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THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

Bureau of Highway Design
October 1, 2019

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 BETA Group, Inc., Manchester, NH, Vendor #309702, for an amount not to exceed \$1,404,791.23, for preliminary design of improvements to approximately three (3) miles of NH Route 125 in the Town of Epping, effective upon Governor and Council approval through November 30, 2022. 100% Federal Funds.

Funds to support this request are available in the following account in State FY 2020 and State FY 2021, and funding is contingent upon the availability and continued appropriation of funds in FY 2022 and FY 2023, with the ability to adjust encumbrances between State Fiscal Years through the Budget Office if needed and justified:

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>
04-096-96-963515-3054 Consolidated Federal Aid				
046-500464 Gen Consultants Non-Benefit	\$304,000.00	\$456,000.00	\$456,000.00	\$188,791.23

EXPLANATION

The Department requires consulting engineering and environmental services to study improvements to NH Route 125 from south of the intersection with Brickyard Plaza in Epping to north of the intersection with NH Route 87 in Epping, a distance of approximately 3 miles. The Consultant will develop and evaluate alternatives along NH Route 125 to improve intermodal transportation needs for automobiles, bicycles and pedestrians; prepare and complete all appropriate environmental documentation; and assist the DEPARTMENT in the public involvement process, culminating in a formal Public Hearing for the preferred alternative. The objective of the project is to develop an alternative that will improve the safety and mobility of all users by applying 'Complete Streets' principles and access management with the central goal of achieving an appropriate balance between the needs of motorized and non-motorized users of the corridor. As the development of improvement alternatives proceeds, it will be important to work closely with the Public Advisory Committee, as well as all other appropriate public or private stakeholders to gain consensus on design decisions. This could include bicycle advocacy groups. Public Advisory Committee meetings are intended to discuss and reach consensus on local desires for the highway improvements. The Public Advisory Committee will act in an advisory role. This project will require both Part "A" (Preliminary Design) and Part "B" (Final Design) services. This agreement is for Part "A" only. Upon completion of Part "A" services, and assuming a successful Public Hearing (if required), the Department reserves the right to either negotiate a scope and fee for Part "B", or terminate the contract. This project is included in the State's Ten-Year Transportation Improvement Plan (Epping 29608).

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 Epping 29608, improvements to NH Route 125. The assignment was listed as a "Project Soliciting for Interest" on the Department's website on August 10, 2018 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 September 13, 2018 for consideration and approval by the Assistant Commissioner. Upon receipt of that approval, three shortlisted firms were notified on October 1, 2018 through a technical "Request for Proposal" (RFP). Committee members individually rated the firms on November 29, 2018 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 twelve (12) consultant firms that were considered for this assignment, with the three (3) short-listed firms shown in bold, is as follows:

Consultant Firm

Office Location

BETA Group, Inc.

Manchester, NH

Dubois & King, Inc.

Bedford, NH

Fuss & O'Neill

Manchester, NH

Greenman-Pedersen, Inc.

Portsmouth, NH

HNTB Corporation

Concord, NH

Jacobs Engineering Group, Inc.

Bedford, NH

Louis Berger U.S., Inc.

Manchester, NH

McFarland-Johnson, Inc.

Concord, NH

Stantec Consulting Services, Inc.

Auburn, NH

TEC, Inc.

Hampton, NH

Vanasse Hangen Brustlin, Inc.

Bedford, NH

WSP USA, Inc.

Manchester, NH

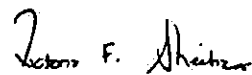
The firm of BETA Group, Inc. was recommended for this contract. This firm has an excellent reputation and has demonstrated their capability to perform the required services. Background information on this firm is attached.

BETA Group, Inc. has agreed to furnish the professional engineering services for an amount not to exceed \$1,404,791.23. 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 80% Federal funds with 20% State match. Turnpike toll credit is being utilized for New Hampshire's match requirement, effectively using 100% federal funds.

This Agreement 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
Commissioner

Attachments

PROJECT: Epping 29608 (Part A)

DESCRIPTION: Preliminary engineering, environmental services and public involvement services are needed for the study of transportation improvements to safety and traffic operations along NH Route 125 in the Town of Epping. The limits of the project are from just south of the Brickyard Square development located to the south of NH Route 101, north approximately 2.8 miles to just north of the intersection with NH Route 87. The scope of work may include: Traffic analysis; Preliminary design to develop and evaluate alternatives, including potential bridge widening; Environmental investigations to prepare and complete all appropriate environmental documentation and all necessary permitting requirements; Public Involvement support services, including a Public Hearing; Reestablishing and documenting the existing highway right-of-way in a manner suitable for recording at the Registry of Deeds; Drainage design, including appropriate water quality evaluations; Construction traffic control design; For additional information see the scope of work checklist. Preliminary engineering is required to develop and evaluate alternatives along NH Route 125. Environmental efforts are needed to prepare and complete all appropriate environmental documentation including, at a minimum, the requirements of the National Environmental Policy Act, the Clean Water Act, the National Historic Preservation Act, Section 4(f) of the US Department of Transportation Act, and Section 7 of the Wild and Scenic Rivers Act. The environmental evaluation will also need to identify all applicable environmental permitting requirements. The Consultant will also be required to assist the Department in the public involvement process, including a formal Public Hearing for the preferred alternative.

Services Required: BRDG, STRC, RDWY, ENV, HAZ, HIST, ARCY, AIR, NOIS, WET, HYD, SURV, ROW, TRAF, PINV

SUMMARY

Beta Group, Inc.	2	1	1	1	1	1	1	8
HNTB Corporation	3	3	3	3	3	3	3	21
Louis Berger US, Inc.	1	2	2	2	2	2	2	13

EVALUATION OF TECHNICAL PROPOSALS

Rating Considerations	Scoring of Firms			
	WEIGHT	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	18	13	19
Clarity of the Proposal	20%	18	15	18
Capacity to Perform in a Timely Manner	20%	18	14	15
Quality & Experience of Project Manager/Team	20%	15	14	17
Previous Performance	10%	8	7	8
Overall Suitability for the Assignment	10%	8	6	8
Total	100%	85	69	86

Ranking of Firms:
 1. LBG
 2. BETA
 3. HNTB

Rating Considerations	Scoring of Firms			
	WEIGHT	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	18	15	17
Clarity of the Proposal	20%	19	16	18
Capacity to Perform in a Timely Manner	20%	18	18	17
Quality & Experience of Project Manager/Team	20%	18	16	18
Previous Performance	10%	8	9	9
Overall Suitability for the Assignment	10%	10	8	9
Total	100%	91	82	88

Ranking of Firms:
 1. BETA
 2. LBG
 3. HNTB

EVALUATION OF TECHNICAL PROPOSALS (continued)

Rating Considerations	Scoring of Firms			
	W E I G H T	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	17	16	18
Clarity of the Proposal	20%	18	17	16
Capacity to Perform in a Timely Manner	20%	17	17	17
Quality & Experience of Project Manager/Team	20%	17	16	17
Previous Performance	10%	9	9	8
Overall Suitability for the Assignment	10%	8	9	9
Total	100%	86	84	85

Ranking of Firms: 1. BETA
2. LBG
3. HNTB

Rating Considerations	Scoring of Firms			
	W E I G H T	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	19	17	18
Clarity of the Proposal	20%	19	17	18
Capacity to Perform in a Timely Manner	20%	19	18	17
Quality & Experience of Project Manager/Team	20%	18	18	19
Previous Performance	10%	8	9	8
Overall Suitability for the Assignment	10%	8	9	8
Total	100%	91	86	88

Ranking of Firms: 1. BETA
2. LBG
3. HNTB

Rating Considerations	Scoring of Firms			
	W E I G H T	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	18	17	18
Clarity of the Proposal	20%	18	18	18
Capacity to Perform in a Timely Manner	20%	18	17	17
Quality & Experience of Project Manager/Team	20%	18	18	18
Previous Performance	10%	8	8	8
Overall Suitability for the Assignment	10%	8	7	8
Total	100%	89	85	87

Ranking of Firms: 1. Beta Group, Inc.
2. Louis Berger US, Inc.
3. HNTB Corporation

Rating Considerations	Scoring of Firms			
	W E I G H T	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	18	16	18
Clarity of the Proposal	20%	18	14	16
Capacity to Perform in a Timely Manner	20%	18	16	17
Quality & Experience of Project Manager/Team	20%	16	14	15
Previous Performance	10%	8	7	7
Overall Suitability for the Assignment	10%	9	7	7
Total	100%	89	74	80

Ranking of Firms: 1. BETA
2. LBG
3. HNTB

Rating Considerations	Scoring of Firms			
	W E I G H T	Beta Group, Inc.	HNTB Corporation	Louis Berger US, Inc.
Comprehension of the Assignment	20%	20	20	18
Clarity of the Proposal	20%	20	17	20
Capacity to Perform in a Timely Manner	20%	19	19	19
Quality & Experience of Project Manager/Team	20%	19	16	20
Previous Performance	10%	9	9	10
Overall Suitability for the Assignment	10%	10	8	9
Total	100%	97	88	96

Ranking of Firms: 1. Beta
2. LBG
3. HNTB

Professional Overview

Mr. Puntin has 26 years of experience in the civil engineering industry with a focus on transportation related design projects and project management. He has been Project Manager for numerous design projects where his responsibilities entailed: contract preparation; technical supervision; QA/QC; budget, cost, and schedule control; client relations and satisfaction; and public hearings. His experience also includes projects utilizing alternative delivery methods; as he served as project manager for three design-build roadway and bridge projects. As an Associate at BETA, Mr. Puntin is responsible for the management and oversight of the technical and operational activities in BETA's Northern New England office.

I-93 Salem-Manchester Corridor Widening – Salem/Manchester, NH

- Project Manager for the final design of New Hampshire Department of Transportation's Southern Segment which includes widening of Interstate I-93 for approximately eight miles and the replacement of 19 bridges in Salem and Windham.
- The design consists of expanding I-93 from existing two-lane facility to four-lanes and upgrade of interchanges at Exits 1, 2 and 3. Water quality is a major project issue with the design incorporating over 30 water quality treatment basins.
- The project included full engineering services from preliminary design to development of contract documents for 12 construction contracts.

US Route 3 over F.E. Everett Turnpike, Bedford, NH


- Quality Assurance Manager for the final design services for the \$11.5 million project that carries U.S Route 3 over the F.E. Everett Turnpike on behalf of E.D. Swett and Continental Paving, Inc. The project included replacement of the existing bridge and approximately 3,000' of reconstruction of U.S. Route 3.
- Roadway reconstruction includes a realignment of U.S. Route 3, widening to accommodate additional thru-lanes and turn lanes, new curb and sidewalk, landscaping, and storm drainage improvements.

Eastman Hill Road – Lebanon, NH

- Project Manager for design and construction for the reconstruction of 8000' of Eastman Hill Road. Services provided for the project included: rehabilitation alternatives evaluation, public participation, preliminary and final design, preparation of construction plans and bid documents, cost estimating, and construction inspection.

Shore Drive Reconstruction – Salem, NH

- Project Manager for the design, permitting, and construction supervision of the reconstruction of Shore Drive. Services provided include: field survey, wetlands mapping, geotechnical investigation, NHDES coordination, preparation of construction plans/details, development of technical specifications and bid documents, bidding assistance, and review/recommendation of contractor.



Primary Discipline
Transportation Engineering

Years of Experience

- BETA: Since 2014
- Total: Since 1992

Education

- BS, Civil Engineering
University of Massachusetts
– Amherst (1992)

Training and Certifications

- NHDOT – LPA Certification
Training

Registrations

- Professional Engineering
(NH, MA, ME and VT)

Affiliations

- Boston Society of Civil
Engineers
- American Society of Civil
Engineers
- National Society of
Professional Engineers
- Civil and Environmental
Engineering Advisory Council
(UMass Amherst)

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1. CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS, ETC.
2. CONSULTANT DISCLOSURE STATEMENT FOR PREPARATION OF ENVIRONMENTAL EVALUATIONS
3. CERTIFICATION OF CONSULTANT/SUBCONSULTANT
4. CERTIFICATION OF STATE DEPARTMENT OF TRANSPORTATION
5. CERTIFICATION FOR FEDERAL-AID CONTRACTS EXCEEDING \$100,000 IN FEDERAL FUNDS
6. CERTIFICATION OF GOOD STANDING
7. CERTIFICATION OF INSURANCE
8. CERTIFICATION OF AUTHORITY / VOTE
9. SIGNATURE PAGE

AGREEMENT
FOR PROFESSIONAL SERVICES

PREAMBLE

THIS AGREEMENT made this 10 day of Sept. in the year 2019 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 BETA Group, Inc., with principal place of business at 701 George Washington Highway, in the City of Lincoln, State of Rhode Island, and New Hampshire Regional Office at 40 Stark Street, in the City of Manchester, 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 improve NH Route 125 from south of the intersection with Brickyard Plaza in Epping to north of the intersection with NH Route 87 in Epping, a distance of approximately 3 miles.

