I-95 VIADUCT NORTHBOUND PROVIDENCE

PROVIDENCE, RHODE ISLAND

Bid# 7598876PH2

BEST VALUE DESIGN-BUILD
PROCUREMENT FOR BRIDGE GROUP
75T-5B (I): I-95 VIADUCT NORTHBOUND

REQUEST FOR PROPOSALS

PART 2

TECHNICAL PROVISIONS

November 21, 2019

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

I-95 VIADUCT NORTHBOUND

PROVIDENCE, RHODE ISLAND

BEST VALUE DESIGN-BUILD PROCUREMENT FOR GROUP 75T-5B (1)

REQUEST FOR PROPOSALS

PART 2- TECHNICAL PROVISIONS

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Section 1. Project Requirements and Provisions for Work

1.1. Project Management

1.1.1. Project Overview

The project (the "Project") includes replacement of the northbound Providence Viaduct and its associated ramps and structures with new structures to restore structural sufficiency and to alleviate chronic traffic congestion on Interstate 95 through downtown Providence. The reconstruction of the Providence Viaduct Northbound includes demolition and replacement of selected bridges, roadway reconstruction and other associated work. The bridges and retaining walls will be as required to support the proposed roadway layouts required for the final highway design.

The project BTC includes the partial or complete demolition of existing structures, as well as other work including but not limited to: bridge and retaining wall demolition, roadway reconstruction, retaining wall construction, drainage construction, landscaping construction, utility relocation, handling and disposal of contaminated materials, and installation of traffic signals.

The DB Entity shall determine the final location, layout, type and dimensions of all elements of the bridges required to accommodate the roadways required to provide a final design that meets all of the requirements of the RFP and all applicable design codes, guides and specifications. All bridges, retaining walls and other structures required to support the final design shall be included in this project as part of the Proposal and be included in the Price Proposal.

Some or all of the bridges may be built using Accelerated Bridge Construction techniques as required to meet the construction schedule and traffic maintenance requirements. Accelerated Bridge Construction methodologies that shall be considered for use on this project include but are not limited to the use of Prefabricated Beam Units (PBUs), prefabricated or precast concrete elements, lateral slide methods, self-propelled modular transporters and other applicable methods.

Historical plans for the existing bridges are provided in Appendix B. The BTC is provided in Appendix B.

Construction of the highway improvements and replacement of the bridges will proceed in stages. In each stage, all traffic on Interstate I-95, Route 6/10, ramps, and all other roadways shall be maintained as required in the BTC, unless specifically stated otherwise in this RFP.

Construction of certain work may be limited to a certain number of consecutive calendar days for each stage. During each specified period, the DB Entity shall complete the identified items of work as specified in the RFP. The completion of certain items of work may be associated with a milestone for which an incentive may be offered for early completion, or disincentives and/or liquidated damages may be assessed for late completion. Milestones, Incentives and Disincentives are outlined in Section 8 of Part 2 of the RFP. Liquidated Damages are outlined in Section 108.8 of Part 3 of the RFP.

1.1.2. General

The DB Entity shall plan, schedule and execute all aspects of the Work and shall be responsible for coordinating its activities with all parties directly affected by the Work. The DB Entity shall document and report all Work in accordance with the Contract requirements. Members of a DB Entity/Joint Venture cannot be hired as a subcontractor by the DB Entity to perform out-of-scope work. The DB Entity shall be responsible for distribution of all plan sets to the Department and other parties.

1.1.3. Project Management

The DB Entity shall at all times provide a Project Manager (who has been approved by the Department) who will have full responsibility for the prosecution of the Project and will act as the primary point of contact in all matters on behalf of the DB Entity. Their responsibilities shall include oversight and integration of design, procurement, and construction, as well as Quality Control for all activities. The DB Entity shall not change this manager without the prior written approval of same by the Department; whether or not to give such approval will lie in the Department's sole discretion, however the Department and DB Entity will coordinate and cooperate if Key Personnel changes are necessary. In the event that the DB Entity fails to obtain approval of a replacement before the existing Project Manager leaves, the DB Entity shall not be entitled to receive any progress payments hereunder until such time as the approved replacement has started work on the Project.

1.1.4. Department's Role

The Department's role in the Project will be similar in structure to its role in Design-Bid-Build projects. The Department intends to perform Project oversight, design acceptance/approval and construction acceptance and independent assurance actions for the purpose of ensuring that the DB Entity's work meets the requirements of the RFP and the Contract. Department oversight activities will include design reviews, design acceptance/approval at key design milestones (*i.e.*, Semi-Final Design Submittal, Final Design Submittal) and construction independent assurance and acceptance. The Department will also serve as a liaison with regulatory agencies in connection with the DB Entity's application for Environmental Approvals/Clearances and amendments thereof. None of the Department's oversight activities, however, shall relieve the DB Entity from its obligations as defined in the RFP and Contract.

1.1.5. Federal Highway Administration's (FHWA) Role

This project is Federally funded with Title 23 funds. The Contractor shall conform to all Federal Laws and Regulations including but not limited to those reference herein. FHWA will conduct oversight reviews to ensure compliance with FHWA rules and requirements.

1.2. Reference Documents and Standards

Reference Documents and Standards provide the basis for the design and construction of the Project.

1.2.1. BTC-Related Reference Documents

The BTC, including preliminary design drawings and Special Provisions, has been developed in order to define the Department's minimum baseline design requirements, which must be met or exceeded by the DB Entity's final design. In the event that the DB Entity, through design development, proposes changes to its Technical Proposal or the BTC requirements, it shall submit to the Department a request for change and include in it a written justification in their technical submission for the Department's review and concurrence before incorporating any changes into a Design Submission. Proposed changes to the accepted proposed design will be considered a construction change and will not be considered "design development" if such change would have required the DB Entity to have submitted an ATC in the proposal phase in order to make the modification. Any proposed changes to the BTC that are not demonstrated to be equal or better than the BTC or that are, in the sole opinion of the Department, found not to be in the best interest for the State, will be rejected. Any proposed changes to the BTC that are found to be in the best interest for the State will be approved.

All attached historical documents, design reports; preliminary design documents, and BTC documents shall be considered for reference only, except when specific requirements included

therein are referenced in the RFP. It shall be the DB Entity's responsibility to evaluate the information included in the reference documents when developing the final design. The DB Entity acknowledges by receipt of such documents that it explicitly understands that while these documents have been advanced to the level indicated by the Department, the DB Entity shall be required to provide a final, complete Project design that is stamped, sealed and certified by its own Professional Engineers of Record, Land Surveyor of Record, and Landscape Architect of Record, for review and approval by the Department and possible third parties. The Professional Engineers, Land Surveyor, and Landscape Architect must be registered in the State of Rhode Island and Providence Plantations.

Revisions or additions to information in the reference documents being provided may be necessary, based on comments received during ongoing reviews. The Department makes no representations as to the accuracy or completeness of information contained in any documents not obtained from the Department and will not be responsible in any way for the DB Entity's reliance on or use of the contents of such documents. See Appendix B for a complete listing of Project-specific reference documents.

1.2.2. AASHTO, Department, and Other Applicable Standards

AASHTO, Department, and other reference standards are applicable to the final design and construction documents to be developed by the DB Entity, including, but not limited to the Department's **LRFD Bridge Design Manual, Highway Design Manual, Traffic Design Manual, Standard Specifications for Road and Bridge Design, Design Policy Memos, To All Consultants Memos, Manual on Uniform Traffic Control Devices (MUTCD), and any applicable Specifications, Supplements and Special Provisions** and all other applicable documents. Some or all of these documents are available on the Department's website. (Please note: these manuals should not be considered to represent a comprehensive list of all required documents. Additional specifications and Department Standards may apply to the given matter.)

All work performed under this Contract (as it may be amended) shall be in conformance with AASHTO and Department standards, except to the extent that the Contract specifically allows exceptions stated within this RFP. In the case of a conflict between different individual standards, the more stringent requirements shall apply. Where dates are not specified, the most current version in effect as of the issuance of the Notice to Proceed shall apply.

All BTC plans have been prepared using AutoCAD. AutoCAD files have been advanced beyond the plotted BTC plans. The plotted (.pdf) BTC plans shall govern design criteria for final design. The Department does not claim that all of BTC Drawings conform entirely to RIDOT CAD standards. The DB Entity shall prepare Drawings in accordance with the Department's Standards. Any changes to the selected standards, including adjustments made as required for Building Information Modeling software (if used), shall be submitted and approved by the Department.

1.2.3. Preliminary Design Documents

A preliminary BTC design for the Project has been completed by the Department. The BTC has been developed to a pre-30% design for the Providence Viaduct NB Bridge and interchange ramp improvements. The BTC has been developed past a 30% design for the Smith Street Bridge and Park Street retaining wall replacement, which includes the preservation activities required for the project. Elements advanced past a 30% design level were initially part of a separate advance project that ultimately was not advertised, but instead combined into this project. Where conflicts exist between these two BTC packages, the Smith Street and Park Street design package shall

govern. Preservation activities required for Chalkstone RR Bridge are included as a separate package.

The DB Team shall only be able to rely on these Preliminary Design Documents for conceptual design purposes. Information shown on Preliminary Design Document plans, including but not limited to dimensions, clearances, elevations, structural member sizes, and details shall not be relied upon for bidding purposes or for Final Design.

1.2.4. Historical Documents

Historical documents are available for the bridge structures and adjacent roadways. This includes, but is not limited to, the original bridge plans, roadway plans, and bridge inspection reports.

Historical design iterations of this project are also included for reference; however, it shall be noted that these design iterations were not advanced.

1.3. Administration and Coordination

1.3.1. Introduction

Public involvement and communications are essential to the Project's development and construction. The Department has worked with stakeholders and elected officials on this Project to facilitate open communication and information sharing about the Project. To continue this outreach and to fulfill related commitments, the Department anticipates that extensive coordination and public outreach will be required during the final design and construction of the Project.

The DB Entity shall work closely with the Department to engage the public and communicate Project information. The Department will use available resources to communicate Project information including, but not limited to, broadcast and print media, variable message signs, Department-maintained dedicated Project website, social media, existing Department websites and other State of Rhode Island websites, fliers, fact sheets, newsletters, email, presentations, briefings, meetings, and signs. The DB Entity will have an important role in public involvement and communications and shall support the Department by preparing materials, presentations, and any other media required for communicating Project information to all interested persons, groups and government organizations. All materials, where appropriate, shall incorporate the Project's message points, which will be provided by the Department. All costs for the preparation of these materials and the DB Entity's participation shall be included in the Design-Build Lump Sum price. The materials shall include, at a minimum:

a. Information for bi-weekly construction updates, including fourteen (14) day look-ahead schedules, detailed updates for the upcoming two weeks: including anticipated problems and any changes in information to be provided to the public.

b. Photographs of Project activities for posting on the Project website immediately after completion of milestones (such as completion of substructure, superstructure erection, Stage I construction, etc.). The DB Entity shall provide photographs of Project activities to the Department for its use throughout the Project.

c. Presentation slides, presentation boards, and graphics for one Public Information Meeting unless an ATC is proposed that necessitates a second Public Information Meeting.

d. Daily traffic updates and alerts.

e. Detour maps of each detour route for use on the website and distribution to media, stakeholders' groups, etc.

1.3.2. Briefings and Meetings.

The DB Entity must:

a. Attend bi-weekly coordination meetings with the Department and other stakeholders as determined by the Department and must record and submit meeting minutes to the Department for approval.

b. Prepare and provide briefings and meetings for interested neighborhood groups, business and professional groups, and other organizations.

c. Prepare for and attend meetings with stakeholders, construction meetings, Semi-Final design public informational meetings, and meetings before milestones and major traffic changes; and prepare and provide graphics, other visual aids, and handouts for public meetings and hearings.

1.3.3. Public Information.

The DB Entity must:

a. Provide information and content for the Department's Project website to be maintained by the Department, including announcements for public meetings, agendas, presentations, and minutes, plans, detour routes, etc. that may be posted by the Department on the Project website.

b. Provide photographs and video footage of Project activities to the Department throughout the Project for posting on the Project website, especially right after completion of milestones.

c. Information for bi-weekly construction updates, including ninety (90) day look-ahead schedules, detailed updates for the upcoming two weeks; including anticipated problems and any changes in information to be provided to the public.

d. Develop a public communications plan for submittal and acceptance by the Department. This plan shall include but not be limited to updating the public on the status of the Project; coordinating briefings (for elected and municipal officials, for example); and providing strategic planning, coordination, and staffing for public meetings.

e. Develop a Project Public Involvement Plan to keep stakeholders informed during all stages of design and construction.

f. Provide input and content as requested by the Department for public outreach.

1.3.4. Public Information Materials.

The DB Entity must:

a. Produce multilingual (English and Spanish minimum) newsletters and fact sheets at key points in the Project; and shall design a template for a general Project fact sheet, providing a draft copy to the Department for its approval. The goal of these materials will be to provide the basic information about the Project to the public and a record of the Project for the future.

b. Prepare presentation boards, slide shows, and displays.

c. Prepare "camera-ready" detour maps of each detour route for distribution to media, stakeholder groups, etc. and for use on the Project website.

1.3.5. Police, Fire, and Emergency

The DB Entity shall coordinate with the Department the preparation of updates on Project work and information, to be forwarded to the Department for formal coordination with State Police, local Police, Fire, and Emergency Responders from the City of Providence and surrounding cities and towns. The DB Entity, along with the Department, shall be required to hold meetings with the emergency response personnel listed above, in order to review with them upcoming construction work and Maintenance and Protection of Traffic (MPT) plans. These meetings must occur at least thirty (30) days prior to any major construction sequence. At any of the Emergency Personnel's request, these meetings may occur more frequently. The DB Entity shall also coordinate with Emergency Responders for adjacent projects.

1.3.6. Coordination with Other Projects

In addition to the requirements of Section 105.07 of the General Provisions (Part 3), during the construction phase of the Project the DB Entity shall be required to coordinate

its efforts with local and government agencies including the municipalities of Providence, North Providence, East Providence, Johnston, Cranston, Warwick and Pawtucket, community groups, adjacent land owners, utility companies and other planned Department projects that may be under design or construction during the construction phase of the Project. The coordination shall include, but is not limited to, providing sufficient notice of roadway closures and/or other significant operations prior to their occurrence. The DB Entity shall review design plans and shall coordinate and monitor the work of any entity performing or proposing work adjacent to the Project. The DB Entity must anticipate allocating responsible personnel to this aspect of the Project.

The Rhode Island State Transportation Improvement Program (TIP) is depicted graphically at the following site:

(http://ridoa.maps.arcgis.com/home/index.html)

This website contains information on adjacent projects. It is the responsibility of the Proposer to seek out and identify with any other entity's work on other public or private projects in the area on and adjacent to the Site.

The DB Entity shall be responsible to coordinate its work on the Project with any other entity's work on other projects in the area on and adjacent to the Site. At times it may be necessary for the DB Entity to allow adjacent Department project's contractors coordinated access to and through the Project area. This will not be deemed justification for a Project time or cost claim or delay unless access to the project is denied for more than 2 consecutive calendar days or a total of 10 days in a calendar year.

The DB Entity shall coordinate with the Tolling DB Contractor for the proposed toll gantries including the location of any service connections and drilled shaft foundations to be located in the median and outside of the shoulders. The southbound toll gantry will be installed before the end of 2020. The Park Street wall and any other work on I-95 necessary to install the northbound toll gantry must be completed before June 30, 2021. The DB Entity shall give the Tolling DB Contractor 30 days advance notice of any lane shifts and anticipated durations of lane shifts and shall coordinate time for Tolling DB Contractor to access the work zone to shift and test equipment.

Any alterations or deviations from the traffic management plan due to conflicts with an adjacent project's MPT plan shall be coordinated by the DB Entity with the Department.

1.3.7. Coordination of Traffic Officers

The DB Entity shall coordinate the satisfaction of all Project MPT requirements through the Department's field representative. The Department handles traffic persons in various ways.

State and Local Police Officers shall be managed in accordance with the Standard Specifications, Article 9.70 as revised by this RFP, with respect to orders and payments issued to them.

After the DB Entity submits and the Department approves the number of State or Local Police to be used, in accordance with the Standard Specifications, the Department will engage the appropriate State or Local Police Officers. The Department will cover the costs for the approved services of State or Local Police Officers by making a direct payment for them to the Department of Emergency Services and Public Protection. Payment for State or Local Police Officers used by the DB Entity for its convenience, not approved by the Department, is the responsibility of the DB Entity. No separate payment item for State or Local Police Officers is included in the Contract.

Any costs associated with coordination of State or Local Police Officers shall be included under the DB Lump Sum Price.

Other Traffic persons including but not limited to, Uniformed Flaggers, shall be included under the DB Lump Sum Price and no separate payment item for Traffic persons or their overtime is included in the Contract.

1.4. Risk Management

The following are potential significant risks that have been identified by the Department. Proposers shall address in their Proposals how they will mitigate these risks. Proposers shall also identify any other significant Project risks and propose mitigation of any such risks.

1.4.1. Utilities

There are many existing utilities that pass through the Site, including water, sewer, electric, gas, cable, fiber optics, ITS, and others. The BTC, survey mapping and historical construction drawings show those utilities that have been identified within the Project limits. The suggested sequence of construction is designed to minimize the potential for detrimental effects on these utilities within the constraints of the Project. The selected Proposer shall be charged with preventing such Project effects. Placement of equipment and materials over existing underground utilities could present a risk of damage to utilities.

As with any large project to be constructed, there is a potential that active utility lines may be encountered that have not yet been identified by or to the Department. To mitigate this risk, the Department has performed a preliminary utility investigation. Record drawings have been obtained and examined. Meetings have been held with utility companies on the subject of utility location and ownership. The information obtained from this investigation is provided on the BTC Plans, but it was supplied by third parties and should be considered only approximate. The DB Entity is strongly encouraged to perform its own research and due diligence in an effort to identify all active utilities prior to commencement of construction activities.

1.4.2. Right of Way

Existing right-of-way boundaries and easements have been identified by the Department in the BTC. Access to land outside the limits is not guaranteed. Temporary construction easements and/or permanent easements may be required. The DB Entity is responsible for the acquisition of any additional property rights for its convenience (*i.e.,* staging, storage, etc.) at no additional cost to the State. See the Right-of-Way section later in this part for further detail.

1.4.3. Geotechnical

The following items represent potential risks with regard to geotechnical aspects of the Project:

a. Settlement of any proposed new structures
b. Global stability failure associated with staged removal of structures and embankments
c. Global stability and settlement of proposed embankments and retaining walls located in areas underlain by uncontrolled fill and organic soils
d. Discovery of unanticipated utilities in excavations for foundations
e. Damage to existing buried utilities due to weight of new fill
f. Movement of existing abutments upon removal of existing beams
g. Encountering unknown subsurface conditions or obstructions
h. Damage to existing structures and utilities due to settlement or construction vibrations
i. The DB Entity shall assume zero-inch settlement criteria for all utilities within the constraints of the Project area. As such, any mitigation proposed for the geotechnical aspect, as listed above, should be clearly identified to ownership of the cost and/or time associated.

1.4.4. Construction/Traffic Sequencing and Staging

Conceptual Sequence of Construction Staging plans have been developed in the BTC. If an ATC changes these BTC Stages, the DB Entity shall be responsible for obtaining required approvals from any affected third parties and RIDOT. A BTC Draft TMP is included in the Appendix including attachments that specify the minimum number of lanes and shoulders to remain open to traffic at all times. A traffic management plan (TMP) shall be submitted by the DB Entity for approval by the Department and shall be implemented prior to any lane closures or outages. At no time shall the number of lanes/shoulders be reduced to less than specified in the BTC Draft TMP unless the DB Entity can provide justification (through analysis, modeling and traffic volumes) that the impacts to traffic will not be significantly worse than the traffic conditions shown in the Conceptual Sequence of Construction Phasing and Draft TMP with attachments. The DB Entity shall allow the Department at least thirty (30) days for review and possible approval of the TMP; RIDOT requires a fourteen (14) day review period on any resubmittal. RIDOT shall be the sole entity that determines whether the proposed traffic phasing sequence constitutes a significantly worse traffic condition.

The construction/traffic sequencing and staging of the Project offers both risks and opportunities. The DB Entity shall prepare construction/traffic sequencing and staging plans that will not negatively affect the City of Providence and regional traffic patterns. Negative effects on access within the Project limits (vehicular user, pedestrians or bicyclist) shall also be addressed in any ATC.

1.4.5. Reconstruction of Smith Street Bridge and Park Street Retaining Walls

There is a risk associated with the reconstruction of the Smith Street Bridge and Park Street Retaining Walls, which are planned to be undertaken in stages to allow the relocation of buried and structure-supported utilities. The DB Entity is required to keep one lane open in each direction at all times on Smith Street bridge during construction of the bridge, maintain loading VMA dock access at all times and maintain pedestrian access along the east side of Park Street at all times. The DB Entity shall be responsible, at a minimum, for verifying the location of all utilities prior to construction and for determining a suitable construction sequence to complete all work by May 26, 2023.

1.4.6. Hazardous Materials

RIDOT has completed various Limited Site Investigations in the Providence Viaduct project area (both Northbound and Southbound). Contaminated soils have been identified at various locations of the Viaduct project area and the RIDEM Office of Waste Management (OWM) approved a Remedial Action Work and a Construction-Phase Soil Management Plan (C-P SMP) on October 4, 2011 under RIDEM Case No. 2009-039 which is currently File No. SR-28-1330. The RAWP and C-P SMP were implemented during completion of the Viaduct Southbound Bridge #578 Relocation Project and a Remedial Action Closure Report (RACR) was submitted to RIDEM on June 14, 2018 and approved via an Interim Letter of Compliance (ILOC) from RIDEM to RIDOT on June 20, 2018. The DB Entity shall be required to comply with the RIDEM-approved RAWP and C-P SMP during implementation of the Northbound portion of the Viaduct project. In September 2019, RIDEM's OWM indicated that changes made to the Viaduct Northbound Project since the Remedial Approval Letter was issued do not require amendments to the RAWP or the C-P SMP, no new public notifications are necessary, and no additional sampling is required. However, please note that any further modifications to the project must be communicated to RIDEM's OWM for review and approval prior to implementation. For the purpose of preparing the proposal, the DB Entity is responsible for reviewing the RAWP and C-P SMP for all applicable requirements (e.g., dust control, erosion controls, health & safety, stockpile management, preparing and submitting Operating Logs, etc.) and for incorporating all associated scope and costs in said proposal. It should be assumed that a portion of the soils within the Site are contaminated and will be transported off site for disposal, and that a portion of the soils will be suitable for reuse on this, or other, transportation project. To the extent practicable and prudent, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. Please note that an approximate 1,000-cubic yard stockpile of soil generated during the Viaduct Southbound project was staged in the Viaduct project area for re-use or disposal by the DB Team during the Northbound project construction. The RIDEM approval also requires that a RACR be prepared and submitted for the Northbound project and Environmental Land Usage Restriction (ELUR) with a Post-Construction Soil Management Plan be recorded for the entire project at the completion of the Northbound work.

1.4.7. Community Impacts

Construction activities and traffic management will have a substantial impact on the neighboring communities, including, but not limited to, Providence Place Mall, Veterans Memorial Auditorium (VMA), hospital, residential, commercial, and tourist attractions. Special attention should be given to noise and dust control in compliance with the Environmental Assessment. The DB Entity should anticipate that necessary coordination and cooperation with adjacent property owners may affect the construction schedule. Any mitigation of effects on adjacent property or its use by its owners will not be grounds for additional Contract time or compensation.

1.4.8. Electronic Document Management

This RFP contains a number of specifications related to electronic document management, including, but not limited to, the provisions in the text of the RFP Parts 2 and 3, Special Provision for "Document Control Specialist," Special Provision for "Progress and Payment Schedule," and the Quality Control provisions. The DB Entity is required to take into account all requirements of the RFP when developing the Electronic Document Management Methodology (EDMM) for exchanging, submitting, controlling, filing, and archiving all Project documents in the Electronic Document Management system. The Electronic Document Management system is to be developed by the DB Entity in accordance with the RFP and the Special Provision for the Item "Document

Control Specialist." The requirements for the implementation and management of the EDM system are included in the mandatory Special Provision for "Document Control Specialist" included in Appendix B.01 of Part 2 of the RFP. The DB Entity should also be aware that, as outlined in the Specifications, the DB Entity shall be responsible for hosting of the EDC software.

1.4.9. Change Management

The DB Entity shall develop and maintain contingency plans for potential problems that may arise during construction that will have an effect on overall Project progress. The plans shall include, but not be limited, to the following:

a. Severe weather forecast that may negatively affect operations
b. Equipment breakdowns or malfunctions
c. Incidents on the Site, both in waterways and roadways
d. Incidents involving delivery or removal of material
e. Temporary traffic control equipment breakdowns or staff non-responsiveness
f. Emergency repairs of existing structures
g. The need for responses to natural disasters
h. Necessary replacement of Key Personnel due to injury or illness
i. Incident management staging, equipment and response to incidents on the Site, including MPT crossovers areas
j. Unforeseen site conditions
k. Unmarked or incorrectly marked utilities
l. Environmental compliance problems

The DB Entity shall develop and maintain a Risk Register to track potential issues and discuss with the Department any suggested course of action that might be taken should any of these potential issues arise, in an effort to minimize Project construction and schedule delays.

1.4.10. Schedule Management

The DB Entity's approach to construction of the Work shall be disclosed to the Department by submission of a computerized, construction schedule satisfying the requirements of Section 8 of Part 2 of the RFP. These requirements are in addition to, and not in limitation of, requirements imposed in other Sections hereof.

1.4.11. Project Safety

The DB Entity shall take all reasonable precautions and be solely responsible for the safety of all its employees and Subcontractors working on the Project, and for other persons on the Site or that would reasonably be expected to be affected by the Project work; the protection of Project construction, materials and equipment shall be dealt with therein; as well as the protection of all other property on, adjacent to, or near the right-of-way that one might reasonably expect to be affected by Project work.

From the issuance by the Department of a Notice to Proceed until Project Acceptance, the DB Entity shall provide adequate protection and security for the Site and shall be responsible for all damages and losses to any properties at the Site that might be caused by Project operations.

The DB Entity shall provide appropriate security for the approved staging areas and shall be responsible for damage or loss caused by the Project or the DB Entity's other actions to any property on the Site that is owned by the DB Entity, the Department, or any other person.

The DB Entity shall be solely responsible for the safety and security of the work zone, including the installation and maintenance of perimeter controls such as fences and gates in areas that do not affect the traveled way or its use. The DB Entity shall investigate abutting property and shall reasonably coordinate to not interfere with access into or through private property via existing entrances and pathways, and shall maintain alternative temporary accessible pedestrian detour routes, where applicable, at all times.

1.5. Quality Management

1.5.1. General

To ensure that goals for Project quality will be met, the Department has established overall Quality Assurance (QA) requirements outlined in Part 3 of the RFP and the Mandatory Special Provisions, "Quality Management Plan and Quality Control Plans." These Provisions include comprehensive requirements for a Design QA Program to address quality in the design process and a Construction QA Program to ensure the quality of construction.

1.5.2. Approach to Quality Matters

The Department expects that the DB Entity shall take a lead role in ensuring the quality of design and construction of the project. This lead role should be a core principle of the DB Entity's daily operations and overall approach to the Project.

1.5.3. Quality Management

The DB Entity shall develop, implement, and maintain a comprehensive Quality Management Plan (QMP). The QMP shall be organized following the format outlined in the Mandatory Special Provision for “Quality Management Plan” included in Appendix B.01 of Part 2 of the RFP. The QMP shall address the information required in said Provision and any additional Quality Control requirements in this RFP or the Contract.

The Department will not accept any Early-Release-for-Construction packages or Shop Drawing submittals until the QMP has been accepted by the Department. The DB Entity shall not revise any portion of the accepted QMP without the prior written consent of the Department thereto.

Additional requirements related to the QMP are also included in Part 3 of this RFP.

1.5.4. Quality Control

The DB Entity shall develop, implement and maintain Quality Control Plans (QCP) to supplement the QMP for the design and construction of the project as outlined in the Mandatory Special Provision “Quality Control Plans” included in Appendix B.01 of Part 2 of the RFP as well as in Part 3 of this RFP.

Section 2. Information Supplied to DB Entity/ Acknowledgement by the DB Entity

2.1. General

The DB Entity shall have full responsibility for completing the final design of all Project elements and acknowledges that it shall be the Engineer of Record for the final design, with the exception of the items listed in **Section 2.2**. The DB Entity acknowledges by receipt of such plans that it explicitly understands that while these plans have been advanced to a certain/preliminary level, the DB Entity shall be required to provide a final, complete Project design stamped, sealed and certified by its own Professional Engineers of Record, Licensed and Registered in the State of Rhode Island and Providence Plantations.

The preliminary plans, specifications, calculations, reports and comments provided as part of the BTC constitute that BTC and provide both the Department's design baseline and minimum requirements. The DB Entity shall diligently review and verify the Department-supplied Design (BTC) for errors, omissions, inconsistencies or other defects. The BTC (as modified by approved and implemented ATCs) within this RFP shall be incorporated into the final design by the DB Entity. The DB Entity shall promptly notify the Department of any errors, omissions, inconsistencies, or other defects it discovers therein.

By submitting a Proposal, the DB Entity acknowledges that the Department-supplied Design documentation presents a feasible concept for the Project which can and shall be used as the basis for the completion of the Project. The DB Entity also acknowledges that the Project can be completed within the schedule, timeframes and milestone durations specified elsewhere in this RFP, and agrees that it shall have no right to seek additional Contract time or compensation in relations to such matters, except as specifically permitted by negotiated Project changes.

2.2. Department-Supplied Design Elements and Documentation

There are no Department supplied elements that are to be considered final and not subject to revision by the DB Entity.

Section 3. Project Design and Construction

3.1. General Description and Existing Conditions

Section 1, Part 1 contains a general description of the Project, including the existing conditions at the Site. Additional information on the existing conditions is also included in the appendices of this document. The BTC plans also contain information regarding the existing conditions.

3.2. Work at Risk

If the DB Entity decides to pursue ordering of materials before or during the review process, it will be at its own risk, and no costs will be paid for rework of items due to changes made during the review process. No physical construction work shall commence until the Department issues a Notice to Proceed" or "Release for Construction" to the DB Entity for the related work. No payment will be made for "work at risk" until approval of final design or approval of early release construction work as applicable and the work has been deemed acceptable by the Department.

3.3. Codes, Standards and Specifications

All design and construction documents developed by the DB Entity shall be governed by requirements of the Contract and other applicable codes. (Please note: the lists included in Section [1.2] are not intended to represent a comprehensive list of all required documents; additional standards may apply). This project must be designed in English units.

The DB Entity shall be responsible for ensuring that the final design of pedestrian facilities along the Project limits is compliant with the latest applicable standards under the Americans with Disabilities Act (ADA). This does not apply to existing facilities unaltered during construction; however, the level of non-conformity of the existing facility shall not be made worse. Any ADA-compliant provisions in the BTC shall be incorporated into the final design and construction. In addition, unless otherwise approved by the Department all sidewalks shall be a minimum of four feet (4') wide not including the curb width.

The DB Entity shall perform supplemental testing, data collection, survey, borings, etc. as necessary in order to complete the design. It is the responsibility of the DB Entity to use the latest approved version of the supporting design guidance standards, regulations, etc. in doing so. Unless a specific edition or revision is indicated, reference shall imply that the latest edition or revision of the standard shall apply, including any interim revisions or updates issued prior to the award of the Contract.

For utility-related work, the DB Entity shall be responsible for obtaining and ensuring adherence of design and construction to the criteria for each utility.

Unless specified elsewhere, the construction specifications shall conform to the Department standards, and with the standards, policies, and specifications identified in Sections II and III of the Rhode Island Department of Transportation Standard Specifications for Road and Bridge Design (Blue Book), and further amended by the provisions included in Appendices to Parts 2 and 3 of this RFP. Division I of the Blue Book has been replaced in its entirety for this Project by Part 3 of this RFP and by associated Special Provisions.

In general, references to the "Engineer" within Division II and III of the Standard Specifications, Blue Book, and the Special Provision or other reference documents, shall mean:

a. The "Department" for matters concerning Contractual acceptance and payment.
b. The "Engineer of Record" with concurrence of the Department, for matters concerning review of shop drawings, working drawings, and temporary works.
c. The "Engineer of Record" with concurrence of the Department, for language such as "as directed by the Engineer."

The DB Entity shall identify and immediately bring to the attention of the Department uses of the term "the Engineer" that do not clearly fall within these meanings. The Department will make the final determination of the term's meaning in such instances.

3.3.1. General Exceptions:

Except for those items shown in the Price Proposal as separate bid items, and except for Appendix B.01 of Part 2 of the RFP, the following interpretive guidelines shall be applied by the DB Entity while bidding and developing the final Project specifications and plans:

a. Such terms as "Measurement for Payment," "Method of Measurement," or "Payment" shall be disregarded insofar as it is not the intent of the Design-Build Contract that the various components of the Project will be measured for payment.

b. Such terms as "Basis of Payment," or "unit prices" shall be disregarded, except when unit prices are identified herein as applicable to disincentives or incentives based upon the quality of work, in which case the reference shall be taken to refer either to the specific dollar amount set forth in the Standard Specifications or to a unit price proposed by the DB Entity and approved by the Department.

c. Such terms as "Extra Work," "compensation for," "at the Department's expense," "quantity adjustments," "equivalent quantities," or similar phrases shall be disregarded.

d. The term "Special Provision" shall refer to a provision of the Contract.

e. The term "incidental" or any similar term shall mean that the costs shall be included in the DB Entity's Price Proposal.

f. The payment of the DB Lump Sum Price will be full compensation for all Project work except other items identified by the Department in the bid proposal form.

3.3.2. Mandatory Special Provisions:

3.3.2.1 Design-Build Special Provisions (not to be altered)

Design-Build Special Provisions shall be used for the completion of the Project design. These mandatory Special Provisions contained in Appendix B.01 of Part 2 of the RFP add to and amend the RFP Part 3 and the Blue Book. The DB Entity shall not change these Design-Build Special Provisions in any way unless the Department determines that it is necessary to do so.

If the DB Entity believes there is a situation in which it is necessary to alter a mandatory Design-Build Special Provision or a mandatory General Special provision, it shall submit to the Department in writing what it believes would be the justification for doing so.

The DB Entity shall not change the Description, Materials or Construction Methods of these Provisions, except for updating the term Engineer, consistent with the guidance herein, without the prior consent of the Department to it doing so. Any related method of measurement or basis of payment will require revision as part of the final design process. The work related to these Provisions will be paid for as part of the lump sum Design-Build price.

