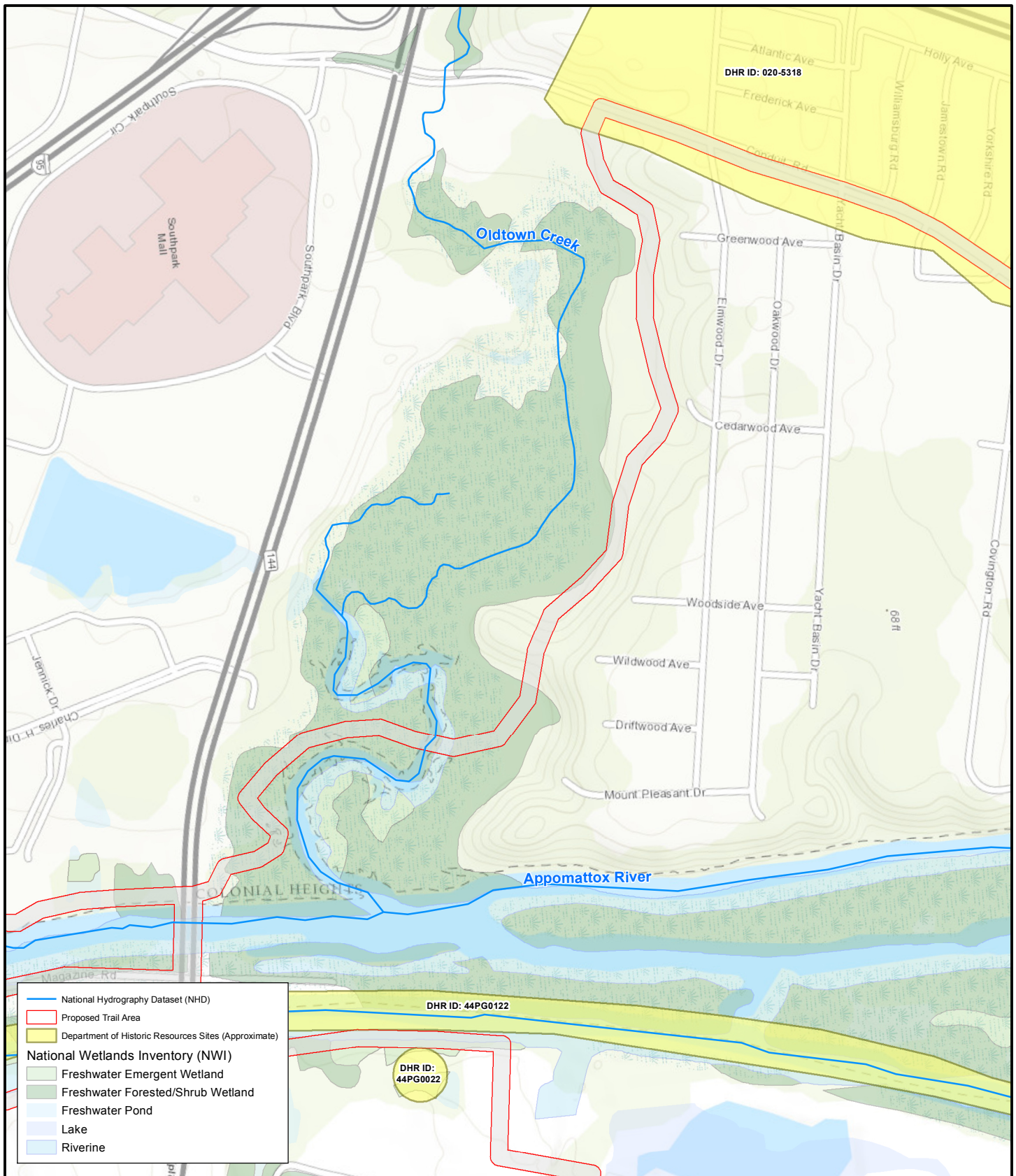


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FIGURE 6
AREA 3 OF 5
APPOMATTOX RIVER HERITAGE TRAIL

0 500 1,000
Feet

Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



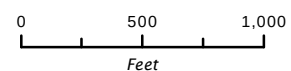
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Prepared by JLL, 10-12-2016
Sources: ESRI Topographic Base Mapping, National Wetlands Inventory (NWI),
Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

