240 Corporate Blvd
Norfolk, VA 23502

December 19, 2019

Ms. Allison Lay
Virginia Marine Resources Commission
380 Fenwick Road, Building 96,
Ft. Monroe, Virginia 23651

Regulator of the Day
US Army Corps of Engineers
Norfolk District
803 Front Street
Norfolk, Virginia 23510

Mr. Jeffrey Hannah
Virginia Department of Environmental Quality
5636 South Boulevard
Virginia Beach, Virginia 23462

RE: Hampton Roads Bridge Tunnel Expansion Project, Standard Joint Permit Application-Supplemental Package, Revision 2
USACE File: NAO-1994-01166
VMRC Application No. 2019-1577
VDEQ-JPA 19-1957

Dear Ms. Lay, USACE Regulator of the Day, and Mr. Hannah:

Enclosed for your review and approval is the revised Standard Joint Permit Application (JPA) for the Hampton Roads Bridge Tunnel Expansion Project with supplemental and refined design information. The initial submittal was made on August 30, 2019 with Revision 1 of certain appendices on September 18, 2019. The supplemental information contained herein is provided in response to requests from USACE, VMRC and VDEQ and discussions with other regulatory and natural resource agencies. We, along with the Virginia Department of Transportation (VDOT), have continued coordination regarding this project with your agencies in compliance with the National Environmental Policy Act (NEPA). We are grateful for the input that the agencies have provided over the past three months. Your valued input has resulted in additional avoidance and minimization of environmental impacts associated with this important transportation project.

Due to the size and complexity of the JPA with its multiple appendices and companion applications (VPDES, 408 and US Coast Guard Bridge Permit), we have prepared the following executive summary for the Project, attached to this letter.

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Please contact me by email jmartinalos@hrcpjv.com or phone (404)702-1030 if you have any questions during your review of the information contained in this revised JPA package. We anticipate that the information included in this package will allow an even more thorough review and successful permitting process. I, and my team, look forward to working with you as we strive toward an April 2020 start date for in-water construction.

Very truly yours,

Jose Ignacio Martin Alos
Project Executive
Hampton Roads Connector Partners

CC: Jim Utterback (VDOT)
George Janek (USACE)
Stephen Powell (USACE)

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Project Description:

The Project will widen I-64 for approximately 9.9 miles along I-64 from Settlers Landing Road in Hampton, Virginia to the I-64/I-564 interchange in Norfolk, Virginia. The Project will create an eight-lane facility with six consistent use lanes. The expanded facility will include four general purpose lanes, two new High Occupancy Toll (HOT) lanes, and two new drivable (hard-running) shoulders to be used as HOT lanes during peak usage. The Project will include full replacement of the North and South Trestle-Bridges, two new parallel tunnels constructed using a Tunnel Boring Machine (TBM), expansion of the existing portal islands, and widening of the Willoughby Bay Trestle-Bridges, Bay Avenue Bridges, and Oastes Creek Bridges. Additionally, upland portions of I-64 will be widened to accommodate the additional lanes, the Mallory Street Bridge will be replaced, and the I-64 overpass bridges will be improved.

Temporary, pile-supported trestles will be used to support construction equipment and to convey vehicular traffic during construction. Piles will be driven using a combination of vibratory hammers and impact hammers. Potential effects to aquatic species from pile driving will be mitigated through the use of “soft start” procedures, cushion blocks, bubble curtains for piles deeper than 20ft, and modified construction means and methods.

The primary work trestle used to construct the westbound North Trestle-Bridge will be approximately 600 feet long x 45 feet wide, with four approximately 40 feet x 30 feet fingers and an additional landing area approximately 200 feet x 45 feet. A second work trestle, used in construction of the eastbound structures, will be approximately 400 feet long x 45 feet wide. The two work trestles used to construct the new bridge spans across Willoughby Bay will be approximately 500 feet long by 45 feet wide. There are two temporary Maintenance of Traffic (MOT) trestles for the South Trestle-Bridge: the westbound MOT trestle is approximately 1,285 feet long by 35 feet wide, and the eastbound MOT trestle is approximately 1,590 feet long by 45 feet wide.

Two new parallel tunnels will be constructed using a Tunnel Boring Machine (TBM). When complete, a total of four subaqueous tunnels will connect to the two expanded portal islands. To provide necessary structural support and protection for the new HRBT, both North and South Islands require expansion and modification. The two new tunnels will have an internal diameter of 41.5 feet and be approximately 7,900 feet in length between the launch and reception shafts located on the North and South Islands. The tunnels will vary in depth from approximately 40 to 150 feet below the water surface. In the main federal navigation channel, the tunnel will be under 55 ft of water and an additional 60 feet of overburden sediment. At these depths, the geology varies between soft to stiff cohesive material and loose to dense sands. A geologic stratum with weak geotechnical properties exists along a portion of the tunnel alignment just beneath and to the north of South Island. Jet grouting will be used for ground improvement (GI) to strengthen soils in this area prior to advancing the TBM.

Barges will be used to convey dredge spoils, construction equipment and personnel, and to support pile driving and other construction activities. The Project will require dredging to create water deep enough for construction barge access and to remove unsuitable underlying material for expansion of North Island and South Island. HRCP is proposing a total of 38.22 acres of dredging to remove 251,733 cubic

yards (in situ*) in waters of the U.S. Applying a 1.8 bulking factor would yield 442,710 cubic yards of bulked dredge material.

Project Location

The Project is located in Southeastern Virginia, in the Coastal Plain physiographic region. The Project lies within Hampton Roads subbasin (HUC 02080208) and Hampton Roads watershed (HUC 0208020803), which represents the confluence of the James River and Chesapeake Bay. More specifically, the Hampton side falls within Hampton Roads-Hampton River subwatershed (HUC 020802080303), the center channel is in Hampton Roads Channel subwatershed (HUC 020802080304), and the Norfolk side lies in Willoughby Bay subwatershed (HUC 020802080302) (USGS Stream Stats).

Purpose and Need

The purpose of the Project is to accommodate travel demand, improve transit access, increase regional accessibility, address geometric deficiencies, enhance emergency evacuation capability, improve strategic military connectivity, and increase access to port facilities.

Section 106 Coordination

Multiple cultural resources investigations have been conducted in support of the HRBT Expansion Project in order to comply with Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations at 36 CFR Part 800. Previous consultation conducted by FHWA and VDOT under Section 106 with the Virginia Department of Historic Resources (DHR), which serves as the State Historic Preservation Office (SHPO), resulted in a finding of no adverse effect for the HRBT Expansion Project through the 2017 execution of a Programmatic Agreement Among the Federal Highway Administration, the Virginia State Historic Preservation Officer, and the Virginia Department of Transportation Regarding the Hampton Roads Crossing Study, Cities of Hampton and Norfolk, Virginia (JPA Attachment K-1 – Programmatic Agreement). VDOT continues to participate in ongoing coordination with DHR regarding the Programmatic Agreement (PA). The PA requires VDOT to meet specific design commitments for avoidance of adverse effects, complete efforts to identify archaeological sites eligible for listing in the National Register of Historic Places (NRHP) within the Area of Potential Effect (APE) for the project, and to assess effects on identified historic properties.

Impacts to Waters of the U.S.

The work will result in permanent cut/fill impacts to 0.81 acres of non-tidal wetlands [0.12 forested (PFO), 0.25 scrub-shrub (PSS), 0.28 emergent (PEM), and 0.16 unconsolidated bottom (PUB)] and temporarily impact 0.66 acres of non-tidal wetlands [0.04 PFO, 0.04 PSS, 0.37 PEM, and 0.21 PUB]. The work will also result in permanent cut/fill impacts to 21.27 acres of tidal wetlands [0.01 submerged aquatic vegetation (SAV), 0.13 estuarine intertidal scrub shrub (E2SS) 0.17 estuarine intertidal emergent (E2EM), 0.92 estuarine intertidal unconsolidated shore sand (E2US2), 0.87 estuarine intertidal rocky shore rubble (E2RS2), and 19.17 estuarine subtidal open water (E1OW)] and temporarily impact 34.77 acres of tidal wetlands [0.57 SAV, 0.03 estuarine intertidal forested (E2FO), 0.07 E2SS, 2.82 E2EM, 0.01 estuarine intertidal unconsolidated shore mud (E2US3), 3.30 E2US2, 1.55 E2RS2, and 26.42 E1OW].

Construction of the Project will also result in the permanent conversion of 0.01 acres of PFO to emergent wetlands for a permanent drainage easement. Additionally, the Project will result in permanent shading impacts to 0.12 acres of non-tidal wetlands [0.11 PSS and 0.01 PEM] and 2.55 acres of tidal wetlands [0.48 SAV, 0.06 E2SS, and 2.01 E2EM]. Permanent shading impacts are caused by trestles. HRCP also proposes to temporarily impact 27 linear feet of perennial stream for temporary construction access for culvert repair.

Compensatory Mitigation

By using a bored tunnel design versus immersed tube tunnel, HRCP has avoided approximately 60 acres of dredging, reduced in-water work by 36 months, and avoided the use of 810,000 cubic yards of fill and 200,000 cubic yards of armor stones. Refinement of the roadway typical section avoided impacts to approximately 0.34 acres of non-tidal wetlands and 0.31 acres of tidal wetlands. Use of temporary construction trestles instead of traditional stone or earthen causeways minimized impacts to over three (3) acres of vegetated wetlands. Use of temporary trestles instead of construction barges in certain areas avoided dredging impacts to over seven (7) acres of shallow water habitat.

Compensatory mitigation to offset environmental losses resulting from unavoidable impacts to waters of the United States will be provided through the purchase of 1.03 non-tidal wetland credits and 2.70 tidal wetland credits from approved mitigation banks; seeding of 118,177 chowder clams; the purchase of 0.49 oyster reef credits from an approved “in-lieu” fee fund to offset extended temporary shading impacts to SAV; the purchase of 14.59 subaqueous bottom credits from an approved “in-lieu” fee fund, and restoration of SAV beds temporarily shaded during construction.

