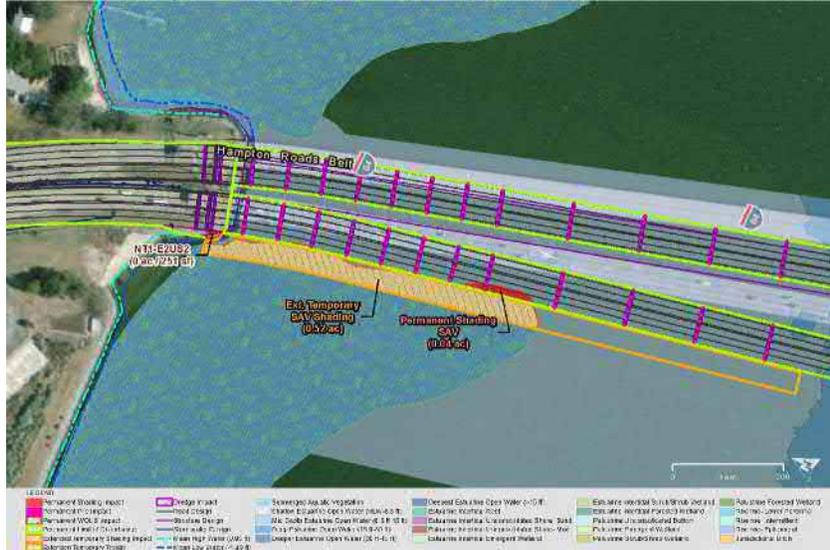


2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - North Trestle

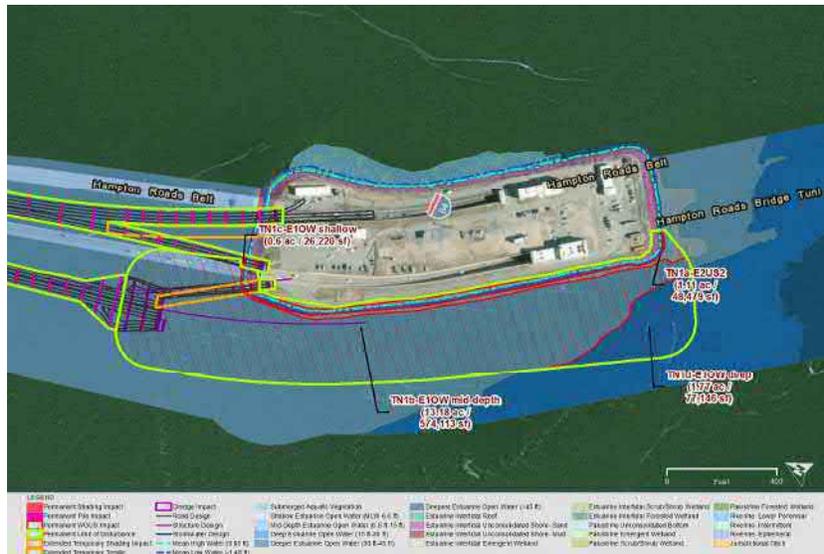


27

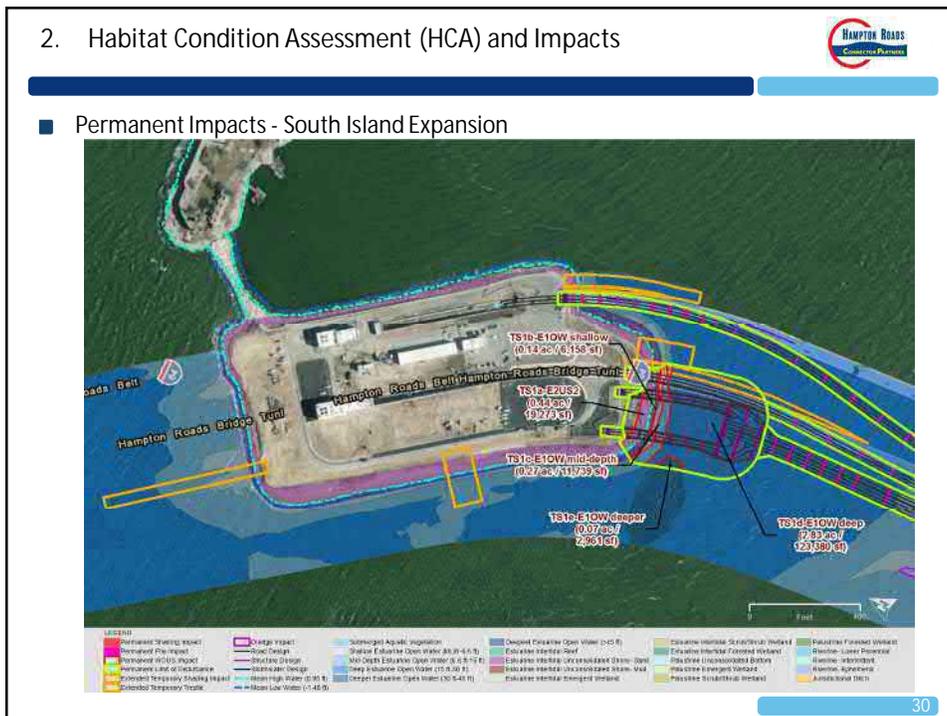
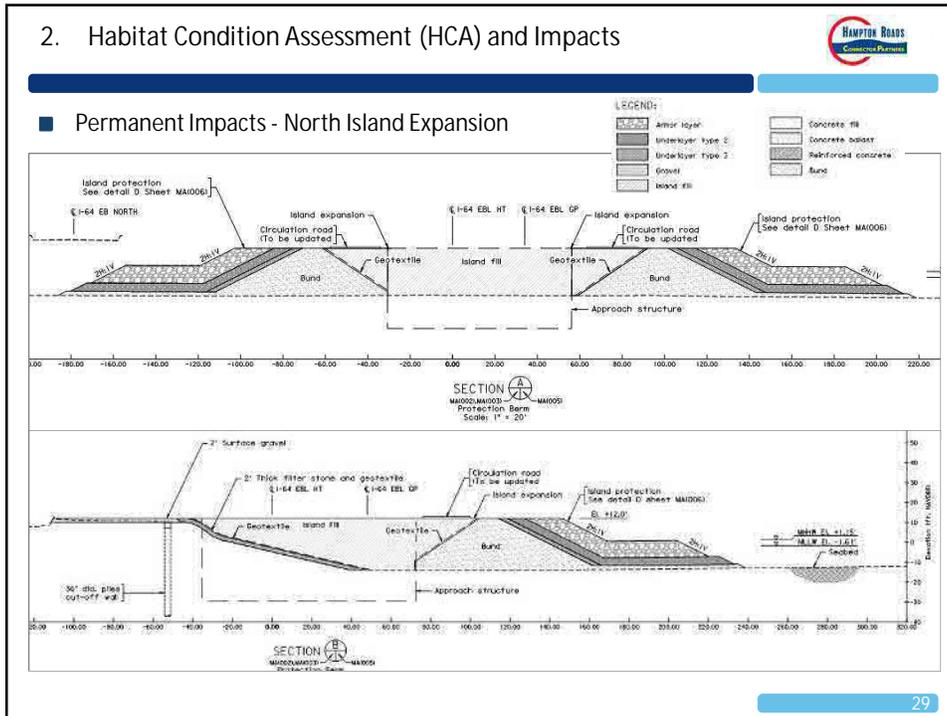
2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - North Island Expansion



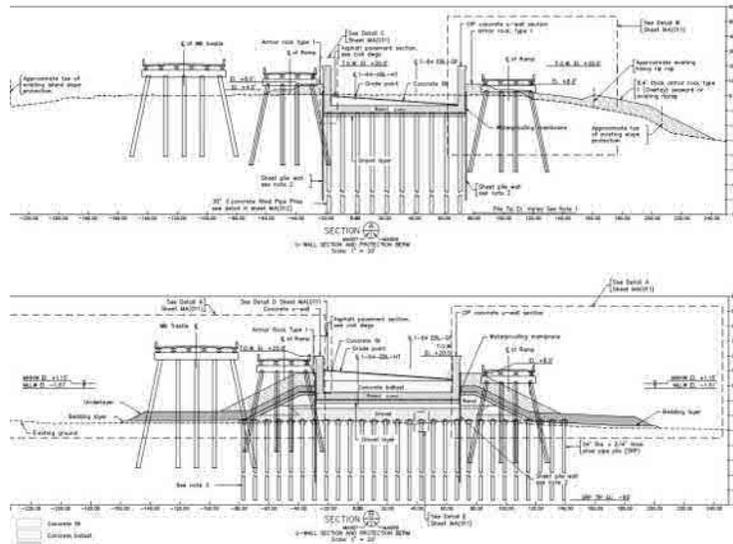
28



2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - South Island Expansion



31

2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - Willoughby Spit



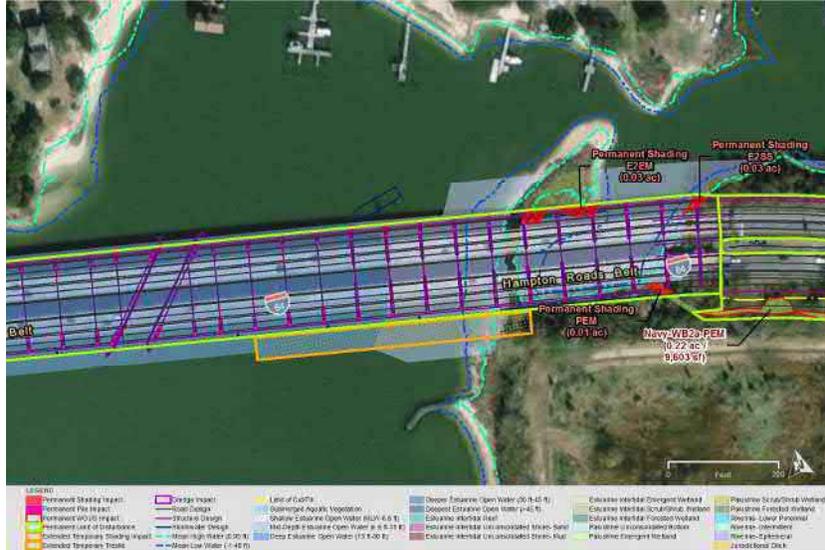
32

2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - Willoughby Bay (Navy Clearance)

WR5

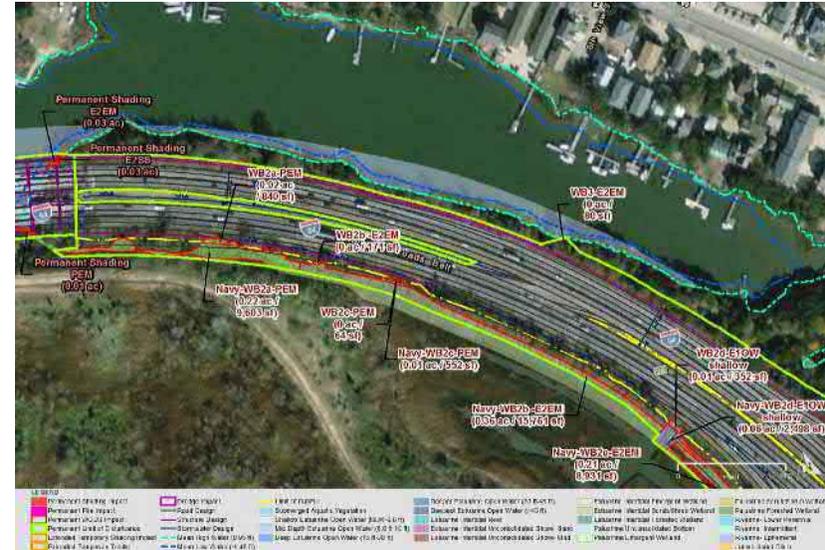


35

2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - Navy Clearance

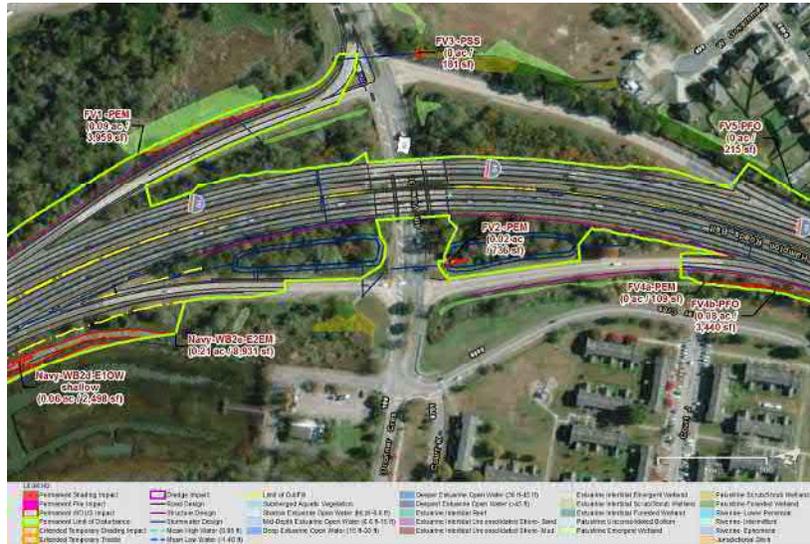


36

2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - 4th View Street



37

2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - Bay Ave/Oastes Creek



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2. Habitat Condition Assessment (HCA) and Impacts



■ Permanent Impacts - I-64 & I-564



43

2. Habitat Condition Assessment (HCA) and Impacts



■ Extended Temporary Impacts (>12 Months)

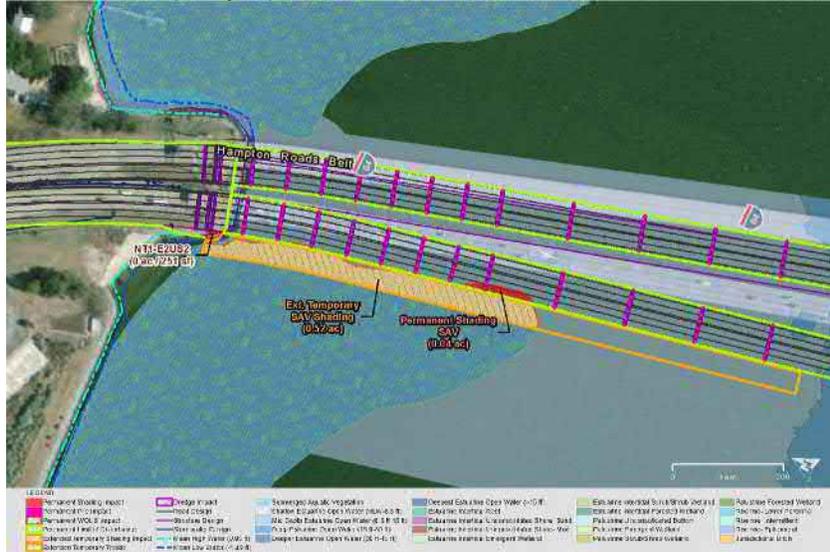
| Resource | Piles (acres) | Shading (acres) |
|--|---------------|-----------------|
| Estuarine Subtidal Open Water - Shallow (photic zone): < 6.6ft | 0.2 | - |
| Estuarine Subtidal Open Water - Mid-Depth: 6.6ft – 15ft | 0.2 | - |
| Estuarine Subtidal Open Water - Deep: 15ft – 30ft | 0.1 | - |
| Estuarine Subtidal Open Water w/ SAV | - | 0.6 |
| Estuarine Intertidal Emergent Marsh | <0.01 | 0.6 |
| Estuarine Intertidal Scrub Shrub | - | <0.01 |
| Estuarine Intertidal Reef | - | - |
| Estuarine Intertidal Unconsolidated Shore Sand | <0.01 | - |
| Estuarine Intertidal Unconsolidated Shore Mud | - | - |
| Jurisdictional Ditch | - | - |
| Palustrine Emergent | - | - |
| Palustrine Forested | - | <0.01 |
| Palustrine Scrub Shrub | - | - |
| Palustrine Unconsolidated Bottom | - | - |
| Total | 0.52 | 1.22 |
| Lower Perennial, Riverine | - | - |
| Intermittent, Riverine | - | - |

44

2. Habitat Condition Assessment (HCA) and Impacts



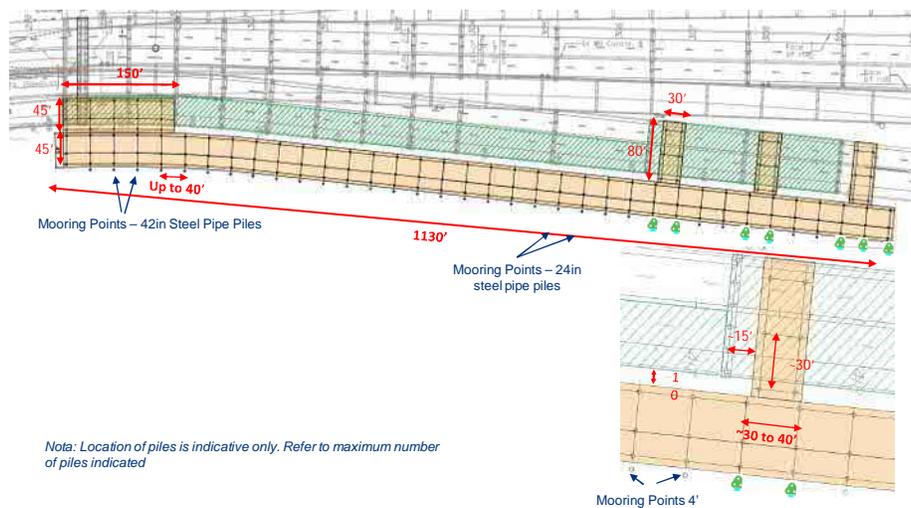
Extended Temporary Impacts (>12 Months) - North Trestle



2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) - North Trestle

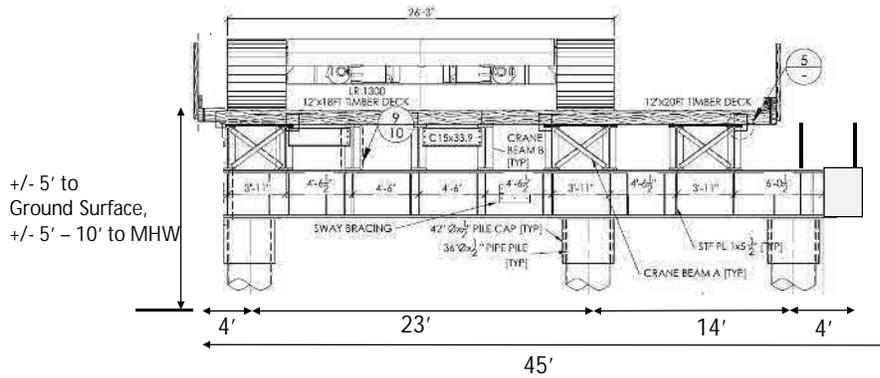


2. Habitat Condition Assessment (HCA) and Impacts



- Extended Temporary Impacts (>12 Months) - Typical Temporary Trestle
 - 36" steel pipe piles