The DEPARTMENT requires professional engineering and environmental consulting services to develop and evaluate alternatives along NH Route 125 to improve intermodal transportation needs for automobiles, bicycles and pedestrians; prepare and complete all appropriate environmental documentation; assist the DEPARTMENT in the public involvement process, culminating in a formal Public Hearing for the preferred alternative; and completion of the Slope and Drain Phase of the project. These services are outlined in this AGREEMENT.

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

ARTICLE I

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 the study of improvements to NH Route 125 from south of the intersection with Brickyard Plaza in Epping to north of the intersection with NH Route 87 in Epping, a distance of approximately 3 miles. Some of the existing highway features and conditions to be aware of include:

- The segment of NH Route 125 to be improved is generally broken into two separate typical sections, the southern section and the northern section. The southern section, beginning in the vicinity of Brickyard Plaza northerly to NH Route 27, has a three to five lane typical with multiple turn lanes with variable width shoulders and median treatments; the northern section, from NH Route 27 northerly to the vicinity of NH Route 87, begins as a three lane section and transitions to a two lane section with variable width shoulders.
- Localized improvements have been made at key intersections and some commercial developments to add turning lanes, shoulders, and traffic signals.
- The corridor is subject to high peak period traffic, which restricts mobility particularly in the vicinity of key intersections.
- The project will need to consider and implement access management measures, where possible.
- The lack of consistent shoulders or sidewalks hinders the mobility of non-motorized users.
- The corridor is in the vicinity of and contains bicycle and pedestrian trails, including a recreational trail which crosses NH Route 125. This trail has unique features related to the NH Route 125 crossing specific to snowmobiles, ATVs, mushers and horseback riders. For example, a pedestrian push button was set up so that snowmobile groomer operators could activate the pedestrian phase from the cab of the groomer; however, it is not an active feature.
- NH Route 125 has established bicycle routes through the project limits.
- There is an existing Park and Ride within the project limits.
- NH Route 125 intersects with NH Route 101, which crosses over NH Route 125. There will be minor work required on the NH Route 101 ramps to tie into NH Route 125 and the signals; work to NH Route 101 is not anticipated.
- There is no work anticipated to the NH Route 101 Bridges over NH Route 125.
- NH Route 125 crosses the Lamprey River, a Wild & Scenic River and Designated River.

ARTICLE I

- NH Route 125 crosses the Piscassic River, a Designated River. This is a “fill over” bridge structure; no work is anticipated for this structure.
- NH Route 125 is in the vicinity of the Epping Waste Water Treatment Plant (located on Lagoon Road).
- Developing traffic control plan sequencing recommendations will be an important service provided by the CONSULTANT.

The objective of the project is to develop an alternative that will improve the safety and mobility of all users by applying ‘Complete Streets’ principles and access management with the central goal of achieving an appropriate balance between the needs of motorized and non-motorized users of the corridor. As the development of improvement alternatives proceeds, it will be important to work closely with the Public Advisory Committee, as well as all other appropriate public or private stakeholders to gain consensus on design decisions. This could include bicycle advocacy groups. Public Advisory Committee meetings are intended to discuss and reach consensus on local desires for the highway improvements. The Public Advisory Committee will act in an advisory role.

The development of the preliminary engineering for this project is expected to be performed in two phases (Parts A and B). This scope of services is for the first phase (Part A) only. The purpose of this first phase is to develop and evaluate design alternatives for improving NH Route 125. The alternative development process will: 1.) use a context-sensitive style solution approach, including public outreach, to develop and evaluate improvement alternatives; 2.) identify impacted natural and cultural resources potentially affected by the alternatives, and investigate means of avoiding, minimizing or mitigating the impacts; 3.) prepare an Environmental Document for the Proposed Action; 4.) prepare a hearing plan for the Proposed Action; 5) prepare design submissions as indicated below up to the Slope and Drain submission (including the Utility submission); and 6) prepare all required permitting application submittals (e.g. Wetlands Permit Application, ACOE, and Shoreland Permit Application) for the Proposed Action.

B. SCOPE OF WORK (GENERAL)

The goals of Part A are to select a Proposed Action that is supported through the incorporation of complete street approaches, inclusion of an effective public outreach through a Public Advisory Committee, and which is technically feasible, environmentally permissible, and economical; prepare and develop an approved Environmental Study/Section 4(f) Evaluation; bring the Proposed Action to a public hearing for layout approval; and complete the Slope and Drain Phase (including permitting) of the project for the Proposed Action.

Assuming a successful Public Hearing, and upon completion of Part A, the DEPARTMENT reserves the right to either negotiate a scope and fee for Part B, to prepare final design plans, specifications and estimates for the project limits, or terminate the contract.

ARTICLE 1

The study will use the Context Sensitive Solutions approach for the Part A phase. This will include a dynamic public participation program involving public and private stakeholders and the general public in the decision-making process.

The design shall consider erosion control measures and Best Management Practices (BMPs) consistent with current MS4 and New Hampshire Department of Environmental Services (NHDES) guidelines, traffic control measures, drainage, hydraulic studies, treatments to minimize environmental impacts, traffic counts, traffic analysis, highway signs, traffic control signals, and pavement markings. The CONSULTANT shall incorporate into the design plans any DEPARTMENT provided materials and designs such as lighting, geotechnical recommendations, Smart Work Zone (SWZ) devices, Intelligent Transportation Systems (ITS) devices, and utility relocations.

The project will include a public participation program, that involves public officials, as the project continues to develop and the general public becomes more involved.

The CONSULTANT is responsible for preparing all meeting minutes.

C. SCOPE OF WORK (SPECIFIC)

The tasks for Part A have been divided into three primary categories: Preliminary Engineering, Public Participation, and NEPA Documentation. The Preliminary Engineering tasks cover the work required to develop and evaluate improvement alternatives and develop a Proposed Action through the Slope and Drain Phase of design, to include all environmental permitting. The Public Participation tasks cover public outreach for aspects of the project. The NEPA Documentation tasks cover the work required to document impacts of the alternatives to all relevant natural and cultural resources.

Specific tasks are shown below and have been divided into the three primary categories noted above: Preliminary Engineering (Geotechnical, Preliminary Engineering, and Utilities), Public Participation (Public Participation) and NEPA documentation (Environment).

D. 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, bridge abutments, signal mast arms, etc.

ARTICLE I

2. Delivery of 11"x17" sized plans with completed exploration locations plotted shall be provided for roadway segments and bridge 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. The plan sheets should include property (tax map level) and ROW boundaries, elevation contours, the proposed improvements and alignment, and enough existing detail to readily identify the area.
3. Taking periodic measurements of any newly installed NHDOT groundwater monitoring wells. It is anticipated that 4 BMPs with new 2 monitoring wells each will be installed. The groundwater elevations at each of these new wells will be taken four times during the duration of this contract where two readings will be taken during high ground water (spring) and two during low ground water (summer). It is anticipated that these readings will be taken over the course of two years.
4. Paper and/or electronic copies of project plans and cross sections as needed to make geotechnical assessments and evaluations of design features.
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. For the purpose of fee development, it is assumed that 10% of the corridor will have ledge and require additional cross section.

E. SCOPE OF WORK (ENVIRONMENTAL)

The CONSULTANT shall be responsible for:

I. Data Collection:

The CONSULTANT shall review relevant data sources to identify any and all resources present within the Project Area. Additional effort may be needed for the listed resources below to identify additional impacts, potential measures to minimize or mitigate impacts, as well as possible proposed enhancements. Resources to be identified include:

a. Water-Based Resources:

- 1) **Groundwater:** Data regarding aquifers, public water supplies and wells within the study area will be gathered from appropriate sources such as the GRANIT GIS database, NHDES mapping, NHDES Drinking Water and Groundwater Bureaus, inventory data, and municipal data or municipal mapping. The CONSULTANT will describe these resources and display them on project mapping. Data will also be needed to identify any sensitive resources directly adjacent and potentially down gradient of the project area. The mapped

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resources will be assessed and described in terms of their current and potential use and their relative proximity and potential hydrological connection to the project area. In addition, consideration shall be given for the protection of drinking water supplies, as well as stormwater conveyance and treatment in the vicinity of the drinking water supplies and wellhead protection areas as related to the project.

- 2) Surface Waters: All current regulatory requirements and constraints associated with water-based resources will be identified and summarized in the environmental document. The CONSULTANT shall determine if the project is located within the corridor of a Wild & Scenic River, and shall identify the classification of the river segment where the project is located. The CONSULTANT shall determine impacts to the channel or banks of a Wild & Scenic River below, above, or on a stream tributary to the Wild & Scenic River. The CONSULTANT shall coordinate with the appropriate regulatory agencies. Data regarding existing surface waters and water quality will be gathered and documented. The CONSULTANT will review the most recently approved State 303(d) list to identify water quality impairments and TMDLs within the project area. The CONSULTANT will compile existing TMDL implementation plans, watershed management plans, and active water quality related permits including, but not limited to, NHDES Alteration of Terrain (AoT) and; EPA NPDES for Small Municipal Separate Storm Sewers (MS4); and for Construction activities (CGP). The CONSULTANT will compile existing water quality data from NHDES' Environmental Monitoring Database to characterize existing conditions in the receiving water. Permits that will be required will be identified, such as the MS4 General Permit and Water Quality Certificate. The CONSULTANT will investigate appropriate water quality treatment measures necessary to minimize project related nutrient impacts on surface waters. The project is located within an MS4 regulated area and will be subject to MS4 redevelopment requirements for stormwater treatment. The CONSULTANT shall evaluate the Redevelopment requirements of the MS4 permit issued in 2017; and the 2017 Revised AoT permit requirements. It is not anticipated that field sampling of surface waters and any MS4 services will be needed. All current regulatory requirements and constraints associated with water-based resources will be identified and summarized.

This shall include a pavement runoff area analysis (including enhanced plans showing the associated drainage areas) to determine the percent of the pavement treated prior to discharge and the volume (water quality volume) for the proposed condition and alternatives to determine approximate size and placement of structural Best Management

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Practices (BMPs) to be shown at the Public Hearing. BMP placement and type will be compliant with current AoT requirements 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.

The CONSULTANT will assess chloride (salt) loadings based on the number of travel lanes for the existing and proposed facility. An assessment of existing operational BMPs will be conducted and compared to the Department's MS4 procedures for winter maintenance and presented in the environmental document.

- 3) Floodplains and Floodways: Federal Emergency Management Agency (FEMA) floodplain and floodway information will be gathered from appropriate sources and displayed on project mapping for three locations that cross NH Route 125: the Lamprey River crossing, the Piscassic River crossing, and one additional unnamed crossing to the north of the Lamprey River. This information will be used to assess the status of anticipated impacts, and quantify the volume of impacted floodplain and floodway. The CONSULTANT will coordinate with the NH Floodplain Manager, ACOE, and FEMA regarding proposed impacts within the flood hazard areas. The CONSULTANT will identify if a Conditional Letters of Map Revision (CLOMR) through FEMA is necessary, see Section 11 below. Although it is not anticipated to raise the Base Flood Elevation (BFE), these CLOMR may be needed to modify any incorrect floodplain/floodway areas within the project corridor. The CONSULTANT will verify if a CLOMR is needed at each location, if a CLOMR application is needed it will be completed under a separate agreement.
- 4) Wetlands: The CONSULTANT will delineate wetlands and streams, including ordinary high water and top of bank, and determine their functions and values within the study area limits based on state and federal criteria, and will collect field data sufficient to document the delineation, including photographs. If access to private property is required, landowners will be notified by the DEPARTMENT. The CONSULTANT will survey wetland flagging using appropriate technology to locate flagging. This 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 report 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 the each wetland's hydrology, soils and vegetation, flagging number system of each delineated feature, photographs, functions and values

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(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. If required, the CONSULTANT will identify potential wetland mitigation opportunities either within the project corridor or the surrounding area including any areas of proposed BMPs which will also require delineation. This effort will need to be coordinated with the municipality.

- 5) Stream Crossings: The CONSULTANT will identify all intermittent and perennial stream crossings within the project study limits. The CONSULTANT will complete stream crossing field data collection assessments for any of the streams identified as Tier 3 in accordance with Env-Wt 900 and any applicable NHDOT field data collection forms. The delineations at streams shall be at 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. The CONSULTANT will determine and delineate the watershed area and determine the watershed size for each crossing using the USGS Stream Stats tool. The CONSULTANT will also determine the corresponding Tier classification in accordance with the NHDES Stream Crossing Rules Env-Wt 900 series to aid in determination of a design for a stream crossing that meets the NHDES Stream Crossing Guidelines and/or alternative design.

