Remedial Investigation Field Report

Version: Final
Gould Island Site (D01RI033800)
Narragansett Bay
Jamestown, Rhode Island

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LIST OF ACRONYMS

AOC – area of concern
AMSL – above mean sea level
APP – Accident Prevention Plan
As – arsenic
bgs – below ground surface
BRMW – bedrock monitoring well
CENAE – Corps of Engineers New England District
CG – Certified Geologist
COC – chain of custody
Credere – Credere Associates, LLC
CSM – conceptual site model
DO – dissolved oxygen
DU – decision unit
EM – electromagnetic
EPH – extractable petroleum hydrocarbons
ERA – ecological risk assessment
FSP – Field Sampling Plan
FUDS – Formerly Used Defense Sites
FUDSCHEM – Formerly Used Defense Sites Online Chemical Database
Geosearch – Geosearch, Inc.
GPR – ground penetrating radar
GPS – global positioning system
Hager-Richter – Hager-Richter Geoscientific, Inc.
HHRA – human health risk assessment
HSA – hollow stem auger
LNAPL – light non-aqueous phase liquid
LSP – Licensed Site Professional
MS/MSD – matrix spike/matrix spike duplicate
MPS – multiparameter sonde
NED – New England District
NTU – nephelometric turbidity units
OBMW – overburden monitoring well
ORP – oxidation reduction potential
PAH – polycyclic aromatic hydrocarbon
PCB – polychlorinated biphenyls
PG – Professional Geologist
PID – photoionization detector
PP – priority pollutant
ppm_v – parts per million by volume
PUL – precision utility location
PWS – Performance Work Statement
PZ – piezometer
QA – quality assurance
QAPP – Quality Assurance Project Plan
QC – quality control
RI – Remedial Investigation

RIDEM – Rhode Island Department of Environmental Management
SOP – standard operating procedure
SSHO – Site Safety and Health Officer
SSHP – Site Safety and Health Plan
SPT – standard penetration test
SVOC – semi-volatile organic compound
TOR – top of riser
TSCA – Toxic Substance Control Act
USACE – U.S. Army Corps of Engineers
UST – underground storage tank
VOC – volatile organic compound
VPH – volatile petroleum hydrocarbons
YSI – Yellow Springs Instrument

1. INTRODUCTION

Credere Associates, LLC (Credere) was retained by the U.S. Army Corps of Engineers (USACE) New England District (CENAE) to conduct a Remedial Investigation (RI) of Gould Island located in Narragansett Bay in Jamestown, Newport County, Rhode Island (Site). A Site Location Plan is provided as **Figure 1**, and a Detailed Site Plan is provided as **Figure 2**. A project organizational flow chart is included as **Figure 3** to outline the chain of command used during field activities.

The scope of the field investigations is detailed in the associated Quality Assurance Project Plan (QAPP; Credere, 2018) and the associated Field Sampling Plan (FSP) included as Appendix A of the QAPP. The QAPP/FSP was developed in accordance with the Performance Work Statement (PWS) prepared by CENAE dated June 13, 2017 (CENAE, 2017), and revised March 10, 2018 (CENAE, 2018). Credere serves as the prime contractor for the project with subcontractors serving supporting roles (e.g., drilling, geophysical services, laboratory).

This RI Field Report summarizes field investigation activities performed between February 19 and April 20, 2018. This report serves as a cumulative documentation of the February to April 2018 field effort. This report outlines the project and field objective, summarizes the methodologies implemented in the field, specifically documents deviations or significant observations, and outlines the data management methodologies utilized. Field data is reported as collected however, no analytical data or interpretation is included herein and is reserved for the RI report.

1.1 PROJECT AND SITE DESCRIPTION

The project includes assessment of potential source areas across the Formerly Used Defense Site (FUDS) eligible portion of Gould Island. This Site was the U.S. Navy's primary testing facility for torpedoes during World War II. In the 1950s, testing and production of torpedoes was outsourced to private contractors, and in 1975 and 1989, parcels were transferred to the State of Rhode Island to form the current Site. The Site has been generally abandoned since and has become heavily overgrown with vegetation. Many of the remaining structures are collapsed or otherwise unsafe to access with the exception of the torpedo building and the incinerator.

The 39.15-acre Site is the central and southern portion of Gould Island that is currently managed by the Rhode Island Department of Environmental Management (RIDEM) Division of Fish & Wildlife and is designated as a bird sanctuary. The island is inaccessible during bird nesting between April 1st and August 15th annually. The 16.9-acre remainder of the island to the north is owned by the U.S. Navy. The Navy and U.S. Coast Guard have several small easements on the Site that are not eligible under the FUDS program and, as such, were not subject to investigation. These areas are hashed in green on **Figure 2**.

Potential areas of concern (AOC) on the Site were identified through review of prior environmental reports, munitions response reports, and historical information. These findings are summarized in the Final Preliminary Technical Memorandum (Credere, 2017a), which formed the basis for the conceptual site model (CSM) detailed in the QAPP/FSP. The CSM was used to develop this field program to support a Human Health and Ecological Risk Assessment (HHRA/ERA) for the RI.

Generally, historical environmental data was limited. For consistency with historical investigations, AOCs are referenced by their New England District (NED) Site Number (e.g., NED Site 10) and/or the specific Navy building number, designation, or description (e.g., NED Site 10 – Disposal Area 14). Photographs of most areas of concern from 2017 and 2018 reconnaissance are provided as **Photographs 1 through 80** of **Appendix A**.

1.2 STATEMENT OF OBJECTIVES

The primary objective of the field activities for the RI is to collect sufficient analytical data to support a human health and ecological risk assessment and assess the need for remedial action. The following Site-specific objective was established:

- Assess each NED Site requiring further investigation and collect sufficient analytical and observational data to confirm or dismiss the need for remedial action through risk assessment

A preliminary risk screening will be performed with the data from the initial field effort summarized herein to assess if further sampling is required to address data gaps and complete the RI.

2. FIELD ACTIVITIES AND METHODS

This section summarizes field activities, methods, and any significant deviations from the FSP and associated standard operating procedures (SOPs) contained therein. Photographs of pertinent Site observations and Site conditions are included as **Appendix A**. Field activity sample locations and pertinent Site features are provided on **Figures 4A through 4D**.

2.1 FIELD SCHEDULE

The following table summarizes the weekly schedule for all major field tasks during the February to April 2018 RI, as well as the clearing that occurred in late 2017:

Work Week	Site Clearing	Geophysical Survey	Bedrock Well Drilling & Installation [2]	Soil Boring & Overburden Well Installation [2]	Sediment Sampling	Test Pitting & Piezometer Installation	ISM, Surface Soil, and Sludge Sampling	Concrete Sampling	Groundwater Sampling	GPS Survey	Waste Characterization IDW Disposal [1]
Nov 27	X										
Dec 4	X										
Dec 11	X										
Feb 19	X	X									
Feb 26	X		X	X							
Mar 5			X	X							
Mar 12			X	X	X	X					
Mar19			X	X							
Mar 26			X	X	X						
April 2							X	X		X	
April 9					X		X	X			
April 16									X		X

Notes:
1. Investigation derived waste (IDW) to be picked up after nesting season in August 2018 or as directed by CENAE
2. Bedrock and overburden monitoring wells were purged and developed between March 6 and April 11 prior to groundwater sampling.

Daily marine transport of field personnel and small equipment between Gould Island and Newport, Rhode Island, was provided by Clean Bays of Middletown, Rhode Island, using a small utility landing craft licensed for transporting up to six (6) passengers at a time plus crew members. Transport for vehicles and heavy equipment was provided by AR Marine Service of North Kingstown, Rhode Island, using a landing craft barge with a 40-foot long by 15-foot wide deck.

During the field program, there were five (5) weather days where work was cancelled due to a combination of rough seas, wind, and heavy snowfall: March 2, 7, 13, and 21 and April 16. Half days were worked on April 4 and 6 due to deteriorating marine travel conditions. Several other days had late starts or early departures due to weather and marine travel conditions. The foremost reason for cancelled or reduced field days was the result of unsafe marine travel. Generally, the Clean Bays boat captain was relied upon to assess the safety of travel.

2.2 SITE CLEARING

Initial Site clearing and reconnaissance of the Site was performed by Credere and Clean Bays between November 27 and December 15, 2017. Additional Site clearing work was conducted between February 19 and March 2, 2018, by Clean Bays at the initiation of the RI field investigation. Tree and brush clearing were completed via chainsaws and a Bobcat-mounted brush hog (i.e., mower deck). A Cat 420F backhoe/loader was used onsite from February 19 to April 3, 2018, to move piles of debris, clear gravel and sediment from the seaplane ramps, maintain roadways, and rebuild an equipment access road on the western side of the island, which runs from the upper roadway just north of NED Site 35 (Boiler House) down to the shoreline.

Photographs showing general Site accessibility and constraints are provided as **Photographs 81 through 90**.

Deviations

No deviations occurred during clearing.

2.3 GEOPHYSICAL SURVEY

During the week of February 19, 2018, Hager-Richter Geoscience, Inc. (Hager-Richter) of Salem, New Hampshire, performed a geophysical survey of select areas of the Site. The objectives of the geophysical survey were to (1) detect and if detected, mark out the locations of utilities and other subsurface obstructions in the vicinity of approximately 101 proposed subsurface exploration locations; (2) assess whether underground storage tanks (USTs) are present near the northeast corner of Building 12 (NED Site 38) and between the north ends of Buildings 37 and 38 (NED Site 12) and if present, mark out their locations; and (3) assess the boundaries of buried waste at Disposal Area 14 (NED Site 10).

The geophysical survey was conducted using complementary methods: time domain electromagnetic induction metal detection (EM), ground penetrating radar (GPR), and precision utility location (PUL). Data was acquired where access allowed.

The complete results of the geophysical survey are presented in **Appendix B**, along with details on equipment and methods, and figures mapping utilities and Disposal Area 14 (NED Site 10). Numerous underground utilities and anomalies were located in investigation areas and, as such, many soil boring and drilling locations were adjusted to avoid underground obstructions. The suspected areal extent of Disposal Area 14 was mapped and is also shown on **Figure 4B**. Of note,

the disposal area extends across the roadway to the hillside on the southeast corner of the adjacent road intersection.

Suspected USTs were located and marked at both target locations in NED Sites 12 (**Photographs 91 and 92**) and 38 (**Photographs 93 through 96**). Subsequently, a mini-excavator was used to confirm the UST at NED Site 12. Excavation was attempted to unearth the suspected UST at NED Site 38, but the excavation was unsuccessful in verifying the presence of the suspect UST. Numerous pipes and utilities were encountered 4 to 6 feet below grade in the area of the suspected UST. An adjacent vertical chase (**Photograph 63 and 95**; approximately 12 inches by 20 inches) with a solid bottom went down approximately 9 feet below ground surface (bgs). It is unclear if a UST would have been buried below that depth, and the mapped anomaly is suspected to be part of the larger utility network in that area.

Deviations from QAPP/FSP

No deviations from the QAPP/FSP occurring during the geophysical survey.

2.4 BEDROCK MONITORING WELL DRILLING & INSTALLATION

Bedrock Drilling

Geosearch, Inc. (Geosearch) of Fitchburg, Massachusetts, was contracted to provide bedrock monitoring well (BRMW) drilling and installation services using an ATV-mounted CME 850X drill rig. Bedrock monitoring wells were installed according to Credere SOP CA-24, where field conditions permitted. Per the FSP, overburden soil at each well location was removed using hollow stem augers (HSA) techniques; standard penetration test (SPT) were performed and soil samples were collected using a 24-inch by 2-inch diameter split spoon sampler (see Credere SOP CA-5) continuously to bedrock refusal. At some locations (see subsequent text specific to conditions at each well location), overburden drilling modifications were required in the field due to extremely weathered/fractured bedrock, which required a combination of HSA, air hammer, and roller bit to reach competent bedrock. Soil cores were individually logged according to a modified Burmister and USCS method in accordance with Credere SOP CA-4, evidence of contamination was noted, and soil was field screened according to Credere SOP CA-7 for total volatile organic compounds (VOCs) using a ppbRAE 3000 (or similar) photoionization detector (PID) calibrated with a 100 parts per million (ppm) isobutylene gas standard and an instrument response factor of 1.0.

Once bedrock refusal with HSA was encountered, the augers were removed and the boreholes were advanced using a 5-inch outer diameter air hammer bit or roller bit through the highly weathered bedrock to competent bedrock. Once competent bedrock was encountered, a 4-inch diameter steel casing was installed using a 140-pound automatic hammer 5 to 10 feet into competent bedrock, grouted from the bottom up using a polyethylene tremie pipe, and allowed to set for at least 24 hours.

Bedrock borings were advanced using wireline coring methods using a HQ™ sized core barrel (3 7/8-inch outer/2.5-inch inner diameter) to retrieve bedrock cores to a depth where groundwater

was encountered. The HQ™ sized core barrel was utilized instead of the NX™ size to avoid the need to ream the borehole below the casing where PVC screen/riser was to be installed. Where coring occurred, cores were logged and the rock quality designation (RQD) was calculated. In locations where poor rock quality was encountered, coring was not feasible and the borings were advanced using a 3 7/8-inch diameter air hammer, and bedrock was logged using chips recovered from the borehole. Bedrock boring logs are provided as **Appendix C**.

Wells were screened with Schedule 40 2-inch diameter 0.01-inch slotted PVC screen. Well screens extended from just below the steel casing to the bottom of the borehole with a solid PVC riser to the surface. Each well annulus was filled with No. 1 washed silica sand, and a 2-foot bentonite seal was installed 1 foot above the screened interval. The remaining annulus was filled with Portland Type I/II grout, which was amended with approximately 10% bentonite clay (Cetco Super Gel-X). Each well was finished with a standpipe and locking cap (i.e., the 'typical annulus construction' as referenced below).

Photographs of bedrock drilling are provided as **Photographs 97 through 103**. Detailed BRMW Construction Logs are presented in **Appendix D**, including well development information (e.g., method, purge volume, final water quality parameters). **Table 2** provides a summary of well depth, screen interval, depth to water (from two synoptic water level measurements), northing/easting coordinates, and elevations for ground surface, riser, and casing for each BRMW as well as the overburden wells. A summary of drilling methodology, subsurface conditions, well construction, and specific observations at each well location is presented below.

BRMW-1: This well is located on the western side of the island in NED Site 10 (Disposal Area 14) adjacent to the roadway, as shown in **Figure 4B**. Overburden at this location consists of 11 feet of dark gray fine sand with some fine gravel and some depth intervals with equal parts silt. Below the overburden, air hammer (5-inch diameter bit) was used to advance through a soft, highly weathered/fractured phyllite and competent but highly fractured bedrock encountered at 14 feet bgs. Air hammer continued to 20 feet bgs and the 4-inch steel casing was installed and grouted from the above ground stickup to 20 feet bgs (i.e., 6 feet into competent bedrock).

HQ™ coring was attempted at this location from 20 to 25 feet. The presence of unconsolidated glacially derived material in this interval consisting of 0.75 to 1-inch rounded to subangular gravel prevented continued use of this methodology below 25 feet. Recovery was limited due to the presence of this gravel, but, during subsequent roller bit drilling, the driller indicated the encountered fracture was approximately 6 feet wide (i.e., 20 - 26 feet). The remainder of the borehole was advanced via roller bit (3 7/8-inch outer diameter) to a final depth of 56 feet bgs. A well was constructed within this borehole with a 34-foot well screen and 24.5 feet of solid riser with a typical annulus construction per above.

During drilling, some coal was identified in the overburden between 2 and 3 feet bgs and a slight petroleum odor was reported by the drillers in the air hammered interval at approximately 20 feet, but no evidence of contamination was detected with a PID. No other visual, olfactory, or field screening evidence of contamination was observed. The drill cuttings and drilling fluids were placed on the ground in the area of the well at the completion of work.

BRMW-2. This well is located on the southeastern side of the island outside and between the entrances to the former bunkers (NED Sites 21 and 22), as shown in **Figure 4C**. Only 2-inches of overburden was observed at this location consisting of dark gray sand and fine gravel. Below the overburden, air hammer (5-inch bit) was used to advance through 3 inches of soft highly weathered/fractured phyllite and competent bedrock was encountered at 1.5 feet bgs. Air hammer continued to 7 feet bgs and a 4-inch steel casing was installed and grouted from the above ground stickup to 7 feet bgs (i.e., 5.5 feet into competent bedrock).

HQ™ coring methodology was used to advance to a final depth of 29 feet bgs. The bedrock contained numerous sub-vertical iron encrusted fractures (i.e., fracture/joint sets between 40 and 90 degrees) and numerous coring induced mechanical fractures. Calculated RQD ranged from 29% to 50%. A well was constructed with a 17-foot well screen and 12 feet of solid riser with a typical annulus construction per above.

During drilling, no visual, olfactory, or field screening evidence of contamination was observed. The drill cuttings and drilling fluids were placed on the ground in the area of the well at the completion of work.

BRMW-3. This well is located on the southwestern side of the island adjacent to NED Site 38 (Torpedo Storage), NED Site 36 (Degaussing Building), and the western roadway, as shown in **Figure 4C**. A total of 15.3 feet of overburden was observed consisting of light brown to dark gray sand and silt with some gravel at various intervals. Just above bedrock, 5 inches of dark gray clay and silt with some gravel was observed and was interpreted to be a thin basal till horizon. Below the overburden, a combination of hollow stem auger to 19 feet bgs and air hammer (5-inch bit) from 19 feet to 30 feet bgs was used to advance through a soft highly weathered and fractured gray phyllite. Competent bedrock was encountered at approximately 19 feet bgs and a 4-inch steel casing was installed and grouted from the above ground stickup to 30 feet bgs (i.e., 11 feet into competent bedrock).

HQ™ coring methodology was used to advance to a final depth of 50.5 feet bgs. The bedrock contained numerous sub-vertical iron encrusted fractures (i.e., fracture/joint sets between 40 and 90 degrees) and numerous coring induced mechanical fractures. Calculated RQD ranged from 17% to 59%. A well was constructed within this borehole with 19 feet well screen and 31.5 feet of solid riser with a typical annulus construction

During drilling of this well, no visual, olfactory, or field screening evidence of contamination was observed. The drill cuttings and drilling fluids were placed on the ground in the area of the well at the completion of work.

BRMW-4. This well is located on the eastern side of the island, east of NED Site 12 (Fire Department/Maintenance Garage) and north of NED Site 13 (Electric Substation Transformer Pen), as shown in **Figure 4A**. A total of 8 feet of overburden was observed consisting of dark gray fine sand and silt with some gravel. Below the overburden, air hammer (5-inch bit) was used to advance through soft highly weathered/fractured gray phyllite bedrock beginning at 8 feet bgs.

Air hammer continued through competent bedrock between approximately 10 and 20 feet bgs and a 4-inch steel casing was installed and grouted from the above ground stickup to 20 feet bgs (i.e., 10 feet into competent bedrock).

HQ™ coring methodology was used to a final depth of 40 feet. The bedrock contained numerous sub-vertical iron encrusted fractures (i.e., fracture/joint sets between 40 and 90 degrees) and numerous coring induced mechanical fractures. Calculated RQD ranged from 49% to 80%. A well was constructed within this borehole with 16 feet well screen and 24 feet of solid riser with a typical annulus construction per above.

During drilling of this well, no visual, olfactory, or field screening evidence of contamination was observed. The drill cuttings and drilling fluids were placed on the ground in the area of the well at the completion of work.

BRMW-5. This well is located on the western side of the island, just north of NED Site 8 (Incinerator Building) adjacent to the roadway, as shown in **Figure 4A**. A total of 11.3 feet of overburden was observed consisting of dense to very dense dark brown to dark gray fine sand and silt with some gravel. Below the overburden, air hammer was used to advance through soft highly weathered/fractured gray phyllite bedrock. Air hammer continued through competent but highly fractured bedrock encountered at approximately 40 feet. Air hammer continued to 50 feet bgs and a 4-inch steel casing was installed and grouted from the above ground stickup to 50 feet bgs (i.e., 10 feet into competent bedrock).

HQ™ coring was attempted at this location, but the presence of a highly unconsolidated glacially derived gravel layer between 53 and 56 feet bgs prevented continued use of this methodology below this depth. This layer is presumed to be gravel filled fracture similar in a nature to the gravel encountered during drilling of BRMW-1 (See material example in **Photograph 99**). This material repeatedly collapsed into the borehole when drilling resumed (via roller bit methodology). To stabilize the borehole, the interval between 57 feet and 62 feet was grouted with Portland Type I/II cement amended bentonite. The grout was allowed to cure prior to finishing the drilling. When drilling continued the hole was stable enough to allow the hole to be finished via roller bit methodology (3 7/8-inch) to a final depth of 91 feet bgs. However, some collapse (likely from this interval) was observed between 67 and 77 feet bgs. A well was constructed within this borehole with 28 feet well screen and 63 feet of solid riser with a typical annulus construction per above.

During drilling of this well, no visual, olfactory, or field screening evidence of contamination was observed. The drill cuttings and drilling fluids were placed on the ground in the area of the well at the completion of work.

Bedrock Monitoring Well Development

BRMWs were developed using a Waterra check valve with a Hydrolift pump and surge block to set the filter pack followed by a Whale submersible pump to evacuate the wells. The Waterra intake was placed at the bottom of the well and the screen was surged in 5 to 10 foot intervals and then allowed to purge until water ran clear. This procedure continued for the entire length of the

screen. After surging, the Whale pump was used to evacuate residual sediment and purge sufficient volume.

The Whale pump was used on each BRMW except BRMW-5 due to the well depth beyond the capabilities of a Whale pump. In all cases where the Whale pump was used, the depth to water (i.e., operation head) remained within the operational range of the Whale pump. Groundwater recharge was observed to be at least equivalent to the Whale pump's maximum flow rate at BRMW-1 and BRMW-3. A two-way T-valve was placed at the end of the outflow tubing during the development of BRMW-2 to limit the flow rate, as the drawdown rate indicated that the recharge rate was less than the maximum flow rate of the Whale pump. Drawdown consistent with the outgoing tide was observed during the development of BRMW-4.

During Whale pump purging, temperature, pH, dissolved oxygen (DO), oxidation reduction potential (ORP), conductivity and turbidity were monitored using a Yellow Springs Instrument (YSI) multi-parameter sonde (MPS) and separate Hach turbidity meter for stability to ensure any introduced drilling water had been removed from the aquifer. Well development details are included on the well construction logs included in **Appendix D**. Of note during the development of BRMW-4 was elevated pH (above pH 13). Several readings were taken with two different YSI devices, each having a new or newer probe that had been calibrated and then re-calibrated. The elevated reading was checked with pH paper, which confirmed the pH was greater than 12. Specific conductivity and ORP measurements at the well were within normal ranges, so it is less likely that the result is errant and due to some unknow interference. A source of the elevated pH is not yet known.

Deviations from QAPP/FSP

Deviations to the bedrock drilling and monitoring well installations were:

- An HQ™ size core barrel was used in place of the NX size to eliminate the need for the added step of reaming. The 3 7/8 OD HQ size barrel was considered sufficient to allow for well annulus construction.
- The use of the Whale submersible pump was added equipment relative to the FSP; however, did not impact the development objectives. The Whale pump added efficiency in purging the well over the check valve pump; however, the check valve and surge block was still used at each BRMW.

2.5 SOIL BORING & OVERBURDEN WELL INSTALLATION

Geosearch was contracted to perform direct-push soil borings and install overburden monitoring wells (OBMW). Overburden borings were advanced using direct-push drilling methods with a Geoprobe® 6610DT track mounted drill rig equipped with a macrocore sampling device. The soil borings were advanced to refusal on the upland part of the island and through evidence of contamination or to a minimum depth of 12 feet bgs (see Credere SOP CA-5). Where refusal was encountered prior to the respective boring target depth, an additional 3 attempts were made on at least one boring within a NED Site or proximate vicinity to confirm the refusal depth on possible bedrock and not other interferences (e.g., large cobbles, boulders, etc.). For soil borings conducted

on the southern hanger pad, Geosearch used a concrete corer to advance through the concrete pad to the underlying soil.

Soil cores were collected continuously using dedicated, disposable polyethylene liners. Macrocores were individually logged according to a modified Burmister and USCS method in accordance with Credere SOP CA-4. For each core section collected, any evidence of contamination was noted, and the soil was open-spoon field screened for each foot of the macrocore according to Credere SOP CA-7 for total VOCs using a ppbRAE 3000 (or similar) PID calibrated with a 100 ppm isobutylene gas standard and an instrument response factor of 1.0. Headspace readings were collected where evidence of contamination was observed using the jar headspace method. Soil boring logs for each location are presented in **Appendix E**.

Grab soil samples were collected per the target depth intervals/justification detailed in **Table 1** in accordance with Credere SOP CA-5. Generally, sample target depths were pre-prescribed based on the CSM or previous Site information, or targeted the greatest observed contamination, groundwater interface, or interval immediately above drilling refusal. Debris/ash samples were also proposed in NED Sites 8 and 35 to assess the incinerator and boiler house fire boxes for source material/concentrations.

Visible asphalt and base materials, landscaping materials, and other organic detritus was removed prior to sampling. In all soil samples, representative soil was collected while wearing new nitrile gloves and using decontaminated hand tools (e.g., stainless steel spoon or spade). VPH/VOC samples were collected directly from the GeoProbe® macrocore using a dedicated soil syringe immediately after exposure to the atmosphere and determination of the appropriate sample collection depth to prevent loss of volatiles and degradation. The remaining representative soil was placed in a decontaminated stainless steel bowl (see decontamination SOP CA-2), homogenized, and placed in laboratory provided glassware. Samples were stored in coolers on ice until transfer to the laboratory for analyses detailed in **Table 1**. All 86 boring locations specified in the FSP were completed with additional borings advanced to confirm refusal depth or the presence or absence of contamination through visual observation or field screening, particularly at NED Site 10 (Disposal Site 14) and in an area of coal ash observed beneath the aviation pad. In total, 96 soil samples were collected from soil borings.

The FSP specified 11 locations for the installation of OBMWs colocated with direct-push soil borings. Of these, seven (7) locations had overburden groundwater where monitoring wells could be installed. On the southern hanger pad, 42OBMW-2 could not be installed because no overburden groundwater was encountered; however, APOBMW-2 was added nearby to assess overburden groundwater in the vicinity of observed contamination in APSB-2. As no overburden groundwater was encountered in NED Site 10 and to assess a slight petroleum odor noted in BRMW-1 and the upgradient position of petroleum observed down gradient on the beach, a combination overburden/bedrock well (10OBMW-2) was installed in the weathered bedrock interval. This combination well was installed using HSA immediately adjacent to the previously drilled direct-push locations 10SB4; therefore, no sampling or soil description was completed due to time constraints at the end of the drilling program. The boring was augered through the depth

where petroleum was previously noted (i.e., 11 to 20 feet) to a total depth of 25 feet for well installation.

Monitoring wells were installed according to Credere SOP CA-8. Each overburden monitoring well was constructed in a new boring adjacent to the initial direct push boring by advancing a 3.25-inch casing (direct push) to allow for installation of adequate well materials. 10OBMW-2 was installed within the HSAs. Each well was constructed with 10 feet (only 8 feet of screen in 37OBMW-1 due to shallow refusal) of 2-inch diameter 0.010-inch slotted PVC screen with at least 7 feet of screen below the depth of the water table where possible to allow for groundwater table fluctuations and leave room at the top of the screen to capture possible light non-aqueous phase liquids (LNAPL), and enough solid PVC riser to reach the ground surface. Sufficient water was not available in 37OBMW-1 to allow for 7 feet of water within the screen. Each well annulus was filled with No. 2 washed silica sand, and a 2-foot bentonite seal was installed 1 foot above each screen. Each well was finished with a standpipe cemented in-place, locking cap, and lock.

Well construction diagrams are provided in **Appendix F**. **Table 2** provides a summary of well depth, screen interval, depth to water (from two synoptic water level measurements), northing/easting coordinates, and elevations for ground surface, riser, and casing.

Monitoring wells were developed by over pumping with a Whale submersible pump while manually surging/agitating along the length of the screen to bring the screen and filter pack into hydraulic communication with the overburden aquifer, and then to evacuate sediment from the well. During whale pump purging, temperature, pH, DO, ORP, conductivity and turbidity were monitored using a YSI MPS and separate Hach turbidity meter for stability. Well development details are provided on the well construction logs in **Appendix F**.

Photographs of soil borings, typical Site soil types encountered, and well installation are provided as **Photograph 104 through 115** in **Appendix A**.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the soil boring and overburden monitoring well program included:

- At NED Site 01 (Coal Storage North), observed coal thickness was limited to the top 4 feet or less; therefore, deeper -2 samples were not warranted.
- At NED Site 10 (Disposal Area 14), 10SB2, no overburden groundwater was encountered, therefore 10OBMW1 was not installed.
- At NED Site 10 (Disposal Area 14), 10SB4, 10OBMW2 was installed into weathered bedrock using the CME 850 ATV hollow-stem auger drill rig to advance to depth of groundwater.
- At NED Site 10 (Disposal Area 14), deeper soil samples to assess the entire observed fill interval were not required due to the limited thickness of fill and evidence of

contamination. The -2 through -5 were not collected in 10SB1, 10SB2, and 10SB5 and the -3 through -5 samples were not collected from 10SB3 and 10SB4.

- At NED Site 12 (Maintenance Shop/Garage Fire Station), 12OBMW2 was moved from 12SB2 to 12SB3 due to insufficient groundwater at 12SB2 and evidence of contamination observed in 12SB3.
- At NED Site 12 (Maintenance Shop/Garage Fire Station), solid samples 12W-1 through 12W-3 were not collected, as the maintenance pit could not be located amongst the collapsed building debris.
- At NED Sites 21 (Bunker 11) and 22 (Bunker 12), no overburden groundwater was encountered, therefore 21OBMW1 and 22OBMW1 were not installed.
- At NED Site 23, (Coal Storage South) observed coal thickness was limited to the top 4 feet or less; therefore, deeper -2 samples were not warranted. 23SB7 contained no evidence of contamination, but samples were collected at 1-5 feet and 5-9 feet bgs due to being the first boring at the Site advanced with no comparison observations yet observable. The samples collected represented the entire boring.
- On the aviation pad at location APSB2, APOBMW2 was installed in lieu of 42OBMW1 where no groundwater was observed. Evidence of petroleum contamination was also observed at APSB2.
- On the aviation pad at location APSB5, borings APSB5B through APSB5F were added to delineate observable coal beneath the pad. No samples were collected at these additional step-out locations.
- At NED Site 32 (on aviation pad), 32SB1, no evidence of contamination was observed, and the sample was collected at the 2-foot interval above refusal at 11-13 feet bgs instead of at the groundwater interface at 5 feet bgs, as called for in the QAPP/FSP.
- At NED Site 35 (Boiler House), observed coal thickness was limited to the top 4 feet or less; therefore, deeper -2 samples were not warranted.
- At NED Site 35 (Boiler House), solid samples 35W-3 and 35W-4 were not collected because the building was collapsed and the sample locations were inaccessible.
- At NED Site 37 (Misc. Storage Building), 37SB2, no evidence of contamination was observed; therefore, the sample was collected from the 2-foot interval above the refusal depth. This sample was not collected from the groundwater interface because the sample nearby 37SB1-1 was collected from the groundwater interface and in order to assess deeper soil in the vicinity of the UST, the depth above refusal was sampled. One (1) additional confirmatory soil boring was advanced to confirm refusal depth (37SB2A).
- At NED Site 37 (Misc. Storage Building), 37OBMW-1 was constructed with only eight (8) feet of screen instead of 10 feet due to shallow refusal.
- At NED Site 42 (AV Gas Tank/Ordinance Test Facility Gasoline Outlet), no groundwater was encountered, therefore 42OBMW1 was not installed. APOBMW2 was installed instead nearby in the location of APSB2 where evidence of petroleum contamination was

observed. Deeper soil samples (-2) from 42SB1 and 42SB2 were not collected due to shallow refusal.

2.6 SEDIMENT SAMPLING

The FSP specified 15 sediment sampling locations on the western side of the island offshore from approximately 250 feet northwest of NED Site 8 (Incinerator Building) to 100 feet southwest of NED Site 10 (Disposal Area 14), as shown in **Figure 4B**. Photographs of sediment sampling are provided as **Photographs 116 and 117** in **Appendix A**. Eight (8) locations were located in the tidal zone (approximately 30 feet from high tide mark on shore) and seven (7) in deeper waters (approximately 100 feet from high tide mark on shore). The FSP also proposed the tidal zone samples to be collected with a Geoprobe; however, the shoreline was too rocky to safely navigate a drill rig; therefore, hand tools were employed for the tidal zone sampling.

Deeper water sediment samples were first attempted on March 12, 2018, from the Clean Bays landing craft using a ponar sampler. A GPS antenna was mounted adjacent to the sampling position on the edge of the boat and the tablet receiver was used by the boat's captain to navigate to each sampling position. The ponar was set, dropped to the seafloor to activate, and retrieved. Of the seven (7) deeper water sampling locations, five (5) were attempted (10SD11 through 10SD15) and four (4) locations (10SD11 through 10SD14) were collected after multiple attempts. In general, the ponar retrieved little to no sediment with each drop due to hard-packed or armored with cobbles seafloor with only a very thin sediment cover. Most drops retrieved only clam shells or some sea weed and most of the sediment was fine enough to wash out of the ponar during collection. For the four (4) sample locations that were able to be collected, between 8 and 30 drops were required to collect sufficient sediment to fill sample jars. VPH/VOC samples were collected as soon as possible after sediment retrieval using a dedicated soil syringe; however, due to this described repeated retrieval and disturbance of the seafloor, these samples may have been impacted by this methodology. The remaining sediment sample volume was homogenized in decontaminated stainless-steel bowls, decanted, placed in laboratory provided containers, then packed in coolers on ice. Excess sediment was returned to the water.

Deep water sampling was attempted again on March 27, 2018, with two core-style sediment samplers. One sampler had a ball valve assembly to create suction to hold collected sediment in the tube. The other had a flap valve at the tip to retain sediment during collection. Neither sampling devices proved effective as the sediment was either too fine and washed out and/or the penetration into the sediment was so limited (e.g., only two inches) that the sampler did not collect enough material to prevent washout. Ponar sampling was attempted at locations 10SD9 through 10SD13 with similar limited success. Those samples were not retained after consultation with CENAE. It was agreed that a different method for deep water sampling (e.g. diver) would be required to collect representative sediment samples.

Tidal zone sampling was conducted on April 12, 2018. Samples were collected during low tide using a bucket auger sampler and waders. Samples were processed on the deck of the Clean Bays landing craft. The bucket auger was emptied into a decontaminated stainless-steel bowl and VPH/VOC samples were collected immediately from a consolidated chunk of soil in the bowl

using a dedicated soil syringe. The remaining soil was decanted, homogenized, and transferred to laboratory provided glassware. All tidal samples were collected except for the deeper tidal zone samples at 10SD4, 10SD6, and 10SD7, where the location was too rocky to core to depth and no evidence of contamination was observed. Sediment sample logs with sediment descriptions are included as **Appendix G**.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the sediment sampling program were:

- As the sediment sample locations were not accessible for use of the excavator or hand probe as indicated in the FSP, all shallow sediment samples were collected using hand tools during the maximum low tide. Even at this maximum low tide, the sample locations were partially submerged in 1-2 feet of water. As the previously reported "tar-like" material was not widely observed on the beach during test pitting, this equipment limitation is not considered to impact the objective of delineating the extent of observable tar.
- At NED Site 10 (Disposal Area 14), the field duplicate was collected at 10SD5 instead of 10SD7, as no evidence of contamination was observed at 10SD7, but metal debris was observed near 10SD5.
- At NED Site 10 (Disposal Area 14), samples were collected via ponar at 10SD9 and 10SD10, but not analyzed as they were not considered representative of the top 6 inches of sediment.
- At NED Site 10 (Disposal Area 14), samples were collected via ponar at 10SD11 through 10SD14, but will not be used except for cursory screening as they are not considered representative of the top 6 inches of sediment.
- At NED Site 10 (Disposal Area 14), 10SD15, sampling was attempted via ponar but no sample was collected due to hard pack bottom.
- Deeper tidal zone samples at 10SD4, 10SD6, and 10SD7, were not collected because the locations were too rocky to core to depth with hand tools submerged in water and no evidence of contamination was observed in the shallower sediment.

2.7 TEST PITTING & PIEZOMETER INSTALLATION

Geosearch was contracted to support test pitting with a John Deere 60 mini-excavator on the shore below NED Sites 8 (Incinerator Building) and10 (Disposal Area 14), as shown in **Figure 4B**. Photographs of test pit locations are provided as **Photographs 118 through 137** in **Appendix A**. Target sample depths and analyses performed at each location are presented in **Table 1.**

Test pitting was conducted from March 12 to 15, 2018, following Credere SOP CA-6 where feasible. Test pits were excavated with the mini-excavator and soil was stockpiled immediately adjacent to the test pit. Large metal debris was set aside to allow for proper backfilling. Test pits were logged, any evidence of contamination was noted, and the soil was field screened according

to Credere SOP CA-7 for total VOCs using a ppbRAE 3000 (or similar) PID calibrated with a 100 ppm isobutylene gas standard and an instrument response factor of 1.0. Headspace readings were collected where evidence of contamination was observed using the jar headspace method.

Test pits 10TP1 through 10TP5 were inaccessible with the mini-excavator or other equipment due to large concrete mooring blocks on the shore that prevented access to these northern locations. The normal low tide abutted these blocks; however, near the end of the field program in April 2018, an extreme low tide indicated there may be times when this area would be accessible for test pit or other subsurface explorations.

At these inaccessible locations, surface soil samples were collected in place of test pits from 10TP1, 10TP2, 10TP4, and 10TP5, as approved by CENAE in the field. Samples were biased to the areas of greatest observed contamination at the surface. The vicinity of 10TP3 consisted of only blocks, water, and vine vegetation preventing exposure of any soil for sampling. Surface soil samples were collected while wearing new nitrile gloves and using decontaminated hand tools (e.g., stainless steel spoon or spade). VPH/VOC samples were collected directly from the surface using a dedicated soil syringe after removing the top approximately 4 inches to expose a fresh surface. The remaining representative soil was placed in a decontaminated stainless-steel bowl, homogenized, and placed in laboratory provided glassware. Samples were stored in coolers on ice until transfer to the laboratory.

Test pits 10TP6, 10TP7, and 10TP8 were excavated with the mini-excavator. In all three test pits an orange wet layer was observed in the top 1 to 2 feet bgs (**Photograph 123**) underlain by gray native sand and silt. Evidence of contamination (e.g., staining, odor, debris) and PID response were noted in test pits 10TP7 and 10TP8 at approximately 1-foot bgs at the bottom of the orange layer where water was observed. The water from 1-foot bgs was percolating into the excavation and contained a sheen (**Photographs 125, 129, and 131**). To prevent migration of contamination to depth, these test pits were quickly backfilled. Upon completion of backfill, it was observed that the advancing tide was comingled with the contaminated soil and causing a slight sheen. CENAE was immediately notified of this potential release to surface water. Credere proposed test pits 10TP9 through 10TP12 be excavated by hand to minimize the disturbed area and CENAE approved. As no evidence of petroleum contamination was observed in hand test pits 10TP10, 10TP11, and 10TP12 moving south down the beach; it was considered safe to excavate 10TP13 with the excavator. Samples were collected at areas of greatest contamination (e.g., orange coloring or presence of metal scraps for flakes) or PID response, where applicable. VOC/VPH samples were collected directly from the excavator bucket from soil not in contact with the bucket to prevent cross contamination. Additional representative soil was collected into a decontaminated stainless-steel bowl, homogenized, and transferred to laboratory provided glassware. Samples were kept on ice until transferred to the laboratory. Test pit logs along with soil descriptions are included as **Appendix H** and logs of surface soil samples collected from 10TP1, 10TP2, 10TP4, and 10TP5 are include in **Appendix G**.

Four (4) temporary piezometers were to be installed using 1-inch diameter PVC pipe with a slotted screen below 1 foot bgs to assess possible migration of a tar-like substance that was noted at several locations along the shore and previously reported to be widespread on the beach. At hand dug

locations (10TP2, 10TP5, 10TP12), insufficient depth was achieved to install piezometers. At location 10TP8, piezometer 10PZ3 was installed with a screen depth from 0 to 2.5 feet bgs. The screen was placed and held upright while beach gravel was placed around the screen and the remainder of the surrounding hole was backfilled. The temporary piezometer was left in place, but will likely be damaged by tides and will need to be replaced with a more permanent well construction design made for tidal beach areas if future sampling is required at this location. A photo of the piezometer condition is provided as **Photograph 133**.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the test pitting and piezometer program were:

- At NED Site 10 (Disposal Area 14), hand-digging with surface sampling was substituted for test pit excavation at locations inaccessible to the excavator (10TP1, 10TP2, 10TP4, 10TP5) and where risk of spreading petroleum contamination to surface water outweighed the benefits of excavating a deeper pit (10TP9 through 10TP12). These deviations were approved by CENAE in the field.
- At NED Site 10 (Disposal Area 14), 10PZ1 and 10PZ2 were not installed as 10TP2 and 10TP5 were only hand-dug to 0.5 feet bgs, insufficient depth to install a piezometer.
- At NED Site 10 (Disposal Area 14), 10TP3, no material was available to be sampled (i.e., concrete blocks at this location). 10TP3-1 was, therefore, not collected.
- At NED Site 10 (Disposal Area 14), sample 10TP5-2, was not collected as the test pit could only be hand-dug to 0.5 feet bgs.
- At NED Site 10 (Disposal Area 14), sample 10TP8-2 was not collected due to potential petroleum contamination from the upper interval draining into the deeper interval where the sample was to be collected.
- At NED Site 10 (Disposal Area 14), test pits 10TP9 through 10TP12 were hand-dug because of concerns of unearthed petroleum contamination migrating to the bay.
- At NED Site 10 (Disposal Area 14), 10PZ4 was not installed as 10TP12 was hand-dug to 1.75 feet bgs, insufficient depth to install a piezometer.

2.8 SURFACE SOIL SAMPLING

Decision units (DUs) for Incremental Sampling Methodology (ISM) collection and surface soil sampling locations are depicted on **Figures 4A** through **4C**. **Table 1** summarizes each sample collected and the corresponding analyses.

Incremental Sampling

Incremental sampling DUs, their size, number of aliquots, and grid design were based on review of aerial photographs, historical usage, the level of likelihood of associated contamination, and expected heterogeneity of the unit. Grid locations were mapped in the field using a GPS receiver

and base map. Given the terrain and other constraints in the field, the pre-determined grid locations were not always feasible and were adjusted, as needed, while trying to maintain a representative, equally distributed, coverage of points in each DU. Final sampling locations were marked with pin flags and new GPS points were collected to update Site maps.

Incremental sampling was completed according to Credere SOP CA-26. Aliquots were collected at each location using a tile sampler to take a 1-inch core in the top foot of soil, which was then extruded into a clean bucket. Once the respective number of aliquots has been collected (at least 30 aliquots), the soil was homogenized in the bucket and transferred to a 1-liter wide mouth laboratory provided sample container. No VPH or VOCs were analyzed for ISM samples. Three replicates were collected at each DU. Once one round of aliquots was collected, the process was repeated twice more at each pin flag location with the grid being offset consistently one foot to the north or south, and then again offset to the east or west. Each replicate sample was shipped to the laboratory for further ISM processing and analysis per the QAPP.

In total, 12 DUs were sampled:

- 01DU1 – northern coal pile
- 08DU2 through 08DU4 – north, south, and west sides of the incinerator building
- 11DU1 – adjacent to the fire station/maintenance facility
- 19DU1 - torch pot storage #51
- 23DU1 and 23DU2 – southern coal pile
- 35 DU1 through 35DU4 – each side of the boiler house

01DU2 and 01DU3 were not sampled, as no evidence of coal was observed in soil borings completed in this area. The six (6) samples in 01DU2 and 01DU3 area were reallocated as additional grab surface soil and concrete samples elsewhere on the Site. 08DU1 was found to comprise a concrete paved area; therefore, the three replicates were replaced with three surface soil samples to be discussed in the subsequent section. 48DU1 was found to be heavily vegetated and no further clearing was available. Additionally, based on lack of evidence of surface contamination observed in soil borings advanced in NED Site 48, 48DU1 was not considered necessary for the RI.

Surface Soil Sampling

Surface soil samples were collected according to Credere SOP CA-5 from depths listed in **Table 1.** Visible asphalt and base materials, landscaping materials, and other organic detritus were removed prior to sampling.

Samples collected in the vicinity of transformers were collected in a 3-meter grid around the observed transformer to attempt to delineate the extent of polychlorinated biphenyls (PCBs), if present, in accordance with the Toxic Substances Control Act (TSCA) regulations 40 CFR 761.

In all soil samples, representative soil was collected using decontaminated hand tools (e.g., stainless steel spoon or spade). VPH/VOC samples were taken directly from the surface from freshly exposed material using a dedicated soil syringe to prevent loss of volatiles and degradation. The remaining representative soil was collected with hand tool into a decontaminated stainless steel bowl, characterized, homogenized and placed in laboratory provided glassware. In total, 72 surface soil samples were collected for analysis. This includes 10 samples collected in areas presumed to be representative of background concentrations of arsenic (As) in soil at the Site along the eastern side of the island where less historical development and activities occurred. Surface soil sample logs are included as **Appendix G**.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the surface soil sampling program were:

- At NED Site 1 (Coal Storage North), ISM decision units 01DU2 and 01DU3 were not sampled as no evidence of coal contamination was observed during the advancement of soil borings in the area.
- At NED Site 4 (Pump House), aliquots for composite sample 04CP-1 were spaced evenly in the area where abandoned drums were previously reported. The drums were no longer present.
- At NED Site 8 (Incinerator), 08SS-1 was an added sample location collected from previously unobserved containers at the base of the incinerator stack.
- At NED Site 8 (Incinerator), 08DU1 ISM samples were not collected due to concrete slabs to the east of the incinerator building. In lieu of this, surface soil samples 08SS-2, 08SS-3, and 08SS-4 were added and collected from between concrete slabs.
- At NED Site 11 (Quonset/Maintenance Shops), surface samples 11SS-1 through 11SS-3 were not collected. No evidence of contamination was observed except trace clinker.
- At NED Site 12 (Maintenance Shop/Garage Fire Station), surface samples 12SS-1 through 12SS-9 were not collected. The reported transformer was not located and the area was inaccessible due to the collapsed building.
- At NED Site 13 (Electric Substation/Transformer Pads), surface samples 13SS-8 and 13SS-8 were added since the substation penned area was found to be larger than original thought. Samples were relocated from NED Site 12 that could not be assessed.
- At NED Site 16 (Barracks), Transformer 3 was located inside of a manhole; therefore, soil sample 16T-3 could not be collected. Sludge sample 16SL-1 was sampled as well as a water grab sample from the manhole.
- At NED Site 21 (Bunker 11), surface samples 21SS-3 through 21SS-7 were not collected due to debris within the bunker area making sample locations inaccessible
- At NED Site 22 (Bunker 12), surface samples 22SS-3 through 22SS-5 were not collected due to debris within the bunker area making sample locations inaccessible

- At NED Site 38 (Torpedo Storage #10), surface samples 38SS-9 was reassigned and 38SS10 through 38SS-14 were added to further assess the building for torpedo handling related impacts (i.e., explosives).
- At NED Site 38 (Torpedo Storage #10), duplicate sample 38SS-10 cannot be compared to sample 38SS-1 due to a miscommunication between Credere and the laboratory. Credere requested a change to the chain of custody analyses for location 38SS-10 (sample ID 38SS-010 to avoid duplication) and mistakenly requested the change to 38SS-10 (the 38SS-1 field duplicate) instead of 38SS-010 (the actual sample requiring the change for the location 38SS-10).
- At NED Site 48 (Debris Stockpile and Magazine Igniter Storage), 48DU1 ISM sampling was abandoned in favor of collection of three discrete surface soil samples due to the lack of evidence of coal contamination observed during the advancement of soil borings in the area prior to the start of ISM sampling. Surface samples 48SS-1, 48SS-2, and 48SS-3 were added and collected. Based on historical aerial photographs, it is believed this area was significantly built up; therefore, surface contamination would not necessarily be at the surface but would be at depth where the historical ground surface was.
- At NED Site 49 (Water Tower Pump House), two surface soil samples (49SS-1 and 449SS-2) were added to assess contamination adjacent to and abandoned boiler and AST beneath the former water tower.
- At numerous surface soil locations, a complete description of the soil was not logged and was only described as "Consistent with the rest of Site."

2.9 SLUDGE SAMPLING

A discrete sludge sample (16SL-1) was collected at NED Site 16 from the bottom of an open sewer where a transformer was observed to be submerged. This sample was collected using a cup placed on a pole long enough to reach the bottom of the sewer and collect several aliquots of sludge, which was homogenized and placed in laboratory glassware for analysis. Sludge samples were also proposed from the aviation pad gas pits – NED Site 27 (27SL-1, 27SL-10, 27SL-2) and NED Site 31 (31SL-1); however, the structures concluded to be the gas pits were filled with gravel with no evidence of sludge or other contamination. Therefore, samples 27SL-1 and 27SL-2 were collected as regular subsurface soil samples from soil borings adjacent to the gas pit structures. Sample 31SL-1 was collected from the bottom of the gas pit since a sample that would be a similar depth to a boring outside the pit was collected from boring 30SB1 just east of the aviation pad. This sample justification was to provide two samples to correlate between inside the pit and just outside to assess the potential for an outlet. All three gas pit locations were completed using the direct push drilling rig and were field screened per **Section 2.5**.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the sludge sampling program were:

- At NED Site 16 (Barracks), 16SL-1 was added to assess possible contamination at the bottom of a manhole with a submerged transformer.
- At NED Site 16 (Barracks), 16WG-1 was added to assess possible contamination of the stormwater in the manhole with a submerged transformer.
- At NED Sites 27 (Presumed Gas Pits), 27SL-1 and 27SL-2 were collected from soil borings outside the presumed gas pits since the pits were filled with sand and coarse gravel. No evidence of contamination was observed in either pit. However, the sample from NED Site 31 (31SL-1) was collected from within the pit since a sample was collected from the depth that would have been just outside the bottom of the pit from boring 30SB1 just off the aviation pad to the east.

2.10 CONCRETE SAMPLING

Concrete sampling was completed according to Credere SOP CA-23. Concrete samples were collected from depths of 0.0 to 0.5 inches in a grid surrounding any existing transformers, suspected former transformer locations, or potential transformer fluid releases. Due to a greater scale of certain transformers and areas, some proposed grid areas were reassigned as screening samples, as grid sampling of the larger areas according to 40 CFR 761 would require many more samples than proposed in the QAPP/FSP and would require an amendment.

A 0.5-inch masonry drill bit was advanced 0.5 inches into the concrete floor with a rotary hammer drill and the resulting concrete dust was collected using a dedicated scoopula. This method was duplicated in adjoining holes to collect adequate sample volume (20 grams), which was measured using a scale.

Sample locations are shown in **Figure 4D** and summarized in **Table 1**. A total of 35 concrete samples were collected for analysis of PCBs.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the concrete sampling program were:

- At NED Site 12 (Maintenance Shop/Garage Fire Station), concrete samples 12CC-1 through 12SS-9 were not collected. The reported transformer was not located and the area was inaccessible due to the collapsed building.
- At NED Site 13 (Electric Substation/Transformer Pad), 13CC5 through 13CC-27 were added to better assess all the concrete pads within the substation pen. As historical plans are not available and leaf cover inhibited thorough inspection of the substation area, it could not be inferred which pads contained transformers. Therefore, all the pads required screening for PCBs. A layout of the concrete pads is shown in **Photographs 138 through 142**.
- At NED Site 38 (Torpedo Storage #10), concrete samples 38CC-7 through 38CC-9 were not collected due to there being sufficient concrete samples surrounding the transformers.

- Certain samples originally proposed to be collected from a grid for TSCA compliance around the transformer house were relocated to better characterize the transformer house and electrical pen within the torpedo building. The transformers were found to be larger and the electric system more widespread that initially thought during scoping.

2.11 GROUNDWATER SAMPLING

Groundwater sampling was conducted between April 17 and 19, 2018, at all bedrock and overburden monitoring wells, at least 7 days after completing well development. Two rounds of synoptic water level measurements were also conducted on April 17, 2018: once in the morning during high tide and once in the afternoon during low tide. Gauging was completed according to Credere SOP CA-10. Results of the synoptic water level measurements are presented in **Table 2**.

Credere sampled overburden monitoring wells according to Credere SOP CA-12 with a peristaltic pump and the bedrock wells with a bladder pump using low-flow sampling methodologies. Wells were purged at a stable flow rate between 100 and 400 mL per minute. Per CENAE's instruction, Credere deviated from SOP CA-12 (no drawdown method) and adjusted the flow rate to achieve a consistent drawdown of several inches prior to reaching a stable rate to be used for average hydraulic conductivity calculations. Once a stable flow rate was achieved, groundwater was monitored with a calibrated YSI MPS (see Credere SOP CA-11) with in-line flow through cell for temperature, pH, ORP, specific conductivity, DO, and turbidity until parameters had stabilized over a period of three readings, spaced 5 minutes apart or at a spacing to allow for a complete exchange of flow through the flow-through cell based on the flow-through cell volume and flow rate. If no evidence of petroleum or other contamination was detected, the water was discharged to the ground. Purge water from APOBMW-2, 2OBMW-2, and 31OBMW-1 was containerized due to a sheen on the water and evidence of petroleum contamination via PID readings. Low flow sampling logs are provided in **Appendix I**.

Groundwater samples were collected immediately after the pump and directly into the appropriate bottles in order of decreasing volatility. Metals samples were field filtered with an in-line 0.45-micron filter. In total, 16 groundwater samples were collected and submitted to the laboratory for analysis according to **Table 1**. Samples could not be collected at 37OBMW1 due to insufficient water volume and slow/minimal recharge.

Of note during groundwater sampling:

- The pH in BRMW-4 was 12.40, lower than when first developed but higher than can reasonably be explained. It is unclear at this time why this location has high pH. Any anomalies detected in the groundwater samples will be reported in the RI report. See **Section 2.4** for further additional actions taken to confirm the pH during the development stage at this well.
- APOBMW-2 had a PID reading at the well mouth of 153.1 ppm and contained a sheen on the water during development
- 12OBMW-2 had a PID reading at the well mouth of 2.4 ppm with a petroleum odor and elevated PID readings of 49.9 ppm during drilling

Piezometer sampling of 10PZ3 was conducted using a low flow sampling pump with dedicated clean tubing placed in the screened interval. Limited water volume was available in the screen interval due to falling tide. As such, only volume for pesticide and explosives analyses were collected for the associated duplicate, as noted in **Table 1**.

In addition to groundwater samples, a single grab sample for water (16WG-1) was taken at NED Site 16 from the open sewer containing a submerged transformer. The sample was collected by purging the water directly from the manhole into laboratory provided containers with a peristaltic pump.

Deviations from QAPP/FSP

Table 1 notes any deviations from the QAPP/FSP for each NED Site, sample location, and sample ID, as well as pertinent observations. Deviations to the groundwater sampling program were:

- At NED Site 10 (Disposal Area 14), 10OBMW1 was not installed; therefore, no groundwater sample was collected.
- At NED Site 10 (Disposal Area 14), the field duplicate 10PZ30 was only sampled for pesticides and explosives due to insufficient volume caused by the falling tide. The remaining duplicate analyses were covered by a duplicate collected at APOBMW-2.
- At NED Site 16 (Barracks), 16WG-1 was added to assess possible contamination at the bottom of a manhole with a submerged transformer.
- At NED Site 21 (Bunker 11), 21SB2, 21OBMW1 was not installed; therefore, no groundwater sample was collected.
- At NED Site 22 (Bunker 12), 22OBMW1 was not installed; therefore, no groundwater sample was collected.
- On the aviation pad, APOBMW2 was installed and sampled in lieu of 42OBMW1 where no groundwater was observed.
- At NED Site 37 (Misc. Storage Building), 37OBMW1 had insufficient recharge to collect all samples. Samples were only collected for VOCs and VPH analysis.
- At NED Site 42 (AV Gas Tank/Ordinance Test Facility Gasoline Outlet), 42OBMW1 was not installed; therefore, no groundwater sample was collected.

2.12 GPS HIGH RESOLUTION SURVEY

A high-resolution GPS survey was conducted by DiPrete Engineering on April 2 and 3, 2018, to establish the as-built elevations and lateral coordinates of all monitoring wells. All coordinates were georeferenced to North American Vertical Datum 1988 (NAVD 88) and Universal Transverse Mercator coordinate systems. In addition to the wells, various locations around the Site were surveyed to establish reference coordinates for map generation. These included select boring locations, building/foundation corners, and existing USGS geodetic benchmark. Collected

survey points were delivered to Credere in Excel and AutoCAD format and will be uploaded to FUDSChem.

Sample locations and pertinent Site features were located in the field by Credere with a Trimble R2 receiver. The software was programmed to located with sub-foot accuracy. Any additional sample locations or locations that required adjustment in the field due to subsurface structures or field obstructions were relocated with the GPS.

2.13 INVESTIGATION DERIVED WASTE

Purge water from well development or groundwater sampling activities that indicated evidence of contamination (e.g., visible petroleum, odor, elevated PID readings) was containerized in 55-gallon drums for waste characterization and offsite disposal. Three drums were filled or partially filled by the end of the investigation. These drums were sealed and covered with a tarp as added protection due to the anticipated extended storage of the drums during the restricted nesting season from April to August (**Photographs 143 and 144**). This extended storage beyond the typical waste storage period was approved by RIDEM during the Stakeholder meeting held August 3, 2017, and subsequent Site visit on April 5, 2018.

Liquid waste was sampled and characterized for disposal according to disposal facility requirements and in accordance with RIDEM's Rules and Regulations for Hazardous Waste Management (RIDEM, 2016). Waste characterization samples were collected from each drum and analyzed according to **Table 1**. Waste characterization results will not be validated as the data quality need only meet the disposal facility's acceptance criteria. Waste characterization results will be provided to the waste handling contractor when available.

The IDW will be picked up sometime after August 15, 2018, at the end of the restricted nesting season by a licensed waste hauler. Waste will be managed according to RIDEM's Policy Memo 95-01 Guidelines for the Management of Investigation Derived Wastes (RIDEM, 2011) and Rules and Regulations for Hazardous Waste Management (RIDEM, 2016).

3. DATA MANAGEMENT

3.1 FIELD QUALITY CONTROL

Throughout field activities, Credere had a designated field lead, field quality control (QC) manager, and field health and safety officer onsite to coordinate field tasks; to provide quality assurance (QA) oversight to ensure field procedures were consistent with the QAPP/FSP and Credere SOPs; and to ensure activities were in compliance with the project's Accident Prevention Plan (APP; Credere 2017b). Periodic field audits by senior Credere staff, including professional/certified geologists (PG/CG), were also performed.

Field Documentation

Credere followed field documentation procedures in accordance with Credere SOP CA-1. During most weeks, several different field activities were performed concurrently, necessitating the use of multiple field notebooks in addition to activity-specific logs (e.g., well construction, soil boring, equipment calibration, low flow sampling). The field QC manager maintained a separate master field book to record significant daily events (e.g., personnel onsite, arrival times, barge trips, daily field activities), all samples collected, and all deviations from the FSP. It was the field QC manager's daily responsibility to review all field books and logs for accuracy and consistency, match all samples collected to sample chains of custody (COCs), and document field deviations. These events/records were summarized in an email and sent to the Credere Project Manager and Technical Lead for review and transmittal to CENAE. All field books and logs were scanned for the electronic project file and submitted to the Technical Lead as a final QC check.

Chain of Custodies

Credere followed procedures outlined in Credere SOP CA-16 for sample COCs to assure each sample is accounted for at all times. The objectives of the sample custody identification and control system were to assure the following:

- Samples scheduled for collection are uniquely identified
- The correct samples are analyzed and are traceable to their records
- Samples are protected from loss, damage, or tampering
- Alteration of samples (e.g., filtration, preservation) is documented
- A forensic record of sample integrity is established

The COC form included the following:

- Sample number and sample bottle identification number, where applicable
- Names of the sampler(s) and the person shipping the samples
- Purchase order number and/or project number
- Name, telephone number, and fax number or email address of the contact person from Credere

- Project name (including specific portion of the Site if a large project)
- Signature of the sampler
- Date and time that the samples were collected
- Names of those responsible for receiving the samples and the date and time received at the laboratory
- Matrix of the sample
- The number of containers for a particular sample
- Analysis, container type, and preservative information

The Technical Lead reviewed the weekly COCs prior to sample submission to the laboratory for analysis. All COCs are presented in **Appendix J**.

3.2 PROJECT DATABASE

All field logs and sample documentation were uploaded to the project's *Formerly Used Defense Site Online Chemical Database* – FUDSChem (CENAE, 2016). The eQAPP and event planning was continually updated as new locations or sample changes were made based on field constraints or newly identified AOCs. Chemfield COCs were prepared and certified within 3 days of samples being submitted to the laboratory.

At the close of the field effort, all field logbooks and field forms were scanned in electronic .pdf format and uploaded to the FUDSChem project library. Shape files were modified based on field GPS data and the updated files were added to FUDSChem.

4. SUMMARY

During the field portion of the RI, Credere completed the following tasks between February 19 and April 20, 2018:

- Installed and sampled five (5) bedrock monitoring wells.
- Installed and sampled seven (7) of 11 planned overburden monitoring wells. Three locations did not have overburden groundwater. One well was installed, but the well had insufficient volume and recharge to sample.
- Advanced 124 soil borings at the 83 planned locations and collected a total of 89 soil samples and seven (7) duplicates.
- Collected tidal zone sediment samples at seven (7) of eight (8) planned locations and collected nine (9) samples and one (1) duplicate.
- Deeper water sediment samples were collected at four (4) of seven (7) locations. However, the methods for collection (ponar and coring-type samplers) performed poorly and the samples may not be considered representative of the entire depth of sample surface sediment available to biota. Sampling at these locations may be repeated using a more suitable method (e.g., a diver).
- Completed test pitting and sampling or surface sampling at 12 of 13 planned test pit locations.
- Installed and sampled one of four piezometers.
- Completed ISM sampling at 12 DUs for a total of 36 samples and two duplicates.
- Collected 56 surface soil samples and two (2) duplicates.
- Collected 10 surface soil samples to assess background arsenic concentrations.
- Collected one (1) sludge sample and one (1) stormwater water sample from NED Site 16.
- Collected 35 concrete samples and one (1) duplicate for PCB analysis
- Collected three (3) waste characterization samples from three (3) IDW drums.
- In total, 17 matrix spike/matrix spike duplicates (MS/MSD), 13 equipment blanks, and 10 trip blanks included with samples for QA/QC.
- The field record was appropriately documented in FUDSChem.

5. REFERENCES

CENAE, 2016. *Formerly Used Defense Sites Online Chemical Database Data Management Plan*: Dated April 2016.

CENAE, 2017. *Revised Performance Work Statement Remedial Investigation, Feasibility Study, Proposed Plan, Decision Document, and Site Closure Support at Gould Island Site, Narragansett Bay, Rhode Island*. Prepared by CENAE, Dated June 13, 2017.

CENAE, 2018. *Revised Performance Work Statement Remedial Investigation, Feasibility Study, Proposed Plan, Decision Document, and Site Closure Support at Gould Island Site, Narragansett Bay, Rhode Island*. Prepared by CENAE, Dated March 10, 2018.

Credere, 2017a, *Final Technical Memorandum, Gould Island Site*. Prepared by Credere Associates, LLC. Prepared for USACE: Dated October 13, 2017.

Credere, 2017b, *Accident Prevention Plan, Gould Island Site*. Prepared by Credere Associates, LLC. Prepared for USACE: Dated November 20, 2017.

Credere, 2018, *Quality Assurance Project Plan, Gould Island Site*. Prepared by Credere Associates, LLC, Prepared for USACE: Final Dated April 16, 2018.

RIDEM, 2011. *Policy Memo 95-01 Guidelines for the Management of Investigation Derived Wastes.* Prepared by Rhode Island Department of Environmental Management: Dated November 2011.

RIDEM, 2016. *Rules and Regulations for Hazardous Waste Management*. Prepared by Rhode Island Department of Environmental Management: Dated September 30, 2016.

FIGURES

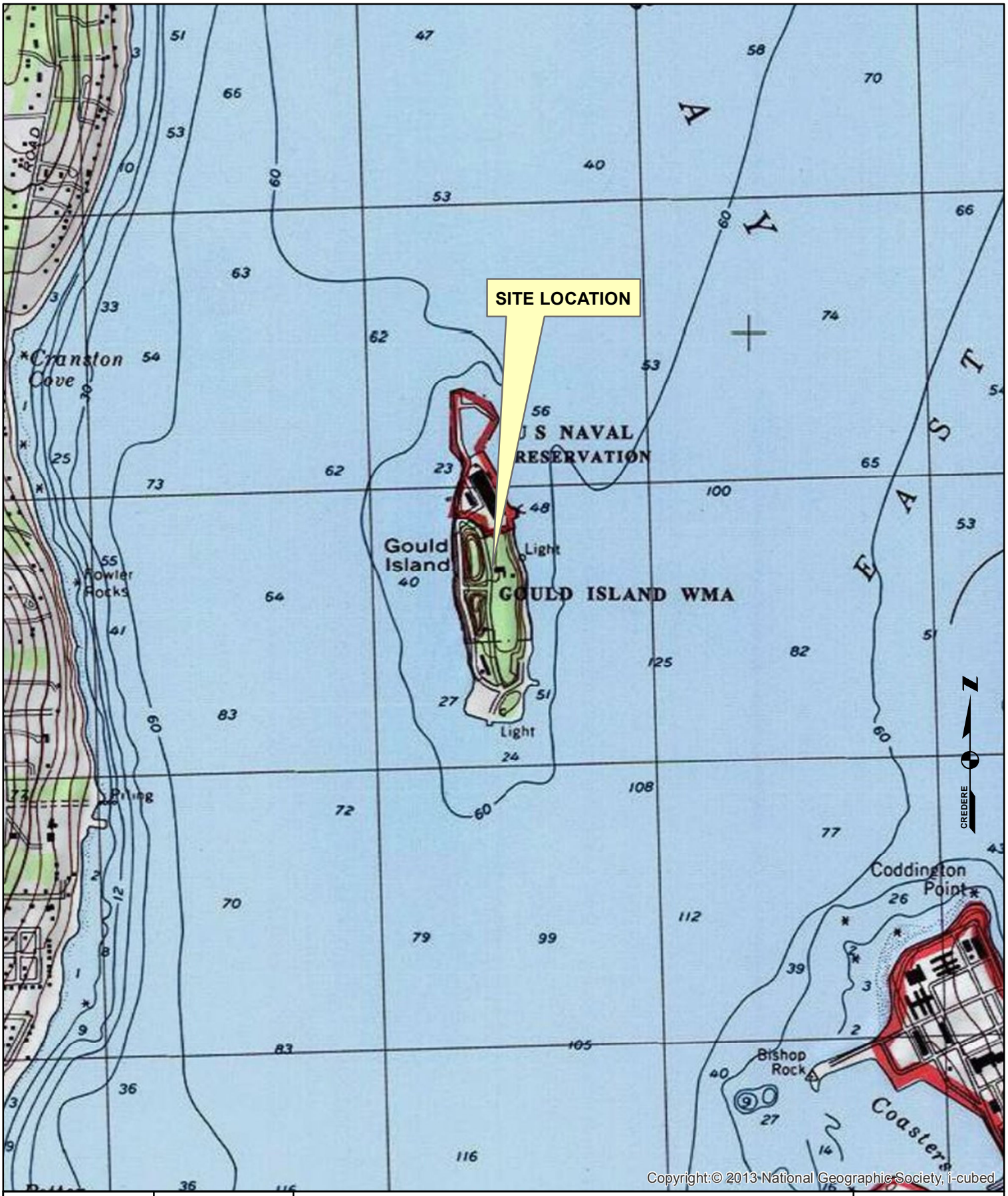

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FIGURE 1
SITE LOCATION PLAN

GOULD ISLAND
NARRAGANSETT BAY
JAMESTOWN, RHODE ISLAND

1,000 0 2,000 Feet

1 INCH = 2,000 FEET

T:\Data\NH\Town\Franklin\14001247-Ferrari Mill

LEGEND

NED SITE NUMBER	LOCATION	NED SITE NAME
1	D-4	COAL STORAGE
2	B-5	MARINE BARRACKS (FOUNDATION REMAINING)
3	C-5	FORMER CARPENTERS SHOP
4	E-9	PUMP HOUSE
5	D-7	FORMER UNKNOWN BUILDING #2
6	E-10	UNKNOWN BUILDING #3
7	D-5	FORMER UNKNOWN BUILDING #4 (FOOTINGS REMAINING)
8	E-7	INCINERATOR
9	D-6	MAGAZINE IGNITOR STORAGE
10	E-8	DISPOSAL AREA #14
11	C-6	FORMER QUONSET HUTS/MAINTENACE SHOPS
12	C-7	MAINTENANCE SHOPS/GARAGE/FIRE STATION
13	B-8	ELECTRIC SUBSTATION TRANSFOMER PEN
14	C-8	FORMER MARINE BARRACKS
15	B-9	FORMER RECREATION BUILDING
16	C-9	FORMER BARRACKS
17	C-9	FORMER TRANSFORMER VAULT
18	D-10	WATER TREATMENT PLANT
19	C-9	TORCH POT STORAGE
20	B-6	FORMER CABLE TERMINAL BUILDING
21	B-11	BUNKER #11
22	B-12	BUNKER #12
23	C-12	COAL STORAGE
24	B-12	CABLE TERMINAL BUILDING
25	B-12	UNDERGROUND STORAGE TANKS
26	C-13	GAS PUMP HOUSE/GAS TANKS (REMOVED)
27	C-13	TWO PRESUMED GAS PITS
28	C-13	FORMER ORDNANCE TEST FACILITY, HANGER
29	D-13	FORMER UNKNOWN BUILDING #1 (HANGAR 5496-61)
30	E-13	FORMER PYROTECHNIC STORAGE
31	E-13	PRESUMED GAS PIT
32	E-12	FORMER DRUM STORAGE AREA
33	D-12	FORMER PAINT AND OIL STORAGE
34	D-12	THEATER/RESEARCH BUILDING (FOUNDATION REMAINING, CONCRETE PLATFORM)
35	E-12	BOILER HOUSE
36	D-11	DEGAUSSING BUILDING
37	D-11	MISCELLANEOUS STORAGE
38	D-11/12	STORAGE
39	D-6	WELLHOUSE #81
40	C-9	WELLHOUSE #78
41	D-8	AA GUNS ELECTRICAL SUPPLY (UTILITY POLE REMAINING)
42	C-13	5,000 GALLON AVGAS TANK
43	D-13	FORMER PAINT SHED
44	C-14	EMPTY DRUMS
45	D-8	FORMER FIRE APPARATUS HOUSES (2)
46	D-7, D-8, E-7, E-8	FORMER AA GUN EMPLACEMENTS (4)
47	C-10	UNDERGROUND WATER TANK
48	D-6	DEBRIS STOCKPILE
49	D-8	WATER TOWER PUMP HOUSE
N/A	C-13	FORMER BACKGROUND SAMPLE #1 LOCATION (BG-48SS-001)
N/A	D-7	FORMER BACKGROUND SAMPLE #2 LOCATION (BG-48SS-002)

CREDERE

250 125 0 250 Feet

1 INCH = 120 FEET

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FIGURE 2
DETAILED SITE PLAN

GOULD ISLAND
NARRAGANSETT BAY
JAMESTOWN, RHODE ISLAND

- 10 NED SITE NUMBER
- PREVIOUSLY INSTALLED MONITORING WELL (US NAVY)
- PREVIOUS SEDIMENT SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- PREVIOUS SOIL SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- HISTORICAL EDGE OF ROADWAY
- HISTORICAL UNPAVED ROAD
- HISTORICAL RAIL LINE
- 5 FOOT TOPOGRAPHIC CONTOUR LINE
- US NAVY OR COAST GUARD EASEMENTS / NON-FUDS ELIGIBLE
- HISTORICAL STRUCTURES
- DISPOSAL AREA
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE PARCEL BOUNDARY

NOTES:
EXISTING CONDITIONS FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM 2014 USDA NAIP DIGITAL TRUE COLOR ORTHOPHOTOGRAPHY, US COAST GUARD, AND ENGINEERING EVALUATION OF CONTAMINATION FORMER NAVY TORPEDO TESTING FACILITY BY STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES.

