CITY OF EVERETT, MASSACHUSETTS
NORTHER STRAND TRAIL CONNECTION

CITY PROJECT NO.: PLD-26-100

Delivery Method: M.G.L. c. 30 § 39M

OWNER:

City of Everett, Massachusetts
484 Broadway, Room 14
Everett, MA 02149

ENGINEER:

Howard Stein Hudson
11 Beacon St, Suite 1010
Boston, MA 02108

April 29, 2026

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CITY OF EVERETT, MASSACHUSETTS
NORTHER STRAND TRAIL CONNECTION

CITY PROJECT NO.: PLD-26-100

INVITATION TO BID AND INSTRUCTIONS TO BIDDERS

GENERAL CONTRACTOR SERVICES

I. SUMMARY OF WORK AND PROJECT SCHEDULE

The City of Everett has been working to improve pedestrian and bicycle connectivity in the City with the extension of the Northern Strand Community Trail and other shared use paths. The list of stakeholders included Department of Conservation and Recreation (DCR), Massachusetts Department of Transportation (MassDOT), Massachusetts Bay Transportation Authority (MBTA), and the City of Everett. The scope of work includes connection to the Northern Strand Community Trail in the area south of Santilli Circle Connector, improve conditions at the existing crossing across Santilli Circle Connector,, improve conditions at the existing crossing across Santilli Highway, and provide a shared use path connection on the north side of Revere Beach Parkway between the existing shared use path and the River Trail to the west. Also included, but not limited to, in the construction scope are lighting, fencing, paving, striping, best management practices (BMPs) for erosion control, wetlands mitigation/replication and landscaping improvements.

Estimated construction cost is $2,104,965. All work to be performed in accordance with the Bid Documents as herein defined.

On-Site Construction Start:	May 26, 2026
Substantial Completion:	June 15, 2027
Final Completion:	June 30, 2027

II. INVITATION FOR BIDS

The City of Everett, Massachusetts (the "City") hereby requests bids from General Contractors interested in bidding for the Work described herein pursuant to the requirements of M.G.L. c. 30, § 39M and all other applicable provisions of the Massachusetts General Laws. All bidders shall be determined to be an eligible bidder for the category of work "Highway - Construction" by the Massachusetts Department of Transportation Highway Division Prequalification Office. If it be in the best interest of the City to do so, the City reserves the right to reject any and all Bids, to

waive any informalities or minor deviations, to cancel the project and Bid Documents at any time prior to award, and/or to advertise for new Bids if funds are not available for the Project.

These instructions provide Bidders with information intended to enable them to prepare and submit Bids for consideration and evaluation by the City. These instructions cover all work as documented in the attached bid documents, as modified by addenda, if any (collectively, the "Bid Documents"). Bids shall be submitted in compliance with and shall be governed by the Agreement between Owner and Contractor, the General Conditions and Supplementary Conditions, if any.

III. BIDDING REQUIREMENTS

(A) **Bid Form.** Bids shall be submitted on the appropriate Bid Form attached hereto. All entries on the Bid Form shall be made by typewriter or in ink. No modifications should be made to the Bid Forms. Sums shall be expressed in both words and figures in the space indicated on the Bid form. Where there is a discrepancy between the sum expressed in words and the sum expressed in figures, the amount expressed in words shall control. Total lump sum price will be basis of award regardless of any mathematical errors by bidders. Bids shall be signed by the person having legal authority to bind the Bidder to the terms and conditions of the Bid, and the person so signing shall give the person's own name, business address and title. **Bids not properly signed will be rejected as non-responsive**.

(B) **Bid Deposit.** Each bid must be secured by an accompanying deposit of five percent (5%) of the total amount of the Bid. Deposits shall be in the form of a bid bond, or a certified check, treasurer's or cashier's check issued by a responsible bank or trust company, payable to the City of Everett. No cash will be accepted. Bid deposits of all Bidders, except those of the three lowest responsible and eligible Bidders, will be returned within five (5) business following the Bid opening. Except as provided in the "BONDS AND INSURANCE CERTIFICATES" and "FOREIGN CORPORATION" sections appearing below, the Bid Deposits of the three lowest responsible and eligible bidders will be returned upon the execution of the Contract or, if no award is made, upon the expiration of the time prescribed for making an award.

(C) **Submission of Bids.** Bids shall be enclosed in a **sealed envelope** with the following plainly marked on the outside:

Bid for: **Everett City Hall**
Kiara M. Freeman, Chief Procurement Officer

Project Number:_____.
Project Name:_____.
Bidder's Name
Business Address
Phone Number

Bids must be received at Everett City Hall – Purchasing Department, 484 Broadway, Room 14 Everett, MA 02149 on or before the bid due date and time. Timely delivery of a Bid to the location designated shall be the full and sole responsibility of Bidder.

(D) **Form of Agreement.** Any contract awarded by the City pursuant to this solicitation shall be governed by the Contract Documents including, but not limited to, the Agreement between Owner and Contractor, the General Conditions, and Supplementary Conditions, if any. A bidder may not, in its Bid, take exception to the form of Agreement Between Owner and Contractor or otherwise condition its bid on changes to the form of Agreement Between Owner and Contractor. The bidder to whom a contract is awarded will be required to enter into the City form of Agreement Between Owner and Contractor within five (5) business days of presentation of the contract by the City.

(E) **Prevailing Wage.** Minimum Wage Rates as determined by the Commissioner of the Department of Workforce Development under the provisions of Massachusetts General Law, Chapter 149, §§ 26-27, inclusive, apply to this project. It is the responsibility of each Bidder, before opening of Bids, to request if necessary any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this Contract. The Minimum Wage Rates to be used for this Contract are shown on the schedule provided in the Bid Documents.

IV. BID SCHEDULE

- Bid Documents available to Bidders: April 29, 2026.
- Question/Clarification Period closes: May 8, 2026 at 5:00PM EST.
- Bid Due Date and Time: **May 14, 2026 at 10:00 EST** at the office of the **Kiara M. Freeman, Chief Procurement Officer, Everett City Hall, Purchasing Department, 484 Broadway, Room 14 Everett Ma, 02149.**

Timely submission of Bids shall be the sole responsibility of the Bidder.

V. BIDDER'S REPRESENTATIONS

By submitting its Bid in response to this solicitation, each Bidder makes the following representations:

a) The Bidder has read and understands the Bid Documents and the Bid is made in accordance therewith. The Bidder has visited the site where the Work is to be performed and is familiar with the local conditions under which the Work will be performed. Failure to so examine the Bid Documents and site will not relieve any Bidder from any obligation under the Bid as submitted.

b) The information contained in the Bid is true and complete to the best knowledge of the Bidder.

c) The Bid has been prepared in good faith and the Bidder is duly authorized to submit the Bid on behalf of the Bidder.

d) In preparation and development of the Bid, the Bidder has not, directly or indirectly, solicited or received any advice, assistance, or information concerning the Project from any representative of the City, its agents, or consultants that was not issued in writing by the City to all Bidders.

e) The Bidder has filed with the Secretary of State all certificates and annual reports required by Chapter 156D, § 16.22 (domestic and foreign corporation), § 15.03 (foreign corporations), § 109 (Massachusetts business corporation), or Chapter 180, § 26A (non-profit corporation) as applicable, of the Massachusetts General Laws.

VI. WRITTEN QUESTIONS

Bidders shall promptly notify the City in writing of any ambiguity, inconsistency or error that they may discover upon examination of the Bid Documents, the site, and local conditions.

Bidders requiring clarification or interpretation of the Bid Documents shall make a written request to the design consultant and a copy to the City by email or by fax as follows:

Engineer:

Howard Stein Hudson
Christopher Malsch, P.E.
11 Beacon St, Suite 1010, Boston, MA 02108
cmalsch@hshassoc.com

COPY:

City of Everett
Kiara M. Freeman, Chief Procurement Officer
484 Broadway, Room 14
Everett, MA 02149
Kiara.Freeman@ci.everett,ma.us

Requests for interpretation of the Bid Documents by phone will not be accepted. Any responses to written questions may be issued as an addendum to the Bidding Documents and posted at City of Everett website. Any Bidder that contacts directly or indirectly any member or employee of the City, or the City's consultants, in connection with the selection process or the contract

contemplated herein, other than by participation in the pre-bid conference, submission of a written question or request for clarification or interpretation as prescribed in this section, may be subject to disqualification.

The City will not be responsible for, and a Bidder shall not rely upon or use, any information, explanation, or interpretation of this Invitation to Bid/Instructions to Bidders rendered in any fashion except written responses by the City posted at the City of Everett's website.

It is the sole responsibility of Bidders to ascertain the existence of any and all Addenda. Only written Addenda issued as described in these Instructions to Bidders shall be effective to modify the Bid Documents. All registered plan holders will be electronically notified when addenda are issued. Hard copies of the addenda may not be forwarded to the registered plan holders. In preparing its bid, each Bidder must acknowledge that it has reviewed all addenda.

VII. MODIFICATION AND WITHDRAWAL OF BIDS

After Bid opening, a Bidder may not change any provision of the Bid in a manner prejudicial to the interests of the City or fair competition. Minor informalities will be waived or the Bidder will be allowed to correct them. If a mistake and the intended Bid are clearly evident on the face of the Bid proposal, the mistake will be corrected to reflect the indeed correct Bid, and the Bidder will be notified in writing - the Bidder may not withdraw the Bid in such circumstances. A Bidder may withdraw a Bid if a mistake is clearly evident on the face of the Bid document, but the intended correct Bid is not similarly evident.

A Bid may be withdrawn prior to the time designated for receipt of Bids upon written request made to the City. Withdrawal of Bids must be confirmed over the Bidder's signature by written notice post-marked or sent by facsimile on or before the date and time set for receipt of Bids. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids.

VIII. EVALUATION PROCESS

The City will evaluate all Bids in accordance with the provisions of the Bid Documents and the criteria described below. The City may consider in its evaluation all information contained in the Bid and any other information obtained or received by the City. Any Bid from a Bidder that is determined to be nonresponsive or not in conformance with the requirements of the Bid Documents may be rejected. Bids that are deemed, in the judgment of the City, to contain unrealistic prices or substantially deviate from the City's estimate of cost to complete all of the Work, or any portion thereof, will be considered as not responsive to the Invitation to Bid and may be rejected at the sole discretion of the Authority.

The City will award the contract in accordance with the "CONTRACT AWARD" section below. Before award, the City may conduct interviews with selected Bidders. The purpose of the

interviews will be to clarify and assure understanding of the contents of the Bid, as well as the requirements of the Bid Documents, and discuss any other matters relevant to such Bid as the City may determine appropriate. No statements made or actions taken by any representative of the City during such discussions shall be binding on the City. If requested by the City, the key personnel identified in the Bid shall participate in the discussions or be available for an interview with City representatives.

IX. BASIS OF AWARD

The criteria listed below are the criteria that will be applied to evaluate the Bids.

A. Price
Award will be to the lowest eligible and responsible Bidder with selected alternates provided that all required documents listed below are attached and satisfactory. The Citymay consider in its evaluation the reasonableness of the prices proposed by the Bidder.

B. Required Documents to be Submitted with Bid

1. Bid Form

2. Bid Deposit of 5% of the total bid amount (bid bond, certified check, or treasurer's or cashier's check payable to the City of Everett).

3. A proposed construction schedule showing all work included in the Bid. The proposed construction schedule must include key milestones substantial and final completion.

X. CONTRACT AWARD

(A) The City will open Bids on the Bid Due Date immediately following the deadline, and a register will be maintained of those firms submitting timely Bids. Bids shall be publically open and read.

(B) The City will award the Contract to the lowest responsible and eligible bidder within thirty (30) days after the opening of Bids, subject to the reservations contained herein and the exceptions set forth in Massachusetts General Laws Chapter 30 and 149, whichever is applicable. The selected Bidders will be notified in writing.

(C) If a selected Bidder fails or refuses to execute the Agreement between Owner and Contractor in the form included in the Bid Documents, as modified by addenda, if any, and furnish the other documents required in connection with execution of the contract, within

ten (10) business days after the presentation of the Agreement between Owner and Contractor, as applicable, by the City, the City may award the Contract to another Bidder.

(D) THE CITY RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS if it determines that such action is in the best interest of the CITY. Any Bid which is incomplete, conditional or obscure may be considered invalid and the CITY may reject such Bid. In addition, the CITY may reject any Bid which is not prepared and submitted in accordance with all requirements of these Bid Documents and the attached forms or which contains alterations, contingencies or additions not called for or errors or irregularities of any kind; PROVIDED, HOWEVER, that the CITY reserves the right to waive any and all informalities or minor irregularities contained in the Bid. If these Bid Documents, the Bid Forms, or any other document or applicable law requires submission of certain information or other items as a part of or to accompany Bids and any Bidder neglects to furnish such information or other items with its Bid, the CITY may reject the Bid of such Bidder as incomplete; PROVIDED, HOWEVER, that the CITY reserves the right to deem any such omission as an informality for which such Bid will not be rejected, and to subsequently receive such information or other items prior to award of the contract.

(E) More than one Bid from the same Bidder, whether or not the same or different names appear on the signature page, will not be considered. Reasonable grounds for believing that any bidder is so interested in more than one Bid for the work contemplated may cause rejection of all Bids made by that Bidder directly or indirectly.

(F) Any and all Bids potentially affected by collusion will be rejected if there is reason for believing that collusion exists between the Bidders. The decisions of the CITY will be final. Bidders whose Bids have been rejected because of evidence of collusion will not be considered in future bids for the same work and may be disqualified from bidding on future work. The City shall reject any Bid that does not include the signed Non-Collusion and Attestation Forms provided in the Bid Documents.

(G) As used herein, the term “lowest responsive and responsible bidder” shall mean the Bidder (1) whose Bid is the lowest of those Bidders possessing the skill, ability and integrity necessary for the faithful performance of the work described in the Bid documents; (2) who shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (4) who obtains within ten (10) days of the notification of contract award the security by bond required under section 29 of chapter 149 from a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the City; provided further, that if there is more than one (1) surety company providing such bond, the surety companies shall be jointly and severally liable. The City may consider the reasonableness of the prices proposed for the scope of the work involved in its evaluation of the Bids.

(H) The City reserves the right to amend these Bid Documents at any time. Any amendments to these Bid Documents shall be issued by means of written addenda. All addenda so issued shall become part of these Bid Documents.

(I) The City reserves the right to withdraw this Invitation to Bid at any time in its sole discretion before award of a contract.

(J) The City assumes no responsibility for the costs incurred by the Bidders in the preparation of a Bid or any related activities. The Bid Documents and this Invitation to Bid/Instructions to Bidders have been prepared solely to solicit Bids, and are not contract offers. The only document that may be binding on the City is the Agreement between Owner and Contractor, and all documents incorporated therein by reference, only when duly executed by the City and the contractor to whom the contract is awarded.

XI. ADDITIONAL PROVISION

(A) Council Approval. In all cases, the award of the contract shall be subject to the approval of the members of the Everett City Council in a public meeting.

(B) Estimated Quantities. Unless otherwise stated, quantities shown in the Bid Documents represent the estimated quantities of labor and materials that might be expected to be encountered during the contract period. In the event of a discrepancy between the estimated quantities shown in the Specifications and those shown in the Price Sheets, quantities shown in the Price Sheets shall control. The City does not expressly or by implication agree that the actual amount of work will correspond therewith. These estimated quantities will be used solely for the comparison of Bids. The City reserves the right to increase, decrease, or delete the amount of any or all items of work after Bids have been received. Such increase, decrease or deletion in the quantity for any item shall not be regarded as cause for an increase or decrease in the unit prices. 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 or indirectly from such increased, decreased, or deleted quantities or from unbalanced allocation among the Contract items or overhead expenses on the part of the Bidder and subsequent loss of expected reimbursement therefore or from any other cause.

(C) Bonds and Insurance Certificates. Should the successful bidder fail to perform its agreement to furnish the required bonds and insurance certificates required herein, the Bid Deposit shall become and be the property of the City as liquidated damages; provided that, the amount of the Bid Deposit which becomes the property of the City shall not, in any event, exceed the difference between its bid price and the Bid Price of the next lowest responsible and eligible Bidder.

(D) Foreign Corporations. If the successful bidder is a foreign corporation as defined at G.L. c. 156D, § 1.40, and if successful bidder fails to perform its agreement to furnish the required certificate of the state secretary, the Bid Deposit shall become and be the property of the City as liquidated damages; PROVIDED THAT, the amount of the Bid Deposit

which becomes the property of the City shall not, in any event, exceed the difference between its Bid Price and the Bid Price of the next lowest responsible and eligible Bidder.

(E) Sales and Use Taxes. Bidders are advised that City is exempt from sales and use taxes and shall submit its Bid Prices without taxes. An Exemption Certificate may be obtained by the successful Bidder from the City upon request.

(F) Health and Safety. This Contract is subject to the Safety and Health Regulations of the U.S. Department of Labor set forth in Title 29 CFR, Part 1926 and to all subsequent amendments, and to the Massachusetts Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations" (Chapter 454 CMR 10.00 et seq.). Bidders shall be familiar with the requirements of these regulations.

(G) Monthly Price Adjustments for Certain Items. Monthly price adjustments will be made for qualifying work orders using diesel fuel, gasoline, asphalt, concrete, and steel in accordance with the Bid Documents.

(H) Permits and Approvals. The successful Bidder will be solely responsible for obtaining all necessary construction permits, licenses, and approvals required in connection with the Project and/or under the Bid Documents, including without limitation as set forth in Contract between Owner and Contractor and the General Conditions. All bidders shall be responsible for investigating in detail the permitting requirements of the work and shall be responsible for making such examination thereof as may be necessary to satisfy themselves in regard to the character of the permitting required, and shall Bid in sole reliance upon their own investigation.

(I) Bid Information. The City's receipt or discussion of any information (including information contained in the proposal and any ideas or other material communicated or exhibited by the Bidder or on its behalf) shall not impose any obligation whatsoever on the City or entitle the Bidder to any compensation therefor, except to the extent specifically provided in such written agreement as may be entered into between the City and the Bidder. Any such information given to the City before, with, or after submission of the proposal, either orally or in writing, except as noted below, is not given in confidence, and may be used, or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with the terms of this paragraph, whether made as part of or in connection with any information received from the Bidder or made at any other time in any fashion, shall be void and of no effect.

CITY OF EVERETT, MASSACHUSETTS

Project Number: PLD-26-100

Northern Strand Trail Connection

GENERAL CONTRACTOR SERVICES

BID FORM

Firm Name: _____

(A) The Undersigned, as Bidder, proposes to furnish to the City of Everett, Massachusetts (the "Owner" or the "City") all labor, materials, equipment, supervision, tools and services required for the _____ Project at _____, in accordance with the accompanying plans and specifications prepared by Howard Stein Hudson and entitled Northern Strand Trail Connection, dated April 29, 2026, for the fixed contract price specified below, subject to additions and deductions according to the terms of the Contract.

(B) This Bid includes addenda numbered _____

(C) UNIT PRICES
Unit Prices for potential Change Orders as specified in the General Conditions and Section _____ _____(UNIT PRICES). Prices shall include materials, labor, overhead, profit, insurance and bonding.

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
100	Schedule of Operations - Fixed Price	LS	1		

100 Extended Price in Words: _____

103*	Tree Removed - Diameter Under 24 Inches	EA	1		

103* Extended Price in Words: _____

119	Rodent Control	LS	1		

119 Extended Price in Words: _____

120.1	Unclassified Excavation	CY	400		

120.1 Extended Price in Words: _____

141.1	Test Pit For Exploration	CY	20		

141.1 Extended Price in Words: _____

142	Class B Trench Excavation	CY	40		

142 Extended Price in Words: _____

144	Class B Rock Excavation	CY	10		

144 Extended Price in Words: _____

150	Ordinary Burrow	CY	247		

150 Extended Price in Words: _____

151	Gravel Borrow	CY	350		

151 Extended Price in Words: _____

151.2	Gravel Borrow for Backfilling Structures and Pipes	CY	10		

151.2 Extended Price in Words: _____

_____

Bidder Company Name

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
156	Crushed Stone	TON	30		

156 Extended Price in Words: _____

170	Fine Grading and Compacting	SY	1,200		

170 Extended Price in Words: _____

180.01*	Environmental Health and Safety Program	LS	1		

180.01 Extended Price in Words: _____

180.02*	Personal Protection Level C Upgrade	HR	40		

180.02 Extended Price in Words: _____

180.03*	Licensed Site Professional Services	HR	40		

180.03 Extended Price in Words: _____

181.11*	Disposal of Unregulated Soil	TON	585		

181.11 Extended Price in Words: _____

181.12*	Disposal of Unregulated Soil I In-State Facility	TON	19		

181.12 Extended Price in Words: _____

220	Drainage Structure Adjusted	EA	12		

220 Extended Price in Words: _____

220.3	Drainage Structure Change in Type	EA	2		

220.3 Extended Price in Words: _____

220.7	Sanitary Structure Adjusted	EA	1		

220.7 Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
221	Frame and Cover	EA	2		
	221 Extended Price in Words:				
222.1	Frame and Cover - MassDOT Cascade Type	EA	5		
	222.1 Extended Price in Words:				
252.112	12 Inch Corrugated Plastic Pipe Flared End	EA	3		
	252.112 Extended Price in Words:				
252.12	12 Inch Corrugated Plastic Pipe	FT	90		
	252.12 Extended Price in Words:				
258	Stone for Pipe Ends	SY	15		
	258 Extended Price in Words:				
269.06	6 Inch Slot-Perforated Corrugated Plastic Pipe (Subdrain)	FT	710		
	269.06 Extended Price in Words:				
440	Calcium Chloride for Roadway Dust Control	LB	1,800		
	440 Extended Price in Words:				
452	Asphalt Emulsion for Tack Coat	GAL	100		
	452 Extended Price in Words:				
453	HMA Joint Sealant	FT	1,050		
	453 Extended Price in Words:				
472	Hot Mix Asphalt For Miscaellaneous Work	TON	20		
	472 Extended Price in Words:				

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
594	Curb Removed And Discarded	FT	830		

594 Extended Price in Words: _____

665.01	Timber Rail Fence	FT	880		

665.01 Extended Price in Words: _____

702	Hot Mix Asphalt Sidewalk or Driveway	TON	200		

702 Extended Price in Words: _____

751	Loam Borrow	CY	500		

751 Extended Price in Words: _____

755.45*	Wetland Restoration	SY	520		

755.45* Extended Price in Words: _____

765	Seeding	SY	3,600		

765 Extended Price in Words: _____

767.121*	Sediment Control Barrier	FT	1,020		

767.121* Extended Price in Words: _____

767.9*	Jute Mesh	SY	450		

767.9* Extended Price in Words: _____

767.901*	Slope Stabilization	SF	5,000		

767.901* Extended Price in Words: _____

804.3	3 Inch Electrical Conduit Type NM-Plastic-(UL)	FT	300		

804.3 Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
811.22	Electrical Handhole - SD2.022	EA	2		

811.22 Extended Price in Words: _____

815.1*	Traffic Control Signal Construciton Location No. 1	LS	1		

815.1* Extended Price in Words: _____

816.01*	Traffic Control Signal Reconstruciton Location No. 1	LS	1		

816.01* Extended Price in Words: _____

824.501*	Rectangular Rapid Flashing Beacon Removed and Reset	LS	1		

824.501* Extended Price in Words: _____

824.511*	Rectangular Rapid Flashing Beacon Removed and Discarded	LS	1		

824.511* Extended Price in Words: _____

832	Warning-Regulatory and Route Marker - Alum. Panel (Type A)	SF	170		

832 Extended Price in Words: _____

834.18	Reflectorized Flexible Delineator Post (White)	EA	7		

834.18 Extended Price in Words: _____

847.1	Sign Sup (N/Guide)+Rte Mkr W/1 Brkway Post Assembly-Steel	EA	27		

847.1 Extended Price in Words: _____

848.1	Sign Sup (N/Guide)+Rte Mkr W/2 Brkway Post Assembly-Steel	EA	1		

848.1 Extended Price in Words: _____

866.312*	12 Inch Wet Reflective Recessed White Line (Thermoplastic)	FT	20		

866.312* Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
AL 1	Allowance 1 Police Details	AL	1	$15,000.00	$15,000.00

AL1 Extended Price in Words: Fifteen Thousand Dollars

TOTAL EXTENDED BASE SCOPE BID PRICE:

TOTAL EXTENDED BASE SCOPE BID PRICE IN WORDS:

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALTERNATE ADDITION NUMBER ONE:					
ALT 1 - 100	Schedule of Operations - Fixed Price	LS	1		
	100 Extended Price in Words:				
ALT 1 - 120.1	Unclassified Excavation	CY	450		
	120.1 Extended Price in Words:				
ALT 1 - 150	Ordinary Borrow	CY	492		
	150 Extended Price in Words:				
ALT 1 - 151	Gravel Borrow	CY	300		
	151 Extended Price in Words:				
ALT 1 - 170	Fine Grading and Compacting	SY	1,000		
	170 Extended Price in Words:				
ALT 1 - 181.11*	Disposal of Unregulated Soil	TON	660		
	181.11* Extended Price in Words:				
ALT 1 - 181.12*	Disposal of Unregulated Soil - In-State Facility	TON	21		
	181.12* Extended Price in Words:				
ALT 1 - 201	Catch Basin	EA	3		
	201 Extended Price in Words:				
ALT 1 - 204*	Drop Inlet	EA	2		
	204* Extended Price in Words:				

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALT 1 - 241.12	12 Inch Reinforced Concrete Pipe Class III	FT	110		

241.12 Extended Price in Words: _____

ALT 1 - 402	Dense Graded Crushed Stone For Sub-Base	CY	20		

402 Extended Price in Words: _____

ALT 1 - 415.2	Pavement Fine Milling	SY	3,720		

415.2 Extended Price in Words: _____

ALT 1 - 431	High Early Strength Cement Concrete Base Course	CY	40		

431 Extended Price in Words: _____

ALT 1 - 440	Calcium Chloride for Roadway Dust Control	LB	1,600		

440 Extended Price in Words: _____

ALT 1 - 443	Water For Roadway Dust Control	MGL	1		

443 Extended Price in Words: _____

ALT 1 - 450.231	Superpave Surface Course - 12.5 Polymer (SSC - 12.5 - P)	TON	350		

450.231 Extended Price in Words: _____

ALT 1 - 450.32	Superpave Intermediate Course - 19.0 (SIC - 19.0)	TON	20		

450.32 Extended Price in Words: _____

ALT 1 - 450.42	Superpave Base Course - 37.5 (SBC - 37.5)	TON	15		

450.42 Extended Price in Words: _____

ALT 1 - 451	HMA for Patching	TON	40		

451 Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALT 1 - 452	Asphalt Emulsion for Tack Coat	GAL	600		

452 Extended Price in Words: _____

ALT 1 - 482.3	Sawcutting Asphalt Pavement	FT	210		

482.3 Extended Price in Words: _____

ALT 1 - 504	Granite Curb Type VA4 - Straight	FT	770		

504 Extended Price in Words: _____

ALT 1 - 504.1	Granite Curb Type VA4 - Curved	FT	120		

504.1 Extended Price in Words: _____

ALT 1 - 509	Granite Transition Curb for Wheelchair Ramps - Straight	FT	45		

509 Extended Price in Words: _____

ALT 1 - 580	Curb Removed And Reset	FT	195		

580 Extended Price in Words: _____

ALT 1 - 697.1	Silt Sack	EA	9		

697.1 Extended Price in Words: _____

ALT 1 - 701	Cement Concrete Sidewalk	SY	750		

701 Extended Price in Words: _____

ALT 1 - 701.01	Stamped Cement Concrete	SY	30		

701.01 Extended Price in Words: _____

ALT 1 - 701.2	Cement Concrete Wheelchair Ramp	SY	60		

701.2 Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALT 1 - 751	Loam Borrow	CY	100		

751 Extended Price in Words: _____

ALT 1 - 765	Seeding	SY	600		

765 Extended Price in Words: _____

ALT 1 - 767.121*	Sediment Control Barrier	FT	220		

767.121* Extended Price in Words: _____

ALT 1 - 864.04	Pavement Arrows and Legends Refl. White Thermoplastic	SF	350		

864.04 Extended Price in Words: _____

ALT 1 - 866.306*	6 Inch Wet Reflective Recessed White Line (Thermoplastic)	FT	2,200		

866.306* Extended Price in Words: _____

ALT 1 - 866.312*	12 Inch Wet Reflective Recessed White Line (Thermoplastic)	FT	1,090		

866.312* Extended Price in Words: _____

ALT 1 - 867.306*	6 Inch Wet Reflective Recessed Yellow Line (Thermoplastic)	FT	1,070		

867.306* Extended Price in Words: _____

ALT 1 - 867.312*	12 Inch Wet Reflective Recessed Yellow Line (Thermoplastic)	FT	80		

867.312* Extended Price in Words: _____

ALT 1 - 874	Street Name Sign	EA	4		

874 Extended Price in Words: _____

ALT 1 - 874.2*	Traffic Sign Removed And Reset	EA	3		

874.2* Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALT 1 - 874.41	Traffic Sign Removed and Discarded	EA	11		

874.41 Extended Price in Words: _____

ALT 1 - 877.1	Sign Post Removed and Discarded	EA	1		

877.1 Extended Price in Words: _____

ALT 1 - AL 1	Allowance 1 Police Details	AL	1	$20,000.00	$20,000.00

AL1 Extended Price in Words: Twenty Thousand Dollars

TOTAL EXTENDED ALTERNATE ADDITION #1 BID PRICE: $ _____

TOTAL EXTENDED ALTERNATE ADDITION #1 BID PRICE IN WORDS: _____

TOTAL EXTENDED BASE BID PLUS ALTERNATE ADDITION #1 PRICE: $ _____

TOTAL EXTENDED BASE BID PLUSE ALTERNATE ADDITION #1 PRICE IN WORDS: _____

Bidder Company Name

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALTERNATE ADDITION NUMBER TWO:					
ALT 2 - 100	Schedule of Operations - Fixed Price	LS	1		
	100 Extended Price in Words:				
ALT 2 - 103	Tree Removed - Diamter Under 24 Inches	EA	8		
	103 Extended Price in Words:				
ALT 2 - 120.1	Unclassified Excavation	CY	300		
	120.1 Extended Price in Words:				
ALT 2 - 150	Ordinary Borrow	CY	549		
	150 Extended Price in Words:				
ALT 2 - 151	Gravel Borrow	CY	250		
	151 Extended Price in Words:				
ALT 2 - 170	Fine Grading and Compacting	SY	1,000		
	170 Extended Price in Words:				
ALT 2 - 181.11*	Disposal of Unregulated Soil	TON	440		
	181.11* Extended Price in Words:				
ALT 2 - 181.12*	Disposal of Unregulated Soil - In-State Facility	TON	14		
	181.12* Extended Price in Words:				
ALT 2 - 241.12	12 Inch Reinforced Concrete Pipe Class III	FT	10		
	241.12 Extended Price in Words:				

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALT 2 - 252.06*	6 Inch Corrugated Plastic Pipe	FT	30		

252.06* Extended Price in Words: _____

ALT 2 - 415.2	Pavement Fine Milling	SY	20		

415.2 Extended Price in Words: _____

ALT 2 - 440	Calcium Chloride for Roadway Dust Control	LB	1,400		

440 Extended Price in Words: _____

ALT 2 - 452	Asphalt Emulsion for Tack Coat	GAL	100		

452 Extended Price in Words: _____

ALT 2 - 504.1	Granite Curb Type VA4 - Curved	FT	20		

504.1 Extended Price in Words: _____

ALT 2 - 509	Granite Transition Curb for Wheelchair Ramps - Straight	FT	15		

509 Extended Price in Words: _____

ALT 2 - 580	Curb Removed And Reset	FT	5		

580 Extended Price in Words: _____

ALT 2 - 697.1	Silt Sack	EA	4		

697.1 Extended Price in Words: _____

ALT 2 - 702	Hot Mix Asphalt Sidewalk or Driveway	TON	150		

702 Extended Price in Words: _____

ALT 2 - 751	Loam Borrow	CY	100		

751 Extended Price in Words: _____

Bidder Company Name

_____

EVERETT NORTHERN STRAND TRAIL CONNECTION
FORM FOR GENERAL BID

BASE BID ITEMS

Item	Description	Unit	Quantity	Unit Price	Extended Price
ALT 2 - 765	Seeding	SY	800		

765 Extended Price in Words: _____

ALT 2 - 767.121*	Sediment Control Barrier	FT	160		

767.121* Extended Price in Words: _____

ALT 2 - 864.04	Pavement Arrows and Legends Refl. White Thermoplastic	SF	50		

864.04 Extended Price in Words: _____

ALT 2 - 866.312*	12 Inch Wet Reflective Recessed White Line (Thermoplastic)	FT	380		

866.312* Extended Price in Words: _____

ALT 2 - 874.2*	Traffic Sign Removed And Reset	EA	3		

874.2* Extended Price in Words: _____

ALT 2 - 874.41	Traffic Sign Removed and Discarded	EA	7		

874.41 Extended Price in Words: _____

ALT 2 - AL 1	Allowance 1 Police Details	AL	1	$15,000.00	$15,000.00

AL1 Extended Price in Words: Fifteen Thousand Dollars

TOTAL EXTENDED ALTERNATE ADDITION #2 BID PRICE: $ _____

TOTAL EXTENDED ALTERNATE ADDITION #2 BID PRICE IN WORDS: _____

TOTAL EXTENDED BASE BID PLUS ALTERNATE ADDITION #1 AND #2 BID PRICE: $ _____

TOTAL EXTENDED BASE BID PLUSE ALTERNATE ADDITION #1 AND #2 BID PRICE IN WORDS: _____

Bidder Company Name

_____

(D) **Contract Execution.** The undersigned agrees that, if selected as general contractor, general contractor will within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the City, execute a contract in accordance with the terms of this Bid and furnish a performance bond and also a labor and materials payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the City and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

(E) **Withdrawal of Bids.** As provided in the Instructions to Bidders, the Bidder hereby agrees that he will not withdraw this Bid within thirty (30) consecutive calendar days after the actual date of the opening of Bids. Should the Bidder fail to fulfill any of his agreements as hereinabove set forth, the Owner shall have the right to retain as liquidated damages the amount of the bid security which shall become the Owner's property. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety.

(F) **Certification Regarding Labor Harmony.** The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A.

(G) **Certification Regarding Contract Requirements.** Contractor certifies that he has carefully examined the site 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 he has carefully read and examined the drawings, specifications, and other Contract Documents therein referred to and knows and understands the terms and provisions thereof.

(H) **Information Regarding Subsurface Conditions.** Contractor understands that information, if any, relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the drawings or in any of the other Contract Documents and he agrees that he shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures.

(I) **Certification Regarding Quantities.** Contractor certifies that he understands that the quantities of work tabulated in this Bid or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer.

(J) **Certification Regarding Labor:** The undersigned hereby certifies under penalties of perjury that: (i) that all employees to be employed in the work included in this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration; and (ii) any employee found on worksite subject to this bid without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration shall be subject to immediate removal.

(K) **Certification Regarding Financial Position/Business Organization:** The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

(L) **Certification Regarding Tax Compliance:** The undersigned further certifies under penalty of perjury that the said undersigned has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting of child support pursuant to the provisions of M.G.L. c. 62C, §49A(b).

(M) **Certification of Compliance of Secretary of State Requirements:** The undersigned further certifies under penalty of perjury that the Bidder has filed with the Secretary of State for the Commonwealth of Massachusetts all certificates and annual reports required by Chapter 156B, Section 109 (business corporation), by Chapter 181, Section 4 (foreign corporation), or Chapter 180, Section 26A (non-profit corporation) of the Massachusetts General Laws.

(N) **Certification Regarding Non-Collusion:** The undersigned further certifies under penalty of perjury that this bid has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

(O) **Certification Regarding Prevailing Wage Compliance:** The undersigned further certifies under penalty of perjury that the said undersigned shall comply with the provisions of sections 26 and 27D of chapter one hundred and forty-nine of the General Laws governing the payment of prevailing wages.

_____ Date: _____
Name of Contractor

_____
Signature

_____
Name & Title of Person Signing Bid

_____
Business Address

_____
Telephone/Fax/Email

_____
Facsimile

Attach: Bid Security (five percent of Contract Sum)
Proposed Construction Schedule

CITY OF EVERETT, MASSACHUSETTS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

to the

AGREEMENT BETWEEN OWNER AND CONTRACTOR PURSUANT TO M.G.L. CHAPTER 30, § 39M

Dated as of April 29, 2026

by and between

CITY OF EVERETT, MASSACHUSETTS
AS OWNER

and

[NAME]
AS CONTRACTOR

City Project #: PLD-26-100

SAMPLE

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GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1 DEFINITIONS; CONTRACT DOCUMENTS

1.1 DEFINITIONS

Wherever used in the Contract Documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof. The order of the terms defined below is alphabetical, and is not intended to indicate any priority.

1.1.1 Affiliated Entities - Any entity related to or affiliated with the Contractor or any Subcontractor or with respect to which the Contractor or any Subcontractor has direct or indirect ownership or control, including without limitation, any entity owned in whole or in part by the Contractor or any Subcontractor, as applicable; any holder of any issued and outstanding shares of, or the holder of any interest in, the Contractor or any Subcontractor, as applicable; any entity in which any officer, director, partner, shareholder, member, or manager (or member of the family of any of the foregoing persons) has a direct or indirect interest, which interest includes, but is not limited to, that of a partner, shareholder, officer, director, member, manager, or agent.

1.1.2 Agreement – The fixed-price Agreement between Owner and Contractor.

1.1.3 Applicable Laws - As defined in Subsection 1.2.1.

1.1.4 "Approve", "approved" or "approval" means written approval by a duly authorized representative.

1.1.5 Engineer - The Engineer designated in the Agreement or its authorized representatives.

1.1.6 Engineer's Supplemental Instructions - A written document issued by the Engineer for clarification which may order a minor change in the Work and which does not require an adjustment in the Contract Sum and/or an extension of the Contract Time. The Engineer's Supplemental Instructions shall be issued on AIA Document G710 or other form issued by or acceptable to the Owner.

1.1.7 Change Order - A written order prepared by the Engineer, issued by the Owner to the Contractor and signed by the Owner, the Contractor and the Engineer authorizing an addition to, deletion from or revision in the Work and any adjustment in the Contract Sum and/or Contract Time that may be required in accordance with the terms of the Contract. Change Orders shall be issued on AIA Document G701/2000 or other form issued by or acceptable to the Owner.

1.1.8 Construction Change Directive - A written order prepared by the Engineer, issued by the Owner to the Contractor, and signed by the Owner and the Engineer authorizing the Contractor to proceed with a change in the Work. Construction Change Directives shall be issued on AIA Document G714 or any other form issued by or acceptable to the Owner. A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith and shall be considered a Change Order.

1.1.9 Construction Period - The period of the Contract Time which commences upon the issuance of the initial Notice to Proceed with Construction and concludes on the Final Completion Date.

1.1.10 Contract - As defined in the Agreement.

1.1.11 Contract Documents - As defined in the Agreement.

1.1.12 Contract Sum - As defined in the Agreement, subject to amendment in accordance with the provisions of the Contract.

1.1.13 Contract Time - As defined in the Agreement, subject to amendment in accordance with the provisions of the Contract.

1.1.14 Contractor - The entity with which the Owner has executed the Agreement. Wherever the term "Contractor" appears in the Contract Documents, it means the Contractor and Subcontractors who are obligated to perform all, or a part of, the Work described by the Contract Documents.

1.1.15 Critical Path - The sequential Critical Path Activities shown on the Project Schedule from the date of commencement of the Work through Final Completion.

1.1.16 Critical Path Activity - Any activity identified on the Project Schedule which, if delayed or prolonged, would cause the Construction Period to extend beyond the Contract Time.

1.1.17 Day - As used in the Contract Documents, the term shall mean calendar day. The terms "working day" and "business day" shall mean any calendar day except Saturdays, Sundays, and legal holidays at the place where the Project is located.

1.1.18 Delay Event - As defined in Subsection 9.4.1 of these General Conditions.

1.1.19 Drawings - The graphic and pictorial depictions of the Work prepared by the Engineer, wherever located and whenever issued, showing the design, location, scope and dimensions of the Work, or parts thereof, generally including plans, elevations, sections, details, schedules and diagrams and any narrative notes thereon.

1.1.20 Excusable Delay - Any act, omission, event or condition which delays performance of the Work, for which the Contractor is entitled, under applicable provisions of the Contract Documents, to an extension of the Contract Time.

1.1.21 Final Completion - As defined in Subsection 10.8.5 of these General Conditions.

1.1.22 Final Completion Date - The date set forth in the Agreement on or prior to which Final Completion is required to be achieved.

1.1.23 Notice to Proceed (NTP) – A written communication issued by the Owner to the Contractor authorizing it to proceed with a specified portion of the Work.

1.1.24 Owner's Representative - A project manager retained by the Owner to represent it in connection with the Project. The Owner's Representative is designated in the Agreement.

1.1.25 Product Data - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and any other information furnished by the Contractor to illustrate a material, product, assembly, or system for a portion of the Work. Product data are not Contract Documents.

1.1.26 Project Schedule - As defined in Section 9.2 of these General Conditions.

1.1.27 "Provide" or "Provided" - where used in the Contract Documents, such words shall be construed to mean "furnish(ed)" and "install(ed)" and/or "connect(ed)", unless specifically stated otherwise.

1.1.28 Request for Information (RFI) - A written and logged request issued by the Contractor, or any Subcontractor through the Contractor, to the Engineer, with a copy sent to the Owner's Representative, requesting information about some aspect of the Contract Documents.

1.1.29 Samples - Physical examples that illustrate materials, products, equipment or workmanship and which, when approved in accordance with the Contract Documents, establish standards by which the Work will be inspected and judged. Samples are not Contract Documents.

1.1.30 Schedule of Values – A schedule, prepared and maintained by Contractor for lump sum portions of the Work, allocating portions of the Contract Sum to various portions of the Work as required by Section 10.1 of these General Conditions.

1.1.31 Shop Drawings - All drawings, prints, diagrams, illustrations, brochures, schedules and other data prepared by the Contractor, a Subcontractor, or a Supplier

to illustrate how specific portions of the Work shall be fabricated and/or installed. Shop Drawings are not Contract Documents.

1.1.32 "Shown" or "shown on Drawings" - Where used in the Contract Documents, such words shall be construed to mean "noted", "indicated", "scheduled", "detailed", or any other diagrammatic or written reference made in any of the Contract Documents.

1.1.33 Site - The area or areas indicated within the contract limit lines on the Drawings or otherwise defined in the Contract Documents, together with such additional areas or locations adjacent thereto in which construction operations or Work required under the Contract may be performed.

1.1.34 Specifications - Written narrative descriptions, prepared by the Engineer, of requirements for materials, equipment, systems, standards and workmanship for the Work, and requirements for the performance of construction services.

1.1.35 State University – the State University campus on which the Project is located.

1.1.36 Subcontractor - An entity having a contract with the Contractor or with any other Subcontractor, regardless of tier, for the performance of a part of the Work required under the Contract Documents.

1.1.37 Substantial Completion - As defined in Subsection 9.1.3 of these General Conditions.

1.1.38 Substantial Completion Date - The date set forth in the Agreement on or prior to which Substantial Completion is required to be achieved.

1.1.39 Supplier - Any entity having a contract with the Contractor, any Subcontractor or other supplier regardless of tier, who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the Site.

1.1.40 Work – As defined in the Agreement.

1.2 INTERPRETATION OF CONTRACT DOCUMENTS

1.2.1 This Contract is subject to all applicable laws, regulations, codes, ordinances, rules, and orders of the United States of America, the Commonwealth of Massachusetts, and other governmental or public agencies and authorities with jurisdiction over the Project, and to all contracts and other agreements between the Owner and any such governmental or public agencies and authorities, referred to or incorporated in the Contract Documents (the "Applicable Laws").

1.2.2 The Contractor shall inform itself of all Applicable Laws in any manner affecting the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any jurisdiction or over the Work. The Contractor shall comply, and shall cause all persons and Subcontractors employed in the performance of the Work to comply, with all Applicable Laws.

1.2.3 Where any requirements contained in the Contract Documents do not conform to or are inconsistent with such Applicable Laws to which the Contract is subject or by which it is governed, such Applicable Laws shall have precedence over any matters set forth herein and the Contractor agrees to comply fully therewith. The Owner makes no representation as to and assigns no responsibility for the correctness or completeness of such statutory matters referred to or set forth in the Contract Documents.

1.2.4 The Contractor represents that it has examined and understands all of the Contract Documents and has visited the Site, examined and familiarized itself with the local conditions under which the Work is to be performed, including any work in progress under previously awarded contracts, verified to its satisfaction the nature and quantity of the Work involved, and correlated its observations with the requirements of the Contract Documents, and, by execution of the Agreement, the Contractor acknowledges its satisfaction with the same.

1.2.5 The intent of the Contract Documents is to describe the Work that, once constructed by the Contractor, will result in a functionally complete facility. It is intended that the Contractor shall furnish all Work necessary for the proper execution and completion of the Project in accordance therewith, including all Work incidental to or reasonably inferable from the Contract Documents as being necessary to produce the intended results, unless it is specifically indicated in the Contract Documents that such work is to be performed by others, and to complete the Project in a satisfactory manner, ready for use, occupancy, and operation by the Owner. The Contractor recognizes, and agrees to perform the Work consistent with the extra degree of care and skill required in an occupied academic campus setting with respect to safety, protection of pedestrians, cleanliness of the Site, health and the protection of existing utilities, adjacent streets and property. In agreeing to the Contract Time and the Contract Sum, the Contractor has considered and included those circumstances.

1.2.6 Unless the Contract Documents specifically provide otherwise or the context clearly requires a different meaning, the terms “directed,” “required,” “permitted,” “ordered,” “designated,” “prescribed,” and words of like import shall imply the direction, requirement, permission, order, designation, or prescription of the Owner’s Representative or the Engineer, subject in each case to the final determination of the Owner; and “approved,” “acceptable,” “satisfactory,” and words of like import shall mean approved by, or acceptable or satisfactory to the Owner’s Representative or the Engineer, subject in each case to the final determination of the Owner; and “necessary,” “reasonable,” “proper,” “correct,” and words of like import shall mean necessary, reasonable, proper or correct in the judgment of the Owner’s Representative or the Engineer, subject in each case to the final determination of the Owner.

1.2.7 In case of discrepancies or conflicts among the Contract Documents or within any of the Contract Documents, the Contract Documents shall be interpreted on the basis of the following priorities:

(a) First, written amendments, including Change Orders, to the Agreement – those of a later date shall take precedence over those of an earlier date;

(b) Second, the Agreement Between Owner and Contractor;

(c) Third, Supplementary General Conditions, if any;

(d) Fourth, General Conditions;

(e) Fifth, Specifications; and

(f) Sixth, Drawings.

Among Drawings, large scale details shall control over small scale details, and indicated dimensions shall control over Drawings not dimensioned. In the event of a conflict or ambiguity within or between the Specifications or Drawings as to the quantity or quality of work or materials, the higher quality or greater quantity shall be furnished unless otherwise directed in writing by the Owner or the Engineer.

1.2.8 Any information contained in the Specifications that has been omitted from the Drawings or vice versa shall be construed as though contained in both. In the event of any duplication, conflict, inconsistency, error, omission, or discrepancy among or within the Drawings and the Specifications (or among or within other portions of the Contract Documents so far as the same pertain to the Drawings or the Specifications), the matter shall promptly be brought to the attention of the Engineer for instructions. If, having identified any duplication, conflict, inconsistency or discrepancy, the Contractor proceeds with the Work without receiving instructions from the Engineer, the Contractor does so at its own risk and shall be responsible for performing any corrective Work at its own cost and without entitlement to any adjustment in the Contract Sum or the Contract Time.

1.2.9 All indications or notations which apply to one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Contract Documents, except where a contrary result is explicitly indicated by the Contract Documents. A typical or representative detail indicated on the Drawings shall constitute the standard for workmanship and material throughout the corresponding parts of the Work. Where necessary and where reasonably inferable from the Contract Documents, the Contractor shall adapt such representative detail for application to such corresponding parts of the Work. The details of such adaptation shall be subject to prior approval by the Engineer. Repetitive features shown in outline on the Drawings shall be in exact accordance with corresponding features completely shown.

1.2.10 Where laws, regulations, codes, standards, requirements or publications of public or private bodies are referred to in the Contract Documents, references shall be understood to be to the latest revision in effect on the date of execution of the Contract Documents, except where otherwise indicated. The Contractor warrants that all Work performed hereunder shall meet the requirements of all such laws, regulations, codes, standards, requirements and publications which are applicable to the Project. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

1.2.11 The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

(a) a duly-executed amendment to the Contract;

(b) a Change Order (pursuant to Section 13.1); or

(c) a Construction Change Directive (pursuant to Section 13.2).

The Contract Sum and the Contract Time may only be changed by a Change Order or a written amendment. In addition, the requirements of the Contract Documents may be clarified or supplemented, and minor variations and deviations in the Work may be authorized, by the Engineer's Supplemental Instructions pursuant to Section 13.6 or by the Engineer's approval of Submittals pursuant to Section 3.8.

1.2.12 The organization of the Specifications into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade or subcontractor. A section or division of the Specifications may cover the Work of more than one Subcontractor and the Work of one Subcontractor may be covered by more than one section or division of the Specifications. The Contractor and all Subcontractors shall refer to all of the Drawings, and to all of the Sections of the Specifications, and shall perform all Work reasonably inferable therefrom as being necessary to produce the intended results. The Owner assumes no liability to the Contractor arising out of jurisdictional issues raised or claims advanced by trade organizations, Subcontractors or other interested parties based on the arrangement or manner of subdivision of the content of the Specifications and Drawings. In the event of any claim arising out of any duplication, conflict, inconsistency or discrepancy within the Contract Documents as to the allocation of the Work among and between the Subcontractors and the Contractor's own forces, the Contractor shall be solely responsible for resolving the claim and shall be responsible for ensuring that all of the Work is completed without additional cost to the Owner and without delay, regardless of where or how it is described in the Contract Documents.

1.2.13 If any term or provision of any of the Contract Documents, or the application thereof to any party or circumstance shall, to any extent, be determined to be invalid or unenforceable, the remaining provisions of the Contract Documents, or the application of

such term or provision to parties or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of each of the Contract Documents shall be valid and shall be enforced to the fullest extent permitted by law.

1.2.14 The Contract Documents shall not be construed to create a contractual relationship of any kind between: (1) the Engineer and the Contractor; (2) the Owner and any Subcontractor or Supplier; or (3) between any other persons or entities other than the Owner and the Contractor. The Contractor understands and agrees that the obligations of the Owner's Representative and the Engineer are solely to the Owner and, by performing those obligations properly, the Owner's Representative or the Engineer may increase the burdens and expenses of the Contractor, its Subcontractors, or sureties or any of them.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All Contract Documents and other related materials and copies thereof prepared or furnished to the Contractor are the property of the Owner, subject to the rights of the Engineer as provided in the Owner-Engineer Agreement. With the exception of one contract set for the Contractor, such documents shall be returned (or suitably accounted for) to the Owner, or if requested by the Owner, lawfully disposed of by the Contractor at the completion of the Work, as a condition precedent to final payment. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project shall not be construed as publication in derogation of the Engineer's common law copyright or other reserved rights.

1.4 OTHER REPRESENTATIONS

1.4.1 The Contractor shall perform the Work strictly in accordance with the Contract Documents. The Contractor accepts the relationship of trust and confidence established between it and the Owner established by the Agreement and other Contract Documents. The Contractor covenants with the Owner to furnish its best skill and judgment and to cooperate with the Owner, the Owner's Representative, the Engineer and any other consultants employed by the Owner in furthering the interests of the Owner. The Contractor agrees to furnish efficient business administration, coordination, and superintendence and to furnish at all times an adequate supply of workers and materials, and to perform the Work in the best way and in the most expeditious and economical manner consistent with the interests of the Owner and to make every effort to achieve time savings and construction efficiencies with respect to the Work.

ARTICLE 2 ADMINISTRATION OF THE CONTRACT

2.1 OWNER'S REPRESENTATIVE

2.1.1 The Owner's Representative, if one has been retained by the Owner, and the Engineer will assist the Owner in the administration of the Contract as provided in the

Contract Documents. The Owner's Representative and the Engineer may act directly or through their properly authorized agents, such agents acting within the scope of the particular duties entrusted to them. The Engineer and the Owner's Representative will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents or as may be specified in writing by the Owner.

2.1.2 The Engineer and the Owner's Representative will be representatives of the Owner during construction of the Work and until final payment is due and will advise and consult with the Owner as to the performance and progress of the Work. The Owner may communicate with the Contractor directly or through the Owner's Representative or the Engineer. The Owner will endeavor to furnish to the Engineer copies of any communications from the Owner to the Contractor, directly or through the Owner's Representative.

2.2 DESIGNER'S SITE VISITS

2.2.1 The Engineer will visit the Site at intervals appropriate to the stage of construction as may be required to familiarize itself generally with the progress and quality of the Work and to determine in general whether the Work is proceeding in accordance with the Contract Documents. However, the Engineer will not be required to make exhaustive or continuous on-site inspections. On the basis of its on-site observations as a design professional, it will keep the Owner's Representative and the Owner informed of the progress and quality of the Work.

2.2.2 Neither the Owner, the Owner's Representative, nor the Engineer will have control, or charge of, or be responsible for, construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and nor will any of them be responsible for the acts or omissions of the Contractor, Subcontractors or any other persons or entities performing any of the Work, or for the failure of any of them to carry out the Work in accordance with the Contract Documents.

2.2.3 All portions of the Work shall be subject to inspection and testing by the Engineer and the Owner's Representative. The Engineer will have authority to reject Work which does not conform to the Contract Documents. The Contractor shall, at its sole cost and expense, furnish the Engineer with such information and assistance (including, without limitation, labor, tools, equipment and transportation) as is required for the Engineer to make complete and detailed inspections or tests. Whenever the Engineer considers it necessary or advisable for the implementation of the intent of the Contract Documents, the Engineer will have authority to require special inspection or testing of portions of the Work in accordance with Article 8 hereof whether or not such Work be then fabricated, installed or completed. However, neither the Engineer's authority to act hereunder, nor any decision made by the Engineer in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their agents or employees, or any other person or entity performing any of the Work.

2.3 DESIGNER'S SUPPLEMENTAL INSTRUCTIONS

2.3.1 The Engineer will render, in writing, Engineer's Supplemental Instructions and other interpretations necessary for the proper execution or progress of the Work, with reasonable promptness. Either party to the Contract may request such interpretations from the Engineer by giving written notice of such request to the Engineer with a copy thereof given to the other party, or the Engineer may initiate such Engineer's Supplemental Instructions or other interpretations upon notice to the Owner's Representative. The Engineer will, as it judges necessary or desirable, issue as a part of such Engineer's Supplemental Instructions additional drawings, specifications, or instructions indicating in greater detail the construction or design of the various parts of the Work reasonably inferable from the Contract Documents, and, provided such Engineer's Supplemental Instructions are reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such Engineer's Supplemental Instructions without increase in the Contract Sum or extension of the Contract Time. Such change shall be effected by written order issued by the Engineer and delivered to the Contractor. If the Engineer determines that implementation of the requested changes would result in a material change to the Contract that may cause an adjustment in the Contract Time or Contract Sum, the Engineer may make a recommendation to the Owner, which may authorize further investigation of such change. Upon such authorization, and based upon any information furnished by the Owner's Representative, the Engineer shall review and advise the Owner and the Owner's Representative concerning the additional cost and time that might result from such change. With the Owner's approval, the Engineer shall request the Contractor to incorporate those estimates into a Change Order or other appropriate documentation for the Owner's execution or negotiation with the Contractor.

2.4 DESIGNER'S INTERPRETATIONS

2.4.1 Interpretations and decisions of the Engineer shall be consistent with the intent of, and reasonably inferable from, the Contract Documents and shall be in written or graphic form. In the capacity of interpreter, the Engineer shall endeavor to secure faithful performance by both the Owner and the Contractor, shall not show partiality to either, and shall not be liable for the result of any interpretation or decision rendered in good faith in such capacity.

2.5 SUBMITTALS

2.5.1 The Engineer will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples but only for the purpose of checking for conformance with the design concept and with the information in the Contract Documents. The Engineer shall communicate all such approvals or other actions to the Contractor with copy to the Owner's Representative. Review of such submittals is not conducted for the purpose of substantiating instructions for installation or performance of equipment or systems designed by the Contractor, all of which remain the responsibility of the

Contractor. The Engineer's review shall not constitute approval of safety precautions or of construction means, methods, techniques, sequences, or procedures. The Engineer's approval of a specific item shall not constitute approval of an assembly of which the item is a component. The Engineer shall not be required to review partial submittals nor submittals for which necessary correlated submissions have not been received.

2.6 REPLACEMENT DESIGNER

2.6.1 In case of the termination of the employment of the Engineer, the Owner shall appoint a designer whose status under the Contract Documents shall be that of the former designer**.** The Contractor shall cooperate with the replacement designer in connection with the completion of the Work. Replacement of the Engineer shall not entitle the Contractor to any adjustment in the Contract Sum or the Contract Time.

ARTICLE 3 CONTRACTOR'S RESPONSIBILITIES

3.1 DUTY TO REVIEW CONTRACT DOCUMENTS AND SITE CONDITIONS

3.1.1 Before starting the Work, and continuously during the progress thereof, the Contractor shall carefully examine the Site, take field measurements, and carefully study and compare the Contract Documents with each other and with conditions at the Site, including work completed or in progress under other contracts, and with such other information, documents, plans and criteria as may be available in connection with the Project and shall immediately communicate to the Engineer and the Owner, in writing, all errors, inconsistencies and omissions it discovers. If the Contractor proceeds with the Work without such notice to the Engineer and the Owner, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents and other conditions the Contractor could have discovered the same, the Contractor shall perform all necessary corrective work and bear all costs and expenses arising therefrom and shall have no claim for increases in the Contract Sum or extensions of the Contract Time for extra work made necessary thereby.

3.1.2 The Contractor shall give the Engineer timely written notice of any additional Drawings, Specifications, clarifications or instructions required to define the Work in greater detail or otherwise required to permit the proper progress of the Work. The Contractor shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents, but shall request additional drawings or instructions from the Engineer. If the Contractor proceeds with such Work without obtaining further drawings or instruction, the Contractor shall correct, at its own expense, Work incorrectly done.

3.1.3 Without limitation, the Contractor shall review the Contract Documents for clarity, consistency, constructability, maintainability, operability and coordination among trades, and time requirements for procurement, installation and construction, and sequence of

construction, including recommendations designed to minimize adverse effects of labor or material shortages.

3.1.4 If the Contractor recognizes or discovers that any portion of the Drawings and Specifications is at variance with Applicable Laws, the Contractor shall immediately notify the Owner and the Engineer in writing and shall not proceed with such Work without specific written direction by the Owner. If the Contractor performs any Work knowing or having reason to know that said Work is contrary to Applicable Laws and without so notifying the Owner and the Engineer, the Contractor shall assume full responsibility therefor and shall bear all costs of correction thereof, and any other costs including any loss, cost or damage sustained by the Owner attributable thereto.

3.1.5 The Contractor shall at all times provide the Engineer, its representatives and consultants, the Owner's Representative, and the Owner, and its agents, employees, representatives, other contractors, and consultants with access to the Site and the Work wherever it is in preparation and progress. The Contractor shall provide safe and proper facilities for such access and for observation, testing, and inspection of the Work.

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES

3.2.1 The Contractor shall supervise, coordinate, and direct the Work competently and efficiently, using its best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract. The Contractor shall be responsible to see that the finished Work complies accurately with the Contract Documents. The Contractor shall not be relieved from its obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Engineer or the Owner's Representative in their administration of the Contract, or by inspections, tests or approvals required or performed under Article 8 hereof by persons other than the Contractor.

3.2.2 The Contractor's Project Team shall consist of, as a minimum, a qualified Project Executive, Project Manager, Project Superintendent, and other necessary assistants and technical and administrative personnel. The Project Superintendent shall be licensed by the Commonwealth of Massachusetts. No change shall be made in the composition of the Project Team without the Owner's prior written approval. The removal or replacement without the Owner's consent of any of the identified members of the Contractor's Project Team shall constitute a material breach of the Contract. The Owner may require replacement of any member of the Contractor's Project Team upon notice to the Contractor with or without cause.

3.2.3 Both the Project Manager and the Project Superintendent shall have full authority to act on behalf of the Contractor. The Project Manager or Project Superintendent and necessary assistants shall be in attendance at the Site at all times during the progress of the Work until Final Completion. The Project Manager and the Project Superintendent shall

represent the Contractor and notices or other communications given to the Project Manager or the Project Superintendent shall be as binding as if given to the Contractor directly.

3.2.4 During the course of construction, the Engineer or the Owner's Representative shall schedule, convene and conduct Project meetings for the purpose of conducting an orderly review of the progress of the Work, as often as the Engineer or the Owner deems necessary, but at least once each week, in accordance with a schedule established by the Engineer. Such meetings shall be held at the Site and shall be attended by representatives of the Owner, the Contractor and the Engineer. Representatives of Subcontractors shall attend such meetings as necessary when Subcontractors are performing significant work on the Project or when a Subcontractor's presence is requested by the Owner or the Engineer. The Contractor's representative(s) at each meeting shall be the Project Manager and the Project Superintendent. The Engineer shall take minutes of each meeting in form, substance, and detail acceptable to the Owner.

3.2.5 The Contractor shall furnish sufficient forces, plant, and equipment as may be necessary to insure the progress of the Work in accordance with the Project Schedule (as defined below). If the Contractor falls behind the Project Schedule, the Contractor shall promptly submit a proposal demonstrating the manner in which the rate of progress may be increased and shall take such steps as may be necessary to meet the Project Schedule at no additional cost to the Owner. It shall be the responsibility of the Contractor to maintain its schedule so as not to delay the progress of the Work or the scheduled work of other contractors.

3.2.6 The Contractor shall be solely responsible for properly laying out the Work, and for all lines, elevations and measurements for all of the Work. It shall verify the figures shown on the Drawings before laying out the Work and will be responsible for any errors or inaccuracies resulting from its failure to do so.

3.2.7 Where the Contract Documents refer to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the Contractor shall be such as to produce at least the quality of Work implied by the operations described, but the actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the responsibility of the Contractor, who shall notify the Owner's Representative and the Engineer in writing of the actual means, methods, techniques, sequences or procedures which will be employed on the Work, if these differ from those mentioned in the Contract Documents. All loss, damage or liability, or cost of correcting defective work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor, notwithstanding that such construction means, methods, techniques, sequences or procedures are referred to, indicated, or implied by the Contract Documents, unless the Contractor has given timely notice to the Owner's Representative and the Engineer in writing that such means, methods, techniques, sequences or procedures are not safe or suitable, and the Contractor has then been instructed in writing to proceed at the Owner's risk.

3.2.8 If any portion of the Work is suspended by the Contractor for any reason at any time, prior notice shall be given to the Owner's Representative of such suspension and of the resumption of such Work.

3.2.9 If the Contractor observes or determines that any Work previously performed under the Contract or any work performed by the Owner or by a separate contractor is not in accordance with the Contract Documents or is otherwise unsatisfactory, the Contractor shall promptly notify the Owner's Representative and the Engineer in writing describing the situation in full detail.

3.3 LABOR AND MATERIALS

3.3.1 The Contractor shall provide competent, suitably qualified personnel to perform all Work as required by the Contract Documents. Unless otherwise specified in the Contract Documents, the Contractor shall furnish at its expense and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other utilities, services, facilities and incidentals necessary for the proper furnishing, performance, testing and completion of the Work.

3.3.2 All materials and equipment shall be of first quality and new and of recent manufacture, except as otherwise expressly provided in the Contract Documents. If required by the Engineer, or the Owner's Representative, the Contractor shall furnish written information or other satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment, and stating the original sources of supply of materials and products manufactured or produced at locations other than the Site of the Work. In order to permit time for required inspections, testing and approvals, such information shall be furnished at least thirty days (or as otherwise directed by the Engineer or the Owner's Representative) in advance of the incorporation of any such materials or products in the Work. The Contractor shall make no claim for extra cost or extension of the Contract Time arising directly or indirectly out of its failure to timely select materials or products to permit a reasonable time for completion of inspections, testing or approvals, or because of the Contractor's purchase of materials or products in advance of approval.

3.3.3 Reference in the Contract Documents to any product, material, equipment, method or process by proprietary name, manufacturer, vendor, supplier, make or catalog number shall be interpreted as establishing a standard of quality.

3.3.4 Except in the case of minor changes in the Work authorized by the Engineer in accordance with the provisions of the Contract Documents, the Contractor may make substitutions only in conformance with the provisions of Section 00.73.73 of the Specifications (M.G.L. c. 30, § 39M(b)).

3.3.5 The Contractor's attention is directed to M.G.L. c. 30, § 39I which provides criminal penalties for unauthorized deviations from the Drawings and Specifications:

"Contractor shall perform all Work required by the Contract in conformity with the plans and specifications contained therein or made a part thereof. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the Owner or by the Engineer who is duly authorized by the Owner to approve such deviations. In order to avoid delays in the prosecution of the Work required by the Contract such deviation from the plans or specifications may be authorized by a written order of the Owner or Engineer so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the Owner stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the Project as a whole; (3) that either the work substituted for the Work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the Owner and the Contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the Owner. Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the Work contracted for. Whoever violates any provision of this section willfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both."

3.3.6 The Owner will consider formal written requests made through the Engineer for the substitution of products in place of those specified only under the conditions set forth in the Contract Documents, unless otherwise expressly agreed by Owner in its sole discretion. By making requests for substitutions, the Contractor:

(a) represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified, and expressly warrants that such proposed substitute product will perform adequately the functions and achieve the results called for by the Contract Documents;

(b) represents that it will provide the same warranties and guarantees for the substitute product that it would for that specified;

(c) certifies that the cost data presented is complete and includes all related costs under the Contract but excluding costs under other contracts (but separately identifying such costs, if any, of other contracts), and excluding the Engineer's redesign costs, if any, and waives all claims for additional costs related to the substitution which subsequently become apparent;

(d) certifies that the proposed substitution will not result in any increase in the Contract Sum and represents and agrees that any cost savings will be passed through to the Owner in the form of a credit against the Contract Sum; and

(e) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

Notwithstanding approval or acceptance of such substitution by the Owner, any additional cost, or any loss or damage to the Owner arising from the substitution of any material or any method for those originally specified, shall be borne by the Contractor, including, without limitation, the costs of modifying Contract Documents and additional fees of the Engineer, the Owner's consultants or engineers, unless such substitution was made at the written request or order of the Owner.

3.3.7 The Contractor shall at all times enforce strict discipline and good order among and between its employees and the employees of its Subcontractors and shall not employ or permit to be employed on the Work any person who is not properly skilled in the work to be performed by it or who is otherwise unfit. Whenever the Owner shall notify the Contractor in writing that any person employed on the Work is, in the opinion of the Owner or the Engineer, incompetent, disorderly or otherwise unsatisfactory, such person shall be discharged immediately and shall not again be employed on the Work except with the prior written consent of the Owner.

3.3.8 The Contractor shall furnish labor that can and will work in harmony with all other elements of labor employed or to be employed on the Project. The costs of maintaining labor harmony, including without limitation, the cost of security, public safety measures and necessary traffic management shall be paid by the Contractor and the Contractor shall have no claim for any costs of maintaining labor harmony.

3.3.9 Any employee found on site subject to M.G.L. c. 30, § 39S without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration shall be subject to immediate removal and the Contractor shall immediately remove any such employee.

3.3.10 The Contractor will not be entitled to additional compensation for Work performed outside of regular working hours, except as otherwise expressly authorized in writing by the Owner prior to the performance of such overtime or premium shift work. Additional compensation for such authorized overtime or premium shift work shall be limited to the direct cost of the premium portion of such authorized overtime. The Contractor shall comply with M.G.L. c. 149, §§ 30, 34 and 34A which provide that no laborer, workman, mechanic, foreman or inspector working within the Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the Work shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

3.3.11 All materials and equipment shall be delivered, handled, stored, installed and protected to prevent damage in accordance with the best current practice in the industry, in

accordance with the manufacturers' specifications and recommendations, and in accordance with Contract Document requirements. The Contractor shall deliver materials and equipment in ample time to facilitate inspection and testing prior to installation. The term "delivery" in reference to any item specified or indicated, means the unloading and storing with proper protection at the Site. Damaged materials or equipment may be rejected and the Contractor shall provide conforming materials or equipment at no additional cost.

3.3.12 The Contractor shall be responsible for determining that all materials furnished for the Work meet all the requirements of the Contract Documents. The Owner's Representative or the Engineer may require the Contractor to produce reasonable evidence that a material meets such requirements, such as certified reports of studies by qualified experts, or other evidence which, in the opinion of the Engineer, would lead to a reasonable certainty that any material used, or proposed to be used, in the Work meets the requirements of the Contract Documents.

3.3.13 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, conditioned and commissioned in accordance with the manufacturer's or supplier's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

3.3.14 The layout of mechanical and electrical systems, equipment, fixtures, piping, duct work, conduit, specialty items, and accessories indicated on the Contract Documents is diagrammatic, and all variations in alignment, elevations, and detail required to avoid interferences and satisfy architectural, engineering and structural limitations are not necessarily shown. Prior to the commencement of the portion of the Work relating to the mechanical, electrical, plumbing, fire protection or any similar systems, the Contractor shall furnish the Owner with a coordination drawing, illustrating all systems, equipment, fixtures, conduit, pipes, valves and all related installations in CADD format. Actual layout of such Work shall be carried out without affecting the architectural, engineering and structural integrity and limitations of the Work and shall be performed in such sequence and manner as to avoid conflicts, provide clear access to all control points, including valves, strainers, control devices, and specialty items of every nature related to such systems and equipment, obtain maximum headroom, provide adequate clearances as required for operation and maintenance, and provide an orderly appearance when exposed. Exact locations of fixtures and outlets shall be obtained from the Engineer as provided in the Contract Documents before the Work is roughed in. Work incorrectly installed without such information from the Engineer shall be relocated at the Contractor's expense.

3.3.15 Every employee under these General Conditions shall lodge, board and trade where and with whom he or she elects, and neither the Contractor nor its agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person. [NTD: see GL c. 149, s. 25]

3.4 PHASES OF THE WORK—CONSTRUCTION PHASE

3.4.1 The construction phase shall commence upon the issuance by the Owner of a written Notice to Proceed with the Work.

3.4.2 The Contractor shall be responsible for ensuring that adequate quality control programs are developed, implemented and enforced by the Contractor's staff and all Subcontractors, including assigning an experienced quality manager, who may be the Project Superintendent employed by the Contractor, who shall be stationed at the Project Site and who shall be responsible for reviewing and coordinating the quality control activities of all Subcontractors and monitoring the implementation and enforcement thereof in connection with all aspects of the Work.

3.4.3 The Contractor shall be responsible for overall management, supervision, and coordination of all Subcontracts and of labor relations in connection with the Project to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work and in accordance with the requirements of the Contract Documents. The Contractor shall identify and resolve jurisdictional issues and disputes prior to bidding and award of the applicable Subcontracts, so as to cause no delay in the Work.

3.4.3.1 In consultation with the Owner's Representative and the Engineer, the Contractor shall develop and implement procedures for orderly completion of Punch-List items, check out of utilities, operational systems and equipment and initial start-up and testing. The Contractor shall prepare and deliver to the Engineer warranties, as-built drawings, maintenance manuals and the like, and generally administer closeout of the Work. In connection with the closeout of the Work, the Contractor shall take steps to ensure the performance of all warranty and guarantee obligations, resolution of all claims and other post construction requirements in accordance with the terms of the Contract Documents.

3.5 PERMITS AND FEES; COMPLIANCE WITH LAW

3.5.1 The Contractor, at its cost, shall secure and pay for all demolition permits, construction or building permits, utility inspection and connection fees, and all other permits and approvals and governmental fees or charges (including, without limitation, microfilming charges), licenses, inspections and certificates of inspection necessary for the proper execution, completion and use of the Work, including, without limiting the generality of the foregoing, permits for obstruction of or projection into, over or under public streets and sidewalks and other public ways, curb-cut permits, and notifications to and permits or approvals from the Massachusetts Department of Environmental Protection or others necessary in connection with the performance of the Work (the "Permits and Approvals"). The Contractor shall promptly deliver to the Owner's Representative and the Engineer copies of all such Permits and Approvals (and supporting applications), licenses and certificates, and satisfactory

evidence that disposal of all waste material in connection with the Project is done in full compliance with Applicable Laws.

3.5.2 The Contractor shall arrange for and provide at its expense all local policemen required to be present at or adjacent to the Site for traffic control purposes.

3.5.3 The Contractor shall give all notices required by and shall otherwise comply with all Applicable Laws bearing on the performance of the Work including, without limitation, applicable environmental laws and ordinances and regulations concerning noise pollution and dust control.

3.6 UTILITIES

3.6.1 The Contractor shall be solely responsible for verifying the precise locations of utilities on the Site or serving the Project. The Drawings and Specifications endeavor to indicate all pipes, conduits, lines or other structures or equipment of public and private utility companies ("Utility Equipment") at and adjacent to the Site of which the Owner is aware. However, the Owner makes no representation or warranty that the utility equipment shown on the Drawings or referred to in the Specifications is the only utility equipment that may be encountered. Prior to commencing the Work, the Contractor shall visit the Site and to the extent possible shall confirm the existence and location of all utility equipment and shall, during the course of the Work, make diligent and continuous efforts to confirm the locations of all utility equipment at and adjacent to the Site. The Contractor shall promptly notify the Owner and Engineer in writing, prior to commencing affected portions of the Work, of any Utility Equipment that it discovers and that has not been identified on the Drawings. If and as directed by the Owner, the Contractor shall make necessary arrangements with utility companies for the protection, alteration and relocation of utility equipment necessary in connection with performance of the Work, and shall notify all municipal departments and utility companies concerned of the time and location of any work which may affect them. To the extent not covered by insurance, the Contractor shall be responsible for all costs and all claims, damages and liabilities arising directly or indirectly from any damage to Utility Equipment or any intentional or unintentional interruption of service occurring in connection with the performance of the Work and caused by the Contractor or any Subcontractor or other operations of the Contractor.

3.6.2 The Contractor shall perform the Work so as not to interfere with utility companies or municipal departments that may enter on the Site to make changes in Utility Equipment or to place new utility equipment. Except as otherwise set forth in Section 9.4 hereof, the Contractor shall have no claim for or on account of any delay which may be due to or result from such work of utility companies or municipal departments.

3.7 DOCUMENTS AND SAMPLES AT THE SITE

3.7.1 The Contractor shall maintain at the Site in a safe and secure place one record copy of: (i) all Contract Documents and other Project-related documents marked

currently to record all changes made during construction; (ii) approved Shop Drawings, Product Data and Samples; (iii) copies of all building, electrical, plumbing, public safety and other codes and regulations applicable to the Work; (iv) certified payroll reports; and (v) all permits, licenses, approvals, inspection reports and certificates obtained as required by Section 3.5. These shall be available to the Engineer, the Owner's Representative, and the Owner for reference and shall be delivered to the Owner's Representative upon completion of the Work. The Contractor shall keep all such documents in good order and shall maintain current logs of all Project-related documents, which logs shall be in form and detail satisfactory to the Owner and the Engineer.

3.7.2 The Contractor shall keep a separate and complete set of black-line prints of the Drawings and Specifications on which shall be noted neatly, accurately, completely, and promptly, as the Work progresses: (a) the progress of the Work installed by coloring in all pipe lines, ducts and apparatus as constructed or installed; and (b) all changes, deviations, revisions to the plumbing, electrical, and all other Work, wherever such Work was installed other than as shown on the Contract Documents. The Contractor shall be responsible for assuring that the progress of the Work and all changes, deviations, and revisions are delineated by the Subcontractors responsible for performing the specific Work. Failure to maintain such as-built Drawings and Specifications may result in withholding of payments to the Contractor. The Owner, the Owner's Representative, the Engineer, and their respective agents, representatives, and other consultants, shall have access to all Project documents maintained by the Contractor at all times. The Contractor shall cooperate with and assist the Engineer in connection with the Engineer's periodic reviews of the as-built Drawings and other Project documents prepared and maintained by the Contractor.

3.7.3 Upon Substantial Completion of the Work, the Engineer shall make a final review of the as-built Drawings prepared by the Contractor and if any omissions, incorrect information, or inconsistencies are found, the Drawings shall be revised by the Contractor until acceptable to the Engineer. When the final as-built Drawings are complete to the satisfaction of the Engineer, the Contractor shall furnish to the Engineer a complete set of as-built Drawings with each sheet being clearly marked "AS-BUILT DRAWING" and containing the date of the print and the Contractor's certification that the as-built Drawing accurately and completely depicts the Work as constructed. The Contractor shall deliver the as-built Drawings to the Engineer in hand-marked and electronic form in the Engineer's and the Owner's CADD format, containing a full set of CADD as-built Drawings for the Work.

3.7.4 Upon Substantial Completion of the Work, if appropriate, the Contractor shall prepare and deliver to the Engineer four (4) copies of a full and complete operating and maintenance manual for the Project. In accordance with the Specifications, the manual shall contain full information for each item of mechanical, electrical or other operating equipment, copies of warranties therefore, schematic diagrams of control systems, circuit directories for each electric and communications panel board, and charts showing the tagging of all valves. The Contractor shall obtain and include in the manual reduced scale photocopies of the relevant, revised as-built Drawings referred to in Subsection 3.7.3. Each volume of the manual shall

contain all information required by the Specifications and these General Conditions, shall be clearly indexed, and shall include a directory of all Subcontractors and maintenance contractors, indicating the area of responsibility of each, and the name, telephone number, and other pertinent contact information for the responsible member of each organization. Such manuals shall be delivered to the Owner prior to, and as a condition precedent to, final payment.

3.7.5 The Contractor shall arrange for instruction in the operation and maintenance of the fire protection, plumbing, electrical and mechanical systems for State University employees. It is the intent of this Subsection 3.7.5 to require the Contractor and the applicable Subcontractors to furnish as much detailed instruction as is required by the Contract Documents to educate State University facilities personnel in the proper use of the facilities equipment. This instruction shall be provided by the manufacturer's representative for each item of equipment at no additional cost to the Owner. In some cases, this may require several visits to the Project by those responsible for the instruction. The Contractor shall, with written consent of all instructors, videotape all such training sessions, and a copy of each videotape shall be delivered to the Owner, prior to, and as a condition precedent to, final payment.

3.8 SUBMITTALS

3.8.1 The Contractor shall prepare or review, approve and submit to the Engineer, with a copy of the transmittal to the Owner's Representative, for review, sufficiently in advance and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate Contractor, all Shop Drawings, Product Data and Samples or other submittals required by the Contract Documents, all in accordance with the requirements set forth in the Specifications. Neither the Owner nor the Engineer shall be responsible for Work performed in shop or field prior to approval of any applicable Shop Drawings, Product Data or Samples.

3.8.1.1 Within thirty (30) days of receiving a Notice to Proceed with construction from the Owner, the Contractor shall submit to the Engineer and the Owner's Representative a detailed submittal schedule detailing the submittal and review process for all shop drawings, product data, samples, and other submittals. The submittal schedule shall incorporate appropriate time periods for the Engineer's review of Shop Drawings and all other submittals required by the Contract Documents. The submittal schedule shall be coordinated with the Project Schedule and shall be in form, substance, and detail acceptable to the Owner and the Engineer.

3.8.2 By preparing, approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor thereby represents that it has determined and verified all materials, design required in the implementation of the Work, dimensions, quantities, field measurements, details, relations to existing work, coordination with work to be installed later, coordination with information on previously accepted Shop Drawings, Product Data, Samples or similar submittals and compliance with all the requirements of the Contract Documents. The accuracy and completeness of all such information is the responsibility of the Contractor. Approval by the Contractor shall be clearly indicated on each submittal, in ink or

by stamp, and signed or initialed and dated by the Contractor. Submittals that have not been reviewed and approved by the Contractor in accordance with the requirements stated in this Section 3.8 and the Specifications shall be returned to the Contractor with no action taken by the Engineer. Such submissions shall be re-submitted to the Engineer with the Contractor's review and approval provided as required. Language contained in the Contractor's approval of submittals shall not be interpreted to limit in any respect or otherwise affect the Contractor's responsibilities and liabilities hereunder.

3.8.3 The Engineer shall review the Contractor's submittals in accordance with Section 2.5. If corrections are required, a full set of copies of duplicate parts or corrected submittals shall be submitted to the Engineer for approval, and this procedure shall be followed until final approval of the submittal has been given by the Engineer. All portions of the Work shall be performed strictly in accordance with the approved submittals.

3.8.4 If Shop Drawings submitted by the Contractor indicate a deviation from the Contract Documents, the Contractor shall specifically inform the Engineer and the Owner's Representative, in writing, of such deviation at the time of submission. The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Engineer's approval of Shop Drawings, Product Data or Samples or other submittals, unless the Contractor has specifically informed the Engineer and the Owner's Representative in writing of such deviation at the time of submission and the Engineer has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Engineer's approval thereof. The Engineer's approval of a specific item shall not constitute approval of an assembly of which the item is a component.

3.8.5 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or other submittals to revisions other than those requested by the Engineer on previous submittals. Unless such written notice has been given, the Engineer's approval of a revised submittal shall not constitute approval of any changes not requested by the Engineer on the prior submittal.

3.8.6 No acceptance or approval of any Shop Drawing, Product Data or Sample, nor any indication or request marked by the Engineer on any Shop Drawing shall constitute an authorization for any increase in the Contract Sum.

3.9 SITE ACCESS

3.9.1 The right of possession of the Site and the improvements made thereon by the Contractor shall remain at all times with the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents. The Contractor shall confine its apparatus and equipment, storage of materials, and all operations at the Site to areas permitted by law, ordinances, permits, the Contract

Documents, and the directions of the Owner's Representative, and shall not unreasonably encumber the Site with any materials or equipment.

3.9.2 The Contractor shall not use, occupy or obstruct, nor permit any Subcontractor or any other person performing the Work to use, occupy or obstruct, any lands or areas outside of the legal limits of the Site, unless written permission in form and substance satisfactory to the Owner has been obtained by the Contractor at the Contractor's sole cost.

3.9.3 The Contractor may, subject to the Owner's prior written consent, install a construction sign as provided in the Specifications, but shall not permit the posting of any other sign, trademark, advertisement, or other identification symbol in or about the Site. The Owner shall have the right, without notice to the Contractor, to remove any sign, trademark, advertisement or other identification symbol installed in violation of this Subsection 3.9.3 at the Contractor's expense. The construction sign installed by the Contractor shall also identify the Subcontractors or, alternatively, the Contractor shall provide a single location, approved by the Owner in writing, for Subcontractor signage.

3.9.4 Any damage to the premises or equipment of the Owner caused by the Contractor or any Subcontractor shall be corrected by the Contractor as directed by the Owner and at the expense of the Contractor, subject to the Contractor's right to coverage under the Owner's builders risk insurance obtained with respect to the Project, but such right shall pertain only to the extent of proceeds actually received by the Owner, the Contractor being responsible for any deductible and for any of the Owner's losses not covered.

3.10 CUTTING AND PATCHING

3.10.1 The Contractor shall be responsible for all cutting and patching, as approved by the Engineer, necessary for the completion of the Work in accordance with the Contract Documents.

3.10.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors by excavation, cutting, patching or otherwise altering any Work. The Contractor shall not unreasonably withhold from the Owner or any other contractor its consent to excavating, cutting, patching, or otherwise altering the Work.

3.11 INTENTIONALLY OMITTED

3.12 WASTE DISPOSAL AND CLEANING

3.12.1 All wastes, including any special or hazardous wastes, construction waste, demolition waste, and general rubbish, generated as a part of the Work, shall be properly classified by the Contractor and transported and disposed in accordance will all local, state, and federal laws and regulations that pertain to such materials. The Contractor shall retain the services of a qualified and properly licensed waste transporter. The Contractor shall make all arrangements and give and obtain all notices, communications, documentation, permits,

certificates, and approvals necessary for disposal from the owner or officials in charge of such landfills, disposal or recycling facilities. The Contractor shall bear all fees and costs in connection with such classification, removal, transportation, and disposal. The Contractor shall not permit any storage of debris or waste of any name or nature on the premises.

3.12.2 Chemical waste shall be stored in corrosion resistant containers, removed from the premises, and disposed of in accordance with all Applicable Laws and any Contract Documents requirements. Disposal of chemical waste shall be performed in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). The Contractor shall immediately notify the Owner, the Engineer, and the appropriate governmental agency of any hazardous materials release large enough to require reporting under Applicable Laws. The Contractor shall be responsible for immediately cleaning up, in accordance with Applicable Laws, any oil or hazardous materials releases resulting from its operations on the Project. Any costs incurred by the Contractor in cleaning up any such releases and any damages incurred by the Owner arising from such release shall be borne by the Contractor.

3.12.3 The Project and the Site shall be maintained in a neat and orderly condition and kept free from accumulation of waste materials and rubbish during the entire Construction Period. All crates, cartons and other flammable waste materials or trash shall be removed from the work areas at the end of each working day. If the Project and Site are not maintained properly, after 24 hours prior written notice to the Contractor, the Owner may have any accumulations of waste materials or trash removed and charge the cost to the Contractor. Electrical closets, pipe and duct shafts, chases, furred spaces and similar spaces which are generally unfinished, shall be cleaned and left free from rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt and dust.

3.12.4 At the completion of the Work, the Contractor shall remove all its tools, construction equipment, machinery and surplus materials, and shall leave the Site in a neat and clean condition satisfactory to the Owner. Immediately prior to the Engineer's inspection for Substantial Completion of the entire Work, or any portion thereof, the Contractor shall, when directed to do so by the Owner, completely clean any and all portions of the Project to be inspected. Without limitation, concrete surfaces shall be cleaned and washed; resilient coverings shall be cleaned, waxed and buffed; ; fixtures, and equipment shall be thoroughly cleaned; stains, spots, dust, marks and smears shall be removed from all surfaces; and hardware and all metal surfaces shall be cleaned and polished. All damaged, broken and scratched surfaces shall be replaced by the Contractor at the Contractor's sole expense.

3.12.5 If the Owner elects to take use or occupancy of specific areas or portions of the Work prior to the completion and acceptance of the entire Work as provided in Article 15 hereof, the Contractor shall carry out final cleaning operations as herein specified in such specific areas or portions of the Work prior to use or occupancy thereof, as directed by the Owner. The Contractor shall remove or, when appropriate, relocate, all surplus materials,

equipment, supplies, construction plant, and facilities as required in order to permit the occupancy and utilization of such specific areas or portions of the Work.

3.13 PROJECT COMMUNICATIONS

3.13.1 Copies of all communications from the Contractor to the Engineer or the Owner's Representative shall be provided simultaneously to the other and, if required by the Contract Documents, also to the Owner.

3.13.2 The Contractor shall forward to the Engineer any communications which the Contractor transmits to the Owner relating to any matter within the purview of the Engineer pursuant to the provisions of the Contract Documents.

3.14 ROYALTIES AND INTELLECTUAL PROPERTY

3.14.1 The Contractor shall pay all royalties and license fees, shall defend all suits or claims for alleged infringement of any intellectual property rights, and shall indemnify and save the Owner, the Owner's Representative, the Engineer, and the State University harmless from loss on account thereof, except that the Contractor shall not be responsible for such loss when a particular design, process, or the product of a particular manufacturer or manufacturers is specified, unless the Contractor has reason to believe that the design, process, or product specified is an infringement of intellectual property rights, in which event the Contractor shall be responsible for such loss unless it promptly gives such information to the Owner.

3.15 FINANCIAL CONDITION

3.15.1 The Contractor warrants and represents that its financial condition is sound and that the Contractor is capable of performing the Work and obtaining any bonds now or hereafter required pursuant to the Contract Documents. Upon request by the Owner, the Contractor shall make available to the Owner, within fourteen (14) days, such audited and unaudited financial statements of the Contractor as the Owner may reasonably request or as may be required by Applicable Law. The Contractor shall promptly advise the Owner of any occurrence, event, fact, or other matter that has had, will have, or might reasonably be predicted to have a material adverse effect upon the financial condition of the Contractor.

