HRBT EXPANSION

Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
NRCS Soil Boundary
NWI Wetlands
FEMA 100-Year Floodplain

Confirmed Jurisdictional WOUS (2018)
E1OW E2US2 E2SS PSS R2
E2RF E2US3 E2FO PFO R4
E2RS2 E2EM PEM PUB R6

HAMPTON ROADS CONNECTOR PARTNERS

Udorthents-Dumps complex Partially Hydric
Area 17
State-Urban land complex, 0 to 3 percent slopes Not Hydric
Udorthents-Dumps complex Partially Hydric
Udorthents-Dumps complex Partially Hydric
Area 16
Udorthents-Dumps complex Partially Hydric
Area 4
Urban land Partially Hydric
Udorthents-Dumps complex Partially Hydric
Area 3
Urban land Partially Hydric

64 HDR | MOTT MACDONALD Design Joint Venture

0 50 100
Feet

DATA SOURCE: USDA, FWS, FEMA, VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 18 OF 19

DECEMBER19, 2019

Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
NRCS Soil Boundary
NWI Wetlands
FEMA 100-Year Floodplain

Confirmed Jurisdictional WOUS (2018)

E1OW E2US2 E2SS PSS R2
E2RF E2US3 E2FO PFO R4
E2RS2 E2EM PEM PUB R6

Udorthents-Dumps complex Partially Hydric
Area 16
Udorthents-Dumps complex Partially Hydric
Area 15
Area 4
Udorthents-Dumps complex Partially Hydric

0 50 100
Feet

DATA SOURCE: USDA, FWS, FEMA, VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 19 OF 19

DECEMBER19, 2019

Soil Map—Tidewater Cities Area, Virginia
(Additional_Delineation_Areas_2019)

Map Scale: 1:67,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 1000 2000 4000 6000

Feet
0 3000 6000 12000 18000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tidewater Cities Area, Virginia
Survey Area Data: Version 17, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Nov 28, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

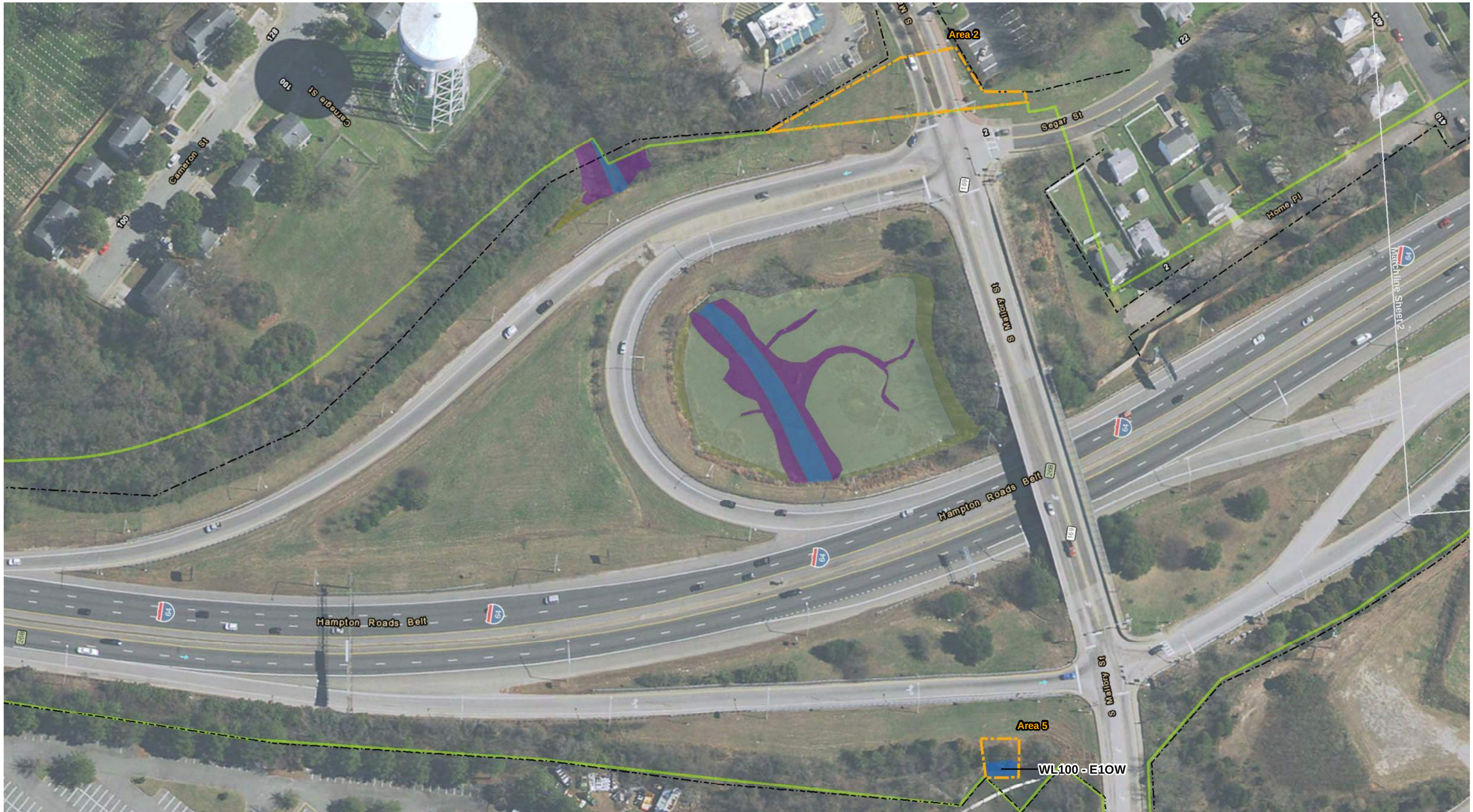
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Altavista-Urban land complex, 0 to 3 percent slopes	0.4	2.0%
2	Augusta-Urban land complex, 0 to 2 percent slopes	0.1	0.7%
6	Bohicket muck, 0 to 1 percent slopes, very frequently flooded	0.2	0.8%
20	Seabrook-Urban land complex, 0 to 2 percent slopes	0.1	0.5%
22	State-Urban land complex, 0 to 3 percent slopes	0.0	0.1%
26	Udorthents-Dumps complex	4.2	21.7%
27	Urban land	0.0	0.2%
W	Water	14.3	73.9%
Totals for Area of Interest		**19.3**	**100.0%**