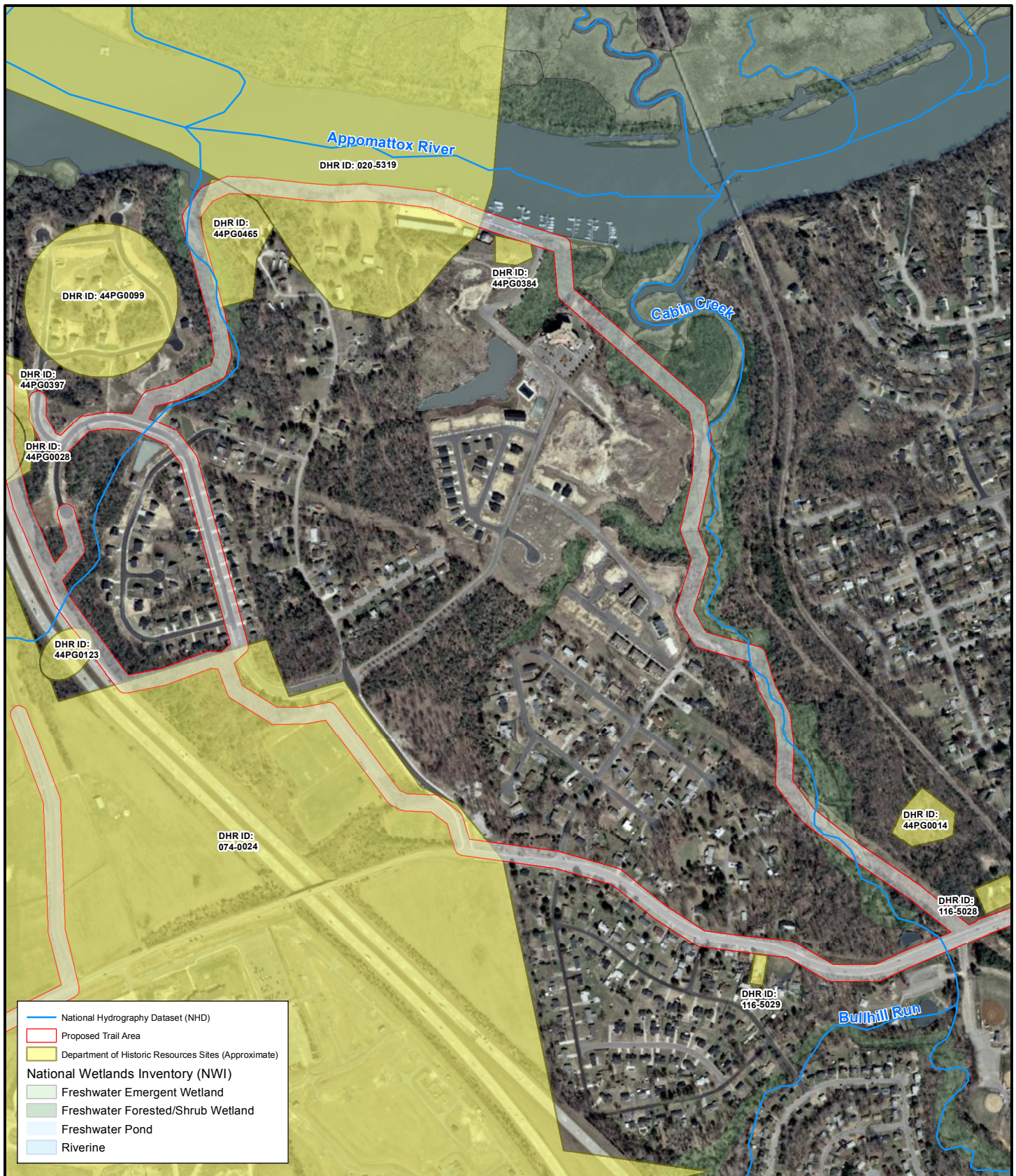


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FIGURE 7
AREA 3 OF 5
APPOMATTOX RIVER HERITAGE TRAIL



Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



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Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

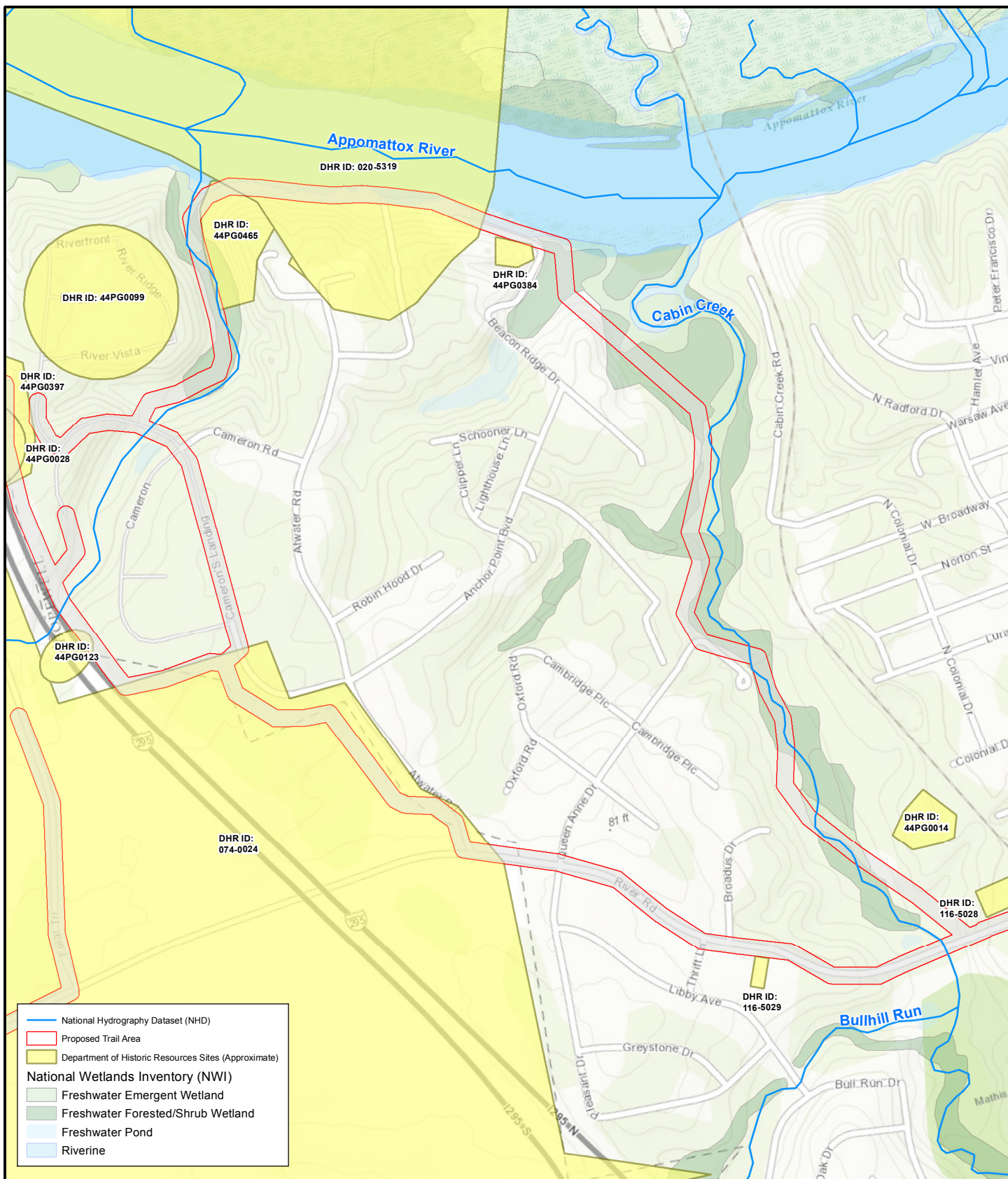


Proj. 16-106

FIGURE 8
AREA 4 OF 5
APPOMATTOX RIVER HERITAGE TRAIL

0 500 1,000
Feet

Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



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 Sources: ESRI Topographic Base Mapping, National Wetlands Inventory (NWI),
 Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
 Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

Proj. 16-106

FIGURE 9
AREA 4 OF 5

APPOMATTOX RIVER HERITAGE TRAIL

0 500 1,000
 Feet

Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



EEE Consulting, Inc.
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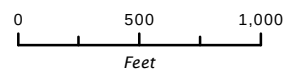
Prepared by JLL, 10-12-2016
Sources: 2013 VBMP Infrared Aerial Imagery, National Wetlands Inventory (NWI),
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Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet



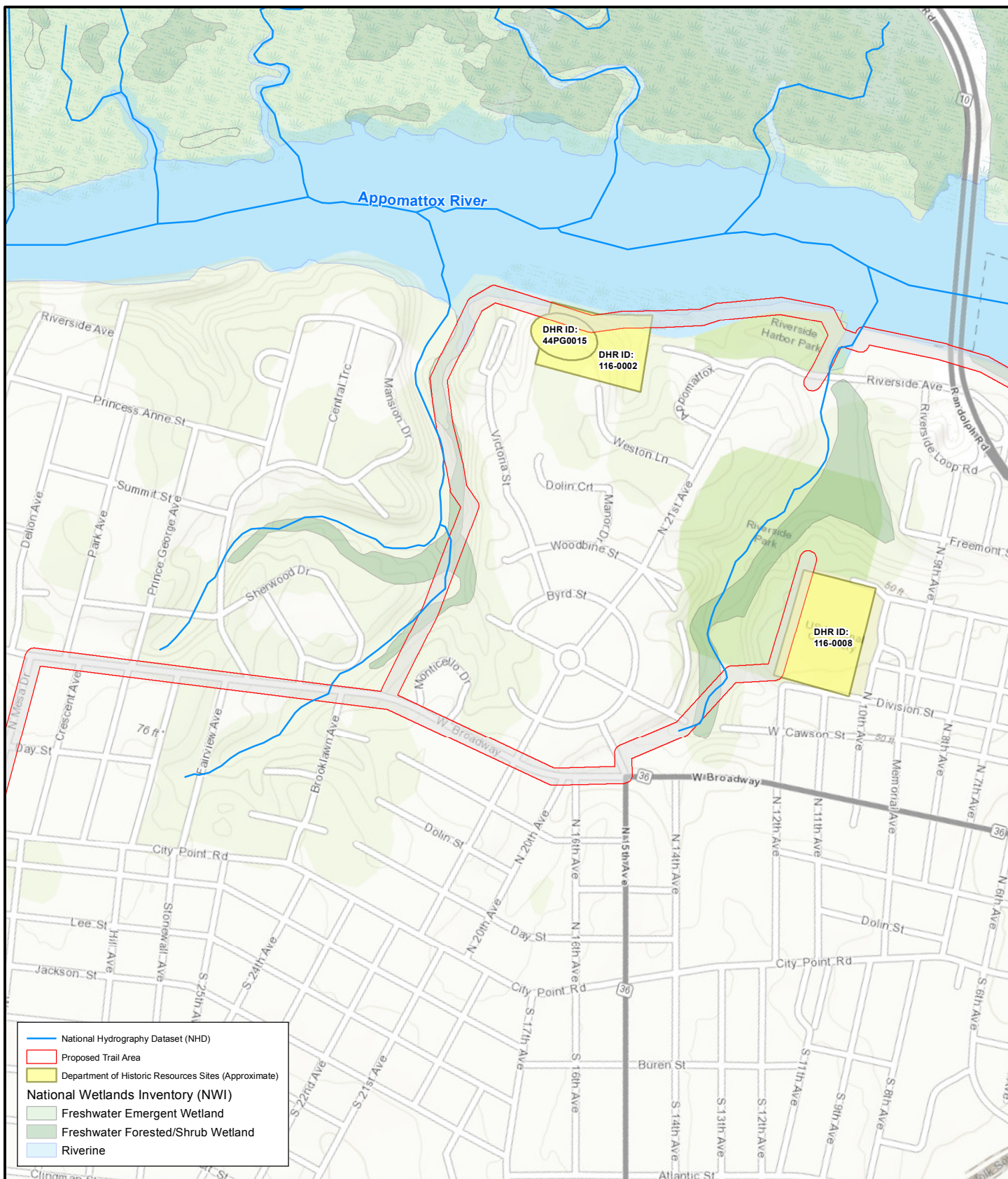
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FIGURE 10
AREA 5 OF 5

APPOMATTOX RIVER HERITAGE TRAIL



Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA



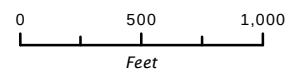
EEE Consulting, Inc.
Environmental, Engineering and Educational Solutions

Prepared by JLL, 10-12-2016
Sources: ESRI Topographic Base Mapping, National Wetlands Inventory (NWI),
Virginia Cultural Resource Information System (VCRIS), National Hydrography Dataset (NHD),
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

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FIGURE 11
AREA 5 OF 5

APPOMATTOX RIVER HERITAGE TRAIL



Chesterfield County, Petersburg, Colonial Heights and Hopewell, VA

Appendix A

Threatened and Endangered Species Database Information

IPaC Trust Resources Report

Generated October 07, 2016 12:53 PM MDT, IPaC v3.0.9

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



Table of Contents

IPaC Trust Resources Report	<u>1</u>
Project Description	<u>1</u>
Endangered Species	<u>2</u>
Migratory Birds	<u>3</u>
Refuges & Hatcheries	<u>5</u>
Wetlands	<u>6</u>

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

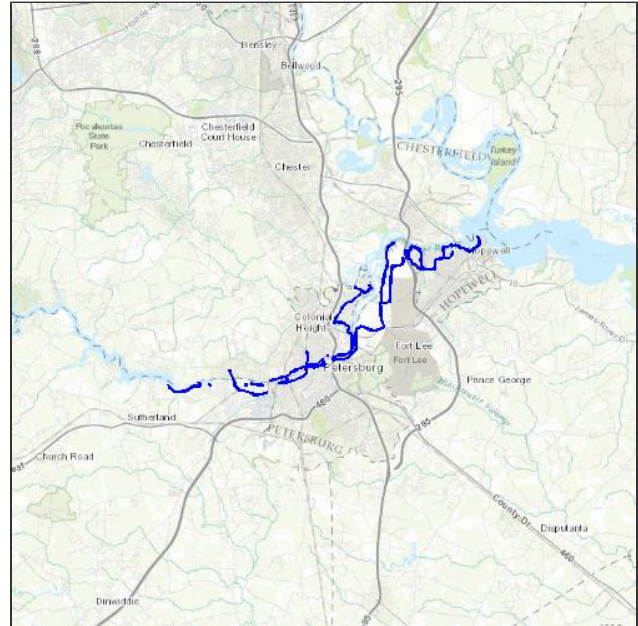


LOCATION

Virginia

IPAC LINK

[https://ecos.fws.gov/ipac/project/
F22WB-DCPB5-BDZBC-HGW3R-WVBP34](https://ecos.fws.gov/ipac/project/F22WB-DCPB5-BDZBC-HGW3R-WVBP34)



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[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 either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Flowering Plants

Sensitive Joint-vetch *Aeschynomene virginica* Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q24J

Mammals

Northern Long-eared Bat *Myotis septentrionalis* Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.^[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data
<http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The following species of migratory birds could potentially be affected by activities in this location:

