APR07'21 AM11:08 RCVD

26

New Hampshire DOT
Department of Transportation

# THE STATE OF NEW HAMPSHIRE
## DEPARTMENT OF TRANSPORTATION

*Victoria F. Sheehan*
*Commissioner*

*William Cass, P.E.*
*Assistant Commissioner*

Bureau of Highway Design
March 1, 2021

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, New Hampshire 03301

## REQUESTED ACTION

Authorize the Department of Transportation to enter into an Agreement with McFarland-Johnson, Inc., Concord, NH, Vendor #164736, for an amount not to exceed $9,869,680.83, to perform final design to address transportation system needs along approximately 8.2 miles of the F.E. Everett Turnpike corridor in the City of Nashua beginning about 0.2 miles north of the Tinker Road overpass and proceeding north 8.2 miles to approximately 1.2 miles north of the Bedford Road (Exit 12) overpass in the Town of Merrimack, effective upon Governor and Council approval through July 31, 2024. 100% Turnpike Funds.

Funds to support this request are available in the following account in State FY 2021 and is contingent upon the availability and continued appropriation of funds in State FY 2022, State FY 2023 and State FY 2024, with the ability to adjust encumbrances between State Fiscal Years through the Budget Office if needed and justified:

| | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|---|
| 04-96-96-961017-7507<br>Central NH Turnpike<br>046-500463<br>Eng Consultants Non-Benefits | $1,000,000.00 | $3,000,000.00 | $5,000,000.00 | $869,680.83 |

## EXPLANATION

On March 9, 2016, the Governor and Council authorized the Part A preliminary design agreement with CHA, Inc. (Item #38, copy attached) for widening the above-mentioned approximately twelve (12) mile section of the F. E. Everett Turnpike. The Part A preliminary design phase selected a preferred alternative that is technically feasible, environmentally permittable, and economical; developed an approved Environmental Assessment; and brought the preferred alternative to a Special Committee Public Hearing for layout approval. In the Part A agreement, the Department reserved the right to either negotiate a scope and fee for the Part B final design services or terminate the contract. Since the firm of CHA, Inc. satisfactorily completed the Part A services for this project, the Department continued with that firm to perform the Part B final design for the northernmost 1.3 miles in the Town of Bedford. In order to expedite the final design process for the northern contract, the project was broken into a northern and a southern segment.

The Department now requires professional engineering and environmental services including final roadway design, environmental permitting, contract plans, specifications, special provisions, and estimates of quantities and costs to widen this section of the Turnpike from 2 lanes to 3 lanes in the City of Nashua and Town of Merrimack. The F.E. Everett Turnpike is the principal arterial linking

Manchester and Nashua and as such serves a vital role in the economy of this region and the state. The goals for the Part B Final design phase of this project are to develop final contract plans for construction and obtain environmental permitting in order to build the project. This project is currently included in the State's Ten-Year Transportation Improvement Plan (Nashua-Merrimack-Bedford 13761).

The consultant selection process employed by the Department for this qualifications-based contract is in accordance with RSAs 21-I:22, 21-I:22-c, 21-I:22-d, 228:4 and 228:5-a, and all applicable Federal laws and the Department's "Policies and Procedures for Consultant Contract Procurement, Management, and Administration" dated August 25, 2017. The Department's Consultant Selection Committee is a standing committee that meets regularly to administer the process and make determinations. The Committee is comprised of the Assistant Director of Project Development (Chair), the Chief Project Manager, the Administrators of the Bureaus of Highway Design, Bridge Design, Environment, and Materials and Research, and the Municipal Highways Engineer.

The consultant selection process for this qualifications-based contract was initiated by a solicitation for consultant services for Nashua-Merrimack-Bedford 13761, Widening two lane segments of the FE Everett Turnpike (FEET) (NB and SB) from Exit 8 to south of Exit 13 (South and Middle Segments).. The assignment was listed as a "Project Soliciting for Interest" on the Department's website on May 20, 2019 asking for letters of interest from qualified firms. From the list of firms that submitted letters of interest, the Committee prepared a long and then short list of Consultants on June 20, 2019 for consideration and approval by the Assistant Commissioner. Upon receipt of that approval, four shortlisted firms were notified on July 8, 2019 through a technical "Request for Proposal" (RFP). Committee members individually rated the firms on August 22, 2019 using a written ballot to score each firm on the basis of comprehension of the assignment, clarity of the proposal, capacity to perform in a timely manner, quality and experience of the project manager and the team, previous performance, and overall suitability for the assignment. (A compilation of the completed individual rating ballots and the ranking summary form is attached.) The individual rankings were then totaled to provide an overall ranking of the three firms, and the Committee's ranking was submitted to the Assistant Commissioner for consideration and approval. Upon receipt of that approval, the short listed firms were notified of the results and the highest-ranking firm was asked to submit a fee proposal for negotiations.

The long list of four (4) consultant firms that were considered for this assignment, with the four (4) short-listed firms shown in bold, is as follows:

| ***Consultant Firm*** | ***Office Location*** |
|---|---|
| **Jacobs Engineering Group, Inc.** | **Bedford, NH** |
| **McFarland-Johnson, Inc.** | **Concord, NH** |
| **Stantec Consulting Services, Inc.** | **Auburn, NH** |
| **WSP USA, Inc.** | **Manchester, NH** |

The firm of McFarland-Johnson, Inc. was recommended for this contract. This firm has an excellent reputation and has demonstrated their capability to perform the required services. Background information on this firm is attached.

McFarland-Johnson, Inc. has agreed to furnish the professional engineering services for an amount not to exceed $9,869,680.83. This is a reasonable fee and is commensurate with the complexity of the project and the scope of the engineering and technical services to be furnished. This project funding is 100% Turnpike Funds.

This Agreement (Nashua-Merrimack-Bedford 13761 South) has been approved by the Attorney General as to form and execution. The Department has verified that the necessary funds are available. Copies of the fully-executed Agreement are on file at the Secretary of State's Office and the Department of Administrative Services, and subsequent to Governor and Council approval will be on file at the Department of Transportation.

It is respectfully requested that authority be given to enter into an Agreement for consulting services as outlined above.

Sincerely,

Victoria F. Sheehan

Victoria F. Sheehan
Commissioner

Attachments

NASHUA-MERRIMACK-BEDFORD
13761
SOUTH

## TABLE OF CONTENTS


**PREAMBLE**

**ARTICLE I - DESCRIPTION OF PROFESSIONAL SERVICES TO BE RENDERED** ..... 2
- A. LOCATION AND DESCRIPTION OF PROJECT ..... 2
- B. SCOPE OF WORK (GENERAL) ..... 5
- C. SCOPE OF WORK (GEOTECHNICAL) ..... 5
- D. SCOPE OF WORK (ENVIRONMENTAL) ..... 7
- E. SCOPE OF WORK (FINAL DESIGN) ..... 23
- F. SCOPE OF WORK (UTILITIES) ..... 30
- G. SCOPE OF WORK (PUBLIC PARTICIPATION) ..... 30
- H. MATERIAL FURNISHED BY THE DEPARTMENT OF TRANSPORTATION ..... 32
- I. WORK SCHEDULE AND PROGRESS REPORTS ..... 34
- J. SUBMISSION OF REPORTS, PLANS AND DOCUMENTS ..... 34
  - 1. ROADWAY DESIGN SUBMISSIONS ..... 35
    - a. PFAS Handling Determination - Roadway ..... 36
    - b. Right-of-Way Updates ..... 38
    - c. Design Schedule ..... 40
    - d. Slope and Drain Plans - Roadway ..... 40
    - e. Wetland Impact Plans ..... 42
    - f. Shoreland Impact Plans ..... 42
    - g. Utility Plans ..... 42
    - h. Preliminary PS&E - Roadway ..... 43
    - i. PS&E - Roadway ..... 44
  - 2. BRIDGE DESIGN SUBMISSIONS ..... 44
    - a. Preliminary Plans - Bridge ..... 45
    - b. Preliminary PS&E - Bridge ..... 45
    - c. PS&E - Bridge ..... 45
    - d. PS&E - Bridge Contract Plans ..... 46
  - 3. DELIVERABLES ..... 46
- K. SCOPE OF WORK (CONSTRUCTION SERVICES) ..... 48
- L. DATE OF COMPLETION ..... 49

**ARTICLE II - COST PLUS FIXED FEE COMPENSATION OF CONSULTANT** ..... 50
- A. GENERAL FEE ..... 50
- B. LIMITATION OF COSTS ..... 51
- C. PAYMENTS ..... 52
- D. ANNUAL INDIRECT COST RATE SUBMISSIONS ..... 52
- E. RECORDS, REPORTS, AND FINAL AUDIT ..... 53

**ARTICLE III - GENERAL PROVISIONS** ..... 54
- A. HEARINGS, ETC. ..... 54
- B. CONTRACT PROPOSALS ..... 54

**ARTICLE IV - STANDARD PROVISIONS** ..... 55
- A. STANDARD SPECIFICATIONS ..... 55

B. REVIEW BY STATE AND FHWA - CONFERENCES - INSPECTIONS ..... 55
C. EXTENT OF CONTRACT ..... 55
1. Contingent Nature of Agreement ..... 55
2. Termination ..... 55
D. REVISIONS TO REPORTS, PLANS OR DOCUMENTS ..... 56
E. ADDITIONAL SERVICES ..... 57
F. OWNERSHIP OF PLANS ..... 57
G. SUBLETTING ..... 58
H. GENERAL COMPLIANCE WITH LAWS, ETC. ..... 58
I. BROKERAGE ..... 58
J. CONTRACTUAL RELATIONS ..... 59
1. Independent Contractor ..... 59
2. Claims and Indemnification ..... 59
3. Insurance ..... 59
4. No Third-Party Rights ..... 60
5. Construction of Agreement ..... 60
K. AGREEMENT MODIFICATION ..... 60
L. EXTENSION OF COMPLETION DATE(S) ..... 60
M. TITLE VI (NONDISCRIMINATION OF FEDERALLY-ASSISTED PROGRAMS) COMPLIANCE ..... 61
N. DISADVANTAGED BUSINESS ENTERPRISE POLICY AGREEMENT REQUIREMENTS ..... 62
1. Policy. ..... 62
2. Disadvantaged Business Enterprise (DBE) Obligation.. ..... 62
3. Sanctions for Non-Compliance ..... 63
O. DOCUMENTATION ..... 63
P. CLEAN AIR AND WATER ACTS ..... 63

**ATTACHMENTS**

1. ATTACHMENT A – CONTAMINATED GROUNDWATER AND SOILS WORK PLAN
2. ATTACHMENT B – SPECIAL CONTRACT PROVISIONS FOR COVID-19
3. CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS, ETC.
4. CONSULTANT DISCLOSURE STATEMENT FOR PREPARATION OF ENVIRONMENTAL EVALUATIONS
5. CERTIFICATION OF CONSULTANT/SUBCONSULTANT
6. CERTIFICATION OF STATE DEPARTMENT OF TRANSPORTATION
7. CERTIFICATION FOR FEDERAL-AID CONTRACTS EXCEEDING $100,000 IN FEDERAL FUNDS
8. CERTIFICATION OF GOOD STANDING
9. CERTIFICATION OF INSURANCE
10. CERTIFICATION OF AUTHORITY / VOTE
11. SIGNATURE PAGE

NASHUA-MERRIMACK-BEDFORD
13761
SOUTH

# AGREEMENT
# FOR PROFESSIONAL SERVICES

## PREAMBLE

THIS AGREEMENT made this 12th day of February in the year 2020 by and between the STATE OF NEW HAMPSHIRE, hereinafter referred to as the STATE, acting by and through its COMMISSIONER OF THE DEPARTMENT OF TRANSPORTATION, hereinafter referred to as the COMMISSIONER, acting under Chapter 228 of the Revised Statutes Annotated, and McFarland-Johnson, Inc., with principal place of business at 49 Court Street, in the City Binghamton, State of New York, and New Hampshire Regional Office at 53 Regional Drive, in the City of Concord, State of New Hampshire, hereinafter referred to as the CONSULTANT, witnesses that:

The Department of Transportation, State of New Hampshire, hereinafter referred to as the DEPARTMENT, proposes to perform final design to address transportation system needs along approximately 8.2 miles of the F.E. Everett Turnpike corridor in the City of Nashua beginning about 0.2 miles north of the Tinker Road overpass and proceeding north 8.2 miles to approximately 1.2 miles north of the Bedford Road (Exit 12) overpass in the Town of Merrimack.

The DEPARTMENT requires professional services for development of final design, contract plans, specifications, special provisions, and estimates of quantities and costs, as well as formal environmental permitting and public involvement assistance.

This AGREEMENT becomes effective upon approval by the Governor and Executive Council.

## ARTICLE I - DESCRIPTION OF PROFESSIONAL SERVICES TO BE RENDERED

NOW THEREFORE, in consideration of the undertakings of the parties hereinafter set forth, the DEPARTMENT hereby engages the CONSULTANT, who agrees to render services to the DEPARTMENT which shall include, but not be restricted to, the following items, in accordance with conditions and terms hereinafter set forth:

### A. LOCATION AND DESCRIPTION OF PROJECT

This project involves widening the three remaining two lane segments of the FE Everett Turnpike (FEET) between Nashua and Bedford to add one northbound and one southbound travel lane to improve traffic operations and safety. The three highway segments to be widened include:

- Segment 1: Exit 8 in Nashua to Exit 10 in Merrimack (about 1.7 miles)
- Segment 2: Exit 11 in Merrimack to the vicinity of the Bedford Toll Plaza south of Exit 13) (about 5.3 miles)
- Segment 3: Vicinity of the Bedford Toll Plaza (north of Exit 13) to the I-293/NH Route 101 diverge (about 1.3 miles)

The widening will also necessitate some adjustments to the interchange ramps at Exits 10, 11, and 12. The width of the ramps at Exit 11 and 12 will be narrowed to remove the excess pavement that remains after the removal of the toll plazas, tunnels and administration buildings. However, no modifications will be made to the ramp terminals or traffic signals on the side roads. This overall project also includes the replacement of the Wire Road and Baboosic Lake Road Overpass Bridges, the replacement of the FEET Bridge over the Pennichuck Brook, replacement of the FEET Bridge over Baboosic Brook and preservation of the FEET Bridge over Greeley Street, all as shown in the Public Hearing Plans dated October 2018 finalized in Spring 2019. The majority of this contract will be for Segments 1 and 2 only, however some tasks, as identified below, are intended to cover the entire corridor (Segments 1-3). Unless otherwise specified, all items apply to Segments 1 and 2 only.

Some of the existing highway features and conditions to be aware of include the following:

- The Limited Access Right-of-Way layout along the FEET will be maintained.
- Special considerations for the drainage design shall take into account the "Pre-and Post" flooding concerns in the areas of known floodplains (Pennichuck Brook, Naticook Brook, the Souhegan River, and Baboosic Brook). The design shall not exacerbate flooding problems and may require designs which incorporate replacing loss of flood storage or a Conditional Letter of Map Revision and a Letter of Map Revision (CLOMR/LOMR). These designs shall be required to meet permitting requirements further detailed in this scope of work such as those established by the US Army Corp of Engineers, the New Hampshire Water Division/Shoreland Program, and the New Hampshire Wetlands Bureau.

- The CONSULTANT shall be responsible for the design of all bridge replacements (FEET over Pennichuck Brook, Baboosic Lake Road over the FEET, Wire Road over the FEET and the FEET over Baboosic Brook).
- The CONSULTANT shall be responsible for the design of the FEET over the Greeley Street Bridge rehabilitation.
- Permanent Intelligent Transportation Systems (ITS) technologies will be designed by OTHERS. The CONSULTANT shall incorporate the plans provided into the plan set (including cross sections) and add the items and quantities as provided by OTHERS into the appropriate summary tables.
- Temporary (Smart Work Zones) Intelligent Transportation Systems (ITS) technologies will be designed by OTHERS. The CONSULTANT shall incorporate these items into the plan set (including cross sections) and add the items and quantities as provided by OTHERS into the appropriate summary tables.
- Developing traffic control plan sequencing recommendations will be an important service provided by the CONSULTANT that will need to be in near final format as part of the Slope and Drain submission.
- The CONSULTANT shall be responsible to provide all environmental permitting. The proposed stormwater treatment and types of stormwater BMPs included in the Preliminary Design Drainage Design Memo prepared by CHA (dated 3/13/19) is considered to be in compliance with EPA's MS4 Permit.
- The CONSULTANT shall be responsible to perform traffic designs including pavement markings, sign design, overhead sign design, overhead sign structure design, signal design and the Construction signs and warning device package.
- The Exit 12 Toll Plazas were removed in 2014; however, all ancillary structures remain in place.
- It is anticipated that the Exit 11 Toll Plazas will be removed by OTHERS in 2020 or 2021. However, all ancillary structures will remain in place at the conclusion of that project.
- The CONSULTANT shall be responsible for incorporating the removal designs of the Toll Plazas at Exit 11 and Exit 12 into the plans. The removal of all remaining ancillary structures shall be designed by this contract. This shall include the removal of the structures, buildings, parking lots, tunnels, and utilities. The ramps will be narrowed to meet current ramp geometry standards. This will also require adjusting the noise barrier configuration at Exit 11, near Gull Lane.

- It is anticipated that there will be a need for privacy fencing. These locations will be provided by the DEPARTMENT.
- The DEPARTMENT anticipates performing any needed geotechnical investigations and geotechnical services including the pavement structure design. These shall be incorporated by the CONSULTANT.
- The DEPARTMENT anticipates performing any needed utility coordination. The utility locations and relocations shall be incorporated into the Contract documents by the CONSULTANT.
- The CONSULTANT will be responsible to provide electronic plans for the DEPARTMENT's creation of the Right-of-Way Plans. The Right-of-Way plans and acquisitions will be completed by the DEPARTMENT.
- The CONSULTANT will provide website and public involvement services for Segments 1, 2 and 3.
- The CONSULTANT will be responsible for updating the Traffic Management Plan provided by OTHERS to incorporate all of Segments 1 and 2 into the existing document.
- In the following document "Corridor" is intended to represent all three segments identified above. The term "Project" is intended to represent Segments 1 and 2.

The objective of the corridor project is to address capacity, address safety, and to complete the necessary environmental commitments within the project segments as identified below. The objective is also to comply with the Purpose and Need statement found in the completed Environmental Study.

The CONSULTANT team for the design development of Segments 1 and 2 consists of McFarland Johnson, Inc. (MJ) as the prime consultant and Vanasse Hangen Brustlin, Inc. (VHB), HNTB Corporation, Inc. (HNTB), Sanborn Head and Associates, Inc. (SHA) and Independent Archeological Consulting, LLC (IAC) as subconsultants. It is anticipated that Segments 1 and 2 will be constructed in up to 4 separate construction contracts, with design responsibility as follows:

- 13761A: Segment 1 – VHB
- 13761B: Wire Road and Baboosic Lake Road Overpass Bridges - MJ
- 13761C: Segment 2 Southern Portion – MJ
- 13761E: Segment 2 Northern Portion - MJ

Other major project elements are being handled on a project wide basis, with design responsibility as follows:

- Small Municipal Separate Storm Sewer System Permit (MS4) – VHB
- Noise Analysis (as defined in Part D. Section f) – VHB

- Traffic Management Plan and Traffic Control Plans – HNTB
- Construction Scheduling – HNTB
- Archaeological – IAC
- Contaminated Groundwater and Soils (LRS, ACM, and PFAS) - SHA

## B. SCOPE OF WORK (GENERAL)

The FEET is the principal arterial linking Manchester and Nashua, serving a vital role in the economy of the region and the state.

The goal of this project is to complete the final design for the preferred alternative to create contract plans and provide construction services that are consistent with the completed Public Hearing Plan and Environmental Study.

The CONSULTANT will be required to complete some environmental documentation, as identified below, and will be required to apply for the environmental permits detailed in this scope of work.

The design shall consider temporary and permanent erosion control measures and Best Management Practices (BMPs) to minimize environmental impacts consistent with current New Hampshire Department of Environmental Services (NHDES) regulations and guidelines contained in the NH Stormwater Manual and the EPA's Construction General Permit (CGP) for stormwater discharges associated with construction activity and in the Small Municipal Separate Storm Sewer System (MS4) Permit.

The design shall consider temporary and permanent traffic control measures including highway signs, and traffic design (pavement markings, signs, and signals).

The CONSULTANT shall incorporate into the design plans any DEPARTMENT provided materials and designs including, but not limited to, lighting, ITS, and utility relocations.

The project will also include some corridor wide project management support further detailed in this scope of work. This support will be for the entire 12 mile FEET corridor.

The CONSULTANT is responsible for preparing all meeting minutes for which they are in attendance.

## C. SCOPE OF WORK (GEOTECHNICAL)

The DEPARTMENT will provide the geotechnical investigations for the project.

The CONSULTANT shall provide plan updates and other information to facilitate development of the geotechnical reports to be generated by the DEPARTMENT.

The information provided by the CONSULTANT shall include:

1. GPS coordinates, and/or station and offset location information, for proposed exploration locations that are deemed necessary to complete the final design when requested by the

DEPARTMENT. The DEPARTMENT will determine when and where explorations are needed. Explorations may be needed for roadway segments, overhead sign locations, detention basins, retaining walls, pipe jacking sites, rock removal sections, noise barriers, bridge abutments, etc.

2. The CONSULTANT shall deliver 11"x17" sized plans with completed exploration locations plotted for roadway segments and other locations upon request of the DEPARTMENT. Exploration symbols used shall be standard DEPARTMENT symbols for test borings, test pits, hand augers, and groundwater monitoring wells or as directed. The plans should be titled 'Subsurface Exploration Plan'. Each individual plan sheet should be numbered and include the total number of pages in the plan set along with match lines for consecutive plan sheets. Location information in GPS coordinates, or station and offset format, will be provided by the DEPARTMENT. The plan sheets should include property and ROW boundaries, elevation contours, the proposed improvements and alignment, and enough existing detail to readily identify the area. The CONSULTANT will create the plan sheets with the information shown above and will then submit the plans to the DEPARTMENT for comment. The DEPARTMENT will then return the sheets to the CONSULTANT for inclusion of any markups. The CONSULTANT will then return the completed sheets to the DEPARTMENT for its use in the geotechnical report.
3. The CONSULTANT shall take periodic measurements of newly installed and any previously installed groundwater monitoring wells. It is assumed there will be 18 BMPs with 2 new monitoring wells installed at each location. The groundwater elevations at each of these new wells will be taken at least four times and up to a total of eight times during the duration of this contract where at least two readings will be taken during high ground water (spring) and at least two during low ground water (summer). The DEPARTMENT will provide any monitoring data completed prior to the CONSULTANT receiving notice to proceed. No monitoring wells will be installed in proposed drainage swales.
4. Provide paper and/or electronic copies of project plans and cross sections as needed to make geotechnical assessments and evaluations of design features. It is assumed that no more than three submissions of this type are required.
5. Cross sections at intermediate stationing intervals (e.g. 25-foot) shall be developed by the CONSULTANT based on the DEPARTMENT provided rock lines supplied on hand drawn sections at 50-foot interval stationing. The CONSULTANT will be required to interpolate for all intermediate stationing. It is assumed that no more than 5% of the project will include rock lines (measured by number of cross sections).

## D. SCOPE OF WORK (ENVIRONMENTAL)

The CONSULTANT shall be responsible for:

1. Data Collection:

Much of the resource identification was completed under the Environmental Study prepared for the Nashua-Merrimack-Bedford 13761 Corridor. The CONSULTANT shall review the Environmental Study with particular attention paid to the environmental commitments noted in the Environmental Study and update all resources described below that are required to meet the commitments within the Project Area and ensure compliance with the Nashua-Merrimack-Bedford 13761 Environmental Study, such that the environmental permitting described below can be applied for. To secure the necessary environmental permits, additional effort may be needed for the listed resources below to identify additional impacts, potential measures to minimize or mitigate impacts, and proposed enhancements as a result of the final design of the Project. Resources to be identified and updated as needed include:

a. Water-Based Resources:

1) Groundwater: Data regarding aquifers, wellhead protection areas and public water supplies within, adjacent to, or downgradient of the Project Area will be updated based on appropriate sources such as the GRANIT GIS database, NHDES mapping, inventory data, municipal data or municipal mapping. If resource information has changed, the CONSULTANT will describe these resources in terms of their current and potential use and their relative proximity and potential hydrological connection to the project area. Per- and Polyfluoroalkyl Substances (PFAS) related groundwater mapping will be performed by SHA. Any changes will be documented within the Engineering Report.

2) Surface Waters: Data regarding existing water quality identified surface waters will be reviewed and updated as necessary. The CONSULTANT will review the most recent approved State 303(d) list to identify any listed water quality impairments and TMDLs within the project area and identify discharges to those waterbodies. The CONSULTANT will compile existing TMDL implementation plans, watershed management plans and active water quality data to identify any specific pollutants of concern or waterbody specific stormwater treatment requirements to address relevant permits including: Alteration of Terrain (AoT), the EPA NPDES for Small Municipal Separate Storm Sewers (MS4) and the Construction General Permit (CGP). The Consultant will compile existing water quality data from NHDES' 303(d) list to characterize existing conditions in the receiving water. Field investigations to collect

additional water quality data are not anticipated.