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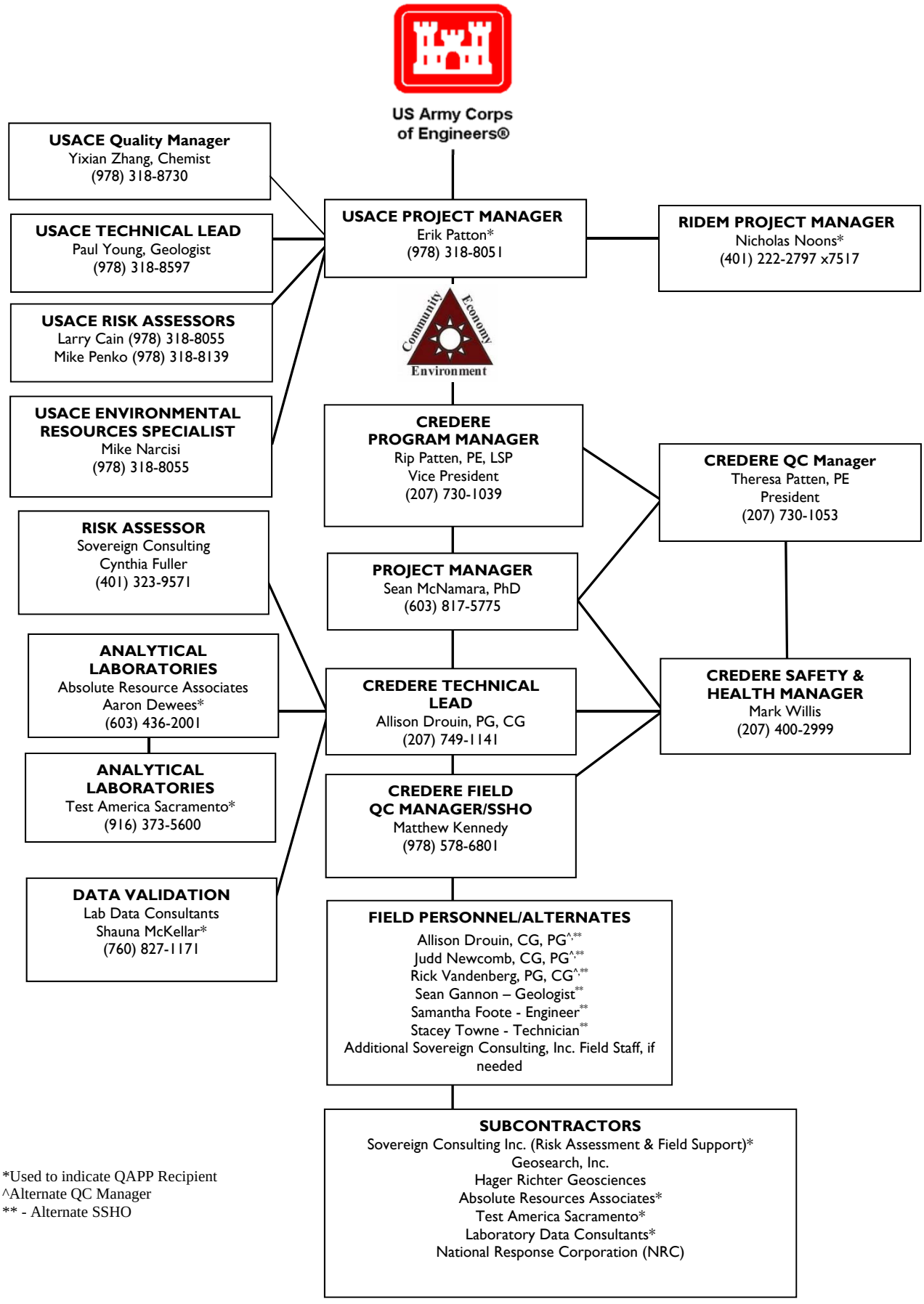
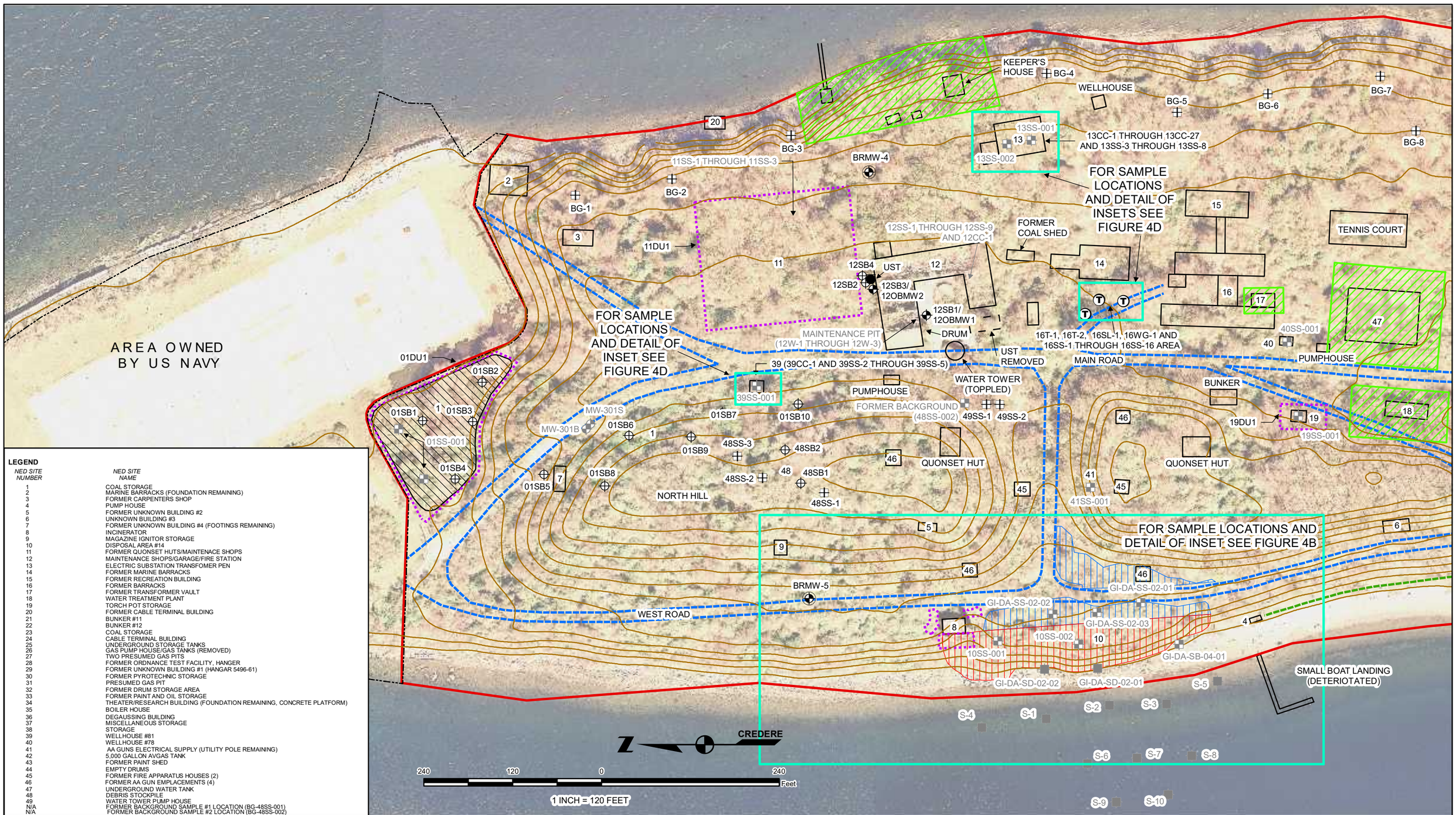
Figure 3 – Project Organization Flow Chart



*Used to indicate QAPP Recipient
^Alternate QC Manager
** - Alternate SSHO



LEGEND

NED SITE NUMBER	NED SITE NAME
1	COAL STORAGE
2	MARINE BARRACKS (FOUNDATION REMAINING)
3	FORMER CARPENTERS SHOP
4	PUMP HOUSE
5	FORMER UNKNOWN BUILDING #2
6	UNKNOWN BUILDING #3
7	FORMER UNKNOWN BUILDING #4 (FOOTINGS REMAINING)
8	INCINERATOR
9	MAGAZINE IGNITOR STORAGE
10	DISPOSAL AREA #14
11	FORMER QUONSET HUTS/MAINTENACE SHOPS
12	MAINTENANCE SHOPS/GARAGE/FIRE STATION
13	ELECTRIC SUBSTATION TRANSFOMER PEN
14	FORMER MARINE BARRACKS
15	FORMER RECREATION BUILDING
16	FORMER BARRACKS
17	FORMER TRANSFORMER VAULT
18	WATER TREATMENT PLANT
19	TORCH POT STORAGE
20	FORMER CABLE TERMINAL BUILDING
21	BUNKER #11
22	BUNKER #12
23	COAL STORAGE
24	CABLE TERMINAL BUILDING
25	UNDERGROUND STORAGE TANKS
26	GAS PUMP HOUSE/GAS TANKS (REMOVED)
27	TWO PRESUMED GAS PITS
28	FORMER ORDNANCE TEST FACILITY, HANGER
29	FORMER UNKNOWN BUILDING #1 (HANGAR 5496-61)
30	FORMER PYROTECHNIC STORAGE
31	PRESUMED GAS PIT
32	FORMER DRUM STORAGE AREA
33	FORMER PAINT AND OIL STORAGE
34	THEATER/RESEARCH BUILDING (FOUNDATION REMAINING, CONCRETE PLATFORM)
35	BOILER HOUSE
36	DEGAUSSING BUILDING
37	MISCELLANEOUS STORAGE
38	STORAGE
39	WELLHOUSE #81
40	WELLHOUSE #78
41	AA GUNS ELECTRICAL SUPPLY (UTILITY POLE REMAINING)
42	5,000 GALLON AVGAS TANK
43	FORMER PAINT SHED
44	EMPTY DRUMS
45	FORMER FIRE APPARATUS HOUSES (2)
46	FORMER AA GUN EMPLACEMENTS (4)
47	UNDERGROUND WATER TANK
48	DEBRIS STOCKPILE
49	WATER TOWER PUMP HOUSE
N/A	FORMER BACKGROUND SAMPLE #1 LOCATION (BG-48SS-001)
N/A	FORMER BACKGROUND SAMPLE #2 LOCATION (BG-48SS-002)

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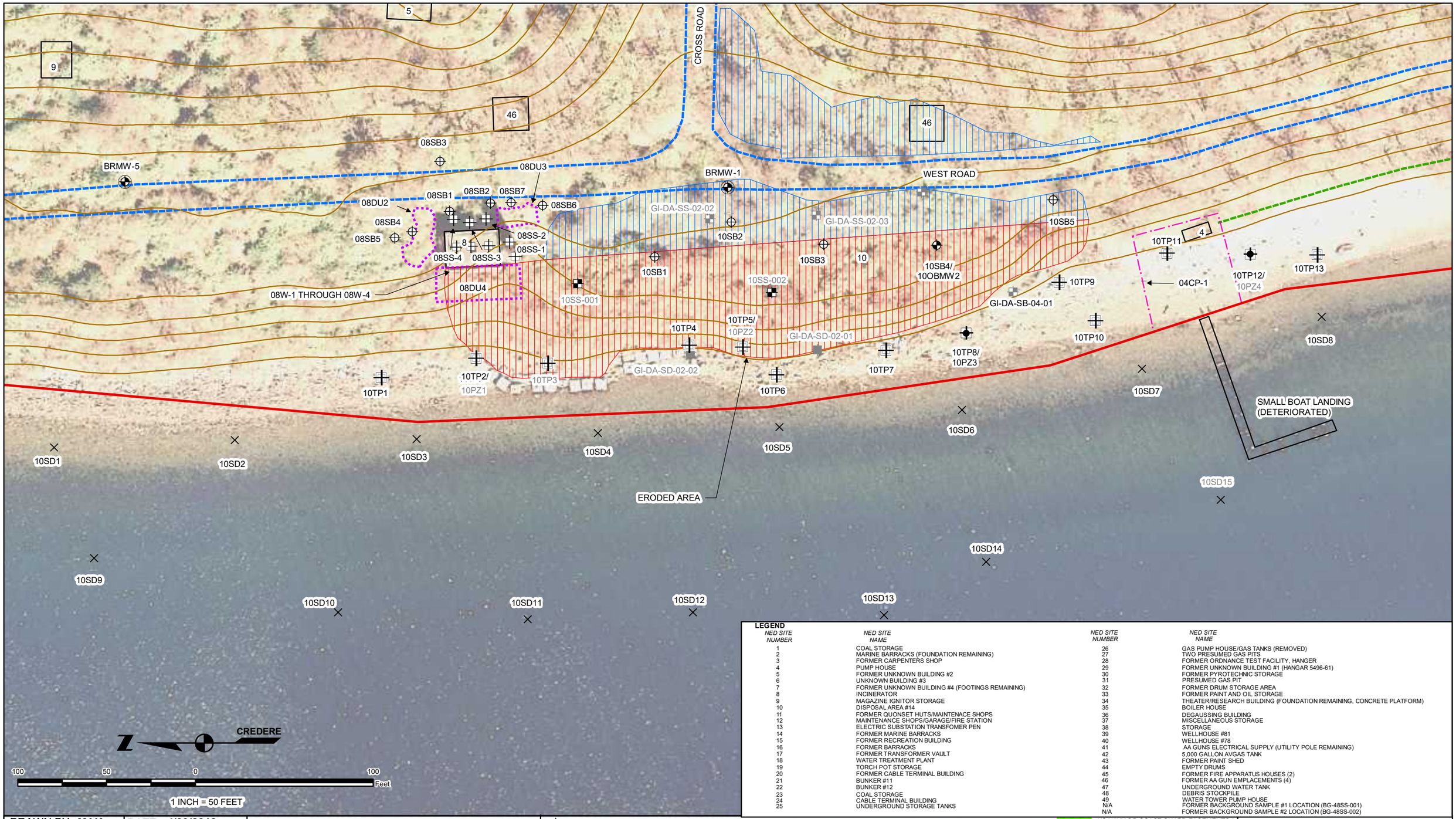
FIGURE 4A
SAMPLING LOCATION PLAN
NORTHERN AREAS OF CONCERN

GOULD ISLAND
NARRAGANSETT BAY
JAMESTOWN, RHODE ISLAND

- SOIL BORING/OVERBURDEN MONITORING WELL LOCATION
- SURFACE SOIL SAMPLE LOCATION
- BEDROCK MONITORING WELL LOCATION
- SOIL BORING SAMPLE LOCATION
- EXISTING MONITORING WELL (US NAVY)
- PREVIOUS SEDIMENT SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- PREVIOUS SOIL SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- 5 FOOT TOPOGRAPHIC CONTOUR LINE
- DU BOUNDARY
- HISTORICAL EDGE OF ROADWAY
- HISTORICAL RAIL LINE
- HISTORICAL UNPAVED ROAD
- (10) NED SITE NUMBER
- (T) ABANDONED TRANSFORMER
- US NAVY OR COAST GUARD EASEMENTS / NON-FUDS ELIGIBLE
- HISTORICAL STRUCTURES
- COAL DISPOSAL AREA
- GEOPHYSICAL DELINEATION OF DISPOSAL AREA 14
- VISUAL DELINEATION OF DISPOSAL AREA 14
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE PARCEL BOUNDARY

NOTES:
1. EXISTING CONDITIONS FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM 2014 USDA NAIP DIGITAL TRUE COLOR ORTHOPHOTOGRAPHY, US COAST GUARD, AND ENGINEERING EVALUATION OF CONTAMINATION FORMER NAVY TORPEDO TESTING FACILITY BY STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES.
2. UNCOLLECTED SAMPLE LOCATIONS AND PREVIOUS SAMPLE LOCATIONS ARE DESIGNATED BY GRAYED OUT SAMPLE IDs.

Document Path: T:\Data\RI\Town\Jamestown\16001327 - Gould Island\Trip Report Spring 2018\Figure 4A.mxd



LEGEND

NED SITE NUMBER	NED SITE NAME	NED SITE NUMBER	NED SITE NAME
1	COAL STORAGE	26	GAS PUMP HOUSE/GAS TANKS (REMOVED)
2	MARINE BARRACKS (FOUNDATION REMAINING)	27	TWO PRESUMED GAS PITS
3	FORMER CARPENTERS SHOP	28	FORMER ORDNANCE TEST FACILITY, HANGER
4	PUMP HOUSE	29	FORMER UNKNOWN BUILDING #1 (HANGAR 5496-61)
5	FORMER UNKNOWN BUILDING #2	30	FORMER PYROTECHNIC STORAGE
6	UNKNOWN BUILDING #3	31	PRESUMED GAS PIT
7	FORMER UNKNOWN BUILDING #4 (FOOTINGS REMAINING)	32	FORMER DRUM STORAGE AREA
8	INCINERATOR	33	FORMER PAINT AND OIL STORAGE
9	MAGAZINE IGNITOR STORAGE	34	THEATER/RESEARCH BUILDING (FOUNDATION REMAINING, CONCRETE PLATFORM)
10	DISPOSAL AREA #14	35	BOILER HOUSE
11	FORMER QUONSET HUTS/MAINTENACE SHOPS	36	DEGAUSSING BUILDING
12	MAINTENANCE SHOPS/GARAGE/FIRE STATION	37	MISCELLANEOUS STORAGE
13	ELECTRIC SUBSTATION TRANSFOMER PEN	38	STORAGE
14	FORMER MARINE BARRACKS	39	WELLHOUSE #81
15	FORMER RECREATION BUILDING	40	WELLHOUSE #78
16	FORMER BARRACKS	41	AA GUNS ELECTRICAL SUPPLY (UTILITY POLE REMAINING)
17	FORMER TRANSFORMER VAULT	42	5,000 GALLON AVGAS TANK
18	WATER TREATMENT PLANT	43	FORMER PAINT SHED
19	TORCH POT STORAGE	44	EMPTY DRUMS
20	FORMER CABLE TERMINAL BUILDING	45	FORMER FIRE APPARATUS HOUSES (2)
21	BUNKER #11	46	FORMER AA GUN EMPLACEMENTS (4)
22	BUNKER #12	47	UNDERGROUND WATER TANK
23	COAL STORAGE	48	DEBRIS STOCKPILE
24	CABLE TERMINAL BUILDING	49	WATER TOWER PUMP HOUSE
25	UNDERGROUND STORAGE TANKS	N/A	FORMER BACKGROUND SAMPLE #1 LOCATION (BG-48SS-001)
		N/A	FORMER BACKGROUND SAMPLE #2 LOCATION (BG-48SS-002)

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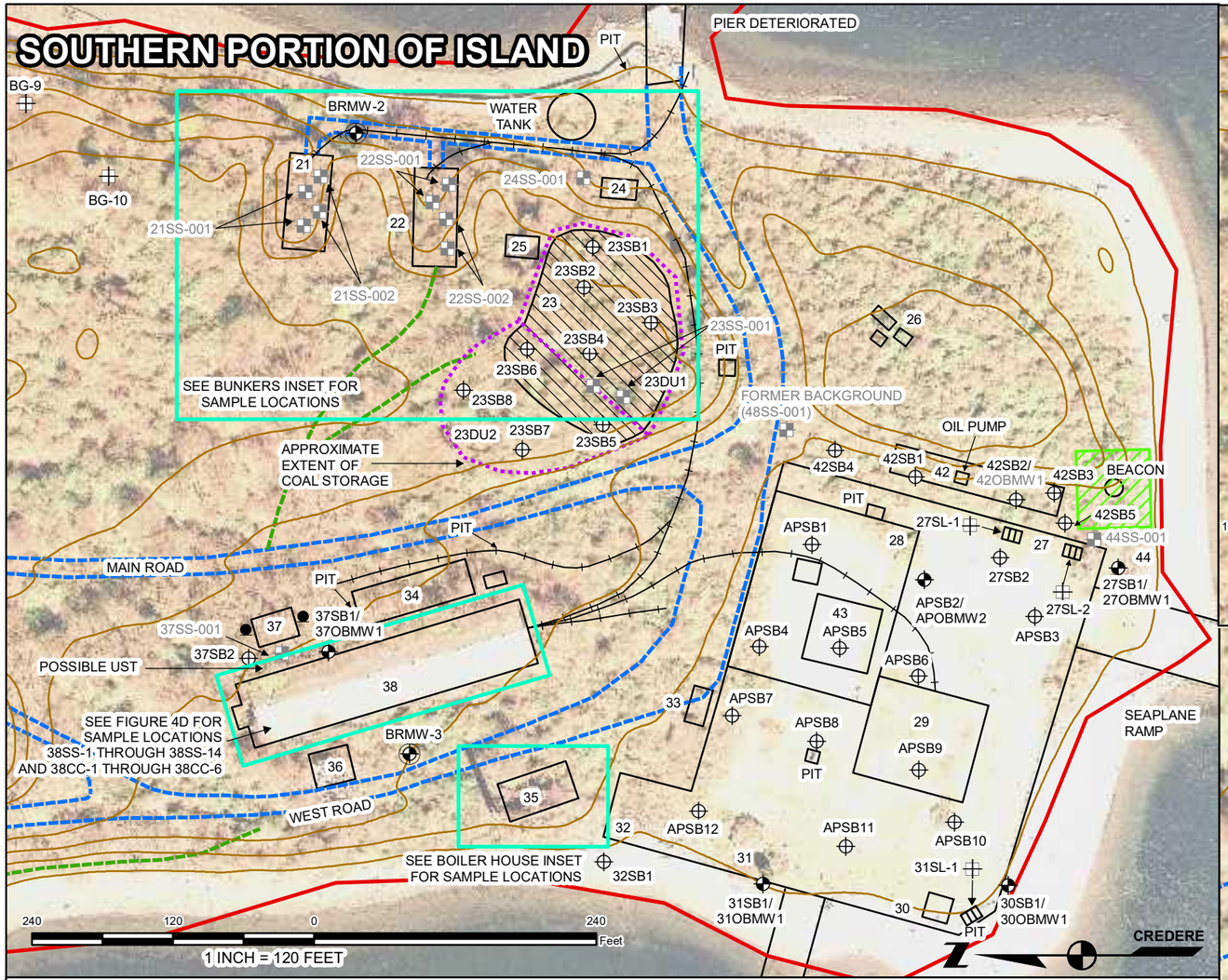
FIGURE 4B
SAMPLING LOCATION PLAN
WESTERN AREAS OF CONCERN

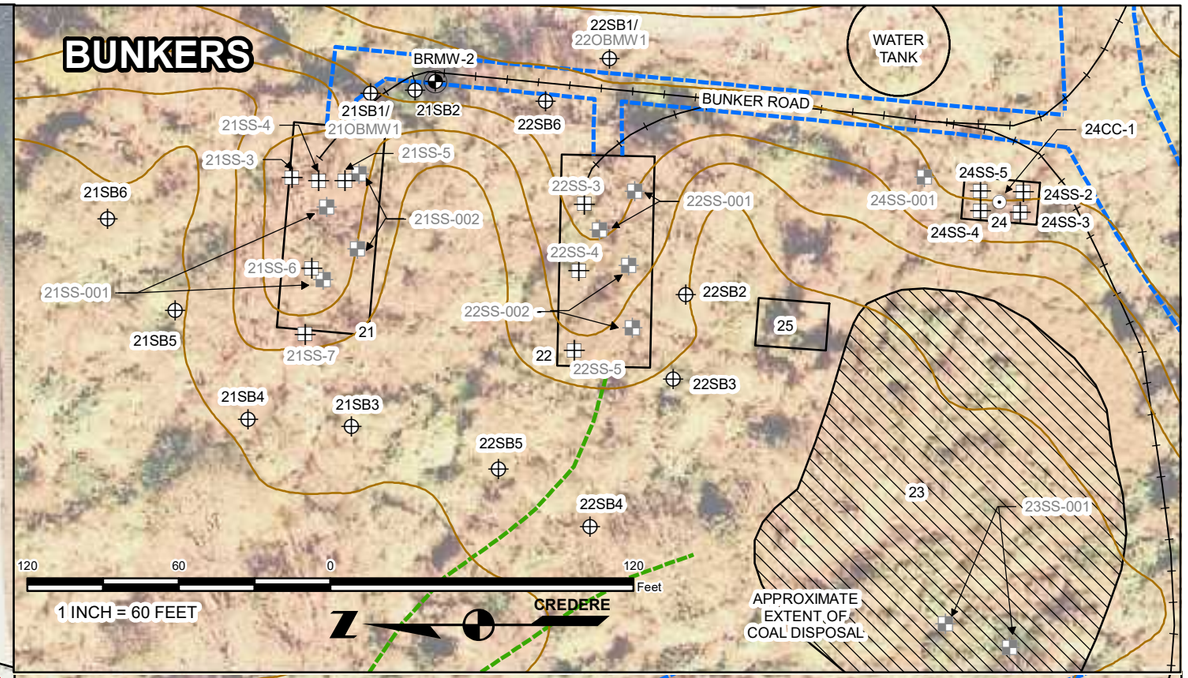
GOULD ISLAND
NARRAGANSETT BAY
JAMESTOWN, RHODE ISLAND

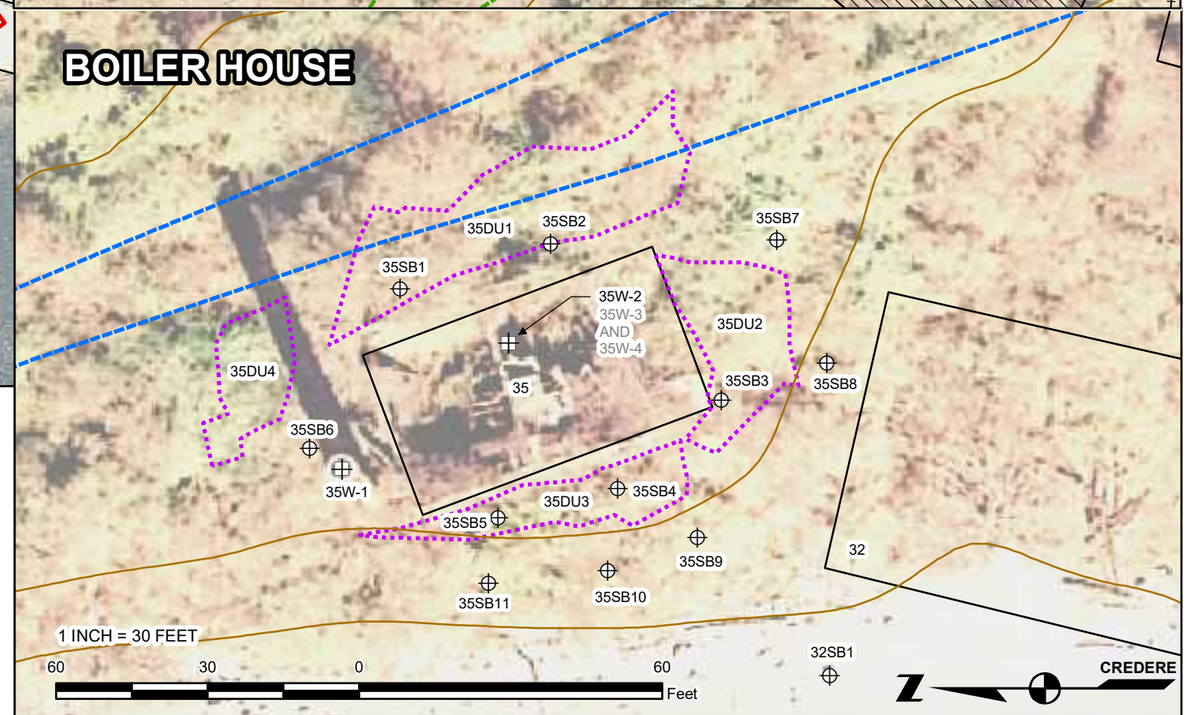
- SURFACE SOIL SAMPLE LOCATION
- SOIL BORING SAMPLE LOCATION
- SOIL BORING/OVERBURDEN MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- PREVIOUS SOIL SAMPLE LOCATION (STONE AND WEBSETER, 1997
- PREVIOUS SEDIMENT SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- TESTPIT/PEIZOMETER LOCATION
- SEDIMENT SAMPLE LOCATION
- TEST PIT LOCATION
- (10) NED SITE NUMBER
- 5 FOOT TOPOGRAPHIC CONTOUR LINE
- HISTORICAL EDGE OF ROADWAY
- HISTORICAL RAIL LINE
- HISTORICAL UNPAVED ROAD
- DU BOUNDARY
- COMPOSITE SAMPLING BOUNDARY
- US NAVY OR COAST GUARD EASEMENTS / NON-FUDS ELIGIBLE
- HISTORICAL STRUCTURES
- GEOPHYSICAL DELINEATION OF DISPOSAL AREA 14
- VISUAL DELINEATION OF DISPOSAL AREA 14
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE PARCEL BOUNDARY

NOTES:
1. EXISTING CONDITIONS FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM 2014 USDA NAIP DIGITAL TRUE COLOR ORTHOPHOTOGRAPHY, US COAST GUARD, AND ENGINEERING EVALUATION OF CONTAMINATION FORMER NAVY TORPEDO TESTING FACILITY BY STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES.
2. SEE FIGURE 2 FOR FULL VIEW OF THE SITE.
3. PREVIOUS SEDIMENT SAMPLE LOCATIONS FROM THE 1984 AND 1985 INVESTIGATIONS BY LOUREIRO ENGINEERING ASSOCIATES ARE NOT SHOWN ON THIS FIGURE. SEE FIGURE 2 FOR THE APPROXIMATE LOCATION OF THESE SAMPLES.
4. UNCOLLECTED SAMPLE LOCATIONS AND PREVIOUS SAMPLE LOCATIONS ARE DESIGNATED BY GRAYED OUT SAMPLE IDs.

Document Path: T:\Data\RI\Town\Jamestown\16001327 - Gould Island\Trip Report Spring 2018\Figure 4B.mxd







LEGEND

NED SITE NUMBER	NED SITE NAME	NED SITE NUMBER	NED SITE NAME
1	COAL STORAGE	26	GAS PUMP HOUSE/GAS TANKS (REMOVED)
2	MARINE BARRACKS (FOUNDATION REMAINING)	27	TWO PRESUMED GAS PITS
3	FORMER CARPENTERS SHOP	28	FORMER ORDNANCE TEST FACILITY, HANGER
4	PUMP HOUSE	29	FORMER UNKNOWN BUILDING #1 (HANGAR 5496-61)
5	FORMER UNKNOWN BUILDING #2	30	FORMER PYROTECHNIC STORAGE
6	UNKNOWN BUILDING #3	31	PRESUMED GAS PIT
7	FORMER UNKNOWN BUILDING #4 (FOOTINGS REMAINING)	32	FORMER DRUM STORAGE AREA
8	INCINERATOR	33	FORMER PAINT AND OIL STORAGE
9	MAGAZINE IGNITOR STORAGE	34	THEATER/RESEARCH BUILDING (FOUNDATION REMAINING, CONCRETE PLATFORM)
10	DISPOSAL AREA #14	35	BOILER HOUSE
11	FORMER QUONSET HUTS/MAINTENACE SHOPS	36	DEGAUSSING BUILDING
12	MAINTENANCE SHOPS/GARAGE/FIRE STATION	37	MISCELLANEOUS STORAGE
13	ELECTRIC SUBSTATION TRANSFOMER PEN	38	STORAGE
14	FORMER MARINE BARRACKS	39	WELLHOUSE #81
15	FORMER RECREATION BUILDING	40	WELLHOUSE #78
16	FORMER BARRACKS	41	AA GUNS ELECTRICAL SUPPLY (UTILITY POLE REMAINING)
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18	WATER TREATMENT PLANT	43	FORMER PAINT SHED
19	TORCH POT STORAGE	44	EMPTY DRUMS
20	FORMER CABLE TERMINAL BUILDING	45	FORMER FIRE APPARATUS HOUSES (2)
21	BUNKER #11	46	FORMER AA GUN EMPLACEMENTS (4)
22	BUNKER #12	47	UNDERGROUND WATER TANK
23	COAL STORAGE	48	DEBRIS STOCKPILE
24	CABLE TERMINAL BUILDING	N/A	FORMER BACKGROUND SAMPLE #1 LOCATION (BG-48SS-001)
25	UNDERGROUND STORAGE TANKS	N/A	FORMER BACKGROUND SAMPLE #2 LOCATION (BG-48SS-002)

DRAWN BY: **MAK** | DATE: **5/1/2018**
CHECKED BY: **SWM** | PROJECT: **16001327**

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FIGURE 4C
SAMPLING LOCATION PLAN
SOUTHERN AREAS OF CONCERN

GOULD ISLAND
NARRAGANSETT BAY
JAMESTOWN, RHODE ISLAND

- SURFACE SOIL SAMPLE LOCATION
- PREVIOUS SOIL SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- SOIL BORING SAMPLE LOCATION
- SOIL BORING/OVERBURDEN MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- PREVIOUS SEDIMENT SAMPLE LOCATION (STONE AND WEBSTER, 1997)
- CONCRETE SAMPLE LOCATION
- 5 FOOT TOPOGRAPHIC CONTOUR LINE
- DU BOUNDARY
- HISTORICAL EDGE OF ROADWAY
- HISTORICAL RAIL LINE
- HISTORICAL UNPAVED ROAD
- (10) NED SITE NUMBER
- ABOVEGROUND STORAGE TANK
- US NAVY OR COAST GUARD EASEMENTS / NON-FUDS ELIGIBLE
- HISTORICAL STRUCTURES
- COAL DISPOSAL AREA
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE PARCEL BOUNDARY

NOTES:
1. EXISTING CONDITIONS FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM 2014 USDA NAIP DIGITAL TRUE COLOR ORTHOPHOTOGRAPHY, US COAST GUARD, AND ENGINEERING EVALUATION OF CONTAMINATION FORMER NAVY TORPEDO TESTING FACILITY BY STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES.
2. SEE FIGURE 2 FOR FULL VIEW OF THE SITE.
3. PREVIOUS SEDIMENT SAMPLE LOCATIONS FROM THE 1984 AND 1985 INVESTIGATIONS BY LOUREIRO ENGINEERING ASSOCIATES ARE NOT SHOWN ON THIS FIGURE. SEE FIGURE 2 FOR THE APPROXIMATE LOCATION OF THESE SAMPLES.
4. UNCOLLECTED SAMPLE LOCATIONS AND PREVIOUS SAMPLE LOCATIONS ARE DESIGNATED BY GRAYED OUT SAMPLE IDs.

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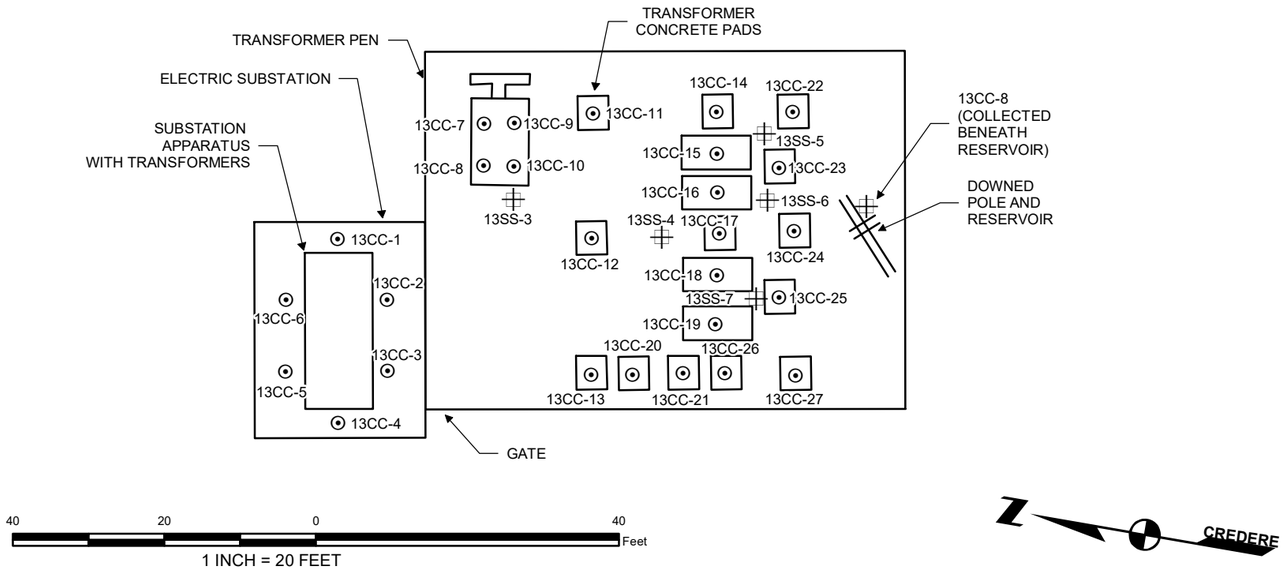
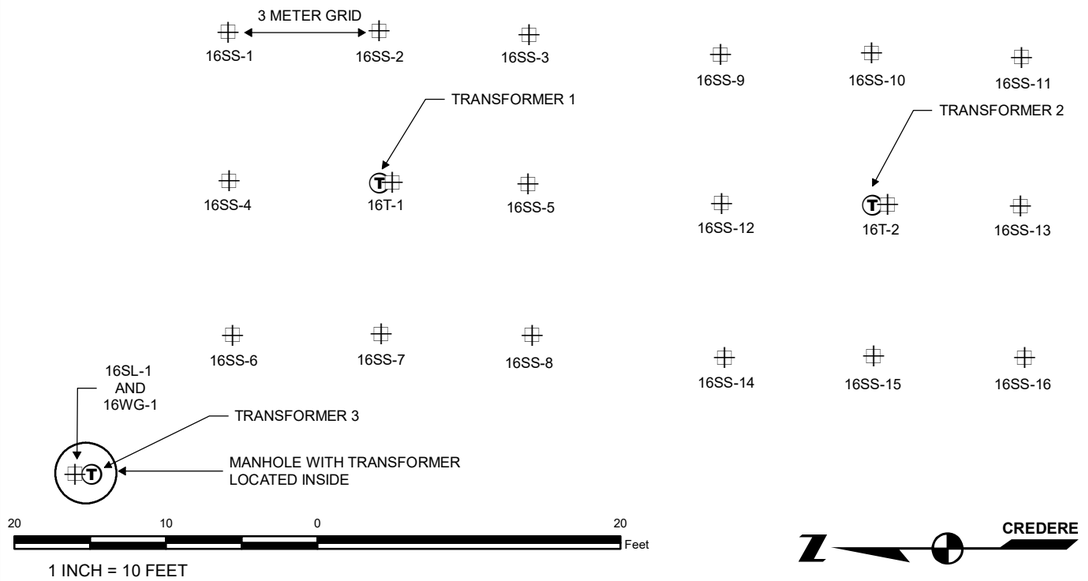
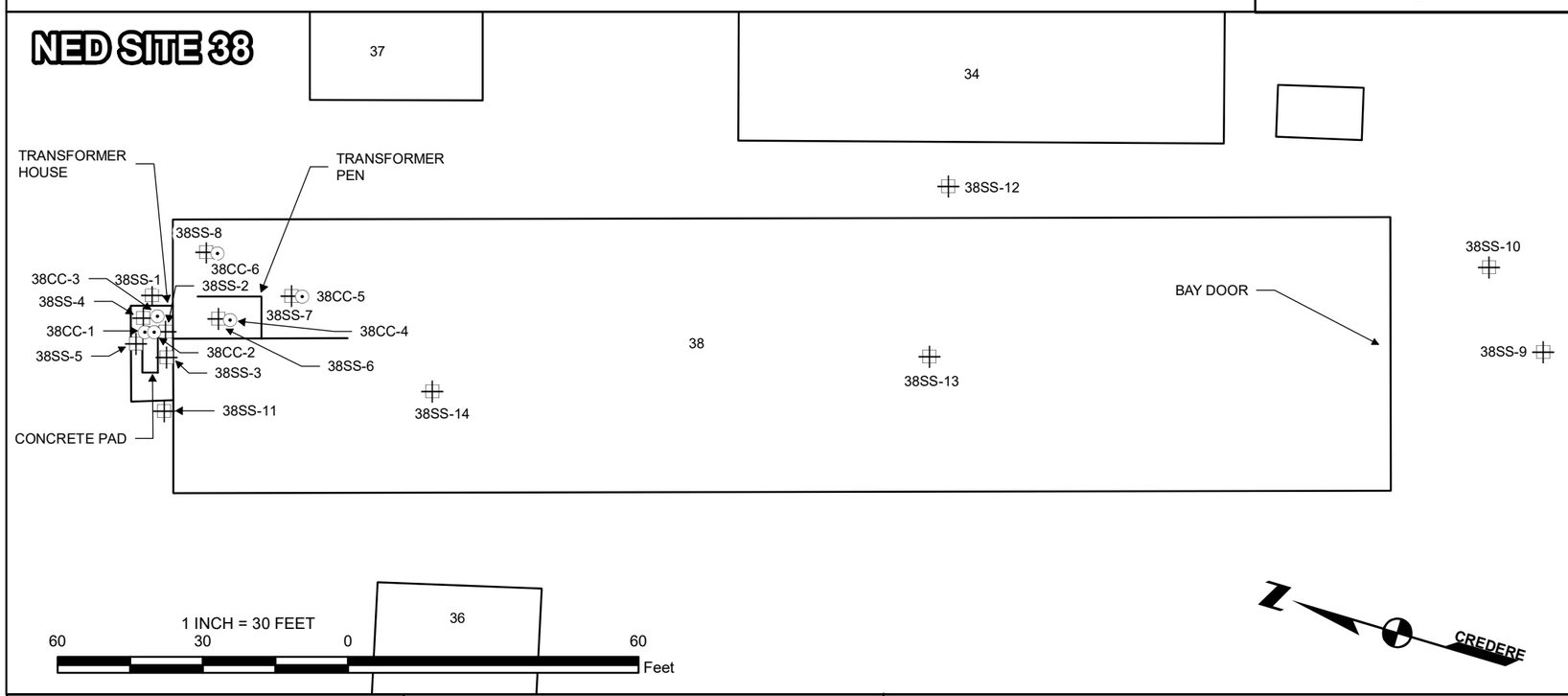
NED SITE 13



NED SITE 16



NED SITE 38



NED SITE 39

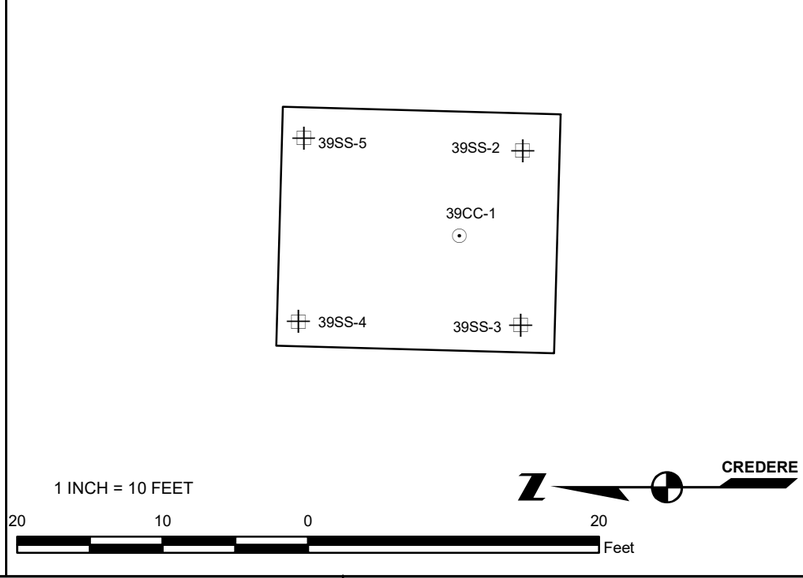


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FIGURE 4D
SAMPLING LOCATION PLAN
NED SITES 13, 16, 38, AND 39

GOULD ISLAND
NARRAGANSETT BAY
JAMESTOWN, RHODE ISLAND

Ⓣ TRANSFORMER

⊙ CONCRETE SAMPLE LOCATION

⌗ SURFACE SOIL / WATER GRAB SAMPLE LOCATION

▭ STRUCTURE

NOTES:
1. EXISTING CONDITIONS FEATURES SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE BASED ON INFORMATION OBTAINED FROM 2014 USDA NAIP DIGITAL TRUE COLOR ORTHOPHOTOGRAPHY, US COAST GUARD, AND ENGINEERING EVALUATION OF CONTAMINATION FORMER NAVY TORPEDO TESTING FACILITY BY STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES.
2. SEE FIGURE 2 FOR FULL VIEW OF THE SITE.

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TABLES

Table 1
Soil, Groundwater, Sediment, and Concrete Sample Summary
Gould Island Site
Narragansett Bay, Jamestown, Rhode Island

NED Site	Sample Location	Sample ID (Field Duplicate ID)	Sample Depth (feet bgs)	Sample Type	Justification	Analyses: VOCs EPA Method 8260C	SVOCs EPA Method 8270D	PAHs by EPA Method 8270D	PAHs by EPA Method 8270D by SIM	PP Metals EPA Method 6020A & 7471B/7470A[2]	Hexavalent Chromium EPA Method 7196A	EPH by MADEP EPH-04-1.1	VPH by MADEP VPH-04-1.1	PCBs by EPA Method 8082A	Pesticides by EPA Method 8081B	Explosives EPA method 8330B[3]	Dioxin/furan EPA Method 1613B	pH EPA Method 9045C	Notes
1 Coal Storage North	01DU1	01DU1-1	0-1	Soil	Assess the nature and extent of previously identified surface contamination			s		s	s	s							ISM 01DU1 comprised 30 aliquots per replicate
		01DU1-2	0-1	Soil				s		s	s	s							
		01DU1-3	0-1	Soil				s		s	s	s							
	01DU2	01DU2-1	Not collected	NA				s		s	s	s							ISM sampling was abandoned at 01DU2 and 01DU3 after little to no evidence of coal contamination was observed during the advancement of soil borings in the area prior to the start of ISM sampling
		01DU2-2	Not collected	NA				s		s	s	s							
		01DU2-3	Not collected	NA				s		s	s	s							
	01DU3	01DU3-1	Not collected	NA				s		s	s	s							
		01DU3-2	Not collected	NA				s		s	s	s							
		01DU3-3	Not collected	NA				s		s	s	s							
	01SB1	01SB1-1 (01SB1-10)	0.75-1.75	Soil	Horizontal and vertical extent of coal in soil by visual examination.			s		s	s	s							Observed coal thickness corresponds to sample depth, One (1) additional confirmatory soil boring was advanced to confirm refusal depth (01SB1A)
		01SB1-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB2	01SB2-1	0-0.42	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB2-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB3	01SB3-1	0.67-1.33	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB3-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB4	01SB4-1	0-1.2	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth, one (1) additional confirmatory soil boring was advanced to confirm refusal depth (01SB4A)
		01SB4-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB5	01SB5-1	0-2	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB5-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB6	01SB6-1	0-2	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB6-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB7	01SB7-1	0.92-1.08	Soil	Horizontal and vertical extent of coal in soil by visual examination.			s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB7-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB8	01SB8-1	0-2	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB8-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB9	01SB9-1	0-2	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB9-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	01SB10	01SB10-1	0-2	Soil				s		s	s	s							Observed coal thickness corresponds to sample depth
		01SB10-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected

Table 1
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NED Site	Sample Location	Sample ID (Field Duplicate ID)	Sample Depth (feet bgs)	Sample Type	Justification	Analyses: VOCs EPA Method 8260C	SVOCs EPA Method 8270D	PAHs by EPA Method 8270D	PAHs by EPA Method 8270D by SIM	PP Metals EPA Method 6020A & 7471B/7470A[2]	Hexavalent Chromium EPA Method 7196A	EPH by MADEP EPH-04-1.1	VPH by MADEP VPH-04-1.1	PCBs by EPA Method 8082A	Pesticides by EPA Method 8081B	Explosives EPA method 8330B[4]	Dioxin/furan EPA Method 1613B	pH EPA Method 9045C	Notes
4 Pump House	04CP-1	04CP-1	0-0.5	Soil	Confirm soil concentrations in vicinity of abandoned drum(s)	s	s			s	s	s	s	s					Drums were no longer present. Therefore, the 16 aliquots were evenly spaced on a 10-foot grid.
8 Incinerator #49	Incinerator floor debris/ equipment/ stack	08W-1 (08W-10)	NA	Solid	To assess source area concentrations			s		s	s			s			s		Grab sample collected from contents of stack
		08W-2	NA	Solid				s		s	s			s			s		Grab sample collected from contents of northern fire box
		08W-3	NA	Solid				s		s	s			s			s		Collected from contents of upper southern fire box
		08W-4	NA	Solid				s		s	s			s			s		Grab sample collected from contents of lower southern fire box
		08SS-1	0-0.5/0.5	Soil				s		s	s			s			s		Grab sample collected from suface soil underneath unlabeled metal containers at base of stack
	08DU1	08DU1-1	Not collected	NA	To assess perimeter soil			s		s	s			s			s		08DU1 ISM samples were not collected due to concrete slabs to the east of the incinerator building. In lieu of these surface soil samples 08SS-2, 08SS-3, and 08SS-4 were collected from between concrete slabs.
		08DU1-2	Not collected	NA				s		s	s			s			s		
		08DU1-3	Not collected	NA				s		s	s			s			s		
		08SS-2	0-0.5	Soil				s		s	s			s			s		
		08SS-3	0-0.5	Soil				s		s	s			s			s		
		08SS-4	0-0.5	Soil				s		s	s			s			s		
	08DU2	08DU2-1	0-1	Soil				s		s	s			s			s		ISM 08DU2 comprised 30 aliquots per replicate
		08DU2-2	0-1	Soil				s		s	s			s			s		
		08DU2-3	0-1	Soil				s		s	s			s			s		
	08DU3	08DU3-1	0-1	Soil				s		s	s			s			s		ISM 08DU3 comprised 30 aliquots per replicate
		08DU3-2	0-1	Soil				s		s	s			s			s		
		08DU3-3	0-1	Soil				s		s	s			s			s		
	08DU4	08DU4-1	0-1	Soil				s		s	s			s			s		ISM 08DU4 comprised 30 aliquots per replicate
		08DU4-2	0-1	Soil				s		s	s			s			s		
		08DU4-3	0-1	Soil				s		s	s			s			s		
	08SB1	08SB1-1 (08SB1-10)	0-1	Soil				s		s	s			s			s		No evidence of contamination was observed; therefore, the samples were collected from 0 - 1 foot
	08SB2	08SB2-1	0-1	Soil				s		s	s			s			s		
	08SB3	08SB3-1	0-1	Soil				s		s	s			s			s		
	08SB4	08SB4-1	0-1	Soil				s		s	s			s			s		
	08SB5	08SB5-1	0-1	Soil				s		s	s			s			s		
	08SB6	08SB6-1	0-1	Soil				s		s	s			s			s		No evidence of contamination was observed; therefore, the samples were collected from 0 - 1 foot, one (1) additional confirmatory soil boring was advanced to confirm refusal depth (08SB6A)
	08SB7	08SB7-1	0-1	Soil				s		s	s			s			s		No evidence of contamination was observed; therefore, the samples were collected from 0 - 1 foot

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NED Site	Sample Location	Sample ID (Field Duplicate ID)	Sample Depth (feet bgs)	Sample Type	Justification	Analyses: VOCs EPA Method 8260C	SVOCs EPA Method 8270D	PAHs by EPA Method 8270D	PAHs by EPA Method 8270D by SIM	PP Metals EPA Method 6020A & 7471B/7470A[2]	Hexavalent Chromium EPA Method 7196A	EPH by MADEP EPH-04-1.1	VPH by MADEP VPH-04-1.1	PCBs by EPA Method 8082A	Pesticides by EPA Method 8081B	Explosives EPA method 8330B[3]	Dioxin/furan EPA Method 1613B	pH EPA Method 9045C	Notes
10 Disposal Area #14	10SB1	10SB1-1	11-13/12	Soil	Vertical delineation and characterization of waste	s	s			s	s	s	s	s	s	s		s	One (1) additional confirmatory soil boring was advanced to assess horizontal delineation of waste (10SB1A). Sample collected from area of greatest contamination (PID response) which coincided with the 2-foot interval above the depth of refusal.
		10SB1-2	Not collected	NA		s	s			s	s	s	s	s	s	s		s	No additional evidence of contamination was observed; therefore, additional samples were not collected.
		10SB1-3	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB1-4	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB1-5	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
	10SB2/ 10OBMW1	10SB2-1	12.75-14.75/13.75	Soil	Vertical delineation and characterization of waste	s	s			s	s	s	s	s	s	s		s	No contamination was observed; therefore, the sample was collected from the 2-foot interval above depth of refusal, Two (2) additional confirmatory soil borings were advanced to assess horizontal delineation of waste and the presence of overburden groundwater (10SB2A and 10SB2B).
		10SB2-2	Not collected	NA		s	s			s	s	s	s	s	s	s		s	No additional evidence of contamination was observed; therefore, additional samples were not collected.
		10SB2-3	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB2-4	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB2-5	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10OBMW1-mmyy	NC	Groundwater	To assess overburden groundwater impacts in the disposal area body of fill	w	w		w	w	w	w	w		w	w			No groundwater observed; therefore, monitoring well was not installed
	10SB3	10SB3-1 (10SB3-10)	2-4/3	Soil	Vertical delineation and characterization of waste	s	s			s	s	s	s	s	s	s		s	Sample collected from area of greatest contamination (fill layer). Two (2) additional confirmatory soil borings were advanced to assess horizontal delineation of waste (10SB3A and 10SB3B).
		10SB3-2	10-12/11	Soil		s	s			s	s	s	s	s	s	s		s	Sample collected from the two foot interval above the depth of refusal
		10SB3-3	Not collected	NA		s	s			s	s	s	s	s	s	s		s	No additional evidence of contamination was observed; therefore, additional samples were not collected.
		10SB3-4	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB3-5	Not collected	NA		s	s			s	s	s	s	s	s	s		s	

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NED Site	Sample Location	Sample ID (Field Duplicate ID)	Sample Depth (feet bgs)	Sample Type	Justification	Analyses: VOCs EPA Method 8260C	SVOCs EPA Method 8270D	PAHs by EPA Method 8270D	PAHs by EPA Method 8270D by SIM	PP Metals EPA Method 6020A & 7471B/7470A[2]	Hexavalen Chromium EPA Method 7196A	EPH by MADEP EPH-04-1.1	VPH by MADEP VPH-04-1.1	PCBs by EPA Method 8082A	Pesticides by EPA Method 8081B	Explosives EPA method 8330B[3]	Dioxin/furan EPA Method 1613B	pH EPA Method 9045C	Notes
10 Disposal Area #14 (cont.)	10SB4/ 10OBMW2	10SB4-1	10-12/11	Soil	Vertical delineation and characterization of waste	s	s			s	s	s	s	s	s	s		s	Three (3) additional confirmatory soil borings were advanced to assess horizontal delineation of waste and the presence of overburden groundwater (10SB4A, 10SB4B, and 10SB4C). Sample collected from area of greatest contamination (fill layer) in second boring attempt (10SB4A).
		10SB4-2	15-17/16	Soil		s	s			s	s	s	s	s	s	s		s	Sample collected from area of greatest contamination (fill layer and PID response) in third boring attempt (10SB4B) which was coincendentally located within the two foot interval above the depth of refusal
		10SB4-3	Not collected	NA		s	s			s	s	s	s	s	s	s		s	No additional evidence of contamination was observed; therefore, additional samples were not collected.
		10SB4-4	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB4-5	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10OBMW2-0418	19.66	Groundwater	To assess overburden groundwater impacts in the disposal area body of fill	w	w		w	w	w	w	w		w	w			Installed into weathered bedrock using the CME 850 ATV hollow-stem auger drill rig in order to advance to depth of groundwater
	10SB5	10SB5-1	11-13/12	Soil	Vertical delineation and characterization of waste	s	s			s	s	s	s	s	s	s		s	Three (3) additional confirmatory soil borings were advanced to assess horizontal delineation of waste (10SB5A, 10SB5B, and 10SB5C). No evidence of contamination was observed; therefore, the sample was collected from the 2-foot interval above depth of refusal
		10SB5-2	Not collected	NA		s	s			s	s	s	s	s	s	s		s	No additional evidence of contamination was observed; therefore, additional samples were not collected.
		10SB5-3	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB5-4	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
		10SB5-5	Not collected	NA		s	s			s	s	s	s	s	s	s		s	
	10TP1	10TP1-1	0-0.5/0.5	Soil	Assessment of impacts to the beach and extent of previously observed tar-like material	s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug due to concerns of unearthed petroleum-contamination migrating into the nearby bay water, sample collected from entire test pit interval, no contamination observed
	10TP2/10PZ1	10TP2-1	0-0.5/0.5	Soil		s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug due to concerns of unearthed petroleum-contamination migrating into the nearby bay water, sample collected from entire test pit interval, contamination (metal debris) observed
		10PZ1-mmyy	Not collected	NA		w	w		w	w	w	w	w		w	w			Test pit was hand-dug to only 0.5 feet bgs, which was not deep enough to install the piezometer
	10TP3	10TP3-1	Not collected	NA		s	s			s	s	s	s	s	s	s		s	No material between 10TP2 and 10TP4 to feasibly sample in the vicinity of the 10TP3; therefore, no sample was collected
	10TP4	10TP4-1	0-0.5/0.5	Soil		s	s			s	s	s	s	s	s	s		s	Test pits were hand-dug due to concerns of unearthed petroleum-

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10 Disposal Area #14 (cont.)	10TP5/10PZ-2	10TP5-1	0-0.5/0.5	Soil	Assessment of impacts to the beach and extent of previously observed tar-like material	s	s			s	s	s	s	s	s	s		s	contamination migrating into the nearby bay water, sample collected from entire test pit interval, contamination (metal debris) observed
		10TP5-2	Not collected	NA		s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug to only 0.5 feet bgs; therefore, an additional sample was not collected
		10PZ2-mmyy	Not collected	NA		w	w		w	w	w	w	w		w	w			Test pit was hand-dug to only 0.5 feet bgs, which was not deep enough to install the piezometer
	10TP6	10TP6-1	0-2/1	Soil		s	s			s	s	s	s	s	s	s		s	Sample was collected from area of greatest contamination (metal debris)
	10TP7	10TP7-1	0-2/1	Soil		s	s			s	s	s+	s+	s	s	s		s	Sample was collected from area of greatest contamination (petroleum odor, staining, PID response, and metal debris)
	10TP8/ 10PZ3	10TP8-1 (10TP8-10)	0-2/1	Soil		s	s			s	s	s+	s+	s	s	s		s	Sample was collected from area of greatest contamination (petroleum odor, staining, and PID response)
		10TP8-2	Not collected	NA		s	s			s	s	s	s	s	s	s		s	Sample was not collected from deeper interval due to shallow petroleum contamination draining to deeper soils within the test pit
		10PZ3-0418 (10PZ30-0418)	1.13-2.12	Groundwater		w	w		w	w	w	w	w		w	w			The pump intake depth was adjusted during sampling and the field duplicate 10PZ30-0418 was only analyzed for pesticides and explosives due to piezometer drawdown caused by the falling tide
	10TP9	10TP9-1	0-2/2	Soil		s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug due to concerns of unearthed petroleum-contamination migrating into the nearby bay water, sample was collected from area of greatest contamination (fill layer, petroleum odor, and PID response)
	10TP10	10TP10-1	0-1.75/1.75	Soil		s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug due to concerns of unearthed petroleum-contamination migrating into the nearby bay water, sample was collected from entire test pit interval, no evidence of contamination observed
	10TP11	10TP11-1	0-2/1	Soil		s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug due to concerns of unearthed petroleum-contamination migrating into the nearby bay water, sample was collected from entire test pit interval, some fill observed
	10TP12/ 10PZ4	10TP12-1	0-1.75/1.75	Soil		s	s			s	s	s	s	s	s	s		s	Test pit was hand-dug due to concerns of unearthed petroleum-contamination migrating into the nearby bay water, sample was collected from entire test pit interval, some metal debris observed
		10PZ4-mmyy	Not collected	NA		w	w		w	w	w	w	w		w	w			Test pit was hand-dug to only 1.75 feet bgs, which was not deep enough to install the piezometer
	10TP13	10TP13-1	0-2/1	Soil		s	s			s	s	s	s	s	s	s		s	No contamination was observed; therefore, the sample was collected from the surface for consistency with the remaining samples

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10 Disposal Area #14 (cont.)	10SD1	10SD1	0-0.5	Sediment	Assess the extent of previously confirmed impacts to sediment	s	s		s	s	s	s	s	s	s	s		s	Samples were collected during low tide from 0-6 inches
	10SD2	10SD2	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	
	10SD3	10SD3	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	
	10SD4	10SD4S	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	
		10SD4D	Not collected	NA		s	s		s	s	s	s	s	s	s	s		s	Sediment was not observed deeper than 0.5 feet bgs and auger refusal occurred 0.5 feet bgs; therefore, no sample was collected
	10SD5	10SD5S	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	Sample was collected during low tide from 0-6 inches
		10SD5D (10SD50D)	0.5-1	Sediment		s	s		s	s	s	s	s	s	s	s		s	Field duplicate moved from 10SD7D to 10SD5D because no evidence of contamination was observed at 10SD7D, but metal debris was observed on the ground surface near 10SD5
	10SD6	10SD6S	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	Sample was collected during low tide from 0-6 inches
		10SD6D	Not collected	NA		s	s		s	s	s	s	s	s	s	s		s	No evidence of contamination was observed at 10SD6 and sediment was not observed deeper than 0.5 feet bgs; therefore, no sample was collected
	10SD7	10SD7S	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	Sample was collected during low tide from 0-6 inches
		10SD7D	Not collected	NA		s	s		s	s	s	s	s	s	s	s		s	No evidence of contamination was observed; therefore, sample was not collected
	10SD8	10SD8	0-0.5	Sediment		s	s		s	s	s	s	s	s	s	s		s	Sample was collected during low tide from 0-6 inches
	10SD9	10SD9	Not collected	NA		s	s		s	s	s	s	s	s	s	s		s	Samples were collected, but not analyzed. Not considered representative.
	10SD10	10SD10	Not collected	NA		s	s		s	s	s	s	s	s	s	s		s	
	10SD11	10SD11	NA	Sediment		s	s		s	s	s	s	s	s	s	s		s	Samples were collected from the surface of the seafloor with ponar sampler
	10SD12	10SD12	NA	Sediment		s	s		s	s	s	s	s	s	s	s		s	
	10SD13	10SD13	NA	Sediment		s	s		s	s	s	s	s	s	s	s		s	
	10SD14	10SD14	NA	Sediment		s	s		s	s	s	s	s	s	s	s		s	
	10SD15	10SD15	Not collected	NA		s	s		s	s	s	s	s	s	s	s		s	Due to a rocky seafloor, staff was unable to collect sediment with ponar sampler in the area of 10SD15; therefore, no sample was collected
11 Quonset/ Maintenance Shops	11DU1	11DU1-1	0-1	Soil	Assessment of heating and maintenance related impacts		s			s	s	s							ISM 11DU1 comprised 30 aliquots per replicate
		11DU1-2	0-1	Soil			s			s	s	s							
		11DU1-3	0-1	Soil			s			s	s	s							
		11SS-1	Not collected	NA		s	s			s	s	s	s						With the exception of trace clinker observed on the ground surface, no evidence of contamination was observed; therefore, no surface soil samples were collected
		11SS-2	Not collected	NA		s	s			s	s	s	s						
		11SS-3	Not collected	NA		s	s			s	s	s	s						

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12 Maintenance Shop/ Garage Fire Station	Spilled Transformer	12SS-1	Not collected	NA	Assessment of extent of spilled transformer contents							s	s	s**					Transformer was not located and the area was inaccessible due to the collapsed building
		12CC-1	Not collected	NA										s**					
		12SS-2	Not collected	NA								s	s	s**					
		12CC-2	Not collected	NA										s**					
		12SS-3	Not collected	NA								s	s	s**					
		12CC-3	Not collected	NA										s**					
		12SS-4	Not collected	NA								s	s	s**					
		12CC-4	Not collected	NA										s**					
		12SS-5	Not collected	NA								s	s	s**					
		12CC-5	Not collected	NA										s**					
		12SS-6	Not collected	NA								s	s	s**					
		12CC-6	Not collected	NA										s**					
		12SS-7	Not collected	NA								s	s	s**					
		12CC-7	Not collected	NA										s**					
		12SS-8	Not collected	NA								s	s	s**					
		12CC-8	Not collected	NA										s**					
		12SS-9	Not collected	NA								s	s	s**					
		12CC-9	Not collected	NA										s**					
	12SB1/ 12OBMW1	12SB1-1	6-8/7	Soil	To assess impacts from the vehicle maintenance pit	s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, the sample was collected from the groundwater interface, one (1) additional confirmatory soil boring was advanced to confirm refusal depth (12SB1A).
		12OBMW1-0418	12.74	Groundwater		w	w		w	w	w	w	w	w					Due to slight drawdown in well, the pump intake depth was lowered from 11.24 feet bgs to 12.74 feet bgs
	Maintenance pit sludge/debris	12W-1	Not collected	NA		s	s			s	s	s	s	s					The maintenance pit was not located; therefore, no samples were collected
		12W-2	Not collected	NA		s	s			s	s	s	s	s					
		12W-3	Not collected	NA		s	s			s	s	s	s	s					
	12SB2	12SB2-1	7.5-9.5/8.5	Soil		s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, the sample was collected from the groundwater interface, Two (2) additional confirmatory soil borings were advanced to confirm refusal depth (12SB2A and 12SB2B).
	12SB3/ 12OBMW2	12SB3-1	9-11/10	Soil	To assess around suspected UST	s	s			s	s	s	s	s					Sample was collected from the area of greatest contamination (PID response and petroleum odor)
		12OBMW2-0418	11.6	Groundwater		w	w		w	w	w	w	w	w					12OBMW2 was moved from 12SB2 to 12SB3 due to the lack of sufficient groundwater at 12SB2 and observed contamination in 12SB3.
	12SB4	12SB4-1	9-10/11	Soil		s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, the sample was collected from the groundwater interface

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13 Electric Substation/ Transformer Pad	Concrete pads	13CC-1	0-0.04	Concrete	To assess impacts to concrete transformer pads								s**						Samples were collected from concrete transformer pads or floors directly adjacent to transformers, no evidence of staining was observed
		13CC-2	0-0.04	Concrete									s**						
		13CC-3	0-0.04	Concrete									s**						
		13CC-4	0-0.04	Concrete									s**						
		13CC-5	0-0.04	Concrete									s**						
		13CC-6	0-0.04	Concrete									s**						
		13CC-7	0-0.04	Concrete									s**						
		13CC-8	0-0.04	Concrete									s**						
		13CC-9	0-0.04	Concrete									s**						
		13CC-10	0-0.04	Concrete									s**						
		13CC-11	0-0.04	Concrete									s**						
		13CC-12	0-0.04	Concrete									s**						
		13CC-13	0-0.04	Concrete									s**						
		13CC-14	0-0.04	Concrete									s**						
		13CC-15	0-0.04	Concrete									s**						
		13CC-16	0-0.04	Concrete									s**						
		13CC-17	0-0.04	Concrete									s**						
		13CC-18	0-0.04	Concrete									s**						
		13CC-19	0-0.04	Concrete									s**						
		13CC-20	0-0.04	Concrete									s**						
		13CC-21	0-0.04	Concrete									s**						
		13CC-22	0-0.04	Concrete									s**						
		13CC-23	0-0.04	Concrete									s**						
		13CC-24	0-0.04	Concrete									s**						
		13CC-25	0-0.04	Concrete									s**						
		13CC-26	0-0.04	Concrete									s**						
		13CC-27	0-0.04	Concrete									s**						
	Soil surrounding pad	13SS-3	0-0.5	Soil	To assess impacts surrounding transformer pads					s	s	s	s	s					Samples were collected from surface soil adjacent to transformer concrete pads
		13SS-4	0-0.5	Soil						s	s	s	s	s					
		13SS-5	0-0.5	Soil						s	s	s	s	s					
		13SS-6	0-0.5	Soil						s	s	s	s	s					
		13SS-7	0-0.5	Soil						s	s	s	s	s					
		13SS-8	0-0.5	Soil						s	s	s	s	s					Sample was collected from soil beneath a transformer oil reservoir located on the ground surface

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16 Barracks	Buried Transformer Area	16T-1 (16T-10)	0-0.5	Soil	To assess impacts to environmental matrix surrounding each transformer							s	s	s**					Samples were collected from surface soil beneath transformers 1 and 2
		16T-2	0-0.5	Soil								s	s	s**					
		16SL-1	NA	Sludge								s	s	s**					Sample was collected from sludge at bottom of manhole where transformer 3 was located
		16WG-1	NA	Stormwater								s	s	s**					Sample was collected from the stormwater inside the manhole where transformer 3 was located
		16T-3	Not collected	NA								s	s	s**					Transformer 3 was located inside of a manhole; therefore, sample was replaced with above sludge and stormwater samples.
		16SS-1	0-0.5	Soil	Assessment of extent of spilled transformer contents							s	s	s**					Samples were collected in a 3 meter grid pattern surrounding transformer 1 (see 16T-1) in accordance with 40 CFR 761.265
		16SS-2	0-0.5	Soil								s	s	s**					
		16SS-3	0-0.5	Soil								s	s	s**					
		16SS-4	0-0.5	Soil								s	s	s**					
		16SS-5	0-0.5	Soil								s	s	s**					
		16SS-6	0-0.5	Soil								s	s	s**					
		16SS-7	0-0.5	Soil								s	s	s**					
		16SS-8	0-0.5	Soil								s	s	s**					
		16SS-9	0-0.5	Soil								s	s	s**					Samples were collected in a 3 meter grid pattern surrounding transformer 2 (see 16T-2) in accordance with 40 CFR 761.266
		16SS-10	0-0.5	Soil								s	s	s**					
		16SS-11	0-0.5	Soil								s	s	s**					
		16SS-12	0-0.5	Soil								s	s	s**					
		16SS-13	0-0.5	Soil								s	s	s**					
		16SS-14	0-0.5	Soil								s	s	s**					
		16SS-15	0-0.5	Soil								s	s	s**					
		16SS-16	0-0.5	Soil								s	s	s**					
19 Torch Pot Storage #51	19DU1	19DU1-1 (19DU1-10)	0-1	Soil	Confirm soil concentrations in vicinity of drum							s							ISM 19DU1 comprised 30 aliquots per replicate
		19DU1-2	0-1	Soil								s							
		19DU1-3	0-1	Soil								s							

