



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

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Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

Bureau of Highway Design
June 12, 2018

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 the firm of Vanasse Hangen Brustlin, Inc., Bedford, NH, Vendor #174584, for an amount not to exceed \$2,984,462.20, for preliminary and final design to incorporate the fourth travel lane in each direction for approximately 2 miles of the I-93 corridor beginning at the Massachusetts State Line and ending near Exit 1 in the Town of Salem, effective upon Governor and Council approval through March 31, 2021. 100% Federal Funds.

Funds to support this request are available in the following account in State FY 2019, and are contingent upon the availability and continued appropriation of funds in FY 2020 and FY 2021, with the ability to adjust encumbrances between State Fiscal Years through the Budget Office, if needed and justified:

Table with 5 columns: Account Number, FY 2018, FY 2019, FY 2020, FY 2021. Rows include Consolidated Federal Aid and Gen Consultants Non-Benefit.

EXPLANATION

The Department requires professional engineering, environmental, and public involvement consulting services for the preparation of preliminary engineering plans and formal environmental documentation, final design, contract plans, specifications, special provisions, and estimates of quantities and costs, as well as right-of-way plans, title abstracting, appraisals and acquisitions. The goal of this project is to verify that the previously selected preferred alternative is consistent with original NEPA documentation under the Salem-Manchester 10418C project, move that design through to contract plans, and provide construction support services. It is anticipated that NEPA compliance can be evaluated and summarized in a re-evaluation letter/report. The design shall consider temporary and permanent erosion control measures and Best Management Practices (BMPs) consistent with current New Hampshire Department of Environmental Services (NHDES) guidelines, barriers for sight and sound relief, traffic control measures, drainage, and treatments to minimize environmental impacts, highway signs, traffic analysis, and pavement markings. 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. This project is included in the State's Ten-Year Transportation Improvement Plan (Salem-Manchester 13933A). Previous I-93 corridor efforts were focused and prioritized on accomplishing the widening and capacity improvements to the north. This is the last component of fully completing the I-93 project.

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 Salem-Manchester 13933A Widening from the Massachusetts State Line north to Exit 1 (NB & SB) (Preliminary and Final Design). The assignment was listed as a "Project Soliciting for Interest" on the Department's website on January 18, 2017 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 February 23, 2017 for consideration and approval by the Assistant Commissioner. Upon receipt of that approval, four shortlisted firms were notified on March 13, 2017 through a technical "Request for Proposal" (RFP). Committee members individually rated the firms on April 27, 2017 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 four 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 and short list of the four consultant firms that were considered for this assignment is as follows:

Consultant Firm

Office Location

CHA Consulting, Inc.
Louis Berger U.S., Inc.
Stantec Consulting Services, Inc.
Vanasse Hangen Brustlin, Inc.

Keene, NH
Manchester, NH
Bedford, NH
Bedford, NH

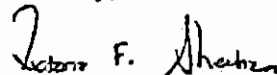
The firm of Vanasse Hangen Brustlin, Inc. was recommended for this contract. This firm has an excellent reputation and has demonstrated their capability to perform the required services. Background information on this firm is attached.

Vanasse Hangen Brustlin, Inc. has agreed to furnish the professional engineering services for an amount not to exceed \$2,984,462.20. 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: Salem-Manchester 13933A

DESCRIPTION: Preliminary and final design of the I-93 corridor improvements beginning at the Massachusetts State line and ending near Exit 1 in Salem to incorporate the fourth lane of travel in each direction. This effort will utilize, as a starting point, existing design work and plans that have been advanced to approximately the pre-preliminary design phase for the mainline roadway design. There may be contract breakouts for staged advertisement. This effort will also require services to support project advertisements including, but not limited to: Project management; Environmental efforts including: identify all applicable environmental permitting requirements, calculate/document environmental impacts, apply for all applicable environmental permits, and noise mitigation/soundwall evaluation and design; Drainage design including river hydraulics, pollutant loading and construction stormwater assessments; Construction traffic control & constructability evaluations; CPM scheduling; ITS accommodations; In-depth cost estimating including financial planning for the entire I-93 corridor; Public involvement/outreach including newsletters and a website for the entire I-93 corridor; and Construction review services.

Services Required: RDWY, BRDG, ENV, TRAF, PM, ITS, HAZ, HIST, AIR, NOIS, HYD, ROW, PINV

SUMMARY

CHA Consulting, Inc.	2	2	1	2	1	2	2	12
Louis Berger U.S., Inc.	3	4	4	3	3	4	4	25
Stantec Consulting Services, Inc.	4	3	3	4	4	3	3	24
Vanasse Hangen Brustlin, Inc.	1	1	2	1	2	1	1	9

EVALUATION OF TECHNICAL PROPOSALS

Rating Considerations	WEIGHT	Scoring of Firms			
		CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	18	17	17	18
Clarity of the Proposal	20%	18	17	17	18
Capacity to Perform in a Timely Manner	20%	18	17	17	18
Quality & Experience of Project Manager/Team	20%	19	17	17	19
Previous Performance	10%	9	8	7	9
Overall Suitability for the Assignment*	10%	8	8	7	9
Total	100%	90	84	82	91

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. Vanasse Hangen Brustlin Inc
 2. CHA Consulting, Inc.
 3. Louis Berger U.S. Inc
 4. Stantec Consulting Services Inc

Rating Considerations	WEIGHT	Scoring of Firms			
		CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	15%	18%	17%	20%
Clarity of the Proposal	20%	15%	12%	17%	20%
Capacity to Perform in a Timely Manner	20%	15%	17%	17%	22%
Quality & Experience of Project Manager/Team	20%	15%	17%	18%	19%
Previous Performance	10%	9%	5%	8%	10%
Overall Suitability for the Assignment*	10%	10%	8%	8%	9%
Total	100%	95%	81%	85%	98%

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. VHB
 2. CHA
 3. Stantec
 4. LB

EVALUATION OF TECHNICAL PROPOSALS (continued)

Rating Considerations	Scoring of Firms				
	WEIGHT	CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	20	16	17	20
Clarity of the Proposal	20%	20	17	19	19
Capacity to Perform in a Timely Manner	20%	19	17	18	20
Quality & Experience of Project Manager/Team	20%	20	18	17	19
Previous Performance	10%	10	9	10	10
Overall Suitability for the Assignment*	10%	10	9	9	10
Total	100%	99	88	92	98

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. CHA/MS
 2. VHB
 3. STANTEC
 4. L.B.

Rating Considerations	Scoring of Firms				
	WEIGHT	CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	19	18	18	20
Clarity of the Proposal	20%	19	16	17	20
Capacity to Perform in a Timely Manner	20%	19	17	17	20
Quality & Experience of Project Manager/Team	20%	19	19	18	20
Previous Performance	10%	10	9	9	10
Overall Suitability for the Assignment*	10%	10	9	7	10
Total	100%	96%	88%	86%	100%

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. VHB
 2. CHA
 3. LB
 4. STANTEC

Rating Considerations	Scoring of Firms				
	WEIGHT	CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	18	16	16	18
Clarity of the Proposal	20%	19	16	17	18
Capacity to Perform in a Timely Manner	20%	18	17	16	18
Quality & Experience of Project Manager/Team	20%	19	18	17	19
Previous Performance	10%	10	9	9	10
Overall Suitability for the Assignment*	10%	10	9	9	10
Total	100%	94	85	84	93

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. CHA
 2. VHB
 3. LB
 4. STANTEC

Rating Considerations	Scoring of Firms				
	WEIGHT	CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	18	15	18	18
Clarity of the Proposal	20%	17	14	17	17
Capacity to Perform in a Timely Manner	20%	17	15	17	19
Quality & Experience of Project Manager/Team	20%	18	15	17	19
Previous Performance	10%	9	7	8	10
Overall Suitability for the Assignment*	10%	8	7	8	9
Total	100%	87	73	85	92

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. VHB
 2. CHA
 3. STANTEC
 4. LBG

Rating Considerations	Scoring of Firms				
	WEIGHT	CHA Consulting, Inc.	Louis Berger U.S., Inc.	Stantec Consulting Services, Inc.	Vanasse Hangen Brustlin, Inc.
Comprehension of the Assignment	20%	18	15	17	19
Clarity of the Proposal	20%	17	15	16	19
Capacity to Perform in a Timely Manner	20%	19	17	15	18
Quality & Experience of Project Manager/Team	20%	17	16	15	19
Previous Performance	10%	7	7	8	9
Overall Suitability for the Assignment*	10%	9	7	8	10
Total	100%	87	77	79	94

*Includes: Proximity to project; usage, quality and experience of subconsultants proposed; relationship of firm municipalities or other third party.

- Ranking of Firms:
1. VHB
 2. CHA
 3. STANTEC
 4. LBG

ARCHITECT – ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER (If any)
NH DOT Prequalification SF330 Part II

PART II – GENERAL QUALIFICATIONS

(If a firm has branch offices, complete for each specific branch office seeking work.)

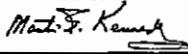
2a. FIRM (OR BRANCH OFFICE) NAME Vanasse Hangen Brustlin, Inc. (VHB) / Bedford			3. YEAR ESTABLISHED 1987	4. DUNS NUMBER 61-521-0440
2b. STREET 2 Bedford Farms Drive, Suite 200			5. OWNERSHIP	
2c. CITY Bedford	2d. STATE NH	2e. ZIP CODE 03110-6532	a. TYPE Corporation	
6a. POINT OF CONTACT NAME AND TITLE Martin F. Kennedy, PE, Senior Principal, Managing Director			b. SMALL BUSINESS STATUS N/A	
6b. TELEPHONE NUMBER (603) 391-3900	6c. E-MAIL ADDRESS mkennedy@vnb.com		7. NAME OF FIRM (If block.2a is a branch office) Vanasse Hangen Brustlin, Inc. (VHB)	
8a. FORMER FIRM NAME(S) (If any) Vanasse/Hangen Design, Inc., 1978 Vanasse/Hangen Associates, Inc. 1979 Vanasse/Hangen Engineering, Inc. 1986			8b. YR. ESTABLISHED 1979	8c. DUNS NUMBER 09-587-4384
Vanasse/Hangen, Inc. 1986 Vanasse Hangen Brustlin, Inc. 1989				

9. EMPLOYEES BY DISCIPLINE				10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS		
a. Function Code	b. Discipline	c. No. of Employees		a. Profile Code	b. Experience	c. Revenue Index Number (see below)
		(1) FIRM	(2) BRANCH			
02	Administrative	160	5	B02	Bridges	6
08	CADD Technician	44	3	C15	Construction Management	5
12	Civil Engineer	202	7	E09	Environmental Impact Studies, Assessments or Statements	7
13	Communications Engineer	9	3	G04	Geographic Information System Services: Development, Analysis, and Data Collection	6
23	Environmental Engineer	9	1	H07	Highways; Streets; Airfield Paving; Parking Lots	8
24	Environmental Scientist	94	5	L02	Land Surveying	6
29	Geographic Information System Specialist	30	4	R04	Recreation Facilities (Parks, Marinas, Etc.)	6
38	Land Surveyor	60	4	R06	Rehabilitation (Buildings; Structures; Facilities)	5
39	Landscape Architect	14	1	T03	Traffic & Transportation Engineering	8
57	Structural Engineer	46	6			
58	Technician/Analyst	78	1			
60	Transportation Engineer	254	17			
64	Information Technology	27	3			
	Other	237	0			
	Total	1264	60		Other	10

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUE OF FIRM FOR LAST 3 YEARS (Insert revenue index number shown at right)		PROFESSIONAL SERVICES REVENUE INDEX NUMBER			
a. Federal Work	7	1. Less than \$100,000	6. \$2 million to less than \$5 million	7. \$5 million to less than \$10 million	8. \$10 million to less than \$25 million
b. Non-Federal Work	10	2. \$100,000 to less than \$250,000	9. \$25 million to less than \$50 million	10. \$50 million or greater	
c. Total Work	10	3. \$250,000 to less than \$500,000			
		4. \$500,000 to less than \$1 million			
		5. \$1 million to less than \$2 million			

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 	b. DATE December 19, 2016
c. NAME AND TITLE Martin F. Kennedy, PE Senior Principal, Managing Director	

Peter A. Clary, PE

Project Manager



Education

BS, Civil Engineering, Clarkson University, 1987

Registrations/ Certifications

Professional Engineer NH, 1992

Professional Engineer ME, 2001

NHDOT LPA Certified

Affiliations/ Memberships

American Society of Civil Engineers

New Hampshire Public Works and Municipal Engineering Association

Pete is the Director of Transportation Engineering in VHB's Bedford, New Hampshire, office. With a varied background in the transportation industry, his planning, and preliminary and final design experience of roadways, along with his experience in highway design and construction projects, enables him to balance the needs of each project. Previously employed with the NHDOT, he is a highly regarded professional with a deep understanding of the state's best practices, standards, and requirements. This experience has provided him with an insight into the constructability of projects, enabling him to identify smart, implementable solutions at the design phase that will work through to construction.

30 years of professional experience

NHDOT, I-93 Improvements, Final Design, Salem to Manchester, NH

Pete was Highway Task Manager for the final design of I-93 from the state line north four miles through the interchanges at Exit 1 and 2. This project is widening the existing four-lane divided interstate to an eight-lane divided interstate with considerations for the railroad corridor and BMPs. The interchanges were fully reconstructed to improve capacity and safety.

NHDOT, I-93 Exit 4 Park-and-Ride (NH Route 102), Londonderry, NH

Pete was a Design Engineer for NHDOT on this expansion of the facility to accommodate the growth of the facility and provide for bus service. The design called for preliminary and final design layout of the parking spaces, drainage, and grading. The layout included the circulation patterns of general traffic and the bus facilities

NHDOT, I-93 Widening Wetland Mitigation, Salem to Manchester, NH

Pete was Project Manager for the wetland mitigation sites for the future I-93 widening from Salem to Manchester. This project entailed the design and construction phase services to create and preserve wetlands on sites in Salem and Londonderry.

NHDOT, I-93 Exit 12 Safety Improvement Project, Concord, NH

Pete was Project Manager for the safety improvements to Interstate 93 near Exit 12. Work included the reestablishment of the superelevation, construction of F-shaped median barrier, and replacement of overhead and cantilevered sign structures.

NHDOT, I-93 Reconstruction and Widening, Concord, NH

Pete worked as a construction inspector on the reconstruction and widening of I-93 and four bridges between Exits 12 and 13 at a construction cost of \$6 million.

NHDOT, I-93 Exit 20 Interchange Reconstruction, Tilton, NH

Pete worked for the NHDOT as a consultant reviewer on pavement rehabilitation of I-93, ramp realignment, widening and reconstruction of US 3/NH 11 and the bridge replacement of the US 3/NH 11 bridge over I-93, at a cost of \$9 million.

NHDOT, I-93 Exit 16 Interchange Reconstruction, Concord, NH

Pete worked for the NHDOT as a consultant reviewer on the pavement rehabilitation of Interstate 93, ramp realignment, widening and reconstruction of West Portsmouth Street, and the West Portsmouth Street bridge replacement over I-93, at a construction cost of \$5 million.

NHDOT, Spaulding Turnpike, Little Bay Bridges Final Design, Newington-Dover, NH

Pete is the Project Manager for the roadway and bridge final design for the \$270M Spaulding Turnpike Improvements Project. The project included roadway design, right-of-way, a retaining wall, environmental design and analysis, landscape design, and traffic engineering, including ITS integration. The focal point of the project was two 1,600-foot-long Little Bay Bridges, a new one that has finished construction and the existing bridge that is being rehabilitated now. The new bridge design was a dual design of both steel and concrete girder superstructures. The project included an extensive public involvement process through many public meetings and the development of the newsletter and website.

NHDOT, I-293 and Bodwell Road, Manchester, NH

Pete was Senior Design Engineer responsible for final design of approximately 3.2 miles (5.2 km) of improvements to the I-93 northbound and southbound merge/diverge with I-293 and widening of the I-93 bridges over Bodwell Road for present and future lane requirements in Manchester. Coordination and incorporation of water and sewer lines, telephone conduit and other utility relocations within the Bodwell Road corridor.

MaineDOT, I-295 Exit 20 Interchange Improvements, Freeport, ME

Pete was Project Manager for the evaluation to modify the existing diamond interchange on I-295 to a diverging diamond interchange (DDI). The work included data collection, traffic analysis, conceptual design, construction, cost estimating, a peer review, and public outreach, and resulted in a product that enables MaineDOT to coordinate with the Town of Freeport and LL Bean on the project, by which they can determine if the project should be advanced to design and construction. The second phase entails the design and permitting of the project.

NHDOT, I-293 Exits 6 and 7 Improvements, Manchester, NH

Pete is the Highway Task Manager for the I-293 improvements project as it passes through Manchester, NH. The project involves consideration of the widening and realignment of the mainline, the reconfiguration of Exit 6, and the relocation of Exit 7, as well as Transportation Demand Management (TDM) and Transportation System Management (TSM) measures including the assessment of alternative modes of travel. A key element in the development and evaluation of alternatives is maintaining an open and consensus-driven public outreach process.

Maine Turnpike Authority, Exit 63 Interchange Improvements, Gray, ME

Pete is the Project Manager for the reconstruction of the Exit 63 interchange in Gray, Maine. The project involves relocating the southbound ramps to the west side of the interchange, removing the existing southbound ramps bridge, and realigning the northbound ramps. It also includes parallel acceleration lanes entering the turnpike, widening Route 202 and Route 26A to accommodate the projected traffic patterns, providing minor repairs to the Route 202 bridge, and interconnecting the two signals at the interchange with the two signals in Gray Village. Pete is responsible for overseeing the feasibility study, preliminary and final design, and construction support services.

NHDOT, Route 33 Greenland Road Roadway Improvements, Portsmouth, NH

Pete was Highway Task Manager and provided quality assurance and control for the entire highway design effort for this NHDOT municipally managed project. The project involved a study and preliminary and final design for the bridge replacement over the B&M Railroad and highway safety and capacity improvements for approximately one mile of Greenland Road and various side roads. The project also included roadway widening, signalization at several intersections, sidewalk improvements, intersection relocation, and landscaping improvements. The project was built utilizing staged construction with several traffic shifts.

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ATTACHMENTS

- A. **SCOPE OF WORK** Prepared by Vanasse Hangen Brustlin, Inc. dated March 9, 2018
- 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

SALEM-MANCHESTER
13933A
A004(435)
10418X
A003(954)

**AGREEMENT
FOR PROFESSIONAL SERVICES**

PREAMBLE

THIS AGREEMENT made this 31 day of May in the year 2018 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 Vanasse Hangen Brustlin, Inc., with principal place of business at 101 Walnut Street, in the City of Watertown, Commonwealth of Massachusetts, and New Hampshire local office at 2 Bedford Farms Drive, Suite 200 in the Town of Bedford, 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 design and construct the fourth lane of travel in each direction along approximately 2 miles of the I-93 corridor beginning in New Hampshire at the Massachusetts State border in the Town of Salem extending northerly through the interchange at Exit 1 in the Town of Salem.

The DEPARTMENT requires professional services for the preparation of preliminary engineering plans and formal environmental documentation, final design, contract plans, specifications, special provisions, and estimates of quantities and costs, as well as right-of-way plans, title abstracting, appraisals and acquisitions. These services are outlined in the CONSULTANT'S Scope of Work (Attachment A) and fee proposal dated March 9, 2018, which are hereby adopted by reference and considered to be part of 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 addressing transportation needs along I-93 beginning in New Hampshire at the Massachusetts State border in the Town of Salem extending northerly through the interchange at Exit 1 (Rockingham Park Boulevard) in the Town of Salem a distance of approximately 2 miles. The design will consist of expanding I-93 to four lanes in each direction. Some of the existing highway features and conditions to be aware of include the following:

- No construction is anticipated in Massachusetts; however, some work in Massachusetts for traffic control is anticipated in addition to any work required to restore the pavement in Massachusetts to the existing configuration. This would include a pavement treatment such as a resurface or an inlay in Massachusetts.
- The Limited Access Right-of-Way layout along I-93 will be maintained.
- Special considerations for the drainage design shall take into account the “Pre-and Post” flooding concerns in the area of lower Spicket River watershed, an impaired water body and the Harris Brook watershed. The design shall not exacerbate flooding problems, and may require designs which incorporate replacing loss of flood storage. These designs shall be required to meet any and all permitting requirements such as those established by the US Army Corp of Engineers, the New Hampshire Water Division/Shoreland Program, and the New Hampshire Wetlands Bureau. This project will not require a new Water Quality Certificate, and shall be designed to meet the current requirements.
- Intelligent Transportation Systems (ITS) technologies will be designed and incorporated by the CONSULTANT within the 13933A project limits only. Fiber optic communications shall be designed and permanent and/or temporary ITS elements will be incorporated, in whole or in part, into the contract plans and documents for the project design.
- The CONSULTANT will be responsible to provide limited Project Management Support for the entire I-93 project, beginning at the Massachusetts State Border in the Town of Salem, NH and proceeding northerly approximately 20 miles to the I-293 interchange in the City of Manchester, NH.
- The CONSULTANT will be responsible to perform any traffic designs (such as pavement markings, and signs).
- The DEPARTMENT anticipates performing any needed geotechnical investigations and geotechnical services including the pavement structure design. These shall be incorporated by the CONSULTANT.
- The DEPARTMENT anticipates performing any needed utility coordination. These shall be incorporated by the CONSULTANT.

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- The CONSULTANT shall be responsible to perform any needed Right-of-Way research, appraisals and acquisitions. The Right-of-Way Plans and Registry Plans shall be completed by the CONSULTANT.
- The work to be completed and invoiced under the 10418X project is all work associated with corridor wide activities including the stormwater BMP inspection and maintenance manual, monthly NHDOT/NHDES meetings, public participation (newsletters and website), and project management and support (Traffic Management Plan, Ride Share, Technical Steering Committee, crash/incident data, and Financial Plans). All remaining work shall be completed and invoiced under the 13933A project.

The objective of the project is to develop an alternative that will improve the mobility of users, and to complete the remaining environmental commitments on the I-93 corridor in this area, such as the design of the soundwalls south of Exit 1.

The design efforts for this project will encompass both part 'A' (preliminary) and part 'B' (final) design. Efforts will: 1.) reevaluate the proposed layout to ensure the project is in compliance with the original NEPA documentation established under the Salem-Manchester 10418C project.; 2.) identify all impacted natural and cultural resources potentially affected by the proposed action, and investigate means of minimizing or mitigating the impacts; 3.) prepare any environmental documentation and permit applications; 4.) advance the design from the pre-preliminary phase through contract plan development; and 5.) provide construction services as needed to support the design.

A single construction contract is anticipated for this project, which will separate the work and traffic control plan into northbound and southbound components. Construction sequencing recommendations will be an important service provided by the CONSULTANT.

B. SCOPE OF WORK (GENERAL)

The I-93 Corridor project is a major statewide and regional transportation corridor through the entire State of New Hampshire and is a critical transportation corridor through the Towns of Salem, Windham, Derry and Londonderry, and the City of Manchester. The corridor provides access to the entire region with significant natural resources, as well as provides accessibility and mobility within the local and regional transportation systems.

The goal of this project is to verify that the previously selected preferred alternative is consistent with original NEPA documentation under the Salem-Manchester 10418C project, move that design through to contract plans, and provide construction services. It is not the intent of the project to complete a wholesale re-collection of data to ensure compliance. It is anticipated that NEPA compliance can be evaluated and summarized in a re-evaluation letter/report provided by the CONSULTANT.

Environmental documentation will be required to update existing information and to apply for any and all necessary environmental permitting.

The design shall consider temporary and permanent erosion control measures and Best Management Practices (BMPs) consistent with current New Hampshire Department of Environmental Services (NHDES) guidelines,

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barriers for sight and sound relief, traffic control measures, drainage, and treatments to minimize environmental impacts, highway signs, traffic analysis, and pavement markings. The CONSULTANT shall incorporate into the design plans any DEPARTMENT provided materials and designs such as lighting, highway landscaping, Smart Work Zone (SWZ) 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 project will also include corridor wide project management support. This work will be for the entire 20 mile I-93 corridor project.

The CONSULTANT is responsible for all meeting minutes.