3) Stormwater. The CONSULTANT will assume no other stormwater treatment beyond that summarized in the Preliminary Design Drainage Memo (dated March 13, 2019), completed by OTHERS in Part A, will be required to meet the 2017 NH MS4 Permit requirements. The Consultant assumes that the stormwater treatment requirements for this project will be based on the 2017 MS4 Permit and related pending modifications. As the final design advances to the slope and drain submittal during each of the four design contracts, the CONSULTANT will identify and document (via technical memorandum see below) any potential changes to the proposed BMP types, locations, sizes, and/or extent of proposed roadway treated compared to the Preliminary Design Memo as a result of any roadway design changes or additional site constraints discovered during final design. The Consultant will identify and evaluate other potential reasonable treatment alternatives within the project corridor if one or more of the proposed BMPs are no longer considered feasible to construct and will present these alternatives to the Department in the slope and drain technical memorandum. The Consultant will update the pavement runoff area analysis to calculate the expected change in the amount of existing and new roadway expected to be treated as a result of the design changes. The evaluation of potential treatment alternatives will be limited to areas within the project corridor. If additional treatment alternatives needed outside the project corridor in order to meet the MS4 requirements, this will require an amendment to the work scope and associated fee estimate.

The design and sizing of the proposed BMPs will be consistent with current AoT and MS4 requirements, to the extent practical, and will take into consideration: soil conditions, depth to bedrock, groundwater tables, wellhead protection areas, drinking water protections, groundwater protections, and the proximity to the project's stormwater discharge points. No field sampling or inspections of surface waters are anticipated to be needed.

The CONSULTANT will prepare a brief technical memo at the slope and drain submittal describing any proposed changes in the stormwater treatment design for each design contract. The technical memo will describe how the proposed stormwater treatment compares to that included in the Preliminary Design Memo relative to the level of treatment, BMP types and locations. If the proposed level of treatment is less than that proposed in the Part A Design, the memo will describe other potential

alternatives the Department may consider to replace the lost treatment or will describe why there are no other practical alternatives due to site or design constraints, as appropriate. At the completion of the slope and drain submittal for all four design contracts, the CONSULTANT will provide a final memorandum to document the amount and level of treatment attained throughout the southern and middle segments of the project corridor relative to the MS4 requirements.

The CONSULTANT will review whether the inspection and maintenance requirements for the proposed BMPs are included in the Department's Stormwater BMP Inspection and Maintenance (I&M) Manual and will develop additional guidance to be included in the statewide I&M Manual for any new BMPs not covered in order to be consistent with the MS4 Permit and the NHDES AoT Permit requirements. The CONSULTANT will create a Technical Memorandum including discussion of how the inspection and maintenance protocols included the Department's statewide I&M Manual apply to the proposed post-construction stormwater BMPs for this project.

Since Segment 1 is located within the Pennichuck Brook watershed, the CONSULTANT will incorporate typical spill containment measures and outlet control devices consisting of manually-activated sluice gates or gate valves, as appropriate, within the BMPs in this area as required by the MS4 Permit. Per Section 3.2.4 of the MS4 Permit, the CONSULTANT will develop a brief Emergency Response Notification Plan that can be used to inform local emergency response officials on the roadway drainage system and spill control devices in the event of a vehicle related spill of hazardous material within the Pennichuck Brook watershed. This Plan is anticipated to be modelled after similar Response Plans developed for the I-93 Project and will contain a brief narrative of the spill control devices and an annotated drainage plan showing flow direction, relevant stormwater infrastructure, and outfall locations. Upon completion, the plan will be provided to Pennichuck Waterworks, Inc., the City of Nashua Office of Emergency Management and the Town of Merrimack Fire and Rescue Emergency Management. The Consultant assumes no stakeholder or agency meetings are considered necessary. The Consultant will modify the Department's existing emergency response training presentation developed for the I-93 project by including relevant map figures and graphics showing the roadway area and storm drain locations within the Pennichuck Water Supply watershed. It is anticipated that the

Department will provide the presentation to the entities listed above when finalized and as discussed in Section K.4.

4) Floodplains: Federal Emergency Management Agency (FEMA) floodplain and floodway information will be updated, if necessary, based on appropriate sources such as previously developed and approved floodplain impact calculations and any mitigation commitments developed as part of the Environmental Study and display this data on project mapping. The CONSULTANT will coordinate with the municipalities, NH Floodplain Manager, ACOE, and FEMA regarding proposed impacts within the flood hazard areas. The CONSULTANT will organize and lead up to three meetings with these agencies, as necessary. It is assumed that the CONSULTANT's project manager will attend along with up to two other staff members. The CONSULTANT will identify if any Conditional Letters of Map Revision (CLOMR) through FEMA are necessary. Since the project may raise the Base Flood Elevation (BFE), a CLOMR may be needed to modify any incorrect floodplain/floodway mapping. For the purpose of this scope, it is assumed both CLOMR and LOMR applications are needed and will be completed under this agreement for Pennichuck Brook, Naticook Brook, and Baboosic Brook. Floodplain/floodway impacts within the Souhegan River are not anticipated and as such the preparation of a CLOMR/LOMR within this waterway has not been included in this scope. The effort required to complete the hydraulic modeling and CLOMR/LOMR is included elsewhere in this Agreement.

5) Wetlands: The CONSULTANT will update and delineate, as necessary due to the final design changes and/or updated regulations (i.e. the NH Department of Environmental Services' Wetland Rules, effective December 15, 2019), additional wetlands and streams including ordinary high water and top of bank, and determine their functions and values within the project limits based on state and federal criteria and will collect field data sufficient to document the delineation, including photographs. Areas requiring delineation are assumed to include the relocated BMP 1036 on Parcel M63 in Merrimack. For estimation purposes it is assumed that up to three additional acres in addition to BMP 1036 on Parcel M63 will require delineation. All delineations will require GPS-located flagging and preparation of wetland determination forms and functional assessment forms. If access to private property is required, landowners will be notified by the DEPARTMENT. The CONSULTANT will survey wetland flagging using a GPS unit with sub-meter accuracy. This delineation will include noting any

unusual features such as invasive species, disturbed areas, or uncommon wetland types such as bogs or vernal pools. This information will be provided in plan format and in a wetland evaluation report and functional assessment that is stamped by a Certified Wetland Scientist (CWS) with a current NH certification, which includes the location of the features, classifications of wetlands present within the project area, descriptions of each wetland's hydrology, soils and vegetation, flagging number system of each delineated feature, photographs, functions and values (including the Wetlands Function-Value Evaluation Form from the Highway Methodology Workbook Supplement), Wetland Determination Data Plot Forms with paired upland and wetland data plots and the results of the stream crossing assessments (completed in Section D.5). Since the original delineation was completed in 2016, it is assumed that more than 5 years will pass prior to the anticipated date of application. In accordance with the NHDES Wetland Rules, the CONSULTANT will verify that previously delineated wetland boundaries remain valid. The CONSULTANT will also complete wetland determination forms for up to 32 previously delineated wetlands. The CONSULTANT should assume the project will trigger mitigation requirements and will coordinate with NHDOT to find ways to reduce mitigation through project design and will participate in mitigation discussions with NHDES and federal agencies to determine appropriate mitigation for the project (as part of Section D.2). Design of wetland creation/restoration mitigation sites, if needed, will be completed under a separate agreement. The CONSULTANT will calculate the Aquatic Resource Mitigation (ARM) Fund payment amount, review the Aquatic Restoration Web Mapper for up to four (4) culverts along the Turnpike and/or other roads within the HUC-12 watershed that could be candidates for replacement under the Stream Passage Improvement Program (SPIP) and identify potential wetland mitigation opportunities either within the project corridor or the surrounding area in accordance with NHDES rules. The CONSULTANT will contact the town/city planner and conservation commission in the affected community; land trusts or other conservation organizations in the general area; and resource agency staff to seek input on appropriate mitigation sites for the project. The CONSULTANT will review up to eight potential mitigation sites using a desktop review only and will estimate their suitability based on factors such as size, the presence of mapped wetlands and habitat features, and the proximity to other conservation lands. Sites will be documented with brief narratives describing their suitability. The CONSULTANT will discuss sites with the Department before meeting

with resource agencies to present and discuss them. No formal mitigation design work is proposed.

6) Stream Crossings: The CONSULTANT will complete stream crossing assessment field data collection for streams identified as Tier 1, 2, and 3 within the project area for which impacts are anticipated (Pennichuck Brook, Naticook Brook, unnamed stream S-5, unnamed stream S-6, Baboosic Brook, and Dumpling Brook) in accordance with the NHDES Wetland Rules, effective December 15, 2019 and any applicable NHDOT field data collection forms. The stream assessments shall extend a minimum 100' upstream and downstream of the crossing. Data to be provided by the CONSULTANT shall include a longitudinal profile through the crossing with relative inlet and outlet invert elevations and upstream and downstream streambed elevations. Impacts within the bank or channel of the Souhegan River (a tier 3 stream) are not anticipated at this time and as such have not been included in this scope.

h. Land-Based Resources:

1) Public and Conserved Lands: One conservation land, the Dumpling Brook Wildlife Management Area in Merrimack will be impacted by the project. It is assumed mitigation will involve monetary compensation and no alternative mitigation sites need to be investigated. The CONSULTANT will quantify the parcel impacts. The CONSULTANT will attend two meetings and conduct miscellaneous coordination with the property owner, the NH Fish and Game Department, as well as any other public or agency personnel regarding the impacts and mitigation. The DEPARTMENT will be responsible for determining the value of the impacted portion and implementing appropriate mitigation. The CONSULTANT shall make every effort to minimize impacts to the Dumpling Brook Wildlife Management Area and to avoid impacts to any other publicly or privately-owned conserved lands. It is assumed there will be no other impacts to publicly or privately-owned Conserved Lands.

2) Section 4(f) Resources: No Section 4(f) impacts or evaluations are assumed to be needed.

3) Section 6(f) Resources: There is one Section 6(f) resources known to be present in the Project area, this is the Merrimack school complex abutting the FEET and Baboosic Lake Road. A driveway match is anticipated on this property; however, this work is considered to be maintenance related and access to this property will be maintained at all times. Thus, this driveway match is not considered an impact to this Section 6(f) resource. It is the DEPARTMENT's desire to avoid any other impacts to this parcel

and as such, no impacts or mitigation are anticipated and have not been included in this scope.

c. Rare, Threatened and Endangered Species:

1) Rare, Threatened and Endangered Plant Species: Rare plant threatened and endangered species information will be updated. A rare plant survey will be undertaken by the CONSULTANT and rare plants will be flagged or marked as directed by NH Natural Heritage Bureau (NHNHB). The CONSULTANT will determine if any identified populations would be impacted by the proposed work within the project. The CONSULTANT will incorporate provisions in the Plans and Specifications to protect rare plants from impacts during construction to the degree possible. If impacts cannot be avoided, the CONSULTANT shall coordinate with the NHNHB regarding impacts and mitigation. It is assumed no mitigation design or plan, such as a plant relocation plan or replacement planting, will be necessary. If any such plant mitigation plans or mitigation are deemed necessary, they will be completed by OTHERS.

2) Fisheries: Three waterbodies in the vicinity of the proposed project area have been designated Essential Fish Habitat (EFH) for Atlantic Salmon. Of the three waterbodies only one, Baboosic Brook, is anticipated to be impacted by the project. The CONSULTANT will provide project plans and descriptions, update the EFH Assessment that was completed in the Part A design phase, and provide the Assessment to the DEPARTMENT for submittal to the US National Marine Fisheries Service (NMFS). The CONSULTANT shall assist the DEPARTMENT in consulting with the NMFS. All requests/submittals and direct coordination with the NMFS will be handled by the DEPARTMENT.

3) Rare, Threatened and Endangered Wildlife Species: Threatened and endangered wildlife species information will be updated. This effort will include a review of the NH Fish & Game Wildlife Action Plan data layers (available on GRANIT) for areas of highly ranked habitat and aquatic habitat. The CONSULTANT will coordinate with NH Fish and Game regarding any wildlife corridors or habitat blocks identified in the project area. This coordination will take place at NHDOT Natural Resource Agency Coordination Meetings included in Section D.2 (Agency Coordination). Information and recommendations from NH Fish & Game about wildlife corridors and habitat continuity shall be considered during the final design of the project.

The State listed Brook floater mussel was identified in the vicinity of the project area

in the Merrimack River and the Souhegan River. Impacts to both rivers are not anticipated. However, given the project's proximity to both of these water bodies, it is possible that brook floater mussels may exist within the crossings of tributaries within the project area where impacts are anticipated (Pennichuck Brook, Naticook Brook, unnamed stream S-5, unnamed stream S-6, Baboosic Brook, and Dumpling Brook). The CONSULTANT will coordinate with NH Fish and Game to identify and confirm if a mussel survey is needed for any of these crossings or any other impacted water bodies within the project area. If necessary, as determined by and in consultation with the DEPARTMENT, the CONSULTANT shall be responsible for completing up to two (2) mussel surveys within the project area.

Studies conducted during Part A indicated the presence of the Federally listed Northern Long-Eared Bat as well as the state listed Little Brown Bat and Tri-Colored Bat within the project area. It is assumed that this project will qualify for the 4(d) rule for the Northern Long-Eared Bat. However, due to the potential future revocation of the 4(d) rule, the CONSULTANT will complete an acoustic survey to assess the potential presence of Northern Long-Eared Bat within the northern, middle, and southern segments. The survey will be completed in accordance with the most current USFWS Summer Survey Guidelines. It is assumed that a total of 13 survey sites will be required, with a detector deployed at each site for a minimum of 3 nights. The CONSULTANT will prepare a simple survey plan that will include a map locating anticipated detector deployment locations, a brief summary of proposed survey equipment and methodology, and resumes and qualifications of individuals who will be involved in completing the acoustic survey. The survey plan will be provided to the DEPARTMENT for submission to USFWS. Upon approval of the survey plan, the CONSULTANT will complete the survey, which will require 4 trips to the project area for detector deployment and retrieval. Weather conditions will be monitored and recorded using the nearest NOAA weather station, or similar source of weather data, to ensure that appropriate weather conditions exist for at least 3 detector nights. Detector deployment will be carried out by two staff members. All data collection and required fieldwork shall be completed by August 15th. The CONSULTANT will process acoustic data using SonoBat 3.2.2, NNE Suite, and a second auto-classification program that is on the USFWS approved list. For each detector site/night for which either auto-classification program reports an MLE of <0.05 for NLEB or any State listed species, MJ will complete a qualitative analysis for high frequency files. High

frequency calls will be vetted until calls from the target species are identified. The CONSULTANT will prepare an Acoustic Survey Report in accordance with the USFWS Survey Guidelines and will coordinate with NHDOT on review and approval of a draft report prior to finalizing. The final report will be provided to the DEPARTMENT in PDF format. MJ will also provide the raw survey data to the DEPARTMENT. If a qualitative analysis is required, the report will include a comparison of the results of each acoustic ID program by site and night. The CONSULTANT will also complete the USFWS reporting spreadsheet.

The CONSULTANT shall assist the DEPARTMENT in consulting with the USFWS and the NH Fish & Game (NHF&G) Department on the results of the acoustic survey. This assistance includes the preparation/modification of any forms or visuals to be submitted to either the USFWS or NHF&G. All requests/submittals and direct coordination with the USFWS will be handled by the DEPARTMENT while coordination with NHF&G will be handled by the CONSULTANT. The CONSULTANT will complete the IPAC 4(d) rule determination key to confirm compliance under the 4(d) rule, which will be submitted by the DEPARTMENT. While impacts to other state listed rare, threatened and endangered wildlife species are not anticipated. The CONSULTANT shall coordinate the final design with NHF&G to confirm that impacts are not anticipated and identify any necessary avoidance measures. The CONSULTANT will incorporate provisions in the plans and specifications to protect rare, threatened or endangered wildlife species from impacts during construction to the degree possible. If impacts cannot be avoided, the CONSULTANT shall coordinate with NHF&G regarding impacts and mitigation. It is assumed no mitigation design or plan, such as a wildlife relocation plan, will be necessary. If any such wildlife mitigation plans or mitigation are deemed necessary, they will be completed by OTHERS.

4) Meetings: For the purposes of this scope it is anticipated that up to four in-office meetings/conference calls and two on-site field meetings will be necessary with NMFS, USFWS, NHNHB, NHF&G, and/or any other agency deemed necessary to coordinate regarding rare, threatened or endangered species within the project area. These meetings will be at the discretion of the DEPARTMENT and will be set up by the CONSULTANT. The CONSULTANT will be responsible for supplying support graphics, making presentations and preparing meeting minutes. It is assumed that the CONSULTANT's project manager will attend along with one other staff member.

These meetings would be in addition to those noted below under Agency Coordination.

d. Cultural Resources (Historic): Cultural resources have been identified within the project limits and the project has been found to have No Adverse Effect on historic resources. It is assumed the effect determination will not change and no additional historic resource effort is required.

e. Cultural Resources (Archaeology): Archeological services may be necessary for any areas (up to three acres total) beyond those previously investigated for the Environmental Study. In these areas, the CONSULTANT will undertake a combined Phase IA Archaeological Sensitivity Assessment and Phase IB Intensive Archaeological Investigation to determine if resources are present in areas of sensitivity that may be impacted by the project. The CONSULTANT will produce a comprehensive report indicating the results of the investigations, identifying areas of sensitivity, and presenting recommendations, if needed, for Phase II Determination of Eligibility and Phase III Data Recovery. If archeological resources are identified, the CONSULTANT will assess the eligibility of the resource for the National Register. The need for additional archaeological investigations will be evaluated in consultation with the NH State Historic Preservation Officer and the lead Federal agency (ACOE). Any Phase II or Phase III investigations deemed necessary will be completed by OTHERS.

f. Noise: The noise analysis conducted in Part A (*Noise Report F.E. Everett Turnpike from Exit 8 to I-293 Interchange dated September 2018*) and the associated FHWA Traffic Noise Model (TNM 2.5) which were prepared for this project identified seven feasible and reasonable preliminary barrier designs within the project area. The CONSULTANT shall identify the need to modify the design of these preliminary barrier designs to accommodate for any changes during final design, such as the proposed barrier in the vicinity of Gull Lane in Merrimack. Based on potential updates to the highway alignment and updates to the noise barrier locations, the CONSULTANT will provide and update the sound wall analysis for up to two of the seven walls identified as being feasible and reasonable and likely for construction. The CONSULTANT shall advance the acoustic design of all noise barriers based on the final highway design and proposed grading to provide more detailed information on the noise barrier locations, lengths and heights. The CONSULTANT shall verify that the noise reductions at each of the benefitted receptors identified during Part A have been achieved by the CONSULTANT's final barrier designs. The results of this analysis shall be documented in at least one final design barrier memorandum for submittal with the noise barrier design plans. A draft of the noise barrier design plans shall be submitted with the draft of the final design noise report.

At the DEPARTMENT's request, the CONSULTANT shall assist the DEPARTMENT with

addressing noise concerns and inquiries within the project corridor that emerge during final design. For estimation purposes these efforts would be similar to the efforts involved in completing a Type I noise impact and abatement assessment for one neighborhood totaling approximately 50 homes. However, it is assumed that the noise barriers are desired by the community and are considered feasible and reasonable and no further public outreach or vetting of the barrier need is required.

In conducting these tasks, the CONSULTANT shall demonstrate compliance with the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772) and the DEPARTMENT's current version of the *Policy and Procedural Guidelines for the Assessment and Abatement of Highway Traffic Noise for Type I & II Highway Projects* (the Noise Policy).

g. Invasive Species: The CONSULTANT will update and delineate the location of the invasive species, in conjunction with other project field investigations, within the project limits. General locations and types will be identified within the project limits, and detailed mapping will be provided and included in the project Plans.

h. Contaminated Properties: All contaminated properties and hazardous materials work will be performed by the CONSULTANT. The CONSULTANT will cooperate and work with the DEPARTMENT to develop electronic files and other design information created during the normal design process including, but not limited to plans, quantities for dewatering, quantities for Limited Reuse Soils (LRS), quantities for Asbestos Containing Soil (ACM), and quantities for excavations related to Per- and Polyfluoroalkyl Substances (PFAS) as may be necessary for the CONSULTANT to complete investigations and provide hazardous materials services such as stockpile locations. Based on information provided by the CONSULTANT in Sections i, j, and k below, the CONSULTANT will conduct the field work and provide four draft Soil and Groundwater Management Plans (SGMPs) for NHDES and NHDOT review and approval. The proposed detailed scope of work for this work is a separate document that is attached to this Agreement. The CONSULTANT shall incorporate the Soil and Groundwater Management Plans into the plans, specifications and quantities. See Attachment A – Contaminated Groundwater and Soils Work Plan for additional detail on this task.

i. Asbestos Containing Material (ACM) Soil: The CONSULTANT shall determine the quantity of ACM Soil to be generated during construction by phase as applicable. The CONSULTANT shall determine and provide locations on the plans for potential temporary on-site stockpile locations for excavated ACM soil. It is assumed that an Asbestos Disposal Site Work Plan will need to be prepared by the CONSULTANT, in coordination with the SGMPs, and this work

plan will require NHDES approval. See Attachment A – Contaminated Groundwater and Soils Work Plan for additional detail on this task.

j. Limited Reuse Soils (LRS): The CONSULTANT shall determine the quantity of LRS, as defined by the NHDOT policy in place at the time of execution of this agreement, to be generated during construction based on guidance provided by the DEPARTMENT, by phase as applicable, and determine the ability, due to quantities and any applicable construction phasing, to reuse the LRS within the project limits. The CONSULTANT shall determine and provide figures for potential temporary on-construction-site stockpile locations for excavated LRS. This work will be performed by the CONSULTANT as part of the effort needed to develop the SGMPs, including other types of contaminants. The intent is to re-use as much of the LRS soil on site as possible. See Attachment A – Contaminated Groundwater and Soils Work Plan for additional detail on this task.

k. Per- and Polyfluoroalkyl Substances (PFAS): The project area contains Per- and Polyfluoroalkyl Substances (PFAS). The CONSULTANT shall quantify, in coordination with the DEPARTMENT, phasing and reuse of PFAS materials within the project corridor and shall incorporate this into the Plan set. The CONSULTANT will be responsible to quantify soil and groundwater quantities (excavation amounts above and below the groundwater table). It is intended that as much of the PFAS soil is reused on site as possible. This may require iterations of the design or creative solutions to reuse the materials on site. See Section J.1.a – Submission of Reports, Plans and Documents and Attachment A – Contaminated Groundwater and Soils Work Plan for additional detail on this task.

l. Construction Impacts: The CONSULTANT shall review potential construction impacts on the natural, cultural, and socio-economic resources present within the project area, as described in the Environmental Study. The CONSULTANT will determine whether additional construction impacts are likely. The CONSULTANT will incorporate appropriate mitigation measures, within the limits of this Scope of Work, into final design plans. These may include diversions during construction; erosion and sediment control; air, noise, and dust pollution; and special measures that may be needed to protect water quality.

m. Visual Resources: The CONSULTANT may be required to design mitigation related to visual impacts. This is assumed to take the form of landscaping measures within up to one acre of land. The CONSULTANT will identify concepts that can be used to shield stormwater treatment facilities from adjacent properties. No planting plans will be required.

n. Environmental Commitments: The CONSULTANT shall review all environmental commitments (for Segments 1, 2 and 3) shown in Section 6 of the Environmental Study to

determine whether they have been addressed in the Project. The CONSULTANT will provide and update at each submission a spreadsheet documenting the status of the commitments as part of the Slope & Drain, PPS&E, PS&E, and final contract drawings submittals.

2. Agency Coordination: The CONSULTANT will attend up to eight (8) of the DEPARTMENT's monthly Natural Resource Agency meetings, including coordinating and attending two (2) field meetings with the agencies to review resource impacts. The CONSULTANT will also attend one (1) of the DEPARTMENT's monthly Cultural Resource meetings with the NH Division of Historical Resources to discuss findings. It is assumed that the CONSULTANT's project manager will need to attend only the first meeting. After that, two staff members will attend each of the other meetings. It is assumed that VHB needs to attend only one of the additional meetings. The CONSULTANT will be responsible for supplying support graphics, making presentations and preparing meeting minutes.
3. Environmental Impacts of Proposed Alternative: The CONSULTANT will update impacts to wetlands, surface waters, floodplains and floodways within the Project at the Slope and Drain submission. The CONSULTANT will describe how those changes affect proposed mitigation measures in a memorandum, but no additional mitigation or resource enhancement designs are proposed. This task does not include calculating quantities or providing drawings indicating the impacts. That effort is included in other tasks elsewhere.
4. Conditional Letters of Map Revision (CLOMR): The CONSULTANT will prepare and submit CLOMR applications for Pennichuck Brook, Naticook Brook, and Baboosic Brook if necessary. The CONSULTANT will be responsible for all coordination with the municipalities, Floodplain Managers, Army Corps of Engineers (ACOE), and FEMA including any and all fees (or waivers) for the applications. It is the intent to minimize the need for CLOMRs as a part of the design. These could mean design modifications such as steeper slopes or retaining walls.
5. The CONSULTANT shall design the permanent erosion control and water quality features and complete any monitoring of the groundwater table during the design of the project. These features shall be designed in accordance with AoT (Wq-Env 1500) regulations, the MS4 Permit, and utilize the NH Stormwater Manual as guidance. Temporary erosion control for the project shall be designed by OTHERS during construction of the project. However, erosion control plans shall be completed during final design of the project (see details below) such that quantities can be included into the Contract Plans. Permanent water quality features shall be shown at the Slope and Drain plan submission with design backup calculations complete. The CONSULTANT shall furnish conceptual design calculations with Q2, Q10, Q25, Q50 flows and water quality volumes. Site locations,

estimated areas, and design elevations shall be proposed in detail sufficient enough to complete geotechnical investigations of each site. Any monitoring of the groundwater table prior to and during the design of the project shall be the responsibility of the CONSULTANT. Where additional monitoring wells are required, the DEPARTMENT will be responsible for drilling the wells. In addition, the DEPARTMENT will provide infiltration rates for each of the proposed BMPs. The CONSULTANT shall be responsible for:

a. Incorporating stormwater runoff treatment areas and detention basins and evaluating their environmental impacts (such as archaeological sensitivity, wetland impacts, hazardous materials (in coordination with the DEPARTMENT), etc.).
b. Infiltration measures for the drainage system shall be investigated and evaluated as to their feasibility and prudency. Such measures would allow stormwater to infiltrate back into the ground following treatment. If such measures are determined feasible and prudent, they should be considered for incorporation into the final design.
c. Incorporation of water quality treatment measures (i.e., treatment basins and swales) into the overall project design according to the guidance provided in the latest version of NHDES Alteration of Terrain (AoT) regulations, and the NH Stormwater Manual. NHDES BMP worksheets shall be completed and submitted as part of the Drainage Report.
d. The development of erosion control plans substantially conforming to the NHDES Wetland Rules as described in Section D.6 (Permitting).

