

CONTRACT DOCUMENTS AND SPECIFICATIONS

for

Project 7186

Market St Gateway Improvements Phase 1

Bid #10-17

State of New Hampshire

John P. Bohenko, City Manager

Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

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**Market St Gateway Improvements Phase 1
Bid #10-17**

INVITATION TO BID

Sealed bid proposals, **plainly marked, Market St Gateway Improvements, Bid Proposal #10-17 on the outside of the mailing envelope as well as the sealed bid envelope,** addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until September 28, 2016 at 1:00 p.m.; at which time all bids will be publicly opened and read aloud.

This project consists of the installation of plantings, granite curbing, drainage pipe & structures, concrete sidewalks and bike paths, lighting, signs, guardrail and various other amenities on the section of Market St from Kearsarge Way to the Albacore Submarine.

Work may begin at any time on or after October 12 2016. Final Completion of the project must occur by September 1, 2017 with no more than eighty on site working days total. Liquidated damages shall be assessed at \$200.00 per day. Hours of work will be 7AM to 5 PM weekdays.

The Contractor will be required to keep roadways and sidewalks passable for the public and employees to the maximum degree possible.

The General Contractor for this project must be Pre-qualified with NHDOT for Road Construction. All electrical work on this project, including conduit, will be installed under the supervision of a New Hampshire Licensed Electrician. An electrical permit is required prior to any electrical work being completed.

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

Specifications may be obtained at the City's website: <http://www.cityofportsmouth.com/finance/purchasing.htm> Addenda to this project, if any, including written answers to questions, will not be provided directly to vendors, but will be posted by 10:00 a.m. on September 23, 2016 on the City of Portsmouth Website under the project heading.

Electronic copies of the plans and specifications may be obtained off of the City's webpage. Documents are not available for pickup.

The City reserves the right, after bid opening and prior to award of the contract, to modify the amount of the work in the event that bids exceed budgeted amounts. The City of Portsmouth further reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City. Also, the City reserves the right to approve or deny subcontractors for this project. An award of this project is contingent upon additional process and funding.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications, if requested, subsequent to bid opening but prior to award.

Addenda to this bid document, if any, including written answers to questions, will be posted by September 23, 2016 on the City of Portsmouth website at <http://www.cityofportsmouth.com/finance/purchasing.htm> under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a bid should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may reject the bid.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- If the Contractor is not listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classification of Road Construction;
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby. The Owner further reserves the right to conduct such investigations of the contractor's history, financial resources, and other qualifications as it deems necessary to determine whether bidder is qualified to do the work. Bidder may be asked to execute releases. Failure to execute a release upon request may result in disqualification.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

The City reserves the right, after bid opening and prior to award of the contract, to modify the amount of the work in the event that bids exceed budgeted amounts. An award of this project is contingent upon additional process and funding.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

- A performance bond in the amount of 100 percent of the contract amount.
- Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the time of project completion, the Owner may, in its sole discretion, permit the Contractor to substitute a maintenance bond in lieu of holding retainage for the entire guaranty period. If a bond is furnished it shall meet the following criteria:

- The bond shall be in an amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3)

conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and to provide acceptable bonds and proof of insurance within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

Market Street Gateway Improvements Phase 1

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.
2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;
3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.
4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Director of Public Works. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefore the following item prices, to wit:

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
201.1	.71	Acre	CLEARING AND GRUBBING (F)	\$ _____	\$ _____
<hr/>					
202.41	126	Lf	REMOVAL OF EXISTING PIPES 0-24" DIAMETER (F)	\$ _____	\$ _____
<hr/>					
202.7	1505	LF	REMOVAL OF GUARDRAIL (F)	\$ _____	\$ _____
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PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
203.1	3238	CY	COMMON EXCAVATION	\$ _____	\$ _____
203.2	576	CY	ROCK EXCAVATION	\$ _____	\$ _____
206.19	5	CY	COMMON STRUCTURE EXPLORATORY EXCAVATION.	\$ _____	\$ _____
304.3	884	CY	CRUSHED GRAVEL	\$ _____	\$ _____
304.34	263	CY	3/8" PEA GRAVEL (Biomedian)	\$ _____	\$ _____
304.4	1051	CY	CRUSHED STONE (FINE GRADATION) (Biomedian)	\$ _____	\$ _____
403.11	50	Tons	Machine Method Bituminous Paving	\$ _____	\$ _____
403.12	150	Tons	Hand Method Bituminous Paving	\$ _____	\$ _____
520.1	80	Cy	Concrete, Class A curb backfill	\$ _____	\$ _____
583.1	16	CY	RIP RAP TYPE A	\$ _____	\$ _____
603.33112	1	EA	12" CORR. POLYETHYLENE END SECTION	\$ _____	\$ _____
603.33112	3	EA	15" CORR. POLYETHYLENE END SECTION	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
603.82212	15	Lf	12" HDPE Drain Pipe	\$ _____	\$ _____
603.82215	111	Lf	15" HDPE Drain Pipe	\$ _____	\$ _____
604.0007	8	Ea	Polyethylene Liner for CB	\$ _____	\$ _____
604.1	8	Ea	Eliminator© systems Oil/Water Separator Hood	\$ _____	\$ _____
604.2	2	Ea	Core and boot existing drain structures 12-15"	\$ _____	\$ _____
604.12	8	Ea	4' Diameter New Catch Basins (Type B Complete)	\$ _____	\$ _____
604.22	1	Ea	New Drop Inlet Basin (Type B Frame & Grate) (Contingency item)	\$ _____	\$ _____
604.324	2	Ea	4' Diameter Drain Manhole with Hinged Manhole Cover	\$ _____	\$ _____
604.4	7	LF	RECONSTRUCTING/ADJUSTING MASONRY FOR CATCH BASINS & DROP INLETS (Frame and Grate covered under 604.72 below)	\$ _____	\$ _____
604.51	4	LF	RECONSTRUCTING/ADJUSTING MASONRY FOR SEWER MANHOLES (Frame and Cover covered under 604.61 below)	\$ _____	\$ _____
604.52	4	LF	RECONSTRUCTING/ADJUSTING MASONRY FOR DRAINAGE MANHOLES (Frame and Cover covered under 604.62 below)	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
604.61	6	EA	Provide New Hinged Sewer Manhole Covers if directed (32" or 24" as appropriate)	\$ _____	\$ _____
604.62	4	EA	Provide New Hinged Drain Manhole Covers if directed (32" or 24" as appropriate)	\$ _____	\$ _____
604.72	4	EA	Provide New CB Frame & Grate if directed (Existing Structures Only)	\$ _____	\$ _____
605.512	298	Lf	12" Corrugated Perforated HDPE Underdrain With fittings as necessary	\$ _____	\$ _____
605.79	4	Ea	Underdrain flushing basins	\$ _____	\$ _____
606.12	1442	Lf	Beam Guardrail Standard Section (Steel Post)	\$ _____	\$ _____
606.1255	2	Ea	Beam Guardrail Terminal Unit EAGRT	\$ _____	\$ _____
608.13	218	Sy	3" Bituminous Sidewalk	\$ _____	\$ _____
608.24	2314	Sy	4" Concrete Sidewalk	\$ _____	\$ _____
608.26	100	Sy	6" Concrete Sidewalk in Ramp Areas	\$ _____	\$ _____
608.32	1	Ea	Sidewalk Steel Plate	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
608.54	12	Sy	Detectable Warning Surface Panels Cast Iron	\$ _____	\$ _____
609.01	433	Lf	New Straight Vertical Granite Curb 5" Wide	\$ _____	\$ _____
609.02	171	Lf	New Curved Vertical Granite Curb 5" Wide	\$ _____	\$ _____
609.21	3241	Lf	New straight sloped Granite Curb	\$ _____	\$ _____
609.23	109	Lf	New curved sloped Granite Curb	\$ _____	\$ _____
609.5	200	Lf	Reset Existing Curb (Indeterminate quantity)	\$ _____	\$ _____
611.90001	1	EA	Adjusting <u>Existing</u> Gate Valves and Stops to Finish Grade	\$ _____	\$ _____
614.321	25	Lf	2" Steel Conduit	\$ _____	\$ _____
614.331	45	Lf	3" Steel Conduit	\$ _____	\$ _____
614.72114	2200	Lf	2" Schedule 40 PVC Conduit	\$ _____	\$ _____
614.72118	10	Lf	2" Sch. 80 PVC Conduit (Contingency item)	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
614.73114	1600	Lf	3" Schedule 40 PVC Conduit for primary elec. 3' deep, no concrete encasement required. 2 ducts side by side	\$ _____	\$ _____
614.73118	200	Lf	3" Sch. 80 PVC Conduit	\$ _____	\$ _____
614.513	1	Ea	7'x5'x4' concrete pull box for primary electric	\$ _____	\$ _____
614.512	23	Ea	Concrete Electrical Pull Boxes	\$ _____	\$ _____
615.0072	236	Lb	Steel Breakaway Sign Posts	\$ _____	\$ _____
615.01	36	Sf	Traffic Signs type A	\$ _____	\$ _____
615.012	24	U	Traffic Signs type A with breakaway mounts	\$ _____	\$ _____
615.014	15	U	Relocating Traffic Signs, type A	\$ _____	\$ _____
616.401	1	U	Relocating Traffic Signals Market/I95 NB	\$ _____	\$ _____
616.402	1	U	Relocating Traffic Signals Market/I95 SB	\$ _____	\$ _____
616.650	1	Ea	Permanent Traffic Signal Detector Loop	\$ _____	\$ _____
618.61	600	Hr	Portsmouth Police <u>fifty dollars and no cents per hour</u> (Only Exact Cost will be paid, estimated cost)	<u>\$60.00</u>	<u>\$36,000.00</u>

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
618.7	1500	Hr	Uniformed Flaggers <u>seventeen dollars and no cents per hour</u> (Only Exact Cost will be paid, estimated cost) (This is the City's current bid price with Project Flagging)	<u>\$18.55</u>	<u>\$27,825.00</u>
619.1	1	U	Maintenance of Traffic	\$ _____	\$ _____
625.2	20	Ea	Light Pole Bases	\$ _____	\$ _____
626	1	Ea	4'x5' Transformer Pad for single phase	\$ _____	\$ _____
628.2	6815	Ea	Saw Bituminous Pavement	\$ _____	\$ _____
632.0104	7785	Lf	4" Paint Striping (Chlorinated Rubber Paint)	\$ _____	\$ _____
632.0106	5448	Lf	6" Paint Striping (Chlorinated Rubber Paint)	\$ _____	\$ _____
632.3112	720	Lf	12" Thermoplastic Stop/Crosswalk	\$ _____	\$ _____
632.32	413	Sf	Thermoplastic Symbol/Word	\$ _____	\$ _____
632.911	8953	Lf	Obliterate Lines 12" wide or under	\$ _____	\$ _____
632.92	17	Sf	Obliterate Pavement Markings Symbols and Words	\$ _____	\$ _____
641A	900	Cy	Loam for Planting Beds and soil amendment	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
641B	790	Cy	Loam for Biomedian	\$ _____	\$ _____
644.516	1078	Sy	Coastal Salt Tolerant Meadow Seed Mix	\$ _____	\$ _____
645.112	310	Cy	Bark Mulch	\$ _____	\$ _____
645.531	100	Lf	Silt Fencing or silt log	\$ _____	\$ _____
645.7	1	Ls	SWPPP	\$ _____	\$ _____
645.71	128	Hr	SWPPP Inspections	\$ _____	\$ _____
645.9	24	Ea	Catch Basin Silt Sacks	\$ _____	\$ _____
646.512	1078	Sy	Turf Establishment with Mulch and Loam	\$ _____	\$ _____
651.13	8	Ea	JUNIPERUS VIRGINIANA	\$ _____	\$ _____
652.06	3	Ea	ACER RUBRUM	\$ _____	\$ _____
652.061	14	Ea	ACER RUBRUM 'OCTOBER GLORY'	\$ _____	\$ _____
652.17	13	Ea	BETULA NIGRA	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
652.52	7	Ea	NYSSA SYLVATICA	\$ _____	\$ _____
652.95	35	Ea	TILIA TOMENTOSA 'STERLING SILVER'	\$ _____	\$ _____
653.98	13	Ea	ULMUS PARVIFOLIA 'ALLEE'	\$ _____	\$ _____
654.21	80	Ea	ILEX GLABRA	\$ _____	\$ _____
654.211	445	Ea	ILEX GLABRA 'COMPACTA'	\$ _____	\$ _____
654.45	579	Ea	JUNIPERUS VIRGINIANA 'GREY OWL'	\$ _____	\$ _____
655.02	14	Ea	AMELANCHIER CANADENSIS	\$ _____	\$ _____
655.801	56	Ea	ILEX VERTICILLATA 'WINTER RED'	\$ _____	\$ _____
655.802	2	Ea	ILEX VERTICILLATA 'JIM DANDY'	\$ _____	\$ _____
656.02	16	Ea	MYRICA PENNSYLVANICA	\$ _____	\$ _____
656.32	278	Ea	RHUS AROMATICA 'LOW GROW'	\$ _____	\$ _____
656.42	445	Ea	ROSA RUGOSA 'ALBA'	\$ _____	\$ _____

PROPOSAL FORM (continued)

ITEM #	EST. QTY.	UNITS	ITEM DESCRIPTION & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
658.311	34	Ea	ECHINACEA PURPUREA 'WHITE SWAN'	\$ _____	\$ _____
658.54	30	Ea	LIATRIS SCARIOSA	\$ _____	\$ _____
658.79	165	Ea	SCHIZACHYRIUM SCOPARIUM	\$ _____	\$ _____
658.86	141	Ea	SPOROBOLIS HETEROLEPSIS	\$ _____	\$ _____
658.87	27	Ea	SYMPHYOTRICHUM NOVAE-ANGLAIE	\$ _____	\$ _____
665.17	13	Ea	STREET LIGHTING TYPE-A 24' SINGLE ARM	\$ _____	\$ _____
665.18	7	Ea	STREET LIGHTING TYPE-B 24' DOUBLE ARM	\$ _____	\$ _____
665.91	2	Ea	LIGHTING CABINET AND ELECTRICAL WORK FOR LIGHTING AND SERVICE	\$ _____	\$ _____
692	1	U	Mobilization	\$ _____	\$ _____

TOTAL FOR PROJECT BASE BID

In Figures \$ _____

In Words \$ _____

**PROPOSAL FORM FOR ADDITIONAL/ALTERNATIVE BID
CONSTRUCTION ITEMS**

It is mandatory to fill out this section as well.

413.1	6000	Lbs	Crack Sealing	\$ _____	\$ _____
<hr/>					
419.1	20,500	Sy	Bonded Wearing Course, type C	\$ _____	\$ _____
<hr/>					
632.0104	4200	Lf	4" Paint Striping (Chlorinated Rubber Paint)	\$ _____	\$ _____
<hr/>					
632.3112	220	Lf	12" Thermoplastic Stop/Crosswalk	\$ _____	\$ _____
<hr/>					
632.32	400	Sf	Thermoplastic Symbol/Word	\$ _____	\$ _____
<hr/>					
632.911	4500	Lf	Obliterate Lines 12" wide or under	\$ _____	\$ _____
<hr/>					
632.92	400	Sf	Obliterate Pavement Markings Symbols and Words	\$ _____	\$ _____
<hr/>					

The contractor will be provided an extra 10 working days if the add-alt is selected for approval.

TOTAL FOR PROJECT ADDITIONAL/ALTERNATIVE BID

In Figures \$ _____

In Words \$ _____

To Bidder:

The City reserves the right, after bid opening and prior to award of the contract, to modify the amount of the work in the event that bids exceed budgeted amounts and/or easements and agreements from one or more impacted property owners are not received.

It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

**TOTAL FOR PROJECT (BASE BID + ADD ALTERNATIVE BID)
AND BASIS OF AWARD**

In Figures \$ _____

In Words \$ _____

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

Date:

Company

By: _____
Signature

Business Address

Title: _____

City, State, Zip Code

Telephone: _____

We certify that the Company is currently pre-qualified with the State of New Hampshire for Road Construction.

By: _____
Signature & Title

Date

The Bidder has received and acknowledged Addenda No. _____ through _____.

All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

In order to follow the City's sustainability practices, future bid invitations/specifications may be sent electronically. Please provide an email address as to where I could email future bid invitations/specifications of this type. Thank you in advance for your cooperation.

Email
Address: _____

BID SECURITY BOND

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto _____

IN THE SUM OF _____

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the

_____ A CERTAIN Bid attached hereto and hereby made a part hereof to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and or "CONTRACT", for

NOW THEREFORE,

- (a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,

- (b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

BID SECURITY BOND (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed

this bond on the _____ day of _____, 20__.

(Name of Principal) L.S.

(SEAL)

BY _____

(Name of Surety)

BY _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder
2. Permanent Main Office Address
3. Form of Entity
4. When Organized
5. Where Organized
6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.
7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).
8. General character of work performed by your company.
9. Have you ever failed to complete any work awarded to you? ____ (no) ____ (yes). If so, where and why?
10. Have you ever defaulted on a contract?
____ (no) ____ (yes). If so, where and why?
11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
____ (no) ____ (yes). If so, where and why?
12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.
13. List your major equipment available for this contract.
14. List your key personnel such as project superintendent and foremen available for this contract.
15. List subcontractors for the following categories whom you will use for the following (unless this work is to be done by your own organization, in which case please state).
 - a. Concrete Flatwork _____
 - b. Landscaping _____
 - c. Curbing _____
 - d. Paving _____

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

e. Electrical & Signals _____

f. Paint Striping _____

g. Guardrail _____

The City reserves the right to disallow any subcontractor including work proposed to be completed by the General Contractor.

16. With what banks do you do business?

a. Do you grant the Owner permission to contact this/these institutions?
____(yes) ____ (no).

b. Latest Financial Statements, certified audited if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statements are preferred. Internal statements may be attached only if independent statements were not prepared.

Dated at _____ this _____ day of _____, 20__.

Name of Bidder

BY _____

TITLE _____

State of _____

County of _____

_____ being duly sworn, deposes and

says that the bidder is _____ of _____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this ____ day of _____, 20__.

Notary of Public
My Commission expires _____

CONTRACT AGREEMENT

Market Street Gateway Improvements Phase 1

THIS AGREEMENT made as of the xxx day of xxxx in the year **2016**, by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and _____ (hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I- Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The Director of Public Works or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence in accordance with the Notice to Proceed. **All work shall be substantially completed no later than September 1, 2017 and the contractor will have no more than eighty (80) working days to complete the project.**

ARTICLE IV - CONTRACT PRICE - Owner shall pay Contractor for performance of the work in accordance with the Contract Documents as shown under item prices in the base bid and the add alternate bid if selected for approval as shown in the Bid Proposal. The ADD ALTERNATIVE portion of the bid(is/is not selected) _____ to be part of this contract.

ARTICLE V - PAYMENT - Partial payments will be made in accordance with the Contract Documents. Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the unpaid balance of the Contract Price, subject to additions and deductions provided for in the Contract Documents.

ARTICLE VI - RETAINAGE – To insure the proper performance of this Contract, the Owner shall retain **ten percent** of the Contract Price as specified in the Contract Documents.

ARTICLE VII - LIQUIDATED DAMAGES - In event the Contractor fails to successfully execute the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **two hundred dollars (\$200)** for each calendar day beyond the specified completion date for each section of work. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VIII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

- 8.1 This Agreement
- 8.2 Contractor’s Bid and Bonds
- 8.3 Notice of Award, Notice to Proceed
- 8.4 Instruction to Bidders
- Standard General Requirements, Control of Work, Temporary Facilities, Measurement and Payment, Specifications
- 8.5 Insurance Requirements
- 8.6 Special Conditions
- 8.7 Standard and Technical Specifications
- 8.8 Drawings
- 8.9 Special Provisions
- 8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

ARTICLE IX – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE X – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys’ fees) arising in any way out of the Contractor’s negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorney’s fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE XI – PERMITS –The Contractor will secure at its own expense, all other permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XII – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XIII – MISCELLANEOUS –

- A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.
- B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.
- C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.
- D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.
- E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this
AGREEMENT the day and year first above written.

BIDDER:

BY: _____

TITLE: _____

CITY OF PORTSMOUTH, N.H.

BY: _____
John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

**Commerce Way Reconstruction
Bid #10-17**

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE:

**Commerce Way Reconstruction
Bid #10-17**

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE
WITH THE AGREEMENT DATED _____ AND ALL
WORK SHALL BE COMPLETED BY _____.

CITY OF PORTSMOUTH, N.H.

BY: Peter H. Rice, PE

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO
PROCEED IS HEREBY ACKNOWLEDGED BY

This the _____ day of _____ 20__

By: _____

Title: _____

CHANGE ORDER

Change Order Number

Date of Issuance

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Change Order:

Attachments:

CHANGE IN CONTRACT PRICE

CHANGE IN CONTRACT TIME

Original Contract Price:

\$

Original Completion Date:

September 1, 2017

Contract Price prior to this
Change Order:

\$

Contract date prior to this
Change Order:

Net Increase or Decrease of
this Change Order:

\$

Net Increase or Decrease of
this Change Order:

Contract Price with all
approved Change Orders:

\$

Contract Due date with all
approved Change Orders:

RECOMMENDED:

APPROVED:

APPROVED:

by_____

by_____

by_____

by_____

PW Director

City Finance

City Manager

Contractor

PERFORMANCE BOND

(This format provided for convenience, actual Performance Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS

that _____ as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of _____ and authorized to do business in the State of New Hampshire as surety, hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, in the amount of _____ Dollars (\$ _____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peeverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall well and faithfully do and perform the things agreed by him to be done and performed, according to the terms of said Contract and such alterations as may be made in said Contract during progress work, and shall further indemnify and save harmless the said Owner in accordance with the Contract and shall remedy without cost to the Owner any defect which may develop within one year from the time of completion and acceptance of the work.

The Surety hereby waives notice of any alteration in work or extension of time made by the Owner or any of its agents or representatives.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) Complete the Contract in accordance with its terms and conditions, or

PERFORMANCE BOND (continued)

(2) Obtain a bid or bids for submission to the Owner for completing the Contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as work progresses (even though there should be a default or a succession of defaults under the contract of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the Owner to Contractor under the Contract and any amendments thereto, less the amount paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of (2) years from the date on which final payment under the contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of Owner.

Signed and sealed this _____ day of _____

A.D., 20__ .

In the presence of:

(Witness) (Principal) (Seal) BY: _____

(Surety Company)

(Witness) (Title) (Seal) BY: _____

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that _____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars (\$_____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be

LABOR AND MATERIAL PAYMENT BOND (continued)

justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

(Witness) BY: _____
(Principal) (Seal)

(Surety Company)

(Witness) BY: _____
(Title) (Seal)

LABOR AND MATERIAL PAYMENT BOND (continued)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

MAINTENANCE BOND

At the Owner's election, a maintenance bond may be substituted for retainage at the completion of the project. If the Owner permits a maintenance bond, it shall be in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner. Such bond shall be provided at the time of Contract completion and shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and _____
(Contractor)

of _____

Dated: _____

has been paid in full for Construction of: **Market Street Gateway Improvements Phase 1**

(Individual, Partner, or
duly authorized
representative of
Corporate Contractor)

Sworn to and subscribed
before me this _____ day
of _____ 20____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that _____

(Contractor) of _____, County of _____ and State of

_____ does hereby acknowledge

that _____ (Contractor)

has on this day had, and received from the CITY OF PORTSMOUTH NEW HAMPSHIRE, final and completed payment for the Construction of:

Market Street Gateway Improvements Phase 1

NOW THEREFORE, the said _____

(Contractor)

for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in connection with the said Contract dated _____, and of and from all, and all manners of action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

print name of witness: _____

By: _____
Its Duly Authorized _____

Dated: _____

GENERAL REQUIREMENTS

SCOPE OF WORK

1. INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

2. INCIDENTAL WORK

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

- a. Clearing, grubbing and stripping (unless otherwise paid for)
- b. Clean up
- c. Plugging existing sewers and manholes
- d. Signs
- e. Mobilization/Demobilization (unless otherwise paid for)
- f. Restoration of property
- g. Cooperation with other contractors, abutters and utilities.
- h. Utility crossings, (unless otherwise paid for)
- i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
- j. Steel and/or wood sheeting as required.
- k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

3. ALTERATION OF PLANS OR OF CHARACTER OF WORK

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

4. EXTRA WORK ITEMS

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. Standard Specifications for Road & Bridge Construction will govern General Requirements.
2. Technical Specifications will govern Standard Specifications.
3. Plans will govern Technical Specifications, and General Requirements.
4. Special Provisions written for this contract will govern the plans.

CONTROL OF WORK

1. AUTHORITY OF ENGINEER

(a) All work shall be done under supervision of the Engineer and to his satisfaction. The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

CONTROL OF WORK (continued)

3. MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

4. SAFETY PRECAUTIONS

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

5. PERMITS

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers or flaggers as the Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.

TEMPORARY FACILITIES

1. STORAGE FACILITIES

(a) The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.

(b) The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.

(c) Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

2. SANITARY FACILITIES

(a) The Contractor shall provide for toilet facilities for the use of the workers employed on the work.

(b) Temporary toilet facilities may be installed provided that the installation and maintenance conform with all State and local laws, codes, regulations and ordinances governing such work. They shall be properly lit and ventilated, and shall be kept clean at all times.

(c) Prior to final acceptance of the work all temporary toilet facilities shall be removed from the site.

3. TEMPORARY WATER

The Contractor shall make all arrangements with the local water department for obtaining water connections to provide the water necessary for construction operations and shall pay all costs.

4. TEMPORARY ELECTRICITY

The Contractor shall make all arrangements with the Public Service Company for obtaining electrical connections to provide the electrical power necessary for construction operations and security lighting and shall pay all electrical connection and power costs.

The Contractor shall be responsible with obtaining an electrical permit from the City Electrical Inspector.

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

- A) Comprehensive General Liability:
Bodily injury or Property Damage - \$2,000,000
Per occurrence and general aggregate
- B) Automobile and Truck Liability:
Bodily Injury or Property Damage - \$2,000,000
Per occurrence and general aggregate

Coverage amounts may be met with excess policies

Additionally, the Contractor shall purchase and maintain the following types of insurance:

- A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.
- B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.
- C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insureds.

- 1) The contractor's insurance shall be primary in the event of a loss.
- 2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

MEASUREMENT AND PAYMENT

1. MEASUREMENT OF QUANTITIES

- (a) All work completed under the contract will be measured according to the United States standard measure.
- (b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.
- (c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.
- (d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.
- (e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.
- (f) In computing volumes of concrete, stone and masonry, the prismatic method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.
- (g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.
- (h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.
- (i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.
- (j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

MEASUREMENT AND PAYMENT (continued)

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

2. SCOPE OF PAYMENT

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

MEASUREMENT AND PAYMENT (continued)

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

4. PARTIAL PAYMENTS

Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10 %) of the whole will be deducted and retained by the Owner until such time as the work receives final acceptance.

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

MEASUREMENT AND PAYMENT (continued)

6. ACCEPTANCE AND FINAL PAYMENT

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. From the total amount ascertained as payable, an amount equal to ten percent (10%) of the whole will be deducted and retained by the Owner for the guaranty period. This retainage may be waived, at the discretion of the City, provided the required Maintenance Bond has been posted. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

7. GENERAL GUARANTY AND WARRANTY OF TITLE

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

MEASUREMENT AND PAYMENT (continued)

8. NO WAIVER OF LEGAL RIGHTS

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

STANDARD SPECIFICATIONS

The Standard Specifications for Road and Bridge Construction of the State of New Hampshire Department of Transportation and any Addenda shall apply but without regard to Section 100 “General Conditions” of those Standard Specifications and without regard to any of those NHDOT provisions that allow for an adjustment for changing fuel and asphalt prices.

Special Provisions

Technical Specifications included herein:

- 202 Removing Structures and Obstructions
- 203 Excavation and Embankment
- 304 Aggregate Base Courses
- 419 Bonded Wearing Course Type C
- 608 Sidewalks, HC Ramps and steel plate for sidewalk
- 609 Curbing
- 616 Traffic Signals
- 641 Loam
- 645 Erosion Control
- 650 Planting – General
- 651 Evergreen Trees
- 652 Deciduous Trees
- 654 Evergreen Shrubs
- 655 Deciduous Shrubs
- 665.17 Light Poles
- 665.91 Outdoor Lighting System

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Catch basins and Pipes)

Amend Section 202 to include:

202.5 Basis of Payment. The accepted quantity of removal of existing pipe shall be measured and paid by the linear foot of pipe removed regardless of pipe depth. Measurement shall extend to the exterior wall of associated structures and no payment shall be made for pipe extensions into structures. The accepted quantity of removal of existing structures shall be measured and paid by each structure regardless of structure depth.

There will be **no compensation under this item** for removal of the pavement surface, excavation, dust control, hauling, temporary removal of detrimental objects and all tools, equipment, labor and other materials necessary to satisfactorily complete the work.

Pavement removal and excavation down to the limits of the typical roadway subgrade shall be measured and paid under Pay Item 203.10 Common Excavation. All other excavation required to remove pipes or structures shall be considered incidental to the appropriate item below.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
202.41 Removal of Existing Pipe, 0 - 24" Diameter (drainage and sewer pipe)	Linear Foot
202.5 Removal of Catch Basins, drop inlets and manhole (drainage and sewer)	Each

SECTION 203

EXCAVATION AND EMBANKMENT

Amend Section 203 to include:

203.4 Method of Measurement. Exploratory excavations will be paid under item 206.19.

203.5 Basis of Payment. Payment shall be full compensation for furnishing all labor, materials and equipment necessary for excavation, backfilling, compaction, disposal of materials, and the protection of the utilities.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
203.1	Common Excavation- includes removal of existing pavement and sidewalks and earth removal for the installation of the biomedian and excludes excavation for conduit, drainage, curb, light poles etc.	Cubic Yard
203.6	Embankment-in-Place	Cubic Yard

SECTION 304

AGGREGATE BASE COURSES

Amend Section 304 to include:

Materials:

- 1.1. Aggregate. Sources of Aggregate and preliminary test results shall be submitted ten working days prior to any placement of material on the job. Failure of these preliminary tests will be grounds for rejection of material from that source. Aggregates will be tested on the job and shall meet these specifications as the material is incorporated into the work. All Measurements shall be in-place compacted quantities in accordance with the plans and specifications.
- 1.2. 3/8" PEA GRAVEL. 3/8" Pea Gravel shall be used in the biomedian drainage section.

Related Sections:

Section 650 – PLANTING – GENERAL

Pea Stone Drainage Layer shall be a semi round aggregate, clean, dried and free of organic and deleterious materials.

Sieve Analysis (% Passing by weight)

<u>Sieve</u>	<u>Specification</u>
1/2"	100
3/8"	85-100
#4	10-30
#8	0-10
#16	0-5

Basis of Payment

The cost of the all laboratory testing including compaction testing at 1 test per 50' in areas to be designated by the Engineer, shall be the responsibility of the Contractor. The accepted quantities of gravel and crushed gravel will be paid at the contract unit price per cubic yard, complete in place.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
304.2	GRAVEL	CY
304.3	CRUSHED GRAVEL	CY
304.34	3/8" PEA GRAVEL	CY
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY

SPECIAL PROVISION

SECTION 419 – BONDED WEARING COURSE

Item 419.1 – Bonded Wearing Course (BWC), Type C

Description

1.1 This work shall consist of applying a bonded wearing course, consisting of a warm polymer modified asphalt emulsion coat, covered immediately with an ultra-thin hot mix asphalt wearing course, in accordance with the plans, contract documents, or as directed by the Engineer.

Materials & Equipment

2.1 All material shall be free from clay balls, organic matter and deleterious substances. Sufficient material shall be on hand prior to starting daily operations to ensure uninterrupted processing for the working day. Materials shall meet the following requirements:

2.1.1 Formulate a job mix formula (JMF) that satisfies the design limits for Hot Mix Asphalt Wearing Course specified in Table 1- Mixture Requirements. The JMF shall be submitted to the Bureau of Materials and Research for approval at least seven (7) days in advance of placing any material. Once the JMF has been approved, production tolerances must be maintained within the tolerances shown below and still remain within the Design Limits band. Production tolerances cannot exceed the Design Limits.

The job mix formula for the AR BWC shall have a target mixing temperature of 280°F (138°C) utilizing a Warm Mix Asphalt (WMA) technology. The lower limit shall consider the specific WMA technology recommendations and existing conditions. Qualified WMA technologies that can be used are identified in the following table. The use of a water injection system shall not be permitted.

WMA Technology	Technology Provider
Advera (Synthetic Zeolite)	PQ Corporation
Evotherm	MeadWestvaco Asphalt Innovations
SONNEWARMix™	Sonneborn, Inc.

TABLE 1 - MIXTURE REQUIREMENTS

Sieve Size (mm)	Type A ⁽¹⁾		Type B ⁽¹⁾		Type C ⁽¹⁾	
	Design Limits Percent Passing	Production Tolerance Percent	Design Limits Percent Passing	Production Tolerance	Design Limits Percent Passing	Production Tolerance Percent
19.0					100	
12.5			100		85 - 100	± 4
9.5	100		85 - 100	± 4	60 - 90	± 4
6.3	85 - 100	± 4	30 - 55	± 4	30 - 55	± 4
4.75	40 - 60	± 3	24 - 45	± 3	24 - 45	± 3
2.36	21 - 37	± 3	21 - 37	± 3	21 - 37	± 3
1.18	16 - 26	± 3	16 - 26	± 3	16 - 26	± 3
0.600	12 - 20	± 2	12 - 20	± 2	12 - 20	± 2
0.300	8 - 16	± 2	8 - 16	± 2	8 - 16	± 2
0.150	5 - 10	± 2	5 - 10	± 2	5 - 10	± 2
0.075	4 - 7	± 1	4 - 7	± 1	4 - 7	± 1
% PG Binder	4.9-5.3 ⁽²⁾		4.8-5.2 ⁽²⁾		4.8-5.2 ⁽²⁾⁽³⁾	

Notes:

- ⁽¹⁾ All aggregate percentages are based on total mass of aggregate.
- ⁽²⁾ Allowable binder percentages shall be increased by 1% for all mix Types when AR BWC is specified.
- ⁽³⁾ The Engineer will evaluate Type C designs with asphalt binder percentages between 5.2% and 5.4% at the Contractor's request.

2.1.1.1 If a test value for the 0.075 mm sieve, or any sieve larger than 1.18 mm, varies from the target value by more than 1.5 times the production tolerance specified in Table 1, the Materials and Research will evaluate the material represented by that test to determine acceptability. If for any sieve, the average absolute difference of [Test Value Target Value] for a lot exceeds the production tolerance, the Engineer will evaluate the material to determine acceptability.

2.1.1.2 If the coarse aggregates are from more than one source or of more than one type of material, proportion and blend all constituents to provide a uniform mixture. Use 100% crushed stone from an approved source that will meet one of the following conditions:

- a. Limestone having an acid insoluble residue content of not less than 20.0%.
- b. Dolomite having an acid insoluble residue content of not less than 17.0%.
- c. Sandstone, granite, traprock, ore tailings, slag, or other similar non-carbonate materials. Non-carbonate particles are defined as having a minimum acid insoluble residue content of 80.0%.
- d. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, traprock, ore tailings, slag, or other similar materials, meeting the following requirements:

Type A Mixes - Non-carbonate plus 3.2 mm particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 4.75 mm particles must be non-carbonate.

Type B Mixes - Non-carbonate plus 3.2 mm particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 6.3 mm particles must be non-carbonate.

Type C Mixes - Non-carbonate plus 3.2 mm particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). Additionally, a minimum of 20.0% of plus 9.5 mm particles must be non-carbonate.

(Non-carbonate particles are defined as having a minimum acid insoluble residue content of 80.0%).

2.1.1.3 Coarse aggregate shall meet requirements specified in Table 2:

TABLE 2 - COARSE AGGREGATE PROPERTIES

Property	Method	Requirement
LA Abrasion Coefficient maximum % loss	AASHTO T96	30
Maximum percent passing #200, %	AASHTO T11, T27	2

2.1.1.4 The Fine Aggregate shall use 100% crushed stone having a minimum sand equivalent of 60%, as determined by AASHTO T 176, "Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test."

2.1.1.5 Any Mineral Filler shall be recommended by the Contractor and require approval by the Engineer.

2.1.2 The AR and non-AR bonded wearing courses shall contain performance graded asphalt binder meeting the following requirements.

2.1.2.1 Bonded Wearing Course: The performance graded asphalt binder used for the bonded wearing course shall be either PG 58-28 or PG 64-28 as specified in the Contract documents.

2.1.3 The polymer modified asphalt emulsion used in the Bonded Wearing Course shall be a CRS-1p as approved by the Engineer.

Construction Requirements

3.1 The requirements of Section 401.3.1 Mixing Plants shall apply, except as modified herein.

3.2 The Contractor shall use the following Equipment.

- (1) Use a self-priming paver as approved by the Engineer. The self-priming paver shall be capable of spraying the polymer modified asphalt emulsion, applying the hot mix asphalt overlay, and smoothing the surface of the mat in one pass at a rate of at least 30 Ft/minute (10 m/minute). The self-priming paver shall be equipped with a receiving hopper, feed conveyor, emulsion storage tank, metered high- pressure emulsion spray bar, and a variable width, heated, ironing-type screed. The screed shall have the ability to be crowned at the center both positively and negatively and have vertically adjustable extensions to accommodate the desired pavement profile.

The screed shall have the capability of accommodating shoulder breaks in cross slope associated with breaks between mainline and shoulders. The screed shall be capable of paving a different cross slope for the mainline and shoulders within the same pass.

- (2) For compaction, use steel-wheeled double-drum rollers weighing at least 9 metric tons, equipped with functioning water systems and scrapers to prevent material from adhering to the roller drums.
- (3) Haul vehicles shall meet the approval of the Engineer prior to transporting the hot mix asphalt wearing course.

3.3 Perform all surface preparation prior to applying the wearing course. Thoroughly clean the entire area to be overlaid. The surface of the area to be overlaid shall be free of dirt, oil, and other foreign materials. Remove all debris and standing water. When specified in the Contract, crack filling/sealing shall be performed prior to paving the BWC. Crack seal shall be allowed to cure a minimum of seven (7) days before the BWC application.

3.3.1 A damp surface is acceptable if favorable weather conditions are expected during paving operations. Cover all manhole covers, water boxes, catch basins, and other such utility structures within the area to be paved with plastic, building felt, or other material approved by the Engineer. Reference each for location and adjustment after paving. Remove the covers each day.

3.4 The requirements of Section 401.3.10 Placing - General and Section 401.10.6.3 Weather Limitations apply, except as modified herein. Placement may begin if the surface temperature is at least 45°F (7°C) and rising. The finished treatment has a minimum thickness of 12.5 mm for Type A and 16 mm for Types B and C.

63.4.1 Apply the polymer modified asphalt emulsion at a temperature of 140 - 176°F (60 - 80°C). Provide a uniform application across the entire width to be overlaid, at a rate of 0.0165 – 0.0274 Gal/ SF (0.68 - 1.13 L/m²). Continuously monitor the spray rate. Equipment shall not come in contact with the polymer modified asphalt emulsion before the hot mix asphalt wearing course is applied. Immediately after applying the polymer modified asphalt emulsion, apply the hot mix asphalt overlay across the full width of the emulsion at a temperature of 293 - 338°F (145 - 170°C).

63.4.2 A delivery ticket shall accompany each vehicle supplying HMA. Make one legible copy of the delivery ticket available to the Agency's paving inspector prior to placement of the mixture. Each delivery ticket shall identify the type of mix used as outlined in Table 1 Mixture Requirements and show all of the following information:

- A. Ticket number.
- B. Plant identification.
- C. Contract number.
- D. Mix type (A, B, or C), and performance-graded binder (PG Binder)
- E. Quantity of material in delivery vehicle.
- F. Date and time.

3.5 Begin compaction immediately after application of the wearing course. Use a minimum of two (2) static passes. Avoid using vibratory compaction. The roller(s) will not be allowed to stop on the freshly placed wearing course. Use an adequate number of rollers to complete compaction before the pavement temperature falls below 185°F (85°C). Protect the wearing course from traffic until the rolling operation is complete and the material has cooled sufficiently to resist damage.

Method of Measurement

4.1 The quantity of non-AR Bonded Wearing Course (BWC), Type C will be measured by the ton of pavement surface treated.

Basis of Payment

5.1 The accepted quantity of non-AR Bonded Wearing Course, Type C will be paid for at the Contract unit price per ton. Payment shall be full compensation for furnishing all labor, materials, and equipment necessary to complete the work. All necessary pavement repairs, crack sealing, joint sealing, and pavement marking removal will be paid for under the appropriate Contract items.

Pay items and units:

419.1	Bonded Wearing Course (BWC), Type C	Ton
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SECTION 608

SIDEWALKS

Amend Section 608 to include:

SECTION 608.2

CONCRETE SIDEWALK CONSTRUCTION

Description

1.1 This work shall consist of constructing sidewalks of Portland cement concrete, reinforced when specified. Portland cement concrete sidewalks shall receive a protective coating unless otherwise directed.

Materials

2.1 Base course materials shall conform to the class of materials as specified in the plans.

2.2 Portland cement concrete shall be Class AA (4000 PSI) conforming to 520.

2.2.1 Coarse aggregate shall be standard size #67.

2.2.2 Protective coating shall be Silane/Siloxane conforming to 534.2.2.

2.3 Reinforcement shall conform to 544.7. (Synthetic Fibers)

2.4 Joint filler shall conform to AASHTO M 213.

Construction Requirements

3.2 Concrete Sidewalks.

3.2.1 Excavation shall be made to the required depth and to a width that will permit the installation and bracing of the forms. The foundation shall be shaped and compacted to a firm, even surface conforming to the section shown on the plans. All soft and yielding material shall be removed and replaced with acceptable material.

3.2.2 Forms shall be of wood or metal and shall extend for the full depth of the concrete. All forms shall be straight, free from warp, and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.

3.2.3 The foundation and granite curb shall be thoroughly moistened immediately prior to the placing of the concrete. Any standing water shall be removed before the concrete is placed. The proportioning, mixing, and placing of the concrete shall be in accordance with 520.3.

3.2.4 Reinforcement in reinforced concrete sidewalk shall be placed at mid-depth or as shown on the plans, using the methods described in 544.3.

3.2.5 Finishing.

3.2.5.1 Concrete shall be finished by use of wood, or magnesium floats, by skilled concrete finishers. A fine-grained broom finish shall be applied to all concrete sidewalks subject to foot traffic.

3.2.5.2 All outside edges and expansion or construction joints shall be edged with an edging tool having a radius of 1/4 in. (6 mm). All crack control joints in sidewalks subject to foot traffic shall be edged with a jointing tool.

3.2.6 Joints.

3.2.6.1 Construct transverse and longitudinal crack control joints by sawing, jointing tool or other approved method to a minimum depth of one third the slab thickness. If the jointing tool is not capable of constructing a joint to the correct depth, saw the joint to the correct depth. Saw crack control joints as soon as concrete has hardened sufficiently to permit sawing without excessive raveling and before uncontrolled shrinkage cracking occurs, usually between four and twenty four hours. Control joints for expansion shall be spaced at 25 ft [2.5 m] for slab thickness of 4 in [100 mm] and 6 in [150 mm], unless otherwise specified. Form crack control joints every 5 ft. (1.5 m), or as specified in the plans, in sidewalks subject to foot traffic. Bond breaker shall be used at all construction joints.

3.2.6.2 Expansion joints shall be formed at any angles or intersections in the sidewalks, around all appurtenances such as manholes, utility poles and catch basins, and between buildings or bridges. Preformed expansion joint filler of the thickness indicated shall be installed for the full depth of the slab.

3.2.7 Curing. Concrete shall be cured for a minimum of 7 days. Curing compounds will not be permitted unless otherwise approved. Plastic sheets or other approved materials shall be placed in close contact with the finished concrete as soon as the concrete has set sufficiently to avoid damage from the placement of coverings. The protective covering shall be maintained vapor-proof in close contact with the concrete for the entire 7 day period unless otherwise approved. All traffic shall be excluded during the curing period. Vehicular traffic shall be excluded for such additional time as ordered.

3.2.8 Protective coating. Protective coating shall be applied in accordance with 534.3.

Method of Measurement

4.1 Sidewalks will be measured by the square foot. The area occupied by the curb will not be included in the final pay quantity.

4.1.1 Protective coating will not be measured.

Basis of Payment

5.1 Sidewalks will be paid for at the Contract unit price per square foot complete in place.

5.1.1 Protective coating for concrete sidewalks will be subsidiary.

5.2 Base course material will be paid for under item 304.3.

5.3 Necessary excavation will be paid for under 203.

<u>Pay item</u>		<u>Pay unit</u>
608.24	4" Concrete Sidewalks	Square Foot
608.26	6" Concrete Sidewalks (Accessible Ramps)	Square Foot

SECTION 608.31

BRICK SIDEWALK INCLUDING DEMOLITION AND EARTHWORK

1.0 Description

- A. The work shall consist of reconstructing the sub-base (if ordered necessary by the Engineer) and constructing a new brick sidewalk as directed in the field by the Engineer.

2.0 Materials

- A. All bricks shall conform to the requirements of ASTM Standard Specifications for Building Bricks Designation C902 SX for Grade SW. The bricks shall be No. 1, wire cut type for paving, with a compressive strength of not less than 6,000 pounds per square inch. The bricks shall not be cored or have frogs and shall be of a standard size (2.375" x 3.75" x 7.875"). Bricks will be manufactured by **Morin Brick Company of Auburn, Maine** style is 'old port' or approved equal.
- B. The setting bed for the bricks will be composed of 3 parts course sand and 1 part type II portland cement dry mixed. This is Subsidiary for payment.
- C. The setting bed shall be placed on a hot mix asphalt base 2" thick which is composed of 3/8" surface mix. This asphalt will be paid for separately.
- D. The sidewalk will be built on a minimum of 8" of NHDOT item '304.3' crushed gravel. This gravel will be paid for separately.

3.0 Construction Requirements

- A. All labor and materials shall conform to the State of New Hampshire Standard Specifications for Road and Bridge Construction.
- B. Excavation for sidewalks shall be at a depth of 12 inches below finish grade. In areas not butting curbing or buildings, the excavation shall be 6 inches wider than the finished sidewalk width. At all drive crossings, the depth of excavation shall be increased accordingly. The Contractor's price shall include neat and square cutting of existing asphalt road surface as needed. All unsuitable material shall be removed and disposed of off-site at the Contractor's own expense. This is subsidiary to the brick sidewalk item.
- C. The base material shall be placed to grade at the proper slope and shall be thoroughly compacted to the depth specified or directed. In the way of all drive crossings the base will be increased to a compacted depth of 12 inches. Gravel requirements for reconstruction will be as directed, based on site conditions. The work includes backing up any and all curb being installed by others on both sides.
- D. The 2" structural asphalt layer will be placed on the sidewalk area across the entire surface area of the sidewalk. The asphalt layer will be fine graded before compaction to the proper grade and slope.
- E. The setting bed for the bricks will be between 3/4" and 1 1/4" thick as necessary for fine grading. Setting beds greater than 1 1/2" thick are unacceptable. Work in inclement conditions will not be allowed. The setting bed will be kept reasonably dry until compaction of the bricks can occur.
- F. The Contractor shall lay the bricks so that approximately 4.76 bricks shall cover one square foot so that joints are no greater than 1/16" of an inch. The pattern will be as shown on the contract drawings. The sidewalk shall pitch a minimum of 1/8 inch and a maximum 1/4 inch per foot towards the street.
- G. Mason's fine sand may be used for compaction of the bricks. Polymeric sand will be applied to the entire sidewalk area after all compaction is complete and the mason's sand has been allowed to settle. Typically this period is no less than 1 week.
- H. In areas where the edge of the brick sidewalk is not adjacent to granite curbing, the Contractor shall install plastic edging to hold the bricks in place. Such edging shall be installed per the manufacturer's recommendations.

- I. The Contractor shall be required to submit a sample of bricks for approval by the Engineer before the contracts are signed.
- J. Half Bricks will be snapped whenever possible to cut down on dust and noise.
- K. Bricks will be wet cut whenever snapping is not practical.
- L. Contractor will provide control of brick dust slurry from cutting in a method approved by the Engineer.
- M. Defective bricks will be removed and replaced before the final sweeping of polymeric sand. The Engineer will determine bricks to be removed and replaced.

4.0 Method of Measurement

- A. Bricks will be measured by the Engineer to the nearest square foot.

5.0 Basis of Payment

- 5.1 Sidewalks will be paid for at the Contract unit price per square foot complete in place.

<u>Pay item</u>		<u>Pay unit</u>
608.31	BRICK SIDEWALKS	SQUARE FOOT

SECTION 608.32

SIDEWALK STEEL PLATE

Description

1.1 This work shall consist of constructing a steel plate sidewalk span over a drainage course, including steel plate support curbs, reinforcement and hardware to secure the steel plate to the support curbs.

Materials

- 2.1 The sidewalk steel plate shall be 1/2" thick, to the dimensions shown on the plans.
- 2.2 Subsidiary items, including concrete support curbs and reinforcing steel, shall be consistent with NHDOT Sections 609.
- 2.3 Hardware to secure steel to curb shall be stainless steel.

Construction Requirements

- 3.1 Contractor shall cast support curbs to adjacent curbing and sidewalk, with a 1/2" deep by 3" wide lip for steel plate to rest on. Steel plate shall rest within this lip flush with adjacent curb and sidewalk, with a maximum 1/2" gap between curb and steel plate.
- 3.2 Stainless steel threaded fasteners shall be used to secure steel plate to curb lip. Female end of threaded fastener shall be cored and epoxied into curb. Fastener shall not protrude more than 1/2" from surface of steel plate.

Method of Measurement

4.1 Sidewalk steel plate will be measured by the number of each installed in the complete and accepted work.

Basis of Payment

5.1 Sidewalk steel plates will be paid for at the Contract unit price per each specified complete in place.

5.1.1 All excavation, subbase, compaction, concrete, and steel reinforcement necessary for the steel plate support curbs, hardware fasteners, and coring and grouting for the fasteners will be subsidiary to the sidewalk steel plate.

<u>Pay item</u>		<u>Pay unit</u>
608.32	SIDEWALK STEEL PLATE	EACH

SECTION 608.54

ADA Compliant Accessible Ramp Panels

Description

1.1 This work shall consist of furnishing and installing a detectable warning surface and accessories on sidewalk ramps at locations shown on the plans, as specified herein, or as ordered including any and all required surface preparation. Detectable warnings shall be installed at sidewalk ramps where a sidewalk crosses a vehicular way, excluding unsignalized driveway crossings. The edge nearest the curbline shall be located 6 to 8 in from the face of curbline. The panel shall be centered on the ramp and extend the entire width of the ramp to the nearest whole panel dimension.

Materials

2.1 Detectable Warning Device:

2.1.1 Material. The detectable warning surface shall consist of units from Neenah Foundry, East Jordan Iron Works, or approved equal. The units shall be cast into Portland cement or other owner approved material, as recommended by the manufacturer. The paver units shall be of cast iron.

2.1.2 Color. The color of the tile used shall be natural rust, and will be installed in a concrete ramp as described in 608.26.

2.1.3 Paver Dimensions. Nominal paver dimensions shall be 2' deep x 2' wide. The panels shall be combined to span the width of the walk to the nearest whole panel dimension.

2.1.4 Detectable Warning Truncated Dome Geometry:

2.1.4.1 Detectable warnings shall be in full compliance with ADAAG guidelines (Title 49 DFR Transportation, Part 37.9 Standard for Accessible Transportation Facilities, Appendix A, Section 4.29.2- Detectable Warning on Walking Surfaces).

2.1.4.2 Size and spacing for truncated domes shall be as follows: base diameter of nominal 0.9 inch, top diameter of nominal 0.4 inch, height of nominal 0.2 inch, with a center to center spacing of nominal 2.35 inches.

2.1.4.3 The truncated dome pattern shall align properly from paver to paver if more than 1 paver is required.

2.2 Setting Bed Material

- 2.2.1 Material. Pavers shall be set into fresh concrete before it sets. Concrete pad for setting bed to be 6” in both directions larger than the tactile panel so that no more than 3” of concrete is showing around the panels. See manufacturer instructions.

Construction Requirements

- 3.1 The Contractor shall submit manufacturer’s installation instructions and descriptive literature for materials specified herein.
- 3.2 Transport, storage, and handling of products shall be in accordance with manufacturer’s instructions.
 - 3.2.1 All sealants/adhesives shall be protected from freezing conditions.
- 3.3 The air and surface temperatures during construction shall be in accordance with manufacturer’s recommendations.
- 3.4 Concrete foundation shall be installed in accordance with the specifications included within Section 608 to depths indicated in the section shown on the plans.
- 3.5 Install detectable warning pavers in accordance with manufacturer’s instructions directly in the setting bed and the allowing the top surface of the paver units to be at or just below the required finish grade.
- 3.6 Care shall be taken to ensure the safety of pedestrians when sidewalks must remain in service during construction.

Method of Measurement

- 4.1 These are measured by each panel installed under the truncated dome panel item.

Basis of Payment

<u>Pay Item</u>		<u>Pay Unit</u>
608.54	Detectable Warning Devices, Cast Iron	Each

SPECIAL PROVISION

AMENDMENT TO SECTION 609 – Curbing Installation

Basis of Payment:

Amend 5.3: Class A Concrete backfill will be used for curb installation and will be paid for under item 520.1 by the cubic yard installed.

SECTION 616

TRAFFIC SIGNALS

Amend Section 616 to include:

GENERAL:

All proposed traffic signal work shall conform to the New Hampshire Department of Transportation (NHDOT) 2016 Standard Specifications for Road and Bridge Construction, the current Manual on Uniform Traffic Control Devices Edition, or as amended in these documents.

Item 616.401 – Relocating Traffic Signals, Market / I-95 NB

This special provision provides for the relocation of the existing traffic signal mast pole and mast arm and all associated hardware on the north west corner of the intersection of Market Street with I-95 NB in the City of Portsmouth as identified on the project plans, including the new foundation, the reinstalled hardware, all necessary conduit, pull boxes, and wiring in the complete, activated and accepted signal system.

The system is coordinated with the following intersections:

- Market Street / I-95 SB
- Market Street / Kearsarge Way

GENERAL:

All provisions of Section 616, except as modified or changed below, shall apply.

- 1- The Contractor shall be responsible for signal operation and maintenance once alterations to the existing signals, excavation or other work within 75 feet of the stop bar at any leg of the intersection has begun. At this point in time the Contractor shall notify the Bureau of Traffic and furnish the Contract Administrator and the Transportation Management Center (TMC) (tel. 603-271-6862) with names and phone numbers of persons to be contacted in case of a malfunction. The Contact person must be available 24 hours a day, seven days a week. The Contractor shall also keep a signal log in the cabinet to track all maintenance work they complete on the signal system. This log shall be placed within a plastic cover and shall at least include the description of the trouble call, corrective action taken, date, time, and personnel who completed the work.
- 2- The traffic signal must be inspected and approved by the Bureau of Traffic prior to placing in flash operation. The Contractor shall contact Peter Crouch at the Bureau of Traffic at (603) 271-2291 one week prior to turning the signals on flash. If the Contractor does not speak directly with Peter Crouch they must leave a detailed message with the Administrative Assistant and expect a call back. Leaving a message does not constitute an approval.
- 3- The Contractor shall be responsible for the dismantling and removing the existing signal heads, mast arm and pole, foundation, existing electrical service, and feeds to the other existing signal equipment. All surplus equipment shall be salvaged and delivered to the Department of Transportation, Bureau of Traffic in Portsmouth, within normal business hours.
- 4- The initial power hook up will be paid for by the Contractor, the power costs for operating the traffic signal will be paid for by the State of NH or Developer (name) or Municipality.
- 5- All interconnect cable shall be labeled and terminated on a terminal panel protected with EDCO PCD642-008D surge suppressers.
- 6- The Contractor shall be responsible for providing temporary signal operations while the existing signal is dismantled and relocated to the new location. Any temporary traffic signals that may be required to maintain

traffic flow during construction shall be incidental including all labor, materials, equipment and other incidentals.

Materials

Add to 2.1:

2.1.3 List of Major Material- This list is for general information only. The contractor shall prepare their own material schedules based up their plan and field review.

- 1- Foundation for existing 30-foot mast pole and 50-foot mast arm. Contractor to confirm existing dimensions and existing pole features. Contractor shall be responsible for determining anchor mast pole anchor bolt pattern.

The contractor shall submit to the City of Portsmouth at least three copies of catalog cuts and/or shop drawings of the proposed equipment for review and approval prior to construction. Structural analysis of proposed foundation and anchor bolts, stamped by a professional engineer registered in New Hampshire, shall be included in the submission. Soil borings and related assessment shall also be provided that verifies the mast arm foundation design.

Mast arm structure and foundation design calculations shall be provided by the contractor subsidiary to Item 616.401. Mast arms shall conform to applicable NHDOT design standard details (<https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/detailsheets/index.htm>).

The Contractor shall take care to salvage all existing signal equipment for reinstallation. Damage to signal equipment and hardware due to the Contractor's negligence shall be repaired or replaced by the Contractor at no expense to the Owner.

The Contractor is responsible for all junction boxes, trenching, conduits, backfill, and wiring to connect the relocated pole, mast arms, and signals into the existing traffic signal system and controller.

Method of Measurement

4.1 Item 616.401 – Relocating Traffic Signals, Market / I-95 NB will be measured as a unit.

4.1.1 No separate payment will be made for concrete, steel, paint, signs, wiring, cable pulling, sawcutting, cold planing, excavation, conduit, pull boxes, backfill, surface restoration, and electrical meters, required for the complete traffic signal assembly as shown on the Plans or as ordered.

Basis of Payment

5.1 The accepted quantity of 616.401 – Relocating Traffic Signals, Market / I-95 NB will be paid for at the Contract lump sum price complete in place. Materials required under Table 1, Section 2.1, and as shown in the Plans shall be subsidiary to Item 616.191.

5.1.1 All work for failures due to pre-existing conditions will be negotiated and paid for as extra work as provided in 109.04. The labor and equipment necessary to complete this application will be subsidiary.

Item 616.402 – Relocating Traffic Signals, Market / I-95 SB

This special provision provides for the relocation of the existing traffic poles at the intersection of Market Street with I-95 NB in the City of Portsmouth:

- Relocate the signal mast pole, mast arm, and all associated hardware and signs on the south east corner of the intersection,

- Relocate the existing pedestal pedestrian signal pole and all associated hardware on the north east corner as identified on the project plans.

Relocation shall include the new foundation, the reinstalled hardware, all necessary conduit, pull boxes, and wiring in the complete, activated and accepted signal system.

The system is coordinated with the following intersections:

- Market Street / I-95 NB
- Market Street / Kearsarge Way

GENERAL:

All provisions of Section 616, except as modified or changed below, shall apply.

- 7- The Contractor shall be responsible for signal operation and maintenance once alterations to the existing signals, excavation or other work within 75 feet of the stop bar at any leg of the intersection has begun. At this point in time the Contractor shall notify the Bureau of Traffic and furnish the Contract Administrator and the Transportation Management Center (TMC) (tel. 603-271-6862) or (for District 1 Projects only) Lancaster Radio Communications (tel. 603-788-4641) with names and phone numbers of persons to be contacted in case of a malfunction. The Contact person must be available 24 hours a day, seven days a week. The Contractor shall also keep a signal log in the cabinet to track all maintenance work they complete on the signal system. This log shall be placed within a plastic cover and shall at least include the description of the trouble call, corrective action taken, date, time, and personnel who completed the work.
- 8- The traffic signal must be inspected and approved by the Bureau of Traffic prior to placing in flash operation. The Contractor shall contact Peter Crouch at the Bureau of Traffic at (603) 271-2291 one week prior to turning the signals on flash. If the Contractor does not speak directly with Peter Crouch they must leave a detailed message with the Administrative Assistant and expect a call back. Leaving a message does not constitute an approval.
- 9- The Contractor shall be responsible for the dismantling and removing the existing signal heads, mast arm and pole, foundation, existing electrical service, and feeds to the other existing signal equipment. All surplus equipment shall be salvaged and delivered to the Department of Transportation, Bureau of Traffic in Portsmouth, within normal business hours.
- 10- The initial power hook up will be paid for by the Contractor, the power costs for operating the traffic signal will be paid for by the State of NH or Developer (name) or Municipality.
- 11- All interconnect cable shall be labeled and terminated on a terminal panel protected with EDCO PCD642-008D surge suppressers.
- 12- The Contractor shall be responsible for providing temporary signal operations while the existing signal is dismantled and relocated to the new location. Any temporary traffic signals that may be required to maintain traffic flow during construction shall be incidental including all labor, materials, equipment and other incidentals.

Materials

Add to 2.1:

2.1.3 List of Major Material- This list is for general information only. The contractor shall prepare their own material schedules based up their plan and field review.

- 1- Foundation for existing 30-foot mast pole and 50-foot mast arm. Contractor to confirm existing dimensions and existing pole features. Contractor shall be responsible for determining anchor mast pole anchor bolt pattern.

- 1- Foundation for existing 20-foot pedestal pole. Contractor to confirm existing dimensions and existing pole features. Contractor shall be responsible for determining anchor mast pole anchor bolt pattern.

The contractor shall submit to the City of Portsmouth at least three copies of catalog cuts and/or shop drawings of the proposed equipment for review and approval prior to construction. Structural analysis of proposed foundation and anchor bolts, stamped by a professional engineer registered in New Hampshire, shall be included in the submission. Soil borings and related assessment shall also be provided that verifies the mast arm foundation design.

Mast arm structure and foundation design calculations shall be provided by the contractor subsidiary to Item 616.402. Mast arms shall conform to applicable NHDOT design standard details (<https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/detailsheets/index.htm>).

The Contractor shall take care to salvage all existing signal equipment for reinstallation. Damage to signal equipment and hardware due to the Contractor's negligence shall be repaired or replaced by the Contractor at no expense to the Owner.

The Contractor is responsible for all junction boxes, trenching, conduits, backfill, and wiring to connect the relocated poles, mast arm, and signals into the existing traffic signal system and controller.

Method of Measurement

- 4.1** Item 616.402 – Alterations to Traffic Signals, Market / I-95 SB will be measured as a unit.

- 4.1.1** No separate payment will be made for concrete, steel, paint, signs, wiring, cable pulling, sawcutting, cold planing, excavation, conduit, pull boxes, backfill, surface restoration, and electrical meters, required for the complete traffic signal assembly as shown on the Plans or as ordered.

Basis of Payment

- 5.1** The accepted quantity of Alterations to Traffic Signals, Market / I-95 SB will be paid for at the Contract lump sum price complete in place. Materials required under Table 1, Section 2.1, and as shown in the Plans shall be subsidiary to Item 616.402.

- 5.1.1** All work for failures due to pre-existing conditions will be negotiated and paid for as extra work as provided in 109.04. The labor and equipment necessary to complete this application will be subsidiary.

SECTION 641

LOAM

Amend Section 641 to read:

Materials

1.1 Loam shall conform to the material specification in amended Section 650 – Planting – General.

X.X PLANTING MEDIA

A. 641A: Topsoil

- 1. Topsoil required shall be obtained from off-site sources.
- 2. Topsoil supplied from off-site, shall be a sandy loam as defined by the USDA Soil Conservation Service, Soil Classification System, and shall have the following mechanical analysis:

<u>Textural Class</u>	<u>% of Total Weight</u>	<u>Average %</u>
Sand (0.05-2.0 mm dia. range)	45 to 75	60
Silt (0.002-0.05 mm dia. range)	15 to 35	25
Clay (less than 0.002 mm dia. range)	5 to 25	15

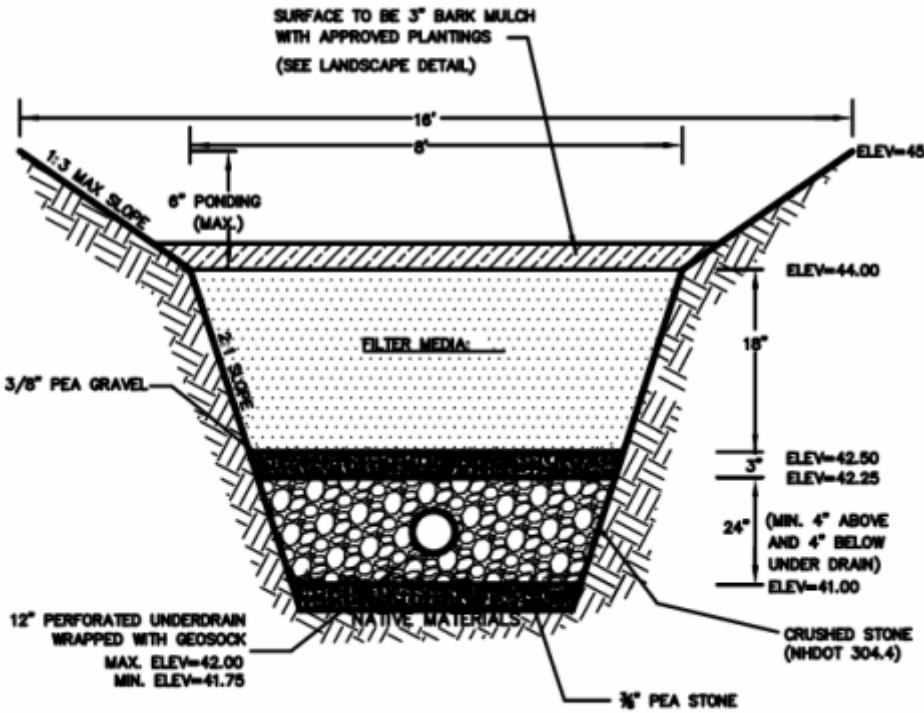
- a. 95 percent of topsoil shall pass a No. 8 (2.0 mm) sieve.
- b. Topsoil shall be free of stones >1 inch (25 mm) in longest dimension, earth clods or clay, plant parts, weeds, debris, and other extraneous materials harmful to plant growth.
- c. Organic matter content shall be 4 to 12 percent of total dry weight.
- d. Range of pH: 5.5 to 7.

B. 641B: Bioretention Soil:

COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	% PASSING STANDARD SIEVE
FILTER MEDIA			
ASTM C-33 CONCRETE SAND	50 TO 55	PER ASTM REQUIREMENTS	
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATLY FINE SHREDED BARK OR WOOD FIBER MULCH WITH FINES AS INDICATED	20 TO 30	200	<5

- NOTES:**
1. BARK MULCH SHALL BE AGED A MINIMUM OF 12 MONTHS AND SHALL NOT FLOAT.
 2. RAIN GARDENS SHOULD NOT BE PLACED INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
 3. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL KEEP ALL EXCAVATION EQUIPMENT OUTSIDE THE LIMIT OF THE RAIN GARDEN.
 4. SEE GRADING PLAN FOR LOCATIONS.

BIORETENTION SPECIFICATION



BIORETENTION SECTION

NOT TO SCALE

Basis of Payment

Pay Item	Pay Unit	Description
641A	Cy	Loam for Planting Beds and soil amendment
641B	Cy	Loam for Biomedian

SECTION 645

EROSION CONTROL

Amend Section 645 to include:

Description

1.1 This work shall include the placement of Catch Basin Inlet Protection devices at the locations specified in the contract plans.

Materials

2.1 The Catch Basin Inlet Protection shall consist of a pre-manufactured non-woven geotextile intended for use as inlet protection; manufactured items include SiltSack, and approved equals.

Construction Requirements

3.1 Contractor shall install per manufacturer’s recommendation. Inlet protection devices shall be maintained weekly or after every storm event.

Contractor shall remove and dispose of the inlet protection device following construction, and shall remove any accumulated debris inside the Catch Basin.

Method of Measurement

4.1 Inlet Protection Devices will be measured per each installation location in the project area.

Basis of Payment

5.1 Item 645.9 Inlet Protection will be paid for at the contract unit price per each. Payment will be made once per construction season and shall be full compensation for the maintenance, replacement if necessary, removal following construction, and Catch Basin vacuuming of any debris resulting from failed Inlet Protection Devices..

<u>Pay item</u>	<u>Pay unit</u>
645.9 Inlet Protection Devices	Each

SECTION 650

PLANTING – GENERAL

Amend Section 650 to read:

GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications Sections, apply to this Section.

SUMMARY

Section Includes:

The provision and installation of all plant materials and products specified, including all supervision, labor, equipment and materials necessary to complete the project.

General maintenance of stored and installed materials until Acceptance.

Provision of Landscaping Warranty.

Description of Work:

Provide all materials and equipment, and do all work required to install new plants, as indicated on the Drawings and as specified.

Related Sections:

Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:

Section 641 – LOAM
Section 644 – GRASS SEED
Section 651 – EVERGREEN TREES
Sections 652 and 653 – DECIDUOUS TREES
Section 654 – EVERGREEN SHRUBS
Sections 655 and 656 – DECIDUOUS SHRUBS
Section 657 – VINES AND GROUND COVERS

REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

American National Standards Institute, Inc. (ANSI):

Z60.1 American Standard for Nursery Stock - 2004
A300 (part 6)-2012

American Society for Testing and Materials (ASTM):

C 136 Sieve Analysis of Fine and Coarse Aggregates
E 11 Wire-Cloth Sieves for Testing Purposes

American Wood Preservers' Association (AWPA):

C2 Lumber, Timbers, Bridge Ties and Mine Ties –
Preservative Treatment By Pressure Processes

4. National Arborist Association, 3537 Stratford Rd., Wantagh, NY 11793 (NAA):

Ref. 1 Transplanting of Trees and Shrubs in the Northeastern and North Central United
States

5. Hortus Third, A Concise Dictionary of Plants Cultivated in the United States and Canada, Cornell University, L.H. Bailey Hortorium, MacMillian Publishing Co., New York, NY.
6. Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, Michael A. Dirr, Stipes Publishing Company, Champaign, Illinois, 1975, Revised 1998.
7. "A Field Guide: Standards for Urban Forestry Data Collection." 2010. By the USDA Forest Service, ISA and the IUFRO (International Union of Forest Research Organizations).

DEFINITIONS

Backfill: The earth used to replace or the act of replacing earth in an excavation.

Compaction: A loss of soil aggregates; destroyed aeration pore spaces; crushed or collapsed pore spaces; and, undergone extensive resorting and packing of soil particles.

Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.

Finish Grade: Elevation of finished surface of planting soil.

Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

Planting Media: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

SUBMITTALS

Product certificates: Labels from the manufacturer's container or manufacturer's cutsheets certifying that the product meets the specified requirements shall be submitted for the following materials:

Anti-desiccant	Chemical Products
Erosion Control Fabric	Fertilizers
Filter Fabric	Inorganic Soil Amendments
Mycorrhizal Fungi	Organic Soil Amendments
Root Control Barrier	Structural Soil

Test Reports: Test reports from an approved testing agency indicating compliance with the specifications shall be submitted for:

Compost	Manufactured soil
Manure	Mulch
Planter Soil	Planting Media
Topsoil	Mulch
Any other materials designated by the Landscape Architect.	

Samples* of the following:

Compost	Planting Media
Mulch	Root ball stabilization materials

*Bulk materials in quantities sufficient to demonstrate range of color, texture, particle size, etc.

List of Plant Materials: Species to be installed, noting any discrepancies with Drawings. This list does NOT imply permission for substitutions unless approved in writing by Landscape Architect.

Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year.

QUALITY ASSURANCE

Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project Site when work is in progress.

Soil Analysis:

The Contractor shall engage an independent testing agency, experienced in the testing of agricultural soils and acceptable to the Landscape Architect, to perform the following tests and analyses:

<u>Material</u>	<u>Tests and Analysis Required</u>
Soils	Mechanical analysis of soil indicating the percent passing by weight of the following sieve sizes: 1 in., 1/2 in., No. 4, No. 10, No. 100, and No. 200. Determination of pH, organic content, and nutrient content. Recommendations shall be made by the testing agency as to the type and quantity of soil additives required to bring pH, organic content, and nutrient content to satisfactory levels for planting.
Organic Amendments	Determination of moisture absorption capacity, organic matter content, and pH.

Report presence of problem salts, minerals, or heavy metals; if present, provide additional recommendations for corrective action.

A Solvita test shall be performed to determine the maturity and stability of the compost.

Gradation of granular materials shall be determined in accordance with ASTM C 136. Sieves for determining material gradation shall be as described in ASTM E 11.

Soil Drainage:

1. Test drainage of adverse soils in three to five plant pit locations chosen by the Landscape Architect. Pits shall be excavated to a size suitable for a large tree, completely filled with water and observed to determine the length of time the soils take to completely drain. Landscape Architect shall then be notified of the time it takes for the pits to drain completely. Planting operations shall not proceed until Landscape Architect has reviewed drainage test results.

Plants:

The Contractor shall provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

The Contractor shall inspect all nursery materials to determine that the materials meet the requirements of this Section. Submit List of Plant Materials to be installed indicating discrepancies with Drawings. No changes or substitutions may be made without prior approval by the Landscape Architect, and municipal authority, if applicable.

When requested by the Landscape Architect, the Contractor shall submit the names and locations of nurseries proposed as sources of acceptable plant material.

Proposed materials shall be flagged at the nurseries by the Contractor prior to viewing by the Landscape Architect, when requested by the Landscape Architect.

When requested by the Landscape Architect, deliver photographs of plant material or representative samples of plants.

Schedule time with the Landscape Architect for viewing plant material at the source(s). Time spent at the nursery shall occur prior to the anticipated delivery time.

Viewing and/or sealing of plant materials by the Landscape Architect at the nursery does not preclude the Landscape Architect's right to reject material at the site of planting.

Identification of plant names shall be as listed in Hortus Third or M. Dirr's Manual of Woody Landscape Plants.

All plants shall be delivered to site with identifying tags that shall not be removed until Substantial Completion acceptance.

Owner's Inspection And Testing:

Work may be subject to inspection at any time by the Landscape Architect. The Owner reserves the right to engage an independent testing laboratory in accordance with requirements of Section 140000 – QUALITY CONTROL to analyze and test materials used in the construction of the work. Where directed by the Landscape Architect, the testing laboratory will make material analyses and will report to the Landscape Architect whether materials conform to the requirements of this specification.

1. Cost of tests and material analyses made by the testing laboratory will be borne by the Owner when they indicate compliance with the specification and by the Contractor when they indicate non-compliance.
2. Testing equipment will be provided by and tests performed by the testing laboratory. Upon request by the Landscape Architect or Owner, the Contractor shall provide such auxiliary personnel and services needed to accomplish the testing work and to repair damage caused thereto by the permanent work.

Contractor's Inspection And Testing:

1. Testing, analyses, and inspection required by the Contractor for his own information or guidance shall be at his own expense.
2. Materials shall not be used in construction until the test results have been reviewed by the Landscape Architect.

DELIVERY, STORAGE, AND HANDLING

Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage.

Digging Plant Material: Plants shall not be dug at the nursery or approved source until the Contractor is ready to transport them from their original locations to the site of the work or acceptable storage location.

Handling of Plant Materials: Exercise care in handling plant materials to avoid damage or stress. Handle planting stock by root ball or container. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.

Deliver plants after preparations for planting have been completed, and install immediately.

Plants that are not planted immediately shall be protected as follows:

If planting is delayed more than six hours after delivery, set plants and trees in shade, protect from weather and mechanical damage, and keep roots moist. Plants shall not be allowed to dry out or freeze.

Bareroot plants shall be installed on the same day of delivery or placed in storage until installed. Injury and desiccation of plants on-site shall be prevented.

Earth balls shall be kept intact and moist.

Store bulbs, corms, and tubers in a dry place at 60° to 65°F (16° to 18°C) until planting.

Both the duration and method of storage of plant materials shall be subject to the approval of the Landscape Architect.

Extended storage at site: Plants shall then be protected and kept moist by "heeling-in" the roots or by placing the plant in a cool moist storage building. The "heeling-in" procedure shall require the plants to be separated and the roots heeled in a suitable moist soil. If plants are stored in a building, the roots shall be covered with suitable moist mulch.

In certain situations, and depending on plant species, apply anti-desiccant to trees and shrubs as needed to protect plant material.

The following shall be cause for rejection of materials by the Landscape Contractor or Landscape Architect:

Evidence of inadequate protection following digging, carelessness while in transit, or improper handling or storage, shall be cause for rejection.

Upon arrival at the temporary storage location or the site of the work, plants shall be inspected for proper shipping procedures. Should the roots be dried out, large branches be broken, balls of earth broken or loosened, or areas of bark be torn, the Landscape Architect will reject the injured plant.

When a plant has been rejected, remove it from the area of the work and replace it with one of the required size and quality.

PLANTING SEASONS AND CONDITIONS

Planting shall only be performed when weather and soil conditions are suitable for planting the material specified in accordance with locally accepted practice.

No planting shall occur if said activity results in permanent compaction of soil.

MAINTENANCE

- A. Plant material shall be maintained by the Contractor until one year after Final Completion, as described in Part 3 of this Section.
- B. After the maintenance period, maintenance of the plant material shall become the Owner's responsibility. Provide instructions and service as follows.

The Contractor shall provide the Owner with written recommended maintenance program at time of Final Completion.

The Contractor may make as many periodic inspections as necessary during the guarantee period, at no additional cost to the Owner, to inspect and guarantee the condition of all plant materials. Submit written report of each inspection to the Landscape Architect and Owner outlining corrective measures taken to keep the guarantee valid.

ACCEPTANCE

- A. The Landscape Architect will inspect all work for Substantial Completion upon written notice of completion. The request shall be received at least ten calendar days before the anticipated date of inspection.
- B. Acceptance of plant material by the Landscape Architect will be for general conformance to specified size, character, and quality, and shall not diminish responsibility for full conformance to the Contract Documents.
- C. Upon satisfactory completion and re-inspection of all repairs or renewals necessary in the judgment of the Landscape Architect, the Landscape Architect will recommend to the Owner that acceptance of the work of this Section be given.
- D. Acceptance in Part
 - 1. The work may be accepted in parts when it is deemed to be in the Owner's best interest to do so, and when permission is given to the Contractor in writing to complete the work in parts.
 - 2. Acceptance and use of such areas by the Owner shall not waive any other provisions of this Contract.

WARRANTY

- A. Plants shall be guaranteed for a period of two years after the date of Substantial Completion by the Owner and Landscape Architect.
 - 1. When the work is accepted in parts, the guarantee periods shall extend from each of the partial acceptances to the terminal date of the last guarantee period. Thus, all guarantee periods terminate at one time.

- B. Plants shall be healthy, free of pests and disease, and in flourishing condition at the end of the guarantee period. Plants shall be free of dead and dying branches and branch tips, and shall bear foliage of normal density, size, and color.
- C. Replace dead plants and all plants not in a vigorous, thriving condition, as determined by the Landscape Architect during and at the end of the guarantee period, without cost to the Owner, as soon as weather conditions permit and within the specified planting period.
 - 1. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this Specification.
 - 2. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Owner.
 - 3. The guarantee of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement.
- D. Guarantee does not cover defects resulting from abuse, accident, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
- E. At the end of the guarantee period, and no less than five days prior to final inspection, staking and guying materials shall be removed from the site.

FINAL INSPECTION AND FINAL ACCEPTANCE

At the end of the guarantee period, the Landscape Architect will, upon written notice of end of guarantee period, inspect the work for Final Acceptance. Request shall be received at least ten calendar days before the anticipated date for Final Inspection.

Upon completion and re-inspection of full repairs or replacements necessary in the judgment of the Landscape Architect. At that time, the Landscape Architect will recommend to the Owner that Final Acceptance of the Work of this Section be given.

PRODUCTS

PLANT MATERIAL

Except as otherwise specified, form, size, and grade of plant materials shall conform to ANSI Z60.1.

Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting. Plants shall have, at a minimum, an acceptable form typical of species.

The Landscape Architect will be the final arbiter of plant form acceptability.

The planting stock selected shall be specimen quality, symmetrical, correctly pruned, cold-hardy, decorative, and disease resistant. They shall be free from physical damage or other conditions that would prevent rigorous growth. Trees which fail to meet these standards will be refused by the owner.

Trunk(s), Canes and Branches:

- a. Well-formed and sturdy with a straight, distinct leader where this is characteristic of species.
- b. Branching plentiful and uniformly distributed to form a well-balanced plant.
- c. Trees with leaders that are damaged, crooked, or crossed shall be rejected.
- d. Trees with multiple leaders shall be rejected, unless form is typical for the species or specifically indicated in the Drawings.
- e. Multiple leaders with narrow crotches (included bark) shall not be acceptable.
- f. Scars shall be free of rot and not exceed 1/4 the diameter of the wood beneath in greatest dimension unless completely healed (except pruning scars).
- g. Pruning scars clean cut leaving little or no protrusion from the trunk or branch.
- h. Graft union completely healed.
- i. No mechanical or pest damage.
- j. No excessive succulence or suckering atypical of species.

Foliage:

- a. Densely supplied with healthy, vigorous leaves of normal size, shape, color, and texture (except shrubs moved bare-root or deciduous shrubs when dormant).
- b. No chlorosis.
- c. Minimally perceptible pest or mechanical damage, affecting no more than 5 percent of foliage.

Root System:

- Plants shall have a well-developed fibrous root system.
Sturdily established in container, but shall not be excessively root bound except plants deliberately grown root bound to produce a dwarf plant.
- a. No stem girdling roots.
 - b. No weeds.
 - c. **All wire and two thirds (2/3) of the burlap will be removed from the root ball.**

Plants shall be healthy and vigorous, free of disease, insect pests and their eggs and larvae.

Plants shall be free of physical damage such as scrapes, broken or split branches, large scars, bark abrasions, sunscalds, fresh limb cuts, disfiguring knots, or other defects.

Plants shall not be pruned for form (if needed to improve aesthetic appearance and/or growth habit) until Substantial Completion Acceptance.

Plants shall meet the sizes indicated on the Plant List or Schedule. Plants larger or smaller than specified may be used only if accepted by the Landscape Architect.

To the greatest extent practicable, plant material shall be obtained from sources located in similar climatic zones to the Project site.

Plants indicated as "B&B" shall be balled and burlapped.

Unless otherwise permitted by the Landscape Architect, plants shall be nursery grown.

Nursery grown plants shall be freshly dug or heeled-in. No plants from cold storage will be accepted unless permitted by the Landscape Architect.

Container stock, where specified or approved by Landscape Architect, shall meet the standards of ANSI Z60.1 and the following:

Container stock shall have a heavy fibrous root system that has been developed by proper cultural treatment, transplanting, and root pruning.

Container stock shall be sturdy, healthy and sufficiently vigorous to ensure plant growth.

- K. Herbaceous Plants: Including, but not limited to, annuals, biennials, perennials, wetland or water plants, bulbs, tubers, and corms: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems or well-formed root forms. Provide only plants that are acclimated to outdoor conditions before delivery.

Bareroot stock, where specified or approved by Landscape Architect, shall meet the standards of ANSI Z60.1 and the following:

Bareroot stock shall have a heavy fibrous root system that has been developed by proper cultural treatment, transplanting, and root pruning.

Bareroot stock shall be sturdy, healthy and sufficiently vigorous to ensure plant growth.

INORGANIC SOIL AMENDMENTS

Lime: ASTM C602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent, by weight. Class T is more finely ground and quicker acting but dustier than Class O.

Sulfur: Granular, biodegradable, and containing a minimum of 90 percent sulfur.

Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

Aluminum Sulfate: Commercial grade, unadulterated.

Perlite: Horticultural perlite, soil amendment grade.

Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 (0.30-mm) sieve.

Sand: Clean, washed, natural or manufactured angular grains, free of toxic materials.

Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.

ORGANIC SOIL AMENDMENTS

Compost: Well-composted, stable, and substantially weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; soluble salt content of <3 mmhos/cm or <3 decisiemens/m and free of substances toxic to plantings; and as follows:

The compost stock must mature for a minimum of 90 days. During this time, the compost stock shall achieve thermophilic temperatures (175° to 180°F, 79° to 82°C) for 15 days; multiple turnings may be required for the entire stockpile. A Solvita test may be requested to determine the maturity and stability of the compost.

Frozen or muddy compost shall be unacceptable for use.

- B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.
- C. Mycorrhizal Fungi: Dry, organic, granular root stimulant/inoculant containing at least 5300 spores per pound (0.45 kg) of vesicular-arbuscular mycorrhizal fungi and 95 million spores per pound (0.45 kg) of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.
 - 1. Mycorrhizal fungi amendment shall be manufactured by one of the following, or approved equivalent:
Roots
Plant Health Care
Mycorrhizal Applications of Oregon
- D. Hydrogel: Shall be water absorbant crystals or granules manufactured by one of the following, or approved equal: Plant Health Care, Terra-Sorb, Viterra Gelscape.

FERTILIZERS

Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde. Nitrogen (N), Phosphorus (P) and Potassium (K) in amounts recommended in soil test results.

Controlled-release fertilizer:

- 1. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium of equal proportions.
- 2. Planting Tablets: Tightly compressed chip type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots. Nutrient composition: nitrogen, phosphorous, potassium and micronutrients.
- 3. Controlled-release fertilizer shall be equal to the following:

<u>Product</u>	<u>Manufacturer</u>
Osmocote	Scotts Miracle-Gro Company
Agriform 20-10-5	Sierra Chemical Co.
Planting Tablets	Milpitas, CA 95035
EZY-Grow Fertilizer Packet	EZY-Grow - Landscape Specialties

2.5 WATER

- A. Water shall be suitable for irrigation and free from ingredients harmful to seeded areas.

2.6 WEED-CONTROL BARRIERS

- A. Weed control barriers are not recommended for planted areas as the materials prevent or slow water penetration required for plant growth. They may be beneficial for largely unplanted, mulched areas.

2.7 MULCHES

- A. Organic Mulch: Mulch shall be 100 percent dark aged hemlock or approved alternative of uniform size and free from rot, leaves, twigs, debris, stones, or any material harmful to plant growth. Bark shall have been shredded and stockpiled no less than two months and no more than two years before use.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; soluble salt content less than 3 decisiemens/m or 3 mmhos/cm as measured for soil mixture electrical conductivity; not exceed 0.5 percent inert contaminants and free of substances toxic to plantings. Product must be cured for a minimum of 90 days and produce minimal heat or odor to be considered a stable, mature product suitable for use with plants.

2.8 CHEMICAL PRODUCTS

- A. General: Pesticides, herbicides, fungicides, bactericides or any other chemical compounds shall be registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
 - 1. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
 - 2. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.
 - 3. Anti-desiccant: Shall be an emulsion specifically manufactured for plant protection which provides a protective film over plant surfaces which is permeable enough to permit transpiration. Anti-desiccant shall be delivered in manufacturer's sealed containers and shall contain manufacturer's printed instructions for use. Anti-desiccant shall be Wilt-Pruf as manufactured by Wilt-Pruf Products, Inc. P.O. Box 469 Essex, CT 06426, or approved equal.
 - 4. Fungicide: Shall be zinc ethylene bisdithiocarbonate (Zineb), or equal, applied at manufacturer's suggested rates.
 - 5. Chemical Root Control Barrier: Chemical compounds or fabric impregnated with growth-regulating chemicals designed to modify root growth. Manufacturers shall be Plant Health Care or Typar Biobarrier, or approved equal.

2.9 FILTER FABRIC OR SOIL SEPARATION FABRIC

- A. Nonwoven geotextile made of polypropylene, polyolefin, or polyester fibers, or combination, 101 g/sq. m (3 oz./sq. yd.) minimum, Mirafi 140-N, or approved equal.

2.10 TREE SUPPORT MATERIALS

- A. Install tree support materials only when conditions warrant. See Part 3. Rootball stabilization is preferred method.
- B. Rootball Stabilization Materials:
 - 1. At-grade or below-grade stabilization systems to secure each new tree planting by its rootball; sized per manufacturer's written recommendations unless otherwise indicated. Provide one of the following products, or approved equal:
 - a. Tomahawk Tree Stabilizers by Border Concepts, Inc.
 - b. Duckbill Rootball Fixing System by Foresight Products, LLC
 - c. Tree Staples by Tree Staple, Inc.
- C. Wood Stakes: For trees under 10 feet (3.05 m) in height, straight, sound, rough sawn lumber not less than 2 x 2 inch (50 mm x 50 mm), if square, or 2-1/2 inch (62 mm) diameter, if round. Wire for staking shall be 12-gauge steel.
- D. Wire for Guying: Galvanized steel 1 x 19 preformed 3/16 inch (4.76 mm) diameter.
- E. Turnbuckles: Galvanized steel fitted with locking eyebolts.
- F. Deadman: Sound, rough sawn lumber 2 x 4 inch (50 mm x 100 mm) triangular galvanized steel plates, or other material approved by the Landscape Architect.
- G. Hose: High quality braided rubber hose, 3/4 inch (19 mm) diameter and suitable length, black in color.
- H. Polyethylene tie strapping may be used with 2 x 2 inch (50 mm x 50 mm) wood stakes.

2.12 ROOT CONTROL BARRIER (PHYSICAL)

- A. N/A

2.13 LANDSCAPE EDGING

- A. N/A

PART 3 - EXECUTION

3.1 APPROVAL OF EXISTING CONDITIONS

- A. Prior to commencing installation, the Contractor shall be responsible for immediately notifying the Landscape Architect if any existing site or job conditions are observed which would negatively affect the character of the finished work, its future performance, or that would in any way be to the detriment of job progress and completion. If unobservable, substandard or unacceptable conditions are encountered during the course of work, the Contractor shall alert the Landscape Architect.

3.2 PLANT BED PREPARATION

- A. Loosen subgrade of planting areas to a minimum depth of 6". Remove stones larger than 1" in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

Spread on rough grade, a thoroughly blended planting media consisting of a combination of compost, topsoil, inorganic soil amendments and fertilizer, as recommended by soil test results.

Spread planting media to a depth of 18" but not less than required to meet finish grades after natural settlement.

Do not spread if planting media or subgrade is frozen, muddy, or excessively wet.

Finish grade (below mulch, after settling) for planted areas shall be 3½ inches (87 mm) below adjacent pavement surfaces.

Finish grade after settling for seeded areas shall be ½ inch (12 mm) below adjacent pavement surfaces and 1 inch (25 mm) for sodded areas.

- a. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Restore planting areas if eroded or disturbed after finish grading.
- b. Application of Mychorrhizal Fungi, if specified: Broadcast dry product uniformly over prepared soil at the application rate suggested by the manufacturer. Mychorrhizal fungi shall not be used on herbaceous materials or in compacted soils.

3.3 LAYOUT OF PLANTING AREAS

- A. Protect structures, utilities, sidewalks, pavements, other facilities, work by others, grassed areas, and existing plants from damage caused by planting operations. All damage caused by the Contractor or his work shall be the responsibility of the Contractor to repair or rectify at no additional cost to the Owner.
- B. Lay out individual tree and shrub locations and areas for multiple or mass plantings. Stake locations, outline plant bed areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before excavating or planting. Make subsequent adjustments as required.

3.4 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits with tapered sides. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit sheared or smoothed during excavation.

Excavate two times as wide as ball diameter.

Excavate at least 12 inches (300 mm) wider than root spread and deep enough to accommodate vertical roots for bare-root stock.

Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.

- c. Subsoil and topsoil removed from excavations may not be used as planting media.

3.5 WOODY PLANT INSTALLATION

- A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. **Remove excess soil from root ball to expose root flare as necessary.**

- d. Remove injured roots by cutting cleanly; do not break.
- e. Remove only dead, dying, or damaged branches. Pruning intent and procedure shall be reviewed with the Landscape Architect before proceeding.
- f. Set stock plumb and in center of planting pit or trench with root flare a maximum of 2 inches (50 mm) above adjacent finish grades.

Use planting media as specified in Part 2 for backfill.

Add fertilizer and soil amendments in accordance with soil test recommendations and per manufacturers' recommendations.

If specified, add mycorrhizal fungi per manufacturer's recommendations if not incorporated during plant bed preparation.

Add water absorbent crystals or granules to backfill at rates recommended by the product manufacturer.

Balled and Burlapped Plants: After placing some backfill around root ball to stabilize plant, carefully cut and remove all of the wire baskets and burlap, rope, ties, etc. from at least the top 2/3 of root balls without comprising the integrity of the root ball. Non-biodegradable wrappings and ties shall also be totally removed from root ball and plant pit.

Container-Grown Plants: Carefully remove root ball from container without damaging root ball or plant.

Fabric Bag-Grown Stock: Carefully remove root ball from fabric bag without damaging root ball or plant.

Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When plant pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.

Continue backfilling process. Form water saucer around perimeter of plant pits of trees and large shrubs. Water again after placing and tamping final layer of soil.

- g. Bare-Root Stock: Set and support bare-root stock in center of planting pit or trench with root a maximum of 2 inches (50 mm) above adjacent finish grade.

Use planting media as specified in Part 2 for backfill.

Add fertilizer and soil amendments in accordance with soil test recommendations and per manufacturers' recommendations.

If specified, add mycorrhizal fungi per manufacturer's recommendations if not incorporated during plant bed preparation.

Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots.

Continue backfilling process. Water again after placing and tamping final layer of soil.

- h. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.6 GROUND COVER AND HERBACEOUS PLANTS INSTALLATION

- A. Use planting media as specified in Part 2 for backfill.
- B. Excavate and place planting media to a depth of 18 inches. Add fertilizer and soil amendments as recommended by soils test, and per manufacturers' recommendations.
- C. If specified, add mycorrhizal fungi per manufacturer's recommendations if not incorporated during plant bed preparation.
 - a. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

3.7 MEADOW SEED MIX

- A. "New England Coastal Salt Tolerant Grass Mix" Amherst, MA www.newp.com
- B. Use planting media as specified in Part 2 for backfill.
- C. Excavate and place planting media to a depth of 6 inches. Preparation of a clean weed free seed bed is necessary for optimal results. Add fertilizer and soil amendments as recommended by soils test, and per manufacturers' recommendations. Fertilization is not required unless the soils are particularly infertile.
- D. Apply by mechanical spreader, or by hand. Lightly rake, or roll to ensure proper soil seed contact then apply weed free straw mulch.

E. Best results are obtained with a Spring seeding. If conditions are drier than usual, watering will be required. Late Fall and winter dormant seeding require an increase in the seeding rate.

3.8 TRANSPLANTING – GENERAL

- A. Condition: Deciduous trees 4-inch (100 mm) caliper and larger shall be moved by boxing, be balled and burlapped, or with a tree spade during dormant periods. Deciduous trees smaller than 4-inch caliper (100 mm) shall be moved balled and burlapped, or moved with a tree spade during dormant periods. The size of the tree spade shall be no less than 11 inches (275 mm) diameter per inch (25 mm) of tree caliper.
- B. Digging, Wrapping, and Handling: Plants shall be dug and prepared for moving in a manner that will not cause damage to branches, shape, root system, and development during storage.
- C. Balled and Burlapped Plants: Balls shall be firmly wrapped with burlap or approved cloth substitute. No balled plant will be acceptable if the ball is cracked or broken, or if the stem is loose in the ball, either before or during transplanting. Balled plants shall be lifted and handled from the bottom of the ball. Protect ball and deliver to the relocation site, plant immediately, and water thoroughly. Ball sizes shall be as recommended in ANSI Z60.1.
- D. Bare Root Plants: Plants shall be dug and prepared in such a manner as to provide optimum root mass. Material shall be dormant when dug and root systems shall be kept covered and moist at all times. Upon delivery to relocation site, plant immediately, and water thoroughly. Root spread shall be as recommended in ANSI Z60.1.

3.9 TRANSPLANTING WITH MECHANICAL TREE SPADE

- A. N/A

3.10 APPLICATION OF FERTILIZER

- A. Provide supplements at application rates as recommended by soil test reports from a qualified soil-testing laboratory.
- B. Fertilizer shall be applied when planting pits are backfilled two-thirds full. Fertilizer application shall be of the type, rate, and timing recommended by the testing agency for each plant type and in accordance with ANSI A300 (Part 2) standards for application.
- C. Slow-release fertilizer:
 - Fertilization schedule for trees and shrubs using slow release 4-ounce (118 ml) packet system shall be per manufacturer's recommendations.
 - Fertilizer packets shall be placed 6 to 8 inches (150 to 200 mm) deep below top of planting soil around root balls of plants. Packets shall be spaced evenly depending on the number of packets required.

3.11 MULCHING

- A. N/A

- B. Mulch surfaces of plant beds, plant water saucers, and other areas indicated.
 - 1. Trees and Shrubs in Grassed Areas: Create mulched rings 3 inches (75 mm) in depth to encompass plant pits, water saucers, and tree support systems (if applicable). Do not place mulch within 3 inches (75 mm) of trunks or stems. A continuous, linear mulched area shall be formed if plants are closely spaced to avoid grassed strips less than 2 feet (600 mm) wide or scallops of grass that are difficult to maintain.
 - 2. Organic Mulch in Planting Areas: Apply mulch to 3" in depth throughout planting area extending to bedline indicated in Drawings, and at least 12 inches (300 mm) beyond edge of individual plant pit or trench. Do not place mulch within 3 inches (75 mm) of trunks or stems. Finished surface of settled mulch shall be ½ -1 inches (6-12 mm) below adjacent pavement or curb surfaces and flush with adjacent grassed areas.

3.12 CHEMICAL APPLICATIONS

- A. In areas designated for plantings, remedial and preventative measures shall be taken well in advance of planting to eliminate competitive weed growth, to provide a weed-free and safe, non-toxic media for planting and as a finished landscape product.
- B. If necessary, a systemic post-emergent herbicide shall be applied to existing and emergent weeds in prepared planting beds.
- C. Pre-emergent herbicides are recommended for preventative use in areas not seeded.

3.13 FILTER FABRIC OR SOIL SEPARATION FABRIC

- A. Soil separation fabric shall be installed where indicated on the Drawings. Unless otherwise indicated on the Drawings, soil separation fabric shall be overlapped 6 inches (150 mm) along all edges.

3.14 TREE SUPPORT

- A. Trees shall not be staked or guyed except when absolutely necessary or under special conditions that warrant precautions be taken. Examples of special conditions that may pose a risk to public safety if trees were unsecured or unsupported include, and are not limited to:
 - 1. High winds
 - 2. Exceptional size and value
 - 3. Steep slope locations (on slopes exceeding 3 Horizontal:1 Vertical)
 - 4. High vandalism areas
- B. When warranted, each tree shall be staked, guyed, or stabilized immediately following planting and in accordance with ANSI A300 (Part 3) standards for guying.
- C. Root stabilization is preferred method, installed per manufacturer's instructions.
- D. Plants shall stand plumb after staking, guying, or stabilizing.
- E. Above-ground support systems shall be removed after one year if tree root system is established.

- F. Duckbill Tree Support Systems and Duckbill Root Ball Fixing Systems shall be installed in strict conformance with manufacturer's published installation instructions.

3.15 ROOT CONTROL BARRIER (PHYSICAL)

- A. Install in accordance with manufacturer's instructions in areas indicated in the Drawings.
- B. Do not install root barrier surrounding the root ball of tree.

3.16 LANDSCAPE EDGING

- A. N/A

3.17 MAINTENANCE OF PLANTINGS

- A. Maintenance shall begin immediately after each plant is planted and shall continue until Substantial Completion Acceptance. The Contractor shall provide water for irrigation if none is available on site.
- B. Note: Extend maintenance beyond Final Acceptance of Project if necessary to meet above requirements. Landscape Architect may withhold funds from Substantial and Final Completion payments as necessary to assure proper performance of maintenance operations.
- C. Maintenance required:
 - 1. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring water saucers, resetting to proper grade or vertical position, and performing other operations as required to establish healthy, viable plantings.
 - 2. Planting areas shall be kept free of weeds, grass, and other undesired vegetative growth.
 - 3. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of settling. Do not place mulch within 3 inches (75 mm) of trunks or stems. A continuous, linear mulched area shall be maintained between closely spaced plants to avoid grassed strips less than 2 feet (600 mm) wide or scallops of grass that are difficult to maintain.
 - 4. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use practices to minimize the use of chemicals and pesticides and reduce hazards.
 - 5. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

6. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings without additional cost to the Owner.
7. Prune, thin, and shape woody materials according to standard professional horticultural and arboricultural practices and in accordance with ANSI A300 (Part 3) Pruning Standards. Unless otherwise indicated by Landscape Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs. Prune to retain natural character.
8. Pruning shall be done with clean, sharp tools. Cuts shall be made at branch collars, leaving no stubs. No tree paint shall be used.

SECTION 651

EVERGREEN TREES

Amend Section 651 to include:

Cultivar specificity overrides genus and species as indicated on NHDOT Master Item List

Pay Item			Unit:
651.13 Juniperus virginiana	Red Cedar-Small	6-7'	EA
651.13 Juniperus virginiana	Red Cedar- Medium	7-8'	EA

SECTION 652 and 653

DECIDUOUS TREES

Amend Section 652 to include:

Cultivar specificity overrides genus and species as indicated on NHDOT Master Item List

Pay Item			Unit:
652.06 Acer Rubrum	Red Maple-Small	2" Cal.	EA
652.06 Acer Rubrum	Red Maple-Medium	3" Cal.	EA
652.061 Acer Rubrum 'October Glory'	Red Maple	4" Cal.	EA
652.17 Betula nigra	River Birch-Small	6-8' mix single/clump	EA
652.17 Betula nigra	River Birch-Medium	8-10' mix single/clump	EA
652.52 Nyssa sylvatica	Black Tupelo-Small	2" Cal.	EA
652.52 Nyssa sylvatica	Black Tupelo-Medium	3" Cal.	EA
652.691 Quercus borealis 'Rubra'	Red Oak	4" Cal.	EA
652.951 Tilia tomentosa 'Sterling Silver'	Silver Linden	4" Cal.	EA
653.97 Sophora japonica 'Regent'	Japanese Pagodatree	4" Cal.	EA
653.98 Ulmus parvifolia 'Allee'	Chinese Elm	4" Cal.	EA
655.02 Amelanchier Canadensis	Shadblow-Small	5-6' Clump	EA
655.02 Amelanchier Canadensis	Shadblow-Medium	8-10' Clump	A

SECTION 654

EVERGREEN SHRUBS

Amend Section 654 to include:

Cultivar specificity overrides genus and species as indicated on NHDOT Master Item List

Pay Item			Unit:
654.21 Ilex glabra	Inkberry Holly	#3 Cont.	EA
654.211 Ilex glabra 'Compacta'	Compact Inkberry Holly	#3 Cont.	EA
654.45 Juniperus virginiana 'Grey Owl'	Grey Owl Juniper	#3 Cont.	EA
656.02 Myrica pennsylvanica	Bayberry	#5 Cont.	EA

SECTION 655 and 656

DECIDUOUS SHRUBS

Amend Section 655 and 656 to include:

Cultivar specificity overrides genus and species as indicated on NHDOT Master Item List

Pay Item			Unit:
655.06 Aronia melanocarpa	Black Chokeberry	#3 Cont.	EACH
655.27 Clethra alnifolia	Summersweet	#3 Cont.	EACH
655.701 Fothergilla gardenii	Dwarf Fothergilla	#3 Cont.	EACH
655.702 Fothergilla major 'Mt. Airy'	Mount Airy Fothergilla	#3 Cont.	EACH
655.703 Fothergilla Major	Fothergilla Major	#5 Cont.	EACH
655.801 Ilex verticillata 'Winter Red'	Winter Red Winterberry	#3 Cont.	EACH
655.802 Ilex verticillata 'Jim Dandy'	Jim Dandy Winterberry	#3 Cont.	EACH
656.321 Rhus aromatica 'Grow low'	Grow-low Fragrant Sumac	#3 Cont.	EACH
656.42 Rosa rugosa 'Alba'	Beach Rose	#3 Cont.	EACH
656.73 Vaccinium corymbosum	Highbush blueberry	#3 Cont.	EACH
656.82 Viburnum dentatum	Viburnum dentatum	#5 Cont.	EACH
658.161 Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	#2 Cont.	EACH
658.311 Echinacea purpurea 'White Swan'	White Swan Echinacea	#2 Cont.	EACH
658.35 Eupatorium fistulosum	Joe Pye Weed	#2 Cont.	EACH
658.541 Liatris scariosa	Tall Gayfeather	#2 Cont.	EACH
658.791 Schizachyrium scoparium	Little Bluestem	#2 Cont.	EACH
658.858 Sporobolis heterolepsis	Prairie Dropseed	#2 Cont.	EACH
658.866 Symphyotrichum novae-angliae	New England Aster	#2 Cont.	EACH

Section 665 – Street Lights

Description

1.1 This work shall consist of furnishing and installing the specified lights throughout the project area. Lights include Bollard Lights along the Park paths, Kiosk down lighting under the roof of the Kiosk, Park Sign up lighting at the Park entrance signs, and single- and double- luminaire streetlights. The lighting shall be of the specified type at the locations shown on the project plans.