C. SCOPE OF WORK (GEOTECHNICAL)

The DEPARTMENT will provide the geotechnical investigations for the project.

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

The information provided by the CONSULTANT shall include:

1. GPS coordinates, and/or station and offset location information, for proposed exploration locations that are deemed necessary to complete the final design when requested by the DEPARTMENT. The DEPARTMENT will determine when and where explorations are needed. The majority of the drilling has been completed; however, it is estimated that an additional 20 explorations will be needed. Explorations may be needed for previously unexplored locations such as roadway segments, overhead sign locations, detention basins, soundwalls, retaining walls, pipe jacking sites, etc.
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. Location information in GPS coordinates, or station and offset format, will be provided by the DEPARTMENT. The plan sheets should include property and ROW boundaries, elevation contours, the proposed improvements and alignment, and enough existing detail to readily identify the area. The subsurface exploration plans shall be provided for at least the following locations:
 - a. 13933A Roadway segment
 - b. 2 Soundwalls
 - c. 10 Miscellaneous locations (basins, pipe jacking, retaining walls, etc.)
3. Take periodic measurements of any newly installed and any previously installed groundwater monitoring wells.

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4. Provide 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 sections at 50-foot interval stationing.

D. SCOPE OF WORK (ENVIRONMENTAL)

The CONSULTANT shall be responsible for the following:

1. Data Collection:

Much of the resource identification was completed under the NEPA document for the Salem-Manchester 10418C project. The CONSULTANT shall review relevant data sources to identify and update any and all resources present within the Project Area and to ensure compliance with the Salem-Manchester 10418C NEPA document. Additional effort may be needed for the listed resources below to identify additional impacts, potential measures to minimize or mitigate impacts, and proposed enhancements.

Resources to be identified and updated as needed include:

a. Water-Based Resources:

- 1) Groundwater: Data regarding aquifers and public water supplies within the study area will be gathered from appropriate sources such as the GRANIT GIS database, NHDES mapping, inventory data, municipal data or municipal mapping. The CONSULTANT will describe these resources and display them on project mapping. Similar data will be collected for adjacent towns in Massachusetts, as appropriate, to identify any sensitive resources directly adjacent and potentially down gradient of the project area. The mapped 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.
- 2) Surface Waters: Data regarding existing surface waters and water quality will be gathered and documented. The CONSULTANT will review the most recent approved State 303(d) list to identify water quality impairments within the adjacent Policy Brook, Spicket River, Harris Brook and any associated tributaries. The CONSULTANT will compile existing water quality data from NHDES' Environmental Monitoring Database to characterize existing conditions in the receiving water. The CONSULTANT will investigate appropriate water quality treatment measures necessary to minimize nutrient impacts on surface waters. This shall include a pavement runoff analysis for Total Nitrogen (TN), Total Phosphorus (TP) and Total Suspended Solids (TSS) and volume for the existing condition and the proposed alternative to determine appropriate size and placement of structural Best Management Practices. It is not anticipated that field sampling of surface waters and any MS4 services will be needed.

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- 3) Floodplains: FEMA floodplain and floodway information will be gathered from appropriate sources such as previously developed and approved floodplain impact calculations and any mitigation commitments developed as part of the original FEIS and display this data on project mapping. Results of the previous Haigh Avenue floodplain mitigation project will be included in this data collection effort. This information will be used to assess the status of anticipated impacts and how the proposed design alternative compares to these impacts as part of the preliminary design phase.
 - 4) Wetlands: The DEPARTMENT, through OTHERS, will delineate wetlands 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. This will include noting any unusual features such as invasive species, disturbed areas, or uncommon wetland types such as bogs or vernal pools. If required, the CONSULTANT will identify potential wetland mitigation opportunities either within the project corridor or the surrounding area.
 - 5) Stream Crossings: The CONSULTANT will identify all perennial streams and stream crossings within the project study limits. The CONSULTANT will 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.
- b. Land-Based Resources:
- 1) Soils: Soil series within the study area will be mapped, including the distribution of prime, statewide, local, or unique farmland soils.
 - 2) Active Farmlands: Active farmlands will be identified and described.
 - 3) Public and Conserved Lands: Publicly owned lands, bicycle and pedestrian trails, and privately conserved lands will be identified.
 - 4) Section 4(f) Resources: Parks, 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 lead Federal agency; and conclusions
 - 5) Section 6(f) Resources: Lands receiving Section 6(f) funds will be identified based on coordination with the NH Department of Resources and Economic Development. Section 6(f)

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properties will be identified, and potential impacts to 6(f) properties will be quantified. Coordination for use of 6(f) properties will include one field meeting with the Department of Natural & Cultural Resources 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.
- 2) Fisheries: The fisheries resource information will be updated based on coordination with NH Fish and Game and the US National Marine Fisheries Service.
- 3) Threatened and Endangered Species: Threatened and endangered species information will be gathered and updated through coordination with the NH Department of Resources and Economic Development, NH Fish and Game Department, and the US Fish and Wildlife Service.

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) that identifies cultural resources in accordance with NHDHR Survey Manuals. Further assessment of the determination of eligibility for the National Register of historic resources will be undertaken in consultation with the NH State Historic Preservation Officer and the lead Federal agency. The CONSULTANT will conduct all necessary phases of Section 106 public outreach. In addition, the CONSULTANT may need to re-evaluate and re-issued the MOA if new impacts occur to the resources.

e. Cultural Resources (Archaeology): The CONSULTANT will perform a review of the NEPA re-evaluation. If additional archaeological services are required, the DEPARTMENT will contract these services through a Statewide Contract.

f. Social and Economic Resources: The CONSULTANT will conduct a general review of the EIS Evaluation of the socio-economic analysis of the regional social and economic resources to ensure there are no changes since the EIS during the NEPA re-evaluation. It is not anticipated that that the alternative will be outside of the parameters in the original evaluation. If additional socio-economic services are required, the DEPARTMENT will contract these services through a Statewide Contract.

g. Noise: The CONSULTANT shall utilize the data provided by OTHERS to design the required noise abatement that is consistent with the DEPARTMENT'S Policy and Procedural Guidelines for the Assessment and Abatement of Highway Traffic Noise for Type I Highway Projects (the Noise Policy).

h. Air Quality: The CONSULTANT shall utilize the information provided by OTHERS to re-evaluate/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

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Clean Air Act Amendments (CAAA) and the National Environmental Policy Act (NEPA). It is not anticipated that new modeling for air quality is necessary.

- i. Invasive Species: The DEPARTMENT, through OTHERS, 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, and will provide detailed mapping.
 - j. Contaminated Properties: A database search will be undertaken to identify areas with records of hazardous materials. The CONSULTANT will populate the DEPARTMENT's RASCAL database, will coordinate with the DEPARTMENT's hazardous materials specialists to confirm findings, and will assess measures required to conduct geotechnical investigations within areas of potential contamination. 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.
 - k. 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.
 - l. Detailed Resource Identification and Mitigation: The CONSULTANT shall identify existing natural, cultural, social, and economic resources to a level sufficient to re-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.
2. Agency Coordination: The CONSULTANT will attend several 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 several of the DEPARTMENT monthly Cultural Resource meetings with the NH Division of Historical Resources to discuss scope and findings. The CONSULTANT will be responsible for supplying support graphics, making presentations and preparing meeting minutes.
 3. Project Purpose and Need: The CONSULTANT will develop alternatives that are in consistent with the existing formal Purpose and Need Statement already written for the project with respect to NEPA and other Federal guidelines.
 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 alternative. The alternatives screening and selection process will be summarized in the NEPA re-evaluation.
 5. Description of Proposed Action: The CONSULTANT will describe the Proposed Action in detail, including location, dimensions, traffic patterns, construction issues, right-of-way impacts, and estimated costs. Conceptual plan, profile, and cross section views will be included.

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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. Land Use
- b. Social and Economic Resources
- c. Farmlands
- d. Air Quality
- e. Noise
- f. Groundwater Resources
- g. Surface Water Resources
- h. Chloride Loading
- i. Pollutant Loading (TN, TP & TSS)
- j. Floodplains
- k. Wetlands
- l. Wildlife/Vegetation/Fisheries
- m. Threatened or Endangered Species
- n. Parks/Recreation/Conservation Lands
- o. Cultural Resources
- p. Hazardous Materials
- q. Visual Resources
- r. Environmental Justice (provided by the DEPARTMENT)
- s. Construction Impacts
- t. Summary of Impacts
- u. Environmental Commitments

8. Conditional Letters of Map Revision (CLOMR): The CONSULTANT will prepare and submit any necessary CLOMR applications. The CONSULTANT will be responsible for all coordination with the municipalities and the Federal Emergency Management Agency (FEMA) including any and all fees (or waivers) for the applications.

9. Final Evaluation and Report: The CONSULTANT will prepare a final evaluation and prepare a report of the environmental resources, impacts and alternative selection process which will support the previously created Salem-Manchester, 10418C NEPA document. The report will be developed in a modified Categorical Exclusion format.

10. Design of the permanent erosion control and water quality features and any monitoring of the groundwater table prior to and during the design of the project shall be the responsibility of the CONSULTANT. Where

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additional monitoring wells are required, the DEPARTMENT will be responsible for the drilling of the wells. Temporary erosion control for the project shall be designed by OTHERS during construction of the project. However, conceptual construction stormwater assessment and erosion control plans shall be completed during final design of the project (see details below). Permanent erosion and sedimentation control and 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.

In addition, the CONSULTANT shall be responsible for the following:

- a. Incorporate stormwater runoff treatment areas and detention basins and evaluate their environmental impacts (such as archaeological sensitivity, wetland impacts, hazardous materials, etc.).
- b. It is not anticipated that infiltration type systems will be viable at this location; however, 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 final 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 including the submission of Conditional Letters of Map Revision (CLOMR) for Harris Brook Tributary will be completed if the base flood elevations are increased by one foot or greater.
- 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 that the CONSULTANT would refer to the FEIS and update any information by reviewing the NHDES OneStop and other databases.
- f. Technical reports detailing the results of the noise and air quality evaluations will be completed by others and provided to the CONSULTANT. Therefore, only efforts necessary to develop the NEPA re-evaluation will be included in this contract.
- g. Coordination of final design plan submissions and wetland impact accounting, as well as follow-up coordination on permit conditions. Wetland impacts accounting plans and tallies to be provided at the Preliminary, Slope and Drain, PPS&E, PS&E and Mylar submissions.

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- h. A pre- vs. post-development pollutant loading assessment to be provided at the Slope and Drain, PPS&E, PS&E and Mylar submissions. The assessment shall follow latest NHDES pollutant loading design guidance.
- i. Incorporation of water quality treatment measures (i.e., treatment basins and swales) into the overall project design according to the guidance provided in the latest version of NHDES Alteration of Terrain (AoT) regulations, and the NH Stormwater Manual. NHDES BMP worksheets shall be completed and submitted as part of the Drainage Report for each construction contract.
- j. Development of a Construction Stormwater Analysis to address construction stormwater management during construction. This involves identifying “open” areas per construction phase, calculating the associated stormwater runoff volumes and evaluating locations for sediment removal. The evaluation is intended to be largely conceptual in nature, as the actual construction phasing may differ from the phasing anticipated during the design. Related plans shall be prepared in CADD “roll plan” format, and supplemented with Excel spreadsheets detailing the stormwater analysis and recommendations. The information will be included as a part of the project Proposal bid package for the Contractors’ use during the bidding period.
- k. The development of 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 DEPARTMENT will assist the CONSULTANT in the design of 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.
- l. The completion of any necessary Phase III archeological investigations, according to the latest version of “Archeological Standards and Guidelines” established by the DEPARTMENT if work is outside of the Right-of Way limits or new impacts within the Right-of-Way limits established during the FEIS will be by OTHERS through a Statewide Contract.
- m. Incorporate invasive plant species located within the project limits as provided by the DEPARTMENT.
- n. Incorporate the wetlands delineations located within the project limits as provided by the DEPARTMENT.
- o. The CONSULTANT’s plans shall include all commitments made in the 2004 FEIS and 2010 FSEIS documents to the extent practicable as well as supplemental information developed specifically for this contract as part of the environmental documentation update.

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- p. Development of an Inspection and Maintenance Manual for the operation, inspection, and Maintenance of all water quality measures that will be or have been implemented within the 20-mile I-93 corridor. All of the BMP plans will be incorporated into the Inspection and Maintenance Manual.

E. SCOPE OF WORK (PRELIMINARY ENGINEERING)

1. Data Collection:

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

2. Base Plan Preparation:

The CONSULTANT shall update the base plans for the project based upon existing base mapping, previously constructed corridor projects and ground surveys provided by the DEPARTMENT and from these, develop a digital surface model and topographic base plan. In addition, a detailed base plan shall be developed 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 (provided by the DEPARTMENT), 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.

3. Project Purpose and Need:

The CONSULTANT shall ensure that the project development is consistent with the NEPA statement under the Salem-Manchester 10418C project and other federal guidelines.

4. Supplemental Resource Identification:

Supplemental resource identification shall be performed. Additional resource identification is needed to verify the resources that were identified previously. Such resource identification should include, but is not limited to: historical properties and districts, archaeologically sensitive areas, wetlands, critical habitat, floodplains/floodways, contaminated properties, and surface waters. These impacts shall be documented in a matrix along with other pertinent information including cost, traffic performance, constructability, etc.

5. Alternative Development & Evaluation:

The CONSULTANT will develop and evaluate an alternative to investigate the consequences to allow the Department to determine if the alternative is consistent with the original NEPA documentation.

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- a. Reasonable Alternatives: The alternative will be developed to an equal level of detail. Lanes, shoulders, slope impact limits, right-of-way requirements, and potential water quality protection measures will be determined for the alternative.
 - b. Cost Estimates: Conceptual cost estimates will be developed for each of the alternatives. The cost estimates will quantify items such as pavement, roadway select materials, earthwork, structures, significant drainage facilities, and other design elements as appropriate and 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 DEPARTMENT from the assessed value of impacted property. Engineering and environmental mitigation costs will be estimated on a percentage basis.
6. Traffic Data Collection, Traffic Modeling and Analysis:
- The CONSULTANT shall gather traffic volume data as needed from the NHDOT website and shall coordinate with the DEPARTMENT, the Town of Salem, the Southern New Hampshire Regional Planning Commission (SNHRPC), and the Planning Group to continue, update and provide additional traffic analysis. The traffic-collection-and-analysis effort shall provide the statistics required for evaluating design concept. Macroscopic and microscopic evaluations will be undertaken for the alternatives as needed.
- Traffic modeling should include analysis for all evaluation years both with major private developments.
 - Traffic modeling should be compared to the original FEIS/SEIS traffic volumes.
 - The CONSULTANT shall make a recommendation to the DEPARTMENT for the design year, and traffic scenarios to be evaluated.
 - The CONSULTANT shall use Version 9 of Synchro/SimTraffic.
 - The CONSULTANT may only use HCM 2000 for an apples-to-apples comparison against historic studies.
7. ITS: ITS concept plans, specifications, quantities, and engineer's estimate for incorporation into the final design plans as appropriate. The work is anticipated to consist of device relocations (CCTV, RWIS, VSL, DMS, MVDS, etc.) and the installation of a hardwired backbone system within the 13933A project limits only.
8. Technical Reports: The CONSULTANT shall prepare technical reports, as necessary, throughout the duration of the project to document and summarize relevant technical data.
9. 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. This shall be finalized and submitted prior to the PS&E submission
10. Design Exceptions: If a design exception is required, the CONSULTANT shall prepare the design exception document and shall provide any supporting documentation to justify the exception.

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11. 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. 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 would include the CONSULTANT and the DEPARTMENT, but could also include staff from the Town of Salem, SNHRPC, other State or Federal agencies, or others as appropriate.

F. SCOPE OF WORK (FINAL DESIGN)

The scope of work proposed by this AGREEMENT includes:

1. The development of base plans by the CONSULTANT using updated ground survey and photogrammetric mapping provided by the DEPARTMENT. The base plan will be developed using the as-built Salem-Manchester 13993D project as a starting point. The CONSULTANT shall field verify the project as a priority and submit a request for additional survey if necessary. The CONSULTANT shall develop plans at the scale of 1" = 50', unless otherwise noted. Additionally, the CONSULTANT shall be prepared to produce intersection (ramp gore) grading plans at a scale of 1" = 20' where necessary or as appropriate. The CONSULTANT shall be responsible for the incorporation of environmental resource mapping, and utility information, etc. All of these will be provided by the DEPARTMENT, or as noted elsewhere in this document.
2. The refinement of the alignment, grades and intersection layouts of the proposed roadway(s) as shown on the most recent designs furnished by the DEPARTMENT.
3. The preparation of designs including all plans, specifications for work not included in the current specifications of the DEPARTMENT, computations, estimates and documents for the required submissions to the DEPARTMENT, Federal Highway Administration, and/or any other STATE or Federal agency that may be required.
4. The design and preparation of contract plans for construction of the roadway, 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), soundwalls, retaining walls, landscaping plans and appurtenances in accordance with the policy and procedures of the DEPARTMENT and the provisions of this AGREEMENT. The plans shall include all commitments made in the 2004 FEIS and 2010 FSEIS documents to the extent practicable as well as supplemental information developed specifically for this contract as part of the environmental documentation update.
5. The design of all permanent guide, warning and regulatory signs into the contract plans including the quantity summary sheets with guidance from the DEPARTMENT. All signing on the plans shall be closely coordinated with the location of guardrail installations, slopes, utility locations (including street lights and

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underground utilities) and drainage system locations to avoid conflicts and to determine which support system will be required to install the signs. The CONSULTANT will be responsible to identify all conflicts and to make necessary adjustments to highway signing. The CONSULTANT shall update the existing sign(s) from previous contracts within overlapping sections including providing photographs showing location of existing signs. The CONSULTANT shall be responsible for the design of overhead sign structure foundations, with guidance on foundation loading provided by the DEPARTMENT.

6. The design of any overhead sign structures. The quantity and location of structures will be as required by the Manual of Uniform Traffic Control Devices (MUTCD 2009 Edition). Any 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.
7. The development of the permanent construction sign and warning device package, including the quantity summary sheets. This shall include summary sheets for relocated signs for construction sequencing.
8. The incorporation into the contract plans the quantity summary sheets of temporary guide and regulatory signs and permanent construction signing required for use with detours or construction staging, including incorporation of business signs. These signs and locations, including identifying the location of overhead sign structures, shall be shown on the Traffic Control Plans.
9. The design and incorporation of all pavement marking layouts, item numbers, item descriptions, and quantities for inclusion into each contract and appropriate summary tables within each plan set.
10. The design of all supporting members for utilities and ITS infrastructure that traverse any bridge structure.
11. The incorporation of utility relocations lighting design, SWZ and highway landscaping, as all designed by OTHERS and the review of constructability and traffic control for the contract plans.
12. Construction cost estimates for each major submission (Preliminary, Slope & Drain, PPS&E, PS&E) shall be completed utilizing the DEPARTMENT'S I-93 estimate spreadsheet. This format provides a consistent basis for developing corridor estimate updates and a historical reference point for each subsequent submission. Estimates shall be submitted with a narrative explaining all major cost changes. Corridor summaries shall be submitted on an annual basis and should include costs reflected in the most recently prepared estimate and requisite corridor summary narrative.
13. Preparation of presentation (colored) base plans at the Preliminary, Slope and Drain, PPS&E, PS&E and contract plan submissions.

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.

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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.

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

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.

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-G.

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 new and current detail model files. The CONSULTANT will be given these files and shall be responsible for the incorporation of these files into the current detail base plans and digital terrain models (DTM). The incorporation of additional survey information shall include all drafting, labeling, 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.

The CONSULTANT shall adjust design plans to reflect the new as-built conditions for the previous construction contracts including, but not limited to, horizontal and vertical alignments, typical sections, and cross sections. The CONSULTANT shall take into account, but not limited to, traffic control, earthwork utilization, drainage pipes (permanent and temporary) and structures between construction contracts.

The CONSULTANT shall examine which elements of design, such as horizontal and vertical alignments, typical sections, traffic control, earthwork utilization, drainage pipes and structures, as well as soils suitability, might affect aerial and underground utilities. Any conflict 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 all subsequent design phases.

All plotting, drafting and calculations performed by the CONSULTANT shall be independently checked by members of the CONSULTANT'S staff other than those who performed the original work. The work of each stage

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submission (including quantity estimates) shall have been appropriately checked. The PS&E submission and final mylars shall have had complete final and "three-way" checks.

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. The CONSULTANT shall incorporate 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.

H. SCOPE OF WORK (RIGHT-OF-WAY)

The Right-of-Way (ROW) procurement services necessary to complete the Right-of-Way process for this project will be performed primarily by the CONSULTANT with NHDOT support.

The CONSULATANT shall be responsible for creating ROW Purchase and Registry plans for the project. The Consultant shall update the plans as necessary to incorporate design changes as a result of the project design, and those as a result of the ROW process.

The CONSULTANT shall be responsible for all engineering support services as may be required to complete the project ROW deliverables. Engineering support may be necessary at various stages of ROW for a variety of reasons.

At the conclusion of the ROW procurement process the CONSULTANT shall be responsible for the creation of the Final Purchase and Registry Plans depicting all project impacts and final ROW acquired.

Tasks to be included within this scope include:

- ROW and boundary research
- Title abstracting for impacted parcels only (11 parcels assumed)
- Existing ROW base plan development
- Appraisal (11 parcels assumed)
- Acquisition (11 parcels assumed)
- Design development to support generating final ROW Purchase and Registry plans for purposes of acquiring and recording all necessary rights.

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- The existing set of final I-93 ROW Purchase plans will be updated (not a formal revision) with the latest 13933-A scope efforts. These shall be in conformance with the previously created ROW Purchase plans for the southern segment.
- Right-of-Way Registry plans shall be recorded by the CONSULTANT in the appropriate County Registry in accordance with RSA 230:32 Required Filing, and 478:1a Plat Law. Boundary surveys to support this effort will be done by the Consultant; this requires a NH Licensed Land Surveyor (LLS).
- Title updates and plan revisions shall be submitted monthly, as necessary, along with a title abstract summary report.
- Final title abstract report shall be submitted for each parcel upon completion of acquisition.

All work shall be completed in accordance with NH State law, federal regulations and the New Hampshire Department of Transportation Right-of-Way Manual (2011) or as directed by the Department. A detailed requirement of each task is listed below.

Documentation of all tasks and services required for this contract must be retained by the Consultant. A complete copy of all records will be provided to the DEPARTMENT upon completion of acquisition activities for each impacted parcel.

The CONSULTANT will also be required to provide estimates of project costs and completion schedules of proposed Right-of-Way work to assist the DEPARTMENT with budgeting and scheduling. The CONSULTANT shall update and submit the Department's ROW status spreadsheet on a weekly basis, as necessary, to reflect the status of all acquisitions.

1. ROW and Boundary Research

The CONSULTANT will perform property research at the Town, and the County Registry of Deeds. Assessor information, plans, deed copies will be obtained to assist in the determination of boundary lines. The DEPARTMENT will provide all available information regarding the layout of I-93 and be available to meet to discuss the information and review the research performed in establishing the layout of the right-of-way and property lines.

Utilizing the information gathered during the research task, the CONSULTANT will recover and locate monuments within the project area and abutting properties to assist in the determination of the boundaries. Evidence of the perimeter property lines (bounds, pipes, fences, walls, etc.) will be field measured, compiled with record data and shown on the Existing Right-of-Way Plan.

Based on the data gathered above, the CONSULTANT will calculate and analyze existing record property line data and compare the results with the field located boundary evidence.

The CONSULTANT will create two MicroStation .dgn files per NHDOT Cad/d Procedures & Requirements. Files will be developed in international feet to match the existing electronic files. These files will be used throughout the project as the Exist Right-of-Way, erl and ert files.