Main transverse section



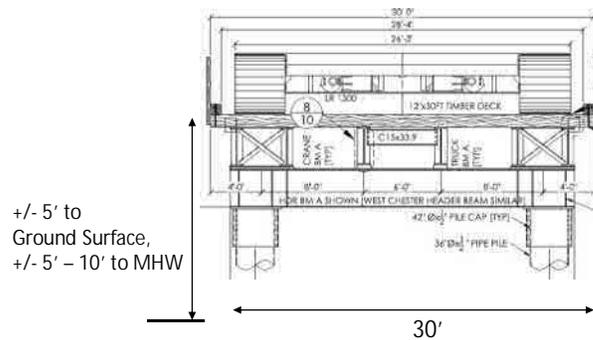
47

2. Habitat Condition Assessment (HCA) and Impacts



- Extended Temporary Impacts (>12 Months) - Typical Temporary Trestle
 - 36" steel pipe piles

Finger transverse section

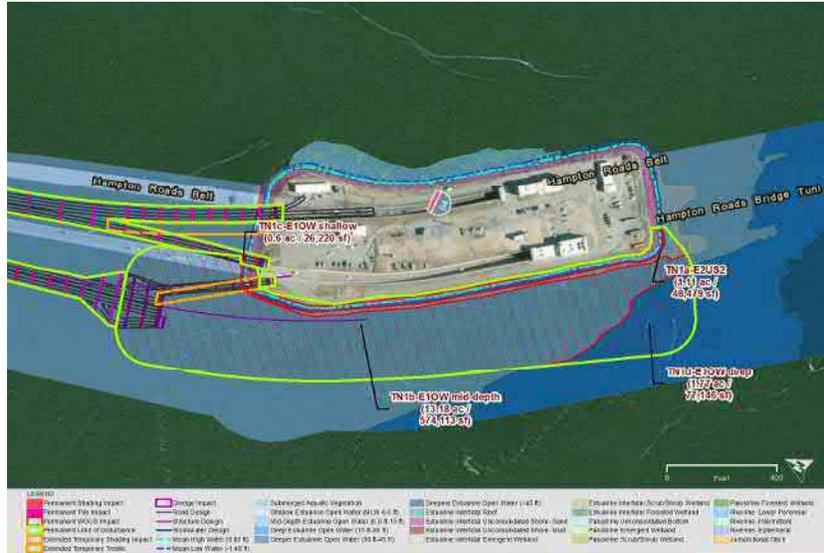


48

2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) - North Island Expansion

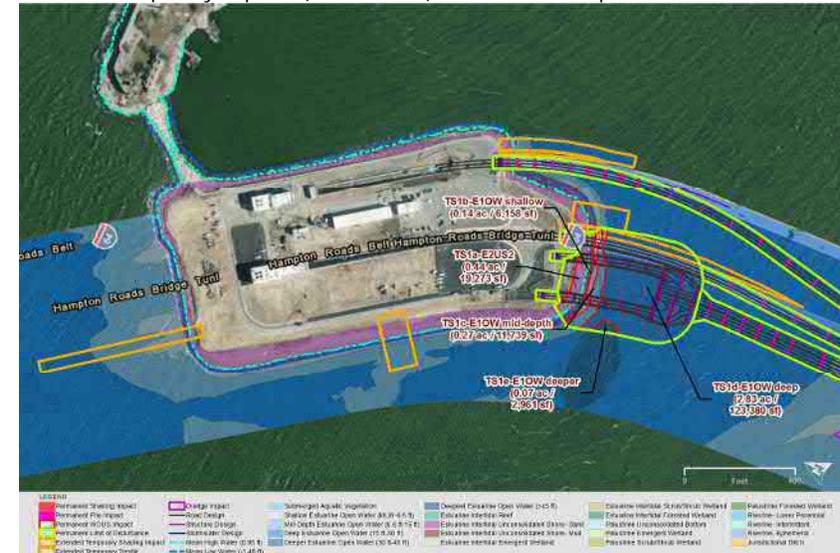


49

2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) - South Island Expansion



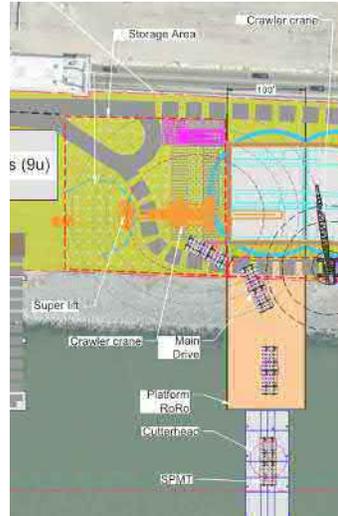
50

2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months)

- South Island TBM/Supply Platform
- Conveyor – TBM Spoil Movement

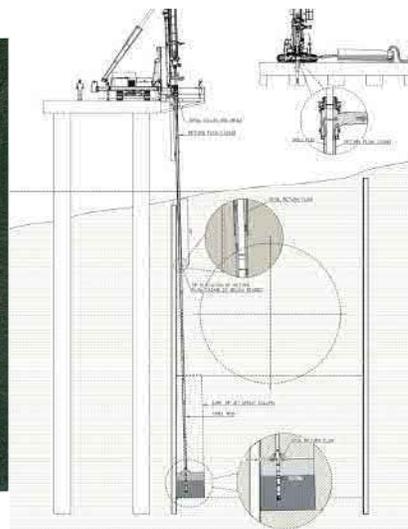


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2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) - South Island Jet Grout Trestles

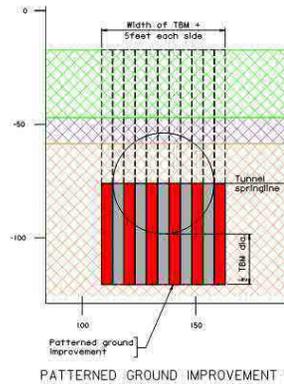
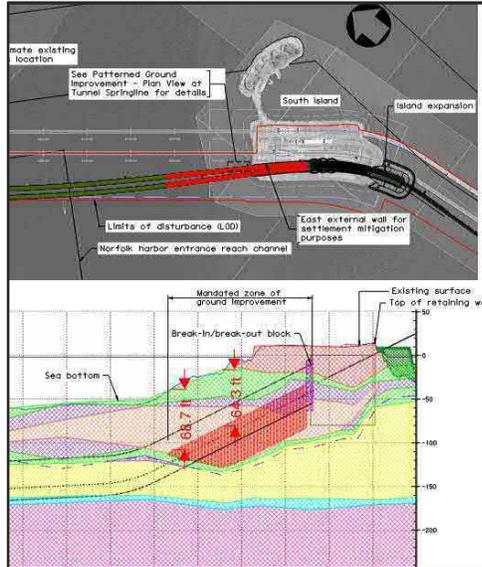


52

2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) - South Island Jet Grout Trestles



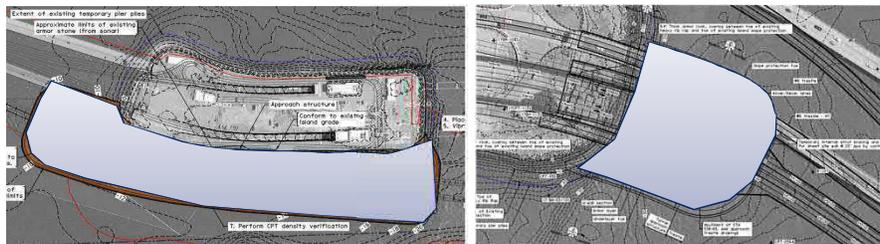
53

2. Habitat Condition Assessment (HCA) and Impacts



Dredging - North and South Island Ground Improvement and Obstruction Removal

| Resource | Area (acres) | Volume cyds |
|--|--------------|-------------------|
| North Island Expansion – Ground improvement and obstruction removal | | |
| Estuarine Subtidal Open Water - Shallow (photic zone): < 6.6ft | 0.6 | ~95,000 |
| Estuarine Subtidal Open Water - Mid-Depth: 6.6ft - 15ft | 13.4 | |
| Estuarine Subtidal Open Water - Deep: 15ft – 30ft | 1.7 | |
| South Island Expansion – Ground Improvement and Obstruction Removal | | |
| Estuarine Subtidal Open Water - Shallow (photic zone): < 6.6ft | 0.2 | ~20,000 – 125,000 |
| Estuarine Subtidal Open Water - Mid-Depth: 6.6ft – 15ft | 0.3 | |
| Estuarine Subtidal Open Water - Deep: 15ft – 30ft | 2.9 | |



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2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) – South Trestle Dredging and Debris Removal

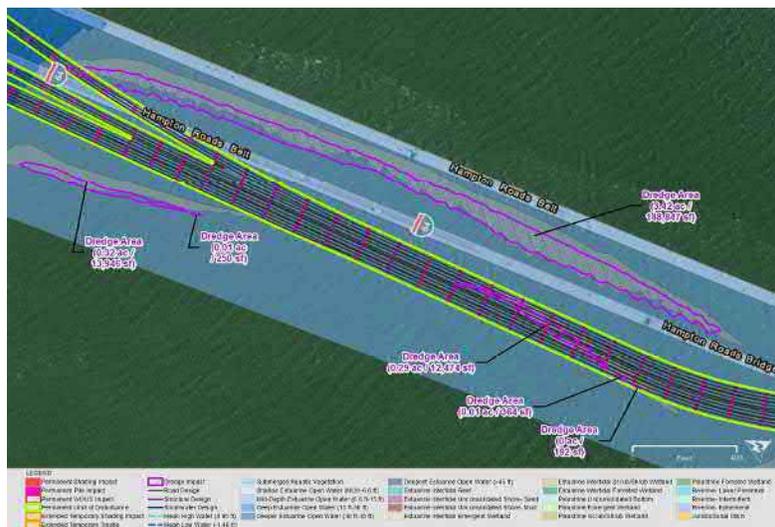
| Resource | Area (acres) | Volume (cyds) |
|---|--------------|---------------|
| South Trestle Dredge – Construction Vessel Access and Obstruction Removal | | |
| Estuarine Subtidal Open Water - Shallow (photic zone): < 6.6ft | 4 | TBD |
| Estuarine Intertidal Unconsolidated Shore Sand | 0.2 | |
| Total | 4.2 | |

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2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) – South Trestle Dredging and Debris Removal

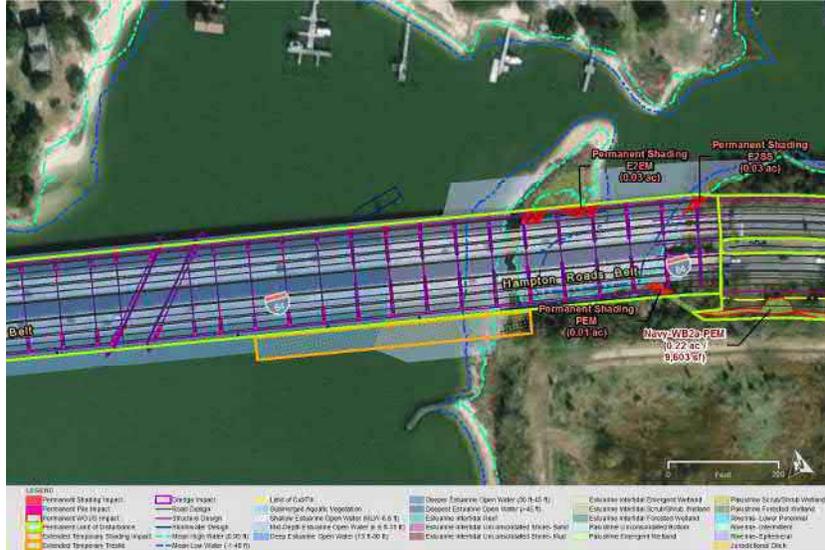


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2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) – Willoughby Bay (E)

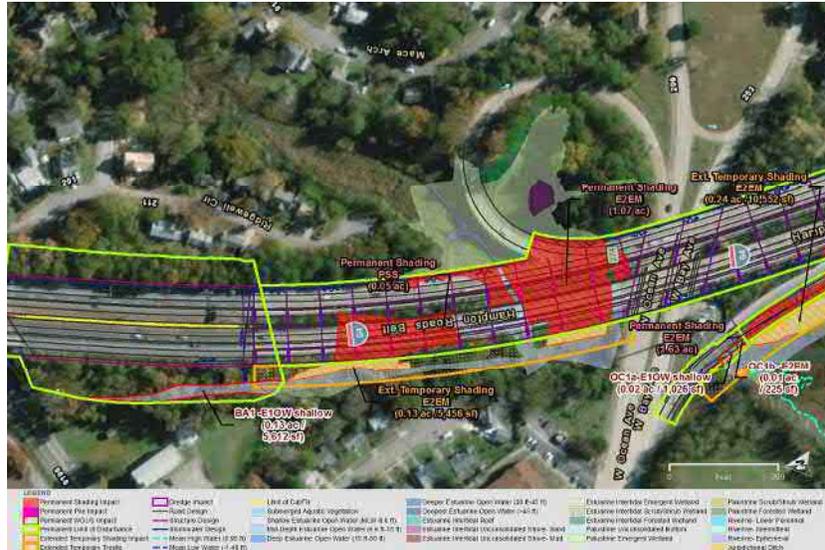


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2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) – Bay Ave/Oastes Creek

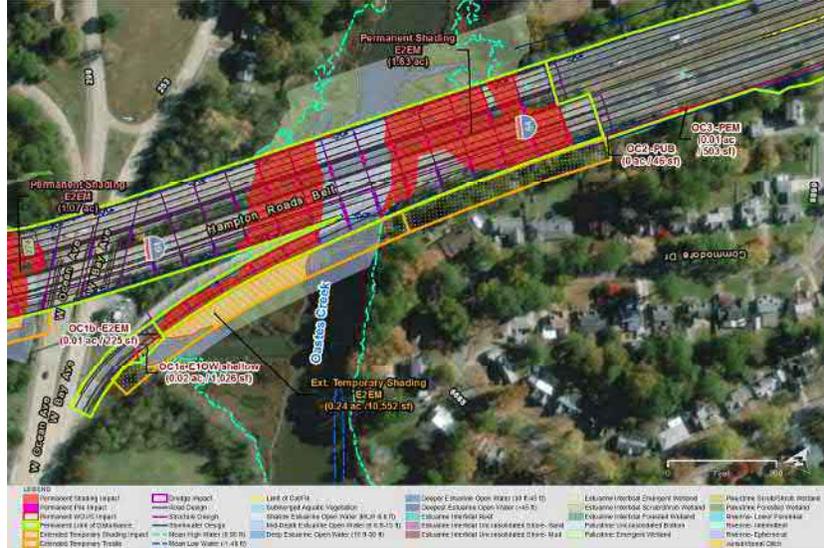


60

2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) – Bay Ave/Oastes Creek

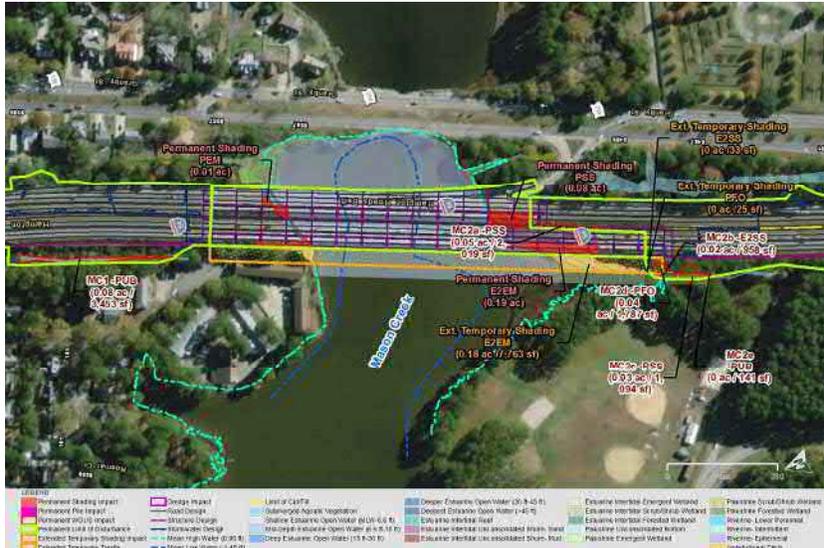


61

2. Habitat Condition Assessment (HCA) and Impacts



Extended Temporary Impacts (>12 Months) – Mason Creek



62

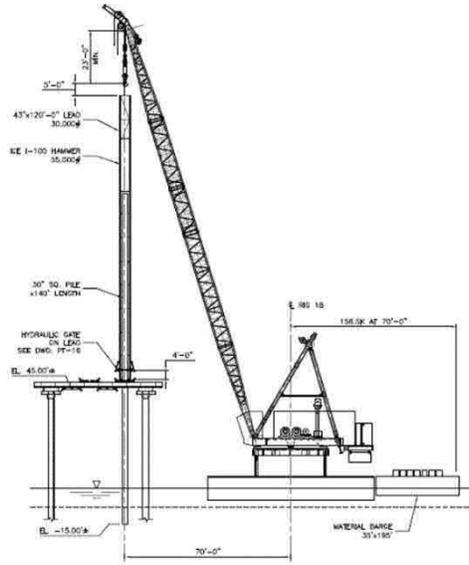
2. Habitat Condition Assessment (HCA) and Impacts



■ Temporary Impacts (<12 months)