B

Delineated Areas

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6



HDR | MOTT MACDONALD Design Joint Venture

0 50 100 Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 1 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW	E2US2	E2SS	PSS	R2
E2RF	E2US3	E2FO	PFO	R4
E2RS2	E2EM	PEM	PUB	R6

HAMPTON ROADS CONNECTOR PARTNERS

HDR | MOTT MACDONALD
Design Joint Venture

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 2 OF 19

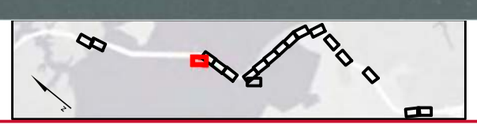
DECEMBER19, 2019

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

Matchline Sheet 4

Area 20

124_ext
- E1OW



0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 3 OF 19

DECEMBER19, 2019

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

124_ext - E1OW
Area 21
124_ext - E1OW
VS - E2RS2
Hampton Roads Belt
Hampton Roads Bridge Tunl
Matchline Sheet 3
Matchline Sheet 5

0 50 100 Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 4 OF 19

DECEMBER19, 2019

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

124_ext
- E1OW

Area 21

Hampton Roads Belt

Matchline Sheet 4

Matchline Sheet 6

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 5 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

64 HDR | MOTT MACDONALD Design Joint Venture

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 6 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

HDR | MOTT MACDONALD
Design Joint Venture

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 7 OF 19

DECEMBER19, 2019

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

Area 22
124_ext
- E1OW
WS3 - E1OW
Area 24
250_ext
- E1OW
Area 25
WS2 - E1OW
248_ext
- E1OW
Area 23
Bayville St
Match Tie Sheet 7

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 8 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

HDR | MOTT MACDONALD
Design Joint Venture

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 9 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS

64 HDR | MOTT MACDONALD Design Joint Venture

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

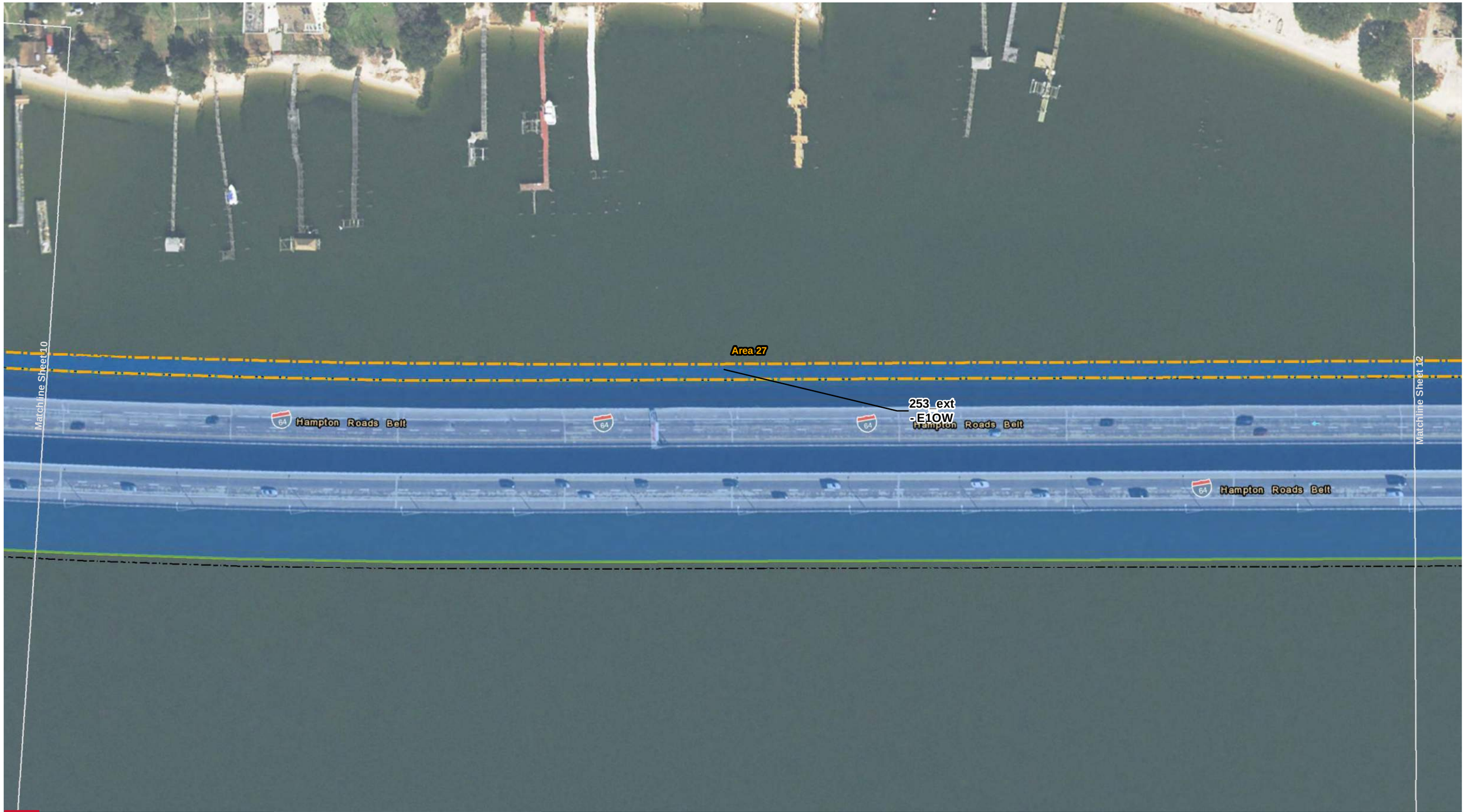
ADDITIONAL DELINEATION AREAS 2019

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS



64 HDR | MOTT MACDONALD Design Joint Venture

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 11 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS

253_ext
- E1OW

Area 27

Hampton Roads Belt

252_ext
- E1OW

Area 28

Matchline Sheet 11

Matchline Sheet 13

HDR | MOTT MACDONALD
Design Joint Venture

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 12 OF 19

DECEMBER19, 2019

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 13 OF 19

DECEMBER19, 2019

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way
E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

