



**Wetlands Protection Act
NOTICE OF INTENT**

**Blue Line Aquarium Station and Tunnel Egress
Floodproofing Improvements**

**Prepared by: Kleinfelder
PROJECT #: 20200992.001A**

**Prepared for: Massachusetts Bay Transportation
Authority**

January 22, 2020

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NOTICE OF INTENT
Blue Line Aquarium Station Floodproofing Improvements

Submitted to:

Ms. Amelia Croteau
Conservation Commission Executive Secretary / Floodplain Manager
City of Boston, Environment Department
1 City Hall Square, Room 709
Boston, MA 02201

Prepared by:



Julie A. Conroy, AICP
Sr. Climate Planner / Permitting Specialist

Reviewed by:



Andre Martecchini, PE
Sr. Project Manager

KLEINFELDER
One Beacon Street, Suite 8100
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January 22, 2020
#20200992.001A

NOTICE OF INTENT

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I. TRANSMITTAL FORM



Enter your transmittal number

X284879

Transmittal Number

Your unique Transmittal Number can be accessed online:

http://www.mass.gov/eea/agencies/massdep/service/approvals/transmittal-form-for-payment.html

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

A. Permit Information

WPA3

Category 2j (transportation infrastructure)

1. Permit Code: 4 to 7 character code from permit instructions

2. Name of Permit Category

Floodproofing improvements for the Blue Line Aquarium Station and Tunnel Egress.

3. Type of Project or Activity

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

B. Applicant Information - Firm or Individual

Massachusetts Bay Transportation Authority

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

Palmgren

Holly

2. Last Name of Individual

3. First Name of Individual

4. MI

10 Park Plaza, Suite 6720

5. Street Address

Boston

MA

02116

617-222-1580

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

Holly Palmgren

hpalmgren@mbta.com

11. Contact Person

12. e-mail address

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. Copy 2 must accompany your fee payment. Copy 3 should be retained for your records

C. Facility, Site or Individual Requiring Approval

Blue Line Aquarium Station and Tunnel Egress on Long Wharf

1. Name of Facility, Site Or Individual

296 State Street

2. Street Address

Boston

MA

02109

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

3-0031515

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP P.O. Box 4062 Boston, MA 02211

D. Application Prepared by (if different from Section B)*

Kleinfelder

1. Name of Firm Or Individual

One Beacon Street, Suite 8100

2. Address

Boston

MA

02108

617-498-4658

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Andre Martecchini

8. Contact Person

9. LSP Number (BWSC Permits only)

* Note: For BWSC Permits, enter the LSP.

E. Permit - Project Coordination

1. Is this project subject to MEPA review? [] yes [x] no If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

Special Provisions:

- 1. [x] Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less). There are no fee exemptions for BWSC permits, regardless of applicant status.
2. [] Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. [] Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. [] Homeowner (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

N/A (Exempt)

N/A (Exempt)

1/22/20

Check Number

Dollar Amount

Date

11369

19-10/1250

KLEINFELDER OFFICE CHECKING
550 WEST C STREET SUITE 1200
SAN DIEGO, CA 92101

DATE 1/22/2020

\$1,500.00 DOLLARS 

Security Features
Details on Back.

PAY TO THE ORDER OF City of Boston

One thousand Five Hundred and 00/100



FOR 20200822-001A 02-0000 Permit

Abmal C. Yelle

⑈0⑆1369⑈ ⑆⑆25000⑆05⑆ ⑆57519869794⑈

MP

II. WPA FORM 3



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

McKinley Sq., 284-290 State St., Long Wharf Boston
 a. Street Address b. City/Town
 N/A (Exempt) N/A (Exempt)
 c. Check number d. Fee amount

2. Applicant Mailing Address:

Holly Palmgren
 a. First Name b. Last Name
 Massachusetts Bay Transportation Authority
 c. Organization
 10 Park Plaza, Suite 6720
 d. Mailing Address
 Boston MA 02116
 e. City/Town f. State g. Zip Code
 617-222-1580 hpalmgren@mbta.com
 h. Phone Number i. Fax Number j. Email Address

3. Property Owner (if different):

Sunstone Wharf LLC (Marriott Long Wharf)
 a. First Name b. Last Name
 c. Organization
 200 Spectrum Center Drive, 21st Floor
 d. Mailing Address
 Irvine CA 92618
 e. City/Town f. State g. Zip Code
 949-330-4000 InvestorRelations@sunstonehotels.com
 h. Phone Number i. Fax Number j. Email Address

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
2j	3	\$500	Exempt (\$0)

Step 5/Total Project Fee: Exempt (\$0)

Step 6/Fee Payments:

Total Project Fee:	Exempt (\$0) a. Total Fee from Step 5
State share of filing Fee:	Exempt (\$0) b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	Boston: \$1,500 c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston

City/Town

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
 Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

1-99 McKinley Sq., 284-290 State St., Long Wharf
 Boston 02110
 b. City/Town c. Zip Code

Latitude and Longitude: 42.359861 -71.051590
 d. Latitude e. Longitude

f. Assessors Map/Plat Number 0303822010, 0303780100/790010, 0303004000
 g. Parcel /Lot Number

2. Applicant:

Holly Palmgren
 a. First Name b. Last Name

Massachusetts Bay Transportation Authority
 c. Organization

10 Park Plaza, Suite 6720
 d. Street Address

Boston MA 02116
 e. City/Town f. State g. Zip Code

617-222-1580 hpalmgren@mbta.com
 h. Phone Number i. Fax Number j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

a. First Name b. Last Name

Sunstone Wharf LLC
 c. Organization

200 Spectrum Center Drive
 d. Street Address

Irvine CA 92618
 e. City/Town f. State g. Zip Code

949-330-4000 InvestorRelations@sunstonehotels.com
 h. Phone Number i. Fax Number j. Email address

4. Representative (if any):

Andre Martecchini
 a. First Name b. Last Name

Kleinfelder
 c. Company

One Beacon Street, Suite 8100
 d. Street Address

Boston MA 02108
 e. City/Town f. State g. Zip Code

617-498-4658 Amartecchini@kleinfelder.com
 h. Phone Number i. Fax Number j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

N/A (Exempt) N/A Exempt Boston: \$1,500
 a. Total Fee Paid b. State Fee Paid c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Boston
City/Town

A. General Information (continued)

6. General Project Description:

The MBTA and MassDOT are partnering to design, construct, operate, and maintain flood protection systems for the Blue Line Aquarium Station, including MassDOT's TE-434 emergency egress on Long Wharf. There will be three locations at which improvements will occur at the Aquarium Station.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

- 1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Suffolk	
a. County	b. Certificate # (if registered land)
9351 / 10341	70 / 321
c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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Bureau of Resource Protection - Wetlands

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet	2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	_____	
	1. square feet	

	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	_____	_____
	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	_____	_____
	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	_____	
	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	_____	
	1. square feet	
h. <input type="checkbox"/> Salt Marshes	_____	_____
	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	_____	
	1. square feet	

	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	_____	
	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	

	1. cubic yards dredged	
l. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	7,406	
	1. square feet	

4. Restoration/Enhancement
 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.2.b or B.3.h above, please enter the additional amount here.

_____	_____
a. square feet of BVW	b. square feet of Salt Marsh

5. Project Involves Stream Crossings

_____	_____
a. number of new stream crossings	b. number of replacement stream crossings



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C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

- Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. Yes No **If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581**

b. Date of map _____

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

- Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage

2. Assessor's Map or right-of-way plan of site

- Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **
 - (a) Project description (including description of impacts outside of wetland resource area & buffer zone)
 - (b) Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

(c) MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

(d) Vegetation cover type map of site

(e) Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. Not applicable – project is in inland resource area only b. Yes No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston

City/Town

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

- 4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC

- 5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. Yes No
- 6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. Yes No
- 7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 - 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 - 2. A portion of the site constitutes redevelopment
 - 3. Proprietary BMPs are included in the Stormwater Management System.
 b. No. Check why the project is exempt:
 - 1. Single-family house
 - 2. Emergency road repair
 - 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
- 2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Boston
City/Town

D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. List the titles and dates for all plans and other materials submitted with this NOI.

See Narrative for a list of Project Plans.

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

N/A (Exempt)

3. Check date

4. State Check Number

Kleinfelder

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
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 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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Boston

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

Holly Palmgren

1. Signature of Applicant

11/21/20

2. Date

3. Signature of Property Owner (if different)

5. Signature of Representative (if any)

11/23/20

4. Date

1/21/20

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a copy of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

III. NARRATIVE

1. BACKGROUND

The Massachusetts Bay Transportation Authority (MBTA or the Applicant) is submitting a Notice of Intent (NOI) for floodproofing improvements to the Blue Line Aquarium Station, Central Artery Tunnel Emergency Egress, and Blue Line Emergency Egress on Long Wharf (the Project). (See Figure 1, Project Locus.) The Applicant is filing this NOI to receive an Order of Conditions from the Boston Conservation Commission (the Commission) for activities within wetlands resources, specifically Land Subject to Coastal Storm Flowage.

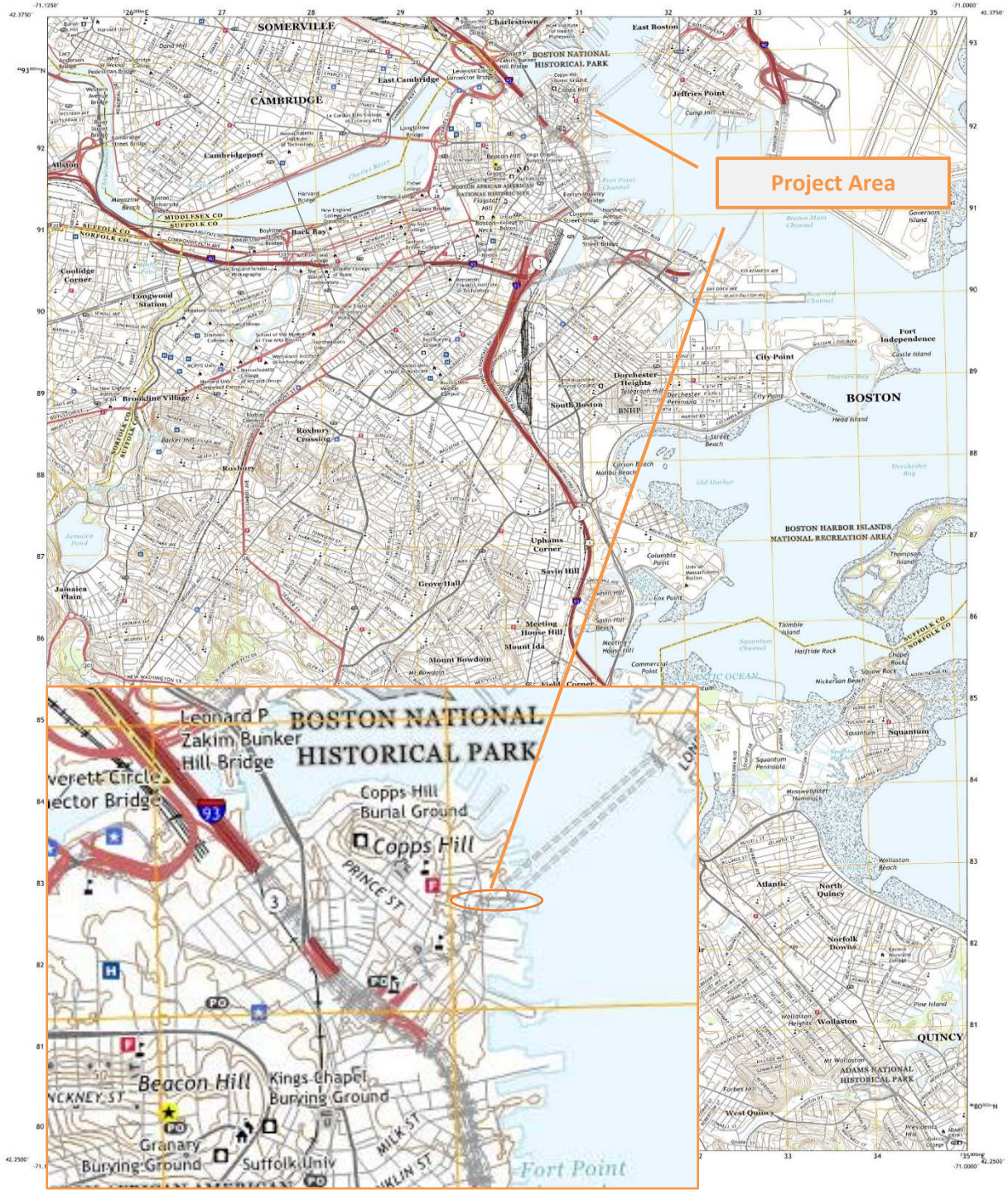
The primary goal of the project is to prevent catastrophic damage to public transit and highway tunnel infrastructure in Downtown Boston from extreme coastal flooding events. The historic coastal flooding in January and March 2018 storms caused approximately \$3.4 million in damages to MBTA infrastructure located at Aquarium Station. Damages to elevator and escalator infrastructure also made the Station more difficult for people with disabilities to access while repairs were made. Had the flood levels been higher, the impact to transportation infrastructure and the people who rely on them would have been much more significant. As sea level rises and coastal storms increase in intensity, the Project site is at increasing risk. This Project aims to mitigate those risks. In reducing the risk of catastrophic flooding within underground highway and transit tunnels, the Project will also help protect wetland resources from the potential release of pollutants from these sources into uncontrolled floodwaters.

2. PROJECT DESCRIPTION

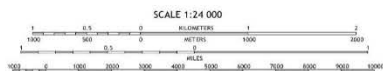
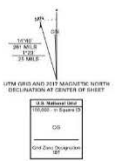
The MBTA, with design support from MassDOT, is proposing to construct, operate, and maintain flood protection systems for the Blue Line Aquarium Station, Central Artery Tunnel (CA/T) Emergency Egress, and Blue Line Emergency Egress on Long Wharf. Floodproofing is proposed to occur at three specific locations, as follows:

- Location 1. Long Wharf Blue Line Tunnel Emergency Egress Stair and Ventilation Structure: Replace glass headhouse with floodproof headhouse and door; install permanent flood protection panels at four emergency ventilation shaft openings including anchorage;
- Location 2. East Headhouse, Elevator, and Central Artery Tunnel (CA/T) Emergency Egress: install deployable drop-in-panel flood barriers and intermediate removable support posts, including foundations and anchorage; and
- Location 3. Southwest Headhouse and Elevator: install deployable drop-in-panel flood barriers and intermediate removable support posts, including foundations and anchorage.

The design and construction methods to be employed at each location are described in detail in the subsequent sections. Construction will be performed by a contractor procured through the MBTA bidding process.



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84)
1:000 meter grid (Universal Transverse Mercator, Zone 18T)
This map is not a legal document. Recipients may be held liable for any errors or omissions. Recipients may be held liable for any errors or omissions. Recipients may be held liable for any errors or omissions.
© 2018 USGS
Map Date: 2018
Scale: 1:24,000
Projection: NAD83 / UTM
Datum: NAD83
Units: Meters
Contour Interval: 10 Feet
Vertical Datum: NAVD83
Horizontal Datum: NAD83
Map Date: 2018
Scale: 1:24,000
Projection: NAD83 / UTM
Datum: NAD83
Units: Meters
Contour Interval: 10 Feet
Vertical Datum: NAVD83
Horizontal Datum: NAD83



1	2	3	1 Lexington
2	3	4	2 Boston North
3	4	5	3 Lynn
4	5	6	4 Salem
5	6	7	5 Haverhill
6	7	8	6 Lowell
7	8	9	7 Merrimack
8	9	10	8 Concord

ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
Route	Other
Interstate Route	US Route
	State Route

BOSTON SOUTH, MA
2018

Figure 1. Project Locus (Source: USGS 2019)

2.1. Location 1. Long Wharf Blue Line Tunnel Emergency Egress Kiosk

The proposed Project includes the demolition and removal of the existing Long Wharf Blue Line tunnel emergency egress stair kiosk consisting of a steel framed, glass block enclosure with a steel grating roof. At this site, the existing emergency egress stairs will be protected via the following project activities:

- Replacement of the kiosk with a cast-in-place reinforced concrete, brick-veneered kiosk with a galvanized steel grating roof;
- Installation and flood testing of a new flood door;
- Installation and flood testing of floodproofing panels at four louvered vents;
- Repairs to existing damaged granite stone facing at four vents;
- Limited removal of existing pavements and replacement in-kind of pavements;
- Installation of waterproofing;
- Demolition and replacement of electrical systems in the kiosk, including lighting, security access card reader, and CCTV surveillance camera; and
- Installation of a new fire alarm pull station and horn at the new kiosk entrance.

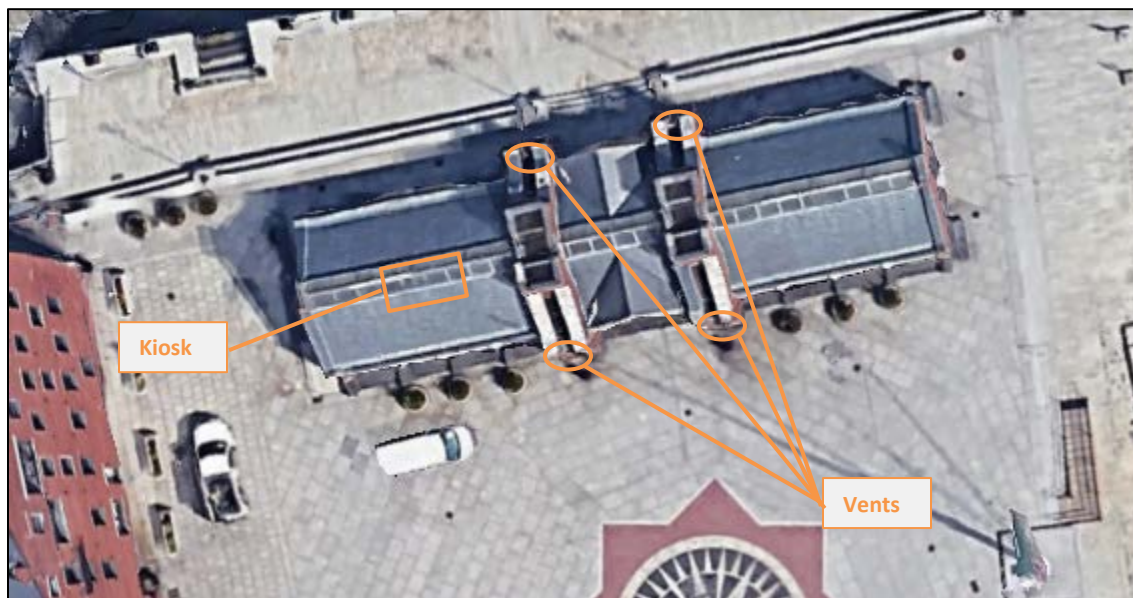


Figure 3. Location 1. Long Wharf Blue Line Tunnel Emergency Egress (Source: Google Earth 2019)

2.2. Location 2. East Station Headhouse and CA/T Emergency Egress

At the East Station Headhouse on the corner of Atlantic Avenue and State Street, floodproofing measures will include:

- Removal of existing brick pavements and replacement with cast-in-place concrete slabs and foundations;
- Restoration of existing brick pavers to meet new concrete pavement;

- Installation of anchors in cast-in-place concrete foundations;
- Deployment, flood testing, and storage of deployable drop-in-panel flood barriers and intermediate removable support posts;
- Installation of waterproofing; and
- Installation of an in-line backflow preventer on an existing trench drain line.



Figure 4. Location 2. East Station Headhouse and CA/T Egress (Source: Google Earth 2019)

2.3. Location 3. Southwest Station Headhouse

At the Southwest Station Headhouse on the corner of McKinley Square and State Street, project activities include:

- Removal of existing brick pavements and replacement with cast-in-place concrete slabs and foundations;
- Restoration of existing brick pavers to meet new concrete pavement;
- Sealing of existing joints and pressure injection of grout to fill voids under existing large stone slab pavers;
- Installation of anchors in existing large stone slab pavers and new cast-in-place concrete foundations;
- Deployment, flood testing, and storage of deployable drop-in-panel flood barriers and intermediate removable support posts;
- Installation of waterproofing to connect to existing waterproofing; and
- Removal of two granite bollards and installation of two new removable bollards.

**ATTACHMENT A
ABUTTER NOTIFICATION**

ABUTTER NOTIFICATION

Abutters listed below were determined to own property located within 100 feet from the property lines of the three project locations and will be notified of the project per the Massachusetts Wetlands Protection Act Regulations (310 CMR 1005(4)). A sample notification letter is provided on the following page.

<i>Property No</i>	<i>Location</i>	<i>Owner</i>	<i>Owner Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>
303821000	237-247 State St.	Two Fifty-Five State Street, LLC	C/o JLL 255 State Street, FL#2	Boston	MA	02109
303430000	Atlantic Ave./ Kneeland St.	MA Dept. of Transportation (MassDOT)	10 Park Plaza	Boston	MA	02116
303780100	Atlantic Ave.	MassDOT, Highway Department	10 Park Plaza	Boston	MA	02116
302990010	Atlantic Ave.	Boston Planning and Development Agency	One City Hall Square	Boston	MA	02201
303020000	296 State St.	Sunstone Wharf LLC	200 Spectrum Center Drive, 21st Floor	Irvine	CA	92618
303822010	McKinley Sq.	Boston Planning and Development Agency	One City Hall Square	Boston	MA	02201
303806070	175-177 State St. #7	McKinley 7 LLC	C/o Colin Haviland, 1 McKinley Sq.	Boston	MA	02109
303812010	State Street	MassDOT, Highway Department	10 Park Plaza	Boston	MA	02116
303822282	3 McKinley Square	Marriot Ownership Resorts	3 McKinley Square #2302	Boston	MA	02109
303005000-8000	67-70 Long Wharf	CAP Long Wharf LLC	C/o Capital Properties, 115 Broadway 21st Fl.	New York	NY	10006
303004000	206-214 Atlantic Ave.	Boston Planning and Development Agency	One City Hall Square	Boston	MA	02201



January-February 2020

**SUBJECT: Blue Line Aquarium Station / Tunnel Egress, Boston, MA
Floodproofing Project**

Dear Sir/Madam:

This letter serves as a notification of our client: the Massachusetts Bay Transportation Authority (the Applicant), who is submitting a Notice of Intent (NOI) to the City of Boston Conservation Commission for work within areas protected under the Massachusetts Wetlands Protection Act; Massachusetts General Laws Chapter 131, Section 40. The locations of the proposed project work include 200, and 284-290 State Street, and the end of Long Wharf in Boston.

The Massachusetts Bay Transportation Authority and Massachusetts Department of Transportation (MassDOT) are partnering to design, construct, operate, and maintain flood protection systems for the Blue Line Aquarium Station, including MassDOT's Central Artery Tunnel emergency egress, and the Blue Line Tunnel Emergency Egress on Long Wharf. The primary purpose of this project is to ensure the health and safety of MBTA Aquarium Station users that could be adversely impacted by coastal flooding.

Copies of the NOI can be examined at Boston City Hall, One City Hall Square, Boston, between the hours of 9 AM and 5 PM, Monday through Friday. The NOI may also be requested via an emailed request (see contact information below). Public comments will be heard at a public hearing, which will take place at City Hall, Piemonte Room, 5th Floor. Comments can also be submitted in writing to the Boston Conservation Commission at CC@boston.gov or mailed to the Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201. A notice regarding the hearing date, time, and place will be published at least five (5) days in advance in the Boston Herald, on www.boston.gov/public-notices, and in Boston City Hall not less than forty-eight (48) hours in advance. For further information regarding the NOI and the public hearing date, you may contact the Boston Conservation Commission at (617) 635-3850. Copies of

Sincerely,

KLEINFELDER

Julie Conroy, AICP
Permitting Specialist
jconroy@kleinfelder.com

**ATTACHMENT B
OTHER PROPERTY OWNERS**

OTHER PROPERTY OWNERS

As noted in the Narrative, the Project area includes work within properties owned by entities other than MBTA, as listed below.

1. Long Wharf, Parcel # 0303004000: This parcel is owned by the City of Boston; One City Hall Square, Boston, MA 02201. The MBTA currently has easements in place from the City for the Tunnel Egress. The MBTA is also in the process of obtaining approval from the City of Boston Public Improvement Commission for proposed improvements at this location.
2. Southwest Station Headhouse, Parcel # 0303822010: The City of Boston owns this parcel.
3. East Station Headhouse, Parcel # 0303790010: This parcel is owned by Sunstone Wharf LLC (Long Wharf Marriott); 200 Spectrum Center Drive, 21st Floor, Irvine, CA 92618. The MBTA is in the process of obtaining easements from this property owner for proposed improvements at this location.

These property owners have been notified by the Applicant.

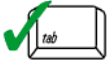
ATTACHEMNT C
STORMWATER MANAGEMENT CHECKLIST



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



 1/21/2020
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
- Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

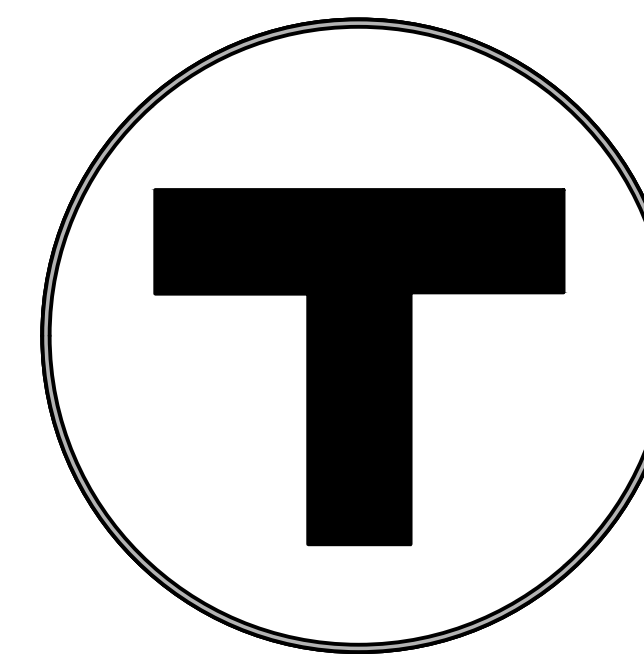
Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

**APPENDIX D
PROJECT PLANS**



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

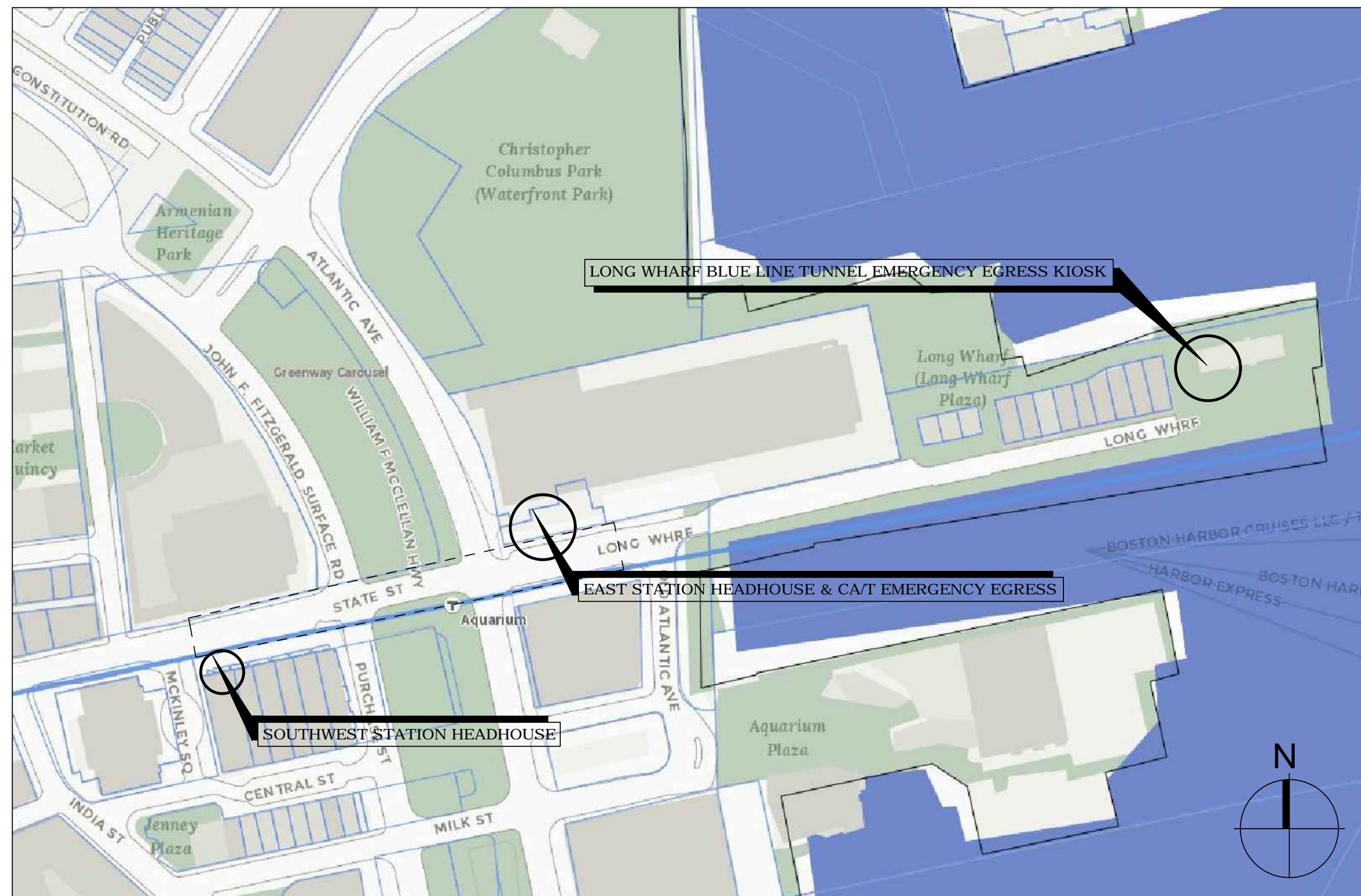
BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS

100% SUBMISSION

October 23, 2019

MBTA CONTRACT NO: XXXXXX

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
CAPITAL GRANT CONTRACT
PROJECT NO.



LOCATION PLAN

NOT TO SCALE

DRAWING INDEX

- G.01 TITLE SHEET
- G.02 GENERAL NOTES 1
- G.03 GENERAL NOTES 2
- G.04 CONSTRUCTION WORK AREA AND PHASING - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
- G.05 CONSTRUCTION WORK AREA AND PHASING - EAST STATION HEADHOUSE AND CA/T EMERGENCY EGRESS
- G.06 CONSTRUCTION WORK AREA AND PHASING - SOUTHWEST STATION HEADHOUSE
- D.01 DEMOLITION PLAN - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
- D.02 DEMOLITION PLAN 1 - EAST STATION HEADHOUSE AND CA/T EMERGENCY EGRESS
- D.03 DEMOLITION PLAN 2 - EAST STATION HEADHOUSE AND CA/T EMERGENCY EGRES
- D.04 DEMOLITION PLAN - SOUTHWEST STATION HEADHOUSE
- A1.01 PLAN - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
- A1.02 ELEVATIONS - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
- A1.03 SECTIONS AND DETAILS - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
- A2.01 PLAN 1 - EAST STATION HEADHOUSE AND CA/T EMERGENCY EGRESS
- A2.02 PLAN 2 - EAST STATION HEADHOUSE AND CA/T EMERGENCY EGRESS
- A3.01 PLAN - SOUTHWEST STATION HEADHOUSE
- S0.00 STRUCTURAL GENERAL NOTES 1
- S0.01 STRUCTURAL GENERAL NOTES 2
- S0.02 TYPICAL CONCRETE REPAIR DETAILS
- S0.03 WATERPROOFING DETAILS
- S1.01 STRUCTURAL DETAILS - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
- S2.01 STRUCTURAL SECTIONS AND DETAILS 1
- S2.02 STRUCTURAL SECTIONS AND DETAILS 2
- E1.01 ELECTRICAL PLAN - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK

APPROVALS:

Date:
X
X

Date:
X CHARLES CLAYTON
X ACTING ASSISTANT GENERAL MANAGER FOR CAPITAL DELIVERY

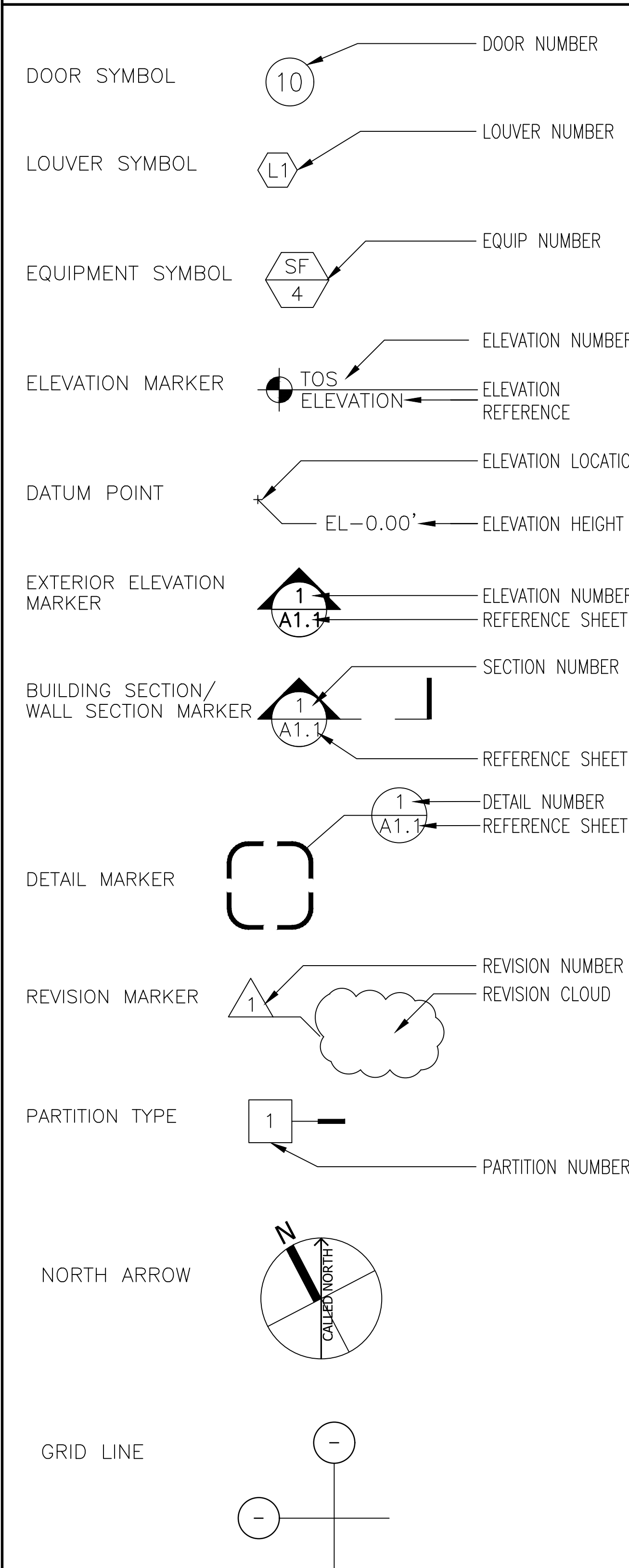


IN ASSOCIATION WITH:
Bala Consulting Engineers Inc.

ABBREVIATIONS

&	And	FCO	Floor Clean Out	LHR	Left Hand Reverse	REINF	Reinforced/Reinforcing
@	At	FD	Floor Drain	LIN	Linear	REM	Removeable
A/E	Architect / Engineer	FDN	Foundation	LNTL	Lintel	REQD	Required
AB	Anchor Bolt	FEC	Fire Extinguisher Cabinet	LONG	Longitudinal	RESIL	Resilient
ACT	Acoustical Ceiling Tile	FEXT	Fire Extinguisher	LPT	Low Point	RFG	Roofing
AFB	Above Finished Floor	FGL	Fiberglass	LT	Light	RM	Room
ADH	Adhesive	FHC	Fire Hose Cabinet	LTWT	Lightweight	RO	Rough Opening
ADJ	Adjustable	FHY	Fire Hydrant	LTG	Lighting	RV	Roof Vent
ADJC	Adjacent	FIN	Finish	LVR	Lever or Louver		
AL	Aluminum	FL	Floor			S	South
ALT	Alternate	FLUOR	Fluorescent	MAINT	Maintenance	SC	Solid Core
ARCH	Architect/ Architectural	FOC	Face of Concrete	MANF	Manufacturer	SCHED	Schedule
ASPH	Asphalt	FOF	Face of Finish	MAS	Masonry	SCRN	Screen
		FOM	Face of Masonry	MATL	Material	SECT	Section
BD	Board	FPRF	Fireproofing	MAX	Maximum	SGL	Single
BIT	Bituminous	FRP	Fiber Reinforced Plastic	MECH	Mechanical	SHT	Sheet
BLDG	Building	FS	Full Size	MED	Medium	SHTHG	Sheathing
BLKG	Blocking	FT	Foot or Feet	MEMB	Membrane	SIM	Similar
BM	Beam	FTG	Footing	MTL	Metal	SM	Sheet Metal
BOT	Bottom	FURR	Furring	MH	Manhole	SPEC	Specification
BTWN	Between	G	Gas	MIN	Minimum	SQ	Square
B/S	Bothside	GA	Gage	MIR	Mirror	SSK	Service Sink
		GALV	Galvanized	MISC	Miscellaneous	SS/ST STL	Stainless Steel
CEM	Cement	GB	Grab Bar	MLDG	Molding	ST	Street
CER	Ceramic	GB	Grab Bar	MO	Masonry Opening	STAG	Stagger
CHAN	Channel	GEN	Generator	MTD	Mounted	STD	Standard
CHFR	Chamfer	GL	Glass	MTR	Mortar	STL	Steel
CJ	Control Joint	GND	Ground	MULL	Mullion	STOR	Storage
CLG	Ceiling	GR	Grade	MVBL	Movable	STR	Structural, Structure
CLR	Clear	GRL	Grille	(N)	New	SUSP	Suspended
CMPST	Composite	GRTG	Grating	N	North	SYM	Symbol
COL	Column	GSKT	Gasket	NA	Not Applicable	SYMM	Symmetrical
COMP	Compressible/Compression	GT	Grout	NAT	Natural	SYS	System
CONC	Concrete	GVL	Gravel	NO	Not in Contract		
CONN	Connection	GYP	Gypsum	NO	Number		
CONSTR	Construction	HB	Hose Bibb	NOM	Nominal	TBM	Top of Beam
CONT	Continuous	HC	Hollow Core	NTS	Not To Scale	TC	Top of Concrete
CONTR	Contractor	HDWE	Hardware	OA	Overall	TEMP	Temporary
DBL	Double	HGT	Height	OC	On Center	TF	Top of Footing
DEMO	Demolition	HM	Hollow Metal	OD	Outside Diameter	THK	Thickness
DET	Detail	HMD	Hollow Metal Door	OF	Outside Face	THRES	Threshold
DIA	Diameter	HNDRL	Handrail	O.H.	Opposite Hand	THRU	Through
DIM	Dimension	HO	Hold Open	OPNG	Opening	TSL	Top of Slab
DIV	Division	HORZ	Horizontal	OPP	Opposite	TYP	Typical
DMPF	Dampproofing	HPT	High Point	PJ	Panel Joint	UNFIN	Unfinished
DN	Down	HR	Hour	PL	Plate	UNO	Unless Noted Otherwise
DS	Downspout	HVAC	Heating, Ventilation, Air Conditioning	PLAM	Plastic Laminate		
DSP	Dry Standpipe	ID	Inside Diameter	PLYWD	Plywood	VERT	Vertical
DWG	Drawing	IF	Inside Face	PNL	Panel	VIF	Contractor to Verify in Field
E	East	IN	Inch or Inches	PNT	Paint	VNR	Veneer
(E)	Existing	INSUL	Insulation	PNTD	Painted	VR	Vapor Retarder
EA	Each	INT	Interior	PRCST	Precast		
EL	Elevation	JT	Joint	PRMT	Perimeter	W	West
ELEC	Electric	L	Left	PVG	Paving	W/	With
ENGR	Engineer	LAD	Ladder	QTY	Quantity	W/O	Without
ENTR	Entrance	LAM	Lamination	R	Riser	WD	Wood
EP	Electrical Panel	LB	Pound	RAD	Radius	WLD	Welded
EQ	Equal	LBL	Label	RD	Roof Drain	WT	Weight
EQUIP	Equipment	LF	Linear Foot	REC	Recessed	WTRPRF	Waterproofing
ESMT	Easement	LG	Length	REF	Reference	WWF	Welded Wire Fabric
EXC	Excavate	LH	Left Hand	REG	Register		
EXH	Exhaust						
EXP	Expansion						
EXST	Existing						
EXT	Exterior						

SYMBOLS LEGEND



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

GENERAL NOTES 1

100% DESIGN SET		SCALE: AS NOTED		DATE: 10-23-2019		RMS		RMS		APM		DATE: 10-23-2019		SHEET		G.02	
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A. DESCRIPTION OF WORK

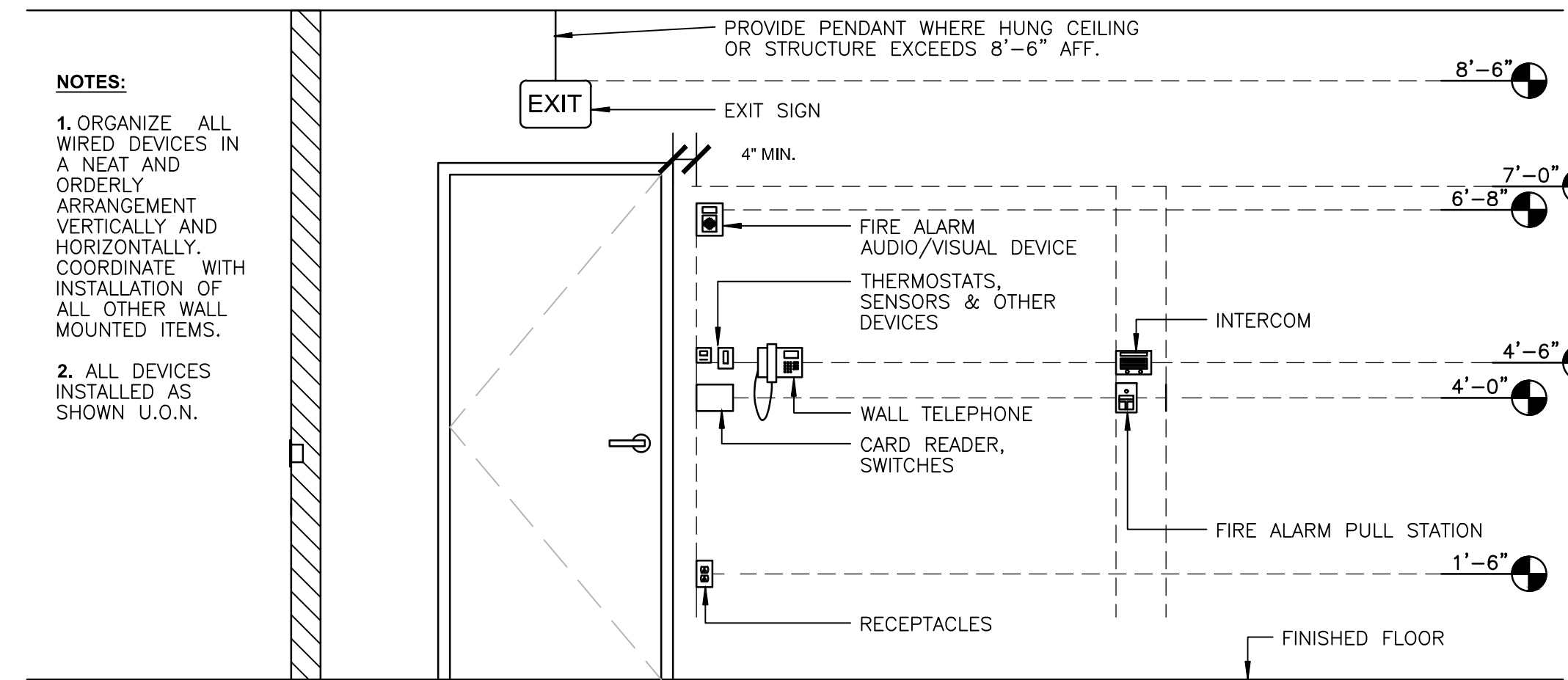
1. THE WORK INCLUDES ARCHITECTURAL, STRUCTURAL, CIVIL AND ELECTRICAL MODIFICATIONS FOR FLOODPROOFING IMPROVEMENTS TO FOUR ENTRANCES/EGRESSES AT THE MBTA'S BLUE LINE AQUARIUM STATION AS SHOWN AND DESCRIBED IN THE CONTRACT DOCUMENTS AND AS DIRECTED BY THE ENGINEER.
2. THE FLOODPROOFING IMPROVEMENTS SHOWN AND DESCRIBED IN THESE CONTRACT DOCUMENTS WILL REDUCE, BUT NOT ELIMINATE, FLOODWATER INFILTRATION INTO AQUARIUM STATION. THE AUTHORITY SHALL ANTICIPATE SOME MINIMAL FLOODWATER LEAKAGE THROUGH/UNDER THE PROPOSED BARRIER SYSTEM DUE TO MINOR SURFACE IMPERFECTIONS. THESE FLOODPROOFING IMPROVEMENTS ARE DEPENDENT ON THE PROPER AND TIMELY DEPLOYMENT OF THE FLOOD BARRIER SYSTEM COMPONENTS IN ACCORDANCE WITH THE FLOOD BARRIER MANUFACTURER'S INSTALLATION INSTRUCTIONS IN ADVANCE OF A FLOOD EVENT, WHICH IS THE RESPONSIBILITY OF THE AUTHORITY. THESE FLOODPROOFING IMPROVEMENTS WILL NOT REDUCE THE RISK OF FLOODWATER INFILTRATION FROM AREAS OUTSIDE OF THE PROPOSED FLOOD BARRIER, SUCH AS UNDERGROUND CONDUITS, PIPES, AND CRACKS IN THE EXISTING STATION AND TUNNEL STRUCTURE.
3. DEPLOYABLE FLOOD BARRIERS, FLOOD DOOR AND FRAME AND LOUVER VENT COVERS AND THEIR ASSOCIATED ANCHOR BOLTS SHALL BE PROVIDED BY OTHERS. THE CONTRACTOR SHALL RECEIVE THE FLOODPROOFING EQUIPMENT SHIPMENTS FROM THE MANUFACTURER AND SHALL BE RESPONSIBLE FOR PROPER AND SAFE STORAGE OF THE FLOOD BARRIERS PRIOR TO INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANCHORS AND EQUIPMENT AS DEPICTED IN THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ONE FULL DEPLOYMENT OF THE TEMPORARY FLOOD BARRIERS AND HYDROSTATIC TESTING OF THE BARRIERS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. IF THERE ARE ANY UNACCEPTABLE LEAKS IN THE FLOOD BARRIER SYSTEMS, THE CONTRACTOR SHALL CORRECT SUCH LEAKS AND RETEST THE DEFICIENT SYSTEM.
5. AFTER ALL TESTING IS COMPLETED TO THE SATISFACTION OF THE ENGINEER, THE CONTRACTOR SHALL CAREFULLY DISMANTLE THE DEPLOYABLE FLOOD BARRIER SYSTEM, INSTALL BLIND BOLTS IN ALL PAVEMENT ANCHORS, AND STORE ALL COMPONENTS IN PERMANENT STORAGE LOCATIONS AS DIRECTED BY THE ENGINEER.