■ Templates

- Accommodates 3 permanent piles
- Four 42" pipe piles to set



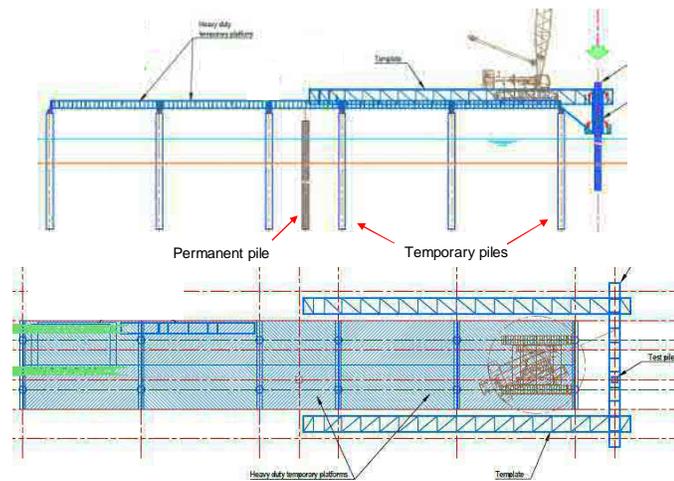
63

2. Habitat Condition Assessment (HCA) and Impacts

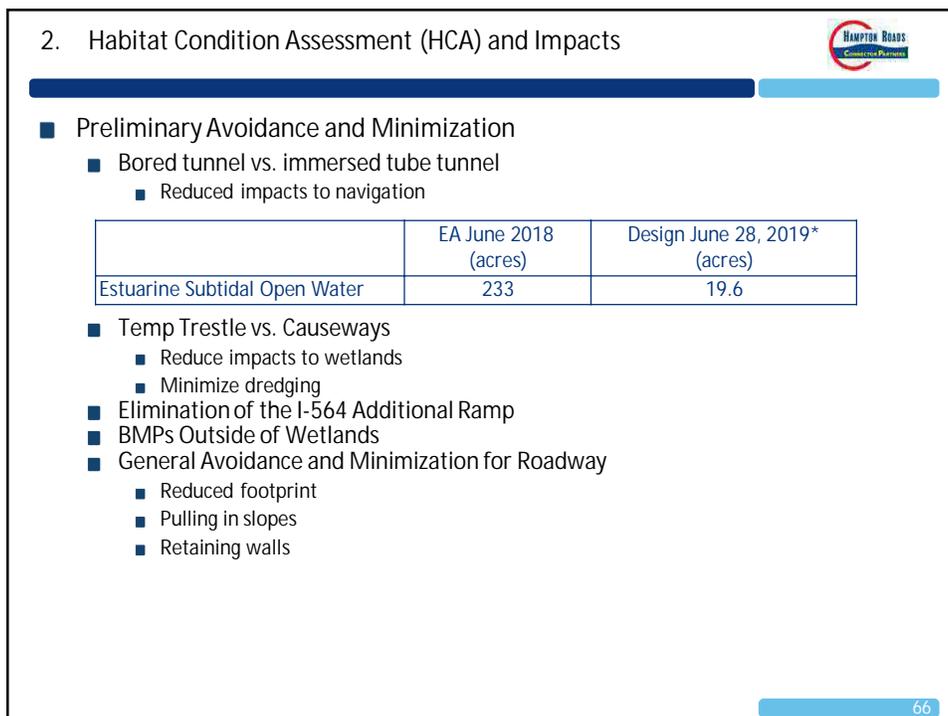
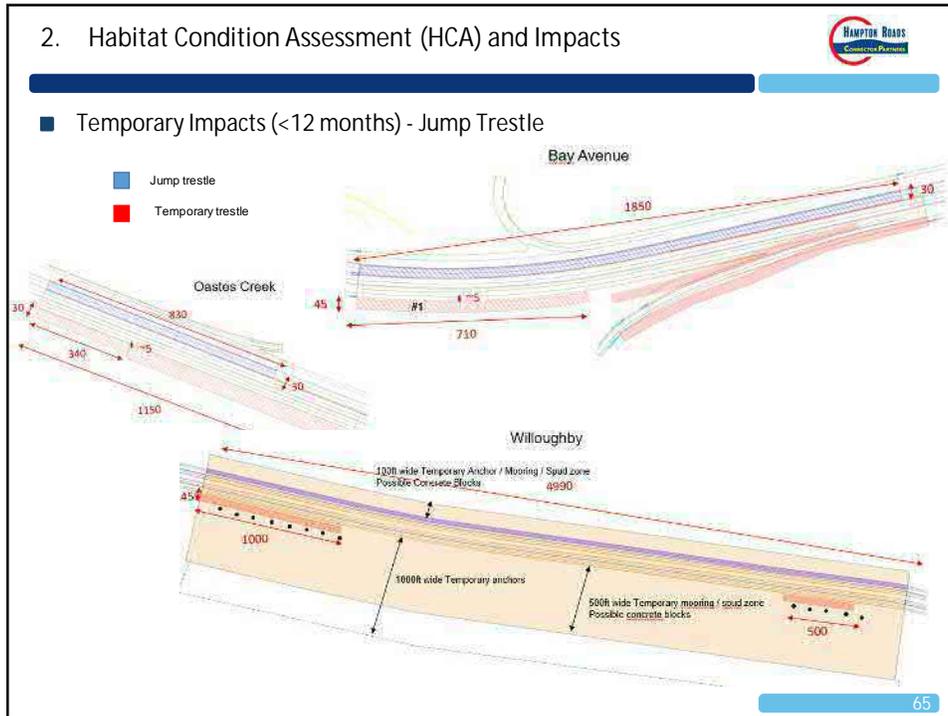


■ Temporary Impacts (<12 months) - Jump Trestle - Heavy duty moving platform

- Open Ended 36" Steel Pipe Piles



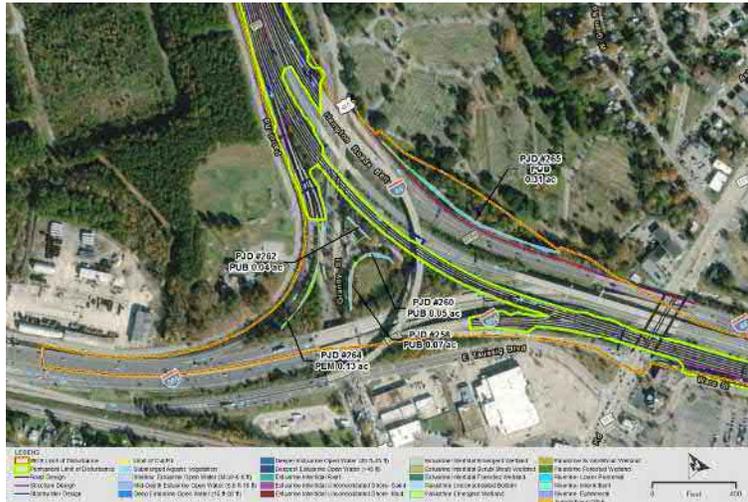
64



2. Habitat Condition Assessment (HCA) and Impacts



- Preliminary Avoidance and Minimization
 - Elimination of the I-564 Ramp Structure



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Break



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3. Compensatory Mitigation

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3. Compensatory Mitigation

- Permanent Impacts

| Resource | Fills (acres) | Proposed Compensation Ratio | Piles (acres) | Proposed Compensation Ratio | Shading (acres) | Proposed Compensation Ratio |
|--|---------------|-----------------------------|---------------|-----------------------------|-----------------|-----------------------------|
| Estuarine Subtidal Open Water | 19.11 | HCA* | 0.45 | HCA* | - | - |
| Estuarine Subtidal Open Water w/ SAV | - | - | <0.01 | - | 0.04 | 2:1 |
| Estuarine Intertidal Emergent Marsh | 0.57 | 1:1 | 0.01 | - | 2.93 | 1:1 |
| Estuarine Intertidal Scrub Shrub | 0.02 | 1.5:1 | <0.01 | - | 0.03 | 1:1 |
| Estuarine Intertidal Scrub Shrub/Emergent Marsh (Mallory Street) | 0.09 | 2:1 | - | - | - | - |
| Estuarine Intertidal Reef | - | - | - | - | - | - |
| Estuarine Intertidal Unconsolidated Shore Sand | 1.56 | HCA* | 0.01 | HCA* | - | - |
| Estuarine Intertidal Unconsolidated Shore Mud | - | - | - | - | - | - |
| Jurisdictional Ditch | 18 If | - | - | - | - | - |
| Palustrine Emergent | 0.50 | 1:1 | - | - | 0.02 | 1:1 |
| Palustrine Forested | 0.13 | 2:1 | - | - | - | 1:1 |
| Palustrine Scrub Shrub | 0.25 | 1.5:1 | <0.01 | - | 0.14 | 1:1 |
| Palustrine Unconsolidated Bottom | 0.14 | 0.5:1 | - | - | - | - |
| Total | 22.37 | | 0.47 | | 3.15 | |
| Lower Perennial, Riverine | 3 If | 1.5:1 | - | - | - | - |

*Compensation to be determined pending results of the HCA and Agency Coordination

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3. Compensatory Mitigation



■ Extended Temporary Impacts >12 Months

| Resource | Piles (acres) | Proposed Compensation Ratio | Shading (acres) | Proposed Compensation Ratio |
|--|---------------|-----------------------------|-----------------|-----------------------------|
| Estuarine Subtidal Open Water | 0.28 | - | - | - |
| Estuarine Subtidal Open Water w/ SAV | 0.02 | - | 0.52 | 1:1 |
| Estuarine Intertidal Emergent Marsh | 0.01 | - | 0.55 | 1:1 |
| Estuarine Intertidal Scrub Shrub | - | - | <0.01 | 1:1 |
| Estuarine Intertidal Reef | - | - | - | - |
| Estuarine Intertidal Unconsolidated Shore Sand | <0.01 | - | - | - |
| Estuarine Intertidal Unconsolidated Shore Mud | - | - | - | - |
| Jurisdictional Ditch | - | - | - | - |
| Palustrine Emergent | - | - | - | - |
| Palustrine Forested | - | - | <0.01 | 1:1 |
| Palustrine Scrub Shrub | - | - | - | - |
| Palustrine Unconsolidated Bottom | - | - | - | - |
| Total | 0.32 | | 1.09 | |
| Lower Perennial, Riverine | - | - | - | - |

*Compensation to be determined pending results of the HCA and Agency Coordination

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3. Compensatory Mitigation



■ Temporary Wetland, Stream, and Other Habitat Impacts

- No mitigation is proposed for temporary impacts <12 months

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3. Compensatory Mitigation



Mitigation Source

| Resource | Compensation Required (Credits) | Compensation Available | | Proposed Compensation Source |
|--|---------------------------------|------------------------|--------|------------------------------|
| | | Current | Future | |
| Estuarine Subtidal Open Water | TBD | TBD | TBD | TBD |
| Estuarine Subtidal Open Water w/ SAV | 0.60 | TBD | TBD | TBD |
| Estuarine Intertidal Emergent Marsh | 4.13 | 4 | 8 | Mitigation Bank |
| Estuarine Intertidal Scrub Shrub | 0.44 | | | |
| Estuarine Intertidal Reef | - | - | - | - |
| Estuarine Intertidal Unconsolidated Shore Sand | TBD | TBD | TBD | TBD |
| Estuarine Intertidal Unconsolidated Shore Mud | - | - | - | - |
| Jurisdictional Ditch | - | - | - | - |
| Palustrine Emergent | 1.38 | Pre-Purchased by VDOT | | |
| Palustrine Forested | | | | |
| Palustrine Scrub Shrub | | | | |
| Palustrine Unconsolidated Bottom | | | | |
| Lower Perennial, Riverine | 4.50 | >6,500 | - | Mitigation Bank |

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4. VPDES



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4. VPDES



- Application comprised of
 - Form 1 - General Information
 - Form 2A - Application Overview
 - Form 2C- Wastewater Discharge Information
 - Form 2D - New Sources and New Dischargers, Application for Permit to Discharge Process Wastewater

Key Components

- Outfall Location Map
- Process Flow Diagram
- Additional Information / Narrative

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4. VPDES



- Form 2C- Wastewater Discharge Information
- Specific information regarding the planned outfalls
 - Specific Location lat/long –
 - Flow Rate
 - Contributing processes, as to where the water is coming, how it was generated
 - Treatment codes from Table 2C-1 codes denoting treatment processes for the water, i.e. Chemical treatment through carbon adsorption and others

| 1. OUT-FALL NO. (list) | 2. OPERATION(S) CONTRIBUTING FLOW | | 3. TREATMENT | |
|------------------------|---------------------------------------|---------------------------------|----------------------------------|-------------------------------|
| | a. OPERATION (list) | b. AVERAGE FLOW (include units) | a. DESCRIPTION | b. LIST CODES FROM TABLE 2C-1 |
| 001 | Det. Grouting / Slurry Wall construct | 300-500 gpm | residual return water | 1-U, 1-T, 2-K |
| | Tunnel Boring Machine, TBM excavation | ~ 350 gpm | water from slurry/ | 1-T, 1-Q, 2-K, 2-A |
| | excavation dewatering | 200 gpm | water from dewatering excavation | 1-U, 1-T, 2-K |
| | NCCW From TBM | 50 gpm intermitten | non-contact coolant water/TBM | 1-T, 1-Q, 2-K, 2-A |
| 002 | Det. Grouting / Slurry Wall construct | 300-500 gpm | residual return water | 1-U, 1-T, 2-K |
| | excavation dewatering | 200 gpm | water from dewatering excavation | 1-U, 1-T, 2-K |

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4. VPDES



- Point source discharge of construction process water
- Characterized as Industrial Minor
- Flow rate <0.5 MDG
- Two planned outfalls 001 and 002
 - 001 South Island
 - Water treatment from
 - Jet Grouting – construction
 - Slurry Wall - construction
 - Excavation water of tri-cell (Pit for TBM entry) north bore
 - TBM boring of tunnels
 - 002 North Island
 - Water treatment from
 - Jet Grouting – construction
 - Slurry Wall - construction
 - Excavation of water tri-cell for south bore of TBM

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4. VPDES



■ Planned Outfall Locations



Description
 Planned outfall locations for construction water treatment plant on South Island and North Island. The location of the plant and outfall are shown on the map. The location of the plant and outfall are shown on the map.

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4. VPDES

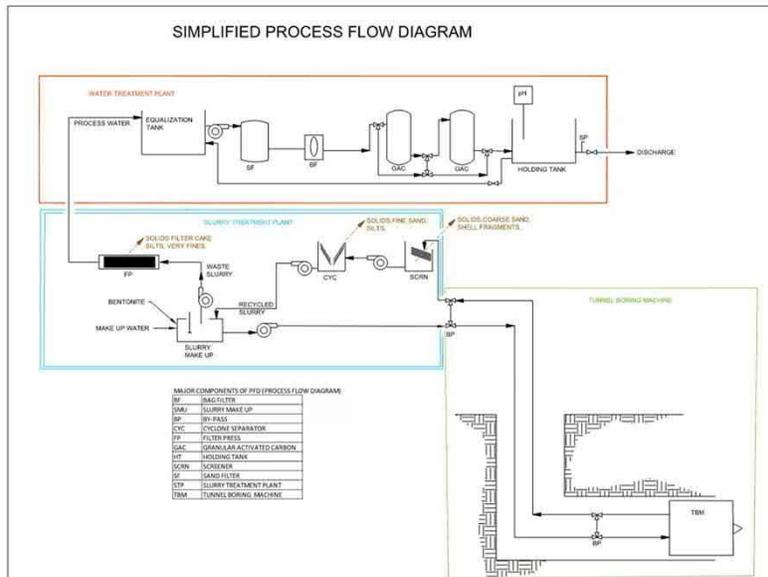


- Form 2D New Sources and New Dischargers, Application for Permit to Discharge Process Wastewater
 - Effluent data will be provided for chemical compounds that are suspected to be in process water.
 - Bench scale testing will be performed on samples collected and will emulate the slurry treatment plant processes
 - Provide a process flow diagram.
- Form 2C- Wastewater Discharge Information

4. VPDES



SIMPLIFIED PROCESS FLOW DIAGRAM



4. VPDES



- Nutrients N and P
 - If the discharge is in exceedance or planned exceedance of limit, offset credits are required to be purchased.
- Treatment system nutrient limits for total Nitrogen and total Phosphorus are:
 - N = 2,300 lb/yr
 - P = 300 lb/yr

Based on a 0.5 MGD industrial minor discharge

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Lunch

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5. MMPA and ESA



- Preliminary Results
Distances to In-water Acoustic Behavioral Thresholds

Fish and Sea Turtles – Unmitigated Impact Pile Installation

| Model | PSLM | | SAF | |
|---|--|--|--|--|
| | Distance to 166 dB RMS (Sea Turtle) (meters) | Distance to 150 dB RMS (Fish) (meters) | Distance to 166 dB RMS (Sea Turtle) (meters) | Distance to 150 dB RMS (Fish) (meters) |
| 24-inch steel pipe piles (impact) | 736 | 8,577 | 87 | 140 |
| 30-inch steel pipe piles (impact) | 858 | 10,000 | 58 | 90 |
| 36-inch steel pipe piles (impact) | 631 | 7,356 | 58 | 90 |
| 42-inch steel pipe piles (impact) | 858 | 10,000 | 105 | 185 |
| 30-inch square concrete piles (impact) | 46 | 541 | 18 | 50 |
| 54-inch cylindrical hollow concrete pile (impact) | TBD | TBD | TBD | TBD |

Practical Spreading Loss Model (PSLM)
Simplified Attenuation Formula (SAF)

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5. MMPA and ESA



- Preliminary Results
Distances to In-water Acoustic Behavioral Thresholds

Fish and Sea Turtles – Unmitigated Vibratory Pile Installation

| Model | PSLM | | SAF | |
|--|--|--|--|--|
| | Distance to 166 dB RMS (Sea Turtle) (meters) | Distance to 150 dB RMS (Fish) (meters) | Distance to 166 dB RMS (Sea Turtle) (meters) | Distance to 150 dB RMS (Fish) (meters) |
| 24-inch steel pipe piles (vibratory) | 40 | 464 | 54 | 107 |
| 30-inch steel pipe piles (vibratory) | 40 | 464 | 38 | 70 |
| 36-inch steel pipe piles (vibratory) | 40 | 464 | 28 | 60 |
| 42-inch steel pipe piles (vibratory) | 18 | 215 | TBD | TBD |
| 30-inch square concrete piles (vibratory) | 34 | 398 | TBD | TBD |
| 54-inch cylindrical hollow concrete pile (vibratory) | TBD | TBD | TBD | TBD |
| 24-inch AZ steel sheet (vibratory) | 4 | 44 | TBD | 40 |