- 6) Stream Passage Improvement Program (SPIP):

Additional mitigation opportunities will be identified through the Stream Passage Improvement Program (SPIP), a newly establish process of evaluating and identifying state and municipally owned crossings within the vicinity of the project to be upgraded as permittee responsible mitigation.

The SPIP process entails identifying five to eight initial culverts that have been assessed through the NH Stream Crossing Assessment Initiative and displayed through the NHDES Aquatic Restoration Mapper that impede aquatic organism passage, are not geomorphically compatible with the stream, and are in poor condition. Through coordination with the resource agencies the candidate culverts are narrowed down to two, three, or four crossings. Stream crossing assessments and preliminary design and cost analysis is then conducted for each of these crossings. From this point, the project team must identify the feasibility and constructability of upgrading a potential candidate culvert using the mitigation funds generated by the stream impacts of the project.

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If it is anticipated that the project will not cumulatively impact greater than or equal to 500 linear feet of permanent channel and bank, the SPIP process will not be initiated.

Assuming the linear impacts to banks and channels are greater than 500 linear feet the CONSULTANT will utilize the online NH Aquatic Restoration Mapper to identify up to eight (8) stream crossings to assess for potential consideration under the SPIP. Crossings will be prioritized in the following order: culverts within the same HUC-12 watershed and within Epping, culverts within the same HUC-12 watershed but not within Epping. Town-owned culverts will be considered if fewer than 8 State-owned culverts are identified within these parameters. Culverts within the HUC-10 watershed will be considered if fewer than 8 culverts are identified in the HUC-12 watershed.

A table will be prepared to summarize the following for each of the 8 crossings:

Information obtained from the Aquatic Restoration Mapper:

- Stream and roadway name
- Crossing condition
- Aquatic Organism Passage Score
- Geomorphic Compatibility Score
- Presence of predicted coldwater fishery
- Hydraulic vulnerability (10, 25, 50, 100-year flood)

Information obtained from GIS:

- Stream order
- Distance to existing conservation lands
- Distance to Designated Rivers
- Distance to NH Wildlife Action Plan highest quality wildlife habitat and conservation focal areas
- Presence of FEMA mapped flood hazard areas
- Existing surface water impairments
- Description of adjacent habitat and land use (based on aerial imagery)
- Length of stream channel that could be restored (linear feet)

Photographs available on the Aquatic Restoration Mapper will be downloaded for each culvert. The information summarized above will be provided to NHDOT and the CONSULTANT will attend one meeting with the project team to discuss potential SPIP culverts.

This scope of work does not include field review of the 8 culverts, nor does it include environmental review or documentation sufficient for NEPA approval.

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b. Land-Based Resources:

- 1) Soils: Data on soil series mapped within the study area, including the distribution of prime, statewide, local, or unique farmland soils, will be obtained from the GRANIT GIS database and the NRCS web soil survey.
- 2) Prime farmland, unique farmland or other farmland that is of statewide or local importance: Farmland Protection Policy Act (FPPA) of 1981, federal agencies must identify and consider the effects of their programs on the conversion of farmland to non-agricultural uses. If required, a Farmland Conversion Impact Rating Form will be prepared and submitted to the Natural Resources Conservation Service (NRCS).
- 3) Public and Conserved Lands: Publicly owned lands, bicycle and pedestrian trails, and privately conserved lands will be identified. This will also include coordination with public officials including the LCIP and the LCHIP programs.
- 4) Section 4(f) Resources: Parks, recreational areas, historic sites, or other areas subject to Section 4(f) will be identified. If necessary, the CONSULTANT will prepare a Section 4(f) evaluation that complies with applicable federal laws and regulations, including Section 4(f) of the Department of Transportation Act, 23 CFR 774, FHWA's *Section 4(f) Policy Paper*, and other resources as appropriate. The evaluation will include: a description of Section 4(f) resources; a description of any project "use" of the resources; an alternatives analysis, including a least overall harm analysis; measures to minimize harm; coordination activities with NHSPO, lead Federal agency; and conclusions. (Wild & Scenic Rivers (Lamprey River) are subject to Section 4(f) of the Department of Transportation Act of 1966 if the river segment is classified as recreational, which the Lamprey River is. Coordination with the FHWA Environmental Program Manager will be required to determine, if Section 4(f) will be triggered by the proposed alternative.)
- 5) Section 6(f) Resources: Lands receiving Section 6(f) funds will be identified based on coordination with the NH Department of Natural and Cultural Resources (DNCR). Section 6(f) properties will be identified, and potential impacts to 6(f) properties will be quantified. An alternatives analysis, proposed impacts, and avoidance, minimization, and mitigation measures will be summarized. Coordination for use of 6(f) properties will include one field meeting with the DNCR and additional coordination activities.

c. Wildlife:

- 1) Wildlife and Habitat: Wildlife resources will be identified with information from the NH Wildlife Action Plan and supplemented as needed by field reconnaissance. The

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CONSULTANT will identify areas where habitat connectivity could be improved based on field observations, aerial imagery, and other data that is collected.

- 2) Fisheries: The fisheries resource information will be identified based on coordination with NH Fish and Game and the US National Marine Fisheries Service.
Essential Fish Habitat (EFH): The Lamprey River is identified as EFH for Atlantic Salmon. The CONSULTANT will determine, if the project has the potential to impact EFH and will coordinate with National Oceanic and Atmospheric Administration (NOAA) as appropriate and complete an individual EFH assessment or complete a verification form as specified in the FHWA Programmatic Essential Fish Habitat Consultation For Select Transportation Actions in the NMFS Greater Atlantic Region.
 - 3) Threatened and Endangered Species: Threatened and endangered species information will be gathered by the CONSULTANT through coordination with the DNCR, NH Fish and Game Department, the US Fish and Wildlife Service, and the Natural Heritage Bureau as well as field investigations. The CONSULTANT will perform a field survey to identify the presence of potentially suitable habitat and known populations of State and Federal protected species and/or natural communities in the vicinity of the project, such as Brook Floater (a freshwater mussel). A presence/absence survey for Brook Floater near the Lamprey River crossing will be completed, if required. Any listed species identified in the field will be located with GPS and shown on the project mapping. The results of the field survey, including a description of suitable habitat, will be documented in a report provided to the Department. The CONSULTANT will use the US Fish and Wildlife Service's on-line Information for Planning and Consultation (IPaC) tool for review of identified federally-listed species. Bridge/Structure Inspection forms (Appendix C of the FHWA and FRA Range-Wide Biological Assessment for Transportation Projects for Indiana Bat and Northern Long-Eared Bat) will be completed for the Lamprey River Bridge and the two NH Route 101 Bridges. Based on the anticipated project alternatives, it is assumed that all work will be within 300 feet of the existing roadway and a bat acoustic presence/absence survey will not be required.
- d. Cultural Resources (Historic):
The CONSULTANT will prepare and submit, through the DEPARTMENT, a NH Division of Historical Resources (NHDHR) Request for Project Review (RPR) form for Transportation projects or the Section 106 Programmatic Agreement Appendix A or B Certification Forms, as applicable. The CONSULTANT will be responsible to complete all National Register eligibility survey forms in accordance with NHDHR Survey Policy and Manuals. A total of

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24 individual forms, and one Project Area form is included. The CONSULTANT will conduct all Section 106 public outreach efforts with Consulting Parties and municipalities. The CONSULTANT will prepare a draft effect memo and, if needed, e106 for submission to the Advisory Council on Historic Preservation and a Memorandum of Agreement for the Adverse Effect. Templates for these documents will be provided by the DEPARTMENT. If needed, following a determination of adverse effect, the CONSULTANT will coordinate with the DEPARTMENT, the lead federal agent, NHDHR, and Consulting Parties on appropriate mitigation.

e. Cultural Resources (Archaeology):

The CONSULTANT will undertake a Phase IA Archaeological Sensitivity Assessment followed by a Phase IB Intensive Archaeological Investigation of areas of sensitivity that may be impacted by the project alternatives, if necessary. 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. The CONSULTANT shall complete all necessary phases of archaeology, as required to reach a Public Hearing, understanding that additional phases may need to be completed in Part B.

f. Social and Economic Resources:

The CONSULTANT will conduct a socio-economic analysis of the regional social and economic resources. The CONSULTANT will identify the socio-economic relationship between the study area transportation/circulation pattern (including bicycles, pedestrians, access management and transit), regional and adjacent municipalities' Master Plans, and the businesses and residents within its immediate influence. This will require corresponding with the local and regional planners, and review of local and regional plans. Zoning in the project study area will be identified and US Census data will be used to summarize population and employment trends. Census data will be compiled of the Towns of Epping, Brentwood, and Fremont and Rockingham County. The types of economic activity along the corridor and its regional importance will be summarized in a report.

g. Noise:

The CONSULTANT shall perform, as necessary, tasks required to assess the potential effects on noise levels at receptors adjacent to the project to determine and/or achieve compliance with the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772) and the DEPARTMENT'S *Policy and Procedural Guidelines for the Assessment and Abatement of Highway Traffic Noise for Type I and II Highway Projects* (the Noise Policy).

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The latest version of the FHWA Traffic Noise Model (TNM) shall be used to model existing and potential noise impacts. For noise model validation purposes, existing noise levels shall be measured at least one location per common noise environment – this scope of work further assumes short-term (up to 30 minutes in duration) noise measurements at up to eight (8) locations along the project corridor. During the short-term noise measurements, simultaneous traffic counts and vehicle classifications will be performed by field staff using hand-held counters. The measured noise levels and counted traffic will be used as part of the model validation. The measurement locations shall be selected in consultation with the DEPARTMENT. The horizontal and vertical positions of each noise measurement location will be recorded using a GPS unit with sub-meter accuracy. A noise barrier analysis will be needed for each area that exceeds the criteria. The noise report shall contain, as a minimum, TNM-computed traffic noise levels at each receptor location within the project area, noise impacts, noise abatement measures, graphical depictions of the noise levels at each receptor location for existing conditions, the opening year build alternative, and one design year Build alternative. Receptors include residences or other noise-sensitive land uses that could reasonably be expected to be impacted by traffic noise or benefitted by traffic noise abatement measures. This scope assumes submittal of a Draft Report for a single round of review and comment by NHDOT, after which a Final Report will be submitted.

h. Air Quality:

The CONSULTANT shall perform, as necessary, tasks required to assess the potential air quality impacts of the project to determine and/or achieve compliance with the State of New Hampshire Air Quality Implementation Plan, and the provisions set forth in the Clean Air Act Amendments (CAAA) and the National Environmental Policy Act (NEPA). The CONSULTANT shall conduct a qualitative analysis of the project's potential for adverse air quality impacts. If in consultation with the DEPARTMENT, it is found that there is potential for adverse air quality impacts, the CONSULTANT will conduct a microscale air quality analysis at the three most congested intersections. These intersections will be selected in consultation with the Department based on traffic volumes and levels of service. The latest version of EPA's Motor Vehicle Emissions Simulator Model (MOVES2014a or later) will be used for the analysis. The CONSULTANT will use existing available vehicle mix data along with standard vehicle and meteorological assumptions as the input variables to calculate emissions factors. Emissions factors, intersection and receptor geometry, traffic volumes and signal timing will be input into the CAL3QHC emission dispersion model to calculate the concentrations of carbon monoxide and particulate matter (PM 2.5 and PM 10) for the preferred

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alternative. The concentrations will be compared to National Ambient Air Quality Standards to determine whether they will exceed the standards. No mitigation measures or analysis are expected to be necessary, and therefore are not included in this scope. It is assumed Mobile Source Air Toxics (MSATs) can be addressed using FHWA's Updated Interim Guidance on MSAT Analysis in NEPA Documents and will not require detailed analysis.

- Assumes a qualitative assessment of CO and PM. Additional scope and costs can be provided if a quantitative CO and PM are required at three most congested intersections. This will depend on the results of the traffic analysis and consultation with the Department.
- No mitigation measures or analysis included.
- Qualitative analysis for MSATS consistent with latest FHWA guidance.
- No GHG emissions analysis or mesoscale analysis.

i. Invasive Species:

The CONSULTANT will determine the presence of invasive species in conjunction with other project field investigations. General locations and types will be identified within the project limits, approximate limits of populations will be located with GPS and shown on the project plans.

j. Contaminated Properties:

A database search will be undertaken to identify areas with records of hazardous materials or contamination within 1,000 feet of the project limits and landfills within 4,000 feet of the project limits. This work will also require a review of historic aerial photographs to evaluate past and current land use, and field surveys of the project area to look for observable physical evidence of contamination or potential contamination sources. This information will be described in a summary report that includes a list of all parcels with potential contamination concerns. The CONSULTANT will populate the DEPARTMENT's RASCAL database, will coordinate with the DEPARTMENT's hazardous materials program to confirm findings, and will assess measures required to conduct geotechnical investigations within areas of potential contamination which will be described in the summary report. The CONSULTANT will coordinate with the DEPARTMENT on evaluating the presence of asbestos or lead paint on existing bridges and in determining future investigation requirements of the project. A Soils Management Plan, if required, will be completed under a separate agreement.

k. Limited Reuse Soils (LRS)

The CONSULTANT shall determine the quantity of LRS to be generated during construction, by phase if applicable, and determine the ability, due to quantities and any applicable construction phasing, to reuse the LRS within the project limits. The CONSULTANT shall

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determine and provide figures for potential temporary on-construction-site stockpile locations for excavated LRS.

l. Per- and Polyfluoroalkyl Substances (PFAS):

The CONSULTANT shall perform a NHDES database search (NHDES OneStop and PFAS datamapper) to identify any sites with records of PFAS sampling and any NHDES requests to sample for any media type (soil, groundwater, surface water) within 1,000 feet of the project limits. This information will be described in a summary report that includes a list of all parcels with potential PFAS contamination concerns. The CONSULTANT will coordinate with the DEPARTMENT on evaluating the risk of PFAS results and in determining any future investigation requirements of the project.

m. Construction Impacts:

The CONSULTANT shall perform, as necessary, tasks required to assess the potential construction impacts on the natural, cultural, and socio-economic resources present within the project area and provide an assessment of required permits and compliance with said permits. Potential construction impacts and likely mitigation measures will be described. These may include detours during construction; erosion and sediment control; air, noise, and dust pollution; and special measures that may be needed to protect water quality.

n. Detailed Resource Identification and Mitigation:

The CONSULTANT shall identify existing natural, cultural, social, and economic resources to a level sufficient to evaluate project impacts for NEPA purposes. The study area for this effort shall be the corridor occupied by the highest priority (Preferred Alternative) of the selected Alternative.

o. Visual Resources:

The CONSULTANT will identify visually sensitive areas along the corridor, such as residential neighborhoods or public parks. The changes in visual appearances in these areas will be described in general terms. Project visualizations will be utilized in this review.

p. Environmental Commitments:

Environmental commitments will be summarized.

2. Agency Coordination:

The CONSULTANT will attend up to six of the DEPARTMENT's monthly Natural Resource Agency meetings and coordinate a field meeting, if needed, with the agencies to review resource impacts. The CONSULTANT will also attend up to six of the DEPARTMENT's monthly Cultural Resource meetings and possible field visit, with the FHWA and the NH Division of Historical Resources to

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discuss historic resources and Section 106 findings. The CONSULTANT will be responsible for supplying support graphics, making presentations and preparing meeting minutes.

3. Project Purpose and Need:

The CONSULTANT, in conjunction with the Department, will develop a formal Purpose and Need Statement for the project consistent with NEPA and other Federal guidelines. Draft and final versions of the Purpose and Need will be developed and circulated for review.

4. Alternatives Development and Evaluation:

The CONSULTANT will develop a Summary Matrix of the impacts and effects of the design alternative for use by the DEPARTMENT and stakeholders to evaluate the proposed alternatives. The alternatives screening and selection process will be summarized in the environmental document.

5. Description of Proposed Action:

The CONSULTANT will describe the Proposed Action in detail, including location, dimensions, traffic patterns, amenities or facilities such as pedestrian crossings, construction issues, right-of-way impacts, and estimated costs. Conceptual plan, profile, and cross section views will be included.

6. Environmental Impacts of Proposed Alternative:

The CONSULTANT will identify resource impacts, potential measures to minimize or mitigate impacts, and possible resource enhancements that could be achieved by the proposed alternative.

7. The CONSULTANT will perform tasks for the following resources/impacts:

a. Water-Based Resources

- 1) Groundwater Resources
- 2) Surface Water Resources
- 3) MS4 (Area Analysis)
- 4) Chloride Loading
- 5) Floodplains and Floodways
- 6) Wetlands
- 7) Stream Crossings

b. Land-Based Resources

- 1) Land Use
- 2) Farmlands
- 3) Parks/Recreation/Conservation Lands
- 4) Section 4(f) Resources
- 5) Section 6(f) Resources

c. Wildlife/Vegetation/Fisheries

- 1) Threatened or Endangered Species (Essential Fish Habitat)

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- a) Cultural Resources
- b) Social and Economic Resources
- c) Environmental Justice (provided by the DEPARTMENT)
- d) Noise
- e) Air Quality
- f) Invasive Species
- g) Hazardous Materials/Contamination
- h) Limited Reuse Soils (LRS)
- i) Per- and Polyfluoroalkyl Substances (PFAS)
- j) Construction Impacts
- k) Resources Identification and Mitigation
- l) Summary of Impacts
- m) Visual Resources
- n) Environmental Commitments

8. Draft Environmental Document/Section 4(f) Evaluation:

The Draft Environmental Document (assumes an Individual CE) will document the resource impacts outlined above and in accordance with 23 CFR § 771. The Environment Document will incorporate, either directly or by reference, the alternatives analysis and conclusions reached above and in the subsequent selection of the Proposed Action. The document will also identify which environmental permits are required. The Section 4(f) evaluation, resource reports, agency correspondence, and public meeting summaries will be appended. An administrative Draft will be prepared for review by the DEPARTMENT and the lead Federal agency. After comments are addressed by the CONSULTANT, the Draft Environmental Document will be submitted to the DEPARTMENT, the lead Federal agency, and all other parties as directed, for review. Four printed copies and two CDs of the Draft Environmental Document/4(f) Evaluation will be provided by the CONSULTANT.

9. Final Environmental Document/Section 4(f) Evaluation:

Following review of the Draft Environmental Document and comments received at the Public Hearing, the CONSULTANT will meet with the DEPARTMENT and the lead Federal agency to review and address comments as needed. The CONSULTANT will then revise and resubmit the document. Four printed copies and two CDs of the Final Environmental Document/4(f) Evaluation will be provided to the DEPARTMENT of the document will be provided by the CONSULTANT.

10. Section 7 Determination:

The CONSULTANT will determine if a Section 7 Determination is required for impacts to the Lamprey River, which is designated as a Wild & Scenic River. The CONSULTANT will coordinate with the

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DEPARTMENT, the FHWA, and the Lamprey River Local Advisory Committee and will prepare a document that summarizes the proposed project, alternatives considered, impacts to the Lamprey River, and mitigation measures.

11. Conditional Letters of Map Revision (CLOMR):

The CONSULTANT will evaluate if a CLOMR is needed as part of the work effort, as indicated in Section E.1.a.3 above. The CONSULTANT will be responsible for all coordination with the municipalities, Floodplain Managers, ACOE, and FEMA. If a CLOMR is needed, it will be completed under a separate agreement.

12. Design of the permanent water quality features:

The CONSULTANT shall design the permanent water quality features in accordance with AoT (Wq-Env 1500) regulations, MS4, and utilize the NH Stormwater Manual as guidance. 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 CONSULTANT shall be responsible for:

- a. Incorporating stormwater runoff treatment areas and detention basins and evaluating their environmental impacts in NEPA (such as archaeological sensitivity, wetland impacts, hazardous materials, etc.).
- b. As part of the drainage system, infiltration measures shall be investigated and evaluated as to their feasibility and prudence. 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 design.
- c. 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.
- d. Flood mapping revisions will be suggested, if required, such as a Conditional Letters of Map Revision (CLOMR), however if a CLOMR is needed it will be part of a separate agreement.
- e. Activities associated with investigations related to identify the nature and approximate extent of soil or groundwater contamination that may be present on properties to be acquired. It is anticipated

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that the CONSULTANT would update any information by reviewing the NHDES OneStop and other databases.

- f. 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, MS4, and the NH Stormwater Manual. NHDES BMP worksheets shall be completed and submitted as part of the Drainage Report.

13. 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 under E.2 above). If the project triggers permitting requirements, the CONSULTANT will prepare permitting documents for filing with the NHDES Wetland Bureau including but not limited to:

- Current Application Form
- USGS Location Map, including the approximate boundaries and size of the contributing watershed
- Narrative addressing the NHDES Rule Env-Wt 302.04(a), Review Criteria for Major/Minor Projects
- Information required by Env-Wt 903.03, Information Required for a Stream Crossing Application
- Mitigation coordination summary/ARM calculator
- Wetland Permitting Plans, including:
 - Existing Conditions Plan
 - Proposed Condition Plans (i.e., General Plan), including information required by Env-Wt 903.03
 - Impact Sheet, showing temporary and permanent impacts and in stream diversion/BMPs
 - Erosion and Sedimentation Control Plan Sheet including Strategies Sheets
- NHB review and IPaC supporting documentation
- Threatened and Endangered Species Coordination
- Cultural Coordination
- Construction Sequencing
- Photos of impact areas
- Items from NHDOT Wetland Application Checklist, as required

The CONSULTANT assumes the project may trigger mitigation requirements per Env-Wt 302.03(c) and will coordinate with NHDOT to find ways to reduce mitigation through project design and will participate in mitigation discussions with NHDES to determine appropriate mitigation for the project.

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Design of wetland creation/restoration mitigation sites, if needed, will be completed under a separate agreement.

The CONSULTANT will coordinate with NHDOT to complete the Alternative Design Technical Report, as needed. As applicable, the technical report will include an explanation of why the crossing(s) specified by rule is not practicable and will compare the proposed work to a full replacement based on the bankfull width estimated by the regional geometry curve.

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) PART Env-Wt 501.02 to include existing contours and finished grade contours at 1-foot intervals, and erosion control strategies for the completed project condition. The DEPARTMENT will submit the plans to NHDES, as part of the Wetland Permit application. The plans shall be prepared in "roll plan" and "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.

14. Water Quality Certification

The CONSULTANT will determine if the preparation of a Water Quality Certification Application is necessary, and if necessary apply for the Certification. The application will include an application form, supplemental narratives, USGS map, project plans, and pollutant loading analysis. 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. Up to 12 copies of the application will be provided to the Department for distribution.

15. US Army Corps of Engineers Section 404 Permit:

It is unclear at this time if the project will require an Individual permit or if the project will qualify for the ACOE General Permit. The CONSULTANT will verify this at the Natural Resource Coordination meetings to determine if the preparation of an ACOE individual permit application is necessary. Project fee estimates will assume an individual permit is required and that the CONSULTANT will prepare the application in accordance with the ACOE individual permit application checklist/requirements. The application will include an application form, supplemental narratives, USGS map, photographs, and project plans (in 8.5x11" format) that include the information listed in the ACOE's Application and

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Plan Guidance Checklist. If an ACOE public hearing is required, the CONSULTANT will prepare for and attend the hearing.

16. Shoreland Protection:

A portion of the project lies within the Protected Shoreland, the project must comply with the NH Shoreland Water Quality Protection Act (RSA 483-B). The CONSULTANT shall coordinate with NHDOT to determine if a Standard Shoreland Application is required or if the project would qualify for a Shoreland Permit by Notification (PBN) under RSA 483-B:5-b.1(a)(3). In order to complete the application, the CONSULTANT will complete the appropriate application and plans to include but not be limited to:

- Form signed by the DEPARTMENT
- Name of the jurisdictional waterbody
- Plans clearly and accurately depicting the work to be completed relative to the reference line of the jurisdictional water body with Permanent and Temporary easements shown
- Plans using NHDOT hatching and line styles
- Planting plans shall be included for areas that have been disturbed occurring within temporary easement areas
- Photographs of the area to be impacted

A draft of the application will be completed and submitted to the NHDOT for review prior to submittal to NHDES.

17. Permitting Follow-On 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 might include:

- Attendance and presentation at up to two Natural Resource Agency Coordination Meetings organized by NHDOT;
- Preparation of responses to agency review comments; or
- Minor plan revisions/additions.

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

F. SCOPE OF WORK (PRELIMINARY ENGINEERING)

1. The CONSULTANT shall develop plans at the scale of 1" = 50', unless otherwise noted, inclusive of the local road connections. All signal design plans shall be at a scale of 1" = 20'. Additionally, the CONSULTANT shall be prepared to produce intersection grading plans at a scale of 1" = 20' where necessary or as appropriate.

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2. Data Collection: The CONSULTANT shall collect any pertinent information available within the Project Limits including traffic volumes, lane geometries, traffic control information, or other available materials. The CONSULTANT shall conduct a field review of the project area to identify key engineering controls, topographic features, natural and cultural resource constraints, and land uses that could have a bearing on the design.

