

VaFWIS - Department of Game and Inland Fisheries

37.74617 -78.19058 is the Search Point

Search Point

- Change to "clicked" map point
- Fixed at 37.74617 -78.19058

Show Position Rings

- Yes No
- 1 mile and 1/4 mile at the Search Point

Show Search Area

- Yes No
- 2 Search distance miles buffer

Search Point is at map center

Base Map Choices

BW Aerial Photography ▾

Map Overlay Choices

Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

T & E Waters

- Federal
- State

Predicted Habitat WAP Tier I & II

- Aquatic
- Terrestrial

Trout Waters

- Class I - IV
- Class V - VI

Anadromous Fish Reach

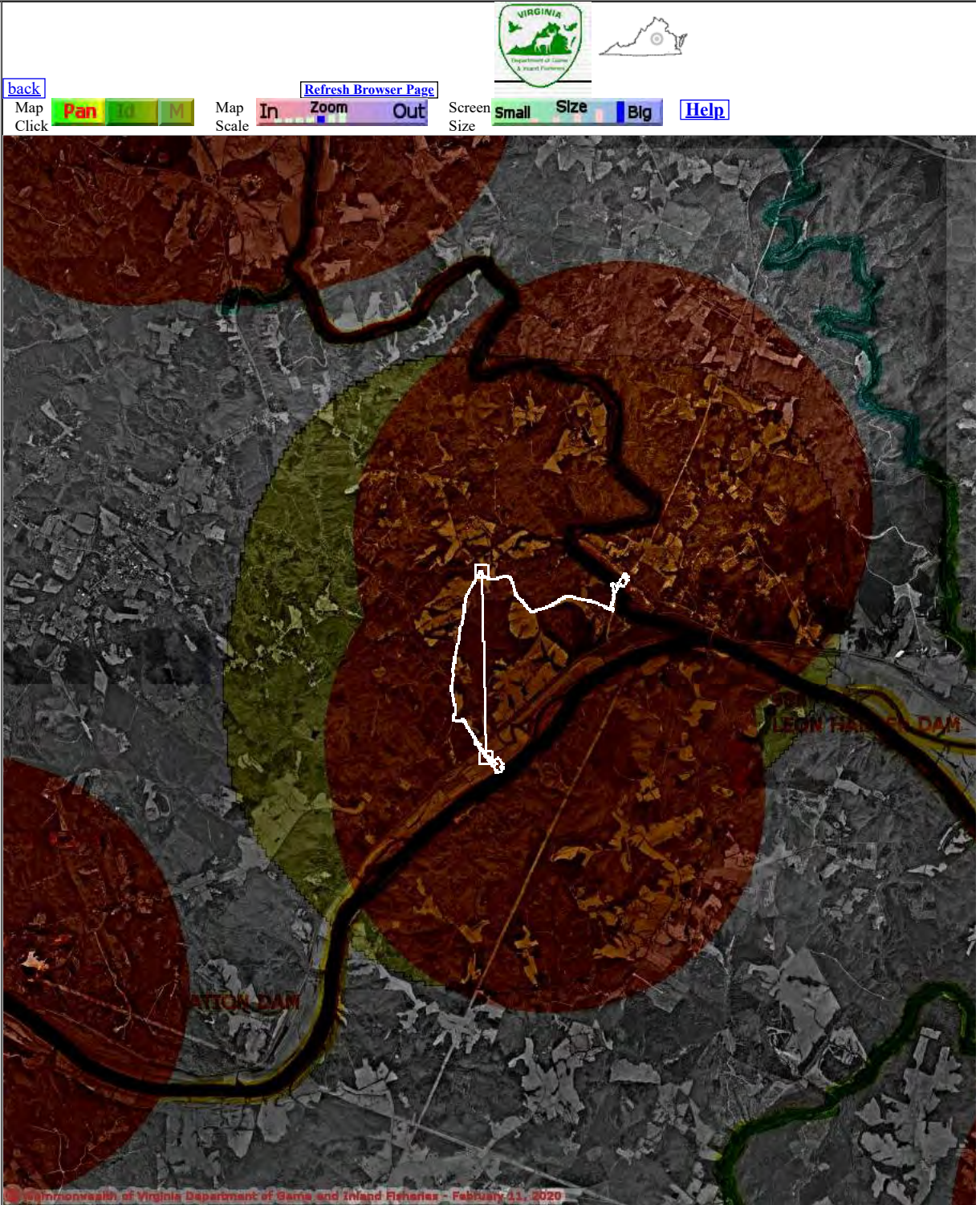
- Confirmed
- Potential

Impediment

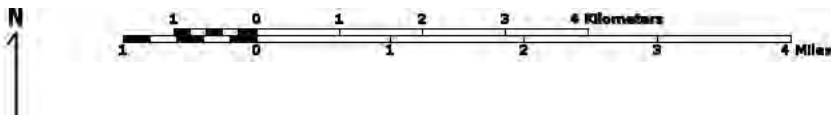
- 2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

- Bald Eagle nests 660 and 330 foot management zones
- Data Observation Site



Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37.74617 -78.19058
Map Location 37.74617 -78.19058

- Select Coordinate System:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 739532 and top 4189370. Pixel size is 15. .
Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000
columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east
to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display
represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
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Fisheries.

map assembled 2020-02-11 12:31:41 (qa/qc March 21, 2016 12:20 - tn=1015008 dist=3218 I
)
\$poi=37.7599100 -78.1999200

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,35.6 -78,11,59.7 is the Search Point

Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display	Search Point is
at center	not at map center

Base Map Choices

BW Aerial Photography ▾

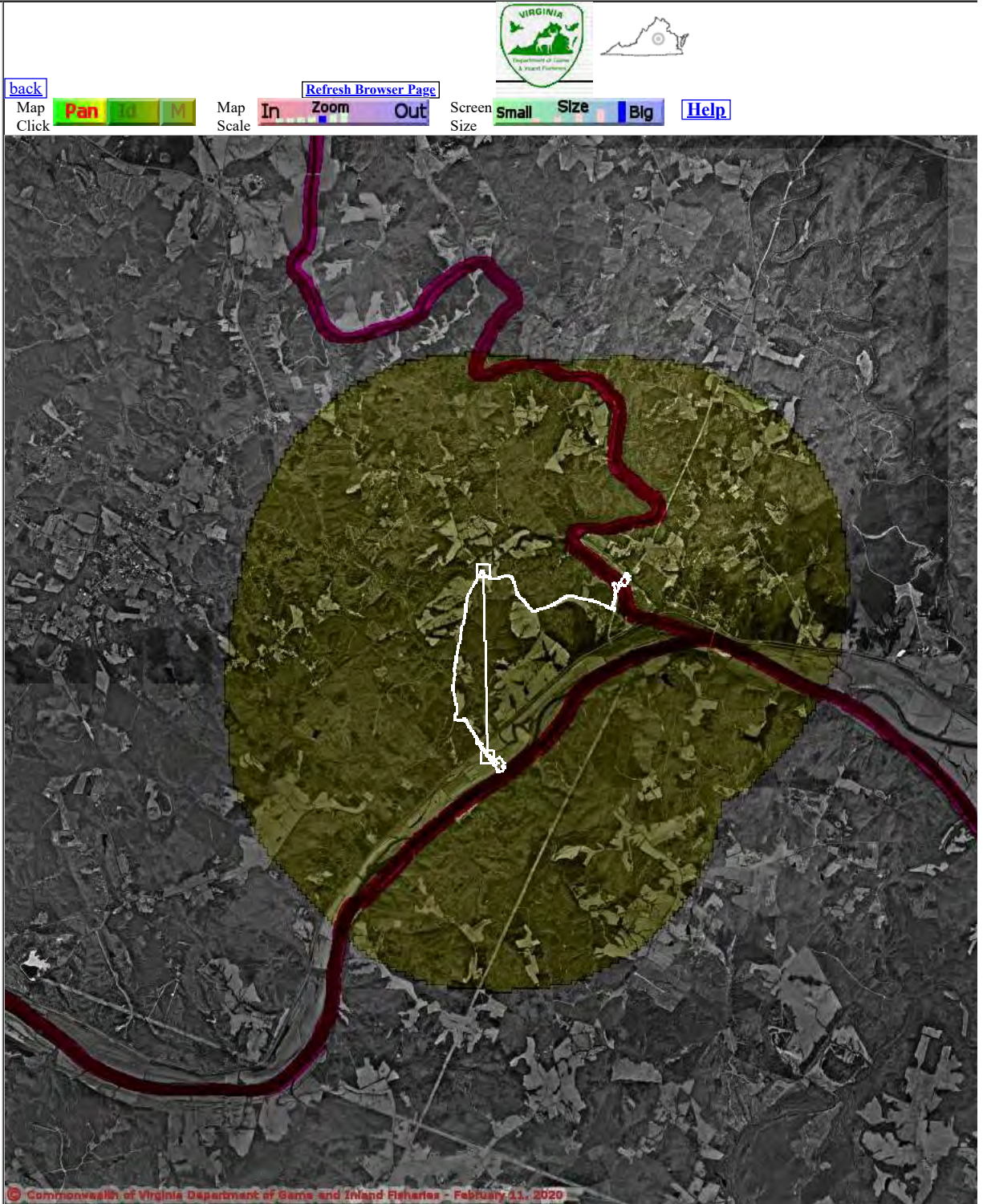
Map Overlay Choices

Current List: Search, TEWaters

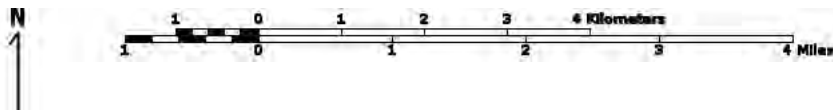
Map Overlay Legend

T & E Waters

- Federal
- State



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Point of Search 37,45,35.6 -78,11,59.7

Map Location 37,44,46.2 -78,11,26.1

Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude

Decimal Degrees Latitude - Longitude

Meters UTM NAD83 East North Zone

Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 739532 and top 4189370. Pixel size is 15. .
Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed
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map assembled 2020-02-11 12:34:33 (qa/qc March 21, 2016 12:20 - tn=1015008.1 dist=3218
I)
\$poi=37.7599100 -78.1999199

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Virginia Department of Game and Inland Fisheries

2/11/2020 12:35:42 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 12:35:42 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around line beginning 37.7599100 -78.1999199**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100424.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (097957)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (098400)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (090440.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(5 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater,	Lasmigona	Yes

			green	subviridis
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/11/2020, 12:35:42 PM 11015008.1 report=BOVA searchType= L dist= 3218 poi= 37.7599100 -78.1999199
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audit no. 1015008 2/11/2020 12:35:42 PM Virginia Fish and Wildlife Information Service
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Threatened and Endangered Waters where Floater, green (060081) observed

37,45,35.6 -78,11,59.7 is the Search Point

Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

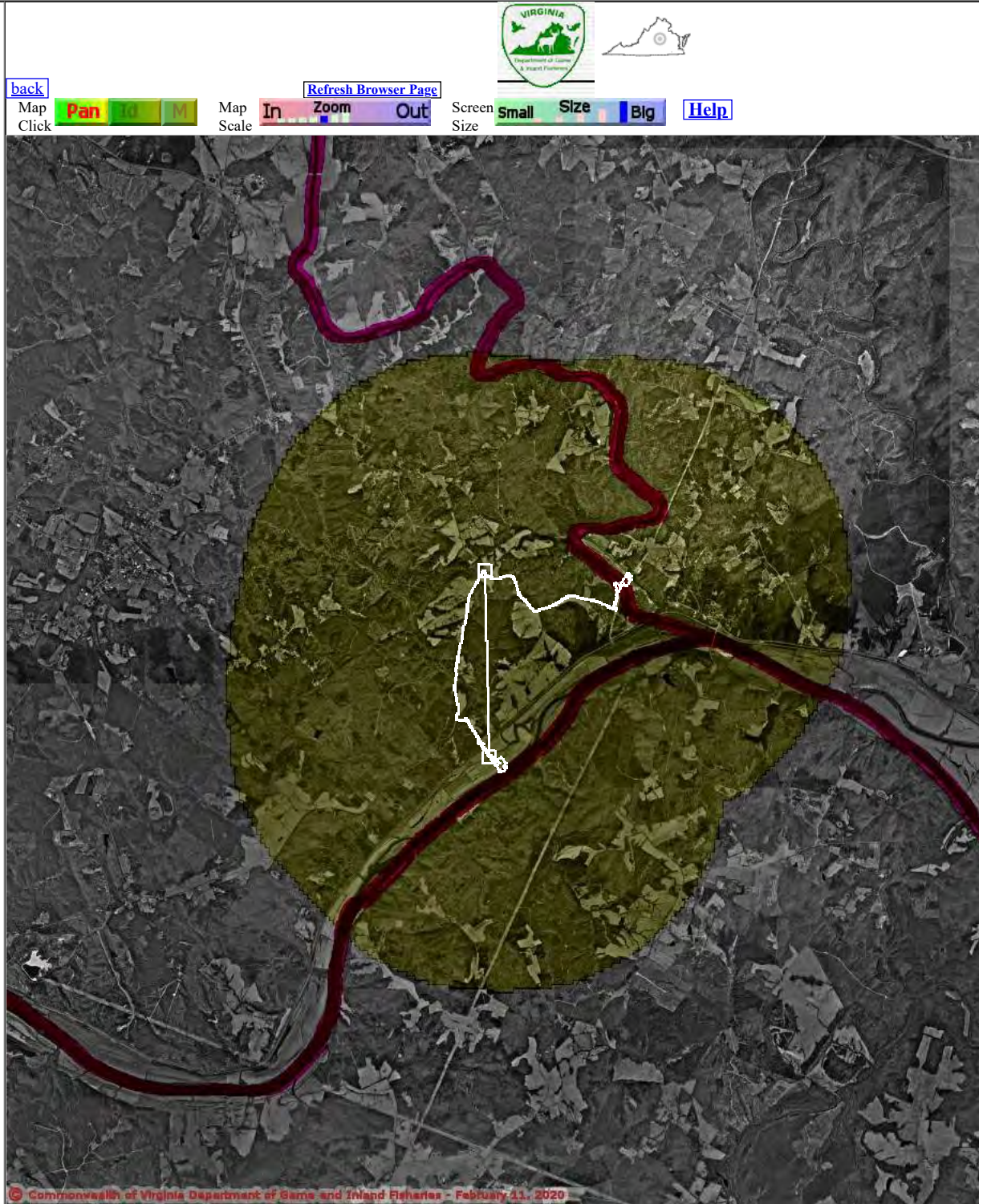
Current List: Search, TEWaters

Map Overlay Legend

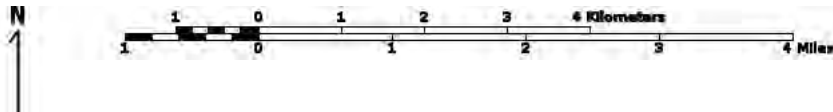
T & E Waters

- Federal
- State

2 mile radius Search Area



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Point of Search 37,45,35.6 -78,11,59.7

Map Location 37,44,46.2 -78,11,26.1

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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map assembled 2020-02-11 12:36:24 (qa/qc March 21, 2016 12:20 - tn=1015008.1 dist=3218
I)
\$poi=37.7599100 -78.1999199

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Virginia Department of Game and Inland Fisheries

2/11/2020 12:36:57 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 12:36:57 PM

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Known or likely to occur within a **2 mile buffer around line beginning 37.7599100 -78.1999199**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100424.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (097957)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (098400)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (090440.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(5 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/11/2020, 12:36:57 PM 11015008.1 report=BOVA searchType= L dist= 3218 poi= 37.7599100 -78.1999199

audit no. 1015008 2/11/2020 12:36:57 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,45,35.6 -78,11,59.7 is the Search Point

[back](#)

Map Click

Pan To M

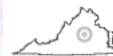
Map Scale

In Zoom Out

Screen Size

Small Size Big

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Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

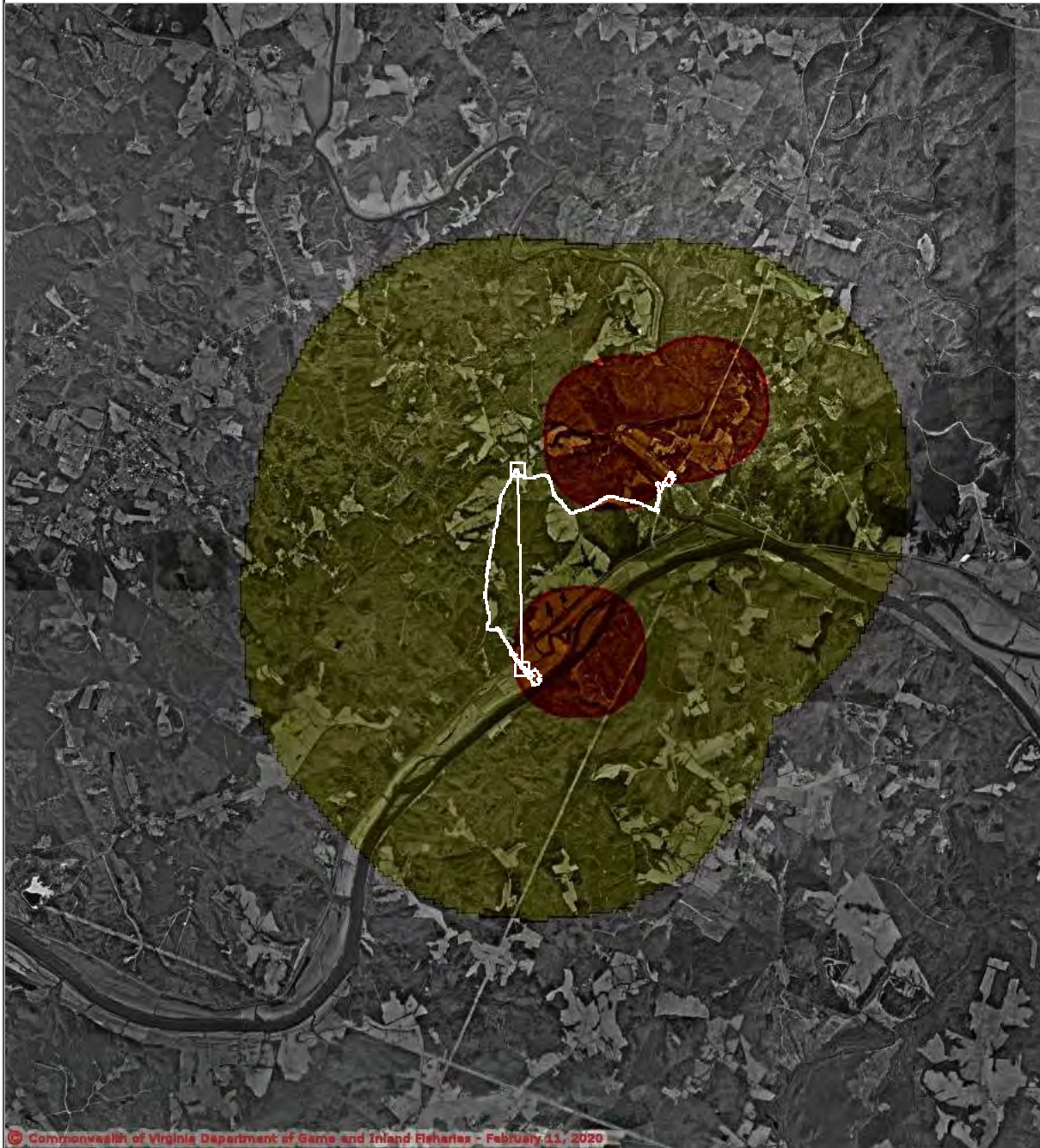
BW Aerial Photography

Map Overlay Choices

Current List: Search, SppObs

Map Overlay Legend

- 2 mile radius Search Area
- Data Observation Site



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Point of Search 37,45,35.6 -78,11,59.7

Map Location 37,44,46.2 -78,11,26.1

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude

Decimal Degrees Latitude - Longitude

Meters UTM NAD83 East North Zone

Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 739532 and top 4189370. Pixel size is 15. .
Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed
as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000
meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map
display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square
miles.

Topographic maps and Black and white aerial photography for year 1990+
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-11 12:33:30 (qa/qc March 21, 2016 12:20 - tn=1015008.1 dist=3218
I)
\$poi=37.7599100 -78.1999199

| [DGF](#) | [Credits](#) | [Disclaimer](#) | Contact vafwis_support@dgif.virginia.gov | Please view our [privacy policy](#) |
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Virginia Department of Game and Inland Fisheries

2/11/2020 12:34:07 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 12:34:07 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around line beginning 37.7599100 -78.1999199**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Compiled on 2/11/2020, 12:34:07 PM 11015008.1 report=BOVA searchType= L dist= 3218 poi= 37.7599100 -78.1999199

audit no. 1015008 2/11/2020 12:34:07 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

Project information

NAME

JRWA Build Alternative 1C

LOCATION

Fluvanna County, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened
James Spiny mussel <i>Pleurobema collina</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2212	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10

Probability of Presence Summary

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential

to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1A](#)

RIVERINE

[R2UBH](#)

[R4SBC](#)

[R5UBFx](#)

[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

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.

VaFWIS Initial Project Assessment Report Compiled on 2/10/2020, 11:56:10 AM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7632900 -78.1986499**
in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

471 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 471 species** [View 471](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (2 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**	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (26 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100424)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

James River (0101762)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (097957)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (098400)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (090440)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes

To view **All 26 Threatened and Endangered Waters records** [View 26](#)

Managed Trout Streams

VaFWIS - Department of Game and Inland Fisheries

37.74940 -78.19068 is the Search Point

Search Point
 Change to "clicked" map point
 Fixed at 37.74940 -78.19068

Show Position Rings
 Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area
 Yes No
2 Search distance miles buffer

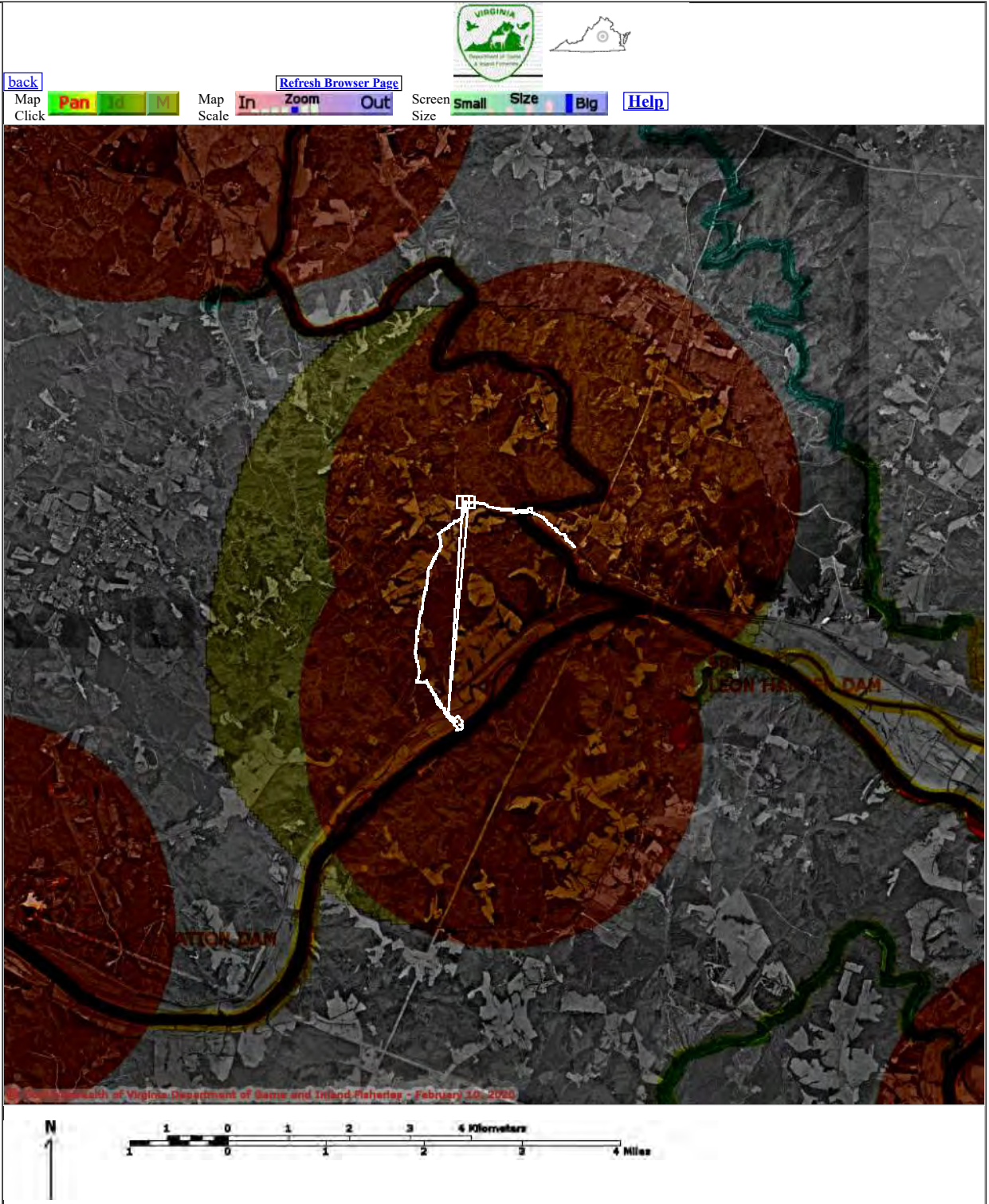
Search Point is at map center

Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

- T & E Waters**
 - Federal
 - State
- Predicted Habitat WAP Tier I & II**
 - Aquatic
 - Terrestrial
- Trout Waters**
 - Class I - IV
 - Class V - VI
- Anadromous Fish Reach**
 - Confirmed
 - Potential
- Impediment**
 - 2 mile radius Search Area
- Bald Eagle Concentration Areas and Roosts**
 - Bald Eagle nests 660 and 330 foot management zones
 - Data Observation Site



Point of Search 37.74940 -78.19068
Map Location 37.74940 -78.19068

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraservertusa.com](https://www.microsoft.com/terraservertusa) for details)

Map projection is UTM Zone 17 NAD 1983 with left 739512 and top 4189728. Pixel size is 16. . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+-

are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-10 11:53:15 (qa/qc March 21, 2016 12:20 - tn=1014790 dist=3218 I
)
\$poi=37.7632900 -78.1986500

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,47.8 -78,11,55.1 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

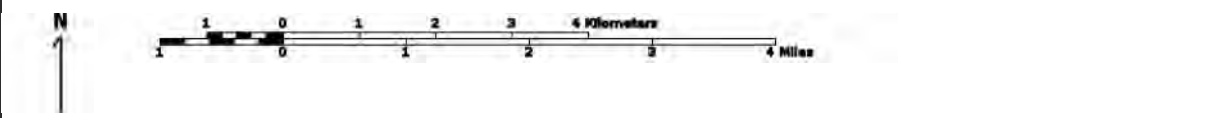
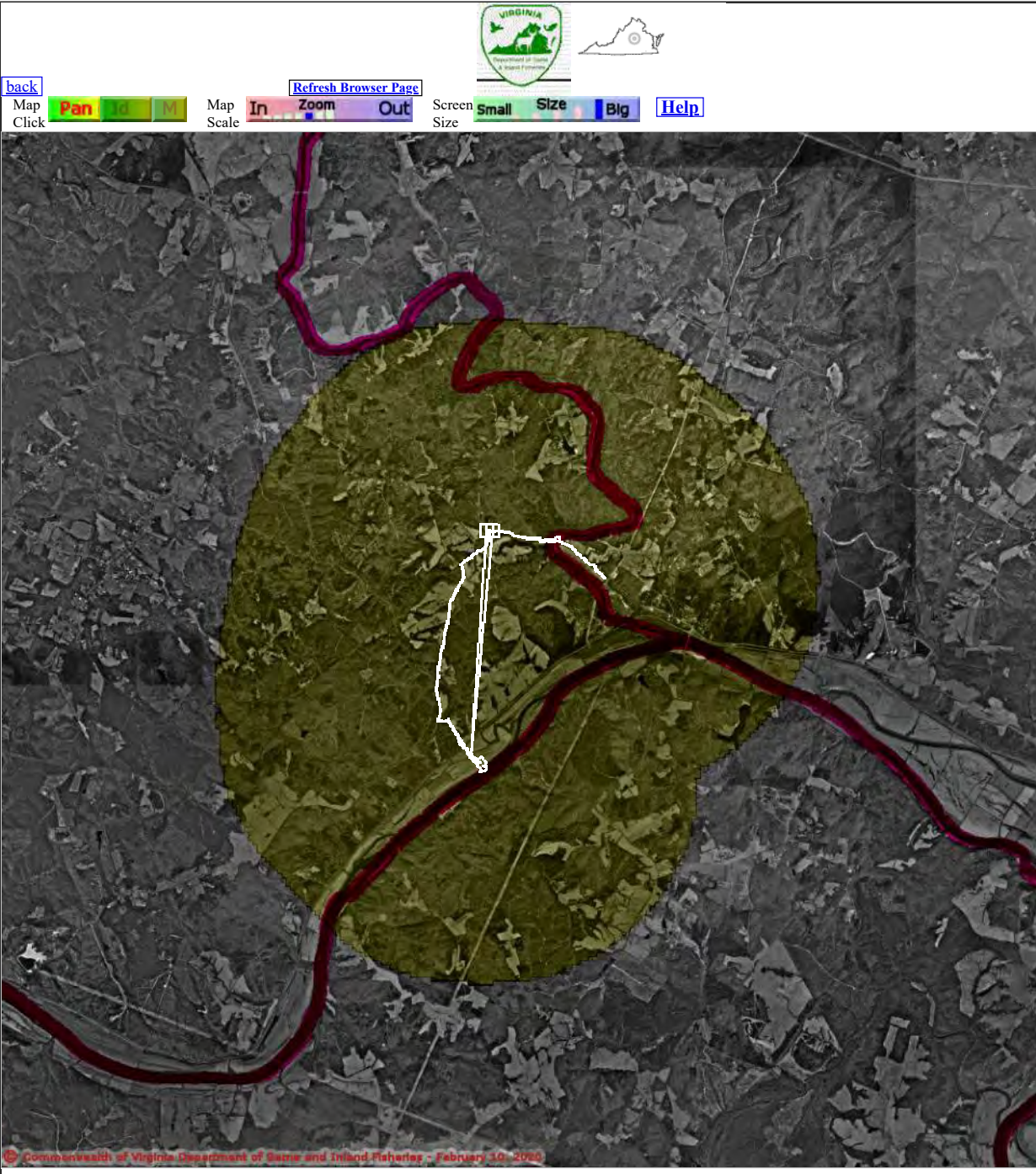
Display Search Point is at center not at map center

Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
- State
- 2 mile radius Search Area



Point of Search 37,45,47.8 -78,11,55.1
Map Location 37,44,57.8 -78,11,26.4

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 739512 and top 4189728. Pixel size is 16. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 11:59:38 (qa/qc March 21, 2016 12:20 - tn=1014790.1 dist=3218
I)
\$poi=37.7632900 -78.1986499

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:00:37 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:00:37 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7632900 -78.1986499 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(26 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100424.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia	

					Atlantic	masoni	
James River (092818)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (097957)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (098400)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (090440)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 26 Threatened and Endangered Waters records** [View 26](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(5 Reaches)

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

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/10/2020, 12:00:38 PM 11014790.1 report=BOVA searchType=P dist= 3218 poi= 37.7632900 -78.1986499

Threatened and Endangered Waters where Floater, green (060081) observed

37,45,47.8 -78,11,55.1 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices
BW Aerial Photography

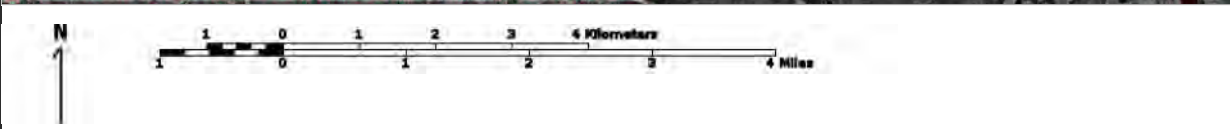
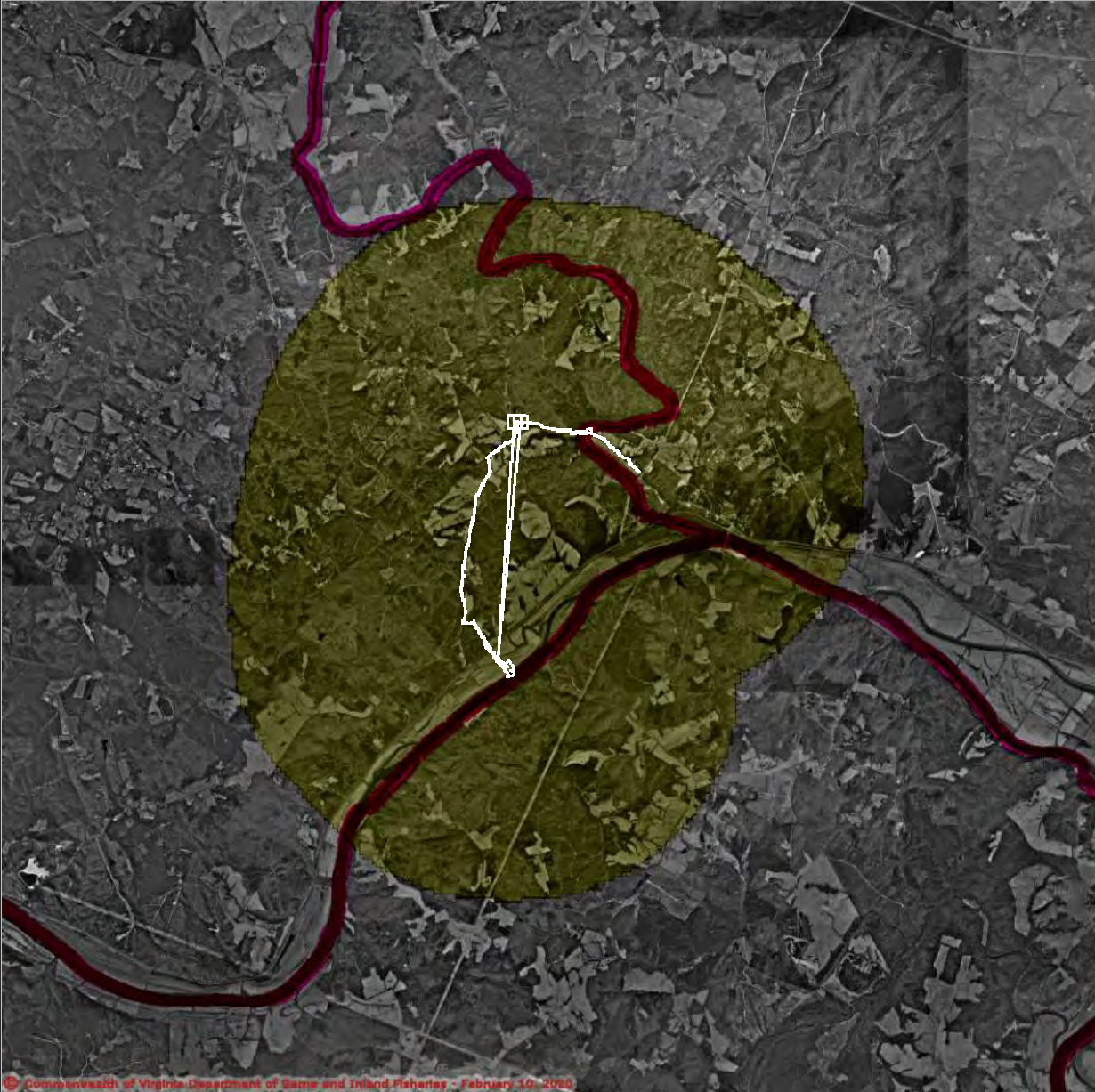
Map Overlay Choices
Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
- State
- 2 mile radius Search Area

back Refresh Browser Page

Map Click Pan Zoom Map Scale In Zoom Out Screen Size Small Size Big Help



Point of Search 37,45,47.8 -78,11,55.1
Map Location 37,44,57.8 -78,11,26.4

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 739512 and top 4189728. Pixel size is 16. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

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map assembled 2020-02-10 12:02:03 (qa/qc March 21, 2016 12:20 - tn=1014790.1 dist=3218
I)
\$poi=37.7632900 -78.1986499

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:20:45 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:20:45 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7632900 -78.1986499 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(26 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100424.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia	

					Atlantic	masoni	
James River (092818)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (097957)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (098400)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (090440)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 26 Threatened and Endangered Waters records** [View 26](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(5 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/10/2020, 12:20:45 PM 11014790.1 report=BOVA searchType=P dist= 3218 poi= 37.7632900 -78.1986499

audit no. 1014790 2/10/2020 12:20:45 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,45,47.8 -78,11,55.1 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

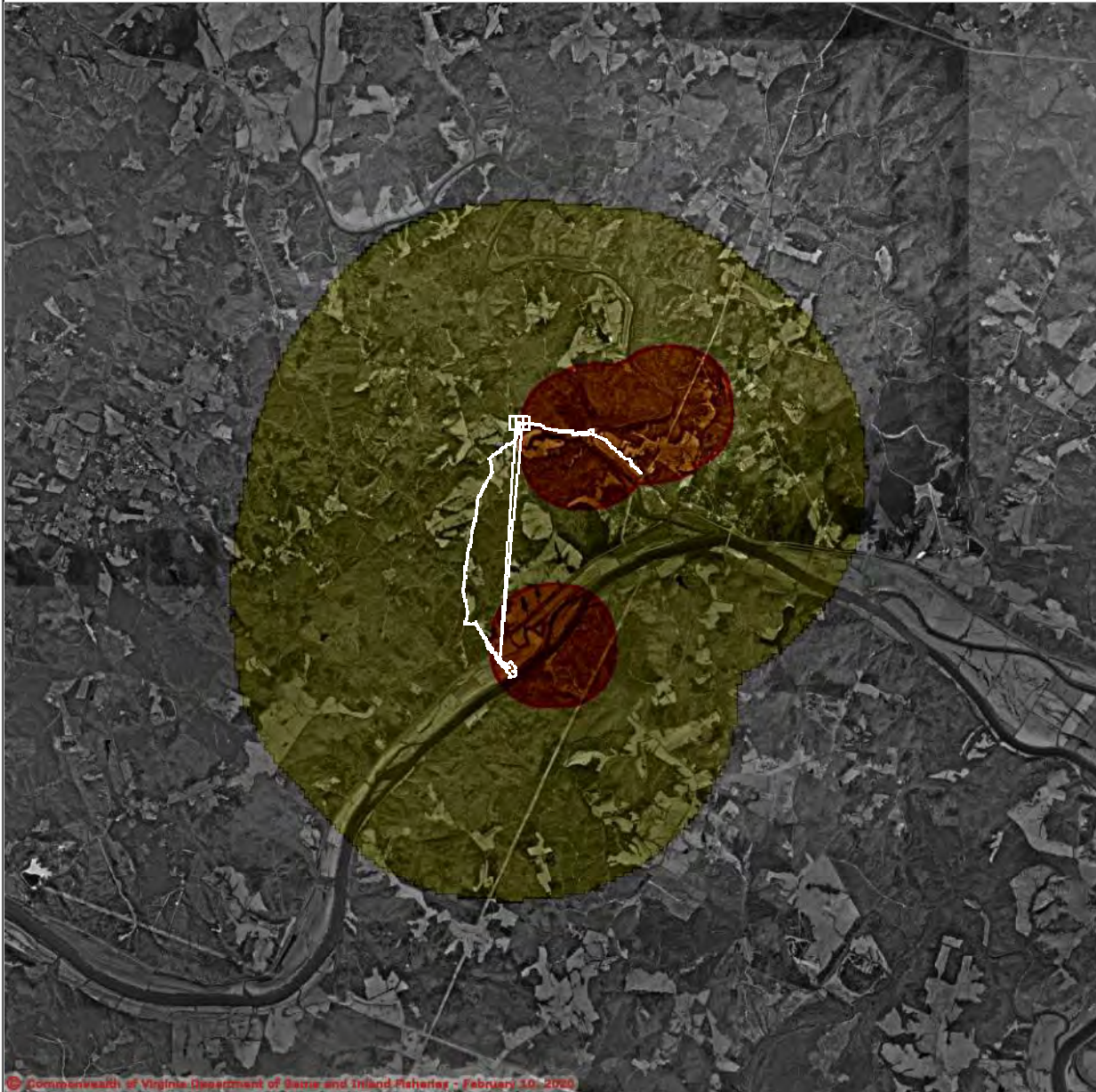
Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Search, SppObs

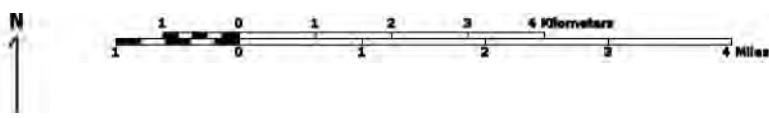
Map Overlay Legend

-  2 mile radius Search Area
-  Data Observation Site

[back](#)
[Refresh Browser Page](#)
Map Click **Pan** **Id** **M**
Map Scale **In** **Zoom** **Out**
Screen Size **Small** **Size** **Big** [Help](#)



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Point of Search 37,45,47.8 -78,11,55.1
 Map Location 37,44,57.8 -78,11,26.4

Select **Coordinate System**: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 739512 and top 4189728. Pixel size is 16. .
 Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 11:57:30 (qa/qc March 21, 2016 12:20 - tn=1014790.1 dist=3218
I)
\$poi=37.7632900 -78.1986499

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Virginia Department of Game and Inland Fisheries

2/10/2020 11:58:36 AM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 11:58:36 AM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7632900 -78.1986499**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) **Lance, yellow** observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Compiled on 2/10/2020, 11:58:36 AM 11014790.1 report=BOVA searchType=P dist= 3218 poi= 37.7632900 -78.1986499

audit no. 1014790 2/10/2020 11:58:36 AM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

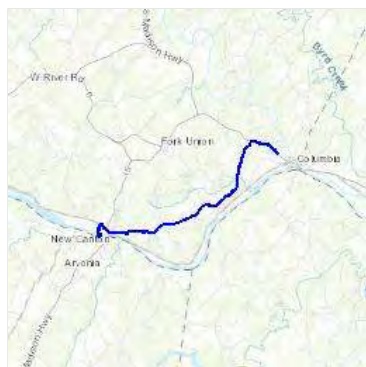
Project information

NAME

JRWA Build Alternative 2A

LOCATION

Fluvanna County, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened
James Spiny mussel <i>Pleurobema collina</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2212	Endangered

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
------	------

Atlantic Pigtoe *Fusconaia masoni*
<https://ecos.fws.gov/ecp/species/5164#crithab>

Proposed

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Sep 1 to Jul 31

Blue-winged Warbler *Vermivora pinus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 1 to Jun 30

Prairie Warbler *Dendroica discolor*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Jul 31

Prothonotary Warbler *Protonotaria citrea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Apr 1 to Jul 31

Breeds May 10 to Sep 10

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

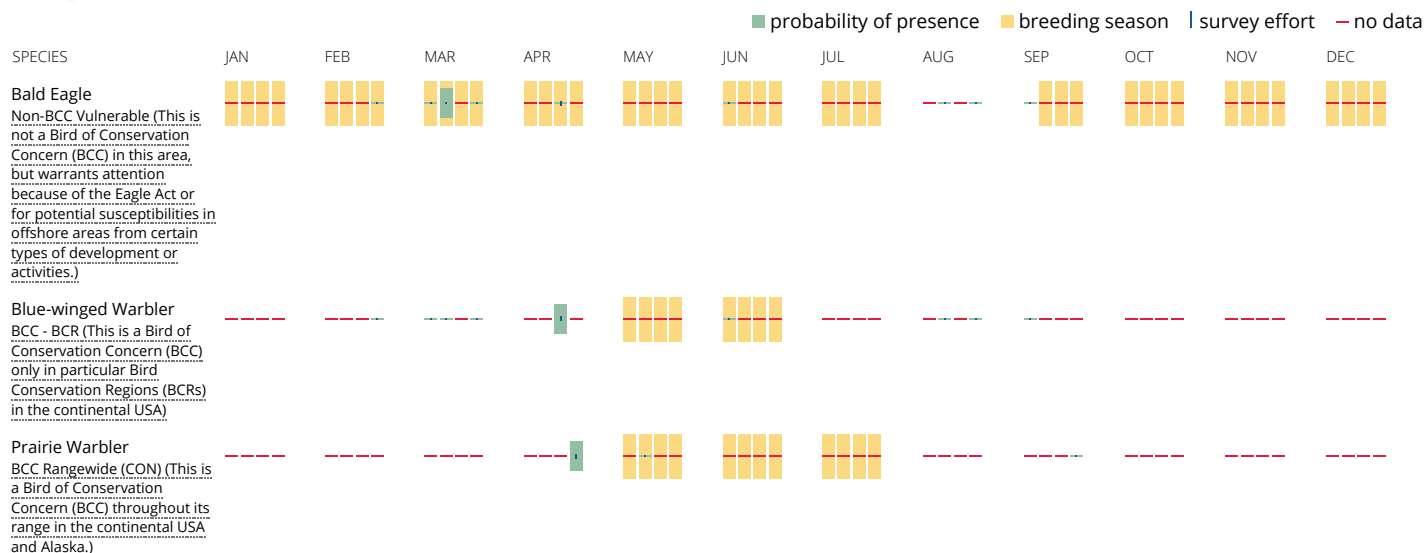
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

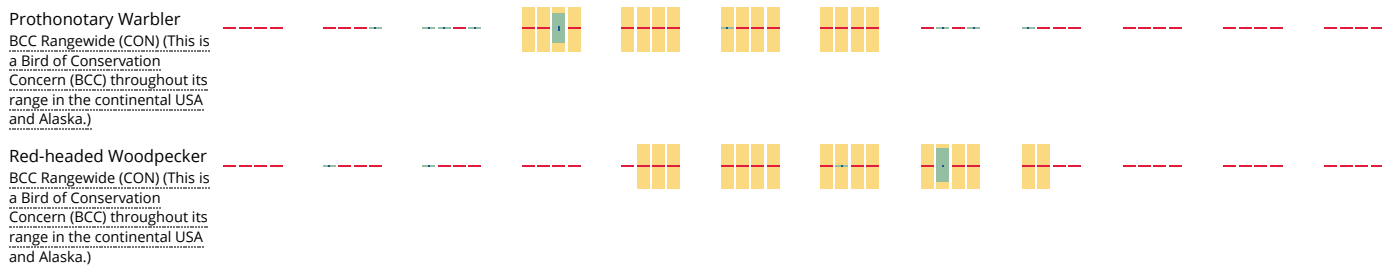
No Data (-)

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

Survey Timeframe

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





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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1A](#)

[PFO1C](#)

RIVERINE

[R2UBH](#)

[R4SBC](#)

[R3UBH](#)

[R5UBFx](#)

[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

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.

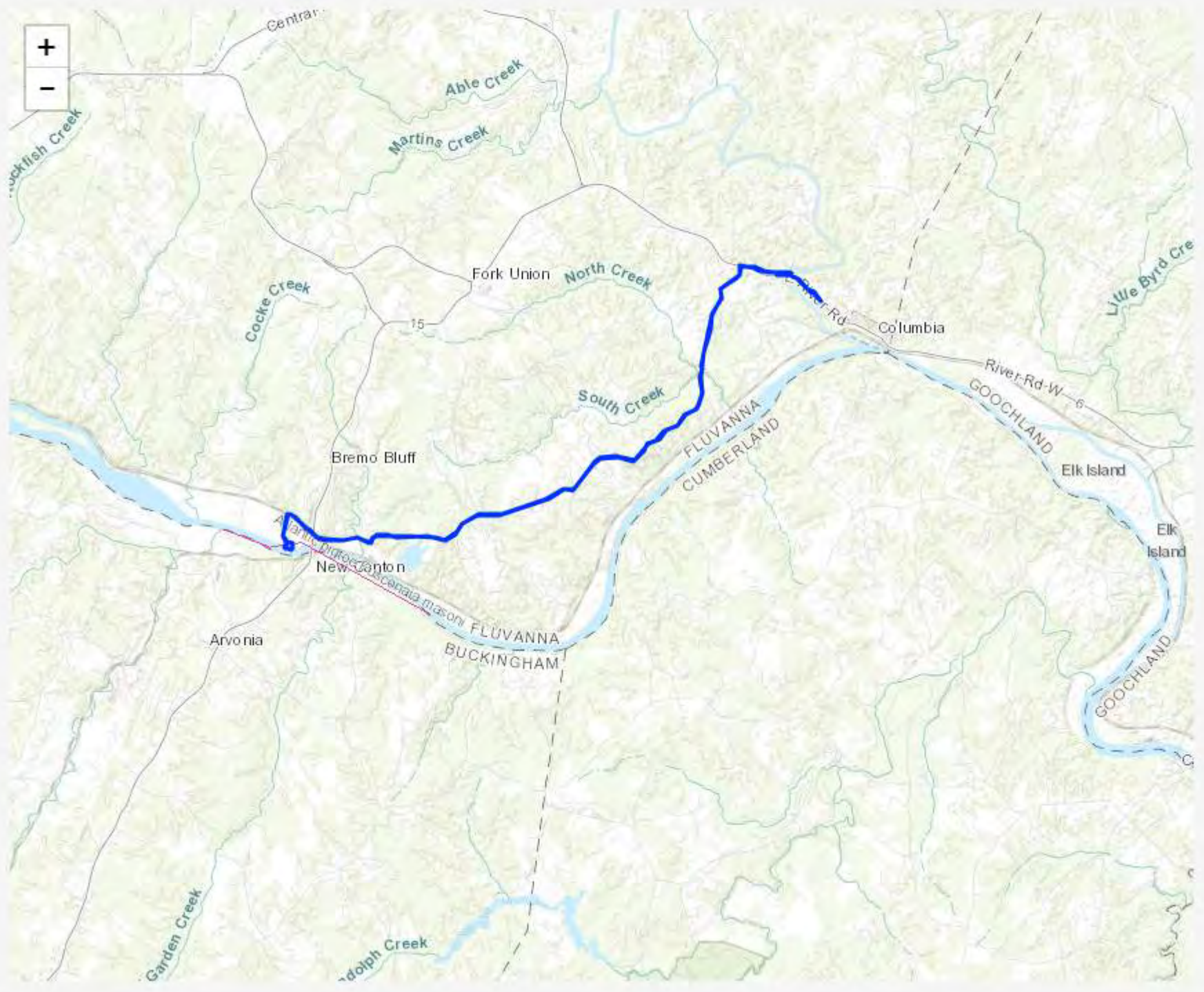
Data precautions

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.

Atlantic Pigtoe Proposed Critical Habitat



ZOOM TO PROJECT AREA  ZOOM TO CRITICAL HABITAT



VaFWIS Initial Project Assessment Report Compiled on 2/10/2020, 12:24:05 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7175200 -78.3079099**
 in **029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

492 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 22) (22 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat,SppObs
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
020023		IIa	Salamander, mole	Ambystoma talpoideum		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 492 species** [View 492](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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**	
P133	Rivanna river	Potential	0			Yes
P146	Slate river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (6 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
733	BREMO POWER STATION DAM	JAMES RIVER	Yes
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes
720	MCIVER DAM	SPRING GARDEN CREEK	Yes
725	NEW ASH DAM	SPRING GARDEN CREEK	Yes
723	OBRIEN DAM	TR-HOLMAN CREEK	Yes
990	SOLITE CORP DAM	SLATE RIVER (OFF STREAM)	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (49 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species					View Map	
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100166)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0100424)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101709)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105622)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0106445)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0107244)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (086566)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (088810)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (091449)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092555)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (093398)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

James River (095343)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096194)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 49 Threatened and Endangered Waters records** [View 49](#)

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (1 records)

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

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CM0401	2	May 1 2004	HISTORIC	Yes

Displayed 1 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (11 Reaches)

[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					
Bear Garden Creek (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Slate River (20802031)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
Slate River (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

VaFWIS - Department of Game and Inland Fisheries

37.73811 -78.24244 is the Search Point
Submit Cancel

Search Point
 Change to "clicked" map point
 Fixed at 37.73811 -78.24244

Show Position Rings
 Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area
 Yes No
2 Search distance miles buffer

Search Point is at map center

Base Map Choices
BW Aerial Photography

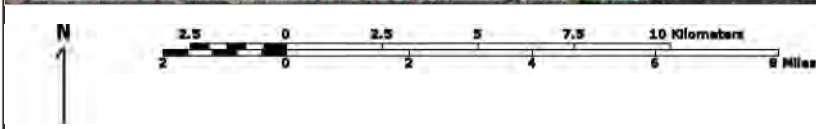
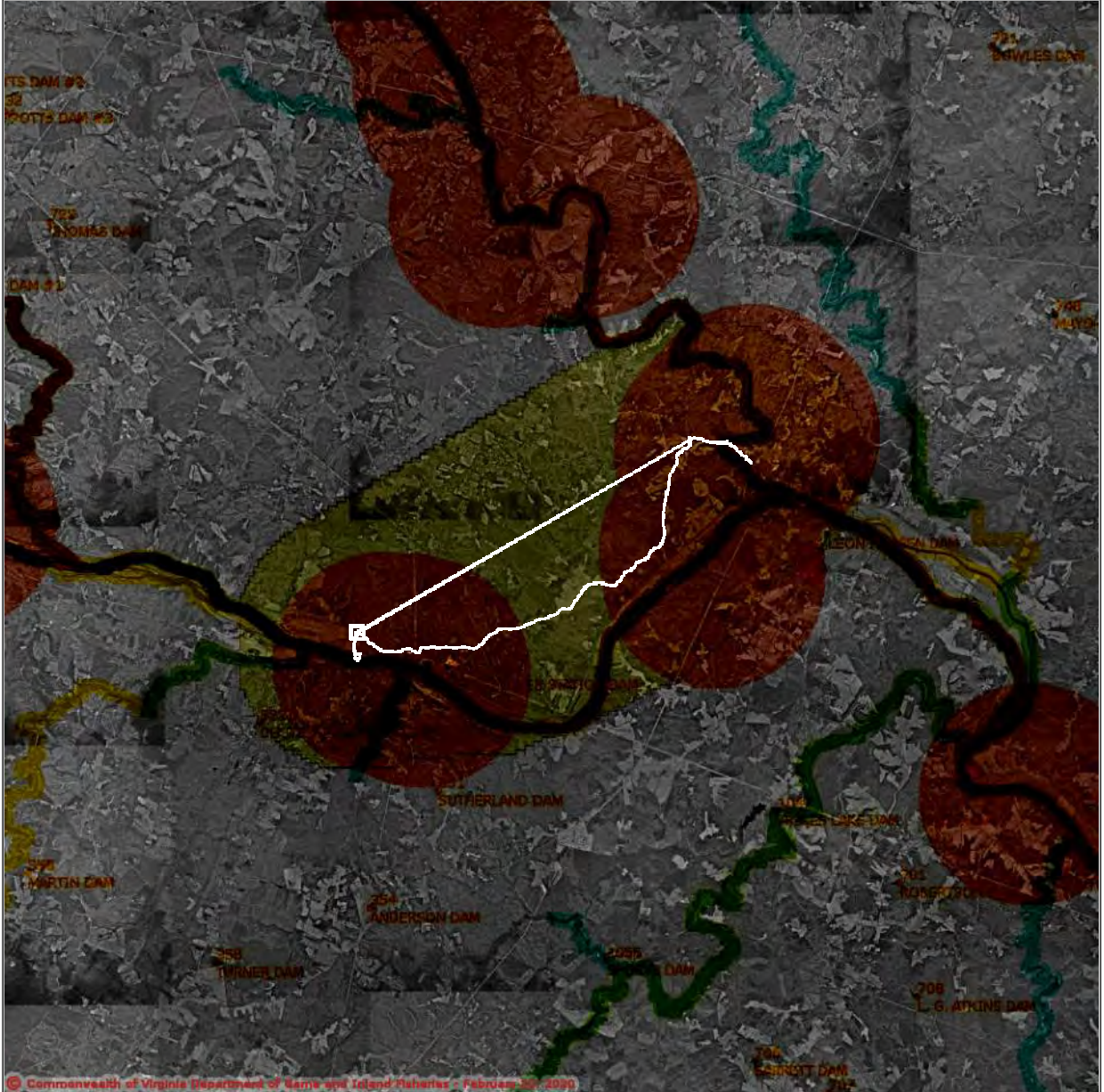
Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

- T & E Waters**
 - Federal
 - State
- Predicted Habitat WAP Tier I & II**
 - Aquatic
 - Terrestrial
- Trout Waters**
 - Class I - IV
 - Class V - VI
- Anadromous Fish Reach**
 - Confirmed
 - Potential
- Impediment**
 - 2 mile radius Search Area
- Bald Eagle Concentration Areas and Roosts**
 - Bald Eagle Nests
 - Data Observation Site

back Refresh Browser Page

Map Click **Pan** **Id** **M** Map Scale **In** **Zoom** **Out** Screen Size **Small** **Size** **Big** **Help**



Point of Search 37.73811 -78.24244
 Map Location 37.73811 -78.24244
 Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraservertopography](https://www.microsoft.com/terraservertopography) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726989 and top 4196340. Pixel size is 30. . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 32000 meters east to west by 32000 meters north to south for a total of 1024.0 square kilometers. The map display represents 105004 feet east to west by 105004 feet north to south for a total of 395.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+-

are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-10 12:22:29 (qa/qc March 21, 2016 12:20 - tn=1014796 dist=3218 I
)
\$poi=37.7175200 -78.3079100

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,43,03.0 -78,18,28.4 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

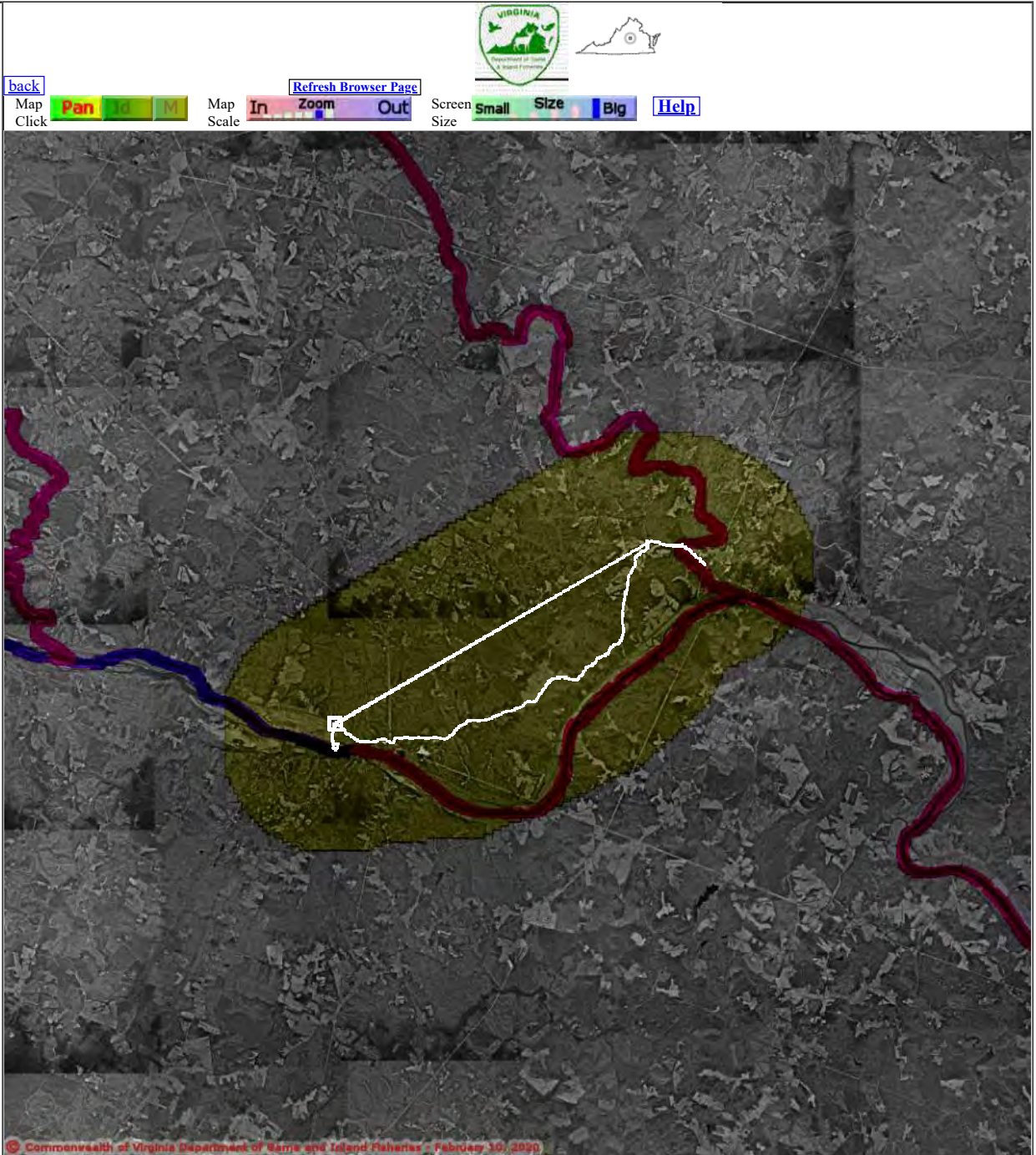
BW Aerial Photography

Map Overlay Choices

Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
 - State
- 2 mile radius Search Area



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Point of Search 37,43,03.0 -78,18,28.4
 Map Location 37,44,17.2 -78,14,32.7

Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726989 and top 4196340. Pixel size is 30. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 32000 meters east to west by 32000 meters north to south for a total of 1024.0 square kilometers. The map display represents 105004 feet east to west by 105004 feet north to south for a total of 395.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:26:16 (qa/qc March 21, 2016 12:20 - tn=1014796.1 dist=3218
I)
\$poi=37.7175200 -78.3079099

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:27:19 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:27:19 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7175200 -78.3079099 in 029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(42 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species					View Map	
	Highest TE*	BOVA Code, Status*, Tier**			Common & Scientific Name		
James River (0100166.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0100424.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101709.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105622.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0106445.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0107244.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (086566.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (088810.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (091449.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092555.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (093398.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (095343.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096194.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view **All 42 Threatened and Endangered Waters records** [View 42](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

audit no. 1014796 2/10/2020 12:27:19 PM Virginia Fish and Wildlife Information Service
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Threatened and Endangered Waters where Floater, green (060081) observed

37,43,03.0 -78,18,28.4 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

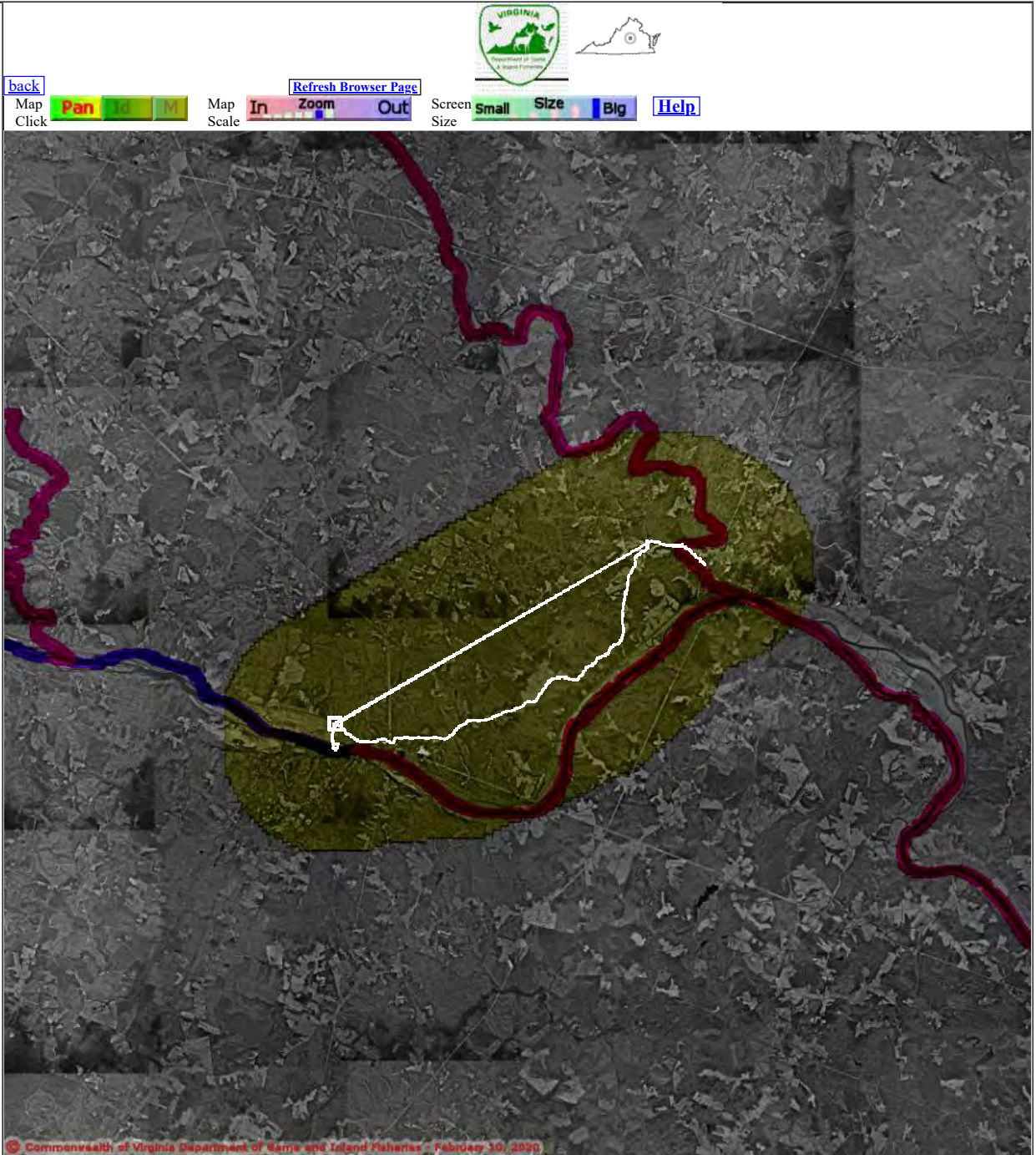
BW Aerial Photography

Map Overlay Choices

Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
 - State
- 2 mile radius Search Area



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Point of Search 37,43,03.0 -78,18,28.4
Map Location 37,44,17.2 -78,14,32.7

- Select **Coordinate System**:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 726989 and top 4196340. Pixel size is 30. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 32000 meters east to west by 32000 meters north to south for a total of 1024.0 square kilometers. The map display represents 105004 feet east to west by 105004 feet north to south for a total of 395.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:28:26 (qa/qc March 21, 2016 12:20 - tn=1014796.1 dist=3218
I)
\$poi=37.7175200 -78.3079099

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:27:59 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:27:59 PM

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Known or likely to occur within a 2 mile buffer around polygon; center 37.7175200 -78.3079099 in 029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(49 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species					View Map	
	Highest TE*	BOVA Code, Status*, Tier**			Common & Scientific Name		
James River (0100166.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0100424.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101709.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105622.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0106445.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0107244.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (086566.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (088810.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (091449.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092555.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (093398.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (095343.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096194.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view **All 49 Threatened and Endangered Waters records** [View 49](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed (4 records , 4 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Floater, green \(060081\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE *	Highest Tier **	
375919	Aquatics	Oct 1 2012	B. T. Watson, J. R. Niccoli, X. Z. Butts	4	ST	II	Yes
321181	SppObs	Jul 16 2008	Tim Savidge, Tom Dickinson, Chris Sheats, Sarah Bragg (all of TCG)	2	ST	II	Yes
319296	SppObs	Dec 11 2007	Tim Savidge, Tom Dickinson, and Chris Sheats with TCG / John Fridell with USFWS	3	ST	II	Yes
319297	SppObs	Dec 11 2007	Tim Savidge, Tom Dickinson, and Chris Sheats with TCG / John Fridell with USFWS	3	ST	II	Yes

Displayed 4 Species Observations where Floater, green (060081) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(11 Reaches)

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

Stream Name	Highest TE *	Tier Species					View Map
		BOVA Code, Status *, Tier **, Common & Scientific Name					
Bear Garden Creek (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River	FPST						Yes

(20802041)		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Slate River (20802031)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
Slate River (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/10/2020, 12:27:59 PM 11014796.1 report=BOVA searchType=P dist= 3218 poi= 37.7175200 -78.3079099

audit no. 1014796 2/10/2020 12:27:59 PM Virginia Fish and Wildlife Information Service

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7 Species Observations where Lance, yellow (060029) observed

37,43,03.0 -78,18,28.4 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area



Yes No
2 Search distance miles buffer

Display Search Point is at center hot at map center

Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Search, SppObs

Map Overlay Legend

-  2 mile radius Search Area
-  Data Observation Site

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Map Click   
 Map Scale  
 Screen Size 



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Point of Search 37,43,03.0 -78,18,28.4
 Map Location 37,44,17.2 -78,14,32.7

Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 726989 and top 4196340. Pixel size is 30. .
 Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 32000 meters east to west by 32000 meters north to south for a total of 1024.0 square kilometers. The map display represents 105004 feet east to west by 105004 feet north to south for a total of 395.5 square miles.

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map assembled 2020-02-10 12:25:29 (qa/qc March 21, 2016 12:20 - tn=1014796.1 dist=3218
I)
\$poi=37.7175200 -78.3079099

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:24:47 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:24:47 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7175200 -78.3079099**
 in **029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) **Lance, yellow** observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

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

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Compiled on 2/10/2020, 12:24:47 PM I1014796.1 report=BOVA searchType=P dist=3218 poi=37.7175200 -78.3079099

audit no. 1014796 2/10/2020 12:24:47 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

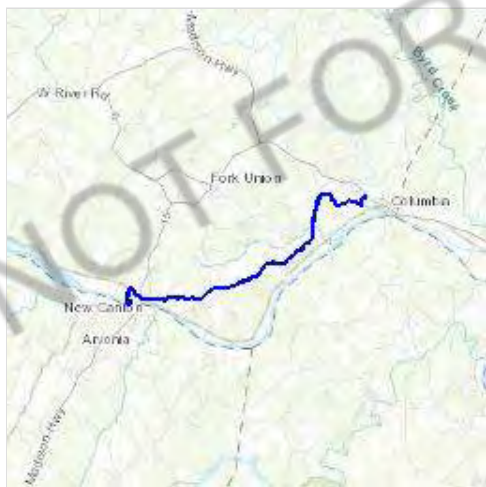
Project information

NAME

JRWA Build Alternative 2B

LOCATION

Fluvanna County, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📅 (804) 693-9032

6669 Short Lane

Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

NOT FOR CONSULTATION

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME

STATUS

Northern Long-eared Bat *Myotis septentrionalis*
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened
James Spiny mussel <i>Pleurobema collina</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2212	Endangered

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
Atlantic Pigtoe <i>Fusconaia masoni</i> https://ecos.fws.gov/ecp/species/5164#crithab	Proposed

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/>

[conservation-measures.php](#)

- Nationwide conservation measures for birds

<http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Sep 1 to Jul 31

Blue-winged Warbler *Vermivora pinus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 1 to Jun 30

Prairie Warbler *Dendroica discolor*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Jul 31

Prothonotary Warbler *Protonotaria citrea*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

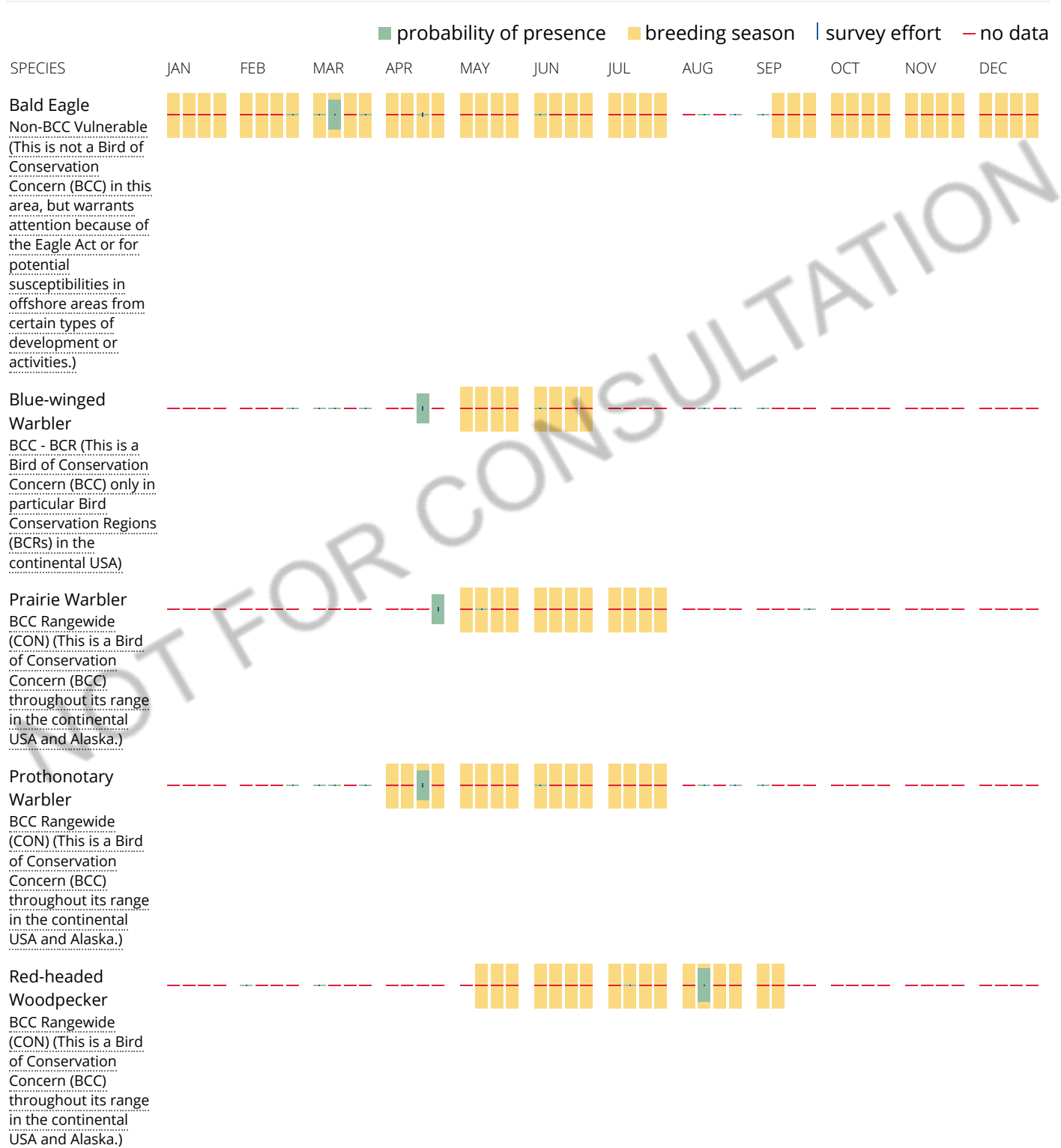
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

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

Survey Timeframe

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



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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

certain types of development or activities (e.g. offshore energy development or longline fishing).

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1C](#)

[PEM1A](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1/EM1Ad](#)

[PFO1A](#)

[PFO1C](#)

RIVERINE

[R2UBH](#)

[R4SBC](#)

[R3UBH](#)

[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

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.