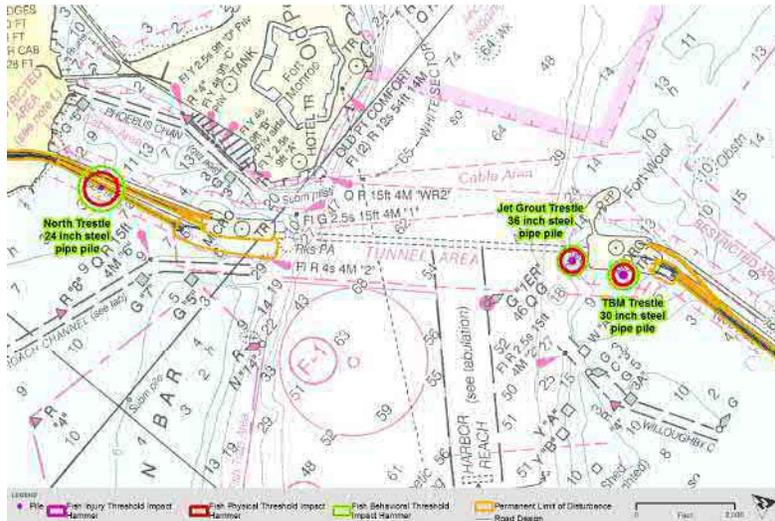
Practical Spreading Loss Model (PSLM)
Simplified Attenuation Formula (SAF)

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5. MMPA and ESA



■ Preliminary Results Distances to In-water Acoustic Behavioral Thresholds



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5. MMPA and ESA



- Minimization
 - Bubble curtain
 - Marine mammal observers
 - Ramp up

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6. NHPA Section 106



■ Commitments in the Programmatic Agreements

- No permanent acquisition of property from Hampton University
- Memorandum of agreement outlining terms for temporary Hampton University property
- Emancipation Oak: No encroachment into the Tree Limit of Disturbance
 - Baseline Assessment & Monitoring Plan
- Noise Barriers
 - Hampton Institute Historic District & Hampton Institute National Historic Landmark
 - Pasture Point Historic District
 - Hampton National Cemetery
 - Phoebus–Mill Creek Terrace Neighborhood Historic District
 - Norfolk Naval Base Historic District

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6. NHPA Section 106



■ Emancipation Oak

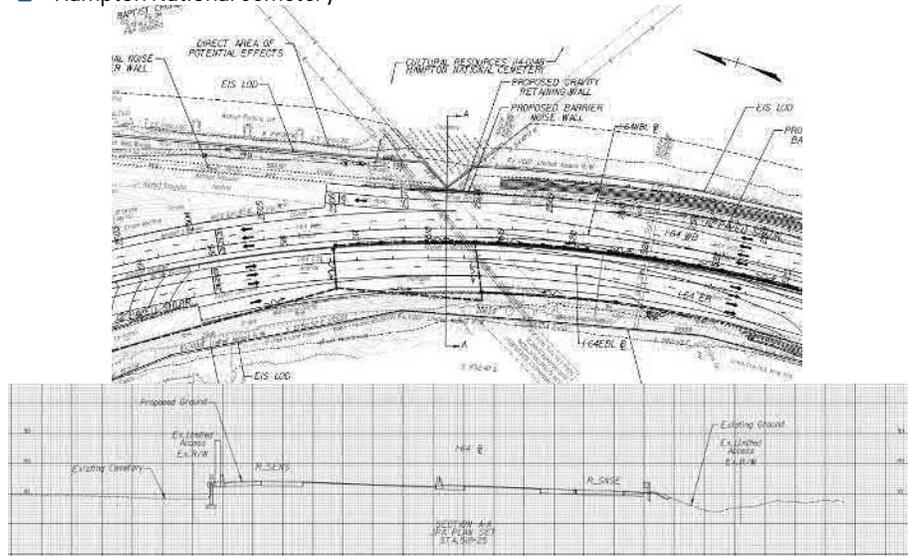


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6. NHPA Section 106



■ Hampton National Cemetery



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6. NHPA Section 106



■ Hampton National Cemetery



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7. Navigation

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7. Navigation

- Section 408
 - Navigation Safety Risk Assessment
 - Tunnel Construction Plan
 - Marine Operations Plan for Construction
 - Stakeholder Meeting
- USCG Bridge Permit
 - Potential USCG Meeting the week of July 22nd

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7. Navigation

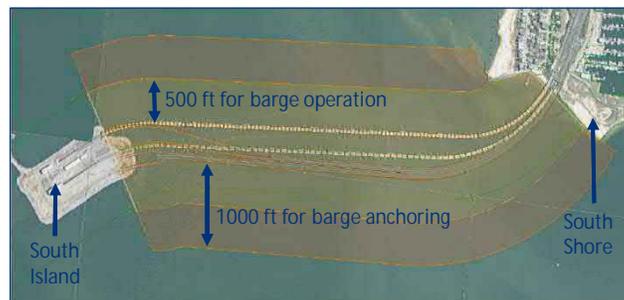


■ North & South Island

- Mooring area to be created near North and South Island Expansions
- 1 mooring pile (42" pipe pile) every 40FT around the footprint of the islands
- Spud barges used in areas with more than 4.5 ft of water (at MLW)
- 1000 ft from expansion boundary for barge anchoring
- 500 ft from expansion boundary for barge operation
- At peak, ~15 working barges
- First activity after receipt of the JPA
- Last activity in September 2024 + 6 months to remove structures

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7. Navigation

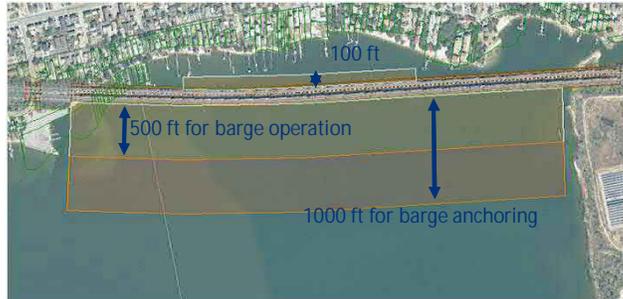


■ South Trestle

- Spud barges used in areas with more than 4.5 ft of water (at MLW)
- At peak, ~25 working barges
- First activity after receipt of the JPA
- Last activity in September 2024 + 6 months to remove structures

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7. Navigation



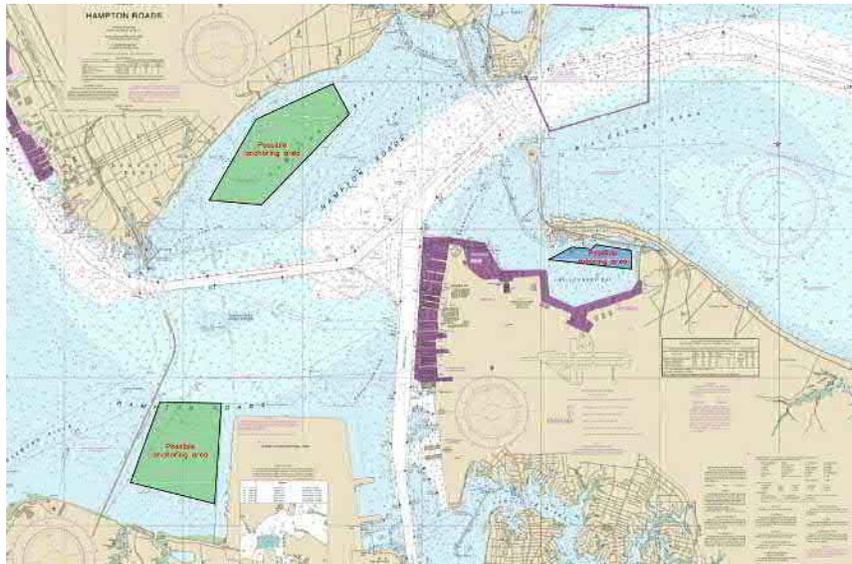
- Willoughby Bay
 - Mooring area to be created in Willoughby Bay with mooring piles (42" pipe piles)
 - Spud barges used in areas with more than 4.5 ft of water (at MLW)
 - At peak, ~15 working barges
 - First activity after receipt of the JPA
 - Last activity in December 2024 + 3 months to remove structures

97

7. Navigation



- Potential mooring and anchoring areas

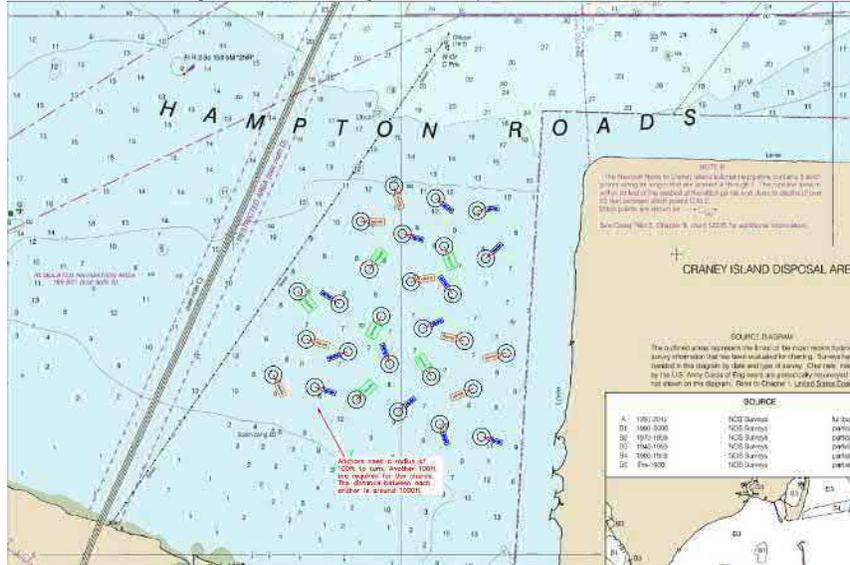


98

7. Navigation

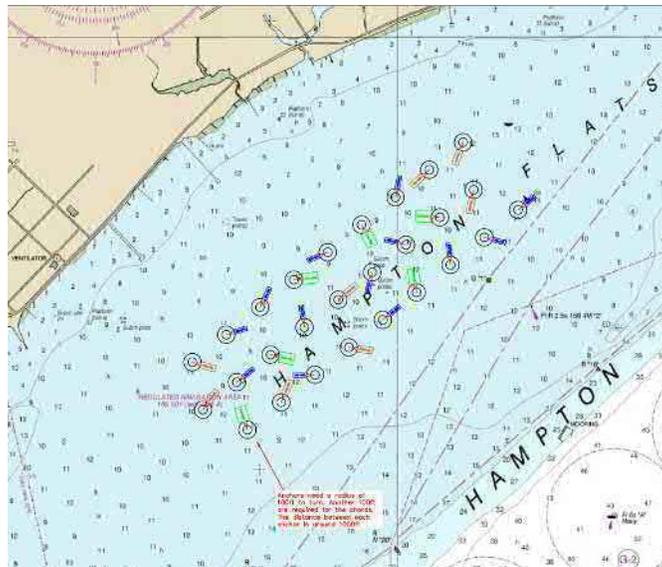


■ Possible anchoring area near Craney Island Disposal Area



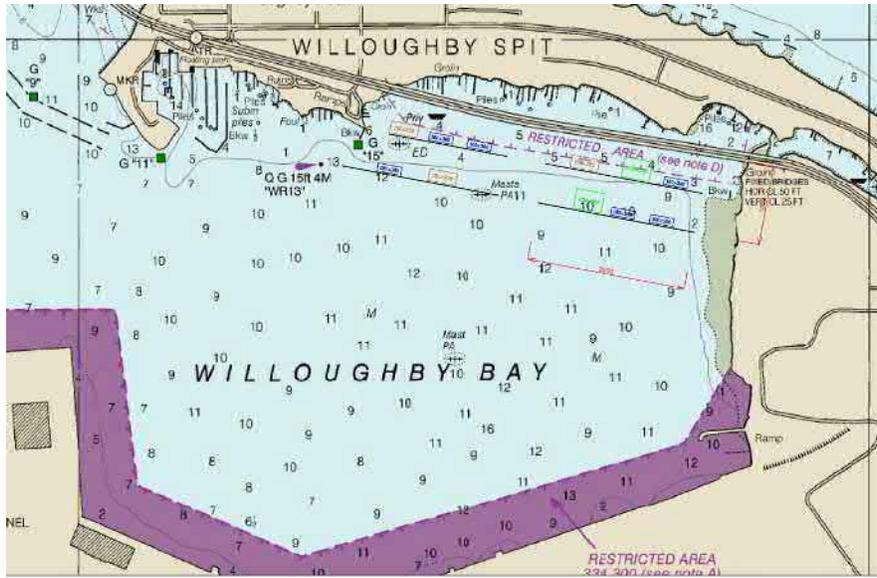
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VS1 7. Navigation



100

7. Navigation

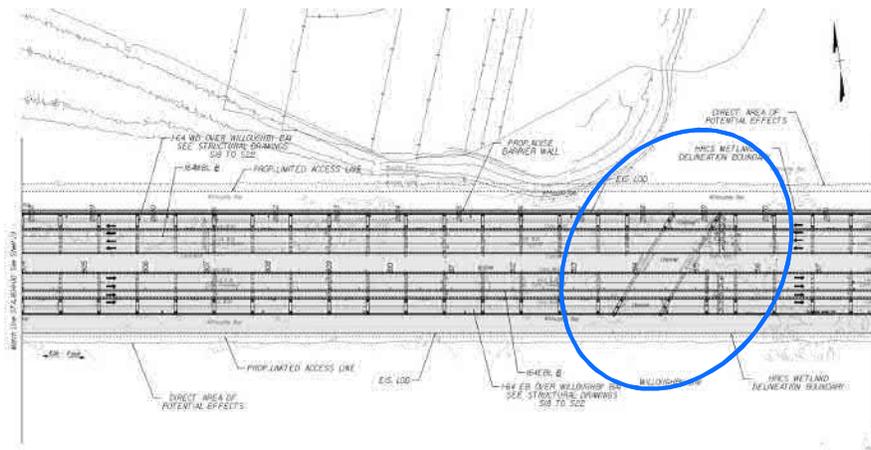


101

Navigation



- Willoughby Bay
 - Remove existing non-functioning lighting and fenders



102



Comments/Questions?

103



Meeting Summary

Project: I-64 Hampton Roads Bridge-Tunnel Expansion
Meeting Title: U.S. Coast Guard Bridge Permit Coordination Meeting
Date: July 24, 2019
Location: USCG 5th District – Federal Building
 431 Crawford Street, Portsmouth, VA 23704

Attendees:

| Company | Last Name | First Name | Phone Number | E-mail Address | Present |
|---------------|-----------|------------|----------------|---------------------------------------|---------|
| USCG | Barnes | Jerry | (757) 398-6231 | Jerry.R.Barnes@uscg.mil | XX |
| USCG | Pitts | Hal | (757) 398-6222 | Hal.R.Pitts@uscg.mil | XX |
| USCG | Thorogood | Michael | (757) 398-6557 | Michael.R.Thorogood@uscg.mil | XX |
| FHWA | Mott | Dan | (804) 775-3355 | Daniel.Mott@dot.gov | XX |
| VDOT | Reilly | Pete | (757) 323-3307 | Peter.Reilly@vdot.virginia.gov | XX |
| HRCP | Barrier | David | (514) 663-9198 | David.Barrier@vinci-construction.com | XX |
| HRCP | Vazelle | Solène | (757) 933-0878 | Solene.Vazelle@vinci-construction.com | XX |
| HRCP/WRA | Sprenkle | Taylor | (804) 366-4097 | TSprenkle@wrallp.com | XX |
| HRCP/I-64 DJV | Gaffney | Douglas | (856) 924-3363 | Douglas.Gaffney@mottmac.com | XX |
| HRCP/I-64 DJV | Duschang | John | (845) 596-7953 | John.Duschang@hdrinc.com | XX |
| HRCP/I-64 DJV | Magron | J.P. | (212) 671-0180 | JP.Magron@hdrinc.com | XX |
| HRCP/I-64 DJV | Joyner | David | (757) 222-1567 | David.Joyner@hdrinc.com | XX |

Meeting Notes:

Coordination meeting with the U.S. Coast Guard – 5th District Bridge Section to discuss the HRBT Expansion Project and USCG Bridge Permit.

| No. | Description | Action |
|-----|--|--------|
| 1. | Introductions (1:00pm) | |
| | Hal Pitts, USCG 5 th District Bridge Manager (USCG Prevention Division - Bridge Administration Branch [dpb]), opened the meeting and welcomed visitors. Mr. Pitts stated that Michael Thorogood (dpb) will be the USCG point of contact (POC) for the Bridge Permit Application (BPA) and that he will be POC for the tunnel, stakeholder, and Section 408 coordination | |