B. GENERAL

1. DO NOT DAMAGE EXISTING ITEMS TO REMAIN DURING THE WORK OF THIS CONTRACT. ANY DAMAGE TO EXISTING ITEMS DESIGNATED TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AT NOT COST TO THE AUTHORITY.
2. ALL MATERIALS, WORKMANSHIP AND DETAILS SHALL CONFORM WITH THE COMMONWEALTH OF MA STATE BUILDING CODE, 9TH EDITION AND OTHER REFERENCE STANDARDS REFERENCED IN THE CONTRACT DOCUMENTS.
3. THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW ALL CONTRACT DOCUMENTS AND ADDENDA IN ORDER TO ENSURE COORDINATION OF ALL WORK.
4. ALL CONTRACT DOCUMENTS, INCLUDING SPECIFICATIONS, DRAWINGS AND REFERENCE STANDARDS ARE INTENDED TO BE COMPLIMENTARY. IT IS INTENDED THAT ALL TRADES SHALL FAMILIARIZE THEMSELVES WITH THE ENTIRE SET OF DOCUMENTS AS THEY RELATE TO THEIR TRADE.
5. THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE IMPACT OF THE PROPOSED WORK ON THESE CONDITIONS. ANY QUESTIONS REGARDING THE COORDINATION OF PROPOSED WORK OR EXISTING CONDITIONS SHALL BE SUBMITTED TO THE ENGINEER IN WRITING PRIOR TO THE SUBMISSION OF BIDS. THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION FROM THE AUTHORITY FOR WORK CONDITIONS THAT WERE CLEARLY EVIDENT PRIOR TO SUBMISSION OF THE BIDS.
6. THE GENERAL CONTRACTOR AND/OR SUBCONTRACTORS SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY BARRICADES, FENCING AND WAYFINDING SIGNAGE AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER TO PROVIDE SAFE WORK ZONES DURING CONSTRUCTION SO THAT THE PUBLIC CAN SAFELY AND EFFICIENTLY NAVIGATE ACTIVE CONSTRUCTION ZONES.
7. UNLESS OTHERWISE NOTED, DETAILS, SECTIONS AND NOTES CONTAINED IN THE CONTRACT DOCUMENTS SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS EVEN IF NOT EXPLICITLY STATED.
8. DEFICIENT WORK AND/OR WORK NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL REIMBURSE THE AUTHORITY FOR SERVICES THAT THE AUTHORITY INCURS AS A RESULT OF ANY DEFICIENT WORK OR OTHER CONTRACT REQUESTS, INCLUDING ADDITIONAL ENGINEERING AND REVIEWS, CONTRACTOR SUBSTITUTIONS OR EXPEDITING OF SUBMITTALS. COSTS OF INVESTIGATIONS OR REDESIGN INCURRED BY THE AUTHORITY DUE TO CONTRACTOR ERRORS SHALL BE REIMBURSED BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UNDERGROUND UTILITIES OR UTILITIES IN EXTERIOR WALLS OF THE STATION IN THE VICINITY OF THE WORK.
10. NOT ALL UTILITIES, CONDUITS, WIRING, PIPES AND EQUIPMENT ARE SHOWN ON THESE DRAWINGS. SOME EXISTING UTILITIES AND SERVICES MAY BE CONCEALED UNDERGROUND OR IN THE EXTERIOR BUILDING ENVELOPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, CONDUITS, WIRING, PIPES AND EQUIPMENT IN ADVANCE OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR COORDINATING AND/OR PERFORMING ANY TEMPORARY SHUT-DOWNS OR RELOCATIONS OF THESE SERVICES WITH THE AUTHORITY AND/OR AFFECTED UTILITY COMPANIES TO ALLOW THE WORK TO PROCEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THESE SERVICES TO THE SATISFACTION OF THE AUTHORITY AND/OR UTILITY COMPANIES AFTER THE WORK IS COMPLETE.
11. REFER TO THE PROJECT MANUAL FOR SPECIFICATION OF ITEMS. REQUIREMENTS OF THE SPECIFICATIONS APPLY TO ALL ASPECTS OF THE WORK AND ARE INCLUDED AS ADDITIONAL INFORMATION FOR EACH ITEM SPECIFIED. IF DISCREPANCIES EXIST BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN WRITING TO OBTAIN CLARIFICATION.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE POTENTIAL FOR FLOODING OF THE WORK AREAS DUE TO SEVERE TIDES AND/OR STORM SURGE. IN THE EVENT THAT A LARGE STORM IS PREDICTED TO POTENTIALLY CAUSING FLOODING CONDITIONS AT THE WORK SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING HIS EQUIPMENT AND SECURING THE SITE AS DIRECTED BY THE ENGINEER TO PREVENT UNNECESSARY DAMAGE TO THE EXISTING FACILITY AND WORK-IN-PROGRESS. THE CONTRACTOR WILL NOT BE COMPENSATED FOR ANY LOSSES OR DAMAGES IN THE EVENT THAT THE CONTRACTOR DID NOT REMOVE EQUIPMENT AND REASONABLY PROTECT THE SITE TO THE SATISFACTION OF THE ENGINEER.

C. EXISTING CONDITIONS

1. THE EXISTING CONDITIONS SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION FROM AS-BUILT RECORD DRAWINGS OF THE STATION CONSTRUCTION, CENTRAL ARTERY/TUNNEL CONSTRUCTION, FIELD MEASUREMENTS, AND TEST PITS AT SELECT LOCATIONS.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AFFECTING THE WORK PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE AFFECTED PART OF THE WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING MINOR ADJUSTMENTS TO ANCHOR LOCATIONS BASED ON FINAL DIMENSIONS PROVIDED IN THE SHOP DRAWINGS FOR THE FLOODPROOFING DEVICES SUPPLIED BY THE MANUFACTURER. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING FINAL DIMENSIONS AND FIT TO ENSURE PROPER OPERATION OF THE FLOODPROOFING EQUIPMENT.
4. THE CONTRACTOR SHALL NOT SCALE DRAWINGS TO OBTAIN MISSING INFORMATION. REFER TO THE CONTRACT DRAWINGS FOR DIMENSIONS INDICATED OR THE ACTUAL SIZES OF CONSTRUCTION ITEMS. WHERE ADDITIONAL DIMENSIONAL INFORMATION IS REQUIRED, THE CONTRACTOR SHALL REQUEST SUCH INFORMATION FROM THE ENGINEER IN WRITING PRIOR TO BEGINNING CONSTRUCTION.
5. ELEVATIONS ARE RELATIVE TO THE BOSTON CITY BASE DATUM.



TYPICAL MOUNTING HEIGHTS

SCALE: 1/2" = 1'-0"

MATERIALS LEGEND					
	ALUMINUM		GRANITE		SAND, CEMENT, GROUT
	BRICK		GRATE		CUT STONE
	CERAMIC TILE		GRAVEL		SMOKE SEALANT
	CMU		GWB		SPRAYED FIREPROOFING
	COMPRESSIBLE FILLER		PARTICLE BOARD		STEEL
	CONCRETE		PLYWOOD		WOOD
	EARTH		RIGID INSULATION		



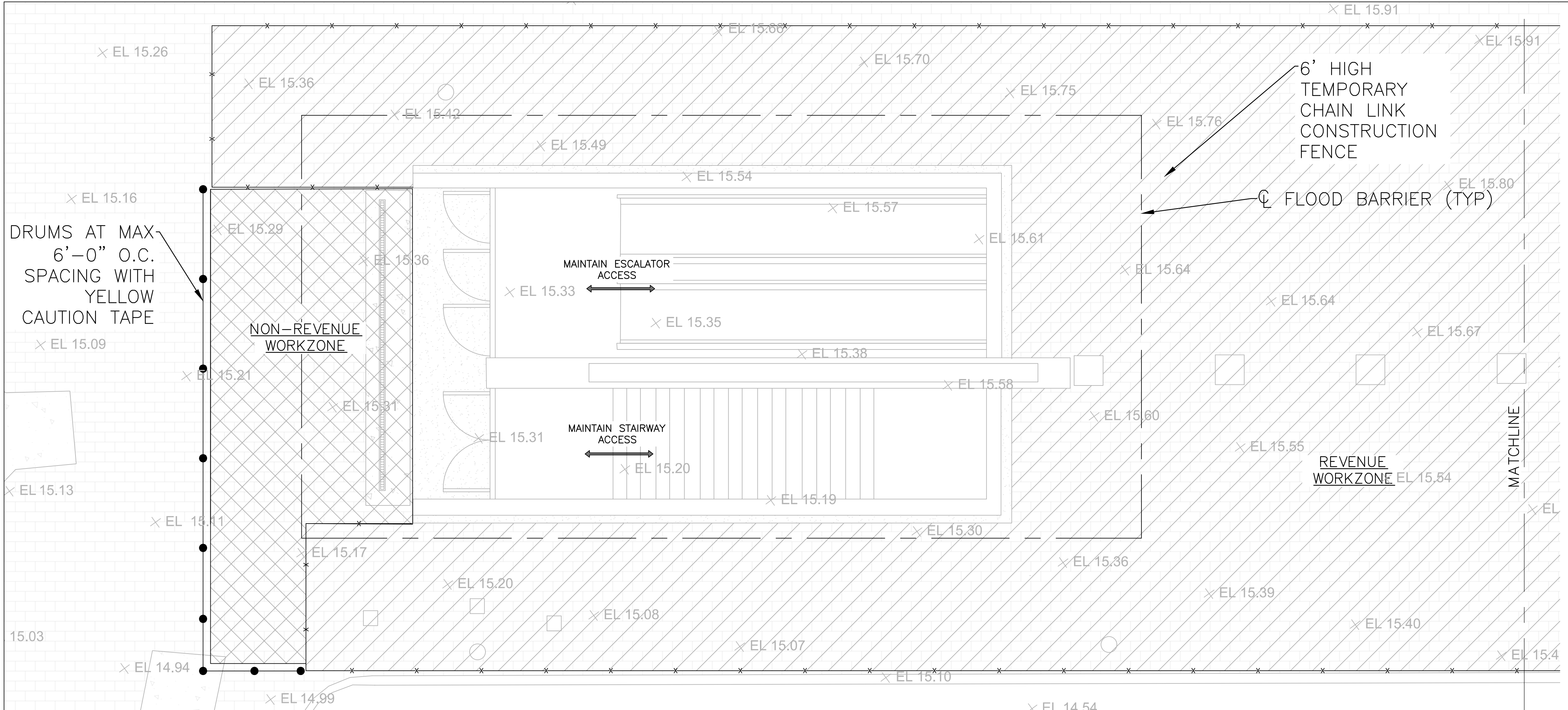
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

GENERAL NOTES 2

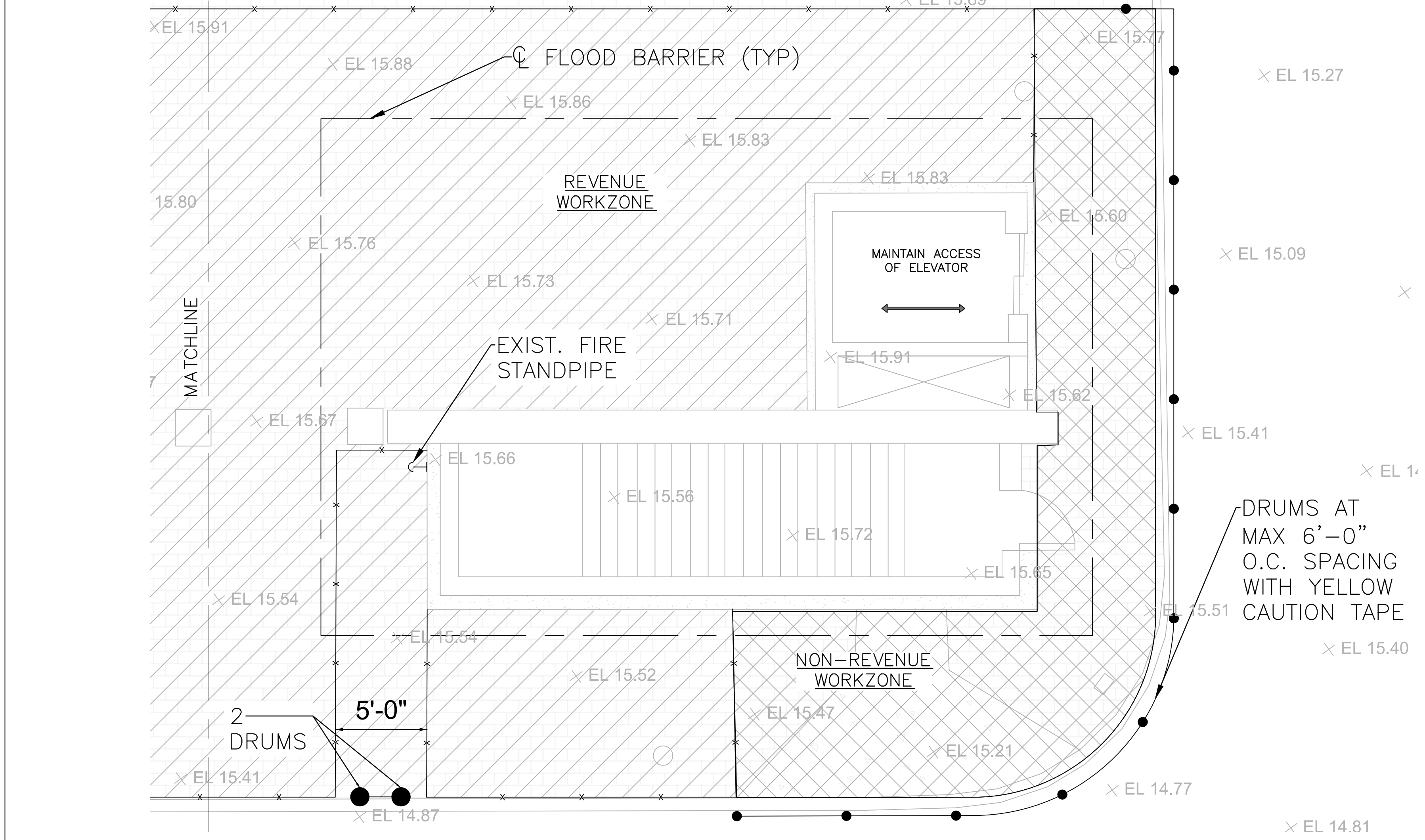
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 APPROVED BY: _____
 Date: _____
 Project Manager: _____
 Date: _____
 Scale: AS NOTED
 Plan No. XXXX
 SHEET **G.03**

NO.	DATE	DESCRIPTION	DR. BY	CHK. BY	APP.

100% DESIGN SET



CONSTRUCTION LAYDOWN - AREA REVENUE AND NON-REVENUE HOURS (ABOVE AND BELOW)
SCALE: 1" = 50'



PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. MEAN HIGH WATER (MHW) = 10.76
3. FOR UTILITY INFORMATION, SEE APPENDIX D.
4. THE EXISTING CONDITIONS SHOWN ON THIS BASE MAP ARE THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY GREEN INTERNATIONAL AFFILIATES, INC. ON JULY 26, 2019.
5. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.
6. THE REVENUE AND NON-REVENUE HOUR WORKZONE AREA IS 3,228 SF.
7. THE STRICTLY NON-REVENUE HOUR WORKZONE AREA IS 663 SF.

NOTES

1. ALL EXISTING CONDITIONS ARE TAKEN FROM AS-BUILT DRAWINGS LISTED IN THE CONTRACT SPECIFICATIONS.
2. CONSTRUCT WORK ZONES AS SHOWN.
3. NON-REVENUE TIME IS CONSIDERED BETWEEN 1AM AND 4:45 AM, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

REVENUE HOUR PHASING

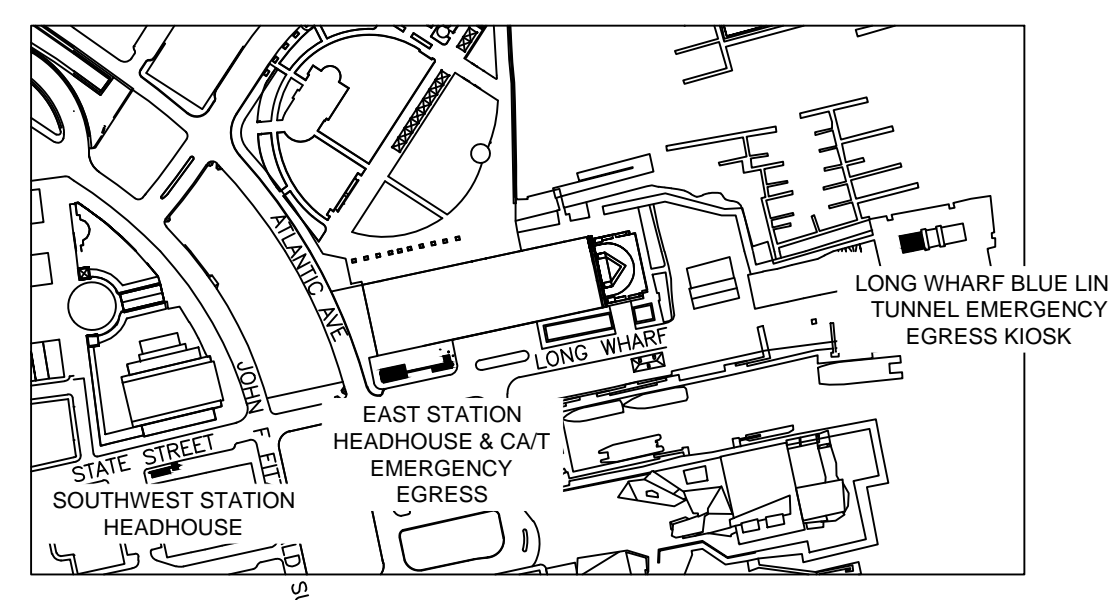
1. INSTALL 6 FT. HIGH CHAIN LINK FENCING, GATES, AND SIGNAGE AS SHOWN.
2. REFER TO D-SERIES, A-SERIES, S-SERIES, AND E-SERIES SHEETS FOR DEMOLITION, ADDITIONAL CONSTRUCTION SEQUENCING AND NOTES.
3. MOVEMENT OF MATERIALS TO AND FROM THE CONSTRUCTION ZONE SHALL BE DONE IN ACCORDANCE WITH THE GENERAL CONDITIONS SPECIFICATIONS.
4. WHEN CONSTRUCTION AND TESTING IS COMPLETE, REMOVE ALL TEMPORARY BARRIERS.

NON-REVENUE HOUR PHASING

1. USE DRUMS SPACED AT MAXIMUM 6'-0" ON CENTER WITH YELLOW CAUTION TAPE BETWEEN DRUMS TO DELINEATE NON-REVENUE WORK AREAS.
2. REFER TO D-SERIES, A-SERIES, S-SERIES, AND E-SERIES SHEETS FOR DEMOLITION, ADDITIONAL CONSTRUCTION SEQUENCING AND NOTES.
3. MOVEMENT OF MATERIALS TO AND FROM THE CONSTRUCTION ZONE SHALL BE DONE IN ACCORDANCE WITH THE GENERAL CONDITIONS SPECIFICATIONS.
4. REMOVE ALL DRUMS AND CAUTION TAPE AND CLEAN WORK AREA OF EQUIPMENT AND DEBRIS PRIOR TO OPENING TO PUBLIC AT THE END OF THE NON-REVENUE WORK SHIFT. ALL HOLES IN PAVEMENTS SHALL BE SECURELY COVERED TO THE SATISFACTION OF THE ENGINEER TO REMOVE ANY TRIPPING HAZARDS. USE ASPHALT PATCHING MATERIAL AT LEAST 300 SF. COVERS 1/2" OR GREATER TO PROVIDE ADA-COMPLIANT TRANSITION SLOPE.

LEGEND

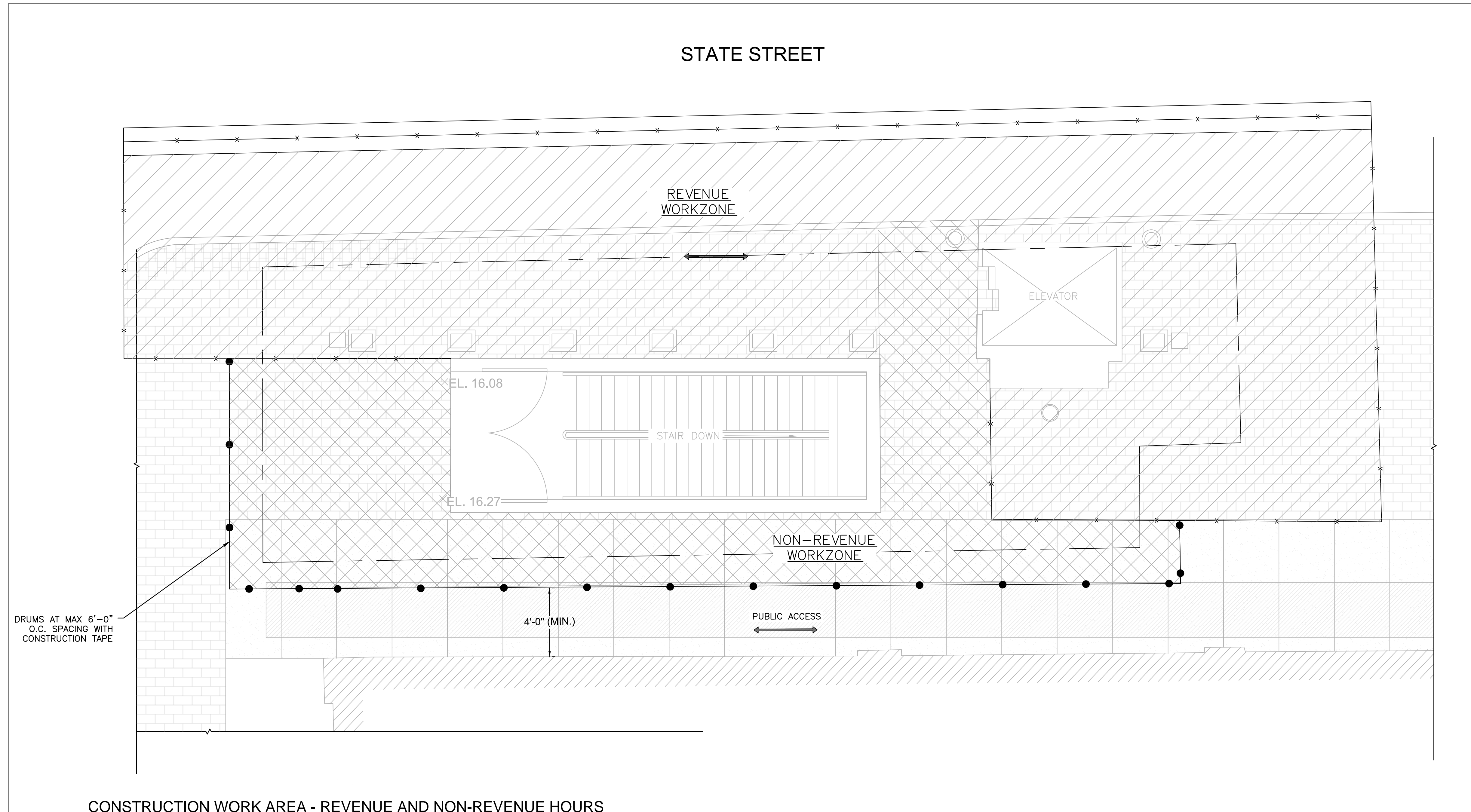
- CONSTRUCTION WORK AREA AND LAYDOWN - REVENUE & NON-REVENUE HOURS
- CONSTRUCTION WORK AREA - NON-REVENUE HOURS
- ACCESS ROUTE



KEY PLAN

		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS MBTA CONTRACT NO. XXXXXX	
		CONSTRUCTION WORK AREA AND PHASING - EAST STATION HEADHOUSE AND CAT EMERGENCY EGRESS	
APPROVED BY: _____ Date: _____		APPROVED BY: _____ Date: _____	
100% DESIGN SET	SCALE: AS NOTED DATE: 10-23-2019	DES. BY: RMS R.M.S.	DR. BY: APM A.P.M.
PLAN NO. XXXX		SHEET G.05	

STATE STREET



NOTES

1. ALL EXISTING CONDITIONS ARE TAKEN FROM AS-BUILT DRAWINGS LISTED IN THE CONSTRUCTION SPECIFICATIONS.
2. CONSTRUCT WORK ZONES AS SHOWN.
3. NON-REVENUE TIME IS CONSIDERED BETWEEN 1AM AND 4:45 AM, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. COORDINATE WITH THE CITY OF BOSTON TRAFFIC DEPARTMENT FOR REMOVAL OF PARKING SPACES ON STATE STREET.

REVENUE HOUR PHASING

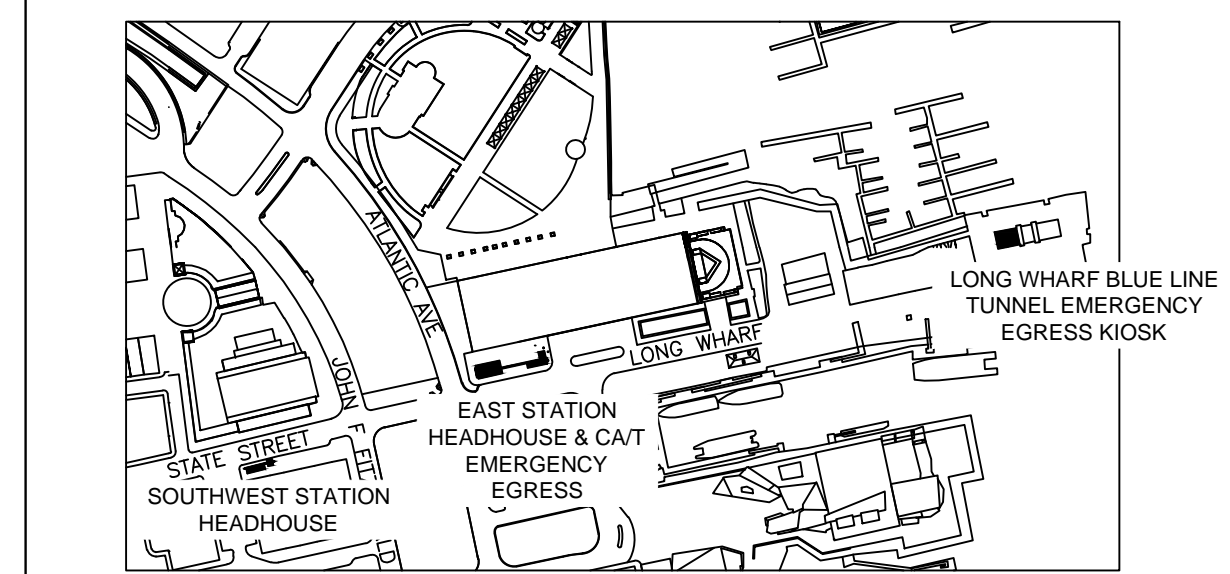
1. INSTALL 6 FT. HIGH CHAIN LINK FENCING, GATES, AND SIGNAGE AS SHOWN.
2. REFER TO D-SERIES, A-SERIES, S-SERIES, AND E-SERIES SHEETS FOR DEMOLITION, ADDITIONAL CONSTRUCTION SEQUENCING AND NOTES.
3. MOVEMENT OF MATERIALS TO AND FROM THE CONSTRUCTION ZONE SHALL BE DONE IN ACCORDANCE WITH THE GENERAL CONDITIONS SPECIFICATIONS.
4. WHEN CONSTRUCTION AND TESTING IS COMPLETE, REMOVE ALL TEMPORARY BARRIERS.

NON-REVENUE HOUR PHASING

1. USE DRUMS SPACED AT MAXIMUM 6'-0" ON CENTER WITH YELLOW CAUTION TAPE BETWEEN DRUMS TO DELINEATE NON-REVENUE WORK AREAS.
2. REFER TO D-SERIES, A-SERIES, S-SERIES, AND E-SERIES SHEETS FOR DEMOLITION, ADDITIONAL CONSTRUCTION SEQUENCING AND NOTES.
3. MOVEMENT OF MATERIALS TO AND FROM THE CONSTRUCTION ZONE SHALL BE DONE IN ACCORDANCE WITH THE GENERAL CONDITIONS SPECIFICATIONS.
4. REMOVE ALL DRUMS AND CAUTION TAPE AND CLEAN WORK AREA OF EQUIPMENT AND DEBRIS PRIOR TO OPENING TO PUBLIC AT THE END OF THE NON-REVENUE WORK SHIFT. ALL HOLES IN PAVEMENTS SHALL BE SECURELY COVERED TO THE SATISFACTION OF THE ENGINEER TO REMOVE ANY TRIPPING HAZARDS. USE ASPHALT COLD-PATCH AS REQUIRED AT EDGES OF COVERS 1/2" OR GREATER TO PROVIDE ADA-COMPLIANT TRANSITION SLOPE.

LEGEND

- [Hatched Pattern] CONSTRUCTION WORK AREA AND LAYDOWN - REVENUE & NON-REVENUE HOURS
- [Cross-hatched Pattern] CONSTRUCTION WORK AREA AND LAYDOWN - NON-REVENUE HOURS
- [Double Arrow] ACCESS ROUTE



KEY PLAN

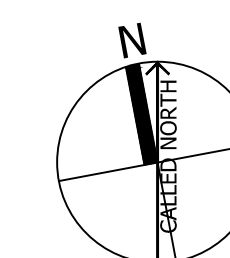
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

CONSTRUCTION WORK AREA AND PHASING -
 SOUTHWEST STATION HEADHOUSE

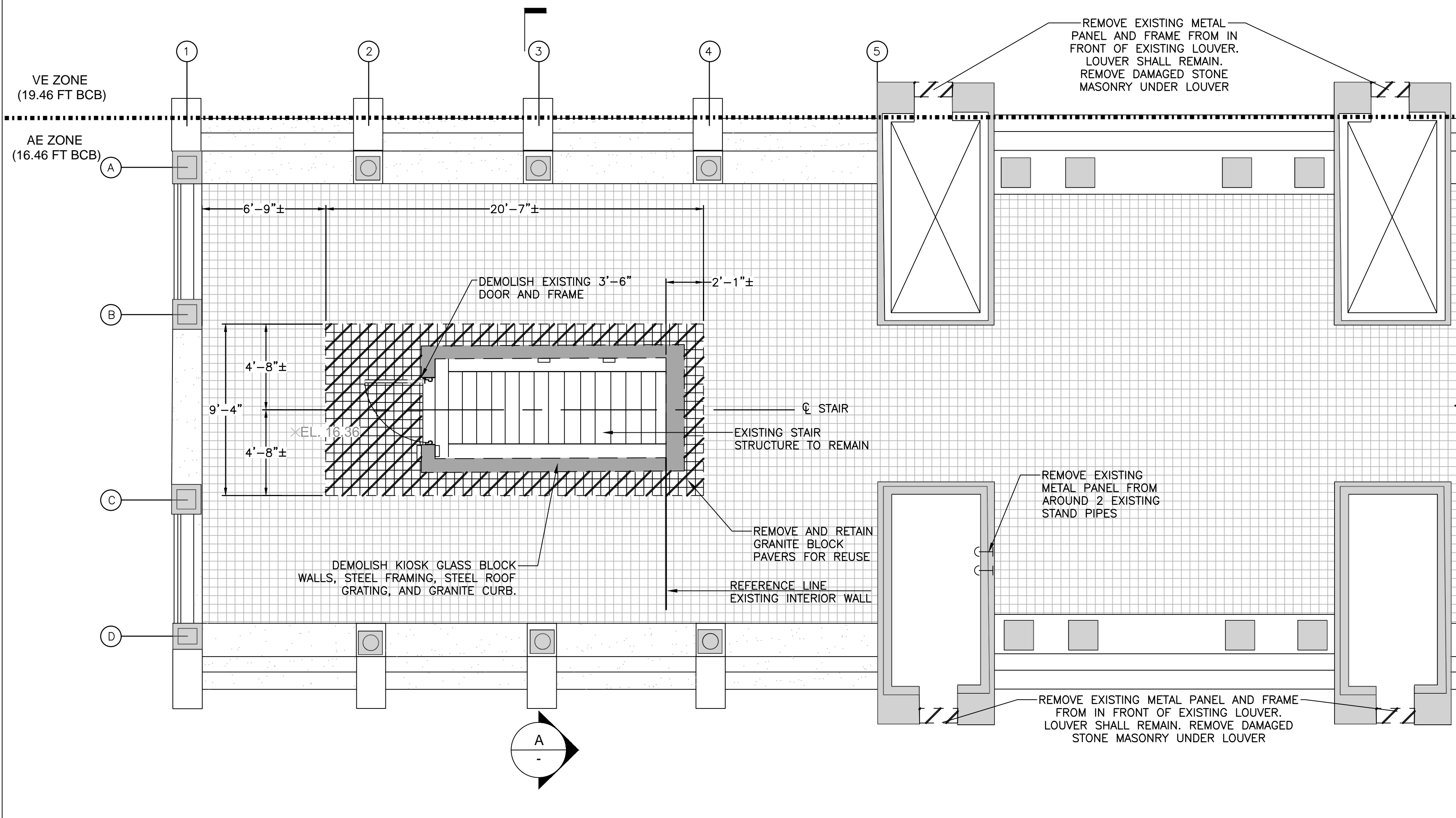
APPROVED BY:		DATE:	
[Signature]		10-23-2019	
DES. BY	DR. BY	CHK. BY	PLAN NO.
RMS	RMS	APM	XXXX
DATE	10-23-2019	SHEET	G.06

PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. MEAN HIGH WATER (MHW) = 10.76
3. FOR UTILITY INFORMATION, SEE APPENDIX D.
4. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.
5. THE REVENUE AND NON-REVENUE HOUR WORK ZONE AREA IS 1,523 SF.
6. THE STRICTLY NON-REVENUE HOUR WORK ZONE AREA IS 667 SF.
7. TOTAL WORK ZONE AREA IS 2,190 SF.
8. THE EXISTING CONDITIONS SHOWN ON THIS BASE MAP ARE OBTAINED FROM MBTA CONTRACT NO. SOCNO2, SHEET A8.03, DATED JULY 10, 1995.