HDR | MOTT MACDONALD
Design Joint Venture

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW	E2US2	E2SS	PSS	R2
E2RF	E2US3	E2FO	PFO	R4
E2RS2	E2EM	PEM	PUB	R6

HAMPTON ROADS CONNECTOR PARTNERS

HDR | MOTT MACDONALD
Design Joint Venture

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 15 OF 19

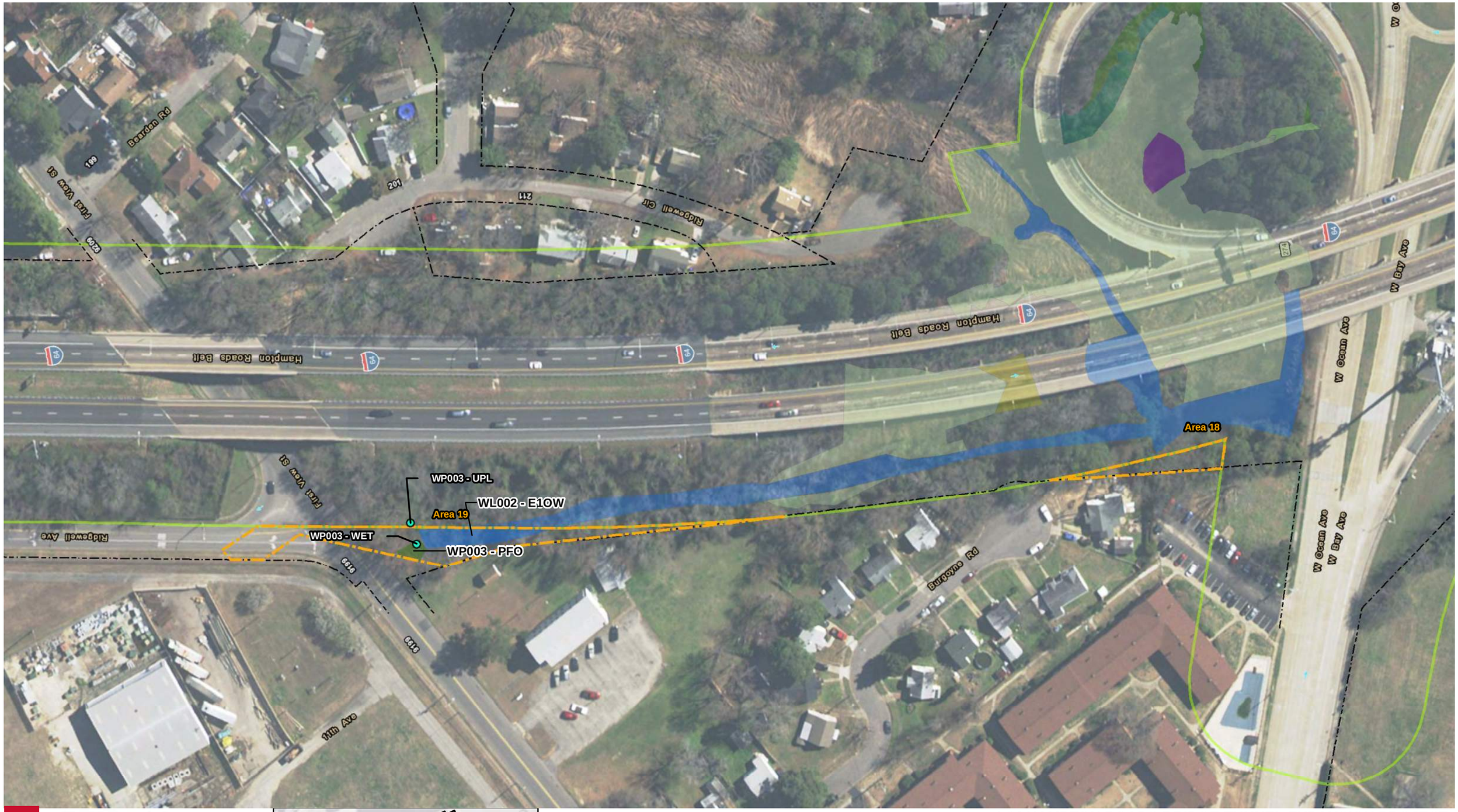
DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW
E2RF
E2RS2
E2US2
E2US3
E2EM
E2SS
E2FO
PEM
PSS
PFO
PUB
R2
R4
R6

HAMPTON ROADS CONNECTOR PARTNERS



0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

64 HDR | MOTT MACDONALD Design Joint Venture

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 16 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW	E2US2	E2SS	PSS	R2
E2RF	E2US3	E2FO	PFO	R4
E2RS2	E2EM	PEM	PUB	R6