Atlantic Pigtoe Proposed Critical Habitat



ZOOM TO PROJECT AREA  ZOOM TO CRITICAL HABITAT



VaFWIS Initial Project Assessment Report Compiled on 2/11/2020,[Help](#)

12:47:49 PM

Known or likely to occur within a **2 mile buffer around polygon; center 37.7175200 -78.3079099** in **029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

492 Known or Likely Species ordered by Status Concern for Conservation (displaying first 22) (22 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat,SppObs
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
020023		IIa	Salamander, mole	Ambystoma talpoideum		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA

040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king.	Rallus elegans		BOVA

To view **All 492 species** [View 492](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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**	
P133	Rivanna river	Potential	0			Yes
P146	Slate river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (6 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
733	BREMO POWER STATION DAM	JAMES RIVER	Yes
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes
720	MCIVER DAM	SPRING GARDEN CREEK	Yes
725	NEW ASH DAM	SPRING GARDEN CREEK	Yes
723	OBRIEN DAM	TR-HOLMAN CREEK	Yes
990	SOLITE CORP. DAM	SLATE RIVER (OFF STREAM)	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (48 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE *	BOVA Code, Status *, Tier **, Common & Scientific Name					
James River (0100166)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0100424)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101709)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105622)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0106445)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0107244)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (086566)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (088810)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (091449)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092555)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia masoni	

					Atlantic		
James River (093398)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (095343)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096194)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view All 48 Threatened and Endangered Waters records [View 48](#)

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

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

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CM0401	2	May 1 2004	HISTORIC	Yes
CM1001	1	May 10 2010	UNKNOWN	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (11 Reaches)

[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					
Bear Garden Creek (20802032)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater,	Lasmigona	

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Slate River (20802031)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
Slate River (20802032)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Table with multiple columns containing report=IPA searchType= P dist= 3218 poi= 37.7175200 -78.3079099 site=DD= 37.7175266 -78.3079190;37.7175629 -78.3080121;37.7175999 and a large list of public holdings data.

-78.218511:37.7314217	-78.2185248:37.7314222	-78.2185233:37.7314429	-78.2184661:37.7314434	-78.2184645:37.7314626	-78.2184065:37.7314631	-78.2184049:37.7314808	-78.2183458:37.7314811
-78.2183446:37.7317127	-78.2174939:37.7318039	-78.2171588:37.7318043	-78.2171571:37.7318265	-78.2170543:37.7318509	-78.2169752:37.7318778	-78.2168863:37.7319069	-78.2167985:37.7319384
-78.2167120:37.7319722	-78.2166269:37.7320031	-78.2165552:37.7322260	-78.2163902:37.7322304	-78.2163864:37.7322344	-78.2163819:37.7322380	-78.2163767:37.7322636	-78.2163339:37.7322874
-78.2162947:37.7323041	-78.2162664:37.7323071	-78.2162607:37.7323094	-78.2162546:37.7323111	-78.2162448:37.7323161	-78.2162017:37.7323211	-78.2159525:37.7323479	-78.2158867:37.7323525
-78.2158231:37.7327121	-78.2156683:37.7328397	-78.2155439:37.7331988	-78.2152177:37.7333650	-78.2150618:37.7333655	-78.2150613:37.7333675	-78.2148031:37.7336375	-78.2148031:37.7336475
-78.2147702:37.7336756	-78.2147691:37.7337121	-78.2147432:37.7337132	-78.2147331:37.7337488	-78.2146966:37.7337496	-78.2146957:37.7337845	-78.2146574:37.7338755	-78.2146563:37.7338919
-78.2146168:37.7338201	-78.2146156:37.7338270	-78.2146068:37.7338525	-78.2145747:37.7338535	-78.2145734:37.7338848	-78.2145312:37.7338858	-78.2145299:37.7339160	-78.2144864:37.7339167
-78.2144853:37.7339459	-78.2144403:37.7339467	-78.2144389:37.7339754	-78.2143929:37.7339763	-78.2143914:37.7340019	-78.2143443:37.7340027	-78.2143427:37.7340279	-78.2142945:37.7340188
-78.2142931:37.7340526	-78.2142437:37.7340532	-78.2142424:37.7340759	-78.2141919:37.7340765	-78.2141904:37.7340978	-78.2141431:37.7340984	-78.2141376:37.7341182	-78.2140854:37.7341288
-78.2140838:37.7341270	-78.2140604:37.7341546	-78.2139762:37.7341548	-78.2139756:37.7341553	-78.2139737:37.7343225	-78.2133706:37.7343228	-78.2133694:37.7344800	-78.2132543:37.7344760
-78.2118657:37.7347207	-78.2118665:37.7348262	-78.2114981:37.7348266	-78.2114966:37.7348402	-78.2114585:37.7348551	-78.2114200:37.7348711	-78.2113822:37.7348882	-78.2113452:37.7349200
-78.2113294:37.7349062	-78.2113089:37.7349253	-78.2112734:37.7349453	-78.2112389:37.7349663	-78.2112052:37.7349883	-78.2111724:37.7350111	-78.2111407:37.7350348	-78.2110993:37.7350593
-78.2110983:37.7350846	-78.2110517:37.7351176	-78.2110243:37.7351376	-78.2109980:37.7351651	-78.2109729:37.7351934	-78.2109491:37.7352041	-78.2109407:37.7352233	-78.2108952:37.7352518
-78.2109052:37.7352823	-78.2108850:37.7352828	-78.2108846:37.7354688	-78.2107647:37.7356649	-78.2107647:37.7356687	-78.2106583:37.7356935	-78.2106578:37.7357807	-78.2104934:37.7361538
-78.2103309:37.7361551	-78.2103301:37.7364616	-78.2103269:37.7364635	-78.2101269:37.7364638	-78.2099893:37.7366434	-78.2099732:37.7368996	-78.2099729:37.7369453	-78.2098688:37.7369615
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VaFWIS - Department of Game and Inland Fisheries

37.73488 -78.24233 is the Search Point

Search Point

- Change to "clicked" map point
- Fixed at 37.73488 -78.24233

Show Position Rings

- Yes No
- 1 mile and 1/4 mile at the Search Point

Show Search Area

- Yes No
- 2 Search distance miles buffer

Search Point is at map center

Base Map Choices

BW Aerial Photography ▾

Map Overlay Choices

Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

T & E Waters

- Federal
- State

Predicted Habitat WAP Tier I & II

- Aquatic
- Terrestrial

Trout Waters

- Class I - IV
- Class V - VI

Anadromous Fish Reach

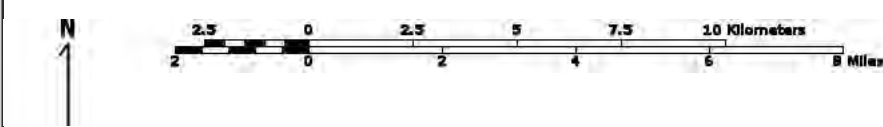
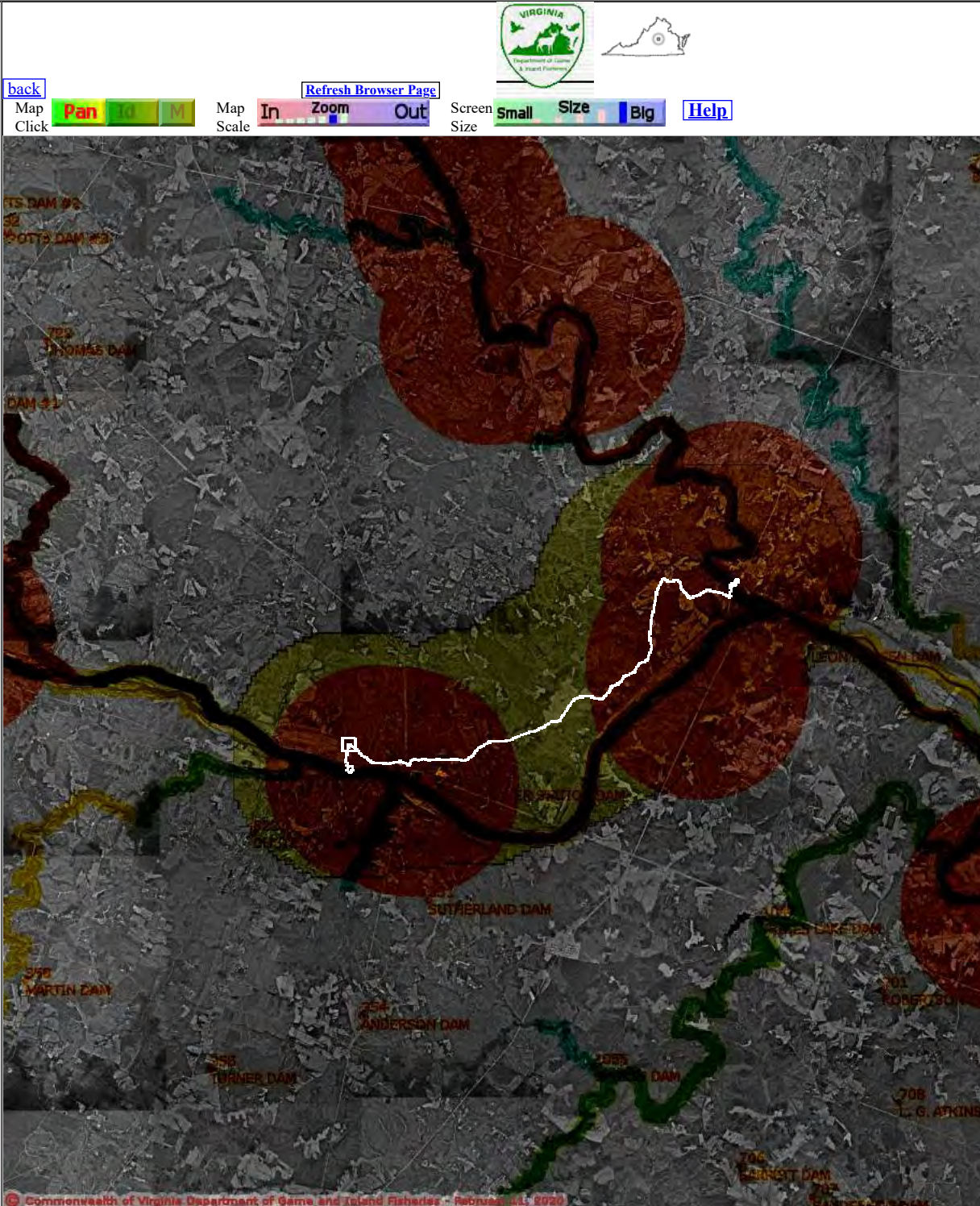
- Confirmed
- Potential

Impediment

- 2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

- Bald Eagle Nests
- Data Observation Site



Point of Search 37.73488 -78.24233

Map Location 37.73488 -78.24233

- Select Coordinate System:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 727009 and top 4195981. Pixel size is 30. .
Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000
columns by 1000 rows for a total of 1000000 pixels. The map display represents 32000 meters east
to west by 32000 meters north to south for a total of 1024.0 square kilometers. The map display
represents 105004 feet east to west by 105004 feet north to south for a total of 395.5 square miles.

Topographic maps and Black and white aerial photography for year 1990+
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-11 12:45:57 (qa/qc March 21, 2016 12:20 - tn=1015019 dist=3218 I
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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,43,03.0 -78,18,28.4 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

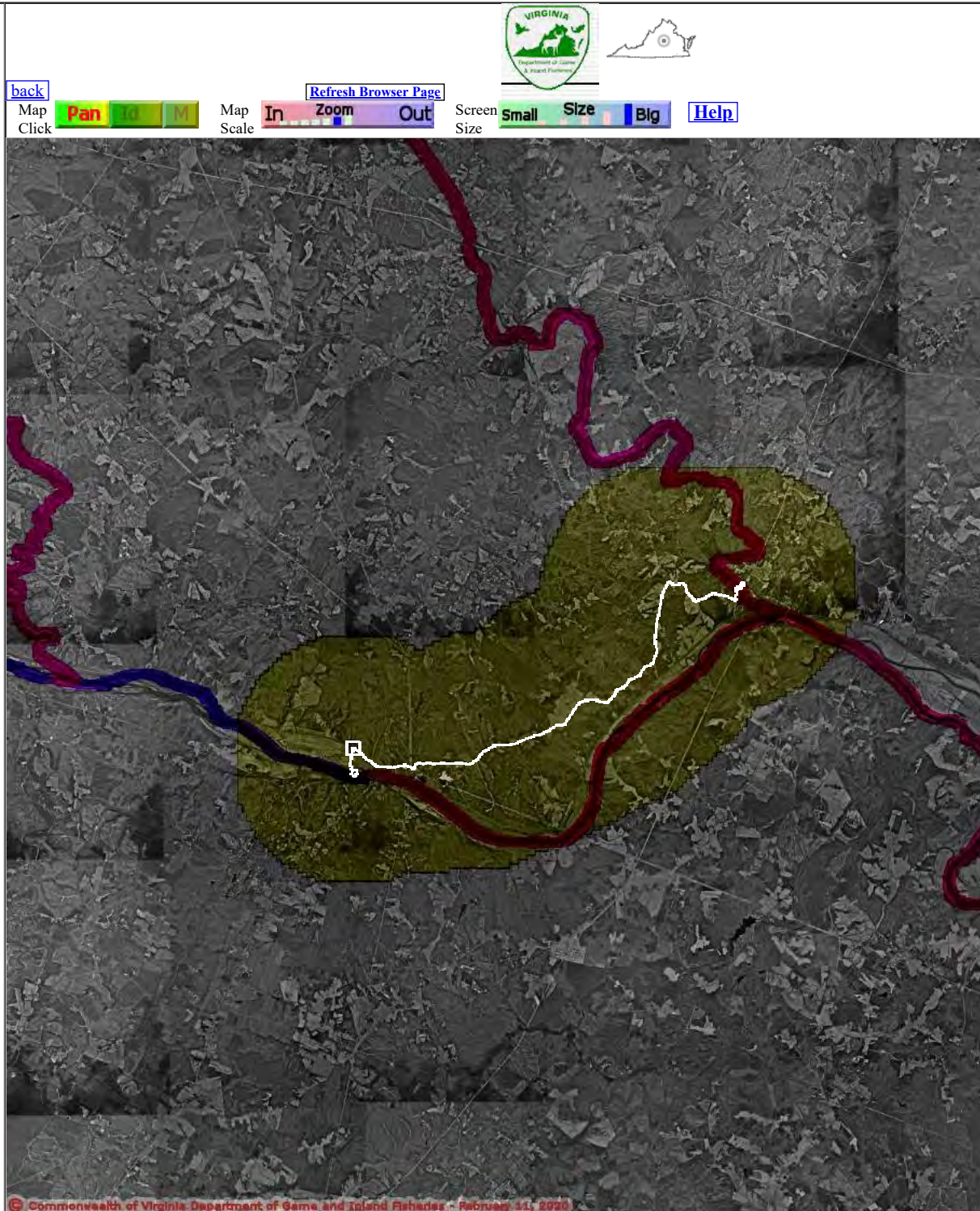
Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Search, TEWaters

Map Overlay Legend

T & E Waters
Federal
State

2 mile radius Search Area



Point of Search 37,43,03.0 -78,18,28.4
Map Location 37,44,05.5 -78,14,32.4

- Select **Coordinate System:**
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 727009 and top 4195981. Pixel size is 30. .
Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed
as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 32000
meters east to west by 32000 meters north to south for a total of 1024.0 square kilometers. The map
display represents 105004 feet east to west by 105004 feet north to south for a total of 395.5 square
miles.

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Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
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map assembled 2020-02-11 12:51:25 (qa/qc March 21, 2016 12:20 - tn=1015019.1 dist=3218
I)
\$poi=37.7175200 -78.3079099

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Virginia Department of Game and Inland Fisheries

2/11/2020 12:54:14 PM

Fish and Wildlife Information Service

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7175200 -78.3079099**
 in **029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(41 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100166.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0100424.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101709.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPST						Yes

(0105622.)		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0106445.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0107244.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (086566.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (088810.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPST	060081	ST	IIa	Floater,	Lasmigona	Yes

(091449.)					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092555.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (093398.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (095343.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096194.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view **All 41 Threatened and Endangered Waters records** [View 41](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/11/2020, 12:54:14 PM 11015019.1 report=BOVA searchType= P dist= 3218 poi= 37.7175200 -78.3079099

audit no. 1015019 2/11/2020 12:54:14 PM Virginia Fish and Wildlife Information Service
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Threatened and Endangered Waters where Floater, green (060081) observed

37,43,03.0 -78,18,28.4 is the Search Point

Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display	Search Point is
at center	not at map center

Base Map Choices

BW Aerial Photography ▾

Map Overlay Choices

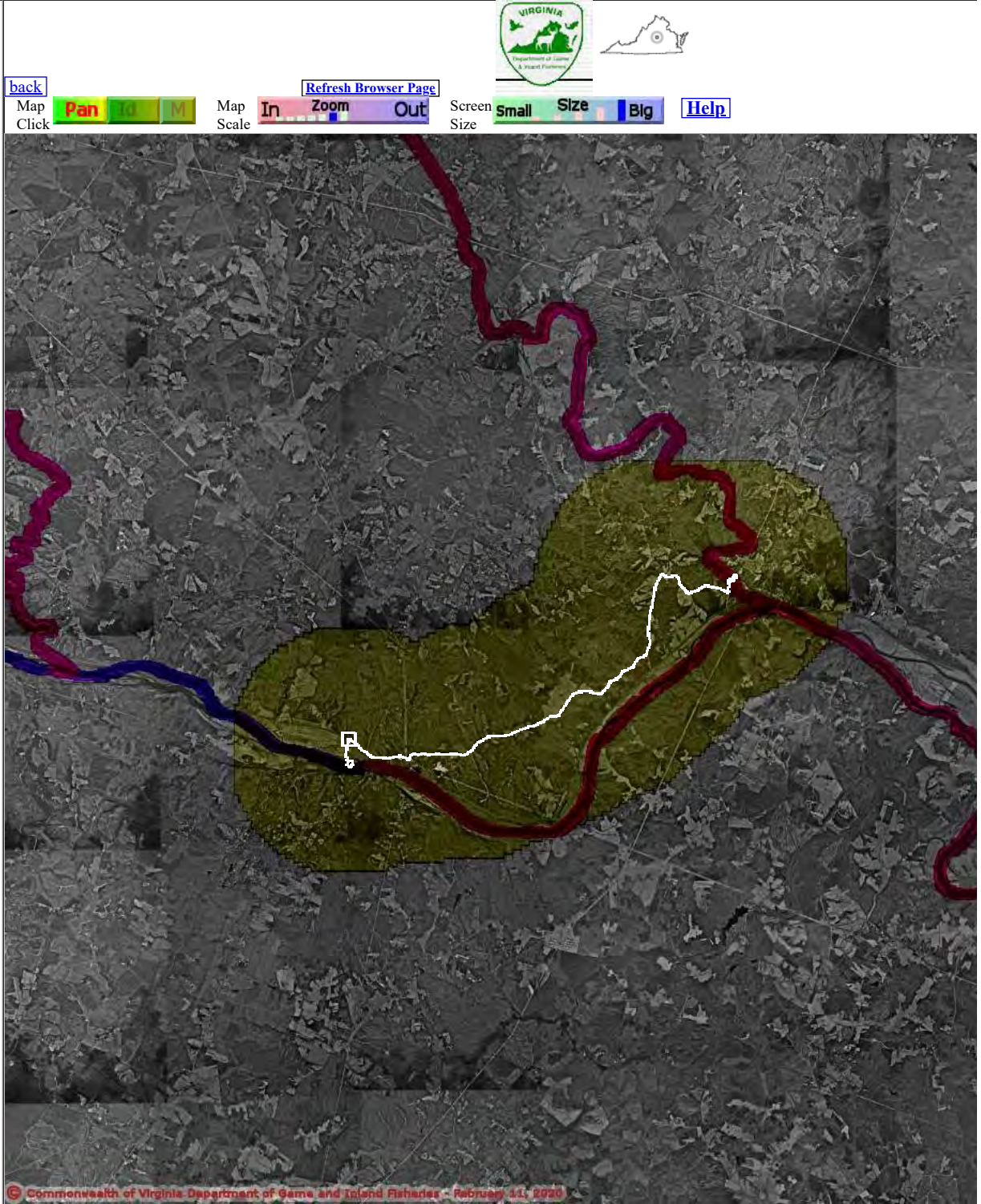
Current List: Search, TEWaters

Map Overlay Legend

T & E Waters

-  Federal
-  State

 2 mile radius Search Area



Point of Search 37,43,03.0 -78,18,28.4

Map Location 37,44,05.5 -78,14,32.4

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 727009 and top 4195981. Pixel size is 30. .
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map assembled 2020-02-11 12:54:44 (qa/qc March 21, 2016 12:20 - tn=1015019.1 dist=3218
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Known or likely to occur within a **2 mile buffer around polygon; center 37.7175200 -78.3079099**
 in **029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(48 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0100166.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0100424.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101709.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0101762.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPST						Yes

(0105622.)		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0106445.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0107244.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (086566.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (088810.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090033.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPST	060081	ST	IIa	Floater,	Lasmigona	Yes

(091449.)					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092555.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092818.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (093398.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (095343.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096194.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

To view **All 48 Threatened and Endangered Waters records** [View 48](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed (4 records , 4 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)[Species Observations where Floater, green \(060081\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE *	Highest Tier **	
375919	Aquatics	Oct 1 2012	B. T. Watson, J. R. Niccoli, X. Z. Butts	4	ST	II	Yes
321181	SppObs	Jul 16 2008	Tim Savidge, Tom Dickinson, Chris Sheats, Sarah Bragg (all of TCG)	2	ST	II	Yes
319296	SppObs	Dec 11 2007	Tim Savidge, Tom Dickinson, and Chris Sheats with TCG / John Fridell with USFWS	3	ST	II	Yes
319297	SppObs	Dec 11 2007	Tim Savidge, Tom Dickinson, and Chris Sheats with TCG / John Fridell with USFWS	3	ST	II	Yes

Displayed 4 Species Observations where Floater, green (060081) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(11 Reaches)

[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					
Bear Garden Creek (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802031)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Slate River (20802031)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
Slate River (20802032)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/11/2020, 12:55:32 PM 11015019.1 report=BOVA searchType= P dist= 3218 poi= 37.7175200 -78.3079099

audit no. 1015019 2/11/2020 12:55:32 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,43,03.0 -78,18,28.4 is the Search Point

[back](#)

Map Click

Pan To M

Map Scale

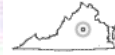
In Zoom Out

Screen Size

Small Size Big

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Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

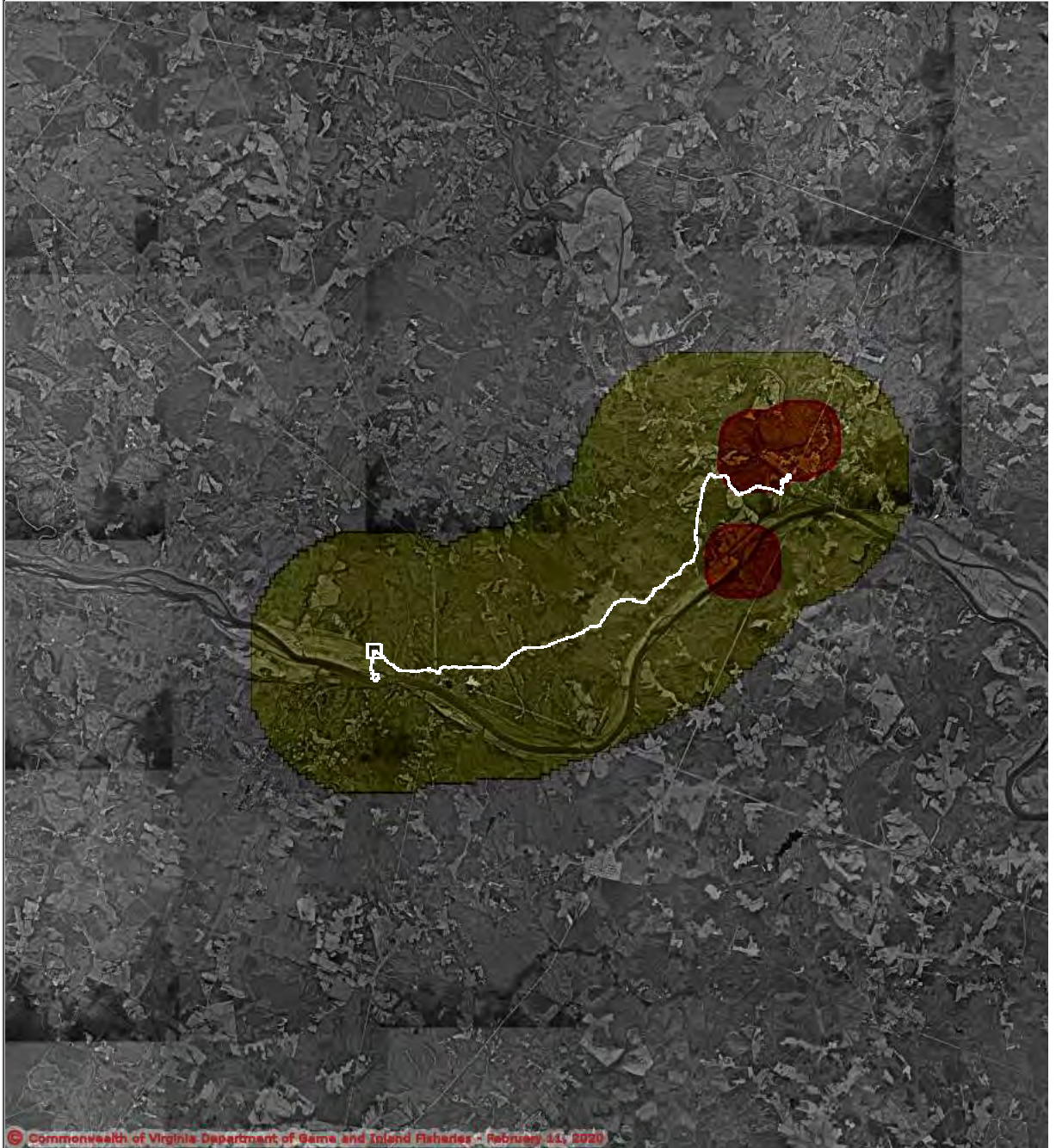
BW Aerial Photography

Map Overlay Choices

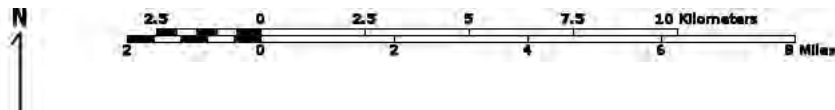
Current List: Search, SppObs

Map Overlay Legend

- 2 mile radius Search Area
- Data Observation Site



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Point of Search 37,43,03.0 -78,18,28.4

Map Location 37,44,05.5 -78,14,32.4

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude

Decimal Degrees Latitude - Longitude

Meters UTM NAD83 East North Zone

Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 727009 and top 4195981. Pixel size is 30. .
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map assembled 2020-02-11 12:48:31 (qa/qc March 21, 2016 12:20 - tn=1015019.1 dist=3218
I)
\$poi=37.7175200 -78.3079099

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2/11/2020 12:49:07 PM

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VaFWIS Search Report Compiled on 2/11/2020, 12:49:07 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7175200 -78.3079099**
 in **029 Buckingham County, 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Compiled on 2/11/2020, 12:49:07 PM 11015019.1 report=BOVA searchType= P dist= 3218 poi= 37.7175200 -78.3079099

audit no. 1015019 2/11/2020 12:49:07 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

Project information

NAME

JRWA Build Alternative 3

LOCATION

Fluvanna County, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane

Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

NOT FOR CONSULTATION

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME

STATUS

Northern Long-eared Bat *Myotis septentrionalis*
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Threatened

Clams

NAME

STATUS

Atlantic Pigtoe *Fusconaia masoni*
 There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/5164>

Proposed Threatened

James Spiny mussel *Pleurobema collina*
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/2212>

Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
<p>Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626</p>	Breeds Sep 1 to Jul 31
<p>Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds May 1 to Jun 30
<p>Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Aug 20
<p>Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

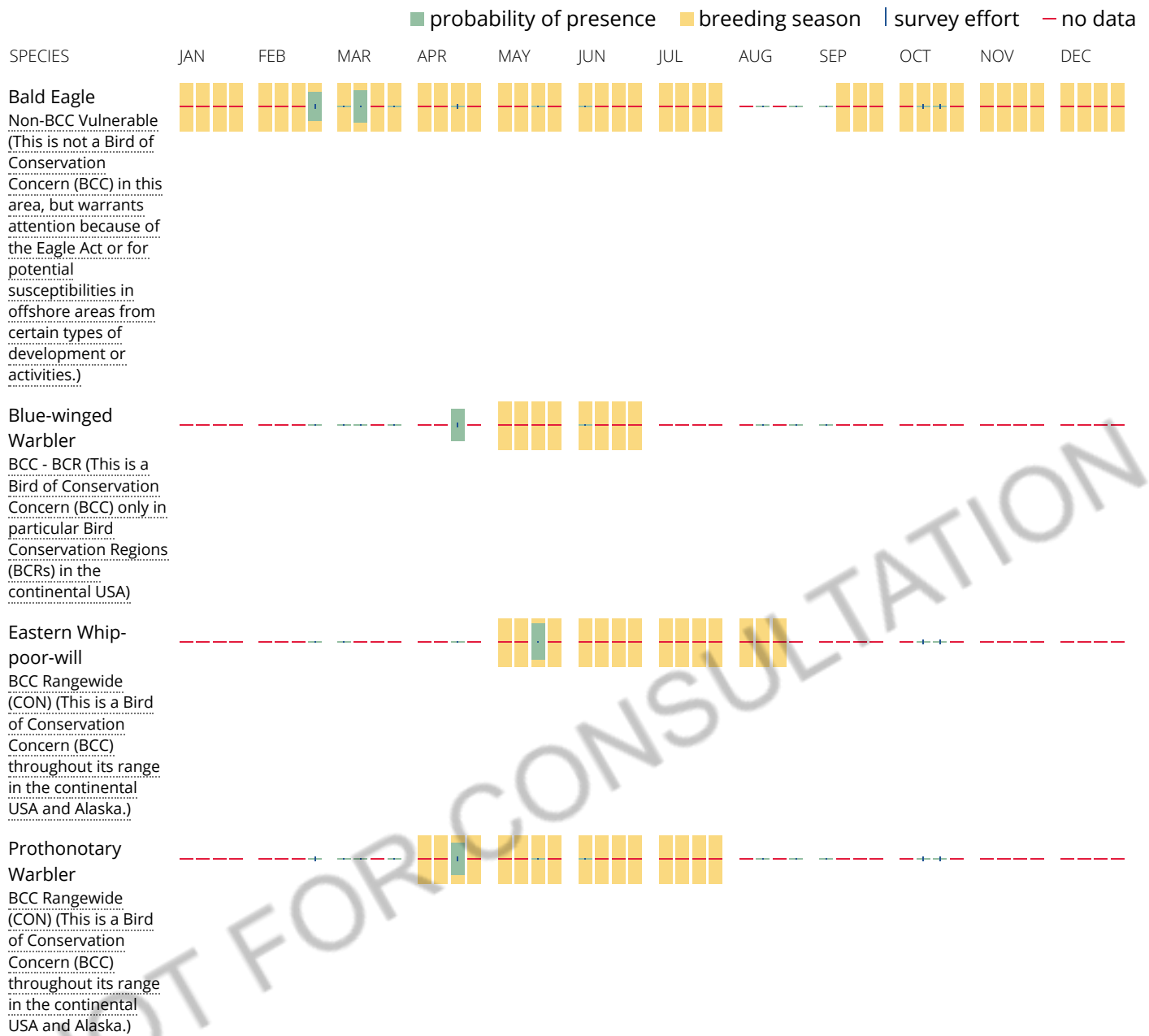
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

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

Survey Timeframe

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



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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project

intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1C](#)

FRESHWATER POND

[PUBHx](#)

RIVERINE

[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

VaFWIS - Department of Game and Inland Fisheries

37.75474 -78.16802 is the Search Point

Search Point
 Change to "clicked" map point
 Fixed at 37.75474 -78.16802

Show Position Rings
 Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area
 Yes No
2 Search distance miles buffer

Search Point is at map center

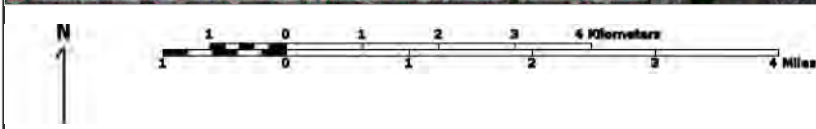
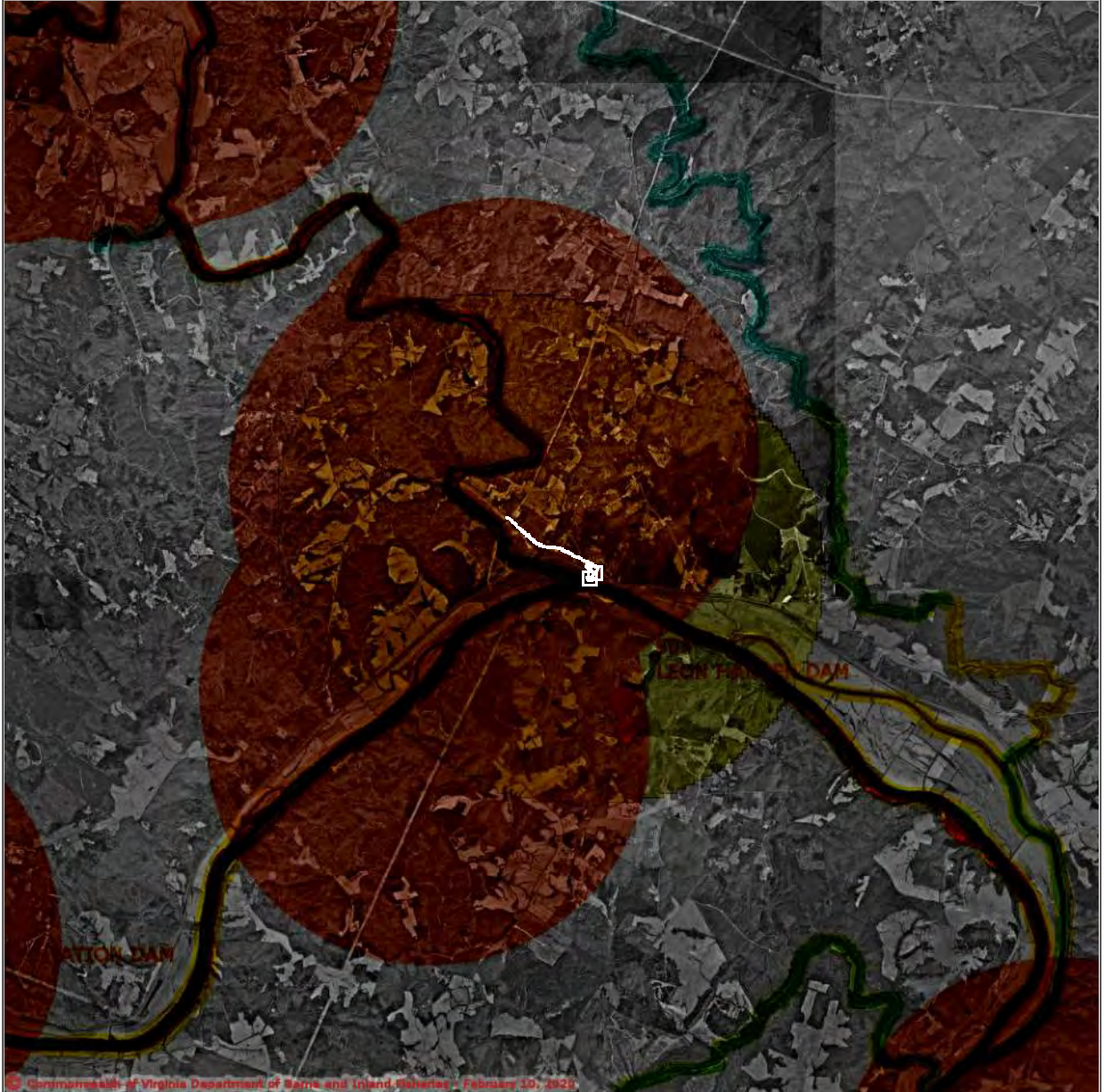
Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

- T & E Waters**
 - Federal
 - State
- Predicted Habitat WAP Tier I & II**
 - Aquatic
 - Terrestrial
- Trout Waters**
 - Class I - IV
 - Class V - VI
- Anadromous Fish Reach**
 - Confirmed
 - Potential
- Impediment**
 - 2 mile radius Search Area
- Bald Eagle Concentration Areas and Roosts**
 - Bald Eagle nests 660 and 330 foot management zones
 - Data Observation Site

[back](#)
Map Click Pan Id M
Map Scale In Zoom Out
Screen Size Small Big
[Help](#)



Point of Search 37.75474 -78.16802
Map Location 37.75474 -78.16802

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 741491 and top 4190382. Pixel size is 16 meters. Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo>
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:29:47 (qa/qc March 21, 2016 12:20 - tn=1014800 dist=3218 I)
\$poi=37.7514000 -78.1610700

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VaFWIS Initial Project Assessment Report

Compiled on 2/10/2020, 12:32:52 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7514000 -78.1610699**
in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

471 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 471 species** [View 471](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (2 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**	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (20 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

James River (0105387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

View Map of All Query Results Bald Eagle Nests

Table with columns: Nest, N Obs, Latest Date, DGIF Nest Status, View Map. Rows include CM0401 (2, May 1 2004, HISTORIC, Yes) and CM1001 (1, May 10 2010, UNKNOWN, Yes).

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (6 Reaches)

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Table with columns: Stream Name, Highest TE, BOVA Code, Status, Tier, Common & Scientific Name, View Map. Rows list streams like James River, Rivanna River, and James River with various BOVA codes and species names like Alasmidonta varicosa and Fusconaia masoni.

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 2/10/2020, 12:32:52 PM... report=IPA... Includes a long list of coordinates and IDs.

PixelSize=64; Anadromous=0.0333; BECAR=0.024077; Bats=0.024096; Buffer=0.133127; County=0.091265; Impediments=0.032196; Init=0.331214; PublicLands=0.034772; SppObs=0.277791; TEWaters=0.048058; TierReaches=0.068083; TierTerrestrial=0.049581; Total=1.242891; Tracking_BOVA=0.16282; Trout=0.031458

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,05.0 -78,09,39.8 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

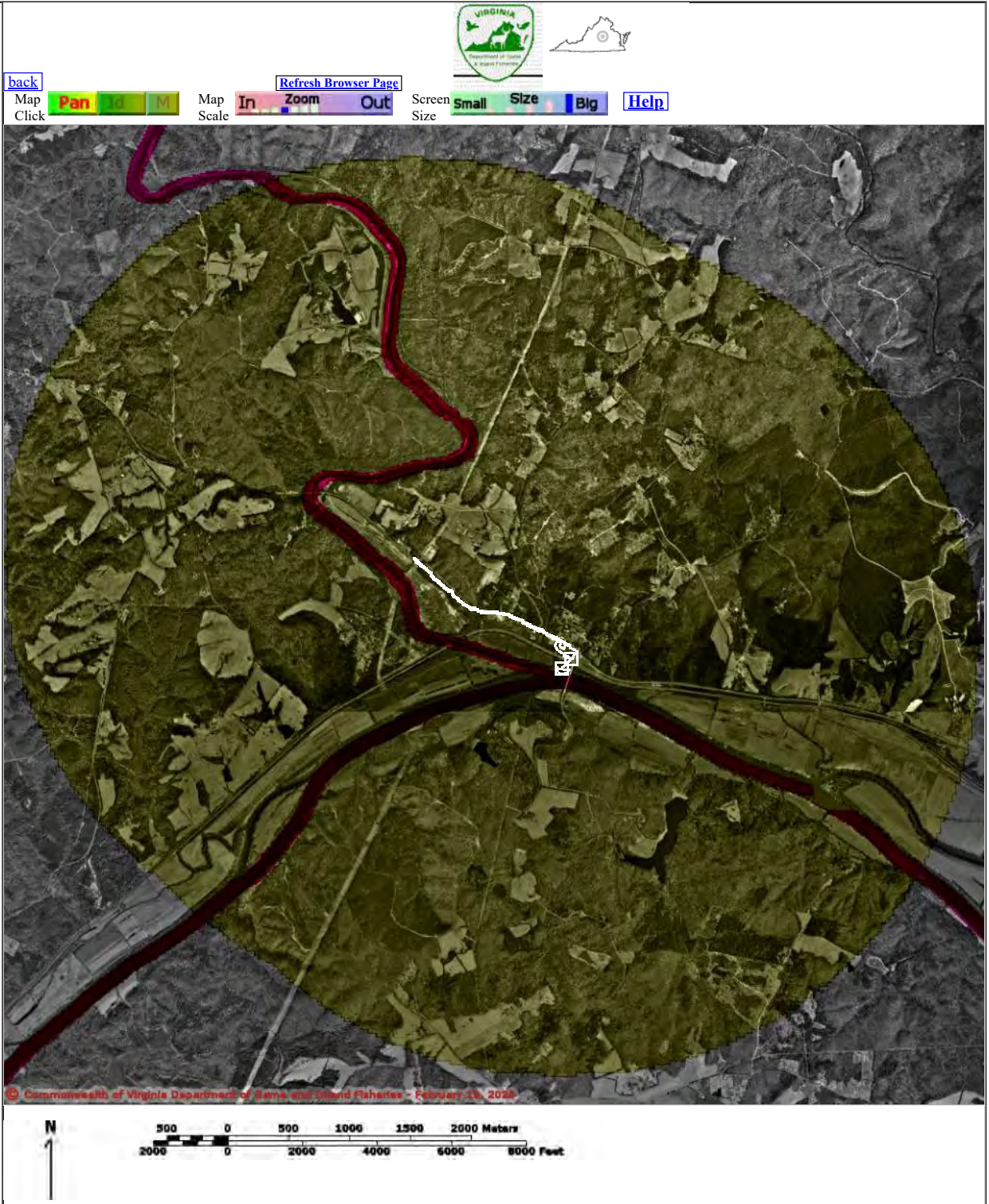
BW Aerial Photography

Map Overlay Choices

Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
- State
- 2 mile radius Search Area



Point of Search 37,45,05.0 -78,09,39.8

Map Location 37,45,17.1 -78,10,04.9

- Select **Coordinate System:**
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 745491 and top 4186382. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:34:43 (qa/qc March 21, 2016 12:20 - tn=1014800.1 dist=3218 I)
\$poi=37.7514000 -78.1610699

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:35:22 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:35:22 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7514000 -78.1610699 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(20 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia	

					Atlantic	masoni	
James River (096387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/10/2020, 12:35:22 PM 11014800.1 report=BOVA searchType=P dist=3218 poi=37.7514000 -78.1610699

audit no. 1014800 2/10/2020 12:35:22 PM Virginia Fish and Wildlife Information Service
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Threatened and Endangered Waters where Floater, green (060081) observed

37,45,05.0 -78,09,39.8 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

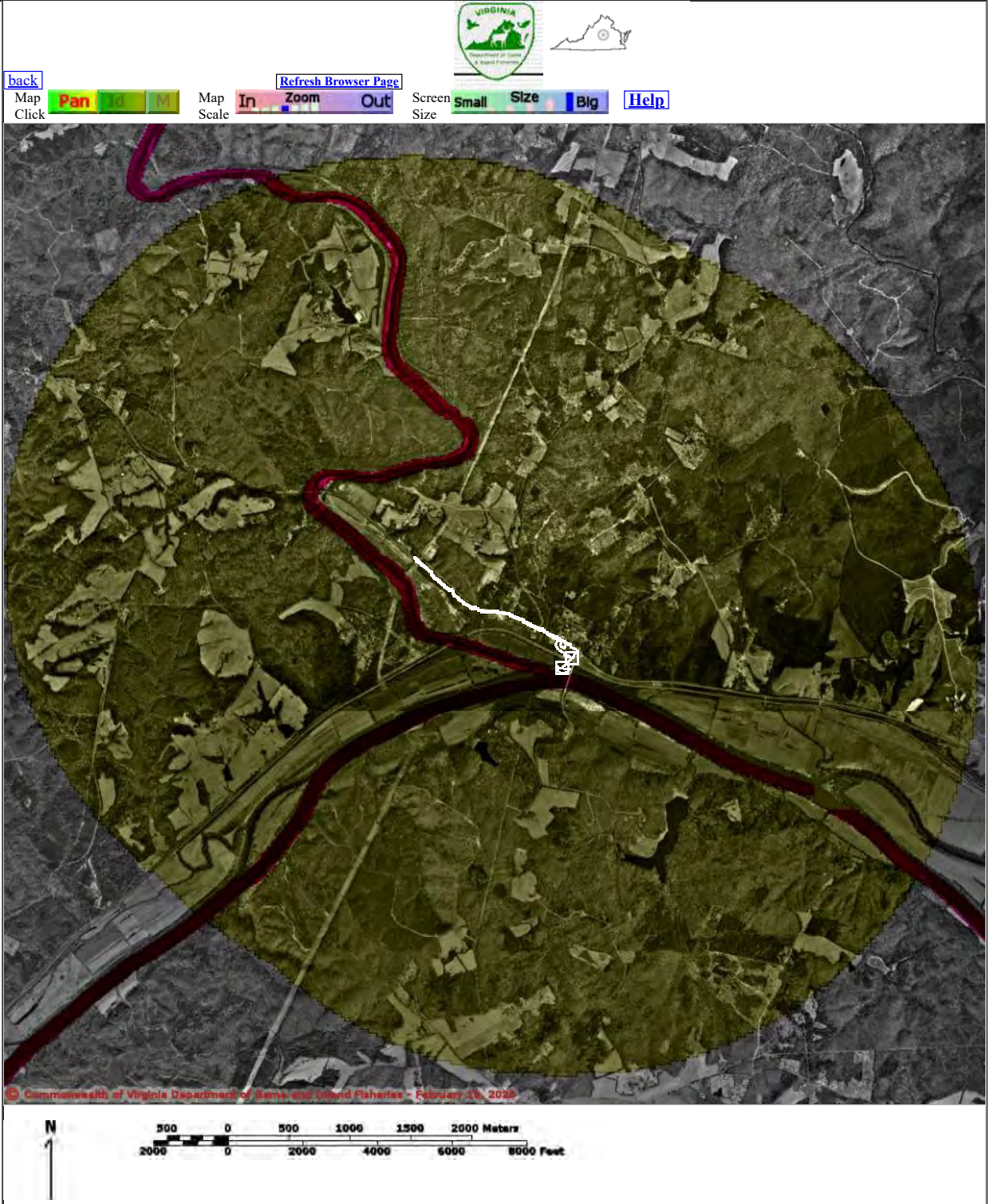
Current List: Search, TEWaters

Map Overlay Legend

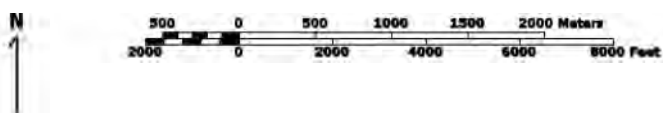
T & E Waters

- Federal
- State

2 mile radius Search Area



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Point of Search 37,45,05.0 -78,09,39.8
Map Location 37,45,17.1 -78,10,04.9

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 745491 and top 4186382. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:35:53 (qa/qc March 21, 2016 12:20 - tn=1014800.1 dist=3218
I)
\$poi=37.7514000 -78.1610699

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:36:36 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:36:36 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7514000 -78.1610699 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(20 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia	

					Atlantic	masoni	
James River (096387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/10/2020, 12:36:36 PM 11014800.1 report=BOVA searchType= P dist= 3218 poi= 37.7514000 -78.1610699

audit no. 1014800 2/10/2020 12:36:36 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,45,05.0 -78,09,39.8 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center hot at map center

Base Map Choices

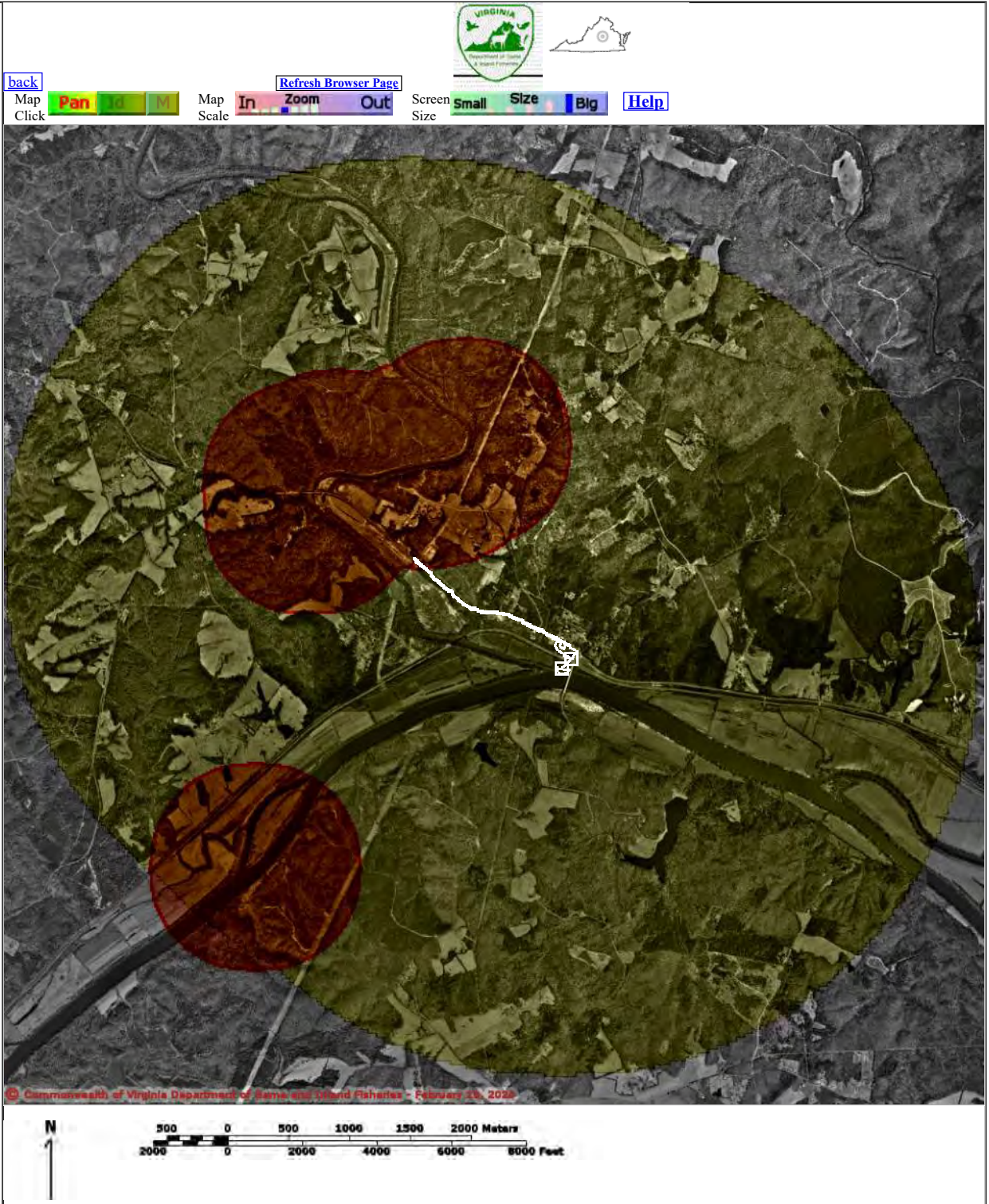
BW Aerial Photography

Map Overlay Choices

Current List: Search, SppObs

Map Overlay Legend

-  2 mile radius Search Area
-  Data Observation Site



Point of Search 37,45,05.0 -78,09,39.8

Map Location 37,45,17.1 -78,10,04.9

- Select Coordinate System:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 745491 and top 4186382. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:33:23 (qa/qc March 21, 2016 12:20 - tn=1014800.1 dist=3218
I)
\$poi=37.7514000 -78.1610699

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:34:17 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:34:17 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7514000 -78.1610699
 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA
 where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Compiled on 2/10/2020, 12:34:17 PM 11014800.1 report=BOVA searchType=P dist= 3218 poi= 37.7514000 -78.1610699

audit no. 1014800 2/10/2020 12:34:17 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

Project information

NAME

JRWA Build Alternative 4

LOCATION

Fluvanna and Goochland counties, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

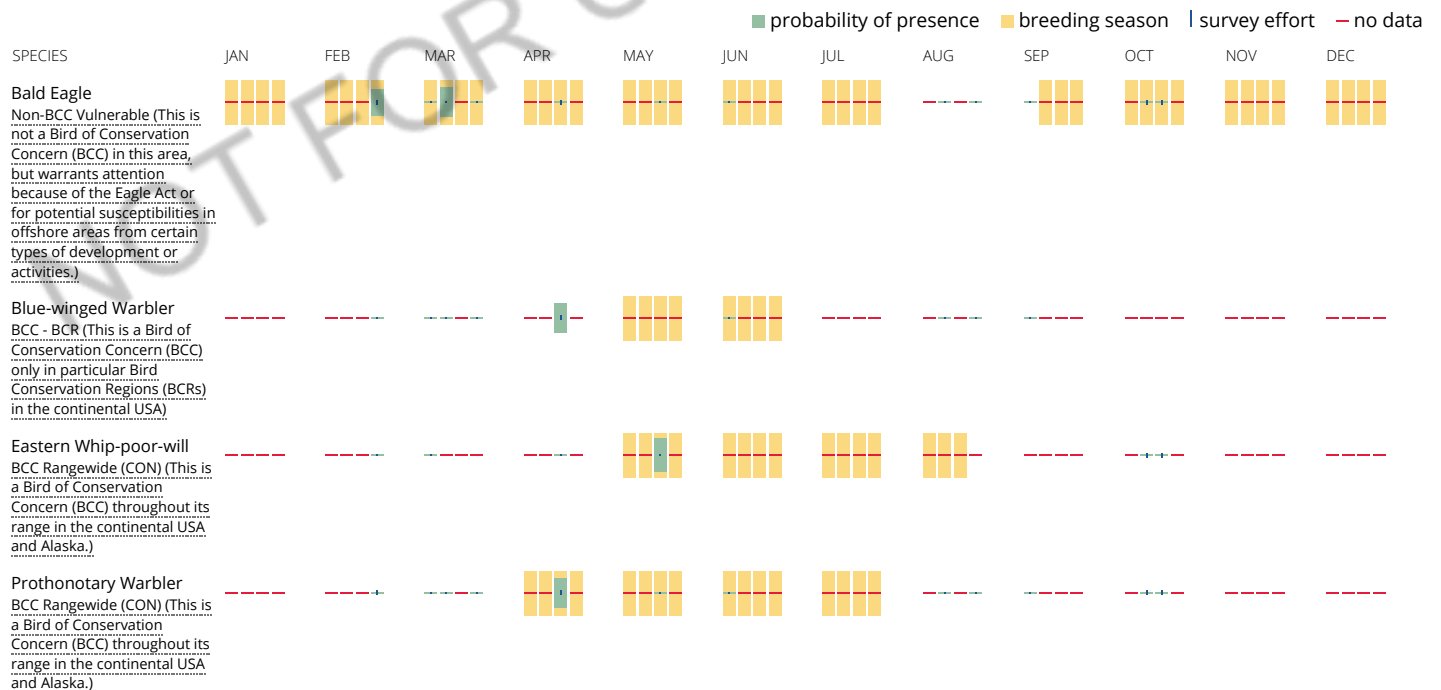
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

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

Survey Timeframe

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



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

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be

breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1C](#)

FRESHWATER POND

[PUBHx](#)

RIVERINE

[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

NOT FOR CONSULTATION

VaFWIS Initial Project Assessment Report Compiled on 2/10/2020, 12:38:41 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7492900 -78.1535299**
in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

471 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 471 species** [View 471](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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**	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes
P25	Byrd creek	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (22 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species					View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name				
James River (0101762)	FPST	060081	ST	IIa	Floater, green Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Managed Trout Streams

N/A

VaFWIS - Department of Game and Inland Fisheries

37.75311 -78.16356 is the Search Point
Submit Cancel

Search Point
 Change to "clicked" map point
 Fixed at 37.75311 -78.16356

Show Position Rings
 Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area
 Yes No
2 Search distance miles buffer

Search Point is at map center

Base Map Choices
BW Aerial Photography

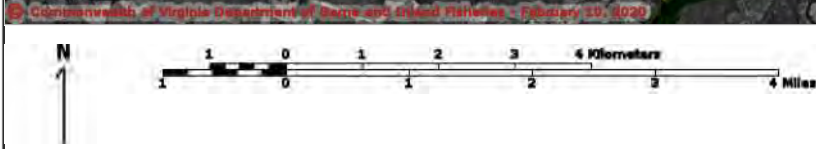
Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

- T & E Waters**
 - Federal
 - State
- Predicted Habitat WAP Tier I & II**
 - Aquatic
 - Terrestrial
- Trout Waters**
 - Class I - IV
 - Class V - VI
- Anadromous Fish Reach**
 - Confirmed
 - Potential
- Impediment**
 - 2 mile radius Search Area
- Bald Eagle Concentration Areas and Roosts**
 - Bald Eagle nests 660 and 330 foot management zones
 - Data Observation Site

back Refresh Browser Page

Map Click **Pan** **Id** **M** Map Scale **In** **Zoom** **Out** Screen Size **Small** **Size** **Big** **Help**



Point of Search 37.75311 -78.16356
Map Location 37.75311 -78.16356

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 741890 and top 4190212. Pixel size is 14. . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+-

are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
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All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-10 12:37:43 (qa/qc March 21, 2016 12:20 - tn=1014807 dist=3218 I
)
\$poi=37.7492900 -78.1535300

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,44,57.4 -78,09,12.7 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

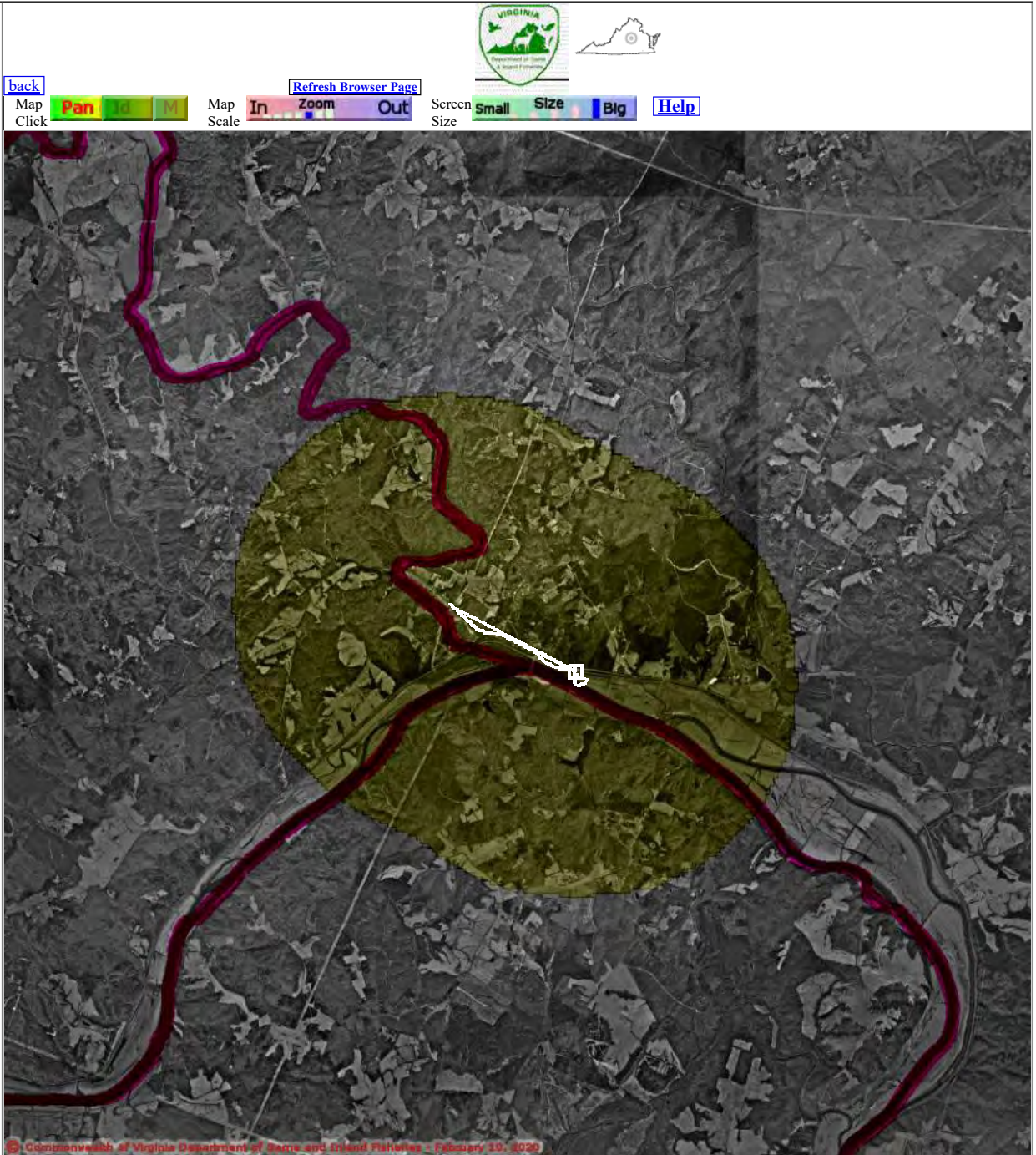
BW Aerial Photography

Map Overlay Choices

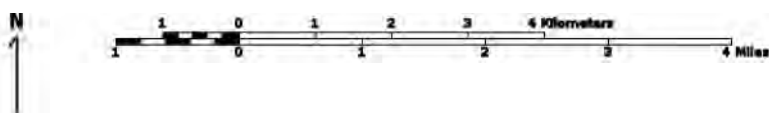
Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
- State
- 2 mile radius Search Area



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Point of Search 37,44,57.4 -78,09,12.7
Map Location 37,45,11.2 -78,09,48.8

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 741890 and top 4190212. Pixel size is 14. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

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map assembled 2020-02-10 12:43:59 (qa/qc March 21, 2016 12:20 - tn=1014807.1 dist=3218
I)
\$poi=37.7492900 -78.1535299

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:45:03 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:45:03 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7492900 -78.1535299 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(22 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia	

					Atlantic	masoni	
James River (092291)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/10/2020, 12:45:03 PM 11014807.1 report=BOVA searchType=P dist= 3218 poi= 37.7492900 -78.1535299

Threatened and Endangered Waters where Floater, green (060081) observed

37,44,57.4 -78,09,12.7 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices



BW Aerial Photography

Map Overlay Choices

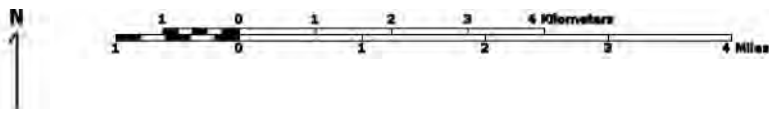
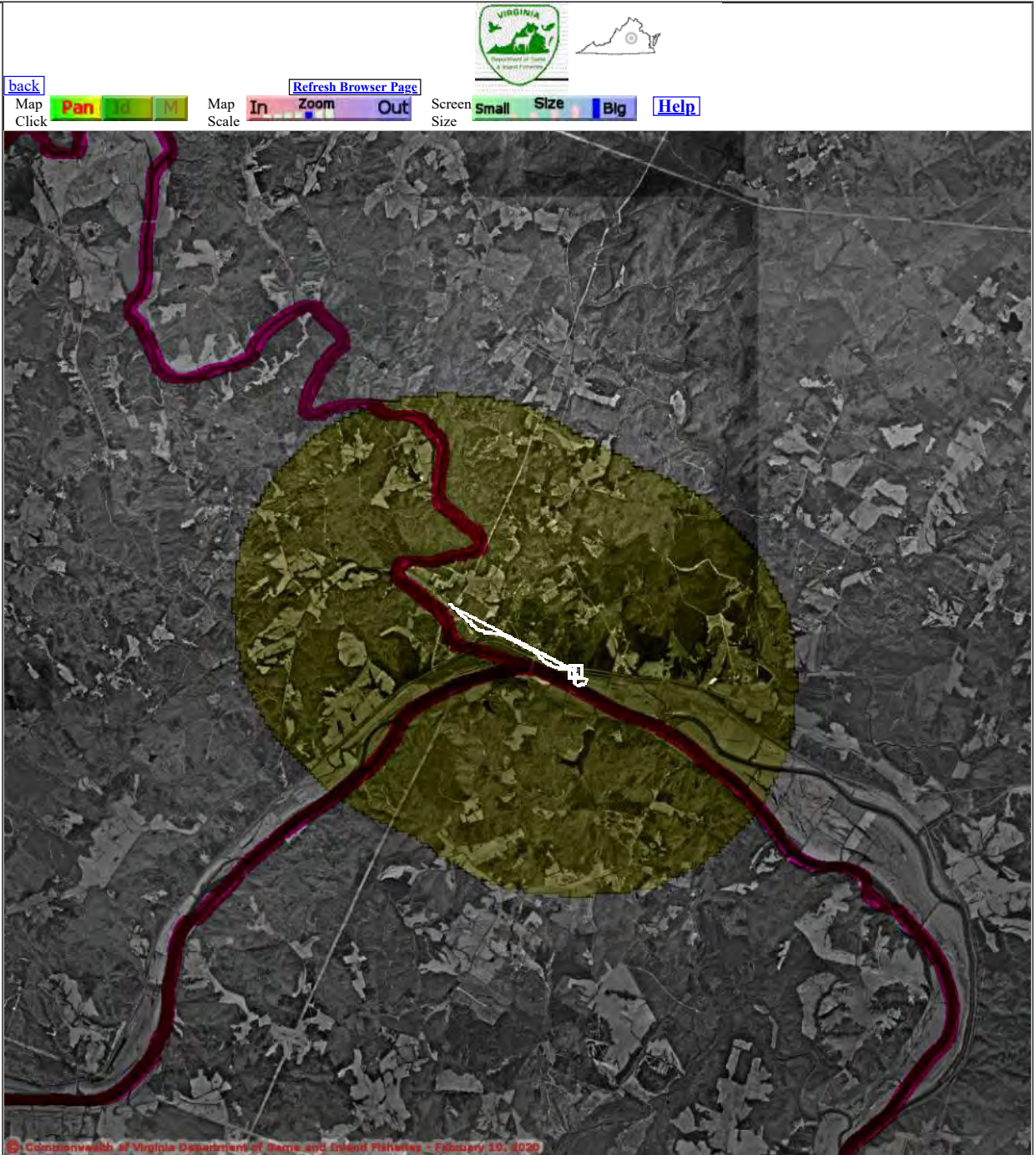
Current List: Search, TEWaters

Map Overlay Legend

T & E Waters

-  Federal
-  State

 2 mile radius Search Area



Point of Search 37,44,57.4 -78,09,12.7
Map Location 37,45,11.2 -78,09,48.8

- Select **Coordinate System**:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 741890 and top 4190212. Pixel size is 14. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:46:05 (qa/qc March 21, 2016 12:20 - tn=1014807.1 dist=3218
I)
\$poi=37.7492900 -78.1535299

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:47:00 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:47:00 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7492900 -78.1535299 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(22 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia	

					Atlantic	masoni	
James River (092291)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(7 Reaches)

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

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
Byrd Creek (20802051)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ia	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/10/2020, 12:47:00 PM 11014807.1 report=BOVA searchType=P dist=3218 poi=37.7492900 -78.1535299

audit no. 1014807 2/10/2020 12:47:00 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,44,57.4 -78,09,12.7 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area



Yes No
2 Search distance miles buffer








Display Search Point is at center hot at map center

Base Map Choices
BW Aerial Photography

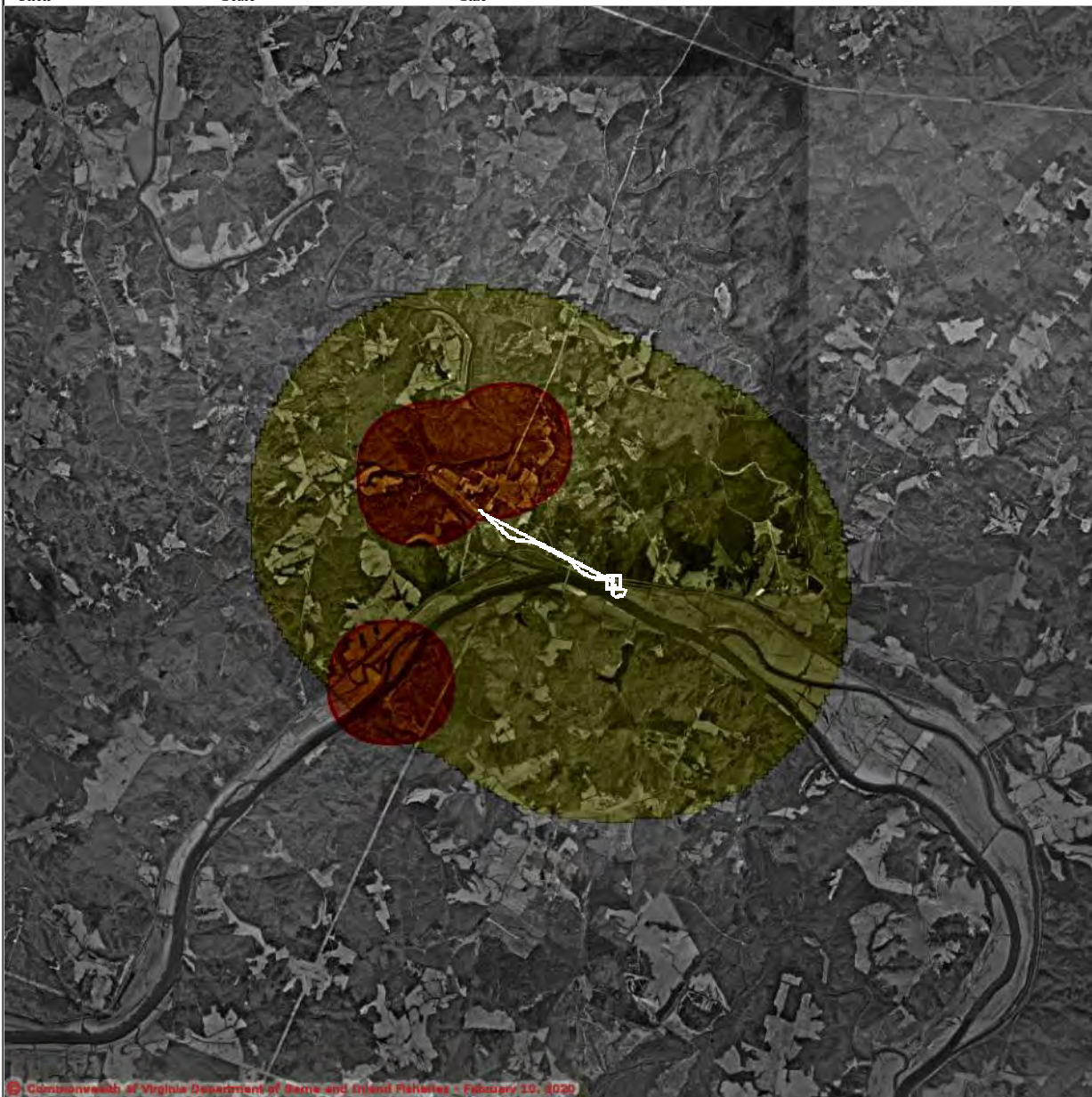
Map Overlay Choices
Current List: Search, SppObs

Map Overlay Legend

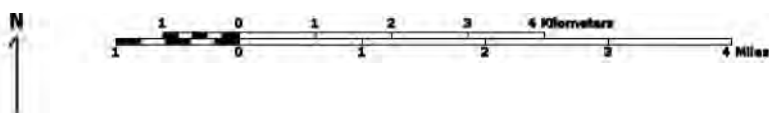
-  2 mile radius Search Area
-  Data Observation Site

[back](#)





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[Help](#)



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Point of Search 37,44,57.4 -78,09,12.7
 Map Location 37,45,11.2 -78,09,48.8

Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 741890 and top 4190212. Pixel size is 14. .
 Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:39:26 (qa/qc March 21, 2016 12:20 - tn=1014807.1 dist=3218 I)
\$poi=37.7492900 -78.1535299

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:43:33 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:43:33 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around polygon; center 37.7492900 -78.1535299 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Compiled on 2/10/2020, 12:43:33 PM 11014807.1 report=BOVA searchType=P dist= 3218 poi= 37.7492900 -78.1535299

audit no. 1014807 2/10/2020 12:43:33 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

Project information

NAME

JRWA Build Alternative 5A

LOCATION

Fluvanna and Goochland counties, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

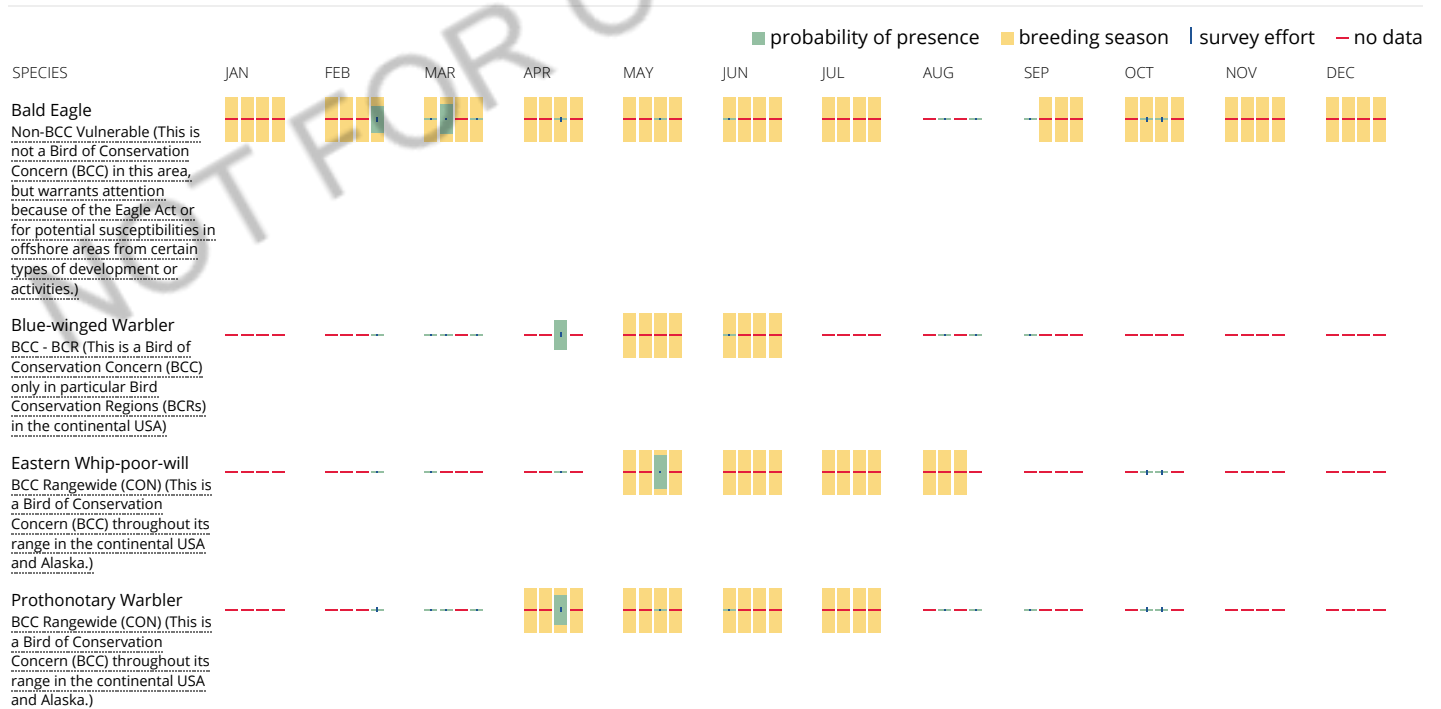
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