American Kestrel <i>Falco sparverius paulus</i>	Bird of conservation concern
Season: Year-round	
American Oystercatcher <i>Haematopus palliatus</i>	Bird of conservation concern
Season: Year-round	
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G8	
American Bittern <i>Botaurus lentiginosus</i>	Bird of conservation concern
Season: Wintering	
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3	
Bald Eagle <i>Haliaeetus leucocephalus</i>	Bird of conservation concern
Season: Year-round	
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008	

Black-billed Cuckoo *Coccyzus erythrophthalmus*

Season: Breeding

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HI

Bird of conservation concern

Fox Sparrow *Passerella iliaca*

Season: Wintering

Bird of conservation concern

Kentucky Warbler *Oporornis formosus*

Season: Breeding

Bird of conservation concern

Least Bittern *Ixobrychus exilis*

Season: Breeding

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B092

Peregrine Falcon *Falco peregrinus*

Season: Wintering

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0FU

Bird of conservation concern

Pied-billed Grebe *Podilymbus podiceps*

Season: Year-round

Bird of conservation concern

Prairie Warbler *Dendroica discolor*

Season: Breeding

Bird of conservation concern

Prothonotary Warbler *Protonotaria citrea*

Season: Breeding

Bird of conservation concern

Purple Sandpiper *Calidris maritima*

Season: Wintering

Bird of conservation concern

Red Knot *Calidris canutus rufa*

Season: Wintering

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0DM

Bird of conservation concern

Red-headed Woodpecker *Melanerpes erythrocephalus*

Season: Year-round

Bird of conservation concern

Rusty Blackbird *Euphagus carolinus*

Season: Wintering

Bird of conservation concern

Sedge Wren *Cistothorus platensis*

Season: Migrating

Bird of conservation concern

Short-eared Owl *Asio flammeus*

Season: Wintering

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HD

Bird of conservation concern

Snowy Egret *Egretta thula*

Season: Breeding

Bird of conservation concern

Wood Thrush *Hylocichla mustelina*

Season: Breeding

Bird of conservation concern

Worm Eating Warbler *Helmitheros vermivorum*

Season: Breeding

Bird of conservation concern

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

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](#).

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.

This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

[PEM1Ah](#)

[PEM1C](#)

[PEM1Ch](#)

[PEM1Eh](#)

[PEM1Fh](#)

[PEM1R](#)

Freshwater Forested/shrub Wetland

[PFO1/4C](#)

[PFO1/4Cx](#)

[PFO1/EM1R](#)

[PFO1/SS1R](#)

[PFO1A](#)

[PFO1Ah](#)

[PFO1C](#)

[PFO1Ch](#)

[PFO1Cx](#)

[PFO1D](#)

[PFO1E](#)

[PFO1Eh](#)

[PFO1F](#)

[PFO1R](#)

[PFO1S](#)

[PFO1T](#)

[PSS1/EM1R](#)

[PSS1/FO1R](#)

[PSS1E](#)

[PSS1R](#)

Freshwater Pond

[PUB/EM1T](#)

[PUBFx](#)

[PUBHh](#)

[PUBHx](#)

Lake

[L1UBHh](#)

Riverine

[R1EM2N](#)

[R1UBV](#)

[R1US3N](#)

[R2UBH](#)

VaFWIS Initial Project Assessment Report Compiled on 10/7/2016,[Help](#)

2:40:35 PM

Known or likely to occur within a **2 mile radius around point 37.2892222 -77.2745278**
 in **036 Charles City County, 041 Chesterfield County, 149 Prince George County, 670 Hopewell City, VA**

[View Map of
Site Location](#)

540 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 26) (26 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
040228	FESE	Ia	Woodpecker, red-cockaded	Picoides borealis		BOVA
010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus	Yes	BOVA,Habitat,SppObs
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
010347	SE	Ia	Sunfish, blackbanded	Enneacanthus chaetodon		BOVA
040110	SE	Ia	Rail, black	Laterallus jamaicensis		BOVA
050020	SE	Ia	Bat, little brown	Myotis lucifugus lucifugus		BOVA
050034	SE	Ia	Bat, Rafinesque's eastern big-eared	Corynorhinus rafinesquii macrotis		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
040096	ST	Ia	Falcon, peregrine	Falco peregrinus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
020002	ST	Ila	Treefrog, barking	Hyla gratiosa		BOVA
060081	ST	Ila	Floater, green	Lasmigona subviridis		Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030067	CC	Ila	Terrapin, northern diamond-backed	Malaclemys terrapin terrapin		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
010174		Ia	Bass, Roanoke	Ambloplites cavifrons		BOVA
010077		Ia	Shiner, bridge	Notropis bifrenatus		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		Ila	Duck, American black	Anas rubripes		BOVA
040029		Ila	Heron, little blue	Egretta caerulea caerulea		BOVA
040036		Ila	Night-heron, yellow-	Nyctanassa violacea		BOVA

			crowned	violacea		
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor		BOVA
060029		IIa	Lance, yellow	Elliptio lanceolata		BOVA
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA,Habitat

To view **All 540 species** [View 540](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
 Virginia Wildlife Action Plan Conservation Opportunity Ranking:
 a - On the ground management strategies/actions exist and can be feasibly implemented.;
 b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;
 c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

[View Map of All Query Results from All Observation Tables](#)

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (3 records)

[View Map of All Anadromous Fish Use Streams](#)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE [*]	Highest Tier ^{**}	
C7	Bailey Creek	Confirmed	1			Yes
C89	Appomattox River 1	Confirmed	6		IV	Yes
C92	James River 1	Confirmed	6		IV	Yes

Impediments to Fish Passage

N/A

Colonial Water Bird Survey (1 records)

[View Map of All Query Results Colonial Water Bird Survey](#)

Colony_Name	N Obs	Latest Date	N Species			View Map
			Different Species	Highest TE [*]	Highest Tier ^{**}	
Hopewell	2	May 19 2008	1			Yes

Displayed 1 Colonial Water Bird Survey

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

are present. [View Map of Bald Eagle Concentration Areas and Roosts](#)

(4 records)

BE CAR ID	Observation Year	Authority	Type	Comments	View Map
48	2006 - 2007	Center for Conservation Biology at the College of William and Mary/Virginia Commonwealth University	Summer Concentration Area	Eagle_use Low	Yes
49	2006 - 2007	Center for Conservation Biology at the College of William and Mary/Virginia Commonwealth University	Summer Concentration Area	Eagle_use Moderate	Yes
50	2006 - 2007	Center for Conservation Biology at the College of William and Mary/Virginia Commonwealth University	Winter Concentration Area	Eagle_use High	Yes
52	2006 - 2007	Center for Conservation Biology at the College of William and Mary/Virginia Commonwealth University	Winter Concentration Area	Eagle_use Moderate	Yes

Bald Eagle Nests (9 records)