6. Permitting: The following permits are required: wetlands permits and shoreland permits.
   a. Wetlands Permit/Dredge and Fill Application and plans: To assist with permitting of the Project, the CONSULTANT will review the preliminary plans with NHDOT and the resource agencies at Natural Resource Coordination Meetings (included above). One wetland permit application will be required for each construction contract. The CONSULTANT will prepare a full and complete permit application in accordance with the NHDES Wetland Rules, effective December 15, 2019, for filing with the NHDES Wetland Bureau, including:
      A. Current Application Form.
      B. USGS Location Map, including the approximate boundaries and size of the contributing watershed of all stream crossings.
      C. Written narrative that explains the project's purpose and need; how all impacts to functions and values of all jurisdictional areas have been avoided and minimized to the maximum extent practicable.
      D. NHDES Avoidance and Minimization Checklist.

E. Information required by Chapter 900 Stream Crossings

F. Mitigation coordination summary/ARM calculator sufficient to address Env-Wt Chapter 800.

G. Wetland Permitting Plans, see also section J-1.e, including:

   i. Existing Conditions Plan, showing the location and number of the individual wetland boundary flags and stamped by the certified wetland scientist responsible for the delineation.

   ii. Proposed Condition Plans (i.e., General Plan).

   iii. Impact Sheet, showing temporary and permanent impacts, in stream diversion/BMPs, existing and proposed contours at 2-foot intervals, location of 100-year floodplain, and all easements and right-of-way acquisition area outlines in relation to the project.

   iv. Erosion and Sedimentation Control Plan Sheet including Strategies Sheets. Existing and proposed contours must be shown at 2-foot intervals.

   v. Plans and computations for impacted areas. These plans shall provide all necessary data, area hatching (according to DEPARTMENT standards) and detail so that these plans can be forwarded to the respective regulatory agencies as appropriate attachments for the permit application. The CONSULTANT shall be responsible to complete the permit applications and provide all supporting documentation (e.g. photographs).

H. Army Corps Secondary Impacts Checklist and supplemental narrative.

I. NHB review and IPaC supporting documentation.

J. Threatened and Endangered Species Coordination.

K. Cultural Resource Coordination.

L. Construction Sequencing.

M. Photos of all impact areas.

N. Army Corps wetland delineation data sheets.

O. Functional assessment of each wetland using the Army Corps Highway Methodology.

The CONSULTANT should assume that the proposed stream crossings at Pennichuck Brook, Naticook Brook, unnamed streams S-5 and S-6, Baboosic Brook, and Dumpling Brook will not meet all NHDES design criteria and will require approval as an alternative

design. The CONSULTANT will complete, in coordination with NHDOT, the Alternative Design Technical Report for the stream crossings at Pennichuck Brook, Naticook Brook, unnamed streams S-5 and S-6, Baboosic Brook, and Dumpling Brook. The technical report will include a detailed financial comparison of the costs of a structure that complies with all applicable design requirements, the proposed structure, and a structure that requires fewer waivers than the proposed structure, with a range of costs estimates for each; a detailed description of the physical limitations of the site; and a hydraulic analysis to show that the proposed stream crossing can accommodate the applicable design storm or that the crossing, together with the associated roadway and roadway embankment, can safely accommodate overtopping flows. The report must show that the proposed alternative meets the general design criteria and the tier-specific design criteria to the maximum extent practicable.

The CONSULTANT will submit a draft permit application package to NHDOT for review and will revise the package in response to comments prior to submitting a final package. The permit application fee will be paid by the DEPARTMENT. Up to 12 copies of the application will be provided to the Department for distribution.

The CONSULTANT will develop erosion control plans substantially conforming to NHDES Wetland Rules to include existing contours and finished grade contours at 1-foot intervals, and erosion control strategies for the completed project condition. The strategies and plans should be specific enough such that they meet the requirements of the NHDES Wetland Rules. The DEPARTMENT will submit the plans to NHDES, as part of the Wetland Permit application. The plans shall be prepared in "cut sheet" format. The plan package shall also include an erosion control strategy legend (developed by the DEPARTMENT), drainage note sheets, traffic control phasing notes and a preliminary construction schedule. The CONSULTANT will design the perimeter erosion control strategies. The information will also be included as a part of the project Proposal for the Contractors' use during the bidding period.

b. NHDES Shoreland Permit: To satisfy requirements of the Shoreland Water Quality Protection Act, the project will require a NHDES Shoreland Permit for earth disturbance or tree clearing within 250 feet of Baboosic Brook, Pennichuck Brook, and the Souhegan River. Since the project will increase impervious surface within the protected shoreland, it is assumed that the project will not qualify as a Permit By Notification. The CONSULTANT will prepare, for each construction contract, the current application form and worksheets, photographs, location map, and documentation of rare species

coordination. The CONSULTANT will submit a draft permit application package to the DEPARTMENT for review and will revise the package in response to comments prior to submitting a final package. The permit application fee will be paid by the DEPARTMENT. Up to 4 copies of the application will be provided to the DEPARTMENT for distribution. See Section J.1.f for additional detail and a description of the effort needed to develop the Shoreland Impact Plans.

c. US Army Corps of Engineers Section 404 Permit: It is anticipated that the project will qualify for the ACOE General Permit. All permitting requirements to request authorization under the NH General Permit will be addressed in the NHDES permit application. It is assumed that any requests for application materials will be provided by the Department.

d. Permitting Follow-Up Services: Follow-up and liaison efforts are sometimes required to respond to specific comments and concerns raised by regulatory agencies following permit application submittal. Work under this task will include:

   i. Attendance and presentation at one (1) additional Natural Resource Agency Coordination Meeting organized by NHDOT;
   ii. Preparation of responses to agency review comments;
   iii. Minor plan revisions/additions;
   iv. Revisions to the application.

It is anticipated that these services will be minimal in nature as they are in response to Requests For More Information (RFMI) that were not clear or information was inadvertently omitted in the original application.

## E. SCOPE OF WORK (FINAL DESIGN)

The scope of work proposed by this AGREEMENT includes:

1. Data Collection:

The CONSULTANT shall collect any new and pertinent information that may be available within the Project limits. The CONSULTANT shall conduct a field review of the project area to identify key engineering controls, topographic features, natural and cultural constraints, and land uses that could have a bearing on the design.

2. Base Plan Preparation:

The CONSULTANT shall update the existing base plans, DTMs and design files to the new OpenRoads format to be instituted by the Department in Summer 2020. The CONSULTANT will coordinate with NHDOT's design staff to convert the files completed in Part A by OTHERS to the new format. The CONSULTANT shall update the existing Nashua-Merrimack-Bedford 13761 Segments 1 and 2 base plans for the project as necessary based upon updated resources, updated

ground survey and photogrammetric mapping provided by the DEPARTMENT or the CONSULTANT's survey data obtained for the CLOMR. The CONSULTANT shall field verify the project as a priority and submit a request for additional survey if necessary (assume 10 survey requests).

The base plan shall be appropriately enhanced for display purposes at technical and public meetings and in documents prepared for the final design. Wetlands mapping, invasive species mapping, and mapping for other applicable environmental resources (including historic properties and districts, floodplains/floodways, contaminated properties, surface waters, areas sensitive to air quality and noise impacts), as well as Right-of-Way and utility information, shall be superimposed on the base plan by the CONSULTANT, as directed by the DEPARTMENT.

The CONSULTANT shall develop plans at the scale of 1" = 50' on the Turnpike mainline and 1" = 20' on Baboosic Lake Road and Wire Road (all of Construction Contract 13761B), unless otherwise noted.

3. The CONSULTANT shall produce intersection and ramp gore grading plans for the Construction plans at a scale of 1" = 20' at ramp gore locations.
4. During Final design the CONSULTANT will refine the alignment(s), grades and intersection layouts of the proposed roadway(s) as shown on the Public Hearing plans. In the area of Wire Road the alignment needs to be modified to accommodate a sidewalk on the north side of the alignment. In the area of the FEET over Baboosic Brook, the alignment (and hydraulics) should be checked to see if the proposed raise in grade from Part A can be minimized. The alignments and grades of all other areas of the project shall remain very similar to those developed during the Part A design phase.
5. The preparation of designs including all plans, specifications for work not included in the current standard specifications of the DEPARTMENT, computations, estimates and documents for the required submissions to the DEPARTMENT, Federal Highway Administration, and/or any other STATE or Federal agency that may be required.
6. The CONSULTANT shall be responsible for the incorporation of environmental resource mapping and utility information into the plans to same precision and accuracy of the base plan existing ground topography.
7. The design and preparation of contract plans for construction of the roadway, structures, traffic control plans, construction phasing plans, layout and design of overhead sign structures (conceptual design of foundations for purposes of developing quantities with final design based on shop drawings provided by the Contractor), drainage facilities (including best management practices for permanent and temporary erosion and sedimentation control, water quality features and stormwater detention), retaining walls (assumed to be four (4) separate walls, each approximately 300' in length using

mechanically stabilized earth construction techniques, two along Wire Road (north side) and two along Baboosic Lake Road (north side)), landscaping plans and appurtenances in accordance with the policy and procedures of the DEPARTMENT and the provisions of this AGREEMENT. Within the project limits the plans shall include all commitments contained in the Environmental Study to the extent practicable. The plans will also include supplemental information developed specifically for this contract as part of the environmental documentation update.

8. Drainage Design: The project will include up to 18 new BMPs as well as the design of up to 25 Vegetated Treatment Swales. Design flow volumes to existing constructed wetlands / BMPs will be maintained and may require modifications to the existing closed drainage system to redirect flows associated with the additional impervious areas. The CONSULTANT will conduct a field walk to evaluate the condition of the existing drainage structures. Two CONSULTANT staff members will work with at least one NHDOT staff member to conduct a visual review of the existing drainage elements. A memorandum (including a spreadsheet listing all storm drain pipes) will be provided documenting the observed condition of each pipe. No video inspection using mobile cameras will be conducted as the inspection will be purely visual at each end of the pipe. For the purposes of this scope, the intent is to minimize the replacement of the existing drainage system to that which needs to be replaced due to hydraulic capacity or failing pipe conditions. The CONSULTANT will be responsible to analyze the existing drainage system to verify adequate condition and capacity for the proposed flows and recommend modifications as appropriate.

9. Bridge Hydraulic Studies and Final Hydraulic Report: The CONSULTANT will be responsible for the bridge hydraulic report and analyses to support the design and future condition for Pennichuck Brook, Naticook Brook, and Baboosic Brook. The Baboosic Brook will not be a new report, but an update to the previous report completed by OTHERS using new data such as updated survey. The report should be prepared in accordance with the NHDOT Bridge Design Manual (Section 2.7) with consideration for FEMA requirements, in case a CLOMR/LOMR is needed. The report will be based on the existing and proposed designs, including grading of the structure. It will recommend a required hydraulic opening and grading of the structure. This may include the development of HEC-RAS and FHWA SRH-2D models to support the design. The 2D hydraulic analysis will only be used for the Baboosic Brook bridge. The CONSULTANT will be responsible for final estimates of impacts to flood storage and final design of flood storage mitigation to compensate for flood storage impacts, including the incorporation of minimization methods to further reduce impacts. It is assumed that compensatory flood storage can be achieved within the project limits and will be achieved through modifications to the roadway embankment via steepened slopes or retaining walls. Survey data and field investigation of the hydraulic reach shall

be performed by the CONSULTANT. All survey work required for the CLOMR will be completed through the CONSULTANT using a NH Licensed Land Surveyor.

10. Scour analyses will be prepared for Pennichuck Brook and Baboosic Brook as per the NHDOT Bridge Manual.

11. Signs, Pavement Markings and Traffic Signals:

    a. The CONSULTANT shall provide a sign inventory in a Microsoft Excel spreadsheet including photographs, sign sizes, sign support types, sign support foundation types, condition, installation date and the location of all existing signs along the project.

    b. The CONSULTANT will be responsible for the design of all permanent signs (including all post and ground-mounted signs) in the contract plans including the quantity summary sheet and quantity estimates. No changes to signs on the ramps or crossroads are envisioned except those related to removal of the toll plazas if not modified already.

    c. The CONSULTANT will be responsible for the design and layout of all permanent and temporary overhead signs. Design of the structure itself is not required. Instead an elevation view or "stick diagram" as per the NHDOT Design Manual is required for use by the contractor in designing the overhead sign structure. The CONSULTANT will estimate the size and type of sign structure foundation, including all quantities and summary tables associated with the sign structure foundation. These estimates will be based on the available geotechnical information and similar projects.

    The quantity and location of structures will be as required by the Manual of Uniform Traffic Control Devices (MUTCD), 2009 Edition. Any sign or sign structure that exceeds 15 years of age at the time of completion of project construction will need to be updated to meet the MUTCD 2009 Edition. It is assumed that six (6) new cantilever structures are required in Segment 1 and six (6) new cantilever and three (3) new overhead structures are required in Section 2. These structures will largely replace existing overhead and ground-mounted signs. It is also assumed that two (2) overhead sign boards mounted on the Bedford Road Bridge (also located in Segment 2) will require replacement. The CONSULTANT shall be responsible for the development of the permanent construction sign and warning device package including Smart Work Zone Devices. This shall include summary sheets for permanent and relocated signs for construction sequencing/phasing including Smart Work Zone Devices. These signs and locations, including identifying the location of overhead sign structures, shall be shown on the Traffic Control Plans by phase.

    d. The CONSULTANT shall be responsible for the design and incorporation of all pavement marking layouts, item numbers, item descriptions, and quantities for inclusion into the

contract and summary tables.

e. All signing on the plans shall be closely coordinated with the location of guardrail installations, steep slopes, aerial and underground utility locations (including street lights) and drainage system locations to avoid conflicts and to determine which support system will be required to install the signs. The CONSULTANT will be responsible to identify all conflicts and to make necessary adjustments to highway signing.

f. The CONSULTANT shall be responsible for the design and incorporation of all traffic signals, including temporary traffic signals. This shall include layouts, traffic signal coordination plans, and traffic signal interconnection to permanent adjacent signals necessary to facilitate the design. It is assumed that designs for one permanent traffic signal alteration and one temporary traffic signal will be required.

12. The CONSULTANT shall use the NHDOT special details and plans in conjunction with their noise model to develop and provide the appropriate noise barrier layout and height. This shall include providing design information on each barrier utilizing the NHDOT standard tables, a separate profile view of each barrier, and layout information on a separate plan view. The barriers shall also be shown on the roadway cross sections, including the area south of Exit 11 where three barriers are proposed in an area where no roadway widening work is required. Separate cross sections are not required. The noise barrier plans shall also include the current NHDOT standard details in the Construction Plan set.

13. The CONSULTANT shall design all supporting members for utilities and ITS infrastructure that traverse any bridge structure. The CONSULTANT will also design the noise barrier located on the eastern parapet of the Baboosic Brook Bridge. No other noise barriers are expected to be located atop structures (bridges or retaining walls) and it is assumed that all other barriers will utilize the standard noise barrier details as provided by the DEPARTMENT.

14. The CONSULTANT shall incorporate utility relocations and lighting designs by OTHERS and shall include the review of constructability and impacts to traffic control for the contract plans.

15. Construction cost estimates for each major submission (Slope & Drain, PPS&E, and PS&E) shall be submitted with a full explanation of all major cost changes.

16. <u>ITS:</u> ITS design, quantities, summaries and cost estimate shall be designed by OTHERS. The CONSULTANT shall be responsible for the incorporation of this information (either in paper or electronic format) into the plans and cross sections.

17. <u>Adjustments to the former Toll Plaza locations at Exit 11 and Exit 12.</u> The CONSULTANT shall develop drawings at 1" = 50' scale incorporating designs for the removal of the ancillary structures that accompanied the former Exit 11 and Exit 12 toll plazas such as the buildings, parking lots,

access roads, tunnels, and utilities into the construction plan set. The ramps will be narrowed to meet current ramp geometry standards. The CONSULTANT will also review the length of the ramps and modify them where appropriate. The toll plazas themselves have been or are scheduled to be removed by OTHERS under a separate contract.

18. Presentation Plans: The CONSULTANT shall prepare colored presentation plans at each formal submission as defined below. This is in addition to the informational meetings.
19. Technical Reports: The CONSULTANT shall prepare technical reports, as necessary, throughout the duration of the project to document and summarize relevant technical data. This includes, but is not limited to: Engineering Reports, Design Reports, Bridge Hydraulic Reports. The intent is to support the design through documentation of critical design decisions with technical reports and supporting material.
20. Engineering Report: The CONSULTANT shall update the Formal Engineering Report at each submission to document the existing conditions within the project, and to summarize the design decisions and engineering details of the proposed action. Any rejected alternatives should also be documented to explain the justification for their rejection. This shall be finalized and submitted prior to the PS&E submission.
21. Design Exceptions: Design exceptions are not anticipated for this project.
22. Over the Shoulder Meetings: It is expected that over the course of the project Over the Shoulder Meetings will be held at least twice per submission (assume 30) through the duration of the design. These are informal meetings that will take place to discuss a variety of project issues that may include resource constraints, schedule, design issues, cost issues and comment lists. These meetings will include the CONSULTANT and the DEPARTMENT. It is assumed that the CONSULTANT's project manager will attend along with an average of two other staff members
23. Project Management Meetings: It is expected that over the course of the project, Project Management Meetings will be held at least bi-monthly through the duration of the design. It is anticipated that 18 meetings will be conducted throughout the duration of the project. These are informal meetings including the NHDOT, MJ, VHB, HNTB, and SHA Project Managers and they will take place to discuss a variety of project issues that may include resource constraints, schedule, design issues, cost issues and impacts of alternatives. The CONSULTANT shall be responsible for all meeting minutes. It is assumed that all firms except SHA will attend each meeting. SHA will attend no more than four meetings as necessary. It is assumed that, on average, three MJ staff members, and two staff members from VHB, HNTB, and SHA will attend each meeting.

24. Traffic Management Plan (TMP). The project requires a corridor wide Traffic Management Plan, this effort is described under the Slope and Drain submittal below.

The engineering design shall take into consideration factors affecting the cost of the construction, such as foundation problems, earthwork quantities, erosion and sedimentation control, water quality treatment issues, construction phasing and complexity, utilities affected, environmental, construction materials, etc. During all phases of design, the CONSULTANT shall make a continuous effort to identify and minimize impacts on existing and proposed utilities, environmental resources, and private property.

The CONSULTANT shall, when requested by the DEPARTMENT, render such assistance as required, including the preparation and explanation of sketches and plans for, or at, any meetings or conferences held by the DEPARTMENT. Meeting notes and conference report memos shall be the responsibility of the CONSULTANT.

The CONSULTANT shall submit for review, as requested, progress prints (black line) showing general design, grades, special details, and cross sections. Paper prints shall be submitted upon request for soils studies, right-of-way use, evaluation of utility impacts, evaluation of hazardous materials, and other purposes.

All horizontal alignment notes, including traverse line notes furnished by the DEPARTMENT, shall be computed by the CONSULTANT to include coordinates.

Data from survey notes shall be transcribed and plotted on base plans, profiles and cross sections as required, if not furnished by the DEPARTMENT as described below.

Designs shall conform to the current standards, specifications, policies and guidelines enumerated in the Federal Aid Policy Guide, Subchapter G, Part 625, or to 23 Code of Federal Regulations, Part 625 and the DEPARTMENT's Design Manual, and Standard Plans for Road Construction (2010) or as updated on the Department's website, except as approved.

Multiple visits to the site shall be made during the design to visually observe and detect changed field conditions and additional surveys will be performed by the DEPARTMENT upon request. The DEPARTMENT will process additional survey requests to the extent necessary to ensure continuity between new and current detail model files. The CONSULTANT will be given these files and shall be responsible for the incorporation of these files into the current detail base plans and digital terrain models (DTM). The incorporation of additional survey information shall include all drafting, labeling, and detailing. The CONSULTANT is responsible to field check the detail of all additional survey requests. Additional surveys may be required throughout the design process, and the CONSULTANT shall modify the design, as necessary, based on the updated survey information. It is anticipated that up to ten additional survey requests may be submitted throughout the duration of this project.

The CONSULTANT shall examine elements of design that may affect aerial and underground utilities. Elements may include horizontal and vertical alignments, typical sections, drainage pipes and structures, traffic control, earthwork utilization, along with soils suitability. Any conflict between design elements and utilities shall be identified and brought to the immediate attention of the DEPARTMENT. A special effort shall be made by the CONSULTANT to modify proposed drainage features in order to avoid conflicts with underground utilities during all subsequent design phases.

All plotting, drafting and calculations performed by the CONSULTANT shall be independently checked by members of the CONSULTANT's staff other than those who performed the original work. The work of each stage submission (including quantity estimates) shall have been appropriately checked. The PS&E submission shall have had complete final and "three-way" checks performed by the CONSULTANT.

The CONSULTANT shall verify all computations and design calculations. The CONSULTANT shall furnish two permanent, legible copies of the design calculations, and suitably bound. When directed, the CONSULTANT will provide all study plans, work plans, alternate studies, and estimates indexed in accordance with DEPARTMENT procedures.

The CONSULTANT's Licensed Professional Engineer stamp for the State of New Hampshire shall appear on the contract plans and reports prepared by the CONSULTANT that will be submitted to the DEPARTMENT. Stamps shall be those of the professional engineers who prepared the plans and reports or under whose direct supervisory control they were prepared.

**F. <u>SCOPE OF WORK (UTILITIES)</u>**

The utility coordination for this project will be performed by the DEPARTMENT and may be provided in either paper or digital format, it is anticipated that they will be in paper format and will require the CONSULTANT to draft them onto the contract plans and cross sections. The CONSULTANT shall incorporate onto the contract plans the existing utility locations and utility relocations, as designed by the individual utility owner. Municipal utility relocations (e.g., sewer and/or water), approved by the DEPARTMENT, shall be included, into the contract plans, cross sections, summary sheets and cost estimate. Non-participating municipal utility relocation items shall be kept separate from the highway and/or bridge items in the estimates submitted. The DEPARTMENT will provide the unit item number(s) and unit price(s) to be used for the utility relocations.

**G. <u>SCOPE OF WORK (PUBLIC PARTICIPATION)</u>**

The CONSULTANT shall support the public participation process that enhances the DEPARTMENT's "Public Involvement Process for New Hampshire Transportation Improvement Projects". The CONSULTANT shall prepare presentation graphics, handouts and supporting displays for public participation and posting to the Project's website and be available to make presentations and prepare Conference Reports. Specific tasks include:

1. Public Involvement Plan: The CONSULTANT will update the existing Public Involvement Plan outlining all elements of the tasks listed below. The plan will include a detailed schedule of all activities. The Plan will be reviewed with any necessary changes at all major project (corridor wide) milestones and Plan submittals.
2. Public Officials/Public Informational Meetings: It is anticipated that up to three Public Meetings, one in Nashua and two in Merrimack, will be held to involve the public and other interested parties, in the project development process. These Public Meetings will focus on the proposed action, project status updates, schedule, construction phasing and construction impacts. The CONSULTANT will prepare informational handouts and presentation materials and assist with presentations as needed. Three members of the CONSULTANT's staff will attend. The CONSULTANT will document meeting proceedings in the form of Conference Reports for posting to the Project's website.
3. Newsletter: The CONSULTANT shall develop a Corridor wide Project Newsletter for distribution to stakeholders, project abutters, resource agencies and others as determined necessary by the DEPARTMENT. The CONSULTANT shall prepare content for two editions of the newsletter yearly, including information from Segment 3. The CONSULTANT shall coordinate with the Segment 3 design team to obtain the Segment 3 updates. The final newsletter is to be provided in an electronic format (PDF) to the DEPARTMENT who will make any necessary copies. The DEPARTMENT will distribute the Project Newsletters and the CONSULTANT will post it to the Project's website. Each newsletter will be color and limited to three 11" x 17" sheets double sided that can be folded in half so that when they are printed, they provide a "book" type format.
4. Project Fact Sheets: The CONSULTANT will prepare up to eight Project Fact Sheets. Fact Sheets will outline key project details, key milestones, project objectives and other significant milestones of the project, while listing appropriate opportunities for public involvement. Once created these Fact Sheets will be reviewed and updated at least twice per year.
    a. The Project Fact Sheets will be color and limited to one sheet (8.5" x 11") double-sided.
    b. The DEPARTMENT will print copies for distribution; the CONSULTANT will post the Project Fact Sheets to the Project's website.
5. Website: The CONSULTANT shall maintain the project website, www.EverettTurnpikeWidening.com, for Segments 1, 2, and 3 for dissemination of corridor wide project information. Project information may include items such as Conference Reports, publicly available project reports and documents, and a schedule. Information for Segment 3 will be provided by OTHERS but shall be posted by the CONSULTANT. The CONSULTANT shall provide the content necessary for regular updates to the website, including but not limited to:

Factsheets, Newsletters, Design Plans, Conference Reports, and traffic control phasing during construction. During design the website will be updated at significant milestones and at a minimum on a quarterly basis. During the construction phase the website will be updated at a minimum of a monthly basis or for significant traffic pattern changes and construction status updates. The CONSULTANT will not be responsible for providing information regarding construction activities. Upon project completion, the CONSULTANT will provide the website files to the DEPARTMENT for their permanent record.