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2. Title Research – ROW

A Full Title Abstract and potential updates of the Title Abstract will be required for each impacted property where property rights will be acquired (11 parcels with partial acquisitions are assumed). The DEPARTMENT will provide a preliminary title abstract report for those parcels currently on file, which shall be verified by the CONSULTANT. All property title work shall be completed in accordance with the following:

- Chapter 230 of the NH Revised Statutes Annotated “State Highways”
- NH Bar Association Title Standards dated December 31, 2011
- Chapter 3 of the Department’s Right-of-Way Manual
- Plat Law RSA 478:1-a, which requires a NH Licensed Land Surveyor (LLS)

Title Abstracts shall be updated as needed and/or as requested to ensure that ownership information is accurate and up-to-date. Title updates are typically performed prior to making an offer to purchase and just prior to acquiring title through either amicable agreement or the eminent domain processes.

3. Appraisal – ROW

All appraisers performing and submitting appraisal work under this Contract shall be Certified General Appraisers in the State of New Hampshire. Appraisal work shall be completed in accordance with the following:

- The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (Uniform Act), as amended
- Chapter 498-A of the NH Revised Statutes Annotated, i.e., “the Eminent Domain Procedure Act”
- Uniform Standards of Professional Appraisal Practice (USPAP)
- Chapter 4 of the Department’s Right-of-Way Manual

The New Hampshire Department of Transportation is responsible to conduct the review of appraisals within the contract. The reviews shall be completed within 10 calendar days.

The New Hampshire Department of Transportation typically uses distinct appraisal reporting formats to determine the effect of the impacts to each property’s value. Below is a description of these reporting formats.

- a. Narrative Appraisal: Valuation of the property prior to the transportation project. Typically used for properties where complete acquisition is required or requested. It is assumed that no parcels will require this type of appraisal.
- b. Land Value Appraisal, LVA: A “Before and After” appraisal is used when damages are not present and when there are no measurable impacts or changes in market value between the before value and after value. The DEPARTMENT relies on a pro rata analysis using the Pro Rata Policy as a guide with minimum compensation established at \$500 and maximum compensation established at \$20,000 per parcel where no measurable differences are evident. LVAs can be used for condemnation

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purposes, however, prior to a hearing before the NH Board of Tax and Land Appeals, (NHBTLA) the appraisal must be upgraded to a full "Narrative Before and After Appraisal". Therefore, it is imperative that an adequate and complete property inspection be performed initially to collect all information required to prepare a Narrative Before and After Appraisal, if it should be needed. It is assumed that no parcels will require this type of appraisal.

- c. Narrative "Before and After" Appraisal: Complete and comprehensive "before and after" appraisal report required for condemnation purposes when a hearing will be scheduled with the NHBTLA. This type of appraisal is used when damages are present and/or a comparison of the "Before and After" values of the property show a reduction in value as a result of the project's impacts. It is assumed that all 11 parcels will require this type of appraisal and all appraisals will be completed once they are started.

In accordance with the "Uniform Act", all appraisals shall be reviewed by qualified NHDOT staff for establishing Just Compensation. Just Compensation must be established prior to an offer being made to the property owner. Submissions must be made in paper hard copy and/or electronic PDF formats and shall include a separate copy of plans and cross sections for the parcel area. The NHDOT will furnish a summary report establishing Just Compensation within 14 calendar days of receipt of the approved appraisal report. If Just Compensation cannot be established by the NHDOT based on the noted appraisal report, the NHDOT will notify the Consultant and the Consultant shall remedy the identified problems with their appraisers.

Appraisals used for condemnation shall be updated by the appraiser to the date of taking prior to the scheduling of a hearing with the NHBTLA and upon written notice from the AG's office. The Department will review updates prior to submission to AG's office. LVA appraisal reports will require a Narrative Before and After appraisal report for litigation. Appraisal reports will require an appraisal update and new date of value, based on research for new and current comparable data. Appraisers will be required to work with the Attorney General's office during the NHBTLA hearing process as needed. The appraiser shall be required to support the Attorney General's Office until final settlement. All appraisal efforts, following the acceptance of the initial appraisal, and any services required to support the DEPARTMENT and AG's Office are paid for utilizing the hourly per diem rates established in the fee proposal.

The CONSULTANT shall provide copies of all appraisal and specialty reports to the DEPARTMENT for FHWA and internal auditing requirements.

4. Acquisitions – ROW

The CONSULTANT shall be responsible for all acquisition services for any parcels assigned. Acquisition services shall include, but not be limited to, the following tasks:

- a) Explaining to property owners the project's impacts to their property
- b) Presenting the initial offer of Just Compensation for the for acquisition of needed property rights, (see section 3 – Appraisal – ROW)

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- c) Negotiating for acquisition of needed property rights, with assistance from members of the Layout Commission
- d) Preparing written Justification for Administrative Settlements
- e) Drafting of Legal Documents such as deeds, easements, lien releases and condemnation documents. Review and final approval of legal documentation will be performed by the Department
- f) Processing and delivery of payments
- g) Scheduling and coordinating conveyance of property rights to the STATE and subsequent recording of documents at the appropriate County Registry of Deeds.
- h) Initiating the Condemnation Process by preparing draft documents and exhibits, in the event that a negotiated agreement cannot be reached.
- i) Documenting the Right-of-Way process (meetings, communications, research, etc.) in a diary format in accordance with the DEPARTMENT's Right-of-Way Manual.
- j) Finalizing Right-of Way Purchase plans of all property acquisitions for the 13933A project.
 - 1) Final Purchase Plans shall be half scale paper copy, color coded in accordance with the Department's Right-of-Way Manual.
 - 2) Purchase Plans shall be created in conformance to and for inscription or replacement into the existing I-93 ROW plan set for all previous acquisitions.
 - 3) Upon completion of all Right of Way acquisitions for this project, the CONSULTANT shall prepare a set of Final Registry plans. These Registry Plans shall be recorded by the CONSULTANT at the appropriate NH County Registry of Deeds, in accordance with RSA 478:1a and RSA 230:32.

This work shall be in accordance with the following:

- The Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (Uniform Act), as amended
- Chapter 498-A of the NH Revised Statutes Annotated, i.e., "The Eminent Domain Procedure Act"
- Chapter 124-A of the NH Revised Statutes "Relocation Assistance and Real Property Acquisition
- Chapter 478:1-a of the NH Revised Statutes "Recording of Plats" which requires a NH Licensed Land Surveyor (LLS)
- The NH Department of Transportation, Right-of-Way Manual, updated June 20, 2011.

When acquiring property rights for the DEPARTMENT, the CONSULTANT shall make a reasonable and "good-faith" effort to reach an amicable agreement with as many property owners as possible, so as to avoid condemnation. A "good-faith" effort shall be defined as a maximum of three (3) direct contacts (face-to-face meetings, phone calls, faxes, mail and/or emails) with the property owners and/or their duly appointed representative(s) within a 120-day period. The CONSULTANT shall request the DEPARTMENT's approval of a mailed offer following Just Compensation being established and will proceed with their "good faith" efforts to

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reach an amicable settlement. A member of the Layout Commission shall accompany the CONSULTANT's Right-of-Way Agent when meeting with owners whose property is affected by the project. In the event that none of the Appointed Commission Members are available to attend a meeting with a property owner, the CONSULTANT shall make arrangements for a DEPARTMENT Right-of-Way Agent to attend in the Commission Members' stead.

All settlements that exceed the appraised value of the acquired property rights shall be approved by the DEPARTMENT prior to settling any final agreement with the property owner. Negotiated settlements shall be documented by the CONSULTANT's Right-of-Way Agent. Requests to approve a negotiated settlement shall be submitted by the CONSULTANT to the DEPARTMENT, in the form of an Administrative Settlement letter and accompanied by any back-up documentation. In the event that a settlement cannot be reached with a property owner, the CONSULTANT shall be responsible for initiating the condemnation process. The initiation of the condemnation process shall be pre-approved by the DEPARTMENT. The CONSULTANT shall draft the Notice of Offer and the Declaration of Taking, along with the property taking description labeled (Exhibit B) and the condemnation plan labeled (Exhibit A) in accordance with DEPARTMENT policy and formatting and shall be submitted in both electronic and hard copy format. Condemnations may be submitted at any time during the acquisition process. No more than ten condemnations shall be submitted during any 30-day period. No condemnations shall be submitted to the Department later than 60 days prior to the project advertising for construction.

Award/payment requests under \$5,000.00 take the DEPARTMENT approximately three (3) weeks to process. Awards/payments of \$5,000.00 and greater require specific approval from the Governor and Council and will take approximately six (6) to eight (8) weeks to process. It is important that completion of the transaction with property owners occur as soon as possible after a check has been issued.

The CONSULTANT will be provided with the DEPARTMENT'S mandatory templates and examples of required documents utilized in the normal day-to-day operations of the Right-of-Way process. These documents and templates will be provided in an electronic format.

5. Engineering Support Services – ROW

The CONSULTANT shall be responsible for all engineering support services as may be required to complete the project. Engineering support may be necessary at various stages of project development for a variety of reasons. These engineering support services shall include, but not be limited to, the following tasks;

- Completing engineering studies, traffic counts, estimates, preliminary designs, etc. that are required to complete appraisals
- Surveying of properties and developing plans, plats, maps, exhibits, etc., that are required for property titles, appraisals, and/or acquisitions

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- Information technology support to ensure that right-of-way data, record plans, documents, valuation results, surplus property, etc., can be incorporated into the DEPARTMENT'S Right-of-Way Management System and associated software applications.

6. Documentation – ROW

The CONSULTANT shall document all Right-of-Way Procurement Services. This involves tracking the status of the title research, ROW and boundary research, appraisal, and acquisition processes, including the development of parcel-specific diaries that document all meetings, relevant information, and submission of all requests for monetary compensations/awards to be paid to property owners affected by the proposed project. In addition, the CONSULTANT shall develop parcel folders in which to file documents and information for each impacted property such as all documentation relevant to the acquisition of property rights for each individual parcel assigned.

The CONSULTANT shall be responsible for drafting all forms and legal documents used in the acquisition process, including deeds, temporary and permanent easements, and condemnation documents, including the "Notice of Offer to Purchase" and "Declaration of Taking". Sample documents used by the DEPARTMENT will be provided. Documents in draft form shall be forwarded to the DEPARTMENT in "electronic format" (Microsoft Word) and in paper format, for review and processing. Once deeds, easements, or other legal documents are executed by the property owners and recorded, a copy of all original documents shall be retained by the CONSULTANT in the parcel folder.

The CONSULTANT shall also create a final Registry plan for recording as required by RSA 230:32 and RSA 478:1a that depicts the property rights actually purchased for each parcel. All parcel folders, diaries, and the record plan along with a final MicroStation CAD/D file shall be provided to the DEPARTMENT upon completion of the acquisition and are the property of the DEPARTMENT.

I. SCOPE OF WORK (PUBLIC PARTICIPATION)

The CONSULTANT shall provide limited support to the public participation process that enhances the DEPARTMENT'S "Public Involvement Process for New Hampshire Transportation Improvement Projects". The CONSULTANT shall prepare presentation graphics, handouts and support displays. The CONSULTANT will not attend the presentations and shall not draft meeting minutes. Specific tasks include:

1. Public Participation Support: The CONSULTANT shall prepare the colored plans and graphics for the Preliminary Plan Coordination Meeting and the Pre-Advertisement Coordination Meeting for the DEPARTMENT. These plans are intended to support the DEPARTMENT's efforts for Public Meetings. The DEPARTMENT is responsible for attendance, presentation and preparing of any project meeting notices and meeting notes. The CONSULTANT will not be attending any of the Public Meetings.
2. Newsletter: A Project Newsletter will be prepared and distributed to stakeholders, project abutters, resource agencies and others as determined necessary. The CONSULTANT shall prepare two (2)

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editions of the newsletter yearly. This is provided in an electronic format to the DEPARTMENT, who provides paper copies for distribution. The DEPARTMENT will distribute the Project Newsletters.

3. Website: The project website (www.RebuildingI93.com) will be maintained for dissemination of project information, such as meeting minutes, reports and schedules. The CONSULTANT shall provide standard application/web hosting features which include data storage, daily backup of data, site monitoring, maintenance, hardware, software, applicable upgrades and ongoing technical support for the www.rebuildingi93.com website and the mobile version thereof. Update/process construction alerts as needed so that e-mail notifications are delivered to subscribers. Renovate the website to bring it into conformance with ADA standards, and to meet the current project needs. Regularly update the webpage as appropriate to include posting factsheets and newsletters, the milestones section, adding new construction/project photos, reviewing material on the website to remain current, updating the "What's New" and "Favorites" sections, project schedule/graphics, and construction status/traffic updates. It is anticipated that updates and maintenance to the website will be done on a monthly basis.

J. SCOPE OF WORK (PROJECT MANAGEMENT SUPPORT)

The CONSULTANT will be responsible to provide Project Management Support for the entire I-93 project, beginning at the Massachusetts State Border in the Town of Salem NH and proceeding northerly approximately 20 miles to the I-293 interchange in the City of Manchester. These tasks include hosting and maintaining the I-93 website, writing and disseminating the corridor newsletters, updating and creating fact sheets, participation on corridor wide committees, and the continued development and updating of the Financial Plan (including graphics).

1. Traffic Management Plan (TMP). The CONSULTANT will work with the Department to collect, analyze and summarize data used in monitoring TMP activities, including the Incident Management activities that fall under the TMP. Efforts will include preparing summary documents, developing/updating current data collection spreadsheets, analyzing data (crash data, etc.). List of reports/deliverables and frequency of submissions to be provided by the CONSULTANT:
 - a. TMP Workgroup Meetings: prepare materials for and attend bi-monthly meetings (every other month) of the TMP Work Group and prepare meeting minutes. The CONSULTANT shall also prepare yearly TMP summaries for the Project.
 - b. Technical Steering Committee (TSC) Meetings: prepare materials for and attend bi-monthly meetings (every other month) of the TSC and prepare meeting minutes.
 - c. Crash Data and Incident Data: Obtain and review the crash data and incident data solicited by the CONSULTANT from the Corridor Communities, and NH State Police and prepare an update of the I-93 Salem to Manchester, Summary of Crash Data and incident data. It is anticipated that updates will be performed on a yearly basis.

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- d. Park and Ride/bus rider traffic count summaries. The CONSULTANT will work with the Department to collect, analyze and summarize the data provided for the Park and Ride counts and the bus passenger counts. Data is collected and provided on a monthly basis with reports being provided by the CONSULTANT on a bi-annual (twice per year) basis. The CONSULTANT is responsible for electronic distribution.
2. Financial Plan and Graphics. Prepare the I-93 Financial Plan with the Assistance of the Department on an annual basis, this MUST to be completed, accepted by the Department and provided to the Federal Highway Administration (FHWA) no later than December 31 of each year. This will include preparation of graphics and development of spreadsheets for tracking/ projection of project costs. Based on input and data provided by the Department, prepare a Financial Plan update and provide the Department with updated electronic files (Word documents, Excel spreadsheets and complete PDF version).

K. 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:
 - a. All existing survey and baseline data on disk or tape, field notes, and note reductions in the format outlined in the current DEPARTMENT CAD/D Procedures and Requirements. An electronic ground model shall be provided, if available, along with all existing information that can be used to create a model (ASCII point file, SDR data files, etc.).
 - b. Electronic preliminary horizontal and vertical alignments for the project limits as envisioned. This data will be in MX format and coordinate (x, y, z) data (ASCII) format, in accordance with the DEPARTMENT'S CAD/D Procedures and Requirements.
 - c. Any additional surveys of adjacent parcels, mitigation sites, wetland boundaries, or other pertinent items deemed necessary and processed by the DEPARTMENT. Incorporation of this information into the ground terrain model and plans shall be the responsibility of the CONSULTANT.
 - d. 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.
 - e. Electronic drawings in MicroStation format of the existing underground utilities, if provided to the DEPARTMENT by the utility. The CONSULTANT shall be prepared to provide an electronic copy of preliminary base plans to the DEPARTMENT for use by the utilities. The CONSULTANT shall be responsible for the incorporation of this information (either in paper or electronic format) into the plans, in accordance with the current DEPARTMENT CAD/D Procedures and Requirements.

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- f. Any available topographical mapping within the project area shall be provided along with any pertinent electronic supporting information (survey field notes, ASCII point file, SDR data files, etc.). The DEPARTMENT will also gather any supplemental topographical survey data that is determined to be necessary as the project proceeds, and will process this data for use. Incorporation of this supplemental information into the digital terrain model and base plan shall be the responsibility of the CONSULTANT.
 - g. Electronic drawings and design files for the Salem-Manchester 13933D projects reflecting the latest design information for each project.
2. Prints of the following information:
 - a. Any information outlined in Article I.D.1.a. through g. above (electronic information) both existing and proposed, when available, for verification by the CONSULTANT.
 - b. Any additional information (e.g., abstracting, utilities, etc., not available electronically) 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 digitized Right of Way Plan of record and corridor Title Abstracting as well as any additional information collected or prepared by the DEPARTMENT. This may include legacy alignments, existing right-of-way layout, property lines, parcel owners, and any other applicable abstracting information in MicroStation format for incorporation and verification into the plans by the CONSULTANT.
 4. All required permits: The CONSULTANT shall be responsible for plans and computations for impacted areas. These plans shall provide all necessary data, area hatching (according to DEPARTMENT standards) and detail so that these plans can be forwarded to the respective regulatory agencies as appropriate attachments for the permit applications. The CONSULTANT shall be responsible to complete the permit applications and provide all supporting documentation (e.g. photographs).
 5. Plans of prior highway and bridge construction projects within the project limits, as available. The CONSULTANT shall be responsible for incorporation of the pertinent data.
 6. Typical roadway cross-section data.
 7. The location of all existing and proposed utilities through direct contact with the various utility companies.
 8. Geotechnical investigations and recommendations, if available.
 9. Electronic files of the Environmental resource data collected in previous studies.
 10. Crash history for I-93 and at the interchanges of Exit 1 (as needed).
 11. Necessary traffic counts and crash data, as collected by the DEPARTMENT. Additional traffic count data as determined by the CONSULTANT.

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12. 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.
13. Mapping from aerial photography supplemented by ground survey by the DEPARTMENT within the study area. The ground model will be delivered in MX format according to the NHDOT CAD/D Procedures and Requirements.
14. The DEPARTMENT's latest high-resolution color aerial photography (which is geo-referenced and ortho-rectified).
15. The location of all existing utilities through direct contact with the various utility companies. Following the determination by the CONSULTANT of all unavoidable conflicts between existing utilities and the proposed construction, the DEPARTMENT will coordinate the necessary relocation of the conflicting utilities. The CONSULTANT shall be prepared to furnish CAD/D files in the current DEPARTMENT format to the DEPARTMENT for use in assisting with the Utility design.
16. The DEPARTMENT and the CONSULTANT will cooperatively develop the detailed Traffic Control Plans. The CONSULTANT shall develop the initial conceptual Traffic Control Plan and construction phasing. The DEPARTMENT will assist the CONSULTANT in the final design of the Traffic Control Plans as it relates to potential complications with concurrent work, utilities and closures. The CONSULTANT shall complete the final design and the associated quantity calculations.
17. 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.

L. 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 develop an acceptable reporting system capable of indicating project status on at least a monthly basis for all critical activities of the project. The reporting system shall address costs and staff hours broken out by category of work tasks as outlined in the CONSULTANT'S fee proposal. Monthly progress reports shall be submitted by the CONSULTANT to the DEPARTMENT, giving the percentage of completion of the work required by this AGREEMENT. These monthly progress reports shall be received by the DEPARTMENT by the 10th day of each month. All correspondence shall include the STATE and Federal project numbers as well as the municipality's name.

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M. 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 a Design Report describing the "design issues" addressed in that submission. The report shall include 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.

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

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 of 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 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, typicals and detail sheets, general plans and profiles, traffic-signal sheets, cross sections and right-of-way plans. 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

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system, unrotated. 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 (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

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

a. Pre-Preliminary Plans – Roadway (Not Applicable)

b. Preliminary Plans – Roadway:

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 erosion and sedimentation control (temporary and permanent) and water-quality issues shall be shown with approximated flows. A presentation and narrative will be required to explain the concept for approval.
- 6) Roll plans shall show where match lines are anticipated for future cut sheets.
- 7) Preliminary typical sections with top-line template.
- 8) Proposed limits and recommendations for letting the construction under separate contracts, including cost estimates, areas of overlap, maintenance of traffic, drainage, etc.
- 9) 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) Erosion- and sedimentation-control measures (permanent and temporary).
- 3) Recommended water-quality treatment.
- 4) Conceptual design for mitigation areas and summary of wetland impacts.
- 5) Earthwork balances and availability.
- 6) Potential closed drainage and underdrain outlets, and cover over drainage structures.
- 7) Right-of-way involvement.
- 8) Potential conflicts with major utilities.
- 9) Separate construction contracts.

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 for the limits of the construction contract, together with preliminary estimates as appropriate and relevant for the contract. It is anticipated that this project will be constructed under a single contract. The CONSULTANT shall design the northbound barrel such that it is constructed first with the southbound barrel being constructed second. The northbound design shall include temporary slope lines in the median as necessary, accommodate median barrier as necessary and include other features such as drainage and ITS that are required along the southbound barrel to complete the construction of the northbound barrel. The quantity and drainage summary sheets are to be developed to distinguish the northbound and southbound quantities independently. The traffic control plans will be developed with the northbound and southbound work being constructed independently. If the barrels are to be constructed in sequence, northbound will be constructed first followed by the southbound construction.

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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 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.

c. Slope and Drain Plans – Roadway:

The submission shall consist of up to five sets of 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 erosion and sedimentation control features and water-quality appurtenances 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, 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

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construction schedule (in MS Project) for the contract, showing the phased construction and utility relocation time frames, for review and comment by DEPARTMENT staff:

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

At this submission, a revised itemized estimate shall be prepared in the I-93 corridor estimate format and submitted by the CONSULTANT (2 bound copies) based on the best information and design features shown in this submission relative to the anticipated construction including any diversions or temporary widenings. The estimate should be broken out to include the estimated amounts based on the anticipated northbound and southbound sequencing.

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.

d. Utility Plans:

Following submission and review of the Slope and Drain submission, the CONSULTANT shall incorporate DEPARTMENT comments into the design layout and assemble the plans into a cut sheet format. The CONSULTANT shall then furnish up to five sets of cut sheet plans (paper prints) of front sheet, plans, profiles, and up to five sets of cross-sections and a list of revised utility conflicts for use by the Design Services Section. The CONSULTANT shall also submit separate electronic files of this information, in a format acceptable to the DEPARTMENT, in conformance with the DEPARTMENT'S CAD/D Procedures and Requirements. This submission plan set is intended to facilitate the identification of the scope of work required by various utilities to comply with the planned construction. The plans are intended to reflect the near-final design of drainage systems with all appurtenances, erosion and sedimentation-control features, other structures, right-of-way lines (proposed permanent and temporary, and existing), curbing, pavement layout, slope limits, guardrail, final template plotted on cross-sections, diversions and diversion cross-sections, traffic control issues with construction phasing, underdrain, clearing and grubbing limits, fencing requirements, lighting and ITS conduit. Also, the plans shall reflect all existing detail, existing drainage and existing utilities. The intent is to have incorporated all comments from the preliminary right-of-way plan development and the Slope and Drain submission along with design work that has progressed. All final design notes may not be necessary, but the scope of construction shall be evident to the reviewing utilities. Copies of this plan set will be forwarded to the Design Services Section for review. Comments will be

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

e. Preliminary PS&E – Roadway:

The Preliminary PS&E submission shall consist of three to five sets of plans (paper prints) of preliminary contract drawings, draft special provisions for items for which current specifications are not available from the DEPARTMENT, and a Preliminary PS&E estimate of quantities and costs in the I-93 corridor estimate format. The plans shall include title sheet, typical sections, all plan sheets (of all plan sets), profile sheets, curb and pavement marking layout plans, ITS infrastructure, complete traffic control plans (with a conceptual construction schedule) including one set of roll plans, cross-section sheets and necessary detail sheets. Also, landscaping, seeding and grading plans shall be included, if required. Quantity Summary sheets shall be submitted. All item summary boxes for drainage, clearing and grubbing, earthwork, surfacing and select materials, curbing, guardrail, traffic signs, construction signs and warning devices, pavement markings, conduit and pull boxes, ITS components, landscaping and slope protection, bounds, fencing, delineation and witness markers and other items that are nearly complete shall be shown and note line-entries completed. Rounding and totals are not required. Items summary boxes of expected work, not listed above, shall be included and shown without line-entries completed. In developing the plans to the Preliminary PS&E stage, the DEPARTMENT will require an estimate of the quantities, expected unit costs, and total costs prepared in the form and manner prescribed by the DEPARTMENT for the Preliminary PS&E submission for the construction contract. An electronic copy of the spreadsheet shall be submitted for each estimate in a format furnished by the DEPARTMENT. Two bound copies of the quantity calculations shall be furnished with the estimate. The plans shall reflect all comments from the Slope and Drain submission and issues that appear during final design. Two bound copies of the Design Report and two bound copies of the drainage computations book (as revised based on Slope and Drain comments) including a pollutant loading assessment, as well as temporary drainage computations for each contract shall be submitted with the Preliminary PS&E submission.

f. PS&E – Roadway:

Upon approval in writing by the DEPARTMENT of the Preliminary PS&E submission, the CONSULTANT shall proceed to prepare and submit to the DEPARTMENT for approval the PS&E submission, which shall consist of three complete sets of paper prints of construction plans including one set of roll plans (for all plan sets), two bound copies of the revised quantities book, and a PS&E estimate. In addition, 2 bound copies of the design report, and 2 updated copies of the drainage report. Special Provisions shall be submitted in electronic format (Microsoft Word-compatible) for all items not in the Standard Specifications for Road and Bridge Construction of the STATE and for which a current special provision is not available.

