I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

Subject: Request for Proposals

Project No: 0064-M06-032

Date: December 14, 2018

Offerors are hereby notified that the Department has made revisions to the above-referenced Request for Proposals pursuant to this Addendum No. 2 to Final RFP ("Addendum No. 2"). Please see Attachment 1 (*Revisions*) hereto for said revisions.

The Department intends to issue a subsequent addendum containing all parts of the RFP on or before December 21, 2018.

All other terms, conditions, and requirements of the Final RFP dated September 27, 2018, as amended by Addendum No. 1 dated November 28, 2018, remain unchanged.

ATTACHMENT 1
REVISIONS

[Please see the attached pages.]

VIRGINIA DEPARTMENT OF TRANSPORTATION

REQUEST FOR PROPOSALS

I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT

UNDER THE PUBLIC-PRIVATE TRANSPORTATION ACT OF 1995 (AS AMENDED)

STATE PROJECT NO. 0064-M06-032

FEDERAL PROJECT NO. [●]

ISSUANCE OF FIRST DRAFT RFP: MAY 22, 2018
ISSUANCE OF SECOND DRAFT RFP: JUNE 29, 2018
ISSUANCE OF THIRD DRAFT RFP: AUGUST 24, 2018
ISSUANCE OF FINAL RFP: SEPTEMBER 27, 2018
ISSUANCE OF ADDENDUM NO. 1: NOVEMBER 28, 2018
ISSUANCE OF ADDENDUM NO. 2: DECEMBER 14, 2018

Event	Date
Deadline for Offerors to Submit Agendas for Proprietary Meeting No. 4 and Agendas and ATC Summaries for ATC Meeting No. 4	September 5, 2018 at 5:00 PM
Proprietary Meeting No. 4	September 10-11, 2018
ATC Meeting No. 4	September 10-11, 2018
Final RFP Release Date	September 27, 2018
Deadline to Submit ATC Submittals	October 8, 2018 at 5:00 PM
Deadline for Comments on Final RFP	October 8, 2018 at 5:00 PM
Deadline for Offerors to Submit Agendas for Proprietary Meeting No. 5 and Agendas for ATC Meeting No. 5	October 18, 2018 at 5:00 PM
Proprietary Meeting No. 5	October 23-24, 2018
ATC Meeting No. 5	October 23-24, 2018
DBE-SWaM Outreach Event	October 25, 2018
Addendum No. 1 Release Date	November 28, 2018
VDOT Responds to Outstanding ATCs	November 28, 2018
ATC Meeting No. 6	December 4-5, 2018
Proprietary Meeting No. 6	December 12, 2018
Deadline for Requests to Change Key Personnel	December 14, 2018 at 5:00 PM
Deadline for VDOT to Issue Addenda to Final RFP	December ~~14~~21, 2018
VDOT Responds to Requests to Change Key Personnel	December 21, 2018
Technical Proposal Submission Date	January 15, 2019 at 5:00 PM
Price Proposal Submission Date	February 8, 2019 at 5:00 PM
Selection of Successful Offeror	February 2019
Anticipated Date for Execution of Comprehensive Agreement and Issuance of LNTP1	~~March 29~~April 15, 2019*

** Subject to Design-Builder's satisfaction of the relevant conditions precedent to issuance of LNTP1.*

2.3.2 VDOT has established the following milestones for completion of the Project, and Offerors shall base their Proposals on such milestones.

(1) Substantial Completion

The Substantial Completion Deadline shall be no later than September 1, 2025 (the **"Mandatory Substantial Completion Deadline"**). VDOT has established an incentive for early completion of the Project. The requirements to achieve the incentive are included in RFP Part 3 (*Comprehensive Agreement*), Section 5.3 (*No Excuses Incentive Payment*).

(2) Final Completion

The Final Completion Deadline shall be no later than November 1, 2025 (the **"Mandatory Final Completion Deadline"**).

2.3.3 For purposes of developing their Proposal Schedules (as further described in Section 4.11 (*Proposal Schedule*)), Offerors shall assume that VDOT and the Successful Offeror will execute the Comprehensive Agreement by April 15, 2019 (such date, the "Assumed Closing Date"). If there is a delay to the Assumed Closing Date arising from an

event or circumstance that is outside the reasonable control of the Successful Offeror, the Successful Offeror will be entitled to day-for-day extensions of the Substantial Completion Deadline and the Final Completion Deadline equal to the number of days between the Assumed Closing Date and the date on which VDOT and the Successful Offeror actually execute the Comprehensive Agreement. Prior to execution of the Comprehensive Agreement, VDOT and the Successful Offeror will modify the terms of the Comprehensive Agreement to reflect the revised Substantial Completion Deadline and the revised Final Completion Deadline. Offerors acknowledge and agree that, except with respect to the adjustments of the Substantial Completion Deadline and Final Completion Deadline described in this Section 2.3.3, the Successful Offeror will not be entitled to any other relief or modification to the Comprehensive Agreement arising from any delay to the Assumed Closing Date. Any attempt by the Successful Offeror to renegotiate the terms of the Comprehensive Agreement or otherwise modify its Technical Proposal or Financial Proposal in response to a delay to the Assumed Closing Date shall be deemed as a failure on the part of the Successful Offeror to proceed in good faith to finalize and execute the Comprehensive Agreement, thereby entitling VDOT to draw on the Successful Offeror's Proposal Security pursuant to Section 8.3.1 (*Forfeiture of Proposal Security*).

2.4 VDOT's Point of Contact

Except as otherwise provided below, VDOT's sole point of contact (**"VDOT's POC"**) for matters related to the RFP shall be James S. Utterback. VDOT's POC is the only individual authorized to discuss the RFP with any interested parties, including Offerors.

Name:	James S. Utterback, Project Director
Address:	Virginia Department of Transportation 204 National Avenue Hampton, Virginia 23663
Phone:	757-956-3000
E-Mail:	HRBTproject@vdot.virginia.gov

For inquires relating to permitting and environmental compliance, Offerors may contact Scott Smizik, VDOT Environmental Manager, at scott.smizik@vdot.virginia.gov.

VDOT disclaims the accuracy of communications relating to the RFP from any source other than VDOT's POC, and the use of any such information is at the sole risk of the Offeror.

All communications and requests for information shall be submitted by the Offeror's Point of Contact identified in the SOQ. Written communication to VDOT from Offerors shall specifically reference the correspondence as being associated with "I-64 Hampton Roads Bridge-Tunnel Expansion Project."

how its approach has considered construction techniques in close proximity to existing facilities including the existing Hampton Roads Bridge-Tunnel.

4.8.5 Tunnel Watertightness and Crack Control

The Offeror shall describe its approach to ensuring high-quality ring construction that minimizes potential damage or cracking of tunnel segments. This approach shall consider the processes of precasting, curing, storing, transporting and erecting the liner segments.

The Offer shall also provide its means and methods of constructing the tunnel to minimize water infiltration to ensure it remains less than the limits established in Section 23 of the Technical Requirements.

4.9 Environmental Permitting and Management

The Offeror shall describe its approach to environmental management and environmental permitting for the Project, including but not limited to the Offeror's approach to the development of the permit application for the United States Army Corps of Engineers (**"USACE"**), Virginia Marine Resources Commission (**"VMRC"**) and the Virginia Department of Environmental Quality (**"DEQ"**). The Offeror also shall describe its approach to coordination with maritime stakeholders, including specific measures to manage risks relevant to the Section 408 permitting process for work affecting the federal navigation channel.

The Offeror shall further describe its consideration of commitments made related to historic properties and approach to satisfying requirements related to protected species. **The Offeror shall describe what work activities are planned at the South Island prior to September 1, 2019, including a diagram showing the approximate number and locations of any ground investigations and an explanation of the Offeror's approach to hazing colonial nesting birds in order to accomplish such investigations.** In addition, the Offeror shall describe how the Environmental Manager and other members of the environmental team will be incorporated into the overall Project delivery to ensure the elements of the Offeror's approach to environmental management and environmental permitting are well integrated into the Project schedule so as to minimize the possibility of delays and ensure timely acquisition of permits.

4.10 Maintenance Concepts

The Offeror shall provide a description of how it will integrate life-cycle cost considerations into Project design and construction. The Offeror shall describe its approach to:

(1) material and equipment selection to enhance service life of pavement, structures, equipment, and systems;

(2) integration of new equipment and systems into the existing systems;

(3) proposed upgrades to the existing systems;

Form C-78-RFP

ATTACHMENT 3.5

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION

PROJECT: **I-64 HAMPTON ROADS BRIDGE-TUNNEL EXPANSION PROJECT**

ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA

Offeror shall acknowledge receipt of the Request for Proposals (RFP) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Technical Proposal Submission Date shown herein. Failure to include this acknowledgement in the Technical Proposal may result in the rejection of your proposal.