HAMPTON ROADS CONNECTOR PARTNERS

0 50 100 Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

HDR | MOTT MACDONALD
Design Joint Venture

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

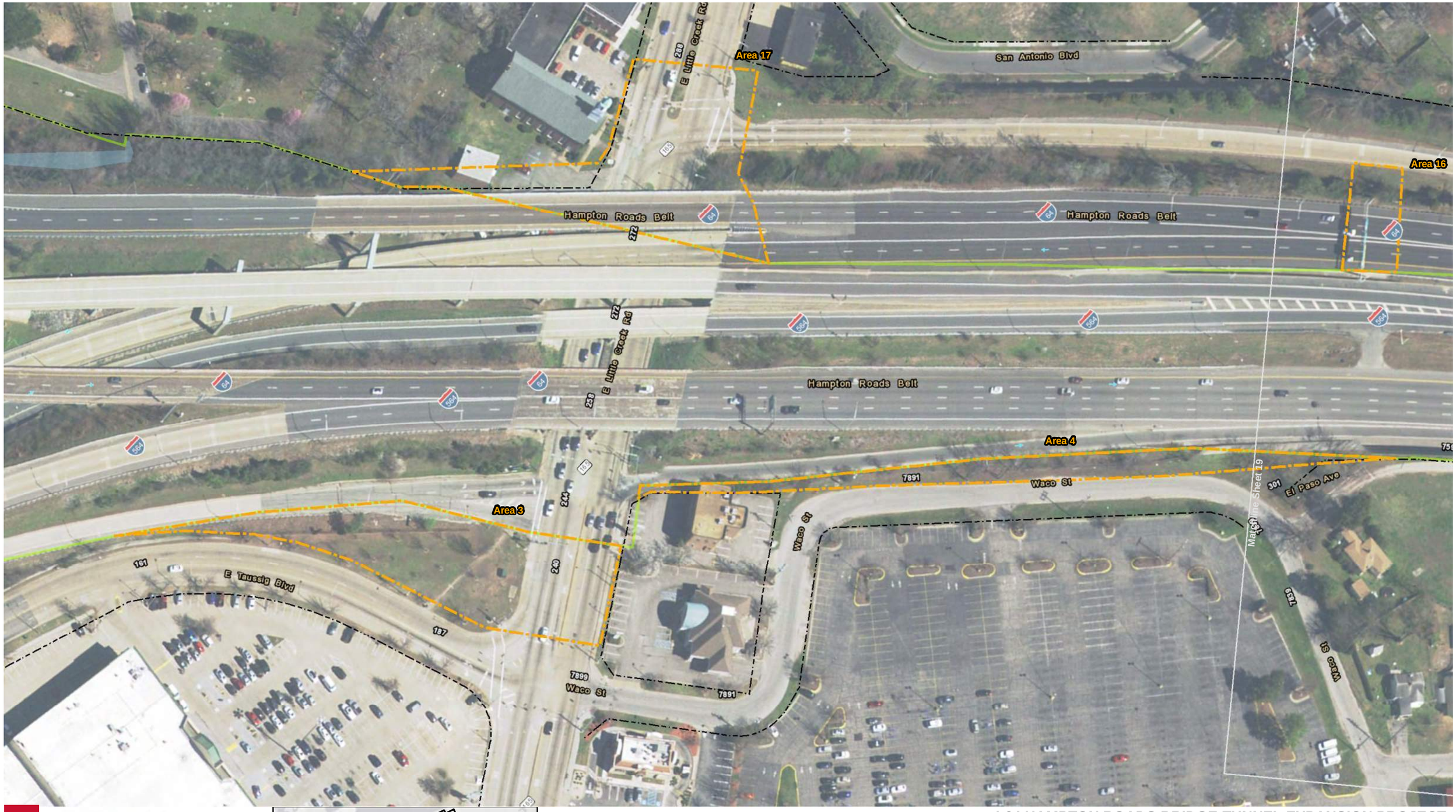
DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW | E2US2 | E2SS | PSS | R2
E2RF | E2US3 | E2FO | PFO | R4
E2RS2 | E2EM | PEM | PUB | R6

HAMPTON ROADS CONNECTOR PARTNERS



HDR | MOTT MACDONALD
Design Joint Venture

0 50 100
Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 18 OF 19

DECEMBER19, 2019

HRBT EXPANSION

Data Points
Additional Delineation Areas (2019)
Previously Confirmed PJD Delineation Boundary (2018)
Mean High Water (0.95 ft)
Mean Low Water (-1.48 ft)
VDOT Right of Way