Water Quality

The Project will result in discharge of both stormwater and process water required for construction. Virgina Pollution Discharge Elimination System (VPDES) as well as a Virgina Stormwater Management Program (VSMP) permits will obtained. Stormwater mitigation credits for nitrogen and phosphorus will be obtained to meet offset requirements under General Permit for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

Stormwater runoff from North Island, South Island, and the connecting tunnels, will be captured and discharged from five outfalls. The existing North Island and South Island tunnel stormwater outfalls will be used as combined outfalls for discharging surface flows from the islands and drainage from the existing tunnels. A new stormwater outfall is proposed on the North Island for stormwater run-off from the north side of the island. The site surface stormwater management system for the islands are separate from the Tunnels and Approach Structures (TAS) drainage system. Two new outfalls are proposed for the new tunnel drainage system, one each at North and South Island.

Threatened and Endangered Species and Marine Mammals

Coordination under Section 7 is ongoing, but HRCP anticipates no impact to listed species. Eight species of marine mammals are known to occur or are likely to occur near the Project area, including fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), common minke whale (*Balaenoptera acutorostrata acutorostrata*), North Atlantic right whale (*Eubalaena glacialis),* common bottlenose dolphin (*Tursiops truncatus*), harbor porpoise (*Phocoena phocoena*), harbor seal (*Phoca vitulina*), and gray seal (*Halichoerus grypus atlantica*). Of these eight species, only five may occur regularly and be incidentally taken during pile installation and removal: humpback whale, bottlenose dolphin, harbor porpoise, harbor seal, and gray seal. These incidental take requests are being coordinated with NOAA NMFS.

Off-site Disposal

Activities that will generate excess materials include dredging, tunnel boring, process water, demolition material (concrete), and excavation. Material placement options being evaluated include placement at disposal facilities, beneficial reuse, or for reuse within the Project. Beneficial reuse is being considered for beach nourishment and offshore artificial reefs. Suitable disposal facilities have been identified that have the capacity to accept all excess materials generated from the Project.

JPA APPENDIX A, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T ERRATA – DECEMBER 19, 2019

Appendix A: Adjacent Property Owners Address Labels

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Attachment Table	A-ii	Table	Added Attachment A-B1 / A-B2 / A-B3
2	A.1 Address Labels for Project	A-1	Paragraphs	Added the following paragraphs VMRC Mailing Labels identifying current residents within 500 feet of the project limits and riparian. Attachment A-B1: VMRC Mailing Labels Attachment A-B2: VMRC Address and Parcel Numbers Attachment A-B3: VMRC Property MapBook Attachment Group A-C – DEQ Mailing Labels identifying current residents. Riparian owner notification parcels and labels were developed for property owners located adjacent to non-tidal wetland or stream impact areas, within one-half mile downstream of each distinct non-tidal impact area; and property owners 0.25 mile upstream and 0.25 mile downstream for tidal impact areas. This requirement is per Virginia Code § 62.1-44.15:4. Attachment A-C1: DEQ Avery 5160 Mailing Labels Attachment A-C2: DEQ Address and Parcel Numbers Attachment A-C3: DEQ Property MapBook
3	Attachments A-B1, A-B2, A-B3 A-C1, A-C2, A-C3		Attachments	Added the noted documents

Appendix E: Project Description

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Appendix E	N/A	Throughout Document	HRBT or HRBT Expansion changed to "Project," throughout the document.
2	Appendix E	N/A	Throughout Document	"Seabed" changed to "mudline," throughout the document.
3	E.1	E-1	3rd Paragraph	Paragraph removed
4	E.1	E-4		Figure E-2 and Table E-1 removed
5	E.3	E-6	Throughout Section	Section E.3 Project History removed
6	E.2	E-4	Throughout Section	Purpose and Need simplified for consistency and clarity with the SEIS.
7	E.5.2	E-8-10	Throughout Section	Section incorporated to summarize structures and their respective impacts to the WOUS.
8	E.5.2-E.5.5	N/A	Whole Section	Sections heavily edited to highlight updates on key structure areas of the design.
9	E.8.1	E-22	1st paragraph	Edit: "Creation of the South Island launch pit, portal, and TAS will result in the excavation of approximately 26~~30~~0,000 cubic yards of sandy material. Dependent on the results of chemical and physical analysis, up to 15~~20~~0,000 cubic yards of clean, sandy material from the South Island portal excavation may be reused."
10	E.8.1.1	E-22	Phase 1	Added text: "Approximately 170 **steel sheet** piles will be driven along the existing **upland** west shore to create a cutoff wall."
11	E.8.1.1	E-22	Phase 2	Added text: "The footprint of the future North Island Expansion (1**3**~~6~~.**25**~~41~~ acres or ~~71~~5**77**,0**17**~~00~~ SF) will be mechanically dredged (up to **20**~~3~~ feet below seabed plus **2 ft** over dredge) to remove mud and provide improved foundation conditions. **Since the sediments are not considered to be contaminated, dredging will be via a standard clamshell bucket.**"
12	E.8.1.1	E-22	Phase 3	Text edited: "Moorings will keep work vessels stable during construction, and will reduce **construction** activity **from encroaching on** ~~in~~ the adjacent Hampton Creek Approach Channel. Piles will be vibrated out or cut ~~2~~ 3 feet below the mudline ~~sea bottom~~ once the **North** Island Expansion is complete in accordance with **United States Coast Guard** (USCG) and USACE guidance."
13	E.8.1.1	E-23	Phase 5	Text edited: "Removal **of existing perimeter stone** and placement of **new** stone material will start at one extremity of the island and finish at the other." Added: **"Dredging: The footprint of the future North Island Expansion including toe scour area will be dredged."**

Row #	Chapter/Section	Page	Location	Corrections/Additions
14	E.8.1.2	E-24	Phase 1-Dredging	Added text: "Dredging is required within the footprint of the expansion area (**3.14~~2.84~~** acres) to clear the mud, reduce settlement, and remove obstructions (i.e. armor stones **displaced** ~~washed away~~ from shore). **Depth of dredging will be determined by the results of the geotechnical borings (currently underway). The dredged sediments will be placed in a barge for transport to an upland, approved disposal facility. Depth of the dredge cut will range from 3 feet around the perimeter to 18 feet in the interior (plus 2 ft over dredge) depending on results of the supplemental geotechnical boring program.**
15	E.8.1.2	E-25	Phase 4-Material Placement	Added text: **"Dredging- The footprint of the future South Island Expansion including toe scour area will be dredged."**
16	E.8.1.2	E-26	Phase 5-Onshore (upland) Works	Added text: "Armor stones **above Mean High Water (MHW)** will need to be removed to place the new material for the island expansion, **and facilitate construction of the Tunnel Approach Structure (TAS)**."
17	E.8.2	E-27	Phase 2-First Bore	Text edited: "Work will occur **6~~5~~** days per week with maintenance occurring on weekends."
18	E.8.2.1	E-28	3rd paragraph	Added text: "Both TAS will be built with deep slurry walls and sealed with a watertight jet grout plug **or by taking advantage of a low permeability geological stratum.**"
19	E.8.2.2	E-30	1st paragraph	Additional discussion of management of excavated material added.
20	E.8.2.3	E-32	TBM Quay 4th paragraph	Text edited: "The piles will be vibrated out or cut ~~2 to~~ 3 feet below the **mudline** ~~seabed~~."
21	E.8.5.1	E-39-40	Whole Section	Section incorporated to summarize dredging areas and quantities.
22	E.8.6.2	E-41-59	Whole Section	Section heavily edited to incorporate vessel count and locations.
23	E.8.6.4	E-43	Whole Section	Section heavily edited to incorporate safe haven, and location of mooring areas.
24	E.8.7	E-44	Last 2 bullets	Added text: Willoughby Spit temporary piers, and Anchors and mooring piles
25	E.8.8	E-44-45	Whole Section	Section heavily edited to incorporate refined demolition and removal plans.

Appendix F: Alternatives Analysis

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	F.1	F-1-3	Introduction	Per USACE comments, information regarding the NEPA process was refined, and narrowed to better include the changes that occurred after the NEPA process. Information regarding the Final SEIS and previous alternatives has been deleted and a note includes looking at Chapter 2 of the Final SEIS for that information.
2	F.2	F-4-6	Alternatives Section	Alternatives were simplified to only represent the No Build Alternative, Immersed Tube Tunnel, and Selected Bored Tunnel Alternative.
3	F.3	F-6-7	Comparison of Alternatives	Section re-written to compare alternatives impact on dredging, permanent fill, and temporary structure.

Appendix G:

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Attachment G-3B: Island Design	JPA(0)	dwg	1. Corrected dredge elevations for Zone 1 and Zone 2 2. Added seabed instrumentation zone (Area 3a) and south island dredge zone (Area 5) 3. Added channel buffer lines
2	Attachment G-3B: Island Design	JPA(1)	dwg	1. Updated to construction outfall location 2. Showed expanded dredge LOD along SI exp zone to allow shape arrays 3. Updated the limits of north island expansion 4. Showed the line of outfall 002 5. Added general notes: "1. See JPA(0) for key plan of dredge zones. 2. Bathymetric contours obtained from NOAA Chesapeake Bay M130 DEM data (2017)." 6. Added 40-feet wide and 3-feet deep trenching for seabed instrumentation 7. Include bathy lines to be consistent with other drawings 8. Showed the mooring pile in the profile 9. Updated stage 1 north eastbound trestle 10. Updated stationing range
3.	Attachment G-3B: Island Design	JPA(2)	dwg	1. Showed expanded dredge LOD along SI exp zone to allow shape arrays 2. Added general notes: "1. See JPA(0) for key plan of dredge zones. 2. Bathymetric contours obtained from NOAA Chesapeake Bay M130 DEM data (2017)." 3. Updated the limits of north island expansion 4. Added 40-feet wide and 3-feet deep trenching for seabed instrumentation 5. Showed the mooring pile in the profile
4.	Attachment G-3B: Island Design	JPA(3)	dwg	1. Added general notes: "1. See JPA(0) for key plan of dredge zones. 2. Bathymetric contours obtained from NOAA Chesapeake Bay M130 DEM data (2017)." 2. Showed the mooring pile and 3' trenching in the cross-section 3. The leader "2' surface gravel" was changed to "2' pavement"
5.	Attachment G-3B: Island Design	JPA(4)	dwg	1. Added general notes: "1. See JPA(0) for key plan of dredge zones. 2. Bathymetric contours obtained from NOAA Chesapeake Bay M130 DEM data (2017)." 2. Showed the mooring pile and 3' trenching in the cross-section
6.	Attachment G-3B: Island Design	JPA(5)	dwg	1. Showed expanded dredge LOD along SI exp zone to allow shape arrays 2. Added general notes: "1. See JPA(0) for key plan of dredge zones. 2. Bathymetric contours obtained from NOAA Chesapeake Bay M130 DEM data (2017)." 3. Updated the limits of north island expansion
7.	Attachment G-3B: Island Design	JPA(7)	dwg	1. Updated the jet grout, conveyer belt quay, and TBM quay 2. Showed expanded dredge LOD along SI exp zone to allow shape arrays