By signing this Attachment 3.5, the Offeror acknowledges receipt of the RFP and/or following revisions and/or addenda to the RFP for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of RFP – May 22, 2018
   (Date)
2. Cover letter of RFP – June 29, 2018
   (Date)
3. Cover letter of RFP – August 24, 2018
   (Date)
4. Cover letter of RFP – September 27, 2018
   (Date)
4. Cover letter of RFP – November 28, 2018
   (Date)
5. Cover letter of RFP – December 14, 2018
   (Date)

SIGNATURE DATE

PRINTED NAME TITLE

17	**Tunneling; Installation of Segmental Liner**	
18	**Tunnel Fitout, Finishes, Roadway Construction**	
19	**Transport and Disposal of Tunnel Spoils**	
C. Islands		
20	**Island Expansions**	
21	**Site Work; Site Improvements; All Other Ground Improvement**	
22	**Buildings** (*tunnel operations, floodgates*)	
D. Bridges		
23	**Marine Approach Bridges** (*Eastbound*)	
23.1	**Sub-Item: Eastbound Marine Approach Bridges from Hampton to North Island**	
23.2	**Sub-Item: Eastbound Marine Approach Bridges from Norfolk to South Island**	
24	**Marine Approach Bridges (***Westbound*)	
24.1	**Sub-Item: Westbound Marine Approach Bridges from Hampton to North Island**	
24.2	**Sub-Item: Westbound Marine Approach Bridges from Norfolk to South Island**	
25	**Willoughby Bay Bridges** (*widening*)	
26	**Mallory Street Interchange**	
27	**All Other Land Bridges** (*widening*)	
28	**Bridge Repair and Rehabilitation** (*in accordance with Part 2 of Attachment 4.14.1*)	
29	**Demolition of Marine Approach Bridges**	
29.1	**Sub-Item: Demolition of Marine Approach Bridges from Hampton to North Island**	
29.2	**Sub-Item: Demolition of Marine Approach Bridges from Norfolk to South Island**	
30	**Other Bridge Demolition**	
31	**Temporary Access**	
E. Roadway		
32	**Earthwork**	
33	**Drainage**	
34	**Pavement; Roadway Appurtenances**	
35	**Sound Barriers** (*in accordance with Part 3 of Attachment 4.14.1*)	
36	**Retaining Walls**	
37	**Signs, Lighting, Electrical, ITS**	

PART 2
Technical Requirements

A. The Design-Builder shall provide and maintain a co-located Design-Build office with sufficient space to accommodate the design and construction requirements of the Project. The Design-Build office shall accommodate and include co-location by the Department's staff of approximately 42 individuals. The Design-Builder shall provide adequate parking spaces for the Design-Builder's and Department's staff at the Design-Build office facility.

B. The Design-Builder shall coordinate with the Department prior to securing any data or phone connections for a co-located office. The Department's office space, data, and phone connections shall be separate and secured from the Design-Builder's section of the Design-Build office.

2.5.1. Facilities for the Department

A. Each interior office space shall be wired for one personal computer (unless otherwise specified) on the Department's network and wired for one telephone with adequate interior and desktop lighting. The Design-Builder shall provide the following office and storage spaces for the Department:

1. Four executive full-time, reasonably sound-proofed, closed-door office spaces of at least 150 square feet including a table with a minimum of four chairs in each.
2. Ten full-time, reasonably sound-proofed, closed-door office spaces of at least 100 square feet.
3. One full-time, reasonably sound-proofed, closed-door office space wired for two personal computers: one linked to the Department's network and the other linked to the Design-Builder's network.
4. In addition to the above, 22 full-time office spaces.
5. One network room that conforms to the requirements of this Technical Requirement, Sections 2.5.3 and 2.5.4.
6. Six hot-desk "drop-in" office spaces (at least 100 square feet each).
7. Three conference rooms, including one large conference room to accommodate 20 individuals and two small conference rooms to accommodate 10 individuals.
8. Forty-eight parking spaces.
9. Sufficient storage capacity for hard copy files, including at a minimum: eight 8.5-inch by 11-inch in plan, four-drawer locking file cabinets; one 11-inch by 17-inch in plan locking file cabinet; and eight vertical filing racks suitable for drawings.
10. Storage rooms for office supplies and field equipment.

2.5.2. Office Location

A. The Design-Builder shall work collaboratively with the Department to locate the Design-Build office within or near the project limits.

2.5.3. General Requirements

A. The office facilities for the Department will be provided by the Design-Builder and shall include the following furniture and equipment, which shall be new and unused of equal or better quality than the Design-Builder's equipment:

1. One each of the following in each office space: desk, chair, two drawer locking file cabinet, and bookcase.

adverse effects to ESA-listed species and their critical habitat, EFH, and other NOAA trust resources.

3. Essential ~~Fish Habitat~~fish habitat

   a. The Department anticipates that the Design-Builder shall jointly incorporate the Project's consultation for EFH and Section 7 consultation with NMFS into one joint consultation. The Design-Builder shall implement the construction impact avoidance and minimization measures to EFH outlined in the Final SEIS Mitigation section for EFH.

4. Anadromous ~~Fish~~fish and ~~Marine Mammals~~marine mammals

   a. The Department anticipates that the Design-Builder's consultation with NOAA Fisheries will jointly cover all NOAA trustee resources, including those resources offered protection under ESA Section 7, the Magnuson-Stevens Fishery Conservation and Management Act, and Marine Mammal Protection Act that NOAA Fisheries also implements. As part of the Project's permit package submittal to NOAA Fisheries, the Design-Builder shall consider the need for an IHA for pile driving activities and potential impacts to marine mammals and other NOAA trust resources based on the proposed design and construction sequencing. The Design-Builder shall implement construction impact avoidance and minimization measures to avoid and minimize impacts to anadromous fish, loggerhead sea turtle, green sea turtle, Kemp's Ridley Sea Turtle, and Leatherback sea turtle.

5. Benthic ~~Species~~species

   a. The Design-Builder shall implement appropriate measures identified prior to or during the permitting process to avoid and minimize impacts to benthic species and to reduce turbidity during construction.

6. Submerged ~~Aquatic Vegetation~~aquatic vegetation

   a. The Design-Builder shall implement construction impact avoidance and minimization measures to avoid and minimize impacts to SAV discussed in the May 23, 2017 agency meeting notes.

7. Colonial ~~Nesting Birds~~nesting birds

   a. The Design-Builder shall prepare and implement a Colonial Nesting Bird Management Plan that will outline hazing measures during scope validation, pre-construction, construction, and post-construction to avoid and minimize the potential for impacts to colonial nesting birds. The Colonial Nesting Bird Management Plan shall outline South Island site management activities, starting with the 2019 nesting season, to maintain South Island as unsuitable nesting bird habitat. The Colonial Nesting Bird Management Plan will include but not be limited to the following specifications: 1) how the unpaved areas on the South Island will be treated during 2019 to allow birds to function; and, 2) how species listed in the Virginia Administrative Code will be identified and managed. The Design-Builder shall coordinate with the Department ~~and appropriate resource agencies~~ on the preparation of the Colonial Nesting Bird Management Plan. ~~The Technical Proposal and Colonial Nesting Bird Management Plan will make clear if the Design-Builder intends to occupy the South Island prior to the close of the 2019 nesting bird season (September 1, 2019). If the Design-Builder intends to occupy the island prior to that time, the Technical and Cost Proposal shall include incorporating the measures documented in the Colonial Nesting Bird Management Plan for the 2019 colonial nesting bird season. If the Design-Builder does not intend to occupy the South Island prior to the close of the 2019 nesting bird season (September 1, 2019), the Technical and Cost~~

~~proposal shall be adjusted to assume implementation of the Colonial Nesting Bird Management Plan begins at the close of the 2019 nesting bird season (September 1, 2019).~~ The Colonial Nesting Bird Management Plan shall include, but is not limited to, the following types of South Island management activities:

i. Daily sweeping of all existing paved surfaces in preparation for, during, and at the close of the ~~Colonial Nesting Bird~~colonial nesting bird season. Pave all remaining areas on South Island following the 2019 nesting bird season (September 1, 2019). All paved areas will be subject to daily sweeping prior to and during each subsequent bird season until the project is complete.

ii. Maintain all South Island paved areas in the condition at contract award, unless they must be disrupted for construction activities. Implement any Department-identified corrective actions/pavement maintenance needs prior to each nesting season to further discourage inhabitation by nesting birds. These needs may include but not be limited to immediately repaving areas once adjacent construction activities are complete.

iii. Implement hazing measures identified in the Colonial Nesting Bird Management Plan. Following the 2019 nesting bird season and paving of the remainder of South Island, continue to implement corrective actions/pavement maintenance needs over all portions of the South Island as identified by the Design-Builder, or the Department, prior to subsequent nesting seasons. Early work will include all measures the Design-Builder intends to implement to harass migratory birds from the HRBT South Island and other areas where such activities are warranted. These activities will be initiated prior to each bird season (April 1 to September 1) and be maintained until each bird season is complete. There can be no delay in implementing or maintaining these efforts during the migratory bird season.

iv. Develop and implement training for the Department's South Island facility staff on bird management and site paving, operations, and maintenance needs at least 2 years prior to the completion of construction.

v. Embankment and sloped, riprap areas around the periphery of the South Island that may not be feasible to pave are more likely to be re-colonized by nesting birds. The Design-Builder shall maintain and properly adjust the hazing measures. This shall include an annual meeting with the Department at the end of each nesting season to discuss the previous season and future adjustments for the following season. Hazing measures may include but are not limited to the following deterrent methods: abatement measures such as using trained animals and permitted falconers on the interior portion of the South Island; visual and habitat exclusion devices such as mylar flagging, angled metal flashing or stone, spike-strips, or networks of wire or mesh netting; and auditory measures such as bio-acoustics (recordings of bird alarm or distress calls).

vi. If nests are found during construction, the Design-Builder shall stop working in the immediate area of the nest, delineate a ~~minimum 50-foot avoidance~~ buffer of at least 50-feet in all directions, and immediately notify the Department's monitor that a nest has been found, including the nest location. (Please note the Department's monitor will initiate the transport of all identified nests~~).~~.)

vii. Provide a summary of bird management activities that includes the following measures to ensure South Island remains free of suitable nesting habitat: maintenance of all paved areas; bird deterrent methods including abatement, auditory, and visual

measures or a combination; nest identification; and Department notification measures.

8. Peregrine ~~Falcon~~falcon

   a. Although not currently known to be nesting on HRBT bridges, if peregrine falcons begin nesting prior to or during construction, the Design-Builder would follow and implement VDOT's Peregrine Falcon SP which establishes a TOYR from February 15 through July 15 on all activities that may disturb nesting within a 600-foot radius of a nest.

C. The Design-Builder shall be advised that new and updated T&E information is continually added to agency databases. The Design-Builder shall obtain a current Official Species List from the USFWS IPaC and maintain a current list of at least 6 months throughout the NEPA re-evaluation and endangered species permitting. The Design-Builder shall also obtain a current list of potentially occurring NOAA resources from NOAA Fisheries' Greater Atlantic Region Field Office.

D. The Design-Builder shall be responsible for any subsequent coordination to obtain updated information, requirements, and clearances from environmental regulatory agencies that provide T&E species oversight. The Design-Builder shall copy the Department's Project Environmental Manager on any submittals requesting concurrence from USFWS on ESA Section 7 effect determinations of federally-listed species. This additional T&E species coordination is also a standard component of the water quality permit acquisition process and may result in permit conditions for which the Design-Builder shall be responsible. The Design-Builder is responsible for ensuring that all T&E species are correctly identified, and impacts assessed, noting that more or less resources may be present than initially identified. Avoidance and minimization measures shall be implemented to the greatest extent possible. The Design-Builder shall provide to the Department copies of all documentation and correspondence with regulatory agencies.

5.3.7. Hazardous Materials

A. The Department has performed studies to determine the potential for hazardous materials or contamination within the project area including:

   1. HRBT Expansion Preliminary Sediment Study Report (July 19, 2018).
   2. Phase II Environmental Site Assessment for the Willoughby Spit Property - Norfolk, Virginia (July 9, 2018).

B. The HRBT Expansion Preliminary Sediment Study Report dated July 19, 2018 provides preliminary data to assist the Design-Builder in considering management options for sediment/dredge spoils including, but not limited to, ocean disposal, upland disposal, landfill disposal, and/or beneficial reuse. The Design-Builder shall be responsible for the completion of all requirements associated with sediment management activities for the Project to potentially include:

   1. Determine sediment characterization data needs to support sediment disposal and/or beneficial reuse.
   2. Sediment sample collection, including sample custody requirements.
   3. Sediment sample chemical, physical, and/or toxicological analyses.
   4. Regulatory permitting and/or approvals.
   5. Management; handling; temporary storage; containment/controls; and treatment/ remediation of sediments, sediment processing water/dewatering materials, and additives including, but

not limited to, polymers, drilling fluids, and slurry/grout material generated during construction.

~~6.~~ Sediment ~~Transportation~~transportation and ~~Disposal~~disposal, to ~~Include Waste Disposal Tracking~~include waste disposal tracking and ~~Documentation.~~

~~7.~~6. documentation. The Design-Builder shall submit to the Department a Sediment Testing and Material Management Plan that details all specific procedures for sediment/dredge material management/handling (including, but not limited to, additional sampling/testing, sediment processing/dewatering with process water management, and additives), transportation (including proposed methods and routes), and disposal. These requirements apply to all dredge/sediment removal areas for the Project including, but not limited to, any tunnel or island construction, access dredging, or disposal sites. The report and other information pertaining to the sediment study are included in the Disclosed Information and constitute Known Pre-existing Hazardous Materials as defined in Part 4, Article 4.

C. The Phase II ESA for the Willoughby Spit Property - Norfolk, Virginia (July 9, 2018) provides data on subsurface conditions at the Willoughby Spit ~~staging/equipment laydown area. The ESA identifies areas of contaminated soil and groundwater (Known Pre-existing Hazardous Materials) on the property. Should the Design-Builder disturb pre-existing contaminated materials within the Right of Way, then the Design-Builder shall properly manage, handle, and dispose of such materials. Note that the Department shall remove/close the three petroleum USTs from the Willoughby Spit property identified in the Phase II ESA. The Design-Builder will not be responsible for closing these three identified USTs or any associated DEQ-required characterization or DEQ-required remediation associated with a resulting pollution complaint case, but shall provide the Department reasonable access to perform such activities.~~undeveloped parcels on the southern end of the HRBT. This report and other information pertaining to this study are included in the Disclosed Information and constitute Known Pre-existing Hazardous Materials as defined in Part 4, Article 4.

D. The HRBT ~~north~~North and ~~south islands~~South Islands contain various USTs and ASTs. These tanks contain petroleum such as diesel fuel, gasoline, heating oil, and septic system waste. Should any ~~project~~Project-related activities disturb any Department tank, the Design-Builder shall be responsible for all related management, closure, disposal, and reporting requirements, such as tank removal/closure/modification activities. These tanks constitute Known Pre-existing Hazardous Materials as defined in Part 4, Article 4.

E. The HRBT has a DEQ VPDES Permit for Industrial Activity Stormwater Discharges. The current VPDES permit (Permit Number VA0005657) details the discharge requirements from the two current HRBT outfalls. The Design-Builder shall be responsible for any permit requirements associated with the Project (such as a potential permit modification or new permit package for potential new outfalls); including preparing permit submittals, obtaining approvals, and complying with permit conditions until the Department accepts the constructed project.

F. In addition, the Design-Builder shall comply with the following documents:

1. VDOT SP for Phase I and Phase II Environmental Site Assessments for Design-Build Projects (October 5, 2017).
2. VDOT SP for Inspection of Structures for ACM on Design-Build Projects (October 5, 2017).
3. VDOT SP for Demolition Notification Requirements for Structures on Design-Build Projects (October 5, 2017).
4. VDOT SP for Asbestos Removal and NESHAP-Related Demolition Requirements for Structures on Design-Build Projects (October 5, 2017).

due to changes in plan and profile as part of the Design-Builder's final design, the Department will compensate the Design-Builder for the material and installation costs associated with any additional square footage costs above what was proposed at the contract unit price of sound barrier wall provided in the Design-Builder's Proposal.

2. If the ~~Final Design Noise Analysis~~final design noise analysis indicates a reduction of sound barrier wall square footage from that provided in the Design-Builder's Proposal, regardless of any design changes, the Design-Builder shall credit the Department for the material and installation costs associated with the square footage reduction at the contract unit price of sound barrier wall provided in the Design-Builder's Proposal.

3. If the ~~Final Design Noise Analysis~~final design noise analysis warrants sound barrier walls, but some or all the barriers are not desired by the public, the Design-Builder shall credit the Department for the material and installation costs associated with the square footage reduction at the contract unit price of sound barrier wall provided in the Design-Builder's Proposal

I. The Design-Builder shall not deviate from the Department's sound barrier wall policy, guidance, or SPs without allowance granted in this document or prior written approval from the Department.

J. The final barrier locations and dimensions shall be determined during the ~~Final Design Noise Analysis. A draft Final Design Noise Analysis Report~~final design noise analysis. A draft final design noise analysis report shall be submitted to the Department for review and acceptance prior to the submittal of the final report. The ~~Final Design Noise Analysis~~final design noise analysis shall be conducted by an individual qualified in the field of highway traffic noise impact analysis as noted in the FHWA Highway Traffic Noise Analysis and Abatement Guidance Manual, Section 3.0. The ~~Final Design Noise Analysis~~final design noise analysis shall be furnished by the Design-Builder at its sole cost and expense. The Design-Builder shall be responsible for developing the ENTRADA for the ~~Final Design Noise Analysis~~final design noise analysis based on the Project's final design.

K. Upon acceptance of the ~~Final Design Noise Analysis~~final design noise analysis, the Department will prepare a concurrence letter, outlining the results of the analysis, for the ~~Department's Chief Engineer and~~ FHWA. Once concurrence is achieved, the Design-Builder shall prepare and mail letters "certified return receipt" to benefitted receptors to ascertain the desire to have sound barrier walls constructed as part of the Project. Upon completion of the citizen survey, the Department will prepare a second concurrence letter documenting the results, if necessary. All noise barriers shall be named as presented within the ~~Final Design Noise Analysis~~final design noise analysis.

L. The aesthetic treatment (e.g., color, surface treatment) of sound barrier walls constructed adjacent to any of the following five historic properties is subject to the outcome of consultation between the Department and the VA SHPO, local government, and property owner/representative: Hampton Institute Historic District, Pasture Point Historic District, Hampton National Cemetery (Phoebus Section), Phoebus-Mill Creek Terrace Neighborhood Historic District, and Norfolk Naval Base Historic District (see this Technical Requirement, Section 5.3.2). All sound barrier walls adjacent to Naval Station Norfolk property shall have a smooth finish on the side facing traffic to deter climbing.

Regardless of the outcome on the final noise study, a sound barrier wall is to be incorporated onto the EB side of the bridge over New Gate Road. The height of the sound barrier wall shall not be less than 11 feet and shall have complete visual blockage of the operations and on-going activities at Navy Gate 22 on New Gate Road.

access should be provided from a separate public road where economically feasible. When maintenance access can only be provided from a limited access roadway, the Right of Way line shall encompass the entire SWM facility. The Design Builder shall provide a lockable gate for all SWM facilities that require an entrance for maintenance access.

D. The Design-Builder shall provide As-Built Drawings of all post-construction SWM facilities located on the Project. The As-Built Drawings shall show the actual finished ground contours, outlet structure dimensions and elevations, entrance grading, and all applicable details originally shown in the design plans as they exist at the completion of the Project. These drawings shall be certified by a P.E. or Land Surveyor licensed to practice in the Commonwealth of Virginia. A minimum of two benchmarks shall be provided for each BMP in the form of a Commonwealth of Virginia Survey Control Mark (3.25-inch aluminum disc mounted on top of a #5 bar set in concrete).

E. The Design-Builder shall identify the original condition of the in-situ soils, vegetation, and hydrology where each proposed post-construction SWM facility for the Project is located. The Design-Builder shall provide the Department sufficient documentation to define if the SWM facility will be located on wetlands or uplands, with photographic evidence and a brief description of the site soils.

F. Up to 100% of the required phosphorus load reduction may be achieved ~~-~~through purchase of nutrient credits~~-~~ in accordance with VDOT IIM-LD-251 to satisfy the post-construction water quality reduction requirements. The Department will purchase and will be the owner of these credits~~...~~. It is the responsibility of the Design-Builder to ~~investigate~~inform the ~~availability~~Department on the amount of nutrient credits~~, which shall be at the Design-Builder's risk. The Design-Builder will coordinate with the Department for acceptance of the source and nutrient credits~~ to be purchased.~~-~~ The Design-Builder is responsible for complying with the water quantity requirements, which may not eliminate the need for on-site SWM facilities.

G. The Design-Builder may elect to work with adjacent municipalities on collaborative stormwater management projects to meet the nutrient reduction requirement. It is the responsibility of the Design-Builder to investigate the potential projects and determine the nutrient reduction provided by each facility and, as such, shall be at the Design-Builder's risk. Table 17.3.4-1 summarizes potential collaborative stormwater management projects.

Table 17.3.4-1 Potential Collaborative Stormwater Management Projects

Stormwater Feature Name	Description
City of Hampton	
Libby Street Proprietary BMP Area	This improvement involves the construction of a proprietary CDS hydrodynamic separator device near the intersection of Sewell Avenue and Libby Street. The CDS device would be constructed as an offline device, with a weir diversion structure in the upstream manhole to divert the 1inch rainfall flows to the BMP device. The BMP would treat the upstream drainage area. Due to the limited availability of open space in the watershed, the proposed BMP is a viable option relative to other non-proprietary BMPs.
Woodlands at Phoebus Wetland Area	This improvement involves the construction of a stormwater wetland just downstream of the Woodlands at Phoebus apartment complex. The proposed stormwater wetland is located on a City-owned parcel. Stormwater runoff from the adjacent residential

G. Temporary pavement and Shoulder Strengthening: The Design-Builder shall be responsible for the design of any temporary or shoulder strengthening pavement required to be used to maintain traffic during construction. These designs shall be in accordance with the AASHTO Guide for the Design of Pavement Structures (1993 Edition) and the VDOT MOI, Chapter VI. All temporary and shoulder strengthening designs for interstate mainline or ramp pavements shall be designed to meet the following minimum design criteria:

1. Design Life. Six months minimum, or ~~the full duration the pavement will be in use in accordance with paduration~~required service life, whichever is greater.
2. Reliability. 85% minimum.
3. Initial Serviceability. 4.2 minimum.
4. Terminal Serviceability. 2.8 minimum.
5. Standard Deviation. 0.49 minimum.
6. CBR value for subgrade soils determined through laboratory tests.
7. Temporary pavement shall have at a minimum 6 inches of asphalt concrete.
8. Proper grading shall be maintained to direct surface water away from paved areas and to provide for efficient runoff from surrounding areas.

All temporary and shoulder strengthening pavement designs shall be submitted to the Department for review and acceptance a minimum of 14 days prior to installation.

All temporary pavement shall be completely removed once it is no longer in service.

17.5. Fencing

A. Typical Right of Way or controlled access fencing shall comply with and be installed per VDOT requirements and standards at areas where fencing is required as an outcome of the final design.

B. The following locations adjacent to Naval Station Norfolk shall require Department of Defense 8-foot security fencing per UFC 4-022-03 (7 feet high with No. 6 gauge fence fabric and 'Y' outriggers with 6 strand barbed wire):

1. I-64 Construction Baseline Station 576+00 (Rt) to 580+00 (Rt) – all new 8-foot security fencing, commencing at Willoughby Bay shoreline to the existing 6-foot chain link fence that runs perpendicular to the roadway along the bridge abutments at ending station of 580+00.
2. I-64 Construction Baseline Station 580+00 (Rt) to 603+00 (Rt) or Ramp 4WNS Station 22+00 – remove existing 6-foot chain link fence and replace with all new 8-foot security fencing. The new 8-foot security fence will begin at the ending security fence location from B.1 location to connect to existing 8-foot security fence at corner of parking lot north of 4th View Avenue. In areas where the existing fencing does not provide a minimum 20-foot clear zone, the new 8-foot security fence shall be located to provide a minimum 20-foot clear zone.

C. If sound barrier walls are required between approximate I-64 Construction Baseline Station 707+00 (Rt) and 716+00 (Rt), based on the final design noise analysis, Design-Builder shall install a shared (VDOT and Navy) gate within the run of 6-foot chain link fence between the existing corner of the 8-foot security fence and the New Gate Road bridge. This double-leaf access gate shall be wide enough to accommodate maintenance vehicles, and roadway access to this gate from New Gate Road shall be constructed.

D. At the locations identified below, within 20 feet outwards and 30 feet inwards of the security fence surrounding the Navy Property, Design-Builder shall clear trees and all other vegetation taller than 8 inches to re-establish a clear zone per NTTP 3-07.2.3. Low-growing grass shall be established in these clear zones. The Navy will acquire the necessary USACE permits for Work within wetland areas. The Design-Builder shall acquire a work permit from the Navy to create the interior 30-foot clear zone. Below are the approximate locations where the clearing activities are required.

1. All locations where a new 8-foot security fence will be installed.
2. Station 828+50 to Station 855+00 64EBS Construction Baseline.
3. Station 10+00 to Station 20+00 Ramp A-1 Construction Baseline.

~~17.5.~~17.6. Deliverables

A. At a minimum, the deliverables shall include the items listed in Table 17.~~5~~ 6-1 for the Department's consultation and written comment. All submittals shall be accompanied by an appropriate level of analysis and calculations to justify all engineering decisions made. The Department reserves the right to reject incomplete submittals.

Table 17.~~5~~ 6-1 Deliverables

Deliverable	Number of Copies		Delivery Schedule[1]	Reference Section
	Hard Copy	Electronic		
Traffic ~~Operations Analysis~~operations analysis	5	1		17.3.1
Traffic ~~Forecast~~forecast	5	1		17.3.1
Interchange ~~Modification Report~~modification report	5	1		17.3.3
Interim and ~~Final Drainage Report~~final drainage report	2	2 (PDF) on CD		17.3.4.2
Conceptual ~~Erosion~~erosion and ~~Sediment Control Plan~~sediment control plan	5	1		17.3.4.3
Post-construction SWM ~~Plan~~plan	5	1		17.3.4.3
SWPPP ~~Plan~~plan for entire Project	5	1		17.3.4.3
SWM As-Built Drawings	5	1	60 days after completion of stormwater construction.	17.3.4.4
H&HA and ~~Scour Analysis~~scour analysis	5	1 and 5 CDs	60 days after completion of investigation, including testing.	17.3.4.1 & 17.3.4.6
Pavement ~~Design Photo Report~~design photo report	5	1		17.4

7. The Design-Builder shall provide manufacturer's warranties on all furnished equipment for material and workmanship that are customarily issued by the equipment manufacturer. The warranty period shall commence from successful completion of the user acceptance testing.
8. Upon the completion of device integration by the Department, the provided equipment shall be tested to demonstrate the full functionality of all required features for all installed field devices using the VDOT ATMS software. The testing shall take place at the primary control room in the TOC building on the VDOT ATMS network for devices on the general purpose lanes. The Department shall review and accept the device configuration settings for compatibility with its VDOT ATMS prior to the commencement of testing.
9. The Design-Builder shall coordinate and support the Department to integrate the devices and monitoring software with its VDOT ATMS and to update any configurations as necessary.

L. The Design-Builder shall provide the Department with a sample unit of all ITS devices requiring integration with the VDOT ATMS software, including CCTV cameras, ~~VDS~~VDSs, and informational DMS.

M. The following documents shall be provided to the Department for review and authorization and acceptance according to the Design-Builder's Baseline Schedule. Final system acceptance and design as-built documentation shall be provided and accepted before service commencement.

1. Technical specifications shall be a document or documents that specify the technical requirements of the ITS elements to be integrated into the ATMS.
2. Product cut/specification sheets shall show the type, model, and specifications for the ITS equipment the Design-Builder plans to use for the ATMS.
3. Network architecture shall document all interconnects and information flows for the network. The Design-Builder shall ensure the network architecture takes into account, and is coordinated with, the toll system integrator and the Department's regional ITS architecture.
4. Project As-Built ~~Plans~~Drawings shall document the communications network design for the ITS and TMS. The documentation shall include, but not be limited to: plans, drawings, technical specifications for equipment, fiber optic splicing details, proposed IP addressing schema changes, and maintenance manuals.
5. Testing and integration strategy shall establish the principles of, and the Design-Builder's approach to, the testing and integration of the TMS/ITS and related interfaces, including the integration phases, test stages, test processes, and conditions for moving from one test stage to the next (e.g., testing entrance and exit criteria).

19.5. Spares

A. The Design-Builder shall provide spare parts and maintenance products ~~(supplies) for all SCADA systems, equipment and components provided in accordance with manufacturer's recommendation. Spare parts provided shall be based on manufacturer's recommended spare parts list for each item~~of at least 10% quantity for each component/system listed below, but not less than one of each item or as required in the VDOT Road and Bridge Specifications, whichever is greater.

a. AM/FM rebroadcast system major components (power supplies, AM power amplifier, FM power amplifier, AM/FM channelizer module).
b. CCTV cameras of each type (traffic fixed and PTZ, security fixed and PTZ).
c. DMS as required by VDOT Road and Bridge Specifications.

d. LUS of each type major components (power supplies, controllers, sign modules).

e. Overheight vehicle detector units and controllers.

f. Vehicle detectors of each type (detector unit and controllers).

B. Design-Builder shall provide a spare parts and maintenance products (supplies) listing for all ITS equipment provided in accordance with manufacturer's recommendation.

~~B.~~ Spare parts list shall identify, at a minimum, original manufacturer, item name, item description, manufacturer part number ~~and current list~~, unit price~~.~~

C. ~~Spare parts and maintenance products shall equate to 10% of~~ , unit of issue, quantity ~~for each equipment type installed, but shall not be less than one (1) of each item~~ recommended ~~by equipment manufacturer~~, and procurement lead time.

D. Provide ~~any~~all manuals, software licenses, specialty cables, specialty test equipment, or other specialty equipment and tools~~,~~ required to program, maintain or repair equipment.

E. Maintain ~~spare products~~provided spares in original containers with labels intact and legible, until delivery to the Department.

~~19.6. Warranty~~

~~A. A standard manufacturer's warranty shall be furnished for each SCADA system and component which is furnished and installed or otherwise provided to the Department. The effective beginning date of the SCADA System Warranty Period (SSWP) shall be the date of the Final Completion of the Project and the SSWP shall end no less than two (2) years from this date, or the same as the manufacturer's standard warranty, whichever is longer. The warranty documentation shall be provided to the Department and a copy shall be included in the tunnel operations and maintenance manual.~~

~~B. The Design Builder shall be responsible for all costs associated with vendor or manufacturer warranty service during the SSWP.~~

~~19.7.~~19.6. Deliverables

The deliverables shall include the items listed in Table 19.4 6-1 for the Department's consultation and written comment. All submittals shall be accompanied by an appropriate level of analysis and calculations to justify all engineering decisions made. The Department reserves the right to reject incomplete submittals.

Table 19.4 6-1 Deliverables

Deliverable	Number of Copies		Delivery Schedule[1]	Reference Section
	Hard Copy	Electronic		
FHWA Rule 940 ~~Compliance Documents~~compliance documents	5	1		19.4.5
Develop/~~Verify~~verify Rule 940 ~~Test Plans~~test plans	5	1		19.4.5

Virginia must comply with federal regulations promulgated by the Secretary of Transportation and set forth in Title 49 CFR. Transport of hazardous materials through the HRBT tunnel requires compliance with Title 49 CFR Parts 100-180. Categories of materials grouped under the designations "Prohibited", "No Restrictions," or "Restricted" are provided in "Virginia's Size, Weight and Equipment Requirements for trucks, trailers and towed vehicle" at https://www.dmv.virginia.gov/webdoc/pdf/dmv109.pdf.

4. Bicycles, pedestrians, and animals will not be allowed in the tunnel.

26.3.3.2. Environmental Design Conditions

A. The mechanical equipment and systems shall be designed, furnished, and installed/constructed with features necessary for suitable operation in a tunnel marine environment. The tunnel and other spaces therein, such as the pump stations and egresses/exits, contain environments with adverse conditions such as high humidity, high temperatures, potentially explosive atmospheres, and corrosive atmospheres. The equipment shall be selected, specified, designed, purchased, tested, and installed with the full disclosure of the environments to the manufacturer. Mechanical piping~~,~~ ~~handrails,~~ and equipment located in the tunnel shall be of Type 316 stainless steel unless specified differently in this Technical Requirement; handrails in the tunnel shall be galvanized steel.

B. The road tunnel environment is harsh, consisting of vehicular emissions and fumes. This is coupled with the amount of rainfall in the Hampton Roads area and vapors of salt from the ocean such that the mechanical systems need to be protected from corrosion.

26.3.3.3. Reliability and Availability

A. All mechanical equipment shall be designed to perform reliably in the intended application. All systems and equipment proposed for use shall have a proven track record of reliable service in a similar application.

B. Reliability evaluation of the fire life safety systems shall be performed. Failure or loss of availability of fire life safety equipment shall be considered in the evaluation. Evaluation shall address the following elements.

1. Impact events.
2. Seismic events.
3. Redundancy requirements.

C. The mechanical equipment and systems shall be designed, furnished, and installed/constructed within the manufacturer's warranted ratings.

D. Mechanical systems shall be designed such that equipment maintenance will not require complete tunnel closure to traffic. Refer to Technical Requirement 34, Section 34.3.3.

~~A. The Design-Builder shall supply two spare jet fans of the exact size and type as those installed to the Department upon completion of the Work. Provide jet fan maintenance storage space as required by the manufacturer.~~

~~B.~~A. ~~The Design-Builder shall supply two (2) spare portal pump assemblies (pump and motor) and one (1) spare low point pump assembly (pump and motor) of exact size and type of those installed to the Owner upon completion of the Work. Provide pump maintenance storage space as required by the manufacturer.~~

~~E. The Design-Builder shall provide spare parts and maintenance products (supplies) for all mechanical equipment provided in accordance with manufacturer's recommendation. Spare parts provided shall be based on manufacturer's recommended spare parts list for each item. Spare parts~~

~~list shall identify original manufacturer, item description, manufacturer part number and current list price.~~

~~F. Spare parts and maintenance products shall equate to 10% of quantity for each equipment type installed, but shall not be less than one (1) of each item recommended by equipment manufacturer.~~

~~G. Maintain spare products in original containers with labels intact and legible, until delivery to Owner.~~

~~C.~~A. ~~The manufacturer shall guarantee that all spares and replacement parts will be made available during the duration of the equipment's life expectancy.~~

26.3.3.4. Protection against Environmental Conditions

A. All parts of the tunnel electrical and mechanical installations, including fasteners and support systems, shall be suitable for use under all reasonably foreseeable conditions in the environment in which they are installed.

B. Conditions to be considered shall include, but not be limited to, the following.

1. Ambient temperature and fire temperature.
2. Humidity and vapors of ocean water.
3. High winds.
4. Immersion in water.
5. Accumulation of ice or snow at portal areas.
6. Tunnel washing.
7. Vibration.
8. Electromagnetic interference.
9. Soot and smoke.
10. Vehicle emissions.

C. All parts of the tunnel mechanical installations, including fasteners and support systems, shall be adequately protected against corrosion before, during, and after installation for the duration of their design life. Materials, paint systems, and protective finishes shall be appropriate to the operating environment and shall be designed to inhibit the spread of corrosion should the protective layer be damaged. Suitable measures shall be taken to avoid direct contact between dissimilar metals exposed to the atmosphere. The design life of assets must be as specified in Table 26-3.1, except for listed asset sub-items which may have the specified lesser design life.

D. Equipment installed within the tunnel shall be designed to minimize the accumulation of dust and moisture on exposed surfaces, and, unless stated otherwise, shall have an ingress protection rating equivalent to IP65 as defined in ANSI/IEC 60529.

E. All protective finishes shall be capable of repair on-site, following mechanical or other damage, to a level of durability and corrosion protection equivalent to the original finish, in accordance with manufacturer recommendations.

D. All software must use the English language.

E. To the extent the Design-Builder proposes the use of software not currently available to the Department, the Design-Builder shall provide the Department the software for verification of models, computer runs, and testing prior to acceptance.

F. The calculations, models, inputs, and outputs of computer modeling files shall be in the English language and submitted to the Department for review and comment.

G. All final design calculations shall be certified by a P.E. licensed to practice in the Commonwealth of Virginia.

26.3.3.6. Training

A. The Design-Builder shall provide operation and maintenance training to the Department a minimum of 90 days prior to Substantial Completion. Trainees shall also be invited to observe system testing and commissioning as required in this Technical Requirement and Technical Requirement 34.

B. The Design-Builder shall provide a tunnel O&M training syllabus 30 day prior to beginning training, for review and acceptance by the Department. The training shall be conducted by the manufacturer's technical service personnel or factory authorized representatives for all mechanical systems installed.

C. The Design-Builder shall provide a minimum of 40 hours of training for each tunnel sub-system.

D. The Design-Builder shall include the following in the training: operation instructions, theory of operation, circuit description, preventive maintenance procedures, troubleshooting, and repair of all mechanical systems equipment. The Design-Builder shall provide all participants with material and manuals required for the training.

~~**26.3.3.7. Warranty**~~

~~A. A standard manufacturer's warranty shall be furnished for each mechanical system component that is furnished and installed or otherwise provided to the Department. The effective beginning date of the MSWP shall be the date of the Final Completion of the Project and the MSWP shall end no less than 2 years from this date, or the same as the manufacturer's standard warranty, whichever is longer. The warranty documentation shall be provided to the Department and a copy shall be included in the tunnel operations and maintenance manual.~~

~~B. The Design-Builder shall be responsible for all costs associated with vendor or manufacturer warranty service during the MSWP.~~

26.3.4. Tunnel Ventilation

26.3.4.1. Design Requirements

A. General

1. The tunnel ventilation system shall be designed and constructed to provide a safe and tenable environment for motorists and passengers in the tunnel during all expected conditions, including flowing traffic, stopped traffic, and congested traffic. The tunnel ventilation system shall also be designed and constructed to mitigate the effects of smoke and heat during an incident involving a fire, to facilitate the safe evacuation of motorists, passengers, and fire-fighting operations.

2. The tunnel ventilation system shall conform to the requirements of the most current version of NFPA 502, Standard for Road Tunnels, Bridges, and Other Limited Access Highways.

B. Hazard Classification

1. The tunnel fire-fighting system hazard classification is "Ordinary Hazard Group 2" and shall be designed in accordance with NFPA 13 Ordinary Hazard Group 2.

C. Design Fire Size and Growth Rate

1. Design fire size and fire growth rate requirements are as required by this Technical Requirement, Section 26.3.4.1.F.

D. Water Source

1. The minimum suppression density shall be based on a single fire zone of activation and designed in accordance with NFPA 13 density/area curves and shall not be less than 0.2 gpm/sf (gallons per minute/square feet).
2. The fire protection system shall utilize potable water; seawater shall not be used.
3. Both the North and South Islands water lines (8-inch line from the Hampton shore to North Island and a 10-inch line from the Norfolk shore to South Island, both with normal municipal pressure of an average of 60 psi) shall be maintained and replaced. Heat trace system shall be provided for the municipal water lines on trestles with insulation and Department accepted jacket to prevent lines from freezing (See also Section 26.3.5.1.E.5). At a minimum, an 8-inch pipe shall be provided from both south and north shores to the new tunnel to connect the north and south existing water supplies. Tapping into the existing fire loop system of the existing tunnel shall not be permitted.
4. The quantity of water shall be designed for 1 hour of water supply. The quantity of water required to meet the tunnel fire protection 1-hour requirement shall be available at all times and shall not be diminished in any way.
5. The flow rate used for calculating the quantity of water for fire protection needs shall be a minimum of two fixed fire suppression fire zones activated simultaneously along with utilization of three hose valves at 250 gpm each.
6. Additional fire hydrants shall be provided. A minimum 6-inch fire line shall connect from the fire department connection to the combination suppression standpipe line for pressurization of the system. The fire department connection shall be protected with an inline check valve and shall be located within 100 feet of the fire hydrant. The fire hydrant shall be located such that access by the fire department fire truck shall not exceed 10 feet.
7. The fire department connections shall be Siamese 2-1/2-inch minimum connections. The connection configuration and treads shall be in accordance with local fire department requirements.
8. Fire suppression zones shall be coordinated with tunnel ventilation zones and sized based upon NFPA requirements, with isolation/zone control valves located and spaced appropriately.

E. Fire Pipe

1. All piping, joints, and fittings shall comply with the International Fire Code. Steel piping components outside the tunnel shall meet the requirements of ASTM A312 Standard Specification for seamless, welded, and heavily cold worked austenitic stainless steel pipes.
2. All piping, joints, and fittings shall be made of Type 316 stainless steel at a minimum of Schedule 10.

3. Fire pipe located in the tunnel shall be installed exposed; it shall not be embedded or concealed. It shall be mounted outside of the vehicle dynamic envelope and be accessible for maintenance and inspection.
4. Piping from the water supply to the fire pump room and piping in the fire pump room shall be made of Type 316 stainless steel at a minimum of Schedule 40.
5. All pipes and valves that have water in them and are exposed to freezing environments shall be protected against freezing. For the combined standpipe/suppression system, a minimum of the first 1,000 feet of pipe, from the portal into the tunnel, shall be insulated, jacketed, and provided with heat tracing. For deluge cabinets located within 1,000 feet of the portal, freeze protection shall be provided inside the cabinet for all piping and trim: wet and dry pipe. Freeze protection shall be calculated using ASHRAE 99.6% heating design temperatures less 20 degrees F. If air duct is utilized, piping located in the air duct shall be considered to be in a freezing environment for its entire length within the air duct.
6. Hydraulic calculations shall be provided justifying the size of the designed pipe and pump system.

F. Sprinkler Heads

1. Sprinkler heads shall be made of Type 316 stainless steel and shall be deluge open type heads suitable for the tunnel environment.
2. Sprinkler heads shall be uniformly spaced along and across the tunnel in accordance with NFPA 13.
3. The maximum allowable coverage shall be based on "obstructed noncombustible" as defined in NFPA 13. Under no circumstance shall a single head coverage exceed 260 sf.

~~D.~~A. ~~Spare sprinkler heads shall be provided in accordance with NFPA 13 and shall be packed in a suitable metal cabinet. Spare sprinkler heads shall be representative of, and in proportion to, the number of each type and temperature rating of the sprinklers installed. At least one wrench of each type required shall be provided.~~

G. Deluge Valves

1. Deluge valves shall be provided for each fire deluge zone.
2. Deluge valves shall be equipped with an integrated pressure reducing valve or have a pressure reducing valve prior to the deluge valve.
3. Isolation valves shall be provided just before and just after the deluge valve.
4. Drain and test connections shall be provided in accordance with NFPA 25 for required testing of the system. Drains shall be piped to outside the deluge valve cabinet.
5. The deluge valve and trim shall be UL listed and factory mutual approved for the intended purposes.
6. The deluge valve shall be configured such that the first deluge valve is activated automatically with a time delay for operator verification and the second valve can be manually activated. Activation shall be able to be either at the valve station or remotely at the control room. Provisions shall be made to prevent accidental sprinkler activation.
7. The deluge valve shall be capable of being operated remotely and manually. A local manual override for opening and closing the valve shall be provided.

2. Time to fully charge the system.
3. Time to establish full operation of the system.
4. Rate of water consumption under full availability and pump failure conditions.
5. Deluge valve test in accordance with NFPA 25. In addition to NFPA 25 requirements the deluge vales shall be tested for open and close remotely and locally under full system pressure. Also, the time from detection to full flow release from the sprinkler heads shall be tested.
6. Each deluge zone shall be tested with single zone activation for water density. A minimum of 20 receptacles evenly spaced shall be placed in the zone being tested and the density at each location reported.
7. A minimum of three different locations shall be tested for combination tests for water density. A minimum of 20 receptacles evenly spaced shall be placed in each of the two zones being tested and the density at each location reported. The test shall have two deluge zones and three hose valves (250 gpm each) activated at the same time for these tests. Test locations shall be at the two most hydraulically remote locations and at the lowest elevation in the system.
8. Fire pumps shall be tested in accordance with NFPA 25.
9. The freeze protection system shall be tested by disconnecting each circuit and confirming that an alarm is activated in the control room. If the freeze protection system is shut down automatically for any reason or operation, it shall be tested to confirm that it is automatically reactivated as well.

R. The Design-Builder shall perform the fire hydrant flow tests for flow and pressure in accordance with NFPA 25 requirements.

26.5. Spares

A. The Design-Builder shall supply two spare jet fans of the exact size and type as those installed to the Department upon completion of the Work. Provide jet fan maintenance storage space as required by the manufacturer.

B. The Design-Builder shall supply to the Department upon completion of the Work, two spare portal pump assemblies (pump and motor) and one spare low point pump assembly (pump and motor) of exact size and type of those installed. Provide pump maintenance storage space as required by the manufacturer.

C. The Design-Builder shall provide spare sprinkler heads in accordance with NFPA 13, packed in a suitable metal cabinet. Spare sprinkler heads shall be representative of, and in proportion to, the number of each type and temperature rating of the sprinklers installed. At least one wrench of each type required shall be provided.

D. The Design-Builder shall provide all manuals, software licenses, specialty cables, specialty test equipment, and other specialty equipment or tools required to program, maintain, or repair equipment.

E. The Design-Builder shall provide a spare parts and maintenance products (supplies) listing for all mechanical equipment provided in accordance with manufacturer's recommendation.

F. Spare parts listing shall identify, at a minimum, original manufacturer, item name, item description, manufacturer part number, unit price, unit of issue, quantity recommended, and procurement lead time.

G. Maintain spare products in original containers with labels intact and legible until delivery to the Department.

H. The manufacturer shall guarantee that all spares and replacement parts will be made available during the duration of the equipment's life expectancy.

~~26.5.~~26.6. Deliverables

At a minimum, the deliverables shall include the items listed in Table 26.~~5~~6-1 for the Department's consultation and written comment. All submittals shall be accompanied by an appropriate level of analysis and calculations to justify all engineering decisions made. The Department reserves the right to reject incomplete submittals.

Table 26.~~5~~6-1 Deliverables

Deliverable	Number of Copies		Delivery Schedule[1]	Reference Section
	Hard Copy	Electronic		
Operations and ~~Maintenance Manual~~maintenance manual	5	1		26.1
Emergency ~~Response Plan~~response plan	5	1		26.1
Proposed software for tunnel mechanical systems design		1		26.3.3.5
Qualifications of CFD modeler and independent checker		1		26.3.3.5
Fire ~~Life Safety Compliance Report~~life safety compliance report	5	1	Prior to submission of ~~Mechanical Design~~mechanical design.	26.3.3.1
Space ~~Proofing Report~~proofing report	5	1	Prior to submission of ~~Mechanical~~mechanical and ~~Electrical Design~~electrical design.	26.3.2
Ventilation and ~~Fire Protection~~fire protection CFD ~~Modeling Report~~modeling report	5	1	Prior to submission of corresponding design work package.	26.3.4.1
Tunnel and ~~Tunnel Approach Structure Drainage Design Report~~tunnel approach structure drainage design report	5	1		26.3.6
Egress Modeling Report		1	Prior to submission of corresponding design work package.	26.3.7.1
Fire ~~Protection Design Report~~protection design report	5	1		26.3.5

D. All raceways that are installed exposed outdoors or indoors in non-conditioned spaces that are open to the outdoors shall be Type 316 stainless steel rigid metal conduit. Conduits installed along underside of bridge decks; trestles; and enclosed, non-conditioned electrical and mechanical rooms may be a Department-accepted alternative in accordance with VDOT Road and Bridge Specifications.

E. All raceways installed in building indoor conditioned spaces, exposed or concealed within walls or above suspended ceilings, shall be galvanized steel rigid metal conduit.

F. All stainless steel electric metallic tubing fittings and connectors shall be waterproof Type 316 stainless steel compression.

G. Use only Type 316 stainless steel supports and mounting hardware with stainless steel electric metallic tubing and stainless steel rigid metal conduit.

H. For indoor conditioned spaces, use galvanized steel supports and mounting hardware with galvanized steel rigid metal conduit.

I. In tunnel, tunnel egress corridor, stairs, and horizontal/vertical ventilation shafts/spaces, all raceway connections to motors, damper actuators, adjustable light fixtures, lane use signs, traffic signals, cameras, and any other equipment or component that requires adjustment or can vibrate shall be made using weatherproof, fire rated type MC cable complying with UL System No. 120, FHIT.120~~, Electrical Circuit Integrity System~~.

J. For indoor locations in conditioned spaces, use only LFMC (galvanized steel) for connection to motors, damper actuators, adjustable light fixtures, lane use signs, traffic signals, cameras, and any other equipment or component that requires adjustment or can vibrate.

K. Provide minimum two, 5-inch heavy wall reinforced fiber glass spare conduits, one eastbound and one westbound, installed exposed under all bridges and trestles from the north and south shores to the respective islands. Conduits servicing eastbound lanes or tunnels shall be installed under the eastbound trestles, and conduits servicing the westbound lanes or tunnels shall be installed under the westbound trestles, generally. Provide exposed Type 316 stainless steel NEMA 4X pull/splice junction boxes with hinged covers in all conduits. All pull/splice boxes shall be sized to accommodate any splices and at least one loop of 15kV slack cable and a future 15kV feeder conduit of same size as being furnished. Support conduit and boxes from bridge and trestle structure with Type 316 stainless steel hardware. All bridge/trestle conduit supports shall be sized to accommodate a future 15kV feeder conduit of same size. Provide deflection fittings in all conduits crossing expansion joints. Provide LFMC with Type 316 stainless steels connectors for all transitions from bridge/trestle abutments to bridge/trestle deck structures. Provide Type 316 stainless steel strain relief mesh (Kellem) grips over both ends of the LFMC at each LFMC connector, with mesh grip eyes at connector end of the LFMC and the mesh eyes secured to bridge/trestle structure to support the LFMC.

L. Use Schedule 40 PVC conduits encased in a minimum of 3 inches of concrete (duct bank) on all sides for all underground raceways not routed through the tunnels. All multiple underground concrete encased conduits shall have a 1.5-inch minimum separation between each conduit in all directions. The installation of direct buried underground cable is not acceptable, except for underground ground grids and/or mats.

M. All underground duct banks for 15kV cables shall be constructed with 5-inch (minimum) diameter Schedule 40 PVC conduits.

N. All 15kV underground duct banks shall be constructed with a minimum of two spare 5-inch PVC conduits.

B. Submit detailed test and inspection procedures for the factory test, pre-startup inspection, startup test, and system function test.

C. Submit detailed test and inspection reports for all tests and inspections.

D. Factory test can utilize manufacturers' standard factory tests.

E. Pre-startup inspections and startup tests shall follow all the inspection and tests listed in ANSI/NETA ATS (current edition) Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems, Section 7 Inspection, and Test Procedures.

F. System function tests shall follow all the inspection and tests listed in ANSI/NETA ATS (current edition) Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems, Section 8 System Function Tests, and Section 9 Thermographic Survey.

1. To demonstrate that all equipment operates as specified.
2. Thermographic survey shall be performed with the conductor, equipment, and/or system operating at a minimum of 50% of the rated load capacity of the conductor, equipment, and/or system being surveyed.

G. The testing and inspection organization performing the startup and system function tests shall be independent of the Design-Builder and shall be NETA-accredited.

H. Testing and inspection personnel for all tests shall be technicians certified in accordance with ANSI/NETA ETT, Standard for Certification of Electrical Testing Technicians.

I. Testing instruments used for all tests shall be calibrated and certified within 1 year of the date used for the specific test performed.

27.4. Spares

~~A. The Design-Builder shall provide spare parts and maintenance products (supplies) for all electrical equipment provided in accordance with manufacturer's recommendation. Spare parts provided shall be based on manufacturer's recommended spare parts list for each item. Spare parts list shall identify original manufacturer, item description, manufacturer part number and current list price.~~

~~B. At a minimum, the spare parts shall include:~~

A. Design-Builder shall provide the following spares:

1. One~~ (1)~~ spare operational breaker installed in each medium voltage lineup.
2. One~~ (1)~~ spare breaker installed in each low voltage switchgear section of each transformer.
3. One~~ (1)~~ spare medium voltage crated breaker of each type per lineup and paralleling gear.
4. ~~Ten percent (~~10~~%)~~% or a minimum of one of each type multifunction relay, PLC modules, power supplies, switches, and fuses.
5. ~~Any~~All manuals, software licenses, specialty cables, ~~etc.~~specialty test equipment, and other specialty equipment or tools required to program, maintain, or repair electrical power and distribution and SCADA equipment to include PLC equipment~~ or,~~ multifunction relays and switches.

~~C.~~B. Each MCC section shall have 25% spare space for future use.

~~D.~~C. Maintain spare products in original containers with labels intact and legible, until delivery to ~~Owner~~the Department.

~~27.5. Warranty~~

~~A. A standard manufacturer's warranty shall be furnished for each electrical system component which is furnished and installed or otherwise provided to the Department. The effective beginning date of the ESWP shall be the date of the Final Acceptance of entire electrical distribution system and the ESWP shall end no less than 2 years from this date, or the same as the manufacturer's standard warranty, whichever is longer. The warranty documentation shall be provided to the Department and a copy shall be included in the tunnel operations and maintenance manual.~~

D. The Design--Builder shall ~~be responsible~~provide a spare parts and maintenance products (supplies) listing for all ~~costs associated~~electrical power and distribution equipment in accordance with ~~vendor or~~manufacturer's recommendation.

E. Spare parts listing shall identify, at a minimum, original manufacturer ~~warranty service during the ESWP~~, item name, item description, manufacturer part number, unit price, unit of issue, quantity recommended, and procurement lead time.

~~27.6.~~27.5. Deliverables

At a minimum, the deliverables shall include the items listed in Table 27.~~6~~5-1 for Department consultation and written comment. All submittals shall be accompanied by an appropriate level of analysis and calculations to justify all engineering decisions made. The Department reserves the right to reject incomplete submittals.

Table 27.~~6~~5-1 Deliverables

Deliverable	Number of Copies		Delivery Schedule[1]	Reference Section
	Hard Copy	Electronic		
Concept of ~~Operations~~operations	5	1		27.3.2
New substation load demand calculations	5	1		27.3.3
New 15kV ~~Switchgear Shore Substation Plan~~switchgear shore substation plan	5	1		27.3.4
Emergency ~~Generator Plan~~generator plan	5	1		27.3.5
UPS ~~Plan~~plan	5	1		27.3.6
SAS ~~Plan~~plan(s)	5	1		27.3.7
Switchgear, ~~Motor Control Centers, Panel Board~~motor control centers, panel board, and ~~Transformer Plans~~transformer plans	5	1		27.3.8
Calculations for 13.2kV ~~Feeders~~feeders	5	1		27.3.15

K. The testing and inspection organization performing the local equipment tests shall be independent from the Design-Builder and the installer and shall be NETA-accredited.

L. Testing and inspection personnel for all tests shall be technicians certified in accordance with ANSI/NETA ETT, Standard for Certification of Electrical Testing Technicians.

M. Testing instruments used for all tests shall be calibrated and certified within 1 year of the date used for the specific test performed.

N. All software testing shall be performed by personnel trained and certified by the SCADA software vendor.

O. All testing documents shall be submitted electronically and in hard copy at least 30 days prior to the test. The test schedule shall be provided to the Department at least 30 days in advance of the test. If modifications to the test schedule are required, the Department shall be informed in writing and electronically immediately. The Department reserves the right to reject and/or modify a test procedure. The Department reserves the right to accept test results as satisfactory or to reject the test results as a failure.

29.4. Spares

A. The Design-Builder shall provide a spare parts and maintenance products (supplies) listing for all SCADA systems, equipment and components provided in accordance with manufacturer's recommendation. ~~Spare parts provided shall be based on manufacturer's recommended spare parts list for each item.~~

~~B.~~ Spare parts ~~list~~listing shall identify, at a minimum, original manufacturer, item name, item description, manufacturer part number ~~and current list~~, unit price~~.~~

~~C.~~B. ~~Spare parts and maintenance products shall equate to 10%~~, unit of issue, quantity ~~for each equipment type installed, but shall not be less than one (1) of each item~~ recommended ~~by equipment manufacturer~~, and procurement lead time.

~~D.~~C. Provide ~~any~~all manuals, software licenses, specialty cables, specialty test equipment, or other specialty equipment and tools, required to program, maintain or repair equipment including PLC equipment, multifunction relays, and switches.

~~E.~~D. Maintain spare products in original containers with labels intact and legible~~,~~ until delivery to the Department.

~~29.5. Warranty~~

~~A. A standard manufacturer's warranty shall be furnished for each SCADA system and component which is furnished and installed or otherwise provided to the Department. The effective beginning date of the SCADA system warranty period (SSWP) shall be the date of the Final Completion of the Project and the SSWP shall end no less than two (2) years from this date, or the same as the manufacturer's standard warranty, whichever is longer. The warranty documentation shall be provided to the Department and a copy shall be included in the tunnel operations and maintenance manual.~~

~~B. The Design-Builder shall be responsible for all costs associated with vendor or manufacturer warranty service during the SSWP.~~

1. Preliminary manuals at least 12 months prior to Final Completion. Preliminary manuals shall have a complete table of contents and appropriate level of detail for the Department to review and provide meaningful input to the Design-Builder.
2. Draft final manuals at least 6 months prior to Final Completion. Draft final manuals shall be developed to a 100% completion pending Department comment and issue resolutions and clarification.
3. Final manuals at least 60 days prior to Final Completion. This is the completed manual that Department staff can rely on for operations and maintenance. The Design-Builder shall provide at least 40 hours of training to the Department within 21 days after Final Completion, and another 40 hours of training for Department staff on each system within 90 days after the systems are brought on-line and under the operation of Department staff.

B. The Design-Builder shall prepare and submit, as an appendix to the operations and maintenance manual, an ERP that meets all requirements of an ERP as described in NFPA 502. The ERP shall consider all potential conditions related to an emergency and shall be fully coordinated with the emergency response procedures established for the existing facility. The ERP shall be developed in conjunction with the Department and other stakeholders to ensure coordination of response to incidents. The Design-Builder shall provide an outline and proposed plan for preparation of the ERP to the Department for review and comment within 18 months prior to Final Completion, including draft document submittals, coordination meetings, and agency reviews. The ERP shall be approved by involved agencies prior to opening the tunnel for service.

34.3.5. Training of Department Personnel

A. The Design-Builder will be responsible for training coordination and scheduling, and ultimately for ensuring that training is complete.

B. A training plan will be prepared by the commissioning agent that details the type of training required for each piece of equipment and system commissioned.

C. The commissioning agent will be responsible for overseeing and approving the content and adequacy of the training for commissioned equipment and systems.

D. The commissioning agent will coordinate with the Department to determine special needs and areas where training will be most valuable and decide how rigorous the training should be for each piece of equipment and system commissioned.

~~34.4. Spares and Warranties~~

~~34.4.1. Spares and Warranties~~

~~A. Unless specifically stated otherwise, spares and warranty coverage shall be provided in accordance with the following terms for all systems, equipment, and components provided by the Design Builder. Systems shall include but be limited to~~

~~1. Security.~~

~~2. ITS.~~

~~3. Mechanical.~~

~~4. Electrical power and distribution.~~

~~5. Fire alarm, detection and control.~~

~~6. SCADA / EPCS.~~

~~7. Communications.~~

~~8. Lighting.~~

~~9. Tunnel support and facility buildings.~~

~~34.4.2. Spares~~

~~A. The Design-Builder shall provide spare parts and maintenance products (supplies) for all systems, equipment and components provided in accordance with manufacturer's recommendation. Spare parts provided shall be based on manufacturer's recommended spare parts list for each item. Spare parts list shall identify original manufacturer, item description, manufacturer part number and current list price.~~

~~B. Spare parts and maintenance products shall equate to 10% of quantity for each equipment type installed, but shall not be less than one (1) of each item recommended by equipment manufacturer.~~

~~C. Provide any software licenses, specialty cables, specialty test equipment, or other equipment and tools required to program, maintain or repair equipment.~~

~~D. Maintain spare products in original containers with labels intact and legible, until delivery to the Department.~~

~~34.4.3. Warranties~~

~~A. A standard manufacturer's warranty shall be furnished for each system, equipment and component which is furnished and installed or otherwise provided to the Department. The effective beginning date of the warranty period shall be the date of the Final Completion of the Project and the warranty period shall end no less than two (2) years from this date, or the same das the manufacturer's standard warranty, whichever is longer. The warranty documentation shall be provided to the Department and a copy shall be included in the operations and maintenance manuals.~~

~~B. The Design-Builder shall be responsible for all costs associated with vendor or manufacturer warranty service during the warranty period.~~

~~34.5.~~34.4. Deliverables

A. At a minimum, the deliverables shall include the items listed in Table 34.4-1 for the Department's consultation and written comment.

Table 34.4-1 Deliverables

Deliverable	Number of Copies		Delivery Schedule	Reference Section
	Hard Copy	Electronic		
Field ~~Test Procedures~~test procedures	5	1	45 days before start of testing ~~Work~~work.	34.3.1.F
Commissioning ~~Plan~~plan	5	1	45 days before start of testing ~~Work~~work.	34.3.2

PART 3

Comprehensive Agreement Between Department and Design-Builder

This **COMPREHENSIVE AGREEMENT** for the I-64 Hampton Roads Bridge-Tunnel Expansion Project (the **"Agreement"**) is made as of [●], 2019 (the **"Agreement Date"**), by and between the **VIRGINIA DEPARTMENT OF TRANSPORTATION ("Department")**, an agency of the Commonwealth of Virginia and [●] (**"Design-Builder**), a [●], for services in connection with the Project.

Article 8

Termination for Convenience

8.1 Upon ten (10) days' written notice to Design-Builder, Department may, for its convenience and without cause, elect to terminate all or part of the Work if Department, in its sole discretion, determines that such a termination is in Department's best interests. Department shall notify Design-Builder of the decision to terminate by delivering to Design-Builder a written notice of termination specifying the extent of termination and its effective date (a **"Termination for Convenience Notice"**).

8.1.1 If (i) Department terminates all of the Work for convenience before issuing the NTP or (ii) this Agreement terminates pursuant to Section 5.1.3.3, Department shall pay Design-Builder for the Early Work performed by Design-Builder as of the date of the Notice of Termination, if any, plus Demobilization Costs; *provided* that in no event shall the total amount of compensation paid by Department to Design-Builder in respect of the Early Work **(including Demobilization Costs)** exceed two hundred fifty million dollars ($250,000,000). Department shall pay any amounts due to Design-Builder pursuant to this Section 8.1.1 within sixty (60) days of Department's receipt of reasonable documentary evidence from Design-Builder of the performance of the applicable elements of the Early Work sufficient for Department to reasonably determine that such performance has occurred and such payment is due. Except as expressly provided in the preceding sentence, Design-Builder specifically waives any and all rights to assert a claim against Department for any cost, profit, overhead contribution or any other monetary relief associated with the Contract Documents or Project, including but not limited to bid and proposal costs, or any services that might have constituted Work under the Contract Documents.

8.1.2 If Department terminates all or part of the Work for convenience after issuing the NTP, then Sections 8.2 through 8.8 below shall apply.

8.2 After receipt of a Notice of Termination, and except as directed by Department, Design-Builder shall immediately proceed as follows, regardless of any delay in determining or adjusting any amounts due under this Article 8:

(a) stop Work as specified in the Notice of Termination;

(b) enter into no further Subcontracts and place no further orders for materials, services or facilities, except as necessary to complete the continued portion of the Work not terminated by Department, if any, or for mitigation of damages;

(c) terminate all Subcontracts to the extent they relate to the Work terminated, unless instructed otherwise by Department because Department has determined that the continuation of any such Subcontract is necessary in order to mitigate damages;

(d) assign to Department or its designee in the manner, at the times, and to the extent directed by Department, all of the right, title, and interest of Design-Builder under the Subcontracts so terminated, in which case Department will have the right, in its sole

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EXHIBIT 17

DISPUTE RESOLUTION BOARD

1. GENERAL

1.1 Summary

(a) This Exhibit 17 (*Dispute Resolution Board*) sets forth the requirements for the establishment and operation of a Dispute Resolution Board ("**DRB**"). The DRB will assist the Parties Directly Involved by facilitating the timely resolution of disputes relating to the design and construction of the Tunnel Improvements under the Comprehensive Agreement.

(b) The Department and the Design-Builder shall diligently cooperate with each other and the DRB, and shall perform such acts as may be necessary to obtain the prompt resolution of any dispute relating to the Tunnel Improvements.

(c) This Exhibit 17 (*Dispute Resolution Board*) does not supersede or modify any other provision of the Agreement, nor does it reduce or change the respective rights and duties of the Department and the Design-Builder under the Agreement. Rather, the DRB process described herein is intended to supplement normal Project communications and procedures in the event that the Department and the Design-Builder cannot resolve a dispute relating to the Tunnel Improvements on their own.

1.2 Definitions

Capitalized terms and acronyms used in this Exhibit 17 (*Dispute Resolution Board*) shall have the meanings given in this Section 1.2 (*Definitions*). Capitalized terms and acronyms used in this Exhibit 17 (*Dispute Resolution Board*) but not otherwise defined in this Section 1.2 (*Definitions*) shall have the meanings given in the General Conditions of Contract.

"**Chair**" or "**Chairperson**" means the member of the DRB designated to serve as the chairperson of the DRB in accordance with the terms of this Exhibit 17 (*Dispute Resolution Board*).

"**DRB**" means the three-member Dispute Resolution Board, each member of which is a signatory to the DRB Agreement. The DRB will consist of three members jointly selected in accordance with Section 2.2 (*Establishment of DRB*) of this Exhibit 17 (*Dispute Resolution Board*).

"**DRBF**" means the Dispute Resolution Board Foundation.

"**DRB Agreement**" means the agreement, the form of which is set forth in Attachment 1 to this Exhibit 17 (*Dispute Resolution Board*), to which the individual DRB members, the Department, and the Design-Builder are parties, which establishes the DRB for the Tunnel Improvements consistent with the requirements of this Exhibit 17 (*Dispute Resolution Board*).

"**DRB Hearing**" means a formal hearing before the DRB, initiated by either the Department or the Design-Builder in accordance with this Exhibit 17 (*Dispute Resolution Board*), to review a dispute eligible for consideration, which shall result in the issuance of a DRB Report by the DRB.

"**DRB Report**" means a non-binding, written recommendation issued by the DRB following a DRB Hearing, as described in this Exhibit 17 (*Dispute Resolution Board*). A DRB Report shall ~~not~~ be admissible in subsequent litigation or other dispute resolution proceedings.

"**Financial Ties**" means any ownership interests, loans, receivables, or payables.

"**Parties Directly Involved**" means the Department and the Design-Builder.

"**Parties Indirectly Involved**" means construction managers, counsel, consultants, or subcontractors and suppliers of all tiers involved with the Project.

2. THE DRB

2.1 Requirements for DRB Membership

(a) The DRB members shall each individually represent that he/she is qualified and able to perform independently and impartially the duties set forth in the DRB Agreement. It is imperative that DRB members show no partiality to either the Department or the Design-Builder, or have any conflict of interest. The DRB members shall agree to abide by the Canon of Ethics recommended by the DRBF.

(b) Each DRB member shall have the following professional experience and qualifications:

(i) experience with the interpretation and implementation of public works contract documents;

(ii) experience in construction matters and the resolution of design and construction disputes relevant to the scope of the Tunnel Improvements; and

(iii) experience on major tunneling projects constructed using the bored tunnel construction method.