[View Map of All Query Results](#)
[Bald Eagle Nests](#)

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
HO0001	12	Apr 16 2010	HISTORIC	Yes
HO0401	11	Apr 18 2011	RECENTLY ACTIVE	Yes
PG0402	9	Apr 23 2008	UNKNOWN	Yes
PG0503	13	Apr 18 2011	HISTORIC	Yes
PG0705	8	Apr 16 2010	HISTORIC	Yes
PG0706	2	Apr 25 2007	HISTORIC	Yes
PG0802	8	Apr 18 2011	RECENTLY ACTIVE	Yes
PG1105	2	Apr 18 2011	RECENTLY ACTIVE	Yes
PG9803	7	Apr 24 2000	HISTORIC	Yes

Displayed 9 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (1 Reach)

[View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species](#)

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
(20802062)	ST	010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	

Habitat Predicted for Terrestrial WAP Tier I & II Species (2 Species)

[View Map of Combined Terrestrial Habitat Predicted for 2 WAP Tier I & II Species Listed Below](#)

ordered by Status Concern for Conservation

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040105		Ilb	Rail, king	Rallus elegans	Yes
040093			Eagle, bald	Haliaeetus leucocephalus	Yes

Public Holdings: (1 names)

Name	Agency	Level
Petersburg National Battlefield	National Park Service	Federal

Compiled on 10/7/2016, 2:40:35 PM 1775797.0 report=IPA searchType= R dist= 3218.688 poi= 37.2892222 -77.2745278

PixelSize=64; Anadromous=0.024858; BECAR=0.038265; Bats=0.014391; Buffer=0.101713; County=0.116534; Impediments=0.015019; Init=0.153117; PublicLands=0.026183; SppObs=0.398571; TEWaters=0.019549; TierReaches=0.074315; TierTerrestrial=0.064708; Total=1.144583; Tracking_BOVA=0.16866; Trout=0.01447

Natural Heritage Resources

Your Criteria

County: Chesterfield

Search Run: 10/13/2016 9:23:29 AM

Result Summary

Total Species returned: 29

Total Communities returned: 5

Click scientific names below to go to NatureServe report.

Click column headings for an explanation of species and community ranks.

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Chesterfield							
AMPHIBIANS							
Barking Treefrog	Hyla gratiosa	G5	S2	None	LT	23	Y
AQUATIC NATURAL COMMUNITY							
SP- Appomattox First Order Stream	SP- <i>Appomattox First Order Stream</i>	G2G3	S2S3	None	None	2	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
SP-Appomattox Second Order Stream	<i>SP-Appomattox Second Order Stream</i>	G2G3	S2S3	None	None	2	Y
SP-Appomattox Third Order Stream	<i>SP-Appomattox Third Order Stream</i>	G3	S3	None	None	1	Y
BIRDS							
Common Gallinule	Gallinula galeata	G5	S1B,S1N	None	None	2	Y
BIVALVIA (MUSSELS)							
Yellow Lance	Elliptio lanceolata	G2G3	S2S3	SOC	None	50	Y
Yellow Lampmussel	Lampsilis cariosa	G3G4	S2	None	None	28	Y
Green Floater	Lasmigona subviridis	G3	S2	None	LT	64	Y
CRUSTACEA (AMPHIPODS, ISOPODS & DECAPODS)							
Ohio River Shrimp	Macrobrachium ohione	G4	S1	None	None	5	Y
FISH							
Atlantic Sturgeon	Acipenser oxyrinchus	G3	S2	LE	LE	2	Y
ODONATA (DRAGONFLIES & DAMSELFLIES)							
Treetop Emerald	Somatochlora provocans	G4	S2	None	None	6	Y
TERRESTRIAL NATURAL COMMUNITY							
Southern Piedmont / Inner Coastal Plain Mixed	<i>Quercus phellos</i> - <i>Quercus palustris</i> ,	G3?	S3	None	None	9	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Oak Floodplain Swamp	<i>Ilyrata</i>) / <i>Ilex decida</i> / <i>Carex typhina</i> - (<i>Carex grayi</i>) Forest						
Tidal Freshwater Marsh (Wild Rice - Mixed Forbs Type)	<i>Zizania aquatica</i> - <i>Pontederia cordata</i> - <i>Peltandra virginica</i> - <i>Persicaria punctata</i> Tidal Herbaceous Vegetation	G4?	S4?	None	None	10	Y
VASCULAR PLANTS							
Sensitive Joint-vetch	Aeschynomene virginica	G2	S2	LT	LT	22	Y
Red Milkweed	Asclepias rubra	G4G5	S2	None	None	32	Y
Velvet sedge	Carex vestita	G5	S2	None	None	10	Y
Cuthbert Turtlehead	Chelone cuthbertii	G3	S2	None	None	32	Y
Virginia Thistle	Cirsium virginianum	G3	S2	None	None	23	Y
Large spreading pogonia	Cleistesiospis divaricata	G4	S1	None	None	14	Y
Slim-leaf Tick-trefoil	Desmodium tenuifolium	G4	S1	None	None	14	Y
Water-purslane	Didiplis diandra	G5	S1	None	None	6	Y

Common Name/Natural Community	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Northern rattlesnake-master	Eryngium yuccifolium var. yuccifolium	G5T5	S2	None	None	24	Y
Sheep laurel	Kalmia angustifolia	G5	S2	None	None	12	Y
Little-leaf sensitive-brier	Mimosa microphylla	G5T5	S1	None	None	16	Y
Small white fringed orchid	Platanthera blephariglottis	G4G5	S2	None	None	14	Y
Dwarf Chinquapin Oak	Quercus prinoides	G5	S1	None	None	24	Y
Water-plantain crowfoot	Ranunculus ambigens	G4	S1	None	None	10	Y
Savannah beaksedge	Rhynchospora debilis	G4?	S1	None	None	11	Y
Fasciculate Beakrush	Rhynchospora fascicularis	G5	S2	None	None	8	Y
Lance-leaved rose-gentian	Sabatia difformis	G4G5	S1	None	None	4	Y
Northern pitcher plant	Sarracenia purpurea	G5	S2	None	None	42	Y
Squarehead	Tetragonotheca helianthoides	G5	S1	None	None	5	Y
Virginia Least Trillium	Trillium pusillum var. virginianum	G3T2	S2	SOC	None	33	Y
Large death-camass	Zigadenus glaberrimus	G5	S1	None	None	9	Y

Note: On-line queries provide basic information from DCR's databases at the time of the request. They are NOT to be substituted for a project review or for on-site surveys required for environmental assessments of specific project areas.

For Additional Information on locations of Natural Heritage Resources please submit an [information request](#).