3.3.3. Guidance Special Provisions:

The Guidance Special Provisions are contained in Appendix B.02 of Part 2 of the RFP. Guidance Special Provisions are similar to Mandatory Special Provisions in that they are required to be submitted for the Project if they are applicable to work included in the final design. These

specifications differ from Mandatory Special Provisions in that they may be modified by the DB Entity to meet the specific requirements of the Project. The work related to these provisions will be paid for as part of the lump sum Design-Build Price.

3.3.4. Other Special Provisions:

Other Special Provisions are Special Provisions not contained in Appendices B.01 or B.02 of Part 2 of the RFP that may be required to complete the design of the Project or may be necessary for the development of ATCs.

The DB Entity shall identify, during the preparation of its Technical Proposal, the need for any other Special Provisions for the anticipated items of work.

The DB Entity shall be responsible for seeking out from the Department any Special Provisions necessary for the anticipated work, making any revisions necessary as allowed above, and submitting these to the Department for review. The DB Entity shall contact the Department with a list of Special Provisions necessary for the completion of the design, prior to creation of such Special Provisions, since the Department may already have a specification that covers the pertinent work which may be provided by the Department for implementation into the design. If the Department identifies or provides a specification for the purpose, the DB Entity shall use it for the Final Design. If the Department does not have a specification that covers the pertinent work, the DB Entity shall develop a specification for inclusion in the design and submit this to the Department for review.

In any event, lack of familiarity by the Proposer with the Departments processes for specifications and Special Provisions shall not be a reason for a change order.

The work related to these provisions will be paid for as part of the lump sum Design-Build Price.

3.4. Design Reviews and Submittals

It is the DB Entity's responsibility to develop, internally review, and check all design submittals for quality, completeness, constructability, and compliance with the requirements of the RFP prior to their submission to the Department for review and possible concurrence. Failure by the DB Entity to perform such quality checks may result in additional comments, required revisions or resubmissions, and in additional time required for their review by the Department. Extended review time necessitated by incomplete or noncompliant submissions will not be a reason for a time extension. The DB Entity shall retain copies of such internal reviews and disposition of review findings for all submittals made to the Department. The DB Entity shall provide copies of this evidence upon request of the Department.

3.4.1. Department Reviews

Reviews will consist of examination of formal design submittals per Section 3.4.4 to ensure that RFP, Contract requirements, Permit requirements, design criteria are being followed, and that Quality Control activities are following the DB Entity's approved QMP. Reviews, at the Department's discretion, may include, but are not limited to, review of Design Documents, electronic files, calculations, reports, specifications, geotechnical data, and other relevant design information. It is the Department's intent to provide acceptance of submittals that meet all Contract and RFP requirements as confirmed by the Designer(s) of Record, Project Manager, Quality Control Manager Design, and Quality Control Manager Construction, as necessary conditions for construction to begin on any particular element.

3.4.2. Over-the-Shoulder Reviews

Over-the-shoulder reviews are examinations by the Department (or its designated representative) of design documents during the design process. Formal assembly and submittal of drawings or other documents will not be required. Written comments will not be provided and no acceptance of any information presented at meeting will be provided. All information must be formally submitted for review and acceptance. The Department will schedule at least one over-the-shoulder review prior to the Semi-Final Design Submittal. The DB Entity shall submit all documents to be reviewed at the meeting a minimum of 48 hours in advance of the meeting.

3.4.3. Comment Resolution Meeting

Comment Resolution Meetings are intended to provide an opportunity for the DB Entity to ask for clarification on review comments previously provided by the Department on design submittals. They also provide an opportunity for the DB Entity to present draft resolutions to review comments for review by the Department. No acceptance of any information presented by the DB Entity in the meetings will be provided by the Department. The DB Entity shall schedule a Comment Resolution Meeting prior to resubmission of any submittals for which the Department previously provided review comments. The DB Entity shall prepare meeting minutes for all Comment Resolution Meetings.

3.4.4. Design Submittal Review Process

RIDOT will be utilizing the software Bluebeam Revu Extreme® for all design submittals, utilizing RIDOT E-Plans User Guide for Electronic Plan Review, in Appendix B. The D-B Entity shall provide PDF reducing the number of hard copies required (see submittal sections below). The Department will have a meeting prior to submittals outlining this E-Plan review process.

All submittals are subject to review and approval by the Department. The Department maintains the right to refuse and reject any submittal that does not comply with the requirements related to the preparation and submittal of Contract Documents and the satisfaction of Project requirements. If the Department considers a submittal incomplete, the Department may reject it due to incompleteness and the DB Entity will be required to re-submit it with the appropriate information described below.

All design submittals shall be developed in accordance with the Department's Plan Content Requirements Design Policy Memos (DPM) and shall be in English units. All submittals shall conform to the QMP submitted by the DB Entity. All submittals shall be provided in electronic format according to the current Department Policies, the Document Control Methods and the Special Provision for Document Control Specialist.

In order to afford the Department, the ability to schedule staff to provide complete and thorough reviews of submittals, and as part of the satisfaction of the Planning and Progress Schedule requirement, the DB Entity shall develop and abide by a reasonable submittal schedule such that there are not an unreasonable number of submissions or multiple voluminous submittals within a given time period. Multiple voluminous submittals without prior notice may be cause for the Department to extend the review time for a period not to exceed 30 additional days. Extension of any review time by the Department will not be grounds for a request for additional time or compensation by the DB Entity.

The DB Entity shall include with all submittals a general narrative identifying which submittal(s) on the submittal schedule the submittal represents, an explanation of the contents of the submittal, any previous submittals this submittal is related to, a listing of items not included in the submittal

which are to be submitted at a later date, and any other pertinent information for the reviewers benefit.

The Department will review design submittals according to the following schedule:

a. Completeness Check: The Department will perform a completeness check of each submission to determine if the DB Entity's submission is complete and meets the criteria for review by the Department. Incomplete submission will be returned, and the review period shall not commence until a complete submission is received by the Department.

b. Initial Submission: thirty (30) calendar days from receipt of a complete submission
c. Resubmittals: fourteen (14) calendar days from receipt of a complete resubmission.

The DB Entity shall:

a. Respond to comments within fourteen (14) calendar days of any Department comment on the submittal.

The comments shall be addressed to the satisfaction of the Department prior to the next design submission. A record of disposition of comments shall be provided at the time of resubmission stating disposition, description of any revisions made to the submittal to incorporate disposition including location of such revisions (page number, sheet number, etc.) and evidence of review of disposition by the appropriate quality manager.

The DB Entity may request a comment resolution meeting within 7 days of receipt of Department comments on a submittal to review comments for understanding. No acceptance of responses to any comments or acceptance of any changes to the design will be provided by the Department at a comment resolution meeting.

The DB Entity should be aware that the review time stated above is based on an expectation that the submissions will be scheduled in a reasonable sequence coordinated according to a submission schedule.

If submittals are received after 12 p.m. (noon), the review duration will start on the next calendar day.

The DB Entity acknowledges that the Department has not guaranteed any specific review period for reviews by federal, state (non-DOT) or local agencies, or utility owners. The period of each such review shall be established by the reviewing entity, at its discretion, after a plan submittal has been made to such entity. The initial, provisional assumption for the length of time for external reviews shall be sixty (60) calendar days unless specified otherwise in the RFP.

3.4.4.1. Design Exceptions

The Project BTC currently does not currently include any approved design exceptions for proposed roadway or bridge deficiencies. Potential design exceptions required for the Project BTC have been identified. The tables listed in Section 3.9.2 Roadway Design Criteria list the required standards, proposed values as designed, and if the proposed values require design exceptions. It will be the responsibility of the DB Entity to identify all design exceptions and obtain approval of all design exceptions. As such, it is encouraged to limit the potential design exceptions if possible.

Any design change that results in the need for additional design exceptions, will be considered an ATC. Design exceptions needed and the justification for it shall be clearly identified during the ATC submittal and review process (during Step 2 of the BVDB Process).

The DB Entity shall document and submit any design exceptions as required by the Department. Design exceptions must be approved by the Department prior to the Semi-Final Submittal. The DB Entity shall make every effort to improve the conditions which required the exceptions obtained. The proposed design shall not include characteristics that are worse than the design exceptions listed Section 3.9.2 Roadway Design Criteria.

3.4.4.2. 10% Design Submission

The 10% Design Submission as outlined in the Department's Plans Content Requirements DPM will not be required on this Project. The Department will consider the Proposal submitted by the DB Entity to be equivalent to a 10% Design Submission. If time permits, the Department may at its option provide review comments on the Proposal similar to a 10% Design Submission at the issuance of a Notice to Proceed. Should the Department elect not to provide comments on the Proposal at the time a Notice to Proceed is issued, the DB Entity shall proceed directly to the 30% Design Submission stage.

3.4.4.3. 30% Design Submission

The 30% Design Submission shall be submitted as outlined in the Department's Plans Content Requirements DPM. The submittal will not need to include the following if the design is in accordance with the BTC:

a. Visual Analysis
b. Design Study Report
c. Bridge Type Study Report
d. Hydraulic Report
e. Preliminary Construction Cost Estimate

The 30% Design Submission shall also include any Early Release for Construction (ERC) packages prepared to-date that involve permanent work and shall include TMP with restriction charts for construction phases being submitted for approval. The review of the 30% design submittal will be done utilizing Bluebeam Revu®, plan copies are not anticipated for submittal.

Acceptance of the 30% Design Submission must be obtained from the Department prior to proceeding to Final Design. The DB Entity may elect to start final design activities at its own risk prior to acceptance of the semi-final design package in accordance to the terms outlined in Section 3.2.

3.4.4.4. 90% Design Submission

The 90% Design Submission package shall be submitted as outlined in the Department's Plans Content Requirements DPM. The submittal will not need to include the following if the design is in accordance with the BTC:

a. Distribution of Quantities
b. Engineer's Estimate

The 90% Design Submission shall also include any ERC packages prepared to-date that involve permanent work. The submittal of the 90% design will require one full size set of plans. All comments will be done through the Bluebeam Revu process.

Acceptance of the 90% Design Submission package must be obtained from the Department prior to proceeding to PS & E Submission. The DB Entity may elect to start PS & E activities at its own risk prior to acceptance of the 90% Design Submission package in accordance to the terms outlined in Section 3.2.

3.4.4.5. PS & E Submission

The PS & E Submission shall consist of detailed, complete and checked drawings, reports and specifications necessary for construction of the complete Project. Acceptance of the PS & E Submission will be in the form of a designation of "Release for Construction."

The PS & E Submission package shall be submitted as outlined in the Department's Plans Content Requirements DPM. The submittal will not need to include the following if the design is in accordance with the BTC:

a. Distribution of Quantities
b. Engineer's Estimate

The PS & E Submission shall also include any ERC packages prepared to date that involve permanent work.

Within thirty (30) days of acceptance by the Department, as applicable, of the final design of all aspects of the Project, the DB Entity shall provide the Issued for Construction Documents (plans, specifications, reports, and calculations). All plans, specifications, and reports shall be signed and sealed by the Professional Engineer(s), who must be registered as such in the State of Rhode Island, and who must be responsible for each portion of the Project. A written statement shall accompany the Final Design Submittal from the Design Manager indicating that the Final Design Submittal complies with all RFP and Contract requirements. Hard copies will be required for the IFC Plans, at the direction of the Project Manager and the Resident Engineer. The DB-Entity should assume that, as a minimum, two (2) full size plan sets and six (6) half-size plans will be required.

3.4.4.6. Resubmittal Process

Resubmittals of any Design Submittal shall be required if the Department deems it necessary. Each resubmittal shall address to the Department's satisfaction all comments received from a prior submittal. Each resubmittal must be accompanied by the previous design submittal in PDF, with the response to comment in Bluebeam Revu. The DB Entity shall not be entitled to any additional Contract time or compensation due to any resubmittal requirement by the Department or any federal, state, or local agency.

The DB Entity may continue its design efforts, at its sole risk, during the design submittal or resubmittal review process. Such continuation in no way relieves the DB Entity of the responsibility to adequately address comments in the Design Documents. The DB-Entity shall provide comment responses in the PDF format using Bluebeam. The PDF with the responses shall be submitted to RIDOT for acceptance status using Bluebeam.

3.4.4.7. Release for Construction/Concurrence/Approval/Acceptance

The DB Entity acknowledges and agrees that the Department and pertinent local agencies must concur with the Design Documents prior to the issuance of a "Release for Construction" designation.

After Design Documents receive the Department's "Release for Construction" designation, -- but the minimum number of days specified elsewhere in this RFP before fabrication may proceed, or seven (7) calendar days prior to proceeding with such work, if not further restricted by other notice requirements – the DB Entity shall submit to the Department digitally-signed documents in accordance with the Department's Digital Project Development Manual.

3.4.5. Design Documents

The BTC plans and documents included in this RFP are as follows:

a. BTC Drawings, Dated: March 2018
b. Special Provisions

The final design documents shall be developed as required by Design Policy Memo 450.

Plan sets and sheet types for partial construction work elements, or ERC, prior to a completed final design shall be coordinated with the DB Entity's QC process and the Department's oversight as per Section 3.5 of this RFP.

3.5. Early Release Construction Process

The DB Entity's schedule and work plan shall identify the items, portions, segments, or stages of work including demolition, temporary construction, temporary traffic management, and substructure work that the DB Entity plans to release as ERC packages (*i.e.*, construction to start prior to completion of Final Design Documents).

The only final construction works that will be allowed for early construction (prior to the completion of the final design) are as follows:

a. Substructure repairs to piers and abutments
b. Substructure modifications
c. Former I-95 SB Viaduct bridge deck repairs
d. Bridge preservation activities
e. Traffic signal hardware related to temporary signalization (if required)
f. ITS facilities relocation/maintenance in place
g. Temporary bridges
h. Early steel girders
i. Early bridge bearings
j. Early modular bridge joints
k. Early precast deck panels if required

The DB Entity may request additional ERC items submissions prior to award of the Contract. Approval of these requests is at the discretion of the Department.

Description of ERC design packages shall include a summary of all major work activities that will be included in the early-work package as well as a listing of submittals and any other documents to be provided for review.

When the DB Entity has completed the Design and other necessary preparation for an item or segment and wishes to submit that portion of the Design, the Designer(s) of Record, Project Manager, Quality Control Manager for Design, and Quality Control Manager for Construction shall determine whether or not, and, if so, certify that:

a. The Design meets all applicable requirements
b. The Design has been examined and evaluated in accordance with the DB Entity's approved Quality Management Plan
c. All required Construction QC Plans for the work item(s) have been approved
d. Said item, portion, segment, or stage is ready for construction
e. The DB Entity has obtained all required state, local, environmental, and utilities approvals and permits

The Department will then conduct an oversight review of the ERC Design Submittal for said item, portion, segment or stage. Oversight reviews will consist mainly of checks to ensure that RFP, Contract requirements, permit requirements, and design criteria are being met or followed and that Quality Control activities follow the DB Entity's approved QMP and QCPs. Oversight Reviews, at the Department's discretion, may include, but are not limited to, review of Design Documents, electronic files, calculations, reports, specifications, geotechnical data, and other relevant design information. The Department must be satisfied that the submittals meet all Contract and RFP requirements, and the same must be confirmed by the DB Entity's representatives identified above, before work may begin on any particular element. If the Department identifies problems with a submission, it will communicate those to the DB Entity.

After the DB Entity has satisfactorily addressed the design review comments in its Design and answered any questions to the satisfaction of the Department, the DB Entity shall prepare a formal ERC Submittal including all related:

a. Design plans
b. Design calculations
c. Design reports
d. Bridge Load Rating Reports (Refer to Section 3.12.8 for applicable Bridge Load Rating Reports required)
e. Specifications (including Special Provisions)
f. Electronic files
g. Documentation that the DB Entity has obtained all required governmental approvals and utility owner approvals
h. Documentation of resolution of comments in the form of a comment resolution report.
i. Re-certifications of the revised plans, in the respects described above, from the Designer(s) of Record, Project Manager, Quality Control Manager for Design, and Quality Control Manager for Construction.
j. The Project Director's written approval of the ERC

The DB Entity shall not commence fabrication or other work until the Department's design review is complete; the Department provides the "Release for Construction," indicating general concurrence with the DB Entity's statement approving construction; and the DB Entity provides the plans as outlined in Section 3.4.4.5. The Department's concurrence with the DB Entity's approval statement will not constitute approval or acceptance of the Design or subsequent construction, nor relieve the DB Entity of its responsibility to meet the requirements hereof. Regardless of whether or not the Department provides the DB Entity with the authority to begin construction on elements of the Project prior to completion of the entire Design, the DB Entity shall bear the responsibility for ensuring that construction meets the RFP and Contract requirements. Any approved component procured under the ERC process shall have their actual dimensions and unique fabrication information incorporated into all subsequent design and construction submittals. The plans and field work shall reflect all of the information.

The Department will not accept ERC submittals without an approved QMP and related QCPs.

3.6. Construction Staging

The construction staging shown in the BTC Conceptual Sequence of Construction Phasing Plans reflects the requirements for maintaining regional vehicular connections between Interstate I-95, Route 6/10, Route 146, associated ramps, and local roads while at the same time

maintaining traffic flow through the entire Project area. The overall construction staging presented in the BTC may be revised if the Contractor demonstrates to the satisfaction of the Department that it would be beneficial for advancing the Project construction, reducing the construction duration, limiting user cost delays, and limiting detrimental effects on the City of Providence and regional traffic flow. The proposed construction activities are not necessarily intended to be performed sequentially. Various stages and activities may overlap to the extent that the limitations of operations and maintenance of traffic are preserved.

Detailed construction staging shall be fully designed by the DB Entity and is considered part of the Contractor's means and methods. The BTC plans and specifications indicate the general traffic management that is required for the Project. Significant variations from the traffic management presented in the BTC are considered an ATC. Proposers shall clearly describe their proposed construction staging in their Technical Proposals, identifying any schedule amendments or additions to the environmental approvals that may be required as a result of those proposed changes in the construction staging. All construction stages and methods must meet the requirements of Section 3.12, Traffic Engineering, and doing so will require close coordination by the DB Entity with the Department, the City of Providence, and project stakeholders, and final acceptance by the Department.

The DB Entity is required to include within its Proposal a complete description of its proposed construction staging, the planned duration for each construction stage, and all anticipated negative effects that the construction staging may have on local and regional traffic (motor vehicle, bicycle, and pedestrian), and local businesses, residences and emergency services. It is required that the DB Entity present in its Proposal the logical staging of construction of the temporary construction details and final details of the roadways and bridges (*i.e.*, locations of temporary supports, construction joints, etc.), as well as anticipated negative effects on traffic flow (motor vehicle, bicycle, pedestrian) including proposed mitigation to minimize any impacts.

The DB Entity shall recognize that other construction projects may be underway or in progress within the vicinity of the Site and may have a direct impact on the execution of this Project. The DB Entity should evaluate those constructions and coordinate their activities to minimize associated conflicts and delays. The DB Entity shall coordinate with the Tolling DB Contractor for the proposed toll gantries including the location of any service connections and drilled shaft foundations to be located in the median and outside the shoulders. The DB Entity shall give the Tolling DB Contractor advance notice of any lane shifts and anticipated durations of lane shifts and shall coordinate time for Tolling DB Contractor to access the work zone to shift and test equipment.

General Approach

The BTC outlines construction stages. The list of activities provided in the BTC is intended to provide the major work to be completed during each stage but shall not be considered all inclusive. The DB Entity bears the full responsibility for identifying all required work and shall include the details of this work in the Technical Proposal. The information provided herewith shall be considered a guide.

3.7. Bid Items

3.7.1. Minimum Price Items

RIDOT has determined that there is work in the project that requires a minimum price be submitted for the minor schedule of value (m.s.v.) in the price proposal. The minimum minor schedule of value (m.s.v.) price for the following Items (as identified in Form I) shall be as shown:

Item No.	Item Description	Minimum m.s.v.
1.10.4	Document Control Specialist	$ 375,000
1.10.6	Training Hours (3,400)	$ 20,400

3.7.2. Estimated Cost Items

The Department has determined that the work shown in the BTC plans for the items in the table below have quantities that cannot be estimated reasonably prior to construction.

Item No.	Item Description	Minimum m.s.v.
1.13.1	Management & Disposal of Regulated Soils	$4,000,000
1.13.2	Bridge and Road Special Maintenance FHWA Participating	$1,000,000
1.13.2	Bridge and Road Special Maintenance FHWA Non-Participating	$1,000,000
1.13.3	Truck Mounted Attenuator	$1,000,000
1.13.4	Towing Services	$1,000,000
1.13.5	Incentive Credit	$3,000,000
1.13.6	Amtrak Construction allocated work	$350,000

Work will be measured and paid for as follows:

3.7.3. Measurement and Payment

The sum of money identified in the Schedule of Values in Part 1 of the RFP and on the Price Proposal Form as "Estimated Cost" for each of these items of work will be considered the bid price for them, even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the Proposer. Should the Proposer alter the amount shown, the altered figures will be disregarded, and the original price will be used to determine the total amount for the Contract.

The Department will pay the DB Entity consistent with Section 109.04 in Part 3 – Terms and Conditions, of the Contract. Prices negotiated for this work shall be consistent with the applicable special provision for the unit of measure and method of measurement.

Work under these items performed without prior approval from the Department will not be measured for compensation.

3.8. Survey

3.8.1. General

As part of this project the DB Entity will be required to procure survey and mapping in order to determine the horizontal and vertical location of existing features in relation to the proposed design. It will be the responsibility of the DB Entity to determine the extents of the survey they require. The Department has provided the CAD files used to generate the BTC plans. The BTC plans will be made available in electronic format. All survey work shall be under the direct supervision of a Professional Land Surveyor, and the survey firm is required to hold a current Certificate of Authorization (COA) from the State Board of Registration.

The DB Entity is responsible for providing full topographic, planimetric, right of way, easement, utility, as-built and construction layout surveys to obtain any and all information required for use in the preparation of all design and construction documents. All survey shall comply with the

Department's survey and CAD requirements outlined in DPM 420.01, DPM 450.02, DPM 450.03, RIDOT TAC – 0334, CAD Standards Manual 2007, all other applicable Department requirements and the additional specifications below. CAD Standards have been updated an utilize the United States National CAD Standards. Design shall be complete in AutoCAD Civil 3D.

3.8.2. Project Survey Control and Datums

All horizontal and vertical control shall be the responsibility of the DB Entity to establish and maintain throughout design and construction. The Horizontal datum will be tied to the North American Datum of 1983 (NAD83) based on Rhode Island state plane zone 3800. The Vertical datum will be tied to the National Geodetic Vertical Datum of 1929 (NGVD 29).

Base line horizontal control and bridge control shall meet State of Rhode Island Class II accuracy standards that meets or exceeds closure of 1:50,000. Secondary control shall meet Class I accuracy standards of 1:10,000. Vertical control shall meet Class V-2 accuracy standards for the main level loop and bridges. Secondary level loops that do not involve bridges can meet Class V-1 accuracy standards. Temporary benchmarks shall be established every 500 feet.

Survey Data, from preliminary design through the as-built after construction, shall be on the datum used in the digital files established by the DB Entity. Care should be used with electronic CAD data during the entire Project so that no translation or rotation of data occurs.

3.8.3. Photogrammetric Mapping and LiDAR

Due to the size of the project the DB Entity may utilize Photogrammetric mapping in conjunction with LiDAR data if required in order to capture the necessary topographic and planimetric data for design. Should the DB Entity employ the use of Photogrammetric mapping and LiDAR data the mapping at a minimum should meet or exceed accuracy standards for 1"=20' mapping scale with 1-foot contours.

Upon delivery of the Photogrammetric mapping it will be the responsibility of the DB Entity to verify the Horizontal and Vertical accuracy of the mapping to ensure it meets the accuracy standards required for the project. In addition, it will be the responsibility of the DB Entity to survey any necessary obscured areas in the mapping such as under bridge structures, wooded areas or shadow areas that are necessary for the design. Obscured areas not necessary for the design or that do not require the accuracy level needed for design do not need to be surveyed.

All Mapping will meet or exceed the American Society of Photogrammetry and Remote Sensing (ASPRS) Class I accuracy standards, as well as National Map Accuracy Standards.

3.8.4. Bridge Surveys

The DB Entity will be responsible for identifying the structures that need to be surveyed and the extent of the horizontal and vertical survey required. All surveyed areas will have horizontal and vertical information based on the datum of the project.

At a minimum, the bridge survey shall include verifying the gutter lines on the bridge deck, bridge approach, and parapet walls every 50 feet. Sections should be taken perpendicular to the bridge baseline every 100 feet to verify the topography. Depending on the work to be undertaken at a particular bridge the below the bridge surveys may include locating the abutments, top and bottom of batters, bridge seats and backwalls, angles of wingwalls, piers, bearing plates, utilities, centerline of bottom beam at the abutment or pier and midpoint, girder lines and any other information required for design of that particular bridge. It will be the responsibility of the DB Entity to identify what is required for each bridge.

Some bridges traverse over active Amtrak Rail lines. It will be the responsibility of the DB Entity to identify and coordinate safety training, access to Amtrak property and provide necessary safety measures such as flagmen. For bridges that cross railroads the rails should be located at a minimum of every 50 feet and sections run out perpendicular to the rail to verify clearance and other infrastructure critical to the railroad operations.

3.8.5. Utilities

It's noted that numerous utilities exist within the project area and will need to be identified and shown on the mapping. The DB Entity will be required to identify the limits of utility work and to contact each utility to obtain any available information they have as well as contacting Dig Safe to have the utilities marked out. Marked out utilities must be surveyed and included in the mapping along with any researched utilities.

3.8.6. Drainage and Sewers

Catch basins, manholes and any other storm drainage structure will need to have invert elevations taken on all structures and outfalls. The DB Entity will identify the work areas and drainage systems needed to include elevation data and incorporate that data into the mapping. Elevations will include pipe inverts, sump bottom, pipe sizes and material and any additional information found during the course of field work.

For sanitary sewer systems it will be the responsibility of the DB Entity to identify critical structures or systems that will be affected by the design and require invert elevations, pipe sizes and materials.

All invert elevations obtained on drainage and sewer structures must be incorporated in the mapping.

3.8.7. Test holes and Soil Borings

Test holes and soil borings will be necessary to determine the geophysical character of soils and the location of certain items below ground within the project area. The DB Entity will be responsible for providing survey to mark out the locations as necessary of the soil borings and test holes, survey the actual locations should they deviate from the marked-out ones and survey excavated underground information as necessary.

3.8.8. Right of Way and Easement

The DB Entity's Designer will be required to provide right of way and easement mapping, legal descriptions and filing Mylar's for any impacts that will occur outside the Department's right of way. All mapping will be to the Department's standards and follow their guidelines for CAD standards.

3.8.9. Construction Layout

During the construction phase of the project the DB Entity will be required to provide all necessary construction layout and mapping surveying services necessary for the successful completion of the project.

3.8.10. As-built

During construction and after construction, as-built surveys will be required to ensure compliance with the design. The DB Entity will be responsible for providing surveying and mapping services to locate the improvements.

3.8.11. Deliverables

At the end of each phase of project, the DB Entity will be required to provide the Department with all necessary materials and information as outlined in DPM 420.01, DPM 450.02 and DPM 450.3 in adherence with TAC 0159. Anticipated phases would be completion of base mapping, construction and as-built. Survey field books (hard bound or electronic) shall be returned to RIDOT Survey at the completion of the project. The Department reserves the right to request such information during the project phases to ensure compliance with the Department's policies.

3.9. Highway Design

3.9.1. General

In the BTC Plans, the proposed footprint of the interchange in general is fully within the existing footprint. Interstate Route 95 (I-95), Route 6 On-Ramp, Atwells Avenue On-Ramp, Memorial Boulevard On-Ramp will be reconstructed along the same alignment as existing and will then transition into the proposed alignments within the interchange. The differences between existing and proposed alignments are as follows:

a. Traffic from I-95 exits to Route 146 and the State House Offices north of the Providence Viaduct. In the proposed condition, traffic will exit south of the Providence Viaduct onto a Collector Distributor (C-D) roadway.
b. Route 6 On-Ramp traffic merges with the Memorial Boulevard On-Ramp and together they merge onto I-95. In the proposed condition, on-ramp traffic will be split onto new ramps. These new ramps will either merge onto I-95 or the C-D roadway.
c. Atwells Avenue On-Ramp merges onto I-95. In the proposed condition, this ramp will merge onto the C-D roadway

In addition to its meeting all other requirements applicable to the Design hereunder, the DB Entity shall prepare the final horizontal and vertical design of the roadway elements of the Project in accordance with the standards referenced herein. The roadway design shall be consistent with the improvements presented in the Project Plans.

The Design shall meet the requirements of the referenced design standards. Any changes to the BTC highway design may require amendment to the environmental approvals and would require approval through the ATC process.

At the conclusion of the project, the final paving limits shall include mill and overlay of full extents of any temporary traffic control phasing employed by the DB Entity on I-95, Route 6/10, ramps, and local roads. At a minimum, these limits shall extend as follows:

a. I-95 SB: Limits shall be as shown in BTC plans and to the limits of temporary traffic phasing.
b. I-95 NB: Limits shall be from 300 feet north of Ashburton Street Bridge to the existing north terminus of pavement limits on the Providence Viaduct SB project (just north of Exit 22) and to the limits of temporary traffic phasing.

3.9.2. Roadway Design Criteria

Appendix B contains design criteria tables for the various roadways in the Project. The tables also include anticipated Design Exceptions. The DB Entity is encouraged to minimize Design Exceptions through the ATC process. If additional design exceptions result from the ATC process it will be the responsibility of the DB Entity to obtain approvals.

If a design exception is required for the as proposed value shown in the following tables for a particular design criterion as provided in the BTC, the Proposer will not be required to submit an ATC for the design exception required. An ATC will be required if a proposer seeks to change a

proposed design criterion from the values shown in the following tables for the BTC that results in a new Design Exception being required.

3.9.3. Pavement Design

The proposed pavement structure is shown in the BTC plans. No changes to the pavement structure are allowed, and no subsequent design for pavement structure by the DB Entity is required.

3.10. Streetscape

3.10.1. General

The following areas of the project require the design of streetscape features.

a. Smith Street Bridge
b. General landscaping

3.10.2. Smith Street

This location is considered the major highlight feature given its proximity to the State House. The required design elements are outlined in Section 3.15.

3.10.3. General Landscaping

a. All features should be low maintenance features.
b. The design of all features shall meet the criteria specified in the AASHTO Roadside Design Guide.

3.11. Traffic Engineering

3.11.1. General

The Contractor is responsible for the final design of all traffic engineering aspects of the project. The Contractor shall comply with requirements outlined in RIDOT's INFRA Grant Application including but not limited to, building the project as a smart corridor as outlined in Section V.D. of that document included in Appendix B.

3.11.2. Maintenance and Protection of Traffic Plan

The various lane configurations and roadway closures, detours and temporary access roads shown in the construction staging plans presented in the BTC shall be followed unless accepted by the Department through the ATC process. Any ATC that varies from the BTC construction staging plans must be accompanied by a traffic analysis model (VISSIM for freeways/interstates/ramps, SYNCHRO or VISSIM for all other roadways) in order to demonstrate that the proposed changes from the ATC will result in acceptable traffic operations. RIDOT shall be the sole entity that determines whether the proposal constitutes acceptable traffic conditions.

a. Changes to the number of traffic lanes along I-95, Route 6/10, and Route 146 and all off- and on-ramps shown in the staging plans **will not be allowed**.

b. Reduction is number of lanes on all other roadways will not be allowed without an approved ATC and accompanied VISSIM or SYNCHRO traffic analysis.

c. Reduction of the weaving distances will not be allowed without an approved ATC and accompanied VISSIM traffic analysis .

d. If an ATC changes these BTC Conceptual Sequence of Construction Phasing plans and Stages, the Contractor will be responsible for obtaining required approvals from third parties.

Pedestrian facilities including ADA compliance shall be maintained on all open roads wherever pedestrian travel is currently permitted. The DB Entity is not responsible for maintaining pedestrian travel on closed roadways with the exception that pedestrian access on the east side of Park Street must be maintained at all times, unless otherwise noted on the BTC Plans. The DB Entity will be responsible for maintenance and providing an acceptable operating condition of the travel lanes within the limits of the project area.

Current traffic movements through intersections in the surrounding project area shall be modified to accommodate traffic detours during construction. The DB Entity shall facilitate the detours and maintenance of intersections, including early notifications to the stakeholders of upcoming road closures and detours. Conceptual Detour Plans are included in the Appendix B for use by the DB Entity in developing their plans. The DB Entity shall be responsible for developing the final detour plans in accordance with RIDOT and MUTCD standards.

A detailed MPT Plan for all major construction elements is required. Plans shall be drawn to scale and include all proposed traffic control devices, signing and pavement markings. Traffic management of all bicycle, pedestrian, and vehicular traffic must be maintained within the limits of work throughout construction except as shown in the Conceptual Sequence of Construction Phasing Plans and BTC Draft TMP. The DB Entity shall provide traffic mitigation plans as needed for the intersections within the proposed detour routes as shown in the BTC Conceptual Detour Plans. These plans shall consist at a minimum of a traffic monitoring program and a schedule for improved traffic signal timings.

The BTC Conceptual Sequence of Construction Phasing Plans and BTC Draft TMP depicts the intended staging and lane requirements during construction and any variations to the Traffic Management or construction Staging will require an ATC. The requirements of the MPT plan include:

a. Vehicular, bicycle and pedestrian access to local businesses is required at all times during construction.

b. A minimum of 11-foot wide vehicle travel lanes and 2-foot wide shoulders on Interstate I-95, including ramps, during construction.

c. All roadways and ramps must remain open to traffic unless otherwise shown on the Conceptual Sequence of Construction Staging plans and shall provide adequate width to allow vehicles to get past a disabled vehicle. Any closures in addition to those shown on the plans must be approved through the ATC process.

d. Temporary ramps must contain adequate acceleration and deceleration lanes and be designed to a 25 MPH Design speed minimum unless otherwise noted.

e. Traffic signal monitoring must be provided, with the potential for traffic signal timing changes as applicable. Monitoring of signal timings, suggested changes, and implementation shall be coordinated and implemented by the Contractor. The Contractor shall coordinate all work with the Department/City of Providence and obtain approval from the Department/City of Providence prior to implementation.

f. Detours specified in the BTC shall be implemented as necessary in such a manner that ensures the least possible disruption to traffic. If an alternate route is considered, a plan

shall be prepared by the DB Entity and approved by the Department and the City of Providence prior to implementation. Such a plan would be considered an ATC.

g. Police detail or officers shall be used as required. Certified flaggers may also be used if the traffic volume and conditions meet the Department and the City of Providence criteria for flaggers. The DB Entity shall coordinate this effort with the Department.

h. The DB Entity shall perform a review of all traffic signals impacted by the project and along the proposed detour routes and identify operational and equipment issues (included but not limited to signal controller, vehicle detection, pedestrian pushbuttons). The DB Entity shall inform RIDOT and the City of Providence on all identified issues one month prior to any proposed detours to allow RIDOT and/or the City of Providence to rectify any issues.