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21 Bunker #11	Within bunker #11	21SS-3	Not collected	NA	To assess within bunker for impacts associated with use as a firing range and possible releases from stored drums within the bunker	s	s			s	s	s	s	s	s	s			Due to debris within the bunker area, the sample locations were inaccessible; therefore, no samples were collected
		21SS-4	Not collected	NA		s	s			s	s	s	s	s	s	s			
		21SS-5	Not collected	NA		s	s			s	s	s	s	s	s	s			
		21SS-6	Not collected	NA		s	s			s	s	s	s	s	s	s			
		21SS-7	Not collected	NA		s	s			s	s	s	s	s	s	s			
	21SB1/ 21OBMW1	21SB1-1 (21SB1-10)	2-4/3	Soil	To assess migration of contaminants possibly released to bunker	s	s			s	s	s	s	s	s	s			No evidence of contamination was observed; therefore, sample was collected from 2-foot interval above refusal depth
		21OBMW1-mmyy	Not collected	NA		w	w		w	w	w	w	w	w	w	w			No groundwater observed; therefore, monitoring well was not installed
	21SB2	21SB2-1	0-2/1	Soil		s	s			s	s	s	s	s	s	s			No evidence of contamination or groundwater was observed; therefore, sample was collected from 2-foot interval above refusal depth
	21SB3	21SB3-1	12-14/13	Soil		s	s			s	s	s	s	s	s	s			
	21SB4	21SB4-1	12-14/13	Soil		s	s			s	s	s	s	s	s	s			
	21SB5	21SB5-1	10-12/10-11	Soil		s	s			s	s	s	s	s	s	s			No evidence of contamination or groundwater was observed; therefore, sample was collected from 2-foot interval above refusal depth. Two (2) additional confirmatory soil borings were advanced to confirm refusal depth (21SB5-A and 21SB5-B).
	21SB6	21SB6-1	8-10/9	Soil		s	s			s	s	s	s	s	s	s			No evidence of contamination or groundwater was observed; therefore, sample was collected from 2-foot interval above refusal depth
22 Bunker #12	Within bunker #12	22SS-3	Not collected	NA	To assess within the bunker for impacts associated with possible release from drums stored within the bunker.	s	s			s	s	s	s	s	s	s			Due to debris within the sample area, sample locations were inaccessible; therefore, no samples were collected
		22SS-4	Not collected	NA		s	s			s	s	s	s	s	s	s			
		22SS-5	Not collected	NA		s	s			s	s	s	s	s	s	s			
	22SB1/ 22OBMW1	22SB1-1	4-6/5	Soil	To assess migration of contaminants possibly released to bunker	s	s			s	s	s	s	s	s	s			No evidence of contamination or groundwater was observed; therefore, sample was collected from two foot interval above refusal depth, Two (2) additional confirmatory soil borings were advanced to confirm refusal depth (22SB1-A and 22SB1-B).
		22OBMW1-mmyy	Not collected	NA		w	w		w	w	w	w	w	w	w	w			No groundwater observed; therefore, monitoring well was not installed
	22SB2	22SB2-1	5-7/6	Soil		s	s			s	s	s	s	s	s	s			No evidence of contamination or groundwater was observed; therefore, sample was collected from 2-foot interval above refusal depth
	22SB3	22SB3-1	8-10/9	Soil		s	s			s	s	s	s	s	s	s			
	22SB4	22SB4-1	12-14/13	Soil		s	s			s	s	s	s	s	s	s			
	22SB5	22SB5-1	11-13/12	Soil		s	s			s	s	s	s	s	s	s			
	22SB6	22SB6-1	1-3/2	Soil		s	s			s	s	s	s	s	s	s			

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23 Coal Storage South	23DU1	23DU1-1	0-1	Soil	Nature and extent of previously identified surface contamination			s		s	s	s							ISM 23DU1 comprised 30 aliquots per replicate
		23DU1-2	0-1	Soil				s		s	s	s							
		23DU1-3	0-1	Soil				s		s	s	s							
	23DU2	23DU2-1	0-1	Soil				s		s	s	s							ISM 23DU2 comprised 30 aliquots per replicate
		23DU2-2	0-1	Soil				s		s	s	s							
		23DU2-3	0-1	Soil				s		s	s	s							
	23SB1	23SB1-1	0-2	Soil	Horizontal and vertical extent of coal in soil by visual examination			s		s	s	s							Sample collected from entire thickness of observed coal
		23SB1-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	23SB2	23SB2-1 (23SB2-10)	0-2	Soil				s		s	s	s							Sample collected from entire thickness of observed coal
		23SB2-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	23SB3	23SB3-1	0-1	Soil				s		s	s	s							Sample collected from entire thickness of observed coal
		23SB3-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
23 Coal Storage South (contd.)	23SB4	23SB4-1 (23SB4-10)	0-2	Soil	Horizontal and vertical extent of coal in soil by visual examination			s		s	s	s							Sample collected from entire thickness of observed coal
		23SB4-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	23SB5	23SB5-1	0-2	Soil				s		s	s	s							Sample collected from entire thickness of observed coal
		23SB5-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	23SB6	23SB6-1	0-1	Soil				s		s	s	s							Sample collected from entire thickness of observed coal
		23SB6-2	Not collected	NA				s		s	s	s							Less than 4 feet of coal was encountered; therefore, the sample was not collected
	23SB7	23SB7-1	1-5	Soil				s		s	s	s							No evidence of contamination was observed and this was the first boring advanced; therefore, the sample was collected from the shallow 4 foot interval of subsurface soil (1 to 5 feet bgs)
		23SB7-2	5-9	Soil				s		s	s	s							No evidence of contamination was observed and this was the first boring advanced; therefore, the sample was collected from the deeper 4 foot interval of subsurface soil (5 to 9 feet bgs)
	23SB8	23SB8-1	0-2	Soil				s		s	s	s							No evidence of contamination was observed; therefore, the sample was collected from 0 to 2 feet bgs (surface soil)
		23SB8-2	Not collected	NA				s		s	s	s							No evidence of contamination was observed; therefore, no additional samples were collected
24 Cable Terminal Bldg #16	Transformer pad	24CC-1 (24CC-10)	0-0.04	Concrete	Assess impacts from former transformer									s**					Collected sample from top 0.5 inch of concrete transformer pad.
	Soil surrounding pad	24SS-2	0-0.5	Soil								s	s	s**					Collected samples from top 6 inches on each side of the transformer pad
		24SS-3	0-0.5	Soil								s	s	s**					
		24SS-4	0-0.5	Soil								s	s	s**					
		24SS-5	0-0.5	Soil								s	s	s**					

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Soil, Groundwater, Sediment, and Concrete Sample Summary
Gould Island Site
Narragansett Bay, Jamestown, Rhode Island

NED Site	Sample Location	Sample ID (Field Duplicate ID)	Sample Depth (feet bgs)	Sample Type	Justification	Analyses: VOCs EPA Method 8260C	SVOCs EPA Method 8270D	PAHs by EPA Method 8270D	PAHs by EPA Method 8270D by SIM	PP Metals EPA Method 6020A & 7471B/7470A[2]	Hexavalent Chromium EPA Method 7196A	EPH by MADEP EPH-04-1.1	VPH by MADEP VPH-04-1.1	PCBs by EPA Method 8082A	Pesticides by EPA Method 8081B	Explosives EPA method 8330B[3]	Dioxin/furan EPA Method 1613B	pH EPA Method 9045C	Notes
27 & 31 Three Presumed Gas Pits	Presumed gas pits 27	27SL-1 (27SL-10)	5.75-7.75/6.75	Sludge	Assess contents of presumed gas pits	s	s			s	s	s	s	s					The presumed gas pits at NED Site 27 were filled with gravel and soil; therefore, soil borings (27SL1 and 27SL2) were advanced to refusal within the gas pits. No evidence of contamination or groundwater was observed so no samples were collected. Soil borings (27SL1-A and 27SL2-A) were then advanced to refusal at a location adjacent to the pits in the presumed downgradient position in an attempt to detect any contamination which may have drained out of the pits. No evidence of contamination or groundwater was observed; therefore, the samples were collected from the 2-foot interval above the depth of refusal.
		27SL-2	5.83-7.83/6.83	Sludge		s	s			s	s	s	s	s					
	Presumed gas pit 31	31SL-1	2-4/3	Sludge		s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, sample was collected from the 2-foot interval above the refusal depth within the gas pit. This was not sampled outside th egas pit since a sample from what would have been that approximate depth was collected from 30SB1 just off the aviation pad to the east.
	27SB1/ 27OBMW1	27SB1-1	5-7/6	Soil	Assess possible release to subsurface	s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, the sample was collected from the groundwater interface
		27OBMW1-0418	8.86	Groundwater	Assess impacts from gas pits as well as other NED Sites within the general aviation pad	w	w		w	w	w	w	w	w		w			Tidally influenced monitoring well
	27SB2	27SB2-1	5.79-7.79/6.79	Soil	Assess possible release to subsurface	s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, the sample was collected from the groundwater interface
	31SB1/ 31OBMW1	31SB1-1	7.5-9.5/8.5	Soil		s	s			s	s	s	s	s					Sample collected from the area of greatest contamination (PID response) which coincided with the groundwater interface
		31OBMW1-0418	8.61	Groundwater	Assess impacts from gas pits as well as other NED Sites within the general aviation pad	w	w		w	w	w	w	w	w		w			Tidally influenced monitoring well

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28, 30, 32, 33, 43 & 44 General Aviation Pad	APSB1	APSB1-1	0.75-2.75/1.75	Soil	Generally assess impacts to soil and groundwater beneath the concrete aviation pad	s	s			s	s	s	s	s		s			Sample collected from 2-foot interval below concrete pad
	APSB2/ APOBMW2	APSB2-1	3.4-5.4/4.4	Soil		s	s			s	s	s	s	s		s			Sample collected from area of greatest contamination (PID response and petroleum odor)
		APOBMW2-0418 (APOBMW20-0418)	8.9	Groundwater		s	s			s	s	s	s	s		s			APOBMW2 was installed in lieu of 42OBMW1, sheen on development water and petroleum odor during sampling.
	APSB3	APSB3-1	0.6-2.6/1.6	Soil		s	s			s	s	s	s	s		s			Sample collected from 2-foot interval below concrete pad, one (1) additional confirmatory soil boring was advanced to confirm refusal depth (APSB3A).
	APSB4	APSB4-1	0.5-2.5/1.75	Soil		s	s			s	s	s	s	s		s			Sample collected from 2-foot interval below concrete pad
	APSB5	APSB5-1	2.5-4.5/3.5	Soil		s	s			s	s	s	s	s		s			Sample collected from area of greatest contamination (coal and clinker layer). One (1) additional confirmatory soil boring was advanced to confirm refusal depth (APSB5A).
		APSB5B	Not collected	NA	Vertical and horizontal delineation of layer of coal														Soil borings were advanced for coal observational delineation purposes only and no samples were planned for these locations
		APSB5C	Not collected	NA															
		APSB5D	Not collected	NA															
		APSB5E	Not collected	NA															
		APSB5F	Not collected	NA															
	APSB6	APSB6-1	0.66-2.66/1.66	Soil	Generally assess soil beneath the concrete aviation pad	s	s			s	s	s	s	s		s			Sample collected from 2-foot interval below concrete pad. One (1) additional confirmatory soil boring was advanced to confirm refusal depth (APSB6-A).
	APSB7	APSB7-1	0.7-2.7/1.7	Soil		s	s			s	s	s	s	s		s			Sample collected from 2-foot interval below concrete pad
	APSB8	APSB8-1	0.5-2.5/1.5	Soil		s	s			s	s	s	s	s		s			
	APSB9	APSB9-1	0.83-2.83/1.83	Soil		s	s			s	s	s	s	s		s			
	APSB10	APSB10-1	0.75-2.75/1.75	Soil		s	s			s	s	s	s	s		s			
	APSB11	APSB11-1	1-3/2	Soil		s	s			s	s	s	s	s		s			
	APSB12	APSB12-1	0.41-2.41/1.41	Soil		s	s			s	s	s	s	s		s			
	30SB1/ 30OBMW1	30SB1-1	7-9/8	Soil	To assess subsurface conditions downgradient of pad	s	s			s	s	s	s	s		s			No evidence of contamination was observed; therefore, sample was collected at the groundwater interface
		30OBMW1-0418	9.17	Groundwater		w	w		w	w	w	w	w	w		w			Tidally influenced monitoring well
	32SB1	32SB1-1	11-13/12	Soil		s	s			s	s	s	s	s		s			No evidence of contamination was observed; therefore, sample was collected from the 2-foot interval above the refusal depth. This sample methodology deviated from the Field Sampling Plan, which, without evidence of contamination, called for the sample to be collected from the groundwater interface. Groundwater was encountered at 5 feet bgs.

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35 Boiler House #29	Stack debris	35W-1	NA	Ash/debris	Assess contents of stack and fire boxes to characterize source			s		s	s						s		Grab sample collected from contents of stack
	Fire box	35W-2	NA					s		s	s						s		Grab sample collected from contents of northern fire box
		35W-3	Not collected					s		s	s						s		Due to collapsed building, sample locations were inaccesible; therefore, samples were not collected
		35W-4	Not collected					s		s	s						s		
	35DU1	35DU1-1	0-1	Soil/coal	To generally assess surface disposal of coal ash surrounding the boiler house			s		s	s						s		ISM 35DU1 comprised 30 aliquots per replicate
		35DU1-2	0-1	Soil/coal				s		s	s						s		
		35DU1-3	0-1	Soil/coal				s		s	s						s		
	35DU2	35DU2-1 (35DU2-10)	0-1	Soil/coal				s		s	s						s		ISM 35DU2 comprised 30 aliquots per replicate
		35DU2-2	0-1	Soil/coal				s		s	s						s		
		35DU2-3	0-1	Soil/coal				s		s	s						s		
	35DU3	35DU3-1	0-1	Soil/coal				s		s	s						s		ISM 35DU3 comprised 30 aliquots per replicate
		35DU3-2	0-1	Soil/coal				s		s	s						s		
		35DU3-3	0-1	Soil/coal				s		s	s						s		
	35DU4	35DU4-1	0-1	Soil/coal				s		s	s						s		ISM 35DU4 comprised 30 aliquots per replicate
		35DU4-2	0-1	Soil/coal				s		s	s						s		
		35DU4-3	0-1	Soil/coal				s		s	s						s		
	35SB1	35SB1-1	0.5-2.5	Soil/coal	To vertically assess coal ash disposal around and downslope of the boiler house			s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval below the topsoil
		35SB1-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB2	35SB2-1	0.5-2.5	Soil/coal				s		s	s						s		Sample collected from entire thickness of observed coal
		35SB2-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB3	35SB3-1 (35SB3-10)	0.5-2.5	Soil/coal				s		s	s						s		Sample collected from entire thickness of observed coal
		35SB3-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB4	35SB4-1	0.5-2.5	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval below the topsoil
		35SB4-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB5	35SB5-1	0.5-2.5	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval below the topsoil
		35SB5-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB6	35SB6-1	0.5-2.5	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval below the topsoil
		35SB6-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB7	35SB7-1	0.5-2.5	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval below the topsoil
		35SB7-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected

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35 Boiler House #29 (contd.)	35SB8	35SB8-1	0.5-2.5	Soil/coal	To vertically assess coal ash disposal around and downslope of the boiler house			s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval below the topsoil
		35SB8-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB9	35SB9-1	0-2	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval at the surface (no topsoil observed)
		35SB9-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB10	35SB10-1	0-2	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval at the surface (no topsoil observed)
		35SB10-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
	35SB11	35SB11-1	0-2	Soil/coal				s		s	s						s		No evidence of contamination observed; therefore, sample was collected from 2-foot interval at the surface (no topsoil observed)
		35SB11-2	Not collected	NA				s		s	s						s		Thickness of observed coal was less than 4 feet; therefore, no sample was collected
37 Misc. Storage Bldg	37SB-1/ 37OBMW1	37SB1-1	5-7/6	Soil	Assess possible release from tank of unknown use	s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, sample was collected from the groundwater interface. One (1) additional confirmatory soil boring was advanced to confirm refusal depth (37SB1A).
		37OBMW1-0418	10.64-10.74	Groundwater		w	w		w	w	w	w	w	w					Due to drawdown of water in monitoring well and slow recharge, the sample could only be collected for VOCs and VPH analysis. Depth of pump intake was lowered as water level dropped; therefore, theer is a range for the pump intake depth.
	37SB2	37SB2-1	11-13/12	Soil		s	s			s	s	s	s	s					No evidence of contamination was observed; therefore, sample was collected from the 2-foot interval above the refusal depth. This sample was not collected from the groundwater interface because the sample nearby 37SB1-1 was collected from the groundwater interface and in order to assess deeper soil, the depth above refusal was sampled. One (1) additional confirmatory soil boring was advanced to confirm refusal depth (37SB2A).

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38 Torpedo Storage #10	Vicinity of spilled transformer	38SS-1 (38SS-10 not comparable, see notes)	0-0.5	Soil	Assessment of extent of spilled transformer contents							s	s	s**					Sample collected from soil outside of eastern door to transformer house. Duplicate sample is not applicable due to different analyses requested as a result of miscommunication relative to samples 38SS-10 and 38SS-010 analyses changes.
		38CC-1	0-0.04	Concrete										s**					Sample collected from corners of concrete transformer pad
		38SS-2	0-0.5	Soil								s	s	s**					Sample collected from floor debris/soil to the south of concrete transformer pad
		38CC-2	0-0.04	Concrete										s**					Sample collected from corners of concrete transformer pad
		38SS-3	0-0.5	Soil								s	s	s**					Sample collected from floor debris/soil to the south of concrete transformer pad
		38CC-3	0-0.04	Concrete										s**					Sample collected from concrete floor adjacent to conrete transformer pad
		38SS-4	0-0.5	Soil								s	s	s**					Sample collected from floor debris/soil on floor of transformer house to the east of the concrete pad
		38CC-4	0-0.04	Concrete										s**					Sample colocated next to 38SS-6 inside transformer pen
		38SS-5	0-0.5	Soil								s	s	s**					Sample collected from floor debris/soil on floor of transformer house to the north of the concrete pad
		38CC-5	0-0.04	Concrete										s**					Sample colocated next to 38SS-7 south of transformer pen
		38SS-6	0-0.5	Soil								s	s	s**					Sample collected of floor debris/soil colocated next to 38CC-4 inside transformer pen
		38CC-6	0-0.04	Concrete										s**					Sample colocated next to 38SS-8 east of transformer pen
		38SS-7	0-0.5	Soil								s	s	s**					Sample collected of floor debris/soil collocated next to 38CC-5 south of transformer pen
		38CC-7	Not collected	NA										s**					Sample was not collected due there being sufficient concrete samples surrounding transfomrer areas at NED Site 38
		38SS-8	0-0.5	Soil								s	s	s**					Sample collected of floor debris/soil colocated next to 38CC-6 east of transformer pen
		38CC-8	Not collected	NA										s**					Sample was not collected due there being sufficient concrete samples surrounding transfomrer areas at NED Site 38
		38CC-9	Not collected	NA										s**					Sample was not collected due there being sufficient concrete samples surrounding transfomrer areas at NED Site 38
	Interior and exterior of Building #10	38SS-9	0-0.5	Soil	Assessment of impacts to surface soil or floor debris within and outside torpedo storage building					s	s					s			Sample collected from soil outside southern bay door
		38SS-010	0-0.5	Soil						s	s					s			Sample collected from soil outside southern bay door, sample mistakenly analyzed for incorrect analyses due to miscommunication relative to 38SS-010 and 38SS-10 analyses changes.
		38SS-11	0-0.5	Soil						s	s					s			Sample collected from soil outside of western door to transformer house
		38SS-12	0-0.5	Soil						s	s					s			Sample collected from soil to the east of building
		38SS-13	0-0.5	Soil						s	s					s			Samples collected from floor debris inside the building
		38SS-14	0-0.5	Soil						s	s					s			
39 Well House #81	Transformer pad	39CC-1	0-0.04	Concrete	Assess impacts from former transformer									s**					Sample collected from 0.5 inch of concrete transformer pad.
	Soil surrounding pad	39SS-2	0-0.5	Soil								s	s	s**					Sample collected from top 6 inches on each side of the transformer pad
		39SS-3	0-0.5	Soil								s	s	s**					
		39SS-4	0-0.5	Soil								s	s	s**					
		39SS-5	0-0.5	Soil								s	s	s**					

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42 5,000-gallon Tank (av Gas) Ordnance test Facility Gasoline Outlet #30	42SB1	42SB1-1	0.5-2.5/1.5	Soil	Assess the location of former tank	s	s			s	s	s	s	s					No evidence of contamination or groundwater observed; therefore, sample was collected from 2-foot interval above refusal depth. One (1) additional confirmatory soil boring was advanced to confirm refusal depth (42SB1-A).
		42SB1-2	Not collected	NA		s	s			s	s	s	s	s					Sample was not collected due to shallow depth of soil boring (refusal at 2.5 feet bgs)
	42SB2/ 42OBMW1	42SB2-1	0-2/1	Soil		s	s			s	s	s	s	s					No evidence of contamination or groundwater observed; therefore, sample was collected from 2-foot interval above refusal depth. One (1) additional confirmatory soil boring was advanced to confirm refusal depth (42SB2-A).
		42SB2-2	Not collected	NA		s	s			s	s	s	s	s					Sample was not collected due to shallow depth of soil boring (refusal at 2.5 feet bgs)
		42OBMW1-mmyy	Not collected	NA		w	w		w	w	w	w	w	w					No groundwater observed; therefore, monitoring well was not installed
	42SB3	42SB3-1	0-2/1	Soil		s	s			s	s	s	s	s					-1 samples were collected from 0-2 feet. No evidence of contamination or groundwater was observed; therefore, -2 samples from each boring were sampled from the 2 foot interval above refusal. One (1) additional confirmatory soil boring was advanced for each of these three soil boring location to confirm refusal depth (42SB3-A, 42SB4-A, and 42SB5-A).
		42SB3-2	3.83-5.83/5	Soil		s	s			s	s	s	s	s					
	42SB4	42SB4-1	0-2/1	Soil		s	s			s	s	s	s	s					
		42SB4-2	5-7/6	Soil		s	s			s	s	s	s	s					
	42SB5	42SB5-1	0-2/1	Soil		s	s			s	s	s	s	s					
		42SB5-2	6-8/7	Soil		s	s			s	s	s	s	s					
9 & 48 Debris Stockpile and Magazine Ignitor Storage	48DU1	48DU1-1	Not collected	NA	Assess possible landfill or stockpiling		s			s	s	s		s		s			ISM sampling was abandoned in favor three discrete surface soil samples due to the lack of evidence of coal contamination was observed during the advancement of soil borings in the area prior to the start of ISM sampling
		48DU1-2	Not collected	NA			s			s	s	s		s		s			
		48DU1-3	Not collected	NA			s			s	s	s		s		s			
		48SS-1	0-0.5	Soil			s			s	s	s		s		s			
		48SS-2	0-0.5	Soil			s			s	s	s		s		s			
		48SS-3	0-0.5	Soil			s			s	s	s		s		s			
	48SB1	48SB1-1	27-29/28	Soil		s	s			s	s	s	s	s		s			No evidence of contamination or groundwater observed; therefore, samples were collected from 2-foot interval above refusal depth
	48SB2	48SB2-1	22-24/23	Soil	Assess possible landfill or stockpiling	s	s			s	s	s	s	s		s			
49 Water Tower Pump House	Abandoned boiler	49SS-1	0-0.5	Soil	Assess possible releases from pump house boiler and AST	s	s			s	s	s	s	s					Sample collected from soil adjacent to abandoned boiler
	Abandoned AST	49SS-2	0-0.5	Soil		s	s			s	s	s	s	s					Sample collected from soil adjacent to abandoned AST

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Sitewide	BRMW-1	BRMW-1-0418 (BRMW-10-0418)	43.5	Groundwater	To assess the bedrock aquifer in the bay ward sides of the island to intercept any possible contamination migrating into the bay at depth	w	w		w	w	w	w	w	w		w			
	BRMW-2	BRMW-2-0418	23.67	Groundwater		w	w		w	w	w	w	w	w		w			
	BRMW-3	BRMW-3-0418	37.17	Groundwater		w	w		w	w	w	w	w	w		w			
	BRMW-4	BRMW-4-0418	29.5	Groundwater		w	w		w	w	w	w	w	w		w			During well development and groundwater sampling, extremely high pH, raning from 12.40 to 13.99, was observed.
	BRMW-5	BRMW-5-0418	74.5	Groundwater		w	w		w	w	w	w	w	w		w			
Background	Eastern undisturbed areas of island	BG1	0-1	Soil	To evaluate background concentrations of arsenic for comparison to other areas of the Site in the risk assessment					As									Could not advance hand auger deeper than 1 foot bgs; therefore, samples were collected from 0 to 1 foot bgs
		BG2	0-1	Soil						As									
		BG3	0-1	Soil						As									
		BG4	0-1	Soil						As									
		BG5	0-1	Soil						As									
		BG6	0-1	Soil						As									
		BG7	0-1	Soil						As									
		BG8	0-1	Soil						As									
		BG9	0-1	Soil						As									
		BG10	0-1	Soil						As									
Sitewide	IDW Drums	WC-D1	NA	Wastewater	To characterize IDW (containerized purge water from monitoring wells with evidence of contamination)	pesticide, herbicide, ignitability, sulfide, and cyanide analyses to be used in conjunction with the other groundwater results from wells with containerized purge water.													Samples collected for waste characterization purposes only and were not part of the QAPP, included in the SEDD, nor validated since the DQO for this data was met after acceptance by the disposal facility.
		WC-D2	NA	Wastewater															
		WC-D3	NA	Wastewater															

Table 1
Soil, Groundwater, Sediment, and Concrete Sample Summary
Gould Island
Narragansett Bay, Jamestown, Rhode Island

Notes

1 - Explosives analysis includes nitroglycerin
2 - Metals groundwater samples were field filtered for dissolved analysis
3 - Samples listed with a grayed out sample ID were not collected during the Remedial Investigation due to the reason listed in the notes.
As - only arsenic was analyzed for background samples
bgs - below ground surface
FD - field duplicate
NC - not collected
s+ - Fingerprinting was performed on two samples containing evidence of petroleum
s**- Soxhlet extraction required

Blue shaded cell -	Groundwater sample
Red shaded cell -	Concrete sample
Green shaded cell -	Sediment sample
Unshaded -	Soil sample

Table 2
Monitoring Well Construction Details and Groundwater Elevations
Gould Island
Narragansett Bay, Jamestown, Rhode Island

Monitoring Well ID	Gauging Date	Approximate Screened Interval (feet bgs)[1]	Ground Surface Elevation (feet AMSL)	Top of Riser (TOR) Elevation (feet AMSL)	Top of Casing Elevation (feet AMSL)	Depth to Bottom (feet below TOR)	Depth to Water - High Tide [2] (feet below TOR)	Depth to Water - Low Tide [3] (feet below TOR)	High Tide [2] Water Level Elevation (feet AMSL)	Northing	Easting
10OBMW-2	4/17/2018	15-25	22.03	25.08	25.36	27.70	17.57	17.89	7.51	163945.276	370337.810
12OBMW-1		4-14	45.52	42.58	45.84	16.58	11.74	11.70	30.84	164255.768	370746.692
12OBMW-2		13-25	42.20	45.16	45.60	16.61	10.77	10.95	34.39	164328.828	370780.037
27OBMW-1		3-13	6.42	9.57	9.72	15.80	7.87	8.24	1.70	162568.509	370708.527
30OBMW 1		5-15	4.59	7.95	8.12	17.04	6.25	0.00	1.70	162654.291	370435.672
31OBMW-1		5.5-15.5	5.57	8.76	8.96	18.05	6.65	8.40	2.11	162862.575	370431.302
37OBMW-1		1-11	16.53	19.60	19.80	13.70	12.73	13.00	6.87	163237.471	370618.051
APOBMW-2		3-13	6.37	9.28	9.47	15.51	7.77	7.91	1.51	162732.887	370693.777
BRMW-1		22-56	26.90	29.06	29.34	58.16	17.48	17.60	11.58	164063.947	370366.738
BRMW-2		12-29	10.38	11.96	12.35	30.58	4.23	4.95	7.73	163227.190	371059.078
BRMW-3		31.5-50.5	14.80	18.01	18.27	53.71	13.74	14.20	4.27	163166.504	370532.637
BRMW-4		24-40	33.19	36.07	36.51	42.88	19.11	19.89	16.96	164338.625	370937.687
BRMW-5		63-91	29.62	32.16	32.59	93.54	22.35	23.15	9.80	164402.97	370360.12

AMSL - above mean sea level

1 - Screened interval data taken from boring logs recorded during soil boring/well installation activities

2 - High tide water level readings taken between 09:30 and 10:50, with tide retreating, high tide at 09:29, next low tide at 14:53

3 - Low tide water level readings taken between 16:30 and 17:30, with tide rising, low tide at 14:53, next high tide at 21:48

4 - Northing and easting coordinates displayed in Rhode Island State Plane, NAD 1983 coordinate system

APPENDIX A

REMEDIAL INVESTIGATION PHOTO LOG

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

1. NED Site 1 Coal Storage North off end of road and on left of photo.

2. NED Site 4 Pump House on beach on western side of island.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

3. NED Site 8 Incinerator.

4. Incinerator box on entry floor of incinerator (NED Site No. 8).

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

5. Fire boxes on bottom floor of Incinerator (NED Site No. 8).

6. Fire boxes on bottom floor of Incinerator (NED Site No. 8).

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

7. Stack on Incinerator (NED Site No. 8).

8. Debris and incinerator ash/slag/waste disposed behind the incinerator leading down to water's edge.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

9. Debris and incinerator ash/slag/waste disposed behind the incinerator leading down to water's edge.

10. Debris and incinerator ash/slag/waste disposed behind the incinerator leading down to water's edge.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

11. Containers at base of Incinerator stack (NED Site No. 8). Location of 08SS-1.

12. NED Site No. 10 Disposal Area 14, southern end.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

13. NED Site No. 10 Disposal Area 14.

14. NED Site No. 10 Disposal Area 14.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

15. NED Site No. 10 Disposal Area 14.

16. NED Site No. 10 Disposal Area 14.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

17. NED Site No. 10 Disposal Area 14.

18. NED Site No. 10 Disposal Area 14.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

19. NED Site No. 11 Quonset/Maintenance Shop area.

20. NED Site No. 12 Maintenance Shop/Garage/Fire Station.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

21. NED Site No. 12 Maintenance Shop/Garage/Fire Station. North side of Fire Station where UST was identified near northeast corner of the building.

22. Boiler inside northeast corner of building associated with UST.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

23. NED Site No. 12 Maintenance Shop/Garage/Fire Station, inside garage or maintenance bay.

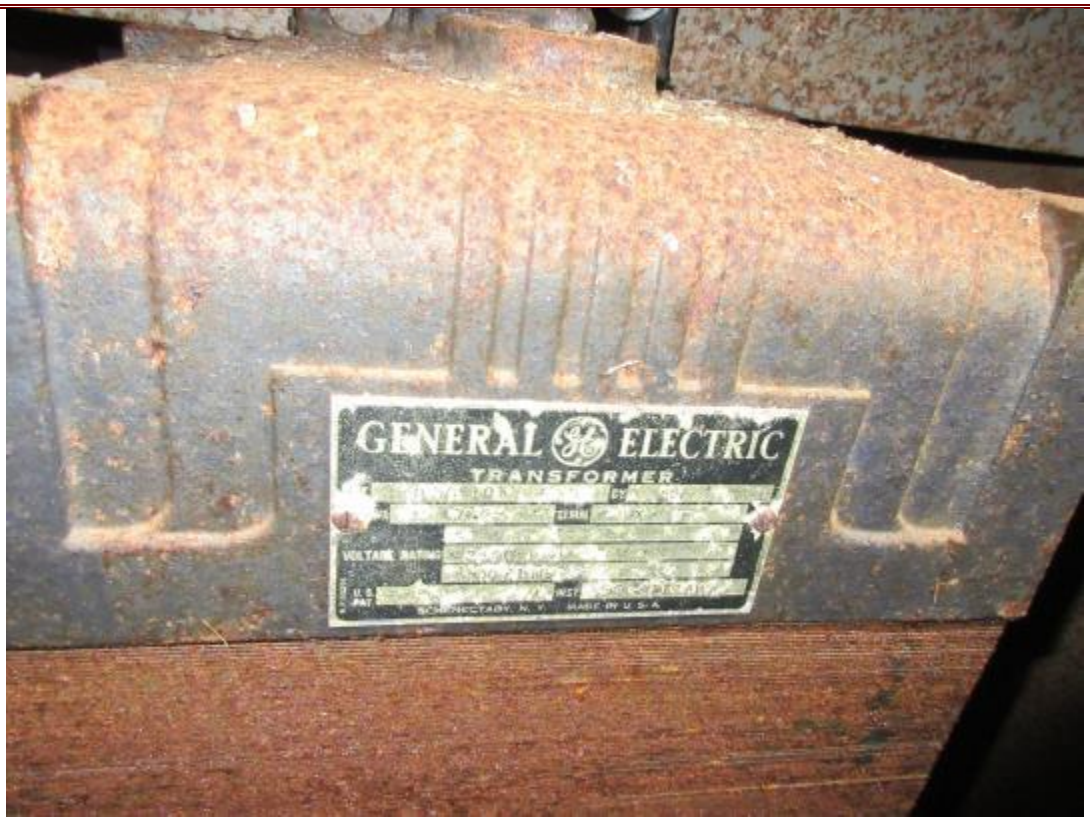
24. NED Site No. 12 Maintenance Shop/Garage/Fire Station, drum outside garage/maintenance bay.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

25. NED Site No. 13 Electric Substation/Transformer Pads.

26. Transformers inside NED Site No. 13 building.

27. Transformers inside NED Site No. 13 building.



28. Transformers inside NED Site No. 13 building.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

29. Pressure reservoir outside NED Site No. 13 in substation yard.

30. NED Site No. 13, pressure reservoir label.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

31. Former location of NED Site No. 16. No barracks building remains.

32. NED Site No. 16 barracks stairs in right of picture with transformer in background.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

33. NED Site No. 16 discarded transformer.

34. NED Site No. 16 discarded transformer.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

35. NED Site No. 16 discarded tranformer label.

36. NED Site No. 21 Bunker #11

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

37. NED Site No. 22 Bunker #12

38. Typical bunker entrance condition.

39. Typical bunker interior condition.

40. Bunkers from back side showing debris and vegetation inhibiting assessment.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

41. Drums and debris in bunkers.

42. Drums and debris in bunkers.

43. Apparent surface water drained observed on multiple occasions from Bunker #11.

44. Observed coal at the surface in NED Site No. 23 Coal Storage South.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

45. NED Site No. 24 Cable Terminal Building.

46. Cables that extent to Cable Terminal Building extending east from island.

47. Buried drum by northwest corner of Cable Terminal Building (NED Site No. 24).

48. NED Site No. 31 presumed gas pit structure.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

49. NED Site No. 27, presumed gas pit structure. Second pit associated with NED Site No. 27 is in background.

50. NED Site No. 27, presumed gas pit structure. Second pit associated with NED Site No. 27 is out of the picture to the left.

51. NED Site No. 28 Ordnance Test Facility Hangar relict foundation.

52. NED Site No. 30 Pyrotechnic Storage foundation on southeast corner of aviation pad.

53. NED Site No. 32 Drum Storage Area *(Note: drums shown are IDW drums and not historical waste drums.)*

54. NED Site No. 33 Oil and Paint Storage Shed. Used a Credere basecamp during RI Field Activities.

55. NED Site No. 43 Boiler House and Ordnance Test Facility location prior to construction of existing aviation pad.

56. NED Site No. 35 Boiler House.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

57. NED Site No. 35 Boiler House stack.

58. NED Site No. 35 Boiler House fire boxes.

59. Transite paneling on most of collapsed boiler house (NED Site No. 35).

60. Tank (1 of 2) outside NED Site 37 Misc. Storage Building.

61. Pipe chase inside NED Site 37 Misc. Storage Building.

62. Valve outside NED Site 37 Misc. Storage Building.

63. Vertical pit between buildings 37 and 38 where UST is suspected.

64. NED Site No. 38 Torpedo Storage building. Front southern bay door entrance.

65. Interior of NED Site No. 38 Torpedo Storage building.

66. Interior of NED Site No. 38 Torpedo Storage building.

67. Transformer house on north end of NED Site No. 38 Torpedo Storage building.

68. Transformer house on north end of NED Site No. 38 Torpedo Storage building.

69. Interior of transformer house on north end of NED Site No. 38 Torpedo Storage building.

70. Interior of building Torpedo Storage building opposite wall of transformer house where electrical pen was observed.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

71. Area between Buildings 37 and 38 where vertical pipe chase suspected to be UST was observed.

72. NED Site No. 39 Well House (Building 62).

73. Pit in NED Site No. 39 Well House.

74. NED Site No. 42 Av Gas Tank and Gasoline Outlet. No residual evidence of tanks.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

75. Pump structure observed in NED Site No 42.

76. NED Site No. 49 Water Tower Pump House.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

77. NED Site No. 49 Water Tower Pump House, boiler.

78. NED Site No. 49 Water Tower Pump House, degraded AST.

79. NED Site No. 49 Water Tower Pump House, boiler transformer.

80. NED Site No. 49 Water Tower Pump House, transformer label.

81. Typical concrete roads used for access throughout the island.

82. High tide on the west beach. Tides limited access to Disposal Area 14 shoreline.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

83. Aviation pad at southern end of island.

84. Typical concrete road in vicinity of fire station.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

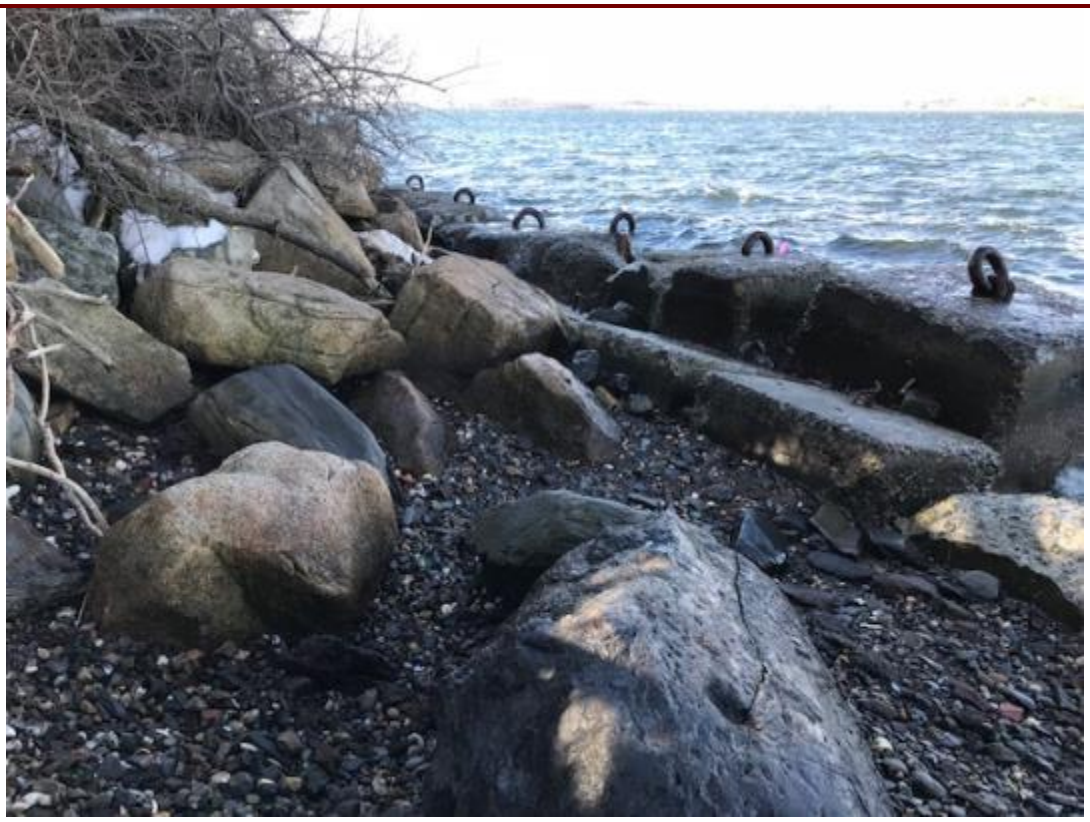
85. Typical concrete roads on western side of island.

86. West beach at low tide. Note large cobbles limiting equipment access to the beach.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

87. Large concrete slabs and blocks on west beach

88. Pipe crossing west beach limiting travel of equipment down the beach at low tide.



89. Large concrete blocks limiting access to central portion of Disposal Area 14. Note tide level relative to blocks.

90. Image showing slope of western side of the island that limited access to portions of Disposal Area 14. Area also highly vegetated.

91. Hager-Richter staff performing the geophysical survey adjacent to NED Site 12.

92. Outline of the UST near the northeast corner of NED Site 12 as marked by Hager-Richter during the geophysical survey.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

93. Outline of suspect UST between buildings 34 and 38.

94. Excavation of suspect UST between buildings 34 and 38.

95. Vertical pipe chase to suspect UST between buildings 34 and 38.

96. Test pit to located suspect UST between buildings 37 and 38.

97. Conducting bedrock drilling at BRMW-1.

98. Conducting bedrock drilling at BRMW-3.

99. Gravel recovered from BRMW-5 borehole.

100. BRMW-3 during setup for well development activities.

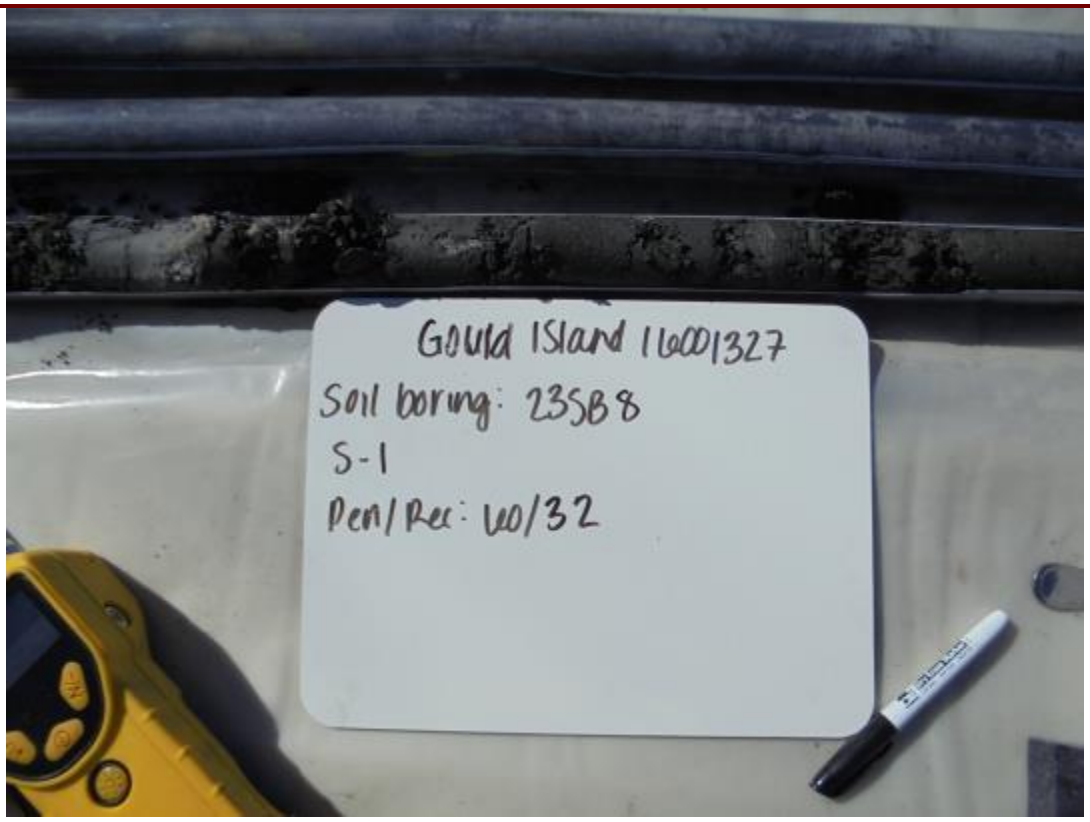
Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

101. BRMW-4 following well completion.

102. BRMW-5 during drilling activities.

103. Rock quality typical of Site.

104. Concrete coring on the aviation pad.



105. A typical soil macrocore collected from the Site.

106. Typical concrete core from the aviation pad.

107. Typical image of weathered bedrock overburden at the Site.

108. Clinker observed beneath the aviation pad.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

109. Typical gray sandy soil encountered beneath the aviation pad.

110. Credere staff characterizing soil during boring at NED Site 1.

111. Ash observed in 10SB4A.

112. Geoprobe drilling at the Boiler House (NED Site 35).

113. Installation of 12OBMW1 by the Fire Station (NED Site 12).

114. Coal comingled with soil in NED Site 23.

115. Typical soil in NED Site 37.

116. Sediment sampling activities off the western shore of Gould Island.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

117. Sediment sampling activities off the western shore of Gould Island.

118. Arrow showing location 10TP1-1 sample location.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

119. Location of 10TP2-1 sample location.

120. Location of 10TP4-1 sample location on south end of concrete blocks.

121. Arrow showing location of 10TP5-1 sample location amongst abundant metal debris.

122. Location of 10TP6 at northernmost accessible extent with the excavator. Note water adjacent at low tide.

123. Rust and metal in sidewall of 10TP6.

124. Location of 10TP7.

125. Petroleum sheen percolating into 10TP7 from approximately 1 foot bgs.

126. Location of 10TP7 facing south.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

127. Location of 10TP8 facing north.

128. Location of 10TP8 facing south.

129. 10TP8 with sheen percolating into excavation from 1 foot bgs.

130. Restored beach after 10TP6, 10TP7 and 10TP8.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

131. Example oily soil from 10TP7 and 10TP8.

132. Shake test for free product in 10TP8 peizometer location. No free product observed, slight sheen.

133. Location of 10PZ3.

134. Location of 10TP9.

Appendix A – Remedial Investigation Photo Log
Gould Island
Narragansett Bay, Jamestown, Rhode Island

135. Location of 10TP10.

136. Location of 10TP12.

137. Location of 10TP13.

138. Concrete pad layout in NED Site 13 substation/transformer pen.

139. Concrete pad layout in NED Site 13 substation/transformer pen.

140. Concrete pad layout in NED Site 13 substation/transformer pen.

141. Concrete pad layout in NED Site 13 substation/transformer pen.

142. Concrete pad layout in NED Site 13 substation/transformer pen.

143. IDW storage for extended island restriction period.

144. IDW storage for extended island restriction period.

APPENDIX B

GEOPHYSICAL SURVEY REPORT

HAGER-RICHTER
GEOSCIENCE, INC.

DRAFT

GEOPHYSICAL SURVEY
REMEDIAL INVESTIGATION
GOULD ISLAND SITE
JAMESTOWN, RHODE ISLAND
CONTRACT NO. W912WJ-16-D-007
TASK ORDER NO. W912-17-F-0039

Prepared for:

Credere Associates, LLC
776 Main Street
Westbrook, Maine 04092

Prepared by:

Hager-Richter Geoscience, Inc.
8 Industrial Way - D10
Salem, New Hampshire 03079

File 18J05
March, 2018

HAGER-RICHTER
GEOSCIENCE,INC.

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March 28, 2018
File 18J05

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Credere Associates, LLC
776 Main Street
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RE: Draft Geophysical Report
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ-16-D-007
Task Order No. W912WJ-17-F-0039

Dear Ms. Drouin:

In this letter, we report the results of a geophysical survey conducted on Gould Island in Jamestown, Rhode Island in February, 2018 by Hager-Richter Geoscience, Inc. (Hager-Richter) in support of the above referenced project for Credere Associates, LLC (Credere) and the US Army Corps of Engineers New England District (CENAE). The scope of the project and areas of interest were specified by Credere.

INTRODUCTION

Gould Island is an approximately 55 acre island located in Narragansett Bay in Rhode Island. The U.S. Navy formerly owned the entire island and constructed barracks, bunkers, powerhouses, pump houses, a water tower, torpedo assemblage and storage buildings, piers, and roads. At present, the Navy only owns the northern end of the island; the remaining approximately 39 acres in the central and south portions of the island were given to the State of Rhode Island and constitute the site for the current remedial investigation. The general location of the site is shown on Figure 1.

Credere requested a geophysical survey in advance of proposed subsurface explorations at the Site. Specifically, Credere required a geophysical surveys to (1) detect, and if detected, mark out the locations of utilities and other subsurface obstructions in the vicinity of approximately one hundred one (101) subsurface investigation locations that were planned for the site; (2) determine whether USTs are present near the northeast corner of Building 12 and between the north ends of Buildings 37 and 38, and if present, mark out their locations; and (3) determine the

boundaries of a waste disposal area identified as Disposal Area # 14. As specified by Credere, the following report only includes the results of the geophysical survey to locate USTs and the limits of the waste disposal area (items 2 and 3 from the above list); the results of the geophysical survey of the one hundred one (101) subsurface exploration locations were marked on the ground and photo-documented at the time of the survey and are not included in this report. Figure 2 shows the locations of the two UST search areas and the Disposal Area # 14 area of interest. The site includes remnants of dilapidated buildings and relict foundations and bunkers and is largely overgrown with brush and trees.

OBJECTIVES

The objectives of the geophysical survey were to (1) detect, and if detected, mark out the locations of utilities and other subsurface obstructions in the vicinity of approximately one hundred one (101) proposed subsurface exploration locations; (2) determine whether USTs are present near the northeast corner of Building 12 and between the north ends of Buildings 37 and 38, and if present, mark out their locations; and (3) determine the boundaries of buried waste at Disposal Area # 14.

THE SURVEY

Jeffrey Reid, P.G., Michael Howley, P.G., Bryan Carnahan, and Steven Grant, P.G., of Hager-Richter conducted the field operations on February 19 - 22, 2018. The project was coordinated with Ms. Allison Drouin of Credere. Mr. Sean McNamara and Mr. Sean Gannon, also with Credere, were present on site, marked and surveyed the locations of the proposed subsurface exploration clearances, and specified the areas of interest for the UST and waste disposal area surveys. Credere provided transportation to and from the island and arranged for brush clearing in the areas of interest. Photographs 1 and 2, below, show the general location and typical conditions at the site.

The geophysical survey was conducted using complementary methods: time domain electromagnetic induction metal detection (EM), ground penetrating radar (GPR), and precision utility location (PUL). Data were acquired where access allowed.

The PUL method was used to search for subsurface utilities in the areas of interest by actively tracing signals applied by direct connections to accessible utility structures such as hydrants, valves, and conduits.

Photograph 1. South end of Gould Island, view to the north.

Photograph 2. Area adjacent to Building 8 (visible on right side of photograph), view to the south. The area in the foreground and center of the photograph have been cleared of brush. The operator is pushing the GPR cart.

For the task of utility locating in the vicinity of the one hundred one (101) proposed subsurface exploration locations, the GPR and PUL methods were used in approximately 20-ft by 20-ft areas of interest centered on the marked boring locations, where access allowed. At many marked boring locations, access was limited by brush, trees, and structures. The locations of detected utilities were marked on the ground with pin flags and spray paint, and Credere was notified of potential utility conflicts with the marked boring locations at the time of the survey. At such locations, the proposed boring location was relocated to avoid the detected subsurface utilities, and in some cases the relocated boring positions were rechecked with the geophysical equipment to ensure they did not conflict with utilities. Credere surveyed the final locations for the proposed borings.

For the task of detecting and marking out the locations of potential USTs, EM61 and GPR data were acquired as access allowed in larger areas of interest that encompassed the suspect areas. The PUL equipment was used to attach to above-ground fuel system infrastructure, where present, to trace out the location of possible subsurface fuel piping. The locations of detected possible USTs were marked on the on the ground at the time of the survey and their locations recorded for later inclusion on a plan.

For the task of determining the limits of buried waste in Disposal Area # 14, EM61 and GPR data were acquired along traverses oriented perpendicular to the expected edge of the waste zone where access allowed. The EM61 and GPR data were examined in real time, and the limits

of the waste area were marked on the ground at the time of the survey based on observed changes in response of the geophysical instruments. The marked limits of the waste disposal area were recorded for later inclusion on a plan.

EQUIPMENT

EM61. The EM survey was conducted using a Geonics EM61-MK2 time domain electromagnetic induction metal detector. The EM61-MK2 instrument was designed specifically for detecting buried metal objects such as utilities, underground storage tanks (USTs), and drums. An air-cored transmitter coil generates a pulsed primary magnetic field in the earth, thereby inducing eddy currents in nearby metal objects. The eddy current produces a secondary magnetic field that is sensed by two receiver coils, one coincident with the transmitter and one positioned 40 cm above the main coil. By measuring the secondary magnetic field after the current in the ground has dissipated but before the current in metal objects has dissipated, the instrument responds only to the secondary magnetic field produced by metal objects. Four channels of secondary response are measured in mV and are recorded on a digital data logger. The system is generally operated by pushing the coils configured as a wagon with an odometer mounted on the axle to trigger the data logger automatically at approximately 8-inch intervals.

GPR. The GPR survey was conducted using a GSSI UtilityScan Dual Frequency digital subsurface imaging radar system. The system includes a survey wheel that triggers the recording of the data at fixed intervals, thereby ensuring the accuracy of the features detected along the survey lines. The system was used with both 800 MHz and 300 MHz antennas. Data were recorded using 45 and 90 ns[1] time windows, respectively.

GPR uses a high-frequency electromagnetic pulse (referred to herein as "radar signal") transmitted from a radar antenna to probe the subsurface. The transmitted radar signals are reflected from subsurface interfaces of materials with contrasting electrical properties. Travel times of the radar signal can be converted to approximate depth below the surface by correlation with targets of known depths. GPR data acquisition is monitored in the field and the GPR data can be digitally recorded for subsequent processing.

PUL. The PUL survey was conducted using a Radiodetection RD 8000 series PUL instrument. The RD 8000 series consists of separate transmitter and receiver. The system can be used in "passive" and "active" modes to locate buried pipes by detecting electromagnetic signals

[1]ns, abbreviation for nanosecond, 1/1,000,000,000 second. Light and the GPR signal require about 1 ns to travel 1 ft in air. The GPR signal requires about 2.5 ns to travel 1 ft in concrete

carried by the pipes. In the "passive" mode, only the receiver unit is used to detect signals carried by the pipe from nearby power lines, live signals transmitted along underground power cables, or very low frequency radio signals resulting from long wave radio transmissions that flow along buried conductors. In the "active" mode of operation, the transmitter is used to induce a signal on a target pipe, and the receiver is used to trace the signal along the length of the pipe. Our system uses a 10W transmitter.

LIMITATIONS OF THE METHODS

HAGER-RICHTER GEOSCIENCE, INC. MAKES NO GUARANTEE THAT ALL TARGETS OF INTEREST WERE DETECTED IN THIS SURVEY. HAGER-RICHTER GEOSCIENCE, INC. IS NOT RESPONSIBLE FOR DETECTING TARGETS OF INTEREST THAT NORMALLY CANNOT BE DETECTED BY THE METHODS EMPLOYED OR THAT COULD NOT BE DETECTED BECAUSE OF SITE CONDITIONS.

Field mark-outs. Utilities detected by the PUL method at the time of the survey are marked in the field, and the operator makes every attempt, field conditions permitting, to detect and mark as many utilities as possible at the time of the survey. Adverse weather and site conditions (rain, snow, snow and soil piles, uneven surfaces, high traffic, etc.) can hamper in-field interpretation. Mark-outs made on wet pavement, snow, snow piles, gravel surfaces, or in active construction zones may not last. Hager-Richter Geoscience, Inc. is not responsible for maintaining utility mark-outs after leaving the work area.

EM61. The EM61 cannot detect non-metallic objects. The data from an EM61 survey are adversely affected by surface metal. The EM61 has a depth sensitivity limited to about 12 feet. The instrument is relatively cumbersome, and works best where the transmit and receive coils can be hand pushed in a small wagon.

Detection and identification should be clearly differentiated. Detection is the recognition of the presence of a metal object, and the electromagnetic method is excellent for such purposes. Identification, on the other hand, is determination of the nature of the causative body (i.e., what is the body -- a cache of drums, UST, automobile, white goods, etc.?). Although the EM data cannot be used to *identify* all buried metal objects, they provide excellent guides to the identification of some objects. For example, buried metal utilities produce anomalies with lengths many times their widths.

GPR. There are limitations of the GPR technique as used to detect and/or locate targets such as those of the objectives of this survey. Limitations include: (1) surface conditions, (2) electrical conductivity of the ground, (3) contrast of the electrical properties of the target and the surrounding soil, and (4) spacing of the traverses. Of these restrictions, only the last is controllable by us.

The condition of the ground surface can affect the quality of the GPR data and the depth of penetration of the GPR signal. Sites covered with snow piles, high grass, bushes, landscape structures, debris, obstacles, soil mounds, etc. limit the survey access and the coupling of the GPR antenna with the ground. In many cases, the GPR signal will not penetrate below concrete pavement, especially inside buildings, and a target may not be detectable. The GPR method also commonly does not provide useful data under canopies found at some facilities.

The electrical conductivity of the ground determines the attenuation of the GPR signal and thereby limits the maximum depth of exploration. For example, the GPR signal does not penetrate clay-rich soils, and targets buried in clay might not be detected.

A definite contrast in the electrical conductivities of the surrounding ground and the target material is required to obtain a reflection of the GPR signal. If the contrast is too small, possibly due to construction details or deeply corroded metal in the target, then the reflection may be too weak to recognize and the target can be missed.

Spacing of the traverses is limited by access at many sites, but where flexibility of traverse spacing is possible, the spacing is adjusted to the size of the target. The GPR operator controls the spacing between lines, and the design of the survey is based on the dimensions of the smallest feature of interest. Targets with dimensions smaller than the spacing between GPR survey lines can be missed.

PUL. The PUL equipment cannot detect non-metallic utilities, such as pipes constructed of vitrified clay, transite, plastic, PVC, and unreinforced concrete, when used in passive mode alone. Such pipes can be detected if a wire tracer is installed with access to such tracer for transmission of a signal or where access (such as floor drains and clean-outs) permits insertion of a device on which a signal can be transmitted. In some, but not all cases, the subsurface utility designation equipment cannot detect metal utilities reliably under reinforced concrete because the signal couples onto the metal reinforcing in the concrete. Similarly, the method commonly cannot be used adjacent to grounded metal structures such as chain link fences and metal guardrails. In congested areas, where several utilities are bundled or located within a short distance of each other, the signal transmitted on one utility can couple onto adjacent utilities, and the accuracy of the location indicated by the instrument decreases.

RESULTS

The geophysical survey to detect USTs and delimit areas of buried waste was conducted using EM61, GPR, and PUL methods across the accessible portions of the specified areas of interest at the site. Figure 2 shows the locations of the specified areas of interest. Figures 3 and 4 show the results of the geophysical survey to locate USTs north of Building 12 and between Buildings 37 and 38, respectively. Figure 5 shows the results of the geophysical survey to determine the limits of buried waste in Disposal Area 14. Figure 6 shows example GPR records from traverses across a UST.

Utilities, including water, drain, and unidentified utilities, detected in the areas of interest surrounding the one hundred one (101) proposed subsurface exploration locations were marked on the ground at the time of the survey, the borings relocated, if necessary, and photo-documented. The final cleared exploration locations were marked on the ground and recorded by Credere. Results of the exploration clearances are not included in this report.

General. The EM61 data were acquired where access allowed in the survey areas. Interpretation of EM61 data is based on the *relative* response of the instrument in millivolts to local conditions. The instrument is not calibrated to provide an absolute measure of a particular property, such as the conductivity of the soil or the strength of the earth's magnetic field. Subsurface metal objects produce sharply defined positive anomalies when the EM61 is positioned directly over them. Buried metal is recognized in EM61 data by positive anomalies with spatial dimensions roughly corresponding to the dimensions of the buried metal.

Apparent GPR signal penetration was generally good at the site, with two-way traveltime reflections received from 20 - 40 nanoseconds of the 64 ns time window for the 300 MHz antenna in most areas surveyed. Based upon site-specific velocity matching calibrations made for the site, the GPR signal penetration in most of the area of interest is estimated to have been about 3 - 6 feet.

UST Search Northeast of Building 12. EM61, GPR, and PUL data were acquired in an area of interest located at the northeast corner of Building 12, in an area where Credere suspected a UST might be present. Reflections consistent with those expected for a UST were evident in the GPR data for an area that contained a moderate to high amplitude EM anomaly, and we infer that a UST might be present at this location. The probable UST is located a few feet northeast of an exposed utility trench connecting two parts of Building 12. The UST is approximately 5 feet by 11 feet in size and approximately 2 feet deep. The location of the probable UST was marked with yellow paint and pin flags in the field and is shown as a brown box in Figure 3. Example

GPR records from the probable UST located northeast of Building 12 are shown in Figure 6. Photograph 3 shows the UST markout in the field.

An area of buried metal was located at the corner of Building 12, the limits marked with yellow paint and pin flags, and its location is shown in Figure 3. GPR reflections consistent with discrete objects or structures were not received from the area of buried metal, possibly indicating the EM anomaly is caused by scattered metal debris. In addition, water and unidentified utilities were detected in the area of interest, and their locations are shown on Figure 3.

Photograph 3. Northeast of Building 12, view to the east. Building 12 is on the right of the photograph. The probable UST detected in the area of interest is marked with yellow pin flags in the foreground. An area of buried metal is marked with yellow flags in the background, surrounding the operator.

Photograph 4. Between Buildings 37 and 38, view to the south. Buildings 37 and 38 are on the left and right of the photograph, respectively. The probable UST detected in the area of interest is marked with yellow pin flags in the center of the photograph. The green flags in the bottom left of the photograph mark the limit of a septic vault, and the pink flags mark possible utilities.

UST Search Between Buildings 37 and 38. GPR and PUL data were acquired in an area of interest located between Buildings 37 and 38, in an area where Credere suspected a UST might be present. Interference from metal in the adjacent buildings precluded the use of the EM61 in this area. Reflections consistent with those expected for a UST were evident in the GPR data for this area, and we infer that a UST might be present at this location. The UST is approximately 7 feet by 24 feet in size and approximately 3 to 5 feet deep. The location of the probable UST was marked with yellow pin flags in the field and is shown as a brown box in Figure 4. Photograph 4 shows the UST markout in the field.

A drainage vault was detected under a shallow layer of leaf detritus and soil and its location is also shown on Figure 4. In addition, several unidentified utility segments were detected and their locations are shown on Figure 4.

Limits of Waste in Disposal Area #14. EM61 and GPR data were acquired where access permitted in an area of interest identified as Disposal Area 14. Historic records indicated that waste had been buried in an area located west and under an access road identified as West Road and extending approximately 360 feet south of Building 8 (Incinerator). Credere wanted to confirm the limits of waste.

EM61 and GPR data were acquired along traverses oriented perpendicular to the expected limits of waste in the area of interest. Along the EM61 traverses, in areas not subject to interference from surface metal objects, the approximate locations where the EM response transitioned from background values to moderate to high amplitude EM values were determined and marked in the field, and are interpreted to represent the limit of waste. The limits for the areas of waste as determined by the EM61 method are shown on Figure 5. The GPR method was not successful at determining the limits of waste.

Areas of waste are interpreted to be present on both sides of West Road. The locations of the areas of waste are shown on Figure 5 and the coordinates of their limits are listed in the Appendix. The western area of waste extended westward from West Road to at least the top of the steep bank above the beach, in an area extending about 320 feet south of Building 8. It was not possible to determine the western limit of the buried waste because vegetation and the steep cliff limited access. The eastern area of waste extended eastward from West Road to the toe of a hill, in an area that extended about 220 feet south of an east-west oriented crossroad that intersects with West Road south of Building 8. Buried waste was not detected in the northeast quadrant of the intersection of the crossroad with West Road or in the subsurface below the concrete roadways. In addition, water, drain, and unidentified lines were detected in the area of interest, and their locations are shown in Figure 5.

Whether additional USTs, utilities, areas of waste, or other structures occur at a depth greater than the effective depth of penetration of the GPR signal or in areas inaccessible to the geophysical survey cannot be determined from the geophysical data.

CONCLUSIONS

Based on the geophysical survey conducted by Hager-Richter Geoscience, Inc. at the Gould Island Site in Jamestown, Rhode Island, we conclude that:

- A probable UST and an area of buried metal are present on the north side of Building 12.
- A probable UST is present between Buildings 37 and 38.
- The limits of buried waste were determined in Disposal Area 14.
- Water, drain, and unidentified utilities were located in the above areas of interest

LIMITATIONS ON THE USE OF THIS REPORT

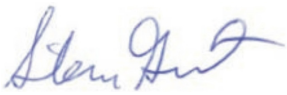
This letter report was prepared for the exclusive use of Credere Associates, LLC and the US Army Corps of Engineers New England District (collectively, Client). No other party shall be entitled to rely on this Report or any information, documents, records, data, interpretations, advice or opinions given to Client by Hager-Richter Geoscience, Inc. (Hager-Richter) in the performance of its work. The Report relates solely to the specific project for which Hager-Richter has been retained and shall not be used or relied upon by Client or any third party for any variation or extension of this project, any other project or any other purpose without the express written permission of Hager-Richter. Any unpermitted use by Client or any third party shall be at Client's or such third party's own risk and without any liability to Hager-Richter.

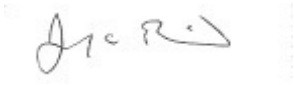
Hager-Richter has used reasonable care, skill, competence and judgment in the performance of its services for this project consistent with professional standards for those providing similar services at the same time, in the same locale, and under like circumstances. Unless otherwise stated, the work performed by Hager-Richter should be understood to be exploratory and interpretational in character and any results, findings or recommendations contained in this Report or resulting from the work proposed may include decisions which are judgmental in nature and not necessarily based solely on pure science or engineering. It should be noted that our conclusions might be modified if subsurface conditions were better delineated with additional subsurface exploration including, but not limited to, test pits, soil borings with collection of soil and water samples, and laboratory testing.

Except as expressly provided in this limitations section, Hager-Richter makes no other representation or warranty of any kind whatsoever, oral or written, expressed or implied; and all implied warranties of merchantability and fitness for a particular purpose, are hereby disclaimed.

If you have any questions or comments on this letter report, please contact us at your convenience. We look forward to working with you again in the future.

Sincerely yours,
HAGER-RICHTER GEOSCIENCE, INC.

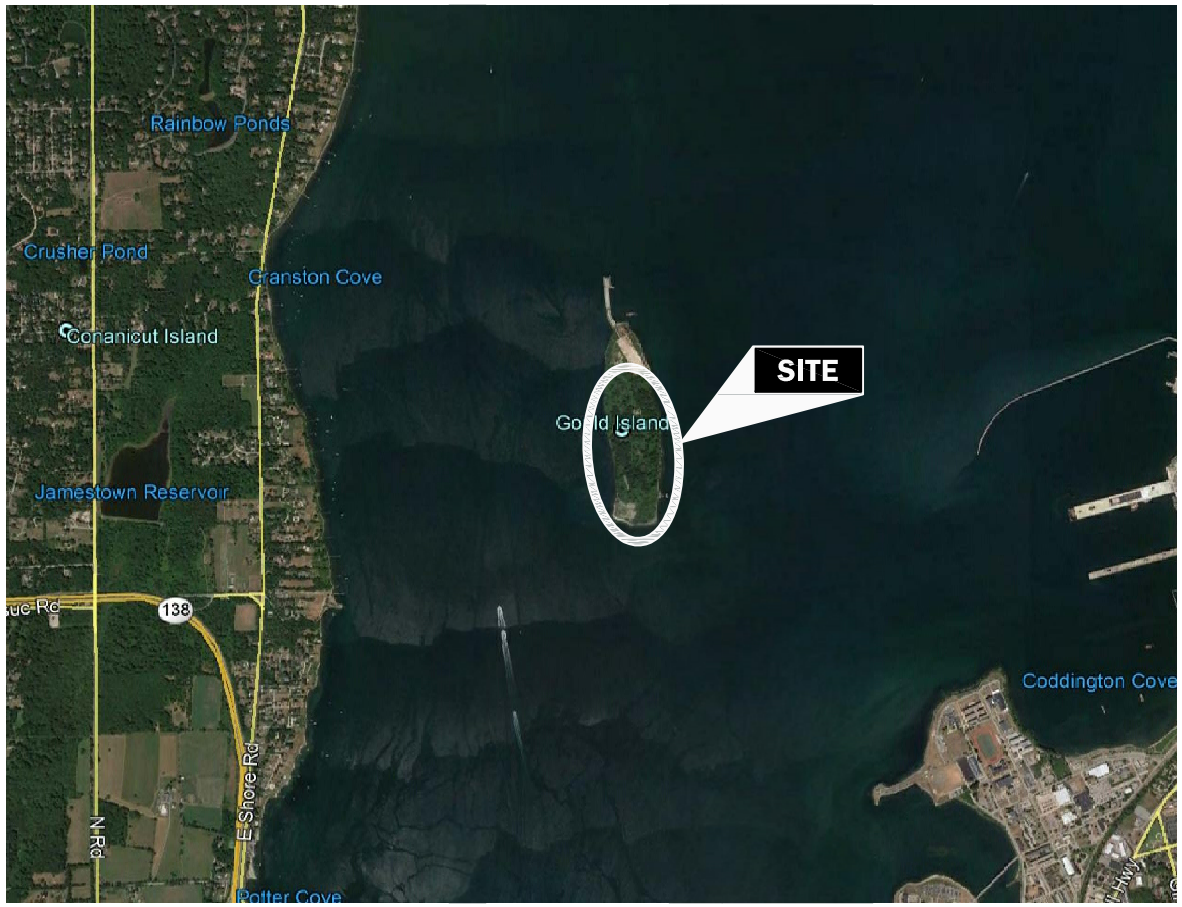




Steven Grant, P.G.
Senior Geophysicist

Jeffrey Reid, P.G.
Owner / Principal Geophysicist

Attachments: Figures 1 - 6
Appendix - Coordinates for the Limits of Buried Waste in Disposal Area #14



DRAFT

NOTE:

Modified from Google Earth Pro aerial photograph.

RI

LOCATION

N

H-R

DRAFT

APPROXIMATE SCALE (feet)

0 3000 6000

Figure 1
General Site Location
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ-16-D-007
Task Order No. W912WJ-17-F-0039

File 18J05	March, 2018

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NOTE:

Modified from site plan provided by Credere Associates, LLC, identified Gould Island Remedial Investigation QAPP Stakeholder Draft 2017–12–22 (page 134).pdf.