**H. MATERIAL FURNISHED BY THE DEPARTMENT OF TRANSPORTATION**

The DEPARTMENT will furnish the following data to the CONSULTANT:

1. Electronic files in US Customary Units of the following information in accordance with the DEPARTMENT's CAD/D Procedures and Requirements for incorporation onto the plans by the CONSULTANT:
   a. All existing survey and baseline data, field notes, and note reductions in the format outlined in the DEPARTMENT CAD/D Procedures and Requirements in effect at the time of execution of this AGREEMENT. An electronic ground model shall be provided, if available, along with all existing information that can be used to create a model in the format of ASCII point file, or SDR data files.
   b. Electronic preliminary horizontal and vertical alignments for the project limits as envisioned. This data will be in MicroStation/InRoads format and coordinate (x, y, z) data (ASCII) format, in accordance with the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of execution of this AGREEMENT.
   c. Any additional surveys of adjacent parcels, mitigation sites, wetland boundaries, or other pertinent information deemed necessary and processed by the DEPARTMENT. Incorporation of this information into the digital terrain model and plans shall be the responsibility of the CONSULTANT.
   d. Upon request of the CONSULTANT electronic object cell files in MicroStation format of roadway typical cross sections features and standard detail sheets shall be provided, if available from the DEPARTMENT's CAD/D library in accordance with the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of execution of this AGREEMENT.
   e. Electronic drawings in MicroStation format of the existing underground utilities, if provided to the DEPARTMENT by the utility. The CONSULTANT shall be prepared to provide an electronic copy of preliminary base plans to the DEPARTMENT for use by the utilities. The CONSULTANT shall be responsible for the incorporation of this information provided onto

the plans, in accordance with the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of execution of this AGREEMENT.

f. Available topographical mapping within the project area shall be provided along with any pertinent electronic supporting information, that may include survey field notes, ASCII point file, or SDR data files. The DEPARTMENT will also gather and process any supplemental topographical survey data that is determined to be necessary as the project proceeds. Incorporation of this supplemental information into the digital terrain model and base plan shall be the responsibility of the CONSULTANT.

2. Paper copies of the following information:
   a. When available any existing and proposed information outlined in Article I.H.1.a. through f. above provided in electronic format for verification by the CONSULTANT.
   b. Any additional information (e.g., utilities) when not available electronically for the CONSULTANT to incorporate onto the plans in accordance with the DEPARTMENT's CAD/D Procedures and Requirements.
3. Right-of-Way data: The DEPARTMENT will provide an electronic Right of Way Plan of record as prepared by OTHERS for the project. This will include legacy alignments, existing right-of-way layout, property lines at tax map level, current property owners, and any other applicable abstracting information in MicroStation format for incorporation onto the plans by the CONSULTANT.
4. Plans of prior highway and bridge construction projects within the project limits, when available. The CONSULTANT shall be responsible for incorporation of the pertinent data.
5. Typical roadway cross-section data.
6. Geotechnical investigations and recommendations, when available.
7. Necessary traffic counts and crash data, as collected by the DEPARTMENT.
8. Ground survey, except for the CLOMR/LOMR, as requested within the project area to supplement the digital terrain model. The DEPARTMENT will process the raw survey data collected for any additional survey requests and provide it to the CONSULTANT for incorporation into the digital terrain model.
9. The DEPARTMENT's latest high-resolution color aerial photography (which is geo-referenced and ortho-rectified).
10. The location of all existing utilities through direct contact with the various utility companies. Following the determination by the CONSULTANT of all unavoidable conflicts between existing utilities and the proposed construction, the DEPARTMENT will coordinate the necessary relocation of the conflicting utilities. The CONSULTANT shall be prepared to furnish CAD/D files in the DEPARTMENT format in effect at the time of execution of this AGREEMENT to the

DEPARTMENT for use in assisting with the Utility design.

11. Conceptual design and final layout of highway lighting, both temporary and permanent. The CONSULTANT shall be responsible for incorporating the design and layout into the project documents and for recommending adjustments required to avoid conflicts.

## I. WORK SCHEDULE AND PROGRESS REPORTS

The CONSULTANT shall promptly begin performance of the services designated in the Contract upon receipt from the DEPARTMENT of a Notice to Proceed, along with the material to be furnished by the DEPARTMENT as herein described. The CONSULTANT shall complete these services without delay unless unable to do so for causes out of the CONSULTANT's control.

The CONSULTANT's sequence of operation and performance of the work under the terms of this AGREEMENT shall be varied at the direction of the DEPARTMENT in order to give priority to critical areas so that schedules and other STATE commitments, either present or future, can be met.

The CONSULTANT shall report progress to the DEPARTMENT in conjunction with the DEPARTMENT's Standardized Invoicing process. Invoices shall be submitted for each month that there has been more than $10,000 in cumulative billable work since the last invoice, or at least quarterly. For months with no progress, or less than $10,000 cumulative work since the last invoice, the CONSULTANT shall submit a status report briefly describing the reasons for little or no progress.

## J. SUBMISSION OF REPORTS, PLANS AND DOCUMENTS

During the prosecution of this AGREEMENT, the CONSULTANT shall prepare and submit to the DEPARTMENT separate submissions as described hereinafter. All work submitted by the CONSULTANT to the DEPARTMENT shall be in US Customary units.

With each submission for Segments 1 and 2, the CONSULTANT shall submit an updated Engineering Report and a Design Report with a design narrative describing the "design issues" addressed in that submission. The report shall include reference materials and version used, design criteria and controls, specific items and issues of interest, design calculations (e.g. superelevation, guardrail, etc.), drainage information (including back-up calculations, MS4 compliance, and a copy of the drainage software model), and an updated construction cost estimate. In addition, the report shall include anticipated or outstanding issues and the CONSULTANT's recommendations. All issues shall be noted as to whether the CONSULTANT believes the issue is within the scope of work as described in Article I. Meetings between the CONSULTANT and the DEPARTMENT, previously identified as "Over the Shoulder" Meetings, shall be held prior to submissions to discuss design issues and recommendations. "Over the Shoulder" Meetings shall be held for comment resolutions after the submission is reviewed by the Department.

The CONSULTANT shall supplement each submission with such paper and electronic copies of MicroStation drawings, illustrations and descriptive matter as are necessary to facilitate a comprehensive

understanding and review of proposed concepts.

All plan drawings, including size of sheets, lettering, symbols and scale of said drawings, shall conform to the requirements and standards of the DEPARTMENT. Any and all CAD/D-related work completed during the course of this project shall be performed in conformance with the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of execution of this AGREEMENT. In addition, the CONSULTANT's final submission shall include hard copy of plans, reports, etc. as well as electronic CAD/D or GIS files in accordance with the current DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of this AGREEMENT. The CAD/D files shall consist of the base plans with enhancements in MicroStation format, using DEPARTMENT naming conventions, line styles and character styles. The CONSULTANT shall also furnish a coordinate summary of all survey control points with a corresponding plot of controls and alignments, including all curve data superimposed over the plan detail.

In addition to the final reproducible plans being furnished as noted herein, the CONSULTANT shall provide electronic file copies of all highway project plan sheets with real State plane coordinates, including, but not limited to, final quantity sheets, typical section detail sheets and detail sheets, general plans and profiles, traffic signal sheets, and, cross sections. An electronic file of the entire project's final design shall be submitted in an "uncut" format showing all design features in real State plane coordinate system in true north orientation. The final electronic files shall be indexed with file name, description of the contents of the file and project sheet number as applicable. All files shall be submitted in conformance with the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of this AGREEMENT. Any plans (e.g. quantity summary sheets) produced from a spreadsheet (e.g. Excel, or equivalent) shall be submitted in ASCII file or format suitable for incorporation into Microsoft Office or the current DEPARTMENT software. The final Special Provisions(s) and other documents, as requested, shall be submitted in both electronic format (Microsoft Word-compatible) and hard copy. The CONSULTANT shall also be prepared to submit separate electronic files of all alignments, bound locations and other project features, as requested, in a format acceptable to the DEPARTMENT, throughout the design contract, in conformance with the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time of this AGREEMENT. The CONSULTANT shall also provide a hard copy of all proposed alignments establishing 50-foot minimum station interval and curve control points with associated State plane coordinates (x, y, z).

1. Roadway Design Submissions:

   It is assumed there will be a total of four separate construction projects in Segments 1 and 2. Each submittal below will be provided for each construction project.

   The plan submissions for roadway design shall follow the procedures outlined below. Quantity

estimates, quantity calculations, summary sheets, design calculations, narratives and special provisions for design elements not performed by the CONSULTANT shall be provided by OTHERS to the CONSULTANT in an appropriate format for inclusion in the respective submissions noted below:

a. PFAS Handling Determination – Roadway

i. General - Prior to beginning the Slope and Drain phase, the CONSULTANT will develop a conceptual plan to handle the excavation of soil material containing Per- and Polyfluoroakyl substances (PFAS). This plan will consist of conceptual plans, spreadsheets, and a narrative delineating the dispensation of the material and where it is to be placed. All plans will be developed on 11" x 17" sheets. The intent is to provide a plan for the disposition of PFAS contaminated materials that will guide the preparation of the Slope and Drain plans. Detailed design of drainage or other roadway elements is not included in this work task. The Inroads files developed by others in the Part A process will be used extensively to modify the existing roadway side slope templates (and by extension the cross sections) to develop cut and fill quantities. This effort is envisioned to be a coarse level analysis, but one that provides enough information to attempt to utilize all earthwork quantities within the project limits. The CONSULTANT will analyze and categorize the earthwork according to the PFAS contamination level (see the attached scope of work), as well as taking into account ACM and LRS considerations. The CONSULTANT will analyze earthwork in approximately 100' increments in order to provide data on the availability of opportunities to minimize excavation or maximize embankment. See Attachment A – Contaminated Groundwater and Soils Work Plan for additional detail on this task.

ii. Phase 1 – The CONSULTANT will collect data on the degree of PFAS contamination as shown in the attached scope of work. The CONSULTANT will update the current cost estimate using the project quantities developed during the Part A process. Once the information is collected, the CONSULTANT will facilitate a meeting with the DEPARTMENT to summarize the materials collected during the investigations and provide alternatives on how the excavated material might be utilized within the project limits. The DEPARTMENT will come prepared to discuss the limitations or project constraints that the CONSULTANT must adhere to in utilizing the material. This meeting is intended to provide guidance to the CONSULTANT in the next phase of work. After the meeting, the CONSULTANT will prepare and submit a draft Data Report to the DEPARTMENT for review. After DEPARTMENT review and approval, the

CONSULTANT will submit the draft Data Report to NHDES for review and comment. The CONSULTANT shall address any NHDES comments and incorporate them into a final Data Report for submission to the DEPARTMENT and NHDES.

iii. Phase 2 – The CONSULTANT will develop a proposed conceptual plan that attempts to utilize the contaminated material within the project limits and within the constraints defined by the final Data Report. Details such as typical sections, plans, earthwork spreadsheets, critical cross sections and a cost estimate will be developed that illustrate how the material will be dispersed, along with a short narrative. In this phase the CONSULTANT will also estimate the quantities of contaminated groundwater and surface water. Changes to the project's impacts to environmental resources will be quantified. It is expected that it may be impossible to utilize all the excavated material within the DEPARTMENT's designated limits or requirements. In that case, an additional meeting will be held to discuss how the constraints/limits might be changed. The CONSULTANT will then refine the initial plan accordingly. The plans, details, narrative, and estimate will be included in four draft Soil and Groundwater Management Plans (SGMPs) (1 SGMP for each of the four anticipated construction contracts: the southern segment, two middle segments, and the middle segment bridges) and submitted to the DEPARTMENT for review and comment. Along with the submittal, the CONSULTANT will facilitate a meeting to describe the draft SGMPs and help expedite the DEPARTMENT's review. The DEPARTMENT will then provide review comments before proceeding to the next phase. After DEPARTMENT approval of the draft SGMPs, the CONSULTANT shall submit preliminary draft SGMPs to NHDES for review. The CONSULTANT shall facilitate a meeting with the DEPARTMENT and NHDES to discuss the preliminary draft SGMPs after NHDES review. The CONSULTANT shall address all NHDES comments and incorporate any necessary changes into the preliminary draft SGMPs for submittal of a final Draft SGMP to the DEPARTMENT and NHDES.

iv. Phase 3 – The CONSULTANT will incorporate the final draft SGMPs into the conceptual plan and narrative and revise the information provided in Phase 2 accordingly. The plans, details, narrative, and estimate will be finalized and submitted for use as a guide for the subsequent Slope and Drain phase. Changes to the impacts to environmental resources will be documented as part of the narrative. However, it is assumed that the changes to the impacts will not require a re-evaluation of the environmental study or any other changes to the original environmental study document [After Slope and Drain], the CONSULTANT shall provide updated SGMPs for DEPARTMENT review and coordinate up to 4 meetings

with the DEPARTMENT (one for each SGMP) to discuss the updates. After each meeting to discuss the updated draft SGMPs, the CONSULTANT will prepare and submit the updated draft SGMPs to the DEPARTMENT for review. After DEPARTMENT review and approval, the CONSULTANT will submit the updated draft SGMPs to NHDES. The CONSULTANT shall address any NHDES comments and incorporate any necessary changes into four final SGMPs to be incorporated into the final Project Design.

b. Updates:

The CONSULTANT shall update the proposed right-of-way lines based on changes that occur during the Right-of-Way acquisition process based on information provided by the DEPARTMENT. The DEPARTMENT will provide any changes that occur as part of the negotiation with the property owners. The changes will be provided in Microstation files or simple mark-up drawings that are easily transferred to the current design files. It is assumed that most, if not all, of these changes will be related to the properties that are impacted along Baboosic Lake Road and Wire Road. It is estimated that no more than eight changes will be required and that these changes will be received at least one month prior to submission of the final contract drawings. It is assumed that these changes will only require minor modifications of the proposed design. The process will proceed as follows:

1. Once Slope and Drain is complete the Bureau of ROW will begin the development of the ROW Layout plans.
   i. This will involve a turnover meeting (at the completion of slope and drain) with the Bureau of ROW to go over the project details. Ideally, this would include the entire ROW team (ROW Assistant Administrator, Chief of Surveys and Mapping, Land Titles, Chief ROW Agent and Chief ROW Appraiser), to familiarize them with the project. Plans for this meeting (as well as the impact summary memo) should be sent at least 2 weeks in advance of the meeting.
   ii. The ROW plan development will entail utilizing the CONSULTANT'S Proposed Right-of-Way file (PRW) and Proposed Layout file (PLY) and adjusting the PRW file as necessary to better fit the Registry plan formatting. (Land Titles will create a copy of this file for their work, and identify it as "PRWlayout".) Note that in the course of the Slope and Drain development, the CONSULTANT will have identified the proposed ROW layout, as well as temporary easements (with durations) and permanent easement needs in the "PRW" drawing. (The Bureau of ROW will set the temporary slope and drive easements as part of their process.) The CONSULTANT will need to create a copy the "PRW" design file in advance

of the turnover for future checking/review purposes. (This file shall be called "PRWturnover".)

iii. Once the Bureau of ROW has completed the development of the ROW Layout plans, they will notify the CONSULTANT that the "PRWlayout" file is completed, and ready for review. The CONSULTANT can then reference this updated file into the plans/ drawings. At this point, the CONSULTANT will review the ROW updates/adjustments by referencing in the "PRWturnover" file. Once the CONSULTANT accepts the updated ROW information, the "PRWlayout" file can be renamed to "PRW" (keeping a copy of the "PRWlayout" file as a record of the ROW turnover file). (The "PRWturnover" and "PRWlayout" files will be kept for records purposes only at this point.) PDF files of the ROW Layout plans will also be provided to the Design group for review and concurrence of the new layout. **Any changes after this step will need to be coordinated with the Assistant ROW Bureau Administrator.**

iv. The temporary slope and drive easements will typically be very close to, if not on top of, the slope and clearing lines. These should be excluded from the PRW information on the highway plans for clarity purposes. (The ROW plans are provided to the Bureau of Construction at advertisement, and as such, can be referenced if needed, to verify the limits of these easements, should an issue arise in a particular location.)

v. Note also that as part of the ROW plan development, the Bureau of ROW will utilize information from the "PLY", "TXT", and "ERT" files for developing the ROW plans. This information will be copied to the Bureau of ROW's own "metes and bounds" file and will have no effect on the Design files. It is important to recognize however, that any changes affecting the ROW plans will need to be coordinated through Land Titles Section.

vi. The ROW plans will utilize the "ROW alignment" (previously identified as "legacy") developed from ROW research, from which the proposed ROW will be referenced for the Registry records.

vii. Note that the ROW plans will include the CONSTRUCTION alignment as well (if different), if there is enough room on the plans. Otherwise, the CONSTRUCTION alignment (and appropriate ties to the ROW alignment) will only appear on the Geometric Layout sheets (along with the ROW alignment) as part of the ROW plan

set. Note that if the CONSTRUCTION alignment is on the ROW plans, then there will be no need for developing Geometric Layout plans for the ROW plan set.

viii. In the case where a construction alignment is created, it shall be geometrically tied to the ROW alignment. Land Titles needs to review and verify the mathematical accuracy.

ix. The CONSULTANT will advance the contract plan development utilizing the "adjusted" PRW file developed for the ROW plans. The Contract Plans will not include the ROW alignment.

x. Proposed bounds referenced on the Contract Plans are set based upon the ROW plans, and as such, if the CONSTRUCTION alignment differs from the ROW alignment, the bounds will be equated to the CONSTRUCTION alignment (odd station and offset).

c. Design Schedule:

The CONSULTANT shall develop a design schedule in Microsoft Project format. This schedule shall indicate the status (remaining duration and percent complete) of all major design tasks for each construction contract and shall be submitted on a monthly basis unless work has been halted on the project at the direction of the DEPARTMENT.

d. Slope and Drain Plans – Roadway:

It is anticipated that informal submittals of some design elements during the initial part of this phase will be needed to ensure the design controls and the design are progressing. Informal submissions may be necessary to assess design decisions before too much progress is made. It is anticipated this early coordination will be an iterative process.

The submission shall consist of up to five sets of paper roll or cut sheet plans showing slope lines, drainage system details and drainage features; along with draft proposed Right-of-Way lines, showing drainage, slope and/or construction easements. The submission shall also include two bound copies of the design report. The Slope and Drain Plans shall include typical sections, roll plan views (as a minimum), profiles, guardrail locations, existing utilities and cross-sections with complete template plotted. Appropriate references will be shown on the plans relative to drainage design (e.g. inverts, pipe type / size) to assist with the review of the drainage design and the backup drainage calculations. All temporary drainage features shall have backup calculations submitted with each submission. The submission shall be supplemented with a list of utility conflicts that could not be avoided during the design. Complete BMP designs for permanent erosion and sedimentation control features and water-quality appurtenances shall be shown accompanied with backup calculations. The BMPs shall be designed in accordance with the (NHDES) CHAPTER Env-Wq 1500 ALTERATION OF TERRAIN

(AoT) requirements, MS4 requirements, as well as the guidance found in the New Hampshire Stormwater Manual. The backup calculations shall also include a narrative, mapping and computations addressing pre-construction and post-construction (and post-development, if applicable) drainage conditions and applicable drainage control features. Two bound copies of the drainage-computation and narrative book(s), including temporary drainage, shall be submitted with all backup drainage calculations illustrated and referenced to each drainage appurtenance shown on the drainage design.

At this time, a field inspection shall be held with the DEPARTMENT. Indicated design changes or corrections will be incorporated into the plans for the Preliminary PS&E submission. Any indicated revisions to fit actual field conditions, including horizontal and vertical alignment revisions found necessary during this field inspection, including corrections to the Right-of-Way requirements, shall be made by the CONSULTANT.

Also with the Slope and Drain submission, the CONSULTANT shall submit, at a minimum, roll plans of the Traffic Control Plans in near-final form showing temporary slopes, lane uses and widths, overhead sign structures, temporary guardrail and barrier locations, temporary drainage, temporary easements, temporary alignments and profiles as needed (e.g. FEET, ramp locations, side road diversions, borrow a barrel configuration, etc.), and diversion cross-sections and superelevations with backup calculations. The CONSULTANT shall indicate all traffic assignments at interchanges and intersections together with the turning motions on the plans based on traffic information provided by the DEPARTMENT. Construction phasing shall be in near final format and shall be shown on the traffic control plans with narratives for each phase. The CONSULTANT shall also submit a conceptual construction schedule (in MS Project), showing the phased construction (with time frames) and utility relocation time frames (provided by the DEPARTMENT), for review and comment by the DEPARTMENT.

The CONSULTANT shall provide the design of the noise barrier plan with this submission and at the same time as the draft final design noise report.

The CONSULTANT shall revise the Traffic Management Plan (TMP) for the Corridor and plans for the construction phasing, traffic control, temporary drainage and water-quality commitments for Segment 1 and 2. The CONSULTANT will work with the Department to modify the document for the Corridor (information for segment 3 will be provided by OTHERS) and make necessary adjustments as the design progresses. This could also include collecting, analyzing and summarizing data used in monitoring TMP activities. Efforts will include preparing summary documents, developing/updating current data collection spreadsheets, and analyzing data (crash data, etc.).

At this submission, a revised itemized construction estimate shall be prepared and submitted by

the CONSULTANT (2 bound copies) based on the best information and design features shown in this submission relative to the anticipated construction including any diversions or temporary widenings.

e. Wetland Impact Plans:

Following incorporation of the DEPARTMENT's comments on the Slope and Drain Submission, the CONSULTANT shall submit Wetland Impact plans (in cut sheet format) showing permanent and temporary impacts for inclusion within the wetland permit applications. These areas shall be hatched or colored according to the DEPARTMENT's standards. Accompanying these plans, the CONSULTANT shall provide a tabulated impact summary showing wetland identification numbers, areas of fill or dredged volumes in the temporary and permanent conditions for the final build-out for this project.

f. Shoreland Impact Plans:

Following incorporation of the DEPARTMENT's comments on the Slope and Drain Submission, the CONSULTANT shall submit Shoreland Impact plans (in cut sheet format) showing permanent and temporary impacts for inclusion within the Shoreland Permit applications. These areas shall be hatched or colored according to the DEPARTMENT's standards. Accompanying these plans, the CONSULTANT shall provide a tabulated impact summary showing shoreland impact areas for temporary and permanent conditions for the final build-out for this project.

g. Utility Plans:

Following review of the Slope and Drain submission, the CONSULTANT shall incorporate DEPARTMENT comments into the design layout and assemble the plans into a cut sheet format. The CONSULTANT shall then furnish up to ten sets of cut sheet plans (paper prints) of front sheet, plans, profiles, traffic control plans, and up to five sets of cross-sections and a list of revised utility conflicts for use by the Design Services Section. The CONSULTANT shall also submit separate electronic files of this information, in a format acceptable to the DEPARTMENT, in conformance with the DEPARTMENT's CAD/D Procedures and Requirements. This submission plan set is intended to facilitate the identification of the scope of work required by various utilities to comply with the planned construction. The plans are intended to reflect the near-final design of drainage systems with all appurtenances, erosion and sedimentation-control features, other structures, right-of-way lines (proposed permanent and temporary, and existing), curbing, pavement layout, slope limits, guardrail, final template plotted on cross-sections, diversions and diversion cross-sections, traffic control issues with construction phasing, underdrain, clearing and grubbing limits, fencing requirements, lighting and ITS conduit. Also, the plans shall reflect all existing detail, existing drainage and existing utilities. The intent is to have incorporated all comments from the preliminary

Right-of-Way (ROW) plan development/Preliminary Layout Plans (ROW plans by OTHERS) and the Slope and Drain submission along with design work that has progressed. All final design notes may not be necessary, but the scope of construction shall be evident to the reviewing utilities. Copies of this plan set will be forwarded to the Design Services Section for review. Comments will be returned to the CONSULTANT to finalize the plans prior to the formal submission for relocations. The plans shall show the status of the design prior to preparation of the Preliminary PS&E submission.

h. Preliminary PS&E (PPS&E) – Roadway:

Upon approval in writing by the DEPARTMENT of the Slope and Drain submission, the CONSULTANT shall proceed to prepare and submit to the DEPARTMENT for approval the PPS&E submission which shall consist of three sets of plans (paper prints) of preliminary contract drawings, draft special provisions for items for which current specifications are not available from the DEPARTMENT, and a Preliminary PS&E estimate of quantities and costs. The plans shall include title sheet, typical sections, all plan sheets (of all plan sets), profile sheets, curb and pavement marking layout plans, ITS infrastructure, complete traffic control plans (with a conceptual construction schedule) including one set of roll plans, cross-section sheets and necessary detail sheets. Also, seeding and grading plans shall be included. Landscaping, if required, will be designed by and incorporated into the Plan set by the CONSULTANT. Quantity Summary sheets shall be submitted. All item summary boxes for drainage, clearing and grubbing, earthwork, surfacing and select materials, curbing, guardrail, traffic signs, construction signs and warning devices, pavement markings, conduit and pull boxes, ITS components, landscaping and slope protection, bounds, fencing, delineation and witness markers and other items that are nearly complete shall be shown and note line-entries completed. Rounding and totals are not required. Item summary boxes of expected work, not listed above, shall be included and shown without line-entries completed. In developing the plans to the Preliminary PS&E stage, the DEPARTMENT will require an estimate of the quantities, expected unit costs, and total costs prepared in the form and manner prescribed by the DEPARTMENT for the Preliminary PS&E submission. An electronic copy of the spreadsheet shall be submitted (for each estimate and submission). Roadway items shall be kept separate from bridge items. Two bound copies of the quantity calculations shall be furnished with the estimate. The plans shall reflect all comments from the Slope and Drain submission, ROW layout plans and utility plans and issues that appear during final design. The plans shall incorporate proposed utility relocations or improvements. Two bound copies of the Design Report and two bound copies of the drainage computations book (as revised based on Slope and Drain comments) including MS4 compliance, as well as temporary drainage computations.

i. PS&E – Roadway:

Upon approval in writing by the DEPARTMENT of the Preliminary PS&E submission, the CONSULTANT shall proceed to prepare and submit to the DEPARTMENT for approval the PS&E submission, which shall consist of three complete sets of paper prints of construction plans including one set of roll plans (for all plan sets including the traffic control plans), two bound copies of the revised quantities book, Engineering Report, proof of a three-way check, proof of an "Apples and Oranges" check and a PS&E estimate. In addition, 2 bound copies of the design report, and 2 updated copies of the drainage report. Special Provisions shall be submitted in electronic format (Microsoft Word-compatible) for all items not in the Standard Specifications for Road and Bridge Construction of the STATE and for which a current special provision is not available (assume four). This submission shall include any final edits necessary to make this a complete and final submission ready for contract plans and bidding.