Row #	Chapter/Section	Page	Location	Corrections/Additions
				3. Slightly moved the location of water treatment plant to be within LOD 4. Relocated VPDES Permit discharge line to shorten the conveying distance
8.	Attachment G-3B: Island Design	JPA(8)	dwg	1. Rounded the dimension for the distance between the existing EB to HT lane 2. Adjusted labels to align with the objects
9.	Attachment G-3B: Island Design	JPA(9)	dwg	1. Replaced labels “U-wall (boat)structure” “U-wall strutted structure” “cut-and-cover tunnel” with “Tunnel approach structure” 2. Deleted label “excavation in dry – impermeable base plug”; 3. Updated the buildings in for NI; 4. Updated to construction outfall location
10	Attachment G-3B: Island Design	JPA(10)	dwg	1. Updated building footprint and approached configuration to most current design 2. Raised jet grout at the bottom of slurry walls to bottom of base slab
11	Attachment G-3B: Island Design	JPA(13)	dwg	1. Updated to construction outfall location 2. Modified labels to show “Excavation via dewatering” 3. Updated the limits of north island expansion 4. Updated building footprint
12	Attachment G-3B: Island Design	JPA(14)	dwg	1. Removed tension piles 2. Removed unnecessary construction notes from bid set 3. Extended slurry walls to El. -180’ 4. Moved jet grout at the bottom of slurry walls to bottom of base slab
13	Attachment G-3B: Island Design	JPA(17)	dwg	1. Showed expanded dredge LOD along SI exp zone to allow shape arrays 2. Updated temporary structures 3. Make LOD line thicker and bold
14	Attachment G-3B: Island Design	JPA(18)	dwg	1. Used “MLLW” “MHHW” elevation marks instead of “MLW” “MHW” 2. Added assumed seabed
15	Attachment G-1	All	Impact Plates	Major design changes to the impact plates are listed below. Impact plates and tables have been updated to reflect the revised areas. Additionally, erosion and sediment control plans and restoration notes have been added to Attachment G-1. Mooring and Anchoring Locations with lat/long have been added to Attachment G-5, Willoughby Spit cross sections have been added to Attachment G-3D, a PJD for additional areas outside of

Row #	Chapter/Section	Page	Location	Corrections/Additions
				the previous delineation area has been included in Attachment G-4C, and Dredging plans are now included in Attachment G-6.

Structure	Sheet Number	Change	Reason for Change
MALLORY STREET			
Culvert near Mallory Street	3	Temporary wetland impact added	Culvert repair
NORTH TRESTLE			
Near North Trestle	4	Temporary wetland impact added	Field wetland delineation
North Trestle	5	Reduced impact: temporary impact, jump trestle impacts, and work trestle impacts Impact Added: extended temporary impacts, temporary impacts, and work trestle impacts	Work trestle shifted slightly west
North Trestle	6	Impact Added: work trestle impacts Reduced Impact: jump trestle, and maintenance of traffic impacts	Work trestle shifted slightly
NORTH ISLAND			
Dredge Area surrounding North Trestle	6	Dredge area added, resulting in expansion of dredge footprint	Area added for geotech monitoring
North Island	9	Reduced impact: permanent fill impacts Impact Added: temporary, and permanent fill impacts	Corner added on island expansion
SOUTH ISLAND			
Jet Grout Trestles	12	Impact Added: work trestle impacts	Jet grout trestles increased in size
South Island	13	Impact Added: temporary, and permanent fill impacts Reduced impact: temporary, jump trestle,	Rip-rap added

Structure	Sheet Number	Change	Reason for Change
		and maintenance of traffic trestle impacts	
Conveyor Belt Quay	14	Impact Added: work trestle, temporary, and extended fill impacts Reduced Impact: work trestle impacts	Conveyor belt changed size and shape
TBM Quay	14	Impact Added: work trestle impacts Reduced Impact: work trestle impacts	TBM Quay changed size and shape
South Island	14	Impact Added: permanent fill impact	Corner added to island expansion
		SOUTH TRESTLE	
Work Trestle	15	Impact Added: work trestle impacts	Work trestle shifted slightly
MOT Increased	15	Impact Added: Maintenance of Traffic Trestle	Increased in width to accommodate an additional lane
Dredge Area	16-18	Impact added: dredge area	Dredge area changed
		WILLOUGHBY SPIT LAYDOWN AREA	
Existing Structure	18	Impact added: work trestle impact	Impact to remove existing structure
Work Trestle	19	Impact added: work trestle impact	Work trestle shifted
Work Trestle	19	Impact added: work trestle impact	Work trestle increased slightly
Existing dock	19	Impact reduced: work trestle impact	No longer demolishing existing dock
Bulkhead repair	19	Impact added: permanent fill impact	Impact for bulkhead repair added
Work Trestle	19	Impact added: work trestle impact	Impact for work trestle added, and moved
Existing Structure	20	Impact added: permanent fill impact	Added impact for structural removal and fill

Structure	Sheet Number	Change	Reason for Change
Bulkhead repair	20	Impact added: permanent fill impact	Impact for bulkhead repair/replacement
		WILLOUGHBY BAY BRIDGE	
Jump Trestle	22-25	Impact added: jump trestle impact	Jump trestle shifted slightly
Outfall	25	Impact added: temporary impact	Outfall repair
Near 1st View Street	29	Impact added: temporary impact	Impact shifted due to grading, additional field wetland delineation
		OASTES CREEK / MASON CREEK	
East of Patrol Road	34	Impact Added: permanent impact added	Impacts changed due to grading
Granby Street	35	Limit of Disturbance reduced	LOD reduced by cemetery

Appendix H: Permit List

Row #	Chapter/Section	Page	Location	Corrections/Additions
1				No Changes

Appendix I: Federal Species

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	I.5.3	I-iv	Table of Contents	Added **Beach** to Northeastern **Beach** Tiger Beetle
2	Appendix I	All	Throughout document	Grammatical changes were made to improve readability throughout the appendix.
3	I.2.1	1	Consultation History	NOAA Fisheries changed to NMFS throughout bullets
4	I.3	3	Table I-1	Changed "No Effect" for Shortnose sturgeon to "Not Likely to Adversely Affect"
5	I.4	4	Last 2 sentences	Artificial reef areas changed from four to three. Last sentence added, "The feasibility of the potential use of the artificial reef sites remains in the preliminary evaluation phase by the Project partners and would be subject to additional approvals and coordination with regulatory agencies."
6	I.5	6	1st sentence	IPAC date revised from August 11, to November 15, 2019.
7	I.5	7	Last paragraph	Added: "The IPAC search also provided a list of non-endangered migratory birds with the potential to occur in the Project area. This list included marine colonial nesting species that are known to nest on the South Iisland. VDOT intends to apply a bird hazing and management plan to the South Island to remove the habitat and discourage bird use of the South Island for marine birds known to use the island for nesting. Habitat removal will commence in 2019 and continue through the winter into 2020. Additionally, devices and other methods to discourage bird use will be installed in this time frame."
8	I.5.2	9	Last sentence	Added: "Red Knots are unlikely to be adversely affected by Project activities."
9	I.7	12	Paragraph	Addition of new summary section and statement. "Impacts related to Project activities are anticipated to be spatially and temporally limited and unlikely to adversely affect species under federal jurisdiction."
10	I.8	12-13	References	New references have been added throughout the document.
11	Species Conclusion Table	N/A	Attachment I-1	CEDAR changed to VDOT for multiple species/resource names.
12	BA I.2.3	I-9	1st paragraph	Edits made to the action area description
13	BA I.2.4	I-13	Entire section	Project components added
14	BA I.2.5	I-23	Entire section	In-Water Marine Construction Activities section added
15	BA I.2.5.1.1	I-27	Entire section	Reference to Appendix G and L added

Row #	Chapter/Section	Page	Location	Corrections/Additions
16	BA I.6.1	I-43	Entire section	Detail on bottom disturbing activities and turbidity added
17	BA I.6.3	I-50	1st and 2nd paragraphs	Additional vessel interaction information added
18	BA I.6.5	I-56	1st paragraph	Underwater noise and sea turtle discussion added
19	BA I.6.5	I-56	Entire section	Updated pile information added
20	BA I.8.2	I-65	2nd paragraph	Noise mitigation section added

Appendix J: State Species

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Appendix J	All	Throughout document	Grammatical changes were made to improve readability throughout the appendix.
2	J.1.1	3	Following the first paragraph	Bullets were removed for clarity and simplification
3	J.1.1	3-4	Throughout Bullets	NOAA edited to NMFS
4	J.1.1	4-5	Bullets 5 and 6	Statements regarding experience from other projects in the region have been removed for clarity.
5	J.1.2	5	2nd paragraph	DCR Virginia Natural Heritage Data Explorer search updated November 15, 2019 from August 12, 2019.
6	J.1.3	9	Bat section	Discussion on bat species, including NLEB, little brown bat, and tri-colored bat has been revised.
7	J.1.4	14-15	References	New references have been added throughout the document.

Appendix K: Cultural and Historic Resource Coordination and Concurrences

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Attachment K-2	N/A	Mapping	Mapping revised to include NEPA LOD adjusted for additional permanent project impacts, and the Construction LOD.