LEGEND

APPROXIMATE LIMITS OF GEOPHYSICAL SURVEY AREA

SCALE (feet)

0 300 600

Figure 2
Survey Area Locations
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ–16–D–007
Task Order No. W912WJ–17–F–0039

File 18J05 | March, 2018

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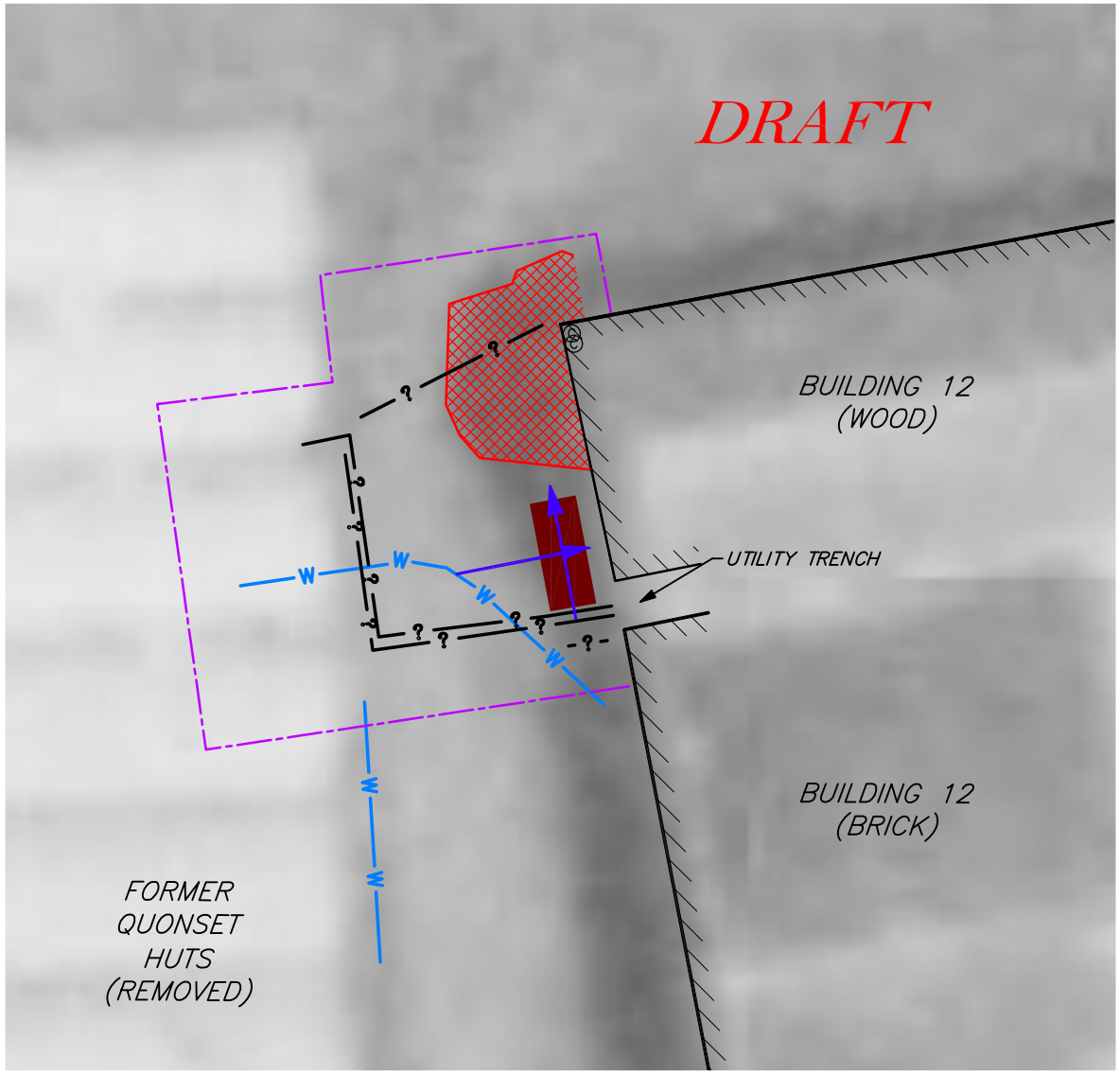

N APPROX.

H-R

LEGEND

- APPROXIMATE LIMITS OF GPR SURVEY AREA
- GPR TRAVERSE SHOWN IN FIGURE 6
- PROBABLE UST
- AREA OF POSSIBLE BURIED METAL
- W — WATER LINE
- ? — POSSIBLE UTILITY – MARKED IN FIELD
- © CONDUIT

NOTE:

Modified from National Environmental Title Research, LLC, historical imagery.

SCALE (feet)

0 20 40

Figure 3
UST Search – Building 12
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ–16–D–007
Task Order No. W912WJ–17–F–0039

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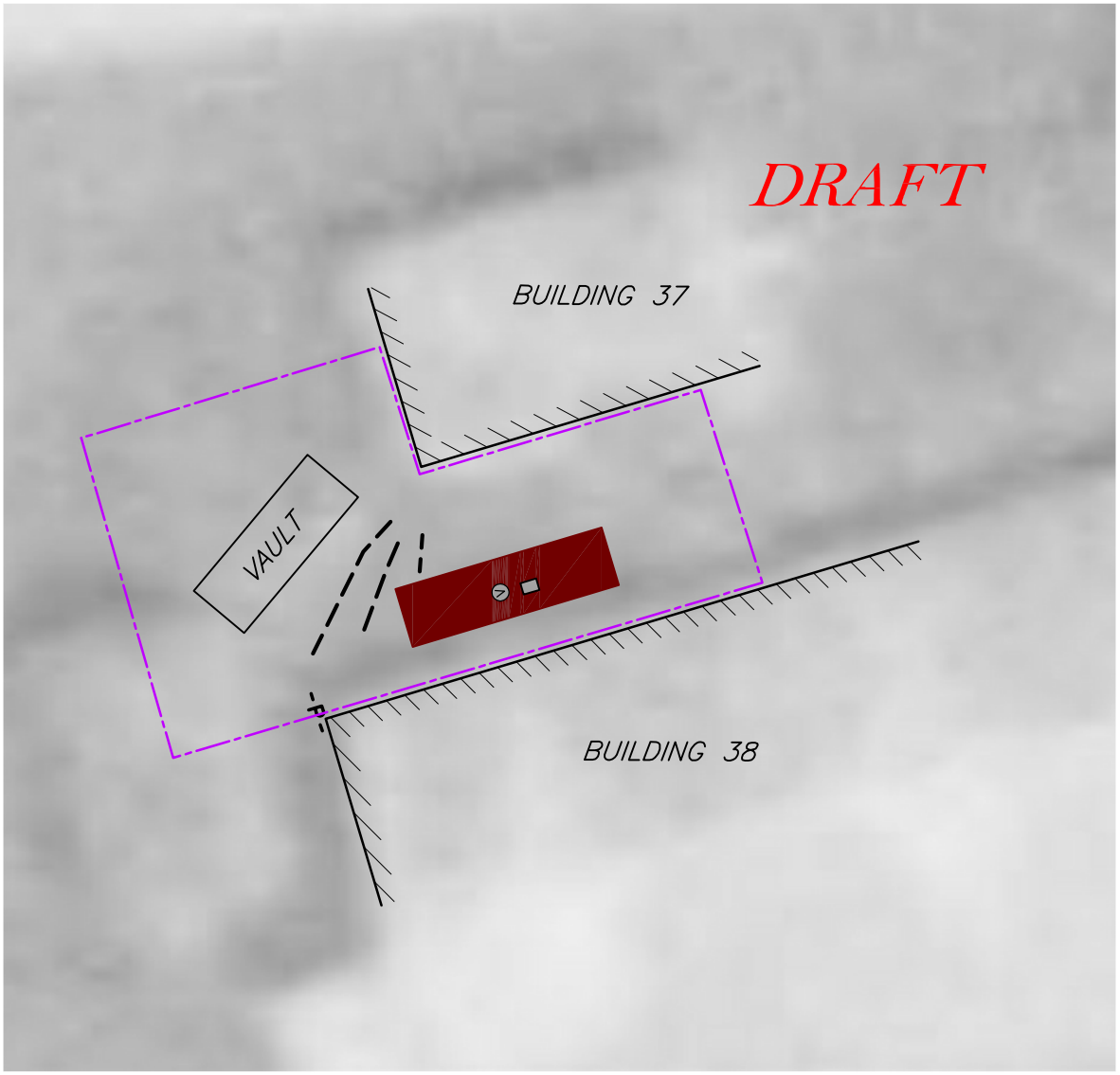

N — H-R — APPROX.

LEGEND

- APPROXIMATE LIMITS OF GPR SURVEY AREA
- PROBABLE UST
- POSSIBLE UTILITY
- -P- EXPOSED PIPE
- Ⓥ VENT PIPE
- VENT OPENING

NOTE:

DRAFT

Modified from National Environmental Title Research, LLC, historical imagery.

SCALE (feet)

0 20 40

Figure 4
UST Search – Buildings 37 & 38
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ-16-D-007
Task Order No. W912WJ-17-F-0039

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DRAFT

DRAFT

NO ACCESS

ACCESS ROAD

D

W

ACCESS ROAD

ACCESS ROAD

ONE INCH PIPE AT SURFACE

NO ACCESS

BUILDING 8

?

NO ACCESS

ONE INCH PIPE AT SURFACE

NO ACCESS

N

H-R

APPROX.

DRAFT

SCALE (feet)

0 30 60

NOTE:

Modified from National Environmental Title Research, LLC, historical imagery.

LEGEND

- APPROXIMATE LIMITS OF GPR SURVEY AREA
- APPROXIMATE DISPOSAL AREA
- WATER LINE
- DRAIN LINE
- POSSIBLE UTILITY – MARKED IN FIELD
- HYDRANT

Figure 5
Waste Limits – Disposal Area 14
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ–16–D–007
Task Order No. W912WJ–17–F–0039

File 18J05 | March, 2018

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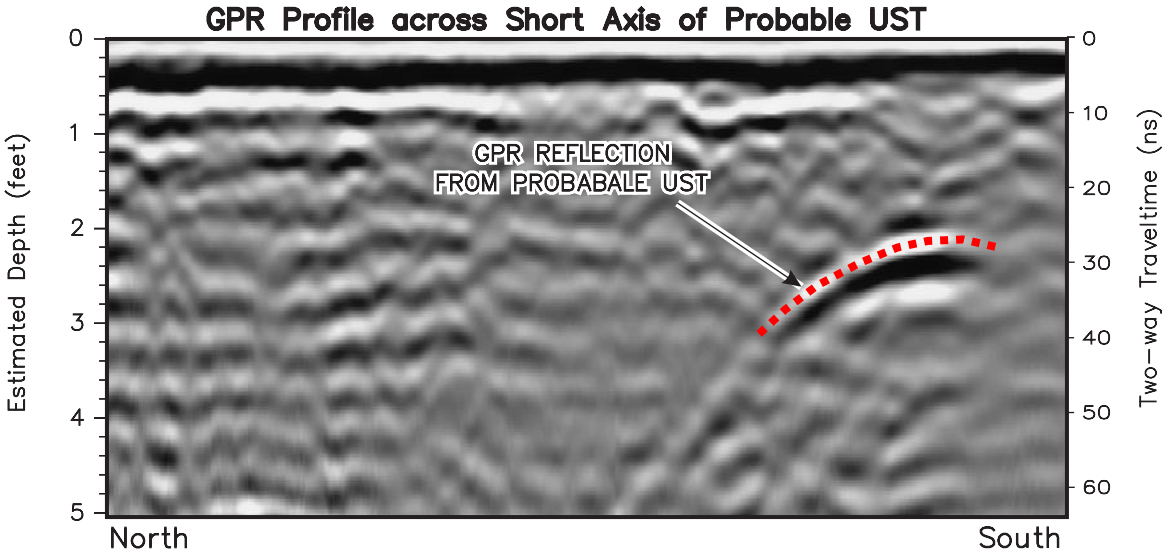

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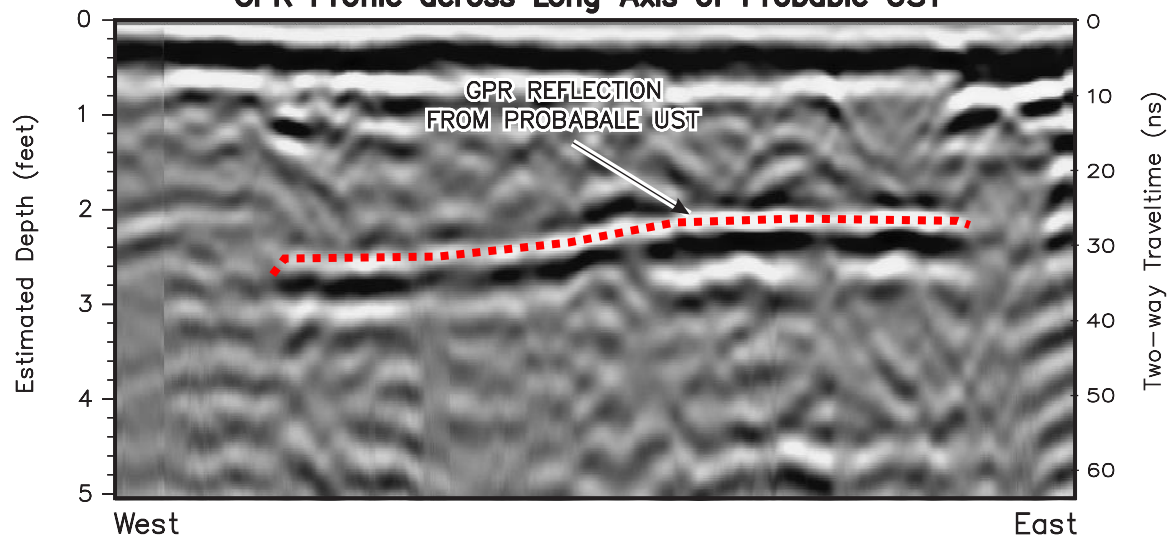

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NOTES

1. GPR records shown ere acquired using a GSSI SIR 4000 GPR System and a 300 MHZ Hyperstacking antenna.

2. Estimated depths represent distance below ground surface.

3. Estimated depth scale shown on the GPR records was calculated using a GPR signal propagation velocity of 0.311 ft/ns, as calibrated from analyses of hyperbolic reflections.

4. Location of example profiles shown on Figure 3.

Figure 6
Example GPR Sections
Remedial Investigation
Gould Island Site
Jamestown, Rhode Island
Contract No. W912WJ-16-D-007
Task Order No. W912WJ-17-F-0039

FILE 18J05	March, 2018

HAGER-RICHTER GEOSCIENCE, INC.
Salem, NH | Fords, NJ

APPENDIX
COORDINATES FOR THE LIMITS OF BURIED WASTE IN DISPOSAL AREA #14

APPENDIX
COORDINATES FOR LIMITS OF BURIED WASTE DETECTED IN DISPOSAL AREA #14 GOULD ISLAND SITE JAMESTOWN, RHODE ISLAND

Waste Area West of West Road			
Easting (Feet)	Northing (Feet)	Easting (Feet)	Northing (Feet)
370354.63	163860.25	370371.77	164051.76
370368.11	163864.01	370371.69	164058.51
370371.58	163868.41	370363.50	164111.52
370363.59	163905.12	370356.31	164125.88
370369.48	163955.27	370352.41	164147.07
370366.48	163977.35	370349.25	164158.43
370360.55	164007.89	370341.20	164163.73
370361.12	164019.22	370323.11	164166.35

Waste Area East of West Road			
Easting (Feet)	Northing (Feet)	Easting (Feet)	Northing (Feet)
370398.55	163854.97	370467.65	164065.24
370401.63	163860.48	370467.35	164070.91
370398.71	163893.82	370424.70	164072.49
370401.88	163902.12	370409.12	164070.51
370402.38	163918.96	370396.87	164063.24
370411.69	163939.27	370392.28	164053.65
370419.69	163959.53	370389.27	164034.91
370416.74	163974.33	370384.16	164034.02
370420.78	163980.45	370388.20	163956.07
370416.26	163998.63	370391.45	163918.03
370413.57	164006.77	370394.15	163893.61
370430.79	164030.34	370395.92	163880.93
370432.76	164047.01	370398.55	163854.97
370455.50	164051.25		

The easting and northing coordinates are relative to Rhode Island State Plane NAD83 (CORS96) in US survey feet.

APPENDIX C

BEDROCK MONITORING WELL SOIL BORING LOGS

Credere Associates, LLC
776 Main Street
Westbrook, Maine 04092
Phone: 207-828-1272
Fax: 207-887-1051

Boring Log

BRMW-1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** S. Gannon/Rick V.
DEPTH TO WATER* 17.48' bgs **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Joe Keenan
WELL MATERIALS PVC, Steel casing
DRILLING METHOD Hollow Stem Auger, Air Hammer, Roller Bit, Coring
ANNULUS MATERIALS #1 Silica Sand
DRILLING EQUIPMENT CME 850X ATV
TOC ELEVATION 29.34 **GROUND ELEVATION** 26.90
NOTES 4" Steel casing installed at 20 feet below ground surface (bgs). Elevations are in AMSL

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY
0	24/12	WOH-2	0.1				0-12" Dark gray fine SAND and SILT, trace subrounded fine Gravel, loose, moist (SM)
		4 4	0.1				0-7" Dark gray fine SAND and SILT, trace subrounded fine Gravel, loose, moist (SM)
	24/13	7 7	0.1				7-13" Light brown very fine to fine SAND, trace Coal, moist, loose (SP)
		6 4	0.1				
	24/8	3 4	0.4				0-8" Light brown fine SAND, some Silt, trace subrounded fine gravel, loose, moist (SP)
5		4 5	0.4				
	24/18	7 16	0.4				0-18" Dark brown/light gray fine SAND and SILT, trace subangular fine Gravel, moist, dense (SM)
		20 19	0.4				
	24/21	6 13	0.6				0-21" Medium gray fine SAND and SILT, some subangular fine Gravel, little subangular coarse Gravel, moist, dense (SM)
		17 18	0.3				
10	11/11	10 50/5	0.11				0-11" Dark gray fine SAND and SILT, trace subangular fine Gravel, little subangular coarse Gravel, moist, dense (SM) 10.92-14' Medium gray PHYLLITE, weathered, petroleum odor noted
							14-20' Medium gray PHYLLITE, competent
15							
20				0	1'30"	NA	20-26' GRAVEL (3/4" to 1"), rounded to subangular, highly unconsolodated; bottom 7" - Medium gray PHYLLITE; Coring Data: 300lbs down pressure, 700 RPM
				0	53"	NA	
				0	2'16"	NA	
				0	2'25"	NA	
				0	2'46"	NA	

Graphic Log

WELL DIAGRAM

Well Finish: Stick Up (29")

- Steel Casing
- Portland Type 1/2 Grout with 10% CETCO Super Gel-X Bentonite
- Bentonite
- #1 Silica Sand

Credere Associates, LLC
776 Main Street
Westbrook, Maine 04092
Phone: 207-828-1272
Fax: 207-887-1051

Boring Log

BRMW-1

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
25							26'-35' Medium gray PHYLLITE, some Quartz veins, soft.		
30									
35							35'-56' Medium gray PHYLLITE, very soft. Drilling Data: Roller bit drilling 700 RPM, 500lbs down pressure.		2" .010 Schedule 40 PVC
40									
45									
50									

Credere Associates, LLC
776 Main Street
Westbrook, Maine 04092
Phone: 207-828-1272
Fax: 207-887-1051

Boring Log

BRMW-1

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
55									
							End of boring at 56 feet below ground surface		
60									
65									
70									
75									
80									

Credere Associates, LLC
776 Main Street
Westbrook, Maine 04092
Phone: 207-828-1272
Fax: 207-887-1051

Boring Log

BRMW-2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** S. Gannon/Rick V.
DEPTH TO WATER* 4.23' bgs **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Joe Keenan
WELL MATERIALS PVC, Steel Casing
DRILLING METHOD Hollow Stem Auger, Air Hammer, Roller Bit, Coring
ANNULUS MATERIALS #1 Silica Sand
DRILLING EQUIPMENT CME 850X ATV
TOC ELEVATION 12.35 **GROUND ELEVATION** 10.38
NOTES 4" Steel casing installed at 7 feet below ground surface (bgs). Elevations are in AMSL

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY
0	5/5	50/5	0				0-12" Concrete
							0-2" Dark gray SAND and SILT, some angular fine Gravel (weathered bedrock), wet, very dense (SM)
							2-5" Fractured, weathered ROCK (Phyllite), Rock flour, Dry
							1.42-8.5' Medium gray PHYLLITE, (Air Hammer Advanced)
5							
							8.5-9' Medium gray PHYLLITE (Roller Bit Advanced)
				29%	2	80%	9-14' Medium gray PHYLLITE, jointed and fractured, some mechanical fractures from coring. Coring Data: Downpressure: 500 lbs, RPM: 720
10					4		
					2.5		
					6		
					8		
				50%	3	100%	14-19' Medium gray PHYLLITE, jointed and fractured, fractures are significantly iron stained. Coring Data: Downpressure: 500 lbs, RPM: 720
15					2.5		
					2.5		
					3.5		
					3		
				42%	2.5	95%	19-24' Medium gray PHYLLITE, jointed and fractured, fractures are significantly iron stained. Some mechanical fractures from coring. Coring Data: Downpressure: 500lbs, RPM: 720
20					4		
					3		
					6		
					8.5		
				50%	5	80%	24-29' Medium gray PHYLLITE, fractured and iron stained, some mechanical fractures from coring, Quartz vein from

Graphic Log

WELL DIAGRAM

Well Finish: Stick Up (23.6")

- Steel Casing
- Portland Type 1/2 Grout with 10% CETCO Super Gel-X Bentonite
- Bentonite
- #1 Silica Sand
- 2" .010 Schedule 40 PVC

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Boring Log

BRMW-2

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
25					5.5		0-0.5. Coring Data: Downpressure: 500lbs, RPM: 720		
					4.5				
					4.5				
					3				
							End of boring at 29 feet below ground surface		
30									
35									
40									
45									
50									

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Boring Log

BRMW-3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/6/18 **LOGGED BY** S. Gannon/Rick V. **DEPTH TO WATER*** 13.74' bgs **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Joe Keenan
WELL MATERIALS PVC, Steel Casing
DRILLING METHOD Hollow Stem Auger, Coring
ANNULUS MATERIALS #1 Silica Sand
DRILLING EQUIPMENT CME 850X ATV
TOC ELEVATION 18.27 **GROUND ELEVATION** 14.80
NOTES 4" Steel casing installed at 30 feet below ground surface (bgs). Elevations are in AMSL

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
									Well Finish: Stick Up (41.6")
0	24/14	3 3 4 6	0.0 0.0				0-14" Dark brown fine SAND and SILT, little subrounded fine gravel, moist, loose [topsoil]		
	24/13	12 14 2 2	0.0 0.0				0-5" Light brown fine SAND and SILT, moist, medium dense (SM) 5-9" Light gray fractured ROCK/ROCK FLOUR (shale), dry		
	24/13	3 3 2 3	0.0 0.0				9-14" Light brown fine SAND and SILT, trace subrounded fine Gravel, moist, medium dense, metal debris present (SM) 0-2" Light brown fine SAND and SILT, trace subangular fine gravel, moist, loose (SM)		
5							2-5" Dark brown/black fine SAND, moist, loose (SP)		← Steel Casing
	24/17	5 8 8 9	0.0 0.0				5-11" Light brown fine SAND and SILT, trace subrounded fine Gravel, moist, loose (SM) 11-13" Dark brown fine SAND and SILT, little subrounded fine Gravel, moist, loose (SM)		
	24/17	4 8 13 13	0.1 0.1				0-17" Gray/brown fine SAND and SILT, little subangular fine Gravel, moist, medium dense, band of fractured rock at 13-15" (SM)		
10	24/17	3 5 7 7	0.1 0.1				0-17" Dark gray fine SAND and SILT, trace subangular fine Gravel, medium dense, moist, trace subrounded coarse Gravel (SM) 0-17" Dark gray fine SAND and SILT, some subrounded fine Gravel, little subrounded coarse Gravel, moist medium dense (SM)		
	24/17	11 5 6 6	0.1 0.1				0-17" Dark gray fine SAND and SILT, some subrounded fine Gravel, little subrounded coarse Gravel, some subangular to angular coarse Sand, medium dense, moist (SM)		
	16/13	18 29 50/4	0.1				0-5" Dark gray SILT and CLAY, some fine Sand, little subrounded fine Gravel, wet, very dense (CL-ML)		← Portland Type 1/2 Grout with 10% CETCO Super Gel-X Bentonite
15							5-13" Fractured ROCK/weathered BEDROCK (phyllite), wet, very dense (to refusal) 16-19' Advanced with hollow stem auger no split spoon sampling; no recovery		
20							19-30.5' Medium gray PHYLLITE, Advanced with Air Hammer		

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Boring Log

BRMW-3

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
25									
									Bentonite
30				17%	4	100%	30.5- 35.5' Medium gray PHYLLITE, no obvious joints/fractures		#1 Silica Sand
					6				
					6				
					6				
					6				
35				21.4%	3'40"	60%	35.5-40.5' Medium gray PHYLLITE, some joints/fractures (small scale)		
					3'43"				
					4'47"				
					3'24"				
					5'43"				
40				40.4%	3'57"	100%	40.5-45.5' Medium gray PHYLLITE, some mechanical fractures from coring; Coring Data: Downpressure: 500 lbs, +/- 720 RPM		2" .010 Schedule 40 PVC
					4'00"				
					5'25"				
					3'00"				
					4'00"				
45				59.5%	2'11"		45.5-50.5' Medium gray PHYLLITE, some vertical joint fracture sets, some Quartz veins. Coring Data: Downpressure: 500lbs, +/- 720 RPM. Notes: 3rd foot clogged bit with rock flour which stopped progress.		
					3'15"				
					8'16"				
					3'47"				
					1'44"				
50							End of boring at 50.5 feet below ground surface.		

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Boring Log

BRMW-4

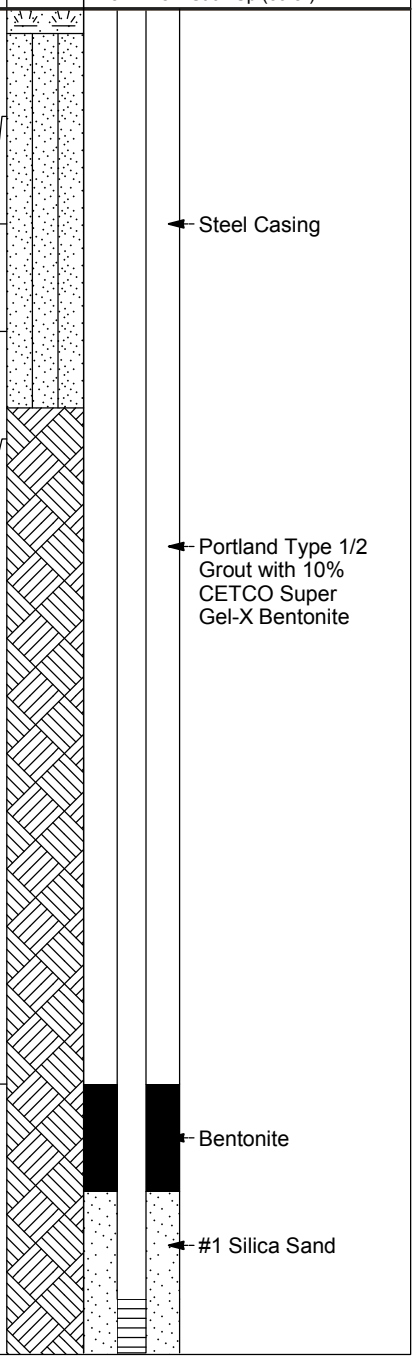
CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** S. Gannon/Rick V.
DEPTH TO WATER* 19.11' bgs **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Joe Keenan
WELL MATERIALS PVC, Steel Casing
DRILLING METHOD Hollow Stem Auger, Air Hammer, Coring
ANNULUS MATERIALS #1 Silica Sand
DRILLING EQUIPMENT CME 850X ATV
TOC ELEVATION 36.51 **GROUND ELEVATION** 33.19
NOTES 4" Steel casing installed at 20 feet below ground surface (bgs). Elevations are in AMSL

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY
0	24/13	1 2	0				0-3" Topsoil 3-12" Dark brown fine SAND and SILT, trace subangular fine Gravel, moist, very loose (SM)
		1 2	0				
	24/16	3 4	0				12-13" Light gray fine SAND and SILT, some subrounded fine Gravel, moist, very loose (SM)
		7 8	0				0-16" Light gray fine SAND and SILT, little subrounded fine Gravel, moist, medium dense (SM)
	24/20	7 10	0.1				0-20" Dark gray fine SAND and SILT, little subangular fine Gravel, moist, medium dense (SM)
5		12 10	0				
	24/24	19 18	0				0-17" Dark gray fine SAND and SILT, some subangular fine Gravel, dense, moist (SM)
		17 24	0				17-24" Dark gray PHYLLITE and fractured and weathered BEDROCK, Rock Flour/fine to coarse Sand.
							8-20' Dark gray PHYLLITE; (Air hammer 8 to 20 feet)
10							
15							
20				45%	3	100%	20-25' Dark gray PHYLLITE, weathered/iron straining on joints/fractures, some mechanical fractures from coring; Coring Data: Downpressure: 500lbs, 720RPM
					3		
					4		
					4		
					3		

Graphic Log

WELL DIAGRAM

Well Finish: Stick Up (39.8")



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Boring Log

BRMW-4

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
25				73%	3	100%	25-30' Dark gray PHYLLITE, fractured weathered/iron staining on joints/fractures, some mechanical fractures, Quartz vein at 29.5-30 feet; Coring Data: Downpressure: 500lbs, 720RPM		
					2.5				
					2.5				
					3				
30				49%	3	100%	30-35' Dark gray PHYLLITE, weathered/iron staining at joints, some mechanical fractures; Coring Data: Downpressure: 500lbs, 720 RPM		
					3				
					3.5				2" .010 Schedule 40 PVC
					6				
					10				
35				80%	3	100%	35-40' Dark gray PHYLLITE, Pyrite, Joints/fractures weathered (iron staining); Coring Data: Downpressure: 500lbs, 720RPM		
					3.5				
					2.5				
					2				
					2.5				
40							End of boring at 40 feet below ground surface		
45									
50									

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Boring Log

BRMW-5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** S. Gannon/Rick V. **DEPTH TO WATER*** 22.35' bgs **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Joe Keenan
WELL MATERIALS PVC, Steel Casing
DRILLING METHOD Hollow Stem Auger, Air Hammer
ANNULUS MATERIALS #1 Silica Sand
DRILLING EQUIPMENT CME 850X ATV
TOC ELEVATION 32.59 **GROUND ELEVATION** 29.62
NOTES 4" Steel casing installed at 56 feet below ground surface (bgs). Elevations are in AMSL

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
									Well Finish: Stick Up (35.7")
0	15/13	9 15 50/3	0.1 0.1				0-12" Concrete 0-5" Dark brown fine SAND, some organic material, moist, very dense (SP) 5-13" Medium gray fine SAND and SILT, little subangular fine Gravel, little subrounded coarse Gravel, moist, very dense (SM) Augered from 2.08' to 5' below ground surface; No recovery.		
5	24/24	4 12 15 18	0 0				0-24" Dark gray fine SAND and SILT, trace subangular fine Gravel, moist, medium dense (SM)		
	24/22	28 14 21 27	0 0				0-22" Dark gray fine SAND and SILT, trace subangular fine Gravel, moist, dense (SM)		
	16/5	17 21 50/4	0				0-5" Dark gray fine SAND and SILT, some angular fractured Bedrock, moist, very dense (SM)		
10							11-53' Dark gray PHYLLITE (Advanced with Air Hammer)		
15									Steel Casing
20									

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Boring Log

BRMW-5

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
25							Water bearing fracture noted 28'-30' (Rod dropped 2 feet)		← Portland Type 1/2 Grout with 10% CETCO Super Gel-X Bentonite
30									
35									
40									
45									
50							53-56' Poorly sorted GRAVEL and coarse SAND, some		

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Boring Log

BRMW-5

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
55							Cobble, till (?); highly unconsolidated; removed rods and formation plugged casing and borehole. Interval was grouted to stabilize borehole.		
							56-67' Medium gray PHYLLITE, fractured and weathered (advanced with roller bit)		
60									Bentonite
									#1 Silica Sand
65							67-72' Medium gray PHYLLITE (advanced with roller bit; Drilling Notes: gravel and cobble from 53-56' collapsing		
70							72-77' Medium gray PHYLLITE (advanced with roller bit; Drilling Notes: gravel and cobble from 57-62' collapsing		
75							77-91' Medium gray PHYLLITE, fractured/jointed, losing 5-10 gallons water to fractures/joints per 5 foot of advancement		2" .010 Schedule 40 PVC
80									

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Boring Log

BRMW-5

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Rock Quality Designation	Advance Rate (minutes)	% Recovery	LITHOLOGY	Graphic Log	WELL DIAGRAM
85									
90							End of boring at 91 feet below ground surface		
95									
100									
105									
110									

APPENDIX D

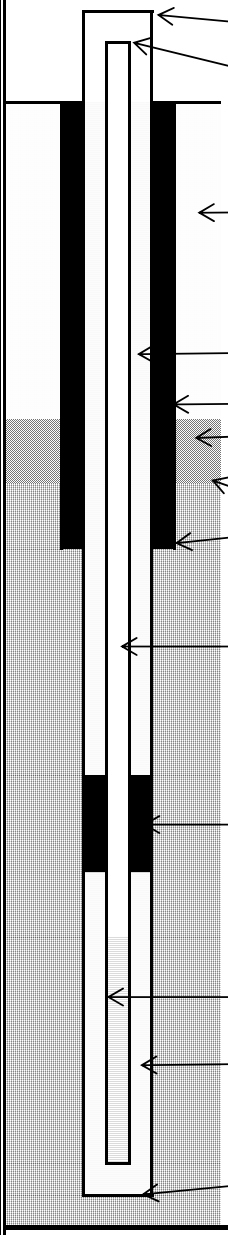
BEDROCK MONITORING WELL CONSTRUCTION LOGS

Credere Associates LLC

Boring/Well ID: BRMW-1

BEDROCK WELL CONSTRUCTION DETAILS

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** CME-850X ATV
Site Location: Gould Island	**Casing/Auger/Core Diameter:** 4"/6"/2"
Date Start/Finish: 2-27-18 - 3-15-18	**Casing Material:** Steel
Credere Representative: S. Gannon, J. Newcomb	**CONTRACTOR** **Drilling Contractor/Foreman:** Geosearch, Inc./Joe Keenan



Top of casing elevation (ft AMSL): 29.34
Stickup height (in): 29.22
Top of well elevation (ft AMSL): 29.06
Ground elevation (ft AMSL): 26.90

Lock installed? Yes

Generalized description of overburden: Primarily gray fine sand and silt with trace gravel

Overburden thickness (ft): 10.92
Casing type: steel
Casing diameter (in): 4
Borehole diameter (in): 6
Backfill material: N/A
Backfill depth (ft): N/A
Grout material: Portland I/II cement
Weathered bedrock thickness (ft): 3.08

Generalized description of rock type (fracture depths, etc.): Medium gray phyllite, fracture from 20-26' bgs filled with till/gravel

Depth to competent bedrock (ft bgs): 14
Depth of casing into bedrock (ft): 6

Well riser material: PVC
Well riser length (ft): 24.5

Development method: Overpumping with surging
Total well volume (g): 6.5
Total purge volume (g): 320
No. of well volumes purged: 49
Final turbidity (NTU): 4.51

Depth to water (ft bgs): 15.33

Field Parameters
DO (mg/L): 6.36
pH: 6.42
Sp. Conductivity (mS/cm): 0.175
ORP (mV): 190.3
Temperature (°C): 10.68

Bentonite depth interval (ft bgs): 18-20

Borehole diameter (in): 3.875 (HQ)

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 34
Annulus material: Sand
Annulus material size: #1
Annulus depth interval (ft bgs): 20-56

Depth of open borehole (ft bgs): 56

Remarks and Well Details

- Holliston #1 Sand, 11-15-2017; 5 bags used
- Cetco pure gold bentonite chips, Lot # L012418TCK; 1/2 bag used
- Portland type I/II cement grout with 10% Cetco super gel-x bentonite chips; 2 bags used

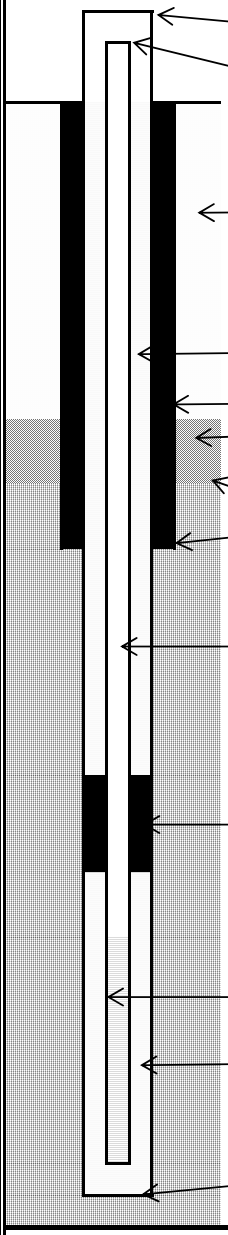
Well ID: BRMW-1

Credere Associates LLC

Boring/Well ID: BRMW-2

BEDROCK WELL CONSTRUCTION DETAILS

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** CME-850X ATV
Site Location: Gould Island	**Casing/Auger/Core Diameter:** 4"/6"/2"
Date Start/Finish: 3-8-18 - 3-23-18	**Casing Material:** Steel
Credere Representative: S. Gannon, J. Newcomb	**CONTRACTOR** **Drilling Contractor/Foreman:** Geosearch, Inc./Joe Keenan



Top of casing elevation (ft AMSL): 12.35
Stickup height (in): 23.65
Top of well elevation (ft AMSL): 11.96
Ground elevation (ft AMSL): 10.38

Overburden thickness (ft): 1.17
Casing type: steel
Casing diameter (in): 4
Borehole diameter (in): 6
Backfill material: N/A
Backfill depth (ft): N/A
Grout material: Portland I/II cement
Weathered bedrock thickness (ft): 0.25
Depth to competent bedrock (ft bgs): 1.42
Depth of casing into bedrock (ft): 7

Well riser material: PVC
Well riser length (ft): 12

Depth to water (ft bgs): 2.65

Bentonite depth interval (ft bgs): 9-11

Borehole diameter (in): 3.875 (HQ)

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 17
Annulus material: Sand
Annulus depth interval (ft bgs): 11-29

Depth of open borehole (ft bgs): 29

Lock installed? Yes

Generalized description of overburden: 0-1'; concrete roadway.
Dark gray sand and silt with fractured gravel/weathered bedrock

Generalized description of rock type (fracture depths, etc.):
Medium gray phyllite, some weathering. Quartz vein at 24' bgs.

Development method: Overpumping with surging
Total well volume (g): 4
Total purge volume (g): 50
No. of well volumes purged: 12.05
Final turbidity (NTU): 4.05

Field Parameters
DO (mg/L): 4.61
pH: 6.40
Sp. Conductivity (mS/cm): 0.236
ORP (mV): 166.2
Temperature (°C): 11.09

Annulus material size: #1

Remarks and Well Details

- Holliston #1 Sand, 11-15-2017
- Cetco pure gold bentonite chips, Lot # L012418TCK
- Portland type I/II cement grout with 10% Cetco super gel-x bentonite chips

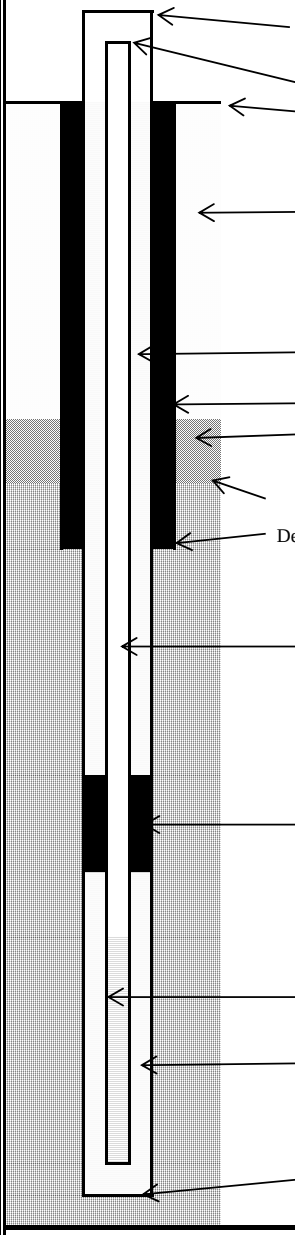
Well ID: BRMW-2

Credere Associates LLC

Boring/Well ID: BRMW-3

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** CME-850X ATV
Site Location: Gould Island	**Casing/Auger/Core Diameter:** 4"/6"/2"
Date Start/Finish: 3-6-18 - 3-14-18	**Casing Material:** Steel
Credere Representative: S. Gannon, R. Vandenberg	**CONTRACTOR** **Drilling Contractor/Foreman:** Geosearch, Inc./Joe Keenan

BEDROCK WELL CONSTRUCTION DETAILS



Top of casing elevation (ft AMSL): 18.27
Stickup height (in): 41.64 — Lock installed? Yes
Top of well elevation (ft AMSL): 18.01
Ground elevation (ft AMSL): 14.80

Generalized description of overburden: brown and gray fine sand and silt, with little fine gravel

Overburden thickness (ft): 15.33
Casing type: steel
Casing diameter (in): 4
Borehole diameter (in): 6
Backfill material: N/A
Backfill depth (ft): N/A
Grout material: Portland I/II cement
Weathered bedrock thickness (ft): 3.66

Generalized description of rock type (fracture depths, etc.): Medium gray phyllite

Depth to competent bedrock (ft bgs): 19
Depth of casing into bedrock (ft): 11

Well riser material: PVC
Well riser length (ft): 31.5

Development method: Overpumping with surging
Total well volume (g): 6.27
Total purge volume (g): 200
No. of well volumes purged: 32
Final turbidity (NTU): 5.38

Depth to water (ft bgs): 10.53

Field Parameters
DO (mg/L): 0.93
pH: 7.97
Sp. Conductivity (mS/cm): 0.273
ORP (mV): 5.4
Temperature (°C): 10.70

Bentonite depth interval (ft bgs): 28-30
Borehole diameter (in): 3.875 (HQ)
Screen material: PVC
Well diameter (in): 2
Screen length (ft): 19
Annulus material: Sand — Annulus material size: #1
Annulus depth interval (ft bgs): 30-50.5

Depth of open borehole (ft bgs): 50.5

Remarks and Well Details

- Holliston #1 Sand, 11-15-2017
- Cetco pure gold bentonite chips, Lot # L012418TCK
- Portland type I/II cement grout with 10% Cetco super gel-x bentonite chips

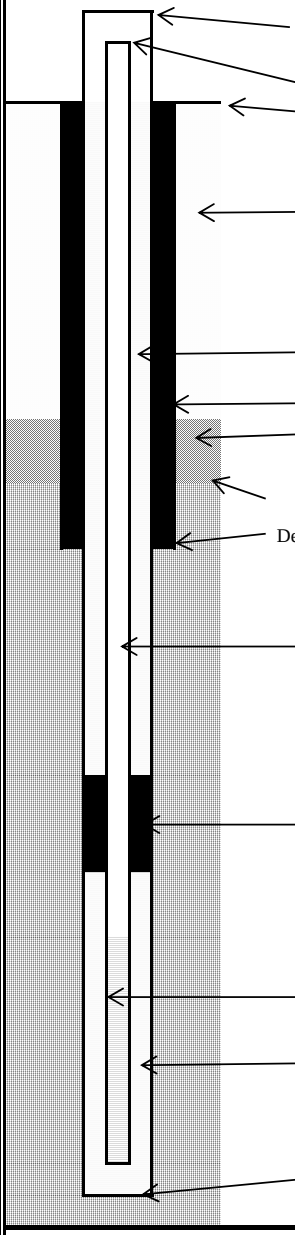
Well ID: BRMW-3

Credere Associates LLC

Boring/Well ID: BRMW-4

BEDROCK WELL CONSTRUCTION DETAILS

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** CME-850X ATV
Site Location: Gould Island	**Casing/Auger/Core Diameter:** 4"/6"/2"
Date Start/Finish: 3-8-18 - 3-27-18	**Casing Material:** Steel
Credere Representative: S. Gannon, J. Newcomb	**CONTRACTOR** **Drilling Contractor/Foreman:** Geosearch, Inc./Joe Keenan



Top of casing elevation (ft AMSL): 36.51
Stickup height (in): 39.82
Top of well elevation (ft AMSL): 36.07
Ground elevation (ft AMSL): 33.19

Lock installed? Yes

Generalized description of overburden: Gray fine sand and silt with some gravel

Overburden thickness (ft): 8
Casing type: steel
Casing diameter (in): 4
Borehole diameter (in): 6
Backfill material: N/A
Backfill depth (ft): N/A
Grout material: Portland I/II cement
Weathered bedrock thickness (ft): 2

Generalized description of rock type (fracture depths, etc.): Gray phyllite with iron staining, pyrite deposits, and quartz veins

Depth to competent bedrock (ft bgs): 10
Depth of casing into bedrock (ft): 10

Well riser material: PVC
Well riser length (ft): 24

Development method: Overpumping with surging
Total well volume (g): 3.5
Total purge volume (g): 35
No. of well volumes purged: 10
Final turbidity (NTU): 9.57

Depth to water (ft bgs): 16.23

Field Parameters
DO (mg/L): 0.08
pH: 13.99
Sp. Conductivity (mS/cm): 1.598
ORP (mV): -80.4
Temperature (°C): 11.27

Bentonite depth interval (ft bgs): 20-22

Borehole diameter (in): 3.875 (HQ)

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 16
Annulus material: Sand
Annulus material size: #1
Annulus depth interval (ft bgs): 22-40

Depth of open borehole (ft bgs): 40

Remarks and Well Details

- Holliston #1 Sand, 11-15-2017
- Cetco pure gold bentonite chips, Lot # L012418TCK
- Portland type I/II cement grout with 10% Cetco super gel-x bentonite chips

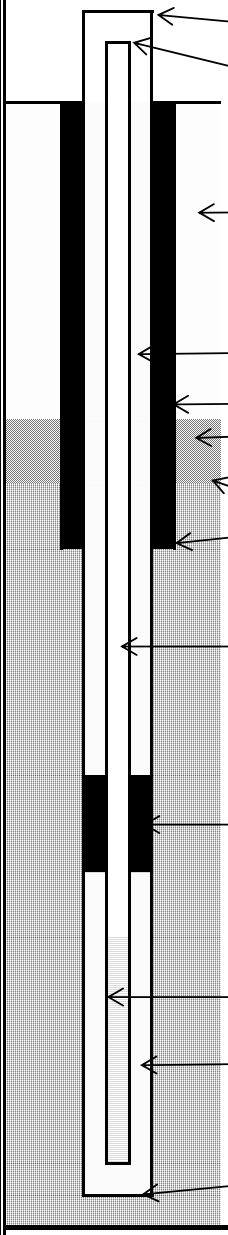
Well ID: BRMW-4

Credere Associates LLC

Boring/Well ID: BRMW-5

BEDROCK WELL CONSTRUCTION DETAILS

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** CME-850X ATV
Site Location: Gould Island	**Casing/Auger/Core Diameter:** 4"/6"/2"
Date Start/Finish: 2-27-18 - 3-15-18	**Casing Material:** Steel
Credere Representative: S. Gannon, R. Vandenberg	**CONTRACTOR** **Drilling Contractor/Foreman:** Geosearch, Inc./Joe Keenan



Top of casing elevation (ft AMSL): 32.59
Stickup height (in): 35.72
Top of well elevation (ft AMSL): 32.16
Ground elevation (ft AMSL): 29.62

Lock installed? Yes

Generalized description of overburden: Primarily fine gray sand and silt with trace gravel

Overburden thickness (ft): 11.33
Casing type: steel
Casing diameter (in): 4
Borehole diameter (in): 6
Backfill material: N/A
Backfill depth (ft): N/A
Grout material: Portland I/II cement
Weathered bedrock thickness (ft): 28.66

Generalized description of rock type (fracture depths, etc.):
Depth to competent bedrock (ft bgs): 40 — Gray phyllite, water bearing fracture from 28-30' bgs
Depth of casing into bedrock (ft): 10 — Competent bedrock at 40' bgs, competent at 61' bgs

Well riser material: PVC
Well riser length (ft): 61

Development method: Overpumping with surging
Total well volume (g): 10.3
Total purge volume (g): 72
No. of well volumes purged: 7
Final turbidity (NTU): 48.1

Depth to water (ft bgs): 19.81

Field Parameters
DO (mg/L): 0.25
pH: 6.99
Sp. Conductivity (mS/cm): 0.232
ORP (mV): 57.9
Temperature (°C): 10.84

Bentonite depth interval (ft bgs): 59-61

Borehole diameter (in): 3.875 (HQ)

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 28
Annulus material: Sand — Annulus material size: #1
Annulus depth interval (ft bgs): 61-91

Depth of open borehole (ft bgs): 91

Remarks and Well Details

- Holliston #1 Sand, 11-15-2017; 3 bags used
- Cetco pure gold bentonite chips, Lot # L012418TCK
- Portland type I/II cement grout with 10% Cetco super gel-x bentonite chips

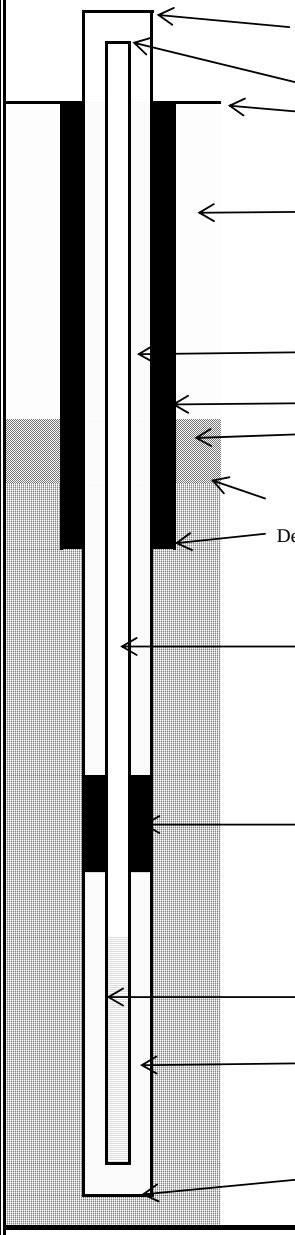
Well ID: BRMW-5

Credere Associates LLC

Boring/Well ID: 10OBMW-2

BEDROCK WELL CONSTRUCTION DETAILS

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** CME-850X ATV
Site Location: Gould Island	**Casing/Auger/Core Diameter:** 4"/6"/2"
Date Start/Finish: 3-27-18 - 3-29-18	**Casing Material:** Steel
Credere Representative: S. Gannon	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc./Joe Keenan



Top of casing elevation (ft AMSL): 25.36
Stickup height (in): 40.02
Top of well elevation (ft AMSL): 25.08
Ground elevation (ft AMSL): 22.03

Lock installed? Yes

Generalized description of overburden: Gray fine sand and silt with some gravel

Overburden thickness (ft): 15.33
Casing type: steel
Casing diameter (in): 4
Borehole diameter (in): 6
Backfill material: N/A
Backfill depth (ft): N/A
Grout material: Portland I/II cement
Weathered bedrock thickness (ft): >10 (not advanced to competent bedrock)

Generalized description of rock type (fracture depths, etc.): Fractured gray phyllite (weathered bedrock)

Depth to competent bedrock (ft bgs): Unknown
Depth of casing into bedrock (ft): NA

Well riser material: PVC
Well riser length (ft): 15

Development method: Over pumping with surging
Total well volume (g): 1.8
Total purge volume (g): 67.5
No. of well volumes purged: 37.5
Final turbidity (NTU): 79

Depth to water (ft bgs): 14.52

Field Parameters
DO (mg/L): 6.08
pH: 8.69
Sp. Conductivity (mS/cm): 0.150
ORP (mV): -69.08
Temperature (°C): 10.06

Bentonite depth interval (ft bgs): 11-13
Borehole diameter (in): 3.875 (HQ)
Screen material: PVC
Well diameter (in): 2
Screen length (ft): 10
Annulus material: Sand
Annulus depth interval (ft bgs): 13-25

Annulus material size: #1

Depth of open borehole (ft bgs): 25

Remarks and Well Details

- Holliston #1 Sand, 11-15-2017; 3 bags used
- Cetco pure gold bentonite chips, Lot # L012418TCK
- Portland type I/II cement grout with 10% Cetco super gel-x bentonite chips

Well ID: 10OBMW-2

APPENDIX E

DIRECT PUSH SOIL BORING LOGS

Credere Associates, LLC
776 Main Street
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Phone: 207-828-1272
Fax: 207-887-1051

Boring Log

01SB1
PAGE 1 OF 1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/19/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 12.00'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	54/45	NA	0.09			0-4" Dark gray very fine to fine SAND and SILT, little Organics, moist (SM)	
			0.09	01SB1-1 (0.9-1.1)		4-9" Medium gray crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
			0.08			9-11" brown very fine to fine SAND, some Silt, little black Coal, moist (SP)	
			0.00			11-17" Dark gray very fine to fine SAND and SILT, little black Coal, moist (SM)	
			0.10			17-21" Brown very fine to fine SAND, some Silt, little black Coal, moist (SP)	
5						21-39" Alternating bands of dark gray very fine to fine SAND and SILT, and brown very fine to fine SAND, some Silt, little Gravel, moist (SM)	
						39-43" Dark gray very fine to fine SAND and SILT, little Gravel, moist (SM)	
						43-45" Dark gray fine to medium SAND, some Silt, some crushed Rock, dry (SP)	
						End of boring at 4.5 feet below ground surface (refusal)	
10						(Refusal confirmed at 4.5 feet on second attempt, see 01SB1A)	
15							
20							
25							

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Boring Log

01SB1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/19/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 01SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	54/44	NA	0.1			0-2" Dark gray crushed PHYLLITE, some Organics, trace very fine sand, dry (GW)	
			0.1			2-5" Dark gray very fine to fine SAND, some Silt, some fine Gravel, moist (SP)	
			0.1			5-14" Brown fine to medium SAND, some Silt, some fine Gravel, little black Coal, moist (SP)	
			0.1			14-16" Dark gray crushed ROCK, some fine Sand, trace Coal, dry (GW)	
			0.1			16-34" Dark gray mottled with brown very fine to medium SAND, some Silt, some fine Gravel, trace Coal, moist (SP)	
5			0.1			34-44" Dark gray mottled with brown very fine to fine SAND and SILT, some Gravel, moist (SM)	
						End of Boring at 4.5 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

01SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/19/18 **LOGGED BY** S. Towne
DEPTH TO WATER* 6 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 12.01'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/49	NA	0.2	01SB2-1 (0-0.51)		0-5" Black COAL	
			0.2			5-17" Dark gray and light brown to brown very fine to fine SAND and SILT, some Gravel, moist (SM)	
			0.2			17-21" Dark gray crushed PHYLLITE, some very fine to fine Sand, little Silt, moist	
			0.2			21-33" Dark gray mottled with dark brown very fine to fine SAND and SILT, little Gravel, moist (SM)	
			0.2			33-36" White crushed ROCK, dry (GW)	
			0.1			36-49" Dark gray very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
5	60/54		0.1			0-3" Dark gray very fine to fine SAND and SILT, little Gravel, moist (SM)	
			0.1			3-5" Dark gray crushed PHYLLITE, moist (GW)	
			0.1			5-7" Dark gray very fine to fine SAND and SILT, little Gravel, moist (SM)	
			0.1			7-10" Dark gray crushed PHYLLITE, moist (GW)	
			0.1			10-54" Dark gray very fine to fine SAND and SILT, some Gravel, some crushed Rock, wet (SM)	
10	48/48		0.1			0-4" Dark gray very fine to coarse SAND, some Gravel, little Silt, wet (SW)	
			0.1			4-15" Dark gray very fine to coarse SAND, little Silt, little Gravel, saturated (SW)	
			0.1			15-34" Dark gray very fine to fine SAND and SILT, some Gravel, saturated (SM)	
			0.1			34-48" Dark gray very fine to fine SAND and SILT, some Clay, little Gravel, moist (SM)	
			0.1			End of boring at 14 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

01SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/19/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 13.55'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	54/40	NA	0.1			0-3" Dark brown very fine to fine SAND and SILT, some Organics [topsoil] (SM)	
			0.1	01SB3-1 (0.9-1.8)		3-8" Dark brown very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.1			8-16" Black COAL, wet	
			0.1			16-35" Dark gray very fine to fine SAND and SILT, some crushed Rock and fine Gravel, moist (SM)	
			0.1			35-37" Light gray crushed PHYLLITE, dry (GW)	
5						37-40" Dark gray very fine to fine SAND and SILT, some crushed Rock, some fine Gravel, moist (SM)	
						End of boring at 4.5 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

01SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 12.97'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/48	NA	0.0	01SB4-1 (0-1.2/0.6)		0-15" Black COAL, wet	
			0.0			15-42" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, trace crushed Phyllite, moist (SP)	
			0.0				
			0.0			42-45" Dark brown fine SAND, some fine Gravel, some crushed Rock, dry (SP)	
5						End of boring at 4 feet below ground surface (refusal)	
						(Refusal confirmed at 4.5 feet on second attempt, see 01SB4A)	
10							
15							
20							
25							

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Boring Log

01SB4A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 01SB4

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	54/50	NA	0.0			0-16" Black COAL, wet	
			0.0				
			0.0			16-50" Dark gray mottled with brown very fine to fine SAND, some Silt, some fine Gravel, moist (SP)	
			0.0				
			0.0				
5			0.0			End of boring at 4.5 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

01SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/20/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/45	NA	0.0			0-1" Brown very fine to fine SAND and SILT, some Organics, dry (SM)	
			0.0	01SB5-1 (0-2)		1-11" Brown very fine to fine SAND and SILT, little fine Gravel, dry (SM)	
			0.0			11-21" Dark gray/brown very fine to fine SAND and SILT, some fine Gravel, dry (SM)	
			0.0			21-36" Dark gray mottled with brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			36-45" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
5	54/54		0.1			0-46" Dark brown/gray very fine to fine SAND, some Silt, some fine Gravel, some crushed Rock, dry (SP)	
			0.1				
			0.1				
			0.1				
			0.1			46-48" Light gray crushed ROCK, dry (GW)	
						48-54" Dark gray very fine to fine SAND and SILT, trace Crushed Rock, dry (SM)	
10						End of boring at 9.5 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

01SB6

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/19/18 **LOGGED BY** S. Towne
DEPTH TO WATER* 20 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/38	NA	0.1			0-5" Dark brown very fine to fine SAND and SILT, little Organics, moist (SM)	
			0.1	01SB6-1 (0-2)		5-17" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.1			17-24" Dark gray very fine to fine SAND and SILT, some Gravel, little Clay, wet (SM)	
			0.1			24-38" Dark gray very fine to fine SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
			0.1				
5	60/48		0.1			0-21" Dark gray/brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1				
			0.1			21-26" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.1			26-39" Dark gray/brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1			39-42" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SP)	
10	60/44		0.1			42-45" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.1			45-48" Light orange/brown very fine to fine SAND, some SILT, some fine Gravel, moist (SP)	
			0.1			0-12" Brown very fine to fine SAND, some Silt, moist (SP)	
			0.1			12-21" Brown very fine to medium SAND, some Silt, some fine Gravel, moist (SW)	
			0.1			21-44" Dark gray/brown very fine to fine SAND and SILT, some fine Gravel, dry (SM)	
15	60/52		0.1			0-4" Dark gray very fine to fine SAND and SILT, little fine Gravel, dry (SM)	
			0.1			4-8" Dark gray crushed PHYLLITE, some very fine to fine Sand, some Silt, dry (GW)	
			0.1			8-21" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1			21-24" Dark brown very fine to medium SAND, some Silt, trace fine Gravel, moist (SW)	
			0.1			24-52" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
20	24/20		0.1			0-20" Dark gray crushed ROCK, some very fine to fine Sand, some Silt, wet (GW)	
			0.1				
			0.1			End of boring at 22 feet below ground surface (refusal)	
25							

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Boring Log

01SB7

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/20/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/29	NA	0.2			0-2" Brown very fine to fine SAND and SILT, some Organics matter, moist (SM)	
			0.2			2-11" Dark gray crushed ROCK, some very fine to fine Sand and Silt, moist (GW)	
			0.2	01SB7-1 (1.89-2.24")		11-13" Black COAL	
			0.2			13-15" Dark gray very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2			15-18" Light gray crushed ROCK, dry (GW)	
			0.2			18-29" Dark gray very fine to fine SAND and SILT, little Gravel, moist (SM)	
5	60/52		0.2			0-30" Dark gray very fine to fine SAND and SILT, some Gravel, little Clay, wet (SM)	
			0.2				
			0.2				
			0.2			30-47" Light brown mottled with dark brown very fine to fine SAND and SILT, little crushed Rock, little Clay, moist (SM)	
			0.2				
10	60/46		0.2			47-52" Dark gray very fine to medium SAND and SILT, little Clay, trace Gravel, moist (SM)	
			0.2			0-40" Dark gray very fine to medium SAND and SILT, some Gravel, moist (SM)	
			0.2				
			0.2				
			0.2				
			0.2			40-42" Dark gray crushed PHYLLITE, little very fine Sand, wet (GW)	
15	54/45		0.2			42-46" Dark gray very fine to medium SAND and SILT, little Clay, trace Gravel, moist (SM)	
			0.2			0-5" Dark brown very fine to medium SAND, some Silt, some Clay, trace Gravel, wet (SW)	
			0.2			5-14" Dark brown very fine to fine SAND, some Clay, little Silt, trace Gravel, moist (SP)	
			0.2			14-19" Dark gray very fine to fine SAND and SILT, some crushed Rock, trace Clay, moist (SM)	
			0.2			19-28" Dark gray/brown very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
20			0.2			28-33" Dark gray crushed PHYLLITE, dry (GW)	
						33-43" Dark gray mottled with dark brown very fine to fine SAND and SILT, some crushed Rock, dry (SP)	
						43-45" Medium gray crushed weathered BEDROCK	
						End of boring at 19.5 feet below ground surface (refusal)	
25							

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Boring Log

01SB8

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/20/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33	NA	0.2			0-1" Dark gray very fine to fine SAND and SILT, some Organics, moist [topsoil] (SM)	
			0.2	01SB8-1 (0-2)		1-10" Dark gray very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
			0.2			10-13" Gray crushed PHYLLITE, some very fine Sand, dry (GW)	
			0.2			13-33" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.2				
5	60/33		0.2			0-6" Dark gray crushed ROCK, some fine Sand, dry - small amount of sulfur observed (GW)	
			0.2			6-33" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.2				
			0.2				
			0.2				
10	60/42		0.2			0-2" Light orange crushed ROCK, dry (GW)	
			0.2			2-26" Dark gray very fine to fine SAND and SILT, some fine Gravel, trace Clay, moist (SM)	
			0.2				
			0.2			26-42" Dark brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
15	60/44		0.2			0-17" Dark gray mottled with dark brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
						17-29" Dark gray/brown very fine to fine SAND and SILT, some fine Gravel, trace Clay, moist (SM)	
			0.2			29-37" Dark brown mottled with gray very fine to fine SAND and SILT, little Clay, moist	
			0.2			37-39" Dark gray crushed ROCK, some brown very fine to fine Sand, some Silt, moist (GW)	
20	60/51		0.2			39-44" Dark brown very fine to fine SAND and SILT, some Clay, trace fine Gravel, moist (SM)	
			0.2			0-11" Dark gray very fine to fine SAND and SILT, some Clay, little fine Gravel, moist (SM)	
			0.2			11-15" Brown very fine to fine SAND and SILT, little dark gray crushed Rock, little Clay, moist (SM)	
			0.2			15-31" Light Brown very fine to fine SAND, some Silt, trace fine Gravel, dry (SP)	
			0.2			31-51" Gray mottled with light brown very fine to fine SAND and SILT, some crushed Rock and fine Gravel, moist (SM)	
25	48/48		0.2			0-5" Gray mottled with light brown very fine to fine SAND and SILT,	

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Boring Log

01SB8

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
			0.2			some crushed Rock and fine Gravel, moist (SM)	
			0.2			5-48" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
			0.2			End of boring at 29 feet below ground surface (refusal)	
30							
35							
40							
45							
50							
55							

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Boring Log

01SB9

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/20/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/23	NA	0.2	01SB9-1 (0-2)		0-11" Dark gray/brown very fine to medium SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
			0.2			11-23" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.2				
			0.2				
5	60/46		0.2			0-31" Dark gray/brown very fine to fine SAND and SILT, some fine Gravel, dry (SM)	
			0.2				
			0.2				
			0.2				
			0.2			31-40" Gray crushed PHYLLITE, some very fine to fine Sand, some Silt, dry (GW)	
			0.2			40-46" Dark gray very fine to fine SAND and SILT, little fine Gravel, dry (SM)	
10	60/46		0.2			0-15" Dark gray very fine to fine SAND and SILT, little fine Gravel, little Clay, wet (SM)	
			0.2				
			0.2			15-18" Dark gray crushed PHYLLITE, some very fine to fine Sand, some fine Gravel, dry (GW)	
			0.2			18-46" Dark gray/brown very fine to fine SAND and SILT, some crushed Rock, and fine Gravel, moist (SM)	
			0.2				
			0.2				
15	56/43		0.2			0-7" Dark gray very fine to fine SAND and SILT, some Clay, moist (SM)	
			0.2			7-13" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.2			13-18" Light brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.2			18-19" Dark gray crushed PHYLLITE, dry (GW)	
			0.2			19-40" Light brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.2			40-43" Light gray weathered BEDROCK	
20			0.2			End of boring at 19.75 (refusal)	
25							

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Boring Log

01SB10

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/20/18 **LOGGED BY** S. Towne
DEPTH TO WATER* 17 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/37	NA	0.2	01SB10-1 (0-2)		0-5" Dark brown very fine to fine SAND and SILT, some Organics, little fine Gravel, dry (SM)	
			0.2			5-24" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
			0.2				
			0.2			24-28" Dark brown very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.2			28-32" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
5	60/44		0.2			32-34" Gray crushed ROCK, dry (GW)	
			0.2			34-37" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2			0-14" Dark gray/brown very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2			14-18" Dark gray crushed ROCK, dry (GW)	
			0.2			18-23" Brown very fine to fine SAND and SILT, trace Clay, moist (SM)	
			0.2			23-37" Dark gray very fine to fine SAND and SILT, trace Clay, moist (SM)	
10	60/48		0.2			37-42" Dark brown very fine to medium SAND, some Silt, moist (SW)	
			0.2			42-44" Dark gray very fine to fine SAND and SILT, trace Clay, moist (SM)	
			0.2			0-39" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.2				
			0.2			39-48" Dark gray crushed ROCK, some very fine Sand, some Silt, moist (GW)	
15	60/54		0.2			0-3" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.2			3-5" Dark gray crushed ROCK, some very fine Sand, moist (GW)	
			0.2			5-23" Dark gray very fine to medium SAND and SILT, some crushed Rock, wet (SM)	
			0.2			23-54" Dark gray mottled with brown very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2				
20	12/9		0.2			0-9" Dark gray mottled with brown very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2			End of boring at 21 feet below ground surface (refusal)	
25							

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Boring Log

08SB1
PAGE 1 OF 1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/22/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 29.03'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/29		0.2	08SB1-1 (0-1) 08SB1-10 (0-1)		0-2" Dark brown very fine to fine SAND and SILT, some Organics, moist (SM)	
			0.2			2-7" Dark gray very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2			7-18" Dark brown/gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2			18-29" Brown very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
			0.2				
5	54/51		0.2			0-3" Brown very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
			0.2			3-37" Dark gray very fine to fine SAND and SILT, some crushed Rock, some fine Gravel, moist (SM)	
			0.2				
			0.2			37-51" Dark gray very fine to fine SAND and SILT, some medium brown Sand, some Gravel, moist (SM)	
			0.2				
10						End of boring at 9.5 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

08SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/22/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/27	NA	0.2	08SB2-1(0-1)		0-2" Dark brown very fine to medium SAND and SILT, some Organics, moist (SM)	
			0.2			2-26" Dark gray mottled with dark brown very fine to medium SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
			0.2				
			0.2			26-33" Brown very fine to fine SAND and SILT, some Organics, trace fine Gravel, moist (SM)	
5	60/47		0.2			33-37" Dark gray very fine to fine SAND and SILT, little Clay, little fine Gravel, moist (SM)	
			0.2			0-11" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.2			11-35" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.2				
			0.2			35-47" Dark gray very fine to fine SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
10	24/24		0.2			0-24" Dark gray very fine to fine SAND and SILT, some crushed Phyllite, little medium Sand, moist (SM)	
			0.2				
						End of boring at 12 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

08SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/22/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 29.82'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/39	NA	0.1	08SB3-1(0-1)		0-6" Brown very fine to medium SAND and SILT, some Organics, moist (SW)	
			0.1			6-24" Dark gray very fine to medium SAND and SILT, some Fine Gravel, moist (SM)	
			0.1				
			0.1			24-35" Brown very fine to fine SAND and SILT, some gray crushed Rock, trace Clay, moist (SM)	
			0.1				
						35-38" Light gray crushed ROCK, dry (GW)	
5	60/51		0.1			38-39" Brown very fine to coarse SAND and SILT, some crushed Rock, moist (SM)	
			0.1			0-29" Dark gray very fine to medium SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
			0.1				
			0.1			29-39" Brown very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.1			39-51" Dark gray very fine to medium SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
10	48/38		0.1			0-24" Dark gray very fine to medium SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
			0.1				
			0.1				
			0.1			24-27" Brown medium SAND, some fine Gravel, moist (SP)	
			0.2			27-38" Dark gray very fine to medium SAND and SILT, some fine Gravel and crushed Rock, moist (SM)	
						End of boring at 14 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

08SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/22/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33	NA	0.2	08SB4-1(0-1)		0-2" Dark brown very fine to fine SAND and SILT, some Organics, moist (SM)	
			0.2			2-11" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.2			11-21" Dark gray very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2			21-24" Brown very fine to fine SAND and SILT, trace Clay, moist (SM)	
			0.2			24-29" Gray very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
5	60/44		0.2			29-33" Gray crushed ROCK, some very fine to fine Sand, some Silt, dry (GW)	
			0.2			0-4" Gray crushed PHYLLITE, dry (GW)	
			0.2			4-34" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.2				
			0.2			34-37" Dark gray crushed PHYLLITE, dry (GW)	
			0.2			37-44" Alternating bands of fine to coarse brown SAND and dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SP)	
10	45/44		0.2			0-2" Dark gray crushed ROCK, dry (GW)	
			0.2			2-16" Dark gray very fine to medium SAND, little fine Gravel, trace Clay, moist (SW)	
			0.2			16-44" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.2				
15						End of boring at 13.75 feet below ground surface (refusal)	
20							
25							

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Boring Log

08SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/23/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33	NA	0.0	08SB5-1(0-1)		0-3" Dark brown very fine to fine SAND and SILT, some Organics, moist (SM)	
			0.0			3-6" Dark gray very fine to fine SAND and SILT, some Organics, moist (SM)	
			0.0			6-19" Dark gray very fine to medium SAND and SILT, little fine Gravel, trace Organics, moist (SM)	
			0.0			19-25" Dark brown very fine to fine SAND and SILT, little Organics, trace dark blue glass, moist (SM)	
			0.0			25-33" Dark gray very fine to fine SAND and SILT, some Clay, little crushed Rock, moist (SM)	
5	60/48		0.0			0-3" Dark gray very fine to fine SAND and SILT, some fine Gravel, trace Clay, moist (SM)	
			0.0			3-4" Dark brown Organics, moist	
			0.0			4-40" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.1			40-48" Dark gray very fine to fine SAND and SILT, some fine to medium Sand, some fine Gravel, moist (SM)	
10	60/51		0.1			0-4" Dark brown very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.1			4-21" Dark gray very fine to medium SAND, some Silt, some fine Gravel, moist (SW)	
			0.1			21-41" Dark gray very fine to fine SAND and SILT, some fine Gravel and crushed Rock, moist (SM)	
			0.1				
			0.1			41-44" Dark brown very fine to medium SAND, trace Silt, moist (SW)	
15	12/12		0.1			44-51" Dark gray very fine to fine SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
			0.1			0-2" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
						2-3" Dark brown ORGANICS, little very fine to fine Sand, moist	
						3-6" Gray crushed ROCK, dry (GW)	
						6-12" Dark brown very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
						End of boring at 16 feet below ground surface (refusal)	
20							
25							