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g. Draft Contract Plans and Consultant Documents:

Upon approval in writing by the DEPARTMENT of the PS&E submission, the CONSULTANT shall proceed to prepare and submit to the DEPARTMENT for approval the Draft Contract Plan submission, which shall consist of three complete sets of paper prints of construction plans including one set of roll plans (for all plan sets), two bound copies of the revised quantities book, and a PS&E estimate. In addition, 2 bound copies of the design report, and 2 updated copies of the drainage report. Special Provisions shall be submitted in electronic format (Microsoft Word-compatible) for all items not in the Standard Specifications for Road and Bridge Construction of the STATE and for which a current special provision is not available.

h. Contract Plans (Mylars) and Consultant Documents:

Upon approval of the foregoing in writing by the DEPARTMENT the CONSULTANT shall make the final submission of contract plans, any final special provisions required and a final PS&E estimate of costs. These final contract plans and documents shall reflect all comments resulting from the PS&E review. The CONSULTANT shall be prepared to incorporate all comments, furnish drafting services for omissions found and generally assist the DEPARTMENT in finalizing the contract plans. If changes are requested to be made to the CONSULTANT'S plans by the DEPARTMENT, the CONSULTANT shall be prepared to update the corresponding electronic files and submit them to the DEPARTMENT. Final acceptance of the contract plans will be made in writing for each Contract. The final contract plans submitted shall include up to three sets of paper prints. A paper set shall be submitted prior to the final submittal to facilitate a final review and "three-way" check by the DEPARTMENT. The CONSULTANT shall be prepared to incorporate all comments into the final paper submission. Also, all CONSULTANT backup documents shall be resubmitted to reflect the final PS&E/ paper comments and final contract plan conditions. The submission shall also include 1 set of roll plans for each plan set (including the traffic control plans). The CONSULTANT shall also submit two bound copies of the final Design Report, Drainage Calculations and the final Quantities Books.

The final contract plans shall include:

- 1) Front sheet.
- 2) Symbols sheets.
- 3) Typical sections of improvement.
- 4) Summary-of-quantities sheets.
- 5) Plan and profile sheets.
- 6) Detail sheets and/or special sheets required.
- 7) Cross-section sheets.

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

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2. Right-of-Way Plans:

Right-of-way plans shall consist of a separate set of Purchase plans for the purpose of negotiating, and defining the required right-of-way for the 13933A project and a set of Registry plans for recording the right-of-way for that project. The Purchase sets of plans should be in conformance to the original set of ROW Purchase plans created by the I-93 Southern Design Team.

In order to expedite right-of-way acquisitions by the CONSULTANT, it may be necessary to complete the Right-of-Way Purchase plans very early in the project schedule. Right-of-Way Purchase and Registry plans shall be prepared in imperial units in the International Survey Foot system.

The CONSULTANT shall be prepared to provide working (progress) right-of-way plans (front sheet, summary sheets, plan sheets) (three sets of paper prints) concurrent with the Slope and Drain Plans submission for each roadway contract, if requested. Where the proposed right-of-way lines have been firmly established, acquisition calculations shall be performed. Acquisition and easement calculations may be submitted in handwritten format. The purpose of this working (progress) submission is to show anticipated areas of acquisition and easements, as well as the correct format of the right-of-way plans.

The preliminary right-of-way submission (three sets of paper prints) shall be submitted shortly after the CONSULTANT'S submission of the overall Slope and Drain plans. The preliminary right-of-way plans shall include a front sheet, summary sheets and all plan sheets. Acquisition and easement areas shall be calculated and summary boxes filled in. Right-of-way Purchase plans shall be submitted after the Consultant has received and incorporated the DEPARTMENT'S Slope and Drain plan comments, or as otherwise approved by the DEPARTMENT. The CONSULTANT shall be prepared to make corrections as required. The CONSULTANT shall be prepared to make revisions to the right-of-way plans based on design changes and the negotiations with property owners. Acquisition and easement areas shall be calculated and summary boxes filled in.

The Right-of-Way Purchase Plans set shall include:

- a. Front sheet
- b. Standard Symbol Sheets
- c. Property Layout Plan Sheets 1"=200'-scale showing existing detail, complete parcel boundaries, proposed roadway layout, parcel numbers, property owners' names and access points granted.
- d. Summary Sheets
- e. Geometric Layout Sheets
- f. Right-of-Way plan sheets showing all impacts (temporary or permanent)

The final Right-of-Way Purchase plans shall contain all of the sheets noted above, including a front sheet, standard symbol sheets, summary sheets, property layout sheets, geometric layout sheets and plan sheets and shall be submitted after the completed negotiations with property owners. The final Right-of-Way Purchase plans shall be submitted with the final Contract Plans submission.

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The CONSULTANT shall develop a separate set of plans for the impacted parcels on the 13933A project for registry recordation by the CONSULTANT based on the requirements of RSA 478:1-a (which requires a NH Licensed Land Surveyor (LLS), RSA 230:32 and DEPARTMENT procedures. Any discrepancies in the requirements for recording Registry plan purposes will follow the requirements of the Rockingham County Registry of Deeds. The final mylars (as described previously) of the final Right-of-Way Purchase plans and a copy of the Registry plans shall be submitted with the mylars of the Contract Plans submission.

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

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

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/.)

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

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

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

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.

Email: Files 10 MB or smaller may be transferred via Email. If compressed, the files should be self-extracting and encrypted based on content.

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

Website Information:

- a. Website Content: All external NHDOT websites created for this project shall meet the ADA Section 508 requirements as stated in the NH DoIT Website Standards. Those standards are outlined in <https://www.nh.gov/doit/vendor/documents/nh-website-standards.pdf>.
- b. 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,

N. SCOPE OF WORK (CONSTRUCTION SUPPORT SERVICES)

If a contract for construction of the project, or part of it, is entered into within two years after completion by the CONSULTANT of the services outlined in Articles I, III and IV, the CONSULTANT shall, without additional compensation therefore, render services to the DEPARTMENT, including, but not restricted to, the following:

1. Construction

If and when required by the DEPARTMENT during the construction of the project, the CONSULTANT shall:

- a. At the CONSULTANT'S sole expense, correct and resolve errors and/or omissions, due to the CONSULTANT'S own negligence, within the contract plans and specifications found during construction.
- b. Render interpretations, as necessary, of the contract plans and specifications and submit recommendations for necessary modifications in either or both and, upon approval of recommendations by the DEPARTMENT, revise the contract plans and specifications to cover same and prepare other detailed drawings as may be needed to supplement the contract plans in order to permit the proper completion of the project. This work effort, if required, will be viewed as additional services, subject to an adjustment in the fee.

2. Shop Drawings

The CONSULTANT shall:

- a. Review, check and approve all working drawings (including overhead sign structures and ITS devices) prepared by OTHERS including the construction contractors or their subcontractors subject to the provisions of Section 105 for the purpose of checking for conformance with the information

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given and the design concept expressed in the Contract documents. Only that work designed by the DEPARTMENT will be excluded from this requirement.

- b. Design and prepare drawings for the substructure elements required for ITS devices and overhead sign structures. The Contractor shall submit fabrication plans and design parameters for overhead sign structures, which, in combination with soils information obtained by the DEPARTMENT, shall be used by the CONSULTANT to develop the designs and drawings for substructure elements including quantities.
3. Letter of Map Revision (LOMR) - The CONSULTANT will prepare and submit any necessary LOMR applications for the Harris Brook Tributary only. The CONSULTANT will be responsible for all coordination with the municipalities and the Federal Emergency Management Agency (FEMA) including any and all fees (or waivers) for the applications. The CONSULTANT shall be responsible to provide as-built survey by a NH Licensed Land Surveyor (LLS) to complete this application.

O. DATE OF COMPLETION

The intermediate date of completion for all work specific to the 13933A portion of the contract is December 31, 2019. The final date of completion for all services specific to the 13933A portion of the contract, including Construction Support Services and Right-of-Way Acquisitions is September 30, 2020.

The final date of completion for all work specific to the 10418X portion of the contract is March 31, 2021.

In accordance with the Governor and Council Resolution authorizing this AGREEMENT, the date of completion for all professional services rendered under this AGREEMENT is March 31, 2021.

ARTICLE II-A

ARTICLE II-A - 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 design and construction support services, as well as right-of-way services consisting of right-of-way and boundary research, right-of-way purchase plans, right-of-way registry plans, and right-of-way management and engineering rendered to the satisfaction of the DEPARTMENT under this AGREEMENT (except as otherwise herein provided) 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. A list of those personnel working on the project with their classifications and current salary rates shall be submitted to the DEPARTMENT for approval. The rates of any additional personnel working on the project, if any, shall require written approval of the DEPARTMENT prior to working on the project. The CONSULTANT shall submit classifications and rates for any additional personnel a minimum of 14 days prior to using the additional personnel.

*In accordance with DEPARTMENT policy, the maximum direct-labor rate allowed for all positions under this AGREEMENT shall be \$60.00 per hour unless a waiver to the salary cap has been specifically approved for specialty services.

2. Costs which are directly applicable to the salaries, salary burden, and direct and indirect costs, including administration costs. These costs may be applied to only straight time salary extensions where overtime is employed. These amounts shall be based on actual costs to the CONSULTANT for such items during the period of the AGREEMENT and those allowable in accordance with the applicable cost principles contained in Federal Acquisition Regulations Subpart 31.2 and Subpart 31.105. Further, any overtime required for this project shall have the prior written approval of the DEPARTMENT.
3. A fixed fee amount as shown in Article II-A, Section B for profit and non-reimbursed costs.
4. Reimbursement for direct expenses, including work performed by other parties, such as borings, laboratory tests, field survey, special electronic computer services, services of other specialists, printing, photogrammetry, traffic counts, 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 Regulations. The General Services Administration (GSA), Regulation 41 CFR Part 301-4, specifies the FTR automobile mileage reimbursement. Mileage and per diem costs shall be subject to approval by the DEPARTMENT.

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All costs as described in the foregoing paragraphs are to be determined by actual records kept during the term of the AGREEMENT which are subject to 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 total amount to be paid shown in the following paragraph and in Article II-A, Section C.1. All Subconsultant costs may also be subject to audit by the STATE and Federal Governments.

The total amount to be paid under Article II-A of this AGREEMENT shall not exceed \$2,730,827.20, the sum of the amounts shown in Article II-A, Section B (which amount is based on the CONSULTANT'S fee and manhour estimates of March 9, 2018), except by agreement of all parties made after supplemental negotiations. 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; 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.

All salaries and increases thereof paid to technical or other employees assigned to this project shall be the result of a company-wide evaluation of all employees and shall not be restricted to employees assigned to this project.

If, in the opinion of the DEPARTMENT, any salary or increase thereof of engineering or technical personnel assigned to this project is unreasonable, it shall notify the CONSULTANT of its opinion with regard thereto and request the CONSULTANT to justify said salary or increase thereof. In the event that the CONSULTANT furnishes justification satisfactory to the DEPARTMENT for said salary or increase thereof, then such salary or increase thereof shall be approved as a payroll expense.

The DEPARTMENT shall have the right to exercise the power of review and approval of salary increases thereof, for a period of thirty (30) days after the submission of a monthly invoice by the CONSULTANT. Unless the DEPARTMENT notifies the CONSULTANT in writing during the thirty-day period that such salary increase thereof is, in its opinion, unreasonable, such lack of notice shall constitute approval of said salary increase thereof from the first day of the preceding month.

The DEPARTMENT shall have the right, at the time of audit, to review all items charged to overhead 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 cost.

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 contract period and for three (3) years from the date of final voucher payment for examination by the STATE and copies thereof shall be furnished if requested.

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B. SUMMARY OF FEES

The STATE, through the DEPARTMENT, hereby agrees to pay and the CONSULTANT agrees to accept as full compensation the following:

- a. Actual CONSULTANT'S salaries*, costs applicable to actual salaries, salary burden (direct and indirect) and administrative costs attributable to overhead, the sum of which is estimated at \$2,410,964.73 (including \$136,761.99 for Construction Support Services). For billing purposes, salary burden and overhead costs are currently estimated at 157.93% of actual salaries.
- b. A fixed fee to cover profit and non-reimbursed costs at \$241,096.47 (including \$13,676.20 for Construction Support Services).
- c. Reimbursement for direct, out-of-pocket expenses estimated at \$78,766.00.

The actual amount payable under categories (a) and (c) is only estimated and shall be changed only upon mutual agreement of the DEPARTMENT and CONSULTANT.

*In accordance with DEPARTMENT policy, the maximum direct-labor rate allowed for all positions under this AGREEMENT (including subconsultants paid under direct expenses) shall be \$60.00 per hour unless a waiver to the salary cap has been specifically approved for specialty services.

C. LIMITATION OF COSTS

1. Costs incurred against the Article II-A portion of this AGREEMENT shall not exceed \$2,730,827.20 unless otherwise authorized. The CONSULTANT shall give the DEPARTMENT a ninety (90)-day written notice when it appears that this limit will be exceeded.
2. It is expected that the total cost to the STATE shall be the cost set forth under Article II-A, Section A, and the CONSULTANT agrees to use his best efforts to perform the work specified in the AGREEMENT and all obligations under this contract within such limiting amount.
3. The STATE shall not be obligated to reimburse the CONSULTANT for costs incurred in excess of the limiting amount set forth in Article II-A, Section A.
4. Change orders issued under this contract shall not be considered an authorization to the CONSULTANT to exceed the limiting amount set forth in the Summary in the absence of a statement in the change order, or other contract modifications, increasing the limiting amount.

D. PAYMENTS

Payments on account of services rendered under this AGREEMENT shall be made as follows:

1. Monthly payments on account may be made upon written request of the CONSULTANT. Detailed vouchers shall include certification of manhours of effort by employee classification and actual salaries and other costs incurred accompanied by satisfactory evidence of work performed during the period. Actual salaries paid and percentage factor shown in Article II-A, Section B, part (a) as well as for all approved subconsultants, including those listed in part (d) of Section B, shall be used until such time as true costs of salary burden and overhead are fixed by audit. At that time, payments shall be adjusted to agree with the percentage factors as determined by audit

ARTICLE II-A

for the period in which the work was performed, as approved by the DEPARTMENT. The fixed fee shall be invoiced during the billing period based upon the overall percent complete of the project's scope of work as approved by the DEPARTMENT.

2. The CONSULTANT shall submit a final voucher upon completion of services required by this AGREEMENT, which includes any unbilled portion of the allowable costs or fixed fee and adjustments, if necessary, for audited actual costs and deliver all required plans, documents and records.

ARTICLE II-B

ARTICLE II-B - LUMP SUM 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 right-of-way services consisting of title abstracting, appraisals, and acquisitions rendered to the satisfaction of the DEPARTMENT under this AGREEMENT, except as otherwise herein provided, a total lump sum of \$253,635.00, apportioned as follows:

Vanasse Hangen Brustlin, Inc.	\$28,175.00
<u>Subconsultants:</u>	
Gould and Gould	\$45,080.00
McManus & Nault	\$85,680.00
Freneau Appraisal	\$37,200.00
OR Colan	\$57,500.00
Article II-B Total	<u>\$253,635.00</u>

Said total lump sum shall be considered full compensation for the applicable work described in this AGREEMENT.

This total sum may be exceeded only when there is a substantial change in the scope or character of the work and by prior negotiation of a supplemental AGREEMENT, which shall have the concurrence of the Federal Highway Administration, United States Department of Transportation. Any additional fee for revisions or other services shall be as specified in Sections B and C below. Substantial reductions in the scope or character of work, which may become desirable or necessary as the work progresses, may require a reduction in the total lump sum through negotiation.

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 contract period and for three (3) years from the date of final voucher payment and closure of all pending matters for examination by the STATE, Federal Highway Administration or other authorized representatives of the Federal Government, and copies thereof shall be furnished if requested.

B. ADDITIONAL FEE FOR REVISIONS OR ADDITIONAL SERVICES

If the CONSULTANT performs services for revisions of the plans or other services under the provisions of Article IV, Section D, or the first paragraph of Article IV, Section E, and depending upon how well the scope of work can be defined, it shall be paid as its total fee for such services either the actual cost plus fixed fee for profit and other nonreimbursed costs or a lump sum fee negotiated by the CONSULTANT and the DEPARTMENT. Form and fee of such payment shall be determined prior to performance of such services.

ARTICLE II-B

If the CONSULTANT performs additional design services under the provisions of the second paragraph of Article IV, Section E, it shall be paid as its total fee for such services a lump sum fee negotiated by the CONSULTANT and the DEPARTMENT.

C. ADDITIONAL FEE FOR EXTENSION OF TIME

Should circumstances beyond the control of the CONSULTANT require extension of the time of completion more than one (1) year, the lump sum fee may be renegotiated.

D.1 SCHEDULE OF PAYMENTS – TITLE ABSTRACTING

Payments on account for the \$45,080.00 fee for Title Abstracting Services rendered under this AGREEMENT shall be made as follows:

1. Monthly payments on account may be made upon written request of the CONSULTANT, based on satisfactory evidence of actual completion of work performed at the time of the payment, except that the total of such payments shall not exceed the percentages enumerated below at the indicated stages.
 - a. An amount equal to 20% of the above amount when the Abstracting Services process is initiated.
 - b. An amount equal to 50% of the above amount (less previous payments) at the DEPARTMENT Review Meeting stage.
 - c. An amount equal to 80% of the above amount (less previous payments), when the Draft Closing Documents are submitted.
 - d. An amount equal to 100% of the above amount (less previous payments), when the Final Closing Documents or Draft Declaration of Condemnation are submitted.
2. Payments on account of additional fees for revisions or additional services specified in Section B above shall be made as due upon receipt by the DEPARTMENT from the CONSULTANT of its bill, with the required substantiating data in accordance with the negotiated settlement.

D.2 SCHEDULE OF PAYMENTS - APPRAISALS

Payments on account for the \$122,880.00 fee for Appraisal Services rendered under this AGREEMENT shall be made as follows:

1. Monthly payments on account may be made upon written request of the CONSULTANT, based on satisfactory evidence of actual completion of work performed at the time of the payment, except that the total of such payments shall not exceed the percentages enumerated below at the indicated stages.
 - a. An amount equal to 50% of the above amount (less previous payments) when the Draft Appraisals are submitted.
 - b. An amount equal to 100% of the above amount (less previous payments) when the Final Appraisals are submitted.

ARTICLE II-B

2. Payments on account of additional fees for revisions or additional services specified in Section B above shall be made as due upon receipt by the DEPARTMENT from the CONSULTANT of its bill, with the required substantiating data in accordance with the negotiated settlement.

D.3 SCHEDULE OF PAYMENTS - ACQUISITION

Payments on account for the \$85,675.00 fee for Acquisition Services rendered under this AGREEMENT shall be made as follows:

1. Monthly payments on account may be made upon written request of the CONSULTANT, based on satisfactory evidence of actual completion of work performed at the time of the payment, except that the total of such payments shall not exceed the percentages enumerated below at the indicated stages.
 - a. An amount equal to 35% of the above amount when the Acquisition Services process is initiated.
 - b. An amount equal to 50% of the above amount (less previous payments) when the Presentation of Offer(s) are submitted.
 - c. An amount equal to 75% of the above amount (less previous payments), when the Initiation of Closing and/or Condemnation occurs.
 - d. An amount equal to 100% of the above amount (less previous payments), when the Complete Parcel Closeout occurs.
2. Payments on account of additional fees for revisions or additional services specified in Section B above shall be made as due upon receipt by the DEPARTMENT from the CONSULTANT of its bill, with the required substantiating data in accordance with the negotiated settlement.

ARTICLE II-C

ARTICLE II-C - CONSULTANT COMPENSATION SUMMARY – AGREEMENT TOTAL

Article II-A (Cost Plus Fixed Fee) Total	\$2,730,827.20
Article II-B (Lump Sum) Total	\$253,635.00
<u>Agreement Total</u>	<u>\$2,984,462.20</u>

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, including recording and filing of surveys and plats, enter into all necessary agreements with railroads, public utilities, municipalities, agencies of the Federal Government or others, and make orders of takings and financial settlements with owners of properties affected.

B. CONTRACT PROPOSALS

After the CONSULTANT has furnished to the DEPARTMENT contract drawings, special provisions, specifications, and estimate of quantities and unit cost by items, the DEPARTMENT will prepare the documents for receipt of proposals from construction contractors and for execution of a construction contract or contracts.

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 2 Bedford Farms Drive, Suite 200, Bedford, 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

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possible, based upon the work performed prior to termination. If no contract or contracts for construction of the project contemplated by this AGREEMENT is (are) entered into within two (2) years after satisfactory completion of the services outlined in Article I, all of the services contemplated by this AGREEMENT shall be deemed to have been completed.

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

D. 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 B, 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, Sections A and B.

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, Sections A and B.

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, 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 \$25,000. For subconsultant contracts with no risk, e.g., subsurface exploration, archaeology, cultural resources, data gathering, etc., professional liability insurance shall not be required. If coverage is claims made, the period to report claims shall extend for not less than three years from the date of substantial completion of the construction contract. A copy of each subcontract shall be submitted for the DEPARTMENT'S files.

H. GENERAL COMPLIANCE WITH LAWS, ETC.

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

I. BROKERAGE

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

ARTICLE IV

J. CONTRACTUAL RELATIONS

1. Independent Contractor

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

2. Claims and Indemnification

a. Non-Professional Liability Indemnification

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

b. Professional Liability Indemnification

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

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

3. Insurance

a. Required Coverage

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

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

ARTICLE IV

shall extend for not less than three years from the date of substantial completion of the construction contract. No retention (deductible) shall be more than \$75,000; and

4. workers' compensation and employer's liability insurance as required by law.

b. Proof of Insurance

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

4. No Third-Party Rights

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

5. Construction of AGREEMENT

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

K. AGREEMENT MODIFICATION

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

L. EXTENSION OF COMPLETION DATE(S)

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

ARTICLE IV.

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

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

COMPLIANCE

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

- (1) **Compliance with Regulations:** The CONSULTANT shall comply with Title VI of the Civil Rights Act of 1964 regulations relative to nondiscrimination in federally-assisted programs of the DEPARTMENT, such regulations entitled Title 49 Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the REGULATIONS), and which are herein incorporated by reference and made a part of this AGREEMENT.
- (2) **Nondiscrimination:** The CONSULTANT, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, religion, age, sex, handicap, sexual orientation, or national origin in the selection and retention of subconsultants, including procurements of materials and leases of equipment specific to this project. The CONSULTANT shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the REGULATIONS, including employment practices when the AGREEMENT covers a program set forth in Appendix B of the REGULATIONS.
- (3) **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the CONSULTANT for work to be performed under a subcontract, including procurements of materials or leases of equipment specific to the project, each potential subconsultant or supplier shall be notified by the CONSULTANT of the CONSULTANT'S obligations under this AGREEMENT and the REGULATIONS relative to nondiscrimination on the grounds of race, color, religion, age, sex, handicap, sexual orientation, or national origin.
- (4) **Information and Reports:** The CONSULTANT shall provide all information and reports required by the REGULATIONS or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the DEPARTMENT or the Federal Highway Administration to be pertinent to ascertain compliance with such REGULATIONS, orders and instructions. Where any information required of a CONSULTANT is in the exclusive possession of another who fails or refuses to furnish this information, the CONSULTANT shall so certify to the DEPARTMENT or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.