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

Survey Timeframe

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



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

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be

breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1C](#)

FRESHWATER POND

[PUBHx](#)

RIVERINE

[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

NOT FOR CONSULTATION

VaFWIS Initial Project Assessment Report Compiled on 2/10/2020, 12:51:03 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around line beginning 37.7481200 -78.1432899**
in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

473 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 473 species** [View 473](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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**	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes
P25	Byrd creek	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species					View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name				
James River (0101762)	FPST	060081	ST	IIa	Floater, green Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0172382)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0175549)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0184475)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

View Map of All Query Results
Bald Eagle Nests

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CM0401	2	May 1 2004	HISTORIC	Yes
CM1001	1	May 10 2010	UNKNOWN	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (7 Reaches)

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					
Byrd Creek (20802051)	ST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060006	SE	Ib	Floater, brook	Alasmidontia varicosa	
James River (20802031)	FPSE	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
		060006	SE	Ib	Floater, brook	Alasmidontia varicosa	
James River (20802032)	FPSE	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
		060006	SE	Ib	Floater, brook	Alasmidontia varicosa	
James River (20802051)	FPSE	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
		060006	SE	Ib	Floater, brook	Alasmidontia varicosa	
James River (20802052)	FPSE	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
		060006	SE	Ib	Floater, brook	Alasmidontia varicosa	
Rivanna River (20802041)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 2/10/2020, 12:51:03 PM 110148110 report=IPA searchType=L dist= 3218 poi= 37.7481200 -78.1432899 siteDD= 37.7481228 -78.1433001 37.7481224 -78.1433013 37.7481257 -78.1433254 37.7481260 -78.1433276 37.7481262 -78.1433298 37.7481263 -78.1433319 37.7481264 -78.1433341 37.7481265 -78.1433363 37.7481266 -78.1433384 37.7481267 -78.1433406 37.7481268 -78.1433427 37.7481269 -78.1433449 37.748127 -78.1433471 37.7481271 -78.1433493 37.7481272 -78.1433515 37.7481273 -78.1433537 37.7481274 -78.1433559 37.7481275 -78.1433581 37.7481276 -78.1433603 37.7481277 -78.1433625 37.7481278 -78.1433647 37.7481279 -78.1433669 37.748128 -78.1433691 37.7481281 -78.1433713 37.7481282 -78.1433735 37.7481283 -78.1433757 37.7481284 -78.1433779 37.7481285 -78.1433801 37.7481286 -78.1433823 37.7481287 -78.1433845 37.7481288 -78.1433867 37.7481289 -78.1433889 37.748129 -78.1433911 37.7481291 -78.1433933 37.7481292 -78.1433955 37.7481293 -78.1433977 37.7481294 -78.1434013 37.7481295 -78.1434049 37.7481296 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37.748134 -78.1435669 37.7481341 -78.1435705 37.7481342 -78.1435741 37.7481343 -78.1435777 37.7481344 -78.1435813 37.7481345 -78.1435849 37.7481346 -78.1435885 37.7481347 -78.1435921 37.7481348 -78.1435957 37.7481349 -78.1435993 37.748135 -78.1436029 37.7481351 -78.1436065 37.7481352 -78.1436101 37.7481353 -78.1436137 37.7481354 -78.1436173 37.7481355 -78.1436209 37.7481356 -78.1436245 37.7481357 -78.1436281 37.7481358 -78.1436317 37.7481359 -78.1436353 37.748136 -78.1436389 37.7481361 -78.1436425 37.7481362 -78.1436461 37.7481363 -78.1436497 37.7481364 -78.1436533 37.7481365 -78.1436569 37.7481366 -78.1436605 37.7481367 -78.1436641 37.7481368 -78.1436677 37.7481369 -78.1436713 37.748137 -78.1436749 37.7481371 -78.1436785 37.7481372 -78.1436821 37.7481373 -78.1436857 37.7481374 -78.1436893 37.7481375 -78.1436929 37.7481376 -78.1436965 37.7481377 -78.1437001 37.7481378 -78.1437037 37.7481379 -78.1437073 37.748138 -78.1437109 37.7481381 -78.1437145 37.7481382 -78.1437181 37.7481383 -78.1437217 37.7481384 -78.1437253 37.7481385 -78.1437289 37.7481386 -78.1437325 37.7481387 -78.1437361 37.7481388 -78.1437397 37.7481389 -78.1437433 37.748139 -78.1437469 37.7481391 -78.1437505 37.7481392 -78.1437541 37.7481393 -78.1437577 37.7481394 -78.1437613 37.7481395 -78.1437649 37.7481396 -78.1437685 37.7481397 -78.1437721 37.7481398 -78.1437757 37.7481399 -78.1437793 37.74814 -78.1437829 37.7481401 -78.1437865 37.7481402 -78.1437901 37.7481403 -78.1437937 37.7481404 -78.1437973 37.7481405 -78.1438009 37.7481406 -78.1438045 37.7481407 -78.1438081 37.7481408 -78.1438117 37.7481409 -78.1438153 37.748141 -78.1438189 37.7481411 -78.1438225 37.7481412 -78.1438261 37.7481413 -78.1438297 37.7481414 -78.1438333 37.7481415 -78.1438369 37.7481416 -78.1438405 37.7481417 -78.1438441 37.7481418 -78.1438477 37.7481419 -78.1438513 37.748142 -78.1438549 37.7481421 -78.1438585 37.7481422 -78.1438621 37.7481423 -78.1438657 37.7481424 -78.1438693 37.7481425 -78.1438729 37.7481426 -78.1438765 37.7481427 -78.1438801 37.7481428 -78.1438837 37.7481429 -78.1438873 37.748143 -78.1438909 37.7481431 -78.1438945 37.7481432 -78.1438981 37.7481433 -78.1439017 37.7481434 -78.1439053 37.7481435 -78.1439089 37.7481436 -78.1439125 37.7481437 -78.1439161 37.7481438 -78.1439197 37.7481439 -78.1439233 37.748144 -78.1439269 37.7481441 -78.1439305 37.7481442 -78.1439341 37.7481443 -78.1439377 37.7481444 -78.1439413 37.7481445 -78.1439449 37.7481446 -78.1439485 37.7481447 -78.1439521 37.7481448 -78.1439557 37.7481449 -78.1439593 37.748145 -78.1439629 37.7481451 -78.1439665 37.7481452 -78.1439701 37.7481453 -78.1439737 37.7481454 -78.1439773 37.7481455 -78.1439809 37.7481456 -78.1439845 37.7481457 -78.1439881 37.7481458 -78.1439917 37.7481459 -78.1439953 37.748146 -78.1439989 37.7481461 -78.1440025 37.7481462 -78.1440061 37.7481463 -78.1440097 37.7481464 -78.1440133 37.7481465 -78.1440169 37.7481466 -78.1440205 37.7481467 -78.1440241 37.7481468 -78.1440277 37.7481469 -78.1440313 37.748147 -78.1440349 37.7481471 -78.1440385 37.7481472 -78.1440421 37.7481473 -78.1440457 37.7481474 -78.1440493 37.7481475 -78.1440529 37.7481476 -78.1440565 37.7481477 -78.1440601 37.7481478 -78.1440637 37.7481479 -78.1440673 37.748148 -78.1440709 37.7481481 -78.1440745 37.7481482 -78.1440781 37.7481483 -78.1440817 37.7481484 -78.1440853 37.7481485 -78.1440889 37.7481486 -78.1440925 37.7481487 -78.1440961 37.7481488 -78.1440997 37.7481489 -78.1441033 37.748149 -78.1441069 37.7481491 -78.1441105 37.7481492 -78.1441141 37.7481493 -78.1441177 37.7481494 -78.1441213 37.7481495 -78.1441249 37.7481496 -78.1441285 37.7481497 -78.1441321 37.7481498 -78.1441357 37.7481499 -78.1441393 37.74815 -78.1441429 37.7481501 -78.1441465 37.7481502 -78.1441501 37.7481503 -78.1441537 37.7481504 -78.1441573 37.7481505 -78.1441609 37.7481506 -78.1441645 37.7481507 -78.1441681 37.7481508 -78.1441717 37.7481509 -78.1441753 37.748151 -78.1441789 37.7481511 -78.1441825 37.7481512 -78.1441861 37.7481513 -78.1441897 37.7481514 -78.1441933 37.7481515 -78.1441969 37.7481516 -78.1442005 37.7481517 -78.1442041 37.7481518 -78.1442077 37.7481519 -78.1442113 37.748152 -78.1442149 37.7481521 -78.1442185 37.7481522 -78.1442221 37.7481523 -78.1442257 37.7481524 -78.1442293 37.7481525 -78.1442329 37.7481526 -78.1442365 37.7481527 -78.1442401 37.7481528 -78.1442437 37.7481529 -78.1442473 37.748153 -78.1442509 37.7481531 -78.1442545 37.7481532 -78.1442581 37.7481533 -78.1442617 37.7481534 -78.1442653 37.7481535 -78.1442689 37.7481536 -78.1442725 37.7481537 -78.1442761 37.7481538 -78.1442797 37.7481539 -78.1442833 37.748154 -78.1442869 37.7481541 -78.1442905 37.7481542 -78.1442941 37.7481543 -78.1442977 37.7481544 -78.1443013 37.7481545 -78.1443049 37.7481546 -78.1443085 37.7481547 -78.1443121 37.7481548 -78.1443157 37.7481549 -78.1443193 37.748155 -78.1443229 37.7481551 -78.1443265 37.7481552 -78.1443301 37.7481553 -78.1443337 37.7481554 -78.1443373 37.7481555 -78.1443409 37.7481556 -78.1443445 37.7481557 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37.7481601 -78.1445065 37.7481602 -78.1445101 37.7481603 -78.1445137 37.7481604 -78.1445173 37.7481605 -78.1445209 37.7481606 -78.1445245 37.7481607 -78.1445281 37.7481608 -78.1445317 37.7481609 -78.1445353 37.748161 -78.1445389 37.7481611 -78.1445425 37.7481612 -78.1445461 37.7481613 -78.1445497 37.7481614 -78.1445533 37.7481615 -78.1445569 37.7481616 -78.1445605 37.7481617 -78.1445641 37.7481618 -78.1445677 37.7481619 -78.1445713 37.748162 -78.1445749 37.7481621 -78.1445785 37.7481622 -78.1445821 37.7481623 -78.1445857 37.7481624 -78.1445893 37.7481625 -78.1445929 37.7481626 -78.1445965 37.7481627 -78.1446001 37.7481628 -78.1446037 37.7481629 -78.1446073 37.748163 -78.1446109 37.7481631 -78.1446145 37.7481632 -78.1446181 37.7481633 -78.1446217 37.7481634 -78.1446253 37.7481635 -78.1446289 37.7481636 -78.1446325 37.7481637 -78.1446361 37.7481638 -78.1446397 37.7481639 -78.1446433 37.748164 -78.1446469 37.7481641 -78.1446505 37.7481642 -78.1446541 37.7481643 -78.1446577 37.7481644 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VaFWIS - Department of Game and Inland Fisheries

37.75127 -78.15941 is the Search Point
Submit Cancel

Search Point
 Change to "clicked" map point
 Fixed at 37.75127 -78.15941

Show Position Rings
 Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area
 Yes No
2 Search distance miles buffer

Search Point is at map center

Base Map Choices
BW Aerial Photography

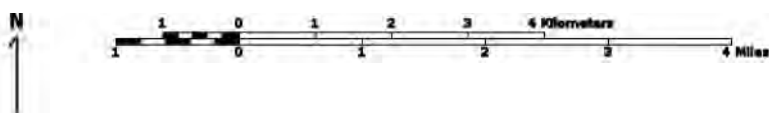
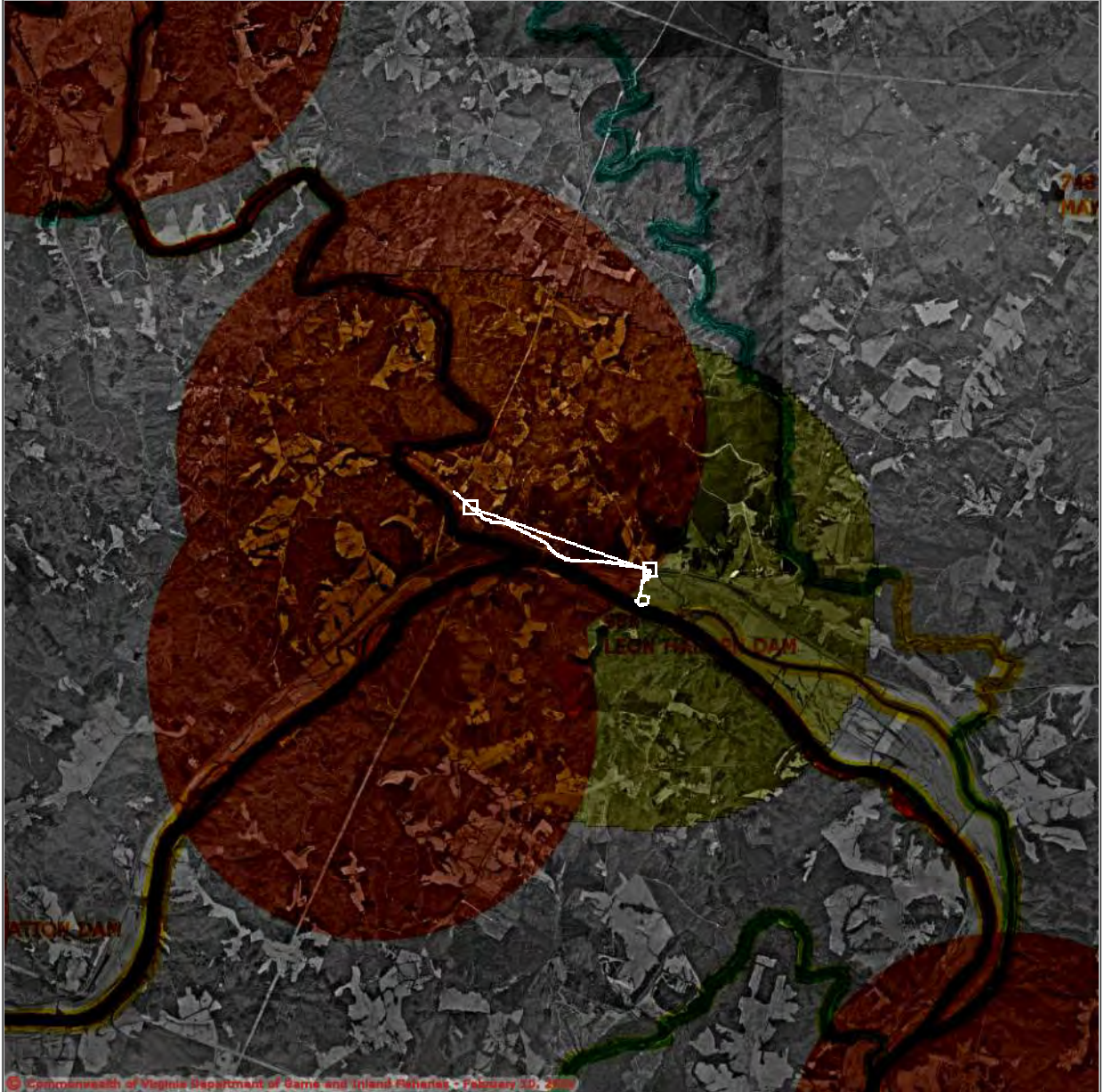
Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

- T & E Waters**
 - Federal
 - State
- Predicted Habitat WAP Tier I & II**
 - Aquatic
 - Terrestrial
- Trout Waters**
 - Class I - IV
 - Class V - VI
- Anadromous Fish Reach**
 - Confirmed
 - Potential
- Impediment**
 - 2 mile radius Search Area
- Bald Eagle Concentration Areas and Roosts**
 - Bald Eagle nests 660 and 330 foot management zones
 - Data Observation Site

back Refresh Browser Page

Map Click **Pan** **Id** **M** Map Scale **In** **zoom** **Out** Screen Size **Small** **Size** **Big** **Help**



Point of Search 37.75127 -78.15941
 Map Location 37.75127 -78.15941

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 742262 and top 4190019. Pixel size is 16 meters. Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

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map assembled 2020-02-10 12:48:24 (qa/qc March 21, 2016 12:20 - tn=1014811 dist=3218 I)
\$poi=37.7481200 -78.1432900

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,44,53.2 -78,08,35.8 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

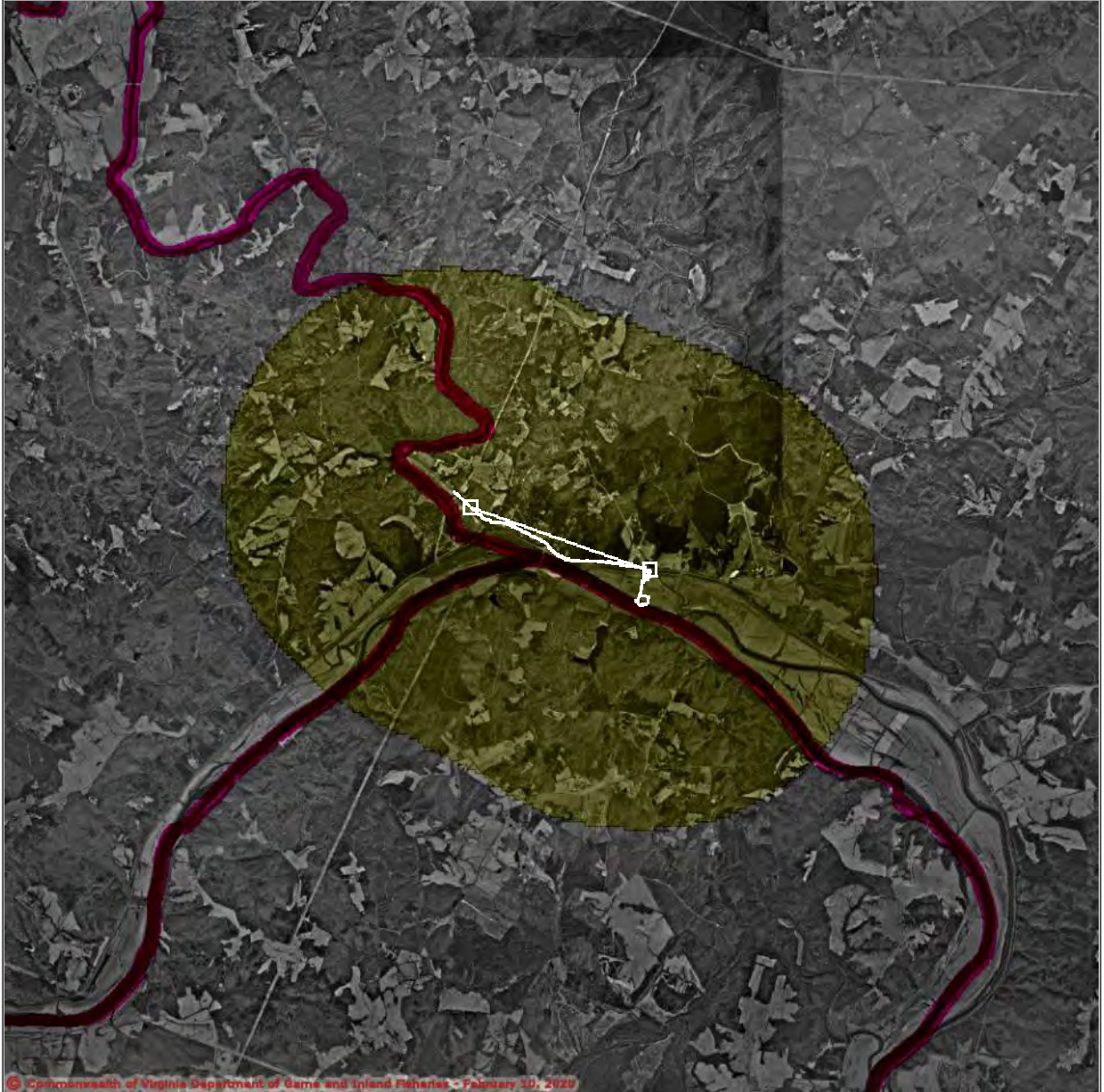
Map Overlay Choices

Current List: Search, TEWaters

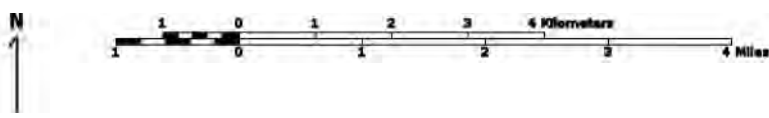
Map Overlay Legend

- T & E Waters**
- Federal
 - State
- 2 mile radius Search Area

[back](#)
Map Click Pan Id M
Map Scale In Zoom Out
Screen Size Small Size Big [Help](#)



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Point of Search 37,44,53.2 -78,08,35.8
 Map Location 37,45,04.5 -78,09,33.9

Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 742262 and top 4190019. Pixel size is 15. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

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map assembled 2020-02-10 12:54:18 (qa/qc March 21, 2016 12:20 - tn=1014811.1 dist=3218 I)
\$poi=37.7481200 -78.1432899

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:54:54 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:54:54 PM

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Known or likely to occur within a 2 mile buffer around line beginning 37.7481200 -78.1432899 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0172382.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0175549.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia	

					Atlantic	masoni	
James River (0184475.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/10/2020, 12:54:54 PM 11014811.1 report=BOVA searchType=L dist=3218 poi=37.7481200 -78.1432899

audit no. 1014811 2/10/2020 12:54:54 PM Virginia Fish and Wildlife Information Service

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Threatened and Endangered Waters where Floater, green (060081) observed

37,44,53.2 -78,08,35.8 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

Current List: Search, TEWaters

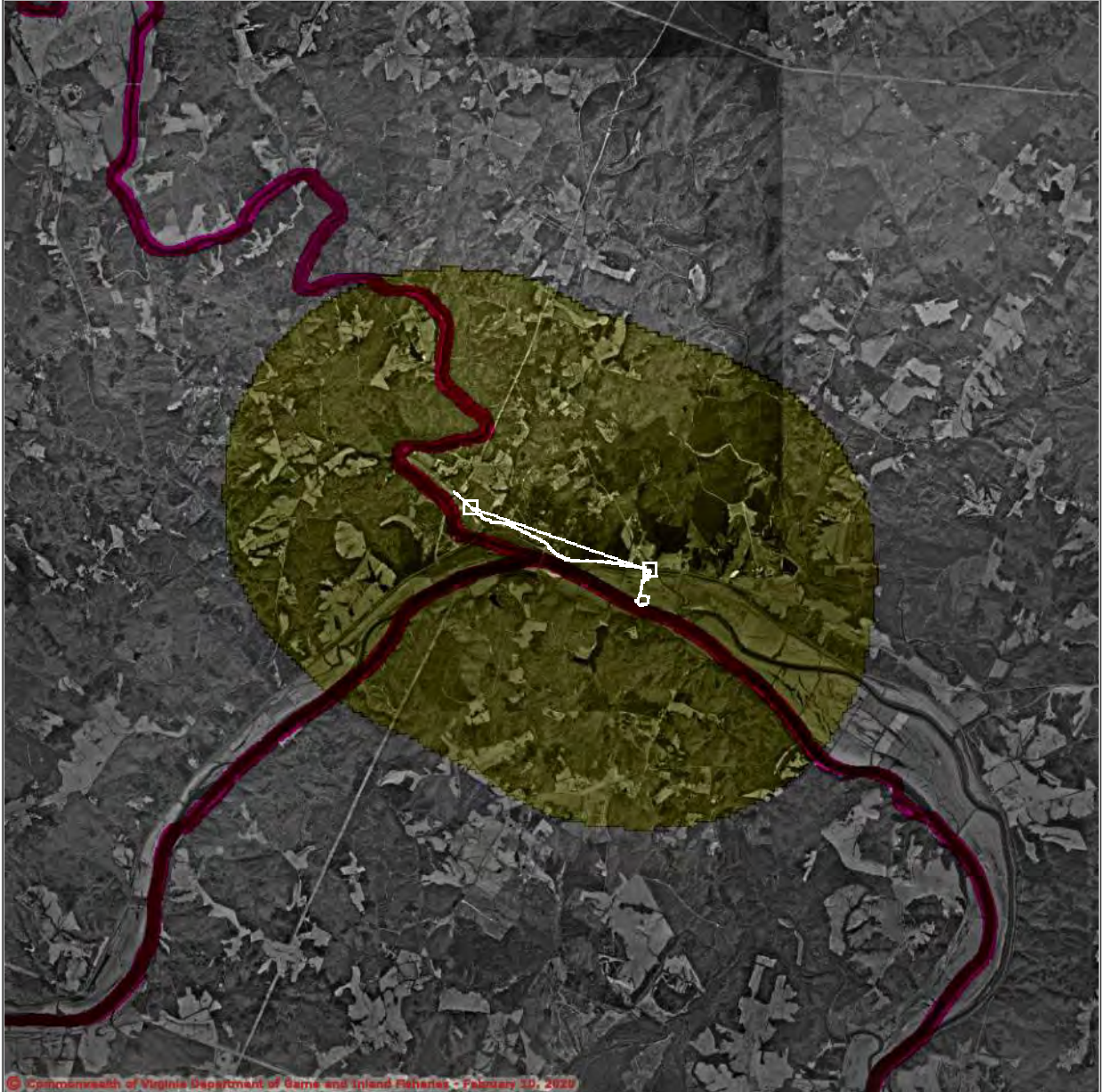
Map Overlay Legend

T & E Waters

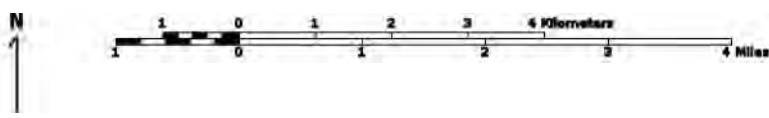
- Federal
- State

2 mile radius Search Area

[back](#)
Map Click Pan Id M
Map Scale In Zoom Out
Screen Size Small Size Big [Help](#)



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Point of Search 37,44,53.2 -78,08,35.8
Map Location 37,45,04.5 -78,09,33.9

- Select **Coordinate System**:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 742262 and top 4190019. Pixel size is 15. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 12:55:52 (qa/qc March 21, 2016 12:20 - tn=1014811.1 dist=3218 I)
\$poi=37.7481200 -78.1432899

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:56:22 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:56:22 PM

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Known or likely to occur within a 2 mile buffer around line beginning 37.7481200 -78.1432899 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0172382.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0175549.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia	

					Atlantic	masoni	
James River (0184475.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(7 Reaches)

[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					
Byrd Creek (20802051)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

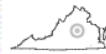
Compiled on 2/10/2020, 12:56:22 PM I1014811.1 report=BOVA searchType=L dist= 3218 poi= 37.7481200 -78.1432899

7 Species Observations where Lance, yellow (060029) observed

37,44,53.2 -78,08,35.8 is the Search Point

[back](#)

[Refresh Browser Page](#)



Map Click **Pan** **Id** **M**

Map Scale **In** **Zoom** **Out**

Screen Size **Small** **Size** **Big**

[Help](#)

Show Position Rings

Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center hot at map center

Base Map Choices

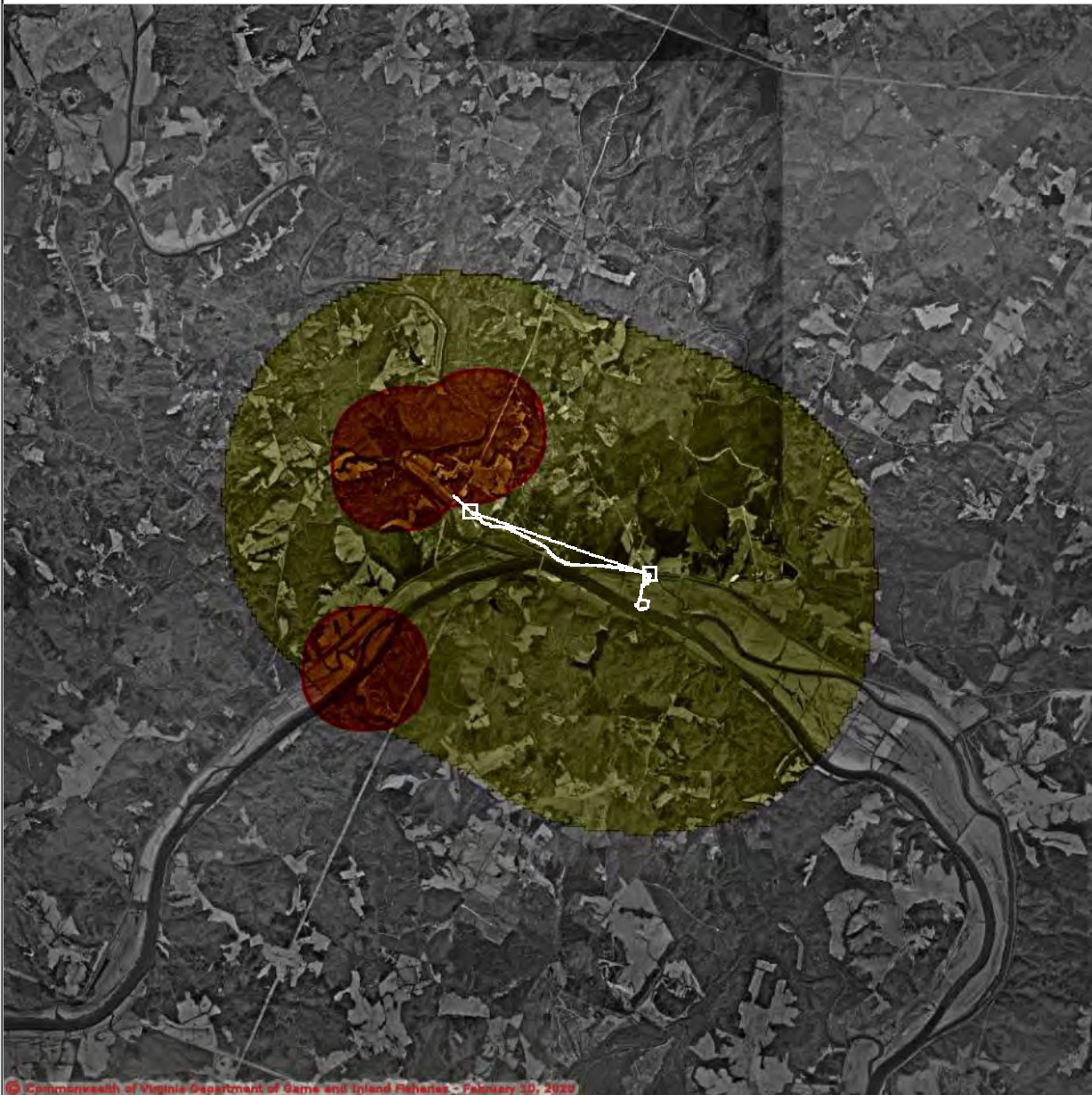
BW Aerial Photography

Map Overlay Choices

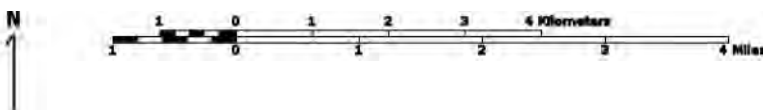
Current List: Search, SppObs

Map Overlay Legend

- 2 mile radius Search Area
- Data Observation Site



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Point of Search 37,44,53.2 -78,08,35.8

Map Location 37,45,04.5 -78,09,33.9

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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map assembled 2020-02-10 12:52:40 (qa/qc March 21, 2016 12:20 - tn=1014811.1 dist=3218 I)
\$poi=37.7481200 -78.1432899

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Virginia Department of Game and Inland Fisheries

2/10/2020 12:53:18 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 12:53:18 PM

[Help](#)

Known or likely to occur within a 2 mile buffer around line beginning 37.7481200
-78.1432899
in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA
where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where [Lance, yellow \(060029\)](#) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where \[Lance, yellow \\(060029\\)\]\(#\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where [Lance, yellow \(060029\)](#) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed;
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;
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Virginia Wildlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented;
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c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

Compiled on 2/10/2020, 12:53:18 PM 11014811.1 report=BOVA searchType=L dist= 3218 poi= 37.7481200 -78.1432899

audit no. 1014811 2/10/2020 12:53:18 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

Project information

NAME

JRWA Build Alternative 5B

LOCATION

Fluvanna and Goochland counties, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane
Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

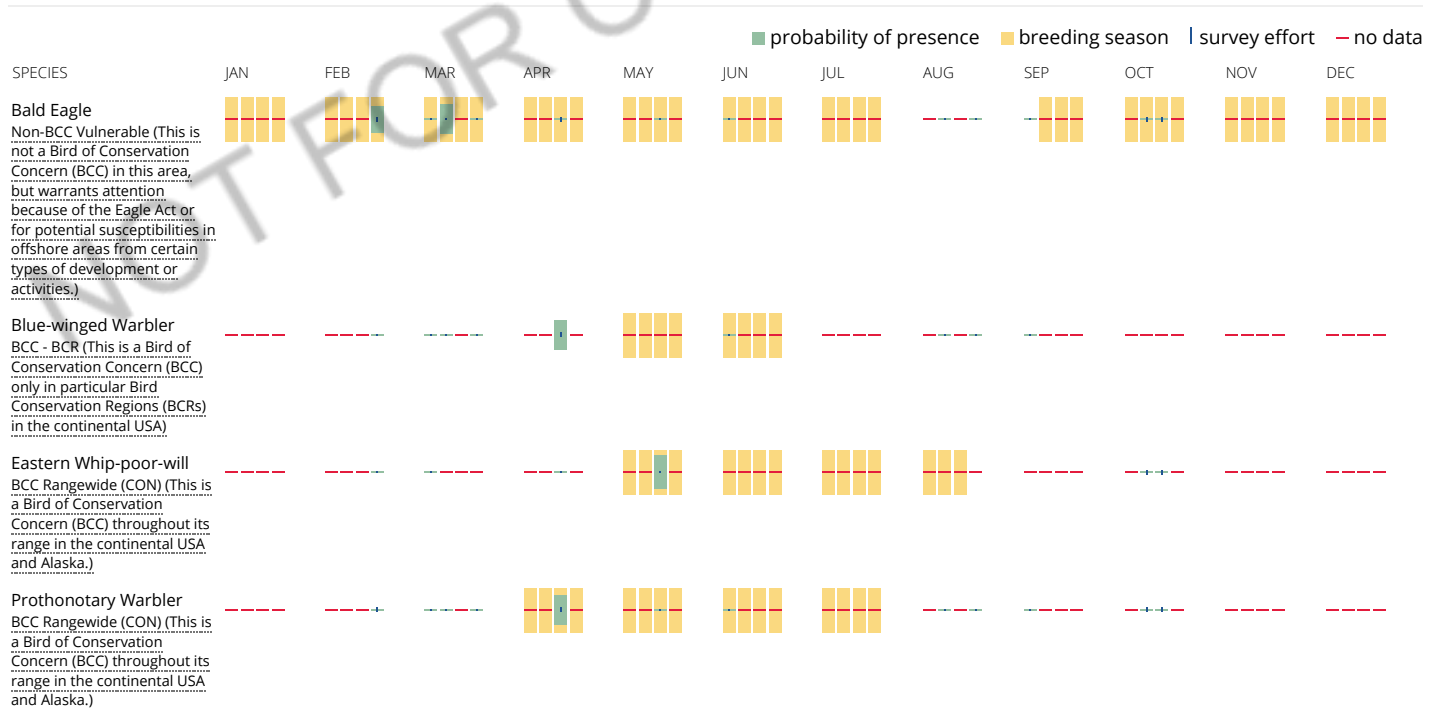
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (-)

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

Survey Timeframe

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



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

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be

breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1C](#)

FRESHWATER POND

[PUBHx](#)

RIVERINE

[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

NOT FOR CONSULTATION

VaFWIS Initial Project Assessment Report Compiled on 2/10/2020, 11:23:46 AM

[Help](#)

Known or likely to occur within a **2 mile buffer around line beginning 37.7565700 -78.1680399**
in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**

[View Map of Site Location](#)

473 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 473 species** [View 473](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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**	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes
P25	Byrd creek	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species					View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name				
James River (0101762)	FPST	060081	ST	IIa	Floater, green Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0172382)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0175549)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0184475)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

Managed Trout Streams

-78.143655377468108	-78.1443697377468098	-78.1443766377468088	-78.1443834377468075	-78.1443901377468060	-78.1443968377468043	-78.1444034377468025	-78.1444100377468005	-78.1444164377467993	-78.1444228377467979	-78.1444291377467934	-78.1444353377467917	-78.1444413377467878	-78.1444472377467844	-78.1444530377467816	-78.1444588377467781	-78.1444646377467746	-78.1444704377467711	-78.1444762377467673	-78.1444820377467635	-78.1444878377467597	-78.1444936377467560	-78.1445000377467522	-78.1445064377467484	-78.1445128377467446	-78.1445192377467408	-78.1445256377467370	-78.1445320377467332	-78.1445384377467294	-78.1445448377467256	-78.1445512377467218	-78.1445576377467180	-78.1445640377467142	-78.1445704377467104	-78.1445768377467066	-78.1445832377467028	-78.1445896377466990	-78.1445960377466952	-78.1446024377466914	-78.1446088377466876	-78.1446152377466838	-78.1446216377466800	-78.1446280377466762	-78.1446344377466724	-78.1446408377466686	-78.1446472377466648	-78.1446536377466610	-78.1446600377466572	-78.1446664377466534	-78.1446728377466496	-78.1446792377466458	-78.1446856377466420	-78.1446920377466382	-78.1446984377466344	-78.1447048377466306	-78.1447112377466268	-78.1447176377466230	-78.1447240377466192	-78.1447304377466154	-78.1447368377466116	-78.1447432377466078	-78.1447496377466040	-78.1447560377466002	-78.1447624377459944	-78.1447688377459886	-78.1447752377459828	-78.1447816377459770	-78.1447880377459712	-78.1447944377459654	-78.1448008377459596	-78.1448072377459538	-78.1448136377459480	-78.1448200377459422	-78.1448264377459364	-78.1448328377459306	-78.1448392377459248	-78.1448456377459190	-78.1448520377459132	-78.1448584377459074	-78.1448648377459016	-78.1448712377458958	-78.1448776377458900	-78.1448840377458842	-78.1448904377458784	-78.1448968377458726	-78.1449032377458668	-78.1449096377458610	-78.1449160377458552	-78.1449224377458494	-78.1449288377458436	-78.1449352377458378	-78.1449416377458320	-78.1449480377458262	-78.1449544377458204	-78.1449608377458146	-78.1449672377458088	-78.1449736377458030	-78.1449800377457972	-78.1449864377457914	-78.1449928377457856	-78.1449992377457798	-78.1500056377457740	-78.1500120377457682	-78.1500184377457624	-78.1500248377457566	-78.1500312377457508	-78.1500376377457450	-78.1500440377457332	-78.1500504377457214	-78.1500568377457096	-78.1500632377456978	-78.1500696377456860	-78.1500760377456742	-78.1500824377456624	-78.1500888377456506	-78.1500952377456388	-78.1501016377456270	-78.1501080377456154	-78.1501144377456036	-78.1501208377455918	-78.1501272377455790	-78.1501336377455672	-78.1501400377455554	-78.1501464377455436	-78.1501528377455318	-78.1501592377455200	-78.1501656377455082	-78.1501720377454964	-78.1501784377454846	-78.1501848377454728	-78.1501912377454610	-78.1501976377454492	-78.1502040377454374	-78.1502104377454256	-78.1502168377454138	-78.1502232377454020	-78.1502296377453902	-78.1502360377453784	-78.1502424377453666	-78.1502488377453548	-78.1502552377453430	-78.1502616377453312	-78.1502680377453194	-78.1502744377453076	-78.1502808377452958	-78.1502872377452840	-78.1502936377452722	-78.1503000377452604	-78.1503064377452486	-78.1503128377452368	-78.1503192377452250	-78.1503256377452132	-78.1503320377452014	-78.1503384377451896	-78.1503448377451778	-78.1503512377451660	-78.1503576377451542	-78.1503640377451424	-78.1503704377451306	-78.1503768377451188	-78.1503832377451070	-78.1503896377450952	-78.1503960377450834	-78.1504024377450716	-78.1504088377450598	-78.1504152377450480	-78.1504216377450362	-78.1504280377450244	-78.1504344377450126	-78.1504408377450008	-78.1504472377449890	-78.1504536377449772	-78.1504600377449654	-78.1504664377449536	-78.1504728377449418	-78.1504792377449300	-78.1504856377449182	-78.1504920377449064	-78.1504984377448946	-78.1505048377448828	-78.1505112377448710	-78.1505176377448592	-78.1505240377448474	-78.1505304377448356	-78.1505368377448238	-78.1505432377448120	-78.1505496377448002	-78.1505560377447884	-78.1505624377447766	-78.1505688377447648	-78.1505752377447530	-78.1505816377447412	-78.1505880377447294	-78.1505944377447176	-78.1506008377447058	-78.1506072377446940	-78.1506136377446822	-78.1506200377446704	-78.1506264377446586	-78.1506328377446468	-78.1506392377446350	-78.1506456377446232	-78.1506520377446114	-78.1506584377445996	-78.1506648377445878	-78.1506712377445760	-78.1506776377445642	-78.1506840377445524	-78.1506904377445386	-78.1506968377445270	-78.1507032377445154	-78.1507096377444936	-78.1507160377444718	-78.1507224377444500	-78.1507288377444282	-78.1507352377444064	-78.1507416377443846	-78.1507480377443628	-78.1507544377443410	-78.1507608377443192	-78.1507672377442974	-78.1507736377442756	-78.1507800377442538	-78.1507864377442320	-78.1507928377442102	-78.1507992377441884	-78.1508056377441666	-78.1508120377441450	-78.1508184377441232	-78.1508248377441014	-78.1508312377440796	-78.1508376377440578	-78.1508440377440360	-78.1508504377440142	-78.1508568377399924	-78.1508632377399706	-78.1508696377399488	-78.1508760377399270	-78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VaFWIS - Department of Game and Inland Fisheries

37.75127 -78.15941 is the Search Point
Submit Cancel

Search Point
 Change to "clicked" map point
 Fixed at 37.75127 -78.15941

Show Position Rings
 Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area
 Yes No
2 Search distance miles buffer

Search Point is at map center

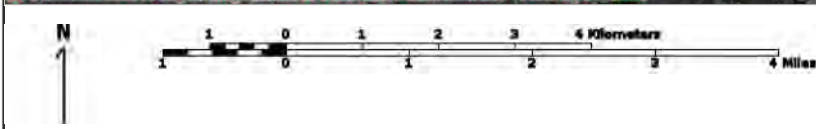
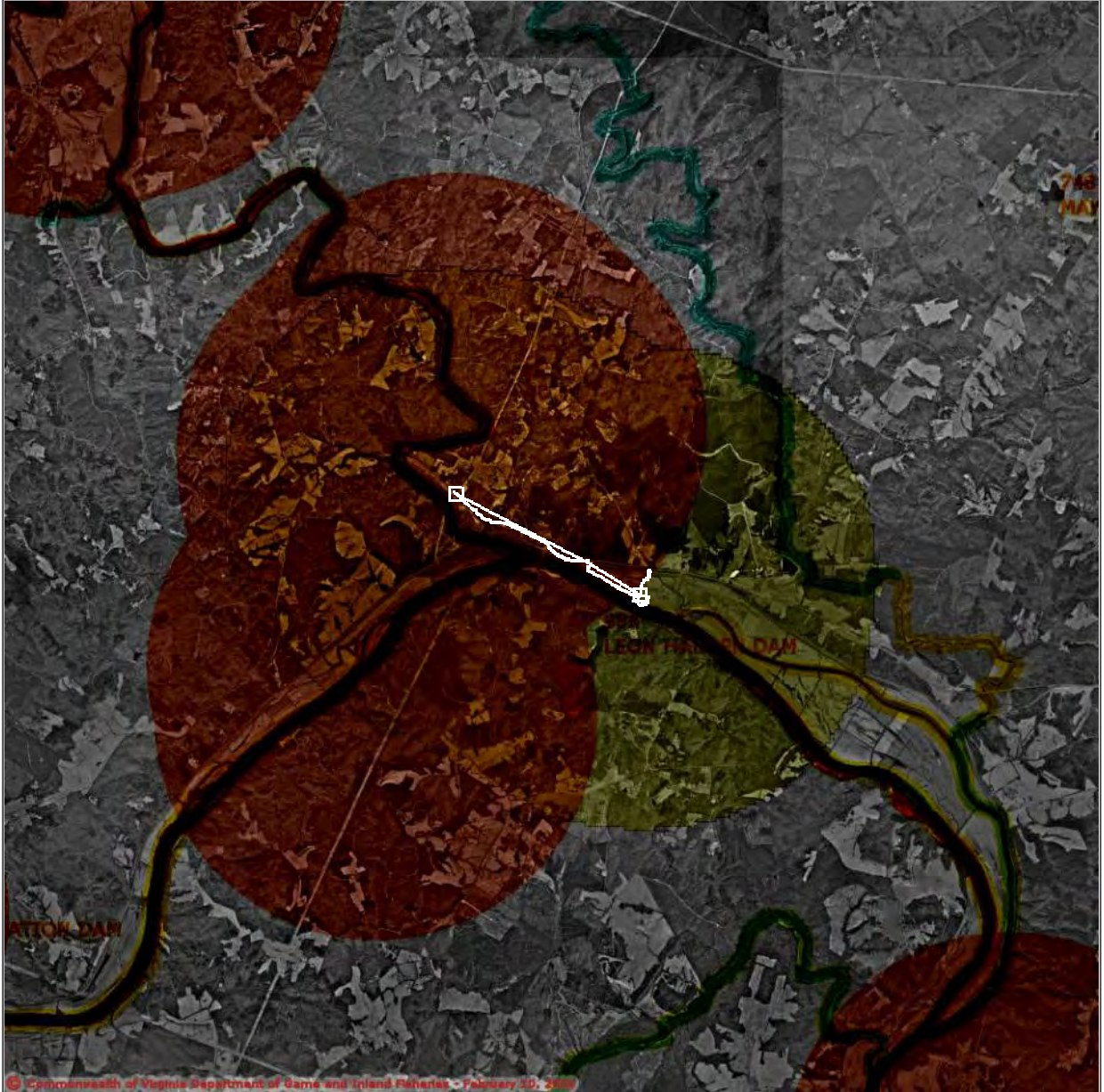
Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

- T & E Waters**
 - Federal
 - State
- Predicted Habitat WAP Tier I & II**
 - Aquatic
 - Terrestrial
- Trout Waters**
 - Class I - IV
 - Class V - VI
- Anadromous Fish Reach**
 - Confirmed
 - Potential
- Impediment**
 - 2 mile radius Search Area
- Bald Eagle Concentration Areas and Roosts**
 - Bald Eagle nests 660 and 330 foot management zones
 - Data Observation Site

back Refresh Browser Page
 Map Click Pan Id M Map Scale In zoom Out Screen Size Small Size Big Help



Point of Search 37.75127 -78.15941
Map Location 37.75127 -78.15941

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 742262 and top 4190019. Pixel size is 15. . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+-

are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
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All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-10 11:20:31 (qa/qc March 21, 2016 12:20 - tn=1014772 dist=3218 I
)
\$poi=37.7565600 -78.1680300

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,23.6 -78,10,04.9 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

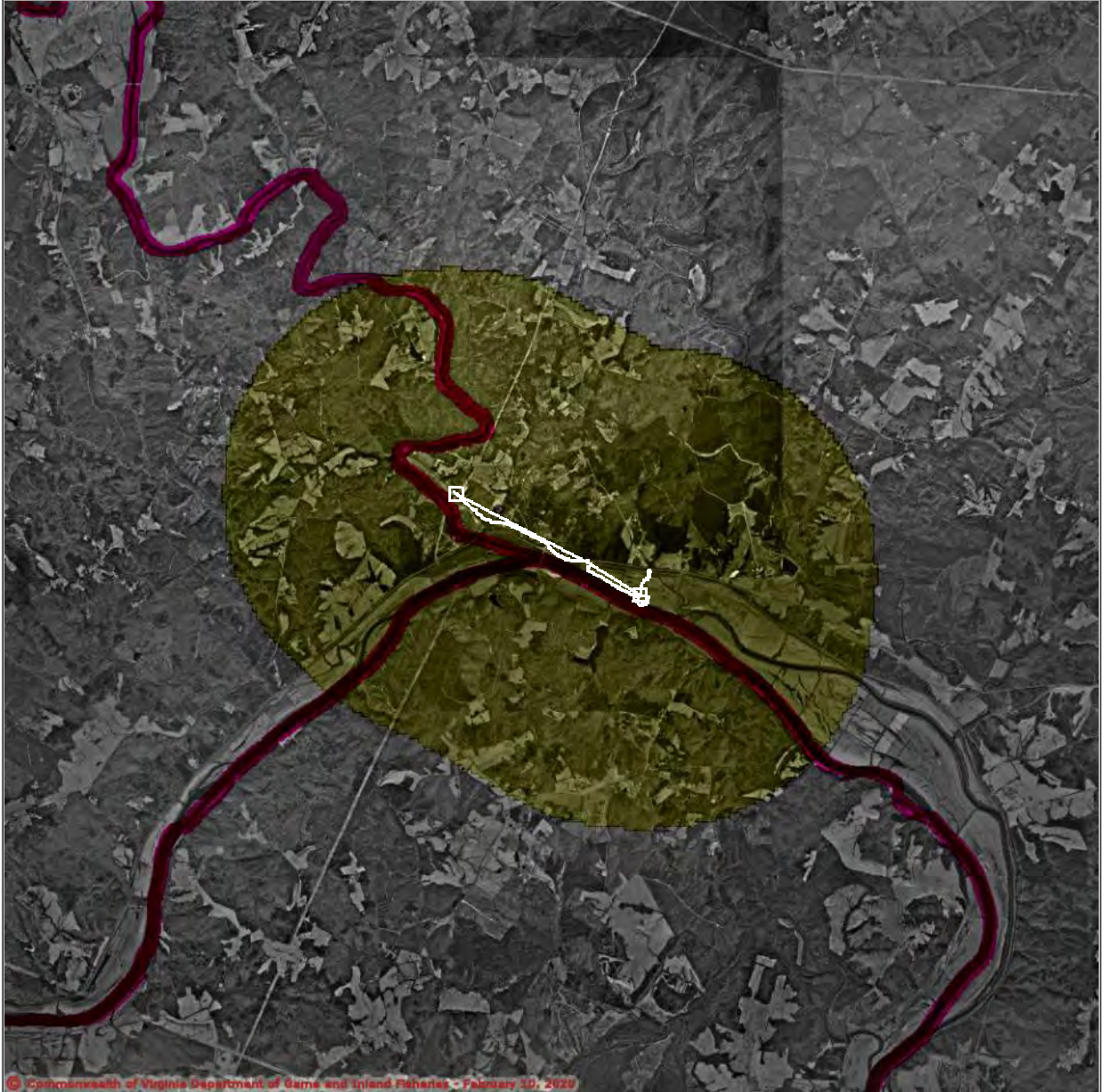
Map Overlay Choices

Current List: Search, TEWaters

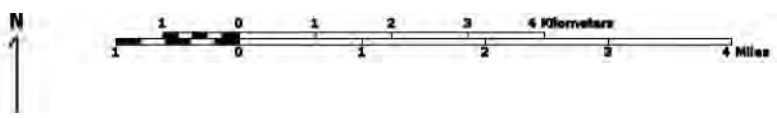
Map Overlay Legend

- T & E Waters**
- Federal
 - State
- 2 mile radius Search Area

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Map Click Pan Id M
Map Scale In Zoom Out
Screen Size Small Size Big Help



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Point of Search 37,45,23.6 -78,10,04.9
 Map Location 37,45,04.5 -78,09,33.9

Select **Coordinate System**: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 742262 and top 4190019. Pixel size is 15. . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+ are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic <http://www.national.geographic.com/topo> All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-10 11:27:17 (qa/qc March 21, 2016 12:20 - tn=1014784.1 dist=3218
I)
\$poi=37.7565700 -78.1680399

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Virginia Department of Game and Inland Fisheries

2/10/2020 11:28:22 AM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 11:28:22 AM

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Known or likely to occur within a 2 mile buffer around line beginning 37.7565700 -78.1680399 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0172382.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0175549.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia	

					Atlantic	masoni	
James River (0184475.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/10/2020, 11:28:22 AM I1014784.1 report=BOVA searchType=L dist= 3218 poi= 37.7565700 -78.1680399

audit no. 1014784 2/10/2020 11:28:22 AM Virginia Fish and Wildlife Information Service

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Threatened and Endangered Waters where Floater, green (060081) observed

37,45,23.6 -78,10,04.9 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

Current List: Search, TEWaters

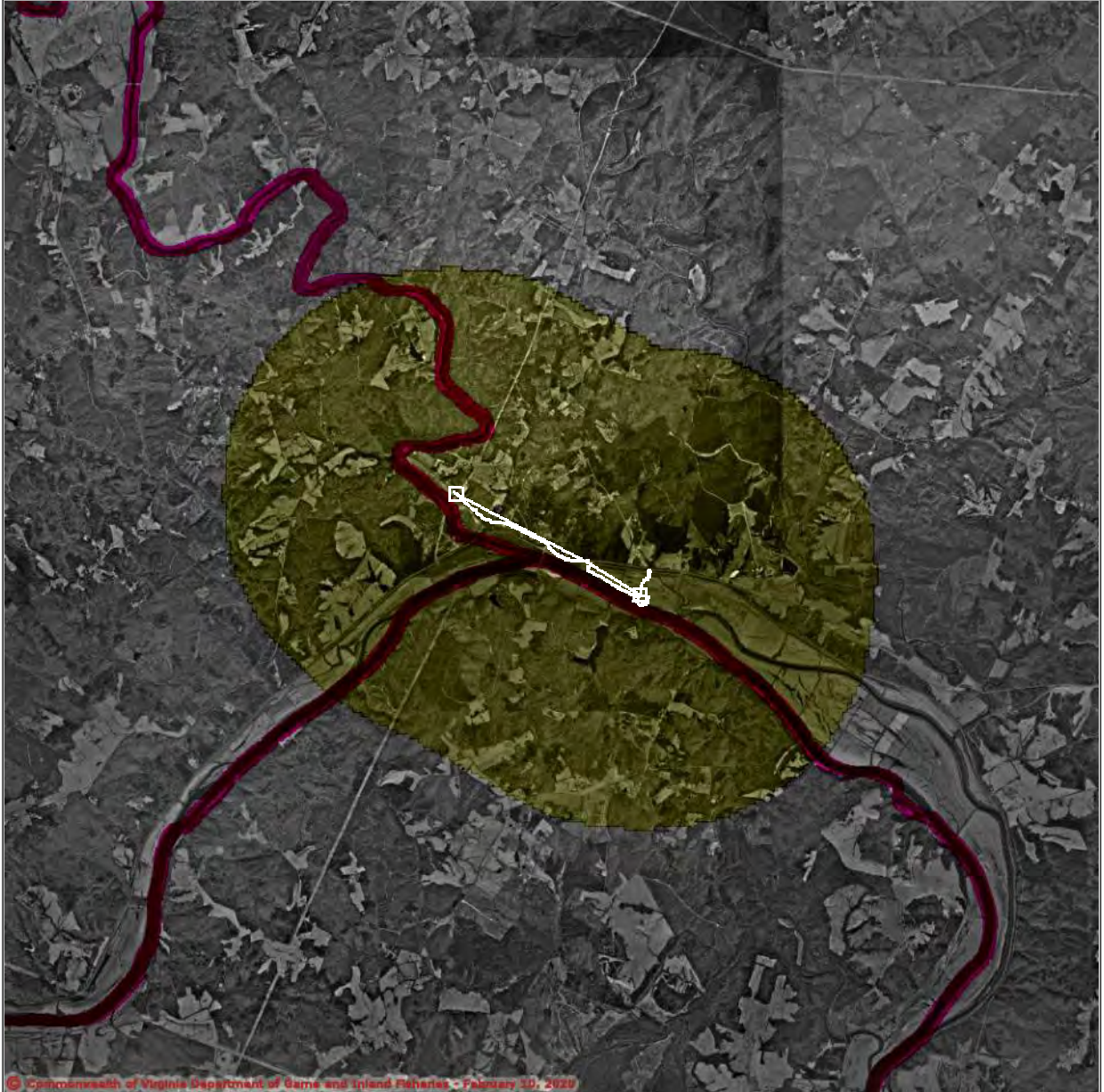
Map Overlay Legend

T & E Waters

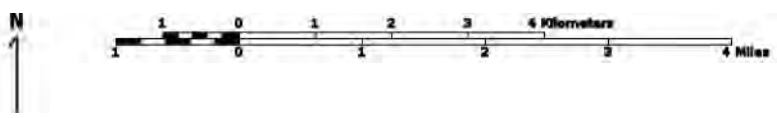
- Federal
- State

2 mile radius Search Area

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Map Scale In Zoom Out
Screen Size Small Size Big Help



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Point of Search 37,45,23.6 -78,10,04.9
 Map Location 37,45,04.5 -78,09,33.9

Select **Coordinate System**: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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I)
\$poi=37.7565700 -78.1680399

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Virginia Department of Game and Inland Fisheries

2/10/2020 11:29:32 AM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 11:29:32 AM

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Known or likely to occur within a 2 mile buffer around line beginning 37.7565700 -78.1680399 in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(25 Reaches - displaying first 20)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE*	T&E Waters Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0172382.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0175549.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0179228.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0180890.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0181911.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia	

					Atlantic	masoni	
James River (0184475.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes

To view **All 25 Threatened and Endangered Waters records** [View 25](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(7 Reaches)

[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					
Byrd Creek (20802051)	ST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/10/2020, 11:29:32 AM I1014784.1 report=BOVA searchType=L dist= 3218 poi= 37.7565700 -78.1680399

7 Species Observations where Lance, yellow (060029) observed

37,45,23.6 -78,10,04.9 is the Search Point

Show Position Rings

Yes No
1 mile and 1/4 mile at the Search Point

Show Search Area



Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

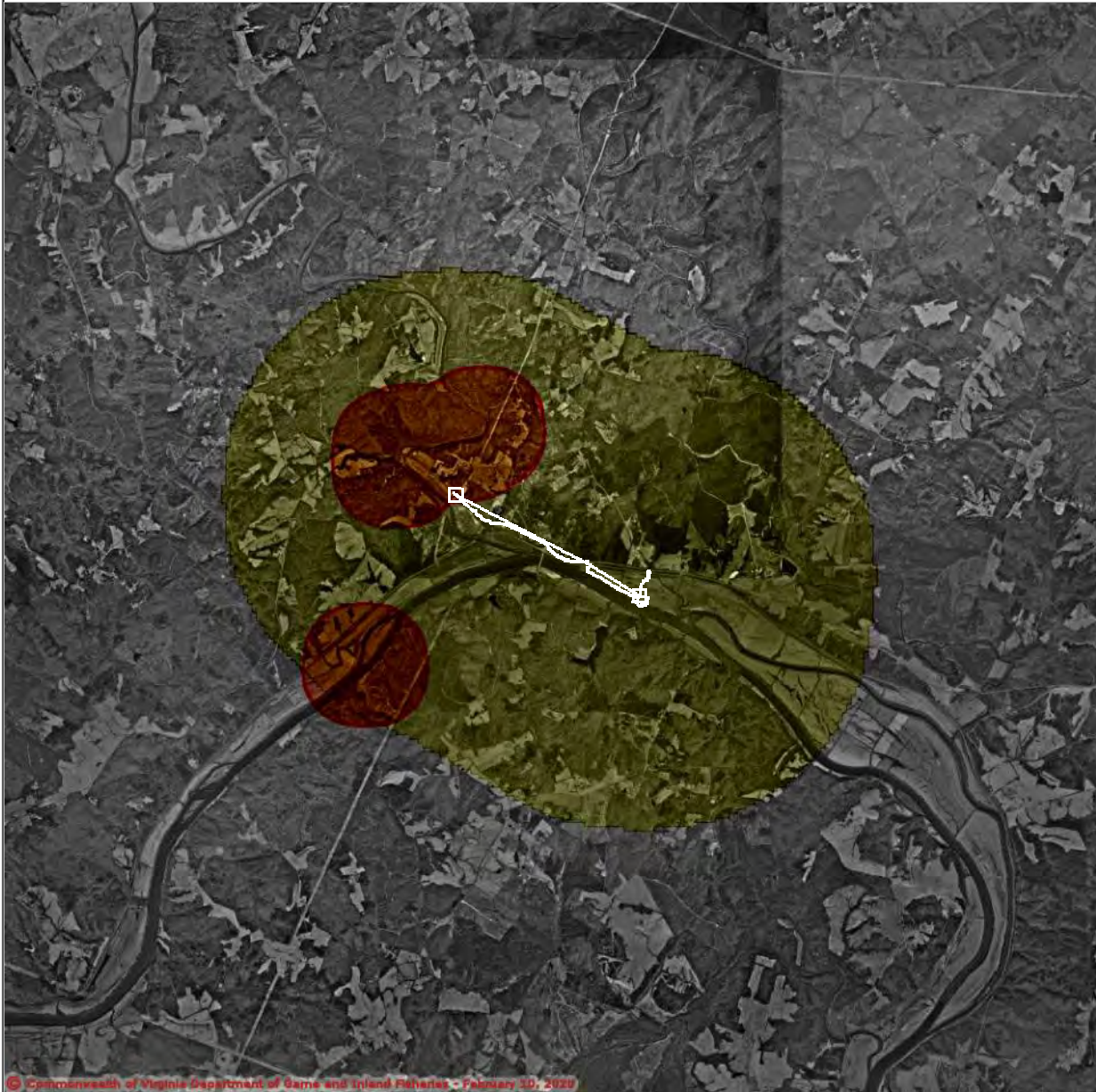
Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Search, SppObs

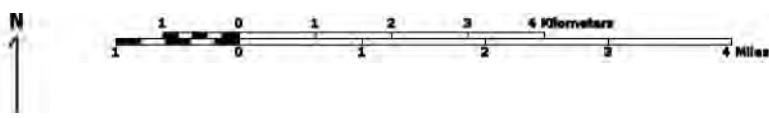
Map Overlay Legend

-  2 mile radius Search Area
-  Data Observation Site

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Point of Search 37,45,23.6 -78,10,04.9
 Map Location 37,45,04.5 -78,09,33.9

Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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map assembled 2020-02-10 11:26:18 (qa/qc March 21, 2016 12:20 - tn=1014784.1 dist=3218
I)
\$poi=37.7565700 -78.1680399

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Virginia Department of Game and Inland Fisheries

2/10/2020 11:25:54 AM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/10/2020, 11:25:54 AM

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Known or likely to occur within a 2 mile buffer around line beginning 37.7565700
-78.1680399
in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA
where (060029) [Lance, yellow](#) observed.

[View Map of
Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with
Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed;
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.

Compiled on 2/10/2020, 11:25:54 AM 11014784.1 report=BOVA searchType=L dist= 3218 poi= 37.7565700 -78.1680399

audit no. 1014784 2/10/2020 11:25:54 AM Virginia Fish and Wildlife Information Service
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United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:
Consultation Code: 05E2VA00-2020-SLI-2450
Event Code: 05E2VA00-2020-E-06753
Project Name: James River Water Supply Project

March 09, 2020

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2020-SLI-2450

Event Code: 05E2VA00-2020-E-06753

Project Name: James River Water Supply Project

Project Type: WATER SUPPLY / DELIVERY

Project Description: The purpose of the proposed project is to provide a new and reliable raw water supply of sufficient quantity to meet the short- and long-term needs of Fluvanna and Louisa Counties for delivery to an agreed-upon interconnection point planned for use by Fluvanna and Louisa Counties. The project is proposed to be located in Fluvanna County immediately southwest of Columbia, Virginia within an area known as 'Point of Fork'. The proposed water withdrawal structure and pump station would be located on the north bank of the James River just upstream of the confluence with the Rivanna River at the end of Route 624 (Point of Fork Road). The pump station would be built on a JRWA-owned parcel (tax parcel 61-A-4A) which will be accessed via Route 624. The proposed raw water transmission line will generally traverse agriculture and silviculture lands northwest of the pump station and pass under a CSX rail line and easement. North of the CSX easement, the project alignment will generally follow Dominion Power easements eventually passing under the Rivanna River adjacent to an existing utility crossing. The project area will terminate at Route 6 in the vicinity of a Colonial Gas pipeline-owned substation. The infrastructure associated with this project includes a pump station, raw water intake, wet well influent pipe, pump station wet well, pump, piping and valve equipment, electrical and pump control equipment, a raw water pipeline, and improvements to an existing access road.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.75409003678939N78.17783985945121W>



Counties: Fluvanna, VA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5164	Proposed Threatened
James Spiny mussel <i>Pleurobema collina</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2212	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

REFUGE INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.



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IPaC Record Locator: 970-20684097

March 09, 2020

Subject: Consistency letter for the 'James River Water Supply Project' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Timmons Group:

The U.S. Fish and Wildlife Service (Service) received on March 09, 2020 your effects determination for the 'James River Water Supply Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause “take”^[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action’s effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

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

- Atlantic Pigtoe, *Fusconaia masoni* (Proposed Threatened)
- James Spiny mussel, *Pleurobema collina* (Endangered)

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

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

1. Name

James River Water Supply Project

2. Description

The following description was provided for the project 'James River Water Supply Project':

The purpose of the proposed project is to provide a new and reliable raw water supply of sufficient quantity to meet the short- and long-term needs of Fluvanna and Louisa Counties for delivery to an agreed-upon interconnection point planned for use by Fluvanna and Louisa Counties. The project is proposed to be located in Fluvanna County immediately southwest of Columbia, Virginia within an area known as 'Point of Fork'. The proposed water withdrawal structure and pump station would be located on the north bank of the James River just upstream of the confluence with the Rivanna River at the end of Route 624 (Point of Fork Road). The pump station would be built on a JRWA-owned parcel (tax parcel 61-A-4A) which will be accessed via Route 624. The proposed raw water transmission line will generally traverse agriculture and silviculture lands northwest of the pump station and pass under a CSX rail line and easement. North of the CSX easement, the project alignment will generally follow Dominion Power easements eventually passing under the Rivanna River adjacent to an existing utility crossing. The project area will terminate at Route 6 in the vicinity of a Colonial Gas pipeline-owned substation. The infrastructure associated with this project includes a pump station, raw water intake, wet well influent pipe, pump station wet well, pump, piping and valve equipment, electrical and pump control equipment, a raw water pipeline, and improvements to an existing access road.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.75409003678939N78.17783985945121W>



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

No

2. Will your activity purposefully **Take** northern long-eared bats?

No

3. Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered

No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/angered/mammals/nleb/nhisites.html.

Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

6. Will the action involve Tree Removal?

Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

1.24

2. If known, estimated acres of forest conversion from April 1 to October 31

1.24

3. If known, estimated acres of forest conversion from June 1 to July 31

1.24

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

1.24

5. If known, estimated acres of timber harvest from April 1 to October 31

1.24

6. If known, estimated acres of timber harvest from June 1 to July 31

1.24

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0

Species Conclusions Table

Completed by: Timmons Group	Project Name: James River Water Supply Project
Date: 03/09/2020	Project Number: 44790
<p>Project Description: The proposed project will consist of a water withdrawal structure and pump station will be located on the north bank of the James River just upstream of the confluence with the Rivanna River at the end of Route 624 (Point of Fork Road). The pump station will be built on a JRWA-owned parcel (tax parcel 61-A-4A) which will be accessed via Route 624. The raw water transmission line will generally traverse agriculture and silviculture lands northwest of the pump station and pass under a CXS rail line and easement. North of the CXS easement, the project alignment will generally follow Dominion Power easements eventually passing under the Rivanna River adjacent to an existing utility crossing. The project area will terminate at Route 6 in the vicinity of a Colonial Gas pipeline-owned substation.</p>	

Species Under the Jurisdiction of FWS:

Species/Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Determination
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Potential habitat present and no current survey conducted	May affect	Relying upon the findings of the 1/5/2016 Programmatic Biological Opinion for Final 4(d) Rule on the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions to fulfill our project-specific Section 7 responsibilities. . Based upon a review of available information, primarily the VDGIF NLEB Winter Habitat and Roost Tree Locator, there are no known maternity roosts or hibernacula for this species located within or in close proximity to the Project. A consistency letter was obtained from USFWS through completion of the IPaC Dkey.
Atlantic Pigtoe (<i>Fusconaia masoni</i>)	Potential habitat present and no current survey conducted	May affect	Per previously conducted state coordination, mussel surveys will be conducted from 100 meters upstream through 400 meters downstream of the intake location and Rivanna River crossing. Survey findings will be coordinated with federal and state agencies. In addition, no instream construction at these areas shall be conducted between March 15 through June 30 of any year, to protect anadromous fishes and mussel species, and August 15 through September 30 of any year to protect mussel species.
James Spiny mussel (<i>Pleurobema collina</i>)	Potential habitat present and no current survey conducted	May affect	Per previously conducted state coordination, mussel surveys will be conducted from 100 meters upstream through 400 meters downstream of the intake location and Rivanna River crossing. Survey findings will be coordinated with federal and state agencies. In addition, no instream construction at these areas shall be conducted between March 15 through June 30 of any year, to protect anadromous fishes and mussel species, and August 15 through September 30 of any year to protect mussel species.
Eagles (<i>Haliaeetus leucocephalus</i>)			
Eagle Nests	Unlikely to disturb nesting bald eagles	No Eagle Act permit required	No known nests located within 660 feet of the proposed project.