To Contribute information on locations of natural heritage resources, please fill out and submit a [rare species sighting form](#).

Appendix B

Virginia Department of Historic Resource Information

Property Information

Property Names

Name Explanation	Name
Historic	Upper Appomattox Canal
Current	Appomattox River Navigations

Property Evaluation Status

DHR Staff: Potentially Eligible

Property Addresses

Current - Appomattox River

County/Independent City(s): Amelia (County), Chesterfield (County), Cumberland (County), Dinwiddie (County), Petersburg (Ind. City), Prince Edward (County), Prince George (County)

Incorporated Town(s): No Data

Zip Code(s): No Data

Magisterial District(s): No Data

Tax Parcel(s): No Data

USGS Quad(s): AMELIA COURT HOUSE, BALLSVILLE, BEACH, CHULA, CLAYVILLE, CUMBERLAND, DEATONVILLE, MANNBORO, PETERSBURG, RICE, SUTHERLAND, WINTERPOCK

Additional Property Information

Architecture Setting: Rural

Acreage: No Data

Site Description:

No Data

Surveyor Assessment:

1973: "On the fall line, Petersburg was the natural center of commerce for the Appomattox during the last century. Down the upper river boats brought the products of the country; the lower gave access to the sea and the great markets; and the tremendous falls provided ample water power for many mills. The Appomattox made Petersburg."

Surveyor Recommendation: Recommended Potentially Eligible

Primary Resource Information

Resource Category: Transportation

Resource Type: Canal

Date of Construction: 1795Ca

Historic Time Period: Early National Period (1790 - 1829)

Historic Context(s): Technology/Engineering, Transportation/Communication

Architectural Style: No Discernable Style

Form: No Data

Number of Stories: No Data

Condition: Poor

Interior Plan: No Data

Threats to Resource: Development, Erosion, Neglect

Architectural Description:

Architecture Summary, 1973: "The Appomattox was possibly cleared for batteau navigation sometime after 1745, when an act was passed to that effect. The Upper Appomattox Company, incorporated in 1795, built by 1816 the 5 1/2 mile Upper Appomattox Canal from the head of the falls to a basin in Petersburg, and constructed numerous wing-dams from Farmville down to the canal, a distance of 100 miles. Works on the canal included four well-built stone locks connected in staircase fashion; a stone-arch aqueduct; several stone culverts and the basin. The four mills along the river had locks in their dams; two of these were of stone. The navigation was rebuilt in the 1830's under the engineer John Couty, as a lock-and-dam system, still for poled batteaux, involving 3 1/2 more miles of canal and 13 more wooden locks. In one section, the

wing-dams were retained and can still be seen. Parts of the navigation continued to be used into the 1890s.

Today, little remains of the wooden locks and the mills. Over 10 miles of the navigation, including the best canal works and the only remaining surviving single stone lock, has been inundated."

Secondary Resource Information

Secondary Resource #1

Resource Category: *No Data*

Resource Type: *No Data*

Architectural Style: *No Data*

Form: *No Data*

Date of Construction: *No Data*

Condition: *No Data*

Threats to Resource: *No Data*

Architectural Description:

No Data

Historic District Information

Historic District Name: *No Data*

Local Historic District Name: *No Data*

Historic District Significance: *No Data*

CRM Events

Event Type: DHR Staff: Potentially Eligible

DHR ID: 123-0084

Staff Name: Susan Smead

Event Date: 11/1/2003

Staff Comment

Comment reserved on period of significance pending further information.

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*

Investigator: Keith Egloff

Organization/Company: VA Dept. of Historic Resources

Sponsoring Organization: *No Data*

Survey Date: 9/13/1983

Dhr Library Report Number: *No Data*

Project Staff/Notes:

Virginia Research Center for Archaeology Site Survey Form.

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*

Investigator: William E. Trout, III

Organization/Company: Unknown (DSS)

Sponsoring Organization: *No Data*

Survey Date: 6/13/1973

Dhr Library Report Number: *No Data*

Project Staff/Notes:

Name: Trout III, W.E.

Record Type: Manuscripts

Bibliographic Notes: "The Appomattox River Navigations: The Lifeblood of Petersburg." April, 1967.

Name: Trout III, W.E.

Record Type: Manuscripts

Bibliographic Notes: "On the Future of the Appomattox Navigations." April, 1967.

Name: Trout III, W.E.

Record Type: Manuscripts

Bibliographic Notes: "Field Guide to the Upper Appomattox Navigation." April, 1967.

Bibliographic Information

Bibliography:

Name: News, The Hopewell

Record Type: Article

Bibliographic Notes: New Appomattox Views learned by historic group." June 6, 1977.

Name: Index, The Progress

Record Type: Article

Bibliographic Notes: "Petersburg, Vepco Ink Canal Contract." Tuesday, January 4, 1972.

Name: Index, The Progress

Record Type: Article

Bibliographic Notes: "New Views and Understanding Experienced by Foundation." June 10, 1977.

Name: & Associates, Louis Berger & Associates

Record Type: Report

Bibliographic Notes: "Hydroelectric Power Development in Virginia, 1895-1940 {Niagara Hydroelectric Project, No. 2466}). April, 1990. Revised October, 1990.

Property Notes:

No Data

Project Bibliographic Information:

No Data

Property Information

Property Names

Name Explanation	Name
Historic	Assault on Petersburg
Historic	Petersburg Battlefield II

Property Evaluation Status

DHR Staff: Potentially Eligible

Property Addresses

Current - Bermuda Hundred Road Route 697

County/Independent City(s): Charles City (County), Chesterfield (County), Colonial Heights (Ind. City), Hopewell (Ind. City), Petersburg (Ind. City), Prince George (County)

Incorporated Town(s): Bellwood, Chester, Fort Lee

Zip Code(s): 23030, 23237, 23801, 23803, 23805, 23831, 23834, 23836, 23842, 23860, 23875

Magisterial District(s): *No Data*

Tax Parcel(s): *No Data*

USGS Quad(s): CHARLES CITY, CHESTER, DISPUTANTA NORTH, DREWRY BLUFF, HOPEWELL, PETERSBURG, PRINCE GEORGE, WESTOVER



Additional Property Information

Architecture Setting: Urban

Acreage: *No Data*

Site Description:

Petersburg's 10-month siege took place over a county-sized area east, south and southwest of the city. Petersburg National Battlefield preserves much of the siege times to the east - including the initial assaults, the Crater, and Fort Stedman. A swath of commercial and residential development has eradicated nearly all historic resources along Crater Road, the main road to the south. Many fortifications southwest of the city are preserved by the NPS or the City of Petersburg on land transferred by the NPS. Except for being sparsely dotted by modern residences, this large southwestern area remains remarkably unspoiled.