3.11.2.1. Off-peak Hour Lane Closures

The allowable times when lanes and shoulders can be closed are shown in the BTC DRAFT TMP included in Appendix B. The DB Entity shall determine the allowable times when lanes can be closed on any roadway during off-peak hours. This shall be based on actual traffic counts in the affected areas. In general, lanes may be closed when the traffic volume per lane is less than 1600 vehicles per hour per lane; however, additional analysis or modeling may be required by RIDOT in order to account for weaving traffic and other disruptions to free-flowing traffic. The DB Entity shall submit the proposed lane closure specifications to the Department for approval.

The DB Entity shall develop lane closure plans depicting temporary traffic management features. These plans shall be in accordance with the Manual on Uniform Traffic Control Devices. The Conceptual Detour Plans shall not be construed as approved traffic control plan.

3.11.2.2. Access during Construction

Access to local businesses and residences in the project area must be maintained during construction. Temporary ramp closures and detailed construction sequencing will allow traffic to be maintained during the construction of the project interchange. The DB Entity will be responsible for maintenance of traffic and providing an acceptable operating condition of the travel lanes within limits of the project area. The DB Entity shall facilitate the detours and maintenance of intersection operations.

The DB Entity will be required to maintain access (vehicles, bicycles, and pedestrians) to adjacent businesses and recreational facilities at all times during construction.

Access to all work zones shall be detailed in the Maintenance and Protection of Traffic Plans.

3.11.2.3. Temporary Bridges and Structures

The Conceptual Sequence of Construction Staging plans show temporary bridges in order to allow construction of the bridges while maintaining the required number of traffic lanes. The BTC plans do not depict temporary structures for signs. The DB Entity shall determine if temporary sign structures will also be required and include these in their design.

The BTC Conceptual Sequence of Construction Staging plans also depict temporary bridges and temporary utility bridges over I-95. These bridges are shown to facilitate the construction of the Viaduct NB, Atwells Avenue On-Ramp, and Smith Street Bridge.

The DB Entity may alter or eliminate any of the temporary structures, provided that the required number of traffic lanes and sidewalks are maintained.

All temporary bridges and structures shall be designed by the DB Entity according to the applicable specifications.

3.11.2.4. Temporary Roadside Elements

All temporary roadside design elements including but not limited to highway guardrails and construction barriers shall be designed in accordance with the most current AASHTO Roadside Design Guide and the AASHTO Manual for Assessing Safety Hardware 2016 (MASH). MASH TL-4 barriers shall be used on I-95 and Route 6/10. All other barriers shall be MASH TL-3.

The structural design of all temporary roadside elements including all components, support poles, appurtenances, and anchorages shall be designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. The sign supports shall be designed without the assistance of any guying wires or external supports.

Proposed signing plans shall include the layouts showing locations of existing and proposed ground mounted and overhead signs, special sign details, legend, sign lighting and structural and foundation requirements. Any requirements for electric service shall be coordinated with the local electric utility and provided by the DB Entity.

The DB Entity shall be responsible for the maintenance of all temporary roadside elements and the resolution of any found to be impeding safe operation of traffic at the discretion of the Department.

3.11.2.5. Temporary Pavement Markings

The Contractor will provide temporary pavement markings as required within the Project limits to provide a complete traffic pattern at all times during the Project. The DB Entity shall be required to design and install pavement markings in accordance with Department and MUTCD work zone standards and specifications. Use of Temporary Plastic Pavement Marking Tape is prohibited. Temporary lane configurations on other roadways that will remain in place for more than thirty-six (36) hours shall be delineated with temporary pavement markings.

Temporary pavement markings shall be “Epoxy Resin Pavement Markings.” The contractor shall grind off all temporary and existing conflicting pavement markings during all stages of construction. At the completion of staged construction, all pavement areas that were affected by grinding of markings shall be milled to a minimum depth of 2” and replaced with new pavement that matches the specified pavement. Upon completion of this work, all previous markings shall be reestablished with permanent pavement markings according to the project specifications.

The DB Entity shall promptly respond to all requests by the Department to refresh or remove markings within the Project limits during the construction period.

3.11.2.6. Temporary Barrier

The DB Entity shall provide Temporary Barrier. All barrier shall be placed such that no blunt ends are exposed to traffic. If blunt ends are required, approved impact attenuation devices must be installed and maintained at all times. Barrier installed on bridges with a drop off must be anchored as approved by the Engineer. Temporary Barrier shall meet the requirements of RIDOT’s Standard Specifications for Road and Bridge Construction, RIDOT Standard Details and AASHTO’s Roadside Design Guide. Additionally, any temporary barrier anchored into to new structures should be placed with cast in place inserts. No drilling into new decks will be allowed to anchor temporary barrier.

3.11.2.7. Off-Site Traffic Signals

The DB Entity is expected to alleviate increased delays and queues that may occur at intersections external to the immediate project area. It is anticipated that this work will predominantly consist of traffic signal timing modifications at existing signal locations. The DB Entity shall coordinate any potential adjustments with RIDOT and the City of Providence. The signals shall be returned to the pre-construction configuration upon completion of the temporary works or as directed by the City of Providence. The DB Entity shall perform a review of all traffic signals impacted by the project and along the proposed detour routes and identify operational and equipment issues (included but not limited to signal controller, vehicle detection, pedestrian pushbuttons). The DB Entity shall inform RIDOT and the City of Providence on all identified issues one month prior to any proposed detours to allow RIDOT and/or the City of Providence to rectify any issues.

Traffic volumes will be provided as part of the BTC Plan. If additional traffic counts are required for the final design due to change of the BTC proposed by the DB Entity, the DB Entity shall obtain them at no cost to the Department. Prior to detouring traffic, the DB Entity shall submit to the Department for approval, temporary signalization plans with revised timings based on capacity analysis.

The DB Entity shall provide a traffic analysis memorandum that includes traffic operations analysis (using VISSIM and/or SYCNHRO) along all impacted traffic signals (including detour routes). Any revised timings listed on the temporary signalization plans shall be based on the traffic analysis.

The DB Entity is required to have a Monitoring Plan in place and make controlling signal timing changes to accommodate the changes in the traffic patterns. The Monitoring Plan must be prepared by the DB Entity and submitted for approval to the Department and the City of Providence before the commencement of construction activities that will have the possibility to impact AM or PM peak period traffic. The Monitoring Plan must include proposed staffing by the DB Entity for all identified intersections during each peak traffic period. The Plan shall define the methodology to be used to react to issues identified during the monitoring. All signal timing changes are to be approved by the Department and implemented by the DB Entity.

3.11.2.8. Transportation Management Plan (TMP)

The need for a Transportation Management Plan (TMP) has been evaluated by the Department and it has been determined that the development of a TMP is required for this project. The DB Entity is required to submit a TMP to the Department in accordance with the FHWA guidance document titled “Developing and Implementing Transportation Management Plans for Work Zones.” This document can be found at the FHWA website listed below

(http://www.ops.fhwa.dot.gov/wz/resources/publications/trans_mgmt_plans/index.htm).

A BTC Draft TMP is included in the Appendix including attachments that specify the minimum number of lanes and shoulders to remain open to traffic at all times. At no time shall the number of lanes/shoulders be reduced to less than specified in the BTC Draft TMP unless the DB Entity can provide justification (through analysis, modeling and traffic volumes) that the impacts to traffic will not be significantly worse than the traffic conditions under during the construction of the BTC. RIDOT shall be the sole entity that determines whether the proposal constitutes a significantly worse traffic condition.

Documentation of the TMP pertinent to the project design shall be included in the Design Report which is required with the standard milestone submissions.

Elements of the TMP shall be presented in the contracts plans (such as the Temporary Traffic Control Plan(s)) and specifications.

3.11.2.9. Temporary Changeable Message Signs

The DB Entity shall provide temporary changeable message signs outside of the immediate construction area to provide advance warning for motorists.

The DB Entity shall coordinate with the Department to finalize the changeable message sign locations and text. Signs shall not be placed on private property or on sidewalks.

The DB Entity will be responsible for supplying and maintaining the temporary changeable message signs. The DB Entity will promptly respond to all Department requests to relocate and/or update text on the changeable message signs during the Project.

3.11.3. Permanent Roadside Elements

All permanent roadside design elements including but not limited to highway guiderail, vehicle barriers, sign supports, drainage outlets, railings, curbs, light poles, gates, and fences shall be designed in accordance with the most current AASHTO Roadside Design Guide and the AASHTO Manual for Assessing Safety Hardware 2016 (MASH). MASH TL-5 barriers shall be used on I-95 and Exit 23 Bridge. All other barriers shall be MASH TL-4. All W-Beam guardrail shall meet MASH TL-3. All transitions from W-Beam to concrete barrier shall include a thrie-beam connection at the barrier. All end terminals and/or crash cushions shall meet MASH TL-3.

New signage shall be provided as shown in the BTC and as required for the proposed design.

A protective coating will be required on the exposed surfaces of all permanent median barriers in accordance with the Specification for Section 820 – Concrete Surface Treatment – Protective Sealer.

3.11.4. Permanent Pavement Markings

The DB Entity shall provide permanent pavement markings as required within the Project limits to complete the Project. The DB Entity will be required to design and install pavement markings in accordance with Department and MUTCD standards and specifications. At the conclusion of the project, the final paving limits shall include mill and overlay of full extents of any temporary traffic control phasing employed by the DB Entity on I-95, Route 6/10, ramps, and local roads and new permanent pavement markings shall be installed in these areas.

Pedestrian crosswalk layout and details shall be constructed in accordance with the BTC plans and Special Provisions and according to the Department standards and City of Providence Standards.

3.11.5. Permanent Traffic Signals

The Traffic Signal equipment at the intersections of Park Street at Smith Street will be replaced with new equipment. Traffic signal poles and light poles shall meet current Providence standards.

The new traffic signal equipment will be connected to the existing equipment at the Smith Street/Francis Street intersection because these two intersections operate under the same controller. The DB Entity will be responsible for the installation of the signals including ancillary equipment. Modifications to the Atwells Avenue at the Dave Gavitt Way, Park Street at Promenade Street, and Park Street at Hayes Street intersections will also be required.

The Street at Park Street/Francis Street traffic signals are and will continue to be owned and maintained by the City of Providence. The Signals will use Metered service from National Grid to power all signal equipment. RIDOT will be responsible for paying all energy costs for these signals.

The Atwells Avenue at the Dave Gavitt Way, Park Street at Promenade Street, and Park Street at Hayes Street signals are and will continue to be owned and maintained by the City of Providence.

Prior to the start of construction and procurement of any traffic signal equipment, the final locations of all underground and overhead utilities in the vicinity of the traffic signals should be verified and adjusted by the DB Entity in order to avoid conflicts with the completed traffic signal design. A field utility walkthrough shall be done to locate any utility that may come in conflict with the Traffic Signal.

3.11.5.1. Methods and Materials

All material and construction methods shall conform to Rhode Island DOT's standard specifications and details which are available on the Department's website. Additionally, provisions shall be made by the DB Entity to meet or exceed R.I. structural design requirements of the proposed traffic signal pole attachment falling within the limits of the proposed and existing bridge structures and/or retaining walls.

The mast arm shall be round tapered steel, and the traffic signal post shall be a 16-flute steel monotube, tapered approximately 0.14 inch per foot, welded to a base plate for double nut mounting with the circle pattern, number and size of anchor bolts as recommended by the manufacturer. A 3 inch by 5-inch reinforced handhole with cover shall be provided near the base of the pole. This handhole shall be located as to be concealed when the decorative base is in place. It shall have a cover plate to protect access of the wiring if the outer cast iron base door is removed or tampered with. A grounding lug shall be provided near the handhole.

The decorative base, where called for on the plans, shall either be a match or closely resemble (to the satisfaction of the Engineer, Owner and the City of Providence) the same design as the mast arm and pedestal poles installed under the "Downtown Providence Traffic Circulation Improvements Phase 3 reconstruction project" ("Ornamental Traffic Standards for Providence, Rhode Island", as manufactured by Union Metal Corporation – "REQ#/ S.O.# NRI-54674-1, Drawing No. 50603-B311"), no substitutions allowed, and must be fabricated from aluminum alloy. The decorative bases shall be modified in height to 3'-0" +/- max as shown on the details to allow for a pedestrian pushbutton to be mounted at 42" maximum height. The 16-flute shaft and round tapered steel mast arm shall also match the Washington Street design.

The base shall be aluminum alloy and be fabricated in split halves. The split halves of the base shall be secured together by using countersunk breakaway/shear bolts. The hexagonal portion attached to the countersunk head shall snap off once the maximum torque of the bolt is achieved, leaving a plain head with no drive with which to remove the bolt. When the base halves are machined and matched during fabrication, and doors fitted, they must be marked as a set and shipped, handled and installed as a set. Access doors shall also be made from aluminum alloy and be secured by means of tamper resistant screws.

Catalog cuts, shop and working drawings for the equipment to be used in the construction of these signals shall be sent to the Department for review and approval prior to the start of construction. See the Special Provision for "Document Control Specialist" in Appendix B.01 of Part 2 of the RFP for further instructions.

3.11.6. Potential Alternatives

Alternatives may be considered and are encouraged for the design. Acceptance of these alternatives is not guaranteed. They would need to be vetted by the Proposer and submitted as an ATC as described in Part 1 of the RFP.

3.11.7. Disallowed Alternatives

ATCs that include any of the following will not be accepted by the Department.

a. Changes that will not adhere to the approved environmental document
b. Changes that require additional Rights of Way, unless the DB Entity procures said rights of way.
c. Elimination of any ramp movements, roadways, or intersections.
d. Changes that will result in vehicle queues and travel times that exceed the vehicle queues and times listed in Tables 1 and 2 of the RIDOT INFRA Grant Application (included in Appendix B).
e. Changes that have not or cannot be approved by all parties involved, including but not limited to, RIDOT, FHWA, The City of providence and regulatory agencies.

3.12. Geotechnical

3.12.1. General

The DB Entity shall conduct all work necessary to complete the geotechnical investigation and design for the project. Elements of the work shall include, but are not limited to, the following:

a. The DB Entity shall review the existing geotechnical information that includes the Geotechnical Interpretive Reports (GIR, Appendix B) and the Geotechnical Data Reports (GDR, Appendix B).

b. Additional geotechnical information in the form of as-built drawings is included in Appendix B for reference purposes.

c. The DB Entity shall evaluate the requirements of the work and perform geotechnical explorations, geotechnical analyses and laboratory testing to supplement the existing data that, at a minimum, shall meet the requirements for final design in the Rhode Island LRFD Bridge Design Manual and other mandatory standards. The DB Entity shall provide geotechnical designs and construction support in accordance with this section.

The DB Entity shall prepare and submit a final GDR and GIR for their final design. The purpose of the GDR and GIR are as follows;

a. Geotechnical Data Report (GDR) – The GDR contains all the factual geotechnical data gathered for the project.

b. Geotechnical Interpretive Report (GIR) – The GIR is an interpretive geotechnical document used to establish a common understanding between the contractor and the owner (RIDOT) of the subsurface conditions and their potential impact and effect of risk on the design and construction of the project design concept. The GIR should be considered to be the primary contractual interpretation of the project geotechnical subsurface conditions and their potential effect on design and construction of the project design concept as portrayed in the RFP.

The primary focus of the GIR is to establish baselines regarding geotechnical subsurface conditions present within the project, but specifically focused on the project design concept as portrayed in the RFP. These baselines define the specific geotechnical conditions the DB Entity should consider as the basis for developing their price proposal. The GIR baselines are not intended to be used for final design. The GDR and geotechnical data generated by the DB Entity are to be used as the basis for final design.

The BTC is based on the assumption that foundations supporting new bridge structures will consist of either spread footings, driven piles, or drilled micropiles. The BTC also assumes that new embankments and retaining walls that are located in areas underlain by compressible organic soils

will be supported using Column Supported Embankment (CSE) ground improvement methods to address settlement and global stability issues. Any change to the BTC foundation assumptions will constitute an ATC. Where applicable, the DB Entity will be responsible for all supplemental geotechnical explorations, testing, research, and other measures necessary to support the ATC.

As part of the final design, the DB Entity will be required to completely analyze the new structures for all proposed conditions and take full design responsibility for all aspects of the foundations.

All geotechnical construction shall be conducted in accordance with the geotechnical reports prepared as part of the Final Design. Any additional subsurface explorations required to complete the Geotechnical report shall be the responsibility of the DB Entity

3.12.2. Personnel Requirements

The DB Entity shall provide a Geotechnical Engineering Manager with a minimum of 10 years of supervisory experience in geotechnical design and construction support of roadways, bridges, retaining walls and other highway-related elements. The Geotechnical Engineering Manager shall have experience working on RIDOT projects and shall be familiar with the AASHTO LRFD Bridge Design Specifications, the AASHTO Guide Specifications for LRFD Seismic Bridge Design, and the AASHTO Manual on Subsurface Investigations. The Geotechnical Engineering Manager shall be a Professional Engineer, licensed in the State of Rhode Island, and shall be responsible for the geotechnical design elements of the project.

3.12.3. Existing Geotechnical Information

Subsurface geotechnical investigations have been performed for the development of the BTC to supplement the original boring information and other historical information. This information is included in Appendix B.04.

3.12.4. Geotechnical Study by the DB Entity

As indicated above, geotechnical study and analysis by the DB Entity will be necessary for completion of the final design. This work shall be included in the proposal price. Additional geotechnical explorations and analyses, as required, shall be performed in accordance with the Rhode Island LRFD Bridge Design Manual, with particular reference to the report entitled “Guidelines for Geotechnical Site Investigations in Rhode Island, Final Report,” dated March 2005 and all other investigations required for design and construction. This additional work shall also be included in the proposal price.

The DB Entity shall meet all requirements and obtain all governmental approvals necessary for geotechnical explorations, including “Dig Safe” requirements, and all approvals and permits required for access road grading, drilling, and groundwater protection from inter-aquifer contamination.

3.12.5. Geotechnical Reports

Final Design Geotechnical reports will need to be prepared for each structure and submitted by the DB Entity as part of the final design. The reports will be prepared in conformance with requirements of the Rhode Island LRFD Bridge Design Manual

3.12.6. Geotechnical Design Approach

All geotechnical analysis, design and report preparation shall be completed in conformance with the Rhode Island LRFD Bridge Design Manual and the AASHTO LRFD 8th Edition unless otherwise approved by the Department. The DB Entity shall clearly identify in the Proposal the methodology for geotechnical analysis and design to be used in the Final Design.

As outlined in Part 1, the DB Entity shall submit at the times required a written statement of their approach to Geotechnical Engineering in the Final Design under this Project. The statement shall be updated at each step as required. The intent of the statement and any related discussion is to confirm the DB Entity's understanding of the Geotechnical requirements under this Project and the responsibility of the DB Entity for the geotechnical engineering and design required as part of the Final Design.

3.12.7. Existing Foundations

If re-use of existing pile foundations is to be pursued as part of an ATC, the DB Entity must address the following, at a minimum, in the ATC submission as well as the statement of geotechnical intent:

a. Clear rationale for why re-use of existing foundations is being pursued
b. Effects on staging and sequencing
c. Potential harmful effects during construction on structures remaining in service
d. Details of connection to the new structure
e. Remaining service life of the in-place foundations
f. Details of the proposed field-testing program to confirm in-place capacity

3.12.8. Foundation Design

The DB Entity shall prepare a geotechnical report indicating design bearing and geotechnical pile capacities and determine the final bearing pressures, pile design, and reactions under the AASHTO LRFD 7th Edition.

The stability and capacity investigations by the DB Entity for the foundations as part of the final design shall include all construction activities, construction staging, groundwater table, final ground surface, and temporary and final load condition on the foundations. The DB Entity shall demonstrate that the proposed designs meet both strength and serviceability requirements of the latest Rhode Island LRFD Bridge Design Manual and the applicable Geotechnical Reports.

Unless determined otherwise by the Geotechnical engineer retained by the DB Entity, and accepted by the Department, design parameters for newly installed backfill shall be as listed in the Rhode Island LRFD Bridge Design Manual.

3.12.9. Retaining Walls and Embankments

New retaining walls will be required in several areas of the project. Proprietary walls may be Prefabricated Modular Walls or Mechanically Stabilized Earth (MSE) walls from the RIDOT Approved Products List. Conventional concrete gravity or cantilever walls may also be used.

Retaining structures shall be designed in accordance with the latest edition of the Rhode Island LRFD Bridge Design Manual, AASHTO Standard Specifications for Highway Bridges, and the recommendations in the Geotechnical Report.

Column Supported Embankment (CSE) ground improvement methods shall be used where new retaining walls and embankment fill is underlain by fill and organic soils in order to limit settlement and to improve global stability. Alternately, driven or drilled pile foundations may be used.

The DB Entity shall complete design of internal, external, and global stability of retaining walls and embankments as part of the final wall design. The wall designer is required to be on-Site for construction monitoring and Quality Control of the construction of the MSE and Prefabricated Modular Walls to ensure that the construction is consistent with the design assumptions.

3.12.10. Geotechnical Monitoring

In addition to all Amtrak requirements, geotechnical instrumentation shall be used to monitor existing structures within 200 feet of driven piles or other vibration producing activities during construction. DB Entity shall conduct pre- and post-construction condition surveys of each structure within the influence area. DB Entity, and his Geotechnical Engineer shall determine acceptable movements and vibrations that adjacent structures can safely accommodate, in accordance with accepted practice. DB Entity shall design instrumentation for adjacent structures appropriate for potential construction impacts. Threshold and limiting values for instrumentation readings shall be determined to limit construction impacts to acceptable levels, in accordance with accepted practice. The instrumentation limit values shall be selected so that construction can proceed with the ability to modify operations before unacceptable damage occurs should impacts be greater than anticipated.

3.12.11. Geotechnical Design Criteria

In addition to requirements identified above, the DB Entity shall be responsible to:

a. Provide all final design and details for all bridges and retaining walls.

b. The BTC requires that all temporary excavation support for Park St wall shall be drilled and socketed soldier pile & lagging system. The DB Team shall design all temporary earth support systems required for the Project. Any temporary earth support systems that will remain in place and become part of the permanent construction shall meet the "Buy America" regulations.

c. Select dewatering systems based on their construction means and methods.

d. Protect existing structures.

3.12.12. Disallowed Alternatives

ATCs that contain the following items will not be accepted by the Department:

a. Drilled shafts.

3.13. Bridge Design and Other Structures

3.13.1. General

The general scope of the Project is based on the BTC Drawings and Special Provisions, except as modified herein. The Project includes demolition of Smith Street Bridge, the I-95 NB and former SB Viaduct bridges, and partial or complete demolition of associated ramps. Accelerated Bridge Construction techniques may be used on some or all of the work to minimize the impact on existing traffic and to reduce the overall project schedule.

The general scope of work shall include the following anticipated work included in the BTC:

Current Bridge #	New Bridge #	Bridge Name	Treatment
575		Atwells Ave Bridge	Preservation
576	1379	Atwells Ave Ramp Bridge	Replacement
578		Providence Viaduct NB	Replacement*
581		Ramp CB-1	Widen
582	1382	Ramp CB-2	Replacement
583	1383	Ramp DB-1	Replacement

Current Bridge #	New Bridge #	Bridge Name	Treatment
701		Smith St Bridge	Replacement
704		Park St Bridge	Preservation
706		Chalkstone RR Bridge	Preservation
707		Ashburton St Bridge	Preservation
708		Charles St Bridge	Preservation
	1378	Exit 23 (C/D Road)	New
	1381	Ramp CB-3	New
	1384	Ramp DB-2	New

* BTC also includes preservation activities for the Providence Viaduct old SB bridge for use of this bridge during temporary traffic phasing.

3.13.2. Preconstruction Survey of Existing Structures and Construction Monitoring

The DB Entity shall be responsible for conducting a pre-demolition survey and for establishing and maintaining a program of construction monitoring for existing properties within 200 feet of proposed construction activities.

The DB Entity shall be responsible for contacting owners of the adjacent properties and making arrangements for access to the facilities for the purpose of surveying and monitoring. Requirements generally include the following items.

a. Buildings adjacent to Construction – survey of building structure, vibration monitoring system,
b. Walk through video including foundations, walls, windows and doors
c. Railroads – survey top of rail, signals, switches and monitor throughout construction
d. Landscape Elements – trees to be protected.

The existing structures and facilities within the vicinity of this project not being altered by the construction activities shall be protected from damage during demolition. Prior to the start of construction, the DB Entity will document the condition of the existing facilities. The Department may review the documentation for accuracy. During and after construction, the DB Entity will re-evaluate the condition of these facilities. If damage from construction activities to said facilities is noted, the DB Entity shall repair the damage at no additional cost to the Department. The DB Entity shall conduct a post construction survey to document the final condition of all existing properties covered under this program. The pre- and post-construction surveys shall be done by a licensed professional engineer.

The DB Entity shall submit to the Department copies of the initial documentation as well as the results of periodic monitoring and final documentation of conditions.

3.13.3. Protection of Persons and Property during Construction

The DB Entity shall ensure the safe passage of persons, vehicles and bicycles around the areas of demolition and construction and prevent injury to persons and damage to property through the use of appropriate temporary shielding, protective barriers and enclosures.

The DB Entity shall take care not to damage portions of any structure that is to remain a part of the Project or private property that is adjacent to the construction area. Any item damaged, or otherwise made incapable of continued use due to demolition or construction operations, shall be repaired or replaced with an equal or better product by the DB Entity at its own expense and at no expense to the State.

The DB entity shall provide adequate shoring and bracing to prevent unstable structures from collapsing. During the prosecution of the work under this Section, the Department may reject the use of any method or equipment that causes undue vibration or damage to any part of the remaining structure or adjacent structures. The DB Entity shall take effective measures to prevent windblown dust and erosion. There are businesses in the vicinity of the bridge that would be adversely affected by dust.

The DB Entity shall take precautions beyond normal operating procedures for the purpose of minimizing or eliminating dust caused by demolition. The DB Entity should meet with the adjacent property owners to consider means for mitigating the negative effects of dust on their operations. If during the course of the work, the Department deems that the dust accumulation on the adjacent properties is excessive, the Department will order a cessation of the work until more effective means of dust control are established.

3.13.4. Maintenance of Bridges during Construction

The construction of this project is scheduled to run for several years. The Providence Viaduct NB and former SB Bridge 578 and Smith Street Bridge 701 bridges are in poor condition. The DB Entity is responsible for maintaining these bridges and the bridges requiring preservation for the duration of the project. The following maintenance work may include, but is not limited to the following:

a. Patching of spalls and holes in the bridge deck

b. Patching failing asphalt overlay

c. Patching concrete or shoring deteriorated piers that have lost capacity and are no longer structurally adequate

d. Repairs or replacement of existing joints

The determination of need for maintenance work shall be as directed by the Department/Resident Engineer. An estimated cost has been included as a schedule of value in the lump sum base bid as follows:

1.13.2 Bridge and Roadway Special Maintenance FHWA Participating

1.13.3 Bridge and Roadway Special Maintenance FHWA Non-Participating

The actual cost of the work shall be billed and paid for to reflect actual costs incurred, as described in Section 109.04a.4 force account basis. This effort will include all necessary traffic control, material, equipment and labor necessary to complete the work as directed.

3.13.5. Graffiti during Construction

The Contract requires furnishing and installing an anti-graffiti coating system on exterior exposed surfaces bridges and walls. The surfaces protected shall be clean and free of all graffiti at the completion of the project at the time of final acceptance, in accordance with Section 842 Anti-Graffiti Coating. The construction of this project is schedule to run for several years, and it is anticipated that there will be on-going graffiti in the project area. All graffiti is required to be removed by power wash, painted or other means, as directed by the Project Manager and/or Resident Engineer. The graffiti must be removed on the next business day.

The actual cost of the work shall be billed and paid for to reflect actual costs incurred, as described in Section 109.04a.4 force account basis, under Item 1.31. Bridge and Roadway Special Maintenance. This effort will include all necessary traffic control, material, equipment and labor necessary to complete the work as directed.

3.13.6. **Demolition of Structures**

Preliminary Design Plans have conceptually been developed for demolition of the existing bridges. The DB Entity shall fully remove all of the existing bridges and retaining walls in conflict with the proposed construction and those no longer used.

Demolition and removal shall include the entire superstructure, substructure and footings(unless otherwise shown in the BTC). Piling may be left in place. The Project demolition work consists of removal and disposal of the existing bridges and walls as shown in the BTC Drawings and as required by the Final Design.

Demolition shall be consistent with the anticipated construction staging plans. Partial removal of structures will most likely be required. In this case, the DB Entity shall design temporary falsework, framing or foundations to ensure that the remaining bridges in all stages are safe and functional.

The existing bridge superstructures and all portions of the substructure and all walls subject to demolition shall become the property of the DB Entity, except insofar as the existing elements are to be incorporated into the Project.

Condition of Structures:

The Department assumes no responsibility and makes no claim as to the actual condition or structural adequacy of any existing construction to be demolished. The DB Entity shall investigate and assure itself of the condition of the work to be demolished and shall take all precautions to ensure the safety of persons and property on or near the Site.

Utilities:

The DB Entity shall maintain and protect all utilities, including but not limited to those exposed, covered, structure mounted, buried underground and overhead, except those requiring removal, for which the DB Entity shall maintain and protect the utility until such time it has been removed from service by the owner. The DB Entity shall be responsible for adequately protecting existing utility lines, so that they can remain in service. If any utilities are damaged due to the DB Entity's operations, the DB Entity shall repair them at its expense.

The DB Entity shall identify and protect all utilities from damage during demolition. If the DB Entity elects to allow debris to fall onto the ground or onto surface streets during demolition, it shall coordinate with the utility owners regarding protection of all utilities.

Traffic:

The DB Entity shall coordinate and conduct operations and removal of debris to ensure minimum interference with the normal use of public ways and other adjacent facilities. The demolition process shall be in accordance with the approved Conceptual Sequence of Construction Phasing Plans, Conceptual Detour Plans, BTC Draft TMP with Attachments and Maintenance and Traffic Control Plans prepared by the DB Entity. The allowable times when lanes and shoulders can be closed are shown in the BTC DRAFT TMP included in Appendix B. Modifications of the MPT plans during construction will require coordination with the Department, the City of Providence, and local businesses.

The DB Entity shall not close or obstruct traffic on streets in addition to those shown in the approved MPT plans without the written permission of the Department to do so.

Salvage:

All materials removed not to be re-used for the proposed structure shall become the property of the DB Entity and shall be removed from the Site. Disposal of materials shall be in accordance with all local, state and federal regulations.

Explosives:

The use of explosives in the demolition process will not be permitted under any circumstances.

Construction Staging:

The demolition work shall be coordinated with the intended staging of construction proposed by the DB Entity.

The demolition of portions of the bridge must be performed during available lane and roadway closures such that demolition is not performed over open lanes of traffic.

Submittals:

The methods and schemes proposed for demolition shall be prepared under the supervision of a Professional Engineer registered as such in the State of Rhode Island and Providence Plantations. Such Engineer must be familiar with these specifications, those of AASHTO, the Department's Blue Book, and the Project, and must be experienced in the relevant technical field. All drawings and calculations shall be stamped with the seal of the Professional Engineer.

The DB Entity shall be responsible for submitting the following information to the Department for review and approval:

1. Materials Disposal Plan

a. Identifying off-Site disposal locations.

b. Agency certification(s) for off-Site disposal locations.

c. Prior to the submission of a periodic invoice for payment for work including materials disposal, all disposal receipts from the solid waste facility or the recycling site shall be submitted to the Resident Engineer. Such receipts shall bear the printed name of the facility operator and shall specify the date of delivery and the quantity and type of material delivered and shall be signed by an on-site representative of the facility operator. No payments will be made for the disposal of materials for which there are no signed disposal receipts.

2. Demolition Plans

A demolition plan shall be submitted for each structure to be removed. A demolition plan indicating procedures, sequence of operations, placement of shields, barriers, equipment types and placement, dust control, and plan of demolition. The demolition scheme shall be coordinated with proposed construction staging and MPT Plans. As a minimum, the following information shall be included in the submittal.

a. Plan(s) showing the location of all roadways, railroads, utilities, structure to be removed, adjacent structure(s) not included in demolition, protective barriers and shielding as required, and other appurtenances in the vicinity of the demolition area.

b. Proposed work area including right-of-way lines and easement lines.

c. Calculations for all temporary supports and existing elements to remain during stage construction. If cranes are proposed to be placed behind existing abutments or walls,

calculations shall be submitted demonstrating adequate resistance to sliding and overturning.

d. Approximate location of loading areas for trucks used to remove debris and beams.

e. Identification of crane type and model, crane set-up location(s) and intended operating radii and pick loads.

f. Crane and lifting equipment technical information, including rating data. Information shall include equipment geometry, weight, boom-lift capacity, and crawler pressure tables.

g. Identification of the order and sequence for the use of lifts and the repositioning of equipment; and intended pick weights.

h. If applicable, identify methods and materials proposed for temporary structures or strengthening of specific structural members for stability during the demolition process.

i. Identification of other equipment proposed for use in the demolition process.

j. A schedule of demolition operations identifying their durations and sequence.

k. Any other pertinent information that describes the proposed demolition procedures and activities.

Any acceptance of the above-described submissions by the Department shall not relieve the DB Entity of complete responsibility for all demolition procedures and operations and their effects.

3.13.7. Bridge Design and Construction

Preliminary BTC design plans have been developed for the proposed bridges, including general layout of each bridge. These layouts are schematic only and are not guaranteed. Notes are included on the plans that indicate the design and detailing requirements for each bridge. Unless otherwise indicated, vertical clearance for all bridges shall be 16’-0” minimum. The DB Entity is responsible for the complete design, detailing, and construction of each bridge.

The DB Entity acknowledges by receipt of such documents that it explicitly understands that while these plans have been advanced to a certain level, the DB Entity shall be required to provide a final, complete Project design stamped, sealed, and certified by a Professional Engineer, for review and approval by the Department and possibly third parties. The Professional Engineer must be registered as such in the State of Rhode Island and Providence Plantations.

The scope of work includes, but is not limited to, design and construction of all new bridges as needed to support the proposed roadway layout in the final design. The new bridges shall conform to the requirements and concepts shown in the BTC plans and the work described below.

The BTC plans detail the general configuration and elements/treatments that have been developed through the preliminary design phase, including incorporating input from coordination with environmental permitting agencies, utility coordination, and during outreach to community officials that has occurred for the Project. Elements including but not limited to the substructure foundation design, pile quantities and layouts, and bridge scuppers have only been shown conceptually and are not designed. The roadway alignment, profile, and cross section shown on the BTC plans were developed through coordination performed for the Project. Final design of the bridge superstructure will be required as part of this Project. Further details on the limitations for modifications in the final design are outlined in this RFP.