3.16 PREVAILING WAGE; RECORDKEEPING; PERSONNEL

3.16.1 The Contractor shall comply with the Massachusetts Prevailing Wage Law, M.G.L. c. 149, § 26-27H. The Prevailing Wage Law requires that a true and accurate record be kept of all persons employed on the a project for which the prevailing wage rates have been provided. The Contractor and all Subcontractors shall keep these records and preserve them for a period of three years from the date of completion of the Contract. Such records shall be open to inspection by any authorized representative of the Owner at any reasonable time, and as often as may be necessary. The Contractor shall, and shall cause its Subcontractors to,

submit weekly copies of their weekly payroll records to the Owner. In addition, the Contractor and each Subcontractor shall furnish to the Executive Department of Labor within fifteen days after completion of its portion of the Work a signed statement in the form required by the Owner.

3.16.2 The Contractor shall comply with, and shall cause its Subcontractors to comply with M.G.L. c. 149, § 148 which requires the weekly or biweekly payment of employees within six days of the end of the pay period during which wages were earned if employed for five or six days of a calendar week, and within other periods of time under certain circumstances as set forth therein.

3.17 EEO/AA AND M/WBE REQUIREMENTS

3.17.1 The Contractor shall comply at all times in all respects with all government laws, regulations and ordinances affecting or regulating employment of persons in connection with the Work, and with the equal employment opportunity and affirmative action requirements set forth in **Exhibit D** and **Exhibit E** to the Agreement.

3.17.2 The Contractor shall submit a construction employment plan to the Owner pursuant to which the Contractor will specify its plan for meeting and monitoring the Owner's employment requirements. The plan shall comply with the provisions set forth in **Exhibit D** and **Exhibit E**. The Contractor shall provide the Owner with such reports concerning its compliance with the construction employment plan as the Owner shall require.

3.18 LINES AND GRADES; SURVEY

3.18.1 The Contractor agrees that the Work shall be constructed within the contract limit lines established in the Contract Documents and other information made available to the Contractor.

3.18.2 The Contractor shall engage a land surveyor registered in the Commonwealth of Massachusetts to establish, and the Contractor shall be responsible for the accuracy of, base lines for the Work.

3.18.3 The Contractor shall establish and plainly mark such points, lines and grades as are necessary to assure that location, orientation and elevations established for each structure or element of the Work are in accordance with the lines and elevations shown on the Drawings.

3.18.4 After the perimeter foundation walls are in place, the Contractor shall verify that lines and grades meet the requirements of the Drawings and Specifications. Such verification shall be provided by a registered land surveyor or professional engineer who shall record actual as-built lines and grades on the as-built Drawings.

3.18.5 During the progress of the Work the registered land surveyor or professional engineer shall record actual as-built lines and grades on the as-built Drawings. The

Contractor shall, from time to time, furnish to the Owner surveys certified by a registered land surveyor, in such form as may be required by the Owner, of the location of all improvements and utilities on the Site.

ARTICLE 4 OWNER

4.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER

4.1.1 If available, the Owner shall furnish to the Contractor surveys describing the physical characteristics, legal limitations for the Site, and a legal description of the Site.

4.1.2 The Owner may furnish the Contractor with certain reports, plans, studies, tests, information and other documentation relating to utilities and subsurface and other conditions affecting or relating to the performance of the Work (the "Site Conditions Documents"). The Contractor represents that it has thoroughly studied and is familiar with the Site Conditions Documents which it has received. In the case of Site Condition Documents to be supplied by the Owner after execution of the Agreement, the Contractor shall study and become familiar with such documents. The Contractor shall advise the Owner in writing of any errors, omissions, inconsistencies discovered by the Contractor in its review of the Site Condition Documents. The Contractor represents further that it has examined the Site and local conditions and as they are developed will carefully study and compare the Contract Documents with each other and with conditions at the Site, and with the Site Conditions Documents. Unless otherwise specifically stated, the Owner does not assume any responsibility for the accuracy or completeness of the Site Condition Documents. Such information and data is furnished to the Contractor for its informational value, but the Owner does not hold out such information or data to the Contractor as being complete nor as an accurate or approximate indication of surface, subsurface or other conditions. No claim for extra cost or any extension of the Contract Time resulting from reliance by the Contractor on the Site Conditions Documents shall be allowed except as expressly provided in the Contract Documents.

4.1.3 Information or services required of the Owner under the Contract Documents and requested in writing by the Contractor shall be furnished by the Owner, if available, with reasonable promptness so as to endeavor to avoid delay in the orderly progress of the Work.

4.1.4 The Contractor will be furnished, free of charge, four (4) copies of the Contract Documents.

4.1.5 The Owner may, but shall not be required to, forward instructions to the Contractor through the Owner's Representative. If communicated directly to the Contractor by the Owner, the Owner will endeavor to provide copies of such communications to the Owner's Representative and the Engineer.

4.2 CONFIDENTIAL INFORMATION

4.2.1 The Contractor shall not disclose, at any time during or after the Work, either directly or indirectly, any confidential records, knowledge or information which the Contractor may acquire about the Project or the Owner, except as may be required by law or by order of a court of competent jurisdiction. The Contractor shall treat all information relating to the Project and all information supplied to the Contractor by the Owner, the Owner's Representative, or the Engineer as confidential and proprietary information of the Owner and shall not permit its release to third parties or make any public use of such information without the Owner's prior express written authorization. The Contractor shall require all Subcontractors to comply with this provision.

4.3 TAX EXEMPTION

4.3.1 The Owner, as an authority of the Commonwealth of Massachusetts, is exempt from certain taxes. The Owner's taxpayer exemption number is 042-379-317. The Contractor hereby acknowledges that the Contract Sum has been established based upon the understanding that the Owner is exempt from certain taxes. It is therefore required that the Contractor and Subcontractors purchasing materials and supplies to be used in construction of the Project (including rental charges for construction vehicles, equipment and machinery rented specifically for use on the site of the Project or while being used exclusively for the transportation of materials for the Project) ("Construction Materials") apprise vendors of the tax-exempt status of the Owner, so that certain taxes will not be imposed upon the purchase of Construction Materials. At the time of purchase of Construction Materials, the purchaser shall provide the vendor with copies of certificates or other documentation necessary to permit the sale of such Construction Materials to be exempt from sales, use and other applicable taxes imposed by any state or federal taxing authority. If such taxes are paid on any Construction Material used in the construction of the Project, the Contractor shall be responsible for reimbursing the Owner, whether the purchases were made by the Contractor, a Subcontractor or Supplier, the full amount of such taxes and the Owner shall have the right to recover any such amounts not promptly reimbursed by reducing any payment due the Contractor under the Contract by such amount. Taxes not applicable to the Owner include, but may not be limited to: (a) Sales and Use Tax imposed by the Commonwealth under M.G.L. c. 64H and c. 64I on Construction Materials; and (b) Federal Excise Taxes as applied to articles which are taxable under Chapter 32 of the Internal Revenue Code of 1986, as amended.

ARTICLE 5 INDEMNIFICATION

5.1 CONTRACTOR'S INDEMNITY

5.1.1 The Contractor shall indemnify, defend with counsel acceptable to the Owner, keep and save harmless the Commonwealth, the State University, and the Owner, including their respective board members, trustees, directors, officers, contractors, consultants, agents, employees, and other representatives, in both their respective individual and official capacities, against all liabilities, suits, claims, damages, losses, expenses, penalties, fines, fees including, but not limited, to attorneys' fees, expert witness fees and other legal expenses

(including fees and expenses in connection with any alternative dispute resolution process) and other costs and liabilities caused by, arising out of, resulting from, or incidental to, the following, each to the full extent allowed by the laws of the Commonwealth of Massachusetts and not beyond any extent that would render these provisions void or unenforceable:

(a) breach or default under or failure to perform or comply with the terms of the Contract by the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible;

(b) negligent acts or omissions of the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible;

(c) infringement of any patent or trademark, or violation of any copyright, right of privacy or any similar right protected by any law affecting intellectual property arising out of or relating to the use of methods, processes or information, or products or other materials or property, in connection with performance of the Work by the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible, or otherwise relating to the Work;

(d) violation of any Applicable Law in connection with performance of the Work by the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible;

(e) violation of or noncompliance with the conditions of any Permits and Approvals by the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible;

(f) failure of the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible to pay any federal, state or local taxes based upon gross receipts, income, purchases, rentals or sales, the use of any property, unemployment insurance or any other social security or social benefit taxes applicable to employees of the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible, or any other taxes imposed in connection with the Contract or the Work;

(g) personal injury, sickness, emotional distress, disease or death directly or indirectly caused by, arising out of, resulting from, or incidental to the performance of the Contract or otherwise relating to the Work or any act or omission of the Contractor, any Subcontractor or Supplier, or any other party for whose acts or omissions the Contractor is or becomes liable;

(h) loss or damage to any property of the Contractor, and loss or damage to any property of Subcontractor, Supplier, or other parties for whom the Contractor is or becomes responsible;

(i) claims by Subcontractors, Suppliers, or others against the Contractor or the Owner on account of amounts due or claimed to be due to such Subcontractor, Supplier, or others in connection with the performance of the Work;

(j) loss or damage to property owned by the Owner or any third parties located on or about the Site, in whole or in part arising out of, resulting from, or incidental to the performance of the Work or any acts or omissions of the Contractor, any Subcontractor, Supplier, or any other party for whom the Contractor is or becomes responsible;

(k) neglect or failure to construct the Work within the contract work lines, or by reason of any encroachment by any element or portion of the Work, or any part or projection thereof, on adjoining land if such encroachment shall result from the Contractor's failure to construct the Work within said contract work lines;

(l) release or threatened release of any hazardous material which: (i) was brought onto the Site by the Contractor, or any Subcontractor, Supplier, or any other party for whom the Contractor is or becomes responsible; or (ii) was negligently removed from, handled on, or disposed of on the Site by the Contractor, any Subcontractor, Supplier, or any other party for whom the Contractor is or becomes responsible, regardless of the source or origin of such hazardous material or the method of deposit of such hazardous material on the Site or, in the case of the removal of any hazardous material from the site, on the Site to which such hazardous material was removed;

(m) claims or assertions by any separate contractor of disruption, delay or loss caused by interference by the Contractor (or its Subcontractors or others for whom the Contractor is or becomes responsible) with or hindrance of the progress or completion of work being performed by separate contractor, or failure of the Contractor or any Subcontractor, Supplier, or any other party for whom the Contractor is or becomes responsible, to cooperate reasonably with such separate contractor; and

(n) failure of the Contractor, any Subcontractor or Supplier, or others for whom the Contractor is or becomes responsible to comply with their obligations to not use undocumented workers to perform any part of the Work.

Such agreement and obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or remedy which would otherwise exist as to any party or person described in this Section 5.1.

5.1.2 Provisions of this Section 5.1 shall be for the benefit of each party indemnified hereunder with the same force and effect as if each individual were in privity of contract with the Contractor, and each party so indemnified shall have the right to bring a direct action against the Contractor to enforce this indemnity. Each party so indemnified is hereby made a third party beneficiary of the Contract with respect to the provisions of this Section 5.1.

5.1.3 In connection with any and all claims against the Owner, the Owner's Representative or the Engineer or their consultants or separate contractors, or any of their Subcontractors, agents or employees, by any employee of the Contractor, any Subcontractor or Supplier, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the Contractor's indemnification obligation under this Section 5.1 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under worker's compensation acts, disability benefit acts or other employee benefit acts.

5.1.4 In the event that a claim, demand or action is asserted against a party indemnified under this Section 5.1 with respect to which the Contractor is obligated to indemnify such party in accordance with this Section, such party shall give timely notice to the Contractor of such claim and may request that the Contractor undertake the defense of such claim with counsel reasonably satisfactory to such indemnified party and without cost to such indemnified party, or the indemnified party may undertake the defense of such claim, with counsel satisfactory to the Contractor, in which case the Contractor shall cooperate and assist in the defense and resolution of such claim, and shall be responsible for all costs of defense, judgments, settlements and other liabilities as provided in this Section 5.1. Failure of the indemnified party to notify the Contractor as provided in the preceding sentence shall not waive, release or otherwise affect the indemnification obligations of the Contractor hereunder, except to the extent that the Contractor establishes that such failure to give notice has prejudiced the Contractor in the defense of such claim.

5.1.5 The indemnification obligations of the Contractor under the Contract shall survive the termination or expiration of the Contract and completion of the Work.

5.1.6 The obligations of the Contractor under this Article 5 shall not extend to the liability of the Engineer, his agents or employees, arising out of the performance of the Engineer's obligations under the Contract Documents.

ARTICLE 6 SUBCONTRACTORS

6.1 SUBCONTRACTS

6.1.1 All Subcontractors shall look solely to the Contractor for payment for their Work performed in accordance with the Contract Documents except as expressly otherwise permitted by law. The Contractor shall furnish the Owner with executed copies of all Subcontracts promptly upon execution thereof.

6.1.2 Contractor shall make payments to Subcontractors in accordance with M.G.L. c. 30, § 39F. For the purposes of this Contract, the word "forthwith" appearing in paragraph (1)(a) of M.G.L. c. 30, § 39F shall be deemed to mean "within five (5) business days".

6.1.3 The Contractor hereby conditionally assigns to the Owner all Subcontracts now or hereafter executed by the Contractor in connection with the Work and in accordance with the requirements of the Contract Documents.

(a) Such assignment shall become an effective and present assignment only upon a termination by the Owner of the Contract in accordance with the provisions of the Contract Documents and only as to those Subcontracts which the Owner explicitly accepts and assumes in writing. The Owner shall have the sole option to determine which Subcontracts the Owner shall accept as aforesaid.

(b) This Subsection 6.1.3 shall serve as the instrument of assignment at such time as the assignment provided for above becomes effective. The Contractor agrees, however, at the Owner's request, to execute whatever instruments the Owner requests to confirm such assignment.

6.1.4 The Contractor shall maintain and distribute to the Owner, the Owner's Representative, and the Engineer a Project Directory listing the names, addresses, email addresses, and telephone numbers of the principal members of the staff of each Subcontractor in addition to any other information requested by the Owner or the Engineer regarding Subcontractors. The Contractor shall update such Project Directory periodically during the Project. The principal contact for each Subcontractor and his/her home telephone number shall be indicated in the Project Directory so that such person may be reached in emergency situations.

ARTICLE 7 OTHER WORK

7.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

7.1.1 In addition to the Work required to be performed under the Contract, the Owner may perform other work related to the Project at the Site with its own forces, have other work performed by utility suppliers, or award separate contracts for such work or other work

on the Site under these or other conditions of the contract. If the fact that such other work is to be performed is not noted in the Contract Documents, notice thereof will be given to the Contractor prior to commencement of such other work.

7.1.2 If, after commencement of the Work, the plans of the Contractor and any such separate contractors performing work in connection with the Project, or other contractors, are inconsistent with respect to methods, scheduling, progress or otherwise, the Contractor shall promptly take all steps necessary to coordinate its Work with that of other contractors. The Contractor shall have no claims against the Owner or such separate contractors performing work in connection with the Project or other contractors for any delays arising from joint use of any work area or staging area, or from joint use of access. All coordination undertaken by the Contractor shall be acceptable to Owner in all respects.

7.2 MUTUAL RESPONSIBILITY

7.2.1 The Contractor shall provide the Owner, utility suppliers and other separate contractors proper and safe access to the Site and a reasonable opportunity for the delivery and storage of materials and equipment and the execution of their work, and for reasonable access to, and use of, the Contractor's hoisting facilities, if provided, and temporary electric, water and sanitary facilities. Disputes arising with respect to delivery or storage of materials or equipment, or otherwise relating to coordination of the Work under the Contract with the work of utility suppliers or separate contractors shall initially be submitted to the Engineer. Recognizing the constraints imposed upon the Contractor by the requirements of this Section, the Owner agrees to give the Contractor as much advance notice as is practicable of the particular needs of separate contractors and utility suppliers for access to the Site and joint use of the Site and site facilities so as to minimize the impacts upon the Contractor's scheduling and operations. The Contractor shall cooperate with the Owner, utility suppliers and separate contractors, and require and enforce the cooperation of its Subcontractors in such manner as to permit the expeditious, efficient connection of utilities and to facilitate completion of the Project as a whole and completion of specific parts of the Project for early use or occupancy by the Owner in accordance with the Project Schedule.

7.2.2 If any portion of the Contractor's Work depends, for proper execution or results, upon other work of the Owner or any such utility supplier or other separate contractors, the Contractor shall, prior to proceeding with that portion of the Work, inspect and promptly report to the Engineer and the Owner, in writing, any delays, discrepancies or defects in such other work discoverable as a result of prudent examination, testing and observation by the Contractor that render such other work unavailable or unsuitable to receive Contractor's Work. Failure of the Contractor to so report shall constitute an acknowledgment that such other work is fit and proper to receive the Contractor's Work, except as to defects not so discoverable.

ARTICLE 8 INSPECTION AND TESTING

8.1 INSPECTION AND TESTING

8.1.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of, or conditions imposed by, any government entity having jurisdiction over the Project require any portion of the Work to be inspected, tested or approved, the Contractor shall give the Owner's Representative (with a copy to the Engineer), the Owner's testing agents or consultants, and if applicable, government entities requiring such inspection, testing or approval, timely notice (at least five (5) full business days) prior to the commencement of Work or operations requiring such inspection, testing or approval so the Engineer, such government entities and agents or consultants may perform or observe such inspection, testing or approval. The Contractor shall perform and bear all costs of such inspections, tests and approvals, unless otherwise provided in the Contract Documents. Except in the event of an unforeseen emergency, Work or operations requiring such inspection, testing or approval shall not be performed at times other than during the normal working day without the prior approval of the Owner. The Contractor will provide all required assistance (including, without limitation, labor, tools, equipment and transportation) as the Engineer or such government entities or agents or consultants may request in connection with such inspection, testing or approval. The Contractor shall make all necessary arrangements at its expense to permit the Engineer to make factory, shop or other inspections of materials or products ordered for the Work and in the process of manufacture, fabrication or extraction or in storage at locations other than the Site of the Work. Where certain testing and inspection requirements are required by the Contract Documents to be performed at the expense of the Owner, the Owner will retain the services of testing laboratories, agencies or consultants, to perform such tests or inspections and render such services as may be required to verify that the Work fulfills the requirements and intent of the Contract Documents. Such services will be performed in a manner consistent with the requirements of the Owner and the various agencies having jurisdiction over the Work and in accordance with sound standards of professional architectural and engineering practice applicable thereto. The Contractor and Subcontractors shall place their personnel at the Engineer's disposal for field checking during any inspection period. When layouts of the site work are to be made, the Contractor shall notify the Owner's Representative and the Engineer in sufficient time so that they may be present.

8.1.2 The Contractor shall make no claim for delay or extra costs or extension of the Contract Time arising directly or indirectly out of reasonably required inspection or testing or out of the Contractor's failure to give timely notice so as to permit performance or observance of inspections, testing or approvals. Inspections and testing of the Work shall not relieve the Contractor of any obligations under the Contract Documents. Without limiting any other provisions hereof, defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such Work and materials have been previously inspected by the Engineer and accepted or estimated for payment or paid for.

8.2 SPECIAL TESTING

8.2.1 If the Owner or the Engineer determines that any portion of the Work requires special inspection, testing, or approval beyond that required in the Contract Documents, the Owner's Representative, upon written authorization from the Owner, or the

Owner, will instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Section 8.1 hereof. If such special inspection or testing reveals a failure of the Work to comply strictly with the requirements of the Contract Documents, the Contractor shall correct such Work and bear all costs of such inspection, testing and corrections, including compensation for the additional services of the Engineer and other consultant made necessary by such failure; otherwise the Owner shall bear the costs of such inspection or testing, and an appropriate Change Order shall be issued. In no event shall the Contractor be entitled to any claim for delay or extra cost or extension of the Contract Time as a result of any such inspection, testing or corrections.

ARTICLE 9 CONTRACT TIME

9.1 DEFINITIONS

9.1.1 The Contract Time is the period of time stated in the Agreement to achieve Final Completion of the Work, as may be adjusted in accordance with the Contract.

9.1.2 The date of commencement of the Work is date of the issuance of a Notice to Proceed by the Owner for a portion, or all, of the Work.

9.1.3 The Date of Substantial Completion of the Work, or a designated portion thereof, is the date certified by the Engineer when the requirements of the Contract Documents have been satisfied. Substantial Completion of the Work shall not be deemed to be achieved until either (1) the Work required by the Contract has been completed except for Work having a contract price of less than one per cent of the then adjusted total Contract Sum, or (2) substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory Work items that do not materially impair the usefulness of the Work required by the Contract

For purposes of this Article 9, Substantial Completion refers to Substantial Completion of the entire Project. In the event of any question or dispute as to the date of Substantial Completion, such question or dispute shall be determined by the Engineer in its sole discretion, and neither the Engineer nor the Owner shall have any liability to the Contractor arising out of such determination made by the Engineer in good faith.

9.2 PROGRESS AND COMPLETION

9.2.1 Upon execution by the Owner of the Agreement and issuance of a written Notice to Proceed by the Owner, the Contractor agrees to proceed with the Work, or portion thereof covered by a Notice to Proceed with Construction, promptly, continuously, and diligently. The Contractor agrees to adhere to the Project Schedule, to achieve all interim completion milestones, if any, and to achieve Substantial Completion of the Work on or before the Substantial Completion Date set forth in the Agreement. It is agreed that TIME IS OF THE ESSENCE of the Contract Documents.

9.2.2 Recognizing that, from time to time during the progress of the Work, the Owner may find it necessary to establish the current status of performance under the Contract Documents, the Contractor shall, at the request of the Owner, promptly provide statements, documents or certificates to the Owner regarding the status of the Work, compliance of the Work with the Contract Documents, compliance by the Contractor or any Subcontractor with the Contract Documents, and such other matters within the scope of the Contractor's performance under the Contract Documents as the Owner may require.

9.2.3 The Contractor shall submit a detailed written report on the status of the Work compared to the current Project Schedule for the Owner's review with each Application for Payment. Each such report shall reflect all items required by the Contract Documents. If the Contractor fails to complete any activity by its latest scheduled completion date, the Contractor shall, within seven (7) days of such failure, submit a written statement showing how the Contractor intends to correct such failure and return to the current Project Schedule. The Contractor shall update the Project Schedule weekly to reflect changed logic, adjusted and modified sequences of Work, and other identifiable changes, including, without limitation, specific strategies for continuing to meet the Substantial Completion Date. With its monthly report on the status of the Work, the Contractor shall submit a written certification by the Contractor's Project Manager that the Project Schedule submitted with the report is the actual schedule being utilized for execution of the Work and that the Work is progressing in accordance therewith.

9.2.4 If, at any time, the Owner determines that the progress of the Work is delayed or has not reached the level of completion required by the current Project Schedule, the Owner shall have the right to direct the Contractor to take all measures necessary to recover any lost time and return the Work to the level of progress required by the current Project Schedule ("Recovery Measures"). In such event, within five (5) business days of receiving the Owner's direction to take Recovery Measures, the Contractor shall notify the Owner in writing of the steps which the Contractor proposes to take to remedy the situation, shall furnish Owner with an updated Project Schedule reflecting such Recovery Measures, and shall implement such steps promptly. Such Recovery Measures shall continue until the progress of the Work is returned to the stage of completion required by the current Project Schedule. If the Contractor disputes the Owner's direction to the Contractor to take Recovery Measures, the Contractor shall, nonetheless, promptly and diligently perform the Recovery Measures and shall have no right whatsoever to fail or refuse to take Recovery Measures once so directed by the Owner. If, and to the extent the delays giving rise to a direction from the Owner to the Contractor to take Recovery Measures are not Excusable Delays, the Contractor shall not be entitled to an extension of the Contract Time or an adjustment of the Contract Sum in connection with undertaking Recovery Measures. If and to the extent that any delay giving rise to a direction from the Owner to implement Recovery Measures is an Excusable Delay, the Contractor shall be entitled to assert a claim in accordance with the Contract.

9.3 EXTENSION OF THE CONTRACT TIME AS A RESULT OF DELAY EVENT

The provisions of this Section 9.4 govern, and constitute the Contractor's sole remedy, if a Delay Event is encountered by the Contractor in the course of performance of the Work. Any claim for an extension of the Contract Time associated with a Change in the Work shall be governed by, and subject to, the provisions of Article 13. If the Contractor is entitled, subject to the provisions of this Section 9.4, to an extension of the Contract Time by reason of a Delay Event, then an extension of the Contract Time may be granted for the period of the necessary delay caused to Critical Path Activities, determined in accordance with, and subject to, this Section 9.4, and other applicable provisions of the Contract Documents. A Change Order effecting such extension will be furnished to the Contractor within a reasonable period after such determination. No extension of the Contract Time shall be granted to the Contractor under the Contract (except as expressly authorized in connection with a Change in the Work) unless the requirements of this Section 9.4 shall have been satisfied.

9.3.1 Types Of Delay Events

"Delay Event" shall be limited to any of the following acts, omissions, events or conditions which delays completion of the Work or prevents performance of the Contractor's obligations under the Contract and which could not be prevented by the Contractor even though the Contractor were to take all appropriate care to avoid or diminish the adverse consequences of the Delay Event:

(a) Unavoidable casualty;

(b) Act of war, civil disorder, riot or similar occurrence;

(c) Order, legislation, judgment or other official action, of any governmental body, agency or official having jurisdiction over the Project;

(d) Any act or omission of the Owner or the Engineer, such as a temporary stoppage or suspension of Work, not resulting from, or caused, in whole or in part, by any act or omission of the Contractor, any Subcontractor or any other person or entity for whom the Contractor is responsible;

(e) Any work of utility companies or municipal departments that may enter the Site to make changes in utility equipment or to place new utility equipment, to the extent such delay does not result, in whole or in part, from the act or omission of the Contractor, any Subcontractor or any other person or entity for whom the Contractor is responsible;

(f) Unusually severe weather preventing the Contractor from engaging, on a particular day, at least 75% of the labor force and equipment that was scheduled for engagement on Critical Path Activities on that particular day for at least 50% of that day; and

(g) Strikes or work shutdowns caused by labor disputes and lockouts (other than lockouts caused by the Contractor, Subcontractors or Sub-Subcontractors unrelated to the Contractor's forces or the forces of any Subcontractor).

The financial difficulties of the Contractor (or any Subcontractor, supplier or other party for whom the Contractor is responsible) or the consequences thereof, shall not constitute a Delay Event.

9.3.2 NOTICE AND PROCEDURES AS TO DELAY EVENTS

9.3.2.1 Initial Notice. The Contractor shall provide the Owner with an initial written notice of any occurrence, event or condition which the Contractor claims (or may intend to claim) constitutes a Delay Event. Such initial written notice shall be submitted to the Owner within five (5) business days of the commencement of such occurrence, event or condition, and shall:

(h) State in detail the factual circumstances which form the basis of the delay, and the current and anticipated future effects on the Contractor's performance and Project Schedule; and

(i) State the date of commencement of the delay and the duration or expected duration of the delay with respect to each affected portion of the Work.

The submission of such initial written notice within the time period provided above shall be a condition precedent to any extension of the Contract Time. Neither the Owner's Representative and nor the Engineer nor any other agent, consultant or employee of either shall have authority to modify or waive, expressly or by implication, such condition precedent or the corresponding condition precedents set forth in Subsection 9.4.2. and any action, inaction or statement by any of them to such effect shall not be binding upon the Owner.

9.3.2.2 Second Notice. Following submission of the initial written notice, not later than fifteen (15) business days of the commencement of any occurrence, event or condition which the Contractor claims (or intends to claim) constitutes a Delay Event, the Contractor shall submit to the Owner's Representative written notice of such occurrence, event or condition. This written notice shall (i) state whether an extension of the Contract Time is claimed and the Contractor's alleged contractual entitlement thereto; (ii) state in detail the factual circumstances which form the basis of the delay; (iii) identify Work activities alleged to have been delayed; (iv) state the calendar dates on which the Work activities were delayed and are anticipated to be further delayed; (v) state the number of calendar days by which the Contractor is requesting the Contract Time to be extended; (vi) fully and completely state the analysis justifying the request, including a schedule impact (fragnet) analysis worksheet prepared in a time-scale to graphically illustrate the effect of the alleged delay on affected activities; (vii) state the date of commencement and duration or expected duration of the delay

and its effect on the various portions of the Work; and (viii) state any other information reasonably requested by Owner.

9.3.2.2.1 The Contractor shall provide such detailed supporting documentation, including, where appropriate, an updated Project Schedule indicating all of the activities affected by the circumstances which form the basis for the claim. The submission of such written notice within the time period provided above shall be a condition precedent to any extension of the Contract Time.

9.3.2.2.2 Because the possible necessity for an extension of the Contract Time might materially alter the scheduling, plans and other actions of the Owner and because, with sufficient opportunity, the Owner might (if it knew of the Contractor's claim) attempt to mitigate the effect of a delay for which an extension of the Contract Time was to be claimed, and only oral notice might cause disputes as to the existence or substance of such claim, and because delayed notice might seriously hinder or prevent the Owner's investigation of the pertinent facts, the giving of written notice within the time periods stated above in Subsections 9.4.2.1, and 9.4.2.2 shall be of the essence of the Contractor's obligations, and failure of the Contractor to comply with these requirements shall be deemed a conclusive, full and final waiver of any claim for extension of the Contract Time.

9.3.2.2.3 It shall in all cases be presumed that no extension or further extension of the Contract Time is appropriate unless the Contractor shall affirmatively demonstrate the Contractor's entitlement to such extension under all applicable terms and conditions of the Contract Documents. To this end, the Contractor shall maintain adequate records supporting any claim for an extension of the Contract Time, and in the absence of such records, the foregoing presumption shall be conclusive.

9.3.3 Limitations On Delay Computation

9.3.3.1 Whenever the Contractor claims an extension of the Contract Time as a result of a Delay Event, only the unavoidable delay caused to completion of the Work as a whole shall be considered in measuring or evaluating the extent of the delay. If, for example, extra work can be (or could have been) performed along with the regular Work called for by the Contract Documents so as to reduce or eliminate a delay in the progress of the Work or some portion thereof, without causing necessary delay to such regular work, no claim for extension of the Contract Time shall be granted. An extension of the Contract Time may be granted only for Delay Events affecting Critical Path Activities. In any event, even though a Delay Event meets all of the above conditions, an extension may be granted only to the extent that the effect of such cause cannot be (or could not have been) avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling, resequencing Work activities, and reallocating and redeploying work forces), whether before or after the occurrence of the cause of delay. If a concurrent delay occurs (*i.e.*, either a single delay resulting from two or more causes where at least one delay is the responsibility of the Contractor, or multiple delays, where at least one delay is the responsibility

of the Contractor), no extension of the Contract Time shall be granted to the Contractor during the period of any such concurrent delay for which the Contractor is responsible.

9.3.4 Sole Remedy

9.3.4.1 Except as expressly provided in the Contract Documents, the Contractor assumes the financial risk of all delays of any kind or duration, whether or not within the contemplation of the parties and whether foreseeable or unforeseeable. The Contractor shall have no right to rescind or terminate the Contract except as expressly provided herein, and the Contractor shall have no cause of action under any theory of quasi-contract or *quantum meruit* by reason of any such delay. The Contractor agrees that extensions of the Contract Time, as provided herein, shall be the Contractor's sole and exclusive remedy against the Owner in the event the Work is delayed, except to the extent otherwise provided in Subsections 9.4.4.2 and 9.4.4.3 below.

9.3.4.2 Adjustment of the Contract Sum as a Result of Certain Delays

If, and to the extent that, the Contractor establishes that all of the following have occurred:

(j) The Contractor is entitled to an extension of the Contract Time pursuant to this Section 9.4,

(k) The Contractor suffered Compensable Losses (as defined below) as a result of the delay, and

(l) The Contractor could not have avoided or mitigated such Compensable Losses despite having taken all reasonable precautions, efforts and measures to avoid or reduce the amount thereof, including, without limitation, mitigating delays by resequencing Work activities, and reallocating and redeploying work forces of the Contractor, Subcontractors and Sub-Subcontractors to the maximum extent practicable.

In such event the Owner may adjust the Contract Sum by an amount equal to the Contractor's Compensable Losses directly attributable to the Delay Event giving rise to the extension of the Contract Time. A Change Order effecting the adjustment to the Contract Sum will be furnished to the Contractor within a reasonable period after such determination.

"Compensable Losses" include only the reasonable verified amounts of necessary direct costs of: (i) idle time of equipment; (ii) idle time of workers; and (iii) moving of equipment and extended field office overhead expenses. No mark-up of Compensable Losses will be allowed for home office overhead or profit. For purposes of the Contract, "extended field office overhead" expenses shall mean those indirect costs incurred at the Site (sometimes also referred to as general conditions costs or job site overhead costs): (i) which cannot reasonably be allocated to any specific work item within the Work, and (ii) which increase or decrease as a

function of the duration of the Contract Time. Examples of extended field office overhead items include: project manager, superintendent, temporary utilities and temporary facilities, clerical staff, office equipment and supplies and project trucks and automobiles. The Contractor shall provide to the Owner all documentation and information reasonably requested by the Owner to substantiate the sum of Compensable Losses.

9.3.4.3 The following clauses (a) and (b) of this Subsection 9.4.4.3 are included herein pursuant to requirements of M.G.L. c. 30, § 39O. In the event that a suspension, delay, interruption or failure to act of the Owner increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor for payment for an increase in the cost of its performance as provisions (a) and (b) give the Contractor against the Owner, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the Contractor or the Subcontractor may have against each other.

(a) The Owner may order the Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as it may determine to be appropriate for the convenience of the Owner; provided, however, that if there is a suspension, delay or interruption for fifteen (15) days or more or due to a failure of the Owner to act within the time specified in the Contract, the Owner shall make an adjustment in the Contract Sum equal to the actual increase in the cost of the Work but shall not include any profit to the Contractor with respect to such increase; and provided further, that the Owner shall not make any adjustment in the Contract Sum under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which the Contract provides for an equitable adjustment of the Contract Sum under any other contract provisions.

(b) The Contractor must submit the amount of a claim under provision (a) hereof to the Owner in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of submission of the Application for Payment seeking final payment under the Contract and, except for costs due to a suspension order, the Owner shall not approve any costs in the claim incurred more than twenty (20) days before the Contractor notified the Owner in writing of the act or failure to act involved in the claim.

ARTICLE 10 PAYMENTS AND COMPLETION

10.1 SCHEDULE OF VALUES

10.1.1 Prior to the first Application for Payment, and as a condition precedent to the making of any payments to the Contractor, the Contractor shall submit to the Owner's Representative and Engineer, for approval by the Owner, a preliminary Schedule of Values allocating the Contract Sum among the various portions of the Work, prepared in such form and detail and supported by such data to substantiate its accuracy as the Owner may require. Such Schedule of Values shall be based upon, and consistent with, the Project Schedule. The

Schedule shall be reviewed and revised from time to time to reflect changes in the Work, or if found by the Owner's Representative or Engineer to be inaccurate. Once approved by the Owner and so long as the Schedule of Values remains up to date and accurate, the approved Schedule of Values shall be used as a basis for the Contractor's Applications for Payment.

10.2 APPLICATIONS FOR PAYMENT

10.2.1 The Contractor shall submit to the Owner's Representative and the Engineer for review, no later than the first day of each month, a draft of the Application for Payment which the Contractor intends to submit that month. Such draft Applications shall not be considered the Application for Payment for purposes of Subsection 10.2.2.

10.2.2 The Contractor shall submit to the Owner's Representative and the Engineer an itemized Application for Payment for Work completed as of the end of the preceding month, based upon the approved Schedule of Values and supported by such data substantiating the Contractor's right to payment as the Owner may require, including invoices with check vouchers attached, payrolls, receipted bills, requisitions from Subcontractors and Suppliers, and reflecting the retainage set forth in the Contract. The format of such Applications for Payment shall be AIA Documents No. G702 and G703 (Contractor's Application for Payment) or such other form as may be required by the Owner. The Contractor shall submit its Applications for Payment no later than the fifth (5^{th}) calendar day of each month for each payment period constituting the preceding calendar month. The Application for Payment shall show the total cost of the Work performed and materials furnished by the Contractor and each Subcontractor to date, based on a percentage of the work completed.

10.2.3 Unless otherwise provided in the Contract Documents, such Application for Payment may include materials or equipment not incorporated in the Work but delivered and suitably stored at the Site and, if approved in advance in writing by the Owner, in its sole discretion, payment may be requested for materials or equipment suitably stored at some other location agreed upon in writing, all in accordance with Section 10.9, below. Payments for materials or equipment stored on or off the Site shall be conditioned upon submission by the Contractor of bills of sale, invoices or such other documents, information or procedures as may be required by the Owner to establish the Owner's title to such materials or equipment free and clear of all liens, claims, security interests or encumbrances (collectively referred to in the Contract Documents as "liens"), or otherwise to protect the Owner's interests, and if off-site storage is involved, compliance in full with the requirements of Section 10.9, below.

10.2.4 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner automatically without further action by the parties, free and clear of all liens or other encumbrances and upon the first to occur of: (i) incorporation in the construction, or (ii) the receipt of payment by the Contractor. Transfer of title to the Owner shall not relieve the Contractor of any of its duties or obligations under the Contract Documents or of any responsibility or liability for the safe delivery and safeguarding, custody, or warehousing of the materials or equipment, nor shall it constitute any

waiver of the Owner's right to absolute fulfillment by the Contractor of all of the terms of the Contract, nor shall it commence any warranty or guarantee period prior to Substantial Completion. The Contractor warrants that no Work, materials or equipment covered by an Application for Payment shall have been acquired by the Contractor, or by any other person performing Work at the Site or furnishing materials or equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or any other secured party or otherwise imposed by the Contractor or any other person or entity.

10.2.5 At the request of the Owner, each Application for Payment shall be accompanied by an affidavit or certificate from each Subcontractor stating that it has been paid all amounts due it on the basis of the previous periodic payment(s) to the Contractor, or stating the amount not so paid and the reason for any discrepancy. In the event of any such discrepancy, the Contractor shall furnish its own written explanation to the Owner through the Owner's Representative. If requested by the Owner, the Contractor shall furnish a statement accounting for the disbursement of funds received under prior Applications for Payment.

10.2.6 Each Application for Payment shall include a monthly status report on the progress of the Work, including those items more particularly set forth in the Contract, in these General Conditions, and in the Specifications. The Contractor acknowledges that such status report is of significant importance to the Owner in determining whether the Contractor is entitled to payment pursuant to such Application for Payment, and failure to deliver such status report, in form, substance, or detail satisfactory to the Owner, shall be deemed to be just cause for withholding payment to the Contractor. Any waiver by the Owner of the requirement of submission of such status report (or any portion thereof) with respect to any Application for Payment shall not be deemed to be a waiver of the Owner's right to require the full and complete status report with respect to any future Application for Payment. Each status report shall include the items specified in the Agreement, in these General Conditions, and in the Specifications and any other reports or items requested by the Owner's Representative or the Owner. All status reports shall be in form and substance satisfactory to the Owner.

10.3 CERTIFICATES FOR PAYMENT

10.3.1 Within five (5) days after receipt of the Contractor's Application for Payment, the Engineer will either issue a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Engineer determines is properly due, or notify the Owner and Contractor in writing its reasons for withholding a Certificate for Payment, or any portion thereof, as provided in Subsection 10.6.1.

10.3.2 The issuance of a Certificate for Payment will constitute a representation by the Engineer to the Owner, based on the Engineer's observations, that the Work has progressed to the point indicated, that to the best of the Engineer's knowledge, information and belief the quality of the Work indicated therein is in accordance with the Contract Documents (subject to evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of any subsequent tests required by or performed under the

Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in the Certificate), that the submission includes all necessary prevailing wage submittals and that the Contractor is entitled to payment in the amount certified. The Engineer shall not certify the final payment until an inspection for Final Completion has been performed and the Owner has acted affirmatively on the Engineer's recommendation that the Project be accepted.

10.4 PROGRESS PAYMENTS TO THE CONTRACTOR

10.4.1 [Reserved]

10.4.2 Within twenty-five (25) days after receipt of a Certificate for Payment issued by the Engineer, the Owner shall make payment of amounts properly due to the Contractor, subject to the terms and conditions of the Contract Documents.

10.4.3 Upon receipt of payment from the Owner, the Contractor shall promptly pay each Subcontractor out of the amount paid to the Contractor on account of such Subcontractor's work, the amount to which the Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its lower tier Subcontractors in similar manner.

10.4.4 Neither the Owner nor the Owner's Representative nor the Engineer shall have any obligation to pay or to see to the payment of any monies to any Subcontractor except as set forth in this Section 10.4.

10.4.5 Pursuant to M.G.L. c. 30, § 39F, the Contractor shall make payments to Subcontractors in accordance with the following provisions:

(a) Forthwith after the Contractor receives payment on account of an Application for Payment, the Contractor shall pay to each Subcontractor the amount paid to the Contractor for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.

(b) Not later than the sixty-fifth (65^{th}) day after each Subcontractor substantially completes its Work in accordance with the plans and specifications, the entire balance due under the subcontract, less amounts retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of Work, shall be due the Subcontractor; and the Owner shall pay that amount to the Contractor. The Contractor shall forthwith pay to the Subcontractor the full amount received from the Owner less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.

(c) Each payment made by the Owner to the Contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of that Subcontractor; and the Owner shall take reasonable steps to compel the Contractor to make each such payment to each such Subcontractor. If the Owner has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor as provided in subparagraphs (a) and (b), the Owner shall act upon the demand as provided in this Subparagraph 10.4.5.

(d) If, within seventy (70) days after the Subcontractor has substantially completed the subcontract work, the Subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, the Subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to or sent by certified mail to the Owner, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract work. Within ten days after the Subcontractor has delivered or so mailed the demand to the Owner and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Owner, and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contains a detailed breakdown of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.

(e) Within fifteen (15) days after receipt of the demand by the Owner, but in no event prior to the seventieth day after substantial completion of the subcontract work, the Owner shall make direct payment to the Subcontractor of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the Owner as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the Contractor in the sworn reply; provided that the Owner shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The Owner shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the Owner or agreed upon by the Contractor and the Subcontractor and shall notify the Contractor and the Subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Owner to the Contractor to the extent of such payment.

(h) The Owner shall deduct from payments to the Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

10.5 PAYMENT NOT ACCEPTANCE

10.5.1 No Certificate for Payment, nor any progress payment made by the Owner, nor any partial or full use or occupancy of the Work or the Project by the Owner, shall constitute an acceptance of the Work, or any portion thereof, that is not in accordance with the Contract Documents.

10.6 PAYMENTS WITHHELD

10.6.1 The Engineer may decline to certify payment, and may withhold its Certificate for Payment, in whole or in part, to the extent necessary to protect the Owner, if in the Engineer's opinion the Engineer is unable to make representations to the Owner as provided in Subsection 10.3.2. In such case, the Engineer will notify the Owner and the Contractor as provided in Subsection 10.3.1. The Engineer will issue a Certificate for Payment for the amount for which it is able to make all of the representations to the Owner set forth in Subsection 10.3.2. The Engineer may also decline to issue a Certificate for Payment or, because of subsequently discovered evidence or subsequent observations, it may nullify or amend the whole or any part of any Certificate for Payment previously issued, or, notwithstanding that the Engineer has issued a Certificate for Payment, the Owner (in addition to and without limitation of any other rights and remedies of the Owner under the Contract Documents) may withhold payment of any

amounts claimed to be due by the Contractor and certified for payment by the Engineer, in each case to such extent as may be necessary in order to provide for retention covering the fair value of any possible claims the Owner may have against the Contractor, which amounts may include, but shall not be limited to, the fair value of costs or losses arising from:

(a) defective Work not remedied,

(b) third party claims filed or reasonable evidence indicating probable filing of such claims,

(c) failure of the Contractor to make payments properly due to Subcontractors or Suppliers,

(d) reasonable evidence that the Work cannot be completed in accordance with the Contract Documents for the unpaid balance of the Contract Sum,

(e) reasonable evidence of any previous overpayment or improperly issued payment upon an Application for Payment,

(f) improper prior allocation of the Owner's contingency,

(g) damage to the Owner or another contractor,

(h) reasonable evidence that the Work is not progressing in accordance with the Project Schedule or will not be completed within the Contract Time,

(i) failure to carry out the Work in accordance with the Contract Documents or other default by the Contractor under, or failure of the Contractor to comply with any provisions of, the Contract Documents,

(j) claims for damages for delay (including accrued liquidated or actual damages, if any), or

(k) any lien, attachment or other encumbrance not discharged as required by the Contract Documents.

If and when the grounds set forth above are removed without cost to the Owner, payment may be requested and shall be made for amounts withheld because of such grounds, less any cost or damage incurred by the Owner as a result thereof.

10.7 SUBSTANTIAL COMPLETION

10.7.1 When the Contractor considers that the Work, or a portion thereof designated in the Contract Documents for separate completion, is substantially complete as defined in Subsection 9.1.3, the Contractor shall prepare and submit to the Owner's

Representative for delivery to the Engineer and to the Owner all documents, records, permits and licenses required by the Contract Documents in a form satisfactory to the Engineer and the Owner, and a monetized punch list of items to be completed or corrected. Failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

10.7.2 [Reserved] .

10.7.3 Warranties and guarantees required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof, unless otherwise provided in the Certificate of Substantial Completion.

10.7.4 Subject to the procedures set forth in this Section 10.7, within 21 days after presentation of Contractor's certification, Engineer on behalf of Owner shall present to Contractor either a written declaration that the Work has been Substantially Completed or an itemized list of incomplete or unsatisfactory work items required by the Contract sufficient to demonstrate that the Work has not been Substantially Completed. Engineer's declaration shall be made in accordance with the following procedures:

1. Promptly after Contractor's notification, Owner, Contractor and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing within 10 days of the Contractor's presentation of the certification required under Paragraph 10.7.1, giving reasons therefor.

2. If Engineer considers the Work substantially complete, Engineer will, within 10 days of the Contractor's presentation of the certification required under 10.7.1, deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed and corrected before final payment. Owner shall have 7 days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 21 days after presentation of Contractor's certification under Paragraph 10.7.1, notify Contractor in writing, stating the reasons therefor and providing an itemized list of incomplete or unsatisfactory Work items required by the Contract. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 21 days, execute and deliver to Owner and contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting

such changes from the tentative certificate as the Engineer believes justified after consideration of any objection from Owner

10.7.5 At the time of Engineer's delivery of the tentative certificate of Substantial Completion to Owner, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment..Engineer shall be entitled to withhold certification of Substantial Completion if Contractor has not brought all substantially completed Work to functioning condition to the satisfaction of Owner.

10.7.6 Within 15 days after the effective date of the declaration of Substantial Completion. Owner shall send to Contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond its control, Contractor shall complete all work items within 45 days after the receipt of such list or before the then Contract Completion Date, whichever is later. If Contractor fails to complete such work within such time, Owner may, subsequent to 7 days' written notice to Contractor by certified mail, return receipt requested, terminate the Contract and complete the incomplete or unsatisfactory work items and charge the cost of same to Contractor.

10.7.7 Within 65 days after the effective date of the declaration of Substantial Completion, Owner shall prepare and forthwith send to Contractor for acceptance a Substantial Completion estimate for the quantity and price of the Work done and all but one percent retainage on that Work, including the quantity, price, and all but one percent retainage for the undisputed part of each Work item and extra Work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory Work items and less the total periodic payments made to date for the Work. Owner shall also deduct from the Substantial Completion estimate an amount equal to the sum of all demands for direct payment filed by Subcontractors and not yet paid to Subcontractors or deposited in joint accounts pursuant to G.L. c. 30, § 39F. [NTD: the foregoing per GL c. 30, s 39G]

10.8 FINAL COMPLETION AND FINAL PAYMENT

10.8.1 At such time as the Contractor has fully performed the Work, including all obligations set forth in the Contract Documents and all Work listed on the Certificate of Substantial Completion, the Contractor shall give notice to the Engineer and the Owner. The Contractor shall also provide a certificate to the Owner regarding completion of the Work in accordance with the Contract Documents, compliance by the Contractor with the Contract Documents, and such other matters within the scope of the Contractor's performance under the

Contract Documents as the Owner may require. Such certificate shall be in form and substance acceptable to the Owner.

10.8.2 Upon receipt of written notice that the Work is ready for final inspection and acceptance, the Engineer and the Owner's Representative will promptly make such inspection. The Engineer shall, within 30 days of its and the Owner's Representative's receipt of the Contractor's written notice, notify Contractor in writing of all particulars in which the inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. If Engineer and Owner's Representative agree that the Work is complete, the Contractor shall receive a copy of the Engineer's certificate of final inspection within 30 days of the Engineer's and Owner's Representative's receipt of the written notice provided by Contractor under this section 10.8 .

10.8.3 The Engineer's Certificate of Final Completion will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in this Section 10.8, and elsewhere in the Contract Documents, have been fulfilled in accordance with the requirements of the Contract Documents.

10.8.4 Notwithstanding anything to the contrary in this Section 10.8 contained, if the Owner elects to take use or occupancy of the Project in stages, final inspection may be performed, at the request of the Contractor or the Owner, in stages (i.e., in respect of the portion of the Work to be occupied by the Owner and such systems, (e.g., mechanical, sanitary, etc.), as are necessary for the Owner's use or occupancy of such portion of the Project). The provisions of this Section 10.8 shall apply to any staged final inspection, except that in no event shall Final Completion be deemed to have occurred until final inspection has occurred with respect to the entire Work.

10.8.5 Final Completion shall mean the completion of all of the Work in accordance with all of the terms and conditions of the Contract Documents and acceptance thereof after final inspection in accordance with Subsections 10.8.1 through 10.8.4. The date of issuance of the Owner's written notice of acceptance shall be designated as the date of Final Completion. Upon Final Completion, the Owner may take over the Site for permanent use and occupancy. A final Application for Payment may be made at any time after the date of Final Completion.

10.8.6 Prior to, and as a condition precedent to, Final Completion, all of the following matters shall have been resolved and documents and items shall have been received and approved in writing by the Owner:

(a) final documents of similar nature to those required by the Contract Documents in connection with any Application for Payment hereunder; and

(b) all final permits, approvals, (including, without limitation, the approval of the Owner's insurance company, if required) certificates and affidavits

(including, without limitation, certificates in respect of plumbing, electrical systems and life safety systems, required by governmental authorities) and authorizations for use and occupancy of the Project required by any authority having jurisdiction, including an unconditioned permanent and full Certificate of Occupancy and any other necessary occupancy and use permits (unless such Certificate is not issued solely for reasons as to which the Contractor has no responsibility or over which it has no control); and

(c) full record "as built" Drawings in the Owner's CADD software approved by the Engineer; records and related data including all field notes and daily reports of all the Work, all in accordance with the requirements of the Contract Documents; and

(d) satisfactory proof that all claims arising out of the Work have been released or bonded; and

(e) acknowledgment of prior payments (to the extent permitted by law) from all Subcontractors and the Contractor; and

(f) the Engineer's certificate certifying that the Work is complete; and

(g) a written statement from the Engineer that all practical orientation and operating instructions for all materials, systems, and equipment have been satisfactorily completed, and that all required training of Owner's personnel has been completed; and

(h) a satisfactory report by the Contractor which is approved by the Engineer that all mechanical systems have been and are properly balanced; and

(i) a certificate of insurance for product liability and completed operations insurance coverage for the three year period following Final Completion; and

(j) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or its property might in any way be responsible, have been paid or otherwise satisfied; and

(k) consent of surety, if required, to final payment; and

(l) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts and releases arising out of the Contract, to the extent and in such form as may be designated by the Owner; and

(m) delivery of all spare parts required to be submitted pursuant to the Contract Documents; and

(n) delivery of all Contract Documents and other related materials, with the exception of one record contract set, by the Contractor to the Owner or certification by the Contractor that all such documents were lawfully disposed; and

(o) a general release of the Owner from the Contractor and each Subcontractor.

If the final documentation submitted by the Contractor is determined not to be complete by the Owner or if the Owner deems the Work incomplete in any respect, the Contractor shall promptly complete any such Work and shall promptly resubmit the final documentation.

10.8.7 Within 30 days after receipt by Owner of notice from Contractor that the entire Work is complete, Owner shall prepare and forthwith send to Contractor for acceptance a final estimate for the quantity and price of the Work done and all retainage on the Work less all payments made to date, unless Owner's inspection shows that Work items required by the Contract remain incomplete or unsatisfactory, or that documentation required by the Contract has not been completed. [NTD: per GL c. 30, s. 39G].

10.8.8 After Final Completion and receipt by the Owner of a proper final Application for Payment, the Engineer and Owner's Representative shall review the application following the procedures set forth in this Article 10 for progress payments. Thirty days after the presentation to Owner of the Final Application for Payment (as signed by the Engineer) and accompanying documentation as required in this Article 10, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to the amounts withheld

pursuant to Subsection 10.6.1,

the aggregate of all previous payments made by the Owner, and any liquidated and actual damages, will become due and will be paid by Owner to Contractor.

If at any time the aggregate of previous payments made by the Owner exceeds the amount due the Contractor, the Construction Manger shall reimburse the difference to the Owner.

10.8.9 The acceptance of final payment shall constitute a release and waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final payment.

10.9 STORAGE OF MATERIALS OFF-SITE

10.9.1 The Contractor and its Subcontractors shall obtain prior written approval from the Owner, for permission to store at off-site locations materials or equipment to be incorporated in the Work, for which progress payments will be requested. No out-of-state storage will be permitted by the Owner. Any and all charges for storage, including insurance, shall be borne solely by the Contractor. Before approval, the Owner may require, without

limitation, (i) evidence that the location is properly secure, (ii) proper proof of insurance and proof of satisfactory contractual arrangements for transportation to the Site, (iii) proof that Owner will obtain clear title to the materials, and (iv) a certificate from the Contractor stating:

(a) The name of the Contractor and/or Subcontractor leasing or owning the storage area;

(b) The location of such storage space, including the storage area; i.e., the entire premises or certain areas of a warehouse giving the number of floors or portions thereof, and a certification that the Contractor has visited such location, verified the storage of such material or equipment therein or thereon, and payment of all current storage charges;

(c) The date on which the material or equipment is first stored; and

(d) A description, including quantities and the value of the material or equipment stored.

10.9.2 The Contractor shall furnish to the Owner, not less often than once per month, a current inventory of all materials or equipment being stored at any off-site location.

10.9.3 The Contractor and its Subcontractors shall mark each sealed carton or other item with the name of the Project and the Owner, and all materials or equipment stored off-site shall be segregated to the extent required by the Owner, the Owner's Representative, or the Engineer.

10.9.4 Payment for materials or equipment stored off-site shall be at the sole discretion of the Owner. Title to materials or equipment stored off-site shall be transferred at the time at which the Owner pays for them.

ARTICLE 11 SAFETY AND PROTECTION

11.1 SAFETY PRECAUTIONS AND PROGRAMS

11.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work, including, but not limited to, compliance by the Contractor and all Subcontractors with all safety precautions and programs and other legal requirements of the Occupational Safety and Health Act, other Applicable Laws, the Contract Documents, and any insurance carrier providing insurance coverage for the Owner or the Contractor in connection with the Project. Without limiting the generality of the foregoing, the Contractor shall, promptly after execution of the Agreement, prepare a written safety program which shall be submitted to the Owner's Representative and the Owner and issued to all Subcontractors and all forces employed on the Work. Such program shall include weekly safety meetings with representatives of all Subcontractors working on the

Site, and the Contractor shall prepare, circulate and maintain on file at the Site minutes of all safety meetings. The Contractor shall ensure that all forces employed on the Work are free of drugs and alcohol and are provided with all necessary personal protective equipment. The Contractor's written safety program shall identify, by trade, tasks for which specific safety planning and precautions are necessary and the steps necessary to implement such precautions. The Contractor shall plan hazardous sequences in advance, shall institute procedures for reporting any injuries and providing for emergency medical care and shall report to the Owner's Representative when such sequences are to commence and when completed.

11.1.2 The Contractor shall designate a responsible member of its organization at the Site whose duty shall be the prevention of accidents. This person shall be the Contractor's Project Superintendent unless otherwise designated by the Contractor in writing to the Owner's Representative.

11.2 SAFETY OF PERSONS AND PROPERTY

11.2.1 The Contractor shall take all necessary precautions for the safety of, and shall provide all protection necessary to prevent damage, injury or loss to:

(a) all employees on the Work and all other persons or other entities who may be affected thereby;

(b) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site; and

(c) other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, improvements and utilities not designated for removal, relocation or replacement in the course of construction.

Without limitation, the Contractor shall provide security watch service at all such times as are necessary to protect the interests of the Contractor and the Owner and to provide for the safety and security of the general public, employees and agents of the Owner, the Owner's Representative and the Engineer, and other persons who may be affected by the Work, and to exclude unauthorized persons from the Site.

11.2.2 The Contractor shall give all notices and comply with all Applicable Laws bearing on the safety of persons or property or their protection from damage, injury or loss.

11.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including fencing and posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities and other improvements as more particularly set forth in the Specifications.

11.2.4 The Contractor shall satisfactorily conduct its work at all highway crossings and along all highways, street and other ways in accordance with the permission and requirements of the proper authorities. Vehicular traffic shall be routed over temporary detours during construction when required to maintain proper flow of traffic. The Contractor shall plan and conduct its operations in such a manner that the continuous flow of traffic is uninterrupted and with a minimum of inconvenience to the general public. The Contractor shall prepare a plan for construction and traffic management acceptable to the Owner and the municipal authorities. The Contractor shall arrange for and provide all policemen required by the town or city in which the Project is located to be present at or adjacent to the Site for traffic control purposes. The cost of all policemen so required shall be borne by the Contractor and included in the Contract Sum.

11.2.5 The Contractor shall assume all responsibility for the protection of property of adjacent owners so far as affected by its operations. The Contractor shall provide temporary protection at all openings in the outside fences or walls to prevent unauthorized persons from obtaining access during the night and at other non-working hours. The Contractor acknowledges that there may be Construction projects being undertaken on adjacent properties and will coordinate the Work with such other projects as required.

11.2.6 Blasting operations, if any, shall be specifically approved in advance in writing by the Engineer, shall be conducted by experienced personnel and in strict accordance with the rules and regulations of the Massachusetts Department of Public Safety governing the keeping, storage, use, manufacture, sale, handling, transportation or other disposition of explosives, and such other rules and regulations as may be promulgated from time to time by authorities having jurisdiction, and shall not be commenced until the Contractor provides written evidence to the Owner that XCU coverage is in force and effect as required by Subsection 12.2.3 hereof. When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

11.2.7 The Contractor shall promptly remedy all damage or loss (excluding damage or loss insured under the property insurance carried by the Owner, if any, as provided in the insurance requirements contained in the Contract Documents, but including losses within the deductibles of such insurance) to any property referred to in Subsection 11.2.1 caused in whole or in part by the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under this Article 11, except to the extent that the damage or loss is attributable to the acts or omissions of the Owner, the Owner's Representative or the Engineer. The foregoing obligations of the Contractor are in addition to its obligations under Article 5.

11.2.8 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

11.2.9 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment, and shall comply with all recommendations regarding fire protection made by the representatives of the insurance company or companies carrying insurance on the Work or by the local fire chief or fire marshal. The Site shall be kept orderly and clean, and all combustible rubbish shall be removed from the Site daily.

11.2.10 The Contractor shall at all times protect excavations, trenches, structures, materials, equipment and fixtures from damage from rain water and other weather, ground water, back-up or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water at the Project Site. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end. The Contractor shall remove snow and ice which might create a hazard on or about the Site or result in damage or delay.

11.2.11 The Contractor shall take all necessary precautions to prevent loss or damage caused by vandalism, theft, burglary, pilferage, or unexplained disappearance of property of the Owner forming part of the Work, or located within those areas of the Project to which the Contractor has access. The Contractor shall have full responsibility for the security of such property of the Owner and shall reimburse the Owner for any such loss, damage or injury resulting from vandalism, theft, burglary, pilferage, unexplained disappearance or any other cause, to the extent that the same is not covered by the Owner's insurance.

11.2.12 In the event the Contractor discovers any active utility line which had not yet been disclosed in any survey, it shall cease all work in the immediate area which may affect such line and shall promptly notify the Owner, Owner's Representative, and the affected utility company. The Contractor shall not restart work without notice from and approval of the Owner's Representative.

11.2.13 The Contractor shall at all times provide and maintain adequate protection against weather so as to preserve the Work, materials, equipment, apparatus, and fixtures free from injury or damage.

11.2.14 The Contractor shall protect all finished surfaces of the Work, including the jambs and soffits of all openings used as passageways or through which materials are handled, against any possible damage resulting from the conduct of Work by the Contractor or by any separate Contractors.

11.2.15 In the event of temporary suspension of Work and during inclement weather, or whenever further directed by the Owner or Engineer, Work and materials shall be adequately protected against damage. The Contractor shall take special precautions to prevent damage to materials and work installed in cold or freezing weather, by providing adequate temporary heat and suitable enclosures or covering. The ground surfaces under footings and under pipe lines, and all concrete and masonry work, shall be protected against frost and freezing. The minimum measures to be taken shall be in accordance with the requirements for

winter conditions as set forth in the current edition of ACI-318-83 "Building Code Requirements for Reinforced Concrete" published by the American Concrete Institute.

11.2.16 The Contractor shall provide ventilation of enclosed areas during construction as required to permit proper curing and drying out, and to prevent excessive humidity, moisture and condensation. Ventilation shall be by natural or artificial means as required by the conditions involved.

11.2.17 The Contractor shall control the safe handling and storage of all explosives, welding materials, acetylene and oxygen tanks, and other equipment required for blasting operations, welding and cutting work at the Site. All welding materials and equipment shall be removed promptly from the premises and upon completion of the welding and cutting work. No welding torch or other open flames will be used within any building or temporary structure without a fire watch with an appropriate fire extinguisher or within one hour of quitting time.

11.2.18 The Work shall be performed in such a manner as to prevent fire, and during any Work involving a fire hazard the Contractor shall take all necessary precautions against fires starting and spreading on the Site, within buildings and temporary structures. The Contractor shall provide and maintain sand buckets, suitable fire extinguishers and hoses where and as required to provide adequate means of extinguishing fires. Fire prevention requirements may be directed by the Owner's insurance agents and the local Fire Department. Permanent standpipes shall be made available during construction. Gasoline and other flammable liquids shall not be stored within buildings or temporary structures; shall be stored in and dispensed from U.L. listed safety containers in conformance with N.B.F.U. recommendations and the requirements of all authorities having jurisdiction. The Contractor shall make arrangements for periodic inspection by town/city fire protection authorities and insurance underwriters' inspectors, cooperate with them and promptly carry out their recommendations.

11.3 EMERGENCIES

11.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury or loss and shall as promptly as conditions permit notify insurance carriers and the Owner's Representative of the nature of the emergency and circumstances related thereto. Immediately thereafter, the Contractor shall prepare a written report setting forth in detail the action taken and describing in detail all circumstances and conditions which are related to such action. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 13 for Changes in the Work.

ARTICLE 12 BONDS AND INSURANCE

12.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

12.1.1 The Contractor shall furnish a performance bond and a labor and materials payment bond, each for the full amount of the Contract Sum. The performance bond and the labor and materials payment bond shall be in the unmodified form of the AIA A312-2010 performance and payment bonds. The Owner reserves the right to specify any alternative form for the performance or payment bond. Each bond shall name the Owner as obligee and each shall be issued by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and whose name appears on the United States Treasury Department Circular 570. The bond premiums shall be included in the Contract Sum and shall be paid by the Contractor. If the Agreement provides for the imposition of liquidated or actual damages in the event that the Contractor fails to complete the Work within the Contract Time, then the obligations assumed by the surety under the performance bond shall include the payment of such liquidated or actual damages. These bonds shall remain in effect for the entire Guarantee Period, as defined in Subsection 14.2.2. All bonds shall be executed in the required number of counterparts and shall be submitted to the Owner for insertion into the Contract Documents prior to the execution of the Agreement.

12.2 CONTRACTOR'S LIABILITY INSURANCE

12.2.1 The Contractor shall purchase and maintain such insurance as will protect it and the other parties specified or referred to in Subsection 12.2.10 below from claims referred to below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

12.2.2 The Contractor shall purchase and maintain during the life of the Agreement:

(a) Insurance sufficient to discharge its obligations under all applicable workers' compensation laws of the Commonwealth of Massachusetts and the United States.

(b) Employer's liability insurance with minimum limit per accident or disease of $1,000,000.

(c) Statutory disability and other employee benefit insurance.

12.2.3 The Contractor shall purchase and maintain commercial general liability insurance, which coverage shall be in a form no less broad than ISO CG 00 01 12 07 or its equivalent and covering the full scope of this contract with limits not less than $1,000,000 per

occurrence and $5,000,000 aggregate for personal or bodily injuries and for property damage. A per occurrence limit of not less than $5,000,000 is acceptable. All policies issued shall include permission for partial or total use and occupancy of the premises by the Owner within the scope of the Contract. Such insurance shall include at least the following:

(a) Commercial general liability insurance, including all products, premises-operations, completed operations for at least three (3) years following acceptance and final payment, independent contractors, additional interests of employees, sudden and accidental pollution and contamination, and incidental medical malpractice, and including notice of occurrence and knowledge of occurrence endorsements satisfactory to the Owner.

(b) Blanket contractual liability insurance covering all liabilities assumed under the Contract Documents, including, but not limited to, the Contractor's obligations under Article 5 of the General Conditions.

(c) Coverage for the so-called "XCU" hazards (explosion, collapse of buildings, blasting, undermining, and damage to underground property). Before any blasting is done, the Contractor shall provide to the Owner written evidence that blasting damage is included in the Contractor's insurance coverage.

12.2.4 The Contractor shall purchase and maintain automobile liability insurance, which coverage shall be in a form no less broad than ISO CA 00 01 03 10 or its equivalent and covering all owned, non-owned and hired vehicles with a limit of not less than $1,000,000 per accident for bodily injury, including death and property damage.

12.2.5 The Contractor shall also purchase and maintain umbrella form excess liability insurance in the limits specified below and containing coverage no less restrictive than that required under Subsections 12.2.2, 12.2.3, and 12.2.4 above. The required primary insurance shall be listed as underlying coverage in the first layer of the umbrella policy. Nothing contained herein shall be interpreted to restrict or prohibit the Contractor from carrying, or requiring any of its Subcontractors to carry, insurance in addition to that required hereby. The Contractor's umbrella excess policies shall contain a minimum total occurrence and aggregate limit of $10,000,000.

12.2.6 The Owner shall have the right to require that the coverages and limits of liability set forth in Subsections 12.2.2, 12.2.3, 12.2.4, and 12.2.5 be expanded or raised if required by law or any lender of the Owner, or if in the Owner's judgment economic conditions or other factors so warrant. If additional costs are incurred because of raised limits, the additional cost shall be added to the Contract Sum. The Owner shall also have the right to reduce the coverages and limits of liability set forth in Subsections 12.2.2, 12.2.3, 12.2.4, and 12.2.5 if in the Owner's judgment the degree of risk associated with any portion of the Work warrants reduced coverage and limits of liability.

12.2.7 Insurance coverages similar to those required of the Contractor shall be provided by or on behalf of all Subcontractors to cover their operations performed under the Contract Documents. The Contractor shall be held responsible for compliance with and enforcement of the insurance requirements and for any modifications of these insurance requirements as they apply to Subcontractors. The Contractor shall not permit any Subcontractor to commence work until such Subcontractor has furnished evidence that insurance has been procured and certificates of insurance have been obtained by the Contractor providing that, in the event of non-renewal or cancellation of Subcontractor's policies, thirty (30) days advance written notice will be given to the Contractor by registered mail. Copies of such certificates and, upon Owner's written request, copies of the insurance policies shall be delivered to the Owner, who shall be designated as a certificate holder.

12.2.8 Prior to the commencement of the Work, the Contractor shall cause its insurance company or companies to provide insurance certificates, which shall be attached as **Exhibit G** to the Agreement, and, upon Owner's written request, copies of insurance policies acceptable to the Owner and the other additional insureds specified in Subsection 12.2.10 below evidencing the above coverages to be furnished the Owner and the other additional insureds specified in Subsection 12.2.10 below by the Contractor's insurance company. Such certificates and all insurance policies required by this Article 12 shall contain provisions requiring at least 30 days' prior written notice to the Owner and to other certificate holders of any cancellations or non-renewals of the policies. Certificates shall indicate effective dates and dates of expiration of policies. An additional certificate evidencing continuation of all insurance coverages required to remain in force after final payment shall be submitted with the application for final payment, and neither final payment nor any remaining retainage under this Contract shall be due until such certificate has been submitted to the Owner.

12.2.9 The Owner is to be furnished originals or certified copies of the policy or policies including all endorsements required to provide stated coverage within 10 days after commencement of Work under this Contract.

12.2.10 All insurance policies provided pursuant to Article 12 shall be written by companies licensed to do business in the Commonwealth of Massachusetts and having an A.M. Best rating of A-, VIII or better, or otherwise acceptable to Owner, in its reasonable discretion, and shall be in form satisfactory to the Owner. All such policies shall name as additional insureds, under endorsements no less broad than CG 20/10 (11-85) or both CG 2026 (7/04 version) and CG 2037 (7/04 version), the Owner, affiliates and participants of the Owner, the State University, the Commonwealth of Massachusetts, and any other parties as the Owner may identify by notice to the Contractor from time to time. All such policies shall contain provisions or endorsements necessary to assure coverage of claims by one additional insured against another additional insured. All required insurance policies are to be endorsed to state that the Contractor's policies shall be primary to all other insurance available to the Owner, which insurance shall be excess of all other valid and collectible insurance policies. The Contractor shall bear all costs of any amounts deductible, retained or self-insured under the policies required to be maintained by the Contractor.

12.2.11 The purchase of insurance to satisfy the above requirements, or the furnishing of certificates evidencing same, shall not be a satisfaction of the Contractor's liability under this Contract or in any way modify the Contractor's indemnification of the Owner.

12.2.12 Certificates and policies of insurance shall be filed with the Owner.

12.3 PROPERTY INSURANCE

12.3.1 The Contractor shall purchase and maintain property insurance insuring against the perils of fire and extended coverage and including "all risk" builders' risk insurance for physical loss or damage to the Work, including all labor, materials, supplies, machinery, equipment, fixtures, temporary structures and all other work of whatever nature, used or to be used in or incidental to the construction, fabrication, erection or completion and testing of the Work, until Final Completion. Limits shall be 100% of the replacement value of the Work. Such insurance shall protect the interests of the Owner, the Contractor and all Subcontractors performing work at the Site, and the proceeds in case of loss may be held by the Contractor and applied by it in the manner hereafter set forth. The Contractor shall have power to adjust and settle any loss with the insurers, using due diligence to protect the interests of the Owner, Contractor and Subcontractors, subject to the rights of the Owner. The Contractor's property insurance will not cover any tools, equipment, materials, supplies, temporary structures or other property owned or rented by the Contractor or Subcontractors which is not to be incorporated in the Work. The Contractor and Subcontractors assume these excluded risks, and waive all rights they may have against the Owner for damage to such items, and, further, any policy of insurance covering the Contractor's own tools, equipment, facilities and other property against loss by physical damage shall include an endorsement providing that the underwriters waive their rights of subrogation against the Owner. In accordance with Article 12, the Contractor will furnish the Owner with a certificate of such insurance coverage, which shall be attached as **Exhibit G** to the Agreement. The Contractor will furnish the Owner with originals or certified copies of the policy including endorsements within 10 days after commencement of Work under this Contract. In accordance with Article 12, the Owner shall be listed as an additional named insured on such property insurance policy.

12.3.2 The Contractor, as trustee for the parties in interest, shall receive the proceeds of any insurance upon the occurrence of an insured loss, and shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or in accordance with an award or finding of a court of competent jurisdiction. If after such loss no other agreement is made, replacement of damaged work shall be covered by an appropriate Change Order.

12.3.3 The Contractor shall be completely responsible for the proper care and protection of the Work. The Contractor shall be responsible for all losses within the deductible specified above, and the Contractor shall promptly, and in any event so as not to delay the progress of the Work, replace or reimburse the Owner for any property to the extent loss or damage to such property is within the deductible.

12.3.4 If there is a casualty resulting in a loss of more than 20% of the Contract Sum, as determined by the Owner, then the Owner may elect to terminate the Contract upon seven (7) days' notice to the Contractor and the Engineer, and the Contractor shall be entitled to payment for all Work executed in accordance with the Contract Documents prior to said termination. Contractor shall have no claim for payment for loss of profit on that portion of the Work not executed.

12.3.5 The Owner and the Contractor waive all rights against (i) each other and the Subcontractors, consultants, agents and employees each of the other, and (ii) the Engineer, the Owner's Representative, and separate contractors, if any, and their Subcontractors, sub-Subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Section 12.3 or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the Contractor. The foregoing waiver afforded the Engineer, its agents and employees shall not extend to the liability imposed by Subsection 5.1.4. The Owner or the Contractor, as appropriate, shall require of the Engineer, separate contractors, and Subcontractors by written agreements, similar waivers each in favor of all other parties enumerated in this Subsection 12.3.5.

12.4 PROFESSIONAL LIABILITY INSURANCE

12.4.1 If the Work performed by the Contractor or any Subcontractor requires design and/or other professional services, the Contractor shall purchase and maintain, and shall cause any such Subcontractor to purchase and maintain, professional liability insurance for claims arising out of the negligent performance of such professional services. Professional liability coverage shall be written for minimum limits of $2,000,000 per claim and annual aggregate with a deductible no greater than $100,000. Professional liability coverage may be provided on a "claims made" basis if it includes a retroactive date that is no later than the effective date of this Agreement, and such insurance coverage shall be maintained for a period at least six (6) years after the earlier of: (1) the date of official acceptance of the completed Project by the Owner; (2) the date of the opening of the Project to public use; (3) the date of acceptance by the Contractor of final payment under this Agreement; or (4) the date of final completion of the Project and the taking of possession of the Project for use and occupancy by the Owner. Throughout the term of this Agreement and the entire six (6) year period, the Contractor and any such Subcontractor shall provide renewal certificates of professional liability insurance to the Owner as evidence that this coverage is being maintained. Alternatively, the six (6) year maintenance period for this coverage may be satisfied by providing an extended reporting period endorsement.

ARTICLE 13 CHANGES IN THE WORK

13.1 CHANGE ORDERS

13.1.1 The Contract Sum and the Contract Time may be changed only by duly executed Change Order. A Change Order signed by the Contractor indicates its agreement therewith, including the adjustment, if any, in the Contract Sum or the Contract Time.

13.1.2 The Owner, without invalidating the Contract, may order Changes in the Work consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly, if necessary. All such Changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents.

13.1.3 With respect to Change Orders, upon the request of the Owner or the Engineer, the Contractor shall submit to the Engineer, as soon as reasonably possible but in any event within twenty (20) days of the Contractor's receipt of a request therefor, an accurate written statement setting forth in detail, with a suitable breakdown for each trade and work classification, and including a breakdown of the items set forth in Subsection 13.1.8 below, the net increase in the cost of the Contractor's performance and payment bond premiums attributable to such changes, and any allowable markup for overhead and profit. The Contractor shall state in such proposal any change to the Contract Time required for the completion of the Work if the Change Order is approved. The Contractor shall promptly revise and resubmit such proposal if the Engineer determines that the proposal is not in compliance with the requirements of this Article, or that it contains errors or ambiguities. Once it has been reviewed and approved by the Engineer, the Change Order shall be submitted to the Owner and the Contractor for Execution.

13.1.4 The amount by which the Contract Sum shall be adjusted as a result of a Change Order shall be determined in one or more of the following ways, as the Owner in its sole discretion shall determine:

(a) by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

(b) by unit prices stated in the Contract Documents or subsequently agreed upon;

(c) by cost to be determined in a manner agreed upon by the parties; or

(d) by the method provided in Subsection 13.1.5.

13.1.5 If the amount by which the Contract Sum shall be adjusted as a result of a Change in the Work is not agreed upon using one of the methods set forth in Subsection 13.1.4

above, the Contractor, provided it receives a written order signed by the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be estimated by the Engineer on the basis of the reasonable expenditures and savings of those performing the Work attributable to the change (as set forth in Subsection 13.1.8), and including, in the case of an increase in the Contract Sum, an amount equal to the allowable markup for overhead and profit as provided in the Contract. Such estimate shall be presented by the Engineer to the Owner for approval. In such case, and also in the case of changes with respect to which the cost or credit is determined under one of the methods set forth in Subsection 13.1.4 above, the Contractor shall keep and present, in such form as the Engineer may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order. The Contractor shall review all quotations from Subcontractors and shall assure that pricing is fair and equitable before forwarding such proposed pricing to the Owner. Pending final determination of cost to the Owner, payments on account, if any, shall be made on the Engineer's Certificate for Payment. The amount of credit to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in the Contract Sum will be the amount of the actual net decrease in the cost of the Work plus the Contractor's allowable markups, as may be permitted by the Agreement, as confirmed by the Engineer. When both additions and credits covering related Work or substitutions are involved in any one change, the allowance for overhead, superintendence and profit, to the extent permitted hereunder, shall be figured on the basis of the net increase, if any, with respect to that change.

13.1.6 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order that application of the agreed unit prices to the quantities of Work proposed will cause substantial inequity to the Owner or the Contractor, the applicable unit prices shall be equitably adjusted.

13.1.7 Proposals as provided for in Subsection 13.1.4(a), above, shall be accompanied by a detailed breakdown of estimated costs of labor, materials, equipment and insurance, including a similar breakdown of costs for subcontracted Work. Such proposals shall be subject to the Engineer's review and acceptance by the Owner which will be based upon the Contractor's satisfactory demonstration that all costs and charges included therein are fair and reasonable, consistent with current price indexes for labor, materials and equipment, and do not in any way reflect exorbitant or non-applicable charges. Proposals shall be based on the approved Schedule of Values where applicable. The Contractor shall cooperate fully with the Owner's Representative and the Engineer to whatever extent necessary in providing adequate substantiation of cost and in conducting negotiations pertaining thereto.

13.1.8 Costs of material and labor for Changes in the Work shall be limited to the following:

(a) The net cost to the Contractor of all necessary materials, including transportation to the Site.

(b) Cost of all necessary labor, in accordance with established wage rates, as evidenced by payroll records.

(c) Premium the Contractor has to pay for liability and other insurance and bonds directly required by reason of performance of such Change in the Work.

(d) Payments required to labor organizations under existing labor agreements, and directly required by reason of performance of such Change in the Work.

(e) State taxes for unemployment insurance and Federal taxes for Social Security required to be paid and directly required by reason of such Change in the Work.

(f) Taxes, if any, required to be paid on materials incorporated in such Work (subject, however, to the provisions of Section 4.2).

(g) Gas, oil, coal, electric current and other forms of energy used, where directly required by reason of such Change in the Work.

13.1.9 The Contractor shall not subcontract any Work under a Change Order unless work under the basic Contract of a similar type was previously subcontracted, or unless the Owner specifically approves and accepts such subcontracting in advance and in writing; and Subcontractors will not be allowed to further subcontract any Work under a Change Order without the prior written approval and acceptance of the Owner, unless Work under the basic Contract of a similar type was previously subcontracted by them. No mark-up shall be allowed on bond premiums of the Contractor or any of the Subcontractors.

13.2 CONSTRUCTION CHANGE DIRECTIVES

13.2.1 The Owner may order the Contractor to proceed with changes in the Work consisting of additions, deletions or other revisions prior to incorporation thereof in the Contract by issuance of a Change Order or in the event of the Owner and the Contractor to agree on an appropriate Change Order. All such changes shall be authorized by Construction Change Directives issued by the Owner through the Engineer.

13.2.2 The Construction Change Directive shall include a description of the work involved and the basis for revision, if any, in the Contract Sum or Contract Time or both.

13.2.3 Within the time period specified in Subsection 13.1.3, the Contractor shall submit to the Engineer and the Owner final costs for work required by the Construction Change Directive in accordance with Subsections 13.1.6 through 13.1.8, and request for change, if any, in the Contract Sum or Contract Time or both, for review by the Engineer and inclusion in a subsequent Change Order.

13.3 DIFFERING SUBSURFACE OR LATENT PHYSICAL CONDITIONS

13.3.1 Pursuant to Section 39N of Chapter 30 of the Massachusetts General Laws, changes in the Work based on concealed subsurface or latent conditions shall be in accordance with the following:

If, during the progress of the Work, the Contractor or the Owner discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the plans or indicated in the Contract Documents, either the Contractor or the Owner may request an equitable adjustment in the contract price of the Contract applying to the work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from the Contractor, or upon its own initiative, the Owner shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the Contract Documents from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and Contract Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the Owner shall make an equitable adjustment in the contract price and the Contract Documents shall be modified in writing accordingly.

13.4 CLAIMS FOR ADDITIONAL COST OR DAMAGES

13.4.1 If the Contractor wishes to make a claim for an increase in the Contract Sum by reason of any work required to be performed or materials furnished by it or by reason of any event, circumstance, occurrence, direction or interpretation, or if it wishes to make a claim for damages by reason of any act or omission of the Owner or the Engineer, including, without limitation, any order by the Owner to stop the Work pursuant to Section 17.1 where the Contractor was not at fault, the Contractor shall give the Owner written notice thereof within seven (7) days after the occurrence of the event giving rise to such claim, otherwise it shall be waived. Such notice shall be given by the Contractor before proceeding to execute the work involved, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Section 11.3. A written report by the Contractor setting forth the facts and reasons for proceeding under Section 11.3 shall be submitted by it in support of its claim for relief under Section 11.3. No such claim for an increase in the Contract Sum or any other matter described above shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment, if any, to the Contract Sum or the Contract Time, it shall be determined by the Engineer, subject to the provisions of Article 19.

13.4.2 The Contractor understands that no director, member, trustee, officer, principal, employee, agent or other representative of the Owner, the Owner's Representative or the Engineer has authority to waive compliance with the notice provisions of this Section 13.4.

13.4.3 The Contractor shall maintain a current listing of unresolved claims under this Section 13.4 and under Section 9.4.

13.5 PENALTIES FOR FALSE CLAIMS

13.5.1 The attention of the Contractor and all Subcontractors is directed to M.G.L. c. 266, § 67B, which provides criminal penalties for false claims by the Contractor or any Subcontractor under this Contract: "Whoever makes or presents to any employee, department, agency or public instrumentality of the commonwealth, or of any political subdivision thereof, any claim upon or against any department, agency, or public instrumentality of the commonwealth, or any political subdivision thereof, knowing such claim to be false, fictitious, or fraudulent, shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than five years, or in the house of correction for not more than two and one-half years, or both."

13.6 MINOR CHANGES IN THE WORK

13.6.1 The Engineer will have authority to order minor Changes in the Work not involving an adjustment in the Contract Sum or an adjustment of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written Engineer's Supplemental Instructions, and shall be binding on the Owner and the Contractor. The Contractor shall carry out such Engineer's Supplemental Instructions promptly.

ARTICLE 14 CORRECTION OF WORK

14.1 UNCOVERING OF WORK

14.1.1 If any portion of the Work should be covered contrary to the request of the Engineer or the Owner's Representative or contrary to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Engineer, the Owner's Representative, or the Owner, be uncovered for observation by the Engineer and replaced at the Contractor's expense.

14.1.2 If any other portion of the Work has been covered which the Engineer has not specifically requested to observe prior to being covered, the Engineer through the Owner's Representative, may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate contractor as provided in Article 7, in which event the Owner shall be responsible for the payment of such costs.

14.2 CORRECTION OF WORK

14.2.1 The Contractor shall promptly correct all Work rejected by the Engineer or the Owner as defective or as failing to conform to the Contract Documents, whether observed before or after Substantial Completion or Final Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Engineer's additional services made necessary thereby.

14.2.2 Without limiting any other rights which the Owner has hereunder or pursuant to law, if, within one (1) year after the date of Substantial Completion of the Work or portion thereof designated by the Owner or within one year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable guarantee or warranty required by or referred to in the Contract Documents (the "Guarantee Period"), any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct such defective work promptly after receipt of a written notice from the Owner to do so and shall reimburse the Owner for any expenses it shall have incurred in inspecting or testing such portion of the Work. The obligations provided in this Section 14.2 shall survive termination of the Contract and the making of final payment hereunder and may be extended pursuant to the provisions of Subsection 18.1.4.

14.2.3 The Contractor shall remove from the Site all portions of the Work which are defective or nonconforming and which have not been corrected under Article 18 or Subsections 14.2.1 and 14.2.2, unless removal is specifically waived in writing by the Owner.

14.2.4 If the Contractor fails to correct defective or nonconforming Work as provided in Article 18 or Subsections 14.2.1 and 14.2.2, the Owner may correct it in accordance with Section 17.2.

14.2.5 If the Contractor does not proceed with the correction of such defective or nonconforming work within a reasonable period of time (fixed by the Owner's Representative or the Engineer in writing) after receipt of a written notice from the Owner's Representative or the Engineer to correct such Work, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten (10) days thereafter, the Owner may upon ten (10) additional days' written notice sell such Work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for the Engineer's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

14.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate contractors destroyed or damaged by such correction or removal.

14.2.7 Nothing contained in this Section 14.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Article 18 hereof, or under law. The establishment of the Guarantee Period of one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any guarantee or warranty required by or referred to in the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which its obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligations other than specifically to correct the Work.

14.3 ACCEPTANCE OF DEFECTIVE OR NONCONFORMING WORK

14.3.1 If the Owner prefers to accept defective or nonconforming Work, it may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 15 PARTIAL USE OR OCCUPANCY

15.1 OWNER'S RIGHT TO USE AND OCCUPY

15.1.1 The Owner shall have the right to use and occupy spaces, areas, systems and other portions of the Work prior to completion and acceptance of all the Work or of other portions of the Work, provided that in the opinion of the Engineer such use or occupancy shall not interfere with the Contractor's operations nor delay it in completing the entire Work. If the Owner desires to exercise its right of partial occupancy and use under this Section 15.1, the Owner shall give, through the Owner's Representative, reasonable notice thereof to the Engineer and the Contractor. If the Engineer determines that the proposed use or occupancy would not interfere with the Contractor's operations or delay it in completing the entire Work, the Contractor shall cooperate with the Owner in providing basic services and facilities reasonably required for the proposed use or the health, safety and comfort of the users or occupants and other parties lawfully present on or entering or leaving the Site such as water, lighting, power, fire protection, and telephone services for the space or spaces to be occupied. If the equipment required to furnish such services is not entirely completed at the time the Owner desires to use or occupy the aforesaid space or spaces, the Contractor shall make every reasonable effort to complete the same as soon as possible so that the necessary equipment can be put into operation and use. Mutually acceptable arrangements shall be made between the Owner and the Contractor with regard to procedures, terms, and conditions governing the operation and maintenance of such services and facilities as may be utilized for the benefit of the Owner. The Owner will assume proportionate and reasonable responsibility for operation

of systems, equipment and/or utilities required to provide such services, in part or in total, including proportionate and reasonable expenses of operation incidental thereto, and mutually acceptable arrangements shall be made as to guarantees and warranties affecting designated portions or elements of the Work associated therewith.

15.2 PARTIAL USE NOT ACCEPTANCE

15.2.1 The Owner's use or occupancy of such designated areas or portions of the Work prior to completion and acceptance of all or portions of the Work pursuant to Section 15.1 shall not constitute acceptance of systems, materials, or elements of the Work which are not in accordance with the requirements of the Contract Documents, nor relieve the Contractor from its obligation to complete the Work, or its responsibility for loss or damage due to or arising out of defects in, or malfunctioning of, systems, materials, equipment, or elements of the Work, nor from other unfulfilled obligations or responsibilities of the Contractor under the Contract. If, however, damage results to such designated areas or portions of the Work, in whole or in part, from any act of the Owner, then the Owner will assume its proportionate responsibility for such damage, to the extent that such damage is not covered by insurance provided in accordance with the terms of the Contract Documents.

15.3 NO CLAIM FOR DELAY

15.3.1 The Contractor shall make no claim for any adjustment to the Contract Sum or the Contract Time or for damages of any kind arising directly or indirectly out of the exercise by the Owner of the rights reserved under this Article 15.

