



GEOTECHNICAL

ENVIRONMENTAL

ECOLOGICAL

WATER

CONSTRUCTION MANAGEMENT

95 Glastonbury Boulevard 3rd Floor Glastonbury, CT 06033 T: 860.286.8900 F: 860.633.5699 www.gza.com August 12, 2021 GZA File No. 05.0043654.60

Mr. Joseph Martella Rhode Island Department of Environmental Management Office of Land Revitalization and Sustainable Materials 235 Promenade Street, 3rd Floor Providence. Rhode Island 02908

Re: Remedial Action Work Plan Addendum #2
Site Remediation File No. SR-26-0934A/Formerly RIDEM Case No. 95-022
Former Tidewater Facility
200 Taft Street
Pawtucket, Rhode Island

Dear Mr. Martella:

GZA GeoEnvironmental, Inc. (GZA), on behalf of The Narragansett Electric Company d/b/a National Grid (National Grid), has prepared this second addendum to the June 2018 Remedial Action Work Plan (RAWP) for the Former Tidewater Facility located in Pawtucket, Rhode Island (herein referred to as the Site). This second addendum outlines certain proposed modifications to the remedy included in the June 2018 RAWP and the May 2019 RAWP Addendum for approval by the Rhode Island Department of Environmental Management (RIDEM). These remedy modifications are due to the development of the northern portion of the Site as a stadium facility by Fortuitous Partners under a long-term lease agreement with National Grid and the realignment of the existing combined sewer outfall (CSO) at the Site by the Narragansett Bay Commission (NBC).

DESCRIPTION OF DEVELOPMENT

The proposed development includes construction of a multisport stadium in the northern portion of the Site. The stadium will be constructed with a synthetic turf field with bleacher seating completely surrounding the field, a multi-story building on the south end of the stadium that will house locker and team facilities and other maintenance related equipment, and an elevated press box and luxury box seating over the bleacher seating on the west side of the field. The buildings and bleachers will be supported by shallow spread footings that are installed above the engineered cap.

The area surrounding the stadium will primarily consist of hard scaped areas with concession and ticketing booths on the north, west, and east sides and a paved parking lot area located to the south of the stadium. Access to the stadium will be via a new driveway that enters the Site proximate to the intersection of Tidewater and Taft Streets and extends on the west side of the stadium. The stadium will be serviced by natural gas, underground electric, sanitary sewer, and municipal water. Stormwater runoff from the development will be collected, treated, and discharged to the Seekonk River.

All of the stadium components including the foundations will be constructed above the engineered cap with the exception of a sanitary sewer pump station and the foundations for light pole bases which will extend below the engineered cap.

A Site Plan depicting the layout of the stadium is attached as **Drawing 1**.







DESCRIPTION OF CSO REALIGNMENT PROJECT

Currently the existing CSO pipe extends from proximate to the intersection of Merry and Tidewater Streets beneath the electrical substation and discharges to the Seekonk River to the east of the electrical substation. As part of an upgrade to NBC's sanitary sewer system in the Pawtucket area, NBC will be realigning the layout of the CSO on the Site. This work includes installation of a relocation structure proximate to the existing CSO line within Tidewater Street, installation of a new diversion structure to the northwest of the Pawtucket No. 1 control house building, installation of an approximately 950 foot-long, 48-inch diameter consolidation conduit extending from the diversion structure to the northwest corner of the Site, and installation of a new approximately 450 foot long, 48-inch diameter overflow pipe extending from the diversion structure to a new outfall to the Seekonk River.

The relocation structure, the diversion structure, the overflow pipe, and the southern portion of the consolidation conduit are anticipated to be constructed via open cut excavation techniques. The northern portion of the consolidation conduit is anticipated to be installed via micro-tunneling techniques which will require construction of a drop shaft and a receiving pit on the Site. Dewatering of the drop shaft, the receiving pit and portions of the open cut excavation will be necessary. Dewatering fluids will be treated on-Site and discharged to the sanitary sewer system. Excavated soil generated during installation of the CSO pipe will either be used as fill on-Site beneath the engineered cap or disposed off-Site.

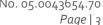
A Site Plan depicting the layout of the realigned CSO pipe is attached as Drawing 1.

PROPOSED MODIFICATIONS TO THE REMEDY

These two projects necessitate modifications to the remedial plan outlined in the June 2018 RAWP and the May 2019 RAWP Addendum. The following outlines these proposed modifications to the remedy for the Department's approval.

- The May 2019 RAWP Addendum indicated that an impermeable cap would be conservatively extended across the
 entire Former Gas Plant Area (FGPA) and North Fill Area (NFA) to further mitigate the potential for groundwater
 quality degradation. Since the majority of the FGPA and NFA will be covered by the stadium or hardscaped/paved
 areas, the extent of the impermeable cap in the northern portion of the Site will be modified as follows:
 - The impermeable cap will be installed beneath the eastern portions of the FGPA and NFA and beneath the stadium field and bleachers as depicted on attached **Drawing 2**. The impermeable cap will consist of a 50-mil linear low-density polyethylene (LLDPE) liner underlying at least 24-inches of imported clean fill, which is the same material as previously approved.
 - In the areas to the north, west, and south of the bleachers where hardscaped/paved areas or buildings will be constructed, the engineered cap will consist of a non-woven geotextile fabric to act as a warning barrier underlying at least 12-inches of clean imported fill. The extent of the geotextile engineered cap is depicted on attached **Drawing 2**. We note that additional clean imported fill will be placed by the developer to achieve final design grades so the actual clean engineered cap thicknesses will be greater than 12-inches in thickness. In addition, a vapor barrier will also be installed beneath the footprint of the buildings to mitigate the potential for vapor intrusion into the occupied spaces.
 - o In the vicinity of the new CSO pipe approximately where the pipe will be installed via open excavation methodology, the engineered cap will consist of a non-woven geotextile fabric to act as a warning barrier underlying a 6-inch-thick layer of relatively impermeable clay underlying an 18-inch-thick layer of imported clean fill. The extent of the geotextile low permeability engineered cap is depicted on attached **Drawing 2**.







- The section of the porous pavement maintenance path extending from Tidewater Street down to the riverfront now conflicts with the proposed stadium and therefore will no longer be installed. The porous pavement maintenance path parallel to the river however will still be installed and will serve to provide access to the recovery and monitoring wells installed along the riverfront.
- The footprint of the development extends to the northern Site property boundary and over the footprint of an existing freshwater wetland. The developer is in the process of obtaining regulatory approval to fill this wetland area and, assuming the developer obtains approval, the wetland will be filled and capped with a nonwoven geotextile fabric and at least 12-inches of clean imported fill.
- As described in the May 2019 RAWP Addendum, approximately 37,000 cubic yards of existing soil was going
 to be regraded across the entire Site in order to install the engineered caps. However, in order to achieve the
 design grades for the stadium development and to construct the stadium field, approximately 42,000 cubic
 yards of existing soil will be regraded and placed as fill beneath the engineered caps in just the northern half
 of the Site.
- We note there will be no changes to the engineered cap within 50-feet of the new coastal feature line including the 25-foot vegetated buffer and the revetments that was described in the June 2018 RAWP and the May 2019 RAWP Addendum and previously approved by the Department. In addition, there will be no changes to the soil management techniques including stockpile size limitations and the Best Management Practices for sedimentation and erosion control outlined in the June 2018 RAWP and previously approved by RIDEM and the Coastal Resources Management Council.
- The June 2018 RAWP included the abandonment of twenty-nine (29) existing monitoring wells to facilitate the implementation of the remedy. Due to conflicts with the stadium infrastructure, the layout of NBC's realigned CSO and a future substation equipment upgrade in the planning phase (in the case of B-109/MW-109), an additional ten (10) monitoring wells will require abandonment. A list of these additional wells are included in Table 1 and are depicted on Drawing 3. After abandonment of these additional monitoring wells, the long term natural attenuation groundwater monitoring program will include 4 new monitoring wells and eighteen (18) existing monitoring wells MW-310S, MW-310D, and MW-311 in the NFA, wells MW-312D, MW-326D, MW-333S, and MW-333D in the FGPA, wells M&E MW-2, MW-6, MW-314S, MW-314D, MW-316S, MW-316D, and MW-337 in the Former Power Plant Area (FPPA), and wells MW-107, MW-318S, MW-334S and MW-334D in the South Fill Area (SFA) (refer to Table 2). This modification will result in a reduction in the number of monitoring wells included in the long term the long-term natural attenuation groundwater monitoring program from a total of 27 monitoring wells (5 new wells and 22 existing wells) outlined in the June 2018 RAWP to 22 monitoring wells; however, this reduced groundwater monitoring well network is still adequate to be representative of groundwater quality on the downgradient edge of the Site.
- Installation of the engineered cap in the southern portion of the Site is anticipated to be completed in the
 September/October 2021 timeframe. Once the southern end of the Site is capped, intrusive activities that will
 disturb impacted Site soils will be focused in areas directly west and north of the substation area. Given this, we
 propose to reduce the number of perimeter air monitoring stations from 11 to 9 stations and focus the perimeter
 air monitoring program on the northern end of the Site. The proposed layout of the modified air monitoring
 program is depicted on Drawing 4.

SCHEDULE

As you are aware, implementation of the RIDEM approved remedy within the southern portion of the Site is on-going and is anticipated to be completed in the early fall 2021 timeframe.







The stadium developer needs to complete a ground improvement program in the northern portion of the Site to densify a deep layer of loose sands prior to construction of the stadium foundations. This ground improvement program will consist of a combination of vibratory probe compaction and rapid impact compaction activities and it is tentatively scheduled to be performed in the fall of 2021. National Grid anticipates regrading the existing Site soils in the northern portion of the Site prior to the initiation of the ground improvement program. The engineered cap in the northern portion of the Site will be constructed as the groundwater improvement program is completed and the stadium construction will be completed on clean capped soils.

We currently anticipate that NBC's contractor will be mobilizing to the Site in January 2022 to start the realignment of the existing CSO pipe and that the CSO realignment work on the Site will conservatively require approximately 18-months to complete. NBC's contractor will be responsible for the management and placement of the soils generated during the course of their work as fill beneath the engineered caps to the extent practical consistent with the regulatory approvals previously obtained by National Grid. Any excess soil that cannot be used as fill beneath the engineered cap will be disposed off-Site to a licensed facility by NBC's contractor. Realignment of the CSO will also require dewatering of at least the drop shafts for the pipe jacking activities. Dewatering fluids that are generated during the work will be treated on-Site and discharged to the sanitary sewer system consistent with a discharge approval obtained by NBC's contractor. Upon realignment of the CSO pipe, NBC's contractor will be responsible for installation of the engineered cap consistent with this RAWP Addendum and as approved by RIDEM.

We trust the information herein is sufficient to allow you to approve these proposed modifications. We look forward to continuing to work cooperatively with RIDEM to advance this Site to compliance with the applicable regulations. Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Kenneth Lento at 617-791-2627.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

David Rusczyk, P.E. Associate Principal

860-858-3110 - david.rusczyk@gza.com

cc: Mr. Kenneth Lento, National Grid

Attachments: Table 1: List of Additional Wells to be Abandoned

Table 2: List of Long Term Groundwater Monitoring Wells

Drawing 1: Site Plan

Drawing 2: Revised Capping Plan
Drawing 3: Well Decommission Plan
Drawing 4: Perimeter Air Monitoring Plan

Table 1 List of Additional Wells to be Abandoned Former Tidewater Facility Pawtucket, RI

Site Area	Well ID	Measured Well Depth	Top of PVC Elevation	Range of LNAPL Observed	Range of DNAPL Observed
		(Feet below Top of PVC)	(Feet)	(feet)	(feet)
NFA	MW-7	27.45	31.14	NP	NP
FGPA	MW-201	15.00	13.01	NP	NP
FGPA	MW-208	21.75	27.33	NP	NP
FGPA	MW-210	17.28	10.61	NP-2.06	NP
FGPA	MW-335S	15.75	10.75	NP-0.01	NP
FGPA	MW-335D	36.50	11.24	NP	NP
FGPA	MW-339S	12.35	14.52	NP	NP-trace
FGPA	MW-339D	20.95	14.80	NP	trace
FGPA	MW-341	30.10	18.70	NP	0.31 - 0.76
FPPA	MW-109	19.30	13.33	NP	NP

Notes

NFA = North Fill Area

FGPA = Former Gas Plant Area

FPPA = Former Power Plant Area

SFA = South Fill Area

NP - Indicates No Product observed.

1. Trace = less than 0.01 inches.

Table 2 List of Long Term Groundwater Monitoring Wells Former Tidewater Facility Pawtucket, RI

Site Area	Well ID	Measured Well Depth	Top of PVC Elevation	Range of LNAPL	Range of DNAPL Observed
				Observed	
		(Feet below Top of PVC)	(Feet)	(feet)	(feet)
NFA	MW-310S	17.35	8.76	NP	NP
NFA	MW-310D	36.20	8.31	NP	NP
NFA	MW-311	22.00	9.35	NP	NP
FGPA	MW-3	17.00	10.59	NP-trace	NP
FGPA	MW-4	17.65	9.92	NP	trace
FGPA	MW-303	41.85	8.48	NP	1.45 - 5.74
FGPA	MW-312S	23.55	9.94	0.1 - 1.05	NP
FGPA	MW-312D	31.90	9.82	NP	NP
FGPA	MW-313S	24.90	11.14	NP-trace	NP
FGPA	MW-313D	47.35	11.33	NP	NP
FGPA	MW-326S	26.60	11.90	NP-trace	NP
FGPA	MW-326D	45.05	11.26	NP	NP
FGPA	MW-333S	18.30	11.67	NP	NP
FGPA	MW-333D	45.20	11.56	NP	NP
FPPA	M&E MW-2	13.85	9.97	NP	NP
FPPA	M&E MW-5	16.88	8.14	NP-0.99	NP
FPPA	MW-6	19.03	12.73	NP	NP
FPPA	MW-314S	24.50	9.58	NP	NP
FPPA	MW-314D	43.40	9.59	NP	NP
FPPA	MW-316S	22.30	23.81	NP	NP
FPPA	MW-316D	31.55	23.97	NP	NP
FPPA	MW-337	20.00	12.75	NP	NP
SFA	MW-1	23.20	18.88	NP	trace
SFA	MW-107	27.35	21.08	NP	NP
SFA	MW-318S	27.00	18.14	NP	NP
SFA	MW-320S	10.95	7.05	NP	0.15 - 1.15
SFA	MW-320D	25.70	8.02	NP	trace - 14.52
SFA	MW-334S	28.80	20.54	NP	NP
SFA	MW-334D	43.20	20.74	NP	NP

Notes

NFA = North Fill Area

FGPA = Former Gas Plant Area

FPPA = Former Power Plant Area

SFA = South Fill Area

NP - Indicates No Product observed.

- 1. Trace = less than 0.01 inches.
- 2. Monitoring wells included in the natural attenuation groundwater monitoring program are highlighted in red.