100% DESIGN SET	SCALE: AS NOTED	RMS	RMS	APM
DATE: 10-23-2019	SHEET: G.06			



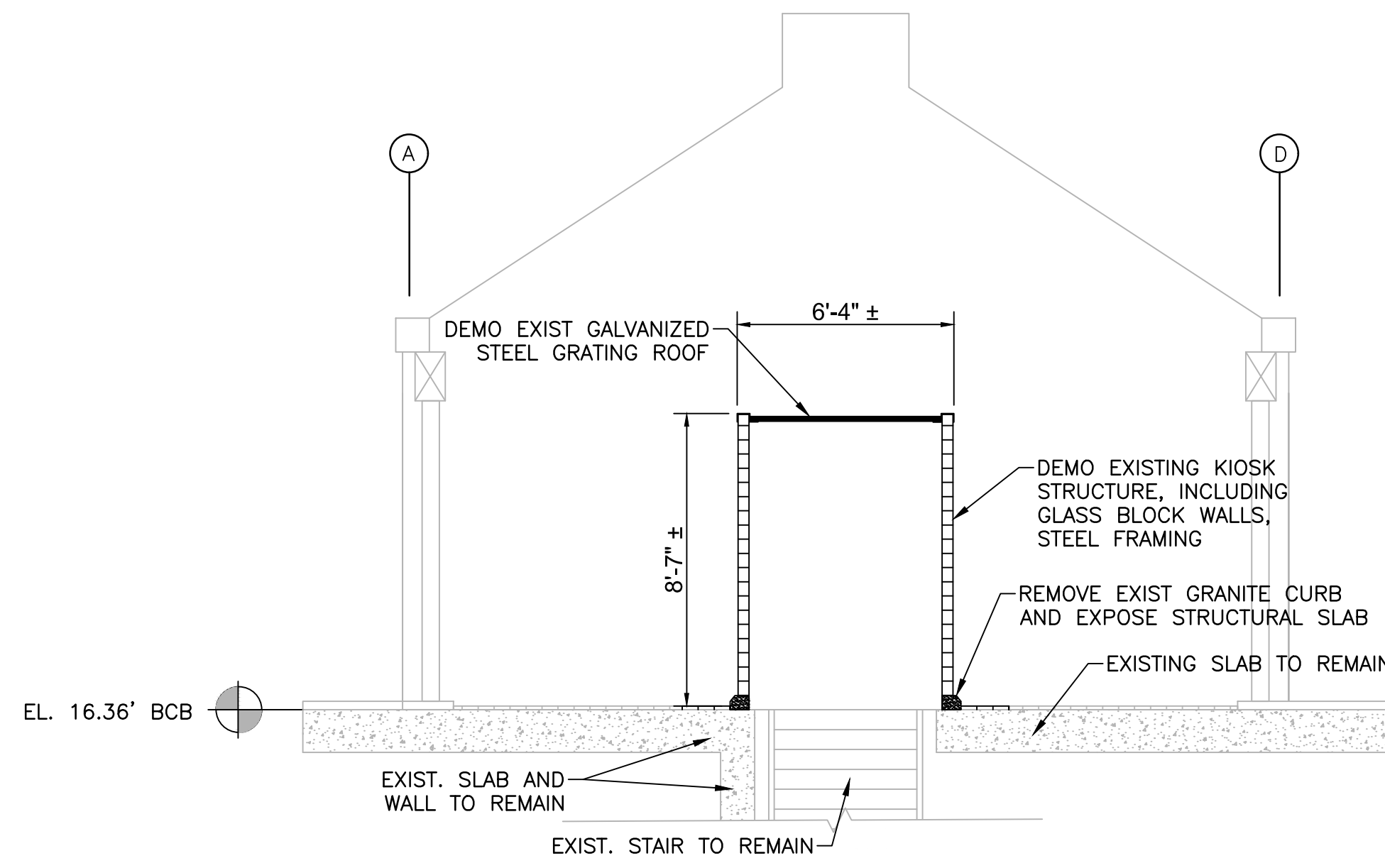
ENLARGED DEMOLITION PLAN - LONG WHARF BLUE LINE EMERGENCY TUNNEL EGRESS KIOSK
SCALE: 1" = 50'

NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY AND FOR ALL MEANS AND METHODS OF CONSTRUCTION.
2. DEMOLITION DRAWINGS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL EXAMINE THE FULL SET OF CONSTRUCTION DRAWINGS AND THE EXISTING CONDITIONS TO VERIFY THE FULL EXTENT OF DEMOLITION REQUIRED.
3. THE CONTRACTOR SHALL PROVIDE TEMPORARY BARRICADES, FENCING AND SIGNAGE AS SHOWN ON THE DRAWINGS OR AS OTHERWISE DIRECTED BY THE ENGINEER TO PROVIDE SAFE WORK ZONES DURING CONSTRUCTION SO THAT THE PUBLIC CAN SAFELY AND EFFICIENTLY NAVIGATE THROUGH OR AROUND ACTIVE CONSTRUCTION ZONES.
4. THE CONTRACTOR SHALL MAINTAIN A SAFE MEANS OF EGRESS FROM THE BLUE LINE TUNNEL AT ALL TIMES. DEBRIS FROM DEMOLITION OPERATIONS SHALL BE CONTINUOUSLY REMOVED FROM THE EGRESS ROUTE SO THAT, IN THE EVENT OF AN EMERGENCY, WHICH CAN OCCUR AT ANY TIME, THE EGRESS ROUTE WILL NOT BE BLOCKED AND WILL BE PASSABLE BY THE GENERAL PUBLIC. DURING NON-REVENUE HOURS AND WHENEVER THE CONTRACTOR IS NOT WORKING, THERE SHALL BE A CLEARLY MARKED AND UNOBSTRUCTED EGRESS ROUTE FROM THE LEVEL BELOW THE WORK LEVEL UP THROUGH THE EXIT GATE IN THE CONSTRUCTION FENCE.
5. THE EXIT GATE IN THE CONSTRUCTION FENCE SHALL BE EQUIPPED WITH A PANIC BAR TO ALLOW EMERGENCY EGRESS FROM THE BLUE LINE TUNNEL AT ALL TIMES. THE GATE SHALL ALSO BE EQUIPPED WITH A LOCK ON THE EXTERIOR SIDE OF THE GATE WITH A STANDARD MBTA "P" KEY TO ALLOW MBTA ACCESS INTO THE BLUE LINE TUNNEL EGRESS STAIR AND ELECTRICAL SUBSTATION AT ALL TIMES THAT THE CONTRACTOR IS NOT WORKING.
6. REFER TO THE CONSTRUCTION DRAWINGS FOR ADDITIONAL REQUIREMENTS FOR DEMOLITION SPECIFIC TO THE VARIOUS TRADES.
7. WHERE THE WORDS "REMOVE", "DEMOLISH" AND "R&D" ARE USED, IT SHALL MEAN TO REMOVE AND LEGALLY DISPOSE OR RECYCLE OFF SITE AT A REGULATED DISPOSAL OR PROCESSING FACILITY.
8. PHASING OF DEMOLITION WORK SHALL BE COORDINATED BY THE GENERAL CONTRACTOR. THIS INCLUDES DEMOLITION OVER, IN, OR ADJACENT TO SPACES THAT WILL REMAIN ACTIVE DURING CONSTRUCTION.
9. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH DIG-SAFE PRIOR TO DEMOLITION OF ANY BELOW-GRADE WORK.
10. FOR THOSE AREAS OF THE SITE THAT REQUIRE DEMOLITION ACTIVITIES OUTSIDE OF THE MBTA'S RIGHT-OF-WAY LINE, THE CONTRACTOR SHALL OBTAIN A DEMOLITION PERMIT FROM THE CITY OF BOSTON. THE CONTRACTOR SHALL SUBMIT A COPY OF THE DEMOLITION PERMIT AND ANY OTHER RELATED PERMITS TO THE ENGINEER PRIOR TO INITIATING DEMOLITION ACTIVITIES. THE CONTRACTOR SHALL PERFORM DEMOLITION ACTIVITIES IN ACCORDANCE WITH THE CITY'S PERMIT REQUIREMENTS AND SHALL BE RESPONSIBLE FOR PAYING ANY FEES FOR OBTAINING SUCH PERMITS.
11. NOT ALL UTILITIES, CONDUITS, WIRING, PIPES AND EQUIPMENT ARE SHOWN ON THESE DRAWINGS. SOME EXISTING UTILITIES AND SERVICES MAY BE CONCEALED UNDERGROUND OR IN THE EXTERIOR BUILDING ENVELOPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, CONDUITS, WIRING, PIPES AND EQUIPMENT IN ADVANCE OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR COORDINATING AND/OR PERFORMING ANY TEMPORARY SHUT-DOWNS OR RELOCATIONS OF THESE SERVICES WITH THE AUTHORITY AND/OR AFFECTED UTILITY COMPANIES TO ALLOW THE WORK TO PROCEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THESE SERVICES TO THE SATISFACTION OF THE AUTHORITY AND/OR UTILITY COMPANIES AFTER THE WORK IS COMPLETE.
12. THE CONTRACTOR SHALL CONDUCT EXPLORATORY TEST PITS AS NEEDED AND AS DIRECTED BY THE ENGINEER TO VERIFY UTILITY LOCATIONS, SIZES, DEPTHS AND TYPES.
13. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE AUTHORITY.
14. THE CONTRACTOR SHALL SECURE THE JOB SITE AT THE END OF EACH WORK SHIFT. ALL LOOSE TRASH SHALL BE REMOVED AND SECURED AND ALL SURFACES SHALL BE SWEEPED CLEAN TO AVOID DUST.
15. THE CONTRACTOR SHALL INSTALL SEDIMENT CONTROL MEASURES SUCH THAT RUNOFF FROM THE CONSTRUCTION SITE DOES NOT CONTAMINATE ADJACENT DRAINAGE SYSTEMS OR BOSTON HARBOR. SEDIMENT SACKS SHALL BE INSTALLED IN ALL DRAINAGE CATCH BASINS THAT RECEIVE SURFACE FLOW FROM THE WORK AREA. IN ADDITION, FIBER ROLLS SHALL BE INSTALLED ALONG EDGES OF CONSTRUCTION WHERE SURFACE FLOW COULD FLOW DIRECTLY INTO BOSTON HARBOR.
16. ANY WATERPROOFING SYSTEMS EXPOSED DURING DEMOLITION OR CONSTRUCTION ACTIVITIES ON EXISTING CONCRETE SLABS OR WALLS SHALL BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE SO THAT NEW WATERPROOFING CAN BE LAPPED WITH THE EXISTING WATERPROOFING SYSTEM.
17. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UNDERGROUND UTILITIES OR UTILITIES IN EXTERIOR WALLS OF THE STATION IN THE VICINITY OF THE WORK.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE POTENTIAL FOR FLOODING OF THE WORK AREAS DUE TO SEVERE TIDES AND/OR STORM SURGE. IN THE EVENT THAT A LARGE STORM IS PREDICTED TO POTENTIALLY CAUSE FLOODING CONDITIONS AT THE WORK SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING HIS EQUIPMENT AND SECURING THE SITE AS DIRECTED BY THE ENGINEER TO PREVENT UNNECESSARY DAMAGE TO THE EXISTING FACILITY AND WORK-IN-PROGRESS. THE CONTRACTOR WILL NOT BE COMPENSATED FOR ANY LOSSES OR DAMAGES IN THE EVENT THAT THE CONTRACTOR DID NOT REMOVE EQUIPMENT AND REASONABLY PROTECT THE SITE TO THE SATISFACTION OF THE ENGINEER.
19. THE EXISTING CONDITIONS SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION FROM AS-BUILT RECORD DRAWINGS OF THE STATION CONSTRUCTION AND CENTRAL ARTERY/TUNNEL CONSTRUCTION, FIELD MEASUREMENTS, AND TEST PITS AT SELECT LOCATIONS.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AFFECTING THE WORK PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE AFFECTED PART OF THE WORK.

PERMITTING NOTES

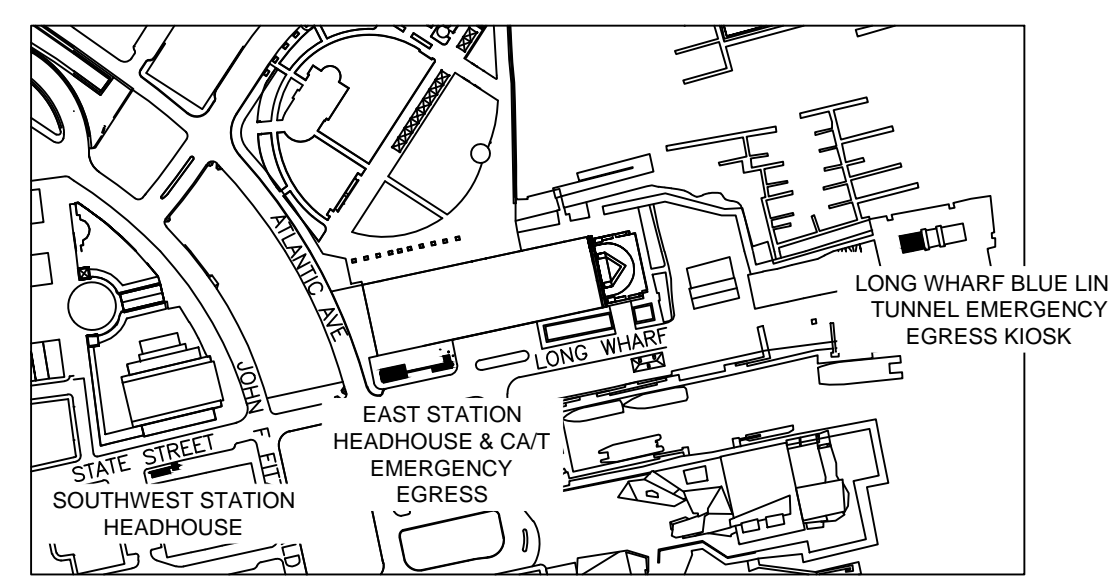
1. BASE FLOOD ELEVATION (BFE) = 16.46
2. MEAN HIGH WATER (MHW) = 10.76
3. AREA OF DISTURBANCE = 94 SF
4. FOR UTILITY INFORMATION, SEE APPENDIX D.
5. THE WORK ZONE DEPICTED HERE IS WITHIN THE BUFFER ZONE.
6. THE EXISTING CONDITIONS SHOWN ON THIS BASE MAP ARE OBTAINED FROM MBTA CONTRACT NO. 103-103, SHEET A-1, DATED APRIL 1983.



SECTION A
SCALE: 1/4" = 1'-0"

LEGEND

- EXISTING CONSTRUCTION TO BE REMOVED
- EXISTING CONSTRUCTION TO REMAIN
- APPROX. FLOOD ZONE BOUNDARY

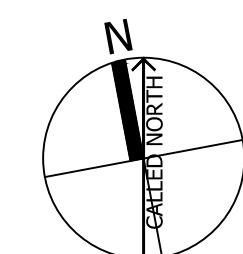


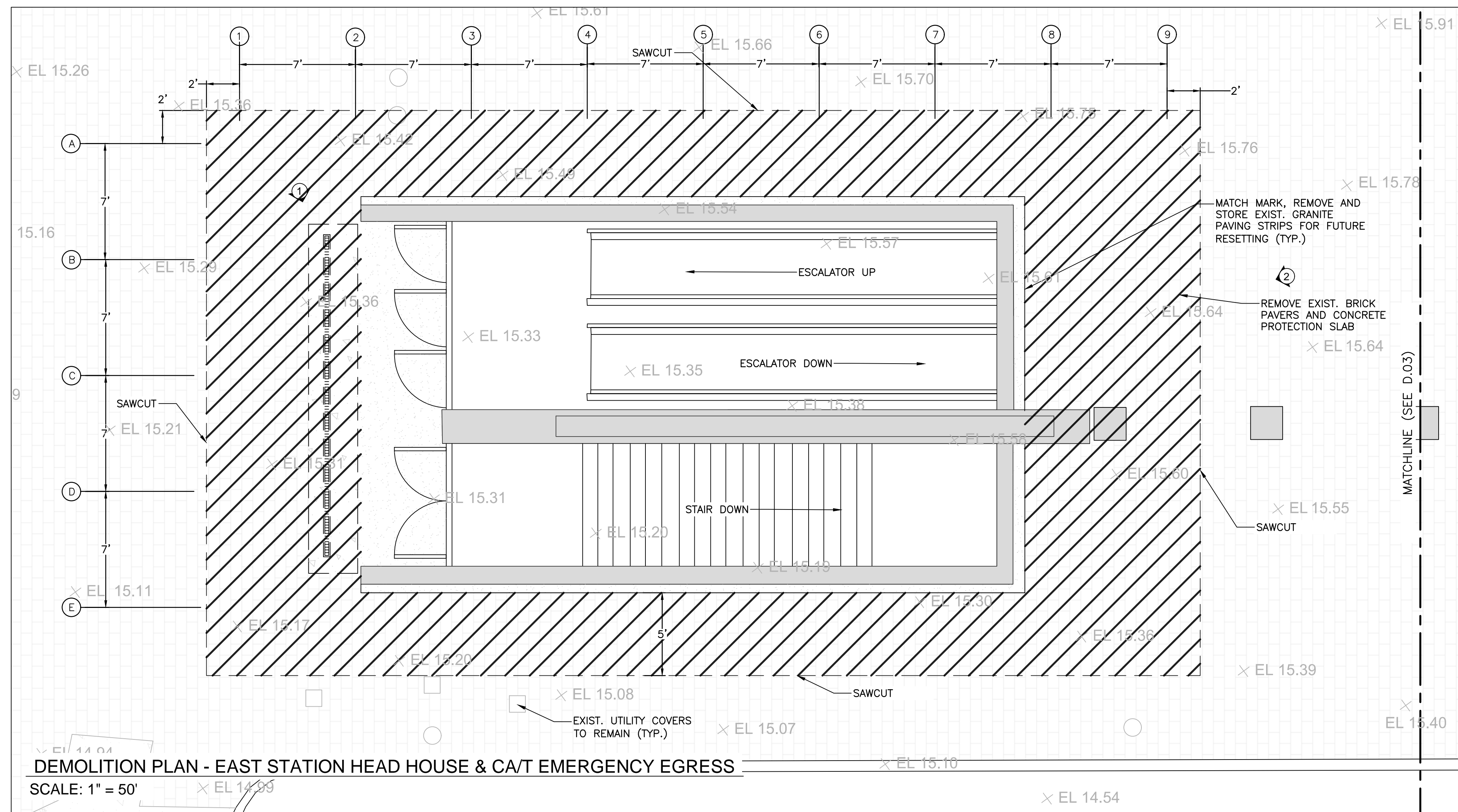
KEY PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
MBTA CONTRACT NO. XXXXXX

DEMOLITION PLAN - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK

Project Manager: _____ Date: _____	DES. BY: _____ DATE: 10-23-2019	DR. BY: _____ RMS	CK. BY: _____ APM
100% DESIGN SET		SCALE: AS NOTED	
DATE: 10-23-2019		SHEET D.01	





- NOTES**
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY AND FOR ALL MEANS AND METHODS OF CONSTRUCTION.
 2. DEMOLITION DRAWINGS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL EXAMINE THE FULL SET OF CONSTRUCTION DRAWINGS AND THE EXISTING CONDITIONS TO VERIFY THE FULL EXTENT OF DEMOLITION REQUIRED.
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 4. THE CONTRACTOR SHALL MAINTAIN FULL PUBLIC ACCESS TO THE AQUARIUM STATION STAIRS, ESCALATORS AND ELEVATOR DURING REVENUE HOURS. THE CONTRACTOR SHALL PERFORM CONSTRUCTION WORK THAT BLOCKS ACCESS TO THE AQUARIUM STATION STAIRS, ESCALATORS AND ELEVATOR DURING NON-REVENUE HOURS WHEN THE STATION IS CLOSED TO THE PUBLIC. ANY WORK THAT IS NOT FINISHED DURING NON-REVENUE HOURS SHALL BE COVERED AND PROTECTED WITH ADA-COMPLIANT COVERS TO SAFELY PROTECT THE TRAVELING PUBLIC.
 5. THE CONTRACTOR SHALL MAINTAIN A SAFE MEANS OF EGRESS FROM THE TIP O'NEILL TUNNEL TE-434 EMERGENCY EGRESS STAIR AT ALL TIMES. DEBRIS FROM DEMOLITION OPERATIONS SHALL BE CONTINUOUSLY REMOVED FROM THE EGRESS ROUTE SO THAT, IN THE EVENT OF AN EMERGENCY, WHICH CAN OCCUR AT ANY TIME, THE EGRESS ROUTE WILL NOT BE BLOCKED AND WILL BE PASSABLE BY THE GENERAL PUBLIC. DURING NON-REVENUE HOURS AND WHENEVER THE CONTRACTOR IS NOT WORKING, THERE SHALL BE A CLEARLY MARKED AND UNOBSTRUCTED EGRESS ROUTE FROM THE TUNNEL BELOW UP THROUGH THE EXIT GATE IN THE CONSTRUCTION FENCE.
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PHOTO 1

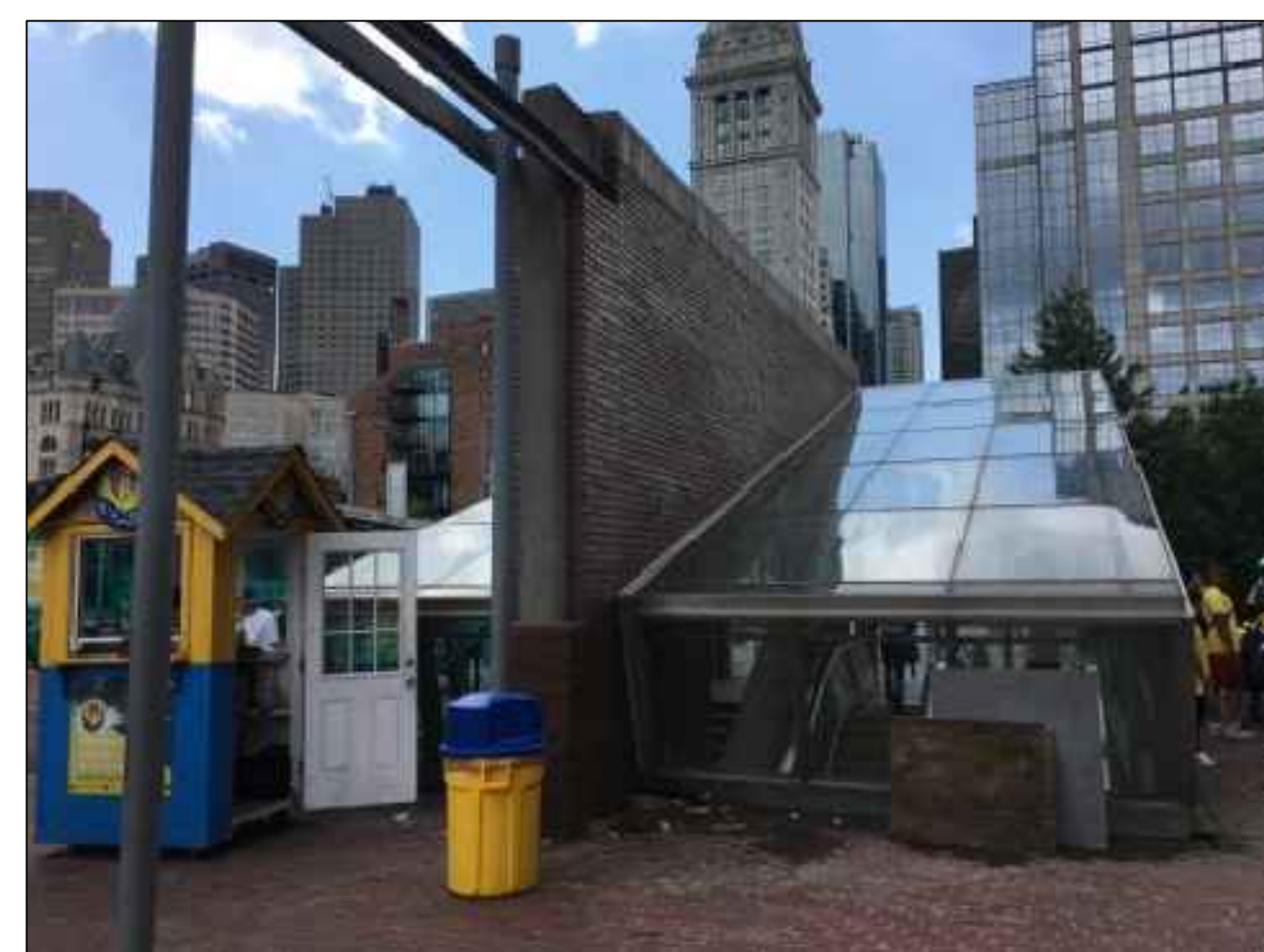
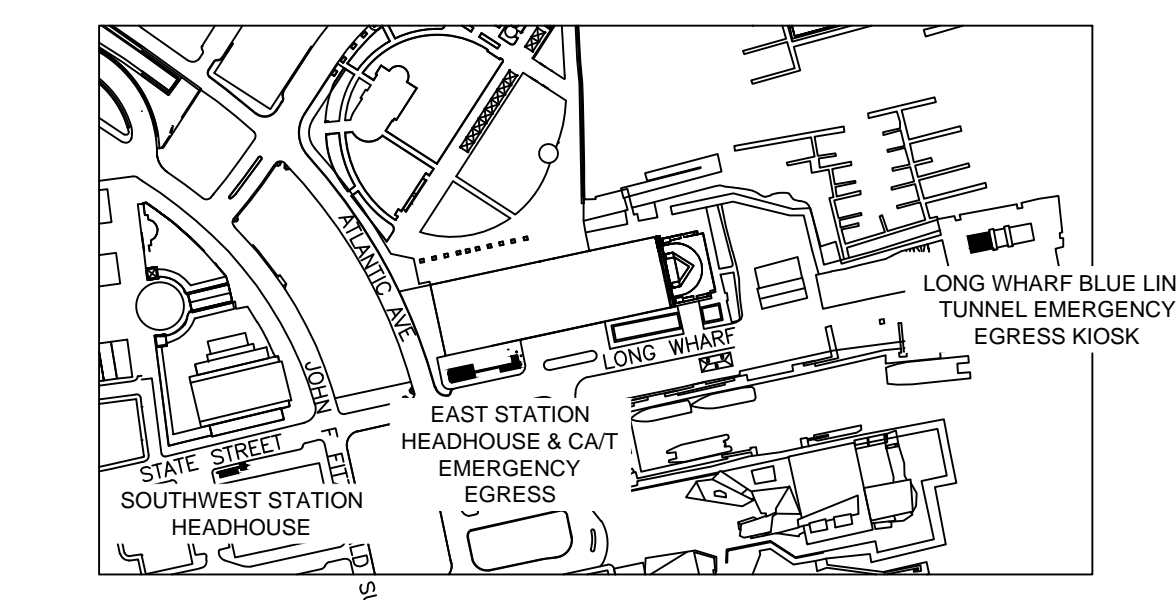


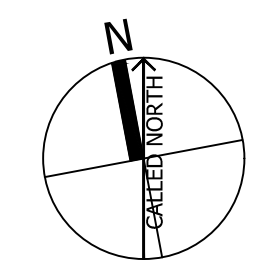
PHOTO 2

PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. MEAN HIGH WATER (MHW) = 10.76
3. AREA OF DISTURBANCE (D.02 AND D.03) = 2,125 SF
4. THE EXISTING CONDITIONS SHOWN ON THIS BASE MAP ARE THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY GREEN INTERNATIONAL AFFILIATES, INC. ON JULY 26, 2019.
5. FOR UTILITY INFORMATION, SEE APPENDIX D.
6. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.



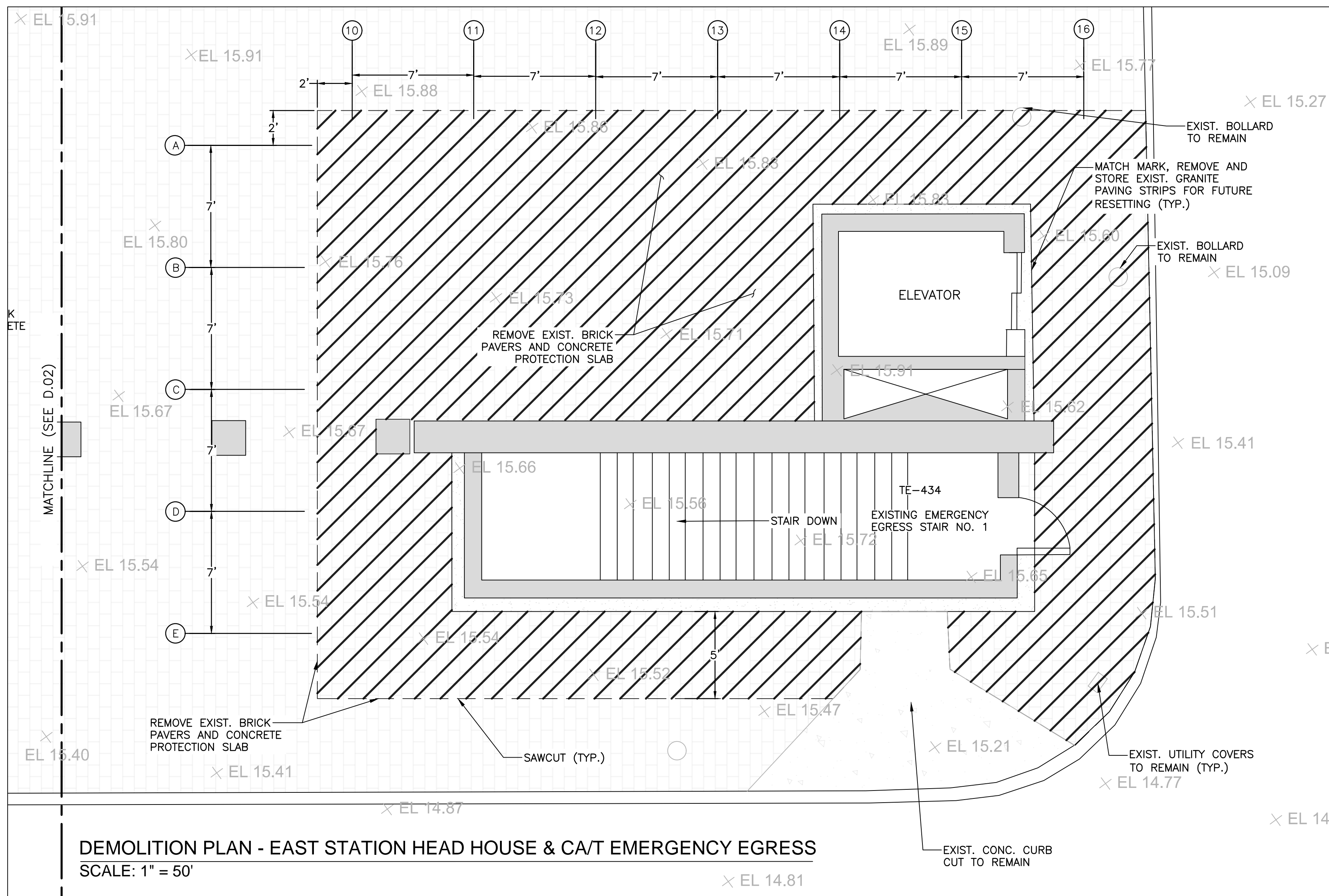
KEY PLAN



		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS MBTA CONTRACT NO. XXXXXX	
		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY APPROVED BY: _____ DATE: _____	
10220 CITY OF BOSTON CONSERVATION COMMISSION WPA PERMIT PLANS	SK AM AM	DES. BY DATE	PLAN NO. SHEET
100% DESIGN SET		SCALE: AS NOTED DATE: 10-23-2019	PLAN NO. XXXX SHEET D.02

NOTES

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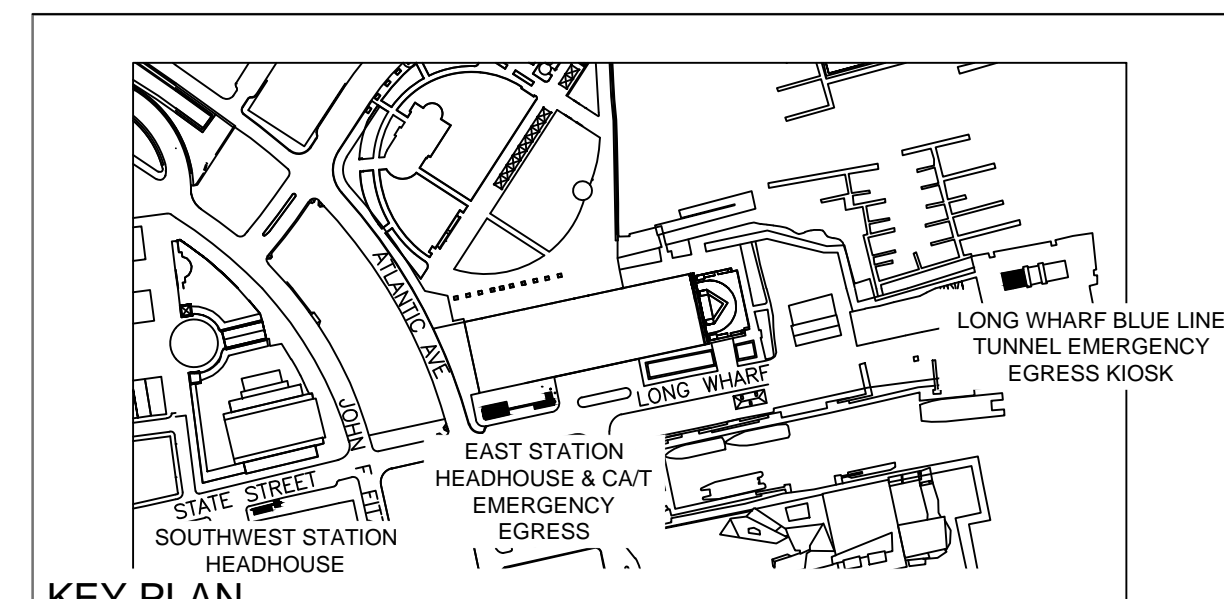
DEMOLITION PLAN - EAST STATION HEAD HOUSE & C/A/T EMERGENCY EGRESS
SCALE: 1" = 50'

PERMITTING NOTES

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LEGEND

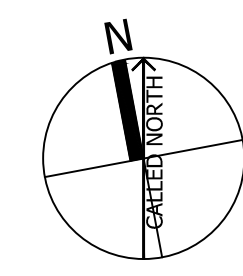
-  PHOTO NUMBER
-  EXISTING CONSTRUCTION TO BE REMOVED
-  EXISTING CONSTRUCTION TO REMAIN

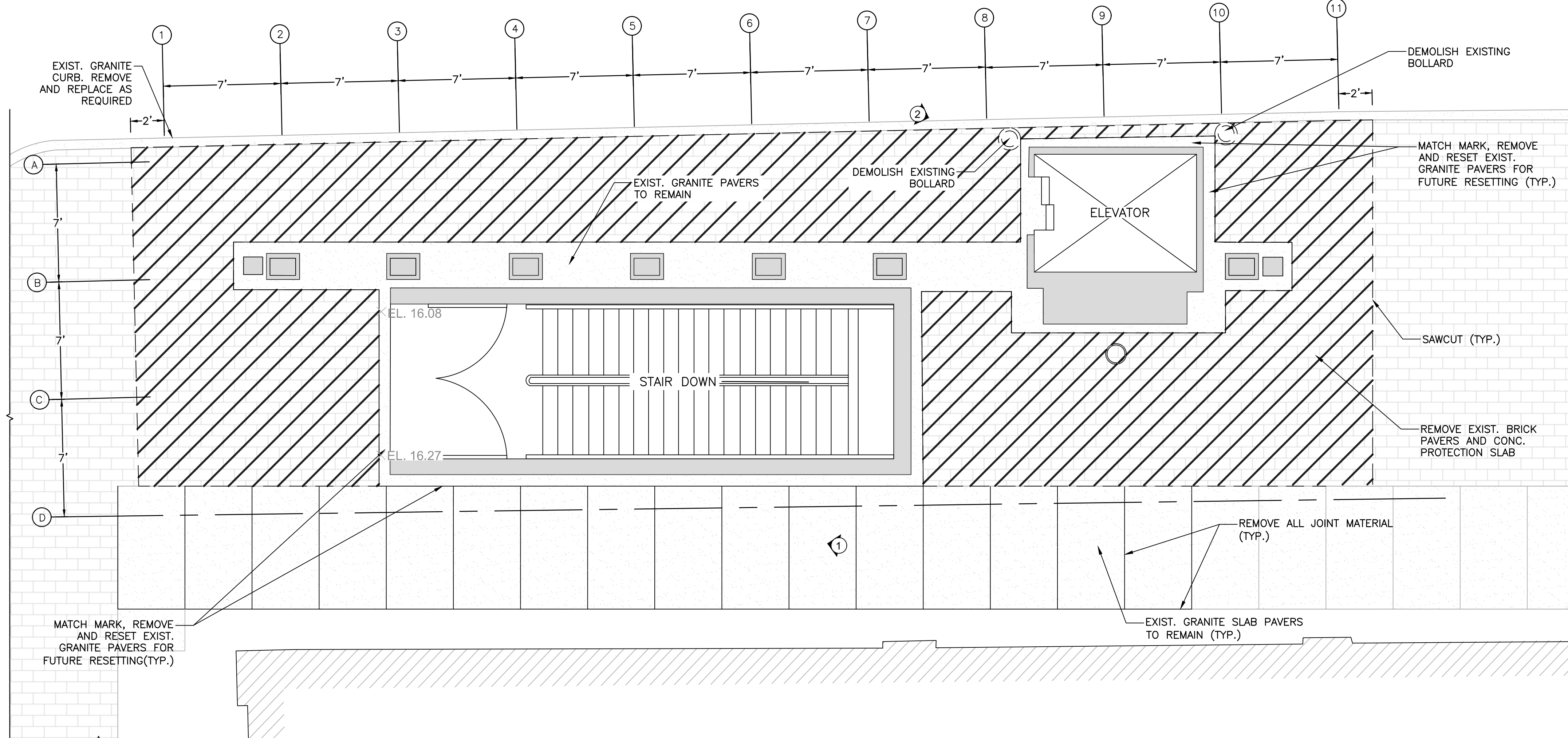


MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
MBTA CONTRACT NO. XXXXXX

DEMOLITION PLAN 2 - EAST STATION HEADHOUSE AND C/A/T EMERGENCY EGRESS

						MASSACHUSETTS BAY TRANSPORTATION AUTHORITY	
APPROVED BY:		DATE:		PROJECT MANAGER:		DATE:	
100% DESIGN SET		SCALE: AS NOTED		PLAN NO. XXXX		SHEET D.03	
DATE: 10-23-2019		DES. BY: RMS		DR. BY: RMS		CHK. BY: APM	





ENLARGED DEMO PLAN - SOUTHWEST STATION HEADHOUSE
SCALE: 1" = 50'

- ### NOTES
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY AND FOR ALL MEANS AND METHODS OF CONSTRUCTION.
 2. DEMOLITION DRAWINGS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL EXAMINE THE FULL SET OF CONSTRUCTION DRAWINGS AND THE EXISTING CONDITIONS TO VERIFY THE FULL EXTENT OF DEMOLITION REQUIRED.
 3. THE CONTRACTOR SHALL PROVIDE TEMPORARY BARRICADES, FENCING AND SIGNAGE AS SHOWN ON THE DRAWINGS OR AS OTHERWISE DIRECTED BY THE ENGINEER TO PROVIDE SAFE WORK ZONES DURING CONSTRUCTION SO THAT THE PUBLIC CAN SAFELY AND EFFICIENTLY NAVIGATE THROUGH OR AROUND ACTIVE CONSTRUCTION ZONES.
 4. THE CONTRACTOR SHALL MAINTAIN FULL PUBLIC ACCESS TO THE AQUARIUM STATION STAIR AND ELEVATOR DURING REVENUE HOURS. THE CONTRACTOR SHALL PERFORM CONSTRUCTION WORK THAT BLOCKS ACCESS TO THE AQUARIUM STATION STAIR AND ELEVATOR DURING NON-REVENUE HOURS WHEN THE STATION IS CLOSED TO THE PUBLIC. ANY WORK THAT IS NOT FINISHED DURING NON-REVENUE HOURS SHALL BE COVERED AND PROTECTED WITH ADA-COMPLIANT COVERS TO SAFELY PROTECT THE TRAVELING PUBLIC.
 5. THE CONTRACTOR SHALL MAINTAIN A MINIMUM 4'-6" WIDE PATH OF ACCESS ON THE GRANITE BLOCK SIDEWALK AT ALL TIMES DURING CONSTRUCTION.
 6. REFER TO THE CONSTRUCTION DRAWINGS FOR ADDITIONAL REQUIREMENTS FOR DEMOLITION SPECIFIC TO THE VARIOUS TRADES.
 7. WHERE THE WORDS "REMOVE", "DEMOLISH" AND "R&D" ARE USED, IT SHALL MEAN TO REMOVE AND LEGALLY DISPOSE OR RECYCLE OFF SITE AT A REGULATED DISPOSAL OR PROCESSING FACILITY.
 8. PHASING OF DEMOLITION WORK SHALL BE COORDINATED BY THE GENERAL CONTRACTOR. THIS INCLUDES DEMOLITION OVER, IN, OR ADJACENT TO SPACES THAT WILL REMAIN ACTIVE DURING CONSTRUCTION.
 9. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND COORDINATING WITH DIG-SAFE PRIOR TO DEMOLITION OF ANY BELOW-GRADE WORK.
 10. FOR THOSE AREAS OF THE SITE THAT REQUIRE DEMOLITION ACTIVITIES OUTSIDE OF THE MBTA'S RIGHT-OF-WAY LINE, THE CONTRACTOR SHALL OBTAIN A DEMOLITION PERMIT FROM THE CITY OF BOSTON. THE CONTRACTOR SHALL SUBMIT A COPY OF THE DEMOLITION PERMIT AND ANY OTHER RELATED PERMITS TO THE ENGINEER PRIOR TO INITIATING DEMOLITION ACTIVITIES. THE CONTRACTOR SHALL PERFORM DEMOLITION ACTIVITIES IN ACCORDANCE WITH THE CITY'S PERMIT REQUIREMENTS AND SHALL BE RESPONSIBLE FOR PAYING ANY FEES FOR OBTAINING SUCH PERMITS.
 11. NOT ALL UTILITIES, CONDUITS, WIRING, PIPES AND EQUIPMENT ARE SHOWN ON THESE DRAWINGS. SOME EXISTING UTILITIES AND SERVICES MAY BE CONCEALED UNDERGROUND OR IN THE EXTERIOR BUILDING ENVELOPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, CONDUITS, WIRING, PIPES AND EQUIPMENT IN ADVANCE OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR COORDINATING AND/OR PERFORMING ANY TEMPORARY SHUT-DOWNS OR RELOCATIONS OF THESE SERVICES WITH THE AUTHORITY AND/OR AFFECTED UTILITY COMPANIES TO ALLOW THE WORK TO PROCEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THESE SERVICES TO THE SATISFACTION OF THE AUTHORITY AND/OR UTILITY COMPANIES AFTER THE WORK IS COMPLETE.
 12. THE CONTRACTOR SHALL CONDUCT EXPLORATORY TEST PITS AS NEEDED AND AS DIRECTED BY THE ENGINEER TO VERIFY UTILITY LOCATIONS, SIZES, DEPTHS AND TYPES.
 13. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE AUTHORITY.
 14. THE CONTRACTOR SHALL SECURE THE JOB SITE AT THE END OF EACH WORK SHIFT. ALL LOOSE TRASH SHALL BE REMOVED AND SECURED AND ALL SURFACES SHALL BE SWEEPED CLEAN TO AVOID DUST.
 15. THE CONTRACTOR SHALL INSTALL SEDIMENT CONTROL MEASURES SUCH THAT RUNOFF FROM THE CONSTRUCTION SITE DOES NOT CONTAMINATE ADJACENT DRAINAGE SYSTEMS OR BOSTON HARBOR. SEDIMENT SACKS SHALL BE INSTALLED IN ALL DRAINAGE CATCH BASINS THAT RECEIVE SURFACE FLOW FROM THE WORK AREA. IN ADDITION, FIBER ROLLS SHALL BE INSTALLED ALONG EDGES OF CONSTRUCTION WHERE SURFACE FLOW COULD FLOW DIRECTLY INTO BOSTON HARBOR.
 16. ANY WATERPROOFING SYSTEMS EXPOSED DURING DEMOLITION OR CONSTRUCTION ACTIVITIES ON EXISTING CONCRETE SLABS OR WALLS SHALL BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE SO THAT NEW WATERPROOFING CAN BE LAPPED WITH THE EXISTING WATERPROOFING SYSTEM.
 17. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UNDERGROUND UTILITIES OR UTILITIES IN EXTERIOR WALLS OF THE STATION IN THE VICINITY OF THE WORK.
 18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE POTENTIAL FOR FLOODING OF THE WORK AREAS DUE TO SEVERE TIDES AND/OR STORM SURGE. IN THE EVENT THAT A LARGE STORM IS PREDICTED TO POTENTIALLY CAUSE FLOODING CONDITIONS AT THE WORK SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING HIS EQUIPMENT AND SECURING THE SITE AS DIRECTED BY THE ENGINEER TO PREVENT UNNECESSARY DAMAGE TO THE EXISTING FACILITY AND WORK-IN-PROGRESS. THE CONTRACTOR WILL NOT BE COMPENSATED FOR ANY LOSSES OR DAMAGES IN THE EVENT THAT THE CONTRACTOR DID NOT REMOVE EQUIPMENT AND REASONABLY PROTECT THE SITE TO THE SATISFACTION OF THE ENGINEER.
 19. THE EXISTING CONDITIONS SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION FROM AS-BUILT RECORD DRAWINGS OF THE STATION CONSTRUCTION AND CENTRAL ARTERY/TUNNEL CONSTRUCTION, FIELD MEASUREMENTS AND TEST PITS AT SELECT LOCATIONS.
 20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AFFECTING THE WORK PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE AFFECTED PART OF THE WORK.