The DB Entity is encouraged to use Accelerated Bridge Construction (ABC) techniques where beneficial. It is anticipated that proposers will consider using techniques including, but not limited to, rapid demolition and erection methods, prefabricated bridge units (PBU), lateral slide techniques, Self-Propelled Modular Transporters techniques, precast concrete deck panels, precast substructure elements, and additional work hours.

The DB Entity will finalize the bridge design in conformance with the latest Rhode Island LRFD Bridge Design Manual, AASHTO standards, and all other standards as applicable. A Bridge Rating Report in conformance with the RIDOT Bridge Design Manual and the RIDOT Guidelines for Load and Resistance Factor Rating (LRFR) of Highway Bridges and as-built replacement superstructure plans will be prepared by the DB Entity after the bridges are constructed, open for full beneficial use, and inspected by RIDOT.

The DB Entity may incorporate into the final design the reuse of any of the existing foundations and substructures provided. The reuse of any foundation or substructure will necessitate the submission of an ATC. In this case, the DB Entity will be responsible for demonstrating to RIDOT's satisfaction the structural capacity of the foundations and/or substructures, ensuring that the elements can be rehabilitated to provide the required design life, and adequately support the new structure associated with its reuse.

The Department has proposed the use of integral and semi-integral backwall designs wherever possible in order to provide jointless deck end conditions. The backwall would be attached to the ends of the bridge beams and connected to the deck via a reinforced concrete closure pour. The backwall would retain the backwall soils, support the approach slab ends and provide longitudinal resistance for seismic forces. Transverse seismic forces would be resisted with standard cast-in-place concrete keeper blocks. Where not practicable to incorporate integral or semi-integral backwall designs, deck over backwall design shall be incorporated.

The following sections contain information regarding bridges with more complexity requiring special design and construction techniques. The DB Entity shall determine the construction sequences and methods for the other bridges and structures.

3.13.7.1. Smith Street Bridge

The Smith Street Bridge consists of two spans carrying Smith Street over I-95 NB and SB. The proposed bridge shall be constructed in phases maintaining the number of lanes shown on the BTC Conceptual Sequence of Construction Phasing Plans and in the Draft TMP with Attachments.

Smith Street contains numerous underground utilities carried by the bridge. These utilities will need to be relocated from the existing bridge to the new bridge. The existing water line buried below I-95 just south of the existing bridge shall be relocated onto the new bridge as shown in the BTC. In addition to utility relocations, Smith Street must remain open to bi-directional vehicular and pedestrian traffic during construction.

The deck of the bridge shall be jointless. This may be accomplished using beam continuity or through the use of link slabs.

The BTC plans show one potential approach to the construction of the Smith Street Bridge. The general sequence is shown on Smith Street Bridge No. 701 Plans – Phased Construction sheets. The sequence shown in the BTC plans is suggested. Alternative means of building this bridge may be submitted as an ATC.

3.13.7.2. **Bridge Preservation**

Bridge preservation activities have been identified for six (6) bridges:

a. Atwells Avenue Bridge No. 575
b. Park Street Bridge No. 704
c. Chalkstone RR Bridge No. 706
d. Ashburton Street Bridge No. 707
e. Charles Street Bridge No. 708
f. Providence Viaduct Bridge No. 578 (old SB Bridge)

Preservation activities shall commence immediately after NTP and other than final painting of Atwells Avenue Bridge, all preservation activities shall be complete within 12 months of NTP. While all bridge preservation activities can commence simultaneously, Park Street Bridge preservation shall be scheduled to complete first. Providence Viaduct old SB Bridge also shall be accelerated in the project's schedule if implementing traffic phasing, such as that shown in the BTC that will utilize the old SB bridge for temporary traffic. This work may be omitted if an accepted ATC that does not utilize this bridge is incorporated into the DB Entity's design. Joint replacement at Bridge Nos. 706, 707, and 708 shall be completed with preservation activities at the beginning of the project and a second time at the end of the project where the extents of final paving extends onto these bridges.

3.13.7.3. **Providence Viaduct NB and Exit 23 Bridges**

The existing Providence Viaduct NB bridge carries Interstate I-95 NB over West Exchange Street, 6/10 Interchange ramps, Amtrak, Providence Place, the Woonasquatucket River, and Promenade Street. It consists of a multi-span steel bridge superstructure supported by post-tensioned reinforced concrete piers. The proposed bridge consists of two structures – one carrying I-95 through traffic, and one functioning as a collector-distributor road (CD Road) to Exit 23 Route 146 and State Offices exits.

The north slope paving shown in the BTC shall be modified as follows: Measured from the back of the existing sidewalk, there shall be a 25' wide level area at sidewalk grade beneath structures constructed as part of this contract to facilitate future improvements by the City of Providence as part of a separate project along the Woonasquatucket Greenway along Promenade Street.

The substructure locations shown along Providence Place in the BTC shall be modified as follows: Substructure elements shall be offset 10 feet beyond the existing back of south sidewalk on Providence Place to allow for future improvements by the City of Providence.

Changing spans to embankments will not be allowed.

The deck of the bridge shall be jointless to the extent practicable. A joint will only be allowed at locations where geometry dictates requiring a joint such as the junction between the new bridge and Ramp DB as shown in the BTC. This may be accomplished using beam continuity or through the use of link slabs.

The proposed bridge is required to be built within the existing right of way, therefore it needs to be built approximately on the existing alignment.

The BTC plans show one potential approach to the construction of the Providence Viaduct NB bridge. The conceptual suggested sequence of construction of this bridge is depicted in the BTC Conceptual Sequence of Construction Phasing Plans. Alternative means of building this bridge may be submitted as part of the technical proposal.

3.13.8. **Retaining Walls**

The final design will require the removal and reconstruction of existing retaining walls along Park Street. Retaining walls will also be required to maintain new or existing embankments to support the temporary and final roadway layout. All retaining walls must be constructed entirely within the permanent right-of-way limits. The BTC plans show MSE Walls, Soil Nail Walls, and cast-in-place concrete retaining walls. The DB Entity will be responsible for determining wall construction types. Where proprietary retaining walls are used, they shall be in conformance with RIDOT design criteria and requirements.

The BTC plans and specifications indicate which proprietary retaining walls are acceptable for use. It should be noted that the Department maintains an approved proprietary retaining wall list. No other retaining wall suppliers may be used on the Project; however, a cast-in-place retaining wall may be substituted for the proprietary retaining walls listed.

All retaining walls other than those constructed of cast-in-place reinforced concrete shall provide a precast concrete facing material in the final condition with architectural form liner as shown in the BTC plans. Soldier pile walls with exposed steel and lagging will not be permitted for permanent walls.

3.13.9. **Design Criteria**

The design of all new bridges and structures shall comply with the following:

a. AASHTO LRFD Bridge Design Specifications, 8th Edition (AASHTO LRFD) as amended by the RIDOT Bridge Design Manual and the provisions provided herein. If any conflicts arise between the RIDOT LRFD Bridge Design Manual (excluding seismic) and the AASHTO LRFD design code, the more stringent design code shall govern.

b. Design shall be based on Load and Resistance Factor Design (LRFD) for HL-93 Live Loading.

c. The bridge shall be designed and constructed with a minimum design life of 75 years. (this is prescribed in AASHTO)

d. Seismic Analysis shall be in accordance with the AASHTO LRFD Bridge Design Specifications (AASHTO LRFD).

e. AASHTO/AWS D1.5 Bridge Welding Code, 2015. No welded attachments other than cross frame connection plates are allowed to a tension area of any member.

f. All structural steel material for girders, cross frames, diaphragms as well as other steel details shall be AASHTO M270 (ASTM A709) Grade 50.

g. All girders shall be metalized and painted in accordance with RIDOT Standard Specifications. The standard color for Smith Street Bridge and the bridges painted as part of the identified preservation activities shall be Blue (Semi-Gloss) to match Munsell Color 2.5PB 5/10 per RIDOT guidance. The standard color for Providence Viaduct NB Bridge and ramp bridges modified or replaced as part of this project shall be painted Green (Semi-Gloss) to match Federal Std. 595 Color 24272 per RIDOT guidance.

h. The DB Entity shall provide structural design for all traffic signal supports, sign supports, conduits and utility attachments to the steel structural members. All such design details and attachments that are not characteristic of infinite fatigue design life are not allowed.

i. Maximum deflection due to Live Load including Dynamic Allowance (LL+IM) shall be in conformance with RIDOT requirements outlined in Section 2.5 of the RIDOT LRFD Bridge Design Manual. For bridges without a sidewalk that span the Amtrak right of way, the deflection limit for vehicular live load including impact may be increased to L/800.

j. Bridge utilities shall be supported by the superstructure and detailed so as to be accessible for future maintenance, replacement, and/or upgrading.

k. For bridge decks to be Cast-In-Place (CIP), stay-in-place forms may be used. SIP forms will not be allowed for deck overhangs.

   a. The use of SIP forms must be in accordance with the RIDOT LRFD Bridge Design Manual and RIDOT Bridge Design Standards.

l. The DB Entity shall design shear blocks to resist lateral seismic design loads. Only interior shear blocks shall be provided for provided to resist seismic loads.

m. An anti-graffiti coating will be required on the exposed concrete surfaces of all bridges and walls under this contract in accordance with the Specification for Section 842 – Anti-Graffiti Coating.

n. Snow fences will be required on this project on bridges over roadways and on retaining walls adjacent to roadways.

o. The DB Entity is responsible for providing a fully detailed monitoring scheme which serves to verify that the existing bridge and its foundations are not being damaged during proposed construction.

p. The DB Entity is required to maintain a 30' buffer between any existing substructure foundation and any material stockpile.

The DB Entity's Final Design shall conform the RIDOT Bridge Design Manual, with the amendments to the following Sections of the Bridge Design Manual:

Section 1.4.2 – A final design that includes one or more fracture critical members will require the submission of an ATC. All fracture critical members shall include the use of bolted members in tension areas unless it can be proven infeasible.

Section 1.4.3 – All bridges shall be designed using an Operational Importance load modifier of 1.05.

Section 2.1.2.1 – Proposed minimum vertical clearances over the roadways within the interchange should be maintained as shown on the BTC Drawings but shall not be less than the minimum required per Section 3.9.2 Roadway Design Criteria except where design exceptions are noted.

Section 2.3 – Bridge Structure Types - The following bridge types will not be accepted in the final design:

a. The use of butted precast prestressed concrete box beams;
b. precast three-sided concrete structures;
c. cast-in-place concrete slab; and
d. timber bridges

Section 3.6.4 – All bridges shall be classified as "Critical" for the determination of performance objectives.

Section 5.9.2.3 – All paved bridge decks shall receive a Membrane Waterproofing. All membranes shall be listed on the Rhode Island Department of Transportation Approved Materials List for Transportation Construction Projects.

Section 6.2.2 – Structural Steel

All Structural Steel shall be new steel conforming to AASHTO M 270 Grade 50, HPS Grade 50W or HPS Grade 70W. All steel shall receive a metalizing coating system with a paint coating.

Section 9.6.9 – Stay-In-Place Forms and Bridge Decks

If utilized, stay-in-place forms shall follow the requirements below:

a. The use of steel stay-in-place forms shall be in conformance with the Rhode Island LRFD Bridge Design Manual and the Rhode Island Bridge Design Standard Details.

b. The use of precast stay-in-place forms will not be allowed.

Bridge Decks:

Bridge Decks shall be cast-in-place concrete constructed of High-Performance Concrete.

All paved bridge decks shall receive a 3” minimum bituminous wearing surface applied over a membrane waterproofing.

All sidewalks on bridges shall be cast-in-place concrete with reinforcing in conformance with the RIDOT Bridge Manual. The sidewalks shall be connected to the bridge deck through the use of reinforcing steel installed in the bridged deck and extending into the sidewalk pours.

The geometry of the Smith Street sidewalks and details are to be consistent with the BTC. The location of Smith Street pedestrian ramps, bridge deck joints, and architectural pylons shall be as shown in the BTC Plans.

Steel Box Girders:

The use of steel box girders will be allowed, provided that they can meet the following conditions:

a. The inside vertical clearance of all boxes, measured from top of the bottom flange to the underside of the concrete bridge deck, at any point along the length of the box with the exception of at the openings in interior diaphragms, shall be no less than 72” except as shown in the Atwells Avenue On-Ramp bridge in the BTC.
b. All surfaces of the interior of box girders shall be painted white with marking designating station locations every 20’ within the box girder.
c. Stay-in-place forms, if used with box girder structures will be allowed for the portion of the bridge deck located directly over the interior and between the webs of each steel box girder. SIP forms will not be allowed for deck overhangs and for portions of the bridge deck located between box girders, as these areas are accessible for formwork removal.

3.13.10. Accelerated Bridge Construction

The use of Accelerated Bridge Construction is encouraged and most likely required for this Project. One of the goals of the Project is to minimize its interference with the Project on the traveling public. Prefabricated bridge elements and systems are proposed in order to minimize the detrimental effects of the construction. The following are brief descriptions of the potential ABC technologies that may be used:

Prefabricated Beam Units (PBUs): PBUs consist of two or more beams that are topped with a concrete deck in a PCI-certified concrete fabrication facility. PBU design shall conform to the following criteria:

a. The design of the beams shall be based on the assumption that the precast concrete deck is equivalent to a cast-in-place concrete deck. The concrete in the closure pours may be treated as a composite dead load.

b. The design of the deck is the same as for a cast-in-place concrete deck. The AASHTO Strip method shall be used for the design of the reinforcing in the deck.

c. Other provisions for cast-in-place concrete decks specified in the AASHTO LRFD Bridge Design Specifications shall also be followed. The design strength of the concrete shall be based on a compressive strength of four (4) ksi. The closure pour connection may be designed for a lower interim strength that it is anticipated will exist at the completion of curing. If this approach is taken, the final strength shall still be four (4) ksi minimum.

Precast Concrete Full Depth Deck Panels: This consists of full depth precast concrete panels that are made composite with the supporting beams: Precast Concrete Full Depth Deck Panels shall conform to the following criteria:

a. Any precast concrete deck panels shall be designed with mild steel reinforcement. An ATC that includes a design utilizing prestressed or post-tensioning for the strength design of the precast concrete deck panels will not be allowed.

b. Panels greater than 30 feet in length shall have prestressing designed to resist lifting and handling forces. The panels shall be designed for zero tension under all conditions during lifting and handling.

c. The connection between panels in the strength direction shall be via a fully reinforced concrete closure pour. Ultra-high-performance concrete (UHPC) may be used for closure pour connections.

d. The connection between adjacent panels in the distribution direction shall either be post-tensioning conforming to the AASHTO LRFD Bridge Design Specifications or via a fully reinforced concrete closure pour.

e. Any deck slab constructed of precast panels may include cast-in-place concrete in areas for which the use of precast concrete is not feasible, including over piers, at the bridge ends over abutments and in areas of intersection girders. The cast in place concrete areas of the deck slab shall conform to all requirements of the RIDOT LRFD Bridge Manual.

f. Inserts cast into or drilled into the precast deck panels or the cast-in-place concrete closure pours for the support of utilities or other functions will not be allowed. Inserts cast into the precast panels for temporary support of forming for closure pours will be allowed provided that the inserts are protected from corrosion in the final condition.

g. The design and detailing of precast concrete deck panels shall include an extra ½" of sacrificial thickness to allow for grinding to achieve the required longitudinal and transverse profiles. In order to achieve the final longitudinal and transverse profile of the bridge deck, it may be necessary for the DB Entity to diamond grind the entire deck surface to match the final profiles (exclusive of areas which will be covered by the sidewalks). The design of the deck and beams shall be based upon the minimum final thickness of the deck for the computation of structural properties. Cover on reinforcement within the deck panels shall be based on the minimum cover provided after sacrificial grinding.

The RIDOT will accept a final design that does not include an extra ½" of sacrificial concrete thickness in the precast panels and subsequent grinding after installation to achieve the required longitudinal and transverse profiles provided that the designer can demonstrate the panel dimensions will achieve the required profiles with no more than ¼" variations (+ or -) in the 3" pavement thickness due to panel dimensions creating a chorded profile.

Lateral Slide and Self-Propelled Modular Transporters (SPMTs): These technologies can allow for rapid installation of bridge superstructures.

No national design and construction specifications exist for these technologies. If used, the Utah DOT Structures Design and Detailing Manual is recommended for design and construction guidance.

Semi-Integral Backwall: This technology consists of backwalls that are integral with the beam ends. Semi-integral backwalls can be used to facilitate ABC due to the simplicity of the connection of the superstructure and the substructure. This technology is recommended for Lateral Slide Techniques, SPMT Techniques, and PBUs.

The backwalls shall be designed to resist the soil forces (active (including surcharge), passive (due to seismic loads and thermal movement) and approach slab loads. The reinforcement in the backwall may be designed as one-way reinforcement (vertical or horizontal) or as two-way reinforcement. The support for resistance of backwall forces shall be the beam end and the integral deck connection.

Link Slabs: Link slabs are continuous deck sections that span across beam ends at piers. Link slabs allow for span-by-span construction without beam continuity. Link slabs can be used to facilitate ABC due to the elimination of in-span splices of girders.

The concept of link slabs entails designing the connection of the deck across the pier in order to accommodate the rotation of the beams without the occurrence of significant cracking. This is done by de-bonding a small portion of the deck near the pier, allowing for a wider spread of the live-load rotation strain. Link slabs provide a jointless deck connection without the complexities of developing a continuity connection. The design of the link slabs should be based on the PCI Journal Paper entitled "Behavior and Design of Link Slabs for Jointless Bridge Decks" (Caner and Zia, Journal of the Precast Prestressed Concrete Institute, May-June 1998).

3.13.10.1. Assembly Plan

The DB Entity will be responsible for the development of an Assembly Plan document during construction for each bridge employing ABC methods. The Assembly Plan shall be considered a Working Drawing and shall be certified by a Professional Engineer, registered in the State of Rhode Island and Providence Plantations, with specific knowledge of the Contractor's equipment and "means and methods".

The Assembly Plan shall be submitted to RIDOT for approval and shall include, but not necessarily be limited to the following requirements:

a. Step-by-step assembly sequence detailing the overall construction process including a detailed timeline for all operations. Account for setting and cure time for grouts and concrete closure pours.

b. Details of any formwork for closure joints including methods for attachment to the adjacent prefabricated elements.

c. Details of all materials to be used for the construction.

d. Methods and materials to be used for casting and curing concrete closure joints.

e. Estimated timeframe of strength gain for concrete closure joints.

f. A statement of compliance with all requirements of applicable environmental permits.

g. Any weather limitations for the assembly work.

h. Details and/or information regarding all equipment that will be employed for the assembly of the bridge.

i. Details of all equipment and materials that will be used to lift elements including, but not necessarily limited to cranes, excavators, lifting slings, sling hooks, and jacks.

j. A site plan showing crane locations and operation radii. The plan shall also depict all affected utilities, drainage, and protective measures that will be employed throughout the construction activities. If multiple crane set-ups are required, include a separate plan for each crane set-up. The site plan should show the layout of multi-crane lifts (if required).

k. All lifting and handling calculations for each element.

l. Lifting calculations for all crane lifts. Lifting calculations for precast elements (i.e. backwalls, approach slabs, etc.) shall be in accordance with Chapter 8 of the PCI Design Handbook (seventh edition).

m. The DB Entity is responsible for determining the center of gravity for all elements. Special care shall be used for elements that are not symmetrical. These elements may require special lifting hardware to allow for installation to the proper grades shown on the plans.

n. Methods of adjusting and securing the elements after placement.

o. Methods for controlling erection tolerances for both the horizontal and vertical direction including any surveying requirements.

The DB Entity shall, for all crane locations demonstrate to the Department that all utility company concerns, and comments have been addressed prior to the commencement of construction activities.

The DB Entity shall notify the Department of the pre-assembly activity a minimum of thirty (30) days in advance and make arrangements for any inspections to be made by Department representatives.

The DB Entity is responsible for obtaining all transport permits for prefabricated elements from the State of Rhode Island and Providence Plantations and any other state through which the units will be transported.

3.13.10.2. Geometry Control Plan

The DB Entity shall develop a geometry control plan for the assembly of prefabricated elements, and it shall be included in the Assembly Plans. The plan shall indicate in detail how the geometric detail of the erection will be controlled, and the actions required to assure proper erection of the structure to the dimensions and final grades shown on the plans.

The geometry control plans shall include details of the layout process (lines, marks, survey, etc.) that will be used by the erection personnel for checking the location and elevation of each element prior to releasing the element from the erection equipment.

The plans shall include provisions for regular monitoring of the structure during erection, and methods for adjusting geometry should unacceptable deviations occur.

3.13.11. Submissions, Drawings and Calculations

Plan development, drawings and calculations shall be in accordance with the RIDOT Bridge Design Manual and Bridge Standard Details.

The Department reserves the right to hold over-the-shoulder meetings to review design progress. Calculations will be required to accompany the final design plan submission.

3.13.12. Materials and Samples

Materials shall be as specified in the BTC. Approval of substitution for alternate materials is not guaranteed. Proposed changes of materials must be submitted as an ATC.

3.13.13. Bridge Ratings

The DB Entity will be required to prepare Bridge Rating Report(s) for newly constructed bridges, including newly constructed portions of bridges during phased construction, and shall be in accordance with the RIDOT Bridge Load Rating Guidelines, dated November 2019. The DB Entity shall perform this task for each interim phase of construction for a portion of a bridge which is opened to traffic and for the entire bridge at substantial completion. As a condition of final Project acceptance, the DB Entity will provide to the Department a Bridge Load Rating Report establishing the completed bridge load carrying capacity. All Bridge Load Rating Reports, interim or final, shall be prepared and stamped by a Professional Engineer registered in the State of Rhode Island and be submitted within 30 days of opening the bridge, or portion of bridge, to traffic.

3.13.14. Other Structures

Overhead sign supports and traffic mast arm pole foundations may be supported on Drilled Shafts. The attachment of sign structures to bridges is prohibited.

Materials shall be as specified in the BTC. Approval of substitution for alternate materials is not guaranteed. Proposed changes of materials must be submitted as an ATC.

The existing air monitoring station, adjacent to Hayes Street shall be relocated by the DB Team to a location to be provided by RIDEM.

3.13.15. Potential Alternatives

The following alternatives may be considered for the design. These alternatives are not guaranteed to be found acceptable by the Department and would need to be vetted by the DB Entity and submitted as an ATC. This list is not all-inclusive. DB Entities are encouraged to submit other beneficial ATCs that are not listed.

a. A final design that includes an abutment comprised of a spread footing supported on top of an MSE wall system will require the submission of an ATC.

b. Precast concrete deck panels installed on steel girders built according to the PCI Northeast Bridge Technical Committee typical details (www.pcine.org).

c. Alternate Closure pour details making use of other materials and reinforcing details such as headed reinforcing bars or hooked bars. These details must be sufficient to resist the forces in the deck as specified in the AASHTO LRFD Bridge Design Specifications.

3.13.16. Disallowed Alternatives

ATCs that include the following items will not be accepted by the Department.

a. Elimination of any of the spans of the proposed Viaduct NB Bridge by means of filling between the spans shown on the BTC drawings.

b. Slip-formed concrete parapets.

c. Open railings in place of solid concrete barriers.

d. Bare concrete decks (with the exception of the bridges shown in the BTC) unless the DB entity completes a supplementary noise analysis showing a bare deck complies with the EA.

e. Partial-depth precast deck panels with a reinforced concrete topping.

f. Use of proprietary retaining wall systems not approved by the Department

g. Any superstructure that would overstress the existing substructures and foundations.

h. Bridge Expansion joints within the length of deck except for Bridges CB-2, CB-3, DB-1, and DB-2, where an expansion joint system within the length of the deck is allowed due to ramp curve geometry.

i. Backwall systems containing expansion joints between the backwall and the bridge deck.

j. Use of soil nail walls as a permanent retaining wall without facing (soil nail walls with facing as shown in Park Street retaining wall BTC plans are allowed).

3.14. Architectural Elements

3.14.1. General

The general scope of the Project is based on the BTC Drawings and Special Provisions, except as modified herein. The Project includes the construction of the new bridges and retaining walls in and around the Providence Viaduct NB and Smith Street Bridges, as well as the associated ramps and local streets. The final design shall incorporate architectural elements as shown in the drawings included in the RFP. The intent is to provide architectural features that are consistent within the project limits and context sensitive to the surrounding communities. All architectural features must be aesthetically pleasing and be low maintenance for the owner.

3.14.2. Bridge Design and Construction

The scope of work includes, but is not limited to, design and construction of all new bridges as needed to support the proposed roadway layout in the final design. The new bridges shall conform to the requirements and concepts shown in the Base Technical Concept (BTC) sketch plans and the work described below.

Plans developed shall include architectural details both in elevation and section views with sufficient detail to allow review by RIDOT of the final product and construction by the Contractor. Details and section views shall accurately portray all architectural elements both in dimension and layout.

The following sections contain information regarding architectural details required and structures requiring special design and construction techniques. The Contractor shall determine the detailing and construction for the other components.

3.14.3. Smith Street Bridge

The Smith Street Bridge contains significant streetscape features. Smith Street Bridge features Glass Fiber Reinforced Plastic Pylons, including two (2) bronze anchor plaques. See BTC plans and specifications for information on required features.

3.14.4. Retaining Walls

The final design of all retaining walls shall include providing a simulated ashlar stone pattern through the use of form liners for cast-in-place concrete and precast concrete matching the pattern used on the Viaduct SB project. The stone pattern shall provide a maximum relief of 1 ½" measured from the back of grout lines to the outermost point of simulated stone pattern. The pattern shall not repeat more than once in every 60 square feet of area. Refer to BTC Plans and Specifications for all wall patterns including Park Street retaining walls.

The contractor shall provide a mock up panel of at least 20 square feet in area demonstrating the final simulated stone pattern to be provided.

3.14.5. Other Structural Elements

Other structural elements that include architectural reference are:

a. Viaduct and Ramp Piers to match Relocated I-95 SB Bridge 578 pier shape and architectural form liner pattern and finishes.
b. Viaduct and Ramp Abutments over local streets to match Relocated I-95 SB Bridge 578 architectural form liner, cope patterns and finishes and slope paver pattern.
c. Viaduct and Ramp barriers to match Relocated I-95 SB Bridge 578 barrier exterior form liner pattern and finishes.
d. MSE abutments to have finishes matching BTC Smith Street Bridge abutments.
e. All retaining walls to match BTC Smith Street Bridge and Providence Viaduct SB project's form liner patterns.

3.14.6. Other Non-Structural Elements

Overhead sign supports, light fixtures support posts and traffic mast arm poles on local roads effected under this project shall include arms for banners but need not include any banners on these arms.

3.15. Drainage Design

3.15.1. General

The DB Entity shall include a drainage design in the Final Design for all temporary and permanent conditions. The drainage analysis for pre- and post- conditions for the 1.2 inch, 1-year, 10-year and 25-year, and 100-year storms shall be included. The drainage analysis, including but not limited to watershed contributions, gutter flow, swale design, stormwater treatment units (STU's) and pipe capacity, shall be included in the drainage design and shall follow the requirements of the Stormwater Management, Design and Installation Rules (250-RICR-150-10-8), the Rhode Island Stormwater Design and Installations Manual Amended March 2015 and the Rhode Island Department of Transportation Linear Stormwater Manual February 2019.

Stormwater and other drainage from the new construction shall be separated from the Narragansett Bay Commission (NBC) sanitary system through construction of new storm drainage systems and outfalls.

Drainage design shall consider all suggestions provided in TMDL's and Stormwater Control Plans for all appropriate receiving waterbodies. The designed STUs shall be contained within the state-owned or Public right-of-way (ROW); any work outside of ROW shall be submitted as an ATC.

Submission and design of all drainage requirements for permitting shall conform to the 2008 RIDOT Highway Design Manual (September 2009 Rev 2-10-2009) as well as the Rhode Island Soil Erosion and Sediment Control Handbook (Issued 1989 (Revised 2014, Updated 2016))and the Rhode Island Stormwater Design and Installation Standards Manual Amended March 2015. The contractor shall be responsible for obtaining any applicable permits including RIDEM, CRMC, and NBC and any applicable permits required for work associated with changes to the drainage systems.

The DB Entity will be responsible for obtaining any applicable permits and providing temporary erosion and sediment control in accordance with RIDOT Standards and the requirements of Rhode Island Pollutant Discharge Elimination System ("RIPDES") Program General Permit for Stormwater Discharges associated with Construction Activity.

RIDOT performed a CCTV on the existing drainage network within the project limits. Please see the videos in Appendix B. The DB Team shall review this video and determine if existing structures and pipes can remain or be replaced, rebuilt, or reconstructed. RIDOT advises the DB Team shall be responsible for these structures and pipes in the temporary and final conditions. RIDOT notes that temporary traffic control that shifts traffic over or around existing structures and pipes may require replacing, rebuilding, or reconstructing. RIDOT recommends the DB Team assess these structures and pipes as part of their design and construction and incorporate a cost for addressing these structures accordingly.

3.16. Lighting and Electrical

3.16.1. General

This Section contains information regarding the design and construction of lighting and electrical components.

3.16.2. Design Criteria

3.16.2.1. Rhode Island Department of Transportation Lighting Facilities:

The State lighting and electrical system shall be designed and installed in compliance with RIDOT Standard Specifications and Standards, the National Electrical Code, and the requirements and details in the Technical Provisions.

All new lighting specified shall be LED and meet the current Department requirements. New RIDOT highway lighting circuits straight two-phase 240V (run in pairs of 2 black (phase), 2 red (phase), and 2 white/gray (neutral)). Wireless smart lighting control technology from CIMCON, being implemented State-wide, shall also be implemented in this project.

3.16.2.2. City of Providence Lighting Facilities:

The City of Providence lighting and electrical system shall be designed and installed in compliance with the City of Providence lighting standards. City lighting shall be LED decorative fixtures that match lighting standards installed throughout the city in 2018. Decorative fixtures shall allow for the banners to be hung from them.

Safety and creative lighting solutions shall be employed beneath Route I-95 along Providence Place Drive and Promenade Street in order to present a lively and artistic environment as well

as to maximize physical safety. Dynamic colored lighting measures shall also be implemented to create inviting environment for pedestrians. The lighting shall be programmable and controlled through a DMX lighting control system located in a dedicated service pedestal nearest the installations with network RIDOT WAN/LAN.

3.16.3. **Existing Conditions**

The existing lighting circuitry is two-phase, 240-volt, and fed from outdoor lighting control cabinets. The lighting circuits are energized from dusk until dawn and de-energized during daylight hours.

The existing light standards on Route I-95 are 40' luminaire cobra head fixtures mounted over the roadway and are equipped with 250-watt high-pressure sodium roadway luminaires with semi-cutoff optics. The existing lighting on the ramps are cobra head luminaires mounted at 30'.

Wall-mounted under-bridge luminaires are mounted to the bridge abutments on Promenade Street at the Route I-95 NB overpass. Surface-mounted Rigid Metal Conduit ("RMC") (3/4" diameter) connects the under-bridge luminaires to the conduit cast into the bridge parapets via a junction box cast into the parapet wall. Electricity is fixed to the under-bridge luminaires from the two-phase highway lighting circuits contained in the bridge parapet.

Under bridge lighting exists on Providence Place at the I-95 NB overpass.

The existing lighting system noted on local City roads are comprised of a combination of utility pole mounted fixtures as well as decorative light standards.

3.16.4. **Materials**

The following materials shall be used for the lighting and electrical design and construction.

3.16.4.1. Light Standards

All light standards shall be installed new and shall conform to the requirements of T02.-Highway Lighting of the RIDOT Standard Specifications for Road and Bridge Design and Section T.08 – Aluminum Light Standards and Foundations. Light standards installed on concrete foundations shall have a breakaway transformer base. Light standards installed on a bridge parapet or retaining wall anchorages shall have a shoe base. Light standards shall be designed in accordance with the 2013 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. The light standard shall be providing a 40' luminaire mounting height over the roadway surface. Ramps shall utilize a 30' luminaire mounting height over the roadway surface.

3.16.4.2. Luminaires

All luminaire shall be installed new and shall conform to the requirements of T.07 Luminaires. The luminaires shall be "cobra head"-type, 260 Watt LEDS on 40' poles, and 133 Watt LEDS on 30' poles. The luminaire shall have a seven-pin receptacle fit with a CIMCON Lighting wireless controller and shall operate at two-hundred and forty (240) volts and shall meet all RIDOT Standards.

The under-bridge luminaires shall be wall-mounted type, 220-watt LEDs, 240-volt, and shall meet all RIDOT Standards.

3.16.4.3. Foundations

The light standard foundations shall be installed new and conform to the requirements of Section T.08 – Aluminum Light Standards and Foundations.

3.16.4.4. Conductors

Conductors shall be installed new and conform to the requirements of Section T.04 – Wire and Cable.

3.16.4.5. Conduit

Conduit shall be installed new and conform to the requirements of Section T.06 – Conduit.

3.16.4.6. Handhole and Pull Boxes

Handholes and pull boxes shall conform to the requirements of Section T.05 – Handholes and Pull Boxes.

3.16.4.7. Temporary Lighting

Materials for temporary lighting shall include breakaway fiberglass poles, roadway luminaries, and pre-assembled aerial cable. The pole shaft shall be constructed of a fiberglass-reinforced composite. The pole shall be non-conductive and chemically inert and shall be approved by FHWA for use on Federal Aid projects. For direct buried break-away poles, the butt end shall be enlarged so as to provide resistance to rotation and pull-out. For foundation/structure-mounted poles, the pole shaft shall be equipped with an anchor base of heavy-duty A356-T6 aluminum which shall be permanently bonded to the outside of the fiberglass shaft.

3.16.5. **Methods**

The lighting and electrical system shall be installed in compliance with RIDOT Standards and Specifications, the National Electrical Code, and the requirements as set forth in the Technical Provisions and details.

The DB Entity shall abide by the Department's lockout/tagout procedures when access to a circuit is required.

Prior to trenching and excavation, the DB Entity shall contact "Dig Safe" and the Department's Electrical Maintenance to ensure that all existing underground facilities are properly marked out prior to commencing any excavation.

All existing light standards shall be removed and replaced. New light standards shall be installed at the existing light standard locations as listed under "Existing Conditions." The DB Entity shall remove all existing light standards and luminaires, and they shall become the property of the DB Entity. Where a concrete parapet or retaining wall is present, the new light standard shall be installed on an anchorage integral to the parapet/wall. Each parapet-mounted anchorage shall have a corresponding cast-iron junction box (CIJB) cast into the parapet wall. The CIJB shall serve as a splice point for the lighting circuitry and shall house the breakaway fuse kits. An RMC stub-up shall run from the CIJB to the light standard anchorage.