Final contract plans and documents shall reflect all comments resulting from the PS&E review. The CONSULTANT shall be prepared to incorporate all comments, furnish drafting services for omissions found and generally assist the DEPARTMENT in finalizing the contract plans. If changes are requested to be made to the CONSULTANT's plans by the DEPARTMENT, the CONSULTANT shall be prepared to update the corresponding electronic files and submit them to the DEPARTMENT. The final contract plans submitted shall include up to three sets of paper prints. Also, all CONSULTANT backup documents shall be resubmitted, as necessary, to reflect the final PS&E and final contract plan conditions, including the conceptual construction schedule.

The final contract plans shall include:

1) Front sheet.
2) Symbols sheets.
3) Typical sections of improvement.
4) Summary-of-quantities sheets.
5) Detail sheets, special sheets, and drainage note sheets as required.
6) Profile and Plan sheets.
7) Cross-section sheets.

Each of the plan sheets shall be labeled with its corresponding electronic file name.

2. Bridge Design Submissions:

The plan submissions for the bridge structures shall follow, in general, the Instructions for Consulting Engineers Concerning Routine Procedures on Bridge Design Projects", prepared by the DEPARTMENT.

The content, completeness and scales for all drawings shall be as approved by the DEPARTMENT and

shall be such as to portray the placement and positioning of components and surfaces and the general appearance of the structural units. Large-scale details shall be employed as directed for congested areas or connections between components.

The phases for the development of the project are:

The CONSULTANT shall perform a load-rating analysis for each bridge using the appropriate AASHTO Method, or as directed by the DEPARTMENT, to be submitted on a form provided by the DEPARTMENT.

The phases for the development of the project are as follows, unless approved otherwise during scope development between the Department and the Consultant:

- Preliminary Plans (40%-50% complete)
- Preliminary PS&E Plans (80% complete)
- PS&E Plans (90% complete)
- Contract Plans (100% complete)

a. Preliminary Plans – Bridge: The preliminary plans will build on the TS&L submission developed as part of the Part A efforts. The preliminary plans will be developed following the guidelines and checklist provided in the NHDOT Bridge Design Manual. Estimates of quantities shall be prepared for all materials of construction. Upon completion of this plan submission, copies of the plans shall be submitted to the DEPARTMENT for review and comment, the plans at this stage representing about 40%-50% completion. This package shall also include backup quantity calculations for the estimate and the preliminary hydraulic and scour reports.

b. Preliminary PS&E – Bridge: This design shall incorporate revisions, if any, in the Preliminary Plans as previously approved by the DEPARTMENT. The plan and elevation, survey plan, and profiles, as submitted for the Preliminary Plans, shall be refined as necessary and shall become a part of the final contract plans. Estimates of quantities shall be prepared for all materials of construction and shall be tabulated on the plans and summarized for each bridge. Upon completion of this plan submission, copies of the plans shall be submitted to the DEPARTMENT for review and comment, the plans at this stage representing about 80% completion. This package shall also include backup quantity calculations for the estimate and the final hydraulic and scour reports.

c. PS&E – Bridge: Comments resulting from the DEPARTMENT's review of the Preliminary PS&E submission shall be incorporated into the design and contract plans. The estimate of quantities shall be completed and tabulated, and the reinforcing bar schedules shall be completed. Upon completion of these contract plans, copies of the plans and quantity calculations shall be submitted to the DEPARTMENT for review and comment, the plans at this stage representing about 90% complete.

d. PS&E - Bridge Contract Plans: Comments resulting from the DEPARTMENT's review of the PS&E submission shall be incorporated into the design and contract plans. Upon completion of these contract plans, they shall be submitted to the DEPARTMENT, the plans at this stage representing 100% completion. Form 4 as required by the NHDOT Bridge Manual shall also be developed for review and approval.

3. Deliverables:

a. Electronic Transfer of Data: The DEPARTMENT requires the following to ensure compatibility with software used by the DEPARTMENT and to ensure the efficient and timely exchange of computer files between the DEPARTMENT and the CONSULTANT.

All files submitted must be fully compatible with the formats listed in this document without any conversion or editing by the DEPARTMENT. Any files requiring conversion and/or editing by the DEPARTMENT will not be accepted. All files shall be virus free. All files shall use the DEPARTMENT's file naming convention.

b. Computer Aided Design/Drafting (CAD/D) files: All CAD/D files shall be in accordance with the Deliverable Requirements described in the DEPARTMENT's CAD/D Procedures and Requirements in effect at the time this AGREEMENT was executed, or any later version. All files submitted must be fully compatible with the current version of MicroStation being used by the DEPARTMENT. (The DEPARTMENT's CAD/D Procedures and Requirements document can be found on the CAD/D website by following the "Downloads" link at www.nh.gov/dot/cadd/.)

c. Approved action deliverables: The CONSULTANT's final submission shall include hard copies of plans, as well as electronic CAD/D files. The CAD/D files shall consist of the base plans with enhancements in MicroStation format, using DEPARTMENT naming conventions, line styles and character styles. The CAD/D files shall also contain a proposed 3D top line model, complete out to the slope limits. The CAD/D files and model shall be in conformance with the DEPARTMENT's CAD/D procedures and requirements in place at the time of execution of this agreement. The model shall include existing and proposed surfaces developed in OpenRoads Designer format for use by the construction contractor. At a minimum the model shall match the proposed design for:

- All pavement work (edge of pavement to edge of pavement)
- Slope work out to the match with existing ground with the exception of:
  - i. Complicated slopes associated with culverts and water quality measures that are detailed with other methods
  - ii. Simple driveway matches

d. Word Processing, Spreadsheet, and Database Files: For each Phase, all relevant files shall be provided in a format fully compatible, as appropriate, with the following:

- Word Processing: Microsoft Word 2010 or NHDOT compatible version
- Spreadsheets: Microsoft Excel 2010 or NHDOT compatible version
- Databases: Microsoft Access 2003 or NHDOT compatible version

These specifications will be updated as necessary to reflect changes in DEPARTMENT software such as adding new software or updating to new versions of existing software. In such instances, the CONSULTANT will be promptly notified.

e. Computer File Exchange Media: Electronic files shall be exchanged between the DEPARTMENT and the CONSULTANT using the following media as appropriate for Windows Operating Systems:

- FTP: Files posted to the DEPARTMENT's FTP site can be actual size or compressed. Contact the Project Manager for instructions for accessing the FTP site.
- Compact Disc (CD): Files on CD(s) should be actual size, not compressed.
- USB Flash Drive: Files on flash should be actual size, not compressed.
- DVD: Files on DVD(s) should be actual size, not compressed.
- E-mail: Files 10 MB or smaller may be transferred via e-mail. If compressed, the files should be self-extracting and encrypted based on content.

f. Copies: The CONSULTANT shall provide hard (paper) and electronic copies of the deliverables for each Phase of Work. For all deliverables, provide electronic copies in two electronic versions; an electronic version in the original electronic file format (i.e., MicroStation (*.dgn), Microsoft Word (*.docx), Microsoft Excel (*.xlsx), etc.) and an electronic version in Adobe Acrobat (*.pdf) file format.

g. Website:

- Website Content: All external NHDOT websites created for this project shall meet the ADA Section 508 requirements as stated in the NH DoIT Website Standards. Those standards are outlined in https://www.nh.gov/doit/vendor/documents/nh-website-standards.pdf
- Website Documents: All documents posted to a website created for this project, or that are submitted to be posted to a NHDOT website, shall meet ADA Section 508 accessibility requirements. A checklist for document compliance is provided in https://www.section508.gov/content/build/create-accessible-documents (go to second link down under "Checklists").

h. Electronic Deliverables: Upon completion of the AGREEMENT, the CONSULTANT shall turn over all documentation used in the development of the Design and Plans. The following list is a

guide to what electronic information is expected to be returned from the design Consultants to NHDOT for final storage. Note that it is not intended to be an all-inclusive (complete) listing of contract deliverables, as there may be contract specific information/documents associated with specialty work, unusual circumstances, or new technology, etc., that is not listed below. The intent is that all electronic documents developed for and associated with a particular project be submitted to the Department as part of the final deliverables.

- CAD/D File Information: See the Department's CAD/D Procedures and Requirements documentation for more (detailed) information relative to this element. CAD/D file data (both reference files and cut sheets for Highway and Bridge) shall include the following.
  1) Include any files from sub-consultants (including traffic signals, retaining walls, ROW plans, mitigation sites, noise barriers, etc.).
  2) Plotting references needed to re-produce project cut-sheets including sheet numbering (include final project .pcf file, pen-tables, etc.).
  3) Files used to number the project cut sheets (project .pcf file, pen tables, etc.).
  4) Final embellished presentation plan.
- Project Journal File: See the Department's CAD/D Procedures and Requirements documentation for more (detailed) information relative to this element.
  1) Care shall be taken to prepare a complete Project Journal File outlining all files and descriptions used on the project. In addition to the cut-sheet definitions, all cut sheet models need to be included so the sheets can be reproduced.
  2) Plotting needs to be included to provide any necessary guidance on how the sheets are to be plotted at the correct scale. Include any pen-tables used in the project.
  3) Complete index of all 3D model surfaces provided and what they are used for.
  4) Index of all alignments used on the project (with appropriate string names) and descriptions.

## K. SCOPE OF WORK (CONSTRUCTION SERVICES)

If a contract for construction of the project, or part of it, is entered into within two years after completion by the CONSULTANT of the services outlined in Articles I, III and IV, the CONSULTANT shall render services to the DEPARTMENT, including, but not restricted to, the following:

1. Construction

   When required by the DEPARTMENT during the construction of the project, the CONSULTANT shall:

   a. At the CONSULTANT's sole expense, correct and resolve errors and/or omissions, due to the CONSULTANT's own negligence, within the contract plans and specifications found during

construction.

b. Render interpretations, as necessary, of the contract plans and specifications and submit recommendations for necessary modifications in either or both and, upon approval of recommendations by the DEPARTMENT, revise the contract plans and specifications to cover same and prepare other detailed drawings as may be needed to supplement the contract plans in order to permit the proper completion of the project. This work effort, if required, will be viewed as additional services, subject to an adjustment in the fee.

**L. DATE OF COMPLETION**

In accordance with the Governor and Council Resolution authorizing this AGREEMENT, the date of completion for the professional services rendered under this AGREEMENT is July 31, 2024. Completion of construction support services shall be in accordance with Article I-K - Construction Support Services.

## ARTICLE II - COST PLUS FIXED FEE COMPENSATION OF CONSULTANT

### A. GENERAL FEE

In consideration of the terms and obligations of this AGREEMENT, the STATE, through the DEPARTMENT, hereby agrees to pay and the CONSULTANT agrees to accept as full compensation for all services rendered to the satisfaction of the DEPARTMENT under this AGREEMENT, an amount equal to the sum of the following costs:

1) Actual salaries* approved by the DEPARTMENT paid to technical and other employees by the CONSULTANT, including salaries to principals, for the time such employees are directly utilized on work necessary to fulfill the terms of this AGREEMENT.

   * In accordance with DEPARTMENT policy, the maximum direct-labor rate allowed for all positions under this AGREEMENT, including subconsultants, shall be $60.00 per hour unless a waiver to the salary cap has been specifically approved for specialty services. A waived rate shall remain fixed at that rate for the life of the AGREEMENT unless a subsequent waiver is requested and approved.

   An overtime premium of one and one half times the direct labor rate for non-exempt employees working beyond the standard 40 hours per workweek may be allowed for special circumstances when approved by the DEPARTMENT in writing in advance. The overhead portion of non-exempt employees' salary rates shall not be adjusted. Engineers are not eligible for overtime premium rates.

   Direct salary costs are estimated at: $1,987,287.32

2) Overhead costs applicable to the direct salary costs. The audited indirect cost rate, as submitted to and approved by the DEPARTMENT, will be applied to the direct salary costs. The CONSULTANT'S audited indirect cost rate for fiscal year ending December 31, 2019, which expires June 30, 2021, **179.00%,** shall be used for invoicing for the life of the AGREEMENT.

   Overhead costs are estimated at: $3,557,244.30

3) A fixed fee amount based on the estimated risk to be borne by the CONSULTANT [maximum 10.00% of Labor Costs (including overhead costs)] for profit and non-reimbursed costs.

   The fixed fee is: $554,453.16

4) Reimbursement for direct expenses, including, but not limited to, subconsultants with a subcontract value of less than $200,000, printing, reproductions and travel not included in normal overhead expenses. The reimbursable costs for mileage and for per diem (lodging and meals) shall be that allowed by the CONSULTANT'S established policy but shall not exceed that allowed in the Federal Acquisition Regulations (Subpart 31.205-46) and in the Federal Travel Regulation. Mileage and per diem costs shall be subject to approval by the DEPARTMENT. Subconsultants with a subcontract value of less than $200,000 shall be invoiced as direct expenses and require individual invoices.

| | |
|---|---|
| Direct expenses are estimated at: | $100,000.00 |

5) Reimbursement for actual cost of subconsultants is estimated as follows:

| | |
|---|---|
| Vanasse Hangen Brustlin, Inc. | $2,173,477.17 |
| HNTB, Inc. | $853,568.77 |
| Independent Archaeological Consulting, LLC | $16,573.06 |
| Sanborn Head and Associates, Inc. | $627,077.05 |
| **AGREEMENT NOT-TO-EXCEED TOTAL** | **$9,869,680.83** |

The amount payable under categories 1), 2), 4), and 5) may be reallocated within the not-to-exceed total upon mutual agreement of the DEPARTMENT and the CONSULTANT. Reallocations shall be properly documented for Final Audit purposes, but do not require a formal amendment.

The total amount to be paid under this AGREEMENT shall not exceed **$9,869,680.83** the sum of the amounts shown in Article II, Section A (which amount is based on the CONSULTANT'S fee and manhour estimates of December 11, 2020), except by agreement of all parties made after supplemental negotiations and documented by a formal amendment to the AGREEMENT. Should circumstances beyond the control of the CONSULTANT require extension of the time of completion more than one (1) year, the general fee may be renegotiated and documented by a formal amendment to the AGREEMENT; however, the fixed fee (b) shall not change for reasons of work duration alone. The fixed fee (b) shall only change when there has been a significant increase or decrease in the scope of work outlined in this AGREEMENT.

**B. LIMITATION OF COSTS**

1. Costs incurred against this AGREEMENT shall not exceed the total amount specified in Article II, Section A unless otherwise authorized. The CONSULTANT shall give the DEPARTMENT a ninety (90)-day written notice when it appears that this limit will be exceeded.

2. It is expected that the total cost to the STATE shall be the not-to-exceed amount specified in Article II, Section A, and the CONSULTANT agrees to use best efforts to perform the work specified in the AGREEMENT and all obligations under this contract within this not-to-exceed amount.
3. The STATE shall not be obligated to reimburse the CONSULTANT for costs incurred in excess of the not-to-exceed amount specified in Article II, Section A.
4. Changes to the scope of work shall not be considered an authorization to the CONSULTANT to exceed the not-to-exceed amount specified in Article II, Section A.

C. PAYMENTS

Monthly payments on account of services rendered under this AGREEMENT may be made upon submission of invoices by the CONSULTANT to the DEPARTMENT. The CONSULTANT shall follow the DEPARTMENT'S Standardized Invoicing format. The fixed fee shall be invoiced during the billing period based upon the overall percent complete calculated within the approved progress report found in the DEPARTMENT'S Standardized Invoicing. Invoices shall be submitted for each month that there has been more than $10,000 in cumulative billable work since the last invoice, and at least quarterly.

Actual salaries paid and the indirect cost rate shown in Article II, Section A, shall be used until such time as true costs of salary burden and overhead are fixed by Final Audit. At that time, payments shall be adjusted to agree with the indirect cost rates as determined by Final Audit for the period in which the work was performed, as approved by the DEPARTMENT.

D. ANNUAL INDIRECT COST RATE SUBMISSIONS

The CONSULTANT and all subconsultants with a subcontract value of $200,000 or greater shall submit their audited indirect cost rate and related documents annually for the life of this AGREEMENT as follows:

To comply with the Federal Acquisition Requisitions (FAR), the CONSULTANT'S Indirect Cost Rate Audit must meet the following requirements:

- Be conducted by an independent Certified Public Accountant (CPA), a Federal government agency, or another state transportation agency.
- Be conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS) issued by the U.S. Government Accountability Office (GAO) and with the cost principles and procedures set forth in Part 31 of the FAR.
- Follow the guidance of the most recent American Association of State Highway Transportation Officials Uniform Audit and Accounting Guide for Audits of Architectural and Engineering Consulting Firms (AASHTO Audit Guide).

In addition to the Indirect Cost Rate Audit, CONSULTANTS shall submit the following documentation:

- AASHTO Internal Control Questionnaire (ICQ) for Consulting Engineers form with the required attachments.
- Certification of Final Indirect Costs as required pursuant to 23 CFR 172.11 and FHWA Order 4470.1A.
- Complete copy of the CONSULTANT'S annual audited financial statements.
- Analysis of reasonableness of executive compensation as outlined in the AASHTO Audit Guide.
- Cognizant letter, if available.
- A listing of all contracts, with dollar amounts, the CONSULTANT has currently with the DEPARTMENT as a prime consultant or subconsultant.

Annual indirect cost rate submissions are due within 6 months of the CONSULTANT'S fiscal year end and shall be submitted to the DEPARTMENT'S Internal Audit Office electronically to DOT-InternalAudit@dot.nh.gov or in writing.

**E. RECORDS, REPORTS, AND FINAL AUDIT**

The CONSULTANT shall maintain adequate cost records for all work performed under this AGREEMENT. All records and other evidence pertaining to cost incurred shall be made available at all reasonable times during the AGREEMENT period and for three (3) years from the date of final expenditure report for examination by the STATE, Federal Highway Administration, or other authorized representatives of the Federal Government, and copies thereof shall be furnished if requested. Applicable cost principles are contained in the Federal Acquisition Regulations (FAR) in Title 48 of the Code of Federal Regulations (Subpart 31.2 and Subpart 31.105).

The DEPARTMENT shall have the right, at the time of Final Audit, to review all items charged on this project. If, in the opinion of the DEPARTMENT, such payment is unreasonable, the CONSULTANT shall be required to justify such payment or payments before they will be approved as direct or indirect costs.

All costs as described in Article II Section A.1 through A.5 are to be determined by actual records kept during the term of the AGREEMENT, which are subject to Final Audit by the STATE and Federal Governments. The final payment, and all partial payments made, may be adjusted to conform to this Final Audit. In no case will any adjustments exceed the not-to-exceed amount specified in Article II, Section A. All Subconsultant costs may also be subject to Final Audit by the STATE and Federal Governments.

## ARTICLE III - GENERAL PROVISIONS

### A. HEARINGS, ETC.

The DEPARTMENT will make all arrangements for and hold all necessary hearings in connection with the project.

### B. CONTRACT PROPOSALS

(Not applicable to this AGREEMENT.)

## ARTICLE III

## ARTICLE IV - STANDARD PROVISIONS

### A. STANDARD SPECIFICATIONS

The CONSULTANT agrees to follow the provisions of the Design Manuals, Standard Specifications for Road and Bridge Construction, and Standard Plans for Road and Bridge Construction of the DEPARTMENT; A Policy on Geometric Design of Highways and Streets and LRFD Bridge Design Specifications of the American Association of State Highway and Transportation Officials (AASHTO), and amendments thereto, and/or other professional codes or standards applicable to the services to be performed under this AGREEMENT. When a publication (including interim publications) is specified, it refers to the most recent date of issue in effect at the time of execution of this AGREEMENT.

### B. REVIEW BY STATE AND FHWA - CONFERENCES - INSPECTIONS

It is mutually agreed that all portions of the work covered by this AGREEMENT shall be subject to the inspection by duly-authorized representatives of the STATE and Federal Highway Administration, United States Department of Transportation, at such time or times as the STATE or Federal Highway Administration deems appropriate.

The location of the office where the work will be available for inspection by STATE and Federal Highway Administration representatives is 53 Regional Drivee, Concord, NH.

It is further mutually agreed that any party, including the duly-authorized representatives of the Federal Highway Administration, may request and obtain conferences, visits to the site, and inspection of the work at any reasonable time.

### C. EXTENT OF CONTRACT

1. Contingent Nature of AGREEMENT

   Notwithstanding anything in this AGREEMENT to the contrary, all obligations of the STATE, including, without limitation, the continuance of payments, are contingent upon the availability and continued appropriation of funds, and in no event shall the STATE be liable for any payments in excess of such available appropriated funds. In the event of a reduction or termination of those funds, the STATE shall have the right to terminate this AGREEMENT.

2. Termination

   The DEPARTMENT shall have the right at any time, and for any cause, to terminate the work required of the CONSULTANT by this AGREEMENT by written notice of such termination provided to the CONSULTANT by the DEPARTMENT, and, in the event of such a termination of this AGREEMENT without fault on the part of the CONSULTANT, the CONSULTANT shall be entitled to compensation for all work theretofore satisfactorily performed, pursuant to this AGREEMENT, such compensation to be fixed, insofar as possible, based upon the work performed prior to termination. If no contract or contracts for construction of the project contemplated by this

AGREEMENT is (are) entered into within two (2) years after satisfactory completion of the services outlined in Article I, all of the services contemplated by this AGREEMENT shall be deemed to have been completed.

It shall be a breach of this AGREEMENT if the CONSULTANT shall fail to render timely the services required under this AGREEMENT, in accordance with sound professional principles and practices, to the reasonable satisfaction of the DEPARTMENT, or shall be in such financial condition as to be unable to pay its just debts as they accrue, or shall make an assignment for the benefit of creditors, or shall be involved in any proceeding, voluntary or involuntary, resulting in the appointment of a receiver or trustee over its affairs, or shall become dissolved for any cause. In the event of the happening of any one or more of the foregoing contingencies, or upon the substantial breach of any other provisions of this AGREEMENT by the CONSULTANT, its officers, agents, employees, and subconsultants, the DEPARTMENT shall have the absolute right and option to terminate this AGREEMENT forthwith, and, in addition, may have and maintain any legal or equitable remedy against the CONSULTANT for its loss and damages resulting from such breach or breaches of this AGREEMENT; provided, however, that as to all plans, drawings, tracings, estimates, specifications, reports, proposals, sketches, diagrams, and calculations, together with all material and data theretofore furnished to the DEPARTMENT by the CONSULTANT, of a satisfactory nature in accordance with this AGREEMENT, which plans, drawings, tracings, etc., are of use to the DEPARTMENT, the CONSULTANT shall be entitled to a credit, based on the contract rate for the work so performed in a satisfactory manner and of use and benefit to the DEPARTMENT.

**D. <u>REVISIONS TO REPORTS, PLANS OR DOCUMENTS</u>**

The CONSULTANT shall perform such additional work as may be necessary to correct errors in the work required under the AGREEMENT caused by errors and omissions by the CONSULTANT without undue delays and without additional cost to the DEPARTMENT.

Furthermore, prior to final approval of plans, specifications, estimates, reports, or documents by the DEPARTMENT, the CONSULTANT shall make such revisions of them as directed by the DEPARTMENT, without additional compensation therefor, except as hereinafter provided:

1. If, after its written approval thereof, the DEPARTMENT shall require changes to the plans or documents that revise engineering or other factors specifically approved, thereby necessitating revisions of the contract plans or documents, or,
2. When applicable, if during the term of this AGREEMENT, a revision of the alignment is ordered by the DEPARTMENT to the extent that the revised alignment will lie completely or partially

outside the limit of the survey data plotted by the CONSULTANT (this does not apply to those adjustments and refinements to the alignments anticipated under the scope of work), or,

3. If, after approval by the DEPARTMENT of the final contract plans or documents, the CONSULTANT shall be ordered in writing by the DEPARTMENT to make revisions, or to perform services other than those necessary to adapt said plans, reports, or documents to conditions observed during field inspections and encountered during construction; the CONSULTANT shall be entitled to compensation therefor in accordance with Article II, Section A, such compensation to be in addition to the fee specified in Article II, Section A, for its original work on the plans, reports or documents.

**E. ADDITIONAL SERVICES**

If, during the term of this AGREEMENT, additional professional services are required due to a revision in the limits of the project, or it becomes necessary to perform services not anticipated during negotiation, the DEPARTMENT may, in writing, order the CONSULTANT to perform such services, and the CONSULTANT shall be paid a fee in accordance with the provisions of Article II, Section A.

If, during the term of this AGREEMENT, additional professional services are performed by the CONSULTANT due to the fact that data furnished by the DEPARTMENT are not usable or applicable, the STATE will, upon written approval by the DEPARTMENT, reimburse the CONSULTANT for such additional design services in accordance with the provisions of Article II, Section A.

If additional services are performed by the CONSULTANT through its own acts, which are not usable or applicable to this project, the cost of such additional services shall not be reimbursable.

**F. OWNERSHIP OF PLANS**

All data, plans, drawings, tracings, estimates, specifications, proposals, sketches, diagrams, calculations, reports, or other documents collected, prepared, or undertaken either manually or electronically by the CONSULTANT under the provisions of this AGREEMENT, immediately shall become the property of the DEPARTMENT, and, when completed, shall bear the CONSULTANT'S endorsement. The CONSULTANT shall surrender to the DEPARTMENT, upon demand at any time, or submit to its inspection, any data, plan, drawing, tracing, estimate, specification, proposal, sketch, diagram, calculation, report, or document which shall have been collected, prepared, or undertaken by the CONSULTANT pursuant to this AGREEMENT, or shall have been hitherto furnished to the CONSULTANT by the DEPARTMENT. The CONSULTANT shall have the right, with the written approval of the DEPARTMENT, to use any of the data prepared by it and hitherto delivered to the DEPARTMENT at any later stage of the project contemplated by this AGREEMENT.

## G. SUBLETTING

The CONSULTANT shall not sublet, assign or transfer any part of the CONSULTANT'S services or obligations under this AGREEMENT without the prior approval and written consent of the DEPARTMENT.

All subcontracts shall be in writing and those exceeding $10,000 shall contain all provisions of this AGREEMENT, including "Certification of CONSULTANT/Subconsultant". For subconsultants working on design, hazardous materials, geotechnical services, etc., the minimum limits of their professional liability (errors and omissions) insurance coverage shall be not less than $2,000,000 in the aggregate, with a deductible of not more than $75,000. For subconsultant contracts with less risk, e.g., wetland evaluations, materials inspection and testing, structural steel fabrication inspection, underwater bridge inspection, research, bridge deck condition surveys, land surveying, mapping, noise studies, air-quality studies, etc., the minimum limits of their professional liability (errors and omissions) insurance coverage shall be not less than $1,500,000 in the aggregate, with a deductible of not more than $50,000. For subconsultant contracts with no risk, e.g., archaeology, cultural resources, data gathering, traffic counting etc., professional liability insurance shall not be required. Subconsultants completing field exploration for geotechnical, hazardous materials/environmental, and subsurface exploration shall also have pollution liability insurance coverage not less than $2,000,000 in the aggregate, with a deductible of not more than $75,000. If coverage is claims made, the period to report claims shall extend for not less than three years from the date of substantial completion of the construction contract. A copy of each subcontract shall be submitted for the DEPARTMENT'S files.

## H. GENERAL COMPLIANCE WITH LAWS, ETC.

The CONSULTANT shall comply with all Federal, STATE, and local laws and ordinances applicable to any of the work involved in this AGREEMENT and shall conform to the requirements and standards of STATE, municipal, railroad, and utility agencies whose facilities and services may be affected by the construction of this project. The services shall be performed so as to cause minimum interruption to said facilities and services.

## I. BROKERAGE

The CONSULTANT warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the CONSULTANT, to solicit or secure this Contract, and that it has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the CONSULTANT, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, the STATE shall have the right to annul this Contract without liability, or, at its discretion, to

deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

J. CONTRACTUAL RELATIONS

1. Independent Contractor

The CONSULTANT agrees that its relation to the STATE is as an independent contractor and not as an agent or employee of the STATE.

2. Claims and Indemnification

a. Non-Professional Liability Indemnification

The CONSULTANT agrees to defend, indemnify and hold harmless the STATE and all of its officers, agents, and employees from and against any and all claims, liabilities, or suits arising from (or which may be claimed to arise from) any (i) acts or omissions of the CONSULTANT or its subconsultants in the performance of this AGREEMENT allegedly resulting in property damage or bodily injury, and/or, (ii) misconduct or wrongdoing of the CONSULTANT or its subconsultants in the performance of this AGREEMENT.

b. Professional Liability Indemnification

The CONSULTANT agrees to indemnify and hold harmless the STATE and all of its officers, agents, and employees from and against any and all claims, liabilities, or suits arising from (or which may be claimed to arise from) any negligent acts or omissions of the CONSULTANT or its subconsultants in the performance of professional services covered by this AGREEMENT.

c. These covenants shall survive the termination of the AGREEMENT. Notwithstanding the foregoing, nothing herein contained shall be deemed to constitute a waiver of the sovereign immunity of the STATE, which immunity is hereby reserved by the STATE.

3. Insurance

a. Required Coverage

The CONSULTANT shall, at its sole expense, obtain and maintain in force the following insurance:

1. Commercial or comprehensive general liability insurance, including contractual coverage, for all claims of bodily injury, death, or property damage, in policy amounts of not less than $250,000 per occurrence and $2,000,000 in the aggregate (STATE to be named as an additional insured); and
2. comprehensive automobile liability insurance covering all motor vehicles, including owned, hired, borrowed, and non-owned vehicles, for all claims of bodily injury, death, or property damage, in policy amounts of not less than $500,000 combined single limit; and

3. professional liability (errors and omissions) insurance coverage of not less than $2,000,000 in the aggregate. If coverage is claims made, the period to report claims shall extend for not less than three years from the date of substantial completion of the construction contract. No retention (deductible) shall be more than $75,000; and
4. workers' compensation and employer's liability insurance as required by law.

b. Proof of Insurance

The policies described in paragraph (a) of this section and Section G shall be in the standard form employed in the STATE, issued by underwriters licensed or approved by the Department of Insurance of the STATE. Each policy shall contain a clause prohibiting cancellation or modifications of the policy earlier than 30 days, or 10 days in cases of non-payment of premium, after written notice thereof has been received by the STATE. The CONSULTANT shall provide to the STATE a certificate of insurance evidencing the required coverages, retention (deductible), and cancellation clause prior to submittal of the AGREEMENT to Governor and Council for approval and shall have a continuing duty to provide new certificates of insurance as the policies are amended or renewed.

4. No Third-Party Rights

It is not intended by any of the provisions of the AGREEMENT to make the public, or any member thereof, a third-party beneficiary of the AGREEMENT, or to authorize anyone not a party to this AGREEMENT to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Contract. The duties, obligations, and responsibilities of the parties to this AGREEMENT with respect to third parties shall remain as imposed by law. No portion of this AGREEMENT shall be understood to be a waiver of the STATE'S sovereign immunity.

5. Construction of AGREEMENT

This AGREEMENT is executed in a number of counterparts, each of which is an original and constitutes the entire AGREEMENT between the parties. This AGREEMENT shall be construed according to the laws of the STATE.

## K. AGREEMENT MODIFICATION

The assignment of the CONSULTANT, generally established by the scope of work in this AGREEMENT, shall not be modified in any way without prior approval of the Governor and Council.

## L. EXTENSION OF COMPLETION DATE(S)

If, during the course of the work, the CONSULTANT anticipates that one or more of the completion dates specified in this AGREEMENT cannot be met, it shall be the CONSULTANT'S responsibility to notify the DEPARTMENT in writing at least ninety (90) days prior to the completion date(s) in question.

The CONSULTANT shall state the reasons that a completion date(s) cannot be met and request a revised date(s) for consideration by the DEPARTMENT.

**M. TITLE VI (NONDISCRIMINATION OF FEDERALLY-ASSISTED PROGRAMS) COMPLIANCE**

During the performance of this AGREEMENT, the CONSULTANT, for itself, its assignees and successors in interest agrees as follows:

(1) Compliance with Regulations: The CONSULTANT shall comply with Title VI of the Civil Rights Act of 1964 regulations relative to nondiscrimination in federally-assisted programs of the DEPARTMENT, such regulations entitled Title 49 Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the REGULATIONS), and which are herein incorporated by reference and made a part of this AGREEMENT.

(2) Nondiscrimination: The CONSULTANT, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, religion, age, sex, handicap, sexual orientation, or national origin in the selection and retention of subconsultants, including procurements of materials and leases of equipment specific to this project. The CONSULTANT shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the REGULATIONS, including employment practices when the AGREEMENT covers a program set forth in Appendix B of the REGULATIONS.

(3) Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the CONSULTANT for work to be performed under a subcontract, including procurements of materials or leases of equipment specific to the project, each potential subconsultant or supplier shall be notified by the CONSULTANT of the CONSULTANT'S obligations under this AGREEMENT and the REGULATIONS relative to nondiscrimination on the grounds of race, color, religion, age, sex, handicap, sexual orientation, or national origin.

(4) Information and Reports: The CONSULTANT shall provide all information and reports required by the REGULATIONS or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the DEPARTMENT or the Federal Highway Administration to be pertinent to ascertain compliance with such REGULATIONS, orders and instructions. Where any information required of a CONSULTANT is in the exclusive possession of another who fails or refuses to furnish this information, the CONSULTANT shall so certify to the DEPARTMENT or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of the CONSULTANT'S noncompliance with nondiscrimination provisions of this AGREEMENT, the DEPARTMENT shall impose sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

(a) withholding of payments to the CONSULTANT under the AGREEMENT until the CONSULTANT complies; and/or

(b) cancellation, termination, or suspension of the AGREEMENT, in whole or in part.

(6) The CONSULTANT shall take such action with respect to any subcontract or procurement as the DEPARTMENT or the Federal Highway Administration may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a CONSULTANT becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the CONSULTANT may request the DEPARTMENT to enter into such litigation to protect the interests of the STATE, and, in addition, the CONSULTANT may request the United States to enter into such litigation to protect the interests of the United States.

(7) 23 CFR 710.405(b) and Executive Order 11246 entitled "Equal Employment Opportunity," as amended by Executive Order 11375 and as supplemented in Department of Labor REGULATIONS (41 CFR Part 60), shall be applicable to this AGREEMENT and any subagreements hereunder.

(8) Incorporation of Provisions: The CONSULTANT shall include the provisions of paragraphs (1) through (7) in every subcontract, including procurements of materials and leases of equipment specific to the project, unless exempt by the REGULATIONS, or directives issued pursuant thereto.

In accordance with EXECUTIVE ORDER 11246, the DEPARTMENT has the authority and responsibility to notify the Office of Federal Contract Compliance Programs of the United States Department of Labor if they become aware of any possible violations of Executive Order 11246 and 41 CFR Part 60. The Office of Federal Contract Compliance Programs is solely responsible for determining compliance with Executive Order 11246 and 41 CFR Part 60 and the CONSULTANT should contact them regarding related compliance issues.

## N. DISADVANTAGED BUSINESS ENTERPRISE POLICY REQUIREMENTS

1. Policy. It is the policy of the United States Department of Transportation (USDOT) to ensure nondiscriminatory opportunity for Disadvantaged Business Enterprises (DBE's), as defined in 49 Code of Federal Regulations (CFR) Part 26, to participate in the performance of agreements and any subagreements financed in whole or in part with Federal funds. Consequently, the DBE requirements of 49 CFR Part 26 apply to this AGREEMENT.

2. Disadvantaged Business Enterprise (DBE) Obligation. The STATE and its CONSULTANTS agree to ensure nondiscriminatory opportunity for disadvantaged business enterprises, as defined

in 49 CFR Part 26, to participate in the performance of agreements and any subagreements financed in whole or in part with Federal funds. In this regard, the STATE and its CONSULTANTS shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 to ensure that disadvantaged business enterprises have the opportunity to compete for and perform work specified in the agreements. The STATE and its CONSULTANTS shall not discriminate on the basis of race, color, religion, age, sex, handicap, sexual orientation, or national origin in the award and performance of agreements financed in whole or in part with Federal funds.

3. Sanctions for Non-Compliance. The CONSULTANT is hereby advised that failure of the CONSULTANT, or any Subconsultant performing work under this AGREEMENT, to carry out the requirements set forth in paragraphs 1 and 2 above, shall constitute a breach of agreement and, after the notification of the United States Department of Transportation, may result in termination of this AGREEMENT by the STATE or such remedy as the STATE deems appropriate.

**O. DOCUMENTATION**

The CONSULTANT shall document the results of the work to the satisfaction of the DEPARTMENT and the Federal Highway Administration. This shall include preparation of progress reports, plans, specifications, and estimates and similar evidences of attainment of objectives called for in this AGREEMENT.

**P. CLEAN AIR AND WATER ACTS**

If the amount of the AGREEMENT or subcontract thereunder exceeds $100,000, the CONSULTANT or subconsultant shall comply with applicable standards, orders, or requirements issued under Section 306 of the Federal Clean Air Act (43 U.S.C. 1857(h), Section 508 of the Federal Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15), which prohibit the use under non-exempt Federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities. The CONSULTANT or subconsultant shall report violations to the FHWA and to the U. S. Environmental Protection Agency Assistant Administrator for Enforcement (EN-329).

SANBORN HEAD

*Building Trust. Engineering Success.*

July 16, 2020

Re: Attachment to Agreement for Professional Services
Contaminated Groundwater and Soils Work Plan
Middle and Southern Segments
Nashua – Merrimack – Bedford 13761 South

Sanborn, Head & Associates, Inc. (Sanborn Head) is pleased to submit this Work Plan for considering contaminated groundwater and soils for the Middle and Southern Segments of the New Hampshire Department of Transportation's (NHDOT's) Nashua – Merrimack – Bedford 13761 project (the Project). The major elements of this work are:

- Sampling and analysis;
- Conceptual Soil and Groundwater Management Plan (SGMP); and
- Preparation of contamination-related construction documents.

This Work Plan is prepared to be included as an Attachment to the "Nashua – Merrimack – Bedford 13761 South, Non-Federal Scope of Work", which specifies a Consultant Team with McFarland Johnson, Inc. (MJ) as the prime consultant and includes Sanborn Head as a subconsultant. Sanborn Head's work is focused on contaminated groundwater and soils.

The Work Plan is organized into three major sections: Background, Scope of Services, and Task Summaries.

**BACKGROUND**

The Project is currently in the design phase, and construction is anticipated to begin as early as Spring 2022 for the Northern Segment of the Project. The Middle and Southern Segments are planned for the following years. Portions of the Project will occur within areas that the New Hampshire Department of Environmental Services (NHDES) has identified as having groundwater contamination and potential soil contamination associated with the Southern New Hampshire Per- and Polyfluoroalkyl Substances (PFAS) Investigation related to the Saint-Gobain Performance Plastics (SGPP) site. In Summer 2018, Sanborn Head preliminarily reviewed Project drawings and reports regarding nearby PFAS impacts and presented the findings at a July 24, 2018 meeting with the NHDOT and the NHDES.

Based on discussions in the July 2018 meeting and a subsequent May 2019 meeting with the NHDOT and the NHDES to discuss the most northern project segment, special approaches may be needed for the management of groundwater and soil for the Project work areas because of potential impacts associated with the SGPP site, which we understand is a source of PFAS impacts to groundwater and soil in the area. Our understanding is that the Project

will be divided into five construction contract areas, with the focus of this work plan on the first four construction contract areas listed below:

- 13761A: Southern Segment;
- 13761B: Wire Road and Baboosic Lake Road Overpass Bridges;
- 13761C: Middle Segment Southern Portion;
- 13761E: Middle Segment Northern Portion; and
- 13761D: Northern Segment (not addressed by this work plan).

Each of the construction contract areas will require separate SGMPs and contamination-related construction documents.

The Middle Segment Northern and Southern construction contract areas, as well as the Overpass Bridges construction contract area, lie within the approximate "Extent of Outer Boundary" and the preliminary Groundwater Management Zone (pre-GMZ) Boundary, while the Northern and Southern Segments lie within the approximate "Extent of Outer Boundary" but largely outside of the pre-GMZ Boundary.[1] It is possible that, with additional data or changed Ambient Groundwater Standards (AGQSs), the boundary of the pre-GMZ could be adjusted.[2] The "Extent of Outer Boundary" and the pre-GMZ Boundary, along with Sanborn Head annotations, are indicated on the modified Southern NH PFAS Investigation Map provided in Reference Materials Attachment A.

In January and February 2020, Sanborn Head collected samples at the Northern Segment for PFAS analysis. The Northern Segment sampling included sampling of groundwater, surface water, soil, and muck, and the sampling approach for the Northern Segment is similar in many ways to the approach proposed in this Work Plan. Although interpretation of the Northern Segment data is ongoing, preliminary findings are that PFAS were detected in some groundwater samples above regulatory criteria, and PFAS were detected in leaching tests performed on a subset of soils. Figures depicting the Northern Segment PFAS data are provided in Reference Materials Attachment B.

In addition to the PFAS considerations described above, there are other potential contaminated groundwater and soils considerations for the project. MJ and CHA Consulting, Inc. (CHA) completed a database search in 2019 for hazardous materials and petroleum spills and occurrences within ¼ mile of the limits of the highway and exit ramps as part of

---

1 Both the "Extent of Outer Boundary" and the pre-GMZ Boundary were established through consent decree. In the consent decree, the GMZ is defined as "the subsurface volume in which groundwater contamination allegedly associated with a discharge from the [SGPP] Property is contained". The "Extent of Outer Boundary" is largely referenced in the consent decree in the context of releases of claims or causes of action. Source: https://www4.des.state.nh.us/nh-pfas-investigation/wp-content/uploads/2018/03/final-cd-20180320.pdf

2 The current, enforceable AGQS for PFAS is 70 parts per trillion (ppt) for perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), and PFOS + PFOA. The NHDES proposed significantly lower maximum contaminant levels (MCLs) and AGQSs for four PFAS, including changes in the AGQSs for PFOA to 12 ppt and PFOS to 15 ppt. These MCLs/AGQSs were approved on July 19, 2019 and went into effect on September 30, 2019. These limits were enjoined by the Merrimack Superior Court, effective as of December 31, 2019, and are not currently enforceable.

an Environmental Study for the Project.[3] The review included State and Federal environmental databases compiled by Environmental Data Resources, Inc. (EDR), as well as the NHDES OneStop Database records. The review resulted in "environmental commitments" as a part of the Environmental Study dated May 2019, with the following environmental commitments numbered 21 through 25 being relevant to contaminated properties and structures.

21. *The soil in the vicinity of Wire Road will be tested prior to construction to determine whether residual diesel fuel and motor oil from a 1998 spill are present.*
22. *Residual contaminated soil and buried asbestos may be encountered whenever excavation takes place. NHDOT shall undertake additional subsurface investigations prior to construction sufficient to identify and characterize asbestos in areas of proposed earthwork. NHDOT will plan for the proper handling and disposal of any contaminated materials which may be encountered during project construction.*
23. *"Limited Reuse Soils" (LRS) excavated from within the operational right-of-way must be addressed in accordance with applicable NHDES rules and/or waivers and may be subject to management through a Soils Management Plan. During final design of the project, it shall be determined if LRS will be generated by the project and, if generated, if the material will require reuse on-site, disposal, and/or temporary stockpiling. Any excess materials that result from the project within the operational right-of-way shall be addressed in accordance with applicable NHDOT guidance and NHDES rules.*
24. *Asbestos and lead paint occur in some of the bridges to be replaced. During construction, these materials shall be handled and disposed of in accordance with applicable laws and regulations.*
25. *PFAS-impacted groundwater that is dewatered within Project Limits shall be addressed in accordance with applicable NHDES rules and/or Groundwater Management Plans.*

Each of the above environmental commitments is relevant to the Middle and Southern Segments, but the potential hazardous materials during bridge replacement (environmental commitment 24) are not included in the Sampling and Analysis Work Plan discussed herein because this work will be addressed by others. Therefore, the Work Plan focuses on the spill in the vicinity of Wire Road, potential residual contamination and asbestos in fill, LRS, and PFAS impacts. Although not specifically called out in the Environmental Study, this work will also include consideration of PFAS-impacted soils.

We understand that MJ will review the environmental commitments to determine whether they have been addressed in the Project and will provide a memorandum to NHDOT documenting the status of the commitments.

## SCOPE OF SERVICES

The Work Plan scope is intended to collect and analyze environmental samples to inform the development of contamination-related construction documents for each of the four construction contracts for the Middle and Southern Segments: the Southern Segment, the

[3] "Environmental Study, State Project No. 13761", prepared by McFarland Johnson, Inc. and CHA Consulting, Inc. for the NHDOT, dated May 2019.

Wire Road and Baboosic Lake Road Overpass Bridges, the Middle Segment Southern Portion, and the Middle Segment Northern Portion. The major elements of the Work Plan are:

- Sampling and analysis;
- Four Data Reports and Conceptual SGMPs; and
- Preparation of contamination-related construction documents.

The scope was developed based on the following information:

- Preliminary design plans and cross sections dated March 27, 2019;[4]
- Boring logs and supplementary preliminary design information provided by the NHDOT;[5,6,7]
- Southern Segment Historical Fill Areas for Asbestos Considerations provided by the NHDOT;[8]
- SGPP offsite data (see Reference Materials Attachment A);
- Discussion of the Northern Segment data and preliminary sampling and analysis work plan outline during a March 27, 2020 video conference meeting with the NHDOT; and
- Discussion of the Northern Segment data and sampling and analysis work plan outline during an April 7, 2020 video conference meeting with the NHDOT and NHDES.

***The scope does not include sufficient sampling and analysis to serve as a full, in-situ pre-characterization for off-site treatment or disposal of contaminated soils or asbestos waste pursuant to Env-Or 600, Env-Sw 900, or Env-Sw 2100. Further, acceptance criteria and sampling requirements vary by receiving facility and waste, and this scope was not designed to fulfill those requirements.***

## Sampling and Analysis Approach

The sampling and analysis approach is detailed in three sections:

- PFAS impacts in the Middle and Southern Segments;
- Potential residual diesel fuel and motor oil impacts from a 1998 spill near Wire Road; and
- Potential asbestos in fill in the Southern Segment Work Area.

---

4 "Preliminary Design Plans, F.E. Everett Corridor Widening, NH Project No. 13761, US 3 NB & SB Mainline (Exit 8 to I-293)" prepared by CHA Consulting, Inc. for the NHDOT, progress set dated March 28, 2019.

5 Draft Test Boring Reports, Nashua-Merrimack-Bedford, F.E.E.T. Widening – Middle Segment, prepared by the NHDOT Materials & Research Bureau – Geotechnical Section. Borings N-B018 through M-B7009.

6 Supplementary preliminary design information emails, sent from the NHDOT Bureau of Highway Design - Roadway Design to Sanborn Head on March 26, 2020. Provided in Reference Materials Attachment C.

7 Supplementary preliminary design information email and attachments, sent from the NHDOT Bureau of Highway Design - Roadway Design to Sanborn Head on April 14, 21, and 22, 2020. Provided in Reference Materials Attachment C.

8 Southern Segment Historical Fill Areas for Asbestos Considerations, sent from the NHDOT Bureau of Environment to Sanborn Head on March 10, 2020. Provided in Reference Materials Attachment C.

### *PFAS - Middle and Southern Segments*

Key environmental media will be sampled and analyzed, as outlined below. The ability to collect samples using the below-described methods may be affected by steep slopes, vegetation, wet areas, hard or frozen ground, shallow rock, thick ice, or other conditions. While the proposed methods are adaptable and account for some hard ground and winter conditions, some samples may not be collected if conditions make it infeasible using the proposed methods.

| | |
|---|---|
| **Limited Reuse Soil (LRS)** | **Description:** LRS is considered topsoil adjacent to roadway surfaces on property under the control of the NHDOT. In instances where topsoil is not present, LRS can be expected to be encountered in soil from the top of ground to a depth of six (6) inches.<br><br>**Considerations for construction:** Regardless of potential PFAS impacts, LRS require special management.<br><br>**Sampling Approach:** Shallow soil samples (e.g., 0 – 6 inches below ground surface [bgs]) will be collected using direct-push sampling methods. Samples will be analyzed for PFAS in soil, PFAS by Synthetic Precipitation Leaching Procedure (SPLP), and soil properties related to leaching, with a subset of 3 samples used in the column leaching study. |
| **Vadose Zone Soil** | **Description:** Soils which are not LRS and which are above the water table (i.e., do not contain free-draining water).<br><br>**Considerations for construction:** Vadose zone soils may be excavated and placed at a receiving location. At the receiving location, rain may infiltrate these soils and leach PFAS to groundwater.<br><br>**Sampling Approach:** Soil samples will be collected using direct-push sampling methods. Steep terrain, vegetation, rock, rocky fill, or other hard materials may inhibit the ability for sampling using these methods. Samples will be analyzed for PFAS in soil, PFAS by Synthetic Precipitation Leaching Procedure (SPLP), and soil properties related to leaching, with a subset of 9 samples used in the column leaching. |
| **Saturated Soil** | **Description:** Soils which are at or below the water table (i.e., contain free-draining water).<br><br>**Considerations for construction:** Saturated soils may be excavated and placed in a receiving location. At the receiving location, saturated soils may leach PFAS-containing pore water, and rain may infiltrate the soils and leach PFAS to groundwater.<br><br>**Sampling Approaches:** Based on review of available preliminary design information and available water level information, the areas with greatest anticipated volume of saturated soil cut are at proposed BMP locations and roadwork adjacent and within wet areas. To assess the potential for leaching of PFAS from saturated soil, saturated soil samples will be collected at BMP sampling locations where groundwater is encountered within 15 feet of the ground surface. A saturated soil sample will also be collected from the Wet Area boring located at the Baboosick Brook Bridge. Samples will be analyzed for PFAS in soil, PFAS by Synthetic Precipitation Leaching Procedure (SPLP), and soil properties related to leaching. We do not propose including the saturated soil in the column leaching study because groundwater is likely reflective of porewater concentrations in saturated soil. |
| **Muck** | **Description:** Soils which are fine-grained and/or highly organic and are covered, or sometimes covered, with surface water. Muck typically contains free-draining water. |

| | |
|---|---|
| | **Considerations for construction:** Muck may be excavated and placed in a receiving location. At the receiving location, the material may leach PFAS-containing pore water, and rain may infiltrate the muck and leach PFAS to groundwater.<br><br>**Sampling Approach:** Muck samples will be collected using hand tools. Samples will be analyzed for PFAS in soil, PFAS by Synthetic Precipitation Leaching Procedure (SPLP), and soil properties related to leaching, with a subset of 3 samples used in the column leaching study. |
| **Groundwater** | **Description:** Water below the ground surface. For the purpose of this work, groundwater refers to water which may enter through the walls or floor of an excavation.<br><br>**Considerations for construction:** Pumped groundwater may need to be managed by discharge to sewer, groundwater, or surface water. Discharge permits may include criteria for PFAS.<br><br>**Sampling Approach:** Groundwater samples will be collected as grab samples using manually driven well points or temporary monitoring wells installed using a direct-push drilling rig. Rock, rocky fill, or other hard materials may inhibit the ability for sampling using these methods. |
| **Surface Water** | **Description:** Water above the ground surface. For the purpose of this work, surface water refers to water which is above the ground surface prior to excavation.<br><br>**Considerations for construction:** Pumped surface water may need to be managed by discharge to sewer, groundwater, or surface water. Discharge permits may include criteria for PFAS.<br><br>**Sampling Approach:** Surface water samples will be collected as grab samples or using a peristaltic pump with tubing intake set at the midpoint of the water column. |
| **Rock and Boulders** | **Description:** Rock and boulders.<br><br>**Considerations for construction:** Rock and boulders will be managed separately during construction. Aside from segregating rock and boulders from soil and removing soil from the rock and boulder surfaces, we do not anticipate special management will be needed for rock and boulders because they do not present leaching concerns.<br><br>**Sampling Approach:** No sampling required. |

A composite sampling approach was selected for soil and muck sampling. Construction activities tend to homogenize soils during excavation, transport, and placement, so composite sampling better reflects that process. Additionally, the SGPP offsite soil data suggested large ranges of PFAS concentrations in soil samples collected over relatively small areas, so composite sampling provides a mechanism for analyzing fewer samples while still providing a greater degree of areal coverage and higher confidence level regarding the average concentration and leaching properties of the sampled soil volume. Therefore, we consider the composite sampling (as opposed to the same number of discrete grab samples) to be more representative of overall, relative risk associated with excavation and placement of large volumes of soil from within the Project area.

Sampling locations were selected to inform soil and groundwater management during the following construction activities:

- Excavating limited reuse soil (LRS);

- Road boxing (i.e., excavating existing material for placing subgrade for widening areas);
- Berm cuts (i.e., net cut areas beyond those included in the road boxing);
- Roadway reconstruction resulting in soil cut beneath existing pavement;
- Dewatering and excavation of muck at areas near surface water or with presumed shallow groundwater;
- Installation of stormwater best management practices features (BMPs) and vegetated treatment swales (VTSs);
- Excavation at bridge abutments and culvert replacements; and
- Excavation for other infrastructure foundations (e.g., soundwalls, signs).

Overviews of the proposed PFAS sampling areas are provided as Reference Materials Figures 1A and 1B, and sampling areas with preliminary design information are indicated on Reference Materials Figures 2A through 2N. For sampling requiring drill rig access, areas with heavy vegetation, steep slopes, or narrow areas between the existing guardrail and steep slopes were avoided. While the proposed sampling locations target more accessible areas, some locations may be relocated or not collected based on field conditions.

### LRS and Road Boxing (18 LRS soil samples and 18 vadose zone soil samples)

Soil cut volumes and sample stationing associated with road boxing are provided in Reference Materials Table 1. Areas where berm cut samples will be collected are shown on Reference Materials Figures 2A through 2N. LRS and road boxing soils will be collected from the same borings, and these borings will be located at varying distances up to fifteen feet from the existing edge of pavement (i.e., the approximate, typical width of the road box beyond the existing edge of pavement). LRS soil will be collected from the topsoil, or where topsoil is not present, it will be from the top six inches of soil. The road boxing soil will be collected from between the bottom of LRS to three feet below ground surface, or where topsoil is present at greater than three feet, the boring will be advanced to the bottom of topsoil and only LRS soil will be collected. Three feet below ground surface was selected as it is a typical or average depth of cut below the ground surface in areas with road boxing. We anticipate soils at these locations will be LRS and vadose zone soil.

The boring locations were selected to provide spatial coverage and to sample areas with relatively large amounts of soil cut. Borings are grouped into sets of eight; LRS soil and road boxing soil from each set of borings will be combined to constitute the LRS and road boxing composite samples for laboratory analysis.

### Berm Cuts (8 vadose zone soil samples)

Soil cut volumes and sample stationing associated with berm cuts are provided in Reference Materials Table 1. Berm cuts occur in areas where there is a net soil cut, so sample areas will be based on the net cut areas indicated on the preliminary design cross sections. Areas where berm cut samples will be collected are shown on Reference Materials Figures 2A through 2N. The boring locations were selected to provide spatial coverage and to sample areas with relatively large amounts of soil cut. Borings are grouped into sets of eight, and soil from the eight borings at each sample area will be combined as a composite sample for laboratory analysis. Actual boring locations and depths will be selected in the field based on drill-rig

accessibility to collect soil from depths corresponding with cut depths indicated on the preliminary design cross sections.

### Roadway Reconstruction (4 vadose zone soil samples)

Based on discussions during the July 2018 meeting with the NHDOT and the NHDES, unsaturated soils below long-present impervious cover (e.g., below the existing asphalt pavement) are assumed to be unimpacted by aerial deposition of PFAS. As part of the sampling completed for the Northern Segment, three soil samples were collected from below existing pavement and analyzed for PFAS. PFAS were not detected in those samples. Leaching tests (e.g., SPLP) were not completed on those samples.[9]

To supplement the Northern Segment data, borings below existing pavement are proposed at three areas where the NHDOT indicated roadway reconstruction may result in extensive soil cut below the existing pavement.[10] The sampling areas are located near Stations 825, 1062, and 1080, as shown on Reference Materials Figures 2B, 2I, and 2J, respectively. In addition, a fourth sampling area is included in this scope to resample the below existing pavement area previously sampled at the Northern Segment for collection of samples for SPLP analysis.

Three borings will be completed at each sampling area, and the soil from the three borings will be combined as a composite sample for laboratory analysis. The soil borings will be located approximately 50 feet apart and in the asphalt shoulder, with soil collected between approximately 0 to 3 feet below the bottom of existing pavement. If insufficient material for sampling is recovered at a depth of 3 feet below the bottom of pavement, the boring will be further advanced to collect additional sample.

### Wet Area Dewatering and Muck Excavation (13 muck, 13 surface water, 4 groundwater, 1 vadose zone soil, and 1 saturated soil samples)

Dewatering and muck excavation areas were identified based on the presence of surface water or wetlands indicated on the preliminary design drawings. We have termed these "wet areas". Thirteen sample locations were selected to target areas where proposed cut/fill occurred near or within wet areas and to provide spatial coverage across the Project area.

Muck samples will be collected as a composite of eight subsamples of the top six inches of soil or sediment present at the wet area sample locations. The muck samples will target highly organic materials and we anticipate the muck samples will be saturated. At locations where wet areas on opposite sides of the highway are connected by a pipe or drain (i.e., at Stations 790, 816, 960, 1072, 1088, 1095, and 1185), muck subsamples from the two connected locations will be combined into a single composite sample.

---

[9] We requested the laboratory perform SPLP analyses on these soils after recognizing that SPLP was a more sensitive analysis for detecting PFAS in soil; however, this request was made after the samples were disposed of by the laboratory so the analyses could not be completed.

[10] Supplementary preliminary design information email and attachments, sent from the NHDOT Bureau of Highway Design - Roadway Design to Sanborn Head on April 21, 2020. Provided in Reference Materials Attachment C.

Surface water and groundwater samples will be collected from the downstream/ downgradient side of the road. These samples are also intended to be indicative of the water quality conditions on the upstream/upgradient side of the road. The thirteen surface water samples will be collected as grab samples. At three locations (Wet Areas 1072, 1088, and 1095), groundwater samples will be collected from temporary wells installed across the apparent water table using direct-push drill methods. At one of these locations (Wet Area 1088), a vadose zone sample and a saturated soil sample will be collected because the Baboosick Brook Bridge replacement involves substantial soil cut. The temporary wells will be decommissioned after sampling. At a fourth location (Wet Area 960), a manually installed well point will be installed to collect a groundwater sample. Like the temporary wells, the well point will be sampled at the same time as installation.

### Stormwater BMPs (11 vadose zone soil samples, and up to 11 saturated soil and 11 groundwater samples)

One soil boring is proposed at ten of the approximately 18 stormwater BMP locations identified in preliminary design information provided by the NHDOT. The locations were selected to provide spatial coverage across the Project area. A composite soil sample will be collected from across the vadose zone soil (i.e., between approximately six inches below ground surface and the water table). If groundwater is encountered within 15 feet of the ground surface, a saturated soil sample will be collected and a groundwater sample will be collected from a temporary well installed across the apparent water table at each soil boring. The temporary well will be decommissioned after sampling. The samples from the selected BMP locations will be used to characterize soil and groundwater concentrations at nearby BMPs that were not targeted for sampling (e.g., samples collected from BMP 821 will be used to characterize soil and groundwater at BMP 814).

In addition, one soil boring is proposed at one of the approximately 25 VTS areas identified in preliminary design information provided by the NHDOT. The proposed VTS at Station 1050 are oriented away from the roadway and adjacent to a wet area at Station 1048. The vadose soil sample and possible saturated soil and groundwater samples will be collected in the same manner as described for the BMP location. The other approximately 24 proposed VTSs are generally located adjacent and parallel to the edge of the roadway; therefore, LRS and road boxing samples will be used to characterize the soil at nearby VTSs.

### Bridges and Large Culverts (no additional samples)

Information regarding likely construction methods and cut volumes for bridges and large culverts was provided by the NHDOT.[11] For the bridge replacement and large culvert locations, drill rig access is limited due to steep slopes and other factors. Based on the proximity of these locations to proposed sampling locations at BMPs and wet areas, we do not propose collecting additional samples at these locations. We will use samples from adjacent BMP and wet area locations to characterize soil, groundwater, and surface water, at the bridge and large culvert locations, as summarized below.

[11] Supplementary preliminary design information email and attachments, sent from the NHDOT Bureau of Highway Design - Roadway Design to Sanborn Head on April 22, 2020. Provided in Reference Materials Attachment C.

Pennichuck Brook Bridge Replacement at Station 816 (~2,700 CY cut)
We propose to collect muck and surface water samples from Pennichuck Brook, and vadose zone soil, saturated soil, and groundwater samples at BMP 821. The muck samples will be collected from the top of the riverbank, as feasible, and the boring at BMP 821 will be installed as close to the bridge as feasible.

Naticook Brook Culvert Replacement at Station 960 (~1,500 CY cut)
We propose to collect muck, groundwater, and surface water samples at this wet area, and vadose zone soil, saturated soil, and groundwater samples from BMP 975.

Baboosic Lake Road Bridge Replacement at Station 1052 (~4,300 CY cut)
We propose to collect vadose zone soil, saturated soil, and groundwater samples at VTS 1050 and BMP 1052.

Large Culvert Replacement at Station 1072 (~125 CY cut)
We propose to collect muck, groundwater, and surface water samples at this wet area location, and vadose zone soil, saturated soil, and groundwater samples from BMP 1080.

Wire Road Bridge Replacement at Station 1082 (~2,800 CY cut)
We propose to collect vadose zone soil, saturated soil, and groundwater samples at BMP 1080, muck and surface water samples from Baboosic Brook at 1083, and box cut and berm cut soil samples at Wire Road Station 3721.

Baboosic Brook Bridge Replacement at Station 1088 (~6,300 CY cut)
We propose to collect vadose zone soil, saturated soil, muck, groundwater, and surface water samples at this wet area location.

Large Culvert Replacement at Station 1185 (no additional cut)
We propose to collect muck and surface water samples at this wet area location.

### Other Infrastructure Foundations (1 vadose zone soil sample)

Plans provided by the NHDOT indicate other infrastructure requiring foundations will be installed throughout the project area.[12] Infrastructure requiring foundations include overhead sign structures (OHSS), soundwalls, and intelligent transportation systems (ITS). Compared with soil cut volumes associated with other construction work for this Project, these individual foundations result in relatively small volumes of cut soil. Considering the relatively small volume of soil cut associated with these foundations and areal coverage provided by soil sampling for other activities, the only "other infrastructure" sampling area proposed is for the soundwalls located on the Northbound and Southbound sides of the roadway between the roadway widening areas of the Middle and Southern Segments. The "Sound Wall 925 SB" sampling area is indicated on Reference Materials Figure 2E. Similar to

[12] Supplementary preliminary design information email and attachments, sent from the NHDOT Bureau of Highway Design - Roadway Design to Sanborn Head on April 14, 2020. Provided in Reference Materials Attachment C.

the berm cut borings, actual boring locations and depths will be selected in the field based on drill-rig accessibility to collect vadose zone soil from depths corresponding with foundation cut depths indicated on the soundwall plan cross sections.

### PFAS Analytical

A table of PFAS-related analyses sample counts is provided below. The PFAS analyses are grouped by sample media, where aqueous samples are groundwater and surface water samples, and the solids analyses and column testing are for vadose zone soil, saturated soil, and muck samples.

| Activity | Number of Sampling Areas | Sample Count | | |
|---|---|---|---|---|
| | | Aqueous Analyses[1] | Solids Analyses[2] | Column Testing[3] |
| Limited reuse soil (LRS) | 18 | - | 18 | 3 |
| Road boxing | 18 | - | 18 | 3 |
| Berm cuts | 8 | - | 8 | 3 |
| Roadway reconstruction | 4 | - | 4 | - |
| Wet areas | 13 | 17 | 15 | 3 |
| Stormwater BMPs and VTSs | 11 | 11 | 22 | 3 |
| Bridges and large culvert replacements | - | - | - | - |
| Other infrastructure foundations | 1 | - | 1 | - |
| Equipment/apparatus blanks[4] | NA | 6 | - | 1 |
| | Total | 34 | 86 | 16 |

1. PFAS by isotope dilution and LC/MS/MS.
2. PFAS by isotope dilution and LC/MS/MS, U.S. Environmental Protection Agency (USEPA) Method 1312 SPLP with analysis for PFAS by isotope dilution and LC/MS/MS, soil pH, total organic carbon, and grain size analysis.
3. Samples submitted for column leaching tests. The aqueous leachate sample collected from the column leaching tests will be submitted to the laboratory for analysis of PFAS by isotope dilution and LC/MS/MS.
4. Equipment/apparatus blank samples will be collected at a frequency of 1 per 20 field samples by pouring an aliquot of PFAS-free water over the sampling equipment and collecting the rinseate in a sampling container. An equipment/apparatus blank sample will be collected for each sample media type as feasible.

For PFAS analyses, the laboratory will use isotope dilution and LC/MS/MS for a 25-analyte list, as specified in the NH DAS Lab Contract Section 4 analyte list. This analyte list includes the analytes reported as detected in the SGPP 2019 Annual Groundwater Monitoring Summary[13] except for GenX acid and EtFOSA, which were only detected at relatively low concentrations. GenX acid and EtFOSA were included in the analyte list for the Northern Segment sampling but were not detected.

For soil and muck samples, analysis of the Northern Segment data found that reporting limits in soil for PFAS are relatively high compared with the ability to detect PFAS in the aqueous leachate collected from either SPLP or column leaching tests. Sanborn Head will request that the laboratory report detections of PFAS solids for both values detected above the laboratory reporting limit, and qualified values which fall below the laboratory reporting limit and above the method detection limit. This approach will provide additional information for

[13] "2019 Annual Groundwater Monitoring Summary, SGPPP", prepared by Golder Associates Inc. for SGPP Corp., dated March 18, 2020.

comparing concentrations in soil with concentrations detected using SPLP or the column testing.

As indicated in the table notes above, vadose zone soil, saturated soil, and muck samples will be analyzed for PFAS via two methods: the regular soil analysis and the SPLP leaching test. The SPLP test provides aqueous concentrations which are helpful in understanding potential PFAS leachability from soil. The SPLP also typically allows for greater sensitivity in detecting PFAS in soils. In addition to SPLP, the samples will be analyzed for soil pH, total organic carbon (TOC), and grain size. These other analyses are included because they have been identified in the literature as important factors for considering PFAS leachability for soil.

Fifteen vadose zone soil and muck samples and one equipment/apparatus blank will be submitted to XDD Environmental, LLC of Stratham, NH (XDD) for column leaching tests. Column leaching test methodology was developed by XDD and Sanborn Head for the Northern Segment to provide site-specific leaching test that more closely approximates field conditions, as compared to the standardized SPLP. While the SPLP uses a relatively high water-to-soil ratio of 20:1 and an aggressive mixing process, the column testing is a closer simulation of soil excavation and placement with subsequent rainfall infiltration. The leachate collected from the column study is considered reflective of "first flush" vadose zone pore water concentrations prior to further dilution. XDD will provide the leaching test methodology and results in a brief memo for inclusion in the Data Report and Conceptual SGMP for this work.

***Wire Road Petroleum Spill (3 soil samples and up to 1 groundwater sample)***

Three borings are proposed in the area of the Wire Road Spill. The spill occurred within the area of the Wire Road bridge column supports on the Northbound side of the road,[14] so one boring is proposed at the front column (i.e., the southwestern column). Two other borings will be advanced at five and ten feet from the front column. Borings will be completed to either fifteen feet below ground or to the water table, whichever is shallower (groundwater was found at approximately 5 feet below ground surface at a nearby NHDOT boring). Soils will be screened with a photoionization detector (PID). One sample will be collected per boring from either a soil interval with observable petroleum impacts (e.g., staining or odor) or from the soil interval with the greatest PID measurement. If petroleum impacts are observed at the water table during drilling, a groundwater sample will be collected from a temporary well installed across the apparent water table at each soil boring. The temporary well will be decommissioned after sampling.

Up to three soil and one groundwater samples collected at the Wire Road Spill area will be analyzed for parameters recommended by the NHDES for diesel and waste oil contaminated

[14] "Petroleum Discharge Incident Report, Site 199810026" by the NHDES, dated October 14, 1998. The report indicated that a box trailer accident resulted in the spill of approximately 130 gallons of diesel fuel and 25 gallons of motor oil, antifreeze, and hydraulic fluid. The spill was largely cleaned up, but there was a note that additional contamination may be encountered during repair of the bridge supports. Follow-up communications regarding the results of the bridge work or residual contamination were not available.

sites.[15] For soil, the analyses are the NHDES's full list of volatile organic compounds (VOCs) with methanol preservation, PAHs, total petroleum hydrocarbons (TPH) as Fuel Oil, and RCRA 8 metals. We also propose planning for possible toxicity characteristic leaching procedure (TCLP) extraction paired with a RCRA 8 metals analysis for these three soil samples. TCLP may be used if the concentration of a metal in soil is greater than twenty times its hazardous waste regulatory threshold. For groundwater, the analyses are the NHDES's full list of VOCs and PAHs (field-filtered sample for PAH analysis).

### *Potential Asbestos-Containing Fill (up to 16 soil samples)*

In the 1950s to 1970s, the Johns Manville Corporation, an asbestos manufacturing company, was known for providing free fill that included asbestos-containing material (ACM) in the Nashua, Hudson, and Tilton areas. Several areas in the Southern Segment, which is located partially in Nashua, were filled circa 1954.[16] These potential asbestos-containing fill areas are indicated on Reference Materials Figures 2A through 2N.

Box cut sampling areas near Stations 782 NB and 840 SB are located in potential asbestos fill areas and we propose collecting samples for asbestos analyses from the box cut borings in these areas. At each of the borings within these sampling areas, at least one sample will be collected for analysis of asbestos using transmission electron microscopy (TEM). Our field team will include staff trained in identification and sampling of ACM in soil with current NHDES ADS Worker certification. Asbestos absence or presence cannot be determined without laboratory analysis, but training and experience do allow for identification of suspect ACM. If suspect ACM is identified at a boring, Sanborn Head personnel will wet the sample to reduce potential release of fibers and submit it to the laboratory for analysis. If no suspect ACM is observed at a boring, a sample will be collected from the apparent fill layer for laboratory analysis. If no suspect ACM is observed at four consecutive borings, then only one of the four samples may be submitted for laboratory analysis.

Because a known asbestos disposal site (ADS) has not been identified within the project area, we assume fulltime use of respirators will not be required. However, trained personnel and appropriate Level C personal protective equipment (PPE) will be available if conditions warrant. Following sample collection, Sanborn Head will immediately replace the soil cuttings back into the boring, and cover with apparent non-ACM material. In the event the soil cuttings cannot be placed in the boring, the material will be wetted and sealed in double polyethylene bags for disposal by the NHDOT.

## TASK SUMMARIES

### Task 010 – Project Planning and Subcontractor Coordination

The project planning and subcontractor coordination task include:

[15] Based on the NHDES Recommended Analytical Methods for Petroleum Contaminated Sites revised January 2014 (https://www.des.nh.gov/organization/divisions/waste/hwrb/documents/matrix.pdf). This analyte list is designed for detection of petroleum impacts, and it is not designed to meet requirements for characterization for off-site treatment or disposal of contaminated soils pursuant to Env-Or 600.

[16] Southern Segment Historical Fill Areas for Asbestos Considerations, sent from the NHDOT Bureau of Environment to Sanborn Head on March 10, 2020. Provided in Reference Materials Attachment C.

- Site access and coordination with the NHDOT. The traffic control subcontractor will prepare and submit traffic control plans and secure permits from the NHDOT for the work (see Task 020). However, Sanborn Head will lead the overall coordination of scheduling the field work, including communications with the subcontractors and the NHDOT.
- Field preparation. Prior to the field work, we will prepare field forms, supporting information for the field events, and coordinate with the laboratory(s) to identify analytical specifications and bottle orders. We understand laboratory analyses will be contracted through the State of NH via their Department of Administrative Services PFAS laboratory analytical services contract (NH DAS PFAS Lab Contract). Sanborn Head will still be the point-of-contact for the analytical laboratory and significant, direct coordination and communication with the laboratory(s) is essential for successful completion of this project scope.
- Subcontractor selection and authorizations to proceed. We will write separate authorizations to proceed for the traffic control subcontractor and the drilling subcontractor.
- Column leaching test coordination. We plan to work with XDD to complete bench-scale column leaching studies for soil and muck samples as described above. Coordination will include work plan review and an authorization to proceed letter.

**Task 020 – Field Work**

The field work task includes:

- Pre-marking sample locations for Dig Safe. Pre-marking will require coordination with traffic control and marking each boring location with either grade-stakes or flags. During pre-marking, borings will be sited based on drill-rig accessibility and traffic control considerations. We anticipate some of the proposed locations indicated on the figures will be modified accordingly.
- Surface water, muck, and well point sampling. We anticipate completing surface water and muck sampling as a separate field sampling effort. This sampling will require coordination with traffic control but will not require the use of a drill rig.
- Soil and groundwater sampling. Soil and groundwater sampling will be completed with the support of traffic control and drilling subcontractors. Based on this drilling scope being approximately four-times that of the Northern Segment, we anticipate the soil and groundwater sampling will be completed in 16 working days, assuming working hours along the roadway will be limited to 9:00 am to 3:00 pm. If work is limited to four days of drilling per week (e.g., to avoid heavy traffic days or inclement weather), then we anticipate approximately four weeks of drilling.

In addition to the Sanborn Head labor associated with completing the above-described work, subcontractor and direct expenses are included in this task. The subcontractor items in this task are traffic control, drilling, and column leaching tests. Sanborn Head direct expenses are field equipment (e.g., groundwater sampling equipment, PID) and mileage/tolls. Laboratory analytical costs for PFAS-related analyses (i.e., PFAS, SPLP, soil pH, total organic carbon, and grain size analysis) are not included in this Work Plan and payment will be coordinated by

the NHDOT via the NH DAS PFAS Lab Contract. Laboratory analytical for the Wire Road Petroleum Spill and Potential Asbestos-Containing Fill are included in this task.[17]

We assumed the traffic control scope, which will be completed by the subcontractor, will consist of the following tasks:

- Preparation of traffic control plans to support the soil boring and sampling work – these will be submitted to the NHDOT for review and approval;
- Right shoulder closure crew, truck, signage, and drums/cones;
- Either a uniformed traffic officer or an impact attenuator;
- Items not included: message boards, additional crews.

**Task 030 – Data Reports and Conceptual SGMPs**

Sanborn Head will prepare a total of four Data Reports and Conceptual SGMPs (one per construction contract) that summarize the results of the sampling, analysis, and leaching tests and provide conceptual plans, spreadsheets, and narratives for soil and muck management approaches. The intent of the Data Reports and Conceptual SGMPs will be to provide information for each construction contract area for preparation of the Slope and Drain plans, which will be prepared by MJ or their subconsultants. The Conceptual SGMPs will focus on establishing vertical and horizontal extents of PFAS impacts to categorize earthwork activities and areas according to PFAS contamination levels. Additionally, the plans will include consideration of LRS. The Southern Segment Conceptual SGMP will also consider management of asbestos-containing fill, if needed. While the Conceptual SGMPs will provide information at a resolution of approximately 100-foot increments, the resolution of the over-arching PFAS contamination categories will be much coarser due to the practical and budgetary limitations on the number of PFAS samples that can be collected and analyzed, and the inherent variability in PFAS concentrations in environmental media. The Conceptual SGMPs will not include proposed management options for groundwater and surface water. We anticipate that the report will include:

- Summary of work completed;
- Summary of sampling and analytical results and findings of the leaching tests;
- Tabulated summaries of analytical data;
- Figures with sample locations;
- Field sampling summary forms, boring logs, and chain of custodies;
- Copies of the analytical laboratory data reports and the leaching test memo;
- Plans and spreadsheets presenting the anticipated limits of soil, groundwater, and surface water contamination;
- A narrative describing conceptual soil and muck management approaches; and
- A water well map and table that will indicate the following information for each property within 1,000 feet of the NHDOT's right-of-way, if available: tax map and lot

[17] Three soil samples for NHDES's full list of VOCs, PAHs, TPH as Fuel Oil, RCRA 8 metals, and contingent TCLP extraction for RCRA 8 metals; one groundwater sample for NHDES's full list of VOCs and PAHs (field-filtered sample for PAH analysis); up to sixteen soil samples for asbestos using transmission electron microscopy for reporting limits down to 1% asbestos.

number, land use, water supply wells with owner's name and mailing address, and whether there is a connection to public water or not.[18]

We have included six two-hour meetings in this task for meetings with the Consultant Team, the NHDOT, and/or the NHDES. We anticipate four of these meetings will be used to discuss the field data and preliminary soil management alternatives, one for each of four construction contracts. The other two meetings are planned for discussing project-wide considerations. Rather than providing meeting minutes, discussion from the meetings will be reflected in the Data Reports and Conceptual SGMPs. Draft Data Reports and Conceptual SGMPs will be provided to NHDOT for review and comment. After addressing comments from the NHDOT, the Data Reports and Conceptual SGMPs will be provided to the NHDES for their review. We have assumed that Sanborn Head will prepare one round of updates after the NHDOT comments are received and one round of updates after the NHDES comments are received, and then we will submit the final reports to the NHDOT and the NHDES in pdf format.

**Task 040 – Contamination-Related Construction Documents**

For each of the four construction contract areas, Sanborn Head will complete a Draft SGMP and a Final SGMP. The Draft SGMPs will be based on non-final design information and proposed soil reuse plans provided by MJ, and the Final SGMPs will be based on the Final Project Designs. We anticipate that construction will require management of soils, groundwater, and surface water that is impacted by PFAS or other contaminants that may be identified during this sampling and analysis work. In addition to the Draft SGMPs and Final SGMPs, the scope of services described under this task includes 1) Participating in project meetings; 2) Coordinating with municipalities and State/Federal agencies to identify regulatory requirements and permitting options; 3) Preparing construction documents; and 4) Preparing an ADS Work Plan.

***Construction Documents Meetings***

We have developed this task as an allowance for preparing and planning for, participation in, and documentation of additional meetings with the NHDOT and Consultant Team, and other stakeholders (e.g., municipalities, the NHDES), as applicable. For budgeting purposes, we assumed that Sanborn Head will attend four two-hour meetings for each of the four construction contracts (i.e., sixteen total meetings). We will also participate in additional telephone calls and email communication as may be required. We anticipate preparing formal meeting minutes for four of these sixteen meetings. For the meetings without formal meeting minutes, discussion from the meetings will be reflected in the Draft and Final SGMPs. These meetings are separate from and not redundant with the six meetings described in Task 030 and the four project management meetings described in Task 050.

[18] Water supply well information will be obtained from NHDES's OneStop Data Mapper. Public water connection information will be requested from the Merrimack Village District and Pennichuck Corporation. The proposed 1,000-foot distance is based on the NHDES's potential receptor map requirement for site investigation conceptual models (Env-Or 606.07(d)) and is more conservative than the 500-foot distance from the GMZ boundary required for groundwater management permit applications (Env-Or 607.03(a)(7)).

### *Municipality and Agency Coordination*

We will work with the NHDOT and with municipalities, the NHDES, and the USEPA as necessary to identify regulatory requirements and to screen alternatives for soil and groundwater management. We anticipate the coordination efforts may include communications with facilities that may accept excess cut soils from the Project area. Also, we anticipate coordination with municipalities, the NHDES, and/or the USEPA to identify feasible dewatering discharge options. Potential options for management and disposal of dewatering liquids may include:

- Pretreatment (e.g., to remove sediment) followed by discharge to the municipal sewer in accordance with a permit obtained from the authorized municipality;
- Treatment followed by on-site discharge to groundwater under a NHDES Temporary Groundwater Discharge Permit;
- Treatment followed by surface water discharge under a site-specific or general permit issued by the USEPA through the National Pollutant Discharge Elimination System (NPDES) Program; or,
- Storage of the dewatering liquid in a fractionation tank (frac tank), with treatment/disposal of dewatering liquids at an off-site location.

We assume this work will screen alternatives for inclusion in the construction documents and will not include any work in support of permit applications. We understand permit applications will be the responsibility of the construction contractor(s).

### *Construction Document Preparation*

Sanborn Head will use the data collected under this Work Plan to inform development of contamination-related construction documents. Separate construction documents are required for each of the four construction contracts: the Southern Segment, the Wire Road and Baboosic Lake Road Overpass Bridges, the Middle Segment Southern Portion, and the Middle Segment Northern Portion. For each contract, a set of the following documents will be prepared:

- Soil and Groundwater Management Plan (SGMP); the Draft SGMP will be based on non-final design information and the Final SGMP will be based on the Final Design. The SGMP documents will entail the following elements:
    - Anticipated limits of known soil, groundwater, and surface water contamination. The water well map information compiled for the Conceptual SGMP will also be incorporated into the SGMP documents. While Sanborn Head will provide information in the SGMP about the vertical and horizontal limits of contamination, calculation of volumes of soil and dewatering liquids that need to be managed is outside the scope of this work plan. We anticipate these volume calculations will be completed by MJ or other subconsultants;
    - Site-specific management procedures for contaminated soils, groundwater, and surface water, including reuse strategies for LRS and PFAS soils; and
    - Contingency plans for management of unanticipated, potentially contaminated soils, groundwater, and surface water, if encountered.
- Prosecution of Work; the Prosecution of Work provides an overview description of Project contamination-related issues, general requirements for the construction

contractor, and references to the more detailed SGMP and Special Provisions for the POP.

- Special Provisions for the POP; the Special Provisions for the POP may include provisions for specifying applicable codes and permits, construction requirements, methods of measurement, and basis of payment for management of contaminated soils, groundwater, and LRS.

For the Draft SGMP, Final SGMP, Prosecution of Work, and Special Provisions for the POP, the documents will be provided to the NHDOT and the NHDES for review and comment. For budgeting purposes, we have assumed that Sanborn Head will prepare one round of updates per submittal based on comments received from NHDOT. We also assumed one round of updates for the NHDES comments on the Draft SGMP and one round of updates for the NHDES comments on the Final SGMP. We will submit the final construction documents to the NHDOT and the NHDES in pdf format.

### *ADS Work Plan*

In the event that asbestos-containing soil is identified within the Southern Segment following the results of the asbestos sampling outlined in this Work Plan, Sanborn Head will prepare a project-specific Asbestos Disposal Site (ADS) Work Plan for approval by the NHDES to comply with the state asbestos regulations outlined in Env-Sw 2100. The ADS Work Plan will include the information required by the regulations for a Project-Specific Work Plan as summarized in Env-Sw 2106.04 Project-Specific Work; Content including: contact information for the "qualified individual" (as defined in Env-SW 2102.20), project description, contact information for entity responsible for initiating the project, proposed project schedule, summary of work to be completed, required qualifications and training for project personnel, health and safety procedures for handling of asbestos-contaminated soils during construction, and project notifications and reporting. The ADS Work Plan, if needed, will become part of the construction documents for the Project and be included as an attachment to the Southern Segment SGMP. Sanborn Head is qualified to prepare the ADS Work Plan as an ADS-Licensed Contractor (License # SC-10016) with several individual ADS Certified Workers.

In estimating the level of effort required for the ADS Work Plan, we have assumed that the volume of asbestos-contaminated soil in the project area is very limited such that any asbestos-contaminated soil will be able to be disposed of off-site at the City of Nashua's Four Hills Landfill which is permitted to receive asbestos contaminated material. We have not included costs for engineering needed for design of permanent on-site asbestos disposal sites within the right-of-way, nor have we included costs for proposing a waiver from NHDES to allow on-site disposal. We can provide such services if needed as an additional service.

## Task 050 – Project Management

This task includes required project management responsibilities and routine communication with MJ and the NHDOT regarding project management issues, including scheduling, preparation and submittal of invoices, and project status updates. We understand NHDOT standardized invoicing forms may be required. Two Sanborn Head personnel will also attend four, two-hour Project Management Meetings as part of this task. Sanborn Head will not be responsible for preparing meeting minutes for the Project Management Meetings.

Reference Materials:

- Table 1: Volume Estimates and Proposed Sample Stationing
- Table 2: BMP, VTS, and Wet Area Sampling Locations
- Table 3: PFAS Analyte List Comparison
- Figures 1A and 1B: PFAS Sampling Location Overviews
- Figures 2A through 2N: Proposed Sample Locations
- Attachment A: Summary of SGPP Offsite Data
- Attachment B: Northern Segment Data
- Attachment C: NHDOT Provided Information

P:\4400s\4421.03\Source Files\202004 SA Work Plan\202006 13761 MS Seg Sampling WP RLSO.docx

# ATTACHMENT A

Special Contract Provisions for COVID-19

The CONSULTANT acknowledges and agrees that this AGREEMENT was entered into following the coronavirus disease 2019 (COVID-19) outbreak. The CONSULTANT agrees that to the extent the COVID-19 outbreak, or any federal, state or local orders, regulations, rules, restrictions, or emergency declarations relating to COVID-19, disrupt, delay, or otherwise impact the Scope of Services to be performed by the CONSULTANT as set forth in Article I of this AGREEMENT, any such disruption, delay, or other impact was foreseeable at the time this AGREEMENT was entered into by the Parties and does not excuse the Contractor's performance under this AGREEMENT. The CONSULTANT agrees that any such impact, including any disruption to supply chains, workforce reductions, delays or interruptions in performance, or other effects on businesses, are not the fault of the STATE and the CONSULTANT may not seek damages against the STATE for any such impacts.

If the CONSULTANT experiences or anticipates any such COVID-19-related impacts to this AGREEMENT, the CONSULTANT shall immediately notify the DEPARTMENT'S Contract Manager. In the event of any COVID-19-related impact or anticipated impact to this AGREEMENT, the Contract Manager shall have the right to temporarily modify, substitute, or decrease the services, without the approval of the Governor and Executive Council, upon giving written notice to the CONSULTANT. The STATE'S right to modify includes, but is not limited to the right to modify service priorities, including how and when services are delivered, and expenditure requirements under this AGREEMENT so as to achieve compliance therewith, provided such modifications are within the Scope of Services and cost limitations of this AGREEMENT. By exercising any of the rights described within this subsection, the STATE does not waive any of its right under this AGREEMENT.

In the event that a modification by the STATE under this subsection would result in a permanent reduction of services that cannot be supplemented during the remaining term of this AGREEMENT with either replacement or substituted services of substantially similar value, the Parties shall submit a formal amendment to this AGREEMENT with a commensurate reduction in the price. This amendment will require the approval of the Governor and Executive Council. In order to facilitate reconciliation of services performed under this AGREEMENT, the CONSULTANT shall submit weekly reports detailing the following for any service not fully performed pursuant to the terms of the AGREEMENT:

1) The services required to be performed under the terms of this AGREEMENT as written;
2) The services actually performed;
3) Any replacement or substituted services performed with reference to the associated unperformed contracted services.

*Attachment 3*

**CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS**

The CONSULTANT ☑, proposed subconsultant ____, hereby certifies that it has ☑, has not ____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Order 11246 and that it has ☑, has not ____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

McFarland-Johnson, Inc.
(Company)

By: _____

Chief Executive Officer
(Title)

Date: 02/12/2021

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1), and must be submitted by consultants and proposed subconsultants only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally, only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime consultants and subconsultants who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such consultant submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

(Revised: June, 1980) NOTE: TO BE COMPLETED BY CONSULTANT WHEN SIGNING AGREEMENT.

*Attachment 4*

**CONSULTANT DISCLOSURE STATEMENT**
**FOR PREPARATION OF**
**ENVIRONMENTAL EVALUATIONS**

I hereby affirm that I have read and reviewed the Council on Environmental Quality (CEQ) regulation [40 CFR 1506.5(C)] and related guidance issued by CEQ and that pursuant thereto this firm has no financial or other interest in the outcome of this project.

I further hereby affirm that the information provided herein is true and correct and acknowledge that any knowingly false statement or false representation as to any material part contained herein may subject me to a fine and/or imprisonment, pursuant to pertinent provisions of the United States Code.

| 02/12/2021 | |
|---|---|
| (Date) | (Signature) |

*Attachment 5*

**CERTIFICATION OF CONSULTANT/SUBCONSULTANT**

I hereby certify that I am the Chief Executive Officer and duly-authorized representative of the firm of McFarland-Johnson, Inc., and that neither I nor the above firm I here represent has:

(a) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me or the above CONSULTANT) to solicit or secure this Contract,

(b) agreed, as an express or implied condition for obtaining this Contract, to employ or retain the services of any firm or person in connection with carrying out the Contract, or

(c) paid, or agreed to pay, to any firm, organization or person (other than a bona fide employee working solely for me or the above CONSULTANT) any fee, contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the Contract:

I/WE do also, under penalty of perjury under the laws of the United States, certify that, except as noted below, the company or any person associated therewith in the capacity of (owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of Federal funds): (a) is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency; (b) has not been suspended, debarred, voluntarily excluded or determined ineligibility by any Federal agency within the past three years; (c) does not have a proposed debarment pending; and (d) has not been indicted, convicted or had a civil judgment rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.

except as here expressly stated (if any):

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, the initiating agency, and dates of action. Providing false information may result in criminal prosecution or administrative sanctions.

I acknowledge that this certificate is to be furnished to the State Department of Transportation and the Federal Highway Administration, U. S. Department of Transportation, in connection with this Contract involving participation of Federal-aid highway funds, and is subject to applicable State and Federal laws, both criminal and civil.

02/12/2021
(Date)

(Signature)

*Attachment 6*

## CERTIFICATION OF STATE DEPARTMENT OF TRANSPORTATION

I hereby certify that I am the Director of Project Development of the Department of Transportation of the State of New Hampshire, and the above consulting firm or its representatives has not been required, directly or indirectly, as an express or implied condition in connection with obtaining or carrying out this Contract, to:

(a) employ or retain, or agree to employ or retain, any firm or person, or

(b) pay, or agree to pay, to any firm, person, or organization, any fee, contribution, donation, or consideration of any kind:

except as here expressly stated (if any):

February 16, 2021
(Date)

(Signature)

*Attachment 7*

## CERTIFICATION FOR FEDERAL-AID CONTRACTS EXCEEDING $100,000 IN FEDERAL FUNDS

The prospective participant certifies, by signing and submitting this agreement, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower-tier subcontracts which exceed $100,000 and that all such subrecipients shall certify and disclose accordingly.

*Attachment 8*

IN WITNESS WHEREOF the parties hereto have executed this AGREEMENT on the day and year first above written.

**Consultant**

WITNESS TO THE CONSULTANT,

By: Paige Kingsley

Administrative Assistant

Dated: 02/12/2021

CONSULTANT

By: James M. Kato

Chief Executive Officer

(TITLE)

Dated: 02/12/2021

**Department of Transportation**

WITNESS TO THE STATE OF NEW HAMPSHIRE

By: Phyllis C. Jouvelakas

THE STATE OF NEW HAMPSHIRE

By: [illegible]

Director of Project Development

for DOT COMMISSIONER

Dated: February 16, 2021

Dated: February 16, 2021

**Attorney General**

This is to certify that the above AGREEMENT has been reviewed by this office and is approved as to form and execution.

Dated: 3/24/21

By: Allen B. Greenstein

Assistant Attorney General

**Secretary of State**

This is to certify that the GOVERNOR AND COUNCIL on _____ approved this AGREEMENT.

Dated: _____

Attest:

By: _____

Secretary of State

s:\admin\consult\master agreements\signpages(9).doc

**CERTIFICATE OF SECRETARY**
**OF**
**McFARLAND-JOHNSON, INC.**
**ATTESTING TO THE ADOPTION OF BOARD RESOLUTION**

I, Frank J. Greco, Secretary of McFarland-Johnson, Inc., certify that on March 27, 2020, at a Meeting of the Board of Directors of McFarland-Johnson, Inc., the Directors, acting unanimously, adopted the following resolution:

RESOLVED, that the following elected Officers of the Corporation are authorized to sign contracts in the name of, and on behalf of, the Corporation, in accordance with corporate policies and rules:

| Name | | Office |
|---|---|---|
| James M. Festa | - | CEO – Engineering |
| Chad G. Nixon | - | President |
| Frank J. Greco | - | Sr. Vice President/CFO/Secretary/Treasurer |
| Thomas T. Kendrick | - | Vice President |
| Jeffrey R. Wood | - | Vice President |

I certify that as a result of the action of the Board of Directors, James M. Festa, CEO-Engineering of McFarland-Johnson, Inc., is fully authorized to enter into any contracts, including Nashua-Merrimack-Bedford 13761 (Part B- Final Design) in the City of Nashua and Town of Merrimack, in the name of and on behalf of the Corporation for the rendering of services by the Corporation.

Frank J. Greco, Secretary

[CORPORATE SEAL]

SUBSCRIBED AND SWORN TO

this 12th day of February 2021

Notary Public

[illegible] New York
[illegible] County
My [illegible] 7/2/22

L:[LOO/MISC/FJG]003A

# State of New Hampshire

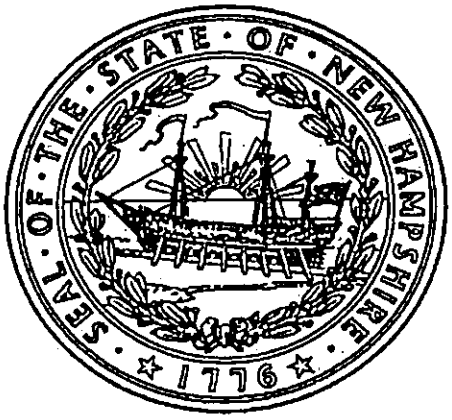
# Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that MCFARLAND-JOHNSON, INC. is a New York Profit Corporation registered to transact business in New Hampshire on February 14, 1969. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: **2302**

Certificate Number: **0005227128**




IN TESTIMONY WHEREOF,
I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 19th day of January A.D. 2021.

William M. Gardner
Secretary of State

MCFAJOH-01 KLISHM

ACORD

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 2/12/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Insurance Office of America
31 Lewis Street
Suite 201
Binghamton, NY 13901

CONTACT NAME: Michael Burns
PHONE (A/C, No, Ext): (607) 754-0329 45230 FAX (A/C, No): (607) 754-9797
E-MAIL ADDRESS: Michael.Burns@ioausa.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : National Fire Insurance Co of Hartford | 20478 |
| INSURER B : Transportation Insurance Company | 20494 |
| INSURER C : Continental Insurance Company | 35289 |
| INSURER D : Valley Forge Insurance Company | 20508 |
| INSURER E : | |
| INSURER F : | |

INSURED
McFarland Johnson, Inc.
49 Court Street
Suite 240
Binghamton, NY 13901

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>POLICY X PRO-JECT X LOC<br>OTHER: | X | X | 6056803227 | 1/1/2021 | 1/1/2022 | EACH OCCURRENCE | $ 1,000,000 |
| | | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ 100,000 |
| | | | | | | | MED EXP (Any one person) | $ 15,000 |
| | | | | | | | PERSONAL & ADV INJURY | $ 1,000,000 |
| | | | | | | | GENERAL AGGREGATE | $ 2,000,000 |
| | | | | | | | PRODUCTS - COMP/OP AGG | $ 2,000,000 |
| | | | | | | | | $ |
| B | AUTOMOBILE LIABILITY<br>X ANY AUTO<br>OWNED AUTOS ONLY / SCHEDULED AUTOS<br>X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY | X | X | 6056803213 | 1/1/2021 | 1/1/2022 | COMBINED SINGLE LIMIT (Ea accident) | $ 1,000,000 |
| | | | | | | | BODILY INJURY (Per person) | $ |
| | | | | | | | BODILY INJURY (Per accident) | $ |
| | | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| C | X UMBRELLA LIAB X OCCUR<br>EXCESS LIAB CLAIMS-MADE<br>DED X RETENTION $ 10,000 | X | X | 6056803244 | 1/1/2021 | 1/1/2022 | EACH OCCURRENCE | $ 10,000,000 |
| | | | | | | | AGGREGATE | $ 10,000,000 |
| | | | | | | | | $ |
| D | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N/A | X | WC656803230 | 1/1/2021 | 1/1/2022 | X PER STATUTE / OTH-ER | |
| | | | | | | | E.L. EACH ACCIDENT | $ 1,000,000 |
| | | | | | | | E.L. DISEASE - EA EMPLOYEE | $ 1,000,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ 1,000,000 |
| A | Val Pprs & Records | | | 6056803227 | 1/1/2021 | 1/1/2022 | Blanket Limit | 1,000,000 |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Project: Nashua-Merrimack-Bedford 13761 (PART B - Final Design)

New Hampshire Department of Transportation and all other parties as required by written contract are additional insured on a primary and noncontributory basis including completed operations in regard to general liability per endorsement numbers CNA74858NY, CNA75079XX, CNA74987XX, in regard to auto per endorsement number CNA71627. A Waiver of Subrogation applies in favor of the certificate holder, owner and all other parties as required by written contract in regard to general liability per endorsement number CNA74858NY, in regard to auto per endorsement, number CA 04 44 10 13, in regard to workers compensation per endorsement WC 00 03 13. The umbrella policy is following form of the underlying policies per endorsement #CNA76604XX. 30 Days' Notice of Cancellation /10 Days Non-Payment of Premium in accordance with the policy provisions.

CERTIFICATE HOLDER

New Hampshire Department of Transportation
PO Box 483
Concord, NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Deborah K. Blanchard


© 1988-2015 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

ACORD®

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 02/14/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER 1-201-262-1200
Fenner & Esler Agency, Inc.
PO Box 60
Oradell, NJ 07649 USA

CONTACT NAME: Timothy P. Esler, CPCU
PHONE (A/C, No, Ext): 201-262-1200 FAX (A/C, No): 201-262-781-
E-MAIL ADDRESS: certs@fenner-esler.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A: Berkshire Hathaway Specialty Insurance | |
| INSURER B: | |
| INSURER C: | |
| INSURER D: | |
| INSURER E: | |
| INSURER F: | |

INSURED
McFarland-Johnson, Inc.
att: Frank J. Greco
49 Court Street
Suite 240
Binghamton, NY 13901 USA

COVERAGES CERTIFICATE NUMBER: 535031158 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| | COMMERCIAL GENERAL LIABILITY | | | | | | EACH OCCURRENCE | $ |
| | CLAIMS-MADE OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ |
| | | | | | | | MED EXP (Any one person) | $ |
| | | | | | | | PERSONAL & ADV INJURY | $ |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $ |
| | POLICY PRO-JECT LOC | | | | | | PRODUCTS - COMP/OP AGG | $ |
| | OTHER: | | | | | | | $ |
| | AUTOMOBILE LIABILITY | | | | | | COMBINED SINGLE LIMIT (Ea accident) | $ |
| | ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| | OWNED AUTOS ONLY / SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | $ |
| | HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| | UMBRELLA LIAB / OCCUR | | | | | | EACH OCCURRENCE | $ |
| | EXCESS LIAB / CLAIMS-MADE | | | | | | AGGREGATE | $ |
| | DED / RETENTION $ | | | | | | | $ |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | | | | | | PER STATUTE / OTH-ER | |
| | ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N (Mandatory in NH) | N/A | | | | | E.L. EACH ACCIDENT | $ |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - EA EMPLOYEE | $ |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ |
| A | Prof/Poll Liability | | | 47-EPP-305431-03 | 06/15/20 | 06/15/21 | Per Claim | 5,000,000 |
| | | | | FULL PRIOR ACTS | | | Annual Aggregate | 5,000,000 |
| | | | | | | | Deductible per clm | 50,000 |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

NASHUA-MERRIMACK-BEDFORD NON-FEDERAL 13761 (PART B-FINAL DESIGN)

CERTIFICATE HOLDER

New Hampshire Department of Transportation
. O. Box 483
Concord, NH 03302-0483
USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.



The ACORD name and logo are registered marks of ACORD