Appendix L: Material Management Plan

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Throughout Document		Throughout Document	Replaced “upland” with “onshore”
2	Throughout Document		Throughout Document	Replaced “environmental” with “clam” bucket.
3	Document History Sheet	L-i		Added this page
4	Table of Contents – Attachments		Attachments L-3 through L-11	Added Attachment L-3: DTH Hammer and Foaming Agent Information and Attachment L-11: Material Management Reference Documents. Revised numbering/names for consistency.
5	L1.1	L-2	Last paragraph	Deleted “all” and replaced with “appropriate”; replaced permitting with regulatory.
6	L.1.2	L-2	First paragraph	Deleted “, all”
7	L.1.3	L-4	First paragraph	Replaced “ten” with 9.9
8	L.1.3	L-4	First paragraph	Clarified bridge replacement planned except for Willoughby Bay.
9	L.1.3	L-7	Last paragraph	Defined TAS
10	L.1.3	L-9	Figure L-4	Identified Tri-cell dewatering area
11	L.1.5.1	L-12	Last paragraph	Replaced “The specified storage tank with a capacity of 3,000 gallons will be used” with “Two storage tanks will be used, each with a capacity of 5,000 gallons,”. Added detail related to the dual tank system and safety procedures for prevention of spillage.
12	L.1.5.1	L-12	Last paragraph	Deleted “175” and replaced with “375”. Deleted remainder of the sentence after (gpm) and added the following: “Should the 75% maximum capacity be exceeded, jet grouting operations will be stopped so as to not exceed holding capacity.”
13	L.1.5.1	L-12	Last paragraph	Deleted” Pumping capacity is more than twice the flow rate and”
14	L.1.5.1	L-15	First paragraph	Deleted “the STP” and replaced with “ a dedicated Separation Treatment Plant”. Clarified process of materials through plant.
15	L.1.5.1	L-15	Second paragraph	Clarified jet grout spoils and jet grout separation and treatment plant. Revised last sentence to: There will be a jet grout separation treatment plant and a WTP on each island to treat jet grout.

Row #	Chapter/Section	Page	Location	Corrections/Additions
16	L.1.5.2	L-15	First paragraph	Added “Additional details on water quality treatment can be found in Appendix E of the JPA.”
17	L.1.5.3	L-16	Third paragraph	Clarified what sections and type of construction activities for each island TAS. Added “or floor structure.” to last sentence.
18	L.1.5.3	L-17	First bullet	Deleted “ (Cross walls in the tri-cell shaft allow to avoid having struts in the launching shaft.)”
19	L.1.5.3	L-17	Third bullet	Added “(with the exception of the tri-cell area on the South Island TAS)”
20	L.1.5.3	L-17	Second set of bullets; third bullet.	Added “or floor structure” and deleted “and jet grout struts below the (future) concrete slab.”
21	L.1.5.4	L-17	First paragraph	Added detail on the covered conveyor trestles and precautionary measures for spillage (environmental & sedimentation controls).
22	L.1.5.5	L-17	First paragraph	Replaced “45” with “44.5”
23	L.1.5.5	L-18	Fourth paragraph	Revised timetable (months) for each item. Added” It will take approximately 4.5 months to rotate the TBM at the north island before Drive 2. Additional scheduling details can be found in Appendix N.”
24	L.1.5.5	L-19	Third paragraph	Updated TBM schedule
25	L.1.5.6	L-20	First bullet	Deleted “ including 170 36-inch piles”
26	L.1.5.6	L-20	Second bullet	Added “ temporary and permanent”
27	L.1.5.6	L-20	Last paragraph	Deleted “ up to every 40 feet”
28	L.1.5.6	L-21	First bullet	Added “Permanent” and “and tunnel approach structure”
29	L.1.5.6	L-21	Second bullet	Added “ Temporary sheet piles along the North Trestle Bridge and western shoreline to facilitate dredging activities;”
30	L.1.5.6	L-21	Third bullet	Replaced “165,000” with “180,000”
31	L.1.5.6	L-21	Last sentence before “South Island”	Added the following “The temporary sheet piles will be removed with vibratory hammer”
32	L.1.5.6	L-21	Last sentence	Added “approved”

Row #	Chapter/Section	Page	Location	Corrections/Additions
33	L.1.5.6	L-22	Last paragraph	Revised with detail on South Island expansion area, sheet piles and defined graded material.
34	L.1.5.8	L-25	Bottom of page	Fixed the footnote for DTH.
35	L.1.5.8	L-26	First paragraph	Added ". (Please refer to Attachment L-3 for the specification sheets on the proposed Foamer, as well as agency approval and associated testing of the product from the Chesapeake Bay Bridge-Tunnel project)."
36	L.1.6	L-28	Table L-3	Revised quantities in table to reflect design changes.
37	L.1.6.1	L-29	First paragraph	Deleted "Dredged material will be transported from the site prior to dewatering." And added "Two disposal facilities have been identified as potential recipients of the dredge material – Port Tobacco at Weanack (Shirley Plantation) and Dominion Recycling Center. It is anticipated that dewatering will take place at these facilities and as such, any required monitoring will be the responsibility of the receiving facility."
38	L.1.6.2	L-30	First paragraph	Replaced "STP and" with " dedicated separation treatment plant for jet grout and one for slurry walls, as well as"
39	L.1.6.5	L-30	First paragraph	Added "Parameters that would exclude the material from being used as part of the VMRC artificial reef program include lead paint, unsealed friable asbestos, petroleum products, and size requirements. The debris must be large enough that it will not be moved during storm events so that it stays within VMRC's permitted footprint. Other criteria include, but may not be limited to, no protruding rebar greater than 1-inch and located at least 12-feet below surface."
40	L.1.7	L-31	Fifth Bullet	Added " are further detailed below." Deleted bulleted list.
41	L.1.7.3	L-34-35	After last sentence of first paragraph	Added "The goal is to replicate fish habitat close to that which occurs naturally. Each site provides feeding grounds and shelter for reef dwelling fish, which, in turn, attract larger predator fish. GPS positions are used to indicate the exact placement of reef material or mark the center of an artificial reef. Several environmental conditions would preclude the demolition material from being used in the artificial reef program. These conditions include: a. Petroleum product coatings b. Lead paint c. Friable Asbestos (any exposed asbestos needs to be sealed prior to material deployment to the reef). d. Asphalt A reef plan will be created documenting the types of materials that are expected, quantities of materials to be expected (in tons and cubic yards), a date range that the material is expected to be placed, any environmental concerns, and the preferred reef locations to be used. The demolition material will be tested using protocols defined by VMRC for the environmental conditions listed above. Besides environmental conditions, several physical conditions also must be met. Any protruding rebar needs to be trimmed to 1-inch prior to

Row #	Chapter/Section	Page	Location	Corrections/Additions
				deployment and the size of pieces must be acceptable to VMRC. VMRC cannot accept loose rubble that has the potential to move during storm events. All material that is placed in the artificial reef must stay inside the permitted footprint. Steel girders and pieces of steel are acceptable. Each artificial reef site must have a minimum water depth of 12-feet after placement of material. If a piece of bridge material is above the 12-foot threshold, the HRCP will be responsible for repositioning the debris in a way to ensure a water depth of 12-feet. VMRC's terms must also be agreed upon prior to placement. These include, but are not limited to, not deploying petroleum products, maintaining all Coast Guard standards and clearances, operating during daylight hours, and adhering to VMRC's weather window. There are four reef locations being considered for this project, Newport News Middle Ground Reef, East Ocean View Reef, Bluefish Rock Reef, and Cabbage Patch Reef. Mapping of the Middle Ground Reef is incomplete. VMRC is in the process of re-scanning this reef to determine if it can take more material or not, so this reef may be off limits for disposal. Ocean View Reef is located in shallower water than the other reefs being considered. There are also crane height restrictions at this site. Bluefish Rock Reef has no known restrictions for use and is favored by VRMC. The northwest corner of the Cabbage Patch Reef has been reserved as an Eternal Reef site."
42	L.1.8	L-36	After last sentence of first paragraph	Added "These materials are considered inert and are not anticipated to be sampled prior to placement, but will be required to be certified clean by the generating facility. However, if soils or sediments are to be imported for use in island expansions these materials will be required to meet the criteria established for approval for use as clean fill or otherwise certified. As the materials will be utilized as construction fill for in-water placement, analytical data of the proposed construction fill materials shall be compared to the following criteria: - Virginia Department of Environmental Quality's Ecological Soil Screening Levels (ESSL) and Groundwater Soil Screening Levels (GWSSL), Residential Soil Screening Levels (RSSL), and Industrial Soil Screening Levels (ISSL) for beneficial reuse of soils/sediments; - Virginia Criteria for Surface Water (9VAC25-260-140); - Marine sediment quality guidelines (specifically Threshold Effect Levels (TELs) and Probable Effect Levels (PELs) (MacDonald et al. 1996); and - Estuarine NOAA-based Effects Range-Median (ER-M) Sediment Screening Values (Buchanan, M.F. 1999).
43	L.2.1	L-39	First paragraph	Added "the analytical and physical" to last sentence.

Row #	Chapter/Section	Page	Location	Corrections/Additions
44	L.2.2.1	L-43	Second paragraph	Added " If reuse of the material is not approved by the appropriate agencies, baseline sampling has indicated that "
45	L.2.2.1	L-43	Third paragraph	Updated to indicate that additional groundwater samples were collected at South Island in November 2019, with results pending.
46	L.2.2.1	L-44	Second paragraph	Clarified the reuse/disposal of sediments with PCBs.
47	L.2.2.1	L-44	Third paragraph	Identified additional groundwater samples collected to assist in characterization of groundwater at South Island.
48	L.2.2.1	L-45	Figure L-12	Updated for clarity of text.
49	L.2.4	L-47	Second paragraph	Deleted " and neutralize pH". Added the sentence "Adjustment of pH will occur prior to discharge from the WTP."
50	L.3	L-51	First paragraph	Added reference to SOPs and guidance documents for material management in Attachment L-11.
51	L.3.1	L-51	Second paragraph	Added to end of paragraph " Upon final procurement and acceptance, the successful facility will provide the acceptance letter inclusive of capacity and permit requirements."
52	L.3.1	L-48-50	Figure L-13	Updated Figure – Simplified Process Flow Diagram and added Figure L-13(b) – Simplified Process Flow Diagram North Island Outfall 002 and L-13(c) Construction Activity Schedule for Discharges.
53	L.3.2.1	L-52	Sixth paragraph	Updated the procedure for material handling during inclement weather.
54	L.3.2.1	L-53	Second paragraph	Added " During the disposal process, these materials will be mixed during placement in the barges:"
55	L.3.2.1	L-53	Fourth bullet	Added "maximum"
56	L.3.2.1	L-53	Third paragraph	Updated barges from 2 to 8 doing continuous trips 24 hours/day. Revised to indicate wastes from the TBM will be generated 5 days/week, with load out up to 7 days/week.
57	L.3.2.2	L-54	Third paragraph	Added "by the USACE." To last sentence