Materials

2.1 Materials for the various lighting styles and types are documented in the “Site Details” of the project plans.

Street Light: Black Decorative 25’ Belmont style concrete pole with flush baseplate, Powder coated Black K833 Solitaire LED pendant with deep dish lens, and KA72-T Single and Double Top Mounted Arm C/W Finial, or approved equal

Contractor shall submit shop drawings or manufacturer’s cut sheets on selected equipment prior to ordering.

It is the contractor’s responsibility to ensure the required anchor bolts and anchor bolt templates are acquired for foundation construction. **Set pole bases below grade in order to ensure base plate is hidden from view.**

Construction Requirements

3.1 Contractor to coordinate power source, electrical connection, conduit, wiring, electrical metering and load, junction boxes, installation hardware, and foundation and foundation design as appropriate for a complete and powered lighting system. All necessary power source, electrical connection, conduit, wiring, electrical metering and load, junction boxes, installation hardware, and foundation and foundation design as appropriate shall be subsidiary to the appropriate pay item.

Contractor will place junction boxes between conduit runs greater than 500 feet.

All wiring and electrical work shall conform to applicable NEC, NHDOT and City of Portsmouth electrical standards. It is the Contractor’s responsibility to ensure all codes are met, including the use of Professional Licensed Electricians as required.

Additional construction requirements shall be documented on the "Site Details" of the project plans.

Method of Measurement

4.1 Project Lights will be measured by the number of light fixtures of the specified style in the complete and accepted work.

Basis of Payment

5.1 Project Lights will be measured by the number of light fixtures of the specified style in the complete and accepted work.

5.1.1 Payment shall be full compensation for Contractor to coordinate power source, electrical connections, conduit, wiring, electrical metering and load, junction boxes, installation hardware, and foundation and foundation design as appropriate for a complete and powered lighting system.

5.1.2 Payment shall be full compensation for light pole, fixture, finial, arms, luminaires, and wiring for 665.17 Street Lighting Type A and 665.18 Street Lighting Type B. Conduit, wiring between fixtures, junction boxes, and meters shall be paid under separate items. Connections to an electrical meter and panel shall be subsidiary to Item 665.91 LIGHTING CABINET AND ELECTRICAL WORK FOR LIGHTING AND SERVICE.

Pay item	Unit:
665.17 – Street Lighting Type-A 25' Single Arm	EA
665.18 – Street Lighting Type-B 25' Double Arm	EA

SPECIAL PROVISION – Not a Standard NHDOT Specification

SECTION 665.91

LIGHTING CABINET AND ELECTRICAL WORK FOR LIGHTING AND SERVICE.

PART I – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings also apply to work of this section.
- B. The Contractor must be familiar with all other Sections of this specifications and the associated Drawings, which affect the scope of work. Where paragraphs of this Section conflict with similar paragraphs elsewhere, the more stringent requirements shall prevail.

1.02 DESCRIPTION OF WORK

- A. The Contractor shall furnish a complete finished product, which meets all applicable codes and standards, and the intent and specific requirements of the Drawings and specifications for this project. It is the intent of these specifications that the electrical system shall be suitable in every way for the service (and use) required. All materials and all work, which may be reasonably implied as being incidental to the work of this Section, shall be furnished at no extra cost to the Owner.
- B. As used in this Section, “*provide*” means “furnish and install”, “*furnish*” means “to purchase and deliver to the project site complete with every necessary appurtenance and support”, and “*install*” means “to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project”.
- C. Perform work and provide (furnish and install) material and equipment as shown on Drawings and as specified, or indicated, in this Section of the specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation. Drawings and specifications form complimentary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.
- D. Remove all debris caused by Contractors’ work.

- E. Provide demolition and relocation of existing electrical items as shown on the drawings.
- F. The work under this section shall require that the Contractor provide all labor, materials, equipment, tools, supplies and transportation involved in the installation of electrical equipment as specified.
- G. The work to be done under this contract generally includes, but is not limited to the following:

Electrical System

1. Provide new conduit and handhole system for outdoor electrical work, in locations as shown on Drawing. Provide precast concrete electric handholes in locations as shown and “Electric” logo on grey iron cover rated for H-20 loading.
2. Provide new light poles and concrete bases for new proposed lighting poles in locations and quantities as shown on Drawing. Foundations to be reinforced with conduits and bolt patterns as shown on Contract Drawings and/or as specified by the manufacturer.
3. Install new light poles, fixtures, along with necessary accessories in quantities and locations as shown on Contract Drawings. Provide bulbs (if necessary) in each fixture for a complete system.
4. Provide two (2) new NEMA 3R Electrical Cabinets for outdoor power on new cast-in-place or precast concrete foundations. Foundations to include reinforcement, conduit stubs and grounding, per local and NEC requirements. Provide cabinet with service entrance rated distribution panelboard (min. 10 space), lighting contactor with H/O/A switch, photocell(s), circuit breakers (as needed), outlet (one GFCI duplex inside), and other accessories as shown on Contract Drawings. **Cabinets to be black powder coated Milbank model CP3B type SL.**
5. Provide electrical feed for new outdoor Electrical Cabinets from utility as shown on Drawings, per Local Utility standard requirements. Service to be 100A, 120/240V single-phase, 3-wire. Routing as shown, or as required by NEC or local authorities. Obtain necessary electrical permits prior to starting conduit work. Provide new 100A utility service including all PSNH hookup fees.
6. Provide conduit and cabling for outdoor lighting between fixtures, handholes, Electrical Cabinet, and utility service. Cabling per panel schedules and as shown on Contract Drawings.

7. Conduits outside below grade to be PVC Schedule 40 or 80 or RGS if required by utility for service. Conduit sizes as indicated on Drawings or required by utility. Provide all necessary grounding, including ground rods at electrical cabinet location and at each light pole foundation as shown or if required by NEC or local authorities.
8. Provide startup services for new lighting system.
9. Provide other associated electrical equipment necessary for a complete system, shown, or implied in these Specifications and on Contract Drawings.
10. Coordinate with the City and local utility staff for new underground service to site, installation of new conduit, service and electrical requirements.

1.03 SITE VISIT

- A. Contractor shall visit the site of the proposed work and fully acquaint himself with the conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, and the difficulties and restrictions attending the performance of the Contract. The Contractor should thoroughly examine and familiarize himself with Drawing, Technical Specifications and all other Bid and Contract Documents. The Contractor, by the execution of the Contract, shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal document or to visit the site and acquaint himself with the conditions there existing and the Owner will be justified in rejecting any claim thereof.

1.04 AS-BUILT DRAWINGS:

- A. After completion of the electrical installation, the Contractor shall furnish an "as-built" drawings showing all conduits, cables, cabinets, transformers, light poles, etc. to scale with dimensions where required. Instruction sheets and parts lists covering all operating equipment will be bound into a folder and furnished to the Owner in duplicate.

1.05 INSTRUCTIONS:

- A. Within 10 days, after completion and testing of the system, the Contractor will instruct the Owner's personnel in the proper operations and maintenance of the system, in a 1/2 hour training session.

1.06 GUARANTEE

- A. Guarantee work of this Section in writing for one year from date of Owner's acceptance. Repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Owner's satisfaction and correct damage caused in making necessary repairs or replacements under guarantee with no extra cost to Owner. Contractor shall transfer all equipment warranties for all systems to Owner.

1.07 REFERENCE STANDARDS AND SPECIFICATIONS

- A. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and federal government, and other authorities that have lawful jurisdiction.
- B. All materials and installations shall be in accordance with the latest edition of the National Code, and all applicable local codes and ordinances. Materials and equipment shall be listed by Underwriters Laboratories (UL). Special Attention shall be paid to the latest edition of the following standards:

American National Standards Institute	ANSI
American Society for Testing & Materials	ASTM
Illuminating Engineering Society	IES
Institute of Electrical & Electronics Engineers	IEEE
Insulated Cable Engineers' Association	ICEA
National Electrical Code	NEC
National Electrical Manufacturer's Association	NEMA
National Electrical Safety Code	NESC
InterNational Electrical Testing Association	NETA
National Fire Protection Association	NFPA
Occupational Safety & Health Administration	OSHA
Underwriter's Laboratories, Inc.	UL

- C. The above listed codes and standards are referenced to establish minimum requirements and wherever this Section requires higher grades of materials and workmanship than required by the listed codes and standards, this Section shall apply. In the event a conflict occurs between the above listed codes and standards and this Section, the more stringent requirement shall govern.

1.08 SUBMITTALS

- A. Within 10 days after Award of Contract, submit shop drawings and product data on below listed items for approval by the City. Submit copies as requested.

- B. Check, stamp and mark with project name shop drawings and product data before submitting for approval. Specifically indicate on shop drawing transmittal form, or by separate letter any deviations from Contract Documents because of standard shop practice or other reason. Rectify with no extra cost to Owner, deviations which escape Engineer's scrutiny and have not been indicated on shop drawings.
- C. List of materials and equipment requiring shop drawings shall include:
 - 1. Conduits and Wiring
 - 2. Service Cabinet and Equipment
 - 3. Circuit Breakers
 - 4. Concrete Products and Light Bases
 - 5. Handholes & Manholes
 - 6. Lighting Contactors
 - 7. Receptacles and covers
 - 8. Grounding materials
- D. The Engineer's review shall be only for conformance with the design concept of the project and compliance with the specifications and Drawings. The responsibility of, and the necessity of, furnishing materials and workmanship required by the specifications and Drawings which may not be indicated on the shop drawings is included under the work of this Section.
- E. The Contractor shall furnish at least two (2) complete sets of operating and instruction manuals for the equipment provided under this Contract. These manuals shall detail the operation, testing, and maintenance of the electrical equipment and systems. Manuals shall be provided upon Engineer's request or upon project completion, whichever comes first.

1.09 INSPECTIONS AND FEES

- A. Obtain all necessary permits and licenses, file necessary plans and pay all fees for permits and inspections. Permit fees will not be charged by the City, any other permits required are the responsibility of the Contractor as part of his bid, as is all coordination with the local utility. Contractor is also responsible for obtaining any site-specific utility requirements for this project prior to the start of construction and notifying local utility for all inspections prior to backfilling, etc.

1.10 INTERPRETATION OF DRAWINGS

- A. Drawings are diagrammatic and indicate general arrangement of systems and work included in Contract. Drawings are not intended to specify or show every offset, fitting or component; however, Contract Documents require components

and materials whether or not indicated or specified as necessary to make installation complete and operational.

- B. Any work installed contrary to, or without review by, the Engineer shall be subject to change as directed by the Engineer, and no extra compensation will be allowed for making these changes.
- C. Circuit layouts are not intended to show the number of fittings, or other installation details. Additional circuits shall be installed wherever needed to conform to the specific requirements of the equipment or local codes.
- D. As work progresses and for duration of Contract, maintain complete and separate set of prints of Contract Drawings at job site at all times. Record work completed and all changes from original Contract Drawings clearly and accurately, including work installed as a modification or addition to the original design.

1.11 ELECTRIC UTILITY

- A. All coordination with the Electric Utility is the responsibility of the Contractor. All work and materials for the electric service shall be in accordance with the requirements of the Electric Utility, and are to be met under this Section and included in the bid price of the Contractor.

PART II – MATERIALS & PRODUCTS

2.01 GENERAL

- A. Materials and products furnished shall be designed for the intended use, shall meet all requirements of the latest edition of the National Electric Code (NEC), and all local codes.
- B. Materials shall be manufactured in accordance with the standards indicated in this Section, and typical industry standards and codes for the products specified. Materials and equipment shall be Underwriter's Laboratory (UL) listed.
- C. The materials used shall be new, unused, and of the best quality for the intended use. All equipment shall have the manufacturer's name, address, model or type designation, serial number and all applicable ratings clearly marked thereon in a location which can be readily observed after installation. The required information should be marked on durable nameplates that are permanently fastened to the equipment.
- D. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. Electrical equipment shall not be stored outside exposed to the elements. If any equipment or apparatus is

damaged, such damage shall be repaired at no additional cost, or replaced at no additional cost as directed by the Engineer.

2.02 RACEWAYS

- A. Rigid Metallic Conduit: UL6 and ANSI C80.1.
- B. Polyvinyl Chloride (PVC) Conduit, electrical, gray, Schedule 40 or 80 as specified, meeting the requirements of UL 651 and NEMA TC-2. If concrete encasement is required, a minimum of 3,000 psi concrete shall be used. All conduits placed under roadways, and subject to vehicular traffic, shall be Schedule 80.
- C. Minimum size of conduit shall be 2". Unless indicated on Drawings, conduit sizes can be sized in accordance with National Electric Code (NEC). Conduit bends shall not have kinks or flats, and shall not be less than standard radii.
- D. Rigid Galvanized Steel (RGS) conduit shall be used for all entry and exit into concrete pads and at riser poles as required by Eversource, with ground bushings connected to new grounding with minimum #4Awg ground wire for conduit grounding bushings.
- E. Conduits shall be made electrically continuous at coupling and connections to boxes and cabinets by means of joining fasteners or copper bond wires. Conduit shall be connected to grounded structural steel or the ground network. After assembly all conduit locknuts, all EMT coupling fittings, and all bond wire screws shall be set up tight before installation of wiring. Insulated metallic bushings shall be used on all conduits entering panel cabinets, pull-boxes, and wiring gutters, except on branch lighting circuits.
- F. Expansion fittings shall be provided on all conduits as required by the National Electrical Code, and as required by local and state codes. This includes, but is not limited to, vertical conduit risers coming from below-grade.

2.03 WIRE AND CABLE

- A. Unless otherwise noted, conductors for power, lighting, and grounding *above grade* shall be No. 12 through No. 8 AWG, NEC type THWN/THHN, meeting the requirements of UL 83. Conductors for power and lighting shall be no smaller than No. 12 AWG.

- B. Conductors for power, lighting, grounding, and control *below grade* (and in wet locations) shall be No. 8 AWG or larger, NEC type XHHW (or XHHW-2), meeting the requirements of NEMA WC7 and ICEA S-66-524.
- C. All conductors shall be annealed copper, 98% conductivity, Class B stranded. All conductors should be rated for 600 volts or less, with a thermal rating of 90° C.
- D. The outside covering of all wiring for power, lighting, grounding, and control uses shall be color coded to identify polarity.

2.04 WIRE AND CABLE CONNECTORS AND DEVICES

- A. Wire and cable connectors and devices shall meet the requirements of UL 486. Connectors, including miscellaneous nuts, bolts, and washers shall be silicon bronze. Ferrous materials shall not be used. All connectors below grade shall be water-proof secondary type, gel-filled, bolted submersible connectors (gel-port style). No “wire-nuts” are allowed to be used below grade.

2.05 BOXES

- A. Outlet and Switch Boxes: NEMA OS 1.
- B. Pull Boxes, Junction Boxes, and Equipment Enclosures: NEMA ICS 6.
- C. Pull boxes, junction boxes, and equipment enclosures shall be of NEMA Type 1 construction for indoor use, and NEMA Type 3R construction for outdoor or wet location use, unless otherwise noted.
- D. Box sizes shall not be less than that required by the National Electrical Code.

2.06 WIRING DEVICES

- A. Wiring Devices: NEMA WD 1.
- B. Wiring devices for shall be specification grade, 20 ampere, gray with Type 302 stainless steel plates. Ground fault current interrupting (GFCI) devices shall be provided where specified and/or required by applicable codes.

2.07 PANELBOARDS

- A. Panelboards: NEMA PB1, and UL 67.

2.08 WARNING TAPE

- A. Warning tape shall be six (6) inches wide, polyethylene not less than 3.5 mil thick with a minimum strength of 1,500 psi. Install 8 inches below final grade. Tape shall be red for electric conduit, and red or yellow for communication conduit. Tape shall have black lettering on two lines as indicated below:
- B. For Electric conduit:

CAUTION CAUTION CAUTION
BURIED ELECTRIC LINE BELOW

2.09 ELECTRIC HANDHOLES

- A. Electric Handholes are to be precast concrete as required by utility company. Handhole size as required by utility company.
- B. Handholes shall be provided with skid-resistant cast iron surface covers, with an “Electric” logo. Handholes and Covers shall be design for street-rated, heavy duty applications, meeting the requirements of the either: AASHTO HS-20 loading, with a minimum design load of 15,000 lbs for both the handhole box and cover. . Handholes shall meet the requirements of the latest edition of the National Electric Code (2008 or later) with regards to structural integrity, installation methods, grounding of the cover and metallic parts, etc.
- C. A layer of 6-inches of crushed rock shall be installed below and in the bottom of each handhole to assist with drainage, and this compacted gravel base material shall extend out beyond the sidewalls of the handhole. Conduits shall sweep up and be at least 4-inches above top of crushed rock layer.

2.10 ELECTRICAL CABINET

- A. Provide two (2) outdoor NEMA 3R powder coated black outside, white inside Milbank CP#B cabinet, to contain 100A 1-phase, 3-wire, 120/240V panelboard and associated electrical equipment, etc. Cabinet and equipment components shall be UL listed. Integral locking mechanism, with provision for pad-lock. Cabinets shall be ventilated type. Utility electric meter to be mounted inside of this cabinet.
- B. Contractor to coordinate with sizes of equipment to be installed within cabinets, including panelboard. Dimensions shown are typical and are for reference only. Cabinet to allow installation and removal of all electrical equipment with no interference between equipment. All equipment doors shall open 90 degrees. Electrical Cabinet doors to be provided with stay-open door catches. Contractor is responsible for coordinating size of this equipment prior to submitting Electrical Cabinet for approval.

2.11 CAST-IN-PLACE CONCRETE FOUNDATION

- A. Provide the materials, labor and equipment necessary for the installation of the following cast-in place concrete foundations, in accordance with these Specifications, Contract Drawings, Utility & City requirements and all applicable codes & regulations.

Electrical Cabinet Foundation: complete with reinforcing rebar, ground rods, grounding connectors, conduit entrances, etc. as shown and as directed by Owner or Engineer. Contractor responsible for coordinating foundation dimensions to be 6-inches wider than cabinet base dimensions, on all four sides. Cabinet grounding to include a buried loop on all four sides, connected to the two buried ground rods as shown. Foundation shall be 6” above finish grade and 30” deep below grade.

- B. Foundations shall be built with 4,000 psi. Class AA concrete, on a base of crushed gravel and sand, as shown.
- C. Reinforcing rod to be #3 or #4 (as shown) grade 60 bars and shall conform to ASTM A-615 (latest revision). Reinforcing rods shall not be installed any closer than 2” from the face of the concrete.
- D. Provide grounding in the form of one (1) 5/8” diameter x 8’-0” long copperweld ground rod for each foundation, connected with a loop of #1/0Awg bare copper stranded ground wire (as shown), leaving a 3 foot long tail to ground the enclosure, transformers, etc. Buried loop for Electrical Cabinet to be buried approx. 6-8” below finished grade, offset approximately 12-inches from the edge of concrete foundation on all four sides.

2.12 FOUNDATIONS FOR LIGHTING POLES

- A. Provide approved cast-in-place foundations, and other devices as necessary and as required.
- B. Foundations for light poles shall be as shown on Drawings or as specified by the manufacturer, including number, type and location of anchor bolts. Foundations shall be made of minimum 4,000 psi concrete (at 28 days) and have steel reinforcement meeting ASTM A-615, grade 60 (cover to steel, 1” minimum). Foundations shall have 2-2” conduits for lighting circuits, 180 degrees apart. Foundations to be installed with the top of the concrete below final grade to hide the base plate of the poles. Conduits to be flush with top of concrete to not interfere with anchor bolts or pole base.

2.13 LIGHTING

Install light poles and fixtures in quantities and locations as shown on the drawings.

2.14 LIGHTING CONTACTOR

- A. Lighting contactor with H/O/A switch to be in Electrical Cabinet. Feed to contactor shall be from photo-control, to be mounted on outside of Electrical Cabinet.

PART III – EXECUTION

3.01 GENERAL

- A. This Section covers the requirements for installation of materials, proper workmanship, testing, cleaning, grounding, and work methods to be followed by the Contractor. This Section also includes specific instructions and to be used in conjunction with the contract Drawings. Any discrepancies noted between the specification, Drawings, and actual installation shall be reported immediately to the Owner, Engineer, and Architect. Failure on the part of the Contractor to report discrepancies immediately will be considered negligent and Contractor will be responsible for correcting actions at no cost to Owner.
- B. Contractor is responsible for coordinating work with other trades, Owner, and Architect's schedule. Work will be coordinated such that systems can be properly located, and conflicts and delays are avoided. Contractor shall consider commencement of work acceptance of existing conditions.

3.02 MATERIALS AND WORKMANSHIP

- A. Work shall be executed in workmanlike manner and shall present neat, rectilinear and mechanical appearance when completed. Do not run raceway exposed unless shown exposed on Drawings. Material and equipment shall be new and installed according to manufacturer's recommended best practice so that complete installation shall operate safely and efficiently.

3.03 CONTINUITY OF SERVICES

- A. Do not interrupt existing services without Owner's, Utilities, or Engineer's approvals.

3.04 TESTING, INSPECTION AND CLEANING

- A. Insulation resistance between conductors and grounds for secondary distribution systems shall meet National Electrical Code (NEC) and interNational Electrical Testing Association (NETA) requirements.

- B. Verify and correct as necessary: voltages, tap settings, trip settings and phasing on equipment from secondary distribution system to point of use. Test secondary voltages at transformers, bus in panelboards, and at other locations on distribution systems as necessary. Test secondary voltages under no-load and full-load conditions.
- C. Test lighting fixtures with specified lamps in place for 100 hours. Replace lamps that fail within 90 days after acceptance by Owner at no extra cost to Owner (no exceptions).
- D. Provide necessary testing equipment and testing services.
- E. Failures or defects in workmanship or materials revealed by tests or inspection shall be corrected promptly and retested. Replace defective material.
- F. Clean panels and other equipment. Panelboard interiors shall be cleaned and vacuumed. Equipment with damage to painted finish shall be repaired to Engineer's or Architect's satisfaction. After completion of project, clean exterior surfaces of electrical equipment.

3.05 WIRING METHODS

- A. Install wire and cables in approved raceways as specified and as approved by authorities that have jurisdiction.
- B. Follow homerun circuit numbers and/or notes as shown on Drawings to connect circuits to panelboards. Where homerun circuit numbers are not shown on Drawings, divide similar types of connected loads among phase buses so that currents are approximately equal in normal usage.
- C. Run concealed conduit in as direct lines as possible with a minimum number of bends of longest possible radius. Run exposed conduit parallel to or at right angles to building/field lines. Bends shall be free from dents or flattening. The exact locations and routing of conduit shall be determined by the Contractor subject to the approval of the Owner and Engineer.
- D. Polarity of all electrical connections shall be observed in order to preserve phase relationship in all feeders and equipment.
- E. Splices shall be made in neat, workmanlike manner using approved mechanical connectors. After splicing, insulation equal to that on the spliced wires shall be applied at each splice. Splices are permitted only in junction boxes, outlet boxes, or other permanently accessible locations. Splices installed in

electric handholes shall be weather and waterproof, pre-molded polymer splices. Hand taping of splices below-grade is not acceptable.

3.06 GROUNDING

- A. Bond and ground equipment and systems connected under this Section in accordance with standards of the NEC and other applicable regulations and codes.
- B. Conduit system shall be electrically continuous throughout, grounded at service entrance. Equipment frames, enclosures, boxes, etc. shall be grounded by use of green-jacketed (or bare copper) ground, sized as per Table 250-95 of the NEC.
- C. Green bonding jumper shall be installed in flexible conduits.
- D. Copper fittings for ground connections shall conform to the requirements of ASTM B 30. All bolts, u-bolts, cap screws, nuts, and lock washers for copper fitting shall be of approved corrosion-resisting material. Compression connectors required for all below-grade grounding connections. Exothermic (cad-weld) connectors are also acceptable for use below grade. The use of bolted grounding and ground rod connectors below grade is not acceptable.
- E. Ground Rods shall be 5/8" diameter and 8' in length, copperweld as required by applicable codes (NEC, NESC). Bonding connections to ground rods shall be permanent, welded or crimped, with copper connectors. All wire used for grounding shall be no smaller than #4 Awg copper, stranded conductor. Contractor shall bond all meter enclosure cabinets, meter sockets, safety disconnects, conduit grounding bushes, etc. .

3.07 INSTALLATION OF LIGHTING FIXTURES

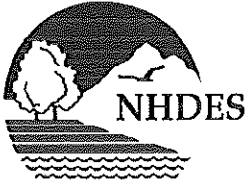
- A. Verify construction of light pole foundations is suitable, and provide fixtures, poles, hardware, and other accessories suitable for construction encountered.
- B. Install Lighting System, as specified elsewhere in this Specification. Ground pole steel/aluminum to power system grounding conductor at each pole location, per NEC.
- C. Coordinate installation of fixtures with installation of surrounding materials and landscaping (if applicable). Investigate lighting fixture locations and foundation supports to ensure that no interference exists between lighting fixtures, supports, and other equipment including that provided by other trades. Report any possible interference's to the Engineer.

3.08 EXECUTION – INSTALLATION OF ELECTRICAL EQUIPMENT

- A. Contractor to Provide (furnish & install) all items as indicated as Contractor-furnished and install all items, and all necessary minor and expected accessories.
- B. Contractor to meet with local wiring inspector prior to the start of any work and obtain any local site requirements and restrictions, which must be followed. Contractor shall also meet with local utility, any other Town/City officials, as directed by Owner and wire inspector, prior to the start of work, or ordering of materials. Failure to meet with the local officials and utility prior to ordering materials and start of construction will be considered negligent and all necessary corrections resulting from this failure will be at no cost to Owner.
- C. Provide, furnish and install all products and work outlined in Paragraph 1.02.G of this Specification Section.
- D. Provide all grounding of electrical cabinet installations and lighting. Grounding to be installed per installation details and National Electrical Code.
- E. Balance the lighting, receptacle and electrical load evenly on all circuits and on all phases of each circuit. Add additional circuits as necessary to balance loads.
- F. Provide new handholes and conduit system for lighting and electrical work, in locations as shown on Contract Drawings and as required.
- G. Install all equipment in locations as shown on Contract Drawings. All deviations must be approved, in advance by Owner and Engineer.
- H. Install all equipment per manufacturer's instructions.
- I. Provide complete "As-Built" drawings to Engineer & Owner.

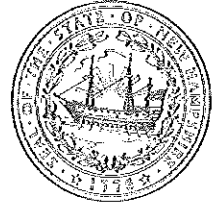
END OF SECTION

APPENDIX



The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner



October 15, 2015

City of Portsmouth
c/o John Bohenko
1 Junkins Ave.
Portsmouth, NH 03801

RE: NHDES Wetlands File # 2015-00046 City of Portsmouth –Market Street Gateway – Portsmouth Tax Map/Lot # ROW

Dear Mr. Bohenkoh:

Attached please find Wetlands Permit # 2015-00046 to temporarily impact approximately 129,876 sq. ft. of the undeveloped upland tidal buffer zone to remove invasive species, regrade old fill, and replant with native species as restoration/enhancement of buffer zone integrity; permanently impact approximately 27,800 sq. ft. to construct a bike path and grass park area, as part of the Market Street Gateway project. Impact 480 sq. ft. of tidal wetlands for repair of six (6) existing outfalls as part of the storm water improvement portion of the project.

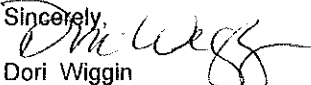
The decision to approve this application was based on the following findings:

1. This is a major impact project per Administrative Rule Env-Wt 303.02(b), projects within 100' of the highest observable tide line that alter or disturb undeveloped upland tidal buffer zone, with respect to the work in the upland tidal buffer zone; and classified as minimum impact per Env-Wt 303.04(x), relative to the repair in-kind of existing outfalls.
2. The need for the proposed impacts has been demonstrated by the applicant per Env-Wt 302.01. The project is part of an overall upgrade of an important City roadway access point, and includes stormwater improvements, pedestrian and vehicular transportation improvements, as well as transformation of tidal buffer areas currently dominated by invasive plant species growing on historic fill, into pedestrian/park areas with a significant buffer zone native vegetative restoration/enhancement component.
3. The applicant has provided evidence which demonstrates that this proposal is the alternative with the least adverse impact to areas and environments under the department's jurisdiction per Env-Wt 302.03. The project will provide a substantial improvement to tidal buffer zone vegetative quality and functional integrity, and will remove 5,415 square feet of impervious surface from the tidal buffer zone adjacent to tidal surface waters.
4. Relative to Chapter Env-Wt 800, the project is found to be self-mitigating in that the extensive removal of 10+ various invasive species and restoration of native vegetation within the degraded tidal buffer zone adequately compensates for the limited amount of permanent impacts in the form of bike path and park amenities, such as the existing grassed areas that will be regraded and maintained as grass.
5. The applicant has demonstrated by plan and example that each factor listed in Env-Wt 302.04(a) and (c), Requirements for Application Evaluation, has been considered in the design of the project. No species of concern were reported by the NH Natural Heritage Bureau as occurring in the project area.
6. The Portsmouth Conservation Commission did not report.
7. In accordance with RSA 482-A:8, DES finds that the requirements for a public hearing do not apply as the permitted project is not of substantial public interest, and will not have a significant impact on or adversely affect the values of the tidal buffer zone resource, as identified under RSA 482-A:1.

Any person aggrieved by this decision may appeal to the N.H. Wetlands Council ("Council") by filing an appeal that meets the requirements specified in RSA 482-A:10, RSA 21-O:14, and the rules adopted by the Council, Env-WtC 100-200. The appeal must be filed **directly with the Council within 30 days** of the date of this decision and must set forth fully **every ground** upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at <http://nhec.nh.gov/> (or more directly at <http://nhec.nh.gov/wetlands/index.htm>.) Copies of the rules also are available from the DES Public Information Center at (603) 271-2975.

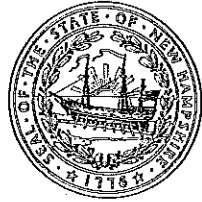
Your permit must be signed, and a copy must be posted in a prominent location on site during construction. If you have any questions, please contact me at the Pease District Office at (603) 559-1507.

Sincerely,

Dori Wiggin
East Region Supervisor
DES Wetlands Bureau

cc: Portsmouth Conservation Commission
Portsmouth Municipal Clerk
Normandeau Associates



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

NOTICE TO RECIPIENTS OF MAJOR IMPACT N.H. WETLANDS PERMITS

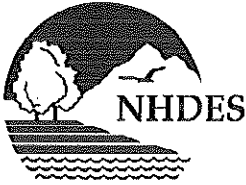
Your permit was approved by the New Hampshire Wetlands Bureau as a major impact project, and your project will be reviewed by the U.S. Army Corps. Of Engineers for possible approval under the Army Corps. New Hampshire State Programmatic General Permit- SPGP. The Army Corps. will notify you within thirty (30) days as to whether you qualify.

*****NO WORK SHOULD BE DONE IN*****
*****WETLANDS UNTIL YOU RECEIVE THAT NOTICE*****

IF YOU DO NOT HEAR FROM THE ARMY CORPS WITHIN THIRTY (30) DAYS,
YOU SHOULD CALL THEM AT 1-800-343-4789.

THIS NOTICE WAS SENT WITH MAJOR IMPACT PERMIT # 2015-46 ON 10-15-15 BY DACO

CC: U.S. ARMY CORPS. OF ENGINEERS



The State of New Hampshire

Department of Environmental Services

Thomas S. Burack, Commissioner



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WETLANDS AND NON-SITE SPECIFIC PERMIT 2015-00046

Permittee: City of Portsmouth
c/o John Bohenko
1 Junkins Ave.
Portsmouth, NH 03801

Project Location: Market Street, Portsmouth
Portsmouth Tax Map/Lot No. ROW / ROW

Waterbody: Piscataqua River & North Mill Pond

NOTE -- CONDITIONS

APPROVAL DATE: 10/15/2015

EXPIRATION DATE: 10/15/2020

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Based upon review of the above referenced application, in accordance with RSA 482-A and RSA 485-A:17, a Wetlands Permit and Non-Site Specific Permit was issued. This permit shall not be considered valid unless signed as specified below.

PERMIT DESCRIPTION: Temporarily impact approximately 129,876 sq. ft. of the undeveloped upland tidal buffer zone to remove invasive species, regrade old fill, and replant with native species as restoration/enhancement of buffer zone integrity; permanently impact approximately 27,800 sq. ft. to construct a bike path and grass park area, as part of the Market Street Gateway project. Impact 480 sq. ft. of tidal wetlands for repair of 6 existing outfalls as part of the stormwater improvement portion of the project.

THIS APPROVAL IS SUBJECT TO THE FOLLOWING PROJECT SPECIFIC CONDITIONS:

1. All work shall be in accordance with revised plans by RSG dated 5/8/2015, as received by the NH Department of Environmental Services (DES) on 6/19/2015.
2. This permit is not valid unless an Alteration of Terrain permit or other method of compliance with RSA 485-A:17 and Env-Wq 1500 is achieved.
3. This permit is further contingent upon execution of approved mitigation "Market Street Gateway Mitigation Plan" by Normandeau Associates dated June 12, 2015, with the following requirements:
 - a. The Plan shall be initiated concurrent with the project facility construction;
 - b. Initial report documenting the first season's activities shall be submitted no later than October 1;
 - c. A second report shall be submitted following the next season no later than October 1 of the second year;
 - d. A plan for long-term success and monitoring shall be submitted to DES at the end of the second year for review and approval.
4. Orange construction fence shall be installed around permitted impact areas to avoid activities expanding into unintended areas, and in further accordance with specific requirement relative to threatened species protection stated below.
5. Appropriate siltation and erosion controls shall be in place prior to construction, shall be maintained during construction, and shall remain until the area is stabilized. Temporary controls shall be removed once the area has been stabilized.
6. Any further alteration of areas on this property that are subject to RSA 482-A jurisdiction will require a new application and further permitting.
7. All development activities associated with this project shall be conducted in compliance with applicable requirements of RSA 483-B and N.H. Code Admin. Rules Env-Wq 1400 during and after construction.
8. No person undertaking any activity shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards in RSA 485-A and Env-Wq 1700.
9. Erosion control products shall be installed per manufacturers recommended specifications.
10. The contractor responsible for completion of the work shall use techniques described in the New Hampshire Stormwater Manual, Volume 3, Erosion and Sediment Controls During Construction (December 2008).
11. No concrete is to be used anywhere in the construction of the stone riprap revetment. All stone shall be dry laid or placed stone underlain with filter fabric.
12. All temporary impacts shall be remediated back to natural contours and stabilized with native seed mix, as well as planted according to the approved landscape plan immediately upon completion of project construction use of the site.

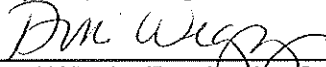
www.des.nh.gov

29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095
(603) 271-3503 • TDD Access: Relay NH 1-800-735-2964

- 13. A report documenting such restoration shall be submitted to DES within 30 days of the restoration activities being completed.
- 14. Construction equipment shall be inspected daily for leaking fuel, oil, and hydraulic fluid prior to entering surface waters or wetlands or operating in an area where such fluids could reach groundwater, surface waters, or wetlands.
- 15. The permittee's contractor shall maintain appropriate oil/diesel fuel spill kits on site that are readily accessible at all times during construction, and shall train each operator in the use of the kits.
- 16. All refueling of equipment shall occur outside of surface waters or wetlands during construction. Machinery shall be staged and refueled in upland areas only.
- 17. Faulty equipment shall be repaired immediately prior to entering areas that are subject to RSA 482-A jurisdiction.

GENERAL CONDITIONS THAT APPLY TO ALL DES WETLANDS PERMITS:

- 1. A copy of this permit shall be posted on site during construction in a prominent location visible to inspecting personnel;
- 2. This permit does not convey a property right, nor authorize any injury to property of others, nor invasion of rights of others;
- 3. The Wetlands Bureau shall be notified upon completion of work;
- 4. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits, and/or consult with other agencies as may be required (including US EPA, US Army Corps of Engineers, NH Department of Transportation, NH Division of Historical Resources (NH Department of Cultural Resources), NHDES-Alteration of Terrain, etc.);
- 5. Transfer of this permit to a new owner shall require notification to and approval by DES;
- 6. This project has been screened for potential impacts to **known** occurrences of rare species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or have received only cursory inventories, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species.
- 7. Review enclosed sheet for status of the US Army Corps of Engineers' federal wetlands permit.

APPROVED: 
 Dori Wiggin, East Region Supervisor
 DES Wetlands Bureau

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BY SIGNING BELOW I HEREBY CERTIFY THAT I HAVE FULLY READ THIS PERMIT AND AGREE TO ABIDE BY ALL PERMIT CONDITIONS.

 OWNER'S SIGNATURE (required)

 CONTRACTOR'S SIGNATURE (required)



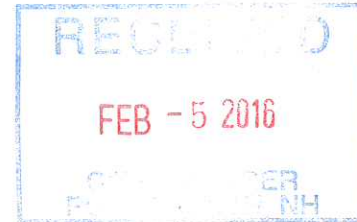
REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

January 27, 2016

Regulatory Division
CENAE-R-PEC
Permit Number: NAE-2015-00267

City of Portsmouth
c/o John Bohenko
1 Junkins Ave.
Portsmouth, New Hampshire 03801



Dear Applicant:

This is to inform you that we have reviewed your application to conduct activities as described on the attached NH State Permit 2015-00046, dated 10/15/2015.

Based on the information you provided to the New Hampshire Wetlands Bureau, we have determined that your project, which includes a discharge of dredged or fill material into waters or wetlands, will have only minimal individual or cumulative environmental impacts on waters of the United States, including wetlands. Therefore, this work is authorized under the attached Federal permit known as the New Hampshire Programmatic General Permit (PGP). This work must be performed in accordance with the terms and conditions of the PGP and the following special condition:

Special Condition 1: Tree clearing work to complete the work authorized herein shall not be conducted during the time of year (TOY) restriction of April 15 to August 31 in order to minimize adverse impacts to the Northern Long Eared Bat.

You are responsible for complying with all of the PGP's requirements. Please review the attached PGP carefully to familiarize yourself with its contents. You should ensure that whoever does the work fully understands the requirements and that a copy of the permit document is at the project site throughout the time the work is underway. A copy of the PGP can also be found at http://www.nae.usace.army.mil/Regulatory/SGP/NH_PGP.pdf.

This authorization expires on August 3, 2017 unless the PGP is modified, suspended, or revoked before that. You must complete the work authorized herein by that date. If you do not, you must contact this office to determine the need for further authorization before continuing the activity. We recommend that you contact us *before* this authorization expires to discuss a time extension or reissuance of the authorization.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This authorization requires you to complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to this office.

This permit does not obviate the need to obtain other Federal, state or local authorizations required by law, including those listed in the PGP. Performing work not specifically authorized by this determination or failing to comply with all the terms and conditions of the PGP may subject you to the enforcement provisions of Corps regulations.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://www.nae.usace.army.mil/reg/Customer_Service_Survey.pdf.

If you have questions concerning this, please contact Richard Kristoff of my staff at (978) 318-8171, (978) 318-8335/8338, (800) 343-4789, or, if calling from within Massachusetts, (800) 362-4367.

Sincerely,


Frank J. DelGiudice
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures

Copies Furnished:

New Hampshire Department of Environmental Services, Wetlands Bureau, Attn: Mr. Collis Adams, P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095

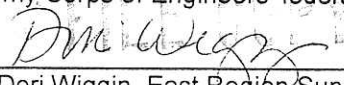
Viki Chase, Environmental Analyst, Normandeau Associated, Inc., 25 Nashua Road, Bedford, New Hampshire 03110, vchase@normandeau.com

13. A report documenting such restoration shall be submitted to DES within 30 days of the restoration activities being completed.
14. Construction equipment shall be inspected daily for leaking fuel, oil, and hydraulic fluid prior to entering surface waters or wetlands or operating in an area where such fluids could reach groundwater, surface waters, or wetlands.
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16. All refueling of equipment shall occur outside of surface waters or wetlands during construction. Machinery shall be staged and refueled in upland areas only.
17. Faulty equipment shall be repaired immediately prior to entering areas that are subject to RSA 482-A jurisdiction.

GENERAL CONDITIONS THAT APPLY TO ALL DES WETLANDS PERMITS:

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3. The Wetlands Bureau shall be notified upon completion of work;
4. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits, and/or consult with other agencies as may be required (including US EPA, US Army Corps of Engineers, NH Department of Transportation, NH Division of Historical Resources (NH Department of Cultural Resources), NHDES-Alteration of Terrain, etc.);
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7. Review enclosed sheet for status of the US Army Corps of Engineers' federal wetlands permit.

APPROVED: _____

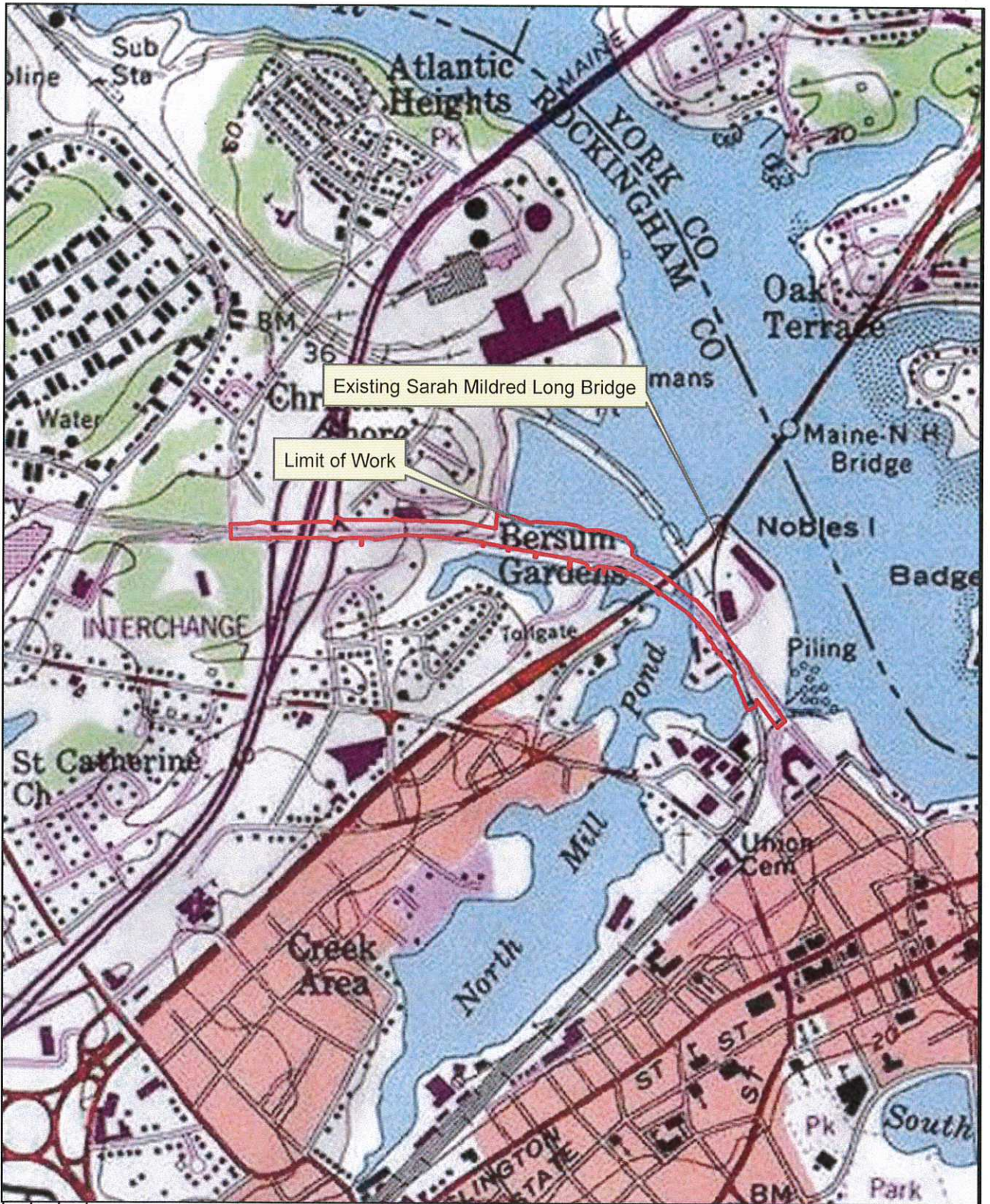

Dori Wiggin, East Region Supervisor
DES Wetlands Bureau

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BY SIGNING BELOW I HEREBY CERTIFY THAT I HAVE FULLY READ THIS PERMIT AND AGREE TO ABIDE BY ALL PERMIT CONDITIONS.

OWNER'S SIGNATURE (required)

CONTRACTOR'S SIGNATURE (required)



Date : 11/30/2015 Drawn By: vchase Project No: 23300.000	N 	0 500 1,000 2,000 Feet 1 inch equals 1,000 feet
		CITY OF PORTSMOUTH PORTSMOUTH, NEW HAMPSHIRE MARKET STREET GATEWAY IMPROVEMENTS
FIGURE 1 - PROJECT AREA		
SCALE: 1:12,000	 NORMANDEAU environmental consultants 25 Nashua Road Bedford, NH 03110 (603) 472-5191 www.normandeau.com	NOVEMBER 2015

INDEX OF SHEETS
 G-01 TITLE SHEET
 W-01 - W-08 WETLAND IMPACT PLANS

MARKET STREET GATEWAY IMPROVEMENTS - WETLAND PLANS

CITY OF PORTSMOUTH NEW HAMPSHIRE



WETLAND IMPACT NOTES

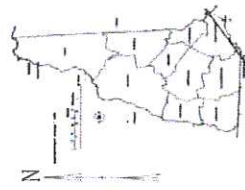
- WETLANDS WERE DELINEATED BY GZA ENVIRONMENTAL CONSULTANTS IN 2013. THE WETLAND DELINEATIONS WERE COMPLETED IN ACCORDANCE WITH THE CRITERIA DESCRIBED IN THE U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT Y-47, 11/1987 AND THE REGIONAL SUPPLEMENT OF THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL FOR THE NORTHEAST AND NORTHWEST REGION, AND MEET THE CRITERIA FOR WETLAND DELINEATION IN ACCORDANCE WITH THE NH DES ADMINISTRATIVE RULES ENWAT 301.01 AND ENWAT 101.08. INTENT OF THESE PLANS ARE FOR APPLICATION TO NH DES WETLAND DREDGE AND FILL PERMIT.

EXISTING SQUARE FOOTAGE OF IMPERVIOUS SURFACE WITHIN TIDAL BUFFER ZONE	155,650 SF
PROPOSED SQUARE FOOTAGE OF IMPERVIOUS SURFACE WITHIN TIDAL BUFFER ZONE	350,235 SF
NET CHANGE IN IMPERVIOUS SURFACE AREA FOLLOWING PROJECT	- 5,415 SF

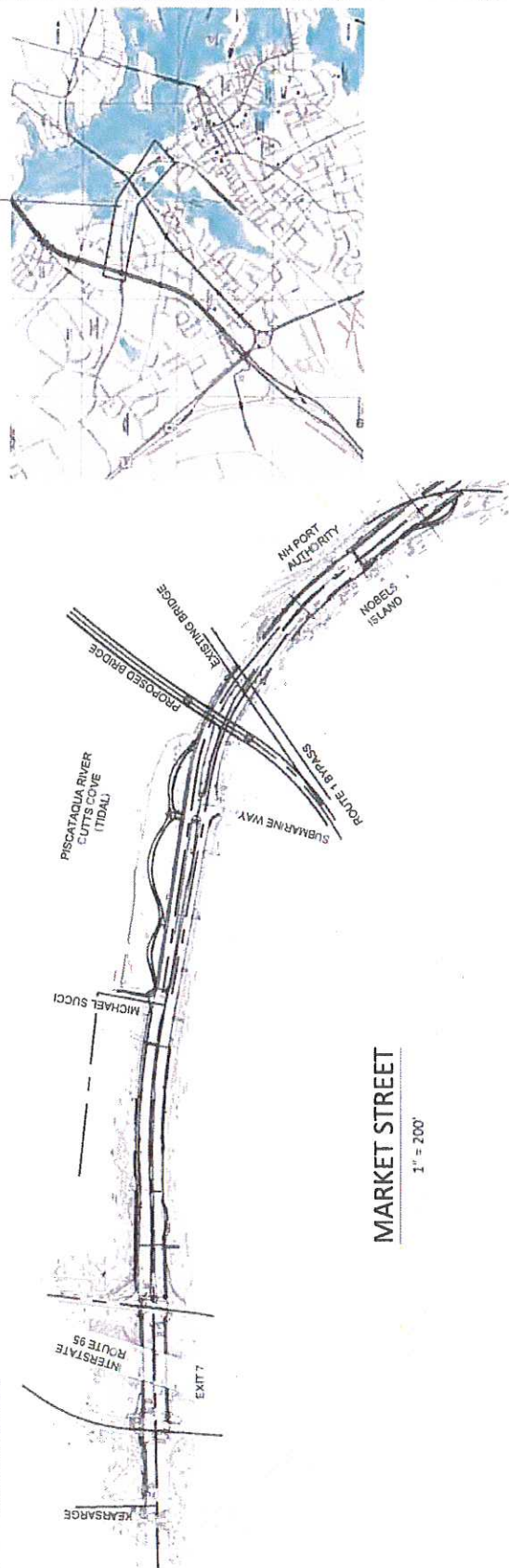
PROJECT LOCATION: THE PROJECT AREA IS MARKET STREET, APPROXIMATELY 200-FT EAST OF I-95 EXIT 7 OVERPASS TO RUSSELL STREET.

PROJECT DESCRIPTION: THIS PROJECT WILL CONSTRUCT NEW MEDIANS, BIKE LANES, SIDEWALKS, STREET LIGHTING, STREETSCLAPING, PAVEMENT MARKINGS, SIGNAGE, DRAINAGE, RECREATIONAL PARKS, AND GUARDRAIL.

LENGTH OF PROJECT: APPROXIMATELY 5,000 FEET ALONG MARKET STREET



PROJECT LOCATION
 MARKET STREET
 PORTSMOUTH, NH



MARKET STREET
 1" = 200'

CITY OF PORTSMOUTH, NH
 MARKET STREET GATEWAY
 WETLAND IMPACT PLANS

DATE: 11/11/13
 SHEET NO.: G-01
 SHEET TOTAL: 8

PROJECT NO. 1211
 DESIGNED BY: [Redacted]
 CHECKED BY: [Redacted]
 SCALE: 1"=50'

RSG
 The Science of
 the Environment

Richardson & Associates
 1000 North Main Street
 Portsmouth, NH 03801

NO.	REVISION	DATE	BY

CITY OF PORTSMOUTH, NH
MARKET STREET GATEWAY
WETLAND IMPACT PLAN



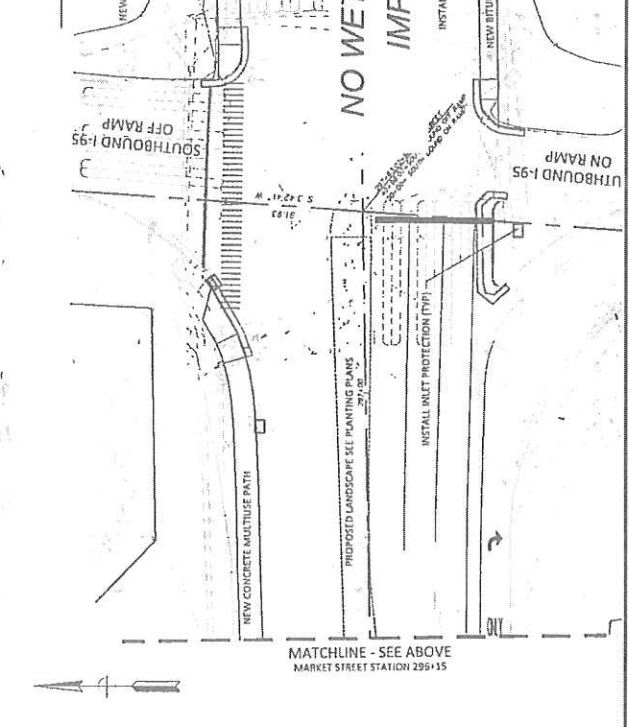
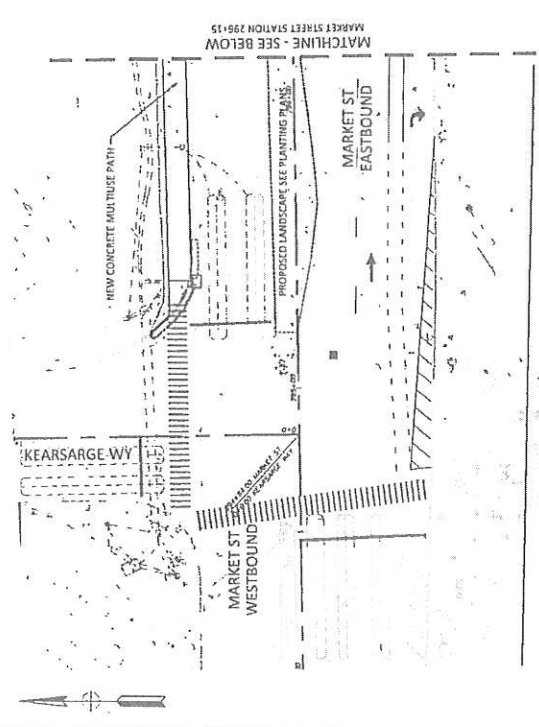
DATE: 5/20/13
DRAWING: W-01
SHEET: 3 OF 3

IMPACT NUMBER	LOCATION	TEMPORARY IMPACT AREA (SF)	PERMANENT IMPACT AREA (SF)	TOTAL NET IMPACT AREA (SF)	WETLAND (CMAA) IMPACT AREA (SF)	IMPACT TO PUBLIC WATERBODIES (SF)
1	N. WALKER BLVD	1643	1727	3380	0	0
2	N. WALKER BLVD	320	572	1021	0	0
3	W. WALKER BLVD	16207	16207	16207	0	0
4	N. WALKER BLVD	10205	7144	1749	0	0
5	N. WALKER BLVD	2484	0	2484	0	0
6	N. WALKER BLVD	17201	722	17923	0	0
7	N. WALKER BLVD	0	0	0	0	0
8	N. WALKER BLVD	1721	472	2189	0	0
9	N. WALKER BLVD	0	0	0	0	0
10	N. WALKER BLVD	1065	1076	2141	0	0
11	N. WALKER BLVD	1383	1387	2770	0	0
12	N. WALKER BLVD	376	0	376	0	0
13	N. WALKER BLVD	247	0	247	0	0
14	N. WALKER BLVD	295	0	295	31	59
15	N. WALKER BLVD	448	0	448	205	177
16	N. WALKER BLVD	400	0	400	50	55
17	N. WALKER BLVD	395	0	395	40	40
18	N. WALKER BLVD	204	0	204	65	65
19	N. WALKER BLVD	0	0	0	161	163
20	N. WALKER BLVD	622	0	622	0	0
21	N. WALKER BLVD	229	1742	1971	0	0
22	N. WALKER BLVD	29	0	29	0	0
23	N. WALKER BLVD	379	0	379	0	0
24	N. WALKER BLVD	0	341	341	0	0
				18176	680	474

EXISTING SQUARE FOOTAGE OF IMPERVIOUS SURFACE WITHIN TIDAL BUFFER ZONE:
155,650 SF

PROPOSED SQUARE FOOTAGE OF IMPERVIOUS SURFACE WITHIN TIDAL BUFFER ZONE:
150,235 SF

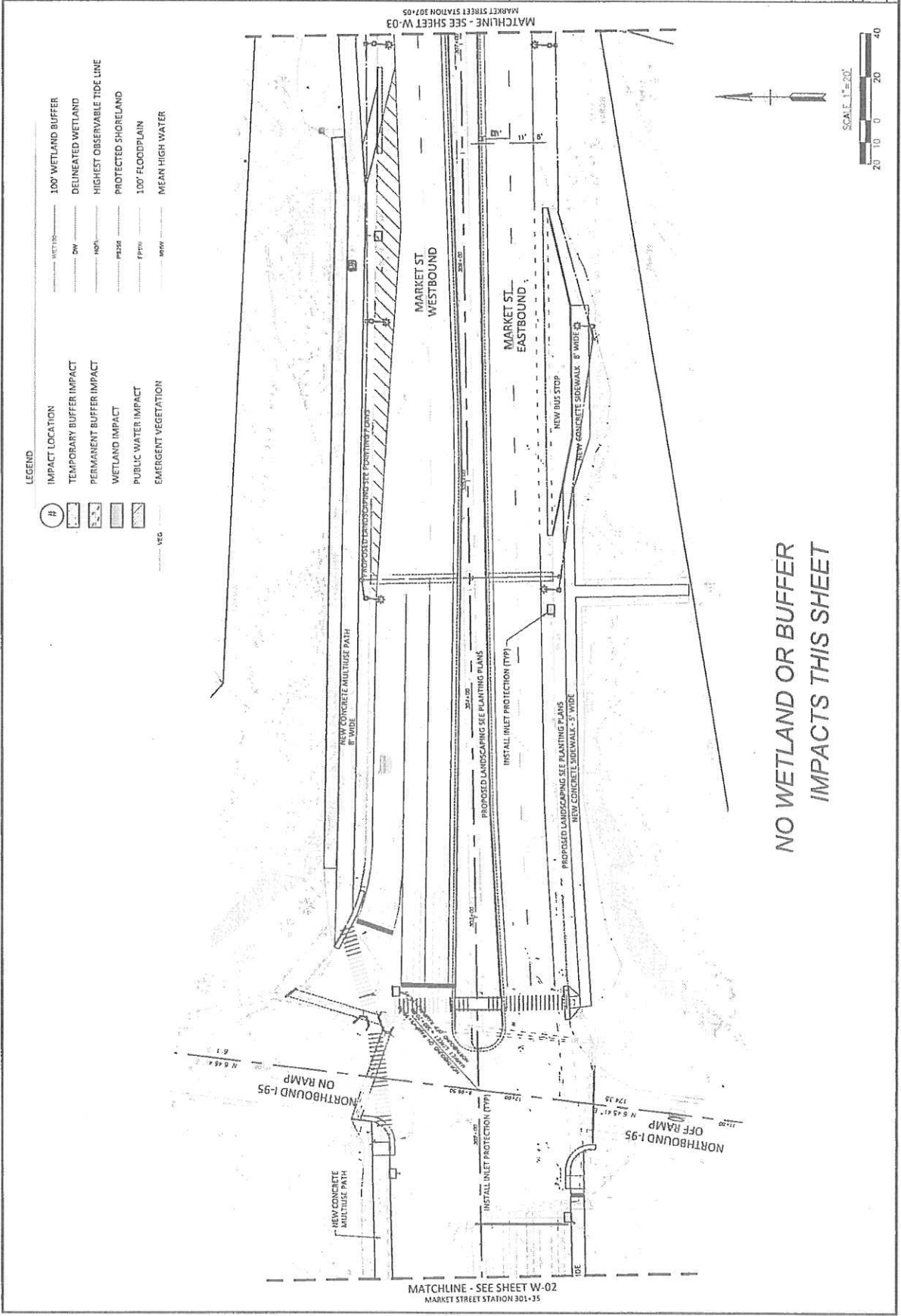
NET CHANGE IN IMPERVIOUS SURFACE AREA FOLLOWING PROJECT:
-5,415 SF



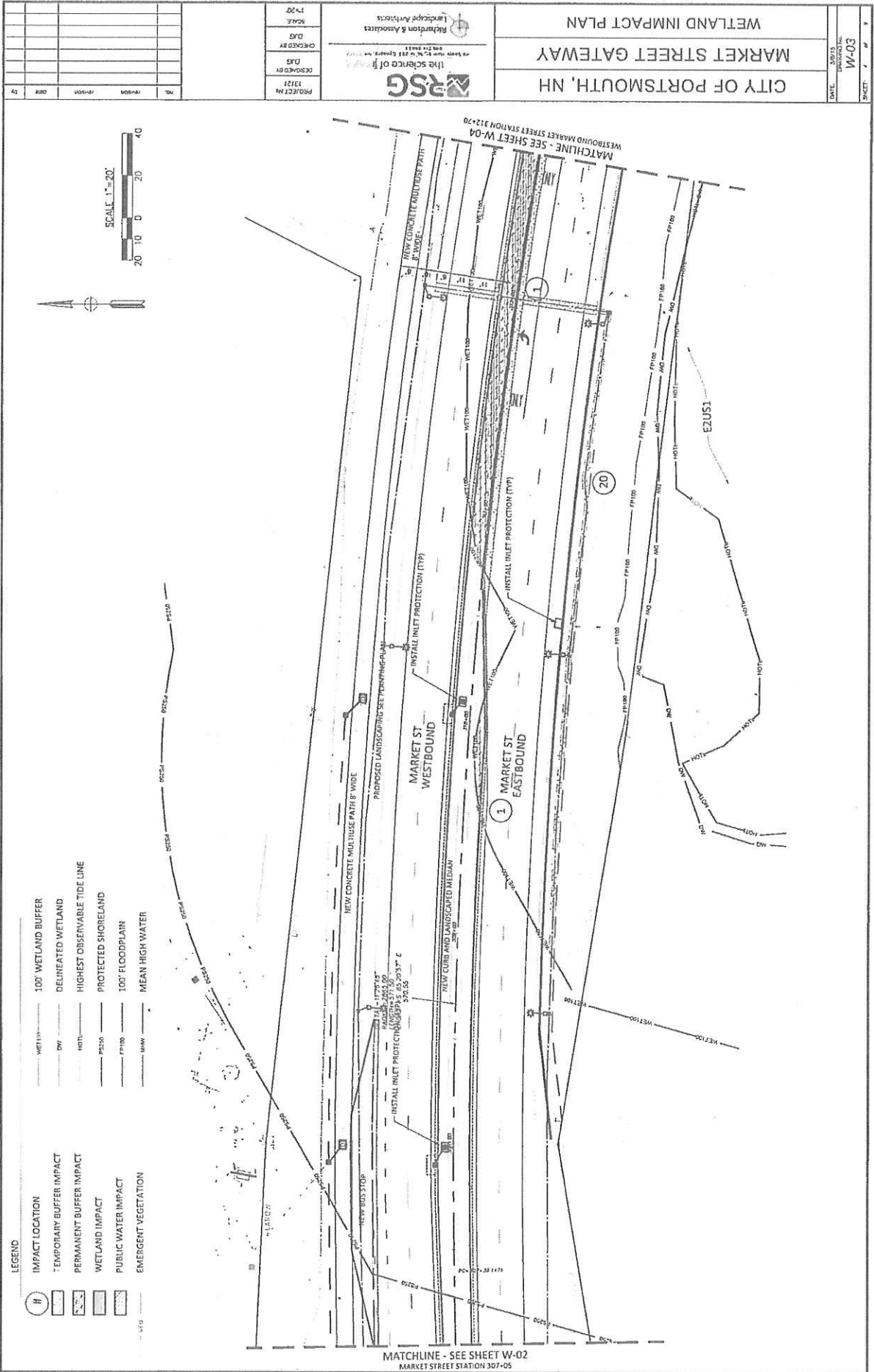
- LEGEND**
- IMPACT LOCATION
 - TEMPORARY BUFFER IMPACT
 - PERMANENT BUFFER IMPACT
 - WETLAND IMPACT
 - PUBLIC WATER IMPACT
 - EMERGENT VEGETATION
 - 100' WETLAND BUFFER
 - DELMITATED WETLAND
 - HIGHEST OBSERVABLE TIDE LINE
 - PROTECTED SHORELAND
 - 100' FLOODPLAIN
 - MEAN HIGH WATER



NO WETLAND OR BUFFER IMPACTS THIS SHEET



NO WETLAND OR BUFFER
IMPACTS THIS SHEET



- LEGEND**
- IMPACT LOCATION
 - 100' WETLAND BUFFER
 - DELIMITED WETLAND
 - HIGHEST OBSERVABLE TIDE LINE
 - PROTECTED SHORELAND
 - 100' FLOODPLAIN
 - MEAN HIGH WATER
 - TEMPORARY BUFFER IMPACT
 - PERMANENT BUFFER IMPACT
 - WETLAND IMPACT
 - PUBLIC WATER IMPACT
 - EMERGENT VEGETATION



CITY OF PORTSMOUTH, NH
 MARKET STREET GATEWAY
 WETLAND IMPACT PLAN

RSG
 the science of landscape architecture
 1000 North Main Street, Suite 200
 Portsmouth, NH 03801
 Telephone: 603.433.1111
 Fax: 603.433.1112
 Website: www.rsginc.com

PROJECT NO.	13121
DESIGNED BY	DJS
CHECKED BY	DJS
SCALE	1"=20'
DATE	1/20

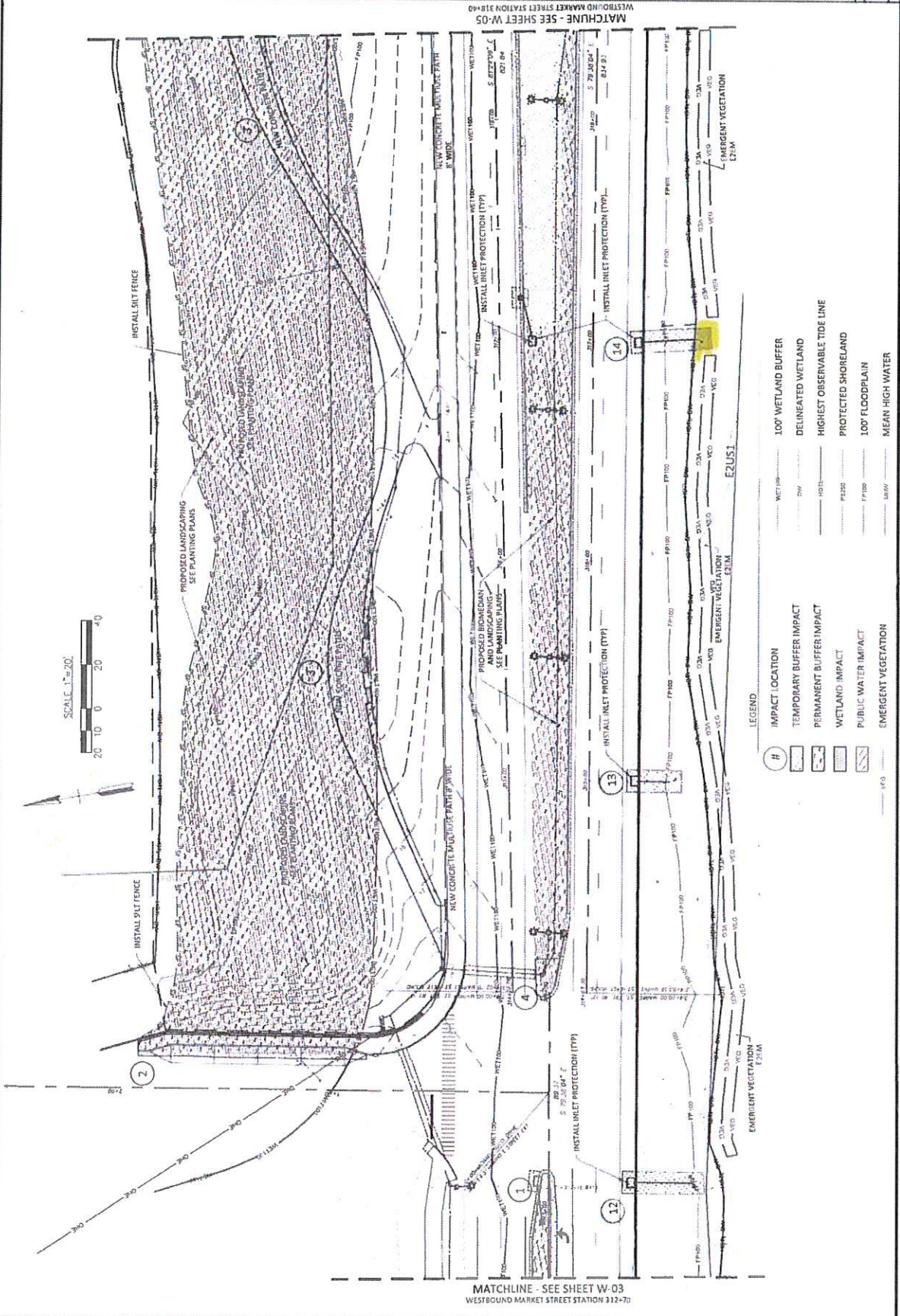
DATE	01/20/13
DESIGNED BY	DJS
CHECKED BY	DJS
SCALE	1"=20'
DATE	1/20

W-02
 SHEET 1 OF 1

PROJECT NO. 1121		 the science of landscape architecture	RICHARDSON & ASSOCIATES 1000 MARKET STREET, PORTSMOUTH, NH 03875 TEL: 603.886.1100	
DATE	DESIGNED BY		SCALE	PROJECT
DATE	DESIGNED BY	SCALE	PROJECT	
DATE	DESIGNED BY	SCALE	PROJECT	
DATE	DESIGNED BY	SCALE	PROJECT	

CITY OF PORTSMOUTH, NH
 MARKET STREET GATEWAY
 WETLAND IMPACT PLAN

W-04
 SHEET

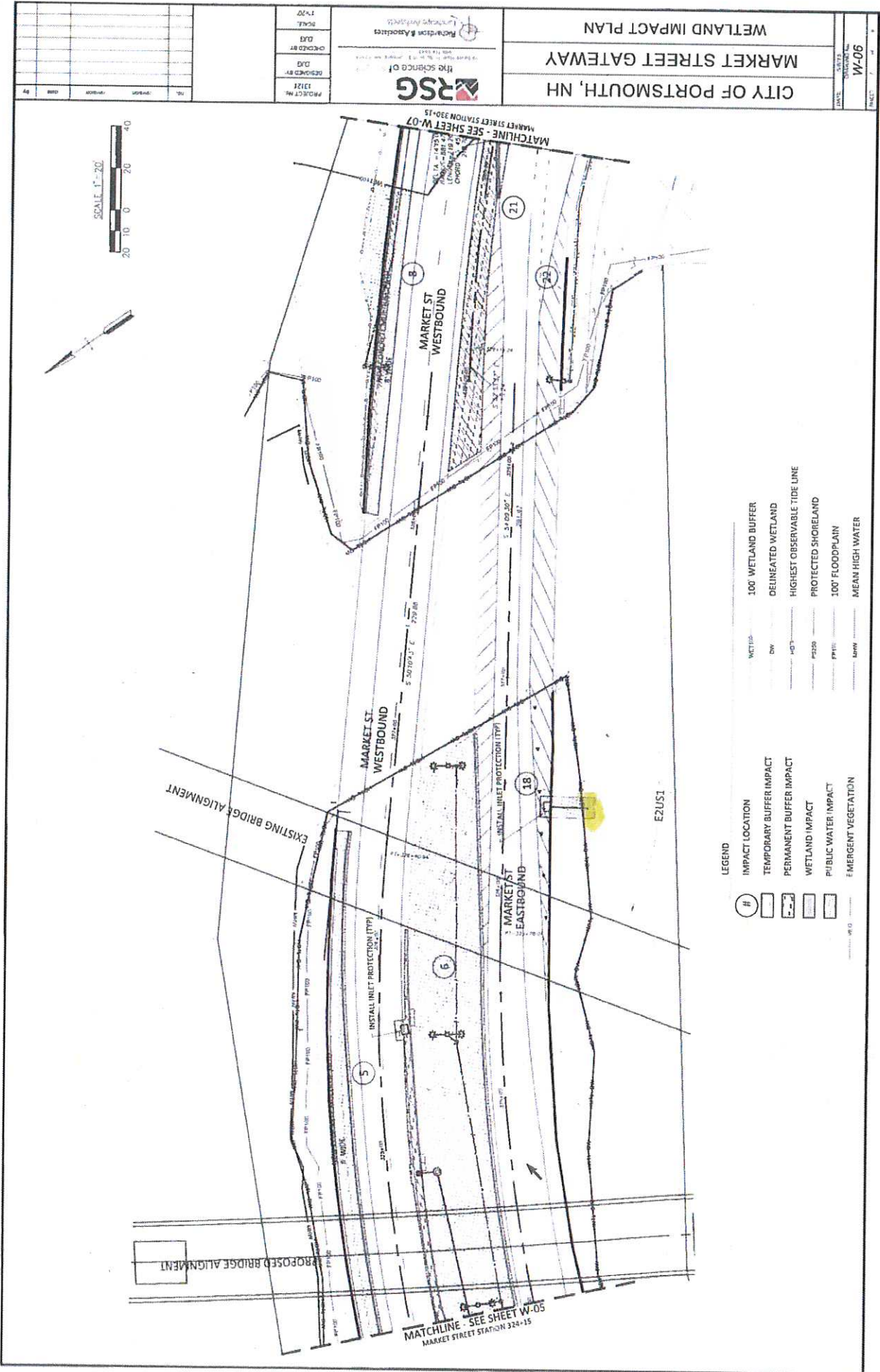


LEGEND

#	IMPACT LOCATION	100' WETLAND BUFFER
[Symbol]	TEMPORARY BUFFER IMPACT	DELINEATED WETLAND
[Symbol]	PERMANENT BUFFER IMPACT	HIGHEST OBSERVABLE TIDE LINE
[Symbol]	WETLAND IMPACT	PROTECTED SHORELAND
[Symbol]	PUBLIC WATER IMPACT	100' FLOODPLAIN
[Symbol]	EMERGENCY VEGETATION	MEAN HIGH WATER

MATCHLINE - SEE SHEET W-05
 WESTBOUND MARKET STREET STATION 31+40

MATCHLINE - SEE SHEET W-03
 WESTBOUND MARKET STREET STATION 12+70



LEGEND

(#)	IMPACT LOCATION	WETLAND	100' WETLAND BUFFER
[Symbol]	TEMPORARY BUFFER IMPACT	DW	DELINEATED WETLAND
[Symbol]	PERMANENT BUFFER IMPACT	HOT	HIGHEST OBSERVABLE TIDE LINE
[Symbol]	WETLAND IMPACT	P1500	PROTECTED SHORELAND
[Symbol]	PUBLIC WATER IMPACT	PP100	100' FLOODPLAIN
[Symbol]	EMERGENT VEGETATION	EMW	MEAN HIGH WATER

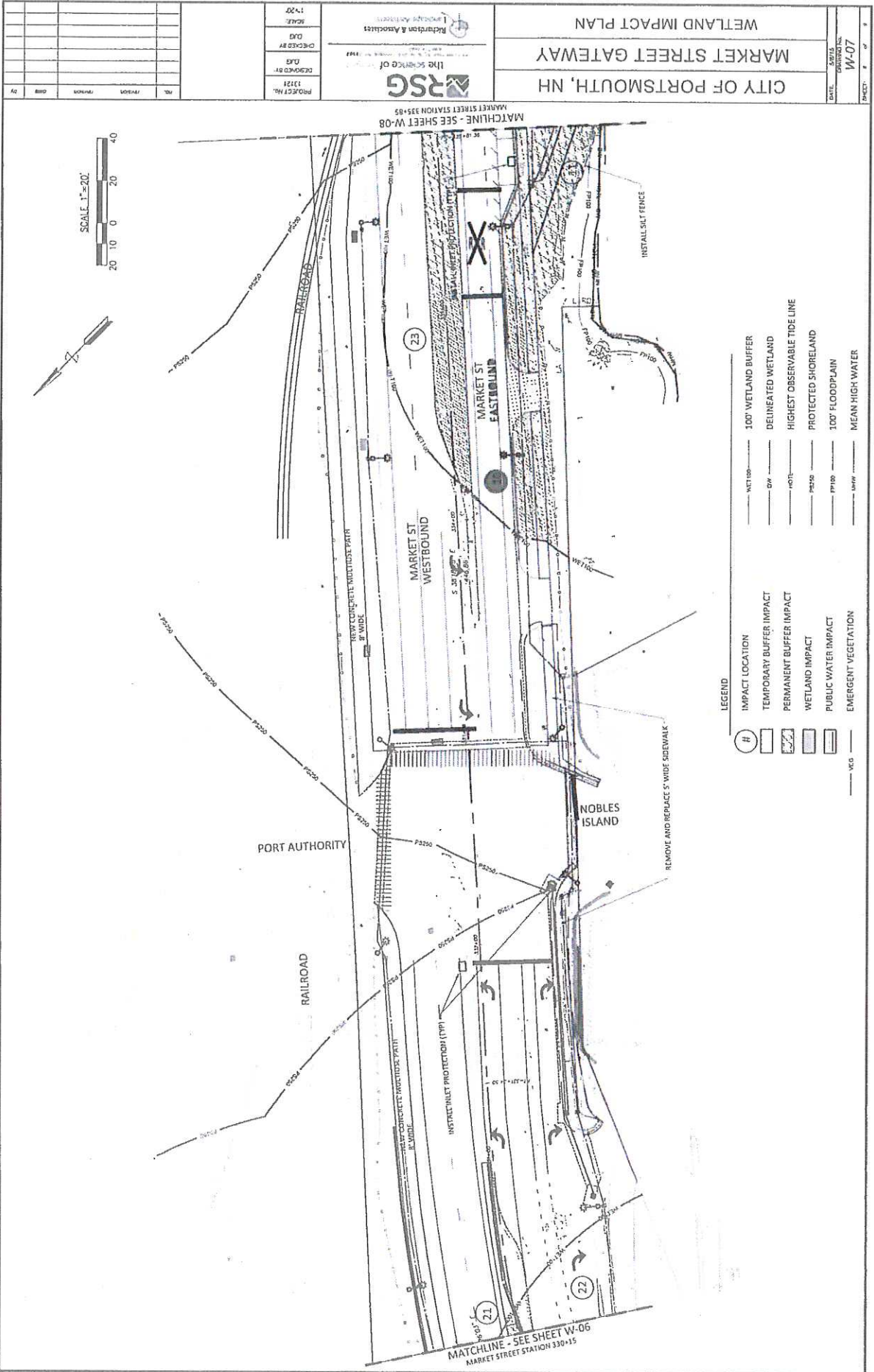
CITY OF PORTSMOUTH, NH
MARKET STREET GATEWAY
WETLAND IMPACT PLAN

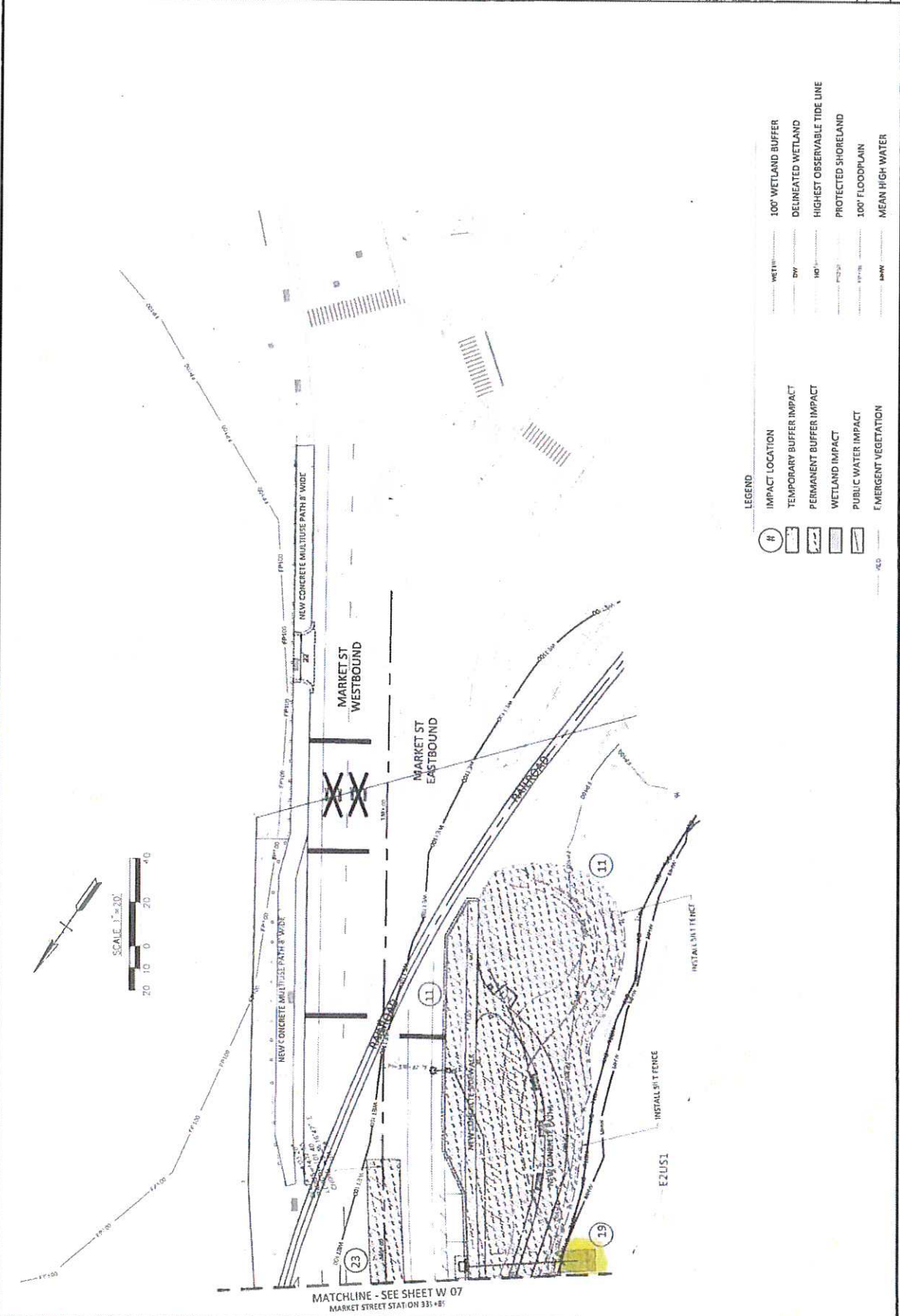
RSC
 THE SCIENCE OF
 RESTORATION & ASSOCIATES

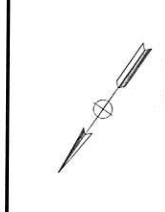
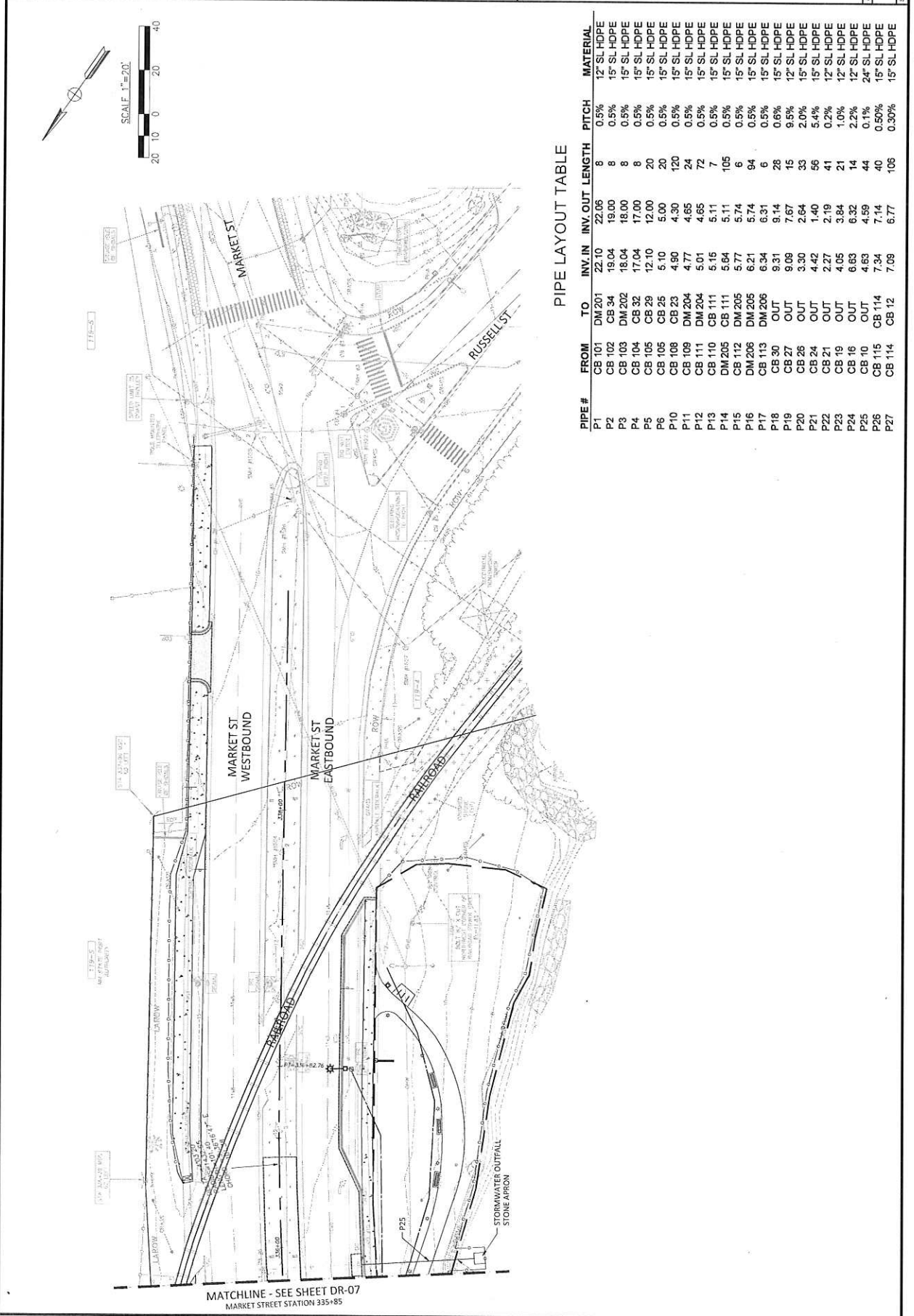
PROJECT NO. 13121
 DESIGNED BY: DJS
 CHECKED BY: DJS
 SCALE: 1"=20'

DATE: 02/20/2014
 DRAWING NO. W-06

NO.	REVISION	DATE	BY







PIPE LAYOUT TABLE

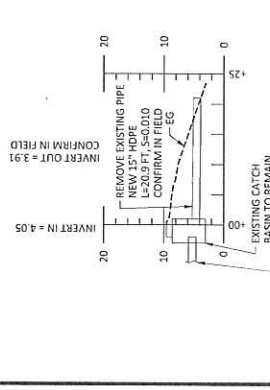
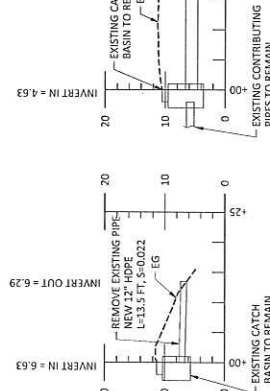
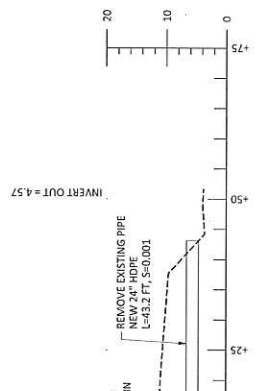
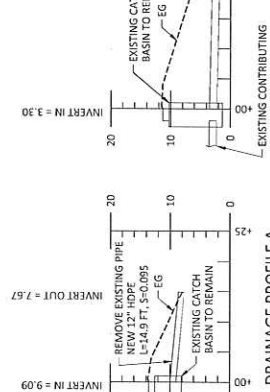
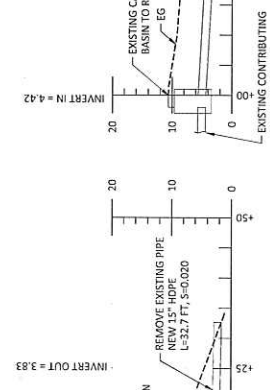
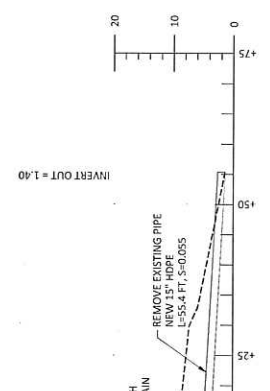
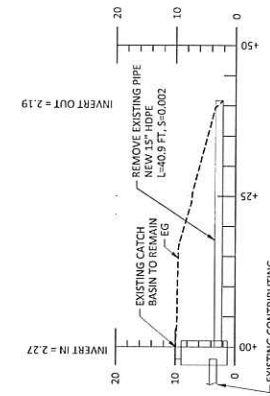
PIPE #	FROM	TO	INV. IN	INV. OUT	LENGTH	PITCH	MATERIAL
P1	CB 101	DM 201	22.10	22.06	8	0.5%	12" SL HDPE
P2	CB 102	CB 34	19.04	19.00	8	0.5%	15" SL HDPE
P3	CB 103	DM 202	18.04	18.00	8	0.5%	15" SL HDPE
P4	CB 104	CB 32	17.04	17.00	8	0.5%	15" SL HDPE
P5	CB 105	CB 29	12.10	12.00	20	0.5%	15" SL HDPE
P6	CB 105	CB 25	6.10	5.00	20	0.5%	15" SL HDPE
P10	CB 108	CB 23	4.90	4.30	120	0.5%	15" SL HDPE
P11	CB 109	DM 204	4.77	4.65	24	0.5%	15" SL HDPE
P12	CB 111	DM 204	5.01	4.85	72	0.5%	15" SL HDPE
P13	CB 110	CB 111	5.15	5.11	7	0.5%	15" SL HDPE
P14	DM 205	CB 111	5.64	5.11	105	0.5%	15" SL HDPE
P15	CB 112	DM 205	5.77	5.74	6	0.5%	15" SL HDPE
P16	DM 206	DM 205	6.21	5.74	94	0.5%	15" SL HDPE
P17	CB 113	DM 206	6.34	6.31	6	0.5%	15" SL HDPE
P18	CB 30	OUT	9.31	9.14	28	0.6%	15" SL HDPE
P19	CB 27	OUT	9.09	7.67	15	9.5%	12" SL HDPE
P20	CB 26	OUT	3.30	2.64	33	2.0%	15" SL HDPE
P21	CB 24	OUT	4.42	1.40	56	5.4%	15" SL HDPE
P22	CB 21	OUT	2.27	2.19	41	0.2%	12" SL HDPE
P23	CB 19	OUT	4.05	3.84	21	1.0%	12" SL HDPE
P24	CB 18	OUT	6.63	6.32	14	2.2%	12" SL HDPE
P25	CB 10	OUT	4.63	4.59	44	0.1%	24" SL HDPE
P26	CB 115	CB 114	7.34	7.14	40	0.50%	15" SL HDPE
P27	CB 114	CB 12	7.09	6.77	106	0.30%	15" SL HDPE

MATCHLINE - SEE SHEET DR-07
 MARKET STREET STATION 85+58

CITY OF PORTSMOUTH, NH
MARKET STREET GATEWAY
DRAINAGE PROFILES

DATE: 08/20/2013
PROJECT NO.: 13121
SHEET: 24 OF 49
DR-09

PROJECT NO.	13121
DESIGNED BY:	
CHECKED BY:	
SCALE:	1"=20'





**US Army Corps
of Engineers** ®
New England District

Minimum Notice: Permittee must sign and return notification
within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: NAE-2015-0267

Project Manager Richard Kristoff

Name of Permittee: City of Portsmouth

Permit Issuance Date: 01/17/2016

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch C *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

Printed Name

Date of Work Completion



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

September 7, 2015

City of Portsmouth
Attn: Peter Rice
680 Peverly Hill Road
Portsmouth, New Hampshire 03801

Re: Market Street Gateway
Market Street, Portsmouth, NH

Permit: AoT-0975

Dear Applicant:

Based upon the plans and application, approved on September 7, 2015, we are hereby issuing RSA 485-A:17 Alteration of Terrain Permit AoT-0975. As part of the processing of this application, DES granted approval to waiving specific requirements of Rule Env-Wq 1504.09(b)(2)b, *Stormwater Drainage Report; Drainage Area Plans; Hydrologic Soil Group Plans*, finding that the identification of soil types with site-specific soil mapping standards would not provide any additional benefit for the hydrologic analysis of the linear project, and Env-Wq 1503.09 *Floodplain Requirements*, finding that the studies required by the rule would be of limited value given the project location within an estuarine system subject to tidal surges. It was further determined that granting the waiver would not have an adverse impact on the environment, public health, public safety, or abutting properties, and that granting the request is consistent with the intent and purpose of the rule waived. Additional documentation relative to the waiver requested is contained within the file. This permit is subject to the following conditions:

1. Activities shall not cause or contribute to any violations of the surface water quality standards established in Administrative Rule Env-Wq 1700.
2. You must submit revised plans for permit amendment prior to any changes in construction details or sequences. You must notify the Department in writing within ten days of a change in ownership.
3. You must notify the Department in writing prior to the start of construction and upon completion of construction. Forms are available at: <http://des.nh.gov/organization/divisions/water/aot/categories/forms.htm>. **If any underground detention systems, infiltration systems, or filtering systems are installed, a letter must be provided, signed by a qualified engineer, stating that the individual observed such system(s) prior to such system(s) being backfilled, and that in his or her professional opinion, such system(s) conform to the approved plans and specifications.**
4. The plans and supporting documentation in the permit file are a part of this approval.
5. **This permit expires on September 7, 2020.** No earth moving activities shall occur on the project after this expiration date unless the permit has been extended by the Department. If requesting an extension, the request must be received by the department before the permit expires. The Amendment Request form is available at: <http://des.nh.gov/organization/divisions/water/aot/categories/forms.htm>
6. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits that may be required (e.g., from US EPA, US Army Corps of Engineers, etc.). Projects disturbing over 1 acre may require a federal stormwater permit from EPA. Information regarding this

DES Web site: www.des.nh.gov

P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095

Telephone: (603) 271-3503 • Fax: (603) 271-2982 • TDD Access: Relay NH 1-800-735-2964

permitting process can be obtained at:
<http://des.nh.gov/organization/divisions/water/stormwater/construction.htm>.

7. If applicable, no activity shall occur in wetland areas until a Wetlands Permit is obtained from the Department. Issuance of this permit does not obligate the Department to approve a Wetlands Permit for this project.

Sincerely,



Ridgely Mauck, P.E.
Alteration of Terrain Bureau

cc: Portsmouth Planning Board

ec: Normandeau Associates



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU

29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588

Website: <http://des.nh.gov/organization/divisions/water/wetlands/cspa/index.htm>
Permit Application Status: http://www2.des.state.nh.us/OneStop/Wetland_Permits_Query.aspx



RECEIVED
JAN 09 2015

SHORELAND PERMIT BY NOTIFICATION (PBN)¹

Office use only: Accepted Expires: 1/9/20 Rejected
Check Amount \$ _____ Check No. _____ Initials: NA Date: 1/9/15

Shoreland File Number 2015-00050 Reviewed Date: 1/9/15 Initials: NA

A. PROJECT AND OWNER INFORMATION					
1.	Project Property Address	Town/City		State	Zip code
	Market St	Portsmouth		NH	03801
2.	Waterbody Name	Tax Map	Lot	Block	Unit
	Piscataqua River and North Mill Pond	NA	NA	NA	NA
3.	Property Owner Name (last, first, MI)	Phone No.	Fax No.	An email address authorizes electronic communication	
	City of Portsmouth	603-766-1411		plbritz@cityofportsmouth.com	
	Mailing address	Town/City		State	Zip code
	1 Junkins Ave	Portsmouth		NH	03801

B. PROPOSED PROJECT DETAILS: (NOTE: This process cannot be used: a) for impacts to areas under the jurisdiction of RSA 482-A including surface waters and their banks, wetlands, tidal areas including the 100 ft tidal buffer zone, sand dunes and beaches, and; b) to expand the footprint of nonconforming primary structures within the waterfront buffer.)	
TOTAL PROPOSED IMPACT AREA: 171921 square feet	NEW IMPERVIOUS AREA PROPOSED: 19710 square feet
<p>DESCRIPTION: A brief description of the proposed project <u>must</u> be stated here. It must <u>list</u> all proposed temporary and permanent impacts, new pervious and impervious areas, and structures.</p> <p>Improvements will take place entirely within the existing roadway right-of-way associated with Market Street between Kearsarge Way and Russell Street. Improvements will include removing the concrete median and replacing it with a "biomedian" for stormwater treatment. The biomedian will be a planted streetscape. Improvements also include the installation of concrete sidewalks, granite curbs, street lighting, right-of-way landscaping, creation of two scenic public parks, and traffic improvements including lane removal and installation of traffic signals. Within the shoreland buffer zone, impacts will include the 19710 square feet of new impervious surfaces in the form of sidewalks and new roadways as well as the replacement of 15487 square feet of impervious surface with a pervious median for a net increase of 4223 square feet of impervious surface. This project will increase vegetation density with native plantings.</p>	

C. CONDITIONS: Agree to the following Permit by Notification conditions by initialing each one:	
<u>[Signature]</u> Env-Wq 1406.17(a)	Erosion and siltation control measures shall (1) Be installed prior to the start of work; (2) Be maintained throughout the project; and (3) Remain in place until all disturbed surfaces are stabilized.
<u>[Signature]</u> Env-Wq 1406.17(b)	Erosion and siltation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters.
<u>[Signature]</u> Env-Wq 1406.17(c)	No person undertaking any activity in the protected Shoreland shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards established in Env-Ws 1700 or successor rules in Env-Wq 1700.
<u>[Signature]</u> Env-Wq 1406.17(d)	Any fill used shall be clean sand, gravel, rock, or other suitable material.
<u>[Signature]</u> Env-Wq 1406.05	Upon receiving acceptance of this Permit by Notification, a copy of page one of this form shall be posted on site prior to the start of work.

¹ Form is not valid unless a shoreland file number is assigned and the notification is accepted, dated and initialed by DES.

D. PBN CRITERIA: In addition to meeting all requirements of RSA 483-B and Rule Chapter Env-Ws1400 the project must meet one of the following. Please check the appropriate qualifying criteria per RSA 483-B:5-b:

<input type="checkbox"/>	1. This project will result in less than 1,500 sq ft of total impact area, of which no more than 900 square feet will be added impervious area (excluding public infrastructure projects); or
<input checked="" type="checkbox"/>	2. This is a public infrastructure maintenance or repair project (public utilities, public roadways and access facilities); or
<input type="checkbox"/>	3. This project is directly related to stormwater management improvements, erosion control projects or environmental restoration or enhancement; or
<input type="checkbox"/>	4. This project is an activity defined as qualified for a permit by notification under Env-Wq 1406.05. Identify the specific paragraph under Env-Wq 1406.05 qualifying this project: <input type="checkbox"/> Env-Wq 1406.05(a) relative to geotechnical borings <input type="checkbox"/> Env-Wq 1406.05(b) relative to monitoring wells <input type="checkbox"/> Env-Wq 1406.05(c) relative to drinking water wells <input type="checkbox"/> Env-Wq 1406.05(d) relative to remediation activities

E. IMPACT AREA AND APPLICATION FEE: Indicate the project type, impact area and fee by checking the appropriate box below.

<input type="checkbox"/>	1. The proposed project will temporarily impact _____ square feet and permanently impact _____ square feet for a total of _____ square feet of impact within 250 feet of the reference line. Total Impact area x \$0.10 per square foot + \$100 = _____ This is the project filing fee. If the result is more the \$250 you cannot use this form.	(Max \$250) \$
<input checked="" type="checkbox"/>	2. The proposed project is a public infrastructure maintenance or repair project.	Fee Exempt
<input type="checkbox"/>	3. The proposed project meets the criteria of Section D.3. above.	\$100.00

F. REQUIRED CERTIFICATIONS: Read and, by hand, initial each of the blank spaces below. By initialing each box and signing below, you are certifying that you understand and agree to comply with each statement.

<u>JB</u>	1. I understand that any impacts completed under a Permit by Notification filed and accepted based on false, incomplete, or misleading information on the application, plans or attachments shall be subject to enforcement action.
<u>JB</u>	2. I am aware that an accepted Shoreland Permit by Notification will not exempt the work I am proposing from other state, local or federal approvals.
<u>JB</u>	3. I am aware of the requirements regarding impervious area thresholds and have provided all necessary materials necessary to clearly demonstrate this project meets at least the minimum standards of RSA 483-B:9, V(g) 1,2 and 3.
<u>JB</u>	4. I understand that project proposals that do not meet the minimum standards of RSA 483-B and Administrative Rules Chapter Env-Wq 1400 shall be rejected.
<u>JB</u>	5. I understand that failure to conduct the work in accordance with the plans and materials submitted with this Notification shall be considered work without a permit and subject to enforcement action. I agree to conduct all work under this Permit by Notification in accordance with the conditions specified in Section C, above.
<u>JB</u>	6. I understand that incomplete notifications will be rejected and the notification fee will be forfeited.

G. REQUIRED SIGNATURE

Signature of Owner: <u>[Signature]</u> (agent may not sign on owner's behalf)	Date: <u>1/8/15</u>
---	------------------------

H. AGENT INFORMATION: If this form has been completed by an agent or any person acting on behalf of the owner, said person shall provide the following information: (Signature of owner must be present on in Section G)

1.	Agent Name(last, first, MI)	Phone No.	Fax No.	An email address authorizes electronic communication
	Fiorillo, Adele F.	603-319-5303	603-334-6419	afiorillo@normandean.com
	Mailing address	Town/City	State	Zip code
	30 International Drive, Suite 6	Portsmouth	NH	03801