March 2011: Only minor changes have occurred since the previous surveys in the southern portion of the battlefield.

March 2012: Only minor changes have occurred since the previous surveys in the southeastern portion of the battlefield.

August 2012: Only minor changes have occurred since the previous surveys in the northwestern portion of the battlefield.

October 2014: The core of the battlefield was located mainly to the east of Petersburg and I-95, and the portion of the battlefield study area that crosses the APE for widening Route 10 between Route 1 and I-95 represents an avenue of approach rather than an area of battlefield activity. Modern development has covered much of the Petersburg II battlefield, but some parts survive relatively intact (Salmon 2001).

Surveyor Assessment:

Start Year: 1864
End Year: 1864
Date Source: Site Visit
Type: Historical Event

Marching from Cold Harbor, Meade's Army of the Potomac crossed the James River on transports and a 2,200-foot long pontoon bridge at Windmill Point. Butler's leading elements (XVIII Corps and Kautz's cavalry) crossed the Appomattox River at Windmill Point and attacked the Petersburg defenses on June 15. The 5,400 defenders of Petersburg under the command of General P.G.T. Beauregard were driven from their first line of entrenchment back to Harrison Creek. After dark the XVIII Corps was relieved by the II Corps. On June 16, the II Corp captured another section of the Confederate line; on the 17th, the IX Corps gained more ground. Beauregard stripped the Howlett Line (Bermuda Hundred) to defend the city, and Lee rushed reinforcements to Petersburg from the Army of Northern Virginia. The II, XI, and V Corps from right to left attacked on June 18 but was repulsed with heavy casualties. By now the Confederate works were heavily manned and the greatest opportunity to capture Petersburg without a siege was lost. The siege of Petersburg began. Union General James St. Clair Morton, chief engineer of the IX Corps, was killed on June 17.

March 2011: A private developer plans to construct on the southern edge of the battlefield. Because the project area is situated well to

the south of both the core study area and the potential National Register of Historic Places boundaries, this project should have very little visual effect to the battlefield and should not impact its eligibility for the National Register of Historic Places.

March 2012: 123-5025, the Petersburg II Battlefield, is a ca. 1864 Civil War battlefield that represents part of the Richmond Petersburg campaign. Today, the battlefield consists of interpretive material. The Civil War Sites Advisory Commission (CWSAC) conducted a Phase I survey of the battlefield in 1993 but did not make any recommendations regarding the National Register of Historic Places eligibility. In January 2007, both VDHR and the American Battlefield Protection Program (ABPP) determined that the battlefield was likely eligible for the National Register of Historic Places and that the site should be re-assessed during future Section 106/National Environmental Policy Act (NEPA) compliance reviews.

In September 2009, the ABPP released their update to the CWSAC report on the nation's Civil War battlefields. The 2009 update included a study area encompassing approximately 15,511.16 acres, which includes a core area at Baylor's Farm and several Federal approach routes. Of that acreage, approximately 2,434.44 acres were recommended as eligible for the National Register of Historic Places. The update also noted that much of the landscape has been altered and fragmented leaving only some essential features. However, it still appears as if the battlefield is likely eligible for the National Register of Historic Places.

August 2012: 123-5025, the Petersburg II Battlefield, was determined likely eligible for the National Register of Historic Places. However, no Civil War resources were identified within the project area and no remains of any earthworks were found during the course of the survey. In addition, the project as proposed would only add a trail and very minimal development to the area. Further, the project area falls within an avenue of approach and well away from the area determined potentially eligible for the National Register of Historic Places. 20th century residential development also lines Archer Avenue thus altering this portion of the battlefield landscape from its appearance in the 1860s. Taking this into account, the project should not adversely affect the battlefield, the battlefield landscape, or the battlefield viewshed. Therefore, Circa~ recommends no further survey work for this resource within the project area.

March 2014: 123-5025, the Petersburg II Battlefield, was determined likely eligible for the National Register of Historic Places. However, no Civil War resources were identified within the project area and no remains of any earthworks were found during the course of the survey. The project as proposed would add new development to the battlefield. However, 20th century commercial development is situated to the north and west, north, and west of the project area and Interstate 295 now runs through the battlefield to the west of the project area thus altering the battlefield landscape from its appearance in the 1860s. Further, in the project area vicinity, the alignment of Bermuda Hundred Road has been shifted slightly to the south towards the project tract and the original road has been widened. Taking this into account, the project should not adversely affect the battlefield, the battlefield landscape, or the battlefield viewshed. Therefore, Circa~ recommends no further survey work for this resource within the project area.

October 2014: The ABPP established a study area encompassing roughly 15,511 acres, of those approximately 2,434 acres are considered potential National Register lands (ABPP 2009). No part of the APE for widening Route 10 between Route 1 and I-95 falls within the potential National Register lands. VDHR staff recommended the battlefield eligible for listing in 2012. Due to excessive modern development and loss of integrity, CCR recommend that the portion of the battlefield in the APE for widening Route 10 between Route 1 and I-95 does not contribute to the overall eligibility determined for this resource.

Surveyor Recommendation: Recommended Eligible

Ownership

Ownership Category	Ownership Entity
Private	No Data
Public - Federal	No Data

Primary Resource Information

Resource Category:	Defense
Resource Type:	Battle Site
Date of Construction:	1865
Historic Time Period:	Civil War (1861 - 1865)
Historic Context(s):	Military/Defense
Architectural Style:	No Discernable Style
Form:	No Data
Number of Stories:	No Data
Condition:	Fair
Interior Plan:	No Data
Threats to Resource:	Development, Transportation Expansion

Architectural Description:

March 2011: Circa~ conducted a Phase I archaeological supplemental survey just on the southern edge of the study area of this battlefield as identified in the National Park Service 2009 update to the Civil War Sites Advisory Commission report. Circa~ shovel tested and metal-detected this area of the battlefield. No Civil War related resources were identified.

March 2012: This resource has not changed significantly since the previous surveys. The area between Wagner Road and Interstate 95 in the City of Petersburg is built up with commercial and residential development, the Norfolk and Western railroad, and railroad-related infrastructure including a rail yard surrounded by a modern metal chain link fence. No Civil War related resources were identified in this area of the battlefield.

August 2012: This resource has not changed significantly since the previous surveys. The northwestern avenue of approach near the

Appomattox River in the City of Colonial Heights is built up with residential development and a park. No Civil War related resources were identified in this area of the battlefield.