Row #	Chapter/Section	Page	Location	Corrections/Additions
58	L.4.1.3	L-61	Pile Driving	Updated size and shape of piles

Appendix M: Essential Fish Habitat (EFH) Assessment

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	M.1.1	M-1	3rd paragraph	Description of project edited for clarity and consistency.
2	M.1.3.1.1	M-2	1st paragraph	Portal island expansion areas updated.
3	M.1.3.1.2	M-2	1st paragraph- last sentence, and 2nd paragraph- 3rd sentence	Text edited: "Span bents will be supported by approximately 478 ~~precast~~ 54-inch **concrete** cylindrical piles ~~or 30 inch precast square piles.~~" Text edited: "Span bents will be supported by approximately 680 ~~precast~~ 54-inch **concrete** cylindrical piles ~~or 30inch precast square piles.~~"
4	M.1.3.1.3	M-2-3	3rd and 5th sentences	Text edited: "Approximately 350 **24**~~30~~ inch ~~precast~~ **concrete** square piles will be driven to support the expansion **at Willoughby Bay**." "Approximately 210 **54-inch concrete cylinder** piles will be driven at the Bay Avenue crossing and 92 **54-inch concrete cylinder** piles will be driven to support the structure at Oastes Creek."
5	M.1.3.2	M-3	Last 2 sentences	Text edited: "The installation and removal of the piles will temporarily disturb the benthic sediments in the footprint of each pile. The piles will be driven with a combination of vibratory, impact, or **drilling with** down-the-hole hammers. **Piles will be removed using a vibratory hammer or cut 3 feet below the mudline**."
6	M.1.3.3	M-3	2nd sentence	Dredge numbers edited
7	Throughout Document	N/A	N/A	Table M-3 referenced throughout document.
8	M.6.1.1	M-27	Throughout section	Acreages have been updated based on refined design. Text added: "In-kind compensation for impacts to SAV will be provided by seeding/replanting SAV in the area of impact. SAV restoration and any future monitoring will be conducted by the Virginia Institute of Marine Science. More detailed information can be found in Appendix P.
9	M.6.1.3	M-30	3rd sentence	SAV impacts have been updated based on design refinement.
10	M.6.1.7	M-32	2nd sentence	Dredge areas have been updates based on design refinements.
11	M.8.3.3	M-39	4th paragraph	Text added: "…species and their habitat with EFH in the Project area. The Spill Prevention and Response Plan (see Appendix S) will mitigate impacts to EFH. The plan includes the application of Best Management Practice (BMPs) for spill prevention that will be implemented at areas where construction activities occur."

Row #	Chapter/Section	Page	Location	Corrections/Additions
12	M.9.1.1.1	M-40	2nd paragraph	41 Habitat Units edited to 60.
13	M.10.1.1.2	M-40	1st paragraph	SAV impacts have been updated
14	M.10.1.1.4	M-41	1st sentence	Text edited: "There will be an increase of 0.4~~1~~**9** acre of intertidal rock with the expansion of the tunnel islands."
15	M.10.1.3.1	M-42	Last sentence	Text added: "To minimize the potential for ship strikes associated with vessel traffic in the Project area, vessels within the Project area and traveling to and from the Project area will travel at less than 10 knots."
16	M.11	M-44-49	References	References have been added and edited for accuracy.

Appendix N: Project Schedule

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	N.1 Introduction	N-1	First Paragraph	Distance is now noted as “approximately 9.9 miles” and distanced noted in bullet list of distances removed to eliminate contradiction.
2	N.1 Introduction	N-1	3rd Paragraph	Added the words “as Figure N-1” to emphasize the linear construction schedule
3	N.1 Introduction	N-1	Bullet List	Segments lengths were removed, and segment groupings added
	N.1 Introduction	N-3	N.1.1.1	Changed the word “design” to “construction”. Corrected “being” to “begin” and capitalized the word “Project”
4	N.1 Introduction	N-3	N.1.1.2	Modified list so that it matches activities in Linear Construction Schedule
5	N.3 Linear Const. Schedule	N-4	First Paragraph	Added “a construction” in front of Gantt Chart
6	Figure N-2	N-7	N-2 Figure	Modified linear construction schedule to say “Start of Major Construction Activities” rather than JPA/NTP
7	Figure N-3	N-3	N-3 Figure	Added an activity called “Overall Project Commissioning and Close Out” allowing for some float until the project closure of October 2025

Appendix O: Water Quality Monitoring Plan

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Section O.1.1	O-1	Fourth paragraph	Changed tunnel length (each way) from 6,850 to 7,900
2	Section O.1.1	O-1	Fifth paragraph	Added to end of paragraph "The project has been planned to be of the least impacting on existing traffic operations along the HRBT corridor."
3	Section O.1.1	O-1	Last paragraph	Added detail on the TBM process.
4	Section 0.1.3	O-1	Second bullet	Added detail on island expansion construction fill
5	Section O.1.3	O-2	Bullet 2. 4th Line	Added reference "Appendix E" for construction means methods for island expansions.
6	Section O.1.3	O-6	First paragraph	Quantity of mooring dolphins and docking barges updated.
7	Section O.1.3	O-6	Third paragraph	Added "Two temporary trestles 70 feet wide and extending 1000 feet are to be constructed at the northwest part of South Island to allow for ground improvement operations along the bored tunnel alignment. At the North Island piles will be installed for dolphins and temporary mooring locations around the island expansion area. "
8	Section O.1.3	O-6	Third paragraph	Quantities of piles were removed
9	Section O.1.3	O-7	Paragraph after Table O-1	Added "Between the existing South Approach Trestles an area has been identified for dredging which will be required to provide barge access during bridge demolition operations." Also added information on additional dredging to the west of existing South Trestles.
10	Section O.1.3	O-7	Paragraph after Table O-1, 2nd line	Text added "Dredging is to be accomplished by mechanical dredging using clam bucket."
11	Section O.1.3	O-9	First paragraph	Text added "Additional details regarding pile driving means and methods are described in Appendix E (Project Description) Section 10 Construction Means and Methods, with details on the different types of piles being utilized and the different methods of installation. " Removed information on soft start/ramp up procedure.
12	Section O.1.3	O-9	First paragraph	Text added "Appendix M (EFH Assessment) discusses noise impacts from the planned pile driving."
13	Section O.1.3	O-9	Bullets	Quantity of dredge materials were removed
14	Section O.1.3	O-9	Last paragraph	Added "The constructed fill area landward out from the North Island will be approximately 325 feet from the current north end of the island will be constructed. During the construction activities of filling for island

Row #	Chapter/Section	Page	Location	Corrections/Additions
				expansion and trestle placement for all bridge trestle improvements, up-current and down-current water quality monitoring data will be collected. **Error! Reference source not found.** depicts areas of the North Island expansion. "
15	Section O.1.3	O-10	N/A	Figure O-4: North Island Expansion added, along with the following text "The North Trestle structure to support the roadway and Movement of Traffic (MOT) temporary deck and roadway will be constructed by installing piles. During the construction efforts (pile driving), water quality monitoring will be conducted.
16	Section O.1.4	O-12	Paragraph after bullet list	Text added "Additional specifics to monitoring during the demolition of the trestles as planned will be outlined in the demolition plan with details pertaining the to the means and methods of demolition. Like in-water construction activities water quality will be monitored during the demolition phase up gradient and down gradient of the demolition activity that is over water. "
17	Section O.1.4	O-12	Last paragraph	Added " and the Spill Prevention Response Plan (SPRP) Appendix S of the JPA." , to the second to last sentence.
18	Section O.1.4	O-14	Second paragraph, last sentence	Text added "If a water quality exceedance is measured, the water quality Monitoring Team Leader will immediately contact the Construction Manager and the Environmental Compliance Manager VDEQ, USACE and VMRC."
19	Section O.1.4	O-13	Bullets	Added third bullet "Construction of the South Island temporary trestle structure to conduct ground improvement"
20	Section O.1.4	O-13	Second paragraph.	Added "Confirmation may be made that the piling during installed shows no negative increases over background in monitoring criteria over a period of several days or the piling being installed is no longer in contact with a water body (i.e. the piling being installed now is "upland" away from water body contact)."
21	Section O.1.4	O-15	Last paragraph	Text added "To establish protocol for monitoring standards background water quality data measurements are to be taken. Subsequently during the collection of background levels daily initial trigger levels of monitoring data during construction activities will be at 50% greater than background turbidity units (NTU) whereby then monitoring will increase in frequency to every 15 minutes until levels drop below 50%. If levels remain sustained greater than 50% for longer than 1-hour reporting of the event will occur. Initial reporting will be to the construction manager and the agencies in that a sustained event of increased turbidity is being recorded. Upon reporting then action is to be taken to reduce the event by altering construction activity for 15 minutes to see If the turbidity dissipates. Stop construction and determine if alternate means of construction activity can be implemented, administrative controls implemented, or other engineering controls need to be applied to mitigate the turbidity. The following table outlines the reporting approach and action limits."
22	Section O.1.4	O-15	Table (not numbered)	New Table Added.