ARTICLE IV

- (5) Sanctions for Noncompliance: In the event of the CONSULTANT'S noncompliance with nondiscrimination provisions of this AGREEMENT, the DEPARTMENT shall impose sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
- (a) withholding of payments to the CONSULTANT under the AGREEMENT until the CONSULTANT complies; and/or
 - (b) cancellation, termination, or suspension of the AGREEMENT, in whole or in part.
- (6) The CONSULTANT shall take such action with respect to any subcontract or procurement as the DEPARTMENT or the Federal Highway Administration may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a CONSULTANT becomes involved in, or is threatened with, litigation with a subconsultant or supplier as a result of such direction, the CONSULTANT may request the DEPARTMENT to enter into such litigation to protect the interests of the STATE, and, in addition, the CONSULTANT may request the United States to enter into such litigation to protect the interests of the United States.
- (7) 23 CFR 710.405(b) and Executive Order 11246 entitled "Equal Employment Opportunity," as amended by Executive Order 11375 and as supplemented in Department of Labor REGULATIONS (41 CFR Part 60), shall be applicable to this AGREEMENT and any subagreements hereunder.
- (8) Incorporation of Provisions: The CONSULTANT shall include the provisions of paragraphs (1) through (7) in every subcontract, including procurements of materials and leases of equipment specific to the project, unless exempt by the REGULATIONS, or directives issued pursuant thereto.

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

N. DISADVANTAGED BUSINESS ENTERPRISE POLICY REQUIREMENTS

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

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2. Disadvantaged Business Enterprise (DBE) Obligation. The STATE and its CONSULTANTS agree to ensure nondiscriminatory opportunity for disadvantaged business enterprises, as defined in 49 CFR Part 26, to participate in the performance of agreements and any subagreements financed in whole or in part with Federal funds. In this regard, the STATE and its CONSULTANTS shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 to ensure that disadvantaged business enterprises have the opportunity to compete for and perform work specified in the agreements. The STATE and its CONSULTANTS shall not discriminate on the basis of race, color, religion, age, sex, handicap, sexual orientation, or national origin in the award and performance of agreements financed in whole or in part with Federal funds.
3. Sanctions for Non-Compliance. The CONSULTANT is hereby advised that failure of the CONSULTANT, or any Subconsultant performing work under this AGREEMENT, to carry out the requirements set forth in paragraphs 1 and 2 above, shall constitute a breach of agreement and, after the notification of the United States Department of Transportation, may result in termination of this AGREEMENT by the STATE or such remedy as the STATE deems appropriate.

O. DOCUMENTATION

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

P. CLEAN AIR AND WATER ACTS

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

ATTACHMENT A

1

Salem-Manchester

I-93 – 4th Lane Expansion from Stateline through Exit 1 – Final Design Services Agreement

Federal Project #: A004(435)

State Project #: 10418X & 13933A

VHB Scope of Work

March 9, 2018

PREFACE: This Scope of Work prepared by VHB is a supplement to and referenced as such to the NHDOT Contract Documents.

CONTRACT DESCRIPTION: The contract includes the preliminary and final design of I-93 from the NH/MA border to the Exit 1 interchange. In addition, the public involvement and project management support is included in the contract for the entire 20-mile corridor. In the following document, the terms “10418X” and/or “13933A” project as it relates to construction contracts is intended to reference the project from the Massachusetts border to Exit 1; however, it is noted that this project is intended to be developed as 1 construction project.

CONSTRUCTION PROJECT LIMITS (see Figures 1 and 2):

The construction project limits are approximate and include the anticipated work limits and roadway approaches for the various roadways.

I-93 NB Proposed Work – Approximately Sta. 1000+00 to approximately Sta. 1090+00

I-93 SB Proposed Work – Sta. Approximately 3000+00 to approximately Sta. 3090+00

Exit 1 NB Off Ramp – Approximately Sta. 906+50 to approximately Sta. 910+00

Exit 1 SB On Ramp – Approximately Sta. 866+00 – approximately Sta. 879+00

Traffic Control NB – From approximately 3,000 feet south of the NH/Mass. border to approximately Sta. 1108+00 (Lowell Road Overpass Bridge)

Traffic Control SB – From approximately 3,000 feet south of the NH/Mass. border to approximately Sta. 3111+00 (Lowell Road Overpass Bridge)

Construction Signs and Warning Devices NB - From approximately 3,000 feet south of the Exit 47 interchange to approximately Sta. 1113+00. This includes the rest area ramps and the Exit 1 ramps beginning at the Rockingham Mall entrance intersection and any other side roads and interchange ramps. These signs and warning devices will be designed to conform to AASHTO and MUTCD requirements.

Construction Signs and Warning Devices SB - From approximately Sta. 3163+00 to approximately 500 feet south of the NH/Mass. border

PROJECT DEVELOPMENT PROCESS

ENGINEERING STUDY –It is anticipated that the Engineering Study includes a single submission that includes the roadway alternative, the traffic analysis and the NEPA re-evaluation. Upon selection of the Preferred Alternative, any necessary modifications will be completed to support public participation and design approvals.

FINAL DESIGN

FINAL DESIGN PROJECT DEVELOPMENT PROCESS - The project development process will essentially follow the typical final design process except the Slope and Drain, Right-of-Way and Utility Submissions can be submitted simultaneously.

THE VHB Design Team

VHB – Prime consultant

IAC – Archaeological (Direct Expense)

RKG – Socio-economic (Direct Expense)

OR Colan – Right-of-Way Acquisition sub-consultant

Freneau Appraisal, Inc – Right-of-Way Appraisal sub-consultant

McManus & Nault Appraisal Company, Inc. - Right-of-Way Appraisal sub-consultant

Gould and Gould – ROW Title Abstracting sub-consultant

1. ENGINEERING STUDY

- a. **BASE PLAN PREPARATION** – The base plans and three-dimensional surface will be developed through combining the original survey files with the 13933D design plans, including the Revision after Proposals 1 and 2 for the addition of the median guardrail and a median turnaround. Existing contours will be developed and modified as necessary after field review and will be used in the erosion control plans. The base plans in NH will extend from the Brookdale Road bridge overpass to the NH/MA border. The base plans in Massachusetts will extend approximately 9,000' south of the border and includes the Exit 47 and 48 interchanges. The base plans will also be extended along MA 213 approximately 6,000' and include the Exit 2 interchange. These Massachusetts base plans will be developed for traffic control, construction signing, and smart work zone purposes as well as for any pavement treatment work that may be necessary in Massachusetts. These plans will be developed using available aerial information to digitize the travel ways, edges of pavements, bridges and significant sign devices. The right-of-way and property title research will also be completed during the Engineering Study phase (see detailed scope regarding this in the Right-of-Way section of the scope).

The existing LIDAR may be utilized to develop a surface(s) for use in developing the HEC-RAS models for the Harris Brook tributary.

Project Start-up – Project start up (kickoff meetings and distribution of materials). These meetings include attendance for a total of 5 VHB Design Team members at the turnover meeting with the Department and the same group with the same hours at the VHB Team internal kickoff meeting. The distribution and review of materials is to receive the information from the Department, review said information, distribute the Department and the VHB Team information to the team for their review prior to commencing with design services.

b. DATA COLLECTION

i. TRAFFIC

Traffic volume data available via the NHDOT website will be used to as the basis for the traffic operational analyses for the I-93 mainline, rest area on and off ramps, and the Exit 1 on-ramps and off-ramps. Data currently published on-line includes 2016 hourly counts (for the months January through December) for the mainline in the northbound and southbound directions; 2017 data will be reviewed in comparison to 2016 data as available at Notice to Proceed. Additional data to be used includes the July 2017 counts available for the Exit 1 northbound and southbound ramps, January 2016 data published in the April 2017 Traffic Impact and Access Study for the Tuscan Village (Phase III) will be reviewed as a secondary source of data; this study includes data relative to the Exit 1 on and off ramps.

ii. ENVIRONMENTAL

VHB understands that extensive environmental data was collected during the NEPA phase of the Salem-Manchester project and is contained in the FEIS/SEIS. VHB will update certain data to support the NEPA written re-evaluation and permitting of the 10418X/13933A project as described in the work scope and as further detailed below. VHB understands that the Department will provide updated wetland delineation, invasive species mapping, and acoustic survey for the Northern Long-eared Bat; this work will be completed by OTHERS and provided to VHB to incorporate into project plans and environmental documentation. As part of the environmental data collection, VHB will complete the following tasks:

- a. NHDHR Request for Project Review (RPR) – NHDOT has requested that VHB develop a new RPR for the Project, for submission to NHDHR through NHDOT. As the previous RPR for the project is more than 10 years old, VHB will update the site file search for inventoried properties and provide current photographs of the Project area, including properties which have reached 50 years of age since the previous RPR was submitted. Preparation of the RPR will follow the instructions, guidance, and format issued by NHDHR for transportation projects. A draft of the RPR will be submitted electronically to NHDOT for review and comment. VHB will deliver two hard copies of the final RPR to NHDOT. This scope assumes one cultural resource agency meeting to discuss the RPR and NHDHR findings.

- b. Archaeological Surveys – VHB will retain Independent Archaeological Consulting (IAC) of Portsmouth, NH to perform archaeology services as a direct expense. IAC will conduct a review of existing archaeological surveys of the area to identify impacts previously disclosed in the EIS, and will review the proposed design to determine whether additional potential impacts may result or if additional surveys are warranted. Any additional archaeological research, investigations or surveys be completed by OTHERS.
- c. Socio-Economic Analysis – VHB will retain RKG to perform socio-economic services as a direct expense. RKG will review the existing socio-economic data previously developed in the EIS to determine if any additional socio-economic studies are necessary.
- d. Noise and Air Quality – The noise and air quality evaluations for the Engineering Study will be completed through VHB’s Noise and Air Quality Statewide On-call Contract. Therefore, only efforts necessary to develop the NEPA re-evaluation are included in this contract.
- e. Water Based Resources - Surface Waters - VHB will consult with the Department to determine the status of pollutant loading results and stormwater treatment BMPs associated with previously completed project segments draining to the same surface water resources. VHB assumes that the project will be advertised prior to June 2020, and therefore NPDES MS4 requirements will not apply.
- f. NHDES OneStop and NHDOT RASCAL – VHB will review the NHDES OneStop Database as well as the NHDOT RASCAL Database to determine whether new contamination sites occur within 1,000 ft of the project study area.

c. TRAFFIC MODELING, FORECASTING AND ANALYSIS

Weekday morning and evening peak hour traffic volume networks encompassing the I-93 mainline from the MA state line through Exit 1, Exit 1 on and off-ramps, and rest area entrance and exit ramps will be established for the base year 2020, the NEPA projection year 2025, and the twenty-year forecast year 2040. The traffic volume forecast will be prepared to reflect an average annual condition with seasonal adjustments calculated based upon historical data from the I-93 permanent count stations (01399001 and 01399002). Background growth rates will be established using twenty-years of historical count data from the permanent count stations and traffic growth projections for I-93 obtained from the Rockingham Planning Commission. Forecasting with normal background growth and site-specific traffic associated with the Tuscan Village project to be located on Rockingham Park Boulevard will be used to establish traffic volume networks for each future year. VHB will coordinate with the NHDOT and Tuscan Village team to obtain development phasing plans to appropriately allocate growth throughout the twenty-year forecast period.

Independent of the above noted forecasting, separate northbound networks will be established for the 2020 and 2040 peak summer conditions with the Tuscan Village project. Seasonal adjustments factors for the highway traffic will be based upon the I-93 permanent count stations; Tuscan Village traffic will not be seasonally adjusted. These networks will be used to conduct an analysis of the weave that exists between the rest area exit and the I-93 northbound Exit 1 off-ramp.

Traffic operational analyses will be based upon the methodologies published in the 2010 Highway Capacity Manual (HCM). Analyses will include freeway segments, ramps, and the northbound weave between the rest area and the Exit 1 off-ramp. Analyses will be performed using the forecasts with the Tuscan Village traffic for the alternatives, as described below. HCM analyses will be supplemented with macroscopic and microscopic analyses performed using the Synchro/SimTraffic software suite Version 9 as needed for visualization purposes. For budgeting purposes, the Synchro/SimTraffic models are assumed to be limited to 2 specific scenarios.

d. ALTERNATIVES DEVELOPMENT

i. DESIGN

The design alternatives will be developed to the expectations of a Pre-Preliminary Submission. This includes the development of horizontal and vertical alignments, pavement layout, cross sections at 100' intervals, appropriate traffic Level of Service analysis, conceptual traffic control, construction cost estimates and a design narrative. The plans and profiles will be developed as roll plans at a scale of 1" = 50'. The alternatives to be evaluated are identified below.

a. NB ALTERNATIVE

1. ALTERNATIVE 1 – REST AREA RAMPS REMAIN WITH 4 NB LANES

b. SB ALTERNATIVES

1. ALTERNATIVE 1 – 2 LANE SB ON RAMP

c. CONSTRUCTION COST ESTIMATING

1. The construction cost estimates will be developed by quantifying the major items (including but not limited to pavement items, cold planning, bridges, retaining walls, rock removal, tree clearing and grubbing, select materials, excavation, embankment-in-place, ITS, overhead sign structures, hazardous materials, barrier/guardrail fine grading, etc.) and utilizing this subtotal cost to include percentage based costs for item groupings such as drainage, maintenance of traffic, erosion control, traffic signs and markings, wetland mitigation, minor items, etc. and include miscellaneous items (such as mobilization, utilities, wetland mitigation, soundwalls,, BMPs, Construction Bid Items (CBI), etc.), Construction Engineering (CE) and

contingencies. The unit prices for the various items will utilize the NHDOT's latest Average Unit Prices available and other recent project of similar size and scope. This cost evaluation should also include a rough estimate on construction duration to assist in the establishment of the CBI.

e. NEPA COMPLIANCE DOCUMENTATION

The work included in 10418X/13933A was previously analyzed pursuant to the National Environmental Policy Act (NEPA). However, in the years since the issuance of the original Record of Decision (ROD), some elements of the proposed work associated with the 10418X/13933A project have changed. Therefore, as part of the completion of the Engineering Study and selection of a design alternative, VHB will complete a written re-evaluation of the proposed work to be included in the 10418X/13933A project. The written re-evaluation will discuss elements of the project design, if any, which differ relative to the Selected Alternative discussed in the SEIS and ROD. The re-evaluation will also report on the status of the environmental commitments made in the SEIS and the ROD, and will make recommendations as to any necessary new commitments or existing commitments that should be modified or are no longer applicable due to project changes. The written re-evaluation will be formatted as a brief report, using a modified Categorical Exclusion format.

f. ENGINEERING STUDY PUBLIC MEETINGS

It is anticipated that the development of the Engineering Study requires several public meetings to introduce the need for the Engineering Study, and to present the selected alternative. It is assumed that two public meetings will be required. VHB will coordinate with the Department on the plans, presentation materials and logistics for the meetings. VHB will prepare the plans and presentation materials for review and approval by the Department prior to the actual meetings and prepare meeting notes documenting the meetings. VHB will not present or attend these meetings. VHB will coordinate with the Department on preparing post-meeting responses and design efforts.

2. FINAL DESIGN

a. DISCIPLINES

i. TRAFFIC

- a. Traffic Control Analysis – The development of the traffic control plans may require the analysis of certain temporary traffic conditions to ensure that traffic operations are suitable within a construction workzone. These analyses could include merge, diverge, weave analysis and freeway segment level of service for up to four construction scenarios.
- b. Sign Design – VHB will coordinate with the Bureau of Traffic to confirm the expected sign layout to include MUTCD-compliant arrow-per-lane or diagrammatic guide signs for the Exit 1 NB off-ramp. This will include the identification of new overhead sign structures (OHSS) required to support these typically large signs. Where feasible, VHB will make recommendations to

re-purpose existing overhead sign structures (e.g. existing cantilever supporting the existing DMS could be re-purposed to provide an overhead action sign at the Rest Area off-ramp). The final sign design will include the required regulatory, warning, guide, and informational signs that comply with the 2009 edition of the MUTCD and the 2004 (with 2012 supplement) edition of the Standard Highway Signs Book. This effort is expected to include two meetings with the Bureau of Traffic to review the conceptual signing layouts. In addition to the proposed permanent signs, there are temporary sign design packages that are required to support the various traffic shifts and lane openings and closings as established for the traffic control plans. VHB will review the current signs for the existing conditions and for the various traffic control phase to determine the temporary sign design efforts. The new temporary sign designs will be included on the traffic control plans for the construction contract. VHB will determine, and include in the plan set, how to use the existing guide signs for the TCP phasing. This could mean additional temporary signs to replace existing diagrammatic signs, or could mean temporary sign structures for this purpose.

1. Signs within the parking area of the Rest Area are excluded from this effort.
2. VHB will provide preliminary OHSS foundation layouts to the Department for review by the Bureau of Traffic. Upon approval of the location, VHB will prepare a geotechnical request for the borings to be performed by the Department.
3. Soil borings and geotechnical recommendations for the OHSS foundations will be provided by the Department.
4. VHB will provide preliminary OHSS foundation designs in accordance with the geotechnical recommendations made by the Department
5. No median foundations are proposed for OHSS structures. Where full span structures are required, the span shall cross both the NB and SB barrels.
6. If new bridge mounted traffic/guide signs are proposed for the Cross Street overpass (not including the "Cross Street" street name sign on the bridge fascia), VHB will design and detail the galvanized steel mounting brackets as required. A load rating or analysis of the existing steel girder bridge will not be required.
7. It has been assumed that the existing guide signing for Exit 1 northbound and Exit 48 southbound that is currently overhead will need to remain overhead throughout construction when three or more through lanes are provided. Therefore, it is assumed that some temporary overhead signing structures may be required through the traffic control phasing. VHB will develop a performance-based special provision that requires the Contractor to design and install temporary

overhead sign structures and foundations, which may include the re-use and relocation of existing sign structures onto temporary foundations – all analyzed and designed by the Contractor's engineer.

- c. Construction Signs and Warning Devices (CSWD) package – In coordination with the proposed traffic control plans, VHB will design unique construction guide signs required to maintain traffic through the project area. Additionally, VHB will prepare a CSWD spreadsheet for the expected construction signs and traffic control devices for review by the Bureau of Traffic. This will also require a sign relocation summary for the several traffic control phases, like the summary provided for the 14633D project sample.
- d. Pavement Markings – In association with the TCP and final pavement layout, VHB will design pavement marking layouts in accordance with the MUTCD and published guidelines from the Department.

ii. ROADWAY

- a. The roadway typicals will be coordinated with the Bureaus of Highway Design and Materials and Research. It is anticipated that the typicals will include step box reconstruction with a pavement rehabilitation in the areas of new construction. The pavement rehabilitation is anticipated to include a minimum 4" cold plan with any necessary pavement shimming and additional cold planning to establish the profile, grades and cross slopes required to support the proposed step box reconstruction. Pavement shim and cold plane tables are required to be developed by VHB and will be included in the plan set.
- b. The limits of the step box widening are assumed to start where this same typical ended for 13933D which is approximately at Sta. 1056+50 NB and approximately Sta. 3050+00 SB. All the pavement in the existing shoulders will be removed.
- c. In areas outside new construction, it is anticipated that a pavement inlay is required to rehabilitate the pavement surface utilized for traffic control purposes in NH and in Massachusetts.
- d. The proposed underdrain design recommendations are anticipated to be the same as in 13933D except the differential underdrain will not be utilized. Instead, it is anticipated that an extra variable depth layer of sand will be utilized to match the existing bottom of sand layer. The existing bottom of sand layer will be developed and displayed on the cross sections based on previous project information like depicted for the 13933E project. It is anticipated that underdrain, recommendations provided by the Department, is proposed from the 13933D project limits down to the NH/Massachusetts border.
- e. The removal of muck and the placement of a preload in the median is anticipated from the Massachusetts border northerly to approximately Sta. 1036+00 as identified in the 13933D project.

- f. The drainage design is included to convey the surface stormwater to BMPs for water quality treatment to meet the pollutant loading criteria for the entire I-93 corridor.
- g. The drainage design will account for the pre vs post conditions for the watersheds of Spicket River and Harris Brook.
- h. The traffic control plans will be developed to maintain three lanes of traffic northbound and southbound.
- i. The traffic control that extends into Massachusetts is assumed to require the temporary shifting of traffic to support construction activities in NH. These traffic shifts will require the obliteration of existing pavement markings and placement of new temporary pavement markings. This approach is anticipated to extend over the Hampshire Road Bridge a few hundred feet south of the border and it is anticipated that MassDOT will require that a pavement inlay is constructed at the completion of the project for the limits of the traffic control including the bridge. This same approach is assumed to extend at the northerly project limits at the Exit 1 interchange including the NB off-ramp and the SB on-ramp.
- j. The proposed soundwalls are anticipated to be included along the NB barrel from 600 feet north of the NH/Massachusetts border to the existing NB off-ramp to the rest area for a total approximate distance of 3,800 lf. In addition, based on the statewide assessment of potential noise abatement locations, there is approximately 3,600 lf along the SB barrel from approximately Sta. 3023+00 to approximately Sta. 3059+00 that could warrant a soundwall. The typical soundwall layout will be determined during design and could include sections that are and are not behind guardrail and are on an embankment or on a retaining wall to minimize impacts to Policy Brook and the Harris Brook tributary. It is assumed that 1,000 lf of soundwall is located on a retaining wall.
- k. The proposed landscaping designs will be completed by the Department and supplied to VHB for incorporation in the plan set. VHB will provide the necessary base plans for the Department's use in the layout and design of the landscaping. It is assumed that the Department will provide the design and VHB will perform drafting and quantity calculations. Any landscaping items such as seeding for slopes and specific plantings needed for BMPs is a VHB responsibility.
- l. The development of the design shall be such that the northbound barrel and its associated work efforts along the NB barrel and those necessary features, such as drainage, BMPs, median barrier, temporary slope tie ins, etc., that must extend into or through the SB barrel are developed to identify the costs and work necessary for each barrel of construction. In addition, the traffic control plans, sequencing and phasing are to be developed with the NB barrel being developed in the first 3-4 phases with the SB barrel 3-4 phases to be completed independently after the NB barrel is completed. The quantity and drainage

summary sheets will be developed to identify these separate NB and SB work efforts.

- m. It is anticipated that a BMP design will be required near Sta. 3025+00+- left and approximately Sta. 3056+00 left adjacent to the SB barrel. It is assumed that the Harris Brook tributary will be relocated around this BMP at Sta. 3015+00 to allow for the closed drainage system to directly outlet into the BMP. Another BMP is assumed to be near the relocated rest area ramps with Policy Brook to be relocated in the area as well. The BMPs will be designed with a maintenance road around the BMP.
- n. Limited re-use soils will be accounted for per the January 2017 memorandum.
- o. It is anticipated that four additional survey requests will be prepared by VHB for NHDOT to perform the survey and minimal survey processing. VHB will be responsible to incorporate the additional survey for use on the contracts.
- p. It is anticipated that the existing lighting at the Rest Area off-ramp and the Exit 1 off-ramp will remain.
- q. The final quantities for earthwork, selects, pavement and other items that are quantified by area will be submitted with color differentiating the various quantities.
- r. VHB will prepare responses and additional design work during the bidding process to address questions and preparation of addenda.
- s. The development of the Construction Stormwater Assessment will be developed for one construction project as follows:
 - 1. Identify open construction areas per construction phase - This effort includes identifying areas per traffic control phase that will be under construction that have not been stabilized. Areas that no longer have vegetation or pavement during construction can potentially release sediment into the surrounding streams or water bodies during a storm event if not properly mitigated. In addition, the surrounding paved and grassed areas that drain into the open construction area will also have to be identified.
 - 2. Identify treatment, storage and release locations - Identify proposed locations to temporarily store turbid stormwater for treatment, as required, prior to being released into surrounding streams, water bodies, or wetlands.
 - 3. Identify how runoff will reach storage location - This task refers to how stormwater runoff from open construction areas will reach permanent and /or temporary storage basins that will be proposed. Stormwater run-off will be broken out into three categories for this analysis. Stormwater that can reach a permanent or temporary basin via;

gravity/natural flow, pumping and/or stormwater that could not be captured for treatment prior to release from the project's open construction areas.