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Boring Log

08SB6A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/23/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner. 08SB6 was abandoned due to the rod and cutting shoe being lost in the boring before completion. They were ur

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.2	08SB6A-1(0-1)		0-5" Dark gray very fine to fine SAND and SILT, some Organics, little fine Gravel, moist (SM)	
			0.2			5-18" Dark brown very fine to fine SAND and SILT, some fine Gravel, little crushed Rock, moist (SM)	
			0.2				
			0.2			18-23" Brown very fine to medium SAND and SILT, moist (SM)	
			0.2			23-26" Light brown very fine to fine SAND and SILT, moist (SM)	
						26-29 White crushed ROCK, dry (GW)	
5	60/44		0.2			29-32" Light brown very fine to fine SAND and SILT, some crushed Phyllite, moist (SM)	
			0.2			0-7" Light brown very fine to medium SAND, some crushed Rock, some fine Gravel, moist (SW)	
						7-8" Gray ROCK, dry (GW)	
			0.2			8-11" Dark gray very fine to medium SAND and SILT, little fine Gravel, dry (SM)	
			0.2			11-13" Brown very fine to medium SAND, little Silt, dry (SW)	
			0.2			13-34" Dark gray very fine to medium SAND and SILT, some crushed Rock, some fine Gravel, trace Clay, moist (SM)	
10	60/54		0.2			34-37" Brown very fine to coarse SAND, some Silt, trace fine gravel, dry (SW)	
			0.2			37-44" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.2			0-4" Brown very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.2			4-24" Dark gray very fine to medium SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
			0.2			24-54" Bands of brown very fine to medium SAND and dark gray very fine to fine SILT and CLAY, little crushed Rock, moist (SW)	
15	36/18		0.2			0-4" Dark brown very fine to medium SAND and SILT, some Clay, wet (SM)	
			0.2			4-18" Dark gray very fine to fine SAND and SILT, some crushed Rock, moist (SM)	
			0.2				
			0.2			End of boring at 18 feet below ground surface (refusal)	
20							
25							

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Boring Log

08SB7

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/23/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/38	NA	0.1	08SB7-1(0-1)		0-3" Dark brown very fine to medium SAND and SILT, some Organics, trace Clinker, moist (SM)	
			0.1			3-13" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.1			13-16" Light gray crushed ROCK, dry (GW)	
			0.1			16-25" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.1			25-29" Brown very fine to medium SAND and SILT, trace Organics, moist (SM)	
5	60/46		0.2			29-38" Gray/brown very fine to fine SAND and SILT, some fine Gravel, trace Clay, dry (SM)	
			0.2			0-4" Brown very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.2			4-10" Dark gray very fine to medium SAND and SILT, some fine Gravel, moist (SM)	
			0.2			10-43" Dark gray very fine to fine SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
			0.2				
10	24/22		0.2			43-46" Dark gray crushed ROCK, little very fine to fine Sand, little Silt, dry (GW)	
			0.2			0-22" Dark gray very fine to coarse SAND, some Silt, some crushed Rock, some fine Gravel, moist (SW)	
						End of boring at 12 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

10SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/23/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 22.65'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33	NA	0.1			0-6" Dark brown very fine to fine SAND and SILT, some Organics, moist (SM)	
			0.1			6-18" Brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1				
			0.1			18-26" Brown very fine to fine SAND and SILT, some fine Gravel, some crushed Rock, dry (SM)	
			0.1			26-33" Dark gray very fine to fine SAND and SILT, some crushed rock, moist (SM)	
5	60/55		0.1			0-37" Dark gray very fine to fine SAND and SILT, some fine Gravel and crushed Rock, moist (SM)	
			0.1				
			0.1				
			0.1				
			0.1			37-40" Gray crushed ROCK, dry (GW)	
			0.1			40-51" Gray/brown very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
10	36/36		0.1			51-52" Gray crushed ROCK, dry (GW)	
			28.49			52-55" Gray/brown very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			26.60	10SB1-1 (11-13/12)		0-3" Brown very fine to coarse SAND, some fine Gravel, little Silt, dry (SW)	
						3-30" Dark gray very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist, petroleum odor (SM)	
						30-36" Dark gray very fine to medium SAND, some Silt, little fine gravel, moist, heavy petroleum odor (SW)	
15						End of boring at 13 feet below ground surface (refusal)	
						(Refusal confirmed at 14 feet on second attempt, see 10SB1A)	
20							
25							

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Boring Log

10SB1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/23/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/42	NA	0.3			0-4" Dark brown very fine to medium SAND and SILT, some Organics, moist (SM)	
			0.3			4-15" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.3			15-27" Brown very fine to fine SAND and SILT, little crushed Rock and fine Gravel, moist (SM)	
			0.3			27-30" Dark brown very fine to fine SAND and SILT, moist (SM)	
			0.3			30-42" Light brown/orange very fine to medium SAND, some Silt, trace fine Gravel, moist (SP)	
5	60/50		0.3			0-3" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.3			3-7" Light brown very fine to medium SAND and SILT, trace fine Gravel, moist (SM)	
			0.3			7-23" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.3			23-25" Light gray crushed Rock, dry (GW)	
			0.3			25-50" Dark gray very fine to fine SAND and SILT, some fine Gravel, some crushed Rock, moist (SM)	
10	48/38		0.2			0-14" Dark gray very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.2				
			0.2			14-24" Dark gray very fine to medium SAND and SILT, some crushed Rock, moist (SM)	
			0.2			24-38" Dark gray very fine to medium SAND and SILT, some crushed Rock, trace Clay, moist (SM)	
15						End of boring at 14 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/36	NA	0.028			0-2" Dark brown very fine to fine SAND and SILT, some root matter, moist [topsoil]	
			0.054			2-12" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.134			12-17" Gray crushed ROCK, dry (GW)	
			0.095			17-36" Light brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.129				
5	60/52		0.170			0-3" Brown fine to coarse SAND and SILT, moist (SM)	
			0.081			3-13" Brown fine to coarse SAND, some Silt, moist (SW)	
			0.093			13-19" Dark brown fine to coarse SAND, moist (SW)	
			0.069			19-26" Dark gray fine to coarse SAND, trace Silt, trace fine Gravel, moist (SW)	
			0.072			26-28" Gray crushed ROCK, dry (GW)	
						28-52" Dark gray very fine to fine SAND and SILT, trace fine to medium Gravel, moist (SM)	
10	60/51		0.084			0-5" Dark gray very fine to fine SAND and SILT, trace fine to medium Gravel, moist (SM)	
			0.088			5-32" Dark gray very fine to fine SAND and SILT, trace Clay, trace fine Gravel, moist (SM)	
			0.091				
			0.093			32-37" Gray crushed ROCK dry (GW)	
			0.088			37-51" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist, saturated for the last 2 inches (SM)	
15	24/24		0.115			0-24" Dark gray fine to coarse SAND, trace Silt, moist (SW)	
			0.116				
						End of boring at 17 feet below ground surface (refusal)	
						Multiple borings were advanced to confirm lack of contamination at this location due to the location being in a known waste disposal area, see 10SB2A and 10SB2B	
20							
25							

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Boring Log

10SB2A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB2

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.217			0-5" Dark gray very fine to fine SAND and SILT, leaf material, moist [topsoil]	
			0.265			5-8" gray crushed ROCK, dry (GW)	
			0.242			8-16" Dark gray very fine to fine SAND, some Silt, trace fine gravel, large rock from 3-4 inches, moist (SP)	
			0.262			16-20" Gray crushed ROCK, dry (GW)	
			0.241			20-32" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
5	60/51		0.233			0-5" Gray crushed ROCK, dry (GW)	
			0.224			5-25" Brown very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.228				
			0.222			25-35" Mottled dark gray and brown fine to medium SAND, little fine Gravel, trace Silt, moist (SP)	
			0.228			35-37" Gray crushed ROCK, dry (GW)	
						37-51" Dark gray very fine to fine SAND, trace fine Gravel, trace Silt, moist (SP)	
10	60/54		0.224			0-4" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			2.227			4-8" Gray crushed ROCK, dry (GW)	
			0.222			8-23" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.218			23-54" Dark gray very fine to fine SAND, some Silt, little fine to medium Gravel, moist (SP)	
			2.226				
15	12/12		0.348			0-12" Dark gray very fine to fine SAND, some Silt, little fine to medium Gravel, moist (SP)	
						End of boring at 16 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB2B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB2

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.646			0-3" Dark gray very fine to fine SAND and SILT, trace fine Gravel, organic matter, moist [topsoil]	
			0.425			3-10" Gray crushed ROCK, dry (GW)	
			0.331			10-32" Brown very fine to fine SAND, some Silt, Rock from 4-5" moist (SP)	
			0.260				
			0.251				
5	60/45		0.219			0-12" Brown very fine to fine SAND, some Silt, moist (SP)	
			0.235			12-21" Mottled dark gray and brown very fine to fine SAND, some Silt, moist (SP)	
			0.227			21-27" Brown fine to medium SAND, trace Silt, moist (SP)	
			0.225			27-45" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.227				
10	54/53		0.227			0-8" Dark gray very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.217			8-12" Gray crushed ROCK, dry (GW)	
			0.219			12-28" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.216	10SB2-1 (12.75-14.75/ 13.75)		28-30" Gray crushed ROCK, dry (GW)	
			0.219			30-53" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
15						End of boring at 14.75 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/45	NA	0.184			0-12" Dark brown very fine to fine SAND, some Silt, trace fine Gravel, organic matter, moist [topsoil] (SP)	
			0.180			12-18" Dark gray very fine to fine SAND and SILT, trace fine to medium Gravel, moist (SM)	
			0.182			18-30" Dark brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.180			30-35" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.182			35-45" Tan fine to medium SAND, trace Silt, trace fine to medium Gravel, moist (SP)	
5	60/42		0.178			0-30" Tan fine to medium SAND, trace Silt, trace fine to medium Gravel, moist (SP)	
			0.181				
			0.184				
			0.182				
			0.177			30-35" Dark brown fine to coarse SAND, trace Silt, moist (SW)	
						35-36" Gray crushed ROCK, dry (GW)	
10	48/48		0.173			36-42" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.193			0-10" Dark gray very fine to fine SAND and SILT, little fine Gravel moist (SM)	
						10-11" Gray crushed ROCK, dry (GW)	
			0.184			11-48" Dark gray very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.178				
15						End of boring at 14 feet below ground surface (refusal)	
						Multiple borings were advanced to confirm lack of contamination at this location due to the location being in a known waste disposal area, see 10SB3A and 10SB3B	
20							
25							

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Boring Log

10SB3A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB3

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.161			0-5" Dark brown very fine to medium SAND and SILT, organic matter, moist [topsoil]	
			0.152			5-11" Dark gray very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.153			11-15" Dark gray fine to medium SAND, trace Silt, trace fine Gravel, moist (SP)	
			0.152			15-20" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.151			20-32" Tan very fine to fine SAND, little fine Gravel, trace Silt, moist (SP)	
5	60/32		0.147			0-12" Tan very fine to fine SAND, little fine Gravel, trace Silt, moist (SP)	
			0.157				
			0.152			12-30" Brown fine to medium SAND, trace fine Gravel, trace Silt, moist (SP)	
			0.160				
			0.169			30-36" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
10	24/24		0.171			0-5" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.149			5-7" Gray crushed ROCK, dry (GW)	
						7-19" Dark gray very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
						19-24" Dark gray fine to medium SAND, some Silt, trace fine Gravel, moist (SP)	
15						End of boring at 12 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB3B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB3

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.154			0-4" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.149			4-9" Dark gray very fine to fine SAND, some Silt, moist (SP)	
			0.153			9-20" Mottled dark gray and brown fine to medium SAND, some Asphalt throughout, moist [fill]	
			0.150	10SB3-1(2-4/3) 10SB3-10(2-4/3)		20-32" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.149				
5	60/46		0.154			0-3" (SP) Brown very fine to fine SAND, some Silt, trace fine Gravel, moist	
			0.161			3-4" Gray crushed ROCK, dry (GW)	
			0.166			4-10" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.160			10-21" Brown fine to medium SAND, trace Silt, moist (SP)	
			0.152			21-28" Brown fine to coarse SAND, trace fine Gravel, moist (SW)	
						28-46" Dark gray very fine to fine SAND and SILT, trace fine to medium Gravel, moist (SM)	
10	24/24		0.135			0-11" Dark gray very fine to fine SAND and SILT. trace fine Gravel, moist (SM)	
			0.139	10SB3-2 (10-12/11)		11-14" Gray crushed ROCK, dry (GW)	
						14-24" Dark gray very fine to fine SAND and SILT, trace fine Gravel, 2 inch layer of dark gray crushed ROCK from 4-6 inches, moist (SM)	
15						End of boring at 12 feet below ground surface	
20							
25							

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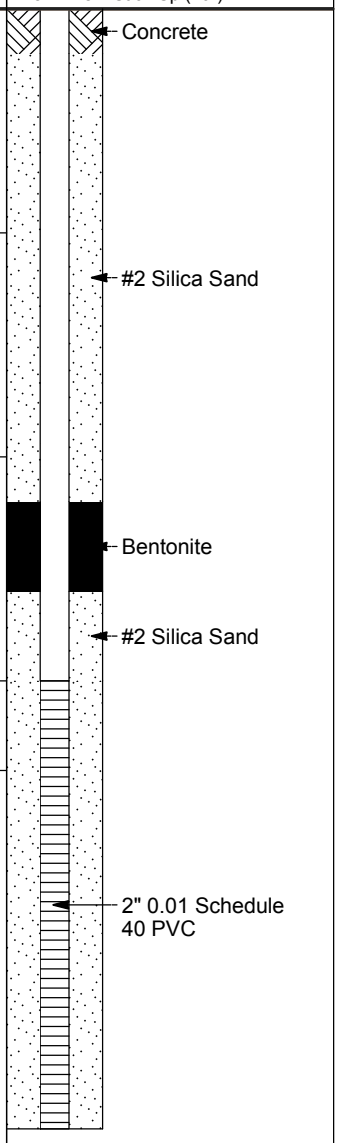
Boring Log

10SB4/10OBMW2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/27/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 14.5 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 22.03'
NOTES 60" length, 2" diameter poly core liner. Well installed with CME 80X 3.75" ID Hollow Stem Auger.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/31	NA	0.365			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]
			0.373			2-31" Dark gray very fine to fine SAND, some Silt, little fine Gravel, moist (SP)
			0.348			
			0.346			
			0.341			
5	60/36		0.316			0-36" Dark gray very fine to fine SAND, some Silt, little fine Gravel, moist (SP)
			0.319			
			0.336			
			0.337			
			0.327			
10	60/32		0.329			0-7" Dark gray very fine to fine SAND, some Silt, little fine Gravel, moist, 0.25 inch bands of brown coloring (SP)
			0.357			7-10" Gray crushed ROCK, dry (GW)
			0.349			10-32" Dark gray very fine to fine SAND and SILT, trace fine Gravel, saturated (SM)
			0.323			
			0.335			
15	24/24		0.316			0-24" Dark gray very fine to medium SAND and SILT, some fine to medium Gravel, relatively dense, moist (SM)
			0.314			
						End of boring at 17 feet below ground surface (refusal)
20						Multiple borings were advanced to confirm lack of contamination at this location due to the location being in a known waste disposal area, see 10SB4A, 10SB4B, 10SB4C. Contamination was noted in 10SB4B and 10SB4C.
						Well set into weathered bedrock with water encountered at 14.5'. No evidence of petroleum as previously reported in BRMW-1
25						



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Boring Log

10SB4A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/27/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB4

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/24	NA	0.322			0-6" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.308			6-24" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.310				
			0.306				
			0.309				
5	60/27		0.348			0-22" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.313				
			0.324				
			0.331				
			0.363			22-23" Large ROCK (GW)	
10	60/25		0.350			23-27" Mottled dark gray and olive green very fine to medium SAND and SILT, trace fine Gravel, trace Brick, little Coal, moist [fill]	
			0.349			0-4" Mottled dark gray and olive green very fine to medium SAND and SILT, trace fine Gravel, trace Brick, moist [fill]	
			0.346			4-25" Dark gray very fine to fine SAND and SILT, little fine to medium Gravel, large Rock 3-5 inches with purple coloring, moist (SM)	
			0.347				
			0.337				
15	24/24		0.322			0-24" Mottled dark gray/olive green very fine to medium SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.320				
						End of boring at 17 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB4B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/27/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB4

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.325			0-3" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.312			3-12" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, trace Glass, moist (SP)	
			0.390			12-14" Gray crushed ROCK, dry (GW)	
			0.329			14-21" Mottled dark gray and brown very fine to fine SAND and SILT, little fine to medium Gravel, little white Ash, trace Glass [fill], moist (SM)	
			0.320			21-32" Dark gray very fine to fine SAND, some Silt, moist (SP)	
5	60/40		0.279			0-40" Dark gray very fine to fine SAND, some Silt, moist (SP)	
			0.310				
			0.302				
			0.306				
			0.291				
10	60/26		0.318			0-5" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.314			5-6" White crushed QUARTZ, dry	
			0.300			6-24" Dark gray very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.301				
			3.427				
15	24/22		2.491			24-26" Mottled dark gray and brown very fine to fine SAND and SILT, some gray Caulk, trace Glass, moist, solvent-like odor [fill]	
			1.141	10SB4-2 (15-17/16)		0-10" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist to saturated (SM)	
			3.397			10-22" Mottled dark gray and brown/olive green very fine to medium SAND, little fine Gravel, some Silt, trace Coal observed in bottom inch, moist (SW)	
						End of boring at 17 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB4C

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/27/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB4

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/25	NA	0.261			0-2" Dark brown very fine to fine SAND, some Silt, organic matter, moist [topsoil]	
			0.273			2-25" Dark gray very fine to fine SAND and SILT, little fine Gravel, little Coal observed from 13-15", moist (SM)	
			0.284				
			0.286				
			0.305				
5	60/33		0.300			0-33" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.282				
			0.279				
			0.274				
			0.304				
10	60/27		0.304			0-12" Dark gray very fine to medium SAND and SILT, little fine to medium Gravel, trace white Ash, trace Glass, Wood fragments from 10-12", moist [fill]	
			1.138	10SB4-1(10-12/11)			
			0.435			12-27" Dark gray very fine to fine SAND and SILT, trace fine to medium Gravel, moist (SM)	
			0.351				
			0.336				
15	24/22		0.291			0-14" Dark gray very fine to fine SAND and SILT, trace fine to medium Gravel, moist (SM)	
			0.272			14-22" Mottled dark gray and olive green very fine to fine SAND, some Silt, trace fine Gravel, crushed Rock from 4-6", moist (SP)	
						End of boring at 17 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 24.54'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/34	NA	0.105			0-3" Dark gray very fine to fine SAND, some Silt, organic matter, moist [topsoil]	
			0.106			3-6" Dark gray fine to coarse SAND, trace fine Gravel, moist (SW)	
			0.111			6-24" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.110			24-27" Dark brown very fine to fine SAND and SILT, moist (SM)	
			0.141			27-34" Light brown/orange very fine to fine SAND and SILT, moist (SM)	
5	60/44		0.107			0-5" Light brown/orange very fine to fine SAND and SILT, moist (SM)	
			0.108			5-12" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.111			12-14" Gray crushed ROCK, dry (GW)	
			0.116			14-44" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.120				
10	48/44		0.115			0-23" Dark gray very fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.111				
			0.111			23-25" Gray crushed ROCK, dry (GW)	
			0.130			25-44" Dark gray very fine to fine SAND and SILT, some fine to medium Gravel, moist (SM)	
15						End of boring at 14 feet below ground surface (refusal)	
						Multiple borings were advanced to confirm lack of contamination at this location due to the location being in a known waste disposal area, see 10SB5A, 10SB5B, and 10SB5C	
20							
25							

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Boring Log

10SB5A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/26/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB5

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/31	NA	0.116			0-9" Dark gray very fine to fine SAND and SILT, little fine Gravel, organic matter, moist [topsoil]	
			0.117			9-10" Gray crushed ROCK, dry (GW)	
			0.113			10-24"Dark gray very fine to fine SAND, some Silt, little fine Gravel, moist (SP)	
			0.113				
			0.124			24-26" Dark brown very fine to fine SAND and SILT, moist (SM)	
5	60/44		0.106			26-31" light brown/orange very fine to fine SAND, some Silt, moist (SP)	
			0.114			0-7" Light brown/orange very fine to fine SAND, some Silt, moist (SP)	
			0.176			7-23" Brown very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.142			23-38" Dark gray very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.115			38-40" Gray crushed ROCK, dry (GW)	
10	48/35		0.156			40-44" Dark gray very fine to fine SAND and SILT, moist (SM)	
			0.121			0-7" Dark gray very fine to medium SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.129			7-15" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
						15-19" Dark gray crushed ROCK, dry (GW)	
			0.123			19-35" Dark gray fine to coarse SAND and SILT, little fine to medium Gravel, moist (SM)	
15						End of boring at 14 feet below ground surface (refusal)	
20							
25							

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Boring Log

10SB5B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/27/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB5

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/31	NA	0.287			0-5" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.190			5-24" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.193				
			0.188				
			0.189			24-27" Dark brown very fine to fine SAND and SILT, moist (SM)	
						27-31" Brown very fine to fine SAND, some Silt, moist (SP)	
5	60/50		0.202			0-4" Brown very fine to fine SAND, some Silt, moist (SP)	
						4-5" Dark gray very fine to fine SAND and SILT, moist (SM)	
			0.205			5-19" Brown fine to medium SAND, little Silt, trace fine Gravel, moist, color lightening with depth (SP)	
			0.204			19-50" Dark gray very fine to medium SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.206				
			0.206				
10	57/53		0.225			0-24" Dark gray very fine to medium SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.221				
			0.222			24-36" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.222			36-53" Dark gray very fine to coarse SAND, some Silt, some fine to medium Gravel, moist (SW)	
			0.222				
15						End of boring at 14.75 feet below ground surface	
20							
25							

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Boring Log

10SB5C

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/27/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory for evidence of contamination of 10SB5

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.301			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.235			2-25" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.328				
			0.329				
			0.401			25-28" Dark brown very fine to fine SAND and SILT, moist, large rock from 2-3 inches (SM)	
5	60/47		0.234			28-32" Brown very fine to fine SAND, some Silt, moist (SP)	
						0-9" Brown very fine to fine SAND, some Silt, moist (SP)	
			0.256			9-30" Tan/brown very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.233				
			0.212			30-47" Dark gray very fine to medium SAND, trace Silt, trace fine Gravel, 2 inch layer of gray crushed ROCK 4-6" moist (SW)	
			0.242				
10	36/36		0.251			0-12" Dark gray very fine to medium SAND, trace Silt, trace fine Gravel, moist (SW)	
			0.250			12-24" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.253	10SB5-1(11-13/12)		24-36" Dark gray very fine to fine SAND and SILT, little fine Gravel in bottom 4 inches, moist (SM)	
15						End of boring at 13 feet below ground surface (refusal)	
20							
25							

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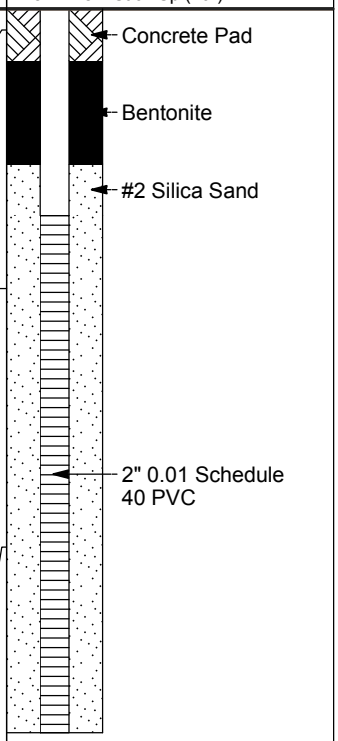
Boring Log

12SB1/12OBMW1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/15/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 6 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 45.52'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/41	NA	0.0			0-5" CONCRETE
			0.2			0-7" Dark brown fine to coarse SAND, some fine Gravel, wet (SW)
			01			7-10" Dark gray fine to medium SAND, some fine Gravel, some Organics, moist (SP)
			0.0			10-20" Dark gray fine to coarse SAND, some fine Gravel, trace crushed Phyllite, moist (SW)
			0.0			20-27" Intermittent layers of dark gray fine to coarse SAND and fine GRAVEL and white crushed QUARTZ, dry (SW)
			0.0			27-41" Dark gray very fine to fine SAND and SILT, trace Clay, trace fine Gravel, moist (SM)
5	60/57		0.0			0-3" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)
			0.0			3-6" Gray mottled with brown, fine to coarse SAND, trace Silt, trace fine Gravel, moist (SW)
			0.0	12SB1-1 (6-8/7)		6-9" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist(SM)
			0.0			9-26" Very fine to fine SAND and SILT, trace Clay, trace fine Gravel, wet (SM)
			0.0			26-38" Dark gray fine SAND, some Silt, trace fine Gravel, wet (SP)
10	60/44		0.0			38-57" Dark gray very fine to fine SAND and SILT, trace Clay, wet (SM)
			0.0			0-30" Dark gray very fine to medium SAND, some fine Gravel, trace Silt, wet (SW)
			0.0			
			0.0			
			0.0			
			0.0			30-44" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, wet (SP)
15	36/34		0.0			0-24" Dark gray fine to medium SAND, some fine Gravel, trace Silt, wet (SP)
			0.0			
			0.0			
			0.0			24-34" Dark gray mottled with brown very fine to fine SAND, some Silt, some crushed Rock, moist (SP)
20						End of boring at 18.41 feet below ground surface (refusal)
						(Refusal confirmed at 4.5 feet on second attempt, see 12SB1A)
25						



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Boring Log

12SB1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/15/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 6 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory of 12SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/37	NA	0.0			0-4" CONCRETE	
			0.0			0-5" Dark brown fine to coarse SAND, some fine Gravel, wet (SW)	
			0.0			5-24" Alternating layers of dark gray fine to coarse SAND, some Silt, some fine Gravel, and gray crushed ROCK and QUARTZ trace fine Sand, dry (SW)	
			0.0				
			0.0			24-37" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
5	60/56		0.0			0-4" Dark gray fine to coarse SAND, some fine Gravel, trace Silt, moist (SW)	
			0.0			4-20" Dark gray very fine to fine SAND and SILT, trace Clay, trace fine Gravel, wet (SM)	
			0.0			20-28" Dark gray fine to medium SAND, some Silt, trace fine Gravel, wet (SP)	
			0.0			28-56" Dark gray mottled with brown very fine to fine SAND, some Silt, trace fine Gravel, wet (SP)	
			0.0				
10	60/47		0.0			0-15" Dark gray very fine to fine SAND and SILT, trace Clay, trace fine Gravel, wet (SM)	
			0.0				
			0.0			15-47" Dark gray very fine to medium SAND, some Silt, some fine Gravel, wet (SW)	
			0.0				
			0.0				
15	36/36		0.0			0-23" Dark gray very fine to fine SAND, trace Silt, trace fine Gravel, wet (SP)	
			0.0				
			0.0			23-36" Dark gray mottled with brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.0			End of boring at 18.34 feet below ground surface (refusal)	
20							
25							

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Boring Log

12SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 7.5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/37	NA	0.1			0-8" Dark gray fine SAND, some fine Gravel, trace Silt, dry (SP)	
			0.1			8-23" Dark brown very fine to fine SAND, some Silt, trace fine Gravel, trace Organics, moist (SP)	
			0.1				
			0.1			23-37" Dark gray very fine to fine SAND, trace Silt, trace fine Gravel, moist (SP)	
			0.1				
5	54/51		0.1			0-14" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.1			14-19" Dark brown fine SAND, trace fine Gravel, moist (SP)	
			0.1			19-22" Light gray crushed ROCK, trace fine Sand, wet (GW)	
			0.1			22-29" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.1	12SB2-1 (7.5-9.5/8.5)		29-31" Light gray mottled with light brown crushed ROCK, moist (GW)	
			0.1			31-51" Dark gray very fine to fine SAND, some Silt, trace Clay, wet (SP)	
10			0.1			End of boring at 9.5 feet below ground surface (refusal)	
						Refusal confirmed at 7 and 9 feet bgs in 12SB2A and 12SB2B, respectively	
15							
20							
25							

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Boring Log

12SB2A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory of 12SB2

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/39		0.0 0.0 0.0 0.0 0.0			0-11" Dark gray mottled with brown very fine to fine SAND, some fine Gravel, trace Silt, trace Organics, dry (SP) 11-26" Dark brown fine SAND, some fine Gravel, trace crushed Phyllite, trace Silt, moist (SP) 26-39" Dark gray very fine to fine SAND, some Silt, trace Gravel, moist (SP)	
5	24/20		0.1 0.2			0-20" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
						End of boring at 7 feet below ground surface (refusal on concrete)	
10							
15							
20							
25							

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Boring Log

12SB2B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 7 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory of 12SB2

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/27	NA	0.0			0-11" Dark brown fine SAND, some crushed Rock, trace fine Gravel and Organics, dry (SP)	
			0.0				
			0.0			11-17" Dark brown very fine to fine SAND, some fine Gravel, trace crushed Phyllite, moist (SP)	
			0.0			17-22" Dark brown very fine to fine SAND and SILT, trace crushed Phyllite, trace Clay, moist (SM)	
			0.0			22-27" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
5	48/48		0.0			0-11" Dark gray mottled with brown very fine to fine SAND, some Silt, some crushed Rock, trace Clay, moist (SP)	
			0.0			11-14" Dark gray crushed PHYLLITE and very fine to fine SAND, trace Silt, moist (GW)	
			0.0			14-26" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			26-30" Dark gray mottled with red/brown fine to medium SAND, trace Silt, wet (SP)	
			0.0			30-38" Dark gray/brown fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW)	
10						38-48" Dark gray very fine to medium SAND, some Silt, some fine Gravel, wet (SW)	
						End of boring at 9 feet below ground surface (refusal on concrete)	
15							
20							
25							

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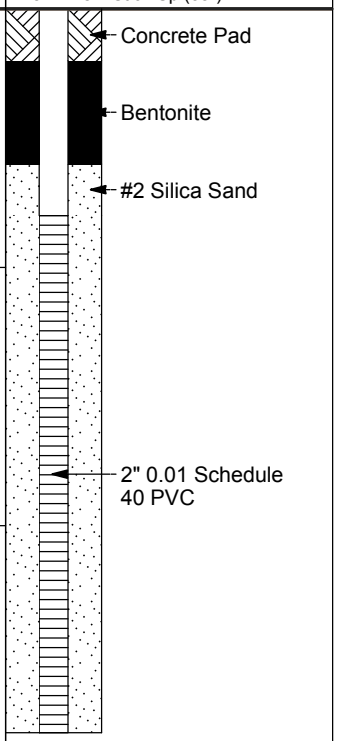
Boring Log

12SB3/12OBMW2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 6 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 42.20'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/26	NA	0.1			0-12" Dark gray fine to coarse SAND, some fine Gravel, trace Silt, dry (SW)
			0.1			
			0.1			12-19" Light gray crushed ROCK, dry (GW)
			0.1			
			0.1			19-26" Dark gray very fine to fine SAND, some Silt, some fine Gravel, some Organics, moist (SP)
5	60/31		31.6			0-2" Dark gray very fine to fine SAND, some Silt, some fine Gravel, some Organics, moist (SP)
			12.0			2-4" Dark gray crushed PHYLLITE, trace fine Sand, dry (GW)
			8.3			4-39" Dark brown fine to medium SAND, trace fine Gravel, trace Silt, wet, petroleum odor (SP)
			24.6			
			49.9			
10	60/44		18.4	12SB3-1 (9-11/10)		0-4" Dark brown fine to medium SAND, trace fine Gravel, trace Silt, wet, petroleum odor (SP)
			6.9			4-20" Dark gray fine to coarse SAND, some Silt, trace Gravel, wet (SW)
			6.5			20-25" Dark gray and light gray crushed PHYLLITE, some fine Sand, moist (GW)
			6.2			25-44" Dark gray fine SAND, some Silt, trace Clay, trace fine Gravel, wet, petroleum odor (SP)
			6.2			
15	36/35		19.0			0-8" Dark gray fine SAND, some Silt, wet, petroleum odor (SP)
			10.9			8-14" Dark gray SILT and CLAY, trace very fine to fine Sand, wet, petroleum odor (CL-ML)
			10.5			14-31" Dark gray mottled with dark brown very fine to fine SAND, some Silt, trace fine Gravel, wet, petroleum odor (SP)
						31-35" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist, petroleum odor (SM)
20						End of boring at 18 feet below ground surface (refusal)
25						



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Boring Log

12SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/16/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 9.5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/40	NA	0.1			0-5" Gray/brown fine to medium SAND, trace fine Gravel, dry (SP)	
			0.1			5-12" Dark gray fine SAND, some Silt, some fine Gravel, dry (SP)	
			0.1			12-23" Dark brown very fine to fine SAND, trace Silt, trace fine Gravel, trace Organics, moist (SP)	
			0.1			23-31" Dark brown very fine to fine SAND, some Silt, trace Clay, wet (SP)	
			0.1			31-40" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
5	60/36		0.1			0-14" Dark gray mottled with dark brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.0				
			0.1			14-21" Light gray and dark gray crushed PHYLLITE, some very fine to fine Sand, dry (GW)	
			0.0			21-30" Dark gray very fine to fine SAND, some Silt, trace crushed Phyllite and fine Gravel, moist (SP)	
			0.1			30-36" Dark gray mottled with brown fine to medium SAND, some Silt, trace fine Gravel, wet (SP)	
10	60/42		0.0	12SB4-1 (9-11/10)		0-8" Dark brown fine to coarse SAND, trace fine Gravel, wet (SW)	
			0.0			8-11" Dark gray fine to medium SAND, trace fine gravel, wet (SP)	
			0.0			11-15" Gray mottled with brown crushed ROCK, some fine Sand, moist (GW)	
			0.0			15-24" Dark gray to light gray crushed PHYLLITE, some very fine to fine Sand, moist (GW)	
			0.0			24-42" Gray/brown very fine to fine SAND, some Silt, trace fine Gravel, wet (SP)	
15	30/28		0.1			0-15" Dark gray mottled with brown fine to medium SAND, some fine Gravel, wet (SP)	
			0.1			15-28" Dark gray mottled with red/brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.0				
			0.0			End of boring at 17.5 feet below ground surface (refusal)	
20							
25							

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Boring Log

21SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 10.94'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/35	NA	0.0			0-5" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			5-17" Dark brown very fine to fine SAND and SILT, some Gravel, moist (SM)	
			0.0			17-24" Gray crushed ROCK, dry (GW)	
			0.0	21SB1-1 (2-4/3) and 21SB1-10		24-35" Dark gray weathered BEDROCK, moist	
						End of boring at 4 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

21SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	24/22	NA	0.1			0-4" Dark gray very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			1.2	21SB2-1 (0-2/1)		4-6" Grey crushed ROCK, dry (GW)	
						6-12" Dark gray very fine to fine SAND and SILT, some Gravel, some crushed phyllite in bottom 1", moist (SM)	
						12-16" Gray crushed ROCK (concrete), dry (GW)	
						16-22" Mottled gray and brown weathered BEDROCK, moist	
						End of boring at 2 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

21SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/38		0.0			0-4" Dark brown very fine to fine SAND, some Silt, organic matter, moist [TOPSOIL]	
			0.0			4-12" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			12-38" Dark gray fine to medium SAND, some Silt, moist to saturated at 23" (SP)	
			0.0				
			0.0				
5	60/50		0.0			0-8" Dark gray fine to medium SAND, some Silt, saturated (SP)	
			0.0			8-50" Dark gray very fine to medium SAND and SILT, little Gravel, moist (SM)	
			0.0				
			0.0				
			0.0				
10	48/39		0.0			0-39" Mottled dark gray and gray weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
			0.0				
			0.0	21SB3-1 (12-14/13)			
						End of boring at 14 feet below ground surface (refusal)	
15							
20							
25							

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21SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 28.67'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/50		0.0			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			2-9" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			9-12" Brown fine to medium GRAVEL, moist (GP)	
			0.0			12-50" Dark gray very fine to fine SAND and SILT, trace Gravel, moist (SM)	
			0.0				
5	60/50		0.0			0-38" Dark gray very fine to fine SAND and SILT, trace Gravel, moist (SM)	
			0.0				
			0.0				
			0.0				
			0.0			38-50" Dark gray weathered BEDROCK, some very fine to fine Sand and Silt, some Phyllite observed throughout, moist	
10	48/47		0.0			0-47" Dark gray weathered BEDROCK, some very fine to fine Sand and Silt, some Phyllite observed throughout, moist	
			0.0				
			0.0				
			0.0	21SB4-1 (12-14/13)			
						End of boring at 14 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

21SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 30.39'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/36		0.0			0-3" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			3-6" Gray crushed ROCK, dry (GW)	
			0.0			6-36" Dark gray very fine to fine SAND and SILT, trace Gravel, moist (SM)	
			0.0				
			0.0				
5	60/36		0.0			0-13": Dark gray very fine to fine SAND and SILT, trace Gravel, moist (SM)	
			0.0				
			0.0			13-36" Gray/dark gray weathered BEDROCK, little very fine to fine Sand and Silt, moist	
			0.0				
			0.0				
10	24/23		0.0			0-23" Dark gray weathered BEDROCK, little very fine to fine Sand and Silt, wet	
			0.0	21SB5-1 (10-12/10-11)			
						End of boring at 12 feet below ground surface (refusal)	
						Refusal confirmed at 12 feet bgs in 21SB5A and 21SB5B	
15							
20							
25							

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Boring Log

21SB5A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 21SB5

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/48		0.0			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			2-18" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			18-48" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.0				
5	60/50		0.0			0-27" Dark gray very fine to fine SAND and SILT, some Gravel, moist (SM)	
			0.0				
			0.0				
			0.0			27-32" Gray crushed ROCK, dry (GW)	
			0.0			32-50" Mottled dark gray, gray, and brown weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
10	24/20		0.0			0-20" Mottled dark gray, gray, and brown weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
						End of boring at 12 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

21SB5B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 21SB5

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/39		0.0			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			2-18" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0				
			0.0			18-39" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.0				
5	60/48		0.0			0-15" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.0				
			0.0			15-48" Mottled dark gray and gray weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
			0.0				
10	24/22		0.0			0-22" Dark gray weathered BEDROCK, little very fine to fine Sand, some Silt, wet	
			0.0				
						End of boring at 12 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

21SB6

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32		0.1			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.1			2-30" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.1				
			0.1				
			0.1				
5	60/55		0.1			30-32" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.1			0-19" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.1			19-55" Dark gray weathered BEDROCK, some very fine to fine Sand, some Silt, phyllite observed from 45-50", moist	
			0.1				
			0.1	21SB6-1 (8-10/9)			
10						End of boring at 10 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

22SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/31	NA	0.2			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			2-5" Dark brown very fine to fine SAND and SILT, moist (SM)	
						5-8" Gray crushed ROCK, moist (GW)	
			0.0			8-17" Dark brown/gray very fine to fine SAND and SILT, little Clay, trace fine Gravel, moist (SM)	
			0.0			17-31" Dark gray very fine to fine SAND and SILT, some Clay, trace fine Gravel, crushed rock in bottom 2", moist (SM)	
			0.0				
5	12/12		0.1			0-9" Dark gray very fine to fine SAND and SILT, some Clay, trace fine Gravel, moist (SM)	
						9-12" Grey crushed ROCK, dry (GW)	
						End of boring at 6 feet below ground surface (refusal)	
						Refusal confirmed at 2 and 6 feet bgs in 22SB1A and 22SB1B, respectively	
10							
15							
20							
25							

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Boring Log

22SB1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 22SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	24/20	NA	0.0			0-8" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			8-11" Gray crushed ROCK, dry (GW)	
						11-15" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
						15-19" White crushed ROCK, dry (GW)	
						19-20" Dark gray very fine to fine SAND and SILT, some Clay, trace fine Gravel, moist (SM)	
						End of boring at 2 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

22SB1B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 22SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/40	NA	0.7			0-6" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			6-19" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			19-21" Dark gray crushed ROCK (phyllite), dry (GW)	
			0.0			21-24" Brown fine to medium SAND, little fine Gravel, moist (SP)	
			0.0			24-40": Dark gray weathered BEDROCK, moist	
5	12/12		0.0	22SB1-1 (4-6/5)		0-12": Dark gray crushed ROCK, little very fine to fine Sand, little Silt, wet (GW)	
						End of boring at 6 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

22SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 24.16'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/45		0.0			0-34" Dark gray very fine to fine SAND and SILT, little fine Gravel (SM)	
			0.0				
			0.0				
			0.0				
			0.0			34-45" Gray crushed ROCK, dry (GW)	
5	24/24		0.0			0-24" Alternating 3" layers of red/brown and gray crushed ROCK, dry (GW)	
			0.0	22SB2-1 (5-7/6)			
						End of boring at 7 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

22SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 24.16'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/46		0.0			0-7" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			7-46" Dark gray very fine to fine SAND and SILT, trace fine Gravel, weathered bedrock, moist (SM)	
			0.0				
			0.0				
			0.0				
5	60/60		0.0			0-60": Dark gray weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
			0.0				
			0.0				
			0.0	22SB3-1 (8-10/9)			
10						End of boring at 10 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

22SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/43		0.0			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			2-11" Brown fine to medium SAND, some Silt, little root matter, moist (SP)	
			0.0			11-43" Mottled dark gray, gray, and brown very fine to find SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.0				
5	60/50		0.0			0-50" Mottled dark gray, gray, and brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.0				
			0.0				
			0.0				
10	48/41		0.0			0-15" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.0			15-41" Mottled gray and brown weathered BEDROCK	
			0.0	22SB4-1 (12-14/13)			
15						End of boring at 14 feet below ground surface (refusal)	
20							
25							

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Boring Log

22SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 28.32'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/39		0.0			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0			2-30" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0				
			0.0				
			0.0			30-36" Black fine to medium SAND, some Silt, moist (SP)	
5	60/51		0.0			36-39" Dark gray/black very fine to fine SAND and SILT, moist (SM)	
			0.0			0-4" Mottled dark gray and brown very fine to fine SAND and SILT and fine GRAVEL, moist (SM)	
			0.0			4-16" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			16-24" Gray crushed ROCK, dry (GW)	
			0.0			24-33" Dark gray very fine to fine SAND and SILT, moist (SM)	
			0.0			33-51" Mottled dark gray, gray, and brown weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
10	36/28		0.0			0-12": Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.0	22SB5-1 (11-13/12)		12-28": Mottled dark gray, gray, and brown weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
						End of boring at 13 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

22SB6

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	24/16	NA	0.1			0-3" Dark brown very fine to fine SAND and SILT, organic matter, wood fragments from 1-3", moist [TOPSOIL]	
			0.0			3-10" Reddish brown WOOD	
				22SB6-1 (1-2/1.5)		10-16" Dark gray very fine to fine SAND and SILT, some fine to medium Gravel, moist (SM)	
						End of boring at 2 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

23SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/34		0.0			0-2" Dark brown fine to medium SAND and organic matter, large coal pieces observed throughout, moist [TOPSOIL]	
			0.0	23SB1-1 (0-2)		2-7" Black COAL, dry	
			0.0			7-10" Dark brown very fine to fine SAND and SILT, trace Coal, moist (SM)	
			0.0			10-22" Dark brown very fine to fine SAND and SILT, moist (SM)	
			0.0			22-34" Dark gray weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
5	60/50		0.0			0-9" Dark gray weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0			9-16" Light brown/brown crushed ROCK, some very fine to fine Sand, some Silt, dry (GW)	
			0.0			16-26" Gray crushed ROCK, dry (GW)	
			0.0			26-50": Dark gray weathered BEDROCK, some very fine to fine Sand and Silt, some phyllite observed throughout, moist	
			0.0				
10						End of boring at 10 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

23SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 24.67'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/44		0.0			0-2" Dark brown very fine to medium SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0	23SB2-1 23SB2-10 (0-2)		2-11" Black COAL, moist	
			0.0			11-16" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			16-44" Dark gray very fine to fine SAND, SILT, and weathered Bedrock, moist (SM)	
			0.0				
5	60/60		0.0			0-60" Mottled dark gray and brown weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
			0.0				
			0.0				
			0.0				
10						End of boring at 10 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

23SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/26/28 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 24.64'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/47		0.0			0-4" Dark brown to black COAL, some very fine to fine Sand, little Silt, moist	
			0.0	23SB3-1 (0-1)		4-8" Dark brown very fine to fine SAND and SILT, moist (SM)	
			0.0			8-34" Dark gray very fine to fine SAND and SILT, some weathered Bedrock, moist (SM)	
			0.0				
			0.0			34-47" Gray weathered BEDROCK, dry	
5	60/60		0.0			0-60" Dark gray/gray weathered BEDROCK, some phyllite observed throughout, moist	
			0.0				
			0.0				
			0.0				
			0.0				
10	24/24		0.0			0-24" Dark gray/gray weathered BEDROCK, some phyllite observed throughout, moist	
			0.0				
						End of boring at 12 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

23SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/26/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/53		0.0			0-1": Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0	23SB4-1 (0-2)		1-14" Black COAL, some very fine to fine Sand, dry	
			0.0			14-53" Dark gray very fine to fine SAND and SILT, moist (SM)	
			0.0				
			0.0				
5	48/48		0.0			0-39" Dark gray fine to coarse SAND, some Silt, trace fine Gravel, moist (SW)	
			0.0				
			0.0				
			0.0			39-48" Dark gray weathered BEDROCK, moist	
						End of boring at 9 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

23SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/26/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 25.95'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33		0.0			0-1" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.0	23SB5-1 (0-2)		1-10" Black COAL, some very fine to medium Sand	
			0.0			10-30" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0				
			0.0				
5	60/56		0.0			30-33" Gray weathered BEDROCK, some Silt, moist	
			0.0			0-56" Gray weathered BEDROCK, moist to dry at 30"	
			0.0				
			0.0				
			0.0				
10						End of boring at 10 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

23SB6

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/26/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 27.65'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/35		0.0			0-5" Brown very fine to fine SAND and SILT, organic matter, trace Coal, moist [TOPSOIL]	
			0.0	23SB6-1 (0-1)		5-14" Dark gray very fine to fine SAND and SILT, moist (SM)	
			0.0			14-35" Dark gray fine to coarse SAND, some Silt, trace fine Gravel, moist (SW)	
			0.0				
			0.0				
5	60/52		0.0			0-52" Dark gray weathered BEDROCK, some Silt, moist	
			0.0				
			0.0				
			0.0				
			0.0				
10	16/16		0.0			0-16" Gray weathered BEDROCK, dry	
			0.0				
						End of boring at 11.3 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

23SB7

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/26/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/44		0.0			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL SP]	
			0.0			2-44" Dark gray very fine to fine SAND and SILT, trace Gravel, moist (SM)	
			0.0				
			0.0	23SB7-1 (1-5)			
			0.0				
5	60/43		0.0			0-27" Dark gray very fine to fine SAND and SILT, trace Gravel, 2" layer of fine to coarse Sand at 12-14", moist (SM)	
			0.0				
			0.0	23SB7-2 (5-9)			
			0.0			27-44" Dark gray very fine to fine SAND and SILT, some weathered Bedrock, trace fine Gravel, moist (SM)	
			0.0				
10	12/12		0.0			0-12" Dark gray weathered BEDROCK, moist	
						End of boring at 11 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

23SB8

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/27/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/23		0.0			0-2" Dark brown very fine to medium SAND and organic matter, moist [TOPSOIL]	
			0.0	23SB8-1 (0-2)		2-12" Dark brown very fine to fine SAND and SILT, trace fine Gravel, trace root matter, moist (SM)	
			0.0				
			0.0			12-23" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0				
5	60/60		0.0			0-60" Mottled gray, dark gray, and brown weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
			0.0				
			0.0				
			0.0				
			0.0				
10	36/33		0.0			0-33" Mottled gray and dark gray weathered BEDROCK, some very fine to fine Sand, some Silt, moist to dry at 12"	
			0.0				
			0.0				
						End of boring at 13 feet below ground surface (refusal)	
15							
20							
25							

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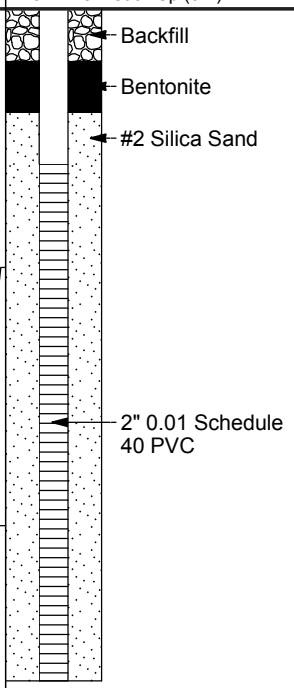
Boring Log

27SB1/27OBMW1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/5/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 6.42'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/40	NA	0.1			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]
			0.0			2-23" Dark gray very fine to fine SAND and SILT, some fine to medium Gravel, moist (SM)
			0.1			
			0.1			23-29" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)
			0.0			29-35" Dark gray very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)
5	60/32		0.1			35-40" Dark gray fine to medium SAND, some fine to medium Gravel, little Silt, moist (SP)
			0.1	27SB1-1 (5-7/6)		0-32" Dark gray fine to coarse SAND, some fine to medium Gravel, wet (SW)
			0.1			
			0.1			
			0.1			
10	60/60		0.1			0-29" Dark gray fine to coarse SAND, some fine to medium Gravel, wet (SW)
			0.1			
			0.1			
			0.1			29-49" Dark gray very fine to fine SAND, some Silt, little Gravel, wet (SP)
			0.1			49-60" Dark brown very fine to fine SAND and SILT, trace fine Gravel, wet (SM)
15	60/34		0.2			0-18" Dark gray very fine to fine SAND and SILT, trace fine Gravel, wet (SM)
			0.2			
			0.2			
			0.2			18-34" Dark gray weathered BEDROCK, moist
			0.2			
20						End of boring at 20 feet below ground surface (refusal)
25						

WELL DIAGRAM



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Boring Log

27SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/9/18 **LOGGED BY** Chris Terra
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/29	NA	0.1			0-9.5" CONCRETE	
			0.1			0-4" Dark gray very fine to fine SAND, some crushed Rock (phyllite), some Silt, dry (SP)	
			0.1			4-5" Gray crushed ROCK, dry (GW)	
			0.1			5-11" Dark gray very fine to fine SAND and SILT, some crushed Rock, dry (SM)	
			0.2			11-14" Gray to red/brown fine to medium GRAVEL, some very fine to fine Sand, some Silt, moist (GP)	
5			0.2			14-25" Dark gray fine to medium SAND, trace Silt, trace fine Gravel, moist (SP)	
	60/51		0.1			0-12" Dark gray fine to medium SAND, trace Silt, trace fine Gravel, wet (SP)	
			0.1	27SB2-1 (5.79-7.79/6.79)		12-14" Dark gray fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW)	
			0.1			14-24" Dark gray fine to medium SAND, some Silt, trace fine Gravel, wet (SP)	
			0.1			24-51" Dark brown SILT and CLAY, trace very fine Sand, wet (CL-ML)	
10			0.1				
	60/57		1.7			0-12" Dark brown fine to coarse SAND, trace fine Gravel, wet (SW)	
			4.8			12-16" Dark gray very fine to fine SAND, trace Silt, wet (SP)	
			0.8			16-57" Dark gray very fine to fine SAND, some Clay, some crushed Rock (phyllite), wet (SP)	
			0.4				
15			0.3				
	12/7		0.1			0-7" Mottled dark gray, olive green, and red very fine to fine SAND, some fine to medium Gravel, some Clay, wet (SP)	
						End of boring at 16.79 feet below ground surface (refusal; weathered bedrock observed in tip)	
20							
25							

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Boring Log

27SL1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/6/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, advanced inside gas pit

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	30/6	NA	0.0 0.0 0.0	No sample collected due to short refusal		0-6": Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
						End of boring at 2.5 feet below ground surface (Refusal confirmed at 7.75 feet on second and third attempt, see 27SL1A & 27SL1B)	
5							
10							
15							
20							
25							

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Boring Log

27SL1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/6/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, boring advanced outside of gas pit to collect sample below pit.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/22	NA	0.0			0-9" CONCRETE	
			0.1			0-5" Dark gray fine to medium GRAVEL, some very fine to fine Sand and Silt, wet from concrete coring activities (GP)	
			0.1			5-20" Dark gray very fine to fine SAND and SILT, Phyllite observed throughout, moist (SM)	
			0.0				
5			0.1				
	24/19		0.0			20-22" Mottled dark gray and reddish brown crushed ROCK, dry (GW)	
			0.1	27SL-1 (5.75-7.75/6.75)		0-5" Dark gray crushed PHYLLITE, little very fine to fine Sand, little Silt, wet (GW)	
				27SL-10 (5.75-7.75/6.75)		5-15" Gray fine to coarse SAND and fine GRAVEL, moist (SW)	
						15-19" Mottled dark gray and reddish brown weathered BEDROCK, moist	
10						End of boring at 7.75 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

27SL1B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/6/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 27SL1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/28	NA	0.1			0-9" Concrete	
			0.1			0-22" Dark gray very fine to fine SAND and SILT, little fine Gravel, 2" layer of gray crushed Rock from 12-14", moist (SM)	
			0.1				
			0.1				
			0.1				
5	24/24		0.1			22-25" Dark gray crushed ROCK (Phyllite), moist (GW)	
						25-28" Dark gray fine to medium SAND, trace fine Gravel, moist (SP)	
			0.1			0-4" Dark gray/black crushed ROCK (Phyllite), moist (GW)	
			0.1			4-24" Mottled gray, dark gray, and reddish brown weathered BEDROCK, moist	
			0.1			End of boring at 7.75 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

27SL2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/6/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, advanced inside gas pit

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/25	NA	0.1			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.1			2-14" Light brown fine to coarse SAND, some fine Gravel, moist (SW)	
			0.1			14-25" Light brown fine to medium SAND, trace fine Gravel, moist (SP)	
			0.4				
			0.2			End of boring at 4 feet below ground surface (refusal)	
5						(Refusal confirmed at 17.83 feet on second attempt, see 27SL2A)	
10							
15							
20							
25							

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Boring Log

27SL2A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/6/18 **LOGGED BY** Samantha Foote **DEPTH TO WATER*** 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore **TOC ELEVATION** **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, boring advanced outside of gas pit to collect sample below pit.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/18	NA	0.1			0-10" Concrete	
			0.1			0-2" Dark gray fine GRAVEL, some very fine to fine Sand and Silt, wet from coring (GP)	
			0.1			2-9" Dark gray very fine to medium SAND, little Silt, moist (SW)	
			0.1			9-18" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.1				
5	60/46		0.1				
			0.1	27SL2 (5.83-7.83/6.83)		0-23" Dark gray fine to coarse SAND, some fine Gravel, trace Silt, wet (SW)	
			0.1				
			0.1			23-46" Dark gray fine to coarse SAND, little fine Gravel, trace Silt, 2" layer of Phyllite from 42-44", wet (SW)	
			0.1				
10	60/50		0.1				
			0.1			0-16"Dark gray fine to coarse SAND, little fine Gravel, trace Silt, wet (SW)	
			0.2				
			0.1			16-30" Brown very fine to fine SAND and SILT, some Clay, wet (SP)	
			0.2			30-50" Dark gray SILT, some Clay, relatively dense compared to above, moist (ML)	
15	24/20		0.1				
			0.1			0-20" Mottled dark gray and reddish brown weathered BEDROCK (layers of crushed Phyllite), moist	
			0.1				
			0.2			End of boring at 17.83 feet below ground surface (refusal)	
20							
25							

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Boring Log

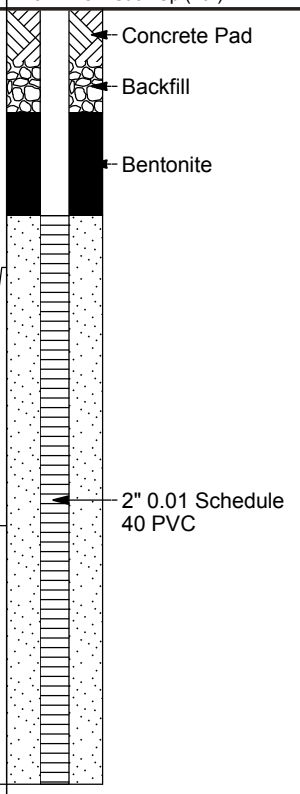
30SB1/30OBMW1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/12/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 8 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 4.59'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/29	NA	0.0			0-24" Dark gray fine to coarse SAND, some Gravel, dry (SW)
			0.0			
			0.0			
			0.0			
			0.0			24-26" Dark gray crushed PHYLLITE, some fine to coarse Sand, dry (GW)
5	60/41		0.0			26-29" Dark gray fine to medium SAND, trace Gravel, moist (SP)
			0.0			0-14" Dark gray fine to coarse SAND, some Gravel, wet (SW)
			0.0			14-19" Dark gray medium to coarse SAND, wet (SP)
			0.0	30SB1-1 (7-9/8)		19-41" Dark gray fine to coarse SAND, trace fine Gravel and crushed Rock, Phyllite, wet (SW)
			0.0			
10	60/53		0.0			0-10" Dark gray medium to coarse SAND, some fine Gravel, wet (SP)
			0.0			10-17" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)
			0.0			17-53" Dark gray fine to medium SAND, some fine Gravel, trace Silt, wet (SP)
			0.0			
			0.0			
15	60/54		0.0			0-54" Dark gray fine to coarse SAND, some fine Gravel, trace Silt, wet (SW)
			0.0			
			0.0			
			0.0			
			0.0			
20	60/44		0.0			0-8" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)
			0.0			8-24" Dark gray fine to medium SAND, some fine Gravel, trace Silt, wet (SP)
			0.0			
			0.0			24-44" Dark brown fine SAND, trace fine Gravel and Silt, moist (SP)
			0.0			
25	60/44		0.0			0-2" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)
						2-14" Dark gray medium to coarse GRAVEL, trace fine to coarse

WELL DIAGRAM

Well Finish: Stick Up (40")



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Boring Log

30SB1/30OBMW1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
			0.0			Sand, wet (GP)	
			0.0			14-24" dark gray very fine to fine SAND and SILT, some Clay, trace Gravel, wet (SM)	
			0.0			24-44" Dark gray fine to coarse SAND, some fine Gravel, trace Silt, wet (SW)	
			0.0				
30	60/43		0.0			0-14" Dark gray SILT and CLAY, trace very fine to fine Sand, wet (CL-ML)	
			0.0				
			0.0			14-43" Dark gray very fine to fine SAND and SILT, moist (SM)	
			0.0				
			0.0				
35			0.0			End of boring at 35 feet below ground surface (no refusal).	
40							
45							
50							
55							

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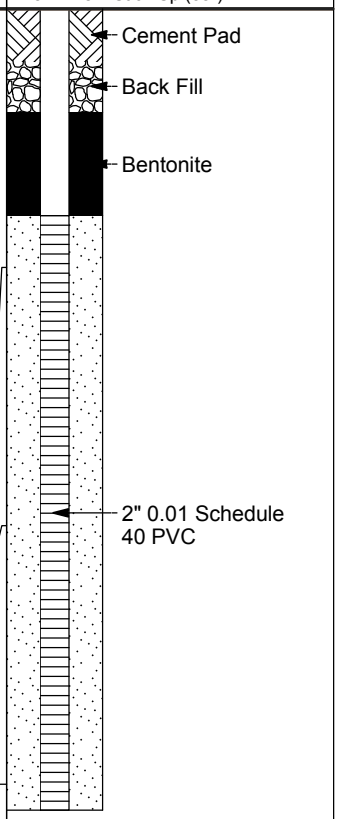
Boring Log

31SB1/31OBMW1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/12/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 8.5 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** 5.57'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/31	NA	0.0			0-1" Dark brown fine SAND and SILT, trace organics [TOPSOIL}
			0.0			1-12" Dark gray/brown fine to medium SAND, some fine Gravel, dry (SP)
			0.0			12-23" Dark gray fine to medium SAND, some fine Gravel, dry (SP)
			0.0			
			0.0			23-26" Dark gray fine to medium SAND, trace fine Gravel and crushed Rock, moist (SP)
5	60/47		0.0			26-28" Dark gray mottled with purple and white fine to medium SAND, trace fine Gravel, trace crushed Shells, moist (SP)
			0.0			28-31" Gray/brown fine to coarse SAND, some fine Gravel, moist (SW)
			4.2			0-6" Gray/brown fine to medium SAND, trace fine Gravel, moist (SP)
			0.4	31SB1-1 (7.5-9.5/8.5)		6-7" Dark brown very fine to fine SAND, some Silt, trace organics (SP)
			0.1			7-17" Dark gray mottled with brown fine to coarse SAND, some fine Gravel, moist (SW)
10	60/60		0.0			17-38" Dark gray fine to medium SAND, some fine Gravel, wet (SP)
			0.0			38-47" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)
			0.0			0-19" Dark gray fine to medium SAND, some fine Gravel, trace crushed Rock (phyllite), wet (SP)
			0.0			19-25" Dark gray fine to coarse SAND, some crushed Rock (phyllite), wet (SW)
			0.0			25-60" Dark gray fine to medium SAND, trace fine Gravel, wet (SP)
			0.0			
15	12/12		0.0			0-12" Dark gray very fine to medium SAND and SILT, trace Clay, trace fine Gravel, saturated (SM)
			0.0			End of boring at 16 feet below ground surface (refusal)
20						
25						



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Boring Log

31SL1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/12/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* NA **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/19	NA	0.0			0-6" Dark brown fine to coarse SAND, some fine Gravel, dry (SW)	
			0.0			6-8" Dark gray crushed ROCK (phyllite), trace fine to coarse Sand, dry (GW)	
			0.0			8-15" Dark brown fine to coarse SAND, trace fine Gravel, dry (SW)	
			0.0	31SL1-1 (2-4/3)			
			0.0			15-19" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)	
5						End of boring at 4 feet below ground surface (refusal).	
10							
15							
20							
25							

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Boring Log

32SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/14/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* NA **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/25	NA	0.2			0-2" Dark gray crushed PHYLLITE, trace fine Sand, dry (GW)	
			0.1			2-4" Dark gray fine to coarse SAND, trace fine Gravel, dry (SW)	
			0.1			4-25" Dark gray fine to coarse SAND, some crushed Rock, some fine Gravel, moist (SW)	
			0.1				
			0.1				
5	60/53		0.0			0-15" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)	
			0.0				
			0.0			15-21" Dark gray crushed PHYLLITE, some fine to coarse Sand, wet (GW)	
			0.0			21-24" Dark brown very fine to fine SAND, some Silt, wet (SP)	
			0.0			24-37" Dark brown SILT and CLAY, trace very fine to fine Sand, wet (CL-ML)	
			0.0			37-53" Dark gray SILT and CLAY, wet (CL-ML)	
10	36/32		0.0			0-5" Dark gray fine to coarse SAND, some crushed Rock, some fine Gravel, wet (SW)	
			0.0			5-18" Dark gray very fine to fine SAND and SILT, trace Clay, wet (SM)	
			0.0	32SB1-1 (11-13/12)		18-24" Dark gray SILT and CLAY, moist (CL-ML)	
			0.0			24-32" Dark gray mottled with brown weathered BEDROCK	
15						End of boring at 13 feet below ground surface (refusal)	
20							
25							

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Boring Log

35SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/37	NA	0.269			0-7" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.293	35SB1-1 (0.5-2.5)		7-20" Dark gray very fine to medium SAND, some Silt, trace fine Gravel, moist (SW)	
			0.265				
			0.243			20-23" Mottled brown and dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.285			23-27" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
5	60/48		0.247			27-31" Brown crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
			0.242			31-37" Brown very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.244			0-11" Brown very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.228			11-23" Mottled brown and dark gray very fine to fine SAND, some Silt, trace fine to medium Gravel, moist (SP)	
			0.248			23-48" Dark gray very fine to fine SAND and SILT, little Clay, trace fine Gravel, moist (SM)	
10	60/48		0.310			0-4" Dark gray very fine to fine SAND and SILT, little Clay, trace fine Gravel, moist (SM)	
			0.306			4-8" Brown very fine to fine SAND and SILT, trace Clay, trace fine Gravel, moist, (SM)	
			0.257			8-46" Dark gray very fine to fine SAND and SILT, little Clay, trace fine to medium Gravel, moist (SM)	
			0.262				
			0.277				
15	18/16		0.266			46-48" Dark gray crushed ROCK, little very fine to fine SAND, little SILT, moist (GW)	
			0.297			0-11" Dark gray crushed ROCK, little very fine to fine Sand, little Silt, moist (GW)	
						11-16" Dark gray fine to coarse SAND, some crushed Rock [Phyllite], some Silt, saturated (SW)	
						End of boring at 16.5 feet below ground surface (refusal)	
20							
25							

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Boring Log

35SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/29	NA	0.275			0-3" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.268	35SB2-1(0.5-2.5)		3-7" Dark gray very fine to fine SAND and SILT, some gray crushed Rock, moist (SM)	
			0.305			7-15"Dark gray very fine to fine SAND, some Silt, little fine Gravel, trace Coal, in bottom inch, moist (SP)	
			0.279			15-22" Dark brown to brown very fine to fine SAND, some Silt, trace fine to medium Gravel, moist (SP)	
			0.270			22-25" Gray crushed Rock, dry (GW)	
5	60/41		0.292			25-29" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.282			0-7" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.269			7-15" Dark brown very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.280			15-23" Dark gray very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.263			23-32" Dark gray SILT and CLAY, little very fine to fine Sand, trace fine to medium Gravel, moist (CL-ML)	
10	60/37		0.268			32-34" Gray crushed ROCK, dry (GW)	
			0.284			34-41" Dark gray very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.276			0-6" Dark gray very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
			0.275			6-9" Dark brown [topsoil]	
			0.273			9-28" Dark gray very fine to fine SAND and SILT, little Clay, trace fine Gravel, moist (SM)	
15	30/19		0.262			28-34" Brown/olive green fine to coarse SAND, little fine to medium Gravel, wet (SW)	
			0.263			34-37" Dark gray weathered BEDROCK, moist	
			0.261			0-19" weathered BEDROCK, moist	
20						End of boring at 17.5 feet below ground surface (refusal)	
25							

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Boring Log

35SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 11.02'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/36	NA	0.260	35SB3-1 (0.5-2.5) 35SB3-10 (0.5-2.5)		0-4" Dark brown very fine to fine SAND and SILT, organic matter, trace Transite, moist [topsoil]	
			0.268			4-9" Dark gray/black very fine to medium SAND, some Coal, trace Clinker, trace fine Gravel, moist (SW)	
			0.264			9-36" Dark gray very fine to medium SAND, some Silt, trace fine to medium Gravel, moist (SW)	
			0.267				
			0.254				
5	60/24		0.267			0-6" Dark gray very fine to medium SAND, some Silt, trace fine to medium Gravel, moist (SW)	
			0.226			6-11" Brown fine to coarse SAND, moist (SW)	
			0.291			11-24" Mottled dark gray, brown, and olive brown very fine to fine SAND, some Silt, trace Clay, trace fine gravel, moist to saturated at 5 inches (SP)	
			0.307				
			0.298				
10	60/53		0.275			0-4" Olive brown very fine to fine SAND and SILT, some dark gray/black very fine to medium SAND, wet (SM)	
			3.283			4-17" Dark gray SILT and CLAY, little very fine to fine Sand, trace fine Gravel, wet (CL-ML)	
			1.489			17-53" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.907				
			0.723				
15	48/26		0.302			0-14" Dark gray SILT and CLAY, trace fine Gravel, wet, increasingly density with depth (CL-ML)	
			0.271				
			0.282			14-26" Dark gray very fine to fine SAND and SILT, some crushed Rock [phyllite] throughout, and weathered bedrock observed in tip, moist (SM)	
			0.312				
20						End of boring at 19 feet below ground surface (refusal)	
25							

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Boring Log

35SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/30	NA	0.295			0-6" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.305	35SB4-1 (0.5-2.5)		6-9" White crushed QUARTZ, dry (GW)	
			0.302			9-15" Dark brown very fine to medium SAND and SILT, trace fine Gravel, moist (SM)	
			0.299			15-20" Gray crushed ROCK, trace very fine to fine Sand, moist (GW)	
			0.306			20-23" Dark brown very fine to medium SAND and SILT, trace fine Gravel, moist (SM)	
5	60/33		0.238			23-24" Gray crushed ROCK, dry (GW) 24-30" Dark gray very fine to medium SAND, some Silt, some fine to medium Gravel [crushed phyllite], moist (SW)	
			1.239			0-3" Dark gray very fine to medium SAND, some Silt, some fine to medium Gravel [crushed phyllite], moist (SW)	
			0.545			3-6"Gray crushed ROCK, dry (GW)	
			0.392			6-18" Brown very fine to fine SAND, some Silt, trace fine Gravel, rock from 3-5", 2" layer of fine to medium Sand and Gravel from 5-7", moist (SW)	
			0.366			18-27" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
10	60/46		0.314			27-33" Dark gray very fine to fine SAND and SILT, trace Clay, moist (SM)	
			0.309			0-9" Dark gray very fine to medium SAND and SILT, some fine to medium Gravel, moist (SM)	
			1.139			9-28" Dark gray SILT and CLAY, trace fine Gravel, saturated (CL-ML)	
			0.571			28-33" Mottled dark gray and brown very fine to medium SAND and SILT, little fine to medium Gravel, trace Clay, saturated (SM)	
			0.457			33-46" Dark gray SILT and CLAY, trace fine to medium Gravel, wet (CL-ML)	
15	24/13		0.279			0-10" Dark gray very fine to fine SAND and SILT, little crushed Rock [Phyllite], wet (SM)	
			0.265			10-13" Dark gray weathered BEDROCK	
						End of boring at 17 feet below ground surface (refusal)	
20							
25							

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Boring Log

35SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 11 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 11.42'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/28	NA	0.301	35SB5-1 (0.5-2.5)		0-6" Dark brown very fine to fine SAND and SILT, some fine Gravel, organic matter, moist [topsoil]	
			0.299			6-9" Gray crushed ROCK, dry (GW)	
			0.285			9-28" Dark brown very fine to medium SAND, little Silt, little crushed Rock, trace fine Gravel, moist (SW)	
			0.303				
			0.278				
5	60/24		0.281			0-4" Brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.295			4-10" Dark brown and light brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.277			10-24" Dark gray very fine to fine SAND and SILT, some Clay, trace fine Gravel, saturated (SM)	
			0.298				
			0.307				
10	60/38		0.255			0-6" Mottled dark gray and brown very fine to fine SAND and SILT, some Clay, saturated (SM)	
			0.298			6-13" Dark gray very fine to medium SAND, some fine Gravel, trace Silt, moist (SW)	
			0.288			13-38" Dark gray SILT and CLAY, trace fine Gravel, wet, relatively dense last 5 inches (CL-ML)	
			0.293				
			0.282				
15	24/12		0.455			0-7" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.511			7-12" Dark gray weathered BEDROCK, moist	
						End of boring at 17 feet below ground surface (refusal)	
20							
25							