Row #	Chapter/Section	Page	Location	Corrections/Additions
23	Section O.1.4	O-17	First paragraph	Added new paragraphs
24	Section O.2.2	O-23	1st & 2nd paragraphs	Text was modified: “the use of turbidity curtains may be used…” and “the use of turbidity curtains may be limited”
25	Section O.2.5.1	O-26	First paragraph after Table, 3rd line	Added “USACE” in sentence “This spreadsheet will be submitted to… goals.”
26	Section O.2.5.1	O-26	Second paragraph after Table, last sentence	Added “If a water quality exceedance is measured, the water quality Monitoring Team Leader will immediately)within 15 minutes or sooner) contact the Construction Manager and the Environmental Compliance Manager VDEQ, USACE and VMRC.”
27	Section O.2.5.2	O-27	First paragraph	Modified information on monitoring points.
28	O.3	O-29	N/A	Added the following reference “Burton, W.H. 1993. Effects of bucket dredging on water quality in the Delaware River and the potential for effects on fisheries resources. Versar, Inc., 9200 Rumsey Road, Columbia, Maryland 21045”

Appendix P: Avoidance and Minimization

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	P.1	P-1	Introduction	Brief project description included
2	P.2.1	P-3	Table P-1	Table added for Impact Comparison for ITT and Bored Tunnel
3	P.2.2.1	P-5	2nd paragraph	Added: "The use of temporary trestles for Mallory Street, Bay Avenue / Oastes Creek, and Mason Creek will result in avoidance of approximately three (3) acres of fill to vegetated wetlands."
4	P.2.2.1	P-5	3rd paragraph	Text added and refined to include reduction of south trestle dredge impacts, the reduction of impacts by use of jump trestles, and the impact of shading on SAV. Attachment P-2 is added.
5	P.2.2.2	P-6	1st paragraph	Added "In the main channel, the new tunnels will be under 55 feet of water, and an additional 60 feet of overburden material."
6	P.2.2.2	P-6	3rd paragraph	References to Appendix L and bench testing have been added
7	P.2.2.4	P-7	1st paragraph	Text added "Low ground pressure equipment is heavy equipment that has been specially designed to spread the weight of the equipment over a larger area. This allows it to move across terrain that is too soft for regular heavy equipment. BMPs will be used for all wetland crossings such as temporary ground protection wooden mats, prefabricated equipment pads, or washed free-draining aggregate placed on geotextile fabric."
8	P.2.2.4	P-7	Restoration Section	Text edited to reflect restorative efforts. Specific notes have been included in Attachment P-2 and Attachment G-1.
9	P.2.2.5	P-8	2nd paragraph	Pile driving mitigation methods added.
10	P.2.2.6	P-9	1st paragraph	Dredging mitigation has been added.
11	P.2.3	P-10	Table P-2	Table added to include reduction of WOUS impact through design.
12	P.2.3	P-10-16	Throughout Appendix	Information on the SEIS removed, and updated with present design throughout the location sections. Impact numbers have been updated based on the project design, the LOD in certain locations, as well as pile numbers.
13	P.3	P-16	Conclusion Section	Conclusion section has been reorganized to reflect changes and updates throughout the appendix.
14	P-1.2	P-1-11	Results	Numbers updated to reflect design changes
15	Tables and Figures	P-1-13 – P-1-27	Tables and Figures	Tables and figures have been updated to reflect design changes.
16	P-2	Throughout	Throughout	Numbers have been updated throughout the mitigation section to reflect design changes and match Appendix G.

Row #	Chapter/Section	Page	Location	Corrections/Additions
17	P-2.1.1.3.2	P-2-5	Below Table P-2.2	Restoration for temporary impacts section included
18	P-2.1.2.2	P-2-8	3rd paragraph	Compensation proposed for loss of 0.37 acres for pile driving in E1OW.
19	P-2.1.3	P-2-9	4th paragraph	Additional discussion of VIMS SAV planting
20	P-2.1.4	P-2-11	Entire section	VIMS and Versar compared for required clam mitigation
21	P-2.1.6	P-2-14	Entire section	Mitigation proposed for pile impacts to subaqueous bottom.

Appendix Q: Stakeholder Coordination

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Q.1 (Table Q-2)	Q-3 – Q-4	Attachment Q-1	Added the following meeting minutes since the August 30th, 2019 JPA Submission
			18	JPA Page-Turn Meeting
			19	Virginia Harbor Safety Committee Meeting
			20	USCG Meeting
			21	USACE – 408 Coordination Meeting
			22	JPA USACE – Update Meeting
			23	Section 408 – Virginia Maritime Stakeholder Meeting
			24	VRMC JPA Mitigation Workshop
			25	408 Maritime Stakeholders Meeting
2	Q.1 (Table Q-3)	Q-6	Attachment Q-2	Added the following official correspondence related to the JPA Submission
			1	Commonwealth of Virginia Department of Conservation and Recreation
			2	Commonwealth of Virginia Marine Resources Commission
			3	Hampton Roads Connector Partners
			4	Commonwealth of Virginia Department of Environmental Quality
			5	US Coast Guard
			6	USACE – Email

Appendix R: Marine Mammal Assessment

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Appendix R	All	Throughout document	Entire Appendix heavily edited and condensed.

Appendix S: Spill Prevention Plan

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Document History	S-ii	Throughout Section	Document History Section added.
2	Table of Contents	S-iv-vii	Throughout Section	Table of Contents updated.
3	S.1.1	S-1	Bottom of Paragraph 2	Details added providing clarification of SPRP and location of SPCC Plan.
4	S.2.1	S-4	Table S-1	Responsible Personnel Table updated.
5	S.5.4	S-21	HRCP Personnel	HRCP contact personnel updated.

Appendix T: Stormwater Facilities

Row #	Chapter/Section	Page	Location	Corrections/Additions
1	Throughout Appendix	N/A	Throughout Appendix	Table and figure numbers edited throughout the document.
2	T.1.1.2	N/A	Throughout Section	Section re-written to discuss upland stormwater outfalls.
3	T.1.1.3	N/A	Whole Section	Section added.

JPA APPENDIX G, L, M, P ERRATA – SEPTEMBER 19, 2019

Row #	Chapter/Section	Page	Location	Corrections/Additions
Appendix G:				
1	Appendix G Attachment G-1	Sheets 2 & 5	Impact Plates	Impact shapes and areas remain unchanged. The shading of impacts T-109 (Sheet 2) and T-122 (Sheet 5) were revised and match lines were labeled for ease of review.
2	Appendix G Attachment G-2	1	Table G-1 Tidal Wetlands	E1OW Permanent changed from 18.724 to 18.921 acres, E1OW Dredge changed from 7.897 to 7.896 acres, E1OW Temporary changed from 26.524 to 26.527 acres, E2RS2 permanent changed from 0.698 to 0.699 acres, E2RS2 Temporary changed from 1.395 to 1.393 acres, E2US2 Permanent changed from 0.688 to 0.692 acres, E2US2 Temporary changed from 3.494 to 3.492 acres, E2EM Permanent changed from 2.163 to 2.167 acres, E2EM Temporary changed from 2.744 to 2.743 acres, E2SS Permanent changed from 0.135 to 0.191 acres and 5,853 to 8,310 square feet, E2SS Temporary changed from 0.191 to 0.071 acres and 8,310 to 3,107 square feet, SAV Temporary changed from 0.523 to 0.522 acres, Tidal Wetland Total Permanent changed from 22.865 to 23.071 acres and 1,004,967 square feet added, Tidal Wetland Total Temporary changed from 34.259 to 34.778 acres and 1,514,944 square feet added, and Tidal Wetland Total Dredge changed from 7.897 to 7.896 acres and 343,942 square feet added.
3	Appendix G Attachment G-2	1	Table G-1 Nontidal Wetlands	PUB Permanent 0.110 - the 0 was added, PUB Temporary changed from 0.255 to 0.254 acres, PEM Permanent changed from 0.265 to 0.266 acres and 11,595 to 11,594 square feet, PEM Temporary changed from 0.382 to 0.383 acres, Nontidal Wetland Total Permanent changed from 0.860 to 0.863 acres and 37,609 square feet added, Nontidal Wetland Total Conversion 409 square feet added, Nontidal Wetland Total Temporary 0.706 changed to 0.704 acres and 30,652 square feet added
4	Appendix G Attachment G-2	1	Table G-1 Nontidal Waters	R2, 235 square feet changed to 243 square feet

Row #	Chapter/Section	Page	Location	Corrections/Additions
5	Appendix G Attachment G-2	1	Table G-1	The following notes were added: [1] Impact Area (acres) converted from Impact Area (square feet) and rounded. [2] Permanent impact values include impacts identified on Tables G-3, G-7, and G-9. Temporary impact values include impacts identified on Tables G-13 and G-15. [3] R-2 Riverine-Perennial feature is approximately 9 feet in width. This dimension used to approximate impact area.
6	Appendix G Attachment G-2	2	Table G-2	Sum of wetland/waters impact E2EM 0.164 changed to 0.162 acres, E2SS changed from 0.135 to 0.134 acres, PEM changed from 0.257 to 0.260 acres and 11,257 to 11,323 squre feet, Total changed from 20.463 to 20.464 acres and 891,412 square feet added, Total Sum Dune/Beach impact 0.688 acres and 29,959 square feet added, Note added: [1] Sum of Wetland/Waters Impact (acres) and Sum of Dune/ Beach Impact (acres) converted from Sum of Wetland/Waters Impact (square feet) and Sum of Dune/ Beach Impact (square feet) and rounded.
7	Appendix G Attachment G-2	5	Table G-4	E2EM changed to PFO, 409 square feet added to Total Wetlands/Waters Impact, Note added: [1] Wetland/Waters Impact (acres) converted from Wetland/Waters Impact (square feet) and rounded.
8	Appendix G Attachment G-2	5	Table G-6	E2EM changed from 92,204 to 87,078 square feet, Total square footage 112,123 added, Note added: [1] Wetland/Waters Impact (acres) converted from Wetland/Waters Impact (square feet) and rounded.
9	Appendix G Attachment G-2	7	Table G-8	Total Sum Wetland/Waters Impact changed from 0.204 to 0.205 and 8,919 square feet total added, Sum of Dune/Beach impact 163 square feet total added, Note added: [1] Sum of Wetland/Waters Impact (acres) and Sum of Dune/ Beach Impact (acres) converted from Sum of Wetland/Waters Impact (square feet) and Sum of Dune/ Beach Impact (square feet) and rounded.
10	Appendix G Attachment G-2	7	Table G-10	E1OW and Total Sum of Wetland/Waters Impact changed from 7.897 to 7.896 acres and 343,942 total square feet added, Note added: [1] Sum of Wetland/Waters Impact (acres) and Sum of Dune/ Beach Impact (acres) converted from Sum of Wetland/Waters Impact (square feet) and Sum of Dune/ Beach Impact (square feet) and rounded.