Where appropriate, a light standard may be foundation-mounted behind guide rail or behind a concrete roadway barrier wall. For light standards mounted behind railing, the foundation shall be mounted twenty-four inches (24") behind the railing in the shelf area directly behind the railing and above the down-slope. Light standards may be mounted directly behind a barrier wall, provided that the top of the finished grade behind the wall is within forty-two inches (42") of the top of the wall.

Rigid metal conduit (RMC) shall be run between splice points (light standard bases, junction boxes, and handholes). Conduit shall be run in such a manner as to minimize conduit bends. Under no circumstances shall the cumulative total of conduit bends between splice points exceed three

hundred and sixty degrees (360°). RMC may be installed using the following methods: cast into concrete parapet walls, surface-mounted to the back face of a parapet or underside of a bridge deck or installed in the fill area behind guide rail or a barrier wall. For conduit in structure and surface-mounted conduit, expansion fittings shall be installed in the conduit at all locations subject to expansion or movement. Conduit in trench shall be installed at a depth of twenty-four inches (24").

All existing lighting circuit conductors shall be removed and replaced. Two-phase lighting circuit conductors shall consist of three (2) #2 AWG conductors (2 black (phase), 2 red (phase), and 2 white/gray (neutral)) and one (1) #6 AWG insulated (green) copper grounding conductor.

All damaged, defective, or inoperable under bridge luminaires shall be removed and replaced. Where necessary due to construction or conditions, existing surface-mounted RMC and branch circuit conductors shall be replaced with new ones.

3.16.6. Standards

State Lighting Standards: All lighting shall conform to RIDOT standards including but not limited to the following standards:

a. 18.1.0 6/08 R1 Concrete Light Standard Base
b. 18.1.1 6/08 Breakaway Support Couplings for Light Standards
c. 18.2.0 11/13 R3 Precast Type "A" Handhole
d. 18.2.1 5/11 R3 Precast Type "H" Heavy-Duty Handhole
e. 18.2.2 5/11 R3 Precast Type "B" Heavy-Duty Handhole
f. 18.3.0 6/08 R1 Aluminum Lighting Standards
g. 18.3.1 6/08 R1 Aluminum Pole – Grounding Detail
h. 18.3.2 6/08 R1 Typical Luminaire – Wiring Diagram
i. 18.3.3 No Standard Assigned
j. 18.3.4 6/98 Breakaway Support Couplings for Light Standards
k. 18.3.5 6/08 R1 Recessed Bolt Couplings for Light Standards
l. 18.3.6 6/08 Typical Wiring Diagrams
m. 18.3.7 6/08 Underpass Lighting Detail
n. 18.4.0 6/08 R1 Service Pedestal
o. 18.4.1 6/08 R1 Service Pedestal – Grounding Detail
p. 18.4.2 6/08 R1 Service Pedestal 240/480 Volts – 3W
q. 18.4.3 6/08 R1 Service Pedestal 240/480 Volts – 3W
r. 18.4.4 6/08 R1 Service Pedestal 120/240 or 120/208 Volts – 3W
s. 18.4.5 6/08 R1 Service Pedestal 120/240 or 120/208 Volts – 3W
t. 18.4.6 6/08 Service Pedestal Foundation
u. 18.5.0 6/98 Phase-Neutral Connector Kit
v. 18.6.0 6/08 R1 Trench Detail for Conduit in Existing Roadway
w. 18.6.1 6/08 Light Conduit – Road/Ramp Crossing
x. 18.6.2 6/08 Expansion Joints
y. 18.6.3 6/08 Pullboxes – Type "V" and Type "W"
z. 18.7.0 6/08 R1 Riser Pole Detail

3.16.7. **Temporary Illumination**

It is the DB Entity's responsibility to maintain the integrity of the highway lighting circuits through the Project limits. The DB Entity shall organize its work so that any portion of the roadway that has existing illumination and is open for use remains equally lighted. The DB Entity shall also provide illumination on all temporary crossovers, ramps and roadways constructed as part of the stage construction, that are open for use. The lighting may consist of: existing lighting, new lighting or temporary lighting (or any combination of the above). It is the DB Entity's responsibility to stage the installation of new lighting so that all roadways with existing illumination that are open for traffic remain lighted. If it is necessary to install temporary poles, lights, or circuitry, the proposed installation work shall be submitted for approval to the Department prior to the installation. Temporary lighting, where installed, shall be spaced so as to maintain existing luminance and uniformity levels. Under no circumstances shall proper nighttime operation of the lighting system on active roadways be disrupted by construction activities. The Department shall comply with RIDOT Standards and Specifications, with the following additions:

Prior to the start of any work that will interfere with the existing lighting system, the DB Entity, along with the Department Electrical Maintenance, shall inspect the system for lighting outages, pole knockdowns, and circuit malfunctions. If discovered, these deficiencies shall be noted and repaired by the Department prior to the start of said work by the DB Entity.

Once the DB Entity's work interferes with or detrimentally affects the existing roadway lighting system, maintenance of that system on the Site becomes the DB Entity's responsibility. The repair of any lighting system malfunctions occurring outside of the Site, caused by the DB Entity's work, shall also be the DB Entity's responsibility. The Department's Construction personnel will note the start and end date of the DB Entity's responsibility for maintenance of the existing lighting system. The DB Entity shall maintain the illumination throughout the duration of the Project, until accepted by the State. The DB Entity shall supply to the Department and to the Department's Electrical Maintenance Supervisor the names and telephone numbers of a primary and back-up DB Entity's representative, to be contacted should a problem with the lighting system occur.

Initial notification of lighting outages or pole knockdowns on the Site should immediately be given to the Department's Highway Operations Division, who would then notify the Department's Electrical Maintenance of the problem. The Department's Highway Operations can be reached at the following telephone numbers: (401)- 826-0573. The following procedures will be followed for lighting outages:

a. Once notified of a lighting outage, the Department's Electrical Maintenance personnel will assess the situation, and in the case of a pole knockdown, may clear the pole from the roadway and make safe any exposed wires.

b. Upon assessment of the lighting outage, the Department's Electrical Maintenance will notify the Project Inspector and the DB Entity's designated representative of the outage, thereby transferring responsibility for any further repairs to the DB Entity.

c. Upon notification of the problem, The DB Entity shall be responsible to repair the lighting system before the normal nighttime turn-on of the lights. If this cannot be achieved, the DB Entity will be required to make the lighting operational prior to the next normal nighttime turn-on of the lights, up to a maximum of twenty-four (24) hours from the time that the DB Entity was notified of the problem. The DB Entity shall contact the Construction field office and apprise the Project Inspector of the situation and brief them on what steps will be taken to bring the lighting back on line, along with an anticipated time frame for doing this.

d. For isolated individual luminaire outages (not a continuous circuit), the DB Entity shall repair such luminaires within forty-eight (48) hours of its notification of the problem.

The DB Entity shall follow standard “lock-out”, “tag-out”, and “Dig Safe” procedures when working on the lighting circuit. Both the DB Entity and the Department’s Electrical Maintenance shall have access to active lighting control cabinets.

The DB Entity shall be reimbursed for any costs associated with the maintenance of the existing lighting system that are generated by factors beyond its control. Such reimbursements would, for instance, cover damage caused by the general public or by normal system aging related to component failures (lamp burn-out, ballast/starter failure, cable splice failure, etc.). The DB Entity shall be responsible, however, for repair of damage to the existing lighting system incurred as the result of the DB Entity's operations, such as damage caused by improper wiring methods. All repairs or replacements necessitated by the DB Entity’s operations shall be made by the DB Entity at its expense.

Temporary illumination circuitry may consist of pre-assembled aerial cable. If aerial cable cannot be installed due to specific construction activities (driving of piles, placing of bridge girders, etc.), the DB Entity shall notify the Department and suggest alternative methods of installation. Alternative options may include installing cable in duct underground or installing surface-mounted cable in duct or PVC conduit, with cable along the backside of a bridge parapet or temporary concrete barrier curbing. Temporary cable in duct or conduit lying directly on the ground will not be allowed. The option of surface-mounting duct or conduit to the backside of a parapet or barrier will only be allowed when construction activities make it necessary and where the surface-mounted conduit will not expose workers to a high-voltage hazard. The Department’s approval will be required prior to the installation of any temporary circuitry not installed overhead.

When temporary circuitry is installed in trench, the DB Entity must follow the standard warning-tape procedures. When temporary circuitry is surface-mounted to the backside of a parapet or barrier wall, the DB Entity shall install warning placards reading: “Live Electricity.” Warning placards shall be installed at the beginning, end, and at intermittent points 100’ apart along the exposed length, of the duct or conduit. All temporary lighting circuits shall include a continuous No. 6 bare-copper grounding conductor connected to all light standards and effectively grounded as per the NEC.

3.16.8. Potential Alternatives – Not Applicable

3.16.9. Disallowed Alternatives

No alternatives to the materials listed above will be accepted.

3.17. Intelligent Transportation Incident Management System (ITS)

There are existing ITS elements within the project area that will be utilized for traffic surveillance and traffic information dissemination, assisting RIDOT with their Traffic Management efforts.

3.17.1. Existing ITS Devices

RIDOT currently operates several ITS devices throughout the project area. These devices are used on a daily basis and must remain operational throughout the duration of the project. In the event the existing device operation becomes non-operational through cause of construction activity; the device shall be repaired and/or replaced by the DB Entity within 48 hours. RIDOT employees or their agent shall be provided physical access to the devices in the field when needed for repairs. The DB Entity is required to notify the RIDOT Traffic Management Center (TMC) at least 10

business days in advance for all planned outages. In all cases, outages are to be rectified within 48 hours. RIDOT reserves the right to limit or deny any planned outages of ITS devices. Temporary relocation of field devices may be permitted with prior approval from the TMC. A plan showing the temporary location with power and electrical connections is required for approval.

The existing I-95 northbound closed-circuit video equipment (CCVE) camera (CCVE 9, adjacent to Kinsley Avenue) is currently connected to RIDOT's fiber optic network via a 12-strand cable in a 3-inch rigid steel underground conduit. This 12-strand fiber optic cable connects to the 72-strand fiber optic backbone via a splice enclosure in the manhole adjacent to the I-95 Southbound CCVE (CCVE 8A) on the southbound side between the Route 6 Ramps of the viaduct. As indicated in the CCVE 9 Conflicts and Relocations plan, this fiber optic cabling and conduit shall be relocated to avoid conflicts with the proposed viaduct structures. The relocated connection shall match the existing conduit and 12-strand fiber optic cabling in kind. As indicated in the same plan sheet, the 2-inch power service conduit may conflict with proposed structures. If a conflict arises and relocating is required, operation of the CCVE shall not be ceased for longer than 48 hours. New conduit shall remain 2-inch rigid steel from the power service to CCVE 9. The DB Entity shall install all new conduit and/or cabling infrastructure prior to taking any device off line where the power and communications cutover time can be minimized. The CCVE is to be non-operational for no longer than 48 hours during the relocation process and RIDOT shall be notified a minimum of 10 business days prior to the planned activity

An existing radar vehicle detector (RVD) located on CCVE 9 shall be mounted to a higher position on the 80-foot pole to account for the increased elevation of the proposed bridge structures. This will require additional conduit and cabling on the existing pole.

Existing northbound and southbound traffic counting loops adjacent to the Smith Street overpass are to be abandoned in place. Existing CCVEs mounted on the Smith Street overpass shall be abandoned and/or removed during the reconstruction of the Smith Street bridge.

Additional existing fiber optic conduit and cabling exist within the project as detailed below in Section 3.17.3.

3.17.2. Device Communication

The CCVEs located on the northbound and southbound sides of the viaduct communicate with the TMC via 72-strand fiber optic cabling. Field devices located along I-95 Southbound at the Orms Street overpass currently communicate back to the TMC via leased broadband services provided by Verizon and Cox Cable. This Project shall provide and install fiber optic conduit and cable throughout the project area and connect field devices at the Orms Street overpass to the existing fiber optic network. All communications shall be maintained until such time that new fiber connections are in place and operational, and the devices can be successfully transferred to the fiber network. Both existing and new devices shall utilize the existing/new fiber cable communication system from the field devices to the TMC located at 2 Capitol Hill, Providence, RI.

3.17.3. Fiber Conduit and Cable System

The existing 3-inch rigid steel fiber optic conduit connecting the existing CCVE 9 on the Northbound side of I-95 to the 72-strand backbone shall be removed and relocated to avoid conflicts with the proposed structures, as shown in the plans. The relocated conduit shall be 3-inch rigid steel. The existing 12-strand fiber optic cable may be back pulled and reinstalled into the new conduit if it is of adequate length and acceptable condition. If existing fiber optic cabling cannot be utilized, new 12-strand cabling shall be used. New fiber optic cabling shall be 12-strands and back pulled

through existing conduit. It shall be spliced to the 72-strand fiber optic backbone at the splice enclosure adjacent to CCVE 8A on the Southbound side of I-95. New fiber optic cabling and conduit shall be in place before cutting existing fiber to avoid unnecessary down time to the system.

Maintenance of Communications: This item shall consist of maintaining the existing fiber optic communication system along I-95 Northbound between Promenade Street and Orms Street until the relocated fiber optic communication systems is constructed and made operational. This will require the early construction of several items in the contract. The Contractor shall construct all new fiber optic manhole/handholes and junction boxes, the 12 and 72 strand fiber optic cable and conduit systems along I-95 Southbound and the Orms Street Bridge (See ITS Construction Plans) prior to any work being done that will impact the existing fiber optic cable. The Contractor shall install all required pull tapes in the existing conduit between JB1 and FMH6 prior to any work being done that will impact the existing fiber optic cable. The Contractor shall install all equipment at the existing Orms Street CCVE 10 camera location and complete all the fiber optic splicing to make the site operational prior to disconnecting or impacting the existing fiber optic communication system. The Contractor shall coordinate all fiber optic cable relocation activities with the resident engineer and the RIDOT TMC a minimum of 10 business days in advance of any activities that will impact the fiber optic communications. The Contractor shall have the fiber optic communications system up and operational within 8 hours of taking the system offline. The Contractor shall have sufficient crew available to back pull and reinstall the existing cable and complete the required fiber optic splicing required within this timeframe.

Throughout the design and construction of the new fiber optic network, the contractor shall coordinate with the proposed toll zone gantry project team and RIDOT to prevent any construction issues, conflicts, delays, and down time of the fiber optic network. The two toll zones proposed adjacent to the Smith Street overpass and indicated in the plans are approximate future locations and are subject to change.

A splice plan shall be provided by the DB Entity and approved by the TMC staff prior to the installation of the fiber optic cable.

A test plan shall be provided by the DB Entity for approval by the TMC staff. The testing shall include end to end power readings and Optical Time Domain Reflectometer (OTDR) traces performed by a certified fiber optic technician. Proof of certification must be submitted prior to any testing. Power meters and OTDR's used for the testing are to be calibrated within six months of the testing. OTDR traces are to be provided in electronic format for review and approval by the TMC. If the power readings or OTDR traces show events or losses exceeding the manufacturer's expected losses, the cable is to be replaced at no cost to RIDOT.

3.17.4. Speed (Radar) Detectors

Existing detector locations should be maintained unless otherwise indicated in the Plans. The existing RVD collocated on the existing CCVE 9 pole on the northbound side of the viaduct (adjacent to proposed ramp DB-2) shall be raised to a higher mounting height in accordance with the manufacturer's requirements based on the final offset and increase in roadway elevation. The device shall be re-aimed as necessary to account for the new roadway geometry. New conduit and wiring shall be installed to provide the longer connection to the new mounting height. The RVS shall be retested by the DB Entity after its relocation to assure proper installation, functionality, and accuracy of the data collection.

As indicated in the plans, two new RVD units shall be installed and retrofitted on the existing CCVE 8A camera pole. Conduit and wiring shall be installed from the existing adjacent handhole to the

existing CCVE pole. The contractor shall install a new weatherhead, wiring, and conduit on the CCVE pole for the two RVD devices. The RVD devices shall be mounted in accordance with manufacturer's requirements and shall capture vehicular traffic in the northbound and southbound lanes and ramps of Interstate 95. All required equipment associated with the installation of the RVD units shall be installed in the existing CCVE cabinet.

A new standalone RVD site shall be installed adjacent to the southbound lanes of I-95, south of the Smith Street overpass. The location shall include two separate RVD units mounted to a new 60-foot steel pole. The RVD units shall capture vehicular traffic in the southbound and northbound lanes and ramps on Interstate 95. The mounting heights of the RVD units shall be determined based on the RVD manufacturer's requirements. A new pole mounted cabinet shall house all necessary components of each RVD and shall connect to the proposed fiber optic network via 12-strand fiber optic cabling spliced at FMH6. The site shall be connected to a hard wire power service (minimum of 30A power service). The DB Team is responsible for all power service coordination and installation with the local power company.

The existing RVD located on I-95 southbound just south of Smith Street shall be removed and disposed as indicated in the plans.

3.17.4.1. TMC Device and System Coordination

The DB Entity shall coordinate will the TMC during all phases of fiber optic cable installation and revisions to existing ITS equipment sites. The DB Entity shall not disconnect any fiber optic cable or ITS equipment at any time without approval from the TMC. The fiber optic network shall not be down for more than 48-hours at a time.

Existing RIDOT fiber optic cabling resides in Level 3 duct banks under Park Street between the Orms Street bridge and the Department of Administration (DOA) building. During the redesign and reconstruction of Park Street, this fiber optic cabling will be relocated to new fiber optic conduits. The DB Entity shall coordinate this work with RIDOT and Level 3 prior and during the reconstruction of Park Street to ensure communications to the TMC is not disrupted for longer than 48-hours. Refer to Section 5 of this RFP for more information regarding utility relocation and coordination.

The DB Entity shall provide a system integrator to complete communication integration for all existing field devices at the TMC and to ensure complete working subsystems. The DB Entity shall supply vendor support to the integrator to ensure complete working systems. The integrator shall work with the TMC staff for network addressing assignments. Prior to installation the DB Entity must submit detailed fiber optic network drawings for approval by the TMC staff. Fiber assignment drawings showing detailed splicing information is to be provided by the integrator. The integrator is also responsible to develop a transition plan for the conversion of existing device communication to the new fiber network. At the completion of the project, the DB Entity shall provide 40- scale as-built plans and drawings of the ITS equipment and fiber optic communication systems and devices installed under this project.

3.18. Landscape Design

3.18.1. General

The project will require landscape design to provide enhancement and improvements to the overall project area. The landscape plantings are to be sustainable and durable to the highway environment, while being easy to maintain for the Owner. The inclusion of simple and large-scale landscape plantings help to create a more pleasurable experience for users of the transportation

network. Environmental purposes such as erosion control and storm water pollution prevention are to be considered.

The general criteria for landscaping features are as follows:

a. Use of greenscape surfaces, natural materials, and local plantings where feasible
b. Sunlight and rainwater need to reach the vegetation
c. Landscape features shown outside the state right-of-way are not included in the project.
d. The design of all features shall meet the criteria specified in the AASHTO Roadside Design Guide. They should either be placed outside the clear zone of the roadway or protected from vehicle impacts.

3.19. Environmental Compliance

3.19.1. General

The DB Entity is responsible for developing plans and specifications in full conformance with the Department's Best Management Practices (BMPs), existing Project environmental permits and approvals, and all applicable environmental laws and regulations.

3.19.2. Compliance with Laws and Regulations

The DB Entity shall conduct its operations in conformance with the permit requirements established by federal, State and municipal laws and regulations.

The DB Entity shall conduct its operations in compliance with federal and State permit requirements concerning soil, water, air and noise pollution, and the disposal of controlled or hazardous materials. Said permit requirements include, but are not limited to, those established by Federal Regulations administered by the United States Coast Guard, Army Corps of Engineers, or the Environmental Protection Agency (EPA).

Appropriate permits shall be required for all activities associated with or incidental to the DB Entity's operations, including, but not limited to, those regarding the Site or adjacent areas, waste and disposal areas, borrow and gravel banks, storage areas, haul roads, access roads, detours, field offices, or any other temporary staging areas.

The DB Entity shall be responsible for, and hold the State harmless from, any penalties or fines assessed by any authority due to the DB Entity's failure to comply with any term of an applicable permit.

The Department has gained initial determinations for the need for certain permits related to the BTC. The responsibility for obtaining environmental permits for Contract work is explained in Part 2, Section 4 of this RFP.

Any request by the DB Entity for authorization of activities or methods not specifically called for or allowed by the applicable permits issued for the Project must be submitted by the DB Entity in writing to the Department. Such a request must include a detailed description of the proposed activities or methods, and must include justifications for same, along with supporting documentation, showing that the proposed activity or method will not create a risk of damage to the environment. If such request is granted by the Department, the Department will process an application prepared by the DB Entity to the appropriate regulatory agency or agencies for any permit amendment, modification, revision or new permit required for the DB Entity to carry out the changed activities or use the methods in question. The Department does not, however, guarantee that it will be able to obtain the desired permit amendment, modification or revision; and the Department will not be liable for the effects of any inability to do so.

The DB Entity will not be entitled to any extension of Contract time as a result of the Department's granting of such a request from the DB Entity. If the amendment, modification, or revision of the permit is not necessary except to make possible the changes requested by the DB Entity, then no claim may be made by the DB Entity based on the amount of time taken by the Department to review the DB Entity's request, or to apply for or secure the permit amendment, modification or revision. No such proposed additional activity shall commence, nor shall such a changed method be used, until and unless the Department approves in writing the DB Entity's request.

In case of a failure by the DB Entity to perform pollution control work as required by the Department, the Department may, after having given the DB Entity twenty-four (24) hours advance written notice of its intention to do so, arrange for said work to be performed by other forces, and will deduct the cost from any monies due or that may become due to the DB Entity under the Contract or under any other State contract.

3.19.3. **Water Pollution Control**

The DB Entity shall, throughout the duration of the Contract, control and abate siltation, sedimentation and pollution of all waters, including but not limited to under-ground water systems, inland wetlands, tidal wetlands, and coastal or navigable waters.

Construction methods proposed by the DB Entity must comply with the approved permit requirements and permit applications. The DB Entity shall be responsible for all obligations and costs incurred as a result of the DB Entity’s failure to comply with the terms and conditions of such permits or permit applications.

The following are Required Best Management Practices for prevention and control of water pollution. The DB Entity shall not make any design change in the Contract work that requires a variance from the requirements of the following items until and unless the DB Entity has first submitted a detailed written proposal for such variance to the Department for review and for transmittal to and review by the federal, State or municipal environmental authority, and has then received written approval from the Department of the proposed variance.

REQUIRED BEST MANAGEMENT PRACTICES

a. Prior to commencing Project Site work, the DB Entity shall submit in writing to the Department a “Soil Erosion and Sedimentation Control Plan” and a “Dust Control Plan” for all Project construction stages. The DB Entity shall install all control measures specified in said Plans prior to commencement of Project construction activities. The Plans shall be consistent with the Rhode Island Soil Erosion and Sediment Control Handbook, and all environmental laws and regulations established by federal, State or municipal agencies, as well as the Department's published environmental policies and standards. If the DB Entity elects to work during a winter shut-down period, the DB Entity shall submit to the Department a separate Winter Erosion and Sedimentation Control Plan, obtain the Department’s written approval and implement it before the Contractor begins Project work during the winter shut-down period.

b. The DB Entity shall inspect erosion and sedimentation controls at least weekly, immediately after each rainfall event of at least 0.25 inches in 24 hours, and daily during periods of prolonged rainfall. The DB Entity shall maintain all erosion and sedimentation control devices in a functional condition, in accordance with the Contract plans, relevant permits and Special Provisions. In the event that the DB Entity fails to maintain such devices in accordance with said documents, and the DB Entity does not correct such a failure within 24 hours after receipt of written notice of such a failure from the Department,

the Department may proceed with its own or other forces to remedy such failures. The cost to the Department of curing any such specified failure will be deducted from monies owed to the DB Entity under the Contract or under any other State contract.

c. Washout of applicators, containers, vehicles, and equipment that have been used with concrete (including bituminous concrete), paint or other such possible contaminants shall be conducted:(i) at least 50 ft from any stream, wetland or other sensitive resource; and (ii) in an entirely self-contained washout system. Such materials shall be collected and disposed of in accordance with all applicable federal, State and municipal laws and regulations.

d. No materials resulting from Project construction activities shall be placed in or allowed to contribute to the degradation of a wetland, watercourse or storm drainage system. Good housekeeping of the Site by the DB Entity for the purpose of preventing construction-related debris or runoff from entering a regulated area is required. The DB Entity shall not leave waste or debris within the travel way or roadside where it might create a safety hazard to the traveling public. The DB Entity shall dispose of all construction-related materials in accordance with federal, State and municipal laws and regulations.

e. The DB Entity shall not withdraw water from any watercourse system, except as allowed by applicable permits.

f. The DB Entity shall not dispose of any material until and unless it has proposed a location for its disposal to the Department and the Department has approved said location in writing. If the proposed disposal location is on private property, the DB Entity must include in the disposal location proposal to the Department letters from the property owner and the affected municipality, agreeing to the proposed location for disposal. The DB Entity shall ensure that proposed disposal locations are outside of wetlands or watercourses, floodplains and water or natural resource areas.

g. Before commencing any work in or adjacent to a regulated area shown on the plans, permit(s), or identified by the Department or their representatives, the DB Entity must submit in writing to the Department a construction-sequencing plan, a water-handling plan, and a flood contingency plan, and obtain from the Department written approval of said plans.

h. When dewatering is necessary, the DB Entity must not allow pumps used for same to discharge directly into a wetland or watercourse. Prior to any dewatering, the DB Entity must submit to the Department a written proposal for specific methods and devices to be used for same, and must obtain the Department's written approval of such methods and devices, including, but not limited to, the pumping of water into a temporary sedimentation basin, providing surge protection at the inlet or outlet of pumps, floating the intake of a pump, or any other method for minimizing or retaining the suspended solids. If the Department determines that a pumping operation is causing turbidity in a regulated area, the DB Entity shall halt said operation until a means of controlling the turbidity is submitted by the DB Entity in writing to the Department, approved in writing by the Department, and implemented by the DB Entity.

i. Whenever possible, work within or adjacent to watercourses shall be conducted during periods of low flow. The Department shall remain aware of flow conditions during the conduct of such work and shall order such work stopped if flow conditions threaten to cause excessive erosion, siltation or turbidity. Before predicted major storms (i.e., a storm

predicted by NOAA Weather Service, with warnings of flooding, severe thunderstorms, or similarly severe weather conditions or effects), the DB Entity shall make every effort to secure the Site to the satisfaction of the Department. Unless allowed by an approved permit, the DB Entity shall store no materials and place no staging areas below the 100-year elevation. The DB Entity shall not store below the 500-year flood level any materials which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, and any other materials that could be injurious to human, animal or plant life in the event of a flood.

j. Upon completion of the associated work, the DB Entity shall immediately clear all areas of all forms, false work, piling, debris or other obstructions created or caused by construction operations.

k. If the DB Entity wants to make a change in construction operations, staging or scheduling that would affect the use of or necessity for any pollution controls, the DB Entity must submit to the Department a written proposal detailing the proposed change, and must receive the Department's approval of such change, before implementing it. Such submission must include a plan showing what erosion and sedimentation controls above and beyond those called for in the Contract would be necessitated by the proposed change.

l. Dumping of oil, fuel, chemicals or other harmful materials on the ground or into a regulated area is forbidden. The DB Entity shall provide to the Department a written Spill Prevention and Remediation Plan for the Project, outlining the DB Entity's intended means of catching, retaining, and properly disposing of drained oil, removed oil filters, fuel, chemicals and other harmful material. Such plan shall also include the information and protocols needed for the remediation of any spill that might occur on the Site, including emergency contact information. No construction activities shall commence until such a plan has been approved in writing by the Department.

m. The DB Entity shall restore all areas within or outside the State right-of-way that have been disturbed as a result of construction activities.

3.19.4. Construction Noise and Vibration Pollution

The DB Entity shall take measures to minimize the noise caused by its construction operations, including, but not limited to noise generated by equipment used for drilling, pile-driving, blasting, excavation, or hauling. All methods and devices employed to minimize noise shall be subject to the continuing approval of the Department. The maximum allowable level of noise at the residence or occupied building nearest to the Site shall be ninety (90) decibels on the "A" weighted scale (dBA). The DB Entity shall halt any Project operation that violates this standard at any time until the DB Entity develops and implements a methodology that enables it to keep noise from its Project operations below the 90-dBA limit.

The contractor shall utilize a noise curtain and auger the first 25’ when pile driving to minimize noise levels during construction. The contractor shall identify the appropriate noise levels anticipated from his construction operation at the various pile installation locations to allow the Resident Engineer to closely monitor where a noise curtain is required. The contractor shall utilize a high-frequency hammer when driving to limit vibration.

3.19.5. Protection of Archaeological and Paleontological Remains and Materials

The DB Entity shall be alert to the possibility that Project operations may disturb or uncover significant archaeological or paleontological resources or other such remains which in many cases are protected by federal laws, State laws or both. Archaeological resources are minimally defined

by federal regulations as materials 50 years of age or older. They typically consist of subsurface concentrations of metal, bone, ceramic, or flaked or other shaped stone artifacts. They might also consist of features such as buried building foundations, linear or circular walls made of individual stones rather than concrete or cement, trash-filled pits, patches of burned earth, or distinct patterns of nearly-circular, elliptical, or squared discolorations in newly-exposed soil, accompanied by the types of artifacts described above.

Paleontological resources are defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust. These typically include fossilized bones, teeth, shells, eggs, or distinct impressions made in bedrock. When archaeological or paleontological materials are inadvertently encountered, the DB Entity shall immediately halt operations in the location of same and shall notify the Department of said discovery. The DB Entity shall make every effort to preserve archaeological or paleontological materials intact in their original positions, in order to preserve the geological context and information content of the remains in relation to one another and to the enclosing soil.

The Department shall have the authority to suspend Project work in the area of such discovery for the purpose of preserving or recovering and documenting the archaeological or paleontological materials. The DB Entity shall carry out all instructions of the Department for the protection of such materials, including steps to protect the site from vandalism, unauthorized investigations, accidental damage, and damage from such causes as heavy rainfall or runoff. The DB Entity shall reschedule its work to minimize any loss of the time needed to complete the Project while the State evaluates, records and salvages the archaeological or paleontological materials.

Extra work ordered by the Department in this connection will be paid for in accordance with Part of the RFP. Delays caused by archaeological or paleontological preservation and protection, which the DB Entity demonstrates have delayed completion of the Project, will be treated under the provisions for extension of time.

3.19.6. **Controlled and Hazardous Materials**

RIDOT has completed various Limited Site Investigations in the Providence Viaduct project area (both Northbound and Southbound). Contaminated soils have been identified at various locations of the Viaduct project area and the RIDEM Office of Waste Management approved a Remedial Action Work and a Construction-Phase Soil Management Plan (C-P SMP) on October 4, 2011 under RIDEM Case No. 2009-039 which is currently File No. SR-28-1330. The RAWP and C-P SMP were implemented during completion of the Viaduct Southbound Bridge #578 Relocation Project and a Remedial Action Closure Report (RACR) was submitted to RIDEM on June 14, 2018 and approved via an Interim Letter of Compliance (ILOC) from RIDEM to RIDOT on June 20, 2018. The DB Entity shall be required to comply with the RIDEM-approved RAWP and C-P SMP during implementation of the Northbound portion of the Viaduct project. For the purpose of preparing the proposal, the DB Entity is responsible for reviewing the RAWP and C-P SMP for all applicable requirements (e.g., dust control, erosion controls, health & safety, stockpile management, preparing and submitting Operating Logs, etc.) and for incorporating all associated scope and costs in said proposal. It should be assumed that a portion of the soils within the Site are contaminated and will be transported off site for disposal, and that a portion of the soils will be suitable for reuse on this, or other, transportation project. To the extent practicable and prudent, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. The DB Entity shall refer to this RAWP and C-P SMP when preparing a written Materials Management Plan that will guide the proper handling, reuse, recycling and/or disposal of known or suspected regulated, hazardous, or controlled materials. The Materials

Management Plan will also provide adequate contingencies to address additional contaminated materials that may be encountered. The Materials Management Plan shall not change or remove any requirements in the RIDEM-approved C-P SMP unless written approval of said changes and/or removals are obtained from RIDEM. The DB Entity will submit the Materials Management Plan to the Department for review and approval.

The RAWP and C-P SMP did not provide a comprehensive evaluation of all soil materials that are expected to be moved as part of this Project. Furthermore, the RAWP and C-P SMP did not include testing of any building materials within the Project Area. The DB Entity is responsible for any additional preliminary testing of soil, groundwater or construction materials needed to satisfy the requirements of its design and construction.

The findings of the RAWP and C-P SMP suggest that some soil that is to be excavated from within the Project Area may be suitable for reuse on this, or other urban/highway construction projects. To the extent practicable and prudent based on the results of the previous limited site investigations and any additional environmental testing deemed necessary by the DB Entity, the DB Entity will reuse or recycle soil to reduce Project costs and to help minimize the impact to available landfill space. The DB Entity's Materials Management Plan will clearly describe the procedures and rationale by which off-site disposal of soil will be minimized.

The Department will acquire any "Hazardous Waste Generator Permit(s)" required under the Resource Conservation and Recovery Act, for the management and disposal of hazardous materials on the Site, provided that:

a. Such material is within the construction limits defined in the Contract.

b. Such material is not comprised of waste materials generated by the DB Entity.

In accordance with the RIDEM-approved RAWP and C-P SMP, all soils within the Project Limits are known or suspected to be contaminated, and the DB Entity shall dispose of all contaminated material in accordance with the RAWP and C-P SMP. In the event that the DB Entity encounters or exposes any material, not previously known or suspected to be contaminated, but which exhibits properties that may indicate the presence of controlled or hazardous material, the DB Entity shall cease all operations in the material's vicinity and shall immediately notify the Department of the material's discovery. The presence of barrels, discolored earth, metal, wood, visible fumes or smoke, abnormal odors or excessively hot earth may indicate the presence of controlled or hazardous material and shall be treated with extreme caution. If controlled or hazardous materials, other than those required for Contract operations, are discovered at the Site, the Department may engage a specialty contractor to handle and dispose of the materials.

When the DB Entity performs support work incidental to the removal, treatment or disposal of controlled or hazardous material, the Department will pay for same at the applicable Contract unit prices. When the Contract does not include appropriate pay items for same, payment will be made in accordance with Part 3 of the RFP hereof. The DB Entity shall observe all security precautions established pursuant to 29 CFR 1910.120 and 1926.65, including all revisions and amendments thereof, and shall not work in any area known to contain or suspected of containing controlled or hazardous material without prior written approval from the Department to do so. The DB Entity shall assume sole responsibility for the proper storage, handling, management, and disposal of all regulated materials and wastes associated with its operations, including, but not limited to, lubricants, antifreeze, engine fluids, paints, and solvents. All costs associated with any failure by the DB Entity to properly manage such materials in accordance with federal and State regulations,

and all remedial and punitive costs incurred by the Department as a result of such failure, shall be borne by the DB Entity. This section shall apply to coatings removed by the DB Entity.