4. Determine area of open construction areas and pair with storage area - This is the measuring of the open construction area that will flow or be pumped to a permanent and /or temporary basin for treatment, or be released untreated. In addition, the surrounding paved and grassed areas that drain into the open construction area will also be identified.
5. Determine runoff of open areas - Stormwater runoff of the open area sub-catchments within the watershed and construction phase will be analyzed for the 10-year storm event utilizing HydroCAD (based on the SCS TR-20 and TR-55 methods). This analysis considers only the storm event volumes and does not mitigate for peak run-off and pre/interim construction flows. Each drainage area will have a unique CN value based on the paved, grassed and open construction areas per construction phase. The open construction area CN values used for the runoff analysis will be dependent upon the related hydrologic soils group (Group A = 77, Group B = 86, Group C = 91).
6. Determine size requirements for storage and outlets - Determine if the permanent and/or temporary basins have the proper physical area and storage volume to build a basin that can temporarily hold the 10-year storm event. Determine if the temporary basins have a proper location to release storm water into existing streams to provide mixing zones. Stormwater outlet or peak flow control structures will not be designed within this analysis.
7. Review internal - VHB internal review prior to presentations to the Department and DES.
8. Review with Department including the Bureaus of and Construction and Environment (field staff) - Attend and document meetings (2) with Department staff to receive comments for revisions to analysis.
9. Review with DES - Attend and document meeting (1) with DES to review comments and for consideration of revisions to analysis.
10. Plan Preparation - Prepare presentation materials (including spreadsheet matrixes, color roll plans, agenda) relative to the results of the construction stormwater analysis. This includes a working roll plan for each of the construction phases and a final summary plan depicting the worst-case scenarios project-wide overall phases. Two matrixes detailing the results of the analysis, one including the open construction areas per phase and one detailing the worst-case scenarios per drainage catchment based on overall runoff volume.

11. Estimating - Because of the analysis, numerous items will be added to mitigate stormwater runoff within the construction contract. This effort accounts for the additional work to include these items within the contract and estimate, and to adjust the plans because of the construction stormwater analysis.
 12. QA/QC - QA/QC review of the materials developed.
 13. Project Management - Project management/oversight all efforts
- t. The work to prepare the Erosion Control Plans includes the following efforts and considerations:
1. Front Sheet - This will be the same front sheet as provided for the contract bid plan set. The area for engineer stamps will be removed (no stamps) and the title blocks will be updated to reflect that the front sheet represents the erosion control plan package.
 2. Standard Symbol Sheets - These sheets will be taken from the contract bid plans.
 3. Erosion Control Strategy/Legend Sheets - These plans have been developed by the Department and are on the NHDOT website for incorporation by VHB into the contract Erosion Control Plan submittals. The Erosion Control Strategy Sheets are intended to be inserts within the plan set. The actual application and locations of the erosion control strategies will be provided by the Department for incorporation within the proposed Contour Plans. The incorporation of these strategies requires adjustments to the contour plan to clip the strategies into the plans making them clearly legible.
 4. Erosion Control Plans - This work will include the development of 50 scale cut sheets that match the general plan layout and include the available project base mapping, 100 year flood plain, existing and proposed contours at one (1) foot intervals, wetland delineation (and persons responsible), wetland impacts (slope and drain level), proposed slope lines, existing and proposed right-of-way and property lines, closed system drainage and drainage notes, flow arrows for proposed drainage including ditch lines, and erosion control strategies developed by the Department.
 5. Erosion Control Roll Plans - This work will include the work shown as described in the Erosion Control Plans task, formatted to fit onto 50 scale roll plans for use by the Department to develop the erosion control strategies.
 6. Proposed Contours - This work will include the modification of slope and drain proposed roadway and BMP DTM (Digital Terrain Model) models created using Bentley InRoads Software. VHB will draft

proposed contours to reflect the final condition approximated at one (1) foot intervals to illustrate a reasonable representation of the proposed grading that will aid in review of the stormwater runoff.

VHB will advance the design model through S&D; the slope lines for the cross sections are then completed individually/manually to reflect the necessary grading and design at each cross-section interval. The models generated in S&D will be used to start the development of the proposed contours. Cross sections modified in MicroStation during the PS&E design phase will be reviewed, and the proposed contours for these areas will be modified in MicroStation only and not associated with a digital terrain model. The contour plan created will provide a reasonable representation of the proposed grading based upon the design and cross-section interval. Additional review is needed where roadways, driveways, and bridges intersect where the contours may not intersect at the same elevation/location or blend/match with the existing ground contour.

7. Existing Contours - The existing contours prepared under the base plan preparation task will be used as a base for the existing contours plans. In addition, as each construction contract is completed the proposed contours will be incorporated into the existing contour plans for each subsequent contract. Examples: the 13393A Contract 1 existing contours will consist of the existing topo with the proposed 13393D contours converted to an existing contours linestyle and clipped into the existing topo file; the 13393A Contract 2 existing contours will consist of the existing topo with the proposed 13393D and 13393A Contract 1 contours converted to an existing linestyle and clipped into the existing topo file.

No three-dimensional InRoads modeling will be required for this effort.

8. Drainage Note Sheets - This work will include adding the drainage note sheets developed for the bid plan set to the erosion control package.
9. Traffic Control Sequencing Plans - This work will include adding the Traffic Control Sequencing Note plan sheets developed for the bid plan set to the erosion control package. The traffic control plan, details, profiles and cross sections within the bid plan set are not needed with the Erosion Control Plan package.
10. Construction Schedule - This work will include adding the construction schedule that is developed by VHB to the erosion control plan set. VHB will develop the PPSE construction schedule for insertion into the erosion control plans for the 13393A project.
11. CADD - This work effort will include necessary revisions to cut sheets, roll plans, MicroStation contour models, MicroStation plans and notes.

standard symbols scaling, border formatting, file renaming, sheet numbering and incorporating and incorporation of erosion control strategies provided by the Department (hand mark-up).

12. QA/QC - Review efforts of above tasks.

Additional time is required to compare the proposed cross sections and BMP plans to the InRoads models to be created during the slope and drain submission to determine what modifications will be required to bring the slope and drain model to reasonably represent the bid plans. This work includes the review of proposed cross section sheets including roadway, BMP and interim cross sections for the contract. The number of anticipated cross sections sheets for the contract is 240 sheets including water quality bmp, grading and culvert plans.

13. Meetings - Assume three meetings with the Department for the contract.

14. Project Management - Includes high-level oversight and review of the deliverables.

15. Material Submission - Draft submission consisting of 1 full size set (cut sheets and roll plans) for the contract.

Final Submission consisting of five full size and five half size plan sets (cut sheets and roll plan) for the contract.

16. Revision to Draft Package Comments - Revisions to draft plan set of Erosion Control Plans set based on Department comments.

17. Final Deliverables Electronic - VHB will provide a MicroStation (.dgn) file of the proposed and existing contours and PDFs of developed cut sheets and roll plans on a CD for the contract.

18. VHB will provide layered PDFs.

- u. Due to the fast track nature of the Engineering Study and Final Design, the VHB Design Team will hold two internal team meetings for each submission. These meetings are necessary to discuss project progress, coordination efforts, scheduling concerns and budget. It is anticipated that the PM and all the discipline specific Task Managers will attend these meetings.
- v. It is assumed that the Department and VHB Project Managers will meet monthly during the development of the 10418X/13933A Engineering Study and Development. VHB will prepare the materials for discussion at these meetings with the focus of the meetings to be on design and project development progress, schedule, budget and coordination required for upcoming efforts.
- w. It is assumed that the Department and the VHB Design Team will have monthly meetings. VHB will prepare the materials for these meetings with the focus on the coordination of design progress, interdisciplinary needs, schedule and

upcoming needs. It is assumed that one of the discipline Task Managers and the Project Manager, 2 VHB staff members, will attend these meetings.

- iii. STRUCTURES – Design is limited to a retaining wall along I-93 NB south of the rest area ramps, a retaining wall along I-93 SB adjacent to Harris Brook, and ancillary structures that include up to two ITS pole foundations and structural framing to support a guide sign on the Cross Street Bridge if required. If temporary OHSS are required, structural engineers will develop a performance-based special provision that requires the Contractor to design these structures and foundations or analyze/re-use existing overhead structures that may be suitable. VHB will review submittals and working drawings associated with these temporary OHSS as required. Up to two locations are assumed. Retaining wall plans will be detailed and furnished with the roadway plan submissions as required.
 - a. Preliminary retaining wall plans will be developed as part of the Slope and Drain Submission. Retaining wall detail sheets will be included as required. Preliminary cost estimates and quantity computations will be provided for each retaining wall. Estimates will also be developed for ITS pole foundations and structural steel framing to support additional guide signs on the Cross Street Bridge.
 - b. PPS&E, PS&E, and Contract Plan submissions for the retaining walls will be completed in accordance with Department design guidance.
 - c. NB Retaining Wall - Approximately 1,000 linear feet of retaining wall, assumed cantilever retaining wall for design scoping purposes, is anticipated along I-93 NB, south of the Rest Area Ramps. VHB will evaluate retaining wall types based on anticipated height, length, cost, and proximity to Policy Brook. The retaining wall will be represented in the plans and cross sections and will be included in the cost estimate. Other applicable details will be provided in the plans, as required.
 - d. SB Retaining Wall - Approximately 1,000 linear feet of retaining, assumed cantilever retaining wall for design scoping purposes, wall may be required along I-93 SB along Harris Brook. VHB will evaluate retaining wall types based on anticipated height, length, cost, and proximity to the Brook. The retaining wall will be represented in the plans and cross sections and will be included in the cost estimate. Other applicable details will be provided in the plans, as required.
 - e. A special provision will be developed for temporary OHSS that may be required. This will be a performance-based provision that requires the Contractor to design, furnish, and install the temporary OHSS and supporting foundations including re-use of existing OHSS (properly analyzed by contractor's engineer).
 - f. VHB will prepare responses and provide additional design work during the bidding process to address questions and support preparation of addenda.

iv. ENVIRONMENTAL PERMITTING

NHDES Wetland Permit Application - VHB will prepare a permit application for filing with the NHDES Wetland Bureau following the NHDOT required order of application package, including:

- a. Current Standard Dredge and Fill Application Form
- b. DOT Checklist for Project Development Projects
- c. USGS Location Map, including the approximate boundaries and size of the contributing watershed
- d. Narrative addressing the NHDES Rule Env-Wt 302.04(a), Review Criteria for Major/Minor Projects (i.e., "20 Questions")
- e. Natural Resource Agency Coordination Meeting Minutes
- f. Mitigation Report (see below)
- g. Stream Crossing Report (if necessary), including:
 1. USGS watershed boundaries area for stream crossings
 2. Applicable stream crossing forms
 3. Narrative addressing Env-Wt 904
- h. NHB review and IPaC supporting correspondence
- i. NHDHR Effect Memo/NHDOT Cultural Resource Review
- j. ACOE – Appendix B with supplemental narrative if needed
- k. Color photos of impact areas, labeled and showing all impact areas
- l. Construction Sequence, describing the sequence of construction including pre-construction through post construction activities and their relative timing and progression of all work.
- m. Narrative, specification and stamped plan addressing Env-Wt 404, Rip-Rap (as applicable)
- n. Wetland Permitting Plans, including:
 1. Existing Conditions Plan
 2. Proposed Condition Plans (i.e., General Plan)
 3. Impact Sheet, showing temporary and permanent impacts and BMPs

4. Wetlands Legends (wetland identification and type)
 - o. Erosion Control Plans, including:
 1. Existing and Proposed Contours (1 ft intervals)
 - i. Existing contours shown with a lighter line weight.
 - ii. Proposed contours shown with a heavier (bold) line weight.
 - iii. Perimeter Controls - Showing the outermost limit of work (including temporary phasing work).
 - iv. Chanel protection
 - v. Clean water bypasses
 - vi. Double protection at water resources (including wetlands)
 - vii. Strategies Sheet (latest revised version December 2015)

VHB will take the lead in developing a mitigation proposal to offset wetland impacts. Mitigation is anticipated to include an in-lieu fee and/or nearby stream crossing restoration (not in scope). Prior to permit application submittal, the mitigation proposal will be compiled into a report as required by NH Administrative Rule Env-Wt 803.01, Plan and Report Required for All Mitigation Proposals. This report will include the following elements:

- a. Size of the proposed project's impact to each jurisdictional area;
- b. Identification of each type of jurisdictional area to be impacted, with wetlands being classified per the Cowardin system (provided by NHDOT prepared by OTHERS) in wetland technical report);
- c. Account of the compensatory mitigation recommendations provided by the conservation commission or governing body (provided by NHDOT);
- d. Discussion of how the mitigation proposal complies with the requirements of Env-Wt 803.07, Compensation Amount and other applicable rules; and
- e. If applicable, calculation of an in-lieu mitigation payment as specified in RSA 482-A:30, as well as addressing Env-Wt 803.10(b) and by Env-Wt 803.10(c) or (d), as applicable.

VHB 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. An allowance to cover the estimated permit application fee is not included in our contract (assumed paid by NHDOT). Up to 10 copies of the application would be provided to the Department for distribution.

US Army Corps of Engineers Individual Permit Update – Based on NHDOT coordination with the US Army Corps of Engineers, no new permit application will be required. However, VHB will assist in preparing a permit update by producing project plans in 8.5 X 11 format for the Corp's records, as well as updated impact tallies with the revised design and updated wetland delineation. It is assumed that the environmental analysis produced for the NHDES Wetland Permit application will be sufficient to address US Army Corps of Engineers permit requirements.

Shoreland Water Quality Protection Act Permit Application – Policy Brook is a fourth order stream regulated under RSA 483-B, the Shoreland Water Quality Protection Act. Any new construction or construction that modifies the footprint, including tree clearing, of existing impervious surfaces or uses mechanized equipment to either excavate, remove or form a cavity within the ground and filling any areas with rocks, soil, gravel or sand within 250-feet from the Ordinary High Water Mark of the brook would require a Shoreland Impact Permit through the NHDES Shoreland Program. VHB will confirm the appropriate permit application type (PBN or standard application) prior to beginning work on this task. If it is determined that a full application is required, VHB will complete an application for a Shoreland Permit consisting of the following:

1. Shoreland Permit Application Form signed by NHDOT;
2. Shoreland Application Worksheet, calculating the impervious area within 250 feet of the reference line;
3. Permit plans clearly and accurately depicting the work to be completed relative to the reference line of Policy Brook;
4. Stormwater management plan designed and certified by a professional engineer;
5. It is assumed that the demonstration that each waterfront buffer grid segment at least meets the minimum required tree and sapling point score is not required;
6. A copy of the survey plan showing public right-of-way;
7. A copy of the US Geological Survey map at a scale of 1:24,000 with the property and project located;
8. A copy of the tax map or the Right-of-Way plan showing the location and lot number of the proposed project;
9. Photographs of the area to be impacted;
10. A copy of the NH Natural Heritage Bureau (NHB) Report for the subject property indicating that the project has been screened for species of concern; and

11. Shoreland Waiver Request Form, if the project requires waiver(s) of the minimum standards of RSA 483-B:9, in accordance with RSA 483-B:9,V(i).

A draft application package will be provided to NHDOT for review and signature prior to finalization, and up to ten (10) hard copies of the permit application will be provided to NHDOT for submittal. Note that NHDOT is exempt from abutter notification and application fee requirements.

Assessment of Impacts to Water Resources - VHB will perform analyses and develop supporting materials needed to assess the relative impacts of the proposed alternatives and the Preferred Alternatives for the proposed project. It is understood that any potential water quality issues related to increased road salt use will be addressed separately and are not part of this work scope. Additionally, it is understood that because the Corps will not need to issue a new Section 404 permit, that the water quality analysis will be guided by the previously-issued Section 401 Water Quality Certification, and that no new 401 WQC will be needed for 10418X/13933A. As such, the following subtasks will be completed:

Groundwater Impact Analysis: VHB will evaluate the potential relative impact to existing groundwater resources and public water supply wells in the study area. The relative impacts will be assessed based on potential increases in impervious area within mapped stratified-drift aquifers or Wellhead Protection Areas of existing water supply wells. Current and future water usage potential for each resource will be factored into the impact analysis.

Pollutant Loading Analysis: VHB will conduct a pollutant load analysis to estimate the potential net change in pollutant loads to the nearby surface waters under existing and proposed conditions. A preliminary pavement only analysis will be conducted as part of the Engineering Study phase to assess the proposed alternative in terms of potential pollutant loads and stormwater treatment opportunities. Once the Preferred Alternative is selected, VHB will conduct a more detailed analysis utilizing the latest NHDES Simple Method model spreadsheets to estimate the difference in the pre- and post-construction pollutant loads for total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN) to each major stormwater discharge location and surface water body. The analysis will account for the expected treatment effects of the proposed stormwater treatment BMPs to be developed in the study area. VHB's water scientists will work with the roadway design engineers to design the stormwater treatment BMPs to be consistent with the design guidelines included in the NH Stormwater Manual. The assumptions and results of this analysis will be presented in a Technical Memorandum for the Department review prior to finalizing the analysis. The Technical Memorandum will include a description of any design constraints, possible options to enhance treatment or reduce the number of stormwater BMPs needed as well as maintenance considerations.

Description of Potential Erosion Control Measures: VHB will provide a description of the proposed disturbance activity and the various erosion control measures included in the project design to minimize erosion potential during the construction phase including any recommended phasing or sequencing considerations and temporary and

permanent stabilization measures. This information will be used to demonstrate general compliance with the Alteration of Terrain requirements and can be used to support the future Construction Stormwater Pollution Prevention Plan (SWPPP). This information will be included in the project Drainage Report.

Stormwater BMP I&M: Consistent with other recent major road improvement projects, VHB will prepare a Stormwater BMP Inspection and Maintenance (I&M) Plan for the proposed stormwater BMPs along the 20-mile corridor. The BMP plans for each BMP within the 20-mile corridor shall be included within the I&M Plan and separated by District 5 Maintenance Shed area. The I&M Plan will describe district personnel roles and responsibilities, inspection procedures and frequency, potential maintenance needs and recordkeeping protocols. The Draft I&M Plan will be submitted for Department review prior to submittal to NHDES for review and approval.

Turbidity Monitoring Plan: As part of the Final Design and prior to advertisement for construction, VHB will prepare a Turbidity Monitoring Plan like previous NHDOT projects. The plan will identify appropriate sampling locations, QA/QC protocols, testing methods and frequency. The plan will outline reporting procedures and corrective actions, if needed. The Turbidity Monitoring Plan will be submitted for Department review prior to sending a revised Plan to NHDES for review. The Turbidity Monitoring Plan will be revised to address pertinent NHDES comments for approval.

Floodplain Impact Analysis: VHB will evaluate and estimate the potential floodplain impacts associated with the Preferred Alternative. VHB will compare these updated impact estimates with previous estimated included in the Final EIS and ROD and identify potential mitigation needs and options to be consistent with previously approved impacts and commitments.

Section 106 Coordination - VHB will assist the Department and FHWA with review of the 10418X/13933A project under Section 106. As the outcome of the RPR and need for subsequent deliverables are impossible to predict, this scope assumes the following cultural resources-related tasks. The Project may not require some of these tasks.

NHDHR Project Area Form (PAF): NHDHR often requires the preparation of a PAF to understand the age and character of the properties within the Area of Potential Effects (APE); the historic and development contexts of the general area of the Project, which help form the basis for determining a property or district's National Register eligibility; and to identify which properties within the APE are recommended for documentation on NHDHR inventory forms. While preparation of a PAF often requires an intense level of research and compilation of existing survey and resource information, VHB notes that extensive research and context development was prepared by Preservation Company for the previous PAF, and included in the FEIS. VHB assumes that these contexts would remain much the same in a current PAF, with new research limited to ensuring the existing contexts reflect up-to-date research and inventory, and augmenting post-WWII context topics as necessary up to the late 1960s/early 1970s. This scope also assumes one round of NHDOT review of the draft PAF; addressing one

request for additional information by NHDHR; and two cultural resources agency meeting to discuss the PAF and address any questions from NHDHR.

NHDHR Inventory Forms: Following the review of the RPR/PAF, the preparation of inventory forms for specific properties may be required to determine their National Register eligibility and significance, which is considered when determining the presence and nature of any Project effects to historic properties. VHB recognizes that the need for new inventory forms would likely be limited to properties that have reached 50 years of age since the work for the FEIS was completed; in addition, inventory forms for properties within the APE completed more than 10 years ago, may require updates for current eligibility determinations. The previous Section 106 review for the project resulted in the completion of inventory forms for one individual property and one district near the current project area. These forms are more than 10 years old and may require updates.

This scope assumes the preparation of six new NHDHR individual inventory forms, and updated inventory forms for one individual property and one district area.

Section 106 Consultation and Outreach: VHB will ensure that Section 106 and information about historic resources are components of public outreach and meetings associated with the Project. VHB will also help facilitate communication and meetings between the lead Federal Agency, NHDOT, NHDHR, and other identified consulting parties.

Should the Section 106 process identify adverse effects to historic properties, an amendment to the existing Memorandum of Agreement (MOA, last executed amendment September 2016) may be required, and an adverse effects report prepared for submission to the Advisory Council on Historic Preservation (ACHP). This scope assumes that VHB will prepare these documents, with two rounds of review by the lead Federal agency, NHDOT, NHDHR, and other identified consulting parties.

Permit Follow-On Services - VHB's experience in obtaining permits and approvals has found that, after submissions to regulatory agencies and boards, follow-up and liaison effort is sometimes required to respond to specific comments and concerns raised. Work under this task includes:

1. Preparation of documents to respond to agency comments;
2. Minor plan revisions/additions; or
3. Attendance at site inspections by the state or federal agencies.

Archaeology – IAC will perform a review of the NEPA written re-evaluation. If additional Archaeological services are required, the Department will contract these through a Statewide Contract

Socio-Economics – RKG will perform a review of the NEPA written re-evaluation. They will also provide additional analysis and language for increases beyond the impacts shown for the FEIS and SEIS.

Resource Agency Meetings – VHB staff will support the NHDOT by attending up to seven (7) meetings with resource agencies through the regularly scheduled Natural Resource Agency Meeting or Cultural Resource Coordination Meeting. We assume that as many as three staff from VHB may need to attend specific meetings. VHB will be available to present information and prepare notes for meetings if requested by NHDOT.

NHDOT/NHDES MONTHLY MEETINGS – It is assumed that NHDOT, VHB and NHDES will have six meetings. VHB will prepare the materials for these meetings with the focus on the environmental components of the project, including wetland impacts, impact updates, submission status, etc. It is assumed that one task Manager and the Project Manager will attend these meetings.

V. ENVIRONMENTAL DESIGN AND DOCUMENTATION

Stream Relocation Analysis and Design. Relocation of portions of Harris Brook Tributary may be necessary to accommodate the project alignment and stormwater BMPs. If required, VHB will develop plans for the relocation of the Harris Brook Tributary. The Harris Brook tributary relocation limits are estimated begin at approximately Sta. 3013+00 and end approximately at Sta. 3033+00 and includes an estimated relocation design length of 3,000 lf.

The work will consist of the following items: review of existing watershed assessment data; stream geomorphic assessment; survey and mapping; basic hydrologic and hydraulic modeling; and preparation of design plans through construction drawings including any necessary specifications for stream restoration items, materials gradation, and for contractor pre-approvals.

Stream Design Plans - VHB will prepare design plans for the restoration project through 100% plans, specifications, and estimates (PS&E) suitable for contractor bidding. Plan sheets will be produced at a scale of 1 inch = 50 feet unless otherwise approved by NHDOT. Final design parameters will be established by geomorphic and analytical methods. Project layout will be established based on selected design parameters and site constraints. The total number and precise placement for habitat/grade control structures will be determined. A Planting Plan will be developed by VHB that includes size, quantity, spacing, and clustering for the variety of native species selected for restoration. These plans will also include viable methods and plans for stream diversions, or other methods to construct the restoration. VHB will prepare responses and additional design work during the bidding process to address questions and preparation of addenda.