E1OW	E2US2	E2SS	PSS	R2
E2RF	E2US3	E2FO	PFO	R4
E2RS2	E2EM	PEM	PUB	R6

HAMPTON ROADS CONNECTOR PARTNERS

64 HDR | MOTT MACDONALD Design Joint Venture

0 50 100 Feet

DATA SOURCE: VDOT, VGIN Aerial Imagery, ESRI World Transportation

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

ADDITIONAL DELINEATION AREAS 2019

SHEET 19 OF 19

DECEMBER19, 2019

C

Data Forms

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: HRBT City/County: Norfolk Sampling Date: 10/8/19

Applicant/Owner: VDOT State: VA Sampling Point: UPDB - WET Area 19

Investigator(s): LW, AD Section, Township, Range:

Landform (hillslope, terrace, etc.): low area Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR or MLRA): LRR T Lat: 26.946450554 Long: -76.26099577 Datum: NAD 83

Soil Map Unit Name: Bohicket muck, 0-1% slopes, very frq Flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

PFO

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0.5"

Water Table Present? Yes ✓ No ____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 4"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Atlas 19

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

Sampling Point: WP003-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. Liquidambar styraciflua	10	Y	FAC
2. Fraxinus pennsylvanica	10	Y	FACW
3. Acer rubrum	5		FAC
4. Robinia pseudoacacia	10	Y	FACU
5. Fraxinus nigra	10	Y	FACW
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover: 23%	20% of total cover: 9%		
Sapling/Shrub Stratum (Plot size: 15)			
1. Fraxinus pennsylvanica	60	Y	FACW
2. Ligustrum sinense	30	Y	FACU
3.			
4. Quercus nigra	5		FAC
5.			
6.			
7.			
8.			
	95 = Total Cover		
50% of total cover: 48%	20% of total cover: 19		
Herb Stratum (Plot size: 5)			
1. Fraxinus pennsylvanica	60	Y	FACW
2. Rubus allegheniensis	40	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1. Campsis radicans	25	Y	FAC
2. Smilax bona-nox	10	Y	FAC
3.			
4.			
5.			
	35 = Total Cover		
50% of total cover: 18%	20% of total cover: 7%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 70 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ____

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

Area 19

SOIL

Sampling Point: WP003 - WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	5YR 2.5/1	100					silty loam	
5-11	10YR 4/1	98	7.5YR 4/6	2	C	M	sandy loam	
11-13+	10YR 5/1	74	10YR 6/2	10	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): N/A

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

Unable to extract soil beyond 13"

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: HRBT City/County: Norfolk Sampling Date: 10/8/19

Applicant/Owner: VDOT State: VA Sampling Point: WP003-UPL Area 19

Investigator(s): AD, LR Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 15

Subregion (LRR or MLRA): LRRT Lat: 36.946483 Long: -76.266911 Datum: NAD 83

Soil Map Unit Name: Bohicket muck, 0-1% slopes, very frequently flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

uphill area near WP003

Area 19

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

Sampling Point: WP 003 - UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Robinia pseudoacacia	40	Y	FACU
2. Magnolia sp.	10	–	UNK
3.			
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	

50% of total cover: 20 20% of total cover: 8

Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	5	Y	FACW
2. Ligustrum sinense	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	

50% of total cover: 5 20% of total cover: 2

Herb Stratum (Plot size: 5')			
1. Fraxinus pennsylvanica	5	N	FACW
2. Lonicera japonica	20	Y	FACU
3. Campsis radicans	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	= Total Cover	

50% of total cover: 18 20% of total cover: 7

Woody Vine Stratum (Plot size: 30)			
1. Hedera helix	95	Y	FACU
2.			
3.			
4.			
5.			
	95	= Total Cover	

50% of total cover: 48 20% of total cover: 19

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No ✓

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

Area 19

SOIL

Sampling Point: WP003-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					Sandy loam	
8-13+	10YR 4/3	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Beyond 13" soil too dry to pull

D

Photographs

Photo 3 – Waterway WL002 in Area 19, facing north (upstream) at culvert that extends under 1st View Street

Photo 4 – Waterway WL002 in Area 19, facing south (downstream)