PHOTO 1






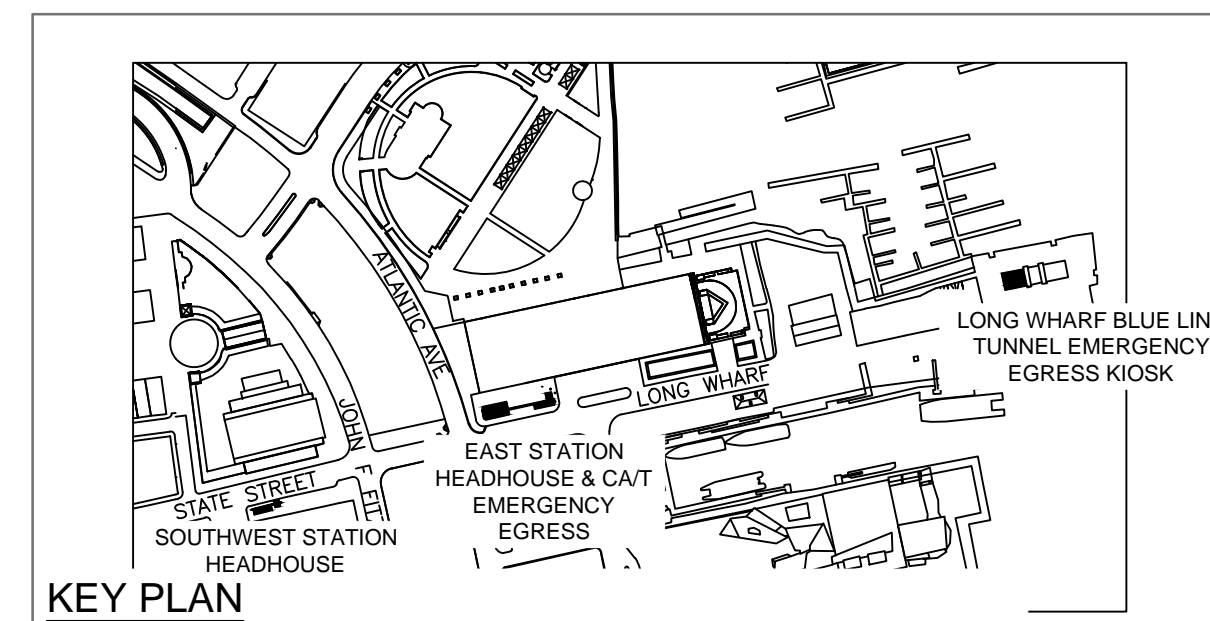
PHOTO 2

PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. MEAN HIGH WATER (MHW) = 10.76
3. FOR UTILITY INFORMATION, SEE APPENDIX D.
4. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.
5. AREA OF DISTURBANCE = 883 SF
6. THE EXISTING CONDITIONS SHOWN ON THIS BASE MAP ARE OBTAINED FROM MBTA CONTRACT NO. SOCNO2, SHEET A8.03, DATED JULY 10, 1995.

LEGEND

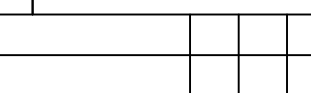
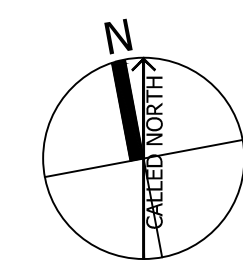
-  PHOTO NUMBER
-  EXISTING CONSTRUCTION TO BE REMOVED
-  EXISTING CONSTRUCTION TO REMAIN



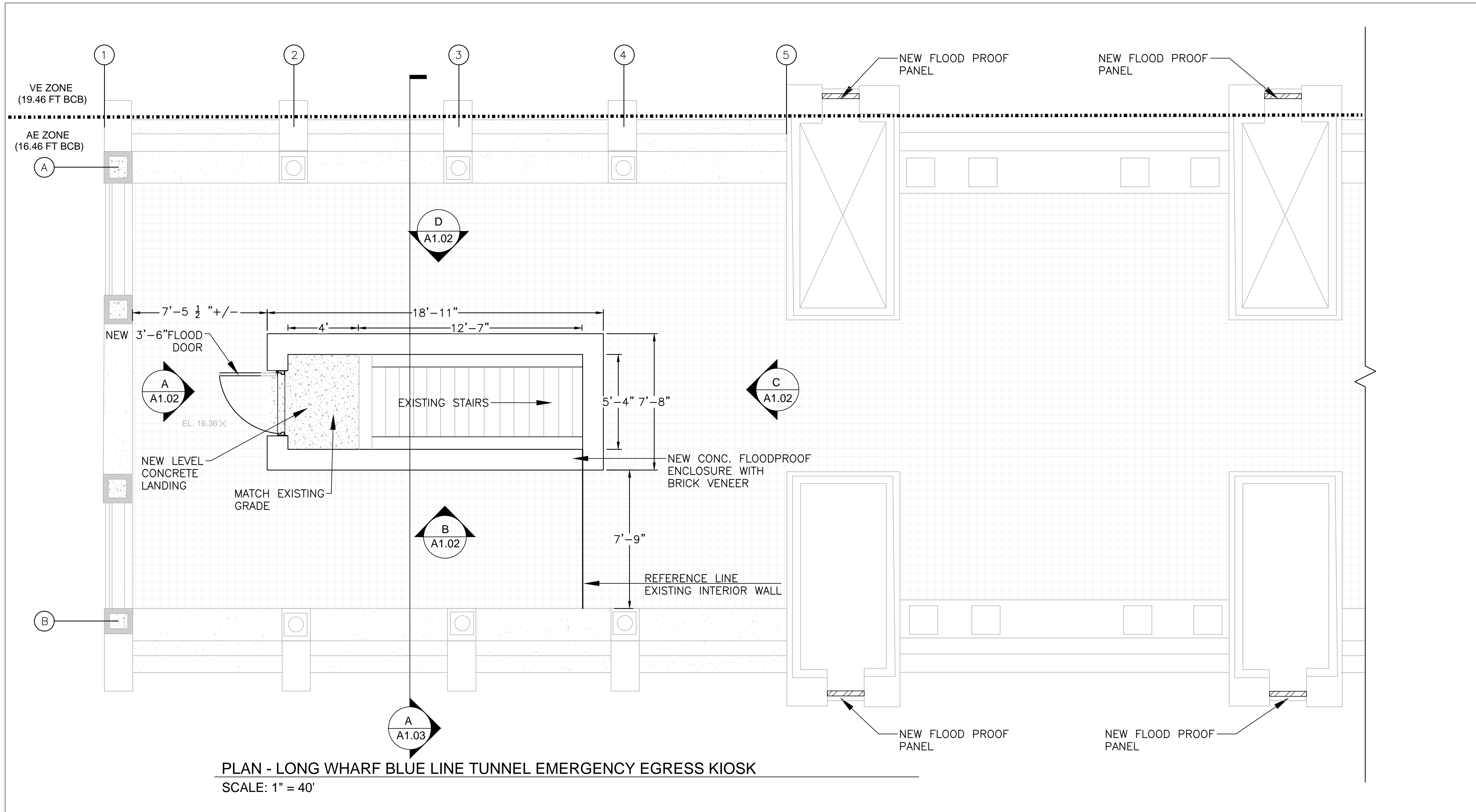
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
MBTA CONTRACT NO. XXXXXX

APPROVED BY: _____
DATE: _____

NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	DATE	NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	DATE
1	10-23-2019	100% DESIGN SET	RMS	RMS	APM	1	10-23-2019	SCALE: AS NOTED	RMS	RMS	APM



PROJECT MANAGER	DATE	PROJECT MANAGER	DATE
DESIGNER	DATE	DESIGNER	DATE
CHECKER	DATE	CHECKER	DATE
DATE	10-23-2019	SHEET	D.04

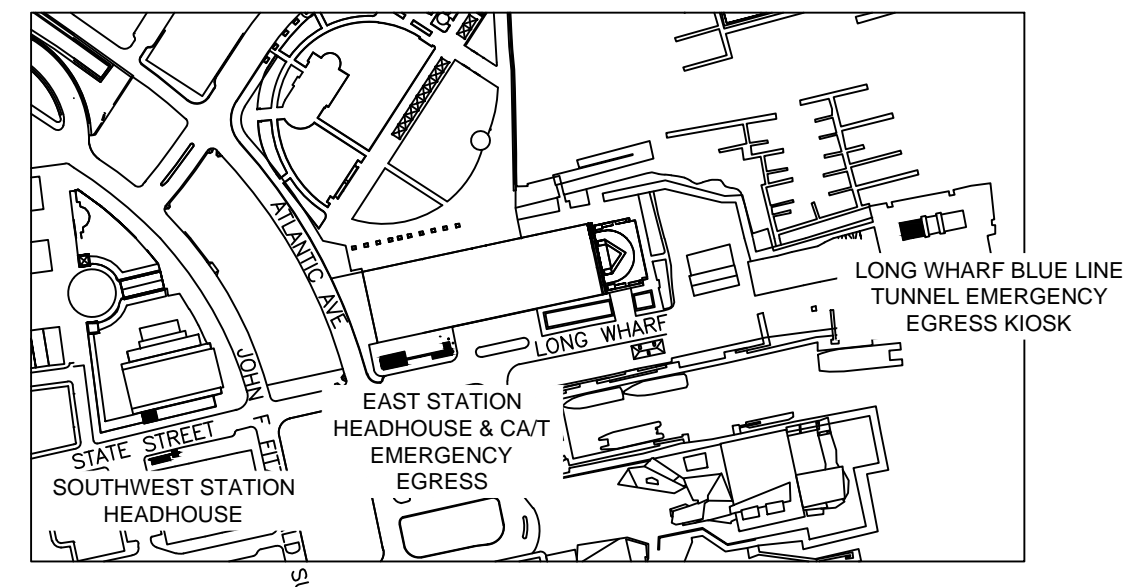


PLAN - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
SCALE: 1" = 40'

PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. THE WORK ZONE DEPICTED HERE IS WITHIN THE BUFFER ZONE.
3. THERE IS NO NET INCREASE IN IMPERVIOUS AREA ON THIS SITE.

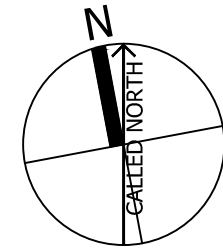
..... APPROX. FLOOD ZONE BOUNDARY



KEY PLAN

T	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
	BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS MBTA CONTRACT NO. XXXXXX
PLAN AND SECTION - LONG WHARF BLUE LINE EMERGENCY EGRESS KIOSK	

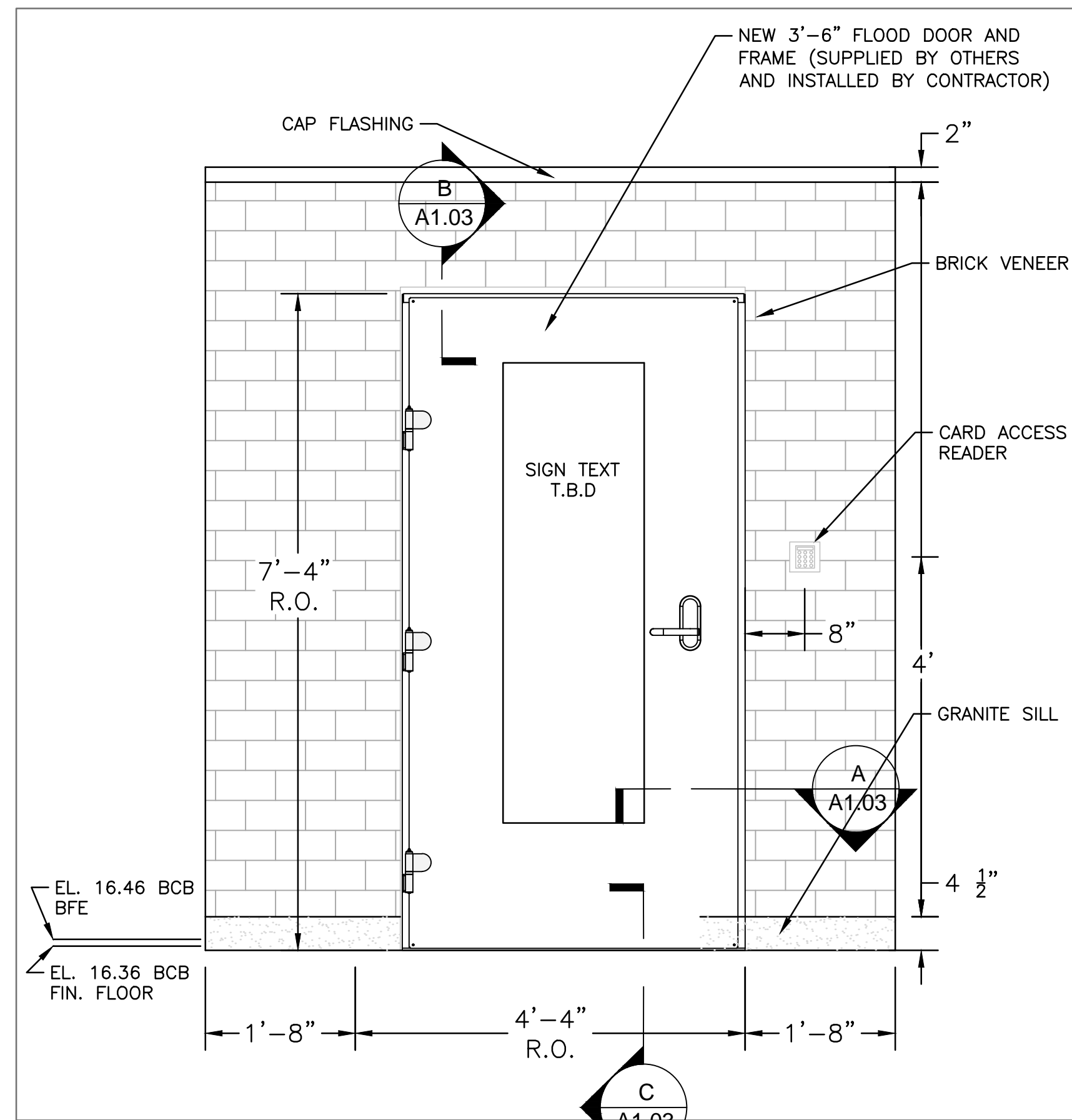
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Project Manager:	Date:	Project Manager:
SCALE: AS NOTED	DES. BY:	DR. BY:
RMS	RMS	APM
DATE: 10-23-2019		
		PLAN NO. XXXX
		SHEET A1.01



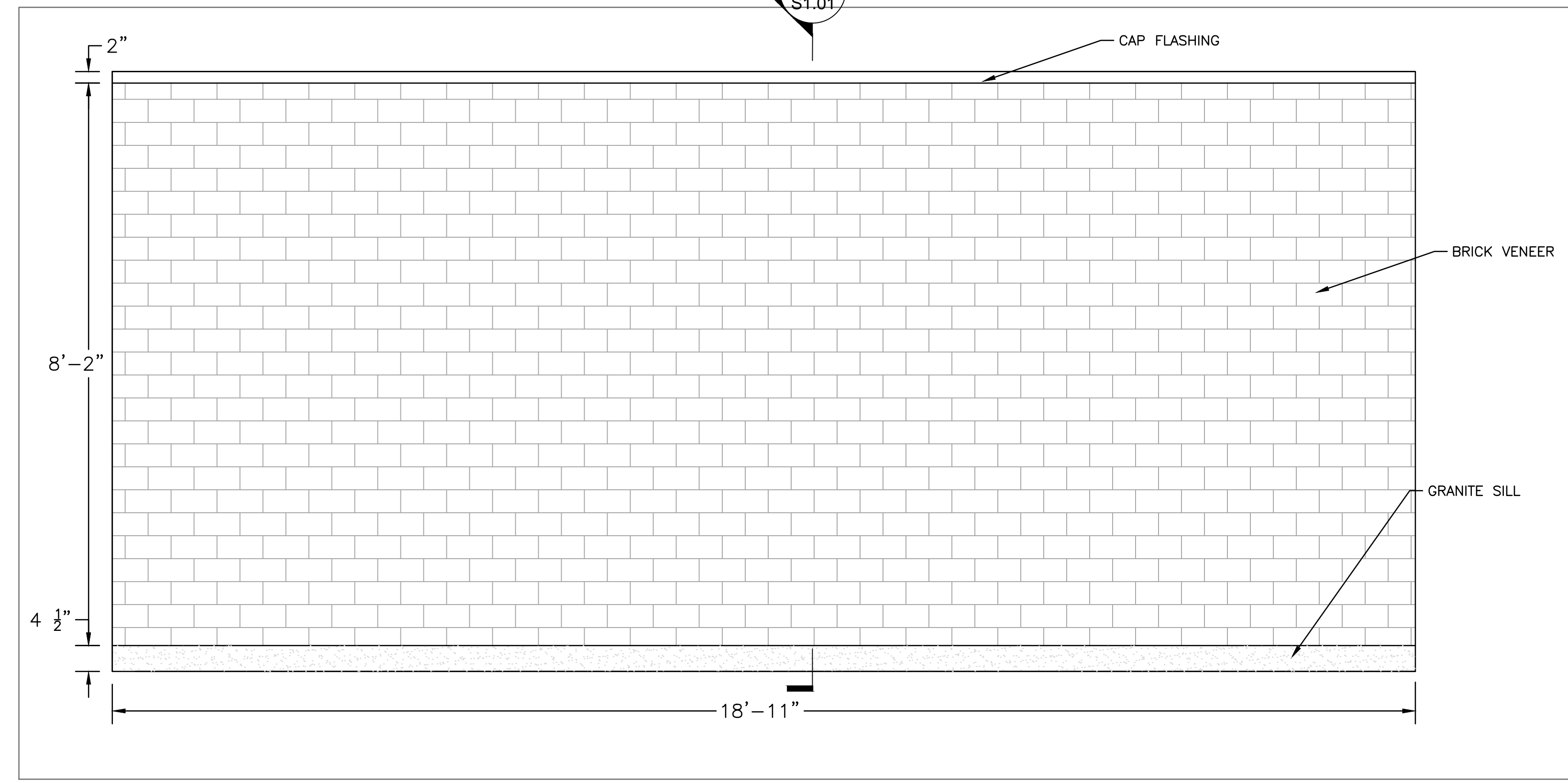
NO.	DATE	DESCRIPTION	BY	CHKD	APP.

PERMITTING NOTES

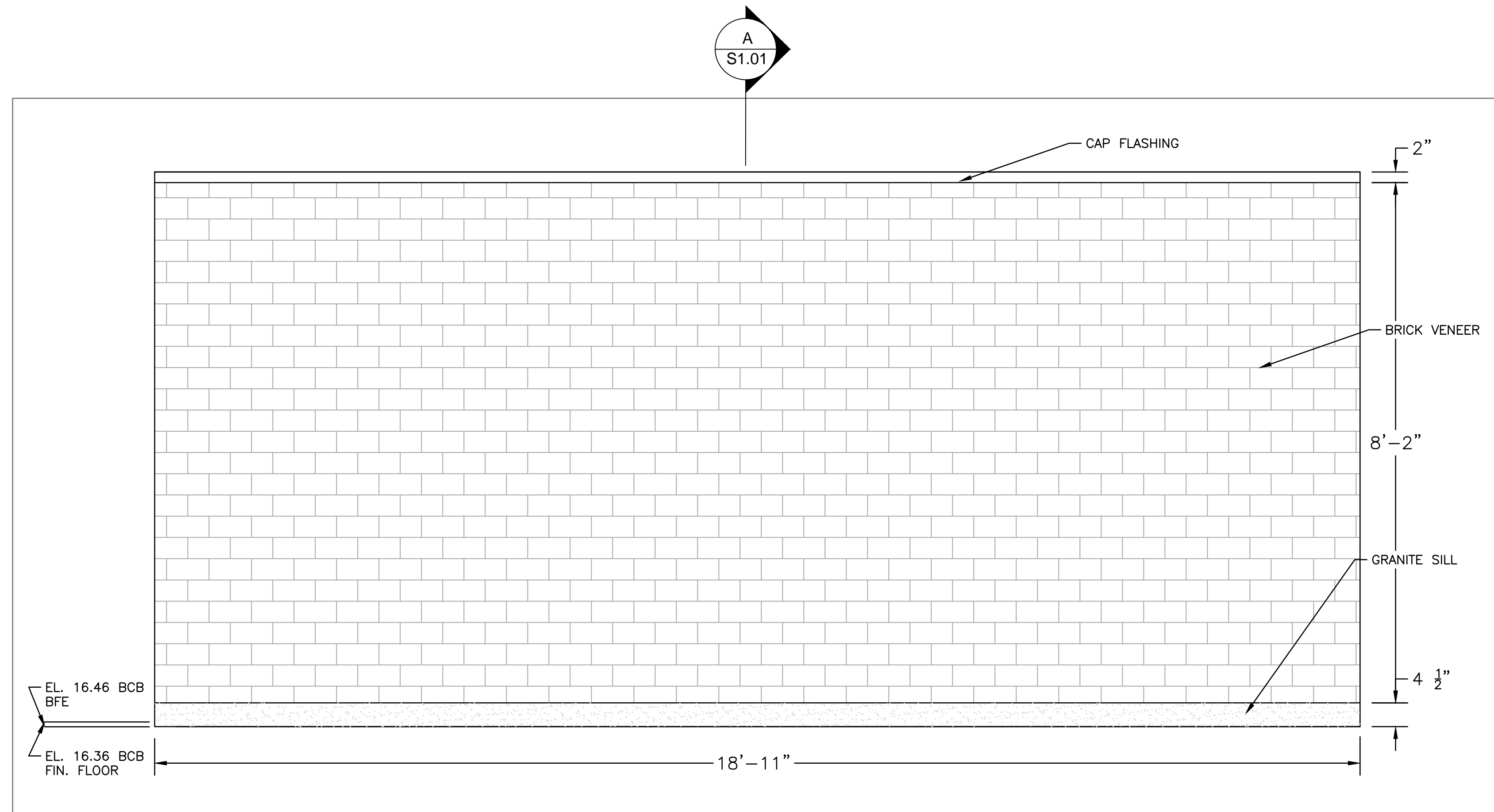
1. BASE FLOOD ELEVATION (BFE) = 16.46
2. THE WORK ZONE DEPICTED HERE IS WITHIN THE BUFFER ZONE.



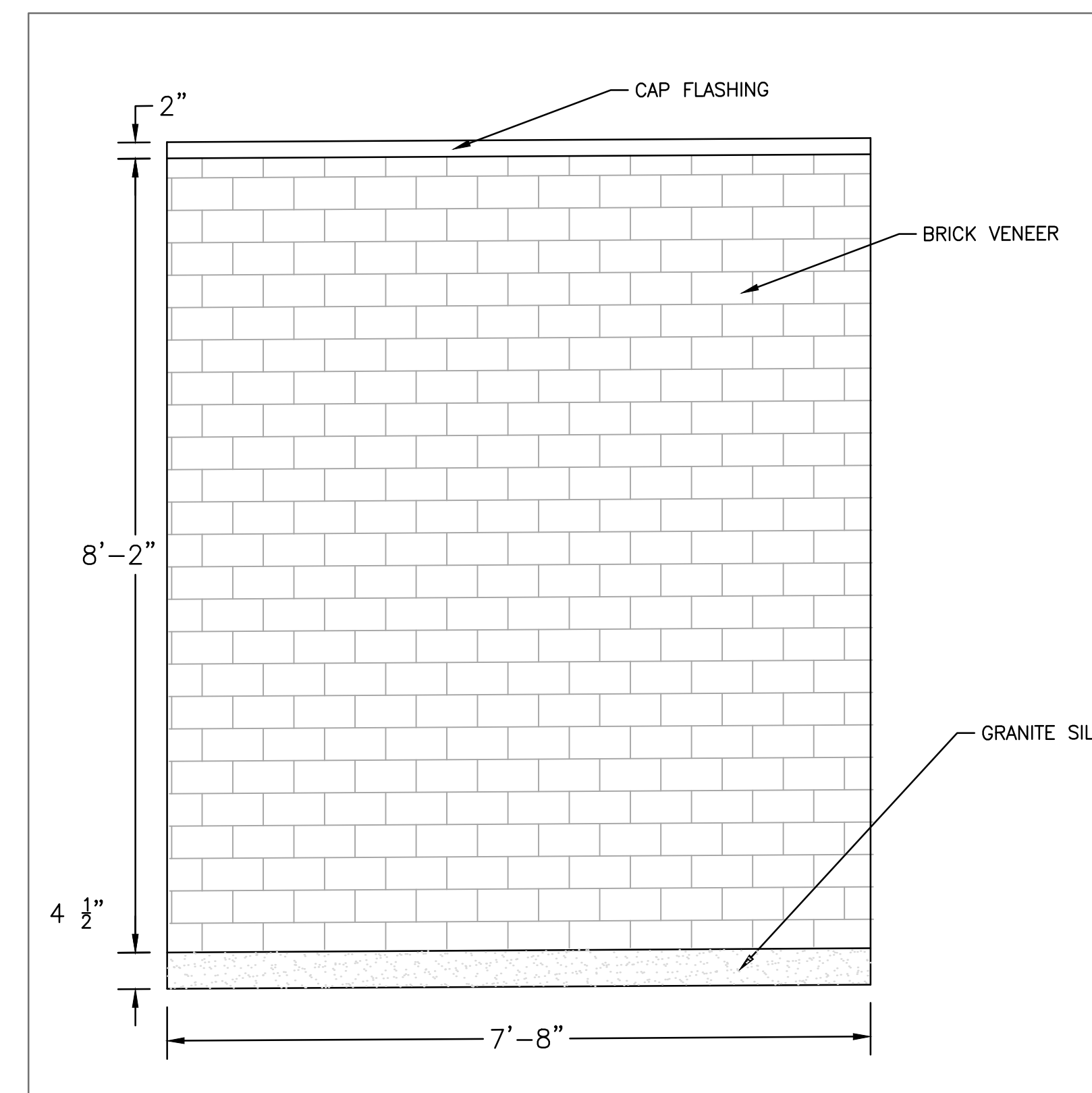
A
A1.01 **WEST ELEVATION**
SCALE: 3/4" = 1'-0"



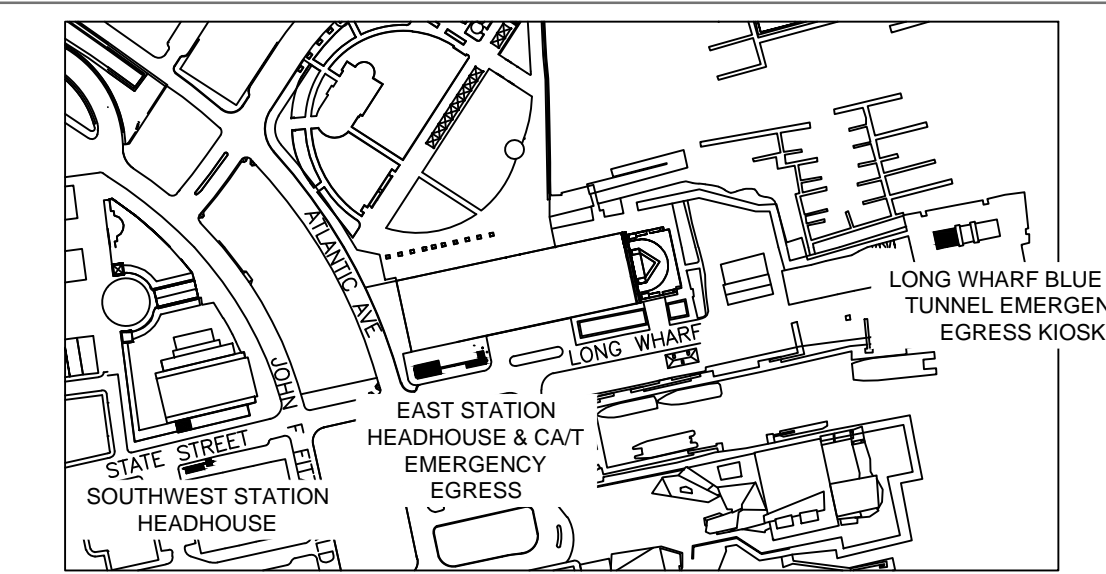
B
A1.01 **SOUTH ELEVATION**
SCALE: 3/4" = 1'-0"



D
A1.01 **NORTH ELEVATION**
SCALE: 3/4" = 1'-0"



C
A1.01 **EAST ELEVATION**
SCALE: 3/4" = 1'-0"

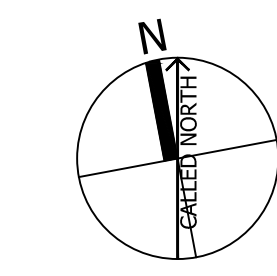


KEY PLAN

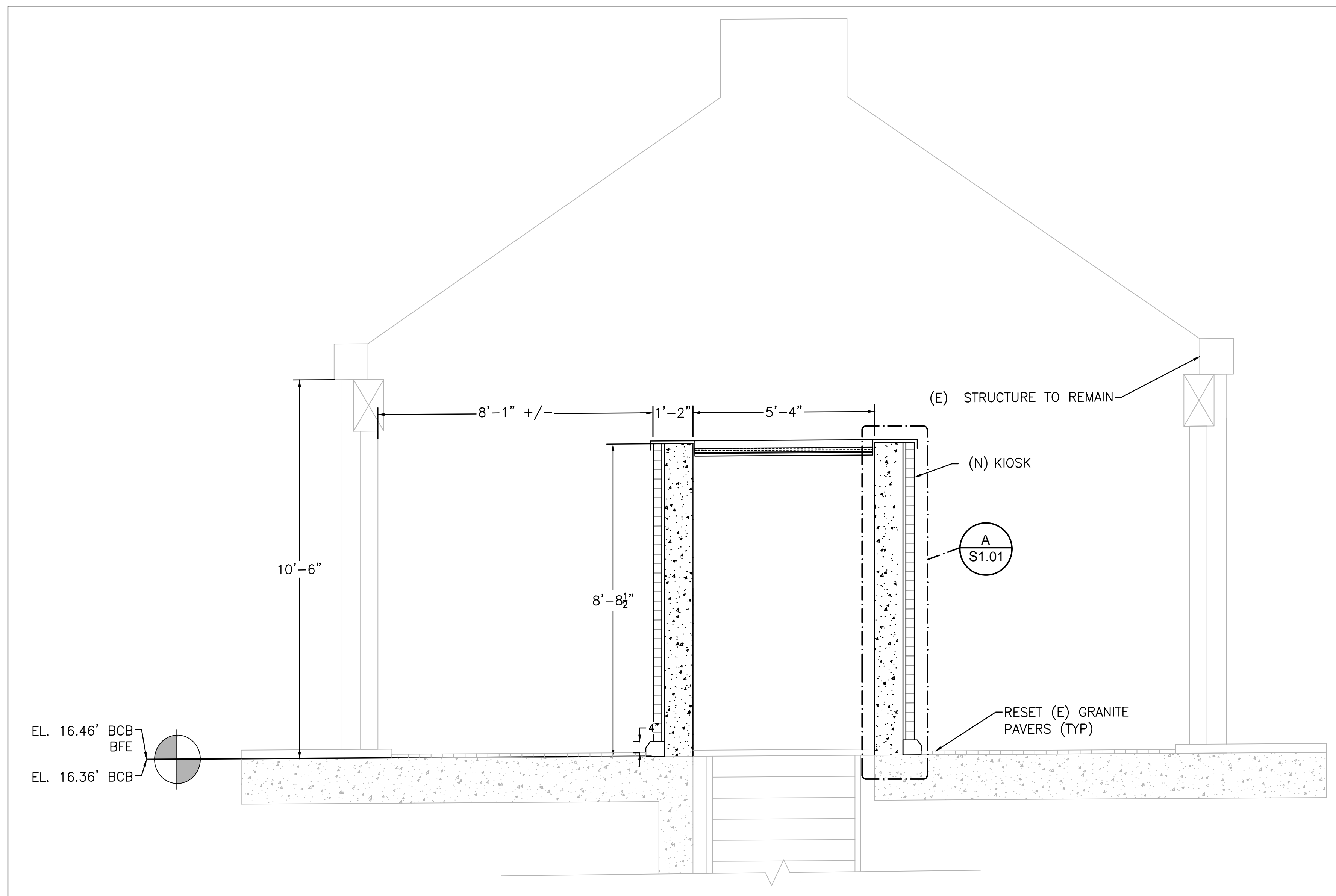
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

ELEVATIONS - LONG WHARF BLUE LINE EMERGENCY EGRESS KIOSK

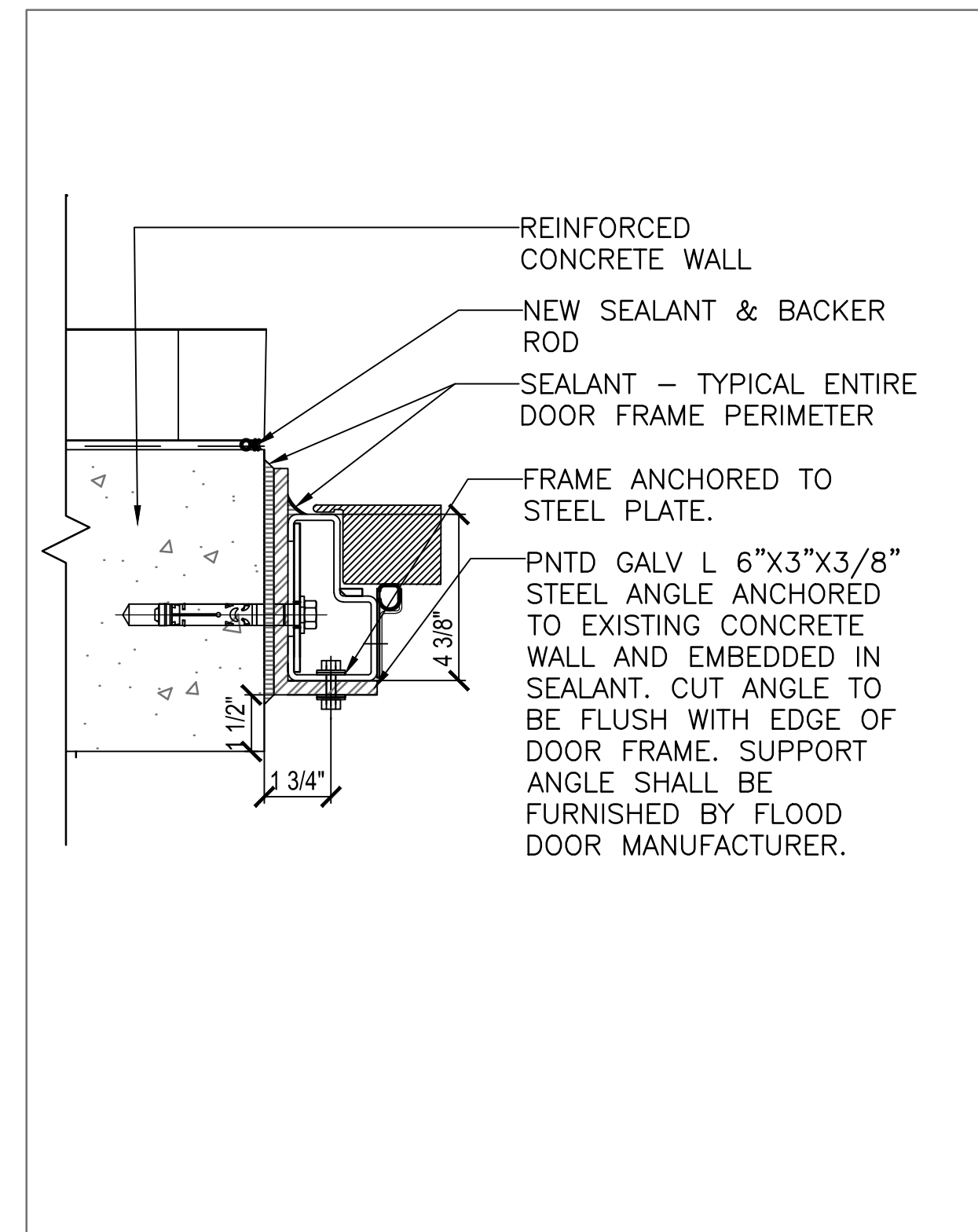
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Project Manager: DES. BY: _____ DES. BY: _____ DES. BY: _____ DATE: 10-23-2019	Scale: AS NOTED RMS RMS APM	Plan No.: XXXX SHEET	Project Manager: Date: _____ Approved By: _____ Date: _____



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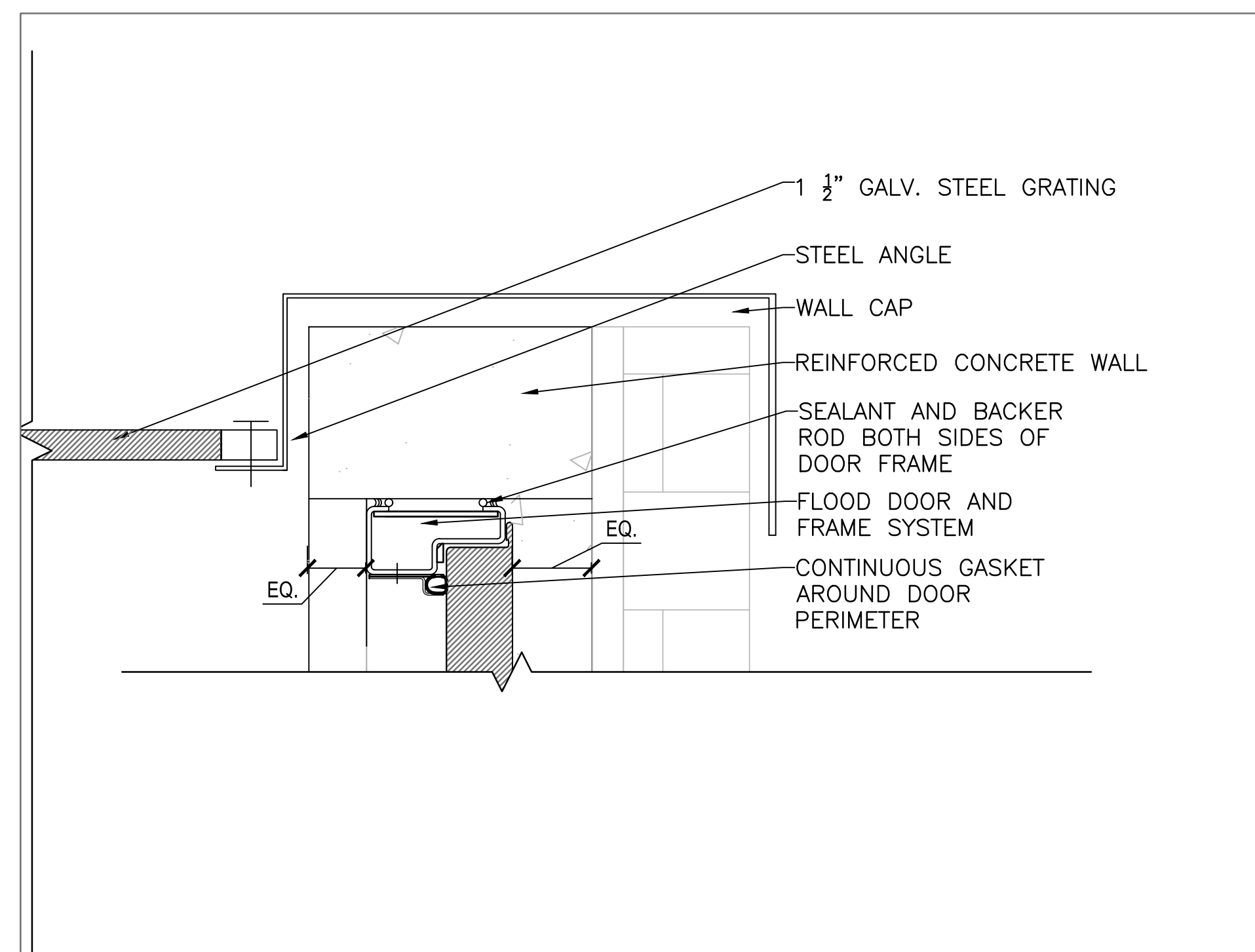


A
A1.01 SECTION - LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
SCALE: 1/2" = 1'-0"

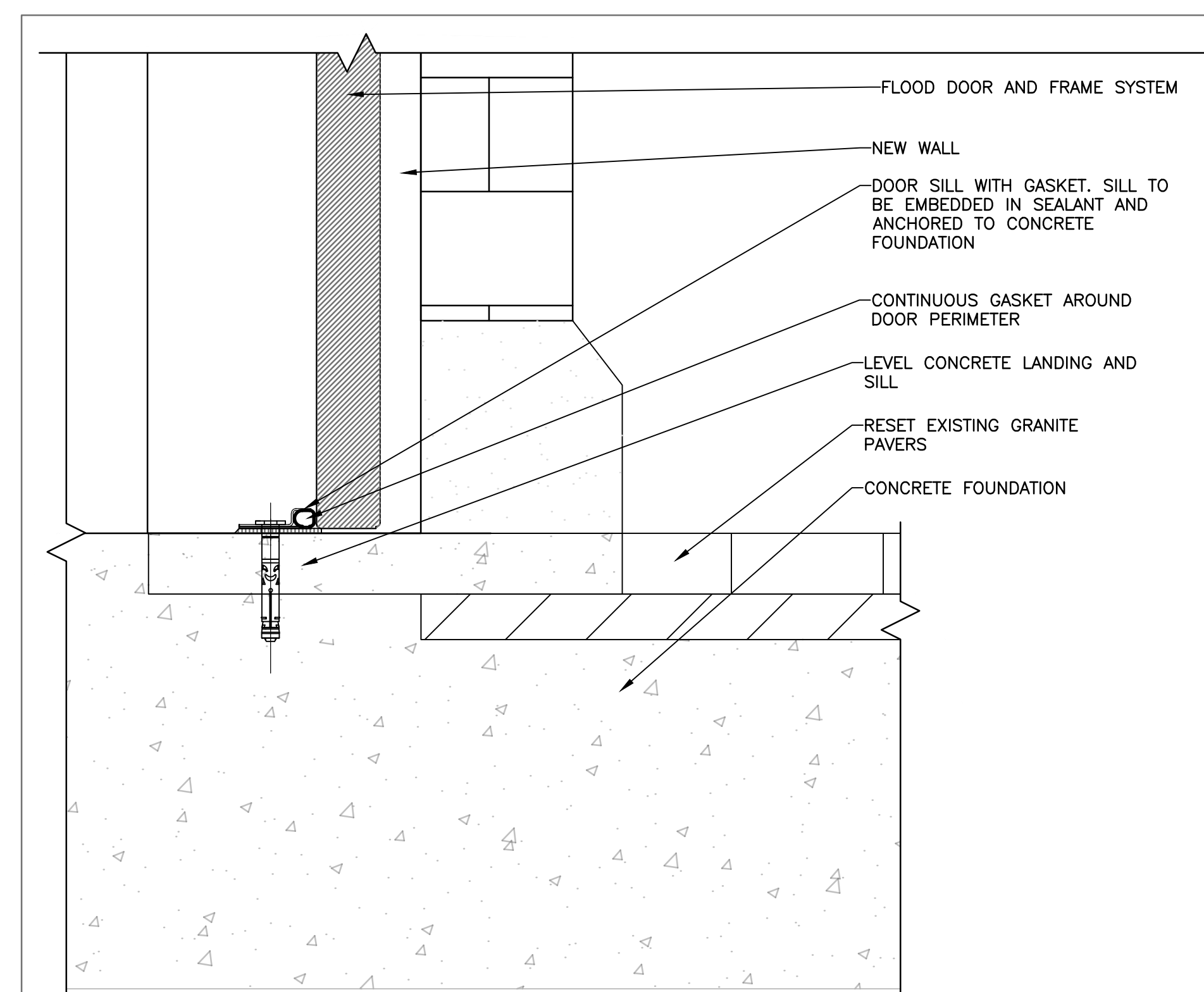


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A1.02 SECTION - FLOOD DOOR JAMB
SCALE: 3" = 1'-0"

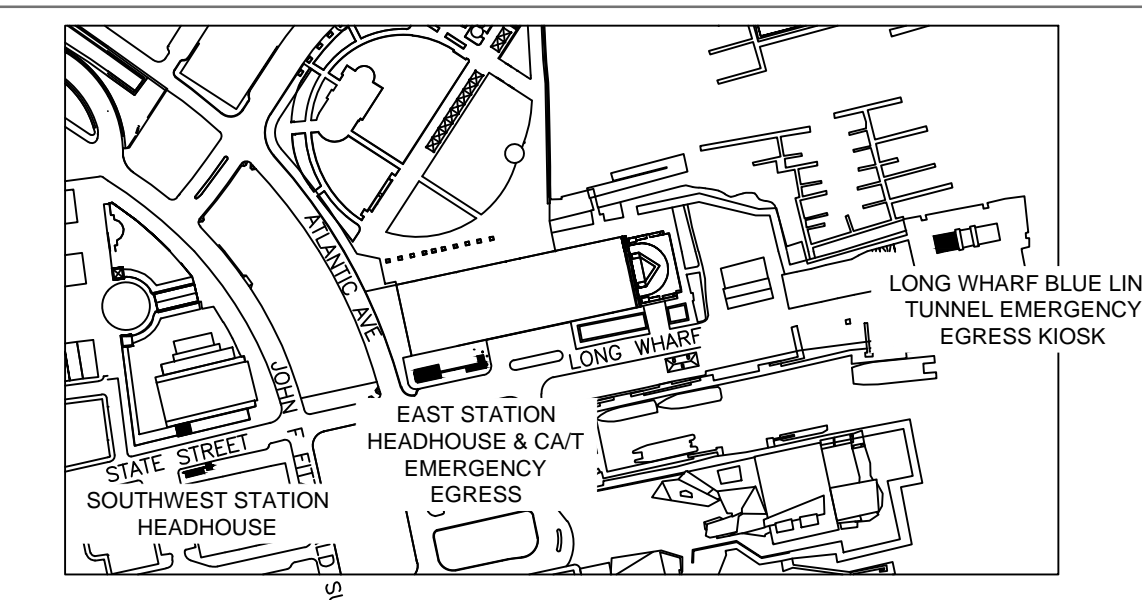
- PERMITTING NOTES**
1. BASE FLOOD ELEVATION (BFE) = 16.46
 2. THE WORK ZONE DEPICTED HERE IS WITHIN THE BUFFER ZONE.