The CONSULTANT shall collect Peak Turning Movement Counts (TMCs) on a Tuesday, Wednesday, or Thursday (that is not the day before, during or after a holiday and is not between Thanksgiving and New Year's Day) between 6-9 AM and between 3-6 PM on days where snow is not expected at the following locations:

- NH Route 125 (Calef Highway) and Brickyard Square driveway
- NH Route 125 (Calef Highway), NHDOT Park-and-Ride Lot driveway, and Gas Station
- NH Route 125 (Calef Highway) and NH Route 101 eastbound ramps
- NH Route 125 (Calef Highway) and NH Route 101 westbound ramps
- NH Route 125 (Calef Highway) and McDonald's/Toyota driveway
- NH Route 125 (Calef Highway), Main Street, and Fresh River Road
- NH Route 125 (Calef Highway) and Rockingham Recreational Trail crossing
- NH Route 125 (Calef Highway), Water Street, and Exeter Road
- NH Route 125 (Calef Highway), Fogg Road, and Coffin Road
- NH Route 125 (Calef Highway), NH Route 87 (Hedding Road), and Old Nottingham Road

The CONSULTANT will collect 12-hour counts at two intersections (NH Route 87 at NH Route 125 and the McDonalds Drive at NH Route 125), these intersections may be changed as the design progresses; consult with the Department prior to performing these counts. These counts shall be on a Tuesday, Wednesday, or Thursday (that is not the day before, during or after a holiday and is not between Thanksgiving and New Year's Day) on days where snow is not expected. Signal Warrant analysis will be performed.

The traffic counts will be classified into six categories: passenger vehicles, motorcycles, single unit trucks/buses, tractor-trailers, pedestrians, and bicycles. Motorcycle traffic will be collected, as this information may be useful for the traffic noise analysis. The CONSULTANT will review the raw traffic count data and develop peak-hour turning movement diagrams, calculate truck percentages and peak hour factors, and balance the traffic volumes along the roadway network for the morning and evening peak hours with discrepancies applied to high volume driveways based on engineering judgment, as may be needed.

3. Topographic Survey and Base Plan Preparation: The DEPARTMENT shall conduct topographic surveys by appropriate means (ground survey and/or aerial photogrammetry) and from these

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develop a digital surface model and topographic base plan. The most recent ortho-rectified digital aerial photographs will be provided by the DEPARTMENT, if needed. The CONSULTANT shall develop a detailed base plan for the project based on the topographic survey from which resources and transportation improvements can be studied. The base plan shall be appropriately enhanced for display purposes at technical and public meetings and in documents prepared for this study. Wetlands mapping, and mapping for other applicable environmental resources (including, but not limited to 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.

4. Alternative Development & Evaluation: The CONSULTANT will coordinate with the Department, Regional Planning Commission, municipality, and the Public Advisory Committee to develop and evaluate alternatives and investigate their consequences to allow the Department to select a proposed action alternative.

a. Reasonable Alternatives: Subsequent to performing traffic analysis and modeling and assessing findings, alternatives will be developed to an equal level of detail. Typical sections, lane use, shoulders, slope impact limits (including the need for possible retaining walls), right-of-way requirements, utility impacts, traffic control impacts, constructability, construction time frames, environmental impacts, and potential water quality protection measures will be determined for each reasonable alternative. Alternatives will be supported by a design narrative that will include all applicable design assumptions and controls. The effort will compile detailing design criteria, horizontal and vertical alignments, cost estimates, traffic analyses, and plans to document each of the reasonable alternatives.

It is anticipated that up to three different reasonable design alternatives for various locations along the corridor will be developed. Each alternative will be submitted to the Department for review in roll plot format. The submission will include conceptual level plan, profile, typical sections and cross-sections at 100 foot intervals and for critical areas of the project, as needed. The alternatives will be accompanied by conceptual level cost estimates. No detailed quantity back-up will be provided; however high level breakdowns of major items will be required such that alternatives can be compared, how the price was derived should be easily ascertained from the supporting material provided. It is anticipated that design alternatives will include a combination of various elements including:

1. Roadway widening
2. Sidewalk construction

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3. Driveway relocations at McDonalds
4. Driveway relocation at the NH Park and Ride
5. New traffic signals at 2 locations
6. Roundabout design at 2 locations

A basic drainage study will be performed for the project area. The purpose of this study is to identify existing drainage patterns, establish proposed drainage outlets and determine the right-of-way that will be required for BMP measures. The existing drainage network will be used to the greatest extent possible. A large scale replacement of the existing network is not anticipated.

- b. Cost Estimates: Conceptual cost estimates will be developed for each of the alternatives (see also Section F.4.a. above). The cost estimates will quantify items such as pavement, roadway select materials, earthwork, structures, significant drainage facilities, and other design elements as appropriate and will apply the Department's current weighted average unit prices. Other items will be estimated on a percentage basis. Right-of-way acquisition costs will be determined by the CONSULTANT based upon the assessed value of impacted property per square foot provided by the DEPARTMENT. Engineering and environmental mitigation costs will be estimated on a percentage basis.
 - c. Bridge/Structure Alternatives: It is the intent that the only bridge that may require any alternatives is the Lamprey River; it is desired to minimize any work, or alternative that impacts this structure or the Lamprey River. If the alternatives indicate this bridge will need to be widened, the bridge joint will need to be replaced for the entire width of NH Route 125. The details of the various bridge alternatives will be summarized with pros and cons including costs. It is anticipated that the bridge/structure alternatives to be investigated include the widening of (one or both sides) of the existing structure or the construction of a pedestrian structure independent of the existing structure. Replacement of the existing structure will not be evaluated. For the fee, it is assumed that the worst case scenario from a design perspective will be a standalone separate pedestrian structure.
5. Traffic Data Collection, Traffic Modeling and Analysis:
- As noted above, the CONSULTANT shall gather traffic volume data, including turning movement count data (automobiles, bicycles and pedestrians), as needed coordinating with the DEPARTMENT, the Town of Epping and the Rockingham Planning Commission (RPC) to analyze existing and future traffic operations under both no-build and build conditions. The traffic-collection-and-analysis effort shall provide the statistics required for evaluating design concepts. Macroscopic and microscopic evaluations will be undertaken for the alternatives as appropriate.

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The CONSULTANT will coordinate with NHDOT Bureaus of Highway Design and Traffic regarding traffic modeling guidelines prior to starting any traffic modeling.

The CONSULTANT shall develop future traffic volumes. The traffic count data will be collected and gathered and then adjusted to reflect a common time period. Growth rates will be developed after consulting the regional model, regional transportation and land use plans, and historical traffic count data. The CONSULTANT will adjust existing traffic-volume conditions to develop Design Year traffic-volume conditions. These future traffic volumes shall also consider and include available traffic data or traffic impact studies from significant private developments that may impact the corridor, as identified and provided by the Town of Epping and RPC officials.

The CONSULTANT shall evaluate intersection operations: A microsimulation model will be built for the NH Route 125 project corridor. The corridor will be limited to NH Route 125 and will not include parallel roadways. Capacity and queuing analysis will be conducted for the existing year, no build design year, and up to 3 build scenarios reflecting unique combination of intersection designs based on Weekday AM and Weekday PM peak hours. The CONSULTANT will be required to produce documentation on how the microscopic model is calibrated. The results of the traffic analyses will be presented in a traffic report that will be submitted to NHDOT for review prior to the engineering report. Traffic analysis will be reported in terms of Level of Service (LOS) based on delay outputs from Synchro and queuing data from SimTraffic. The anticipated traffic analysis scenarios include the following:

- Existing Condition
- Design Year (No-Build)
- Build – Design Alternative 1
- Build – Design Alternative 2
- Build – Design Alternative 3

The CONSULTANT shall perform a bicycle and pedestrian demand estimation. To support use of a broad set of transportation modes, an analysis of the localized bicycle and pedestrian demand will be conducted. This analysis will help identify the more important locations to install bicycle and pedestrian infrastructure to ensure the areas with high potential use are served.

The CONSULTANT shall map bicycle and pedestrian demand. An online map will be incorporated into the public outreach effort to support identification of areas of bicycle and pedestrian demand, identify existing areas of local concern, and engage stakeholders.

Additionally, the following shall apply:

- a. Traffic modeling should include analysis for all evaluation years with major private developments as identified by the Town of Epping and RPC officials.

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- b. The CONSULTANT shall make a recommendation to the DEPARTMENT for the design year, and traffic scenarios to be evaluated.
 - c. The CONSULTANT shall use Version 10 of Synchro/SimTraffic for signalized and unsignalized intersections, and either Version 10 of Synchro/Sim Traffic or SIDRA if roundabouts are analyzed.
6. Crash Data Collection & Analysis: The CONSULTANT shall evaluate crash data provided by the DEPARTMENT and the local police department to understand the safety performance within the project area, to determine whether significant safety issues exist in the corridor, and to consider how the alternatives would impact safety. The results of the crash data analysis will be presented in the traffic report that will be submitted to NHDOT for review prior to the engineering report. When appropriate, the American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual will be referred to in order to predict the safety performance of the proposed design alternatives.
7. Hydraulic Studies and Final Hydraulic Report: The CONSULTANT will be responsible for the hydraulic report and analyses to support the design alternatives in the existing and future conditions. The report should be prepared in accordance with the NHDOT Bridge Design Manual (Section 2.7) with consideration for FEMA requirements, if a LOMR/CLOMR will be needed. The report will recommend required hydraulic openings and grading of the structure. This may include the development of HEC-RAS models to support the design. Work for a formal CLOMR application, if needed, will be part of a separate agreement. Field investigation of the hydraulic reach shall be performed by the CONSULTANT. It is anticipated that these studies and reports will be required for the Lamprey River and for all Tier 3 streams. Scour analyses will be required for the preferred alternative of the Lamprey River structure only.
8. Signs, Pavement Markings and Signals:
- a. The CONSULTANT will be responsible for the design and layout of all permanent and temporary overhead signs.
 - b. The CONSULTANT shall provide a sign inventory including providing photographs showing location of all existing signs along the corridor.
 - c. The CONSULTANT shall be responsible for the design of any overhead sign structures on the Project Corridor. 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 project construction completion will need to be updated to meet the 2009 edition of the MUTCD. Note that intersection approaches with five or more lanes in a single direction will require overhead guide signs and overhead lane use signs.

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- d. The CONSULTANT shall be responsible for the development of the permanent construction sign and warning device package. These signs and locations, including identifying the location of overhead sign structures, shall be shown on the Traffic Control Plans.
 - e. The CONSULTANT shall be responsible for the design and incorporation of all pavement marking layouts.
 - f. The CONSULTANT shall be responsible for the design and incorporation of all signals including signal warrant analyses. This shall include layouts, signal coordination plans, and signal interconnection. This could include the use of adaptive traffic signals. Any signal design should also include remote access from the Department.
9. ITS: ITS design, quantities, and engineer's estimate shall be designed by OTHERS and incorporated by the CONSULTANT into the design as appropriate. The work is anticipated to consist of new device (CCTV, RWIS, DMS, MVDS, etc.) installations of a hardwired backbone system within the project limits only. The design, quantities, and estimate will be provided to the CONSULTANT by OTHERS, it is assumed these will be hand drawn plans that will need to be drafted by the CONSULTANT.
 10. Presentation Plans: The CONSULTANT shall prepare presentation (colored) base plans at each formal submission as defined below. This is in addition to the Hearing Plan, informational meetings, and Public Advisory Committee meetings.
 11. Technical Reports: The CONSULTANT shall prepare technical reports, as necessary, throughout the duration of the project to document and summarize relevant technical data.
 12. Engineering Report: The CONSULTANT shall prepare a Formal Engineering Report to document the existing conditions within the corridor, 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 contain a section listing all versions of the references, manual and guides used for the project design. This shall be provided with each design submission along with a design narrative. The report shall follow the typical NHDOT outline for Engineering Reports.
 13. Design Exceptions: If a design exception is required, the CONSULTANT shall prepare the design exception document and shall provide supporting documentation to justify the exception.
 14. Cost Estimates: Construction cost estimates for each submission shall be completed and provided with the plan submission. Estimates shall be submitted with a narrative explaining all major cost changes since the previous estimate.
 15. Project Team Meetings: It is expected that over the course of the project team meetings will be held at least once per month through the duration of the design. It is anticipated that 24 meetings will

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be conducted throughout the duration of the project. These are informal meetings that will take place to discuss a variety of project issues including resource constraints, schedule, design issues, cost issues and impacts of alternatives. These meetings will include the CONSULTANT and the DEPARTMENT, but could also include staff from the Town of Epping, Rockingham Planning Commission, other State or Federal agencies, or others as appropriate. The CONSULTANT shall be responsible for all meeting minutes.

16. Public Advisory Committee Meetings: It is expected that over the course of the project Public Advisory Committee meetings will be held at least quarterly through the duration of the design. It is anticipated that 12 meetings will be conducted throughout the duration of the project. These are informal meetings that will take place to discuss a variety of project issues including schedule, design issues, alternatives and public outreach. These meetings will include the CONSULTANT and the DEPARTMENT, the Town of Epping, Rockingham Planning Commission, other State or Federal agencies, stakeholders, or others as appropriate. The CONSULTANT shall be responsible for the preparation of meeting minutes.