Species Conclusions Table

Date: 03/09/2020		Project Number: 44790	
Eagle Concentration Areas	Does not intersect with bald eagle concentration area	No Eagle Act permit required	No known concentration areas located in vicinity.
Critical Habitat			
N/A	No critical habitat present		
Other (species not listed above)			
N/A			

Species Under the Jurisdiction of NOAA/NMFS			
Essential Fish Habitat	N/A		
Anadromous Fish Use Area	N/A		
Subaquatic Vegetation	N/A		
HAPC Sandbar Shark	N/A		
Atlantic Sturgeon	N/A		

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VaFWIS Initial Project Assessment Report Compiled on 2/11/2020,[Help](#)

1:01:30 PM

Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA

[View Map of
Site Location](#)

471 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler,	Setophaga cerulea		BOVA

			cerulean			
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 471 species** [View 471](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (2 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 **	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE *	T&E Waters Species					View Map
		BOVA Code, Status *, Tier **, Common & Scientific Name					
James River (0101762)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia masoni	

					Atlantic		
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

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

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CM0401	2	May 1 2004	HISTORIC	Yes
CM1001	1	May 10 2010	UNKNOWN	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes

	060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni
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Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 2/11/2020, 1:01:30 PM I1015022.0 report=IPA searchType= P dist= 3218 poi= 37.7586700 -78.1757299 siteDD= 37.7586793 -78.1757397:37.7584066 -78.1756780:37.7584331
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VaFWIS - Department of Game and Inland Fisheries

37.75411 -78.17411
is the Search Point

Search Point

- Change to "clicked" map point
- Fixed at 37.75411 -78.17411

Show Position Rings

- Yes No
- 1 mile and 1/4 mile at the Search Point

Show Search Area

- Yes No
- 2 Search distance miles buffer

Search Point is at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

T & E Waters

- Federal
- State

Predicted Habitat WAP Tier I & II

- Aquatic
- Terrestrial

Trout Waters

- Class I - IV
- Class V - VI

Anadromous Fish Reach

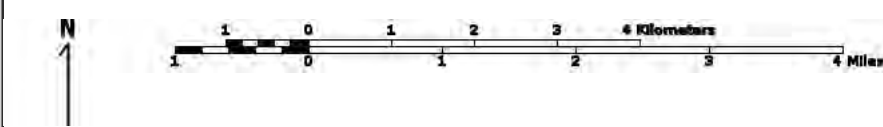
- Confirmed
- Potential

Impediment

2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

- Bald Eagle nests 660 and 330 foot management zones
- Data Observation Site



Point of Search 37.75411 -78.17411
Map Location 37.75411 -78.17411

- Select Coordinate System:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 740957 and top 4190295. Pixel size is 16 meters . Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-11 12:58:35 (qa/qc March 21, 2016 12:20 - tn=1015022 dist=3218 I
)
\$poi=37.7586700 -78.1757300

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,31.2 -78,10,32.6 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices
BW Aerial Photography

Map Overlay Choices
Current List: Search, TEWaters

Map Overlay Legend

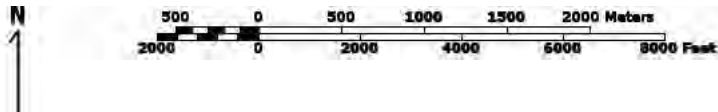
T & E Waters
Federal
State

2 mile radius Search Area

back Refresh Browser Page

Map Click Pan To M Map Scale In Zoom Out Screen Size Small Size Big Help

Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37,45,31.2 -78,10,32.6
Map Location 37,45,14.8 -78,10,26.8

- Select **Coordinate System**: Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744957 and top 4186295. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

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All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-11 13:04:04 (qa/qc March 21, 2016 12:20 - tn=1015022.1 dist=3218
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Virginia Department of Game and Inland Fisheries

2/11/2020 1:04:42 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:04:42 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Tier Species		View Map
	Highest	BOVA Code, Status*, Tier**,	

	TE*	Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/11/2020, 1:04:42 PM I1015022.1 report=BOVA searchType=P dist= 3218 poi= 37.7586700 -78.1757299

Threatened and Endangered Waters where Floater, green (060081) observed

37,45,31.2 -78,10,32.6 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display	Search Point is
at center	not at map center

Base Map [Choices](#)
BW Aerial Photography ▾

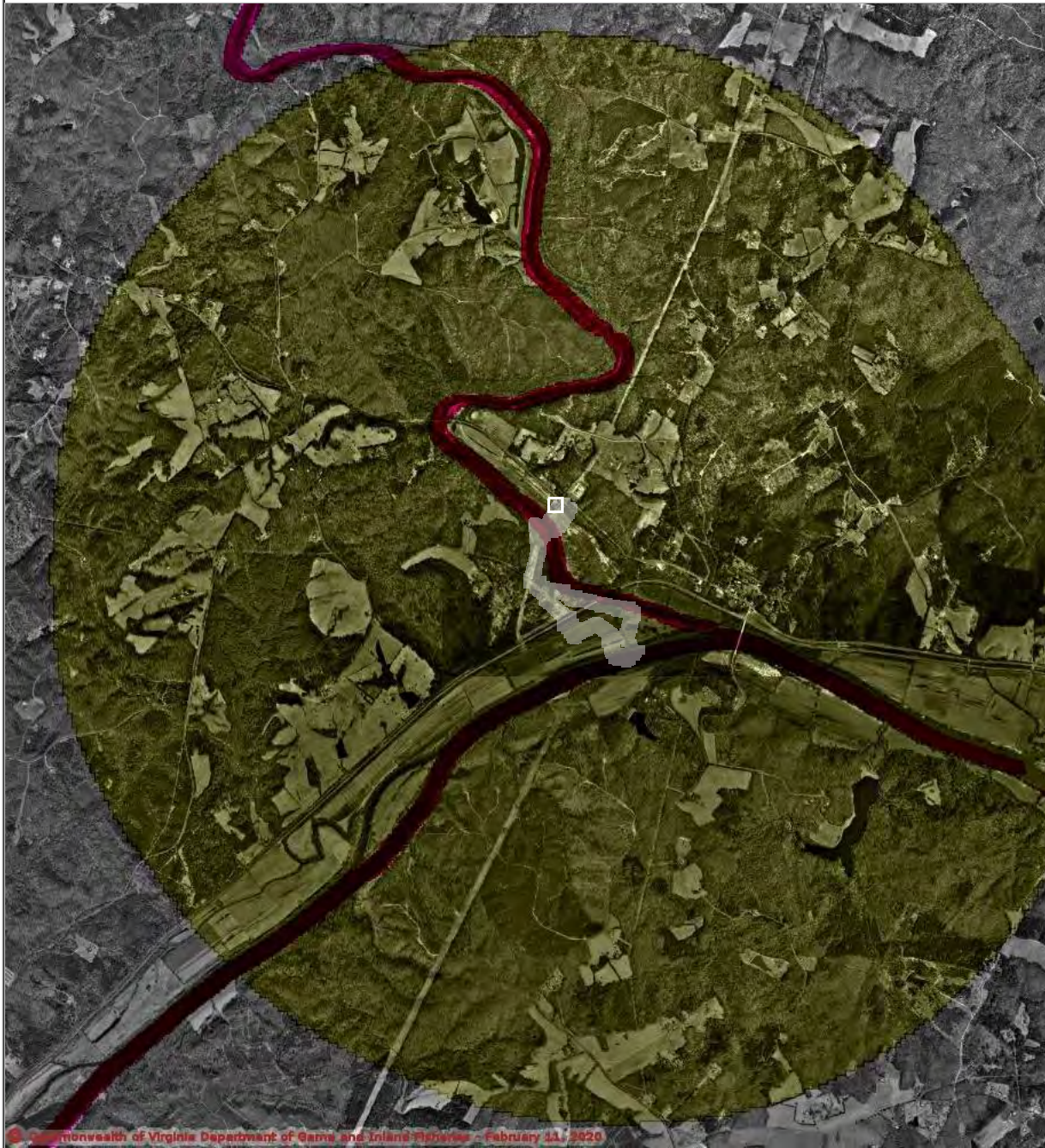
Map Overlay [Choices](#)
Current List: Search, TEWaters

Map Overlay Legend

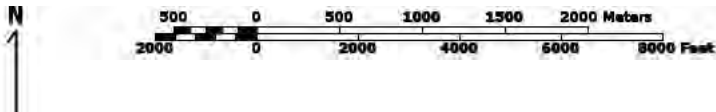
- T & E Waters**
-  Federal
 -  State



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Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37,45,31.2 -78,10,32.6
Map Location 37,45,14.8 -78,10,26.8

- Select **Coordinate System:** Degrees,Minutes,Seconds Latitude - Longitude
 Decimal Degrees Latitude - Longitude
 Meters UTM NAD83 East North Zone
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744957 and top 4186295. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

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map assembled 2020-02-11 13:05:08 (qa/qc March 21, 2016 12:20 - tn=1015022.1 dist=3218
I)
\$poi=37.7586700 -78.1757299

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Virginia Department of Game and Inland Fisheries

2/11/2020 1:05:45 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:05:45 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

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

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need;
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 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPSE						Yes

(20802032)		060006	SE	Ib	Floater, brook	Alasmidonta varicosa	
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/11/2020, 1:05:45 PM I1015022.1 report=BOVA searchType= P dist= 3218 poi= 37.7586700 -78.1757299

audit no. 1015022 2/11/2020 1:05:45 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,45,31.2 -78,10,32.6 is the Search Point

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Map Click

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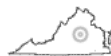
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Show Position Rings

Yes No

1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

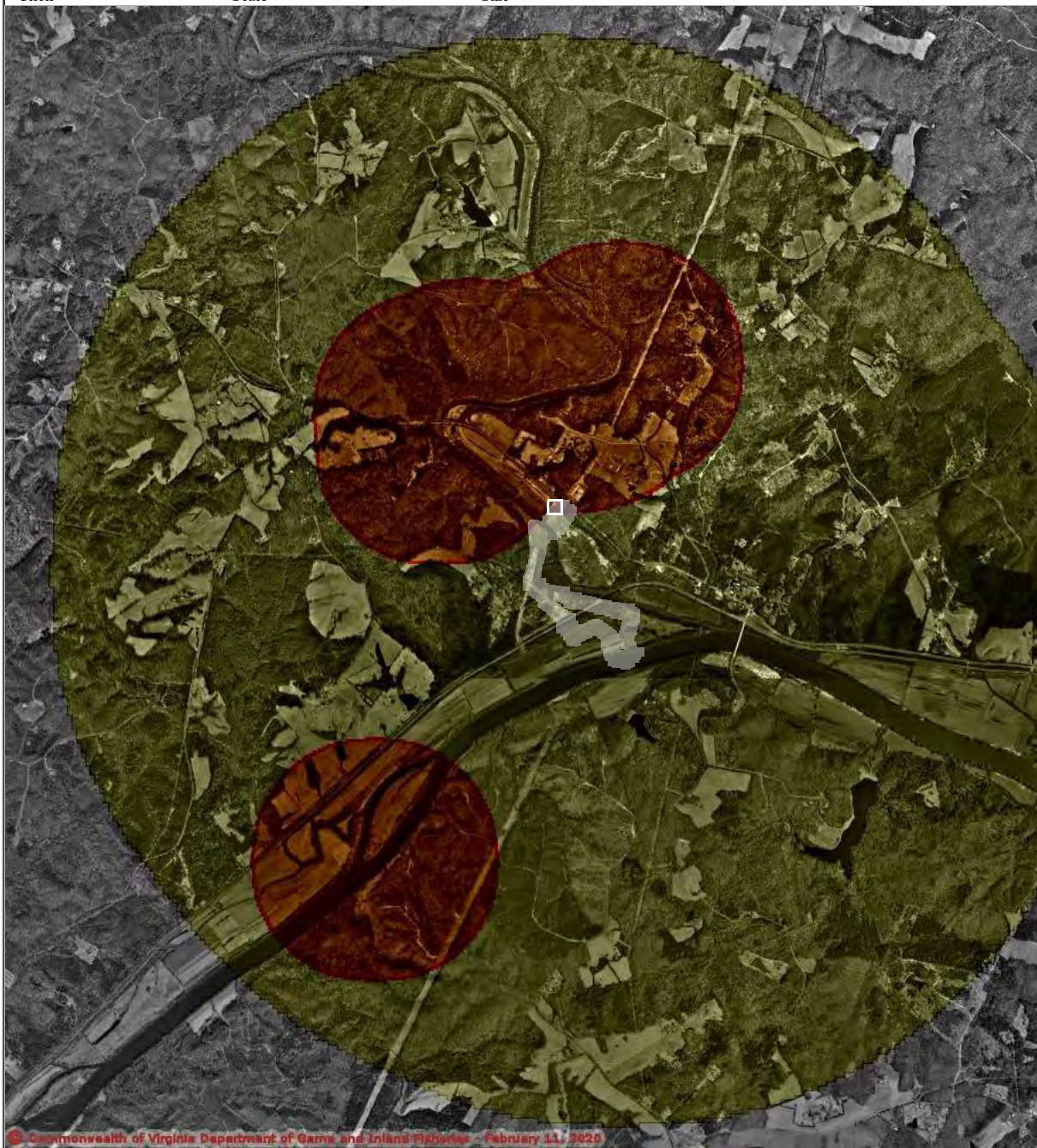
BW Aerial Photography

Map Overlay Choices

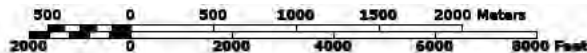
Current List: Search, SppObs

Map Overlay Legend

- 2 mile radius Search Area
- Data Observation Site



Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37,45,31.2 -78,10,32.6

Map Location 37,45,14.8 -78,10,26.8

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude

Decimal Degrees Latitude - Longitude

Meters UTM NAD83 East North Zone

Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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<http://www.national.geographic.com/topo>

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map assembled 2020-02-11 13:02:11 (qa/qc March 21, 2016 12:20 - tn=1015022.1 dist=3218
I)
\$poi=37.7586700 -78.1757299

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Virginia Department of Game and Inland Fisheries

2/11/2020 1:03:34 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:03:34 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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audit no. 1015022 2/11/2020 1:03:34 PM Virginia Fish and Wildlife Information Service
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IPaC resource list

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

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

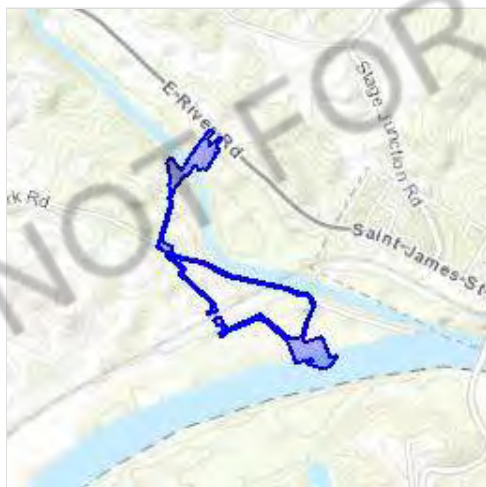
Project information

NAME

JRWA Build Alternative 6-1

LOCATION

Fluvanna County, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📅 (804) 693-9032

6669 Short Lane

Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

NOT FOR CONSULTATION

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME

STATUS

Northern Long-eared Bat *Myotis septentrionalis*
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5164	Proposed Threatened
James Spiny mussel <i>Pleurobema collina</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2212	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
<p>Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626</p>	Breeds Sep 1 to Jul 31
<p>Blue-winged Warbler <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds May 1 to Jun 30
<p>Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

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

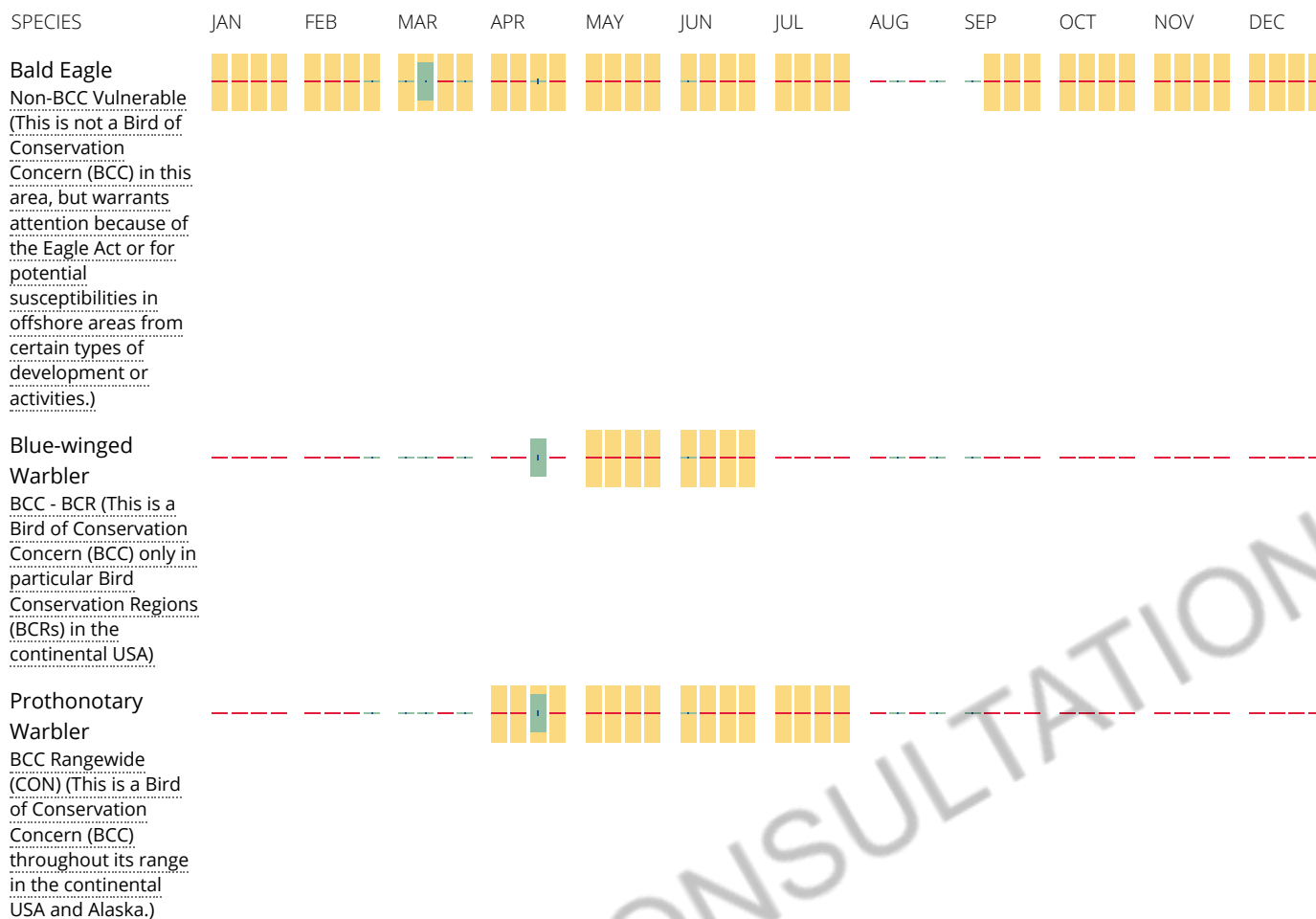
No Data (—)

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

Survey Timeframe

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

■ probability of presence ■ breeding season | survey effort — no data



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

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

What does IPaC use to generate the migratory birds potentially recurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1A](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1/EM1Ad](#)

[PFO1A](#)

RIVERINE

[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

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.

VaFWIS Initial Project Assessment Report Compiled on 2/11/2020,[Help](#)

1:09:49 PM

Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA

[View Map of
Site Location](#)

471 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler,	Setophaga cerulea		BOVA

			cerulean			
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 471 species** [View 471](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (2 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 **	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE *	T&E Waters Species					View Map
		BOVA Code, Status *, Tier **, Common & Scientific Name					
James River (0101762)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia masoni	

					Atlantic		
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

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

Nest	N Obs	Latest Date	DGIF	View Map
			Nest Status	
CM0401	2	May 1 2004	HISTORIC	Yes
CM1001	1	May 10 2010	UNKNOWN	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes

	060173	FPST	Ia	<u>Pigtoe,</u> <u>Atlantic</u>	Fusconaia masoni
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Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 2/11/2020, 1:09:49 PM I1015029.0 report=IPA searchType= P dist= 3218 poi= 37.7586700 -78.1757299 siteDD= 37.7586793 -78.1757397:37.7584066 -78.1756780:37.7584331
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VaFWIS - Department of Game and Inland Fisheries

37.75420 -78.17364
is the Search Point

Search Point

- Change to "clicked" map point
- Fixed at 37.75420 -78.17364

Show Position Rings

- Yes No

1 mile and 1/4 mile at the Search Point

Show Search Area

- Yes No

2 Search distance miles buffer

Search Point is at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

T & E Waters

- Federal
- State

Predicted Habitat WAP Tier I & II

- Aquatic
- Terrestrial

Trout Waters

- Class I - IV
- Class V - VI

Anadromous Fish Reach

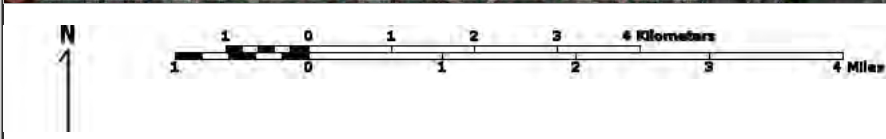
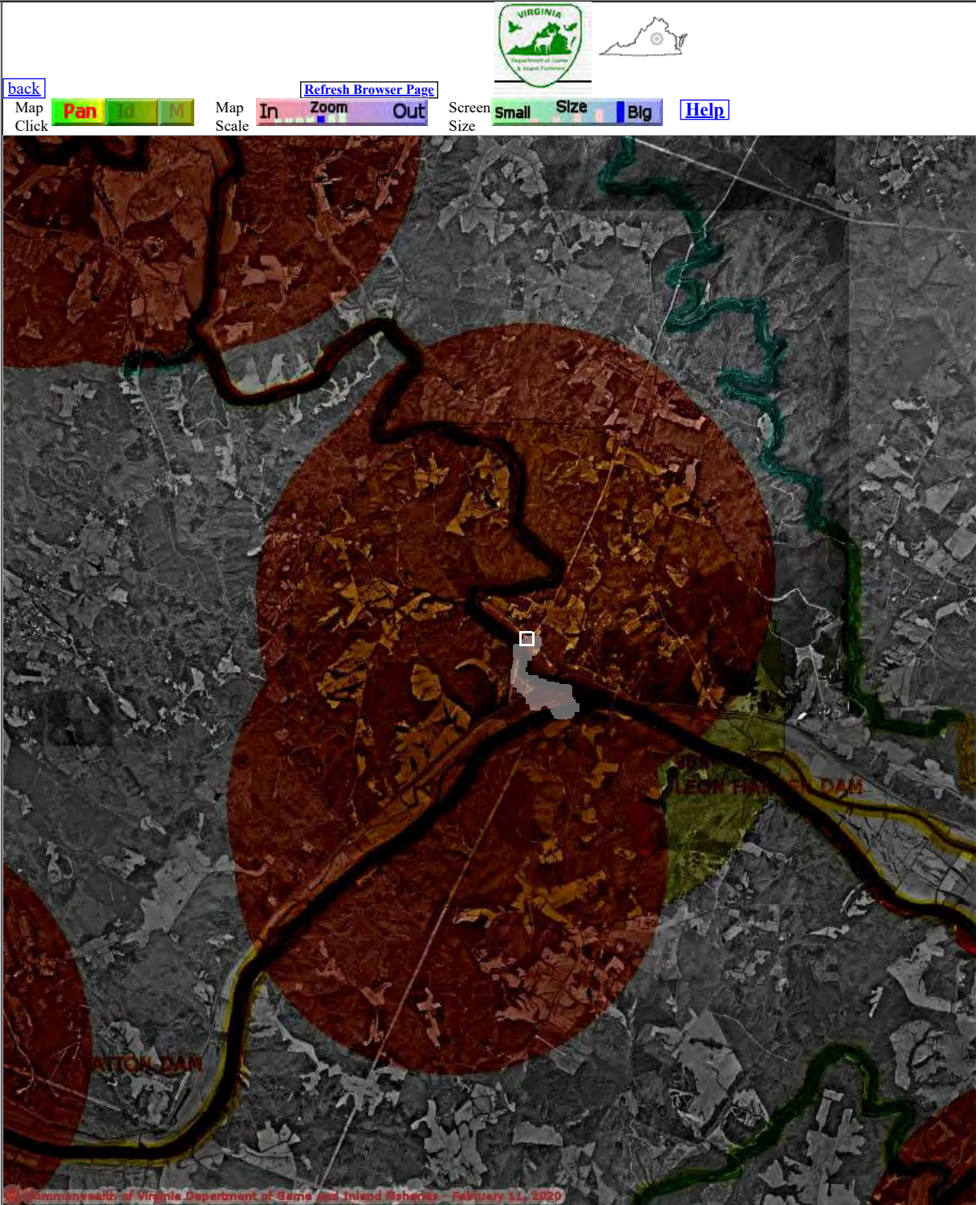
- Confirmed
- Potential

Impediment

2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

- Bald Eagle nests 660 and 330 foot management zones
- Data Observation Site



Point of Search 37.75420 -78.17364
Map Location 37.75420 -78.17364

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 740998 and top 4190307. Pixel size is 12. .
Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000
columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east
to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display
represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-11 13:08:51 (qa/qc March 21, 2016 12:20 - tn=1015029 dist=3218 I
)
\$poi=37.7586700 -78.1757300

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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,31.2 -78,10,32.6 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display	Search Point is
at center	not at map center

Base Map Choices

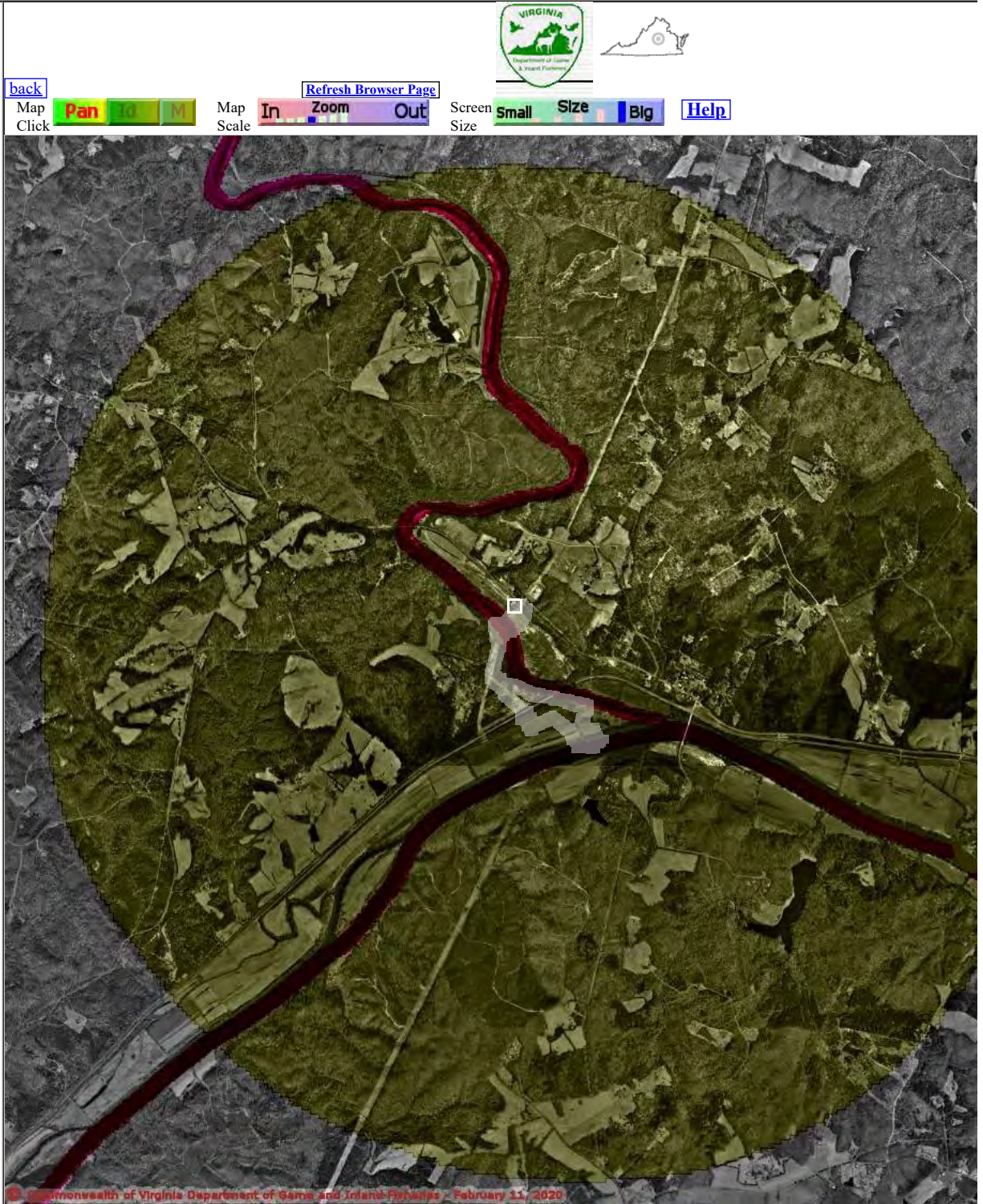
BW Aerial Photography ▾

Map Overlay Choices

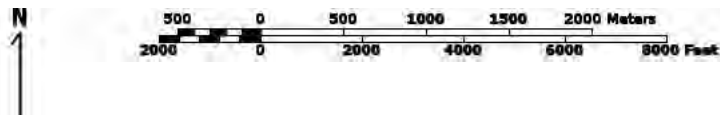
Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
 - State



Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37,45,31.2 -78,10,32.6

Map Location 37,45,15.1 -78,10,25.1

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744998 and top 4186307. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-11 13:11:31 (qa/qc March 21, 2016 12:20 - tn=1015029.1 dist=3218

I)

\$poi=37.7586700 -78.1757299

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Virginia Department of Game and Inland Fisheries

2/11/2020 1:12:13 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:12:13 PM

[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Tier Species		View Map
	Highest	BOVA Code, Status*, Tier**,	

	TE*	Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

Compiled on 2/11/2020, 1:12:13 PM I1015029.1 report=BOVA searchType=P dist= 3218 poi= 37.7586700 -78.1757299

Threatened and Endangered Waters where Floater, green (060081) observed

37,45,31.2 -78,10,32.6 is the Search Point

Show Position Rings

Yes No

1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

BW Aerial Photography

Map Overlay Choices

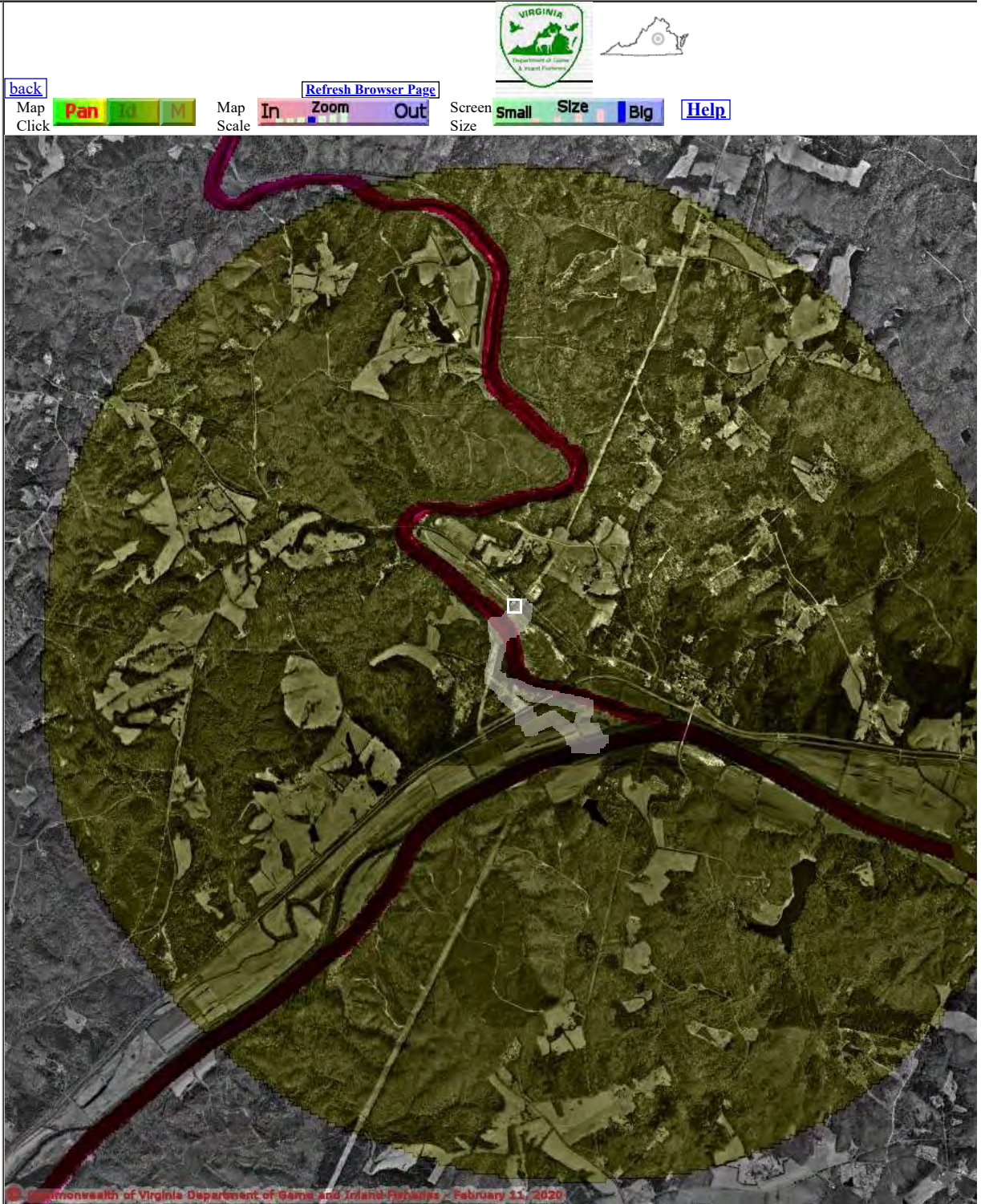
Current List: Search, TEWaters

Map Overlay Legend

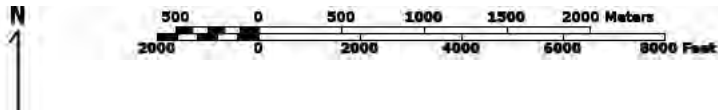
T & E Waters

- Federal
- State

2 mile radius Search Area



Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37,45,31.2 -78,10,32.6

Map Location 37,45,15.1 -78,10,25.1

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744998 and top 4186307. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

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map assembled 2020-02-11 13:12:40 (qa/qc March 21, 2016 12:20 - tn=1015029.1 dist=3218
I)
\$poi=37.7586700 -78.1757299

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Virginia Department of Game and Inland Fisheries

2/11/2020 1:13:18 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:13:18 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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;
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 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPSE						Yes

(20802032)		060006	SE	Ib	Floater, brook	Alasmidonta varicosa	
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

Compiled on 2/11/2020, 1:13:18 PM I1015029.1 report=BOVA searchType= P dist= 3218 poi= 37.7586700 -78.1757299

audit no. 1015029 2/11/2020 1:13:18 PM Virginia Fish and Wildlife Information Service
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7 Species Observations where Lance, yellow (060029) observed

37,45,31.2 -78,10,32.6 is the Search Point

[back](#)

Map Click

Pan To M

Map Scale

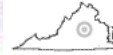
In Zoom Out

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Screen Size

Small Size Big

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Show Position Rings

Yes No

1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

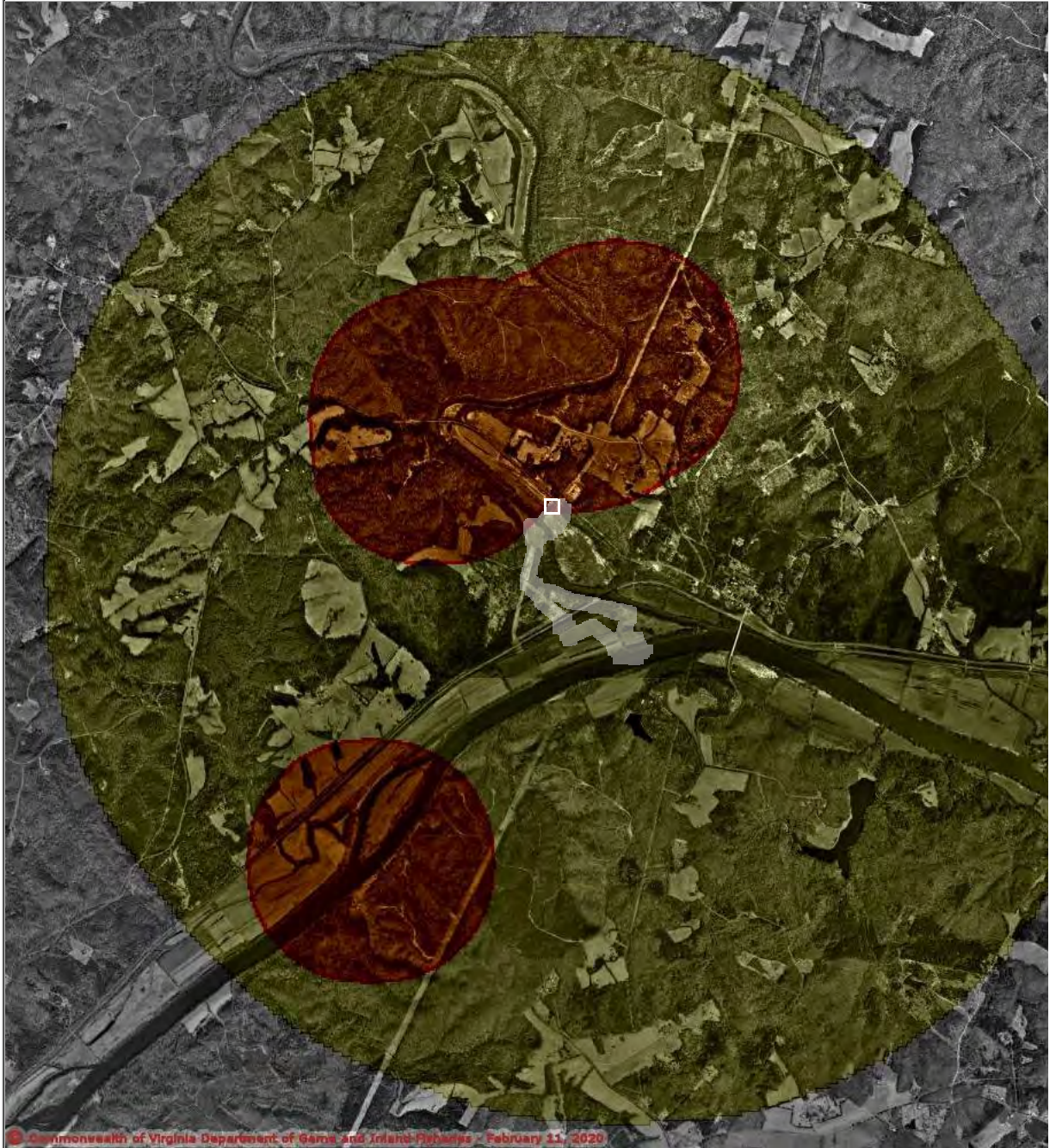
BW Aerial Photography

Map Overlay Choices

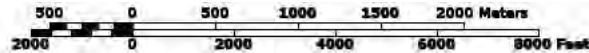
Current List: Search, SppObs

Map Overlay Legend

- 2 mile radius Search Area
- Data Observation Site



Commonwealth of Virginia Department of Game and Inland Fisheries - February 11, 2020



Point of Search 37,45,31.2 -78,10,32.6

Map Location 37,45,15.1 -78,10,25.1

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude

Decimal Degrees Latitude - Longitude

Meters UTM NAD83 East North Zone

Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-11 13:10:28 (qa/qc March 21, 2016 12:20 - tn=1015029.1 dist=3218

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\$poi=37.7586700 -78.1757299

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Virginia Department of Game and Inland Fisheries

2/11/2020 1:11:08 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:11:08 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

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IPaC resource list

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

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

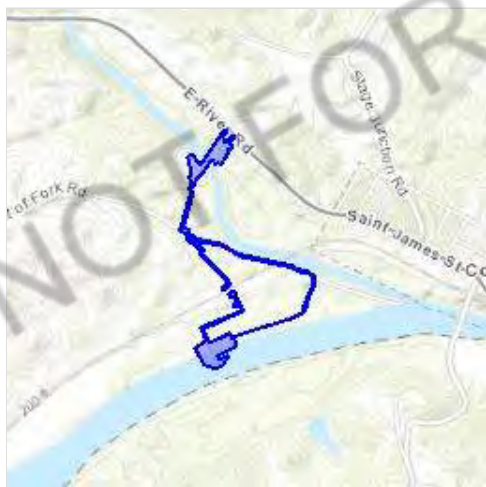
Project information

NAME

JRWA Build Alternative 6-2

LOCATION

Fluvanna County, Virginia



Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane

Gloucester, VA 23061-4410

<http://www.fws.gov/northeast/virginiafield/>

NOT FOR CONSULTATION

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME

STATUS

Northern Long-eared Bat *Myotis septentrionalis*
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/9045>

Threatened

Clams

NAME

STATUS

Atlantic Pigtoe *Fusconaia masoni*
 There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/5164>

Proposed Threatened

James Spiny mussel *Pleurobema collina*
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/2212>

Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

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

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1A](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1/EM1Ad](#)

RIVERINE

[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

NOT FOR CONSULTATION

VaFWIS Initial Project Assessment Report Compiled on 2/11/2020,[Help](#)

1:16:35 PM

Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
in 049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA

[View Map of
Site Location](#)

471 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 21) (21 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060017	FESE	Ia	Spinymussel, James	Parvaspina collina		BOVA
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long-eared	Myotis septentrionalis		BOVA
060029	FT	IIa	Lance, yellow	Elliptio lanceolata	Yes	BOVA,SppObs
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
060006	SE	Ib	Floater, brook	Alasmidonta varicosa		BOVA,Habitat
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus		BOVA
060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	Yes	BOVA,TEWaters,Habitat,SppObs
060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes	BOVA,TEWaters,Habitat
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
060084		Ib	Pigtoe, Virginia	Lexingtonia subplana		BOVA
040213		Ic	Owl, northern saw-whet	Aegolius acadicus		BOVA
040052		IIa	Duck, American black	Anas rubripes		BOVA
040029		IIa	Heron, little blue	Egretta caerulea caerulea		BOVA
040320		IIa	Warbler,	Setophaga cerulea		BOVA

			cerulean			
040140		IIa	Woodcock, American	Scolopax minor	Yes	BOVA,SppObs
040203		IIb	Cuckoo, black-billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA

To view **All 471 species** [View 471](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams (2 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 **	
P133	Rivanna river	Potential	0			Yes
P189	James River 4	Potential	0			Yes

Impediments to Fish Passage (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
685	LEON HANSEN DAM	HOPPER ROCK CREEK	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	Highest TE *	T&E Waters Species					View Map
		BOVA Code, Status *, Tier **, Common & Scientific Name					
James River (0101762)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe,	Fusconaia masoni	

					Atlantic		
Rivanna River (0129803.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (2 records)

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

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CM0401	2	May 1 2004	HISTORIC	Yes
CM1001	1	May 10 2010	UNKNOWN	Yes

Displayed 2 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species (6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	Ila	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	Ila	Floater, green	Lasmigona subviridis	Yes

060173 FPST Ia Pigtoe, Atlantic Fusconia masoni

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Public Holdings:

N/A

Compiled on 2/11/2020, 1:16:35 PM I1015034.0 report=IPA searchType= P dist= 3218 poi= 37.7586700 -78.1757299 siteDD= 37.7586793 -78.1757397... -78.1755080:37.7587275 -78.1752285:37.7587767 -78.1751862:37.7586834 -78.1750545:37.7586476 -78.1750883:37.7583576 -78.1753625:37.7582319 -78.1751527:37.7581005 -78.1752698:37.7581450

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VaFWIS - Department of Game and Inland Fisheries

37.75335 -78.17429 is the Search Point

Search Point

- Change to "clicked" map point
- Fixed at 37.75335 -78.17429

Show Position Rings

- Yes No
- 1 mile and 1/4 mile at the Search Point

Show Search Area

- Yes No
- 2 Search distance miles buffer

Search Point is at map center

Base Map Choices

BW Aerial Photography ▾

Map Overlay Choices

Current List: Anadromous, TEWaters, BAEANests, BECAR, Trout, TierII, Habitat, Search

Map Overlay Legend

T & E Waters

- Federal
- State

Predicted Habitat WAP Tier I & II

- Aquatic
- Terrestrial

Trout Waters

- Class I - IV
- Class V - VI

Anadromous Fish Reach

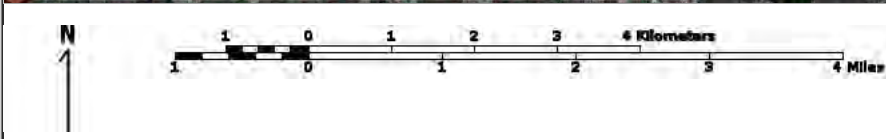
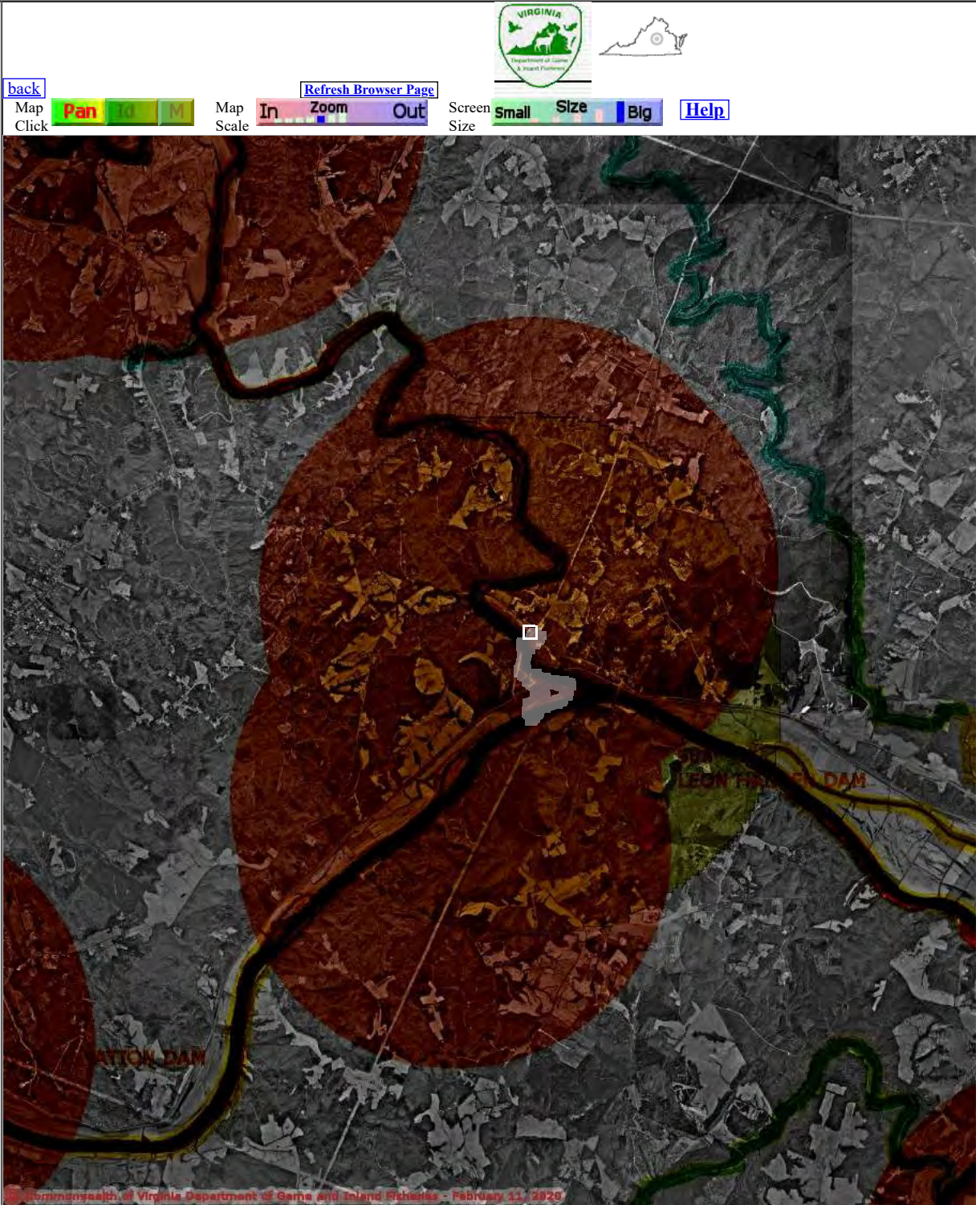
- Confirmed
- Potential

Impediment

2 mile radius Search Area

Bald Eagle Concentration Areas and Roosts

- Bald Eagle nests 660 and 330 foot management zones
- Data Observation Site



Point of Search 37.75335 -78.17429
Map Location 37.75335 -78.17429

- Select Coordinate System:
- Degrees, Minutes, Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see Microsoft.terraserver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 740943 and top 4190210. Pixel size is 12. .
Coordinates displayed are decimal Degrees North and West. Map is currently displayed as 1000
columns by 1000 rows for a total of 1000000 pixels. The map display represents 16000 meters east
to west by 16000 meters north to south for a total of 256.0 square kilometers. The map display
represents 52502 feet east to west by 52502 feet north to south for a total of 98.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+
are from the United States Department of the Interior, United States Geological Survey.
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia
Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland
Fisheries.

map assembled 2020-02-11 13:15:50 (qa/qc March 21, 2016 12:20 - tn=1015034 dist=3218 I
)
\$poi=37.7586700 -78.1757300

| [DGIF](#) | [Credits](#) | [Disclaimer](#) | Contact vafwis_support@dgif.virginia.gov | Please view our [privacy policy](#) |
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Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

37,45,31.2 -78,10,32.6 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display	Search Point is
at center	not at map center

Base Map [Choices](#)
BW Aerial Photography ▾

Map Overlay [Choices](#)
Current List: Search, TEWaters

Map Overlay Legend

- T & E Waters**
- Federal
 - State





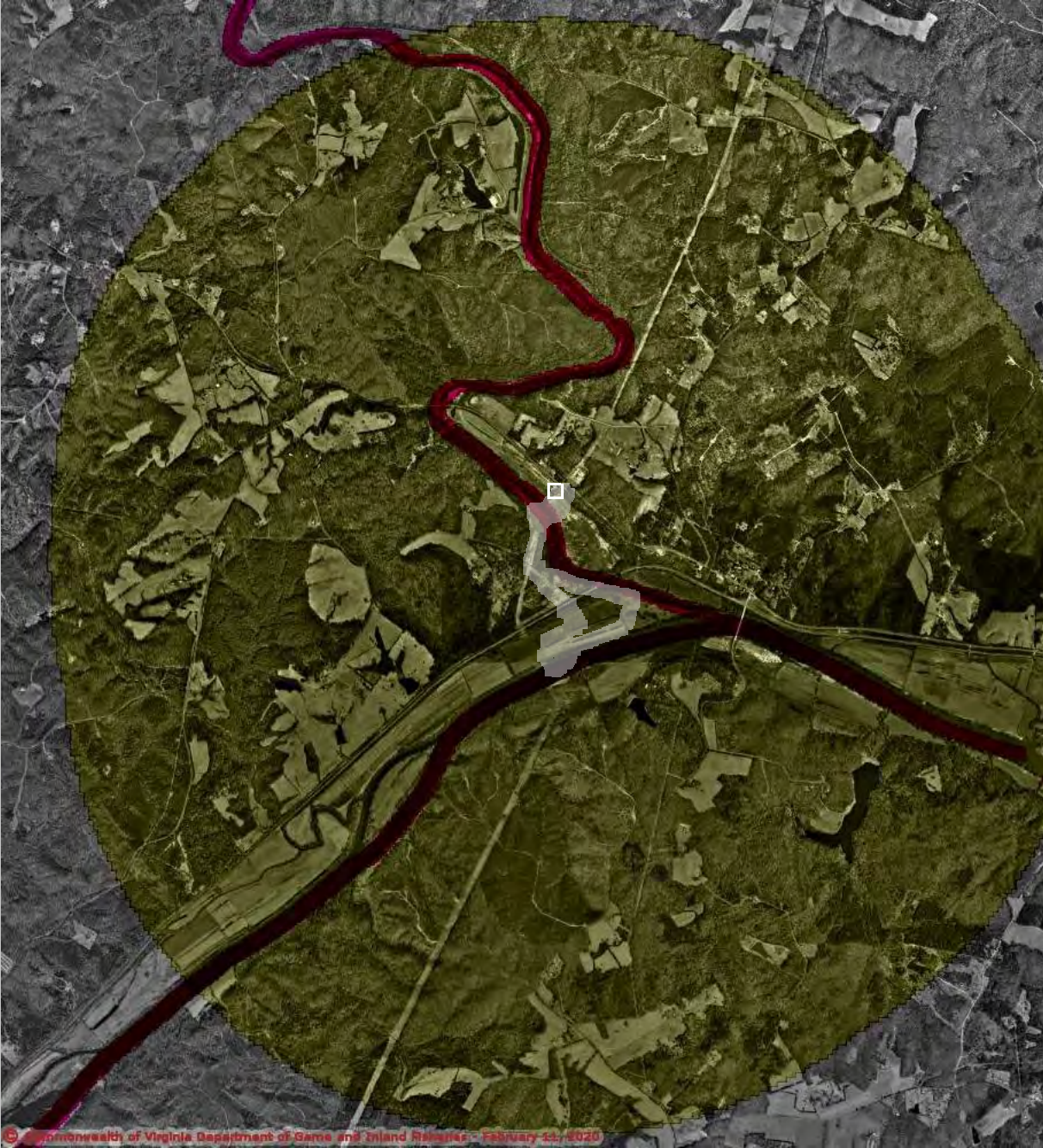
[back](#)

Map Click Pan To M

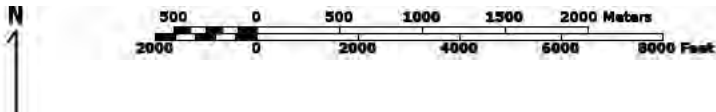
Map Scale In Zoom Out

Screen Size Small Size Big Help



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Point of Search 37,45,31.2 -78,10,32.6
Map Location 37,45,12.0 -78,10,27.4

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 17 NAD 1983 with left 744943 and top 4186210. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 1000 columns by 1000 rows for a total of 1000000 pixels. The map display represents 8000 meters east to west by 8000 meters north to south for a total of 64.0 square kilometers. The map display represents 26251 feet east to west by 26251 feet north to south for a total of 24.7 square miles.

Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2020-02-11 13:18:50 (qa/qc March 21, 2016 12:20 - tn=1015034.1 dist=3218
I)
\$poi=37.7586700 -78.1757299

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Virginia Department of Game and Inland Fisheries

2/11/2020 1:19:26 PM

Fish and Wildlife Information Service

VaFWIS Search Report Compiled on 2/11/2020, 1:19:26 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060173) [Pigtoe, Atlantic](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Pigtoe, Atlantic (060173) observed

(19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	Ia	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	Ia	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

Species Observations where Pigtoe, Atlantic (060173) observed (1 records , 1 Observation with Threatened or Endangered species)

[View Map of All Query Results](#)
[Species Observations where Pigtoe, Atlantic \(060173\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
3551	SppObs	Jan 1 1900	Div. Natural Heritage	1	FPST	I	Yes

Displayed 1 Species Observations where Pigtoe, Atlantic (060173) observed

Habitat Predicted for Aquatic WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

(6 Reaches)

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

Stream Name	Tier Species		View Map
	Highest	BOVA Code, Status*, Tier**,	

	TE*	Common & Scientific Name					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802032)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Pigtoe, Atlantic (060173) observed

N/A

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Threatened and Endangered Waters where Floater, green (060081) observed

37,45,31.2 -78,10,32.6 is the Search Point

Show Position Rings

Yes No
1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No
2 Search distance miles buffer

Display	Search Point is
at center	not at map center

Base Map Choices

BW Aerial Photography ▾

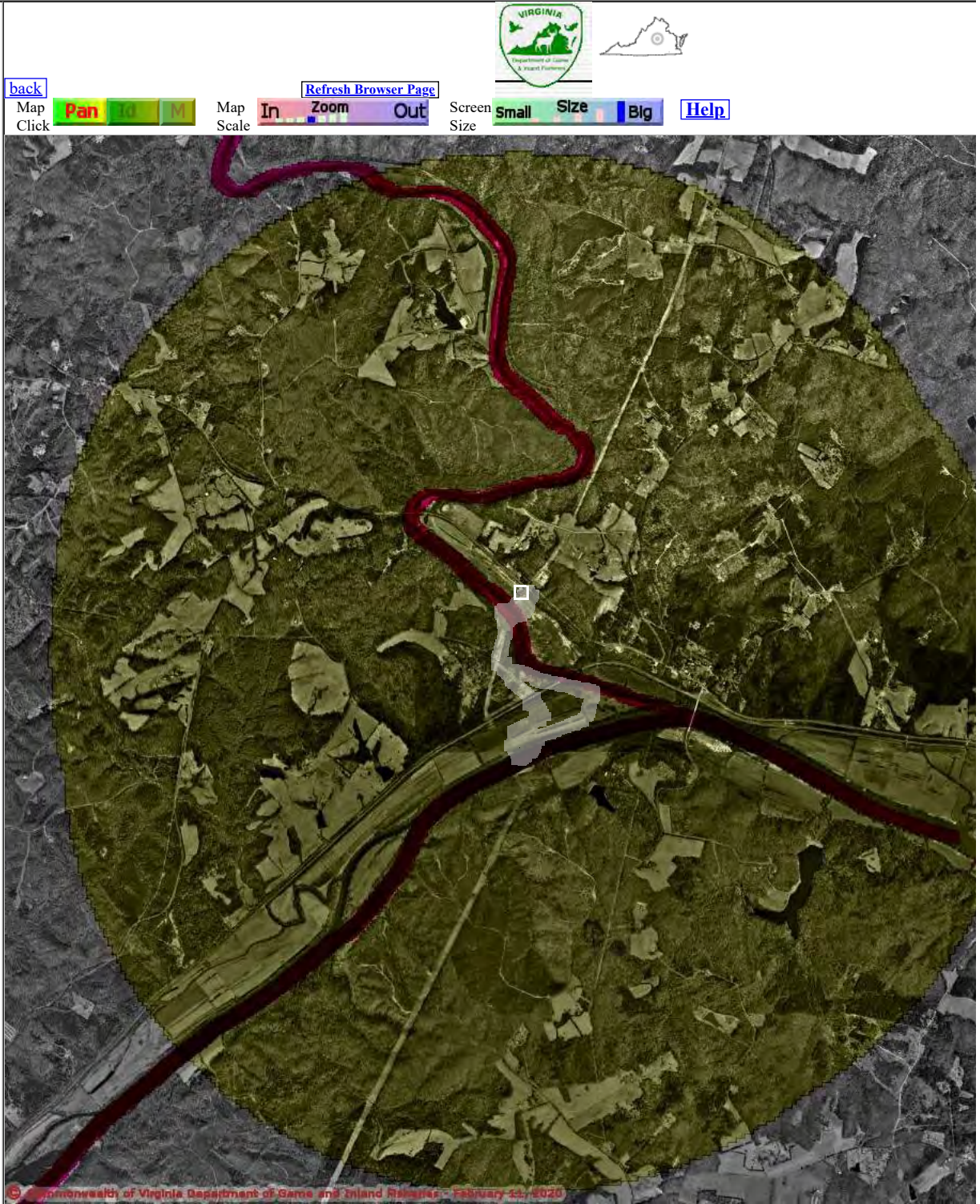
Map Overlay Choices

Current List: Search, TEWaters

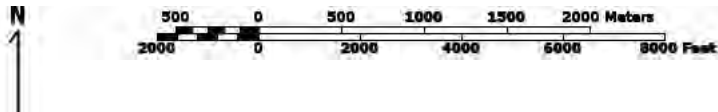
Map Overlay Legend

T & E Waters

- Federal
- State



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Point of Search 37,45,31.2 -78,10,32.6

Map Location 37,45,12.0 -78,10,27.4

- Select **Coordinate System**:
- Degrees,Minutes,Seconds Latitude - Longitude
 - Decimal Degrees Latitude - Longitude
 - Meters UTM NAD83 East North Zone
 - Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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I)
\$poi=37.7586700 -78.1757299

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2/11/2020 1:20:21 PM

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060081) [Floater, green](#) observed.

[View Map of Site Location](#)

Threatened and Endangered Waters where Floater, green (060081) observed

(19 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
James River (0101762.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0105387.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0152638.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0153324.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0158741.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (0187852.)	FPST	060081	ST	IIa	Floater,	Lasmigona	Yes

					green	subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (090688)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092291)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (092742)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (096387)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (099786)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0106316)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0129803)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0133008)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0137768)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0139872)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes

		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0141443.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (0151312.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (096668.)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

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

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need;
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 Virginia Wildlife Action Plan Conservation Opportunity Ranking:
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 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.

Species Observations where Floater, green (060081) observed

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species where Floater, green (060081) observed

(6 Reaches)

[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					
James River (20802031)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River	FPSE						Yes

(20802032)		060006	SE	Ib	Floater, brook	Alasmidonta varicosa	
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802051)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
James River (20802052)	FPSE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
		060081	ST	IIa	Floater, green	Lasmigona subviridis	
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802041)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	
Rivanna River (20802042)	FPST	060081	ST	IIa	Floater, green	Lasmigona subviridis	Yes
		060173	FPST	Ia	Pigtoe, Atlantic	Fusconaia masoni	

Habitat Predicted for Terrestrial WAP Tier I & II Species where Floater, green (060081) observed

N/A

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7 Species Observations where Lance, yellow (060029) observed

37,45,31.2 -78,10,32.6 is the Search Point

[back](#)

Map Click

Pan To M

Map Scale

In Zoom Out

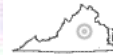
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Show Position Rings

Yes No

1/2 mile and 1/8 mile at the Search Point

Show Search Area

Yes No

2 Search distance miles buffer

Display Search Point is at center not at map center

Base Map Choices

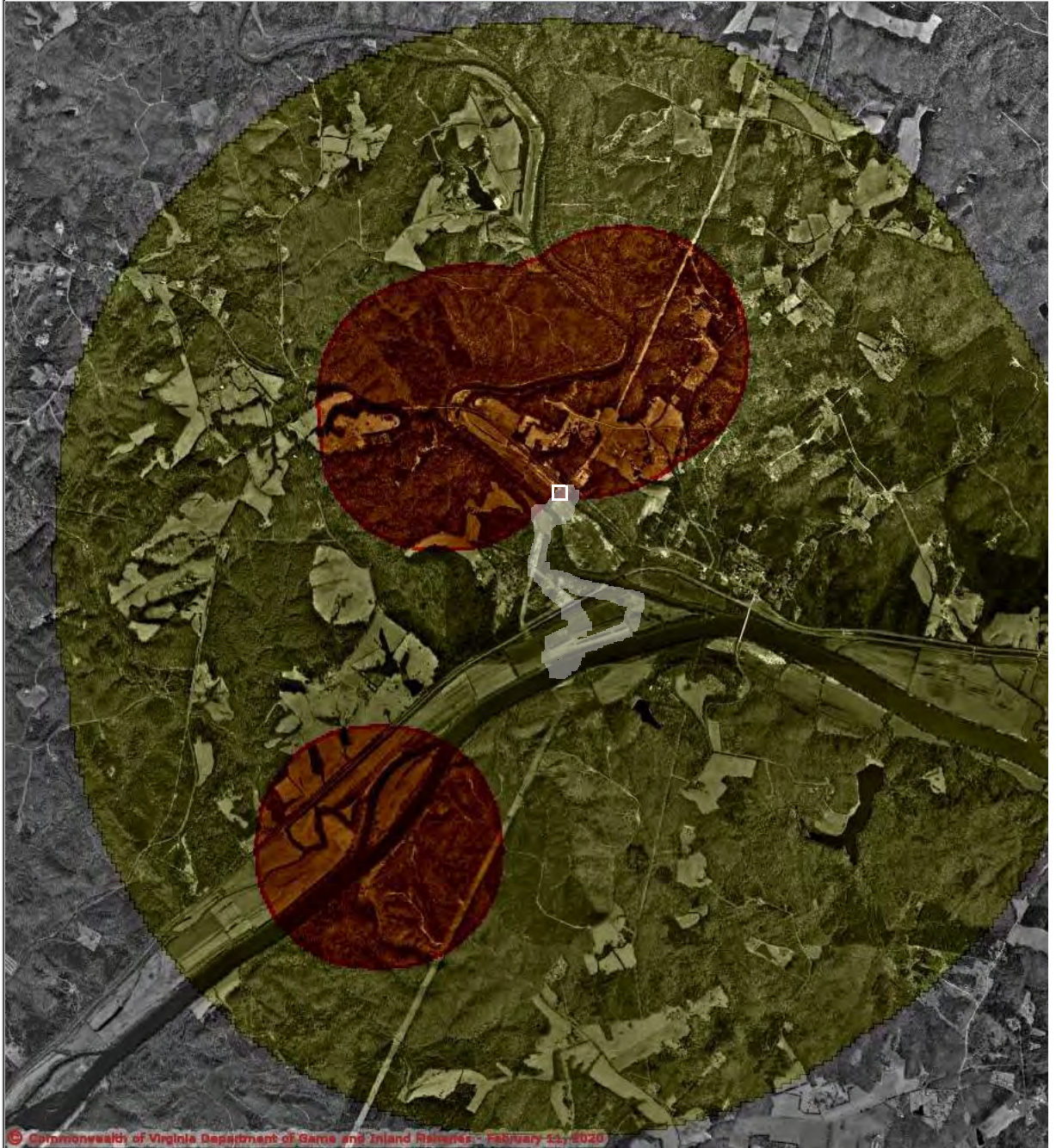
BW Aerial Photography

Map Overlay Choices

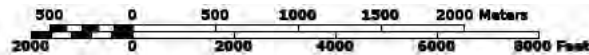
Current List: Search, SppObs

Map Overlay Legend

- 2 mile radius Search Area
- Data Observation Site



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Point of Search 37,45,31.2 -78,10,32.6

Map Location 37,45,12.0 -78,10,27.4

Select Coordinate System: Degrees,Minutes,Seconds Latitude - Longitude

Decimal Degrees Latitude - Longitude

Meters UTM NAD83 East North Zone

Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](http://Microsoft.terraserver-usa.com) for details)

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Known or likely to occur within a **2 mile buffer around polygon; center 37.7586700 -78.1757299**
 in **049 Cumberland County, 065 Fluvanna County, 075 Goochland County, VA**
 where (060029) [Lance, yellow](#) observed.

[View Map of Site Location](#)

Species Observations where Lance, yellow (060029) observed (7 records , 7 Observations with Threatened or Endangered species)

[View Map of All Query Results](#)

[Species Observations where Lance, yellow \(060029\) observed](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
311815	SppObs	Aug 30 2005	Savidge, Timothy	10	FT	II	Yes
8692	SppObs	Sep 24 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8687	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8689	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8690	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8691	SppObs	Sep 23 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes
8686	SppObs	Sep 22 1992	M T O'CONNELL, VPI/SU, ANN UZEE, VPI/SU	2	FT	II	Yes

Displayed 7 Species Observations where Lance, yellow (060029) observed

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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;

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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.

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APPENDIX I
JURISDICTIONAL RESOURCE IMPACT DETAILS

APPENDIX I-1

SELECT ENGINEERING DETAILS

APPENDIX I-2

UNITED STREAM METHODOLOGY AND FUNCTIONS AND VALUES ASSESSMENTS

APPENDIX I-2-1

UNITED STREAM METHODOLOGY FORMS

APPENDIX I-2-2

FUNCTIONS AND VALUES ASSESSMENTS

APPENDIX I-3

LETTER OF CREDIT AVAILABILITY

APPENDIX I-4

PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP

APPENDIX I-1
SELECT ENGINEERING DETAILS

NOT FOR CONSTRUCTION

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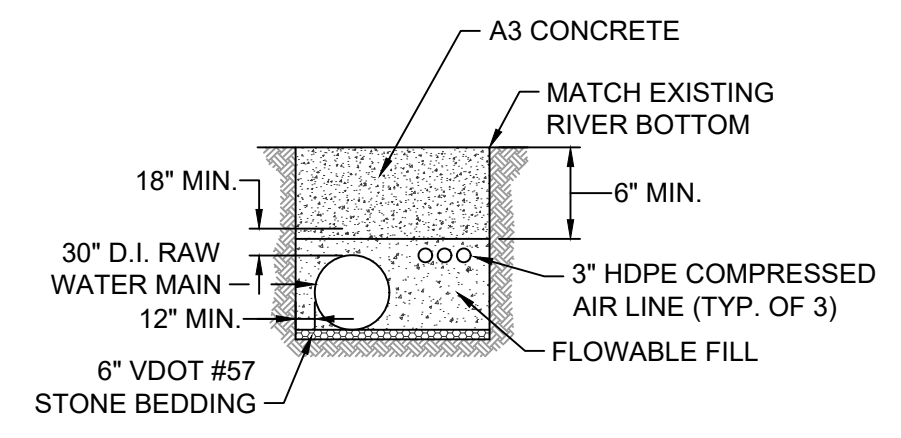
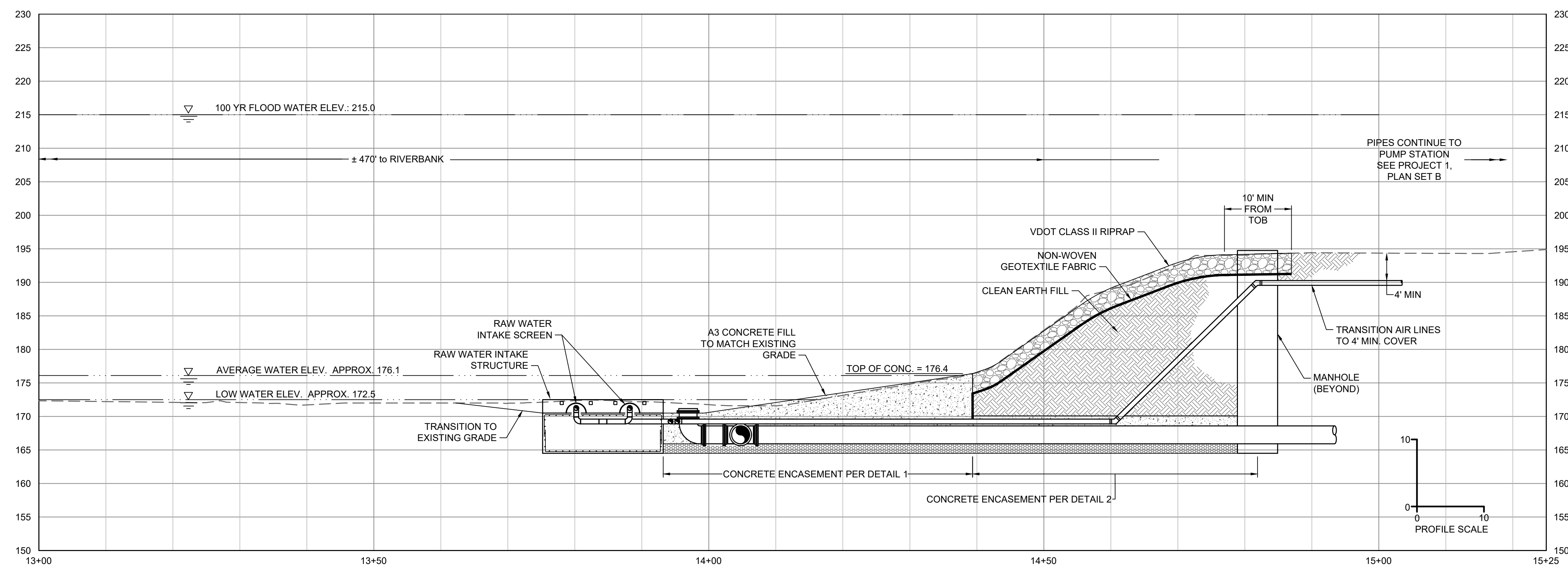
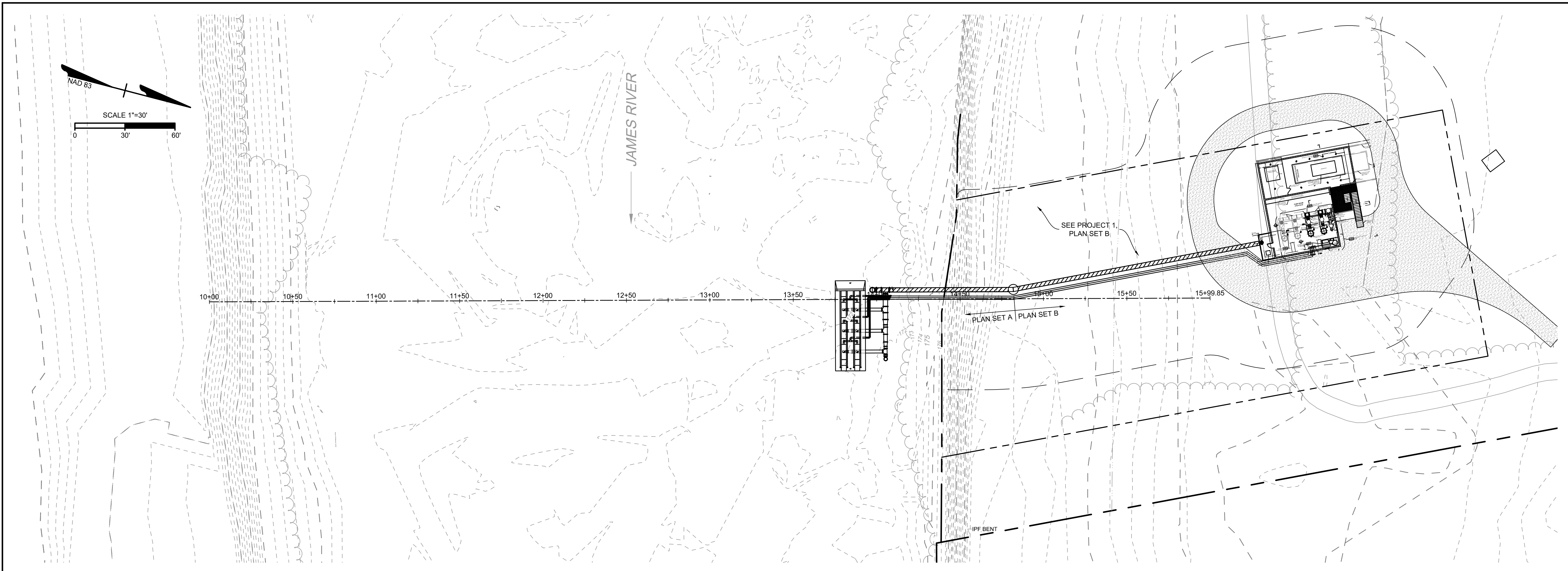
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 AS SHOWN

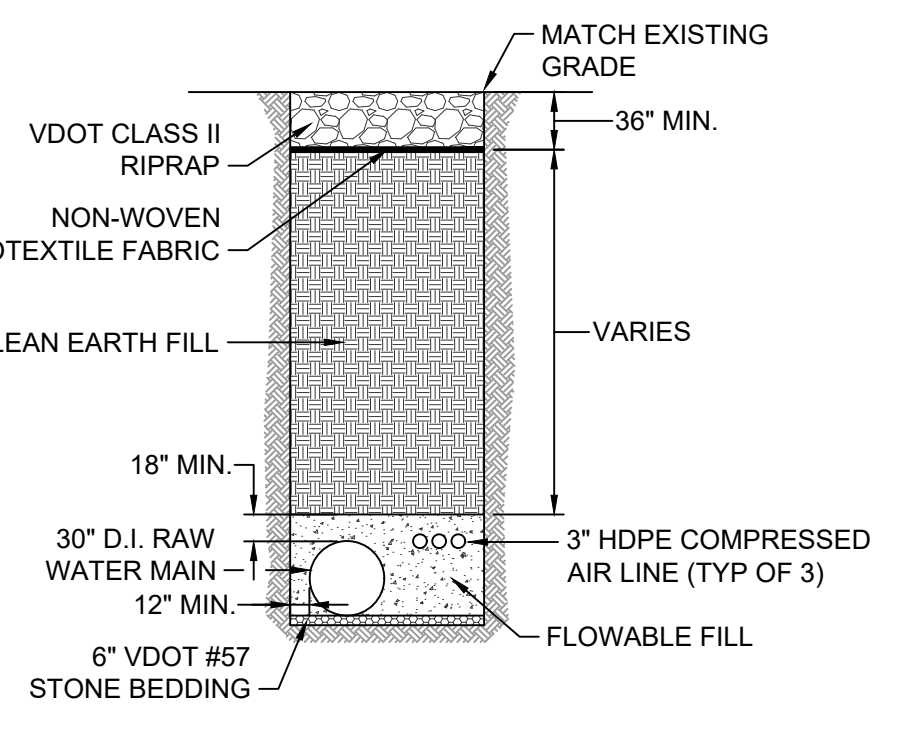
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JAMES RIVER WATER PROJECT
 JAMES RIVER WATER AUTHORITY - FLUVANNA COUNTY, VIRGINIA
SELECT ENGINEERING DETAILS - IMPACTS 1 AND 2

JOB NO.
33927
 SHEET NO.
1

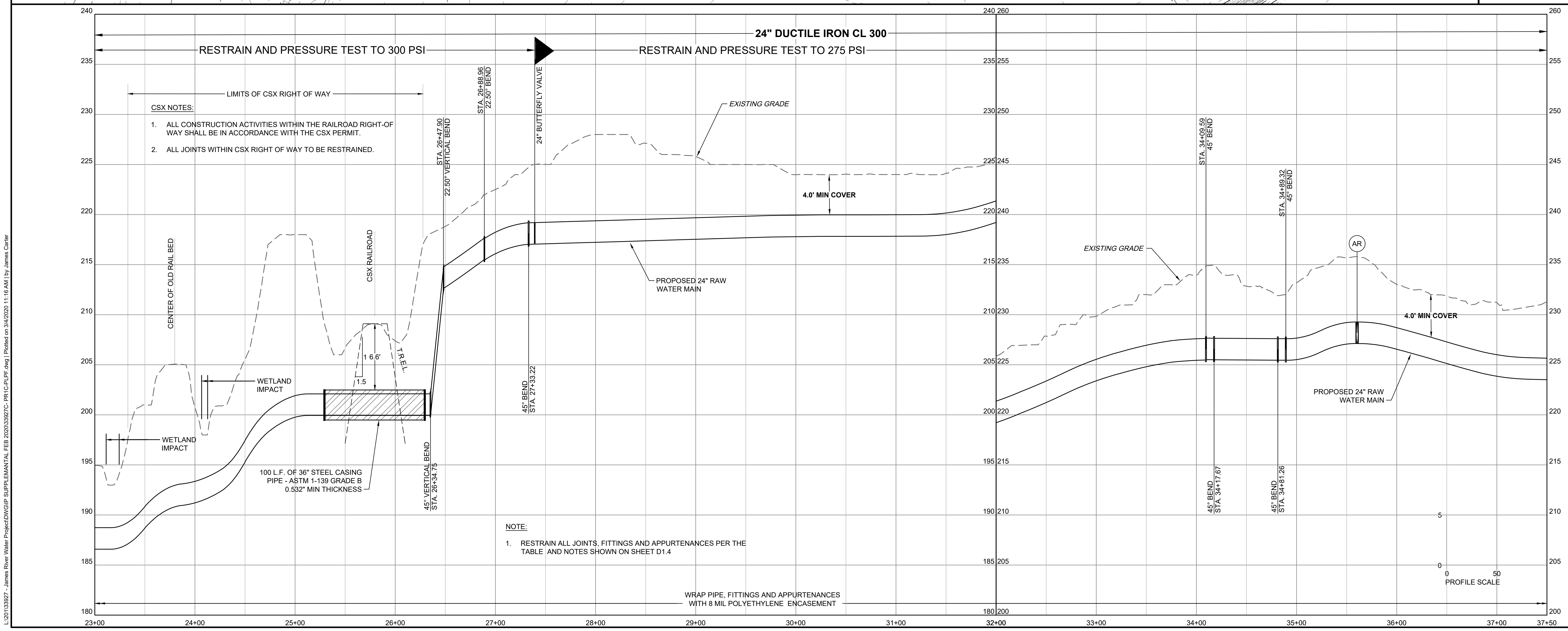
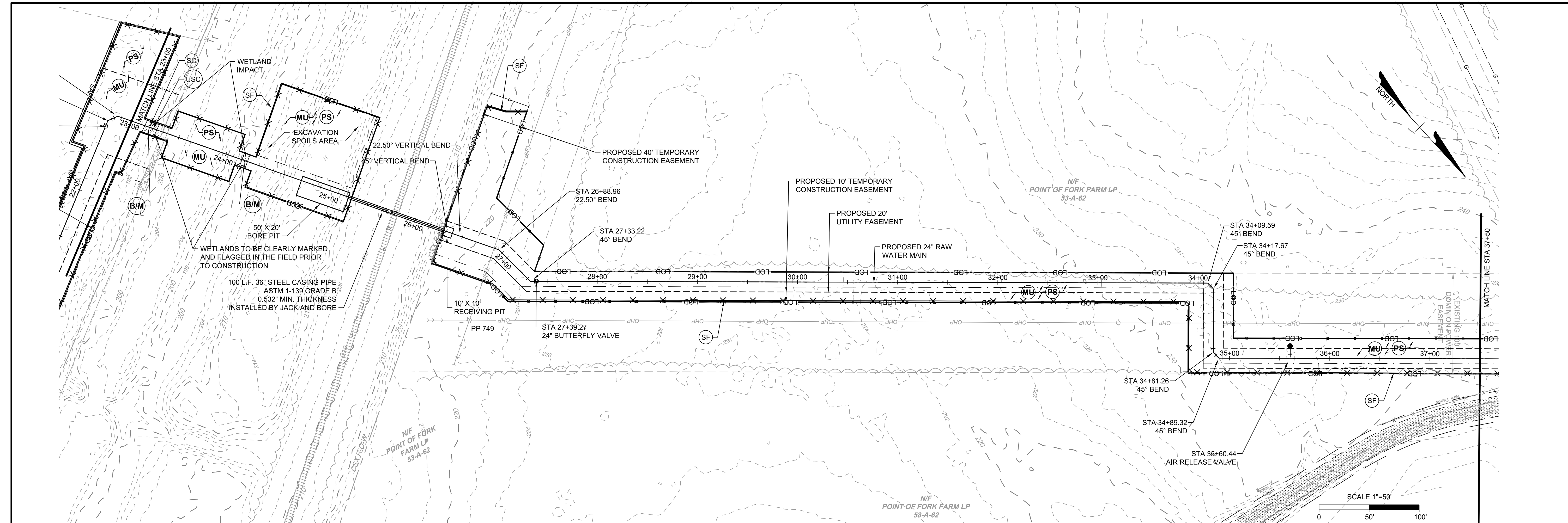