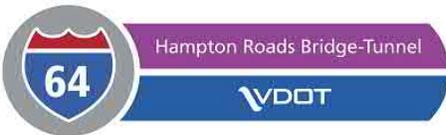
| No. | Description | Action |
|-----|--|--------|
| | <p>with the U.S. Army Corps of Engineers (USACE – Steve Powell is POC for 408).</p> <p>Captain Jerry Barnes (Chief for USCG 5th District Prevention Division [dp] responsible for Bridge [dpc] and Waterways Management [dpw] Branches) noted that he was there to also represent Commander Ed Munoz (Waterways Management Branch [dpw]) and Lieutenant Commander Peter Francisco (Chief of Waterways Management Division for USCG Sector Hampton Roads) who couldn't be there that day. Mr. Barnes briefly explained the roles of the USCG District 5, District Prevention Division. It was also noted that Captain Kevin M. Carroll is the Commander for USCG Sector Hampton Roads who essentially serves as the "Captain of the Port".</p> <p>Pete Reilly (Deputy District Administrator) with VDOT introduced himself and emphasized the significance of the project to the Commonwealth, followed by Dan Mott, Director of Technical Programs with Federal Highway Administration (FHWA) – Virginia Division. Introductions continued for the design and construction representatives of the Hampton Roads Connector Partners (HRCP) project team.</p> | |
| 2. | Design Segments and Construction Activities (1:05-2:00pm) | |
| | <p>Mr. Gaffney and Mr. Duschang presented an overview of the HRBT Expansion project, supplemented by input from other team members. Mr. Magron led the USCG permit discussions. The presentation was open format, with questions, clarifications and comments discussed throughout the meeting.</p> <p>Mr. Duschang presented the design segments, phasing, and four construction areas. See slides for further information.</p> | |
| 2.a | <p>HRBT Approach Bridges [aka. North/South Trestles] -: The North Trestle and South Trestle bridges will be fully replaced as a result of multiple factors, including existing conditions, life expectancy and benefit-cost of full replacement. Mr. Duschang noted the new bridge spans would be longer than the existing spans, resulting in fewer pile bents. The existing bridge trestles are about 15-feet above mean high water (MHW) while the proposed new approach bridges would be between 18-25 feet above MHW. He explained the variability in bridge height on the new bridges was largely because of the roadway curves and associated super-elevation (banked curves). They are being designed in consideration of sea level rise projections, storm surge, and overall coastal resiliency engineering principles – which provides additional justification for the full bridge replacement instead of rehabilitating the existing bridges. Mr. Duschang further described the proposed construction sequences for the bridge-tunnel.</p> | |



| No. | Description | Action |
|-------------------|---|---|
| | <p><u>USCG Comments:</u></p> <ul style="list-style-type: none"> • Terminology: Mr. Pitts noted that USCG defines the terms “trestle” and “bridge” differently than the HRCP Team. He stated USCG does not use term trestle for a structure carrying traffic. For USCG, a bridge carries traffic, a trestle is a temporary structure used for construction access and that does not carry traffic. Mr. Pitts informed the group that a temporary bridge carrying traffic (i.e., MOT Trestle) will also require a bridge permit, while a temporary construction trestle does not (as it is permitted under the main bridge permit conditions). • Bridge Height HRBT: Mr. Pitts stated that generally, if bridge height is increasing from existing height outside the defined navigation channel, there shouldn’t be an issue. Mr. Pitts said there was a USCG bridge height guidance that takes into account factors such as sea level rise. • Permitting: Temporary MOT traffic trestles are bridges and need to be permitted – they would be part of the same bridge permit. | <p>HRCP Team to revise/align terminology used for all USCG document deliverables to USCG.</p> <p>USCG to check/provide HRCP Team with USCG Bridge Height Guidance with respect to sea level rise.</p> |
| <p>2.b</p> | <p>North and South Island Expansions: North and South Islands will require expansion to accommodate new, twin two-lane tunnels west of the existing tunnels. The North Island expansion is larger than South Island. Spud barges will be used in water greater than 4.5-feet mean low water (MLW). The HRCP Team briefly described island expansion construction method, with material for the North Island expansion generally approaching from the Bay/East side (away from Hampton Creek Approach Channel).</p> <p><u>USCG comments:</u></p> <ul style="list-style-type: none"> • Hampton Creek Approach Channel: Mr. Pitts noted the close proximity of the North Island Expansion to the existing Hampton Creek Approach Channel and asked what the distance was. HRCP noted the north island expansion was about 100-feet from the Hampton Channel. He expressed that the close proximity would need evaluation of potential physical relationship as well as construction traffic coordination to minimize impact to the channel and vessels during construction and after. This should be addressed under the USACE’s Section 408 review; whereas the HRCP Team will need to demonstrate to the USACE that North Island Expansion won’t directly affect the stability and profile of the Hampton Creek Approach Channel. • Section 408: Mr. Pitts stated that USCG coordinates with USACE on the 408 process. The USACE leads the Section 408 process, as well as | <p>HRCP Team to confirm no impact to existing Hampton Creek Approach Channel under its Section 408 process.</p> |



| No. | Description | Action |
|------------|---|---|
| | <p>Section 10 (Rivers and Harbor Act-RHA) and Section 404 (Clean Water Act); the USCG provides their review and input to the USACE.</p> | |
| <p>2.c</p> | <p>Tunnels: Presentation on the two new, two-lane parallel bored tunnels to be constructed west of the existing tunnels with a Tunnel Boring Machine (TBM). Mr. Duschang, Mr. Gaffney and other team members provided background on the construction process, including temporary platform required for off-loading and handling the TBM. They also discussed the temporary trestle required for ground improvements and grouting to support TBM operations. This temporary trestle would extend in the direction of the channel area (north of the South Island), but outside the federally-dredged navigation channel. There was also a brief discussion about tunnel depth below the authorized dredge depth of 55-ft below MSL for the main navigation channel, which would not be impacted by the project.</p> <p>USCG comments: Mr. Pitts acknowledged that, in comparison to the immersed tube tunnel (ITT) method, constructing the bored tunnels with the TBM would have much less waterway impact and thus eased USCG concerns about impacts to navigation in the main channel during construction. However, considerations of potential construction barge impacts to the main and secondary navigation channels will be still be important.</p> <p>USCG noted that the temporary trestle for tunnel ground improvements will likely require proper lighting for navigation safety; especially to warn recreational boaters. Maybe even private aids to navigation (ATON).</p> | |
| <p>2.d</p> | <p>Willoughby Bay Bridge (WBB): The proposed work at the WBB was presented, stating the current plan was to widen the both existing bridges to the outside. This would include a new set of two piers on either side at each exiting pier bents. There were questions about an existing designated navigation span and its bridge fendering/lighting system since it is slated for removal by the contract. Based on available knowledge and geography, the small water-locked area north of the WBB is primarily accessed by recreational boaters. The recreational boaters appear to utilize the nearest gap in the pilings and do not necessarily require use of the navigation span.</p> <p>USCG Comments: Mr. Pitts stated the WBB would likely require a USCG permit and be a separate permit action. One permit application with two bridge permits could be possible. Mr. Thorogood is going to review USCG information on the bridge to see if it was permitted separately or with HRBT and navigation channel status.</p> | <p>USCG to check its records for the bridge permit; check bridge regulation with respect height/clearance with widening.</p> |



| No. | Description | Action |
|-------------------|---|--|
| | | <p>USCG to check status/use of designated navigation channel underneath WBB and confirm if its fendering/lighting system is still necessary</p> |
| <p>2.e</p> | <p>Landside – Oastes and Mason Creek Crossing: Roadway and bridge improvements, including Mallory Street Bridge Replacement and widening of the bridges over Oastes Creek and Mason Creek, which are both tidally-connected by a flood gate and culvert underneath the USN Naval Station Norfolk and to Willoughby Bay. Oastes Creek will be widened with use of an “extended” (>12 month) temporary trestle. Mason Creek widening would occur to the south side to improve construction access and limit environmental impacts. There is a very low bridge/culvert for US 460 that is in proximity to the bridge, about 175 feet east of I-64 and that eliminates virtually all water access by any boat. Oastes and Mason Creek are primarily used for recreation and not listed as a navigable waterways on Section 10 maps.</p> <p>USCG Comments: Oastes and Mason Creek would likely be exempt from a bridge permit; there is a questionnaire to fill out for such determination. USCG may issue an exception from a bridge permit, based on the nature of the waterway and vessel traffic on the waterway as provided for in the Coast Guard Authorization Act (CGAA) or Title 33 Code of Federal Regulations 115.70 Advance Approval of Bridges. A bridge permit exemption is good for 5 years.</p> | <p>USCG to provide a copy of the Questionnaire to HRCF Team so that it be submitted along the Project Initiation Request (PIR) Letter.</p> |
| <p>2.f</p> | <p>Anchorage and Mooring Discussion: The HRCF Team presented an overview of the existing channels and anchorages, and potential areas under investigation for anchoring and mooring. Moorings would be required near to construction trestles, with 500-foot buffer for barge operation and 1000-foot buffer for temporary barge placement. At the North/South Islands expansions, 42-inch mooring piles would be every 40-feet in order to provide secured mooring to construction barges; especially in such close proximity to existing navigation channels.</p> <p>USCG Comments:</p> <p>Two proposed anchoring areas include near south bank of James River between Monitor Merrimac Memorial Bridge-Tunnel and Craney Island Dredge Disposal Facility and on the north bank near Hampton/Newport News. Overall it was noted that the harbour is a crowded area. Mr. Barnes noted that they’ll need to be assessed in the NSRA and that a plan for alternate anchoring areas (if these don’t provide sufficient protection) should also be considered for severe weather events.</p> | |



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|----|---|--|
| 3. | <p>Project Schedule and USCG Bridge Permit Application (BPA) Process and Requirements (2:00-3:00pm)</p> | |
| | <p>Mr. Magron presented the schedule, BPA process and requirements, and concurrent Joint Permit Application (JPA) with USACE/VDEQ/VMRC.</p> <p>USCG comments/Discussions:</p> <p>JPA Schedule: The Joint Permit Application (JPA) is scheduled for submission on August 30, 2019; seeking joint permit authorization April 2020. First activities in jurisdictional Waters of the U.S. (WOUS) would occur after receipt of the JPA. Anticipate HRBT bridges completion in late 2023; Activities commence in September 2024 +/- 6 months to remove structures.</p> <p>Project Initiation Request (PIR): Even though a PIR was previously submitted by VDOT during the NEPA review; a new PIR submittal is required to present the full scope of the proposed project, including: 1) HRBT bridges; 2) WBB; 3) other inland waterway bridges.</p> <ul style="list-style-type: none"> • For inland waterway bridges (Mason/Oastes Creek), they will require review/determination if exempt and what action (USCG questionnaire). • The PIR will need to include a schedule of anticipated submittals and construction start. • The PIR could be submitted at the same time as NIR. <p>Navigation Impact Report (NIR): In order to issue a Bridge Permit (CGBP) by April 2020; the USCG asked that the Navigation Impact Report (NIR) be accelerated and submitted earlier than October 2019 – i.e., more like late-August to early-September in order to allow for the Preliminary Public Notice (PPN) and Preliminary Navigation Clearance Determination (PNCD) to be publicly issued a month before the CGBP’s Public Notice (PN) in December 2019. If needed, the NIR could be submitted at the same time as the PIR above.</p> <ul style="list-style-type: none"> • For the Waterway User Survey in the NIR, USCG stated that the Automatic Identification System (AIS) data won’t provide all the information needed, as many small vessels (less than 65’ beam) don’t have AIS tracking device. As such, USCG requested that the HRCP Team: <ul style="list-style-type: none"> ○ Perform an outreach through local marinas/harbor masters, boat repair yards, and major docking facilities. ○ Contact Mr. Francisco of USCG Sector Hampton Roads for additional guidance; size/types of vessels navigating through. <p>Preliminary Navigational Clearance Determination (PNCD): Upon review of the PNCD and the PPN’s 30-day public comment period, the USCG provides written PNCD, which is good for three years. USCG indicated the PPN that was performed in 2017 (during NEPA review) was solely for the VDOT purpose of collecting waterway user information via</p> | <p>HRCP Team to submit a new PIR along with Questionnaire for Oastes/Mason Creek exemption.</p> <p>HRCP Team to accelerate NIR submission for PPN/PNCD before (at least a month) CGBP’s PN and USCG regulatory review of BPA.</p> <p>For NIR, HRCP Team and VDOT to collect AIS Data and perform survey/outreach to local waterway users.</p> |



| | | |
|------------------|---|---|
| | <p>the online Survey Monkey” tool. No PNCD was issued during NEPA process.</p> <p>CG Bridge Permit (CGBP): From time of BPA submission, one should typically assume 180 days for USCG Administrative and Regulatory Reviews to proceed before actual CGBP issuance. Mr. Pitts stated that upon CGBP issuance, we have 3 years to commence construction; and then a total of 5 years to complete construction. Given size/scope of project, USCG would be amenable to extension beyond five years for permit. July 2025 project completion.</p> | <p>USCG to look in records and provide copies of the current bridge permits for HRBT Approach Spans and WBB.</p> |
| <p>4.</p> | <p>Section 408 Review (3:00-3:30pm)</p> | |
| | <p>Section 408 Review for Safety and Navigation: A recurring theme expressed by USCG and acknowledged by everyone was the importance of safety for mariners and recreational boaters during and after construction and having minimal interruptions to navigation. USCG emphasized safety during construction, such as general requirements for lights on work trestles, marine operations plan, communications (USCG leads effort to provide information to mariners), and scheduling to avoid major marine traffic disruptions. Other safety topics included construction vessel mooring, anchorage areas, and severe weather plans. Mr. Pitts advised to coordinate with Mr. LCDR Francisco (Chief, Waterways Management Division at USCG Sector Hampton Roads) for several future items. Mr. Barnes, Mr. Pitts and Mr. Thorogood provided a great deal of information, guidance and ongoing support with respect to the Section 408 review that will run in parallel to the USCG BPA/CGBP and the USACE/VDEQ/VMRC JPA. Some of the key points included:</p> <ul style="list-style-type: none"> • USCG reiterated minimization of their concerns regarding navigation impact from project since election of TBM vs. ITT method; no channel impacts anticipated. • In the August 2018 USCG Letter to Colonel Kinsman (USACE) for a Section 408 review recommendation; USCG noted that their proposed development for a Navigational Safety Risk Assessment (NSRA) and a Tunnel Construction Plan (TCP) was derived from a similar USCG guidance but for the offshore windfarm industry (i.e., CGTTP 3-71.7 and NVIC 02-07) since no similar guidance existed for tunnel/bridge construction. At that time of such recommendation, USCG also acknowledge that the ITT method was still under consideration; and therefore a major concern for navigation safety. • USCG noted that the proposed anchoring/mooring areas will also need to be assessed under the NSRA requirement. • USCG confirmed that USACE’s Section 408 review has to be complete before USCG can issue its CGBP under Section 9 of RHA (Bridge Permit-USCG). • HRCP noted that under ongoing USACE’s NWP6 review for the Geotechnical Boring Program, USACE had requested the preparation of a Marine Operations Plan (MOP) and that a similar MOP will likely be required for the proposed HRBT construction activities as well. | <p>HRCP Team will soon be holding a Section 408 Meeting with USACE.</p> <p>HRCP Team to keep USCG (dp, dpw, dpb) in the loop who make appraise effort to any Section 408 meetings requested by VDOT or USACE.</p> |



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| | <ul style="list-style-type: none"> • Temporary Docks or Trestles for North/South Island Expansions – USCG has no concurrent jurisdiction over Section 10 structures (authorized by USACE) as long as they are not directly intended for bridge construction and thus subject to Section 9 of RHA. • USCG noted that HRCP will be expected to continuously coordinate/plan with key stakeholders with respect to seasonal changes in vessel traffic movements (military, commercial, recreational). As such, the NSRA/TCP/MOP will be considered living documents that may require necessary updates along the project lifetime. • To that end, USCG reiterated that such key stakeholders should at minimum include the following entities (as stated in USCG Letter of 2/14/2019 to USACE Colonel Kinsman): <ul style="list-style-type: none"> ○ USCG Sector Hamptons Road (aka. “Captain of the Port”) ○ Captain Moore – US Fleet Command ○ Commander Denison – US Second Fleet ○ Colonel Vedder – Joint Base Langley-Eustis ○ Mr. David White – chair of the Virginia Harbor Safety Committee – part of the Virginia Marine Association (VMA). The committee includes representatives from VMA, Virginia Port Authority, USACE, Recreational Boater Representative • USCG also suggested that the project be presented at next meeting of Harbor Safety Committee in September 2019. | |
| <p>Meeting Adjourned at approximately 3:30 PM</p> | | |



USCG BPA Meeting
24 July 2019

I-64 Hampton Roads Bridge-Tunnel (HRBT) Expansion Project

1

Agenda



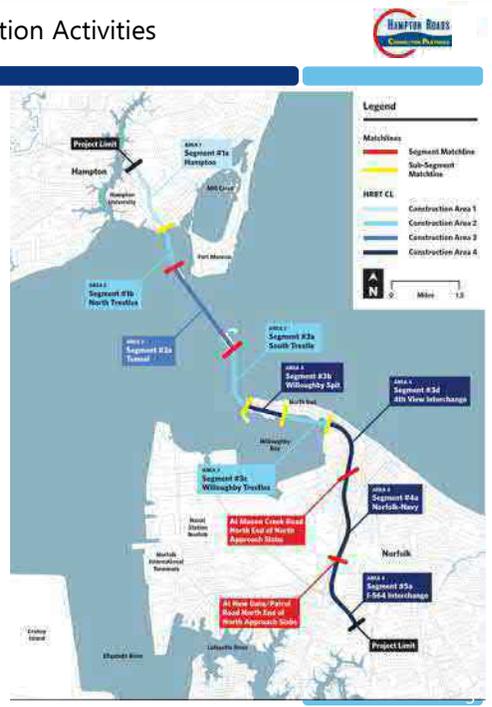
- Introductions (1:00pm)
- Design Segments and Construction Activities (1:05 – 1:45pm)
 - North and South Island Expansion, Trestles and Tunnel
 - Willoughby Bay Crossing
 - Oastes Creek and Mason Creek Crossing
- Project Schedule (1:45 – 2:00pm)
- USCG BPA Process and Requirements (2:00 – 2:30pm)
- JPA/ Section 408 Review (2:30 – 3:00pm)
- Adjourn (3:00pm)

2

1. Design Segments and Construction Activities

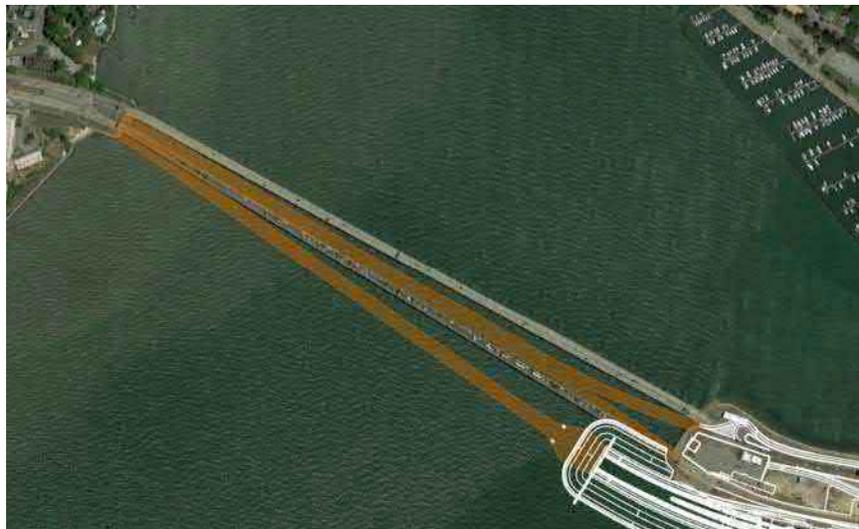
■ Construction Areas

- Tunnels
 - Tunnel Boring
 - Tunnel Portals – South Portal, North Portal
 - Tunnel Approach Structures (TAS)
- Island Expansions
 - North Island
 - South Island
- Trestles
 - North Trestle
 - South Trestle
 - Willoughby Bay Bridge
- Landside
 - Roadway and bridge improvements
 - Roadway widening
 - New bridge abutments
 - Mallory Street Bridge replacement