The CONSULTANT shall be responsible for the preparation of designs including all plans, computations, estimates and documents for the required submissions to the DEPARTMENT, FHWA, and/or any other State or Federal agency that may be required. These plans shall be in accordance with the policy and procedures of the DEPARTMENT and the provisions of this AGREEMENT as follows:

- Front Sheet
- Standard symbols
- Typical sections
- Special details
- Roadway plans (general, curbing, drainage, pavement marking, utility, etc.)
- Bridges
- 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)
- Sound walls (it is not anticipated that any soundwalls will be required on the project)
- Retaining walls (it is anticipated that if retaining walls are needed they will be used to limit impacts to environmental resources, or to limit right-of-way impacts. It is anticipated that up to four walls

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may be necessary)

- Landscaping plans and appurtenances
- Cross sections

Plans will also be required for right-of-way acquisitions (impact areas and plans to be provided by the DEPARTMENT), and all environmental permits. The plans shall include all commitments made in the environmental documents to the extent practicable as well as supplemental information developed specifically for this contract as part of the environmental documentation.

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 Right-of-Way.

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 memos shall be the responsibility of the CONSULTANT.

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

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 under Article I-I.

Right-of-way alignments will be furnished by the DEPARTMENT.

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), except as approved. Design plan check lists shall be provided with each formal submission, see Section K.1. below for additional details.

Multiple visits to the site shall be made during the design to visually observe and detect changed field conditions and, if required, 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 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

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incorporation of additional survey information shall include all drafting, labeling, detailing and field checking of the detail of all survey requests. Additional surveys may be required throughout the design process, and the CONSULTANT shall modify the design as necessary based upon the updated survey information. It is anticipated that up to 10 additional survey requests may be submitted throughout the duration of this project.

The CONSULTANT shall examine which elements of design, such as horizontal and vertical alignments, typical sections, traffic control, earthwork, drainage pipes and structures, as well as soils suitability, might affect aerial and underground utilities. Conflicts between design elements and utilities shall be identified and brought to the attention of the DEPARTMENT. A special effort shall be made by the CONSULTANT to modify drainage features in order to avoid conflicts with underground utilities, as may be required, during 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 CONSULTANT shall verify all computations and design calculations. The CONSULTANT shall furnish two (2) permanent, legible copies of the design calculations, suitably bound, and when directed, 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 construction plans, reports and any other documents that will be submitted to the DEPARTMENT. Stamps shall be those of the professional engineers who prepared them or under whose direct supervisory control they were prepared.

G. SCOPE OF WORK (UTILITIES)

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 on the plans and cross sections. The CONSULTANT shall incorporate existing utility information provided by the utility and utility relocations, as designed by the individual utility owner, into the contract plans. Municipal utility relocations (e.g., sewer and/or water), as approved by the DEPARTMENT, shall be included, as necessary, into the contract plans, cross sections, summary sheets and 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 numbers and unit prices to be used for the utility relocations.

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H. SCOPE OF WORK (PUBLIC PARTICIPATION)

The CONSULTANT shall support a dynamic 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 support displays for public participation and posting to the DEPARTMENT's project webpage, and be available to make presentations and draft meeting minutes. Specific tasks include:

1. Prepare a Public Involvement Plan: The CONSULTANT will prepare a draft Public Involvement Plan outlining the elements of the tasks listed below. The plan will include a detailed schedule of activities. Virtual tools (mobile applications, visualizations, do-it-yourself videos, crowdsourcing, virtual town hall, etc.) should be considered as part of the plan and used when appropriate. The CONSULTANT will meet with the Department to review the plan and after receiving comments, and then will revise and resubmit the final plan. The plan will be updated on a periodic basis as the project progresses and will be posted to the project website. It is anticipated that the Plan will be similar to those previously developed by the DEPARTMENT and will include:
 - Overview – including: Purpose of Public Involvement Plan, Guiding Principles, Public Involvement to Date, Project Background, Major project Components, Project Description, Project Purpose and Need, and Project Team
 - Project Process – including: NHDOT Project Development Process, Project Advisory Committee (PAC) Meetings, PAC Guidelines and Procedures
 - Communication Methods – including: NHDOT website, email, meetings, and media
2. Website: The project website will be created by the DEPARTMENT for dissemination of project information, such as meeting minutes, reports, plans, and schedules. The CONSULTANT shall be responsible for providing the Department with the content of the webpage. The CONSULTANT shall regularly update the webpage content, as appropriate to remain current; this will be forwarded to the NHDOT for posting to the NHDOT project website. It is anticipated that updates to the website will be done on a monthly basis.
3. Public Participation Support: The CONSULTANT shall prepare the colored plans and graphics for the formal submissions identified below for the DEPARTMENT. These plans are intended to support the DEPARTMENT's efforts for Public Meetings and at internal milestone meetings such as the Preliminary Plan Coordination Meeting. The CONSULTANT is responsible for attendance, presentation and preparing of any project meeting notices and meeting notes. The CONSULTANT should anticipate attending and presenting at Public Meetings.
4. Public Advisory Committee Meetings: Twelve Public Advisory Committee meetings are anticipated to be held with project stakeholders to review and discuss alternatives and to facilitate local input into

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important design decisions. The Public Advisory Committee will act in an advisory role. The CONSULTANT will prepare needed informational handouts and presentation materials, will assist with presentations as needed, and will prepare written meeting summaries for posting to the Project's webpage. The goal of the Public Advisory Committee is to discuss and reach consensus on local desires for the highway improvements. As the development of improvement alternatives proceeds, it will be crucial to work closely with this Public Advisory Committee as well as other appropriate public or private stakeholders to gain consensus on design decisions.

5. Public Officials/Public Informational Meetings:

- a. At least three Public Officials/Public Informational Meetings will be held to involve the public and other interested parties (including any Section 106 Consulting Parties) in the project development process. The first Public Officials Meeting will take place early in Part A to discuss the principles of Complete Streets and the reasonable range of design alternatives. For this meeting, the CONSULTANT will prepare colored roll plans of the existing conditions and will highlight the areas of concerns as observed. The second and third meetings, Public Informational Meetings, will focus on the Proposed Action alternatives to be presented at the Hearing and will occur during the NEPA process prior to finalizing the Draft Environmental Study/Section 4(f) Evaluation. The CONSULTANT will prepare needed informational handouts, graphics, project fact sheets, and presentation materials. It is anticipated that the CONSULTANT will produce 3 renderings of potential improvements at specific locations/intersections on the corridor for each meeting. These areas will be determined in consultation with the DEPARTMENT. The CONSULTANT will assist with presentations as needed, and shall be responsible for meeting minutes and for posting these to the Project's webpage.
- b. It is anticipated the CONSULTANT will also assist the DEPARTMENT with Local Meetings as needed to brief elected officials (e.g., Town Councils, Selectmen, Planning Boards, Conservation Commissions, RPCs, etc.). Six Local Meetings are estimated. The CONSULTANT will assist the DEPARTMENT in the preparation of project material for presentation, will prepare the meeting notes, and will attend these meetings (including Open Houses) to assist with the presentation and to document the proceedings for posting to the Project's webpage.
- c. It is anticipated that the CONSULTANT will also assist in the creation of materials for meeting notifications such as letters, flyers or post cards to inform abutters of the upcoming meetings. Distribution of the materials will be undertaken by the DEPARTMENT.

6. Visualizations: The CONSULTANT will prepare visualizations for three intersections with two alternatives for each intersection to enhance the public participation and input during the design process to help select the preferred alternative. The CONSULTANT will produce up to 3 renderings per public

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meeting (excluding the Public Advisory Committee Meetings). In addition, the CONSULTANT will prepare up to 10 renderings (before and after) of parcels along the corridor to assist in the public involvement process or to allow an abutter to visualize their frontage when the project is complete. Once the preferred alternative is selected, the CONSULTANT will prepare one corridor length visualization. These visualizations will include images of the existing roadway features with the proposed improvements superimposed. Videos of the visualizations will be created to simulate driving or flying through the corridor. The visualizations will depict the major features of the preferred alternative and the major features along the corridor. The visualization will be based upon a flat road and not the existing and proposed elevations. The visualizations will not use the actual proposed traffic volumes and patterns, but will use a typical sampling of traffic to represent the corridor.

7. **Project Fact Sheets:** The CONSULTANT will prepare up to four Project Fact Sheets, these Fact Sheets will detail key project details, key milestones, project objectives and other significant details of the project and list opportunities for public involvement, if appropriate. These Fact Sheets, once created will be reviewed and should be updated at least twice per year.
 - a. The Project Fact Sheets will be color and limited to one page double-sided.
 - b. The DEPARTMENT will print copies for distribution and will post the Project Fact Sheets to the Project's web page.
8. **Public Hearing:** A formal Public Hearing will be held near the 30% design stage to obtain public comments on the layout of the Proposed Action and environmental document and the existing metes and bounds property boundary information. The CONSULTANT will prepare the informational handouts (the Public Hearing Handout), a post-card style invitation, and presentation materials (the Hearing Plans, Profiles, Location Map, and Typical Sections), and will perform the presentations as needed, including representation at the Open House. The informational handout and the post-card invitations will be printed and distributed by the DEPARTMENT. The presentation material (printed by the CONSULTANT) will include standard colored plans (roll) and large scale plans of specific locations/intersections. The CONSULTANT will also assist the DEPARTMENT in formally addressing comments received through the public hearing process including the Report of the Commissioner.

I. 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 into the plans by the CONSULTANT:

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- a. Any available electronic topographical mapping and baseline data within the project area shall be provided along with any pertinent electronic supporting information in the format outlined in the current DEPARTMENT CAD/D Procedures and Requirements (survey field notes, ASCII point file, SDR data files, etc.).
 - b. Any additional topographic surveys of adjacent parcels, mitigation sites, wetland boundaries, or other pertinent items deemed necessary by the project team will be undertaken and processed by the DEPARTMENT. Incorporation of this information into the topographic base plan shall be the responsibility of the CONSULTANT.
 - c. Electronic drawings in MicroStation format of roadway typical cross-sections and other detail sheets shall be provided, when available from the DEPARTMENT'S CAD/D library, upon request by the CONSULTANT, in accordance with the current DEPARTMENT CAD/D procedures and Requirements.
 - d. 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 the preliminary base plans to the DEPARTMENT for submission to, and use by, the utilities. The CONSULTANT shall be responsible for the incorporation of this utility information (either in paper or electronic format) into the plans, in accordance with the current DEPARTMENT CAD/D Procedures and Requirements.
2. Prints of the following information:
 - a. Any information outlined in Article I.I.1.a. through d. above (electronic information) both existing and proposed, when available, for verification by the CONSULTANT.
 - b. Any additional information not available electronically (e.g., utilities) for the CONSULTANT to incorporate into the plans in accordance with the DEPARTMENT'S CAD/D Procedures and Requirements.
 3. Right-of-Way data: The DEPARTMENT will provide the existing condition Right-of-Way Boundary Plan (e.g., property lines to a tax map level, parcel owners, etc.). This may include legacy alignments, existing right-of-way layout, property lines (to a tax map level), parcel owners, and any other applicable abstracting information in MicroStation format for incorporation into the plans by the CONSULTANT.
 4. Plans of prior highway and bridge construction projects within the project limits, as available.
 5. Typical roadway cross-section data.
 6. Geotechnical investigations and recommendations, if available.
 7. Crash data within the study area, as needed.

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8. Necessary traffic counts and crash data, as previously collected by the DEPARTMENT. Additional traffic count data as determined will be collected by the CONSULTANT.
9. Ground survey, as needed, within the study area to supplement the digital surface model. The DEPARTMENT will process the raw survey data and incorporate into the digital surface model.
10. Mapping from aerial photography supplemented by ground survey by the DEPARTMENT within the study area. The ground model will be delivered according to the NHDOT CAD/D Procedures and Requirements.
11. The DEPARTMENT's latest high-resolution color aerial photography (which is geo-referenced and ortho-rectified).
12. The location of all existing and proposed 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 current DEPARTMENT format to the DEPARTMENT for use in assisting with the Utility design.
13. Conceptual design and layout of highway lighting (temporary and permanent) if deemed necessary. The CONSULTANT shall be responsible for incorporating the design and layout into the project documents and for recommending adjustments required to avoid conflicts.

J. WORK SCHEDULE AND PROGRESS REPORTS

The CONSULTANT shall begin performance of the services designated in the Contract promptly upon receipt from the DEPARTMENT of a Notice to Proceed and the material to be furnished as herein described. The CONSULTANT shall complete these services without delay unless unable to do so for causes not under 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 in 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 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, and at least quarterly. For months with no progress or less than \$10,000 cumulative work since the last invoice, a status report briefly describing the reasons for little or no progress shall be submitted.

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K. 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.