3.19.7. **Vehicle Emissions**

All motor vehicles and construction equipment used for the Project (both on-highway and off-road) shall comply with all federal, State and municipal regulations concerning exhaust emission controls or safety. The DB Entity shall establish staging zones for vehicles waiting to load or unload at the Site. Such zones shall be located where the emissions from the vehicles will have minimum impact on abutting properties and the general public. Idling of delivery trucks, dump trucks, and other equipment shall not be permitted for longer than 3 minutes during periods of non-activity, except as allowed by State or municipal regulations. The DB Entity shall conduct all of its Project work in a way that causes no harm to adjacent sensitive receptors. Sensitive receptors include but are not limited to hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. The DB Entity shall see to it that any engine exhaust is not directed toward fresh air intakes, air conditioners, or windows. Before performing extensive work within less than 50 ft. of a sensitive receptor, the DB Entity must:

a. Submit to the Department a Vehicle Emissions Mitigation plan, proposing detailed means for minimizing vehicle emissions from vehicles and construction equipment in the affected area, including a proposed sequence of construction;

b. Obtain the Department's written approval of the Plan, making any revisions of same necessary to obtain said permission; and

c. Implement the Plan, as it may have been revised.

Any costs associated with this “Vehicle Emissions” Section shall be included in the general cost of the Contract. In addition, there shall be no additional time granted to the DB Entity for compliance with this section. The DB Entity’s compliance with this section and any associated laws or regulations shall not be grounds for claims as outlined in Sections 105.19 and 105.20 of Part 3 of the RFP.

Section 4. Environmental Approvals

4.1. General Statement

It is the responsibility of the DB Entity, in coordination with RIDOT, to obtain all required Environmental Approvals/Clearances to the extent not already obtained by or on behalf of RIDOT as described in Section 4.3. The DB Entity will be required to prepare all documentation required for any application for any such Environmental Approval/Clearance or any amendment to any such Environmental Approval/Clearance. The DB Entity is also responsible for the preparation of all documentation required to satisfy any conditions to the DB Entity's scope of work contained in Environmental Approvals/Clearances or amended Environmental Approvals/Clearances prior to the start of work and/or following the completion of work. The DB Entity must submit the applications to the RIDOT Natural Resources Unit (NRU) and the RIDOT Office of Stormwater Management (OSM) for their review and comment. RIDOT will submit the final permit applications to the relevant regulatory agencies RIDOT takes no responsibility for any time delay or cost associated with submissions that are sent back to the DB Entity by RIDOTs NRU or OSM for modification or correction and resubmittal to RIDOT prior to submittal to the relevant regulatory agencies.

The DB Entity is responsible at all times for complying with: (a) all conditions and schedules in any Environmental Approvals/Clearances, whether obtained by RIDOT or the DB Entity, and (b) all applicable Environmental Laws. Failure to comply with conditions or schedules in Environmental Approvals/Clearances will be grounds for termination hereof.

The DB Entity shall be responsible for any and all costs, liability, penalties, expenses, damages, including economic, property, natural resource and personal injury, or delays resulting from any non-compliance with Environmental Approvals/Clearances.

The DB Entity is encouraged to develop a close working relationship with RIDOT and the regulatory agencies to ensure that its designs will be acceptable from an environmental perspective. RIDOT takes no responsibility for any time delay or cost associated with submissions that are refused, rejected, conditioned or modified by RIDOT or any regulatory agency or for any redesigns such agencies or RIDOT may require.

4.2. Construction Related Permits and Environmental Approvals/Clearances to be Obtained by the Design Build Entity

The DB Entity will be responsible for obtaining all construction-related permits and approvals. The Project is currently undergoing National Environmental Policy Act (NEPA) review as an Environmental Assessment (EA) by the FHWA. A Finding of No Significant Impact (FONSI) is expected to be issued by FHWA by January 2020. Based on permitting required for the Southbound Viaduct the following permits are anticipated:

a. US Army Corps of Engineers (USACE): Section 404 General Permit 8 (Self Verification or Preconstruction Notification)

b. U.S. Coast Guard (USCG): In 2009 the USCG concluded that the segment of the Woonasquatucket River that the Providence Viaduct spans is a navigable waterway but determined that the Project is exempt from bridge permit jurisdiction under 23 CFR 650. Another letter of exemption from the USCG should be requested for this Project.

c. U.S. Fish and Wildlife Service: Endangered Species Act (ESA) Section 7 Consultation was completed as part of the NEPA EA

d. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS): ESA Section 7 Consultation and Essential Fish Habitat (EFH) Consultation – both consultations should qualify for the FHWA-Greater Atlantic Regional Fisheries Office (GARFO) 2018 Not Likely to Adversely Affect (NLAA) Program and the Programmatic EFH Consultation for Select Transportation Projects in the NMFS Greater Atlantic Region

e. RIDEM Natural Heritage Program: This consultation was completed and documented as part of the NEPA EA.

f. RIDEM Office of Waste Management – Soil Contamination

g. RIDEM Office of Water Resources – Rhode Island Pollution Discharge Elimination System General Permit for Construction Activity and Water Quality Certification (WQC). WQC will include consultation with RIDEM Division of Fish and Wildlife to determine if minimization or mitigation measures are recommended to protect aquatic life.

h. Coastal Resources Management Council (CRMC): Application for Category B Assent

i. Narragansett Bay Commission – Stormwater/Sewer Alterations

j. City of Providence – Department of Public Works

Construction of the BTC may require that any or all of the above-listed approvals be acquired by the DB Entity for the project, in addition to others that are not identified in this document.

4.2.1. RIPDES Construction General Permit

The area of anticipated ground disturbance for the Project using the BTC will exceed the 1-acre threshold requiring registration under the Rhode Island Pollution Discharge Elimination System (RIPDES) Construction General Permit. Based on the ground disturbance required by the Project, it is anticipated that dewatering will occur requiring a registration under the RIPDES Construction General Permit. Dewatering of any contaminated water requires a RIPDES Remediation Discharge Permit. Only uncontaminated water can be discharged under the RIPDES General Permit. Given the site location, any dewatering along the banks of the river should be considered contaminated. The DB Entity will be responsible for obtaining the appropriate approvals under the RIDEM RIPDES program as required.

4.3. Environmental Approvals/Clearances to be Obtained by RIDOT

4.3.1. NEPA Compliance/Environmental Documentation

RIDOT is in the process of completing the NEPA review process for this project. It is anticipated to be completed before award of the Contract. Any environmental commitments resulting from the NEPA process will be added to the project via addendum or construction change order.

Any proposed changes to the footprint or scope of the project (as expressed in this RFP) proposed by the DB Entity during development of the Technical Proposal will be reviewed by the Department to determine if a change to the NEPA filing by the RIDOT is necessary. If changes are required, the change would be considered an ATC. Such changes may necessitate additional environmental studies or coordination with regulatory agencies to be carried out by the DB Entity. The DB Entity shall carry out any additional environmental commitments as a result of any re-evaluation and will be responsible for any schedule delays and associated costs.

4.3.2. Coastal Resources Management Council Assent

The coastal waterway (Woonasquatucket River), any associated wetlands, and the 200-foot Contiguous Area that extends from these resources in the Project Area are subject to the

jurisdiction of the Rhode Island Coastal Resources Management Council (CRMC). The Providence Viaduct spans the Woonasquatucket River which is classified as a Type 4 Multipurpose Water in the RI Coastal Resources Management Plan. This area is also within the Special Area Management Plan (SAMP) of the Providence River. A 10% pre-application conference with CRMC and WQC is recommended to identify these amenities. The Department has verified with the CRMC that a Category B Assent will be required for this Project. The Department has not acquired this approval. CRMC has stated that it is acceptable to submit the permit application when plans have reached 30% design for structural elements and 90% design for the highway elements.

4.3.3. Rhode Island Department of Environmental Management & U.S. Army Corps of Engineers

The permitting needs described herein are based on the permits that were acquired for the original Viaduct replacement project permitted between 2009-2010. While northbound and southbound sections of the Viaduct were covered under this permitting, ultimately only the southbound Viaduct was replaced. All permits have since expired and new permits will be required. RIDOT has not performed any additional coordination with these regulatory agencies to date. It is recommended that the USACE also be involved in a pre-application meeting to ensure that the project will comply with all the conditions of the applicable General Permits for Rhode Island.

Based on the original permitting effort, the following permits and authorizations will be required from RIDEM and USACE; authorization from the USACE under the General Permit for the State of Rhode Island (Effective Date March 3, 2017), Water Quality Certification (WQC) from the RIDEM, Authorization under the Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity from the RIDEM; inclusive of preparing and complying with the requirements of a site specific Soil Erosion and Sediment Control Plan (SESCP) and Long-term Operation and Maintenance Plan for Stormwater Treatment Units (STUs). The DB Entity shall utilize the February 2019 RIDOT Linear Stormwater Manual in a manner consistent with the RI Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8) for the design of the stormwater management systems. Treatment in the Woonasquatucket and Moshassuck watersheds will be required and treatment goals for each watershed should be coordinated with the RIDOT OSM. The DB Entity is responsible for reviewing and understanding the performance standards and commitments made in all permits and approvals for the Project, as well as the standards and prohibitions of the respective regulations of these programs. RIDOT previously received a permit from CRMC to address stormwater for a portion of the Civic Center Interchange (including I-95 Northbound and Southbound). RIDOT constructed some of the STUs included in that CRMC permit as part of the I-95 Viaduct Southbound project. These STUs treated stormwater runoff from areas outside the project limits. The DB Entity must accommodate the stormwater runoff from these areas outside the project limits with the STUs previously constructed by the RIDOT. The DB Entity shall maintain and retrofit these STUs as necessary to meet RIDEM and RIDOT Linear Stormwater Manual Standards. The DB Entity must also address stormwater runoff from areas within the project limits.

The DB Entity shall be responsible for the preparation of all permit applications and supporting documentation, based on the DB Entity's final design. The RIDOT as owner, will be the Permittee, upon RIDOT review and approval of the necessary permit applications, RIDOT will submit them to the regulatory agencies. Should the DB Entity propose design changes acceptable to the RIDOT, permitting requirements may also change. The DB Entity also remains responsible for obtaining any and all necessary amended permits required by the regulatory agencies.

The DB Entity shall be responsible for compliance with pre-construction, construction-related permit conditions, as well as post-construction monitoring if required by regulatory agencies.

All efforts and costs necessary for additional permit acquisition or modification, compensation or mitigation costs shall be included in the DB Entity's Price Proposal. Any fines associated with environmental permit or regulatory violations/enforcement actions shall be the responsibility of the DB Entity. The project will not be deemed complete or acceptable if there are outstanding regulatory violations/enforcement actions.

The DB Entity shall use the February 2019 RIDOT Linear Stormwater Manual (LSM) in a manner consistent with the RI Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8) in the design of this project. The DB Entity shall prepare and submit as soon as practicable prior to the 30% Design, a Preliminary Environmental Design Submission that consists of the following:

a. LSM Appendix A Stormwater Management Plan Checklist Part 1 and 2 (as complete as possible at this design stage).

b. LSM MEP Worksheet; and

c. LSM Worksheet A: Treatment Provided by STUs.

The purpose of this preliminary submission is to assist in streamlining the environmental permitting process for this project. This preliminary submission will allow for early coordination between the DB Entity and the RIDOT OSM. This submission will also allow for a preliminary meeting with the RIDEM and CRMC Permitting Staff. Early coordination between the DB Entity and the RIDOT OSM is encouraged and meetings may be coordinated with the OSM prior to this submission. A meeting between the DB Entity and the RIDOT OSM is required upon the submission of the Preliminary Environmental Design submission.

This material should be submitted to the RIDOT OSM for review Preliminary design strategy for environmental permitting (i.e. anticipated permit submissions based on the DB Entity's design concept).

4.3.4. Acquired Environmental Approvals

In the BTC, the Department has called for certain design, construction, and mitigation measures to be taken for this Project. The Department has already taken some steps to clear the way for said measures, including meetings with certain agencies and with the public to discuss the Project.

Requirements for environmental compliance by the DB Entity are outlined in Section 3.20 of Part 2 of this RFP.

Any changes or revisions of the conditions of the Project by the DB Entity through its final design or through the submission and approval of an ATC shall make it necessary for the DB Entity to provide all documentation required for any application for any such environmental approval or any amendment of any such environmental approval. This would include the potential need for an Environmental Reevaluation as a result of revisions to the design of the BTC, to be approved by FHWA in compliance with NEPA. Any such changes of Project conditions must be coordinated through the Department, since the Department is the official applicant for such approvals. The DB Entity will be responsible for all work required for any need to revisit the environmental reevaluation made necessary as a result of their final design.

The DB Entity is encouraged to develop a close working relationship with the Department for the purpose of ensuring that its designs will be acceptable to the Department and to regulatory agencies from an environmental perspective. The Department takes no responsibility for any time

delay or cost associated with related submissions that are refused, rejected, conditioned or modified by the Department or any regulatory agency, or for any redesigns that such agencies or the Department require from the DB Entity.

4.4. Stormwater Pollution Control Plan

The DB Entity will be responsible for developing a Stormwater Pollution Control Plan that includes the required stormwater treatment measures during construction and post-construction for the DB Entity's construction means and methods as well as the final stormwater design. The DB Entity will be responsible for supplying the Department with all the required documentation for obtaining the applicable permits. The Department will not allow the DB Entity to revise the Project schedule because of any change to the drainage design or associated permits.

4.5. Subsurface Regulated Materials/ Environmental Compliance

4.5.1. General

Contaminated media (CM) are soil, groundwater, sediment, wastes, and other material encountered during the Project that are regulated by the Rhode Island Department of Environmental Management (RIDEM) or other state, local or federal agency due to the presence of pollutants in the media. The DB Entity is hereby notified that contaminated media, including impacted soil , has been identified in the project area. The DB Entity shall ensure that all work shall comply with applicable and relevant rules and regulations of local, state and federal authorities, and shall protect human health and natural resources.

4.5.2. Limited Environmental Investigations

RIDOT has completed various Limited Site Investigations in the Providence Viaduct project area (both Northbound and Southbound). Contaminated soils have been identified at various locations of the Viaduct project area and the RIDEM Office of Waste Management approved a Remedial Action Work and a Construction-Phase Soil Management Plan (C-P SMP) on October 4, 2011 under RIDEM Case No. 2009-039 which is currently File No. SR-28-1330. The RAWP and C-P SMP were implemented during completion of the Viaduct Southbound Bridge #578 Relocation Project and a Remedial Action Closure Report (RACR) was submitted to RIDEM on June 14, 2018 and approved via an Interim Letter of Compliance (ILOC) from RIDEM to RIDOT on June 20, 2018. The DB Entity shall be required to comply with the RIDEM-approved RAWP and C-P SMP during implementation of the Northbound portion of the Viaduct project. For the purpose of preparing the proposal, the DB Entity is responsible for reviewing the RAWP and C-P SMP for all applicable requirements (e.g., dust control, erosion controls, health & safety, stockpile management, preparing and submitting Operating Logs, etc.) and for incorporating all associated scope and costs in said proposal. It should be assumed that a portion of the soils within the Site are contaminated and will be transported off site for disposal, and that a portion of the soils will be suitable for reuse on this, or other, transportation project.

Design-Build Entity's Optional Environmental Investigation

If the DB Entity desires, it may conduct, with the prior approval of RIDOT, additional investigations, surveys, testing and analyses as necessary to develop and implement suitable plans for timely performance of all environmental avoidance, mitigation and protection measures. Site Investigation Work Plans involving CM and locations subject to the Remediation Regulations are required to be submitted to, and approved by, the RIDEM before implementation. In some instances, public notice may be required. Work Plans shall be submitted to RIDOT for review and approval before submission to the RIDEM or other state, local or federal agency. Investigations

and Work Plans shall be consistent with all applicable Environmental Laws. Qualified and licensed professionals shall prepare the Work Plan as may be required.

In addition to all regulatory RIDEM Regulatory Requirements, a Work Plan for Optional Investigation shall also contain, at a minimum:

a. DB Entity's plan and schedule for characterization of all areas of the Site and Project activities where CM may reasonably be expected to be encountered
b. Sampling and Analysis Plan describing sampling locations and methods; media to be sampled; laboratory analyses, methods and quantification limits
c. Investigation schedule
d. Site security measures
e. Location and layout of work zones, storage areas, and decontamination areas
f. Management of investigation derived waste (IDW) in accordance with the RIDEM IDW policy
g. QA/QC Plan procedures

4.5.3. Applicable Rules and Regulations

4.5.4. Management of CM

CM may be subject to the reporting requirements set forth in the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the "Remediation Regulations" – DEM-DSR 01 93, as amended). In addition to notification, additional investigation and/or remediation in accordance with the Remediation Regulations may be required to comply with the Remediation Regulations and/or to properly identify, manage, recycle and/or dispose of the various CM. With respect to construction dewatering, the discharge of pollutants to Waters of the State of RI is prohibited unless in accordance with the terms and conditions of a RIPDES permit issued in compliance with the Construction General Permit. Therefore, if contaminated dewatering activities are required, a RIPDES Remediation General Permit (RGP) will be applicable, and certain application, compliance, and reporting requirements will apply. Management of CM

All CM encountered during the Project shall be managed in accordance with applicable Environmental Laws, Environmental Approvals, the Contract Documents, RIDEM Rules and Guidance, the CM Management Plan and other plans prepared under this Section.

The DB Entity shall prepare a Contaminated Media Management Plan (CMMP) that provides RIDOT with a uniform, cost-effective, time-sensitive and environmentally sound methodology for the management of CM. The CMMP shall be sufficient in scope to support Project design and construction requirements. The CMMP shall be consistent with the RIDEM Remediation Regulations and all other applicable laws, rules and guidance. Qualified and licensed professionals shall prepare the CMMP as applicable.

In addition to the requirements of the Remediation Regulations and any other state, federal or local laws and regulations and guidance, the CMMP shall also incorporate the following goals and objectives:

a. Minimize the generation of CM requiring off-site management. Maximize the reuse of excavated soils within the limit of work if allowed by RIDEM.

b. Establish a cost-effective waste management hierarchy for the beneficial reuse, recycling, or treatment of contaminated media requiring off-site management.

c. Establish cost-effective environmental compliance with all environmental laws, including RIDEM's Remediation Regulations, with the goal being receipt of a Letter of Compliance (LOC) from the RIDEM under the Remediation Regulations, or other applicable closure documentation from other state, local or federal environmental regulations;

d. Provide effective control of additional costs required for CM characterization
(e) The DB Entity shall have CM analyzed by a qualified test facility, as required. The cost of preparing and implementing the CMMP is included in the Price.

4.5.5. Schedule for Submittal of Work Plan and CMMP

Within ten (10) days after Award, DB Entity shall submit a schedule that sets forth the time frames for completion of the CMMP, and any Work Plan for Optional Environmental Investigation.

4.5.6. Discovery and Management of Unexpected Contaminated Media

Upon discovery of unexpected contaminated or potentially contaminated media, the DB Entity shall immediately stop work and notify RIDOT so proper assessment and response actions in accordance with state, federal and local law can be completed. The DB Entity shall undertake all actions required by state, local and federal environmental laws and regulations, and in coordination with RIDOT, to properly manage, remove and recycle or dispose of CM, and to achieve the objective of regulatory site closure. All Response Actions shall be implemented under the direction of qualified and licensed professionals engaged by the DB Entity.

During construction of the Project, the DB Entity shall undertake all reasonable steps consistent with the CMMP and applicable environmental laws and regulations, including design modifications and/or revisions to construction techniques, to avoid excavation or dewatering in areas with CM. The DB Entity shall afford RIDOT the opportunity to inspect sites containing CM before any action is taken that would inhibit RIDOT's ability to ascertain the nature and extent of the CM.

4.5.7. Qualifications and Protection of Personnel Responsible for Handling CM

The DB Entity shall have a qualified environmental professional (licensed as applicable) available to the Project at all times who is responsible for the proper management, transportation and disposal, reuse or recycling of CM. No environmental investigation shall be conducted outside the limit of work without specific written authorization of RIDOT, and RIDEM, as applicable.

All DB Entity personnel handling hazardous and harmful materials shall be trained, experienced, certified and enrolled in a medical surveillance program typically required for workers handling CM including, but not limited to, OSHA HAZWOPER and OSHA corresponding industry standards. The DB Entity shall ensure that all certifications, licenses, authorizations and approvals are current and valid through the duration of this Contract. The DB Entity shall make all workers on-Site aware of the potential CM to which they may be exposed, shall limit exposure to CM, and provide all necessary equipment to protect workers from exposure. The DB Entity shall maintain records of all incidents and notify RIDOT and appropriate state authorities in a timely manner.

4.5.8. Compensation for CM Management, Transportation and Disposal

Compensation for CM Management, Transportation, and Disposal shall not be allowed unless the DB Entity demonstrates to RIDOT’s satisfaction that the costs incurred in management of CM were (a) consistent with the goals and objectives of the CMMP and any state, federal or local environmental approvals, laws or regulations; (b) could not have been avoided by reasonable design modifications or construction techniques; and (c) managed utilizing the most cost-effective approach allowed by regulation as applicable to the CM being managed. Upon such

demonstration, the DB Entity shall be entitled to compensation in accordance with the RIDOT Standard Specifications for Extra Work and Differing Site Conditions.

Notwithstanding any other provision of this Contract to the contrary, no compensation for CM Management shall be allowed for costs that arise out of or are related to management of materials containing CM at concentrations below those requiring reporting or special handling/disposal under environmental laws and regulations; any such cost shall be included within the Price.

4.5.9. CM Spills or Other Releases Caused by Contractor

Any releases or spills of CM including reporting, assessment, containment and remediation expenses that result from (a) release(s) attributable to the negligence, willful misconduct, or breach of contract of the Contractor or of any of its officers, agents, employees, subcontractors, and visitors; or (b) release(s) elsewhere by the Contractor or any of its officers, employees, agents, or subcontractors regardless of the cause of the release of CM, shall not be included in the Price and shall not be recoverable.

4.5.10. Environmental Approvals Relating to CM Management

It is the responsibility of the Contractor to obtain all Environmental Approvals relating to CM management, transportation and disposal including federal and state surface water and groundwater treatment and discharge permits and permits for recycling or reuse. The Contractor shall provide RIDOT with complete documentation, plans, applications and other filings required by state, federal or local Environmental Agencies necessary to support any application for approval (including, but not limited to plans, details and supporting documentation). Contractor shall be solely responsible for compliance with such Environmental Approvals and applicable Environmental Laws, including those governing the preparation of waste profiles, waste manifests and bills of lading as described in Section 3.20.9. RIDOT assumes no responsibility for time, costs, or fees associated with regulatory agency review and approval. RIDOT will be considered the generator of CM from the Project except as specified in the following sentence. The Contractor shall be considered the generator of any CM requiring off-Site disposal which results from (a) release(s) attributable to the negligence, willful misconduct, or breach of contract of Contractor or any of its officers, employees, agents, subcontractors, or visitors; or (b) release(s) elsewhere by Contractor regardless of the cause of the Release.

4.5.11. Materials Brought to the Site by Contractor

The Contractor shall be solely responsible for (a) compliance with all Laws applicable to all materials (hazardous and non-hazardous) brought onto the Site by it or any of its agents, officers, employees, visitors, and subcontractors; (b) use, containment, storage, management, transport and disposal of all CM in accordance with this Contract and all applicable Environmental Laws and Environmental Approvals; and (c) payment of all penalties, expenses, costs, damages (including to natural resources, property or persons), and liability arising out of or related to such CM.

4.6. Health and Safety Plan

The Project Management Plan shall include a Site-Specific Health and Safety Plan (SS-HASP), prepared in accordance with FTA, RIDOT and Industry Standards. The DB Entity shall be solely responsible for implementing and maintaining the SS-HASP and ensuring that the personnel are fully trained and supervised in accordance with applicable state and federal rules and regulations, and with respect to the SS-HASP. DB Entity shall take all reasonable precautions and be solely responsible for the safety of, and shall provide protection to prevent damage, injury or loss to (a) all employees of DB Entity and its Subcontractors performing the Work and other persons who are on Site or would

reasonably be expected to be affected by the Work; (b) the Work and materials and equipment to be incorporated therein; and (c) all other property on, adjacent to, or near the Site.

4.7. Environmental Mitigation

Environmental Mitigation may be required depending on the final design prepared by the Design-Build (DB) Entity. If alterations are proposed to freshwater wetlands, flowing bodies of water or other regulated area, mitigation may need to be provided by the DB Entity as required by DEM Rules and Regulations. The cost of providing all mitigation required shall be included in the Design-Build Lump Sum price.

Section 5. Utilities

5.1. General Statement

There are many existing utilities running through the project, including water, sewer, electric, gas, communications, and others. The BTC documents and all other documentation reflect the early coordination process undergone by the Department. The BTC describes known utilities identified within the project limits and are based upon limited investigations and are not guaranteed. The DB Entity bears full responsibility for ascertaining the existence and exact location and size of all Utilities within the Project Limits.

The Department will administer all utility agreements and contracts with Utility Owners/Agencies utilizing the Departments internal utilities section and will execute all contracts as per the Rhode Island State Statutes, Chapter 24-8.1 Relocations of Utility Services and in accordance with Federal Regulations 23 CFR § 635 and 23 CFR § 645. All utility work required by the utility companies to be performed by the DB entity is to be included in the DB entities cost proposal. The work performed by the DB Entity, as included in the cost proposal, shall be clearly noted in a Utility Matrix that shows the division of work between work by the utility and the DB Entity's responsibility. Work performed by the utility company will be reimbursed to the utility company by RIDOT through separate agreements. The Department will pay all utilities directly. The Department will be responsible for checking and verifying material quantity and labor hours submitted by the Utility Companies for reimbursement.

5.2. DB Entity Responsibilities

The DB Entity shall coordinate with the Department regarding any Project activities that may affect the services or facilities of a private, state or municipal utility entity. The DB Entity will be responsible for coordinating with the Department and utility owners to arrange for required utility relocations on the Project.

The DB Entity shall meet with the Department and all owners of affected utilities within thirty (30) days from the award date for the purpose of briefing such utilities on proposed construction schedules, detours, etc.

Permits may be required to work in the vicinity of existing utilities. It will be the responsibility of the DB Entity to obtain any such permits sufficiently in advance of the work's commencement. Any costs related to acquisition of utility permits will be borne by the DB Entity.

The DB Entity shall provide a minimum of sixty (60) days' notice to the Department for notice to any utility owner whose infrastructure will require relocations. If utility assets are damaged by the Design-Build Firm, it shall notify the affected Utility Owners and the Department, and assume any costs related to the repair, or liabilities associated/ resulted from the damage.

The DB firm shall not be held liable for mismarked utilities resulting in damage.

The DB Entity shall ensure any utility work complies with the latest "Buy America" provisions.

5.3. Ascertaining the Location of Utilities

The utilities shown on the BTC survey are based on limited investigations and are not guaranteed to be accurate or comprehensive. The DB Entity bears full responsibility for ascertaining the existence and exact location and size of all utilities on the Site.

5.3.1. Existing Utilities Known to the Department

The BTC documents and all other documentation reflect the early coordination process engaged in by the Department. The DB Entity will be responsible for confirming all existing conditions in the field prior to commencing work.

The following is a list of utility owners with facilities on the Site and those that are likely to be affected by the construction, as determined during the preliminary investigations by the Department. Additional utilities may be affected by certain Project activities depending on the final design and the construction methods chosen by the DB Entity.

EXHIBIT A: UTILITY AND AGENCY CONTACT LIST

ORGANIZATION	CONTACT	CONTACT INFORMATION	MAILING ADDRESS
Providence Water Supply Board	Seth O'Connor Engineer	Phone:401-521-6300 Ext. 7222 Email: setho@provwater.com	125 Dupont Drive Providence, RI 02907
National Grid Gas	May Y. Zhen Lead Engineer, NE Public Works	Desk Phone: 781-907-3463 Cell Phone: 617-777-0131 Email: may.zhen@nationalgrid.com	Reservoir Woods 40 Sylvan Road 3rd Floor, West Wing Waltham, MA 02451-1120
National Grid Electric	Kelson McDaniel Lead Project Manager	Cell: 401-256-6123 Email: Kelson.McDaniel@nationalgrid.com	280 Melrose Street Providence, R.I. 02907-2152
Siena Engineering Group, Inc. (AT&T)	Hayleigh Walker-Kurland Project Coordinator	Office: (781)221-8400 x7023 Email: Hayleigh.Walker@sienaengineeringgroup.com	50 Mall Road, Suite 203 Burlington, MA 01803
Verizon	Peter DeCosta Verizon State Highway Coordinator	Cell: 508-944-6701 Email: peter.x.decosta@verizon.com	85 High Street Pawtucket, RI 02860
CoxCom, LLC	David Velilla Right of Way Agent II	Office: 401-615-1284 Fax: 401-615-1421 Email: Dave.velilla@cox.com	9 J.P. Murphy Highway West Warwick, R.I. 02893
Providence DPW	William Bombard, P.E. Chief Engineer, Engineering Division	Office: (401) 680-7500 Email: WBombard@providenceri.gov	700 Allens Avenue Providence, RI 02905
Providence Fire Department	Ronnie Baptista, Aerial Foreman	Cell: 401-426-1746 Office: 401-274-1150 Email: rbaptista@providenceri.gov	1 Communications Place Providence, RI 02903
Crown Castle Fiber	Bob Powers Fiber Construction Engineer	Office: (978) 264-6020 Mobile: (508) 561-2456 Email: Bob.Powers@crowncastle.com	80 Central St Boxborough, MA 01719
Narragansett Bay Commission	Meg Goulet, P.E. Director of Operations & Maintenance	Office: 401-461-8848 x302 Email: mgoulet@narrabay.com	1 Service Road Providence, RI 02905

ORGANIZATION	CONTACT	CONTACT INFORMATION	MAILING ADDRESS
OSHEAN	Robert Gay Director	Office: 401-398-7506 Cell: 401-559-6060 Email: rob@oshean.org	6946 Post Road, Suite 402 North Kingstown, RI 02852
Century Link	Mike Wiemer Senior Outside Plant Engineer	Desk: 857.706.6388 Cell: 617.480.4861 Email: mike.wiemer@centurylink.com	300 Bent Street Cambridge, MA 02141
OpenCape	Gary Farrenkopf, Outside Fiber Engineer	Office: 508-524-5903 Email: Gary@opencape.org	3195 Main Street Barnstable, MA 02630
Zayo Group	Neil Bresnahan OSP Project Manager	Office: 781-760-3034 Email: Neil.bresnahan@zayo.com	4 Powder House Road Medfield, MA 02052
Sprint Communications	Michael Hanifan OSP Engineer II	Office: 413-237-2598 Email: michael.j.hanifan@sprint.com	400 Taylor Street Springfield, MA 01105
MCI Metro	Eric C. Johnson Global Transport Engineering & Implementation	Office: 617-590-2641 Email: eric.c.johnson@verizonbusiness.com	8 Parsonage Street Providence, RI 02903

5.3.1.1. Department of Transportation Electrical

The Department maintains electrical services on the Site that feed power to the bridge, roadway lights, VMS and traffic signal controllers. The electrical requirements for this Project generally include demolition of the existing electrical systems and the installment of a new electrical power distribution system for lighting equipment.

The DB Entity will be responsible for the design, detailing and construction of such facilities.

5.3.1.2. Electric Distribution

The DB Entity will coordinate the BTC design with these facilities. National Grid – Electric maintains several electrical services within the project limits which feed power to roadway lights and traffic signal controllers.

Throughout the life of the Project, the DB Entity shall be responsible for maintaining power and for any relocation of the electric feeds related to the construction of the Project. The DB Entity shall perform its own investigation of the utilities to be relocated and maintained. The DB Entity must notify National Grid – Electric in advance of any intended relocation of services or related electrical facilities.

All services must meet NEC, NESC, and National Grid – Electric guidelines and practices.

5.3.1.3. Water

The Providence Water Supply Board has identified water mains on Providence Place, Promenade Street, and Smith Street. Providence Water Supply Board also notes a water main south of West exchange Street under I-95 from Fox Place to the Dunkin Donuts Center that shall be relocated as part of this project as directed by Providence Water Supply Board. The

BTC indicates the water main on Smith Street will be relocated from under I-95 to the new Smith Street Bridge. The DB Entity shall coordinate with Providence Water Supply Board to identify constraints with respect to the temporary decommissioning of water lines to facilitate construction.

5.3.1.4. Cable TV

Cable television services within the project limits are primarily provided by COX. There are facilities located within the project limits that may require relocation and/or support to maintain.

5.3.1.5. Telephone

Telephone services are primarily provided by Verizon. There are facilities located within the project limits that may require relocation and/or support to maintain.

5.3.1.6. Gas

The DB Entity shall coordinate with the design of the improved facilities.

5.3.1.7. Sewer

The Narragansett Bay Commission (NBC) has underground combined sewer overflow (CSO) facilities within the project limits. The DB Entity shall coordinate with NBC on any modifications impacting the CSO.

5.4. Special Requirements for Commencement of Work near Utilities

The DB Entity must give special attention to the placement of cranes and to the paths of delivery vehicles and equipment within the project limits.

The DB Entity shall provide the Utility companies with a detailed description and plans for the proposed crane placement, including any placements that may be shown as part of the BTC, and the proposed path of delivery vehicles and construction activities within the Project limits for review and comment. The DB Entity must demonstrate to the Department that all utility company concerns, and comments have been addressed prior to the commencement of construction activities involving heavy equipment or delivery vehicles within the Project limits.

The DB Entity shall comply with the “Dig Safe” requirements.

5.5. Meetings and Cooperation with Utility Owners

The DB Entity shall coordinate and hold meetings with the affected Utility Owners that are necessary in order to accomplish the Work (including obtaining information, coordination of scheduling, design review, inspections, approvals and acceptances). The DB Entity shall notify the Department of all utility coordination meetings and shall not conduct a meeting without a Department representative present. The DB Entity shall copy the Department in all correspondence with the Utility Owners related to the progress of the project.

The DB Entity shall immediately notify the Department if the DB Entity becomes aware that the Utility Owner(s) is not cooperating in providing needed work or approvals. The Department agrees to use its reasonable efforts to assist the DB Entity in obtaining the cooperation of the Utility Owner(s), but such assistance shall not be deemed to relieve the DB Entity of its sole and primary responsibility for the satisfactory compliance of its obligations set forth in the contract documents. The DB Entity shall incorporate all utility phases of construction into the overall work schedule. No additional time or compensation will be provided resulting from delays due to utility coordination and staging.

The DB Entity shall be responsible for all work associated with progressing work, maintaining schedule, and resolving conflicts for the temporary and/or permanent relocations of the impacted utilities.