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Boring Log

35SB6

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 13 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/31	NA	0.138			0-3" Dark brown very fine to fine SAND and SILT, and organic matter, moist [topsoil]	
			0.136	35SB6-1 (0.5-2.5)		3-5" Gray crushed ROCK, dry (GW)	
			0.137			5-20" Dark gray very fine to fine SAND and SILT, trace fine Gravel, 1/4" layer of transite at 3.5-3.75", moist (SM)	
			0.149			20-24" Dark brown very fine to fine SAND and SILT, moist (SM)	
			0.139			24-28" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
5	60/51		0.153			28-31" Brown very fine to medium SAND, little Silt, moist (SW)	
						0-3" Brown very fine to medium SAND, little Silt, moist (SW)	
			0.154			3-14" Mottled dark gray and brown very fine to medium SAND, some Silt, trace fine to medium Gravel, moist (SW)	
			0.150			14-25" Brown fine to medium SAND, trace Silt, moist (SP)	
			0.152			25-39" Mottled dark gray and brown very fine to fine SAND and SILT, trace fine Gravel, saturated (SM)	
			0.155			39-51" Dark gray very fine to fine SAND, some Silt, some Clay, trace fine to medium Gravel, saturated (SP)	
10	60/30		0.178			0-5" Mottled Dark gray and brown very fine to medium SAND, some Silt, moist (SW)	
			0.199			5-9" Brown very fine to medium SAND, little Silt, trace fine Gravel, moist (SW)	
			0.196			9-19" Dark gray very fine to fine SAND and SILT, trace Clay, relatively dense, large rock bottom inch, moist (SM)	
			0.165			19-30" Dark gray crushed ROCK, some very fine to fine SAND and SILT, trace Clay, saturated (GW)	
			0.184				
15	36/31		0.185			0-5" Dark gray crushed ROCK [phyllite], little very fine to fine SAND and SILT, wet (GW)	
			0.192			5-31" Dark gray WEATHERED BEDROCK, last 4" alternating striped of brown and dark gray, moist	
			0.196				
						End of boring at 18 feet below ground surface (refusal)	
						Refusal confirmed in 35SB6A at 17 feet bgs	
20							
25							

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Boring Log

35SB6A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* None Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal and evidence of contamination confirmation of 35SB6

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/30	NA	0.217			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.222			2-12" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.212			12-30" Mottled dark gray and brown very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.205				
			0.211				
5	60/49		0.216			0-5" Mottled dark gray and brown very fine to fine SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.262			5-6" Gray crushed ROCK, dry (GW)	
			0.201			6-32" Brown very fine to fine SAND, some Silt, some Clay, trace fine Gravel, moist (SP)	
			0.197			32-44" Dark gray SILT and CLAY, some very fine to fine SAND, trace fine Gravel, saturated (CL-ML)	
			0.220				
10	60/54		0.231			44-49" Brown SILT and CLAY, some very fine to fine Sand, trace fine to medium Gravel, saturated (CL-ML)	
			0.222			0-17" Brown SILT and CLAY, some very fine to fine Sand, wet (CL-ML)	
			0.220			17-41" Dark gray very fine to fine SAND and SILT, little Clay, trace fine to medium Gravel, saturated, relatively dense (SM)	
			0.229				
			0.194			41-54" Mottled dark gray, gray and brown very fine to fine SAND and SILT, some fine Gravel [weathered bedrock], moist (SM)	
15	24/15		0.208			0-6" Mottled dark gray, gray and brown very fine to fine SAND and SILT, some fine Gravel [weathered bedrock], moist (SM)	
			0.188			6-15" Light brown fine to medium GRAVEL, trace very fine to fine Sand, trace Silt, wet (GP)	
						End of boring at 17 feet below ground surface (refusal)	
20							
25							

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Boring Log

35SB7

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/28/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 10.5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/23	NA	0.482			0-4" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil] (SM)	
			0.470	35SB7-1 (0.5-2.5)		4-18" Dark brown very fine to medium SAND, some Silt, some fine to medium Gravel, moist (SW)	
			0.481				
			0.490				
			0.500			18-23" Brown very fine to fine SAND and SILT, moist (SM)	
5	60/42		0.456			0-6" Dark brown very fine to medium SAND, some Silt, some fine to medium Gravel, moist (SW)	
			0.468			6-17" Dark brown very fine to medium SAND and SILT, little fine to medium Gravel, moist (SM)	
			0.478			17-30" Dark gray very fine to fine SAND and SILT, trace fine Gravel, saturated (SM)	
			0.507				
			0.512			30-42" Dark gray SILT and CLAY, little very fine to fine Sand, saturated (CL-ML)	
10	42/27		0.479			0-5" Dark gray fine to coarse SAND and fine Gravel, some Silt, moist (SW)	
			0.464			5-27" Dark gray SILT and CLAY, trace fine Gravel, wet, weathered bedrock observed in tip (CL-ML)	
			0.449				
			0.468				
15						End of boring at 13.5 feet below ground surface (refusal)	
20							
25							

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Boring Log

35SB8

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	36/20	NA	0.090			0-5" Dark brown very fine to fine SAND and SILT, organic matter, moist [topsoil]	
			0.111			5-11" Gray crushed ROCK, dry (GW)	
			0.088			11-20" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
						End of boring at 3 feet below ground surface (refusal) Refusal variable at 4 and 14.75 feet bgs in 35SB8A and 35SB8B, respectively	
5							
10							
15							
20							
25							

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Boring Log

35SB8A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal and evidence of contamination confirmation of 35SB8

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/23	NA	0.088 0.096 0.099 0.094	35SB8-1 (0.5-2.5)		0-2" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM) 2-7" Dark brown very fine to medium SAND and SILT, little fine Gravel, trace Coal, moist (SM) 7-23" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
						End of boring at 4 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

35SB8B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 9 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal and evidence of contamination confirmation of 35SB8

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/34	NA	0.102			0-4" Dark brown very fine to fine SAND and SILT, trace fine Gravel, trace organic matter, moist [topsoil]	
			0.103			4-12" Dark brown very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.136			12-17" Gray crushed ROCK, dry (GW)	
			0.114			17-34" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.122				
5	60/28		0.125			0-2" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.121			2-4" Gray crushed ROCK, moist (finely crushed) (GW)	
			0.129			4-28" Brown very fine to fine SAND, some Silt, gray crushed ROCK from 11-12", 14.5-15.5", 17-19", moist to saturated at 5" (SW)	
			0.125				
			0.127				
10	57/31		0.135			0-8" Olive Brown very fine to fine SAND and SILT, little fine to medium Gravel, wet (SM)	
			0.127			8-14" Olive brown very fine to fine SAND and SILT, some fine to medium Gravel, relatively loose, wet (SM)	
			0.135			14-18" Dark gray very fine to fine SAND and SILT, little Clay, trace fine Gravel, wet (SM)	
			0.124			18-26" Dark gray fine to coarse SAND, wet (SW)	
			0.124			26-31" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
15						End of boring at 14.75 feet below ground surface	
20							
25							

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Boring Log

35SB9

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/11	NA	0.161	35SB9-1(0-2)		0-7" Dark gray fine to coarse SAND, some shell fragments, wet (SW)	
			0.177				
			0.176				
			0.171			7-11" Dark gray fine to medium SAND, some Silt, trace fine Gravel, wet (SP)	
			0.172				
5	60/27		0.167			0-13" Dark gray fine to coarse SAND, trace fine Gravel, trace shell fragments, wet (SW)	
			0.172				
			0.170			13-23" Dark gray crushed ROCK, wet (GW)	
			0.168				
			0.168			23-27" Dark gray very fine to fine SAND and SILT, trace Clay, wet (SM)	
10	36/17		0.171			0-8" Dark gray very fine to fine SAND and SILT, trace Clay, wet (SM)	
			0.155			8-17" Dark gray WEATHERED BEDROCK, moist	
			0.168				
15						End of boring at 13 feet below ground surface	
20							
25							

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Boring Log

35SB10

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 4 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/15	NA	0.1887	35SB10-1(0-2)		0-13" Dark gray fine to coarse SAND, some shell fragments, wet (SW)	
			0.205				
			0.189				
			0.174				
			0.192				
5	60/32		0.184			13-15" Dark gray very fine to fine SAND and SILT, trace fine Gravel, wet (SM)	
			0.203			0-32" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.161				
			0.220				
			0.183				
10	36/24		0.209			0-2" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.206			2-24" Mottled dark gray and brown WEATHERED BEDROCK, moist	
			0.204				
						End of boring at 13 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

35SB11

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 1.5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/25	NA	0.207	35SB11-1(0-2)		0-2" Dark gray fine to coarse SAND, some shell fragments, wet (SW)	
			0.215			2-8" Dark gray crushed ROCK, dry (GW)	
			0.208			8-16" Dark gray fine to coarse SAND, some Silt, trace fine Gravel, wet (SW)	
			0.212			16-25" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.210				
5	60/25		0.218			0-8" Dark gray fine to medium GRAVEL, some Silt, some Clay, wet (GP)	
			0.205				
			0.224			8-16" Dark gray SILT and CLAY, wet (CL-ML)	
			0.213			16-25" Dark gray WEATHERED BEDROCK, moist	
			0.207				
10	36/24		0.224			0-24" Dark gray WEATHERED BEDROCK, moist	
			0.232				
			0.222				
						End of boring at 13 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

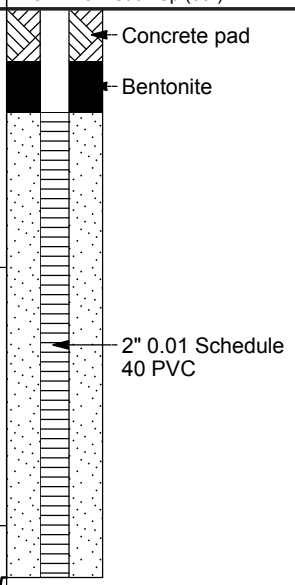
37SB1/37OBMW1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/14/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* NA **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 16.53'
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/22	NA	0.0			0-16" Gray/brown very fine to fine SAND, some Silt, moist (SP)
			0.0			
			0.0			
			0.0			
			0.0			16-22" Gray/brown very fine to fine SAND, some Silt and crushed Phyllite, wet (SP)
5	60/47		0.0			0-17" Dark gray very fine to fine SAND, some Silt, trace crushed Phyllite, wet (SP)
			0.0	37SB1-1 (5-7/6)		
			0.0			17-21" Dark brown very fine to fine SAND and SILT, trace crushed Phyllite, moist (SM)
			0.0			21-24" Dark gray crushed PHYLLITE, trace fine to medium Sand, moist (GW)
			0.0			24-47" Dark gray mottled with brown very fine to fine SAND and SILT, trace Clay, trace crushed Rock, moist (SP)
10	12/12		0.0			0-8" Dark gray mottled with brown crushed PHYLLITE, some very fine to fine Sand, moist (GW)
			0.0			8-12" Dark gray crushed PHYLLITE, some Silt, moist (GW)
15						End of boring at 11 feet below ground surface (refusal)
						Refusal confirmed in 37SB1A at 10 feet bgs
20						
25						

WELL DIAGRAM

Well Finish: Stick Up (38")



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Boring Log

37SB1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/14/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 37SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/24	NA	0.0			0-6" Brown very fine to fine SAND and SILT, trace organics, moist (SM)	
			0.0			6-11" Dark brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			11-14" Dark gray crushed ROCK, some very fine to fine Sand, moist (GW)	
			0.0			14-24" Dark gray mottled with brown very fine to fine SAND and SILT, some crushed Phyllite, moist (SM)	
			0.0				
5	60/40		0.0			0-14" Dark gray very fine to fine SAND and SILT, trace Clay, trace fine Gravel, wet (SM)	
			0.0				
			0.0			14-25" Dark gray mottled with brown very fine to fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.0			25-32" Dark gray mottled with brown crushed ROCK, some very fine to fine Sand, moist (GW)	
			0.0			32-40" Dark gray crushed PHYLLITE, some very fine to fine Sand, moist (GW)	
10			0.0			End of boring at 10 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

37SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/15/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* NA **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/20	NA	0.0			0-4" Dark brown fine to medium SAND, some crushed Rock, trace Coal, dry (SP)	
			0.0			4-5" White crushed QUARTZ (GW)	
			0.0			5-20" Dark gray very fine to fine SAND, some Silt, moist (SP)	
			0.0				
			0.0			End of boring at 4 feet below ground surface (refusal)	
5						Refusal variable and confirmed in 37SB2A at 13 feet	
10							
15							
20							
25							

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Boring Log

37SB2A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/15/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 8.5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 37SB2

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/35	NA	0.0			0-4" Dark brown very fine to fine SAND, some Silt, trace organics, moist (SP)	
			0.0			4-13" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.0			13-22" Light gray crushed ROCK, some black asphalt roofing, dry (GW)	
			0.0			22-35" Brown fine SAND, some Silt, trace fine Gravel, moist (SP)	
			0.0				
5	60/45		0.0			0-8" Intermittent layers of brown very fine to fine SAND, some Silt, moist and gray crushed ROCK, some fine to medium Sand, moist (SP)	
			0.0			8-19" Dark gray very fine to fine SAND and SILT, trace fine Gravel, trace Silt, moist (SM)	
			0.0			19-27" Dark gray fine to medium SAND, trace fine Gravel, trace Silt, moist (SP)	
			0.0			27-45" Dark gray mottled with brown very fine to fine SAND and SILT, some crushed Phyllite, wet (SM)	
			0.0				
10	36/36		0.0			0-6" Dark brown very fine to fine SAND, some Silt, trace fine Gravel, trace crushed Phyllite, wet (SP)	
			0.0			6-14" Dark brown very fine to medium SAND, trace Silt, trace fine Gravel, wet (SW)	
			0.1	37SB2-1 (11-13/12)		14-28" Dark gray very fine to medium SAND and SILT, some crushed Quartz, trace Clay, wet (SM)	
			0.0			28-36" Dark gray very fine to fine SAND, some Silt, some crushed Phyllite, moist (SP)	
						End of boring at 13 feet below ground surface (refusal)	
15							
20							
25							

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Boring Log

42SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	30/18		0.1			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.1	42SB1-1 (0.5-2.5/1.5)		2-9" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.1			9-18" Gray crushed layered ROCK, some very fine to fine Sand, some Silt, dry (GW)	
						End of boring at 2.5 feet below ground surface (refusal)	
						(Refusal confirmed at 2 feet below ground surface on second attempt, see 42SB1A)	
5							
10							
15							
20							
25							

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Boring Log

42SB1A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 42SB1

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	24/20		0.2			0-2": Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.2			2-20": Gray layered crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
						End of boring at 2 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

42SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	24/20		0.2 0.2	42SB2-1 (0-2/1)		0-2" Gray crushed ROCK, dry (GW) 2-14" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM) 14-20": Gray crushed layered ROCK, some very fine to fine Sand, some Silt, dry (GW) End of boring at 2 feet below ground surface (refusal) (Refusal confirmed at 3.5 feet below ground surface on second attempt, see 42SB2A)	
5							
10							
15							
20							
25							

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Boring Log

42SB2A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 42SB2

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	42/40		0.2			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.2			2-15" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.2			15-40" Gray layered crushed ROCK, some very fine to fine Sand, some Silt, dry (GW)	
			0.2				
						End of boring at 3.5 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

42SB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/34		0.2			0-3" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.2	42SB3-1 (0-2/1)		3-13" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2			13-24" Gray crushed ROCK, little very fine to fine Sand, little Silt, dry (GW)	
			0.2				
			0.2	42SB3-2 (3'10"-5'10"/5)		24-34" Dark gray crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
5	10/10		0.2			0-10" Dark gray crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
						End of boring at 5.83 feet below ground surface (refusal)	
						(Refusal confirmed at 5 feet below ground surface on second attempt, see 42SB3A)	
10							
15							
20							
25							

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Boring Log

42SB3A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 42SB3

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/42	NA	0.2			0-3" Dark gray medium to coarse GRAVEL, moist (GP)	
			0.2			3-22" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2				
			0.2			22-42": Dark gray crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
			0.2				
5						End of boring at 5 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

42SB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/42		0.1			0-13": Dark brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1	42SB4-1 (0-2/1)			
			0.1			13-23" Gray fine to coarse SAND, some Silt, some fine Gravel, moist (SW)	
			0.1			23-42" Dark Gray fine to coarse SAND, some Silt, some fine Gravel, moist (SW)	
			0.1				
5	24/24		0.1			0-12" Dark gray fine to coarse SAND, some Silt, some fine Gravel, moist (SW)	
			0.1	42SB4-2 (5-7/6)		12-24" Dark gray/black weathered BEDROCK, some very fine to fine Sand, some Silt, moist	
						End of boring at 7 feet below ground surface (refusal)	
						(Refusal confirmed at 6 feet below ground surface on second attempt, see 42SB4A)	
10							
15							
20							
25							

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Boring Log

42SB4A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 42SB4

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/48		0.2 0.2 0.2 0.2 0.2			0-24" Dark gray alternating 2-inch layers of very fine to fine SAND and SILT, fine GRAVEL and crushed ROCK, moist (GW-GM) 24-48" Dark gray layered crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
5	12/9		0.2			0-9" Dark gray layered crushed ROCK, some very fine to fine Sand, some Silt, moist (GW) End of boring at 6 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

42SB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	36/14		0.2			0-2" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.2			2-5" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.2			5-14" Gray crushed ROCK, some very fine to fine Sand, some Silt, dry (GW)	
						End of boring at 3 feet below ground surface (refusal)	
						(Refusal confirmed at 8 feet below ground surface on second attempt, see 42SB5A)	
5							
10							
15							
20							
25							

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Boring Log

42SB5A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 2/28/17 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, refusal confirmation of 42SB4

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/40		0.2			0-3" Dark brown very fine to fine SAND and SILT, organic matter, moist [TOPSOIL]	
			0.2	42SB5-1 (0-2/1)		3-6" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.2			6-40" Mottled dark gray/gray crushed ROCK, some very fine to fine Sand, some Silt, moist (GW)	
			0.2				
			0.2				
5	36/36		0.2			0-36" Dark gray crushed ROCK, some fine to medium Sand, some Silt, moist (GW)	
			0.2				
			0.2	42SB5-2 (6-8/7)			
						End of boring at 8 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

48SB1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/22/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.0			0-3" Dark brown very fine to fine SAND and SILT, some organics, moist [topsoil]	
			0.0			3-9" Dark brown/gray very fine to fine SAND and SILT, little organics, little fine Gravel dry (SM)	
			0.0			9-11" Light brown crushed ROCK, dry (GW)	
			0.0			11-26" Dark gray brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			26-32" Dark gray brown very fine to fine SAND and SILT, some fine Gravel, wet (SM)	
5	60/38		0.0			0-4" Dark gray brown very fine to fine SAND and SILT, some fine Gravel, wet (SM)	
			0.0			4-9" Dark gray brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			9-11" Dark gray crushed ROCK, some Sand, some Silt, dry (GW)	
			0.0			11-17" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			17-19" Dark gray crushed PHYLLITE, dry (GW)	
10	60/35		0.0			19-27" Dark gray very fine to fine SAND and SILT, some fine Gravel, dry (SM)	
			0.0			27-29" Gray crushed ROCK, some fine Sand, dry (GW)	
			0.0			29-38" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			0-5" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			5-7" Gray brown crushed ROCK, little medium Sand, moist (GW)	
			0.0			7-20" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
15	60/6		0.0			20-23" Brown mottled with light brown very fine to fine SAND and SILT, moist (SM)	
			0.0			23-35" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			0-6" Dark gray mottled with light brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.0				
			0.0				
20	60/25		0.0			0-3" Dark gray very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
			0.0			3-6" Dark gray crushed PHYLLITE, moist (GW)	
			0.0			6-12" Dark gray very fine to medium SAND and SILT, some crushed Rock, little Clay, moist (SM)	
			0.0			12-14" Dark gray crushed PHYLLITE, dry (GW)	
			0.0			14-16" Dark brown very fine to medium SAND and SILT, little Clay, moist (SM)	
			0.0			16-25" Dark gray very fine to fine SAND and SILT, some crushed Rock, some fine Gravel, little Clay, moist (SM)	
25	48/36		0.1			0-6" Dark gray very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	

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Boring Log

48SB1

CLIENT USACE CENAE **PROJECT NAME** Gould Island

PROJECT # 16001327 **PROJECT LOCATION** Gould Island, Jamestown, Rhode Island

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
			0.1			6-8" Light brown crushed ROCK, dry (GW)	
			0.1			8-20" Light brown very fine to medium SAND and SILT, little Clay, trace fine Gravel, moist (SM)	
			0.1	48SB1-1 (27-29/28)		20-36" Light gray mottled with brown very fine to fine SAND and SILT, little Clay, little fine Gravel, moist (SM)	
30						End of boring at 29 feet below ground surface (refusal)	
35							
40							
45							
50							
55							

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Boring Log

48SB2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/22/18 **LOGGED BY** S. Towne
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/32	NA	0.1			0-4" Dark brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.2			4-24" Dark gray very fine to fine SAND and SILT, some crushed Rock, some fine Gravel, little Clay, moist (SM)	
			0.1				
			0.1				
			0.1			24-27" Dark gray mottled with brown very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
5	60/36		0.1			27-30" Dark brown very fine to medium SAND, some crushed Rock, little Silt, dry (SW)	
			0.1			30-32" Dark gray very fine to fine SAND and SILT, some crushed Rock, little Clay, wet (SM)	
			0.1			0-10" Dark gray very fine to fine SAND and SILT, some fine Gravel, trace Clay, moist (SM)	
			0.1			10-16" Dark brown very fine to medium SAND and SILT, trace fine Gravel, dry (SM)	
			0.1			16-23" Dark gray very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
10	60/24		0.1			23-36" Dark gray very fine to fine SAND and SILT, some crushed Phyllite, trace Clay, moist (SM)	
			0.2			0-24" Dark gray very fine to fine SAND and SILT, some crushed Rock, some fine Gravel, moist (SM)	
			0.2				
			0.2				
			0.2				
15	60/42		0.1			0-29" Dark gray very fine to fine SAND and SILT, some fine Gravel, little Clay, moist (SM)	
			0.1				
			0.1				
			0.1				
			0.1			29-35" Dark brown very fine to fine SAND and SILT, some organics, moist (SM)	
			0.1			35-37" Gray crushed ROCK, dry (GW)	
20	48/44		0.2			37-42" Brown very fine to fine SAND, little fine Gravel, some Silt, dry (SP)	
			0.2			0-2" Dark gray crushed ROCK, some very fine to fine Sand, some SIlt, moist (GW)	
			0.2			2-15" Brown very fine to medium SAND, little Silt, dry (SW)	
			0.2	48SB2-1 (22-24/23)		15-20" Brown mottled with orange very fine to fine SAND and SILT, little fine Gravel, trace Clay, moist (SM)	
						20-44" Dark gray very fine to fine SAND and SILT, mottled with brown medium SAND, some fine Gravel, some crushed Rock, dry (SM)	
25						End of boring at 24 feet below ground surface (refusal)	

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Boring Log

APSB1
PAGE 1 OF 1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/1/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/42		0.1 0.1 0.1 0.1	APSB1-1 (0.75-2.75/1.75)		0-9" CONCRETE 0-36" Dark gray/brown weathered BEDROCK, some very fine to fine Sand and Silt, top 6" wet from coring activities, remainder of soil moist 36-42" Gray crushed ROCK, dry (GW) End of boring at 4.75 feet (refusal)	
5							
10							
15							
20							
25							

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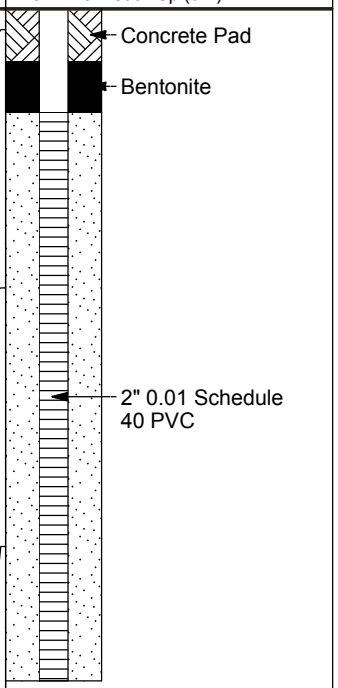
APSB2/APOBMW2

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/5/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 4 **DIAMETER** 2"
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION** 6.37'
NOTES 60" length, 2" diameter poly core liner. Sheen observed from approx. 14.9-15.9 ft bgs.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY
0	60/40	NA	0.0			0-5" CONCRETE
			0.1			0-6" Dark brown/black fine to medium GRAVEL, some very fine to medium Sand, little Silt, moist (GP)
			0.1			6-19" Dark gray fine to coarse SAND, some Silt, moist (SW)
			310			19-24" Gray crushed ROCK, some fine Gravel, moist (GW)
			411	APSB2-1 (3.4-5.4/4.4)		24-36" Dark gray very fine to fine SAND and SILT, some Clay, moist (SM)
5	60/48		HS:889			36-40" Dark gray fine to medium SAND, trace Silt, moist (SP)
			198			0-12" Dark gray fine to medium SAND, trace Silt, moist (SP)
			HS:869			
			75			12-31" Dark gray very fine to fine SAND and SILT, increasing Gravel with depth to little fine Gravel, saturated (SM)
			82			
			21			
			15			
10	42/42		31.7			31-48" Dark gray SILT and CLAY, some very fine to fine Sand, trace fine Gravel, 2-inch layer of fine to medium Sand at 44-46", moist (CL-ML)
			9.1			0-4" Dark gray/black crushed ROCK, moist (GW)
			3.0			4-13" Dark gray very fine to fine SAND and SILT, some Clay, moist (SM)
			1.1			13-31" Dark gray CLAY, some Silt, 1-inch layer of Phyllite from 26-27", moist (CL)
			1.5			31-42" Mottled dark gray and reddish brown weathered BEDROCK, moist
15						End of boring at 15.4 feet below ground surface (refusal)
20						
25						



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Boring Log

APSB3

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/5/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/54	NA	0.1	APSB3-1 (0.6-2.6/1.6)		0-7" CONCRETE	
			0.2			0-12" Dark gray fine to medium SAND, some Silt, some fine Gravel, moist (SP)	
			0.2			12-16" Gray crushed ROCK, dry (GW)	
			0.2			16-31" Dark gray fine to coarse SAND, little fine Gravel, trace Silt, moist (SW)	
			0.1				
5	60/45		0.1			0-45" Dark gray fine to coarse SAND, little fine Gravel, trace Silt, saturated (SW)	
			0.1				
			0.1				
			0.5				
			0.4				
10	60/60		0.1			0-5" Dark gray fine to coarse SAND, little fine Gravel, trace Silt, wet (SW)	
			0.9			5-9" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)	
			0.4			9-35" Dark gray fine to coarse SAND, little fine Gravel, trace Silt, wet (SW)	
			0.2			35-38" Dark gray SILT, some very fine to fine Sand, wet (ML)	
						38-47" Dark gray very fine to fine SAND and SILT, wet (SM)	
			0.2			47-60" Dark brown CLAY and SILT, trace fine Gravel, wet (CL-ML)	
15	60/60		0.3			0-15" Dark gray fine to coarse SAND, little fine Gravel, wet (SW)	
			0.1				
			0.1			15-37" Dark gray very fine to fine SAND and SILT, some Clay, wet (SM)	
			0.1			37-46" Dark gray fine GRAVEL, some Silt, some Clay, wet (GP)	
			0.1			46-60" Dark gray and brown weathered BEDROCK, moist	
20						End of boring at 20.6 feet below ground surface (refusal)	
						Second attempt refusal at 5.66 feet bgs in APSB3A	
25							

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Boring Log

APSB3A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/5/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory of APSB3

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/40	NA	0.1 0.2 0.1 0.2 0.1	Additional sample volume collected for APSB3-1		0-8" CONCRETE 0-24" Dark gray very fine to fine SAND and SILT, some Phyllite observed throughout, some fine Gravel, moist (SM) 24-40" Dark gray fine to coarse SAND, some fine Gravel, moist (SW) End of boring at 5.66 feet below ground surface (no refusal)	
5							
10							
15							
20							
25							

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Boring Log

APSB4

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/1/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/29	NA	0.1	APSB4-1 (0.5-2.5/1.5)		0-6" CONCRETE	
			0.1			0-14" Dark brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1				
			0.1			14-29" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1				
5	60/51		0.1			0-43" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.1				
			0.1				
			0.1				
			0.1				
10	24/20		0.1			43-51" Mottled dark gray and brown weathered BEDROCK, trace very fine to fine Sand, trace Silt, moist	
			0.1			0-20" Mottled dark gray and brown weathered BEDROCK, trace very fine to fine Sand, trace Silt, moist	
						End of boring at 12.5 feet below ground surface (refusal).	
15							
20							
25							

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Boring Log

APSB5

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/1/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION _____ **GROUND ELEVATION** _____
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	48/31	NA	0.0			0-6" CONCRETE	
			0.0.			0-11" Dark brown very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.0			11-16" Dark brown fine to medium SAND and SILT, moist (SM)	
			0.0	APSB5-1 (2.5-4.5/3.5)		16-22" Dark reddish brown CLINKER, moist	
			0.0			22-31" Black COAL, moist	
5						End of boring at 4 feet below ground surface (refusal)	
						(Refusal confirmed at 17.5 feet below ground surface on second attempt, see APSB5A)	
10							
15							
20							
25							

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APSB5A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/1/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory of APSB5

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/27	NA	0.0			0-6" CONCRETE	
			0.0			0-19" Dark brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0				
			0.0				
			0.0	Additional sample volume collected for APSB5-1		19-24" Gray crushed ROCK, dry (GW)	
5			0.0			24-27" Black COAL, moist	
	60/44		0.0			0-16" Dark brown fine to medium SAND and SILT, trace fine Gravel, wet (SM)	
			0.0				
			0.0			16-31" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.0				
						31-33" Dark brown fine to coarse SAND, wet (SW)	
			0.0			33-36" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
10	60/51		0.0			36-39": Dark brown fine to coarse SAND, some Silt, moist (SW)	
						39-44" Dark gray very fine to fine SAND and SILT, little fine Gravel, moist (SM)	
			0.0			0-27" Mottled dark gray and brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.0			27-34" Brown fine to medium SAND and SILT, little fine Gravel, moist (SM)	
			0.0			34-51" Mottled dark gray and brown very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
15	24/21		0.0			0-21" Mottled dark gray and brown weathered BEDROCK, little fine Sand, little Silt (SM)	
			0.0				
						End of boring at 17.5 feet below ground level (refusal)	
20							
25							

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Boring Log

APSB5B

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner. Stepout 6-8' South of APSB5 (beyond pipe anomaly).

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/21	NA	0.183			0-9" Dark gray/gray fine to medium GRAVEL, some fine to coarse Sand, moist (GP)	
			0.180				
			0.182			9-15" Gray crushed ROCK, dry (GW)	
			0.192				
			0.186			15-21" Dark gray very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
5	60/19		0.180			0-7" Dark gray fine to medium GRAVEL, little very fine to fine Sand, little Silt, wet (GP)	
			0.181				
			0.183			7-12" Dark gray very fine to fine SAND and SILT, trace Root Matter, wet (SM)	
			0.188			12-17" Dark gray fine to coarse SAND, wet (SW)	
			0.184				
10	36/19		0.197			17-19" Dark gray SILT and CLAY, some fine to medium Gravel, wet (CL-ML)	
			0.198			0-4" Dark gray fine to medium GRAVEL, trace very fine to fine Sand, little Silt, wet (GP)	
			0.195			4-19" Mottled dark gray and brown very fine to fine SAND and SILT, trace fine Gravel, moist, relatively dense (SM)	
15						End of boring at 13 feet below ground surface (refusal)	
20							
25							

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Boring Log

APSB5C

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner. Stepout 4' West of APSB5.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	18/16		0.222			0-6" Concrete	
						0-1" Gray crushed CONCRETE from core, wet from coring activities	
			0.204			1-7" Dark gray very fine to medium SAND, some Silt, trace fine Gravel, moist (SW)	
						7-14" Gray crushed ROCK, dry (GW)	
						14-16" Dark gray very fine to fine SAND, little Silt, trace fine Gravel, moist (SP)	
						End of boring at 2.04 feet below ground surface (refusal)	
5							
10							
15							
20							
25							

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Boring Log

APSB5D

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner. Stepout 6-8' North of APSB5.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	54/24		0.205			0-5" CONCRETE	
			0.203			0-15" Dark gray/gray very fine to medium SAND, little Silt, little fine to medium Gravel, moist (SW)	
			0.219				
			0.217			15-16" Black COAL, moist	
			0.180			16-19" Gray crushed ROCK, dry (GW)	
5						19-24" Black COAL, moist	
						End of boring at 4.92 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

APSB5E

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 6 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner. Stepout 8' East of APSB6.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/22		0.200			0-7" CONCRETE	
						0-6" Gray crushed CONCRETE, moist	
			0.209				
			0.202			6-11" Dark gray very fine to fine SAND and SILT, some crushed Phyllite, moist (SM)	
			0.207			11-14" Dark brown very fine to medium SAND and SILT, little fine Gravel, little crushed Phyllite, moist (SM)	
			0.208			14-16" Gray crushed ROCK, dry (GW)	
5	18/4					16-20" Brown very fine to fine SAND and SILT, little Clay, trace fine Gravel, moist (SM)	
						20-22" Brown very fine to fine SAND and SILT, little Clay, little Coal, moist (SM)	
						0-4" Brown/reddish brown CLINKER, wet	
						End of boring at 7.08 feet below ground surface (refusal)	
10							
15							
20							
25							

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Boring Log

APSB5F

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/29/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner. Stepout 4' North of APSB5.

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33	NA	0.227			0-7.5" CONCRETE	
			0.228			0-1" Gray crushed CONCRETE, moist 1-6" Brown very fine to medium SAND, some Silt, little fine Gravel, moist (SW)	
			0.222			6-24" Brown very fine to medium SAND, some Silt, little fine Gravel, trace Coal, decreasing coal with depth, moist (SW)	
			0.187				
			0.204			24-33" Brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
5	60/30		0.204				
			0.204			0-25" Dark gray SILT and CLAY, wet (CL-ML)	
			0.211				
			0.216				
			0.229				
10	24/17		0.228			25-30" Mottled dark gray and brown SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.213			0-6"Mottled dark gray and brown SILT and CLAY, trace fine Gravel, wet (CL-ML)	
						6-17" Mottled dark gray and brown weathered BEDROCK, moist	
						End of boring at 12.63 feet below ground surface (refusal)	
15							
20							
25							

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APSB6

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/1/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* 10 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/34	NA	0.0	APSB6-1 (0.66-2.66/1.66)		0-8" CONCRETE	
			0.0			0-13" Dark brown very fine to fine SAND and SILT, some some Gravel, moist (SM)	
			0.0			13-34" Dark gray fine to coarse SAND, moist (SW)	
			0.0				
			0.0				
5	60/34		0.0			0-21" Dark gray fine to coarse SAND, moist (SW)	
			0.0				
			0.0				
			0.0				
			0.0			21-26" Gray crushed ROCK, dry (GW)	
10			0.0			26-34" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
	54/38		0.0			0-38" Dark gray very fine to fine SAND and SILT, trace Gravel, saturated (SM)	
			0.0				
			0.0				
			0.0				
15			0.0			End of boring at 15.16 feet below ground surface (refusal)	
			0.0				
20							
25							

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Boring Log

APSB6A

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/5/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner, confirmatory of APSB6

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/29	NA	0.0	Additional sample volume collected for APSB6-1		0-8" CONCRETE	
			0.4			0-12" Dark brown fine to coarse SAND, some Silt, trace fine Gravel, moist (SW)	
			0.1			12-15" Dark brown very fine to fine SAND and SILT, trace fine Gravel, moist (SM)	
			0.1			15-29" Dark brown fine to coarse SAND, some Silt, moist (SW)	
			0.1				
5	60/29		0.0			0-3" Dark brown medium to coarse SAND, wet (SP)	
			0.1			3-26" Dark brown fine to coarse SAND, some Silt, wet (SW)	
			0.1				
			0.1				
			0.1				
10			0.1			26-29" Dark brown very fine to fine SAND and SILT, moist (SM)	
	60/55		0.1			0-12" Dark brown fine to coarse SAND, little Silt, moist (SW)	
			0.1			12-45" Dark brown very fine to fine SAND and SILT, saturated (SM)	
			0.1				
			0.1				
15			0.1			45-55" Dark gray very fine to fine SAND, some Clay, trace Silt, saturated (SP)	
	54/54		0.1			0-38" Dark gray very fine to fine SAND and SILT, trace fine Gravel, saturated (SM)	
			0.1				
			0.1				
			0.1			38-54" Dark gray very fine to fine SAND and SILT, some crushed Rock, relatively dense compared to above, moist (SM)	
20			0.1			End of boring at 20.16 feet below ground surface (refusal)	
25							

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Boring Log

APSB7

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/9/18 **LOGGED BY** Chris Terra
DEPTH TO WATER* 3 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/39	NA	0.1	APSB7-1 (0.7-2.7/1.7)		0-8.5" CONCRETE	
			0.1			0-2" Dark brown very fine to fine SAND and SILT, trace root matter, dry (SM)	
			0.1			2-10" Dark reddish brown very fine to fine SAND, some Silt, trace Clay, dry (SP)	
			0.1			10-31" Brown to gray SILT, some Clay, trace very fine Sand, wet (ML)	
			0.2				
5			0.1			31-39" Dark gray very fine to fine SAND and SILT, trace Clay, wet (SM)	
	60/39		0.1			0-39" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.1				
			0.2				
			0.1				
			0.2				
10	36/34		0.1			0-7" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.1			7-13" Dark gray crushed ROCK (phyllite), trace very fine to fine Sand, wet (GW)	
			0.1			13-34" Mottled dark gray and brown weathered BEDROCK, some Silt, some Clay, wet	
15						End of boring at 13.7 feet below ground surface (refusal)	
20							
25							

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Boring Log

APSB8

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/9/18 **LOGGED BY** Chris Terra
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/10	NA	0.1	APSB8-1 (0.5-2.5/2.5)		0-5" CONCRETE	
			0.1			0-10" Dark brown fine to medium SAND, some Silt, trace fine Gravel, dry (SP)	
			0.1				
			0.1				
			0.1				
5	60/31		0.1			0-9" Dark brown fine to medium SAND, some Silt, trace fine Gravel, dry (SP)	
			0.1			9-31" Dark brown SILT and CLAY, trace very fine to fine Sand, wet (CL-ML)	
			0.1				
			0.1				
			0.1				
10	60/60		0.1			0-8" Dark brown fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW)	
			0.1			8-22" Gray-brown SILT, trace very fine to fine Sand, wet (ML)	
			0.1			22-60" Dark gray SILT and CLAY, trace very fine to fine Sand, wet (CL-ML)	
			0.1				
			0.1				
15	36/36		0.1			0-3" Dark gray SILT and CLAY, trace very fine to fine Sand, wet (CL-ML)	
			0.1			3-6" Dark gray crushed ROCK (phyllite), trace fine to coarse Sand, wet (GW)	
			0.1			6-18" Dark red-brown fine to coarse SAND, trace Silt, trace fine Gravel, wet (SW)	
						18-36" Dark gray very fine to fine SAND and SILT, wet (SM)	
						End of boring at 18.5 feet below ground surface (refusal; weathered bedrock observed in drilling tip)	
20							
25							

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Boring Log

APSB9

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/8/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 15 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/23	NA	0.1	APSB9-1 (0.83-2.83/1.83)		0-10" CONCRETE	
			0.1			0-7" Dark gray very fine to fine SAND and SILT, some fine Gravel, moist (SM)	
			0.1			7-12" Dark gray fine to medium GRAVEL, moist (GP)	
			0.1			12-23" Dark gray fine to coarse SAND, little fine Gravel, moist (SW)	
5			0.1				
	60/33		0.0			0-33" Dark gray fine to coarse SAND, little fine Gravel, moist (SW)	
			0.0				
			0.0				
			0.0				
10			0.0				
	60/60		0.1			0-50" Dark gray fine to coarse SAND, little fine Gravel, moist (SW)	
			0.1				
			0.1				
			0.1				
15			0.1			50-60" Brown very fine to fine SAND and SILT, little Clay, trace fine Gravel, wet (SM)	
	60/55		0.2			0-44" Dark gray fine to coarse SAND, little fine Gravel, wet (SW)	
			0.1				
			0.1				
			0.1				
20			0.1			44-55" Dark gray SILT and CLAY, wet (CL-ML)	
	36/32		0.1			0-10" Dark gray SILT and CLAY, wet (CL-ML)	
			0.1			10-18" Dark gray fine to medium SAND and SILT, some Clay, wet (SM)	
			0.2			18-32" Dark gray SILT and CLAY, wet (CL-ML)	
						End of boring at 23.83 feet below ground surface (refusal)	
25							

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Boring Log

APSB10
PAGE 1 OF 1

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/9/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 5 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/33	NA	0.1			0-9" CONCRETE	
			0.2	APSB10-1 (0.75-2.75/1.75)		0-9" Dark gray fine to coarse SAND, trace fine Gravel, moist (SW)	
			0.2			9-12" Gray crushed ROCK, dry (GW)	
			0.2			12-33" Dark gray fine to coarse SAND, trace fine Gravel, trace Silt, moist (SW)	
			0.2				
5			0.2				
	60/42		0.2			0-42" Dark gray fine to coarse SAND, trace fine Gravel, wet (SW)	
			0.2				
			0.2				
			0.2				
			0.2				
10			0.2				
	60/60		0.1			0-12" Dark gray medium to coarse SAND, little fine Gravel, wet (SP)	
			0.1			12-60" Dark gray fine to coarse SAND, little fine Gravel, wet (SW)	
			0.1				
			0.1				
			0.1				
15			0.1				
	39/29		0.1			0-17" Dark gray fine to coarse SAND, little fine Gravel, wet (SW)	
			0.1				
			0.1			17-29" Dark gray fine to coarse SAND, some fine Gravel, wet (SW)	
						End of boring at 18.75 feet below ground surface (refusal)	
20							
25							

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Boring Log

APSB11

CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/9/18 **LOGGED BY** Samantha Foote
DEPTH TO WATER* 10 **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/37	NA	0.1			0-3" Gray broken CONCRETE, wet from overnight exposure 3-37" Dark gray fine to coarse SAND, trace fine gravel, trace Silt, moist (SW)	
			0.1	APSB11 (1-3/2)			
			0.1				
			0.1				
5			0.1				
	60/46		0.0			0-46" Dark gray fine to coarse SAND, trace fine Gravel, trace Silt, moist, 2" layer of medium to coarse SAND from 41 to 43" (SW)	
			0.0				
			0.0				
			0.0				
10			0.0				
	60/60		0.1			0-47" Dark gray fine to coarse SAND, trace fine Gravel, trace Silt, wet (SW)	
			0.1				
			0.1				
			0.1				
15			0.1			47-51" Dark gray fine to coarse SAND and fine Gravel, wet (SW) 51-60" Dark gray fine to coarse SAND, wet (SW)	
	60/60		0.1			0-27" Dark gray fine to coarse SAND, wet (SW)	
			0.1				
			0.2			27-38" Dark gray fine GRAVEL, some fine to coarse Sand, wet (GP)	
			0.2			38-42" Dark brown/dark gray very fine to fine SAND and SILT, trace fine Gravel, wet (SM)	
20			0.2			42-60" Dark gray SILT and CLAY, wet (CL-ML)	
	48/45		0.1			0-26" Dark gray fine to coarse SAND, trace fine Gravel, wet (SW)	
			0.1				
			0.2			26-29" Dark gray SILT and CLAY, trace fine Gravel, wet (CL-ML)	
			0.2			29-39" Dark gray fine to medium SAND, wet (SW)	
						39-45" Dark gray SILT, some Clay, wet (ML)	
25						End of boring at 24.84 feet below ground surface (refusal)	

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Boring Log

APSB12

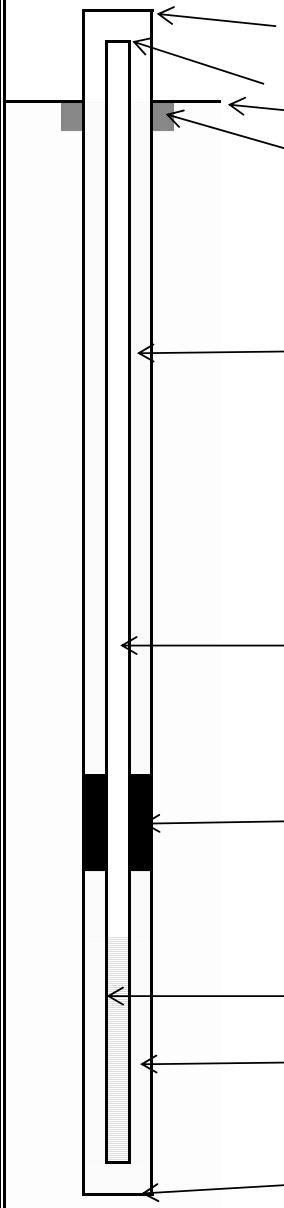
CLIENT USACE CENAE
PROJECT NAME Gould Island
PROJECT # 16001327
PROJECT LOCATION Gould Island, Jamestown, Rhode Island
DATE STARTED 3/9/18 **LOGGED BY** M. Wentworth
DEPTH TO WATER* Not Encountered **DIAMETER** NA
CONTRACTOR Geosearch, Inc./Rodney Kaddy
WELL MATERIALS NA
DRILLING METHOD Direct Push
ANNULUS MATERIALS NA
DRILLING EQUIPMENT Geoprobe 6610DT Track Rig, 60" Macrocore
TOC ELEVATION **GROUND ELEVATION**
NOTES 60" length, 2" diameter poly core liner

Depth (ft)	Penetration/ Recovery (in)	Blow Counts	Field Screening (ppm)	Lab Analytical Sample	Graphic Log	LITHOLOGY	WELL DIAGRAM
0	60/31	NA	0.0			0-5" CONCRETE	
			0.0	APSB12-1 (0.41-2.41/1.41)		0-10" Dark brown fine to coarse SAND, trace fine Gravel, moist (SW)	
			0.0			10-13" Gray crushed ROCK, some fine to coarse Sand, moist (GW)	
			0.0			13-31" Dark brown fine to medium SAND, moist (SP)	
			0.0				
5	60/44		0.0			0-5" Dark gray fine to medium SAND, trace fine Gravel, wet (SP)	
			0.0			5-26" Dark gray fine to coarse SAND, trace fine Gravel, wet (SW)	
			0.0				
			0.0			26-31" Dark gray crushed ROCK, phyllite, some fine to coarse Sand, wet (GW)	
			0.0			31-44" Brown very fine to fine SAND and SILT, wet (SP)	
10	60/31		0.0			0-12" Dark gray fine to coarse SAND, trace fine Gravel, wet (SW)	
			0.0				
			0.0			12-14" Dark gray crushed ROCK, Phyllite, some fine to coarse Sand, wet (GW)	
			0.0			14-21" Dark gray very fine to fine SAND and SILT, trace Clay, wet (SP)	
			0.0			21-31" Dark gray SILT and CLAY, trace very fine to fine Sand, wet (CL-ML)	
15	12/12		0.0			0-5" Dark gray very fine to fine SAND and SILT, trace fine Gravel, trace Clay, wet (SM)	
			0.0			5-12" Dark gray very fine to fine SAND, trace Silt moist (SP)	
						End of boring at 16.41 feet below ground surface (refusal).	
20							
25							

APPENDIX F

OVERBURDEN MONITORING WELL CONSTRUCTION LOGS

Boring/Well ID:	SITE INFORMATION	DRILLING EQUIPMENT
12OBMW-1	**Project Number/Client:** 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Community Economy Environment Credere Associates LLC	**Site Location:** Gould Island	**Casing/Core Diameter:** 4"/2"
	Date Start/Finish: 3-15-18 - 3-26-18	**Casing Material:** Steel
OVERBURDEN WELL CONSTRUCTION DETAILS	**Credere Representative:** M. Wentworth	**CONTRACTOR** **Drilling Contractor/Foreman:** Geosearch, Inc/Rodney Kaddy



Top of stickup elevation (ft AMSL): 45.84
Stickup height (in): 39.12
Top of well/PVC elevation (ft AMSL): 45.52
Ground elevation (ft AMSL): 42.58
Concrete thickness (if roadbox; ft): 1

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: dark gray very fine to medium sand, some silt and fine gravel

Borehole diameter (in): 3.25

Backfill material: #2 sand
Backfill depth (ft bgs): 3-14

Well riser material: PVC
Well riser length (ft): 7
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 0.96
Total purge volume (g): 10
No. of well volumes purged: 10
Final turbidity (NTU): 28.6

Field Parameters
DO (mg/L): 6.81
pH: 7.06
Sp. Conductivity (mS/cm): 0.482
ORP (mV): -23.2
Temperature (°C): 13.12

Bentonite depth interval (ft bgs): 1-3

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 10 (4-14 bgs)

Annulus material: sand
Annulus material size: #1
Annulus depth interval (ft bgs): 3-14
Depth to water (ft bgs): 8.80

Depth of borehole (ft bgs): 14

Remarks and Well Details

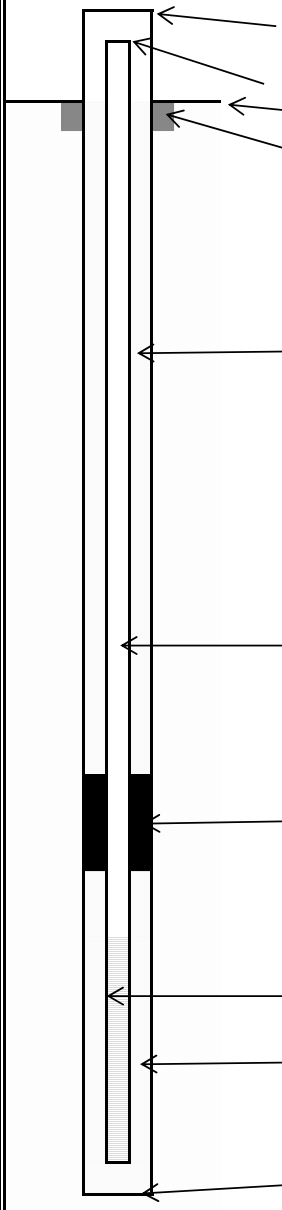
Well ID: 12OBMW-1

Credere Associates LLC

Boring/Well ID: 12OBMW-2

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Site Location: Gould Island	**Casing/Core Diameter:** 4"/2"
Date Start/Finish: 3-16-18 - 3-27-18	**Casing Material:** Steel
Credere Representative: S. Towne	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc/Rodney Kaddy

OVERBURDEN WELL CONSTRUCTION DETAILS



Top of stickup elevation (ft AMSL): 45.60
Stickup height (in): 40.85
Top of well/PVC elevation (ft AMSL): 45.16
Ground elevation (ft AMSL): 42.20
Concrete thickness (if roadbox; ft): 1

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: dark gray very fine to fine sand, some silt, little fine gravel

Borehole diameter (in): 3.25

Backfill material: #2 sand
Backfill depth (ft bgs): 3-14

Well riser material: PVC
Well riser length (ft): 7
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 1.12
Total purge volume (g): 14
No. of well volumes purged: 12.5
Final turbidity (NTU): 27.5

Field Parameters
DO (mg/L): 4.73
pH: 5.87
Sp. Conductivity (mS/cm): 0.252
ORP (mV): 3.5
Temperature (°C): 6.90

Bentonite depth interval (ft bgs): 1-3

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 10 (4-14 bgs)

Annulus material: sand
Annulus material size: #1
Annulus depth interval (ft bgs): 3-14
Depth to water (ft bgs): 7.81

Depth of borehole (ft bgs): 14

Remarks and Well Details

- Strong petroleum odor and sheen on purge water noted during well development. Well headspace reading of 37 ppm.

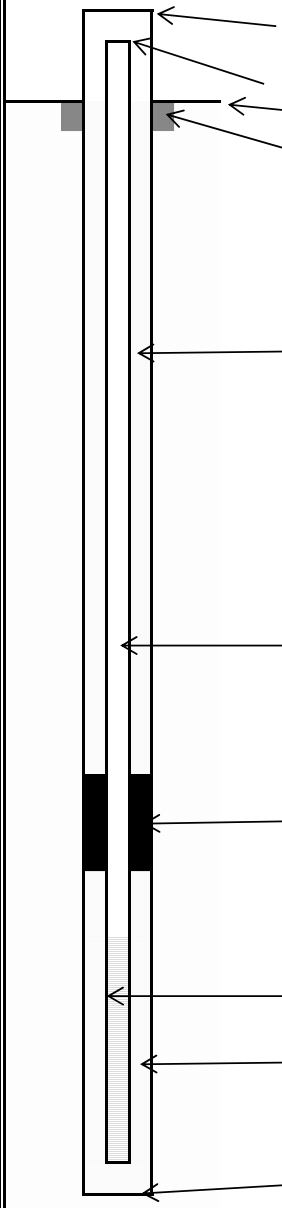
Well ID: 12OBMW-2

Credere Associates LLC

Boring/Well ID: 27OBMW-1

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Site Location: Gould Island	**Casing/Core Diameter:** 4"/2"
Date Start/Finish: 3-5-18	**Casing Material:** Steel
Credere Representative: S. Foote	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc/Rodney Kaddy

OVERBURDEN WELL CONSTRUCTION DETAILS



Top of stickup elevation (ft AMSL): 9.72
Stickup height (in): 39.65
Top of well/PVC elevation (ft AMSL): 9.57
Ground elevation (ft AMSL): 6.42
Concrete thickness (if roadbox; ft): NA

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: very fine to fine sand and silt, with varying amounts of gravel underlain by weathered bedrock

Borehole diamter (in): 3.25

Backfill material: NA
Backfill depth (ft bgs): NA

Well riser material: PVC
Well riser length (ft): 16
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 1.3
Total purge volume (g): 6
No. of well volumes purged: 4
Final turbidity (NTU): 1.64

Field Parameters
DO (mg/L): 9.52
pH: 7.41
Sp. Conductivity (mS/cm): 25.70
ORP (mV): 125.6
Temperature (°C): 7.28

Bentonite depth interval (ft bgs): 1-2

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 10 (3-13 bgs)

Annulus material: sand
Annulus material size: #1
Annulus depth interval (ft bgs): 2-13
Depth to water (ft bgs): 4.72

Depth of borehole (ft bgs): 13

Remarks and Well Details

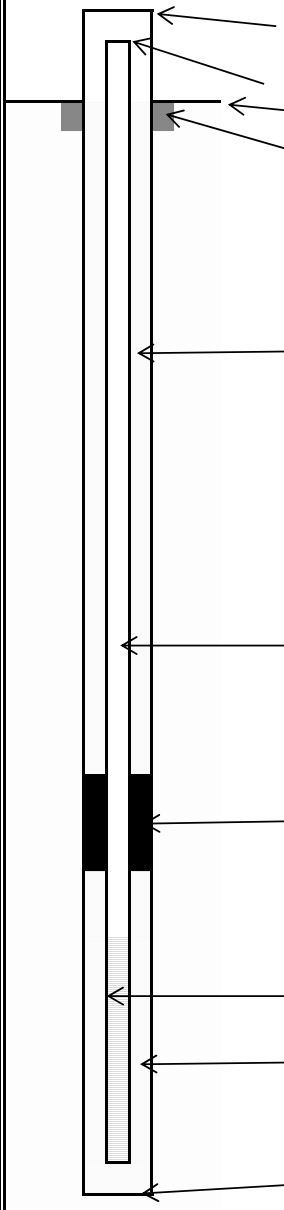
Well ID: 27OBMW-1

Credere Associates LLC

Boring/Well ID: 30OBMW-1

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Site Location: Gould Island	**Casing/Core Diameter:** 4"/2"
Date Start/Finish: 3-12-18	**Casing Material:** Steel
Credere Representative: M. Wentworth	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc/Rodney Kaddy

OVERBURDEN WELL CONSTRUCTION DETAILS



Top of stickup elevation (ft AMSL): 8.12
Stickup height (in): 42.40
Top of well/PVC elevation (ft AMSL): 7.95
Ground elevation (ft AMSL): 4.59
Concrete thickness (if roadbox; ft): 1

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: fine to coarse sand, with varying amounts of gravel and silt

Borehole diameter (in): 3.25

Backfill material: #2 sand
Backfill depth (ft bgs): 3-15

Well riser material: PVC
Well riser length (ft): 7
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 1.5
Total purge volume (g): 20
No. of well volumes purged: 13
Final turbidity (NTU): 5.40

Field Parameters
DO (mg/L): 12.00
pH: 7.68
Sp. Conductivity (mS/cm): 14.96
ORP (mV): 68.9
Temperature (°C): 7.74

Bentonite depth interval (ft bgs): 2-4

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 10 (5-15 bgs)

Annulus material: sand
Annulus material size: #1
Annulus depth interval (ft bgs): 4-15
Depth to water (ft bgs): 7.89

Depth of borehole (ft bgs): 15

Remarks and Well Details

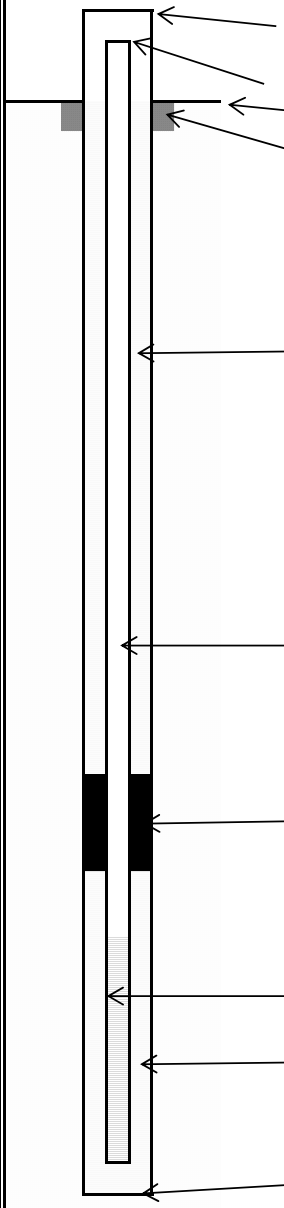
Well ID: 30OBMW-1

Credere Associates LLC

Boring/Well ID: 31OBMW-1

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Site Location: Gould Island	**Casing/Core Diameter:** 4"/2"
Date Start/Finish: 3-14-18 - 3-20-18	**Casing Material:** Steel
Credere Representative: M. Wentworth	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc/Rodney Kaddy

OVERBURDEN WELL CONSTRUCTION DETAILS



Top of stickup elevation (ft AMSL): 8.96
Stickup height (in): 40.63
Top of well/PVC elevation (ft AMSL): 8.76
Ground elevation (ft AMSL): 5.57
Concrete thickness (if roadbox; ft): 1

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: fine to medium sand, with varying amounts of gravel and weathered phyllite

Borehole diameter (in): 3.25

Backfill material: #2 sand
Backfill depth (ft bgs): 4.5-15.5

Well riser material: PVC
Well riser length (ft): 8
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 1.55
Total purge volume (g): 35
No. of well volumes purged: 22.6
Final turbidity (NTU): 14.9

Field Parameters
DO (mg/L): 3.53
pH: 6.77
Sp. Conductivity (mS/cm): 4.721
ORP (mV): 178.7
Temperature (°C): 8.56

Bentonite depth interval (ft bgs): 2-4

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 10 (5.5-15.5 bgs)

Annulus material: sand
Annulus material size: #1
Annulus depth interval (ft bgs): 4-15.5
Depth to water (ft bgs): 3.46

Depth of borehole (ft bgs): 15.5

Remarks and Well Details

- Observed free product in purge water. PID reading of 4.2 ppm observed at groundwater interface during soil boring advancement.

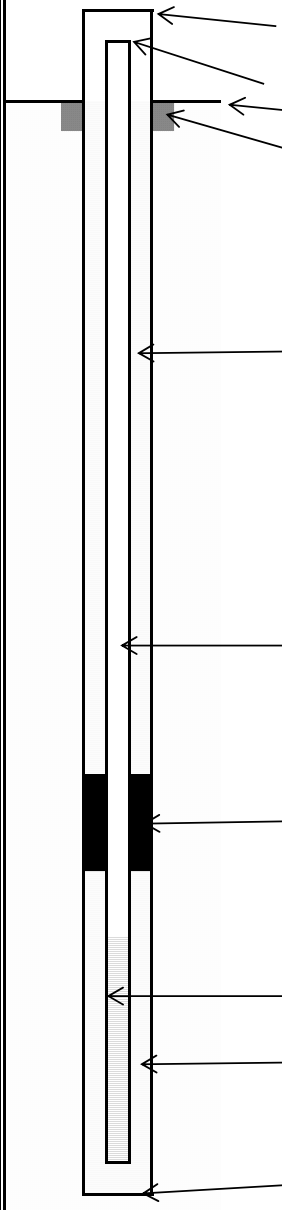
Well ID: 31OBMW-1

Credere Associates LLC

Boring/Well ID: 37OBMW-1

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Site Location: Gould Island	**Casing/Core Diameter:** 4"/2"
Date Start/Finish: 3-14-18 - 3-28-18	**Casing Material:** Steel
Credere Representative: M. Wentworth	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc/Rodney Kaddy

OVERBURDEN WELL CONSTRUCTION DETAILS



Top of stickup elevation (ft AMSL): 19.80
Stickup height (in): 39.22
Top of well/PVC elevation (ft AMSL): 19.60
Ground elevation (ft AMSL): 16.53
Concrete thickness (if roadbox; ft): 1

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: very fine to fine sand, with varying amounts of silt and weathered phyllite

Borehole diameter (in): 3.25

Backfill material: #2 sand
Backfill depth (ft bgs): 2-11

Well riser material: PVC
Well riser length (ft): 6
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 0.35
Total purge volume (g): 5
No. of well volumes purged: 14
Final turbidity (NTU): 4.01

Field Parameters
DO (mg/L): 5.47
pH: 8.61
Sp. Conductivity (mS/cm): 0.303
ORP (mV): -319.4
Temperature (°C): 8.57

Bentonite depth interval (ft bgs): 1-2

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 8 (3-11 bgs)

Annulus material: sand
Annulus material size: #1
Annulus depth interval (ft bgs): 3-11
Depth to water (ft bgs): 9.66

Depth of borehole (ft bgs): 11

Remarks and Well Details

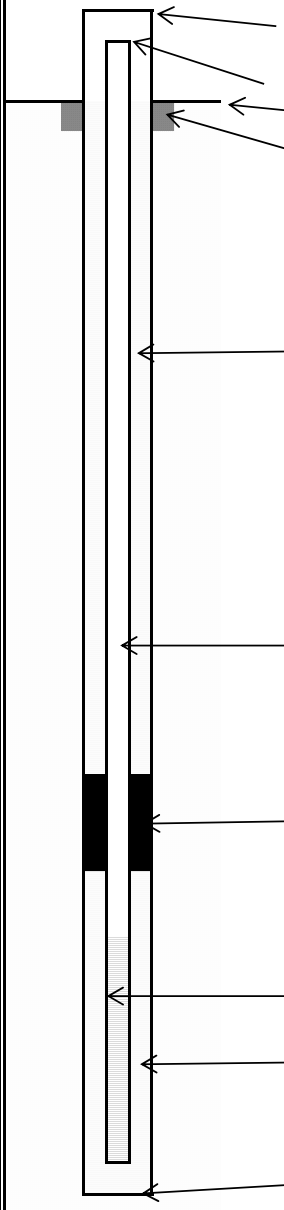
Well ID: 37OBMW-1

Credere Associates LLC

Boring/Well ID: APOBMW-2

SITE INFORMATION	DRILLING EQUIPMENT
Project Number/Client: 16001327/USACE AE HTRW	**Equipment (make/model):** Geoprobe 6610 DT
Site Location: Gould Island	**Casing/Core Diameter:** 4"/2"
Date Start/Finish: 3-6-18	**Casing Material:** Steel
Credere Representative: S. Foote	**CONTRACTOR**
	Drilling Contractor/Foreman: Geosearch, Inc/Rodney Kaddy

OVERBURDEN WELL CONSTRUCTION DETAILS



Top of stickup elevation (ft AMSL): 9.47
Stickup height (in): 37.19
Top of well/PVC elevation (ft AMSL): 9.28
Ground elevation (ft AMSL): 6.37
Concrete thickness (if roadbox; ft): 1

Well completion: stickup
Lock installed? Yes

Generalized description of overburden: very fine to coarse sand, with varying amounts of silt and clay underlain by weathered bedrock

Borehole diameter (in): 3.25

Backfill material: NA
Backfill depth (ft bgs): NA

Well riser material: PVC
Well riser length (ft): 16
Well riser diameter (in): 2

Development method: Overpumping and agitation
Total well volume: 1.4
Total purge volume (g): 48
No. of well volumes purged: 37
Final turbidity (NTU): 952

Field Parameters
DO (mg/L): 2.09
pH: 6.34
Sp. Conductivity (mS/cm): 0.203
ORP (mV): 42.8
Temperature (°C): 10.67

Bentonite depth interval (ft bgs): 1-2

Screen material: PVC
Well diameter (in): 2
Screen length (ft): 8 (5-13 bgs)
Annulus material: sand
Annulus depth interval (ft bgs): 2-13
Depth to water (ft bgs): 4.86

Annulus material size: #1

Depth of borehole (ft bgs): 13

Remarks and Well Details

- Petroleum odor and sheen noted in well and on purge water during well development
- Well cap PID reading = 446 ppm

Well ID: APOBMW-2

APPENDIX G

SURFACE SOIL AND SEDIMENT SAMPLE LOGS

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 3/12/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 11:40
Off Site: 14:45

Site Notes & Information:
Sediment samples were collected with a Ponar below the water level. The sample depth is estimated.

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
10SD15	(0-0.5)	No sediment collected, Only small quanity of weeds
10SD14 12:55	(0-0.5)	Sampled at 30 drops
10SD13 13:20	(0-0.5)	Sampled at 8 drops
10SD12 13:50	(0-0.5)	Sampled at 30 drops
10SD11 14:30	(0-0.5)	Sampled at 5 drops

Note: sample analyses, volume, and preservatives are summarized in field notes.

SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 3/15/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 8:30
Off Site: 13:00

Site Notes & Information:
NED 10 Test Pits that were inaccessible and NED 08 container area

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
10TP2-1 09:10	0-0.5/0.5	Dark gray-black-orange fine to medium SAND, little subrounded Gravel, some metal flake, wire, fabric, mecanical metal, tools, ceramic, weathered copper. PID: 0.1ppm
10TP1-1 09:30	0-0.5/0.5	Dark gray very fine to fine SAND, some Silt, some subrounded gravel, moist. PID: 0.1, no metal debris
10TP4-1 10:45	0-0.5	Dark brown fine to coarse SAND and metal flake/debris. Surrounding large metal debris. PID:0.1
10TP5-1 11:00	0-0.5/0.5	Red/brown fine to coarse SAND and metal flake/debris.Surrounding large metal debris. PID: 0.1
08SS-1 11:30	0-0.5/0.5	Organic dark brown leaf litter and SILT, moist. PID: 0.1

Note: sample analyses, volume, and preservatives are summarized in field notes.

A. Drouin
SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 4/9/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 9:40
Off Site: 14:25

Site Notes & Information:

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
16SS-1 10:10	(0-0.5)	Soils consistent with rest of site
16SS-2 10:15	(0-0.5)	Soils consistent with rest of site
16SS-3 10:20	(0-0.5)	Soils consistent with rest of site
16SS-4 10:25	(0-0.5)	Soils consistent with rest of site
16T-1 10:35	(0-0.5)	Soils consistent with rest of site
16T-10 10:37	(0-0.5)	Soils consistent with rest of site
16SS-5 10:40	(0-0.5)	Soils consistent with rest of site
16SS-6 10:45	(0-0.5)	Soils consistent with rest of site
16SS-7 10:50	(0-0.5)	Soils consistent with rest of site
16SS-8 10:55	(0-0.5)	Soils consistent with rest of site
16SS-9 11:05	(0-0.5)	Soils consistent with rest of site
16SS-10 11:10	(0-0.5)	Soils consistent with rest of site
16SS-11 11:15	(0-0.5)	Soils consistent with rest of site
16SS-12 11:20	(0-0.5)	Soils consistent with rest of site MS/MSD
16T-2	(0-0.5)	Soils consistent with rest of site
16SS-13	(0-0.5)	Soils consistent with rest of site

Note: sample analyses, volume, and preservatives are summarized in field notes.

S. Towne
SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 4/9/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 9:40
Off Site: 14:25

Site Notes & Information:

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
16SS-14 11:40	(0-0.5)	Soils consistent with rest of site
16SS-15 11:45	(0-0.5)	Soils consistent with rest of site
16SS-16 11:50	(0-0.5)	Soils consistent with rest of site
13SS-3 13:30	(0.75-1.25)	Soil Sample taken at approximately 8" below ground surface due to 2-3" of organics at surface and 4-5" of 1 1/2 gravel/stone
13SS-4 13:45	(0-0.5)	Soils consistent with rest of site
13SS-5 13:55	(0-0.5)	Soils consistent with rest of site
13SS-6 14:05	(0-0.5)	Soils consistent with rest of site
13SS-7 14:15	(0-0.5)	Soils consistent with rest of site
13SS-8 14:25	(0-0.5)	Soils consistent with rest of site

Note: sample analyses, volume, and preservatives are summarized in field notes.

S. Towne
SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 4/10/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 8:15
Off Site: 15:45

Site Notes & Information:

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
38SS-010 08:30	(0-0.5)	Consistent with rest of site.
38SS-13 08:55	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
38SS-14 09:00	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
38SS-7 09:10	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
38SS-6 09:15	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
38SS-8 09:20	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand MS/MSD
38SS-2 09:25	(0-0.5)	Consistent with rest of site.
38SS-3 09:40	(0-0.5)	Consistent with rest of site.
38SS-4 09:45	(0-0.5)	Consistent with rest of site.
38SS-5 09:50	(0-0.5)	Consistent with rest of site.
38SS-1 09:55	(0-0.5)	Consistent with rest of site.
38SS-10 09:57	(0-0.5)	Consistent with rest of site.
38SS-9 10:40	(0-0.5)	Consistent with rest of site.
08SS-2 13:15	(0-0.5)	Consistent with 08DU description
08SS-3 13:20	(0-0.25)	Organic detritus above concrete
08SS-4 13:30	(0-0.5)	Consistent with 08DU description

Note: sample analyses, volume, and preservatives are summarized in field notes.

S. Towne
SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 4/10/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 8:15
Off Site: 15:45

Site Notes & Information:

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
48SS-1 13:20	(0-0.5)	Consistent with rest of site.
48SS-2 13:25	(0-0.5)	Consistent with rest of site.
48SS-3 13:30	(0-0.25)	Consistent with rest of site.
24SS-2 15:05	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
24SS-3 15:10	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
24SS-4 15:15	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
24SS-5 15:20	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
39SS-4 15:25	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
39SS-5 15:30	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
3922-2 15:30	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand
39SS-3 15:35	(0-0.25)	Organics consisting of leaf litter, mixed building debris, some sand

Note: sample analyses, volume, and preservatives are summarized in field notes.

S. Towne, S. Foote
SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 4/11/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 8:30
Off Site: 15:45

Site Notes & Information:

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
BG-3 09:20	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-4 09:20	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-1 09:30	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-2 09:40	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-5 09:40	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-10 10:00	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-9 10:05	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-7 10:20	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-8 10:20	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
BG-6 10:30	(0-1)	Dark brown fine to medium SAND and SILT, some root matter, trace Gravel, moist
38SS-12 10:55	(0-0.5)	Consistent with rest of site

Note: sample analyses, volume, and preservatives are summarized in field notes.

S. Towne
SAMPLER

SURFACE SOIL SAMPLE LOG
CREDERE ASSOCIATES, LLC

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 4/12/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
On Site : 8:45
Off Site: 11:30

Site Notes & Information:

SAMPLING INFORMATION:

Surface Soil Sample Location	Sample Depth	Soil Description (evidence of contamination, PID reading, fill, etc.)
10SD8 09:05	(0-0.5)	Dark gray fine to coarse SAND, some Shells, little fine Gravel, little Silt, wet
10SD6S 09:20	(0-0.5)	Dark gray fine to coarse SAND, some Shells, little fine Gravel, little Silt, wet
10SD5S 09:30	(0-0.5)	Dark gray fine to coarse SAND, some Shells, little fine Gravel, little Silt, wet
10SD5D 09:40	(0.5-1)	Dark gray fine to coarse SAND, some Shells, little fine Gravel, little Silt, wet
10SD50D 09:42	(0.5-1)	Dark gray fine to coarse SAND, some Shells, little fine Gravel, little Silt, wet
10SD7S 09:50	(0-0.5)	Dark gray fine to coarse SAND, some Shells, little fine Gravel, little Silt, wet
10SD4S 10:10	(0-0.5)	Dark gray fine to coarse SAND, some Shells, some fine to medium Gravel, little Silt, wet
10SD2 10:35	(0-0.5)	Dark gray fine to coarse SAND, some Shells, some fine to medium Gravel, little Silt, wet MS/MSD
10SD3 11:00	(0-0.5)	Dark gray fine to coarse SAND, some Shells, some fine to medium Gravel, little Silt, wet
10SD1 11:20	(0-0.5)	Dark gray fine to coarse SAND and fine to medium GRAVEL, little Silt, wet

Note: sample analyses, volume, and preservatives are summarized in field notes.

S. Towne
SAMPLER

APPENDIX H

TEST PIT LOGS

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 3/12/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP6

START: 10:55

CREDERE REPRESENTATIVE: A. Drouin

END: 11:15

CONTRACTOR/FOREMAN/EQUIPMENT: Geosearch/Roger Jarry/John Deere 60

NOTES:

Not a lot of debris below surface, ~5'x3' (LxW) oriented N-S
Very close to low tide water

SAMPLE DETAILS:

Collected 10TP6-1 from 0-2/1' for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 1105

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-2'	0.0 0.5 0.1	10TP6-1 (0-2/1)	0-24" Wet, orange red medium to coarse SAND and subrounded GRAVEL (cobbles), some metal fragments (SPG)
1				
2	2-2.6'	0.5		24-32" Wet, dark gray very fine to medium SAND and SILT (SM)
3				Test pit sloughing due to adjacent water, end of test pit at 32" below ground surface
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 3/12/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP7

START: 11:30

CREDERE REPRESENTATIVE: A. Drouin

END: 12:15

CONTRACTOR/FOREMAN/EQUIPMENT: Geosearch/Roger Jarry/John Deere 60

NOTES:

Further from water's edge
Petroleum odor/sheen
12' long, 5' wide, oriented N/S

SAMPLE DETAILS:

Collected 10TP7-1 from (0-2/1) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 1140

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-2'	11.2 16.7 21.2	10TP7-1 (0-2/1)	0-1' Wet, orange-red medium to coarse SAND and subrounded to rounded GRAVEL, some layered metals and flaked metal (SPG)
1				1-7' Wet in top foot, moist below 2 feet bgs, dark gray SAND and SILT, petroleum sheen and odor in top 1' (1-2 feet bgs) (SM)
2	2-4'	0.6		
3		0.1		
4	4-6'	0.1		
5		0.1		
6	6-7'	0.1		
7				End of test pit at approximately 7 feet *Difficult to measure depth due to sloughing sides, cannot safely be approached.
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island
DATE: 3/12/2018

PROJECT NUMBER: 16001327
LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP8
START: 12:50

CREDERE REPRESENTATIVE: A. Drouin
END: 13:40

CONTRACTOR/FOREMAN/EQUIPMENT: Geosearch/Roger Jarry/John Deere 60

NOTES:
11' Long, 4' Wide, Orientation N-S
Petroleum Sheen/odor
*No deeper sample since petroleum was draining downward.

SAMPLE DETAILS:
Collected 10TP8-1 from (0-2/1) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 1255
Collected Sample Duplicate 10TP8-10, SAA, at 12:58

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-2'	21.2 20.1 HS:40.0 19.0	10TP8-1 (0-2/1) 10TP8-10 DUP	0-1' Wet, reddish orange medium to coarse SAND and GRAVEL (SPG)
1				1-8' Wet in top 1', moist below, dark gray very fine to medium SAND and SILT, some Gravel, petroleum sheen 1-2', strong petroleum odor (SM)
2	2-4'	0.1		
3				
4	4-6'	0.1		
5				
6	6-8'	0.0	*	
7				
8				End of test pit at 8 feet
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island
DATE: 3/14/2018

PROJECT NUMBER: 16001327
LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP9
START: 10:55

CREDERE REPRESENTATIVE: A. Drouin
END: 11:30

CONTRACTOR/FOREMAN/EQUIPMENT: Credere Associates/Hand tools

NOTES:
1' by 1' hole
Petroleum odor

SAMPLE DETAILS:
Collected 10TP9-1 from (0-2/2) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 1105

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-2'	26.1 20.1	10TP9-1 (0-2/2)	0-3" Wet, brown/gray medium to coarse SAND and GRAVEL, little Brick, Glass, Metal Flake, Shells (SPG) 3-26" Wet, dark gray fine to medium SAND, some subrounded Gravel, petroleum odor (SPG)
1				
2	2.2'			
3				End of test pit at 2.2 feet
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 3/14/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP10

START: 11:20

CREDERE REPRESENTATIVE: A. Drouin

END: 12:10

CONTRACTOR/FOREMAN/EQUIPMENT: Credere Associates/Hand tools

NOTES:

1' X 1' hole
No petroleum odor

SAMPLE DETAILS:

Collected 10TP10-1 from (0-1.75/1.75) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 1140

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-1.75'	0.1 0.6	10TP10-1 (0-1.75/ 1.75)	0-12" Wet, brown rounded to subrounded GRAVEL and fine to coarse SAND (SWG)
1				12-21" Wet, dark gray very fine to medium SAND, some subrounded Gravel, no odor (SW
2				End of test pit at 1.75 feet
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island

DATE: 3/14/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP11

START: 10:00

CREDERE REPRESENTATIVE: A. Drouin

END: 10:30

CONTRACTOR/FOREMAN/EQUIPMENT: Hand Dug

NOTES:
No petroleum odor

SAMPLE DETAILS:
Collected 10TP11-1 from (0-2/1) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 1140

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-2'	1.1	10TP11-1 (0-2/1)	0-24" Wet, pooled water at 18", brown gray medium to coarse SAND and GRAVEL, little Brick, Metal (SWG)
1		0.0		
2				End of test pit at 2 feet
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island
DATE: 3/14/2018

PROJECT NUMBER: 16001327
LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP12
START: 12:15

CREDERE REPRESENTATIVE: A. Drouin
END: 12:40

CONTRACTOR/FOREMAN/EQUIPMENT: Hand Dug

NOTES:
No petrol odor
1' X 1'

SAMPLE DETAILS:
Collected 10TP12-1 from (0-1.75/1.75) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 12:30

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-1.75'	0.0	10TP12-1 (0-1.75/ 1.75)	0-21" Wet, water at 18 inches, dark gray coarse SAND and subrounded to rounded GRAVEL, trace Shells, Metal in top 2" (SWG)
1		0.0		
2				End of test pit at 1.75 feet
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

CREDERE ASSOCIATES, LLC
TEST PIT SAMPLING LOG
Credere Associates, LLC - 776 Main Street, Westbrook, Main 04092 - (207) 828-1272

TEST PIT DATA:

PROJECT NAME: USACE AE HTRW/Gould Island
DATE: 3/14/2018

PROJECT NUMBER: 16001327
LOCATION ACTIVITY

TEST PIT LOCATION ID: 10TP13
START: 12:40

CREDERE REPRESENTATIVE: A. Drouin
END: 13:15

CONTRACTOR/FOREMAN/EQUIPMENT: Geosearch/Roger Jarry/John Deere 60

NOTES:
L5' x 3'W x 8'D
Oriented NW/SW

SAMPLE DETAILS:
Collected 10TP13-1 from (0-2/1) for VOC, SVOC, metals, EPH, VPH, PCBs, pesticides, explosives, pH at 13:00

FIELD ANALYSIS DATA:

DEPTH (FT)	SAMPLE DEPTH (Feet)	PID (ppm)	Lab Sample	SOIL DESCRIPTION / NOTES
0	0-2'	0.1	10TP11-1 (0-2/1)	0-6" Moist, reddish orange medium to coarse SAND and rounded to subrounded GRAVEL (SP)
1				6"-8' Wet, water pouring down from ~3' bgs, gray fine to coarse SAND and subrounded GRAVEL (cobbles) (SW)
2	2-4'	0.0		
3				
4	4-6'	0.1		
5				
6	6-8'	0.0		
7				
8				End of test pit at 8 feet
9				
10				
11				
12				
13				
14				
15				
16				
17				

APPENDIX I

LOW FLOW GROUNDWATER SAMPLING FIELD LOGS

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

PROJECT NUMBER: 160c1327

SAMPLE LOCATION ID: APOBMW2

DATE: 4/18/2018

LOCATION ACTIVITY START: 1415 END: 1655

WELL DATA:

WELL DEPTH (ft): 15.70 [X] MEASURED [ ] HISTORICAL

WATER DEPTH (ft): 8.21 [X] MEASURED [ ] HISTORICAL

[SG] TOP OF WELL [X] TOP OF CASING [ ] FROM GRADE [ ] _____

WATER LEVEL EQUIPMENT USED: [X] ELECT. COND. PROBE [ ] FLOAT ACTIVATED PROBE [ ] PRESSURE TRANSDUCER [ ] _____ [ ] _____

DEPTH OF PUMP INTAKE (ft): ~12 Stick-up (in): 3.10'

WELL MATERIAL:	WELL LOCKED:	PROTECTIVE CASING SECURE:	CONCRETE COLLAR INTACT:
[X] PVC	[X] YES	[X] YES	[ ] YES
[ ] SS	[ ] NO	[ ] NO	[ ] NO NA
[ ] _____			

AMBIENT AIR VOC: 0.000 PPM

WELL MOUTH VOC: 153.1 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment
[X]	[X]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through
[ ]	[ ]	HAND PUMP	with "T" valuve
[ ]	[ ]	DEDICATED HDPE	
[ ]	[ ]	NEW HDPE	
[ ]	[ ]	DEDICATED LDPE	YSI SN: 15A101441
[X]	[X]	NEW LDPE Teflon	Turbidity SN: 17030052967
	[X]	FILTER	
[ ]	[ ]	_____	Sampler: S. Gannon

DECONTAMINATION FLUIDS USED:

[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] _____
[ ] _____

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1435	10.67	0.189	0.09	6.90	102.9	1.85	496	400	8.54	pump started at 1430
1440	10.47	0.187	0.09	6.89	108.8	1.31	384	400	8.58	
1445	10.44	0.187	0.09	6.89	112.0	1.24	276	400	8.60	
1450	10.38	0.187	0.09	6.87	112.2	0.94	199	500	8.70	water level stable
1500	10.44	0.187	0.09	6.88	110.9	1.00	199	500	8.72	at maximum
1505	10.39	0.189	0.09	6.88	108.7	0.96	158	500	8.73	geopump flow
1510	10.36	0.189	0.09	6.91	104.1	1.00	106	500	8.73	rate
1525	10.35	0.189	0.09	6.93	98.7	1.12	47.0	400	8.65	
1535	10.31	0.189	0.09	6.95	94.5	1.21	37.7	400	8.65	
1545	10.33	0.189	0.09	6.95	94.9	1.14	22.1	400	8.65	
1555	10.32	0.189	0.09	6.90	99.3	1.16	14.7	400	8.64	
1600	10.33	0.188	0.09	6.90	99.4	1.16	12.5	400	8.64	
1605	10.27	0.189	0.09	6.91	97.7	1.18	8.79	400	8.64	
1610	10.33	0.188	0.09	6.90	98.8	1.23	9.68	400	8.64	
3-5 min	3%	3%		±0.1	±10	10%;	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials SG

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/18/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: APOBMW2

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1650	10.14	0.188	0.09	6.08	116.2	1.78	6.91	400	8.69

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1615	APOBMW2-0418	None	3	1 L amber	PAH, SVOC
		HCl	1	1 L amber	EPH,
		HCl	4	40ml VOA	VOC, VPH
		$(NH_4)_2SO_4$	1	125ml Poly	Cr 6+
		HNO_3	1	250ml Poly	metals
1617	APOBMW20-0418	None	3	1 L amber	PAH, SVOC
		HCl	1	1 L amber	EPH
		HCl	4	40ml VOA	VOC, VPH
		$(NH_4)_2SO_4$	1	125ml Poly	Cr 6+
		HNO_3	1	250ml Poly	Metals

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 7.49

Total Well Volume: 1.20

Total Purge Volume: ~~~15gal~~ 11.76gal

# of well volumes: 9.8

COMMENTS Duplicate APOBMW20 collected - same bottles and analyses, time = 1617

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivity: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Sean Gannon

Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/18/2018

PROJECT NUMBER: 16081327

LOCATION ACTIVITY
START: 1305
END: 1545

SAMPLE LOCATION ID: 10PZ3

WELL DATA:

WELL DEPTH (ft): 5.52 — [X] MEASURED [ ] HISTORICAL — [X] TOP OF WELL [ ] TOP OF CASING [ ] FROM GRADE

WATER DEPTH (ft): 4.03 — [X] MEASURED [ ] HISTORICAL

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] _____
[ ] _____

DEPTH OF PUMP INTAKE (ft): 4.53 Stick-up (in): 40.75"

WELL MATERIAL:	WELL LOCKED:	PROTECTIVE CASING SECURE:	CONCRETE COLLAR INTACT:
[X] PVC	[ ] YES	[ ] YES	[ ] YES
[ ] SS	[X] NO	[X] NO	[X] NO
[ ] _____			

AMBIENT AIR VOC: see field book #3 PPM

WELL MOUTH VOC: see field book #3 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment
[ ]	[ ]	PERISTALTIC PUMP	Solinst interface probe, Hach 2100 turbidmeter
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through
[ ]	[ ]	HAND PUMP	with "T" valuve
[ ]	[ ]	DEDICATED HDPE	
[ ]	[ ]	NEW HDPE	
[ ]	[ ]	DEDICATED LDPE	YSI SN: 05C1103AD
[X]	[X]	NEW LDPE tubing	Turbidity SN: 15030C04050
[ ] MK 4/18/18	[ ] ~~TXT~~	FILTER	

Sampler: Matthew Kennedy

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] _____
[ ] _____

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1313	9.62	36.42	22.92	6.59	229.1	3.72	2.39	100	4.12	
1318	9.41	36.31	22.83	7.01	192.0	2.27	1.46	100	4.15	-Drawdown continues,
1323	9.20	36.38	22.87	7.16	173.7	2.29	1.56	100	4.19	even at 100mL/min
1328	9.50	36.33	22.85	7.26	161.6	2.32	1.22	100	4.23	
1333	9.70	36.42	22.92	7.32	152.4	1.67	1.29	100	4.26	-Tide is receding, might
1338	9.75	36.39	22.91	7.37	144.7	1.68	1.64	100	4.30	explain drawdown
1343	9.26	36.53	22.98	7.41	137.1	1.47	1.52	100	4.33	-Drawdown now at
										0.3', will advise w/ AD.
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials
MAK

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Cashl Island DATE: 4/18/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 10PZ3

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP COND (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID (ntu)	Flow Rate (mL/min)	DTW (ft)
XX	DID	NOT	COLLECT -	WELL	RAN DRY	DURING	SAMPLING		

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	#	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1600 1400	10PZ3-0418	HCl	4	VOA	VOC, VPH
		HCl	1	1 L amber	EPH
		HNO_3	1	250 mL poly	pp metals w/Mn
		$(NH_4)_2SO_4$	1	120 mL poly	Cr6+
		none	5	1 L amber	SVOC, PAH by SIM, Pesticides, Explosives
1402	10PZ30-0418	none	3	1 L amber	Pesticides, explosives

PURGE DATA

[X] 0.04 GAL/FT (1" DIAM.)
[ ] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 1.49

Total Well Volume: 0.06 g

Total Purge Volume: ~~~4.2 mL~~ 4/23/18 ~~~1.45 gal~~ ~1.45 gal

# of well volumes: ~~~70~~ 4/23/18 ~24

COMMENTS Water level influenced by both tide (receding tide at time of sampling) and pump flow rate (only 1" diameter well), therefore sampling was started at 100 mL/min, pump intake depth had to be lower several times as water level dropped, finally with only two out of twelve original ~~bottles~~ 1L amber bottles to be filled were empty when the water level dropped below bottom of the well. MK called AD, agreed to only submit duplicate (10PZ30-0418) for pesticides and explosives analysis and SG can collect a full duplicate at APOBMW2.

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Matthew Kennedy Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/17/2018

PROJECT NUMBER: 1600132-7

LOCATION ACTIVITY
START: 1420
END: 1640

SAMPLE LOCATION ID: 100BMW2

WELL DATA:

WELL DEPTH (ft): 27.98 — [X] MEASURED [ ] HISTORICAL — [X] TOP OF WELL [X] TOP OF CASING [ ] FROM GRADE [ ] SG

WATER DEPTH (ft): 17.99 — [X] MEASURED [ ] HISTORICAL

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] _____
[ ] _____

DEPTH OF PUMP INTAKE (ft): ~23

Stick-up (in): 3.34'

WELL MATERIAL: [X] PVC [X] SS [ ] _____

WELL LOCKED: [X] YES [ ] NO

PROTECTIVE CASING SECURE: [X] YES [ ] NO

CONCRETE COLLAR INTACT: [ ] YES [ ] NO NA

AMBIENT AIR VOC: 0.013 PPM

WELL MOUTH VOC: 0.026 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment
[X]	[X]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through
[ ]	[ ]	HAND PUMP	with "T" valuve
[ ]	[ ]	DEDICATED HDPE	
[ ]	[ ]	NEW HDPE	
[ ]	[ ]	DEDICATED LDPE	YSI SN: 15A101441
[X]	[X]	NEW LDPE Tefzel	Turbidity SN: 19300056467
	[X]	FILTER	
[ ]	[ ]	_____	Sampler: S. Gannon

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] _____
[ ] _____

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1435	9.81	0.156	0.07	5.74	171.5	7.48	16.0	360	18.95	start pump @ 1430
1440	9.61	0.135	0.06	5.63	187.1	7.32	11.6	200	18.94	
1450	9.58	0.130	0.06	5.44	203.6	7.16	6.70	300	19.06	
1500	9.51	0.128	0.06	5.35	211.7	7.00	5.87	160	19.07	
1510	9.46	0.127	0.06	5.30	215.8	7.21	4.10	140	19.07	
1520	9.56	0.127	0.06	5.27	219.0	6.95	4.52	160	19.09	
1530	9.52	0.126	0.06	5.25	221.2	6.99	4.31	200	19.16	
1535	9.55	0.125	0.06	5.24	222.9	6.94	4.14	160	19.16	
1540	9.57	0.125	0.06	5.21	224.9	6.94	4.27	160	19.16	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials SG

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gambel Island

DATE: 4/17/2018

PROJECT NUMBER: 16061327

SAMPLE LOCATION ID: 100BMW2

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1630	9.48	0.098	0.05	5.38	206.4	7.35	3.33	160	19.22

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	#	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1545	100BMW2-0418	None	5	1 Liter	PAH, SVOC, ~~PCB~~ SC
		HCl	1	1 Liter	EPH
		HCl	4	40ml VOA	VOC, VPH
		$(NH_4)_2SO_4$	1	125ml poly	Cr6+
		HNO3	1	250ml poly	metals

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 9.99

Total Well Volume: 1.60

Total Purge Volume: ~~2.5+sc~~ 3.65

# of well volumes: ~~1.5 7 sc~~ 2.28

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Sean Gannon

Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gem IA Island

DATE: 4/18/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 120BMW1

LOCATION ACTIVITY
START: 0930
END: 1200

WELL DATA:

WELL DEPTH (ft): 16.90 — [X] MEASURED [ ] HISTORICAL

WATER DEPTH (ft): 12.06 — [X] MEASURED [ ] HISTORICAL

DEPTH OF PUMP INTAKE (ft): ~14.5/16 — Stick-up (in): 3.26' — [X] TOP OF WELL [X] TOP OF CASING [ ] FROM GRADE [ ] _____

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] _____
[ ] _____

WELL MATERIAL: [X] PVC [ ] SS [ ] _____

WELL LOCKED: [X] YES [ ] NO

PROTECTIVE CASING SECURE: [X] YES [ ] NO

CONCRETE COLLAR INTACT: [ ] YES [ ] NO NA

AMBIENT AIR VOC: 0.000 PPM

WELL MOUTH VOC: 0.000 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment	DECONTAMINATION FLUIDS USED:	
[X]	[X]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter	[ ]	DISTILLED WATER
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display	[ ]	DEIONIZED WATER
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through	[X]	POTABLE WATER
[ ]	[ ]	HAND PUMP	with "T" valuve	[ ]	TSP SOLUTION
[ ]	[ ]	DEDICATED HDPE		[X]	ALCONOX SOLUTION
[ ]	[ ]	NEW HDPE		[ ]	NONE
[ ]	[ ]	DEDICATED LDPE	YSI SN: 15A61441	[ ]	
[X]	[X]	NEW LDPE Teflon	Turbidity SN: 17030 co 56467	[ ]	
	[X]	FILTER			
[ ]	[ ]		Sampler: S. Gannon		

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
0950	9.40	0.461	0.22	7.16	208.0	2.27	13.0	320	13.05	Start pump @ 0945
0955	9.34	0.459	0.22	7.31	184.5	1.57	33.4	200	13.89	
1000	9.57	0.445	0.22	7.45	157.5	1.66	70.4	160	14.35	pump lowered to
1005	9.41	0.434	0.21	7.64	127.1	1.48	48.0	120	14.44	~16'
1010	9.44	0.430	0.21	7.76	107.4	1.54	26.0	100	14.38	
1015	9.58	0.418	0.20	7.88	84.5	1.65	14.7	120	14.46	
1025	9.66	0.412	0.20	7.94	72.1	1.82	11.2	120	14.59	
1035	9.61	0.407	0.20	7.93	66.9	2.00	6.67	110	14.57	
1040	9.89	0.405	0.20	7.94	61.9	2.06	4.50	110	14.56	
1045	10.15	0.404	0.20	7.93	59.6	2.91	4.13	110	14.58	
1050	9.93	0.405	0.20	7.94	58.0	2.56	4.23	110	14.58	
1055	10.19	0.405	0.20	7.93	55.6	2.55	4.11	110	14.55	
1100	10.09	0.405	0.20	7.92	55.0	2.48	4.07	110	14.59	
1105	10.14	0.402	0.19	7.89	56.2	2.52	3.43	110	14.60	
									14.2	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawndown	

Sampler's Initials SG

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/18/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 120BMW1

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1155	10.57	0.400	0.19	7.60	96.2	3.54	5.53	110	14.74

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1110	120BMW1-0418	None	3	1L amber	PAH, SVOC
		HCl	1	1L amber	EPH
		HCl	4	40ml VOA	VOC, VPH
		$(NH_4)_2SO_4$	1	125ml poly	Cr 6+
		HNO_3	1	250ml poly	Metals

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 4.84

Total Well Volume: 0.77

Total Purge Volume: ~~4gal~~ 5G 2.68

# of well volumes: 3.48

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Sean Gannon

Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/ 18 /2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 208MW2

LOCATION ACTIVITY
START: 1205
END: 1355

WELL DATA:

WELL DEPTH (ft): 17.05 — [X] MEASURED [ ] HISTORICAL

WATER DEPTH (ft): 11.39 — [X] MEASURED [ ] HISTORICAL

DEPTH OF PUMP INTAKE (ft): ~15ft

Stick-up (in): 3.40'

[SG] [X] TOP OF WELL [X] TOP OF CASING [ ] FROM GRADE [ ]

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ]
[ ]

WELL MATERIAL: [X] PVC [ ] SS [ ]

WELL LOCKED: [X] YES [ ] NO

PROTECTIVE CASING SECURE: [X] YES [ ] NO

CONCRETE COLLAR INTACT: [ ] YES [ ] NO NA

AMBIENT AIR VOC: 0.0.0 PPM

WELL MOUTH VOC: 2.416 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment	DECONTAMINATION FLUIDS USED:
[X]	[X]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter	[ ] DISTILLED WATER
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display	[ ] DEIONIZED WATER
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through	[X] POTABLE WATER
[ ]	[ ]	HAND PUMP	with "T" valuve	[ ] TSP SOLUTION
[ ]	[ ]	DEDICATED HDPE		[X] ALCONOX SOLUTION
[ ]	[ ]	NEW HDPE		[ ] NONE
[ ]	[ ]	DEDICATED LDPE	YSI SN: 15A101441	[ ]
[X]	[X]	NEW LDPE Teflon	Turbidity SN: 170300056467	[ ]
	[X]	FILTER		
[ ]	[ ]		Sampler: S. Gannon	

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP COND (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1220	7.79	0.179	0.08	7.21	83.7	1.18	18.7	240	12.44	Start Pump @ 1215
1225	7.71	0.179	0.08	7.15	89.7	0.93	12.6	200	13.06	
1230	7.91	0.180	0.09	7.10	95.5	1.02	12.1	180	13.68	
1235	7.96	0.181	0.09	7.09	97.0	1.73	9.97	160	13.98	
1240	7.95	0.181	0.09	7.09	96.7	1.93	11.6	140	14.14	
1245	8.18	0.181	0.09	7.07	97.9	2.16	8.61	100	14.13	
1250	8.25	0.183	0.09	7.05	99.1	2.62	7.84	100	14.13	
1255	8.23	0.183	0.09	7.03	98.7	2.68	8.06	120	14.19	
1300	8.29	0.184	0.09	7.03	98.2	2.68	7.34	100	14.17	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials SG

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Garvin Island

DATE: 4/18/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 1208MW2

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1350	8.64	0.198	0.09	7.00	95.5	4.44	8.98	100	14.14

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	SAMPLE BOTTLE ID LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1305	1208MW2-0418	None	3	1L amber	PAH SVOC
		HCl	3	1L amber	GRH
		HCl	4	40ml VOA	VRH/VOC
		$(NH_4)_2SO_4$	1	125ml Poly	Cr6+
		HNO_3	1	250ml poly	metals

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 5.66

Total Well Volume: 0.9 ~~3gal~~ 1.72

Total Purge Volume: 1.89

# of well volumes:

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Sean Gannon

Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/17/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
START: 1104
END: 1355

SAMPLE LOCATION ID: 270BMW1

WELL DATA:

WELL DEPTH (ft): 15.80 [X] MEASURED [ ] HISTORICAL

WATER DEPTH (ft): 7.82 [X] MEASURED [ ] HISTORICAL

[X] TOP OF WELL [ ] TOP OF CASING [ ] FROM GRADE [ ]

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ]
[ ]

DEPTH OF PUMP INTAKE (ft): ~11.80 Stick-up (in): 35.25" (2.93')

WELL MATERIAL: [X] PVC [ ] SS [ ]

WELL LOCKED: [X] YES [ ] NO

PROTECTIVE CASING SECURE: [X] YES [ ] NO

CONCRETE COLLAR INTACT: [X] YES [ ] NO

AMBIENT AIR VOC: see field book #3 PPM

WELL MOUTH VOC: see field book #3 PPM

EQUIPMENT DATA:

PURGING / SAMPLING

PURGING	SAMPLING	
[ ]	[ ]	PERISTALTIC PUMP
[ ]	[ ]	SUBMERSIBLE
[ ]	[ ]	BLADDER PUMP
[ ]	[ ]	HAND PUMP
[ ]	[ ]	DEDICATED HDPE
[ ]	[ ]	NEW HDPE
[ ]	[ ]	DEDICATED LDPE
[X]	[X]	NEW LDPE ~~Teflon~~
	[X]	FILTER
[ ]	[ ]	

Equipment
Solinst interface probe, Hach 2100 turbidmeter
YSI multi-parameter meter with display
geopump peristaltic pump with flow through with "T" valuve

YSI SN: 05611109 AD
Turbidity SN: 15030C040050

Sampler: Matthew Kennedy

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ]
[ ]

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1124	7.69	39.47	24.94	6.48	241.4	11.73	2.65	400	7.91	~~Stable flow rate~~ MK
1133	7.75	39.45	24.92	6.85	241.4	9.99	3.28	400	8.00	
1138	7.82	39.43	24.90	6.95	240.7	9.80	2.82	360	8.02	
1143	7.73	39.40	24.87	7.00	240.3	9.86	3.48	320	8.03	
1148	7.70	39.36	24.85	7.05	240.0	9.87	4.74	310	8.05	
1153	7.80	39.30	24.81	7.10	239.4	9.78	3.76	280	8.06	
1158								MK 280	8.08	5 gallons purged, temp spike
1203	8.18	39.21	24.83	7.16	238.6	9.81	3.43	160	8.10	
1208	8.32	39.19	24.77	7.18	239.5	9.80	2.26	100	8.12	
1216	8.14	39.29	24.87	7.21	238.4	9.87	2.32	400	8.17	Drawdown due to tide
1221	7.66	39.28	24.78	7.24	238.6	9.99	2.01	400	8.19	Temp. drop
1226	7.69	39.27	24.75	7.25	238.1	9.94	1.66	400	8.21	
1231	7.77	39.18	24.71	7.27	237.8	9.83	1.68	400	8.23	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials
MK

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Cuttyhunk Island DATE: 4/17/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 2708MW1

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1355	8.09	39.13	24.72	7.40	226.0	9.61	3.01	400	8.53

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	#	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1245	2708MW1-0418 w/MS/MSD	HCl	12	VOA	VOC, VPH
		HCl	3	1 L amber	EPH
		—	15	1 L amber	SVOC, PCB, Explosives, PAH w/ SIM
		HNO_3	3	250 mL poly	Pf metals (plus Mn)
		$(NH_4)_2SO_4$	3	120 mL poly	Cr6+

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 7.98

Total Well Volume: 1.28

Total Purge Volume: ~8.6

# of well volumes: ~6.7

COMMENTS

- Water level dropping at same rate regardless of flow rate (-0.02' every 5 min at both 100 and 400 mL/min). This is likely due to the falling tide and the proximate position to the beach. Flow rate will be increased to maximum rate (400 mL/min) for sampling.
- Therefore drawdown > 0.3 was associated w/ tide, not flow rate
- Collected MS/MSD with sample

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Matthew Kennedy Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/17/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 3008MW1

LOCATION ACTIVITY
START: 1527
END: 1700

WELL DATA:

WELL DEPTH (ft): 17.04

WATER DEPTH (ft): 7.64

[ ] MEASURED
[ ] HISTORICAL
[X] MEASURED
[ ] HISTORICAL

[X] TOP OF WELL
[ ] TOP OF CASING
[ ] FROM GRADE
[ ] _____

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] _____
[ ] _____

DEPTH OF PUMP INTAKE (ft): ~12.5 Stick-up (in): 40"

WELL MATERIAL:
[ ] PVC
[X] SS
[ ] _____

WELL LOCKED:
[X] YES
[ ] NO

PROTECTIVE CASING SECURE:
[X] YES
[ ] NO

CONCRETE COLLAR INTACT:
[X] YES
[ ] NO

AMBIENT AIR VOC: see field book #3 PPM

WELL MOUTH VOC: see field book #3 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment
[ ]	[ ]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through
[ ]	[ ]	HAND PUMP	with "T" valuve
[ ]	[ ]	DEDICATED HDPE	
[ ]	[ ]	NEW HDPE	
[X]	[X]	DEDICATED ~~LDPE~~ Teflon	YSI SN: 05G1108 AD
[ ]	[ ]	NEW LDPE	Turbidity SN: 15030C040050
	[X]	FILTER	
[ ]	[ ]	_____	Sampler: Matthew Kennedy

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] _____
[ ] _____

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1607	7.81	33.77	21.00	7.02	227.0	10.54	2.14	400	7.82	water level dropping
1612	7.79	33.68	20.95	7.01	226.9	10.64	1.24	400	7.83	regardless of flow rate,
1617	7.79	33.73	20.99	7.00	227.1	10.53	0.91	400	7.83	likely due to tide
3-5 min	3%	3%		±0.1	±10	10%,	<1 ±5>1	100-200 mL/min	~0.3 ft drawndown	

Sampler's Initials
MAK

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island DATE: 4/17/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 300BMW1 ~~MW~~

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1700	7.77	33.62	21.04	7.08	226.7	10.38	0.48	400	7.92

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1630	300BMW1-0418	HCl	4	VOA	VOC, VPH
		HCl	1	1 L amber	EPH
		HNO_3	1	250 mL poly	pp metals w/ Mn
		$(NH_4)_2SO_4$	1	120 mL poly	Cr^{6+}
↓	↓	none	5	1 L amber	SVOC, PCB, Explosives, PAHs w/SIM,

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 9.4

Total Well Volume: ~1.5

Total Purge Volume: ~6.7

# of well volumes: ~4.47

COMMENTS

- Water level slowly dropping at consistent rate regardless of flow rate, likely due to location on beach, with changing tides, etc.

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Matthew Kennedy Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/17/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
START: 1050
END: 1305

SAMPLE LOCATION ID: 3108MW-1

WELL DATA:

WELL DEPTH (ft): 18.25 [X] MEASURED [ ] HISTORICAL

WATER DEPTH (ft): 6.85 [X] MEASURED [ ] HISTORICAL

[X] TOP OF WELL [X] TOP OF CASING [ ] FROM GRADE [ ]

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ]
[ ]

DEPTH OF PUMP INTAKE (ft): ~12' Stick-up (in): 3.39'

WELL MATERIAL:	WELL LOCKED:	PROTECTIVE CASING SECURE:	CONCRETE COLLAR INTACT:
[X] PVC	[X] YES	[X] YES	[ ] YES
[ ] SS	[ ] NO	[ ] NO	[ ] NO
[ ]			NA

AMBIENT AIR VOC: 0.0[illegible] PPM

WELL MOUTH VOC: 0.194 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment	DECONTAMINATION FLUIDS USED:	
[ ]	[ ]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter	[ ]	DISTILLED WATER
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display	[ ]	DEIONIZED WATER
[ ]	[ ]	BLADDER PUMP	geopump peristaltic pump with flow through	[X]	POTABLE WATER
[ ]	[ ]	HAND PUMP	with "T" valuve	[ ]	TSP SOLUTION
[ ]	[ ]	DEDICATED HDPE		[X]	ALCONOX SOLUTION
[ ]	[ ]	NEW HDPE		[ ]	NONE
[ ]	[ ]	DEDICATED LDPE	YSI SN: 15A101441	[ ]	
[X]	[X]	NEW LDPE Teflon	Turbidity SN: 17[illegible]5646	[ ]	
	[X]	FILTER			
[ ]	[ ]		Sampler: S. Gannon		

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1140	8.90	11.46	6.53	5.88	215.5	1.50	7.02	440	7.29	Tide retreating
1145	8.81	11.73	6.70	5.93	210.2	1.37	7.72	440	7.32	throughout GW
1150	8.79	11.91	6.81	5.94	208.9	1.39	6.83	440	7.40	monitoring; drawdown
1155	8.88	12.07	6.91	5.93	205.8	1.42	6.83	360	7.41	consistent w/ decreased
1200	8.95	12.19	6.98	5.93	208.6	1.44	5.12	360	7.49	flow rate, turbidity
1205	9.03	12.27	7.05	5.93	208.8	1.44	4.45	280	7.52	due to tide.
1210	8.90	12.63	7.23	5.92	209.7	1.66	3.40	240	7.56	
1215	8.81	12.94	7.44	5.91	212.1	1.59	2.97	160	7.59	
1220	8.79	13.04	7.50	5.90	212.8	1.61	2.07	160	7.61	
1225	8.82	12.66	7.26	5.91	209.2	1.56	2.46	440	7.63	
1230	8.80	12.71	7.30	5.91	205.6	1.54	2.31	440	7.64	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials SG

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/ 17 /2018

PROJECT NUMBER: 1600327

SAMPLE LOCATION ID: 310BMW1

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1300	9.16	13.37	7.71	5.89	204.4	2.34	3.13	440	7.89

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	#	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1230	310BMW1-0418	None	5	1L Amber	
		HCl	1	1L Amber	EPH
		HCl	4	40ml VOA	VOC
		$(NH_4)_2SO_4$	1	125ml poly	Cr 6+
		~~SG metals~~ HNO3	1	250ml poly	SG ~~HNO3~~ metals

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 11.4

Total Well Volume: 1.82

Total Purge Volume: ~~4gal sg~~ 5.55

# of well volumes: 3.05

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): Sean Gannon

Signature:

LOW FLOW SAMPLING LOG

Credere Associates, LLC. 776 Main Street, Westbrook, ME 04092

PROJECT NAME: Gold Island

DATE: 4/18 /2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 370BMW1

LOCATION ACTIVITY
START: 1105 ~~1035~~ MAK 4/18/18 900
END: 1107 1200

4/19

WELL DATA:

WELL DEPTH (ft): 13.70 — [X] MEASURED [ ] HISTORICAL — [X] TOP OF WELL [ ] TOP OF CASING [ ] FROM GRADE [ ] ______

WATER DEPTH (ft): 13.26 — [X] MEASURED [ ] HISTORICAL

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] ______
[ ] ______

DEPTH OF PUMP INTAKE (ft): 13.60

Stick-up (in): 35.5"

WELL MATERIAL:	WELL LOCKED:	PROTECTIVE CASING SECURE:	CONCRETE COLLAR INTACT:
[X] PVC	[X] YES	[X] YES	[X] YES
[ ] SS	[ ] NO	[ ] NO	[ ] NO
[ ] ______			

AMBIENT AIR VOC: See field book #3 PPM

WELL MOUTH VOC: See field book #3 PPM

EQUIPMENT DATA:

PURGING	SAMPLING	
[ ]	[ ]	PERISTALTIC PUMP
[ ]	[ ]	SUBMERSIBLE
[ ]	[ ]	BLADDER PUMP
[ ]	[ ]	HAND PUMP
[ ]	[ ]	DEDICATED HDPE
[ ]	[ ]	NEW HDPE
[ ]	[ ]	DEDICATED LDPE
[X]	[X]	NEW ~~LDPE~~ Teflon
	~~[X]~~ (w)	FILTER
[ ]	[ ]	______

Equipment:
Solinst interface probe, Hach 2100 turbidmeter
YSI multi-parameter meter with display
geopump peristaltic pump with flow through
with "T" valuve

YSI SN: 05G1108AD
Turbidity SN: 15030C040050

Sampler: Matthew Kennedy

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] ______
[ ] ______

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1107	8.82	0.596	0.29	7.06	215.9	5.56	127	100	13.63	Draw-down occuring, collected readings before it GW dropped below pump. Will allow recharge
4/19 900	—	—	—	—	—	—	—	—	13.53	
930	—	—	—	—	—	—	—	—	DRY	NOT ENOUGH VOL FOR RINSINGS
1000	—	—	—	—	—	—	—	—	DRY	
1100	—	—	—	—	—	—	—	—	DRY	
1130	—	—	—	—	—	—	—	—	DRY	
1200	—	—	—	—	—	—	—	—	DRY	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft. drawdown	

Sampler's Initials
MAK / MK

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island DATE: 4/ 19 /2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: 37 OB MW-1

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
			N	/	A				

SAMPLE DATA:

4/19/18

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
0900	37 OBMW-1-0418	HCL	2	VOA	VOC
NOT	ENOUGH	WELL		VOLUME	TO SAMPLE

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = .17 @

Total Well Volume: ~~.0026~~ .027 g

Total Purge Volume: 2.027

# of well volumes: 1

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): M Willis Signature: [signature]

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gould Island

DATE: 4/18/2018

PROJECT NUMBER: 160091327

SAMPLE LOCATION ID: BRMW-1

LOCATION ACTIVITY
START: 1420
END: 1620

WELL DATA:

WELL DEPTH (ft): 57 ('695) (58.16 DFW TOR)
[ ] MEASURED
[X] HISTORICAL
[X] MEASURED
[ ] HISTORICAL

WATER DEPTH (ft): 17.60
[X] TOP OF WELL
[ ] TOP OF CASING
[ ] FROM GRADE
[ ] _____

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] _____
[ ] _____

DEPTH OF PUMP INTAKE (ft): ≈46
Stick-up (in): ≈30"

WELL MATERIAL:
[X] PVC
[ ] SS
[ ] _____

WELL LOCKED:
[X] YES
[ ] NO

PROTECTIVE CASING SECURE:
[X] YES
[ ] NO

CONCRETE COLLAR INTACT:
[X] YES
[ ] NO

AMBIENT AIR VOC: 0.0 PPM

WELL MOUTH VOC: 0.0 PPM

EQUIPMENT DATA:

PURGING	SAMPLING		Equipment
[ ]	[ ]	PERISTALTIC PUMP	Solinst interface probe,Hach 2100 turbidmeter
[ ]	[ ]	SUBMERSIBLE	YSI multi-parameter meter with display
[X]	[X]	BLADDER PUMP	geopump peristaltic pump with flow through
[ ]	[ ]	HAND PUMP	with "T" valuve
[ ]	[ ]	DEDICATED HDPE	
[ ]	[ ]	NEW HDPE	
[ ]	[ ]	DEDICATED LDPE	YSI SN: 16E100052
[X]	[X]	NEW LDPE TUBING	Turbidity SN: 16030C045465
	[X]	FILTER	
[ ]	[ ]	_____	Sampler: M Willis

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] _____
[ ] _____

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1425								400	17.90	
1426								400	17.90	
1430	10.7	.184	.09	6.26	99.2	8.47	225	400	17.90	
1435	10.7	.183	.09	6.19	123.7	8.41	250	400	17.98	
1440	10.7	.183	.09	6.18	134	8.30	216	360	17.96	
1450	10.8	.181	.09	6.17	161.3	7.86	282	360	17.97	
1455	11.0	.185	.09	6.17	166.7	7.94	264	360	17.97	
1505	10.8	.181	.09	6.19	174.3	8.12	175	360	17.97	
1510	10.7	.182	.09	6.18	176.7	8.07	122	360	17.97	
1515	10.7	.182	.09	6.16	180.4	7.98	79.9	360	17.97	
1520	10.7	.183	.09	6.18	183.2	7.97	19.2	360	17.98	
1525	10.7	.183	.09	6.18	185.2	7.97	11.20	360	17.99	
1530	10.7	.183	.09	6.19	186.1	7.97	9.05	360	18.00	
1535	10.7	.183	.09	6.17	196.8	7.99	9.11	360	18.00	
3-5 min	3%	3%		±0.1	±10	10%,	<1 ±5>1	100-200 mL/min	<0.3 ft drawndown	

Sampler's Initials: W

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: GOULD ISLAND DATE: 4/19/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: BRMW-1

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1620	10.7	.184	.09	6.17	185.2	7.93	5.55	360	18.10

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1540	BRMW-1-0419	HCl	8	VOA	VOC
1542	BRMW-10-0419	HCl	2	1L	EPH
		HNO3	2	250mL	MS METALS
		(NH4)2SO4	2	125mL	Hex Chrome
			19	1L	SVOC, PAH, VPH, EPH.

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 40.56

Total Well Volume: ~~6.49~~ 6.49

Total Purge Volume: 6 6

# of well volumes: ~~.924~~ .924

COMMENTS DUP COLLECTED @ 1542

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): MARK WILLIS Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

Community · Economy · Environment

PROJECT NAME: Gould Island DATE: 4/17/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: BRAW-2

LOCATION ACTIVITY
START: 930
END: 1140

WELL DATA:

WELL DEPTH (ft): 29.0 ('6.33) [X] MEASURED [ ] HISTORICAL
WATER DEPTH (ft): 4.62 30.75 (TOR) [X] MEASURED [ ] HISTORICAL

[X] TOP OF WELL
[ ] TOP OF CASING
[ ] FROM GRADE
[ ] ______

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] ______
[ ] ______

DEPTH OF PUMP INTAKE (ft): ≈25' Stick-up (in): ≈16"

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

WELL LOCKED: [X] YES [ ] NO

PROTECTIVE CASING SECURE: [X] YES [ ] NO

CONCRETE COLLAR INTACT: [X] YES [ ] NO

AMBIENT AIR VOC: 0.0 PPM

WELL MOUTH VOC: 0.0 PPM

EQUIPMENT DATA:

PURGING	SAMPLING	
[ ]	[ ]	PERISTALTIC PUMP
[ ]	[ ]	SUBMERSIBLE
[X]	[X]	BLADDER PUMP
[ ]	[ ]	HAND PUMP
[ ]	[ ]	DEDICATED HDPE
[ ]	[ ]	NEW HDPE
[ ]	[ ]	DEDICATED LDPE
[X]	[X]	NEW ~~LDPE~~ TSF
	[X]	FILTER
[ ]	[ ]	______

Equipment
Solinst interface probe,Hach 2100 turbidmeter
YSI multi-parameter meter with display
geopump peristaltic pump with flow through
with "T" valuve

YSI SN: 17C100942
Turbidity SN: 16050C048465

Sampler: M Wills

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] ______
[ ] ______

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
940	—	—	—	—	—	—	—	300	4.65	
—	—	—	—	—	—	—	—	300	5.10	
—	—	—	—	—	—	—	—	240	5.40	
950	9.8	.469	.23	7.54	200.7	.87	24.0	240	5.60	
955	10.0	.469	.23	7.57	191.7	.72	22.1	200	5.40	
1005	9.8	.464	.23	7.55	174.8	.39	22.9	200	5.45	
1015	9.7	.451	.22	7.40	159.8	.26	19.1	200	5.45	
1020	9.8	.442	.21	7.31	152.9	.22	18.9	200	5.45	
1030	9.9	.426	.21	7.17	142.6	.16	17.6	200	5.45	
1035	9.9	.418	.20	7.12	138.2	.16	15.1	200	5.45	
1040	9.9	.406	.20	7.05	131.7	.19	12.7	200	5.45	
1050	9.9	.394	.19	6.98	126.0	.20	13.5	200	5.45	
1055	10.0	.394	.19	6.99	126.3	.21	9.80	200	5.45	
1100	10.0	.389	.19	6.96	125.8	.22	9.72	200	5.45	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials MW

6

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: GOULD ISLAND DATE: 4/17/2018

PROJECT NUMBER: 1600127

SAMPLE LOCATION ID: BRMW-2

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1135	9.9	.387	.19	6.95	125.3	.26	9.44	200	5.50

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	#	SAMPLE CONTAINER TYPE	LABORATORY ANALYSIS
1105	BRMW-2-0113	HCl	4	VOA	VOC
		HCl	1	1L	EPH
		HNO_3	1	250mL	METALS
		$(NH_4)_2SO_4$	1	125mL	HEX CROM
		—	5	1L	SVOC, EXPL, PAH, VPH

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[X] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 25.96

Total Well Volume: ~~29.39~~ 4.15 (W)

Total Purge Volume: 4

# of well volumes: ~~29.02~~ .963

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): MARK WILLIS Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: GOULD ISLAND DATE: 4/ 18 /2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: BRMW-3

LOCATION ACTIVITY
START: 1150
END: 1340

WELL DATA:

WELL DEPTH (ft): 50.5 ('bgs) (53.71 TOE) [ ] MEASURED [X] HISTORICAL

WATER DEPTH (ft): 14.00 [X] MEASURED [ ] HISTORICAL

[X] TOP OF WELL
[ ] TOP OF CASING
[ ] FROM GRADE
[ ] ______

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] ______
[ ] ______

DEPTH OF PUMP INTAKE (ft): ≈40.5 Stick-up (in): ≈40"

WELL MATERIAL: [X] PVC [ ] SS [ ] ______

WELL LOCKED: [X] YES [ ] NO

PROTECTIVE CASING SECURE: [X] YES [ ] NO

CONCRETE COLLAR INTACT: [X] YES [ ] NO

AMBIENT AIR VOC: 0.0 PPM

WELL MOUTH VOC: 0.0 PPM

EQUIPMENT DATA:

PURGING	SAMPLING	
[ ]	[ ]	PERISTALTIC PUMP
[ ]	[ ]	SUBMERSIBLE
[X]	[X]	BLADDER PUMP
[ ]	[ ]	HAND PUMP
[ ]	[ ]	DEDICATED HDPE
[ ]	[ ]	NEW HDPE
[ ]	[ ]	DEDICATED LDPE
[X]	[X]	NEW LDPE TEF
	[X]	FILTER
[ ]	[ ]	______

Equipment
Solinst interface probe, Hach 2100 turbidmeter
YSI multi-parameter meter with display
geopump peristaltic pump with flow through with "T" valuve

YSI SN: 17F100092
Turbidity SN: 16030C048965

Sampler: M. LUCCI

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] ______
[ ] ______

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1200	—	—	—	—	—	—	—	300	14.35	
1206	—	—	—	—	—	—	—	300	14.35	
1207	—	—	—	—	—	—	—	330	1440	
1208	—	—	—	—	—	—	—	400	14.50	
1209	—	—	—	—	—	—	—	400	14.50	
1210	10.2	.302	.15	6.82	-53.9	.83	89.1	400	14.50	
1215	10.2	.303	.15	6.81	-61.0	.47	539	400	14.50	
1220	10.3	.305	.15	6.81	-64.8	.95	41.1	400	14.50	
1225	10.3	.308	.15	6.79	-65.7	.50	40.0	400	14.50	
1230	10.3	.307	.15	6.79	-67.2	.44	41.2	400	14.50	
1235	10.3	.306	.15	6.77	-66.5	.43	40.5	400	14.50	
1240	10.3	.302	.14	6.77	-65.3	.35	45.0	400	14.50	
1245	10.3	.301	.15	6.74	-65.0	.31	28.5	400	14.50	
1250	10.3	.301	.15	6.72	-64.7	.30	21.5	400	14.50	5 GAL
1255	10.3	.302	.14	6.71	-64.6	.29	12.7	400	14.50	
1300	10.3	.300	.14	6.70	-64.3	.28	9.50	400	14.50	
1305	10.3	.301	.14	6.70	-64.3	.29	9.36	400	14.50	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials ML

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

Community · Economy · Environment

PROJECT NAME: Gard Island

DATE: 4/18/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: BRMW-3

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1330	10.3	.302	.14	6.71	-64.2	.25	8.77	400	14.55

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1310	BRMW-3	HCL	4	VOA	VOC
		HCL	1	1L	pH
		HNO3	1	250mL	METALS
		(NH4)2SO4	1	125mL	HEX CHROME
		—	5	1L	SVOC, PAH, VPH, EPH

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[x] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 39.71

Total Well Volume: ~~5.6~~ 6.35

Total Purge Volume: 6. (LW)

\# of well volumes: 0.95

COMMENTS

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): MARK WILD

Signature: [signature]

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: Gerrd Island — DATE: 4/17/2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY
START: 1215
END: 1620

SAMPLE LOCATION ID: BR MW-4

WELL DATA:

WELL DEPTH (ft): 40.0 ('bgs) (42.88 TOC) — [ ] MEASURED [✓] HISTORICAL — [X] TOP OF WELL [ ] TOP OF CASING [ ] FROM GRADE [ ] ____

WATER DEPTH (ft): 18.80 — [X] MEASURED [ ] HISTORICAL

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] ____
[ ] ____

DEPTH OF PUMP INTAKE (ft): 32.0 — Stick-up (in): -30"

WELL MATERIAL:	WELL LOCKED:	PROTECTIVE CASING SECURE:	CONCRETE COLLAR INTACT:
[X] PVC	[X] YES	[X] YES	[X] YES
[ ] SS	[ ] NO	[ ] NO	[ ] NO
[ ] ____			

AMBIENT AIR VOC: 0.0 PPM

WELL MOUTH VOC: 0.0 PPM

EQUIPMENT DATA:

PURGING	SAMPLING	
[ ]	[ ]	PERISTALTIC PUMP
[ ]	[ ]	SUBMERSIBLE
[X]	[X]	BLADDER PUMP
[ ]	[ ]	HAND PUMP
[ ]	[ ]	DEDICATED HDPE
[ ]	[ ]	NEW HDPE
[ ]	[ ]	DEDICATED LDPE
[X]	[X]	NEW LDPE (PE)
	[X]	FILTER
[ ]	[ ]	____

Equipment:
Solinst interface probe,Hach 2100 turbidmeter
YSI multi-parameter meter with display
geopump peristaltic pump with flow through
with "T" valuve

YSI SN: 17G100097
Turbidity SN: 160300 049465

Sampler: M. Willis

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] ____
[ ] ____

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1230	—	—	—	—	—	—	—	240	18.30	
1230	—	—	—	—	—	—	—	240	19.70	
1231	—	—	—	—	—	—	—	120	19.90	
1232	—	—	—	—	—	—	—	120	20.10	
1233	—	—	—	—	—	—	—	120	20.10	
1235	11.0	5.079	2.74	12.64	-11.9	3.06	9.28	120	20.10	
1240	10.6	5.145	2.78	12.67	-21.3	2.53	9.03	120	20.10	
1245	10.5	5.120	2.78	12.67	-30.3	2.50	8.55	120	20.12	
1255	10.6	5.075	2.74	12.66	-36.9	2.36	12.10	120	20.12	
1300	10.6	4.987	2.69	12.63	-40.3	2.69	16.20	120	20.12	OUTGOING TIDE
1310	10.1	4.640	2.49	12.65	-42.0	2.72	16.35	120	20.32	DTW ↓ SAL ↓
1315	10.0	4.367	2.33	12.63	-42.2	2.91	16.20	120	20.44	
1320	10.1	4.070	2.17	12.59	-44.1	2.31	16.13	120	20.65	
1330	10.8	3.436	1.81	12.51	-48.6	2.20	10.40	120	20.84	
1335	10.9	3.330	1.75	12.50	-49.7	1.97	12.20	120	20.95	
1340	10.8	3.272	1.72	12.48	-50.3	2.00	11.70	120	20.97	
1345	10.8	3.245	1.70	12.49	-50.1	1.98	11.20	120	21.03	
1350	10.7	3.038	1.60	12.47	-49.5	1.75	10.90	120	21.20	
1355	10.7	3.028	1.59	12.47	-49.5	1.74	9.93	120	21.31	
1400	10.6	3.018	1.57	12.46	-49.5	1.69	9.84	120	21.40	
3-5 min	3%	3%		±0.1	±10	10%,	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials MW

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: GOULD ISLAND DATE: 4/17 /2018

PROJECT NUMBER: 160132-7

SAMPLE LOCATION ID: BR MW-4

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1545	10.60	2.997	1.50	12.40	-50.0	1.45	8.75	120	23.3

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1410	BR MW-4	HCl	12	VOA	VOC
	MS	HCl	3	1L	EPH
	MSD	—	15	1L	CN, SVOC, PAH, WPH
		H_2SO_4	3	250 mL	METALS
		$(NH_4)_2SO_4$	3	125 mL	HEXCHROME

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[✓] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 24.08

Total Well Volume: 3.85 (DW)

Total Purge Volume: 3.5

# of well volumes: 0.91

COMMENTS COLLECTED MS/MSD

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): MARK WILLIS Signature:

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: GOULD ISLAND

DATE: 4/ 18 /2018

PROJECT NUMBER: 16001327

LOCATION ACTIVITY

START: 930

END: 1150

SAMPLE LOCATION ID: BLMW-5

WELL DATA:

WELL DEPTH (ft): 91.0 ('05) (93.54 [illegible])

WATER DEPTH (ft): 22.70

[ ] MEASURED
[X] HISTORICAL
[X] MEASURED
[ ] HISTORICAL

[X] TOP OF WELL
[ ] TOP OF CASING
[ ] FROM GRADE
[ ] ______

WATER LEVEL EQUIPMENT USED:
[X] ELECT. COND. PROBE
[ ] FLOAT ACTIVATED PROBE
[ ] PRESSURE TRANSDUCER
[ ] ______
[ ] ______

DEPTH OF PUMP INTAKE (ft): ≈77

Stick-up (in): ≈30"

WELL MATERIAL:
[X] PVC
[ ] SS
[ ] ______

WELL LOCKED:
[X] YES
[ ] NO

PROTECTIVE CASING SECURE:
[X] YES
[ ] NO

CONCRETE COLLAR INTACT:
[X] YES
[ ] NO

AMBIENT AIR VOC: 0.0 PPM

WELL MOUTH VOC: 0.0 PPM

EQUIPMENT DATA:

PURGING	SAMPLING	
[ ]	[ ]	PERISTALTIC PUMP
[ ]	[ ]	SUBMERSIBLE
[X]	[X]	BLADDER PUMP
[ ]	[ ]	HAND PUMP
[ ]	[ ]	DEDICATED HDPE
[ ]	[ ]	NEW HDPE
[ ]	[ ]	DEDICATED LDPE
[X]	[X]	NEW LDPE
	[X]	FILTER
[ ]	[ ]	______

Equipment

Solinst interface probe,Hach 2100 turbidmeter
YSI multi-parameter meter with display
geopump peristaltic pump with flow through
with "T" valuve

YSI SN: 17F100092

Turbidity SN: 160300C018461

Sampler: [signature] (M.WILLIS) Purge ... [illegible]

DECONTAMINATION FLUIDS USED:
[ ] DISTILLED WATER
[ ] DEIONIZED WATER
[X] POTABLE WATER
[ ] TSP SOLUTION
[X] ALCONOX SOLUTION
[ ] NONE
[ ] ______
[ ] ______

FIELD ANALYSIS DATA:

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)	Comments/Flow Rate (indicate stable flow rate)
1000	—	—	—	—	—	—	—	~~300~~ 220	22.20	
1000	—	—	—	—	—	—	—	300	23.15	
1001	—	—	—	—	—	—	—	300	23.35	
1001	—	—	—	—	—	—	—	330	23.60	
1003	—	—	—	—	—	—	—	300	23.60	
1005	10.4	.279	.13	8.99	181.1	3.97	445	300	23.60	
1015	10.6	.281	.13	8.72	155.1	1.60	220	300	23.60	
1020	10.6	.280	.13	8.70	151.9	1.50	206	300	23.60	
1025	10.7	.277	.13	8.29	147.1	1.36	207	300	23.70	
1030	10.7	.269	.13	7.77	135.6	.39	141	300	23.70	
1035	10.7	.269	.13	7.56	121.7	.28	133	300	23.70	
1040	10.8	.266	.13	7.40	103	.35	121	300	23.70	
1045	10.7	.263	.13	7.35	91.2	.26	115	300	23.70	
1050	10.9	.260	.12	7.22	69.3	.21	100	300	23.70	
1055	10.8	.259	.12	7.21	61.3	.26	98.9	300	23.70	
1100	10.8	.257	.12	7.15	53.6	.26	80.8	300	23.70	
1105	10.8	.255	.12	7.11	51.8	.27	74.7	300	23.70	5 GAL
1110	10.8	.256	.12	7.10	48.9	.26	75.2	300	23.70	
3-5 min	3%	3%		±0.1	±10	10%	<1 ±5>1	100-200 mL/min	<0.3 ft drawdown	

Sampler's Initials [initials]

LOW FLOW SAMPLING LOG

Credere Associates. LLC. 776 Main Street. Westbrook. ME 04092

PROJECT NAME: BOLD ISLAND　　DATE: 4/19/2018

PROJECT NUMBER: 16001327

SAMPLE LOCATION ID: BRMW-5

FINAL MONITORING PARAMETERS AFTER SAMPLING

TIME	TEMP (°C)	SP. COND. (mS/cm)	Salinity (ppt)	pH	ORP (mV)	D.O. (mg/l)	TURBID. (ntu)	Flow Rate (mL/min)	DTW (ft)
1135	10.8	.252	.13	7.08	42.3	.27	69.3	300	22.75

SAMPLE DATA:

SAMPLE BOTTLE ID TIME	LOCATION	PRESERVATION METHOD	SAMPLE CONTAINER #	TYPE	LABORATORY ANALYSIS
1115	BRMW-5	HCL	4	VOA	VOC
		HCL	1	1L	EPH
		HNO3	1	250ml	METALS
		(NH4)2SO4	1	125 ml	HEX CHROME
		—	5	1L	PAH, VPH, SVOC, PCB

PURGE DATA

[ ] 0.04 GAL/FT (1" DIAM.)
[✓] 0.16 GAL/FT (2" DIAM.)
[ ] 0.65 GAL/FT (4" DIAM.)
[ ] 1.47 GAL/FT (6" DIAM.)

x length of water column = 70.54

Total Well Volume: ≈11.83 (w)

Total Purge Volume: 6 G

# of well volumes: .53

COMMENTS TURB NOT STABLE, SEDIMENT IN BLADDER CAUSING FLUCTUATION

DETAILED STABALIZATION CRITERIA

pH: ±0.1 standard units
Temperature: ± 3%
ORP: ±10 mV
DO: ±0.5 mg/L for values less than 2 mg/L or ±10% for values greater than 2 mg/L
Specific conductivitiy: ± 3%
Turbidity: <1 NTU or ±5 NTU for reading >1 NTU
Drawdown: no more than 0.3 feet

SAMPLER INFORMATION

Name (printed): MARK WILLIS　　Signature: [signature]

APPENDIX J

CHAIN OF CUSTODIES

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St, Westbrook, ME
Report To: smcnamara@crederellc.com adrouin@crederellc.com
Phone #: 207-828-1272
Invoice to: jenn@crederellc.com
☐ Email:
☐ Hard Copy Invoice Required

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT NY ~~RI~~ Other: RI
Protocol: RCRA SDWA NPDES MCP NHDES OTHER
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7279 ☐ NH Reimbursement Pricing
PO #

ANALYSIS REQUEST

Analysis columns (checked items shown ☒):
1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
2. ☐ VOC 624 ☐ VOC BTEX ☐ MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
8. ☐ O&G 1664 ☐ Mineral O&G SM5520F
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity~~ X Cr+6
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (sub)
13. ☒ ~~Dissolved Metals-list:~~ PAH w/SIM (sub)
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde
21. 8270 PAH
22. 8081 Pesticide
23. Dioxin (sub)
24. Grab (G) or Composite (C)

	Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
1	1-5'	23SB7-1 "	2		X							2/26/18	1215	SF
2	5-9'	23SB7-2 "	2		X							↓	1220	SF
3	0-1'	23SB6-1 "	2		X							↓	1250	MW
4	0-2'	23SB4-1 "	2		X							↓	1330	MW
5	0-2'	23SB4-10 "	2		X							↓	1338	MW
6	0-2'	23SB5-1 "	2		X							↓	1350	MW
7	0-1'	23SB3-1 "	2		X							↓	1440	MW
8	0-2'	23SB1-1 "	2		X							2/27/18	0930	MW
9	0-2'	23SB2-1 "	2		X							↓	1030	MW
10	0-2'	23SB2-10 "	2		X							↓	1031	MW
11	0-2'	23SB8-1 "	2		X							↓	~~1050~~	MW

Field ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
23SB7-1					X					X	X										X			G
23SB7-2					X					X	X										X			G
23SB6-1					X					X	X										X			G
23SB4-1					X					X	X										X			G
23SB4-10					X					X	X										X			G
23SB5-1					X					X	X										X			G
23SB3-1					X					X	X										X			G
23SB1-1					X					X	X										X			G
23SB2-1					X					X	X										X			G
23SB2-10					X					X	X										X			G
23SB8-1					X					X	X										X			G

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☒
*Date Needed ______

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS 1055 MR 2/27/18

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) adrouin@crederellc.com
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐ YES ☐ NO
TEMPERATURE ______ °C

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
[signature]	3/2/18	1410	[signature]	3/2/18	1410
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC

Company Address: 776 Main St. Westbrook, ME

Report To: [illegible]@crederellc.com

Phone #: 207-828-1272

Invoice to: j[illegible]@crederellc.com

Email:

PO #:

Project Name: [illegible] Island

Project #: [illegible]

Project Location: NH MA ME VT [illegible]

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: QAPP GW-1 S-1 EPA DW Other

Quote # [illegible]

☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:

1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEF
2. ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
8. ☐ O&G 1664 ☐ Mineral O&G SM5520F
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ x([illegible] +G
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals-list:~~ [illegible]
13. ☒ ~~Dissolved Metals-list:~~ [illegible]
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
21. [illegible]
22. [illegible]
23. Diox[illegible]
24. Grab (G) or Composite (C)

	Lab Sample ID (Lab Use Only)	Field ID	# Containers	Water	Solid	Other	HCl	HNO_3	H_2SO_4	NaOH	MeOH	Date	Time	Sampler	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	5-7'/6'	22SB2-1 ~~||||~~	5		X						X	2/27/18	1155	MW	X		X		X	X	X			X	X	X										X		G
13	8-10'/9'	22SB3-1 ~~||||~~	5		X						X	2/27/18	1215	MW	X		X		X	X	X			X	X	X										X		G
14	12-14'/13'	22SB4-1 ~~||||~~	5		X						X	2/27/18	1240	MW	X		X		X	X	X			X	X	X										X		G
15	11-13'/12'	22SB5-1 ~~||||~~	5		X						X	2/27/18	1310	MW	X		X		X	X	X			X	X	X										X		G
16	12-14'/13'	21SB3-1 ~~||||~~	5		X						X	2/27/18	1405	MW	X		X		X	X	X			X	X	X										X		G
17	12-14'/13'	21SB4-1 ~~||||~~	5		X						X	2/27/18	1425	MW	X		X		X	X	X		ASD	X	X	X									ASD	X	ASD	G
18		EB1-0227	16	X			X	X				2/27/18	1440	MK	X		X		X	X	X		~~X~~	X	X	X									~~X~~	X	~~X~~	G
19	10-12'/10-11'	21SB5-1 ~~|||| ||||~~ ~~||||~~	~~15~~ 15		X						X	2/28/18	0950	MW	X		X		X	X	X			X	X	X	MS/MSD									X	~~X~~	G
20	8-10'/9'	21SB6-1 ~~||||~~	5	MK 3/2/18	X						X	2/28/18	1100	MW	X		X		X	X	X			X	X	X										X	MK 3/2/18	G
21	0-2'/1'	42SB4-1 ||||	4		X						X	2/28/18	~~1210~~ MK 2/28/18 1205	MW	X		X		X	X	X ASD			X	X													G
22	5-7'/6'	42SB4-2 ||||	4		X						X	2/28/18	1210	MW	X		X		X	X	X			X	X													G

TAT REQUESTED

Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☒
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

No Dioxin analysis on 21SB5-1, 21SB5-1 has bottles for MS/MSD

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) [illegible]@crederellc.com

☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐ YES ☐ NO

TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/2/18	1410	Received by: [signature]	3/2/18	1410
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible] LLC
Company Address: 716 Main St. Wakefield, MA
Report To: [illegible]
Phone #: 781-[illegible]
Invoice to: [illegible]
Email: [illegible]
PO #:

Project Name: [illegible]
Project #: [illegible]
Project Location: NH MA ME VT
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 9379
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☐ VOC 8260 MADEP
☐ VOC 8260 NHDES
☐ VOC 624
☐ VOC BTEX MtBE, only
☐ VOC 8021VT
☐ VPH MADEP
☐ GRO 8015
☐ 1,4-Dioxane
☐ VOC 524.2
☐ VOC 524.2 NH List
☐ Gases-List:
☐ TPH
☐ DRO 8015
☐ EPH MADEP
☐ TPH Fingerprint
☐ 8270PAH
☐ 625
☐ EDB
☐ 8082 PCB
☐ 3081 Pesticides
☐ 608 Pest/PCB
☐ GRO 1664
☐ Mineral: O&G SM5520F
☐ pH
☐ BOD
☐ Conductivity
☐ Turbidity
☐ Apparent Color
☐ TSS
☐ TDS
☐ TS
☐ Alkalinity
☐ Acidity
☐ RCRA Metals
☐ Priority Pollutant Metals
☐ TAL Metals
☐ Hardness
☐ Total Metals-list:
☐ Dissolved Metals-list:
☐ Ammonia
☐ COD
☐ TKN
☐ TN
☐ TOM
☐ TOC
☐ T-Phosphorus
☐ Phenols
☐ Bacteria P/A
☐ Bacteria MPN
☐ Cyanide
☐ Sulfide
☐ Nitrate + Nitrite
☐ Ortho P
☐ Nitrate
☐ Nitrite
☐ Chloride
☐ Sulfate
☐ Bromide
☐ Fluoride
☐ Corrosivity
☐ Reactive CN
☐ Reactive S-
☐ Ignitability/FP
☐ TCLP Metals
☐ TCLP VOC
☐ TCLP SVOC
☐ TCLP Pesticide
Subcontract:
☐ Grain Size
☐ Herbicides
☐ Formaldehyde
☐ PFC
Grab (G) or Composite (C)

	Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER	Grab (G) or Composite (C)
23	0.5-2.5'/1.5'	42SB1-1	4		X						X	2/28/18	1255	MW	G
24	0-2'/1'	42SB2-1	4		X						X	2/28/18	1320	MW	G
25	0-2'/1'	42SB3-1	4		X						X	2/28/18	1340	MW	G
26	3'10"-5'10"/6'	42SB3-2	4		X						X	2/28/18	1345	MW	G
27	0-2'/1'	42SB5-1	4		X						X	2/28/18	1440	MW	G
28	6-8'/1'	42SB5-2	4		X						X	2/28/18	1445	MW	G
29	0.25-2.75/1.75	APSB1-1	5		X						X	3/1/18	1005	MW	G
30	0.5-2.5/1.5	APSB4-1	5		X						X	3/1/18	1045	SF	G
31	2.5-4.5/3.5	APSB5-1	5		X						X	3/1/18	1155	SF	G
32	0.66-2.66/1.66	APSB6-1	5		X						X	3/1/18	1315	SF	G
33		EBZ-03018	16	X			X	X				3/1/18	1315	MK	G

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☒
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) [illegible]
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD
QSD-01 Revision 10/04/17

	Date	Time		Date	Time
Relinquished by Sampler:	3/2/18	1410	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St, Westbrook, ME
Report To: gmcnamara@crederellc.com adrouin@crederellc.com
Phone #: 207-828-1272
Invoice to: jenn@crederellc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7279
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP; ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT; ☐ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane; ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:; ☐ TPH ☐ DRO 8015 ☐ EPH MADEP ☐ TPH Fingerprint; ☐ 8270PAH ☐ 8270ABN ☐ 625 ☐ EDB; ☐ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB; ☐ O&G 1664 ☐ Mineral O&G SM5520F; ☐ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color; ☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity; ☐ RCRA Metals ☐ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness; ☐ Total Metals-list:; ☐ Dissolved Metals-list:; ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC; ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN; ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P; ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride; ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP; ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide; Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC; Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER	VOC 8260
34	Trip Blank	1			X					X	3/1/18	—	—	X

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☒
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) adrouin@crederellc.com
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/2/18	1410	Received by: [signature]	3/2/18	1410
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates LLC
Company Address: 776 Main St. Westbrook ME
Report To: [illegible]
Phone #: [illegible]
Invoice to: [illegible]
Email:
PO #:

Project Name: Great Island
Project #: 160[illegible]
Project Location: NH MA ME VT
Accreditation Required? N/Y:
Protocol: RCRA MCP SDWA NHDES NPDES DOD
Reporting Limits: QAPP EPA DW GW-1 S-1 Other
Quote #
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	SAMPLER	☒ VOC 8260	☐ VOC 624	☒ VPH MADEP	☐ VOC 524.2	☐ TPH	☒ 8270PAH	☒ 8082 PCB	☐ O&G 1664	☒ pH	☒ TSS	☐ RCRA Metals	☐ Total Metals-list:	☒ Dissolved Metals-list:	☐ Ammonia	☐ T-Phosphorus	☐ Cyanide	☐ Nitrate	☐ Nitrite	☐ Corrosivity	☐ TCLP Metals	Subcontract:	☐ Grab (G) or Composite (C)	#
	APSB2-1 (3.4-5.4)	1		X						X	3/5/18	1055	CT	X		X		X	X	X			X	X	X										G	
	APSB3-1	5		X						X	3/5/18	1205	CT	X		X		X	X	X			X	X	X										G	
	27SB1-1 (5-7.6)			X						X	3/5/18	1340	CT	X		X		X	X	X			X	X											G	
	27SL-1 (5.75-7.75/6.75)									X	3/6/18	0955	CT	X		X		X	X	X			X	X											G	
	27SL-10 (5.75-7.75/6.75)									X	3/6/18	0958	CT	X		X		X	X	X			X	X											G	
	27SL-2 (5.83-7.83/6.83)									X	3/6/18	1135	CT	X		X		X	X	X			X	X											G	
	EB3-030618	11	X			X	X				3/6/18	1345	MK	X		X		X	X	X			X	X	X											G	
	21SB1-1 (2-4/3)			X						X	3/5/18	1120	CT	X		X		X	X	X			X	X	X									X		G	
	21SB1-10 (2-4/3)			X						X	3/5/18	1122	CT	X		X		X	X	X			X	X	X									X		G	
	22SB1-1 (4-6/5)			X						X	3/5/18	1223	CT	X		X		X	X	X			X	X	X									X		G	
	21SB2-1 (0-2/1)			X						X	3/5/18	1300	CT	X		X		X	X	X			X	X	X									X		G	

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☒ (10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) [illegible]
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD
QSD-01 Revision 10/04/17

	Relinquished by Sampler:	Date	Time	Received by:	Date	Time
		3/6/18	1355		3/6/18	13:55
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St, Westbrook ME
Report To: [illegible]@crederellc.com
Phone #: 207-828-1272
Invoice to: [illegible]@crederellc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001217
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7799
❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns (checked items marked ☒):
☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP | ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT | ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane | ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List: | ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint | ❑ 8270PAH ☒ 8270ABN ❑ 625 ❑ EDB | ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB | ❑ O&G 1664 ❑ Mineral O&G SM5520F | ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color | ~~❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity ❑ Acidity~~ x Cr+6 | ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness | ☒ ~~Total Metals-list:~~ Explosives (sub) | ☒ ~~Dissolved Metals-list:~~ PAH 8270/SIM (sub) | ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC | ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN | ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P | ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride | ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP | ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide | Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC | 8270 PAH? | [illegible] | Dioxin (sub) | Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	VOC 8260	VPH MADEP	EPH MADEP	8270	8082 PCB	Cr+6	Priority Pollutant Metals	Explosives (sub)	[illegible] (sub col.)	Grab/Composite
	22SB6-1 (1-2/1.5)			X						X	3/8/18	1325	CT	X	X	X	X	X	X	X	X	X	G
	APSB9-1 (0.83-2.83/1.83)									X	3/8/18	1445	CT	X	X	X	X	X	X	X	X		G
	EB4-0309	12	X			X	X				3/9/18	1130	MK	X	X	X	X	X	X	X	X	X	G
	TB2-0309	1	~~X~~ MK 3/9/18		X					X				X	X								

MS/MSD (written across row 22SB6-1)

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS MS/MSD ~~at~~ for 22SB6-1 (MK 3/8/18), TB2-0309 is a trip blank

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard (10 Business Days) ❑
*Date Needed

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) adiamond@crederellc.com
❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/9/18	1355	Received by: [signature]	3/9/18	1355
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC

Company Address: 776 Main St., Westbrook, ME

Report To: smcnamara@crederellc.com
adraun@crederellc.com

Phone #: 207 828 1272

Invoice to: jelliott@crederellc.com

Email:

PO #:

Project Name: Gould Island

Project #: 16001327

Project Location: NH MA ME VT RI

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other

Quote # 7879

❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns (checked/handwritten selections): ☒ VOC 8260; ☒ VPH MADEP; ☒ EPH MADEP; ☒ 8270PAH; ☒ 8082 PCB; ☒ pH; ~~TSS TDS TS TVS Alkalinity Acidity~~ x Cr+6; ☒ Priority Pollutant Metals; ~~Total Metals-list:~~ X Explosives (sub); ☒ ~~Dissolved Metals-list:~~ PAH w SIM (sub); Subcontract: 8270 PAH, 8081 Pesticide, Dioxin (sub)

Lab Sample ID (Lab Use Only)	Field ID	# Containers	Water	Solid	Other	HCl	HNO_3	H_2SO_4	NaOH	MeOH	Date	Time	Sampler	VOC 8260	VOC 624	VPH MADEP	VOC 524.2	TPH / EPH MADEP	8270PAH	8082 PCB / 8081	O&G 1664	pH	TSS / Cr+6	RCRA / Priority Pollutant Metals	Total Metals / Explosives (sub)	Dissolved Metals / PAH w SIM (sub)	Ammonia	T-Phosphorus	Cyanide	Nitrate	Corrosivity	TCLP Metals	Subcontract	8270 PAH	8081 Pesticide	Dioxin (sub)	Grab (G) or Composite (C)
	APSB7-1 0.7-2.7/2.7			X						X	3/9/18	1340	SAF	X		X		X	X	X			X	X	X												G
	APSB8-1 0.5-2.5/1.5			X						X	3/9/18	1235	SAF	X		X		X	X	X			X	X	X												G
	APSB10-1 0.75-2.75/1.75			X						X	3/9/18	0930	JT	X		X		X	X	X			X	X	X												G
	APSB11-1 1-3/2	5		X						X	3/9/18	0855	JT	X		X		X	X	X			X	X	X												G
	27SB2-1 5.79-7.79/6.79			X						X	3/9/18	1105	SAF	X		X		X	X	X			X	X				ms/msd									G

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard (10 Business Days) ☒
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
27SB2-1 has ms/msd

REPORTING INSTRUCTIONS ❑ PDF (e-mail address)
❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE ____ °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/16/18	1315	Received by: [signature]	3/16/18	1315
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC	Project Name: [illegible]
Company Address: 776 Main St Westbrook, ME	Project #: [illegible]
Report To: [illegible]@crederellc.com	Project Location: NH MA ME VT [illegible]
Phone #: [illegible]	Accreditation Required? N/Y:
Invoice to: [illegible]	Protocol: RCRA MCP SDWA NHDES NPDES DOD
Email:	Reporting Limits: QAPP EPA DW GW-1 Other S-1
PO #:	Quote # [illegible]
	❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns: (1) ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP; (2) ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT; (3) ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane; (4) ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:; (5) ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint; (6) ☒ 8270PAH ❑ 8270ABN ❑ 625 ❑ EDB; (7) ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB; (8) ❑ O&G 1664 ❑ Mineral O&G SM5520F; (9) ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color; (10) ❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity ❑ Acidity x (Cr+6); (11) ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness; (12) ☒ ~~Total Metals-list:~~ Explosives (sub); (13) ☒ ~~Dissolved Metals-list:~~ PAH [illegible] (sub); (14) ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC; (15) ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN; (16) ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P; (17) ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride; (18) ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP; (19) ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide; (20) Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC; (21) [illegible]; (22) [illegible] (sub); (23) [illegible]; (24) Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
✓	APSB12-10.41-2.41	5	/1.41	X						X	3/12/18	0925	CT	X		X		X	X	X			X	X	X												G
✓	31SL-1 2-4/3	3		X						X	3/12/18	1050	CT	X		X		X	X	X			X	X													G
✓	30SB1-1 7-9/8	4		X						X	3/12/18	1110	CT	X		X		X	X	X			X	X	X												G
✓	10TP6-10-2/2	6		X						X	3/12/18	1105	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP7-10-2/1	6		X						X	3/12/18	1140	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP8-10-2/1	5		X						X	3/12/18	1255	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP8-100-2/1	5		X						X	3/12/18	1258	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10SD14 NA	4		X						X	3/12/18	1255	ST	X		X		X	X	X		X	X	X	X	X									X		G
✓	10SD13 NA	4		X						X	3/12/18	1320	ST	X		X		X	X	X		X	X	X	X	X									X		G
✓	10SD12 NA	4		X						X	3/12/18	1350	ST	X		X		X	X	X		X	X	X	X	X									X		G
✓	10SD11 NA	4		X						X	3/12/18	1430	ST	X		X		X	X	X		X	X	X	X	X									X		G

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard (10 Business Days) ☒
*Date Needed______

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
Fingerprinting needed for ~~10TP6-1~~ (mu 3/12/18) 10TP7-1 and 10TP8-1

REPORTING INSTRUCTIONS ❑ PDF (e-mail address)______
❑ HARD COPY REQUIRED ❑ EDD______

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE ______°C

CUSTODY RECORD

	Date	Time		Date	Time
Relinquished by Sampler: [signature]	3/16/18	1315	Received by: [signature]	3/16/18	1315
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC

Company Address: 776 Main St. Westbrook ME

Report To: [illegible]

Phone #: 207-828-1272

Invoice to: [illegible]

Email:

PO #:

Project Name: Gould Island

Project #: [illegible]

Project Location: NH MA ME VT RI

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: QAPP GW-1 S-1 EPA DW Other

Quote # [illegible]

❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns (1–24):

1. ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ❑ 8270PAH ☒ 8270ABN ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G SM5520F
9. ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ❑ ~~TSS~~ ❑ ~~TDS~~ ❑ ~~TS~~ ❑ ~~TVS~~ ❑ ~~Alkalinity~~ ❑ ~~Acidity~~ x(+6 [illegible]
11. ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (sub)
13. ☒ ~~Dissolved Metals-list:~~ PAH w/SIM (sub)
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC
15. ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC
21. 8270 PAH
22. 8081 Pesticide
23. Dioxin (sub)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
✓	31SB1-1 7.5-9.5/8.5	3		X						X	3/12/18	1425	CT	X		X		X	X	X			X	X													G
✓	EBS-0313 NA	15	X			X	X				3/13/18	1100	MK	X		X		X	X	X		X	X	X	X	X									X		G
✓	32SB1-1 11-13/12	4		X						X	3/14/18	1125	CT	X		X		X	X	X			X	X	X												G
✓	37SB1-1 5-7/6	3		X						X	3/14/18	1255	CT	X		X		X	X	X			X	X													G
✓	10TP11-1 0-2/1	5		X						X	3/14/18	1015	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP9-1 0-2/2	5		X						X	3/14/18	1105	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP10-1 0-1.75/1.35	5		X						X	3/14/18	1155	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP12-1 0-1.75/1.35	5		X						X	3/14/18	1230	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP13-1 0-2/1	5		X						X	3/14/18	1300	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP2-1 0-0.5/0.5	5		X						X	3/15/18	0910	AED	X		X		X	X	X		X	X	X	X										X		G
✓	10TP1-1 0-0.5/0.5	17		X						X	3/15/18	0930	AED	X		X		X	X	X		X	X	X	X			MS/MSD							X		G

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard ☒
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
10TP1-1 has MS/MSD

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE °C

REPORTING INSTRUCTIONS ❑ PDF (e-mail address)
❑ HARD COPY REQUIRED ❑ EDD

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/16/18	1315	Received by: [signature]	3/16/18	1315
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name:
Company Address:
Report To:
Phone #:
Invoice to:
Email:
PO #:

Project Name:
Project #:
Project Location: NH MA ME VT
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote #
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER	☒ VOC 8260 NHDES ☐ VOC 8260 MADEP	☐ VOC 8260 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT	☐ VOC 624 ☐ VOC 524.2 NH List ☐ Gases-List:	☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane	☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:	☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint	☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB	☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB	☐ O&G 1664 ☐ Mineral O&G SM5520F	☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color	☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity	☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness	☒ Total Metals-list: ☒ Dissolved Metals-list:	☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC	☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN	☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P	☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride	☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP	☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide	Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC			Grab (G) or Composite (C)
V	37SB2-1 11-13	123		X						X	3/15/18	1025	CT	X			X		X	X	X			X	X												G
V	10TP4-1 0-0.5	5		X						X	3/15/18	1045	AEO	X			X		X	X	X		X	X	X	X										X		G
V	10TP5-1 0-0.5	5		X						X	3/15/18	1100	AEO	X			X		X	X	X		X	X	X	X										X		G
V	08SS-1 NA-grab	5		X						X	3/15/18	1130	AEO	X			X		X	X	X		X	X	X	X										X		G
V	12SB1-1 6-8	3		X						X	3/15/18	1155	CT	X			X		X	X	X			X	X													G
V	ERG-0315 NA	15	X			X	X				3/15/18	1400	MK	X			X		X	X	X		X	X	X	X	X										X		G
	TBB-0310 NA	1			X									X			X																					

TAT REQUESTED
Priority (24 hr)* MK ☐ 3/16/18
Expedited (48 hr)* ☐
Standard (10 Business Days) ☒
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD
QSD-01 Revision 10/04/17

	Relinquished by Sampler:	Date	Time	Received by:	Date	Time
		3/16/18	1315		3/16/18	1315
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook ME
Report To: [illegible]@crederellc.com, [illegible]@crederellc.com
Phone #: 207-828-1272
Invoice to: [illegible]@crederellc.com
Email:
PO #:

Project Name: Gould Island
Project #:
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA MCP SDWA NHDES NPDES DOD
Reporting Limits: QAPP EPA DW GW-1 Other S-1
Quote # 9279
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER	☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP	☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT	☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane	☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:	☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint	☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB	☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB	☐ O&G 1664 ☐ Mineral O&G SM5520F	☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color	~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ TCLP (?)	☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness	☒ ~~Total Metals list:~~ Explosives (sub)	☒ ~~Dissolved Metals list:~~ PAH / SIM (sub)	☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC	☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN	☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P	☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride	☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP	☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide	Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC	8270 PAH	8081 Pesticide	Dioxin (sub)	Grab (G) or Composite (C)
	01SB1-1 9-21"	2		X							3/19/18	1035	MW					X					X	X										X			G
	01SB1-10 9-21"	2		X							3/19/18	1037	MW					X					X	X										X			G
	01SB2-1 0-5'	6		X							3/19/18	1145	MW					X					X	X			MS/MSD							X			G
	01SB3-1 8-16"	2		X							3/19/18	1300	MW					X					X	X										X			G
	01SB6-1 0-2'	2		X							3/19/18	1425	MW					X					X	X										X			G
	EB7-0319 NA	4	X				X				3/19/18	1520	MW					X					X	X										X			G
	01SB5-1 0-2'	2		X							3/20/18	0935	MW					X					X	X										X			G
	01SB7-1 11-13"	2		X							3/20/18	1030	MW					X					X	X										X			G
	01SB9-1 0-2'	2		X							3/20/18	1210	MW					X					X	X										X			G
	01SB8-1 0-2'	2		X							3/20/18	1415	MW					X					X	X										X			G
	01SB10-1 0-2'	2		X							3/20/18	1450	MW					X					X	X										X			G

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☒
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
01SB2-1 has MS/MSD

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☒ YES ☐ NO
TEMPERATURE 3 °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/21/18	1705	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory: [signature]	3/21/18	1705

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St., Westbrook, ME
Report To: smcnamara@credere llc.com; adiaz@credere llc.com
Phone #: (207) 828-1272
Invoice to: jen@credere llc.com
Email:
PO #:

Project Name: Gould Island
Project #:
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 7279
☐ NH Reimbursement Pricing

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation Method: HCl	Preservation Method: HNO_3	Preservation Method: H_2SO_4	Preservation Method: NaOH	Preservation Method: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER	☒ VOC 8260	☐ VOC 624	☒ VPH MADEP	☐ VOC 524.2	☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint	☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB	☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB	☐ O&G 1664 ☐ Mineral O&G SM5520F	☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color	☐ TSS ☐ TDS ☐ TVS ☐ Alkalinity ☐ Acidity (Lit.)	☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness	☐ Total Metals-list: (Excluded)	☐ Dissolved Metals-list: PAH w/ Sim (sub)	☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC	☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN	☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P	☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride	☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP	☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide	Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC	8270 PAH	8081 Pesticide	Dox.n	Grab (G) or Composite (C)
	12SB2-17.5-19.5/23	3		X						X	3/16/18	0935	CT	X		X		X	X	X			✓	X									X			G
	12SB3-19-11/10	3		X						X	3/16/18	1010	CT	X		X		X	X	X			✓	X												G
	12SB4-19-11/10	3		X						X	3/16/18	1150	CT	X		X		X	X	X			X	X												G
	01SB4-1 0-1.2'	2		X							3/16/18	1430	CT					X					X	X									X			G
	TB4-0321 NA	1			X					X	—	—		X		X																				G

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☒ (10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE 3 °C

CUSTODY RECORD
QSD-01 Revision 10/04/17

	Date	Time		Date	Time
Relinquished by Sampler:	3/16/18	1705	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:	3/21/18	1700

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]@crederellc.com
Phone #: [illegible]
Invoice to: [illegible]
Email:
PO #:

Project Name: Goold Island
Project #: 16001327
Project Location: NH MA ME VT [illegible]
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 7279
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
- A1: ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEF
- A2: ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
- A3: ☐ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
- A4: ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List
- A5: ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
- A6: ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
- A7: ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
- A8: ☐ O&G 1664 ☐ Mineral O&G SM5520F
- A9: ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
- A10: ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ [illegible]
- A11: ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
- A12: ☒ ~~Total Metals-list:~~ [illegible]
- A13: ☒ ~~Dissolved Metals-list:~~ [illegible]
- A14: ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
- A15: ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
- A16: ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
- A17: ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
- A18: ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
- A19: ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
- A20: Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
- A21: [illegible]
- A22: [illegible]
- A23: [illegible]
- A24: Grab (G) or Composite (C) — Grab (G) circled

	Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
1	27-29/28	48SB1-1	5		X						X	3/22/18	1125	MW	X		X		X	X	X			X	X	X											[illegible]	
2	22-24/23	48SB2-1	5		X						X	3/22/18	1230	MW	X		X		X	X	X			X	X	X												
3	0-1	08SB1-1	2		X							3/22/18	[illegible]	MW					[illegible]	X	X			X	X										X		X	
4	0-1	08SB1-10	2		X							3/22/18	1332	MW						X	X			X	X										X		X	
5	0-1	08SB2-1	2		X							3/22/18	1403	MW						X	X			X	X										X		X	
6	0-1	08SB3-1	2		X							3/22/18	1445	MW						X	X			X	X										X		X	
7	0-1	08SB4-1	2		X							3/22/18	1535	MW						X	X			X	X										X		X	
8	0-1	08SB5-1	6		X							3/23/18	0955	MW						X	X			X	X		(MS/MSD)								X		X	
9	0-1	08SB6-1	2		X							3/23/18	[illegible]	MW						X	X			X	X										X		X	
10	0-1	08SB7-1	2		X							3/23/18	1135	MW						X	X			X	X										X		X	
11	11-13/12	10SB1-1	5		X						X	3/23/18	1300	MW	X		X		X	X	X		X	X	X	X										X		

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS Do not analyze 48SB1-1 for [illegible]
08SB5-1 original [illegible] included for MS/MSD
08SB1-7 should be analyzed for PAH by 8270 not SVOC.

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
Relinquished by: [signature]	3/26/18	1145	Received by: [signature]	[illegible]	[illegible]
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible]
Company Address: [illegible]
Report To: [illegible]
Phone #: 774-975-1772
Invoice to: [illegible]
Email: [illegible]
PO #: [illegible]

Project Name: [illegible]
Project #: [illegible]
Project Location: NH MA ME VT [illegible]
Accreditation Required? N/Y: [illegible]
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other [illegible]
Quote # [illegible]
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 NHDES ☐ VOC 8260 MADEP ☐ VOC 624 ☐ VOC BTEX MBE, only ☐ VOC 8021/7 ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List: ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB ☐ O&G 1664 ☐ Mineral O&G SM5520F ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color ☐ TSS ☐ TDS ☐ Alkalinity ☐ Acidity ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness ☒ Total Metals list ☐ Dissolved Metals list: [illegible] ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TOC ☐ TON ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide ☐ Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC [illegible] ☐ Grab (g) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
12	EBB-0325	15	X			X	X		X		3/21/18	[illegible]	[illegible]
13	TBS-0326	1	X							X	3/24/18		

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed: _____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)_____
☐ HARD COPY REQUIRED ☐ EDD_____

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE _____°C

CUSTODY RECORD
QSD-01 Revision 10/04/17

	Date	Time		Date	Time
Relinquished by Sampler:			Received by:		
Relinquished by: [signature]	3/26/18	1145	Received by: [signature]	3/26/18	1145
Relinquished by:			Received by Laboratory:		

PAGE 1 OF 3

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: jmcnamara@crederellc.com
adavis@crederellc.com
Phone #: 207-828-1272
Invoice to: jen@crederellc.com
Email: ____
PO #: ____

Project Name: Gould Island
Project #: 16001277
Project Location: NH MA ME VT RI
Accreditation Required? N/Y: ____
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other____
Quote # 7749
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
2. ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
8. ☐ O&G 1664 ☐ Mineral O&G SM5520F
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ x (Cr + Cr6)
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals list:~~ Explosives (Sub)
13. ☒ ~~Dissolved Metals list:~~ PAHs/SIM (Sub)
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
21. 8270 PAH
22. [illegible] Pesticides
23. Dioxin (Sub)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	10SB2-1 12.75-14.75 / 13.75	✓5		X		~~X~~	~~X~~			X	3/26/18	1110✓	SF	X		X		X	X	X		X	X	X	X										X		G
	10SB3-12-4/13	✓5		X			*			X	3/26/18	1245✓	SF	X		X		X	X	X		X	X	X	X										X		G
	10SB3-102-4/13	✓5		X						X	3/26/18	1247✓	SF	X		X		X	X	X		X	X	X	X										X		G
	10SB3-210-12/11	✓5		X						X	3/26/18	1255✓	SF	X		X		X	X	X		X	X	X	X										X		G
11-13/12	10SB5-1	✓17		X						X	3/27/18	0935✓	SF	X		X		X	X	X		X	X	X	X		MS/MSD								X		G
15-17/16	10SB4-2	✓5		X						X	3/27/18	1245✓	SF	X		X		X	X	X		X	X	X	X										X		G
10-12/11	10SB4-1	✓5		X						X	3/27/18	1305✓	SF	X		X		X	X	X		X	X	X	X										X		G
0.5-2.5	35SB6-1	✓2		X							3/28/18	0930✓	SF										X	X										X		X	G
0.5-2.5	35SB1-1	✓2		X							3/28/18	1040✓	SF										X	X										X		X	G
0.5-2.5	35SB3-1	✓2		X							3/28/18	1215✓	SF										X	X										X		X	G
0.5-2.5	35SB3-10	✓2		X							3/28/18	1217✓	SF										X	X										X		X	G

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☒
(10 Business Days)
*Date Needed____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
• MS/MSD with 10SB5-1 sample

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)____
☐ HARD COPY REQUIRED ☐ EDD____

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ____°C

CUSTODY RECORD

	Date	Time		Date	Time
Relinquished by Sampler: [signature]	3/30/18	1315	Received by: [signature]	3/30/18	1315
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name:	Credere Associates, LLC
Company Address:	776 Main St, Westbrook, ME
Report To:	[illegible]@crederellc.com; [illegible]@crederellc.com
Phone #:	207-828-1272
Invoice to:	jean@crederellc.com
Email:	
PO #:	
Project Name:	Gould Island
Project #:	16001327
Project Location: NH MA ME VT	RI
Accreditation Required? N/Y:	
Protocol:	RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits:	(QAPP) GW-1 S-1 EPA DW Other
Quote #	1779
❑ NH Reimbursement Pricing	

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ❑ 8270PAH ☒ 8270ABN ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G SM5520F
9. ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ~~❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity~~ ❑ Acidity x (, +6
11. ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (sub)
13. ☒ ~~Dissolved Metals-list:~~ PAH w/SIM (sub)
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC
15. ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC
21. [illegible] PAH
22. [illegible]
23. [illegible]
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER
~~0.5-2.5~~ 0.5-2.5	35SB2-1	✓2		X							3/28/18	1135✓	SF
0.5-2.5	35SB4-1	✓2		X							3/28/18	1245✓	SF
0.5-2.5	35SB5-1	✓2		X							3/28/18	1330✓	SF
~~0.5-2.5~~ NA	EB9-0328	✓ ~~15~~ 4	X			X	X				3/28/18	1330✓	MK
0.5-2.5	35SB7-1	✓6		X							3/28/18	1415✓	SF
0.5-2.5	35SB8-1	✓2		X							3/29/18	0845✓	SF
0-2	35SB9-1	✓2		X							3/29/18	0935✓	SF
0-2	35SB10-1	✓2		X							3/29/18	0950✓	SF
0-2	35SB11-1	✓2		X							3/29/18	1030✓	SF
	~~10SD9-1~~	~~4~~		~~X~~							~~3/29/18~~	~~1105~~	~~SF~~
NA	10SD9-1	✓4		X						X	3/29/18	1105	~~SF~~ MK 3/30/18

Field ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
35SB2-1										X	X										X		X	G
35SB4-1										X	X										X		X	G
35SB5-1										X	X										X		X	G
EB9-0328	X		X		X	X	X			X	X	X								MK 3/29/18	~~X~~	X	X	G
35SB7-1										X	X			MS/MSD							X		X	G
35SB8-1										X	X										X		X	G
35SB9-1										X	X										X		X	G
35SB10-1										X	X										X		X	G
35SB11-1										X	X										X		X	G
~~10SD9-1~~	~~X~~		~~X~~		~~X~~	~~X~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~									~~X~~		~~X~~ MK 3/29/18	G
10SD9-1	X		X		X	X	X		X	X	X	X	X	HOLD								X		G

TAT REQUESTED Priority (24 hr)* ❑ Expedited (48 hr)* ❑ Standard ❑ (10 Business Days) *Date Needed____	See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.	**SPECIAL INSTRUCTIONS** • MS/MSD for 35SB7-1 • HOLD 10SD9-1

REPORTING INSTRUCTIONS ❑ PDF (e-mail address)____ ❑ HARD COPY REQUIRED ❑ EDD____

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE ____°C

CUSTODY RECORD

	Date	Time		Date	Time
Relinquished by Sampler: [signature]	3/30/18	1315	Received by: [signature]	3/30/18	1315
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Cedar Associates, LLC
Company Address: [illegible]
Report To: [illegible]
Phone #: 207 [illegible]
Invoice to: [illegible]
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 7279
❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns: (1) ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP; (2) ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT; (3) ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane; (4) ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:; (5) ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint; (6) ❑ 8270PAH ☒ 8270ABN ❑ 625 ❑ EDB; (7) ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB; (8) ❑ O&G 1664 ❑ Mineral O&G SM5520F; (9) ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color; (10) ☒ ~~TSS~~ ❑ ~~TDS~~ ❑ ~~TS~~ ❑ ~~TVS~~ ❑ ~~Alkalinity~~ ❑ ~~Acidity~~ × (Cr+6); (11) ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness; (12) ☒ ~~Total Metals-list:~~ Explosives (soil); (13) ☒ ~~Dissolved Metals-list:~~ PAH w/ SIM (soil); (14) ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC; (15) ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN; (16) ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P; (17) ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride; (18) ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP; (19) ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide; (20) Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC; (21) 8270 PAH; (22) 8081 [illegible]; (23) Dioxin [illegible]; (24) Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO₃	H₂SO₄	NaOH	MeOH	DATE	TIME	SAMPLER	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
NA	EB10-0329 ✓	14	X			X	X				3/29/18	1300	MK	X		X		X	X	X			X	X	X										X	X	G
NA	10SD10-1 ✓	4		X						X	3/29/18	~~1425~~ 1335 MK 3/30/18	MW	X		X		X	X	X		X	X	X	X	X	HOLD								X		G
	~~TRIP BLANK~~																																				
NA	TB6-0330	1			X					X				X		X																					

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard ❑
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
*HOLD 10SD10-1

REPORTING INSTRUCTIONS ❑ PDF (e-mail address)
❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	3/30/18	1315	Received by: [signature]	3/30/18	1315
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC

Company Address: 776 Main St. Westbrook, ME

Report To: [illegible]@credere llc.com

Phone #: 207-828-1272

Invoice to: jen@credere llc.com

Email:

PO #:

Project Name:

Project #: [illegible]

Project Location: NH MA ME VT

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: QAPP GW-1 S-1 EPA DW Other

Quote # [illegible]

❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ❑ 8270PAH ☒ 8270ABN ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G SM5520F
9. ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ❑ ~~TSS~~ ❑ ~~TDS~~ ❑ ~~TS~~ ❑ ~~TVS~~ ❑ ~~Alkalinity~~ ❑ ~~Acidity~~ x(+C
11. ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ☒ ~~Total Metals-list:~~ [illegible] (soil)
13. ☒ ~~Dissolved Metals-list:~~ PAH [illegible] (soil)
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC
15. ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC
21. 8270 PAH
22. 8081 Pesticide
23. Dioxin (soil)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	35W-2 ✓	2		X							4/2/18	1000	ST										X	X										X		X	G
	35W-1 ✓	2		X							4/2/18	1015	ST										X	X										X		X	G
	08W-1 ✓	2		X							4/2/18	1200	ST							X			X	X										X		X	G
	08W-10 ✓	2		X							4/2/18	1202	ST							X			X	X										X		X	G
	08W-2 ✓	2		X							4/2/18	1250	ST							X			X	X										X		X	G
	08W-3 ✓	2		X							4/2/18	1255	ST							X			X	X										X		X	G
	08W-4 ✓	2		X							4/2/18	1300	ST							X			X	X										X		X	G
	23DV2-1 ✓✓✓	3 +		X							4/3/18	1215	MW					X					X	X				MS/MSD						X			C
	23DV2-2 ✓	1		X							4/3/18	1220	MW					X					X	X										X			C
	23DV2-3 ✓	1		X							4/3/18	1225	MW					X					X	X										X			C
	23DV1-3 ✓	1		X							4/3/18	1400	MW					X					X	X										X			C

TAT REQUESTED
- Priority (24 hr)* ❑
- Expedited (48 hr)* ❑
- Standard (10 Business Days) ☒
- *Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
· Sample 23DV2-1 has MS/MSD

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) see above

❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO

TEMPERATURE ____ °C

CUSTODY RECORD

Relinquished by Sampler: [signature]	Date 4/6/18	Time 1315	Received by: [signature]	Date 4/6/18	Time 1515
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]@credereallc.com
[illegible]@credereallc.com
Phone #: 207-828-1272
Invoice to: [illegible]@credereallc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7779
❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ❑ 8270PAH ☒ 8270ABN ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G SM5520F
9. ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ~~❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity ❑ Acidity~~ X Cr [illegible]
11. ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ~~❑ Total Metals-list:~~ Explosives (sub)
13. ~~❑ Dissolved Metals-list:~~ PAH SIM (sub)
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC
15. ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC
21. 8270 PAH
22. 8081 Lindane
23. Dioxin (sub)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	G/C
	23DUI-1 ✓	1		X							4/3/18	1445	SG					X					X	X										X			C
	23DUI-2 ✓	1		X							4/3/18	1510	ST					X					X	X										X			C
	EB11-0404	7	X			X	X				4/4/18	0900	MW					X	X	X			X	X												X	G
0-0.5/0.5	4955-1 ✓	4		X						X	4/4/18	0950	SG	X		X		X	X	X			X	X													G
0.0-0.5/0.5	4955-2 ✓	4		X						X	4/4/18	1000	SG	X		X		X	X	X			X	X													G
	01DUI-1 ✓	1		X							4/4/18	1155	MW					X					X	X										X			C
	01DUI-2 ✓	1		X							4/4/18	1200	MW					X					X	X										X			C
	01DUI-3 ✓	1		X							4/4/18	1205	MW					X					X	X										X			C
	EB12-0405	11	X			X	X				4/5/18	1015	MW	X		X		X	X	X			X	X												X	G
	19DUI-1 ✓	1		X							4/5/18	1200	MW					X																			C
	19DUI-10 ✓	1		X							4/5/18	1202	MW					X																			

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard ❑
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) see above
❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑ YES ❑ NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/6/18	1315	Received by: [signature]	4/6/18	1315
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible] LLC

Company Address: [illegible], ME

Report To: [illegible]@[illegible].com, [illegible]

Phone #: 207-828-1272

Invoice to: [illegible]@[illegible].com

Email: ____________________

PO #: ____________________

Project Name: Gould Island

Project #: 16001327

Project Location: NH MA ME VT RI

Accreditation Required? N/Y: __________

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other__________

Quote # 7279

❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ☒ 8270PAH ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G SM5520F
9. ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ~~❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity ❑ Acidity~~ X (Cr+6)
11. ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (Sub)
13. ☒ ~~Dissolved Metals-list:~~ PAH c/SIM (Sub)
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC
15. ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC
21. 8270 PAH
22. 8081 [illegible]
23. Dioxin (Sub)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	19DU1-2✓✓✓	3		X							4/5/18	1215	MW					X					MS/MSD														C
	19DU1-3✓	1		X							4/5/18	1225	MW					X																			C
	11DU1-1✓	1		X							4/5/18	1520	MW					X	X				X	X													C
	11DU1-2✓	1		X							4/5/18	1525	MW					X	X				X	X													C
	11DU1-3✓	1		X							4/5/18	1530	MW					X	X				X	X													C
	TB7-0406	1			✓					X	———	———	———	X		X																					

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard (10 Business Days) ☒
*Date Needed__________

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
·19DU1-2 has MS/MSD. Total volume of available sample ≈ 2.5 one liter amber [illegible]

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) see above
❑ HARD COPY REQUIRED ❑ EDD__________

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE __________°C

CUSTODY RECORD

	Date	Time		Date	Time
Relinquished by Sampler: [signature]	4/6/18	1315	Received by: [signature]	4/6/18	13:15
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Cove Associates, LLC
Company Address: 710 Union St Manchester NH
Report To: [illegible]
Phone #: 1-978-1272
Invoice to: [illegible]
Email: [illegible]
PO #:

Project Name: Route 2 Bridge
Project #: [illegible]
Project Location: NH MA ME VT
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 12791
☐ NH Reimbursement Pricing

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
1	35DU1-1	1		X							4/9/18	1030	EAF
2	35DU1-2	1		↓								1035	EAF
3	35DU1-3	1										1110	AED
4	35DU2-1	1										1230	AED
5	35DU2-10	1										1232	AED
6	35DU2-2	1										1235	EAF
7	35DU2-3	1										1300	AED
8	35DU3-1	1										1420	AED
9	35DU3-2	1										1425	EAF
10	35DU3-3	1										1455	AED
11	11055-1	2		↓						X	↓	1010	SMT

ANALYSIS REQUEST

☒ VOC 8260	☐ VOC 8260 NHDES	☐ VOC 8260 MADEP	☐ VOC 624	☐ VOC BTEX MtBE only	☒ VPH MADEP	☐ GRO 8015	☐ 1,4-Dioxane	☐ VOC 524.2	☐ VOC 524.2 NH List	☐ Gases-List:	☐ TPH	☐ DRO 8015	☒ EPH MADEP	☐ TPH Fingerprint	☐ 8270PAH	☒ 8270ABN	☐ 625	☐ EDB	☒ 8082 PCB	☐ 8081 Pesticides	☐ 608 Pest/PCB	☐ O&G 1664	☐ Mineral O&G SM5520F	☐ pH	☐ BOD	☐ Conductivity	☐ Turbidity	☐ Apparent Color	☐ TSS	☐ TDS
X			↓		X							X							X									X	X
						X						X							X										

☐ Alkalinity	☐ TAL Metals	☐ Hardness	☐ Total Metals-list:	☐ Dissolved Metals-list:	☐ Ammonia	☐ COD	☐ TKN	☐ TN	☐ TON	☐ TOC	☐ T-Phosphorus	☐ Phenols	☐ Bacteria P/A	☐ Bacteria MPN	☐ Cyanide	☐ Sulfide	☐ Nitrate + Nitrite	☐ Ortho P	☐ Nitrate	☐ Nitrite	☐ Chloride	☐ Sulfate	☐ Bromide	☐ Fluoride	☐ Corrosivity	☐ Reactive CN	☐ Reactive S-	☐ Ignitibility/FP	☐ TCLP Metals	☐ TCLP VOC	☐ TCLP SVOC	☐ TCLP Pesticide	Subcontract: ☐ Grain Size	☐ Herbicides	☐ Formaldehyde	☐ PFC	Grab (G) or Composite (C)
X	X																																	X		X	C
																																				G

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis w/ soxhlet extraction for 11055-1

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD
USD-01 Revision 10/04/17

	Relinquished by Sampler:	Date	Time	Received by:	Date	Time
	Stan Jenna	4/13/18	1400	[signature]	4/13/18	1400
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]@crederellc.com
Phone #: 207-828-1272
Invoice to: [illegible]@crederellc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 7279
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP; ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT; ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane; ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List; ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint; ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB; ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB; ☐ O&G 1664 ☐ Mineral O&G SM5520F; ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color; ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ x Cr+6; ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness; ☒ ~~Total Metals-list:~~ Explosives (soil); ☒ ~~Dissolved Metals-list:~~ PAH: /SIM (soil); ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC; ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN; ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P; ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride; ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP; ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide; Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC; 8270 PAH; 8081 pesticide; Dioxin (soil); Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# Containers	Matrix: Solid	Preservation: MeOH	Date	Time	Sampler	VPH MADEP	EPH MADEP	8082 PCB	Grab (G) or Composite (C)
12 ✓	16SS-2	2	X	X	4/9/18	1015	SWT	X	X	X	G
13 ✓	16SS-3	2				1020					
14 ✓	16SS-4	2				1025					
15 ✓	16T-1	2				1035					
16 ✓	16T-10	2				1037					
17 ✓	16SS-5	2				1040					
18 ✓	16SS-6	2				1045					
19 ✓	16SS-7	2				1050					
20 ✓	16SS-8	2				1055					
21 ✓	16SS-9	2				1105					
22 ✓	16SS-10	2	↓	↓	↓	1110	↓	↓	↓	↓	↓

Matrix: WATER SOLID OTHER. Preservation Method: HCl HNO3 H2SO4 NaOH MeOH. Sampling: DATE TIME SAMPLER.

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☐
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis by soxhlet extraction for all samples on this page.

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ____ °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1400
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

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PAGE 3 OF 13

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook ME
Report To: [illegible]@credereassociates.com / [illegible]
Phone #: [illegible]-7-878-1272
Invoice to: [illegible]
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7779
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP; ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT; ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane; ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List; ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint; ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB; ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB; ☐ O&G 1664 ☐ Mineral O&G SM5520F; ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color; ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ x Cr+6; ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness; ☒ ~~Total Metals-list:~~ Explosives (s...); ☒ ~~Dissolved Metals-list:~~ PAH ... /SIM (...); ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC; ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN; ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P; ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride; ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP; ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide; Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC; 8270 PAH; 8081 Pesticide; Dioxin (...); Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: SOLID	Preservation: MeOH	DATE	TIME	SAMPLER	VPH MADEP	EPH MADEP	8082 PCB	x Cr+6	Priority Pollutant Metals	Grab (G) or Composite (C)
23 ✓	16SS-11	2	X	X	4/9/18	1115	SWT	X	X	X			G
24 ✓	16SS-12	6 (Gn)	↓	↓	↓	1120	↓	↓	↓	↓	(MS/MSD)		↓
25 ✓	16CT-2	2	↓	↓	↓	1130	↓	↓	↓	↓			↓
26 ✓	16SS-13	2	↓	↓	↓	1135	↓	↓	↓	↓			↓
27 ✓	16SS-14	2	↓	↓	↓	1140	↓	↓	↓	↓			↓
28 ✓	16SS-15	2	↓	↓	↓	1145	↓	↓	↓	↓			↓
29 ✓	16SS-16	2	↓	↓	↓	1150	↓	↓	↓	↓			↓
30 ✓	13SS-3	3	↓	↓	↓	1330	↓	↓	↓	↓	X	X	↓
31 ✓	13SS-4	3	↓	↓	↓	1345	↓	↓	↓	↓	↓	↓	↓
32 ✓	13SS-5	3	↓	↓	↓	1355	↓	↓	↓	↓	↓	↓	↓
33 ✓	13SS-6	3	↓	↓	↓	1405	↓	↓	↓	↓	↓	↓	↓

Matrix: WATER / SOLID / OTHER. Preservation Method: HCl / HNO_3 / H_2SO_4 / NaOH / MeOH.

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed ______

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis by soxhlet extraction for 16SS-11 through 16SS-16 + 16CT-2
MS/MSD at 16SS-12

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ______
☐ HARD COPY REQUIRED ☐ EDD ______

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ______ °C

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
[signature]	4/13/18	1400	[signature]	4/13/18	1410
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible] Associates, LLC

Company Address: [illegible] Main St., [illegible]

Report To: [illegible]

Phone #: [illegible]

Invoice to: [illegible]

Email:

PO #:

Project Name: [illegible] Island

Project #: [illegible]

Project Location: NH MA ME VT [illegible]

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: QAPP (circled) GW-1 S-1 EPA DW Other

Quote # [illegible]

☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns (left to right):

1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
2. ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCR
8. ☐ O&G 1664 ☐ Mineral O&G SM5520F
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ x (Cr+6)
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (?)
13. ☒ ~~Dissolved Metals-list:~~ PAH w/SIM (?)
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
21. 8270 PAH
22. [illegible]
23. Dioxin (?)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
34 ✓	13SS-7	3		X						X	4/9/18	1415	SWT			X		X		X			X	X													G
35 ✓	13SS-8	3		X						X	4/9/18	1425	SWT			X		X		X			X	X													G
36 ✓	35DU4-2	1		X							4/10/18	0900	SAF										X	X										X		X	C
37 ✓	35DU4-1	3		↓							↓	0905	AED										X	X			(MS/MSD)							X		X	↓
38 ✓	35DU4-3	1		↓							↓	0930	SAF										X	X										X		X	↓
39 ✓	08DU2-1	3		↓							↓	1100	AED							X			X	X			(MS/MSD)							X		X	↓
40 ✓	08DU2-2	1		↓							↓	1105	AED							X			X	X										X		X	↓
41 ✓	08DU2-3	1		↓							↓	1110	SAF							X			X	X										X		X	↓
42 ✓	08DU3-1	1		↓							↓	1240	AED							X			X	X										X		X	↓
43 ✓	08DU3-2	1		↓							↓	1245	AED							X			X	X										X		X	↓
44 ✓	08DU3-3	1		↓							↓	1250	SAF							X			X	X										X		X	↓

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
MS/MSD at 35DU4-1
MS/MSD at 08DU2-1

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)____
☐ HARD COPY REQUIRED ☐ EDD____

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ____°C

CUSTODY RECORD		Date	Time		Date	Time
	Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1400
	Relinquished by:	Date	Time	Received by:	Date	Time
	Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]@crederellc.com, [illegible]@crederellc.com
Phone #: 207-828-1272
Invoice to: j[illegible]@crederellc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001277
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7779
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis options printed on the form (☒ = checked): ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP; ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT; ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane; ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List; ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint; ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB; ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB; ☐ O&G 1664 ☐ Mineral O&G SM5520F; ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color; ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ x Cr+6; ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness; ☒ ~~Total Metals-list~~ Explosives (soil); ☒ ~~Dissolved Metals-list~~ PAH/SIM (soil); ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC; ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN; ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P; ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride; ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP; ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide; Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC; 8270 PAH; 8081 Pesticide; Dioxins (soil); Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# Containers	Matrix: Water	Matrix: Solid	Matrix: Other	HCl	HNO$_3$	H$_2$SO$_4$	NaOH	MeOH	Date	Time	Sampler	VPH MADEP	EPH MADEP	8082 PCB	x Cr+6	Priority Pollutant Metals	Explosives	Grab (G) or Composite (C)
45 ✓	3855-010	2		X						X	4/10/18	0830	SWT	X	X	X	X	X	X	G
46 ✓	3855-13	2		↓						↓	↓	0855	↓	↓	↓	↓	X	X	X	↓
47 ✓	3855-14	2										0900					X	X	X	
48 ✓	3855-7	2										0910					~~X~~	~~X~~	~~X~~	
49 ✓	3855-6	2										0915								
50 ✓	3855-8	6										0920								
51 ✓	3855-2	2										0935								
52 ✓	3855-3	2										0940								
53 ✓	3855-4	2										0945								
54 ✓	3855-5	2										0950								
55 ✓	3855-1	2		↓						↓	↓	0955	↓	↓	↓	↓				↓

(ms/msd) — beside sample 3855-8

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis by soxhlet extraction for all samples on this page.
ms/msd at 3855-8

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD

	Date	Time		Date	Time
Relinquished by Sampler: [signature]	4/12/18	1400	Received by: [signature]	4/13/18	1400
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible] Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]
Phone #: 207-828-1272
Invoice to: [illegible]
Email:
PO #:

Project Name: Gould Island
Project #: 16001[illegible]
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7719
☐ NH Reimbursement Pricing

Lab Sample ID (Lab Use Only)	Field ID	# Containers	Matrix: Water	Matrix: Solid	Matrix: Other	Pres.: HCl	Pres.: HNO_3	Pres.: H_2SO_4	Pres.: NaOH	Pres.: MeOH	Sampling: Date	Sampling: Time	Sampling: Sampler
56 ✓	38SS-10	2		X						X	4/10/18	0957	SWT
57 ✓	38SS-11	2		↓						X	↓	1030	SWT
58 ✓	38SS-9	2		↓						X	↓	1040	SWT
59 ✓	08SS-2	2		↓							↓	1315	MED
60 ✓	08SS-3	2		↓							↓	1320	MED
61 ✓	48SS-1	3		↓							↓	1320	SWT
62 ✓	48SS-2	3		↓							↓	1325	SAF
63 ✓	48SS-3	3		↓							↓	1330	SWT
64 ✓	08SS-4	2		↓							↓	1330	MED
65 ✓	24SS-2	2		↓						X	↓	1505	MED
66 ✓	24SS-3	2		↓						X	↓	1510	SWT

ANALYSIS REQUEST

Column headings:
1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
2. ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
8. ☐ O&G 1664 ☐ Mineral O&G SM5520F
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ [illegible]
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals list:~~ [illegible]
13. ☒ ~~Dissolved Metals list:~~ [illegible]
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
21. [illegible] PAH
22. [illegible]
23. [illegible]
24. Grab (G) or Composite (C)

Field ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
38SS-10			~~X~~		~~X~~		~~X~~			X	X	X												G
38SS-11			~~X~~		~~X~~		~~X~~			↓	↓	↓												↓
38SS-9			~~X~~		~~X~~		~~X~~			↓	↓	↓												↓
08SS-2							X			X	X										X		X	↓
08SS-3							X			X	X										X		X	↓
48SS-1					X	X	X			X	X	X												↓
48SS-2					X	X	X			X	X	X												↓
48SS-3					X	X	X			X	X	X												↓
08SS-4							X			X	X										X		X	↓
24SS-2			X		X		X																	↓
24SS-3			X		X		X																	↓

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis w/ soxhlet extraction for 38SS-10, 38SS-11, 38SS-9, 24SS-2, 24SS-3

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ______ °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1400
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook ME
Report To: jmcnamara@credereallc.com
[illegible]@credereallc.com
Phone #: 207-828-1272
Invoice to: [illegible]@credereallc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote #: 7779
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
2. ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
8. ☒ ~~O&G 1664 ☐ Mineral O&G SM5520F~~ Arsenic
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ × Cr+6
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (soil)
13. ☒ ~~Dissolved Metals-list:~~ PAH / LMW (?)
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
21. 8270 PAH
22. 8291 [illegible]
23. Dioxin (soil)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# Containers	Matrix: Water	Matrix: Solid	Matrix: Other	HCl	HNO_3	H_2SO_4	NaOH	MeOH	Date	Time	Sampler	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
67 ✓	24SS-4	2		X						X	4/10/18	1515	SWT			X		X		X																	G
68 ✓	24SS-5	2		↓						↓	↓	1520	RED			↓		↓		↓																	↓
69 ✓	39SS-4	2		↓						↓	↓	1525	SWT			↓		↓		↓																	↓
70 ✓	39SS-5	2		↓						↓	↓	1530	SWT			↓		↓		↓																	↓
71 ✓	39SS-2	2		↓						↓	↓	1530	RED			↓		↓		↓																	↓
72 ✓	39SS-3	2		↓						↓	↓	1535	RED			↓		↓		↓																	↓
73 ✓	04CP-1	3		X						X	4/11/18	0940	SWT	X		X		X	X	X			X	X													C
74 ✓	BG-3	1		↓							↓	0920	SWT								X																G
75 ✓	BG-4	1		↓							↓	0920	RED								↓																↓
76 ✓	BG-1	1		↓							↓	0930	SWT								↓																↓
77 ✓	BG-2	1		↓							↓	0940	SWT								↓																↓

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed________

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis w/ soxhlet extraction for 24SS-4, 24SS-5, and 39SS-2 through 39SS-5.

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)________
☐ HARD COPY REQUIRED ☐ EDD________

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ________°C

CUSTODY RECORD
QSD-01 Revision 10/04/17

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1400
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]@crederellc.com; [illegible]@crederellc.com
Phone #: 207-828-1272
Invoice to: [illegible]@crederellc.com
Email:
PO #:

Project Name: [illegible]
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP circled) GW-1 S-1 EPA DW Other
Quote # 7779
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:

1. ☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
2. ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
3. ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
4. ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:
5. ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
6. ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
7. ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
8. ~~☒ O&G 1664 ☐ Mineral O&G SM5520F~~ Arsenic
9. ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
10. ~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ Cr+6
11. ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (sub)
13. ☒ ~~Dissolved Metals-list:~~ PAH w/ SIM (sub)
14. ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
15. ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
16. ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
17. ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
18. ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
19. ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
20. Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
21. [illegible] VAH
22. 8081 Herbicide
23. Dioxin (sub)
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
78 ✓	B6-5	1		X							4/11/18	0940	AED								X																G
79 ✓	B6-10	1		↓							↓	1000	AED								↓																↓
80 ✓	B6-9	1		↓							↓	1005	SWT								↓																↓
81 ✓	B6-7	1		↓							↓	1020	SWT								↓																↓
82 ✓	B6-8	1		↓							↓	1020	AED								↓																↓
83 ✓	B6-6	1		↓							↓	1030	SWT								↓																↓
84 ✓	[illegible] 3855-12	2		↓						X	↓	1055	SWT			X		X		X			X	X	X												G
85 ✓	1366-26	1		↓							↓	1200	SWT							↓																	↓
86 ✓	1366-1	1		↓							↓	1205	AED							↓																	↓
87 ✓	1366-2	1		↓							↓	1215	AED							↓																	↓
88 ✓	1366-3	1		↓							↓	1220	AED							↓																	↓

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis w/ soxhlet extraction for 3855-12, 1366 1, 1366 2, 1366-3, and 1366 26

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ____ °C

CUSTODY RECORD		Date	Time		Date	Time
	Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1400
	Relinquished by:			Received by:		
	Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible] Associates, LLC
Company Address: 776 Main St, Westbrook, ME
Report To: [illegible]
Phone #: 207-878-1272
Invoice to: [illegible]
Email:
PO #:

Project Name: Gould Island
Project #: 160101327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 7279
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
89	13CC-4	1		X							4/11/18	1225	AED
90	13CC 27	1										1230	SNT
91	13CC 5	1										1235	AED
92	13CC-6	1										1235	AED
93	13CC-21	1										1240	SNT
94	13CC-7	1										1245	AED
95	13CC-8	1										1250	AED
96	13CC-10	1										1255	AED
97	13CC-20	1										1255	SNT
98	13CC-9	1										1300	AED
99	13CC-11	1										1305	AED

VOC 8260 NHDES	VOC 8260 MADEP	VOC BTEX MtBE, only	VOC 8021VT	VPH MADEP	GRO 8015	1,4-Dioxane	VOC 524.2 NH List	Gases List:	TPH	DRO 8015	EPH MADEP	TPH: Fingerprint:	8270SIM	625	EDB	8082 PCB	8081 Pesticides	608 Pest/PCB	O&G 1664	Mineral O&G SM5520F	pH	BOD	Conductivity	Turbidity	Apparent Color	TSS	TDS	TKS	RCRA Metals	Priority Pollutant Metals	TAL Metals	Hardness	Total Metals list:	Dissolved Metals list:	Ammonia	COD	TKN	TN	TOC	T-Phosphorus	Phenols	Bacteria P/A	Bacteria MPN	Cyanide	Sulfide	Nitrate + Nitrite	Ortho P	Nitrate	Nitrite	Chloride	Sulfate	Bromide	Fluoride	Corrosivity	Reactive CN	Reactive S-	Ignitibility/FP	TCLP Metals	TCLP VOC	TCLP SVOC	TCLP Pesticide	Subcontract:	Grain Size	Herbicides	Formaldehyde	PFC	Grab (G) or Composite (C)
☒	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒	☐	☒	☐	☐	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC	Project Name: Great Island
Company Address: 776 Main St Westbrook ME	Project #: 16001377
Report To: [illegible]@crederellc.com	Project Location: NH MA ME VT NI
Phone #: 207-828-1272	Accreditation Required? N/Y:
Invoice to: [illegible]@crederellc.com	Protocol: RCRA MCP SDWA NHDES NPDES DOD
Email:	Reporting Limits: (QAPP) EPA DW GW-1 S-1 Other
PO #:	Quote # 1249
	☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP
☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT
☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane
☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List
☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint
☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB
☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB
☐ O&G 1664 ☐ Mineral O&G SM5520F
☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color
~~☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity~~ ☐ Acidity ×C, +G
☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness
☒ ~~Total Metals-list:~~ Explosives (soil)
☒ ~~Dissolved Metals-list:~~ PAH w/SIM (soil)
☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC
☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN
☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P
☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride
☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP
☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide
Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC
8270 VPH
8081 [illegible]
[illegible]
Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER	8082 PCB	Grab (G) or Composite (C)
100 ✓	1300-12	1		X							4/11/18	1310	MED	X	G
101 ✓	1300-13	1										1315	SWT		
102 ✓	1300-14	1										1315	MED		
103 ✓	1300-15	1										1320	MED		
104 ✓	1300-16	1										1325	MED		
105 ✓	1300-17	1										1330	~~SWT~~ MED		
106 ✓	1300-19	1										1335	MED		
107 ✓	1300-18	1										1335	SWT		
108 ✓	1300-25	1										1340	SWT		
109 ✓	1300-24	1										1350	SWT		
110 ✓	1300-23	1										1355	SWT		

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis w/ soxhlet extraction for all samples on this page.

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ____°C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1420
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 716 Main St. Westbrook, ME
Report To: [illegible]
Phone #: 207-828-1272
Invoice to: [illegible]
Email:
PO #:

Project Name: Gould Island
Project #: 1661327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP GW-1 S-1 EPA DW Other
Quote # 7791
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP ☐ VOC BTEX MtBE only ☐ VOC 8021VT ☐ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List: ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB ☐ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB ☐ O&G 1664 ☐ Mineral O&G SM5520F ☐ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color ☐ TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness ☐ Total Metals-list: ☐ Dissolved Metals-list: Explosives (soil) PAH (soil) ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC 8270 PAH Soil Pesticides (soil) Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER
111	13CC 22	1		X							4/11/18	1400	SWT
112	38CC-1	1										1455	SWT
113	38CC-2	1										1500	SWT
114	38CC-3	1										1505	SWT
115	38CC-4	1										1510	SWT
116	38CC-5	1										1515	SWT
117	38CC-6	1										1520	SWT
118	39CC-1	1										1540	SWT
119	24CC-1	1										1555	SWT
120	EB13-041118	11	X			X	X	X			4/11/18	1400	SAF
121	10SD8	16		X						X	4/12/18	0905	SWT

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard (10 Business Days) ☐
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS
PCB analysis w/ Soxhlet extraction for 13CC-22, 38CC-1 through 38CC-6, 39CC-1, 24CC-1

REPORTING INSTRUCTIONS ☐ PDF (e-mail address) ☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE °C

CUSTODY RECORD
QSD-01 Revision 10/04/17

	Date	Time		Date	Time
Relinquished by Sampler:	4/13/18	1400	Received by:		
Relinquished by:			Received by:	4/13/18	1405
Relinquished by:			Received by Laboratory:		

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates LLC
Company Address: 776 Main St. Westbrook, ME
Report To: [illegible]@credereellc.com, [illegible]@credereellc.com
Phone #: 207-828-1272
Invoice to: [illegible]@credereellc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001377
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7779
❑ NH Reimbursement Pricing

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER
122 ✓	10SD6S	6		X						X	4/12/18	0920	SWT
123 ✓	10SD5S	6		↓						↓	↓	0930	↓
124 ✓	10SD5D	6		↓						↓	↓	0940	↓
125 ✓	10SD50D	6		↓						↓	↓	0942	↓
126 ✓	10SD7S	6		↓						↓	↓	0950	↓
127 ✓	10SD4S	6		↓						↓	↓	1010	↓
128 ✓	10SD2	20		↓						↓	↓	1035	↓
129 ✓	10SD3	6		↓						↓	↓	1100	↓
130 ✓	10SD1	6		↓						↓	↓	1120	↓
131	EB14-0412	12	X			X	X	X			↓	1400	AEI

ANALYSIS REQUEST

Analysis columns:
1. ☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ☒ 8270PAH ❑ 8270ABN ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G SM5520F
9. ☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ☒ ~~TSS~~ ~~TDS~~ ~~TS~~ ~~TVS~~ ~~Alkalinity~~ ~~Acidity~~ X Cr+6
11. ❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ☒ ~~Total Metals-list:~~ Explosives (sub)
13. ☒ ~~Dissolved Metals-list:~~ PAH w/SIM (sub)
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC
15. ❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC
21. 8270 PAH
22. 8081 Herbicides
23. Dioxin (sub)
24. Grab (G) or Composite (C)

Lab Sample ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
122	X		X		X	X	X		X	X	X	X	X									X		
123	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
124	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
125	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
126	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
127	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
128	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓					(MS/MSD)				↓		
129	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
130	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		
131	↓		↓		↓	↓	↓		↓	↓	↓	↓	↓									↓		

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard ❑
(10 Business Days)
*Date Needed_____

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ❑ PDF (e-mail address)
❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE _____°C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: Stacey W Towne	4/12/18	1400	Received by: [signature]	4/13/18	1400
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: [illegible] Associates, LLC
Company Address: [illegible] Main St. [illegible], ME
Report To: [illegible]@[illegible].com
[illegible]
Phone #: 207-828-1272
Invoice to: [illegible]
Email:
PO #:

Project Name: Gould Island
Project #: 16001377
Project Location: NH MA ME VT [illegible]
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: QAPP (circled) GW-1 S-1 EPA DW Other
Quote # 7779
☐ NH Reimbursement Pricing

ANALYSIS REQUEST

☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP; ☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT; ☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane; ☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List; ☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint; ☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB; ☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB; ☐ O&G 1664 ☐ Mineral O&G SM5520F; ☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color; ☒ ~~TSS ☐ TDS ☐ TS ☐ TVS ☐ Alkalinity ☐ Acidity~~ × Cr+6; ☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness; ☒ ~~Total Metals-list:~~ Extractables (sub); ☒ ~~Dissolved Metals-list:~~ PAH w/SIM (sub); ☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC; ☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN; ☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P; ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride; ☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP; ☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide; Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC; 8270 PAH; 8081 Pesticides; Dioxin (sub); Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	SOLID	OTHER	Preservation Method: HCl	HNO_3	H_2SO_4	NaOH	MeOH	Sampling: DATE	TIME	SAMPLER	Analyses
132	08DU4-1	1									4/6/18	1145	SJF	✓ VOC 8260, VPH, 8082 PCB, pH, Cr+6, PP Metals, Extractables, PAH w/SIM, 8270 PAH, 8081 Pesticides, Dioxin
133	08DU4-2	1									4/6/18	1150	SJF	(ditto)
134	08DU4-3	1									4/6/18	1155	SJF	(ditto)

ASD ASD ASD ASD ASD ASD

TAT REQUESTED
Priority (24 hr)* ☐
Expedited (48 hr)* ☐
Standard ☐
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☐ PDF (e-mail address)
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☒ YES ☐ NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/13/18	1400	Received by: [signature]	4/13/18	1400
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC

Company Address: 776 Main St. Westbrook, ME

Report To: smcnamara@crederellc.com admin@crederellc.com

Phone #: 207-828-1272

Invoice to: jenn@crederellc.com

Email:

PO #:

Project Name: Gould Island

Project #: 16001327

Project Location: NH MA ME VT RI

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other

Quote # 7279

☐ NH Reimbursement Pricing

ANALYSIS REQUEST

	Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	Matrix: WATER	Matrix: SOLID	Matrix: OTHER	Preservation: HCl	Preservation: HNO_3	Preservation: H_2SO_4	Preservation: NaOH	Preservation: MeOH	Sampling: DATE	Sampling: TIME	Sampling: SAMPLER	☒ VOC 8260 ☐ VOC 8260 NHDES ☐ VOC 8260 MADEP	☐ VOC 624 ☐ VOC BTEX MtBE, only ☐ VOC 8021VT	☒ VPH MADEP ☐ GRO 8015 ☐ 1,4-Dioxane	☐ VOC 524.2 ☐ VOC 524.2 NH List ☐ Gases-List:	☐ TPH ☐ DRO 8015 ☒ EPH MADEP ☐ TPH Fingerprint	☐ 8270PAH ☒ 8270ABN ☐ 625 ☐ EDB	☒ 8082 PCB ☐ 8081 Pesticides ☐ 608 Pest/PCB	☐ O&G 1664 ☐ Mineral O&G SM5520F	☒ pH ☐ BOD ☐ Conductivity ☐ Turbidity ☐ Apparent Color	☐ ~~TSS~~ ☐ ~~TDS~~ ☐ ~~TS~~ ☐ ~~TVS~~ ☐ ~~Alkalinity~~ ☐ ~~Acidity~~ x Cr+6	☐ RCRA Metals ☒ Priority Pollutant Metals ☐ TAL Metals ☐ Hardness + Mn	☒ ~~Total Metals list:~~ Explosives (sub)	☒ ~~Dissolved Metals list:~~ PAH w/SIM (sub)	☐ Ammonia ☐ COD ☐ TKN ☐ TN ☐ TON ☐ TOC	☐ T-Phosphorus ☐ Phenols ☐ Bacteria P/A ☐ Bacteria MPN	☐ Cyanide ☐ Sulfide ☐ Nitrate + Nitrite ☐ Ortho P	☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ Fluoride	☐ Corrosivity ☐ Reactive CN ☐ Reactive S- ☐ Ignitibility/FP	☐ TCLP Metals ☐ TCLP VOC ☐ TCLP SVOC ☐ TCLP Pesticide	Subcontract: ☐ Grain Size ☐ Herbicides ☐ Formaldehyde ☐ PFC	8270 VHH	8081 Pesticide	Dioxin (sub)	Grab (G) or Composite (C)
1	✓	BRMW2-0418	12	X			X	X				4/17/18	1105	MW	X		X		X	X	X			X	X	X	X											G
2	✓	3103MW1-0418	12	X			X	X				4/17/18	1230	SG	X		X		X	X	X			X	X	X	X											G
3	✓	2703MW1-0418	36	X			X	X				4/17/18	1245	MK	X		X		X	X	X			X	X	X	X		MS/MSD									G
4	✓	BRMW-4-0418	36	X			X	X				4/17/18	1410	MW	X		X		X	X	X			X	X	X	X		MS/MSD									G
5	✓	1803MW2-0418	12	X			X	X				4/17/18	1545	SG	X		X		X	X				X	X	X	X									X		G
6	✓	3003MW1-0418	12	X			X	X				4/17/18	1630	MK	X		X		X	X	X			X	X	X	X											G
7	✓	1208MW1-0418	10	X			X	X				4/18/18	1110	SG	X		X		X	X	X			X	X		X											G
8	✓	BRMW-5-0418	12	X			X	X				4/18/18	1115	MW	X		X		X	X	X			X	X	X	X											G
9	✓	1208MW2-0418	10	X			X	X				4/18/18	1305	SG	X		X		X	X	X			X	X		X									TAK 4/18		G
10	✓	BRMW-3-0418	12	X			X	X				4/18/18	1310	MW	X		X		X	X	X			X	X	X	X											G
11	✓	10PZ3-0418	12	X			X	X				4/18/18	1400	MK	X		X		X	X				X	X	X	X									X		G

TAT REQUESTED
- Priority (24 hr)* ☐
- Expedited (48 hr)* ☐
- Standard (10 Business Days) ☒
- *Date Needed________

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS • MS/MSDs for 2703MW1-0418, BRMW-4-0418 • NO Pesticide on 1208MW2-0418!
• Please include Manganese analysis w/ priority pollutant metals list!
• 1st sample listed on Chain is BRMW-2-0418 (has two dashes not one)

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) See above
☐ HARD COPY REQUIRED ☐ EDD

RECEIVED ON ICE ☐YES ☐NO
TEMPERATURE ________ °C

CUSTODY RECORD

	Date	Time		Date	Time
Relinquished by Sampler: [signature]	4/19/18	0840	Received by: [signature]	4/19/18	8:40
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

QSD-01 Revision 10/04/17

Absolute Resource associates
124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Company Name: Credere Associates, LLC
Company Address: 776 Main St. Westbrook, ME
Report To: smcnamara@crederellc.com
admin@crederellc.com
Phone #: 207-828-1272
Invoice to: jen@crederellc.com
Email:
PO #:

Project Name: Gould Island
Project #: 16001327
Project Location: NH MA ME VT RI
Accreditation Required? N/Y:
Protocol: RCRA SDWA NPDES MCP NHDES DOD
Reporting Limits: (QAPP) GW-1 S-1 EPA DW Other
Quote # 7279
❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	☒ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP	❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT	☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane	❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:	❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint	☒ 8270PAH ❑ 8270ABN ❑ 625 ❑ EDB	☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB	❑ O&G 1664 ❑ Mineral O&G SM5520F	☒ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color	~~❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity ❑ Acidity~~ X Cr+6	❑ RCRA Metals ☒ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness TMH	☒ ~~Total Metals list:~~ Explosives (sub)	☒ ~~Dissolved Metals list:~~ PAH w/ SIM (sub)	❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC	❑ T-Phosphorus ❑ Phenols ❑ Bacteria P/A ❑ Bacteria MPN	❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P	❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride	❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ❑ Ignitibility/FP	❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide	Subcontract: ❑ Grain Size ❑ Herbicides ❑ Formaldehyde ❑ PFC	8270 PAH	8081 Pesticide	Dioxin (sub)	Grab (G) or Composite (C)
12	10PZ30-0418	3	X								4/18/18	1402	MK												X										X		G
13	BRMW-1-0418	12	X			X	X				4/18/18	1540	MW	X		X		X	X	X			X	X	X	X											G
14	BRMW-10-0418	12	X			X	X				4/18/18	1542	MW	X		X		X	X	X			X	X	X	X											G
15	APOBMW2-0418	10	X			X	X				4/18/18	1615	SG	X		X		X	X	X			X	X		X											G
16	APOBMW20-0418	10	X			X	X				4/18/18	1617	SG	X		X		X	X	X			X	X		X											G
17	EB15-0418	12	X			X	X				4/18/18	1700	MW	X		X		X	X	X			X	X	X	X											G
18	TB8-0419	1	X			X								X		X																					-

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard (10 Business Days) ☒
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ☒ PDF (e-mail address) See above
❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO
TEMPERATURE °C

CUSTODY RECORD

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Sampler: [signature]	4/19/18	0840	Received by: [signature]	4/19/18	8:40
Relinquished by:			Received by:		
Relinquished by:			Received by Laboratory:		

PAGE 1 OF 1

Absolute Resource associates

124 Heritage Avenue #16
Portsmouth, NH 03801
603-436-2001
absoluteresourceassociates.com

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Lab ID Here

Company Name: Credere

Company Address: 776 Main St, Westbrook, ME

Report To: [illegible]

Phone #: [illegible]

Invoice to:

Email: [illegible]

PO #:

Project Name: [illegible]

Project #: 16001322

Project Location: NH MA ME VT RT

Accreditation Required? N/Y:

Protocol: RCRA SDWA NPDES MCP NHDES DOD

Reporting Limits: QAPP GW-1 S-1 EPA DW Other

Quote #

❑ NH Reimbursement Pricing

ANALYSIS REQUEST

Analysis columns:
1. ❑ VOC 8260 ❑ VOC 8260 NHDES ❑ VOC 8260 MADEP
2. ❑ VOC 624 ❑ VOC BTEX MtBE, only ❑ VOC 8021VT
3. ☒ VPH MADEP ❑ GRO 8015 ❑ 1,4-Dioxane
4. ❑ VOC 524.2 ❑ VOC 524.2 NH List ❑ Gases-List:
5. ❑ TPH ❑ DRO 8015 ☒ EPH MADEP ❑ TPH Fingerprint
6. ❑ 8270PAH ❑ 8270ABN ❑ 625 ❑ EDB
7. ☒ 8082 PCB ❑ 8081 Pesticides ❑ 608 Pest/PCB
8. ❑ O&G 1664 ❑ Mineral O&G 1664
9. ❑ pH ❑ BOD ❑ Conductivity ❑ Turbidity ❑ Apparent Color
10. ❑ TSS ❑ TDS ❑ TS ❑ TVS ❑ Alkalinity ❑ Acidity
11. ❑ RCRA Metals ❑ Priority Pollutant Metals ❑ TAL Metals ❑ Hardness
12. ❑ Total Metals-list:
13. ❑ Dissolved Metals-list:
14. ❑ Ammonia ❑ COD ❑ TKN ❑ TN ❑ TON ❑ TOC ❑ Ferrous Iron
15. ❑ T-Phosphorus ❑ Bacteria P/A ❑ Bacteria MPN ❑ Enterococci
16. ❑ Cyanide ❑ Sulfide ❑ Nitrate + Nitrite ❑ Ortho P ❑ Phenols
17. ❑ Nitrate ❑ Nitrite ❑ Chloride ❑ Sulfate ❑ Bromide ❑ Fluoride
18. ❑ Corrosivity ❑ Reactive CN ❑ Reactive S- ☒ Ignitibility/FP
19. ❑ TCLP Metals ❑ TCLP VOC ❑ TCLP SVOC ❑ TCLP Pesticide
20. Subcontract: ❑ Grain Size ☒ Herbicides ❑ Asbestos ❑ PFAS
21. [illegible]
22. [illegible]
23. [illegible]
24. Grab (G) or Composite (C)

Lab Sample ID (Lab Use Only)	Field ID	# CONTAINERS	WATER	SOLID	OTHER	HCl	HNO_3	H_2SO_4	NaOH	MeOH	DATE	TIME	SAMPLER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	[illegible]1-0418	2	X			X					4.11.18	0930	[illegible]			X																					
	WC-D1	3	X						X																						X		X	X	X	X	
	WC-D2	3	X						X			[illegible]	[illegible]																		X		X	X	X	X	
	WC-D3	3	X						X			1020	[illegible]																		X		X	X	X	X	
	16WG-1	3	X			X						1115	[illegible]			X		X		X																	
	16SL-1	4		X						X		1155	[illegible]			X		X		X																	
	TB[illegible]-420	[illegible]				X										X																					
	TB[illegible]-0420	[illegible]								X						X																					

TAT REQUESTED
Priority (24 hr)* ❑
Expedited (48 hr)* ❑
Standard ❑
(10 Business Days)
*Date Needed

See absoluteresourceassociates.com for sample acceptance policy and current accreditation lists.

SPECIAL INSTRUCTIONS

REPORTING INSTRUCTIONS ❑ PDF (e-mail address) [illegible]

❑ HARD COPY REQUIRED ❑ EDD

RECEIVED ON ICE ❑YES ❑NO

TEMPERATURE ______ °C

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:	Date	Time
[signature]	[illegible]	[illegible]	[signature]	4/23/17	1020
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by Laboratory:	Date	Time

QSD-01 Revision 3/12/18