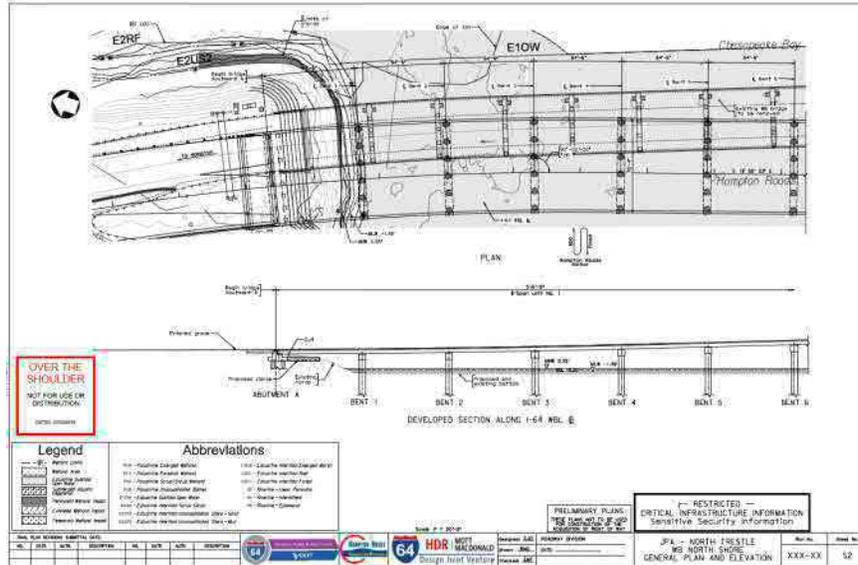


1. Design Segments and Construction Activities

■ Segment 1b – North Trestle Construction

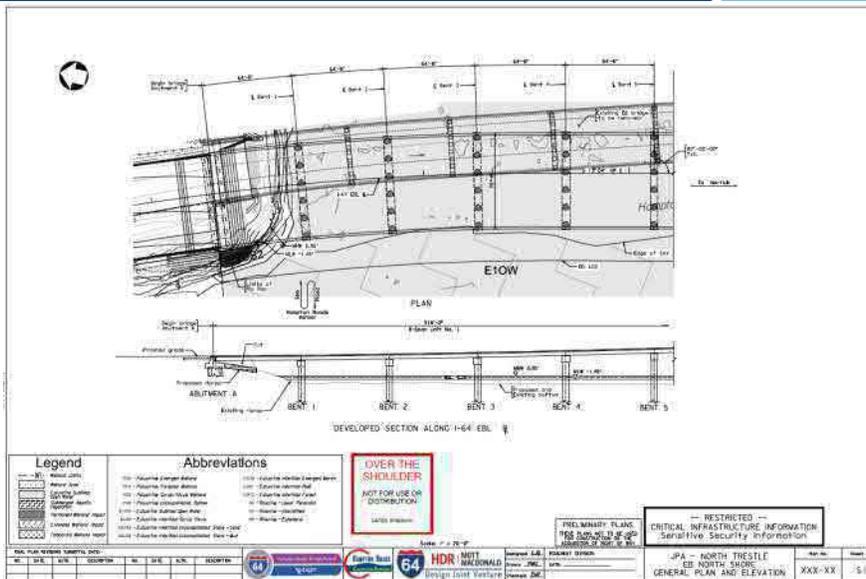


1. Design Segments and Construction Activities



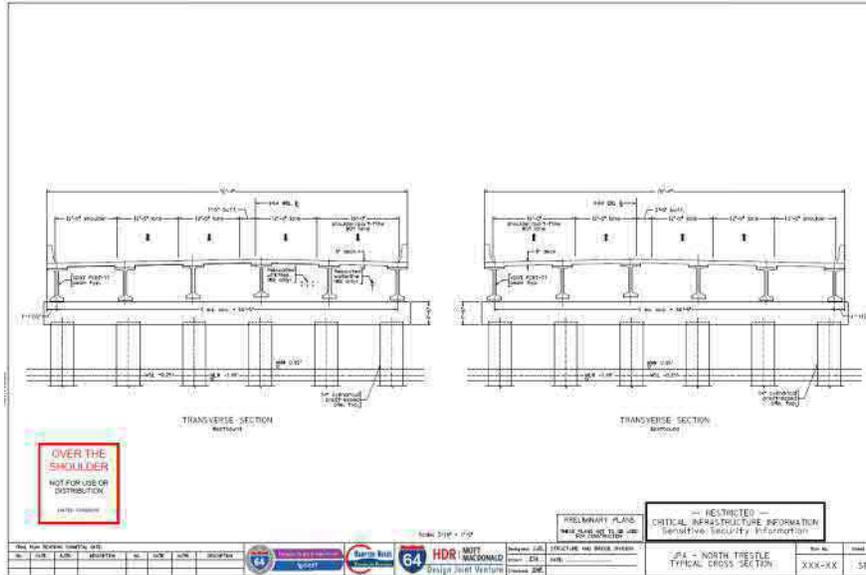
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1. Design Segments and Construction Activities

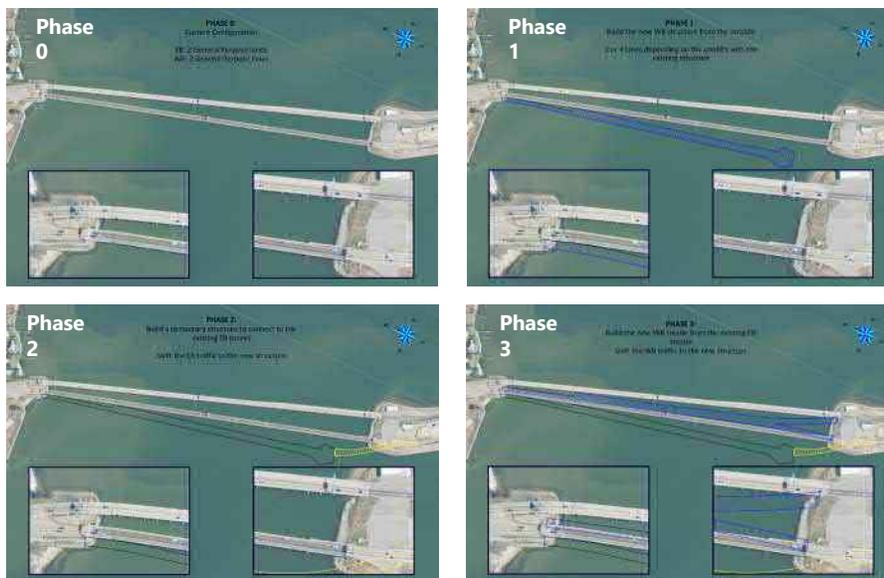


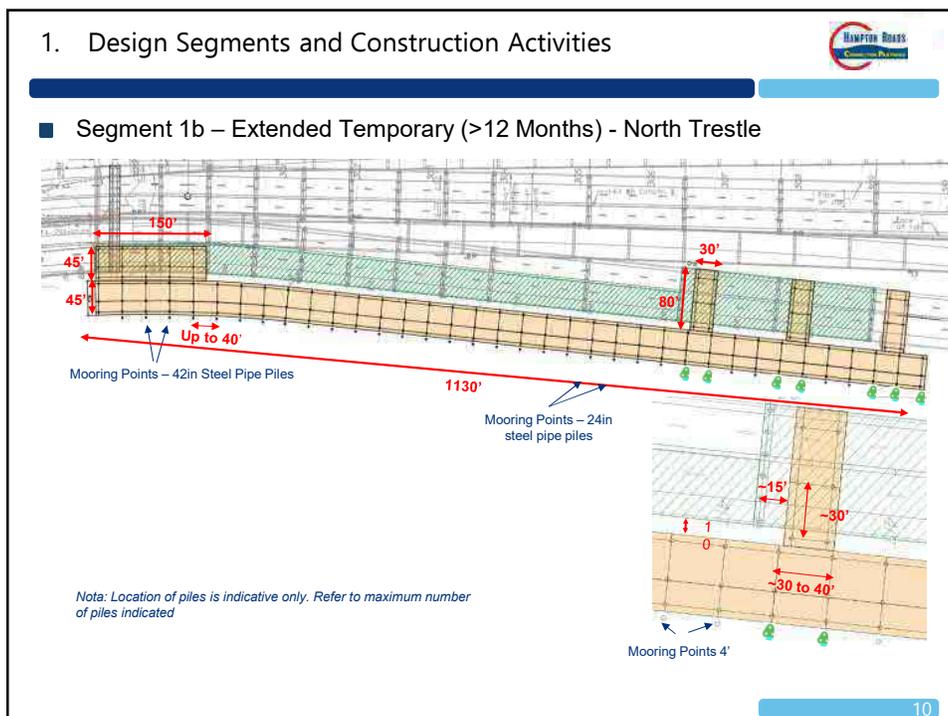
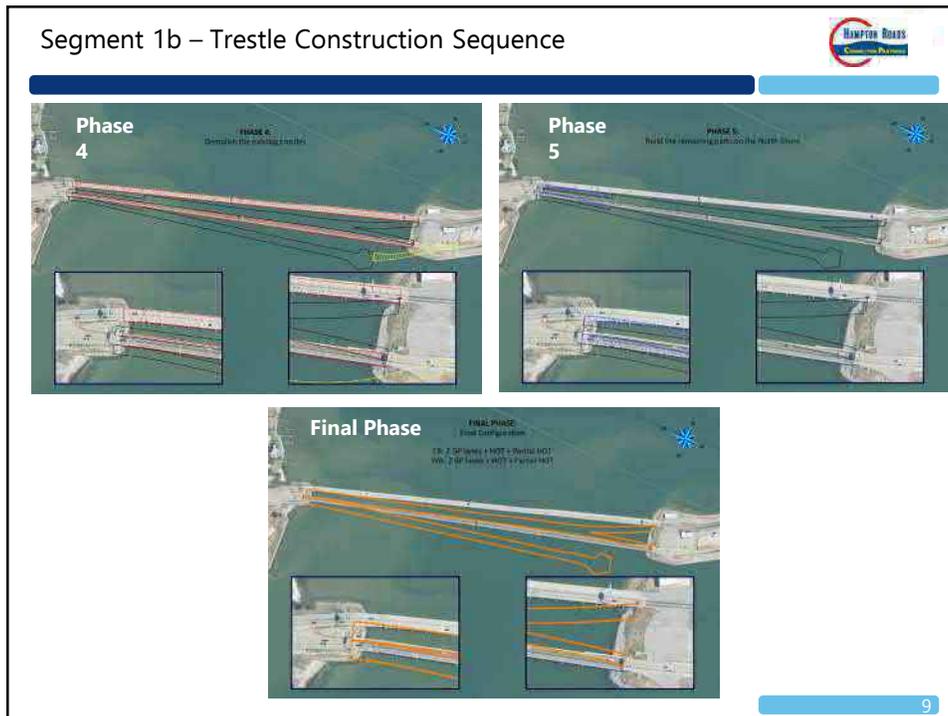
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1. Design Segments and Construction Activities



Segment 1b – Trestle Construction Sequence





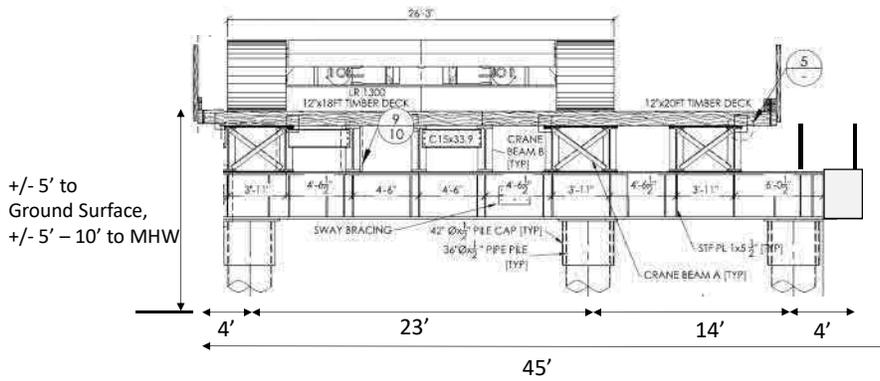
1. Design Segments and Construction Activities



- Segment 1b – Extended Temporary Trestle (>12 Months) - Typical Temporary Trestle

- 36" steel pipe piles

Main transverse section



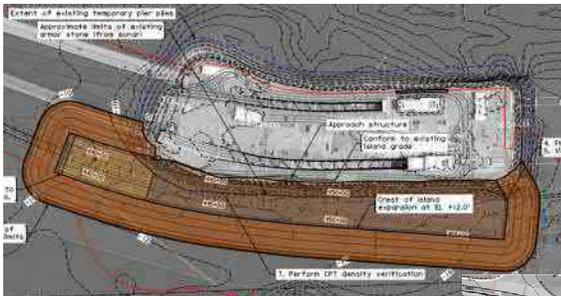
+/- 5' to Ground Surface,
+/- 5' – 10' to MHW

Nota: Dimensions / Measures subject to vary +/- 5ft

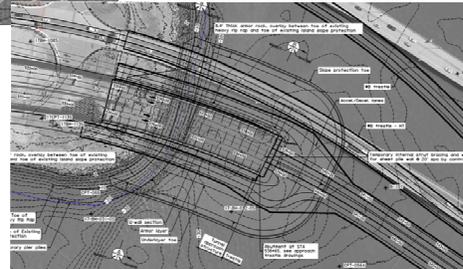
1. Design Segments and Construction Activities



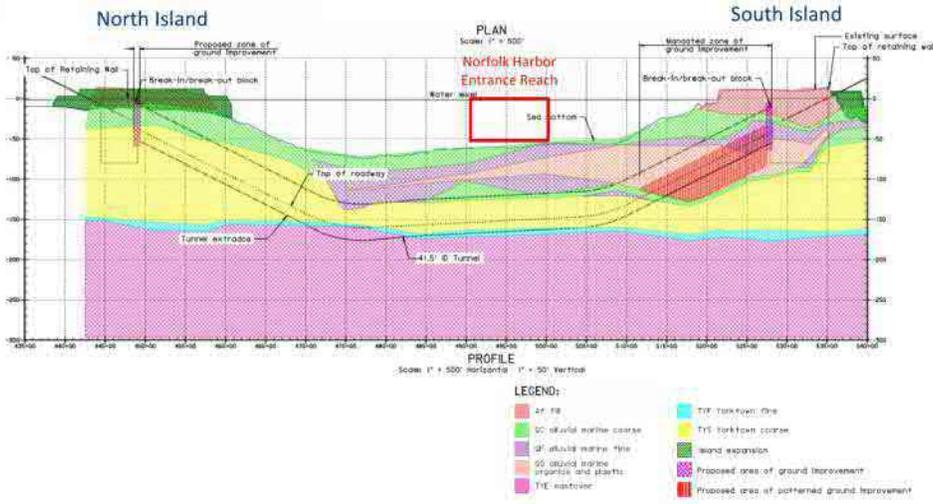
- Segment 2a – North Island Expansion, Dredging and Debris Removal



- Segment 2a – South Island Expansion, Dredging and Debris Removal



1. Design Segments and Construction Activities



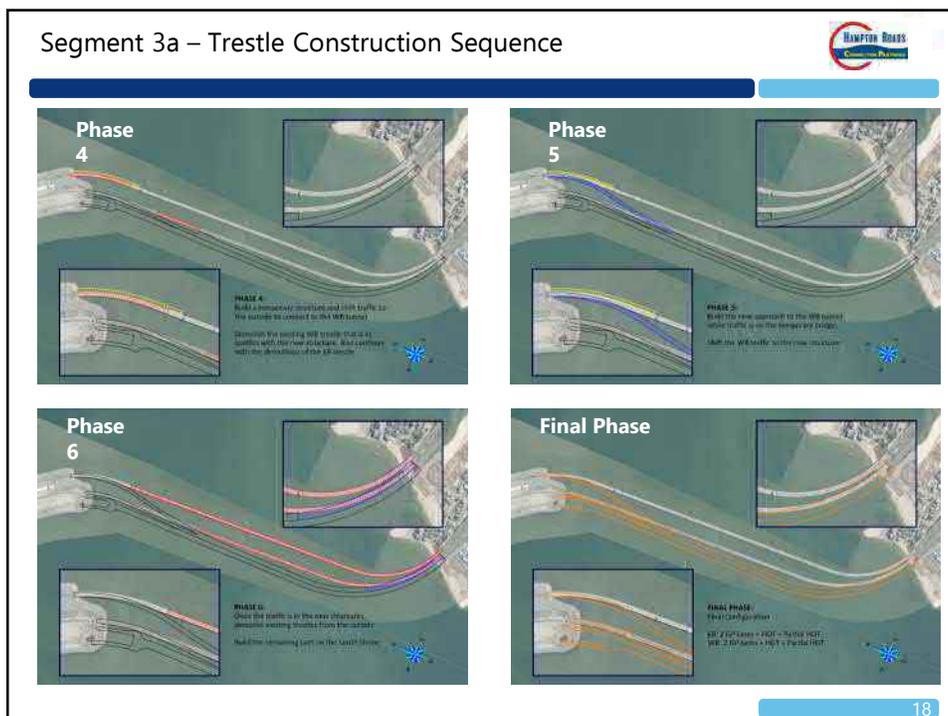
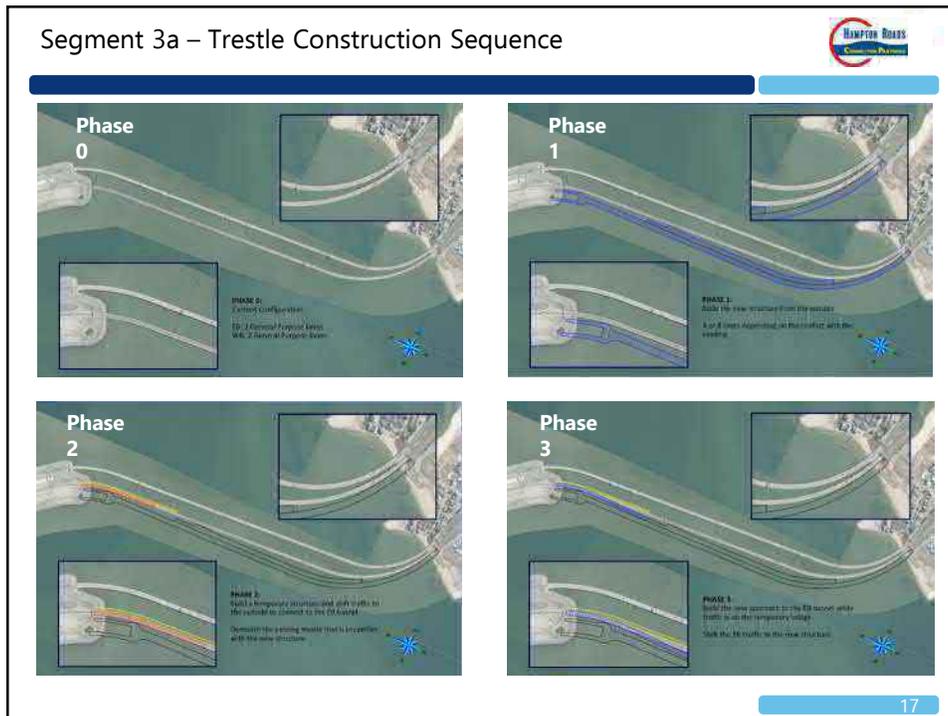
■ Proposed alignment for the bored tunnel between existing North and South Islands