Planform and Profile - The planform of the restored channel will be consistent with natural channel design principles and established in accord with the independent variables that contribute to the determination of channel form. Final design meander geometry and alignment will likely be a compromise between the ideal configuration

and what site constraints will allow. This compromise is typical of urban stream corridor restoration projects. The design profile of the channel bottom along the thalweg will be determined in accordance with valley slope and stream type. The thalweg will be assigned stationing and serve as the baseline for construction layout and control.

Cross Sections - Dimensions and elevations of the design cross sections will be determined in accordance with the bankfull discharge, stream type and project site constraints. Cross sections will be plotted at key locations to thoroughly illustrate the morphological features to be constructed and how the design channel transitions between primary channel sections.

Stabilization Measures - Measures for stream bank protection and grade control will be designed and shown in plan, profile and cross section views sufficient for proper installation. Measures commonly employed in successful natural stream channel restoration projects will be utilized. The type of measures implemented will be compatible with the proposed stream type and function to create or enhance aquatic habitat. Limiting shear stress and/or velocity criteria will be utilized to facilitate the selection of appropriate soil bioengineering techniques such as live stakes, dormant cuttings, coir rolls with rooted plugs, fascines, and brush mattresses. Species selection will be based upon establishing a native plant community while achieving project objectives for maintenance and ecosystem establishment. Stone for flow control and habitat structures will be sized using accepted engineering principles and empirical relationships. Computations and analysis used to determine the height, size, extent, bedding, anchoring, or other features of such components will be documented. Structural measures, such as bank placed rip-rap, boulders, rock vanes, j-hook vanes, log vanes and rock cross vanes will be designed to maintain and enhance target channel conditions. Analysis, assumptions and computations used to determine location, configuration, size, material characteristics, and other pertinent features will be documented.

Proposed Conditions Modeling - VHB will modify existing or develop new HEC-RAS models to account for final design conditions including habitat and stability enhancement structures. A range of expected discharges will be evaluated, including low flow, bankfull and flood discharges to confirm that proposed stream corridor conditions are consistent with project goals and objectives. This evaluation will occur at the 30%, 60%, 90% and 100% design stage.

vi. HYDRAULICS

- a. HARRIS BROOK TRIBUTARY RELOCATION – If the final preferred alternative requires relocation of Harris Brook Tributary, VHB will develop a new HEC-RAS model for the Harris Brook Tributary to support the design of these relocations. The development of this models will also support the CLOMR and LOMR efforts (see below).

- b. CLOMR – Once preliminary designs are complete, and based on preliminary hydraulic modeling results, VHB will determine whether a Conditional Letter of Map Revision would be required for the Harris Brook Tributary. If required, VHB will prepare a Conditional Letter of Map Revision (CLOMR) application and supporting documentation for submittal to the Federal Emergency Management Agency (FEMA) National Flood Insurance Program by the Municipality. The CLOMR application will identify revisions to the effective (existing) FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs). VHB's scope of work will include the following:
1. Coordination with FEMA, NHDOT, and the Town of Salem to support filing the CLOMR applications. This scope of services assumes four meetings attended by two VHB staff members.
 2. Update existing hydrologic and hydraulic analysis to support the proposed CLOMR application in accordance with FEMA's Guidelines and Specifications for Flood Studies. To maximize efficiency, these analyses will build upon work conducted to support the mitigation design and permitting-e.g., the HEC-RAS model developed for the Policy Brook Restoration.
 3. Estimation of flood flows for the 1-percent annual chance events (i.e. 100-year return period). The effective FIS does not contain flood flows for Policy Brook but VHB has developed flood flow estimates using regional regression equations following the methodology in the FEMA Guidelines and Specifications. If needed, VHB will develop similar flood flow estimates for the Harris Brook Tributary
 4. If needed, request the effective HEC-2 model for Harris Brook from FEMA. The effective model once received will be transcribed into a HEC-RAS step backwater hydraulic model, the successor to HEC-2, to create a duplicate effective hydraulic model. The model will be transcribed from the Massachusetts and New Hampshire state boundary to a point upstream of the project site to allow smoothly tying the revised floodplain boundary into the effective boundary. VHB will use the same Mannings 'n' roughness values, contraction/expansion coefficients, and downstream boundary conditions as the effective model received from FEMA.
 5. As needed, create a proposed condition HEC-RAS model for the Harris Brook system, incorporating proposed design geometry. The proposed condition models will be run for the 1% annual chance event.
 6. Calculation and mapping of the revised 1% annual chance event flood boundary based on the model results, site survey and as-built survey for incorporation into an annotated flood map for the CLOMR.
 7. Preparation of a CLOMR application and supporting documentation which will propose revisions to the effective (existing) FEMA FIS and FIRMs. We

will compile the submittal into a 3-ring binder for submittal to NHDOT and the Town of Salem. VHB will draft abutter notifications for distribution by the Town of Salem, obtain Community Official's signature, and assist in the submission of the application to FEMA for certification. The application package will include:

- i. MT-2 Form 1 – Overview & Concurrence
- ii. MT-2 Form 2 – Riverine Hydrology & Hydraulics
- iii. MT-2 Form 3 – Riverine Structures
- iv. Annotated Flood Map – VHB will prepare an annotated flood map showing revised flood hazard boundaries based on the updated analyses
- v. Narrative – VHB will prepare a narrative describing the hydrologic and hydraulic analyses and proposed flood map changes
- vi. Supporting Calculations – VHB will prepare supporting calculations and model input and output summaries for inclusion with the application
- vii. Model Electronic Files – VHB will provide electronic HEC-RAS hydraulic model input files.
- viii. ASSUMPTIONS
 1. VHB assumes additional survey of the Spicket River will not be required and is not included in this scope of services
 2. VHB assumes NHDOT will be the CLOMR requestor and VHB will file the LOMR application on behalf of NHDOT with FEMA.
 3. VHB assumes one draft submittal of the CLOMR application materials for NHDOT review.
 4. VHB assumes that the scope for the CLOMR and LOMR are only included for the Harris Brook Tributary and not Policy Brook and the Spicket River.
 5. VHB assumes responding to one round of comments by FEMA.
 6. VHB assumes two meetings to review application package with community and/or NHDOT.
 7. Harris Brook does not have mapped regulatory floodways, in which case the CLOMR study does not need to include a floodway evaluation, and no such effort is included in this scope of work.

8. VHB will apply for a fee waiver, but it is assumed that NHDOT would pay the CLOMR application fee, if required, directly to FEMA.

vii. ITS

- a. Existing cantilever-mounted DMS at MM 0.3 NB – VHB will design the relocation of the existing cantilever-mounted DMS to a new overhead sign structure within the project limits.
- b. Existing cantilever-mounted VSL at MM 0.3 NB – The existing overhead VSL will be removed and relocated to a ground mounted location, with a flanking sign proposed on its opposite side.
- c. Existing cantilever-mounted CCTV at MM 0.3 NB – The existing CCTV will be relocated within the project limits onto a new galvanized steel pole and foundation.
- d. Existing RWIS/Pavement Sensors at Rest Area – If the existing equipment will be impacted by the proposed roadway work, VHB will relocate the pavement sensor pole and equipment outside of the widening area at a new location that provides an equivalent view of the reconstructed roadway. The new design will combine the two poles, and all related equipment, into a single location if feasible.
- e. Existing ITS conduit within project limits – VHB will design a relocation for any existing ITS conduit (NB barrel) where the proposed widening will impact the existing conduit or its splice vaults. The existing ITS conduit will be extended south to the most southerly ITS device designed into the project.
- f. Second CCTV south of the Rest Area – VHB will coordinate with TSMO to identify the limits of existing CCTV viewing. VHB will design a new CCTV layout to ensure coverage along both barrels of I-93 between the state line and the Exit 1 interchange. The first CCTV location will use the existing cantilever-mounted CCTV; all CCTV (assumed to be one relocated and one new) will be designed for new galvanized steel poles and foundations with communications via the fiber optic backbone to a wireless backhaul location.
- g. New Fiber Optic communications – VHB will design a 288-strand single mode fiber optic cable to be installed in the existing and proposed ITS conduit from the southern end of the ITS conduit to the splice vault nearest the Exit 1 SB ramps overpass. This fiber optic cable design will include fiber optic drop cable design to connect NHDOT-owned ITS equipment along the corridor.
- h. Design of one MVDS to be mounted to a CCTV location for use in travel time calculations for New England ATMS Compass system.
- i. VHB will prepare responses and additional design work during the bidding process to address questions and preparation of addenda.

- viii. SMART WORK ZONE - VHB will provide a graphical layout to indicate the proposed locations, designed by others, of PCMS and portable queue trailers (PQT) equipment along the NB and SB barrels approaching and through the work area. These devices are assumed to be linked to the existing ASTI smart work zone system or integrated into the New England ATMS Compass system, whichever is deemed more appropriate at the time of the design by others. This work may involve coordination with MassDOT with support from NHDOT.
- ix. UTILITY COORDINATION - The utility coordination support that VHB will provide to the Department is expected to be minimal. The only locations that existing utilities and proposed utilities are expected are at the NB DMS sign and the Rest Area ramps.
- x. GEOTECHNICAL COORDINATION - VHB will coordinate with the Department to identify any additional geotechnical borings and engineering recommendations. With most the geotechnical borings being completed, it is anticipated that the recommendations for the pavement design, underdrain, typical sections, pavement rehabilitation, etc. will be provided to VHB prior to the Slope and Drainage Submission. All other recommendations, will be provided as early as possible for incorporation into the design. Ledge is anticipated for 1,000 lf of the mainline, ramps and/or the BMPs.
- xi. RIGHT-OF-WAY
 - a. Overall
 - 1. The NHDOT requested the following ROW services be completed under a Lump Sum payment format.
 - i. Title Abstracting
 - ii. Appraisals
 - iii. Acquisitions
 - 2. The NHDOT requested the following ROW services be completed under a Cost Plus Fixed Fee payment format:
 - i. ROW and Boundary Research
 - ii. ROW Purchase Plans
 - iii. ROW Registry Plans
 - iv. Management and Engineering Support
 - 3. The following eleven parcels have been identified for possible Title Abstracting, Appraisal and Acquisition services: S4, S5, S6, S12, S13, S14 and two of the following four parcels S9, S11, S15 and S16. Parcels S4 and S16 have been subdivided into a total of six parcel and five of the six parcels is assumed to be Impacted.

4. All the parcels identified appear to be residential properties except for parcel S15 which appears to be a business.
5. The proposed acquisitions are anticipated to be partial Right-of-Way takings and easements.
6. There are no complete acquisitions and therefore, no relocation services are included.
7. Due to the extremely accelerated schedule that is anticipated for acquisition of Right-of-Way to meet the project advertising date, the following has been assumed:
 - i. All properties are assumed to be acquired through condemnation
 - ii. The appraisals are scoped to be full Narrative Before and After appraisals with periodic updates during project development and for condemnation. However, if at the time the appraisals are to be developed an LVA appraisal is considered, VHB and the NHDOT will discuss the details and impacts to the project and schedule.
 - iii. The appraisers are required to perform services for hearings and NH Board of Land and Tax Appeals appearances
 - iv. The title abstracting will be updated for condemnation purposes
 - v. The attorney firm will review the draft legal documents for condemnation and closing purposes
 - vi. The acquisition services include all the services required for condemnation
8. The full fee for all lump sum services is owed to the various firms regardless if the services are initiated or completed.
9. Should more than eleven parcels require acquisition, the lump sum payments will be determined based on the property type and shall be pro-rated accordingly and include additional fee.

b. Establishing Existing Row

VHB will have a New Hampshire Licensed Land Surveyor perform research, field survey, office calculations and plan preparation to establish the existing right-of-way alignment and boundary along Interstate 93 from the New Hampshire/Massachusetts State line to Exit 1 in Salem, New Hampshire. It is

anticipated that this work will commence immediately after the Notice to Proceed is provided.

The following is a breakdown of tasks required to conduct the existing right-of-way boundary survey:

1. Research - VHB will perform property research at the Town, and the County Registry of Deeds. Assessor information, plans, deed copies will be obtained to assist in the determination of boundary lines. In addition, VHB will meet with the NHDOT Right of Way Bureau to obtain and review all information regarding the layout of I-93.
2. Field Survey - Utilizing the information gathered during the research task, VHB will recover and locate monuments within the project area and abutting properties to assist in the determination of the boundaries. Evidence of the perimeter property lines (bounds, pipes, fences, walls, etc.) will be field measured, compiled with record data and shown on the Existing Right-of-Way Plan.
3. Data Analysis and Deed Interpretation – Based on the data gathered above, VHB will calculate and analyze existing record property line data and compare the results with the field located boundary evidence.
4. Create two MicroStation .dgn files per NHDOT Cad/d Procedures & Requirements. Files will be developed in international feet to match the existing electronic files. These files will be used throughout the project as the Exist Right-of-Way, erl and ert files.

c. Right-of-Way Title Abstracting

1. VHB will hire a subconsultant to provide the Right-of-Way Title Abstracting and perform various efforts related to property acquisition closings and condemnations.
2. The ROW Title Abstracting will follow the scope language in NHDOT Article 1.
3. Title abstracting sheet shall follow NHDOT's standard title abstracting sheet format.
4. Information shall include owner current address. Mail and physical if different. Telephone number if available.
5. Date and update dates shall appear on title abstract sheet.
6. Title Abstracts shall be updated as needed and/or as requested to ensure that ownership information is accurate and up-to-date. After the initial title research, updates will be performed prior to making an

offer to purchase and just prior to acquiring title through either amicable agreement or the eminent domain processes.

7. An electronic PDF or Paper copy of all deeds, mortgages, liens, leases, death certificates, easements, encumbrances, etc. will be supplied with the title sheet. Abstractor work sheets/ run sheets along with the Town's property card shall also be included.
8. Review draft deed, mortgage releases, and or other releases.
9. Review draft Notice of Offer and Declaration of takings.
10. Support in determine what documents are necessary to obtain clear title and assisting in obtaining clear title when necessary.

d. Purchase Plans

1. The proposed Right-of-Way Purchase plans will be prepared to the same level of detail and the same sheet layout as prepared during the execution of the LBG led I-93 Southerly Contract. Any permanent easements will be established following NHDOT's new guidance. The purchase plan shall consist of a Front sheet, Property layout sheet, Summary sheet, Geometric layout sheet and Plans. Once it is determined that acquisitions and/or easements are necessary, plans will be forwarded to start the acquisition process, as necessary. The Purchase Plans will not be used for reference for deed descriptions or condemnations.
2. The existing detail on the plans will be the original existing detail prior to any construction associated with the overall Salem-Manchester project. This is different from the existing detail that will be depicted on the construction plans for the 10418X/13933A contract.
3. The final purchase plan set shall consist of a Front sheet, Standard Property Layout sheets, Standard Symbol sheets, Summary sheets, Geometric layout sheet and Plans will be submitted after all Right-of-Way has been acquired to revise any negotiated modifications.
4. VHB to develop updated purchase plans (for incorporation into the overall Salem-Manchester" plan set previously submitted to the Department). These updates are not considered Right-of-Way revisions, but updates to the plans.
5. Existing and proposed Right-of-way will match that of the registry plans.
6. VHB is responsible to have a NH Professional Engineer sign and stamp only the actual ROW plans that they update from state line to Exit 1.

All other plans that VHB updates were the responsibility of LBG and VHB will not be signing and stamping these plans.

e. Registry Plans

VHB will prepare registry plans along a portion for Interstate 93 from the New Hampshire/Massachusetts State line to Exit 1 in Salem, New Hampshire. The limits of the registry plans begin at the state line and ends just north of the exit 1 SB ramps bridge near Sta. 1095+00. The registry plans will be prepared and recorded regardless if any proposed acquisitions are required.

Preliminary Registry Right-of-Way Submission - Registry Right-of-Way plans will be developed from the data collection and analysis performed by the VHB Team during the completion of ROW and boundary research and title abstracting. VHB assumes there are no more than 11 properties abutting the project limits that will require right-of-way acquisition or easement. Permanent and temporary right-of-way impacts will be determined based on limits of construction. These impacts and associated right-of-way acquisitions and easements will be clearly indicated on the plans for review and comment by the Department. The plans will be developed to meet the Rockingham County Registry of Deeds.

Final Registry Right-of-Way Submission - A Registry Right-of-Way Submission will be submitted after the Finalized Preliminary Right-of-Way Submission approval. VHB will prepare a plan depicting the proposed right-of-way parcels with metes and bounds and area calculations. The plan will meet the Rockingham County Registry of Deeds recording requirements and Plat law 478:1-a. Parcel descriptions of the proposed right-of-way for each impacted landowner will be prepared in an electronic format. This description will be used in the conveyance deed or easement to be recorded. The Registry Right-Of-Way Submission will include one set of plans prepared by a New Hampshire Licensed Land Surveyor. VHB will record the Registry Plans on behalf of NHDOT with the costs for recording to be billed to the NHDOT. No bounds will be set by VHB regardless if acquisitions are required.

f. Acquisition

This work involves the acquisition of the property rights necessary for the construction/ widening of I-93's Southern segment from Exit 1 to the Massachusetts State line.

It is assumed that no relocation or relocation assistance is anticipated for this project.

ROW acquisition tasks include the following:

1. Site inspection with the appraiser.

2. Explaining the project impacts and acquisition process to the property owner.
3. Present the offer of just compensation for needed property interests.
4. Negotiate for acquisition of needed property rights, accompanied by a member of the layout commission or an NHDOT employee, contingent upon availability.
5. Prepare Administrative settlement letter, as necessary.
6. Draft legal documents for closing. Draft condemnation documents will be the responsibility of VHB.
7. Initiate payment requests.
8. Schedule and coordinate the closing and subsequent recording of documents at the appropriate registry of deeds to transfer title.
9. Email NHDOT a pdf closing package. The pdf closing package shall consist of a front sheet listing the owner, closing date, recorded book and pages. A copy of the unrecorded documents signed and payment receipt.
10. Supply property owner with the necessary paper work for property tax reimbursement. NHDOT will process request and send payment to owner.
11. Coordinate abstract title updates, plan updates, appraisal assignments and support for condemnation.
12. Maintain diary for each property owners in accordance with the NH Department of Transportation Right-Of-Way Manual.
13. Coordinate title abstract updates with VHB Team attorney sub-consultant.
14. Provide weekly e-mails to the Department with the status of all parcel acquisitions.
15. ASSUMPTIONS
 - a. The offer will be mailed to the owner via certified mail with a follow-up appointment to be scheduled.
 - b. If a settlement with the property owner cannot be secured within 45 days, the condemnation process will begin.

g. Tasks to be completed by NHDOT:

1. Finalizing any condemnation paper work.
 2. NHDOT will finalize all closing documents necessary for acquisition. A draft will be supplied by the consultant to NHDOT along with a plan showing the impacts and the title abstract front sheet.
 3. Request and process all paperwork necessary for payment of acquisition.
 4. Review appraisals and supply review comments within 10 calendar days of receiving an appraisal. The Department shall furnish a summary report establishing just compensation within 3 business days upon receipt of the final appraisal.
 5. Review settlement letter and reply within 14 calendar days, with acceptance or denial.
 6. Supply NHDOT submission dates for G&C agendas.
 7. Any survey layout of proposed or existing ROW or easements during the ROW process is the responsibility of NHDOT.
- h. Tasks to be completed by Appraisers:
1. All Appraisers performing and submitting appraisal work under this contract shall be Certified General Appraiser in the State of NH and be listed as an NHDOT approved appraiser.
 2. All appraisals will be full Narrative Before and After appraisals. Submissions for review will include a paper hard copy while final submission will include a paper hard copies and an electronic PDF. The hard copy is for the property owner.
 3. Appraiser will perform one site visit of the property with the acquisition agent.
 4. If a settlement cannot be secured within 45 days, the self-contained before and after appraisal report will be required. The appraisers typically include a per diem rate for this additional work beyond the initial appraisal and final appraisal.
 5. All appraisals will be completed once started even if the NHDOT determines that property impacts are no longer necessary on that parcel.
- i. Project coordination:

Throughout the project, VHB will coordinate with NHDOT, the appraisers, attorneys and any sub consultants regarding any issues or concerns that may arise. Efforts will include preparation, travel and documentation of the coordination in the form of meeting notes. VHB will also:

1. Maintain a copy of the appraisal, specialty reports and appraisal review comments for FHWA auditing. Along with agent diary notes and other corresponding documents.
2. Supply a current spread sheet at the monthly NHDOT/VHB meeting reflecting the status of each parcel being appraised and acquired.
3. Coordination of information will be disseminated in a timely manner.

All Work shall be in accordance with:

1. The Federal Uniform Relocation Assistance and Real Property Acquisition Policies act of 1970, (Uniform Act), as amended
2. The NH Department of Transportation's Right-Of-Way Manual date June 2011
3. Chapter, 498-A and 478:l-a of the NH Revised Statues Annotated

j. Lump Sum Payment

The Lump Sum payment methodology for Right-of-Way services is being established with milestones for the different types of Right-of-Way Services. The number of parcels impacted will be determined as the final design develops. The payment of the Right-of-Way services will be invoiced based on a per parcel basis with the following payment schedule milestones with defined percentages of payments:

ROW Title Abstracting

1. Initiated (20%)
2. NHDOT Review Meeting following Initial abstracting effort (50%)
3. Draft Closing Documents Submitted (80%)
4. Final Closing Completed or Draft Declaration of Condemnation (100%)

Appraisals

1. Draft Appraisal Submitted for review (50%)
2. Final Appraisal approved (100%)

Acquisition

1. Initiated (35%)

2. Offer Presented (50%)
3. Initiate Closing and/or Condemnation (75%)
4. Complete Parcel Closeout (100%)

k. CONSTRUCTION PHASE SERVICES

xii. STRUCTURES – Construction phase services are limited to the following:

a. Overhead Sign Structures

1. RFI's
2. Shop Drawing Reviews, permanent sign structures (assume two rounds of review)
3. Shop Drawing Reviews, temporary sign structures (assume two rounds of review)
4. Foundation Final Design, permanent sign structures
5. Submittal review (drawings and computations) of temporary sign structures and foundations designed by the Contractor

xiii. SOUNDWALLS

- a. RFI's
- b. Shop Drawing Submittals

xiv. ITS STRUCTURES AND EQUIPMENT

- a. RFI's
- b. Shop Drawing and Catalog Cut reviews (assume two rounds for each submittal)
- c. Steel Pole Final Foundation Design utilizing NHDOT design standards being developed currently and assumed to be available prior to construction

xv. HARRIS BROOK TRIBUTARY RELOCATION - Post-construction monitoring of the Harris Brook Tributary Relocation Site will be conducted in accordance with anticipated conditions of the NH Department of Environmental Services (NHDES) Wetlands Permit. It is anticipated these conditions will require construction phase monitoring of the work by a "qualified professional" as well as a written report to the NHDES following construction. The following is our scope of work for these activities:

Construction Monitoring – VHB will provide a certified wetland scientist or stream engineer to provide periodic construction observation services as requested by the Department during the construction phase. These services will be provided upon

request from NHDOT construction staff. We assume up to 12 site inspections, with each inspection documented via a brief written report with photographs.

Post-Construction Report – Following construction, VHB will draft and submit a brief report to the NHDES and the US Army Corps of Engineers (USACE) documenting the completion of the stream project(s). The report will specify the date of the completion, include a brief narrative describing the site's current condition, and will include site photographs. The report will be submitted to NHDOT for internal review and approval prior to submittal to NHDES and the Corps. Note that this task is intended to cover only the first-year report, and that the Wetland Permit may require up to five (5) years of monitoring. VHB can provide a scope and fee estimate for subsequent monitoring years if requested.

Deliverables: Up to 12 construction observation events. A draft or the post-construction report will be submitted to NHDOT. Upon review and approval, VHB will submit the report to NHDES and USACE.

- xvi. LOMR - If there is a required CLOMR, VHB will assist the Department in completing a LOMR for each CLOMR. It is anticipated that one Letter of Map Revision would be required. This would include the following:
 - a. VHB will complete an as-built survey of the modifications to the Harris Brook floodplains. The as-built survey will include floodplain topography and bathymetry of the stream systems disturbed as part of the project. The as-built survey would result in a plan stamped by a licensed surveyor, as well as an electronic TIN file for use in final hydraulic modeling. We assume additional survey of the Spicket River will not be required and is not included in this scope of services.
 - b. Once as-built survey is completed, VHB will update the HEC-RAS model to verify results obtained during the CLOMR process. If necessary, VHB will update the mapping and other supporting materials produced for the CLOMR for incorporation into a final LOMR submittal package.
 - c. VHB will assemble a final LOMR package and provide the same to NHDOT and to the Town of Salem for submittal to FEMA.

VHB will provide technical support and coordination if needed following submittal of the final LOMR application to respond to FEMA technical comments if any.

- xvii. GENERAL CONSTRUCTION INQUIRIES – VHB will be available to answer and respond to inquiries during construction of the contract.

3. PUBLIC PARTICIPATION

- a. PUBLIC MEETINGS - The Public Meetings are necessary to provide design and construction updates to each of the five municipalities along the 20-mile corridor. These meetings are

intended to be held bi-monthly during the construction seasons for the 3-year duration of the contract as well as several design specific meetings for Contracts 10418X/13933A and 14633J during design development. It is anticipated that 50 meetings of this type are necessary, and that VHB will not attend these meetings. VHB is responsible for preparing the color plans for the Preliminary Coordination (60%) Meeting and the Pre-Advertisement Coordination (90%) Meeting only and these will be utilized for Public Meetings.

- b. NEWSLETTERS - Two newsletters a year, 6 total, will be developed in a similar fashion as previously prepared. VHB is responsible for the development of the articles in coordination with the Department. It is assumed that the templates from the previous newsletter will be provided to VHB. The NHDOT will distribute the newsletters.
- c. WEBSITE
 - i. The development and updating of the website will be the responsibility of VHB through coordination with the Department. There are significant website updates that the Department is seeking in addition to routine updates and new information development.
 - ii. The distribution and preparation of construction alerts
 - iii. Construction photos provided by the Department (or their agent) will be posted to the website each month.
 - iv. VHB will continue to update the website to be ADA compliant.
 - v. Active construction contract fact sheets will be modified bi-monthly during the construction season with special feature fact sheets being prepared or updated as necessary. It is assumed that 48 construction fact sheets will be updated, 12 special fact sheets will be updated, and 2 special fact sheets will be developed over the 3-year contract.
 - vi. Right-Of-Way Commission meeting minutes will be posted to the website as provided by the Department.
 - vii. Other undefined website materials will be developed by VHB in coordination with the Department for posting on the website.

4. PROJECT MANAGEMENT SUPPORT

a. TRAFFIC MANAGEMENT PLAN (TMP)

- i. TMP WORKING GROUP MEETINGS - The TMP Working Group Meetings are held bi-monthly with VHB being responsible for preparing materials before and after the meetings, participating in the meetings and preparing meeting minutes. In addition, VHB is responsible to create the yearly TMP summaries for the project.

- ii. RIDE SHARE DATA – VHB is responsible to prepare the bi-annual (every 6 months) park and ride/bus rider traffic count summaries (data is provided by NHDOT and Boston Express).
- iii. TECHNICAL STEERING COMMITTEE MEETINGS - The Technical Steering Committee Meetings are held bi-monthly with VHB being responsible for preparing materials before and after the meetings, participating in the meetings and preparing meeting minutes.
- iv. CRASH DATA AND INCIDENT DATA – This effort involves the collection, review, coordination and updating of crash and incident data on a yearly basis. The previous historical crash data required to support the Traffic Management Plan (TMP) will be provided by the NHDOT.

b. FINANCIAL PLAN AND GRAPHICS

- i. The Financial Plan is prepared each year from October 1st through December 30. The completed and certified financial plan is due to FHWA no later than December 31 of each year.
- ii. VHB will coordinate with the Department and others on the receipt of information to be reviewed and developed for inclusion in the annual Financial Plan.
- iii. It is anticipated that the Department will provide information such as, construction, change order, project segment, cash flow and design costs, scheduling information, percent complete information, financing and bonding information and milestone information.
- iv. It is assumed that the templates graphics, schedules and any other files necessary to prepare the Financial Plan will be provided by the Department.
- v. It is assumed that three Financial Plan updates will be prepared during the 3-year contract.

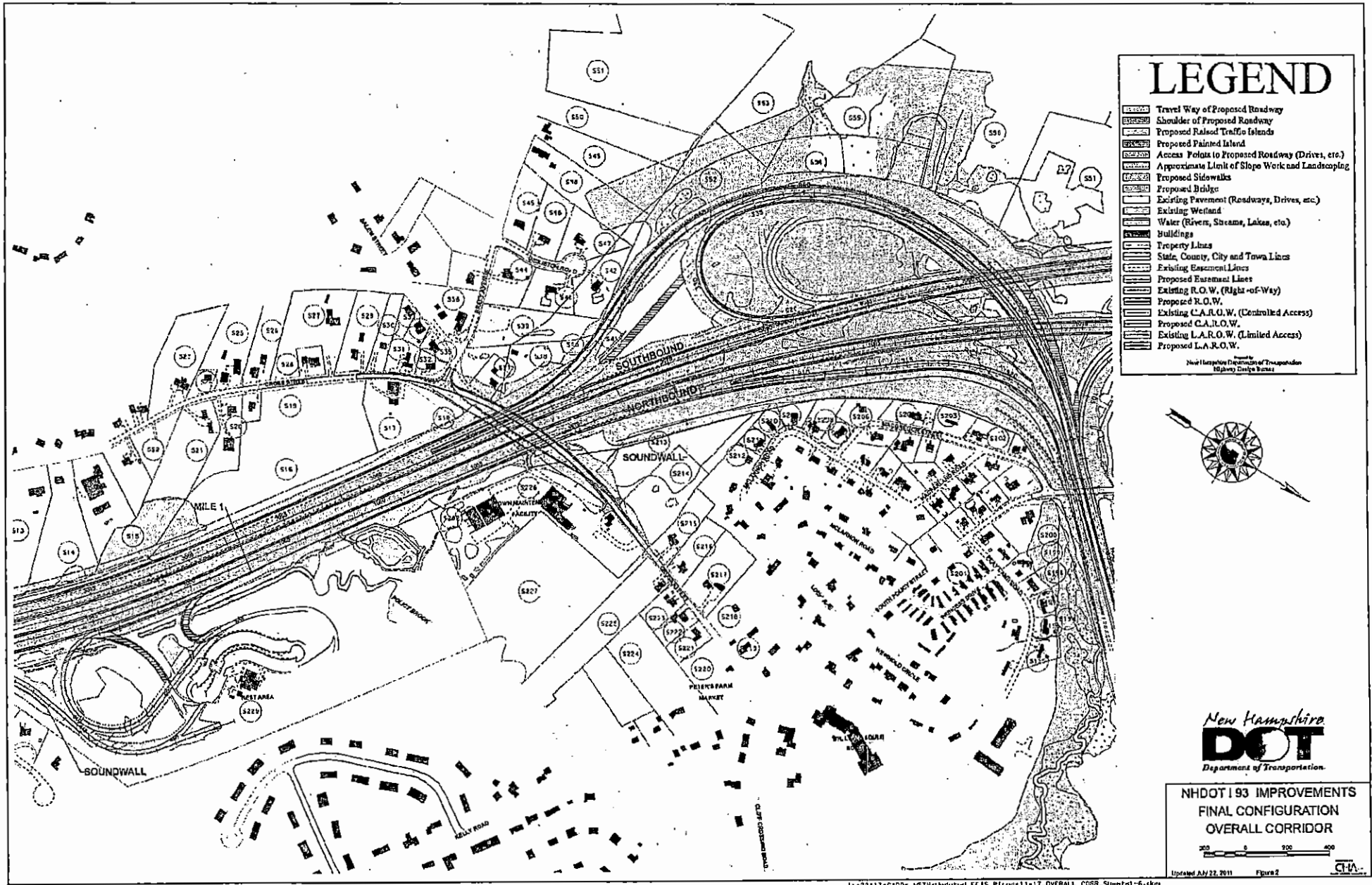
5. PROJECT ADMINISTRATION

a. PROJECT MANAGEMENT

- i. Project Reporting Systems – Develop, in collaboration with the Department, acceptable project reporting systems (invoices) for contract administration.
- ii. Outside Group and Agency Requests – Coordinate with the Department on addressing requests from outside groups and agencies.
- iii. Design Schedule Management – Develop and manage, a schedule that can be utilized at a micro and macro scale for Department review, that keeps the project on schedule. The schedule should include milestones for design, Right-of-Way, geotechnical, utility and the Department’s review development as well as the deliverables the Department

is to provide to the VHB Team. The schedule will be provided to the Department monthly.

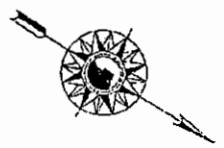
- iv. Project Close Out - Develop project close out plan. This task is to address the CADD deliverables, the transfer of the website, filing, etc.
- v. Construction Phase Support - Continue contract administration duties while construction phase services, website and other project management support activities are ongoing. This task is also intended to address management needs during the construction phase services following the completion of the design phase.



LEGEND

- Travel Way of Proposed Roadway
- Shoulder of Proposed Roadway
- Proposed Raised Traffic Islands
- Proposed Painted Island
- Access Points to Proposed Roadway (Drives, etc.)
- Approximate Limit of Slope Work and Landscaping
- Proposed Sidewalks
- Proposed Bridge
- Existing Pavement (Roadways, Drives, etc.)
- Existing Wetland
- Water (Rivers, Streams, Lakes, etc.)
- Buildings
- Property Lines
- State, County, City and Town Lines
- Existing Easement Lines
- Proposed Easement Lines
- Existing R.O.W. (Right-of-Way)
- Proposed R.O.W.
- Existing C.A.R.O.W. (Controlled Access)
- Proposed C.A.R.O.W.
- Existing L.A.R.O.W. (Limited Access)
- Proposed L.A.R.O.W.

Prepared by
New Hampshire Department of Transportation
Highway Design Bureau

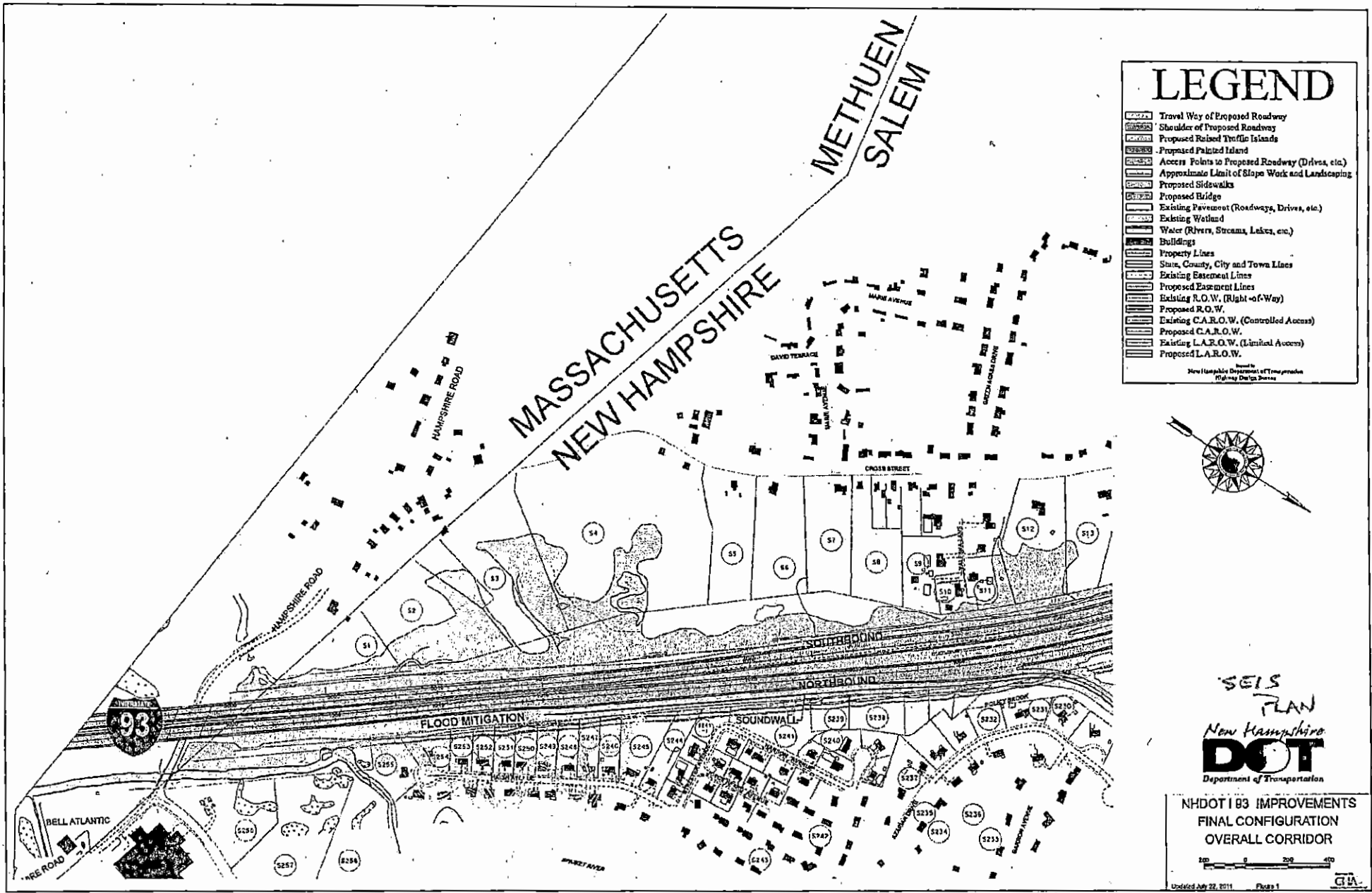


New Hampshire
DOT
Department of Transportation

NHDOT | 93 IMPROVEMENTS
FINAL CONFIGURATION
OVERALL CORRIDOR



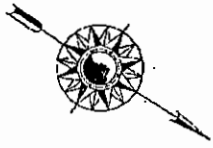
Updated MAY 22, 2011 Figure 2 CMAA



LEGEND

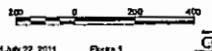
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	Existing L.A.R.O.W. (Limited Access)
	Proposed L.A.R.O.W.

Source:
 New Hampshire Department of Transportation
 Highway Design Bureau



SEIS
PLAN
New Hampshire
DOT
Department of Transportation

**NHDOT I 93 IMPROVEMENTS
FINAL CONFIGURATION
OVERALL CORRIDOR**



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 P, proposed subconsultant _____, hereby certifies that it has P, 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 P, 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.

Vanessa Hampton Austin, P.C.
(Company)

By: [Signature]

SENIOR V.P.
(Title)

Date: 5/31/13

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.**

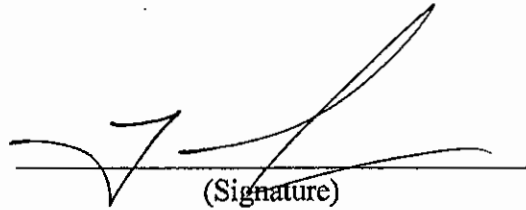
Attachment 2

**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.

5/31/18
(Date)


(Signature)

Attachment 3

CERTIFICATION OF CONSULTANT/SUBCONSULTANT

I hereby certify that I am the Si. V.P. and duly-authorized representative of the firm of Venale Hansen Bustin, 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:

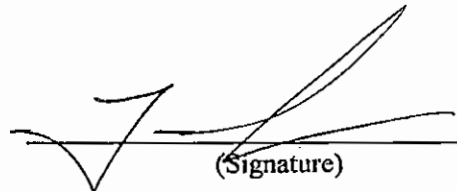
I/WE do also, under penalty of perjury under the laws of the United States, certify that, except as noted below, the company or any person associated therewith in the capacity of (owner, partner, director, officer, principal investigator, project director, manager, auditor, or any position involving 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 ineligible 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.

5/31/13
(Date)


(Signature)


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):

6/8/18
(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: *Luis Bence*

Dated: 5/21/17

CONSULTANT

By: *[Signature]*
SENIOR V.P.
(TITLE)

Dated: 5/31/13

Department of Transportation

WITNESS TO THE STATE OF NEW HAMPSHIRE

By: *Michelle Drouin*

Dated: 6/8/18

THE STATE OF NEW HAMPSHIRE

By: *[Signature]*
Director of Project Development
FOR DOT COMMISSIONER

Dated: 6/8/18

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: 4/12/18

By: *Allison B Greenstein*
Assistant Attorney General

Secretary of State

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

Dated: _____

Attest:
By: _____
Secretary of State

VANASSE HANGEN BRUSTLIN, INC.

Certificate of Vote

SALEM-MANCHESTER

13933A

A004(435)

10418X

A003(954)

I, Robert M. Dubinsky, hereby certify that I am the duly elected Clerk of Vanasse Hangen Brustlin, Inc.

I hereby certify the following is a true copy of Vote taken at a meeting of the Board of Directors of the Corporation, duly called and held on January 31, 2018, at which a quorum of the Board was present and voting.

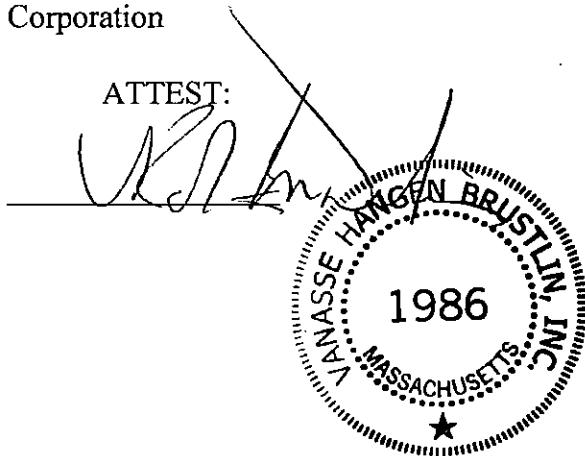
VOTED:

That Tom Jackmin is Senior Vice President for Vanasse Hangen Brustlin, Inc. and is hereby authorized to execute professional services contracts, proposals and amendments in the name and behalf of Vanasse Hangen Brustlin, Inc., and affix its corporate seal thereto; and such execution of any professional service contract, proposal or amendment in this company's name on its behalf under seal of the company, shall be valid and binding upon this company.

I hereby certify that said vote has not been amended or repealed and remains in full force and effect as of this date, and that Tom Jackmin is Senior Vice President for this Corporation

ATTEST:

Date: 5/31/2018



State of New Hampshire

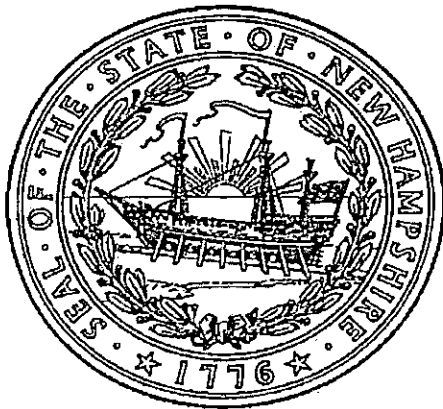
Department of State

CERTIFICATE

I, William M. Gardner, Secretary of State of the State of New Hampshire, do hereby certify that VANASSE HANGEN BRUSTLIN, INC. is a Massachusetts Profit Corporation registered to transact business in New Hampshire on December 11, 1986. 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: 104275

Certificate Number : 0004071454



IN TESTIMONY WHEREOF,
I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 2nd day of April A.D. 2018.

A handwritten signature in black ink, appearing to read "Wm Gardner".

William M. Gardner
Secretary of State



VANAS-1

OP ID: CL

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/01/2018

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 Poole Professional Ltd. 107 Audubon Rd. #2, Ste. 305 Wakefield, MA 01880 Christopher A. Poole	CONTACT NAME: Christopher A. Poole PHONE (A/C, No, Ext): 781-245-5400 FAX (A/C, No): 781-245-5463 E-MAIL ADDRESS: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 80%;">INSURER(S) AFFORDING COVERAGE</th> <th style="width: 20%;">NAIC #</th> </tr> <tr> <td>INSURER A: Valley Forge Insurance Company</td> <td>20508</td> </tr> <tr> <td>INSURER B: Safety Insurance Company</td> <td>39454</td> </tr> <tr> <td>INSURER C: Continental Casualty Company</td> <td>20443</td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Valley Forge Insurance Company	20508	INSURER B: Safety Insurance Company	39454	INSURER C: Continental Casualty Company	20443	INSURER D:		INSURER E:		INSURER F:	
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INSURED Vanasse Hangen Brustlin, Inc.; VHB Eng.Surveying,Landscape Arch.&Geology P.C.;Vanasse Hangen Brustlin,LLC,VHB Eng., NC,PC,VHB DC,LLC P. O. Box 9151 Watertown, MA 02471															

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	Y	Y	6018141932	05/01/2018	05/01/2019	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000
	<input checked="" type="checkbox"/> Contract. Liab.						MED EXP (Any one person) \$ 10,000
	<input checked="" type="checkbox"/> Blanket Waiver						PERSONAL & ADV INJURY \$ 1,000,000
GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:							GENERAL AGGREGATE \$ 2,000,000
							PRODUCTS - COMP/OP AGG. \$ 2,000,000
C	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY	Y	Y	6018203376	05/01/2018	05/01/2019	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY						BODILY INJURY (Per person) \$
	<input checked="" type="checkbox"/> HIRED AUTOS ONLY 1501873 MA						BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident) \$
							Medical Expense \$ 5,000
C	<input checked="" type="checkbox"/> UMBRELLA LIAB	Y	Y	6018203362	05/01/2018	05/01/2019	EACH OCCURRENCE \$ 14,000,000
	<input type="checkbox"/> EXCESS LIAB						AGGREGATE \$ 14,000,000
	<input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE						
DED <input checked="" type="checkbox"/> RETENTIONS \$ 10,000							
A	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	Y/N	N/A	6017185236	05/01/2018	05/01/2019	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Office Package \$1,000 Deductible			6018141932	05/01/2018	05/01/2019	Valuable Papers \$ 2,250,000

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

RE: Salem-Manchester

 13933A
 A004(435)
 10418X
 A0036(954)

See Attachment

CERTIFICATE HOLDER

CANCELLATION

NHDOT-4

 New Hampshire Department of
 Transportation
 7 Hazen Dr., PO Box 483
 Concord, NH 03302

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

NOTEPAD:HOLDER CODE NHDOT-4
INSURED'S NAME Vanasse Hangen Brustlin, Inc.;VANAS-1
OP ID: CLPAGE 2
Date 06/01/2018

RE: Salem-Manchester
13933A
A004(435)
10418X
A0036(954)

New Hampshire Department of Transportation is included as additional insureds per written contract on the general, auto and umbrella liability policies subject to same terms and conditions. Coverage is primary and non-contributory. Waiver of subrogation applies in favor of additional insured. 30 day notice of cancellation except 10 day notice for non-payment of premium.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
06/08/2018

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.

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.

Table with 2 main columns: PRODUCER (Poole Professional Ltd., 781-245-5400) and CONTACT (Christopher A. Poole, 781-245-5400). Includes a table of INSURER(S) AFFORDING COVERAGE with Insurer A: XL Specialty Insurance Company (NAIC # 37885).

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.

Main coverage table with columns: INDR LTR, TYPE OF INSURANCE, ADDL INSD, SURR WVD, POLICY NUMBER, POLICY EFF, POLICY EXP, LIMITS. Includes rows for Commercial General Liability, Automobile Liability, Umbrella Liab, and Workers Compensation.

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE: Salem-Manchester, A004(435), 13933A, 10418X, A003(954)
For professional liability coverage, the aggregate limit is the total insurance available for all covered claims presented within the policy period.

Table with 2 main columns: CERTIFICATE HOLDER (New Hampshire Department of Transportation) and 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).