The CONSULTANT, with each submission, shall submit an Engineering Report and a Design Report describing the "design issues" addressed in that submission. The report shall include reference materials used, design criteria and controls, specific items and issues of interest, design calculations (e.g. superelevation, guardrail, etc.), drainage information (including back-up calculations, pollutant loading data, and a copy of the drainage software model), traffic analyses and a 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 feels that the issue is within the scope of work described in Article I. Meetings between the CONSULTANT and the DEPARTMENT shall be held prior to submissions to discuss design issues and recommendations as well as for comment resolutions after the submission.

The submissions shall be as necessary in accordance with the study process and environmental analysis as outlined above. The CONSULTANT shall supplement each submission with such paper and electronic copies of MicroStation drawings, Excel Files, drainage models, illustrations and descriptive matter as are necessary to facilitate a comprehensive understanding and review of proposed concepts.

The CONSULTANT will be expected to support their design proposals and any issues resulting from review by the DEPARTMENT or in the public participation phase (including agency coordination), with alternative studies and reasonably itemized cost comparisons for alternate concepts.

The CONSULTANT shall indicate on the plans all traffic assignments at interchanges and intersections together with the turning motions. The traffic assignments shall be expressed in terms of average daily traffic (ADT) for both the current and design years and directional design hourly volumes (DDHV) for the design year.

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 plans, etc. as well as electronic CAD/D or GIS files in accordance with the current DEPARTMENT CAD/D Procedures and Requirements. 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

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curve data) superimposed over the detail plan.

In addition to the final reproducible plans being furnished as noted herein, the CONSULTANT shall provide electronic file copies of all highway and bridge project plan sheets with real State plane coordinates, including, but not limited to, final quantity sheets, typical and detail sheets, general plans and profiles, traffic-signal sheets, and cross sections. In addition to these plan sheets, an electronic file of the entire project's final design shall be submitted in an "uncut" format showing all design features in a real State plane coordinate system, un-rotated. These 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. Any plans or calculations (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. The CONSULTANT shall also provide a hard copy of all proposed alignments (25-foot minimum station interval and curve control points) with associated State plane coordinates (x, y, z).

1. Roadway Design Submissions

It is anticipated that the early submittals during the initial part of the design will be an iterative process with some formal submissions that will follow the basic schedule below. Once the design has been through a successful formal Public Hearing it is anticipated that the design submittals will follow the standard formal submittals.

- a. Schedule – It is anticipated that the project schedule will follow this outline; descriptions of some specific submissions are below:
 - 1) Initial project set up including reviewing the data, field review the site, initiate the environmental review process, request information, review survey data, etc.
 - 2) Organize Public Advisory Committee (PAC)
 - 3) Initial meeting with PAC
 - 4) Design criteria submission: this will be to document all criteria for the design including items such as design speed, and roadway/shoulder widths.
 - 5) Range of alternatives/components submission
 - 6) Review range of alternatives/components with PAC
 - 7) Refined range of alternatives/components submission

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- 8) Public Officials/Public Informational (PO/PI) Meeting #1
- 9) Review PO/PI input with PAC
- 10) Focused alternatives submission (assume 3 alternatives)
- 11) Review focused alternatives with PAC
- 12) Refined focused alternatives submission
- 13) PO/PI meeting #2
- 14) Review PO/PI input with PAC
- 15) Preferred alternative submission (assume 1 alternative)
- 16) Review preferred alternatives with PAC
- 17) Public hearing submission
- 18) Public Hearing
- 19) Review public hearing input with PAC
- 20) Post-hearing submission (addressing hearing issues)
- 21) Review proposed hearing issue resolutions with PAC
- 22) Layout (Develop the Report of the Commissioner and hold the Finding of Necessity) and NEPA approval
- 23) Slope & Drain submission

b. Public Hearing Submission (Pre-Preliminary Plans) – Roadway:

This submission will be the basis for the Pre-Hearing Utility meeting as well as the Pre-Hearing Review by the Department. The submission shall consist of up to five sets of roll plans showing the newly created base plan, information on proposed alternative solutions, conceptual traffic control plans, profiles, critical cross sections with the top line template, including critical drive sections, conceptual drainage system details and features, utility impacts, and slope lines. This submission will be based on a complete review of the material furnished by the DEPARTMENT and developed and/or supplemented by the existing information with the CONSULTANT, particularly in regard to the proposed design criteria, predicted traffic, environmental considerations, expected Best Management Practices for erosion- and sedimentation-control and water-quality issues, conceptual traffic control and topography of the project area. The CONSULTANT shall prepare and submit to the DEPARTMENT plans, cross-sections and other applicable plan sheets showing:

- 1) The recommended horizontal and vertical alignment of all necessary roadway construction including local roads, and ramps.
- 2) All roadway cross-sections at 50-foot intervals (except 25-foot intervals in rock areas), which shall be plotted with the top line of the template of the proposed roadway cross-

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sections shown. The CONSULTANT shall recognize that geotechnical information is not available at this time and, therefore, this submission will need to be recut and reordered for subsequent submissions.

- 3) Proposed pavement layouts and major control elements.
- 4) The alignment (horizontal and vertical) of major diversions or construction phases that will have significant implications for the project in the final design. Critical cross-sections (with superelevations) shall be developed and labeled by phases to assist in the assessment of the conceptual traffic-control phasing and conceptual location of overhead-sign structures.
- 5) Conceptual Best Management Practices for water-quality structures shall be shown with approximated flows. A presentation and narrative will be required to explain the concept for approval.
- 6) Recommended water-quality treatment.
- 7) Preliminary typical sections with top-line template.

The following issues, at a minimum, shall also be considered in the development of the above-mentioned plans:

- 1) Conceptual Traffic Control Plan and construction phasing.
- 2) Earthwork balances.
- 3) Right-of-way involvement.
- 5) Potential conflicts with major utilities.

This submission shall be supplemented with such conceptual drawings, illustrations and descriptive matter as are necessary to facilitate a comprehensive review of both the proposed design and the feasibility of construction, and the coordination with the design of bridges or other structures. This shall include profiles and cross-sections, particularly where clearances and setbacks may be issues.

This submission shall include 2 bound copies of the "design report" which includes the CONSULTANT's recommendations with a preliminary estimate as appropriate and relevant for the contract. The estimates for this submission shall be reasonably itemized to cover roadways, structures, drainage and other construction items as well as costs of utility changes to be financed by the STATE. The design report shall include, at a minimum, a narrative describing each alternative design with advantages and disadvantages, with supporting design criteria documentation, preliminary Level of Service calculations (and coordination analysis if necessary), signal warrant analysis, intersection capacity, turning lane storage queue lengths, study estimate, environmental commitments, superelevation calculations, preliminary drainage

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layout and issues, utility issues/concerns, turning movement, sight distances, guardrail calculations and any pending/outstanding issues.

For development of the proposed right-of-way lines, sight-distance review and the assessment of environmental impacts, it shall be necessary that all templates be plotted to develop slope lines. Rounding of slopes shall be considered in developing slope lines, but plotted cross-section templates do not need to have roundings shown at this submission.

c. Post Hearing Submission (Preliminary Plan Submission) – Roadway:

This submission is intended to update the previous submission (Public Hearing) with changes that were required as a result of the hearing testimony. It is not anticipated that major items will change between the Public Hearing and Post Hearing submissions. The submission shall consist of up to five sets of roll plans showing slope lines, approximate drainage-system details and drainage features, and proposed right-of-way lines, including drainage, slope and/or construction easements. This submission will be based on a complete review of the material furnished by the DEPARTMENT and developed and/or supplemented by the existing information with the CONSULTANT, particularly in regard to the proposed design criteria, predicted traffic, preliminary soil data, expected Best Management Practices for erosion- and sedimentation-control and water-quality issues, conceptual traffic control and topography of the project area, the CONSULTANT shall prepare and submit to the DEPARTMENT plans cross-sections and other applicable plan sheets showing:

- 1) The recommended horizontal and vertical alignment of all necessary roadway construction including local roads, and ramps.
- 2) All roadway cross-sections at 50-foot intervals (except 25-foot intervals in rock areas), which shall be plotted with the top line of the template of the proposed roadway cross-sections shown. The CONSULTANT shall recognize that, typically, geotechnical information is not available at this time and, therefore, this submission may need to be recut and reordered for subsequent submissions when soils/ledge information is made available.
- 3) Proposed pavement layouts and major control elements.
- 4) The alignment (horizontal and vertical) of major diversions or construction phases that will have significant implications for the project in the final design. Critical cross-sections (with superelevations) shall be developed and labeled by phases to assist in the assessment of the conceptual traffic-control phasing and conceptual location of overhead-sign structures.

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- 5) Conceptual Best Management Practices for water-quality structures shall be shown with approximated flows. A presentation and narrative will be required to explain the concept for approval.
- 6) Recommended water-quality treatment.
- 7) Roll plans shall show where match lines are anticipated for future cut sheets.
- 8) Preliminary typical sections with top-line template.
- 9) Proposed limits and recommendations for letting the construction under separate contracts, including cost estimates, areas of overlap, maintenance of traffic, drainage, etc.
- 10) Proposed right-of-way layout with bounds.

The following issues, at a minimum, shall also be considered in the development of the above-mentioned plans:

- 1) Conceptual Traffic Control Plan and construction phasing.
- 2) New Hampshire Dredge and Fill Application
- 3) Conceptual design for mitigation areas and preliminary summary of wetland impacts.
- 4) Earthwork balances
- 5) Potential closed drainage and underdrain outlets, and cover over drainage structures.
- 6) Right-of-way involvement.
- 7) Potential conflicts with major utilities.

This submission shall be supplemented with such conceptual drawings, illustrations and descriptive matter as are necessary to facilitate a comprehensive review of both the proposed design and the feasibility of construction, and the coordination with the design of bridges or other structures. This shall include profiles and cross-sections, particularly where clearance and setbacks may be issues.

This submission shall include 2 bound copies of the "design report" which includes the CONSULTANT's recommendations with a preliminary estimate as appropriate and relevant for the contract. The estimates for this submission shall be reasonably itemized to cover roadways, structures, drainage and other construction items as well as costs of utility changes to be financed by the STATE.

For development of the proposed right-of-way lines, sight-distance review and the assessment of environmental impacts, it shall be necessary that all templates be plotted to develop slope lines. This shall require computation and submission of pavement-superelevation calculations. Rounding of slopes shall be considered in developing slope lines, but plotted cross-section templates do not need to have roundings shown at this submission. Guardrail calculations shall also be submitted.

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d. Slope and Drain Plans – Roadway:

The submission shall consist of up to five sets of roll or cut sheet plans (paper prints) showing slope lines, drainage system details and drainage features, and proposed right-of-way lines, including drainage, slope and/or construction easements. The submission shall also include 2 bound copies of the design report. The Slope and Drain Plans shall include typical sections, plan views (roll plans as a minimum), profiles, guardrail locations, and cross-sections with complete template plotted and appropriate references on the plans relative to drainage design to assist with the review of the drainage design and the backup drainage calculations. The submission shall be supplemented with a list of utility conflicts that could not be avoided during the design. Complete Best Management Practice (BMP) designs for permanent water-quality structures shall be shown accompanied by backup calculations, including a pre- versus post development pollutant loading assessment. 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 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 book(s) shall be submitted with all backup drainage calculations illustrated and referenced to each drainage appurtenance shown based on the drainage design.

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

Also with the Slope and Drain submission, the CONSULTANT shall submit the Traffic Control Plans in near-final form (roll plans, as a minimum) showing temporary slopes, lane uses and widths, overhead sign structures, temporary guardrail and barrier locations, temporary drainage, temporary easements, profiles, temporary drives, diversion cross-sections and superelevations, etc. with backup calculations. Construction phasing shall be shown with narratives for each phase. The CONSULTANT shall also submit a conceptual construction schedule (in MS Project) for the contract, showing the phased construction and assumed utility relocation time frames, for review and comment by DEPARTMENT staff.

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The CONSULTANT shall submit a Slope and Drain Plan noting the construction phasing, traffic control, temporary drainage and water-quality commitments. All temporary drainage features shall have backup calculations submitted.

At this submission, a revised itemized estimate shall be prepared 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.

Following incorporation of the DEPARTMENT'S comments on the Slope and Drain Submission, the CONSULTANT shall submit Wetland Impact plans showing permanent and temporary impacts for inclusion with 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 construction contract.

e. Utility Plans:

Concurrent with the Slope and Drain submission, the CONSULTANT shall furnish up to seven sets of cut sheet plans (paper prints) of front sheet, plans, profiles, and up to seven 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 plan development (supplied by the DEPARTMENT). 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

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formal submission for relocations. The plans shall show the status of the design prior to preparation of the Preliminary PS&E submission.

f. Wetland Plans:

The CONSULTANT will prepare a permit application and plans for filing with the NHDES Wetland Bureau and the ACOE. (See Wetlands Permit/Dredge and Fill Application and plans: under Article I-E for details.)

g. Shoreland Plans:

The CONSULTANT shall complete the permit application and plans including any necessary supporting documentation for the application. (See Shoreland Protection under Article I-E for details.)