Photo 5 – Waterway WL002 in Area 19, facing right bank (west) and a structure located within the riparian buffer

Photo 6 – Waterway WL002 in Area 19, facing upstream (north)

Photo 7 – Wetland WP003 in Area 19, facing south

Photo 8 – Wetland WP003 in Area 19, facing north

Photo 9 – Area 8 facing south

Photo 10 – Area 8 facing north

Photo 11 – Area 8 facing east

Photo 12 – Area 1 facing north

Photo 13 – Area 1 facing south

Photo 14 – Area 1 facing east

Photo 15 – Area 2 facing south

Photo 16 – Area 2 facing north

Photo 17 – Area 3 overview facing north

Photo 18 – Area 4 facing north

Photo 19 – Area 4 facing south

Photo 22 – Area 6 overview photo facing north

Photo 23 – Area 7 facing north

Photo 24 – Area 7 facing south

Photo 25 – Area 8 facing north

Photo 26 – Area 8 facing south

Photo 27 – Area 8 facing southeast

Photo 28 – Area 8 facing southeast

Photo 29 – Area 8 facing west

Photo 30 – Area 9 facing east

Photo 31 – Area 9 facing southeast

Photo 31 – Area 9 facing west

Photo 31 – Area 10 facing east

Photo 32 – Area 10 facing east

Photo 33 – Area 11 facing north

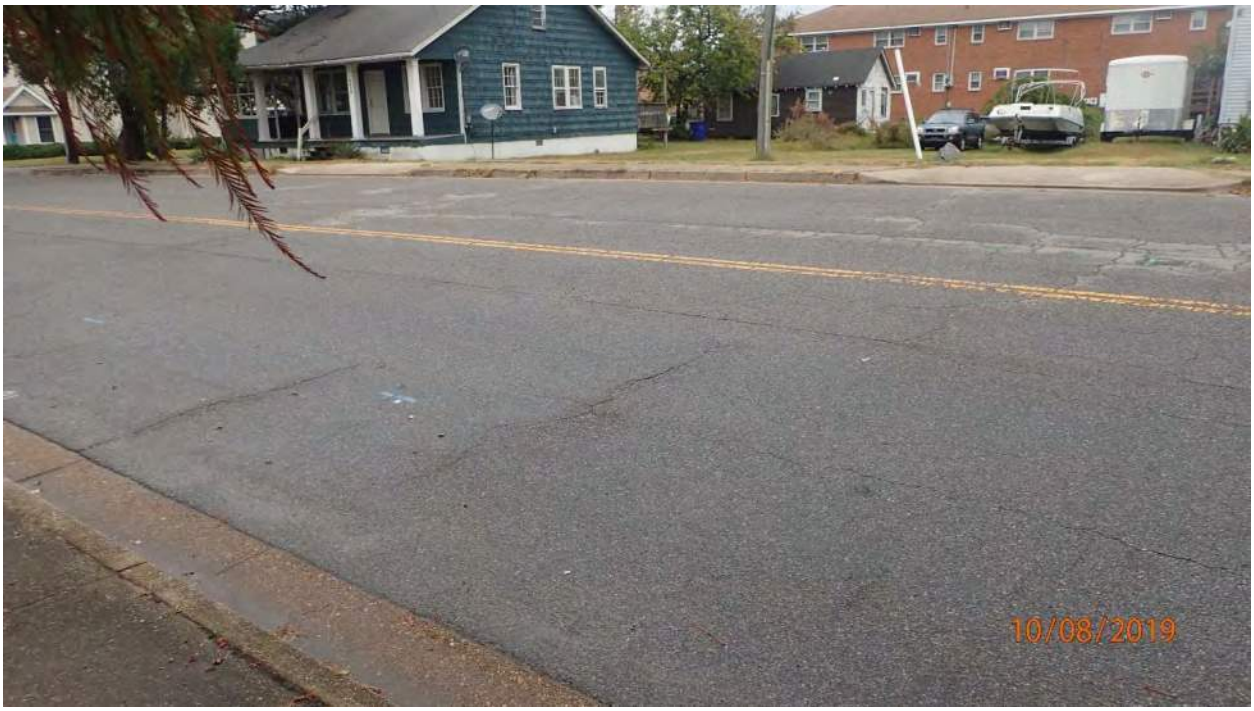


Photo 34 – Area 11 facing south

Photo 35 – Area 12 facing east