

**COASTAL RESOURCES  
MANAGEMENT COUNCIL**

**SEMI-MONTHLY  
MEETING**

**TUESDAY, JULY 24, 2018**

**6:00 P.M.**

**AGENDA**



State of Rhode Island and Providence Plantations  
**Coastal Resources Management Council**  
Oliver H. Stedman Government Center  
4808 Tower Hill Road, Suite 116  
Wakefield, RI 02879-1900

(401) 783-3370  
Fax (401) 783-3767

## **AGENDA**

**Semi-Monthly Meeting – Full Council**  
**Tuesday, July 24, 2018; 6:00 p.m.**  
**Administration Building; Conference Room A**  
**One Capitol Hill, Providence, RI 02908**

**Approval of the minutes of the previous meeting – June 26, 2018**  
**Subcommittee Reports**  
**Staff Reports**

### **APPLICATIONS WHICH HAVE BEEN OUT-TO-NOTICE AND ARE BEFORE THE FULL COUNCIL FOR DECISION:**

**2017-12-040**    **The Narragansett Electric Company d/b/a National Grid** -- Construct replacement/repairs of shoreline protection facilities along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the north end of the South Street Substation in accordance with the submitted plans. Located at plat 21, lot 253 (formerly 429); Along the shoreline in the vicinity of 342 Eddy Street (and south to Point Street), Providence, RI.

**EXECUTIVE SESSION § 42-46-5(2) -- Litigation**



# CRMC DECISION WORKSHEET

2017-12-040

Narragansett Electric Co. d/b/a National Grid

Hearing Date:		
Approved as Recommended		<input type="checkbox"/>
Approved w/additional Stipulations		<input type="checkbox"/>
Approved but Modified		<input type="checkbox"/>
Denied	<input type="checkbox"/>	Vote

APPLICATION INFORMATION						
File Number	Town	Project Location		Category	Special Exception	Variance
2017-12-040	Providence	South Street Seawall		<b>B</b>	<input type="checkbox"/>	<input type="checkbox"/>
		Plat	21			
Date Accepted		12/14/17		Work at or Below MHW		X
Date Completed		6/22/18				
		<b>Owner Name and Address</b>		Lease Required		<input type="checkbox"/>
		Narragansett Electric Co. d/b/a National Grid				
		c/o Michael F. Ryan V.P. 40 Sylvan Road				
		Waltham, MA 02451				

## PROJECT DESCRIPTION

Construct replacement/repairs of shoreline protection facilities along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the north end of the South Street Substation in accordance with the submitted plans.

## KEY PROGRAMMATIC ISSUES

**Coastal Feature:** Manmade Shoreline

**Water Type:** Type 5 Waters, Commercial and Recreational Harbors

**CRMP:** 1.1.4, 1.1.6(F), 1.1.9, 1.1.10, 1.1.11, 1.2.1(E), 1.2.2(F), 1.3.1.(A),(B),(C),(G),(J)

**SAMP:** Metro Bay Special Area Management Plan (MB SAMP), Inner Harbor and River Zone

Variations and/or Special Exception Details:

None

Additional Comments and/or Council Requirements:

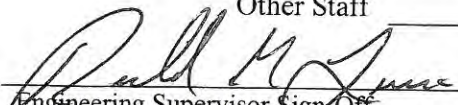
Specific Staff Stipulations (beyond Standard stipulations):

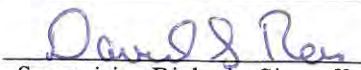
## STAFF RECOMMENDATION(S)


Engineer RML Recommendation: Approval

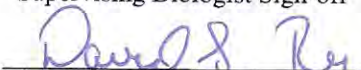
Biologist DSR Recommendation: Approval

Other Staff \_\_\_\_\_ Recommendation: \_\_\_\_\_

 6/22/18  
Engineering Supervisor Sign-Off date

 6/22/18  
Supervising Biologist Sign-off date

 6/25/18  
Executive Director Sign-Off date

 7/16/18  
Staff Sign off on Hearing Packet (Eng/Bio) date

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
COASTAL RESOURCES MANAGEMENT COUNCIL  
STAFF BIOLOGIST'S REPORT

TO: Grover J. Fugate  
DEPT: CRMC Executive Director  
FROM: David S. Reis  
DEPT: CRMC Biology Section

DATE: June 22, 2018  
PAGE: 1 of 2

RE: CRMC File No. 2017-12-040

Applicant's Name: The Narragansett Electric Company d/b/a National Grid

**Project:** Construct replacement and repairs of shoreline protection facilities along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the north end of the South Street Substation in accordance with the submitted plans.

**Location:** Along the shoreline in the vicinity of 342 Eddy Street (and south to Point St.)

**Water Type/Name:** Type 5, Commercial and Recreational Harbors

**Coastal Feature:** Manmade shoreline - bulkhead

- A. **Background Information:** This application is to reconstruct and repair the existing seawall sections bordering the Providence River shoreline in support of 4 previous project phases reviewed and approved under CRMC's Metro Bay Special Area Management Plan (MB SAMP). The prior 4 phases met the "compact" 20 foot wide public greenway requirement for the "Inner Harbor and River Zone" as detailed in Section 180 of the MB SAMP.

Phase 1 involved the construction of a parking garage which was administratively approved on October 28, 2015 under CRMC File No. 2015-09-003. Phase 2 of the project was for the renovations of the existing South Street Landing Building which was administratively approved on December 21, 2015 under CRMC File No. 2015-11-058. Phase 3 of the project involved reconstruction of the National Grid electrical substation which was administratively approved on March 2, 2016 under CRMC File No. 2015-10-001. And, Phase 4 involved the construction of an apartment complex consisting of 172 studio one and two bedroom apartments located in two interconnected residential buildings fronting along Point Street and the Providence River which was administratively approved under CRMC File No. 2016-03-027 on April 20, 2016.

- B. **Staff Analysis.** In reviewing this project (all 4 phases) against the Metro Bay SAMP's greenway requirements, it became clear that the poor condition of the shoreline protection structures (seawalls, bulkheads and revetments) was a threat to safe public use of the required greenway. On that basis, CRMC Staff requested that The Narragansett Electric Company (TNEC) investigate the condition of the shoreline protection structures as part of the greenway development plan for the property. The preliminary and more detailed investigations later conducted determined that the shoreline protection structures required repairs to both support the installation of underground utilities associated with the substation reconstruction and were needed in the interest of public safety associated with public use of the Urban Coastal Greenway (UCG). This application has been submitted to address those issues.

Signed: David S. Reis Supervising Environmental Scientist

The primary regulatory review issue associated with the project is the standard contained in RICRMP Section 1.3.1(G).5.a which states: "The base of the seawall, bulkhead, or revetment must be located as close as practicable to the shoreline feature it is designed to protect...". This standard is intended to minimize the filling of tidal waters and other coastal features which may occur on the seaward side of the structure. However, in this case, tidal waters directly border the shoreline protection structures and adherence to the standard would prevent excess filing of tidal waters. Since this type of assessment requires an engineering design analysis, please see the staff engineer's report for this assessment.

Due to the seaward encroachment, the project was determined by staff to exceed the scope of maintenance. On that basis, the proposed replacement and repairs of the existing structural shoreline protection structures is considered "new". New structural shoreline protection structures require a Category B application with public notice. The public notice for this project was issued on January 8, 2018 and the 30 day notice period ended on February 8, 2018. No objections or public comments have been received. The project is further subject to RICRMP Category "B" requirements. The applicant has provided a response to the requirements, albeit brief. However, CRMC Staff believes the project is consistent with all Category "B" requirements and we fully support the project as an essential component of the urban coastal greenway (UCG) required by the Metro Bay SAMP for the prior 4 development phases.

It should be noted that the project has been thoroughly vetted with the Army Corps of Engineers (ACOE) and RIDEM Staff through the General Programmatic Permit (GP) process which involves a monthly meeting and discussion between the cooperating State and Federal agencies involved in coastal habitat/resource protection issues. Due to concerns for habitat and pile driving impacts, the ACOE permit (dated May 30, 2018) provides for agreed upon habitat enhancements and requires a "slow-start" for pile driving activities to allow mobile fish species to leave the area before noise levels reach levels which can injure fish as recommended by the National Marine Fisheries Service (NMFS). Accordingly, the cooperating agencies agree that appropriate environmental protection measures have been incorporated into the project.

Please see the Staff Engineer's Report for engineering and design related issues.

**C. Recommendations and Stipulations:** The Staff environmental scientist strongly recommends approval of this needed project to repair and replace existing but failing structural shoreline protection facilities. The following stipulation is recommended:

1. As provided within the assent modification request for CRMC assent 2015-10-001, the greenway, the pedestrian bridge, and, the structural shoreline protection facilities herein approved shall be completed and available for public use by January 1, 2020. If this January 1, 2020 availability date cannot be met, a CRMC assent modification must be submitted to the CRMC by July 1, 2019 to request CRMC consideration of an alternative greenway availability date. The CRMC will only consider extending the greenway availability date for good cause subject to verification by the CRMC.

Signed: \_\_\_\_\_

*David J. Ren*

Supervising Environmental Scientist

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
COASTAL RESOURCES MANAGEMENT COUNCIL  
STAFF ENGINEER'S REPORT**

**TO:** Grover J. Fugate  
**DEPT:** CRMC Executive Director  
**FROM:** Richard M. Lucia, P.E.  
**DEPT:** CRMC Engineering/Permitting Section

**DATE:** 6/22/18  
**PAGE:** 1 of 3

**RE:** CRMC File No. 2017-12-40

**Applicant's Name:** Narragansett Electric Company d/b/a National Grid

**Project:** Construct replacement/repairs of shoreline protection facilities along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the north end of the South Street Substation in accordance with the submitted plans.

**Location:** Along the shoreline in the vicinity of 342 Eddy Street (and south to Point St.)

**Water Type/Name:** Type 5 Waters, Commercial and Recreational Harbors, Providence River

**Coastal Feature:** Manmade Shoreline

**Freshwater Wetlands:** Not applicable

**A. Plan Reviewed:**

"South Street Substation, Seawall Replacement...", sheets 1-31 by GZA GeoEnvironmental Inc., stamped by Russ Morgan, P.E. dated December 2017.

**B. Staff Analysis:**

This staff's analysis is limited to engineering review. Please refer to Supervising Environmental Scientist report regarding Biological impacts and RICRMP/UCG Policies/Requirements.

**Existing Conditions:**

The project entails replacing and repairs to existing shoreline protection facilities. The existing shoreline protection is in dilapidated condition and consists of the following types: a pile supported concrete retaining wall poured over a timber bulkhead, steel sheetpile walls, concrete panel walls with pile support, pile supported granite block walls, and field stone walls. The subsurface has problematic soils for supporting the wall sections (silts and river sediments from 10 – 28 feet depths.

Behind the walls exists numerous utilities including a 54-inch Narragansett Bay Commission (NBC) Combined Sewer Outfall line which runs parallel to the existing wall. The NBC Outfall No. located at Station 5+31 and 5+45. At Station 2+90 two (2), 24-inch cast iron storm sewer pipes discharge through a riprap slope into the Providence River. New electrical power lines will be installed behind the new wall. Additionally, existing at the site is a submarine electrical cable crossings (100 kV and a 23 kV line) at the location of the wall at station 0+00 and 5+50 respectively.

**Proposed Conditions:**

There will be three different designs to repair/replacement of the existing wall sections. Specifically they are a cantilevered steel sheetpile wall, braced steel sheetpile wall (“raker” system), and a riprap revetment. Each section is described as the following:

- Sections 0+00 to 2+80 the toe of concrete wall will be repaired, temporary removal of the existing deck structure, ramp and float system. Also install a new cantilevered sheetpile wall system (loading conditions and small exposed height of wall allows for a cantilevered system in lieu of a conventional braced tie back construction). Concrete will be placed between the deteriorated toe and new sheetpile. These repairs should extend the service life of the wall.
- Sections 2+80 to 7+64 due to site conditions (height of wall, soil conditions and higher expected loads) the proposed sheet pile wall be braced with a “raker” (steel batter H-piles) system that extend into tidal waters in lieu of a cantilevered wall. Please note that typically a tieback/deadmen system is installed for walls that cannot be cantilevered. This structural support system is required because deadmen or tiebacks cannot be installed because of the extent of buried structures behind the wall (utilities and foundations). Additionally, from Section 5+45 to 7+60 a concrete cap will be installed to facilitate public access to the waterfront.

The sheetpiles will be installed as close as practicable as site conditions allow however, there is an expected encroachment of 2 to 2.5 feet from the existing seawall face. The encroachment is based on a 20-inch wide sheet pile wall with an additional 4-6 inch construction tolerance. The “raker” piles will be installed outboard of the new sheetpile wall and will intersect the mudline in the Providence River at approximately 3.9 to 5.1 feet from the face of the new sheetpile wall.

- Section 7+64 to 8+43 a cantilever sheet pile wall will be installed. The reason for not using the braced system is the smaller wall height and expected loads. Therefore no “raker” system is required.
- Section 8+43 to 10+55 consists of a constructing a riprap revetment in lieu of a steel sheetpile wall. The rationale behind using the riprap was to provide a more economical and less alignment modification to the Urban Coastal Greenway (UCG). Please note A separate project will involve constructing a timber pedestrian bridge at Station 9+75 which has been approved CRMC Assent 2015-10-001

The applicants engineering consultant has submitted calculations for the different seawall designs (cantilever, braced “raker” system, and riprap revetment). Staff Engineer has reviewed the submitted engineer design calculations and there is no objection to the proposed design.



**With Regard to RICRMP Section 1.3.1.(J) Filling in Tidal Waters:**

Due to the extent of work proposed (i.e. “raker pile” system) this project was considered a new seawall and was considered beyond the scope of a Maintenance application. The standards of RICRMP Section 1.3.1.(G).5.(a) apply which state that “The base of the seawall, bulkhead, or revetment must be located as close as practicable to the shoreline feature it is designed to protect...”. There are no engineering objections to the seaward expansion of the walls because the face of the existing walls is irregular with numerous voids and the design has been placed as close as practicable to the face of the existing seawall to minimize required filling.

(Please note the RICMRMP 1.3.1.(G).3.c prohibits “Filling on a coastal feature or tidal waters beyond which is consistent with RICMRP 1.3.1.(G).5.(a)...”. However, as stated above, RICMRP 1.3.1.(G).5.(a) refers to the seawall being located as close as practicable to the shoreline feature it is designed to protect. Again it is staff opinion that the seawall has been placed as close as practicable to the existing seawall and is therefore consistent with RICRMP 1.3.1(G).5.(a) and the prohibition does not apply.)


The proposed riprap revetment will extend beyond the current footprint of the existing seawall to accommodate the width of the upland UCG and provide a walking path. The area where the riprap revetment extends 15-20 feet beyond the existing seawall has little navigational impact and is the location of a NBC combined sewer overflow outfall. As stated in the applicants report “Without this extension, the width of the UCG (paved path and vegetated areas) along the Site would need to be reduced and would not meet the requirements of the CRMC’s Urban Coastal Greenway Policy for the Metro Bay Region.” Based on the above there are no engineering objection to the proposed revetment.

**With regard to RICRMP Section 1.1.10 Climate Change and Sea Level Rise:**

The anticipated sea level rise for the next 30 years is estimated to be 1.8 feet. The top of the new seawall will remain at the existing elevation of +8.0 feet NAVD88. Mean High water is +2.3 feet NAVD88. NOAA’s projections indicate the seawall will accommodate sea level rise through 2080.

**Recommendations and Conclusion:**

Based on the above, there are no engineering objections to the proposed project. On this basis, CRMC Staff recommends approval subject to Staff stipulations:

Signed:  \_\_\_\_\_ Supervising Civil Engineer

State of Rhode Island  
Coastal Resources Management Council  
Oliver H. Stedman Government Center  
4808 Tower Hill Road, Suite 3  
Wakefield, RI 02879  
(401)783-3370

State of Rhode Island  
Department of Environmental Management  
Office of Technical and Customer Asst.  
235 Promenade Street  
Providence, RI 02908-5767  
(401)222-6822

## JOINT PUBLIC NOTICE

CRMC File Number: 2017-12-040

Date: January 8, 2018

RIDEM Water Quality Certification Number: 17-236

These offices have under consideration the application of:

**The Narragansett Electric Company d/b/a National Grid**  
**40 Sylvan Road**  
**Waltham, MA 02451**

for State of Rhode Island Assent (in accordance with the Coastal Resources Management Program), and State of Rhode Island Water Quality Certification (in accordance with Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the RIGL, as amended) to:

**Construct replacement/repairs of shoreline protection facilities along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the north end of the South Street Substation in accordance with the submitted plans.**

Project Location: Along the shoreline in the vicinity of 342 Eddy Street (and south to Point St.)

Street & Number: 342 Eddy Street

City/Town: Providence

Plat Number: 21 Lot Number: 253 (formerly 429)

Plans of the proposed work may be seen at the CRMC office in Wakefield.

In accordance with the Administrative Procedures Act (Chapter 42-35 of the Rhode Island General Laws) you may request a hearing on this matter. You are advised that if you have good reason to enter protests against the proposed work it is your privilege to do so. It is expected that objectors will review the application and plans thoroughly, visit site of proposed work if necessary, to familiarize themselves with the conditions and cite what law or laws, if any, would in their opinion be violated by the work proposed.

**RICRMC/RIDEM Joint Public Notice**  
**The Narragansett Electric Company d/b/a National Grid**  
**CRMC File No. 2017-12-040**  
**Page Two**

This also serves as notice that the Rhode Island Department of Environmental Management, Office of Water Resources, Water Quality Certification Program has under consideration and review the same proposed activity as described above for compliance with the State's Water Quality Regulations (AUTHORITY: in accordance with Clean Water Act, as amended (33 U.S.C. 1251 et.seq.; Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the Rhode Island General Laws of 1956, as amended).

If you desire to protest, you must attend the scheduled hearing and give sworn testimony. A notice of the time and place of such hearing will be furnished you as soon as possible after receipt of your request for hearing. If you desire to request a hearing, to receive consideration, it should be in writing and be received at this office on or before February 8, 2018.

It is expected that objectors will review the application and associates plans thoroughly. Comments that pertain to this Joint Notice must be submitted in writing and must be addressed to Rhode Island Coastal Resources Management Council and Rhode Island Department of Environmental Management at the above referenced addresses.

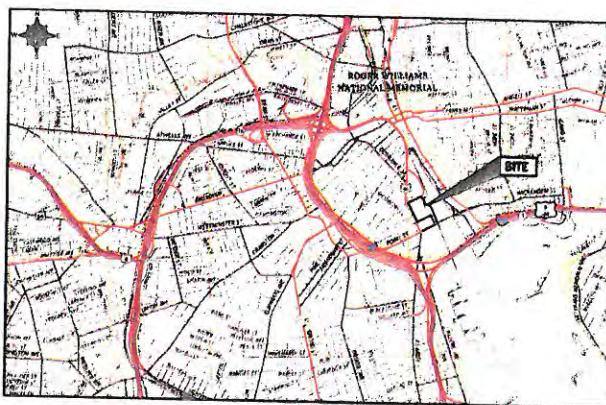
/lat

# SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT DECEMBER 2017

PREPARED FOR:  
nationalgrid

PREPARED BY:  

**GZA** GeoEnvironmental, Inc.  
 Engineers and Scientists  
 www.gza.com



**PROJECT LOCUS MAP**

SOURCE: USGSSTORE.GOV



NOTE: THIS MAP WAS OBTAINED FROM THE NATIONAL MAP INFORMATION CENTER (NMIC) AND IS PROVIDED AS A SERVICE TO THE CLIENT. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA AND FOR OBTAINING NECESSARY PERMITS AND RIGHTS OF WAY FOR ANY PROJECT.

THESE DRAWINGS ARE NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF GZA.



QUADRANGLE LOCATION

<u>SHEET#</u>	<u>INDEX OF DRAWINGS</u>
<b>GENERAL</b>	
G-1	COVER SHEET AND INDEX OF DRAWINGS
G-2	GENERAL NOTES
<b>SOIL BORINGS</b>	
SB-1	EXPLORATION LOCATION PLAN (1 OF 2)
SB-2	EXPLORATION LOCATION PLAN (2 OF 2)
<b>CIVIL</b>	
C-1	SITE ACCESS / KEY PLAN
C-2	EXISTING CONDITIONS PLAN (1 OF 2)
C-3	EXISTING CONDITIONS PLAN (2 OF 2)
C-4	EXISTING UTILITIES PLAN (1 OF 2)
C-5	EXISTING UTILITIES PLAN (2 OF 2)
C-6	TEMPORARY CONTROL PLAN
C-7	FINAL CONDITIONS PLAN
C-8	TEMPORARY CONTROL DETAILS (1 OF 2)
C-9	TEMPORARY CONTROL DETAILS (2 OF 2)
<b>CIVIL DEMOLITION</b>	
CD-1	DEMOLITION PLAN
CD-2	DEMOLITION SECTIONS (1 OF 2)
CD-3	DEMOLITION SECTIONS (2 OF 2)
<b>STRUCTURAL</b>	
S-1	OVERALL WATERFRONT STRUCTURE LAYOUT PLAN
S-2	BULKHEAD LAYOUT PLAN
S-3	BULKHEAD / REVETMENT LAYOUT PLAN
S-4	BULKHEAD SECTIONS (1 OF 3)
S-5	BULKHEAD SECTIONS (2 OF 3)
S-6	BULKHEAD SECTIONS (3 OF 3)
S-7	REVETMENT SECTIONS
S-8	DETAILS (1 OF 2)
S-9	DETAILS (2 OF 2)
<b>REFERENCE</b>	
R-1	HISTORICAL PERMIT DRAWING - TIMBER PILE CUTOFF
R-2	PLAN AND PROFILE SHOWING CROSSING OF 110KV SUBMARINE CABLE
R-3	PLAN AND DETAILS - FORMER ELM STREET SUBMARINE CABLE
R-4	DOCK AND FLOAT STRUCTURE DRAWINGS
R-5	HISTORICAL PLAN OF CITY OF PROVIDENCE STORM SEWER OUTFALLS
R-6	TOPOGRAPHIC PLAN - SOUTH STREET SEAWALL - JULY 2017

**RECEIVED**  
**JAN 05 2018**  
 COASTAL RESOURCES  
 MANAGEMENT COUNCIL

**PERMITTING ONLY**  
 NOT FOR CONSTRUCTION

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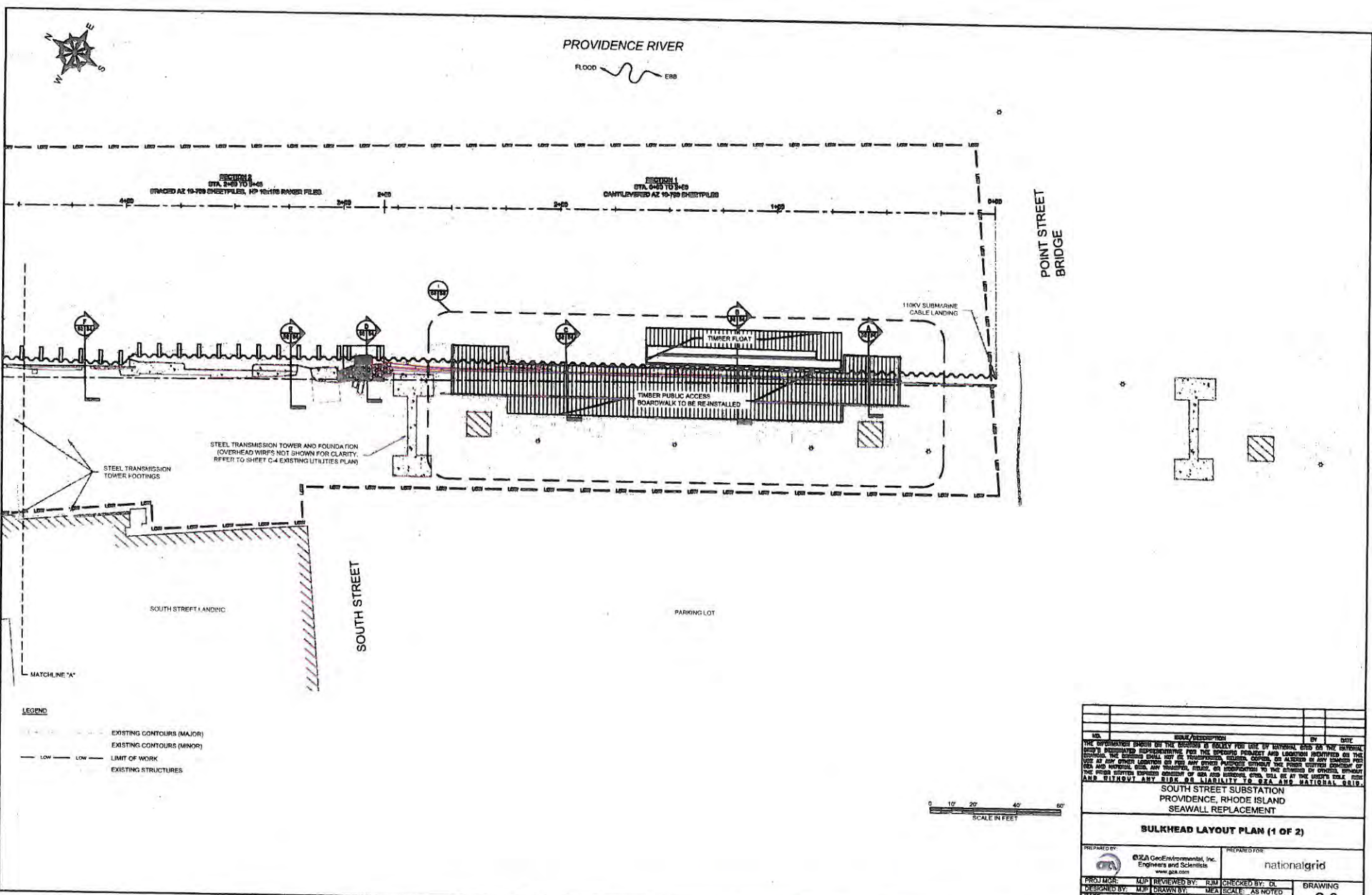








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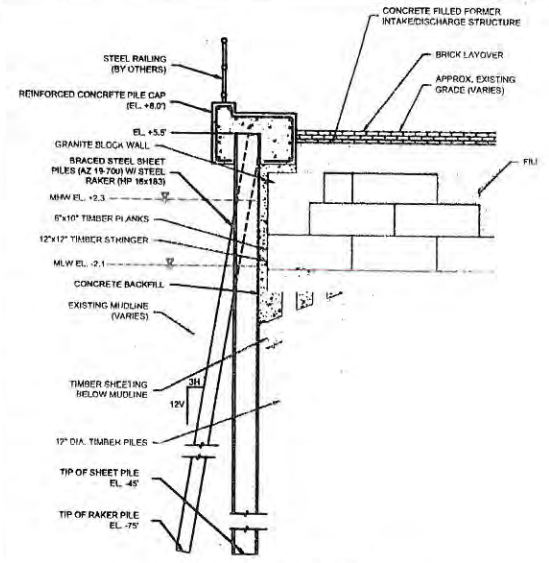


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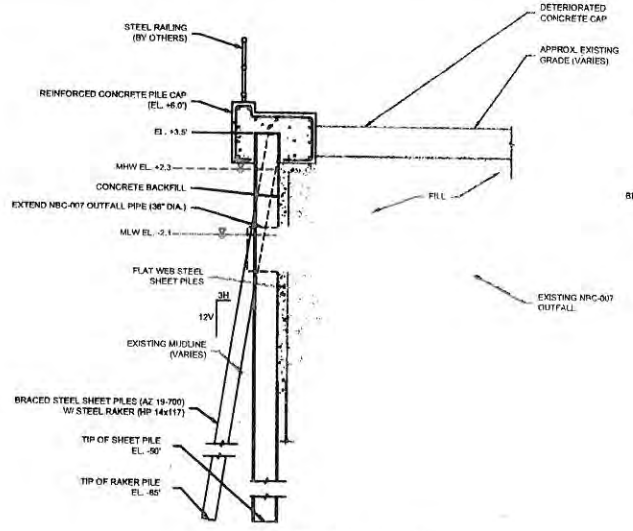




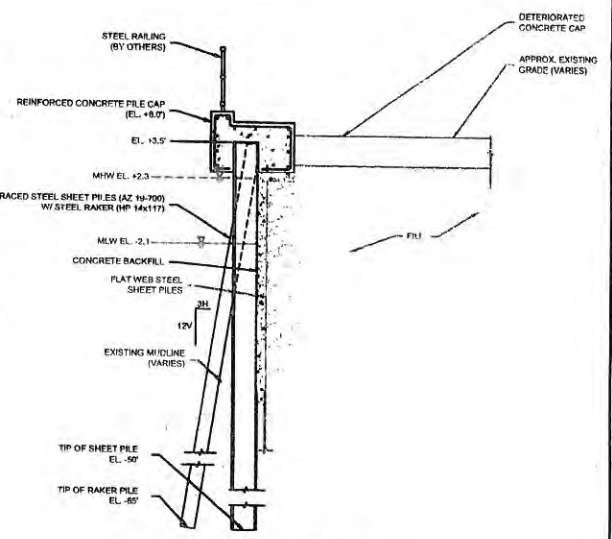
DATE: 12/15/17 10:00 AM PROJECT: SOUTH STREET SUBSTATION SEAWALL REPLACEMENT DRAWING: BULKHEAD SECTIONS (2 OF 3) SHEET: 5-5



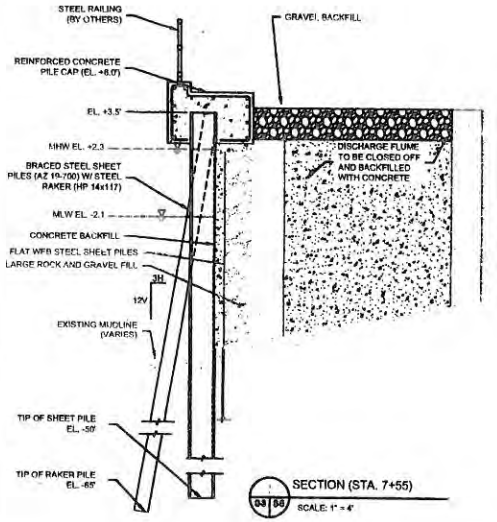
SECTION (STA. 4+20)  
SCALE: 1" = 4'



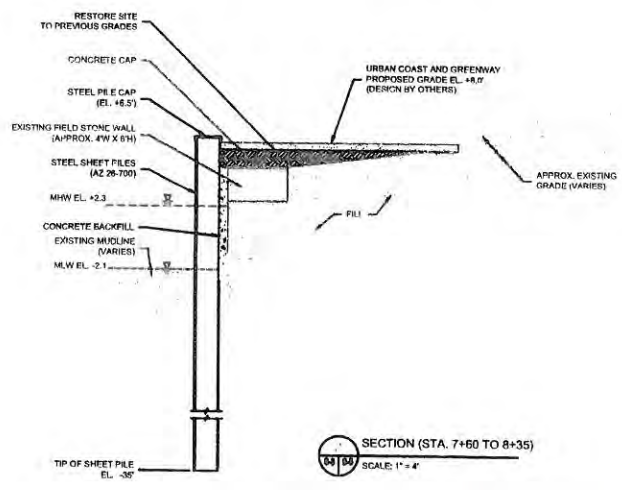
SECTION (STA. 5+40)  
SCALE: 1" = 4'



SECTION (STA. 6+85)  
SCALE: 1" = 4'



SECTION (STA. 7+55)  
SCALE: 1" = 4'



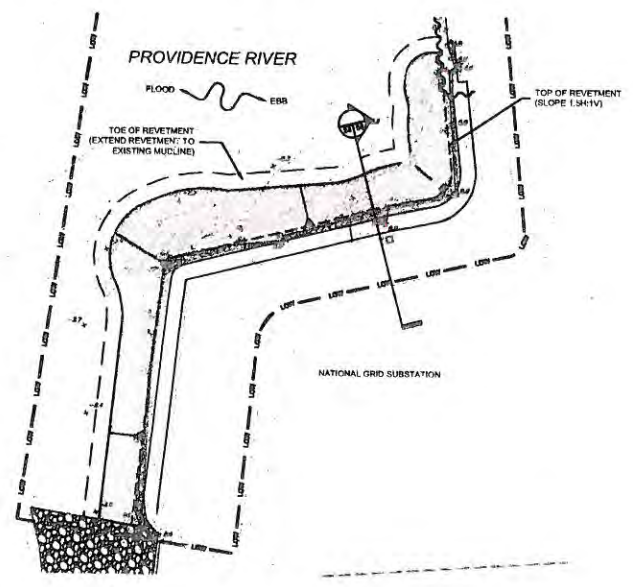
SECTION (STA. 7+60 TO 8+35)  
SCALE: 1" = 4'



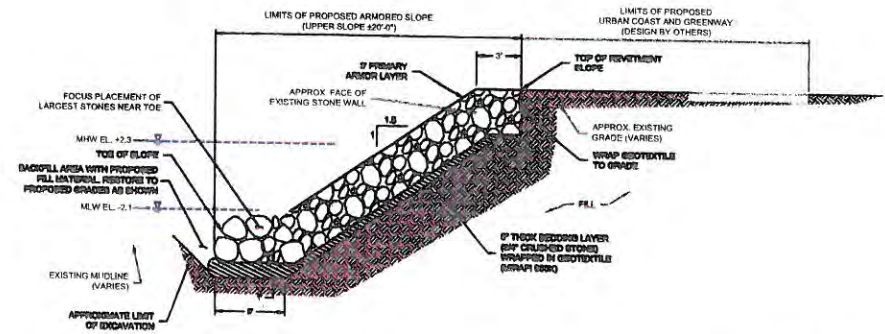
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NO. _____		DATE _____	
BY _____		BY _____	
<p>THE INFORMATION SHOWN ON THIS DRAWING IS SOLELY FOR USE BY THE USER. THE USER SHALL BE RESPONSIBLE FOR THE PROPER USE AND INTERPRETATION OF THE INFORMATION SHOWN ON THIS DRAWING. THE USER SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONS OR PROPERTY, OR FOR ANY LOSS OF PROFITS OR BUSINESS, OR FOR ANY OTHER LOSS, ARISING OUT OF OR FROM THE USE OF THIS DRAWING, OR FROM ANY NEGLIGENCE, OR FROM ANY OTHER CAUSE, INCLUDING NEGLIGENCE, OF THE ENGINEER OR ARCHITECT, OR FROM ANY OTHER CAUSE, INCLUDING NEGLIGENCE, OF THE USER.</p>			
<b>SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT</b>			
<b>BULKHEAD SECTIONS (2 OF 3)</b>			
PREPARED BY:	GSA GeoEnvironmental, Inc. Engineers and Scientists www.gsa.com	PREPARED FOR:	nationalgrid
DESIGNED BY:	RAD	CHECKED BY:	MEB
DATE:	DECEMBER 2017	PROJECT NO.:	33964.03
		REVISION NO.:	
		DRAWING:	S-5
		SHEET NO.:	31 OF 31

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DETAIL - (STA. 8+35 TO 10+57)  
SCALE: 1" = 4'



SECTION (STA. 8+35 TO 8+60)  
SCALE: 1" = 2'

RIP RAP GRADATION REQUIREMENTS	
PRIMARY ARMOR LAYER	
RIDOT R-6	
% LESS THAN	STONE SIZE (IN.)
0-15%	8
0-50%	13
100%	26

3/4" CRUSHED STONE GRADATION REQUIREMENTS	
% LESS THAN	SIEVE SIZE
100	3/4 INCH
90-100	1/2 INCH
30-60	3/8 INCH
0-15	No. 4
0-5	No. 8

LEGEND

- EXISTING CONTOURS (MAJOR)
- EXISTING CONTOURS (MINOR)
- LIMIT OF WORK
- EXISTING STRUCTURES



THE ENGINEER ASSURES THE ACCURACY OF THESE PLANS FOR THE USE OF MATERIALS AND METHODS AND FOR THE PROVISION OF THE SPECIFICATIONS AND CONDITIONS OF CONTRACT AND FOR THE PROVISION OF THE CONTRACT DOCUMENTS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT OR FOR THE PERFORMANCE OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT OR FOR THE PERFORMANCE OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT OR FOR THE PERFORMANCE OF THE CONTRACTOR.	
SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT	
<b>BULKHEAD AND REVETMENT SECTIONS (3 OF 3)</b>	
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: nationalgrid
PROJECT NO.: 33964.03	DRAWING NO.: S-6
DATE: DECEMBER 2017	REVISION NO.:

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 NOT FOR CONSTRUCTION

2017-12-40



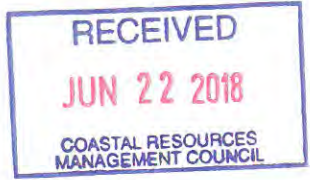
Proactive by Design

- GEOTECHNICAL
- ENVIRONMENTAL
- ECOLOGICAL
- WATER
- CONSTRUCTION MANAGEMENT

530 Broadway  
 Providence, RI 02909  
 T: 401-421-4340  
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May 22, 2018  
 File No. 03.0033964.03

Michael Wierbonics  
 United States Army Corps of Engineers  
 New England District, Regulatory Division  
 Concord Park  
 596 Virginia Road,  
 Concord, MA 02718



Re: Essential Fish Habitat Concerns  
 South Street Seawall  
 342 Eddy Street  
 Providence, Rhode Island

Dear Mr. Wierbonics:

On behalf of our client, The Narragansett Electric Company dba National Grid (TNEC), we appreciate having had the opportunity to meet with you and Alison Verkade (by tele-conference) on 24 April to discuss the South Street Seawall Project. Specifically, this meeting was scheduled to review impacts to essential fish habitat along the Providence River and development of possible mitigation strategies.

GZA submitted an application for the reconstruction of an existing seawall to the United States Army Corp of Engineers (USACE) as well as the RI Coastal Resources Management Council (CRMC) and RI Department of Environmental Management (RIDEM) on 13 December 2017. Both CRMC and RIDEM have advised us that no issues exist with the reconstruction project in accordance with their jurisdictional requirements, and that the project will be approved. GZA has already addressed concerns that have been raised by the USACE. The one remaining issue is the possibility that this project may impact valuable potential fish habitat along a section of the Providence River. This conclusion was reached after the USACE's review of Greater Atlantic Region Fisheries Office (GARFO) Not Likely to Adversely Affect (NLAA) program verification form and a National Oceanic and Atmospheric Administration Fisheries Essential Fish Habitat (EFH) Assessment Worksheet (prepared and submitted by GZA).

As we discussed during the 24 April meeting, CRMC has requested that an Urban Coastal Greenway (UCG) be incorporated as part of the South Street Substation Redevelopment Project. The UCG provides a mechanism to redevelop the urban waterfront of Providence's Metro Bay Region in a manner that integrates economic development, expanded public access along the shoreline, and provides for the management, protection, and restoration of valuable coastal habitats in the Providence metropolitan area. This project proposes to reconstruct a dilapidated existing seawall along a developed area of the Providence River to safely accommodate the UCG.

The ideas and recommendations offered by Ms. Verkade (National Marine Fisheries Service) to mitigate the loss of potential habitat were extremely useful. We believe a mitigation plan that restores potential habitat areas can be accommodated. Ms. Verkade indicated that the impacts associated with the steel sheet pile section of the seawall along the south side of the project Site will not require mitigation. The proposed steel sheet pile seawall is being placed as close as practicable to the existing dilapidated seawall. The footprint of the steel sheet pile wall is approximately 2,730 square feet along approximately 850 linear feet of the seawall.





Along the northern end of the project Site within the Ship Street Inlet area, the proposed steel sheet pile seawall will transition into a riprap embankment. The footprint of the riprap revetment is approximately 3,280 square feet along approximately 200 linear feet of the seawall. This portion of the proposed seawall will be altered to mitigate impacts to potential EFH. The portion of the riprap embankment that is below mean high water will be top dressed with a layer of small round stones and granular fill underlain by a supportive crushed stone layer. The goal of this restoration layer is to provide habitat that will mimic the lost riverbed area and provide a foundation that will support the growth of submerged aquatic vegetation. The layer will also provide conditions suitable to Winter Skate, Cod, Winter Flounder, and other marine species found in the Providence River and Narragansett Bay. Approximately 2,550 square feet of area will be restored to provide habitat restoration. We have attached a drawing that provides a plan view and cross section of the habitat restoration layer. The slope of the habitat layer was designed to minimize additional impacts to the Providence River.


In addition to the habitat restoration layer, TNEC also is willing to install informational Kiosks along the UCG to inform the public of the presence of EFH in the Providence River. Our anticipation is that the information provided by the Kiosks will increase public awareness about what may lie below and to help preserve the Providence River as a habitat for marine creatures. TNEC is pleased to be able to support this habitat friendly modification and is encouraged that this can serve as an example of an achievable alternative to restore marine habitats along industrialized coastal areas.


We anticipate that construction of the seawall will begin in late 2018/early 2019 and be completed by summer 2019. Construction is expected to be continuous throughout this time period. Turbidity curtains will be installed during any in-water work to contain sediment and minimize impacts to the Providence River during construction.

We trust that the proposed restoration method satisfies any regulatory requirements at this time. If you have any questions or require any additional information, please contact Igor Runge at (401) 427-2710 or igor.runge@gza.com.

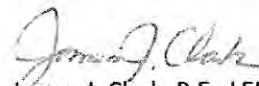
Very truly yours,

GZA GEOENVIRONMENTAL, INC.

  
Matthew J. Page, P.E.  
Senior Project Manager

  
Igor Runge, Ph.D., P.H.  
Consultant/Reviewer



  
James J. Clark, P.E., LEP  
Senior Principal

Attachments: Drawing (Fig. 1)

Cc: Erin Whoriskey (TNEC)  
Dave Reis (CRMC)  
Neal Personeus (RIDEM)  
Alison Verkade (NMFS)





State of Rhode Island and Providence Plantations  
 Coastal Resources Management Council  
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 4808 Tower Hill Road, Suite 3  
 Wakefield, RI 02879-1900

(401) 783-3370  
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 COASTAL RESOURCES  
 MANAGEMENT COUNCIL

## APPLICATION FOR STATE ASSENT

To perform work regulated by the provisions of Chapter 279 of the Public Laws of 1971 Amended.

File No. (CRMC use only): <u>2017-12-040</u>		
Project Location: <u>South Street Seawall Replacement</u>		<u>Providence</u>
Number	Street	City/Town
Owner's Name: <u>Narragansett Electric Company d/b/a National Grid</u>		Plat: <u>21</u> Lot(s): <u>453 (formerly 429)</u>
Mailing Address: <u>40 Sylvan Road Waltham, MA 02451</u>		Res. Tel. #: _____ Bus. Tel. #: _____
Contractor RI Lic. #	Address:	Tel. No.
Designer:	Address:	Tel. No.
Waterway: <u>Providence River</u>	Est. Project Cost: <u>TBD</u>	Fee/Costs: <u>\$5,000.00</u>
Description of work proposed (a brief description of all elements of work <u>MUST</u> be included here, additional sheets may be attached):		

Have you or any previous owner filed an application for and/or received an assent for any activity on this property?  
 (If so please provide the file and/or assent numbers): 2015-10-001

Is this site within a designated historic district?  YES  NO

Is this application being submitted in response to a coastal violation?  YES  NO

If YES, you must indicate NOV or C&D Number: \_\_\_\_\_

Name and Addresses of adjacent property owners whose property adjoins the project site. (Accurate addresses will insure proper notification. Improper addresses will result in an increase in review time.)

See attached list of abutters

STORMTOOLS (<http://www.beachsamp.org/resources/stormtools/>) is a planning tool to help applicants evaluate the impacts of sea level rise and storm surge on their projects. The Council encourages applicants to use STORMTOOLS to help them understand the risk that may be present at their site and make appropriate adjustments to the project design.

NOTE: The applicant acknowledges by evidence of their signature that they have reviewed the Rhode Island Coastal Resources Management Program, and have, where possible, adhered to the policies and standards of the program. Where variances or special exceptions are requested by the applicant, the applicant will be prepared to meet and present testimony on the criteria and burdens of proof for each of these relief provisions. The applicant also acknowledges by evidence of their signature that to the best of their knowledge the information contained in the application is true and valid. If the information provided to the CRMC for this review is inaccurate or did not reveal all necessary information or data, then the permit granted under this application may be found to be null and void. Applicant requires that as a condition to the granting of this assent, members of the CRMC or its staff shall have access to the applicant's property to make on-site inspections to insure compliance with the assent. This application is made under oath and subject to the penalties of perjury.

*Michael F. Ryan*

Owner's Signature (sign and print) MICHAEL F. RYAN

PLEASE REVIEW REVERSE SIDE OF APPLICATION FORM



**STATEMENT OF DISCLOSURE AND APPLICANT AGREEMENT AS TO FEES**

The fees which must be submitted to the Coastal Resources Management Council are based upon representations made to the Coastal Resources Management Council by the applicant. If after submission of this fee the Coastal Resources Management Council determines that an error has been made either in the applicant's submission or in determining the fee to be paid, the applicant understands that additional fees may be assessed by the Coastal Resources Management Council. These fees must be paid prior to the issuance of any assent by the Coastal Resources Management Council.

The applicant understands the above conditions and agrees to comply with them.

Michael F. Ryan  
Signature

12/8/17  
Date

MICHAEL F. RYAN, NATIONAL GRID, 280 Melrose Street,  
Print Name and Mailing Address  
PROVIDENCE, RI 02907



## 1.0 INTRODUCTION

The Narragansett Electric Company d/b/a National Grid is seeking a Category B Assent for the proposed rebuild of the South Street Substation existing seawall located at 342 Eddy Street in Providence, Rhode Island (Site). The reconstruction of the seawall has been added as an additional Phase to the Project Master Plan submitted to the Rhode Island Coastal Resources Management Council (CRMC) on June 2, 2015 in the form of a Preliminary Determination Application by CV Properties LLC. The five phases are identified as follows:

- Phase 1: South Street Parking Garage
- Phase 2: South Street Landing and Compliance with the Urban Coastal Greenway (UCG) for the Metro Bay Region
- Phase 3: National Grid Substation Rebuild Project
- Phase 4: River House Residential
- Phase 5: South Street Seawall Replacement Project (presented herein)

Individual Assent Applications for Phases 1 through 4 of the project have been submitted to CRMC and approved. The Phase 1 Assent was approved on October 28, 2015 and the Phase 2 Assent was approved on December 21, 2015. The Phase 3 Assent was approved on March 2, 2016 and the Phase 4 Assent was approved on April 19, 2016. As indicated in the Project Master Plan, the overall redevelopment project will seek approval from CRMC under the Urban Coastal Greenway (UCG) policy for the Metro Bay Region. The redevelopment Site is located in the Inner Harbor and River Zone. While an individual phase of the project may not meet each of the requirements independently, the entire project as a whole will meet or exceed all of the UCG requirements, once the construction of all five phases is complete.

Construction of the South Street Parking Garage (Phase 1) was recently completed in February 2017. Construction associated with Phase 2 (South Street Landing) was completed September 2017. The National Grid Substation Rebuild Project (Phase 3) is currently in construction and scheduled to be completed and in operation in Fall of 2019. Phase 4 (River House Residential) is also underway with completion expected May 2019. Phase 5 – Seawall Replacement Project (presented herein) is scheduled to commence in Spring/Summer 2018.

This Category B application has been prepared to address the Phase 5 – Seawall Replacement Project. The following sections describe the Site, project overview, proposed seawall replacement, and how the proposed rebuild of the South Street Substation Seawalls will adhere to applicable sections of the CRMP requirements.

## 2.0 SITE DESCRIPTION AND HISTORY

The property, identified in the Providence records as Plat 21, Lot 453 (formerly Lot 429), is bounded to the west by Eddy Street, to the east by the Providence River, to the south by the Point Street Bridge and to the north by the NBC CSO outfall (NBC OF-008). Proof of Property Ownership and a list of abutting property owners are provided in Appendix A. A portion of the property is the location of the former South Street power generation station which occupied the property between South Street and the former Interstate 195 right of way. Buildings/features north of South Street include the switching building, transformer yard, and transmission towers. Photos of the Site are provided in Appendix B.



Construction of the National Grid Substation (Phase 3) is on-going upland of the existing seawall extending from the South Street right-of-way north to existing NBC outfall No. NBC-OF-008. The remaining portion of the property along the waterfront between Point Street and South Street is currently a public access/boardwalk that consists of both a timber and brick boardwalk area with several benches and gazebo structures. The boardwalk also provides access to an existing composite float and gangway system.

The proposed work described herein focuses on the replacement/repairs of shoreline protection facilities along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the northern end of the South Street Substation (Map 21 Lot 453). The protection facilities along the National Grid owned property consist of various wall types including a pile supported concrete retaining wall poured over a timber bulkhead, steel sheet pile walls, concrete panel walls with pile support, pile supported granite block walls, and field stone walls. A greater detailed description of the wall types is presented in Section 3.0 – Existing Conditions and Proposed Seawall Replacement.

The Site (RIDEM Case No. 02-092) is regulated under the Rhode Island Department of Environmental Management (RIDEM) *Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases* (Remediation Regulations) as amended November 2011. A Remedial Action Work Plan (RAWP) was submitted to RIDEM for review and approval in December 2014. RIDEM issued a Remedial Approval Letter (RAL) for the Site in January 2015. All work associated with the proposed seawall will be conducted in accordance with the RAWP.

### 3.0 PROJECT OVERVIEW

A new Urban Coastal Greenway (UCG) is proposed along the Providence River waterfront of 342 Eddy Street (Plat 21, Lot 453) between the Point Street Bridge and the proposed pedestrian bridge located on the northern side of the proposed substation rebuild area; refer to Figure C-7 for the proposed layout of the UCG. The UCG is proposed to be constructed as part of the South Street Landing project. The development consists of several adjoining parcels in the Jewelry District of Downtown Providence, Rhode Island. The proposed UCG will provide public access along the waterfront extending from the existing public access/boardwalk (South Street) to properties north of the Site. The preliminary design of the UCG was approved with the Phase 3 Assent (A2015-10-001). This Assent was approved with conditions to complete the design of the UCG. Beta Group has completed the design of the UCG and associated pedestrian bridge. An Assent Modification application is currently being prepared by GZA to address the conditions of Assent A2015-10-001. It is our understanding that the UCG will consist of a pedestrian/vehicular path ranging from 8 to 20 feet wide within a vegetated ('greenway') corridor that is proposed to extend from the Providence River edge inland approximately 17 to 30 feet (variable width greenway).

A pre-design investigation conducted in early summer 2016 determined that the existing seawall structures are deteriorating and cannot support the proposed UCG. Replacement of the existing wall systems are necessary to support the UCG extending from the Point Street Bridge (Station 0+00) to the north portion of the proposed South Street Substation (Station 10+50).

The activities required to implement this work will occur within 200 feet of the Providence River, which represents CRMC jurisdictional limit. The Providence River is designated as SB1 water quality category. CRMC has designated this portion of the Providence River as Type 5, "Commercial and Recreational Harbors". According to CRMC, these waters are "...adjacent to waterfront areas that support a variety of tourist, recreational, and commercial activities." Shell fishing within the river is currently listed as prohibited.



#### 4.0 EXISTING CONDITIONS

The approximately 1,050-foot-long exposed waterfront has been divided into five sections based on varying existing wall conditions. The following sections describe the existing seawall conditions for each of the five wall sections. Existing conditions of the Site are depicted on Figures C-2 and C-3.

##### 4.1 WALL SECTION 1 (0+00 TO 2+80)

A timber pile supported concrete wall poured over a timber bulkhead is located from Station 0+00 to 2+80. The wall system provides support for the existing public boardwalk and access to the existing floating dock system. The concrete wall footing appears to act as a concrete cap for the timber bulkhead. The toe of existing concrete wall is deteriorated and no longer provides a connection to the front row of timber piles. Although the existing wall system is functioning, it is in poor condition and the overall wall stability has been compromised.

##### 4.2 WALL SECTION 2 (2+80 TO 5+45)

The existing walls along Section (2+80 to 5+45) consist of demolished concrete retaining walls with timber sheeting and timber piles, concrete retaining walls of unknown configuration, steel sheeting, concrete retaining walls used to close off former water intake structures, and granite block walls resting on a pile supported timber platform. All the existing walls are in poor condition and will require a full replacement to support the proposed UCG (and pedestrian traffic) and prevent further erosion. The exposed wall height along Section 2 (ranging from 16 to 23 feet) is higher than the other wall sections due to deeper mudline elevations in this area.

##### 4.3 WALL SECTION 3 (5+45 TO 7+64)

The existing walls consist of a granite block retaining wall at the location of the existing submarine cable crossing landing, a former concrete discharge structure, and flat web steel sheeting outboard of the former concrete "discharge flume". All of the existing walls are in poor condition and will require full replacement to support the proposed UCG. Material loss such as large gravel and cobbles was observed to be falling out of the space between the "discharge flume" and the steel sheet pile wall at the corner of the wall. Along the length of this section, the exposed wall height ranges from 10 to 18 feet.

##### 4.4 WALL SECTION 4 (7+64 TO 8+43)

The first 25 feet of this portion of seawall consists of a box shaped concrete structure that formerly acted as a "discharge flume". The box shaped culvert is located behind an existing steel sheet pile wall, experiencing similar conditions as previously mentioned in Section 3.5.3 (5+45 to 7+60). The remaining portion of this section consists of a combination of field stone wall with a concrete cap. Both types of wall systems are beginning to show signs of distress and areas of potential failure.

##### 4.5 WALL SECTION 5 (8+43 TO 10+55)

This existing length of wall consists of a field stone wall with a concrete cap. The condition of this wall varies from good to poor with failed sections. Considerable vegetation growth is present behind the wall. Areas of displaced stones, loss of ground, and settlement behind the wall are also present. Cracks in the concrete cap were observed at portions of the capped section of the field stone wall.



#### 4.6 EXISTING SUBSURFACE CONDITIONS

The braced wall system design is directly influenced by the poor subsurface conditions existing on the Site. A description of each of the subsurface materials encountered on the Site is presented below.

##### 4.6.1 SUBSURFACE CONDITIONS

Subsurface explorations consisting of geotechnical and environmental test borings have been performed upland and in the Providence River along the proposed wall alignment. The generalized upland subsurface soil profile encountered in the test borings consists of fill underlain by organic silt, glacial outwash, and glacial till. The generalized subsurface profile of the water-based borings in the Providence River sea-ward of the existing seawall typically consists of river sediment underlain by compressible organic silt, glacial outwash deposits, and glacial till. The presence of organic silt and recent river sediment deposits are considered to be problematic soil conditions for wall design due to the extent of their thickness (varying between 10 and 28 feet) and poor soil properties (soil strength, compressibility, and consistency). The glacial outwash deposits consisting of stratified layers of silty sand, silty gravel, "Providence Silts", and glacial till are considered to be suitable for bearing of the new wall systems.

#### 4.7 BURIED STRUCTURES AND UTILITIES

The former South Street power generation station is located approximately 70 feet inland of the existing walls and is supported by over 2,000 piles. Several former intake and discharge structures associated with the former South Street power generation station are located between the existing waterfront walls and the former South Street power generation station. These structures include several intake and discharge tunnels and pipes as well as the former screen house, transfer house, and No. 1 screen house and fire pump house. It is GZA's understanding that these structures were abandoned and left in place below the ground surface. The foundation type for these structures is unknown, but it is likely that some of the structures are supported on deep foundations. A 54-inch diameter NBC CSO line runs parallel to the existing waterfront wall structures and connects to a drop shaft adjacent to South Street. The attached Figure R-1, identifies the location of the buried structures.

Several electrical utilities are located both above and below grade behind the existing walls. Existing electrical towers with overhead wires are located approximately 2 to 20 feet inland of the waterfront walls. These lines will be transitioned below grade to a new electrical conduit that is currently under construction (Phase 3). The new conduit is located between approximately 20 and 50 feet inland of the existing waterfront walls. An existing submarine cable crossing landing (100 kV line) is present below the Point Street Bridge near Station 0+00. An additional submarine cable crossing landing is located at Station 5+50. The 23kV line at this location connects to the former Elm Street right of way inland of the existing waterfront walls. The attached Figures C-4 and C-5 identify the location of existing utilities.

Two (2), 24-inch cast iron storm sewer pipes, regulated by the City of Providence, discharge through a riprap slope into the Providence River at the end of South Street (Station 2+90). The Narragansett Bay Commission (NBC) Outfall No. OF-007 is located at the end of Former Elm Street (Stations 5+31 and 5+45). The outfalls consist of two (2) 36-inch diameter cast iron pipes with flapper gates extending through a pile supported concrete headwall. NBC outfall No. OF-008, located at the end of Ship Street, discharges into the Providence River at the end of the proposed wall system. Refer to Figures C-2 and C-3 – Existing Conditions Plan for approximate outfall locations.

#### 4.8 SEAWALL HISTORICAL SIGNIFICANCE

An assessment of the historical significance of the existing seawalls was performed by Public Archaeology Laboratory (PAL) on behalf of National Grid. The findings of PAL's assessment were issued to the Rhode Island Historical Preservation and





Heritage Commission (RIHPHC) for review in November 2016. The RIHPHC determined the waterfront walls are not eligible for listing in the National Register of Historic Places and the proposed wall repair/replacement options (presented herein) will have no adverse effect on nearby historic resources. A copy of this letter is attached in Appendix C.

## 5.0 PROPOSED SEAWALL REPLACEMENT STRUCTURES

The approximately 1,050-foot-long exposed waterfront has been divided into five sections based on varying design parameters and conditions; including soil stratum (soil type and properties), varying wall heights, and upland loading conditions (emergency vehicles, construction loads, pedestrian, and landscaping). The following sections describe the selected wall system replacement.

### 5.1 WALL SECTION 1 (0+00 TO 2+80)

Repair of the toe of the concrete wall is proposed along the entire length of the structure (approximately 280 feet). This work will include temporary removal of the existing deck structure, temporary removal of the ramp and float system, installation of a new cantilever sheet pile wall, placement of concrete between the deteriorated toe and sheet piles, replacement of deteriorated timber piles supporting the deck structure, and restoration of the existing floating dock system. The repair will restore structural integrity of the wall toe and limit potential material loss and undermining of the wall system. This will also extend the service life of the existing wall and minimize the risk of having to perform a full wall replacement in the future. Refer to Figure S-4 – Sections A through C for the repair option.

### 5.2 WALL SECTION 2 (2+80 TO 5+45)

As compared to other wall sections, a higher loading condition was assumed to act behind this wall section due to anticipated emergency vehicle access along the proposed UCG. The larger exposed wall heights coupled with the higher loads acting on the upland area, and existing poor subsurface conditions require a structurally more rigid wall system than the other Sections.

A braced steel sheet pile wall is necessary to structurally support the proposed UCG. Conventional bracing systems such as tiebacks or a deadman system are unable to be constructed within the upland areas due to the existing buried structures, foundations, and utilities behind the existing seawalls. As a result, a “raker” (steel batter H-piles) system is proposed to support the bulkhead outboard of the new sheet pile wall. Consistent with CRMP Section 300.7.F.1, the sheet pile wall will be installed as close to the existing walls as practicable (as close as existing conditions allow) and anticipated to extend approximately 2 to 2.25 feet from the existing seawall face. This encroachment is based on a 20-inch wide sheet pile wall with an additional 4-to 6-inch offset to allow piles to be driven straight and plumb. The “raker” piles will be installed outboard of the new sheet pile wall at a 3:12 batter. When measured at the mudline, the “raker” pile will encroach into the Providence River approximately 5.1 feet from the face of the new sheet pile wall. The proposed wall system will prevent additional erosion from occurring behind the deteriorated wall sections. Refer to Figures S-4 and S-5 – Sections D through F for details of the wall system.

### 5.3 WALL SECTION 3 (5+45 TO 7+60)

Similar to Wall Section 2, this wall section requires the use a steel sheet pile coupled with “raker” piles to provide sufficient support of the proposed UCG due to the large exposed wall heights and poor soil conditions. The sheet pile wall will be installed as close to the existing walls as conditions allow and are anticipated to encroach into the Providence River approximately 2 to 2.25 feet from the existing seawall face. This encroachment is based on a 20-inch wide sheet pile wall with an additional 4 to 6-inch offset to allow piles to be driven straight and plumb. The “raker” piles will be installed



outboard of the new sheet pile wall at a 3:12 batter. When measured at the mudline, the “raker” pile will encroach into the Providence River approximately 3.9 feet from the face of the new sheet pile wall. The new sheet piles will also prevent further material loss occurring behind the existing structure while preserving a similar facade.

A concrete cap will be installed at the top of the sheet pile wall along this wall section to facilitate public pedestrian access to the waterfront. The concrete cap will partially extend out over the top of the sheet pile wall and “raker” piles. This concrete cap will limit visual appearance of the wall system above the water line (i.e., partially obstruct view of “raker” piles), enhance waterfront accessibility, and minimize potential interference of public fishing activities. Refer to Figure S-5 – Sections G through I for details of the wall system.

#### 5.4 WALL SECTION 4 (7+64 TO 8+43)

Based on smaller exposed wall heights and upland loading, a cantilever steel sheet pile wall will provide adequate structural support for the proposed UCG along Wall Section 4. The advantage of constructing a cantilever sheet pile wall system is that there will be no need for “raker” piles. This will reestablish the existing walls current purpose and abate further erosion. Refer to Figure S-5 – Section J for details of the wall system.

#### 5.5 WALL SECTION 5 (8+43 TO 10+55)

The proposed rip rap revetment restores the existing seawalls’ appearance while providing erosion control and structural support for the proposed UCG. Construction of a rip rap revetment would be more economical than constructing a sheet pile wall and will not require any alignment modifications to the UCG. Based on conversations with BETA Group, Inc. and review of the final permit drawings, a timber pedestrian bridge is proposed to span across water inlet at approximately Station 9+75. The 1.5H:1V riprap revetment will extend beyond the pedestrian bridge timber abutment pilings and tie into the NBC Outfall No. OF-008 concrete wall. Rip rap at this location will be similar to that of the existing riprap slope at Outfall No. OF-008. Refer to Figure S-6 – Sections K and L.

### 6.0 CONSTRUCTION SEQUENCE AND SCHEDULE

The following summarizes the anticipated construction schedule and sequence for replacement of the seawalls.

The construction schedule will proceed as follows:

- The decommissioning of overhead wires will occur in 2018.
- The contractor will receive a notice to proceed in Spring 2018.
- The placement of steel will begin in Spring 2018 and conclude in Summer 2018.
- Site mobilization and preparation will begin late Spring/ early Summer 2018.
- Bulkhead construction will begin in Summer 2018 and finish Winter 2018/2019.

The construction sequence will proceed as follows:

- Establish project horizontal and vertical control and new bulkhead alignment.



- Install erosion control around work area.
- Install turbidity curtain around work area.
- Removal/Demolition of all existing seawall elements that may interfere with or interrupt installation.
- Drive steel sheet piles.
- Backfill any openings between the existing seawall and new bulkhead with crushed stone or concrete.
- Drive steel raker piles.
- Install sheet pile to raker pile connections.
- Pour concrete pile cap/install steel pile cap.
- Install riprap revetment.
- Grade site in accordance with grading plan.
- Install railing on concrete cap.

## 7.0 COASTAL RESOURCES MANAGEMENT PROGRAM REQUIREMENTS

### 7.1 SECTION 145 CLIMATE CHANGE AND SEA LEVEL RISE

The most recent updates to the Coastal Resources Management Program's Section 145 – Climate Change and Sea Level Rise (effective February 22, 2016) note that the Council relies upon the most recent NOAA sea level rise data to address planning horizons for infrastructure. As of 2015, the range in sea level rise is projected by NOAA to be a maximum of approximately 1.0 foot in 2035, 2.0 feet in 2050, and 7.0 feet in 2100. For this design, the anticipated sea level rise for the area over the next 30 years is estimated at 1.8 feet.

The top of the rebuilt seawall will remain at the elevation of the existing seawall, which is at approximately +8.0 feet NAVD88. Mean high water at the Site is approximately +2.3 feet NAVD88. Using NOAA's projections, the seawall will accommodate sea level rise at least through 2080.

### 7.2 SECTION 200.5 TYPE 5 WATERS - COMMERCIAL AND RECREATIONAL HARBORS

The proposed rebuild of the South Street Substation seawalls will improve scenic quality along this portion of the Providence River by replacing deteriorated and declining shoreline protection facilities. The proposed seawalls are expected to enhance erosion and deposition control along the shoreline and to safely support the UCG. The proposed seawalls have been designed to have minimum encroachment into the Providence River. Ultimately, the UCG coupled with the proposed seawalls will demonstrate efficient use of the space, promote tourism, and encourage continued use of the Providence River waterfront.



### 7.3 SECTION 300.1 CATEGORY B REQUIREMENTS

The proposed seawalls are necessary for National Grid to provide waterfront access and support the UCG. The seawall project will comply with all applicable regulations in the CRMP. As previously mentioned, the proposed seawalls are expected to enhance erosion and deposition control along the shoreline, with localized demolition and excavation of material associated with Section 5 of the wall system. The proposed seawalls have been designed to have minimum encroachment on the Providence River and its commercial/recreational harbor. The proposed Project will adhere to all applicable federal building codes, safety codes, and fire codes. The site is not located within a natural heritage area. The limit of disturbance for this project consists of previously developed areas. There is little vegetation within the limit of disturbance. The impacted area consists of a rip rap slope and varying types of deteriorated seawalls. Therefore, this project is not anticipated to impact plant or animal life. No known areas of historic and archaeological significance will be impacted. The rebuilt seawall will improve public access to the waterfront and provide for increased fishing locations along the River. Finally, the proposed South Street Substation seawalls will improve the scenic quality along this portion of the Providence River by replacing debilitated and failing wall systems.

### 7.4 SECTION 300.2 FILLING, REMOVING, OR GRADING OF SHORELINE FEATURES

A Site-specific Soil Erosion and Sediment Control Plan (SESC) has been prepared for the construction activities in accordance with the *Rhode Island Soil Erosion and Sediment Control Handbook* dated 2014. The earthwork activities for this project involve mostly cutting/removing materials. The project involves filling approximately 20,000 cubic yards of ¾" crushed stone and/or flowable concrete between the proposed steel sheet piles and the existing seawalls. The project will remove less than 10,000 cubic yards of material and will not disturb more than two acres or historic or archeologically sensitive areas. Any excess material will be disposed of at an appropriate licensed disposal facility and in accordance with the RAWP, refer to Section 10 of this application for more details. Prior to offsite disposal excavated material will be stockpiled at the South Street Substation as far as practicable from the shoreline feature. The upland portions of the Site (the UCG) that will be disturbed will be stabilized with vegetation or permeable pavement once construction of the seawall is complete. In accordance with the RAWP imported fill material will be certified clean. If dewatering is required during construction, the dewatering water will be managed in accordance with the RAWP. Any concrete utilized for the seawall will consist of Type II or Type V sulfate resistant concrete. Dredging will not be performed for this project. Excess riprap will be stored in the stockpile area. The intake and discharge structures that are no longer in use will be filled with concrete prior to the installation of sheet piles.

All debris removed from the River will be stockpiled, cleaned, and disposed in accordance with the RAWP. Perimeter erosion and sediment controls at the Site during construction activities will consist of straw bales (Filtrexx Sox) and silt fence in upland areas and turbidity curtains in the Providence River.

### 7.5 SECTION 300.7 CONSTRUCTION OF SHORELINE PROTECTION FACILITIES

This project proposes to replace the existing deteriorated shoreline protection facilities with three wall types: cantilever steel sheet pile wall, braced steel sheet pile wall, and rip rap revetment. Figures C-2 and C-3 provide locations of the three wall types along the waterfront. The following addresses the 7 conditions specified in CRMP Section 300.7.E.1:

- (a) *An erosion hazard exists due to natural erosion processes and the proposed structure has a reasonable probability of controlling this erosion problem.*

The existing seawall exhibit material loss and erosion through voids in the deteriorated infrastructure. The proposed seawall will diminish the natural erosion process and provide a sound structural foundation for the UCG.



- (b) *Nonstructural shoreline protection has not worked in the past or will not work in the future because these methods are not suitable for the present site conditions.*

It is unknown if the Site ever had nonstructural shoreline protection. The present site conditions consist of a deteriorated seawall. The existing Site infrastructure (being upgraded) and construction of an UCG along the waterfront to allow public access mandates a reconstructed, structurally sound seawall.

- (c) *There are no practical or reasonable alternatives to the proposed activity such as the relocation of structures that mitigate the need for structural shoreline protection.*

The relocation of existing infrastructure and elimination of the UCG are not practical and reasonable at this juncture. The limits of the UCG have been previously approved and will provide numerous benefits to the area. Structurally sound shoreline protection (seawall) is required to safely support the UCG.

- (d) *The proposed structure is not likely to increase erosion in adjacent areas.*

The ends of the proposed seawall will be properly tied into adjacent existing structures to manage erosion. New slopes will be graded to gradually transition into the existing grade on the surrounding shoreline. The proposed wall systems will be built as close as practicable to the existing shoreline protection feature. Migration of sediment during construction activities will be mitigated with turbidity curtains (booms).

- (e) *The proposed structure is an appropriate solution to the erosion problem considering such things as the long-term erosion rate in the area, the likely effects of storms and hurricanes, and the stability of the shoreline on either side of the project.*

The proposed wall sections have been designed to accommodate sea level rise, storm surge, enhance long term erosion protection, and provide a suitable foundation for the stability of the upland UCG.

- (f) *Describe the long-term maintenance program for the facility including financial commitments to pay for said maintenance.*

National Grid maintains all their existing structures and will continue to maintain the proposed wall sections. Periodic condition assessments will be performed to ensure structural stability of the wall sections and locate any areas in need of repairs.

- (g) *New breakwaters, jetties, bulkheads, revetments, and seawalls shall be designed and certified by a registered professional engineer.*

The proposed seawall has been designed by a RI Registered Professional Engineer.

## 7.6 SECTION 300.10 FILLING IN TIDAL WATERS

There will be minimal filling in the Providence River. All new seawalls (sheet piles or rip rap) will be placed as close as conditions allow (as close as practicable) to the existing seawall structures. Depending on the existing seawall structure, in most sections the proposed sheet pile wall sections will extend into the Providence River between 8 to 30 inches. The total area of the seawall footprint that extends 8 to 30 inches beyond the existing seawall is approximately 2,730 square feet. In wall section 8+43 to 10+55, in the vicinity of the pedestrian bridge, the proposed rip rap seawall will extend beyond the current footprint of the existing deteriorated seawall to accommodate the width of the upland UCG and to provide a safe and robust foundation for the walking path. The face of the existing wall in this area is irregular with



numerous voids. At this location, the toe of the proposed rip rap seawall section will extend into the Providence River approximately 15 to 20 feet from the existing wall face. The total area of the rip rap revetment that extends 15 to 20 feet beyond the existing seawall/shoreline is approximately 3,280 square feet. This area, often referred to as the Ship Street inlet, has little navigational value and harbors a large NBC combined sewer overflow (NBC CSO-008) outfall. Without this extension, the width of the UCG (paved path and vegetated areas) along the Site would need to be reduced and would not meet the requirements of CRMC's Urban Coastal Greenway Policy for the Metro Bay Region.

#### 7.7 SECTION 330 PROTECTION AND ENHANCEMENT OF SCENIC VALUE

The proposed South Street Substation seawalls will restore the scenic value of this designated Commercial and Recreational Harbor area. Continuity will be provided between existing and proposed structures. The Rhode Island Historical Preservation and Heritage Commission has voiced that no historical structures will be impacted by this project. Their correspondence regarding the project is included in Appendix C.

#### 7.8 SECTION 335 PROTECTION AND ENHANCEMENT OF PUBLIC ACCESS TO THE SHORE

Currently there is no public access to the shoreline at the Site. This project will provide the necessary shoreline improvements to safely support the UCG. The UCG will permit public enjoyment of this area for generations to come.

### 8.0 WATER QUALITY CERTIFICATION REQUIREMENTS

RIDEM has designated the Providence River (water body ID RIR0007020E-01B) in the vicinity of the Site as an SB1 water. SB1 waters are waters designated for primary and secondary contact recreational activities and fish and wildlife habitat. The Providence River is currently listed as an impaired water body due to fecal coliform, total nitrogen, and dissolved oxygen. Given the considerable coastline disturbance, this project will require a Water Quality Certification from the Office of Water Resources at RIDEM. As previously described, the seawall will be constructed in five (5) sections. Construction is anticipated to begin in the spring of 2018 and be complete in the winter of 2018/2019. During construction of the seawall, turbidity curtains equipped with absorbent booms will be installed around the work area to prevent discharge of sediment or contaminants to the Providence River. Straw wattles (or equivalent) will be installed around any upland limits of disturbance to prevent discharge of sediment. The turbidity curtains will be installed along the shoreline of the Site and will not extend across the Providence River.

### 9.0 ARMY CORPS OF ENGINEERS GENERAL PERMIT REQUIREMENTS

The rebuilt seawall will replace the existing seawall and in certain areas will extend beyond 12 inches of the original seawall footprint. Therefore, a pre-construction notification (PCN) is required under the Army Corps of Engineers (ACOE) Rhode Island General Permit.

In accordance with the General Conditions of the ACOE Rhode Island General Permit, the project will obtain all other required Federal, State, and Local authorizations. The construction of the seawall will include work within a Navigable Water of the United States, and therefore falls under the jurisdiction of the United States Army Corps of Engineers. As described above, portions of the proposed seawall will extend beyond the current footprint of the existing seawall which will result in a permanent impact to the Providence River. This encroachment into the Providence River is necessary for safety and stability of the new seawall and upland critical infrastructure. Temporary impacts will be mitigated utilizing soil



erosion and sediment controls throughout construction. The seawall in a single and complete project. The existing seawall requires repair regardless of any upland projects.

Based on a review of the Information for Planning and Consultation mapping tool provided by the U.S. Fish and Wildlife Service the project area is not expected to contain endangered species habitat. The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) has been contacted regarding the existing seawall. The RIHPHC determined that the seawall is not eligible for listing in the National Register of Historic Places in a letter dated November 29, 2016. The RIHPHC letter is included in Appendix C. The Narragansett Tribal Historic Preservation Office will be contacted by the ACOE in accordance with Section 106 Consultation.

The existing seawall is supported on piles. Some of the existing piles will be removed in order to accommodate the supports for the new seawall. Piles will be removed in accordance with general condition 12 in Appendix B of the Rhode Island General Permit. Although the proposed seawall will extend beyond the existing seawall, this alteration represents a minimal impact to navigation. Construction activities for the proposed seawall will not be performed in wetlands. Construction will be performed from upland area, or from barges in the Providence River. It is not anticipated that construction mats will be required for this project. Any upland areas disturbed by the project will be equipped with erosion and sediment controls.

The proposed seawall is not anticipated to impact scouring on neighboring properties because the proposed seawall is a replacement of the existing seawall.

Soil Erosion and Sediment controls will be installed prior to the start of construction and will be maintained throughout construction. The controls will be inspected at least on a weekly basis and more frequently depending on storm events. Any deficiencies observed in the controls will be addressed as soon as practicable. During in water work turbidity curtains will be installed. The curtains will not extend beyond 25% of the width of the Providence River, and are not expected to impact fish passage or aquatic life movements.

As indicated above, the proposed project will obtain a Water Quality Certification from the RIDEM. The project does not propose any new discharges to the Providence River.

## 10.0 RIDEM OFFICE OF WASTE MANAGEMENT

A Remedial Action Work Plan for the South Street Substation Redevelopment project (which includes the area for the new seawall) was submitted to the Office of Waste Management at RIDEM in December 2014. RIDEM issued a Remedial Approval Letter on January 12, 2015. All Construction activities will be performed in accordance with the RIDEM approved RAWP. Excess soils generated during construction will be stockpiled on two layers of 6-mil polyethylene sheeting and will be covered with polyethylene sheeting at the end of each work day. Stockpiles will also be equipped with erosion controls such as Filtrexx Soxx (or an approved equivalent). In accordance with the RAWP, any dewatering water generated during construction will be containerized in a fractionation tank (for settlement of suspended solids), passed through a bag filtration (to remove fines) and allowed to infiltrate onsite in a non-erosive manner. Any excess soils generated by the seawall project will be disposed of at an appropriate licensed disposal facility. Excess soils will be transported offsite under a manifest or bill of lading, copies of the transportation documents will be included in the closure report for the Site. Any material brought onsite will be tested in accordance with the requirements in the RAWP. The Office of Waste Management will be notified prior to the start of construction of the seawall, and will be notified once construction is complete.

Site Photographs – South Street Substation  
Providence, Rhode Island

RECEIVED

DEC 12 2017

COASTAL RESOURCES  
MANAGEMENT COUNCIL



Photo 3



Photo 4





STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
HISTORICAL PRESERVATION & HERITAGE COMMISSION  
Old State House • 150 Benefit Street • Providence, R.I. 02903-1209  
TEL (401) 222-2678 FAX (401) 222-2968  
TTY / Relay 711 Website [www.preservation.ri.gov](http://www.preservation.ri.gov)

Jennifer R. Cervenka, Chair  
Coastal Resources Management Council  
Oliver H. Stedman Government Center  
4808 Tower Hill Road  
Wakefield, Rhode Island 02879

CRMC File Number: 2017-12-040

Applicant: Narragansett Electric

Town: Providence

Response Date: 1/10/18

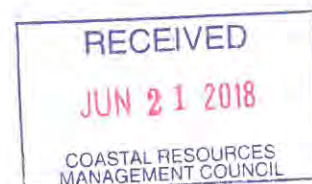
Dear Ms. Cervenka:

The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) staff has reviewed the above-referenced project. It is our conclusion that this project will have no effect on any significant cultural resources (those listed on or eligible for listing on the National Register of Historic Places).

These comments are provided in accordance with Section 220 of the Coastal Resources Management Council. If you have any questions, please contact Glenn Modica, Project Review Coordinator, or Charlotte Taylor, archaeologist, at this office.

Very truly yours,

Jeffrey Emidy  
Acting Executive Director, RIHPHC





REPLY TO  
ATTENTION OF

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

May 30, 2018

Regulatory Division  
File Number: NAE-2017-03118

Narragansett Electric Company d/b/a National Grid  
Erin Whoriskey  
40 Sylvan Road, E2.468  
Waltham, Massachusetts 02451

Dear Ms. Whoriskey:

We have reviewed your Application for Category B Assent to the Rhode Island Coastal Resources Management Council (CRMC) to place approximately 6,010 square feet of fill within the Providence River to replace and expand an existing seawall in at 342 Eddy Street in Providence, Rhode Island, as shown on the attached plans (cover sheet only), entitled "SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT DECEMBER 2017" in thirty-one sheets dated "DECEMBER 2017" and on one sheet entitled "SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT STONE REVETMENT/HABITAT RESTORATION LAYER LAYOUT AND SECTION" dated "MAY 2018"..

Based on the information you have provided, we have determined that your project, which includes work and/or a discharge of dredged or fill material into waters of the United States, including wetlands, will have no more than minimal individual and cumulative adverse effects on the aquatic environment. Therefore, this work is authorized under General Permit #2 of the enclosed Federal permit known as the Rhode Island General Permits (GPs). This work must be performed in accordance with the terms and conditions of the GPs and also in compliance with the following special conditions:

1. Loss of Essential Fish Habitat will be mitigated for according the enclosed plan entitled "SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT STONE REVETMENT/HABITAT RESTORATION LAYER LAYOUT AND SECTION", in one sheet dated "MAY 2018".
2. The turbidity curtain shall be removed upon completion of work. Sediment and debris collected by this device shall be removed and placed at an upland location in a manner that will prevent its later erosion into a waterway or wetland.
3. Pile driving shall be performed using a vibratory hammer. A slow start technique shall be utilized during the driving of piles to ensure that any mobile marine species in the project impact area have time to leave the project site prior to injury inducing noise levels are reached.

This authorization requires you to complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date.

You are responsible for complying with all of the GPs' requirements. Please review the enclosed GPs carefully, in particular the general conditions. You should ensure that whoever does the work fully understands the requirements and that a copy of the permit document and this authorization letter are at the project site throughout the time the work is underway.

This authorization expires on March 3, 2022, unless the GP is modified, suspended, or revoked before then. You must commence or be under contract to commence the work authorized herein by this expiration date and complete the work within one year of this expiration date or you must contact this office to determine the need for further authorization before beginning or continuing the activity. We recommend you contact us *before* these GPs expire to discuss permit reissuance.


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

This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law, as listed in Section 2 of this GP. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) provided above or all the terms and conditions of the GP may subject you to the enforcement provisions of our regulations.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey)

Please contact Mike Wierbonics, of my staff, at (978) 318-8723 if you have any questions.

Sincerely,

  
Frank Del Guidice, Chief Permits and Enforcement Branch C  
for Chief of Regulatory Division

Enclosure(s)

Copy Furnished:

Alison Verkade, NMFS – [alison.verkade@noaa.gov](mailto:alison.verkade@noaa.gov)

Dave Reis, CRMC - [dreis@crmc.ri.gov](mailto:dreis@crmc.ri.gov)

Jean Abbruzzese, CRMC – [jabbruzzese@crmc.ri.gov](mailto:jabbruzzese@crmc.ri.gov)

Igor Runge, GZA Environmental – [igor.runge@gza.com](mailto:igor.runge@gza.com)



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

**WORK-START NOTIFICATION FORM**  
(Minimum Notice: Two weeks before work begins)

\*\*\*\*\*  
\* EMAIL TO: cenae-r@usace.army.mil; or \*  
\* \* \* \* \*  
\* MAIL TO: Bettina Chaisson \*  
\* U.S. Army Corps of Engineers, New England District \*  
\* Permits and Enforcement Branch \*  
\* Regulatory Division \*  
\* 696 Virginia Road \*  
\* Concord, Massachusetts 01742-2751 \*  
\*\*\*\*\*

Corps of Engineers Permit No. NAE-2017-03118 was issued to the Narragansett Electric Company d/b/a National Grid to replace and expand the existing seawall and rip rap revetment located within the Providence River at 342 Eddy Street in Providence, Rhode Island. This permit authorized the installation of approximately 6,010 square feet of fill within the Providence River. Impacts to EFH will be impacted as shown on the plan "SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT STONE REVETMENT/HABITAT RESTORATION LAYER LAYOUT AND SECTION", in one sheet dated "MAY 2018".

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

**PLEASE PRINT OR TYPE**

Name of Person/Firm: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Numbers: ( ) \_\_\_\_\_ ( ) \_\_\_\_\_

Proposed Work Dates: Start: \_\_\_\_\_ Finish: \_\_\_\_\_

Permittee/Agent Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

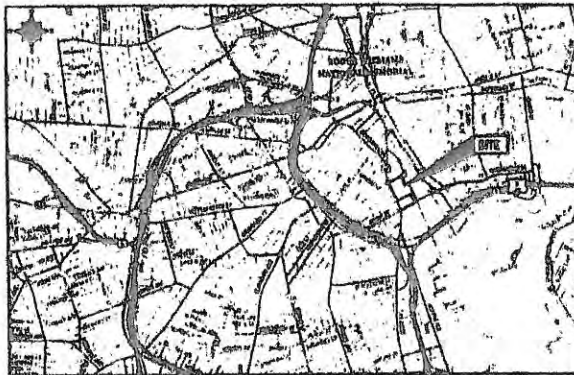
Date Permit Issued: \_\_\_\_\_ Date Permit Expires: \_\_\_\_\_

\*\*\*\*\*  
**FOR USE BY THE CORPS OF ENGINEERS**

PM: Mike Wierbonics Submittals Required: \_\_\_\_\_

Inspection Recommendation: \_\_\_\_\_  
\_\_\_\_\_

# SOUTH STREET SUBSTATION PROVIDENCE, RHODE ISLAND SEAWALL REPLACEMENT DECEMBER 2017



### PROJECT LOCUS MAP

SOURCE: URBSSTORE.GOV



SCALE: 1 INCH = 200 FEET

THIS MAP SHOWS THE PROPOSED PROJECT LOCATION WITH  
EXISTING UTILITIES AND STRUCTURES. THE PROJECT LOCATION  
IS INDICATED BY A THICK LINE.

UTILITY LOCATIONS SHOWN BY  
SYMBOLS AND LINES AS SHOWN IN THE KEY.



PROJECT LOCATION

**PREPARED FOR:**  
nationalgrid

**PREPARED BY:**



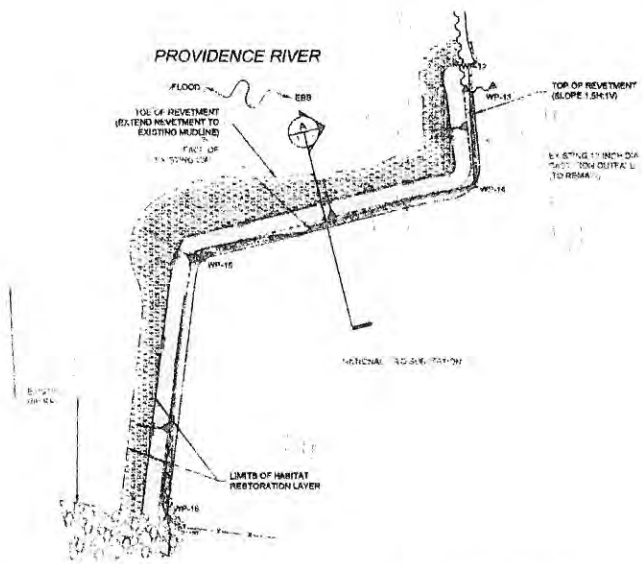
**GZA**GsoEnvironmental, Inc.  
Engineers and Scientists  
www.gza.com

ARTICLE	SHEET TITLE
<b>GENERAL</b>	
G-1	COVER SHEET AND INDEX OF DRAWINGS
G-2	GENERAL NOTES
<b>GENERAL NOTES</b>	
GN-1	EXPLORATION LOCATION PLAN (1 OF 2)
GN-2	EXPLORATION LOCATION PLAN (2 OF 2)
<b>GENERAL</b>	
G-3	SITE ADDRESS / KEY PLAN
G-4	EXISTING CONDITIONS PLAN (1 OF 2)
G-5	EXISTING CONDITIONS PLAN (2 OF 2)
G-6	EXISTING UTILITIES PLAN (1 OF 2)
G-7	EXISTING UTILITIES PLAN (2 OF 2)
G-8	TEMPORARY CONTROL PLAN
G-9	FINAL CONDITIONS PLAN
G-10	TEMPORARY CONTROL DETAILS (1 OF 2)
G-11	TEMPORARY CONTROL DETAILS (2 OF 2)
<b>GENERAL NOTES</b>	
GN-1	CONSTRUCTION PLAN
GN-2	CONSTRUCTION SECTIONS (1 OF 2)
GN-3	CONSTRUCTION SECTIONS (2 OF 2)
<b>GENERAL</b>	
G-12	OVERALL WATERPRIORITY STRUCTURE LAYOUT PLAN
G-13	SUBHEAD LAYOUT PLAN
G-14	SUBHEAD / REVESTMENT LAYOUT PLAN
G-15	SUBHEAD SECTIONS (1 OF 2)
G-16	SUBHEAD SECTIONS (2 OF 2)
G-17	REVESTMENT SECTIONS
G-18	DETAILS (1 OF 2)
G-19	DETAILS (2 OF 2)
<b>GENERAL</b>	
G-20	HISTORICAL PERMIT DRAWING - TIMBER PILE CUTOFF
G-21	PLAN AND PROFILE SHOWING CROSSINGS OF 110KV BURMANHOPE CABLE
G-22	PLAN AND DETAILS - PORTLAND CEMENT CONCRETE BURMANHOPE CABLE
G-23	DOCK AND FLOAY STRUCTURE DRAWINGS
G-24	HISTORICAL PLAN OF CITY OF PROVIDENCE STORM SEWER SYSTEM
G-25	TOPOGRAPHIC PLAN - SOUTH STREET SEAWALL - JULY 1917

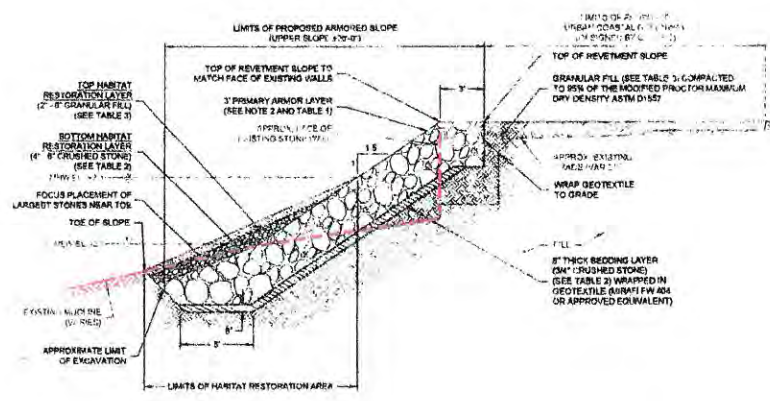
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**JAN 05 2018**  
**COASTAL RESOURCES**  
**MANAGEMENT COUNCIL**

**PERMITTING ONLY**  
NOT FOR CONSTRUCTION

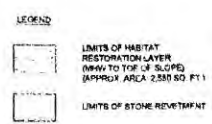
P43



DETAIL - STONE REVETMENT/HABITAT RESTORATION LAYER LAYOUT (STA. 8+35 TO 10+37)  
SCALE 1"=20'



SECTION - STONE REVETMENT/HABITAT RESTORATION LAYER (STA. 9+25)  
SCALE 1"=4'



- NOTES**
- NO DISTURBANCE EXCAVATION OR REMOVAL OF MATERIALS SHALL BE PERFORMED BEYOND THE LIMITS SHOWN ON THE DRAWINGS.
  - SUPPLEMENT RIDOT P-4 WITH ENGINEER APPROVED EXISTING ON-SITE STONE REMOVED FROM EXISTING FIELD STONE WALLS.

**TABLE 1 - RIP-RAP GRADATION REQUIREMENTS**

PRIMARY ARMOR LAYER	
RIDOT R-5	
% LESS THAN	STONE SIZE (IN.)
0-15%	8
5-50%	13
100%	26

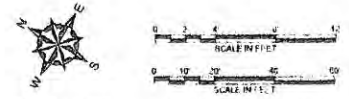
**TABLE 2 - 3/4" CRUSHED STONE GRADATION REQUIREMENTS**

% LESS THAN	SEIVE SIZE
10-100	3/4 INCH
10-30	1/2 INCH
0-5	No. 4

**TABLE 3 - GRANULAR FILL GRADATION REQUIREMENTS**

% LESS THAN	SEIVE SIZE
100	
30-85	NO. 10
10-70	NO. 40
0-10	NO. 200

THREE INCHES (3") WHERE PLACED AS A SUB-BASE COURSE, ELSEWHERE, TWO-THIRDS (2/3) OF THE LOOSE FILL THICKNESS



**SOUTH STREET SUBSTATION**  
**PROVIDENCE, RHODE ISLAND**  
**SEAWALL REPLACEMENT**

**STONE REVETMENT / HABITAT RESTORATION LAYER LAYOUT AND SECTION**

DESIGNED BY: MJP	DRAWN BY: MEA	CHECKED BY: IR	FIGURE: 1
DATE: MAY 2018	PROJECT NO: 33964-02	REVISIONS:	DIFFERENTIAL:

PREPARED BY: **GEOTECHNICAL, Inc.** (Equity and Science) **nationalgrid**

DRAWN: THOMAS WHELAN (301) 448-1400; CHECKED: JAMES W. WHELAN (301) 448-1400; DATE: 05/13/2018; PROJECT: SOUTH STREET SUBSTATION SEAWALL REPLACEMENT; SHEET: P44 OF 100



**RHODE ISLAND**

**DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

OFFICE OF WATER RESOURCES

235 Promenade Street, Providence, Rhode Island 02908

June 13, 2018

Mr. Michael Ryan  
National Grid  
40 Sylvan Road  
Waltham, MA 02451

RE: **South Street Seawall Replacement**  
**Plat 21, Lot 453; 342 Eddy Street, Providence**  
**File No. 17-236**

Dear Mr. Ryan,

The RIDEM-Office of Water Resources has reviewed the above referenced project for compliance with the State Water Quality Regulations. The project involves the replacement of shoreline protection facilities (seawall) along approximately 1,050 linear feet of the Providence River extending from the Point Street Bridge north to the north end of the South Street Substation. Additionally, approximately 20,000 cubic yards of fill within the river will occur with both the new seawall and an expanded stone slope for habitat enhancement.

We have reviewed the subject application and site plans entitled "South Street Substation, Providence, Rhode Island, Seawall Replacement, December 2017", sheets 1 through 22 of 31, dated December 2017, revised January 5, 2018, as well as a plan entitled "Stone Revetment/Habitat Restoration Layer Layout and Section", sheet 1 of 1, dated May 2018, signed by Russell J. Morgan, P.E. of GZA GeoEnvironmental, Inc. of Providence, RI, on June 13, 2018. The State Water associated with this project is the Providence River, Class SB1 {a}.

It is the determination of the Water Quality Certification Program that said project is in compliance with the requirements of the State Water Quality regulations provided that the applicant complies with the above plans and the following conditions:

- 1) You must notify the RIDEM contact person identified below of the anticipated date of construction and your contractor's contact information, prior to any site disturbance.
- 2) Prior to construction, you must erect or post a sign resistant to the weather and at least twelve (12) inches wide and (eighteen) inches long, which boldly identifies the initials "DEM" and the application number(s) assigned to this permit. The sign must be maintained at the site in a conspicuous location until such time that the project is complete.



Mr. Michael Ryan  
National Grid  
South Street Seawall Replacement  
WQC No. 17-236  
June 13, 2018

- 3) A copy of this permit, any inspection records, and a signed and updated SESC Plan, must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit must be made available for review by any DEM or City/Town representative upon request.
- 4) All fill material shall be clean and free of matter that could cause pollution of the waters of the State.
- 5) All seawall piles must be installed utilizing a vibratory hammer, and a slow-start technique shall be utilized to provide mobile marine species adequate time to vacate the immediate vicinity prior to potential injury.
- 6) The turbidity curtain must remain in place and maintained in functioning condition for the duration of the in-water work, and must be removed upon completion of work. Materials captured by the turbidity barrier shall be disposed of in an upland location and in accordance with all applicable local, State, and Federal regulations.
- 7) This permit for the construction phase of this project shall expire on June 13, 2021. Project construction is to be completed by this date. You shall be required to submit a request for any modification(s) and/or extension(s).

In addition to any necessary enforcement actions stemming from the violation of any of the terms or conditions of this permit, issuance of this permit does not bar the Department, or any of its various Divisions, from instituting any investigation and/or enforcement actions that it may deem necessary for violations of any and all applicable statutes, regulations and/or permits, including but not limited to violations of the terms or conditions of any previous permit issued to you as an applicant or for this site.

This permit does not relieve your obligation to obtain any other applicable local, state and federal permits prior to commencing construction. This permit has the full force and effect of a permit issued by the Director. If you have any questions regarding the contents of the permit, you may contact me at (401) 222-4700, ext. 7610.

Sincerely,



Neal B. Personeus  
Senior Environmental Scientist/Project Manager  
Federal 401/State WQC Program

cc: Dave Reis, RI CRMC  
Taylor Bell, US ACOE  
Alison Verkade, NMFS  
Eric Schneider, RI DEM  
Igor Runge, GZA