2. Bridge Design Submissions:

The plan submissions for the Lamprey River bridge structure 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:

- a. Type-Span-Location (TSL) Study: As a part of the TSL Study, the CONSULTANT shall prepare a conceptual pre-TSL plan sheet. The plan shall depict the plan and elevation of the proposed bridge(s) at each location showing the span lengths, structural materials, bridge cross-section and assumed foundation type.

The alignments and profiles developed during the preliminary design of the highway portion of the project may, after approval of the preliminary highway plans by the DEPARTMENT, contribute to determining the types of structures that ultimately will be utilized and the arrangement of the structure and its components with respect to span lengths, clearances, alignments, etc. which may affect the interface between the bridge and the highway or other features at the bridge location. These “other” features may include existing bridge, drainage facilities, buildings, streets, utilities, etc. or new structure and roadways, ramps, etc. that will be part of this project.

TSL study plans shall be prepared for each bridge showing the selected structure and shall include the plan, elevation and typical bridge section. Plans developed for the pre-TSL submission may be used if appropriate. The plan and elevation shall generally be draw to a

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scale as approved by the DEPARTMENT and shall accurately portray the location and size of the structural components, pavement and slope lines, center and grade lines, vertical and horizontal clearances, etc. The typical bridge section shall portray the components of the superstructure, materials of construction, beam spacing and locations where an existing bridge is adjacent to or a second bridge is proposed, sufficient detail shall be provided for the second bridge to clearly and accurately show the relationship between the two structures.

- b. Boring Layout – The CONSULTANT shall provide a plan with the location of the proposed bridge abutments and proposed boring locations for the DEPARTMENT’S use in order to perform geotechnical explorations. See section D.2 above for other requirements.

- c. Preliminary Bridge Plans

Preliminary plans for the bridge shall be prepared following the written acceptance by the DEPARTMENT of the TSL Study and Boring Layout, completion of the subsurface explorations, and preparation of the subsurface data sheets. The results of the subsurface explorations shall be plotted, indicating the materials encountered (by description and blow counts), water table, approximate construction elevations, etc. These subsurface data sheets shall be further developed for inclusion in the preliminary plans. Included in this phase shall be the development of the survey plan for the bridge location. This plan shall include the existing surface contours, boring locations, sub- and superstructure layout, slope limits, and major topographical items.

The plan and elevation sheets shall be developed. Profiles shall be developed for each alignment and shall include the appropriate section of the bridge, including substructure and foundation details.

Additional items to be included are the typical approach sections for the facilities over and under the bridge and the developed view of the abutments showing foundation treatment and rock lines, as appropriate. These items shall become part of the final PS&E plans.

Reproducible prints of these Preliminary Plans and estimated quantities and construction costs shall be submitted for approval by the DEPARTMENT prior to progressing to final design of the bridge.

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

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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 horizontal, vertical, and pavement layout shall be complete and in a condition to allow further development toward final design.
- 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 versionThese 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.
 - DVD: Files on DVD(s) should be actual size, not compressed.
 - E-mail: Files 10 MB or smaller may be transferred via Email. 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

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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 Information:

- Website Content: All 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").

Upon completion of the AGREEMENT, the CONSULTANT shall turn over all documentation.

L. DATE OF COMPLETION

In accordance with the Governor and Council Resolution authorizing this AGREEMENT, the date of completion for the Part A professional services rendered under this AGREEMENT is November 30, 2022.

ARTICLE II

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: \$377,886.07

- 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, 2018, which expires June 30, 2020, 148.72%, shall be used for invoicing for the life of the AGREEMENT.

Overhead costs are estimated at: \$561,992.16

- 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: \$93,987.82

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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 do not require individual invoices, unless the subcontract is more than 25% of the contract total.

Direct expenses are estimated at: \$33,275.00

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

GM2 Associates, Inc.	<u>\$208,610.48</u>
LM Preservation	<u>\$40,040.00</u>
Independent Archaeological Consulting, LLC	<u>\$44,109.36</u>
Harris Miller Miller & Hanson, Inc.	<u>\$44,890.34</u>
AGREEMENT NOT-TO-EXCEED TOTAL	<u>\$1,404,791.23</u>

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 \$1,404,791.23, the sum of the amounts shown in Article II, Section A (which amount is based on the CONSULTANT'S fee and manhour estimates of July 24, 2019), 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.

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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).

ARTICLE II

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

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 IV

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 40 Stark Street, Manchester, 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

ARTICLE IV

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. REVISIONS TO REPORTS, PLANS OR DOCUMENTS

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

ARTICLE IV

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.

ARTICLE IV

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,

ARTICLE IV

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,

ARTICLE IV

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.

ARTICLE IV

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

ARTICLE IV

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.

ARTICLE IV

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

ARTICLE IV

subconsultant shall report violations to the FHWA and to the U. S. Environmental Protection Agency Assistant Administrator for Enforcement (EN-329).

Attachment 1

**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 X, proposed subconsultant _____, hereby certifies that it has X, 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 X, 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.

BETA Group, Inc.

(Company)

By:

Beth Lane
SR. Associate Dir. of Admin.

(Title)

Date: September 10, 2019

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 2

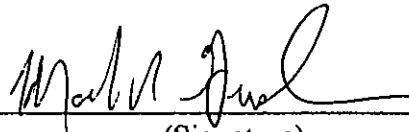
**CONSULTANT DISCLOSURE STATEMENT
FOR PREPARATION OF
ENVIRONMENTAL EVALUATIONS**

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.

September 10, 2019

(Date)

A handwritten signature in black ink, appearing to read "Mark A. Fowl", written over a horizontal line.

(Signature)

Attachment 3

CERTIFICATION OF CONSULTANT/SUBCONSULTANT

I hereby certify that I am the Vice President and duly-authorized representative of the firm of BETA Group, 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.

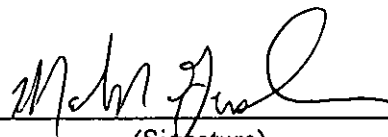
except as here expressly stated (if any):

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.

September 10, 2019

(Date)



(Signature)

Attachment 4

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):

September 12, 2019
(Date)


(Signature)

Attachment 5

**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 9

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

Consultant

WITNESS TO THE CONSULTANT

By: [Signature]
SR. Associate / Dir. of Admin

Dated: September 10, 2019

CONSULTANT

By: [Signature]
Vice President
(TITLE)

Dated: September 10, 2019

Department of Transportation

WITNESS TO THE STATE OF NEW HAMPSHIRE

By: [Signature]

Dated: September 12, 2019

THE STATE OF NEW HAMPSHIRE

By: [Signature]
Director of Project Development
for DOT COMMISSIONER

Dated: September 12, 2019

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: 10/14/2019

By: [Signature]
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

Corporate Resolution

Project Ref: Epping X-A004(196) 29608 (Part A)

I, Joseph D'Alesio, hereby certify that I am duly elected Clerk/Secretary of
(Name)

BETA Group, Inc.

(Name of Corporation or LLC)

I hereby certify the following is a true copy of a
vote taken at a meeting of the Board of Directors/shareholders, duly called and held on May
(Month)

20, 20 19 at which a quorum of the Directors/shareholders were present and voting.
(Day) (Year)

VOTED: That Mark Gershman, Vice President, duly authorized to enter into a
(Name and Title)

contract or agreements on behalf of BETA Group, Inc. with the
(Name of Corporation or LLC)

Department of Transportation

State of New Hampshire and further is
(Name of State Agency)

authorized to execute any documents which may in his/her judgment be desirable or necessary to
effect the purpose of this vote.

I hereby certify that said vote has not been amended or repealed and remains in full force and effect as of
the September 10, 20 19. I further certify that it is understood that the State of New
(Month) (Day) (Year)

Hampshire will rely on this certificate as evidence that the person listed above currently occupies the position
indicated and that they have full authority to bind the corporation to the specific contract indicated.

DATED: September 10, 2019

ATTEST: Joseph D'Alesio
(Name and Title)

State of New Hampshire

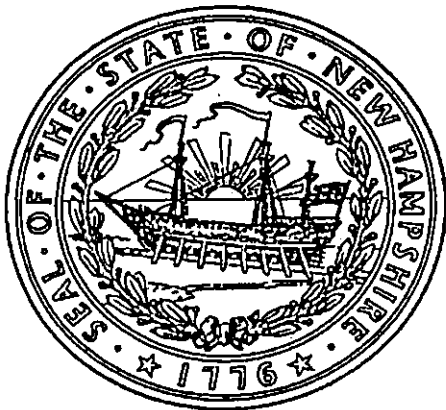
Department of State

AMENDED CERTIFICATE OF AUTHORITY OF BETA GROUP, INC.

The Secretary of State of the State of New Hampshire hereby certifies that an Application of **BETA GROUP, INC.**, for an Amended Certificate of Authority to transact business in this State, duly signed pursuant to the provisions of the New Hampshire Business Corporation Act, has been received in this office.

ACCORDINGLY the undersigned, by virtue of the authority vested in him by law, hereby issues this Amended Certificate of Authority to **BETA GROUP, INC.** to transact business in this State under the name of **BETA GROUP, INC.**, and attaches hereto a copy of the Application for such Amended Certificate.

Business ID: 351598



IN TESTIMONY WHEREOF,
I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 16th day of August 2019 A.D.

A handwritten signature in cursive script, appearing to read "William M. Gardner".

William M. Gardner
Secretary of State

State of New Hampshire

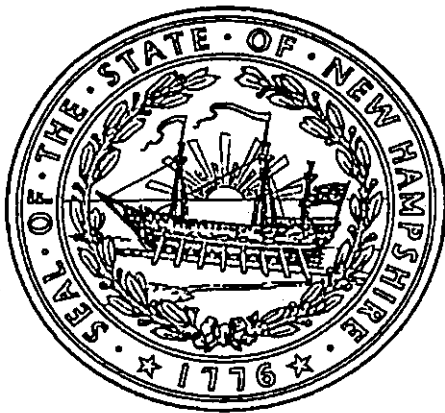
Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that BETA GROUP, INC. is a Delaware Profit Corporation registered to transact business in New Hampshire on July 24, 2000. 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: 351598

Certificate Number : 0004568361



IN TESTIMONY WHEREOF,

I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 16th day of August A.D. 2019.

A handwritten signature in cursive script, appearing to read "William M. Gardner".

William M. Gardner
Secretary of State



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
08/26/2019

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 Fitts Insurance Agency, Inc. 2 Willow Street, Suite 102 Southborough, MA 01745-1020 Fitts Insurance Agency	508-620-6200	CONTACT NAME: Jodi Colena PHONE (A/C, No, Ext): 508-620-6200 FAX (A/C, No): 508-481-0227 E-MAIL ADDRESS: JColena@FittsInsurance.com														
	INSURED Beta Group, Inc. 701 George Washington Highway Lincoln, RI 02865	<table border="1"> <thead> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A: Travelers Indemnity of America</td> <td>225666</td> </tr> <tr> <td>INSURER B: Travelers Indemnity Company</td> <td>225658</td> </tr> <tr> <td>INSURER C: Travelers P&C Ins Co of Americ</td> <td>225674</td> </tr> <tr> <td>INSURER D: Charter Oak Fire Insurance Co.</td> <td>225615</td> </tr> <tr> <td>INSURER E: Lexington Insurance Company</td> <td>19437</td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </tbody> </table>		INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Travelers Indemnity of America	225666	INSURER B: Travelers Indemnity Company	225658	INSURER C: Travelers P&C Ins Co of Americ	225674	INSURER D: Charter Oak Fire Insurance Co.	225615	INSURER E: Lexington Insurance Company	19437	INSURER F:
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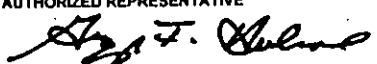
COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

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 WYD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	X		6306K894484	04/12/2019	04/12/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			BA6K919446	04/12/2019	04/12/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10000			CUP6K922739	04/12/2019	04/12/2020	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
D	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N <input checked="" type="checkbox"/> N If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	UB6K772536	04/12/2019	04/12/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
E	Professional & Pollution Liab			029210548 DEDUCTIBLE \$150,000	04/12/2019	04/12/2020	Ea Claim \$ 5,000,000 Aggregate \$ 5,000,000

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

RE: Epping 29608 Professional Engineering and Environmental Consulting Services NH Route 125. State of New Hampshire is an additional insured per CGD4670219, CGD6040219, EU0001 0716 attached. Modified Professional Deductible of \$75,000 applies.

CERTIFICATE HOLDER State of New Hampshire DOT P.O. Box 1856 Concord, NH 03302-1856	STATEMENT STATEMENT	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 
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