March 2014: This resource has not changed significantly since the previous surveys. The project area surveyed at this time falls on a northern avenue of approach for the battlefield well north of the core area of the study area and well away from the area determined potentially eligible for the National Register of Historic Places. Circa~ shovel tested and metal-detected the area. During the course of the Phase I survey no Civil War resources were identified within the project area. Today, 20th century commercial development is situated to the north and west of the project area and Interstate 295 now runs through the battlefield to the west of the project area thus altering the battlefield landscape from its appearance in the 1860s. Further, in the project area vicinity, the alignment of Bermuda Hundred Road has been shifted slightly to the south towards the project tract and the original road has been widened.

October 2014: This resource was originally recorded between 1991 and 1993. The encounter between Confederate troops, led by General Robert E. Lee and General P. G. T. Beauregard, and Union troops, led by Lieutenant General Ulysses S. Grant and Major General George S. Meade, took place between June 15 and 18, 1864. The battle was part of the Richmond-Petersburg Campaign. The core of the battlefield was located mainly to the east of Petersburg and I-95, and the portion of the battlefield study area that crosses the APE for widening Route 10 between Route 1 and I-95 represents an avenue of approach rather than an area of battlefield activity. Modern development has covered much of the Petersburg II battlefield, but some parts survive relatively intact (Salmon 2001).

Secondary Resource Information

Secondary Resource #1

Resource Category: No Data
Resource Type: No Data
Architectural Style: No Data
Form: No Data
Date of Construction: No Data
Condition: No Data
Threats to Resource: No Data
Architectural Description:
No Data

Historic District Information

Historic District Name: No Data
Local Historic District Name: No Data
Historic District Significance: No Data

CRM Events

Event Type: DHR Staff: Potentially Eligible

DHR ID: 123-5025
Staff Name: Marc Holma
Event Date: 1/8/2015
Staff Comment
DHR File No. 2014-3612

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: 2014-3612
Investigator: Jeroen van den Hurk
Organization/Company: Coastal Carolina Research
Sponsoring Organization: No Data
Survey Date: 10/16/2014

Dhr Library Report Number: CF-311

Project Staff/Notes:

Cultural Resources Survey, Widening of Route 10 from Route 1 to I-95, Chesterfield County, Virginia
October 2014
CF-311

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*

Investigator: Dawn Muir-Frost

Organization/Company: Circa~ Cultural Resource Management, LLC

Sponsoring Organization: *No Data*

Survey Date: 2/20/2014

Dhr Library Report Number: *No Data*

Project Staff/Notes:

Dawn M. Muir-Frost, architectural historian, conducted survey and entered information into V-CRIS
Carol D. Tyrer, project manager, photographed the site

In the winter of 2014, Circa~ Cultural Resource Management, LLC (Circa~) conducted a Phase I cultural resources survey of the Project Twister – Keck Site in Chesterfield County, Virginia. The project area, which encompasses approximately 137 acres, is bordered by Bermuda Hundred Road to the north, development and rural lands to the west, rural lands and the CSX railroad to the east, and wetlands and the railroad tracks to the south.

Event Type: DHR Staff: Potentially Eligible

DHR ID: 123-5025

Staff Name: Andrea Kampinen

Event Date: 1/2/2014

Staff Comment

DHR File No. 2007-1022

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*

Investigator: Circa~

Organization/Company: Circa~ Cultural Resource Management, LLC

Sponsoring Organization: *No Data*

Survey Date: 8/1/2012

Dhr Library Report Number: PG-172

Project Staff/Notes:

August 2012: In the summer of 2012, Vanasse Hangen Brustlin, Inc. (VHB) contracted Circa~ Cultural Resource Management, LLC (Circa~) to conduct a Phase I cultural resources survey of the Appomattox River Greenway Trail in the City of Colonial Heights, Virginia. The purpose of this Phase I cultural resources survey was to identify and record all historic resources within the project area prior to development of the site. This survey resulted in the identification of this previously identified architectural resource. Carol D. Tyrer with Circa~ photographed the building and Dawn M. Frost with Circa~ conducted the survey and entered the information into the DSS system.

Event Type: DHR Staff: Potentially Eligible

DHR ID: 123-5025

Staff Name: McDonald, Brad

Event Date: 4/12/2012

Staff Comment

No Data

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*

Investigator: Circa~

Organization/Company: Circa~ Cultural Resource Management, LLC

Sponsoring Organization: *No Data*

Survey Date: 3/1/2012

Dhr Library Report Number: PG-172

Project Staff/Notes:

March 2012: Circa~ conducted a Phase I cultural resources survey of the extreme southern boundary of the battlefield prior to construction of a second rail line associated with the Norfolk and Western Railroad in this area. Carol Tyrer and Dawn Frost conducted the survey with Carol Tyrer photographing the area and Dawn Frost entering the information into DSS.

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: 2009-0092
Investigator: Circa~
Organization/Company: Circa~ Cultural Resource Management, LLC
Sponsoring Organization: *No Data*
Survey Date: 3/1/2011
Dhr Library Report Number: PG-172

Project Staff/Notes:

March 2011: Circa~ conducted a Phase I supplemental archaeological survey of the extreme southern boundary of the battlefield prior to development of the site.

Event Type: DHR Staff: Potentially Eligible

DHR ID: 123-5025
Staff Name: ABPP
Event Date: 1/24/2007
Staff Comment

Preliminary survey data from American Battlefield Protection Program (ABPP) indicates that this historic Civil War battlefield is likely eligible for listing in the National Register of Historic Places and likely deserving of future preservation efforts. This survey information should be reassessed during future Section 106/NEPA compliance reviews.

Event Type: Survey:Phase I/Reconnaissance

Project Review File Number: *No Data*
Investigator: CWSAC
Organization/Company: National Park Service
Sponsoring Organization: *No Data*
Survey Date: 1/1/1993
Dhr Library Report Number: *No Data*

Project Staff/Notes:

CWSAC - VA089
Civil War Sites Advisory Commission Survey Form - no photos submitted - not dated or signed, but surveys occurred during the period between 1991 and 1993.

Bibliographic Information

Bibliography:

American Battlefields Protection Program (ABPP)
2009 Update to the Civil War Sites Advisory Commission Report on the Nation's Civil War Battlefields, Commonwealth of Virginia. United States Department of the Interior, National Park Service, American Battlefields Protection Program, Washington, D.C.

Salmon, John S.
2001 The Official Virginia Civil War Battlefield Guide. Stackpole Books, Mechanicsburg, Pennsylvania.

Property Notes:

Name: Unknown
Title: Superintendent
Company 1: Petersburg National Battlefield
Address 1: P.O. Box 549
City: Petersburg
State: Virginia
ZIP: 23804
Owner Relationship: Informant

Project Bibliographic Information:

Widening of Rt. 10 from Rt. 1 to I-95, Chesterfield County, Virginia