CONCRETE ENCASEMENT DETAIL 1
 NOT TO SCALE



CONCRETE ENCASEMENT DETAIL 2
 NOT TO SCALE

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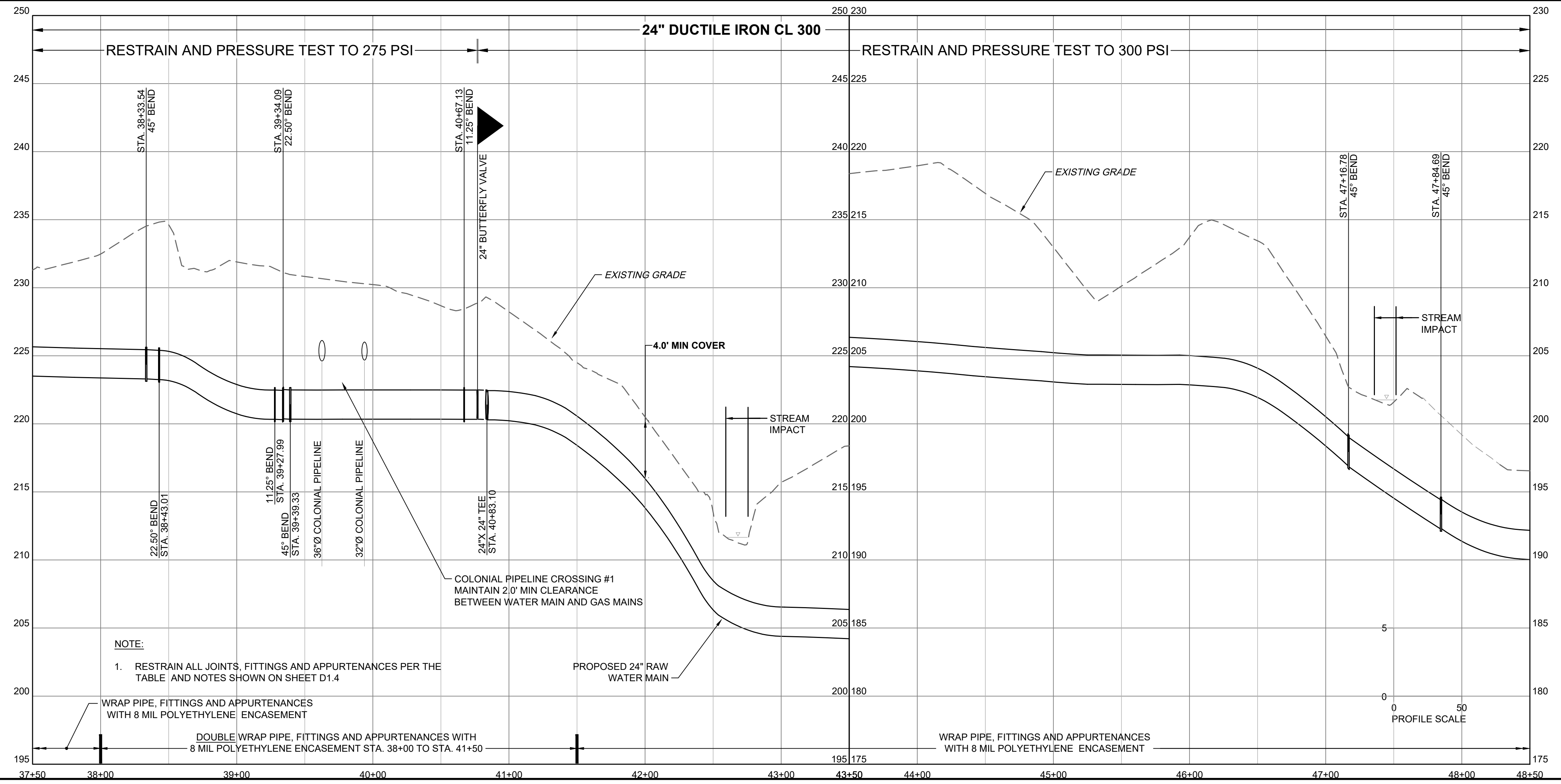
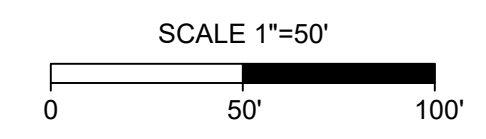
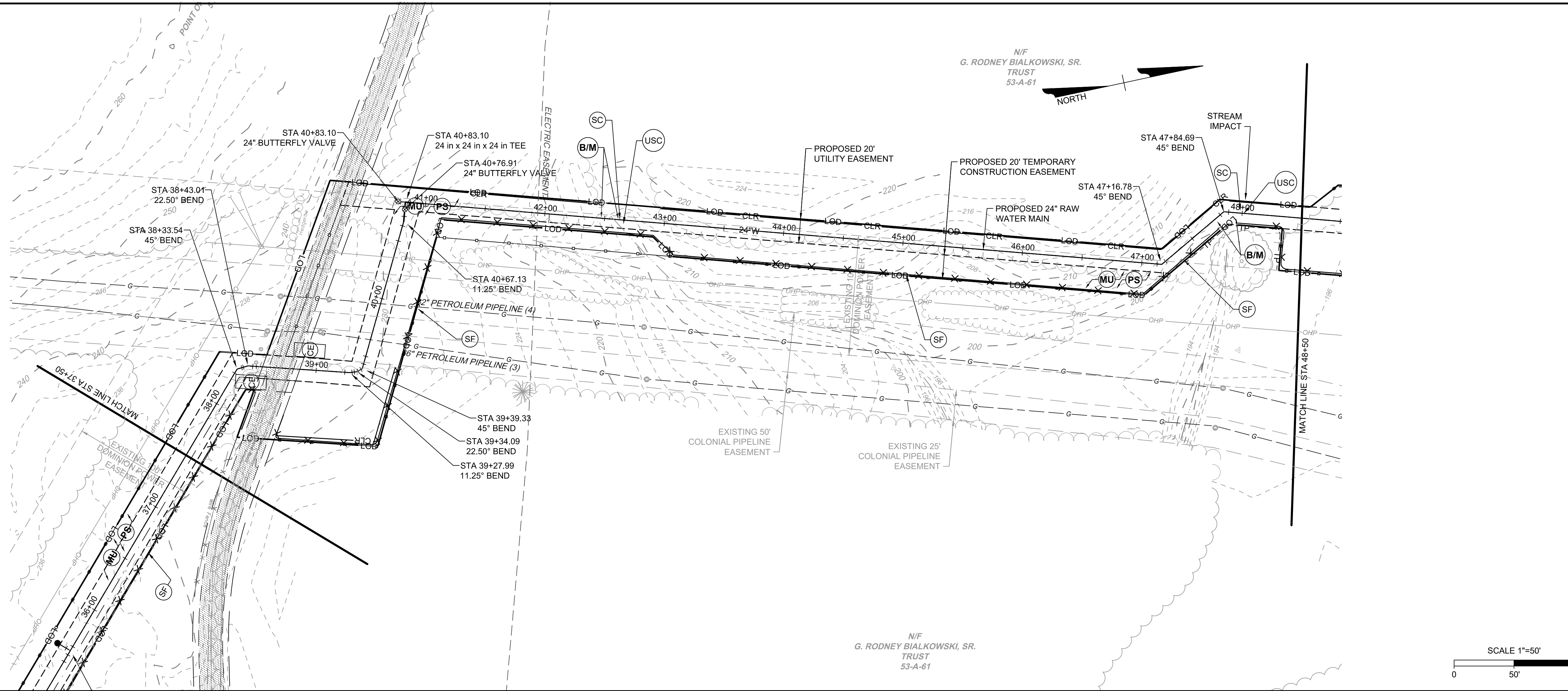
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 JAMES RIVER WATER AUTHORITY - FLUVANNA COUNTY, VIRGINIA
SELECT ENGINEERING DETAILS - IMPACTS 3 AND 4

JOB NO.
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 SHEET NO.
2

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NOTE:
 1. RESTRAIN ALL JOINTS, FITTINGS AND APPURTENANCES PER THE TABLE AND NOTES SHOWN ON SHEET D1.4
 WRAP PIPE, FITTINGS AND APPURTENANCES WITH 8 MIL POLYETHYLENE ENCASEMENT
 DOUBLE WRAP PIPE, FITTINGS AND APPURTENANCES WITH 8 MIL POLYETHYLENE ENCASEMENT STA. 38+00 TO STA. 41+50

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REVISION DESCRIPTION

NO.	DATE	DESCRIPTION

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JAMES RIVER WATER PROJECT
 JAMES RIVER WATER AUTHORITY - FLUVANNA COUNTY, VIRGINIA

SELECT ENGINEERING DETAILS - IMPACTS 5, 6, AND 7

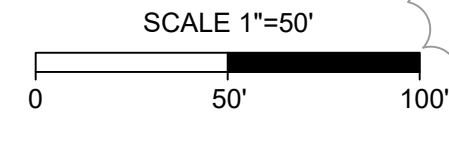
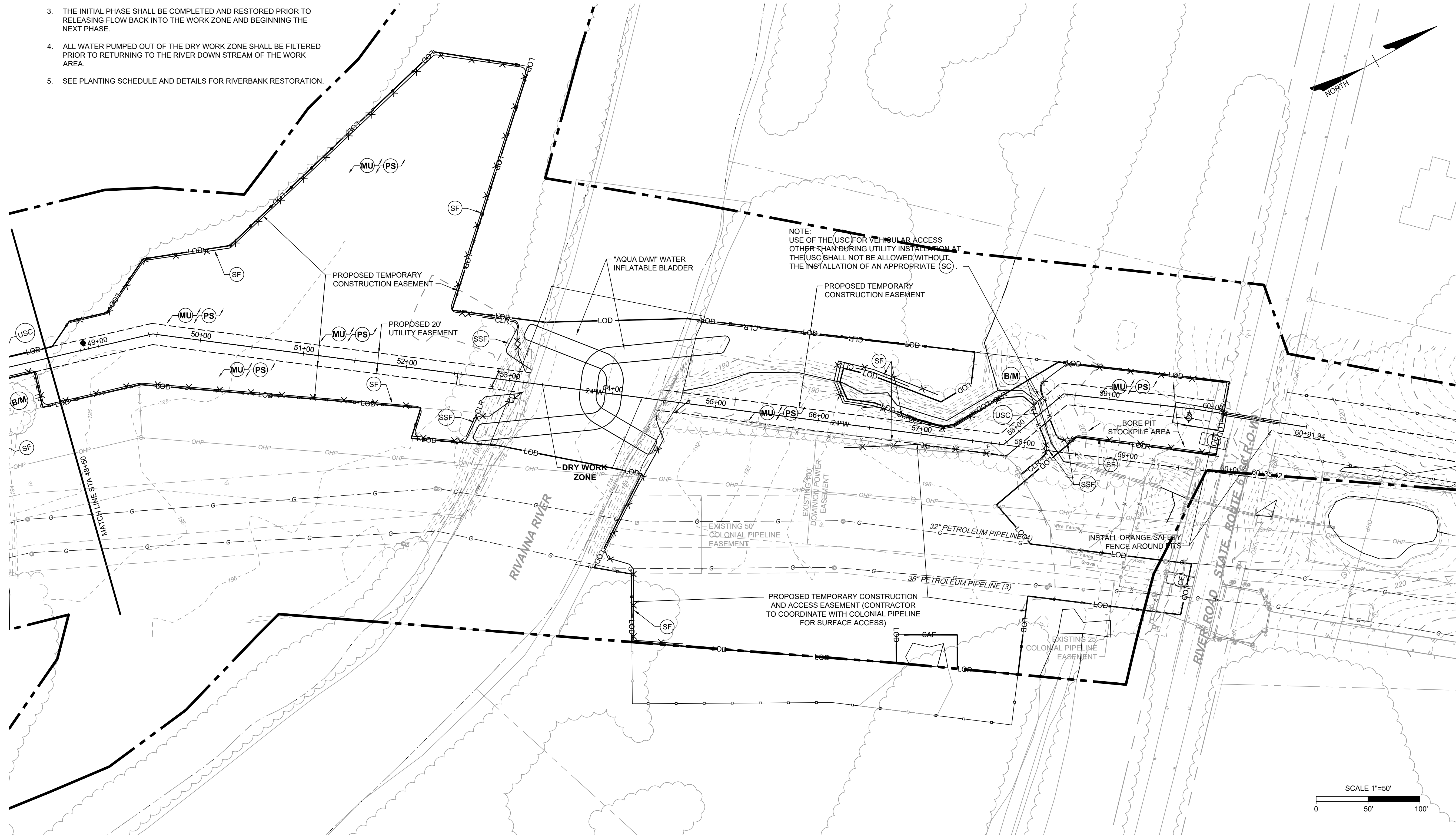
JOB NO. 33927
 SHEET NO. 3

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RIVER CROSSING NOTES:

1. CONTRACTOR SHALL INSTALL BLADDER AND PUMP OUT THE WORK AREA PRIOR TO ANY EXCAVATION WITHIN THE RIVER BANK OR RIVER BOTTOM.
2. RIVER CROSSING TO BE COMPLETED IN 2 (TWO) PHASES.
3. THE INITIAL PHASE SHALL BE COMPLETED AND RESTORED PRIOR TO RELEASING FLOW BACK INTO THE WORK ZONE AND BEGINNING THE NEXT PHASE.
4. ALL WATER PUMPED OUT OF THE DRY WORK ZONE SHALL BE FILTERED PRIOR TO RETURNING TO THE RIVER DOWN STREAM OF THE WORK AREA.
5. SEE PLANTING SCHEDULE AND DETAILS FOR RIVERBANK RESTORATION.



SEE SHEET 5 FOR PROFILE VIEW

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JAMES RIVER WATER PROJECT
 JAMES RIVER WATER AUTHORITY - FLUVANNA COUNTY, VIRGINIA
SELECT ENGINEERING DETAILS - IMPACTS 8, 9, AND 11

JOB NO.
 33927
 SHEET NO.
 4

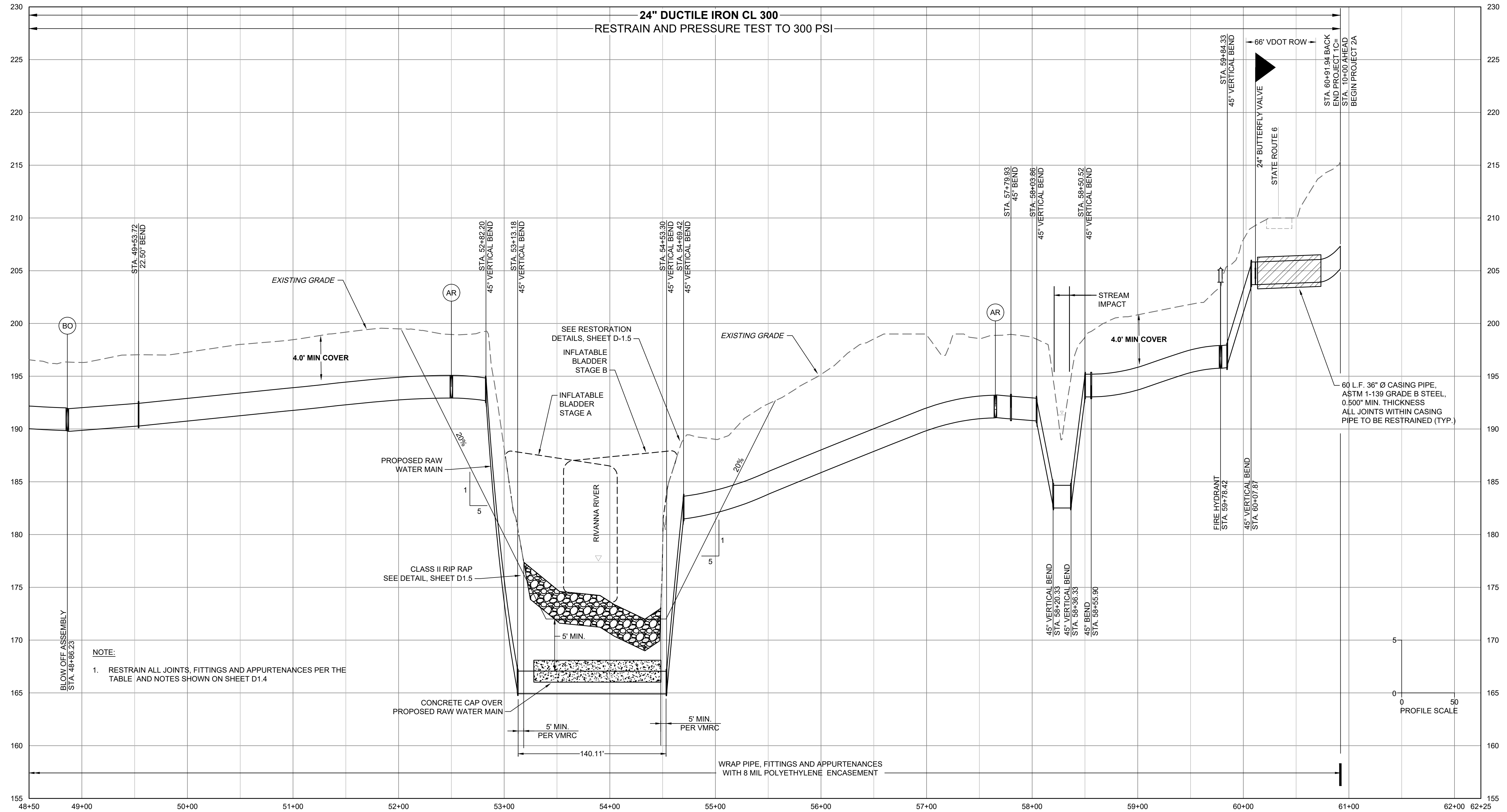
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RIVER CROSSING NOTES:

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2. RIVER CROSSING TO BE COMPLETED IN 2 (TWO) PHASES.
3. THE INITIAL PHASE SHALL BE COMPLETED AND RESTORED PRIOR TO RELEASING FLOW BACK INTO THE WORK ZONE AND BEGINNING THE NEXT PHASE.
4. ALL WATER PUMPED OUT OF THE DRY WORK ZONE SHALL BE FILTERED PRIOR TO RETURNING TO THE RIVER DOWN STREAM OF THE WORK AREA.
5. SEE PLANTING SCHEDULE AND DETAILS FOR RIVERBANK RESTORATION.



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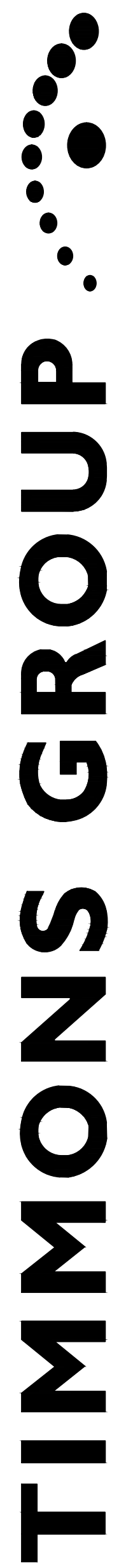
DATE
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JAMES RIVER WATER AUTHORITY - FLOUVANNA COUNTY, VIRGINIA

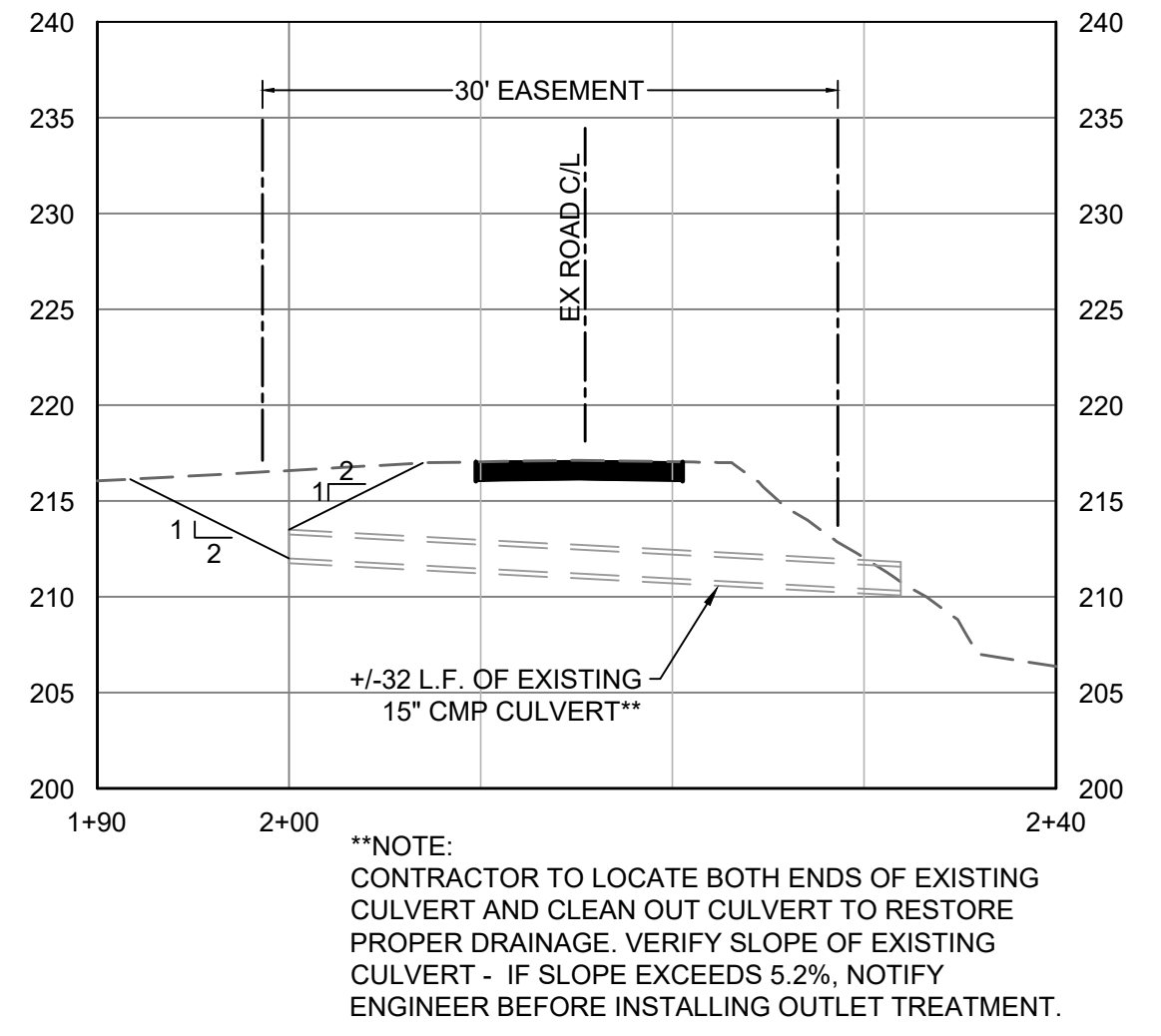
SELECT ENGINEERING DETAILS - IMPACTS 8, 9, AND 11

JOB NO.
33927
SHEET NO.
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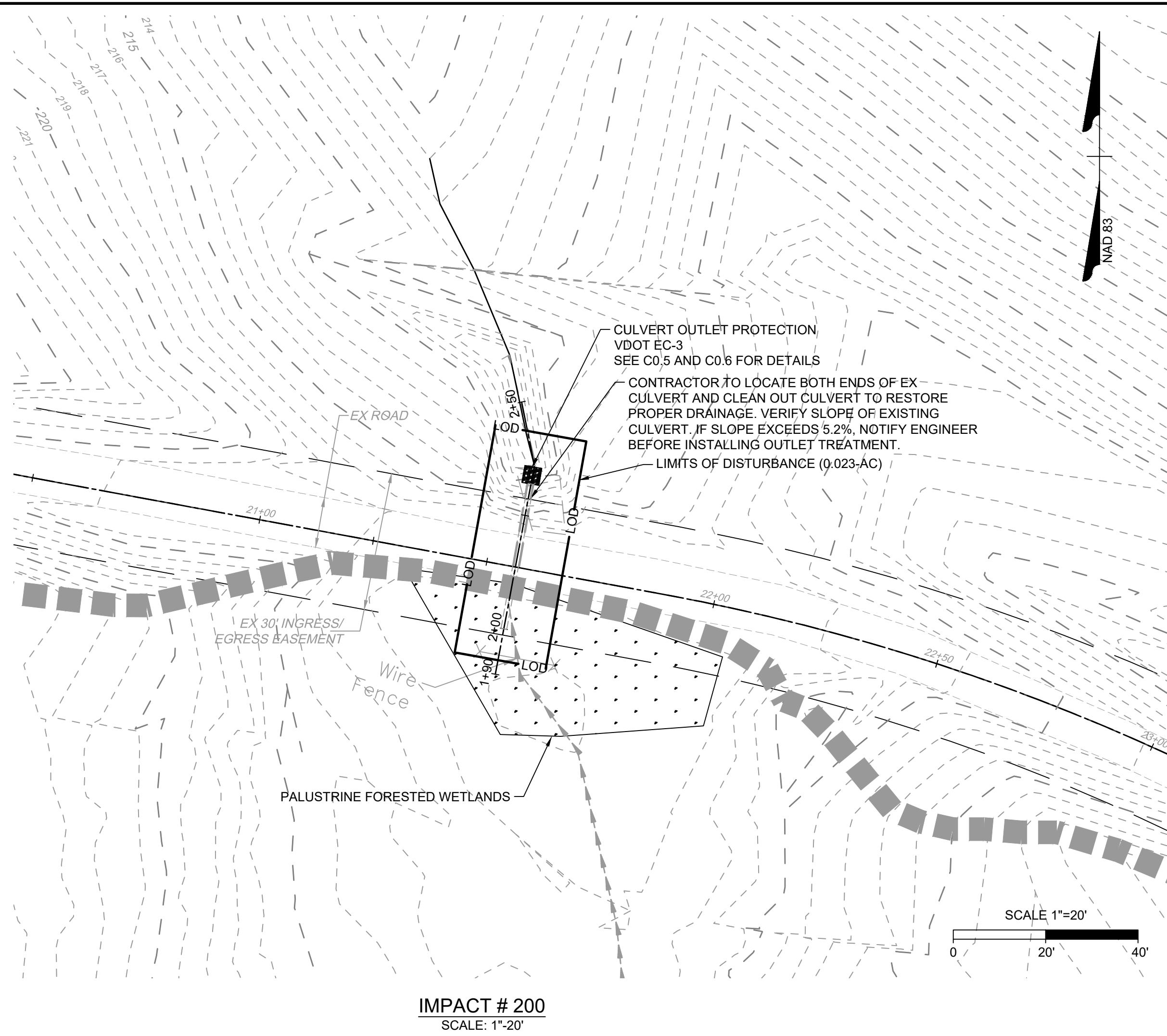


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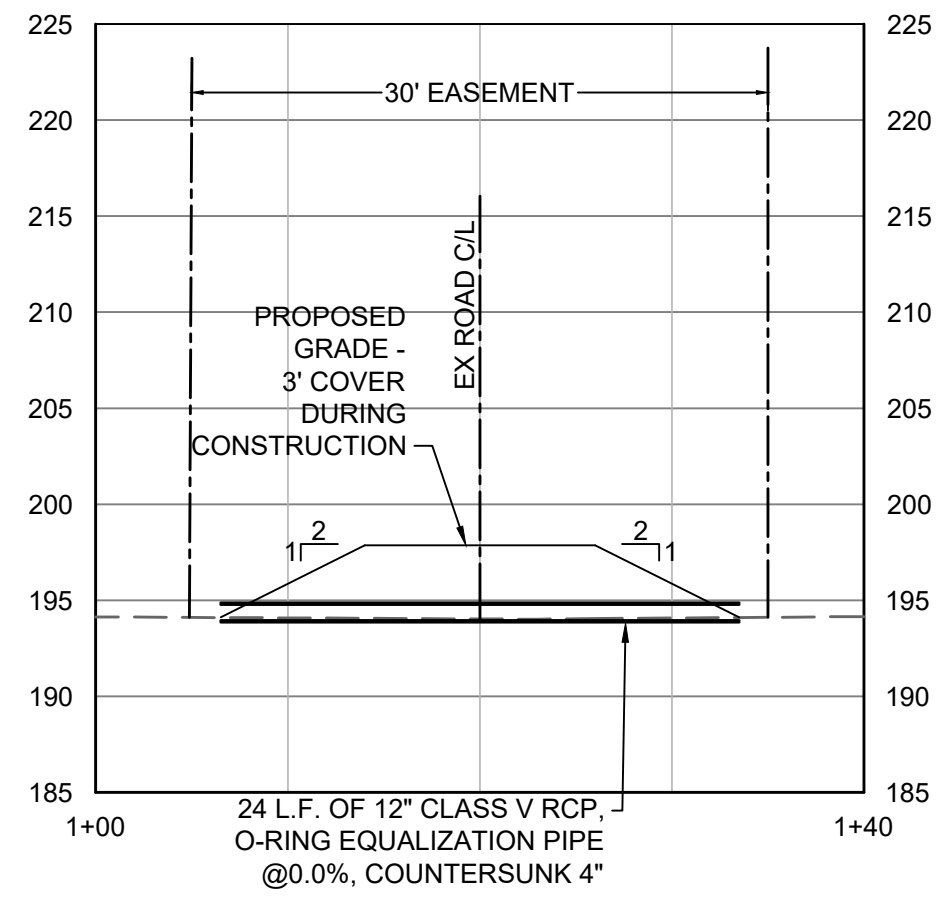
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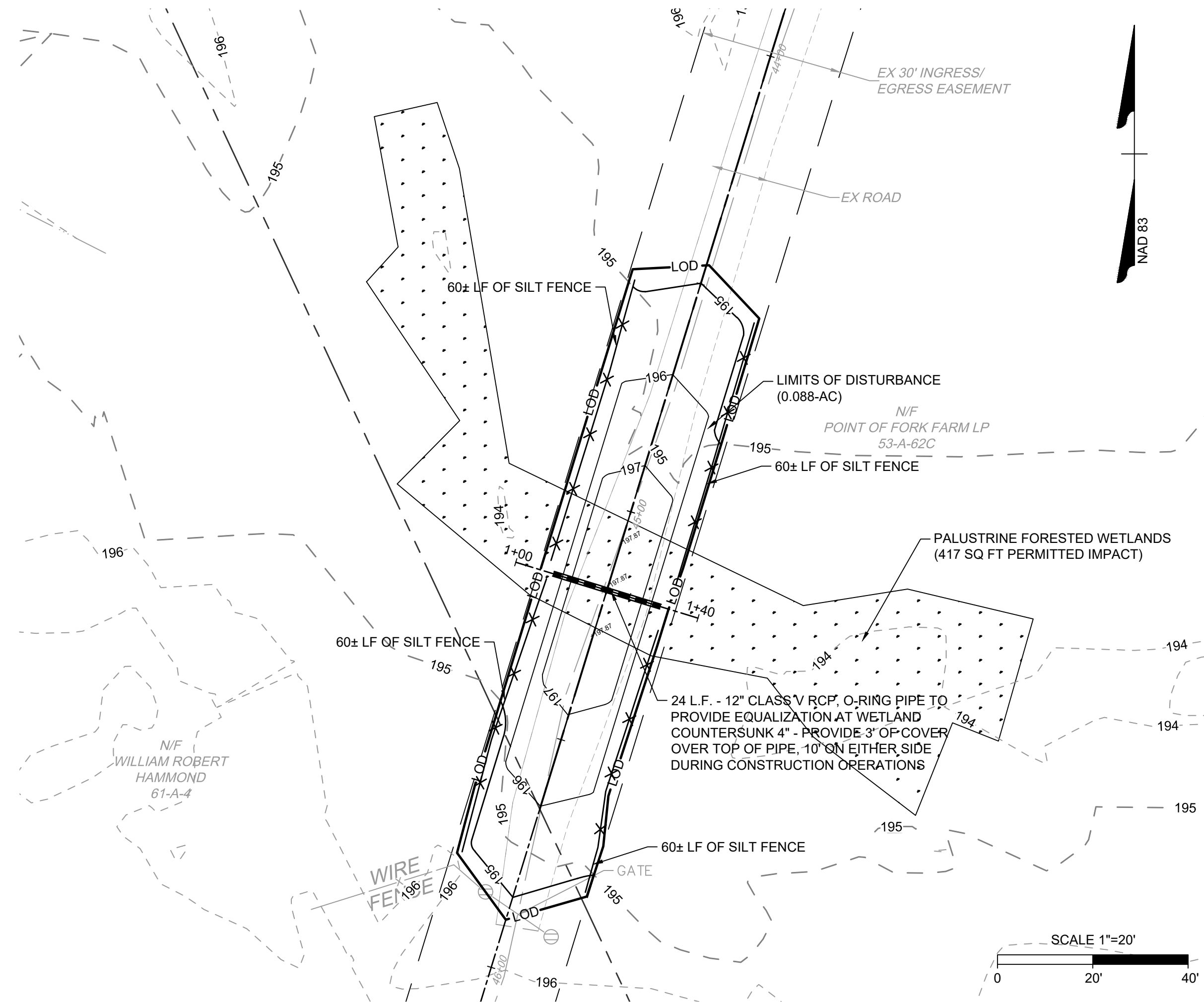
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IMPACT # 200
SCALE: 1"=20'



SCALE: 1"=10'



IMPACT # 202
SCALE: 1"=20'

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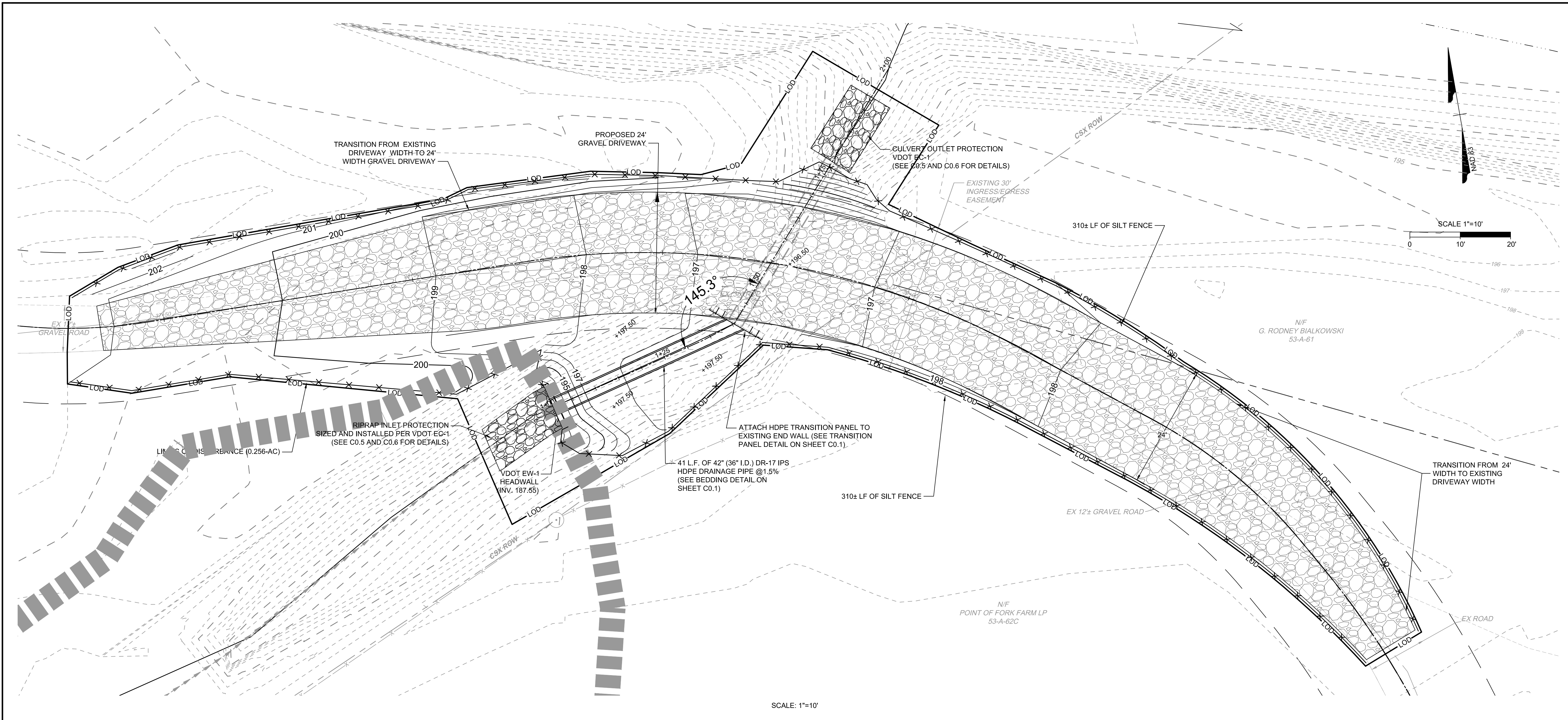
DATE
2/18/2020
MARCH 2020
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J.M. / J.C.
DESIGNED BY
D. SAUNDERS
CHECKED BY
D. SAUNDERS
SCALE
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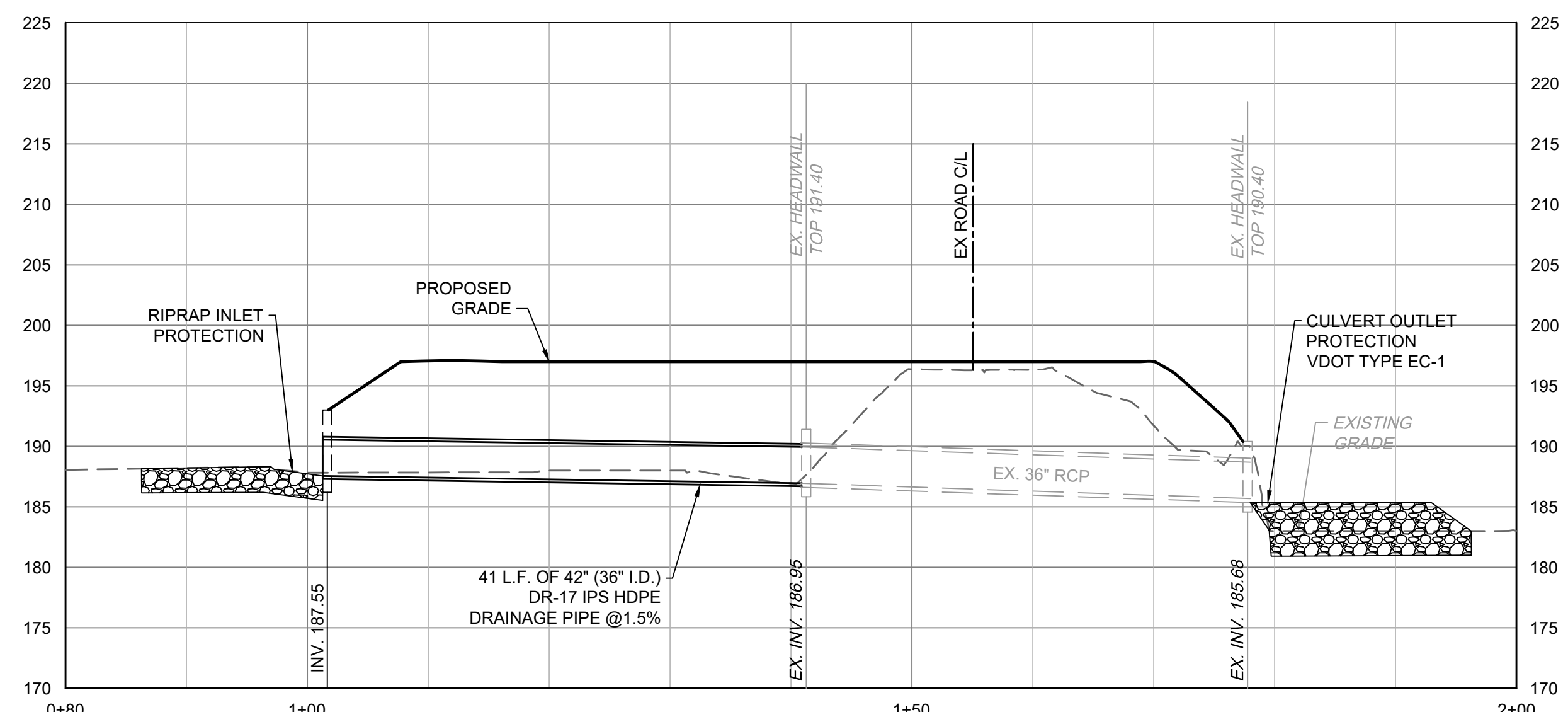
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JAMES RIVER WATER AUTHORITY - FLUVANNA COUNTY, VIRGINIA
SELECT ENGINEERING DETAILS - IMPACTS 200 AND 202

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SHEET NO.
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SCALE: 1"=10'



SCALE: 1"=10'

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JAMES RIVER WATER PROJECT
 JAMES RIVER WATER AUTHORITY - FLUVANNA COUNTY, VIRGINIA
SELECT ENGINEERING DETAILS - IMPACT 201

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APPENDIX I-2
UNITED STREAM METHODOLOGY AND FUNCTIONS AND VALUES ASSESSMENTS

APPENDIX I-2-1
UNITED STREAM METHODOLOGY FORMS

JRWA

Stream Assessment Summary Form (Form 2)

Unified Stream Methodology for use in Virginia

Project #	Applicant	Date
33927	JRWA	01/29/2018, 02/12/2020
Evaluators	HUC	Locality
Todd Preuninger, Eli Wright	02080204	Louisa

Stream Name	Reach ID	Length of Impact (L _I) (feet)	Reach Condition Index (RCI)	Impact Factor (IF)	Compensation Requirement (CR) (L _I × RCI × IF)
UNT to Rivanna	Impact 200	12	0.90	1.00	11
UNT to Rivanna	Impact 201	72	0.90	1	65
	Total L_I	84		Total CR	76

Note: Round all feet & CR's to the nearest whole number.

Stream Assessment Form (Form 1)

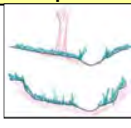
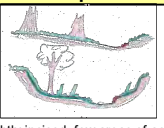


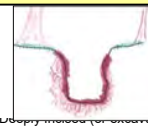
Unified Stream Methodology for use in Virginia

For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
33927	JRWA	Louisa	R3	02080204	02/12/2020	Impact 200	12	1

Name(s) of Evaluator(s)	Stream Name and Information
Eli Wright	UNT to Rivanna

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

Channel Condition	Conditional Category					Score
	Optimal	Suboptimal	Marginal	Poor	Severe	
 <p>Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.</p>	 <p>Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.</p>	 <p>Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which</p>	 <p>Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.</p>	 <p>Overwidened/incised (severe), vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.</p>	<p>3</p> <p>2.4</p> <p>2</p> <p>1.6</p> <p>1</p>	<p>CI</p> <p>1.6</p>
NOTES>>						

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

Riparian Buffers	Conditional Category						Condition Scores	NOTES>> North of Robious Road stream is located in an actively grazed pasture. On the south side, the impact area is located in an existing maintained (grassed) DOT right-of-way.
	Optimal	Suboptimal	Marginal	Poor				
<p>Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.</p>	<p>High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.</p>	<p>Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).</p>	<p>High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.</p>	<p>Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.</p>	<p>High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, or recently seeded and stabilized, or other comparable condition.</p>	<p>Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.</p>	<p>1.5</p> <p>1.2 1.1</p> <p>0.85 0.75</p> <p>0.6 0.5</p>	
<p>1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors.</p> <p>2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below.</p> <p>3. Enter the % Riparian Area and Score for each riparian category in the blocks below.</p>								
Right Bank	% Riparian Area>	100%					100%	
	Score >	1.2						
Left Bank	% Riparian Area>	100%					100%	CI
	Score >	1.2					1.20	1.20

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddedness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

Instream Habitat/ Available Cover	Conditional Category				Score	NOTES>>
	Optimal	Suboptimal	Marginal	Poor		
<p>Habitat elements are typically present in greater than 50% of the reach.</p>	<p>Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.</p>	<p>Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.</p>	<p>Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.</p>	<p>1.5</p> <p>1.2</p> <p>0.9</p> <p>0.5</p>	<p>CI</p> <p>1.20</p>	

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
33927	JRWA	Louisa	R3	02080204	02/12/2020	Impact 200	12	1

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock							NOTES>> channel has been straightned - existing culvert present at crossing
Conditional Category							
Channel Alteration	Negligible	Minor		Moderate		Severe	
	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines AND/OR 80% of banks shored with gabion, riprap, or cement.	
	SCORE	1.5	1.3	1.1	0.9	0.7	
	REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH						

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.	THE REACH CONDITION INDEX (RCI) >> 0.90
---	--

RCI= (Sum of all CI's)/5	
COMPENSATION REQUIREMENT (CR) >> 11	
CR = RCI X LF X IF	

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:



2/12/2020

Stream Assessment Form (Form 1)

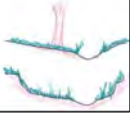
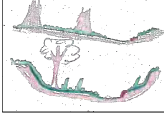
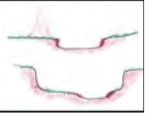


Unified Stream Methodology for use in Virginia

For use in wadeable channels classified as intermittent or perennial

Project #	Project Name	Locality	Cowardin Class.	HUC	Date	SAR #	Impact/SAR length	Impact Factor
33927	JRWA	Louisa	R3	02080204	01/29/2018	Impact 201	72	1

Name(s) of Evaluator(s)	Stream Name and Information
Todd Preuninger	UNT to Rivanna

1. Channel Condition: Assess the cross-section of the stream and prevailing condition (erosion, aggradation)

	Conditional Category					
	Optimal	Suboptimal	Marginal	Poor	Severe	
Channel Condition						
	Very little incision or active erosion; 80-100% stable banks. Vegetative surface protection or natural rock, prominent (80-100%). AND/OR Stable point bars/bankfull benches are present. Access to their original floodplain or fully developed wide bankfull benches. Mid-channel bars, and transverse bars few. Transient sediment deposition covers less than 10% of bottom.	Slightly incised, few areas of active erosion or unprotected banks. Majority of banks are stable (60-80%). Vegetative protection or natural rock prominent (60-80%) AND/OR Depositional features contribute to stability. The bankfull and low flow channels are well defined. Stream likely has access to bankfull benches, or newly developed floodplains along portions of the reach. Transient sediment covers 10-40% of the stream bottom.	Often incised, but less than Severe or Poor. Banks more stable than Severe or Poor due to lower bank slopes. Erosion may be present on 40-60% of both banks. Vegetative protection on 40-60% of banks. Streambanks may be vertical or undercut. AND/OR 40-60% of stream is covered by sediment. Sediment may be temporary/transient, contribute instability. Deposition that contribute to stability, may be forming/present. AND/OR V-shaped channels have vegetative protection on > 40% of the banks and depositional features which	Overwidened/incised. Vertically/laterally unstable. Likely to widen further. Majority of both banks are near vertical. Erosion present on 60-80% of banks. Vegetative protection present on 20-40% of banks, and is insufficient to prevent erosion. AND/OR 60-80% of the stream is covered by sediment. Sediment is temporary/transient in nature, and contributing to instability. AND/OR V-shaped channels have vegetative protection is present on > 40% of the banks and stable sediment deposition is absent.	Vertical/lateral instability. Severe incision, flow contained within the banks. Streambed below average rooting depth, majority of banks vertical/undercut. Vegetative protection present on less than 20% of banks, is not preventing erosion. Obvious bank sloughing present. Erosion/raw banks on 80-100%. AND/OR Aggrading channel. Greater than 80% of stream bed is covered by deposition, contributing to instability. Multiple thread channels and/or subterranean flow.	CI
Score	3	2.4	2	1.6	1	1.6
NOTES>>						

2. RIPARIAN BUFFERS: Assess both bank's 100 foot riparian areas along the entire SAR. (rough measurements of length & width may be acceptable)

	Conditional Category							
	Optimal	Suboptimal	Marginal	Poor				
Riparian Buffers	Tree stratum (dbh > 3 inches) present, with > 60% tree canopy cover and a non-maintained understory. Wetlands located within the riparian areas.	High Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with 30% to 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian areas with tree stratum (dbh > 3 inches) present, with > 30% tree canopy cover and a maintained understory. Recent cutover (dense vegetation).	High Marginal: Non-maintained, dense herbaceous vegetation with either a shrub layer or a tree layer (dbh > 3 inches) present, with <30% tree canopy cover.	Low Marginal: Non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, hay production, ponds, open water. If present, tree stratum (dbh > 3 inches) present, with <30% tree canopy cover with maintained understory.	High Poor: Lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, or recently seeded and stabilized, or other comparable condition.	Low Poor: Impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, trails, or other comparable conditions.	NOTES>> North of Robious Road stream is located in an actively grazed pasture. On the south side, the impact area is located in an existing maintained (grassed) DOT right-of-way.
Condition Scores	1.5	High	Low	High	Low	High	Low	
		1.2	1.1	0.85	0.75	0.6	0.5	
1. Delineate riparian areas along each stream bank into Condition Categories and Condition Scores using the descriptors. 2. Determine square footage for each by measuring or estimating length and width. Calculators are provided for you below. 3. Enter the % Riparian Area and Score for each riparian category in the blocks below.						Ensure the sums of % Riparian Blocks equal 100		
Right Bank	% Riparian Area >	100%					100%	
	Score >	1.2						
Left Bank	% Riparian Area >	100%					100%	
	Score >	1.2						
CI = (Sum % RA * Scores*0.01)/2								
							100%	CI
							1.20	1.20

3. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths; woody and leafy debris; stable substrate; low embeddedness; shade; undercut banks; root mats; SAV; riffle poole complexes, stable features.

	Conditional Category				
	Optimal	Suboptimal	Marginal	Poor	
Instream Habitat/ Available Cover	Habitat elements are typically present in greater than 50% of the reach.	Stable habitat elements are typically present in 30-50% of the reach and are adequate for maintenance of populations.	Stable habitat elements are typically present in 10-30% of the reach and are adequate for maintenance of populations.	Habitat elements listed above are lacking or are unstable. Habitat elements are typically present in less than 10% of the reach.	
Score	1.5	1.2	0.9	0.5	CI
					1.20

NOTES>>

Stream Impact Assessment Form Page 2

Project #	Applicant	Locality	Cowardin Class.	HUC	Date	Data Point	SAR length	Impact Factor
33927	JRWA	Louisa	R3	02080204	01/29/2018	Impact 201	72	1

4. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel, channelization, embankments, spoil piles, constrictions, livestock

NOTES>> channel has been straightned - existing culvert present at crossing

	Conditional Category				
	Negligible	Minor	Moderate	Severe	
Channel Alteration	Channelization, dredging, alteration, or hardening absent. Stream has an unaltered pattern or has naturalized.	Less than 20% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	20-40% of the stream reach is disrupted by any of the channel alterations listed in the parameter guidelines.	40 - 60% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.	60 - 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If stream has been channelized, normal stable stream meander pattern has not recovered.
SCORE	1.5	1.3	1.1	0.9	0.7

0.50

REACH CONDITION INDEX and STREAM CONDITION UNITS FOR THIS REACH

NOTE: The CIs and RCI should be rounded to 2 decimal places. The CR should be rounded to a whole number.

THE REACH CONDITION INDEX (RCI) >> 0.90

RCI= (Sum of all CI's)/5

COMPENSATION REQUIREMENT (CR) >> 65

CR = RCI X LF X IF

INSERT PHOTOS:

DESCRIBE PROPOSED IMPACT:





APPENDIX I-2-2
FUNCTIONS AND VALUES ASSESSMENTS

Wetland Function-Value Evaluation Form

Total area of wetland 0.04566 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest/Young tree stand Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 200













Latitude _____ Longitude _____

Prepared by: E.W. Date 11/19/2019

Wetland Impact:
Type Fill Area 0.008

Evaluation based on:
Office X Field _____

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	2, 5, 10, 11, 15		
 Floodflow Alteration	Y	3, 5, 7, 9, 11, 13, 15	X	
 Fish and Shellfish Habitat	N	1, 2		
 Sediment/Toxicant Retention	Y	3, 4, 5, 6, 9, 10, 14	X	
 Nutrient Removal	N	7, 9, 10, 12		
 Production Export	N	1, 2, 4, 12		Birds observed
 Sediment/Shoreline Stabilization	N			
 Wildlife Habitat	Y	3, 4, 5, 7, 8, 9, 21	X	Road fragmentation (gravel), song birds present
 Recreation	N	8		Private site
 Educational/Scientific Value	N	11, 13		
 Uniqueness/Heritage	N	10, 14, 16, 19, 22, 29		
 Visual Quality/Aesthetics	Y	5, 6, 9, 10, 11, 12		Road/ Invasive species
ES Endangered Species Habitat	N	N/A		
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 0.086524 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forest/Young tree stand Distance to nearest roadway or other development 0'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 202













Latitude _____ Longitude _____

Prepared by: E.W. Date 11/19/2019

Wetland Impact:
Type Fill Area 0.015

Evaluation based on:
Office X Field _____

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	2, 5, 11, 15		
 Floodflow Alteration	Y	3, 5, 6, 7, 8, 9, 11	X	
 Fish and Shellfish Habitat	N	1, 2		
 Sediment/Toxicant Retention	Y	3, 4, 5, 6, 9		
 Nutrient Removal	N	7, 9, 10		
 Production Export	Y	1, 2, 4, 8, 12		Birds observed at wetland, invasive herb
 Sediment/Shoreline Stabilization	N			Not associated with watercourse
 Wildlife Habitat	Y	3, 4, 5, 7, 8, 9, 10, 21	X	Road fragmentation (gravel), song birds present
 Recreation	N	8		Private site
 Educational/Scientific Value	N	11, 13		
 Uniqueness/Heritage	Y	10, 12, 14, 16, 19, 22, 29	X	Wetland itself is not unique although surrounded by multiple possible unique resources
 Visual Quality/Aesthetics	Y	1, 5, 6, 9, 10, 11, 12		Road/ Invasive species
ES Endangered Species Habitat	N	N/A		
Other				

Notes:

* Refer to backup list of numbered considerations.

APPENDIX I-3
LETTER OF CREDIT AVAILABILITY

LONE OAK STREAM MITIGATION BANK

March 16, 2020

Greg Kouri
Environmental Scientist
1001 Boulders Parkway
Richmond, VA 23225

RE: Stream Credit Availability for the James River Water Supply project located in the Rivanna and Middle James-Buffalo Watersheds HUCs 02080203 & 02080204

Dear Greg:

Clearwater Mitigation I LLC owns and operates the Lone Oak Stream Mitigation Bank (“Lone Oak”) which has approval from the U.S. Army Corps of Engineers (“USACE”) and the Virginia Department of Environmental Quality (“DEQ”) to provide stream mitigation credits for offset of authorized impacts within the James River Watershed including HUCs 02080203, 02080204, 02080205, and 02080207. Currently, Lone Oak has 14,869 Stream Credits available to offset impacts in these regions. It is my understanding that your project, referenced above, requires 76 Stream Credits to satisfy the permit requirements.

On behalf of Clearwater Ventures LLC, I truly appreciate the opportunity to work with you and your client on this project.

Very truly yours,



James Parker
Managing Member
Clearwater Mitigation I LLC
804-819-0474
jparker@clearwaterventuresllc.com



The Nature Conservancy in Virginia
652 Peter Jefferson Pkwy, Suite 190
Charlottesville, VA 22911

Tel: (434) 295-6106
nature.org/virginia

March 17, 2020

Mr. Eli Wright
Timmons Group
1001 Boulders Parkway, Suite 300
Richmond, VA 23225

Subject: Virginia Aquatic Resources Trust Fund Credit Availability for James River Water Authority (the Applicant)

The Nature Conservancy (TNC) of Virginia has mitigation credits available for sale to the Applicant in the hydraulic unit code (HUC) 02080204.

This letter confirms that 0.05 advance non-tidal wetland credits are available for the Applicant to purchase for impacts in HUC 02080204 for a period of 60 days. These credits will be used as compensatory mitigation for impacts to 0.03 acres of non-tidal wetlands in 02080204.

TNC acknowledges that the above-mentioned credits will be available for purchase by the Applicant until 5/16/2020 for the price of \$55,000/non-tidal wetland credit. The total purchase price for 0.05 advance non-tidal wetland credits is therefore \$2,750. **There is no guarantee of availability beyond this date. If purchase of credits is not made prior to the date listed, the Applicant must contact TNC to determine credit availability status.**

This letter does not document payment for impacts. TNC does not assume liability for the above-mentioned impacts through this correspondence. Please be advised that a purchase of mitigation credits from The Nature Conservancy's Virginia Aquatic Resources Trust Fund is a payment for service and therefore is not, and shall not be acknowledged as, a charitable contribution.

Instructions for submitting payment: When the applicant is ready to submit payment for the above-mentioned credits, please submit a completed Conflict Disclosure Form and Credit Payment Voucher along with the payment written out to **"The Virginia Aquatic Resources Trust Fund"**. Mail the voucher and check to Avery Stone at the address shown in the above letterhead. TNC reserves the right to refuse to accept payment until any conflict (whether disclosed by the form or not) is reviewed and approved by TNC.

Sincerely,

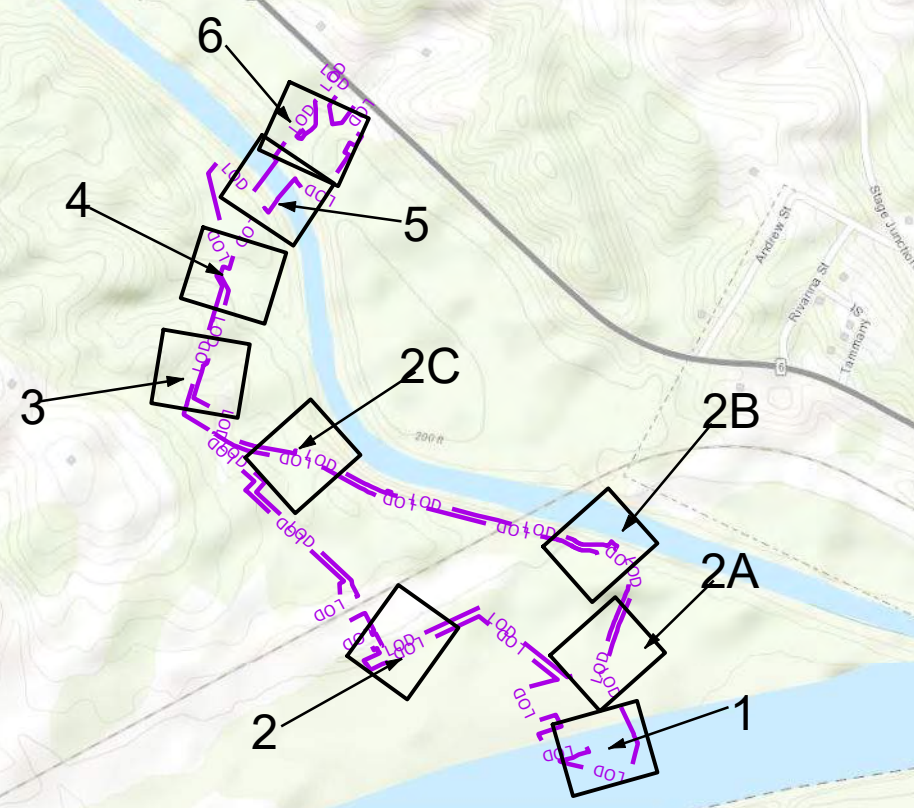
A handwritten signature in blue ink that reads "Karen K. Johnson".

Karen K. Johnson
Director of Wetland and Stream Mitigation

CC: Steven VanderPloeg, USACE
Brian McGurk, VADEQ
Alissa Bellios, Timmons Group

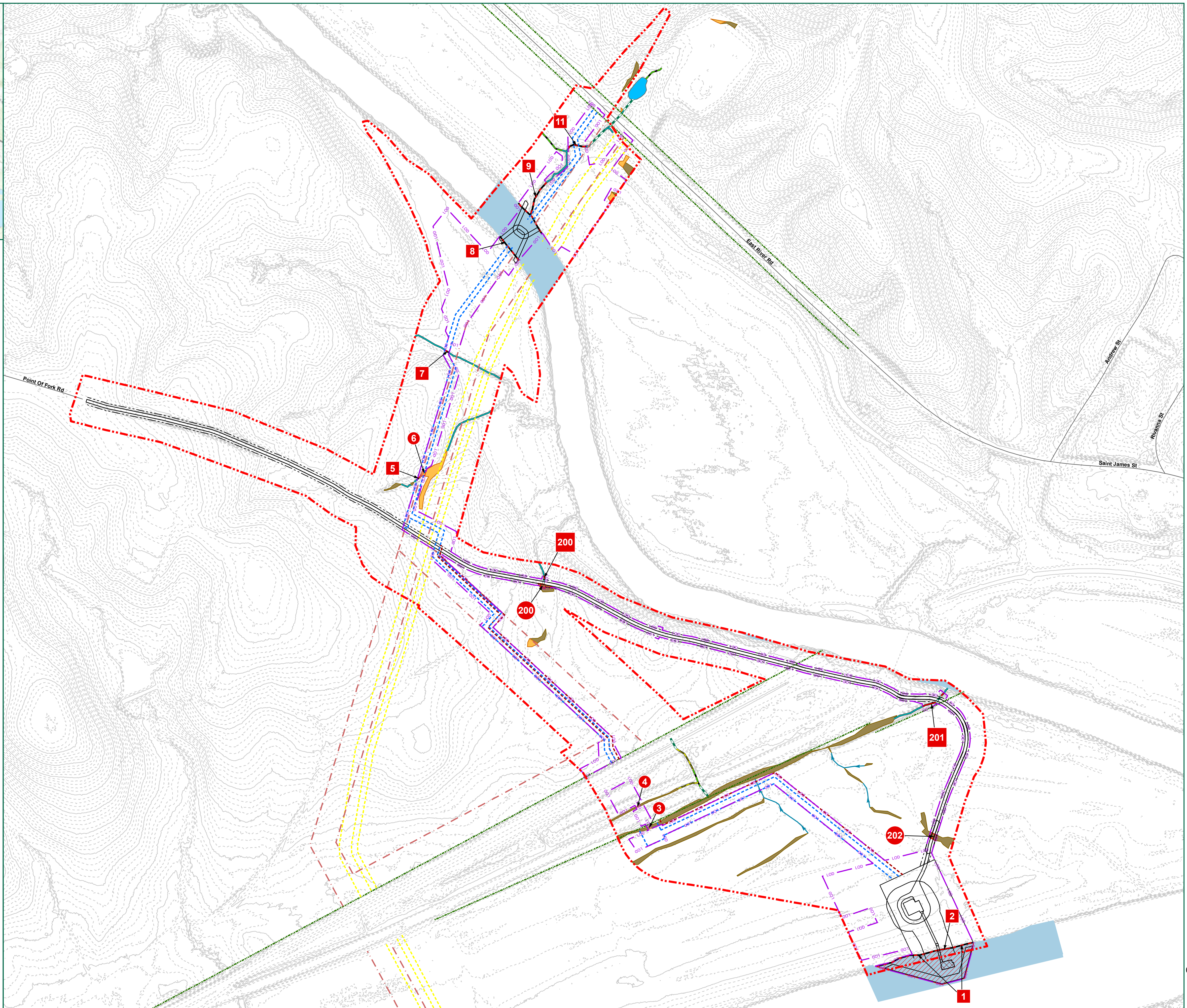
APPENDIX I-4
PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP

Detail Sheet Index



Legend

- Project Study Limits (2016 Delineation)
 - Proposed Limits of Disturbance
 - x Stream Impact
 - x Wetland Impact
 - Permanent Stream Impact
 - Temporary Stream Impact
 - Existing Culvert
 - Perennial Stream (R3)
 - Intermittent Stream (R4)
 - Ephemeral Stream (R6)
 - Ditch
 - Excavation/Fill Impact
 - Construction Easement Impact
 - Maintained Easement Impact
 - Temporary Wetland Impact
 - Permanent Conversion Wetland Impact
 - Permanent Wetland Impact
 - Perennial Stream (R3)
 - Palustrine Emergent (PEM) Wetlands
 - Palustrine Forested (PFO) Wetlands
 - Palustrine Open Water (POW)
 - Project Water Easement
 - Project Utility Easement
 - Existing Power Easement
 - Existing Utility Easement
 - Road Easement
 - Existing Right of Way
- Topographic Contours**
- 10 Foot
 - 2 Foot



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JAMES RIVER WATER SUPPLY PROJECT
 FLUVANNA COUNTY, VIRGINIA

DATE: 03/06/2020
 PROJECT NUMBER: 33927
 PROJECT NAME: JAMES RIVER WATER SUPPLY PROJECT
 DESIGNED BY / DRAWN BY: A. MEHFUOD

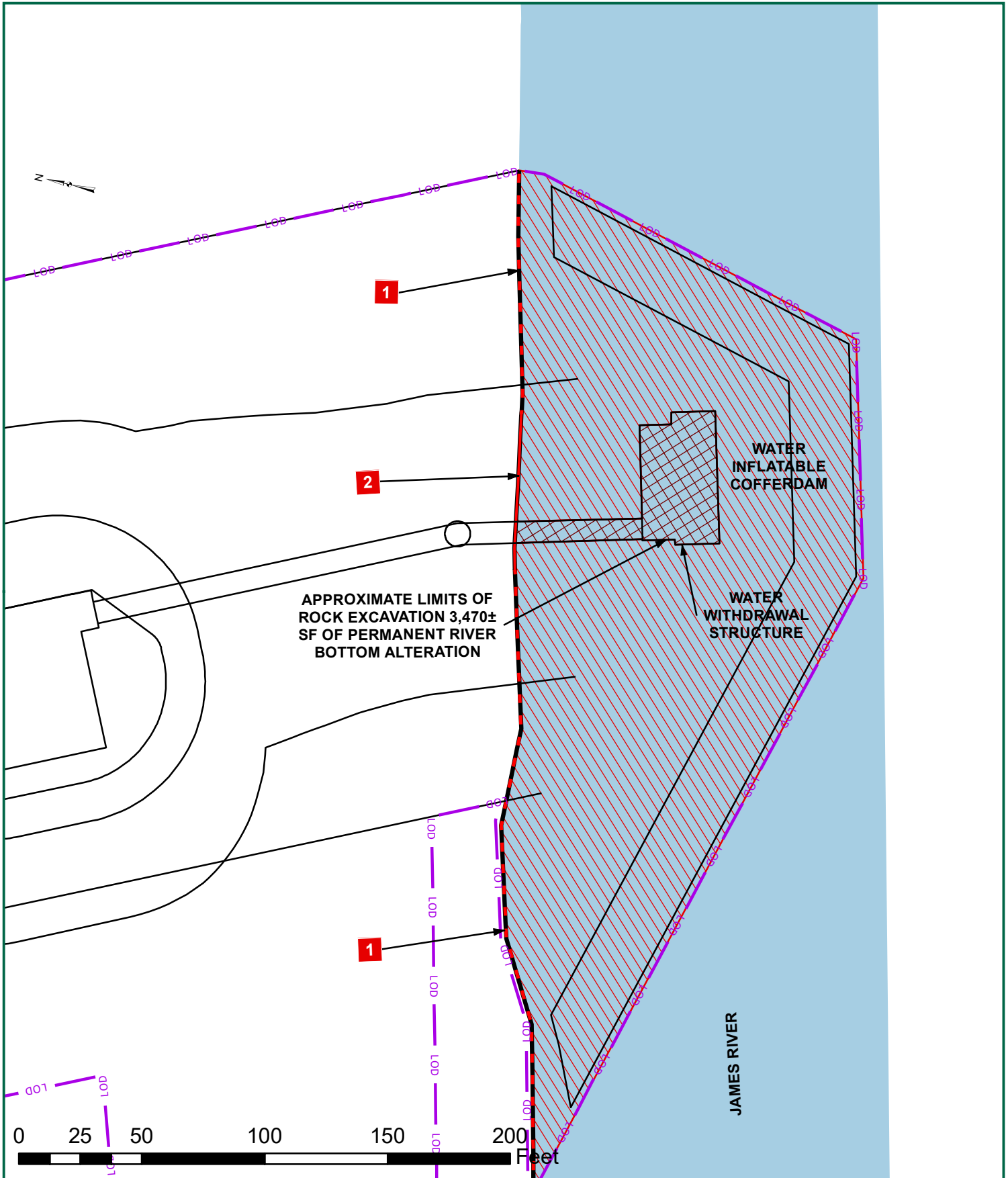
1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
 2. Waters of the U.S. have been confirmed by the U.S. Army Corps of Engineers within all project areas.
 3. Project study limits are approximate.
 4. Topography based on VGIN LIDAR.
 5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

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#	DATE	DESCRIPTION

DRAWING DESCRIPTION
 PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - OVERALL

SCALE (FEET)
 0 200 400
 PLANS PRINTED AS 11x17 ARE HALF SCALE
 SCALE SHEET NUMBER
 H:1" = 200' 1 of 1



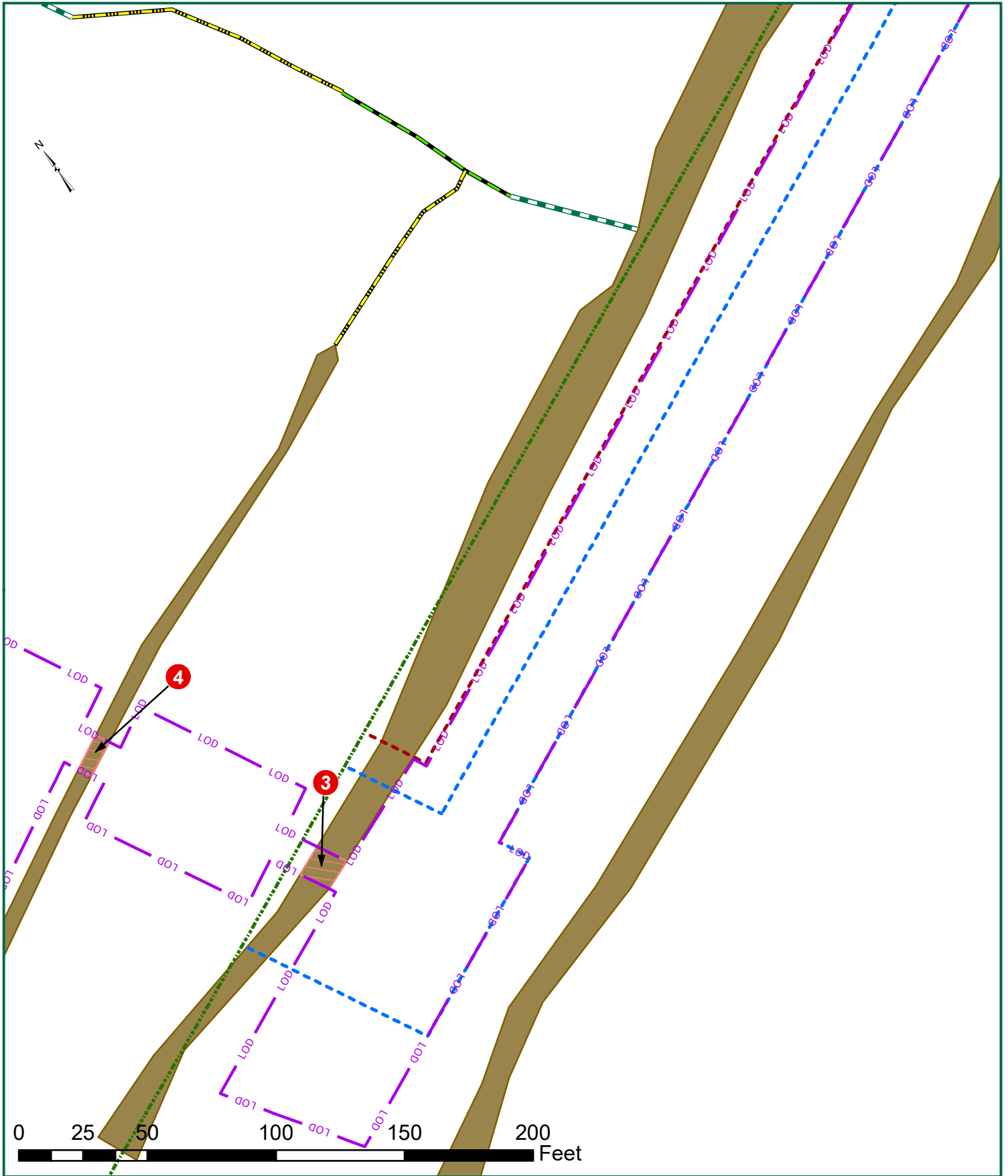
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JOB NUMBER 33927 SHEET NO. 7 OF 6	JAMES RIVER WATER SUPPLY PROJECT LOUISA & FLUVANNA COUNTY, VIRGINIA		CHECKED BY E. WRIGHT SCALE 1" = 80'	DESIGNED BY A. MEHFOLD DRAWN BY A. MEHFOLD DATE 03/06/2020	DATE	REVISION DESCRIPTION
	PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL					