ARTICLE 16 TERMINATION OF THE CONTRACT

16.1 TERMINATION BY THE CONTRACTOR

16.1.1 If the Owner has failed to make a progress payment properly due and payable to the Contractor, then the Contractor, if not in default hereunder, may give the Owner written notice of its intention to terminate the Contract and if, after thirty (30) days after the Owner's receipt of such notice, the default of the Owner shall not have been cured or action by the Owner to effect such cure shall not have been commenced within such thirty (30) day period and diligently pursued, as the case may be, then the Contractor may terminate the Contract and recover from the Owner payment for all Work executed in accordance with the Contract Documents based on the percentage of the Work properly completed as determined by the Engineer.

16.2 TERMINATION BY THE OWNER

16.2.1 If any one (1) or more of the following events set forth in clauses (i) through (xiii) hereof shall occur:

(i) a petition is filed by the Contractor, or against the Contractor with its consent, under any federal or state law concerning bankruptcy, reorganization, insolvency or relief from creditors; or

(ii) such a petition is filed against the Contractor without its consent; or

(iii) the Contractor becomes insolvent or is generally not paying its debts as they become due; or

(iv) the Contractor consents to the appointment of a receiver, trustee, liquidator, custodian or the like of the Contractor or of all or any substantial portion of its assets; or

(v) a receiver, trustee, liquidator, custodian or the like is appointed with respect to the Contractor or takes possession of all or any substantial portion of its assets; or

(vi) the Contractor makes an assignment for the benefit of creditors; or

(vii) there has been a material adverse change in the financial condition of the Contractor; or

(viii) the Contractor's bonding or surety company shall refuse to issue a labor or material payment or performance bond or other similar guarantee of performance with respect to the Project; or

(ix) due to the fault of the Contractor (and not due to causes beyond the Contractor's reasonable control): (a) the Work is unreasonably delayed or discontinued, or (b) the execution of the Work ceases for more than three (3) days, or (c) the Work is delayed so that, in the Owner's judgment, the Work cannot be completed on or prior to the expiration of the Contract Time;

(x) the Contractor defaults in its obligation to perform the Work in a skilled and expeditious manner or refuses or fails to supply sufficient labor, materials, equipment and facilities to assure the proper progress of the Work; or

(xi) the Contractor fails to make prompt payment to any Subcontractor(s);

(xii) the Contractor fails to comply with Applicable Laws; or

(xiii) the Contractor otherwise violates or fails to comply with any material provision of the Contract Documents;

then, in any such event, the Owner may, without prejudice to any other right or remedy, and after giving the Contractor seven (7) days written notice, terminate the Contract and the employment of the Contractor and hold the Contractor and its sureties liable in damages for

breach of the Contract Documents, or may direct the Contractor to discontinue the Work or any designated portion thereof and take possession of the Site or any portion thereof and possession and use of any and all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work or any portion thereof by whatever method it may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is fully completed. The Owner shall not be liable for any depreciation, loss or damage to such materials, equipment or tools during such use thereof, nor thereafter prior to removal thereof by the Contractor after completion of the Work. The Owner may, at its option, require the Contractor's surety or sureties to complete the Work in accordance with the Contract Documents. If the Owner elects to terminate this Contract pursuant to the provisions of this Section and it is subsequently determined that none of the foregoing events have occurred, then such termination, at Owner's election, may be deemed a termination pursuant to Subsection 16.2.3.

16.2.2 When the Work is fully completed by the Owner, if the costs incurred by the Owner in finishing the Work, including the cost of any additional services of the Engineer or others, when added to the payments made to the Contractor prior to termination, exceed the Contract Sum, the Contractor or its sureties shall pay the amount of such excess to the Owner, together with interest thereon from the date incurred by the Owner until paid by the Contractor at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston. If the sum of such costs and payments is less than the Contract Sum, the Contractor shall be paid for any costs, as certified by the Engineer on the basis of its determination of "cost" under Subsection 13.1.8, incurred by the Contractor but not paid for prior to the termination, to the extent that such payment does not cause the total of payments to the Contractor when added to the cost of finishing the Work to exceed the Contract Sum. In case of such termination of the Contract pursuant to this Article 16, the Owner may, at its election, assume and become liable for obligations, commitments and unsettled claims that the Contractor has previously undertaken or incurred in good faith in connection with the Work. Without limiting the generality of the foregoing, the Owner shall have the right (but shall have no obligation) to assume and/or assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the Contractor under its subcontracts with any or all Subcontractors. In the event of such assumption or assignment by the Owner, no such Subcontractor shall have any claim against the Owner or such third party for Work performed by such Subcontractor or other matters arising prior to termination of the Contract except as expressly provided by law, and the Owner or such third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after such assumption. Should the Owner so elect, the Contractor shall execute and deliver all such documents and take all such steps, including the legal assignment of its contractual rights, as the Owner may require, for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or other obligations or commitments. All payments due the Contractor hereunder shall be subject to a right of offset by the Owner for expenses and damages suffered by the Owner as a result of any default, acts or omissions of the Contractor.

16.2.3 Upon fifteen (15) days' written notice, the Owner shall have the right to terminate the Contract at any time and for any reason whether or not any of the events specified in Subsection 16.2.1 shall have occurred, and the Owner shall incur no liability to the Contractor or any other person by reason of such termination. In the event of such termination, the Owner shall pay to the Contractor a sum equivalent to the unpaid Contract Sum attributable to the percentage of Work completed, as determined by the Engineer, pursuant to the Contract Documents and accepted by the Owner.

16.2.4 In the event of a termination of the Contract pursuant to this Article 16, the Owner and the Contractor shall forthwith return to the other all papers, materials and other properties of the other held by each for the purposes of execution and performance of the Contract Documents. In addition, each party will assist the other party in an orderly termination of this Contract.

ARTICLE 17 OWNER'S RIGHT TO STOP THE WORK AND TO CARRY OUT THE WORK

17.1 OWNER'S RIGHT TO STOP THE WORK

17.1.1 If, in the sole judgment of the Owner, the Contractor fails to commence to correct and diligently pursue the correction of defective work as required by Section 14.2 or fails to carry out the Work in accordance with the Contract Documents, the Owner may, by a written order through the Owner's Representative, and without prejudice to any other remedy the Owner may have, order the Contractor to stop the Work or any portion thereof, and the Contractor shall not thereafter incur any further cost or expense therefor without the Owner's prior written approval, until the cause for such order has been eliminated. Notwithstanding the foregoing, the right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

17.2 OWNER'S RIGHT TO CARRY OUT THE WORK

17.2.1 If the Contractor fails to perform the Work diligently and in a timely manner or defaults or neglects to carry out the Work in accordance with the Contract Documents or otherwise fails to perform its obligations under the Contract Documents, the Owner may, without prejudice to any other remedy it may have, make good such deficiencies, provided, however, that the Owner shall not take any action to perform the Work or to make good such deficiencies, except in the event of an emergency, unless the Contractor shall have failed, within seven (7) business days after receipt of written notice from the Owner of such failure, default or neglect, to commence corrective action and thereafter to promptly and diligently pursue the corrective action to completion. If the Owner undertakes to make good such deficiencies, the Owner may take possession of the Site or any portion thereof and possession and use of any and all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor in order to make good such deficiencies by whatever method it may deem expedient. The Owner shall not be liable for any depreciation, loss or damage to such materials,

equipment or tools during such use thereof. Further, if the Owner undertakes to make good such deficiencies, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation additional services of the Engineer and others made necessary by such default, neglect or failure, and the Contract Sum shall be likewise reduced. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, then, as provided in Subsection 16.2.2, the Contractor shall, within thirty (30) days of receipt of an invoice therefor, pay to the Owner the difference with interest thereon. Further, if the Contractor fails, within such seven (7) business day notice period, to commence corrective action and thereafter to promptly and diligently pursue correction of such deficiencies, or fails to carry out the Work in a timely manner in accordance with the Contract Documents, or if the Engineer advises the Owner that the Project cannot reasonably be completed by the Contractor within the Contract Time, then, at the request of the Owner, the Contractor's surety shall promptly complete the Work in accordance with the terms of the Contract Documents.

ARTICLE 18 POST-COMPLETION WARRANTY AND CORRECTIVE WORK

18.1 CONTRACTOR'S WARRANTIES

18.1.1 In addition to the Contractor's obligations under Subsection 14.2.2 hereof, the Contractor guarantees and warrants to the Owner and the Engineer that all materials and equipment furnished under the Contract Documents will be new and of recent manufacture unless otherwise expressly required or permitted by the Contract Documents, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents in all respects. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective or as failing to conform to the Contract Documents.

18.1.2 It is specifically agreed that the Contractor's warranties of materials, equipment and labor under this Article 18 and all other warranties, guarantees, responsibilities and liabilities of the Contractor under the Contract Documents or otherwise provided under law, shall apply to products and equipment, if any, furnished by the Owner as referred to in the Specifications and to the installation thereof by the Contractor or its Subcontractors under this Contract as fully as if such products and equipment had been purchased directly by the Contractor for incorporation in the Work. The Contractor acknowledges that it has received and approved all information and specifications for such Owner-furnished products and equipment sufficient so as to permit the Contractor to make this agreement. Such specifications for Owner-furnished products and equipment shall be considered a part of the Contract Documents, and such Owner-furnished products and equipment, upon delivery to and acceptance by the Contractor, shall become part of the Work. The Owner shall assign to the Contractor all warranties of any materials or equipment furnished by the Owner and installed

by the Contractor or its Subcontractors under the Contract. The Owner and the Contractor agree to cooperate as necessary to facilitate any claims under such warranties.

18.1.3 The Contractor shall obtain and preserve for the benefit of the Owner manufacturer's warranties on materials, fixtures and equipment incorporated into the Work, and the Contractor shall prepare and execute a written guarantee and warranty applicable to all phases of the Work in accordance with the provisions of this Article and all other applicable provisions of the Contract Documents pertaining to warranties and guarantees, and shall also secure and pass through to the Owner written guarantees and warranties prepared in a similar manner from each Subcontractor engaged in the performance of the Work and, prior to Substantial Completion, shall deliver complete sets of all such guarantees and warranties to the Engineer for review and approval in accordance with Subsection 3.7.4.

18.1.4 In the event that any work is performed to correct, repair or remedy any portion of the Work pursuant to any warranty or guarantee provided under the Contract Documents or otherwise available to the Owner, all such work, and all materials, equipment, supplies, appliances, fixtures and specialty devices requiring replacement during any guarantee period specified in the Contract Documents, shall be subject to a supplementary guarantee and warranty extending the guarantee or warranty period to cover all such work and all such items for the full guarantee or warranty period specified, beginning as of the date of acceptance of each such replacement item or element of work.

18.1.5 The warranty and guarantee provisions of this Article 18 shall be in addition to and not in limitation of any other warranties, guarantees, or remedies allowed by law or the Contract Documents.

18.1.6 No additional charge shall be made by the Contractor or by any Subcontractor for attending meetings at the Site to diagnose problems or to instruct the Owner's personnel in the proper operation or maintenance of the Work, or for making initial or seasonal adjustments (not including normal maintenance) of mechanical systems or other movable work during the applicable guarantee or warranty period (as it may be extended with respect to certain items pursuant to Subsection 18.1.4). The Contractor shall provide such service promptly upon notice from the Owner. In case of emergency, service shall be provided as necessary to avoid loss or damage or to maintain normal use of the premises. The Contractor shall furnish to the Engineer and to the Owner a list of names and telephone numbers, with a back-up name and telephone number, covering each area of potential emergency.

ARTICLE 19 DISPUTE RESOLUTION

19.1 GOVERNING LAW; VENUE

19.1.1 The Contract and all modifications, amendments, or alterations thereto, if any, shall be governed by the laws of the Commonwealth of Massachusetts. The Contractor, all Subcontractors, and other persons performing any part of the Work agree that each of them

shall be subject to the jurisdiction of the courts of the Commonwealth of Massachusetts or the federal courts for the District of Massachusetts with respect to any actions or suits at law or in equity arising out of or related to the bidding, award or performance of the Contract, subject to the dispute resolution provisions set forth herein.

19.2 CLAIMS AND DISPUTES

19.2.1 All claims, disputes or other matters in controversy between the Contractor and the Owner relating to the execution and progress of the Work or the interpretation of the Contract Documents, and any claims, disputes, and other matters in question relating to whether the Contractor's performance of the Work complies with the Contract Documents, which cannot be resolved by agreement between them, shall be referred to the Engineer in writing for initial determination, with a copy to the other party. The Engineer shall afford both parties a reasonable opportunity to present written evidence in support of their respective positions. The Engineer shall render its decision in writing to each of the parties within a reasonable time and in no event later than thirty (30) days after the receipt of submissions from the parties.

19.2.2 No such claim, dispute or other matter in question shall constitute grounds for the Contractor to delay progress of the Work, and the Contractor shall carry on the Work and maintain its progress during consideration of any such claim, dispute or other matter by the Engineer. The decision of the Engineer with respect to any and all such claims, disputes or other matters in question shall be final and conclusive, provided that any party having complied with the provisions of Subsection 19.2.3, below, may file an action in a court of competent jurisdiction challenging the decision of the Engineer or otherwise seeking final resolution of the claim, dispute or other matter in question.

19.2.3 The decision of the Engineer on any such claim, dispute or other matter in question shall be final and binding upon the Owner and the Contractor, unless the Owner or the Contractor gives written notice to the other and to the Engineer of its objection to such decision within ten (10) days after receipt by such aggrieved party of the Engineer's decision and commences an action challenging the Engineer's decision in a court of competent jurisdiction within the time permitted by law. If either party fails to give notice of objection to the Engineer's decision within such ten (10) day period, it shall be conclusively deemed to have waived its right to object to such decision. If the Engineer renders a decision after court proceedings have been commenced, such decision may be entered as evidence but will not supersede any such proceedings unless the decision is acceptable to all parties concerned. Nothing contained in this Article 19 shall limit the Owner's right to damages for delays by the Contractor or any other rights or remedies of the Owner under the Contract Documents or otherwise available under Applicable Law.

19.2.4 Prior to commencing litigation as to any claim, dispute or other matter in controversy, the parties shall discuss the possibility of resolution of such claim, dispute or controversy through non-binding mediation or other alternative dispute resolution methods. If

the parties agree to mediation, the fees and expenses of the mediator shall be borne equally by the parties unless otherwise agreed.

19.2.5 Pursuant to M.G.L. c. 30, § 39J, notwithstanding any contrary provision of this Contract, no decision by the Owner or by the Engineer on a dispute, whether of fact or of law, arising under the Contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

ARTICLE 20 MISCELLANEOUS PROVISIONS

20.1 NOTICE

20.1.1 Whenever written notice is required or permitted pursuant to the Contract Documents, the same shall be deemed to have been properly given if in writing and delivered by hand in person or by registered or certified mail, postage prepaid, or express overnight courier service, return receipt requested; and, in the case of notices to the Owner, to the address set forth at the beginning of the Agreement and, in the case of notices to the Owner's Representative or the Engineer, to the address set forth at the beginning of the Agreement, marked to the attention of the Owner's Representative or Engineer, as the case may be, and, in the case of notices to the Contractor, to the Contractor's Project Executive or Project Manager, addressed to such person at the Contractor's mailing address set forth at the beginning of the Agreement or the Contractor's field office at the Site. Any of the persons or addresses specified above for notice purposes may be changed by notice given in the manner provided herein from the party concerned to each of the other parties. Written notice shall be deemed to be given on the day received, if delivered by hand in person; on the next business day after mailing if sent by express overnight courier service; and three (3) business days after mailing if sent by registered or certified mail.

20.2 CONTRACT DOCUMENTS

20.2.1 The Contract Documents form the comprise the entire Contract between the Owner and the Contractor, and supersede all prior negotiations, representations and agreements, whether written or oral. Subject to the provisions of Article 6, the Contractor may not assign its rights or obligations under all or any portion of the Contract Documents nor shall the Contractor assign any moneys due or to become due under the Contract Documents without the written consent of the Owner, which consent may be withheld or granted in its sole discretion. Any such assignment without the written consent of the Owner shall be void and the assignee in such case shall acquire no rights in the Contract or to receive any moneys. Nothing contained in the Contract Documents shall be construed to modify or affect in any way the rights and obligations of the Owner and the Engineer under any contract or agreement between the Owner and the Engineer.

20.2.2 The Contract shall be governed by the laws of the Commonwealth of Massachusetts. The Contractor, all Subcontractors, and other persons performing any part of the Work agree that each of them shall be subject to the jurisdiction of the courts of Suffolk County in the Commonwealth of Massachusetts or the federal courts for the District of Massachusetts with respect to any actions or suits at law or in equity arising out of or related to the bidding, award or performance of the Contract, and that any such actions or suits commenced by any of such parties shall be commenced in the courts or appropriate administrative tribunals of Suffolk County in the Commonwealth of Massachusetts or the federal courts for the District of Massachusetts and not otherwise.

20.3 RIGHTS AND REMEDIES

20.3.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

20.3.2 No action or failure to act by the Owner, Owner's Representative, Engineer, or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

20.3.3 No consent, express or implied, by the Owner, the Owner's Representative, or the Engineer to any breach of any covenant, condition or duty of the Contractor, or waiver, express or implied, by any of same, shall be construed as a consent to or waiver of any other breach of the same or any other covenant, condition or duty.

20.4 DECISIONS AND INTERPRETATIONS

20.4.1 Pursuant to M.G.L. c. 39, § 39P, in every case in which this Contract requires the Owner, any official, the Owner's Representative, or the Engineer to make a decision on interpretation of the Specifications, approval of equipment, material or any other approval, or progress of the Work, the decision shall be made promptly and, in any event, no later than thirty (30) days after the written submission for decision containing all information necessary in the judgment of the Engineer to render such decision; but if such decision requires extended investigation and study, the Owner, the official, the Owner's Representative, or the Engineer shall, within thirty (30) days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty-day period and the date by which the decision will be made.

20.5 ANTI-BOYCOTT COVENANT

20.5.1 The Contractor warrants, represents and agrees that during the time the Contract is in effect, neither it nor any affiliated company, as hereafter defined, shall participate in or cooperate with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or shall engage in conduct declared to be unlawful

by M.G.L. c. 151E, § 2. If there shall be a breach in the warranty, representation, and agreement contained in this Subsection, then without limiting such other rights as it may have, the Owner shall be entitled to rescind the Agreement. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the Contractor or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interest of the Contractor, or which directly or indirectly owns at least 51% of the ownership interests of the Contractor. This provision is included in the Agreement pursuant to Commonwealth of Massachusetts Executive Order No. 130.

20.6 RIGHT OF AUDIT

20.6.1 Without limiting any of the Owner's other rights under the Contract Documents, the Governor of the Commonwealth of Massachusetts or his or her designee, the Secretary of Administration and Finance of the Commonwealth of Massachusetts, and the State Auditor or his or her designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of data of the Contractor and all Subcontractors which pertain to the performance of the provisions and requirements of the Contract. This provision is included in the Contract pursuant to Commonwealth of Massachusetts Executive Order No. 195.

20.7 RECORD KEEPING AND REPORTING

20.7.1 The Contractor shall maintain at the Site or at such other location as shall be approved by the Owner, on a current basis, during the term of the Agreement and shall retain for a period of six (6) years after the date of Final Payment, records of all Subcontracts, material orders, Shop Drawings, Samples, and other Project-related documents and revisions thereto which arise out of the Contract, the Contract Documents or the Work, including, but not limited to, the following:

(a) A detailed daily log of all events occurring on the Site or connected with progress of the Project. Such log shall include a listing of the Contractor staffing, manpower by Subcontractors, relevant weather information and names and purpose of all visitors to the Site. Copies of such daily logs shall be distributed weekly to the Owner's Representative;

(b) Copies of the Project Schedule as more specifically set forth in Article 9 of these General Conditions, and Schedules of Values as more specifically set forth in Article 10 of these General Conditions, and all updates thereto to reflect current conditions;

(c) A set of as-built Drawings and Specifications which records all changes made during construction and actual as-built conditions in accordance with the requirements of the Contract Documents; and

(d) Correspondence, meeting notes and minutes, clarifications and interpretations of the Contract Documents issued by the Engineer, progress reports, all other Project related documents.

20.7.2 The Contractor shall furnish to the Owner on a weekly basis, a Progress Report for the preceding week, in form and substance acceptable to the Owner, containing, without limitation, the following information:

(a) Project Schedule, updated against baseline;

(b) List and status of outstanding issues, claims or disputes, or information required from the Owner;

(c) Safety record report.

(d) Certified payroll reports; and

(e) Suggestions for solutions to outstanding issues and schedule delays.

20.7.3 The Contractor shall provide a system of Project monitoring and reporting. The Contractor shall assist the Owner in developing and implementing a Change Order control system. Such reports and other information shall be included in the weekly progress reports to be submitted to the Owner in accordance with the Contract Documents, and the provisions of Subsection 20.7.2 hereof.

20.7.4 The Contractor shall establish and implement procedures for preparing and/or reviewing and processing Requests for Information and/or clarifications and interpretations of the Contract Documents, Shop Drawings, Samples and other submittals, requests for Construction Change Directives, requests for Change Orders, proposals for substitutions, Payment Applications, as-built Drawings and maintenance of logs.

20.7.5 The Contractor shall check all materials, equipment and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper accounting and financial management under the Contract, utilizing such procedures as shall be satisfactory to the Owner. The Owner shall, upon request, be afforded copies of, and access to, all of the Contractor's records, books, correspondence, subcontracts, instructions, drawings, estimates, budgets, receipts, invoices, vouchers, memoranda, breakdowns, accounting data, bid proposals, cost control information and any other documents relating to the Work, in a form acceptable to the Owner.

20.7.6 Without limitation of the foregoing, the Owner shall have the right, at any time and from time to time, upon notice to the Contractor, to monitor and audit the Contractor's books and records in connection with any aspect of the Agreement or the Contract Documents at the Contractor's offices at the Contractor's sole cost and expense. The Contractor shall facilitate any such audit by making necessary facilities available to the Owner and its

representatives. Further provisions concerning the Contractor's records and the Owner's right to audit such records are set forth in the General Conditions.

20.7.7 If any inspection of the Contractor's books, records or other documents reveals an overcharge with respect to the Contract Sum, the Contractor shall pay the Owner or, at the Owner's election, the Owner may reimburse itself by taking as a credit against future payments due the Contractor, an amount equal to the overcharge plus the administrative and auditing expenses incurred by the Owner in determining the existence and amount of the overcharge. Nothing contained in this provision is intended as a limitation of any other rights or remedies which may be available to the Owner, be they civil or criminal.

20.8 FINANCIAL RECORDS OF CONTRACTOR

20.8.1 The provisions of this Section 20.8 are included in this Contract pursuant to Massachusetts General Laws Chapter 30, § 39R:

(a) The Contractor shall make, and keep for at least six (6) years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor, and

(b) until the expiration of six years after final payment, the Office of Inspector General, and the Commissioner of Capital Asset Management and Maintenance shall have the right to examine any books, documents, papers or records of the Contractor or of its Subcontractor that directly pertain to, and involve transactions relating to, the Contractor or its Subcontractors, and

(c) the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Owner, including in its description the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(d) the Contractor has filed a statement of management on internal accounting controls as set forth in Subsection 20.8.2 below prior to the execution of the Contract, and

(e) the Contractor has filed prior to the execution of the Contract and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in Subsection 20.8.4.

20.8.2 Every Contractor awarded a contract shall file with the Owner a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

(a) transactions are executed in accordance with management's general and specific authorization;

(b) transactions are recorded as necessary

i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. to maintain accountability for assets;

(c) access to assets is permitted only in accordance with management's general or specific authorization; and

(d) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

20.8.3 Every Contractor awarded a contract shall also file with the Owner a statement prepared and signed by an independent certified public accountant, stating that s/he has examined the statement of management on internal accounting controls, and expressing an opinion as to:

(a) whether the representations of management in response to this Section and Subsection 20.8.1 above are consistent with the result of management's evaluation of the system of internal accounting controls and

(b) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial condition.

20.8.4 Every Contractor awarded a contract by the Commonwealth or by any political subdivision thereof shall annually file with Commissioner of Capital Asset Management and Maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the Owner upon request.

20.8.5 Records and statements required to be made, kept or filed under the provisions of M.G.L. c. 30, § 39R shall not be public records as defined in M.G.L. c. 4, § 7, and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of Subsection 20.8.1(b).

20.8.6 As used in this Section 20.8, the following terms have the meanings set forth below:

(a) "Contract" means any contract awarded or executed pursuant to sections thirty B through thirty P, inclusive, of chapter seven [now sections 38A½ through 38O] and any contract awarded or executed pursuant to section thirty-nine M of chapter thirty, or sections forty-four A through H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(b) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(c) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(d) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(e) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which s/he has made and sets forth his/her opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the Contractor.

(f) "Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

20.9 FALSE ENTRY

20.9.1 The attention of the Contractor is called to M.G.L. c. 266, § 67C, which provides:

> Any person who knowingly and willfully, directly or indirectly makes, or knowingly and willfully causes to be made, a false entry or omission of a true entry in any books, record or account subject to the provisions of section thirty-nine R of chapter thirty shall be punished by a fine of not more than five thousand dollars, or by imprisonment in the state prison for not more than five years, or in the house of correction for not more than two years, or both.

END OF DOCUMENT

4852-9014-4057.1

CITY OF EVERETT, MASSACHUSETTS

AGREEMENT BETWEEN OWNER AND CONTRACTOR

This **AGREEMENT** (the "Agreement") is made and entered into as of the ___ day of ____, 2026 by and between the Owner and the Contractor in connection with the Project, all as defined below, pursuant to the applicable provisions of Massachusetts General Laws, Chapter 30, § 39M.

Owner: **City of Everett, Massachusetts**
484 Broadway, Room 14
Everett, MA 02149

Contractor: _____
_____
_____

Project: _____
(City Project No. _____)

Site: _____

Engineer: _____

Engineer's Representative: _____

Owner's Representative: _____

Owner's Representative Contact Person: _____

Contractor's Project Team: **Project Executive: _____**
Project Manager: _____
Project Superintendent: _____

SAMPLE

In consideration of the mutual agreements and covenants of the Owner and the Contractor (collectively, the "Parties") set forth herein, the Parties hereby agree as follows:

ARTICLE 1

DEFINITIONS & EXHIBITS

1.1 Definitions. Capitalized terms not defined in this Agreement shall have the meanings defined elsewhere in this Agreement or in the General Conditions of the Contract for Construction or in other provisions of the Contract Documents. In the event of conflict in the definitions of capitalized terms, the definitions set forth in this Agreement shall take precedence followed by definitions in the General Conditions.

1.2 Exhibits. The following is a list of the documents which, when completed or provided, shall become exhibits to this Agreement, each of which is incorporated into this Agreement by reference and shall be deemed a part hereof:

Exhibit	Description
A	List of Specifications
B	List of Drawings
C	List of Addenda
D	Equal Employment Opportunity Requirements
E	Affirmative Action Requirements
F	Form of Project Workforce Monthly Report
G	Certificates of Insurance
H	Certificate of Vote of Authorization
I	Performance and Payment Bonds
J	Insurance Requirements

1.3 Applicable Statutory Provisions. This Project is subject to certain statutory provisions. The applicable statutory provisions are enumerated in the General Conditions and in the Special Conditions of the Contract of the Specifications and shall be deemed incorporated in the Contract Documents in their entirety to the extent such statutory provisions apply to this Project. Any other provisions required by statute to be included herein but not set forth in the Contract Documents shall be deemed to be so included. In case of a conflict between the provisions of the Contract Documents and the provisions of any applicable statute, the statutory provisions shall govern.

ARTICLE 2

THE WORK

2.1 Scope of the Work. The Work of the Project includes all labor, materials, equipment, tools, supplies, supervision, coordination, administration, and all other items or services required to fully complete the Project as described in the Contract Documents or as may be reasonably inferable therefrom. The Contractor shall fully execute the Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others. The Contractor shall ensure that the Work is completed within the Contract Time at a cost no greater than the Contract Sum, as further provided in Article 4 and elsewhere in the Contract Documents.

2.2 Contract Documents. The Contract Documents consist of this Agreement and the Exhibits hereto, the General Conditions of the Contract for Construction, the Supplementary General Conditions, if any, Drawings, Specifications, Change Orders, other written amendments to this Agreement duly executed by the Owner and the Contractor, Construction Change Directives, Performance Bond, Labor and Material Payment Bond, and all other documents set forth or incorporated by reference herein or elsewhere in the Contract Documents. The Contract Documents are all as fully a part of this Agreement as if attached to this Agreement and repeated herein and together constitute the "Agreement" or the "Contract." The Contract represents the entire and integrated agreement between the parties hereto and supersede prior negotiations, representations or agreements, either written or oral.

2.3 Representations. In addition to other representations set forth in the Contract Documents, the Contractor represents that it is a duly-licensed and registered business entity which is experienced and skilled in construction of projects of the type, magnitude, and complexity described in the Contract Documents and that it is familiar with the special problems, regulations, and requirements of construction of the type required hereunder. The Contractor further represents that it is fully cognizant of all aspects of the overall development of the Site as described by the Owner and of the relationship of the Project to such overall development, and that it will furnish, at a cost not to exceed the Contract Sum, a complete and fully operable Project as indicated by or reasonably inferable from the Contract Documents.

ARTICLE 3

CONTRACT TIME

3.1 The Contractor shall commence performance upon the issuance of a Notice to Proceed by the Owner for a portion, or all, of the Work. The period of time from the date of the initial Notice to Proceed to the Final Completion Date, together with any valid extensions thereof approved by the Owner in accordance with the Contract Documents, shall constitute the Contract Time. The Contractor shall achieve Substantial Completion of the entire Work on or before _____. Final Completion of the entire Work shall be achieved fourteen (14) calendar days after the date of Substantial Completion.

3.2 The Contractor shall proceed to carry out the Work in a timely, diligent and continuous manner in accordance with the requirements of the Project Schedule and all other Contract Documents and in accordance with the directions of the Owner so as to ensure (i) Substantial Completion of the Work, or any specified portion thereof, on or before the Substantial Completion Date, and (ii) Final Completion of the Work, or any specified portion thereof, on or before the Final Completion Date, as such dates may be extended as provided in the Contract Documents.

3.3 It is understood and agreed that the time of commencement and the dates of Substantial Completion and Final Completion of the Work are material conditions of this Agreement, and that TIME IS OF THE ESSENCE of this Agreement.

ARTICLE 4

CONTRACT SUM

4.1 Contract Sum. The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract in accordance with the requirements of the Contract Documents. The Contract Sum is hereby established as _____ Dollars ($_____), subject to additions and deductions as provided in the Contract Documents.

4.2 Alternates. The Contract Sum is based on, and inclusive of, the following alternates:

No.	Description	Price
X	(Insert alternate description here)	$

4.3 Unit Prices. Unit prices, if any, applicable to this Contract are as follows:

No.	Description	Unit	Price
X	(Insert alternate description here)	per _____	$

4.4 Pricing of Alternates and Unit Prices. The Alternate Prices and Unit Prices specified shall include all services, labor, materials, supplies, equipment, transportation, taxes, insurance, bonds, permits and all other expenses, including overhead, superintendence and profit required to complete the alternate or unit price Work. Unless otherwise specified, the Alternate Prices and Unit Prices listed in this Article 4 shall be applicable to both increases and decreases in the Contract Sum on an equal basis.

4.5 Variation in Estimated Quantities. The quantities contained in the Agreement are set forth as a basis for the comparison of bids only and may not necessarily reflect the actual quantity of Work required to be performed. The City reserves the right to increase, decrease or eliminate the quantity of any particular item of Work. Where the actual quantity of an item varies

by more than 25 percent above or below the estimated quantity stated in the Agreement, an equitable adjustment in the Contract Price for that pay item shall be negotiated upon demand of either party regardless of the cause of the variation in quantity. No allowances will be made for loss of anticipated overhead costs or profits suffered or claimed by the Contractor resulting directly or indirectly from such increased, decreased or eliminated quantities or from unbalanced allocation among the contract items from any other cause. It is the intention of this provision to preserve the bid basis while limiting the Contractor's risk exposure to 25% of each bid quantity. In the case of an overrun, the Contractor will be compensated at the Contract Unit Price for a quantity up to 125% of the Contract quantity. The adjusted unit price shall only be applied to that quantity above 125% of the contract quantity. Neither party shall be required to demonstrate any change in the cost to perform the work based solely on the overrun. The original Contract unit bid price shall have no bearing on determining the adjusted unit price for an overrun. The adjusted unit price shall be based on the estimated cost of performing the added work over 125% of the bid quantity. To assist the Engineer in the determination of an equitable adjustment for an overrun, the Contractor shall prepare a submission in the following manner and accept as full payment for work or materials an amount for an equitable adjustment in the Contract Price equal to the following: (1) The actual cost or a reasonable cost estimate for direct labor, material (less value of salvage, if any) and use of equipment, plus 10 percent of this total for overhead; (2) Plus actual cost or a reasonable cost estimate of Worker's Compensation and Liability Insurance, Health, Welfare and Pension Benefits, Social Security deductions and Employment Security Benefits; (3) Plus 10 percent of the total of (1) and (2) for profit and other unallocated costs; (4) Plus the estimated proportionate cost of surety bonds. No allowance shall be made for general superintendence and the use of small tools and manual equipment.

4.6 Insurance. The Owner and Contractor shall purchase and maintain insurance and bonds in accordance with the requirements of the Contract Documents. The Contractor shall carry insurance coverages with limits no less than those identified on **Exhibit J**, attached hereto.

ARTICLE 5

PAYMENTS

5.1 Based upon Applications for Payment submitted to the Engineer by the Contractor in accordance with Section 10.2 of the General Conditions and Certificates for Payment issued by the Engineer in accordance with Section 10.3 of the General Conditions, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

5.2 Prior to Substantial Completion, progress payments will be made in amounts equal to the percentage indicated below but, in each case, less than the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract Documents.

(1) 95% of Work competed (with the balance being retainage)

(2) 95% percent of the cost of materials and equipment not incorporated in the Work but which satisfies the requirements of the General Conditions (with the balance being retainage)

5.3 Upon satisfaction of the Substantial Completion procedures set forth in Section 10.7 of the General Conditions, Owner shall pay an amount sufficient to increase total payments to Contractor to 99% of Work completed, less such amounts as Engineer may determine or Owner may withhold in accordance with the Contract Documents.

5.4 Upon Final Completion and Acceptance of the Work and satisfaction of the procedures set forth in Section 10.8 of the General Conditions, the Owner shall pay the remainder of the Contract Sum as recommended by Engineer as provided in the General Conditions.

ARTICLE 6

OTHER PROVISIONS

6.1 No Personal Liability. No member, officer, director, principal, joint venturer, beneficiary, trustee, representative, consultant, volunteer participant, employee, agent or representative of the Owner or the Contractor shall be personally liable to the other party under any term or provision of this Contract for any payment obligations or otherwise, or because of any breach hereof, each party agreeing to look solely to the assets of the other party for the satisfaction of any liability hereunder.

6.2 Consequential Damages. In no event shall the Owner be liable to the Contractor except for payment for Work performed pursuant to and in accordance with the Contract Documents, nor shall the Owner ever be liable to the Contractor for indirect or consequential damages of any name or nature.

6.3 Termination or Suspension. This Agreement may be terminated or suspended as provided in Articles 16 and 17, respectively, of the General Conditions and as provided elsewhere in the Contract Documents.

6.4 Certification Relating to Tax Compliance. Pursuant to M.G.L. c. 62C, § 49A, the individual signing this Contract on behalf of the Contractor hereby certifies, under the penalties of perjury, that to the best of his or her knowledge and belief the Contractor has complied with any and all applicable state and federal tax laws.

6.5 Certification Relating to Debarment. The individual signing this Contract on behalf of the Contractor further certifies under penalties of perjury that the Contractor is not presently debarred from doing public construction work in the Commonwealth under the provisions of M.G.L. c. 29, § 29F, or any other applicable debarment provisions of any other

chapter of the General Laws or any rule or regulation promulgated thereunder and is not presently debarred from doing public construction work by any agency of the United States.

6.6 Certification Relating to Health and Safety (M.G.L. c. 30, § 39S). The individual signing this Contract on behalf of the Contractor further certifies: (1) Contractor is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and the Contractor shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the Work subject to this Contract have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement under seal in multiple counterparts, each of which shall be deemed to be an original hereof and collectively comprising a fully executed instrument, as of the date and year first above written.

CONTRACTOR

_____ _____
Name Date Signed
Title

CITY OF EVERETT:

_____ _____
Date Signed
Managing Department

_____ _____
Date Signed
City Engineer

_____ _____
Date Signed
Chief Procurement Officer

_____ _____
Date Signed
Chief Financial Officer/City Auditor

Approved as to Form:

_____ _____

City Solicitor Date Signed

_____ _____

Mayor Date Signed

Exhibits:

Exhibit A: List of Specifications
Exhibit B: List of Drawings
Exhibit C: List of Addenda
Exhibit D: Equal Employment Opportunity Requirements
Exhibit E: Affirmative Action Requirements
Exhibit F: Form of Project Workforce Monthly Report
Exhibit G: Certificates of Insurance
Exhibit H: Certificate of Vote of Authorization
Exhibit I: Performance and Payment Bonds
Exhibit J: Insurance Requirements

EXHIBIT A

LIST OF SPECIFICATIONS

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EXHIBIT B

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Utility Plans……...45
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EXHIBIT C

LIST OF ADDENDA

EXHIBIT D

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

1. Definitions. For purpose of this contract, the term "minority" refers to Asian–Americans, Blacks, Spanish Surnamed Americans, North American Indians, and Cape Verdeans. The term "Commission" refers to the Massachusetts Commission Against Discrimination.

2. Obligations. During the performance of this contract, the Contractor and each of its subcontractors, and suppliers (hereinafter collectively referred to as the "Contractor") for themselves, their assignees, and successors in interest, agree as follows:

In connection with the performance of work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, handicap or sex. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The Contractor shall post hereafter in conspicuous places on the project site, available for employees and applicants for employment, notices to be provided by the Commission setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (M.G.L. Chapter 151B).

In connection with the performance of work under this contract, the Contractor, shall undertake, in good faith, affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age or sex, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age or sex. A purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this construction project undertaken by the Owner.

As part of its obligation under the foregoing section, the Contractor shall use its best efforts to maintain on this project a not less than 15.3% ratio of minority employee person hours to total person hours, and a not less than 6.9% ratio of women employee person hours to total person hours.

3. Compliance with Requirements. To the extent applicable, the Contractor shall comply with the provisions of Executive Order No. 526, which is herein incorporated by reference and made a part of this contract.

4. Solicitations for Trade Contractors or Subcontractors, and for the Procurement of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential trade contractor or subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this contract relative to equal employment opportunity, non-discrimination and affirmative action.

5. Compliance-Information, Reports and Sanctions. The Contractor will provide all information and reports required by the Owner, and the Contractor will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the Owner to affect the employment of personnel. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Owner and shall set forth what efforts it has made to obtain the information. Without limiting the foregoing, the Contractor shall require all trade contractors and subcontractors to submit to the Contractor a Project Workforce Monthly Report, in the form attached to the Agreement between Owner and Contractor as **Exhibit F**. The Contractor shall submit the Project Workforce Monthly Reports to the Owner on a monthly basis, together with a summary report prepared by the Contractor, in a form satisfactory to the Owner, aggregating the information provided in the trade contractors' and subcontractors' Project Workforce Monthly Reports with the Contractor's own workforce information and showing the monthly and total Project-to-date ratios of minority and women workforce hours.

Whenever the Owner believes the Contractor or any trade contractor or subcontractor may not be operating in compliance with the terms of this Section, the Owner, or its designated agent, may conduct an appropriate investigation, and may confer with the parties, to determine if the Contractor is operating in compliance with the terms of this Section. If the Owner finds the Contractor or any trade contractor or subcontractor not in compliance, it shall make a preliminary report on non-compliance, and notify the Contractor in writing of such steps as will in the judgment of the Owner bring the Contractor into compliance.

6. Severability. The provisions of this Exhibit are severable, and if any of these provisions shall be held unconstitutional or unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

7. Equal Employment Opportunity for Persons with Disabilities. In connection with the performance of work under this contract, the Contractor, trade contractors, subcontractors and suppliers of goods and services shall not discriminate against persons with disabilities. Furthermore, the Contractor, trade contractors, subcontractors and suppliers of goods and services must give written notice of their commitments under this Exhibit to any labor union, association or brotherhood with which they have a collective bargaining contract or other agreement.

EXHIBIT E

AFFIRMATIVE ACTION REQUIREMENTS

During the performance of this contract, the Contractor and each of its subcontractors and suppliers (hereinafter collectively referred to as the "Contractor") for themselves, their assignees, and successors in interest, agree as follows.

1. Percentage Participation. On this contract, the Contractor shall use best efforts to enter into contracts and subcontracts including contracts with suppliers, distributors and manufacturers who are women/minority business enterprises. The Contractor shall use best efforts to enter into contracts worth a combined total 10.4% of the Contract Sum with W/MBE firms.

2. Definitions.

   a. Women/minority business enterprise ("W/MBE") means any business organization certified by SDO as an MBE or WBE. To be certified as a W/MBE, the minority or women must demonstrate at least 51% ownership and control, according to SDO rules and regulations.

   b. Joint Ventures -

      (1) A joint venture between a certified W/MBE and non-minority or non-WBE shall be certified by SDO as a W/MBE if the certified W/MBE has at least 51% control over the management and receipt of profits of the project bid upon.

      (2) A joint venture between a certified W/MBE subcontractor and a non-W/MBE subcontractor, in which the W/MBE does not exercise more than 51% control over management and profits, shall be entitled to a credit as a W/MBE for the proportion of the joint venture's contract equal to the W/MBE participation in the joint venture.

      (3) Whenever a general bid is filed by a joint venture with a certified W/MBE participant in the joint venture that does not exercise more than 51% control over management and profits, that joint venture shall be entitled to credit as a W/MBE for the portion of the joint venture's price equal to the W/MBE participation in the joint venture.

      (4) Whenever a joint venture with a certified W/MBE participant files a general bid or sub-bid, and requests a credit as a W/MBE, the bid must be accompanied by the pre-bid joint venture agreement for that project. SDO certified joint ventures should submit a copy of SDO certification.

c. Material Supplier - A vendor certified by SDO as a W/MBE engaged in sales to the construction industry from an established place of business or source of supply, which either:

(1) Manufactures goods from raw materials or substantially alters them before resale, entitling the Contractor to W/MBE credit for the full amount of the purchase order; or

(2) Maintains a storage facility for materials utilized in the work, entitling the Contractor to W/MBE credit for 10% of the purchase order.

d. Amount of Participation - The actual dollar amount which will be paid to W/MBE for work performed on this contract, in accordance with Section 2(b) and 2(c).

e. Contractor - Any successful general bidder to whom the Owner makes the contract award.

f. SDO - The Massachusetts Supplier Diversity Office (SDO).

g. Owner - The City of Everett, Massachusetts.

3. Determination of W/MBE Status.

a. Any Contractor subcontractor, sub–subcontractor or material supplier may apply to SDO for W/MBE status. Applications must be made on the W/MBE application form prepared by SDO. The applicant may request a form from SDO.

b. SDO is responsible for preparing, publishing, and updating a list of certified Women and Minority Owned businesses. The list is published in the Central Register established by G.L. Chapter 9, Section 20A and is available from SDO. Bidders shall rely on the list that is most current at the time the work is advertised and shall use it as a reference source to assist in meeting the requirements of these conditions**.**

Submission of an application to SDO does not constitute certification.

4. Compliance with Requirements. To the extent applicable, the Contractor shall comply with the provisions of Executive Order No. 524, which is herein incorporated by reference and made a part of this contract.

EXHIBIT F

FORM OF PROJECT WORKFORCE MONTHLY REPORT

CITY OF EVERETT, MASSACHUSETTS

PROJECT WORKFORCE MONTHLY REPORT

City Project No._____ Project Name:_____ Project Location:_____

Name of Contractor Filing Report_____

Month Ending:_____ **Minority Participation Goal: 15.3%** **Women Participation Goal: 6.9%**

	Current Month					Project To Date				
Job Category	**Total Monthly Workforce Hours**	**Total Monthly Workforce Hours**		**Monthly % of Workforce Hours**		**Total Workforce Hours**	**Total Workforce Hours To Date**		**% of Workforce Hours To Date**	
		Minority	**Women**	**Minority**	**Women**		**Minority**	**Women**	**Minority**	**Women**

EXHIBIT G

CERTIFICATES OF INSURANCE

EXHIBIT H

CERTIFICATE OF VOTE OF AUTHORIZATION

AT A DULY AUTHORIZED MEETING OF THE BOARD OF DIRECTORS OF THE [NAME OF CORPORATION] held on [DATE], at which a quorum of the Directors were present or waived notice, it was voted that [NAME AND TITLE] of this company be and hereby is authorized to execute contracts and bonds in the name and behalf of said company, and affix its Corporate Seal thereto, and such execution of any contract or bond of obligation in this company's name on its behalf of such [OFFICER] under seal of the company shall be valid and binding upon this company.

A TRUE COPY,

ATTEST: _____

Place of Business:
_____
_____

I hereby certify that I am the [TITLE] of the [NAME OF CORPORATION] and that [NAME OF OFFICER] is the duly elected [TITLE] of said company, and the above vote has not been amended or rescinded effect as of the date of this contract.

Signature: _____
Name/Title: _____
Date: _____

(Corporate Seal)

COMMONWEALTH OF MASSACHUSETTS, SS. _____, 20__

Then personally appeared the above named _____ and acknowledged the foregoing instrument to be his/her free act and deed before me.

NOTARY PUBLIC _____
My commission expires: _____

EXHIBIT I

PERFORMANCE AND PAYMENT BONDS

EXHIBIT J

STANDARD INSURANCE LIMIT REQUIREMENTS

The following minimum insurance limits shall apply to the Contract and be provided by the Contractor. The Contractor shall refer to the Contract Documents for all other insurance requirements relating to this Contract.

Coverage	Estimated Construction Cost	General Contractor
General Liability[1]	-	$1,000,000 per Occurrence/ $2,000,000 Aggregate
Auto[2]	-	$1,000,000 each accident
Worker's Compensation	-	Statutory
Employers Liability	**under $1m**	$500,000 Each Accident $500,000 Disease - Each Employee $500,000 Disease - Policy Limit
Employers Liability	**$1m and over**	$1,000,000 Each Accident $1,000,000 Disease - Each Employee $1,000,000 Disease - Policy Limit
Excess/Umbrella	**under $1m**	$2,000,000 Per Occurrence $2,000,000 Aggregate or Higher

[1] Must evidence per location aggregate or per project aggregate.

[2] Combined single limit

Coverage	Estimated Construction Cost	General Contractor
Excess/Umbrella	**between $1m and $5m**	$5,000,000 Per Occurrence $5,000,000 Aggregate or Higher
Excess/Umbrella	**under $10m**	$10,000,000 Per Occurrence $10,000,000 Aggregate or Higher
Excess/Umbrella	**$10m and over**	$20,000,000 Per Occurrence $20,000,000 Aggregate or Higher
Contractor's Pollution Liability	**-**	$5,000,000 per occurrence and $5,000,000 Annual Aggregate or higher.
Drone/UAV Aircraft Liability[3]	**-**	No less than $2,000,000

[3] Required only if the work of the vendor includes operation, or arranging for the operation, of unmanned aerial systems (i.e., drones) services.

Special Provisions
for
Northern Strand Trail Connection
Everett, MA

PS&E Design

DATE: 04/29/2026

SCOPE OF WORK

All work under this contract shall be done in conformance with the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges dated 2025, the 2025 Construction Standard Details, the 2015 Overhead Signal Structure and Foundation Standard Drawings, the 1990 Standard Drawings for Signs and Supports; the 2009 Manual on Uniform Traffic Control Devices (MUTCD) with Massachusetts Amendments and the Standard Municipal Traffic Code; the 1968 Standard Drawings for Traffic Signals and Highway Lighting; the latest edition of American Standard for Nursery Stock; the Plans and these Special Provisions.

The City of Everett has been working to improve pedestrian and bicycle connectivity in the City with the extension of the Northern Strand Community Trail and other shared use paths. The list of stakeholders included Department of Conservation and Recreation (DCR), Massachusetts Department of Transportation (MassDOT), Massachusetts Bay Transportation Authority (MBTA), and the City of Everett. The scope of work includes connection to the Northern Strand Community Trail in the area south of Santilli Circle Connector, improve conditions at the existing crossing across Santilli Circle Connector,, improve conditions at the existing crossing across Santilli Highway, and provide a shared use path connection on the north side of Revere Beach Parkway between the existing shared use path and the River Trail to the west. Also included, but not limited to, in the construction scope are lighting, fencing, paving, striping, best management practices (BMPs) for erosion control, wetlands mitigation/replication and landscaping improvements.

WORK SCHEDULE

No work shall be performed within the traveled way during peak periods of 6:30 AM - 9:00 AM and 3:00 PM - 6:00 PM, unless otherwise permitted by the Everett Department of Public Works.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS

Prospective bidders are required to submit all questions to the Everett Department of Public Works by 1:00 P.M. on the Thursday before the scheduled bid opening date. Any questions received after this time will not be considered for review by the Department.

Contractors should email questions and addendum acknowledgements to the following email address: Jay.Monty@ci.everett.ma.us & Julius.Ofurie@ci.everett.ma.us

SITE ACCESS AND RESTRICTIONS

Prospective bidders are herein notified that the project limits are within Public Right of Way. Access on private property is not permitted and if required shall be coordinated with the City of Everett prior to access.

ENGINEERING DIRECTIVES

Contractors can access MassDOT, Highway Division Engineering Directives at:
https://www.mass.gov/massdot-engineering-directives
Select List of Engineering Directives
Select Active Engineering Directives

DESIGNER/PROJECT MANAGERS

DESIGNER
Howard Stein Hudson
Robbie Burgess, P.E.
(617) 348-3311
rburgess@hshassoc.com

CITY OF EVERETT PROJECT MANAGER

Department of Planning and Development
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PROMPT PAYMENT AND RELEASE OF RETAINAGE TO SUBCONTRACTORS

Contractors are required to promptly pay Subcontractors under this Prime Contract within ten (10) business days from the receipt of each payment the Prime Contractor receives from the City of Everett. Failure to comply with this requirement may result in the withholding of payment to the Prime Contractor until such time as all payments due under this provision have been received by the Subcontractor(s).

BIDDERS LIST

Pursuant to the provisions of 49 CFR Part 26.11 all official bidders will be required to report the names, addresses and telephone numbers of all firms that submitted bids or quotes in connection with this project.

ARCHITECTURAL ACCESS BOARD TOLERANCES

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB).

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope nor for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheel chair ramp locations, and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS

(Supplementing Subsections 850.21 and 850.61)

Safety controls for construction operations shall be done in accordance with the relevant provisions of Section 850 of the Standard Specifications, the latest edition of the Manual on Uniform Traffic Control Devices, the Temporary Traffic Control Plan, and the following:

The providing of safety controls for construction operations shall be considered incidental to this Contract and the costs for safety controls shall be included in the Unit Bid Price for those Contract items requiring such controls.

Positioning, adjusting and re-positioning of all devices such as traffic cones, high-level warning devices, etc., not otherwise classified and paid for under other items in this Contract, is considered incidental and no separate payment will be made.

All safety signing, temporary pavement markings, reflectorized and lighted drums, and all other safety controls used for construction operations shall conform to the NCHRP 350 and the MUTCD, Current Edition, for Streets and Highways including all amendments.

ACTIVITY AND USE LIMITATIONS RESTRICTION

A portion of the project is subject to recorded Activity and Use Limitations (AULs). The Contractor is responsible for adhering to all restrictions in the Property Restriction Summary included in these Special Provisions. The contractor must follow the Health and Safety Plan and coordinate with a Licensed Site Professional (LSP) for all excavation activities to ensure that the Horizontal Marker Layer that separates contaminated soil is not penetrated.

SAWCUTS

Sawcuts made in areas of trenching for new conduit or trench limits for drainage work will be included in the unit price under the respective items. Sawcuts made at the limits of full depth pavement, box widening, and for new or reset concrete curb will be made in accordance with the relevant provisions of Section 482 and shall be paid under Item 482.3 – Sawcutting Asphalt Pavement.

CONNECTING TO EXISTING DRAINAGE STRUCTURES

Where new pipe is shown on the Drawings to be connected into an existing drainage structure to remain, the existing structures shall be first cleaned to remove all mud, debris, and other material. The existing structure wall shall be carefully and neatly cut to provide the minimum size opening required for insertion of the new pipe. The proposed pipe end shall be set or cut-off flush with the inside face of the existing structure wall and the remaining space around the pipe completely filled with cement grout for the full thickness of the structure wall.

Existing shaped inverts shall be reconstructed as necessary to provide a smooth and uniform flow channel from the new pipe through the existing structure.

No separate payment will be made for the cost of connecting new pipes into existing structures, or necessary alterations of existing structure, but all costs in connection therewith shall be included in the unit prices bid for the various pipe items.

NEW INTRODUCTIONS OF INVASIVE PLANTS INTO OR AROUND THE SITE

(Supplementing Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property)

The Contractor shall ensure that no invasive plant species, as defined and listed by the Massachusetts Invasive Plant Advisory Group, are introduced or moved around the site by construction activities either by improperly cleaned construction equipment or importation of infected materials such as borrow, compost, nursery stock, seed, or hay bales. Corrective measures, if necessary, shall be made by the Contractor as directed by the Engineer. The Contractor shall be solely responsible for all costs associated with ensuring that invasive species

are not introduced or moved around the site by construction activities and for all corrective measures required for as long as necessary to eliminate the introduced invasive plant species and prevent re-establishment of same. Item 755.35 includes compensation for site assessment to determine pre-construction presence of invasive plants as well as methods of control.

INSURANCE REQUIREMENTS

The insurance requirements set forth in this section are in addition to the requirements of the Standard Specifications and supercede all other requirements.

Insurance requirements shall conform to the MBTA Standard Specifications, Division 1 – General Requirements, Section 00700 - General Conditions Rev 9/14 (as it relates to insurance requirements only); See Article 5.1 - Insurance Requirements.

SUBSECTION 8.10 DETERMINATION AND EXTENSION OF CONTRACT TIME FOR COMPLETION (TIME EXTENSIONS)

Replace this Subsection with the following:

A. General

It is an essential part of all contracts that contractors shall perform the Work fully, entirely and in an acceptable manner within the contract duration.

The contract duration is based upon the requirements of public convenience and the assumption that the Contractor will prosecute the Work efficiently and with the least possible delay, in accordance with the maximum allowable working time, as specified in the Contract.

The contract duration has been carefully considered and has been established for reasons of importance to the City. The contract duration will be enforced and it is understood that the Contractor accepted this concept at the time of the submission of the bid. The timing of the Notice to Proceed (NTP) has been taken into account in the determination of the contract duration and the timing of the issuance of the NTP shall not, by itself, be a reason for a time extension.

An extension of contract time will be granted only if entitlement to a time extension has been clearly demonstrated to the satisfaction of the Engineer by a documented time entitlement analysis, performed in accordance with the requirements of Subsection 8.02.E.8 - Time Entitlement Analysis.

B. Requests for Additional Contract Time (Time Extensions)

In response to a request for a time extension, an extension of contract time may be granted for demonstrated delays resulting from only one, or, in the case of concurrent delays, a combination of the following causes:

1. Extra Work

Each extra work order (EWO) proposal shall include an evaluation of the impact of the EWO on

contract time, expressed in calendar days. If there is no impact to the contract time as a result of the EWO, the EWO shall indicate this by stating that zero (0) calendar days of additional time is being requested. The need for a time extension as a result of the EWO must be clearly demonstrated by a documented time entitlement analysis (TEA) performed by the Contractor in accordance with the requirements of Subsection 8.02.E.8. A documented preliminary TEA supporting the EWO proposal shall be submitted to the Engineer as part of the EWO proposal. Also see Subsection 4.03 – Extra Work and Subsection 4.05 – Validity of Extra Work.

2. City-Caused Delays

If any part of the Work is delayed or suspended by the City, the Contractor will be granted a time extension to complete the Work or any portion of the Work only if entitlement to this time extension has been clearly demonstrated by a documented time entitlement analysis. City-caused delays shall not include delays to or suspensions of the Work that result from the fault or negligence of the Contractor. Also see Subsection 8.05 – Claim for Delay or Suspension of the Work.

SUBSECTION 8.10, (Continued)

3. Increased Quantities

Increased quantities of work may be considered as the basis for a time extension only if the requirements of Subsection 4.06 - Increased or Decreased Contract Quantities are met. The time allowed for performance of the Work will be increased based on increased quantities only if entitlement to this time extension has been clearly demonstrated by a documented time entitlement analysis. A decrease in quantities shall also require a time entitlement analysis to determine if a deduction of contract time is warranted.

4. Delays Not Caused by Contractor Fault or Negligence

When delays occur due to reasonable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to: "Acts of God"; war, whether or not declared, civil war, insurrection, rebellion or revolution, or to any act or condition incident to any of the foregoing; acts of the Government; acts of the State or any political subdivision thereof; acts of other contracting parties over whose acts the Contractor has no control; fires; floods; epidemics; abnormal tides (not including Spring tides); severe coastal storms accompanied by high winds or abnormal tides; freezing of streams and harbors; abnormal time of Winter freezing or Spring thawing; interference from recreational boat traffic; use of beaches and recreational facilities for recreational purposes during the Summer season; abnormal ship docking and berthing; unanticipated use of wharves and storage sheds; strikes, except those caused by improper acts or omissions of the Contractor; extraordinary delays in delivery of materials caused by strikes, lockouts, wrecks, and/or freight embargoes; a time extension will be granted only if entitlement to a time extension has been clearly demonstrated by a documented time entitlement analysis.

An "Act of God" as used in this subsection is construed to mean an earthquake, flood, cyclone, hurricane, tornado, or other cataclysmic phenomenon of nature beyond the power of the Contractor to foresee and/or make preparations against. Additional consideration may be given to severe, abnormal flooding in local rivers and streams that has been reported as such by the National Weather Service. Rain, wind, snow, and/or other natural phenomena of normal intensity, based on National

Weather Service reports, for the particular locality and for the particular season of the year in which the Work is being prosecuted, shall not be construed as an "Act of God" and no time extension will be granted for the delays resulting therefrom.

Within the scope of acts of the Government, consideration will be given to properly documented evidence that the Contractor has been delayed in obtaining any material or class of labor because of any assignment of preference ratings by the Federal Government or its agencies to defense contracts of any type.

5. Delays Caused by Public Service Corporations, Municipal Departments or Other Third Parties
If any part of the Work is delayed by public service corporations, municipal departments or other third parties, a time extension will be granted only if entitlement to a time extension has been clearly demonstrated by a documented time entitlement analysis. Also see Subsections 5.05 - Cooperation by Contractor, 5.06 - Adjacent Contracts and 8.04 - Removal or Demolition of Buildings and Land Takings.

SUBSECTION 8.10, (Continued)

C. Time Extension Determination

1. When the Contractor submits a request for a time extension, placing the City on notice of a delay due to any of the causes listed in Subsection 8.10.B, it shall be submitted in writing to the Engineer within fifteen (15) calendar days after the start of the delay. No time extension will be granted if a request for a time extension is not filed within fifteen (15) calendar days after the start of the delay.

A documented preliminary time entitlement analysis (TEA) supporting the request for a time extension and meeting the requirements of Subsection 8.02.E.8 shall be submitted to the Engineer no later than fifteen (15) calendar days after the request for a time extension is submitted to the Engineer or thirty (30) calendar days after the start of the delay. A documented final TEA shall be submitted to the Engineer no later than fifteen (15) calendar days after the end of the delay. During the time between the preliminary and final TEAs, the delay shall be documented in statuses contract progress schedules submitted in accordance with the requirements of Subsection 8.02.E.5.

2. No time extension will be granted for any delay or any suspension of the Work due to the fault of the Contractor.

3. No time extension will be granted if the request for a time extension is based on any claim that the originally established contract duration was inadequate.

4. Time extensions will only be granted for delays, including concurrent delays, to activities affecting contract milestones, the contract completion date and/or other critical path activities as demonstrated to the satisfaction of the Engineer by a detailed time entitlement analysis that clearly states the number of calendar days of extra time being requested.

5. The probable slowdown or curtailment of work during inclement weather and winter months has

been taken into consideration in determining the contract duration and therefore no time extension will be granted, except as defined in Subsection 8.10.B.4.

6. Any work restriction related to weather, permit conditions, community accommodation, traffic or any other restriction specified in the Contract or reasonably expected for the particular locality and for the particular season of the year in which the Work is being prosecuted must be considered in the analysis of each individual time extension and shall not be considered, in itself, justification for an extension of time.

7. Any time entitlement analysis prepared for the purpose of requesting a time extension shall clearly indicate any proposed overtime hours or additional shifts that are incorporated in the schedule. The Engineer shall have final approval over the use of overtime hours and additional shifts and shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of time extensions if it is determined to be in best interest of the City to do so.

SUBSECTION 8.10 (Continued)

D. Disputes

Any dispute regarding whether or not a time entitlement analysis demonstrates entitlement to a time extension, the number of days granted in a time extension or any other question of fact arising under this subsection shall be determined by the Engineer.

The Contractor may dispute a determination by the Engineer by filing a claim notice within fourteen (14) calendar days after the Contractor's request for additional time has been denied or if the Contractor does not accept the number of days granted in a time extension. The Contractor's claim notice shall include a time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit the required time entitlement analysis with the claim notice shall result in denial of the Contractor's claim.

SUBSECTION 4.03 EXTRA WORK (Also see Subsection 4.05).

The Contractor shall do any work not herein otherwise provided for when and as ordered in writing by the Engineer, such written order to contain particular reference to this Subsection and to designate the work to be done as Extra Work.

Unless specifically noted in the Extra Work Order, Extra Work will not extend the time of completion of the Contract as stipulated in Subsection 8.10.

The determination of the Engineer shall be final upon all questions concerning the amount and value of Extra Work (except as provided in Subsection 7.16).

Payment for Extra Work will be provided in Subsection 9.03.

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etcetera, will occur.

The Contractor shall notify Massachusetts DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. The telephone number of the Dig Safe Call Center is 1-888-344-7233.

NOTICE TO OWNERS OF UTILITIES AND RELEVANT CONTACTS

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one week in advance of such operations. The Contractor shall, at the same time, file a copy of each notice with the City.

Before the Contractor begins on any work or operation that might damage subsurface structures he shall carefully locate all such structures and conduct his operations so as to avoid any damage to them.

The following are the names and addresses of the utilities presumed to be effected and the relevant contacts, but the completeness of the list is not guaranteed:

OWNERS OF UTILITIES

EVERETT – (Pole Set Responsibility – National Grid)	
Electric National Grid 40 Sylvan Road Waltham, MA 02451	Murli Gupta 781-296-6483 Murli.Gupta@nationalgrid.com
Gas National Grid Gas 40 Data Drive Waltham, MA 02451 Tennessee Gas Pipeline Company 8 Anngina Drive Enfield, CT 06082 Enbridge 8 Wilson Way Westwood, MA 02090	Melissa Owens 781-907-2845 Melissa.Owens@nationalgrid.com David Wood 860-763-6005 David_Wood@kindermorgan.com Kathy M. Aruda 508-938-7728 kathleen.aruda@enbridge.com
Telephone Verizon 385 Myles Standish Blvd Taunton, MA 02780	Karen Mealey 774-409-3160 karen.m.mealey@verizon.com
Water Everett Water & Sewer Dept. 19 Norman St Everett, MA 02149 MWRA 2 Griffin Way Chelsea, MA 02150	Ernest Lariviere 617-394-2325 Ralph Francesconi 617-461-3573 Ralph.Francesconi@mwra.state.ma.us

Sewer Everett Water & Sewer Dept. 19 Norman St Everett, MA 02149 MWRA 2 Griffin Way Chelsea, MA 02150	 Ernest Lariviere 617-394-2325 Kevin McKenna 617-305-5956 Kevin.McKenna@mwra.state.ma.us
Railroad MBTA 10 Park Plaza – Room 5170 Boston, MA 02116 CSX Transportation 2000 West Cabot Blvd – Suite 130 Langhorne, PA 19047	Christine Bresnahan 617-222-3361 CBresnahan@mbta.com Michael Sliper 518-767-6081 Michael_Sliper@csx.com
Cable Comcast Cable Corporation Po Box 6505, 5 Omni Way Chelmsford, MA 01824 Crown Castle 80 Central Street Boxborough, MA 01719 MCI-Verizon Business P.O. Box 600 Charlton, MA 01507 Astound 956 Massachusetts Avenue Arlington, MA 02476	 Wendy Brown 978-848-5163 Wendy_Brown@comcast.com Mark Bonanno 508-616-7818 mbonanno@lightower.com Stephen Parretti 508-248-1305 stephen.parretti@verizon.com Alex Ortiz 781-316-8878 Alex.Ortiz@astound.com
Fire Alarm Everett Fire Alarm 384 Broadway Everett, MA 02149	 Paul Callderwood 617-387-7198

DPW Everett City Engineer 484 Broadway – Room 26 Everett, MA 02149	Julius Ofurie 617-394-2251 Julius.Ofurie@ci.everett.ma.us

ENVIRONMENTAL PERMITTING

If the Contractor's erection, demolition, storage, or other procedures not originally allowed by existing environmental permits require work to occur in or otherwise impact water or wetland resource areas, the Contractor is advised that no associated work can occur until all required environmental permits have been either amended or obtained allowing such work. The Contractor must notify the Director of Public Works and Resident Engineer in writing a minimum of 60 days prior to desired commencement of the proposed activity. All environmental submittals, including any contact with Local, State, or Federal environmental agencies, must be coordinated through the Everett City Engineer. The Contractor is expected to fully cooperate with requests for information and provide same in a timely manner. The Contractor is further advised that the City will not entertain a delay claim due to the time required to modify or obtain the environmental permits.

M.G.L. CH. 131 ORDERS OF CONDITIONS

This project is subject to the Massachusetts General laws, Chapter 131, Section 40 as amended, and has been issued Orders of Conditions by the Everett Conservation Commission. The Order of Conditions shall be considered part of this contract and a copy of all the Order of Conditions and all attachments and references shall be on-site at all times while construction activities regulated by the Order of Conditions are being performed. The Contractor is hereby notified that s/he shall be responsible and held accountable for performing any/all work necessary to satisfy and comply with the entire Order of Conditions including but not limited to each and every Condition, Requirement and all referenced plans or documents just though the "Contractor" were the "Applicant" named in the Order of Conditions.

If the Contractor initiates any changes/modifications to the Order of Conditions for this project, s/he shall be responsible for obtaining any amended or additional environmental permits. The City of Everett shall not be responsible for any time delays or monetary claims associated with permit modifications initiated by the Contractor.

A complete copy of all the M.G.L. Ch. 131 Order of Conditions applicable to this project is included in this IFB for reference. All requirements shall be in full force and effect on the contractor and his construction activates as if they had been issued directly to the "Contractor" as the "Applicant" by the Everett Conservation Commission.

The Contractor shall be required to notify the Conservation Agent at least 48 hours in advance, counting Mondays through Fridays only, of work at each location. Contractor shall be required to read and sign the Orders of Conditions included in Attachment A of this Information for Bids (IFB). This work includes, but is not necessarily limited to, all aspects of the Orders of Conditions provided in Attachment A of this IFB.

The Contractor is advised that no additional compensation will be allowed for work required to establish, achieve, and maintain compliance with the Order of Conditions, as payment for the compliance of all work shall be included in the respective bid items.

EROSION AND SEDIMENTATION CONTROL

(Supplementing Subsection 7.02 Prevention of Water Pollution – Sanitary Provisions)

This work shall consist of temporary control measures as directed by the Engineer during the life of the contract to control erosion and sedimentation. The Contractor shall take all necessary measures to prevent the erosion of all stockpiled material and excavated work areas.

The erosion and sedimentation control features installed by the Contractor shall be satisfactorily maintained by the Contractor until they are ordered removed by the Engineer. In the event of a conflict between these specifications and existing laws, rules, or regulations, the more restrictive requirements shall apply.

In the event that temporary erosion and sedimentation controls are required due to the Contractor's negligence or carelessness, and such additional measures are ordered by the Engineer, the work shall be performed by the Contractor at his/her own expense. Temporary erosion and sedimentation control work which is not attributed to the Contractor's negligence or carelessness will be performed as ordered by the Engineer.

Repeated failures by the Contractor to control erosion and/or siltation shall be cause for the Engineer to employ outside assistance or to use his/her own forces to provide the necessary corrective measures. The cost of such assistance plus project engineering costs will be charged to the Contractor and appropriate deductions made from the Contractor's monthly progress estimates

ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM LUMP SUM

DESCRIPTION

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water, and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required to work on all MassDOT construction projects.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the City, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling, and transport, which require contact with or exposure to potentially hazardous materials.

ITEM 180.01 (CONTINUED)

The level of protection required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

ITEM 180.01 (CONTINUED)

Minimum requirements of the EHASP shall include:

Identification of Contractor's Site Safety Officer.

- Identification of Hazards and Risks Associated with Project.
- Contractor's Standard Operating Procedures, Including Personnel Training and Field Orientation.
- Respiratory Protection Training Requirements.
- Levels of Protection and Selection of Equipment Procedures.
- Type of Medical Surveillance Program.
- Personal Hygiene Requirements and Guidelines.
- Zone Delineation of the Project Site.
- Site Security and Entry Control Procedures.
- Field Monitoring of Site Contaminants.
- Contingency and Emergency Procedures.
- Listing of Emergency Contacts.

ITEM 180.01 (CONTINUED)

PERSONAL PROTECTIVE EQUIPMENT

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized. Modified Level D protection shall be the minimum requirement for all on-Site personnel.

Personal protective equipment shall be provided and properly disposed of at the expense of the Contractor.

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The work to be done under this Item shall be paid at the Contract Lump Sum Price under Item 180.01 for the development and preparation of the HASP by a qualified individual. Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price. Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02 PERSONAL PROTECTION LEVEL C UPGRADE HOUR

DESCRIPTION

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 180.02 Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03 LICENSED SITE PROFESSIONAL SERVICES HOUR

Within limited areas of the project site, soils, sediments and/or groundwater may be contaminated. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include sampling, analysis and characterization of potentially contaminated media, preparation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the Massachusetts Contingency Plan (MCP). LSP hours related to the characterization and disposal of contaminated soil and/or sediment are incidental to the disposal items. An estimate of LSP services to be provided shall be submitted to the Engineer for approval before any LSP activity begins.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the DEP shall be submitted for all work assignments listed for the LSP and environmental technicians.

The LSP shall evaluate soil and/or sediment with discoloration, odor, and presence of petroleum liquid or sheening on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on-site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect soil and/or sediment. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall adequately characterize subsurface conditions prior to backfill in areas where contaminated material has been excavated. The Engineer shall approve the locations of the testing sites prior to the sampling.

ITEM 180.03 (CONTINUED)

Contaminated soil, sediment and/or groundwater shall be handled in accordance with all applicable state and federal statutes, regulations, and policies. The LSP shall adequately characterize contaminated media for comparison to the requirements of the MCP. The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise format which tracks the excavation, stockpiling, analysis and reuse/disposal of all suspect contaminated soils, sediments and groundwater. These records shall be up-to-date and available to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, penalties and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, penalties and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving the City through the Engineer. Any notification of release shall be approved by the City before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

ITEM 180.03 (CONTINUED)

LABORATORY TESTING IN SUPPORT OF LSP SERVICES

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included.

In order to maintain compliance with the MCP or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours. LSP hours related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The contractor will be reimbursed upon written evidence of payment. The contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider. Laboratory testing related to soil/sediment disposal (disposal characterization, landfill acceptance, disposal package preparation, etc.) shall be incidental to disposal items.LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory Testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

ITEM 181.11 DISPOSAL OF UNREGULATED SOIL TON
ITEM 181.12 DISPOSAL OF REGULATED SOIL IN-STATE FACILITY TON

GENERAL

The work under these Items shall include the transportation and disposal of contaminated material excavated or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling, or reuse of contaminated soils. Disposal, recycling, or reuse will be referred to as "disposal" for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport, and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state, and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

CLASSES OF CONTAMINATED SOILS

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

ITEMS 181.11 AND 181.12 (CONTINUED)

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to the City the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the City construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

ITEMS 181.11 AND 181.12 (CONTINUED)

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Resident Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis

ITEMS 181.11 AND 181.12 (CONTINUED)

shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING: Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with the City to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT : Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

ITEMS 181.11 AND 181.12 (CONTINUED)

REGULATORY REQUIREMENTS

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. The City shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment, and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to the City. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse the City for all costs it incurs, including penalties and/or for fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

SUBMITTALS

I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to the City.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number).

ITEMS 181.11 AND 181.12 (CONTINUED)

For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to the City.

Excavation and Stockpiling Protocol

Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities

- Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.
- Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state, or local hazardous waste or hazardous material regulations. The City reserves the right to reject any facility on the basis of poor compliance history.

Transportation

The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

ITEMS 181.11 AND 181.12 (CONTINUED)

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to the City.

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris

Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment

Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

ITEMS 181.11 AND 181.12 (CONTINUED)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 201.6 AREA DRAIN EACH

The work done under these items shall conform to the relevant provisions of Subsection 201 of the Standard Specifications, construction standards details, and the following.

Each Area Drain a shall be installed with a 1 foot minimum foot deep sump.

All structures shall be placed on a bedding of 6 inches crushed stone if necessary to replace unsuitable material as determined by the Engineer and to stabilize foundations in accordance with Subsection 150.68. Excavation shall be included in the cost of the structure.

METHOD OF MEASUREMENT

Measurement for Area Drain will be measured as complete units regardless of depth.

BASIS OF PAYMENT

Items 201.6 will be measured for payment by the Each structure installed and accepted, complete in place, regardless of the depth.

Crushed Stone bedding to replace unsuitable material as determined by the Engineer, will be measured for payment under Item 156.

ITEM 252.06 6" CORRUGATED PLASTIC PIPE FOOT

DESCRIPTION

This work shall consist of the construction of culvert storm drains, sewer pipes, hereinafter referred to as "Pipe" and flared end sections for Reinforced Concrete or Metal Pipe, in accordance with these specifications and in close conformity with the lines and grades shown on the plans or established by the Engineer.

MATERIALS

Materials shall meet the requirements specified in the following Subsections of Division III, Materials: M5.03.10: Corrugated Plastic Pipe.

CONSTRUCTION METHODS

Excavation and backfill shall conform to the applicable portions of Subsection 140: Excavation for Structures and Subsection 150: Embankment.

Concrete shall be constructed in accordance with the following Subsections of Division II: Construction Details and the requirements specified herein:

230.61: Bedding Pipes

The bedding for the pipe shall be shaped to conform reasonably close to the lower 10% of the pipe and recesses excavated for bells of bell and spigot pipes. All pipe shall be laid to the specified line and grade, with a firm bearing throughout each length and with bell ends uphill.

230.62: Pipe Joints

The joints of concrete pipe shall be formed by caulking a gasket of jute or oakum into the bell and then filling the remainder of the joint with cement mortar. The invert shall be kept smooth and free of any obstructions. In the case of concrete pipe, the surfaces to be joined shall be thoroughly cleaned and wetted with water before the joint is made. Corrugated metal pipe and corrugated plastic pipe shall be firmly joined with an approved coupling. The interior surfaces of abutting pipes shall form a smooth grade when pipe laying is completed. Where watertight joints are required, concrete pipe shall be joined using flexible watertight rubber gaskets conforming to M5.01.0. The pipe ends shall be designed so that the gasket will be confined on all sides and will not support the weight of the pipe. Any alternative joint design must be preapproved by the Engineer. In designated areas, as directed, certain joints may be left open to allow for entrance of underground water into the pipeline.

ITEM 252.06 (Continued)

230.64: Field Testing of Corrugated Plastic Pipe

Installed pipe shall be tested to ensure the maximum vertical deflection of the pipe does not exceed 5% of its base inside diameter. The base inside diameter is defined as the specified nominal diameter minus the AASHTO allowable inside diameter tolerance of 1.5% but not more than ½ in. A minimum of 20% of the total length of each size of Corrugated Plastic Pipe installed on the project shall be tested. Only mandrel testing shall be used for pipe sizes of 24 in. or less. For pipe sizes greater than 24 in., the Contractor shall have the option to video inspect, and (1) use a mandrel test if a deflection is noted or (2) hand measure, for pipes with a diameter greater than 36 in., to the requirements listed below. Runs of pipe to be tested shall be selected by the Engineer. The failure of any tested pipe shall subject all Corrugated Plastic Pipe of every size to 100% testing, at the discretion of the Engineer. Deflection tests shall be performed by the Contractor under the direction of the Engineer not sooner than 30 days after completion of installation and compaction of backfill. The pipe shall be cleaned and inspected for offsets and obstructions prior to testing. Mandrel Test: • Shall be used for all pipes up to 24 in. nominal inside diameter. • The mandrel shall be pulled through the pipe by hand to ensure that maximum allowable deflections have not been exceeded. • The mandrel diameter shall be verified and approved by the Engineer prior to use. • Use of an unapproved mandrel will invalidate the test. • If the mandrel fails to pass through the pipe, the pipe will be deemed to be over-deflected. • The mandrel shall be a rigid device, with odd numbered-legs (9 legs minimum) having an effective length not less than its nominal diameter. Massachusetts Department of Transportation – Highway Division Standard Specifications for Highways and Bridges II.68 2025 Edition • The mandrel shall be fabricated of steel with pulling rings at each end. • The mandrel shall be stamped or engraved on some segment other than a runner indicating the nominal size, and mandrel OD. Video Inspection: • May be used to determine if a deflection is evident in pipes with a nominal inside diameter greater than 24 in. • Verification of the actual deflection limits must be accomplished using the mandrel test method or the hand measurement method. • Provide and use a mobile color video camera and light source to inspect pipes. • The video camera must be able to be moved inside the pipe barrel and be controlled remotely by the inspector. • The video camera must have a remote monitor and a recording apparatus to view and record the condition of the installed pipes. • A copy of the pipe inspection video recording, in an approved format, shall be provided to the Engineer. Hand Measurement: • Measure manually any deflections of pipe larger than 36 in. nominal inside diameter. • Must be done in the presence of the Engineer. The minimum diameters, based on approximately 95% of base inside diameter at any point along the full length.

ITEM 252.06 (Continued)

Any pipe deflected beyond acceptable limits shall be uncovered. If not damaged, as determined by the Engineer, the pipe may be reinstalled. Damaged pipe shall not be reinstalled and shall be removed from the work site. No other method or process to reduce or correct deflection shall be acceptable.

230.65: Strutting of Pipe

Strutting shall be used as required to ensure the integrity of the pipe and all costs associated are incidental to the item.

230.70: General

Acceptance will be conducted by the Department, including consultants under direct contract with

ITEM 252.06 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Pipes shall be measured in place and the quantity to be paid for shall be the length actually constructed as directed within the limits specified below.

Trench excavation in excess of 5 ft and rock excavation shall be measured as specified in 140.80: Method of Measurement for Class B Trench Excavation and Class B Rock Excavation respectively.

Corrugated Plastic Pipe includes testing and all other incidentals necessary to complete the work. All costs incurred by the Contractor attributable to testing and corrective action, including any delays, shall be borne by the Contractor at no cost to the City.

Pipe drains and pipe sewers will be paid for at the contract unit price per lineal foot of the kind of pipe required, installed and complete in place. Corrugated plastic pipe shall include Gravel Borrow Type d backfill material.

ITEM 665.1 TIMBER RAIL FENCE FOOT

The work under this Item shall conform to the relevant provisions of Section 600 of the Standard Specifications. The work shall include the fabrication and installation of timber two rail slatted fence, as dimensioned and where shown on the plans, as required by the Engineer and as follows:

MATERIALS

Materials shall meet the requirements specified in the following Subsection of Division III, Materials and the following:

- Gravel Borrow M1.03.0 – Type B
- Wooden Rails and Posts M9.05.3
- Timber Preservatives M9.05.5

Galvanized connections, bolts, washers and nuts shall conform to AASHTO M 232.
Connection angles at post base on bridge shall be galvanized according to AASHTO M 111.

CONSTRUCTION

The Contractor is to take care of the adjacent retaining wall, any damage to the wall will need to be repaired at the Contractor's expense.
All posts for timber rail fence and rail transition shall be machine driven provided that posts are not damaged in the process. If a post cannot be machine driven, it shall be set plumb in mechanically excavated or cored holes and secured in gravel borrow footings according to the plans. Posts shall be spaced as shown on the plans. In setting the posts, precautions shall be taken to ensure proper offset, alignment and leveling to prevent bending or twisting of the rail.

Posts for timber rail fence mounted on wall shall be set plumb into concrete wall and sealed with grout. "Metal sleeve shall be used ONLY when posts are installed in saturated ground. Posts shall extend securely from the bottom of the sleeve to the required height. See Timber Rail Fence Tube Steel Sleeve detail. Posts shall be spaced as shown on the plans. In setting the posts, precautions shall be taken to ensure proper offset, alignment and leveling to prevent bending or twisting of the rail.

Posts along the curbline shall be placed flat on the concrete curb. Posts shall extend securely from the top of the curb to the required height. Posts shall be spaced as shown on the plans. In setting the posts, precautions shall be taken to ensure proper offset, alignment and leveling to prevent bending or twisting of the rail.

Butt joints shall be used for all rail splices. Two (2) bolts shall be used per each rail/post connection.

All connections, screws, bolts, nuts, and washers shall be galvanized.

ITEM 665.1 (Continued)

All posts and rails shall be ACQ treated. Posts shall have a preservative retention level of 0.60 and rails shall have a minimum preservative retention level of 0.40.

All wood materials shall be treated wood, or wood of a natural resistance to decay. Materials shall be free from loose knots, cracks, and other imperfections.

Installation of Posts

- Posts shall be set true to line and grade.
- Line posts do not require concrete footings.
- End posts do require 12-inch diameter concrete footings extending at least 24-inches into undisturbed natural ground or properly compacted fill.

Installation of Fence

- Installation of fence shall be as per fence manufacturer's recommendations.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 665.1 Timber Two-rail Fence will be paid for at the Contract unit price per foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work including posts, rails, bracing, and footings.

ITEM 697.1 **SILT SACK** **EACH**

DESCRIPTION

This work shall consist of furnishing, installing, maintaining, and removing silt sacks for catch basins (sediment control device) as directed by the engineer and as shown on the contract drawings. The contractor shall handle any sediment removed from the silt sacks as directed in Item 227.3, Removal and Disposal of drainage structure sediments.

MATERIALS

Silt sacks shall be manufactured from a specially designed woven polypropylene geotextile and sewn by a double needle machine, using a high strength nylon thread.

Silt sacks will be manufactured to fit the opening of the catch basin or drop inlet. Silt sacks will have the following features: two dump straps attached at the bottom to facilitate the emptying of silt sacks; silt sacks shall have lifting loops as an integral part of the system to be used to lift silt sacks from the basin; silt sacks shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this yellow cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, silt sacks should be emptied, cleaned, and placed back into the basin.

GENERAL

To install silt sacks in the catch basin, remove the grate and place the sack in the opening. Hold out approximately six inches of the sack outside the frame. This is the area of the lifting straps. Replace the grate to hold the sack in place.

When the restraint cord is no longer visible, the silt sack is full and should be emptied.

To remove the silt sack, take two pieces of 1” diameter rebar and place through the lifting loops on each side of the sack to facilitate the lifting of the silt sack.

To empty silt sack, place it where the contents will be collected. Place the rebar through the lift straps (connected to the bottom of the sack) and lift. This will turn silt sack inside out and empty the contents. Clean out and rinse. Return silt sack to its original shape and place back in the basin.

Silt sacks are reusable. Once the construction cycle is complete, remove silt sacks from the basin and clean. Silt sacks should be stored out of the sunlight until needed on another project.

ITEM 697.1 (Continued)

CONSTRUCTION METHODS

To install inlet protection in the catch basin, remove the grate and place the bag in the opening. Hold out approximately six inches of the bag outside the frame. This is the area of the lifting straps. Replace the grate to hold the bag in place. When the restraint cord is no longer visible, the bag is full and should be emptied.

To remove the inlet protection, take two pieces of 1" diameter rebar and place through the lifting loops on each side of the bag to facilitate the lifting of the inlet protection.

To empty inlet protection, place it where the contents will be collected. Place the rebar through the lift straps (connected to the bottom of the bag) and lift. This will turn the bag inside out and empty the contents. Clean out and rinse. Return the bag to its original shape and place back in the basin.

Inlet protections are reusable. Once the construction cycle is complete, remove inlet protection from the basin and clean. Inlet protection should be stored out of the sunlight until needed on another project.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 697.1 Silt Sack will be paid by each silt sack used, which price shall include all labor, material, equipment, and incidental costs required to complete the work.

Sediment removed from silt sacks will be handled and disposed of as described in 227.3, but the cost is incidental to Item 697.1.Maintenance of Silt Sack is also to be included in this price.

ITEM 701.01 STAMPED CEMENT CONCRETE SQUARE FOOT

GENERAL

Work under this item shall conform to the relevant provisions of Item 701. of the Standard Specifications and the following:

The work consists of the stamping of the cement concrete sidewalk surface to create a simulated stone paver strip to the dimensions and details shown on the Contract Drawings.

MATERIALS

Release Agent: A liquid or powder release agent shall be sprayed onto the concrete surface as a bond break between the texture mat/roller and cement concrete.

Texture Application: Flex mats of pliable rubber or a texture roller may be used to imprint the surface of the cement concrete.

CONSTRUCTION METHOD

Contractor to provide a 3.0’ x 1.0’ mock up of stamped concrete prior to installation. Contractor shall get City of Everett approval before proceeding. The cement concrete sidewalk shall be installed as described under Item 701. Cement Concrete Sidewalk.

A chalk guide line or other method acceptable to the Construction Engineer shall be used to establish a straight and true guide for laying or rolling of the textured finish. As the cement concrete slab approaches its optimum set for texturing and all bleed moisture has evaporated, the release agent shall be uniformly broadcast on the sidewalk surface and applied to the textured mats.

When the concrete has set to the proper hardness the textured mat shall be applied and pressed to imprint a crisp pattern and texture to the concrete’s surface. Do not over tamp the mat. The mat shall be carefully removed so as not to create irregularities in the finish.

If need, and as directed by the Construction Engineer, power wash any remaining release agent from the concrete surface. The stamped surface shall be protected from damage until the concrete has completely cured.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 701.01 will be measured by the unit square foot installed complete-in-place including materials and incidental hardware, which price and payment shall constitute full compensation for complete compliance with the requirements of this item, including all labor, equipment, tools, incidental work, and construction methods. No deduction will be made for the areas occupied by utility castings within the delineator strip.

The cement concrete and finish curing compound will be measured and paid under Item 701.

ITEM 722.4 SCHEDULE OF OPERATIONS (TYPE D) - $10,000 LUMP SUM

PROGRESS SCHEDULE

The Contractor shall submit a work Progress Schedule to the City, for review and approval, before any work is started. In preparing the Progress Schedule, the Contractor shall maintain two-way traffic on all roadways and access ways during non-work hours. The contractor as part of this requirement shall provide the City with an electronic copy of the schedule and a copy of the scheduling software used. The Contractor shall provide updated schedules as requested by the City, but not less than once a month, and includes providing an electronic update to the schedule.

ITEM 755.35 INLAND WETLAND REPLICATION AREA LUMP SUM

The work under this item shall conform to the relevant provisions of Sections 120, 770, 771 of the Standard Specifications and the following:

Work under this item shall include furnishing material and the construction and maintenance of inland wetland replication areas as shown on the drawings and as required by the Engineer. Inland Wetland Replication Area shall hereafter be referred to as Replication Area. All work shall be in coordination with an approved Wetland Specialist as specified under that item.

Wetland Restoration work shall be as specified and compensated under that item.

The Replication Area shall be constructed prior to wetland impacts unless otherwise approved by the Engineer, specified herein, or specified in permit conditions and approvals. Construction schedule shall be appropriate to planting and seeding season (see below). Changes to this schedule will require written approval from the Engineer.

DESCRIPTION OF WORK

Construction of the Replication Area shall be completed as shown on the drawings at the following location(s):

Area at Station: ***100+00 – 104+50*** Area = ***4,610*** sf.

Replication Area shall be constructed to meet the requirements of all associated permits and certifications, including relevant performance standards of the Massachusetts Wetlands Protection Act (MGL C. 131, s40), Section 401 Water Quality Certification, and Section 404, U.S. Army Corps of Engineers Permit.