The DB Entity shall utilize a single dedicated person responsible for managing all utility coordination. This person shall be contractually referred to as the Utility Coordination Manager and shall be identified in the DB Entity's proposal. The DB Entity shall notify the Department in writing of any change in the identity of the Utility Coordination Manager. The Utility Coordination Manager shall have the following knowledge, skills, and abilities:

a. Knowledge of the Department plans production process and utility coordination practices,
b. Knowledge of Department agreements, standards, policies, and procedures.

If the DB Entity anticipates that any utility work will need to start prior to the first schedule submission required by scheduling provision included in the Contract, the DB Entity shall present that information at the pre-construction conference in the form of an Initial Schedule detailing when each early utility activity is required to start, or at the time of the initial schedule submission as required by the Contract documents, whichever is earlier.

The DB Entity's Utility Coordination Manager shall be responsible for managing all utility coordination, including, but not limited to, the following:

a. Ensuring that all utility coordination and activities are conducted in accordance with the requirements of the Contract Documents.
b. Identifying all existing utilities and coordinating any new installations.
c. Reviewing proposed utility permit application packages and recommending approval/disapproval of each permit application based on the compatibility of the permit as related to the DB Entity's plans.
d. Scheduling and attending utility meetings, preparing and distributing minutes of all utility meetings, and ensuring expedient follow-up on all unresolved issues.
e. Distributing all plans, conflict matrices and changes to affected Utility Agency/Owners and making sure this information is properly coordinated.
f. Identifying and coordinating the execution and performance under any agreement that is required for any utility work needed in with the Design-Build Project.
g. Resolving utility conflicts.
h. Obtaining and maintaining all appropriate "*Dig Safe*" tickets.
i. Performing Constructability Reviews of plans prior to construction activities with regard to the installation, removal, temporary removal, de-energizing, deactivation, relocation, or adjustment of utilities.
j. Providing periodic Project updates to the Department Project Manager and Utility Office as requested.
k. Coordination with the Department on any issues that arise concerning reimbursement of utility work costs.

The DB Entity shall be responsible for all work associated with or necessitated by the need to continue expeditious Project completion despite the presence of or conflicts with utilities on the Site.

5.6. Avoiding Relocations

The location of utilities and the potential effects on the Project of utility relocations shall be considered by the DB Entity, with the following goals:

a. Avoiding relocations

b. Protecting the utility in place to the extent practicable, if a relocation is not reasonably avoidable

c. Minimizing potential costs and delays related to relocations

5.7. Scheduling and Cost Risks

The DB Entity shall be solely responsible to communicate to affected utilities and to the Department any changes or alterations that the DB Entity proposes to make regarding utility relocations contemplated in or necessitated by the BTC. In addition, the DB Entity shall also be responsible to communicate to those parties any changes or alterations that it proposes to make regarding the proposed construction staging, insofar as they might affect the timing of utility relocations.

A utility relocation concept is depicted in the BTC associated with the Smith Street Bridge. Should the DB Entity propose a different utility relocation concept than shown in the BTC, it shall require the submission of an ATC including an assessment and justification for the impact on the project cost, schedule, risk and an assessment of the change in cost to the owner of the facilities and to RIDOT.

In the event of any changes to the staging or scope of utility relocation work contemplated in or necessitated by the BTC, it shall be the DB Entity's responsibility to mitigate any negative effects that those changes might have on the Project progress or schedule; and the Department will not grant additional payment or Contract time to the DB Entity in connection with those changes. This includes effects on the meeting of Project milestones with related incentives or liquidated damages.

5.8. Utility Work Prior to Schedule Submission

If the DB Entity anticipates that utility work will need to start before the first submission of a schedule required by the Contract, the DB Entity shall inform the Department of the relevant facts, providing an Initial Schedule detailing when each early utility activity is required to start either (1) at the pre-construction conference, or (2) at the time of the initial schedule submission required by the Contract, whichever is earlier.

Section 6. Right-of-Way

6.1. General Statement

The Department has acquired land from the Rhode Island Department of Administration and the Rhode Island State Employees Credit Union. The Department has also acquired Temporary Construction Easements from the Rhode Island Department of Administration, the Rhode Island State Employees Credit Union, and Smith Hill Realty Corporation. The Temporary Construction Easements will be valid for three years from NTP. The Department anticipates easements or acquisitions will be required to reconstruct the Atwells Avenue On-Ramp. In addition, acquisition for construction access or temporary work zones are anticipated at this time. The DB Entity must evaluate and verify the right-of-way limits shown on the survey and on the BTC plans are adequate for completion of the Project prior to submitting its proposal. Any proposed acquisition of property easements or acquisitions for construction for permanent or temporary work at the Site will constitute an ATC. The DB Entity will be required to recommend and gain approval of the ATC as outlined elsewhere in this RFP.

Should additional permanent property acquisitions or temporary property rights be deemed necessary for the construction of the work at the site, the Department will acquire the pertinent property acquisitions or rights through the Departments acceptance of an ATC proposal for the completion of the project. The DB Entity agrees to the condition, through its submittal of the ATC and Proposal that the Department cannot guarantee a timeframe for the acquisitions or rights and shall not be liable for time impacts or increased costs to the project related to additional acquisitions or rights. The DB Entity also agrees, through submission of the ATC, any, additional costs for property acquisition or rights are the responsibility of the DB Entity as determined through the ATC process.

Should the DB Entity require any additional property rights for its convenience during construction, for storage and staging areas on or off the site, it shall provide the Department with copies of said agreements prior to impacting or occupying property. These agreements will be subject to review and approval by the Department. The DB Entity must ensure that all the conditions included in these agreements are met prior to the final acceptance of the Work.

Section 7. Railroad

7.1. General Statement

There are active and inactive railroad tracks within the Project limits. For the Project location, the property is owned by Amtrak. G W (formerly P & W) & MBTA use the tracks as a tenant.

The provisions in this section apply to the DB Entity, including all sub-contractors.

The RIDOT has executed a Master Agreement for Design and Construction of Public Highway Bridges over the NEC in Rhode Island, herein referred to as the "Amtrak Master Agreement". A copy of this agreement is included in Appendix B.14 of this RFP. The provisions contained in this Section supplement the provisions of the Amtrak Master Agreement. If there is any conflict between the provisions in this section and the Amtrak Master Agreement, the Amtrak Master Agreement shall take precedence.

The DB Entity is required to design all catenary modifications associated with this project. All foundations, poles, arms and ancillary catenary materials are to be procured by the contractor. Amtrak will assist with providing a list of vendor and specific part numbers as required.

7.2. Amtrak and G&W Coordination

The DB Entity will be required to obtain an access agreement from Amtrak granting them the right to enter Amtrak property, and to comply with all Amtrak requirements listed in the Appendices of these Contract Specific Documents. All costs associated with obtaining this permit, including but not limited to insurance requirements shall be included in the DB Entity's bid price. The DB Entity is required to execute Amtrak's standard "Temporary Permit to Enter Upon Property" prior to entering Amtrak's right-of-way (see Appendix B). The DB Entity must submit all information and a written request to the Department for submittal to Amtrak's Director I&C Projects, Attention: Kate McGrath, 30th Street Station, 2955 Market Street, Box 64, Philadelphia, PA 19104. No work shall be conducted until an agreement is in place between the vested parties.

No field measurements can be obtained prior to obtaining the Amtrak permit specified above. The DB Entity shall submit for this permit within one week of award of the Contract. It is expected to take ninety (90) days for this permit to be issued.

The DB Entity is responsible for coordinating all work with Amtrak. The DB Entity shall utilize a 7-day work week schedule and assume only three (3) nights on average per week for Amtrak outages including an average total of 12 hours of noncontinuous outage windows per week on 3rd shift when work is within 15-feet of the catenary and constitutes a catenary outage. Amtrak may provide additional outages; however, these additional outages should not be considered in the DB Entity's schedule. The contractor shall coordinate with G&W for all work related to Tracks 5 & 7. The DB Entity shall also include any Amtrak holiday restriction in their project schedule, including no outage allowed in the two-week window beginning the Friday before Thanksgiving and continuing to two-weeks following that date.

Any DB Entity personnel or representatives that will require access to Amtrak property will be required to take the Amtrak Safety Training course (amtrakcontractor.com). No entry will be permitted until successful completion and issuance of a Safety Training identification badge. The Contractor shall pay all costs associated with obtaining the said required training.

Prior to any track outage request, the DB Entity will be required to attend a track outage meeting four (4) weeks prior to said outage request, at which time, the scope of work, length of outage, and location of work will be reviewed. One week prior to such track outage, the DB Entity will be required to attend

the track outage meeting at which time the specifics of the requested outage will be finalized and confirmed by Amtrak.

All correspondence and coordination required with MBTA and Freight/G&W railroad facilities shall be administered directed to and coordinated through Amtrak.

Any meeting requests with Amtrak that DB proposers may need during the RFP process shall be directed to and coordinated through RIDOT.

Any work performed on, over, under or adjacent to Amtrak's right-of way by the DB Entity (including its sub-contractors), shall comply with the provisions of Amtrak's then-current

"Temporary Permit to Enter Upon Property" including the following specifications included in the Amtrak Master Agreement:

a. Section 01141A – Safety Protection of Railroad Traffic and Property
b. Section 01142A – Submission Documentation Required for Amtrak Review and Approval of Plans for Bridge Erection, Demolition and Other Crane/Hoisting Operations Over Railroad Right-Of-Way
c. Section 01520A – Requirements for Temporary Protection Shields for Demolition and Construction of Overhead Bridges and Other Structures
d. Section 02261A – Requirements for Temporary Sheeting and Shoring to Support Amtrak Tracks, as the same may be amended, replaced or updated from time to time by Amtrak as its part of its standard practice.

The DB Entity shall comply with the then current specifications and requirements, at no cost to Amtrak. The DB Entity shall recognize that Amtrak, as part of its standard practice, may from time to time modify said specifications and requirements.

When the DB Entity is performing work on or adjacent to Amtrak's property, the DB Entity shall perform all work hereunder in accordance with Amtrak's standards, including but **not limited to**, the following:

a. Engineering Practice 3014 (Maintenance and Protection of Amtrak Traffic during Contractor Operations);
b. Engineering Practice 3014-0114A (Safety and Protection of Amtrak Traffic and Property);
c. Engineering Practice 3014-01142A (Submission Documentation required for AMTRAK review and Approval of Plans for Bridge Erection, Demolition and other Crane Hoisting Operations Over Amtrak Right-of-Way;
d. Engineering Practice 3014-01520A (Requirements for Temporary Protection Shields for Demolition and Construction of Overhead Bridges and other Structures);
e. Engineering Practice 3014-02261A (Requirements for Temporary Sheeting and Shoring to Support Amtrak Tracks);
f. Engineering Practice 3016 (Storm Water Drainage and Discharge from Adjacent Property onto Amtrak Right-of-Way).
g. Engineering Specification No. 150 (Stormwater Management Policy);
h. Engineering Practice 3006 (Design and Construction Criteria for Overhead Bridges);
i. Engineering Specification No. 63 (Track Design Specification);
j. Standard Track Plan – Roadway Sections Dwg. No. AM70003A.
k. Standard Track Plan – Minimum Roadway Clearances Dwg. No. 70050.001.08 and 70050.002.08.
l. Standard Structures Plan – Curved Protected Fence Dwg. No. SP3002.

m. Specification AED-1 (Procedures and Design Criteria to be Employed by Electrification Consultants Engaged in the Design of Electrification Facilities on the National Railroad Passenger Corporation);
n. Specification AED-2 (Catenary Structure Loading, Design Criteria, and Standards for Use on the Northeast Corridor and Keystone Branch);
o. ET Standard – Electrified Territory O.H. Bridges Typical Protection Barrier ET-1446-D Pages 1 & 2.
p. ET Standard – Electrified Territory O.H. Bridges Temporary Protection Shield & Barriers ET-1147-D.
q. AREMA Standard for Pier Protection/Crash Walls Adjacent to Railroad Tracks.
r. Engineering Practice 3005 (Pipeline Occupancy Specification 02081A and 02082A);
s. Engineering Practice 3003 (Blasting Procedures);
t. Track Monitoring Specification;
u. CE – 4 Specifications for Wire, Conduit and Cable Occupations of National Railroad Passenger Corporation Property.

The costs associated with Amtrak Railroad Protection (Inspectors, Track Foreman, Track Watchmen, Flagmen, Signalmen, Electric Traction Lineman, Class A Employees, or other Railroad employees necessary by Amtrak) will be RIDOT's responsibility.

7.3. Amtrak 's Role

RIDOT has executed a Force Account Agreement between RIDOT and Amtrak. The DB Team is required to comply with current Amtrak policies and procedures in the Master Agreement provided in Appendix B. The Technical proposals shall be developed under the assumption that the new bridges at these locations will have grounding and bonding attachments. No catenary attachments will be allowed on the proposed bridges.

Elements of the Work will be subject to review, approval, inspection, testing, and/or acceptance by Amtrak, particularly the Work associated with the design and construction of the track, retaining walls and overhead structures. DB Entity shall coordinate all activity necessary to assure timely Amtrak review of design and construction of the Amtrak Work.

In addition, Amtrak will be responsible for constructing any portions of the work pertaining to modifications to their rail systems infrastructure described in the force account which includes track, train control and signaling, communications, and overhead electrification with the exception of installation of the foundation. The D-B entity will be required to install any foundations necessary for the proposed catenary modifications and will also be responsible for suppling catenary poles and other incidental material as directed by Amtrak. Due to the unknow of the construction of the foundations and the material needed, an item has been included under the Estimated Cost Items as 1.13.6. of which the work will be paid for as described in Part 2 Section 3.7.2.1. The DB Entity shall be responsible for final design of any such modifications required as part of the Final Design under this project, securing Amtrak approval, and coordinating division of work and construction activities with Amtrak to maintain the overall project schedule.

7.4. Submissions

Before Amtrak will review any Documents, the DB Entity must require that its Consultants or any of its sub consultants performing design or engineering functions to 1) execute a copy of the indemnity Certificate sample included as Exhibit B in the Amtrak Master Agreement, and return the form to Amtrak at the address listed in the Notices section of this agreement, and 2) provide Amtrak with written proof

of the insurance coverage contained in the Agreement included in Section 3 of the Amtrak Master Agreement.

The D-B Entity shall be responsible for the design of modifications to Amtrak's Electric Traction (ET) facilities as well as bridge grounding details with an Amtrak approved designer for the design of overhead catenary system (OCS). The design should include two catenary work packages:

Package 1: Temporary modifications to existing catenary to remove or relocate catenary attachments from existing brides and modifications to existing catenary poles impacted by the proposed construction.

Package 2: Proposed preliminary and final design of the catenary modifications for the final condition.

Grounding and bonding plans will be developed both for demolition of the existing bridges and the final condition of the new bridges.

It is essential that Amtrak service be maintained at all times and coordination with Amtrak will be a key element in the project's success. The electrification design will be staged in such a way as to not impact the adjacent and non-electrified track. The design shall follow Amtrak standards and utilize Amtrak Specification AED-1 and AED-2. Deliverables for final catenary package shall consist of, as a minimum:

ET Design Drawings

a. General Plan and Location
b. Staging Plans
c. Wiring and Structure Layout Plans
d. Wiring Profiles
e. Structure Erection Diagrams
f. Assemble Drawings
g. Bridge Grounding and Bonding Drawings

ET Specifications
Master Bill of Materials

Amtrak shall have a minimum of sixty (60) working days to review any Documents.

Section 8. Project Schedule Requirements

8.1. General Statement

The Design-Build (DB) Entity will be required to implement and maintain an integrated schedule management and controls program from the submission of the Proposal through Construction Completion. A Critical Path Management (CPM) Schedule must be developed and maintained and be the DB Entity's primary tool to organize and communicate their plan for the timely completion of the Project. General Requirements

8.1.1. General Requirements

The DB Entity shall ensure that all schedule submissions comply fully with the requirements specified herein; are both timely and accurate throughout the life of the Project; and reflect the requirements of all Permits, the RFP, approved ATCs, Proposals, and Final Designs. The Schedule will be used by RIDOT and the DB Entity for the following, as well as those stated in these Specifications:

a. To reflect the DB Entity's plan to execute the Project and meet the Milestones and Completion Dates.
b. To identify the Critical Path and its specific activities.
c. To identify any changes in the design development or proposed work that differs from the Specifications, Proposal, etc. (i.e., additional early releases, alternate phasing, or Value Engineering Proposals).
d. To document the actual progress of work contemporaneously during the Project and evaluate the time impact of changes in the work.
e. Allow the Project Team the opportunity to seek ways to minimize delays and communicate most current Design, Submittals, and Construction priorities.
f. Allow RIDOT the opportunity to mitigate the impact of unforeseen events.
g. To enable RIDOT to track and prioritize the review of Design Submissions, Permits, Shop Drawing, RFIs, etc.
h. To evaluate resource requirements of the DB Entity, Department, and Consultants.
i. To coordinate the work of third parties including Utilities, Amtrak, NBC, etc. into the sequencing of the Contractor's work where necessary.
j. The primary decision-making tool of the Project Team.

RIDOT may withhold partial or full progress payments if schedule submissions are overdue or not accepted.

Float is not for the exclusive use or benefit of either RIDOT or the Contractor. It is an expiring resource available to all parties, acting in good faith, as needed to meet any Contract Milestone(s).

8.1.2. Required Submission

RIDOT requires the DB Entity to submit the following schedule submissions by the dates listed below: **Schedule Meetings/Submission**	**Due Date**
Proposal Schedule	With Proposal
Resume of Dedicated Project Scheduler	*3 Calendar Days
Schedule Kick-Off Meeting	*7 Calendar Days
Preliminary Schedule (PS)	*14 Calendar Days

RIDOT requires the DB Entity to submit the following schedule submissions by the dates listed below: **Schedule Meetings/Submission**	**Due Date**
Schedule Planning Session	*21 Calendar Days
Initial Baseline Schedule (IBS)	*30 Calendar Days
Finalized Baseline Schedule (FBS)	*60 Calendar Days
Schedule Updates	1st due 30 CD after NTP, then Monthly until Completion
Short term schedules (3 week look-ahead)	Every Friday from NTP to Construction Completion
Recovery Schedules	As Required by the Specification
Time Entitlement Analyses	As Required by the Specification

*Calendar days after RIDOT's issuance of "Apparent Best Value Determination" Letter

The DB Entity shall use Oracle, Primavera P6 Version 8.0 or most recent for all CPM schedules.

8.1.2.1. Proposal Project Schedule

The Proposal Schedule shall be submitted as part of the Proposal, as defined in Part 1. The Schedule shall be developed in accordance with the technical requirements of this Specification. The Schedule shall include contiguous logic between construction activities, submittals, procurement, Permits, and Design activities. At a minimum, the following shall be included:

Milestones:

a. Award
b. NTP
c. Early Releases (both design and shop drawings/submittals)
d. Design Completion Date
e. Construction Milestones (including interim or tracking)
f. Final Design and Approval
g. Substantial Completion (either the RFP Date or earlier date if proposed)
h. Final Acceptance of Work (either the RFP Date or earlier date if proposed)

Design and Shop Drawing Submissions

a. All stages, components and submissions for the design (including reviews)
b. All Early Release Designs and shop drawings
c. All RIDOT and Third-Party reviews
d. All critical or long lead submittals, reviews, and procurement/deliveries

Construction:

Construction shall be detailed for all work planned within the first two (2) years after NTP. These activities shall have durations no greater than fourteen (14) calendar days, with the exception of curing activities. Work after this can be reflected using summary activities, with durations no greater than thirty (30) calendar days. Activities shall include, at a minimum:

a. Start-Up activities, including mobilization, Dig safe, installation of erosion controls, etc.
b. Construction of any temporary structures or roads
c. Construction/Reconstruction of all ramps and/or intersections
d. Construction/Reconstruction of all structures
e. Major Traffic Shifts
f. All Third-Party Utility works
g. All Amtrak work
h. Punchlist and Inspections

8.1.2.2. Project Scheduler

The DB shall retain a scheduler(s) dedicated to the Project, with a minimum of five (5) years of experience on projects similar in size and scope. The scheduler shall be responsible for developing, updating, and maintaining the Schedule. The DB Entity shall submit the resume of the proposed scheduler(s) to RIDOT for acceptance within 3 days of RIDOT issuing the "Apparent Best Value Determination" Letter. Determination of the scheduler(s) acceptability is made at the discretion of RIDOT. The scheduler shall be present at all required meetings, including but not limited to the Schedule Planning Session, Baseline Development Meetings, Schedule Update Meetings, and any other meetings which may affect the Project's Schedule.

8.1.2.3. Schedule Kick-Off Meeting

Within seven (7) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter, the DB Entity shall hold a Schedule Kick-Off Meeting. The meeting shall be held with the DB Entity's Team, including the Scheduler, and RIDOT. The meeting will be held to review the schedule requirements, the DB's Proposal Schedule, and technical scheduling requirements including coding structures, calendars, and resource loading. The intent of the meeting is to address questions regarding the scheduling requirements and promote communications amongst the team in advance of the Preliminary Schedule submission. The DB Entity will be responsible for generating and distributing the meeting minutes for the meeting.

8.1.2.4. Preliminary Schedule

Within fourteen (14) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter, the DB Entity shall submit the Preliminary Schedule (PS) for RIDOT's review. The PS shall include all the requirements of the Proposal Schedule, including detailing all proposed permitting, design, critical shop drawings / submittals / procurements, third party utility, and early construction (construction work planned within the first two (2) years of NTP). The balance of the construction operations (including final inspections, punch list, etc.) shall be detailed with summary activities with durations no greater than thirty (30) calendar days. These activities should identify and separate work per road, per structure, and per phase.

A Narrative shall be submitted outlining the proposed sequence of work, changes from the previously submitted Proposal Schedule, and the following:

a. Identification of the Data Date and Schedule file name.
b. A description of the planned flow of work, identifying all changes from the proposal schedule and key or driving activities/resources for the first two (2) years of construction.
c. Identification of any alternates or substitutions.
d. Contingency Plans - for potential problems that may arise during construction that will affect the overall progress of the Schedule. The Plans will include, but not be limited to the following:

1. Permit or design impacts
2. Normal adverse weather
3. Severe weather forecast that may impact operations
4. Equipment breakdowns or malfunctions
5. Incident within Project limits, both in waterway and/or roadway
6. Incident involving delivery or removal of material
7. Temporary traffic control equipment breakdown or staff non-responsiveness
8. Emergency repairs to the existing structure
9. Response to natural disaster
10. Key staffing replacement plan due to injury or illness
11. Incident management staging, equipment and response plan for incidents within the Project limits, including MPT crossovers areas.

e. Response to all the Owner's comments. The identification and explanation of all changes made to the Schedule submission (from the previously submitted Schedule including the Proposal Schedule).

To the extent practicable, in developing the Proposal Schedule, the DB shall provide adequate preparation periods for Project activities and review processes in the schedule that will occur prior to the time RIDOT allows the DB Entity to begin physical Project construction.

Within seven (7) calendar days of submitting the Preliminary Schedule, but no later than twenty-one (21) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter, the DB Entity shall host a Schedule Planning Session with RIDOT. At the meeting, the DB Entity will present their Preliminary Schedule including their planned approach to the Project, work to be performed by the DB Entity, subcontractors, third parties, and RIDOT. Additionally, the following will be presented:

a. The planned design approach, anticipated early releases, and timeline for Permitting, and interdependencies with start of construction
b. The planned construction staging
c. Planned crew sizes
d. Summary of equipment types, sizes, and numbers to be used for each work activity
e. Estimated durations of major work activities
f. The anticipated critical path of the Project and a summary of the activities on that critical path
g. A summary of the most difficult schedule challenges anticipated by the DB Entity, and how they plan to manage and control those challenges
h. Project specific calendar assignments utilized and planned to be utilized, as well as their defined work days/hours.
i. A summary of the anticipated quarterly cash flow over the life of the Project.

This will be an interactive session, and the DB Entity shall answer all questions that RIDOT and their Consultants may have, including comments on the Preliminary Schedule. The DB Entity shall provide a written summary of the information presented and discussed during the session to RIDOT. Following the Schedule Planning Session, the DB Entity and RIDOT shall meet weekly until the Finalized Baseline has been Accepted. The DB Entity will be responsible for generating and distributing meeting minutes for the Schedule Planning Session and weekly schedule meetings.

8.1.2.5. Initial Baseline Schedule

The Initial Baseline Schedule (IBS) is due no later than nine (9) calendar days after the Schedule Planning Session and no later than thirty (30) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter. The IBS shall include all the requirements of the Preliminary Schedule and include corrections and written responses to all questions and concerns identified from the Schedule Planning Session, and review of the Preliminary Schedule. Upon Acceptance (including Accepted as Noted) of the IBS, the DB Entity shall proceed with bid item and resource loading the Schedule, to be submitted as a Finalized Baseline.

8.1.2.6. Finalized Baseline Schedule

The Finalized Baseline Schedule (FBS) is due no later than sixty (60) calendar days after RIDOT's issuance of the "Apparent Best Value Determination" Letter. The Schedule shall address any open comments from the Accepted, or Accepted as Noted, IBS and shall:

a. Bid item load the Schedule: the DB shall allocate the quantity and anticipated dollars to all activities corresponding to the Schedule of Values submitted to RIDOT. The management of this process and monthly reporting shall be outlined in the DB Entity's Management Plan; however, the result of this effort shall be accurate portrayal of the Owner's cash flow requirements for the Project, as well as substantiation of progress payments (with the Schedule Updates).
b. Resource load the Schedule: the DB Entity shall assign the anticipated labor and equipment to all activities as required. These assignments shall be defined by the DB Entity so monthly reports may be generated and comparisons to actuals provided by the DB Entity. The management of this process and monthly reporting shall be outlined in the DB Entity's Management Plan.

The Baseline Narrative shall include:

a. All information from the Preliminary and Baseline Schedule's Narrative, updated if required.
b. A description of the planned flow of work identifying all key or driving resources.
c. Response to all Owner's comments and the identification and explanation of all changes made to the Schedule submission.
d. A summary of planned labor utilization for the Project through Construction Completion. This shall identify the average and maximum number of workers by craft designation on site each month based on the resource loaded Baseline Schedule and the shifts to be worked. Identify actual and potential labor resource limitations.
e. A summary of planned equipment utilization for the Project through Construction Completion identifying each type of operated equipment to be used in the work, the planned quantity of each type of operated equipment utilized each month, and the criteria for mobilizing and demobilizing each piece of equipment to and from the site. Identify actual and potential labor resource limitations.
f. Key constraints and potential problems affecting the Contractor's work must be identified: construction interfaces with existing plant operations, third parties at the Project site, temporary contractor plants, facilities or fixed equipment planned for use whether within the contract ROW, contract easement, or off-site. Include length of time the plant is to be used, any planned moves, and any potential conflicts that could arise if the plan is not followed.

8.1.2.7. Schedule Updates

Monthly Schedule Update Meetings shall be attended, and Schedule Updates submitted by the DB Entity.

The DB Entity shall attend each meeting with a Draft Schedule Update. Schedule printouts shall include (1) activity progress over the past month and remaining and (2) Critical Path (Float Path 1). The Schedule and Narrative shall be updated with the latest Project status, and copies of both are to be distributed to all meeting attendees. At the meeting, the DB Entity shall be prepared to review all progress, anticipated work planned, impacts or changes to the previous work planned, status/changes to the critical path, and current or anticipated issues. Upon the completion of the meeting, the DB Entity has three (3) days to finalize the Schedule Update and Narrative and formally submit to RIDOT for review and acceptance.

The first Schedule Update Meeting shall be held within thirty (30) calendar days of NTP. The DB Entity will be responsible for generating and distributing meeting minutes for all Schedule Update and Schedule related meetings.

The first Schedule Update (with Narrative and reports) shall be submitted within thirty-three (33) calendar days of NTP. In the absence of an Accepted or Accepted as Noted IBS or FBS, the DB Entity's Proposal Schedule shall be used to generate the Schedule Updates. Once Accepted, or Accepted as Noted, the FBS shall be used to generate the Schedule Updates.

The Schedule Updates generated from the Proposal Schedule are considered the Schedules of Record for the Project. Impacts to the Project Schedule based on incorporating changes from the Accepted FBS will be the responsibility of the DB Entity. Furthermore, as the design develops and no later than one (1) year after NTP, all summary level activities (developed in the FBS to represent remaining construction work planned after the first two (2) years) shall be broken down into detailed activities with durations no greater than fourteen (14) calendar days, with the exception of curing activities. These changes shall be incorporated in the Schedule Updates and described in the respective narratives. Impacts to the Project Schedule based on breakdown of the summary activities will be responsibility of the DB Entity

The DB Entity shall uniquely identify each Schedule Update submittal. Resubmissions shall use the same progress/update number, followed by the suffix, Rev. X, and shall fully address and comply with RIDOT's review comments.

Schedule Update submittals, including resubmissions and revisions, shall include one (1) complete electronic file copy of the Schedule Update in an electronic format acceptable to RIDOT.

Each Schedule Update shall reflect progress for activities to the Data Date and shall forecast the finish dates for in-progress and remaining activities. Updated progress shall be limited to as-built staging and as-built dates for completed and in-progress activities. As-built data shall include actual start dates, actual and remaining durations, and actual finish dates for each activity. As noted previously the breakdown of summary level activities shall be identified in the narrative. All other changes to activity descriptions, original durations, or staging shall be discussed with RIDOT prior to incorporating into the Schedule Updates.

A Schedule Update Narrative shall consist of the following:

a. Identification of the Update Period, the Data Date, and the Schedule file name.
b. Narrative of work accomplished in the past update period and work planned for the next update period. Identify what planned work was not accomplished and why.

c. Narrative of the current critical path (float path 1) to each Contractual Milestone and Completion Date.
d. Identification of any alternates or substitutions.
e. Response to all Owner's comments, and the identification and explanation of all changes made to the Schedule Update submission.
f. Identification of any elective changes and justification for the change. Please note: An elective change is defined as a revision to logic or duration(s) by the Contractor to effectively use labor and resources which have no adverse effect on the Owner or Contract. RIDOT may use this as a request to a change in the Schedule. Mutual agreement on the change must be attained to implement either request. The Narrative shall contain the following information regarding an elective change:

a. Identification of the activities changed.
b. A description of the scope of the elective change and identification of the advantages and disadvantages of implementing the change.
c. Identification of all driving resources, if any.
d. Identification of key constraints influencing the Contractor's approach to the work.

g. Identification of activities with critical or near critical float (within ten (10) working days of the critical path) that were planned to occur during the Update Period but did not occur or occurred later than the scheduled late start or late finish date, and an explanation of these delays.
h. Identification of delays to activities taking place off the Project site, e.g., submittal preparation, fabrication, and delivery activities.
i. A listing of all activities which have surpassed their planned duration by more than twenty (20) percent, and any justification for maintaining original planned durations for future activities of like work.
j. A summary of any changed plans for labor utilization for the Project, identifying the average and maximum number of workers on site each month. Identification of actual and potential labor resource limitations. A summary of the actual labor utilization used over the past month.
k. A summary of any changed plans for equipment utilization for the Project, identifying each type of operated equipment to be used on the work, the planned quantity of each type of operated equipment utilized each month, and all changes to the criteria for mobilizing and demobilizing each piece of equipment to and from the site. Identification of actual and potential equipment resource problems. A summary of the actual equipment utilized over the past month.

8.1.2.8. Short-Term Construction Schedule

The DB Entity shall provide a Short-Term Construction Schedule that details the daily work activities, including any multiple shift work that the DB Entity intends to conduct, in a bar chart format. The daily activities **shall correspond to the Schedule Update activities** (coding, activity ID, float), but shall be at a greater level of detail to identify work **planned to the hour** (as needed). The Short-Term Construction Schedule shall be submitted weekly. It shall display for the following work within a thirty-five (35) calendar day period: completed work for the two (2) week period prior, and all planned work for the three (3) week period following the Schedule Update Meeting or the end of the previous two (2) week period.

The DB Entity shall be prepared to discuss the Short-Term Construction Schedule, in detail, with RIDOT in order to coordinate field inspection staff requirements, schedule of work affecting abutters, and corresponding work with affected utilities.

8.1.2.9. Recovery Schedules

The DB Entity shall identify and promptly report to RIDOT all Schedule and progress delays during the prosecution of the work. The DB Entity shall promptly take appropriate action to develop a Recovery Schedule in the form of a revised Schedule Update whenever the Project Schedule Update becomes thirty (30) or more calendar days late to any Milestone(s) designated in the RFP. The Recovery Schedule shall be in accordance with corresponding section contained herein. The development and submission of a Recovery Schedule does not relieve the Contractor from continuing with the submission of the Schedule Updates.

The Recovery Schedule shall be submitted within (30) days of the submission of the corresponding Schedule Update [reflecting a Milestone is thirty (30) or more calendar days late]. The Recovery Schedule shall demonstrate a clear procedure for bringing the Project into compliance with a timeline acceptable to the Engineer.

Normal adverse weather shall be anticipated and planned for by the Contractor. Delays due to such weather events are unacceptable. Failure to submit such a Recovery Plan shall provide a basis for future Payment Application withholdings, either in whole, or in part, by the RIDOT.

Recovery Schedule Submissions shall include a Narrative with a comprehensive listing of all activities added to or deleted from the previous Schedule Update (which the Recovery Schedule was generated from), as well as a complete listing of all logic and activity relationship changes that have been made and the reasons why they were changed. No Recovery Schedule will be accepted unless it satisfies the following requirements, at a minimum:

a. All out-of-sequenced logic is corrected or explained to the satisfaction of the Engineer.
b. Actual Start and Finish dates are verified for accuracy.
c. The Schedule accurately reflects the DB Entity's plan (including accurate logic and durations) for completing the remaining work.

Once a Recovery Schedule is accepted by RIDOT, it shall be used for the next Schedule Update.

Except as otherwise designated by Change Order, no Recovery Schedule or Schedule Update that extends performance beyond any Contract Time and/or Contract Milestone(s) shall qualify as acceptance of an Extension of Time.

8.1.2.10. Time Entitlement Analysis

All requests for an Extension of Time shall be substantiated by the DB Entity's submitted contemporaneous Schedule Updates that report changes and impacts as they occur

As Schedule Updates are statuses and provided during the Project, the DB Entity will document and include projected impacts that affect progress. These projected impacts will be discussed with RIDOT at the Schedule Meetings, and RIDOT and the DB Entity will agree on how an impact will be projected before final submission of the Schedule Update.

A Project Status Log will be kept for each monthly Schedule Update to track the Contractual Completion Dates and impacts to the Project.

Identifying impacts and agreeing on how they are represented in the Schedule will document and track these issues and provide both RIDOT and the DB Entity with the opportunity to mitigate potential time lost. RIDOT will not be held responsible for impacts / potential impacts that are not identified and substantiated in the Schedule.