Row #	Chapter/Section	Page	Location	Corrections/Additions
11	Appendix G Attachment G-2	8	Table G-12	Sum of Wetland/Waters Impact E1OW changed from 11.81 to 11.812 acres, E2EM changed from 0.347 to 0.346 acres, E2RS2 changed from 0.243 to 0.241 acres, Total changed from 12.567 to 12.565 acres and 547,336 total square feet added, Sum of Dune/Beach Impact E2US2 0.601 changed to 0.600 acres, Total changed from 0.601 to 0.600 acres and 26,116 total square feet added. Note added: [1] Sum of Wetland/Waters Impact (acres) and Sum of Dune/ Beach Impact (acres) converted from Sum of Wetland/Waters Impact (square feet) and Sum of Dune/ Beach Impact (square feet) and rounded.
12	Appendix G Attachment G-2	12	Table G-14	Sum of Wetland/Waters Impact E1OW changed from 14.714 to 14.715 acres, E2EM changed from 2.379 to 2.396 acres and 3624.000 to 104,389 square feet, E2RS2 changed from 82.000 to 50,179 square feet, E2SS changed from 0.070 to 0.069 acres and 2996.000 to 2996 square feet, PEM changed from 0.384 to 0.383 acres and 16,736 to 16,669 square feet, R2 0.006 acres and 243 square feet added, SAV 0.377 acres and 16,405 square feet added, Total changed from 19.409 to 19.431 and 846,384 total square feet was added, Dune/Beach Impact total of 126,003 square feet was added. Notes added: [1] Wetland/Waters Impact (acres) and Dune/ Beach Impact (acres) converted from Wetland/Waters Impact (square feet) and Dune/ Beach Impact (square feet) and rounded. [2] R-2 Riverine-Perennial feature is approximately 9 feet in width. This dimension used to approximate impact area.
Appendix L:				
13	Appendix L Attachments L-1 through L-9	-	Appendix L	Initial printing did not print the attachments L-1 through L-9. Hardcopies of Attachments L-1 through L-9 are to be inserted at the end of the existing text in Appendix L.
Appendix M:				
14	Appendix M All Sections			"Project" defined and capitalized, Acronyms/abbreviations edited for consistency with other appendices, references to scientific names for species edited for consistency and clarity.

Row #	Chapter/Section	Page	Location	Corrections/Additions
15	Appendix M Section M.1.3.1.1	2	1st Paragraph	Text Revised: The North Island will be expanded by **687,447** ~~715,000~~ square feet (**15.7**8~~16.~~41 acres). The South Island needs to be expanded by **172,143** ~~115,000~~ square feet (**3.95**~~2.64~~ acres). The island expansion will result in permanent loss of 19.**73**~~41~~ acres of intertidal and subtidal benthic habitat.
16	Appendix M Section M.1.3.3	3	3rd line	Text Revised: A total of **343,942** ~~248,000~~ square feet (**7.90** ~~5.69~~ acres) will be dredged.
17	Appendix M Section M.2.1.6	19	1st Paragraph	Text Revised: Two species of flounder ~~of flat-fishes~~ have EFH in the Chesapeake Bay: Summer Flounder and Windowpane Flounder (Table M-2Table M-2)
18	Appendix M Section M.2.2.1	23	1st Paragraph	References Revised: Alewife ~~(Alosa pseudoharengus)~~ and Blueback Herring ~~(A. aestivalis)~~ are collectively known as river **H**~~h~~erring. In Virginia, it is against the law to catch and possess river herring from tidal waters (4 Virginia Administrative Code **(**VAC**)** 20-1260; **Virginia Marine Resources Commission 2012**). These two species are listed by NMFS as federal species of concern. Additionally, Alewives are listed as a Tier IV species in the Virginia Wildlife Action Plan (~~NMFS, 2019 and~~ **VDGIF**~~VWAP~~, 201~~59~~; **NMFS 2019**).
19	Appendix M Section M.3.1.1	24	1st & 2nd Paragraphs	The Project will permanently impact 22.69 acres of EFH. Of the 22.69 acres, **8.40**~~5.91~~ acres will be converted to another type of EFH resulting in a net loss of **14.29** ~~16.78~~ acres (Table M-5). The ~~vast~~ majority ~~(98%)~~ of **EFH**~~project~~ related impacts **are due to the expansions of the North Island Figure M-3) and South Island (Figure M-4), primarily as a result of conversion of 13.74 acres of estuarine subtidal shallow, mid-depth, and deeper open water and estuarine intertidal rocky shore and sandy shore.** ~~occur at the North Trestle and are due to the expansions of the North Island (Figure M-3) and South Island (Figure M-4), primarily as a result of conversion of 14.77 acres of mid-depth and deeper open water habitat to 14.13 acres of uplands.~~ This conversion provides virtually no habitat value to aquatic organisms with the exception of potential ~~basking/~~ haul out habitat **at the islands** for seals that may occur seasonally in the vicinity of the Project area. **The remaining conversion to upland consists of 0.38 acres of estuarine shallow open water, and estuarine intertidal rocky and sandy shore, plus 0.17 acres estuarine intertidal emergent wetlands adjacent to Johns Creek, Oastes Creek, and Mason Creek.** Overall, ~~In addition, 0.70 acres of intertidal sand habitat will be lost, while~~ **estuarine** intertidal rock**y shore** habitat will increase from 0.70 acres to 0.99 acres. **Estuarine subtidal** shallow **open** -water habitat, which supports SAV and shellfish resources in the vicinity of the **Project**~~study~~ area, will increase, from 1.2**5**~~4~~ to 2.21 acres, offsetting a portion of the loss in function attributed to the conversion of **estuarine intertidal** mid-depth and deeper open water to uplands~~/intertidal rock habitat~~.

Row #	Chapter/Section	Page	Location	Corrections/Additions
20	Appendix M Section M.3.1.1	24	Table M-5	Estuarine Intertidal Emergent Wetland Post-Construction EFH changed from 0 to 0.45* Estuarine Intertidal Sandy Shore EFH Impacts changed from 0.70 to 0.69 Estuarine Intertidal Sandy Shore Post-Construction EFH changed from 0 to 1.55** Estuarine Subtidal Shallow Open Water EFH Impacts changed from 1.24 to 1.25 Estuarine Subtidal Mid-Depth Open Water Post-Construction EFH changed from 0.89 to 0.98 Submerged Aquatic Vegetation Post-Construction EFH changed from 0 to 0.40* Total Post Construction EFH changed from 5.91 to 8.40 Upland Conversion changed from 14.13 to 14.29 Notes added: * Extended temporary shading impacts from work trestles will likely revegetate post-construction; however, they are being compensated as a loss. ** Permanent shading impact will likely convert E2EM to E2US; however, they are being compensated as a loss.
21	Appendix M Section M.3.1.2	25	3rd Line	Text Revised: areas (the additional 0.3**8**~~9~~ acres of upland conversion is a result of various other P~~p~~roject impacts).
22	Appendix M Section M.3.1.3	24	3rd Sentence	Text Revised: The construction of temporary and permanent trestles as well demolition of the existing **N**~~n~~orthern **T**~~t~~restle in this area will result in 0.5**2**~~3~~ acre of temporary disturbance and 0.40 acre of **extended temporary impact** ~~permanent shading impact~~ to SAV.
23	Appendix M Section M.5.3.1	34	Last Paragraph	Reference to sea turtle deleted.
24	Appendix M Section M.7.1.1.1	37	Last Paragraph	Text Revised: These results suggest that a loss of functions and values ~~only~~ results if tidal subaqueous and non-vegetated wetlands are converted to uplands and that all other conversion impacts are self-mitigating. Consequently, HRCP is ~~only~~ proposing to compensate for the conversion of tidal subaqueous and non-vegetated wetlands to uplands ~~(approximately 14 acres)~~.
25	Appendix M Section M.7.1.1.2	38	Last Paragraph	Last sentence deleted: ~~Therefore, HRCP is proposing to compensate for impacts to 0.6 acres of SAV beds through the purchase of 0.6 advance release oyster credits from LRRT.~~
26	Appendix M Section M7.1.3.1	39		Text Revised: Barges, tugs, and other related Project vessels will travel at reduced speeds to avoid strikes to fish~~, sea turtles, marine mammals, and birds~~.
27	Appendix M Section M 1.3.1.1	M-2	First Paragraph	Text revised: 16.41 acres changed to 15.78 acres
28	Appendix M Section M 1.3.1.1	M-2	Second Paragraph	Text revised: replaced "dredging to deeper extents" with "deeper dredging"
29	Appendix M Section M 1.3.1.1	M-2	Second Paragraph	Text revised: replaced - with "to"

Row #	Chapter/Section	Page	Location	Corrections/Additions
	Appendix M Section M 1.3.3	M-3	First Paragraph	Text revised: 7.99 acres changed to 7.90 acres
	Appendix M Section M 1.5	M-5	Bullet list	Text revised: replaced – with “to”
	Appendix M Section M 1.5	M-7	Last Paragraph	Text revised: replaced "in March-May" with "during March to May"
	Appendix M Section M 2.1	M-9	First Paragraph	Text revised: replaced ' with "feet"
	Appendix M Section M 3.1	M-24	First Paragraph	Text revised: deleted the "s" on acres wherever the number is less than 1.0 throughout document for consistency. 0.38 acres changed to 0.38 acre and 0.17 acres changed to 0.17 acre
	Appendix M Section M 5.2	M-33	Last Paragraph	Text revised: replaced – with “to”
	Appendix M Section M 7.1.1.2	M-37	First Paragraph	Text revised: added acres to 0.4
	Appendix M Section M 7.1.1.2	M-37	First Paragraph	Text revised: added permanent in before pile placement
	Appendix M Section M 7.1.1.4	M-38	First paragraph	Text revised: deleted s from 0.19 acres
Appendix P:				
24	Appendix P Section P.2.1	1	Second Paragraph	Dredge Volume changed to 1,200,000 from 1,900,000 cubic yards
25	Appendix P Section P.3.1.1	7	Last Sentence	Square feet of culvert repair changed from 35 to 32 square feet of temporary impacts.
26	Appendix P Section P.3.1.2	8	6th Line	Changed acres of shading from 0.15 to 0.14 acres.
27	Appendix P Section P.3.2.2	10	Last Sentence	Text Revised: The exterior engineered ~~berm~~ **bund** will prevent fill material from entering the water column outside of the island expansion footprint.
28	Appendix P Section P.3.2.2	10	Last Sentence	Text Revised: Materials will be disposed in **at an** approved **and appropriately permitted facility**~~landfill~~.
29	Appendix P Section P.3.2.3	10	Last Sentence	Text Revised: Materials will be disposed in **at an** approved **and appropriately permitted facility**~~landfill~~.

Row #	Chapter/Section	Page	Location	Corrections/Additions
30	Appendix P Section P.3.3.6	14		Text Revised: Since the SEIS, impacts to the wetlands near ~~the~~ **I**-564 have been minimized and avoided with adjustments to the project alignment. Along the westbound lanes, **permanent impacts to** 0.31 acre~~s~~ of SEIS-265 (PUB) ~~was~~ **were** avoided and **permanent** impacts to SEIS-266 (PEM) were minimized from 0.05 acre~~s~~ to 0.01 acre. Along the eastbound lanes and ramp, **permanent** impacts to 0.13 acre of SEIS-264(PEM) were reduced to less than 0.01 acre, and **permanent** impacts to SEIS-261 (PEM) were **avoided**~~.reduced to 3 square feet~~. In the cloverleaf, impacts to 260 and 262 (PUBs) totaling 0.09 acre, as well as SEIS-259 and SEIS-263 (PEMs) totaling 0.04 acre were avoided. Wetland**s** SEIS-258 (PUB), **SEIS-261 (PEM), SEIS-264 (PEM), and SEIS-265 (PUB)** will be only temporarily impacted for access and will be returned to pre-construction condition at project completion (Figure P-6).
31	Appendix P Section P.3.4	15		Deleted text ~~"Through project planning and design, HRCP was able to reduce permanent impacts to tidal wetlands by 220.888 acres, to non-tidal wetlands by 2.391 acres, and to non-tidal streams by 40 linear feet (Table 1)"~~ and Table 1 referencing SEIS comparison. Text revised in accordance with USACE consultation: The impact reductions discussed in this document represent avoidance and minimization achieved through modification of construction methods and design refinements and include: 1. avoidance of approximately 60 acres of dredging (along 6,300 feet) and 1,200,000 cubic yards of dredged material disposal by using a bored tunnel design versus immersed tube tunnel; 2. avoidance of approximately 1.28 acres (20 acres reduced to 18.72 acres) of wetlands by increasing island shoreline slopes to 5% (to reduce island expansion footprints) and refining the roadway alignment. 3. avoidance of approximately 1.8 acres of non-tidal wetlands and 1.3 acres of tidal wetlands through refinement of the roadway typical section to move the cut/fill line closer to the existing interstate at various locations along the project corridor, 4. use of temporary construction trestles instead of traditional stone or earthen causeways to minimize impacts to over 11 acres of vegetated wetlands and avoid the need to dredge temporary construction access channels in shallow water (< 4-6 feet mean low water); and, 5. elimination of 40 linear feet of permanent stream impacts. Unavoidable permanent impacts will be compensated to ensure no net loss of wetlands or waters as discussed in Attachment P-2.
32	Appendix P Attachment 1 Section P1.2	11	2nd-5th sentences	The post-construction condition yielded **17.90** ~~17.89~~ habitat units (Table 3-P). This is a net loss of **41.01** ~~41.07~~ habitat units as a result of project implementation. The vast majority (98%) of project-related impacts occur at 3 areas, the North Trestle (Figure 1-P) and the North (Figure 2-P) and South islands (Figure 3-P), primarily as a result ~~of conversion of 14.77 acres~~ of mid-depth and deepe~~r~~ open water habitat to **14.12** ~~14.13~~ acres of uplands.
	Appendix P	12	1st sentence	41.07 acres changed to 41.01 acres

Row #	Chapter/Section	Page	Location	Corrections/Additions
	Attachment 1 Section P1.3			
	Appendix P Attachment 1 Tables	17	Table 2-P	Shallow water 1.24 changed to 1.25 acres
	Appendix P Attachment 1 Tables	18	Table 3-P	Upland changed from 14.13 to 14.12 acres, Mid-Depth changed from 0.89 to 0.98 acres, Habitat Units changed from 17.89 to 17.95
	Appendix P Attachment 2 Section P.1.1.2	3	2nd sentence	Temporary impacts changed from 0.255 to 0.254
	Appendix P Attachment 2 Section P.1.1.3.1	5	Table P-1	PEM impact area and credits changed from 0.257 to 0.260 acres. Nontidal total impact area changed from 0.759 to 0.762 acres. Nontidal total credits required changed from 1.008 to 1.011 acres. E2EM Cut/Fill/Piles (piles added) impact area and credits required changed from 0.127 to 0.131 acres. Tidal Total impact area changed from 2.354 to 2.358 acres Tidal Total credits required changed from 2.679 to 2.683 acres
	Appendix P Attachment 2 Section P.1.1.3.2	6	1st paragraph, 1st sentence	"HRCP proposes to compensate for permanent impacts to **0.762** ~~0.759~~ total acres of nontidal vegetated wetlands (**PFO, PSS, and PEM**) through the application of **1.011** ~~1.008~~ nontidal vegetated wetland credits"
	Appendix P Attachment 2 Section P.1.1.3.2	6	2nd paragraph, 1st sentence	"...to **2.358** ~~2.354~~ acres of tidal vegetated wetland (**ESS and EEM**) impacts through the purchase of **2.683** ~~2.679~~ tidal vegetated wetland credits.."
	Appendix P Attachment 2 Section P.1.1.3.2	7	1st paragraph, 1st sentence	The Project will also result in temporary impacts (for trestles and construction access) to ~~approximately~~ **a total of 3.291** ~~3.423~~ acres of vegetated wetlands, **which** includes~~ing~~ **0.450** ~~0.451~~ acres of nontidal vegetated wetlands (**PFO, PSS, and PEM)** and **2.841** ~~2.972~~ acres of tidal vegetated wetlands **(EFO, ESS, and EEM) (see Appendix G, Attachment G-2).**
	Appendix P Attachment 2 Section P.1.1.4	7	Last sentence	"… (~~14.13~~ **14.12 acres to uplands**, see Attachment 1 Table P-2).
	Appendix P Attachment 2 Section P.1.1.4.1	8	Last sentence	14.13 changed to 14.12 acres

Row #	Chapter/Section	Page	Location	Corrections/Additions
	Appendix P Attachment 2 Section P.1.1.4.2	8	3 times in the paragraphs	14.13 changed to 14.12 acres
	Appendix P Attachment 2 Section P.1.1.5	9	2 times in last sentence	0.6 changed to 0.40
	Appendix P Attachment 2 Section P.1.3	10	1st paragraph, 2nd sentence	7.897 changed to 7.896 acres
	Appendix P Attachment 2 Section P.1.4	11	1st sentence	8,919 changed to 9,082 square feet

Table of Contents

Acronym List for JPA

APE	Area of Potential Effect
ASMFC	Atlantic States Marine Fisheries Commission
B-IBI	Benthic Index of Biotic Integrity
BMP	Best Management Practices
CBBT	Chesapeake Bay Bridge Tunnel
CFR	Code of Federal Regulations
CGP	Construction General Permit
CIDMMA	Craney Island Dredged Material Management Area
CJV	Construction Joint Venture
CTB	Commonwealth Transportation Board
CWA	Clean Water Act
cy	Cubic Yard(s)
DFP	Deep Foundation Piles
DGIF	Department of Game and Inland Fisheries
DGPS	Differential Global Positioning System
DMMP	Dredged Material Management Plan
DO	Dissolved Oxygen
DQO	Data Quality Objective
DRC	Dominion Recycling Center
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
ESCs	Erosion and Sediment Controls
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
ft	Foot or feet
Ft^2	Square Feet
GI	Ground Improvement
HAPC	Habitat Area of Particular Concern
HCA	Habitat Condition Assessment
HOT	High Occupancy Toll
HRBT	Hampton Roads Bridge-Tunnel
HRCP	Hampton Roads Connection Partners
HRCS	Hampton Roads Crossing Study
HRTAC	Hampton Roads Transportation Accountability Commission
HRTPO	Hampton Roads Transportation Planning Organization
HRRC	Hampton roads Recovery Center
HUC	Hydrologic Unit Code
IHA	Incident harassment authorization

ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation System
ITT	Immersed Tube Tunnel
JG	Jet Grout
JGR	Jet Grout Residuals
JPA	Joint Permit Application
LEDPA	Least Environmentally Damaging Practicable Alternative
LNTP	Limited Notice To Proceed
LOD	Limits of Disturbance
MAFM	Mid-Atlantic Fishery Management Council
MDDNR	Maryland Department of Natural Resources
MGD	Million Gallons per Day
mg/L	Milligram(s) per liter
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
MMP	Materials Management Plan
MMMBT	Monitor-Merrimac Memorial Bridge Tunnel
MOT	Maintenance of Traffic
MSV	Multi-Service Vehicle
NEFMC	New England Fishery Management Council
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NODS	Norfolk Offshore Disposal Site
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
P2	Pollution Prevention
PA	Programmatic Agreement
PJD	Preliminary Jurisdictional Determination
PTST	Parallel Thimble Shoals Tunnel
RMA	Resource management Areas
QA	Quality Assurance
QC	Quality Control
RMA	Resource Management Areas
ROD	Record of Decision
ROW	Right of Way
RPA	Resource Protection Areas
SAV	Submerged Aquatic Vegetation
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Office
SPSA	Southern Public Service Authority
SPRP	Spill Prevention Response Plan
S&TP	Separation and Treatment Plant for TBM
SRP	Settlement Reduction Piles
SW	Slurry Wall

SWPPP	Stormwater Pollution Prevention Plan
STP	Slurry Treatment Plant
TAS	Tunnel Approach Structure
TBM	Tunnel Boring Machine
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
VD	Variable Density
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDOT	Virginia Department of Transportation
VECOS	Virginia Estuarine and Coastal Observing System
VESCH	Virginia Erosion and Sediment Control Handbook
VMRC	Virginia Marine Resources Commission
VPDES	Virginia Pollutant Discharges Elimination System
VWAP	Virginia Wildlife Action Plan
VWP	Virginia Water Protection
WOUS	Waters of the United States
WQ	Water Quality
WQMP	Water Quality Monitoring Plan
WTP	Water Treatment Plant