B
A1.02 SECTION - FLOOD DOOR HEAD
SCALE: 3" = 1'-0"



C
A1.02 SECTION - FLOOD DOOR SILL
SCALE: 3" = 1'-0"

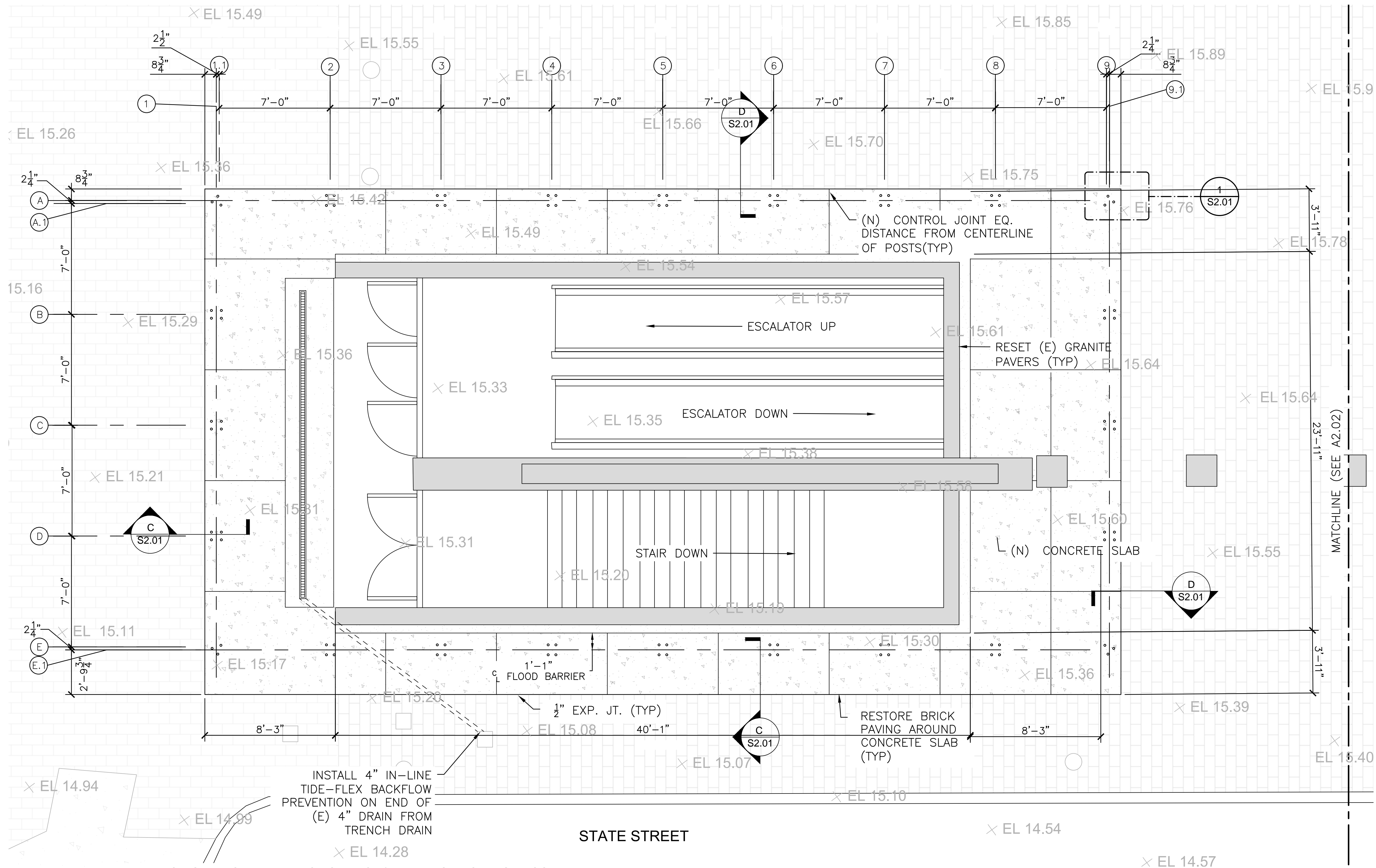


KEY PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

SECTION AND DETAILS- LONG WHARF BLUE LINE EMERGENCY EGRESS KIOSK

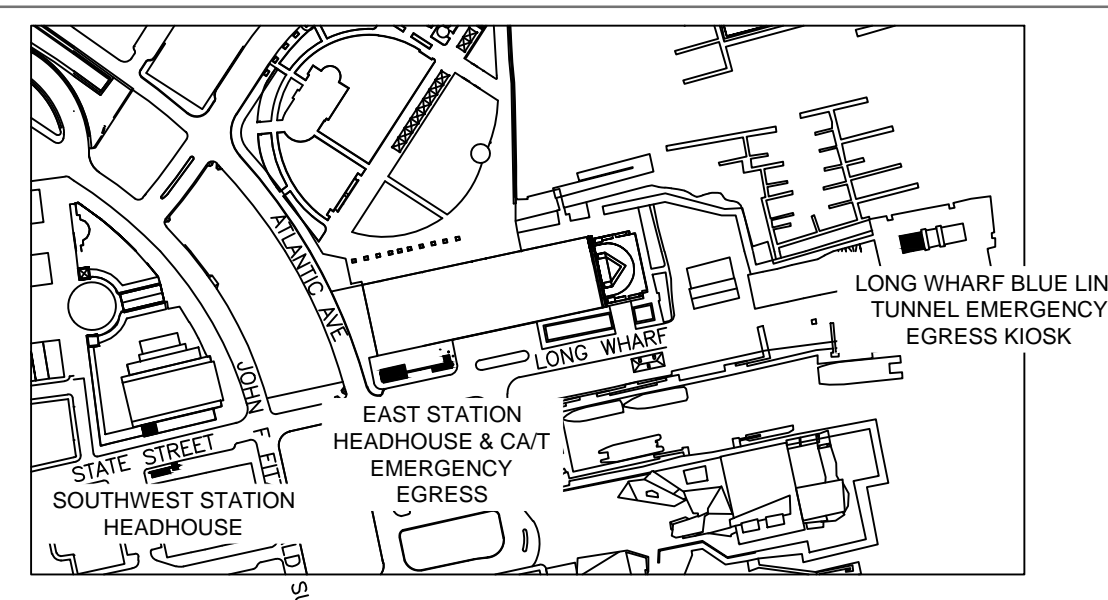
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DATE	DESCRIPTION	BY	CHKD	APP	DATE
10-23-2019	CITY OF BOSTON CONSERVATION COMMISSION WPA PERMIT PLANS	BR	AM	AM	10-23-2019
DESIGNER	PROJECT MANAGER	DATE	SCALE	DATE	DATE
RMS	RMS	APM	AS NOTED	10-23-2019	10-23-2019
DATE	DATE	DATE	DATE	DATE	DATE
10-23-2019	10-23-2019	10-23-2019	10-23-2019	10-23-2019	10-23-2019



PLAN - EAST STATION HEAD HOUSE & CA/T EMERGENCY EGRESS
 SCALE: 1" = 40'

- NOTES**
1. FLOOD BARRIER SYSTEM, INCLUDING POSTS, HORIZONTAL PANELS, AND POST ANCHORS SUPPLIED BY OTHERS. CONTRACTOR SHALL INSTALL POST ANCHORS.
 2. CONTRACTOR SHALL CONDUCT ONE FULL DEPLOYMENT OF ALL COMPONENTS OF THE FLOOD BARRIER SYSTEM. AFTER FLOOD TESTING IS COMPLETE AND APPROVED, CONTRACTOR SHALL BREAK DOWN FLOOD BARRIER SYSTEM, STORE IN DESIGNATED LOCATION, AND INSTALL BLANK BOLTS IN ALL POST ANCHORS.

- PERMITTING NOTES**
1. BASE FLOOD ELEVATION (BFE) = 16.46
 2. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.
 3. THERE IS NO NET INCREASE IN IMPERVIOUS AREA ON THIS SITE.

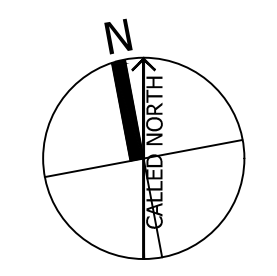


KEY PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

PLAN 1 - EAST STATION HEADHOUSE & CA/T EMERGENCY EGRESS

APPROVED BY:		DATE:		PROJECT MANAGER:	
DES. BY:	DR. BY:	CHK. BY:	DATE:	SCALE:	PLAN NO.:
RMS	RMS	APM	10-23-2019	AS NOTED	XXXX
100% DESIGN SET			SHEET A2.01		

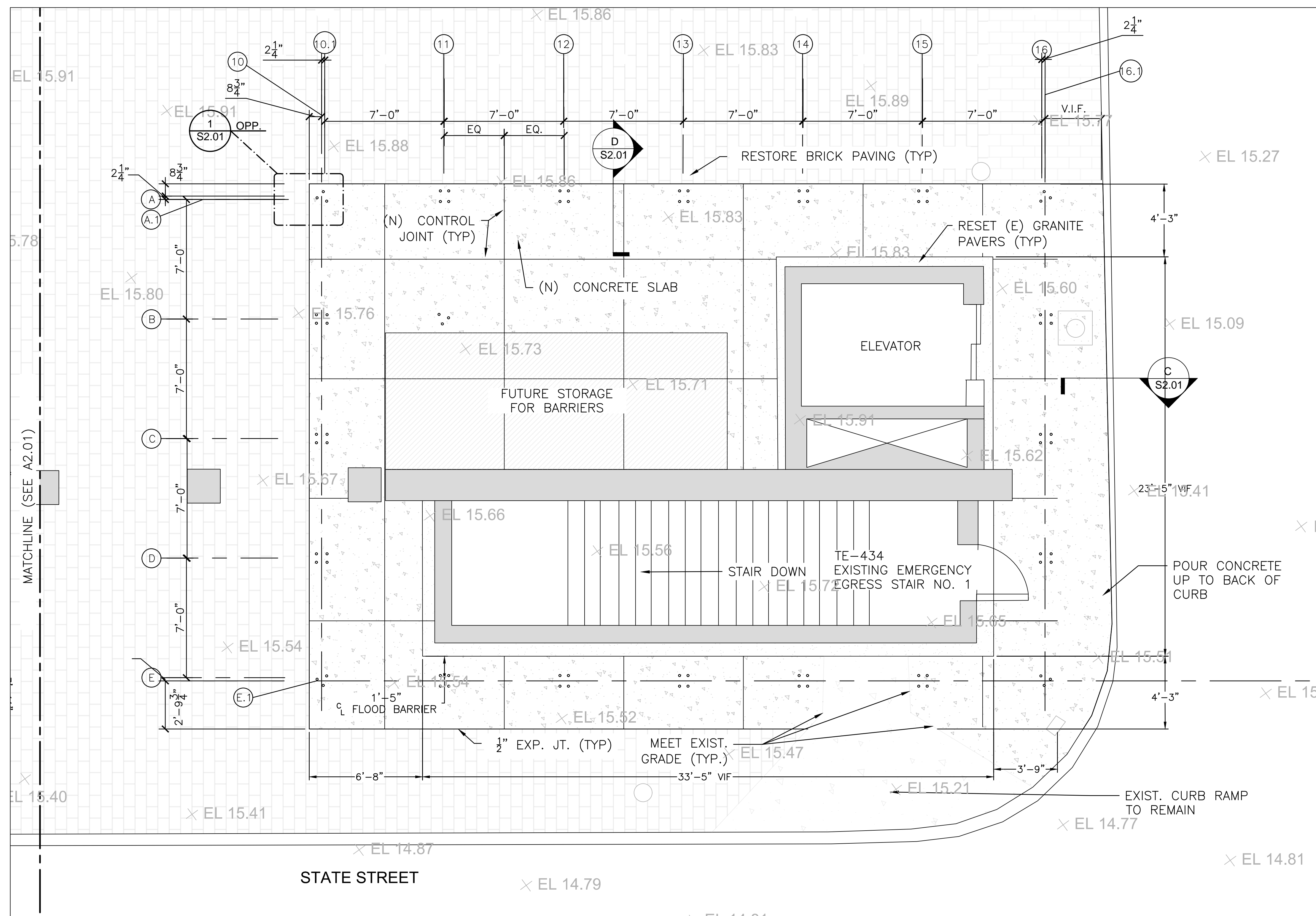


NOTES

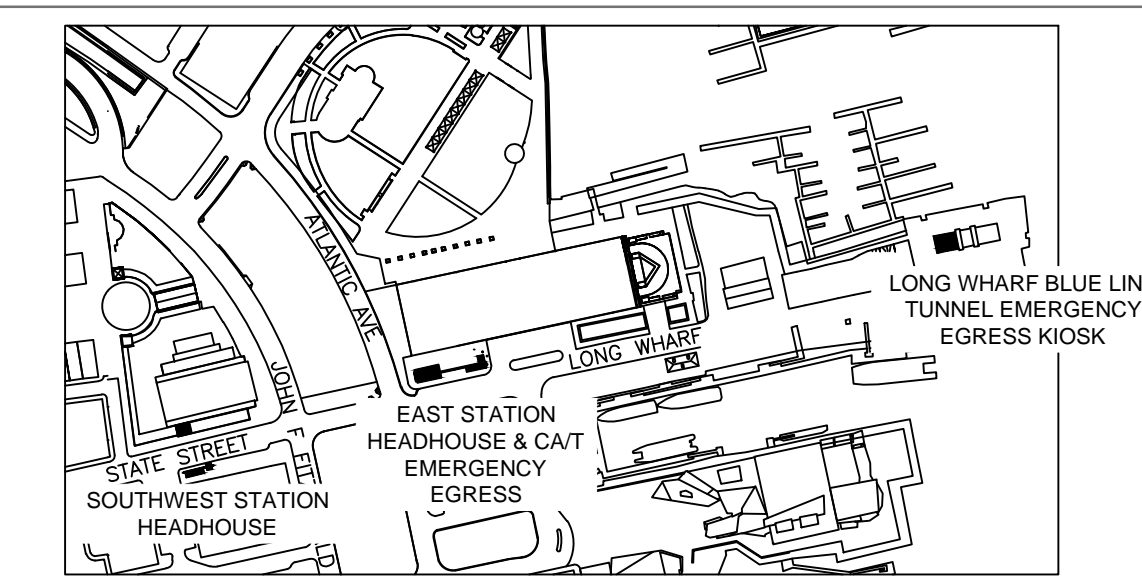
1. FLOOD BARRIER SYSTEM, INCLUDING POSTS, HORIZONTAL PANELS, AND POST ANCHORS SUPPLIED BY OTHERS. CONTRACTOR SHALL INSTALL POST ANCHORS.
2. CONTRACTOR SHALL CONDUCT ONE FULL DEPLOYMENT OF ALL COMPONENTS OF THE FLOOD BARRIER SYSTEM. AFTER FLOOD TESTING IS COMPLETE AND APPROVED, CONTRACTOR SHALL BREAK DOWN FLOOD BARRIER SYSTEM, STORE IN DESIGNATED LOCATION, AND INSTALL BLANK BOLTS IN ALL POST ANCHORS.

PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.
3. THERE IS NO NET INCREASE IN IMPERVIOUS ON THIS SITE.



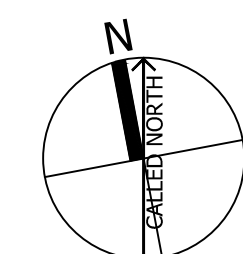
PLAN - EAST STATION HEAD HOUSE & CA/T EMERGENCY EGRESS
SCALE: 1" = 40'-0"

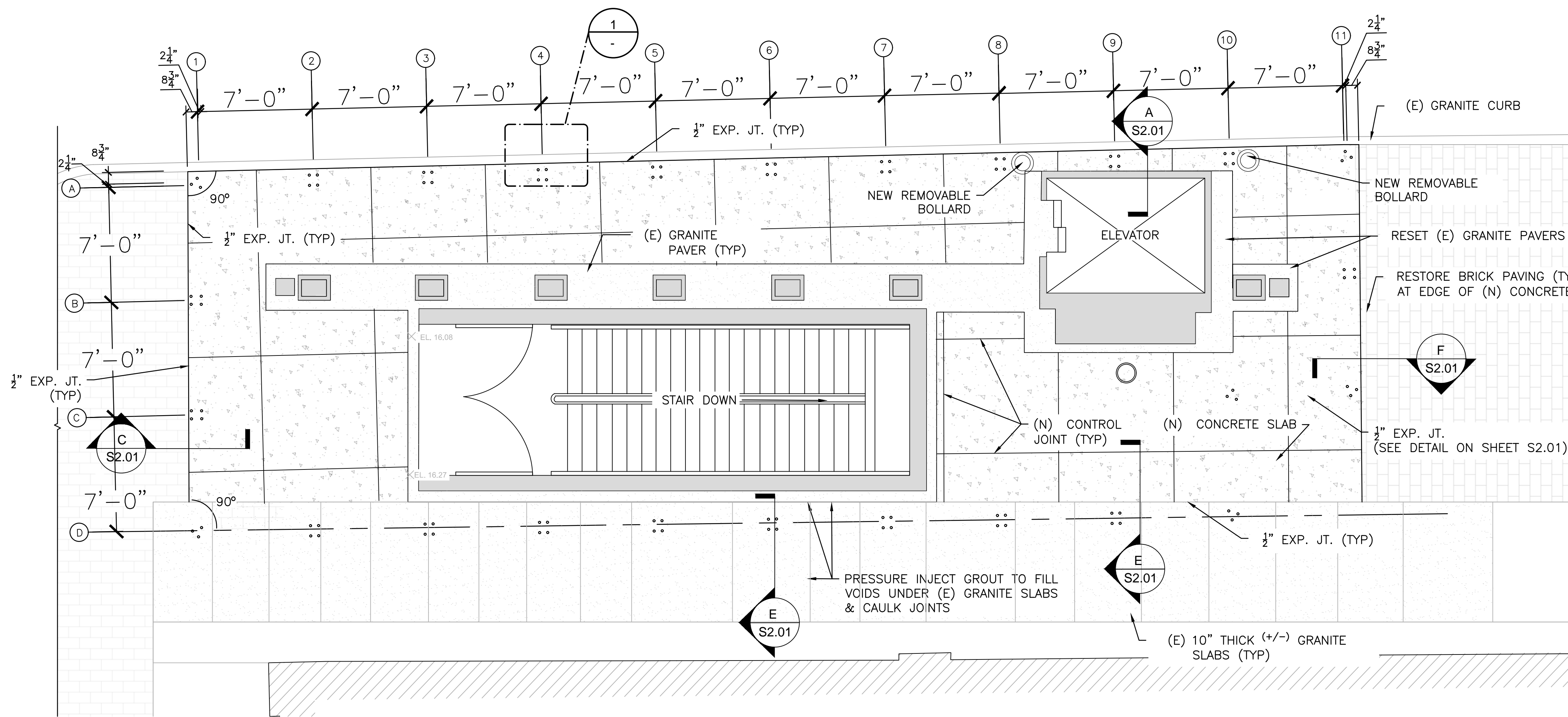


KEY PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX
PLAN 2- EAST STATION HEADHOUSE & CA/T EMERGENCY EGRESS

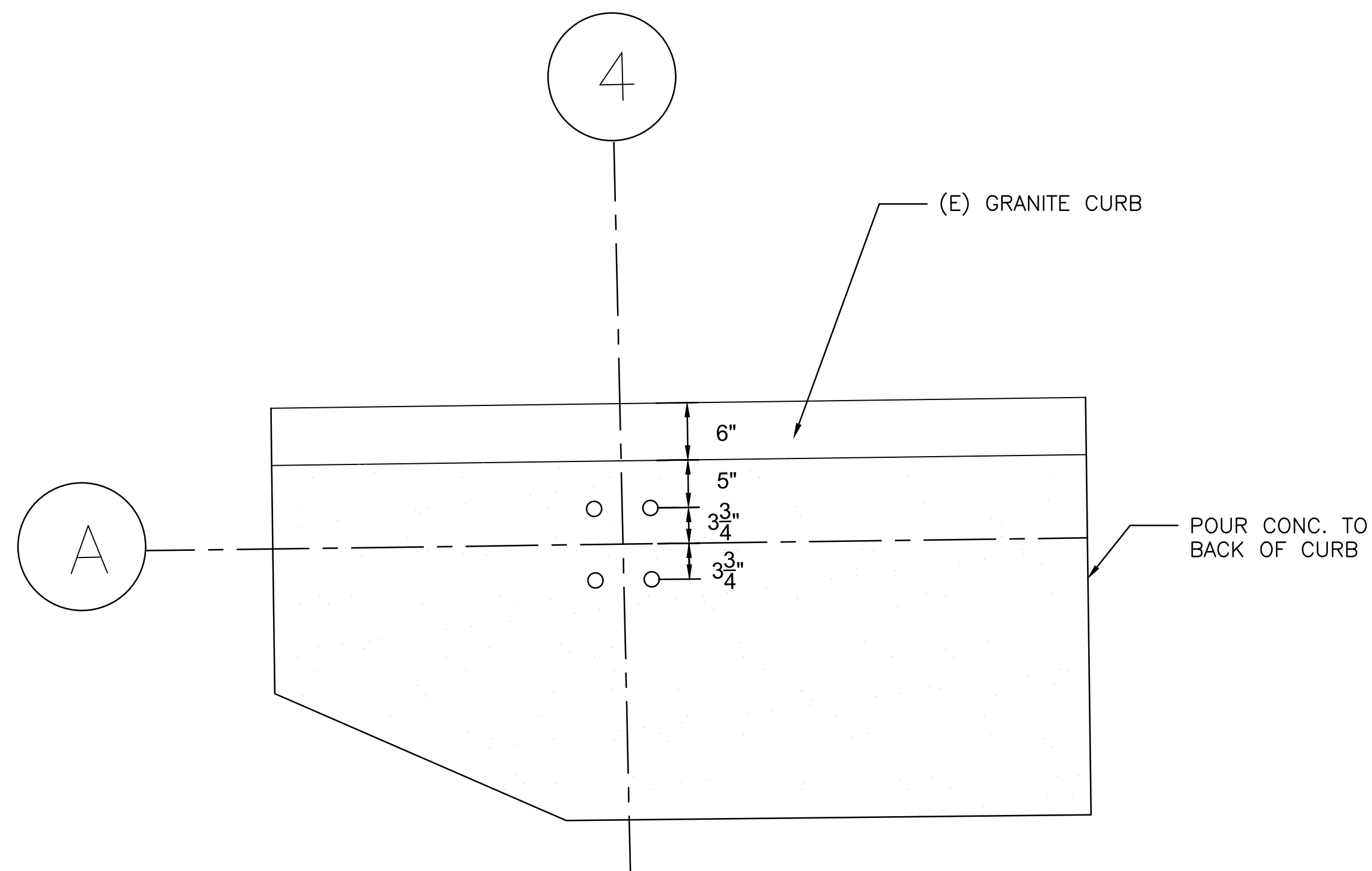
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100% DESIGN SET		SCALE: AS NOTED		PLAN NO. XXXX SHEET A2.01	
DATE: 10-23-2019	DES. BY: RMS	DR. BY: RMS	CHK. BY: APM	DATE: 10-23-2019	SHEET A2.01



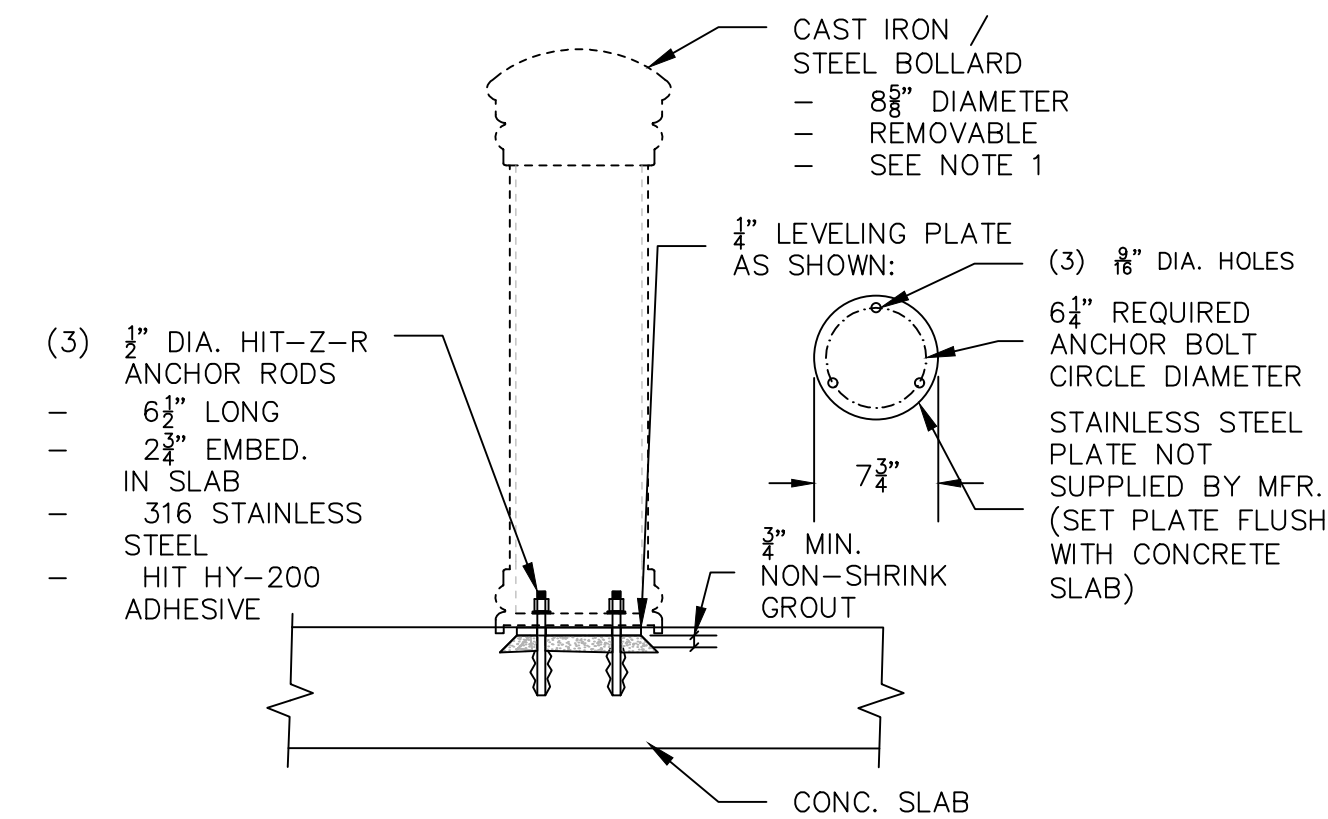


SITE PLAN - WEST AQUARIUM STATION

SCALE: 1" = 50'



1 DETAIL
SCALE: 1" = 1'-0"



NOTE

1. BASIS OF DESIGN FOR CONNECTION DETAIL IS BASED ON BOLLARD MODEL #AIC-957-958F BY THE ARCHITECTURAL IRON COMPANY.
2. CONTRACTOR TO VERIFY BOLT PATTERN LAYOUT PRIOR TO FABRICATING LEVELING PLATE.

SURFACE MOUNT BOLLARD CONNECTION DETAIL

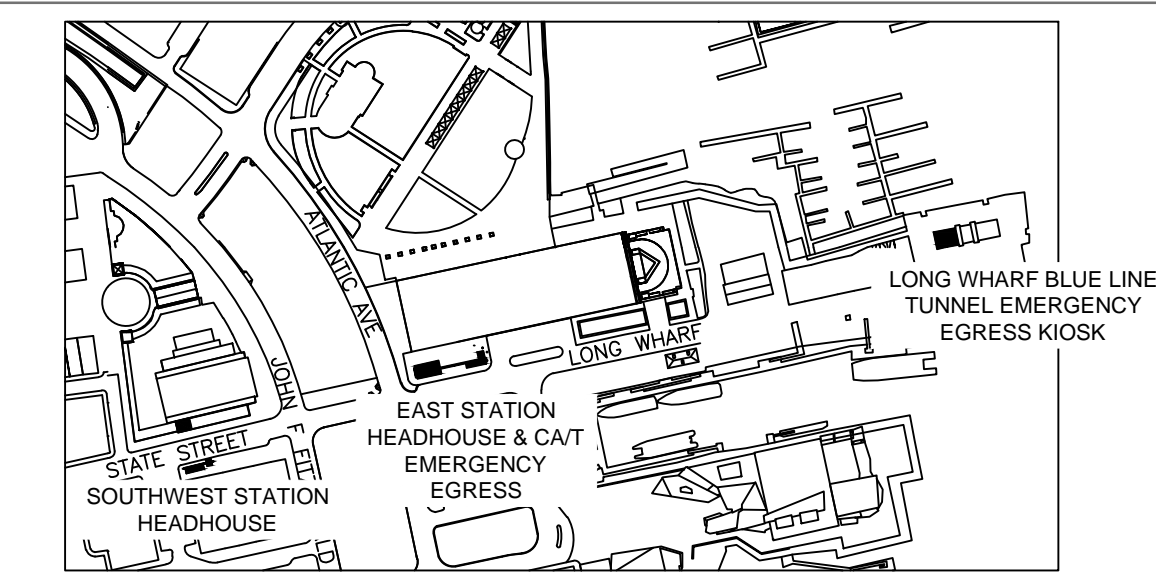
SCALE: 1" = 1'-0"

NOTES

1. FLOOD BARRIER SYSTEM, INCLUDING POSTS, HORIZONTAL PANELS, AND POST ANCHORS SUPPLIED BY OTHERS. CONTRACTOR SHALL INSTALL POST ANCHORS.
2. CONTRACTOR SHALL CONDUCT ONE FULL DEPLOYMENT OF ALL COMPONENTS OF THE FLOOD BARRIER SYSTEM. AFTER FLOOD TESTING IS COMPLETE AND APPROVED, CONTRACTOR SHALL BREAK DOWN FLOOD BARRIER SYSTEM, STORE IN DESIGNATED LOCATION, AND INSTALL BLANK BOLTS IN ALL POST ANCHORS.

PERMITTING NOTES

1. BASE FLOOD ELEVATION (BFE) = 16.46
2. THE WORK ZONE DEPICTED HERE IS NOT WITHIN THE BUFFER ZONE.
3. THERE IS NO NET INCREASE IN IMPERVIOUS AREA ON THIS SITE.



KEY PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

PLAN - SOUTHWEST STATION HEADHOUSE

		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY APPROVED BY:	
100% DESIGN SET	SCALE: AS NOTED	DES. BY: RMS RMS	DATE: 10-23-2019
PLAN NO. XXXX	SHEET	A3.01	

A. STRUCTURAL GENERAL NOTES

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND SPECIFICATIONS. REFER TO DEMOLITION, ARCHITECTURAL, AND ELECTRICAL DRAWINGS FOR LOCATIONS, DIMENSIONS, AND DETAILS OF OPENINGS, SLEEVES, EMBEDMENTS, AND EQUIPMENT INSERTS, PADS, CURBS, DEPRESSIONS, ANCHOR BOLTS, EXTERIOR GRADING AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.
2. THE CONTRACTOR SHALL OBTAIN AS-BUILT RECORD DRAWINGS OF THE EXISTING STRUCTURES CONSTRUCTION FROM THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING IN THE FIELD THE ACCURACY OF ALL RELEVANT INFORMATION SHOWN ON THE RECORD DRAWINGS, INCLUDING BUT NOT LIMITED TO STRUCTURAL SUBSTRUCTURE AND SUPERSTRUCTURE CONDITIONS AND THE EXISTENCE OF OVERHEAD, BURIED AND/OR EMBEDDED UTILITIES. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATING NEW WORK THAT WILL BE CONNECTED TO EXISTING CONSTRUCTION.
3. VERIFY AND COORDINATE ALL DIMENSIONS AND ELEVATIONS RELATING TO EXISTING CONDITIONS.
4. CODES AND STANDARDS
 - "THE MASSACHUSETTS STATE BUILDING CODE " – 780 CMR, NINTH EDITION
 - INTERNATIONAL BUILDING CODE 2015
 - INTERNATIONAL EXISTING BUILDING CODE 2015
 - MASSACHUSETTS AMENDMENTS TO THE IBC AND IEBC
 - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ", AMERICAN CONCRETE INSTITUTE ACI 318-19
 - "STEEL CONSTRUCTION MANUAL " - AMERICAN INSTITUTE OF STEEL CONSTRUCTION – 14TH EDITION
 - "STRUCTURAL WELDING CODE – STEEL" – AMERICAN WELDING SOCIETY – AWS D1.1-2011
 - "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES " ACI 530-11/ASCE 5-11/TMS 402-2013
 - "SPECIFICATIONS FOR MASONRY STRUCTURES ", ACI 530.1-11/ASCE 6-11/TMS 602-11
 - "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES " – AMERICAN SOCIETY OF CIVIL ENGINEERS, ASCE 7-10
 - SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION " OSHA CFR PART 1926
5. THE FLOOD BARRIER SYSTEM, INCLUDING HORIZONTAL PANELS, END SUPPORTS, INTERMEDIATE POSTS, CONCRETE ANCHORS AND PLUG BOLTS, SHALL BE FURNISHED BY OTHERS. THE CONTRACTOR SHALL RECEIVE THE FLOOD BARRIER SYSTEM COMPONENTS AT THE CHARLESTOWN BUS MAINTENANCE FACILITY, TRANSPORT TO THE PROJECT SITE, INSTALL THE COMPONENTS, DEPLOY THE SYSTEM FULLY TO HELP TRAIN THE MBTA'S STAFF ON THE SYSTEM DEPLOYMENT, CONDUCT WATER LOAD TESTS AS DIRECTED BY THE ENGINEER, AND REMOVE AND STORE ALL COMPONENTS AT LOCATIONS DESIGNATED BY THE ENGINEER.
6. TYPICAL DETAILS AND NOTES SHOWN ON STRUCTURAL DRAWINGS SHALL BE APPLICABLE TO ALL PARTS OF THE STRUCTURAL WORK EXCEPT WHERE SPECIFICALLY REQUIRED OTHERWISE BY CONTRACT DOCUMENTS.
7. DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR CONDITION AS DETERMINED BY THE ENGINEER.
8. WATER LOAD TESTS SHALL BE WITNESSED BY THE AUTHORITY AND THE ENGINEER. REQUIREMENTS FOR TESTING AND INSPECTION ARE PROVIDED IN THE TECHNICAL SPECIFICATIONS.
9. ELEVATIONS SHOWN REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
10. THE FLOOD BARRIER SYSTEM IS DESIGNED TO ACT AS A STRUCTURAL UNIT UPON COMPLETION. THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL REQUIRED SHORING AND TEMPORARY BRACING TO RESIST FORCES ON THE STRUCTURES THROUGHOUT THE CONSTRUCTION PERIOD.
11. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATING NEW WORK THAT WILL BE CONNECTED TO EXISTING CONSTRUCTION.
12. EXISTING CONDITIONS ARE SHOWN BY SCREENED LINEWORK ON THE DRAWINGS. NEW WORK IS SHOWN BY DARK LINEWORK.
13. THE CONTRACTOR SHALL COORDINATE PREPARED OPENING SIZES AND LOCATIONS WITH THE VARIOUS CONSTRUCTION TRADES AND SUBMIT FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO CONCRETE PLACEMENT.

B. GENERAL DESIGN LOADS

- BUILDING**
- (A) RISK CATEGORY III
- (B) DEAD LOADS
- (1) WEIGHT OF BUILDING COMPONENTS AS NOTED ON DRAWINGS
 - (2) SUPERIMPOSED DEAD LOAD ALLOWANCE..... 5 PSF
 - a. ROOFING..... 10 PSF
- (C) LIVE LOADS
- UNIFORM LOADS
- SIDEWALKS, VEHICULAR DRIVEWAYS..... 250 PSF
 - STAIRS, WALKWAYS..... 100 PSF
 - CORRIDORS..... 100 PSF
 - OFFICES..... 50 PSF
 - LOBBIES, STAIRS, EXIT..... 100 PSF
 - STORAGE – LIGHT..... 125 PSF
 - STORAGE – HEAVY..... 250 PSF
 - MECHANICAL ROOM..... 150 PSF
 - ELEVATOR MACHINE ROOM..... 50 PSF
 - ROOF..... 20 PSF
- (D) CONCENTRATED LOADS
[SEE THE MASS BLDG CODE ON A CASE BY CASE BASIS]
- (E) IMPACT LOADS
- (F) SNOW LOADS
- (1) GROUND SNOW LOAD (PG)..... 40 PSF
 - (2) FLAT ROOF SNOW LOAD (PF)..... 42 PSF
 - (3) EXPOSURE FACTOR (CE)..... 1.1
 - (4) IMPORTANCE FACTOR (I)..... 1.1
 - (5) THERMAL FACTOR (CT)..... 1.2
- (G) WIND LOADS
- (1) BASIC WIND SPEED (V)..... V= 140 MPH
 - (2) EXPOSURE CATEGORY..... C
- (H) FLOOD BARRIER HYDROSTATIC LOADS:
- (1) DESIGN FLOOD ELEVATION: 14.0 FT (NAVD88) FOR LONG WHARF BLUE LINE TUNNEL EMERGENCY EGRESS KIOSK
 - (2) DESIGN FLOOD ELEVATION: 12.0 FT (NAVD88) FOR ALL OTHER SITES.
- (I) FLOOD IMPACT LOAD ON BARRIER: 1,000 LBS AT VELOCITY = 8 FT/SEC

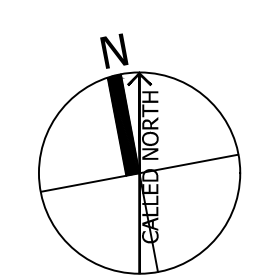
C. FOUNDATIONS

1. THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL TEMPORARY EARTH SUPPORT SHEETING, SHORING, BRACING, AND DEWATERING AND SHALL PROTECT ALL WORK AGAINST INSTABILITY AND OVERLOAD DURING CONSTRUCTION, INCLUDING HYDROSTATIC UPLIFT DUE TO GROUND WATER AND/OR UNDERPINNING IN ORDER TO PROTECT EXISTING STRUCTURES AND UTILITIES FROM EXCESSIVE MOVEMENTS DURING THE CONSTRUCTION PERIOD.
2. CARRY OUT CONTINUOUS CONTROL OF SURFACE AND SUBSURFACE WATER DURING CONSTRUCTION SUCH THAT FOUNDATION WORK IS DONE IN THE DRY AND ON UNDISTURBED SUBGRADE MATERIAL. NO FOUNDATION CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN SUBGRADE MATERIAL.
3. FOR ADDITIONAL INFORMATION AND REQUIREMENTS, REFER TO EARTHWORK SPECIFICATIONS.
4. THE CONTRACTOR SHALL PLACE BACKFILL UNIFORMLY AROUND STRUCTURES TO PREVENT TEMPORARY UNBALANCED LOADING UNLESS OTHERWISE NOTED ON THE DRAWINGS.
5. PERCENT COMPACTION IS DEFINED AS THE RATIO OF THE FIELD DRY DENSITY, DETERMINED BY ASTM D-1556, TO THE MAXIMUM DRY DENSITY, DETERMINED BY ASTM-D 1557 (MODIFIED PROCTOR).
6. COMPACT BACKFILL UNDER SLABS ON GRADE TO A MINIMUM OF 95 PERCENT. COMPACT EMBANKMENTS AND BACKFILL NOT SUPPORTING STRUCTURES TO A MINIMUM OF 90 PERCENT. PLACE AND COMPACT BACKFILL IN 8-INCH MAXIMUM LAYERS.
7. COMPACT THE BOTTOM SURFACE OF EXPOSED EXCAVATIONS WITH VIBRATORY STEEL DRUM ROLLER OR VIBRATORY PLATE TO ACHIEVE A NEAR SURFACE DENSITY OF AT LEAST 95 PERCENT.
8. UNIT WEIGHT OF SOIL: 120 PCF
9. DO NOT BACKFILL AGAINST CONCRETE SLABS UNTIL CONCRETE HAS REACHED THE SPECIFIED DESIGN STRENGTH.
10. DO NOT LEAK TEST FLOOD BARRIER SYSTEM UNTIL WALLS AND ALL SLABS HAVE REACHED THE SPECIFIED DESIGN STRENGTH.
11. PLACE EXTERIOR SLABS, PLATFORMS AND WALKS ON 8-INCH LAYERS OF GRAVEL BORROW. THE LIMITS OF BACKFILL ARE DEFINED BY AN OUTWARD SLOPE OF 1:1 FROM THE PERIMETER OF THE SLAB TO A DEPTH OF THE SPECIFIED FROST DEPTH BELOW FINISH GRADE UNLESS OTHERWISE INDICATED OR SPECIFIED. PLACE MATERIAL IN 8-INCH LIFTS. COMPACT GRAVEL BORROW TO 95 PERCENT. COMPACT SCREENED GRAVEL AND CRUSHED STONE USING A SELF PROPELLED VIBRATORY STEEL DRUM ROLLER OR RUBBER TIRE ROLLERS WITH A MINIMUM OF FOUR PASSES IN DIRECTIONS PERPENDICULAR TO ONE ANOTHER IN OPEN AREAS. IN SMALL AREAS, USE MANUALLY OPERATED VIBRATORY PLATE COMPACTORS WITH A MINIMUM OF FOUR PASSES.