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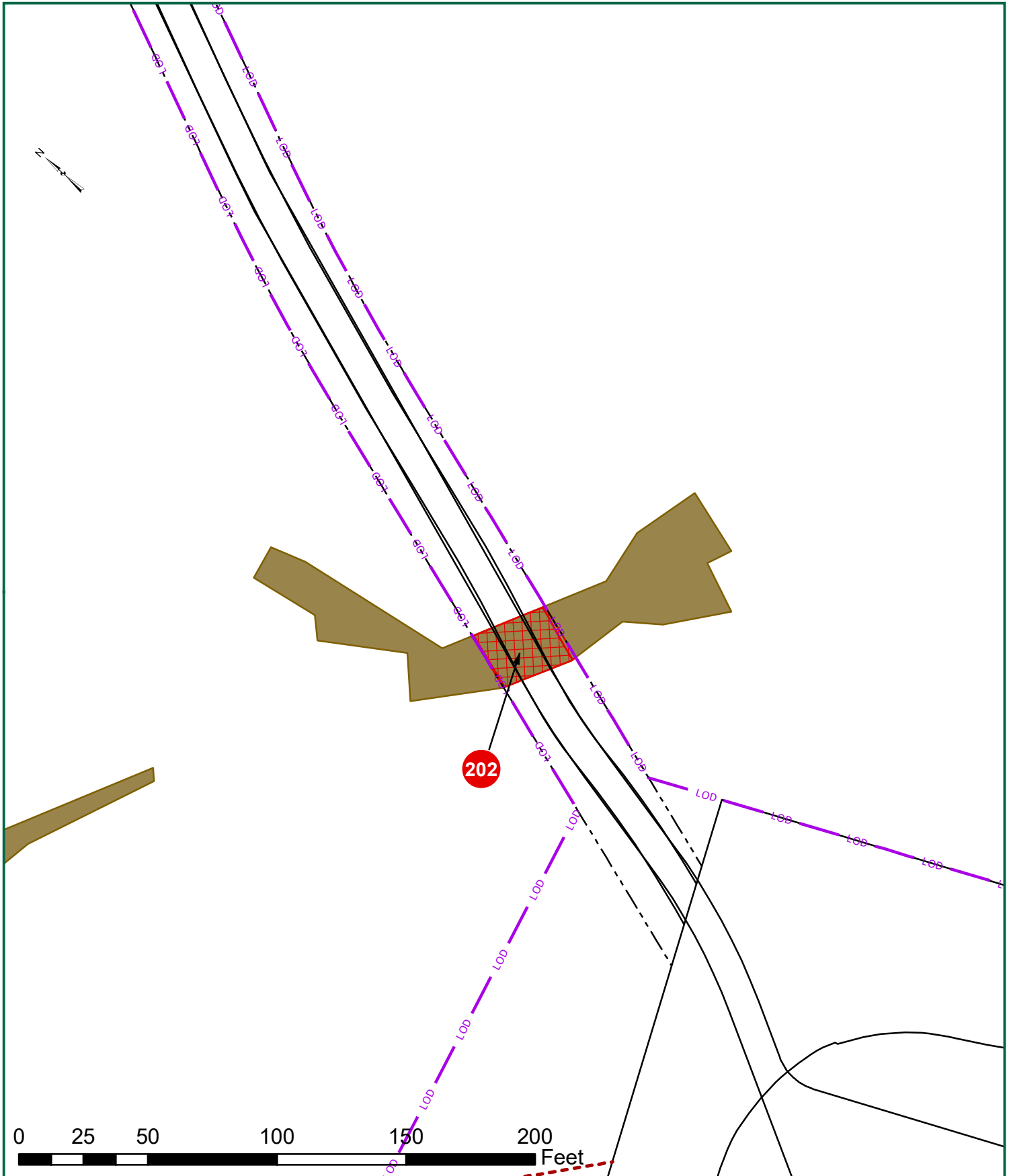
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JOB NUMBER 33927 SHEET NO. 2 OF 6	JAMES RIVER WATER SUPPLY PROJECT	DESIGNED BY A. MEHFOLD CHECKED BY E. WRIGHT SCALE 1" = 50'	DATE	
	LOUISA & FLUVANNA COUNTY, VIRGINIA		DATE	REVISION DESCRIPTION
PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL			03/06/2020	



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JAMES RIVER WATER SUPPLY PROJECT

LOUISA & FLUVANNA COUNTY, VIRGINIA

DRAWN BY
A. MEHFOLD

DATE
03/06/2020

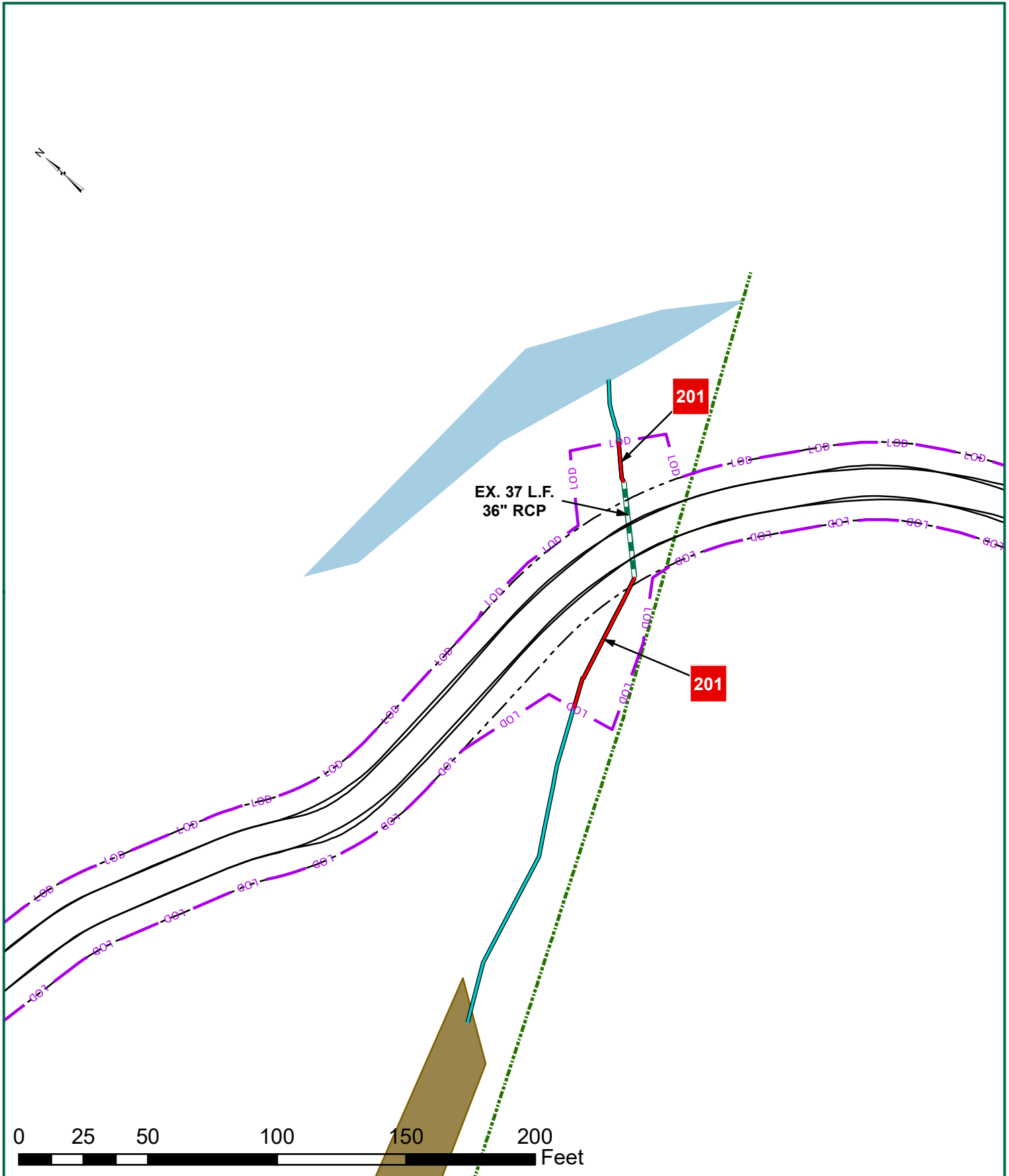
CHECKED BY
E. WRIGHT

SCALE
1" = 50'

DESIGNED BY
A. MEHFOLD

DATE	REVISION DESCRIPTION

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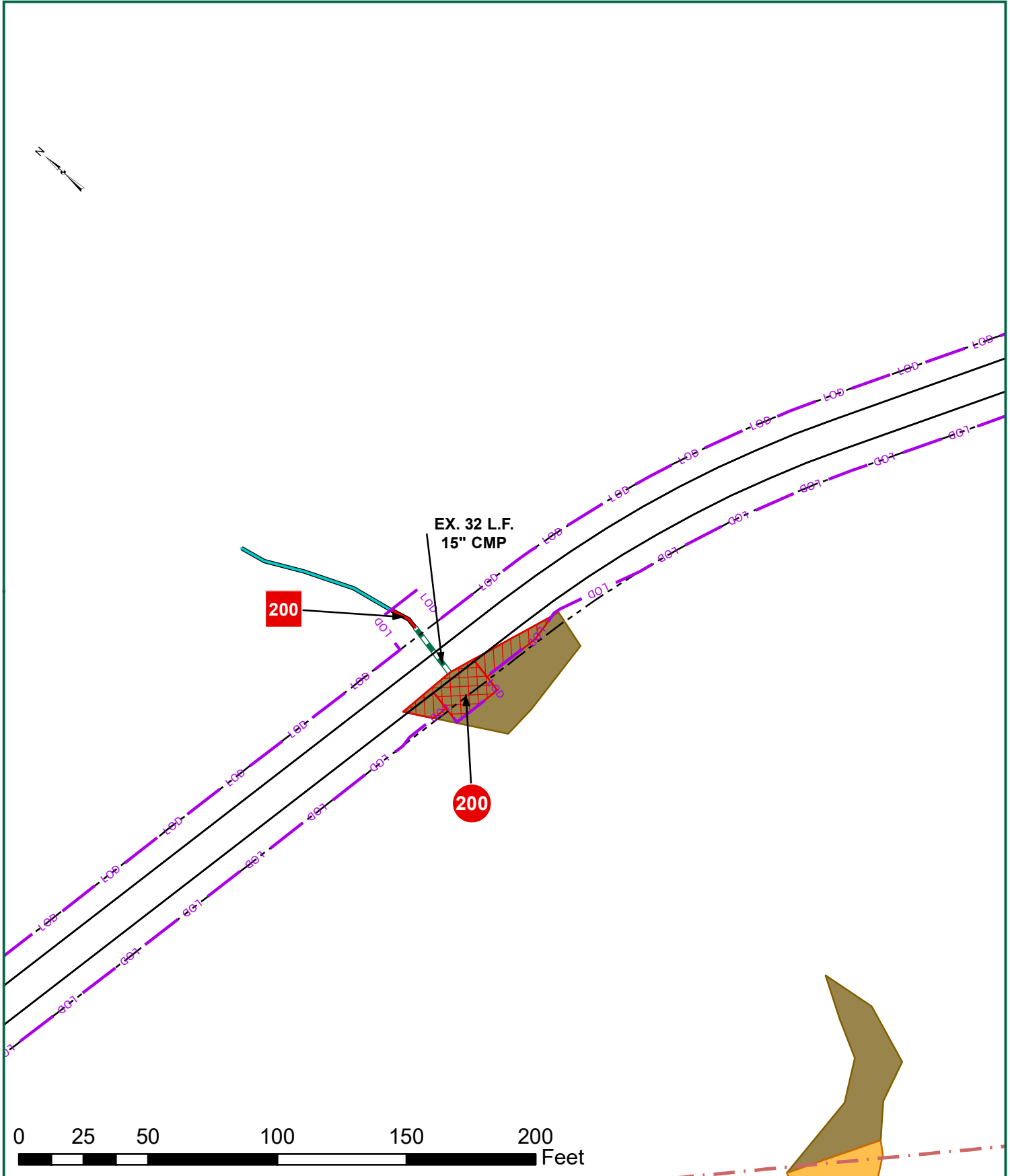
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JOB NUMBER 33927 SHEET NO. 28 OF 6	JAMES RIVER WATER SUPPLY PROJECT LOUISA & FLUVANNA COUNTY, VIRGINIA		CHECKED BY E. WRIGHT SCALE 1" = 50'	DESIGNED BY A. MEHFOLD DRAWN BY A. MEHFOLD	DATE	REVISION DESCRIPTION
	03/06/2020					

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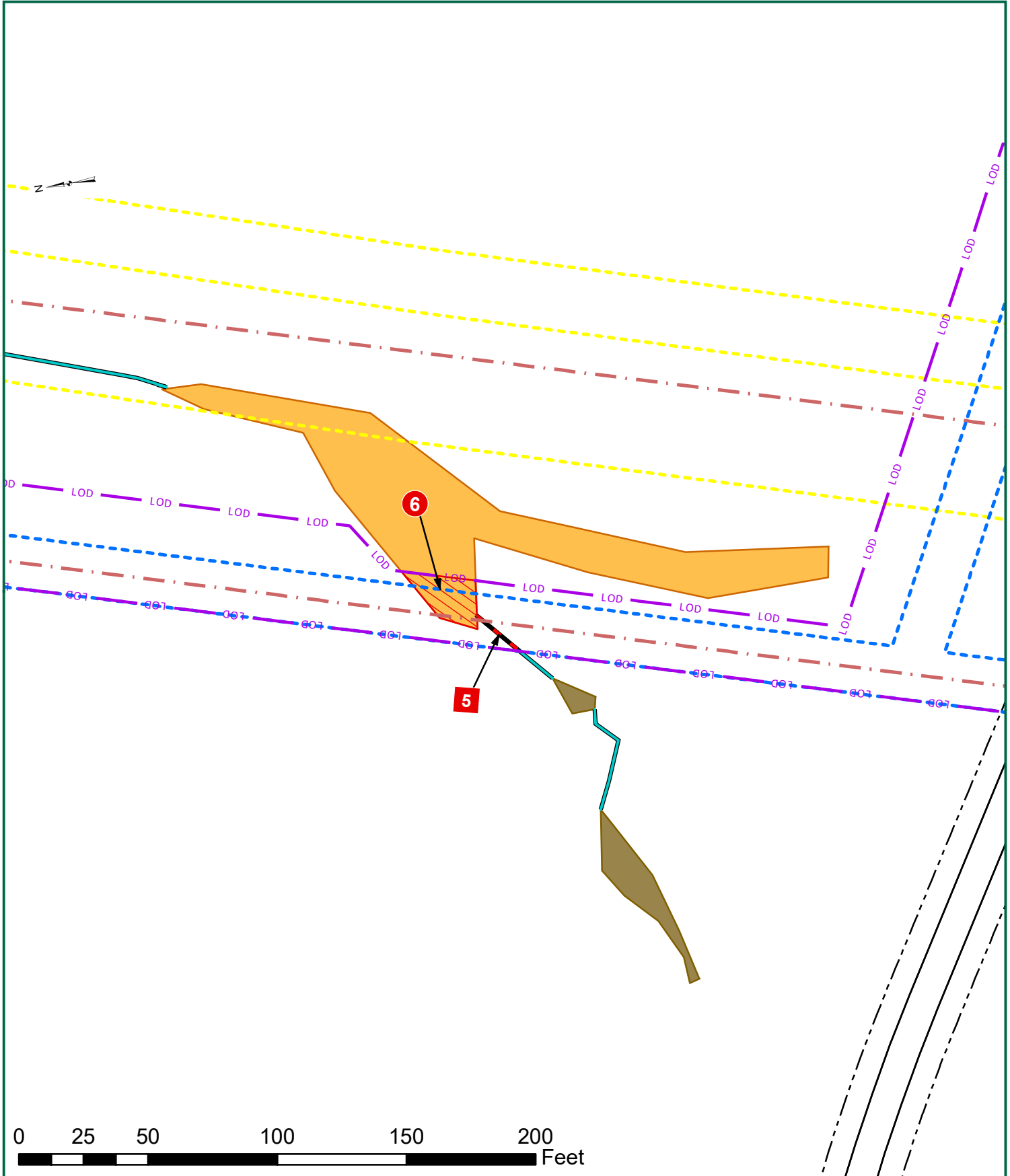
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SHEET NO. 2C OF 6	JOB NUMBER 33927	JAMES RIVER WATER SUPPLY PROJECT LOUISA & FLUVANNA COUNTY, VIRGINIA		CHECKED BY E. WRIGHT SCALE 1" = 50'	DESIGNED BY A. MEHFOLD DRAWN BY A. MEHFOLD	DATE	REVISION DESCRIPTION
		PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL	03/06/2020				

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JAMES RIVER WATER SUPPLY PROJECT
 LOUISA & FLUVANNA COUNTY, VIRGINIA

SCALE: 1" = 50'

CHECKED BY: E. WRIGHT
 DESIGNED BY: A. MEHFOLD
 DRAWN BY: A. MEHFOLD
 DATE: 03/06/2020

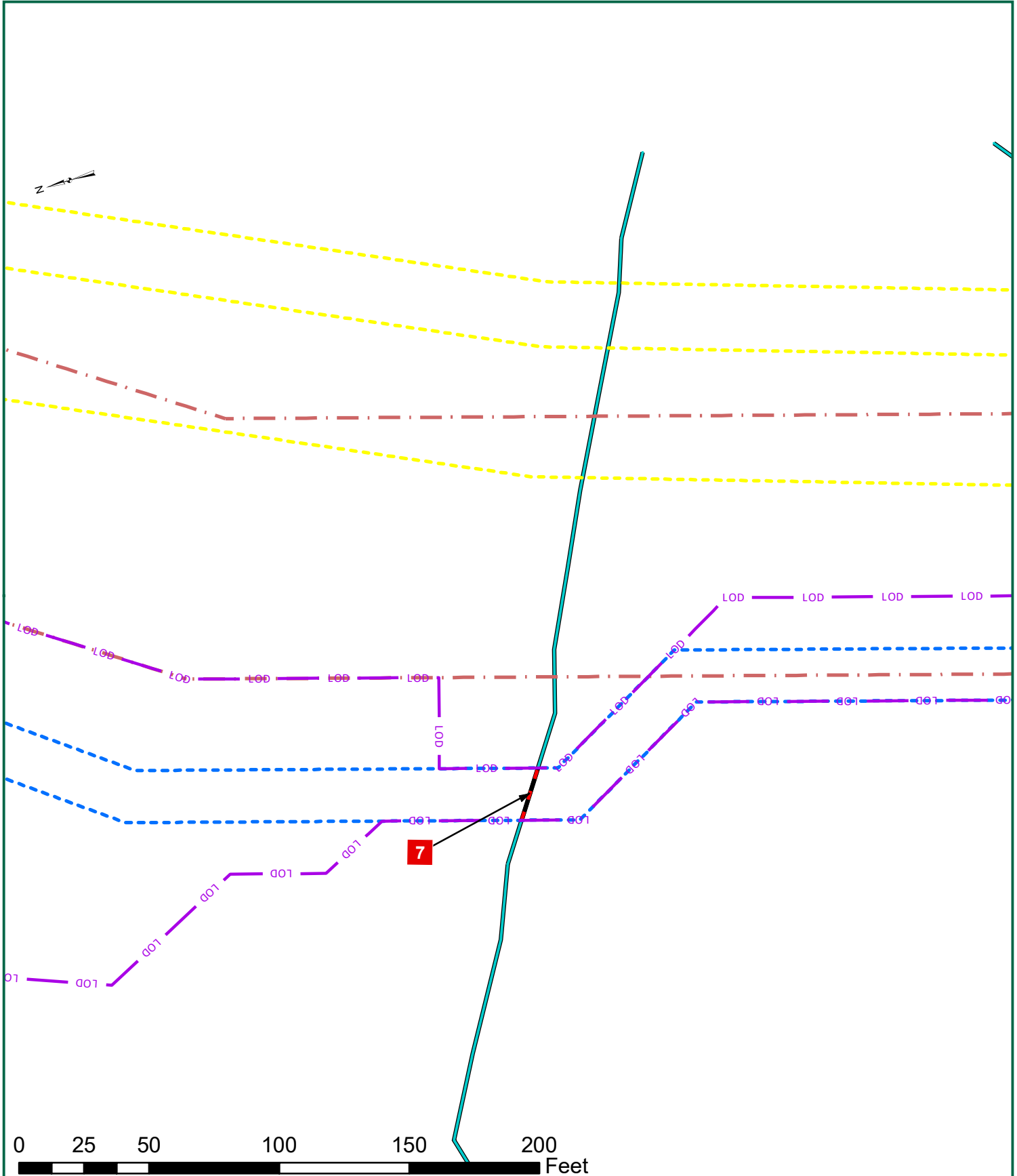
DATE	REVISION DESCRIPTION

JOB NUMBER: 33927
 SHEET NO.: 3 OF 6

PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL

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LOUISA & FLUVANNA COUNTY, VIRGINIA

DESIGNED BY
A. MEHFOLD

CHECKED BY
E. WRIGHT

SCALE
1" = 50'

DATE
03/06/2020

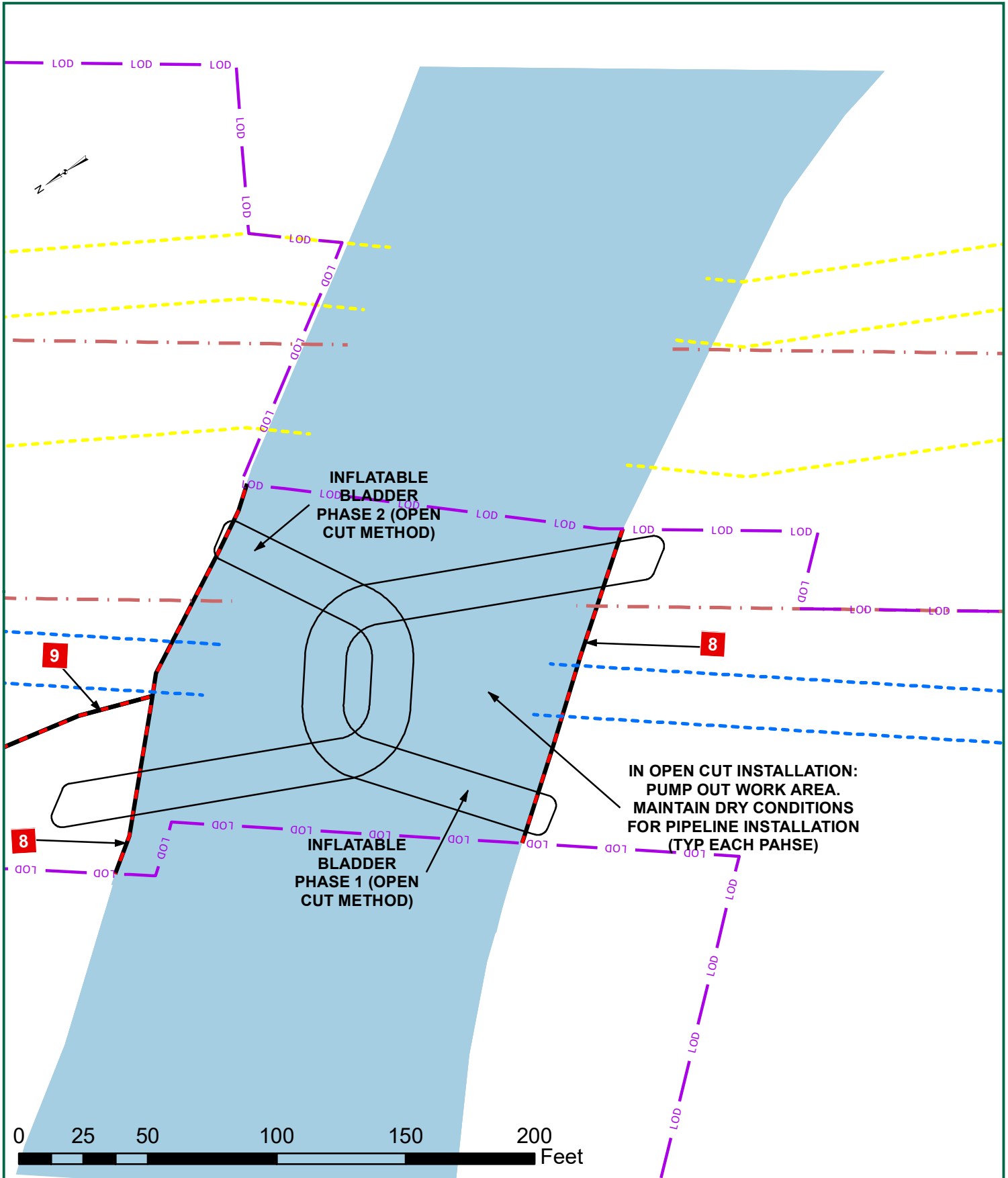
DRAWN BY
A. MEHFOLD

DATE	REVISION DESCRIPTION

PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL

SHEET NO.
4 OF 6

JOB NUMBER
33927

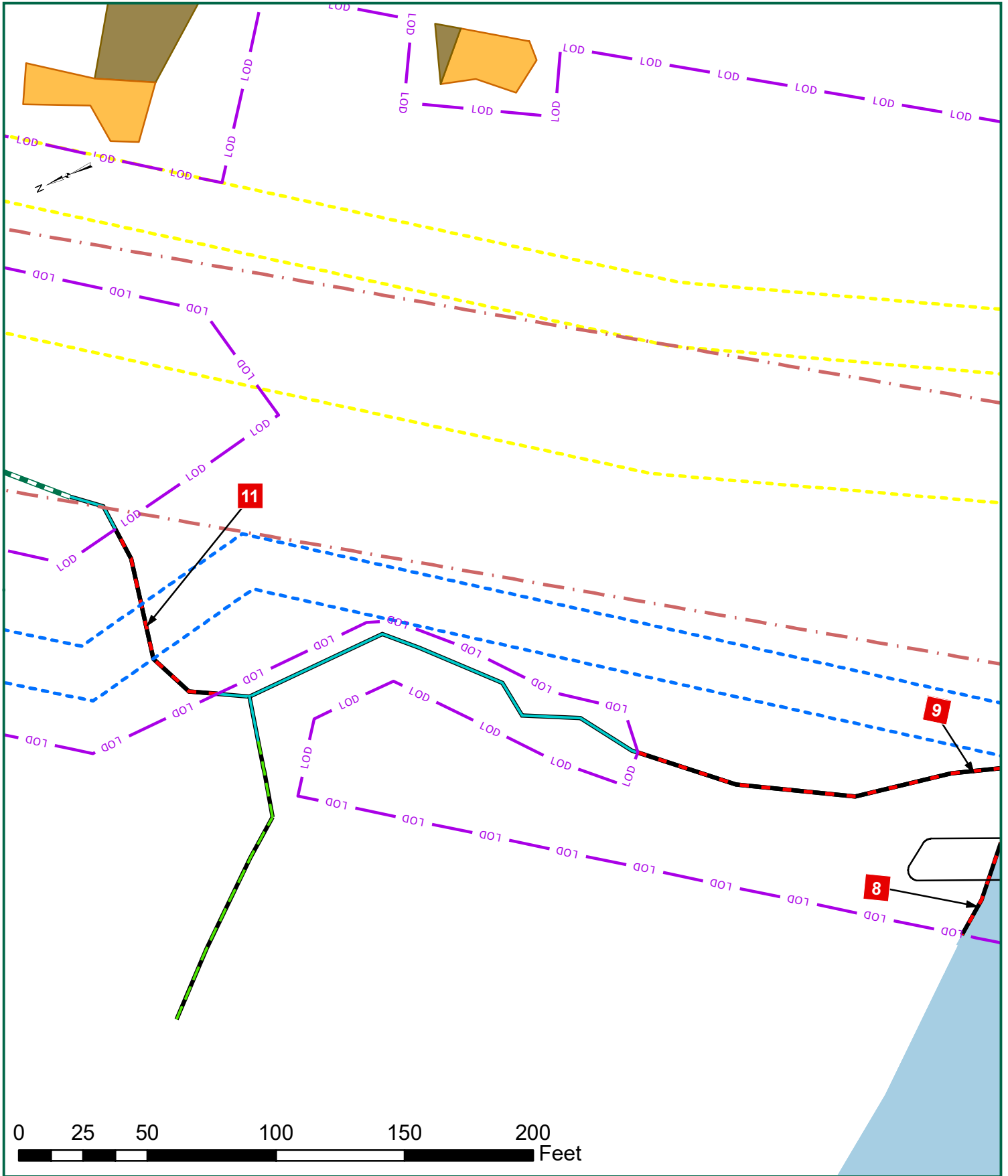


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JOB NUMBER 33927 SHEET NO. 5 OF 6	JAMES RIVER WATER SUPPLY PROJECT LOUISA & FLUVANNA COUNTY, VIRGINIA PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL	CHECKED BY E. WRIGHT SCALE 1" = 50'	DESIGNED BY A. MEHFOLD DRAWN BY A. MEHFOLD DATE 03/06/2020	DATE	REVISION DESCRIPTION



<h1 style="margin: 0;">TIMMONS GROUP</h1> <p style="font-size: small; margin: 0;">1001 Boulders Parkway, Suite 300 Richmond, VA 23225 TEL 804.200.6500 FAX 804.560.1648 www.timmons.com</p>		YOUR VISION ACHIEVED THROUGH OURS		THIS DRAWING PREPARED AT THE CORPORATE OFFICE		
		Site Development Residential Infrastructure Technology Environmental				
JOB NUMBER 33927 SHEET NO. 6 OF 6	<h2 style="margin: 0;">JAMES RIVER WATER SUPPLY PROJECT</h2> <p style="font-size: x-small; margin: 0;">LOUISA & FLUVANNA COUNTY, VIRGINIA</p>			CHECKED BY E. WRIGHT SCALE 1" = 50'	DESIGNED BY A. MEHFOLD	DRAWN BY A. MEHFOLD
	<h3 style="margin: 0;">PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. IMPACTS MAP - DETAIL</h3>				DATE 03/06/2020	REVISION DESCRIPTION

**APPENDIX J
PUBLIC INTEREST**

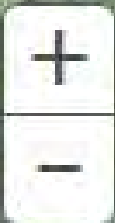
APPENDIX J-1

FEMA MAPPING

APPENDIX J-2

FLUVANNA REVIEW - NEWS REPORT AND ASSOCIATED PHOTOGRAPHS

APPENDIX J-1
FEMA MAPPING



51065C0190C
eff. 5/16/2008
Fluvanna County
S10058

51065C0191C
eff. 5/16/2008
Town of Columbia
S10059

51075C0045B
GOOCHLAND COUNTY
S10072

FLOODWAY
Zone AE

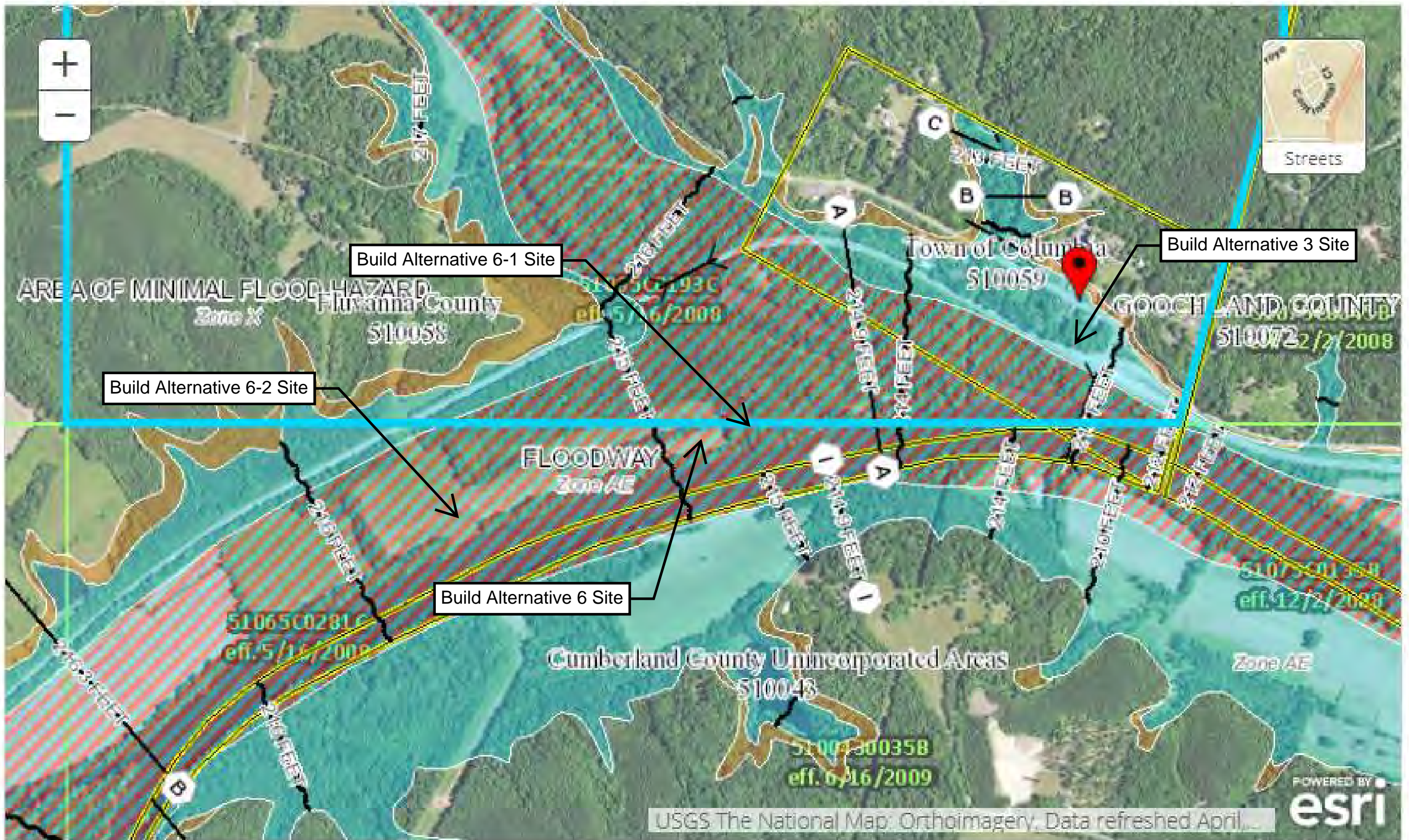
51065C0281C
eff. 5/16/2008

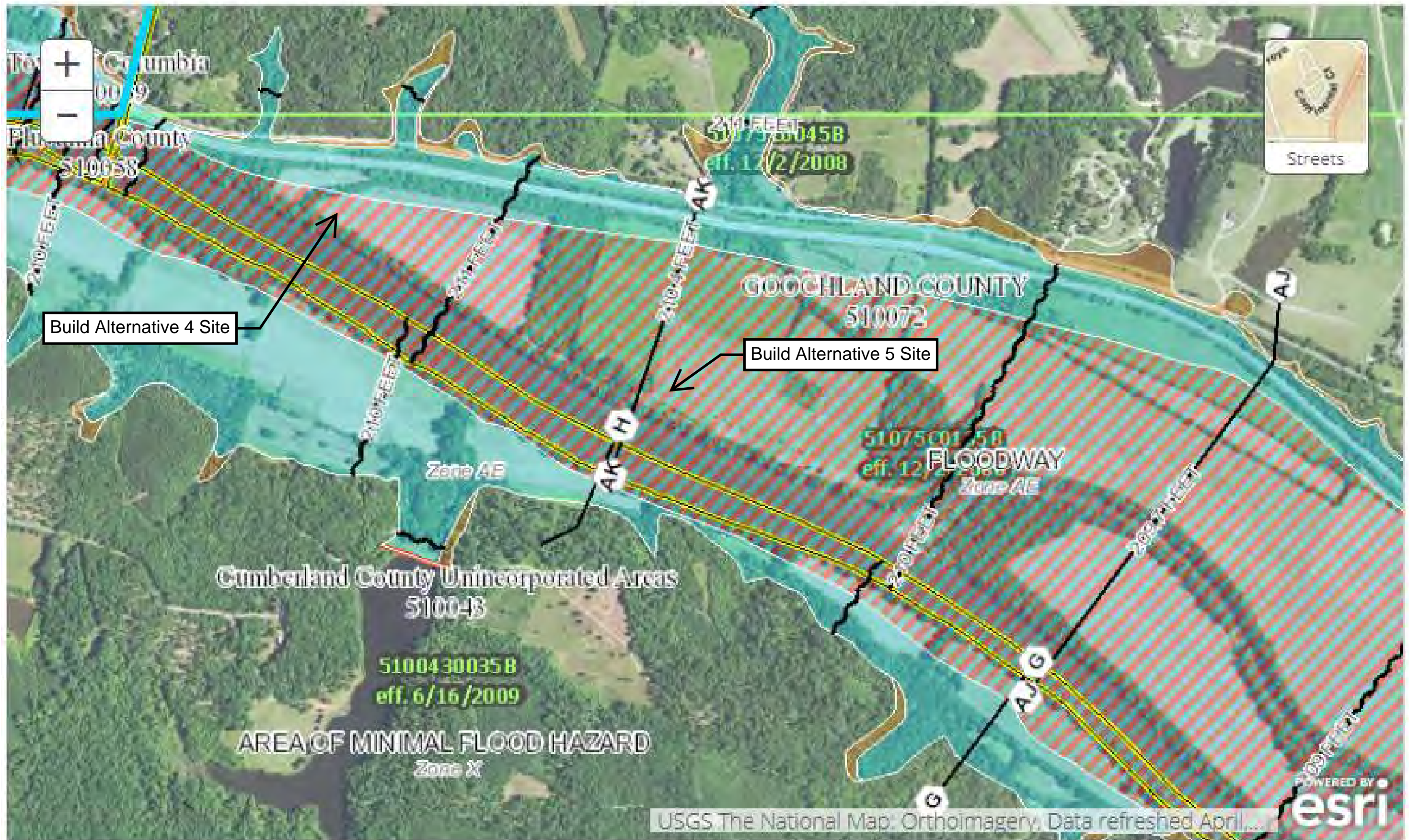
Zone AE
Cumberland County Unincorporated Areas
S10043

51075C0135B
eff. 12/2/2008

51065C0280C
eff. 5/16/2008

AREA OF MINIMAL FLOOD HAZARD
Zone X
5100430033B
eff. 6/16/2009





Build Alternative 4 Site

Build Alternative 5 Site

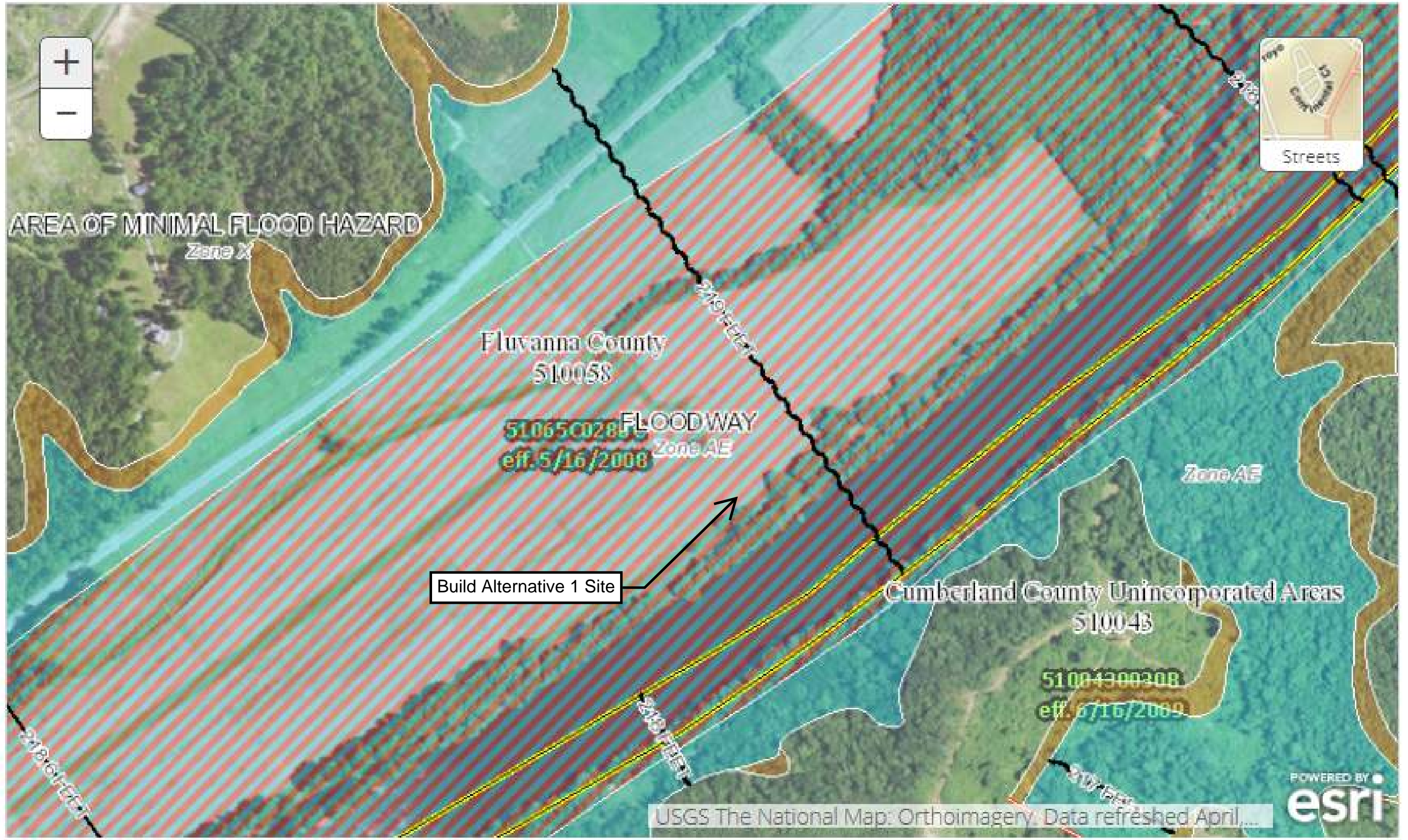
Cumberland County Unincorporated Areas
510048

5100430035B
eff. 6/16/2009

AREA OF MINIMAL FLOOD HAZARD
Zone X

GOOCHLAND COUNTY
510072

5107500175B
FLOODWAY
Zone AE



AREA OF MINIMAL FLOOD HAZARD
Zone X

Fluvanna County
510058

5106500285 FLOODWAY
Zone AE
eff. 5/16/2008

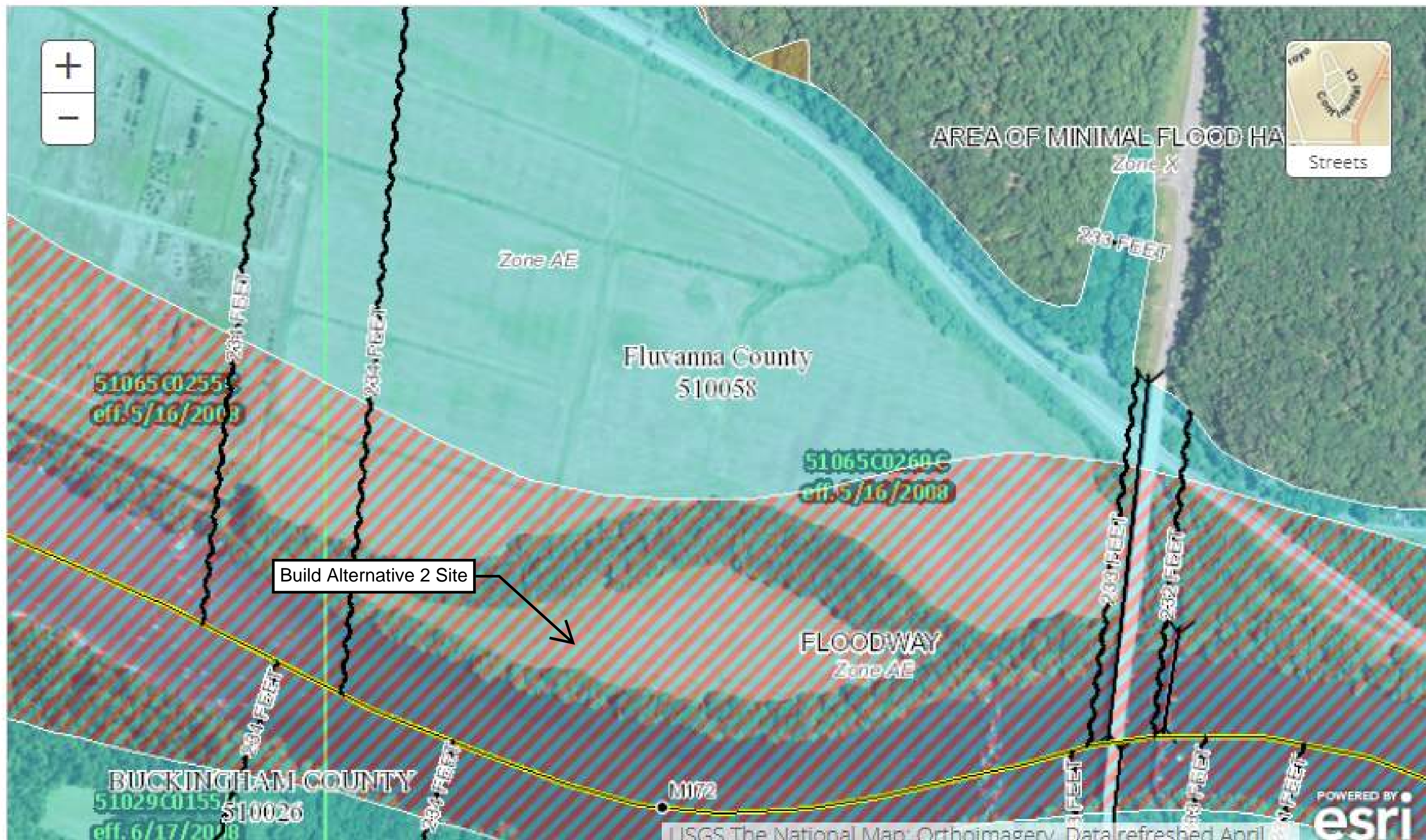
Build Alternative 1 Site

Cumberland County Unincorporated Areas
510043

51084300308
eff. 5/16/2009

USGS The National Map: Orthoimagery. Data refreshed April, ...

POWERED BY
esri



APPENDIX J-2
FLUVANNA REVIEW - NEWS REPORT AND ASSOCIATED PHOTOGRAPHS



Fire destroys Columbia home

OCT. 25, 2019

LATEST NEWS (HTTPS://FLUVANNAREVIEW.COM/CATEGORY/LATEST_NEWS/), PUBLIC SAFETY (HTTPS://FLUVANNAREVIEW.COM/CATEGORY/SAFETY/)

0 COMMENTS (HTTPS://FLUVANNAREVIEW.COM/2019/10/FIRE-DESTROYS-COLUMBIA-HOME/#RESPOND)



(https://twitter.com/intent/tweet?text=Fire



destroys



(http://www.facebook.com/pos/sb/...?share?u=https://www.fluvannareview.com/2019/10/25/fire-destroys-columbia-home/) (https://www.google.com/...?share?u=https://www.fluvannareview.com/2019/10/25/fire-destroys-columbia-home/)

By Heather Michon, correspondent

Photo by Kents Store Volunteer Fire Company

Fire destroyed a single-family home on Stage Junction Road near Columbia on Monday (Oct 21).

Chief Andrew Pullen of the Kent’s Store Volunteer Fire Department said all four Fluvanna fire companies and units from Goochland responded to a call reporting a fire at 3:18 pm. Crews were on the scene within 15 minutes and found flames on both levels of the large, two-story home.

Teams went inside to check for occupants and begin fighting the fire, but Pullen said “low visibility, high heat, and rapidly deteriorating condition” caused the team to retreat until it could be knocked down from the outside.

It took several hours and tens of thousands of gallons of water to fully extinguish the blaze.

Pullen said one firefighter received minor burns but refused medical transport.

During the initial search of the home, firefighters rescued a dog, which was transported to an emergency veterinary hospital. Unfortunately, the animal died of its injuries the following day.

Teams salvaged some personal items from the house, but the structure itself was “a total loss,” said Pullen.

A GoFundMe campaign has been started by the family. Jessica Evans of Mechanicsville said in her post that her youngest daughter and her babysitter came home to find the house already on fire.

“My youngest had to watch her home burn as they waited for the fire dept. My son found out as soon as he got home from school. They also lost the family dog, as well as my daughter’s hamster,” Evans wrote. “We’re devastated, and they need all the help they can.”

The cause of the fire is currently undetermined.

Note: If you would like to contribute to the Evans family, their GoFundMe campaign is “Help the Evans family & my kids recover”



(<https://twitter.com/intent/tweet?text=Fire>



<http://www.facebook.com/pos.org/share?u=https://www.fluvannareview.com/2019/10/10-10-19-fire-destroys-columbia-home/>

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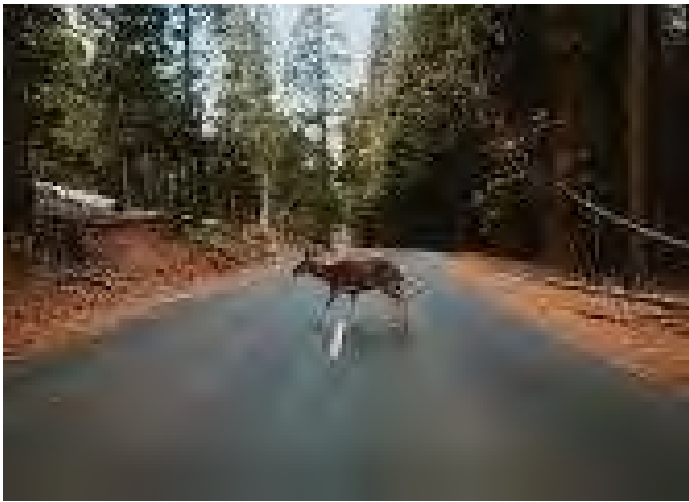
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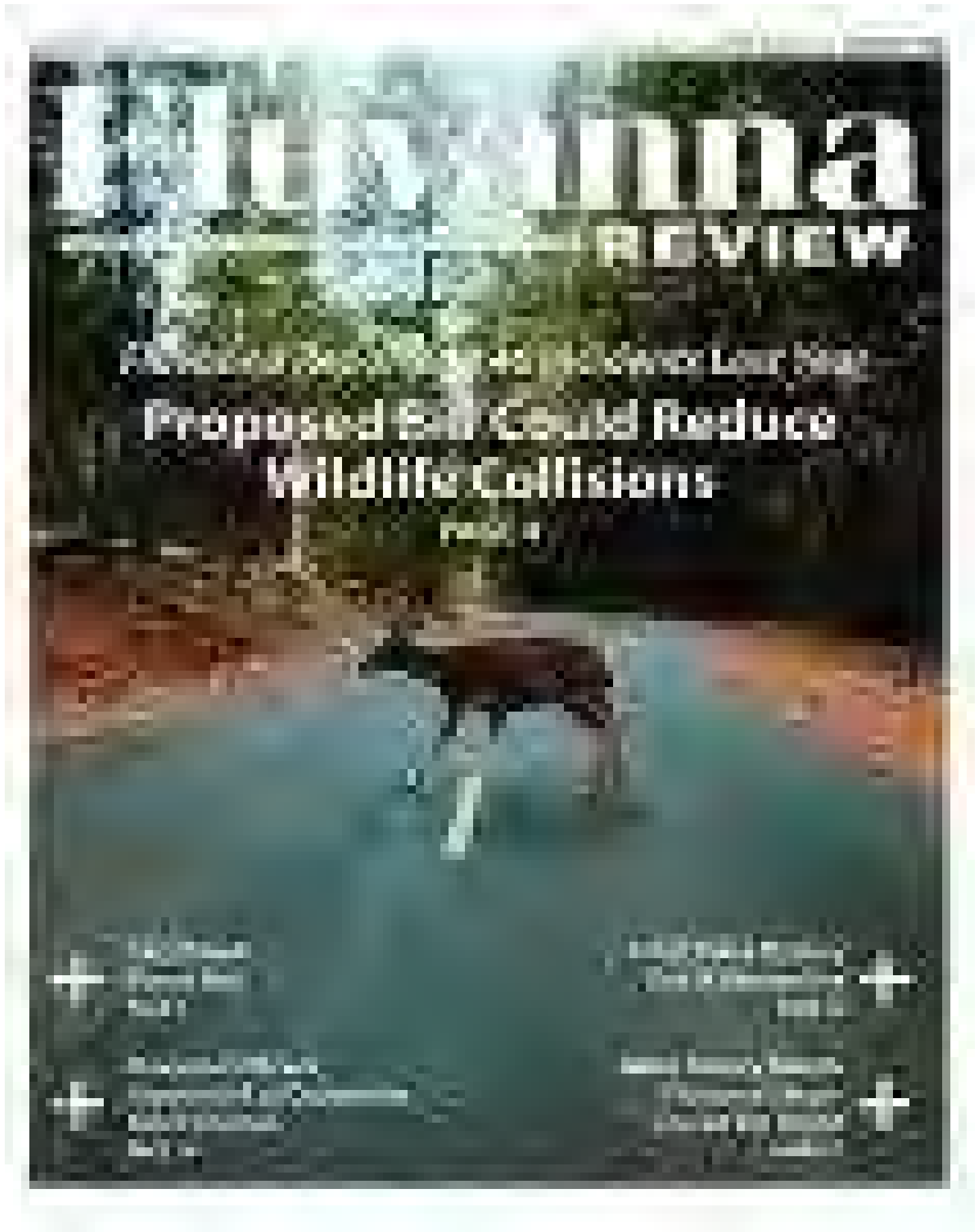
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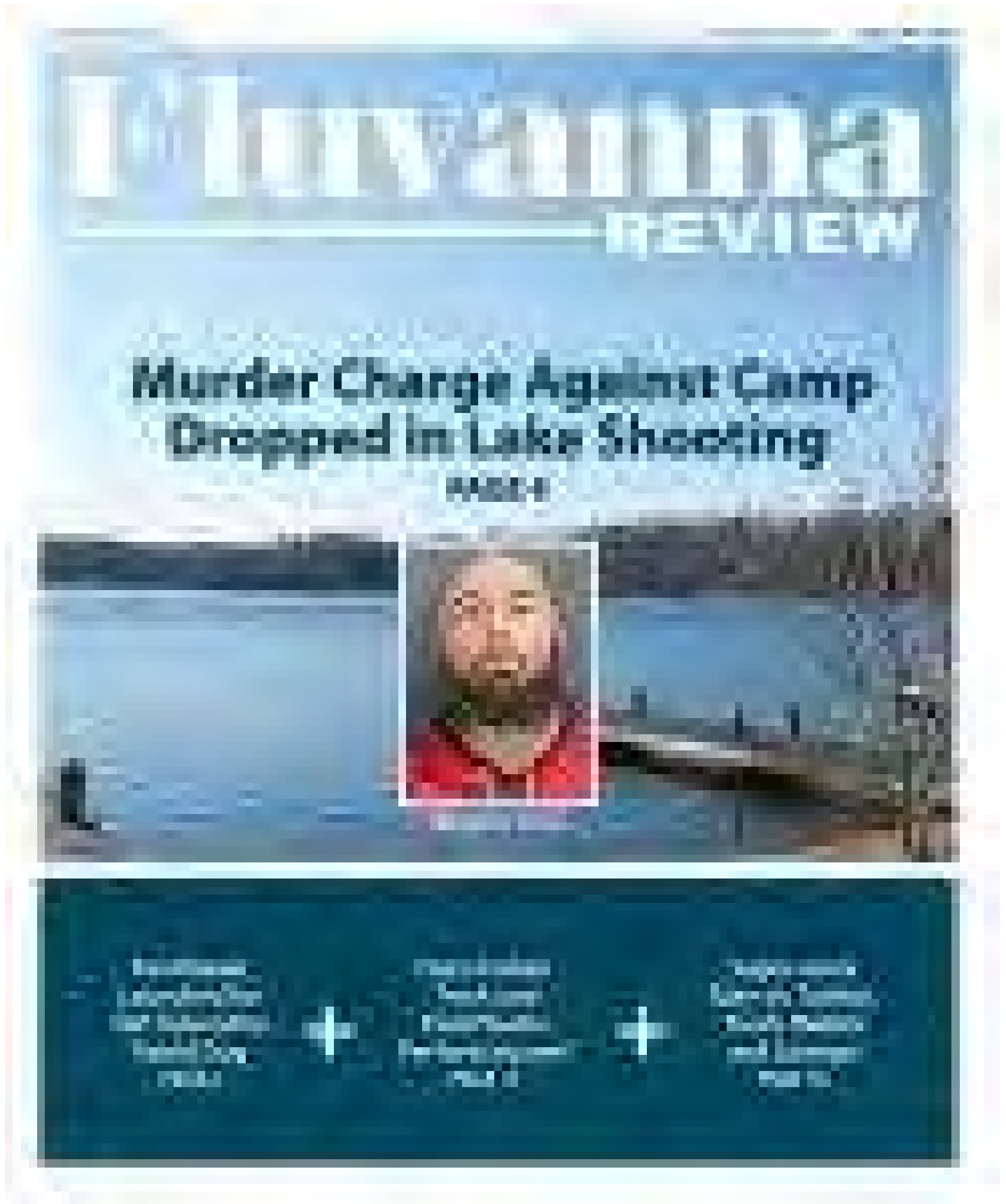
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CHOICE TOP CHOICE

LET'S
DO
THIS



FLUVANNA COUNTY
VOLUNTEER FIRE COMPANY

5 1/2
10300

**APPENDIX K
PUBLIC INVOLVEMENT INFORMATION**

APPENDIX K-1

PUBLIC NOTICE - CENTRAL VIRGINIA NEWSPAPERS REVIEW ORDER CONFIRMATION

APPENDIX K-2

PUBLIC MEETING POWERPOINT: JAMES RIVER WATER AUTHORITY – WATER WITHDRAWAL PERMIT RELOCATION 02/04/2014

APPENDIX K-3

LOUISA COUNTY JAMES RIVER WATER AUTHORITY PUBLIC INFORMATION MEETING POWERPOINT 12/16/2014

APPENDIX K-4

LOUISA COUNTY JAMES RIVER WATER AUTHORITY PUBLIC INFORMATION MEETING POWERPOINT 04/07/2015

APPENDIX K-5

PUBLIC NOTICE VMRC AND DEQ IN RICHMOND TIMES-DISPATCH 05/07/2015 (ACTUAL SIZE ON 11X17)

APPENDIX K-6

PUBLIC NOTICE VMRC AND DEQ IN RICHMOND TIMES-DISPATCH 05/07/2015 (200% SIZE ON 8.5X11)

APPENDIX K-7

DEQ PUBLIC NOTICE – ENVIRONMENTAL PERMIT

APPENDIX K-8

COUNTY OF FLUVANNA NOTICE OF PUBLIC HEARING: PUBLIC HEARING ON SUP 15:08

APPENDIX K-9

NOTICE OF PUBLIC HEARING JAMES RIVER WATER AUTHORITY

APPENDIX K-10

COMMONWEALTH OF VIRGINIA MARINE RESOURCE COMMISSION NOTICE OF PUBLIC HEARING

APPENDIX K-11

JAMES RIVER WATER AUTHORITY PROJECT BRIEF POWERPOINT 08/2018

APPENDIX K-1

PUBLIC NOTICE - CENTRAL VIRGINIA NEWSPAPERS REVIEW ORDER CONFIRMATION

Central Virginia Newspapers Review Order Confirmation for Ad #0003198297-01

Client	COUNTY OF LOUISA	Payor Customer	COUNTY OF LOUISA	Acct. Exec	
Client Phone	540-967-0401	Payor Phone	540-967-0401		skey
Account#	3309338	Payor Account	3309338		
Address	PO BOX 160 LOUISA VA 23093 USA	Payor Address	PO BOX 160 LOUISA VA 23093	Ordered By	April Lowe
Fax					
EEmail	alowe@louisva.org				

Total Amount	\$301.45	Status	<u>Materials</u>		
Payment Amt	\$0.00				
<hr/> Amount Due	<hr/> \$301.45	<u>Tear Sheets</u>	<u>Proofs</u>	<u>Affidavits</u>	<u>PO Number</u>
		1	0	1	<u>Blind Box</u>

Payment Method

Text:

Order Notes:

Ad Number	Ad Type	Color	Production Color
0003198297-01	CLP Legal Liner	<NONE>	

Pick Up Number	Ad Size	Production Method	Production Notes
	1.0 X 67 Li	AdBooker (liner)	

Product	Placement/Class	Position	# Inserts
Run Schedule Invoice Text			
Run Dates			
Tag Line			

CVL Daily Prog CLP::	_Legal Ads - CLP	_Legal Notices-Legal-CLP	1
PUBLIC NOTICE The James River Water Authority (JRWA) intends to apply for reissuance of a Virginia Water Protection Permit pursuant to 1/13/2014			
PUBLICNOTICETHEJAMESRIVERWATERAUTHORITYJRWAITENDSTOAPPLYFORREISSUANCEOFAVIRGINIAWATERPROTECTIONF			

CVL dailypro CLP.com:Onl Any:	_Legal Ads - CLP	_Legal Notices-Legal-CLP	7
PUBLIC NOTICE The James River Water Authority (JRWA) intends to apply for reissuance of a Virginia Water Protection Permit pursuant to 1/13/2014, 1/14/2014, 1/15/2014, 1/16/2014, 1/17/2014, 1/18/2014, 1/19/2014			
PUBLICNOTICETHEJAMESRIVERWATERAUTHORITYJRWAITENDSTOAPPLYFORREISSUANCEOFAVIRGINIAWATERPROTECTIONF			

Central Virginia Newspapers Review Order Confirmation for Ad #0003198297-01

Ad Content Proof Actual Size

PUBLIC NOTICE

The James River Water Authority (JRWA) intends to apply for reissuance of a Virginia Water Protection Permit pursuant to 9 VAC 25-210 in order to relocate its proposed intake structure on the James River under existing VWP Permit #04-0805. The location of the proposed intake structure under the existing permit is just downstream of State Route 15 in the vicinity of Breno Bluff. JRWA intends to relocate the proposed intake structure further downstream in the general vicinity of Columbia on the north side of the James River just upstream of the State Route 690 bridge in Fluvanna County, Virginia.

In addition to the proposed intake structure, the proposed project will consist of a raw water pump station and a raw water pipeline to be constructed from the intake structure in the general vicinity of an existing Colonial Pipeline easement to a location just north of State Route 6. This project is intended to be a primary source of water for both Fluvanna and Louisa Counties to serve their designated growth areas as outlined in the current Water Supply Plans developed and approved by each County.

The JRWA will hold a public information meeting on February 4, 2014, at 10:30 a.m. in the meeting room at the Spring Creek Sports Club, 181 Clubhouse Way, Zion Crossroads, Virginia. An overview of the project will be provided at this meeting as well as an opportunity for the public to provide comments.

Interested parties seeking additional information or wishing to submit written comments may contact or submit such comments to:

Steve Nichols, Fluvanna County Administrator
132 Main Street
P.O. Box 540
Palmyra, VA 22963
phone: (434) 591-1910
e-mail: snichols@cofluvanna.va.us



or

Robert Dube, Louisa County Administrator
1 Woolfolk Avenue
P.O. Box 160
Louisa, VA 23093
Phone: (540) 967-3400
e-mail: rdube@louisa.org

Comments related to the project made during the public information meeting and written comments received within seven (7) days following the public information meeting will be evaluated by the JRWA and considered during the application process.

APPENDIX K-2

**PUBLIC MEETING POWERPOINT: JAMES RIVER WATER AUTHORITY – WATER WITHDRAWAL PERMIT
RELOCATION 02/04/2014**



Public Information Meeting
James River Water Authority
Withdrawal Permit Relocation

February 4, 2014 @ 10:30 a.m.

Spring Creek Sports Club
181 Clubhouse Way
Zion Crossroads, VA

Overview

1. Welcome & Thank You
2. Please sign in
3. Purpose of Meeting
 - Educate and inform citizen's of permit relocation
 - Public to make comments for consideration during permit process



Overview

4. JRWA will receive written comments up to 7 days after this meeting
 - Received by COB Feb 11, 2014
5. Send written comments to:
 - Steve Nichols, Fluvanna County Administrator & JRWA Board Member
 - Email: snichols@fluvannacounty.org
 - Robert Dube', Louisa County Administrator & JRWA Board Member
 - Email: rdube@louisa.org



Existing Permit Basics

VWP Individual Permit Number: 04-0805
Date of Issuance: June 9, 2006
Expiration Date: June 9, 2021
Max Daily Withdrawal: 5.7 million gallons
Max Annual Withdrawal: 1.045 billion gallons
Average Daily Withdrawal: 2.85 million gallons
Intake Location: Approximately 2,000 feet downstream of Rte 15



New Permit

1. Applying for a Permit Reissuance
2. Permit will be valid for 15-yrs
3. Projected water demands: Based upon DEQ approved Water Supply Plans
 - Fluvanna WSP dated April 2010
 - Louisa WSP dated June 2011
4. ***New Intake Location: Vicinity of Columbia on north side of James River upstream of Rte 690***



JRWA Owned Project

1. Intake structure located on north side of James River (exact location TBD)
2. Raw Water Pump Station
3. Pipeline to a "T" just north of Rte 6 in the vicinity of the Colonial Pipeline easement



Permit Timelines

1. Public Information Meeting: Feb 4, 2014
2. Receive all public comments: Feb 11, 2014
3. Submit JPA to VDEQ / VMRC: Mid-late Feb 2014
4. Regulatory review: 60-90 days
5. Additional studies: 30-60 days
6. Submit additional study info: 30 days
7. Regulatory review: 30-45 days
8. DEQ issue Draft Permit
9. DEQ issues Final Permit

Entire timeline anticipated to be 9-12 months



JRWA Project

1. Important project to both Fluvanna & Louisa
2. Public input is very important
3. Additional questions or comments e-mail:
 - Steve Nichols: snichols@fluvannacounty.org
 - Robert Dube': rdube@louisa.org



James River Water Authority

Thanks for your time!



APPENDIX K-3

**LOUISA COUNTY JAMES RIVER WATER AUTHORITY PUBLIC INFORMATION MEETING POWERPOINT
12/16/2014**



James River Water Project Public Information Meeting



December 16, 2014

Presented by: Louisa County Water Authority & Timmons Group



Proposed Agenda

1. Welcome
2. Introductions
3. Overview of proposed project
 - a) Proposed Pipeline Routing
 - b) Easement Acquisitions
4. Timeline / Construction Schedule
5. Other information
6. Additional Public Information Meetings
7. Questions / Answers



Welcome & Overview

- Thank you for your time
- Please sign in
- Long-term partnership between Fluvanna & Louisa
- Open and transparent process



Introductions

1. Fluvanna County Officials
2. Louisa County Officials
3. Louisa County Water Authority
4. Project Team
 - a. Timmons Group
 - b. Faulconer
 - c. MEB
5. Any special guests



Project Drivers

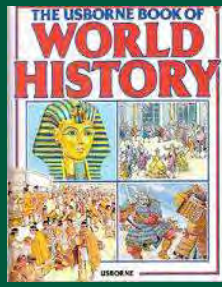
- Economic Development
- Remove reliance on wells & groundwater sources
- Drought reliability (2002 drought)
- Long-term water source for Fluvanna & Louisa



Project History - Fluvanna & Louisa Working Together since 1995...

- **1995** – First study for water to Zion Crossroads commissioned by Fluvanna & Louisa
- **November 2002** – Commission a Water Supply Working Group to develop a MOU between the Counties
- **March 2003** – The Water Supply Working Group issued an eleven point Memorandum of Understanding between the Counties
- **March 2004** – Fluvanna and Louisa entered into a formal Memorandum of Understanding
- **April 2004** – Counties submit an application to DEQ for water withdrawal permit from the James River
- **June 2006** – DEQ issued a permit for Fluvanna and Louisa Counties to withdraw water from the James River and construct a water system to serve the Counties





Project History (Cont'd)

- **May 2007** – Counties commission study to determine best legal structure for providing water to both Counties
- ***April 2009 – James River Water Authority was formed***
- **October 2013** – Fluvanna and Louisa Counties enter into an inter-jurisdictional agreement (Copies Available)
- **October 2014** – Faulconer / Timmons Group / MEB Team selected to design and construct the James River Water Project
- **December 2014** – Public Information Meeting at Kents Store

Project has been 20 yrs in the making AND the Public has been involved with every step



Project Overview

James River Water System is to provide reliable water source for Fluvanna and Louisa Counties

Phase 1: JRWA – Shared System

- Intake, Pump Station & pipeline to Rte 6

Phase 2: Louisa – Proposed System

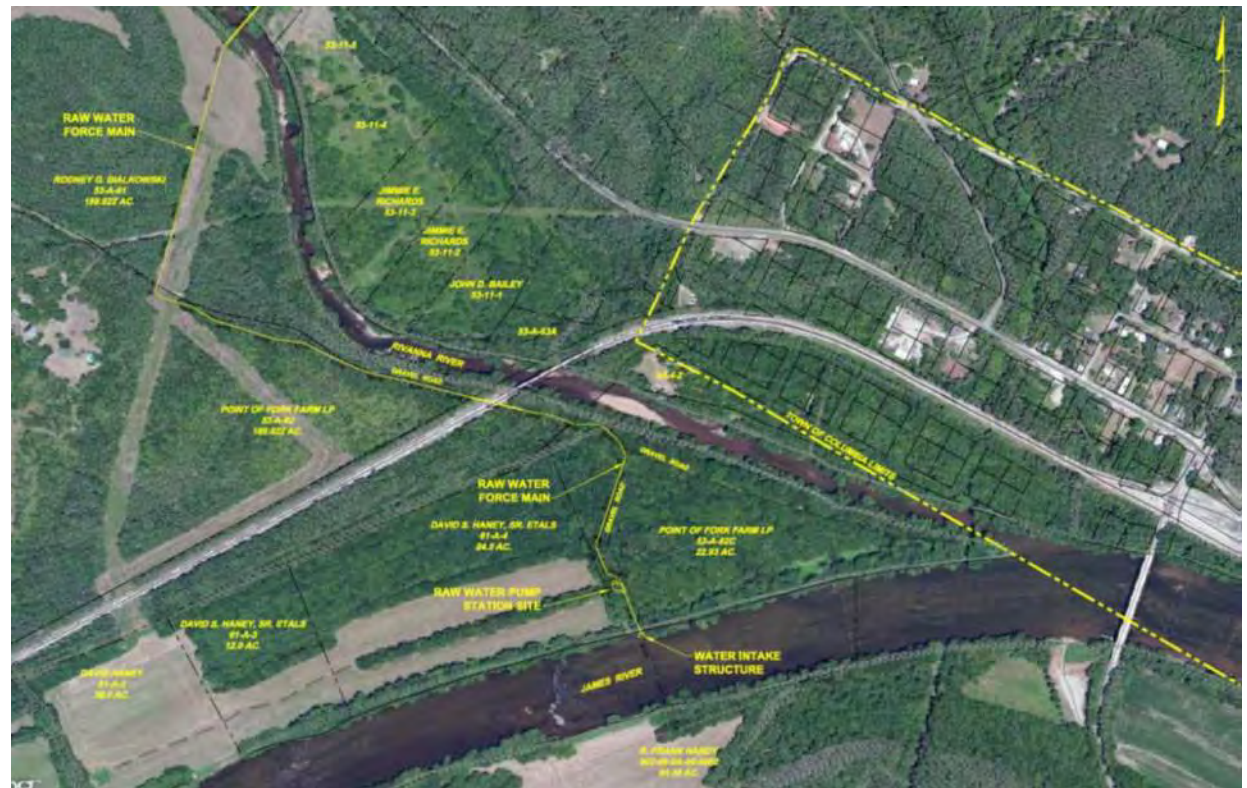
- Pipeline to Ferncliff along Colonial Pipeline & CVEC Easement
- Water Treatment Plant at Ferncliff
- Waterline to Zion Crossroads



Project Overview – Phase 1 JRWA

Phase 1: JRWA – Shared System

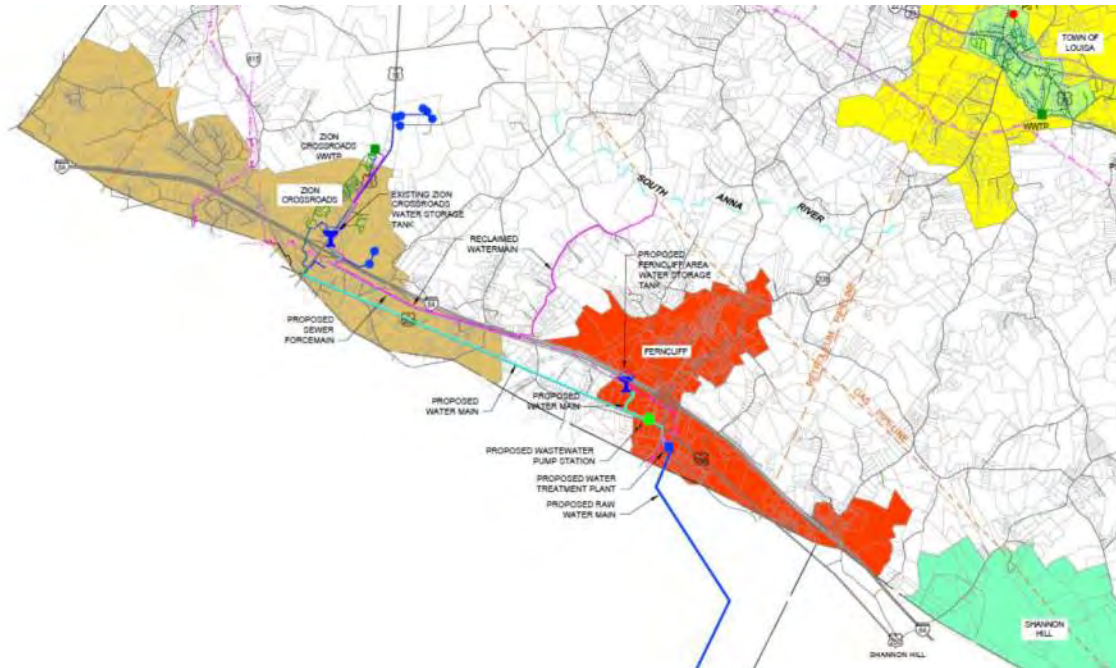
- Intake just upstream from Rivanna River
- Pump Station
- Pipeline to Rte 6



Project Overview – Phase 2 Louisa County

Phase 2: Louisa – Proposed System

- Pipeline up to Ferncliff adjacent to Colonial Pipeline and CVEC
- Treatment Plant in Ferncliff
- Water Pipeline to Zion Crossroads



Proposed Pipeline Routing

- Raw Water pipeline along Colonial Pipeline Easement AND
- Along or within CVEC Easement (north end)
- 20' permanent easement & 10' construction easement
- Buried pipe with 3.5 ft of cover over pipe

Potential Fluvanna Impacts

- Approximately 13.6 miles in Fluvanna County (JRWA & Louisa)
- 32.4 acres of easements for 104 property owners
 - Fluvanna 290 sq miles or 185,600 acres
 - Easements represent 0.017% of total area
 - Avg easement is 0.31 acres



Proposed Pipeline Routing

Potential Louisa Impacts

- Approximately 7.2 miles in Louisa County
- 17.3 acres of easements for 89 property owners
 - Louisa 511 sq miles or 327,040 acres
 - Easements represent 0.005% of total area
 - Avg easement is 0.19 acres

Total Impacts

- Approximately 20.8 miles of pipeline
- 49.7 acres of easements
- Rural / cross country construction (i.e. easier & cheaper)



Easement Acquisitions & Process

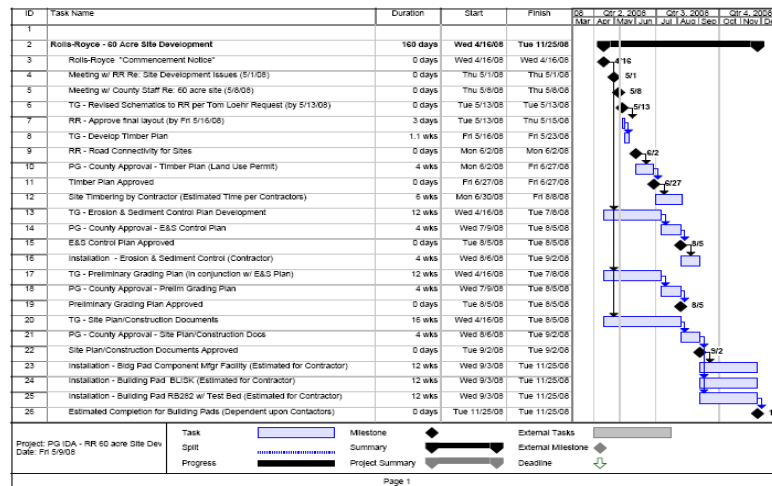
Objectives

1. Be a good neighbor / partner
2. Utilize existing easements where possible
3. Construct adjacent to existing easements where possible
4. Use existing easements for construction access
5. Minimize crossing of the Colonial Gas Pipeline
6. **Fairly compensate** property owners for easements



Timeline / Construction Schedule (Proposed)

- **Jan 2015:** Sign Interim Agreement & Start Design
- **Summer 2015:** Begin Construction
- **Summer / Fall 2017:** Substantial completion & System Start-up
- **Approximately 24 to 30 months for project completion**



Other Information

- **DEQ Mandated & Approved Water Supply Plans**
 - Fluvanna Water Supply Plan completed April 2010
 - Louisa Water Supply Plan completed June 2011
- **Long-term Water Needs: 2050 Projected Water Demands**
 - Fluvanna: 3.2 MGD
 - Louisa: 5.3 MGD



Additional Public Information Meetings

- Intent is to have additional Public Info Meetings as necessary
- Public will be properly notified of any additional meetings



Questions & Answers



Thanks for your time !

Contact Information

Pam Baughman, General Manager, Louisa County Water Authority

540-967-1122 or pbaughman@louisa.org

Christian Goodwin, Louisa County Administrator

540-967-0401 or cgoodwin@louisa.org

Andy Wade, Louisa Economic Development Director

540-967-4581 or awade@louisa.org

Steve Nichols, Fluvanna County Administrator

434-591-1910 or snichols@fluvannacounty.org

Project Email: jamesriverwaterproject@timmons.com



APPENDIX K-4

**LOUISA COUNTY JAMES RIVER WATER AUTHORITY PUBLIC INFORMATION MEETING POWERPOINT
04/07/2015**



James River Water Project Public Information Meeting



April 7, 2015

Presented by: Louisa County Water Authority & Timmons Group



Proposed Agenda

1. Welcome & Introductions
2. What's happened since Dec 16 Public Meeting
3. Overview of proposed project
 - a) Proposed Pipeline Routing
 - b) Easement Acquisitions
4. Timeline / Construction Schedule
5. Other information
6. Questions / Answers



Welcome

- Thank you for your time
- Please sign in
- Follow-up to December 16, 2014 Meeting
- Long-term partnership between Fluvanna & Louisa
- Open and transparent process



Introductions

1. Fluvanna County Officials
2. Louisa County Officials
3. Louisa County Water Authority
4. Project Team
 - a. Timmons Group
 - b. Faulconer
 - c. MEB
5. Any special guests



Logistics to date....

- Analyzed multiple routing alternatives
- Utilized as much of CVEC & other easements as possible
- Faulconer asked for permission to enter property
 - 75 out of 77 respondents (97.4%) gave permission to enter property
 - 100% of impacted respondents have given approval to enter property



Tonight's meeting

- Proposed pipeline routings at different stations
- Staff to answer questions at stations
- Feel free to ask any questions tonight or follow-up with the appropriate contacts
- Have packages available for impacted property owners



Next steps – After tonight...

- Once routing alternative has been determine
 - Complete due diligence
 - Environmental, topo and subsurface investigation
 - Continue working with utilities (Dominion, CVEC & Colonial Pipeline)
 - Reach out to individual property owners for easement agreements
 - Coordination with VDOT (road crossings, etc.)



Project Drivers

- Economic Development
- Remove reliance on wells & groundwater sources
- Drought reliability (2002 drought)
- Long-term water source for Fluvanna & Louisa



Project Overview

James River Water System is to provide reliable water source for Fluvanna and Louisa Counties

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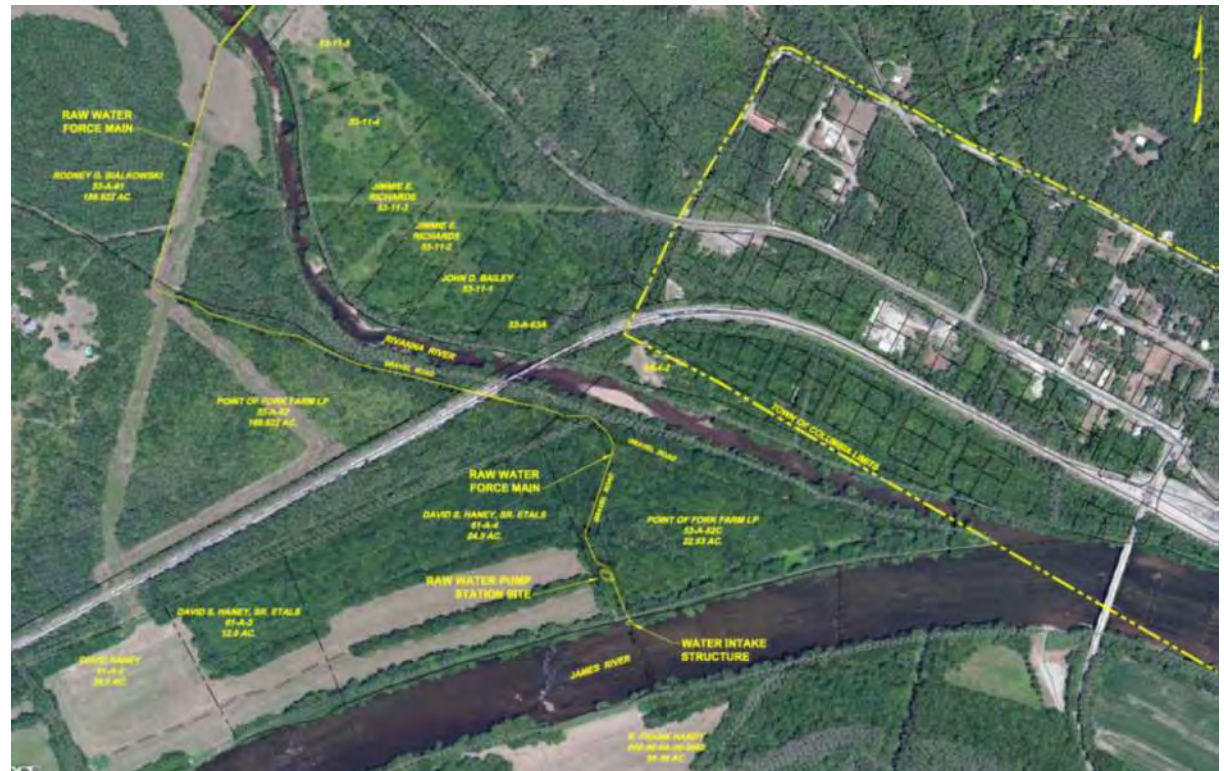
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Project Overview – Phase 1 JRWA

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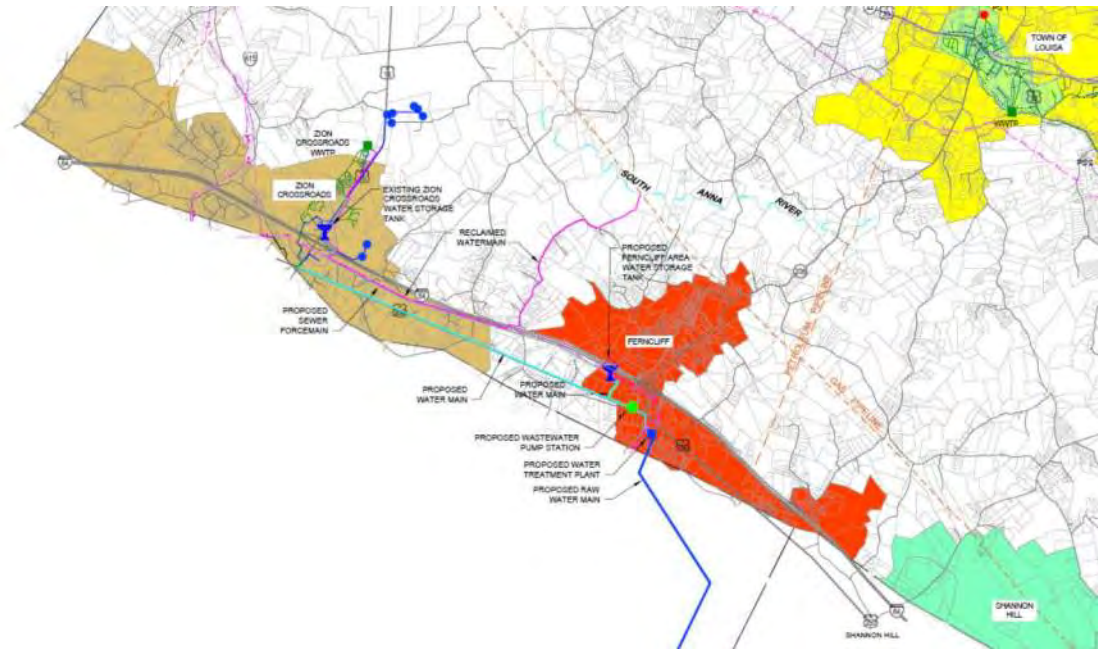
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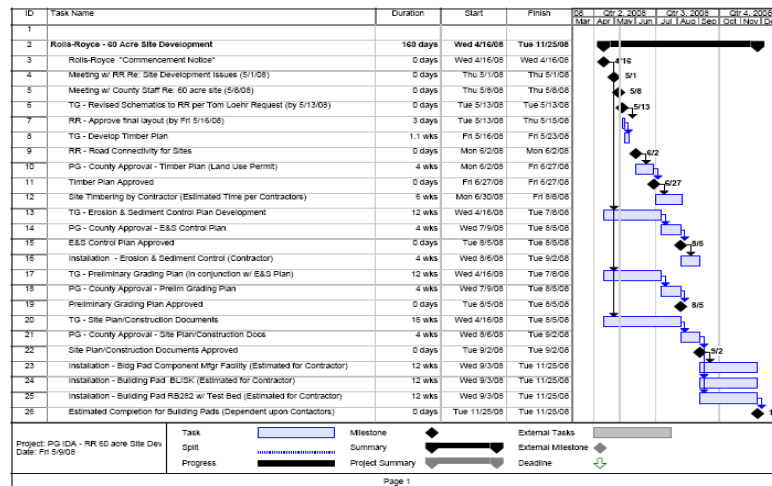
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PUBLIC NOTICE VMRC AND DEQ IN RICHMOND TIMES-DISPATCH 05/07/2015 (ACTUAL SIZE ON 11X17)

APPENDIX K-6

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ABC LICENSES

ABC LICENSES

J.B.W. Enterprises LLC trading as **Wilson's BBQ and Grill**, 118 Jarratt Ave., Jarratt, Sussex County, Virginia 23867 is applying to the VIRGINIA DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL (ABC) for a Wine and Beer On Premises; Mixed Beverage On Premises license to sell or manufacture alcoholic beverages. Jeremy Bradford Wilson. NOTE: Objections to the issuance of this license must be submitted to ABC no later than 30 days from the publishing date of the first of two required newspaper legal notices. Objections should be registered at www.abc.virginia.gov or 800-552-3200.

LEGAL NOTICES

LEGAL NOTICES

Cellco Partnership and its controlled affiliates doing business as Verizon Wireless (Verizon Wireless) proposes to build a 100-foot Monopole Telecommunications Tower in the vicinity of 3204 Old Gun Road East, Midlothian, VA 23113. Public comments regarding potential effects from this site on historic properties may be submitted within 30 days from the date of this publication to: Project 6115002190-SLF c/o EBI Consulting, 6876 Susquehanna Trail South, York, PA 17403, sfarley@ebiconsulting.com, or 717-428-0401.

PUBLIC NOTICE

Notice is hereby given that the James River Water Authority is requesting authorization from the Marine Resources Commission and the Department of Environmental Quality to install a raw water intake in the James River at N37-44,966, W78-10.1833, near the Town of Columbia, and a water line beneath the Rivanna River at W78-10,1833, W78-10,6000, to meet water demands for Fluvanna and Louisa County. Send comments /inquiries within 15 days to: Marine Resources Commission, Habitat Management Division, 2600 Washington Avenue, Newport News, VA 23607.

MEETINGS & EVENTS

MEETINGS & EVENTS

NOTICE

The Virginia Marine Resources Commission invites public comment on the establishment of amendments to regulations, as proposed below. By May 11, 2015, the proposed draft regulations can be viewed at the Virginia Marine Resources Commission, 2600 Washington Avenue, Newport News, Virginia.

management plan for this species.

 VMRC DOES NOT DISCRIMINATE AGAINST INDIVIDUALS WITH DISABILITIES; THEREFORE, IF YOU ARE IN NEED OF REASONABLE ACCOMMODATIONS BECAUSE OF A DISABILITY, PLEASE ADVISE US AT (757-247-8052) NO LATER THAN FIVE WORKING DAYS BEFORE THE DATE AND IDENTIFY YOUR NEEDS.

TRUSTEE SALES

TR

**NOTICE OF PUBLIC SALE OF REAL ESTATE
 911 EAST ATLANTIC STREET
 SOUTH HILL, MECKLENBURG COUNTY, VIRGINIA**

In execution of a General Security Agreement between the undersigned and Security Ventures, Inc., dated April 18, 1997 (the "Security Agreement" having been duly perfected by the filing of statements and continuation statements as required by the Security Agreement) and in accordance with the terms of the Security Agreement, at the request of the owner and holder of the property, the undersigned, the duly appointed agent ("Agent") of the undersigned, will sell at public auction at 911 East Atlantic Street, South Hill, Mecklenburg County, Virginia, on **Monday, May 11, 2015, at 11:00 a.m.**, a portion of the collateral described in the Security Agreement including inventory, machinery, equipment and personal property (collectively, the "Personal Property") in certain real property and improvements located at South Hill, Mecklenburg County, Virginia, as described in the Deed of Trust dated April 18, 1997, and recorded in the Office of the Circuit Court of Mecklenburg County, Virginia (the "Office") in Deed Book 520, page 654, said Deed of Trust amended and modified by Agreement dated April 21, 2009 in the aforesaid Clerk's Office of the Office (the "Deed of Trust"), as Containing Parcel A (0.23 acre), Parcel B (1.038 acre) and Parcel C (1.038 acre), No. 2, Parcel A (0.23 acres), said property owned by Cruiser Holdings, LLC, and Om Ganesan, and the undersigned hereby made to the Deed of Trust and in accordance with the terms of the Deed of Trust for a more particular description of the Real Estate and Personal Property to be sold. **ADDITIONAL TERMS OF SALE:** The Personal Property to be sold, whether in whole or in lots, as the Agent determines. The Personal Property to be sold will be sold and conveyed by Bill of Sale with Warranty of any description, including title, merchantability or fitness of particular goods. All taxes shall be paid by the purchaser at the time of sale, current lien, not yet due and payable, shall be paid by the purchaser and the Agent shall sign a copy of the Bill of Sale immediately after the sale. All bidders must post a deposit in such amount as shall be determined by the Agent and shall supersede, supplement or cancel any other deposit. Pursuant to the Federal Fair Debt Collection Practices Act, you that this is an attempt to collect a debt and that any information obtained will be used for that purpose.

John L. Gregory, II

For Information Contact: John L. Gregory, Gregory, McGarry & Wall, P.C., 400 Starlin Drive, Virginia 24112. Telephone: (276) 638-2367.

NOTICE OF SUBSTITUTION

Richmond Times Dispatch, Th, 5/7/15
 200% Ad Size

APPENDIX K-7

DEQ PUBLIC NOTICE – ENVIRONMENTAL PERMIT

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow a surface water withdrawal for public water supply from the James River and installation of an associated raw water line in Fluvanna County, Virginia.

PUBLIC COMMENT PERIOD: For 30 days, starting from the day after the notice is in the newspaper: August 23, 2015 to September 21, 2015.

PERMIT NAME: Virginia Water Protection Permit issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: James River Water Authority; c/o Fluvanna County Administrator, 132 Main Street, P.O. Box 540, Palmyra, Virginia 22963; VWPP No. 14-0343

PROJECT DESCRIPTION: The James River Water Authority (JRWA) has applied for a permit reissuance for the James River Water Supply Project. JRWA proposes to construct a raw water intake on the James River, just upstream of its confluence with the Rivanna River, to meet public water supply demands of Counties of Fluvanna and Louisa. This permit action is a revoke/reissuance of VWP Permit No. 04-0805 due to a proposed change in intake location and withdrawal volumes. The permit will allow the applicant to withdraw water from the James River and install associated water lines. The proposed activity would affect permanently 0.09 acre (64 linear feet) and temporarily 0.90 acre (485 linear feet) of the James River and the installation of the water line will result in a permanent impact of 0.01 acre of palustrine forested wetland temporarily affect 0.001 acre of palustrine emergent wetland and 120 linear feet of a stream channel. The activity proposed in the permit will affect the James River and an unnamed tributary of the Rivanna River in the James River watershed. A watershed is the land area drained by a river and its incoming streams. Compensation for the affected area will be provided through the purchase of 0.02 wetland bank credit from an approved mitigation bank and/or from the Virginia Aquatic Resources Trust Fund. DEQ's preliminary decision is to issue the permit.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: Sarah Marsala; VA Dept. of Environmental Quality, P.O. Box 1105, Richmond, VA 23218; Phone: 703-583-3898; E-mail: Sarah.Marsala@deq.virginia.gov; Fax: 703-583-3841. The public may review the draft permit and application at the DEQ office named above by appointment or may request copies of the documents from the contact person listed below.

APPENDIX K-8
COUNTY OF FLUVANNA NOTICE OF PUBLIC HEARING: PUBLIC HEARING ON SUP 15:08



COUNTY OF FLUVANNA

“Responsive & Responsible Government”

P.O. Box 540 Palmyra, VA 22963 (434) 591-1910 FAX (434) 591-1911 www.fluvannacounty.org

NOTICE OF PUBLIC HEARING

September 4, 2015

«Owner»

«Address»

«City_State» «Zip_Code»

TMP# «TMP»

Re: Public Hearing on SUP 15:08

Dear «Owner»:

This letter is to notify you that the Fluvanna County Planning Commission will hold a public hearing on the above referenced item on **Wednesday, September 23, 2015 at 7:00 PM** in the Circuit Court Room at the Fluvanna County Courts Building in Palmyra, VA. The request is described as follows:

SUP 15:08 – James River Water Authority – A request for a special use permit to allow for major utilities with respect to the construction of a raw water supply system which includes a raw water intake and pump station at the subject properties denoted by Tax parcel Numbers: 53-A-62, 53-A-62C, 53-A-61, 53-11-5, and 53-11-19. The properties are currently zoned A-1 (Agricultural General) and the properties are located in the Columbia Election District and encompass approximately 305.202 acres.

The applicant or applicant’s representative must be present at the Planning Commission meeting. The tentative agenda and staff report will also be available for review by the public in the Fluvanna County Planning and Community Development Department during working hours (8:00 a.m. – 5:00 p.m., Monday through Friday). If you have any questions, please feel free to contact me at 434-591-1910.

Sincerely,

Jason Stewart, Planning and Zoning Administrator

Sup 15:08 JRWA				
TMP	Name	Address	City, State	Zip
54A A 2	Richard & Donna Harry	467 Martin Kings Rd	Charlottesville, Va	22902
53 A 62C	Point of Fork Farm LP	P.O. Box 847	Columbia, Va	23038
61 A 4	William Hammond	415 Gillujms Ridge Rd	Charlottesville, Va	22903
53 11 19	Central Virginia Co-op	P.O. Box 247	Lovingston, Va	22949
53 11 5	Coleman & Sandra Lyttle	16251 Hunters Ridge Ln	Mosely, Va	23120
53 A 61	Rodney Bialkowski	1215 Point of Fork Rd	Fork Union, Va	23055
53 A 62	Point of Fork Farm LP	P.O. Box 847	Columbia, va	23038
53 11 4	Coleman & Sandra Lyttle	16251 Hunters Ridge Ln	Mosely, Va	23120
53 11 26	Paul & Sally Wylie	188 Scenic River Dr	Columbia, Va	23038
53 11 27	John & Susan Henry	14924 Alpine Bay Loop	Gainesville, Va	20155
53 11 18	Central Virginia Co-op	P.O. Box 247	Lovingston, Va	22949
53 A 67	Colonial Pipeline Co	P.O. Box 1624	Alpharetta, GA	30009
53 A 17A	Colonial Pipeline Co	P.O. Box 1624	Alpharetta, GA	30009
53 A 69	Kenneth B Johnston	3775 E . River Rd	Columbia, Va	23038
53 11 20	Kenneth Droege	351 Scenic River Dr	Columbia, Va	23038
53 11 17	William Dooley & Patricia Arndt	133 Scenic River Dr	Columbia, Va	23038
53 A 60	Arsenal At Point of Fork LLC	18 East Main St	Richmond, Va	23219
53 A 62A	Point of Fork Farm LP	P.O. Box 847	Columbia, Va	23038
53 A 63	Rodney Bialkowski Sr. Trust	1215 Point of Fork Rd	Fork Union, Va	23055
61 A 1	541 Goldsborough Lane LLC	1500 Stoneycreek Ct	Richmond, Va	23233

DESCRIBE BRIEFLY THE IMPROVEMENTS PROPOSED. STATE WHETHER NEW BUILDINGS ARE TO BE CONSTRUCTED, EXISTING BUILDINGS ARE TO BE USED, OR ADDITIONS MADE TO EXISTING BUILDINGS.

THE JAMES RIVER WATER AUTHORITY PROPOSES TO CONSTRUCT A NEW 24" DIAMETER RAW WATER PIPELINE. THE PROPOSED IMPROVEMENTS ASSOCIATED WITH THIS APPLICATION INCLUDE A BELOW GROUND 24" RAW WATER PIPELINE WHICH IS PART OF THE JAMES RIVER WATER AUTHORITY PROJECT. THERE WILL BE NO BUILDINGS CONSTRUCTED IN ASSOCIATION WITH THIS APPLICATION. THE RAW WATER PUMP STATION ASSOCIATED WITH THE OVERALL PROJECT IS THE ONLY BUILDING AND IT IS COVERED IN ANOTHER APPLICATION.

NECESSITY OF USE: DESCRIBE THE REASON FOR THE REQUESTED CHANGE:

THE USE IS TO CONVEY RAW WATER TO SUPPLY THE LONG TERM WATER NEEDS OF BOTH FLUVANNA COUNTY AND LOUISA COUNTY FOR THE FORESEEABLE FUTURE.

PROTECTION OF ADJOINING PROPERTY: DESCRIBE THE EFFECTS OF THE PROPOSED USE ON ADJACENT PROPERTY AND THE SURROUNDING NEIGHBORHOOD. WHAT PROTECTION WILL BE OFFERED ADJOINING PROPERTY OWNERS?

THE RAW WATERLINE WILL BE BURIED WITH A MINIMUM COVER OF 3'. DURING CONSTRUCTION, THE SURROUNDING PROPERTY/NEIGHBORHOOD OWNERS WILL SEE AND HEAR CONSTRUCTION CREWS AND EQUIPMENT WORKING TO INSTALL THE PIPING IN THE GROUND. UPON COMPLETION OF THE PROJECT, THE DISTURBED GROUND WILL BE RETURNED TO ITS ORIGINAL CONDITION OR BETTER PRIOR TO THE PIPE CREW LEAVING THE AREA. INSTANCES OF EROSION AFTER STABILIZATION WILL BE ADDRESSED BY THE CONTRACTOR UPON BEING NOTIFIED.

ENHANCEMENT OF COUNTY: WHY DOES THE APPLICANT BELIEVE THAT THIS REQUESTED CHANGE WOULD BE ADVANTAGEOUS TO THE COUNTY OF FLUVANNA? (SUBSTANTIATE WITH FACTS)

THE FLUVANNA COUNTY BOARD OF SUPERVISORS (FCBOS) SIGNED AND EXECUTED THE INTERJURISDICTIONAL AGREEMENT (IA) WITH LOUISA COUNTY, THE LOUISA COUNTY WATER AUTHORITY (LCWA) AND THE JAMES RIVER WATER AUTHORITY (JRWA) ON OCTOBER 2, 2013. CONFORMING TO THE TERMS SET FORTH IN THE IA, THE FCBOS VOTED TO AMEND THE FLUVANNA COUNTY COMPREHENSIVE PLAN ON NOVEMBER 20, 2013 TO ALLOW AND

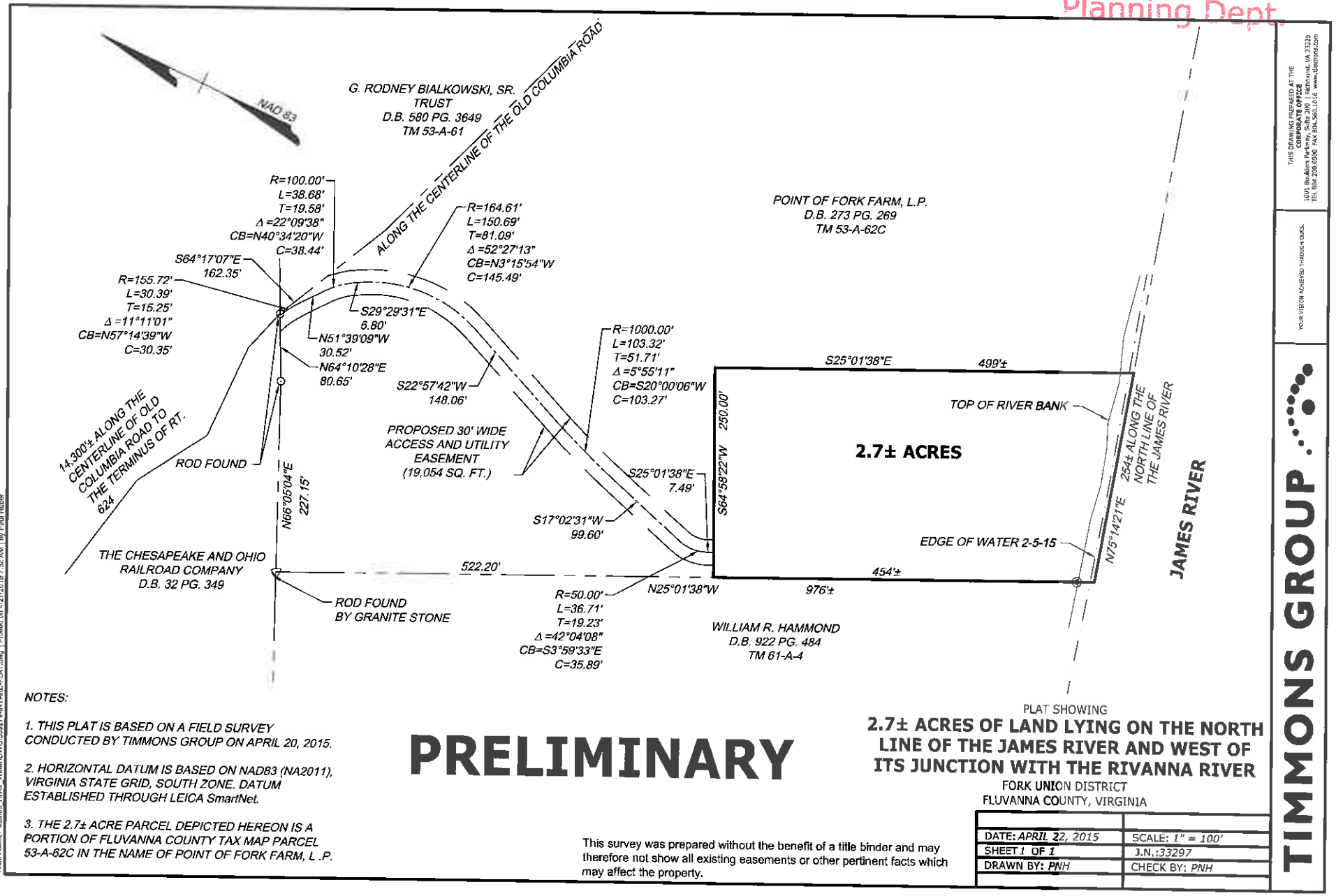
SUPPORT THIS PROJECT, WHICH WILL BE LOCATED IN THE EASTERN END OF THE COUNTY IN WHAT IS DESIGNATED A RURAL PRESERVATION AREA. FURTHERMORE, THE FCBOs ALSO APPROVED AND EXECUTED THE JAMES RIVER WATER AUTHORITY SERVICE AGREEMENT ON APRIL 1, 2015. IT IS JRWA'S BELIEF THAT THIS PROJECT IS ADVANTAGEOUS AND IMPORTANT TO THE FUTURE GROWTH OF FLUVANNA COUNTY AND THE ACTIONS OF THE FCBOs TO DATE FURTHER SIGNIFY OUR BELIEF. JRWA ALSO OFFERS ADDITIONAL ADVANTAGES INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: 1) LONG TERM, SUSTAINABLE WATER SUPPLY TO MEET FLUVANNA COUNTY'S LONG TERM WATER SUPPLY PLAN NEEDS; 2) ECONOMIC DEVELOPMENT DRIVER; 3) POTENTIAL FOR REDUCED HOME OWNERS INSURANCE PREMIUMS ONCE THE HYDRANTS ARE INSTALLED; 4) 50 PERCENT SHARE OF THE RAW WATER CAPACITY.

PLAN: FURNISH PLOT PLAN SHOWING BOUNDARIES AND DIMENSIONS OF PROPERTY, WIDTH OF ABUTTING ROW'S, LOCATION AND SIZE OF BUILDINGS ON THE SITE, ROADWAYS, WALKS, OFF-STREET PARKING AND LOADING SPACE, LANDSCAPING, ETC. ARCHITECT'S SKETCHES SHOWING ELEVATIONS OF PROPOSED BUILDINGS AND COMPLETE PLANS ARE DESIRABLE AND MAY BE REQUIRED WITH THE APPLICATION. REMARKS:

THE ATTACHED EXHIBITS DEMONSTRATE THE FINAL ROUTING OF THE RAW WATER PIPELINE THROUGH THE IDENTIFIED PARCELS TO JUST NORTH OF ROUTE 6. ALL OF THE REQUESTED EASEMENTS WILL BE PERMANENT. THE EXHIBITS IDENTIFY THE WIDTH OF THE NEW EASEMENT, THE LOCATION OF THE 24 INCH RAW WATER PIPELINE WITHIN THE NEW EASEMENT AND THE LOCATION OF THE NEW EASEMENT WITHIN THE CVEC EASEMENT (WHERE APPLICABLE).

SEP 01 2015

Planning Dept.



THIS DRAWING PREPARED AT THE
 CORPORATE OFFICE
 JUDY BIALKOWSKI, Survey, Suite 300 | Richmond, VA 23229
 TEL: 804-200-0500 FAX: 804-360-1016 www.timmons.com

YOUR VISION SOLIDIFIED THROUGH OURS.

TIMMONS GROUP

Y:\09410327-James River_Vision\DWG\33297-V\INTAKE-PLAT.dwg | Plotted on 4/27/2015 7:32 AM | by Paul Huber

Received

SEP 01 2015

Planning Dept.

JOHN L. BOCK
Architect
3201-B ROSEDALE AVENUE
RICHMOND, VIRGINIA 23230
P: 804.280.8100 F: 804.280.8101
JLB ARCH. JOB # 2508



THIS DRAWING IS THE PROPERTY OF THE COMPANY OFFICE. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON.

REVISION DESCRIPTION	DATE

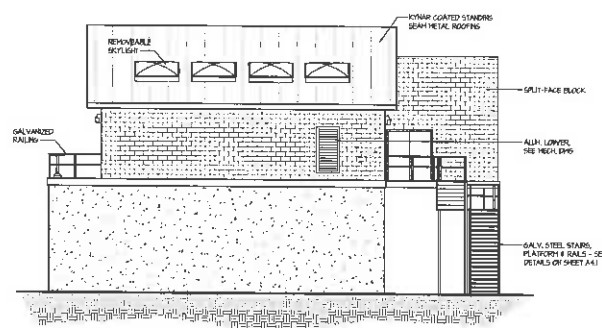
YOUR DESIGN ACHIEVED THROUGH OURS.

DATE	DATE
07.24.15	

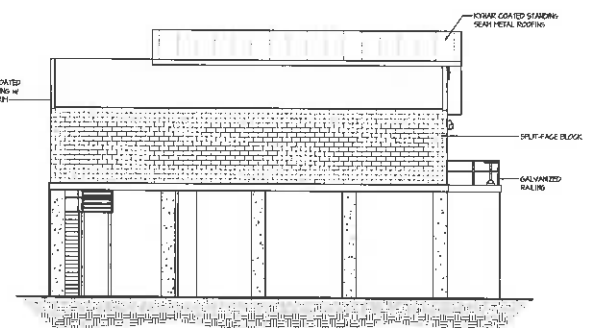
MEB
General Contractors
AND
TIMMONS GROUP
IN ASSOCIATION WITH
FAULCONER CONSTRUCTION COMPANY

JAMES RIVER WATER PROJECT
LOUISA COUNTY - VIRGINIA
ELEVATIONS

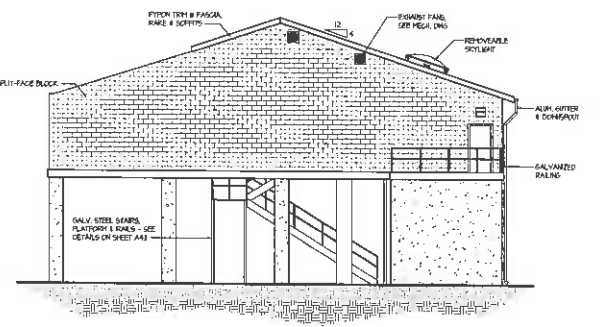
FOR NO. 33927
SHEET NO. A2.1



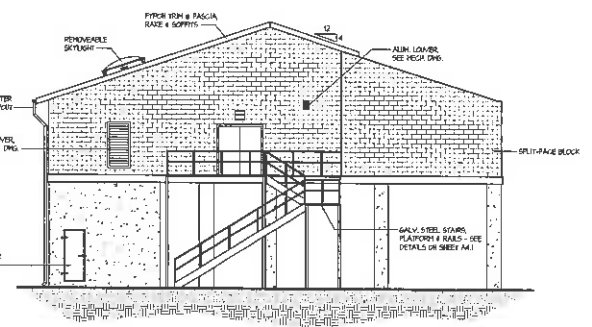
4 WEST ELEVATION
SCALE: 1/8"=1'-0"



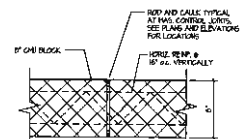
5 EAST ELEVATION
SCALE: 1/8"=1'-0"



2 SOUTH ELEVATION
SCALE: 1/8"=1'-0"



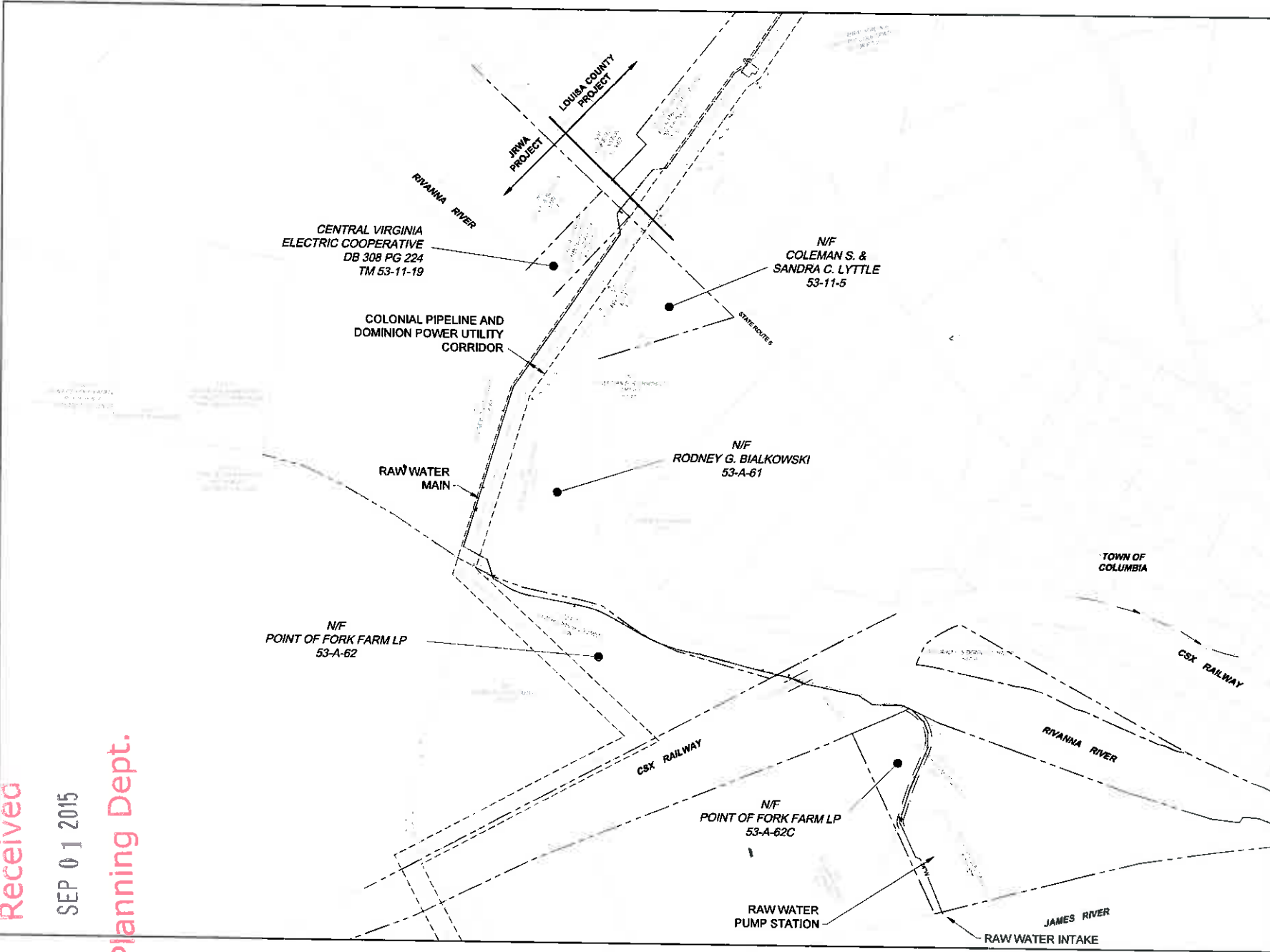
1 NORTH ELEVATION
SCALE: 1/8"=1'-0"



MAS. CONTROL JOINT
SCALE: 1/2"=1'-0"

85% DESIGN

Received
 SEP 01 2015
 Planning Dept.



THIS DRAWING PREPARED AT THE 1201 Lakeside Parkway, Suite 201 Henric, VA 23225 TEL: 804.300.8500 FAX: 804.560.1016 www.timmons.com	
YOUR VISION. OURS. ACHIEVED THROUGH OHS.	RESOLUTION DESCRIPTION Site Development Residential Infrastructure Technology
DATE	JULY 31, 2015
DRAWN BY	J. MARSHALL
DESIGNED BY	D. SAUNDERS
CHECKED BY	D. SAUNDERS
SCALE	AS SHOWN
MEB General Contractors	
IN ASSOCIATION WITH TIMMONS AND GROUP	
FAULCONER CONSTRUCTION COMPANY	
JAMES RIVER WATER PROJECT JAMES RIVER WATER AUTHORITY SPECIAL USE PERMIT EXHIBIT	
JOB NO.	
SHEET NO.	

APPENDIX K-9

NOTICE OF PUBLIC HEARING JAMES RIVER WATER AUTHORITY

**NOTICE OF PUBLIC HEARING
JAMES RIVER WATER AUTHORITY**

The James River Water Authority will hold a public hearing on April 5, 2016, at 10:30 a.m. in the meeting room at the Spring Creek Sports Club, 181 Clubhouse Way, Zion Crossroads, Virginia.

Public Hearing – Approving Public Uses and Authorizing Acquisition of Necessary Property by Eminent Domain

The James River Water Authority (JRWA) is planning to construct a raw water intake and pump station and pipeline with associated appurtenances using the James River in Fluvanna County as a source (“Project”). The intake structure and pumping station are to be utilized by the Counties of Fluvanna and Louisa as customers of the JRWA, and this Project is an important part of each County’s plans to provide reliable and adequate sources of water for the future needs of their respective citizens. The intake structure is proposed to be located beneath the water surface in the James River, upstream of its confluence with the Rivanna River and from the uptake structure, underground pipes will carry water drawn from the river to a raw water pump station situated on higher ground where it will be necessary to construct an above-ground structure, and an access driveway, at the pump station site and additional underground piping will convey water from the pump station, in a northerly direction, to a point north of Route 6 west of Columbia. The Authority has determined that in order to construct the Project it must acquire approximately 2.0 acres in fee simple on tax map parcel 61-A-4 and/or easements on the following Tax Map Parcels: 61-A-4, 53-A-61, 53-A-62, 53-A-62C, 53-A-63, 53-11-5, 53-11-19 (“Property”) by condemnation or other means.

Interested parties seeking additional information or wishing to submit written comments may contact or submit such comments to:

Steve Nichols, Fluvanna County Administrator
132 Main Street
P.O. Box 540
Palmyra, VA 22963
phone: (434) 591-1910
e-mail: snichols@cofluvanna.va.us

or

Christian Goodwin, Louisa County Administrator
1 Woolfolk Avenue
P.O. Box 160
Louisa, VA 23093
Phone: (540) 967-3400
e-mail: cgoodwin@louisa.org

APPENDIX K-10

COMMONWEALTH OF VIRGINIA MARINE RESOURCE COMMISSION NOTICE OF PUBLIC HEARING



COMMONWEALTH of VIRGINIA

Marine Resources Commission

2600 Washington Avenue
Third Floor
Newport News, Virginia 23607



June 17, 2016

Molly Joseph Ward
Secretary of Natural Resources

John M.R. Bull
Commissioner

MEMORANDUM

To: James River Water Authority, Attn: Steven Nichols, Fluvanna County Administrator; c/o Timmons Group, Attn: David Saunders, P.E.
C. James Summers
Col. Fred Hardy
George Bialkowski
Point of Fork, Attn: Barbara Seay
Minuteman Property Preservation; Attn: Pete Gil
William A. Winston
Fluvanna County, Attn: Steve Nichols, County Administrator
Louisa County, Attn: Christian Goodwin, County Administrator
Department of Environmental Quality Central Office, Attn: Brian McGurk

From: Randal D. Owen, Environmental Engineer 
Habitat Management Division 

Subject: James River Water Authority
VMRC #14-0343

The application for permit, referenced above, will be heard by the Marine Resources Commission at their public hearing scheduled for Tuesday, June 28, 2016, beginning at 9:30 a.m., at 2600 Washington Avenue, 4th Floor, Newport News, Virginia.

You are invited to attend this meeting. All interested parties will be afforded the opportunity to comment.

The Marine Resources Commission does not discriminate against individuals with disabilities. Therefore, if you are in need of reasonable accommodation due to a disability, please advise the Commission Secretary at (757) 247-2215 no less than five work days prior to the meeting time and identify your need.

RDO/lra
HM
Enclosure

An Agency of the Natural Resources Secretariat

www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD

**MEMORANDUM TO PERSONS INTENDING TO APPEAR BEFORE THE
VIRGINIA MARINE RESOURCES COMMISSION**

It is the avowed intent of the Marine Resources Commission to arrive at a clear understanding of all facts relating to any case before making a decision. In this regard, all parties, both for and against the proposal, will be heard, and all witnesses presented by any parties will be heard.

Any person appearing before the Commission has the right to be represented by counsel of their choosing; however, whether or not to obtain counsel is strictly an option of the appearing party.

The Commission is not a Court of law; but, in order to facilitate the hearing and arrive at a true and just decision, the Commission will, insofar as is practicable and possible, depending on the nature of the particular case, abide by the following general procedures:

- (1) Ascertain that all parties have been notified of the hearing, or are present, or are represented.
- (2) Statement from Commission personnel as to the nature of the case and basic facts of the case. Included in this presentation shall be all the facts necessary to establish the application as bona fide and meeting all of the administrative and statutory requirements necessary in order for the Commission to consider such application.
- (3) At the conclusion of the statement from Commission personnel, the applicant will be offered the opportunity to add anything, including witnesses, that he feels will clarify or strengthen the application.
- (4) All parties in opposition to the proposal will then be heard, including any witnesses these parties wish to present.
- (5) The applicant then shall have the opportunity to answer any of the statements of the parties in opposition and to summarize his case.

Any parties who appear before the Commission shall answer any questions of the Commission. If you submit additional material (e.g. photographs, maps, plans, relevant correspondence, etc.) which you believe is pertinent, and it is accepted by the Commission as evidence, it must be retained as part of the record in the case.

We thought you would like to have this information prior to appearing before the Commission. If you have any questions, please do not hesitate to call us.

APPENDIX K-11

JAMES RIVER WATER AUTHORITY PROJECT BRIEF POWERPOINT 08/2018



James River Water Authority

Raw Water Intake and Pump Station Project

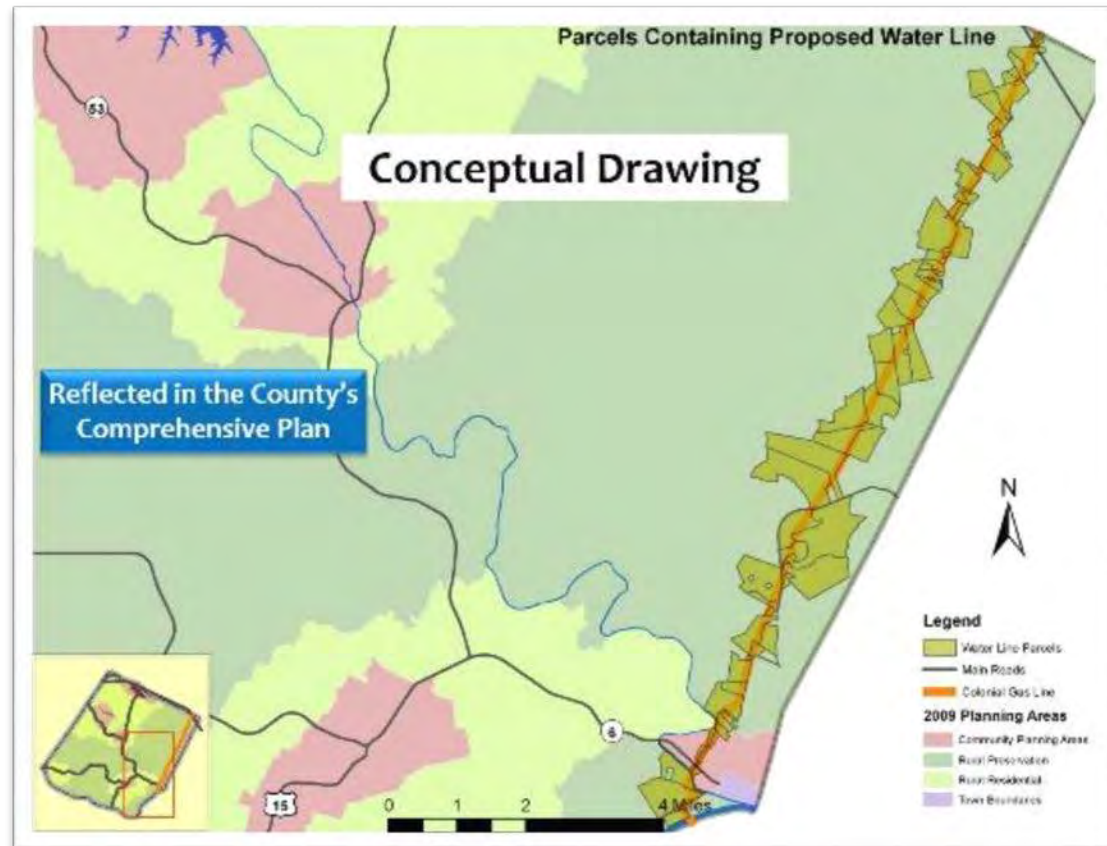
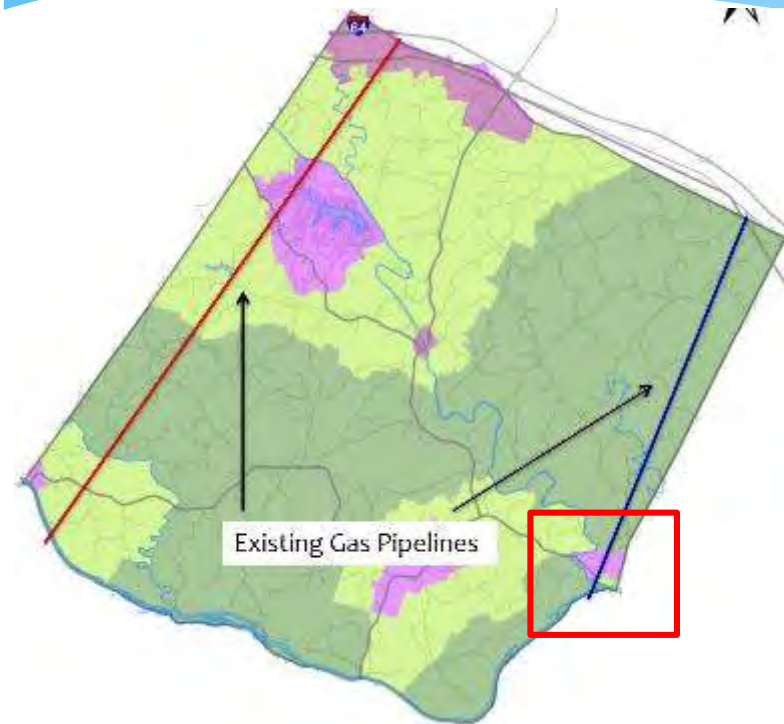
August 2018

Project Need

- * **Long-term water source for Fluvanna & Louisa**
 - Supports each County's required 50-Year Water Supply Plan
- * **Remove reliance on wells & groundwater sources**
- * **Drought reliability (2002 drought)**
- * **Economic Development**

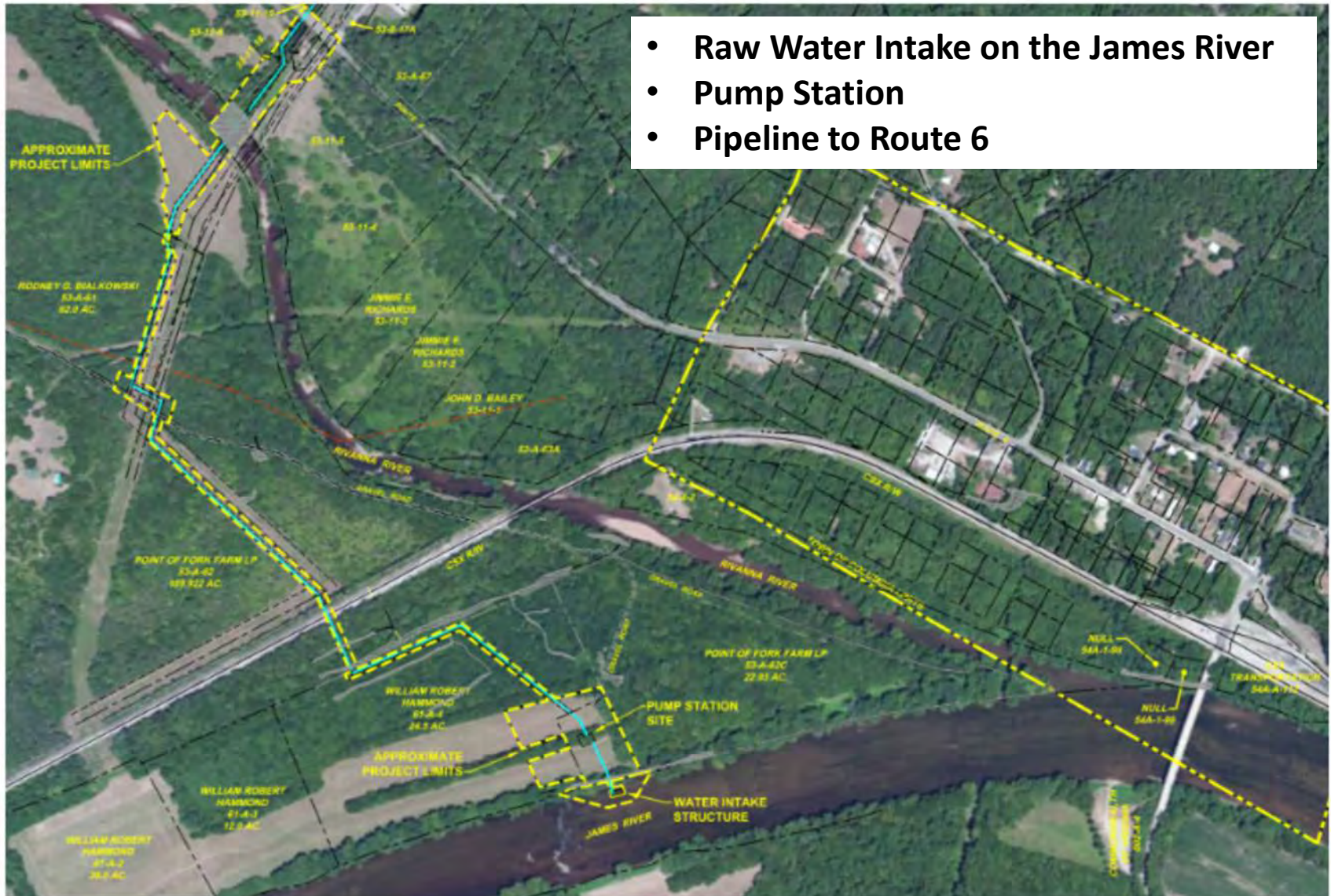


Routing Options to Minimize Impacts



JRWA Project Footprint

- Raw Water Intake on the James River
- Pump Station
- Pipeline to Route 6



Rendering of River Water Pump Station



Areas	Acres
Permanent Easement Area	2.32
Total Limits of Disturbance	13.66
Total Area of Excavation	2.63

Project Progress

- * **DEQ and VMRC Permits have been issued**

- * **USACE Permit pending**
 - Along with final VDHR Burial Permit

- * **Phase I cultural resources survey and Phase II evaluations**
 - May-Jun 2017 and Dec 2017 - Jan 2018
 - Included shovel testing, deep-test coring, and deep-test trenching at the pipeline alignment and pump station

- * **Draft Memorandum of Agreement and Treatment Plan being developed**

- * **Construction pending final USACE permit issuance**

APPENDIX L
SECTION 7 DOCUMENTS

APPENDIX L-1

IPAC OFFICIAL SPECIES LIST

APPENDIX L-2

NLEB CONSISTENCY LETTER

APPENDIX L-3

SPECIES CONCLUSION TABLE

APPENDIX L-1
IPAC OFFICIAL SPECIES LIST



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:
Consultation Code: 05E2VA00-2020-SLI-2450
Event Code: 05E2VA00-2020-E-06753
Project Name: James River Water Supply Project

March 09, 2020

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2020-SLI-2450

Event Code: 05E2VA00-2020-E-06753

Project Name: James River Water Supply Project

Project Type: WATER SUPPLY / DELIVERY

Project Description: The purpose of the proposed project is to provide a new and reliable raw water supply of sufficient quantity to meet the short- and long-term needs of Fluvanna and Louisa Counties for delivery to an agreed-upon interconnection point planned for use by Fluvanna and Louisa Counties. The project is proposed to be located in Fluvanna County immediately southwest of Columbia, Virginia within an area known as 'Point of Fork'. The proposed water withdrawal structure and pump station would be located on the north bank of the James River just upstream of the confluence with the Rivanna River at the end of Route 624 (Point of Fork Road). The pump station would be built on a JRWA-owned parcel (tax parcel 61-A-4A) which will be accessed via Route 624. The proposed raw water transmission line will generally traverse agriculture and silviculture lands northwest of the pump station and pass under a CSX rail line and easement. North of the CSX easement, the project alignment will generally follow Dominion Power easements eventually passing under the Rivanna River adjacent to an existing utility crossing. The project area will terminate at Route 6 in the vicinity of a Colonial Gas pipeline-owned substation. The infrastructure associated with this project includes a pump station, raw water intake, wet well influent pipe, pump station wet well, pump, piping and valve equipment, electrical and pump control equipment, a raw water pipeline, and improvements to an existing access road.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.75409003678939N78.17783985945121W>



Counties: Fluvanna, VA

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Atlantic Pigtoe <i>Fusconaia masoni</i> There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5164	Proposed Threatened
James Spiny mussel <i>Pleurobema collina</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2212	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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

REFUGE INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED.
PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

APPENDIX L-2
NLEB CONSISTENCY LETTER



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

IPaC Record Locator: 970-20684097

March 09, 2020

Subject: Consistency letter for the 'James River Water Supply Project' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Timmons Group:

The U.S. Fish and Wildlife Service (Service) received on March 09, 2020 your effects determination for the 'James River Water Supply Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause “take”^[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action’s effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

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

- Atlantic Pigtoe, *Fusconaia masoni* (Proposed Threatened)
- James Spiny mussel, *Pleurobema collina* (Endangered)

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

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

1. Name

James River Water Supply Project

2. Description

The following description was provided for the project 'James River Water Supply Project':

The purpose of the proposed project is to provide a new and reliable raw water supply of sufficient quantity to meet the short- and long-term needs of Fluvanna and Louisa Counties for delivery to an agreed-upon interconnection point planned for use by Fluvanna and Louisa Counties. The project is proposed to be located in Fluvanna County immediately southwest of Columbia, Virginia within an area known as 'Point of Fork'. The proposed water withdrawal structure and pump station would be located on the north bank of the James River just upstream of the confluence with the Rivanna River at the end of Route 624 (Point of Fork Road). The pump station would be built on a JRWA-owned parcel (tax parcel 61-A-4A) which will be accessed via Route 624. The proposed raw water transmission line will generally traverse agriculture and silviculture lands northwest of the pump station and pass under a CSX rail line and easement. North of the CSX easement, the project alignment will generally follow Dominion Power easements eventually passing under the Rivanna River adjacent to an existing utility crossing. The project area will terminate at Route 6 in the vicinity of a Colonial Gas pipeline-owned substation. The infrastructure associated with this project includes a pump station, raw water intake, wet well influent pipe, pump station wet well, pump, piping and valve equipment, electrical and pump control equipment, a raw water pipeline, and improvements to an existing access road.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.75409003678939N78.17783985945121W>



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

No

2. Will your activity purposefully **Take** northern long-eared bats?

No

3. Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered

No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/angered/mammals/nleb/nhisites.html.

Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

6. Will the action involve Tree Removal?

Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

1.24

2. If known, estimated acres of forest conversion from April 1 to October 31

1.24

3. If known, estimated acres of forest conversion from June 1 to July 31

1.24

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

1.24

5. If known, estimated acres of timber harvest from April 1 to October 31

1.24

6. If known, estimated acres of timber harvest from June 1 to July 31

1.24

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

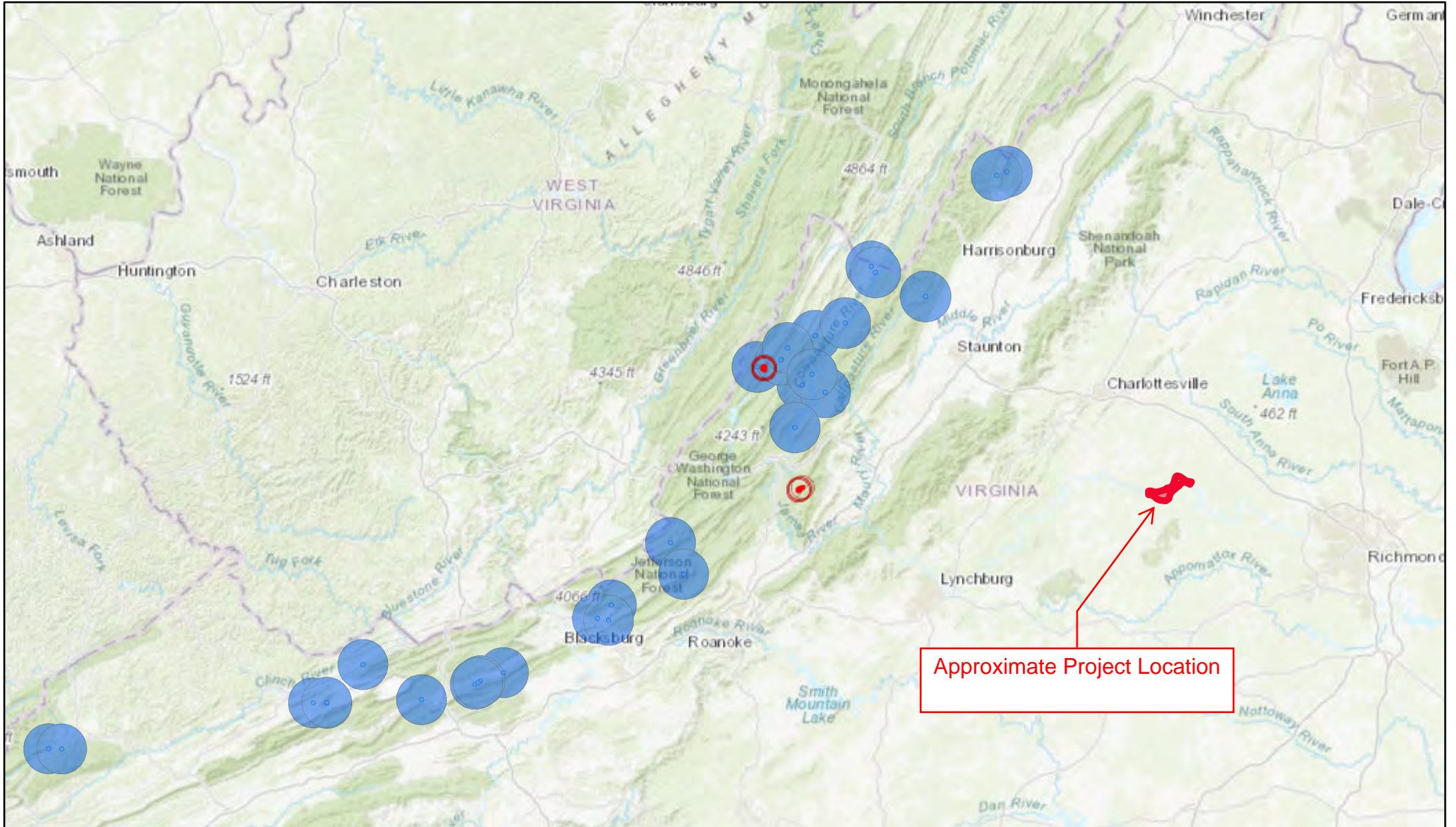
9. If known, estimated acres of prescribed fire from June 1 to July 31

0




If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0

NLEB Locations and Roost Trees



2/17/2020, 10:20:14 AM

-  NLEB Known Occupied Maternity Roost (Summer Habitat)
-  NLEB Hibernaculum 5.5 Mile Buffer
-  NLEB Hibernaculum Half Mile Buffer

1:2,311,162

0 15 30 60 mi

0 20 40 80 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

**APPENDIX L-3
SPECIES CONCLUSION TABLE**

Species Conclusions Table

Completed by: Timmons Group	Project Name: James River Water Supply Project
Date: 03/09/2020	Project Number: 44790
<p>Project Description: The proposed project will consist of a water withdrawal structure and pump station will be located on the north bank of the James River just upstream of the confluence with the Rivanna River at the end of Route 624 (Point of Fork Road). The pump station will be built on a JRWA-owned parcel (tax parcel 61-A-4A) which will be accessed via Route 624. The raw water transmission line will generally traverse agriculture and silviculture lands northwest of the pump station and pass under a CXS rail line and easement. North of the CXS easement, the project alignment will generally follow Dominion Power easements eventually passing under the Rivanna River adjacent to an existing utility crossing. The project area will terminate at Route 6 in the vicinity of a Colonial Gas pipeline-owned substation.</p>	

Species Under the Jurisdiction of FWS:

Species/Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Determination
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Potential habitat present and no current survey conducted	May affect	Relying upon the findings of the 1/5/2016 Programmatic Biological Opinion for Final 4(d) Rule on the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions to fulfill our project-specific Section 7 responsibilities. . Based upon a review of available information, primarily the VDGIF NLEB Winter Habitat and Roost Tree Locator, there are no known maternity roosts or hibernacula for this species located within or in close proximity to the Project. A consistency letter was obtained from USFWS through completion of the IPaC Dkey.
Atlantic Pigtoe (<i>Fusconaia masoni</i>)	Potential habitat present and no current survey conducted	May affect	Per previously conducted state coordination, mussel surveys will be conducted from 100 meters upstream through 400 meters downstream of the intake location and Rivanna River crossing. Survey findings will be coordinated with federal and state agencies. In addition, no instream construction at these areas shall be conducted between March 15 through June 30 of any year, to protect anadromous fishes and mussel species, and August 15 through September 30 of any year to protect mussel species.
James Spiny mussel (<i>Pleurobema collina</i>)	Potential habitat present and no current survey conducted	May affect	Per previously conducted state coordination, mussel surveys will be conducted from 100 meters upstream through 400 meters downstream of the intake location and Rivanna River crossing. Survey findings will be coordinated with federal and state agencies. In addition, no instream construction at these areas shall be conducted between March 15 through June 30 of any year, to protect anadromous fishes and mussel species, and August 15 through September 30 of any year to protect mussel species.
Eagles (<i>Haliaeetus leucocephalus</i>)			
Eagle Nests	Unlikely to disturb nesting bald eagles	No Eagle Act permit required	No known nests located within 660 feet of the proposed project.

Species Conclusions Table

Date: 03/09/2020		Project Number: 44790	
Eagle Concentration Areas	Does not intersect with bald eagle concentration area	No Eagle Act permit required	No known concentration areas located in vicinity.
Critical Habitat			
N/A	No critical habitat present		
Other (species not listed above)			
N/A			

Species Under the Jurisdiction of NOAA/NMFS			
Essential Fish Habitat	N/A		
Anadromous Fish Use Area	N/A		
Subaquatic Vegetation	N/A		
HAPC Sandbar Shark	N/A		
Atlantic Sturgeon	N/A		

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APPENDIX M
SECTION 106 DOCUMENTS

APPENDIX M-1

NHPA § 110(K) JRWA RESPONSE

APPENDIX M-1-1

JRWA RESPONSE LETTER

APPENDIX M-1-2

COUNSEL REPORT ON ERIC MAI DECLARATION

APPENDIX M-1
NHPA § 110(K) JRWA RESPONSE

APPENDIX M-1-1

JRWA COMPLIANCE WITH SECTION 110(K) OF THE NATIONAL HISTORIC PRESERVATION ACT LETTER

**JAMES RIVER WATER AUTHORITY
SUPPLEMENTAL INFORMATION PACKAGE**

APPENDIX M-1-1

**COMPLIANCE WITH SECTION 110(k) OF
THE NATIONAL HISTORIC PRESERVATION ACT**

The James River Water Authority's (JRWA) pending application has been developed in strict adherence to the requirements of the National Historic Preservation Act (NHPA). Nevertheless, a consulting party has argued that the U.S. Army Corps of Engineers (USACE) is prohibited from issuing a permit to JRWA by operation of Section 110(k) of the NHPA, 54 U.S.C. § 306113. That argument misrepresents the law and relies on spurious factual allegations.

As is explained in more detail below, to sanction a permit applicant under NHPA Section 110(k), it must be demonstrated that the applicant: (1) intentionally damaged a historic resource; and (2) did so for the specific purpose of avoiding the requirements of NHPA Section 106, 54 U.S.C. § 306108. Although the outlandish allegations made in the consulting party's letter do not appear to be credible, even if they are true those allegations are not sufficient to trigger the extraordinary sanction of Section 110(k). JRWA has been actively engaged in the Section 106 review process for nearly four years. It has fulfilled its role in the process in good faith at each step, and at significant expense. Nothing in the consulting party's letter demonstrates, or even alleges, that JRWA has taken any action with the specific intention of avoiding any requirement of Section 106. Furthermore, there is no allegation that JRWA or any party working on behalf of JRWA has intentionally damaged historic resources in the project area. The location and size of every pit and trench dug within the project area was identified in advance on a work plan reviewed and approved by the USACE and Virginia Department of Historic Resources (DHR).

I. Overview of NHPA Section 110(k)

NHPA Section 110(k), titled "Anticipatory Demolition," provides as follows:

Each Federal agency shall ensure that the agency will not grant a loan, loan guarantee, permit, license, or other assistance to an applicant that, with intent to avoid the requirements of [NHPA Section 106], has intentionally significantly adversely affected a historic property to which the grant would relate, or having legal power to prevent it, has allowed the significant adverse effect to occur, unless the agency, after consultation with the Council, determines that circumstances justify granting the assistance despite the adverse effect created or permitted by the applicant.

54 U.S.C. § 306113 (formerly codified at 16 U.S.C. § 470h-2(k)) (emphasis added).

The general purpose of this statute is evident from its plain language. Section 110(k) is intended to penalize applicants that intentionally destroy historic resources in order to "make an end-run around [NHPA] section 106 review." *Brewery Dist. Soc'y v. FHA*, 211 F. Supp. 2d 902, 911 (S.D.

Ohio 2002). NHPA Section 106 and its implementing regulations obligate federal agencies to engage in a consultation process to consider and, when appropriate, mitigate the effect of proposed federal actions on historic resources. In 1988, the Advisory Council on Historic Preservation issued an anticipatory demolition policy statement urging federal agencies to watch out for unscrupulous parties that would demolish historic properties projects prior to filing an application for a federal permit in any attempt to avoid the consultation requirement of Section 106. Congress enacted Section 110(k) in 1992 to give teeth to that policy. The statute allows federal agencies penalize parties that deliberately pursue that strategy by creating a “prohibition against granting permits to applicants who have committed anticipatory demolition.” *Comm. to Save Cleveland’s Hulleths v. United States*, 163 F. Supp. 2d 776, 793 (N.D. Ohio 2001). As the Federal Energy Regulatory Commission recently observed, Section 110(k) presents an extraordinary remedy to punish intentional and bad faith actions, not a trap to ensnare parties that act in good faith, even if mistakenly or imperfectly. *See In re Rover Pipeline LLC*, 161 FERC 61244, 62355 (Nov. 30, 2017).

Two circumstances must be demonstrated for the prohibition in Section 110(k) to apply. First, the permit “applicant” must have acted “with intent to avoid the requirements” of Section 106. It must be emphasized that the statute speaks to the intentions of the applicant, not those of a third party. To evaluate this first prong, the operative question is whether the actions taken by the applicant were specifically intended evade the requirements of Section 106. The case of *Young v. GSA* provides a good illustration of how this element of Section 110(k) is to be applied. 99 F. Supp. 2d 59 (D.D.C. 2000). There, a developer demolished a historic railroad roundhouse contemporaneously with seeking a federal contract to provide office space to a federal agency at the property. A third party sued, alleging that Section 110(k) should have prevented the developer from being awarded the contract. The court focused its review on evidence that was probative of the developer’s intentions. It found two facts to be persuasive. First, in compliance with a local historic preservation ordinance, the developer engaged in consultation with the locality’s historic resource officials and performed agreed-upon mitigation prior to the demolition. This suggested that the developer was not attempting to avoid responsibility for mitigating its impacts to the historic building. Second, the plan to demolish the structure predated the federal contract proposal by several years, which is inconsistent with a specific intention to avoid the requirements of Section 106 in connection with the proposal. Based on these two facts, the court “conclude[d] that the demolition was not intended to avoid Section 106 requirements.” *Id.* at 83. Although the facts of that case are markedly different from JRWA’s pending application, the case illustrates that the response to a Section 110(k) complaint should focus on facts that shed light on whether the applicant’s actions reveal a specific intention to evade the requirements of Section 106.

The second circumstance that must be present to trigger a Section 110(k) sanction is that the applicant must have “intentionally” caused or allowed a “significant” and “adverse” effect to a historic property. Although there does not appear to be any significant precedent discussing this element of the statute, the statutory language is clear on its face.

Guidance from DHR is helpful for evaluating whether there is a significant adverse effect to a historic property. Specifically, the allegations presented in this case concern Phase II archeological testing. Guidance from DHR indicates that Phase II testing can become a significant adverse effect in limited circumstances:

[S]ampling of features at the Phase II level will focus on limited and well-defined goals. While it is impossible to define a point applicable in all instances at which Phase II testing (evaluation) ends and data recovery (Phase III or treatment) begins, a rule of thumb is that Phase II testing is completed when sufficient information has been gathered to make a determination of eligibility or a management decision. “Testing” that destroys large portions of a site prevents the consideration of other site treatment alternatives and shall be avoided at the Phase II level. In the context of the 106 process, excessive testing at the Phase II level may result in a finding of Adverse Effect and sanctions to the responsible agency. When in doubt, consult with DHR staff about the percentage of features or levels proposed for sampling.

DHR, *Guidelines for Conducting Historic Resources Survey in Virginia* 51 (Oct. 2011) (“*DHR Guidelines*”). In other words, Phase II testing can cross the line to become a significant adverse effect if it is “excessive” in relation to the purpose of making an eligibility determination or management decision and “destroys large portions of a site” such that the relevant federal agency cannot consider other site treatment alternatives.

II. Consulting Party’s Attempt to Invoke Section 110(k)

Legal counsel for a consulting party, the Monacan Indian Nation, submitted a letter to the USACE on October 21, 2019, purporting to put “the Corps . . . on notice that the provisions of Section 110(k) have been triggered” and directing the USACE to notify the Advisory Council on Historic Preservation of the same. The letter attaches the “sworn declaration” of an individual who was formerly employed by an archaeological sub-consultant who performed Phase I and II studies on of the project area. The letter alleges that the archeological sub-consultant conducted the studies in a “fraudulent and malicious” manner that was “clearly intended to manipulate the Section 106 process, and caused more than ‘minimal attrition of the archeological resource base.’” The consulting party argues that a Section 110(k) sanction is therefore warranted against JRWA.

III. Section 110(k) Has No Relevance to JRWA’s Application

There are no legal or factual grounds to warrant a Section 110(k) sanction for JRWA’s pending application. As discussed above, two factors must be demonstrated to invoke Section 110(k): (1) evidence of an intention by the applicant to evade the requirements of Section 106 and (2) intentional demolition or significant adverse effect to a historic resource. Neither of those factors are demonstrated by the consulting party’s letter.

A. JRWA Did Not Intend to Avoid Any Requirements of Section 106

JRWA is the applicant for a Clean Water Act Section 404 permit from the USACE. For a Section 110(k) sanction to be applied to JRWA’s application, it would have to be demonstrated that JRWA acted with the intention of evading the requirements of NHPA Section 106. Nothing in the consulting party’s letter demonstrates—or even alleges—that JRWA had any such intention. To the contrary, the complete permitting record reflects that JRWA has fully engaged in the Section 106 consultation process for the past several years and continues to do so. The consulting party

has not and cannot identify any requirement of Section 106 that JRWA has attempted to circumvent.

It is worthwhile to review the relevant actions taken by JRWA in this matter. JRWA is a single-purpose public water authority with a board composed of citizen representatives appointed by its member jurisdictions, Louisa County and Fluvanna County. JRWA has no permanent staff. Neither JRWA as an institution nor its board members possess expertise in many of the technical (e.g., civil engineering, heavy construction), and environmental (e.g., wetland delineation, historical properties) disciplines necessary to design, permit, and construct a new raw water supply. Accordingly, JRWA relies on expert consultants to fulfill those roles and advise the board.

JRWA engaged the Timmons Group, a multi-disciplinary engineering and environmental consulting firm, to advise the board on technical and environmental resources matters and to carry out tasks related to the pending permit application. Timmons, in turn, engaged additional subject-matter experts as sub-consultants, including the cultural resources firm at issue in the consulting party's letter (Circa~ Cultural Resources Management), to assist it in providing services to JRWA. JRWA relied on its consultants to perform all tasks necessary to prepare and advance the permit application. That includes all tasks required by Section 106.

There are no grounds to allege that JRWA intended to avoid the Phase I study and Phase II evaluation requirements of Section 106 under 36 C.F.R. § 800.5. Acting on JRWA's authorization, its consultants worked closely with DHR and USACE staff from approximately February 2016 to March 2017 to develop a scope of work and anticipatory burial permit for the initial phases of archeological testing at the project area. The final scope of work for the testing was reviewed and approved by the relevant agencies and consulting parties. That process is memorialized, in part, in the Anticipatory Burial Permit issued by DHR to JRWA on October 4, 2017, which stated in relevant part:

The granting of this permit signifies that:

5. The Department has received from the Permittee and approved a statement detailing the goals and objectives of the project.

6. The Department has reviewed the vita of the professionally-qualified archaeologist responsible for the proposed work and found her qualified to complete the work.

....

10. The Department has consulted with the state-recognized Monacan Indian Nation, Rappahannock Tribe, and Upper Mattaponi Indian Tribe at their request and in recognition of their interest in the project area.

....

This permit is granted subject to the following conditions:

. . . .

2. The Permittee shall proceed in accordance with the approved research design as proposed in the permit application

Letter from Dir. Julie V. Langan, DHR, to Steven M. Nichols, JRWA (Oct. 4, 2017).

JRWA authorized its consultants to carry out the scope of work for Phase I and II testing approved by the relevant agencies and duly paid the consultants' invoices for that work. Thus, JRWA took all reasonable steps to fulfill its responsibilities under the NHPA with respect to Phase I and II study of the proposed project area. There is no basis to insinuate or allege that JRWA's actions evidence any intent to evade the requirements of Section 106.

Nor is there any action by JRWA that evidences an intent to avoid mitigation of the affected archaeological sites and architectural properties in accordance with 36 C.F.R. § 800.6. JRWA prepared and submitted a proposed treatment plan to the USACE in August 2018 outlining a plan to mitigate historic resources impacts. A revised version outlining additional proposed mitigation measures was submitted in March 2019 to respond to comments received on the first version. With the assistance of a new archaeological consultant engaged in October 2019, JRWA is presently working on revising the treatment plan again in response to feedback received from the relevant agencies and consulting parties. This further evidences JRWA's intention to fully comply with all requirements of NHPA Section 106.

The consulting party's letter does not directly ascribe wrongful intent to JRWA. Instead, the letter and attached statement condemn the qualifications, work, and intentions of the project's archeological sub-consultant. By its plain terms, Section 110(k) applies when the "applicant" demolishes historical resources with the intent to avoid the requirements of Section 106. The applicant in this matter is JRWA, not the project's archeological sub-consultant. JRWA relied on its consultants to faithfully carry out the required tasks in accordance with the plans approved by the DHR and the USACE. Moreover, JRWA had no reason to doubt the qualifications of the consultant, who has been a practicing archeologist for decades and whose qualifications were accepted by DHR in its October 4, 2017, letter. Thus, even if the allegations in the consulting party's letter are true—and there is ample reason to believe they are not*—that still would not justify the application of a Section 110(k) sanction to JRWA.

In summary, Section 110(k) is intended to punish "applicants" who demolish historical resources with an intent to avoid the requirements of Section 106. Nothing in the consulting party's letter asserts or supports the assertion that JRWA possessed any intent to "demolish" any historic resources for the purpose of avoiding some unspecified requirements of Section 106. That fact, without more, is sufficient to dismiss the Section 110(k) allegations.

* In response to the consulting party letter, the JRWA board directed its outside legal counsel to review the allegations against the archeological sub-consultant and provide a report and recommendations to the board on the same. In a report dated January 7, 2020, JRWA's counsel evaluated each of the principal allegations and concluded they were not credible. JRWA accepted the report and elected to release it publicly. The report is attached hereto for reference.

B. No Intentional Significant Adverse Effect to Historic Resources

The consulting party's letter fails to satisfy the second prong of Section 110(k) as well because there is no evidence that JRWA or any other party intentionally caused a significant adverse effect to or anticipatory demolition of any historical site.

As discussed above, the archeological consultant conducted a consolidated Phase I and II study of the project area. The principal activities conducted during the study of the project area were (1) hand-digging and recording small shovel test pits on a predetermined grid to map the horizontal extent of shallow archaeological resources and (2) mechanically excavating and recording a select number of deep test trenches to identify deeper archeological resources. The locations of the shovel test pits and deep test trenches were reviewed and approved by the USACE, DHR, and the consulting parties prior to the study. There is no allegation that the consultant conducted any "excessive testing" within the project area's archeological sites by digging additional or over-sized pits or trenches, or by digging in unapproved areas. The only impacts on historic resources at the site were those that were previously approved by the relevant agencies and consulting parties. Thus, under the *DHR Guidelines* cited above (and referenced in the consulting party's letter), the actions of the archeological consultant cannot be characterized as causing an adverse effect through excessive Phase II testing.

It also is relevant to note that inspectors from DHR and the Department of Environmental Quality visited the project area on several occasions at times when one or both principal testing activities (shovel testing and deep test trenching) were occurring. Tellingly, those inspectors made no reports of any "destruction" or "demolition" of archeological resources.

Significant information was developed from the field study, which was incorporated into an April 2018 report titled, "*Phase I and II Cultural Resources Survey and Excavations of the James River Water Supply Pump Station and Pipeline Alignment.*" That report was circulated to consulting parties and revisions were made in response to comments from DHR. The revised version of that report, dated May 2018, was recirculated to all parties. The study formed the basis for the USACE's eligibility and adverse effects determinations and the DHR's concurrence with the same (except as to Site 44FV00269, which was subjected to further Phase II study in response to a comment from DHR and in accordance with a separate work plan reviewed by DHR and the USACE). Thus, the purportedly destructive test actions by the archeological sub-consultant were in fact utilized for their intended purpose under Section 106.

In summary, none of the archeological work conducted for the project area can be characterized as "intentionally significantly adversely affect[ing]" the project area, much less "anticipatory demolition." No more of the project area was disturbed than was reviewed and approved in advance by the relevant agencies and consulting parties. Information was gathered from this study served its intended function of supporting eligibility determinations and advancing the Section 106 process.

* * *

At bottom, the consulting party letter raises multiple complaints about the conduct and quality of the project's archeological sub-consultant. If those allegations are taken at face value, they may

indicate malfeasance by the consultant. The purpose of Section 110(k) is to penalize unscrupulous permit applicants that attempt to evade the requirements of Section 106—not to regulate the archaeological profession. Nothing in the text of Section 110(k) authorizes the draconian sanction of permit disqualification for a non-expert applicant who may have relied mistakenly but in good faith on an expert archeological consultant to perform the tasks required by Section 106. The consulting party's invitation for the USACE to invoke Section 110(k) grossly misrepresents the law.

Out of an abundance of caution, JRWA took proactive measures to resolve any lingering uncertainty by engaging a new archeological consultant to review the work of the former consultant and advise the board going forward. That action best reflects JRWA's intentions throughout this multi-year process, which has been to work through the Section 106 process diligently and in good faith.

APPENDIX M-1-2
COUNSEL REPORT ON ERIC MAI DECLARATION

MEMORANDUM

TO: JRWA Board

~~PRIVILEGED & CONFIDENTIAL
ATTORNEY-CLIENT COMMUNICATION~~

FROM: Justin W. Curtis, Esq.

DATE: January 7, 2020

RE: Report of Findings and Conclusions to James River Water Authority Board
on Allegations in Eric Mai Declaration

I. Introduction and Executive Summary

On October 21, 2019, the Monacan Indian Nation, through its counsel, Marion Werkheiser, sent a letter to Steven VanderPloeg of the U.S. Army Corps of Engineers (USACE). Attached to the letter was a document titled “Declaration of Eric Mai” dated October 16, 2019 and signed by Eric V. Mai (“Mai Declaration”). Werkheiser forwarded the documents to numerous parties, including representatives of the James River Water Authority (JRWA), on October 21, 2019.

The Mai Declaration presents serious allegations of unethical and improper conduct by Circa~ Cultural Resource Management LLC (“Circa”) and its president, Carol D. Tyrer. The allegations relate to the Phase I/II archeological field study conducted by Circa on behalf of JRWA between May 2017 and January 2018 in connection with JRWA’s water supply project (the “Project”).

The JRWA Board directed that above-named Counsel conduct an internal investigation of the allegations for the purpose of informing the Board’s response. This report summarizes the allegations in the Mai Declaration, the information reviewed to evaluate those allegations, and Counsel’s reasonable findings and conclusions regarding the allegations.

This investigation is limited in scope to the allegations in the Mai Declaration for which Mai had first-hand knowledge. To investigate those allegations, Counsel has made a good faith effort to obtain all available relevant information. Because this is an internal investigation, Counsel could not compel any party to provide

information. However, all persons contacted by Counsel were forthcoming in responding to requests for interviews and documents. The information reviewed in the preparation of this report includes the JRWA project file; interviews with and documents provided by various witnesses; documents obtained from the Virginia Department of Historic Resources (DHR); and publicly available sources of information.

The allegations presented in the Mai Declaration were evaluated independently in light of the available information. Counsel has endeavored to carefully lay out the available information and inferences drawn in the process of reaching conclusions with respect to each allegation addressed in the report. The allegations and Counsel's conclusions are summarized as follows.

- The first group of allegations states that the Circa staff who participated in the Project's Phase I/II field study were not given adequate information to perform the study and were unqualified for the task. Counsel has concluded that those statements are not credible and, moreover, are presented in a misleading and exaggerated manner.
- The second group of allegations pertain to Circa's reported refusal to use appropriate technology and provide appropriate training to its employees necessary to conduct an accurate field survey for the Project. Those statements are largely contradicted by other contemporaneous documents and appear to be at best exaggerated, if not falsified.
- The third group of allegations relate to instances in which Tyrer allegedly provided false information to agency officials or directed Circa staff to do so. Those allegations either could not be corroborated or were directly contradicted by other evidence, including other statements by Mai.
- The fourth set of allegations indicate that Tyrer employed untrained construction workers to conduct archeological investigations in place of trained archeologists. These allegations are presented in a highly misleading manner. Although construction workers assisted trained archeologists in the investigation, Counsel did not identify any evidence supporting the allegation that their participation was improper.

- The fifth set of allegations is assertions that Circa's laboratory methods were improper and that statements in the Phase I/II report were incorrect. However, Mai provides no foundation for these allegations and they could not be corroborated.

In conclusion, Counsel does not find any specific allegations in the Mai Declaration sufficiently credible to justify a recommendation of further action by the Board with respect to Circa or Tyrer. Nevertheless, there are outstanding questions about Circa and Tyrer's qualifications that remain pending in other appropriate fora, namely circuit courts and the relevant state and federal agencies. Accordingly, Counsel recommends that the most reasonable and prudent course of action is to (1) retain Circa as a consultant on a limited on-call basis going forward so that JRWA does not lose the benefit of Circa's knowledge of the site and previous field studies and (2) proceed with the ongoing technical review of Circa's prior work product that is being conducted by GAI Consultants, Inc. ("GAI").

II. Conduct and Scope of Counsel's Investigation

Counsel conducted this investigation independently and without any oversight or restrictions by any other party, including the JRWA Board and its members, staff, and consultants. Counsel determined what documents to review and witnesses to interview. The findings, opinions, and conclusions stated herein are solely those of Counsel.

Counsel's review, and the findings and conclusions expressed in this report, are limited to the allegations of improper and/or unethical conduct by Circa and Tyrer as stated in the Mai Declaration. Counsel is not qualified to, and does not, offer any opinion on the quality of the work performed by Circa or Tyrer. Except where it appeared necessary to understand and evaluate specific allegations of improper conduct in the Mai Declaration, Counsel has not evaluated Circa and Tyrer's practices for conformity with accepted standards for professional conduct and practice for archeologists.

This report addresses only those allegations in the Mai Declaration that are based on Mai's first-hand knowledge about services performed by Circa or Tyrer on behalf of JRWA. The Mai Declaration includes a discussion of allegedly improper and unethical practices by Circa and Tyrer on projects unrelated to JRWA.¹ Counsel has

¹ *E.g.*, Mai Decl. ¶¶ 62–78.

no relevant information available to evaluate those allegations and has made no attempt to obtain such information. Those allegations have no bearing on whether Circa or Tyrer engaged in improper conduct in connection with the Project's Phase I/II field study. The Mai Declaration also references other alleged instances of improper conduct by Tyrer that, although related to work performed on behalf of JRWA, are based on public reports of which Mai has no first-hand knowledge.² Those allegations are being or have been addressed in other forums and are beyond the scope of this investigation.

III. Principal Parties

The principal parties referenced in this report are as follows:

A. Circa~ Cultural Resource Management

According to its marketing materials, Circa is “a certified small, 100% woman-owned business with expertise in archaeology, architectural history, historical research, education and exhibits, historic preservation planning, and historic preservation law.”³ Circa has been engaged on the Project as a sub-consultant to the Timmons Group.

B. Carol Tyrer

Tyrer founded Circa in 2005 and is its president. Tyrer stated that she has been practicing as a professional archeologist in Virginia since 1989 and that her archeological reports and qualifications have been accepted by Virginia DHR over 100 times. Tyrer was the Principal Investigator for the Phase I/II archeological field study conducted by Circa on behalf of JRWA between May 2017 and January 2018.

C. Timmons Group

The Timmons Group (“Timmons”) is a diversified consulting firm. Timmons has been engaged as an engineering and environmental consultant to JRWA. Timmons staff performed tasks for and related to the Phase I/II field study, including project management and surveying and marking the project boundaries.

² *E.g.*, Mai Decl. ¶ 29 (allegation regarding proper attribution); ¶ 61 (allegation of plagiarism); ¶¶ 40, 72 (allegation of falsified credentials).

³ <https://www.linkedin.com/in/carol-tyrer-2654561b/>.

D. Faulconer Construction Company

Faulconer Construction Company (“Faulconer”) is a diversified construction, engineering, and contracting firm. Faulconer has been engaged on the Project as a sub-consultant to Timmons. Faulconer staff performed tasks for and related to the Phase I/II field study, including operating heavy machinery to excavate trenches, hand-digging shovel test pits, and screening (i.e., sifting) soil from shovel test pits.

E. Eric Mai

Eric Mai was an employee of Circa from January 2012 to May 2018. He participated in numerous archeological field studies during that time, including the Project’s Phase I/II archeological field study. Mai holds a Bachelor of Arts degree in Art History from Christopher Newport University (2011) and a Master of Archeology and Heritage degree from the University of Leicester (2017). Mai stated that he resigned from Circa in May 2018 due to alleged concerns about Circa’s practices. Mai states he currently is a graduate student at Virginia Commonwealth University (VCU) studying Urban and Regional Studies and Planning.⁴

IV. Sources of Information

Counsel reviewed available and readily obtainable information that appeared relevant to evaluating the claims in the Mai Declaration. Counsel requested and received information from several sources. Because this is an internal investigation, Counsel had no authority to compel any party to give a statement or produce any records.

Relevant information was gathered from the following sources:⁵

⁴ Mai’s sworn statement is formatted consistent with the Uniform Recognition of Acknowledgments Act, Virginia Code § 55-118.1 et seq., in a manner and style typical of statements prepared by attorneys. Neither the statement nor the cover letter identifies Mai’s counsel. Although it is unknown if Mai is represented by Werkheiser or her firm, an email from Mai to DHR Director Langan dated September 16, 2019, affirms that he was “in talks” with Werkheiser’s firm prior to Werkheiser presenting the Mai Declaration to the USACE.

⁵ Counsel is not a witness to any of the incidents discussed in this report. The Phase I/II field study discussed in this report was completed prior to Counsel’s engagement by JRWA.

Circa/Carol Tyrer. Tyrer was cooperative and forthcoming in responding to requests for information relevant to the allegations in the Mai Declaration. Tyrer agreed to be interviewed by Counsel over the course of several hours on two dates (November 8, 2019 and November 27, 2019).⁶ Counsel requested a list of records from Tyrer and received information including records from Mai's employment file and hundreds of photographs, field notes, drafts, and other documents from the field study. Tyrer produced two written statements directly responding to the allegations,⁷ as well as several emails and additional documents in response to follow-up requests from Counsel. Tyrer stated that other Circa employees who participated in the Project study did not wish to speak to Counsel regarding this matter.

JRWA Project File. Counsel has reviewed pertinent documents in JRWA's project file. That includes the relevant applications and reports submitted to DHR and internal communications, notes, and memoranda.

Timmons/Joe Hines. Timmons project manager Joe Hines was cooperative and forthcoming and spoke at length to Counsel regarding the matter on November 8, 2019 and during several follow up requests for additional information. Hines provided all invoices from Timmons, Circa, and Faulconer generated during the Phase I/II archeological field study. Those invoices included valuable information such as daily entries of activities conducted at the site. Hines also provided numerous photographs and records of the surveys conducted by Timmons of the project site. Hines promptly responded by telephone and email to numerous requests from Counsel for additional information.

Faulconer Construction/Brandon Weaver. Counsel was instructed to direct questions regarding this investigation in writing to Faulconer's legal counsel. Counsel requested and was granted permission to interview the foreman for the Faulconer construction crew that primarily assisted with the study, Brandon Weaver. Counsel conducted a telephonic interview with Weaver on December 6, 2019, with Faulconer counsel (Brad Friend) present.

⁶ Tyrer is represented by attorneys on matters closely related to the Project. Counsel obtained consent from Tyrer's attorneys before contacting her for information regarding the Mai Declaration.

⁷ The written statements are dated November 6, 2019 and November 21, 2019. They are informal and prepared personally by Tyrer. Counsel has given those written statements the same weight as statements made verbally by Tyrer in interviews.

GAI Consultants. GAI was engaged by JRWA in October 2019 to provide archeological consulting services. Counsel consulted with GAI staff for contextual information regarding the archeological terminology and practices referenced in the Mai Declaration.

Freedom of Information Act (FOIA) Request. Counsel submitted a broad FOIA request to DHR on September 16, 2019 related to the JRWA project and received responsive documents on October 3, 2019. Although the request predated the Mai Declaration, the response included documents relating to incidents discussed in the Mai Declaration.

V. Findings and Conclusions

Counsel evaluated the allegations asserted in the Mai Declaration based on the available information. A summary of the primary allegations, and counsel’s findings and conclusions regarding the same, are provided in this section.

A. Allegations Regarding Training, Preparation, and Qualifications of Circa’s Employees (Mai Declaration Paragraphs 17–21)

The Mai Declaration states that the Circa staff who participated in the Project’s Phase I/II field study were not given adequate information to perform the study and were unqualified for the task. These statements generally may be characterized as Mai’s opinions, and therefore they cannot be proved or disproved as facts. Nevertheless, Counsel believes they warrant evaluation to determine if they reveal any improper or unethical conduct by Circa or Tyrer. Upon review, these allegations do not appear to be credible or reflective of any demonstrable misconduct.

1. Circa Staff Were Not Informed of the Historical Significance of the Project Site

Mai states that “Tyrer provided the field crew little background information on Point of Fork.”⁸ More specifically, he states that field staff were not provided any of the following information:

- “[P]rior documentation of Point of Fork as the historical chief city of the Monacan Indian Nation”;

⁸ Mai Decl. ¶ 17.

- “[M]ap showing the location of Rassewek at this location prepared by Captain John Smith”; or
- “[I]nformation related to the subsequent documentation by archaeologists associated with the Commonwealth of Virginia or the Smithsonian.”⁹

Mai acknowledges that Tyrer informed the staff that human burials had been documented in the vicinity of the site and that the site “might be of great importance to Native Americans.”¹⁰

Tyrer denies that Circa’s staff was not “fully aware of the significance of the site.” She states that a study work plan had been approved by USACE and DHR and that all members of the field staff, including Mai, were provided copies. Mai does not mention the work plan in the declaration. Mai states that Tyrer “handed us a map with markings indicating where we should conduct shovel test pits and instructed us to drive to the site and begin work.”¹¹

Counsel reviewed a copy of the referenced work plan in JRWA’s project file, titled, *James River Water Supply Project, Phase I Work Plan, Fluvanna County, Virginia* (“*Work Plan*”), dated March 2, 2017. Of relevance to Mai’s statements, the *Work Plan* includes the following statements:

- “The historic record indicates that this landform is where the Native American village of Rassewek [sic] was located.”
- “The pipeline right-of-way and pump station are in this area and the possibility of human remains is moderate to high.”
- “No shovel testing was completed of the area during the previous survey. The VCU surveyors walked the field and identified the sites based on surface finds within areas disturbed by heavy equipment. . . . The surveyor had indicated that although they divided the sites on the floodplain into separate

⁹ Mai Decl. ¶ 17. Counsel assumes the reference to “Commonwealth of Virginia” is in error, and that this was intended to reference a study by an archeology professor with *Virginia Commonwealth University*, Dan Mouer. Counsel is not aware of any relevant studies of the site by archeologists for the Commonwealth. As a current student at Virginia Commonwealth University, it is not likely Mai would make this error. This appears to be an obvious transcription error by an unidentified third party either copying or drafting the Mai Declaration.

¹⁰ Mai Decl. ¶ 17.

¹¹ Mai Decl. ¶ 21.

sites based on surface scatters, they believed that the whole floodplain consisted of one large site.”

It appears improbable that Mai was not provided a copy of the *Work Plan*. Mai acknowledges receiving the maps showing the location of the shovel test pits. Tyrer states that those maps were provided as attachments to the *Work Plan*. That statement is consistent with the text of the *Work Plan* (“The *attached maps* show the locations of the project area, previously-identified sites, and the *proposed locations of the shovel tests* and deep-testing cores and trenches.”). Mai also acknowledges receiving a copy of the Phase I/II field study’s anticipatory burial permit “[e]arly in the JRWA project” and being familiar with its requirements.¹² The permit expressly required that the field work be conducted in accordance with the “approved research design,” which Counsel understands to be a reference to the *Work Plan*.¹³ Given that Mai acknowledges (1) possessing the maps that were attached to the *Work Plan*, (2) receiving and reviewing the permit referring to and requiring compliance with the *Work Plan*, and (3) being aware of information stated in the *Work Plan* (i.e., presence of past burials discovered near the site and site’s importance to Native Americans), it does not appear to be plausible that Mai did not also have a copy of the *Work Plan*.

DHR approved the *Work Plan*, and there is no reason to conclude that the information it contained was insufficient to adequately provide the Circa staff with information necessary to complete the field work at the site. The specific information Mai states he was not provided included “prior documentation” about Rassawek, a copy of the John Smith map, and copies of studies previously completed by archeologists for the Smithsonian and the “Commonwealth of Virginia” (presumably intended to be Virginia Commonwealth University). Counsel has reviewed the referenced documents. Although these documents presumably were highly relevant to the Principal Investigator/Principal Author’s task of preparing a report based on the information obtained from the Phase I/II field study, the sources do not appear to provide any additional information that was not summarized in the *Work Plan* that would have been necessary to the tasks

¹² Mai Decl. ¶ 30. The anticipatory burial permit was issued by DHR to JRWA on October 4, 2017.

¹³ Notes to the file by Project staff and emails between JRWA and DHR staff in the Project file indicate that the *Work Plan* was the document reviewed and approved by DHR as part of the anticipatory burial permit application.

performed by Circa's field staff.¹⁴ Mai's statement that Circa's field staff were provided "little background information on Point of Fork" appears to be exaggerated and misleading.

2. Circa Staff Were Untrained and Unqualified

Mai states that the Circa staff were untrained and unqualified to perform the work at the Phase I/II field study. Mai supports this assertion by stating that he was the only member of the "initial crew" that possessed a "master's degree and a BA in archeology or a related field or any formal training investigating Native American sites."¹⁵ Mai further states that he had no experience or training excavating Native American archeological features.¹⁶

Tyrer states that the Circa staff that performed the first phase of work for the Phase I/II field study (April and May 2017) had 10 years, five years, and one year, respectively, of archeological field experience.¹⁷ This statement appears to be supported, at least in part, by the shovel test pit field forms.¹⁸ The initials on the forms indicate that the pits were recorded by Mai, Charlie Rutledge, and Matthew Carr—each of whom had been with Circa for at least five years at the time of the Phase I/II field study. Tyrer also states that an experienced geoarcheologist, Dan Hayes, was onsite for this first phase of field work to oversee deep test trenching and coring. This latter statement is supported by the billing records of Hayes and Faulconer. Lastly, Tyrer asserts that Circa had no formal training program, and that field crew members were typically trained on the job by more experienced staff.

There is insufficient evidence available to fully substantiate or discredit Mai's statement that the Circa staff were "untrained" and/or "unqualified." It appears that the staff who participated in the field study possessed relevant experience with archeological field studies of Native American sites, but Counsel has not identified

¹⁴ The purpose of a Phase II field study is to gather data necessary to (1) define a site's boundaries; (2) determine if the site is eligible for listing in the National Register of Historic Places; and (3) inform recommendations for future treatment of the site. DHR, *Guidelines for Conducting Historic Resources Survey in Virginia* 41 (Sept. 2017).

¹⁵ Mai Decl. 18.

¹⁶ Mai Decl. 20.

¹⁷ Tyrer states that the most junior staff members (one year of field experience) also had one year of laboratory experience.

¹⁸ Circa's invoices generally do not identify individual staff members.

any reliable information to form a conclusion as to whether staff could be deemed “untrained” or “unqualified” notwithstanding that experience.

However, there is reason to discount the credibility of Mai’s characterizations of his and other Circa staff members as unqualified and untrained. First, Mai offers these opinions without noting the years of field experience possessed by those staff members or explaining how that experience is not relevant—information that likely would be inconsistent with his assertion. Second, the failure to mention the key role of Hayes in managing the geoarcheological elements of the field study suggests an intent to mislead. Third, as detailed further below, Mai does not fairly portray his own past experience with Native American sites. Fourth, it is telling that Mai qualifies his statement about the crew’s educational qualifications by stating only that the “*initial crew*” (other than Mai himself) did not possess advanced degrees. Tyrer states that persons with additional experience, including advanced degrees, were subsequently added to the staff for the Phase I/II field study.

In conclusion, Counsel does not find Mai’s assertion that the Circa staff who participated in the Project’s Phase I/II field study were “untrained” or “unqualified” to be credible. The factual assertions presented to support those opinions appear to be highly selective, omitting highly relevant information that would have been known to Mai but which would be contrary to his assertions. Even if Mai’s statement that the staff was “untrained” or “unqualified” truthfully reflects his opinion, the highly selective nature of the facts presented to support that opinion nevertheless strongly suggests an intent to be misleading.

B. Allegations Regarding Use of Technology and Training to Conduct Accurate Surveys (Mai Declaration Paragraphs 22–29)

Mai alleges that Circa refused to use appropriate technology and provide appropriate training to its employees. Consequently, Mai states the opinion that the archeological surveys and resulting maps and figures generated for the Project’s Phase I/II report were inaccurate and unreliable. Although Mai’s stated conclusions could not be evaluated directly, several of the factual assertions Mai makes in support of that opinion are inconsistent with and/or omit pertinent details in documents and information prepared at the time of the study. Counsel therefore does not find these allegations to be credible.

1. Technology Used to Identify and Map Locations of Shovel Test Pit Transects

Mai states that the shovel test pit transects were not accurately located or mapped because (1) Tyrer refused Mai's request to purchase a Trimble GPS device and iPad technology; (2) Mai and other Circa staff had to rely on compasses and hand-drawn maps to locate transects without adequate training on how to do so; and (3) staff had to "guess" the location of Project boundaries.¹⁹ These assertions lead to Mai's conclusions that the "reports of shovel test pits on the site are inaccurate and the quality and usefulness of those shovel test pits is poor" and that the "site boundary delineation may be influenced by insufficiencies in the shovel test pit survey."²⁰

Tyrer denies each of the above-stated allegations, stating that Circa's staff had and were instructed to use GPS devices in the field to map the transects and positive shovel tests, that all base maps used in the field were generated by Timmons' GIS staff and land surveyors, and that the project boundaries were well-marked in the field by Timmons' surveyors prior to the study. Counsel is not aware of any documentation of whether GPS technology was used by Mai and other Circa field crew. However, available documents and information support Tyrer's position on the other allegations.

Mai's statement that Circa staff had to rely on compass and hand-drawn maps without adequate training to locate shovel test transects is inconsistent with other available information. Timmons provided GIS base maps of the entire Project site dated March 2017 that show the Project boundaries and locations of all deep test trenches. The March 2, 2017 *Work Plan* prepared by Circa and submitted to DHR and the USACE also contains GIS maps prepared by Timmons that show (1) the Project boundaries; (2) location and boundaries of all previously identified archeological sites; and (3) a shovel test pit grid and deep test trench locations for the entire Project area. As noted above, Tyrer states Mai had a copy of the plan. Mai's allegation that Circa's staff relied on hand-drawn maps of the shovel test pit locations instead of the GIS-based maps created by Timmons prior to the start of the study is not plausible.

Assuming Mai is truthful that he did not have access to GPS technology (contrary to Tyrer's statement), it is Counsel's understanding that the use of compasses and

¹⁹ Mai Decl. ¶ 23–24.

²⁰ Mai Decl. ¶ 25.

other such tools to locate survey transects in the field is an acceptable practice that had long been in use by archeologists prior to the advent of GPS technology. Moreover, in other documents prepared by Mai, he claims that he possessed the necessary skills to accurately locate resources in the field. In a resume prepared by Mai in 2017, he claimed to be skilled in “Preparation of accurate field notes, maps, and documentation” and “Mapping and land navigation.”²¹ In a resume prepared by Mai in 2019, he also claims to have experience creating “maps pre- and post-excavation utilizing GIS and *by hand*” and to be skilled at “Land survey and navigation” and “Hand/digital drawing.” Accordingly, Mai’s assertion that he was not capable of accurately mapping shovel test pit locations on the Project without the aid of GPS devices or mapping technology is contradicted by other statements made by Mai. The assertion is therefore unreliable.

Mai’s statement that Circa staff had to “guess” at the Project boundaries appears to be contradicted by other record evidence. Hines stated that the Project boundaries were delineated by Timmons’ surveyors and clearly marked in the field with survey stakes placed at regulator intervals on the water main centerline and edges of the limits of disturbance prior to the archeological survey. This statement was supported by a June 26, 2017, invoice previously submitted to JRWA, which reflects that Timmons’ survey staff staked out the Project’s limits of disturbance and deep trench test locations in April 2017. Numerous photographs taken during the Phase I/II study also show survey marker flags on the edges and centerline of the Project boundaries, consistent with Hines’ statement and the invoice.²²

It appears well-documented that the Project boundaries were survey-located and flagged in the field prior to the study. Mai omits any reference to the surveys or flagging performed for the study. He also appears to misrepresent his experience locating and mapping resources in the field. The survey-located markers would have provided reliable landmarks upon which to base the location and mapping of shovel test pits using the standard field location and mapping techniques referenced in Mai’s statement. Mai’s recitation of the facts omits important and relevant details that would be inconsistent with his assertions. This strongly suggests an intent to present a misleading picture and provides reasonable grounds to find Mai’s statements on this subject to be not credible.

²¹ The Mai resumes referenced in this section were received from Tyrer and from the DHR FOIA response as attachments to an email Mai sent to DHR Director Langan on September 17, 2019. These resumes are not the one Mai alleges was altered by Tyrer.

²² Metadata for photograph files reflect that they were taken prior to or during the Phase I/II field study.

2. The Shovel Test Pits Were Too Shallow for the Conditions

Mai asserts that the shovel test pits excavated by Circa were inadequate because the field crew was not informed that they were digging in a floodplain and/or that the excavations were not deep enough to reach a buried A horizon identified in some of the deep trench tests.²³ Tyrer denies the implication of the allegations, stating the shovel test pit protocol was detailed in the approved *Work Plan* and that deep test trenching and coring were conducted due to the limitations of shovel testing in a floodplain.

As stated by Tyrer, the March 2017 *Work Plan* references the fact that much of the Project site sits within a floodplain. It states shovel test pits would be completed to an arbitrary depth of 3 feet in all floodplain areas and to sterile soils only in areas outside of the floodplain. The study plan further discusses that deep tests (cores and trenches) would be completed to evaluate stratigraphic layers below the effective depth of the shovel test pits.

Mai's statement that a buried A horizon was not discovered by the shovel testing, and was only uncovered by the deep test trenching, is contradicted by other evidence. In particular, many of the shovel test pit field notes reference a buried A horizon—including shovel test pits that appear to have been recorded by Mai.

The purported concerns expressed in the Mai Declaration regarding the use of shovel test pits in a floodplain were acknowledged and addressed in the approved *Work Plan*. It is not reasonable to assume that Mai was unaware of the *Work Plan*, and he acknowledges that he participated in the deep trench testing. Even if Mai had not reviewed the *Work Plan*, his assertion that Tyrer failed to tell the crew they were working on a floodplain, and that they were therefore unaware of that fact, is not plausible. The site is located at the confluence of two rivers, which are visible from many areas of the Project site. Mai's statement that shovel pit testing failed to uncover a buried A horizon is contradicted by other evidence generated at the time of the study. Accordingly, Mai's assertions that Circa's crew was not aware that the site is situated within a floodplain and that shovel test pits were too shallow to be effective are not deemed credible.

²³ Mai Decl. ¶ 26.

3. Munsell Soil Color Charts Were Not Readily Available and Circa's Crew Was Not Trained on How to Use Them

Mai states that Circa possessed only one Munsell Soil Color Chart at the time the Project's Phase I/II field study began and that it was not always available at the site. A Munsell book includes a collection of color charts used by archeologists to accurately and consistently identify soil colors. Mai states that an "updated" Munsell book was purchased "in the latter half of 2017," but that it was "not consistently used at the Point of Forks [sic] site."²⁴ He also states Circa's staff was not properly trained on how to use it and was not given sufficient time in the field to conduct Munsell assessments.

According to Tyrer, use of Munsell books to record soil colors is a common task that all Circa field staff could perform.²⁵ Tyrer stated that Circa purchased four new Munsell books when the staff informed her that they were needed and that a copy was in each of Circa's work trucks at the time of the Project's Phase I/II field study. Tyrer could not provide a specific date or documentation of the purchase.

Upon request of Counsel, Tyrer provided the hand-written shovel test pit field notes that were generated during the Project's Phase I/II field survey. A total of 658 numbered shovel test pit locations (not including radials) are indicated in the field forms.²⁶ Tyrer explained that Circa staff sometimes recorded soil colors for every shovel test pit excavated and sometimes they used short-hand methods for closely spaced tests. That is, they would record the layer colors once and not repeat the notation in the field notes for nearby shovel test pits that contained the same soil layers and colors. She also stated that staff typically recorded the Munsell color notation (e.g., "10YR 4/3"), but sometimes they recorded only the color description (e.g., "brown") and sometimes they recorded both the notation and the description.

The shovel test pit field notes appear to be generally consistent with Tyrer's explanation. The recorded shovel test pits appear to have the Munsell notation and/or color documented narratively either for each pit or for a representative pit (without being repeated for each nearby pit)—with the majority reflecting a

²⁴ Mai Decl. ¶ 27.

²⁵ Other archeologists consulted by Counsel expressed that recording Munsell color notations is an elementary and common task for staff working on archeological excavations.

²⁶ Not all of the shovel test pit locations were excavated. A number were marked as not excavated due to the presence of obstacles such as slopes, trees, or impervious surfaces, and therefore no soil color is recorded for those locations.

recorded Munsell notation. Mai alleges that Tyrer directed staff to fabricate Munsell notations at a different site,²⁷ but no such allegation is stated with respect to this Project. In absence of any evidence or allegations to the contrary, it is therefore reasonable to assume that the Munsell notations recorded for the Project's Phase I/II field study were recorded properly with a Munsell book.

Three initials appear on the various shovel test pit field notes: "EM" for Eric Mai; "CR" or "CPR" for Charlie Rutledge; and "MC" for Matthew Carr. At the time of the Phase I/II field study, each of these individuals had been employed by Circa for at least five years and had participated in numerous field studies. As correctly stated in the Mai Declaration,²⁸ DHR's guidance requires the use of Munsell books when evaluating sites, so it is reasonable to credit Tyrer's statement that these three individuals—each of whom had at least five years of field experience—had the requisite experience and competence to do so for the Project's Phase I/II field study.

Munsell books typically include short instructions at the beginning, and tutorials are readily available online. The basic exercise is to hold color charts against a soil sample to identify the color chip that most closely matches the soil. Each color chip has an associated notation (e.g., "10YR 4/3"), which is then recorded in the archeologist's notes. The process is not unlike holding a hardware store paint swatch against a wall to identify the matching paint color.

Mai's statement that Circa's staff was not trained on how to use Munsell books and that they were not afforded adequate time to do so appears to be, at best, highly exaggerated. The Munsell system appears to be a simple tool that can be utilized easily and quickly with minimal training.²⁹ Mai's assertion that the three experienced Circa staff members who recorded the soil test pit excavations were not competent to use the Munsell books due to a lack of proper training implies that the system is much more complicated than it is.

Furthermore, the time required to use a Munsell book to identify and record soil color is minimal—roughly one minute per sample. Mai's statement that Circa's staff was not "allotted time in the field to conduct Munsell assessments" perhaps may

²⁷ Mai Decl. ¶ 66.

²⁸ Mai Decl. ¶ 27.

²⁹ Instructional sources consistently emphasize that the system is most accurate when the lighting conditions are optimum, the soil is moist but not saturated, and the evaluator is not wearing sunglasses. These are straightforward guidelines that do not appear to require a significant level of training or expertise to apply.

reflect a sincere opinion that he felt “rushed” during the study,³⁰ but taken on its own terms the definitive statement that staff was “not allotted time” for Munsell assessments appears to be an exaggeration.³¹

Lastly, there is conflicting evidence relating to Mai’s statement that the Munsell book was not “consistently used” during the Project’s Phase I/II field study. Tyrer and Mai’s statements are contradictory on this point. The field test notes indicate that the Munsell book was used for at least 75% of the shovel test pits, as signified by the number of test pits that appear to have a recorded Munsell notation. For test pits that appear to have only a recorded color, it is unclear whether the Munsell book was used but the color was written in lieu of the notation (as Tyrer states) or whether the Munsell book was not used at all (as Mai states). Viewed in isolation, Mai’s assertion that Munsell books were not used “consistently” is plausible in light of the available evidence. However, Mai’s other patently exaggerated statements related to the use of Munsell books during the study caution that this assertion may be exaggerated as well. Weighing these considerations, the most reasonable conclusion is that Munsell books were utilized for the vast majority of the shovel test pits but that use may have fallen short of 100%.

To a lay reader unfamiliar with Munsell assessments, Mai’s statements about improper training and inadequate time to perform those assessments are facially rational. Upon a closer examination of what Munsell assessments entail in practice, however, the only reasonable conclusion is that Mai’s statements on this issue are exaggerated and intended to be misleading.

4. Tyrer Did Not Invite Mai to Review the Phase I/II Report and Other Documents Prepared by Circa

Mai states that “Tyrer did not invite me to review or verify the maps of purported test areas created by Timmons for the Point of Fork site or to review for accuracy the report drawing conclusions from these tests.”³² Tyrer responded that she engaged the field crew in discussions about the site to “gain insights into field conditions,” but she does not dispute that Mai was not invited to review the maps and subsequent Phase I/II report. She does state that Mai was asked to make revisions to those maps in response to comments from DHR.

³⁰ Mai Decl. ¶ 75.

³¹ Mai Decl. ¶ 27.

³² Mai Decl. ¶ 28.

It does not appear that there is any applicable requirement or recommended guidance directing archeologists to submit draft reports or other documents to their field staff for review. DHR's *Guidelines for Conducting Historic Resources Survey in Virginia* (Sept. 2017) at 55 ("*DHR Guidelines*") recognize that the Principal Author of an archeological report need not be the same individual who served as the Principal Investigator for the field study. Nor do the *DHR Guidelines* appear to express the expectation that field staff be afforded the review opportunity Mai states he was denied. Accordingly, Mai's statement regarding Tyrer's preparation of the written materials for the Project without his involvement does not appear to indicate any improper conduct. Because Mai does not clarify that there was no obligation for Tyrer to afford him a review, Mai's statements about the lack of such review appear to be intended to convey a false insinuation of improper conduct by Tyrer.

C. Allegations That Tyrer Lied to State Officials and Directed Circa Staff to Do the Same in Relation to the Archeological Field Study (Mai Declaration Paragraphs 30–41)

Mai alleges several instances in which Tyrer failed to comply with applicable permit requirements, lied to agency officials about those alleged violations, and/or directed Circa staff to be untruthful with agency officials. Counsel believes these are the most troubling allegations in the Mai Declaration and that they warrant close scrutiny. The evidence that Tyrer directed staff to lie to officials is fairly characterized as inconclusive, with no reliable evidence to support or rebut the witness statements about the circumstances. However, there is persuasive reason to question the credibility of the allegation and version of events presented in the Mai Declaration. The specific allegation that Tyrer falsified Mai's resume appears to be directly contradicted by other reliable evidence, including documents prepared by Mai. For the remainder of the allegations relating to giving or inducing false statements to agency officials, Counsel does not believe the weight of the evidence is sufficient to recommend that the Board take action.

1. Tyrer Was "Largely Absent" for Initial Phase of Study

Mai states that Tyrer "did not travel to Point of Fork and was largely absent from the site for the first five months of our work."³³ It is important to note, however,

³³ Mai Decl. ¶ 31.

that there was no requirement for Tyrer to be continually present during this time (late April to October 2017). The burial permit was not issued until October 2017. The approved study *Work Plan* stated only that the survey would be “conducted under the direct supervision of an archeologist or architectural historian who meets the Secretary of Interior’s Professional Qualification Standards.” It did not specify that Tyrer would be solely responsible for supervising the field work.

Tyrer’s written response states that the initial phase of work consisting of shovel testing on the pipeline and laydown areas and coring and deep trench testing near the Rivanna River crossing lasted only from April 24 to June 2, 2017, at which time work was suspended because the burial permit had not been issued for the deep trench testing at the pump station site. Tyrer does not claim to have been at the site continuously during that initial six-week phase of the study. She states that she “visited” the site on “numerous occasions” during that phase of the study.

It must first be noted that Mai’s depiction of the initial phase of the study is factually incorrect. To reiterate, Mai states: “Tyrer did not travel to Point of Fork and *was largely absent from the site for the first five months of our work.*”³⁴ This characterization is repeated elsewhere in the document: “We rarely saw her [Tyrer] on site *for the first five months of our work on site.*”³⁵ As documented in the various invoices, the Project’s Phase I/II field study proceeded in two distinct stages:

- Stage 1: April 24, 2017 to June 2, 2017
- Stage 2: October 11, 2017 to January 19, 2018

Because Mai participated in both stages of study, it can be presumed that he is aware that work at the site took place for approximately six weeks and then was suspended for four months while Circa awaited issuance of the anticipatory burial permit. Mai’s characterization the first stage of the study appears to be deliberately misleading and intended to convey that Tyrer was “absent” for a full five months of ongoing field work when in fact no work took place for four of those months.³⁶

³⁴ Mai Decl. ¶ 31.

³⁵ Mai Decl. ¶ 21.

³⁶ The study timeline is misstated by Mai several times in the document. For example, Mai states: “For *nine months between May 2017 through January 2018*, I was assigned by Tyrer to conduct archaeological study and testing in advance of the James River Water Authority’s (“JRWA”) proposed construction project at Point of Fork in Fluvanna County, Virginia.” Mai Decl. ¶ 4. In response to a follow-up question from Counsel, Tyrer stated that

Notwithstanding Mai's misrepresentation of the initial phase of the study, Tyrer's statement that she "visited" the site during that time is not materially inconsistent with Mai's statement that she was "largely absent" during that period. The operative question is whether this fact evidences any misconduct by Tyrer or Circa.

Mai appears to satisfy the qualification standards to oversee the initial phase of study given that he had a master's degree in archeology and experience overseeing such studies.³⁷ Moreover, DHR staff acknowledged that Mai fulfilled the professional qualification standards in an email from Joanna Wilson Green to Steve Nichols dated November 22, 2017. Accordingly, Mai's assertion that Tyrer was "largely absent" during the initial phase of the study does not, without more information, demonstrate any improper conduct by Circa or Tyrer. Furthermore, the statement appears to be deliberately misleading.

2. Tyrer Directed Circa Staff to Lie to DHR Officials about Her Presence at the Site to Cover Up Noncompliance with the Burial Permit

Mai outlines incidents from October 12 and 13, 2017, in which Greg LaBudde of DHR visited the site each day and asked who was supervising. According to Mai, no Circa staff identified themselves as being the supervisor on October 12. Upon learning of LaBudde's October 12 visit, Mai states:

Tyrer was said to have become concerned and bothered. She demanded that a member of the crew inform LaBudde that Tyrer was typically at the site and that she had just left the site temporarily that day. I

Mai was assigned to several other projects (identified as "Walnut Solar," "Route 460," "Reeves Road," "Forest Glen," and "Cayden Ridge") during the four-month suspension of work on the JRWA Phase I/II field study. In another example, the Mai states: "*Early in the JRWA project*, Tyrer provided the crew with a burial permit issued by VDHR." Mai Decl. ¶ 30. The anticipatory burial permit was issued on October 4, 2017, toward the end of the four-month suspension and well over five months after the work commenced. It is not plausible that a person with first-hand knowledge of the study, such as Mai, would have *inadvertently* misconstrued the basic project timeline in multiple statements. There are two plausible explanations: either these statements were deliberately drafted by Mai to be misleading and paint Tyrer in a worse light, or they were drafted by a third party with a poor understanding of the basic facts.

³⁷ Mai's assertion that his qualifications were misrepresented is addressed below.

understood this to mean that Tyrer was asking the entire crew to lie on her behalf.³⁸

Mai states that LaBudde returned on October 13, and Tyrer was again not present. An unnamed “crew member” (believed to be Charlie Rutledge) allegedly “following Tyrer’s directive, told LaBudde that Tyrer had only temporarily left the site but that she was supervising our work closely—both false statements.”³⁹

The first question is whether Tyrer knew or believed that her absence from the site during LaBudde’s visits constituted noncompliance with the burial permit issued by DHR on October 4, 2017.⁴⁰ The permit itself did not expressly identify Tyrer as a person that must be present on site at all times. It stated only that “earthmoving activity within the project area take[] place at the direction and under the supervision of the supervising archaeologist.” Tyrer and Hines both stated that they assumed that the excavations should be conducted in accordance with a 2011 DHR guidance document stating that a supervising archeologist should be present on site at least 75% of the time.⁴¹ Tyrer and Hines both asserted that they did not understand the permit to require that Tyrer be present 100% of the time. They also stated they assumed Mai was qualified to fulfill the supervisory role, meaning that Tyrer’s presence was not specifically required. Following additional consultation, DHR determined that Mai was qualified to oversee shovel testing and that Tyrer and Dan Hayes should be onsite “at all times” to oversee any deep testing.⁴²

Whether Tyrer’s absence from the site on October 12 and 13 was not in compliance with the permit is not clear. Reading the permit language in light of DHR’s guidance, there is ambiguity as to whether the permit did or was intended to require that Tyrer be present for the entirety of the field work that took place following issuance of the October 2017 burial permit or, conversely, if Mai’s presence would satisfy the permit requirement. Assuming for the sake of argument that the permit did in fact require Tyrer’s onsite presence at all times, Tyrer and Hine’s statements that they did not understand the permit to require that Tyrer be present for all field work are plausible and consistent with a fair reading of the

³⁸ Mai Decl. ¶ 32.

³⁹ Mai Decl. ¶ 33.

⁴⁰ Whether Tyrer’s absence was not in compliance with the permit is not material to this report. The incident in question informally resolved at the time through discussions between JRWA and DHR, and corrective actions were taken.

⁴¹ DHR, *Guidelines for Conducting Historic Resources Survey in Virginia* 62 (Oct. 2011).

⁴² Email from Joanna Wilson Green to Steve Nichols (Nov. 22, 2017).

applicable requirements.⁴³ Thus, if Tyrer's absence was inconsistent with the permit, it is plausible to believe Tyrer and Hine's statements that they did not *believe* that the circumstances represented a permit violation. This conclusion is relevant because it has a direct bearing on whether Tyrer had a motive to provide false statements to DHR.

The next question is whether Tyrer instructed Circa staff to lie to DHR staff about her presence at the site. In evaluating Mai's summary of the October 12 and 13 incidents, it must be recognized that he does not claim to have personally heard Tyrer instructing Circa staff to lie to DHR. He states that Tyrer "*was said* to have become concerned" when she learned of LaBudde's first visit and that "she demanded" that an unnamed "member of the crew" make statements to LaBudde. Mai qualifies his statements further as stating that he "understood this to mean" that Tyrer had instructed the staff member to lie to LaBudde. Mai also does not state that he actually witnessed the unnamed staff member allegedly lying to LaBudde.

In a written statement provided to counsel, Tyrer denies instructing the employee to lie, stating: "At no time did I ask the crew members to lie to Mr. LaBudde." Tyrer summarizes her conversation with Circa staff member Charles Rutledge (presumably the same unnamed employee referenced in Mai's statement)⁴⁴ as follows:

I told the crew member that he could let Mr. Labudde that [sic] I had been out on site and that I was coming and going from the site. I went to the site to verify that the lock still worked, that the access road was available, the grass had been mowed in the field, and that the surveyors had marked the corners of the project area.

Tyrer states that Rutledge said that Tyrer "had not been there that day and that I [Tyrer] 'bebop' [sic] around to the job sites" and that she is "always available by phone if they have any questions." Neither the correspondence between DHR and JRWA nor the documents received from DHR through a FOIA request recount what

⁴³ To Counsel's knowledge, neither Hines nor Tyrer consulted legal counsel for advice on the construction of the permit.

⁴⁴ An October 17, 2017 letter from DHR Director Langan to Steve Nichols identifies Charles Rutledge as the Circa staff member who spoke to LaBudde.

statements, if any, Circa staff made to LaBudde regarding Tyrer's presence at the site.

Tyrer reports having a conversation with Rutledge at an unspecified date after the incident. She acknowledges in her written statement that Rutledge expressed to her during that conversation that he thought Tyrer was "implying for him to lie" about Tyrer's whereabouts and that he was caught off guard because it was "out of character." She states that Rutledge expressed that he was truthful with LaBudde nevertheless. Tyrer states that there was a misunderstanding and that it was not her intention to implicitly direct Rutledge to lie to DHR about her presence at the site. Counsel was unable to speak to Rutledge, who is no longer with Circa, to get his account of the October 2017 events or the more recent conversation with Tyrer.

The available evidence regarding Mai's allegation that Tyrer instructed Circa staff to lie to DHR in October 2017 is not sufficient and reliable to substantiate this very serious allegation. As noted above, Mai does not claim to have witnessed the alleged directive to lie to DHR staff. Mai is recounting a conversation with a third party, presumably Rutledge, who was expressing his impressions of statements allegedly made by Tyrer. Mai qualifies his recollection of that conversation by saying that he "*understood* [Tyrer's instructions] to mean that Tyrer was asking the entire crew to lie." This important qualification corroborates Tyrer's statement that she did not expressly instruct Rutledge to lie to LaBudde.

The only question is whether Tyrer intended to communicate an implied instruction for Rutledge and other Circa staff to be untruthful with DHR. Tyrer denies that she had this intent and states that Rutledge misunderstood her meaning. To disbelieve Tyrer's denial, and credit Mai's allegation, it is necessary to accept as true a chain of suppositions. First, it must be assumed that Mai is accurately portraying his conversation with Rutledge, and that Rutledge came away with a firm belief, and not a mere suspicion, that Tyrer directed him to lie. Second, we must assume, as a threshold matter, that the impression formed by Rutledge was an objectively reasonable conclusion to draw from the words actually spoken by Tyrer. Third, we must assume that Rutledge's impression of the conversation with Tyrer was sufficiently persuasive and probative of Tyrer's intent that it outweighs Tyrer's claim that the matter was the result of a misunderstanding. If any of these suppositions fail, there is no basis to discredit Tyrer's denial.

There is no reason to conclude that Rutledge or any other Circa staff in fact were untruthful with DHR staff during the October 2017 incident. Tyrer reports that Rutledge claims he was truthful about Tyrer's presence when LaBudde returned to the Project site on October 13, 2017, following Rutledge's conversation with Tyrer. Although Tyrer's statement is hearsay, it is corroborated by the fact that DHR's reports from that time do not mention any attempts by Circa staff to claim that Tyrer had only momentarily left the site. If a Circa staff member (Rutledge or other staff) had told LaBudde that "Tyrer had only temporarily left the site but that she was supervising our work closely,"⁴⁵ it appears highly unlikely that this statement would not have been mentioned in any of the communications between DHR staff or from DHR staff to JRWA. For example, DHR's letter to JRWA dated October 17, 2017, stated that the work was not being supervised by a qualified professional (i.e., Tyrer). If LaBudde had been told by a Circa employee that Tyrer was closely supervising the work, it is reasonable to assume that LaBudde would have construed that as a lie and it would have been reported in DHR's letter to JRWA.

The more difficult question is whether Tyrer attempted to cause her staff to lie to DHR staff. This is a serious allegation that warrants careful deliberation. At bottom, the question is whether Tyrer possessed the *intent* to direct her staff to lie. Tyrer's candid admission that Rutledge had the impression that she wanted him to be untruthful lends a degree of credibility to her explanation. Furthermore, that explanation is plausible and not inconsistent with any other available evidence. However, given that the allegation involves untruthfulness, Tyrer's denial cannot be relied upon too heavily to absolve her of wrongdoing.

The only way to evaluate intent is by weighing circumstantial evidence probative of Tyrer's state of mind. Counsel believes two pieces of evidence are particularly relevant to this evaluation. First, it does not appear that Tyrer had a motive to direct her staff to falsely state that she had been onsite regularly. As discussed above, Tyrer and Hines stated to Counsel that they did not believe at the time that the conditions in the October 2017 anticipatory burial permit required that Tyrer be onsite to directly supervise all field work. These statements are corroborated by a letter signed jointly by Hines and Tyrer to former Fluvanna County Administrator Steve Nichols dated October 20, 2017, which expressed their belief that there had been no violation of the permit. In short, the evidence supports the reasonable conclusion that Tyrer had no motive to cover up a permit violation because neither she nor Hines believed at the time that her actions constituted a violation. Second,

⁴⁵ Mai Decl. ¶ 33.

the only circumstantial evidence supporting Mai's allegation that Tyrer intended to direct her staff to lie is the reported impressions of a third party, Rutledge. Without additional reliable evidence about what Tyrer actual said to Rutledge, there is no basis to evaluate whether Rutledge's impression was reasonable and persuasive. That is too slender a reed to base a conclusion that Tyrer committed serious wrongdoing. The credibility of Mai's allegation is further diminished by his statement that Circa staff did in fact lie to DHR staff on October 13, 2017—which is not consistent with or supported by DHR's contemporaneous communications.

Weighing all available evidence and drawing reasonable conclusions therefrom, there is no reasonable basis to conclude that Tyrer intentionally instructed Circa staff to lie to DHR staff in October 2017. While that allegation cannot be disproven, the most plausible conclusion is that Tyrer is being truthful in her statement that her instruction to Rutledge was misunderstood.

3. Tyrer Failed to Supervise the Phase I/II Field Study Even After DHR Mandated that She Be Present for All Work

Mai states that "Tyrer was present more frequently on site, though she typically sat in her vehicle completing reports for other projects."⁴⁶ He adds, "Tyrer did not directly supervise the work we were doing."⁴⁷ If true, these allegations potentially indicate noncompliance with the anticipatory burial permit, which would be misconduct. In a November 22, 2017 email to JRWA representatives, DHR staff (Joanna Wilson Green) stated the "consulting parties agree that Ms. Carol Tyrer and Mr. Dan Hayes will be on site at all times during deep testing, and that all earthmoving conducted pursuant to this deep testing will be performed under their direct supervision."

Tyrer responded to Mai's statement as follows:

After VDHR explained that I was to be onsite every day, then I was onsite every day. The Geoarchaeologist, Faulconer team, and I were on site by 7:30 and Mr. Mai and the other team member arrived on site around 8:30 (they are paid travel time). . . . The Geoarchaeologist supervised all the deep-test trenches, and we discussed the excavations throughout the day. Mr. Mai was one of the team members who

⁴⁶ Mai Decl. ¶ 38.

⁴⁷ Mai Decl. ¶ 38.

excavated the features at the site. The other team member has over 30 years of experience and she excavated the complicated features. Mr. Mai excavated the hearth and other small pit features. . . . We discussed the feature types and the stratigraphy. The Geoarchaeologist also took notes of the features. The Geoarchaeologist and I did observe and photograph Mr. Mai's and the other team members excavations. At times, I was in my vehicle as we did not have a site trailer where I reviewed the shovel test maps, artifacts, feature forms, field notes, and photographs. In addition, I completed the shovel mapping for the positives, skipped, and negative shovel tests and wrote up the feature and shovel test data.

Tyrer's statement provides several details that cannot be independently verified but the statement, taken as a whole, is consistent with other evidence. The February 21, 2018 invoice from Timmons to JRWA stated: "Carol Tyrer (VDHR approved Archeologist) and Dan Hayes (VDHR approved GeoArcheologist) were required to be on site full time for the shovel testing and deep trench testing per the requirements of VDHR." The Faulconer foreman, Brandon Weaver, reported seeing Tyrer on site "every day." Faulconer also recorded notes of activity performed by its workers on a daily basis. The Faulconer invoice records for January 5, 2018 and January 8, 2018, are particularly informative. No billable time entries were made on those dates. Instead, there was a note stating: "No work due to Carol [Tyrer] not being present." These records support Tyrer's assertion that field work occurred at the Project site only on days and times when she was physically present.

Mai's statement that Tyrer was present "more frequently" implies that she was absent at times field work was ongoing. That implication is inconsistent with other evidence. Counsel finds it most persuasive that Faulconer's contemporaneous invoices reflected that work at the site did not proceed on days Tyrer was absent. Mai's statement that Tyrer was onsite "more frequently" is not categorically false; if Tyrer was present 100% of the days field work occurred, then she was present "more frequently" than before DHR's November 2017 email. However, by phrasing the statement in this manner, there appears to be a deliberate intent to be misleading and to give the false impression that Tyrer was not complying with DHR's directive or the anticipatory burial permit.

Mai's statement that Tyrer "typically sat in her vehicle completing reports for other projects" cannot be proved or disproved based on available information. Tyrer

admits Mai may have seen her in her vehicle “at times,” but claims she was performing tasks related to her oversight of the Phase I/II field study. Mai provides no foundation for how he could have known what tasks Tyrer was performing while she was in her vehicle—including whether she was completing tasks relating to the Phase I/II field study or other projects. Given the misleading nature of Mai’s related statement about the “frequency” of Tyrer’s presence at that site and the lack of support for the assertion, Counsel does not find Mai’s above-referenced statement to be credible.

4. Tyrer Altered the Mai Resume Submitted to DHR

Mai states that Tyrer submitted a version of his resume to DHR in October 2017 which was “substantially modified” and which “grossly mischaracterizes and exaggerates [Mai’s] experience with prehistoric sites.”⁴⁸ The purpose of the resume was to demonstrate that Mai was qualified to oversee the field work governed by JRWA’s 2017 burial permit. Mai claims that the resume submitted to DHR was incorrect in the following respects: (1) stating that Mai has experience with Native American sites of all periods when he does not; (2) claiming that Mai has “expertise” with Native American sites; and (3) identifying Mai as a “Field Supervisor” when he was never promoted or paid as a supervisor by Circa. Tyrer states that Circa reformatted Mai’s resume into a consistent “corporate format” like they did for all of their staff and that Mai was aware that she was “updating” it. She says that is a common practice in the industry. More to the point, Tyrer further states that the version of the Mai resume sent to DHR was correct based on his work for Circa.

Upon reviewing the available information, it does not appear that Mai’s resume was improperly exaggerated or falsified by Circa in October 2017. The version of the resume submitted to DHR at that time made the following statements regarding Mai’s experience with Native American sites:

Mr. Mia [sic] has experience dealing with both historic and Native American archeological resources. He has completed investigations for numerous projects that range from large-scale studies of archaeological and historical resources to detailed investigations of individual Native American and historic sites”

⁴⁸ Mai Decl. ¶ 36.

Mr. Mai's specialty is in the identification and analysis of archaeological sites of all periods. He has performed surveys and analyzed Native American sites of all periods (Paleoindian to Late Woodland)

In sum, the resume specifically states that Mai had "*experience*" with Native American sites. It does not state that he possessed any particular educational or academic expertise related Native American history.

Upon Counsel's request, Tyrer provided a list of archeological studies and reports Mai participated in during his tenure at Circa. Prior to October 2017, the number is in excess of 100. According to Tyrer, the studies Mai had participated in ran the gamut and included Native American sites from all periods.⁴⁹ That is wholly consistent with the statements on the October 2017 resume Tyrer submitted to DHR stating that Mai possessed "*experience*" with such sites.

Mai also has made statements reflecting his experience with Native American sites. Mai submitted a copy of his resume to DHR on September 17, 2019, which states that during his employment with Circa he "[c]atalogued and analyzed hundreds of artifacts in the field – *from prehistoric to 20th century.*" "*Prehistoric*" refers to pre-contact Native American artifacts. Mai also posted photographs to his Instagram page at least three times during the period of his employment with Circa showing Native American artifacts he recovered from sites.⁵⁰

The Mai Declaration states that Mai's resume was falsified to state that his "*expertise is . . . in Native American archeology.*" However, there does not appear to be any statement in the disputed resume that claims that Mai's "*expertise*" is in Native American archeology. As noted above, the resume states only that he has "*experience*" with such sites.

Lastly, the Mai Declaration asserts that Circa falsified Mai's resume by stating that he was a "Field Supervisor" despite the fact that he was never promoted to that position. This allegation is contradicted by other statements made by Mai. Mai sent a copy of his resume to DHR Director Langan on September 17, 2019, stating,

⁴⁹ The version of Mai's resume submitted to DHR in October 2017 included a selection of the studies he participated in as a Circa employee. Mai made no statements about the list being inaccurate.

⁵⁰ The posts were made under the handle @iamericmai and are dated November 6, 2013; January 2, 2015; and May 25, 2016. Screenshots of the posts have been saved.

“Attached is a current 2019 resume and the resume that I submitted to Carol.” On the attached 2019 resume, Mai lists his position at Circa as “Field Supervisor/Archaeologist.” The resume also states that during Mai’s tenure at Circa, he “*Managed* over 30 Phase I-III archaeological excavations throughout Virginia, North Carolina, Maryland, and Pennsylvania.” Because Mai resigned from Circa shortly after the Phase I/II survey, it is reasonable to assume that the many of the excavations Mai claims to have “managed” occurred in the years predating the study. Additionally, Mai’s LinkedIn page presently states that his position at Circa was “Field Technician.”⁵¹ However, that title reflects a very recent change to the page. Prior to publishing the Mai Declaration, Mai’s LinkedIn social media page listed his title at Circa as “Field Supervisor.”⁵² Mai also stated on his LinkedIn page—but recently deleted—“Individually, and as a team, I have helped manage all phases of cultural resources management (Phase I-III).” The fact that Mai changed the title and work description around the same time as the publication of the Mai Declaration suggests that Mai intentionally did so to conceal the fact that he had previously identified himself as a Field Supervisor for Circa.

In sum, Mai’s allegations that Circa doctored his resume in a submission to DHR to misrepresent his experience, education, and position is exaggerated in part and false in part. There does not appear to be any support for the contention that the version of Mai’s resume submitted to DHR did not fairly reflect Mai’s educational and work experience. Furthermore, the nature and timing of the revisions to Mai’s LinkedIn page suggest a deliberate intention to conceal evidence that contradicts statements in the Mai Declaration.

D. Allegations That Tyrer Used Untrained Construction Workers to Conduct Archeological Investigation (Mai Declaration Paragraphs 42–48)

Mai states that Tyrer “enlisted unoccupied construction workers from Faulconer Construction (vendors to JRWA engineering consultant, Timmons) to perform sensitive archaeological investigations.”⁵³ He states that the construction workers “dug shovel test pits and screened the soil for artifacts,” and that “there were many times when these construction crew were excavating or screening with no

⁵¹ <https://www.linkedin.com/in/ericvmai/>

⁵² Counsel has a screenshot of Mai’s LinkedIn page from October 4, 2019.

⁵³ Mai Decl. ¶ 42.

supervision whatsoever.”⁵⁴ He also asserts that Faulconer crew members “recorded” shovel test pits.⁵⁵

Tyrer and Hines acknowledge that Faulconer construction workers provided labor and assistance during Phase I/II field study, but they deny that any of that work was not directly supervised by a member of Circa’s staff. Tyrer’s written statement asserts:

The Faulconer crew members did assist intermittently the two archaeologist [sic] who completed the shovel testing at the site. The Faulconer crew members always worked with another trained Circa~team member and assisted with screening and some limited shovel testing excavation. In fact, Mr. Mai had one of the Faulconer crew members excavating shovel tests for him while he screened the soil and recorded the shovel test data. . . . They also assisted with the screening of feature fill if they were available.

Faulconer workers’ participation is recorded in their invoices on numerous dates. For example:

- May 15, 2017 invoice: “Dig and backfill DTT [deep test trench]. Clear a way to next DTT.”
- December 7, 2018: “Worked on hole 6 and hole 5. Backfilled some on hole 5. Helped hand dig and sift.”

There is no dispute that construction workers assisted the Phase I/II field study by operating heavy machinery to dig deep test trenches, dig shovel test pits, and screen (i.e., “sift”) soil samples. However, that fact is not per se evidence of misconduct. The DHR Guidelines do not mandate that all personnel participating an archeological field study be qualified archeologists. Rather, it states that “archeological investigations are to be conducted by *or under the direct supervision of* individuals meeting appropriate professional qualifications for archaeology.”⁵⁶ Regarding the specific qualifications necessary to assist in a study “under the direct supervision” of a qualified professional, the DHR Guidelines state only that the

⁵⁴ Mai Decl. ¶¶ 45, 47.

⁵⁵ Mai Decl. 45.

⁵⁶ DHR Guidelines 54. The guidance also states that the qualified professional, “whether the Principal Investigator or Field Supervisor, should be present on site at least 75% of the time.” *Id.* at 55.

“skills of all other investigative personnel *must be appropriate to the requested task*, the nature of the project, and to the goals and specifications delineated in the research design.”⁵⁷

Faulconer construction workers performed the following three tasks: (1) operating heavy machinery to dig trenches; (2) using shovels to dig test pits; and (3) shaking screens to sift soil. It appears likely that the skills of construction workers would be suitable and appropriate to these tasks. Additionally, Counsel consulted with other persons experienced in field archeology who stated that in their experience it is not unusual or improper for construction workers or other non-qualified staff (e.g., interns, laborers, new staff members) to assist with archeological excavations by performing these and similar tasks. Thus, for these three tasks, it appears that Faulconer construction workers’ role in the study was consistent with DHR’s Guidelines and standard practices, provided they were appropriately supervised.

That leaves two relevant questions: (1) Were Faulconer construction workers being appropriately supervised while performing the three tasks discussed above? (2) Were these workers also tasked with recording the results of shovel test pits (which presumably is not within the skill or competence of construction workers unfamiliar with archeological investigations)?

To gather additional information relevant to those questions, Counsel interviewed the foreman for the Faulconer construction crew that participated in the study, Brandon Weaver. Weaver stated that he was present every day that Faulconer’s crew was onsite and that he was responsible for the crew.⁵⁸ Weaver states that his crew initially worked primarily with Dan Hayes to operate heavy machinery for the deep test trenches. Weaver stated that all such activities were directly supervised by Hayes. Weaver stated that “later on” the Faulconer crew assisted with hand-digging shovel test pits and screening. He stated that this work was always conducted in concert with a Circa staff member, primarily Mai or Tyrer. He stated that Circa staff (usually Mai) “would take [his] guys and direct them what to do.” It

⁵⁷ DHR Guidelines 55.

⁵⁸ The Faulconer invoices reflect that Weaver was onsite during all work that occurred during the latter part of May 2017 until January 2018. However, the invoices reflect that the first two weeks of Faulconer’s work (May 1, 2017 to May 19, 2017) were overseen by a different foreman. There appears to be no reason for Weaver to give a false statement on this detail, and Counsel believes this inconsistency is most likely attributable to a misstatement or fault of memory about events that occurred more than two and a half years ago.

was Weaver's recollection, with respect to the directions given to his crew, that Hayes appeared to be in charge of the deep test trenching and Mai appeared to be in charge of the shovel testing.

Regarding shovel testing and screening, Weaver explained that a Faulconer crew member often worked in tandem with a Circa staff member. One would shovel dirt onto the screen and the other would sift. They would then trade places when they tired. Weaver clarified that his crew was never asked to identify or record any artifacts, soil layers, or other information. He states that those tasks were always performed by a Circa staff member, most often Mai, writing in notebooks they carried with them. This latter statement is consistent with the contemporaneous hand-written shovel test pit field notes provided by Tyrer, all of which appear to have been prepared by a Circa staff member.⁵⁹ Weaver stated that Faulconer's crew never conducted any excavation or screening activity that was not under the direct immediate supervision of a Circa staff member.⁶⁰

Weaver's recollection of Faulconer crew members' participation in the Phase I/II field study was materially consistent with the statements previously provided by Tyrer and Hines to Counsel.⁶¹ Counsel understands that Faulconer staff were instructed to direct any questions regarding the allegations in the Mai Declaration to Faulconer's counsel and to respond only with counsel present. Thus, Counsel has no reason to believe that Weaver coordinated his statements with Hines or Tyrer.

In sum, Mai's assertion that Faulconer construction workers assisted with certain tasks during the Phase I/II field study is not in question but is not necessarily improper. Mai's further assertion that construction workers were performing these

⁵⁹ If the field notes were fraudulently filled out by Circa staff members for shovel test pits that were in fact excavated and recorded by Faulconer crew members, it is not plausible that Mai would have omitted that assertion from this statement. Mai alleges that Circa falsified shovel test pits on *other* projects (Mai Decl. ¶ 65), but it is conspicuous that he does not make similar assertions with respect to this study. Accordingly, Counsel has no reason to question the authenticity of the field notes.

⁶⁰ Weaver also denied using, or witnessing any of this crew members using, a post-hole digging bar to excavate shovel test pits (Mai Decl. ¶ 45). He states he only witnessed his crew using shovels for this task.

⁶¹ For example, Tyrer stated in her written account: "The Faulconer crew members always worked with another trained Circa~ team member and assisted with screening and some limited shovel testing excavation. In fact, Mr. Mai had one of the Faulconer crew members excavating shovel tests for him while he screened the soil and recorded the shovel test data."

and other inappropriate tasks (i.e., recording shovel test pits) *unsupervised* is contradicted by other competent evidence. First, this assertion was expressly denied by Hines, Tyrer, and Weaver in factually consistent statements. Second, the assertion that Faulconer crew members independently excavated and recorded shovel test pits is inconsistent with the contemporaneous field notes, which appeared to have been recorded exclusively by Circa staff members.⁶² Thus, Mai's statement that Faulconer construction crew members performed unsupervised archeological investigations and improper recording of shovel test pits during the Phase I/II field study does not appear to be credible.

E. Allegations Regarding the Laboratory Methods and Phase I/II Report (Mai Declaration Paragraphs 55–61)

The Mai Declaration asserts that the laboratory methods were improper and that statements in the Phase I/II report were incorrect. Mai provides no foundation for these allegations and they cannot be corroborated.

1. The Phase I/II Report Was Not Complete and Accurate

Mai states that the “Phase I/II report is not a full and accurate assessment of what we found during survey and testing.”⁶³ He cites one specific example, stating that he does “not believe the Circa report accurately characterizes the site’s cultural richness” in the vicinity of the “power line easement near the top of the upper floodplain area.”⁶⁴

Tyrer states that the “Phase I/II reports [sic] details the extensive excavations and rich archaeological resources that were recorded in the project area” and that the “report discusses the presence of cobbles on the ground surface of the upper floodplain and details the artifacts that were recorded.”

Mai's criticism of the Phase I/II report reflects an opinion without any supporting factual basis. Counsel does not have sufficient information available to evaluate that opinion and offer any conclusions on it.

⁶² Note that not every shovel test pit form page was initialed by a Circa staff member. However, in several cases, it appears that a staff member initialed a page then did not initial subsequent pages. In those cases, the forms were recorded in a similar style and handwriting, indicating that they were recorded by the same person.

⁶³ Mai Decl. ¶ 56.

⁶⁴ Mai Decl. ¶ 56.

2. The Laboratory Methods Used to Investigate Artifacts from the Phase I/II Field Study Was Misstated

Mai states that the “methodology used to analyze the artifacts we found is also misstated” because all of the “artifacts sent to the lab were treated the same, regardless of type, importance, or condition.”⁶⁵ Mai further states that the unidentified “lab manager” did not possess the training or educational background to serve in that capacity.

Tyrer states that she was the laboratory director and that the person identified in Mai’s statement as the “lab manager” was her assistant. She states that she segregated any “special artifacts” prior to washing by the laboratory assistant. She also asserts that Mai was not regularly in Circa’s office and had “no working knowledge of the laboratory.”

Counsel identified no available evidence that sheds light on the laboratory methods employed by Circa for the Phase I/II field study. However, it is significant that Mai does not state the foundation for his purported knowledge of the laboratory methods employed on the Project. The declaration does not clarify whether this information came from Mai’s own observations, statements made by the unidentified “lab manager” to Mai, or some other source. Moreover, Tyrer’s statement that Mai had little direct knowledge of the laboratory practices observed at Circa’s office appears to be plausible in light of Mai’s statements about the tasks he performed for Circa. Accordingly, Counsel does not find Mai’s statements about Circa’s laboratory methods to be sufficiently supported or reliable to be deemed credible allegations of misconduct.

VI. Conclusion

The allegations of improper conduct presented in the Mai Declaration are serious and warranted a thorough examination. Counsel has endeavored to evaluate each of the principal allegations in the declaration based on all available information to draw reasonable conclusions about whether those allegations are credible to better inform the Board’s response.

As detailed above, Counsel was not able to confirm any of the most serious allegations of falsifying information about the Phase I/II field study and giving false

⁶⁵ Mai Decl. ¶ 57.

statements to agency officials. To the contrary, the Mai Declaration appears to contain numerous statements that are irreconcilably inconsistent with contemporaneous documents associated with the study or other statements by Mai. Furthermore, many of the allegations appear to deliberately misleading and exaggerated. Others appear to be false.⁶⁶

The direct and circumstantial evidence relating to several of the allegations against Circa and Tyrer is fairly characterized as inconclusive. Furthermore, allegations that Tyrer falsified her professional qualifications are the subject of litigation filed by Tyrer against DHR. Although those allegations are referenced in the Mai Declaration, Mai has no relevant first-hand knowledge relating to those allegations and Counsel expresses no opinion on them in this report. A court is the appropriate forum to resolve that issue.

In summary, Counsel does not find any of the principal allegations in the Mai Declaration to be credible and/or supported by the available evidence. Thus, Counsel does not believe the Mai Declaration provides information that is sufficiently reliable to base a recommendation for any specific further Board action with respect to Circa and Tyrer. Nevertheless, questions remain pending in court and with the relevant agencies (USACE and DHR) relating principally to Tyrer's professional qualifications. Unless and until those issues are resolved conclusively, Counsel recommends that the most reasonable and prudent course of action is to (1) retain Circa as a consultant on a limited on-call basis going forward so that JRWA does not lose the benefit of Circa's knowledge of the site and previous field studies and (2) proceed with the ongoing review of Circa's prior work product that is being conducted by GAI.

* * *
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⁶⁶ Because the Mai Declaration is a sworn statement submitted to a federal agency for the purpose of affecting a pending permit application, any willfully false statements therein constitute perjury under federal (18 U.S.C. §§ 1621, 1622) and state law (Va. Code § 18.2-434).