The Contractor is responsible for protection and preservation of natural areas adjacent to the Replication Area both within and outside the project limits and for the duration of the Contract; including but not limited to damage to soils or vegetation due to erosion, sedimentation, compaction, trampling, vehicles, storage of materials, or other negligence shall be repaired to the satisfaction of the Engineer and at the Contractor's expense.

The Wetland Specialist overseeing the Wetland Replication construction work shall not be from the same company as that which is performing planting, seeding, or participating in any aspect of the Wetland Replication construction.

ITEM 755.35 (Continued)

SUBMITTALS - DOCUMENTS

Request for Conditional Acceptance: As specified below, a letter requesting Conditional Acceptance of the work and the site conditions shall be submitted to the Engineer.

Request for Certificate of Compliance (Partial or Full): As specified below, shall be submitted to the Engineer for distribution to appropriate regulatory agencies.

Request for Final Acceptance: As specified below, a letter requesting Final Acceptance of the work and the site conditions shall be submitted to the Engineer.

Monitoring Reports: Reports shall be submitted to the Engineer as specified below. Reports shall be compensated under Item 755.75 and 755.76.

SUBMITTALS - MATERIAL

Soil and Amendments

No soil, compost, or other soil amendment imported to the work site shall contain seeds, roots, stems, or other viable parts of invasive plants or other noxious plants.

At least sixty (60) days prior to installation and prior to ordering, the Contractor shall submit for approval sources of soil, compost, and amendments. Submittal shall include the supplier and location of the source. Off-site sources shall be identified and available for inspection by the Wetland Specialist prior to transport of material to the site to verify that they are likely to be free of invasive plant species, including all viable plant parts.

Samples of tested and approved wetland soil and soil amendments for soil texture, organic carbon content or other routine soil analysis parameters (e.g., pH, Cation Exchange Capacity, Percent Base Saturation) and Soil Organic Matter Analysis will be required if requested by the Engineer. The grab samples shall be collected by the Contractor or Wetland Specialist from multiple representative locations in the wetland topsoil mix following the "UMass Soil and Plant Tissue Testing Laboratory Sampling and Collection Protocols" (or equivalent certification paperwork provided by the soil supplier). The lab analysis shall be provided to the Engineer along with written certification from the Contractor or Wetland Specialist that the wetland topsoil was collected per the referenced protocol and meets the desired specification. The analysis and written certification of same shall be provided to the Engineer prior to placing the wetland topsoil in the Replication Area.

ITEM 755.35 (Continued)

Seed Mix

Certificate of Materials from the supplier shall be submitted 30 days prior to seeding and must be approved prior to ordering materials. Seed species listed on the certificate shall include ecotype region (i.e., *Asclepias incarnata*, PA Ecotype).

Seed tag from the bag of seed used shall be submitted to the Engineer at the time of seeding. Seed tag shall include ecotype region and species, guaranteed percentages of purity, weed content and germination of the seed, and the net weight. Seed tag shall match the Certificate of Materials, include the name of the supplier, and date material was sent.

Bill of lading or notarized Certificate of Compliance from the Supplier serving as proof of purchase shall be submitted if requested by the Engineer. Document shall include date of sale, quantity, lot number, and address of Supplier. This shall match the seed tag. Notary shall not work for either the contractor or seed supplier.

Plant Certification

Plant Certification shall be per the applicable requirements of Subsection 771, PLANTING TREES, SHRUBS AND GROUNDCOVER, of the Standard Specifications. The nursery source shall certify the provenance or origin of all plants.

Other Material: Submittals shall be per the respective item.

MATERIALS

Sediment Control Barrier and Erosion Prevention Measures
Sediment control barriers shall be per Item 767.121.

Erosion prevention measures for disturbed areas adjacent to the Replication Area shall include but not necessarily be limited to compost blankets, jute mesh, seeding, and/or combinations thereof as approved by the Engineer.

Sediment controls and erosion prevention devices and measures shall be compensated under the respective items.

Wetland Soil

Soil appropriate for the Replication Area may be either hydric soil excavated from the impacted wetland, a manufactured mix of compost and on-site borrow, or a combination thereof, as approved by the Engineer.

ITEM 755.35 (Continued)

Hydric soil from the impacted wetland area may be spread on the surface of the constructed Replication Area as an inoculant or can be placed in a bulk fashion in a roughly 1:1 ratio of area and depth. Soil shall be handled such that the original soil structure is preserved and shall not be compacted, screened, or otherwise processed.

Hydric soil from the impacted wetland that is infested with invasive plant species identified on the Massachusetts Invasive Plant Advisory Group (MIPAG) shall not be used in the Replication Area unless approved by the Wetland Specialist and Engineer. To the extent possible, infested soil shall

be disposed of within the project limits in an upland area outside of regulated areas and as approved by the Invasive Plant Management Strategy item (if in the contract) or by the Engineer.

A manufactured mix suitable for wetlands shall consist of on-site borrow from the proposed Replication Area (if approved by the Wetland Specialist and Engineer) thoroughly mixed with compost to achieve a target organic carbon content of 10-12% (up to 21% percent organic matter) by dry weight. The organic material used for mixing shall be well or partially decomposed. Clean leaf compost is the preferred soil amendment to achieve these standards though other materials may be used if approved by the Wetland Specialist and Engineer. Note that "clean" refers both to a negligible amount (<1%) of physical contaminants such as plastic and to the lack of chemical contaminants that might pose a hazard to plants or animals. Off-site borrow may be used for mixing if approved in advance by the Engineer.

No soil or soil amendment shall be brought on site without approval of the material source by the Wetland Specialist and the Engineer. Soils used in the replacement area shall be free of rocks greater than 4 inches in diameter.

ITEM 755.35 (Continued)

Plants

Plant material shall conform to the applicable requirements of Section 771, PLANTING TREES, SHRUBS AND GROUNDCOVER, of the latest edition of the Standard Specifications and as amended below.

Plants shall be native species, not cultivars. To the extent possible, plants shall originate from the applicable EPA Level III Ecoregion.

Plant species and sizes to be included in the Replication Area shall be as follows:

TABLE 1-1
REPLICATION AREA PLANTING SCHEDULE

Common Name	Scientific Name	Status	Minimum Size	Quantity
Trees = 4				
Red Maple	*Acer rubrum*	FAC	1" caliper	4
Shrubs = 48				
Speckled Alder	*Alnus rugosa*	FACW	18-24"	8
Buttonbush	*Cephalanthus occidentalis*	OBL	18-24"	8
Silky Dogwood	*Cornus amomum*	FACW	18-24"	8
Elderberry	*Sambucus canadensis*	FACW	18-24"	8
Steeplebush	*Spiraea tomentosa*	FACW	18-24"	8
Sweet Pepperbush	*Clethra alnifolia*	FAC	18-24"	8
Ground Cover				
New England Wetland Seed Mix (or equivalent)		Varies	1 lb./2,500 s.f.	2.0 lbs.
Tussock Sedge	*Carex stricta*	OBL	2"-plugs	25
Sensitive Fern	*Onoclea sensibilis*	FACW	2"-plugs	25
Royal Fern	*Osmundastrum regalis*	OBL	2"-plugs	25

Note: Trees and shrubs shall be spaced throughout replication area to simulate natural growth patterns.

ITEM 755.35 (Continued)

Requests for substitutions shall be submitted in writing to the Engineer for review by the Wetland Specialist, the City of Everett, and, if required, the relevant regulatory agency at least thirty (30) days prior to planting. All proposed substitutes shall be in conformance with the requirements herein and suitable for the site conditions.

Transplanting and plant material collected from the wild is prohibited unless approved in writing by the Engineer. Plants shall be selected from certified nurseries that have been inspected by state and/or federal agencies.

Seed Mix

Seeding shall conform to the Standard Specifications Section M6, ROADSIDE DEVELOPMENT MATERIALS.

Table 1-2 Contains a list of species in the New England Wetmix seed mix (or equivalent) proposed to be used in the restoration/replication area. Approximately one pound (depending on time of year) of the New England Wetmix will be required within the replication area.

TABLE 1-2
NEW ENGLAND WETMIX SEED MIXTURE

Species	Latin Name	Indicator Status
Swamp Milkweed	*Asclepias incarnata*	OBL
Starved/Calico Aster	*Aster lateriflorus*	FACW
Beggar Ticks	*Bidens frondosa*	FACW
Fringed/Nodding Sedge	*Carex crinita*	OBL
Hop Sedge	*Carex lupulina*	OBL
Lurid/Shallow Sedge	*Carex lurida*	OBL
Blunt Broom Sedge	*Carex scoparia*	FACW
Fox Sedge	*Carex vulpinoidea*	OBL
Spotted Joe Pye Weed	*Eutrochium maculatum*	OBL
American Mannagrass	*Glyceria grandis*	OBL
Blue Flag	*Iris versicolor*	OBL
Fowl Bluegrass	*Poa palustris*	FACW
Soft Rush	*Juncus effuses*	FACW
Square Stemmed Monkey Flower	*Mimulus ringens*	OBL
Green Bulrush	*Scirpus atrovirens*	OBL
New York Ironweed	*Veronia noveboracensis*	FACW

Fertilizers shall not be used.

ITEM 755.35 (Continued)

Water

The Contractor shall provide water and all equipment required at no extra cost. Water shall be suitable for irrigation and free from ingredients harmful to plants and wildlife. Water from the adjacent water bodies or waterways shall not be utilized. It is the Contractor's responsibility to correct injury or damage due to the lack of water, too much water, or use of contaminated water.

Mulch/Compost Blanket for Seeding

Hydromulch shall be per the manufacturer's recommendations and shall be wood fiber or straw mulch only. Mulch shall be incidental to seeding.

Compost Blanket may be used in lieu of mulch for seeding. Compost Blanket shall meet the material and submittal requirements of that Item and shall be applied as specified below. Compost Blanket shall be compensated under that item.

CONSTRUCTION METHODS & SEQUENCE

SITE PROTECTION MEASURES

Minimizing Damage
The Contractor shall plan and execute operations in a manner minimizing the amount of excavated and exposed fill or other foreign materials that could be washed or otherwise carried into Replication Area and nearby resource areas.

Construction of and access to the Replication Area shall minimize damage to existing vegetation and soils as specified herein. Damage to soils or vegetation shall be repaired to the satisfaction of the Engineer and at the Contractor's expense. If required for soil remediation, tilling and the addition of compost shall be at the Contractor's expense.

Wetland topsoil shall be deposited and graded in the Replication Area in a manner that minimizes travel and subsequent compaction of the subgrade (including any specified pit and mound topography) to the extent practicable, including use of track mounted excavators as appropriate. Should soils be compacted, they shall be loosened by a method such as disking, spring-tooth

ITEM 755.35 (Continued)

harrowing and/or rototilling. The Contractor shall use boards, timber or composite mats, or other approved materials as necessary, to protect existing and/or new wetlands from compaction due to heavy foot traffic or if equipment is required to travel over wetland soil. All labor and materials required for protection and preservation of site shall be incidental to this item.

Stockpiling of Soil

Stockpiling of soil, including hydric soil for replication, shall be at least 100 feet from the edge of the bordering and isolated vegetated wetlands and inland banks, unless approved otherwise by the Engineer. Stockpiled soils shall be securely stabilized and contained. Any areas of exposed soil or stockpiles within and adjacent to the Replication Area that will remain inactive for more than 7 calendar days shall be sown with a mix of rapid germinating annual grasses (e.g., annual rye) covered with a layer of straw mulch applied at a rate of 90 pounds per 1,000 square feet. As necessary, the mulch shall be anchored with a tacking coat (non-tar) applied by a hydro seeder or other method recommended by the Wetland Specialist in consultation with the Engineer. In the event that there is excess borrow, it shall be disposed of under, Items 181.11 and 181.12.

Sediment Barriers

Placement: Sediment barriers shall be installed along the downslope perimeter of the Replication Area beginning and ending in the surrounding upland so that no excavated material or disturbed soil can enter adjacent wetlands or waters. Where construction work is immediately upgradient of the wetland, barriers shall be located so as to protect the Replication Area until slopes are stabilized. Sediment barriers shall be in place and approved by the Engineer prior to excavation work. No work shall take place outside the barriers.

Maintenance: The Contractor shall ensure that all sediment barriers function as intended and at all times per the specifications of those respective items.

Existing Trees to Remain

Tree protection shall be per the relevant specifications and as shown on the plans or as required by the Engineer. To protect root systems of existing trees to remain, the limits of the Replication Area may be adjusted, but, the total area of replication required by the permits shall not be reduced. Access route may be adjusted as required.

Trees to be retained as snags (upright dead or dying trees left for wildlife habitat) within or adjacent to the Replication Area shall be as shown on the plans or as directed by the Wetland Specialist or Landscape Architect during the initial site walk. Trees to remain as snags shall be clearly marked prior to clearing. Trees that pose a potential fall hazard (i.e., are near a roadway) should have limbs and trunk cut such that the tree does not pose a fall hazard.

ITEM 755.35 (Continued)

Coarse woody debris in the form of cut trees, stumps, logs, and brush shall be incorporated as shown on the plans or as directed by the Wetland Specialist or Landscape Architect. On site

material shall be selected and marked by the Wetland Specialist, retained on the project site, and placed as specified below under Placement of Coarse Woody Debris.

All trees, stumps, or brush not specified to remain shall be removed and shall not be stockpiled in the wetland resource areas while awaiting disposal.

Work shall be coordinated with Clearing or Tree Removal Item and compensated under that Item.

PRE-WETLAND CONSTRUCTION SITE WALK

Delineating the Replication Area and Access Route. The Contractor shall stake out the Replication Area boundaries and the intended access route and set grade stakes for approval by the Wetland Specialist and Engineer. Following staking and demarcation of areas, the Engineer and Wetland Specialist shall approve or modify as necessary the limits of work, the access route, final location and configuration of replication, grade stake elevations, proposed location of sediment barriers, and review proposed construction methods.

As part of the delineation and approval process, the Wetland Specialist shall mark trees to be converted to snags, select course woody debris to be retained for re-use, and select rocks or other elements to be used for habitat features.

Invasive Plants: As part of the initial site walk, the wetland to be impacted and the proposed replication site shall be inspected for the presence of invasive plants. If invasive plants are found they shall be addressed as described herein under Invasive Plants.

SOIL WORK

Final grades in the Replication Area shall meet the target elevations as shown on the Plans or as adjusted by the Wetland Specialist to achieve the desired hydrology and micro-habitat. If adjustments are required, a Request for Information (RFI) shall be submitted to the Engineer for approval. Adjustments shall be documented and included in the As-Built plans (if required) and/or other applicable required documents.

Excavation & Grading

When required by permits, the Wetland Specialist shall notify the City of Everett (as applicable) at least 72 hours prior to excavation.

Soil in the proposed wetland areas that must be removed for grades to conform to the proposed elevations shall be stripped and disposed of, or, if suitable for reuse, be stockpiled in an approved

ITEM 755.35 (Continued)

location. Stockpiled soils shall be kept wet and not allowed to dry out. Procedures for maintaining appropriate moisture levels shall be documented by the Wetland Specialist and provided to the Engineer and the Contractor.

Replication area shall be excavated as shown on the drawings. Where replication area is adjacent to existing reference wetland, finish grade of replication shall generally match existing grades and micro-topography, notwithstanding any deviations that are necessary to achieve the desired hydrology and habitat in the Replication Area.

Prior to placement of backfill, scarify subgrade to a depth of 12 inches.

The Contractor shall survey cross sections of the excavation prior to backfill and prepare an interim as-built plan, certified by a Massachusetts Registered Professional Land Surveyor, depicting sub-grade contours (1-foot intervals with representative spot elevations in plan view and section views), and limits of grading. The interim as-built shall include a calculation confirming that sufficient surface area has been provided (excluding side slopes), as per environmental permit requirements. Locations of cross-sections should be indicated on the plan view.

Placement of Wetland Soil

Following excavation, scarification, and grading of sub-grade, and after the sub-grade elevations are approved by the Wetland Specialist, suitable soil listed below shall be spread to the design depth and thickness over the proposed wetland areas as shown on the plans and as directed by the Wetland Specialist:

Twelve (12) inches of weed-free, organic-rich topsoil will be added using a 50:50 combination of screened loam and finished compost.

Vehicles used to transport soil from offsite shall be washed or cleaned with air pressure to prevent exotic or invasive seeds or root fragments from contaminating the Replication Area.

Final Grading

The finished grade of the Replication Area shall be at an elevation that will provide an unrestricted hydrologic connection between the Replication Area and adjacent resource areas. The hydrologic connection should be in keeping with restoring the intended function of the replacement wetland relative to the impacted reference wetland. The Contractor shall verify that this elevation is not at a level that could negatively alter the hydrology of an adjacent wetland. Microtopography in the form of hummocks, pits and mounds shall be as shown on the plans or as adjusted by the Wetland Specialist. Final elevations and grading of wetland soil shall be approved by the Wetland Specialist and the Engineer.

ITEM 755.35 (Continued)

To avoid compaction once soil has been placed, no heavy equipment shall travel across placed soil and no work shall occur in wet or moist soil. Soil that is compacted due to construction activities shall be replaced with soil as specified herein and at the Contractor's expense.

The finished surface shall be surveyed by a registered surveyor prior to planting and a plan of the surveyed subgrades and final grades submitted to the City of Everett and other regulatory agencies as appropriate (e.g., Corps), within 30 days of final soil placement, to ensure that the correct topography and hydrology are met.

Cross sections shall also be submitted of sufficient number to represent the proposed locations of each different plant community, estimated seasonal average, high, and low groundwater elevations provided with the variance documents or observed prior to soil placement. The Wetland Specialist shall assist with the establishment of these elevations and shall certify that the excavated elevations are suitable for success of the proposed plant species.

Installation of Monitoring Wells in Replication Area

For a constructed Replication Area over 1,000 square feet, a representative number of monitoring wells shall be installed. Monitoring wells shall include data loggers. For purposes of this specification, a data logger refers to a battery powered device that records groundwater level. Data shall be collected by the Wetland Specialist and submitted with Monitoring Reports and as required by applicable permits. Wells shall be installed immediately following completion of construction of the Wetland Replication Area. Wells shall be installed in accordance with USDA/NRCS technical report entitled: "Sprecher, S.W. 2008. Installing monitoring wells in soils (Version 1.0). National Soil Survey Center, Natural Resources Conservation Service, USDA, Lincoln, NE." or equivalent methodology approved by Engineer.

RESTORING VEGETATION

Placement of Coarse Woody Material

If specified within this Contract or if directed by the Wetland Specialist or Landscape Architect during the initial site walk, woody debris shall be placed in the Replication Area and/or adjacent upland buffer. Material shall be placed as directed following placement of wetland soil and prior to application of compost and/or seed. Woody material shall cover a minimum of 5-20 percent of the Replication Area, depending on whether it is a meadow or woodland wetland and how much wood is available from construction clearing. Where trees are cut for construction purposes, logs of a minimum length of 8 feet must comprise a minimum of 50% of the woody material left on site. Brush shall be included along with logs and stumps as directed. Woody material shall be placed in a deliberate and naturalistic manner.

Habitat enhancements will be added to the surface of the finished replication area. The enhancements will consist of ten (10) logs (minimum 6-inches diameter & 8-feet long) and

ITEM 755.35 (Continued)

the (10) branches (minimum 12-feet long) as directed by a Wetland Specialist after initial site walk.

Planting

Following placement of wetland soil and approval of final grade and conditions, Replication Area shall be planted. Planting shall conform to SECTION 771 PLANTING TREES, SHRUBS AND GROUNDCOVER of the Division I Standard Specifications and as amended below.

Planting Season shall be May 15-June 15 and September 1-November 1 unless otherwise specified in applicable permit conditions.

Prior to planting, the Wetland Specialist shall approve the condition of the plant material and the method of installation and shall oversee the planting work. Replication Area shall be planted in the dry. Plants shall be placed according to the planting details and within the range of target elevations and at the spacing shown on the Plans or, if spacing is not indicated on the Plans, at the direction of the Wetland Specialist. Unless otherwise noted on the Plans, final plant locations shall be determined on site and located with regard to expected hydrology, plant growth characteristics, habitat desired, and water protection.

Plant material shall be installed as soon as possible after delivery. Plants stored on-site prior to installation shall be stored in the shade and watered twice daily up until time of installation. Plants showing signs of stress or compromised health may be rejected by the Engineer or Wetland Specialist and shall be replaced at the Contractor's expense.

Plant material shall be furnished and installed as indicated including all labor, materials, plants, equipment, incidentals, re-setting of plants (frost heaves, etc.), irrigation, re-planting and clean up. If previously approved species are not available at the time of planting, the Wetland Specialist may propose substitutions relative to species, size, and quantities for review and approval by the City of Everett. Upon approval by the City of Everett, substitutions shall be approved by the regulating authority, if and as necessary. Provisions shall be made for a growth warranty of at least two (2) calendar years from the date of Conditional Acceptance as described below or as required by permits.

ITEM 755.35 (Continued)

Seeding

Following placement of wetland soil and planting (if included), the Replication Area shall be seeded using one of the following methods:

- Broadcast by hand or with a hand-held spreader followed by application of straw mulch. If necessary, seed shall be lightly raked to insure good seed-to-soil contact.
- Hydro-seeded with hydro mulch per the Standard Specifications and per the manufacturer's directions.
- Hand broadcast seed with Compost Blanket pneumatically applied at the same time to ensure light cover of soil topdressing over seed.

If spring conditions are drier than usual, supplemental watering may be required. If sowing during the summer months, supplemental watering will likely be required until germination.

If required, seeding limits for different seed mixes shall be determined by the Wetland Specialist.

PLANT ESTABLISHMENT AND INVASIVE MANAGEMENT

Plants shall be watered as necessary to maintain healthy establishment. Plants that fail by September 1 after spring planting or by May 15 after fall planting shall be replaced within the immediate or next planting period and at the Contractor's expense.

Seeding that fails to established according to the conditions of acceptance below shall be over-seeded as required by the Engineer. Washouts and channels shall be repaired and stabilized prior to overseeding. Excessive weed growth shall be pulled out by the roots or, with approval from the Engineer, cut prior to over-seeding. Soil repair and weed control are incidental to this item.

Invasive Plants: Corrective measures shall be taken to remove or treat invasive plant species in the Replication Areas. Invasive plants shall include those listed as invasive by Massachusetts Invasive Plant Advisory Group (MIPAG) and the US Army Corp of Engineer's New England District's Compensatory Mitigation Guidance

The strategy for chemical and/or manual removal shall be as directed by the Wetland Specialist, shall continue for the duration of the monitoring period, and shall be incidental to this item.

CONDITIONAL ACCEPTANCE OF WORK

Conditional Acceptance shall indicate approval of the wetland construction work and agreement that work has been done according to plan or modified as approved.

ITEM 755.35 (Continued)

Upon completion of construction, the Contractor shall submit a Request for Conditional Acceptance that includes a brief narrative from the Wetland Specialist demonstrating that the wetland replication construction work was done according to plans (or how modified) and meets required permit conditions. The narrative shall include, photo-documentation of pre-construction conditions as well as soil work, planting, and seeding. Seed tags shall be submitted as part of the Request for Conditional Acceptance.

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist, and regulatory representative (if required) shall assess the Replication Area and surrounding areas. At a minimum, the following conditions shall be included in the narrative and reviewed as part of the on-site assessment of whether:

- The final finished target elevations have been met and maintained relative to the approved plans and reference wetland. Areas that are too high or too low should be identified along with suggested corrective measures.
- Hydrology meets performance standards.
- Specified seed mix has been seeded. If inspected 30 or more days after seeding, seeded species in the wetland and adjacent upland shall show signs of good germination and healthy growth.
- Planted woody and herbaceous species meet specifications and are establishing well.
- Soils are stabilized and there is no sediment in the wetland and no channeling of slopes.
- There are no invasive plants visible in the replication area.

Upon approval that the work meets the above conditions, the City of Everett will issue a letter of Conditional Acceptance. If the Wetland Replication work is not approved, the City of Everett will issue a rejection letter requiring corrective actions. The Wetland Specialist shall recommend corrective actions. Work not approved shall be addressed by the Contractor at no extra cost.

Wetland Specialist shall be compensated under Item 755.75.

Erosion of adjacent slopes or the flow of sediments into the wetland between Conditional and Final Acceptance shall be immediately addressed by the Contractor.

REQUEST FOR CERTIFICATE OF COMPLIANCE

If required, a request for a Certificate of Compliance (Partial or Full) pursuant to the Massachusetts Wetlands Protection Act regulations shall be prepared and submitted to the City of Everett within 30 days following Conditional Acceptance.

ITEM 755.35 (Continued)

The Request for Certificate of Compliance shall include the following:

- A brief narrative of the work on company letterhead signed by the Wetland Specialist. Narrative shall be prepared as a MS Word document and shall include substantive explanation that demonstrates compliance with EACH relevant permit condition. Narrative shall note variations from the originally permitted design.
- As-built Drawings signed by the Contractor's PE registered in the Commonwealth of Massachusetts. As-built drawings shall show hydrologic conditions, status of plantings and seeding, and shall include a narrative and minimum of 4 photographs documenting site conditions. Plans should note variations from the originally permitted design.
- When required, drawings shall meet the Army Corp of Engineer's New England District's Compensatory Replication Guidance, including: scale in the range of 1"=20' to 1" = 100', contours at 1' intervals, spot elevations for intermediate elevations, and polygons outlining each Replication Area, and, as applicable, plant community types. The As-built Drawings shall be provided to the Engineer electronically in Portable Document Format (PDF). If requested by the Engineer, the Drawings shall be provided in printed paper format (11" x 17" sheets, unless otherwise directed). Drawings must be scalable.
- Other documents as required.

FINAL ACCEPTANCE OF WORK

Following one full growing season, the Contractor shall submit a Request for Final Acceptance. Submittal shall include a brief narrative of conditions. Upon receiving the Request, the Engineer, Contractor, Wetland Specialist and regulatory representative (if required) shall assess the Replication Area. Final Acceptance will initiate the start of the Wetland Monitoring Period.

The following conditions shall be inspected and approved for acceptance and payment.

- Hydrology is functioning as intended.
- The desired seeded species are establishing well and cover at least 95 percent of the Replication Area, excluding areas of open water areas or planned bare soil.
- No sediments have entered the wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- All planted species (if included) are living and establishing well.
- There are no visible invasive plants.
- Silt fence and non-biodegradable sediment barrier materials have been removed.

If the mitigation work does not meet the above condition and is not approved, the City of Everett will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions. Work not approved will be addressed by the Contractor at no extra cost.

ITEM 755.35 (Continued)

Wetland Specialist shall be compensated under Item 755.75.

MONITORING REPORTS FOR REGULATORY COMPLIANCE

Post wetland construction Monitoring Reports shall be completed and submitted by the Wetland Specialist as specified and compensated under Item 755.76 Wetland Monitoring Reports.

Generally, the following conditions shall be met upon each inspection:

- Hydrology is functioning as intended.
- The desired seeded species are establishing well and cover 95 percent of the area, excluding areas of open water areas or planned bare soil.
- No sediments have entered into wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- All planted species (if included) are living and establishing well.
- There are no visible invasive plants.

If, at the end of the required monitoring period, the requirements have not been met and success of the wetland replication area has not been achieved as determined by the Monitoring Reports, the Contractor shall provide corrective measures. All costs associated with corrective measures and plant replacement shall be incidental to this item with no additional compensation.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 755.35 will be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, equipment, submittals, maintenance, all required soil, site preparation, grading, wetland seeding, planting, mulching, watering, monitoring wells, registered surveyor, as-built plans, Request for Certificate of Compliance, and all incidental costs necessary to complete the work as required.

Payment shall be as follows:

- 60% upon Conditional Acceptance.
- 20% after receipt and acceptance of Certificate of Compliance by the Engineer and once all permit construction requirements have been met and approved.
- 20% upon Final Acceptance.

Excavation will be paid under Item 120.1
Sediment Control Barrier will be paid under Item 767.121
Wetland Specialist will be paid under Item 755.75
Wetland Monitoring Reports for follow-up monitoring will be paid under Item 755.76

ITEM 755.45 WETLAND RESTORATION SQUARE YARD

DESCRIPTION

The work under this item shall conform to the relevant provisions of Subsections 120, 751, 765, 767, and 771 of the Standard Specifications and the following:

The work under this item shall include surveying, laying down temporary soil protection fabric, tilling to loosen soil, seeding, and all labor and furnishing of materials to complete the work specified herein to protect and restore existing inland wetland areas that will be temporarily impacted as shown on the drawings and Plans.

Inland Wetland Replication work shall be as specified and compensated under that item.

Restoration Area shall be constructed to meet the requirements of all associated permits and certifications, including relevant performance standards of the Massachusetts Wetlands Protection Act (MGL C. 131, s40), Section 401 Water Quality Certification, and Section 404, U.S. Army Corps of Engineers General Permit.

All work shall be in coordination with an approved Wetland Specialist. Wetland Specialist qualifications and requirements shall be per Item 755.75, Wetland Specialist.

SUBMITTALS - DOCUMENTS

Survey: To establish pre-construction baseline elevation of temporarily impacted area a survey shall be submitted to the Engineer prior to any fill or other or other soil disturbance.

Request for Acceptance: As specified below, a letter requesting Conditional Acceptance of the work and the site conditions shall be submitted to the Engineer.

SUBMITTALS – MATERIALS

Seed shall be per, Item 755.35 Inland Wetland Replication Area, Subsection MATERIALS: Seed Mix and shall be applied at the rates specified under that item.

MATERIALS

Mulch/Topdressing for Seeding

Hydromulch shall be straw mulch or wood fiber mulch and shall be per the manufacturer's recommendations. Compost topdressing, if used, shall meet the material and submittal requirements of that item and shall be applied as specified below. Mulch or compost topdressing for seeding shall be incidental to this item.

ITEM 755.45 (CONTINUED)

Seed Mix shall be the New England Wetland Seed Mix (or Equivalent) as specified under Item 755.35.

Fertilizers shall not be used.

CONSTRUCTION METHODS

Soil Protection Prior to Construction

Prior to temporary soil protection fabric placement and filling wetland, vegetation shall be cut flush and area surveyed to establish pre-construction elevations.

Following the survey, temporary soil protection fabric shall be laid down.

Soil Remediation Upon Completion of Work

Fill and temporary soil protection fabric shall be removed and disposed off-site. Grades shall be restored to pre-construction elevations as shown in the baseline survey or Plans and Wetland Specialist (if applicable) to restore hydrologic functions. Final elevations shall be approved by the Engineer prior to soil preparation and seeding.

Compacted soils shall be scarified and raked relatively smooth or as directed. If knotweed rhizomes are present, care shall be taken such that no soil or roots are moved from the immediate locations. Equipment used for raking or roughening soil shall be cleaned in the presence of the Engineer prior to leaving the site.

Seeding

Following approval of soil preparation by the Engineer, the Restoration Area shall be seeded using one of the following methods:

- Hand broadcast seed and straw mulch.
- Seeding with Hydromulch per the Standard Specifications and per the manufacturer's directions.
- Hand broadcast with ½-1 inch of Compost Topdressing pneumatically applied and at the same time to ensure light cover of soil over seed.

Seeding that fails to be established shall be over-seeded Plans. Excessive weed growth shall be cut prior to over-seeding. Cutting and over-seeding are incidental to this item.

Seed tags shall be submitted at time of seeding.

ITEM 755.45 (CONTINUED)

ACCEPTANCE

Acceptance shall indicate approval of the wetland restoration work and agreement that work has been done according to plan or modified as approved.

Following restoration work, the Contractor shall submit a Request for Acceptance. Upon receipt of a Request for Acceptance, the Engineer shall assess the restoration for the following:

- The target elevations have been restored per the survey or adjusted per the Engineer. Areas that are too high or too low should be identified along with suggested corrective measures.
- Hydrology meets performance standards.
- Specified seed mix has been seeded and seeded species in the wetland and adjacent upland shall show signs of good germination and healthy growth.
- Soils are stabilized and there is no sediment in the wetland and no channeling of slopes.
- There are no invasive plants visible.
- All non-biodegradable sediment barrier material shall be removed.

Upon approval of the work, the City of Everett will issue a letter of Acceptance. If the replication work is not approved, the City of Everett will issue a rejection letter requiring corrective actions.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 755.45 will be measured and paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, equipment, submittals, maintenance, soil remediation, grading, seeding, and incidental costs necessary to complete the work as required.

Payment shall be as follows:

- 60% upon completion of soil preparation and seeding
- 40% upon Acceptance.

Excavation of temporary fill will be paid under Item 120.1

ITEM 755.75 WETLAND SPECIALIST HOUR

Work under this Item shall be for services of a Wetland Scientist, Wetland Ecologist, Restoration Ecologist, or other professional with similar qualifications hereafter referred to as the "Wetland Specialist."

"Wetland Mitigation" shall be used herein for applicable wetland work. For this project, applicable wetland work is for: ***Item 755.35 Inland Wetland Replication Area*** (creation of a new wetland) ***and/or Item 755.45 Wetland Restoration (restoration after temporary impacts).***

The Wetland Specialist shall demonstrate knowledge and expertise to coordinate and oversee all work associated with the Wetland Mitigation as defined herein, as shown on the Plans, as required by permits, and as specified under the relevant Wetland Mitigation items.

Regulatory monitoring reports following Final Acceptance of the Wetland Mitigation shall be per Item 755.76, Wetland Monitoring Reports.

For all onsite work, the Wetland Specialist shall sign in and sign out with the Engineer.

The Wetland Specialist shall not be from the same company as the company responsible for planting, seeding, and/or maintaining the wetland.

QUALIFICATIONS

The Wetland Specialist shall have a minimum of five (5) years of experience with construction and monitoring of wetland mitigation areas similar in size, type, and complexity to the Contract mitigation. When required by permits, at least ten (10) years of experience may be required. The Wetland Specialist shall be thoroughly versed in the Commonwealth of Massachusetts Wetlands Protection Act (MGL C.131, s.40), U.S. Army Corps of Engineers New England District Compensatory Mitigation Guidance, and all other relevant regulations of the Massachusetts Department of Environmental Protection and the U.S. Army Corps of Engineers New England District.

ITEM 755.75 (CONTINUED)

SUBMITTALS - QUALIFICATION

Within sixty (60) days following the Notice to Proceed, the Contractor shall provide proof of qualifications for the Wetland Specialist to the Engineer for approval. Submittals shall include, but not be limited to, the following:

- Resume of the individual on-site implementing the Wetland Specialist work. If the Wetland Specialist changes over the course of the project, the new individual shall submit a resume and qualifications for approval 30 days prior to doing any work on-site.
- Resume of any personnel working on-site in place of the Wetland Specialist. Individual shall be approved prior to work on-site.
- Narrative describing the company, its expertise, technical qualifications, and experience with wetland construction.
- At least three (3) references from prior work of a similar nature completed in the last five (5) years and by the individuals who will perform the work. Provide contact information for each reference including address, phone number and email.
- A summary of each reference project including nature of the work, project size, dates, and period of construction and monitoring, methodologies used, and summary of success (or not) in terms of meeting performance objectives. Summary shall include a minimum of one before and one after photo for each project.

SUBMITTALS – DOCUMENTATION AND REPORTS

Wetland Construction Oversight

Wetland Specialist shall provide documentation of pre-existing conditions and wetland construction as specified below and as part of fulfilling the Scope of Work described below. Documentation shall include photos that are clear and legible. Photos are incidental to this item.

- ***Site Walk Prior to Disturbance and Construction of Wetlands:*** Provide brief assessment with photos, including documentation of the existing wetlands to be impacted (both permanent and temporary), proposed wetland replication area, and reference/model wetland areas (typically an adjacent undisturbed wetland or the existing wetland to be impacted). Photos of existing wetlands that will be temporarily impacted shall include a view from at least 3 angles.
- ***Excavation and Grading:*** Documentation shall include a minimum of two photos of the excavated wetland and two photos after final grading prior to planting and seeding. For restoration areas, photos shall show soil preparation (i.e., tilling and grading), if applicable.

ITEM 755.75 (CONTINUED)

- ***Approval of Subgrades****:* The Wetland Specialist shall inspect the sub-grade of the Replication Area to ensure that proper hydrology is likely to be established and shall provide the Engineer with written confirmation and photographs upon completion of subgrade excavation work. Written confirmation shall include recommended field adjustments, based on field observations, to achieve the desired hydrology and designed wetland system.
- ***Planting and Seeding:*** Provide assessment and photos of vegetation upon completion of planting and seeding work.

Wetland construction documentation and reports shall be submitted with Request for Conditional Acceptance and for the Order of Conditions, Water Quality Certifications, and other regulatory permits as required.

Requests for Acceptance of Work & Regulatory Compliance

The Wetland Specialist shall submit the following documents if and as specified herein and under Item the relevant Wetland Mitigation items:

- Request for Conditional Acceptance.
- Request for Certificate of Compliance (Partial or Full) when applicable.
- Request for Final Acceptance.

SCOPE OF WORK

In the event of discrepancies with the applicable permits, the Wetland Specialist shall submit a Request for Information (RFI) to the Engineer.

General

The Wetland Specialist shall be responsible for the following:

- Review and have a comprehensive knowledge of the environmental permits relevant to the specific mitigation work being done to ensure compliance throughout the duration of the contract.
- Identify and inform the Contractor and Engineer of unique site conditions which may require adjustments to the schedule, design, or construction methods. For example, wildlife nesting, illegal dumping, or rare species.
- Identify and inform the Contractor and Engineer of any sediment or erosion control problems observed within mitigation areas.
- Advise to avoid impacts to adjacent areas and regulated wetland resources.

ITEM 755.75 (CONTINUED)

- Participate in necessary meetings as required by permits and when requested by the Engineer.

Inspections & Construction Oversight

The Wetland Specialist shall be responsible for, but not limited to, the following:

- Pre-Construction Site Walk
    - Following surveying, flagging, and staking of all relevant boundaries and elevations by the Contractor, the Wetland Specialist shall walk the site with the Engineer and the Contractor to review existing and proposed conditions, recommend changes if necessary, and approve the following: location and boundaries of the Mitigation Area, target elevations and grades, location of tree protection associated with the Mitigation Area, and final layout and limits of clearing for access route.
    - Select and mark snags, logs, and woody material to be retained for placement in the Wetland Mitigation, as appropriate.
    - Note invasive plants in and adjacent to Wetland Mitigation.
    - Provide summary report if and as specified under Wetland Mitigation items.
- Excavation, Soil Placement, Grading for Replication Areas
    - Approve excavated depth and grading for appropriate wetland hydrology, subsoil preparation, and finished grade of placed wetland soil.
    - Adjust grades as required and approve microtopography. If grades need to be adjusted, submit an RFI to the Engineer.
    - If requested by the Engineer, the Wetland Specialist shall inspect stockpiled wetland soil for moisture content and signs of undesirable weeds.
- Soil Protection and Restoration Measures for Restoration Areas
    - Review and approve methods of soil protection and restoration if required.
    - Confirm decompaction will adequately restore appropriate wetland hydrology. If decompaction measures need to be adjusted, submit an RFI to the Engineer.
- Re-vegetation of Mitigation Area
    - Placement of woody material to be re-used.

ITEM 755.75 (CONTINUED)

- Verify seed used complies with specifications and site conditions, determine limits for wetland seeding based on elevations, approve seeding and mulching methods, and collect seed tags to submit with Request for Conditional Acceptance.
- Review planting methods (if applicable) prior to installation and oversee layout of wetland plants.

Conditional Acceptance

Upon completion of construction of the wetland, as part of the Request for Conditional Acceptance, the Wetland Specialist shall provide a brief narrative demonstrating that the wetland construction work was done according to plans (or how modified) and meets the conditions required for acceptance as specified under the Wetland Mitigation items. Submittal shall include a report and photo documentation of pre-construction conditions, construction work, seeding, planting, and other work as specified under the Wetland Mitigation items. Photos of completed Wetland Restoration areas shall include the same views as the pre-construction reference photos.

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist and regulatory representative (if required) shall assess the Wetland Mitigation and surrounding area to ensure that it meets the conditions specified under the Wetland Mitigation items.

Upon approval, the City of Everett will issue a letter of Conditional Acceptance. If the Wetland Mitigation work is not approved, City of Everett will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions.

Request for Certificate of Compliance

If required, a Request for Certificate of Compliance shall be prepared and submitted to the Engineer immediately following Conditional Acceptance. Request shall be as specified under the relevant Wetland Mitigation items.

Request for Final Acceptance

Following one full growing season, the Wetland Specialist shall provide a brief narrative of the status of the Wetland Mitigation to be submitted with the Request for Final Acceptance.

Upon receipt of the Request, the Engineer, the Wetland Specialist and regulatory representative (if required) shall assess the Wetland Mitigation and surrounding area to ensure that it meets the conditions specified under the relevant Wetland Mitigation items.

If the Wetland Mitigation is not approved, the City of Everett will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions.

ITEM 755.75 (CONTINUED)

METHOD OF MEASUREMENT

Item 755.75 Wetland Specialist shall be measured per hour for on-site service provided by the Wetland Specialist.

Work shall include all inspections, photos, submittals, and associated tasks for construction and restoration oversight, narratives for Conditional and Final Acceptance, Request for Certificate of Compliance (Partial or Full) if required, documentation required for permits, and all other work specified above. Payment shall not include travel time or time spent off-site on reports.

BASIS OF PAYMENT

Item 755.75 Wetland Specialist shall be paid at the Contractor bid price for each hour, or fraction thereof, spent on-site to perform the work as described above. Reports and photo documentation are required for payment.

Post wetland construction reports shall be per Item 755.76, Wetland Monitoring Reports.

ITEM 755.76 WETLAND MONITORING REPORTS LUMP SUM

Work under this item shall be for the submittal of Wetland Monitoring Reports following the completion of wetland construction and shall include all inspections, photos, and other work required to complete those reports as specified herein.

"Wetland Mitigation" shall be used herein for applicable wetland work, whether Wetland Replication (creation of a new wetland) and/or Wetland Restoration (restoration after temporary impacts).

The Contractor shall retain the services of a Wetland Scientist, Wetland Ecologist, Restoration Ecologist, or other professional with similar qualifications, hereafter referred to as the "Wetland Specialist," to complete the Wetland Monitoring reports. Wetland Specialist shall meet requirements specified under Item 755.75 Wetland Specialist.

All on-site Wetland Specialist services required to complete the construction and revegetation of the wetland replication, including preparation and submission of monitoring reports during construction, shall be per Item 755.75 Wetland Specialist.

SCOPE OF WORK

Post-Construction Wetland Monitoring Reports

Final Acceptance of the wetland construction work as specified under item 755.35 and 755.45 shall initiate the beginning of the Monitoring Period.

Inspections and reports shall be performed to ensure compliance with mitigation requirements defined under the relevant Wetland Mitigation items and with all applicable environmental permits. Monitoring reports shall cover the following:

- Identification of all plant species present
- Percent cover for each plant species and overall percent surface area cover by indigenous wetland plant species for replication area and upland
- Description of the viability, health, and vigor of installed plants as well as volunteer plant species within the replication areas
- Description of remedial measures taken to ensure criteria are met
- Depth to apparent water table and/or depth of surface inundation, both as measured from the soil surface and data loggers, as appropriate.
- A conclusion regarding the success of the wetland mitigation area relative to the performance standards at 310 CMR 10.55(4)(b) (unless varied), the design plans, and

ITEM 755.76 (CONTINUED)

performance criteria established by MADEP in the variance conditions (when applicable), and the reference wetland.

- Recommendation for a corrective plan of action if needed.

Reports shall be submitted to the Engineer as a digital copy in Portable Document Format (PDF) unless otherwise requested. Hard copies shall be provided as requested by the Engineer. All reports shall be marked with the applicable permit numbers and identifying information as required in the permits. Reports shall include photo documentation of the wetland/s being monitored and shall include a minimum of 3 views from different orientations. Views shall be labeled.

Spring Reports, when required, shall be submitted to the Engineer by July 1 for dispersal to the appropriate permitting agencies.

End of Year Reports (which may serve as the Fall Report) shall be based on inspections that occur prior to October 15th. Reports shall be submitted to the Engineer no later than November 1 of each year. Monitoring Reports shall be as follows for ***2*** years:

- *Conservation Commission: 1 Report (End of Growing Season)*

BASIS OF PAYMENT AND METHOD OF MEASUREMENT

Item 755.76 Wetland Monitoring Reports and associated inspections shall be at the Contract unit price per Lump Sum and shall include all labor, materials, equipment, and all incidental costs required to complete the work. Lump Sum will be paid in equal installments of the Lump Sum divided by the number of reports submitted. Payment shall be upon submittal and acceptance of each report, based on the following schedule:

- Year 1 = ***1 Report***
- Year 2 = ***1 Report***

ITEM 756 NPDES STORMWATER POLLUTION PREVENTION PLAN LUMP SUM

Pursuant to the Federal Clean Water Act, construction activities which disturb one acre or more are required to apply to the U.S. Environmental Protection Agency (EPA) for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities (NPDES is the acronym for the National Pollutant Discharge Elimination System). On July 1, 2003 (68 FR 39087), EPA published the final NPDES construction general permit for construction activity. On August 4, 2003 (68 FR 45817), EPA reissued the General Permit for the Commonwealth of Massachusetts and included state specific requirements.

The NPDES General Permit requires the submission of a Notice of Intent (NOI) to the EPA prior to the start of construction (defined as any activity that disturbs land, including clearing and grubbing). There is a seven (7) day review period commencing from the date EPA enters the NOI into their database. The Contractor is advised that, based on the review of the NOI, EPA may require additional information, including but not limited to, the submission of the Storm Water Pollution Prevention Plan (SWPPP) for review. Work may not commence on the project until final authorization has been granted by EPA and the Massachusetts Department of Environmental Protection DEP. Any additional time required by EPA or DEP for review of submittals will not constitute a basis for claim of delay.

If the project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal Area of Critical Environmental Concern (ACEC) as identified by the DEP, a separate filing to DEP is required. Filing fees may be associated with a DEP filing and shall be paid by the Contractor.

The NOI specific to this project and the work on Northern Strand Trail Connection has been approved by the City of Everett Conservation Commission (ConCom) The Contractor shall request a copy of that NOI from the City of Everett and shall adhere to the conditions outlined on that OOC document for all work within the wetland area between Santilli Highway Connector and Route 60 / Revere Beach Parkway.

The NPDES General Permit requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the afore-mentioned statutes and regulations. The SWPPP shall include the NPDES General Permit conditions and required information, MassDOT Performance Standards and detailed descriptions of erosion and sedimentation controls to be implemented during construction. It is the responsibility of the Contractor to prepare the SWPPP to meet the requirements of the most recently issued NPDES General Permit and, if applicable, the DEP requirements. The Contractor shall submit three (3) copies of the draft SWPPP to the Resident Engineer for review and approval at least four weeks prior to any site activities. It is the responsibility of the Contractor to be familiar with the NPDES General Permit conditions and the conditions of any Wetlands Protection Act Order of Conditions or Determination, DEP Water Quality Certification, Army Corps of Engineers

ITEM 756. (CONTINUED)

The Contractor shall include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits and regulations.

It is the responsibility of the Contractor to complete the SWPPP in accordance with the NPDES General Permit and DEP requirements, provide all information required, and obtain all certifications as required by the NPDES General Permit. Any amendments to the SWPPP required by site conditions, schedule changes, revised or additional work, construction methodologies, regulations and the like are the responsibility of the Contractor. Amendments will require the approval of the Resident Engineer prior to implementation.

Included in the NPDES General Permit conditions is the requirement for inspection of all erosion controls and site conditions on a weekly basis as well as after each incidence of rainfall exceeding 0.5 inches in twenty-four hours. The Contractor shall choose a qualified individual (herein after referred to as the "Inspector") who will be on-site during construction to perform these inspections. The Resident Engineer must approve the contractor's Inspector. In addition, if the Resident Engineer determines at any time that the Inspector's performance is inadequate, the Contractor shall provide an alternate Inspector. Written Weekly Inspection forms, Storm Event Inspection forms, and Monthly Summary Reports shall be completed and provided to the Resident Engineer within two (2) business days of completion. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

The Contractor is responsible for preparation of the SWPPP, all required certifications, inspections, forms, reports and any and all corrective actions necessary to comply with the provisions of the NPDES General Permit. In addition, the Contractor shall provide the DCR with at least five (5) copies of all documents associated with the SWPPP including, but not limited to, the final approved SWPPP, required SWPPP amendments (including revisions/addenda pre, during and post- construction), certifications, NOIs, NOTs, Weekly Inspection forms, Storm Event Inspection forms, Monthly Summary reports (including photographs). These are to be distributed by the Contractor to the District Construction Engineer, Area Engineer, Resident Engineer, District Environmental Engineer, and Construction Environmental Coordinator. Additional copies are to be provided by the Contractor if requested by DCR.

Work associated with performance of inspections of all erosion controls and site conditions is considered incidental to this Item. The Standard Specifications require adequate erosion control for the duration of the Contract. Inspection of these controls is considered incidental to the applicable items. Additional erosion controls beyond those specified in bid items elsewhere in this contract which are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods, and prosecution of the work shall be considered incidental to this item.

ITEM 756. (CONTINUED)

The CGP requires the submission of a Notice of Termination (NOT) from all Permittees (Operators, Owners, etc.) when final stabilization has been achieved. Approval of final stabilization by the Resident Engineer and confirmation of submission of all NOTs by the Contractor will be required prior to submission of the Resident Engineer's Final Estimate.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment for all work detailed above including, but not limited to, SWPPP preparation, required SWPPP amendments (including revisions/addenda pre, during and post- construction), NOI and NOT submissions, certifications, DEP filing fee (if required), inspections, preparation of weekly, monthly, and other required reports, distribution of copies, and all other requirements as described in this special provision are included in the Lump Sum price for this Item. Upon final acceptance of the SWPPP by the Department, a payment equal to 50% of the Contract Lump Sum price shall be paid. The remaining 50% of the Lump Sum shall be paid in 10% increments distributed equally throughout the remaining period of the Contract, not including extensions of time.

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant provisions of Subsections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier. Photo-biodegradable fabric shall not be used.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

• 9-inch compost filter tubes

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Where shown on the plans or when required by permits, sedimentation fence shall be used in addition to compost filter tubes shall be compensated under that item.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. If necessary to accommodate field conditions and to maximize effectiveness, barrier locations may be shifted with approval from the Engineer. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer’s instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

ITEM 767.121 (CONTINUED)

Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

MAINTENANCE

Maintenance of the sediment control barrier shall be per Section 670.60 of the Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact (despite fabric decay) and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed, as required, when construction work is complete and upslope areas have been permanently stabilized and after receiving permission to do so from the Engineer.

ITEM 767.121 (CONTINUED)

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, and nylon twine shall be removed and disposed off-site by the Contractor.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2-inch depth shall be left on soil substrate.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 767.9 JUTE MESH SQUARE YARD

The work under this item shall conform to the relevant provisions of Section 700 of the Standard Specifications and the following.

The work under this item shall consist of furnishing and installing jute mesh fabric to prevent soil erosion. Jute mesh shall be placed over all areas of exposed soil in locations shown on the plans or as required by the Engineer.

MATERIALS

Jute netting or similar material shall be new, unused, undyed, and unbleached 100% biodegradable yarn (no polypropylene) and of uniform plain weave. The materials should weigh approximately 1.0 (+/- 5%) pounds per linear yard (assuming a 4-foot width).

Shall meet the following minimum requirements:

Open Area:	70-75%
Mesh Size:	approximately 1/2 inch with an open area of 60-65%.
Roll Weight:	approximately 1.0 (+/- 5%) pounds per linear yard
Warp Ends:	78 per linear yard
Weft Ends:	41 per linear yard
Recommended flow:	6 fps (1.8 m/s)
Functional Longevity:	6-9 months

Anchoring devices shall be 11-gauge steel staples 6-inch minimum length. In loose soils the length of the staples shall be 9-inches.

For areas that will be routinely mowed anchoring devices shall consist of minimum 8” wooden stakes. Longer stakes shall be used where loose soils or other conditions obligate, as required by the Engineer.

CONSTRUCTION METHODS

Area shall be seeded prior to installation of jute netting.

Installation shall be such as to ensure continuous contact with soil without folds or wrinkles. Jute netting shall be laid such that upslope fabric is placed over lower slope fabric by a minimum of 3 feet. Adjoining rolls shall be overlapped a minimum 6 inches. The netting shall extend beyond at least 1 foot beyond the edge of the seeded area.

The Contractor shall bury the ends of the jute netting 6-8 inches in anchor trenches at top and bottom of slopes.

ITEM 767.9 (Continued)

Jute netting shall be anchored in place with vertically driven metal staples. The staples shall be driven in until their tops are flush with the soil. Staples shall be placed at 12-inch intervals along the top of a slope and in staggered courses along the face of the slope to achieve a minimum of 3 staples per square yard, or at manufacturer's recommendations for the given site conditions.

Contractor shall reseed all trenched and otherwise disturbed areas with specified seed mix. The Contractor shall maintain the jute netting and make satisfactory repairs of any areas damaged until acceptance of seed establishment.

METHOD OF MEASUREMENT

Jute Mesh will be measured by the number of Square Yards complete in place, including anchoring, as measured across the surface of grade and does not include buried or overlapped portions. The quantity measured for payment shall not exceed that shown on the plans or as directed by the Engineer.

Mesh that becomes loose or that is not otherwise functioning to stabilize soil shall be repaired and new or additional jute matting installed as required at the Contractor's expense. Soil erosion shall be repaired, and area shall be raked and reseeded with the original specified mix as required by the Engineer at the Contractors expense.

BASIS OF PAYMENT

Item 767.9 will be paid for at the contract unit price per Square Yard, which price shall include all labor, materials, equipment, trenching, placing, and stapling of jute fabric, reseeding of trenched and disturbed areas, and all incidental costs required to complete the work.

ITEM 767.901 SLOPE STABILIZATION SQUARE FOOT

GENERAL

The work under this item shall conform to the relevant provisions of Section 700 of the Standard Specifications and the following.

The work under this item shall consist of furnishing and installing Slope Stabilization to prevent soil erosion. Slope Stabilization shall be placed in locations shown on the plans or as required by the Engineer.

SUBMITTALS

Submittals: Shall be in accordance with MassDOT 2025 Standard Specifications, Section 5.0 Control of Work

Product Data: Submit most recent printed specifications and installation instructions from the manufacturer.

MATERIALS

Slope Stabilization cell grid shall be 6” depth

Slope Stabilization shall be manufactured by one of the following:

GEOWEB Slope Protection, as Manufactured by Presto GeoSystems.
670 N Perkins Street, PO Box 2399
Appleton Wisconsin 54912-2399
Phone: 1-800-548-3424
Website: https://www.prestogeo.com/products/soil-stabilization/geoweb-slope-protection/

CELL-TEK SlopeGrid, as manufactured by Cell-Tek Geosynthetics, LLC.
809 Barkwood Court, Suite M, Linthicum, MD 21090
Phone: 888-851-0051
Website: https://www.celltekdirect.com/slopegrid/applications/

ENVIROGRID GEOCELL, as manufactured by Geo Products, LLC.
12626 N. Houston Rosslyn Rd, Houston, Texas 77086
Phone: 281-949-4149
Website: https://www.geoproducts.org/base-stabilization

ITEM 767.901 (Continued)

CONSTRUCTION METHODS

Provide and install Slope Stabilization as per drawings and manufacturer's recommendations.

METHOD OF MEASUREMENT

Slope Stabilization will be measured by the number of Square Foot complete in place, including anchoring, as measured across the surface of grade. The quantity measured for payment shall not exceed that shown on the plans or as directed by the Engineer.

Slope Stabilization that becomes loose or that is not otherwise functioning to stabilize soil shall be repaired and new or additional material installed as required at the Contractor's expense. Soil erosion shall be repaired, and area shall be replanted with the original specified mix as required by the Engineer at the Contractors expense.

BASIS OF PAYMENT

Item 767.901 will be paid for at the contract unit price per Square Foot, which price shall include all labor, materials, equipment, trenching, placing, and anchoring of slope stabilizing material, planting of disturbed areas, and all incidental costs required to complete the work.

ITEM 812.09 LIGHT STANDARD FOUNDATION PRECAST EACH

GENERAL

The work under this item shall conform to the relevant provisions of Section 801, 813, and 820 of the MassDOT Standard Specifications and the following:

The work under this item shall include the furnishing and installation of concrete light standard foundation for street lighting system as shown on the plans, in accordance with the light pole manufacturer, and as directed.

MATERIAL

In accordance with Section 801.62 of the Standard Specifications, except deviations may be required based on field conditions. All deviations must be approved by the engineer prior to making any changes.

Light standard foundations should be placed per the plans and positioned using an approved grade. Precast concrete foundations shall include epoxy coated reinforcing, as shown on the plans, and per the manufacturer's Structural Engineer's recommendations. Confirm exact light fixture pole base anchor bolt requirements for size, length, projection, bolt circle diameter and pattern with the pole manufacturer prior to furnish and installation and install accordingly. Anchor bolts shall be hot dipped galvanized and j-hook style. Minimum foundation diameter and depth shall be as indicated on the plans. Furnish and install galvanized rigid metal conduit in foundation and coupling and plastic type NM conduit stub out over to adjacent handhole, as shown on the plans.

CONSTRUCTION METHODS

In accordance with the Standard Specifications.

METHOD OF MEASUREMENT

Light Standard Foundations will be measured for payment by each foundation installed. Light Standard Foundation Concrete will be paid for at the Contract unit price per each installed, which price shall be full compensation for all labor, materials, galvanized anchor bolts, galvanized nuts and washers, rigid metal conduit, plastic Type NM conduit, elbows, sweeps, compaction and leveling, excavation (except rock), backfilling and all incidental costs required for the work.

BASIS OF PAYMENT

This item will be paid for at the contract unit price per each.

ITEM 813.31	**WIRE TYPE 7 NO. 8 GENERAL PURPOSE**	**LF**
ITEM 813.33	**WIRE TYPE 7 NO. 4 GENERAL PURPOSE**	**LF**
ITEM 813.52	**WIRE TYPE 10 NO. 8 GROUNDING AND BONDING**	**LF**

GENERAL

The work under this item shall conform to the relevant provisions of Section 813 of the MassDOT Standard Specifications and the following:

The work under this item shall include the furnishing and installation of all materials, equipment, and labor necessary to completely wire and operate the street lighting system. All materials and wiring procedures shall conform to the specifications contained herein and to the requirements and standard practices of Section 800, and the following:

All wire and connectors shall conform to the standards of the National Electrical Manufacturers Association or the Underwriters' Laboratories, Inc., whichever is applicable. All materials and workmanship shall conform to the requirements of the National Electrical Code, Standards of the American Society for Testing and Materials, and any local ordinances that may apply. Wherever any reference is made to the standards mentioned above, the reference should be construed to mean the standard that is in effect on the day the Notice to Proceed to the Contractor for the work is dated.

Wire sizes shall be based on American Wire Gage (AWG), as applied to copper conductors.

MATERIAL

The conductor shall be composed of soft drawn 7-strand copper of the gauge shown on the drawings. The insulation shall be installed as a single jacket of cross-linked polyethylene of Underwriter's Laboratories Type USE-2 or RHH-2-RHW-2 rated at 90 degrees C continuous in wet and dry locations, 600 volts as per the National Electrical Code.

#8 AWG ground conductor shall be bare copper as specified in M8.16.10 of the MassDOT standard specifications.

Wire and cable furnished and used shall be new and shall have the size, grade of insulation, voltage and manufacturer's name permanently marked on the outer covering at regular intervals. Wire and cable shall be delivered to the site in complete coils or reels with identifying size, type SS-111 and insulation tags. Wire and cable shall be protected from weather and damage during storage and handling.

ITEM 813.31, 813.33, 813.52 (CONTINUED)

CONSTRUCTION METHODS

In accordance with the Standard Specifications.
Splicing shall be in accordance with the contract drawings and the MassDOT standard specifications. All splices shall be suitable for wet locations, including splices in pole bases and load centers. Use of wire nuts is prohibited. Connections in the pole top shall be with insulated pressure connectors.

No wire shall be drawn in to any conduit until all work that may cause damage to the wire is complete.

All wire shall be continuous from light pole to light pole without running splices in conduits or handholes. Splices are prohibited in handholes except ground conductor. All wire terminals, taps and splices shall be made secure with connectors, splicing materials and methods as hereinafter specified.

All incoming wires and outgoing wires in highway lighting load centers, handholes and poles shall be banded as indicated on the contract drawings.

METHOD OF MEASUREMENT

The work of this section shall be measured by the linear foot along the center line of the conduit in which the conductor is placed. No allowance will be made for the necessary lengths of slacked cable laid around the sides of manholes, handholes, junction boxes, pull boxes, or extending from foundations for making splices, taps in cable, and connecting the internal components of control cabinets. No allowance will be made for cable in controllers, light poles or other items other than conduit.

BASIS OF PAYMENT

Payment will be made unit price by the linear foot which price shall constitute full compensation for furnishing, installing and connecting the street lighting cables, the grounding of the system, testing the lighting circuit wiring, grounding wire testing, and for furnishing any equipment and/or materials required.

The cost of any maintenance necessary to include testing, replacement of lamps, luminaires, wiring splices, grounding, and all appurtenances, except electrical energy, shall be at the Contractor's expense and will be considered as included in the price paid for the contract item involved and no additional compensation will be allowed therefore.

ITEM 815.1 TRAFFIC CONTROL SIGNAL LOCATION NO. 1 LUMP SUM

GENERAL

The work to be done under this item consists of furnishing and installing traffic control signals in accordance with the applicable portions of Section 815; TRAFFIC CONTROL DEVICES, as amended and supplemented herein, at the following location

- Location No. 1 Santilli Circle Connector at approximate Station 35+32

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Subsection 815.20.

No work shall be commenced by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing the materials and workmanship conforming to the plans and specifications.

The Contractor shall deliver to the Engineer a certificate of compliance for all traffic signal equipment, from the manufacturer, certifying that all materials purchased from the manufacturer are new material.

SCOPE OF TRAFFIC SIGNAL WORK

The work to be done under these items consists of furnishing and the installation of new traffic control signal system, complete with signal posts, signal heads, mast arm assemblies, controller, cabinet, foundations, wire and cable, electrical service connections and all other equipment, materials and incidental costs necessary to furnish, install and program a complete and functioning traffic control system as specified and as shown in the contract documents.

All work under these items shall conform to the relevant provisions of Section 800 of the Standard Specification, the 2009 Manual on Uniform Traffic Control Devices (MUTCD), and the following technical provisions:

MATERIALS

All work and materials shall conform to the relevant provisions of the *Standard Specifications for Highways and Bridges*, MassDOT, 2025 as specified herein.

The work consists of construction of the traffic control signal at the following location:

LOCATION #1 SANTILLI CIRCLE CONNECTOR @ APPROX. STA. 35+32

ITEM 815.1 (CONTINUED)

The work shall include the furnishing and installation of all or part of the following items at the location (and as listed further on the Major Items list on the plans):

- The traffic signal controller cabinet, pole mounted;
- (1) 35-foot Mast Arm and foundation
- Traffic signal controller, back panel, Malfunction Management Unit, Bus Interface Unit, load packs, relay flashers, grounding rod, police panel, and all wiring and appurtenances to complete the installation;
- Traffic signal post and pedestals and post foundations;
- Signal heads, backplates, and tunnel visors;
- Countdown pedestrian signals, audible pedestrian push buttons, signs, and saddles;
- All pull boxes (for signal cable);
- All cable and wiring (signal cable);
- Ground rods, equipment grounding and bonding;
- Service connection (overhead); and,
- All other equipment, materials, and incidental costs necessary to provide a complete, fully operational traffic signal system as specific herein and as shown on the plans.

A list of required major traffic signal system items is included on the plans. All equipment installed shall be listed on the MassDOT "Approved Equipment List".

The Contractor shall provide all labor, equipment and material required for the total maintenance of all existing and proposed temporary and permanent traffic signal control equipment within the project limits, including damage by automobile accidents, unless otherwise specified.

The Contractor should be aware that there are electric lines and that their attention should be directed to the OSHA Guide on Occupational Safety on Highway Construction Projects, Subpart N. 1926.550, No. 15, relating to construction equipment clearances at overhead electric lines, which states that the minimum clearance between the lines and any part of the crane or load shall be at least 10 feet from lines rated 50 KV or below, and greater distance for higher voltage.

ITEM 815.1 (CONTINUED)

Disposal of existing equipment shall be as specified in the Standard Specifications, except as modified herein.

The Contractor shall coordinate work with the local utilities to adjust, rebuild, reset or relocate all private utilities required by the scope of work and as directed by the Engineer. No additional compensation or extension of time shall be granted to the Contractor due to any delays that may result from failure to relocate utilities in a timely fashion.

PEDESTRIAN HYBRID BEACON SERVICE CONNECTION

The project requires electric connection services from the existing overhead power lines on Santilli Circle Connector as shown on the plans. The Contractor shall coordinate and cooperate with Eversource Electrical Utility Group "A" to complete the installation of this service. All notification permits, and installation fees required by Eversource Electrical Utility Group "A" in connection with the installation of the electric service shall be the responsibility of the Contractor.

This work shall consist of Eversource Electrical Utility Group "A" furnishing and connecting power at the locations provided in the plans. Eversource Electrical Utility Group "A" will connect and disconnect power as required. No work shall be done in manholes or on power poles without a representative of the Eversource Electrical Utility Group "A" being present. The Contractor will be responsible for coordinating the Eversource Electrical Utility Group "A" work.

The overhead service connection for the PHB at Location No. 1 at approximate station 34+76 shall be made to Utility Pole #216-90.

Power service wire conductors shall be minimum standard copper No. 6 AWG. As part of the service connection the Contractor shall determine and provide the exact wire size used for power supply to the PHB which shall be based on standard NEC approved voltage drop calculations with a maximum of 3% drop allowed for the distance of the power supply run. All power supply cable shall be labeled and approved for use by the power provider.

The Contractor shall install the power conduit and install the riser on the utility pole and provide and install all remaining electrical appurtenances, devices, and components according to the Eversource Electrical Utility Group "A" connection requirements. The Contractor shall furnish and install all service equipment to the satisfaction of the electric utility company.

For overhead connections, Eversource Electrical Utility Group "A" will make the connection from the top of the riser on the utility pole to the power source.

ITEM 815.1 (CONTINUED)

The Contractor shall supply all labor, materials and equipment to install the service connection, complete in place and in accordance with Eversource Electrical Utility Group "A" procedures, from the controller cabinet to and including the riser with enough wire coiled above the riser to permit Eversource Electrical Utility Group "A" to make the service connection. The Contractor shall provide Eversource Electrical Utility Group "A" approved handholes (Polymer Concrete) and shall have a 6" layer of ¾" crushed stone (M2.01.4) under the handhole for drainage.

It shall also be the Contractor's responsibility to pay all charges to Eversource Electrical Utility Group "A" for performing this work. No direct reimbursement will be made under this contract to the Contractor for payments made to Eversource Electrical Utility Group "A", it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract bid prices, This shall include conduit for the power supply, utility pole risers, weatherheads and temporary power supply until the intersection has been accepted by MassDOT.

Maintenance of Traffic Signals

The cost of maintenance of temporary and proposed signals, including temporary service connection if required, shall be deemed to be included in the various traffic signal contract items, and no additional payments shall be made therefore, except as provided by Subsection 7.17 of the Supplemental Specifications as amended.

SHOP DRAWINGS

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Subsection 815. Shop Drawings for all traffic signal control equipment used on the project shall be provided to both the Engineer, Designer, and MassDOT for review and approval prior to ordering any equipment.

No work shall be commenced by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship conforming to the plans and specifications.

The Contractor shall deliver to the Engineer a certificate of compliance from the manufacturer for all materials purchased to certify the use of new materials.

The Contractor's attention is directed to specific requirements record keeping included in the MassDOT Standard Specifications.

ITEM 815.1 (CONTINUED)

ADVANCED TRANSPORTATION CONTROLLERS (ATC)

The traffic controllers supplied shall conform with section M10.01.0 in the 2025 *Standard Specification for Highways and Bridges*, MassDOT, and the following:

As a minimum, the ATC controllers shall be supplied and installed with the following functionality:

- Shall be an Advanced Transportation Controller compliant with ATC 5201 v06.25. The controller shall be shelf mounted and support NEMA TS2, type 1 and NEMA TS2, type 2 and ATC/SIU cabinet interfaces.

At any time that operating software updates are released by the Controller Unit manufacturer, they shall be made available to the MassDOT District 6 Traffic Engineer within a reasonable time period. Software updates by the Controller Unit manufacturer shall be made available to MassDOT for the operating life of the original Controller Unit product at no additional cost to MassDOT except as expressly identified in the Contract documents. A manufacturer or manufacturer's representative support engineer shall be identified as the technical point of contact for the resolution of specific field operational issues including controller and detection related events that are encountered during the execution of this project. The controller unit shall log which user installed the updates and provide a rollback feature to go back to the previous version in the event the update is not compatible with other system elements.

ADVANCED TRANSPORTATION CONTROLLER CABINET (ATCC)

Controller cabinet assemblies shall be a shelf mounted version of the Advanced Transportation Controller Cabinet (ATCC) compliant with MassDOT Standard Specifications Section M10.01.2. The cabinet interior and exterior shall be aluminum.

CONFIGURATION TABLE							
Item Number	Cabinet Type	Nominal Cabinet Size (HxWxD)*	Output Channels	Switch Back Positions	Flash Transfer Relays	Input Channels	CMU/ADU (Channels)
815.1	Caltrans 336S Side-of-Pole Mounted	46x24x23	16	8	8	24	32 channels

*Cabinet Dimensions are provided in inches.

ITEM 815.1 (CONTINUED)

The controller cabinet shall be side-of-pole mounted cabinet and oriented in a manner in which the inside of the cabinet and the intersection are visible for the technician working in the cabinet. The cabinet controller foundation as well as all other traffic signal equipment shall not restrict the dimensions of the sidewalk or crosswalk so that passage by physically challenged pedestrians is obstructed. All ADA clearances shall be maintained.

The proposed cabinet layout and bolting dimensions shall be submitted to the Engineer for approval prior to fabrications.

All equipment installed within the controller cabinets shall be compliant with existing, approved, state and national standards.

The traffic signal control equipment shall be enclosed within a dust and moisture-proof aluminum housing with an auxiliary door in door feature. The door hinge pins shall be made of stainless steel. All cabinets shall be configured to eliminate arc flash. All electrical equipment shall be dead front, no open terminals, busbars, breakers, or exposed terminal strips. All cabinet switches and circuit breakers shall be permanently labeled as to function. The cabinet shall be designed, constructed, and installed with all necessary provisions to comply with the latest NFPA 70E requirements. The Contractor shall provide a compliance certification stating that the cabinet supplied as part of this project meet NFPA 70E requirements. All electrically live parts over 50 volts shall be covered with Lexan or a suitable physical barrier to eliminate the possibility of arc flash.

Controller cabinet equipment installed shall conform to Section 11, Environmental and Testing Requirements, Advanced Transportation Controller (ATC) Cabinet Standard Version 2 (ATC 5301 v02.02)

All controller cabinets shall be electrically bonded and grounded to meet all relevant Federal, State and MassDOT requirements for cabinet grounding and bonding. Electrical testing of the grounding system at this location shall be performed by the Contractor in the presence of the Engineer prior to prior to final acceptance. The Contractor shall install an additional ground rod in an adjacent handhole if the maximum value of 25 ohms to ground is not present.

The Contractor shall inform the appropriate agencies one week prior of work of the potential disruption in service which may occur due to the installation of the proposed cabinet.

Cabinet Doors - Controller cabinet doors shall conform to MassDOT Standard Specifications Section M10.01.2.

Extension Bases - The controller cabinet to be provided and installed on this project will require a 6” high riser aluminum base.

ITEM 815.1 (CONTINUED)

Internal Cabinet Lighting and Door Status Switches- Controller cabinet lighting and door status switches shall be compliant with MassDOT Standard Specifications Section M10.01.2.

Cabinet Fan - Controller cabinet fan shall be compliant with MassDOT Standard Specifications Section M10.01.2.

Cabinet Power - Cabinet power shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Pull-Out Drawers - Controller cabinet pull-out drawers shall be compliant with MassDOT Standard Specifications Section M10.01.2.

Back of Door Documentation – Back of door documentation shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Input and Output Channels – The P1 ATC Cabinet shall be supplied with 16 output channels and 24 input channels. The input channel assemblies shall consist of one 24 channel unit. The output channel rack assembly shall consist of one 16 channel unit.

Electric meter trim shall be compliant with M10.01.0.

CABINET ENCLOSURE SHALL CONFORM TO M10.01.2 STANDARD ATC CABINET DEVICES

Cabinet Monitor Unit (CMU) and Auxiliary Display Unit (ADU)

Cabinet Monitor and Auxiliary Display Units Documentation shall be compliant with MassDOT Standard Specifications Section M10.01.0.

GFI Duplex Outlets

GFI duplex outlets shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Manual Override (Police Control Button)

The Contractor shall provide and install a fully wired, environmentally sealed momentary contact (push button) hand-held switch which shall be supplied with a coiled cord that will extend approximately 6 feet, in the proposed controller cabinet. Provision shall be made for neat cord and hand-held switch storage within the police panel. This hand-held switch and retractable cord shall be permanently wired and shall not be plugged-in removable.

ITEM 815.1 (CONTINUED)

Manual operation of the controller shall provide the same color sequence as was programmed for the automatic operation. The duration of all intervals, except the yellow vehicle and red vehicle clearance interval, shall be controlled by operation of the remote manual control switch.

Duration of the yellow interval and red clearance interval shall be the time specified to be programmed in the controller unit.

Detector Test Switch Panels – Detector test switch panel shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Cabinet Power Supply – Cabinet power supply shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Flasher – Flasher shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Flash Transfer Relay – Flash transfer relay shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Surge Suppression – Surge suppression shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Serial Interface Units – Serial interface units shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Switch Packs – Switch packs shall be compliant with MassDOT Standard Specifications Section M10.01.0.

Software - All equipment in the controller cabinet that includes licensed software shall be supplied with the latest available revision. Any software upgrades released by the manufacturer shall be supplied at no charge to the Owner for a period of five years after acceptance of the traffic signal installations.

TRAFFIC SIGNAL POSTS & BASES

Square transformer bases to be used shall be an iron mold casting. Hardware shall include templates, ¾ inch anchor bolts, nuts, washers, and shims. The height of base shall be approximately 15 inches, and the height of the base is included in the height of the shaft. The bottom of the base shall be designed for anchorage on a 12-inch wide square. The posts shall be steel. Bases shall be provided with a door opening and an iron door, complete with a cap screw fastening device and a tapped hole for a grounding lug.

ITEM 815.1 (CONTINUED)

MAST-ARM ASSEMBLIES

All mast arm assemblies shall be Type II, conforming to the "Overhead Signal Structure and Foundation Standard Drawings", December 2015. The length of mast arm shaft shall be according to the plans.

The Contractor shall furnish to the Engineer design calculations and weld details for the pole selected. Design calculations shall be submitted with the Shop Drawings. All drawings and calculations shall be stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. Only poles of prequalified manufacturers shall be used. A list of prequalified manufacturers can be obtained from the Bridge Engineer of the Massachusetts Department of Transportation (MassDOT) or can be found at the MassDOT link shown below:

https://www.mass.gov/massdot-approved-fabricators

Per MassDOT standards, signs are not permitted to hang from the mast arms. All signs mounted on the mast arms shall be bolted through the sign face. Signs mounted on the mast arm shaft shall have proper mounting brackets that meet MassDOT guidelines.

Mast Arm Foundations

The Contractor shall be responsible for constructing the foundations in accordance with the recommendations noted on the plans, the MassDOT Standard Specifications, and details based on the boring logs.

Mast arm foundations shall not obstruct a sidewalk. Mast arm foundations shall be constructed in conformance with MassDOT's Overhead Signal Structure & Foundation Standard Drawings, dated December 2015 and Engineering Directive E-16-001 dated 01/29/2016.

All shop drawings and calculations shall be stamped by a Professional Engineer registered in Massachusetts and provided to the Engineer and designer for approval prior to constructing.

Based on the soil boring logs and the blow counts, the foundations shall be to the depths noted below. During construction of the cored pier foundation (drilled shaft), a temporary casing, that will be removed when concrete is placed, will be required to prevent collapse of the fill and sand. Drilling for the pier foundation is anticipated to encounter cobbles and possibly boulders.

When the drilling operations are complete, concrete should be placed inside the casing as soon as possible. The concrete should be placed using a tremie pipe. It is recommended pouring the pier foundation concrete on the same day that the pier is drilled. See submitted plans for soil boring logs.

ITEM 815.1 (CONTINUED)

All mast arm pole foundations shall be cored pier foundations and constructed in conformance with 2015 MassDOT Overhead Signal Structure and Foundation Standard Drawings and priced per Table No. 1 provided below.

TABLE 1

Boring No.	Mast Arm Length	Station	Offset	Foundation Diameter (In Soil)	Foundation Depth	Vertical Bars
MA	35’	35+62	30.48’ RT	3’-6”	35’-0”	#5 @ 8”

If ledge or unsuitable soil is encountered (i.e., on which does not apply to the design tables shown in MassDOT’s standard drawings), or approved mast arm drawings require a non-standard foundation, an alternative design shall be provided by the Design Engineer. If utilities or other underground obstructions are encountered, the Contractor shall backfill the area to its original condition until an alternate design has been provided by the Design Engineer and approved by MassDOT.

No separate payment will be made for work considered incidental to the excavation, including but not limited to, mast arm foundations, dewatering, etc. but all costs in connection therewith shall be included in the lump sum bid prices.

The Contractor shall request written approval from the Resident Engineer before the placement of any concrete for foundations of strain poles, mast arms, signal posts, and cabinets. Anchor bolts shall be set accurately, and tops shall be formed neatly. The top forming shall extend downward for a minimum of 12 inch on the side of any foundation. The lower portions of all foundations may be poured directly against undisturbed earth or may be formed at the option of the Engineer.

When located within a sidewalk, foundations shall be located at finished grade as to not obstruct an accessible path so that passage by physically challenged persons is not obstructed.

Traffic Signal Cable

All signal cable connections in the bases of signal poles, posts, and cabinet shall be made by means of appropriate terminal blocks. These blocks shall be completely furnished and installed on terminal block mounting strips in bases. All cable shall comply with Subsection 813 of the Standard Specifications.

ITEM 815.1 (CONTINUED)

MATERIALS

All mast arm poles and arms, traffic signal posts and pedestals shall be galvanized steel, and shall be designed in accordance with the AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals," 2013 Edition with 2015 Interim. All mast arm poles and arms, traffic signal posts and pedestals shall be painted black. Controller cabinets shall **NOT** be painted.

VEHICULAR SIGNAL HEADS

Vehicle signal housings shall be made of die cast aluminum alloy, be a 3-section, 12-inches Hybrid Beacon Configuration and have powder coated federal yellow finish. The outside of the tunnel visors shall powder coated federal yellow finish and the inside of the visors and backplates shall be dull black finish. Tunnel visors shall be in accordance with Institute of Transportation Engineers (ITE) "Vehicle Traffic Control Signal Heads (1985), or most recent version." All backplates shall be aluminum non-louvered with a dimension of 5 inches from the edge of the opening to the backplates outer edge and shall be constructed of anodized half hard aluminum sheet 0.060-in. nominal thickness. Backplates shall have a dull black finish and shall be a one-piece unit that is sized to fit the configurations shown in the plans. All backplates shall include 3-inch wide, yellow reflective micro-prismatic retroreflective sheeting conforming to ASTM D4956 Type VIII or better on the outside edge of the backplates.

TRAFFIC SIGNAL AND PEDESTRIAN LED MODULES

The LED module shall be an approved item from MassDOT's Qualified Traffic Control Equipment (QTCE). The LED module shall have approval from the MassDOT Traffic Control

Products Approved Equipment Committee and be included on the Traffic Control Products List prior to the date of this contract.

See the Department website:

https://www.massdot.state.ma.us/highway/DoingBusinessWithUs/ApprovedMaterialsandFabricators/QualifiedTrafficControlEquipment.aspx

To prevent the LED module warranty from being voided, the connecting leads on the module shall not be cut. The original LED module leads shall be connected to the signal head terminal block as continuous wire without splices. All circular units shall be supplied with a 40-inch-long pigtail and all arrow units shall be supplied with a minimum 60-inch-long pigtail.

ITEM 815.1 (CONTINUED)

The LED signal module will be replaced or repaired by the manufacturer if it exhibits one of the following:

1. A failure due to workmanship or material defects within the first 60 months of field operation.

2. A greater than 40 percent light output degradation or a fall below minimum intensity levels (as defined by the latest ITE performance specifications) within the first 36 months of field operation.

All signal displays shall be equipped with LED signal modules. All red, amber, green and pedestrian signal housings with the exception of optically programmed and fiber optic housings and shall conform to the following where applicable:

- ITE Publication ST-054, Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Arrow Traffic Signal Supplement. Arrow LED's shall be "Omni-Directional" which allows unit to be oriented in any direction. The power requirement for arrow indications shall be no more 13 watts.

- ITE Publication ST-052-E, Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED,) Circular Signal Supplement. The power requirement for 12-inch circular indications shall be no more 13 watts and the requirement for 8-inch circular indications shall be no more than 7 watts.

- ITE Publication ST-055-E, Pedestrian Traffic Control Signal Indicators, Light Emitting Diode (LED) Signal Modules.

- The unit shall be sealed against dust and moisture intrusion and conform to MIL-STD-810H, Method 506.6.

- The manufacturer, model number and the date of manufacture shall be clearly marked.

MOUNTING SIGNALS

Signals shall be rigidly mounted by means of galvanized cable clamps, or approved equivalent. All signal heads mounted overhead on mast arms shall be installed, with the bottom of the signals at the same height. The Contractor shall modify any signal head location that is visibly obstructed to a motorist or pedestrian by overhead street light posts or other obstructions as determined by the Engineer.

ITEM 815.1 (CONTINUED)

PEDESTRIAN SIGNAL HEADS/PUSH BUTTONS

The housings shall be LED Type. All pedestrian signal heads shall have full overlay symbol Hand/Man graphics as shown on the plans. The pedestrian signal head shall be a 16" x 18"-inch single bimodal section LED type with Count Down Timer. The outside of the visors shall be painted powder coated federal yellow finish and the inside of the visors and backplates shall be dull black finish.

A maximum mounting height of 42 inch above the finish sidewalk grade shall be used for pedestrian push buttons and shall meet ADA/AAB requirements. Pedestrian push buttons shall be accessible, meet current ADA/PROWAG requirement and provide the following features.

The Accessible Pedestrian Signal (APS) system shall include a power supply and control unit which installs in the traffic controller. The push button activation shall trigger a latching LED, sound and vibro-tactile bounce. A locator tone with a nominal duration of 0.15 seconds repeated at 1 second intervals shall be provided which automatically adjusts to ambient background noise.

The button shall vibrate, and a speech message shall be provided during the walk. The speech message shall be audible from the beginning of the associated crosswalk and shall be "Walk sign is on." The speech message shall comply with PROWAG Section R308.3.2. All sounds shall automatically adjust to ambient background noise. Sounds shall have independent settings for minimum and maximum volume in compliance with PROWAG Section R308.4. Legend on the pedestrian sign shall be "Push Button Wait For Walk Signal" in text and in Braille or in raised letters. An arrow(s) shall be provided to be faced in the direction of the pedestrian crossing. The unit shall be designed to operate at temperatures from minus 40°F to 150°F.

DIAGRAMS AND MANUALS

Wiring and schematic diagrams, descriptive parts, lists, and instructions and maintenance manuals shall be provided for all items furnished under these specifications. Ten (10) complete sets of diagrams, manuals and pertinent information shall be furnished with each contract.

CONSTRUCTION METHODS

Once construction begins within the project area, the Contractor shall be responsible for the operation and maintenance of the existing traffic signal and pedestrian system at each location. The Contractor shall provide temporary pedestrian and vehicle signals with all required equipment to power and operate if a mid-block crossing is to be introduced. The Contractor is responsible for the cost of electricity for each traffic signal for the duration of the work until the acceptance of the work by MassDOT.

ITEM 815.1 (CONTINUED)

The Contractor shall be required to keep records of dates when traffic signal posts are installed and when traffic signals are put on flashing and stop and go. These records shall submitted to the Engineer by the first of each month.

The Contractor's attention is directed to the necessity of making his own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, etcetera, will occur.

METHOD OF MEASUREMENT AND BASIS ON PAYMENT

The work under Item Numbers 824.41 will be paid for at the respective Contract LUMP SUM price, which price shall include all labor, material, equipment, temporary traffic signal equipment and incidental costs required to complete work as shown on plans.

The 3" PVC electrical conduit shall be paid for under Item 804.3. The 12" x 12" Pull box shall be paid for under Item 811.31.

The 12" x 24" Electric Handhole shall be paid for under item 811.22.

ITEM 816.01 TRAFFIC SIGNAL RECONSTRUCTION LUMP SUM

LOCATION NO. 1

GENERAL SCOPE

The work to be done under this item consists of reconstructing Traffic Signal Control Devices in accordance with the applicable portions of Subsection 815; TRAFFIC CONTROL DEVICES, as amended and supplemented herein, the Plans and these Special Provisions.

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Subsection 815.20.

No work shall be commenced by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing the materials and workmanship conforming to the plans and specifications.

The Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer.

MATERIALS

A. All work and materials shall conform to the relevant provisions of the 2025 *Standard Specification for Highways and Bridges*, MassDOT, and as specified herein.

The Contractor shall be responsible for verifying that the attached standard specifications and drawings included herein are current.

The work consists of reconstruction of existing traffic control signals at the following intersection:

a. Location No. 1 – Santilli Highway at Santilli Circle (MassDOT)

The work at the signalized intersection shall adhere to the respective agency standards.

The work shall include the furnishing and installation of all or part of the following items:

1. Traffic signal post foundations with anchor bolts at Location 1.
2. Signal post and pedestals at Location 1.
3. Signal heads w/ non-louvered backplates, reflective tape and cut away visors at Location 1.
4. Countdown pedestrian signals, audible pedestrian push buttons, signs, and saddles at Location 1.
5. All cable and wiring (signal cable and loop detection) at Location 1.

ITEM 816.01 (CONTINUED)

6. Breaks into existing handholes at Location 1.

7. Modifications to controller phasing and timings at Location 1.

A list of required major traffic signal system items is included on the plans. All equipment installed shall be listed on the MassDOT "Approved Equipment List."

The Contractor is required to coordinate work with the local utilities to adjust, rebuild, reset or relocate all private utilities required by the scope of work and as directed by the Engineer. No additional compensation or extension of time shall be granted due to any delays that may result from failure to relocate utilities in a timely fashion.

The Contractor's attention is directed to the Occupational Safety and Health Administration (OSHA) Guide on Occupational Safety on Highway Construction Projects, Subpart N 1926.550 relating to construction equipment clearances when overhead electric lines are present. There are overhead electric lines throughout the project limits and OSHA Laws and Regulations state that the minimum clearance between the overhead electric lines and any part of a crane or load shall conform to OSHA – Table A.

Table A

Voltage (nominal, kV, ac)	Minimum clearance distance (ft)
up to 50	**10**
over 50 to 200	**15**
over 200 to 350	**20**
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	Established by the utility owner/ operator or registered professional engineer

Disposal of existingequipment shall be as specified in the Standard Specifications, except as modified herein.

The Contractor shall provide all labor, equipment and material required for the total maintenance of all existing and proposed temporary and permanent traffic signal control equipment within the project limits, including damage by automobile accidents, unless otherwise specified.

The Contractor shall coordinate work with the local utilities to adjust, rebuild, reset or relocate all private utilities required by the scope of work and as directed by the Engineer. No additional compensation or extension of time shall be granted to the Contractor due to any delays that may result from failure to relocate utilities in a timely fashion.

SHOP DRAWINGS

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Section 815.20.

ITEM 816.01 (CONTINUED)

No work shall be commenced by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship conforming to the plans and specifications.

The Contractor shall deliver to the Engineer a certificate of compliance from the manufacturer for all materials purchased to certify the use of new materials.

SUBMITTALS

- Catalog cuts for all traffic signal control equipment used on the project shall be provided to the Engineer from MassDOT and the City of Everett or their designees for review and approval prior to ordering any equipment.
- The Contractor shall provide to the City of Everett City Engineer or designee any and all documents and submittals relative to traffic signal installation procedures and testing of traffic signal equipment outlined therein.

VEHICULAR SIGNAL HOUSINGS

Vehicular signal housings shall be 12-inches and shall conform to Section 800 and MassDOT 2022 Standard Specifications for 8 and 12 – inch Vehicular Signal Housings. Cut-away visors shall be in accordance with Institute of Transportation Engineers (ITE) "Vehicle Traffic Control Signal Heads (1985), or most recent version."

All vehicular signal housings shall contain light emitting diode (LED)signal indications, which shall conform to MassDOT Specifications for Light Emitting Diode (LED) 12" Vehicle Traffic Signals, dated September 30, 2005. Five-inch black non-louvered backplates with a three-inch retroreflective strip shall be provided on all signal heads as noted on the plans. Vehicular signal heads shall be painted as follows:

Owner	Vehicular Display – Outside	Vehicular Display – Face	Visor-Outside	Visor-Inside	Backplates
MassDOT	Black	Black	Black	Black	Matte Black

WARRANTY- LED SIGNALS

The LED signal module will be replaced or repaired by the manufacturer if it exhibits a failure due to workmanship or material defects within the first 60 months of field operation.

ITEM 816.01 (CONTINUED)

The LED signal module will be replaced or repaired by the manufacturer if it exhibits either a greater than 40 percent light output degradation or a fall below the minimum intensity levels within the first 36 months of field operation.

MOUNTING SIGNALS

Signals shall be mounted by means of cable type hardware, or approved equivalent. Approved signal mounting products shall be approved and included on the MassDOT Approved Product List. Signal Mounting products that include banding are not allowed.

All signal heads mounted overhead on mast arms shall be installed, with the bottom of the signals at the same height. The Contractor shall modify any signal head location that is visibly obstructed to a motorist or pedestrian by overhead street light posts or other obstructions as determined by the Engineer.

PEDESTRIAN SIGNAL HOUSINGS/PUSH-BUTTONS

The pedestrian signal housings shall be a 16" x 18" single bimodal section LED Type that includes a countdown timer. Pedestrian signal housings shall be included on the MassDOT Traffic Signal Approved Product List to be included on this project. Pedestrian signal heads shall be painted as follows:

Owner	Pedestrian Display - Outside	Pedestrian Display - Face	Visor-Outside	Visor-Inside
MassDOT	Black	Black	Black	Black

Pedestrian pushbuttons shall meet ADA/AAB/PROWAG requirements and shall be mounted no more than 42" above finished sidewalk grade. Pedestrian pushbuttons shall beaccessible and provide the following features.

The Accessible Pedestrian Signal system shall include a power supply and control unit which is installed in the traffic controller cabinet. Pushbutton activation shall trigger a latching LED sound andvibro-tactile bounce. A locator tone with a nominal duration of 0.15 seconds repeated at 1 secondintervals shall be provided which automatically adjusts to ambient background noise. The button shall vibrate, and a tone shall be provided during the walk display as indicated on plans or as directed by the engineer. All sounds shall automatically adjust to ambient background noise. Sounds shall have independent settings for minimum and maximum volume.

Legend on the pedestrian sign shall be "Push Button Wait For Walk Signal" in text and in Braille or in raised letters. An arrow(s) shall be provided to be faced in the direction of the pedestrian crossing. The unit shall be designed to operate at temperatures from - 40° F to 150° F.

ITEM 816.01 (CONTINUED)

DIAGRAMS AND MANUALS

Wiring and schematic diagrams, descriptive parts, lists, and instructions and maintenance manuals shall be provided to the Engineer for distribution as well as all items furnished under these specifications. Tables, charts or data for use in designing loops of various sizes and configurations, other than specified below, shall be provided. Ten (10) complete sets of diagrams, manuals and pertinent information shall be furnished for each intersection.

CONSTRUCTION METHODS

The Contractor shall be required to keep records of dates when traffic signal posts are installed and when the operation of the traffic signals is transferred from flashing mode to stop and go or stop and go mode to flashing mode. These records are to be submitted to the Engineer on the first of each month.

The Contractor shall coordinate work with local utilities to adjust, rebuild, rest, or relocate all private utilities required by the scope of work and as directed by the Engineer. No additional compensation or extension of time shall be granted due to any delays that may result from failure to relocate utilities in a timely fashion.

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etcetera, will occur.

The Contractor shall notify Massachusetts DIG SAFE and procure a Dig Safe Number for each location prior to disturbing existing ground in any way. The telephone number of the Dig Safe Call Center is 1-888-344-7233.

Vehicle Detection

Wire loop detectors shall be installed in the roadway for vehicle detection. In advance of the loop detector installation, the Contractor shall mark, on site, the loop detectors with any changes required by field conditions such as manholes. The loop detector layout shall be inspected and approved by the Engineer before the loop detectors are installed.

All wire loop detectors shall be installed prior to final paving.

Loop wire shall be encased in a protected plastic tubing of PVC or polyethylene plastic, IMSA 5l-5,6.25mm outside diameter, and the wire may have cross-linked polyethylene insulation or it may have THHN/THWN insulation.

Splicing insulator shall be an approved re-enterable rigid body splice kit with a non-hardening sealing compound compatible with the wire insulation.

ITEM 816.01 (CONTINUED)

Splicing and connection shall be made in the pull box nearest the roadway loop sensor but not exceeding four loops per pull box. All loops included in a detector group as shown on the plans shall be spliced in a single pull box. Each lead and lead-in connector shall be stripped back and spliced using a pressure type wire connector applied with a crimping tool. Multiple loop sensors shall be identified as detailed on the plans.

Lead-in splicing shall be staggered to prevent contact with each other. Each crimped splice shall be soldered and insulated. The insulation material shall be heat-shrinked polyolefin. The shielded lead-in cable outer jacket and shield shall be stripped back sufficiently to ensure that the shield cannot come into contact with the spliced conductors. Follow the instructions of the kit manufacturer for this procedure when installing the re-enterable splice kit.

The splice shall be done on the day of the loop wire installation to prevent the entrance of any moisture into the plastic tubing.

The lead-in conductors shall be connected to the appropriate terminals in the controller cabinet, by using crimped or soldered terminal ends. The heat source for soldering shall be electrical not exceeding 30W capacity.

Testing of Loops - The following test procedure shall be performed in the presence of the Engineer before and after the loop sensor is sealed in the pavement as detailed below. The cost of equipment, labor, and materials to perform such testing and similar re-testing following repairs, replacement, or adjustment of any detector within the project area shall be included in the contract unit prices for these Items.

After installation of wire loop sensors in the roadway and installation of shielded lead-in connecting the loop sensors to the controller cabinet each loop sensor and lead-in combination shall be tested (at the controller cabinet) for proper installation. The resistance from lead to lead of the same loop shall not exceed three (3) ohms per three hundred (300) meters as measured by a high quality meter suitable for measurements of flow resistance in the range of 1 to 6 ohms.

A megohm meter test at 500 volts DC shall be made between the two leads of a loop/lead-in combination temporarily spliced together, butotherwise disconnected from all terminals, and the shield drain wire and the earth ground connection. These resistances shall be at least one hundred (100) megohms.

A megohm meter test at 500 volts DC shall be made between lead-in shield and the earth ground rod. This resistance shall be at least one hundred (100) megohms.

The meter used for these tests shall be checked for calibration each day of use by using a resistor block of ±5% resistors simulating loads of 1 megohm, 20 megohm and 100 megohms. The observed meter reading shall be ± 10% of the nominal resistor load.

If any loop sensor and lead-in combination fails to pass any one of the four (4) tests, it shall be repaired and then re-tested on two occasions at least two (2) weeks apart, and then shall pass on each re-test occasion. If the loop sensor lead-in combination does not pass all these re-tests, a new loop sensor and/or lead-in shall be installed, and shall pass these tests, at no additional cost.

ITEM 816.01 (CONTINUED)

After the above tests have been satisfactorily completed, all loop sensor/shielded lead-in inductances shall be measured and a written report of the results shall be filed with the Engineer and a copy stored with the "box prints" at the intersections.

METHOD OF MEASUREMENT and BASIS OF PAYMENT

The work under Item 816.01 will be paid for at the respective Contract lump sum prices, which prices shall include all labor, material, equipment, and incidental costs required to complete work.

No separate payment will be made for maintenance of the existing installation, and the removal and stacking of existing traffic signal equipment, but all costs in connection therewith shall be included in the lump sum price.

ITEM 823.61 HIGHWAY LIGHTING LOAD CENTER NO. 1 LS

GENERAL

The work under this item shall conform to the relevant provisions of Section 820 of the MassDOT Standard Specifications, except as amended and supplemented as indicated on the drawings and as specified below:

The work under this item shall include furnishing and installing the load center cabinet and appurtenances, completely and fully operational, as indicated in the drawings. The load center cabinet foundation shall be included with this item. At least two 3" conduit sweeps with caps shall be installed in the foundation for future use. A PVC sleeve may be used to facilitate the installation of a ten-foot-long copper clad ground rod. The load center service connection costs shall be included.

This item shall include all costs for permits, certificates or inspections. In addition, the utility company charges from Eversource shall be included. All work shall be in accordance with the Massachusetts Electric Code, local codes and requirements and the requirements of Eversource. The Contractor shall be responsible for all incidental work necessary and associated with providing the load center cabinet, including coordination of this work with the utility company.

Any required Electrical Service connection to the Load Center will be provided by Eversource. The Contractor will be responsible for coordinating with Eversource for work in the vicinity of the project.

The Contractor shall anticipate the problems inherent in coordination of his work with required issuance of work orders and the subsequent scheduling by Eversource.

MATERIAL

Per MassDOT Standard Specifications

CONSTRUCTION METHODS

The contractor shall submit a shop drawing of the proposed load center cabinet, foundation and all equipment contained within. This shall be a scaled drawing indicating dimensions of all equipment. In addition, two 3" conduit sweeps and caps shall be installed from the cabinet for future use. The cabinet shall have a ground rod installed within.

A 3" conduit is required for the service connection and any reducing fittings or couplings required for connections to the meter socket shall be included. Although the schematic wiring diagram may not indicate a service disconnecting means on the line side of the meter, the installation of such shall be in accordance with Eversource requirements for cold sequence metering of 120/240 equipment where necessary. The contractor shall provide all necessary

ITEM 823.61 (CONTINUED)

equipment fuses or circuit breaker and meter sockets approved by the utility company. The meter sockets shall be mounted on the sides of the load center cabinet and must be completely accessible to the utility company.

Utility service hand holes must be Eversource Energy Approved Hand hole (Polymer Concrete) with a 6" layer of 3/4" crushed stone (M2.01.4) under hand hole for drainage.

The load center cabinet enclosure shall be constructed based on NEMA 3R standards or better, and shall be manufactured from stainless steel (grade 316) with two adjustable "C" mounting channels on both side walls and back wall. The enclosure(s) shall be suitable for protection of the electrical equipment contained within. The enclosure(s) door shall be double flanged out on all four sides. The enclosure(s) shall be properly ventilated and shall be provided with vent filters. All exterior seams shall be continuously welded. External hardware shall be stainless steel and all internal hardware shall be stainless steel. The door mechanism shall be equipped with three-point latching system and nylon rollers at top and bottom. The handle shall be 3/4-inch diameter stainless steel and shall have provisions for padlocking. The main door lock shall be Corbin # 1548-1 or equal. The main door shall be sealed with a closed cell neoprene gasket. The main door shall be heavy gauge continuous hinge with 1/4-inch diameter stainless steel hinge pin secured with 1/4-20 stainless steel carriage bolts and stainless steel nylock nuts. The enclosure shall be UL listed for use in housing electrical equipment.

The cost of a photoelectric device, button type, located on the load center cabinet shall be included in this item.

The interior of the load center cabinet shall contain a 120/240V, 1ph, 100A panelboard with 60A main breaker and branch breakers, sized as noted on plans, lighting contactor, grounding equipment, heater, cabinet exhaust and appurtenances necessary to provide a complete and fully operational system. In addition, a convenience duplex G.F.C.I. receptacle and LED light with switch shall be included interior to the cabinet for maintenance. A ground ring with (2) ten foot long, 3/4-inch copper ground rods shall be installed at the load center cabinet and shall measure 25 ohms to earth ground maximum. Additional ground rods may be driven in adjacent handholes and bonded together to meet this requirement. The short circuit interrupter capacity of all equipment shall be coordinated to meet the requirements of the utility company.

The cost of electricity consumed by this service shall be paid directly by the Contractor until the complete lighting system is fully operational and accepted by the City.

Provide a hand-off-auto switch shall to override photocell control.

The concrete foundation for the load center cabinet(s) shall at a minimum meet the manufacturer's recommended requirements and shall be constructed of 3000 PSI cement concrete 12 inches thick, and six inches wider (on all sides) than the dimensions of the cabinet mounted thereupon. The concrete foundation shall be reinforced with # 3 bars at 18 inches on

ITEM 823.61 (CONTINUED)

center in both directions at the top and with # 5 bars at 12 inches on center in both directions on the bottom. The concrete foundation shall be set on 8 inches of compacted crushed stone. Position of anchor bolts shall be coordinated with the manufacturer of the cabinet (s) to be mounted thereupon. If two cabinets are used, then two separate foundations shall be installed. A shop drawing for the foundation shall be submitted for approval with the shop drawing for the load center cabinet(s). The load center cabinet shall be sealed and caulked between the base and concrete.

The contractor shall be responsible for a complete and fully operational system, including all necessary appurtenances required by Eversource, fully wired and tested to meet the above requirements.

METHOD OF MEASUREMENT

Load center cabinet shall be measured and paid for per lump sum complete in place, which shall be full compensation for all materials, tools, equipment, labor, excavation, bedding and backfill incidental to and necessary for the completion of the work to the satisfaction of the Engineer.

Any incidental work or materials for which no basis of payment is provided, will be considered as completely covered by the unit price bid of this item.

BASIS OF PAYMENT

Payment will be made unit price by lump sum.

ITEM 823.72 LIGHT FIXTURE TYPE A (PEDESTRIAN) EACH

GENERAL

The work under this item shall conform to the applicable requirements of MassDOT Specifications Section 820, except as amended and supplemented as indicated on the drawings and as specified below.

The work under this item shall conform to the applicable requirements of Specifications Section 820, and the City of Everett Standard Specifications and Details, and the following:

MATERIAL

Lighting assembly shall be as indicated on the drawings. All materials and installation shall be in accordance with the City of Everett list of Standardized Proprietary Items.

CONSTRUCTION METHODS

The proposed luminaires shall match the style and appearance of the City of Everett existing Acorn style luminaires; and as shown on Detail Sheet of the Drawing set.

All wiring internal to the pole to be completed by the contractor. Luminaires shall be supplied from the factory with a quick-disconnect connector at the luminaire.

Poles shall be delivered to the job site with a factory applied shipping wrap of cardboard or other material to fully protect against scratches and coating stain. Poles shall be blocked and bundled in groups of multiple poles or use other equivalent means to prevent shifting and damage during transport.

The pole manufacturer shall provide an anchor bolt template for installation and shall provide one set of 3/4-inch hot-dipped fully galvanized steel anchor bolts in a configuration that exceeds the maximum wind rating of the pole.

All fasteners shall be stainless steel. All exposed fasteners below 10 feet above grade shall have vandal-resistant heads. Provide standard vandal-resistant fasteners in the "pinned allen-socket" style requiring a specialized allen wrench to install and remove. The allen wrench contains a hole in the end to allow engagement with the vandal-resistant fasteners. All references to vandal resistant or tamper-resistant shall imply this standard vandal resistant fastener.

Bidders wanting to submit alternative lighting assembly equipment shall submit complete specifications and references for the proposed alternative product a minimum of 10 days prior to the bid submission deadline. The city shall evaluate the proposed alternative product and inform the bidder if the proposed alternative is acceptable to the City. Bids will only be accepted for

ITEM 823.72 (CONTINUED)

Lighting Assemblies that have been found to be acceptable by the City prior to submission of the bid packages.

Furnish and install in the correct orientation according to manufacturer's specifications a LED lamp in each luminaire.

Ground rod connections shall be thermal weld type (Cadweld) or shall be made with a UL listed hydraulically applied (12 ton minimum) compression connector. (Burndy hydraulic compression tool and UL listed for grounding ground rod tap connector or equivalent.) Follow manufacturer's written instructions for installing ground rod connections. Do not exceed the rated wire bundle capacities of the type of ground rod connection used.

Streetlight pole internal
wiring: 98% conductivity copper 600-volt insulation, MTW, XHHW, THWN-2 or THHN/THWN.

All conductors shall have color-coded insulation to designate ground, neutral conductor and phases. Colored tape alone is not acceptable. Phases shall be black and red, receptacle branch circuit shall be black, neutral shall be white and ground shall be green.

Shall be plastic cable wrap type with marking tag for permanent tagging. Plastic tag shall have controller and circuit number written on it with permanent ink marking pen per tag manufacturer's directions. Panduit PLF1MA-C Marker Tie, or equivalent.

All splices and junctions shall be made waterproof by a UL approved method. Conductor splice shall be made by UL listed compression type butt splice kit. Waterproofing method shall be by heat shrink, by sealant in waterproof splice cap, or by sealant in cold shrink.

- #10 AWG or Smaller, above grade: UL listed compression type connectors.
- #8 AWG or Larger, above grade: UL listed mechanical compression connector.
- Splices and junctions shall not be buried or installed in conduit.
- Splices in junction boxes shall be UL listed hydraulic compression (12 tons minimum) type butt or two-wire stub splice with UL listed heat shrink waterproof splice cover.
- End caps shall be used to seal and insulate the ends of 1/C wires. End caps shall be waterproof of thermally stabilized, modified polyolefin heat shrink material with mastic sealant inside UL listed 600 Volt, 90 degrees C.

ITEM 823.72 (CONTINUED)

- Wet location splices and junctions shall be accomplished with UL listed heat shrink 600 Volt, 90 degrees C, waterproof splice kits. Raychem Series MCK, Type V or L or equivalent.

Install poles plumb and true on the foundation and in strict accordance with the manufacturer's instructions. If, needed, use stainless steel flat washers or stainless-steel horseshoe shims to plumb the poles. Do not seal under the pole base (to allow for drainage). Tolerance in plumb: Y<1 inch in 8 feet.

Factory applied shipping wrap of cardboard or other material shall remain in place throughout handling and installation to protect pole finish, (to be removed only after final pole installation).

Pole grips, truck arms, jaws, trailers and any other surfaces that contact poles prior to or during installation shall be fully and thickly padded to prevent scratching poles. Before final acceptance of the Project, provide repair or touch-up on poles that have been damaged during construction, using a method approved by the manufacturer.

Each streetlight pole shall be provided with its own separate ground rod adjacent to its foundation and bonded to the pole's grounding lug as shown on the Drawings.

Install luminaires with the correct optical system orientation, socket position and inclination angle to meet the specified photometric requirements. Align luminaires vertical and perpendicular (or tangent) to the centerline of the street, install new lamps, and clean luminaire components of all construction dirt and dust and fingerprints prior to final completion.

Handle lighting fixtures carefully to prevent breakage, denting or scoring of fixtures' finishes. Do not install damaged lighting fixtures. Replace undamaged units and return damaged units to equipment manufacturer. Install luminaire, fusing and wiring complete. Install a wattage identification sticker inside the pole handhole. No other identifying numbers except the manufacturer's nameplate shall be installed on the poles or arms or luminaries.

Splices and junctions shall be made only in pole handholes and underground handhole junction boxes. Perform no more splices than needed. Do not splice or junction any wires that continue through a pole or junction box, in other words, those conductors without a termination to the adjacent pole. Use Junction box as a pulling point only. Cable pulled through poles or junction boxes shall be marked per the following paragraph and shall have sufficient loop to extend 18" beyond handhole or junction box lid for future maintenance but shall not be spliced. All splices in junction boxes shall be made waterproof by a UL listed heat shrink splice cover. All splices and junctions shall be considered incidental to the pay item.

Install a tie wrap type permanent wire marker on each pair of conductors passing through every junction box or pole handhole (bundle circuit pairs together). Mark controller

ITEM 823.72 (CONTINUED)

number, circuit letter and pole number on each tie wrap and designate home runs as encountered. Install markers in each pole handhole.

METHOD OF MEASUREMENT

This work shall be measured for payment for each Item, installed, wired and lamped in place, which price shall include all materials, labor, and equipment for a complete and accepted installation.

BASIS OF PAYMENT

Payment will be made by each.

ITEM 824.501 RECTANGULAR RAPID FLASHING BEACON LUMP SUM REMOVED AND RESET

DESCRIPTION

The work under this Item shall conform to the relevant provisions of Subsection 825 of the Standard Specifications and the following:

The work under this Item shall include the removal, transporting, and resetting of the Rectangular Rapid Flashing Beacon and appurtenances at Station 25+84 at Santilli Circle west of Santilli Highway and shall be reset to the location as shown on the plans or as directed by the Engineer.

The Contractor shall note well that appropriate care during removal, transporting and resetting of all existing components of the RRFB including the solar panel, battery, and pushbutton among others is required. Any damage to any of the RRFB caused by the Contractor's operations shall be repaired or replaced by the Contractor at no additional cost to the maintaining agency.

Excavation of the existing foundation shall be to a minimum of 12" below the surface of the sidewalk, driveway or finished grade, and a minimum depth of 36" within new roadway areas. The foundation hole remaining after foundation removal shall be backfilled with gravel, thoroughly compacted and restored to its original condition. All excavation, backfill, compaction and restoration of surrounding area required, shall be considered incidental.

The RRFB shall be reset on a new concrete foundation or precast foundation at the location shown on the plans or as directed by the Engineer.

If the Engineer determines that the mounting hardware is unsuitable for reuse or new mounting hardware is necessary to replace any missing existing hardware, new hardware shall be furnished and installed as necessary.

The existing solar panels shall be reset to the aluminum plate and bracket and adjusted to an angle of 45° to 60°. The existing solar panels and each assembly shall be remounted to the 360° rotatable pole cap mount to facilitate adjustment for maximum solar collection and optimal battery strength.

BASIS OF PAYMENT

Item 824.501 will be paid for at the Contract unit price LUMP SUM, which price shall include all labor, materials, equipment, excavation, gravel borrow, foundation/ backfill, removal, transporting, and resetting of the RRFB, and all incidental costs required to complete the work.

ITEM 824.511 RECTANGULAR RAPID FLASHING BEACON LUMP SUM REMOVED AND DISCARDED

DESCRIPTION

The work under this Item shall conform to the relevant provisions of Subsection 825 of the Standard Specifications and the following:

The work shall include the removal of the rectangular rapid flashing beacon and appurtenances to be removed and discarded at the following intersection:

Location No. 1: Kelvin Street/Bizarro Lane at Santilli Circle Connector

The work under this item includes the removal, transporting, and disposal of the existing Rectangular Rapid Flashing Beacon (RRFB) located as shown on the plans or as required by the Engineer.

The rectangular rapid flashing beacon and appurtenances are unsuitable for reuse, and shall become the property of the Contractor, and he shall legally dispose of them away from the site.

Excavation of the existing foundation shall be to a minimum of 12” below the surface of the sidewalk, driveway or finished grade, and a minimum depth of 36” within new roadway areas. The foundation hole remaining after foundation removal shall be backfilled with gravel, thoroughly compacted and restored to its original condition. All excavation, backfill, compaction and restoration of surrounding area required, shall be considered incidental.

Existing rectangular rapid flashing beacon shall only be removed once the proposed traffic control devices are in place and accepted, or provision made for temporary traffic control and the Engineer has given approval for their removal.

BASIS OF PAYMENT

Item 824.511 will be paid for at the Contract unit price LUMP SUM, which price shall include all labor, materials, equipment, excavation, gravel borrow, foundation/ backfill, transporting and stacking RRFB, and all incidental costs required to complete the work.

ITEM 866.306	**6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) (RECESSED)**	**FOOT**
ITEM 866.312	**12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) (RECESSED)**	**FOOT**
ITEM 867.306	**6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) (RECESSED)**	**FOOT**
ITEM 867.312	**12 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) (RECESSED)**	**FOOT**

GENERAL

Work shall consist of grooving a slot in the pavement surface and the furnishing and installation of wet reflective thermoplastic pavement markings.

Materials

Wet reflective thermoplastic pavement markings shall consist of a liquid binder, first drop beads or elements to provide dry and wet retroreflectivity, and second drop glass beads to improve the durability of the pavement marking, reduce track-free times, and provide supplementary dry retroreflectivity.

The Contractor shall use one of the following binders or approved equivalents:

1. Ennis-Flint Hydrocarbon Thermoplastic;
2. Ozark Materials Hydrocarbon Thermoplastic; or
3. SWARCO Hydrocarbon Thermoplastic.

The Contractor shall use one of the following first drop beads or elements, or approved equivalents:

1. 3M™ All Weather Series 90S Elements;
2. Ennis-Flint HP300 Glass Beads;
3. Potters VISIMAX® Glass Bead System; or
4. SWARCO MEGALUX-BEADS®.

Second drop beads shall be manufactured from glass of a composition that is highly resistant to traffic wear and to the effects of weathering. If coating is required to meet the performance requirements, the second drop beads shall be coated to ensure satisfactory embedment and adhesion. Second drop beads retained on a No. 40 U.S. Standard Mesh Sieve shall have a minimum crush strength of 30 lbs. when tested in accordance with ASTM D1213. Second drop beads shall have a minimum refractive index of 1.51 when tested in accordance with AASHTO M247.

ITEMS 866.306, 866.312, 867.306, 867.312 (CONTINUED)

Second drop beads passing the No. 30 sieve shall have a minimum of 75 percent true spheres when tested in accordance with ASTM D1155. All second drop beads retained on the No. 20 and No. 30 sieves shall have a minimum of 80 percent true spheres as determined by ASTM D1155. Second drop beads shall meet the following gradation requirements when tested in accordance with ASTM D1214:

U.S. Standard Sieve	No. Percent Retained
20	3-10
30	15-35
50	45-75
70	0-10
Pan	0-5

Construction Methods

The Contractor shall follow all installation instructions from the manufacturer, including allowable ranges of temperature and humidity for installation, unless otherwise approved by the Engineer.

The pavement surface shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants prior to the installation of any new pavement markings. If an air lance is used to clean the surface, air compressors shall initially be blown out away from the application area to prevent compressor condensation build-up. A minimum of 24 hours of dry time following any rainfall is required prior to the placement of pavement markings.

Recessing of markings shall be per 860.65: Recessed Markings.

Installation of Wet Reflective Thermoplastic

Installation of wet reflective thermoplastic pavement markings shall conform to the Manufacturer's specifications and the following:

Application rate for binder and all beads and elements shall consider final pavement surface composition and smoothness in advance of application to ensure proper wet film thickness and embedment of all beads and elements. The Contractor shall provide the Engineer with documentation from the Manufacturer with all recommended application rates in advance of any pavement marking installation.

The minimum uniform wet thickness for the thermoplastic binder shall be 90 mils ± 5 mils. The line thickness shall be met across at least the middle ⅔ of the pavement marking width. Depth plates shall be provided by the Contractor to the Engineer to assure that desired thickness is achieved.

ITEMS 866.306, 866.312, 867.306, 867.312 (CONTINUED)

The finished white color shall be free from tint, with good opacity and visibility under both daylight and artificial light. The finished yellow color shall be defined by Federal Test Standard 595 - Color Chip Number 13538, using Federal Test Standard 141 (Method 4252). The finished lines shall be uniform in color and have clean, well-defined edges.

First and second drop beads and/or elements shall be applied in a manner that does not induce rolling or bouncing, to ensure that exposed portions of beads are free of binder material. Beads and elements should be embedded in the binder to a depth of approximately 50% of their diameter.

Drop rate for first drop bead or element shall be per the Manufacturer's specifications.

Drop rate for second drop glass bead shall be 6.4-10.2 lbs. per gallon.

Newly installed pavement markings shall be protected from tracking during the setting period per Subsection 860.63.

Once the installed pavement markings have been open for traffic for a minimum of 48 hours, the Contractor shall perform retroreflectance readings per the measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments) using the Referee Evaluation Protocol found in section 6.4. The following tests shall be performed during the measurement and sampling process:

1. ASTM E1710 (Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer); and
2. ASTM E2177 (Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Standard Condition of Wetness).

The average initial retroreflectance readings shall exceed the following minimum values:

	*White Markings	*Yellow Markings
ASTM E1710 (Dry)	475 mcd/lux/m²	375 mcd/lux/m²
ASTM E2177 (Wet Recovery)	375 mcd/lux/m²	300 mcd/lux/m²

*Observation Angle = 1.05°, Entrance Angle = 88.8°

Pavement markings with measured average initial retroreflectance readings that do not meet the specified minimum values using the procedures outlined in subsection 6.4.5 of ASTM D7585 shall be removed by an approved method and reapplied at no additional cost, unless otherwise instructed by the Engineer.

ITEMS 866.306, 866.312, 867.306, 867.312 (CONTINUED)

Method of Measurement and Basis of Payment

Items 866.306, 866.312, 867.306, and 867.312 will be measured per FOOT, complete in place, as specified under Subsection 860.80.

Items 866.306, 866.312, 867.306, and 867.312 will be paid at the respective contract unit price per FOOT. The contract prices shall include all material, labor, and equipment required or incidental to the satisfactory completion of the work.

ITEM 874.2 TRAFFIC SIGN REMOVED AND RESET EACH

DESCRIPTION OF WORK

Work under this Item shall conform to the relevant provisions and amendments of Subsection 840 of the MassDOT "Standard Specifications for Highway and Bridges" and the following:

The work shall consist of removing and resetting the existing regulatory, warning, or directional sign and its supports to new location as shown on the Plans or as directed by the Engineer.

After removal, the Contractor shall stockpile the sign and its supports in a secure location until they are ready to be reset. The Contractor shall exercise caution during the removal, stockpiling and resetting operations. Signs panels and/or supports that have been designated by the Engineer for reuse, which are damaged or lost either directly or indirectly during the removal, stockpiling and resetting operations shall be replaced by the Contractor at his expense.

Materials for the traffic sign removed and reset shall be the existing sign and supports. If in the opinion of the Engineer, the existing sign panel and/or support are unsuitable for reuse, a new sign panel and/or support of a sign and composition equal to the existing sign panel and/or support, shall be furnished, as required by the Engineer. The sign shall be mounted in accordance with the Manual on Uniform Traffic Control Devices and the 1990 Standard Drawings for Signs and Supports.

When the visibility of the relocated sign panels is obstructed by trees and other vegetation, the Contractor shall clear the obstruction to ensure proper sight distance. All obstruction clearing shall be done within the state highway layout, as approved by the Engineer.

Traffic sign panels and supports designated for removal and resetting shall be cleaned before being reset.

Support foundations shall be removed to a depth of at least 6 inches below finished grade in grass area, at least 12 inches below finished grade in sidewalk and driveway areas, and 36" in roadway areas. The holes shall be backfilled with gravel. The surface shall be restored to match the existing condition or to a condition directed by the Engineer.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Payment under Item 874.2 shall be at the Contract Bid Price per Each and shall be full compensation for all labor, tools, equipment, materials, including any additional or replacement of mounting hardware, vegetation clearance, sign and support cleaning, support foundation removal, gravel backfill and restoration of the surface as well as transportation and all incidental expenses necessary to complete the work as shown on the Plans and as described in these Special Provisions, to the satisfaction of the Engineer.

If required by the Engineer, new signposts for Traffic Signs shall be furnished, installed and paid for separately under the applicable Item.

ITEM 874.2 (CONTINUED)

If required by the Engineer, new Traffic Sign panels shall be furnished, installed, and paid for separately under the applicable Item.

The cost of any work or materials required, due to the Contractor's negligence, shall be borne by the Contractor.

ITEM 874.41 TRAFFIC SIGN REMOVED AND DISCARDED EACH

DESCRIPTION

The work under this item shall conform to the relevant provisions of Subsection 828 of the Standard Specifications Plans, and the following:

The work under this Item consists of removing and discarding signs together with their supports, regardless of size of posts and number of panels. All materials removed and discarded under this Item shall become the property of the Contractor, who shall properly dispose of the materials away from the project site with no additional compensation.

Any existing foundation or support that is not suitable for reuse shall be excavated to at least one foot (1') below existing grade. The resulting void shall be filled with compacted gravel and the area shall be restored to its original condition.

METHOD OF MEASUREMENT

Item 874.41 will be measured for payment by EACH traffic sign removed and discarded. Multiple signs on one post assembly (single or double, such as a route marker and cardinal direction marker or a sign requiring a second graphic sign) shall be considered as one unit.

BASIS OF PAYMENT

Item 874.41 will be paid for at the Contract unit price per EACH, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

No separate payments will be made for all excavation (including rock excavation), gravel backfill, compaction and restoration work but all costs in connection therewith shall be included in the Contract unit price bid.

Loam borrow and Seeding as part of the restoration work will be paid for separately under Items 751. and 765. respectively.

Appendix A – Orders of Conditions

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

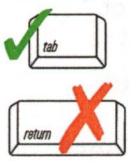
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: 022-0141
MassDEP File # x290407
eDEP Transaction #
Everett
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. From: Everett
Conservation Commission

2. This issuance is for (check one): a. ■ Order of Conditions b. ☐ Amended Order of Conditions

3. To: Applicant:

Jay	Monty
a. First Name	b. Last Name

City of Everett
c. Organization

484 Broadway, Room 25
d. Mailing Address

Everett	MA	02419
e. City/Town	f. State	g. Zip Code

4. Property Owner (if different from applicant):

Daniel	Flint
a. First Name	b. Last Name

Massachusetts Department of Transportation
c. Organization

519 Appleton Street
d. Mailing Address

Arlington	Ma	02476
e. City/Town	f. State	g. Zip Code

5. Project Location:

Revere Beach Parkway	Everett
a. Street Address	b. City/Town
N/A (Roadway)	N/A (Roadway)
c. Assessors Map/Plat Number	d. Parcel/Lot Number

Latitude and Longitude, if known:

42 d 24 m 8.41 s	-71 d 3 m 50.7 s
d. Latitude	e. Longitude

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
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A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

N/A (Roadway)	N/A (Roadway)
a. County	b. Certificate Number (if registered land)
N/A (Roadway)	N/A (Roadway)
c. Book	d. Page

7. Dates:

07/14/2025		
a. Date Notice of Intent Filed	b. Date Public Hearing Closed	c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

Everett Northern Strand Trail Connection NOI Plans
a. Plan Title

Howard Stein Hudson	Richard Latini, P.E.
b. Prepared By	c. Signed and Stamped by
July 2025	See Plans (Generally 1"=20'
d. Final Revision Date	e. Scale

N/A	N/A
f. Additional Plan or Document Title	g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☐ Public Water Supply b. ☐ Land Containing Shellfish c. ☐ Prevention of Pollution
d. ☐ Private Water Supply e. ☐ Fisheries f. ☐ Protection of Wildlife Habitat
g. ☐ Groundwater Supply h. ☐ Storm Damage Prevention i. ☐ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

a. ☐ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Massachusetts Department of Environmental Protection
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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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B. Findings (cont.)

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) _____ a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☐ Bank	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ■ Bordering Vegetated Wetland	3,650 a. square feet	b. square feet	5,683 c. square feet	d. square feet
6. ☐ Land Under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
14. ☐ Coastal Dunes	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
15. ☐ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. ☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. ☐ Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. ☐ Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		
22. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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B. Findings (cont.)

* **#23**. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

23. ☐ Restoration/Enhancement *:

a. square feet of BVW _____ b. square feet of salt marsh _____

24. ☐ Stream Crossing(s):

a. number of new stream crossings _____ b. number of replacement stream crossings _____

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. The work is a maintenance dredging project as provided for in the Act; or
   b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
   c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on _____ unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

"Massachusetts Department of Environmental Protection" [or, "MassDEP"]

"File Number 022-0141 "

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

19. The work associated with this Order (the "Project")
    (1) ■ is subject to the Massachusetts Stormwater Standards
    (2) ☐ is NOT subject to the Massachusetts Stormwater Standards

    If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

    a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

    b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:

    i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;

    ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;

    iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
022-0141
MassDEP File #
x290407
eDEP Transaction #
Everett
City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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x290407
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City/Town

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☐ No
2. The _____ hereby finds (check one that applies):
   Conservation Commission
   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

      _____ _____
      1. Municipal Ordinance or Bylaw 2. Citation

      Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

   b. ☐ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

      _____ _____
      1. Municipal Ordinance or Bylaw 2. Citation
3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.
   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: 022-0141
MassDEP File # x290407
eDEP Transaction #
Everett
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

1. Date of Issuance

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
	EAMON KERNAN
	MAEVE KERNAN
	Carl Colton
	Daryl Colton

☑ by hand delivery on 7/24/25
Date

☐ by certified mail, return receipt requested, on
Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

Special Conditions
Northern Strand Trail Extension
DEP File # 022-0141

Conditions Prior to Construction/Work

1. The applicant will provide a schedule of construction activities at least 72 hours in advance of each phase of work commencing.
2. The applicant will invite and host a representative of the Everett Conservation Commission (ECC) or designee to attend a pre-construction meeting (if applicable) to review the proposed work and special conditions a minimum of 24 hours in advance of the beginning of work.
3. Photos will be taken by the applicant and delivered to the ECC to document existing conditions prior to any work commencing.

Conditions During Construction/Work

4. A site visit will be scheduled during work activities and a represented of the ECC or designee will attend.
5. Debris will be collected and disposed of properly from existing construction area.
6. Photos will be taken by the applicant and delivered to the ECC to document progress and changes to site as work is carried out.
7. The Commission reserves the right to require additional erosion control barriers, changes to the construction lay down area, and any additional resource area preservation measures at any time.

Conditions Post Construction/Work

8. The applicant will host a post-construction meeting to review the project with a representative of ECC or its designee on site.
9. A report which includes photo documentation, BMP maintenance, and work conducted in construction area will be provided to the ECC.
10. Certificate of Compliance is requested; it must be done within six months after the completion of the project.
11. To the maximum extent possible, the applicant shall conduct invasive species removal and seeding in the work area bounded by Rt 16 and the Santilli Circle Connector, including herbicide spray, and foliar spray or injection, that leave standing vegetation.

EVERETT
NORTHERN STRAND TRAIL CONNECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	67
PROJECT FILE NO.		-	

TITLE SHEET & INDEX

THE CITY OF EVERETT

PLAN AND PROFILE OF

NORTHERN STRAND TRAIL CONNECTION

IN THE CITY OF

EVERETT

MIDDLESEX COUNTY

PS&E SUBMITTAL

INDEX

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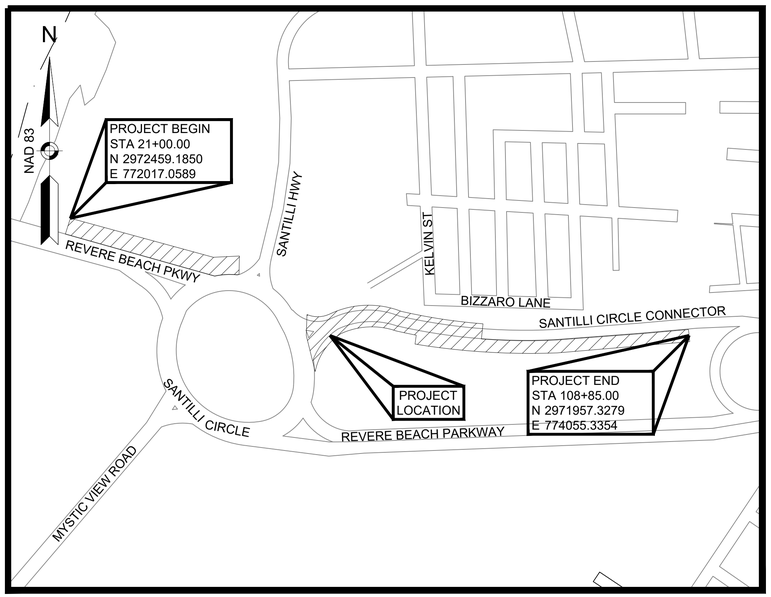

0 500 1000 1500 2000

SCALE: 1" = 250'

LENGTH OF PROJECT = 1,900 FEET = 0.360 MILES

ALL WORK SHALL CONFORM TO THESE PLANS AND THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES 2025 EDITION, THE JANUARY 2025 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

DESIGN DESIGNATION (SANTILLI CIRCLE CONNECTOR)	
DESIGN SPEED	25 MPH
ADT (2024)	20,188
ADT (2034)	20,843
K	8.1%
D	56%
T (PEAK HOUR)	3.0%
T (AVERAGE DAY)	5.2%
DHV	1,688
DDHV	945
FUNCTIONAL CLASSIFICATION	LOCAL ROADWAY

DESIGN DESIGNATION (REVERE BEACH PARKWAY)	
DESIGN SPEED	35 MPH
ADT (2024)	78,975
ADT (2034)	81,539
K	7.3%
D	51%
T (PEAK HOUR)	3.4%
T (AVERAGE DAY)	4.1%
DHV	5,952
DDHV	3,036
FUNCTIONAL CLASSIFICATION	PRINCIPAL ARTERIAL

DESIGN DESIGNATION (SANTILLI HIGHWAY)	
DESIGN SPEED	25 MPH
ADT (2024)	11,949
ADT (2034)	12,337
K	7.4%
D	58%
T (PEAK HOUR)	6.7%
T (AVERAGE DAY)	7.3%
DHV	913
DDHV	530
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL

4/29/2026	ISSUED FOR CONSTRUCTION	
DATE	DESCRIPTION	REV #

DAWOOD ENGINEERS • PLANNERS • SURVEYORS

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

CITY OF EVERETT
484 BROADWAY
EVERETT, MA 02149
617-394-2270

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GENERAL NOTES

SURVEY

1. THE SURVEY BASE PLAN WAS PREPARED BY FELDMAN GEOSPATIAL. THE MOST RECENT SITE VISIT WAS COMPLETED TO VERIFY THAT THE EXISTING CONDITIONS SHOWN ON THE PLAN ARE THE CURRENT CONDITIONS IN THE FIELD.

2. HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED BY MASSDOT SURVEY. HORIZONTAL DATUM IS BASED ON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, NAD83 (2011) EPOCH 2010.0000, VERTICAL DATUM IS NAVD 1988 (COMPUTED USING GEOID18) USING THE FOLLOWING CONTROL POINTS:

POINT	GRID NORTHING	GRID EASTING	ELEVATION
TBM–SC1	2972080.22	773350.77	7.80'
TBM–SC2	2972079.31	773720.86	9.62'
TBM–JH1	2972451.31	772025.22	16.77'
TBM–JH2	2972260.02	772536.46	12.91'
TBM–JH3	2972192.55	772872.26	12.82'
TBM–JH4	2972077.38	773360.20	7.87'

3. PRIVATE PROPERTY LINES HAVE NOT BEEN SURVEYED, THEY ARE COMPILED FROM RECORD DEED AND PLAN INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.

4. WETLAND RESOURCE AREAS INSPECTED BY LUCAS ENVIRONMENTAL, LLC BETWEEN JUNE 1ST & 8TH, 2022 AND FIELD LOCATED BY FELDMAN GEOSPATIAL ON JUNE 23, 2022.

5. THE UNDERGROUND UTILITIES, AS SHOWN ON THE PLANS, HAVE BEEN COMPILED FROM FIELD OBSERVATIONS AND RECORD PLANS. THEY ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN. THE ACCURACY AND COMPLETENESS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE EXACT LOCATION, SIZE, TYPE, ETC. OF ALL UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE WORK. AT LEAST 72 HOURS BEFORE DIGGING BEGINS THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT (888)344-7233. ALL CITY OWNED UTILITY STRUCTURES WITHIN AREAS AFFECTED BY THE WORK SHALL BE ADJUSTED TO NEW LINE AND GRADE AS DIRECTED BY THE ENGINEER. ANY UTILITY POLES AND/OR GUY POLES WITHIN AREAS AFFECTED BY THE WORK SHALL BE REMOVED AND RESET BY THE RESPECTIVE UTILITY COMPANY. ALTERATIONS TO UTILITIES NOT OWNED BY THE CITY SHALL BE MADE BY THE RESPECTIVE UTILITY OWNERS.

GENERAL NOTES

1. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES AT NO ADDITIONAL COST TO THE OWNER. IF THE CONTRACTOR ADJUSTS UTILITY COVERS IT SHALL BE DEEMED PART OF THE WORK AND THERE WILL BE NO ADDITIONAL COMPENSATION.

2. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DAMAGED BY THE CONTRACTOR'S OPERATIONS, INCLUDING STAGING AREAS, SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

3. THE CONTRACTOR IS HEREBY NOTIFIED THAT ADDITIONAL WORK WITHIN THE PROJECT LIMITS MAY BE PERFORMED BY OTHERS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING AND CONFIRMING THAT ALL ITEMS TO BE REUSED ARE IN SERVICEABLE CONDITION. IF IT IS DEEMED THAT ANY ITEM IS NOT ABLE TO BE REUSED, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING AND INCLUDE ESTIMATED COSTS TO INSTALL NEW.

5. TEMPORARY TRAFFIC CONTROL PLANS CONTAINED HEREIN ARE GIVEN AS A GUIDE FOR TYPICAL WORK ZONE TRAFFIC CONTROL APPLICATIONS FOR THE TYPES OF WORK ANTICIPATED FOR THIS PROJECT. THEY ARE NOT INTENDED TO COVER ALL POSSIBLE CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. WORK ZONE TRAFFIC CONTROL FOR OTHER CONSTRUCTION OPERATIONS OR OTHER TRAFFIC SITUATIONS IF APPLICABLE SHALL BE IN ACCORDANCE WITH THE CURRENT MUTCD AND AS APPROVED OR DIRECTED BY RESIDENT ENGINEER.

6. THE CONTRACTOR SHALL ADJUST ALL EXISTING STRUCTURES WITHIN THE ACCESSIBLE SURFACE OF THE PROJECT LIMITS TO THE TOP MOST SURFACE OR THE STRUCTURE COVER SHALL BE FLUSH WITH THE CURB RAMP SURFACE.

7. THE CONTRACTOR SHALL PLACE SILT - SACKS AT ALL CATCH BASINS IN THE PROJECT LIMITS THROUGHOUT THE DURATION OF CONSTRUCTION.

8. ALL WORK SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF "MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATION FOR HIGHWAYS AND BRIDGES" AND THE AMENDED SUPPLEMENTAL SPECIFICATIONS AND COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS "STANDARD DRAWINGS FOR TRAFFIC SIGNAL AND HIGHWAY LIGHTING" DATED 1968.

TRAFFIC

1. TRAFFIC SIGNAL CONDUIT SHALL BE 3" PVC UNLESS OTHERWISE NOTED.

2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE TRAFFIC SIGNAL OPERATIONS AND COMMUNICATIONS FOR THE DURATION OF CONSTRUCTION. ANY DAMAGED EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO MASSDOT.

3. CONTRACTOR SHALL HAVE A MASSDOT REPRESENTATIVE PRESENT DURING ALL TESTING.

4. THE MINIMUM MOUNTING HEIGHT OF POST-MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR SIDEWALK, OR TO THE ELEVATION OF THE NEAR EDGE OF THE TRAVELED WAY, SHALL BE 7 FEET UNLESS OTHERWISE SPECIFIED ON THE PLANS.

5. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC AND RECESSED. THE WIDTH OF ALL LONGITUDINAL PAVEMENT MARKINGS SHALL BE 6 INCHES. THE WIDTH OF CHANNELIZING LINES AT GORE AREAS SHALL BE 12 INCHES. THE WIDTH OF TRANSVERSE LINES / CHEVRONS USED IN GORE AREAS SHALL BE 12 INCHES. PAVEMENT MARKINGS SHALL BE INSTALLED IN CONFORMANCE WITH MASSDOT STANDARD SPECIFICATIONS SECTION 860. SURFACED APPLIED MARKINGS SHALL INCLUDE LEGENDS, TEXT ANDBUS LANE MARKINGS. BIKE SYMBOLS / SHARROWS SHALL BE PERFORMED THERMOPLASTIC.

6. ALL MARKINGS SHALL BE RESTORED TO PREVIOUS CONFIGURATION AND IN CONFORMANCE WITH THE ABOVE AND MASSDOT SPECIFICATIONS. THESE PAVEMENT MARKINGS SHALL BE RESTORED WITHIN 10 DAYS AFTER THIS WORK IS PERFORMED OR AS DEEMED NECESSARY BY THE DISTRICT HIGHWAY DIRECTOR OR AN AUTHORIZED REPRESENTATIVE.

7. ALL EXISTING PAVEMENT MARKINGS PROPOSED TO BE REMOVED SHALL BE REMOVED COMPLETELY BY GRINDING.

LANDSCAPE

1. TREE PROTECTION SHALL BE INSTALLED AND APPROVED BY ENGINEER PRIOR TO ONSET OF CONSTRUCTION ACTIVITIES.

EVERETT
NORTHERN STRAND TRAIL CONNECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	67
PROJECT FILE NO.		-	

GENERAL NOTES

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GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK (12" LINES, 10' O.C.; 12" LONGITUDINAL LINES, 4' O.C.)
	SWL	6" SOLID WHITE LINE
	SYL	6" SOLID YELLOW LINE
	BWL	6" BROKEN WHITE LINE (10' MARK, 30' SKIP)
	DYL	6" DOTTED YELLOW LINE (3' MARK, 9' SKIP)
	DWLEx	6" DOTTED WHITE LINE EXTENSION (2' MARK, 6' SKIP)
	DBYL	2-6" DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BE	BEGIN ERADICATION
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
EE	END ERADICATION
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY

EVERETT
NORTHERN STRAND TRAIL CONNECTION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	62
PROJECT FILE NO.		-	

LEGEND & ABBREVIATIONS

ABBREVIATIONS (continued.)

GENERAL

PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

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EVERETT
NORTHERN STRAND TRAIL CONNECTION

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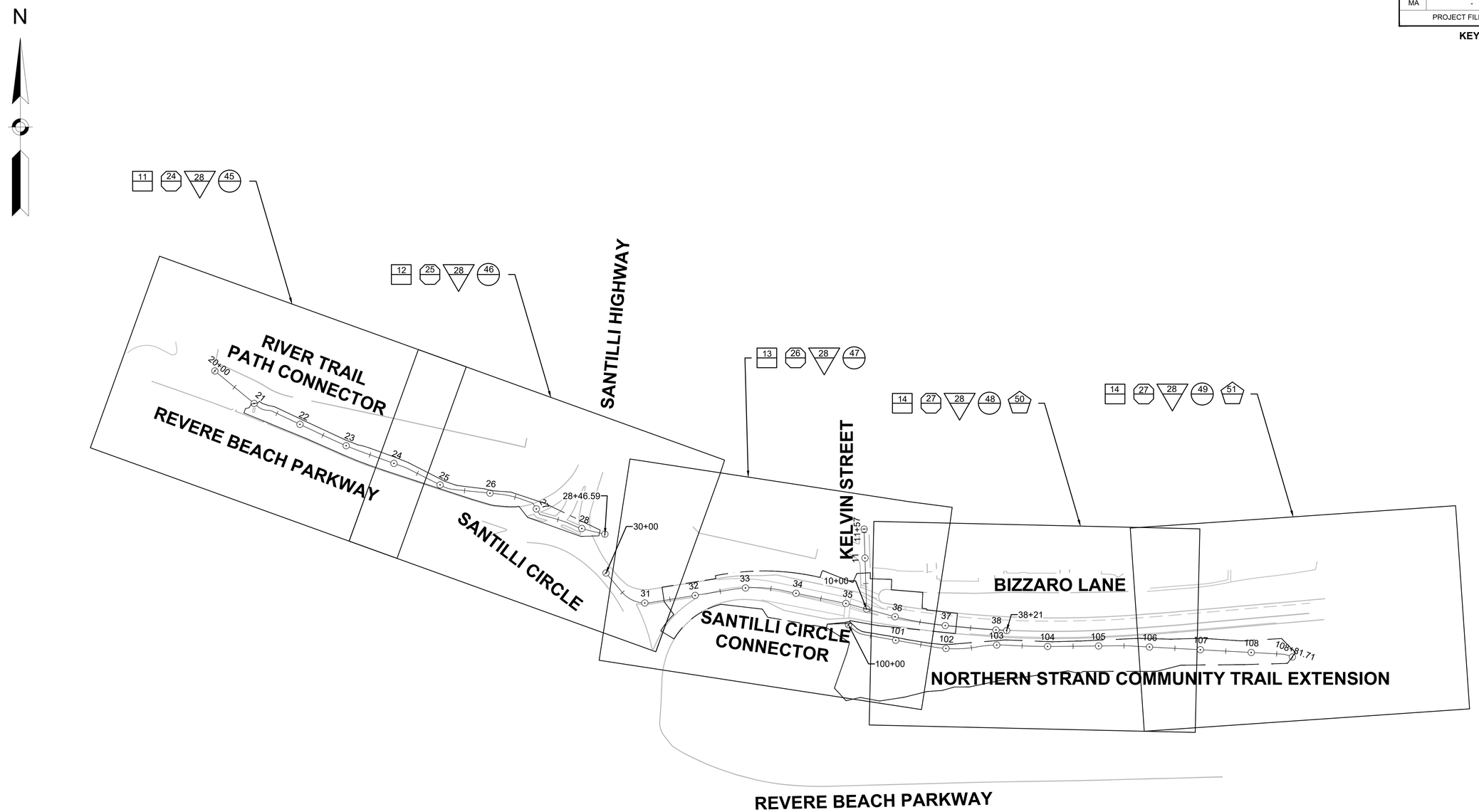
MA	-	4	67
PROJECT FILE NO.		-	

KEY PLAN



LEGEND

#	CONSTRUCTION PLANS
#	TRAFFIC SIGN & PAVEMENT MARKING PLANS
# / #	TRAFFIC SIGNAL PLANS
#	UTILITY PLANS
#	LIGHTING PLANS
	LIMIT OF WORK BASE SCOPE
	LIMIT OF WORK AD-ALT 1
	LIMIT OF WORK AD-ALT 2

0 100 200 300 400

SCALE: 1" = 100'

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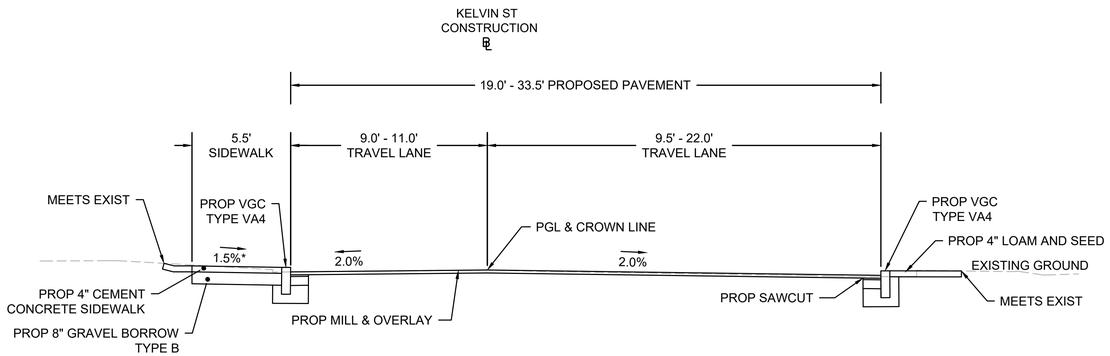
EVERETT
NORTHERN STRAND TRAIL CONNECTOR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	67
PROJECT FILE NO.		-	

TYPICAL SECTIONS & PAVEMENT NOTES
SHEET 1 OF 4



KELVIN ST

MILL AND OVERLAY
STA. 10+00 TO STA.10+50
NOT TO SCALE

PAVEMENT NOTES:

PAVEMENT MILL AND OVERLAY

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER ASPHALT EMULSION FOR TACK COAT

PAVEMENT MILLING: 1.75" PAVEMENT MILLING

FULL DEPTH CONSTRUCTION LESS THAN 4' WIDE

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER ASPHALT EMULSION FOR TACK COAT

INTERMEDIATE COURSE: 2.25" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) OVER

BASE: 6" GRAVEL HES CEMENT CONCRETE

SUB-BASE: 8" GRAVEL BORROW TYPE B

FULL DEPTH CONSTRUCTION

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER ASPHALT EMULSION FOR TACK COAT

INTERMEDIATE COURSE: 2.25" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) OVER ASPHALT EMULSION FOR TACK COAT

BASE COURSE: 4" SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) OVER

SUB-BASE: 4" DENSE GRADED CRUSHED STONE

8" GRAVEL BORROW TYPE B

STAMPED CEMENT CONCRETE BUFFER, CEMENT CONCRETE SIDEWALKS, AND RAMPS

SURFACE COURSE: 4" CEMENT CONCRETE SURFACE COURSE OVER

SUB-BASE: 8" GRAVEL BORROW TYPE B

HOT MIX ASPHALT SHARED USE PATH

SURFACE COURSE: 1.50" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER ASPHALT EMULSION FOR TACK COAT

INTERMEDIATE COURSE: 2.5" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) OVER

SUB-BASE: 8" GRAVEL BORROW TYPE B

TRENCH SECTION PAVEMENT REPAIR

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) OVER

INTERMEDIATE COURSE: 3.0" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) OVER

BASE COURSE: 3.0" SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5)

NOTES:

* = TOLERANCE FOR CONSTRUCTION ± 0.5% ON SIDEWALK SLOPES, DRIVEWAY SLOPES, AND WHEELCHAIR RAMPS.

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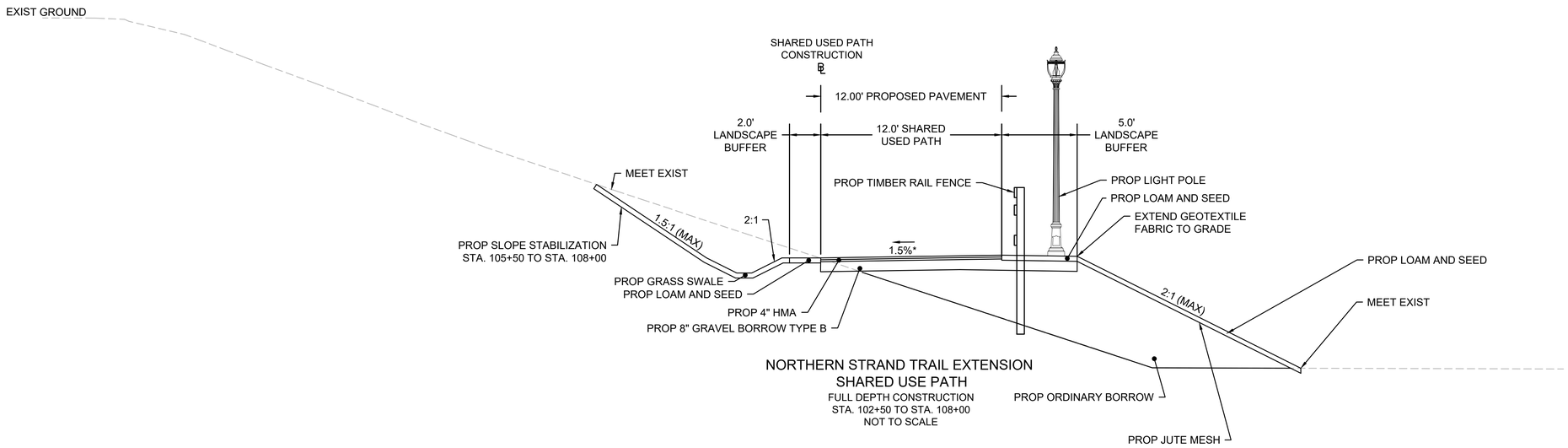
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	67
PROJECT FILE NO.		-	

TYPICAL SECTION
SHEET 2 OF 4



NORTHERN STRAND TRAIL EXTENSION
SHARED USE PATH
FULL DEPTH CONSTRUCTION
STA. 102+50 TO STA. 108+00
NOT TO SCALE

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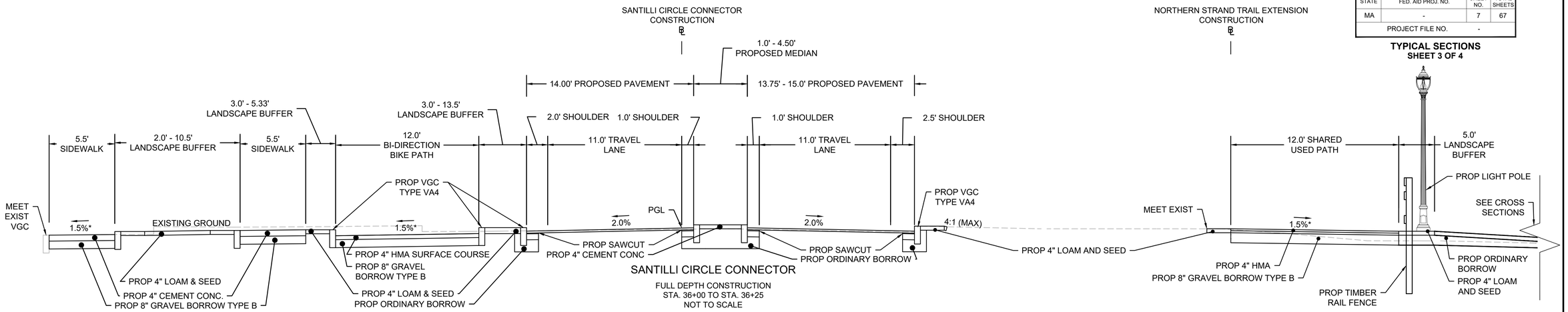
EVERETT
NORTHERN STRAND TRAIL CONNECTOR

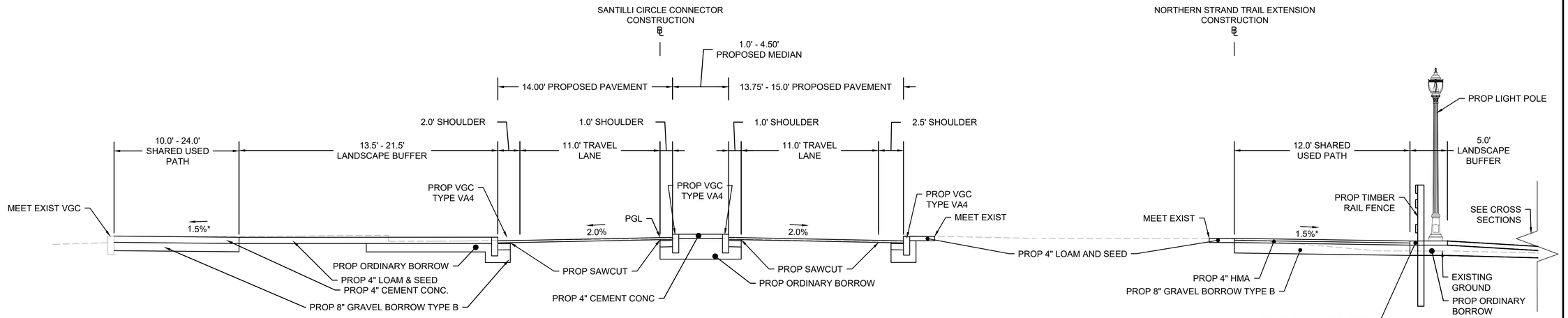
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	67
PROJECT FILE NO.		-	

TYPICAL SECTIONS
SHEET 3 OF 4



SANTILLI CIRCLE CONNECTOR

FULL DEPTH CONSTRUCTION
STA. 36+00 TO STA. 36+25
NOT TO SCALE



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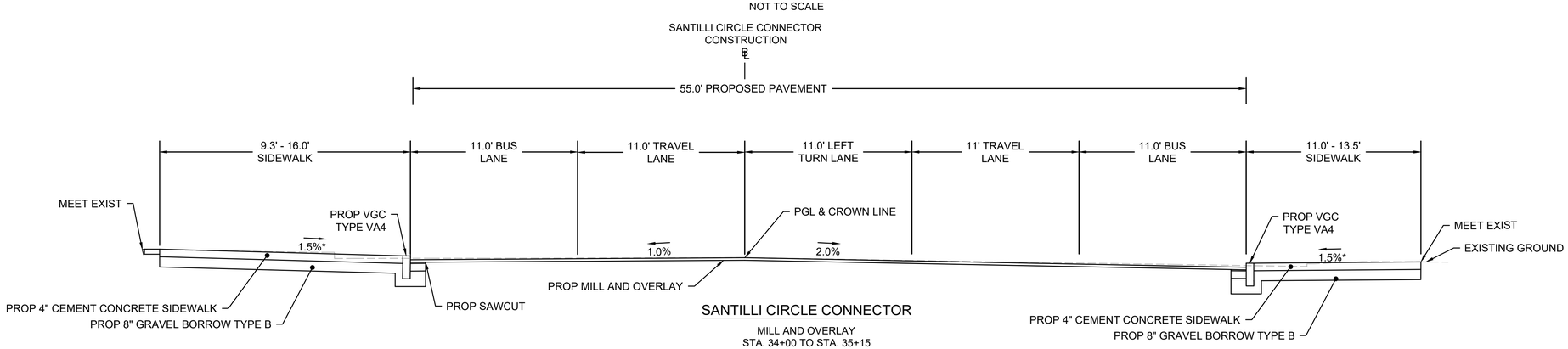
FULL DEPTH CONSTRUCTION
STA. 35+67 TO STA. 36+00
NOT TO SCALE



SANTILLI CIRCLE CONNECTOR

MILL AND OVERLAY
STA. 34+00 TO STA. 35+15
NOT TO SCALE

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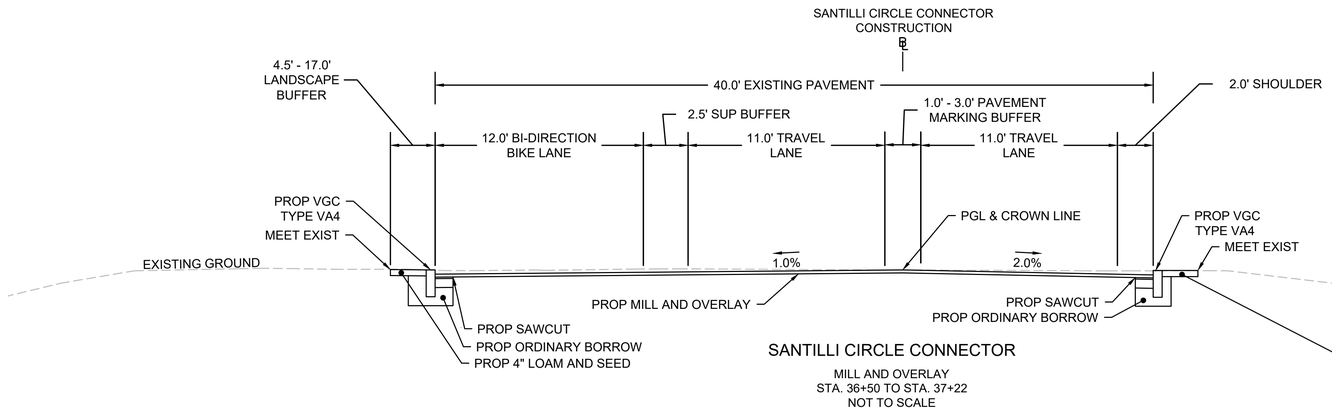
EVERETT
NORTHERN STRAND TRAIL CONNECTOR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	67
PROJECT FILE NO.		-	

TYPICAL SECTIONS
SHEET 4 OF 4



SANTILLI CIRCLE CONNECTOR

MILL AND OVERLAY
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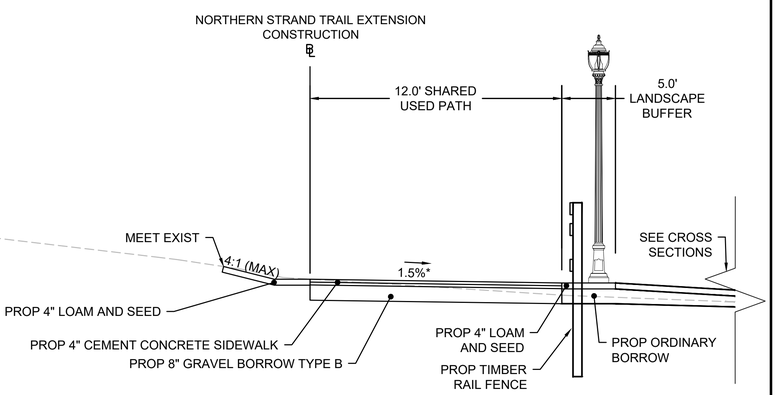

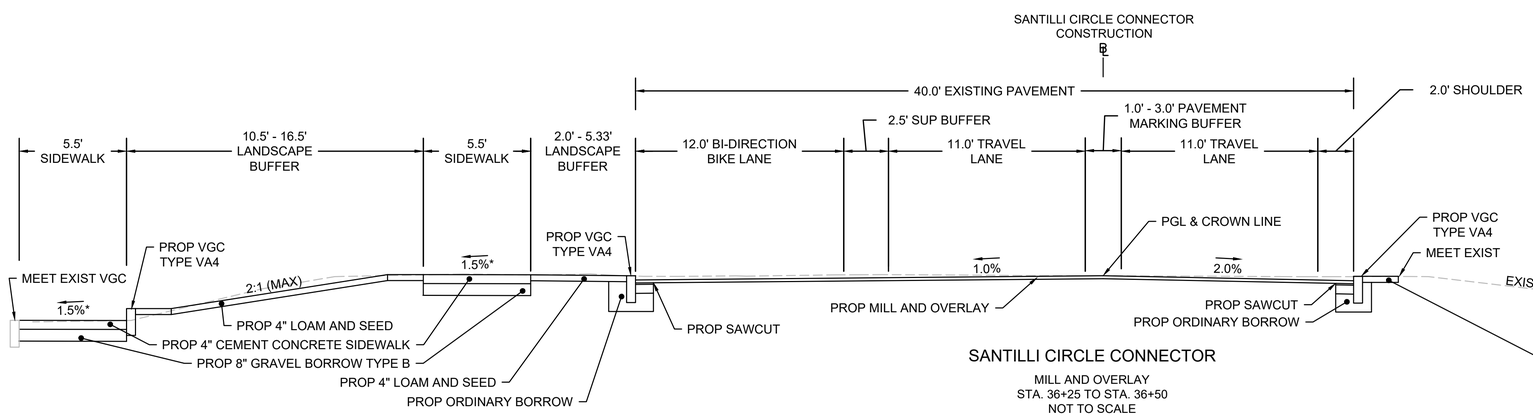

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MILL AND OVERLAY
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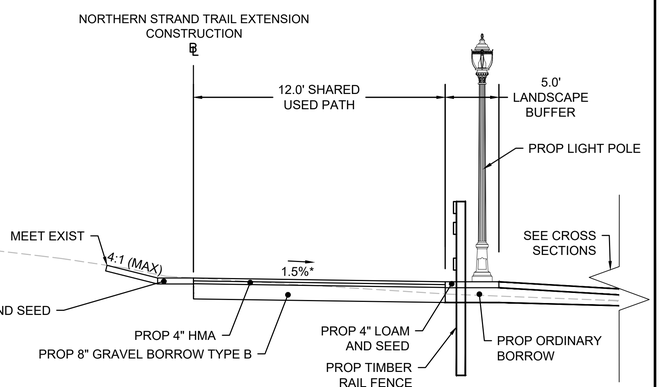
NOT TO SCALE



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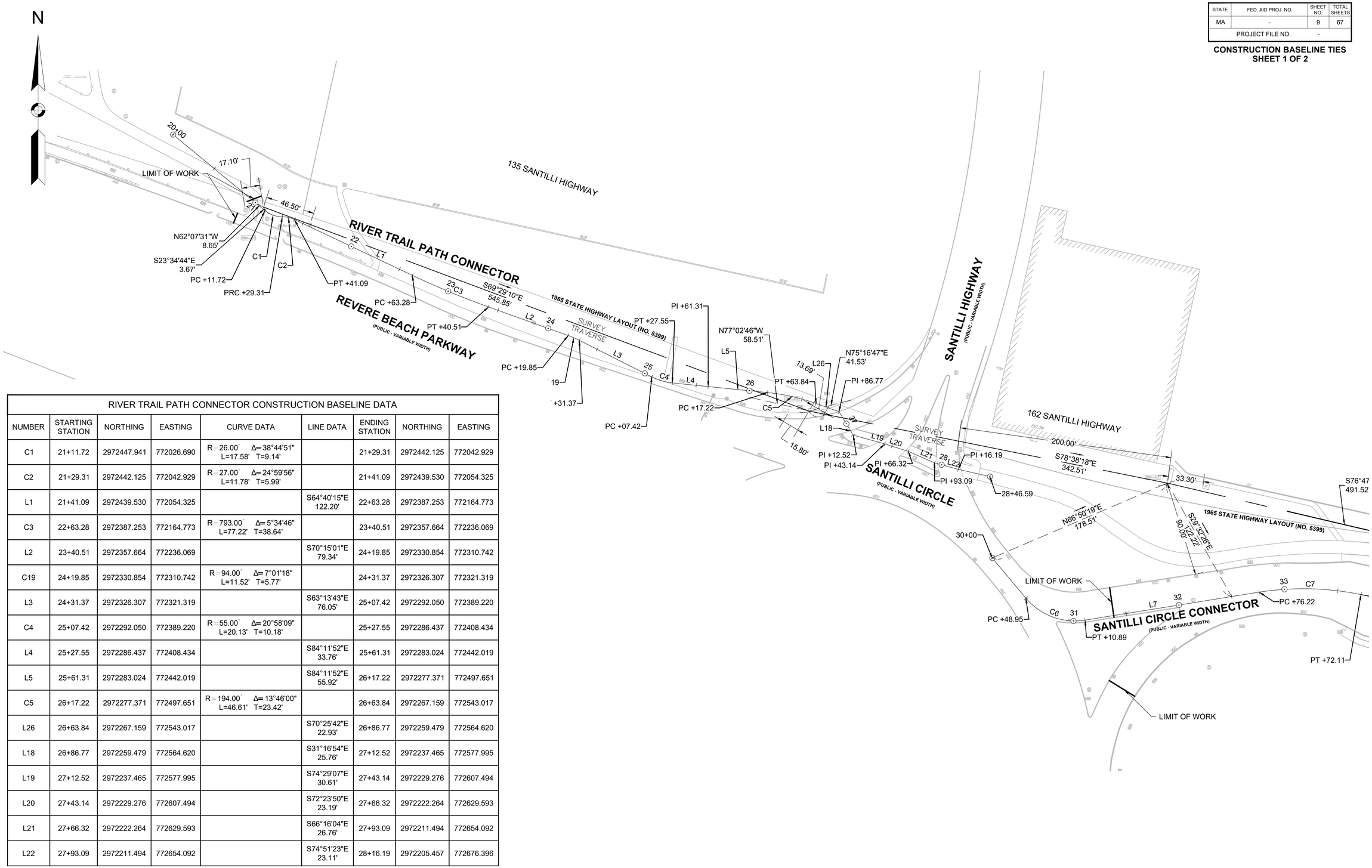
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	67
PROJECT FILE NO.		-	

CONSTRUCTION BASELINE TIES
SHEET 1 OF 2



CONTINUED ON SHEET NO. 10

RIVER TRAIL PATH CONNECTOR CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	21+11.72	2972447.941	772026.690	R=26.00' Δ=38°44'51" L=17.58' T=9.14'		21+29.31	2972442.125	772042.929
C2	21+29.31	2972442.125	772042.929	R=27.00' Δ=24°59'56" L=11.78' T=5.99'		21+41.09	2972439.530	772054.325
L1	21+41.09	2972439.530	772054.325		S64°40'15"E 122.20'	22+63.28	2972387.253	772164.773
C3	22+63.28	2972387.253	772164.773	R=793.00' Δ=5°34'46" L=77.22' T=38.64'		23+40.51	2972357.664	772236.069
L2	23+40.51	2972357.664	772236.069		S70°15'01"E 79.34'	24+19.85	2972330.854	772310.742
C19	24+19.85	2972330.854	772310.742	R=94.00' Δ=7°01'18" L=11.52' T=5.77'		24+31.37	2972326.307	772321.319
L3	24+31.37	2972326.307	772321.319		S63°13'43"E 76.05'	25+07.42	2972292.050	772389.220
C4	25+07.42	2972292.050	772389.220	R=55.00' Δ=20°58'09" L=20.13' T=10.18'		25+27.55	2972286.437	772408.434
L4	25+27.55	2972286.437	772408.434		S84°11'52"E 33.76'	25+61.31	2972283.024	772442.019
L5	25+61.31	2972283.024	772442.019		S84°11'52"E 55.92'	26+17.22	2972277.371	772497.651
C5	26+17.22	2972277.371	772497.651	R=194.00' Δ=13°46'00" L=46.61' T=23.42'		26+63.84	2972267.159	772543.017
L26	26+63.84	2972267.159	772543.017		S70°25'42"E 22.93'	26+86.77	2972259.479	772564.620
L18	26+86.77	2972259.479	772564.620		S31°16'54"E 25.76'	27+12.52	2972237.465	772577.995
L19	27+12.52	2972237.465	772577.995		S74°29'07"E 30.61'	27+43.14	2972229.276	772607.494
L20	27+43.14	2972229.276	772607.494		S72°23'50"E 23.19'	27+66.32	2972222.264	772629.593
L21	27+66.32	2972222.264	772629.593		S66°16'04"E 26.76'	27+93.09	2972211.494	772654.092
L22	27+93.09	2972211.494	772654.092		S74°51'23"E 23.11'	28+16.19	2972205.457	772676.396

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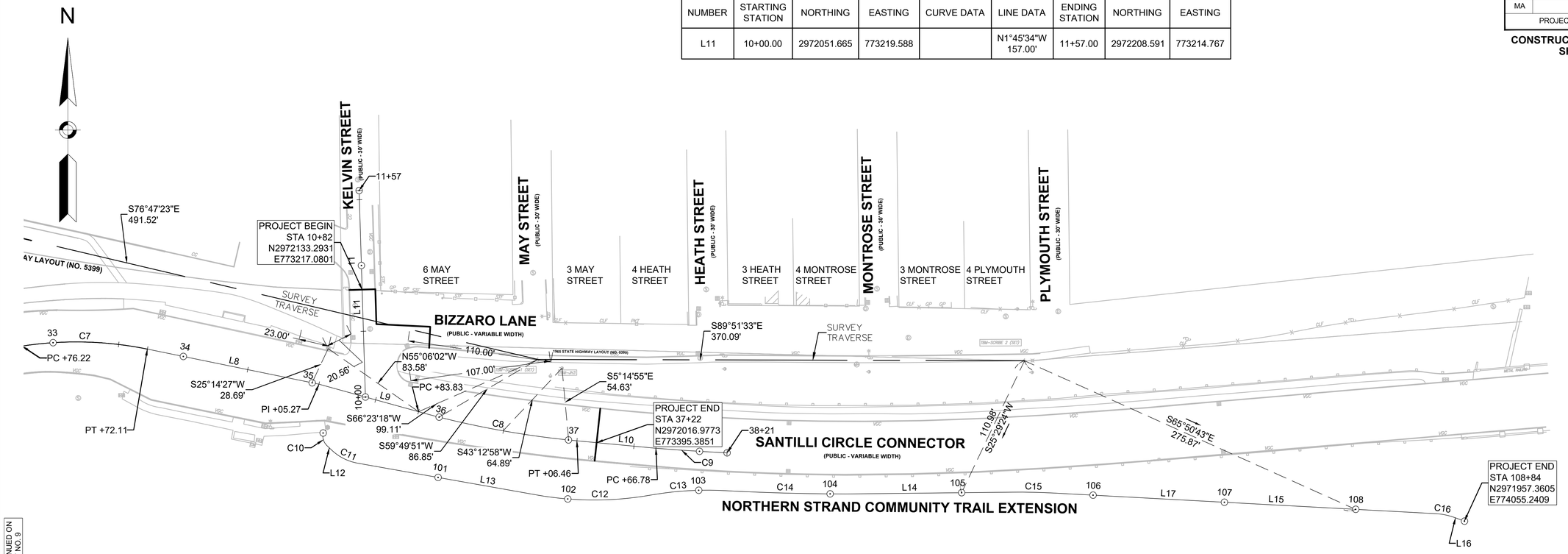
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	67
PROJECT FILE NO.		-	

CONSTRUCTION BASELINE TIES
SHEET 2 OF 2

KELVIN STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L11	10+00.00	2972051.665	773219.588		N1°45'34"W 157.00'	11+57.00	2972208.591	773214.767



CONTINUED ON SHEET NO. 9

REVERE BEACH PARKWAY CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C6	30+48.95	2972084.807	772739.676	R=60.00' Δ=59°08'38" L=61.94' T=34.05'		31+10.89	2972064.128	772795.170
L7	31+10.89	2972064.128	772795.170		N80°51'57"E 165.34'	32+76.22	2972090.375	772958.410
C7	32+76.22	2972090.375	772958.410	R=270.00' Δ=20°20'55" L=95.89' T=48.46'		33+72.11	2972088.085	773053.769
L8	33+72.11	2972088.085	773053.769		S78°27'00"E 133.16'	35+05.27	2972061.423	773184.234
L9	35+05.27	2972061.423	773184.234		S74°34'12"E 78.55'	35+83.83	2972040.523	773259.957
C8	35+83.83	2972040.523	773259.957	R=700.00' Δ=10°02'16" L=122.64' T=61.48'		37+06.46	2972018.390	773380.420
L10	37+06.46	2972018.390	773380.420		S84°36'29"E 60.32'	37+66.78	2972012.721	773440.474
C9	37+66.78	2972012.721	773440.474	R=1881.21' Δ=1°39'05" L=54.22' T=27.11'		38+21.00	2972009.230	773494.577

NORTHERN STRAND COMMUNITY TRAIL EXTENSION SHARED USED PATH CONSTRUCTION BASELINE DATA RIVER TRAIL PATH CONNECTOR CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C10	100+00.00	2972024.330	773187.389	R=10.00' Δ=59°44'01" L=10.43' T=5.74'		100+10.43	2972014.793	773190.259
L12	100+10.43	2972014.793	773190.259		S46°36'44"E 5.16'	100+15.58	2972011.250	773194.007
C11	100+15.58	2972011.250	773194.007	R=38.00' Δ=33°19'16" L=22.10' T=11.37'		100+37.68	2972001.450	773213.469
L13	100+37.68	2972001.450	773213.469		S79°56'00"E 138.38'	101+76.06	2971977.262	773349.719
C12	101+76.06	2971977.262	773349.719	R=250.00' Δ=19°58'34" L=87.16' T=44.03'		102+63.23	2971977.143	773436.441
C13	102+63.23	2971977.143	773436.441	R=250.00' Δ=12°56'36" L=56.48' T=28.36'		103+19.70	2971980.523	773492.696
C14	103+19.70	2971980.523	773492.696	R=1800.94' Δ=2°55'32" L=91.96' T=45.99'		104+11.66	2971978.002	773584.612
L14	104+11.66	2971978.002	773584.612		N89°22'52"E 126.72'	105+38.39	2971979.371	773711.327
C15	105+38.39	2971979.371	773711.327	R=500.00' Δ=3°42'23" L=32.35' T=16.18'		105+70.73	2971978.674	773743.659
L17	105+70.73	2971978.674	773743.659		S86°54'45"E 290.19'	108+60.92	2971963.044	774033.430
L15	105+70.73	2971978.674	773743.659		S86°54'45"E 290.19'	108+60.92	2971963.044	774033.430
C16	108+60.92	2971963.044	774033.430	R=50.00' Δ=17°13'50" L=15.04' T=7.58'		108+75.96	2971960.005	774048.099
L16	108+75.96	2971960.005	774048.099		S69°40'54"E	108+83.68	2971957.326	774055.335

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

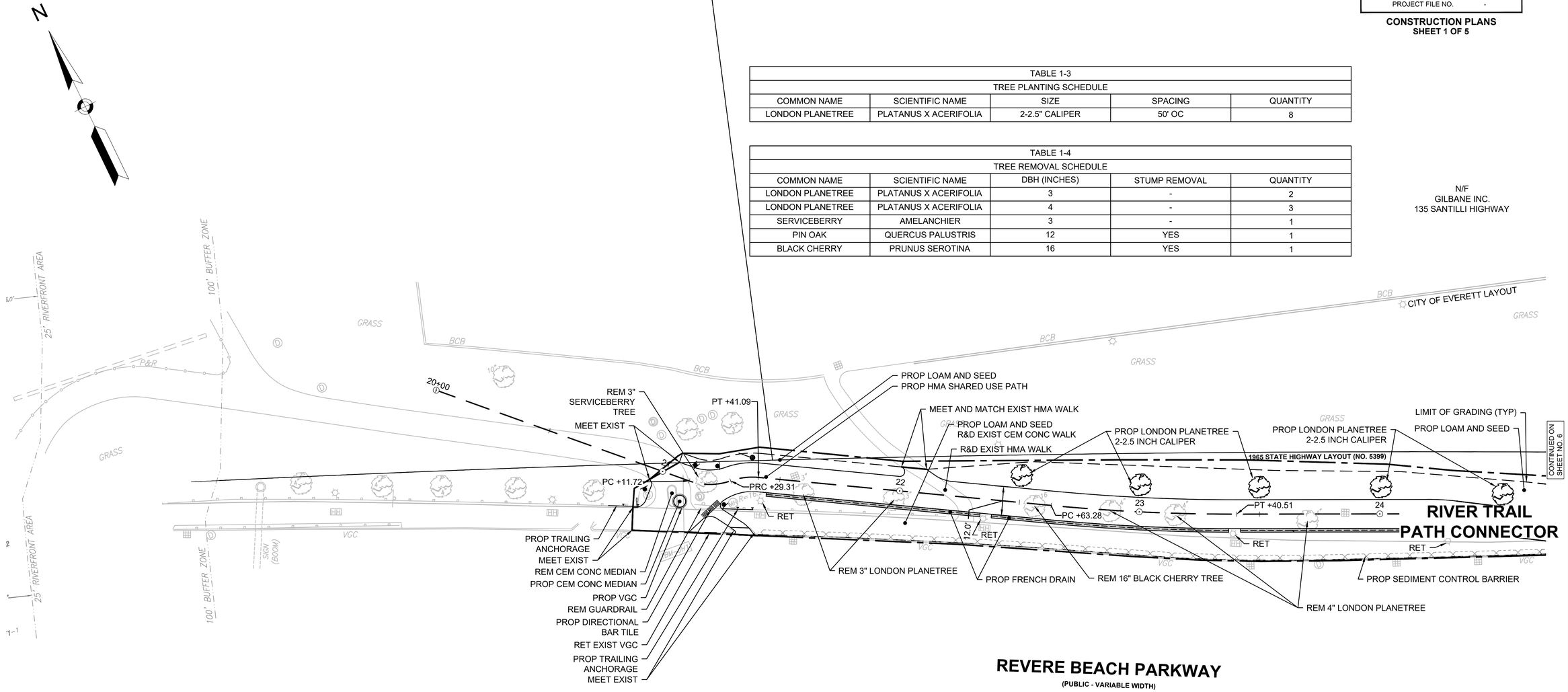
STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	11	67
PROJECT FILE NO.		-	

CONSTRUCTION PLANS
SHEET 1 OF 5

TABLE 1-3				
TREE PLANTING SCHEDULE				
COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
LONDON PLANETREE	PLATANUS X ACERIFOLIA	2-2.5" CALIPER	50' OC	8

TABLE 1-4				
TREE REMOVAL SCHEDULE				
COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	STUMP REMOVAL	QUANTITY
LONDON PLANETREE	PLATANUS X ACERIFOLIA	3	-	2
LONDON PLANETREE	PLATANUS X ACERIFOLIA	4	-	3
SERVICEBERRY	AMELANCHIER	3	-	1
PIN OAK	QUERCUS PALUSTRIS	12	YES	1
BLACK CHERRY	PRUNUS SEROTINA	16	YES	1

N/F
GILBANE INC.
135 SANTILLI HIGHWAY



PROP VGC	#	PROPOSED PEDESTRIAN CURB RAMP #
R&R VGC		LIMIT OF WORK BASE SCOPE
PROP FULL DEPTH RECONSTRUCTION		LIMIT OF WORK AD-ALT 1
		LIMIT OF WORK AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

NOTES: DISPOSITION OF UTILITIES SEE UTILITY PLANS SHEET
DISPOSITION OF SIGNS SEE PAVEMENT MARKING PLANS
FOR PROFILE SEE SHEET 16

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	12	67
PROJECT FILE NO.		-	

CONSTRUCTION PLANS
SHEET 2 OF 5

Plotted on 28-Apr-2026 3:49 PM
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N

N/F
GILBANE INC.
135 SANTILLI HIGHWAY

N/F
JIS RANCH LLC.
162 SANTILLI HIGHWAY

SANTILLI HIGHWAY
(PUBLIC - VARIABLE WIDTH)

CITY OF EVERETT LAYOUT

BCB

GRASS

VGC

LSA

ENT.3W

TBM-JH3

PROP CEM CONC PED RAMP (TYP)

LIMIT OF GRADING (TYP)

PROP LOAM AND SEED

PROP LONDON PLANETREE 2-2.5 INCH CALIPER

RET EXIST PRIVATE SIGN

PROP LONDON PLANETREE
2-2.5 INCH CALIPER

CONTINUED ON SHEET NO. 5

1965 STATE HIGHWAY LAYOUT (NO. 5399)

PT +63.84

PC +17.22

MEET EXIST

PI +86.77

PI +12.52

PI +66.32

PI +43.14

PI +93.09

RET VGC

PI +16.19

MEET EXIST

28+46.59

CONTINUED ON SHEET NO. 7

PI +61.31

PT +31.37

PC +19.85

RET

PROP HMA SHARED USE PATH

R&D EXIST CEM CONC WALK

PROP LOAM AND SEED

PC +07.42

PT +27.55

RELOCATE EXIST
LIGHT POLE

RET EXIST VGC

RET

RET 4" TREE

PROP CEM CONC PED RAMP (TYP)

PROP SEDIMENT CONTROL BARRIER

PROP CEM CONC PED RAMP (TYP)

11.0'

12.0'

10.0'

24

25

26

27

28

1

6

7

8

9

10

11

REVERE BEACH PARKWAY
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

LANDSCAPING AREA

30+00

LIMIT OF WORK
STA 31+38.10
N2972068.4478
E772822.0372

PC +48.95

PT +10.89

31

ZONE

PROP VGC	#	PROPOSED PEDESTRIAN CURB RAMP #
R&R VGC		LIMIT OF WORK BASE SCOPE
PROP FULL DEPTH RECONSTRUCTION		LIMIT OF WORK AD-ALT 1
		LIMIT OF WORK AD-ALT 2

0 20 50 100

SCALE: 1" = 20'

NOTES: DISPOSITION OF UTILITIES SEE UTILITY PLANS SHEET
DISPOSITION OF SIGNS SEE PAVEMENT MARKING PLANS
FOR PROFILE SEE SHEET 16

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	13	67
PROJECT FILE NO.		-	

CONSTRUCTION PLANS
SHEET 3 OF 5

CONTINUED ON SHEET NO. 6

CONTINUED ON SHEET NO. 8

N

N/F
JIS RANCH LLC.
162 SANTILLI HIGHWAY

CITY OF EVERETT LAYOUT

1965 STATE HIGHWAY LAYOUT (NO. 5399)

KELVIN STREET
(PUBLIC - 30' WIDE)

MAY STREET
(PUBLIC - 30' WIDE)

N/F
DOMINGUEZ SR. DAVID
6 MAY STREET

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

LIMIT OF WORK
STA 10+82
N2972133.2931
E773217.0801

LIMIT OF WORK
STA 31+38.10
N2972068.4478
E772822.0372

REM RECTANGULAR RAPID FLASHING BEACON
PROP CEM CONC PED RAMP (TYP)
PROP HMA SHARED USE PATH
MEET EXISTING
PROP CEM CONC
MEET EXIST
PROP STAMPED CONCRETE
RET BUS SHELTER AND FOUNDATION
PROP CEM CONC BUS PLATFORM
LIMIT OF MILL AND OVERLAY
LIMIT OF GRADING
PROP SILT SACK (TYP.)
R&R VGC (TYP)
R&D EXISTING PAVEMENT
PROP LOAM AND SEED
PROP LANDSCAPED MEDIAN
PROP PVMT MILL & OVERLAY
PROP SAWCUT (TYP)
PROP VGC
R&D VGC
PROP FULL DEPTH RECONSTRUCTION
PROP LOAM AND SEED
REM RECTANGULAR RAPID FLASHING BEACON
PROP PEDESTRIAN HYBRID BEACON
PROP LIGHT POLE (TYP)
REM 12" PIN OAK TREE
PROP HMA SHARED USE PATH
PROP LOAM AND SEED
PROP TIMBER RAIL FENCE (TYP)
LIMIT OF GRADING (TYP)
PROP SEDIMENT CONTROL BARRIER
REM VEGETATION (TYP)
SEE WETLAND REPLICATION PLAN
MEET EXISTING
PROP CEMENT CONC
PROP FULL DEPTH RECONSTRUCTION
PROP DIRECTIONAL BAR TILE
R&D EXISTING PAVEMENT
PROP LOAM AND SEED

11+57
PT +72.11
PC +76.22
PI +05.27
10+00
PC +83.83
PC +48.95
PT +10.89
PT +35.72
PC +13.62
PT +08.46
100+00

55.0'
26.5'
15.0'
16.0'
12.5'
11.0'
13.5'
12.0'
93.5'
5.0"
5.4'

PROP VGC	PROPOSED PEDESTRIAN CURB RAMP #
R&R VGC	LIMIT OF WORK BASE SCOPE
PROP FULL DEPTH RECONSTRUCTION	LIMIT OF WORK AD-ALT 1
	LIMIT OF WORK AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

NOTES: DISPOSITION OF UTILITIES SEE UTILITY PLANS SHEET
DISPOSITION OF SIGNS SEE PAVEMENT MARKING PLANS
FOR PROFILE SEE SHEET 17

4/28/2026 L:\22012\2P2022012.0_Final Design Submission\Project Drawing Data\DWG\Plan Sheet Files\Plan Sheet DWG\2022012_HD\Construction Plans).dwg
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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	14	67
PROJECT FILE NO.		-	

CONSTRUCTION PLANS
SHEET 4 OF 5

N

N/F
DOMINGUEZ SR. DAVID
6 MAY STREET

MAY STREET
(PUBLIC - 30' WIDE)

N/F
HERNANDEZ YOVANY E
3 MAY STREET

3 MAY STREET

N/F
PANDEY JANUKA THAPALIYA
4 HEATH STREET

4 HEATH STREET

HEATH STREET
(PUBLIC - 30' WIDE)

N/F
DORVAL MAGUY
3 HEATH STREET

3 HEATH STREET

N/F
BRODERICK JOHN SR
4 MONTROSE STREET

6 MONTROSE STREET

MONTROSE STREET
(PUBLIC - 30' WIDE)

3 MONTROSE STREET

4 PLYMOUTH STREET

PLYMOUTH STREET
(PUBLIC - 30' WIDE)

CITY OF EVERETT LAYOUT

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

1965 STATE HIGHWAY LAYOUT (NO. 5399)

PROP LOAM AND SEED
R&D EXISTING CONCRETE SIDEWALK
PROP LOAM AND SEED
PROP FULL DEPTH RECONSTRUCTION
PROP DIRECTIONAL BAR TILE
PROP VGC
MEET EXIST
MEET EXIST
TBM-SCRIBE 1 (SET)
TBM-JH3
TBM-SCRIBE 2 (SET)
10+00
PC +83.83
PROP HMA BIKE RAMP
R&D EXISTING PAVEMENT
PROP PVMT MILL & OVERLAY
R&S FLEXPOSTS (TYP)
LIMIT OF WORK
STA 37+21.50
N2972016.9772
E773395.3851
PT +06.46
PC +66.78
38+21
100' WETLAND BUFFER ZONE
CONTINUED ON SHEET NO. 7
CONTINUED ON SHEET NO. 9

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

RET
LIMIT OF SLOPE STABILIZATION
PRC +61.26
PRC +17.74
PT +09.70
PC +36.42
PT +68.77
PROP 1.5:1 LOAM AND SEED WITH SLOPE STABILIZATION
PROP GRASS SWALE (TYP)
PC +74.10
12.0'
27.0'
40.0'

NORTHERN STRAND COMMUNITY TRAIL EXTENSION

REM VEGETATION (TYP)
PROP RIP RAP
PROP RIP RAP
LIMIT OF JUTE MESH (TYP)
PROP 2:1 SLOPED LOAM AND SEED WITH JUTE MESH
PROP LOAM AND SEED
LIMIT OF GRADING (TYP)
PROP HMA SHARED USE PATH
PROP TIMBER RAIL FENCE (TYP)
PROP LIGHT POLE (TYP)
PROP WETLAND REPLICATION
PROP SEDIMENT CONTROL BARRIER

PROP VGC	PROPOSED PEDESTRIAN CURB RAMP #
R&R VGC	LIMIT OF WORK BASE SCOPE
PROP FULL DEPTH RECONSTRUCTION	LIMIT OF WORK AD-ALT 1
	LIMIT OF WORK AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

NOTES: DISPOSITION OF UTILITIES SEE UTILITY PLANS SHEET
DISPOSITION OF SIGNS SEE PAVEMENT MARKING PLANS
FOR PROFILE SEE SHEET 18

4/28/2026 L:\22012\PS\20220912.0_Final Design Submission\Project Drawing Data\DWG\Plan Sheet Files\Plan Sheet DWG\20220012_HD\Construction Plans).dwg
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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	15	67
PROJECT FILE NO.		-	

CONSTRUCTION PLANS
SHEET 5 OF 5

CONTINUED ON SHEET NO. 8

N

CITY OF EVERETT LAYOUT

1965 STATE HIGHWAY LAYOUT (NO. 5399)

CLF

GRASS

METAL RAILING

VGC

100' WETLAND BUFFER ZONE

EXPANSION JOINT

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

NORTHERN STRAND COMMUNITY TRAIL EXTENSION

PT +68.77

PROP GRASS SWALE (TYP)

12.0'

PROP RIP RAP

PROP 2:1 SLOPED LOAM AND SEED WITH JUTE MESH

PROP 1.5:1 LOAM AND SEED WITH SLOPE STABILIZATION

LIMIT OF GRADING (TYP)

REM VEGETATION (TYP)

PC +58.96

PT +74.00

LIMIT OF SLOPE STABILIZATION

REM GRAVEL

108+81.71

MEET EXIST

PROP LOAM AND SEED

LIMIT OF JUTE MESH (TYP)

PROP HMA SHARED USE PATH

PROP LOAM AND SEED

PROP TIMBER RAIL FENCE (TYP)

PROP LIGHT POLE (TYP)

PROP SEDIMENT CONTROL BARRIER

NORTHERN STRAND COMMUNITY TRAIL

BVW

WFA-53

PROP VGC	#	PROPOSED PEDESTRIAN CURB RAMP #
R&R VGC		LIMIT OF WORK BASE SCOPE
PROP FULL DEPTH RECONSTRUCTION		LIMIT OF WORK AD-ALT 1
		LIMIT OF WORK AD-ALT 2

0 20 50 100

SCALE: 1" = 20'

NOTES: DISPOSITION OF UTILITIES SEE UTILITY PLANS SHEET
DISPOSITION OF SIGNS SEE PAVEMENT MARKING PLANS
FOR PROFILE SEE SHEET 18

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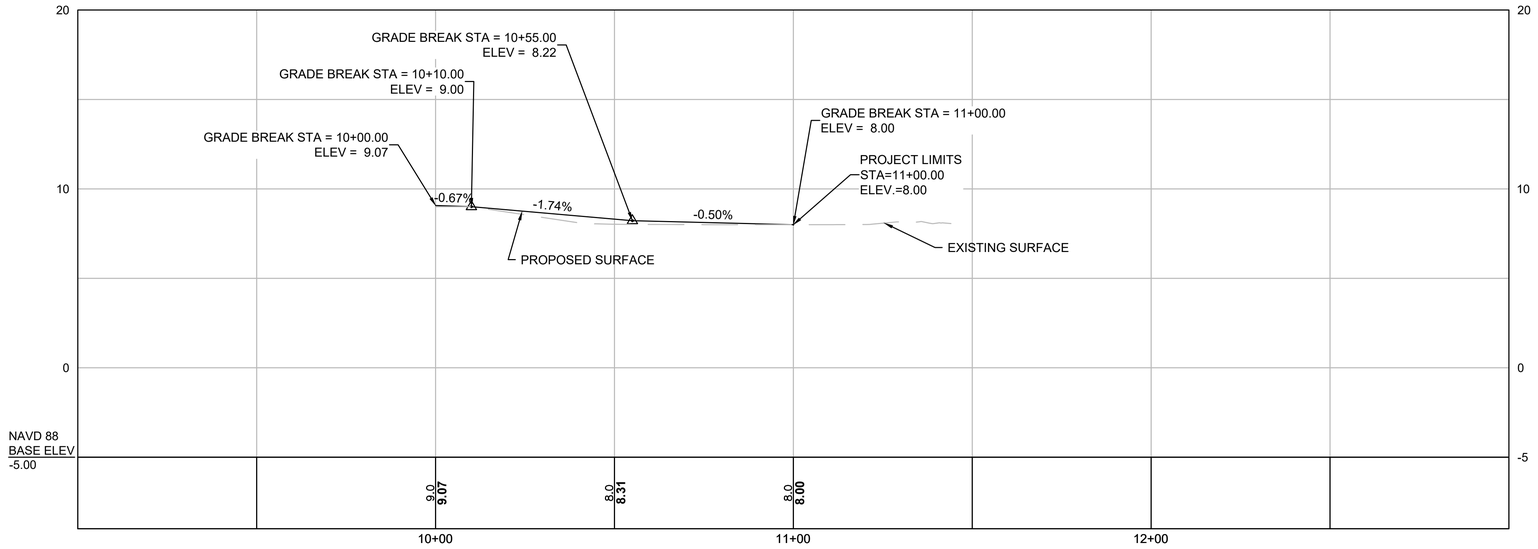
EVERETT
NORTHERN STRAND TRAIL EXTENSION

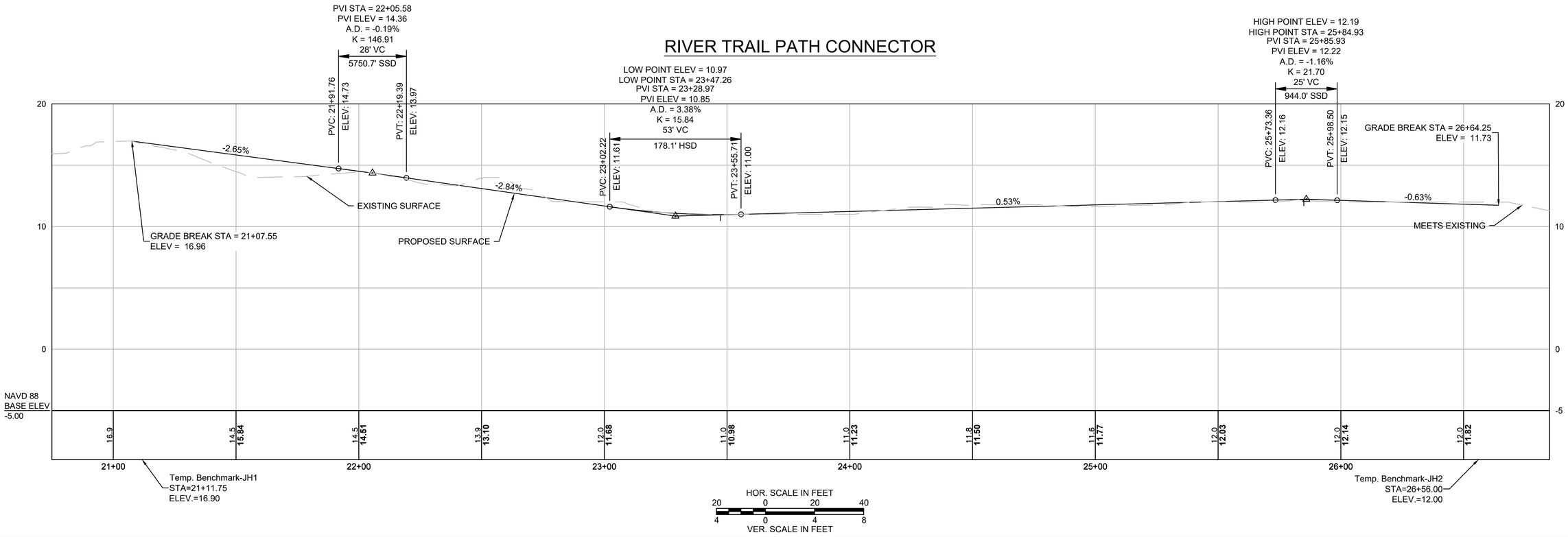
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	67
PROJECT FILE NO.		-	

PROFILES

KELVIN STREET



RIVER TRAIL PATH CONNECTOR



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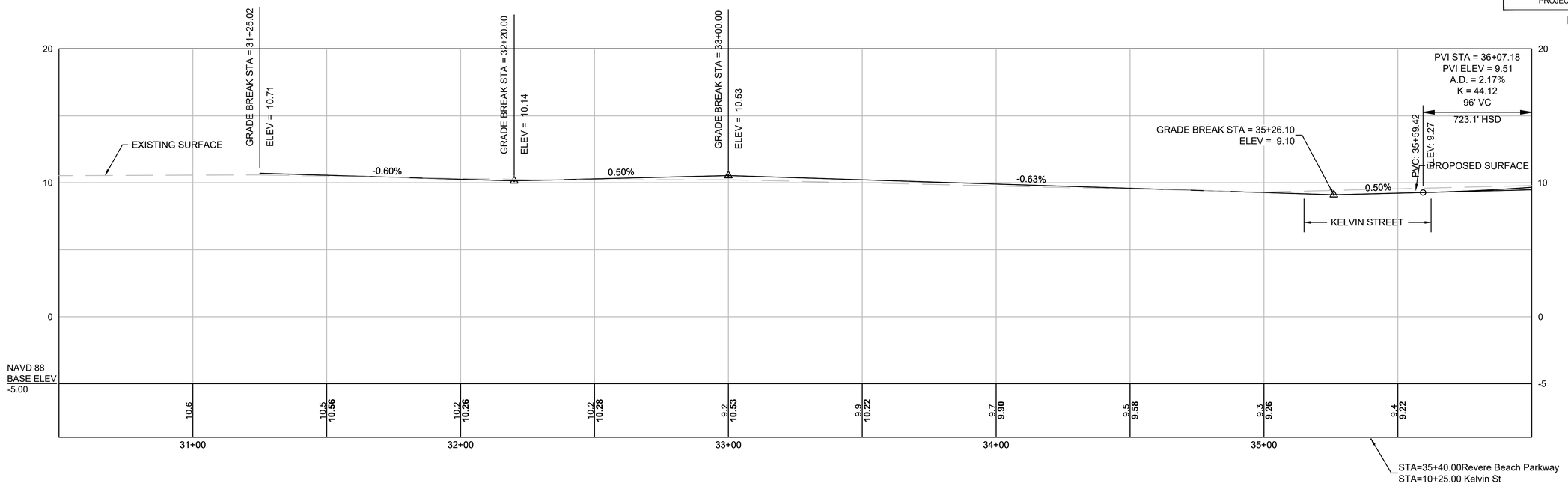
EVERETT
NORTHERN STRAND TRAIL CONNECTION

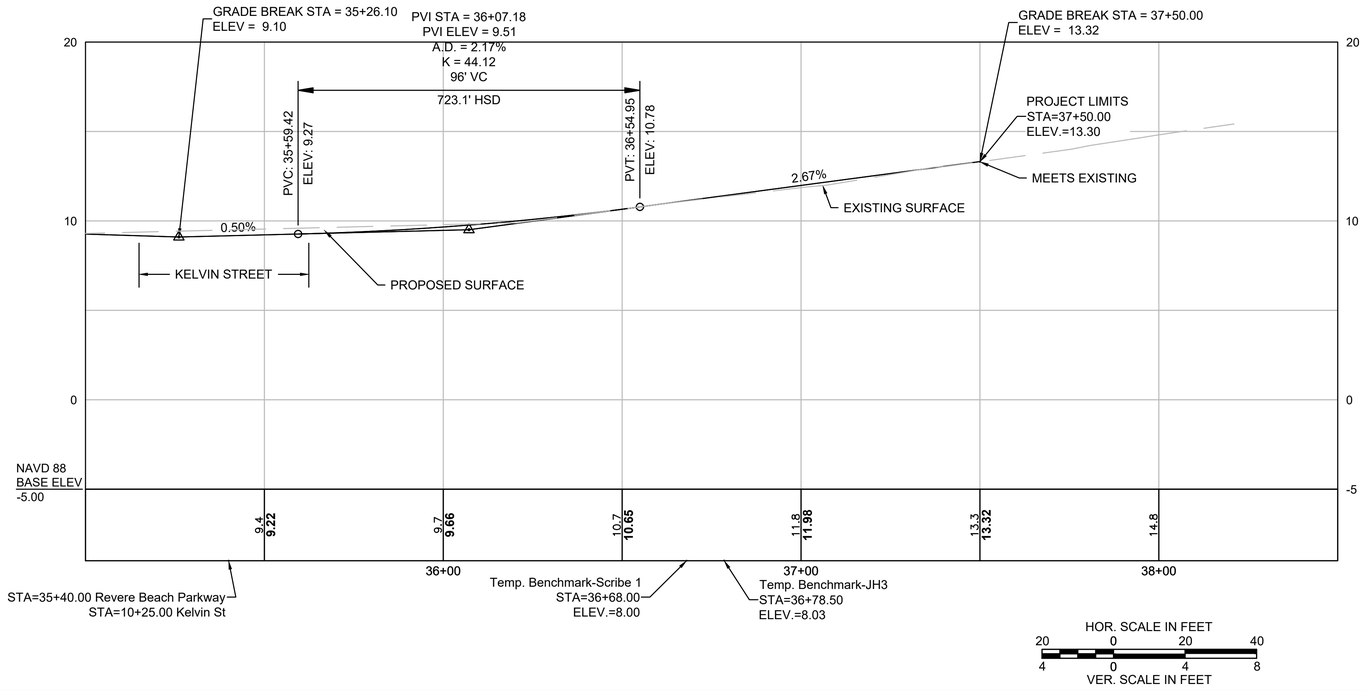
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	67
PROJECT FILE NO.		-	

PROFILES

SANTILLI CIRCLE CONNECTOR



SANTILLI CIRCLE CONNECTOR



HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

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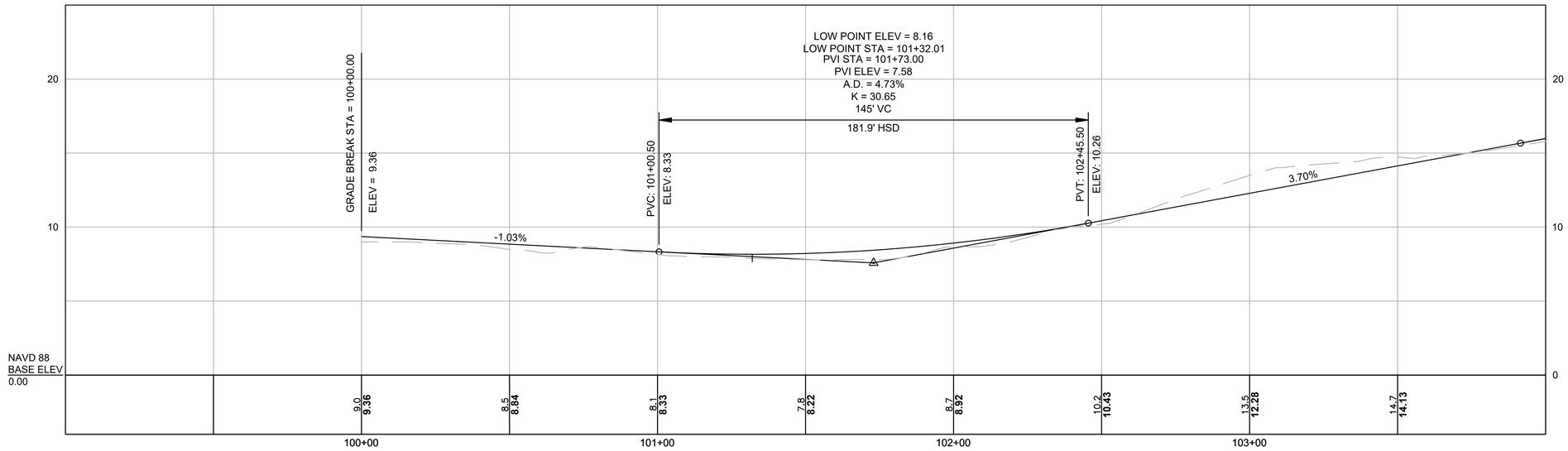
EVERETT
NORTHERN STRAND TRAIL EXTENSION

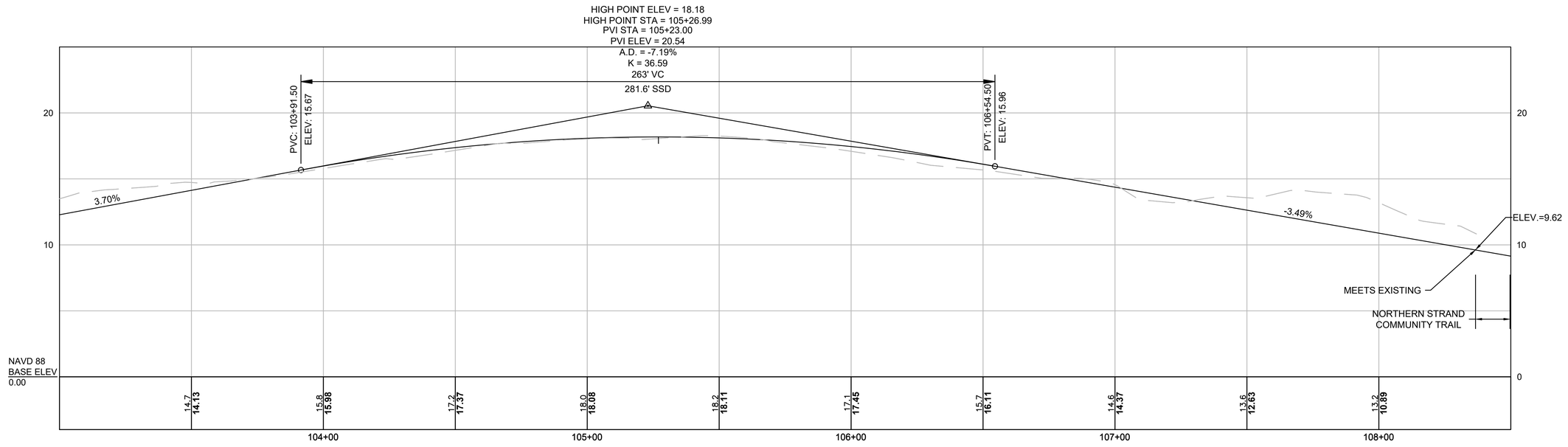
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	67
PROJECT FILE NO.		-	

PROFILES

NORTHERN STRAND COMMUNITY TRAIL EXTENSION_



NORTHERN STRAND COMMUNITY TRAIL EXTENSION



HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

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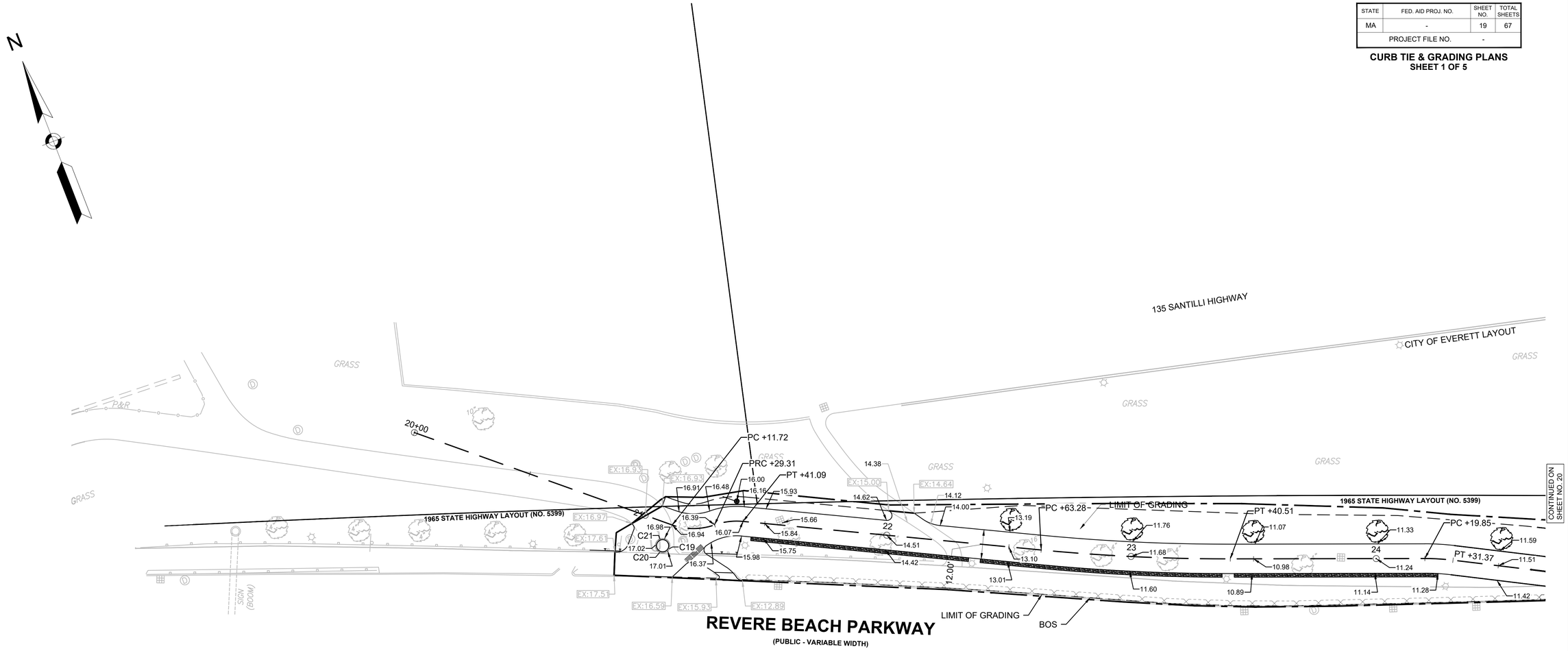
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	67
PROJECT FILE NO.		-	

CURB TIE & GRADING PLANS
SHEET 1 OF 5



LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

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2022012_HD\CURB TIE & GRADING PLAN).DWG

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	67
PROJECT FILE NO.		-	

CURB TIE & GRADING PLANS
SHEET 2 OF 5

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2022012_HD\CURB TIE & GRADING PLAN).DWG

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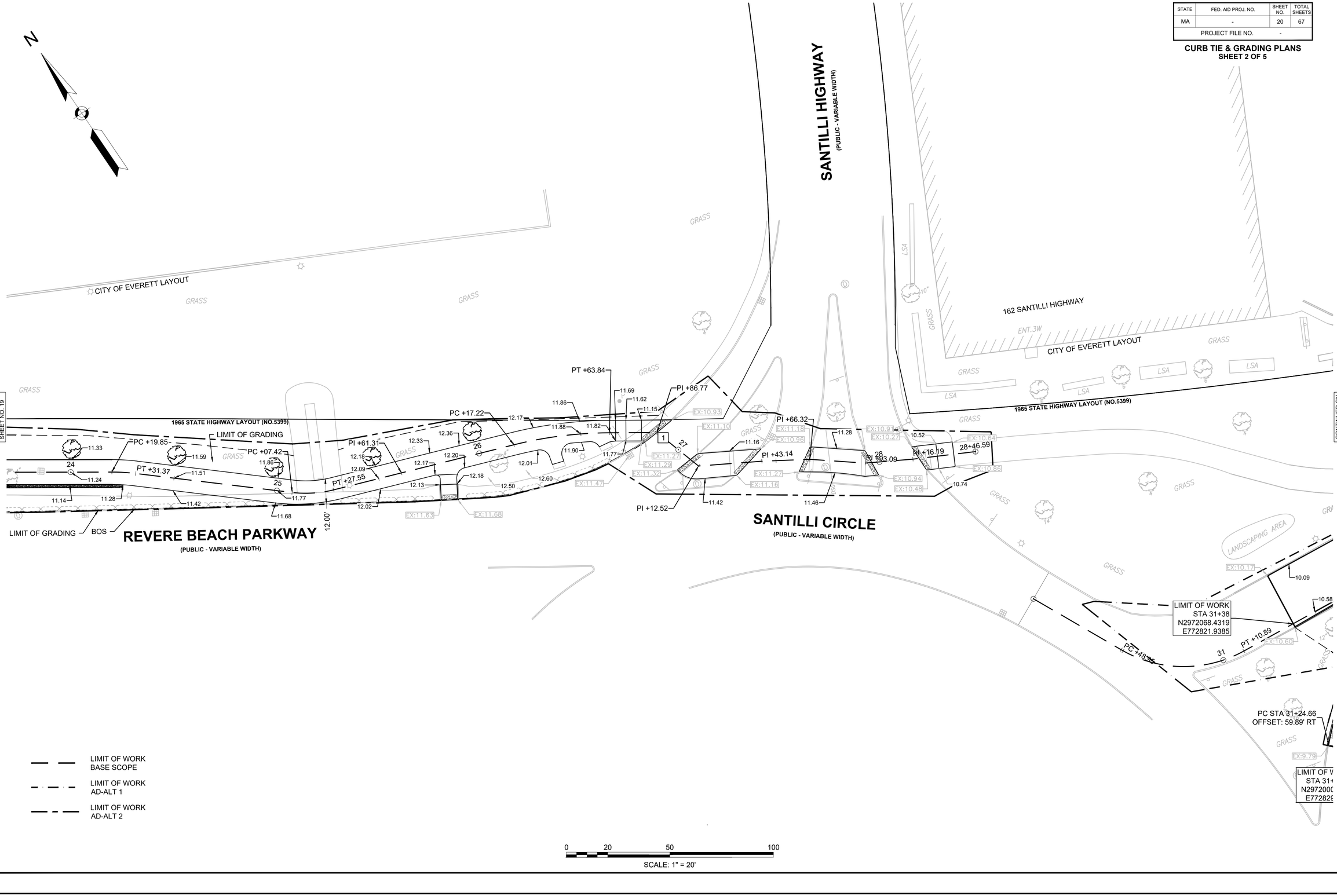

EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	67
PROJECT FILE NO.		-	

CURB TIE & GRADING PLANS
SHEET 3 OF 5

Curve Table						
Curve #	Delta	Radius	Length	TANGENT	CURVE START	CURVE END
C4	103°22'46"	20.00	36.09	25.32	N: 2972098.92 E: 773208.63	N: 2972078.69 E: 773184.64
C5	17°58'21"	25.00	7.84	3.95	N: 2972111.54 E: 772936.43	N: 2972111.57 E: 772928.62
C6	14°13'20"	100.00	24.82	12.48	N: 2972108.13 E: 772976.79	N: 2972109.02 E: 772952.05
C9	16°35'56"	20.00	5.79	2.92	N: 2972113.02 E: 773041.63	N: 2972113.35 E: 773035.87
C13	25°33'12"	50.03	22.31	11.34	N: 2972059.03 E: 773307.68	N: 2972051.10 E: 773328.34
C14	1°57'00"	487.00	16.58	8.29	N: 2972046.68 E: 773286.83	N: 2972043.09 E: 773303.01
C15	161°49'55"	2.00	5.65	12.51	N: 2972043.09 E: 773303.01	N: 2972046.79 E: 773304.40
C19	88°46'07"	3.00	4.65	2.94	N: 2972438.33 E: 772020.18	N: 2972441.33 E: 772023.11
C20	88°59'30"	3.00	4.66	2.95	N: 2972441.22 E: 772017.12	N: 2972438.33 E: 772020.18

N

162 SANTILLI HIGHWAY

ENT.3W

CITY OF EVERETT LAYOUT

1965 STATE HIGHWAY LAYOUT (NO.5399)

KELVIN STREET (PUBLIC - 30' WIDE)

MAY STREET (PUBLIC - 30' WIDE)

6 MAY STREET

CITY OF EVERETT LAYOUT

BIZZARO LANE (PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE (PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE CONNECTOR (PUBLIC - VARIABLE WIDTH)

LANDSCAPING AREA

BUS STOP

LIMIT OF WORK
STA 10+82
N2972133.3183
E773216.9834

LIMIT OF WORK
STA 31+38
N2972068.4319
E772821.9385

LIMIT OF WORK
STA 31+34.85
N2972000.1233
E772829.7363

LIMIT OF GRADING

TOS

PC STA 32+72.90
OFFSET: 19.42' LT

PC STA 32+95.99
OFFSET: 15.50' LT

PC STA 31+24.66
OFFSET: 59.89' RT

PC STA 31+45.42
OFFSET: 77.80' RT

PT STA 32+33.93
OFFSET: 6.79' RT

PCC STA 32+67.80
OFFSET: 20.51' RT

PCC STA 32+83.33
OFFSET: 20.89' RT

PCC STA 33+00.51
OFFSET: 22.05' RT

LIMIT OF GRADING
PCC STA 33+20.53
OFFSET: 25.60' RT

BOS
SANTILLI CIRCLE CONNECTOR STA 35+42.00
KELVIN STREET STA 10+00
N 2972050.5067
E 773219.3250

PC STA 35+24.54
OFFSET: 24.62' RT

PC STA 36+08.54
OFFSET: 12.66' LT

PCC STA 36+25.43
OFFSET: 12.72'

PCC STA 36+49.98
OFFSET: 14.54' RT

LIMIT OF GRADING

BOS

8" REVEAL

1965 STATE HIGHWAY LAYOUT (NO.5399)

CONTINUED ON SHEET NO. 22

CONTINUED ON SHEET NO. 20

LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100

SCALE: 1" = 20'

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	67
PROJECT FILE NO.		-	

CURB TIE & GRADING PLANS
SHEET 4 OF 5

N

MAY STREET (PUBLIC - 30' WIDE)

HEATH STREET (PUBLIC - 30' WIDE)

MONTROSE STREET (PUBLIC - 30' WIDE)

PLYMOUTH STREET (PUBLIC - 30' WIDE)

CITY OF EVERETT LAYOUT

3 MAY STREET

4 HEATH STREET

3 HEATH STREET

6 MONTROSE STREET

3 MONTROSE STREET

4 PLYMOUTH STREET

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

1965 STATE HIGHWAY LAYOUT (NO.5399)

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

PC STA 36+08.54
OFFSET: 12.66' LT

PC +83.83

PCC STA 36+25.43
OFFSET: 12.72' LT

PCC STA 36+49.98
OFFSET: 14.54' RT

PT +06.46

PT STA 37+21.32
OFFSET: 13.76' RT

PC +66.78

PC +74.10

PRC +61.26

PRC +17.74

PT +09.70

PC +36.42

PT +68.77

LIMIT OF GRADING

TOS

BOS

12.00'

5.00'

CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 23

Curve Table						
Curve #	Delta	Radius	Length	TANGENT	CURVE START	CURVE END
C21	182°14'23"	3.00	9.54	153.47	N: 2972441.33 E: 772023.11	N: 2972441.22 E: 772017.12

LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100

SCALE: 1" = 20'

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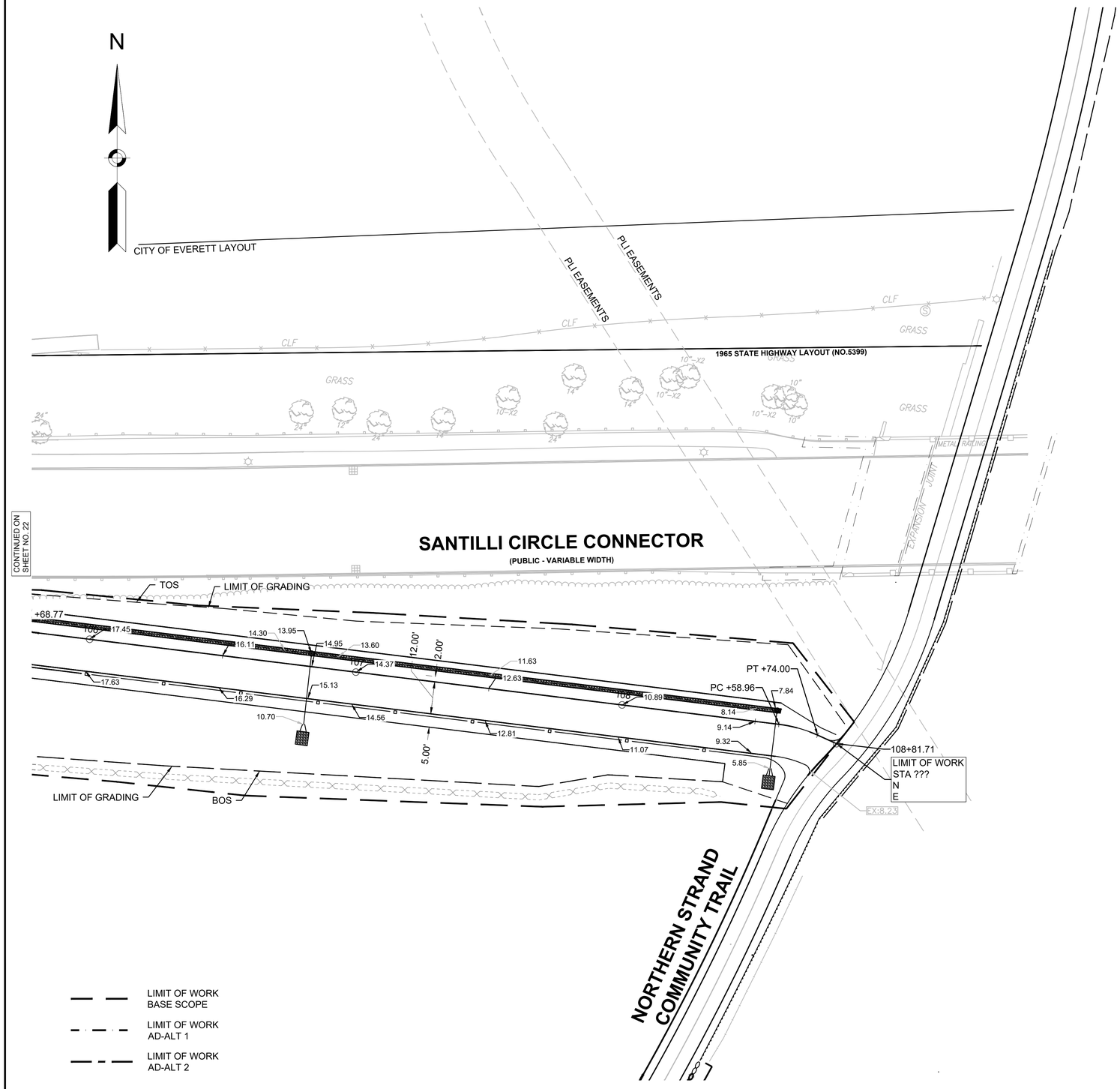
2022012_HD(CURB TIE & GRADING PLAN).DWG Plotted on 28-Apr-2026 3:48 PM

EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	67
PROJECT FILE NO.		-	

CURB TIE & GRADING PLANS
SHEET 5 OF 5



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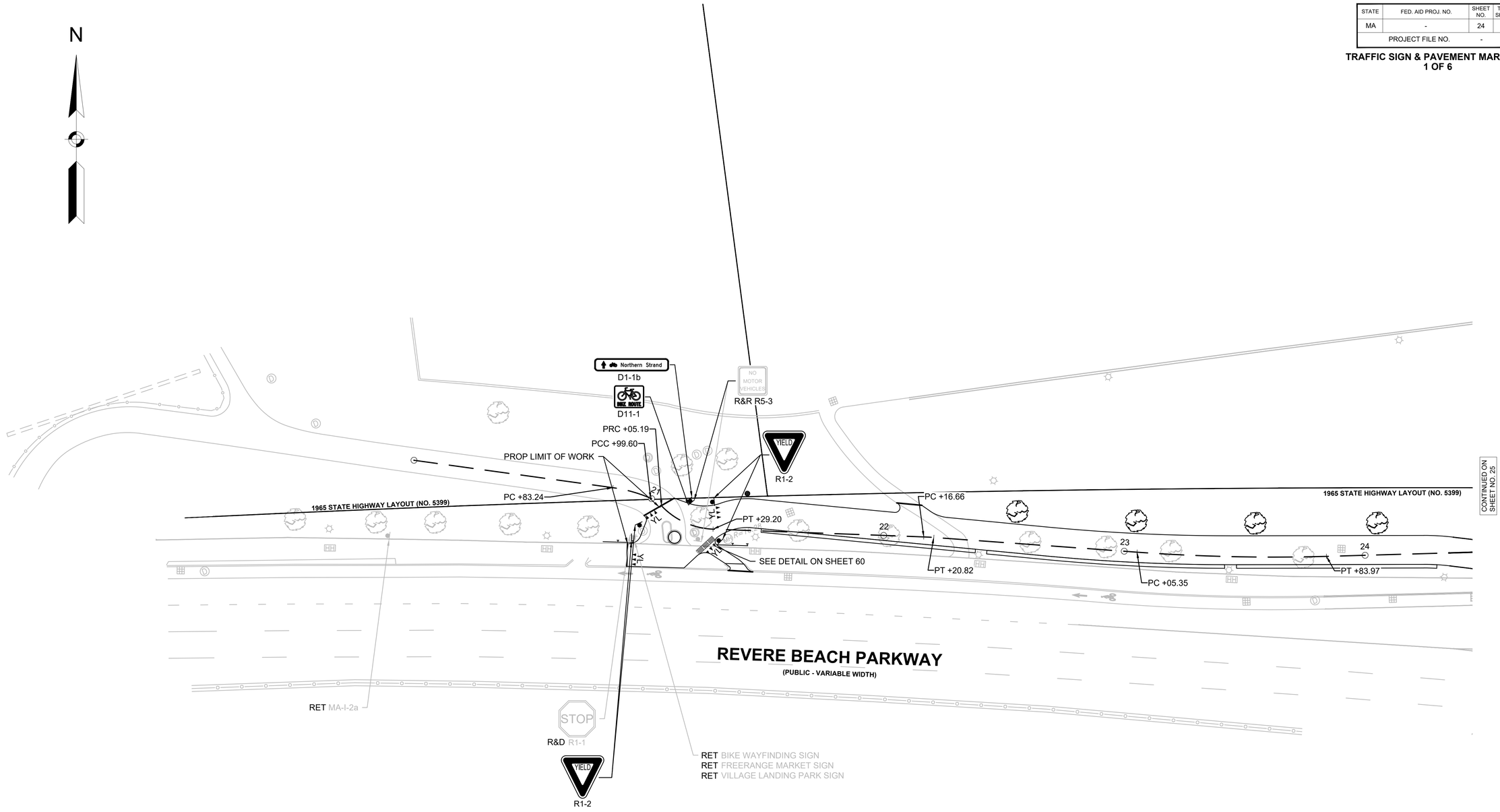
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	67
PROJECT FILE NO.		-	

TRAFFIC SIGN & PAVEMENT MARKINGS
1 OF 6



NOTES:

1. ALL SIGNAGE AND PAVEMENT MARKINGS TO BE RETAINED UNLESS OTHERWISE SPECIFIED.

0 20 50 100
SCALE: 1" = 20'

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	67
PROJECT FILE NO.		-	

TRAFFIC SIGN & PAVEMENT MARKINGS
2 OF 6

N

BCB

BCB

R&R W11-2

PUSH BUTTON TO TURN ON WARNING LIGHTS

R&R R10-25
(SOLAR RRFB - SEE SHEET 30)

1965 STATE HIGHWAY LAYOUT (NO. 5399)

PC +97.58

ERADICATE YIELD MARKINGS

River Trail
D1-1a

Northern Strand
D1-1b

NO TURN ON RED
R10-11b

R10-3e

R&D W11-2
R&D 16-7PL
R&D R1-2

RET R6-5P

RET R3-8bL

SL(20')

CW(20')

12.5'

EE

BE 4' FROM CROSSWALK

RET MA-D1-1d

REFRESH MARKINGS

BE 4' FROM CROSSWALK

R10-3e

RET COMMERCIAL SIGN

W11-15
W16-7PR

BE 4' FROM CROSSWALK

RET OM1-1

Northern Strand
D1-1b

River Trail
D1-1a

1965 STATE HIGHWAY LAYOUT (NO. 5399)

W11-15
W16-7PL

BE 4' FROM CROSSWALK

R&D W11-2
R&D W16-7PL

RET SANTILLI HWY SIGN

30+00

PT +10.89

31

LIMIT OF WORK
STA 31+38.10
N2972068.4478
E772822.0372

PC +48.95

24

25

26

PT +83.97

SANTILLI HIGHWAY
(PUBLIC - VARIABLE WIDTH)

REVERE BEACH PARKWAY
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

ENT.3W

ONLY ONLY ONLY

VGC GRL CONC SWL

CONTINUED ON SHEET NO. 24

CONTINUED ON SHEET NO. 26

NOTES:

1. ALL SIGNAGE AND PAVEMENT MARKINGS TO BE RETAINED UNLESS OTHERWISE SPECIFIED.

0 20 50 100

SCALE: 1" = 20'

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	67
PROJECT FILE NO.		-	

TRAFFIC SIGN & PAVEMENT MARKINGS
3 OF 6

N

ENT.3W

1965 STATE HIGHWAY LAYOUT (NO. 5399)

CONTINUED ON SHEET NO. 25

LIMIT OF PAVEMENT MARKING RESTRIPING

LIMIT OF PAVING

RET R1-2

LIMIT OF WORK
STA 31+38.10
N2972068.4478
E772822.0372

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

SWL(100')

SWL(115')

SWL(120')

SYL(120')

SWL(150')

SYL(150')

SWL(230')

DWLEx

DBYL(120')

DBYL(115')

DWREL

TL

PC +48.95

PT +10.89

PC +76.22

PT +72.11

R305'

R90'

DWLEx(60')

12" SWL

12" SWL(80')

12" SWL(85')

SWL(130')

SWL(230')

SWL(60')

DBYL(95')

SWL(105')

SWL(45')

SL(10')

SL(15')

SL(14')

CW(45')

CW(35')

BWL

BUS

VGC

CC

GP

MIL GATE

R7-107

R7-107B

R10-3e

R3-8A

R3-8L

R4-7

R&R R4-7

R&R OM1-1

R&D W4-2L

RET MA-D1-3e

RET R5-1a

RET MA-D1-1d

RET ENCORE SIGN

W4-2R

12" SWL @ 45 DEG. 10' O.C. SPACING (TYP).

R&D SIGN POST

LIMIT OF PAVEMENT MARKING RESTRIPING

CONTINUED RIGHT

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

CONTINUED LEFT

RIGHT LANE ENDS

W9-1

(40' NORTH OF INTERSECTION)

100'

0 20 50 100

SCALE: 1" = 20'

11+57

KELVIN STREET
(PUBLIC - 30' WIDE)

MAY STREET
(PUBLIC - 30' WIDE)

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

RET R7-1

NO PARKING ANY TIME

RET CARMEN LUCIANO SQUARE SIGN

RET R1-1

STOP

PROP LIMIT OF WORK

RET R5-2

River Trail
D1-1a

Northern Strand
D1-1bR

R&D W11-2
R&D W16-7PL

R&D W11-2
R&D W16-7PR

Santilli Circle Connector
MA-D3-1b

Kelvin st
MA-D3-1a

YIELD TO PEDS
R9-6

River Trail
D1-1a

1965 STATE HIGHWAY LAYOUT (NO. 5399)

OM1-1

SYL(30')

DYL

SWL(95')

SWL(150')

DBYL(150')

DBYL(165')

SWL(205')

12" SWL @ 45 DEG. 10' O.C. SPACING

CROSSWALK STOP ON RED PROCEED ON FLASHING RED WHEN CLEAR

MA-R10-23a (POSTED ON MAST ARM)

RET MA-I-15a

R&D W11-2a

PT +35.72
R&D W11-2
R&D W16-7PR
PC +13.62
R&D W11-2
R&D W16-7PL
PT +08.46

River Trail
D1-1a

Northern Strand
D1-1b

R3-1
BLANK OUT SIGN -
(SEE SHEET 34)

NO MOTOR VEHICLES
R5-3

R10-3e

R&R R7-107

PI +05.27

PC +83.83

CONTINUED ON SHEET NO. 27

NOTES:

1. ALL SIGNAGE AND PAVEMENT MARKINGS TO BE RETAINED UNLESS OTHERWISE SPECIFIED.

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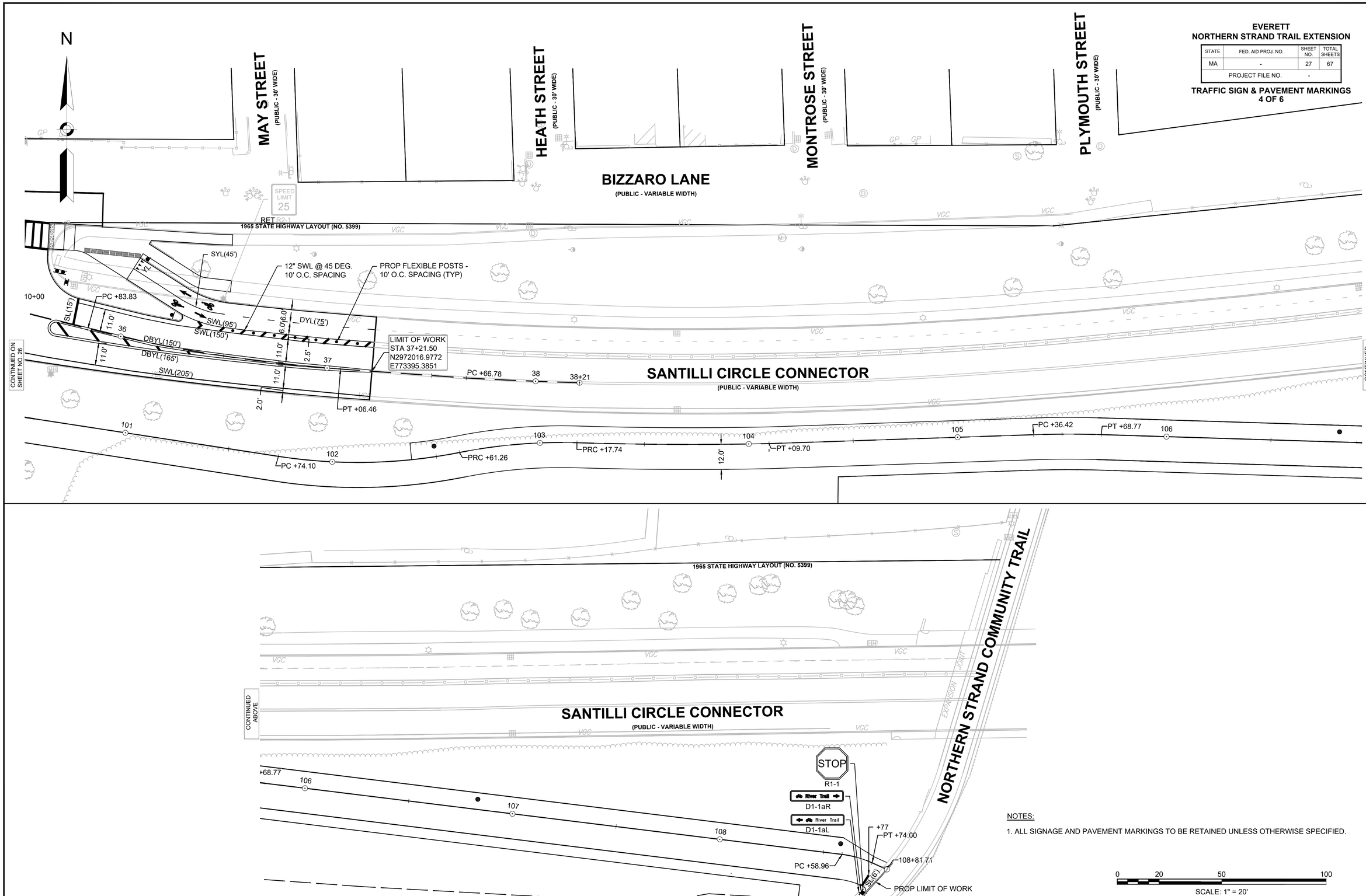
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	67
PROJECT FILE NO.		-	

TRAFFIC SIGN & PAVEMENT MARKINGS
4 OF 6



NOTES:

1. ALL SIGNAGE AND PAVEMENT MARKINGS TO BE RETAINED UNLESS OTHERWISE SPECIFIED.

0 20 50 100

SCALE: 1" = 20'

2022012_TR(PVMT-SIGN).DWG Plotted on 28-Apr-2026 3:49 PM

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TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN			TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D1-1a	30"	6"	River Trail	SEE DETAILS			5	GREEN	WHITE	WHITE	P5 (5)	1.25	6.25
D1-1aL	30"	6"	River Trail				1	GREEN	WHITE	WHITE	P5 (1)	1.25	1.25
D1-1aR	30"	6"	River Trail				1	GREEN	WHITE	WHITE	MOUNT W/ D1-1aL (1)	1.25	1.25
D1-1b	36"	12"	Northern Strand				4	GREEN	WHITE	WHITE	P5 (2) MOUNT W/ D1-1a (2)	3.00	12.00
D1-1bR	36"	12"	Northern Strand				1	GREEN	WHITE	WHITE	MOUNT W/ D1-1a (1)	3.00	3.00
D11-1	24"	18"	BIKE ROUTE	①			1	GREEN	WHITE	WHITE	MOUNT W/ D1-1b (1)	3.00	3.00
MA-D3-1a	42"	12"	Kelvin St	SEE DETAILS			2	GREEN	WHITE	WHITE	P5 (1) MOUNT ON BACK OF MA-D3-1a (1)	3.50	7.00
MA-D3-1b	84"	12"	Sentilli Circle Connector				2	GREEN	WHITE	WHITE	DOUBLE P5 (1) MOUNT ON BACK OF MA-D3-1b (1)	7.00	14.00
MA-R10-23a	30"	36"	CROSSWALK STOP ON RED PROCEED ON FLASHING RED WHEN CLEAR	①			2	WHITE/ YELLOW	BLACK	BLACK	POSTED ON MAST ARM (2)	7.50	15.00
OM1-1	18"	18"					1	YELLOW	YELLOW	YELLOW	P5 (1)	2.25	2.25
R1-1	18"	18"	STOP				1	RED	WHITE	WHITE	MOUNT W/ D1-1aL (1)	6.25	6.25
R1-1	30"	30"	STOP				1	RED	WHITE	WHITE	P5 (1)	2.25	2.25
R1-2	18"	18"	YIELD				4	RED	WHITE	WHITE	P5 (3) MOUNT W/ EXISTING P5 (1)	2.25	9.00
R3-1 (BLANK OUT)	24"	24"		SEE SIGNAL PLANS ON SHEET 34			1	WHITE	RED	RED	P5 (1)	4.00	4.00
R3-8A	36"	36"		①			1	WHITE	BLACK	BLACK	P5 (1)	9.00	9.00
R3-8L	36"	30"	ONLY ONLY	SEE DETAILS			1	WHITE	BLACK	BLACK	P5 (1)	7.50	7.50
R5-3	24"	24"	NO MOTOR VEHICLES	①			1	WHITE	BLACK	BLACK	P5 (1)	4.00	4.00
R7-107	12"	48"	T 97 Harvard Center 99 Mountain Road 106 Museum Loop 110 Westwood 112 Wellington Station Not Enforced After 10PM	③			1	WHITE	BLACK	BLACK	P5 (1)	4.00	4.00
R7-107b	12"	30"	T R Not Enforced After 10PM	③			2	WHITE	BLACK	BLACK	P5 (2)	2.50	5.00
R9-6	12"	18"	YIELD TO PEDS	①			1	WHITE	BLACK	BLACK	MOUNT W/ D1-1a (1)	1.50	1.50
R10-11b	36"	36"	NO TURN ON RED				1	WHITE	BLACK	BLACK	MOUNT ON SIGNAL POST (1)	9.00	9.00

EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	67
PROJECT FILE NO.		-	

SIGN SUMMARY
5 OF 6

IDENTIFICATION NUMBER	SIZE OF SIGN			TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R10-3e	9"	15"		①			4	WHITE	BLACK	BLACK	MOUNT ON TS POST (4)	0.94	3.76
W4-2R	36"	36"		①			1	YELLOW	BLACK	BLACK	P5 (1)	9.00	9.00
W9-1	36"	36"	RIGHT LANE ENDS	①			1	YELLOW	BLACK	BLACK	P5 (1)	9.00	9.00
W11-15	36"	36"		①			2	FLUOR-ESCENT YELLOW GREEN	BLACK	BLACK	P5 (2)	9.00	18.00
W16-7PL	24"	12"					1	FLUOR-ESCENT YELLOW GREEN	BLACK	BLACK	MOUNT W/ W11-15 (1)	2.00	2.00
W16-7PR	24"	12"					1	FLUOR-ESCENT YELLOW GREEN	BLACK	BLACK	MOUNT W/ W11-15 (1)	2.00	2.00
											TOTAL		166.26

NOTES:
RETROREFLECTIVE SHEETING FOR ALL GUIDE AND TRAFFIC SIGNS SHALL CONFORM TO SUBSECTION M9.30.0 OF THE MASSDOT STANDARD SPECIFICATIONS. SIGN CODES MA-D3-1a, MA-D3-1b, R3-1, AND R10-3e ARE EXCLUDED FROM ITEM 832 QUANTITY. ITEM 832 = 151.50 SF.

① SEE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT, DIMENSIONS, AND COLOR.
② SEE MASSDOT STANDARD SIGNS FOR SPECIFICATION ON TEXT, DIMENSIONS, AND COLOR.
③ SEE MBTA STANDARDS FOR SPECIFICATION ON TEXT, DIMENSIONS, AND COLOR.

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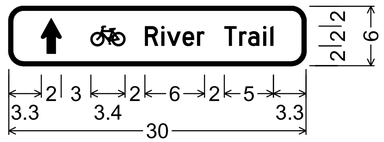
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	67
PROJECT FILE NO.		-	

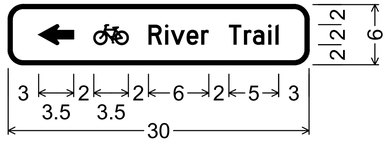
SIGN SUMMARY
6 OF 6

D1-1a		
2.50'	0.50'	1.25 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



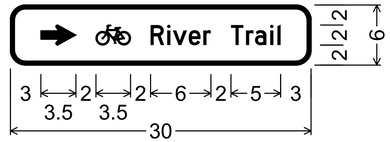
D1-1a;
1.5" Radius, 0.4" Border, White on, Green;
Standard Arrow Custom 3.5" X 2.0" 90';
Bicycle; "River Trail", D 2K;

D1-1aL		
2.50'	0.50'	1.25 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



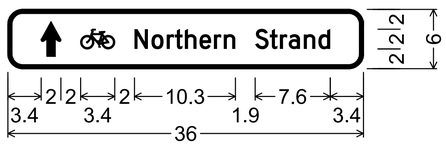
D1-1aL;
1.5" Radius, 0.4" Border, White on, Green;
Standard Arrow Custom 3.5" X 2.0" 180';
Bicycle; "River Trail", D 2K;

D1-1aR		
2.50'	0.50'	1.25 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



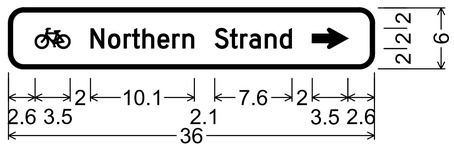
D1-1aR;
1.5" Radius, 0.4" Border, White on, Green;
Standard Arrow Custom 3.5" X 2.0" 0';
Bicycle; "River Trail", D 2K;

D1-1b		
3.00'	0.50'	1.50 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



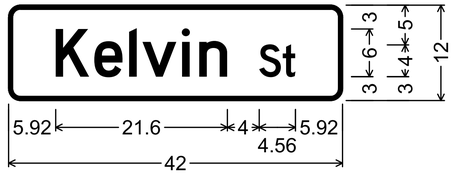
D1-1b;
1.5" Radius, 0.4" Border, White on, Green;
Standard Arrow Custom 3.5" X 2.0" 90';
Bicycle; "Northern Strand", D 2K;

D1-1bR		
3.00'	0.50'	1.50 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



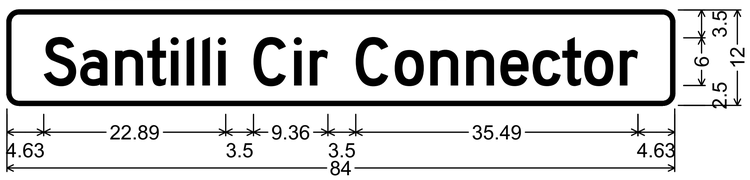
D1-1bR;
1.5" Radius, 0.4" Border, White on, Green;
Bicycle; "Northern Strand", D 2K;
Standard Arrow Custom 3.5" X 2.0" 0';

MA-D3-1a		
3.50'	1.00'	3.50 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



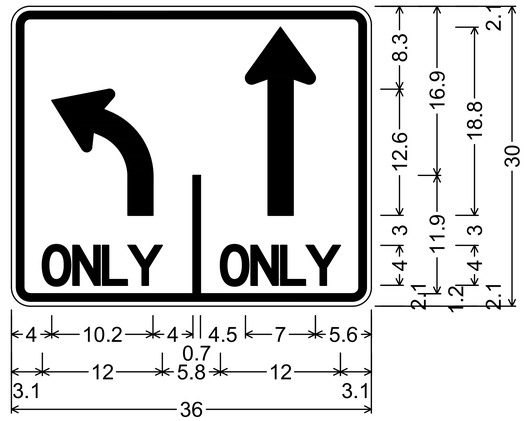
MA-D3-1a;
1.50" Radius, 0.50" Border, White on, Green;
"Kelvin", D 2K; "St", D 2K;

MA-D3-1b		
7.00'	1.00'	7.00 SF
BACKGROUND	LEGEND	BORDER
GREEN REFL.	SILVER WHITE	SILVER WHITE



MA-D3-1b;
1.50" Radius, 0.50" Border, White on, Green;
"Santilli Cir Connector", D 2K 85% spacing;

R3-8L		
3.00'	2.50'	7.50 SF
BACKGROUND	LEGEND	BORDER
WHITE	BLACK	BLACK



R3-8L;
1.9" Radius, 0.8" Border, 0.5" Indent, Black on, White;
R3-8 left turn arrow ir=5.75, s=2.5;
"ONLY", D 2K 25% spacing;
C h=18.875, s=2.5;
"ONLY", D 2K 25% spacing;

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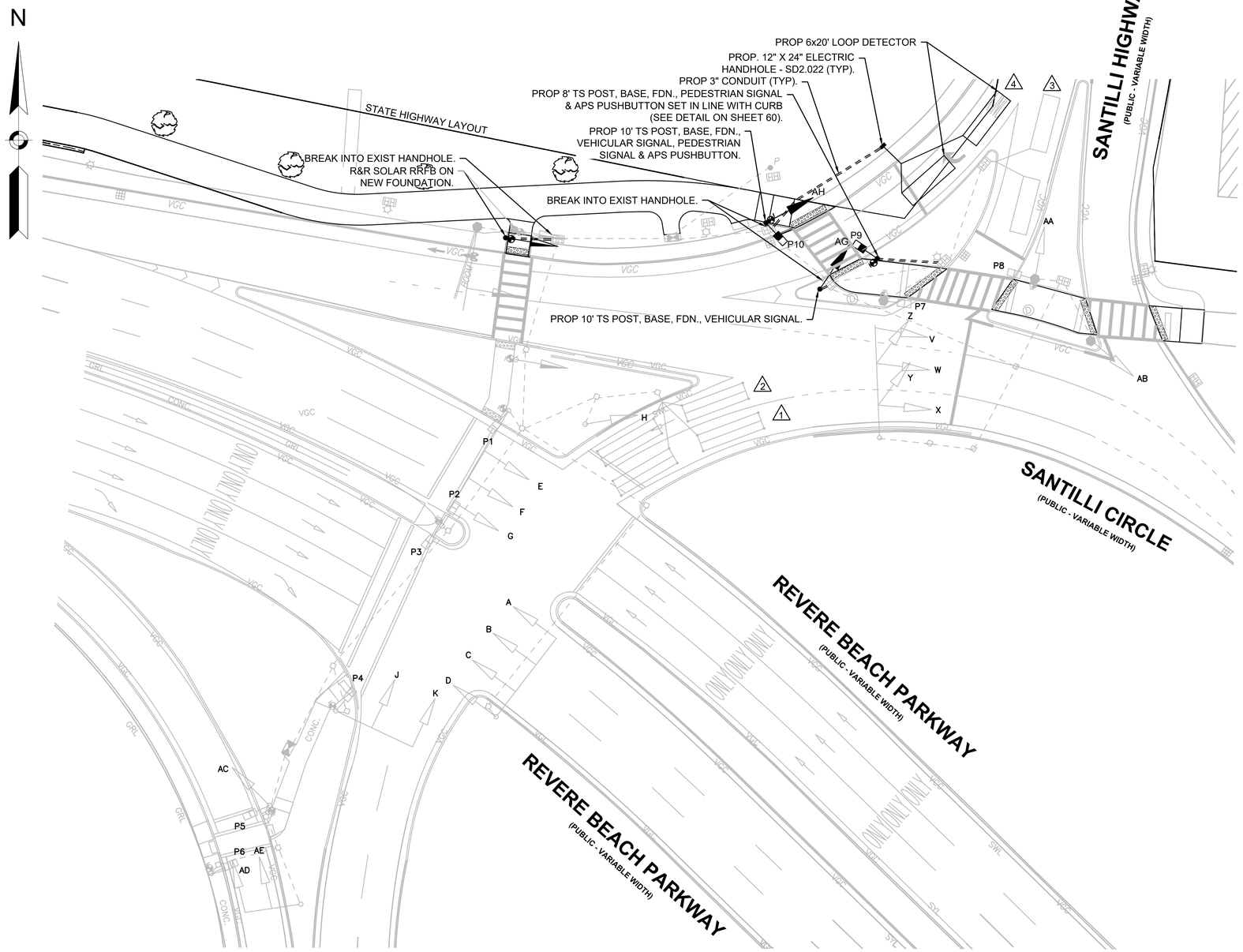
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	67
PROJECT FILE NO.		-	

SANTILLI HIGHWAY AT SANTILLI CIRCLE
TRAFFIC SIGNAL PLANS
LOCATION NO. 1



NOTE:
1. RETAIN ALL TRAFFIC SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

824.501 - RECTANGULAR RAPID FLASHING BEACON
REMOVED AND RESET

	MAJOR ITEMS REQUIRED	
PAY ITEM	QUANTITY	ITEM
824.501	1	PROPOSED TRAFFIC SIGNAL FOUNDATION
	1	REMOVE AND DISPOSE TRAFFIC SIGNAL FOUNDATION
804.3	15'	TRAFFIC SIGNAL CABLE
		Plus all necessary duct, cable, labor, miscellaneous
		material and equipment to complete the installation.

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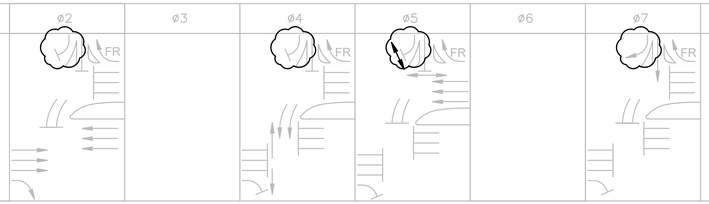
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	67
PROJECT FILE NO.		-	

SANTILLI HIGHWAY AT SANTILLI CIRCLE TRAFFIC SIGNAL SCHEDULE LOCATION NO. 1



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH OPER.
REVERE BEACH PARKWAY (ROUTE 16)	EB	A				G	Y	R				R	R	R	R	R	R				R	R	R							FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	B				G	Y	R				R	R	R	R	R	R				R	R	R							FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	C				G	Y	R				R	R	R	R	R	R				R	R	R							FY
REVERE BEACH PARKWAY (ROUTE 16)	EB–RT	D				~~G~~	~~Y~~	~~R~~				~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~							FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	AC				G	Y	R				R	R	R	R	R	R				R	R	R							FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	AD				G	Y	R				R	R	R	R	R	R				R	R	R							FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	AE				G	Y	R				R	R	R	R	R	R				R	R	R							FY
REVERE BEACH PARKWAY (ROUTE 16)	WB	E				G	Y	R				R	R	R	R	R	R				R	R	R							FR
REVERE BEACH PARKWAY (ROUTE 16)	WB	F				G	Y	R				R	R	R	R	R	R				R	R	R							FR
REVERE BEACH PARKWAY (ROUTE 16)	WB	G				G	Y	R				R	R	R	R	R	R				R	R	R							FR
SANTILLI CIRCLE (SOUTH)	SB	H				R	R	R				G	Y	R	R	R	R				R	R	R							FR
SANTILLI CIRCLE (SOUTH)	SB	J				R	R	R				G	Y	R	R	R	R				R	R	R							FR
SANTILLI CIRCLE (SOUTH)	SB	K				R	R	R				G	Y	R	R	R	R				R	R	R							FR
SANTILLI CIRCLE (NORTH)	WB	X				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~	G	~~Y~~	~~R~~				~~R~~	~~R~~	~~R~~							FY
SANTILLI CIRCLE (NORTH)	WB	W				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~	G	~~Y~~	~~R~~				~~R~~	~~R~~	~~R~~							FY
SANTILLI CIRCLE (NORTH)	WB	V				R	R	R				R	R	R	G	Y	R				R	R	R							FY
SANTILLI CIRCLE (NORTH)	WB	AB				R	R	R				R	R	R	G	Y	R				R	R	R							FY
SANTILLI HIGHWAY	SB	Y				R	R	R				R	R	R	R	R	R				G	Y	R							FR
SANTILLI HIGHWAY	SB	Z				R	R	R				R	R	R	R	R	R				G	Y	R							FR
SANTILLI HIGHWAY	SB	AA				R	R	R				R	R	R	R	R	R				G	Y	R							FR
SANTILLI HIGHWAY	SB	AG,AH				~~R~~	~~R~~	~~R~~				~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~				~~G~~	~~Y~~	~~R~~							FR
PEDESTRIANS	NB, SB	P1, P4				DW	DW	DW				W/FDW	DW	DW	DW	DW	DW				DW	DW	DW							OFF
PEDESTRIAN	EB–WB	P7–P10				DW	DW	DW				DW	DW	DW	W/FDW	DW	DW				DW	DW	DW							OFF
TIMING IN SECONDS																														
MINIMUM GREEN (INITIAL)						18						10			15						8									
PASSAGE TIME (VEHICLE)						2						2			2						2									
MAXIMUM 1						65						24			77						15									
MAXIMUM 2						-						-			-						-									
YELLOW CLEARANCE							4					4			4						3.5									
RED CLEARANCE								1						3.5			4.5						3.5							
WALK (W)												7			7															
PEDESTRIAN CLEARANCE												18			8															
RECALL						MIN						OFF			MIN						OFF									
MEMORY						NON-LOCK						NON-LOCK			NON-LOCK						NON-LOCK									

EMERGENCY ONLY

COORDINATION DATA			COORDINATION PHASE TIMING								
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1 M-F (0500-1000)	100	96		70		30	82		18		
PLAN 2 M-F (1400-1900)	100	96		70		30	82		18		
PLAN 3 SA (1100-1600)	100	96		62		38	82		18		

NOTES:

1. STANDARD NEMA CLEARANCES SHALL APPLY.
2. MAXIMUM 1 = NORMAL OPERATIONS
3. MAXIMUM 2 = NOT USED
4. INHIBIT MAX TERMINATION SHALL BE IN EFFECT DURING COORDINATION.

ADDITIONAL NOTE:

PEDESTRIAN SIGNALS ACROSS REVERE BEACH PARKWAY EASTBOUND SLIP RAMP TO MYSTIC VIEW ROAD (P5 - P6) ARE ACTUATED UPON PEDESTRIAN PUSH BUTTON ACTUATION ONLY. NOTE THAT PEDESTRIAN ACTUATION AT THIS LOCATION DOES NOT AFFECT TRAFFIC MOVEMENT AT THE SIGNALIZED INTERSECTION OF SANTILLI CIRCLE AT ROUTE 16/SANTILLI HIGHWAY.

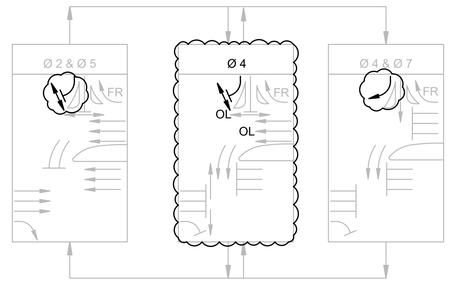
LOOP DETECTOR DATA

SEE PLAN SHEET-LOOP DETECTOR DETAILS FOR LOOP CONSTRUCTION. SPLICING, DETAILS & NOTES. DELAY TIME EFFECTIVE ONLY DURING CALLED Ø RED. TIME IN SEC.

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUMBER TURNS	Ø EXT.	Ø	MODE A=PULSE B=PRES.	CONNECTION TYPE	DELAY TIME	EXT. TIME
1	1	1	6' X 20'	2-4-2	Ø5	Ø5	PRESENCE	EXIST	---	---
2	1	1	6' X 20'	2-4-2	Ø5	Ø5	PRESENCE	EXIST	---	---
3	2	2	6' X 20'	2-4-2	Ø7	Ø7	PRESENCE	EXIST	---	---
4	2	2	6' X 20'	2-4-2	Ø7	Ø7	PRESENCE	SERIES	---	---

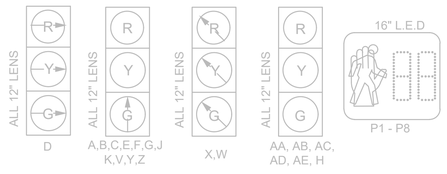
	MAJOR ITEMS REQUIRED	
PAY ITEM	QUANTITY	ITEM
816.01	2	10' SIGNAL POLE, BASE, & FDN.
	1	8' SIGNAL POLE, BASE, & FDN.
	2	PEDESTRIAN HOUSING WITH COUNTDOWN (16' L.E.D.)
	2	APS PEDESTRIAN PUSHBUTTON, SIGN & SADDLE
	2	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISOR) (R,Y,G)
	2	5" NON-LOUVERED BACKPLATES W/3" RETROFLECTIVE BORDER
	240'	TRAFFIC SIGNAL CABLE
	1	MODIFY CONTROLLER PHASING/TIMINGS
	2	BREAK INTO EXIST HANDHOLE
	420'	WIRE LOOP INSTALLED IN ROADWAY
	90'	LOOP FEEDER CABLE
804.3	70'	3" ELECTRICAL CONDUIT TYPE NM PLASTIC - UL
811.22	1	12" X 24" ELECTRIC HANDHOLE - SD2.022
		Plus all necessary duct, cable, labor, miscellaneous
		material and equipment to complete the installation.

PREFERENTIAL PHASING SEQUENCE

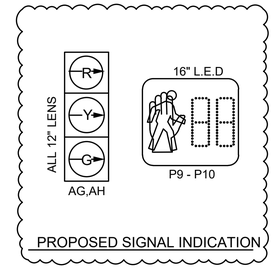


SEQUENCE AND TIMING NOTES:

1. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
2. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALL PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CLEARANCE INTERVAL(S) UNLESS OTHERWISE NOTED.
3. THE RIGHT-OF-WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
4. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
5. IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALL PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.



EXISTING SIGNAL INDICATION



NOTES:

1. ALL PROPOSED VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL PROPOSED VEHICLE AND PEDESTRIAN SIGNALS SHALL BE LED TYPE.
3. ALL PROPOSED VEHICLE SIGNALS SHALL HAVE TUNNEL VISORS AND 5" NON-LOUVERED BACKPLATES WITH 3" YELLOW RETROREFLECTIVE BORDER.
4. ALL PROPOSED PEDESTRIAN SIGNALS SHALL BE COUNTDOWN TYPE.

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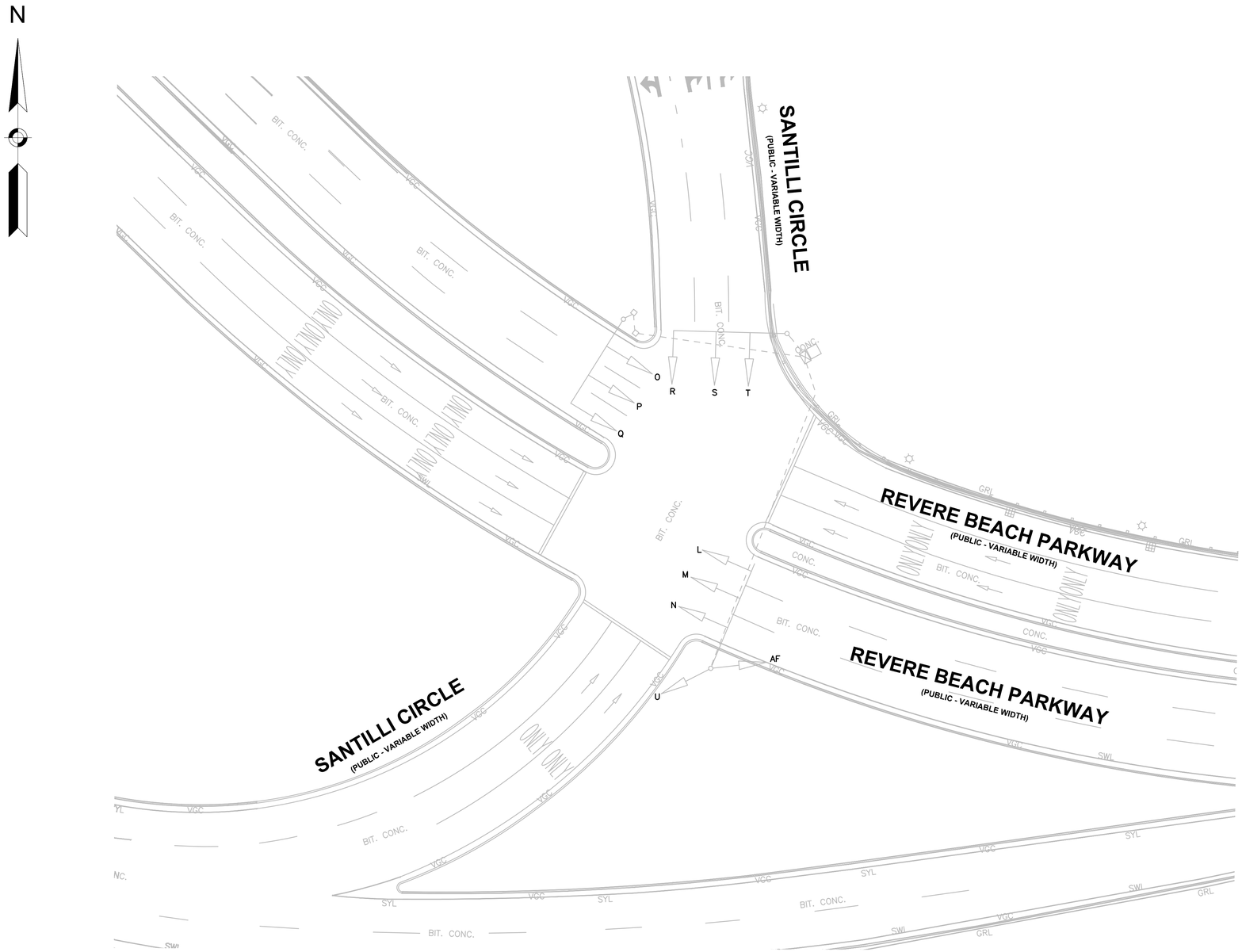
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	67
PROJECT FILE NO.		-	

REVERE BEACH PARKWAY AT SANTILLI CIRCLE
TRAFFIC SIGNAL PLANS
LOCATION NO. 2



NOTE:
1. RETAIN ALL TRAFFIC SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

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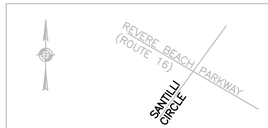
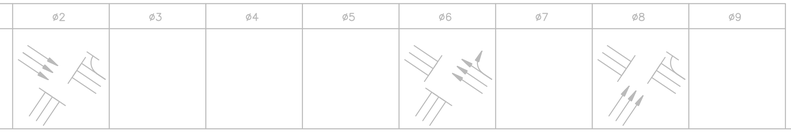
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	67
PROJECT FILE NO.	-		

REVERE BEACH PARKWAY AT SANTILLI CIRCLE
TRAFFIC SIGNAL SCHEDULE
LOCATION NO. 2





SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH OPER.
REVERE BEACH PARKWAY (ROUTE 16)	EB	L				↑	Y	R										R	R	R				R	R	R				FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	M				↑	Y	R										R	R	R				R	R	R				FY
REVERE BEACH PARKWAY (ROUTE 16)	EB	N				↑	Y	R										R	R	R				R	R	R				FY
REVERE BEACH PARKWAY (ROUTE 16)	WB	O				R	R	R										G	Y	R				R	R	R				FY
REVERE BEACH PARKWAY (ROUTE 16)	WB	P				R	R	R										R	Y	R				R	R	R				FY
REVERE BEACH PARKWAY (ROUTE 16)	WB	Q				R	R	R										R	Y	R				R	R	R				FY
REVERE BEACH PARKWAY (ROUTE 16)	WB	AF				R	R	R										G	Y	R				R	R	R				FY
SANTILLI CIRCLE	NB	R				R	R	R										R	R	R				↑	Y	R				FR
SANTILLI CIRCLE	NB	S				R	R	R										R	R	R				↑	Y	R				FR
SANTILLI CIRCLE	NB	T				R	R	R										R	R	R				↑	Y	R				FR
SANTILLI CIRCLE	NB	U				R	R	R										R	R	R				↖	↖	↖				FR
TIMING IN SECONDS																														
MINIMUM GREEN (INITIAL)						18												18						10						
PASSAGE TIME (VEHICLE)						2												2						2						
MAXIMUM 1						51												51						49						
MAXIMUM 2						-												-						-						
YELLOW CLEARANCE							4												4						3.5					EMERGENCY ONLY
RED CLEARANCE								1												1						1.5				
WALK (W)																														
PEDESTRIAN CLEARANCE																														
RECALL						MIN												MIN						OFF						
MEMORY						NON–LOCK												NON–LOCK						NON–LOCK						

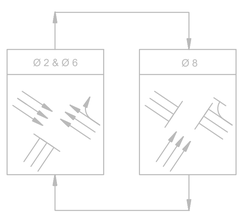
COORDINATION DATA			COORDINATION PHASE TIMING								
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1 M-F (0500-1000)	100	0		56				56		44	
PLAN 2 M-F (1400-1900)	100	0		54				54		46	
PLAN 3 SA (1100-1600)	100	0		46				46		54	

NOTES:

1. STANDARD NEMA CLEARANCES SHALL APPLY.
2. MAXIMUM 1 = NORMAL OPERATIONS
3. MAXIMUM 2 = NOT USED
4. INHIBIT MAX TERMINATION SHALL BE IN EFFECT DURING COORDINATION.

** NORMALLY DW, W/FDW UPON PEDESTRIAN PUSH BUTTON ACTUATION.

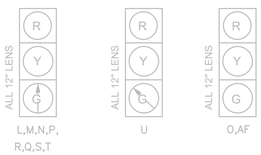
PREFERENTIAL PHASING SEQUENCE



SEQUENCE AND TIMING NOTES:

1. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
2. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALL PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CLEARANCE INTERVAL(S) UNLESS OTHERWISE NOTED.
3. THE RIGHT-OF-WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
4. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
5. IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALL PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

SIGNAL IDENTIFICATION



EXISTING SIGNAL INDICATION

NOTES:

1. ALL PROPOSED VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL PROPOSED VEHICLE AND PEDESTRIAN SIGNALS SHALL BE LED TYPE.
3. ALL PROPOSED VEHICLE SIGNALS SHALL HAVE TUNNEL VISORS AND 5" NON-LOUVERED BACKPLATES WITH 3" YELLOW RETROREFLECTIVE BORDER.
4. ALL PROPOSED PEDESTRIAN SIGNALS SHALL BE COUNTDOWN TYPE.

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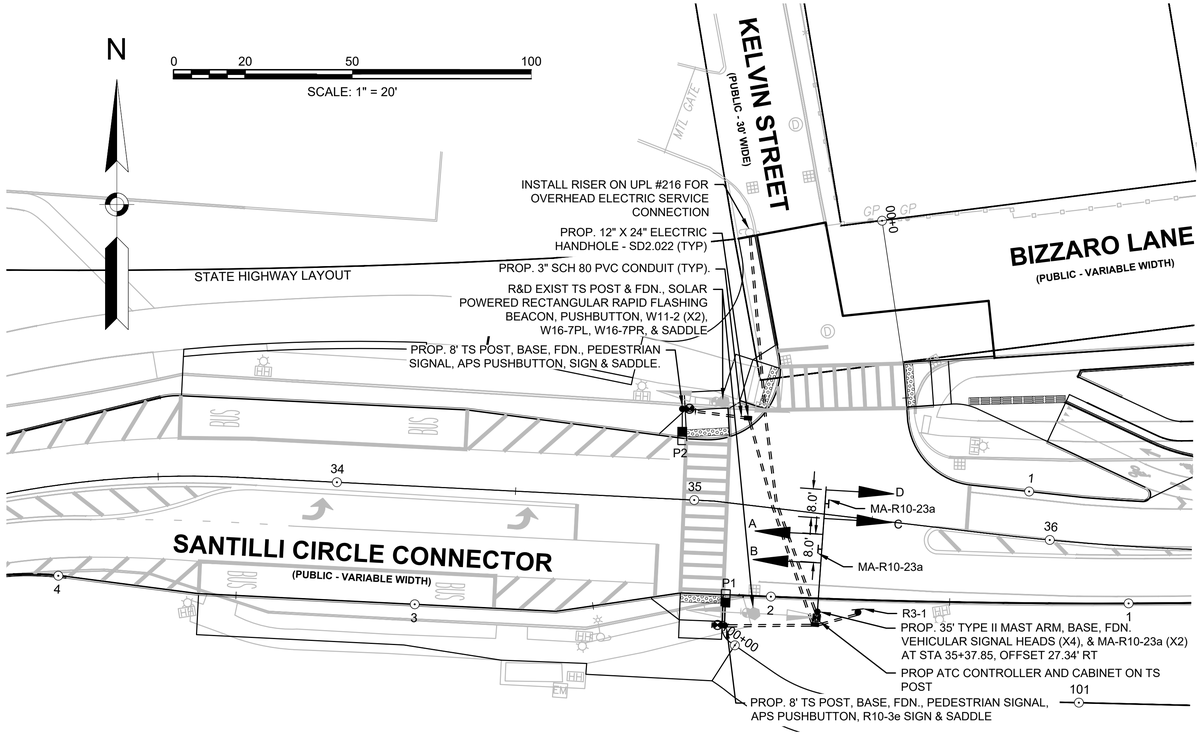
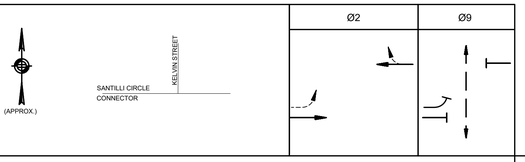
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	34	67
PROJECT FILE NO.		-	

SANTILLI CIRCLE CONNECTOR
PEDESTRIAN HYBRID BEACON
LOCATION NO. 1

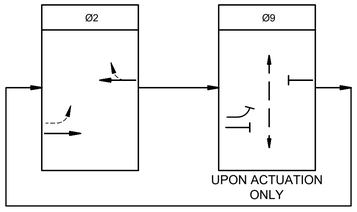


	MAJOR ITEMS REQUIRED	
PAY ITEM	QUANTITY	ITEM
815.1	1	ATC CONTROLLER & ATC-336S CABINET
	1	ELECTRICAL SERVICE CONNECTION (OVERHEAD)
	2	8' SIGNAL POLE, BASE, & FDN.
	1	35 FT TYPE II, GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN.
	4	3-SECTION, SIGNAL HOUSING (12" L.E.D.) (HYBRID BEACON CONFIGURATION)
	4	5" NON-LOUVERED BACKPLATES W/3" RETROFLECTIVE BORDER
	2	PEDESTRIAN HOUSING WITH COUNTDOWN (16' L.E.D.)
	2	APS PEDESTRIAN PUSH BUTTON, R10-3e SIGN & SADDLE
	1	R3-1 BLANK OUT SIGN
	250'	TRAFFIC SIGNAL CABLE
804.3	165'	3" SCHEDULE 80 PVC CONDUIT
824.511	2	R&D SOLAR POWERED FLASHING WARNING BEACON
811.22	2	12" X 24" ELECTRIC HANDHOLE - SD2.022
832	15 SF	MA-R10-23a SIGNAGE
		Plus all necessary duct, cable, labor, miscellaneous
		material and equipment to complete the installation.

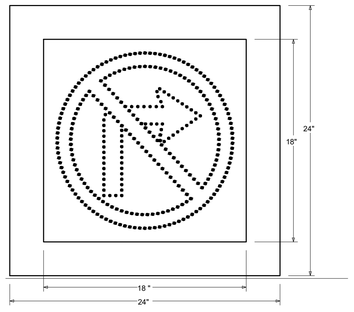


SEQUENCE AND TIMING FOR HYBRID BEACON CONTROL (ACTUATED UNCOORDINATED)										FLASH OPER.
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	
SANTILLI CIRCLE CONNECTOR	EB/WB	A,B,C,D	DARK	FY	Y	R	R	FR	FR	FY
CROSSWALK	NB/SB	P1,P2	DW	DW	DW	DW	W	FDW	DW	OFF
BLANK OUT SIGN		R3-1	OFF	OFF	OFF	ON	ON	ON	ON	OFF
TIMING IN SECONDS										
MINIMUM INITIAL			10							EMERGENCY ONLY
PASSAGE TIME (VEHICLE)										
MAXIMUM 1										
MAXIMUM 2			18							
YELLOW CLEARANCE				4	4					
RED CLEARANCE						2.5				
WALK (W)							7			
PEDESTRIAN CLEARANCE								11	4	
RECALL			SOFT				OFF			
MEMORY			-				LOCKING			

PREFERENTIAL PHASING SEQUENCE



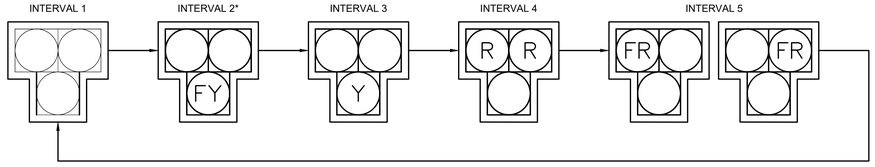
BLANK OUT SIGN DETAILS



R3-1 (BLANK OUT):

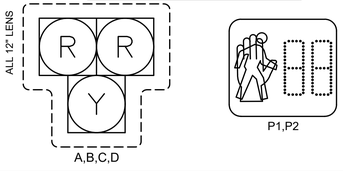
MESSAGE	LED COLOR	HEIGHT
NO RIGHT TURN SYMBOL RIGHT ARROW	RED NARROW ANGLE WHITE NARROW ANGLE	15.5" 10"

PREFERENTIAL PHASE SEQUENCE



* = UPON PUSH BUTTON ACTUATION ONLY

SIGNAL IDENTIFICATION



ONE SECTION W/COUNTDOWN

NOTES:
1. ALL NEW VEHICLE INDICATIONS SHALL BE 12" L.E.D. AND SHALL BE EQUIPPED WITH CUT AWAY VISORS.
2. ALL NEW PEDESTRIAN INDICATIONS SHALL BE 16' L.E.D. AND SHALL COUNTDOWN AND BE EQUIPPED WITH SUN CAP VISORS.
3. ALL NEW VEHICLE INDICATIONS SHALL HAVE 5" NON-LOUVERED BACK PLATES WITH REFLECTIVE STRIPS WITH 3" RETRO-REFLECTIVE BORDER.
4. ALL SIGNALS SHALL BE RIGIDLY MOUNTED.

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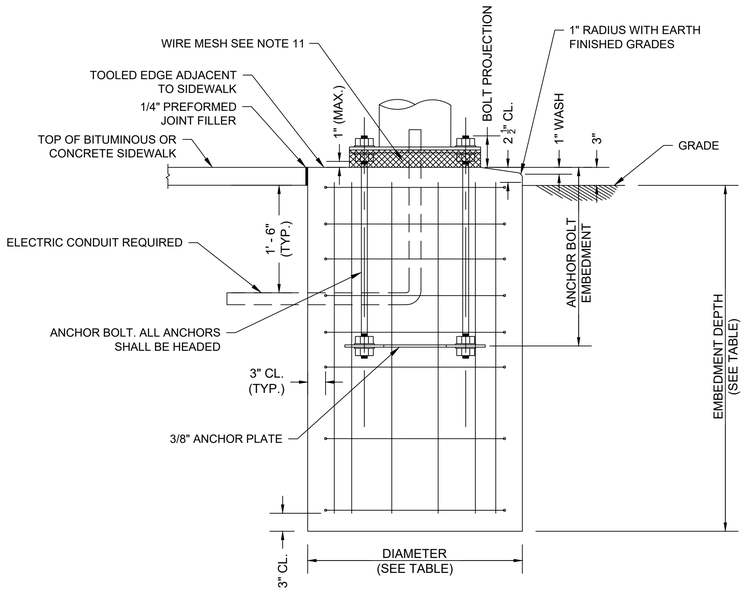
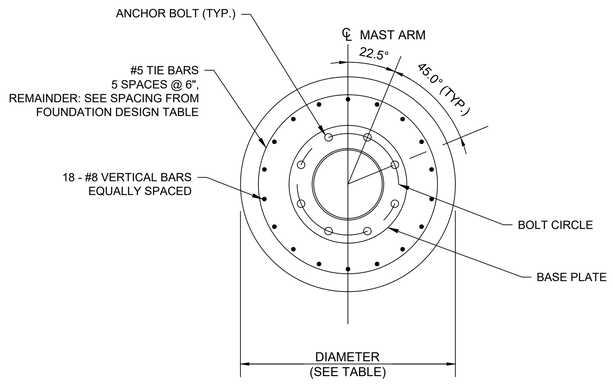
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	67
PROJECT FILE NO.		-	

MAST ARM FOUNDATION DETAILS



PIER FOUNDATION DETAIL
NOT TO SCALE



PIER FOUNDATION PLAN
NOT TO SCALE

GENERAL NOTE:

GENERAL MAST ARM FOUNDATION DETAILS ARE SHOWN ON THIS SHEET. FOR SPECIFIC DETAILS REGARDING MATERIAL DATA, POLE AND SIGNAL ARM DATA, ANCHOR BOLT EMBEDMENT, DETAILS AND DIMENSIONS NOT SHOWN ON THIS SHEET, REFER TO THE MASSDOT OVERHEAD SIGNAL STRUCTURE & FOUNDATION STANDARD DRAWINGS DATED DECEMBER 2015.

NOTES:

1. FOUNDATIONS SHALL BE 4000 PSI, 565 MASSDOT APPROVED MIX DESIGN.
2. FOUNDATIONS SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT STANDARD SPECIFICATIONS ITEM 945 - DRILLED SHAFTS.
3. REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
4. ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
5. PROVIDE FOR ELECTRICAL CONDUIT AS REQUIRED.
6. EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 7, 8 AND 9.
7. THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSDOT. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
8. IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
9. SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT. THE STEEL CYLINDERS OR CASINGS SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
10. IF LEDGE OR UNSUITABLE SOIL IS ENCOUNTERED (i.e. WITHIN THE RANGE OF THE FOUNDATION DESIGN TABLE SHOWN ON THIS SHEET), AN ALTERNATIVE DESIGN SHALL BE PROVIDED BY THE DESIGN ENGINEER, IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AN ALTERNATE DESIGN HAS BEEN PROVIDED BY THE DESIGN ENGINEER.
11. A GALVANIZED WIRE MESH SCREEN SHALL BE INSTALLED AT BASE POLE. SCREEN SHALL BE PRESS-FORMED OF 3 OR 4 MESH, 21 GAGE OR HEAVIER, STAINLESS STEEL OR HOT DIPPED GALVANIZED WIRE SCREEN OR APPROVED EQUIVALENT. SCREEN SHALL BE SCREWED INTO POLE BASE PLATE AND SHALL BE FLUSH WITH THE TOP OF THE PIER FOUNDATION.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT FOUNDATION DIAMETER IS AT LEAST 17.5" GREATER THAN BOLT CIRCLE DIAMETER FOR ALL STRUCTURES.
13. IN ORDER TO CREATE A FLUSH SURFACE, CONTRACTOR SHALL REFER TO THE FINAL ELEVATIONS SHOWN ON THE DESIGN PLANS WHEN INSTALLING FOUNDATIONS IMMEDIATELY ADJACENT TO OR WITHIN A SIDEWALK AREA.

MAST ARM SPAN & LOCATION	DIAMETER	EMBEDMENT DEPTH	TIE BARS
35' MAST ARM AT SANTILLI CIRCLE CONNECTOR CONST. BASELINE STA. 35+37.85, 27.34' RT	3'-6"	35'-0"	#5 @ 8"

FOUNDATION DESIGN TABLE
NOT TO SCALE

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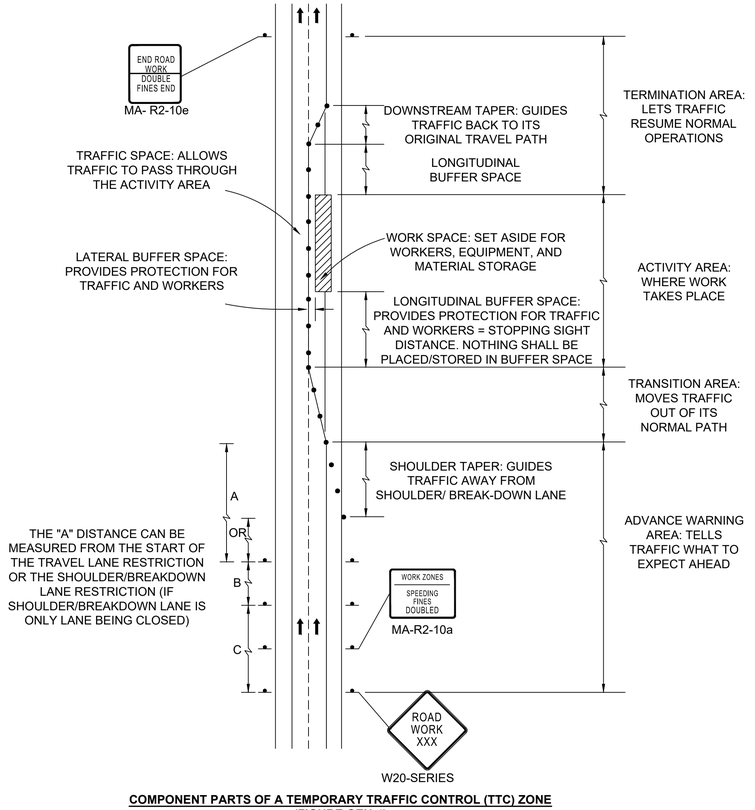
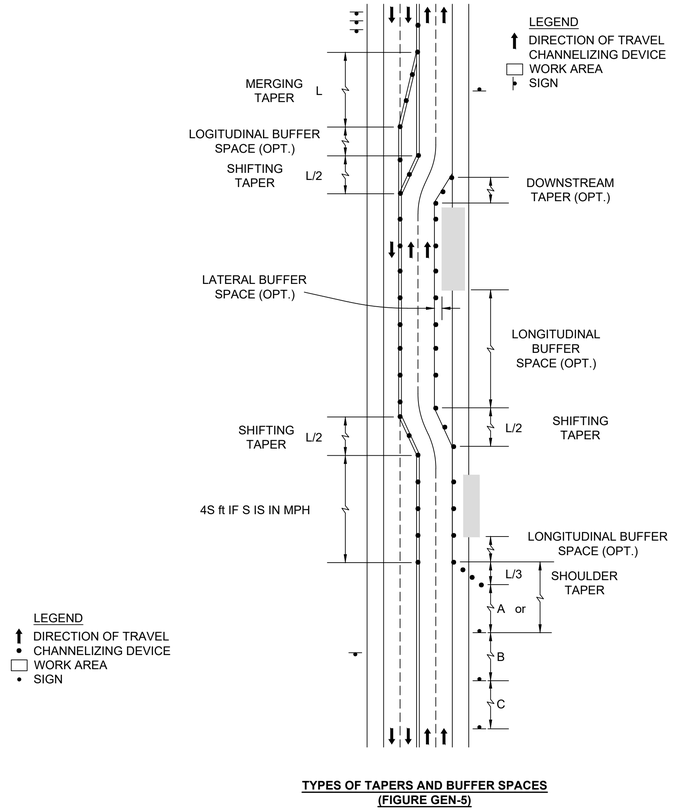
GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS INCLUDING MASSDOT REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD AND MASSDOT REVISIONS.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7. THE FIRST TEN REFLECTORIZED PLASTIC DRUMS OF A MERGING TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
8. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
9. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
10. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
11. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
12. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL NOT COVERED IN THE PLAN SET SHALL REFER TO MASSDOT "CONSTRUCTION STANDARD DETAILS SECTION 800: TRAFFIC CONTROL DEVICES".
13. CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH PROPOSED TEMPORARY MARKINGS AND SHALL BAG OR REMOVE SIGNAGE THAT CONFLICTS WITH CONSTRUCTION PERIOD TRAFFIC PATTERNS.
14. THE CONTRACTOR SHALL PROVIDE FOR ADEQUATE BARRIER DEFLECTION SPACE WITHIN THE WORK ZONE. LIMITS OF WORK ZONE SHOWN ON PLANS ARE FOR INFORMATIONAL PURPOSES.
15. CONTRACTOR SHALL MAINTAIN ADA-COMPLIANT PEDESTRIAN ACCESS AT ALL TIMES USING PEDESTRIAN MANAGEMENT GUIDANCE SYSTEMS AT WORK ZONES. ACCESS SHALL BE MAINTAINED ALONG ALL SIDEWALKS AND CROSSWALKS, TO ALL ABUTTERS, AND TO ALL MBTA BUS STOPS OR TRAIN STATIONS. ANY PEDESTRIAN DETOURS SHALL INCLUDE A FULLY ADA-COMPLIANT PEDESTRIAN DETOUR ROUTE WITH PROPER BARRICADES, RAILINGS, RAMPS, AND SIGNAGE.
16. IN GENERAL, NO WORK SHALL BE PERFORMED WITHIN THE TRAVELED WAY DURING PEAK PERIODS OF 6:30-9:00 AM AND 3:00-6:00PMCONTRACTOR SHALL REMOVE TEMPORARY TRAFFIC CONTROLS WHEN WORK IS NOT BEING PREFORMED AND SHALL ENSURE THAT THE AREA IS SAFE FOR VEHICULAR TRAVEL. IF LANE CLOSURES ARE TO BE USED FOR AN EXTENDED DURATION THROUGHOUT CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES SEEK APPROVAL FROM THE AUTHORITY HAVING JURISDICTION (MASSDOT, EVERETT, MBTA) AND COORDINATE WITH MBTA BUS OPERATIONS FOR ALL LANE CLOSURES.
17. SIGNALIZED INTERSECTIONS SHALL REMAIN OPERATIONAL THROUGH USE OF EXISTING AND PERMANENT EQUIPMENT, AND TEMPORARY EQUIPMENT AS NEEDED, AND SHALL ADHERE TO MUTCD STANDARDS.



COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE
(FIGURE GEN-4)
NOT TO SCALE

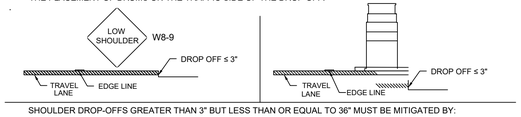


TYPES OF TAPERS AND BUFFER SPACES
(FIGURE GEN-5)
NOT TO SCALE

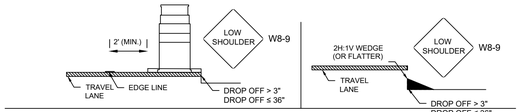
THIS GUIDANCE IS ADOPTED FROM THE ROADSIDE DESIGN GUIDE, 4TH EDITION.

PAVEMENT DROP-OFFS MAY OCCUR DURING PAVING, EXCAVATION, AND OTHER CONSTRUCTION ACTIVITIES. DROP-OFFS CREATE HAZARDS FOR VEHICLES IF NOT PROPERLY MITIGATED. THE FOLLOWING APPLIES FOR ALL ROADS WITH SPEED LIMITS GREATER THAN 30 MPH; FOR ROADS WITH SPEEDS OF 30 MPH OR LESS, TREATMENTS FOR PAVEMENT EDGE DROP-OFFS SHALL BE AT THE DISCRETION OF THE ENGINEER. DROP-OFFS BETWEEN ADJACENT, OPEN TRAVEL LANES SHALL NOT EXCEED 2", AND ANY DROP-OFF IN EXCESS OF 3" SHALL NOT BE LEFT UNATTENDED WITHOUT ONE OF THESE MITIGATION MEASURES APPLIED.

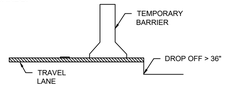
- SHOULDER DROP-OFFS 3" OR LESS ADJACENT TO A SHOULDER OR ACTIVE LANE SHOULD BE MITIGATED BY:
- A W8-9 (LOW SHOULDER) SIGN IN ADVANCE OF AND AT REGULAR INTERVALS THROUGHOUT THE
- TREATMENT; OR
- THE PLACEMENT OF DRUMS ON THE TRAFFIC SIDE OF THE DROP OFF.



- SHOULDER DROP-OFFS GREATER THAN 3" BUT LESS THAN OR EQUAL TO 36" MUST BE MITIGATED BY:
- A W8-9 (LOW SHOULDER) SIGN IN ADVANCE OF AND AT REGULAR INTERVALS THROUGHOUT THE
- TREATMENT AND THE PLACEMENT OF DRUMS ON THE TRAFFIC SIDE OF THE DROP-OFF, OFFSET AT LEAST 2' FROM THE TRAVEL LANE; OR
- A W8-9 (LOW SHOULDER) SIGN IN ADVANCE OF AND AT REGULAR INTERVALS THROUGHOUT THE
- TREATMENT AND THE PLACEMENT OF A TEMPORARY WEDGE OF MATERIAL ALONG THE FACE OF THE DROP-OFF. THE WEDGE SHOULD CONSIST OF STABLE MATERIAL PLACED ON A 2H:1V OR FLATTER SLOPE.



SHOULDER DROP-OFFS GREATER THAN 36" MUST BE PROTECTED BY TEMPORARY BARRIER DESIGNED TO MASSDOT STANDARDS.



SHORT-TERM PAVEMENT EDGE DROP-OFFS
(FIGURE GEN-8)
NOTE TO SCALE

EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
STANDARD DETAILS 1 OF 3

FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH L (FT)
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	L = WS

SOURCE: TABLE 6C-4 2009 MUTCD

L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO

WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

WORKZONE DISTANCES

RECOMMENDED ADVANCE WARNING SIGN MINIMUM SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS**		
	A	B	C
URBAN (LOW SPEED)*	100 FEET	100 FEET	100 FEET
URBAN (HIGH SPEED)*	350 FEET	350 FEET	350 FEET
RURAL	500 FEET	500 FEET	500 FEET
EXPRESSWAY/FREEWAY	1,000 FEET	1,500 FEET	2,640 FEET

SOURCE: TABLE 6C-1 2009 MUTCD

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FEET MINIMUM, 100 FEET MAXIMUM
DOWNSTREAM TAPER	50 FEET MINIMUM, 100 FEET MAXIMUM

NOTE: USE TABLE 6C-4 SHOWN BELOW TO CALCULATE L
SOURCE: TABLE 6C-3 2009 MUTCD

BUFFER SPACE TABLE

POSTED SPEED (MPH)	LENGTH (FT)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

SOURCE: TABLE 6C-2 2009 MUTCD

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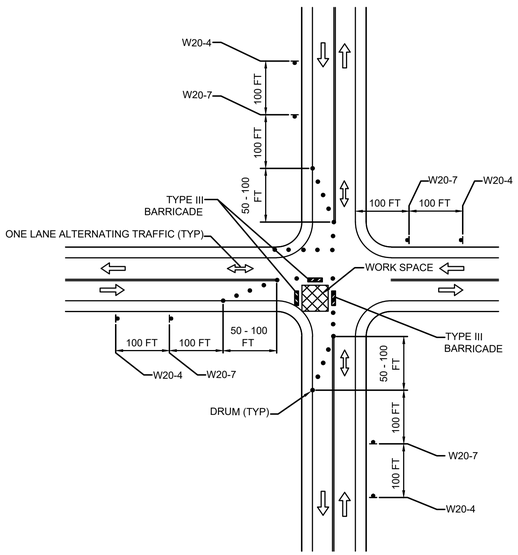
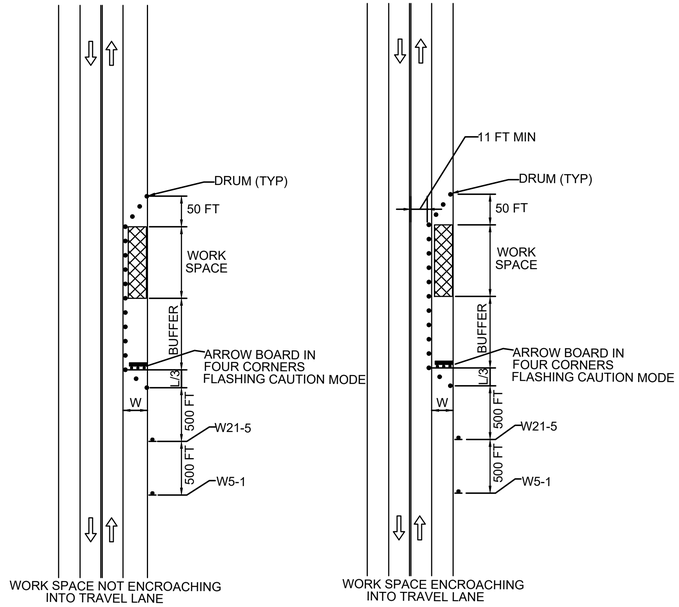
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
STANDARD DETAILS 2 OF 3



DETAIL A:
INTERSECTION QUADRANT CLOSURE
(852.10.2)
NOT TO SCALE



DETAIL B:
TWO LANE ROAD SHOULDER CLOSURE
(852.5.3)
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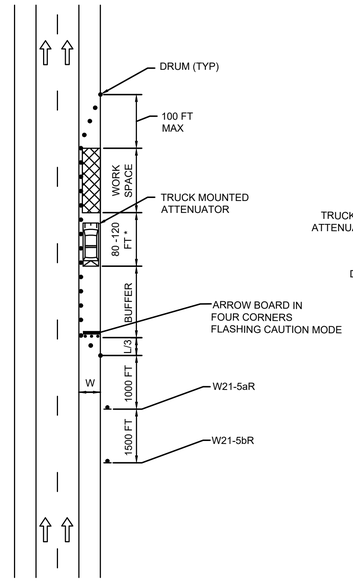
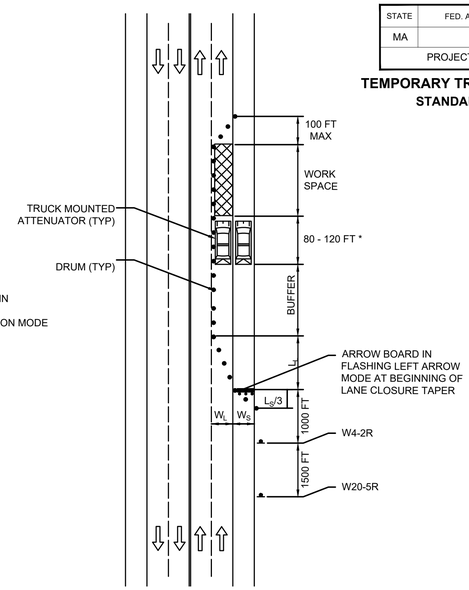
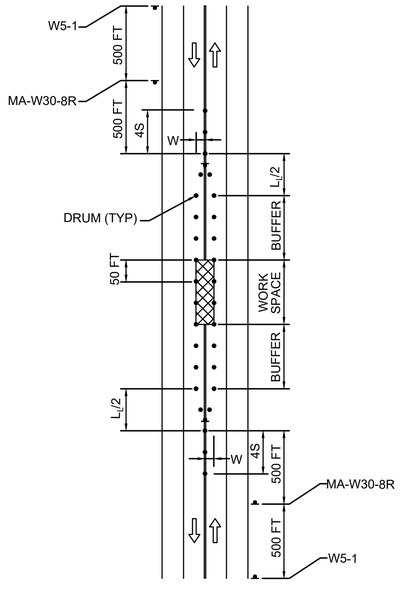


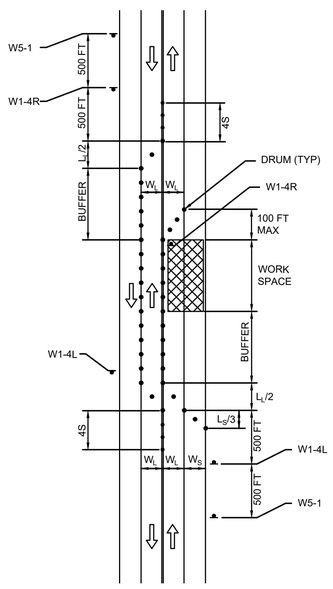
DETAIL C:
DIVIDED HIGHWAY
RIGHT SHOULDER CLOSURE (SHORT TERM)
(852.7.1)
NOT TO SCALE



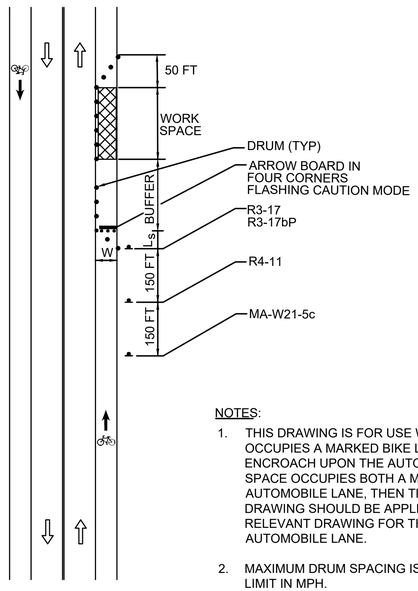
DETAIL D:
MULTI-LANE ROAD
RIGHT LANE CLOSURE
(852.6.1)
NOT TO SCALE



DETAIL E:
TWO LANE ROAD CENTER OF ROAD CLOSURE
(852.5.1)
NOT TO SCALE



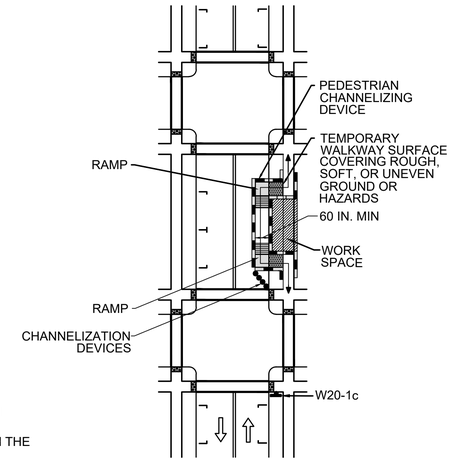
DETAIL F:
TWO LANE ROAD HALF ROAD CLOSURE
(852.5.4)
NOT TO SCALE



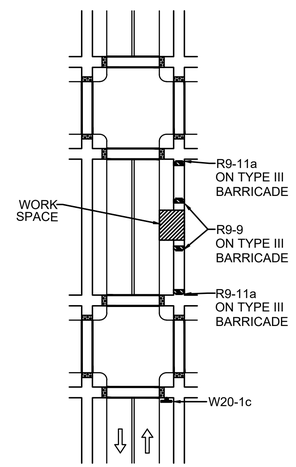
DETAIL G:
BICYCLE LANE CLOSURE
(852.3.1)
NOT TO SCALE

NOTES:

1. THIS DRAWING IS FOR USE WHERE THE WORK SPACE OCCUPIES A MARKED BIKE LANE BUT DOES NOT ENCROACH UPON THE AUTOMOBILE LANE. IF A WORK SPACE OCCUPIES BOTH A MARKED BIKE LANE AND AN AUTOMOBILE LANE, THEN THE SIGNS SHOWN IN THIS DRAWING SHOULD BE APPLIED IN CONJUNCTION WITH THE RELEVANT DRAWING FOR THE CLOSURE OF THE AUTOMOBILE LANE.
2. MAXIMUM DRUM SPACING IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.



DETAIL H:
SIDEWALK DIVERSION
(852.1.2)
NOT TO SCALE



DETAIL J:
SIDEWALK DETOUR
(852.1.1)
NOT TO SCALE

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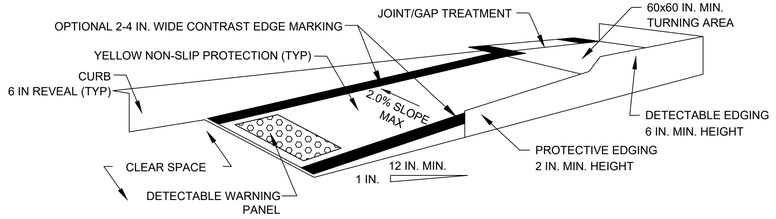
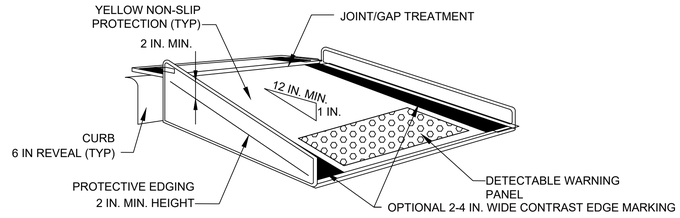


TEMPORARY CURB RAMP-PARALLEL TO CURB

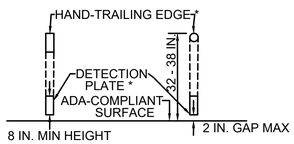


TEMPORARY CURB RAMP-PERPENDICULAR TO CURB
NOT TO SCALE

NOTES:

1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. PROTECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
5. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
6. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
10. IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.

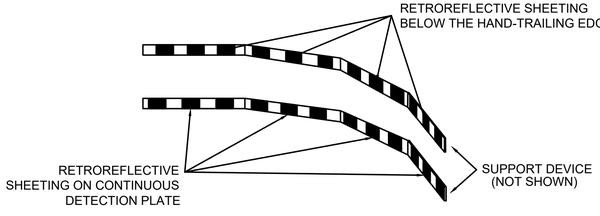
DETAIL K:
TEMPORARY CURB RAMP (1 OF 2)
(850.1.1)



CROSS SECTION VIEW

*THE HAND-TRAILING EDGE AND DETECTION PLATE SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF THE PATH SUCH THAT A PEDESTRIAN USER WITH A LONG CANE CAN FOLLOW IT.

STANDARD RETROREFLECTIVE LAYOUT FOR PEDESTRIAN CHANNELIZING DEVICES

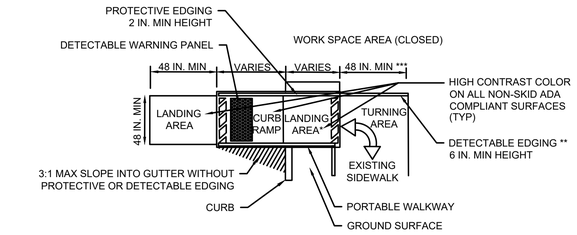


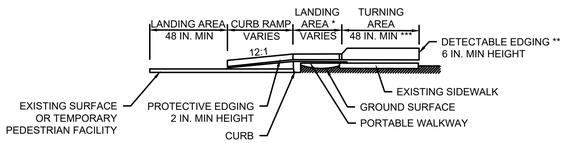
ISOMETRIC VIEW

NOTES:

1. A MAXIMUM 2-INCH GAP BETWEEN THE BOTTOM OF THE CONTINUOUS DETECTION PLATE AND THE WALKWAY SURFACE MAY BE USED TO PROVIDE DRAINAGE.
2. HAND-TRAILING EDGE AND DETECTION PLATE ARE OPTIONAL FOR CONTINUOUS WALLS.
3. SUPPORT DEVICE FOR CONTINUOUS DETECTION PLATE AND CONTINUOUS HAND-TRAILING EDGE NOT SHOWN ON THE PLAN.
4. STRIPING ON SHEETING PANELS MAY BE EITHER VERTICAL OR AT A 45-DEGREE ANGLE.
5. RETROREFLECTIVE AREAS CAN BE DISTRIBUTED IN A MANNER THAT ENSURES VISIBILITY AND DETECTION WITHOUT NECESSITATING A SINGLE CONTINUOUS APPLICATION.

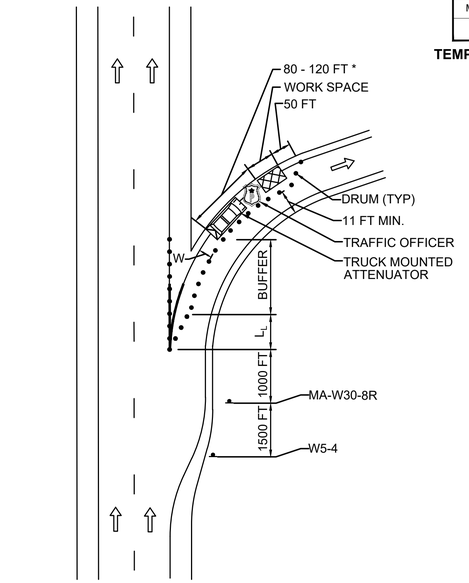
DETAIL M:
PEDESTRIAN CHANNELIZING DEVICE
(851.3.1)
NOT TO SCALE



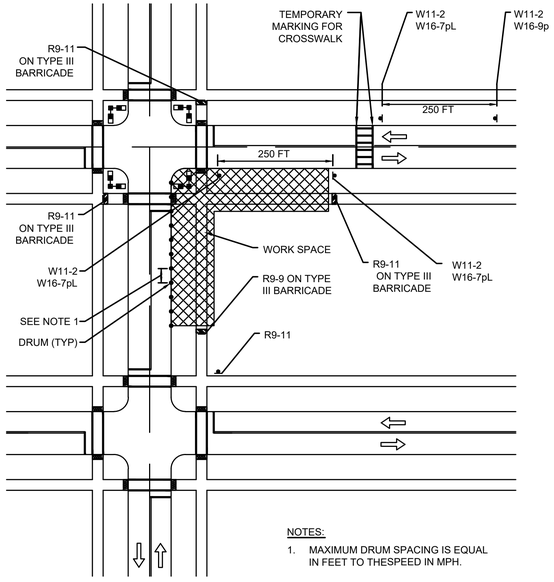


* LANDING AREA USED TO OVERLAP NON-ADA COMPLIANT SURFACES.
** DETECTABLE EDGING REMOVED IF A CONTINUOUS SIDEWALK.
*** 60 IN. MINIMUM IF AN OBSTRUCTION IS AT BACK OF SIDEWALK.

DETAIL L:
TEMPORARY CURB RAMP (2 OF 2)
(850.1.2)
NOT TO SCALE



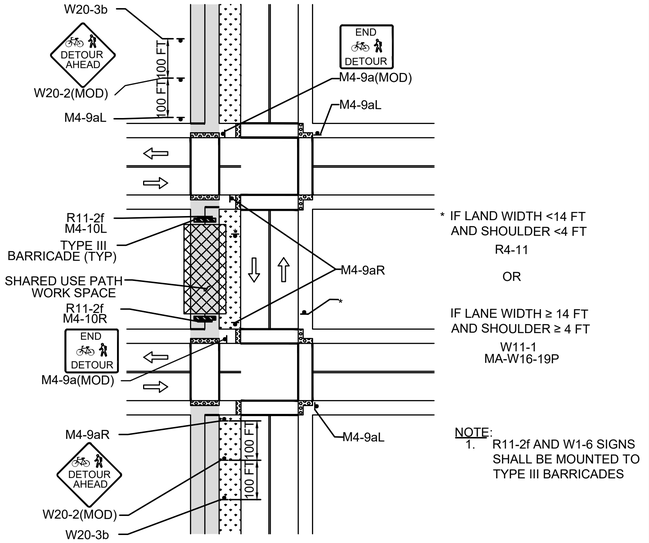
DETAIL P:
EXIT RAMP LEFT SIDE OF RAMP CLOSURE
(852.8.2)
NOT TO SCALE



NOTES:

1. MAXIMUM DRUM SPACING IS EQUAL IN FEET TO THESPEED IN MPH.

DETAIL N:
PEDESTRIAN DETOUR
FOR CROSSWALK CLOSURE
(852.1.3)
NOT TO SCALE



DETAIL Q:
ON-ROAD SHARED USE PATH DIVERSION
(852.2.2)
NOT TO SCALE

EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
STANDARD DETAILS 3 OF 3

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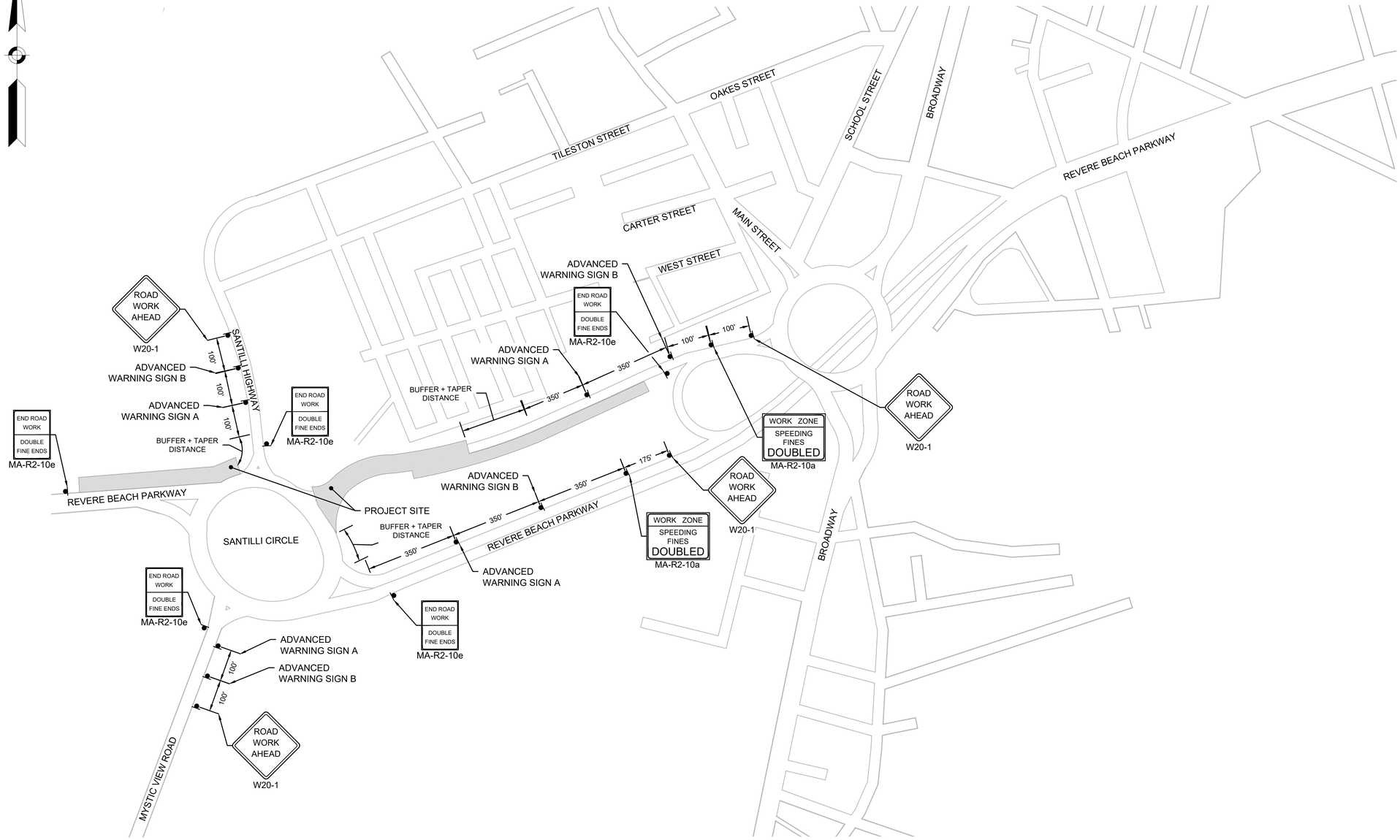
TEMPORARY TRAFFIC CONTROL
ADVANCED SIGNAGE

EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
ADVANCED SIGNAGE



NOTES:

1. CONTRACTOR SHALL INSTALL ADVANCED SIGNAGE PRIOR TO FIRST STAGE OF WORK. ADVANCED SIGNAGE SHOWN MAY BE ADJUSTED ACCORDING TO STAGED CONSTRUCTION AND SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE REQUIRED STAGE.
2. SIGNS WHICH CONFLICT WITH THE PROPOSED SETUP SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE.
3. SEE SHEET 40 - 43 FOR PROPOSED STAGING SEQUENCING PLANS.
4. SEE SHEETS 36 - 38 FOR TTCP DETAILS.

SIGN
WORK ZONE

0 40 100 160
SCALE: 1" = 40'

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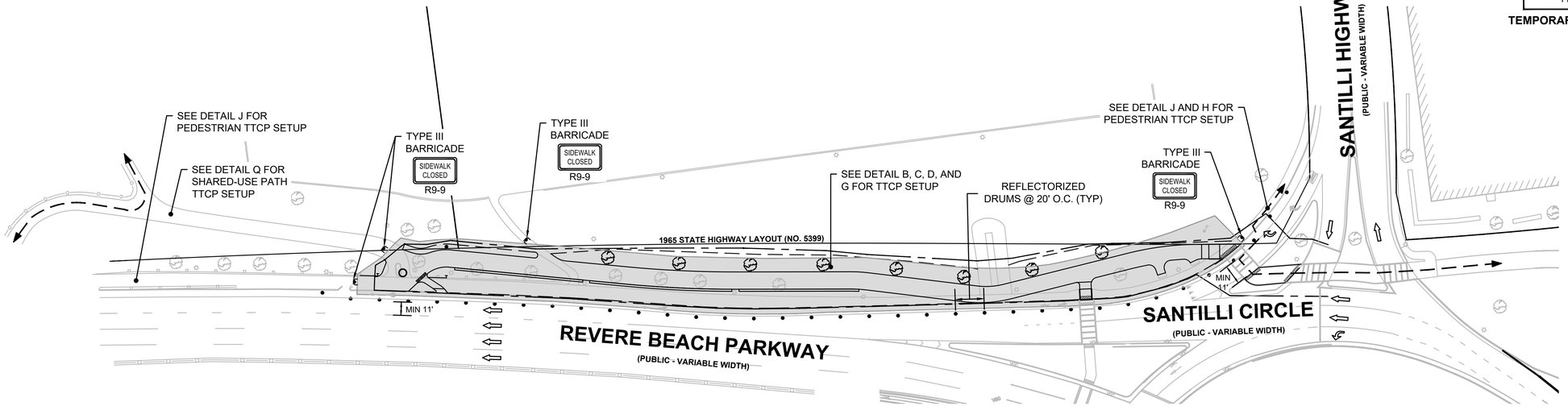
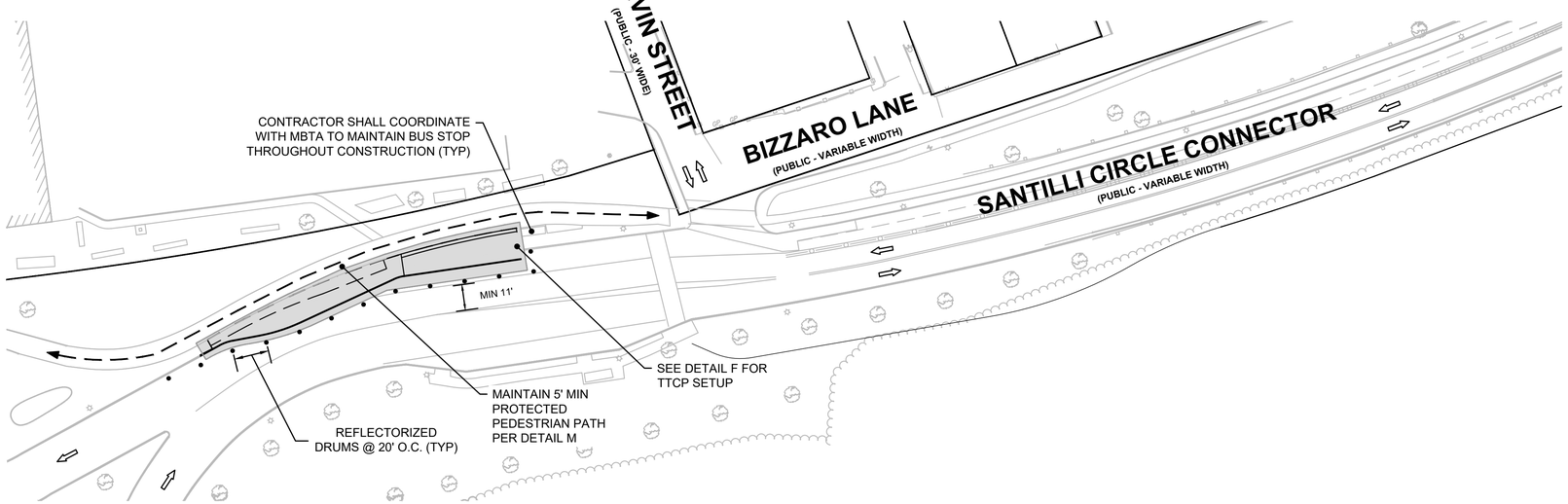
PHASE 1A

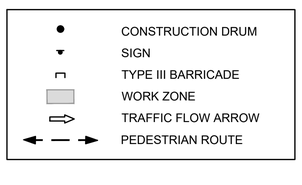


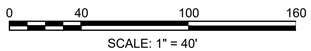
PHASE 1B



PHASE 1: BIZZARO LANE AT REVERE BEACH PARKWAY

1. THE WORKZONE SHOWN IS INTENDED TO SUPPORT THE SANTILLI CIRCLE CONNECTOR AND PATH CONNECTION INCLUDING BUT NOT LIMITED TO:
   - 1.1. DEMOLITION OF EXISTING CURB AND SIDEWALK.
   - 1.2. CONSTRUCTION OF SIDEWALK, CURB, PEDESTRIAN RAMPS, AND SHARED USE PATH.
2. THE WORKZONE SHALL BE STAGED AS SHOWN TO LIMIT DISRUPTIONS TO EXISTING TRAFFIC FLOW AND MAINTAIN 11' MINIMUM LANES FOR TWO-WAY TRAFFIC AND ABUTTER ACCESS.
3. CONTRACTOR SHALL INCLUDE WITHIN WORKZONE ALL NECESSARY TEMPORARY TRAFFIC CONTROL EQUIPMENT (DRUMS, BARRIERS, PEDESTRIAN MANAGEMENT GUIDANCE SYSTEMS, ETC.) IN ACCORDANCE WITH MASSDOT GUIDELINES TO DEFINE SAFE AND ACCESSIBLE WORKZONE AREAS. REFER TO SHEETS 34-36 FOR A SAMPLE OF DETAILS WHICH MAY BE UTILIZED.
4. AREAS WHERE PEDESTRIAN ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED OR PEDESTRIAN DETOURS PROVIDED THROUGHOUT CONSTRUCTION WITH PROPER ADA ACCESSIBILITY.
5. AREAS WHERE BICYCLE ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.





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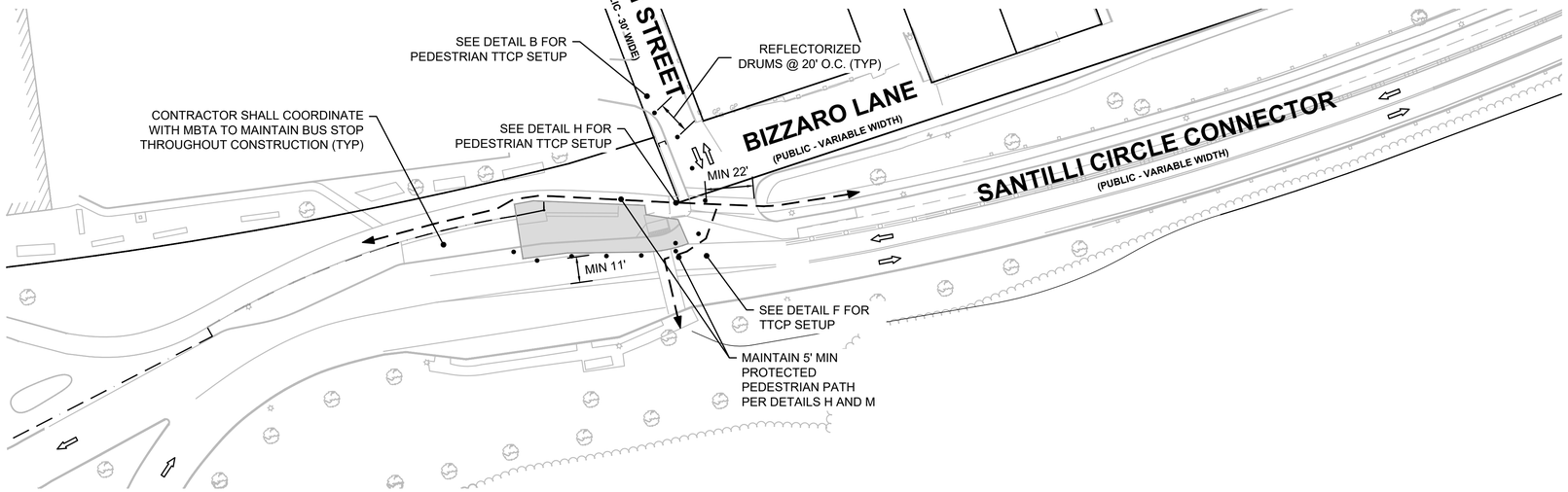
EVERETT
NORTHERN STRAND TRAIL EXTENSION

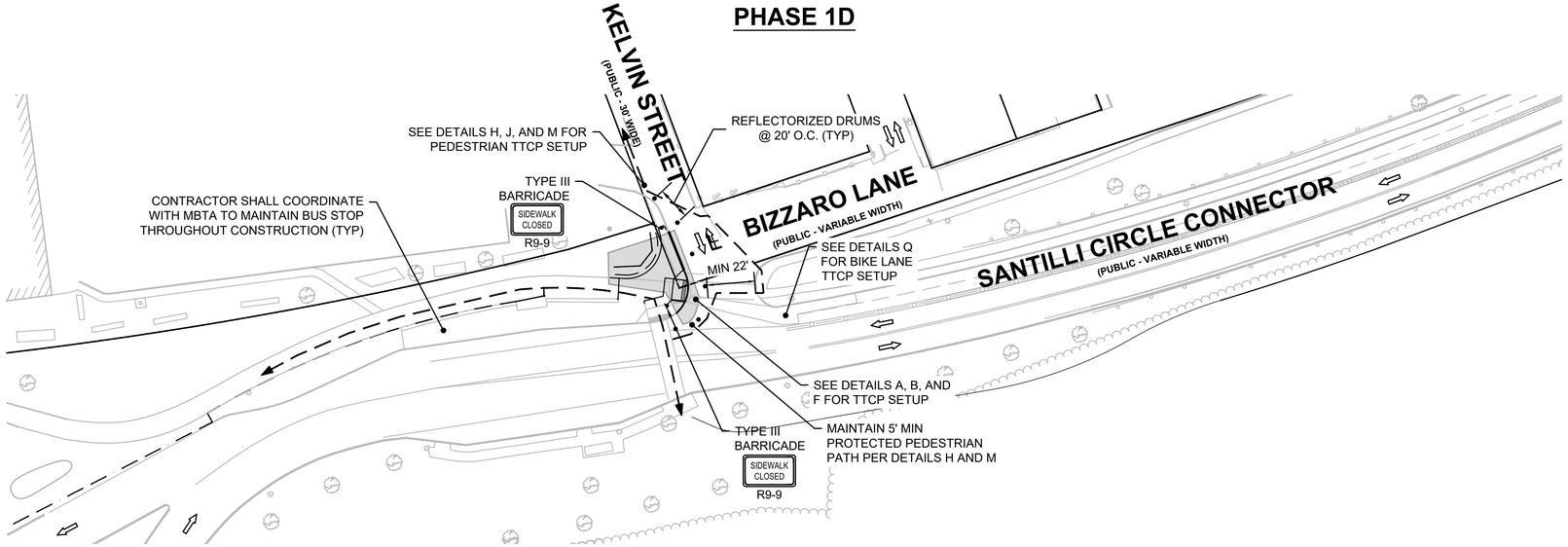
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
SHEET 2 OF 4

PHASE 1C

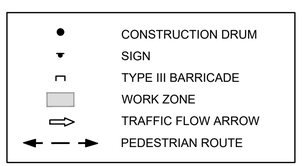


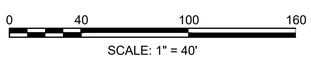
PHASE 1D



PHASE 1: BIZZARO LANE AT REVERE BEACH PARKWAY

1. THE WORKZONE SHOWN IS INTENDED TO SUPPORT THE SANTILLI CIRCLE CONNECTOR AND PATH CONNECTION INCLUDING BUT NOT LIMITED TO:
   - 1.1. DEMOLITION OF EXISTING CURB AND SIDEWALK.
   - 1.2. CONSTRUCTION OF SIDEWALK, CURB, PEDESTRIAN RAMPS, AND SHARED USE PATH.
2. THE WORKZONE SHALL BE STAGED AS SHOWN TO LIMIT DISRUPTIONS TO EXISTING TRAFFIC FLOW AND MAINTAIN 11' MINIMUM LANES FOR TWO-WAY TRAFFIC AND ABUTTER ACCESS.
3. CONTRACTOR SHALL INCLUDE WITHIN WORKZONE ALL NECESSARY TEMPORARY TRAFFIC CONTROL EQUIPMENT (DRUMS, BARRIERS, PEDESTRIAN MANAGEMENT GUIDANCE SYSTEMS, ETC.) IN ACCORDANCE WITH MASSDOT GUIDELINES TO DEFINE SAFE AND ACCESSIBLE WORKZONE AREAS. REFER TO SHEETS 34-36 FOR A SAMPLE OF DETAILS WHICH MAY BE UTILIZED.
4. AREAS WHERE PEDESTRIAN ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED OR PEDESTRIAN DETOURS PROVIDED THROUGHOUT CONSTRUCTION WITH PROPER ADA ACCESSIBILITY.
5. AREAS WHERE BICYCLE ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.





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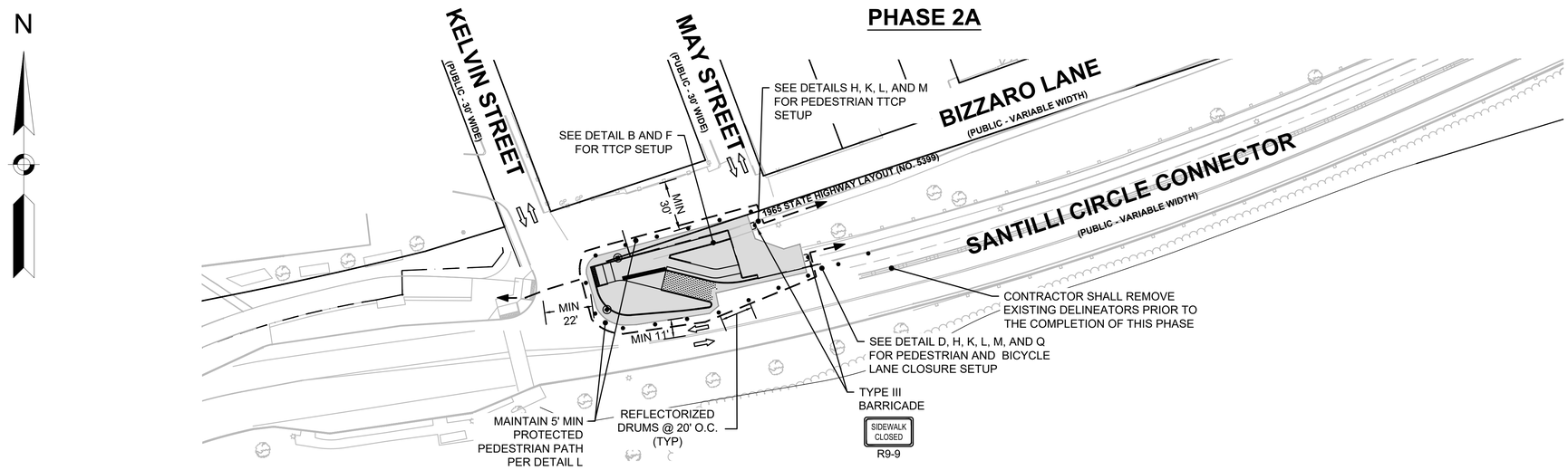
EVERETT
NORTHERN STRAND TRAIL EXTENSION

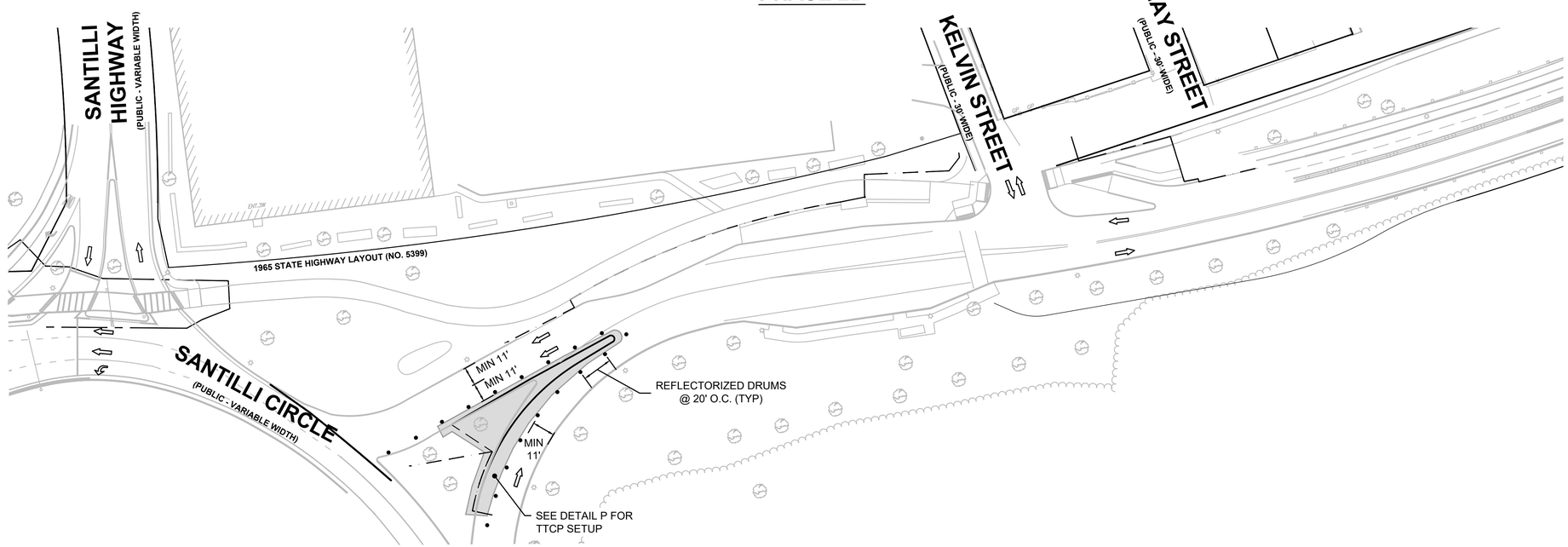
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	42	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
SHEET 2 OF 3

PHASE 2A



PHASE 2B



PHASE 2: BIZZARO LANE AT REVERE BEACH PARKWAY

1. THE WORKZONE SHOWN IS INTENDED TO SUPPORT THE SANTILLI CIRCLE CONNECTOR AND PATH CONNECTION INCLUDING BUT NOT LIMITED TO:
   - 1.1. DEMOLITION OF EXISTING CURB, SIDEWALK, AND MEDIAN.
   - 1.2. CONSTRUCTION OF SIDEWALK, CURB, PEDESTRIAN RAMPS, AND SHARED USE PATH.
2. THE WORKZONE SHALL BE STAGED AS SHOWN TO LIMIT DISRUPTIONS TO EXISTING TRAFFIC FLOW AND MAINTAIN 11' MINIMUM LANES FOR TWO-WAY TRAFFIC AND ABUTTER ACCESS.
3. CONTRACTOR SHALL INCLUDE WITHIN WORKZONE ALL NECESSARY TEMPORARY TRAFFIC CONTROL EQUIPMENT (DRUMS, BARRIERS, PEDESTRIAN MANAGEMENT GUIDANCE SYSTEMS, ETC.) IN ACCORDANCE WITH MASSDOT GUIDELINES TO DEFINE SAFE AND ACCESSIBLE WORKZONE AREAS. REFER TO SHEETS 34-36 FOR A SAMPLE OF DETAILS WHICH MAY BE UTILIZED.
4. AREAS WHERE PEDESTRIAN ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED OR PEDESTRIAN DETOURS PROVIDED THROUGHOUT CONSTRUCTION WITH PROPER ADA ACCESSIBILITY.
5. AREAS WHERE BICYCLE ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

- CONSTRUCTION DRUM
- SIGN
- TYPE III BARRICADE
- WORK ZONE
- TRAFFIC FLOW ARROW
- PEDESTRIAN ROUTE

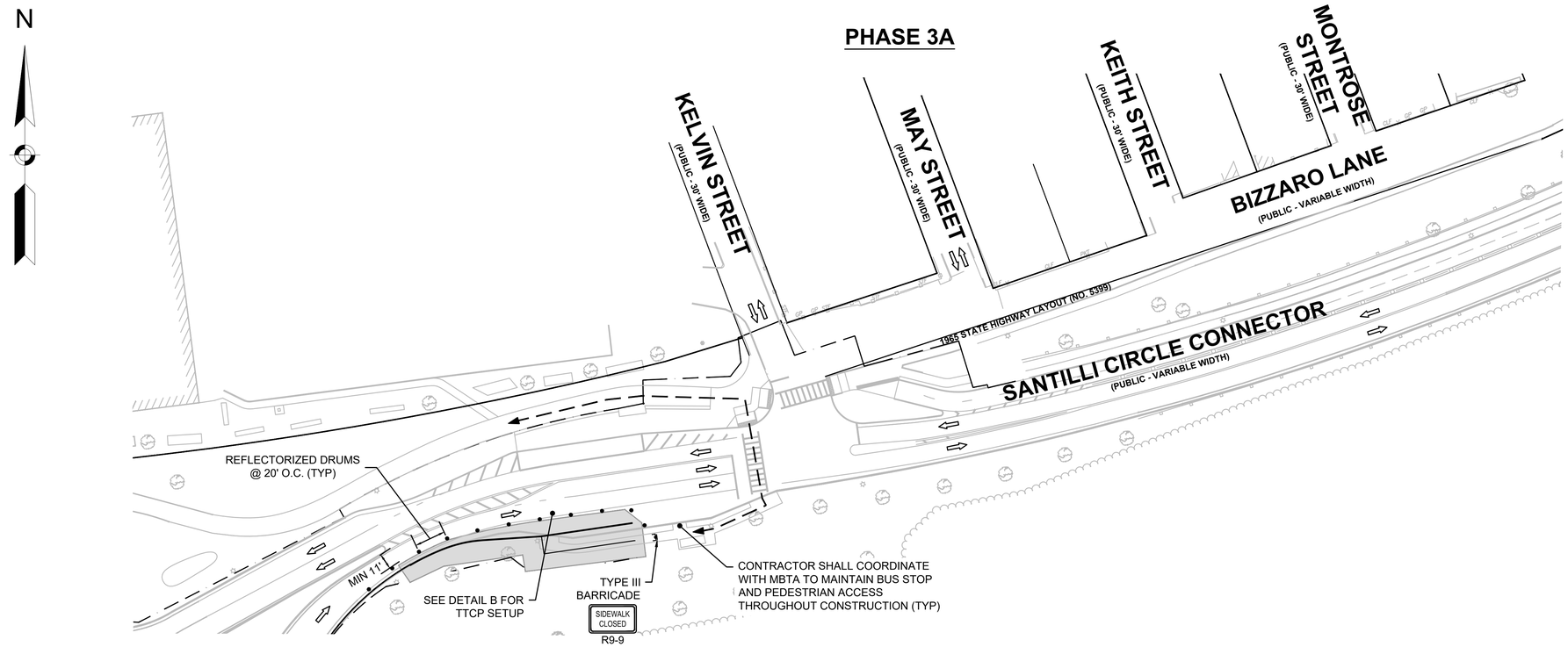
0 40 100 160
SCALE: 1" = 40'

EVERETT
NORTHERN STRAND TRAIL EXTENSION

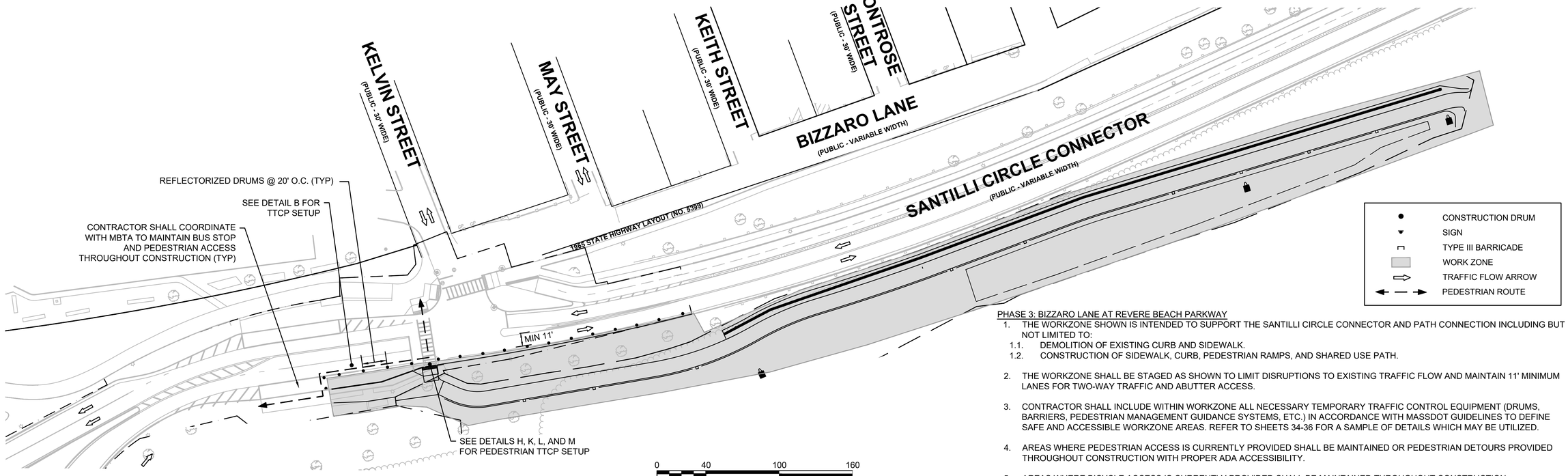
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
SHEET 3 OF 3

PHASE 3A



PHASE 3B



PHASE 3: BIZZARO LANE AT REVERE BEACH PARKWAY

1. THE WORKZONE SHOWN IS INTENDED TO SUPPORT THE SANTILLI CIRCLE CONNECTOR AND PATH CONNECTION INCLUDING BUT NOT LIMITED TO:
   - 1.1. DEMOLITION OF EXISTING CURB AND SIDEWALK.
   - 1.2. CONSTRUCTION OF SIDEWALK, CURB, PEDESTRIAN RAMPS, AND SHARED USE PATH.
2. THE WORKZONE SHALL BE STAGED AS SHOWN TO LIMIT DISRUPTIONS TO EXISTING TRAFFIC FLOW AND MAINTAIN 11' MINIMUM LANES FOR TWO-WAY TRAFFIC AND ABUTTER ACCESS.
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4. AREAS WHERE PEDESTRIAN ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED OR PEDESTRIAN DETOURS PROVIDED THROUGHOUT CONSTRUCTION WITH PROPER ADA ACCESSIBILITY.
5. AREAS WHERE BICYCLE ACCESS IS CURRENTLY PROVIDED SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	67
PROJECT FILE NO.		-	

TEMPORARY TRAFFIC CONTROL PLANS
SIGN SUMMARY

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
MA-R2-10a	48	36	WORK ZONE / SPEEDING FINES DOUBLED	SEE MASSDOT STANDARD DETAILS	SEE MASSDOT STANDARD DETAILS	SEE MASSDOT STANDARD DETAILS	2	FLUOR-ESCENT ORANGE / WHITE	BLACK	BLACK	SEE MUTCD STANDARD DETAILS	12.00	24.00
MA-R2-10e	36	48	END ROAD WORK / DOUBLE FINE ENDS				4	FLUOR-ESCENT ORANGE / WHITE	BLACK	BLACK		12.00	44.00
MA-W21-5c	36	36	BIKE LANE CLOSED AHEAD				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
MA-W30-8R	36	36	SQUEEZE RIGHT				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
M4-9aL	30	24	DETOUR ←	SEE MUTCD STANDARD DETAILS	SEE MUTCD STANDARD DETAILS	SEE MUTCD STANDARD DETAILS	1	FLUOR-ESCENT ORANGE	BLACK	BLACK		5.00	5.00
M4-9aL	30	24	DETOUR →				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		5.00	5.00
M4-9bL	30	24	DETOUR ←				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		5.00	5.00
M4-9bR	30	24	DETOUR →				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		5.00	5.00
R3-17	30	24	BIKE LANE				1	WHITE	BLACK	BLACK		5.00	5.00
R3-17bP	8	24	ENDS				1	WHITE	BLACK	BLACK		1.33	1.33
R4-11	30	30	MAY USE FULL LANE				1	WHITE	BLACK	BLACK		5.00	5.00
R9-9	30	18	SIDEWALK CLOSED				2	WHITE	BLACK	BLACK		3.75	7.50
R11-9L	24	18	SIDEWALK CLOSED ← CROSS HERE				1	WHITE	BLACK	BLACK		3.00	3.00
R11-9R	24	18	SIDEWALK CLOSED → CROSS HERE				1	WHITE	BLACK	BLACK		3.00	3.00

1. SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT, DIMENSIONS, AND COLOR. ALSO REFER TO 1995 MASSDOT STANDARD SPECIFICATIONS SECTION M 9.30.0

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
W1-4L	36	36		SEE MASSDOT STANDARD DETAILS	SEE MASSDOT STANDARD DETAILS	SEE MASSDOT STANDARD DETAILS	1	FLUOR-ESCENT ORANGE	BLACK	BLACK	SEE MUTCD STANDARD DETAILS	9.00	9.00
W1-4R	36	36					1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
W5-1	36	36	ROAD NARROWS				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
W5-4	36	36	RAMP NARROWS				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
W11-2	36	36					1	FLUOR-ESCENT YELLOW	BLACK	BLACK		9.00	9.00
W16-7pL	24	12					1	FLUOR-ESCENT YELLOW	BLACK	BLACK		2.00	2.00
W16-9p	24	12	AHEAD				1	FLUOR-ESCENT YELLOW	BLACK	BLACK		2.00	2.00
W20-1	36	36	ROAD WORK AHEAD				4	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	36.00
W20-2 (MOD)	36	36	DETOUR AHEAD				2	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
W20-4	36	36	ONE LANE ROAD AHEAD				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
W20-7	36	36					2	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00
W21-5aR	36	36	RIGHT SHOULDER CLOSED				1	FLUOR-ESCENT ORANGE	BLACK	BLACK		9.00	9.00

1. SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND AMENDMENTS FOR LATEST SPECIFICATIONS ON TEXT, DIMENSIONS, AND COLOR. ALSO REFER TO 1995 MASSDOT STANDARD SPECIFICATIONS SECTION M 9.30.0

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	45	67
PROJECT FILE NO.		-	

DRAINAGE AND UTILITY PLANS
SHEET 1 OF 5

2022012_HD (UTILITY).DWG Plotted on 28-Apr-2026 3:48 PM

N

25' RIVERFRONT AREA

100' BUFFER ZONE

P&R

INV=7.08

16" RCP(D)

12" RCP(D)

R=15.30 (A)=7.3 (B)=6.5

R=11.72 (A)=7.2 (B)=7.0

20+00

BCB

R=18.19 (A)=11.5 (B)=9.1 (C)=6.6

R=16.88 I=9.9

R=16.88 SUMP=7.2 (NVP)

R=13.94 I=10.9

RET

MEET EXIST

ADJ

ABAN

PROP 5 LF 12" RCP

PROP AREA DRAIN WITH BEEHIVE GRATE AND SUMP

PROP 90 LF FRENCH DRAIN

INV= 14.88

PROP 5 LF - 6" CORRUGATED PLASTIC PIPE CONNECT TO FRENCH DRAIN

PROP 100 LF FRENCH DRAIN

1965 STATE HIGHWAY LAYOUT (NO. 5399)

PROP 6"x6" WYE

INV = 9.45

INV = 9.78

REM

CLOSE EXIST OPENING W/ BRICK MASONRY

CORE INTO EXIST DMH INV=6.2 +/- (V.I.F)

PROP 5 LF - 6" CORRUGATED PLASTIC PIPE CONNECT TO FRENCH DRAIN

PROP 70 LF FRENCH DRAIN

PROP 15 LF - 6" CORRUGATED PLASTIC PIPE CONNECT TO FRENCH DRAIN

CONTINUED ON SHEET NO. 16

REVERE BEACH PARKWAY
(PUBLIC - VARIABLE WIDTH)

LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100

SCALE: 1" = 20'

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	46	67
PROJECT FILE NO.		-	

DRAINAGE AND UTILITY PLANS
SHEET 2 OF 5

CONTINUED ON SHEET NO. 15

CONTINUED ON SHEET NO. 17

N

SANTILLI HIGHWAY
(PUBLIC - VARIABLE WIDTH)

REVERE BEACH PARKWAY
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

1965 STATE HIGHWAY LAYOUT (NO. 5399)

PROP 65 LF FRENCH DRAIN

INV = 9.78

ABAN

RELOCATE

10"-6"MWRA SEWER

LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	47	67
PROJECT FILE NO.		-	

DRAINAGE AND UTILITY PLANS
SHEET 3 OF 5

DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
1	GI-1	34+93.5 24.9' RT	8.92		I=6.42' (2)	
2	DMH-1	35+20 7.5' RT	8.66	I=5.98' (1) I=6.0' (3)	I=3.45'(6)(EX)	CIT
3	GI-2	35+26.9 22.7' RT	8.61		I=6.11' (2)	
4	CB-1	35+70.4 -12.7' LT	8.85		I=5.35' (6)	
5	CB-2	35+69.9 -48.8' LT	7.78		I=3.28'	
6	DMH-2	35+20.9 -40.3' LT	8.14	I=4.41' (4) I=3.1' (2) (EX) I=4.42' (7)	I=-1.0'(EX)	CIT
7	CB-3	35+21.2 -45.4' LT	8.02		I=4.52' (6)	

N

KELVIN STREET
(PUBLIC - 30' WIDE)

MAY STREET
(PUBLIC - 30' WIDE)

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

1965 STATE HIGHWAY LAYOUT (NO. 5399)

REMODEL EXIST OPENING
INV=1.6'

PROP 10 LF - 12" RCP
PROP FRAME AND COVER

PROP 30 LF - 12" RCP

PROP 47 LF - 12" RCP

CUT AND CAP
EXIST 10" RCP

PROP 5 LF - 12" RCP
INV = 3.45 (V.I.F)

PROP 22 LF - 12" RCP

RELOCATE

PROP LIGHT POLE
(TYP)

PROP LIGHTING
CONDUIT (TYP)

CB-1
CB-2
CB-3
DMH-1
DMH-2
GI-1
GI-2

10"-6"MWRA SEWER

6" CI WATER

EXXON OIL

ALGONQUIN GAS

ALGONQUIN GAS

CONTINUED ON SHEET NO. 16

CONTINUED ON SHEET NO. 18

LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	48	67
PROJECT FILE NO.	-		

DRAINAGE AND UTILITY PLANS
SHEET 4 OF 5

N

MAY STREET (PUBLIC - 30' WIDE)

HEATH STREET (PUBLIC - 30' WIDE)

MONTROSE STREET (PUBLIC - 30' WIDE)

PLYMOUTH STREET (PUBLIC - 30' WIDE)

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

1965 STATE HIGHWAY LAYOUT (NO. 5399)

PROP 39 LF - 12" RCP

CB-2

PROP 47 LF - 12" RCP

6" CI WATER

42" BRICK(D)

6" CI WATER

10" CLAY(D)

4" CLAY(D) (ABD.)

6"MWRA SEWER

RET

ALGONQUIN GAS

100' WETLAND BUFFER ZONE

12.0'

40.0'

27.0'

CONTINUED ON SHEET NO. 17

CONTINUED ON SHEET NO. 19

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

PROP GRASS SWALE (TYP)

BEGIN SWALE
STA: 102+40

PROP AREA DRAIN WITH
BEEHIVE GRATE AND SUMP
RIM = 9.36
INV = 7.61

PROP 38 LF 12"
CORRUGATED PLASTIC PIPE

PROP 12" CORRUGATED
PLASTIC PIPE FLARED END
SECTION WITH RIP RAP

INV= 7.36

PROP 432 LF 6" PERFORATED
CORRUGATED PLASTIC PIPE

PROP LIGHTING
CONDUIT (TYP)

PROP LIGHT POLE
(TYP)

RIM = 13.00
INV = 11.25

PROP 27 LF 12"
CORRUGATED PLASTIC PIPE

INV = 10.70

PROP 12" CORRUGATED PLASTIC PIPE
FLARED END SECTION WITH RIP RAP

LIMIT OF WORK
BASE SCOPE

LIMIT OF WORK
AD-ALT 1

LIMIT OF WORK
AD-ALT 2

0 20 50 100
SCALE: 1" = 20'

2022012_HD (UTILITY).DWG Plotted on 28-Apr-2026 3:47 PM

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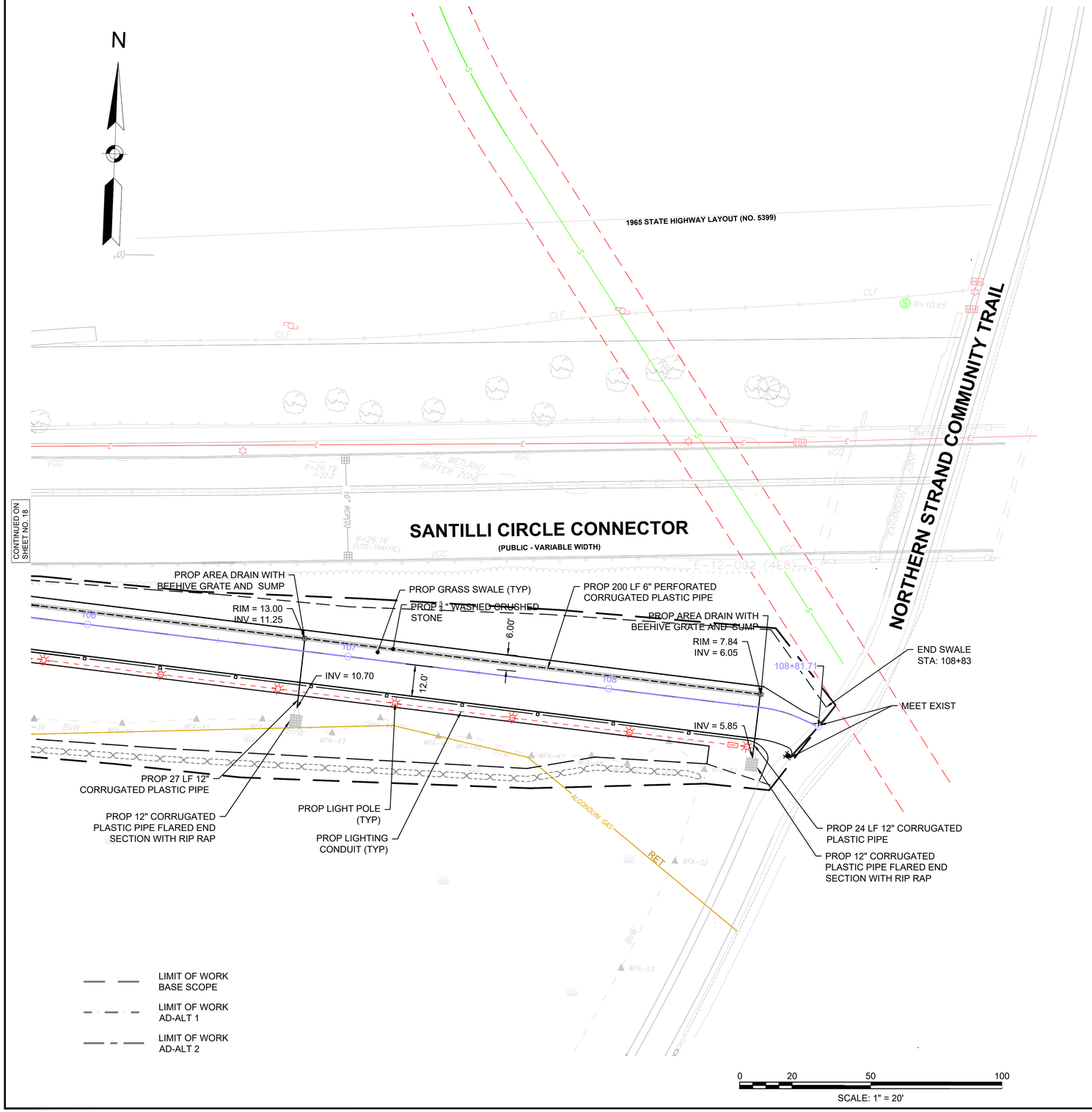
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	49	67
PROJECT FILE NO.		-	

DRAINAGE AND UTILITY PLANS
SHEET 5 OF 5



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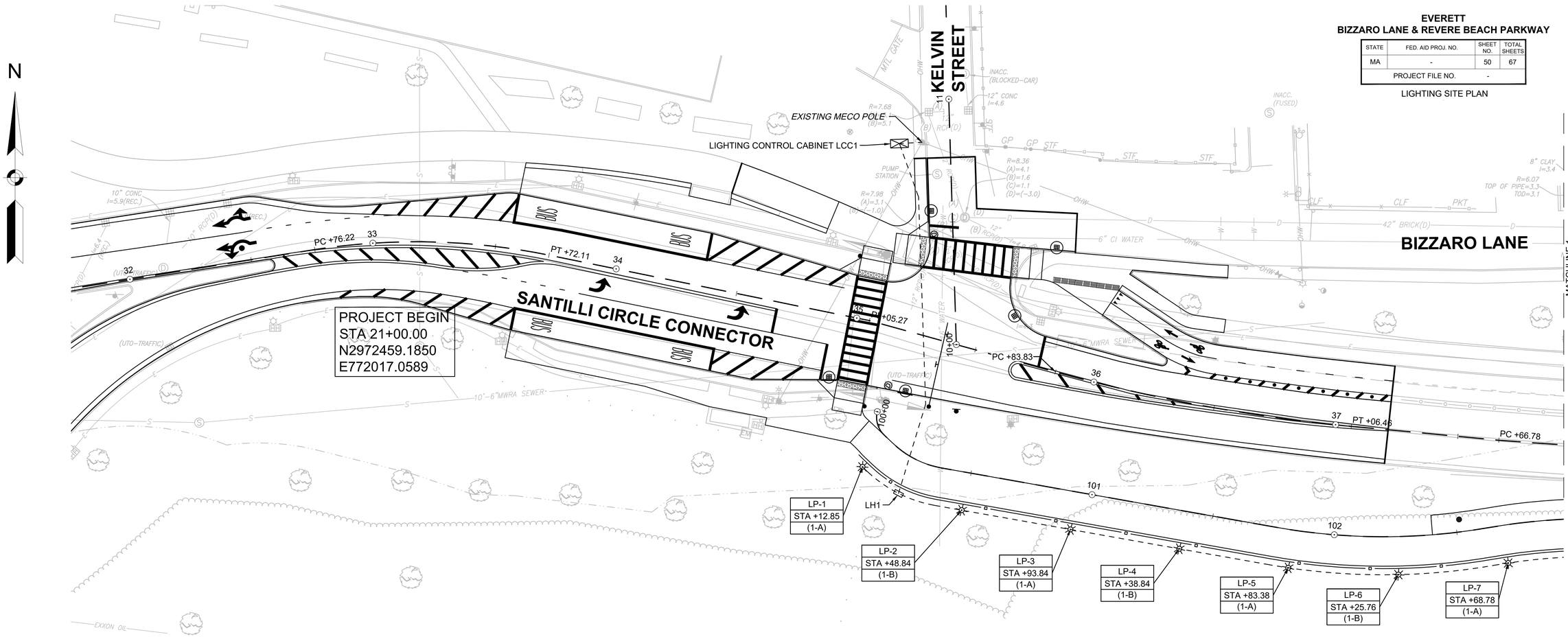
EVERETT
BIZZARO LANE & REVERE BEACH PARKWAY

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	50	67
PROJECT FILE NO.		-	

LIGHTING SITE PLAN



LEGEND

- PEDESTRIAN LIGHT FIXTURE LP-[X]
- UNDERGROUND LIGHTING CONDUIT AND WIRE
- LH1 LIGHTING HANDHOLE NO. 1
- LIGHTING CONTROL CABINET

LUMINAIRE AND POLE NUMBER — LP-X
STATION NUMBER — STA +XX.XX
(CIRCUIT NUMBER - PHASE) — (1-A)

COMMONWEALTH OF MASSACHUSETTS
NICHOLAS M BRIEN
NO. 54846
REGISTERED PROFESSIONAL ENGINEER

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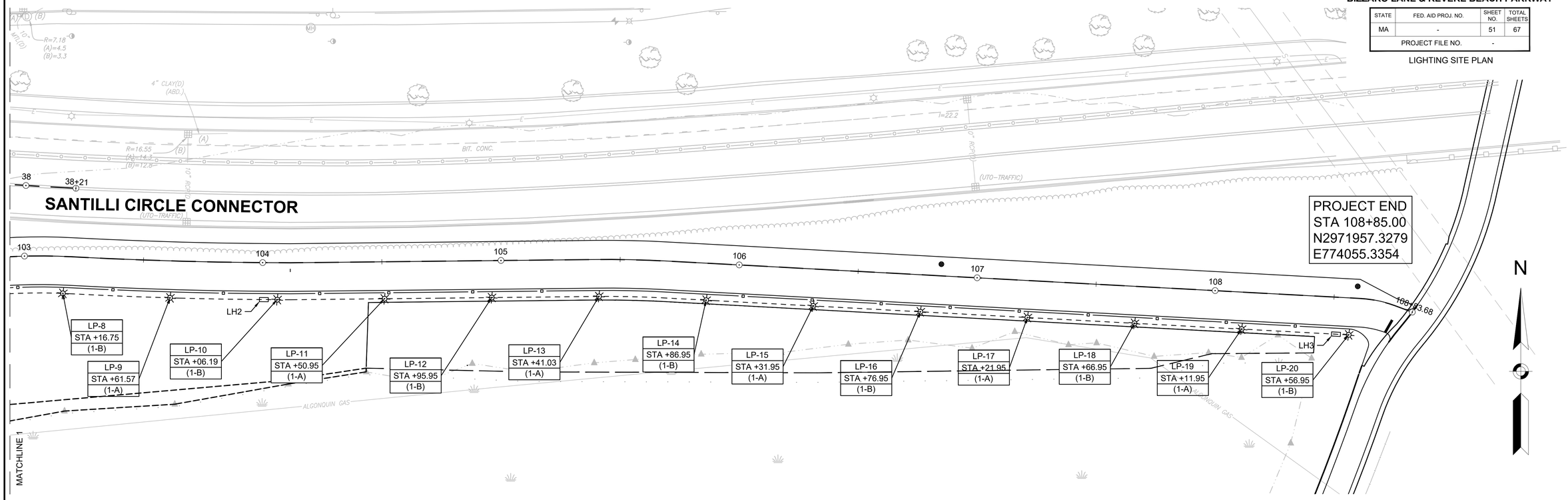
Last Saved by: B.GRASLEY
Printed by: Grasley, Brian

EVERETT
BIZZARO LANE & REVERE BEACH PARKWAY

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	51	67
PROJECT FILE NO.		-	

LIGHTING SITE PLAN



LEGEND

- PEDESTRIAN LIGHT FIXTURE LP-[X]
- UNDERGROUND LIGHTING CONDUIT AND WIRE
- LH1 LIGHTING HANDHOLE NO. 1
- LIGHTING CONTROL CABINET

LUMINAIRE AND POLE NUMBER — LP-X
STATION NUMBER — STA +XX.XX
(CIRCUIT NUMBER - PHASE) — (1-A)

0 20 50 100
SCALE: 1" = 20'

COMMONWEALTH OF MASSACHUSETTS
NICHOLAS M BRIEN
NO. 54846
REGISTERED PROFESSIONAL ENGINEER

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Printed by: Grasley, Brian

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GENERAL SITE CONSTRUCTION NOTES

1. LOCATION OF PROPOSED ELECTRICAL SERVICE IS NOT INTENDED TO DISTURB ROOT SYSTEM OF EXISTING TREES OR SHRUBS. CONTRACTOR SHALL EXERCISE CARE TO PREVENT DAMAGE THERETO. ALL GRASS AREAS DISTURBED SHALL BE RESTORED TO ROUGH GRADE. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, CARE AND REPLANTING OF ALL PLANTINGS AND SHRUBS DISTURBED DURING CONSTRUCTION.

2. ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN USING THE BEST AVAILABLE RECORD PLAN INFORMATION. EXPLORATORY EXCAVATION BY CONTRACTOR SHALL BE PERFORMED AT ALL POTENTIAL UTILITY CONFLICTS TO LOCATE EXISTING UTILITIES, PRIOR TO INSTALLATION OF UNDERGROUND CONDUITS AND BASES. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL UTILITIES WHETHER OR NOT THEY ARE SHOWN ON THE PLANS. ALL REPAIRS TO DAMAGED UTILITIES SHALL BE MADE BY THE CONTRACTOR USING MATERIALS APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

3. CONTRACTOR TO CONTACT DIG SAFE AT 1-888-DIGSAFE, PRIOR TO COMMENCING WORK. CONTRACTOR SHALL VERIFY LOCATION OF ALL OVERHEAD AND UNDERGROUND ELECTRIC AND TELEPHONE LINES AND TAKE NECESSARY PRECAUTIONS IN STRICT ACCORDANCE WITH OSHA STANDARDS DURING CONSTRUCTION.

4. ENTRY TO ANY AREAS OF CONSTRUCTION INCLUDING HOLES TRENCHED, PILES OF FILL MATERIAL, CONSTRUCTION MATERIAL, AND OTHER CONSTRUCTION HAZARDS, BARRIERS SHALL BE PROVIDED AT ALL HOURS AND SHALL CLEARLY INDICATE THE AREA NOT TO BE TRESPASSED.

GENERAL NOTES

1. THE SCOPE OF WORK IS TO PROVIDE ALL LABOR, MATERIALS, SERVICES, SUPPLIES, TOOLS, EQUIPMENT, TRANSPORTATION, AND FACILITIES NECESSARY TO FURNISH AND INSTALL COMPLETE ELECTRICAL WORK AS CALLED FOR ON THE DRAWINGS, SPECIFIED, OR AS MAY REASONABLY BE IMPLIED AS BEING INCIDENTAL TO THE WORK.

2. SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS, AND APPROVALS. ANY POWER OUTAGE SHALL BE SCHEDULED AND APPROVED BY OWNER.

3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF WORK. BASIC DESIGN CONCEPTS INDICATED ARE TO BE FOLLOWED ACCORDING TO THE STANDARD DRAWINGS AND AS SHOWN IN THE PLANS. WORK IS INTENDED TO INCLUDE ALL ITEMS NECESSARY FOR PROPER OPERATION AND COMPLETION. FIELD VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS.

4. EXECUTE ALL WORK IN A NEAT MANNER IN CONFORMANCE WITH THE BEST MODERN TRADE PRACTICES, BY COMPETENT, EXPERIENCED MECHANICS, PRESENTING A NEAT APPEARANCE WHEN COMPLETED. REPLACE WORK NOT APPROVED BY OWNER WITHOUT ADDITIONAL CHARGE.

5. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MASSACHUSETTS ELECTRICAL CODE, AND ALL CODES, REGULATIONS AND REQUIREMENTS OF ALL MUNICIPAL, STATE, FEDERAL AND OTHER PUBLIC OR PRIVATE AUTHORITIES WHICH HAVE JURISDICTION. IN EACH CASE, CODES ARE THE MINIMUM REQUIREMENTS.

6. SHOP DRAWINGS: SUBMIT COMPLETE CATALOG INFORMATION FOR ALL MATERIALS AND EQUIPMENT TO BE PURCHASED AND USED ON THE PROJECT, AS SPECIFIED ON THE DRAWINGS. DO NOT INSTALL MATERIALS OR EQUIPMENT WITHOUT APPROVAL BY OWNER. UNAPPROVED MATERIAL ALREADY INSTALLED SHALL BE SUBJECT TO REMOVAL AND REPLACED WITH APPROVED MATERIALS AT THE CONTRACTORS EXPENSE.

7. INSTALLATION SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

8. CONTRACTOR SHALL CARRY ALL COSTS RELATING TO REMOVAL AND DISPOSAL OF ALL ELECTRICAL EQUIPMENT, LIGHTING FIXTURES, CONCRETE BASES AND RELATED EQUIPMENT.

9. UNDERGROUND CONDUIT TO BE 3" PVC UNLESS NOTED OTHERWISE.

10. WIRE TO BE (3) 8 AWG, 8 AWG GROUND UNLESS NOTED OTHERWISE.

11. PROVIDE EVERETT LOGO ON EACH POLE ACCESS DOOR. SEE LOGO DETAIL.

PAY ITEM QUANTITIES

PAY ITEM	PAY ITEM DESCRIPTION	UNIT	QUANTITY
804.3	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC - (UL)	LF	1082
811.22	ELECTRIC HANDHOLE - SD2.022	EACH	3
812.09	LIGHT STANDARD FOUNDATION PRECAST	EACH	20
813.31	WIRE TYPE 7 NO. 8 GENERAL PURPOSE	LF	3674
813.33	WIRE TYPE 7 NO. 4 GENERAL PURPOSE	LF	126
813.52	WIRE TYPE 10 NO. 8 GROUNDING AND BONDING	LF	1318
813.60	EQUIPMENT GROUNDING AND BONDING	LS	1
813.81	SERVICE CONNECTION (UNDERGROUND)	LS	1
823.61	HIGHWAY LIGHTING LOAD CENTER NO. 1	LS	1
823.72	LIGHT FIXTURE TYPE A (PEDESTRIAN)	EACH	20

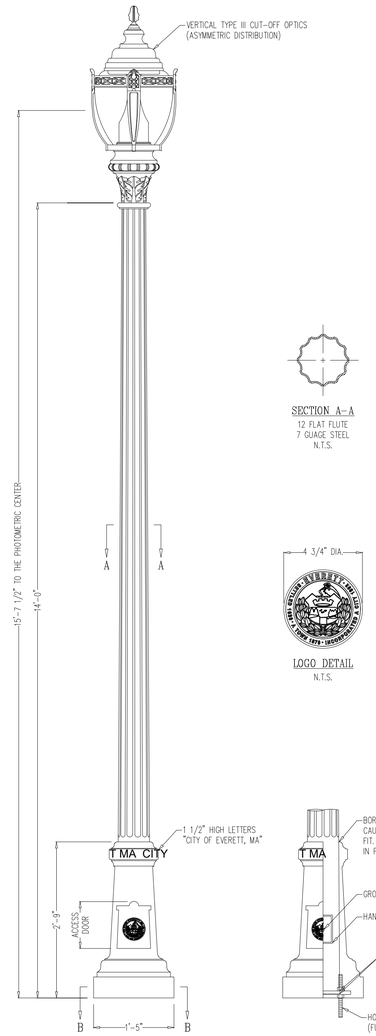
LUMINAIRE SCHEDULE

LUMINAIRE	TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	LUMENS PER LAMP	WATTAGE	DISTRIBUTION TYPE	COLOR TEMP
☼	LP-[X]	SPRING CITY	SEE DETAIL SPECIFICATION	LED LUMINAIRE AND POLE	5955	61.5	III	4000K

EVERETT
BIZZARO LANE & REVERE BEACH PARKWAY

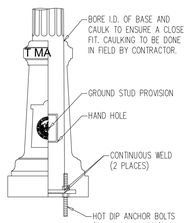
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	52	67
PROJECT FILE NO.		-	

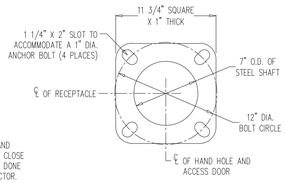
LIGHTING DETAILS



SECTION A-A
12 FLAT FLUTE
7 GUAGE STEEL
N.T.S.

LOGO DETAIL
N.T.S.





SECTION B-B
N.T.S.

LUMINAIRE SPECIFICATIONS

STYLE:	NEW FRONTIER / ARMORY SQUARE (WITH TARBORO STRUTS)
HEIGHT:	41 3/4"
WIDTH:	18 3/8"
MATERIAL:	CAST ALUMINUM
PANELS:	STIPPLED ACRYLIC
FINISH:	POWDER COAT – BLACK
LAMPING:	
VOLTAGE:	
SOCKET:	
DISTRIBUTION:	VERTICAL TYPE III CUT-OFF (ASYMMETRIC DISTRIBUTION)

CATALOG NO.:
ALMNWF- LE060/*CONFIRM VOLTAGE*/40/CR3-YS11-FPP-AS-TB-CU

LAMP POST SPECIFICATIONS

STYLE:	CAMBRIDGE STEEL
HEIGHT:	14'-0"
PHOTOMETRIC CENTER:	15'-7 1/2"
BASE:	17" DIAMETER
MATERIAL:	
SHAFT:	7 GAUGE, 12 FLAT FLUTE STEEL MONOTUBE CONSTRUCTION
BASE:	TWO PIECE, (WRAP AROUND) HEAVY WALL CAST DUCTILE IRON PER A.S.T.M. A536-84 GRADE 65-45-12
FINISH:	STEEL SHAFT SHALL BE HOT DIP GALVANIZED THEN ALL COMPONENTS SHALL BE POWDER COAT – BLACK
ACCESS DOOR:	LOCATED IN BASE TO COINCIDE WITH HAND HOLE IN STEEL SHAFT SECURED WITH TAMPER PROOF HEX SOCKET SECURITY MACHINE SCREWS
GROUND PROVISIONS:	1/4"-20 SQUARE NUT WELDED TO INSIDE WALL OF SHAFT OPPOSITE HAND HOLE FOR GROUND STUD (STUD BY OTHERS)
ANCHOR BOLTS:	(4) 1" X 30" + 4" HOOK (FULLY GALVANIZED WITH 2 GALVANIZED NUTS AND 2 GALVANIZED WASHERS PER BOLT)
BOLT PROJECTION:	5" REQUIRED
TENON:	3 1/2" DIA. X 3" HIGH (TO ACCEPT LUMINAIRE)
BASE CATALOG NO.:	DWBCMB-17-DP-PP-CU
SHAFT CATALOG NO.:	SSH2F-G17-07.00-14.0-TN3.50/3.00-130/2NW-GF-GV/CU

Spring City Electrical Mfg. Co.
HALL AND MAIN STREETS – P.O. BOX 19 – SPRING CITY, PA. 19475
PHONE (610) 948-4000 – FAX (610) 948-5577 – WWW.SPRINGCITY.COM

DESCRIPTION: THE 14'-0" CAMBRIDGE STEEL POST WITH THE NEW FRONTIER (VC3) LUMINAIRE

COMMONWEALTH OF MASSACHUSETTS
NICHOLAS M BRIEN
NO. 54846
REGISTERED PROFESSIONAL ENGINEER

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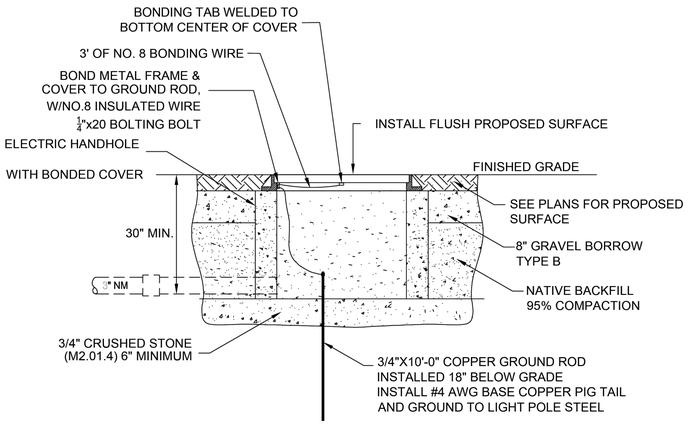
EVERETT
BIZZARO LANE & REVERE BEACH PARKWAY

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	53	67
PROJECT FILE NO.	-		

LIGHTING DETAILS

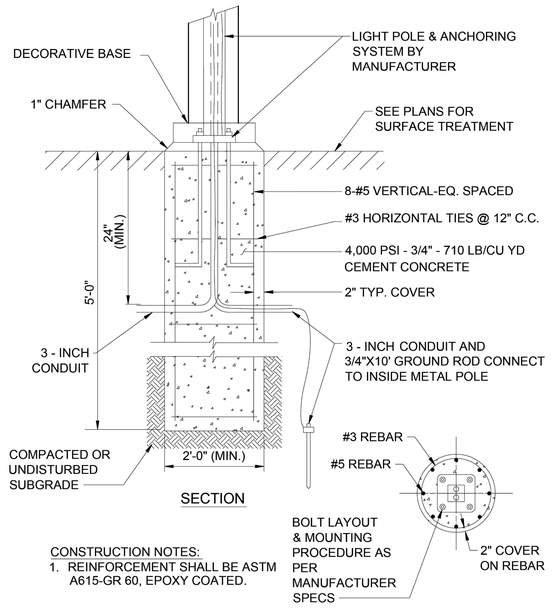


HANDHOLE INSTALLATION NOTES:

1. HANDHOLE ORIENTATION TO BE SUCH THAT ALL SUPPLY DUCTS ENTER ON SAME SHORT SIDE.
2. SIZE AND NUMBER OF CONDUITS AS REQUIRED.
3. CONDUIT LOCATIONS SHOWN ARE TYPICAL.
4. PROVIDE NON-SKID COVER WITH 0.2" RAISED LETTERS CAST IN THE DEPRESSION.

ELECTRIC HANDHOLE INSTALLATION DETAIL

N.T.S.

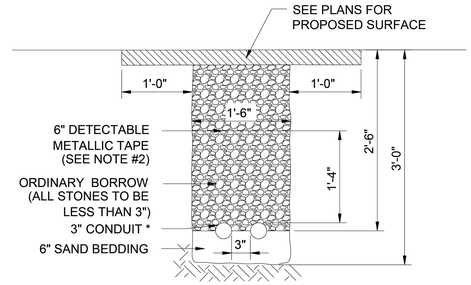


CONSTRUCTION NOTES:

1. REINFORCEMENT SHALL BE ASTM A615-GR 60, EPOXY COATED.

LIGHTING POLE BASE DETAIL

N.T.S.



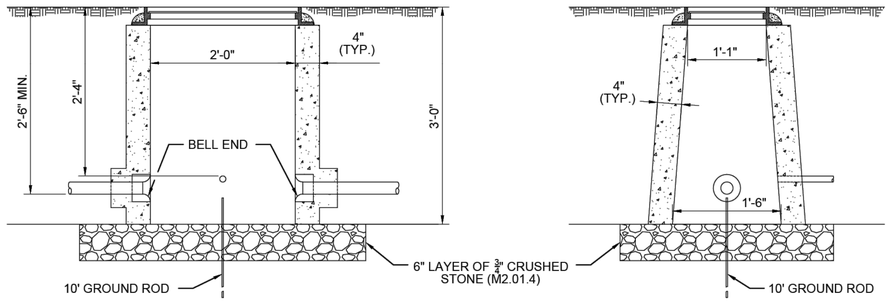
* = UNLESS OTHERWISE NOTED ON PLANS

NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL) WITH PULL ROPE.
2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.

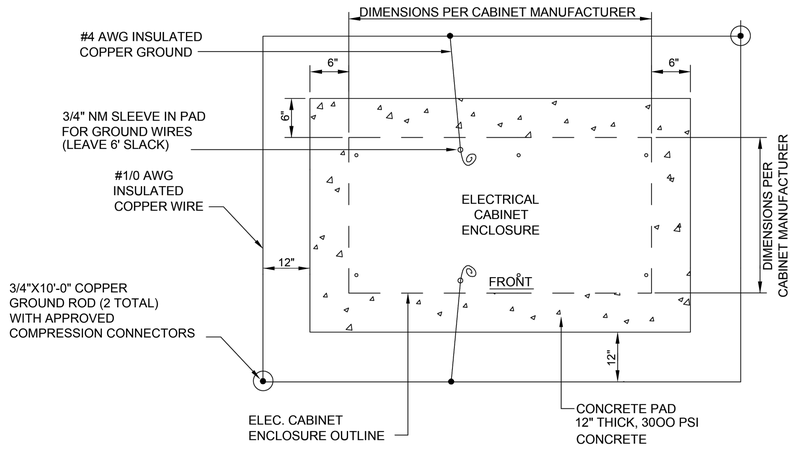
TRENCH DETAIL (GRASS)

N.T.S



SECTIONS THROUGH ELECTRIC HANDHOLE (SD2-022)

N.T.S.



ELECTRICAL CABINET FOUNDATION DETAIL

N.T.S.

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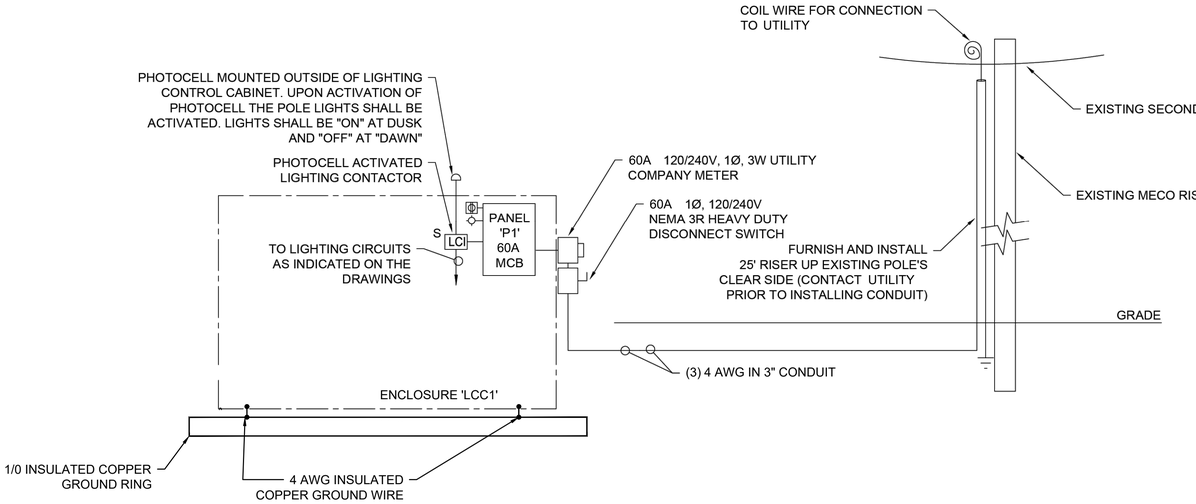
Printed by: Grasley, Brian

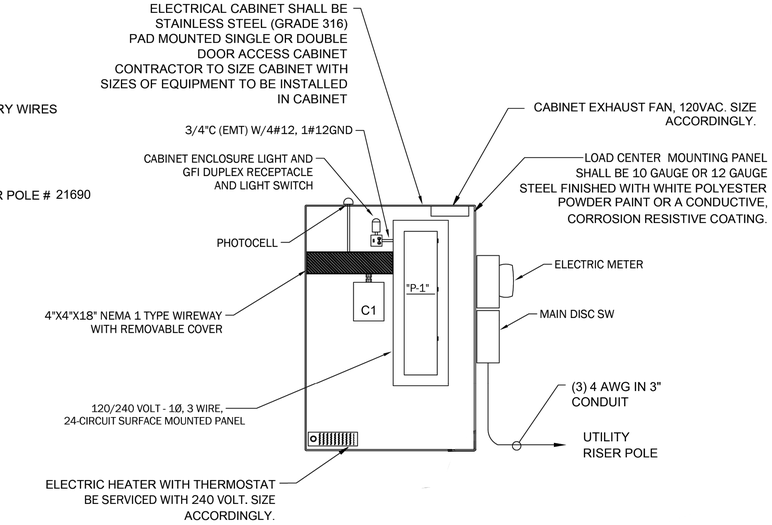
EVERETT
BIZZARO LANE & REVERE BEACH PARKWAY

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	54	67
PROJECT FILE NO.		-	

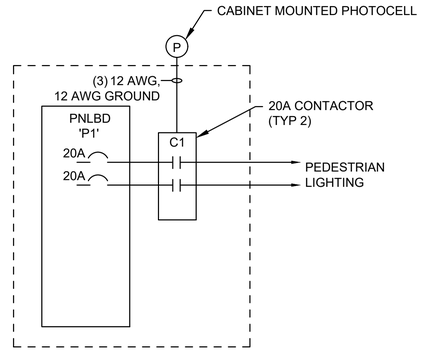
LIGHTING DETAILS



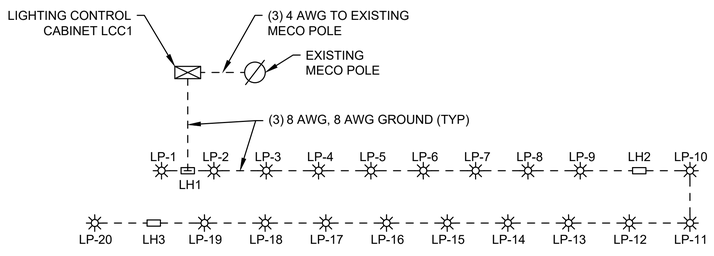
LIGHTING CONTROL CABINET NO. 1 RISER DIAGRAM
NOT TO SCALE



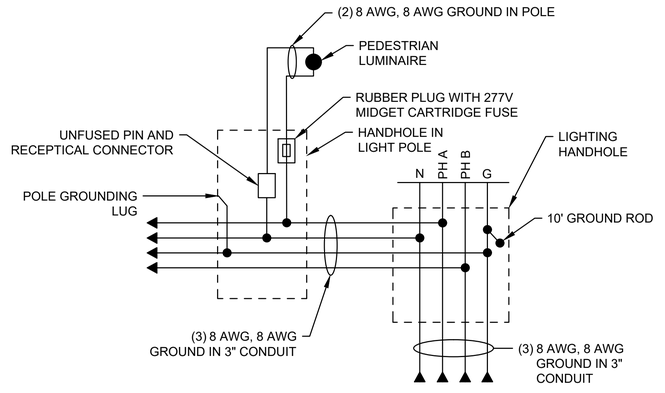
LIGHTING CONTROL CABINET 'LCC1' COMPONENT DETAIL
NOT TO SCALE



LIGHTING CONTROL WIRING DIAGRAM
NOT TO SCALE



WIRING DIAGRAM - CIRCUIT 1
NOT TO SCALE



LIGHT FIXTURE DIAGRAM
NOT TO SCALE

LEGEND

☼	PEDESTRIAN LIGHT FIXTURE LP-[X]
- - - -	UNDERGROUND LIGHTING CONDUIT AND WIRE
LH1 ▭	LIGHTING HANDHOLE NO. 1
⊠	LIGHTING CONTROL CABINET
PH A	PHASE A
PH B	PHASE B

COMMONWEALTH OF MASSACHUSETTS
NICHOLAS M BRIEN
NO. 54846
REGISTERED PROFESSIONAL ENGINEER

11/20/2025 O:\2023Jobs\2300694-00HWY-TR\PROPOSED\2300694-00_DEI(Design).dwg
Last Saved by: B.GRASLEY
Printed by: Grasley, Brian

2300694-00_DEI(DESIGN).DWG Plotted on 20-Nov-2025 2:47 PM

EVERETT
NORTHERN STRAND TRAIL CONNECTION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	55	67
PROJECT FILE NO.		--	

WETLAND REPLACEMENT PLAN

Plotted on 28-Apr-2026 3:48 PM

2022012_HD\WETLAND IMPACT).DWG

N

LIMIT OF WORK
N2972151.6244
E773216.6604
STA 11+00

LIMIT OF WORK
N2972112.3933
E773242.3963
STA 10+60

LIMIT OF WORK
N2972017.4744
E773395.4385
STA 37+21.50

LIMIT OF WORK
N2971951.0421
E774050.3579
STA 108+79.23

KELVIN STREET
(PUBLIC - 36' WIDTH)

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

NORTHERN STRAND COMMUNITY TRAIL

100' WETLAND BUFFER ZONE

GRADE LMIT

CLEARING AREA

PROP GRASS SWALE

LIMIT OF JUTE MESH

PROPJUTE MESH

PROP SEDIMENT CONTROL BARRIER

PERMANENT WETLAND REPLICATION

BORDERING VEGETATED WETLANDS

WETLAND REPLICATION = 4,610 sqft.

WETLAND

GRADE LMIT

LIMIT OF WORK BASE SCOPE

LIMIT OF WORK AD-ALT 1

LIMIT OF WORK AD-ALT 2

0 20 50 100

SCALE: 1" = 20'

EVERETT
NORTHERN STRAND TRAIL CONNECTION

STATE	HSH. PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	22012	56	67
PROJECT FILE NO.		--	

WETLAND MITIGATION PLANS

Plotted on 28-Apr-2026 3:49 PM
2022012_HD\WETLAND IMPACT).DWG

N

100' WETLAND BUFFER ZONE PROP L&S TEMPORARY IMPACTS = 28,350 sqft.

100' WETLAND BUFFER ZONE PROP SWALE PERMANENT IMPACTS = 3,675 sqft.

100' WETLAND BUFFER ZONE PROP L&S SHOULDERS PERMANENT IMPACTS = 5,890 sqft.

100' WETLAND BUFFER ZONE PROP HMA PAVEMENT PERMANENT IMPACTS = 3,815 sqft.

100' WETLAND BUFFER ZONE PROP SLOPED L&S WITH JUTE MESH PERMANENT IMPACTS = 9,185 sqft.

100' WETLAND BUFFER ZONE PROP HDPE FLARED END SECTION WITH RIP RAP PERMANENT IMPACTS = 4

LIMIT OF WORK
N2972151.6244
E773216.6604
STA 11+00

LIMIT OF WORK
N2972112.3933
E773242.3963
STA 10+60

LIMIT OF WORK
N2972017.4744
E773395.4385
STA 37+21.50

LIMIT OF WORK
N2971951.0421
E774050.3579
STA 108+79.23

KELVIN STREET
(PUBLIC - 33' WIDE)

BIZZARO LANE
(PUBLIC - VARIABLE WIDTH)

SANTILLI CIRCLE CONNECTOR
(PUBLIC - VARIABLE WIDTH)

100' WETLAND BUFFER ZONE

CLEARING AREA

GRADE LMIT

PROP SWALE

LIMIT OF JUTE MESH

PERMANENT WETLAND IMPACTS

TEMPORARY WETLAND IMPACTS

PROPJUTE MESH

PROP SEDIMENT CONTROL BARRIER

PERMANENT WETLAND REPLICATION

BORDERING VEGETATED WETLANDS

NORTHERN STRAND COMMUNITY TRAIL

PERMANENT WETLAND IMPACTS = 2,570 sqft.

TEMPORARY WETLAND IMPACTS = 1,080 sqft.

WETLAND REPLICATION = 4,610 sqft.

WETLAND

GRADE LMIT

LIMIT OF WORK BASE SCOPE

LIMIT OF WORK AD-ALT 1

LIMIT OF WORK AD-ALT 2

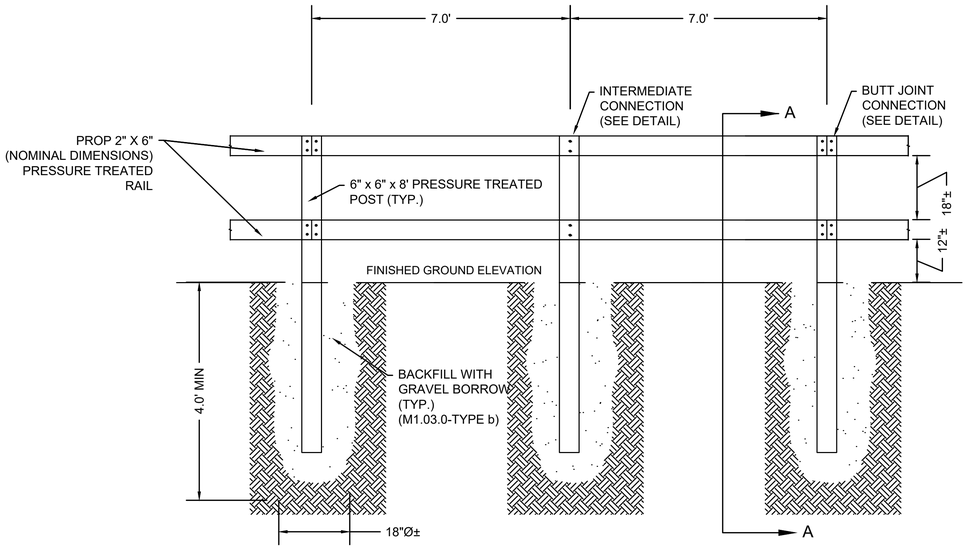
0 20 50 100

SCALE: 1" = 20'

EVERETT
NORTHERN STRAND TRAIL EXTENSION

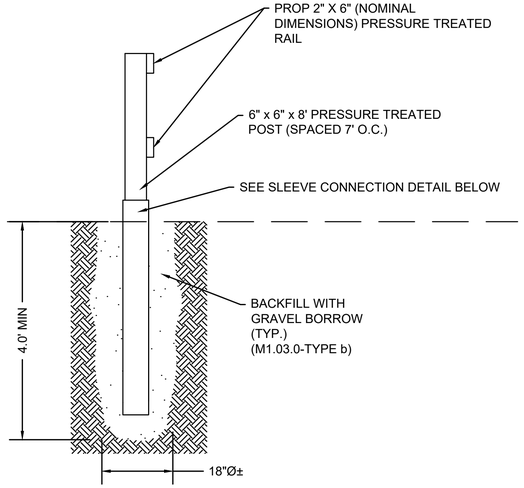
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	57	67
PROJECT FILE NO.		-	

CONSTRUCTION DETAILS
SHEET 1 OF 4

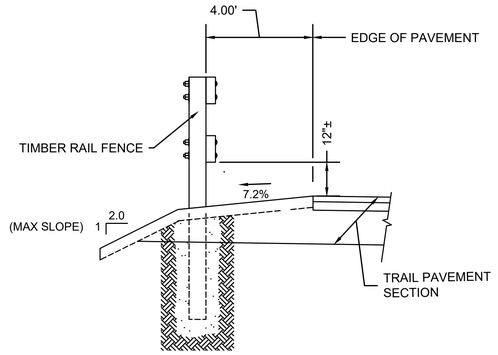


TIMBER RAIL FENCE ELEVATION
NOT TO SCALE
SEE PLANS FOR LOCATIONS

NOTES:
1. FOR RADII LESS THAN 165', USE CONNECTION POSTS SET AT 7.0' AND SHORTEN RAILS ACCORDINGLY.



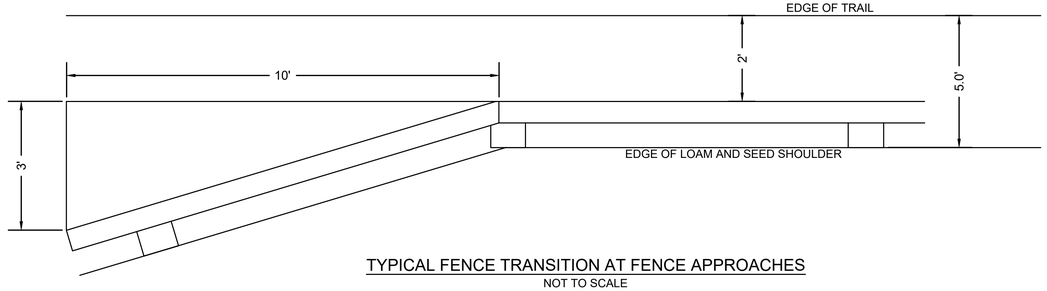
TIMBER FENCE TUBE STEEL SLEEVE
(FOR USE IN SATURATED LOCATIONS)
NOT TO SCALE



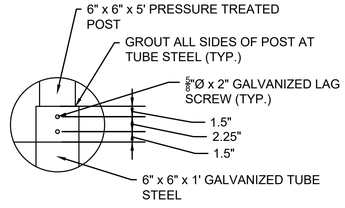
SECTION A-A
NOT TO SCALE

SUGGESTED TIMBER RAIL FENCE CONSTRUCTION SEQUENCE

1. AUGER OR DIG POST HOLE TO REQUIRED DIMENSIONS.
2. IF GROUND IS SATURATED, USE TUBE SLEEVE. SEE DETAIL ON THIS SHEET.
3. BACKFILL BOTTOM 6"± OF HOLE WITH GRAVEL AND COMPACT THOROUGHLY.
4. SET POST AND HOLD PLUMB DURING BACKFILLING.
5. BACKFILL WITH GRAVEL IN 12" LIFTS. COMPACT EACH LIFT THOROUGHLY.
6. CLAMP RAILS TO POSTS AND FIELD DRILL BOLT HOLES.
7. SET BOLTS, WASHERS AND NUTS.
8. IF CCA PRESSURE TREATED LUMBER IS NOT READILY AVAILABLE AT THE TIME OF CONSTRUCTION OR IT IS DEEMED ENVIRONMENTALLY UNACCEPTABLE FOR COMMERCIAL USES BY THE EPA, USE ACQ PRESSURE TREATED LUMBER.

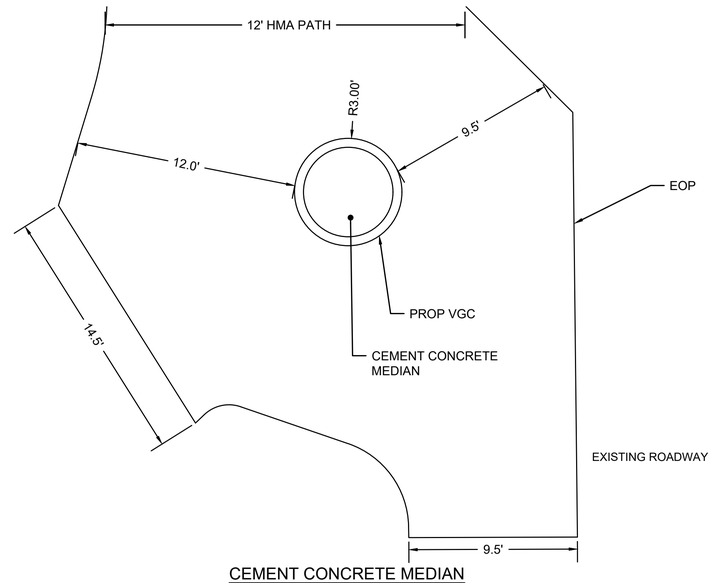


TYPICAL FENCE TRANSITION AT FENCE APPROACHES
NOT TO SCALE

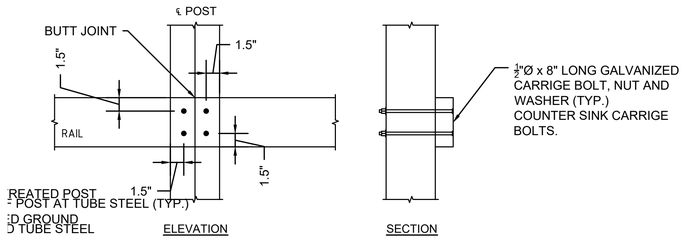


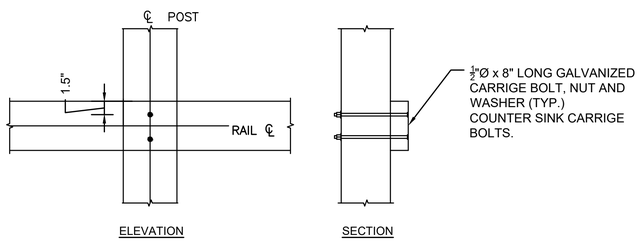
*SAME SCREWS OPPOSITE SIDE

SLEEVE BOLT CONNECTION DETAIL
NOT TO SCALE



CEMENT CONCRETE MEDIAN





BUTT JOINT CONNECTION
NOT TO SCALE

INTERMEDIATE CONNECTION
NOT TO SCALE

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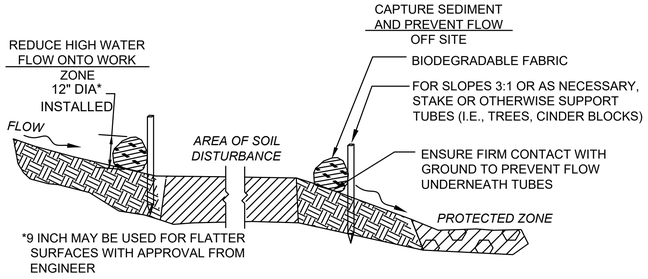
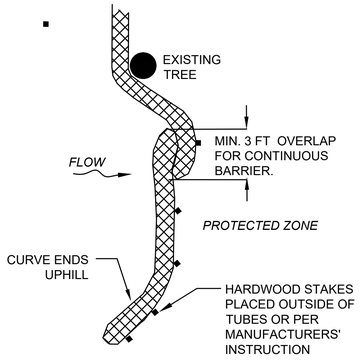
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	67
PROJECT FILE NO.		-	

CONSTRUCTION DETAILS
SHEET 2 OF 4



SECTION
SEDIMENT BARRIER - COMPOST FILTER TUBES
NOT TO SCALE



PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

PLACE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE

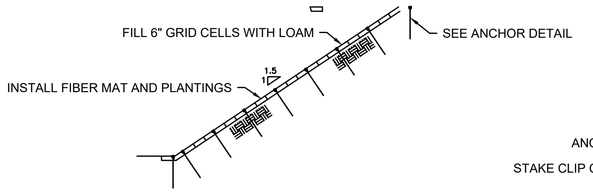
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

PLAN VIEW
COMPOST FILTER TUBE
NOT TO SCALE

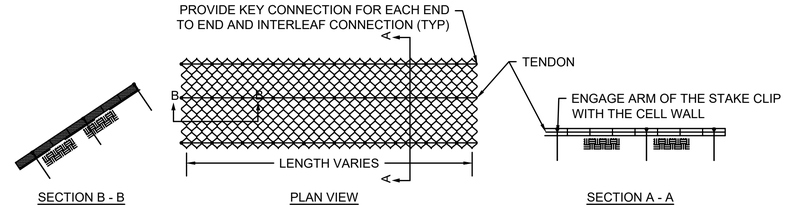
STAKE ANCHOR INSTALLATION

STEPS:
1. POSITION THE ANCHOR NEXT TO THE UP-SLOPE CELL WALL.
2. DRIVE ANCHOR INTO THE GROUND UNTIL ARM OF STAKE CLIP IS LOCATED ABOVE CELL WALL.
3. ENGAGE ARM OF STAKE CLIP TO CELL WALL AND DRIVE UNTIL TIGHT.



TYPICAL ANCHOR SYSTEM

ANCHOR DETAIL

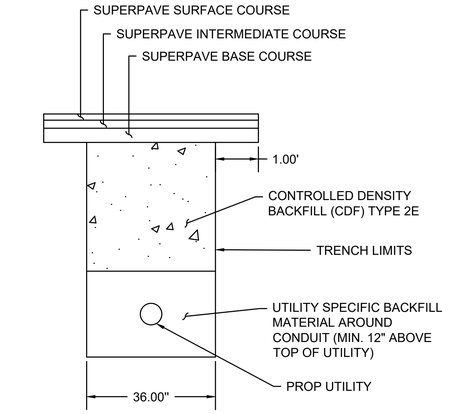


SECTION B - B

PLAN VIEW

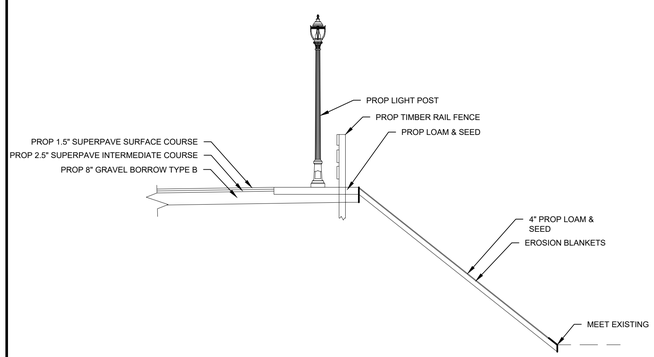
SECTION A - A

SLOPE STABILIZATION
NOT TO SCALE

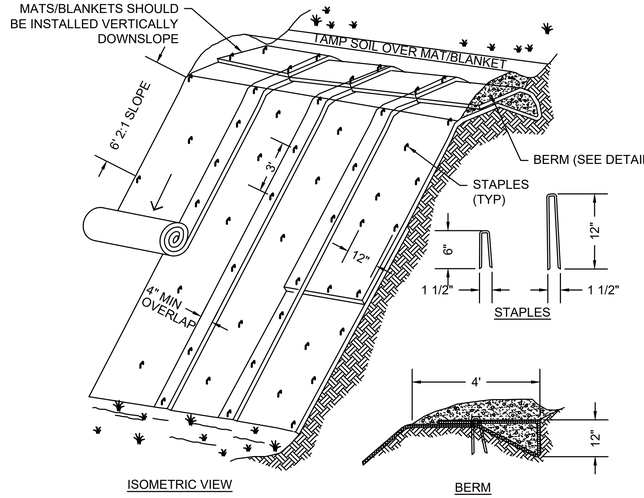


TRENCH REPAIR DETAIL

NOT TO SCALE

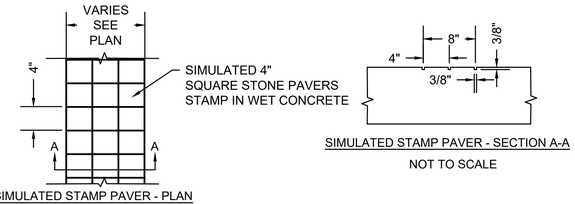


JUTE MESH INSTALLATION
NOT TO SCALE



JUTE MESH
NOT TO SCALE

NOTES:
1) SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2) APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3) LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL.DO NOT STRETCH.



SIMULATED STAMP PAVER - PLAN
NOT TO SCALE

SIMULATED STAMP PAVER - SECTION A-A
NOT TO SCALE

STAMPED CEMENT CONCRETE
NOT TO SCALE

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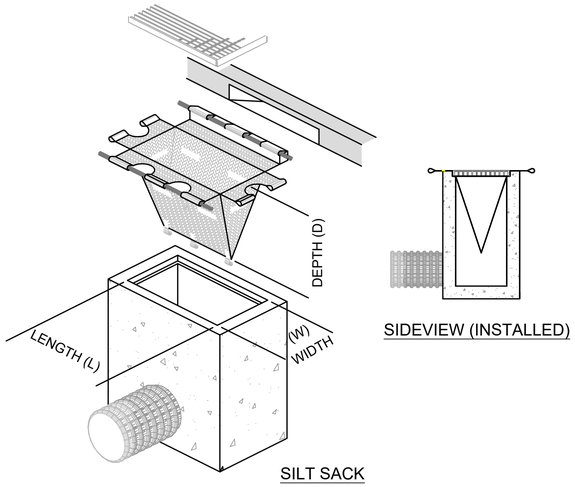
20220012_HD(CONST DETAILS).DWG

EVERETT
NORTHERN STRAND TRAIL EXTENSION

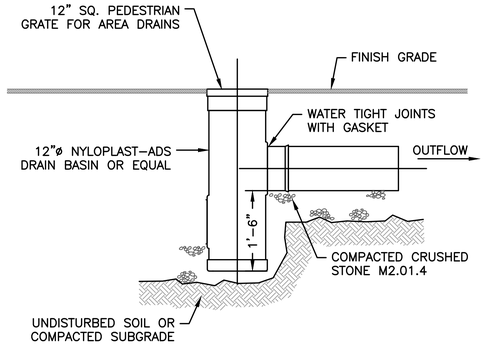
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	59	67
PROJECT FILE NO.		-	

CONSTRUCTION DETAILS
SHEET 3 OF 4

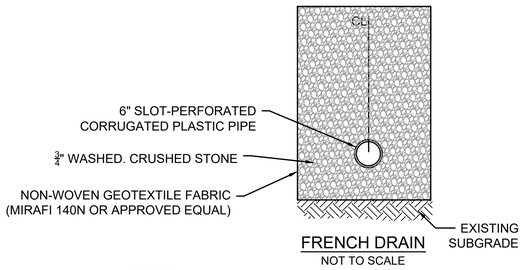


SILT SACK

SIDEVIEW (INSTALLED)

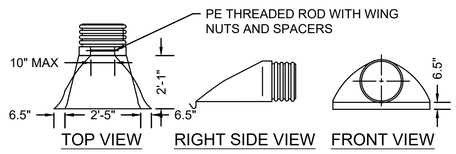


AREA DRAIN
NOT TO SCALE



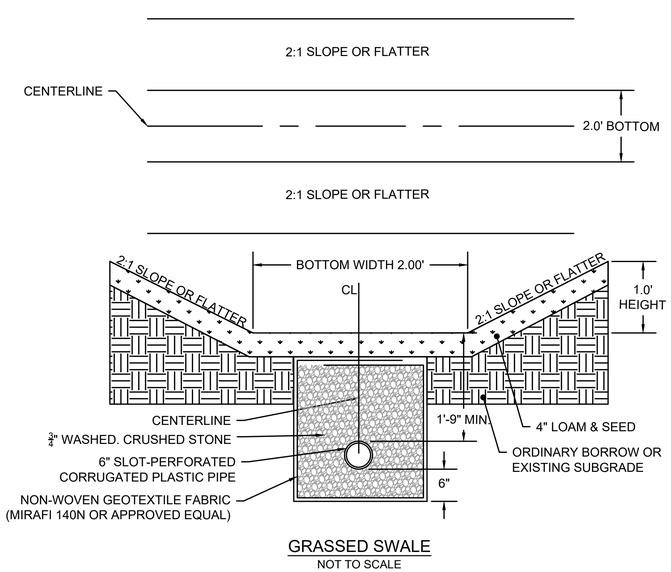
FRENCH DRAIN
NOT TO SCALE

NOTES:
1.SEE UTILITY PLANS FOR CENTERLINE LOCATION OF FRENCH DRAIN
2. SEE GRADING PLANS FOR CENTERLINE GRADES OF FRENCH DRAIN



FLARED END SECTION
NOT TO SCALE

NOTES:
1.SEE UTILITY PLANS FOR CENTERLINE LOCATION OF FLARED END SECTION
2. SEE GRADING PLANS FOR CENTERLINE GRADES OF FLARED END SECTION



GRASSED SWALE
NOT TO SCALE

NOTES:
1.SEE UTILITY PLANS FOR CENTERLINE LOCATION OF GRASSED SWALE
2. SEE GRADING PLANS FOR CENTERLINE GRADES OF GRASSED SWALE

2022012_HD(CONST DETAILS).DWG Plotted on 28-Apr-2026 3:49 PM
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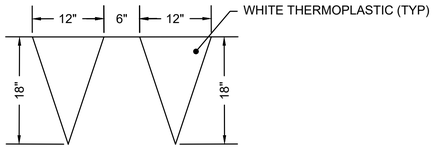
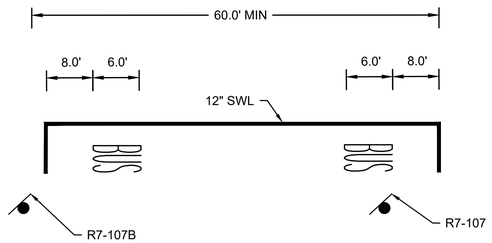
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	67
PROJECT FILE NO.		-	

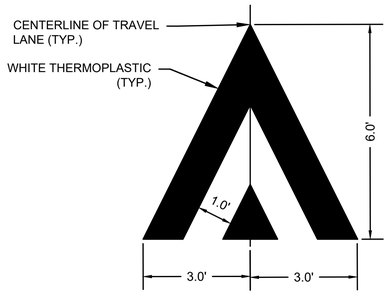
CONSTRUCTION DETAILS
SHEET 4 OF 4



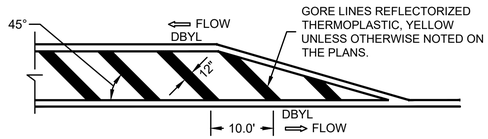
YIELD PAVEMENT MARKING FOR SHARED USE PATH
NOT TO SCALE



BUS STOP
NOT TO SCALE



RAISED CROSSING MARKING DETAIL
NOT TO SCALE



STANDARD CROSS-HATCHING
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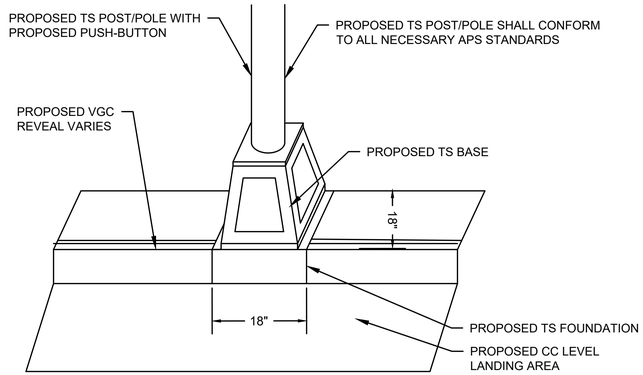
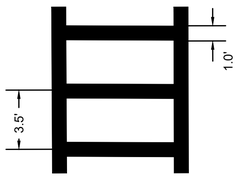
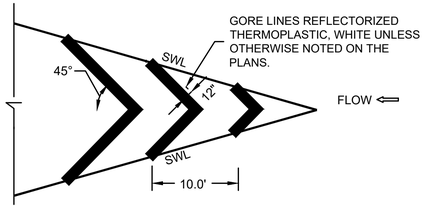


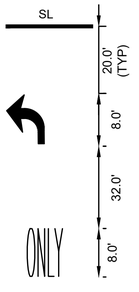
TS POST IN-LINE WITH CURB
NOT TO SCALE



PEDESTRIAN CROSSWALK
NOT TO SCALE



STANDARD CHEVRON 12" SWL
NOT TO SCALE



TURN LANE PAVEMENT MARKING
NOT TO SCALE

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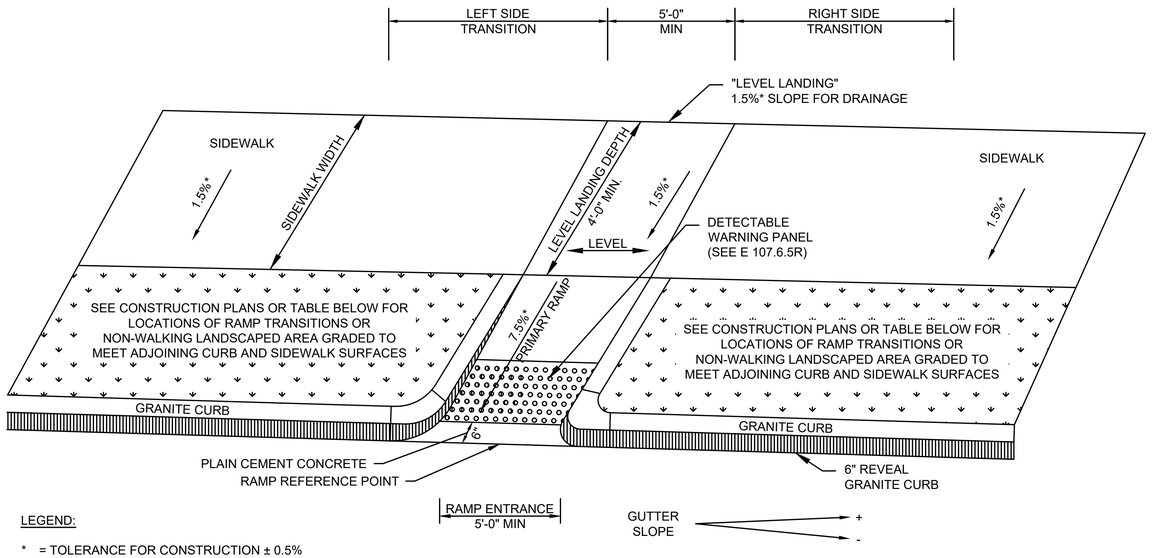
EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	61	67
PROJECT FILE NO.		-	

PEDESTRIAN CURB RAMP DETAILS



LEGEND:

* = TOLERANCE FOR CONSTRUCTION ± 0.5%

PEDESTRIAN CURB RAMP WITH LANDSCAPE STRIP
NOT TO SCALE

NOTES:
DETECTABLE WARNING PANEL LOCATED NOT LESS THAN 6" OR MORE THAN 24" FROM ROADWAY EDGE (GUTTER LINE). TRUNCATED DOMES TO BE ALIGNED WITH DIRECTION OF TRAVEL.

FOR DETAILS OF TRUNCATED DOMES SEE DRAWING E 107.6.5.

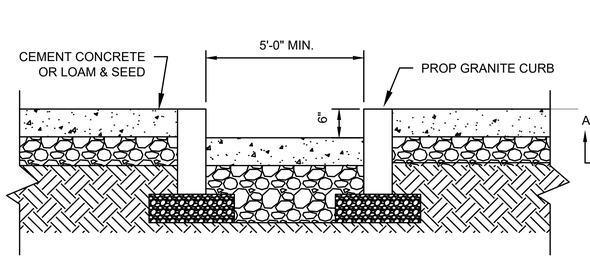
ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS.

LEGEND:

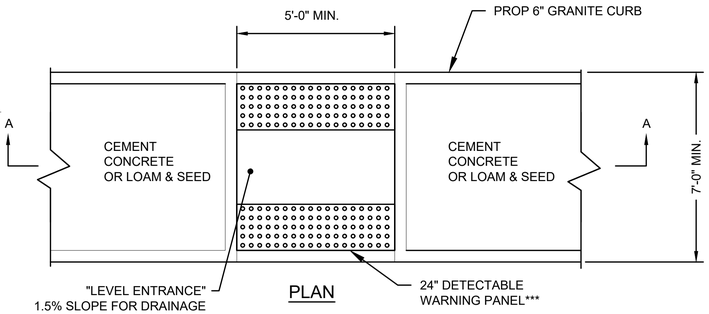
HSL = HIGH SIDE TRANSITION LENGTH (SEE E 107.9.0)
* = TOLERANCE FOR CONSTRUCTION ±0.5%

PEDESTRIAN CURB RAMPS WITH LANDSCAPE STRIP

RAMP #	RAMP REFERENCE POINT			LENGTH OF PRIMARY RAMP	WIDTH OF SIDEWALK	WIDTH OF RAMP ENTRANCE	DEPTH OF LEVEL LANDING	TRANSITION		GUTTER SLOPE
	STREET	STATION	OFFSET					LEFT SIDE	RIGHT SIDE	
1	RIVER TRAIL PATH CONNECTOR	20+80	1' RT	7.5'	10.0'	10.0'	-	-	-	3.50%
2	SANTILLI CIRCLE CONNECTOR	35+09	26' RT	7.5'	12.0'	12.0'	-	-	7.66'	0.50%
3	SANTILLI CIRCLE CONNECTOR	35+12	17' LT	7.5'	12.0'	12.0'	-	7.66'	-	1.00%
4	KELVIN ST	10+35	11' LT	7.5'	12.0'	12.0'	-	-	6.5'	1.00%
5	KELVIN ST	10+31	26' RT	7.5'	12.0'	12.0'	-	-	-	1.50%
6	RIVER TRAIL PATH CONNECTOR	25+80	18' RT	7.5'	8.0'	8.0'	-	-	-	1.00%
11	RIVER TRAIL PATH CONNECTOR	28+19	0.0'	6.5'	12.0'	12.0'	-	-	-	1.00%



SECTION A-A



PLAN

NOTES:
* CONSTRUCTION TOLERANCE ± 0.5%
*** DOMES TO BE ALIGNED PARALLEL TO CROSSWALK

RAISED ISLAND CUT THROUGH
NOT TO SCALE

RAISED ISLAND CUT THROUGH

RAMP #	RAMP REFERENCE POINT			WIDTH OF SIDEWALK	WIDTH OF RAMP ENTRANCE	GUTTER SLOPE
	STREET	STATION	OFFSET			
7	RIVER TRAIL PATH CONNECTOR	27+7	1' RT	12.0'	12.0'	1.50%
8	RIVER TRAIL PATH CONNECTOR	27+37	0.0'	12.0'	12.0'	1.50%
9	RIVER TRAIL PATH CONNECTOR	27+63	0.0'	11.5'	11.5'	1.50%
10	RIVER TRAIL PATH CONNECTOR	27+96	0.0'	11.5'	11.5'	1.00%

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EVERETT
NORTHERN STRAND TRAIL CONNECTION

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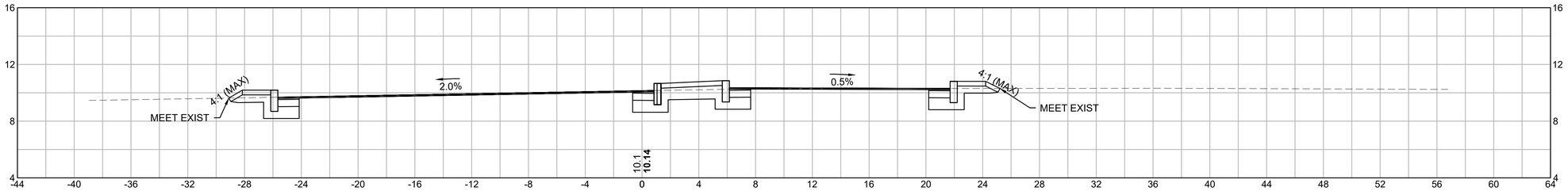
PROJECT FILE NO.		-	

CROSS SECTIONS
SHEET 1 OF 6



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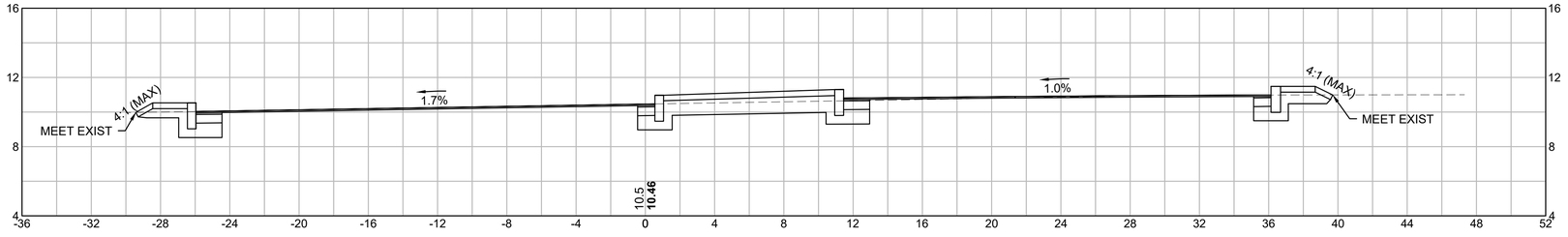

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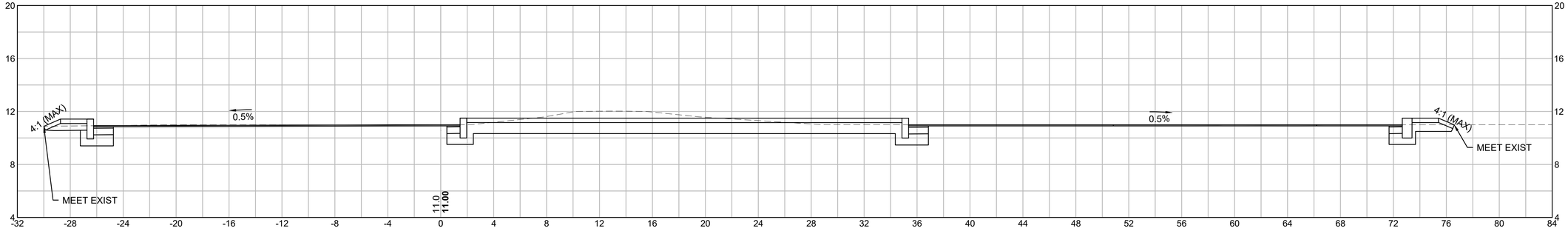

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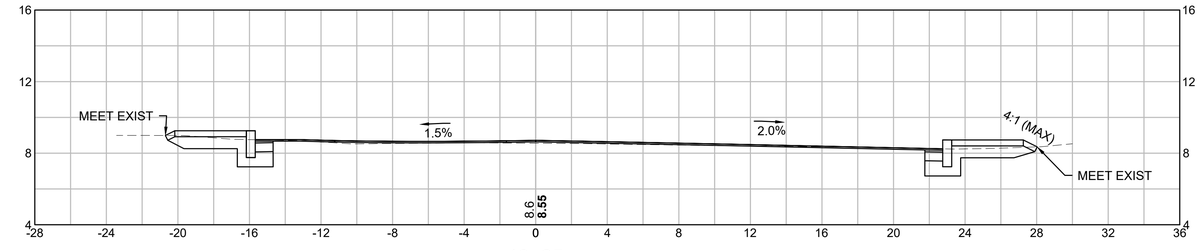

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HOR. SCALE IN FEET
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VER. SCALE IN FEET
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EVERETT
NORTHERN STRAND TRAIL CONNECTION

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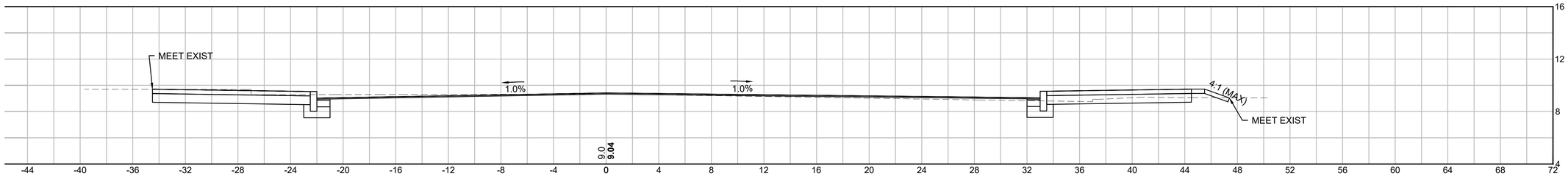
PROJECT FILE NO.		-	

CROSS SECTIONS
SHEET 2 OF 6



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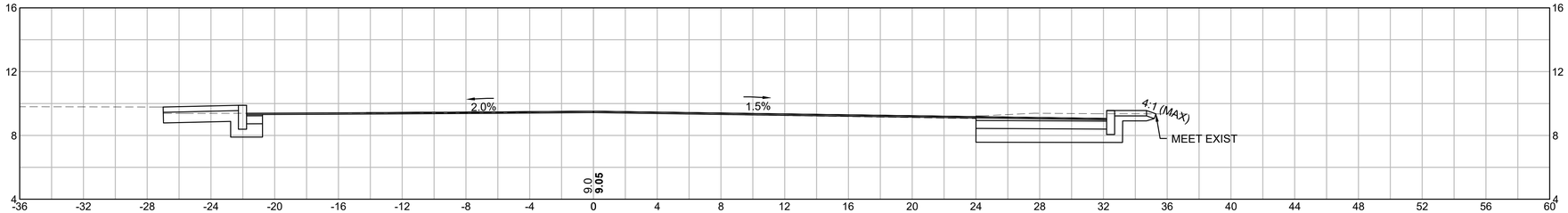

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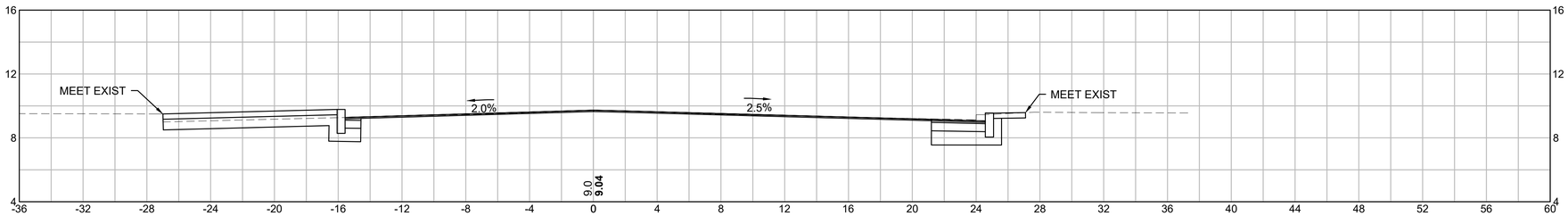

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EVERETT
NORTHERN STRAND TRAIL CONNECTION

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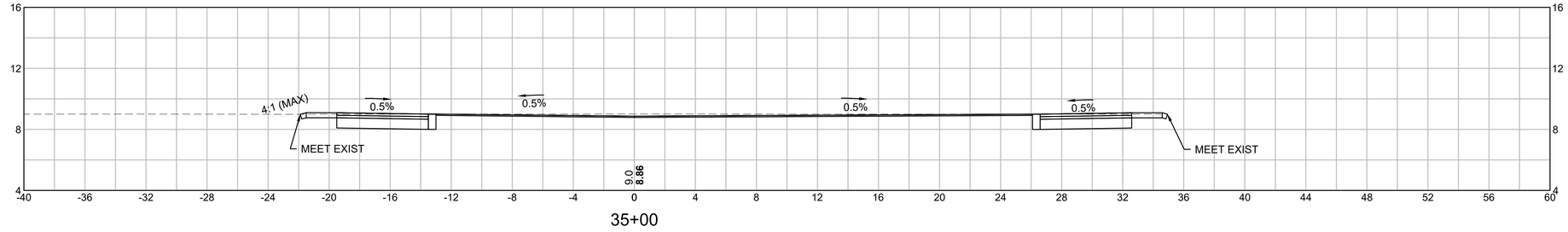
PROJECT FILE NO.	-		

CROSS SECTIONS
SHEET 3 OF 6



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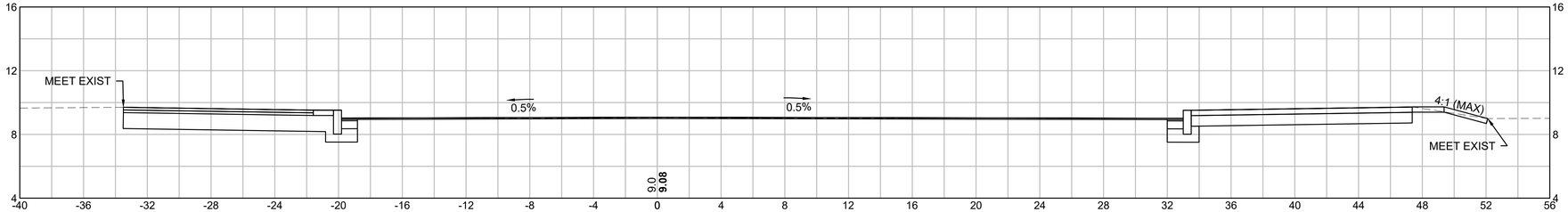

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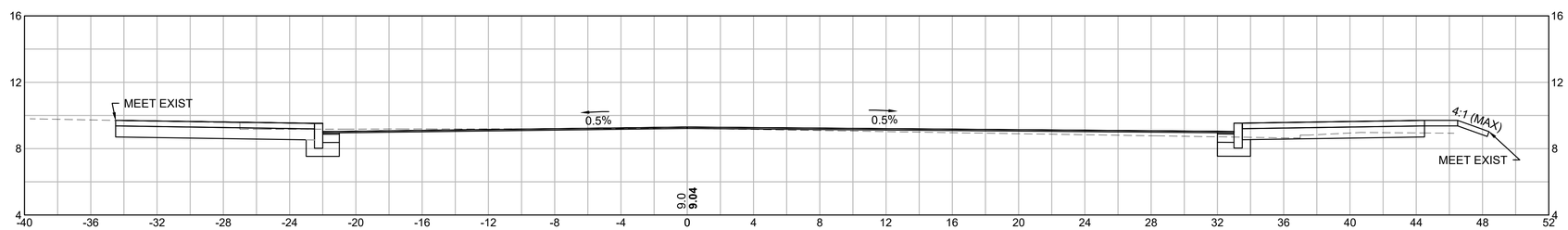

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

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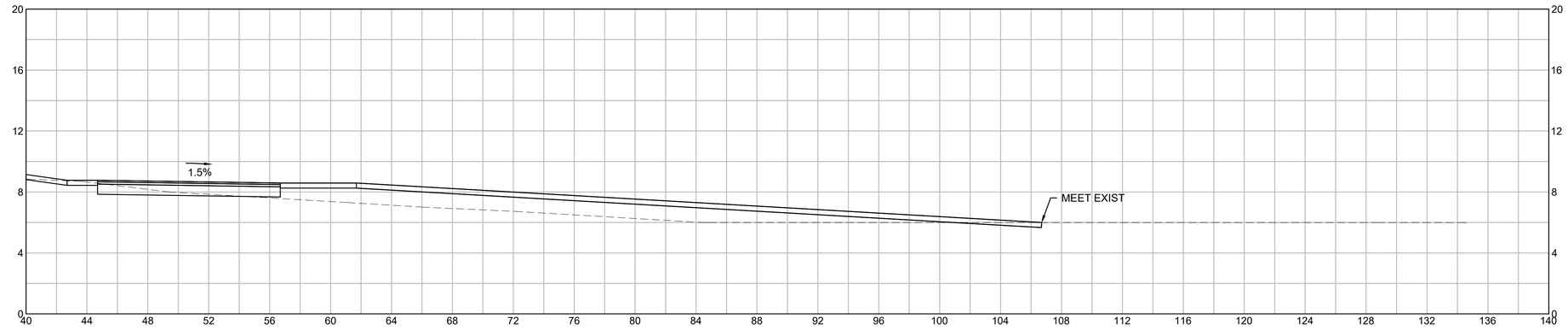
PROJECT FILE NO.		-	

CROSS SECTIONS
SHEET 4 OF 6



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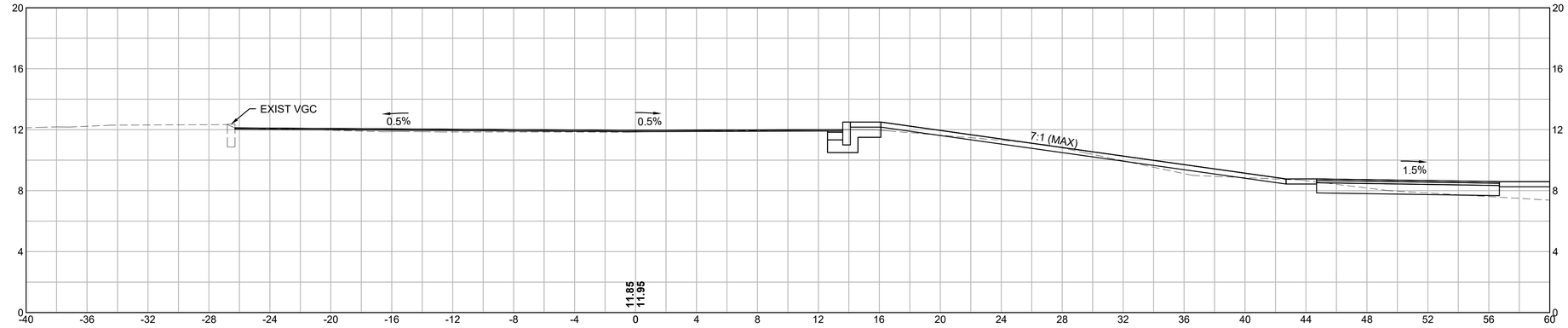

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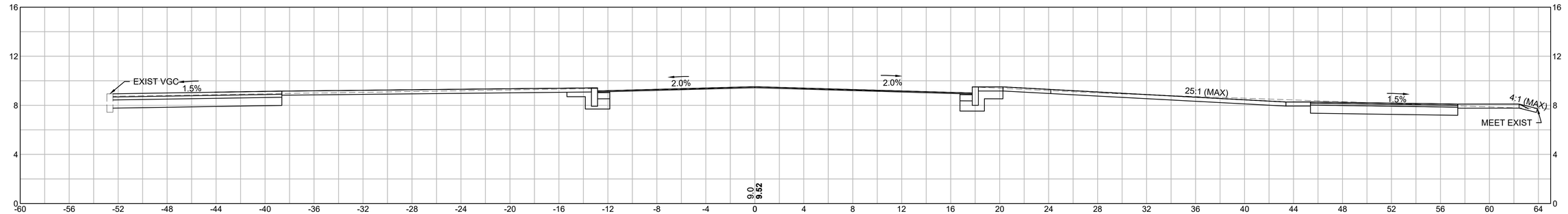

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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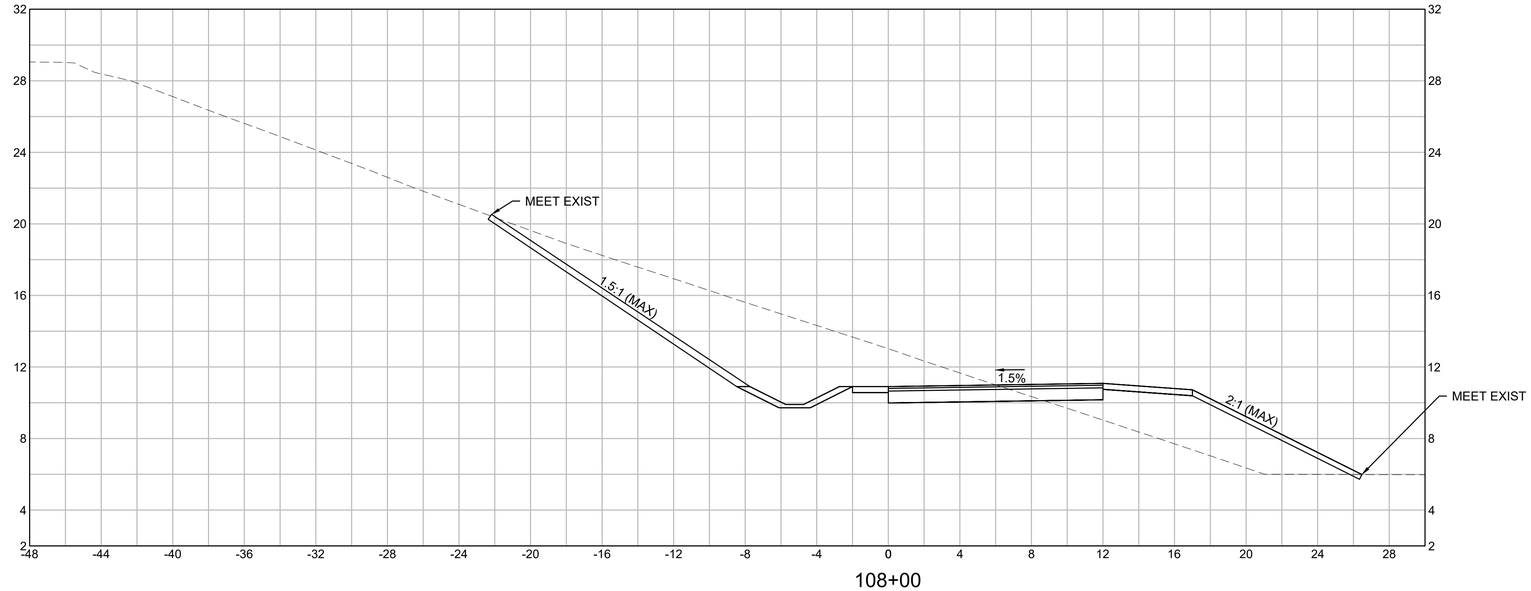
PROJECT FILE NO.		-	

CROSS SECTIONS
SHEET 5 OF 6



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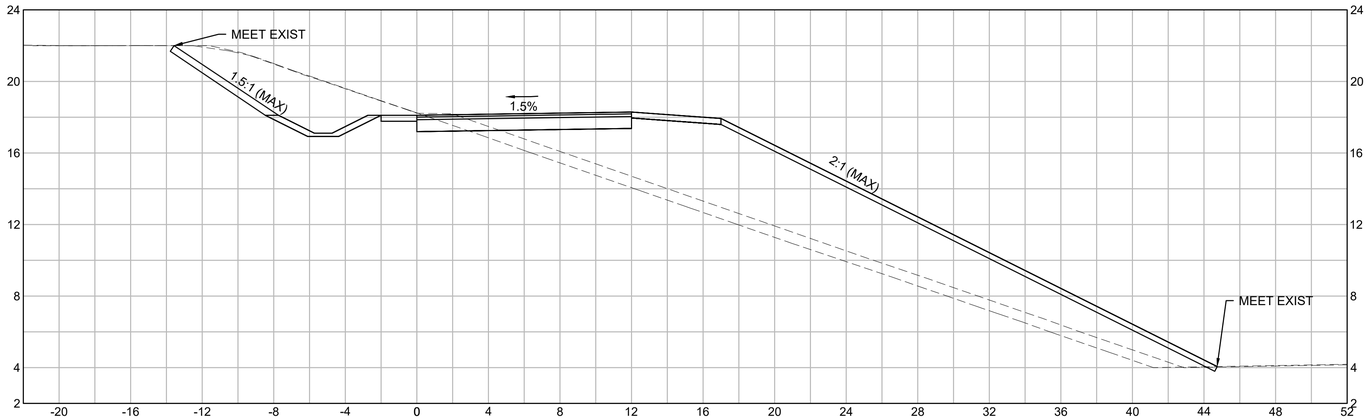

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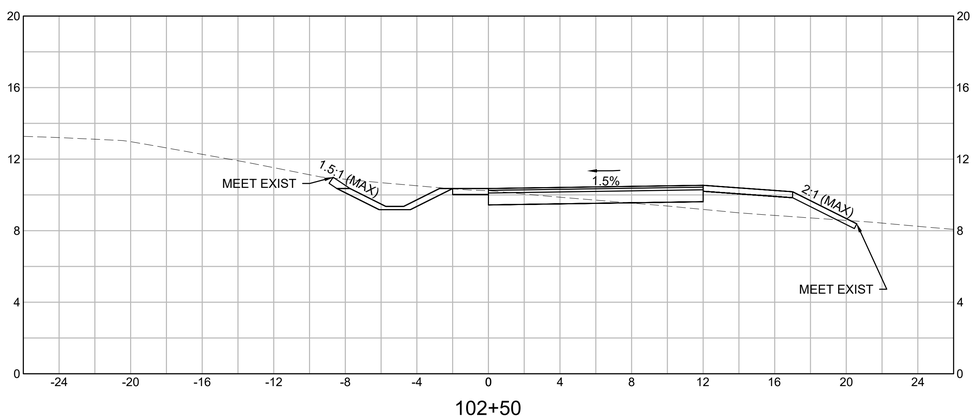

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EVERETT
NORTHERN STRAND TRAIL EXTENSION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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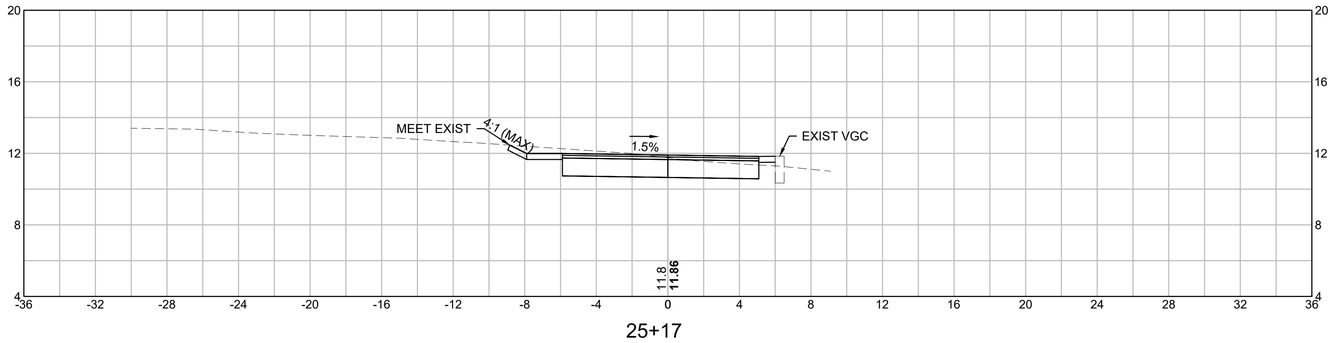
PROJECT FILE NO.	-		

CROSS SECTIONS
SHEET 6 OF 6



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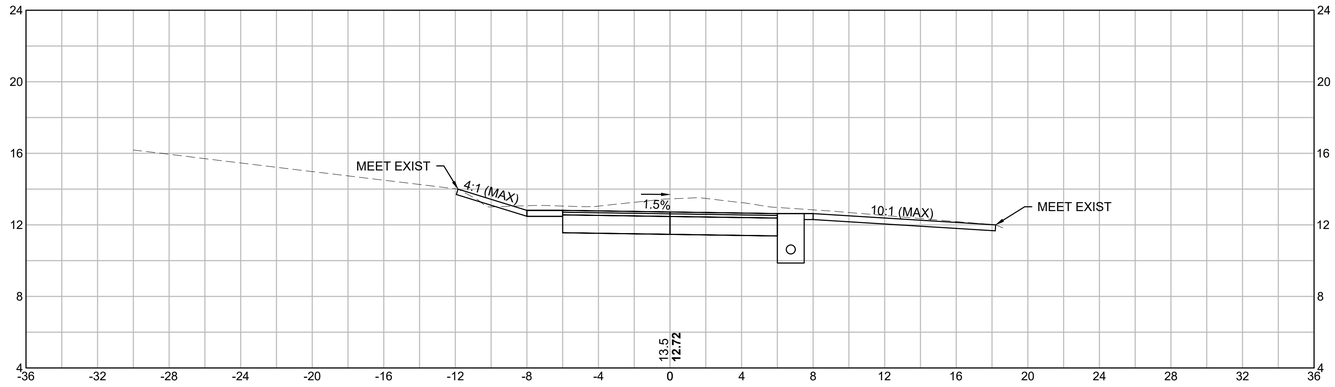

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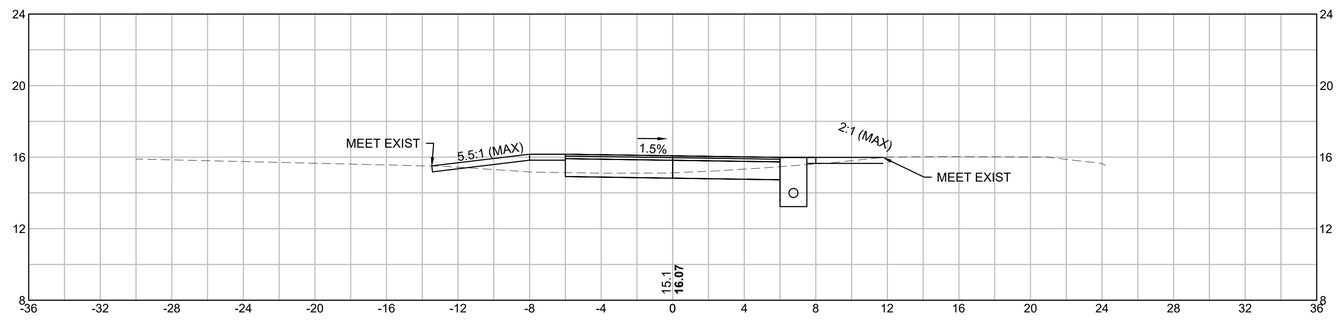

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