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

STRUCTURAL GENERAL NOTES 1



KLEINFELDER		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY	
APPROVED BY:		APPROVED BY:	
10/23/2019	CITY OF BOSTON CONSERVATION COMMISSION WPA PERMIT PLANS	SK	AM
DATE	DESCRIPTION	BY	CHKD
		APP	
100% DESIGN SET		SCALE: AS NOTED	DATE: 10-23-2019
DESIGNED BY	DR. BY	CHK. BY	PLAN NO.
RMS	RMS	APM	XXXX
SHEET			S0.00

D. WATERPROOFING / DAMPPROOFING

1. THE WATERPROOFING SYSTEM SHALL CONSIST OF A SELF-ADHERING MEMBRANE SYSTEM AS SPECIFIED IN SPECIFICATION SECTION 07131.
2. CONCRETE SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH THE WATERPROOFING SYSTEM MANUFACTURER'S INSTALLATION REQUIREMENTS.
3. FOR THE MEMBRANE-TYPE WATERPROOFING, THE WATERPROOFING SYSTEM MANUFACTURER SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ALL STANDARD AND ANY REQUIRED SPECIAL DETAILS TO ACCOMMODATE ALL CONDITIONS INDICATED ON THE DRAWINGS. THESE CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 - HORIZONTAL AND VERTICAL LAPS
 - TERMINATION JOINTS AT WALLS
 - MOVEMENT JOINTS
 - INSIDE AND OUTSIDE CORNERS
 - MECHANICAL AND ELECTRICAL PENETRATIONS
 - VAPOR BARRIER INTERFACE

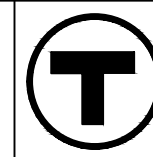
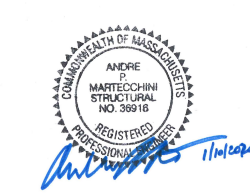
E. CAST IN PLACE CONCRETE

1. UNLESS OTHERWISE NOTED, CONCRETE SHALL BE NORMAL WEIGHT, CAST-IN-PLACE CONCRETE WITH ASTM C150, TYPE II CEMENT AND HAVE A SPECIFIED MINIMUM 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:
 CONCRETE FOR LIQUID CONTAINING STRUCTURES
 - 5000 PSI - SPECIFIED 28 DAYS COMPRESSIVE STRENGTH FOR ALL LIQUID CONTAINING STRUCTURES
 - 0.42 - MAXIMUM WATER-CEMENT RATIO
 - CONTAIN A SHRINKAGE REDUCING ADMIXTURE OR USE SHRINKAGE COMPENSATING CEMENT.
 - CONTAIN AN INTEGRAL CRYSTALLINE WATERPROOFING ADMIXTURE
 - A 21-DAY DRYING SHRINKAGE OF 0.028 PERCENT OR LESS AND A 28-DAY DRYING SHRINKAGE OF 0.032 PERCENT OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C 157 AS MODIFIED BY THE PROJECT SPECIFICATIONS.
2. AIR-ENTRAIN ALL CONCRETE, EXCEPT FOR INTERIOR SLABS AND SLABS-ON-GRADE.
3. ALL PERMANENTLY EXPOSED VERTICAL AND HORIZONTAL CONCRETE SURFACES SHALL BE TREATED OR SEALED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND CONCRETE FINISH REQUIREMENTS NOTES.
4. CONCRETE WORK SHALL BE COORDINATED WITH ALL DEMOLITION, WATERPROOFING, ARCHITECTURAL, AND ELECTRICAL WORK. THE CONTRACTOR SHALL VERIFY INSTALLATION AND LOCATIONS OF ALL EMBEDDED ITEMS INCLUDING BUT NOT LIMITED TO INSERTS, ANCHOR BOLTS, ANCHOR RODS, DOWELS, BLOCKOUTS, SLEEVES, EMBEDDED PIPING, AND EMBEDDED CONDUIT PRIOR TO CONCRETE PLACEMENT.
5. CONSTRUCTION JOINTS, CONTRACTION JOINTS AND ISOLATION JOINTS SHALL BE AS INDICATED ON THE DRAWINGS.
6. A MINIMUM OF 72 HOURS SHALL ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.
7. CONCRETE SLABS SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.
8. PROVIDE 3/4" x 3/4" CHAMFER ON ALL EXPOSED VERTICAL AND HORIZONTAL OUTSIDE CORNERS UNLESS OTHERWISE NOTED.
9. PLACE SLABS AND BEAMS MONOLITHICALLY UNLESS OTHERWISE INDICATED.
10. FLOOR SLOPES SHALL MATCH EXISTING PRE-CONSTRUCTION SLOPES.
11. CONCRETE SURFACES NOTED TO BE ROUGHENED SHALL BE ROUGHENED TO A 1/4" AMPLITUDE.
12. INTENTIONALLY ROUGHEN SURFACE OF HORIZONTAL CONSTRUCTION JOINTS IN WALLS AND BASE OF WALL TO 1/4" AMPLITUDE.
13. CONTINUOUS WATERSTOP AS SPECIFIED SHALL BE INSTALLED IN ALL CONSTRUCTION JOINTS AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
14. NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

F. CAST IN PLACE CONCRETE REINFORCEMENT

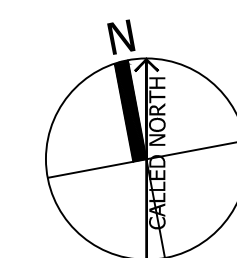
1. REINFORCEMENT WORK OF DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO "ACI DETAILING MANUAL" – SP-66, "CRSI MANUAL OF STANDARD PRACTICE", AND "STRUCTURAL WELDING CODE – REINFORCING STEEL" – AWS D1.4.
2. STEEL REINFORCEMENT, UNLESS OTHERWISE NOTED, SHALL CONFORM TO THE FOLLOWING:
 - (A) BARS, TIES, AND STIRRUPS..... ASTM A615, GRADE 60
 - (B) WELDED WIRE FABRIC..... ASTM A185 FLAT SHEETS
 - (C) BARS DETAILED WITH WELDED CONNECTIONS..... ASTM A706, GRADE 60
3. REINFORCING STEEL SHALL GENERALLY BE UNCOATED AND DEFORMED UNLESS NOTED OTHERWISE. EPOXY COATED BARS, WHERE INDICATED ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS, SHALL ALSO CONFORM TO ASTM A775.
4. MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:
 - (A) SURFACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH..... 3.0"
 - (B) FORMED SURFACES BACKFILLED WITH EARTH OR EXPOSED TO WEATHER..... 2.0"
 - (C) SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO WEATHER..... 1.5" U.N.O.
 - (D) SURFACES OVER LIQUID OR IN CONTACT WITH LIQUID..... 2.0"
5. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS, CORNERS, AND INTERSECTIONS UNLESS OTHERWISE NOTED. REINFORCING STEEL SHALL NOT BE CONTINUOUS THROUGH SLAB ON GRADE CONTROL JOINTS. REINFORCING SHALL BE LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS WITH ACI STANDARD HOOKS, UNLESS OTHERWISE NOTED.

 STANDARD HOOKS SHALL COMPLY WITH ACI 318 REQUIREMENTS FOR DEVELOPMENT OF STANDARD HOOKS IN TENSION. REFER TO TYPICAL DETAILS.
6. REINFORCING STEEL TENSION LAP SPLICE (LS) AND EMBEDMENT LENGTHS (TENSION DEVELOPMENT LENGTHS (LD)), UNLESS OTHERWISE INDICATED, SHALL BE AS INDICATED IN ACI 318-19.
7. LAP CONTINUOUS BOTTOM REINFORCEMENT AT THE CENTER OF SPAN AND CONTINUOUS TOP REINFORCEMENT AT SUPPORTS IN FOUNDATION MATS AND BASE SLABS, UNLESS OTHERWISE INDICATED.
8. PROVIDE REINFORCING BAR SUPPORTS, SPACERS, AND ACCESSORIES AS RECOMMENDED IN ACI 315. PROVIDE PLASTIC BOOTED ACCESSORIES IN CONTACT WITH EXPOSED SURFACES. PROVIDE MINIMUM #5 SUPPORT BARS.
9. ADHESIVE ANCHORING SYSTEMS FOR DRILLED-IN REINFORCING BARS SHALL BE PERMITTED SUBJECT TO APPROVAL BY THE ENGINEER. THE ANCHORING SYSTEM SHALL BE DESIGNED BY A LICENSED PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN MASSACHUSETTS. THE ANCHORING SYSTEM SHALL CONFORM TO THE REQUIREMENTS OF ICC-ES AC308 AND BE DESIGNED ACCORDING TO THE METHODS OUTLINED THEREIN AND BE CAPABLE OF DEVELOPING THE FULL YIELD STRENGTH OF THE BAR BASED ON THE RESULTS OF UNCONFINED PULL-OUT TESTING.
10. DOWELS SHALL MATCH BAR SIZE AND NUMBER, UNLESS NOTED OTHERWISE.
11. WELDED WIRE FABRIC SHALL LAP A MINIMUM OF 12" AND SHALL BE WIRED TOGETHER AT ALL LAPS.
12. REINFORCEMENT NOT DETAILED WITH WELDS SHALL NOT BE TACK WELDED.
13. INSTALLATION OF REINFORCEMENT SHALL BE AVAILABLE FOR INSPECTION PRIOR TO THE SCHEDULED CONCRETE PLACEMENT.

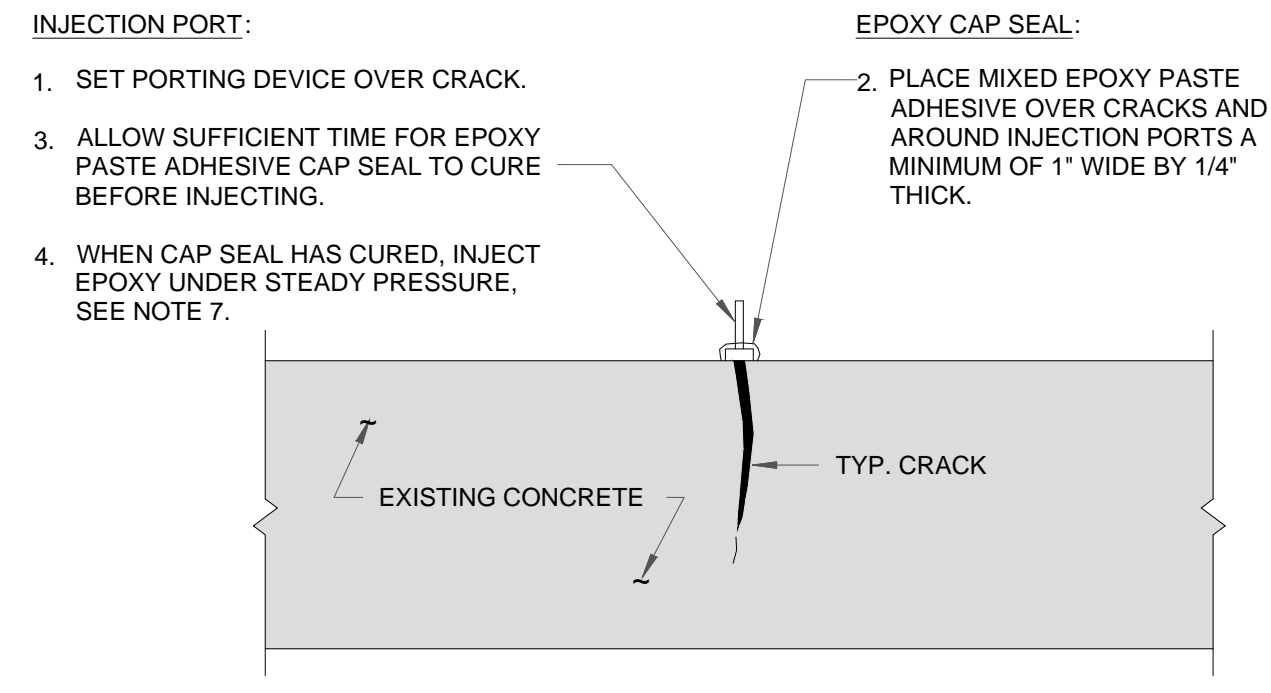


MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

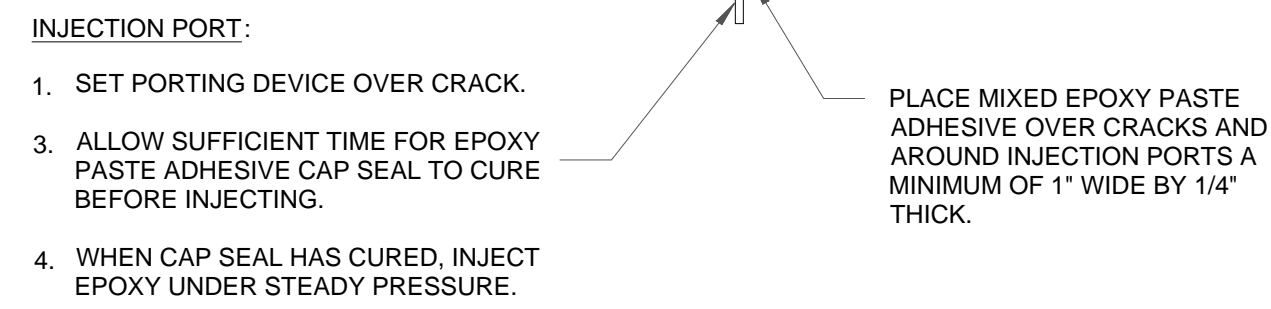
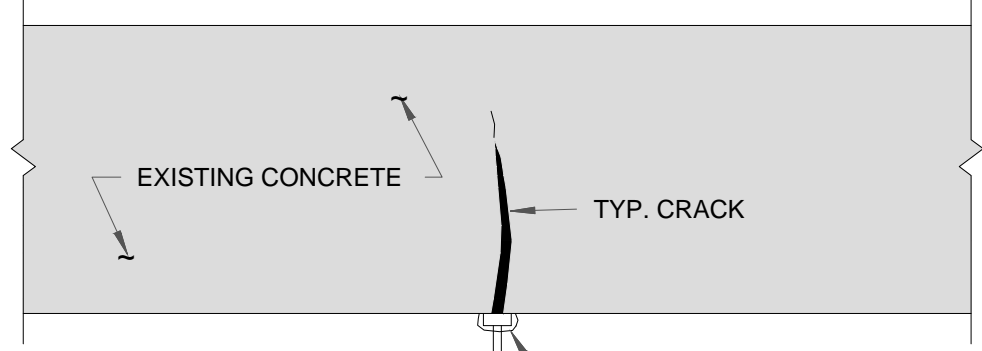
STRUCTURAL GENERAL NOTES 2



		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY APPROVED BY:	
10/23/2019 DATE	CITY OF BOSTON CONSERVATION COMMISSION WPA PERMIT PLANS DESCRIPTION	BK AM AM BY CHD APP	Project Manager: _____ Date: _____ Sr. Project Manager: _____ Date: _____
100% DESIGN SET		SCALE: AS NOTED DATE: 10-23-2019	PLAN NO. XXXX SHEET S0.01



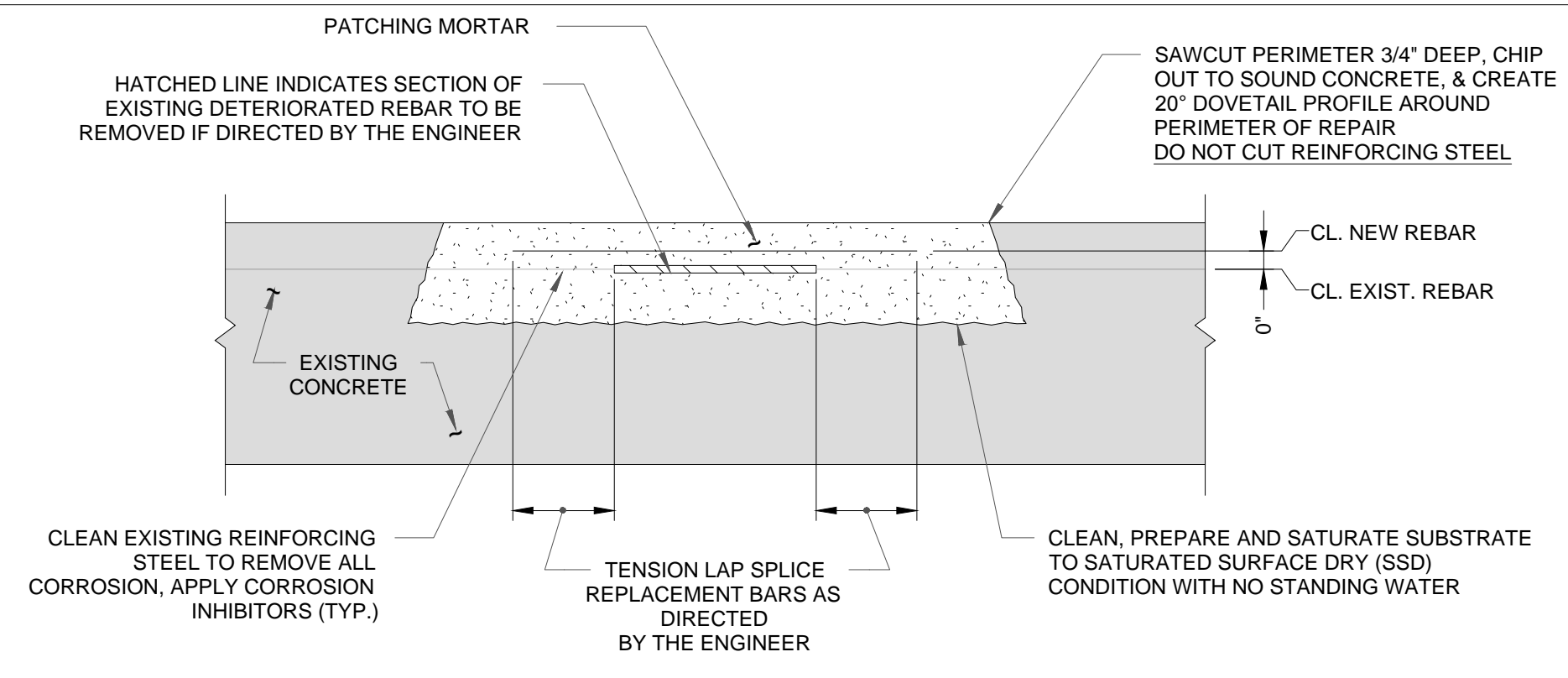
**TYPICAL CONCRETE REPAIR DETAIL
ADHESIVE CRACK INJECTION - TOP (LF)**
SCALE: N.T.S.



**TYPICAL CONCRETE REPAIR DETAIL
ADHESIVE CRACK INJECTION - BOTTOM (LF)**
SCALE: N.T.S.

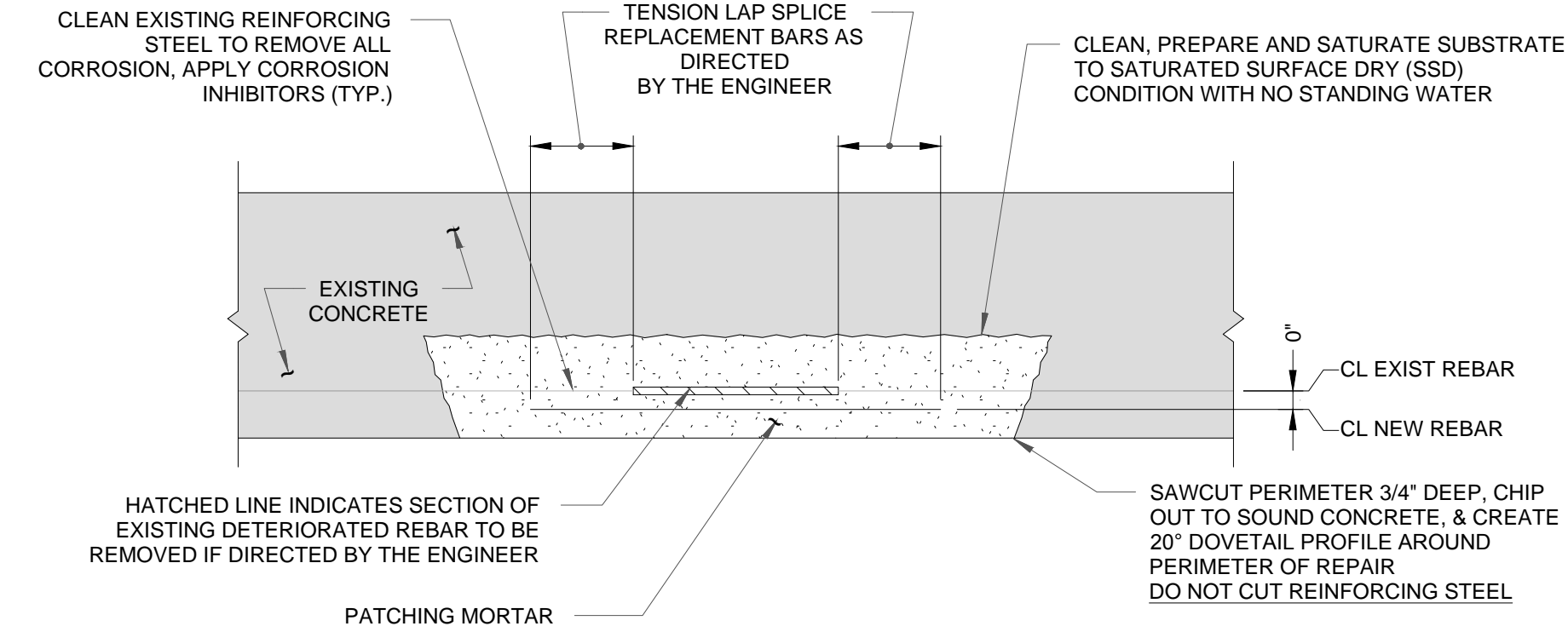
QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007

- CONCRETE REPAIR NOTES:**
1. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL BECOME FAMILIAR WITH THE EXTENT OF THE EXISTING CONDITIONS.
 2. DETAILS FOR RANDOM CONCRETE SURFACE SPALL REPAIRS AND EPOXY CRACK INJECTION REPAIR ARE INDICATED ON THIS SHEET AND IN SPECIFICATION SECTION 03900, "CONCRETE RESTORATION".
 3. CONTRACTOR SHALL APPLY BONDING AGENT AND CORROSION INHIBITOR TO ALL EXPOSED REBAR AFTER CLEANING, BEFORE CONCRETE REPAIR. CONTRACTOR SHALL USE SIKA ARMATEC 110 EPOCEM OR ENGINEER APPROVED EQUAL.
 4. CONTRACTOR SHALL USE SIKATOP 122 PLUS OR ENGINEER APPROVED EQUAL FOR ALL HORIZONTAL CONCRETE REPAIRS. CONTRACTOR SHALL USE SIKATOP 123 PLUS OR ENGINEER APPROVED EQUAL FOR ALL VERTICAL CONCRETE PATCHES.
 5. CONTRACTOR SHALL USE SIKAFLEX-2C SL OR ENGINEER APPROVED EQUAL FOR ALL HORIZONTAL CONSTRUCTION AND CONTROL JOINT REPAIRS. CONTRACTOR SHALL USE SIKAFLEX-2C NS FOR ALL VERTICAL CONSTRUCTION AND CONTROL JOINT REPAIRS.
 6. CONTRACTOR SHALL USE SIKADUR 31, HI-MOD GEL (1:1 MIX RATIO) OR ENGINEER APPROVED EQUAL FOR ALL HORIZONTAL AND VERTICAL CRACK REPAIR AS THE CAP SEAL FOR PRESSURE INJECTION.
 7. CONTRACTOR SHALL USE SIKADUR 35, HI-MOD LV OR ENGINEER APPROVED EQUAL FOR ALL HORIZONTAL AND VERTICAL CRACK INJECTION REPAIRS.
 8. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S RECOMMENDATIONS AND THE DIRECTIONS LISTED IN SPECIFICATION SECTION 03900 "CONCRETE RESTORATION" FOR MIXING AND APPLICATION OF ALL CONCRETE REPAIR PRODUCTS.
 9. SEE SHEETS S0.00 FOR STRUCTURAL GENERAL NOTES AND ABBREVIATIONS.
 10. SEE THIS SHEET FOR TYPICAL STRUCTURAL REPAIR DETAILS.



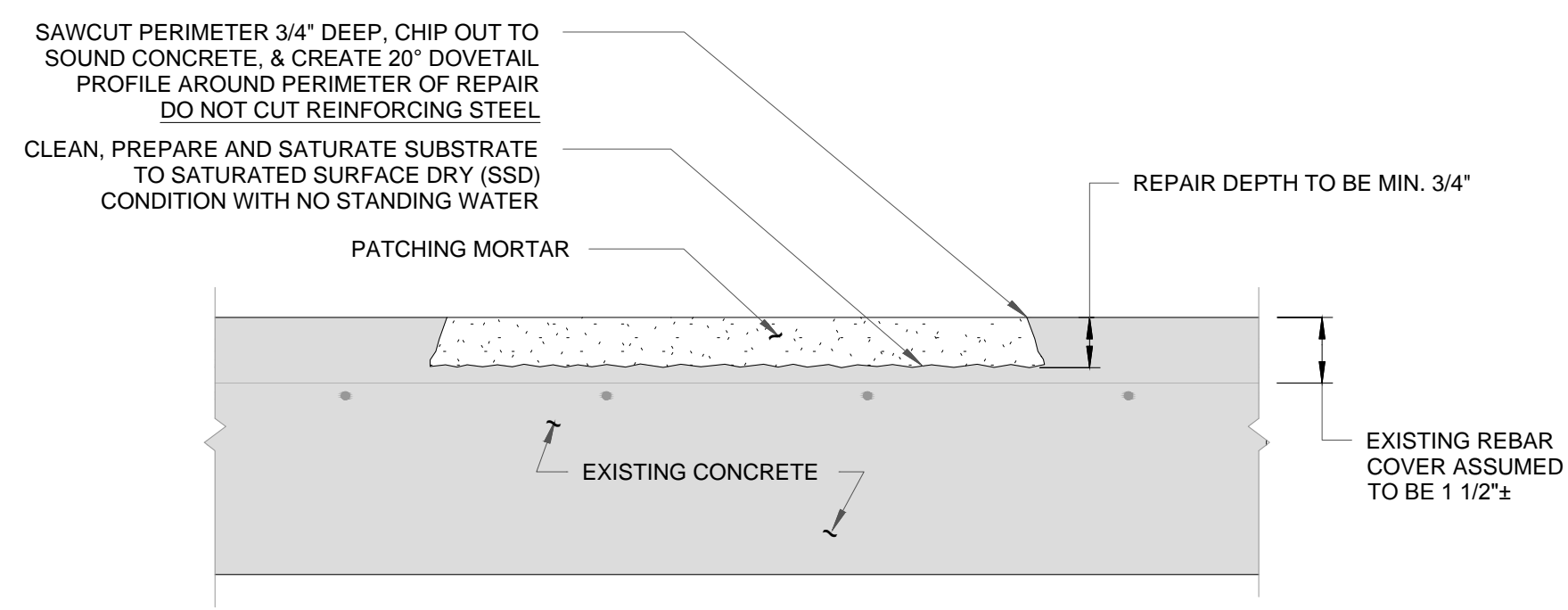
**TYPICAL CONCRETE REPAIR DETAIL
SURFACE SPALL REPAIR - TOP
ADD NEW REBAR (SF)**
SCALE: N.T.S.

QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



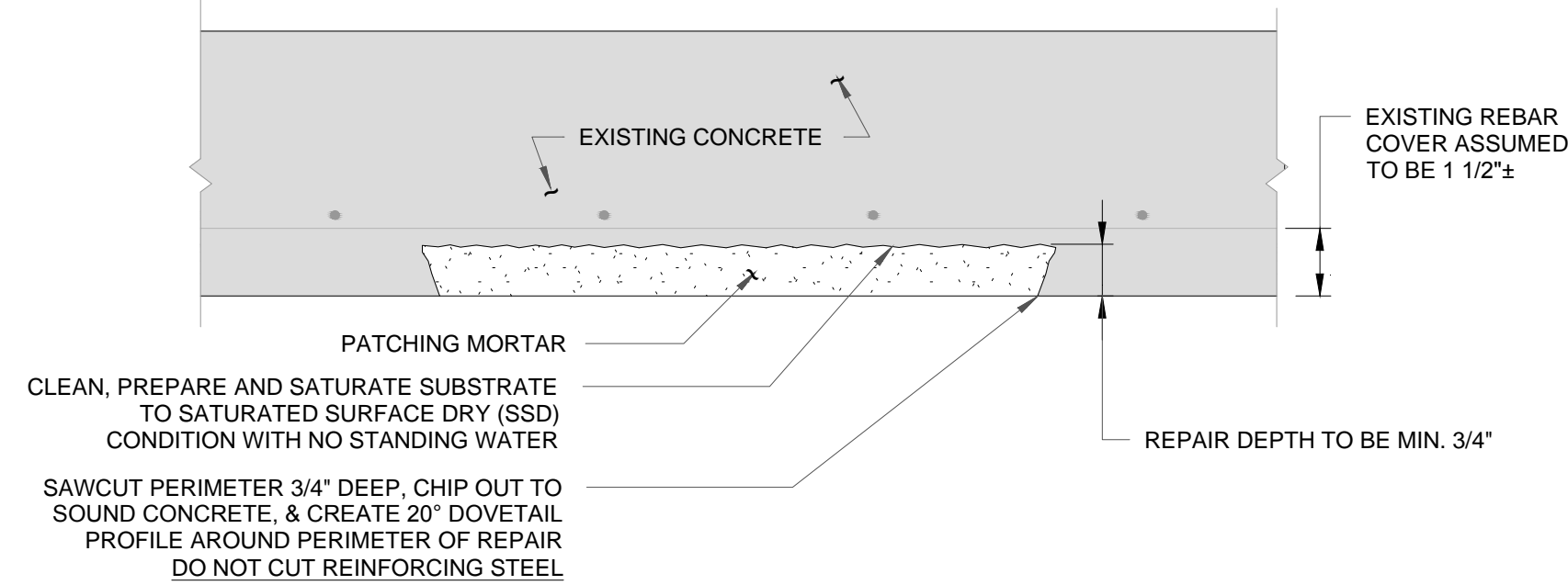
**TYPICAL CONCRETE REPAIR DETAIL
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QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



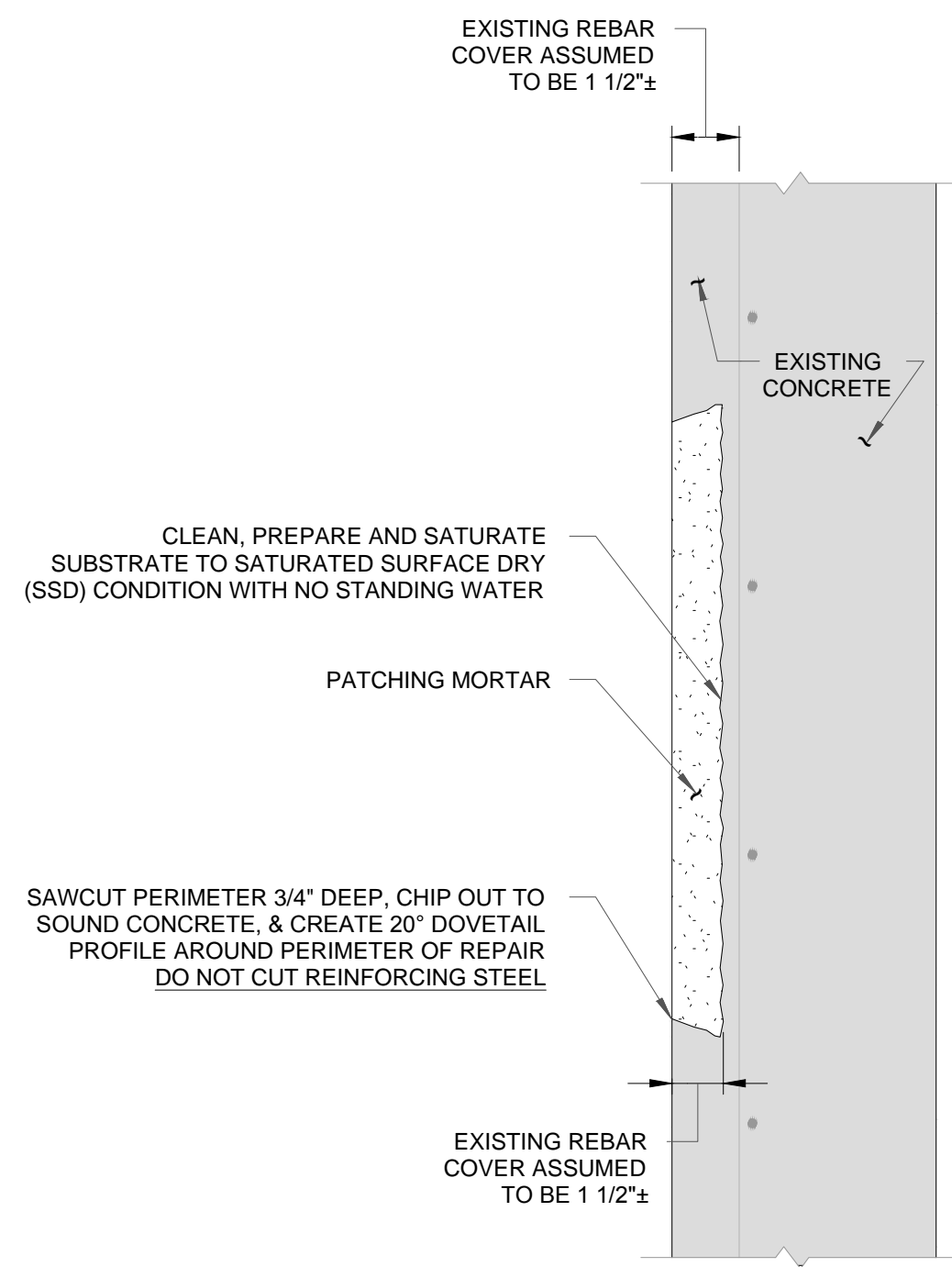
**TYPICAL CONCRETE REPAIR DETAIL
SURFACE SPALL REPAIR - TOP
NO EXPOSED REBAR (SF)**
SCALE: N.T.S.

QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



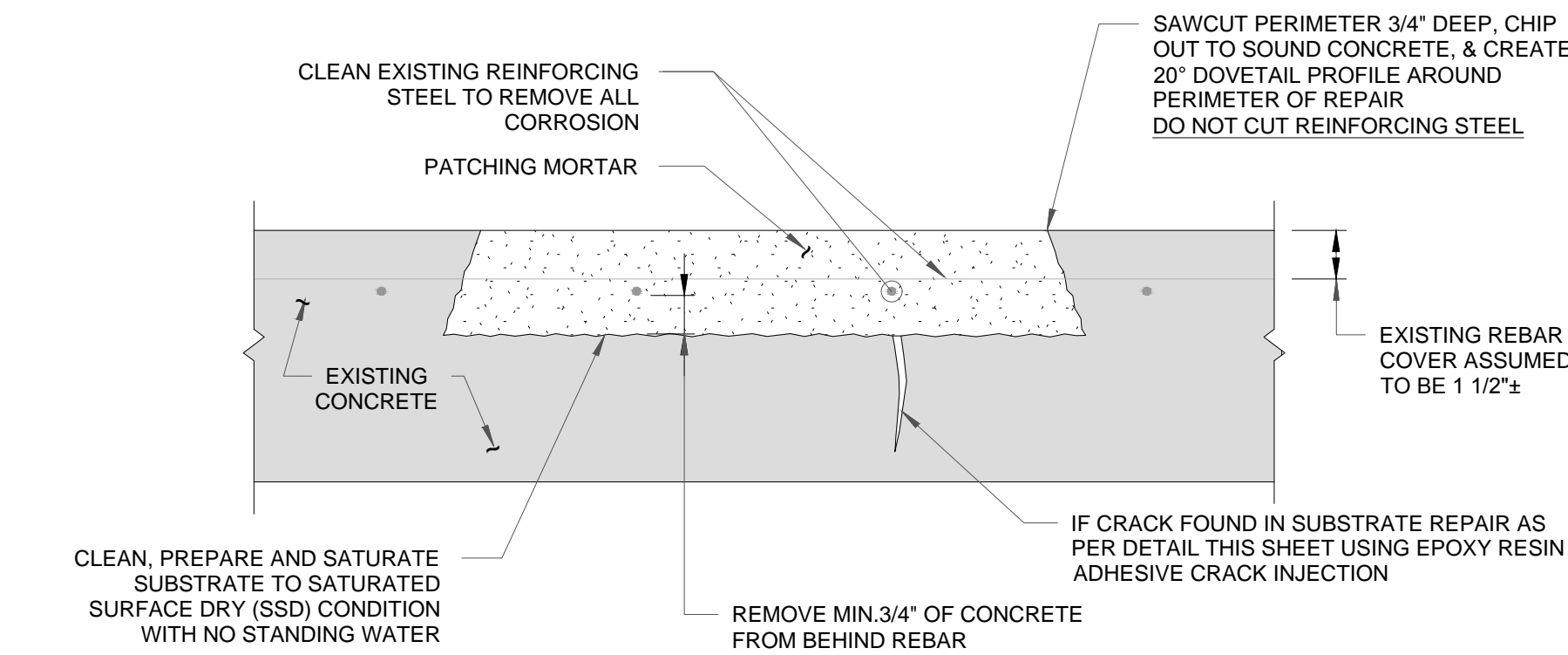
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SURFACE SPALL REPAIR - BOTTOM
NO EXPOSED REBAR (SF)**
SCALE: N.T.S.

QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



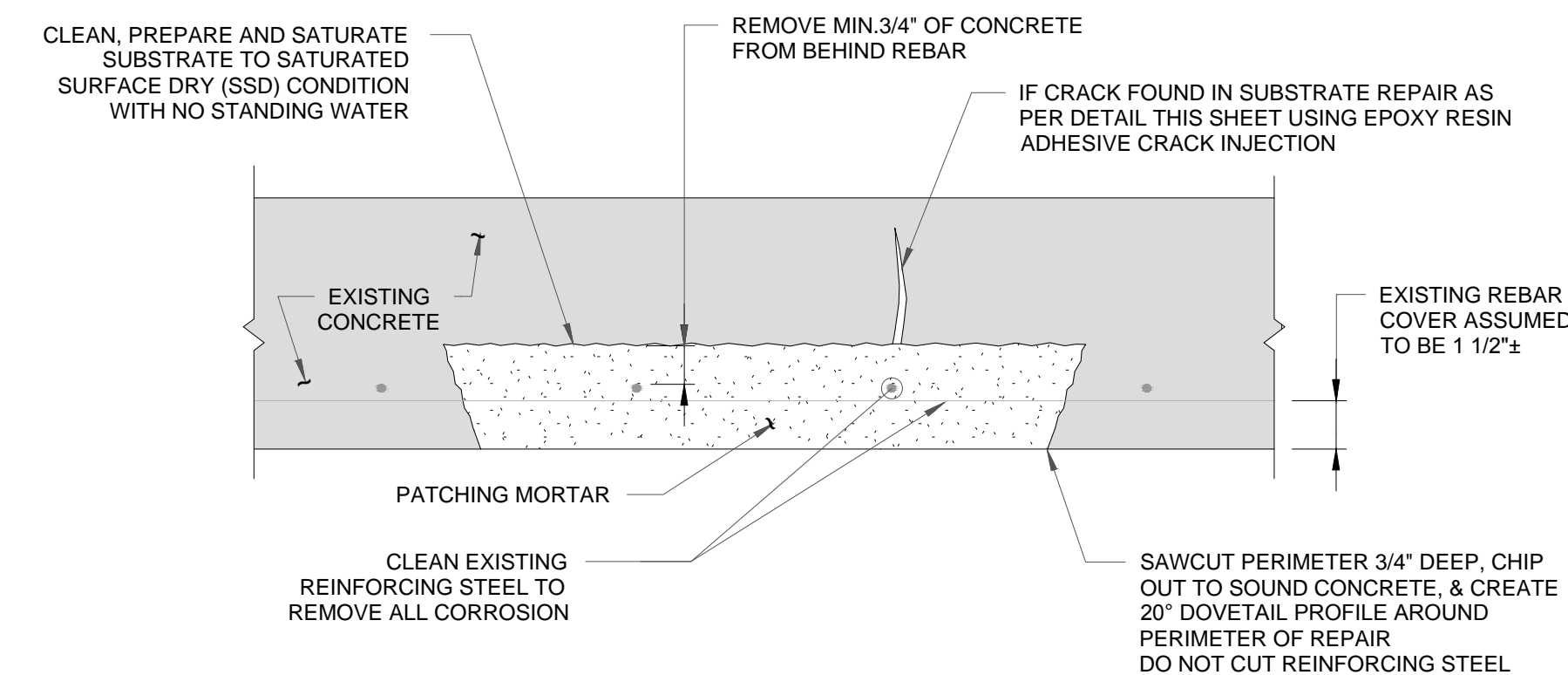
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SURFACE SPALL REPAIR - VERTICAL
NO EXPOSED REBAR (SF)**
SCALE: N.T.S.

QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



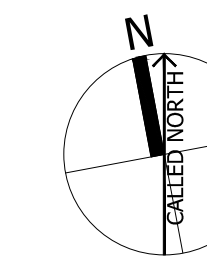
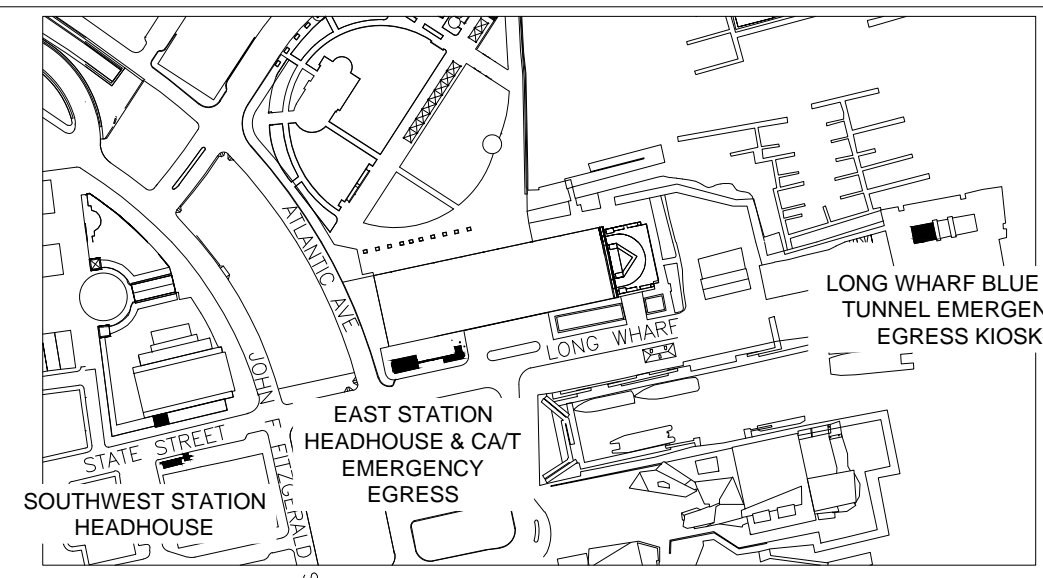
**TYPICAL CONCRETE REPAIR DETAIL
SURFACE SPALL REPAIR - TOP
EXISTING EXPOSED REBAR (SF)**
SCALE: N.T.S.

QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



**TYPICAL CONCRETE REPAIR DETAIL
SURFACE SPALL REPAIR - BOTTOM
EXISTING EXPOSED REBAR (SF)**
SCALE: N.T.S.

QUANTITIES FOR THIS DETAIL WILL BE PAID FOR UNDER PAY ITEM 0508.007



KEY PLAN



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
MBTA CONTRACT NO. XXXXX

TYPICAL CONCRETE REPAIR DETAILS



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

APPROVED BY:

Project Manager: Date: Dr. Project Manager: Date:

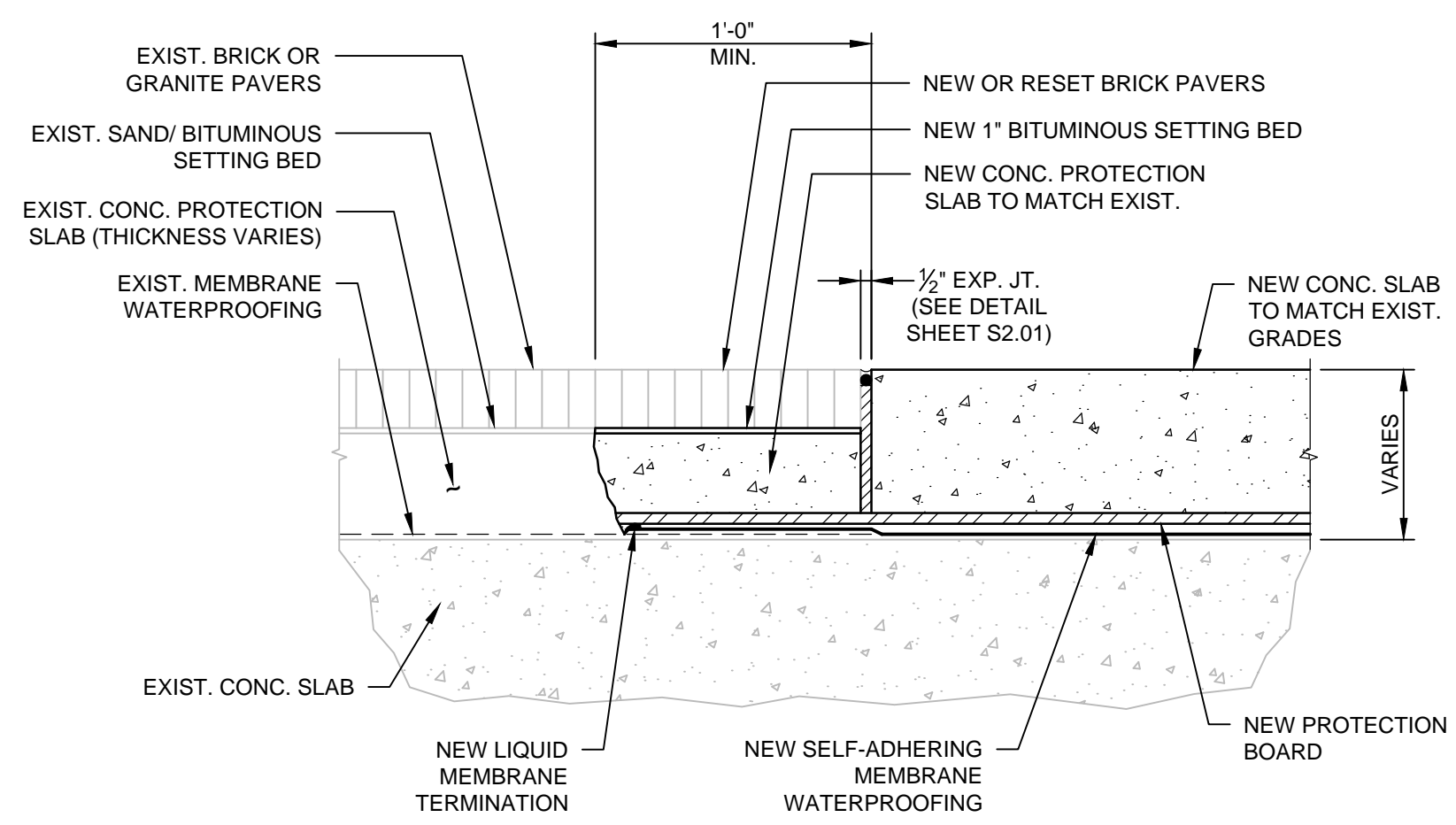
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DES. BY: DR. BY: CHK. BY: PLAN NO. XXXX

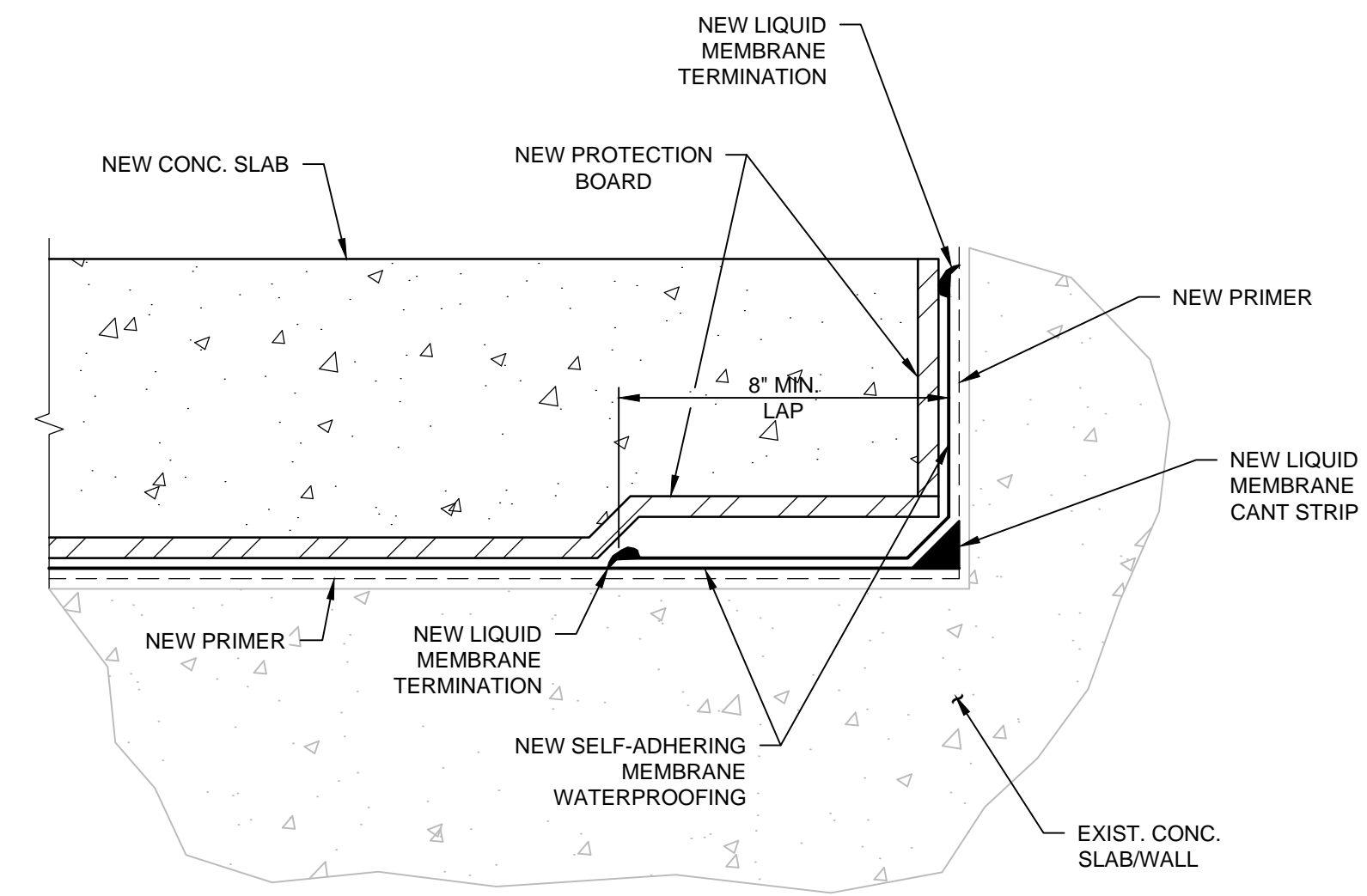
RMS RMS APM SHEET **S0.02**

DATE: 10-23-2019

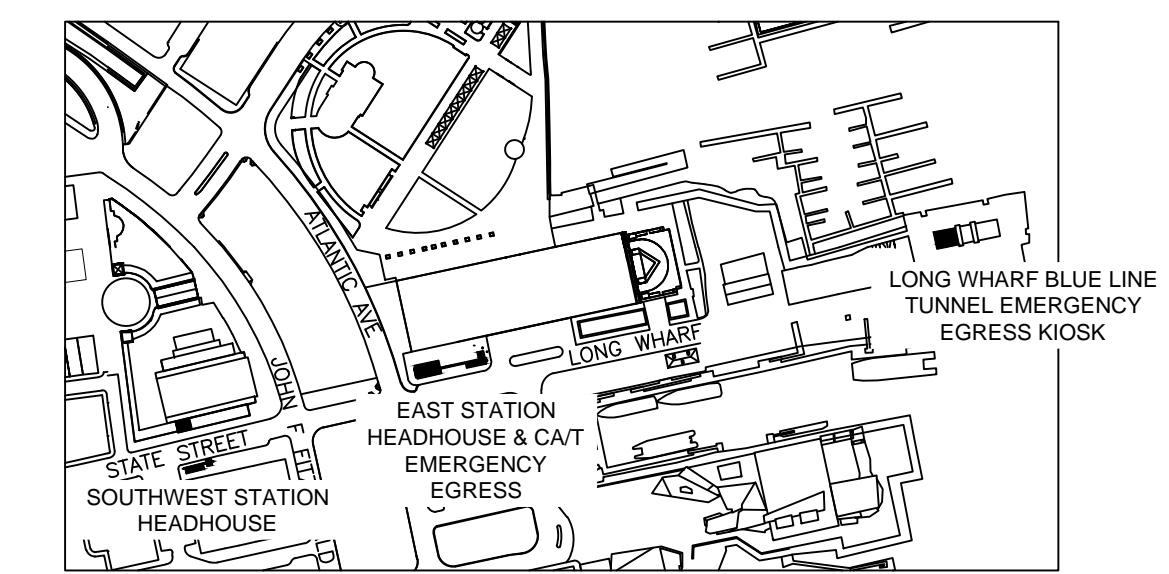
12220	CITY OF BOSTON CONSERVATION COMMISSION WPA PERMIT PLANS	SR	AM	AM
	DESCRIPTION	BY	CHKD	APP.
	100% DESIGN SET			



TYPICAL WATERPROOFING AT NEW CONCRETE SLAB
SCALE: 1 1/2" = 1'-0"



TYPICAL WATERPROOFING DETAIL
SCALE: 3" = 1'-0"



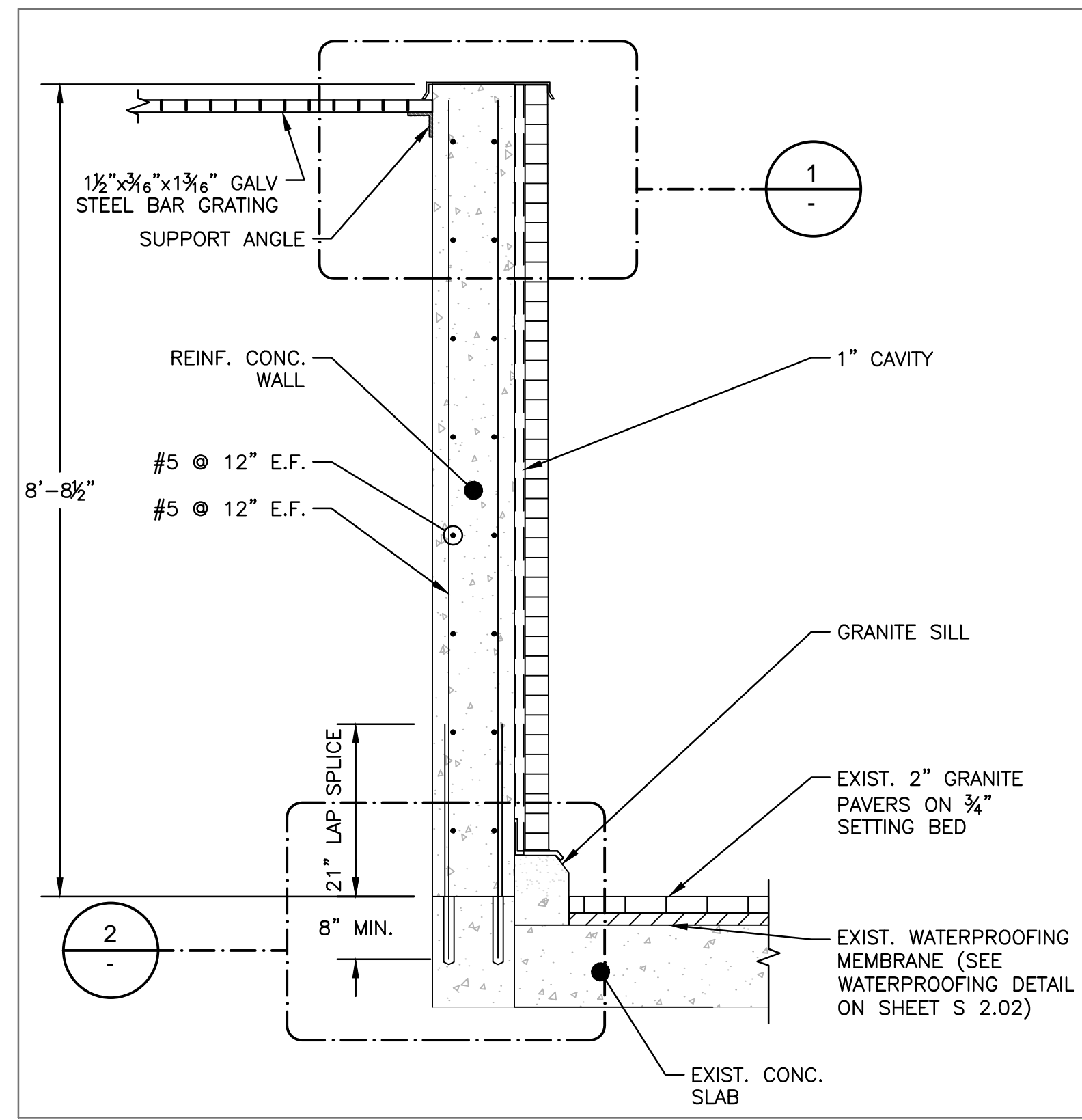
KEY PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
 BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS
 MBTA CONTRACT NO. XXXXXX

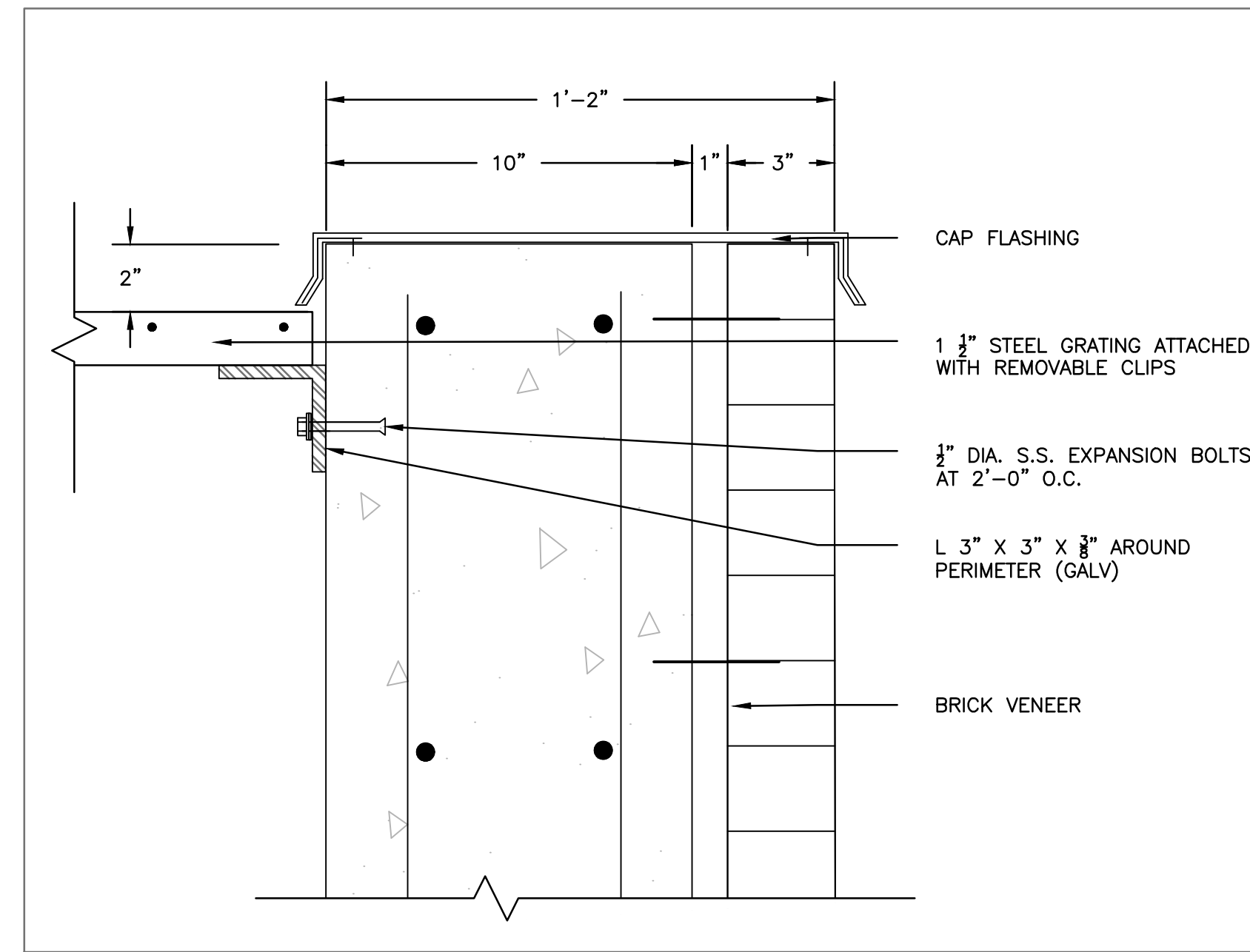
WATERPROOFING DETAILS

				MASSACHUSETTS BAY TRANSPORTATION AUTHORITY APPROVED BY: _____ Date: _____	
Project Manager: _____ Date: _____	DES. BY: MGL MGL DATE: 10-23-2019	DR. BY: MGL MGL DATE: 10-23-2019	CHK. BY: AAM AAM	PLAN NO. XXXX SHEET S0.03	

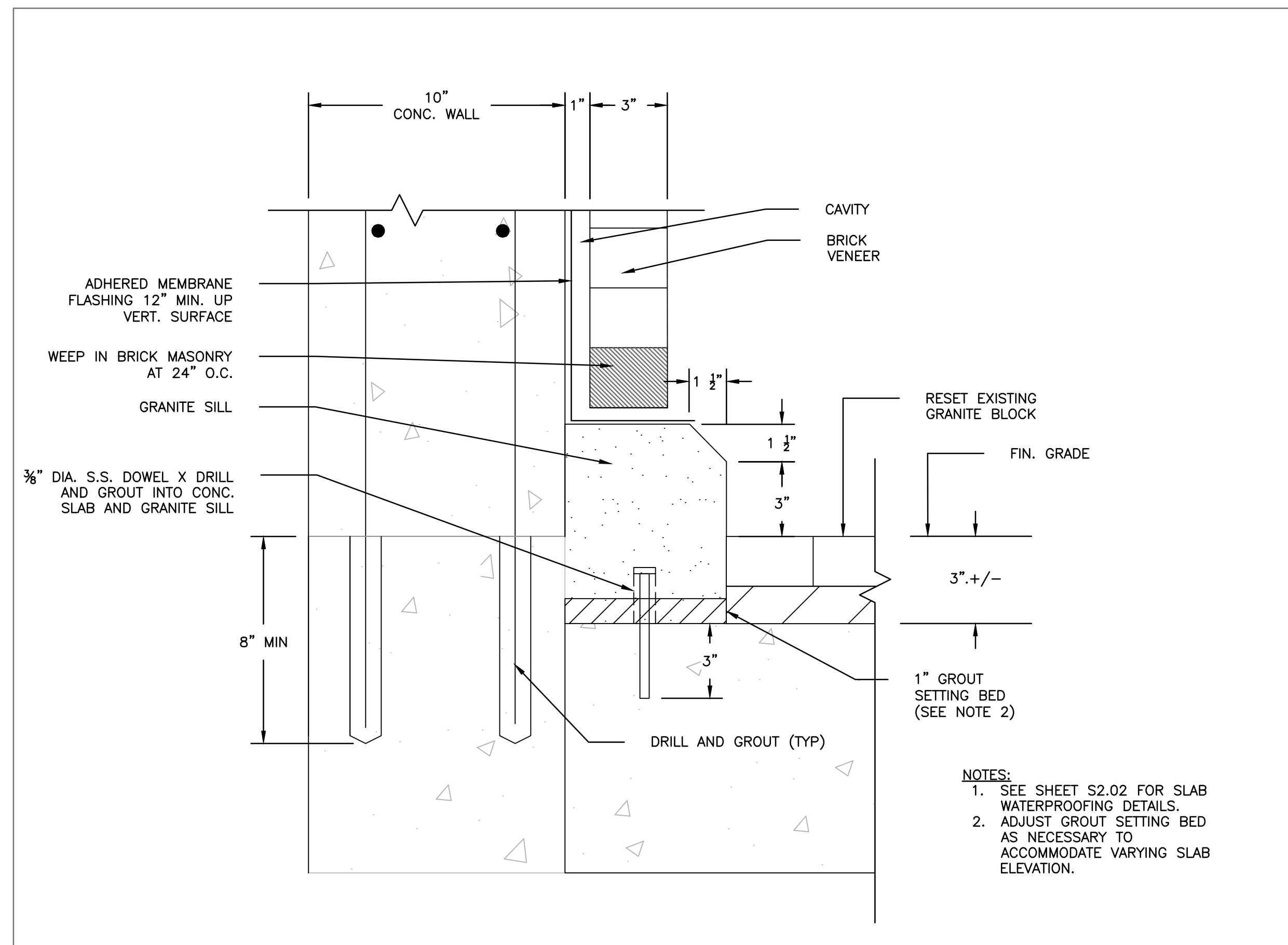
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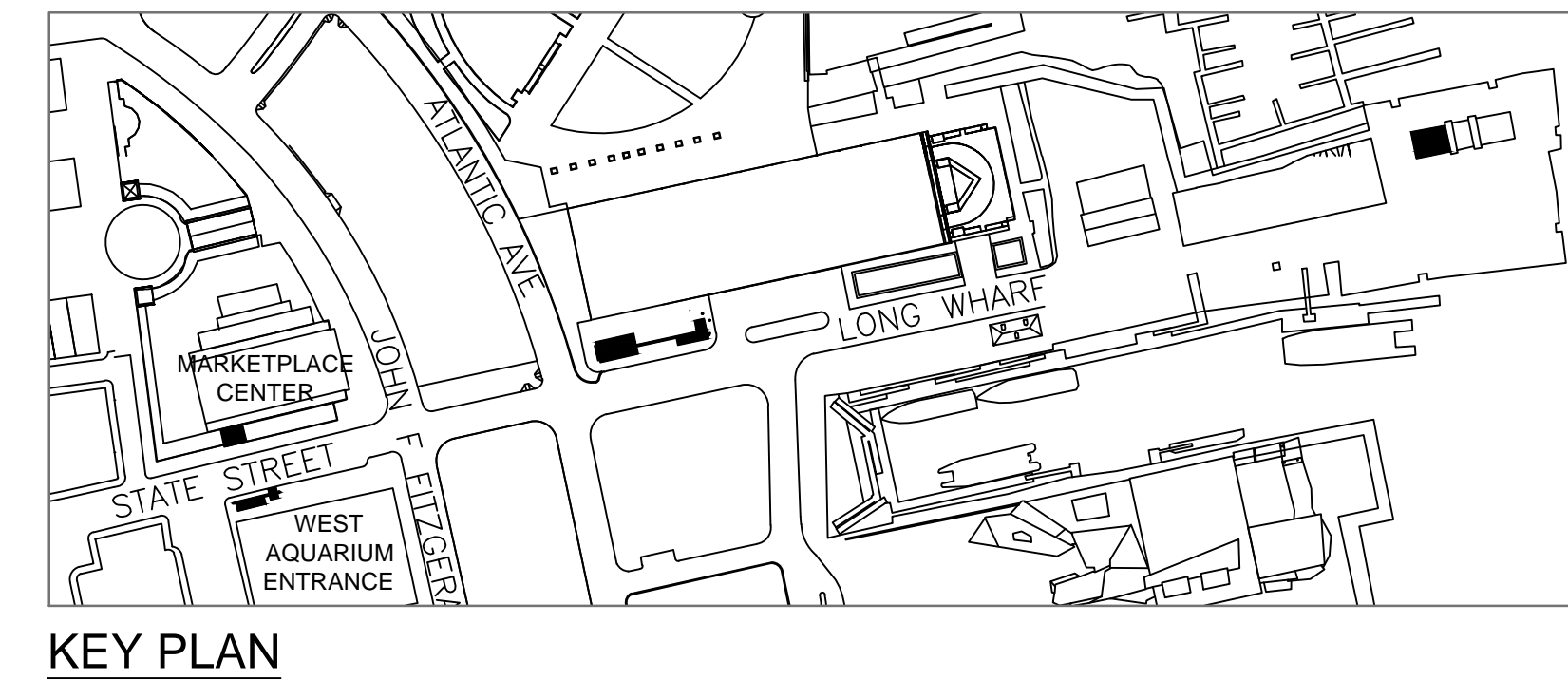
A TYPICAL WALL SECTION
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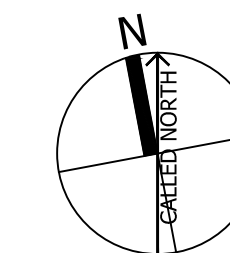
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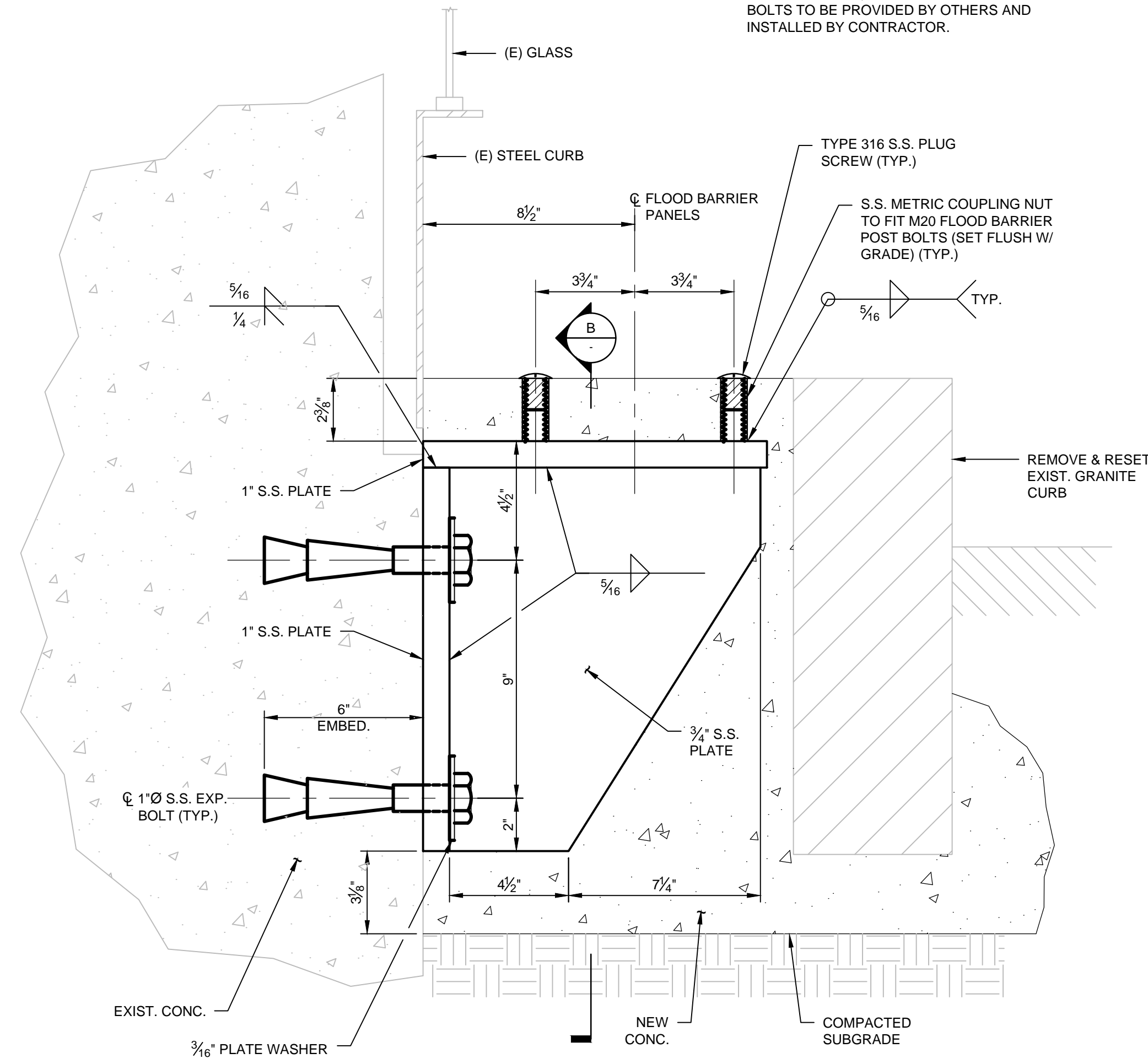
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SCALE: 3" = 1'-0"



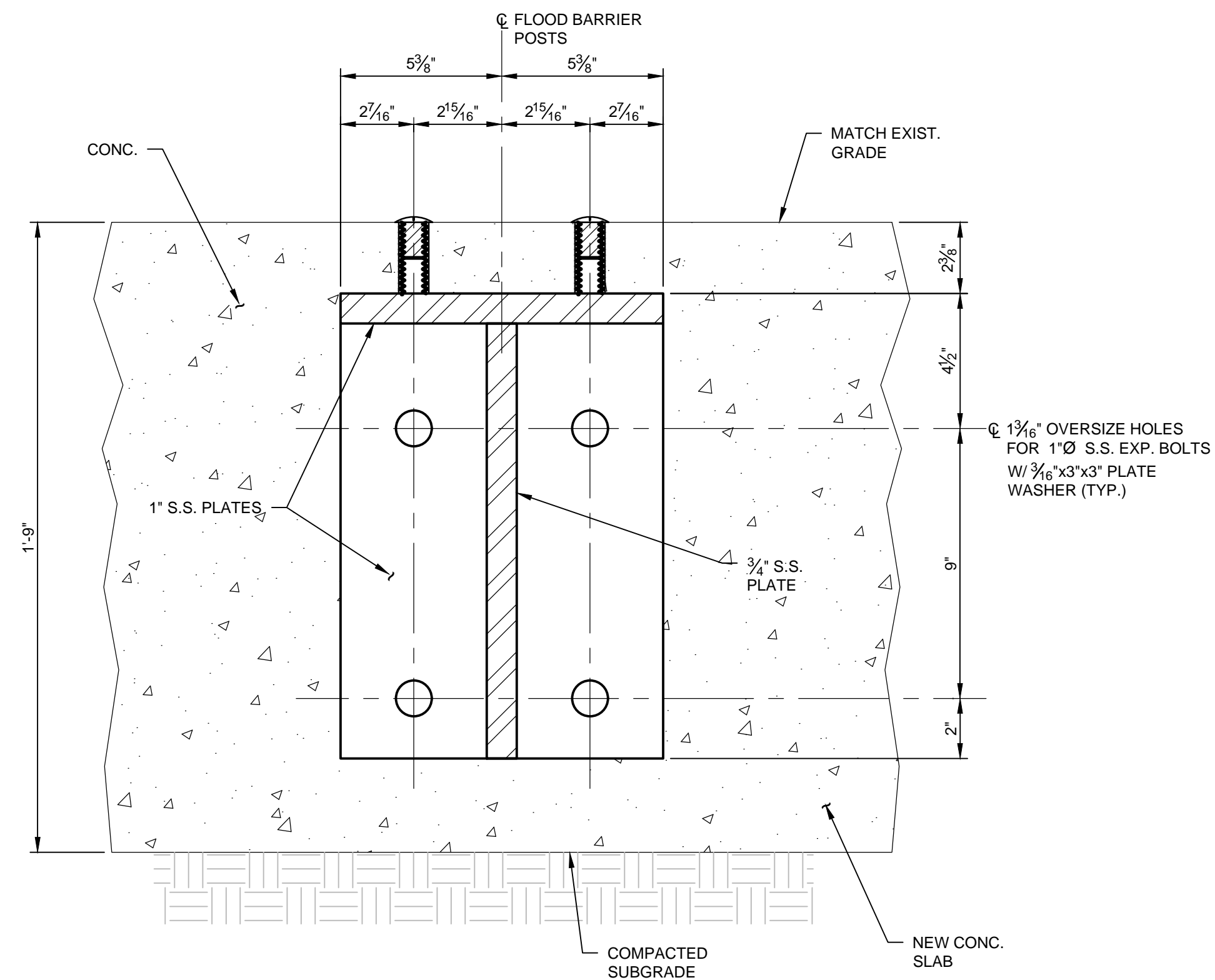
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		STRUCTURAL DETAILS - LONG WHARF BLUE LINE EMERGENCY EGRESS KIOSK			
APPROVED BY:				MASSACHUSETTS BAY TRANSPORTATION AUTHORITY	
DATE:		PROJECT MANAGER:		DATE:	
DESCRIPTION:		DESIGNED BY:		PROJECT NO.:	
DATE: 10-23-2019		MGL MGL AAM		PLAN NO. XXXX	
100% DESIGN SET		SCALE: AS NOTED		SHEET S1.01	



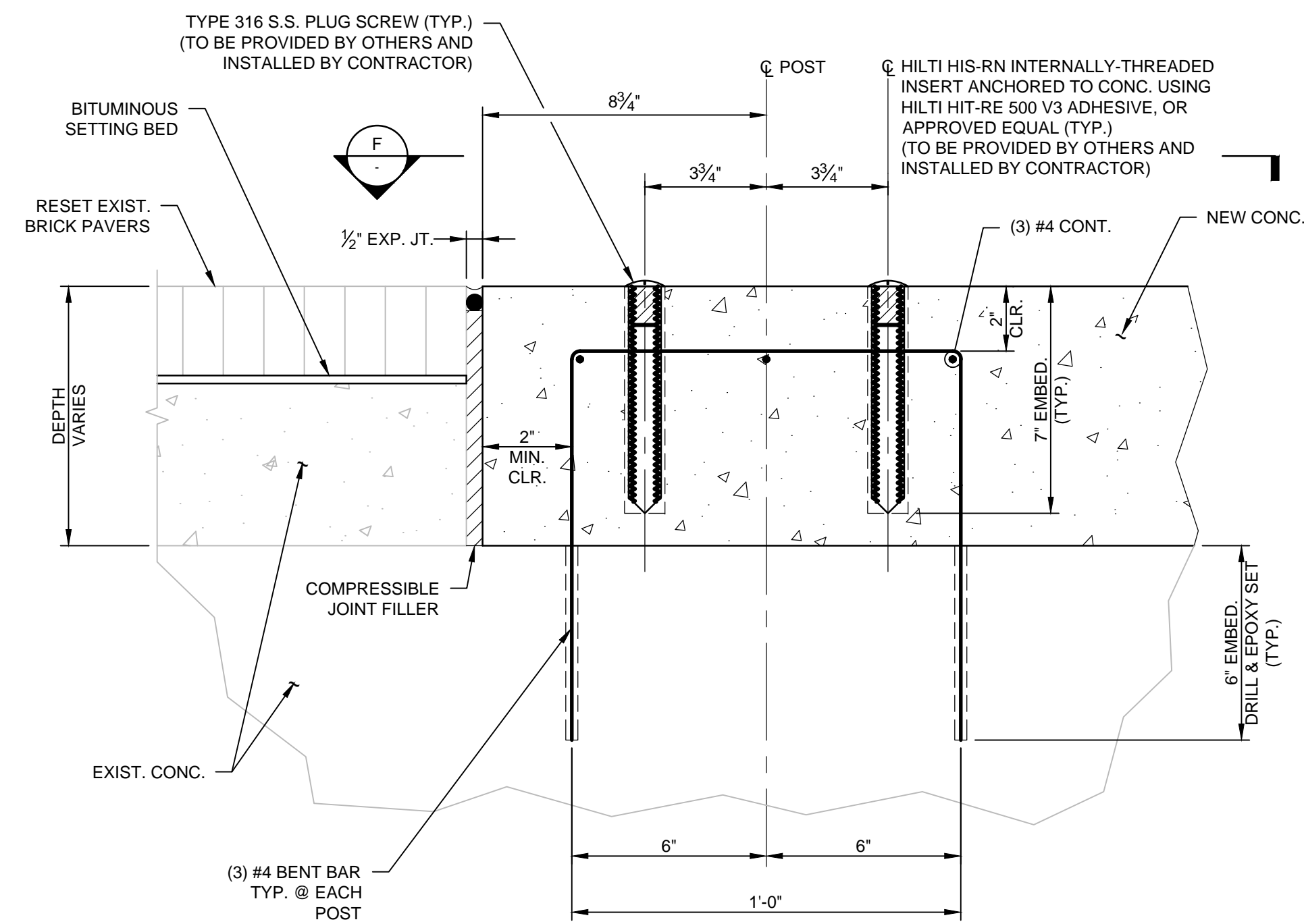
NOTE:
1. STEEL BRACKET, PLUG SCREWS AND ANCHOR BOLTS TO BE PROVIDED BY OTHERS AND INSTALLED BY CONTRACTOR.