The contemporaneous Schedule Analysis allows RIDOT and the DB Entity to review impacts as they occur and provides an opportunity for potential impacts to be mitigated. This Analysis will be used for the negotiation of changes to the Contract, pending the Schedule Updates are Accepted, and the impacts are substantiated.

8.1.3. Technical Scheduling Requirements

All schedules shall conform to the minimum requirements, as well as those requirements outlined the DB's Management Plan:

8.1.3.1. Standard Durations

The following standard durations shall be included in all Schedules:

Activities	Durations (calendar days)
Review of Design or Shop Drawings	30
Review of Resubmitted Design or Shop Drawing	14
CRMC Category A Assent Application Review	90
CRMC Category B Assent Application Review	180
RIDEM Water Quality Cert. & RIPDES Application Review	90
NBC Review	60
Amtrak Review	60

The following are the minimum durations to be assumed by the DB Entity in their Proposal and Preliminary Schedules, or until Force Accounts have been received by the respective utility and may be incorporated into the Schedule. The Schedule should not represent utility relocations being performed concurrently at the same location, unless the utility companies and RIDOT accept this logic.

Minimum Utility Durations	Durations (months unless otherwise noted)
Park St: NGRID – Electric	9
Smith St: NGRID – Electric	9
Smith St: Verizon	6
Smith St: Fiber Optic	6
NGRID-Gas (Tie-Ins)	3 Days Per Location

8.1.3.2. Basic WBS Structure

WBS Code	WBS Title
PVD.00	Contract Name
PVD.10	Milestones
PVD.15	Summary Activities
PVD.20	Design
PVD.25	RFI's
PVD.30	Procurement/Shop Drawings
PVD.40	Utility/RR & Work by Others
PVD.60	Construction

8.1.3.3. File Naming Standard

Name	Submission
PPS	Proposal Project Schedule
PSX	Preliminary Schedule
BLX	Baseline Schedule
UPXX	Schedule Update
RXX	Recovery Schedules

X = sequential number per name

8.1.3.4. Activity Requirements

All Schedules shall clearly and separately define the progression of work from Bid Opening to Final Completion using separate activities for, at a minimum:

a. Activity ID's
   Shall be alpha-numeric using the first six (6) values of the corresponding WBS code as the pre-fix. ID's shall not be greater than ten (10) digits.

b. Activity Codes
   The coding structure shall be defined by the DB Entity to allow for organizing/reporting by location, road (including directions), ramp, structure, phase, work type, subcontractor, discipline, responsible party (RESP codes), etc.

c. Activity Descriptions
   Shall consist of a verb or work function (i.e. form, pour, excavate, etc.,), object (i.e. slab, footing, wall, etc.), and location (i.e. STA, bridge, pier, or retaining wall number, street, ramp, etc.). There shall be no two (2) activities with the same activity description. Any abbreviations used in the activity descriptions shall be consistent with the abbreviations used throughout the Contract Documents and should be listed therein. The formatting of the activity description in the software shall be left-justified and capitalized.

d. Durations
Shall be limited to:

1. Design & Procurement activities may be expressed in either calendar or working days but limited to ninety (90) calendar days (with the exception of procurement/fabrication).
2. Level of Effort/Summary activities for construction work past the first two (2) years of construction shall be limited to thirty (30) calendar days.
3. Construction activities shall be limited to fourteen (14) calendar days, with a value of work not exceeding fifty thousand dollars ($50,000).. There should be a minimal number of activities with durations two (2) days or less and shall be identified for RIDOT's acceptance before their use.

e. Activity Types
Shall be in accordance with:

1. Milestone Activities: Only Finish Milestones that are defined in the Contract's Special Provisions shall utilize these activity types and shall be "Finish on or Before" constraints.
2. Level of Effort (Summary): These are required for the construction operations in the Preliminary Schedule, as well as for reporting in the Baseline.
3. Task Activities: This is the primary activity type. All activities other than Milestone and Summary activities, as defined above, shall be task activities.

f. Activity early and late start and finish dates shall be calculated for each activity based upon the Schedule's Data Date, actual dates, schedule logic, schedule constraints, calendars, original duration, and remaining duration in accordance with the scheduling parameters defined in this section. Actual dates shall be agreed upon by RIDOT.

g. Calendars: The DB Entity shall define all anticipated calendars in the Preliminary Schedule Narrative.

h. Data Date:

1. Proposal Schedule = Public Bid Opening Date
2. Preliminary Schedule = Public Bid Opening Date
3. Baseline Schedule = Public Bid Opening Date
4. Schedule Update = monthly date

i. The logic in the Schedules shall represent the progression of time and the sequence of work performed within the Contract Time. The CPM Schedules shall conform to the following requirements:

Every activity shall have logically assigned predecessors and successors. Unless otherwise specified, the activity "Bid Opening" shall be the only activity without a predecessor, and "Contract Completion" and each Contract Milestone shall be the only activities without successors.

The use of activity constraints is limited to the "Finish-On or Before" as defined previously, under Milestones. The use of Zero Free Float, Start On, Expected Finish, Mandatory Start, or Mandatory Finish is strictly prohibited.

Activity lag durations shall not have lags (either positive or negative) unless the DB Entity can convince RIDOT that it best represents realistic conditions. Activity lags shall not be used in lieu of logic relationships.

Redundant ties to preceding activities in a sequential series of activities shall be limited to eight (8) percent of the total number of relationships in the Schedule.

Critical Path shall be defined as “Float Path 1,” by Free Float to each Contractual Milestone or Contract Completion.

Out-of-sequence logic shall not be permitted to be included in a submitted CPM Schedule. The Contractor is responsible for identifying, correcting, and updating any out-of-sequence logic in a Schedule.

Float shall be defined as the amount of time between when an activity can start (early start date) and when an activity must start (late start date). Float belongs to the Project and is a shared commodity between RIDOT and the DB Entity and is not for the exclusive use or benefit of either party. Either party has full use of the float until it is depleted. The float may be claimed by whichever party first demonstrates a need for it, i.e. if the Contract Milestone(s) and/or the Contract Completion Date has been delayed. The DB Entity shall demonstrate this need as required herein.

Not to be Used: Unspecified Milestones or restraint dates; scheduled work not required for the accomplishment of a Contract Milestone; use of activity durations, logic ties, and/or stages deemed unreasonable by RIDOT; delayed starts of follow-on trades; or use of float suppression techniques contrary to the provisions Claim for Delay or Suspension of the Work of Special Provisions. Through the progression of the Project, and as part of the Schedule Update submissions, the DB Entity is obligated to seek ways to minimize delays, and to communicate priorities that relate to the most recent submission of the critical path for the Project.

8.1.4. Schedule Reviews

RIDOT will respond to each Schedule within thirty (30) calendar days for Preliminary and Baseline Schedule submissions and fourteen (14) calendar days for Schedule Update submissions. Response by RIDOT will either accept the Schedule or require revision and re-submittal. A Schedule shall be accepted, or revised and resubmitted, only upon written notification of such by RIDOT.

Schedules shall be resubmitted within fourteen (14) calendar days after receipt of RIDOT’s comments.

The DB Entity shall not be relieved from their responsibility for satisfactorily completing the work within the specified Contract Time due to their failure to submit an acceptable Schedule Update.

8.1.5. Disputes

As stated in the RFP, all Schedules shall be submitted, reviewed, dispositioned, and accepted in the timely manner specified to provide the greatest possible benefit to the execution of this Contract.

Any dispute concerning the acceptance of a Schedule, or any other question of fact arising under this subsection, shall be determined by RIDOT.

Pending resolution of any dispute, the last Schedule accepted by RIDOT will remain as the Contract's Schedule of Record.

8.2. Incentive/Disincentive Requirements

For the purposes of this contract, RIDOT is instituting an Incentive/Disincentive specification for several Milestones. This is to encourage the DB Entity to use innovative methodologies and techniques to achieve early Milestone completion. Conversely, if the DB Entity fails to complete the work within the specified milestone schedule, RIDOT will assess Disincentive Deductions.

For purposes of determining whether the DB Entity shall receive an Incentive Payment, the days set forth in Milestones will not be adjusted under any circumstance for any reason, cause, or circumstance whatsoever, regardless of fault, save and except in the instance of a catastrophic event and/or declared state of emergency. Incentives and Disincentives will be based on a per "weekday" basis. There will be no payment made for partial weekdays.

The milestone period will start at 10:00pm (EST) on the first night of work and is based on the closure of the first lane of traffic or closure of ramp. The milestone period will end when all lanes of the roadway/ramp are returned to service. The actual weekday the milestone period ends is based on all lanes of the roadway/ramp returned to service prior to 5:00am (EST). If any lanes on the roadway/ramp are returned to service between 5:01am (EST) and 5:00am (EST) the subsequent weekday, that subsequent weekday will become the milestone period ending date.

The roadways and bridges do not necessarily need to be 100 percent complete; however, the roadway shall be safe and traversable at normal operating speeds. Ancillary work such as final paving, bridge joints, permanent barriers, etc. can be constructed after the milestone period using normal closure lane restrictions as allowed in the general restrictions chart.

The following incentive/disincentive milestones are based on the application of Construction Staging in the BTC. There are no proposed incentives or disincentives other than for the noted milestone.

8.2.1. Atwells Avenue Bridge Preservation

8.2.1.1. Incentive Payments

The DB Entity will receive an incentive payment of Seven Thousand Five Hundred dollars ($7,500) per full weekday less than the allotted 45 weekdays. This incentive is limited to a maximum of ten (10) weekdays for this milestone.

8.2.1.2. Disincentive Payments

The DB Entity will receive a disincentive deduction in payment of Seven Thousand Five Hundred dollars ($7,500) per full weekday greater than the allotted forty-five (45) weekdays and per full weekday greater than the allotted milestone completion date of September 30, 2021.

8.2.2. Park Street Bridge Preservation

8.2.2.1. Incentive Payments

The DB Entity will receive an incentive payment of Five Thousand dollars ($5,000) per full weekday less than the allotted forty-five (45) weekdays. This incentive is limited to a maximum of ten (10) weekdays for this milestone.

8.2.2.2. Disincentive Payments

The DB Entity will receive a disincentive deduction in payment of Five Thousand dollars ($5,000) per full weekday greater than the allotted forty-five (45) weekdays and per full weekday greater than the allotted milestone completion date of September 30, 2021.

8.2.3. Ramp DB (Downtown On-Ramp to I-95 North) Full Ramp Closure

8.2.3.1. Incentive Payments

The DB Entity will receive an incentive payment of Nine Thousand dollars ($9,000) per full weekday less than the allotted forty-five (45) weekdays. This incentive is limited to a maximum of ten (10) weekdays for this milestone.

8.2.3.2. Disincentive Payments

The DB Entity will receive a disincentive deduction in payment of Nine Thousand dollars ($9,000) per full weekday greater than the allotted forty-five (45) weekdays.

8.2.4. Park Street Retaining Wall Construction Completion for Tolling Installation

8.2.4.1. Incentive Payments

The DB Entity will receive an incentive payment of Seven Thousand six hundred dollars ($7,600) per full weekday less than the allotted milestone completion date of June 18, 2021. This incentive is limited to a maximum of ten (10) weekdays for this milestone.

8.2.4.2. Disincentive Payments

The DB Entity will receive a disincentive deduction in payment of Seven Thousand six hundred dollars ($7,600) per full weekday greater than the allotted milestone completion date of June 18, 2021.

8.2.5. Bridge Preservation – Former Viaduct SB, Chalkstone RR, Ashburton Street, and Charles Street Bridges

8.2.5.1. Incentive Payments

There is no incentive payment for Bridge Preservation of these bridges.

8.2.5.2. Disincentive Payments

The DB Entity will receive a disincentive deduction in payment of Five Thousand dollars ($5,000) per full weekday greater than the allotted milestone completion date of September, 2021.

8.3. Determination and Extension of Contract Time for Completion

It is an essential part of all contracts that contractors shall perform the Work fully, entirely and in an acceptable manner within the contract duration.

The contract duration is based upon the requirements of public convenience and the assumption that the DB Entity will prosecute the Work efficiently and with the least possible delay, in accordance with the maximum allowable working time, as specified in the Contract.

The Contract duration has been carefully considered and has been established for reasons of importance to the Department. The Contract duration will be enforced, and it is understood that the DB Entity accepted this concept at the time of the submission of the bid. The timing of the NTP has been taken into account in the determination of the Contract duration and the timing of the issuance of the NTP shall not, by itself, be a reason for a time extension.

An extension of contract time will be granted only if entitlement to a time extension has been clearly demonstrated to the satisfaction of the Engineer by a documented time entitlement analysis, performed in accordance with the requirements of this Section.

8.3.1. Request for Additional Contract Time

In response to a request for a time extension, an extension of contract time may be granted for demonstrated delays resulting from only one, or, in the case of concurrent delays, a combination of the following causes:

8.3.1.1. Extra Work

Each extra work order (EWO) proposal shall include an evaluation of the impact of the EWO on contract time, expressed in calendar days. If there is no impact to the critical path as a result of the EWO, the EWO shall indicate this by stating that zero (0) calendar days of additional time is being requested. The need for a time extension as a result of the EWO must be clearly demonstrated by a documented time entitlement analysis (TEA) performed by the DB Entity in accordance with the requirements of this Section. No Time Extension will be granted for any change that does not impact the current critical path and/or any critical path impact that can be mitigated by means of various recovery options to be presented to RIDOT in a timely manner. A documented preliminary TEA supporting the EWO proposal shall be submitted to the Engineer as part of the EWO proposal.

8.3.1.2. RIDOT-Caused Delays

If any part of the Work is delayed or suspended by the Department, the DB Entity will be granted a time extension to complete the Work or any portion of the Work only if entitlement to this time extension has been clearly demonstrated by a documented time entitlement analysis and a clear impact to the current critical path. Department-caused delays shall not include delays to or suspensions of the Work that result from the fault or negligence of the DB Entity.

8.3.1.3. Delays Not Caused by DB Entity Fault or Negligence

When delays occur due to reasonable causes beyond the control and without the fault or negligence of the DB Entity, including, but not restricted to: “Acts of God,” war, whether or not declared, civil war, insurrection, rebellion or revolution, or to any act or condition incident to any of the foregoing; acts of the Government; acts of the State or any political subdivision thereof; acts of other contracting parties over whose acts the DB Entity has no control; fires; floods; epidemics; abnormal tides (not including Spring tides); severe coastal storms accompanied by high winds or abnormal tides; freezing of streams and harbors; abnormal time of winter freezing or spring thawing; strikes, except those caused by improper acts or omissions of the DB Entity; extraordinary delays in delivery of materials caused by strikes, lockouts, wrecks, and/or freight embargoes; a time extension will be granted only if entitlement to a time extension has been

clearly demonstrated to have impacted the critical path, only if a presentation of alternative recovery options has been determined to be not acceptable to RIDOT, and only if the delays have been documented by a timely and acceptable time entitlement analysis.

An “Act of God” as used in this subsection is construed to mean an earthquake, flood, cyclone, hurricane, tornado, or other cataclysmic phenomenon of nature beyond the power of the DB Entity to foresee and/or make preparations against. Additional consideration may be given to severe, abnormal flooding in local rivers and streams that has been reported as such by the National Weather Service. Rain, wind, snow, and/or other natural phenomena of normal intensity, based on National Weather Service reports, for the particular locality and for the particular season of the year in which the Work is being prosecuted, shall not be construed as an “Act of God” and no time extension will be granted for the delays resulting therefrom.

Within the scope of acts of the Government, consideration will be given to properly documented evidence that the DB Entity has been delayed in obtaining any material or class of labor because of any assignment of preference ratings by the Federal Government or its agencies to defense contracts of any type.

8.3.1.4. Delays Caused by Public Service Corporations

Municipal Departments or Other Third Parties. If any part of the Work is delayed by public service corporations, municipal departments or other third parties, a time extension will be granted only if entitlement to a time extension has been clearly demonstrated by a documented time entitlement analysis.

8.3.2. **Time Extension Determination**

The following applies to the determination of time extensions:

a. When the DB Entity submits a request for a time extension, placing the RIDOT on notice of a delay due to any of the causes listed, it shall be submitted in writing to the Engineer within fifteen (15) calendar days after the start of the delay. No time extension will be granted if a request for a time extension is not filed within fifteen (15) calendar days after the start of the delay.

   A documented preliminary time entitlement analysis (TEA) supporting the request for a time extension and meeting the requirements of this Section, shall be submitted to the Department no later than fifteen (15) calendar days after the request for a time extension is submitted to the Department or thirty (30) calendar days after the start of the delay. A documented final TEA shall be submitted to the Department no later than fifteen (15) calendar days after the end of the delay. During the time between the preliminary and final TEAs, the delay shall be documented in statuses contract progress schedules submitted in accordance with the requirements of this Section.

b. No time extension will be granted for any delay or any suspension of the Work due to the fault of the DB Entity.

c. No time extension will be granted if the request for a time extension is based on any claim that the originally established contract duration was inadequate.

d. Time extensions will only be granted for delays, including concurrent delays, to activities affecting contract milestones, the contract completion date and/or other critical path activities as demonstrated to the satisfaction of the Department by a detailed time entitlement analysis that clearly states the number of calendar days of extra time being requested.

e. The probable slowdown or curtailment of work during inclement weather and winter months has been taken into consideration in determining the contract duration and therefore no time extension will be granted.

f. Any work restrictions related to weather, permit conditions, community accommodation, traffic or any other restriction specified in the Contract or reasonably expected for the particular locality and for the particular season of the year in which the Work is being prosecuted must be considered in the analysis of each individual time extension and shall not be considered, in itself, justification for an extension of time.

g. Any time entitlement analysis prepared for the purpose of requesting a time extension shall clearly indicate any proposed overtime hours or additional shifts that are incorporated in a cost and resource loaded CPM Schedule. The Engineer shall have final approval over the use of overtime hours and additional shifts and shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of time extensions if it is determined to be in best interest of the RIDOT to do so.

8.3.3. Disputes

Any dispute regarding whether or not a time entitlement analysis demonstrates entitlement to a time extension, the number of days granted in a time extension or any other question of fact arising under this subsection shall be determined by the Department.

The DB Entity may dispute a determination by the Department by filing a claim notice within fourteen (14) calendar days after the DB Entity's request for additional time has been denied or if the DB Entity does not accept the number of days granted in a time extension. The DB Entity's claim notice shall include a time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit the required time entitlement analysis with the claim notice shall result in denial of the DB Entity's claim.

Section 9. Construction Requirements

9.1. General

Before construction activities may begin for a specific segment or component of the Project, the DB Entity must have met all requirements for and have received a designation of "Released for Construction" from the Department, as well as the other requirements of this RFP related to pre-construction submittals, approvals and notifications. These pre-construction submittals include, but are not limited to, shop drawings, working drawings, testing, schedule and public information.

All design and construction documents shall be prepared using the English system.

The DB Entity shall construct the work in compliance with this RFP, with the following objectives as guides:

a. Attain the highest quality product possible.
b. Keep the Stakeholders informed of the work and use public outreach to reduce congestion.
c. Successful performance of the Design-Build Project.
d. Completion of the Project within the estimated Contract time.
e. Completion of the Project within the Proposed Price.
f. Successful application of ABC technologies.
g. Maximum beneficial use of innovation. Innovate when possible in order to achieve the best results possible.
h. Minimize the detrimental effects of the work on the Transportation System and the neighboring community.
i. Maintain or improve, to the maximum extent possible, the quality of existing traffic operations, both in terms of flow rate and safety, throughout the duration of the Project.
j. Minimize the number of different Traffic Control phases, *i.e.*, number of different diversions and detours for a given traffic movement.
k. Take advantage of newly-constructed portions of the permanent facility as soon as possible when it is in the best interest of traffic operations and construction progress and quality.
l. Maintain direct access to adjacent properties at all times, with the exception of areas of limited access right-of-way where direct access is not permitted.
m. Properly coordinate with entities working on adjacent construction projects and on maintenance of existing facilities.

9.1.1. Submittals

All submittals shall be made in accordance with the RFP. Unless otherwise specified, the DB Entity shall seek guidance from Department personnel administering the Contract as to the proper recipient(s) of such submittals.

9.1.1.1. Shop and Working Drawings

All Shop and Working Drawings shall be reviewed and approved by the Designer of Record, DB Entity's Lead Designer, Project Manager, Superintendent and Quality Control Manager for Construction and Quality Control Manager for Design prior to submission to the Department, as required elsewhere in this RFP.

9.1.1.2. RFI and RFC

The Department must be copied on all Requests for Information (RFIs) and responses between the DB Entity and its designers or other subcontractors and shall be allowed fourteen (14) days

to comment. The DB Entity shall address any comments by the Department prior to proceeding with work requiring the RFI.

RFIs to the Department shall only come from the DB Entity and the Department shall be allowed 14 days from receipt of the RFI to respond.

The Department must be copied on all Requests for Change (RFCs) and responses between the DB Entity and its designers or other subcontractors. After review and response from the responsible party within the organization of the DB Entity all RFCs must be submitted to the Department in accordance with Part 3 of the RFP and the Department shall make the final decision regarding the approval or disapproval of the RFC. The Department will try to respond to RFC as outlined in Part 3 of the RFP

9.1.2. Construction Survey

Construction shall not commence on a given segment of the project until baseline and stakeout are performed in accordance with the requirements of this RFP.

9.1.2.1. Baselines

The construction baselines shall be staked in the field, offset and maintained throughout Project construction. Baseline stations shall be staked at every fifty (50) feet (stations and half-station), point of curves, points on curves, points of tangency, and other locations as necessary. The control shall originate from the Project survey control and be verified by physical features. Record baselines are included on the base survey. The DB Entity shall be responsible for tying any newly-created baselines to the record baseline.

9.1.2.2. Construction Survey related to ABC Techniques

Any use of ABC techniques will require additional construction survey efforts in order to conform to the requirements of the "Construction Staking" Section 105.8 of Part 3 of this RFP. For this work, the DB Entity shall use licensed surveyors to perform survey of the constructed bridge substructure and to verify at the time of the pre-assembly of any portions of the superstructure that the superstructure will match the substructure necessities and related plan requirements.

9.1.3. Issue Escalation/Resolution

The DB Entity shall have the necessary personnel available at all times to resolve construction issues in order to expedite the construction progress and ensure a quick resolution of Project issues that otherwise would delay and, in some cases, hinder the progress of Project construction. The Department representatives shall be kept apprised of all issues and proposed solutions and will be afforded a review of proposed solutions or resolutions prior to their implementation.

Lines of communication between DB Entity personnel and Department personnel should always be open, and cooperation in the field shall be treated as being of paramount importance in resolving Project issues as soon as possible.

In the event that an issue cannot be resolved at a certain staff level in a timely manner, either due to its complexity or lack of sufficient authority, the DB Entity and Department representatives shall promptly elevate the issue in their respective chains of command, as appropriate and necessary, in order to resolve the issue in as timely and effectual a manner as practicable.

9.2. Location

The DB Entity must have an established, fully staffed field office as noted in Section 108.2 of Part 3 of the RFP. The DB Entity shall provide a field office for RIDOT and Project staff. The DB Entity shall establish the field office within thirty (30) days of the Department's order to establish the office. RIDOT strongly recommends that both parties' staff be located together with separation between offices.

The DB Entity shall furnish office furniture, equipment, phone services, computer and all office supplies and maintain a field office for RIDOT and Project staff for 6-8 RIDOT staff members in accordance with the requirements of this RFP.

RIDOT has not identified in the BTC any state-owned property outside of the project limits available for the DB Entity's use for off-site laydown or staging. The DB Entity is responsible for securing any additional off-site areas from RIDOT or from private owners for use as staging and laydown to support their operations. This may require the DB Entity to enter into agreements with third parties for the use of private property for staging and laydown. The DB Entity shall identify in their Technical Proposal areas they have identified as potential off-site areas for staging and laydown and any agreements, executed or pending, with the owners of these properties.

9.3. As-Built Drawings

As a condition to Final Acceptance, the DB Entity shall provide to RIDOT the Project's record drawings consisting of one (1) full size (24" x 36") PDF format files and all AUTOCAD files used for the production of the as-built set of drawings. The as-built plans shall depict the final completed Project, including all changes with all of the relevant data showing drainage systems, underground utilities, traffic controls, signing placement, highway alignment and grade revisions, and bridge detail changes. The DB Entity shall also provide other relevant Project data such as bridge shop plans, boring logs and pile driving records in hard copy sets in PDF format for archiving.

9.4. Contingency Planning

The DB Entity shall develop contingency plans prior to construction for potential problems that may arise during construction that will have an effect on the overall progress schedule. The plans shall be prepared by an emergency response specialist familiar with bridge construction and shall include, but not be limited to the following:

a. Poor or severe weather forecast that may impact operations
b. Equipment breakdowns, malfunctions or failure, including sufficient additional equipment, parts, supplies, operators and power sources
c. Crane breakdown during set-up
d. Crane breakdown during crane removal
e. Saw cutting machine breaks down
f. Crane breakdown during removal and placement of girders and prefabricated elements
g. Lost or damaged girders or precast during delivery and/or erection
h. Incident involving delivery of material
i. Accident within project limits.
j. Accident involving delivery of girder or prefabricated elements resulting in damaged units
k. Traffic Management Plan implementation equipment breakdown or staff non-responsiveness
l. Beam too high with no shims
m. Fit-up problems with cross frames
n. Bar fit-up problems in closure pours
o. Batch plant breakdown

p. Concrete delivery truck breakdown
q. Closure pour concrete strength not achieved before required time for re-opening the bridge to traffic
r. Construction not complete by the time required for re-opening the bridge to traffic
s. Key staffing replacement plan due to injury or illness
t. Severe weather impacting crane operations, including high wind speeds that exceed crane operating parameters
u. Contingency schedule and plan should delivery of necessary materials be delayed or are missing
v. Contingency Traffic Management Plans for a late opening on Monday morning
w. Temporary pavement marking application in the event of inclement weather
x. Incident within the Project limits, including all streets crossing the highway corridor
y. Obstructions encountered within excavations

Plans should be all-hazards in nature but should also be narrowly tailored and specific to hazards identified that could impact the Project and should consider critical assets or infrastructure in the area, geographic terrain, abutting entities and properties, and/or environmental concerns in the area. Plans should be developed with the involvement of multiple stakeholders. The plans should detail multi-disciplinary actions to be taken throughout the course of an incident from detection to recovery. Plans should also be reviewed with all stakeholders in an appropriate training or exercise forum prior to project commencement.

9.5. Construction Digital Recording

DESCRIPTION: This work shall consist of furnishing and installing a mobile camera surveillance system to view and record the project construction. The system shall include five (5) self-powered, rugged, wind-resistant trailers with pressure-sealed cameras for traffic management and work zone monitoring. The cameras shall be mounted to a 42-foot telescoping mast to provide a strategic overview of site.

a. The outdoor camera system shall consist of a tamper and impact resistant enclosure with integrated camera and heavy-duty robotic pedestal to be on a mobile solar powered trailer platform.
b. The camera shall take high-resolution 8-megapixel digital images every 15-minutes and provide live video
c. The camera shall upload both images and video over a wireless cellular modem.
d. The content shall be sent to secure, password protected website with an interface and Online Software features provided by the Vendor as a Managed Service.
e. The system shall operate on 12VDC.

MATERIALS: This work shall consist of furnishing, installing and testing a mobile camera surveillance system that meets the following requirements:

A. Camera: Integrated 8 Megapixel high-definition camera and lens assemble consisting of a charge coupled device (CCD) camera with a remotely controlled focal length lens with the following features:
   1. Imager: 1/2.5" CCD 8 Megapixel
   2. Resolution: 3,264x 2,488 Pixels= 8 Megapixels
   3. Panoramic Resolution: 29,376 x 9,792= 72 Megapixels
   4. Lens: Zoom 6mm-72mm capable of 12x Optical, 4x Digital
   5. Video Compression: AVI (Motion JPEG)

6. Auto Features: ISO, Shutter, White Balance and Focus

B. Camera Enclosure:
   1. Built-in aluminum and epoxy power painted weatherproof standard IP66/IP67.
   2. Body constructed from extruded aluminum and die-cast aluminum end-cover plates.
   3. Weatherproof feature is maintained by 2 EPDM-rubber end gaskets between cover plates and 3 cable glands.

C. Pan and Tilt Robotic Base: High-performance outdoor pan/tilt designed to provide steady images in windy environments with the following features:
   1. Pan Range: 360° continuous pan
   2. Tilt Range: +30° to -90° from level
   3. Motor Type: Stepper

D. Overall System:
   1. Camera Enclosure Dimension: 6.9” (175mm) W x66” (168mm) H x 19.4” (493mm) L.
   2. Pan/Tilt Unit Dimensions: 7.0 (178mm) W x 10.5” (274mm) H x 6.4” (163mm) D
   3. Operational Temperature: -10°F to 120°F (-23°C to + 49°C).
   4. Camera Enclosure Weight: 13lb (5.9 kg).
   5. Pan/Tilt Unit Weight: 12lb (5.4 kg).

E. Solar Powered Trailer Platform:
   1. Operational Tem –4ºF to 158ºF (-20ºC to 70ºC).
   2. Dimensions 12’ L x 6’ W x 10’ H (3.66m L x 1.82m W x 3m H).
   3. Region of Operation: Contiguous United States.
   4. Autonomy: 4 days battery backup.
   5. Full size spare tire.
   6. Guy Wires: To stabilize an extended mast and steady the camera shot.

F. Battery Bank:
   1. Charge controller with remote monitoring.
   2. Battery Type: 6 Volt DC deep cycle batteries.

G. Solar Array:
   1. Single crystal (monocrystalline) silicon photovoltaic modules.

H. Communication
   1. Wireless GPS modem EV–DO.

I. Quantity of Cameras: As required by Owner.

INTERFACE AND ONLINE SOFTWARE:

A. Remote Access: Contractor’s System Vendor shall provide an internet-based interface and online software as a managed service, to allow the viewing of all high-definition digital still images captured and stored and live video, from any location with internet access via a secure password protected website.

1. Maintain images on the System Vendor's website for reference available at all times during the life of the project and for not less than 60 days after completion.

B. Online Interface Features:
   1. Software delivered by vendor as a managed service.
   2. Displays company logo and project name.
   3. Capable of viewing live video.
   4. Picture in Picture to control and view live video, while viewing high definition images.
   5. Robotic pan, tilt and zoom control of robotic camera system.
   6. Featuring high-definition panoramic images with a panoramic image comparison tool.
   7. Calendar based navigation system for selecting specific images and panoramas.
   8. Multifunction image browsing.
   9. Pan, tilt and zoom control capability within a high-definition image.
   10. Onscreen button for wiper control to allow remote cleaning of the viewing window
   11. A Multiview screen to view all of the cameras on a project at the same time.
   12. Graphical mark-up tools for detailing and creating overlays on images.
   13. Graphical weather applet displaying ten points of local weather data and 48-hour forecast.
   14. Remote solar monitoring screen displaying the DC amperage output of solar panels.
   15. Remote battery monitoring screen displaying battery voltage, temperature and status.
   16. Remote cellular monitoring screen displaying connectivity, network traffic and modem temperature.
   17. Remote wireless radio monitoring screen displaying connectivity, network traffic and Google Map features including wireless radio locations.
   18. Share image tools: save, print, email and post to message board or mobile devices.
   19. Automated progress reports in Power Point, Open Office and PDF formats.
   20. Map, aerial and satellite view by Google.
   21. Time lapse features include – Instant time lapse play back by day, week, month or year.
   22. Machine to machine self-healing technology that automates maintenance of camera up to 288 times daily.
   23. Account security features include – Four levels of password protection, IP address block /permission and SSL protection of the user login password.
   24. All Images are the copyright of the client and protected on secure servers owned and operated by the system vendor.

All equipment and software including but not limited to the portable trailer, solar panels, batteries, camera, communications systems, video webcaster, software and online interface shall be provided by the same vendor as a complete unit.

CONSTRUCTION METHODS: The Contractor in coordination with the Engineer shall determine the mounting location for each mobile traffic camera trailer. The trailers shall be installed outside of the roadway clear zone or behind protective barrier or guardrail. If the trailers cannot be located outside the clear zone or behind protective devices, the contractor shall provide temporary protective devices in accordance with the latest edition of the AASHTO Roadside Design Guide. The Contractor may be requested to move the trailers up to two times per camera during the construction period by RIDOT. If the trailer needs to be relocated due to Contractor construction activities, it shall not count towards a requested relocation.

The Contractor shall be responsible for all negotiations, fees and agreements with private land owners.

The trailers shall be installed at the agreed locations and made operational and tested 7 days prior to the start of construction. The contractor shall utilize vendor support as needed and perform initial installation and set-up procedures per the vendor's instructions.

INSTALLATION:

A. General:
   1. Install camera system in accordance with manufacturer's printed instructions, State and Municipality codes and requirements and approved submittals.
   2. Install units plumb and level and at proper angle to provide maximum field of view of onsite operations.
   3. Securely and rigidly anchor products in place.
   4. Connect cameras to power.

B. Position camera so that field of view covers intended area of site.
   1. Locate the trailer so that the solar panels have an unobstructed view of the Southern sky.
   2. Locate the trailer so the camera will provide uncompromised visual coverage.
   3. Locate the trailer so that position of sun or man-made light sources will not come into direct contact with field of view of camera at any time during construction.

MAINTENANCE: The Contractor shall clean and maintain the units and equipment for the life of the project for 24-hour operation per the vendor's recommended schedule. The Contractor shall be responsible for all aspects of maintaining a fully operational mobile camera surveillance system from 7 days prior to beginning construction to 30 days after written notification of final acceptance.

SHOP DRAWINGS: The Contractor shall develop and submit shop drawings in accordance with **Subsection 105.02: Plans and Shop Drawings** of the Rhode Island Standard Department of Administration Procurement Regulations.

9.6. MATERIALS PROJECT SCHEDULE FOR TESTING (PST)

DESCRIPTION: This work shall consist of the Contractor producing a Project Schedule for Sampling, Testing and Certification of Materials in accordance with RIDOT Materials & Quality Assurance Master Schedule of Testing (MST), latest edition and revisions. The guide is available on the RIDOT website: http://www.dot.ri.gov/about/who/materials.php#master

The Project Schedule for Sampling, Testing and Certification of Materials will indicate clearly the minimum required number of samples, tests and/or certifications required for each item of work indicated in the Project Plans and Documents.

The PST shall be formatted using the "RI Standard Items" and Template Details", both available on the RIDOT website as listed above. The Contractor shall also prescribe a sampling, testing and certification requirement for any job specific item not included in the RIDOT list of standard times and templates.

All tests and records will be kept on file in the RIDOT Project Field Office.

Appendices

Appendix B – BTC, Reference Documents, and Design Criteria

END OF PART 2
TECHNICAL PROVISIONS

APPENDIX B