1. Design Segments and Construction Activities

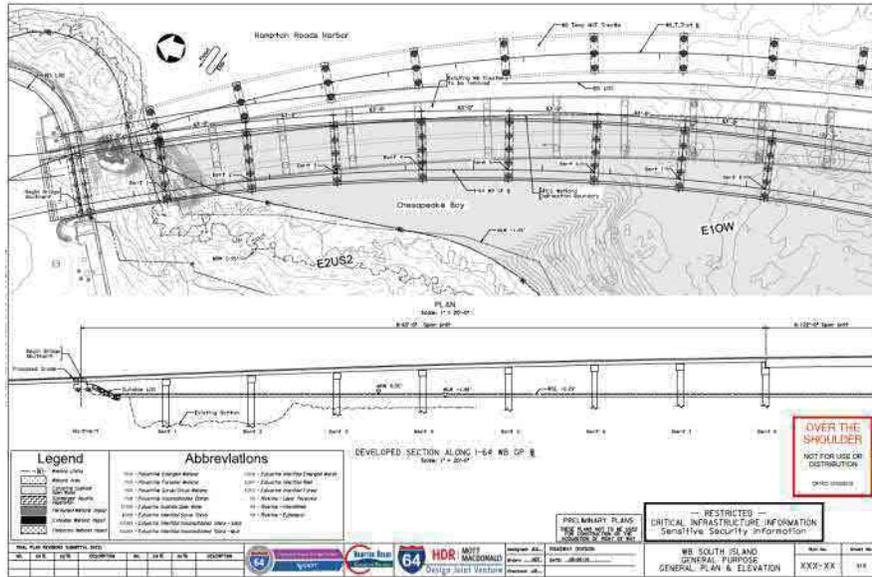


■ Segment 3a – South Trestle Construction

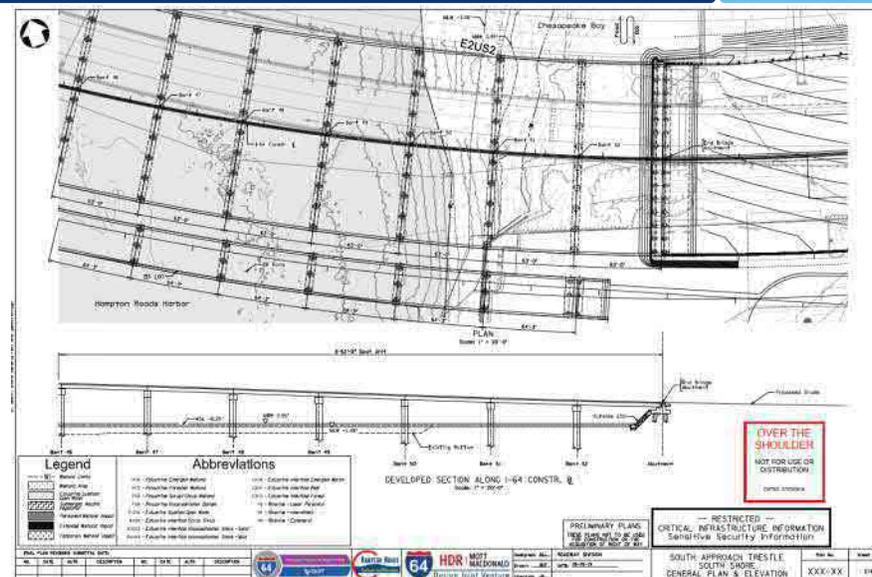




1. Design Segments and Construction Activities



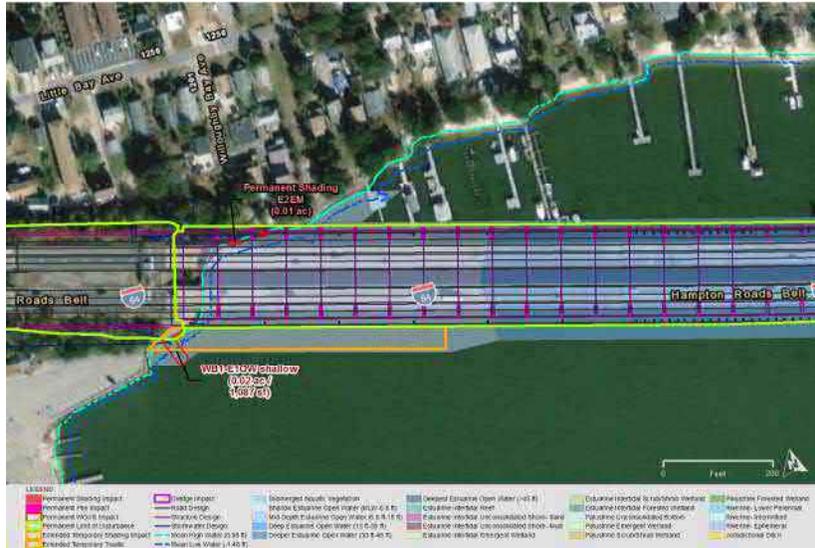
1. Design Segments and Construction Activities



1. Design Segments and Construction Activities



■ Segment 3c – Extended Temporary Trestle (>12 Months) - Willoughby Bay



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1. Design Segments and Construction Activities

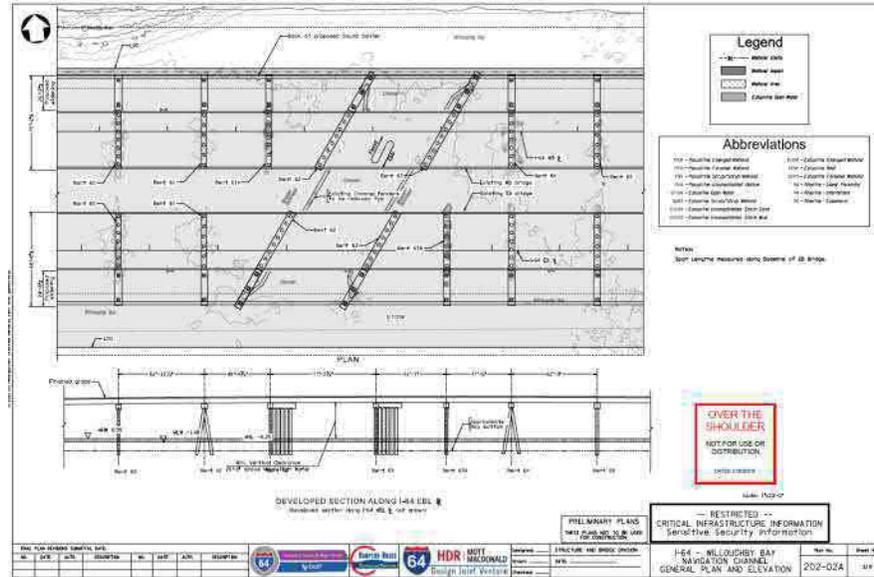


■ Segment 3c – Extended Temporary Trestle (>12 Months) - Willoughby Bay

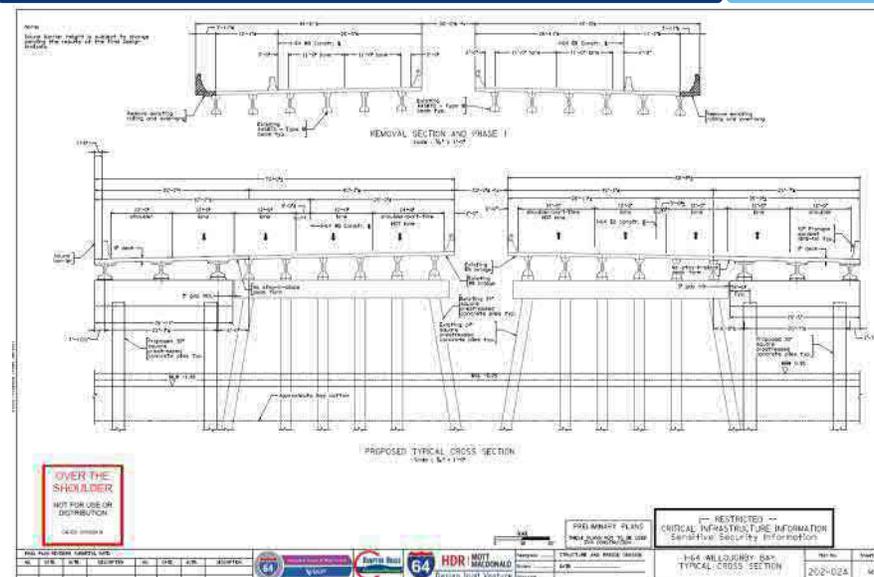


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1. Design Segments and Construction Activities



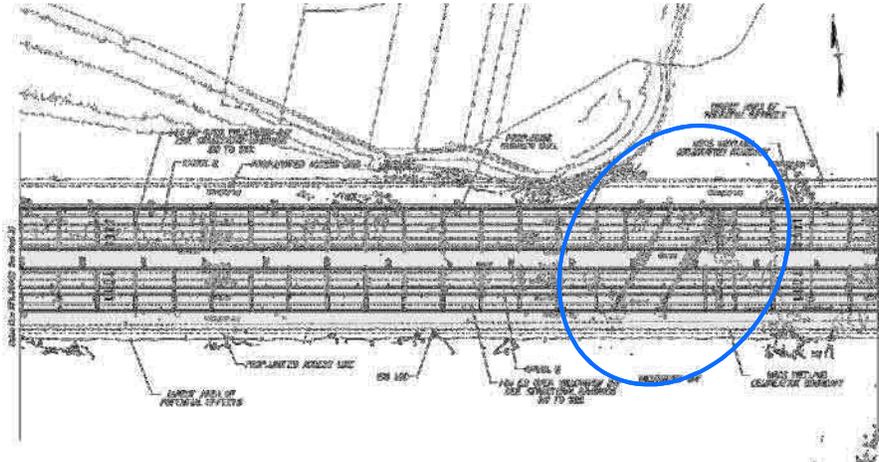
1. Design Segments and Construction Activities



1. Design Segments and Construction Activities



- Segment 3c – Willoughby Bay
 - Remove existing non-functioning lighting and fenders

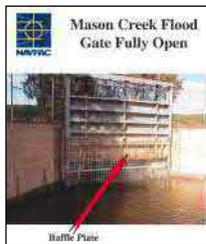


27

1. Design Segments and Construction Activities



- Segment 4a – Mason/Oastes Creek – Closed Waterbody Controlled by Flood Gate



28

1. Design Segments and Construction Activities



■ Segment 4a – Oastes Creek



29

1. Design Segments and Construction Activities



■ Segment 4a – Mason Creek

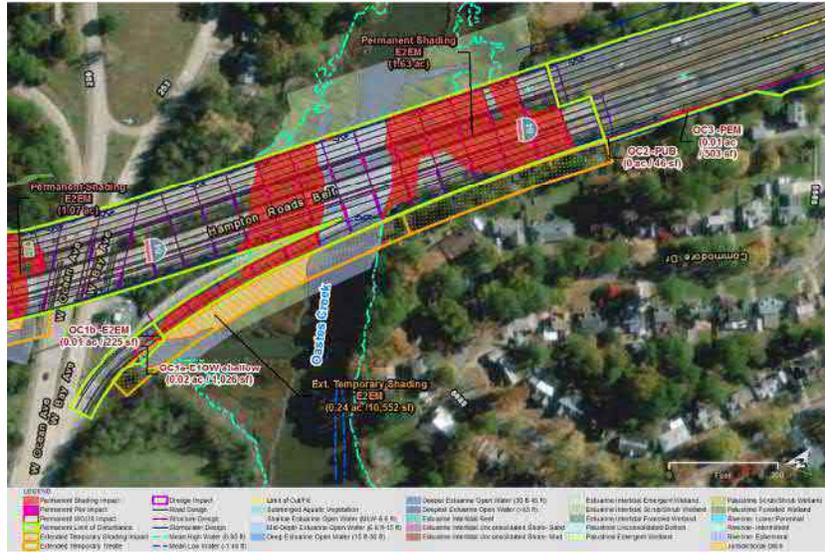


30

1. Design Segments and Construction Activities



■ Segment 4a – Extended Temporary Trestle (>12 Months) - Bay Ave/Oastes

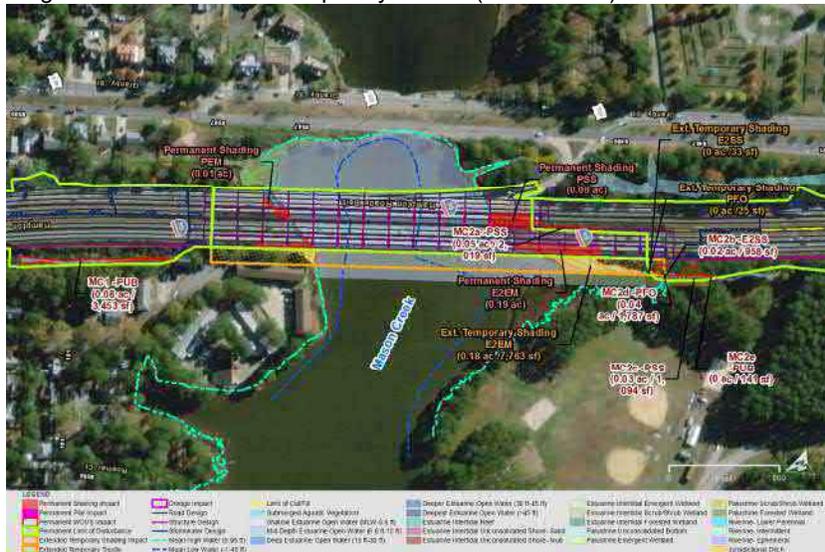


31

1. Design Segments and Construction Activities

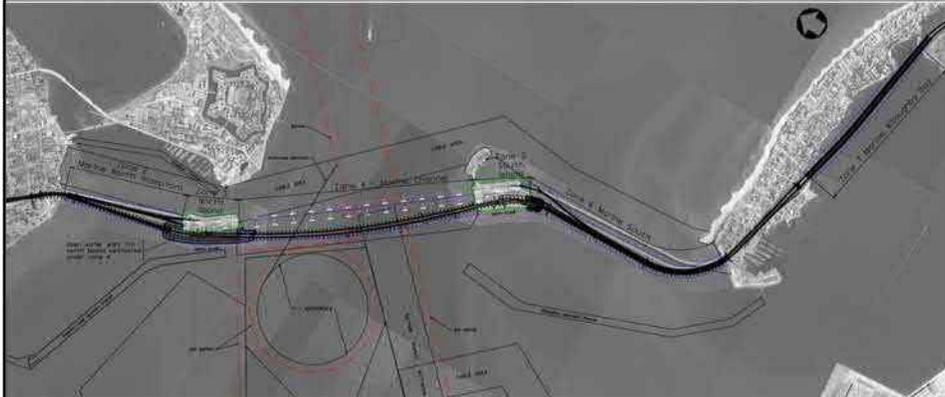


■ Segment 4a – Extended Temporary Trestle (>12 Months) - Mason Creek



32

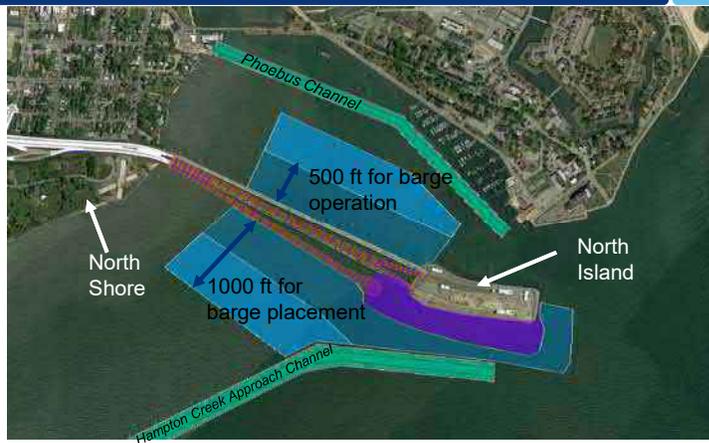
1. Design Segments and Construction Activities



- Existing channels and anchorages
- The dashed red line denotes a buffer around the federal channel and anchorage

33

1. Design Segments and Construction Activities



- North Trestle
 - Spud barges used in areas with more than 4.5 ft of water (at MLW)
 - 15 +/- working barges
 - First activity after receipt of the JPA
 - Last activity in September 2024 + 6 months to remove structures

34

1. Design Segments and Construction Activities



■ North & South Island

- 1 mooring pile (42" pipe pile) every 40FT around the footprint of the expanded islands
- Spud barges used in areas with more than 4.5 ft of water (at MLW)
- 1000 ft from expansion boundary for barge anchoring
- 500 ft from expansion boundary for barge operation
- At peak, ~15 working barges
- First activity after receipt of the JPA
- Last activity in September 2024 + 6 months to remove structures

35

1. Design Segments and Construction Activities

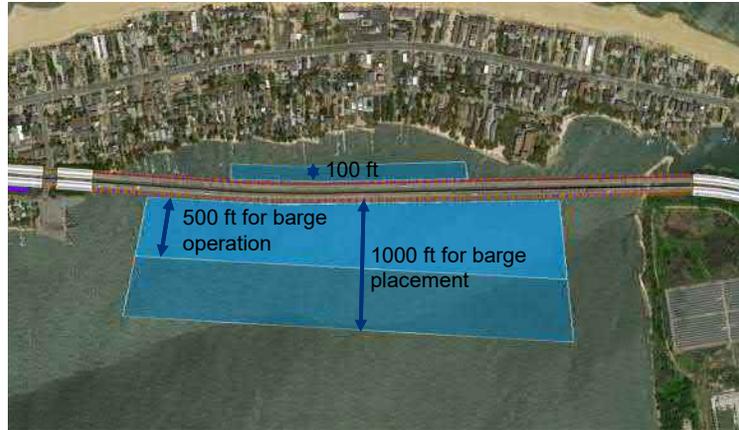


■ South Trestle

- Spud barges used in areas with more than 4.5 ft of water (at MLW)
- 25 +/- working barges
- First activity after receipt of the JPA
- Last activity in September 2024 + 6 months to remove structures

36

1. Design Segments and Construction Activities



- Willoughby Bay
 - Mooring area to be created inside those 1000 ft with mooring piles (42" pipe piles)
 - Spud barges used in areas with more than 4.5 ft of water (at MLW)
 - At peak, ~15 working barges
 - First activity after receipt of the JPA
 - Last activity in December 2024 + 3 months to remove structures

37

1. Design Segments and Construction Activities



- Potential mooring and anchoring areas

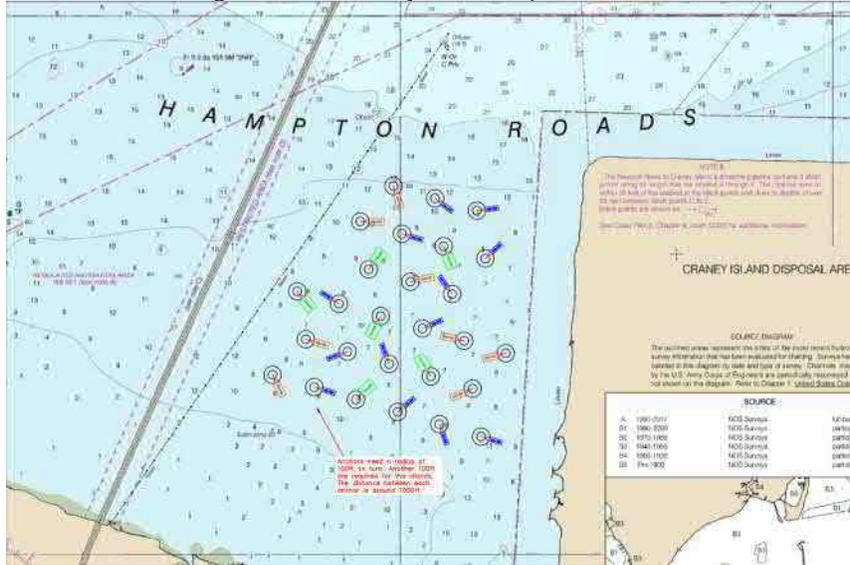


38

1. Design Segments and Construction Activities

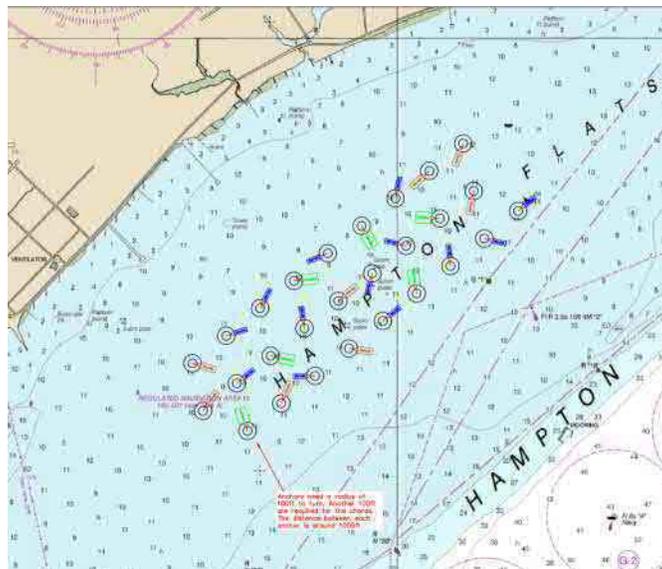


■ Possible anchoring area near Craney Island Disposal Area



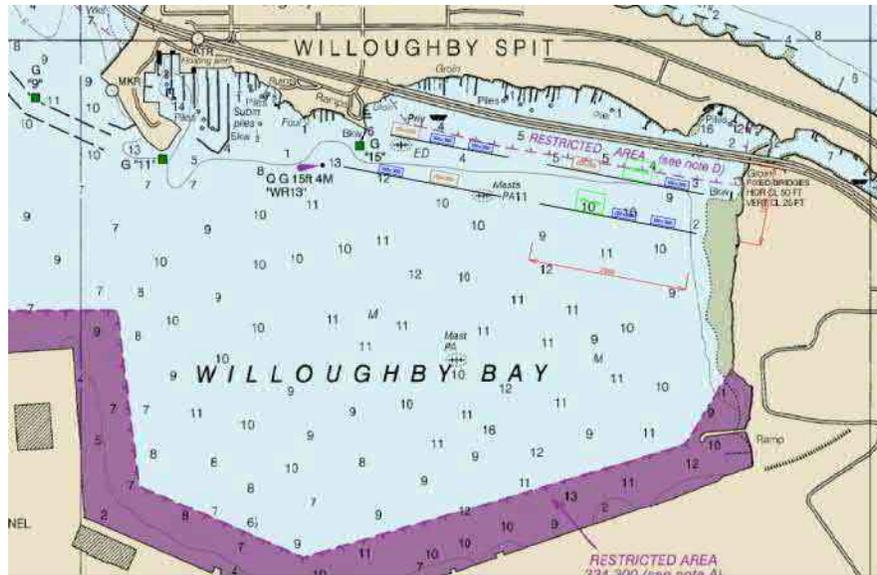
39

1. Design Segments and Construction Activities



40

1. Design Segments and Construction Activities



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2. Project Schedule



- USACE/DEQ/VMRC JPA Permits
 - JPA Presubmittal Page Turn – August 20, 2019
 - JPA submission – August 30, 2019
 - Anticipated USACE PN – September 15, 2019
 - JPA Post-Submission Follow-up – September 26, 2019
 - Anticipated JPA permit issuance – April 2020
- USCG BP Permit
 - PIR and PPN done in 2017-2018 during NEPA Process
 - Submit NIR – October 2019
 - Anticipated PNCD Issuance – December 2019
 - Anticipated CGBP Issuance – April 2020
- Construction
 - Upland Early Work Start – November 2019
 - In-Water Construction Activities Start – April 2020
 - Project Completion – July 2025

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3. USCG BPA Process and Requirements



- Project Initiation Request (PIR)
 - Project Elements under USCG Jurisdiction

- Preliminary Navigational Clearance Determination (PNCD)
 - Preliminary Public Notice (PPN) of 10/23/2017
 - Navigation Impact Report (NIR)
 - Waterway User Survey Data (AIS Data)

- CGBPA Submission and Review/Period Timing with Section 408

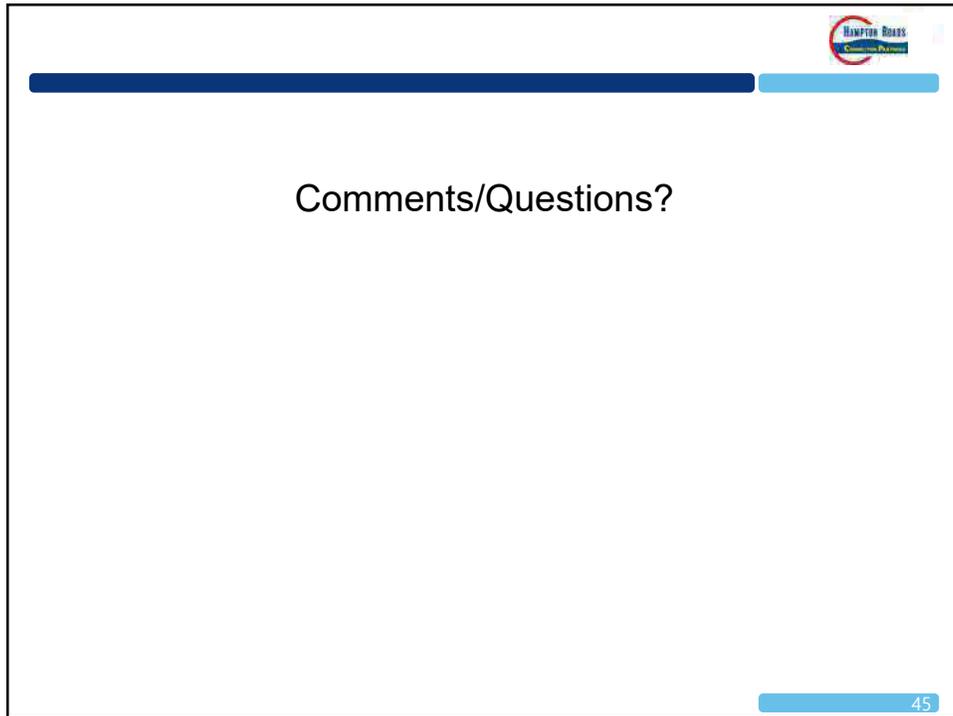
43

4. JPA/ Section 408 Review



- NWP6 – Geotech Boring Program (ongoing)
- Navigation Safety Risk Assessment (NSRA)
- Tunnel Construction Plan (TCP)
- Marine Operations Plan (MOP) for Construction
- Stakeholder Meeting

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A presentation slide with a white background and a black border. At the top right, there is a logo for 'HAMPER BOARD' with the tagline 'Commitment to Excellence'. Below the logo is a horizontal bar with a dark blue segment on the left and a light blue segment on the right. The text 'Comments/Questions?' is centered on the slide. At the bottom right, there is a light blue bar containing the number '45'.



Meeting Summary

| | |
|----------------|--|
| Project: | I-64 Hampton Roads Bridge-Tunnel Expansion |
| Meeting Title: | Project Update and Anadromous Fish Discussion |
| Date: | July 25, 2019 |
| Location: | Virginia Department of Game & Inland Fisheries 7870 Villa Park Dr #400, Henrico, VA 23228 |

Attendees:

| Company | Last Name | First Name | Phone Number | E-mail Address | Present |
|----------|------------|------------|----------------|------------------------------------|---------|
| VDOT | Smizik | Scott | (804) 371-4082 | scott.smizik@vdot.virginia.gov | XX |
| VCU | Garman | Greg | (804) 828-1574 | ggarman@vcu.edu | XX |
| VDOT | Begg | Steve | (804) 786-4304 | steven.begg@vdot.virginia.gov | XX |
| HRCF | Barrier | David | (514) 663-9198 | dbarrier@hrcfjv.com | XX |
| HRCF | Vazelle | Solene | (757) 933-0878 | svazelle@hrcfjv.com | XX |
| I-64 DJV | Gaffney | Doug | (856) 924-3363 | douglas.gaffney@mottmac.com | XX |
| WRA | Sprenkle | Taylor | (804) 366-4097 | tsprenkle@wrallp.com | XX |
| I-64 DJV | Duschang | John | (845) 596-7953 | john.duschang@hdrinc.com | XX |
| I-64 DJV | Mace | Joshua | (804) 799-6861 | joshua.mace@hdrinc.com | XX |
| I-64 DJV | Wilk | Rebecca | (804) 799-6873 | Rebecca.Wilk@hdrinc.com | XX |
| DGIF | Fernald | Ray | (804) 367-8364 | ray.fernald@dgif.virginia.gov | XX |
| DGIF | Aschenbach | Ernie | (804) 367-2733 | ernie.aschenbach@dgif.virginia.gov | XX |
| DGIF | Greenlee | Bob | (804) 367-1407 | bob.greenlee@dgif.virginia.gov | XX |

Meeting Notes:

Discuss the HRBT project components that relate to aquatic resources, particularly anadromous fish, requiring pile driving, the technical aspects of pile driving and the approach to meeting Endangered Species Act (ESA) authorizations.

| No. | Description | Action |
|-----|---|--------|
| 1. | Introduction | |
| | S. Smizik (VDOT) opened the meeting and briefly described past work with DGIF pertaining to the HRBT Expansion project. D. Gaffney (DJV) introduced the agenda and purpose of the meeting: | |



| No. | Description | Action |
|-----|--|--------|
| | <ul style="list-style-type: none"> • Provide update of HRBT expansion project, and the project components; • Provide an overview of construction activities including island expansion, dredging, and pile driving; • Present project schedule and milestones; • Present Phase II data on the occurrence of Atlantic Sturgeon in the inventory corridor for the Hampton Roads Crossing Study; and • Discuss construction mitigation under consideration. | |
| 2. | Design Segments/Zones | |
| | <p>J. Duschang (DJV) briefly described the major construction segments. Areas include tunnels, island expansions, trestles, and landside construction.</p> <p>The project has been divided into design segments, see slides 3 – 11 for segment boundaries.</p> | |
| 3. | Construction Activities | |
| | <p>The North Trestles will be replaced. Permanent impacts will include pile installation and shading of a small portion of the SAV bed. Construction of work trestles adjacent to the proposed permanent structure will result in extended temporary (>12 months) impacts and shading of the SAV bed.</p> <p>A typical work trestle section was presented. Use of pile supported temporary trestles for construction access and maintenance of traffic (MOT) during construction will minimize impacts typically associated with temporary roads or causeways built on fill.</p> | |
| | <p>North and South Islands will be expanded to accommodate new, twin two-lane tunnels west of the existing tunnels. The island expansion areas will be dredged for ground improvement and obstruction removal. Construction for the expansions will include permanent fill, ground improvement (South Island settlement reduction piles), extended temporary work trestles, moorings and dredging.</p> <p>South Island critical path construction activities include:</p> <ul style="list-style-type: none"> • Tunnel Boring Machine (TBM) platform (or Quay) to be constructed to receive the TBM. This is an extended (temporary) installation involving approximately 300+ steel hollow pipe piles and will be one of the first elements constructed | |



| No. | Description | Action |
|-----|---|--------|
| | <ul style="list-style-type: none"> Jet Grouting Trestles – two temporary trestles to be constructed on the South Island to facilitate jet grouting | |
| | The South Trestle and Willoughby Spit shore area will have permanent pile impacts from bridge replacement and be dredged for access and debris removal. | |
| | Willoughby Bay bridge will be expanded by widening each bridge to the outside. There will be some permanent shading in addition to the pile impacts. Temporary work trestles will be constructed at the east and west shores, and will have extended temporary impacts. | |
| | The bridges over Bay Ave, Oastes Creek and Mason Creek will be widened and will have permanent impacts from piles, shading and limited fills. Temporary work trestles will have extended temporary impacts. | |
| | A large portion of the project’s piles to be driven will be in place for a short-term (<12 months) and are used for temporary structures, or templates required to assist with the construction. | |
| | Temporary piles for temporary trestles will be vibrated in, and driven with an impact hammer to set. | |
| | <p>Sound source levels were used to estimate distances to in-water acoustic behavioural thresholds for fish, sea turtles and marine mammals known to occur near HRBT project area.</p> <p>See Slides 29 – 31 for preliminary estimates of distances to acoustic behavioural thresholds of unmitigated impact and vibratory pile driving.</p> <p>Some sound source levels still need to be confirmed for certain pile types (e.g., 54-inch cylindrical hollow concrete piles) and preliminary distances to thresholds need to be confirmed. Results from the Practical Spreading Loss Model (PSLM) and Simplified Attenuation Formula (SAF) were presented. Consultation with NOAA regarding the most appropriate model is on-going.</p> <p>B. Greenlee (DGIF) asked if there would be concurrent pile driving operations. J. Duschang responded that a maximum of five concurrent pile driving operations could occur, but in general 1 to 3 would be more typical.</p> | |
| | An overview of the existing channels and anchorages was presented, as well as potential areas for anchoring and mooring. Moorings would be required near to construction trestles, with 500-ft buffers | |



| No. | Description | Action |
|-----|---|----------------|
| | for barge operation and 1000-ft buffers for temporary barge placement. At the North and South Islands 42-inch mooring piles would be driven every 40-feet to provide secured mooring to construction barges. | |
| 4. | Project Schedule | |
| | <p>The following project milestones were presented for permitting and construction.</p> <ul style="list-style-type: none"> • Permits <ul style="list-style-type: none"> ○ VPDES Pre-Application Meeting (VDEQ) – August 6th ○ Pre-submittal JPA Page Turn – August 20, 2019 ○ JPA submission – August 30, 2019 ○ Anticipated USACE public notice date September 15, 2019 ○ JPA Post-Submission Follow-up – September 26, 2019 ○ Anticipated permit issuance – April 2020 • Construction <ul style="list-style-type: none"> ○ Commence field construction activities – scheduled for April 2020 ○ Project Completion – July 2025 <p>R. Fernald (DGIF) requested GIS shapefiles depicting the permanent and temporary footprints/LOD for the project.</p> | J. Mace (HRCP) |
| 5. | Atlantic Sturgeon | |
| | G. Garman presented the use of acoustic telemetry to document occurrence of Atlantic Sturgeon within the Inventory Corridor for the Hampton Roads Crossing Study. Data from the Phase II study, conducted between June 2018 and March 2019 was discussed. | |



| No. | Description | Action |
|-----|--|---------------------------|
| | <p>Navy and VCU receivers were used. There are approximately 250 sturgeon with transmitters. See Slide 37 for the location of the receivers in the project area.</p> <p>There are two cohorts of genetically distinct sturgeon populations. One spring-spawning and one fall-spawning. The fall cohort is much larger.</p> <p>Adult sturgeon transit through the project area, with linger times of about 2 hours or less. They typically use the main channel for migration (due to deeper water) during 3 peak migration times:</p> <ul style="list-style-type: none"> • Late-summer: Fish moving into the James River pre-spawn; • Late-fall: Post-spawn fish moving out of the James River • April: Spring cohort moving into the James River <p>Adults and sub-adults are found to overwinter in Chesapeake Bay. Sub-adults migrate out in November and move back up the James River in April.</p> <p>Juvenile sturgeon should not occur in the project area from Age 0-4. The nursery grounds are several kilometers upstream of HRBT.</p> <p>DGIF requested the Phase I and II reports, to be transmitted via email.</p> | <p>J. Duschang (HRCP)</p> |
| 5. | Construction Mitigation Considerations | |
| | Bubble curtains, ramp up/ soft start, hammer cushions/ cushion blocks, and use of protected species observers are among the mitigation methods being evaluated for use during pile installation and removal activities | |
| 6. | Additional Issues/ Questions | |
| | <p>R. Fernald (DGIF) would like to be involved in the August 8, 2019 HCA and Mitigation Webinar.</p> <p>R. Fernald also asked for clarity on which model would be used. J. Duschang stated that final decision is forthcoming and will be based on further consultation with NOAA.</p> <p>A question was asked about other anadromous fish in the area. Dr. Garman responded that while no similar data sets exist, his research and experience indicate their behavior is very similar to sturgeon.</p> <p>B. Greenlee recognized there was not much project area-specific information for other anadromous species in the James River (e.g., river herrings, American shad) – but that DGIF might typically consider</p> | <p>J. Duschang (HRCP)</p> |



| No. | Description | Action |
|-----|---|--------|
| | a TOYR for seasonal anadromous fish. HRCP should demonstrate why a TOYR was not needed for maintaining a migration corridor through the project area. | |
| | END | |



Virginia DGIF Project Update and
Anadromous Fish Discussion
25 July 2019
I-64 Hampton Roads Bridge-Tunnel (HRBT) Expansion Project

1



Agenda

1. Introductions
2. Design Segments/Zones
3. Construction Activities
 - Island Expansion
 - Dredging
 - Pile Driving
4. Project Schedule
 - Permit Schedule
 - Construction Schedule
5. Atlantic sturgeon Update
6. Construction Mitigation Considerations

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