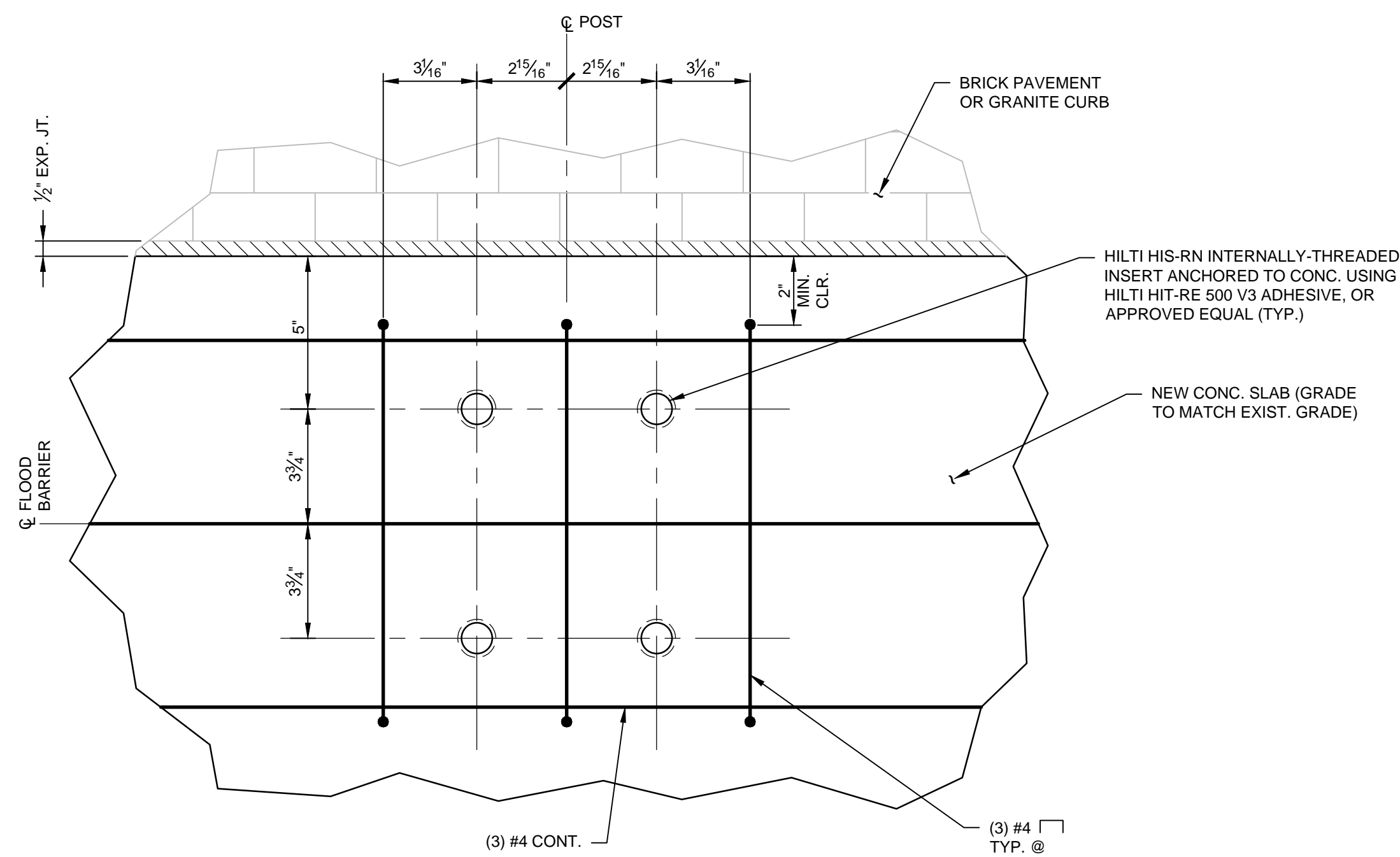
A SECTION
SCALE: 3" = 1'-0"



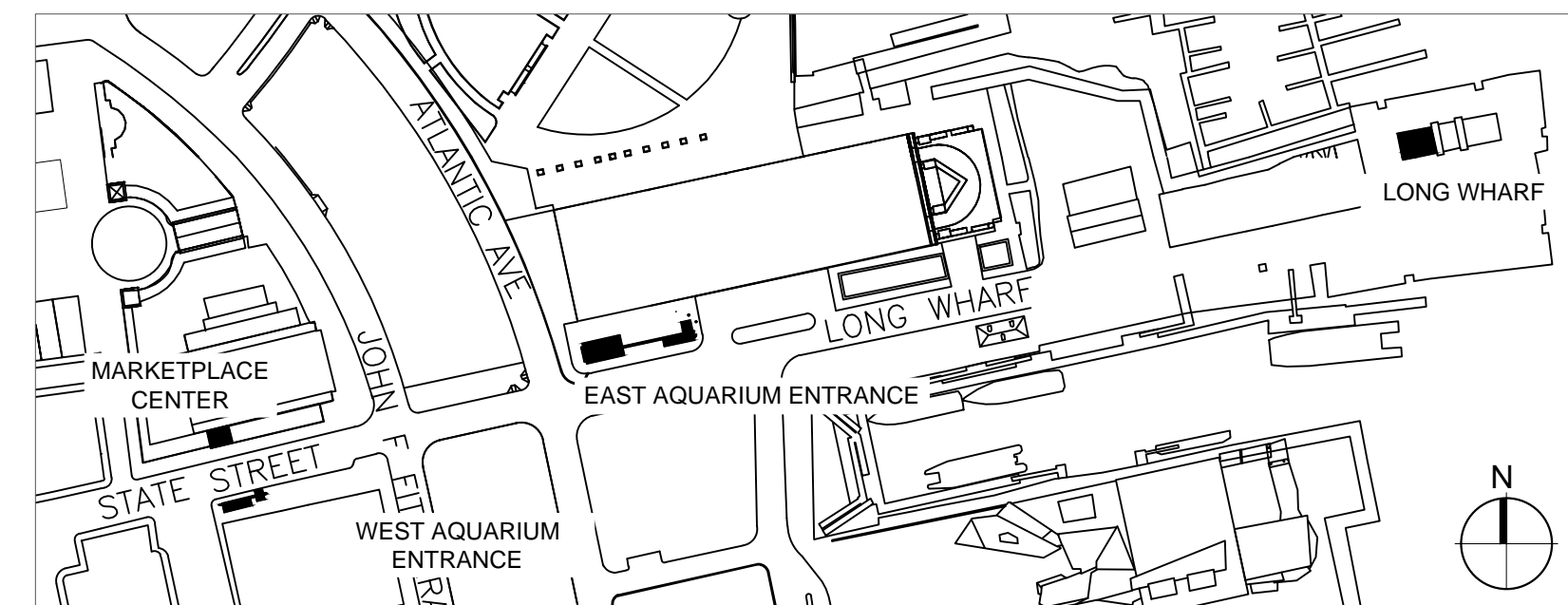
B SECTION
SCALE: 3" = 1'-0"



D SECTION
SCALE: 3" = 1'-0"

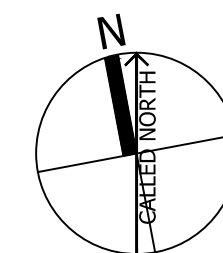


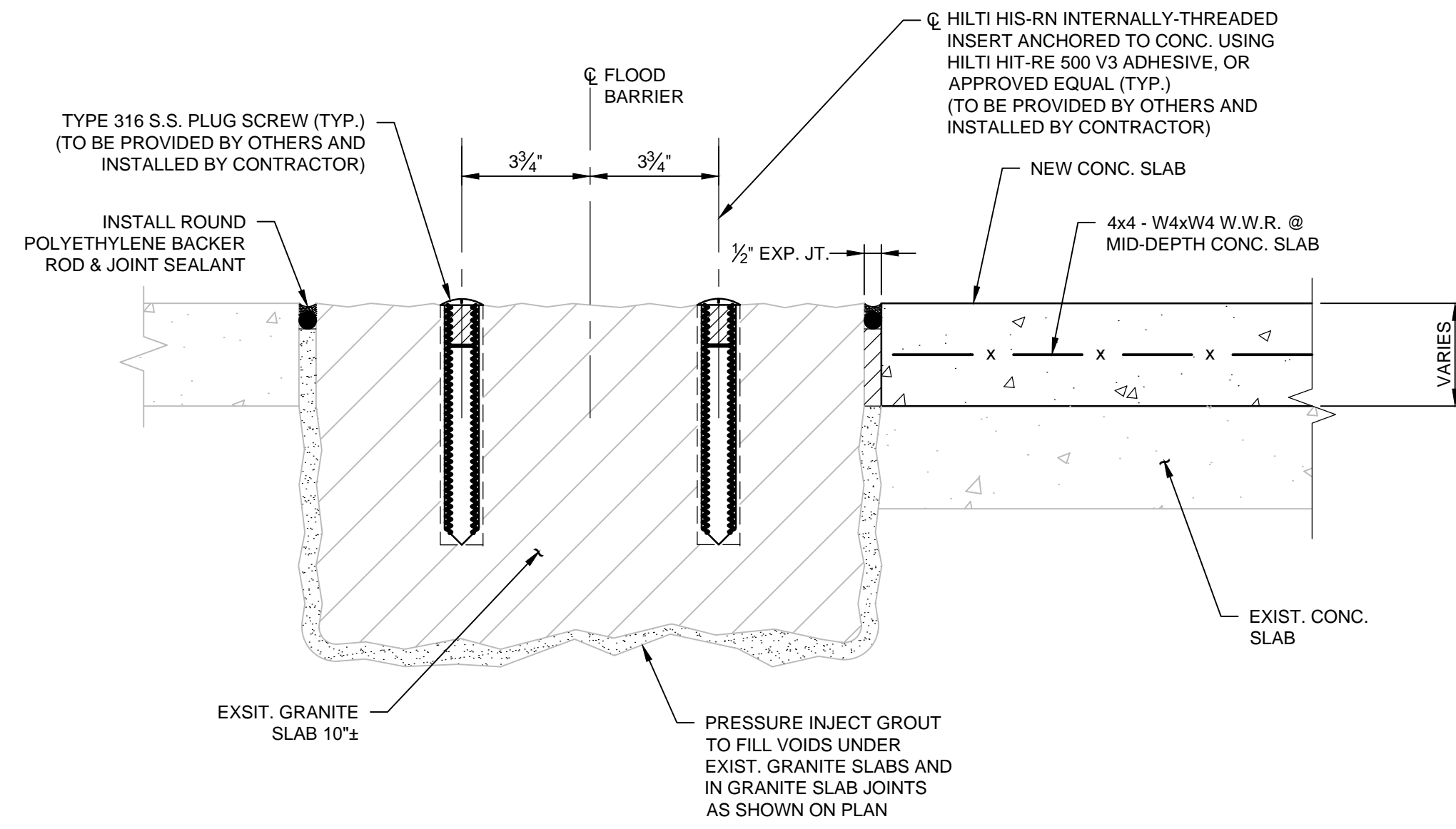
F PLAN SECTION
SCALE: 3" = 1'-0"



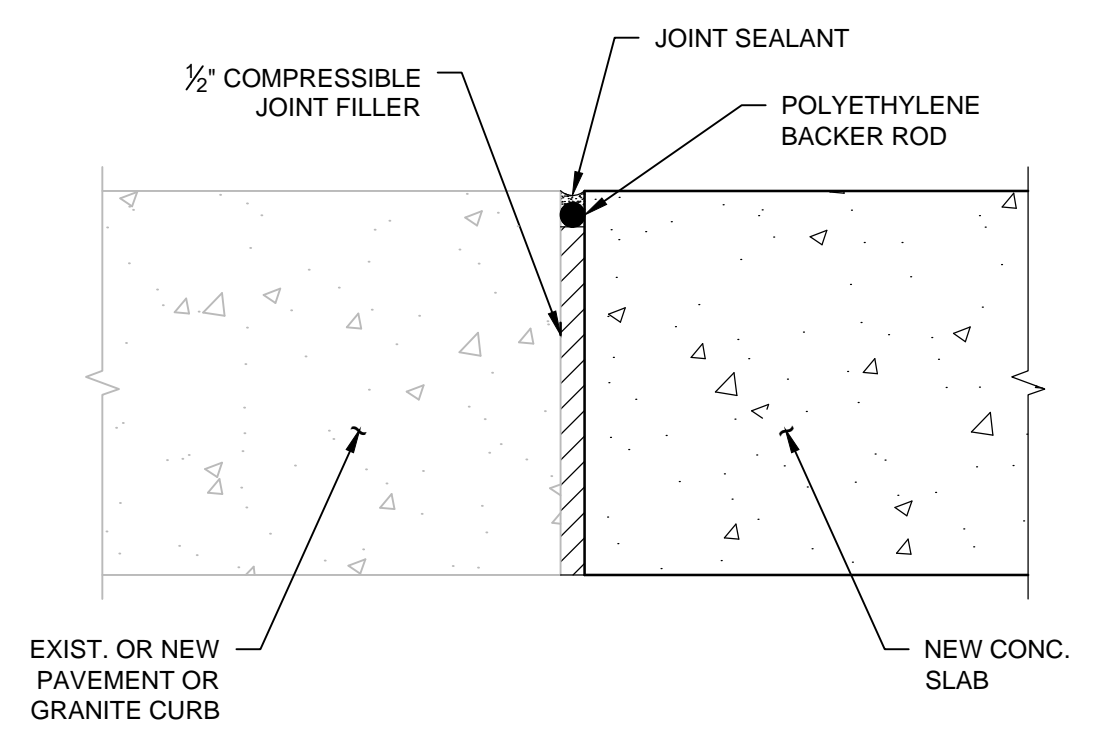
KEY PLAN

				MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS MBTA CONTRACT NO. XXXXXX	
		STRUCTURAL SECTIONS & DETAILS 1			
PROJECT MANAGER: [Blank]		DATE: [Blank]		PROJECT MANAGER: [Blank]	
SCALE: AS NOTED		DES. BY: MGL MGL MGL AAM		PLAN NO. XXXX SHEET S2.01	
DATE: 10-23-2019		100% DESIGN SET		APPROVED BY: [Blank]	

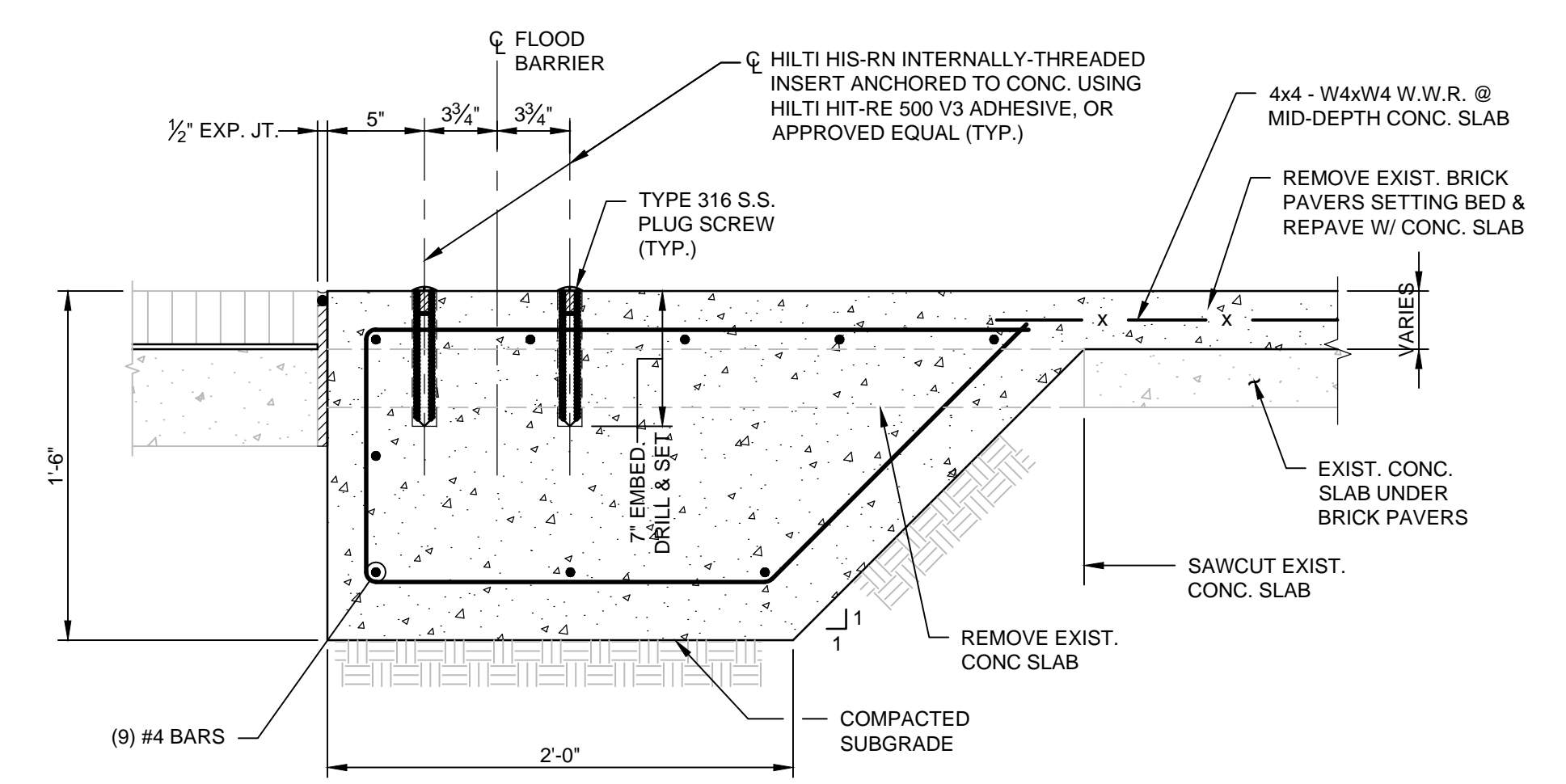




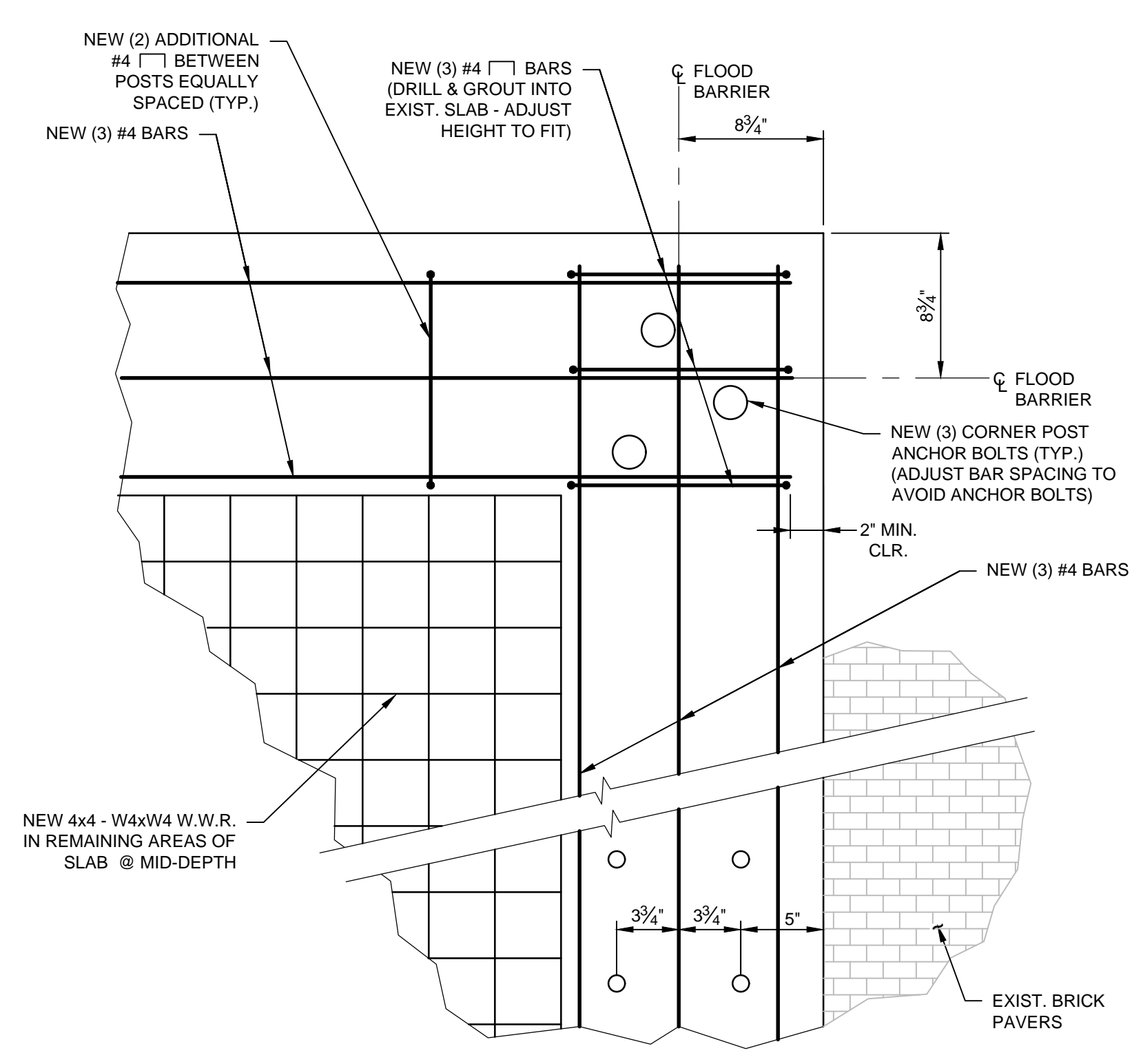
E SECTION
SCALE: 3" = 1'-0"



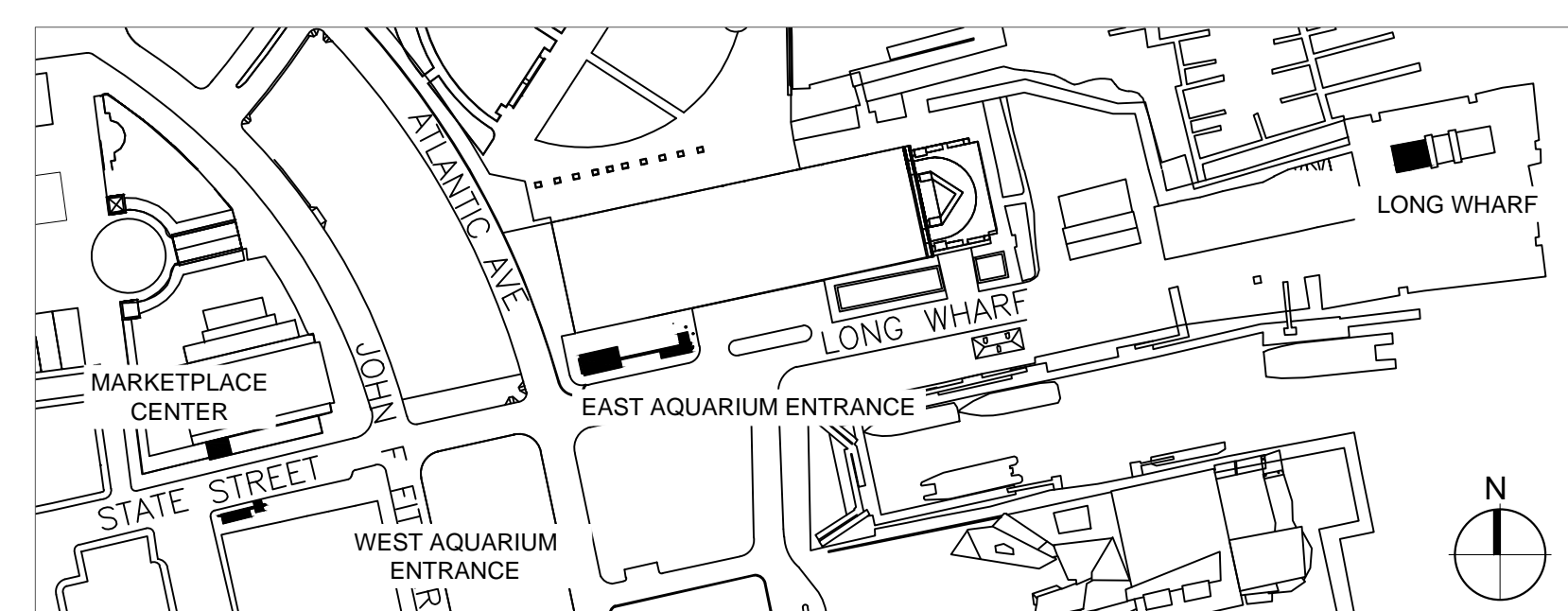
TYPICAL PAVEMENT EXPANSION JOINT
SCALE: 3" = 1'-0"



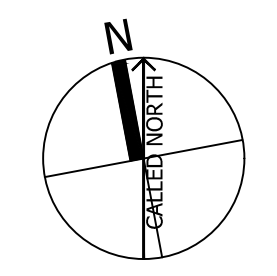
G SECTION
SCALE: 1 1/2" = 1'-0"



PLAN DETAIL
SCALE: 1 1/2" = 1'-0"



KEY PLAN



 				MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BLUE LINE AQUARIUM STATION FLOODPROOFING IMPROVEMENTS MBTA CONTRACT NO. XXXXXX	
		STRUCTURAL SECTIONS & DETAILS 2			
100% DESIGN SET		KLEINFELDER ENGINEERS ARCHITECTS		MASSACHUSETTS BAY TRANSPORTATION AUTHORITY APPROVED BY: _____ Date: _____	
CITY OF BOSTON CONSERVATION COMMISSION WPA PERMIT PLANS DATE: _____	DESCRIPTION: _____ BY: _____ CHKD: _____ APP: _____	Project Manager: _____ Date: _____	Scale: AS NOTED MGL MGL AAM DATE: 10-23-2019	DES. BY: _____ DR. BY: _____ CHK. BY: _____	PLAN NO. XXXX SHEET S2.02

APPENDIX E
PROJECT SPECIFICATIONS FOR EROSION & SEDIMENT CONTROL

SECTION 02060

EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section specifies furnishing and applying calcium chloride for dust control and erosion control barriers for the control of erosion and sedimentation on the site and adjacent to the sites. This section also includes the installation of silt curtains in existing catch basins as directed by the Engineer.
- B. Dust control operations shall meet the requirements of the Commonwealth of Massachusetts Department of Environmental Protection "310 CMR 7.09: Air Pollution Control Regulations."
- C. Erosion control barrier shall consist of Coir (coconut fiber) rolls as detailed in the Drawings and/or as directed by the Engineer.

1.02 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Erosion control products shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement.
- B. Each erosion control product shall be labeled or tagged to provide product identification sufficient for field identification, as well as inventory and quality control purposes.
- C. Each erosion control product shall be stored in a manner that will protect them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof cover.

1.03 JOB CONDITIONS

- A. Erosion control measures shall be established at the beginning of construction and maintained during the entire period of construction. On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, are to be identified and receive special attention.

1.04 QUALITY CONTROL

- A. Erosion control products shall be installed in accordance with the manufacturer's recommendations. Where manufacturer's recommendations conflict with details shown on the Contract Drawings, the more stringent, in the opinion of the Engineer, shall apply.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Calcium Chloride shall conform to the requirements of AASHTO-M144, Type I or Type II. Use mechanical spreader or other approved equipment.
- B. Coir Rolls: Coir (coconut fiber) 12 inches in diameter suitable for erosion control.
- C. Silt Sacks: A sediment control device specifically designed to be inserted into catch basins or drop inlets to catch sediment. It shall consist of a permeable geotextile that allows water to pass, but prevents silt and sediment from clogging the drain system. The silt sack shall be provided with overflow holes to make the silt sack effective even in extreme weather events.

PART 3 - EXECUTION

3.01 DUST CONTROL

- A. Leave existing pavement and/or ground covering in place until the last possible moment prior to pavement removal for purposes of dust control.
- B. Calcium chloride and water shall be properly applied as required and/or where directed by the Engineer and distributed uniformly at the rate required or ordered. Method and equipment used to distribute the material shall be satisfactory to the Engineer.
- C. The Contractor is responsible for keeping dust down at all times, including non-working hours, weekends, and holidays. Sprinkle or treat, with dust suppressors, the pavement at the site, and other areas disturbed by construction operations. No dry power brooming is permitted. Instead use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning nonparticulate debris, such as steel reinforcing bars. No sandblasting is permitted unless dust therefrom is confined. Only wet cutting of concrete blocks, concrete, and asphalt is permitted.
- D. Stop all pavement removal and excavation work when, as determined by the Engineer, dust control procedures have not proved effective in controlling dust. Resumption of work may only begin when site conditions have improved, or constructions procedures are modified to the satisfaction of the Engineer.

3.02 COIR ROLLS

- A. Place coir roll logs linearly along the edges of existing pavements as shown on the Contract Drawings or as directed by the Engineer. Coir roll logs shall be supported with wooden stakes or weights to prevent movement. Individual log rolls shall be tied together and gaps between them shall be eliminated.
- B. The Contractor shall inspect coir logs daily and after every major rain event for build-up of sediment and debris. The Contractor shall remove and legally dispose of sediment and debris when the depth exceeds half the depth of coir roll.
- C. The Contractor shall replace any damaged coir log when it is clear that it no longer stops sediment and debris.

3.03 SILT SACKS INSTALLED IN CATCH BASINS

- A. Install silt sacks in accordance with the manufacturer's instructions at locations shown on the Contract Drawings or as directed by the Engineer.
- B. The Contractor shall inspect silt sacks daily and after every major rain event for build-up of sediment and debris. The Contractor shall remove and legally dispose of sediment and debris when the depth of sediment exceeds half the depth of the silt sack.
- C. The Contractor shall replace damaged silt sacks when they no longer stop sediment and debris.

3.04 MAINTENANCE AND CLEANUP

- A. Maintain the integrity of erosion control barriers as long as they are necessary to contain sediment runoff. Promptly repair or replace ineffective barriers while they are still necessary.
- B. Inspect all barriers immediately after each rainfall and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected. Make a daily review of the location of barriers in areas where construction activities have changed the natural contour and drainage runoff to ensure that the barriers are properly located for effectiveness. Where deficiencies exist, additional barriers shall be installed as directed by the Engineer.
- C. Sediment deposits shall either be removed when the deposit reaches approximately one-half of the height of the barrier or a second barrier shall be installed as directed by the Engineer. Sediment shall be removed and disposed of periodically from behind the barriers. In no case shall the accumulated sediment be allowed to rise above the mid height of the coir roll. All sediment shall be disposed of in an approved manner at the completion of the work.
- D. Erosion control barriers shall remain in place until the Engineer directs that they be removed. Upon removal, remove and dispose of any excess silt accumulations, and clean the area to give a pleasing appearance.
- E. Erosion control barriers will remain the property of the Contractor, may be re-used at other locations provided the materials meet these specifications requirements, and shall be removed and disposed of at the completion of the Contract unless directed otherwise by the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. No separate measurement will be made for Calcium Chloride for Dust Control, coir roll sedimentation barriers or silt sacks in existing catch basins, but all costs in connection therewith shall be included in the Lump Sum price. All preparation and incidental work necessary to accomplish the installation will be considered incidental to the Lump Sum price.

4.02 PAYMENT

A. Payment for Site Preparation will be made at the Contract Lump Sum price as specified above.

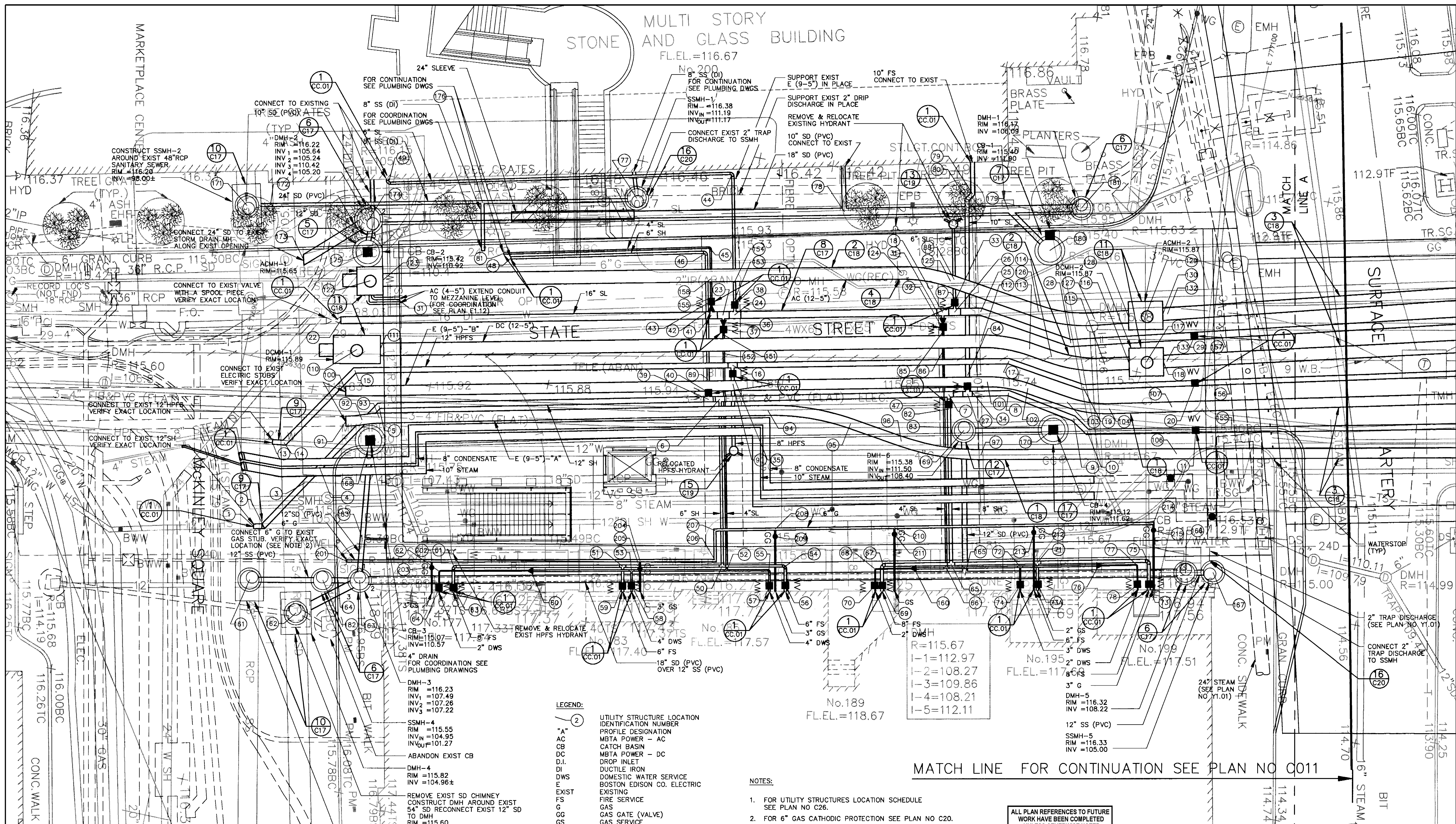
4.03 PAYMENT ITEMS

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>
0130.137	ALL OTHER WORK	LUMP SUM

END OF SECTION

**APPENDIX F
UTILITY PLANS**

STONE AND GLASS BUILDING
FL.EL.=116.67



CONSTRUCT SSMH-2
AROUND EXIST 48" RCP
SANITARY SEWER
RIM = 116.20
INV = 98.00±

CONNECT TO EXIST VALVE
WITH A SPOOL PIECE
VERIFY EXACT LOCATION

CONNECT TO EXIST 12" SH
VERIFY EXACT LOCATION

CONNECT 6" G TO EXIST
GAS STUB. VERIFY EXACT
LOCATION (SEE NOTE 2)

DMH-3
RIM = 116.23
INV₁ = 107.49
INV₂ = 107.26
INV₃ = 107.22

SSMH-4
RIM = 115.55
INV_N = 104.95
INV₀ = 101.27

ABANDON EXIST CB

DMH-4
RIM = 115.82
INV = 104.96±

REMOVE EXIST SD CHIMNEY
CONSTRUCT DMH AROUND EXIST
54" SD RECONNECT EXIST 12" SD
TO DMH
RIM = 115.60
INV = 107.20±

CONSTRUCT SSMH-3
AROUND EXIST 48" RCP
SANITARY SEWER
RIM = 115.62
INV = 98.50±

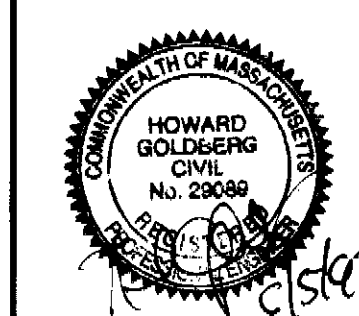
- LEGEND:**
- ② UTILITY STRUCTURE LOCATION IDENTIFICATION NUMBER
 - "A" PROFILE DESIGNATION
 - AC MBTA POWER - AC
 - CB CATCH BASIN
 - DC MBTA POWER - DC
 - D.I. DROP INLET
 - DI DUCTILE IRON
 - DWS DOMESTIC WATER SERVICE
 - E BOSTON EDISON CO. ELECTRIC
 - EXIST EXISTING
 - FS FIRE SERVICE
 - G GAS
 - GG GAS GATE (VALVE)
 - GS GAS SERVICE
 - HPFS HIGH PRESSURE FIRE SERVICE WATER
 - HYD FIRE HYDRANT
 - PVC POLYVINYL CHLORIDE
 - REM REMOVE
 - SD STORM DRAIN
 - SDMH STORM DRAIN MANHOLE
 - SH SOUTHERN HIGH SERVICE
 - SL SOUTHERN LOW SERVICE
 - SS SANITARY SEWER
 - SSMH SANITARY SEWER MANHOLE
 - WV WATER VALVE

- NOTES:**
- FOR UTILITY STRUCTURES LOCATION SCHEDULE SEE PLAN NO C26.
 - FOR 6" GAS CATHODIC PROTECTION SEE PLAN NO C20.
 - FOR UTILITY PROFILES SEE PLAN NO'S C22 THROUGH C25.
 - FOR STEAM PLAN, PROFILE AND DETAILS SEE PLAN NO C25.
 - FOR TRENCH DETAILS SEE PLAN NO C20.
 - BOND WIRES SHALL BE INSTALLED ON ALL BURIED PIPE JOINTS AND FITTINGS EXCLUDING INSULATING JOINTS AND JOINTS ENCLOSED IN PIPE INSULATION. FOR BONDING DETAILS SEE PLAN NO CC.02.
- FOR INFORMATION ON 4 INCH CAST IRON DRAIN LEADING INTO WEST MEZZANINE AREA CONFLICT BETWEEN UTILITY VS. PLUMBING DRAWING, SEE RFI NO. 1100.
- FOR INFORMATION ON MEC RFI #109, SEE RFI NO. 976.
- FOR ADDITIONAL INFORMATION, SEE RFI NO'S. 395 AND 659.

MATCH LINE FOR CONTINUATION SEE PLAN NO C011

ALL PLAN REFERENCES TO FUTURE WORK HAVE BEEN COMPLETED UNLESS OTHERWISE NOTED

RECORD DRAWING



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
MBTA CONTRACT NO. SOCN02
AQUARIUM STATION
BLUE LINE STATION MODERNIZATION PROJECT

UTILITY RELOCATIONS
STREET LEVEL - WEST

14/EB05	INCORPORATED FIELD CONDITIONS	CC	EFH	Ellenzweig Associates, Inc. Architects	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY APPROVED BY			
14/EB05	NOTES ADDED	CC	EFH					
8/23/97	MISCELLANEOUS CHANGED	LG	CC	BRYANT ASSOCIATES, INC. Engineers - Surveyors 160 North Washington Street Boston, Massachusetts 02114-1911	PROJECT MANAGER			
12/13/95	GENERAL COORDINATION	LG	CC			PRINCIPAL		
ISSUE	DATE	DESCRIPTION	BY	CHK	APP			
			SCALE 1"=8'	DRAWN BY LG	DESIGN BY CC	CHECK BY HG	PLAN NO. C10	ISSUE 4
			DATE 07/10/95			SHEET 122419		

REVISION IDENTIFICATION TAG

APPENDIX G
CLIMATE RESILIENCY CHECKLIST

NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).

A.1 - Project Information

Project Name:	Blue Line Aquarium Station Floodproofing Project			
Project Address:	1-99 McKinley Sq., 284-290 State St., and Long Wharf, Boston, MA			
Project Address Additional:				
Filing Type (select)	Notice of Intent			
Filing Contact	Name	Company	Email	Phone
Is MEPA approval required	Yes/no		Date	

A.3 - Project Team

Owner / Developer:	Massachusetts Bay Transportation Authority, Sunstone Wharf LLC			
Architect:	Robin Seidel, AIA, Kleinfelder			
Engineer:	Andre Martecchini, PE, Kleinfelder			
Sustainability / LEED:	Nasser Brahim, Kleinfelder			
Permitting:	Julie Conroy, AICP, Kleinfelder			
Construction Management:				

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Transportation – subway station entrances, tunnel emergency egress
List the First Floor Uses:	Access, egress
List any Critical Site Infrastructure and or Building Uses:	Subway station, subway/highway tunnel infrastructure

Site and Building: NOTE: Building Area, height, and elevations provided only pertain to the Long Wharf Blue Line Tunnel Emergency Egress structure proposed to be replaced.

Site Area:	7,400 SF	Building Area:	145 SF
Building Height:	8.7 Ft	Building Height:	1 Stories
Existing Site Elevation – Low:	16.3 Ft BCB	Existing Site Elevation – High:	16.5 Ft BCB
Proposed Site Elevation – Low:	16.3 Ft BCB	Proposed Site Elevation – High:	16.5 Ft BCB
Proposed First Floor Elevation:	16.3 Ft BCB	Below grade levels:	1 Stories

Article 37 Green Building:

LEED Version - Rating System :	N/A	LEED Certification:	N/A
Proposed LEED rating:	N/A	Proposed LEED point score:	N/A

Building Envelope

When reporting R values, differentiate between R discontinuous and R continuous. For example, use “R13” to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	N/A	Exposed Floor:	N/A
Foundation Wall:	N/A	Slab Edge (at or below grade):	N/A

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	N/A	Wall & Spandrel Assembly Value:	N/A
Area of Framed & Insulated / Standard Wall:	N/A	Wall Value	N/A
Area of Vision Window:	N/A	Window Glazing Assembly Value:	N/A
		Window Glazing SHGC:	N/A
Area of Doors:	N/A	Door Assembly Value:	N/A

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	N/A		
Annual Electric:	N/A	Peak Electric:	N/A
Annual Heating:	N/A	Peak Heating:	N/A
Annual Cooling:	N/A	Peak Cooling:	N/A
Energy Use - Below ASHRAE 90.1 - 2013:	N/A	Have the local utilities reviewed the building energy performance?:	N/A
Energy Use - Below Mass. Code:	N/A	Energy Use Intensity:	N/A

Back-up / Emergency Power System

Electrical Generation Output:	N/A	Number of Power Units:	N/A
System Type:	N/A	Fuel Source:	N/A

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	N/A	Heating:	N/A
		Cooling:	N/A

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City’s goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions:

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

Describe any energy efficiency assistance or support provided or to be provided to the project:

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2° F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:

Temperature Range - High:

Annual Heating Degree Days:

Annual Cooling Degree Days:

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:

Days – Above 100°:

Number of Heatwaves / Year:

Average Duration of Heatwave (Days):

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:

Describe all building and site measures for reducing storm water run-off:

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA?

Yes

What Zone:

AE, VE

Current FEMA SFHA Zone Base Flood Elevation:

AE 16.46 Ft BCB
VE 19.46 Ft BCB

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online [BPDA SLR-FHA Mapping Tool](#) to assess the susceptibility of the project site.

Yes

If you answered YES to either of the above questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online [BPDA SLR-FHA Mapping Tool](#) to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24” of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12” of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:

19.5 Ft BCB

Sea Level Rise - Design Flood Elevation:

21.5 Ft BCB

First Floor Elevation:

16.3 Ft BCB

Site Elevations at Building:

16.3 Ft BCB

Accessible Route Elevation:

15.3 Ft BCB

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

No site design strategies are proposed.

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

The goal of the project is to design and construct floodproofing systems to protect the existing critical assets (station entrances, egress structure, and CA Tunnel egress). Dry floodproofing measures will include a floodproofed egress structure and door; permanent flood protection panels on vent openings, and deployable drop-in-panel flood barriers for station entrances and CA Tunnel egress.

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

The subway station and subway and highway tunnels are not intended for use as shelter-in-place. During a flood event, these infrastructure will be evacuated and closed in coordination with MBTA, MassDOT, and City of Boston emergency management.

Describe any strategies that would support rapid recovery after a weather event:

Recovery strategies are not proposed. The strategy utilized is to prevent catastrophic flooding of the underground transportation infrastructure, thereby speeding recovery.

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

No site design strategies are proposed.

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

The goal of the project is to design and construct floodproofing systems to protect the existing critical assets (station entrances, egress structure, and CA Tunnel egress). Dry floodproofing measures will include a floodproofed egress structure and door; permanent flood protection panels on vent openings, and deployable drop-in-panel flood barriers for station entrances and CA Tunnel egress.

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. **NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).**

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov